

Lewisville Dam

Dam Safety Modification Study Update

Stacy Gray (Project Manager)

U.S. Army Corps of Engineers, Fort Worth District

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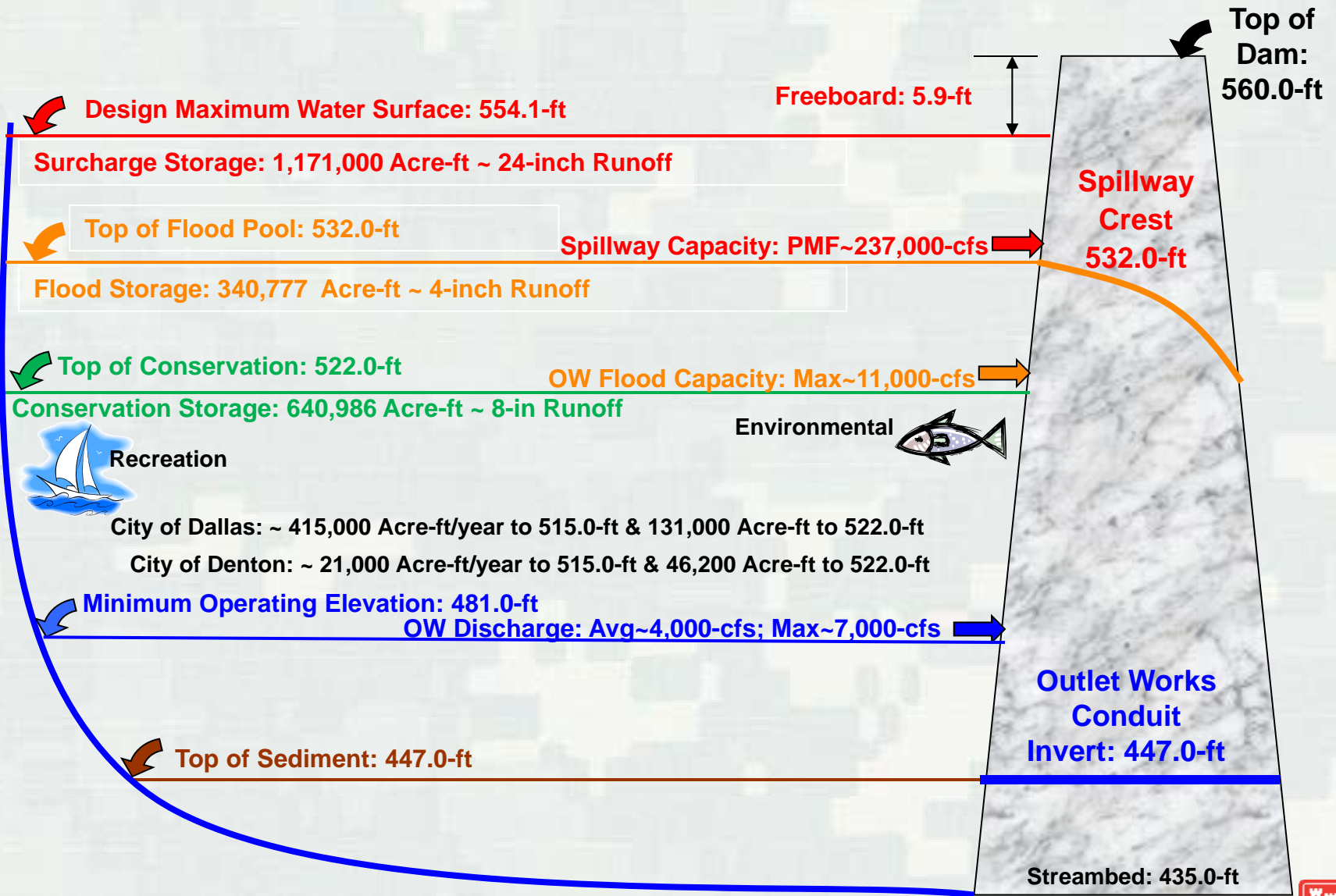
Presentation Overview

- General Project Information
- Study Framework
- Screened Array of Measures & Alternatives
- Stakeholder Coordination
- Contact Information

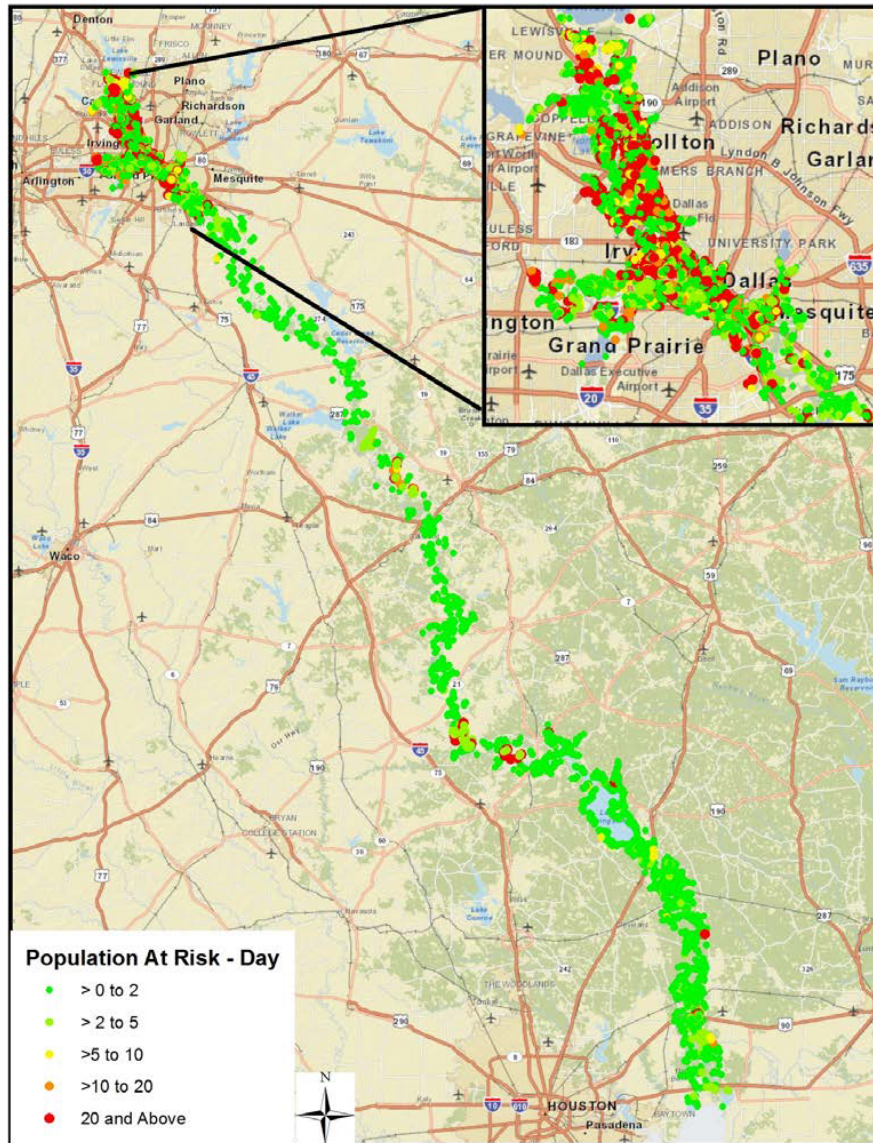
Lewisville Dam



General Project Information



Study Framework



- Modeled Area
 - ▶ Hydrology
 - ▶ Hydraulics
 - ▶ Economic Damages
 - ▶ Life Loss
- Denton & Dallas Counties
 - ▶ 96% of economic damages
 - ▶ 98% of life loss
 - ▶ Focus for stakeholder coordination



Study Framework

- Environmental Modeling
- Covers Potential Alternatives with Borrow
- Dallas Floodway EIS – known, reviewed & approved information for downstream



Potential Failure Modes

Risk Driving PFMs

- Internal erosion of soil foundation (seepage) – very high risk of incremental life loss with likelihood of failure moderate to low
- Instability, uplift and sliding – high risk of incremental life loss with likelihood of failure high to moderate

Other PFMs Being Considered

- Internal erosion of embankment along the main water conduit (very high risk of incremental life loss with likelihood of failure low to remote)
- Failure of municipal water lines along the embankment toe, resulting in erosion of toe (very high risk of incremental life loss with likelihood of failure low to remote)
 - Municipal water line relocation will occur regardless of the alternative chosen.
- Local Instability of Embankment Leading to Loss of Crest (high risk of incremental life loss with likelihood of failure remote)

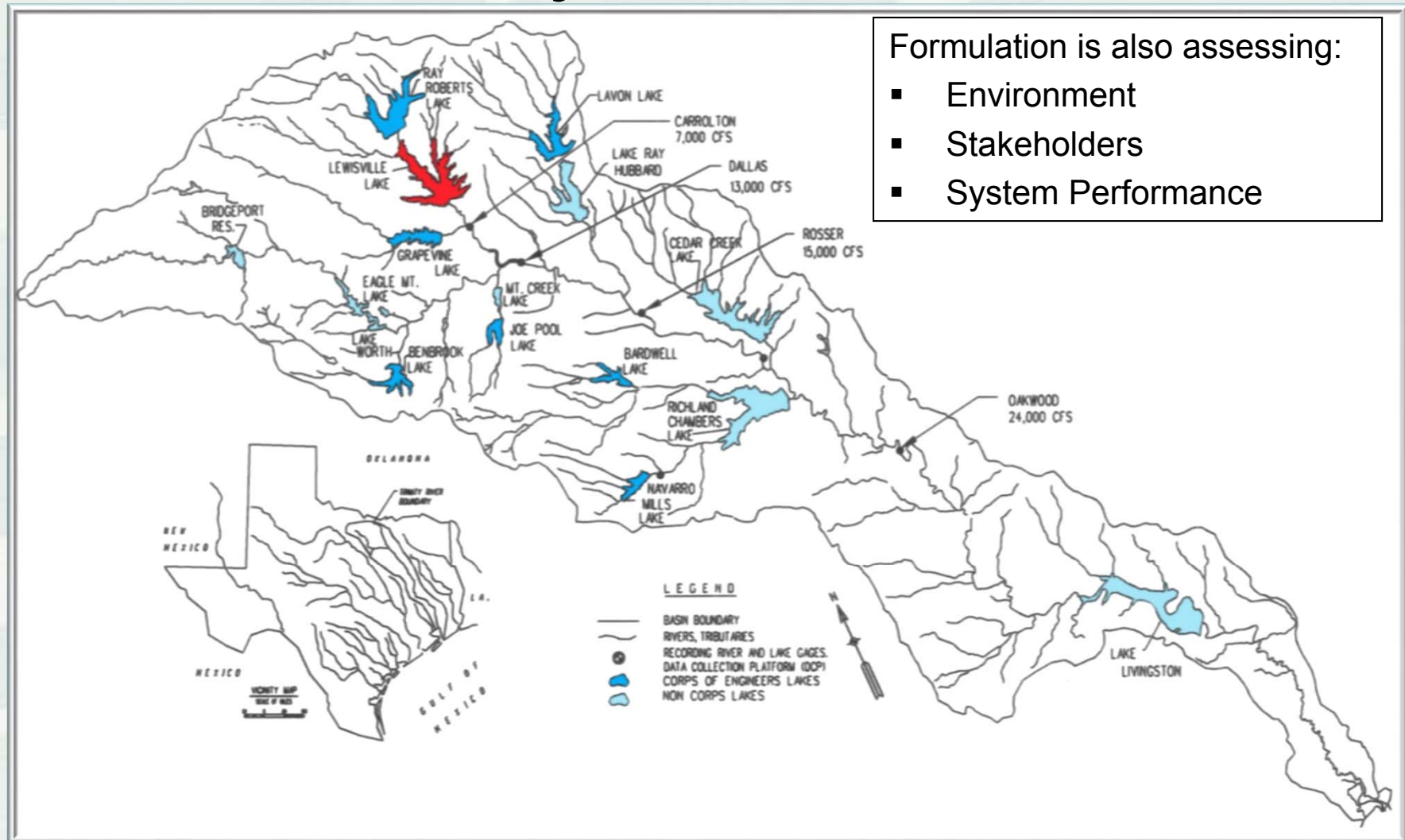


Study Framework

- Problems
 - ▶ Geologic Conditions (Seepage, Instability), Knowledge Growth Since Design and Construction, Consequences
- Opportunities
 - ▶ Reduce Probability/Consequences
 - ▶ Includes non-risk driving PFMs for ALARP
- Objectives
 - ▶ Reduce PFM Probabilities
 - ▶ Reduce Potential Consequences
- Constraints
 - ▶ Water Supply Storage Agreements
 - ▶ Applicable Laws and Policies
- Issues/Risks
 - ▶ Reservoir System Operations and System Flood Fighting



Study Framework



So, what can we do???

Formulate, Evaluate and Compare
Potential Measures (started with over 30)
and Alternatives (started with 13) to

- ▶ Address our Problems,
- ▶ Take Advantage of Our Opportunities,
- ▶ Meet Our Objectives,
- ▶ Meet Our Constraints, and
- ▶ Minimize Our Risks



Alternatives

- A reasonable array of alternatives has been identified.
- The following are required alternatives:
 - ▶ No Action
 - ▶ Meeting full tolerable risk guidelines
 - ▶ Achieving only tolerable risk limit for life-safety
 - ▶ Remove structure
 - ▶ Replace structure
- ALARP – As Low As Reasonably Practicable – what makes sense to add for non-risk driving PFMs



Alternatives

PFM	MEASURE	ALTERNATIVE							
		1	2	3	4	5	6	7	8
4A	Upstream Cutoff Wall	X	X						
	Downstream Inverted Filter Berm with Collection Trench			X	X	X	X	X	X
4B	Upstream Cutoff Wall	X							
	Downstream Inverted Filter Berm					X	X		
	Collection Trench		X	X	X				
	Relief Wells							X	X
6	Post-Tensioned Anchors with Upstream Geomembrane Cutoff				X		X		
	Buttress with Piers and Upstream Geomembrane Cutoff	X	X	X		X		X	X
7	Remove and Replace Apron Slabs	X	X	X		X			
	Overlay				X		X	X	
	Minimal apron repairs with lateral drainage								X
2	Conduit Filter	O	O	O	O	O	O	O	O
8	Stability Berm with Crest Replacement	O	O	O	O	O	O	O	O



Stakeholder Coordination

- Water Supply Partners – City of Dallas & City of Denton
- Lewisville Lake Environmental Learning Area (LLELA)
- Lewisville Aquatic Ecosystem Research Facility (LAERF)
- City of Lewisville
- Upper Trinity Water District
- Garland Power and Light
- Texas New Mexico Power and Light
- Co-Serve
- Verizon
- Grande
- U.S. Fish and Wildlife Service
- Texas Parks and Wildlife Department
- State Historical Preservation Office
- Emergency Management Offices



Moving Forward

- Continue Stakeholder Coordination
- Evaluate and Compare Alternatives
- Identify the Recommended Plan (Feb 2016)
- Vertical Team Approval of the Recommended Plan (March 2016)
- Development of Additional Engineering and Cost Detail for Recommended Plan (Mar-Aug 2016)
- Publish Draft EIS for Review (Sept/Oct 2016)
- Report/EIS Approval (Summer 2017)



Who to Contact

- EIS

- ▶ Marcia Hackett, U.S. Army Corps of Engineers, P.O. Box 17300, Room 3A12, Fort Worth, Texas 76102-0300 or by email at Marcia.R.Hackett@usace.army.mil

- Lake Operations

- ▶ Rob Jordan, Robert.S.Jordan@usace.army.mil

- 2015 Flooding

- ▶ Public Affairs, U.S. Army Corps of Engineers, Fort Worth District, CESWF-PAO, P.O. Box 17300, Fort Worth, TX 76102-0300, public.affairs@usace.army.mil





Thank you for coming!!!

EIS Point of Contact

Marcia Hackett, U.S. Army Corps of Engineers,
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Fort Worth, Texas 76102-0300

or by email at

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