Amherst Dam Public Informational Meeting

Michael Juris - Village President
Joe Behlen, P.E. – WDNR Dam Safety Engineer
Gerald Krueger, P.E. – AECOM

April 3, 2014
Welcome

Michael Juris – Village President

• Introduction and Purpose of Public Informational Meeting
• Question and Comment Forms
• Village News Letter
• New Information
• Village Activities
Overview of Amherst
Downstream Floodplain
Wisconsin Department of Natural Resources
Dam Regulations and Requirements

Joe Behlen, P.E. – WDNR Dam Safety Engineer

- Governing Regulations – Chapters 31 and 333

- WDNR Dam Safety Inspection
  1. Updated Inspection, Operation, & Maintenance (IOM) Plan and Spillway Discharge Table
  2. Updated Emergency Action Plan (EAP)
  3. Spillway Capacity Evaluation
  4. Establish Survey Benchmarks at the Dam
  5. Install a Staff Gauge at the Dam
  6. Submit Plan and Specifications to Repair Powerhouse Wall
  7. Remove Woody Vegetation from the Dam Embankment
WDNR Dam Regulations and Requirements

Hazard Rating:
- Established based on dam failure
- Significant Hazard
- Spillway must pass 500-year flood event
- Hazard Rating is Independent of Repairs

Spillway Capacity:
- Existing = 1,443 to 1,850 cubic feet per second (cfs)
- Required = 2,520 cfs (500-year flood event)
WDNR Dam Regulations and Requirements

WDNR Grant Program Timeline (Typical)

• Submit plans and specifications within 6 months of WDNR grant notice

• Submit construction bids within 90 days of WDNR plan and specifications approval

• Submit signed grant agreement within 30 days of grant award.

• Begin construction

Minimum items to be completed:

• Completion of the seven items identified in the WDNR Inspection Letter will be required with or without a grant (unless dam abandonment is pursued).
Conceptual Options for Amherst Dam

Jerry Krueger, P.E. – AECOM

• Project Need:
  1. Seven items identified during WDNR Inspection
  2. Spillway capacity shortfall

• Conceptual Level Planning Phase
  1. Conceptual Options Have Been Developed
  2. Detailed Design Will Take Place in the Future
  3. Opinion of Probable Costs are at a Conceptual Level
  4. One Option was Chosen for the WDNR Grant Application
Conceptual Options for Amherst Dam

Conceptual Option Summary

Option 1 – Complete Reconstruction

Option 2 – Expand Spillway onto Right Embankment

Option 3 – Abandon Amherst Dam

Option 4 – Address Seven Items in WDNR Inspection Letter
Option 1 – Complete Reconstruction

Example of a Tainter Gate Spillway
Option 1 – Complete Reconstruction (Continued)

Option 1 Major Items:

1. Repair Foundation Wall
2. Replace Existing Dam
3. Tainter / Vertical Gates vs Passive Weir
4. Seven WDNR Items
5. Right Embankment Seepage
Option 2 – Expand Spillway onto Right Embankment

Option 2 Major Items:

1. Repair Foundation Wall
2. Additional Spillway Bay on Right Embankment
3. Seven WDNR Items
4. Right Embankment Seepage
Option 3 – Abandon Amherst Dam

Option 3 Major Items:

1. Draw Down Pond for One Year Prior to Removal
2. Sediment Removal
3. Concrete Removal
4. Foundation Repair & Channel Stabilization

Two Types of WDNR Dam Grant Funding Assistance:
1. Available throughout the year - $50,000
2. During next municipal dam grant program if included in the State Budget = up to $400,000
Option 4 – Address Seven WDNR Items

Option 4 Major Items:

1. IOM Plan
2. EAP
3. Spillway Capacity
4. Benchmarks
5. Staff Gauge
6. Powerhouse Wall
7. Woody Vegetation
### Planning Level Comparison of Probable Costs

#### Summary of Probable Cost for Amherst Dam Alternatives

<table>
<thead>
<tr>
<th>Option</th>
<th>Planning Level Probable Costs (2014 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Replace Dam</td>
<td>$1,250,000¹</td>
</tr>
<tr>
<td>2) Expand Spillway</td>
<td>$800,000 - $1,000,000</td>
</tr>
<tr>
<td>3) Abandon Dam</td>
<td>$275,000 - $350,000²</td>
</tr>
<tr>
<td>4) Address 7 WDNR Items</td>
<td>$80,000 - $120,000</td>
</tr>
</tbody>
</table>

**Notes:**

1. Village share = $850,000.
2. Sediment removal costs could increase if contamination is present.
3. Cost estimates provided for option comparison only.
# Amherst Dam Alternatives

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Replace Dam</strong></td>
<td><em>Addresses All Deficiencies</em></td>
<td><em>Highest Cost</em></td>
</tr>
<tr>
<td>• Repair Foundation Wall</td>
<td><em>Grant Eligible</em></td>
<td><em>Longer Construction</em></td>
</tr>
<tr>
<td>• Replace Existing Dam</td>
<td><em>Significant Extension of Life</em></td>
<td><em>More Extensive Cofferdam and Dewatering</em></td>
</tr>
<tr>
<td>• Seven WDNR Items</td>
<td><em>Improved Operation</em></td>
<td></td>
</tr>
<tr>
<td>• Right Embankment Seepage</td>
<td><em>Pond Drawdown</em></td>
<td><em>Pond Drawdown</em></td>
</tr>
<tr>
<td><strong>2) Expand Spillway onto Right Embankment</strong></td>
<td><em>Addresses Current Deficiencies</em></td>
<td><em>Significant Cost</em></td>
</tr>
<tr>
<td>• Repair Foundation Wall</td>
<td><em>Grant Eligible</em></td>
<td><em>High Risk of Damage to Existing Spillway</em></td>
</tr>
<tr>
<td>• Additional Spillway Bay</td>
<td><em>Extends Life</em></td>
<td><em>During Construction</em></td>
</tr>
<tr>
<td>• Seven WDNR Items</td>
<td><em>Pond Drawdown</em></td>
<td><em>Doesn’t Address Existing Aging Spillway</em></td>
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<tr>
<td>• Right Embankment Seepage</td>
<td><em>Slightly Less Costly Than Option 1</em></td>
<td></td>
</tr>
<tr>
<td>Option</td>
<td>Advantages</td>
<td>Disadvantages</td>
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<tr>
<td><strong>3) Abandon Dam</strong>&lt;br&gt;• Draw Down Pond for One Year Prior to Removal&lt;br&gt;• Sediment Removal&lt;br&gt;• Concrete Removal&lt;br&gt;• Foundation Repair &amp; Channel Stabilization</td>
<td>Lower Cost – Grant Eligible&lt;br&gt;Addresses All Deficiencies&lt;br&gt;No Future Operation or Maintenance&lt;br&gt;Permanent Pond Drawdown</td>
<td>Permanent Pond Drawdown&lt;br&gt;Sediment Removal Cost Could Increase if Contamination is Present.&lt;br&gt;Permanent Pond Drawdown&lt;br&gt;Cost Increase if Contamination Present.</td>
</tr>
<tr>
<td><strong>4) Address Seven WDNR Items</strong>&lt;br&gt;• IOM Plan&lt;br&gt;• EAP&lt;br&gt;• Spillway Capacity&lt;br&gt;• Benchmarks&lt;br&gt;• Staff Gauge&lt;br&gt;• Powerhouse Wall&lt;br&gt;• Woody Vegetation</td>
<td>Addresses Current Deficiencies&lt;br&gt;No Pond Drawdown&lt;br&gt;Short Term – Least Costly&lt;br&gt;Provides Time for Future Spillway Upgrades</td>
<td>Not Grant Eligible&lt;br&gt;Doesn’t Address Spillway Capacity Deficiency&lt;br&gt;Doesn’t Address Existing Aging Spillway</td>
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THANK YOU FOR ATTENDING

QUESTIONS?