Wisconsin DNR
Best Management Practices & Permitting of Municipal Transportation Projects

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February 2016

Wisconsin Waters Belong to Everyone

The Wisconsin Constitution declares that all **navigable waters**

"shall be common highways and forever free",

and held in trust by the Department of Natural Resources.

(Wisconsin Constitution, Article IX, Section 1)

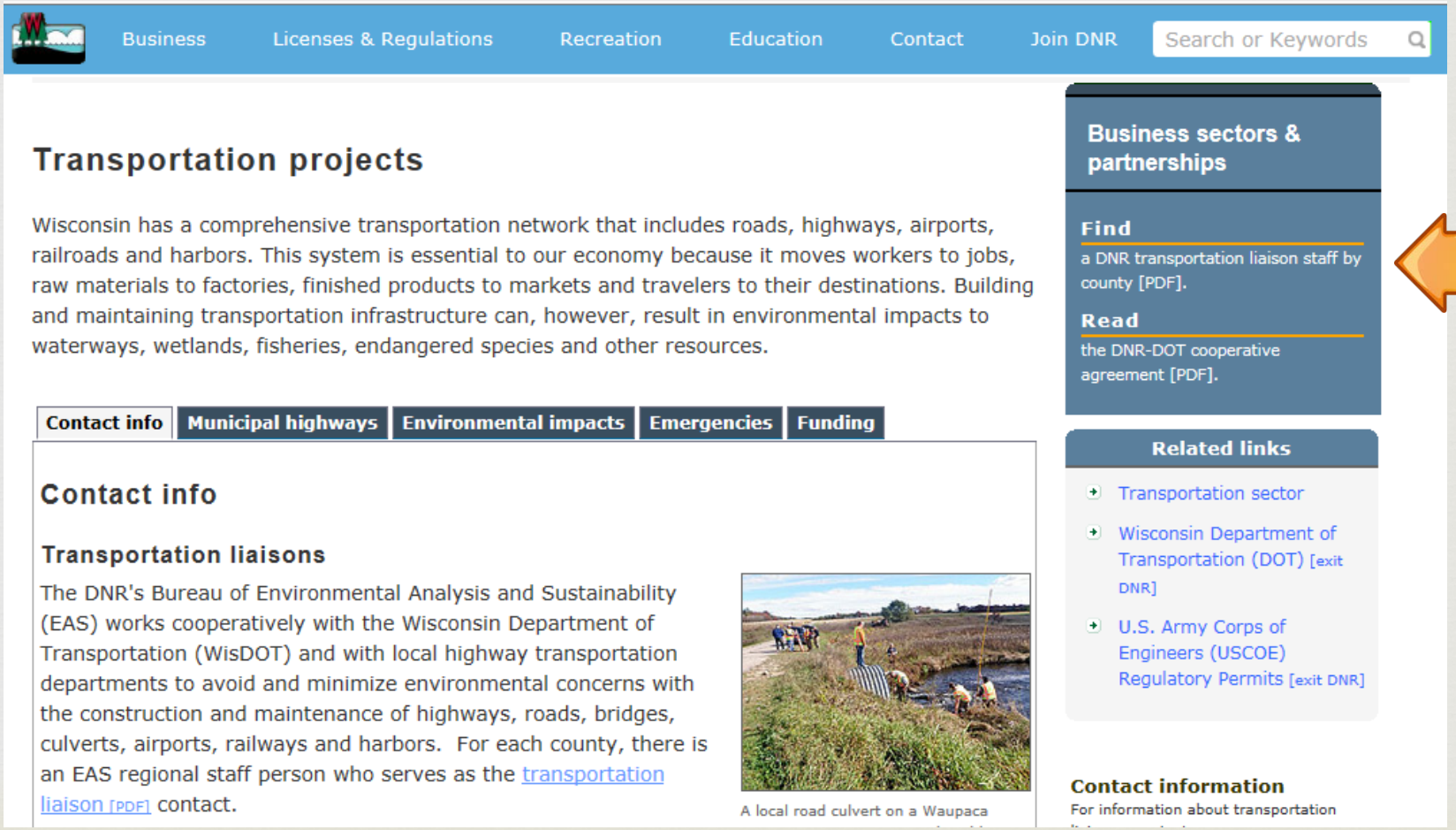
Road / Stream Crossings in Wisconsin

- USH = 1982
- Interstate highway = 817
- State Highway = 5341
- County Roads = 12776
- Town Roads = 41055

- Total Road / Stream Crossings in WI = 61971

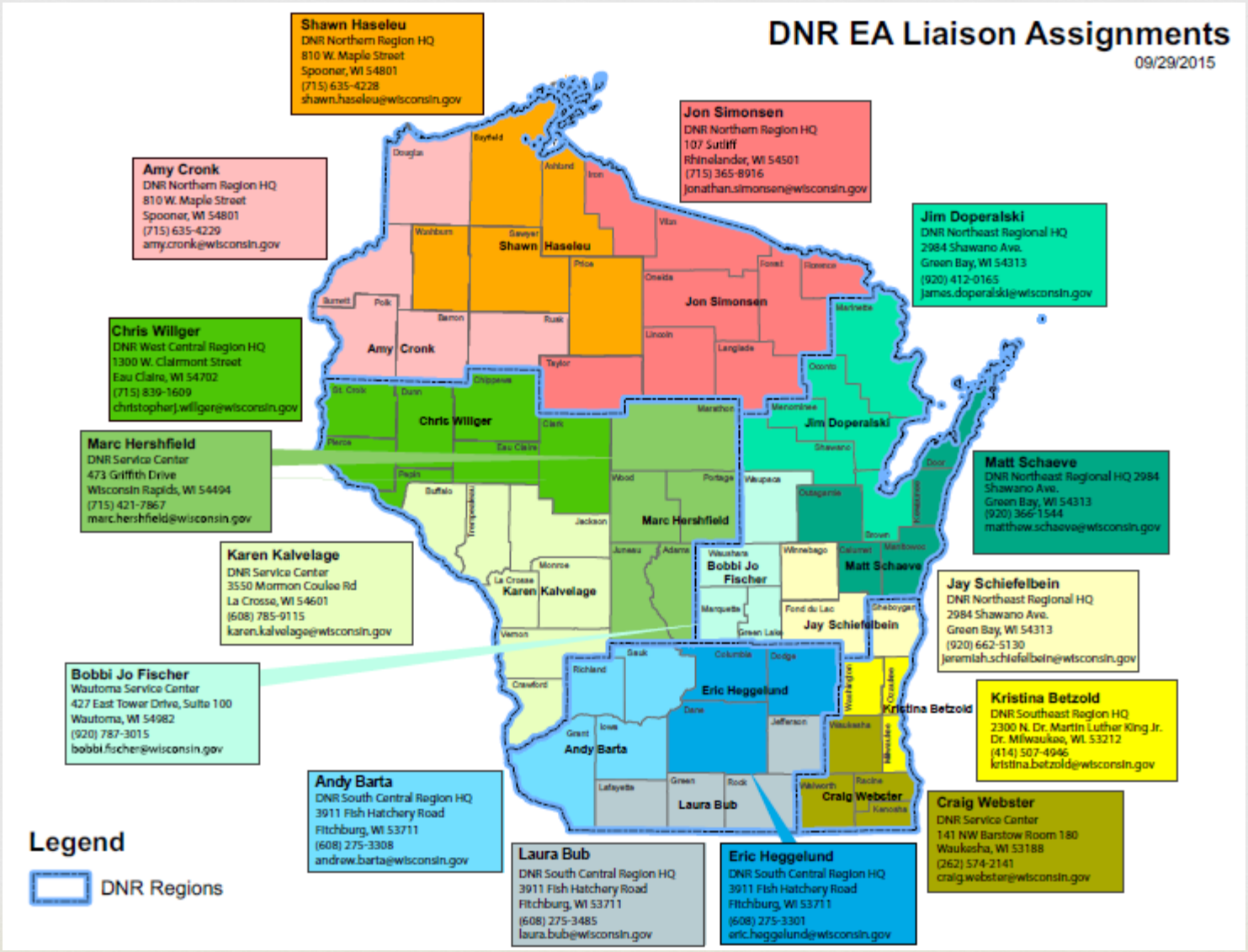
Where to find information on the WDNR web site:

dnr.wi.gov - Keyword "Transportation"



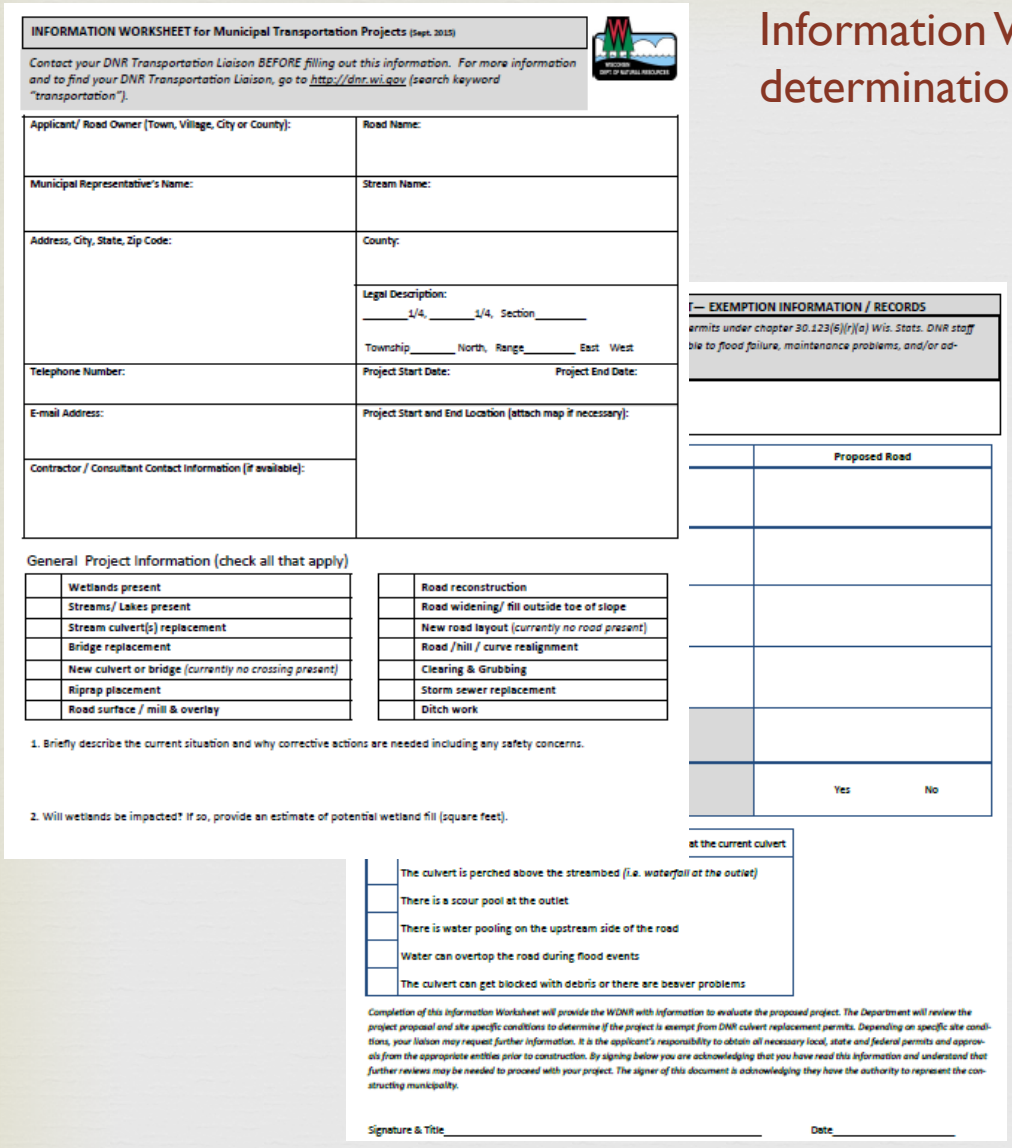
Municipalities should contact WDNR FIRST!

Every county has a Transportation Liaison and contact information can be found on the DNR web page – dnr.wi.gov.



Who else do you need to be contact before you begin your project?

- Local / County Shoreland Zoning (Floodplain Zoning)
- US Army Corps of Engineers
- The WDNR Transportation Liaison can help your determine if you will need a WDNR Stormwater permit



INFORMATION WORKSHEET for Municipal Transportation Projects (Sept. 2015)

Contact your DNR Transportation Liaison BEFORE filling out this information. For more information and to find your DNR Transportation Liaison, go to http://dnr.wi.gov (search keyword "transportation").

Applicant/ Road Owner (Town, Village, City or County):	Road Name:
Municipal Representative's Name:	Stream Name:
Address, City, State, Zip Code:	County:
	Legal Description: _____1/4, _____1/4, Section_____ Township_____ North, Range_____ East West
Telephone Number:	Project Start Date: Project End Date:
E-mail Address:	Project Start and End Location (attach map if necessary):
Contractor / Consultant Contact Information (if available):	

General Project Information (check all that apply)

Wetlands present	
Streams/ Lakes present	
Stream culvert(s) replacement	
Bridge replacement	
New culvert or bridge *(currently no crossing present)*	
Riprap placement	
Road surface / mill & overlay	
	Road reconstruction
	Road widening/ fill outside toe of slope
	New road layout *(currently no road present)*
	Road /hill / curve realignment
	Clearing & Grubbing
	Storm sewer replacement
	Ditch work

1. Briefly describe the current situation and why corrective actions are needed including any safety concerns.

2. Will wetlands be impacted? If so, provide an estimate of potential wetland fill (square feet).

— EXEMPTION INFORMATION / RECORDS

ermits under chapter 30.123(6)(r)(a) Wis. Stats. DNR staff ble to flood failure, maintenance problems, and/or ad-

	Proposed Road
	Yes No

at the current culvert

	The culvert is perched above the streambed *(i.e. waterfall at the outlet)*
	There is a scour pool at the outlet
	There is water pooling on the upstream side of the road
	Water can overtop the road during flood events
	The culvert can get blocked with debris or there are beaver problems

Completion of this Information Worksheet will provide the WDNR with information to evaluate the proposed project. The Department will review the project proposal and site specific conditions to determine if the project is exempt from DNR culvert replacement permits. Depending on specific site conditions, your liaison may request further information. It is the applicant's responsibility to obtain all necessary local, state and federal permits and approvals from the appropriate entities prior to construction. By signing below you are acknowledging that you have read this information and understand that further reviews may be needed to proceed with your project. The signer of this document is acknowledging they have the authority to represent the constructing municipality.

Signature & Title_____ Date_____

Information Worksheet for exemption determination requests and general permits

Great for **keeping records** as described in Ch. 30.123(9)

****

RECORDS. A city, village, town, or county that replaces a culvert and that is exempt from the permitting requirements under sub. (6) shall make and retain a record of the replacement of the culvert. The record shall include all of the following information:

*30.123(9)(a) **(a)** The date on which the replacement culvert was constructed or placed.*

*30.123(9)(b) **(b)** The dimensions of the replacement culvert.*

*30.123(9)(c) **(c)** The location of the replacement culvert.*

Helps with **record keeping** especially **in case of an emergency**.

What else does the Information Worksheet do?

- Shares **contact information** with WDNR
- Describes the **what, where** and **why** of a project
- Can be used in place of the **WRAPP** (*Water Resources Application for Project Permits)* if a WDNR permit is needed on a project
- **Can be used by WDNR to determine if a replacement culvert project is exempt from WDNR permitting**

Culvert exemption language from Wisconsin Act 55, signed July 12, 2015

> The construction or placement and the maintenance of a replacement culvert that is placed in substantially the same location as the culvert being replaced if the replacement culvert is constructed or placed using best management practices to comply with water quality standards under subchapter II of chapter 281 [exit DNR].

Best Management Practices = BMPs

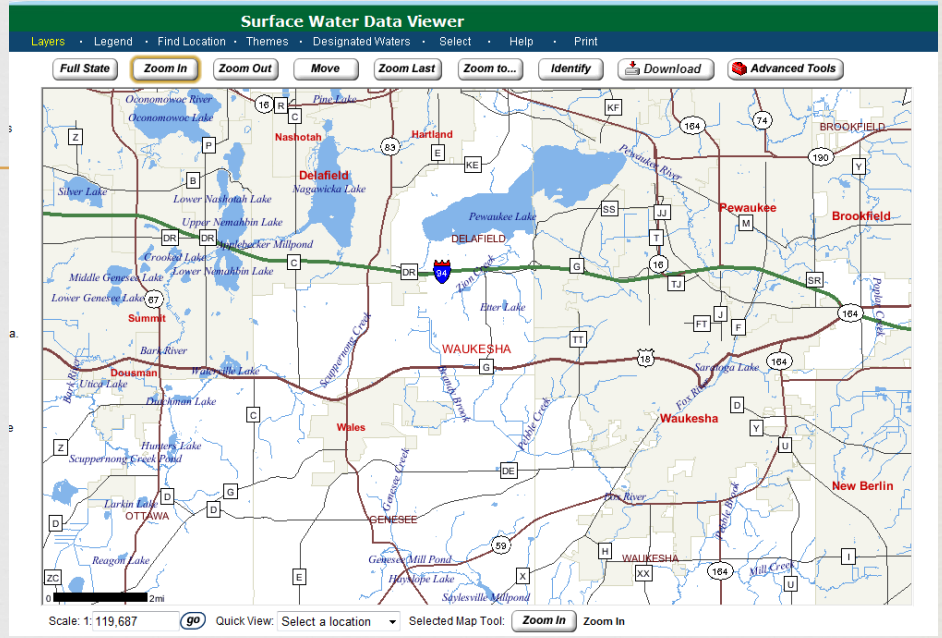
Wisconsin's best management practices for water quality are intended to provide *simple* and *cost-effective methods* for protecting water quality in lakes, streams and wetlands **before**, **during** and **after** construction activities.

Before Construction

Get to know your project area!

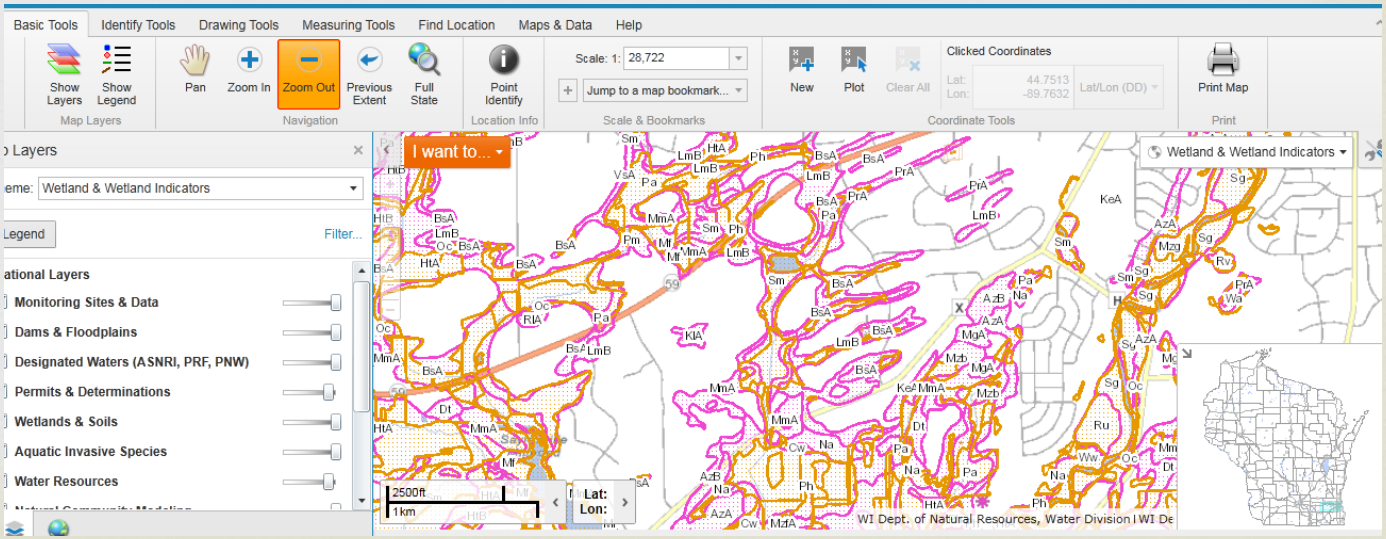
Look at your project area online

http://dnr.wi.gov/maps



Is there a waterway?

Are there wetlands that might be impacted by the project?



Do I need a permit?

Is it a wetland??

The presence of water at or near the ground surface for a portion of the year.

The presence of plants adapted to living in wet conditions.

The presence of hydric soils, which develop under wet conditions.


Look out for….
Wetlands next to the road
11.16.2010 15:24

The Transportation Liaison will work with DNR experts to determine the amount and type of boating use in at the project location.

Navigation requirements based on use of the waterway.

Projects need to consider wildlife (including Threatened and Endangered Resources) Impacts & Passage

Turtle nesting along road shoulder

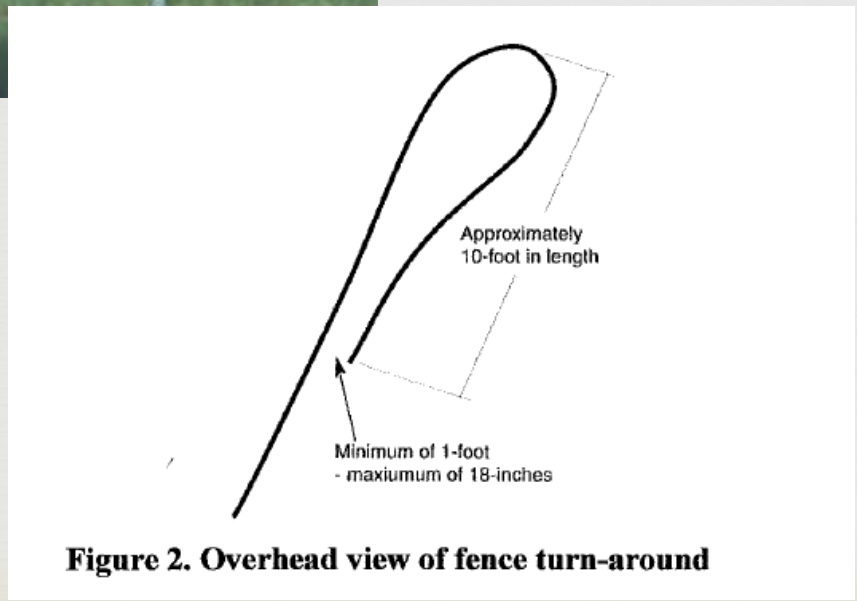


Figure 2. Overhead view of fence turn-around

Sometimes a ditch....

....is not a ditch!
Sometimes
it's a stream!

Ditch Maintenance:

If you are proposing to change the **depth, width**, or **direction of flow** in an existing ditch through a wetland or near a waterway, *please contact the local WDNR Transportation Liaison.* **Ditching in wetland areas….**

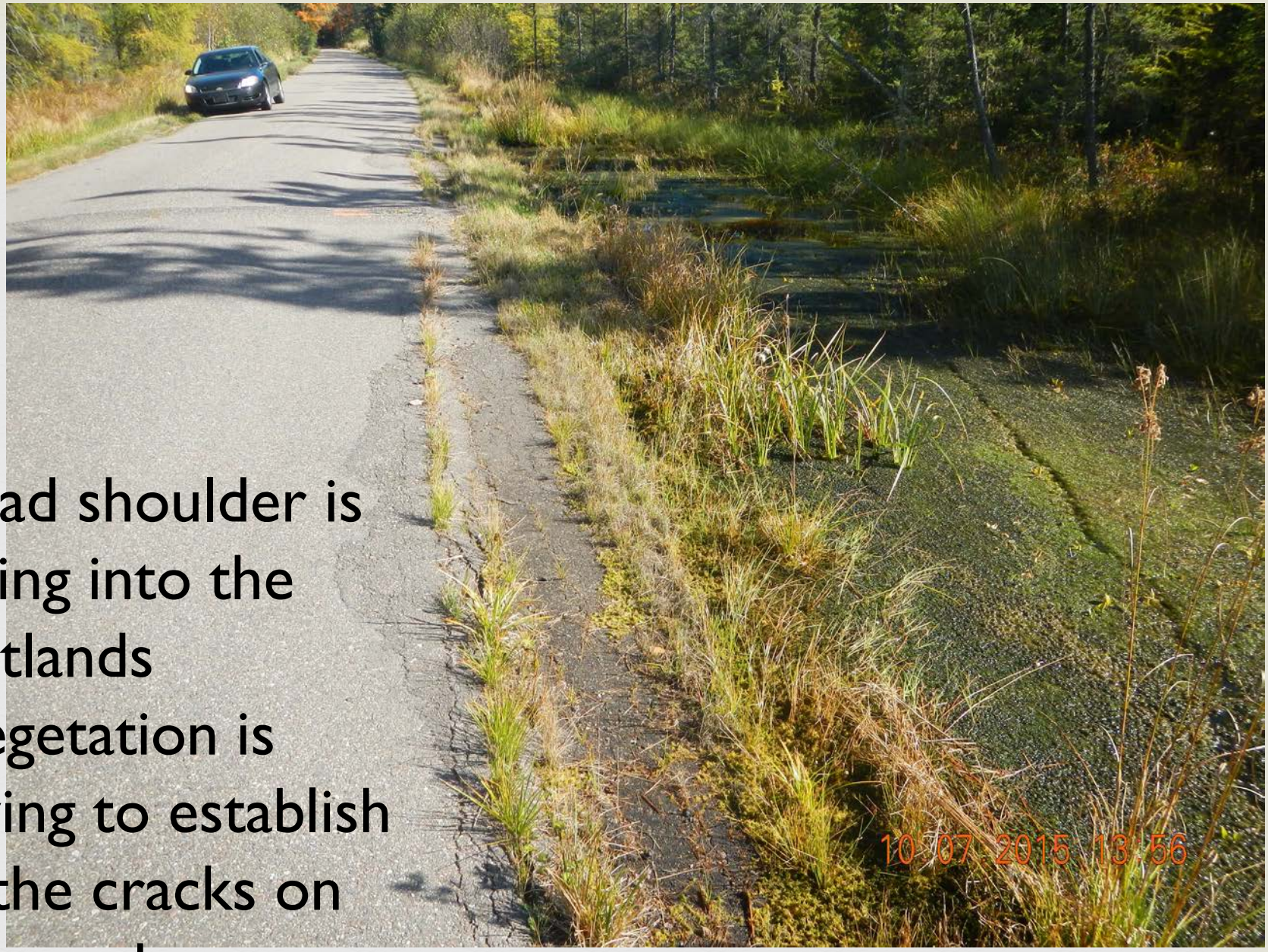
- Rarely provides the desired drainage
- Can result in water pooling at the base of the road.
- The outcome could be a **saturated road base**
  - More **road maintenance**
  - More **cost**

Work with DNR and USACE to find a solution!

Sometimes cross-culverts or raising the road and improving the road base will help.

In 2010, ditching was completed in a wetland next to a town road to improve drainage.

2015 - The culvert installed to improve drainage is popping up in the roadway



Road shoulder is falling into the wetlands avegetation is trying to establish in the cracks on the road

Before Design-
Early
Coordination with
DNR may include
an onsite meeting.

Something to consider:

Is the stream or road taking a beating?

Consider the factors that may influence structure options

Structure options may be limited in areas with minimal road fill.

If you have a road that is over-topping at a stream, you may want to consider **multiple structure types** to determine which **size, shape and elevation** is appropriate at that location.

A plunge pool on the downstream end of a culvert may be an indication of a culvert that is not properly sized or placed.


Gravel deposits in floodplain from frequent road failures may indicate that the culvert is not appropriately sized or place under the road
05.04.2011 10:58

Road-Stream Crossings As Barriers To Fish and Wildlife Movement

Barrier to fish due to high velocity due to under-sized and incorrectly placed culvert

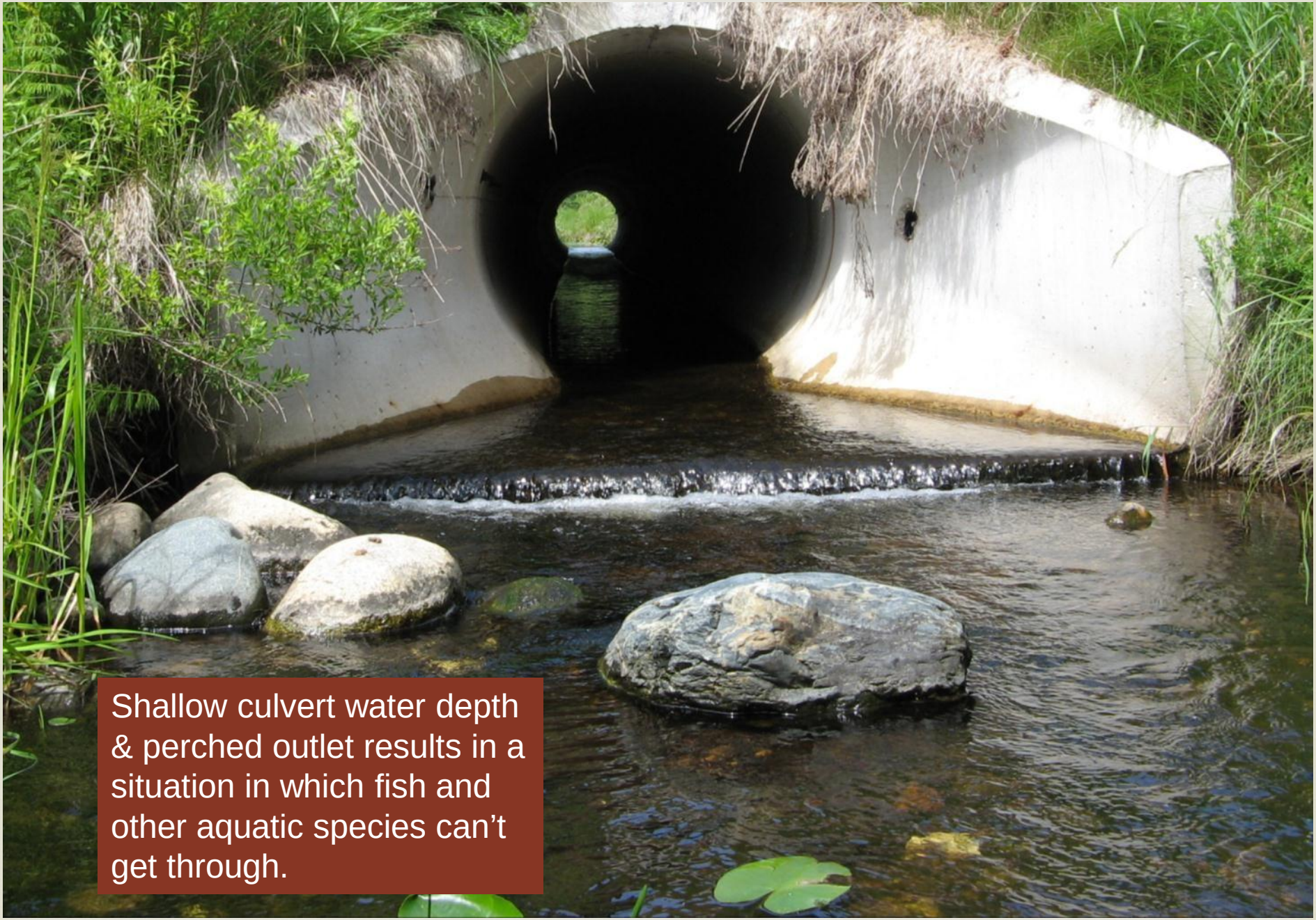
Culvert placed too high causing leap barrier

Culvert placed too high and too much rip rap

Improperly placed culverts may become perched culverts over time

Culvert in 1979

Same culvert in 1998

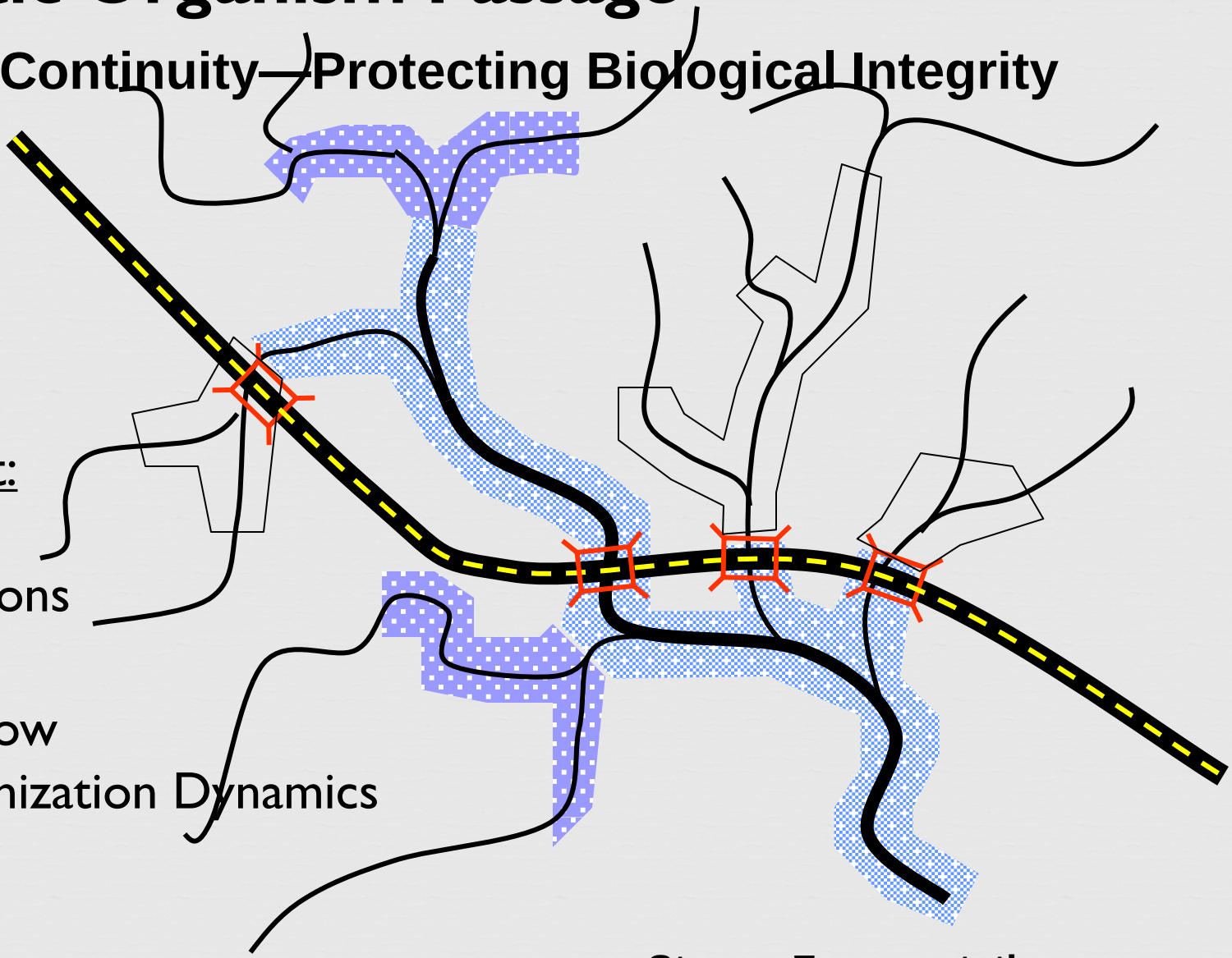

Shallow culvert water depth & perched outlet results in a situation in which fish and other aquatic species can’t get through.

Perched culverts lead to failing road shoulders and constant road repairs…and the fish still can't get through!

Culverts need to allow for the natural movement of water as if the culvert were not there.

Aquatic Organism Passage

Stream Continuity—Protecting Biological Integrity



Fragment:
- Habitat
- Populations

Disrupt:
- Gene Flow
- Re-colonization Dynamics
- Exotics

Stream Fragmentation, Loss of Secondary Habitats

Source: Massachusetts Riverways Program
Massachusetts Department of Fish and Game
U.S. Forest Service

Costs & Culverts

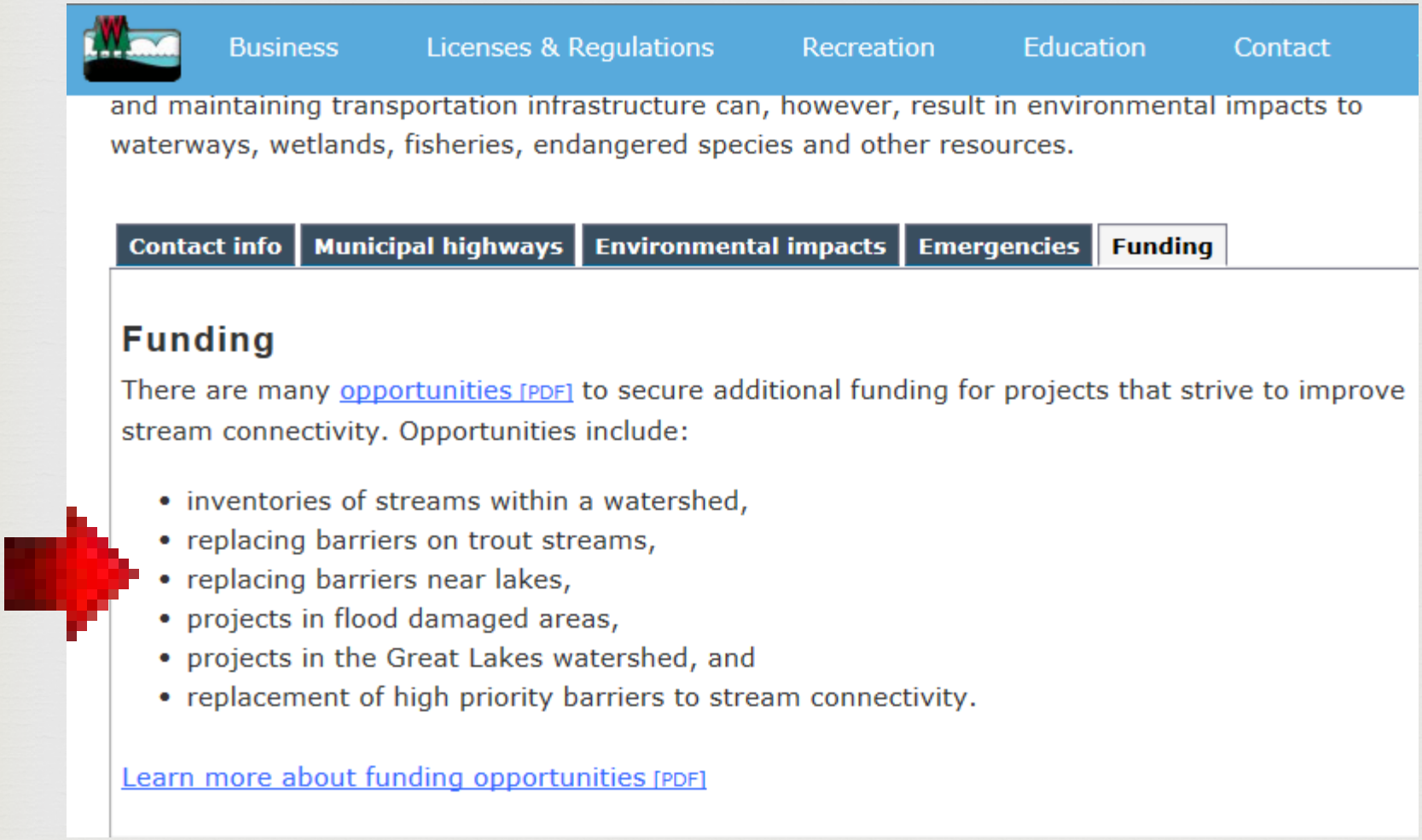
Act 55 created ss. 30.123(6p) related to permit costs if a permit is required under 30.123(6m) for an otherwise exempt activity.

COSTS. If the department requires a person who replaces a culvert to apply for an individual permit or seek authorization under a general permit under sub. (6m), notwithstanding the exemptions under sub. (6) (d), and ***if the department includes conditions in the individual permit or under the general permit that are different than the conditions in the permit issued for the culvert being replaced****, the department may not impose a fee for the individual permit or for authorization under the general permit and shall reimburse that person, from the appropriation under s. 20.370 (8) (ma), for his or her reasonable costs incurred in complying with the different conditions in the permit.*

Benefits of Properly Sized and Placed Culverts

- Structure will be **more resilient** to floods
- **Less debris** getting stuck at the culvert
- **Less** long term maintenance **costs**
- **Improves** stream connectivity
- **Longer** structure **life**

Funding Opportunities



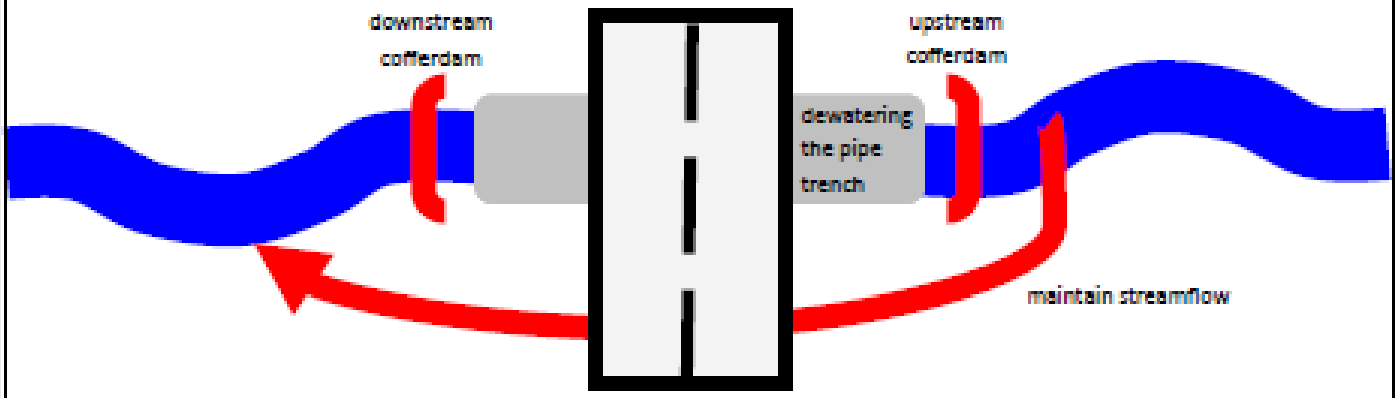
DNR has summarized BMPs for culverts and municipal transportation projects and broken them into before, during and after construction so they are easy to understand and use.

STREAM CULVERTS (NAVIGABLE WATERWAYS)—BEST MANAGEMENT PRACTICES (Sept. 2015)

The following example describes typical best management practices that are needed to protect water quality at culvert replacement projects.

BEFORE Construction: Devise an erosion control plan for the project site. Be sure the plans include stockpile protection. Further, be sure all stockpiles and borrow/waste sites are setback from waterways, wetlands, and floodplains. Begin to install erosion control items before any ground is disturbed. *Common methods include: construction site diversion, silt fence, ditch checks, vegetative buffers, inlet protection, sediment traps, and tracking pads.*

DURING Construction:



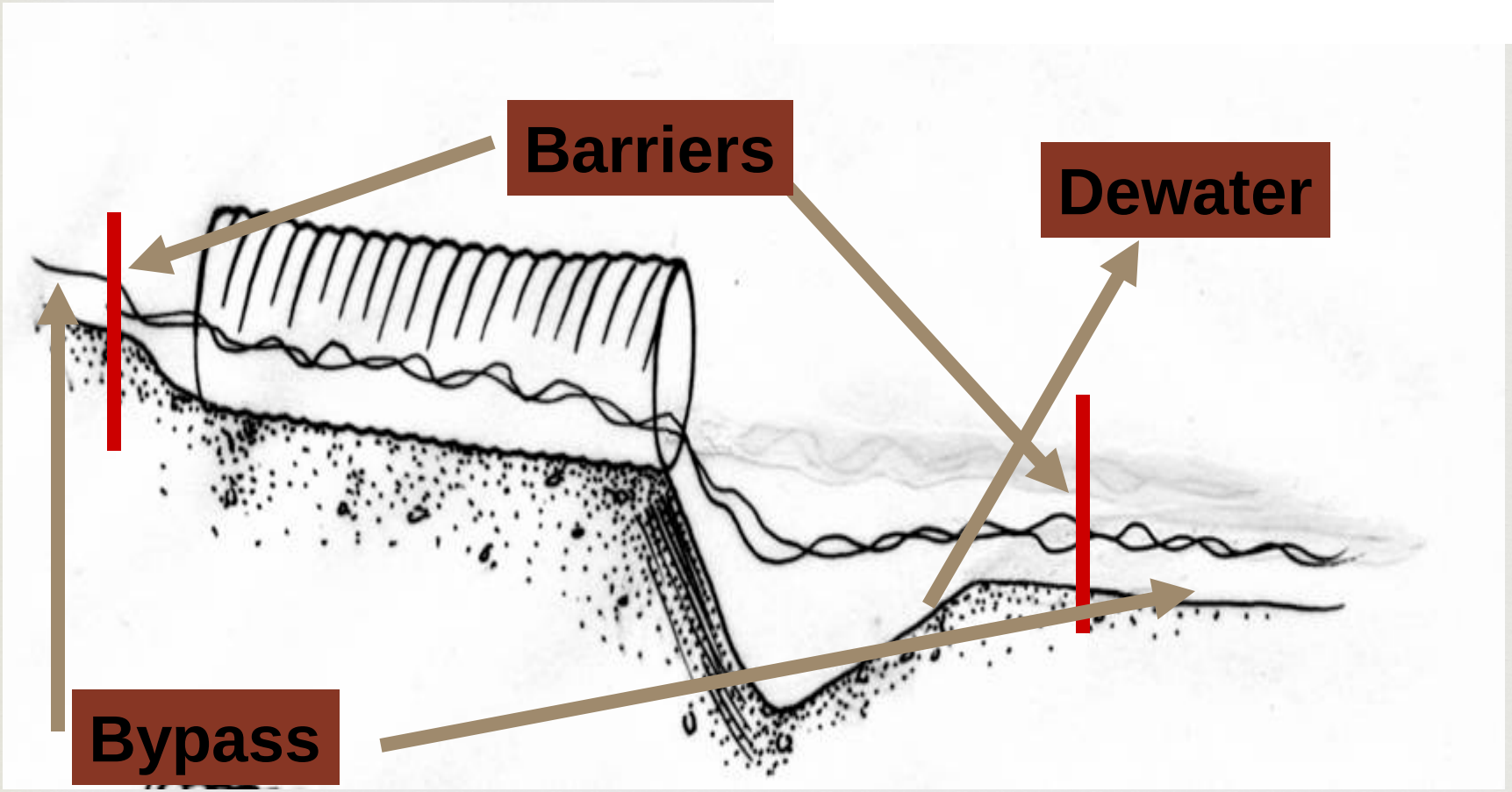
- **Non-erodible coffer dams** up and downstream to isolate the pipe during excavation. *Common methods include sand bags wrapped in plastic sheeting, other reinforced plastic sheeting, steel sheeting, and water bladder barrier.*
- **Treat water from the culvert trench** to prevent cloudy water from reaching waterways or wetlands. *Common methods include temporary settling basin, infiltration basin, filtration bag, sediment tank. Water applied polymer may be needed in conjunction with these methods.*
- **Maintain streamflow downstream** to protect aquatic life. *Common methods include by-pass pumping, plastic and rock/rock bag lined channel, by-pass culvert, and diverting water to one culvert (at sites with 2 or more culverts only).*

Before construction- Temporary Erosion Control For Bridges and Culverts - Silt Fence

Before Construction - Temporary Erosion Control For Bridges and Culverts - Ditch Checks


Manufactured Ditch Checks

During Construction - Sediment Control Practices For Bridges and Culverts - **Dewatering**



Sediment Control Practices For Bridges and Culverts

Stream Bypass—Channel

Proper installation and maintenance during construction is very important!

Pay close attention to all erosion control devices during construction so that they can work to their fullest potential.


CAT


04.23.2015 13:56

When erosion control devices are properly installed, the critters using the stream are able to move through the construction site unrestricted! Happy ducks!

Proper set up for a sediment bag

If a sediment bag looks like this, it is not working and needs to be switched out, or you need to consider a different erosion control device.

Don’t forget about dust control!

Sandbags!

Silt screen installed and working properly!

Post Construction

AFTER Construction:

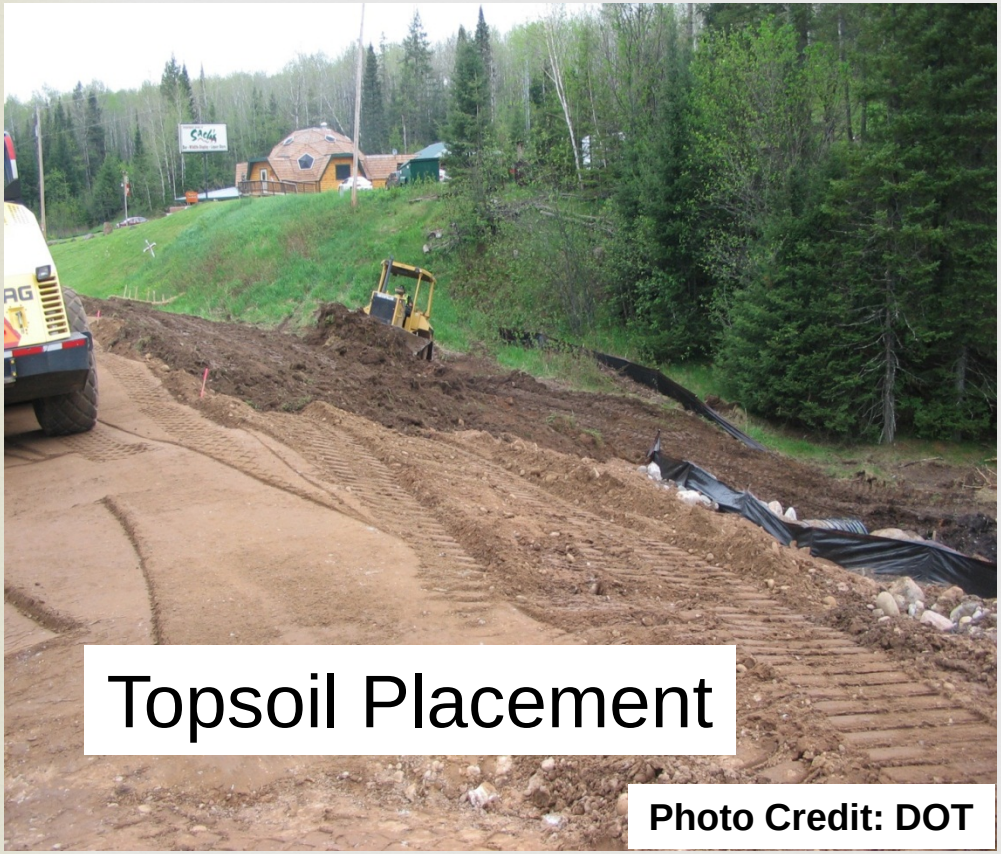
Topsoil and seed protected by mulch or erosion mat

Trenched in silt fence, fiber logs, or other method

Place geotextile fabric then cover with clean, sediment free riprap 6" to 24" in diameter as appropriate for the site.

At sites with water quality issues (road overtopping, bank erosion, streambed scour, etc.), installing a larger culvert that does not constrict the stream channel is an important best management practice for water quality protection and flood resiliency.

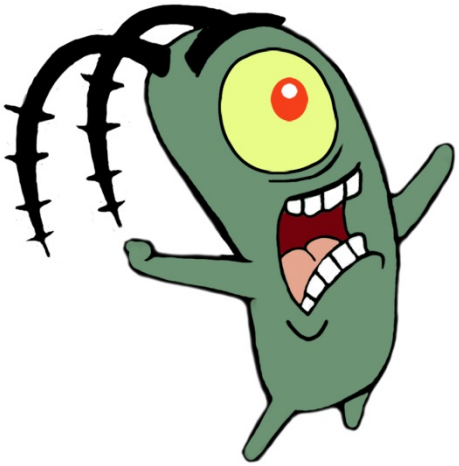
Stabilizing Practices For Bridges and Culverts – **Seeding with mulch or erosion mat**



Topsoil Placement

Photo Credit: DOT

Rip rap needs to be sized appropriately and placed appropriately for the stream. This rip rap is placed too high and is cutting off the stream.



Learning to navigate the permit process

Public Roads:

WDNR Transportation Liaison

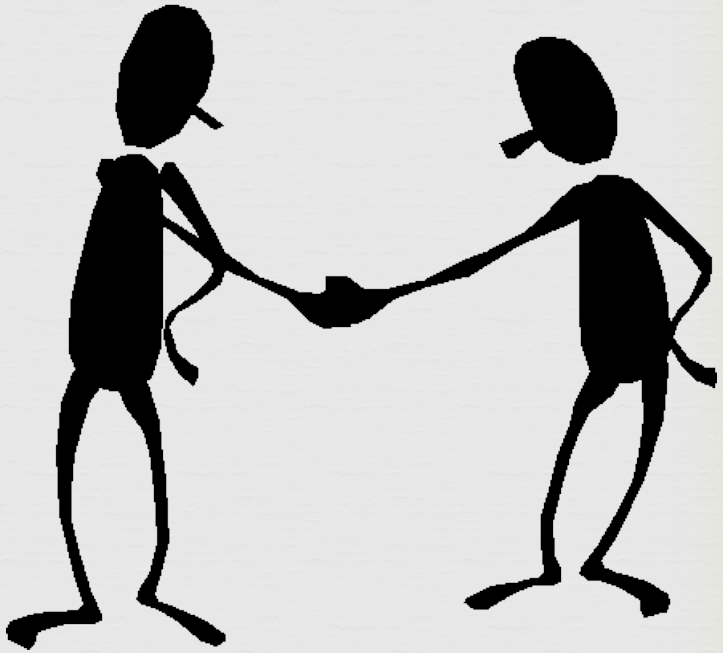
Private roads, driveways, trails:

DNR Water Management Specialist

WisDOT – WDNR Coordination

Cooperative Agreement Between WDNR and WisDOT

- **WisDOT contacts WDNR** during the scoping of a transportation project.
- **WDNR reviews projects** for impacts to wetlands, waterways, wildlife, NHI hits, protected lands.
- **WDNR is involved throughout the planning and construction of the WisDOT project**



WHEN does a municipality need a permit?

- WDNR-GP2-2012 applies to wetland and waterway impacts associated with **construction, reconstruction and maintenance** of a highway, bridge, arch or culvert that is part of a ***municipal transportation*** project.
- If the municipal road project impacts ***wetlands*** or a ***waterway***, they **may need a permit**.
- If the impacts to wetlands and waterways are less than 10000 square feet, **they may be eligible for a general permit (GP).**
- If a permit is needed, the project needs to meet all (29) eligibility standards of the local roads general permit

Business | Licenses & Regulations | Recreation | Education | Contact | Join DNR

Permits

Local units of government may need to obtain waterway, wetland and storm water permits for a proposed transportation project. Local transportation officials and their consultants can find permit information and forms below.

Please contact the transportation liaison [PDF] for your county to determine if your project needs a permit.

Municipal Transportation General Wetland & Waterway Permit (GP)

The WDNR-GP2-2012 General Permit for Municipal Bridges, Arches & Culverts [PDF] is a general permit (GP) that is available for a discharge to waters and wetlands of no more than 10,000 square feet that is necessary for the construction, reconstruction or maintenance of a roadway, bridge, arch or culvert that is being carried out under the direction and supervision of a city, village, town or county, under s. 30.123, Wis. Stats.

See WDNR-GP2-2012 General Permit Application Checklist [PDF] for detailed instructions. A complete application for the GP includes information about the applicant, project plans, maps, photos, and an analysis narration that describes what alternatives were considered during the planning process.

All application materials can be sent to the transportation liaison [PDF] for your county.

Don't forget to check in with…..

- ✓ Local / County Shoreland Zoning (Floodplain Zoning)
- ✓ WDNR Stormwater
- ✓ US Army Corps of Engineers

If total impacts are equal to one acre or more, you may need a WDNR Stormwater permit.

Stormwater permitting

The Wisconsin Pollutant Elimination Discharge System (WPDES) Notice of Intent Permit process is used to regulate all stormwater discharges that result from disturbing one or more acres of land. This permit is needed for both transportation and non-transportation related projects. See Construction site stormwater permits for more information.

Federal permitting

United States Army Corps of Engineers wetland permits [exit DNR] are required for discharges to federal wetlands. For public transportation projects, the U.S. Army Corps of Engineers has issued general permit GP-003-WI [PDF exit DNR]. This federal general permit may be used for activities whose purpose is to construct, expand or improve transportation projects (e.g., roads, highways, railways, airport runways and taxiways) in waters of the United States.

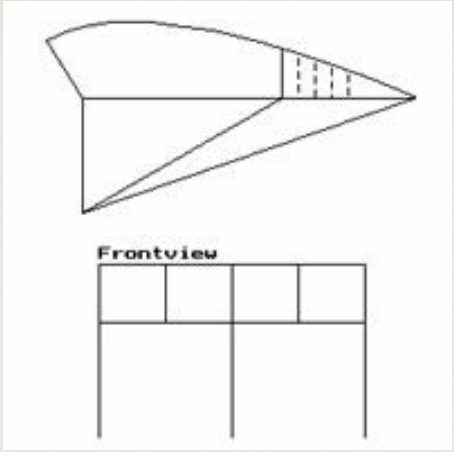
A link to the US Army Corps of Engineers can be found on our web site. **Applicants need to check with the USACE to see if they need a federal permit.**

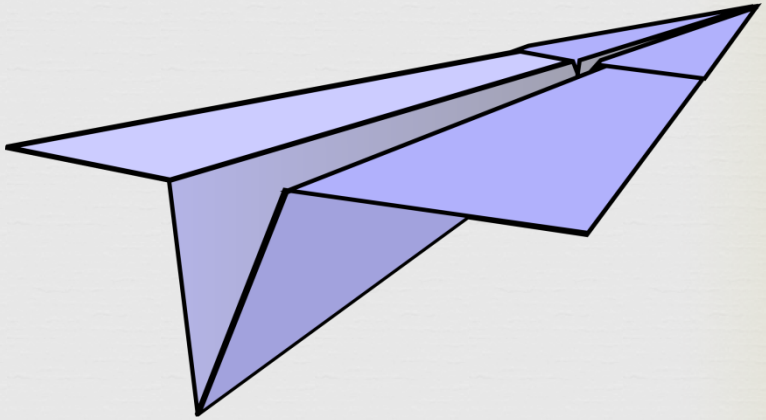
- Contact WDNR early!

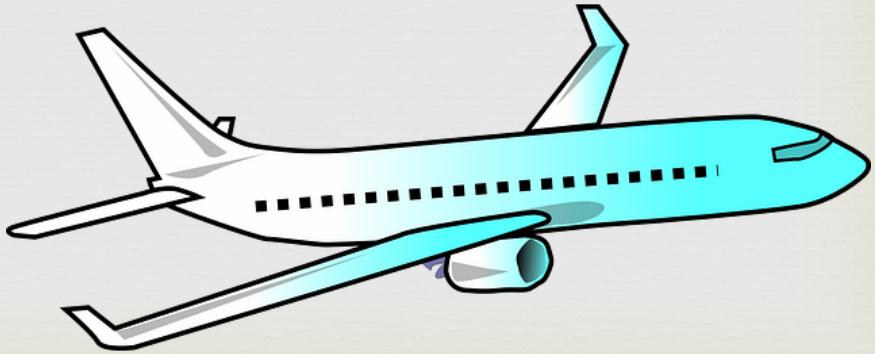
- **A good design leads to a good project**

- Read and understand the BMPs and the conditions of the permit or approval letter, if received

- Contact DNR if there is a discharge







Road-Stream Crossings Workshop

Inventory, Assessment, Design, and Construction

April 12—14, 2016

Markee Pioneer Student Center

University Room

University of Wisconsin Platteville

Questions? Need to know more?

Contact Bobbi Jo Fischer

(920) 787-3015

bobbi.fischer@wisconsin.gov

Enroll Early!

Enrollment is limited to 45 people.

20 Professional Development Hours (PDH's) Available

You'll never look at a culvert the same way again.

Road-Stream Crossings Workshop—Inventory, Assessment, Design, and Construction

April 12–14, 2016 Markee Pioneer Student Center Platteville, Wisconsin

Let's work together!

Check us out at - dnr.wi.gov – key word "Transportation"

Contact me - Maureen. Millmann@ wisconsin.gov