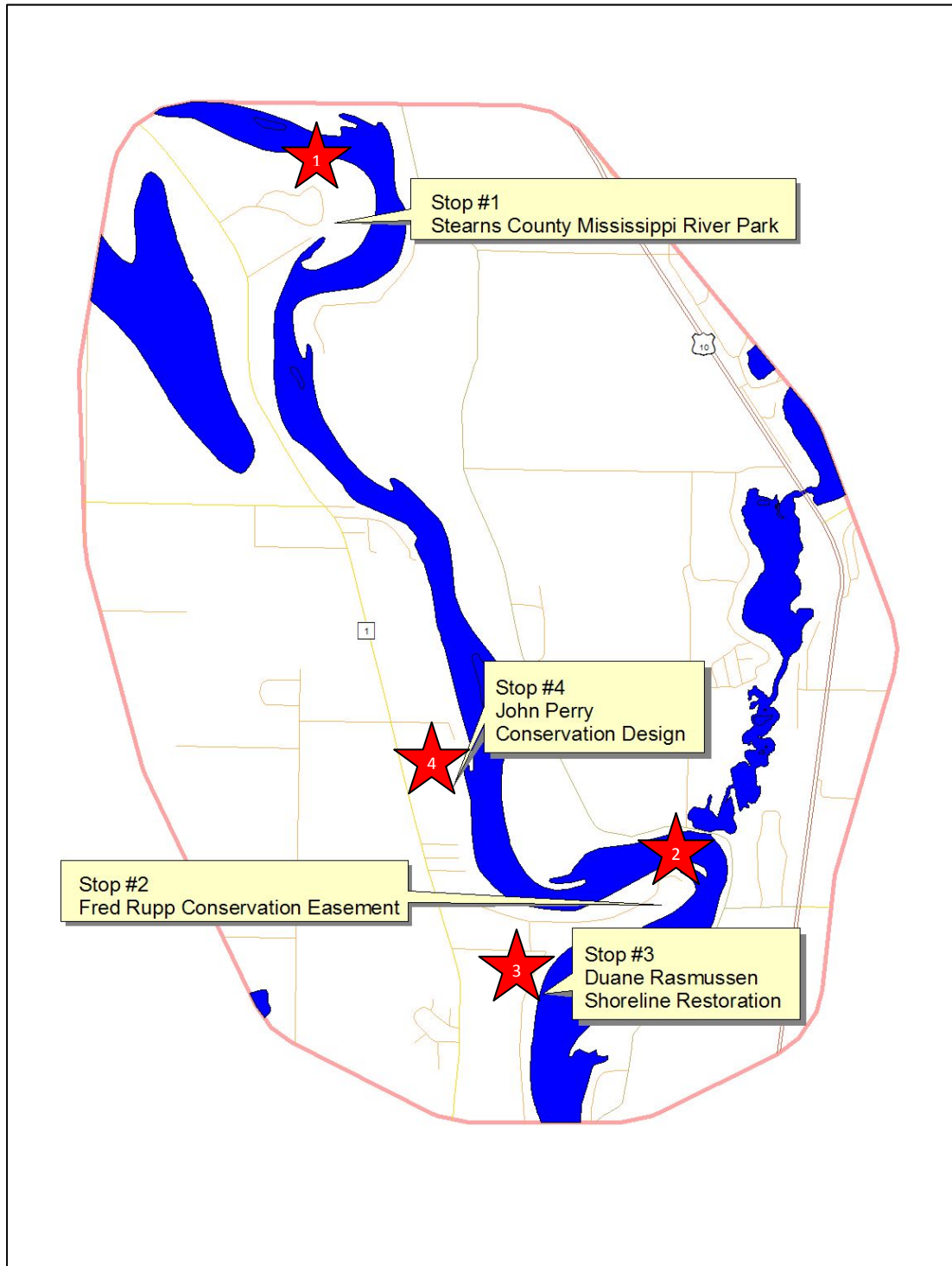


Land Use Impacts in the Shoreland Zone

*Continuation of the Mississippi River Renaissance (MRR) Project
A Northland NEMO Lessons Across the Landscape Workshop*



September 2010

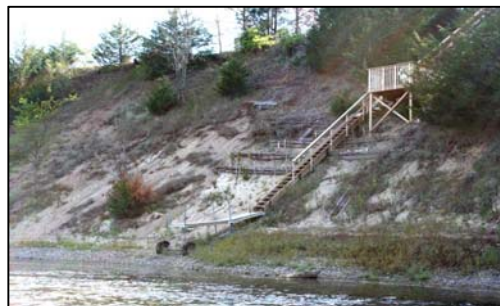
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Learning Station 1: Impacts from altered and destabilized shorelines

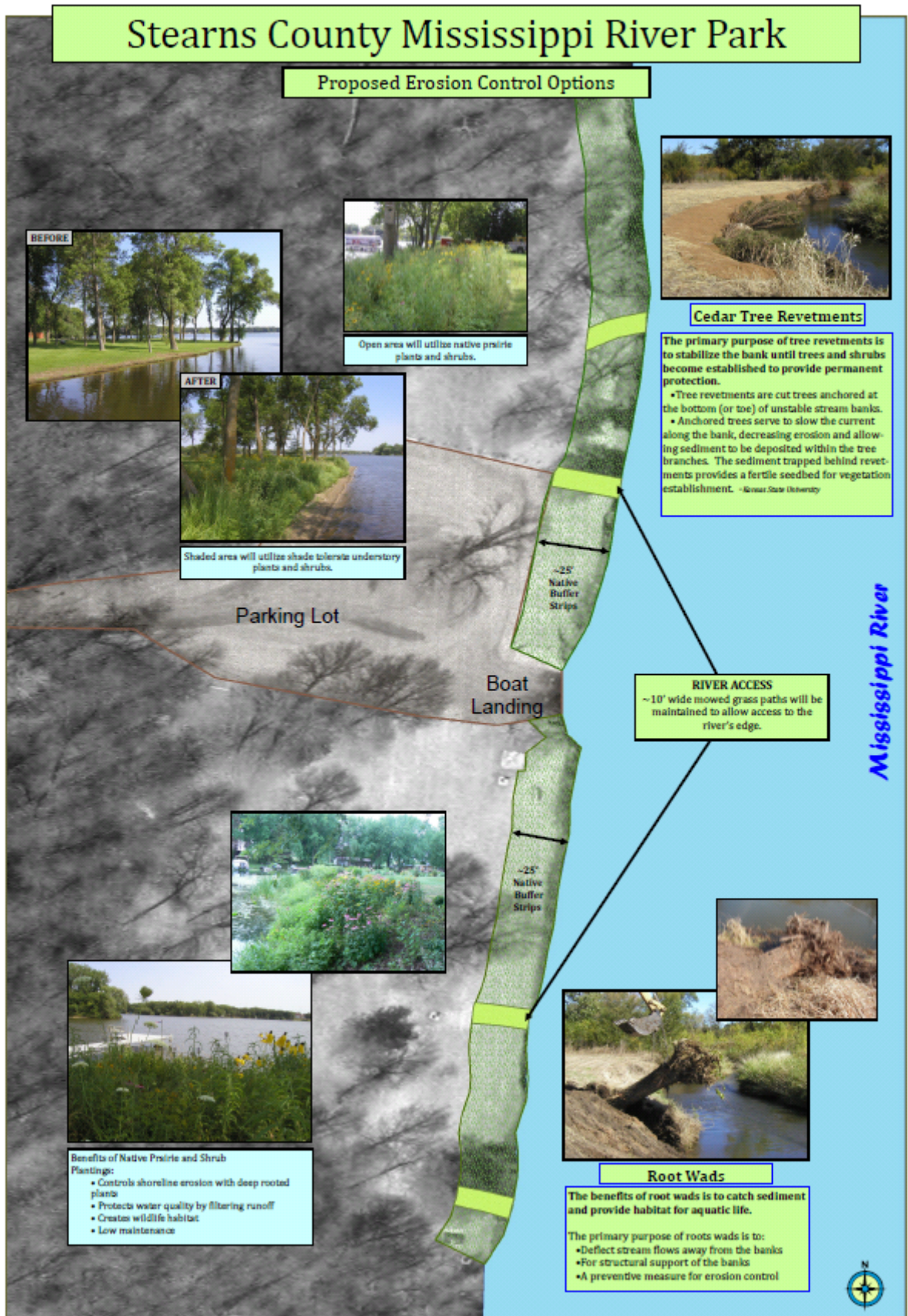
Stearns County Mississippi River County Park

- Shorelines, shoreland, and corridors
 - The **shoreline** is where the water meets the land.
 - The **shoreland zone** is 300 feet from a river or stream (*or the lateral extent of the floodplain*) and 1000 feet from a lake.
 - The **river corridor** stretches 3280 feet (1000 meters *or about 3/5th of a mile*).
- **Shore Impact Zone is the area immediately adjacent to the lake or river that is critical to preserving water quality, wildlife habitat and visual screening of the developed area farther back from the shore.** Within it, restrictions apply to the placement and size of structures, vegetation removal and shoreland alterations (grading and filling). The distance is measured from the OHW – ordinary high water level.
- Shoreline alterations can **decrease water quality by increasing sediment load to the river**. This sediment comes from **shoreline erosion** and **increased runoff** from shoreland areas, which can be significant sources of pollution.
- **Vegetation removal results in loss of shoreline property due to erosion, reduces privacy, increases noise, and decreases property values.**
- Vegetation removal also **destroys underwater habitat and allow waves to stir sediment, destroying spawning and feeding areas - and providing an opening for invasive aquatic plants**. All fish rely on the shoreline and are affected by these activities.
- Loss of habitat has resulted in measured declines in fish, songbird diversity, and frog populations.
- Some shoreland erosion in a river setting is expected, due to the nature of river systems (meandering within their floodplains), however shoreland alterations can destabilize and greatly accelerate bank erosion.



What can you do? *Local leaders can...*

- Play an active role by providing education to property owners about the impacts from altering or destabilizing the riverbank. Have an education plan and make education a top priority.
- Identify the shoreline problems in publicly owned parks and open space that contribute negative impacts to water quality and threaten the shared Vision for the Future of the Mississippi River in Central Minnesota.
- Work with local agencies to implement restoration projects on publicly owned shoreline and make shoreland property in parks and open space a demonstration and learning site for the public. Invest in signage and outreach programs.





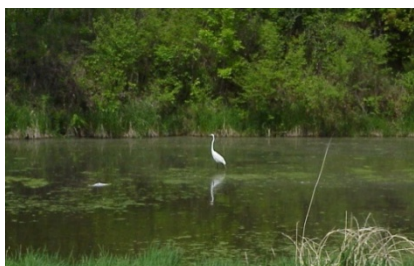
Learning Station 2: Natural shorelines

Characteristics, benefits, and tools to protect them
Pine Point, Fredrick Rupp property



- Every parcel on the Pine Point peninsula has some property within the shoreland zone.
- Vegetation along natural shorelines protects the land from the water, and the water from the land.
 - **Emergent vegetation breaks up wave action; deep rooted plants anchor and stabilize the shoreline, protecting it from erosion.**
 - Shoreline plants help water quality by capturing and holding rainfall and pollution. **Shorelines with manicured lawns contribute 6x as much phosphorus** compared to natural shorelines!
- **Natural shorelines provide critical habitat** for wildlife like songbirds, waterfowl, beneficial insects, turtles, foxes, fish, and the aquatic plants, trees, and shrub, grasses, and wildflowers they rely upon for feeding, nesting, and cover. Dead trees standing on shore or lying in the water are especially important habitat.
- **Natural shorelines provide noise reduction, visual diversity, increased privacy, increased groundwater recharge, and increased property values.**

Tools for protection



A **Conservation easement** is a legal agreement between a landowner and an eligible organization that restricts future activities on the land to protect its conservation values.

- They can protect various types of natural landscapes including unique habitats, groundwater recharge areas (for public water supplies), and locations of rare species.
- Easements vary in protections and restrictions, but may prohibit land uses that would severely alter the landscape or threaten what they are there to protect. Easements may prohibit buildings, extraction of sand and gravel, agricultural uses, or the placements of roads.
- **Public access may or may not be included** in the easement agreement and is not required.
- Most conservation easements are **perpetual** – meaning they are in place forever.
- Some conservation easement programs offer various financial benefits to landowners. Land owners may be eligible for income, estate, or property tax benefits.
- Conservation easements are often managed and enforced by local units of government or by a qualified conservation organization.

What can you do? Local leaders can...

- Help educate and support education programming to land owners about the benefits of keeping their shorelines natural.
- Manage publicly owned natural shorelines to keep a healthy, diverse population of plants and animals on the shore.
- Get informed! Educate yourself about tools for natural shoreline protection. Participate in near future education and training opportunities regarding conservation tools.



Learning Station 3: Shoreline Restoration

Duane Rasmussen Property, Via Riveria Estates

- The value of natural shorelines lost to alteration **can be restored** – if the proper techniques are chosen and the restoration project is properly designed, installed and maintained.
- It's much more expensive to restore shoreline than it is to protect it.



Minimal lawn to river buffer

Severe bank slump, erosion



Project specifics:

- About 200 Feet of shoreline restored in 2006.
- Rock riprap and native vegetation was used for **bank stabilization and erosion control**.
- **Proper restoration also required a minimal buffer of non-mowed vegetation.** It was also required for cost share & technical assistance from the Stearn's County SWCD.
- The required buffer is 25 feet wide and includes trees, shrubs, vines, native grasses and wildflowers.
- Total project cost was about \$30,000. Landowner received a 75% cost share from the SWCD.



Hard armor to protect the shoreline

Wide native buffer



IMPACT: An estimated sediment reduction of 55 tons/year and a phosphorus reduction of 47 lbs/year

What can you do? Local leaders can...

- Promote shoreline restoration with private landowners.
- Establish polices that limit vegetation clearing and other alterations to what is needed for reasonable access.
- Use and promote the use of the Restore Your Shore resource , which can be found at <http://www.dnr.state.mn.us/restoreyourshore/index.html>



Learning Station 4: Land Use Planning & Management Tools

Supporting the Vision

Host site: Jon Perry Property

Conservation easements, conservation design, and conservation overlay districts are three of the land use planning tools local leaders can use to connect the community to the River and **implement the shared Vision for the Future of the Mississippi River in Central Minnesota.**

- Local elected and appointed leaders have a unique and critical role in planning and projecting into the future how the community will connect to the River.

Conservation design is altering the traditional site design of a development in a way that preserves the important natural and cultural features.

In conservation design,

- Unique and valuable natural areas are identified,
 - roads and homes are placed on the site to minimize the impacts to these natural areas,
 - long term protection is provided to the open spaces,
 - runoff is minimized and treated on site,
 - viewsheds are preserved,
 - habitat connectivity from within and outside of the development is preserved or enhanced,
 - and community growth is allowed to continue.
- Example: Rekers charette

Conservation overlays are a land use policy that identifies specific 'zones' within a district that allow for protection of natural resources while allowing development to occur.

- A conservation overlay district **either allows or requires** the suppression of the underlying zoning restrictions for the purpose of preserving natural features.
 - *This could include increasing home densities, reducing setbacks, relaxing height restrictions in exchange for protecting and buffering important plant communities.*
- Overlay districts **commonly follow a prominent natural feature** or features that the overlay district is designed to preserve.
- The **benefits** of overlay districts include:
 - They provide a platform for **landscape-wide decisions** to be made during development.
 - Natural resource features that **may extend over many properties** can be considered while **each individual property is developed.**
 - It allows for the **creativity of developers, landowners and local units of government to fully explore conservation design activities.**
- Challenges to the adoption of conservation overlay districts include educating the public, consultants and local units of government of their uses, benefits and adopting to change.
- *Examples: Stearns County's (Avon Hills) Natural Resource Conservation Design Overlay District and the City of Sauk Rapids Conservation Overlay District.*

What can you do? Local leaders can...

- Require conservation design or remove the barriers for conservation design by adopting conservation overlay districts.
- Work collaboratively with land developers to maximize natural resource protection in proposals while still accommodating for growth and redevelopment.
- Participate in near future education and training opportunities regarding conservation tools (to be offered through the MRR Project, Minnesota DNR, and the U of MN Extension during the next year).

About the Mississippi River Renaissance Project

The Mississippi Renaissance Project provides the support necessary to focus the power of local units of government to act collaboratively for the purpose of preserving and enhancing the functions and values of the Mississippi River corridor in Central Minnesota. The MRR focuses on a 27-mile stretch of the Mississippi River from the Blanchardt Dam just north of the city of Royalton to the 10th Street Bridge within the city of St. Cloud. Communities include the cities of St. Cloud, Sauk Rapids, Sartell, Rice, and St. Stephen, the townships of Langola, Brockway, Watab, LeSauk, Sauk Rapids, and the counties of Stearns and Benton. The MRR Project is supported through a grant from the McKnight Foundation. The Project is administered by Kimberly Thielen Cremers, Central Minnesota Mississippi River Renaissance Coordinator hosted by the Stearns Soil and Water Conservation District.

About NEMO

NEMO or *Nonpoint Education for Municipal Officials* is an education and training program that builds the knowledge and skills of local decision makers, elected & appointed officials, and community leaders in the area of water and natural resource management. NEMO Programs provide resources that hopefully lead to more informed land use decisions for the community. Northland NEMO is coordinated and led in part by the University of Minnesota Extension and Minnesota Sea Grant Programs with the support and participation of many local and state partners. Visit www.northlandnemo.org for more information.

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University of Minnesota Extension- Northland NEMO Program