CULVERTS

For Fish and Wildlife Passage
Jan. 2007  ---  USACE Nationwide Permits and Regional conditions

Stream Crossing work:

- Environmental protection
- Fish and wildlife enhancements
- Interagency meetings proposed new Regional Conditions
- Desire on the part of regulatory agencies for Statewide Culvert Standards
InterACT

Participating Agencies:

- NYSDOT
- NYSDEC
- FHWA
- NYTA
- APA
- USFWS
- OPRHP
- NYNHP
- USACE
- Warren Co. Soil & Water Dist.
Ten agencies that are committed to ensuring that stream crossings are designed, installed and maintained in a manner that protects the ecological integrity of aquatic systems, while accommodating practicable technology, engineering criteria and human safety.
Subcommittees

- Ecological performance standards
- Engineering Design
- Regulatory streamlining
- Outreach & education
Streams, and their riparian corridors, are more than just the homes of fish and wildlife.

These corridors are their roads and highways, as well.
They provide:

- Access to food
- Connection between population groups
- Migration routes
The best road crossing for any type of fish or wildlife is one that is “invisible” to the animal.

The ideal for every crossing would be a bridge structure ---

“High, Wide and Handsome”
But let’s be real.
Estimated number of Culverts in NYS:

- 55,000 large
- 1,000,000 small (<5’ span)

They’re not all going to be replaced by bridges.
So, what makes a “good” culvert?
We all know what makes a bad culvert:

- Structural problems
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- Insufficient capacity
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- **Insufficient capacity**
- **Excessive velocity**
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- Easily plugged with debris
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And we can design to avoid these
Similar problems make culverts bad for fish and wildlife:

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- Lack of proper substrate
And we can design to avoid these, too.

Without sacrificing our traditional concerns, and in many cases, with little additional expense.
About as bad as it gets:
Pretty darned good
What does this mean for culvert owners?

- More open-bottomed structures (large culverts)
- Embedment of closed-cell culverts
- Grade controls to manage velocities
- Fish passage structures
- Larger culvert spans
And what are the expected benefits?

- Simplified or fast-track permitting
- Reduced culvert maintenance needs
- Enhanced recreational value
- A healthier, more sustainable community
USACE NWP Regional Conditions

- March 19, 2007 - New Nationwide Permits (NWP) became effective & expire March 18, 2012
- Requires each District to include regional conditions
  - Two Districts in NY State
    - Buffalo District
    - New York District
USACE NWP Regional Conditions

- Regional Conditions developed by USACE
  - Ensure impacts are minimal
    (individually and cumulatively)
  - Consider federal & state resource agency concerns
  - Address public comments

- Expected to be approved for use in OCT/NOV 2007
- Public Notice will be issued following approval
New USACE NWP

Regional Conditions for Culverts

- New or replacement culverts
- Fish bearing streams
- Designed to span bank-full channel
- Include provisions for natural substrate
  - Bridges or bottomless culverts
  - Invert embedment for closed culverts
    (corrugated, smooth, roughened)
New USACE NWP
Regional Conditions for Culverts

- Appropriate engineering required to ensure culverts are sized and designed to provide adequate capacity (to pass various flood flows) and stability (bed, bed forms, footings and abutments).

- Measures must be included in all culvert designs that will promote the safe passage of fish and other aquatic organisms.
Cross Section: “Natural” Channel
Cross-Section: Bankfull Width
Cross-Section: Bottomless Culvert
Cross-Section: Four-Sided Box
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Cross-Section: Round Pipe
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New USACE NWP RC for culverts

- It is understood that not all situations will be able to meet the requirements

- Provisions have been incorporated to allow alternate designs
What can you do to expedite the permit process?

- Design structures to meet parameters
  - May allow use of NWP without notification to USACE or shorten review time
- If not practical, then provide details with Pre-Construction Notification (PCN)
  - Why not practical?
  - Effects on aquatic species movement
  - Proposed measures to minimize effects
Questions?

Thank you!

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