Dirt Gravel and Low Volume Road Program

WEBINAR

Unpaved Road Assessments

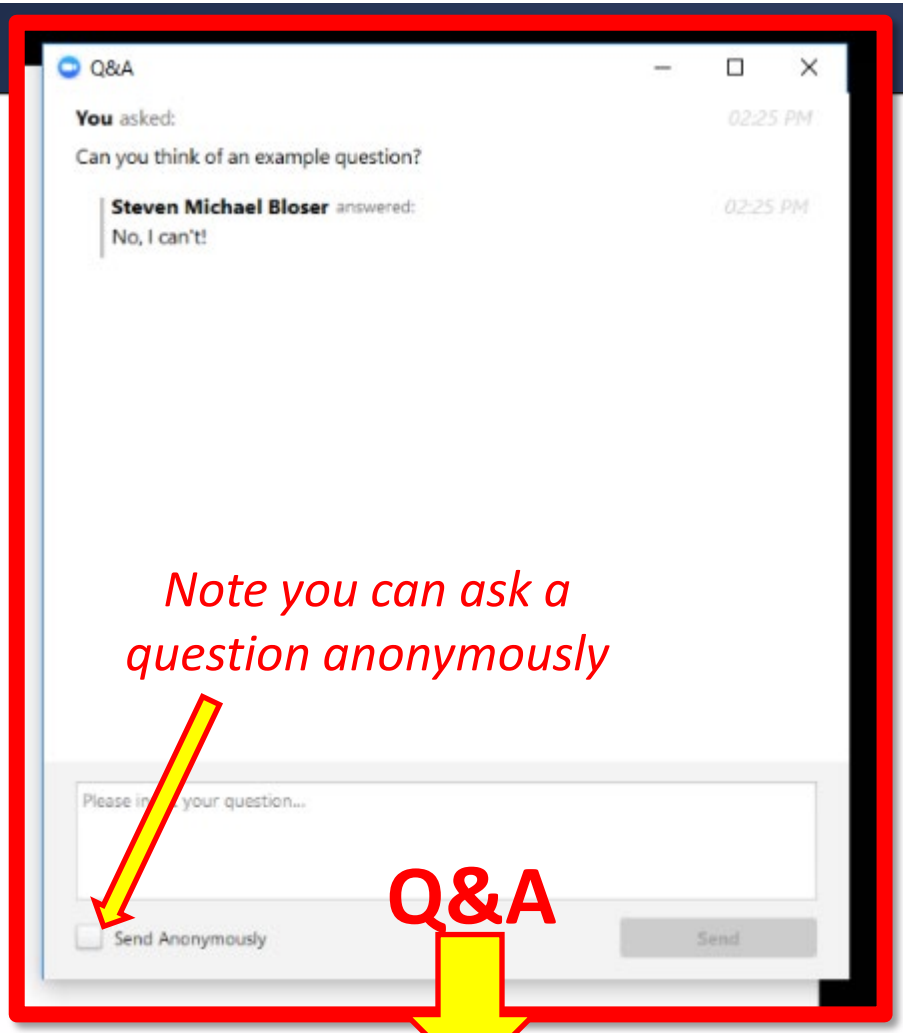
12/22/20 Starts at 9am

If you are reading this, then you are successfully seeing the webinar video. Webinar audio should be automatic through your computer (or click "join audio"), and options can be accessed in the "audio options" button on the bottom left. If your computer audio is not working, you can listen on your phone by dialing 646-876-9923.

Center for Dirt and Gravel Road Studies

Assessment Refresher

Assessment Refresher



For audio via phone: 646-876-9923

Assessment Refresher

Purpose

- Refresher and overview of assessment process
- Directed at new CD staff or someone considering starting an assessment for the first time

Assessment Refresher

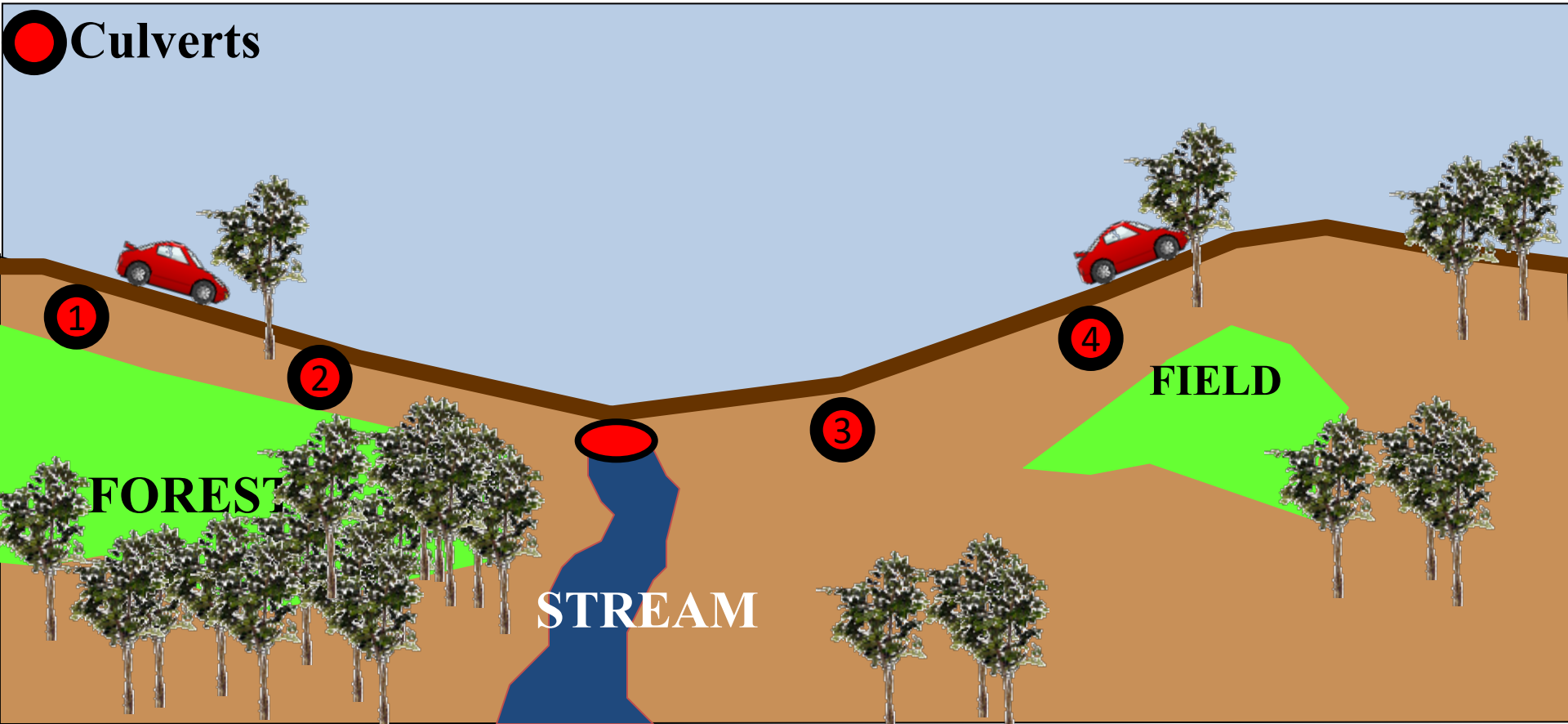
- Introduction and Purpose
- History
- Allocation impacts
- Overview

Assessment: Field identification of sections of public unpaved roads that impact water quality.

Unpaved Road Assessment:

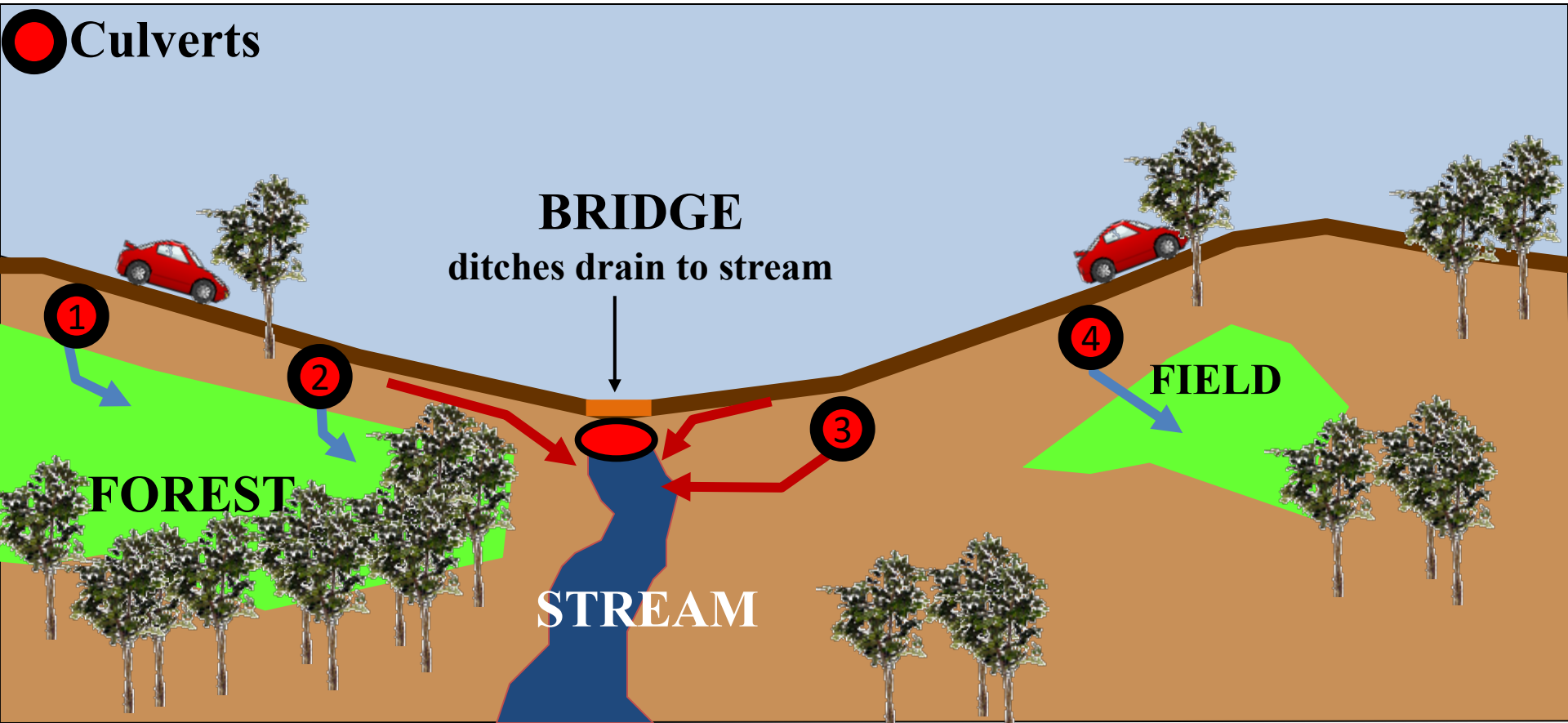
- Field identification of sections of public unpaved roads that impact water quality.
- Creation of “potential Worksites” in GIS

Potential Worksite: Identified segment of unpaved road where drainage in impacting water quality.

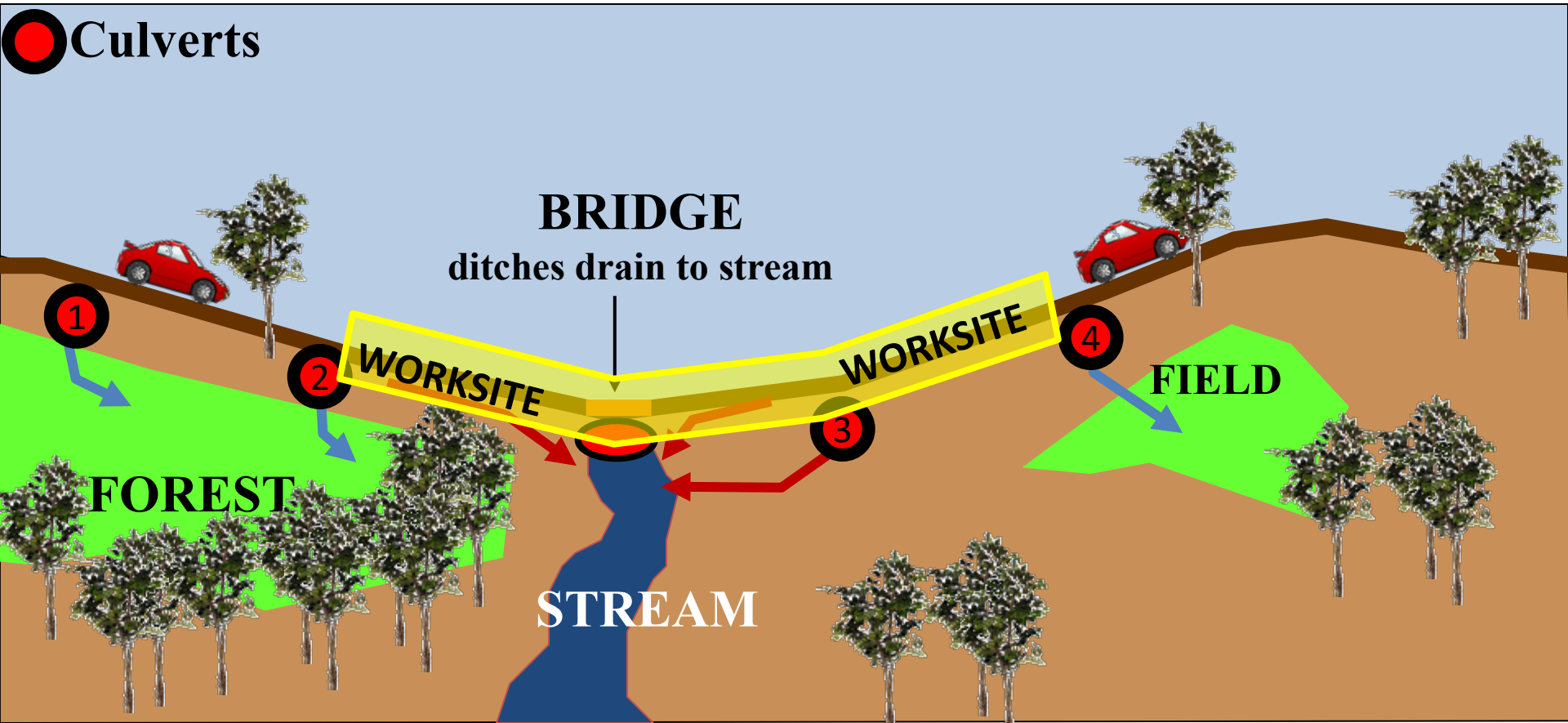


<u>Potential Worksite</u>: Identified segment of unpaved road where drainage in impacting water quality.

Potential Worksite: Identified segment of unpaved road where drainage in impacting water quality.



<u>Potential Worksite</u>: Identified segment of unpaved road where drainage in impacting water quality.



Unpaved Road Assessment:

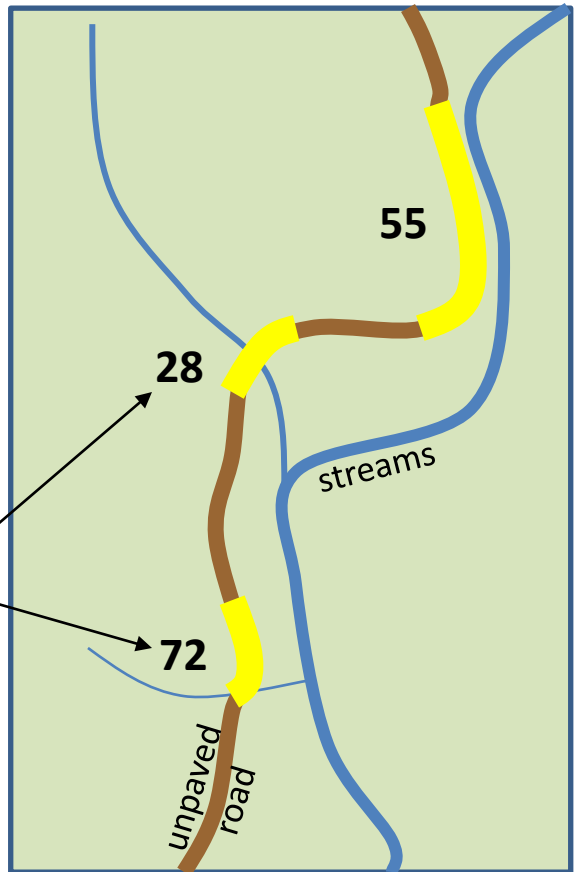
- **Field identification of sections of public unpaved roads that impact water quality.**
- **Creation of "potential Worksites" in GIS**

Turning **NON-POINT SOURCE** pollution into…

POINT SOURCES

And providing quantification of pollution potential!

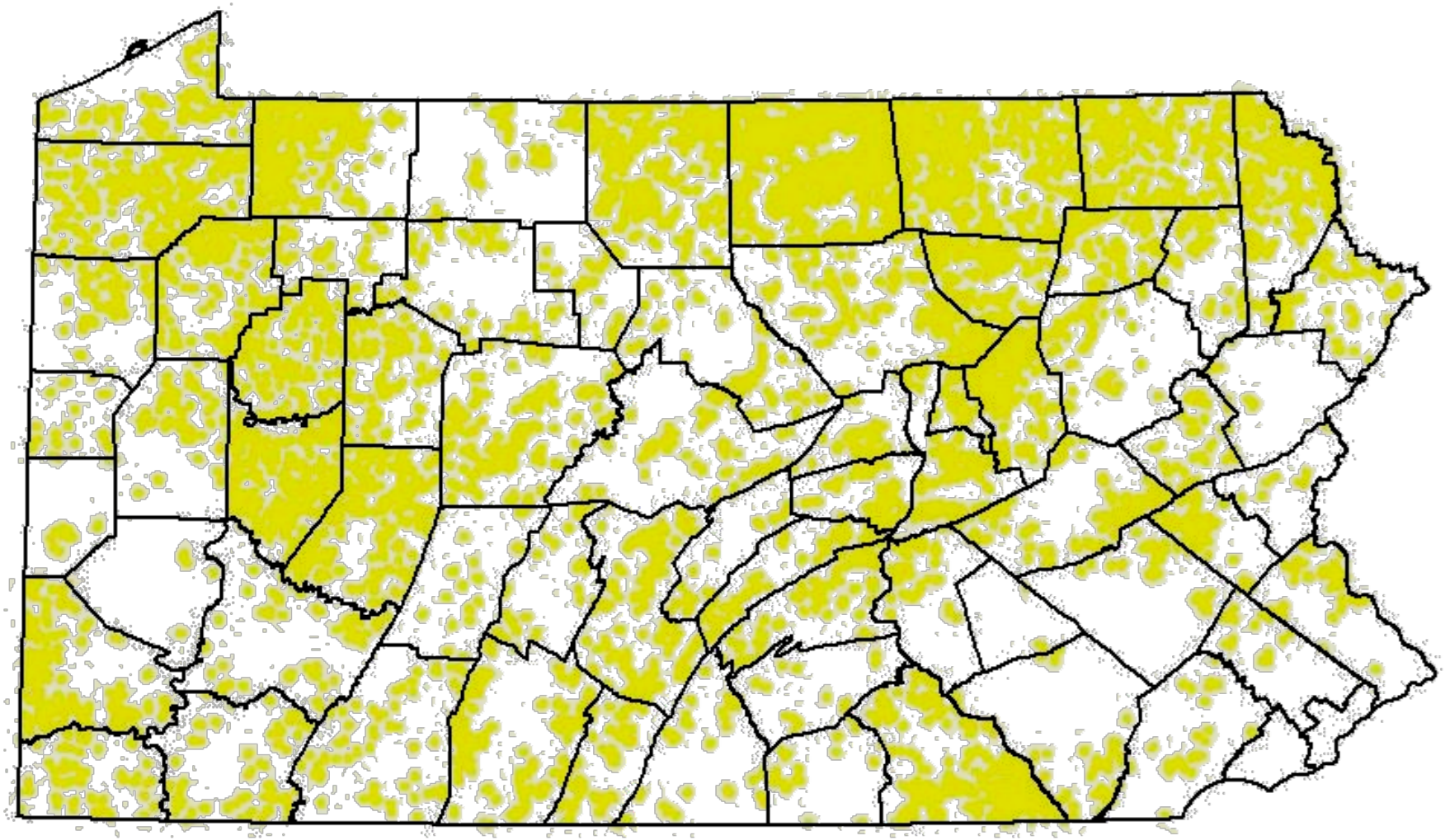
WORKSITES!



Assessment Refresher

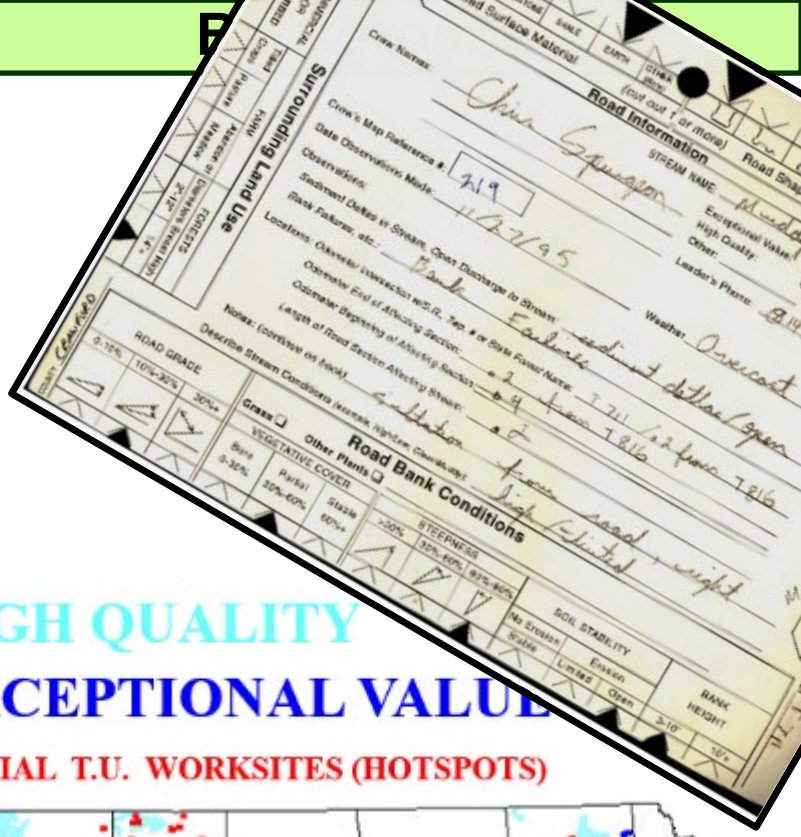
- Introduction and Purpose
- **History**
- Allocation impacts
- Overview

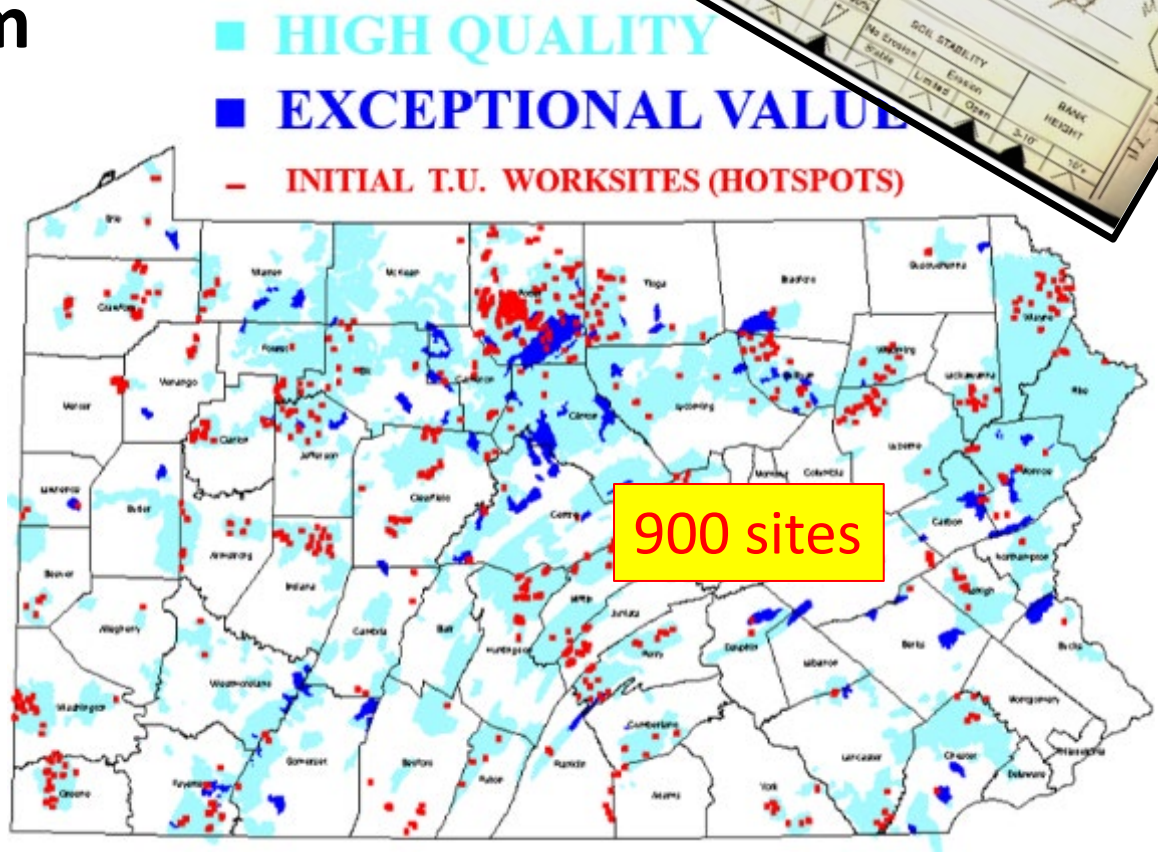
Ever wonder where all those “potential” worksites came from in your GIS?



1996-1998
TU Volunteer Assessment

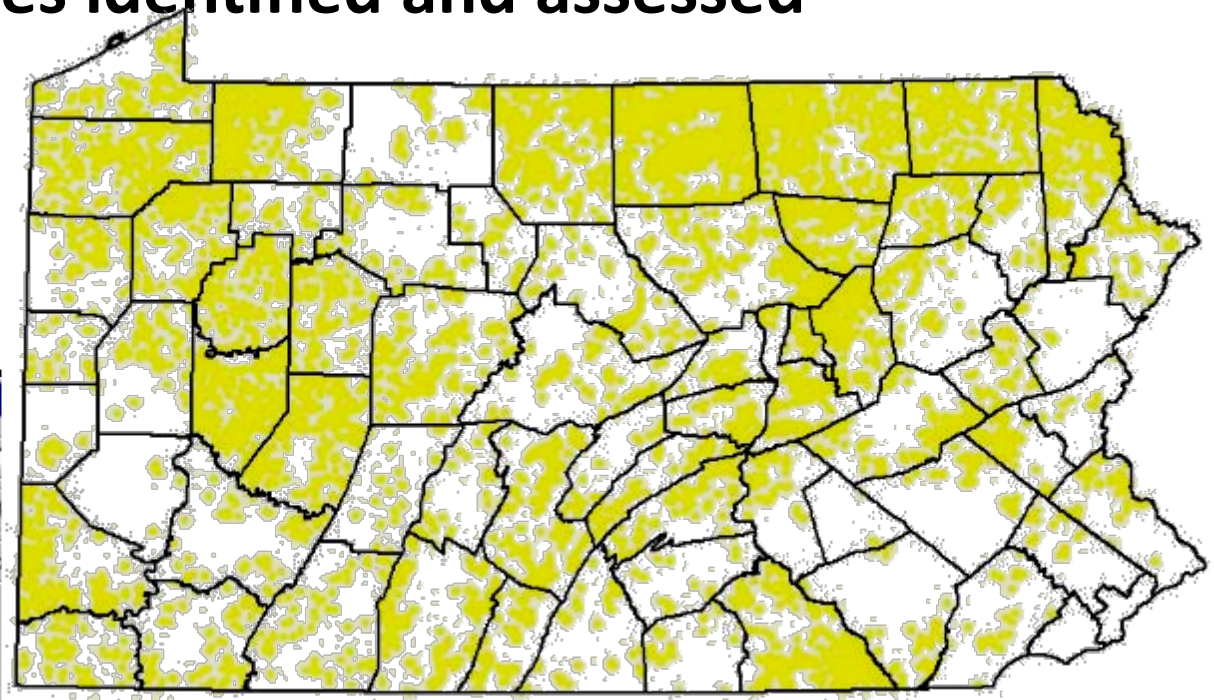
- Protected Watersheds only
- 900 worksites statewide
- Quantified problem and established DGLVR program





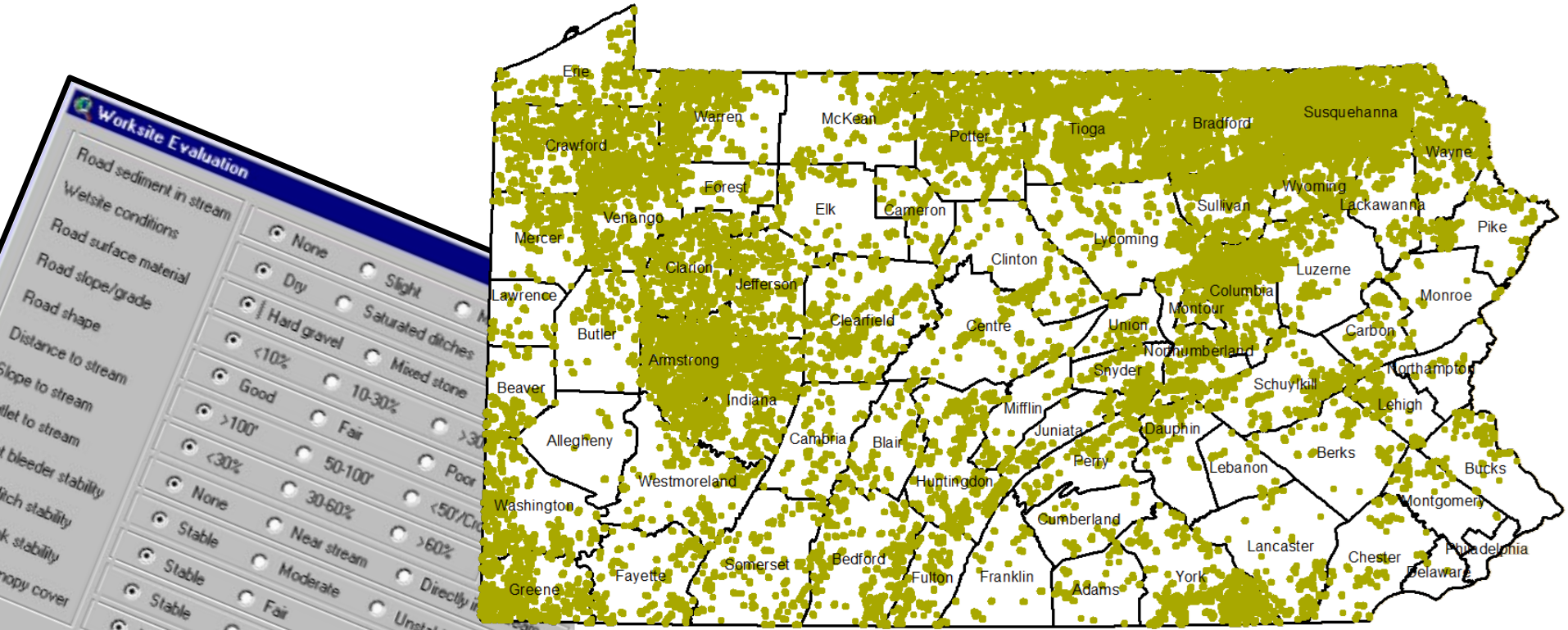
2000
CD Statewide Assessment

- Used first version of GIS, introduced “dirty dozen”.
- Had to ask twps. where unpaved roads were!
- ALL watersheds assessed.
- ~3,000 miles of sites identified and assessed



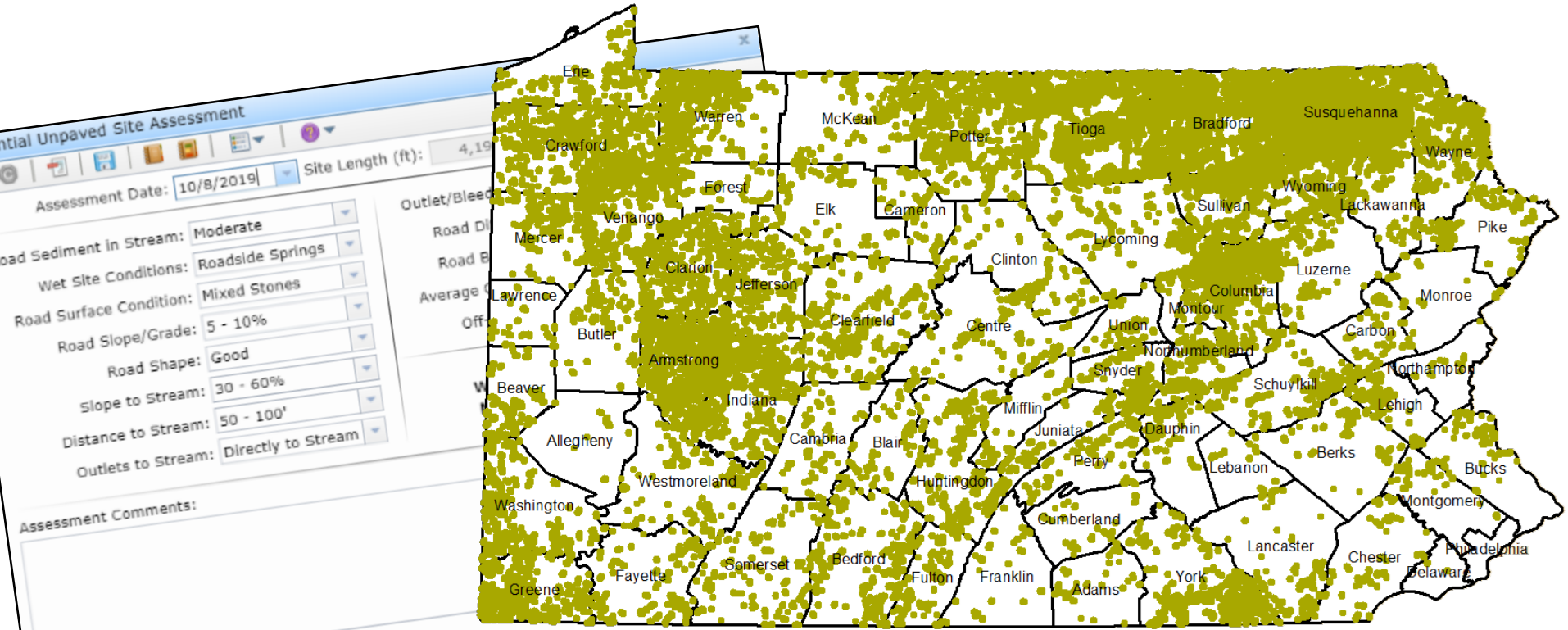
2007-08
CD Statewide Assessment

- <u>Voluntary</u> assessment period.
- 6,200 miles of worksites.
- The basis for those yellow sites you see in GIS today!



2018-19
CD Statewide Assessment

- **<u>Voluntary</u> assessment period.**
- **Increased from 6,200 to 7,200 miles of worksites.**



2018-19
CD Statewide Assessment

- Voluntary assessment period.
- Increased from 6,200 to 7,200 miles of worksites.

2021:

~7,700 miles of worksites

Continuous “Open Assessment”

Assessment Refresher

- Introduction and Purpose
- History
- **Allocation impacts**
- Overview

Why does it Matter?

- **Miles of worksite and unpaved roads are a major factor in CD allocations**

PA Section 9106:

*"**(C)Apportionment Criteria.** The apportionment criteria shall:*

(1) Be based on verified need to correct pollution problems related to the road.

(2) Consider the total miles of dirt and gravel roads maintained by local municipalities or state agencies that are open to the public during any period of the year."

Why does it Matter?

- **Miles of worksite are a major factor in CD allocations**

Dirt and Gravel Allocation Formula:

$$50\%\ \text{IDENTIFIED WORKSITES} = \frac{\text{Miles Worksites in County}}{\text{Miles Worksites in State}}$$

$$45\%\ \text{UNPAVED ROADS} = \text{Miles Unpaved Road in County} + \text{¼ Miles Unpaved Road within 1,000' of HQ/EV Strem}$$

$$5\%\ \text{LIMESTONE COST} = \frac{\text{\$ Stone County} - \text{Min \$ Stone in State}}{\text{Min \$ Stone in State}}$$

Why does it Matter?

- **Miles of worksite are a major factor in CD allocations**

Dirt and Gravel Allocation Formula:

50% IDENTIFIED WORKSITES = Miles Worksites in County / Miles Worksites in State

45% UNPAVED ROADS = Miles U… / Road i…

5% LIMESTONE COST = … / Min $ Stone in State

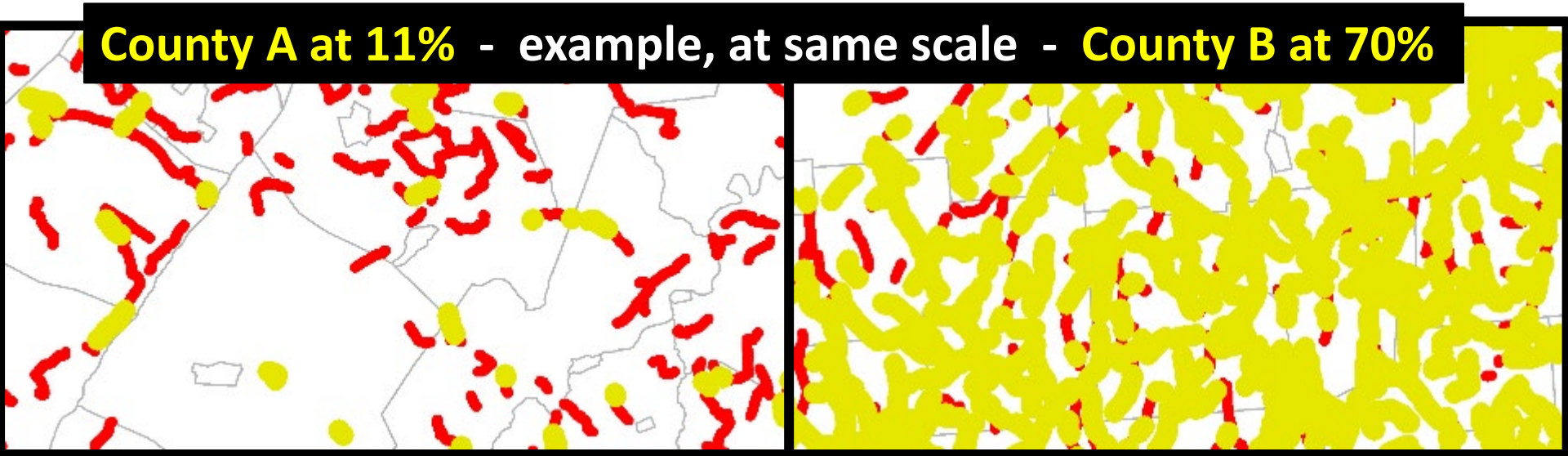
More worksites statewide means each worksite is worth a little less in allocation formula.

Why does it Matter?

- Assessment completeness was highly variable
- County Average Worksite Length:
  - 0.17 to 0.76 miles (.35 avg)

Why does it Matter?

- Assessment completeness was highly variable
- County Average Worksite Length:
  - 0.17 to 0.76 miles (.35 avg)
- County Unpaved to Worksite conversion:
  - 11% to 79% (35% avg)



Venango County 2018 Reassessment Example

- CD had questions about their assessment quality
- SCC/CDGRS visited and helped assess 2 twps in 2018
- Found sites were very short or completely missing
- **Approximately tripled total length of existing worksites**

Should Your County Do a Reassessment???

- **Pros**
  - **Updated data:** Current data may be 10-20 years old
    - Some roads have been paved
    - Some roads have been unpaved
    - Many sites are too short (created when Program was $4 Million)
    - Assessment is incomplete in many counties
  - **May increase District allocation** (could decrease though)
    - Would not increase maximum counties
    - MAY or MAY NOT increase minimum counties
  - **Great way to get to know your county!**
- **Cons**
  - **Time** and expense.

Should Your County Do a Reassessment???

Considerations

- How thorough, complete, and recent is your existing assessment?
- Extent of changes or urbanization to county.
- Time availability and cost.
- Small counties may not have enough roads and worksites to increase above “minimum” status.
- Some counties may actually decrease in allocation if a lot of paving has occurred.

- Contact Steve Bloser or Ken Corradini at the CDGRS to discuss the circumstances of your particular county.

Field identification of segment of road contributing to stream pollution

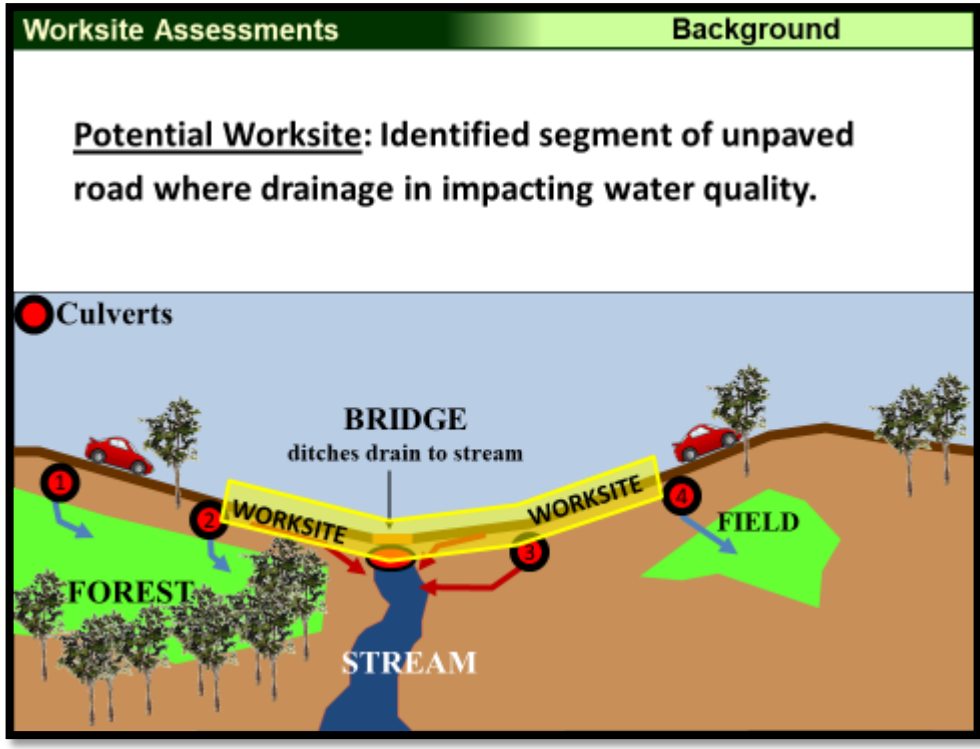
Assessments are a FIELD EXERCISE.

Can't tell from topo maps or aerials:

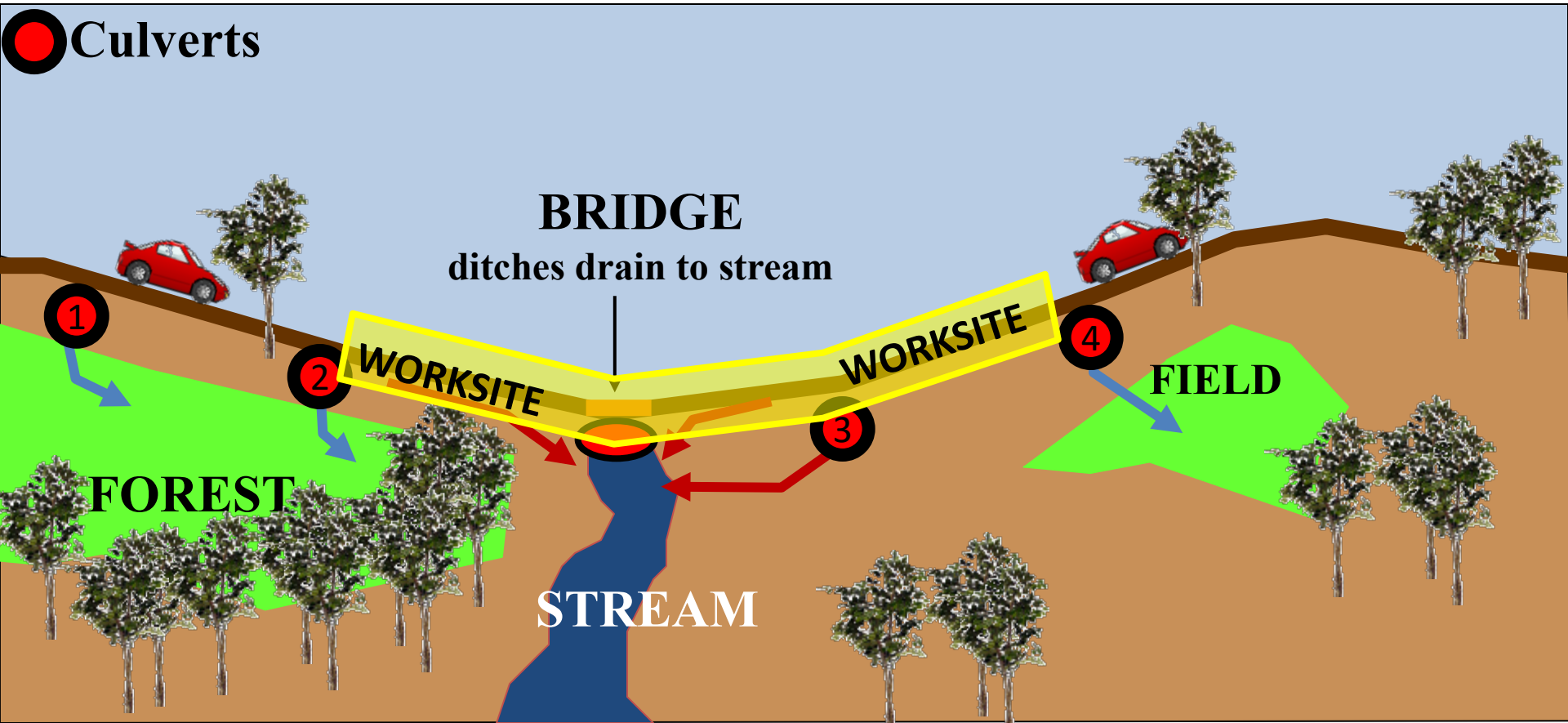
- **Are there existing drainage structures? Do outlets reach stream? Are there non-blueline streams impacted?**

Process Overview

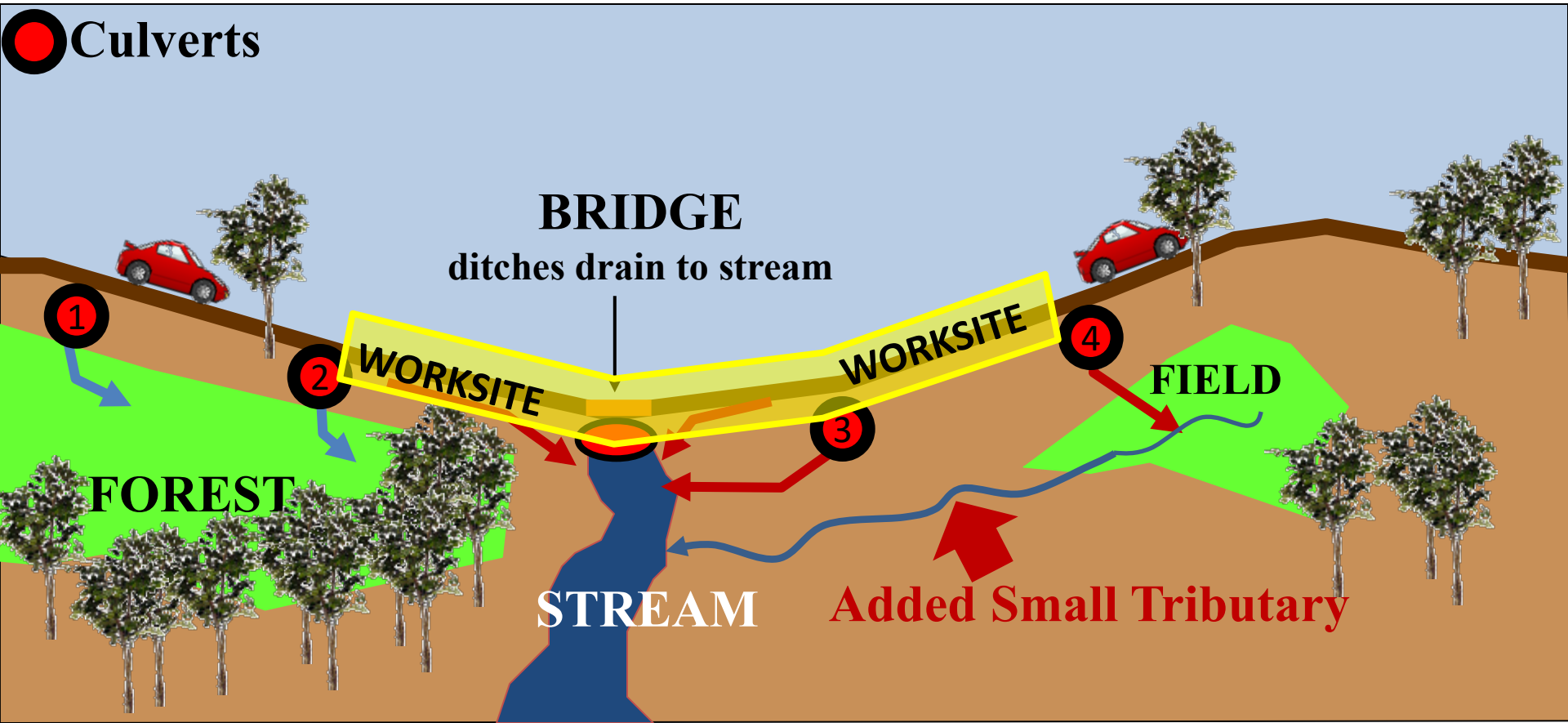
- Find Stream Impact
- Identify start and stop
- Create Worksite
- Evaluate Worksite



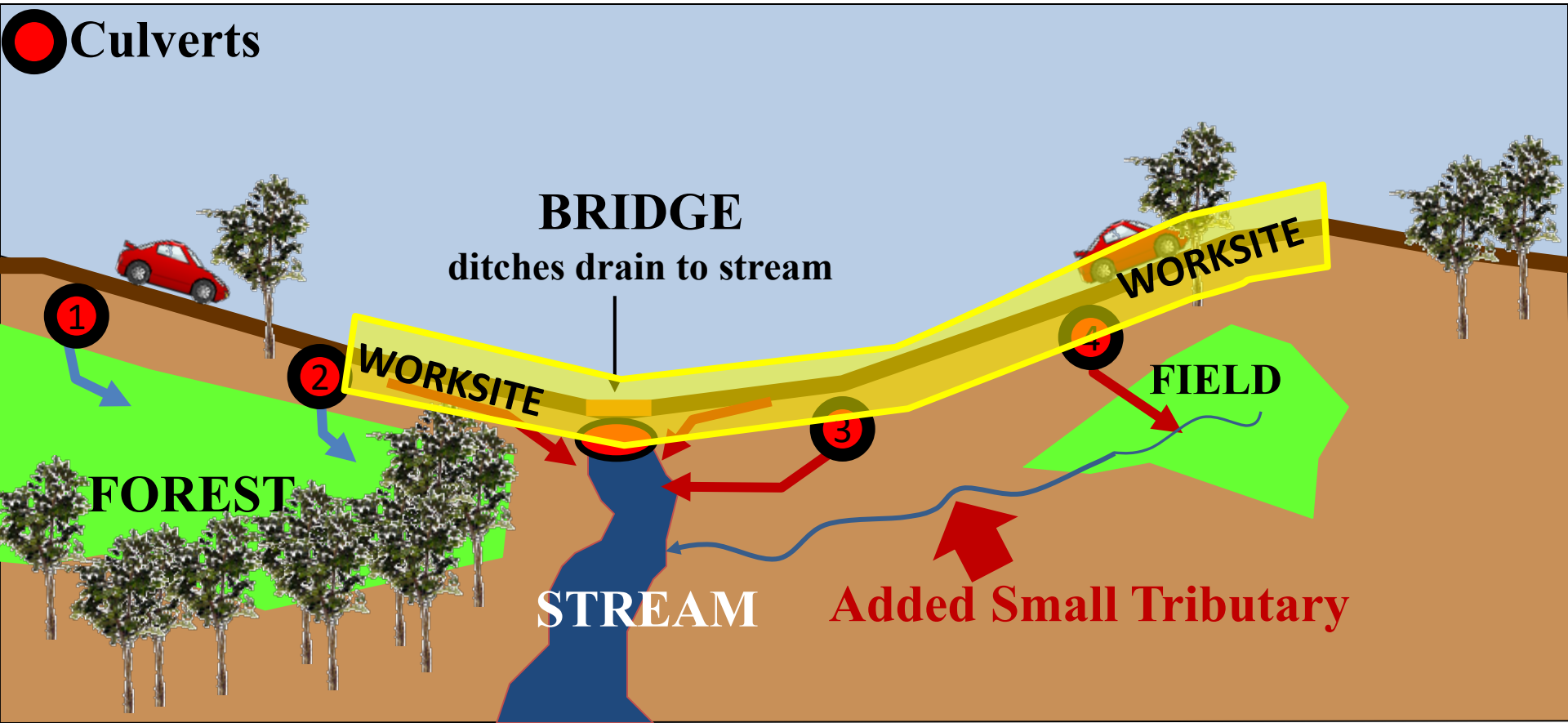
<u>Potential Worksite</u>: Identified segment of unpaved road where drainage in impacting water quality.



Potential Worksite: Identified segment of unpaved road where drainage in impacting water quality.

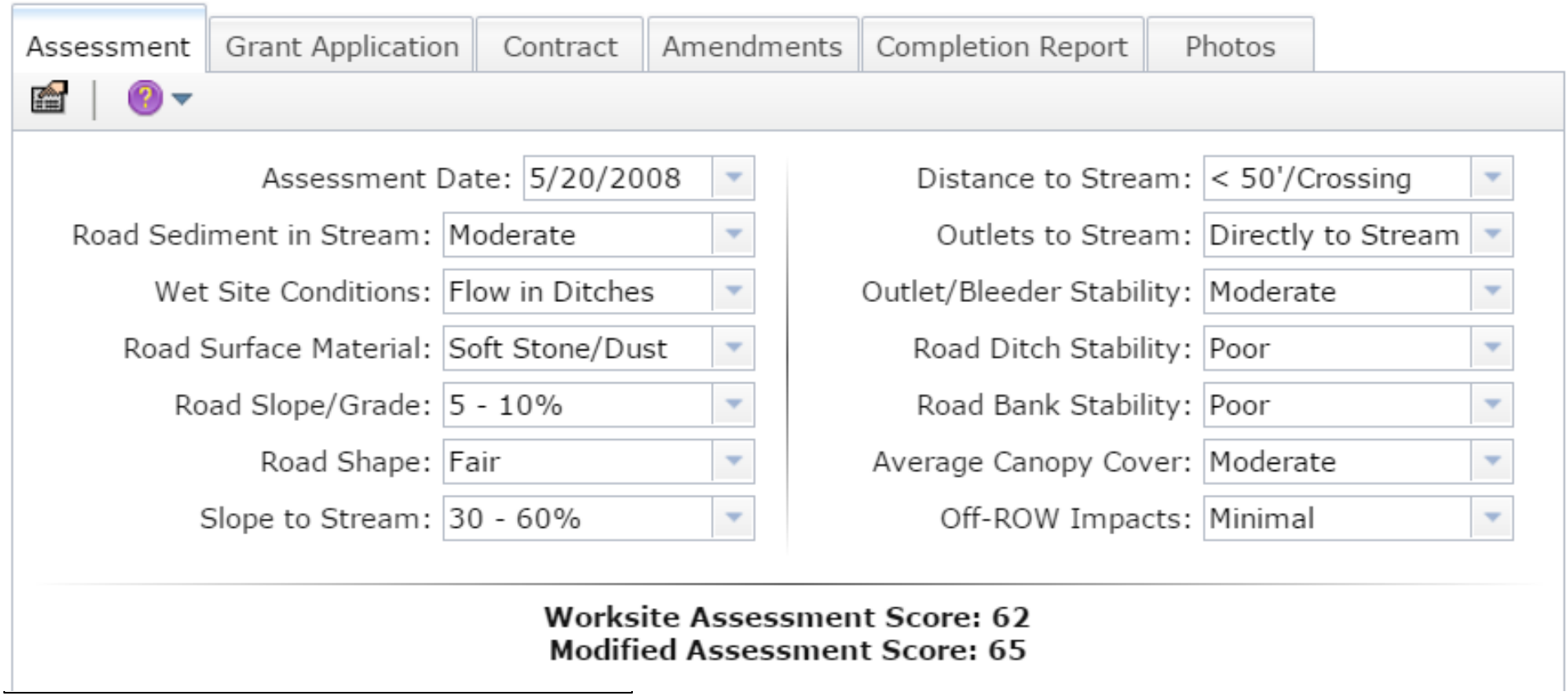


<u>Potential Worksite</u>: Identified segment of unpaved road where drainage in impacting water quality.



The "Dirty Dozen"

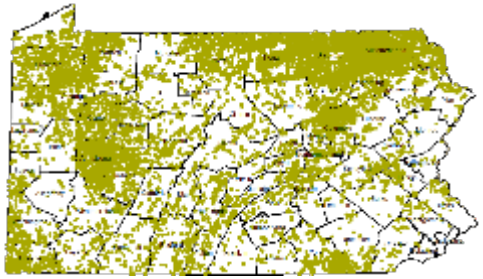
- 12 factors – evaluate "pollution potential"
- Assigns score from 0 to 100 (worst impact)
- Scores no longer a factor in allocation formula



Current Use

Assessments

- **~75% of sites have existing ranking, most are 8-16 years old.**



- **Most CDs use "Dirty Dozen" in ranking criteria.**

This document is provided only as an example. County QABs can use as little or as much of the information here as they desire to establish local priorities in project ranking.

Example Dirt, Gravel, and Low-Volume Road Grant Application Ranking 8/13/14

Select type of application	
	Unpaved (Dirt and Gravel)
	Paved (Low Volume Road)

Note the validation criteria in Section 1 serve to insure a project is

SECTION 1: APPLICATION VALIDATION

Does this road site negatively imp
Will the proposed project reduce
Is someone from the applying ent
Does the proposed application me
Does the proposed application me
Has the applicant identified and a
LVR ONLY: If the traffic count is kn
(note traffic count is required b
If any of the questions abo

If you use assessment score in ranking, you may want to consider completing ranking

SECTION 2: APPLICATION RANKING

Feel free to delete criteria, add criteria, or change weighting of criteria to better fit local County needs.

SEVERITY OF PROBLEM

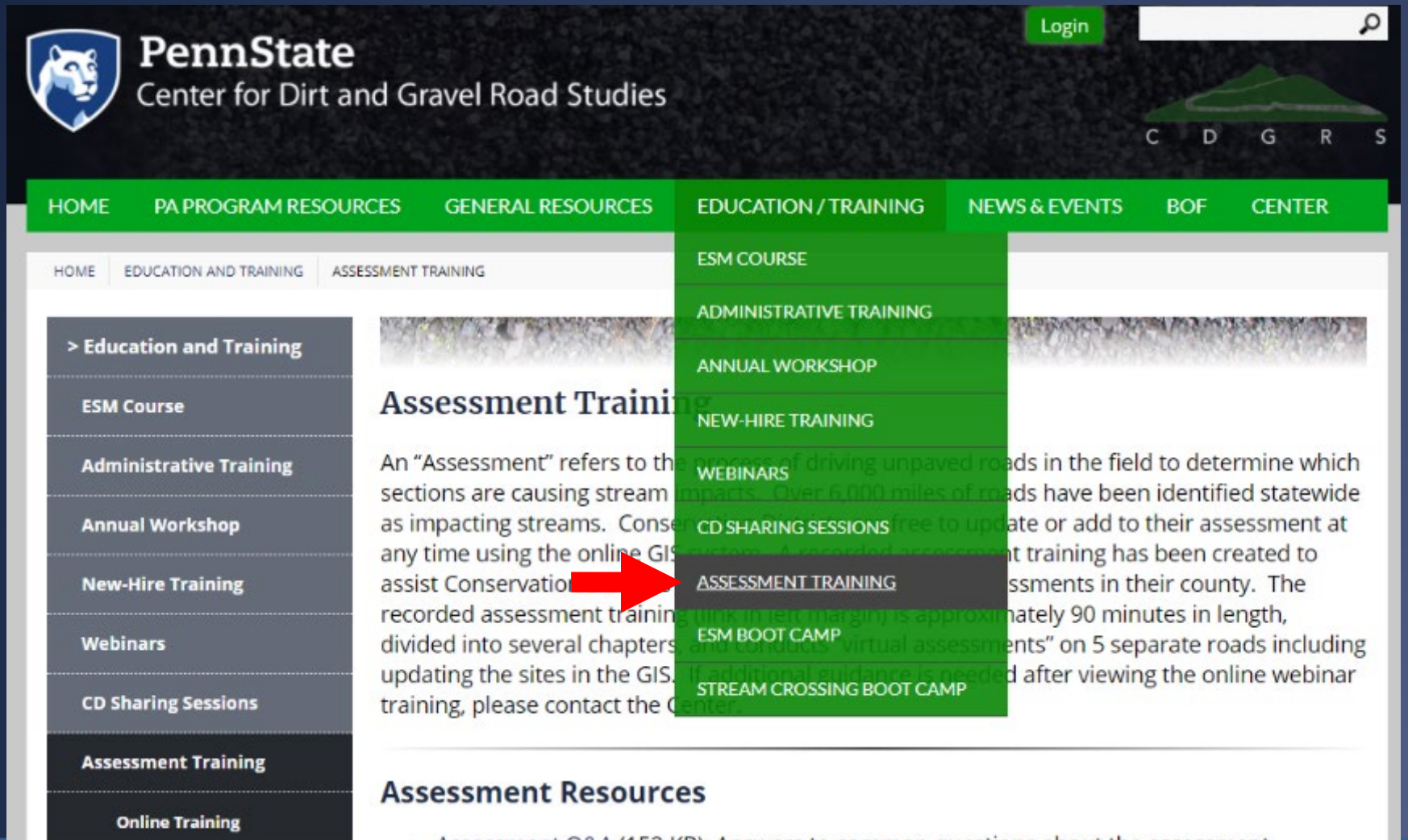
1. **"Modified" Worksite Assessment:**
   - a. **Road Sediment in Stream:** none-0 Slight-5 Moderate-10 Severe-15 _____ (15)
   - b. **Wet Site Conditions:** Dry-0 Saturated Ditches-3 Roadside Springs-5 _____ (10)
     Flow in Ditches-7 Saturated Base-10
   - c. **Road Surface Condition** _____ (15)
     - i. **LVR EVALUATION: Pavement Condition:** good-0 fair, some cracking-5
       Poor, cracking, unevenness-7 Damaged-10 Severely Damaged-15
     - ii. **D&G EVALUATION**: Hard Gravel-0 Mixed Stone-5 Soft Stone-7
       Mixed stone/dirt/dust-10 Severe Dust-15
   - d. **Road Slope:** <5%-0 5-10%-5 >10%-10 _____ (10)
   - e. **Road Shape (cross-slope/crown):** Good-0 Fair-3 Poor-5 _____ (5)
   - f. **Slope to Stream:** <30%-0 30-60%-3 >60%-5 _____ (5)
   - g. **Distance to Stream:** >100'-0 50'-100'-3 <50'/crossing-5 _____ (5)
   - h. **Outlets to Stream:** None-0 Near Stream-3 Directly to Stream-5 _____ (5)
   - i. **Outlet/Bleeder Stability:** Stable-0 Moderate-3 Unstable-5 _____ (5)
   - j. **Road Ditch Stability:** Stable-0 Fair-3 Poor-7 Unstable-10 _____ (10)
   - k. **Road Bank Stability:** Stable-0 Fair-3 Poor-7 Unstable-10 _____ (10)
   - l. **Average Canopy Cover:** Moderate-0 Minimal-3 Heavy-5 _____ (5)
   - m. **Off-ROW Impacts resolved:** None-0 Minimal-3 Some-7 Many-10 _____ (10)

Note the assessment above has been modified from the original version. Feel free to use the original version or change the scores to reflect county priorities. Regardless of the method used, sites should be re-evaluated when they are applied for. Outdated GIS assessment scores should not be used for project ranking.

Modified Assessment Subtotal: _____ (110)

Assessment Refresher

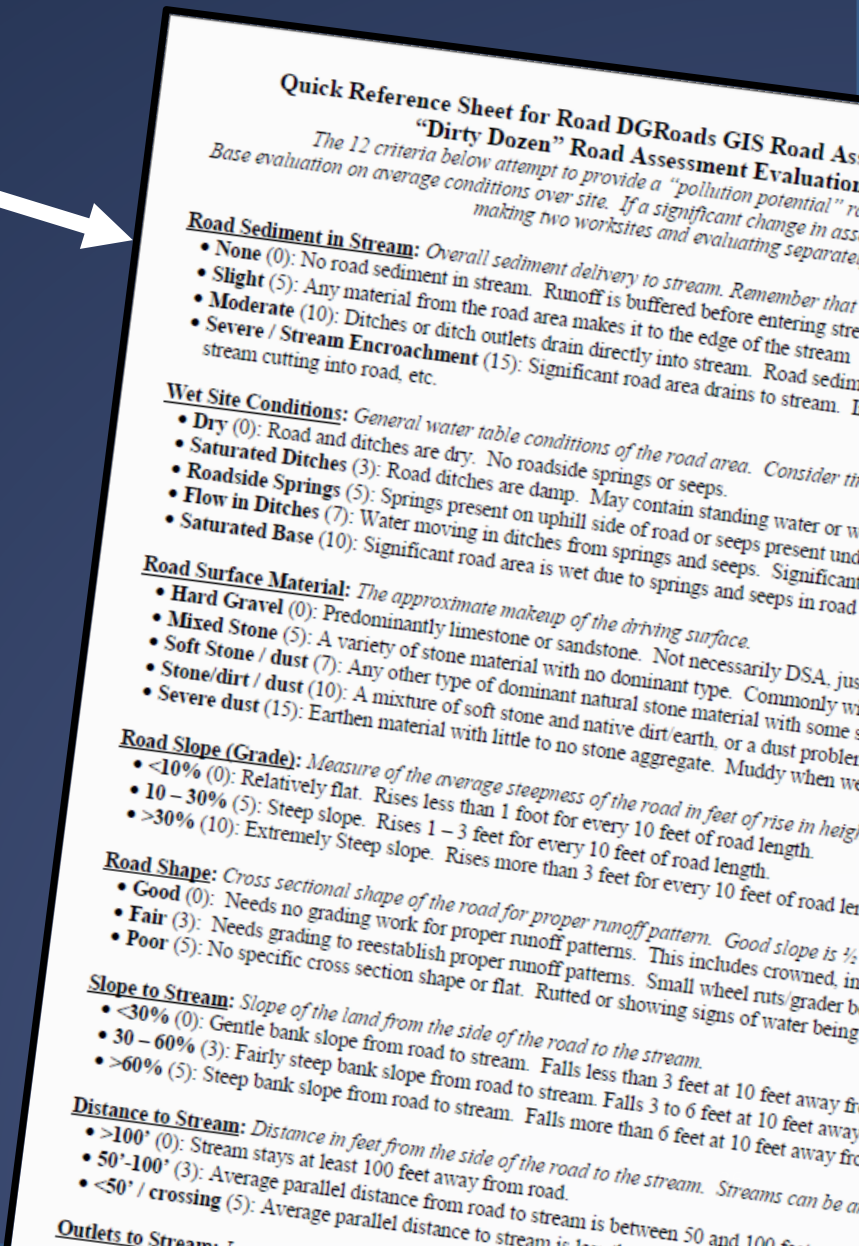
Additional Resources



Assessment Refresher

Additional Resources

- Quick Reference Guide
- Field Guide
- Q&A
- Recorded Training



Quick Reference Sheet for Road DGRoads GIS Road As

"Dirty Dozen" Road Assessment Evaluation

The 12 criteria below attempt to provide a "pollution potential" ra
Base evaluation on average conditions over site. If a significant change in ass
making two worksites and evaluating separate

Road Sediment in Stream: *Overall sediment delivery to stream. Remember that*
- **None** (0): No road sediment in stream. Runoff is buffered before entering stre
- **Slight** (5): Any material from the road area makes it to the edge of the stream
- **Moderate** (10): Ditches or ditch outlets drain directly into stream. Road sedim
- **Severe / Stream Encroachment** (15): Significant road area drains to stream.
stream cutting into road, etc.

Wet Site Conditions: *General water table conditions of the road area. Consider ti*
- **Dry** (0): Road and ditches are dry. No roadside springs or seeps.
- **Saturated Ditches** (3): Road ditches are damp. May contain standing water or w
- **Roadside Springs** (5): Springs present on uphill side of road or seeps present und
- **Flow in Ditches** (7): Water moving in ditches from springs and seeps. Significant
- **Saturated Base** (10): Significant road area is wet due to springs and seeps in road

Road Surface Material: *The approximate makeup of the driving surface.*
- **Hard Gravel** (0): Predominantly limestone or sandstone. Not necessarily DSA, jus
- **Mixed Stone** (5): A variety of stone material with no dominant type. Commonly wi
- **Soft Stone / dust** (7): Any other type of dominant natural stone material with some s
- **Stone/dirt / dust** (10): A mixture of soft stone and native dirt/earth, or a dust problem
- **Severe dust** (15): Earthen material with little to no stone aggregate. Muddy when we

Road Slope (Grade): *Measure of the average steepness of the road in feet of rise in heig*
- **<10%** (0): Relatively flat. Rises less than 1 foot for every 10 feet of road length.
- **10 – 30%** (5): Steep slope. Rises 1 – 3 feet for every 10 feet of road length.
- **>30%** (10): Extremely Steep slope. Rises more than 3 feet for every 10 feet of road le

Road Shape: *Cross sectional shape of the road for proper runoff pattern. Good slope is ½*
- **Good** (0): Needs no grading work for proper runoff patterns. This includes crowned, in
- **Fair** (3): Needs grading to reestablish proper runoff patterns. Small wheel ruts/grader b
- **Poor** (5): No specific cross section shape or flat. Rutted or showing signs of water being

Slope to Stream: *Slope of the land from the side of the road to the stream.*
- **<30%** (0): Gentle bank slope from road to stream. Falls less than 3 feet at 10 feet away fr
- **30 – 60%** (3): Fairly steep bank slope from road to stream. Falls 3 to 6 feet at 10 feet away
- **>60%** (5): Steep bank slope from road to stream. Falls more than 6 feet at 10 feet away fr

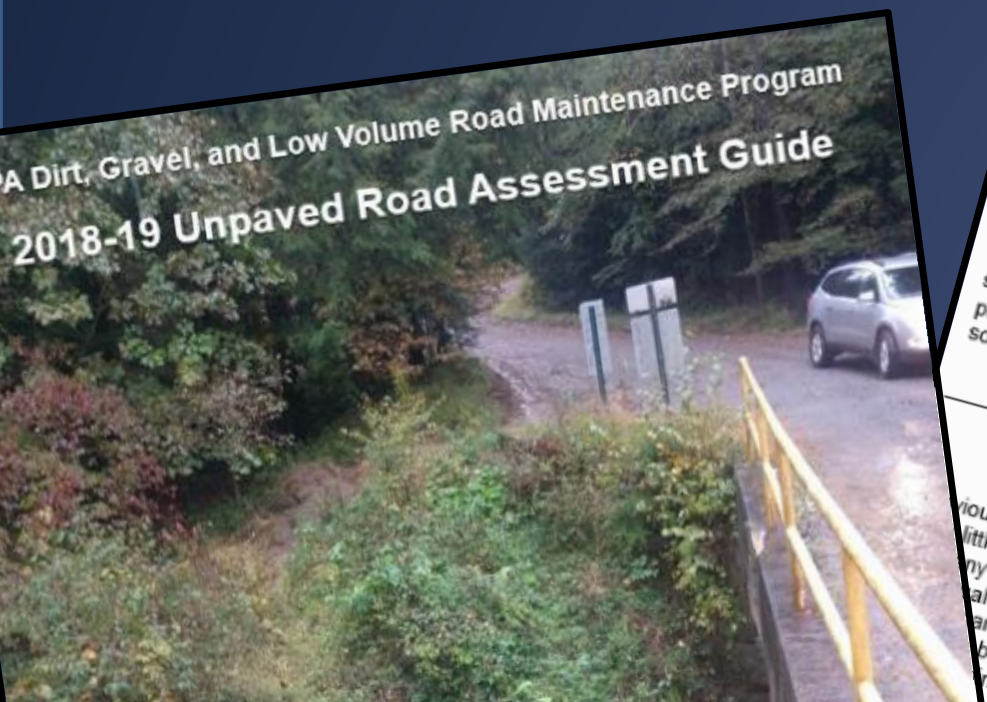
Distance to Stream: *Distance in feet from the side of the road to the stream. Streams can be a*
- **>100'** (0): Stream stays at least 100 feet away from road.
- **50'-100'** (3): Average parallel distance from road to stream is between 50 and 100 f
- **<50' / crossing** (5): Average parallel distance to stream

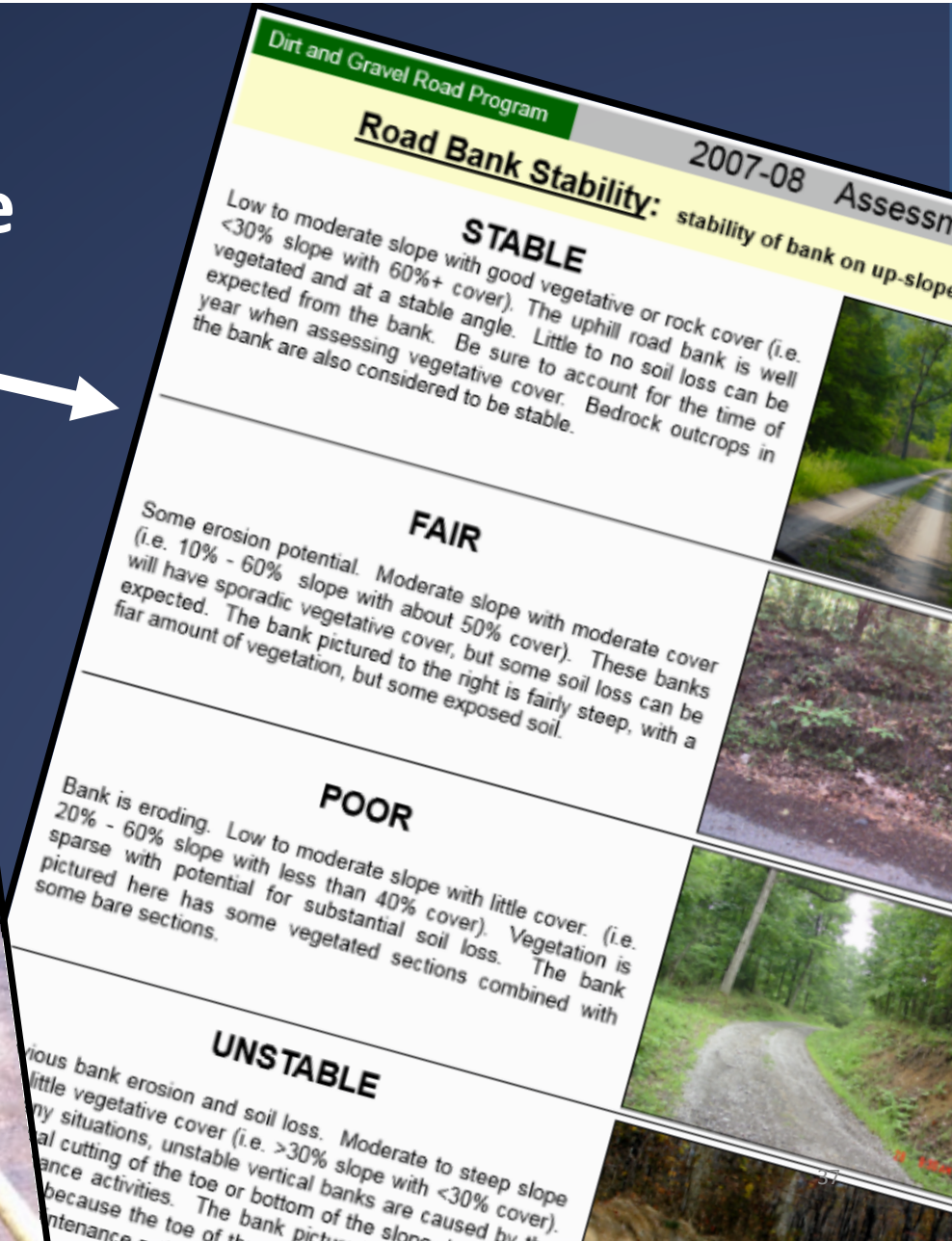
Outlets to Stream:

Assessment Refresher

Additional Resources

- Quick Reference Guide
- Field Guide
- Q&A
- Recorded Training

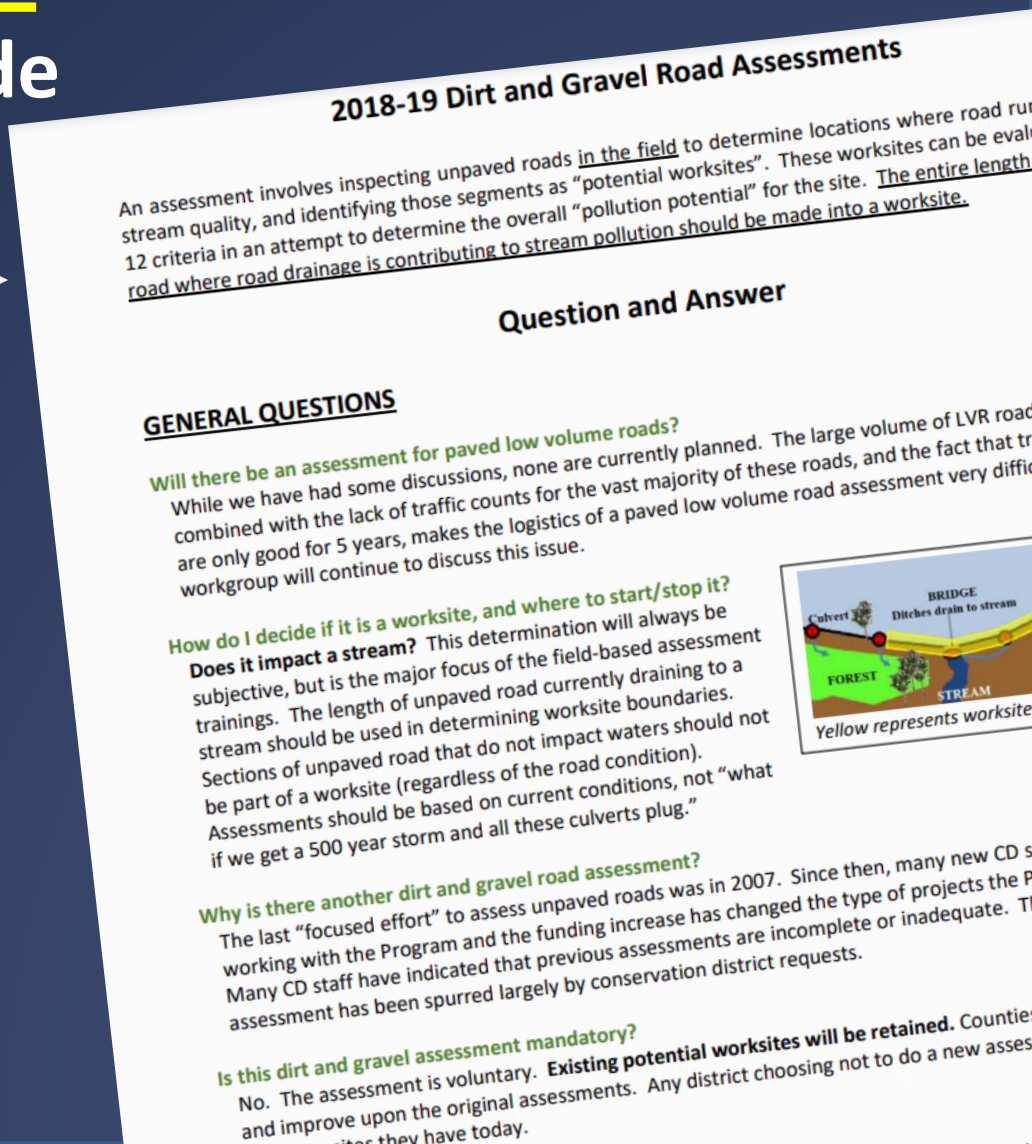




Assessment Refresher

Additional Resources

- Quick Reference Guide
- Field Guide
- Q&A
- Recorded Training



2018-19 Dirt and Gravel Road Assessments

An assessment involves inspecting unpaved roads in the field to determine locations where road ru
stream quality, and identifying those segments as "potential worksites". These worksites can be eval
12 criteria in an attempt to determine the overall "pollution potential" for the site. The entire length
road where road drainage is contributing to stream pollution should be made into a worksite.

Question and Answer

GENERAL QUESTIONS

Will there be an assessment for paved low volume roads?
While we have had some discussions, none are currently planned. The large volume of LVR road
combined with the lack of traffic counts for the vast majority of these roads, and the fact that tr
are only good for 5 years, makes the logistics of a paved low volume road assessment very diffi
workgroup will continue to discuss this issue.

How do I decide if it is a worksite, and where to start/stop it?
Does it impact a stream? This determination will always be
subjective, but is the major focus of the field-based assessment
trainings. The length of unpaved road currently draining to a
stream should be used in determining worksite boundaries.
Sections of unpaved road that do not impact waters should not
be part of a worksite (regardless of the road condition).
Assessments should be based on current conditions, not "what
if we get a 500 year storm and all these culverts plug."

Yellow represents worksite

Why is there another dirt and gravel road assessment?
The last "focused effort" to assess unpaved roads was in 2007. Since then, many new CD s
working with the Program and the funding increase has changed the type of projects the P
Many CD staff have indicated that previous assessments are incomplete or inadequate. T
assessment has been spurred largely by conservation district requests.

Is this dirt and gravel assessment mandatory?
No. The assessment is voluntary. **Existing potential worksites will be retained.** Counties
and improve upon the original assessments. Any district choosing not to do a new asses
sites they have today.

Assessment Refresher

Additional Resources

- Quick Reference Guide
- Field Guide
- Q&A
- Recorded Training →
  - Background (18 min)
  - Preparation (16 min)
  - Virtual Assessments (55 min)
  - Wrap-up (5 min)

Online Assessment Training - 2019

In order to assist Conservation District looking to update their unpav
the DGLVR Program, the Center has recorded and posted an assessn
chapters at the links below. While it is difficult to mimic the field port
training in a recorded presentation, the training below can serve as a
primer or refresher for when CDs decide to begin working on their as
will continue to hold informal assessment field trainings on request.

- Chapter 1 (23.5 MB): Assessment Background: Reviews assessm
  as well as potential allocation impacts and an overview of the as
  min)
- Chapter 2 (16.6 MB): Assessment Preparation: Reviews the logis
  to conduct an assessment such as equipment and time needed
- Chapter 3: Virtual Assessments: Take a virtual "drive" to assess
  updating potential sites in GIS system. It is recommended to vi
  listed below.
  - 3.1 Manor Hill Road (66.4 MB) *(~22 min)*
  - 3.2 Claire Road (38.6 MB) *(~10 min)*
  - 3.3 Harper Hill Road (38.9 MB) *(~12 min)*
  - 3.4 Hutchinson Road (22.5 MB) *(~6 min)*
  - 3.5 Summit School Road (14 MB) *(~5 min)*
- Chapter 4 (4.94 MB): Wrap-up and Final Thoughts: A review of t
  as part of this training and some final guidance. *(~5 min)*

If you have additional questions after watching the training series ab
Q&A, please send them to Steve Bloser at smb201@psu.edu. Answe
will be (anonymously) posted on this webpage and for the benefit of

Assessment Refresher

Additional Resources

- Quick Reference Guide
- Field Guide
- Q&A
- Recorded Training
- 5/5/20 webinar: Assessment Perspectives and COVID Issues (w Juniata County)

When is the dirt and gravel assessment due?

There is currently no "due date" to complete assessments. Counties are always free to update their inventory of potential sites. Future district allocations will likely factor in all worksites for each county as of roughly April of each year in order to have allocations for SCC approval in May.

Should I assess paved LVRs too?

No. Identified worksites are not part of the allocation formula for LVRs. Why not?

- Since PA does not have local traffic counts, we don't know for sure what roads qualify as LV until a count is done.
- There are potentially 3-4 times as many paved road miles to assess as unpaved.

COVID Considerations

- Recommend that two people participate – this may not be possible without two vehicles – Consider handheld two-way radios if you decide to use two vehicles
- Limits options to interact with townships or invite them along
- More difficulty communicating and coordinating between staff and if you involve townships

Buy a good umbrella!!!

Assess in the rain!!!

Contact Steve Bloser or Ken Corradini at the CDGRS to discuss the circumstances of your particular county.

Happy Holidays!

Next Webinar:
January 7th
Annual Summary Refresher