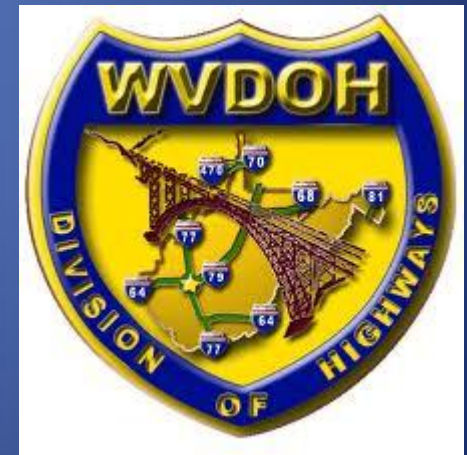


Rural Environmental Issues & West Virginia's Pilot Test of Ecological Approaches to Environmental Protection Developed in Capacity Research Projects CO6A and CO6B



Greg Akers, West Virginia Division of Highways
Walter Veselka, WVU Environmental Research Center
21 September 2011



6th largest road network
maintained by one management
entity in United States

– #1 in maintaining bridges

Planning for climate, topography
& future economic opportunities

Fiscally responsible to public

The Rural Challenges

The public...



...is hard to please

Regulatory Challenges



The Transformational Challenge



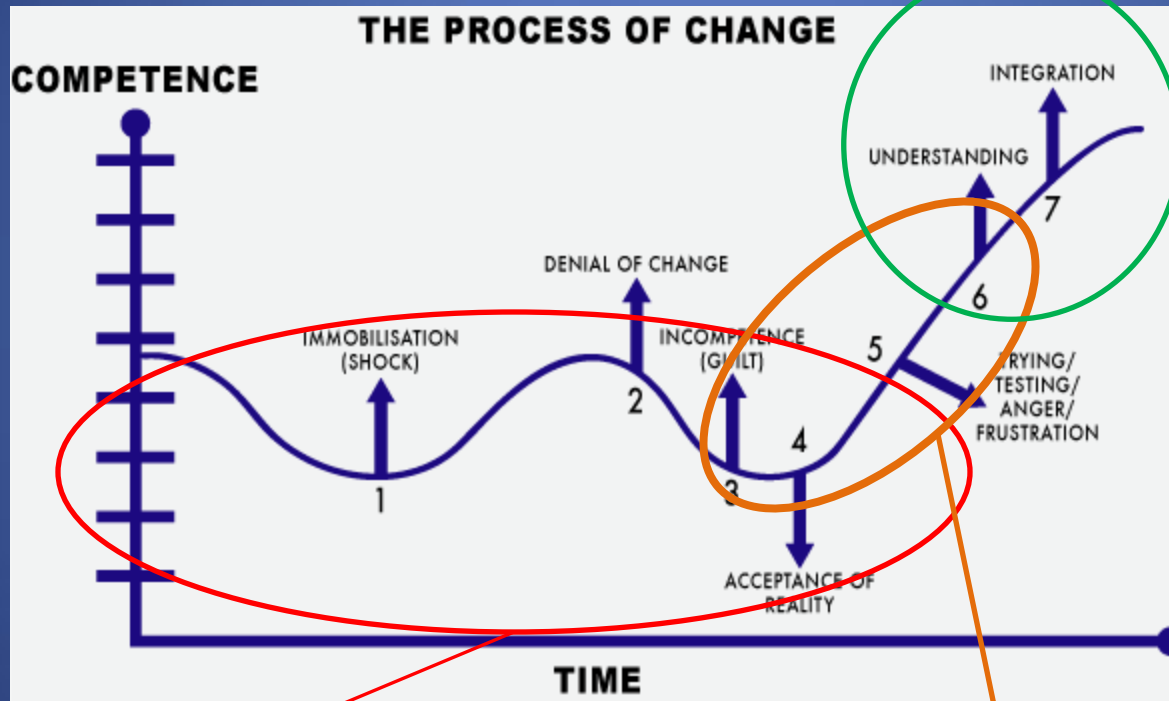
Perception



Action

Outreach &
Workshops

The route to change



Adaptive management:
Outreach & constant feedback

Historic back and forth with US EPA, DEP, DNR, Washington DC, etc.

The grind: adoption and learning new tools, trying new things

Historical rationale and contention

WVDOH points of consideration

Frustration as aquatic mitigation and minimizing impacts has been moving target...onsite, offsite, monitoring, size, functions, etc.

Funded research into culvert replacement, mitigation planning, sediment reduction BMPs

No recognition of positive changes over the years...

Resource Agency concerns

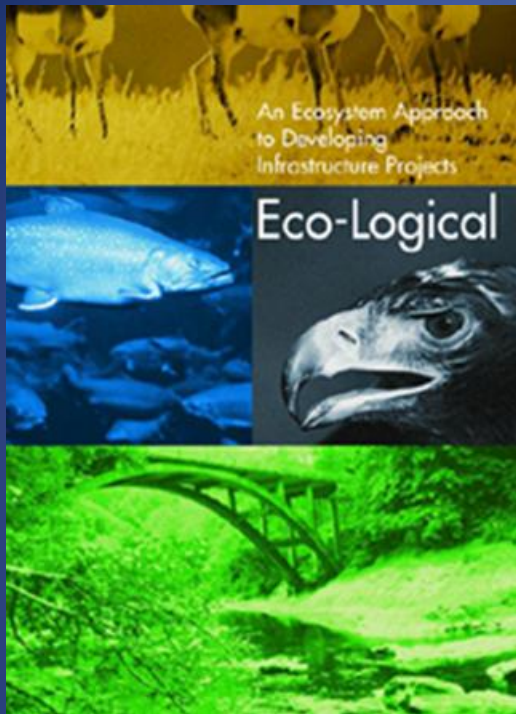
Frustration at reactive and failing mitigation projects

Despite research - no change on the ground or consistent approach

Lack of consistency in application of stewardship practices

- *By contractors*
- *Between management regions*

The Mandate for a Fresh Start



Basic framework for using an ecosystem approach in transportation planning across individual agency jurisdictions and encourages an outcome-based approach to conservation

Puts the cards on the table for

BLM , NOAA, NPS

EPA - Greater flexibility to do environmental good

FHWA - Streamlined project development and improved mitigation opportunities

USACE - Finding the balance to keep waters clean and clear

USFS - Stewardship of natural resources and facilitated use of public lands

USFWS - One conservation framework, endless possibilities for partnership



Change From Within

**Change beings with the Planners and Transfers
through the Organization**

*More readily accepted if all changes can be
grounded in accountability to the public good
and fiscal responsibility.*

Let's have a look at some challenges

Planning Challenges- Perceptions

Roads - How hard can it be?



Planning Challenges- Realities

Distinct planning regions

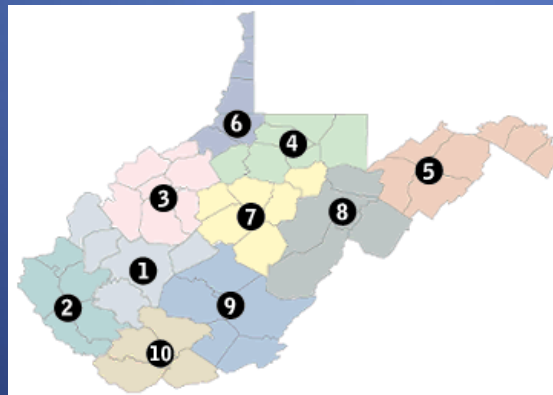
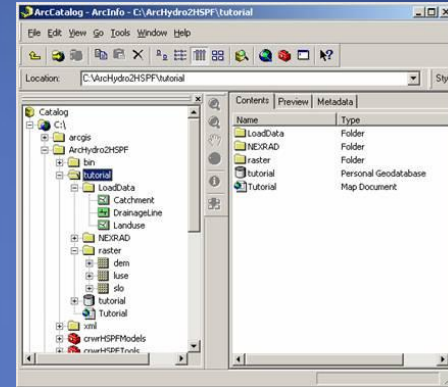
Many 'over-seers'

Lack of consistent

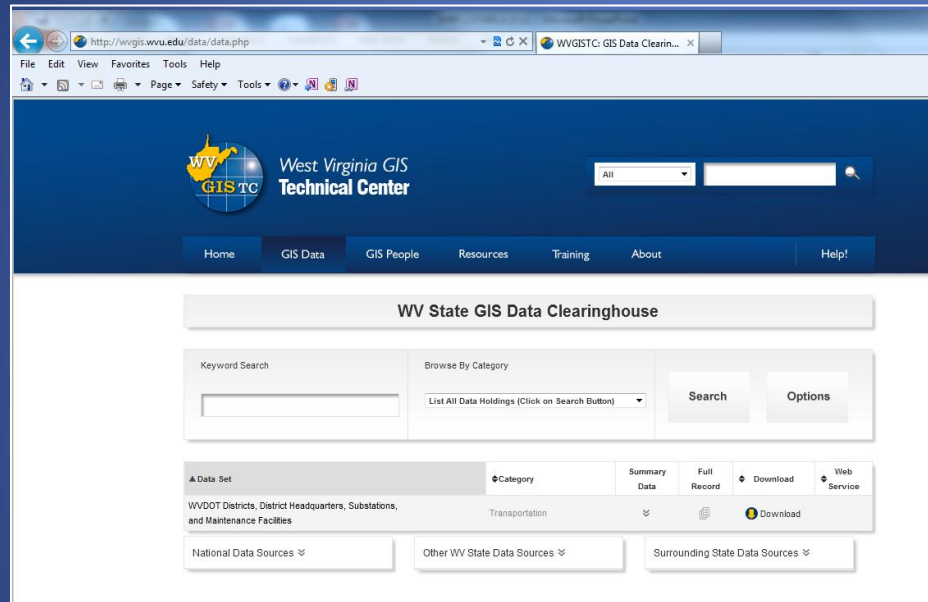
✓ Sources for GIS data

✓ Accountability from 'planned' to 'field'

Limited time for numerous road maintenance projects



Planning Challenges- Actions & Solutions



WV State GIS Data Clearinghouse
<http://wvgis.wvu.edu/>

Planning Challenges- Actions & Solutions

Accentuate the Outcomes of Highway Research

SHRP 2 Project for Coalfields Expressway and King Coal Highway

- Showcase use of publicly available data
 - ✓ **GIS State Clearinghouse updates as per WVDOH needs**
- **Incorporate Applied Research in Planning**
 - ✓ **WVSCI scores predictors**
 - ✓ **Mitigation site location tool**
 - ✓ **Harnessing environmental stakeholders and 'power brokers'**
 - **TNC, DNR, EPA**

Rural Challenges- Public Perceptions



Why can't they fix my potholes?

Why hasn't my road edge been brush-hogged?

When is my road going to get plowed?

Rural Challenges- The Realities



Pick your saying..

Nightmare, juggling flaming knives, herding cats

Rural Challenges- Actions and Solutions

Demonstrate / seek out efficiencies that will shift resources to satisfy public

Provide an automated forum for suggestions and ways to save money (website link)

- Showcase any changes
- Mow less highways ROW → improved wildlife/pollinator habitat, saves money and time for other road maintenance activities

Regulatory Challenges- Perception

WVDOH is too cumbersome and resistant to change

- *Not incorporating new environmental designs*

WVDOH is not accountable in applying MOUs

Regulatory Challenges- Realities

WVDOH catching up to a moving target

Takes time to implement institutional changes

– Must make all aware of expectations

- ✓ Includes subcontractors
- ✓ Boots on the ground employees

Improve upon culture of continual improvement
and emphasize record-keeping for accountability

- Improved plow design as per Donny Williams, etc.

Changing Perception of Regulators

FHWA- Keeping it Simple

Lots of suggestions from other states for Simple and Cheap, Environmental Fixes



Looking for Mussels in all the Right Places



New Roadside get less Clearing, more Wildlife Habitat

Understanding Nationwide Permits

- Aquatic Life Movements- No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions
- Management of Water Flows- To the maximum extent possible, the pre-construction course, condition, capacity and location of open water must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. **The activity may alter pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g. stream restoration or relocation activities).**

NWP 14- Linear Transportation Projects

For intermittent streams and greater....

- Culverts must completely span bankful channel
- The inlet/ outlets must be designed in such a manner as to maintain the substrate in the bottom of the culverts. Countersinking the culvert to the sub-pavement of the streambed or the use of a bottomless culvert will generally fulfill this requirement
- ...permit must be obtained for proposed culverted stream crossings that do not pass aquatic life and / or do not freely pass bankful flows.
 - Such crossings may require compensatory mitigation.
 - Mitigation is \$\$\$

Culvert Replacement Checklist

<http://www.fws.gov/midwest/Fisheries/streamcrossings/ReplacementStructures.htm>

Planning, Design and Construction of Fish Friendly Stream Crossings



Round culverts
for 0-3% grade

Regulatory Challenges- Actions & Solutions

Bridging the Accountability Gap through Record Keeping/ Training

- Uniform system of Education / Certification in regards to each district
 - ✓ Environmental compliance training for routine maintenance
 - ✓ e.g. culverts, ditches, gutters, salt applications, etc.
- Contractor environmental training required
 - ✓ Condition of the job, applies to contractors and anyone onsite
- Not re-inventing the wheel – using applicable tools
 - ✓ AASHTO- Environmental Stewardship Practices, Procedures, and Policies for Highway Construction and Maintenance

SHRP 2 - Putting it all Together

Streamlining- Effective and Efficient

1. Integration of planning and project development processes
2. Use of context-sensitive designs and solutions
3. Development of programmatic agreements
4. Use of flexible mitigation
5. Expenditures on technology, training, and staff
6. Employment of alternative dispute resolution

Backcasting look at Coalfields Expressway and King Coal Highways

The 'hidden' objectives?

Facilitate discussions and communications

Produce an off-the-shelf applied academic product

- based on the previous tools

Enable consistency by both regulatory agencies and DoH (and other entities) in regards to EXPECTATIONS and CLEAR PROCEDURES that is TRANSFERABLE

- i.e. transmission lines, Marcellus pipelines, etc.

Current shortcomings

Postage stamp mitigation

Mitigation banking market not matured in WV

– Earthmark / Meadow River is not cure-all

T and E consultations tools not up to date

Lack of consistency for wholesale top to bottom adoption of 'green' practices

Project Overview

Keep overall goal simple

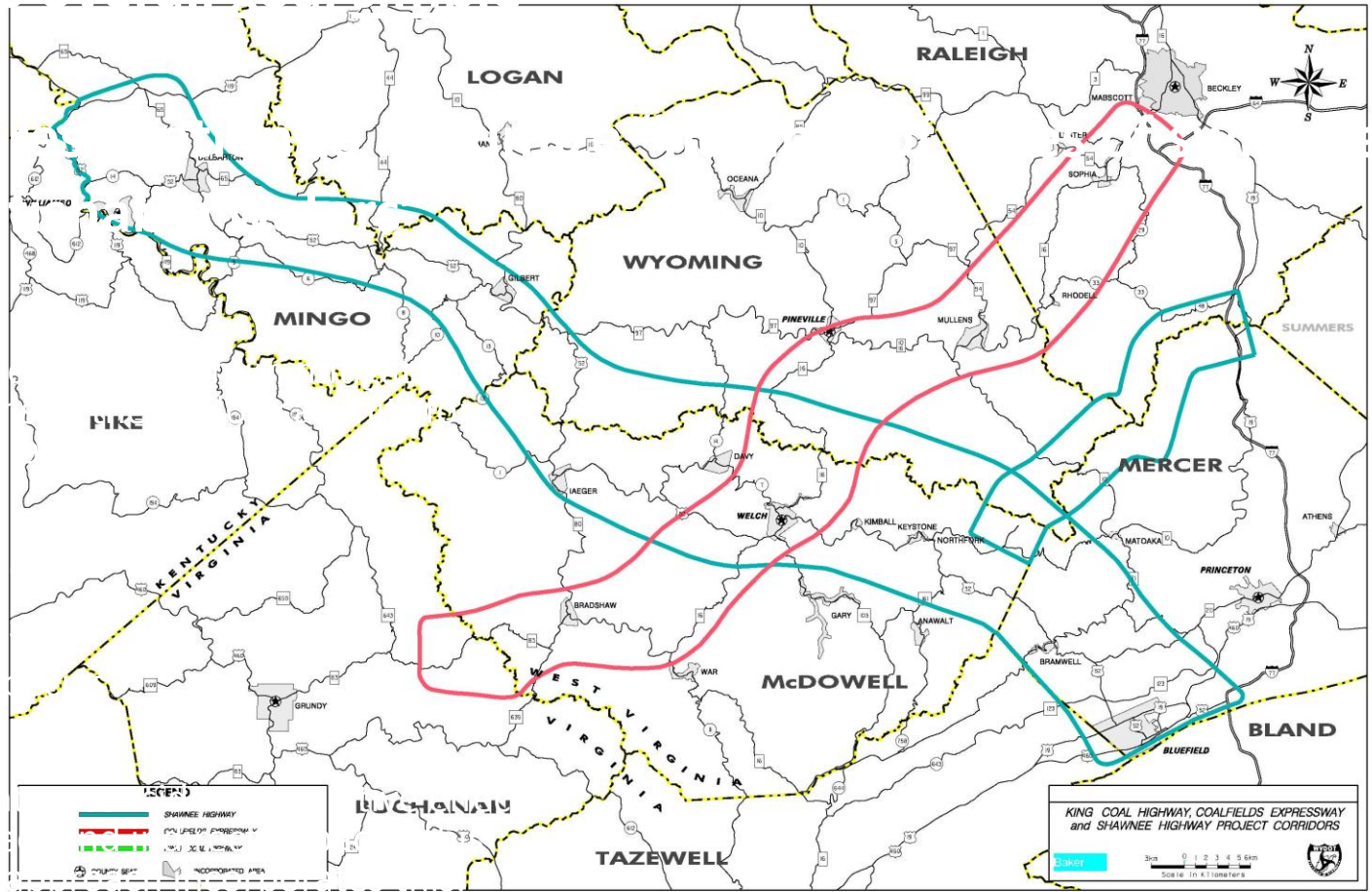
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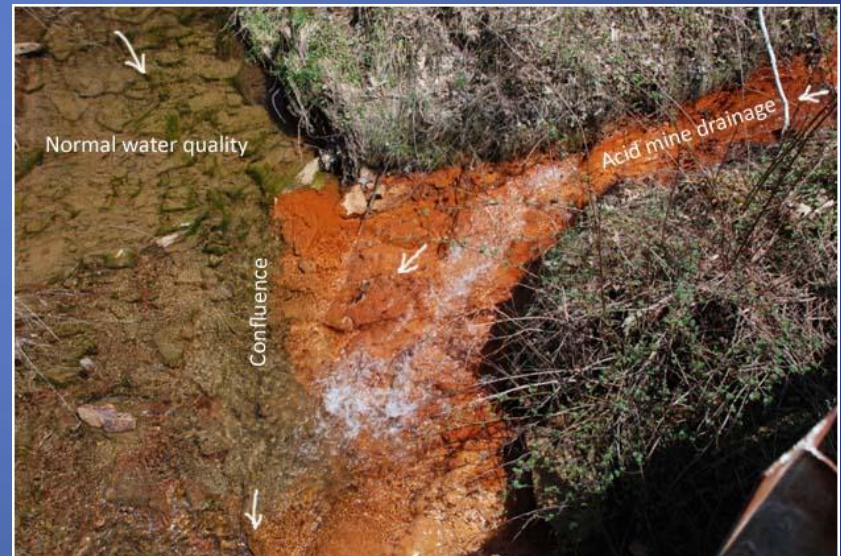
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Step 2: Based on mitigation liability ...

Identify where DoT investments could make the greatest difference for watershed, species, or ecoregional health and sustainability



Fixing 'crappy houses' in good neighborhoods

Step 3 – Reward for above and beyond

Implement mitigation according to bill with local partner for long-term maintenance and monitoring, HOWEVER...

Maintain accountability during as-build

- E & S and corresponding water quality monitoring
- ‘Green’ design- countersunk culverts, natural stream channel design

Minimization of impacts via BMPs leads to ‘rebate’ of credits able to re-use or re-sell.

Streamlining keys- revisited

1. Integration of planning and project development processes

Mitigation liability quantified ahead of time

Tools allow avoidance of resources

Streamlining keys- revisited

2. Use of context-sensitive designs and solutions

Sunk culverts for wildlife crossings and aquatic life

Natural Stream Channel Design over Riprap

Streamlining keys- revisited

3. Development of programmatic agreements

Encourage mechanisms that give assurances between agencies

- Environmental checklists for projects
- Contractors required to have environmental sensitivity training

Streamlining keys- revisited

4. Use of flexible mitigation

Ecological Unit concept to maximize fishable and swimmable

- Include chemical treatment options
- Multiple stewards of land (TNC, Canoe trails, Hatfield McCoy)

Streamlining keys- revisited

5. Expenditures on technology, training, and staff

'Green Sheets' implementing practices for accountability

Uniform training between districts top to bottom

Required contractor training

Streamlining keys- revisited

6. Employment of alternative dispute resolution

Need WVDOH to help push resource agencies towards using this tool as opportunity for mediation

Points to take home....

Need to want to change, shape solution instead of being forced....remember goal

Maximizing fishable and swimmable stream miles =

Net benefit economically and environmentally

Lunchtime Discussions

What are some other barriers that you see to incorporating environmental planning? How do we overcome them?

What mechanisms could be implemented in-house by WVDOH that could alleviate regulatory concerns

Thanks for your time and feel free to contact me
with any questions or concerns...

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