Spillway Alternatives Analysis

Spillway Alternatives Evaluated

- Single Stage Labyrinth Weir
- Single Stage Labyrinth Weir with Gate
- Single Stage Piano Key Weir
- Two Stage Piano Key Weir
- Two Stage Piano Key Weir with Parapet Wall
- Single Stage Piano Key Weir with Gate and Parapet Wall
- Three Stage Piano Key Weir with Parapet Wall*

*Recommended Alternative

Three Stage Piano Key Weir with Parapet Wall

Advantages:

- Mimics Existing Discharge Rates of Existing Spillway
  - 100-Year Discharge 99.7% of Current Discharges Resulting in Minimal Increase in Threat to Downstream Properties
- Mimics Flood Elevation of Lake
  - 100-Year Flood Elevation within 0.03 feet (1/3-inch) of Current Flood Elevation Resulting in Minimal Increase in Threat to Upstream Properties as a Result of Spillway Replacement
- No Mechanical Devices to Maintain or Replace
  - Minimizes Long-Term Maintenance Costs
- Will Meet Current Georgia Safe Dams Category I Design Standards
Spillway Alternatives Analysis

Three Stage Piano Key Weir with Parapet Wall

Key Design Features:

- **3-Stage Weir**
  - Stage 1 – Controls Normal Pool & Smaller Storms (at Normal Pool)
  - Stage 2 – Controls 100-Year Flood (2 Feet above Normal Pool)
  - Stage 3 – Controls Extreme Flood Events (4.5 Feet above Normal Pool)

- **Parapet Wall**
  - Dam Height will be Increased by Approximately 1.4 feet via a Berm along Northern Face of the Dam

- **Upstream Channel Improvements**
  - Inflow Channel to Spillway will need to be improved to ensure Flows can reach Spillway without causing Upstream Flood Increases

Integrated Science & Engineering

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Lake Peachtree Rehabilitation Concept

Spillway Alternatives Analysis

Three Stage Piano Key Weir with Parapet Wall

Construction Considerations:

- Lake will need to be Lowered During Construction
- Coffer Dam will need to Constructed to Protect Work
- Entire Dam site will be closed for Duration of Construction
  - Kelly Drive / McIntosh Trail will Remain Open
  - Water System / Public Works Personnel will have Access
Preliminary Cost Opinion

Anticipated Construction Cost of Spillway - Approx $3.1 Mil
Recommended Contingency - 15% ($465,000)

Schedule

- Phase 1 – Schematic Design (Apr – Aug 2016)
- **Phase 2 – Public Meetings (Aug 2016 – Sep 2016)**
- Phase 3 – Preliminary Design (Sep 2016 – Dec 2016)
- Phase 4 – Design Development (Dec 2016 – Apr 2017)
- Phase 5 – Final Design (Apr 2017 – May 2017)
- Phase 7 – Bidding (Jun 2017 – Aug 2017)
- Phase 8 – Construction (Aug 2017 – Apr 2018)
- Phase 9 – Project Closeout (May 2018 – Jun 2018)
Questions?

Multi-Use Trail Improvements

Multi-Use Path Considerations

- Existing System
  - Split Cart Path on Kelly Drive / McIntosh Trail Bridge
  - No Separation Between Vehicles and Golf Carts
  - Pedestrians Need to Step Into Traffic to Allow Carts to Pass

- Alternatives Considered
  - Re-Configure Existing Roadway Bridge
  - Re-Align Existing Path
  - Construct New Path to Alternate Infrastructure

- Recommended Alternative
  - Phase I - Construct New Cart Path to Existing Boxwood Court Bridge
  - Phase II - Construct New Cart Path Along Dam After Construction
City of Peachtree City
Lake Peachtree Spillway Replacement

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Multi-Use Trail Improvements

Existing Path to Boxwood Court Multi-Use Bridge
Boxwood Court Multi-Use Bridge
Multi-Use Trail Improvements

Potential Path Adjacent to Community Garden

Potential Path Along Berm Adjacent to Flat Creek

Piano Key Weir Concept
Piano Key Weir Concept

Multi-Use Trail Improvements

Multi-Use Path Considerations

- **Advantages**
  - Phase I can be implemented Prior to Construction of the Spillway by Public Works Crews
  - Significantly reduces potential for accidents between golf carts and construction vehicles during construction at entrance to dam site
  - Phase II showcases new dam improvements and adds additional useable greenspace to lake perimeter without substantially increasing maintenance

- **Anticipated Challenges**
  - Initial re-configured path network will be somewhat confusing initially (requires education upfront and initial implementation)
  - Boxwood Court Bridge is a single lane bridge (similar to highway 54 & Battery Way Park Bridges)
Preliminary Cost Opinion

Anticipated Construction Cost of Other Improvements - Approx $700,000
Recommended Contingency - 15% ($105,000)
Questions?