



City of Dallas

White Rock Lake Dredging Feasibility Study

**Environment & Sustainability
Committee
November 2, 2020**

Patrick Miles, P.E.
Freese and Nichols, Inc.
on behalf of Dallas Park & Recreation
and Dallas Water Utilities

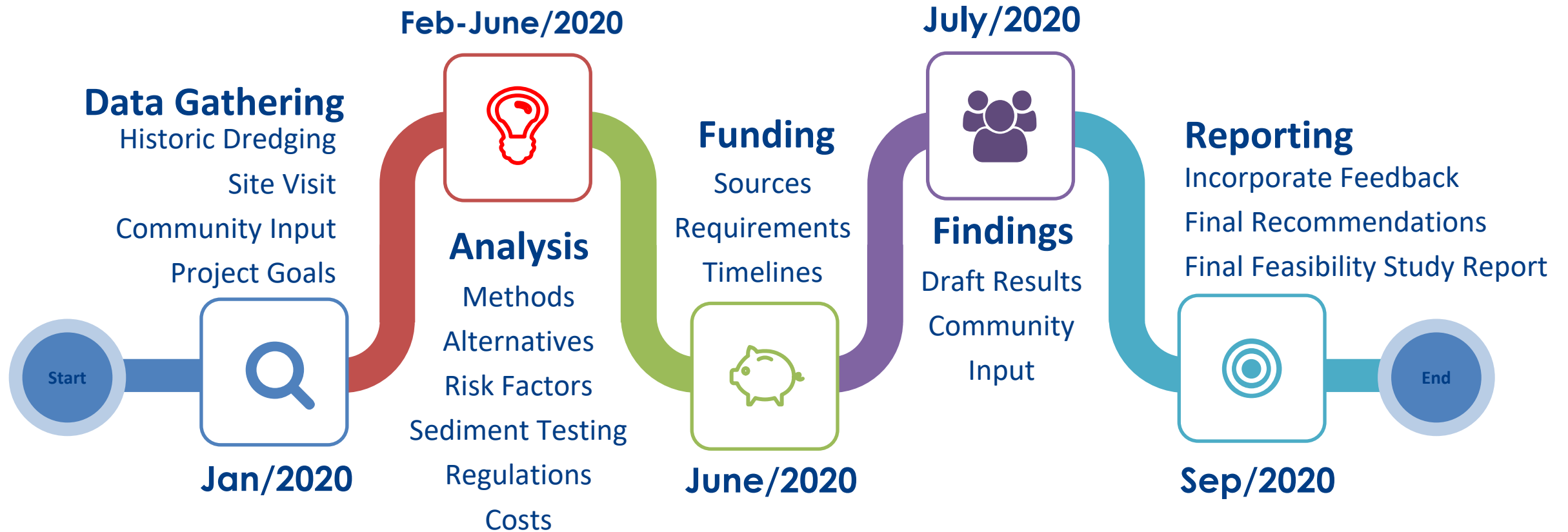
Background



- Dallas Park & Recreation Department partnering with Dallas Water Utilities on high-level feasibility study including:
 - Approaches
 - Regulatory requirements
 - Costs
 - Potential funding sources
- Freese and Nichols and Brownstone Associates consulting



Project Timeline



Public Involvement



- **Public Survey (Google Form)** – live through January/February, approximately 70 responses
- **Community Meeting #1** – January 28th at Winfrey Point, approximately 90 attendees, interactive polling, varied feedback stations
- **Community Meeting #2** – July 16th via Zoom (virtual meeting), approximately 100 attendees, interactive polling, online Q&A
- **Online Survey (Google Form)** – live from 7/16 to 8/7, approximately 18 responses



Goals & Objectives



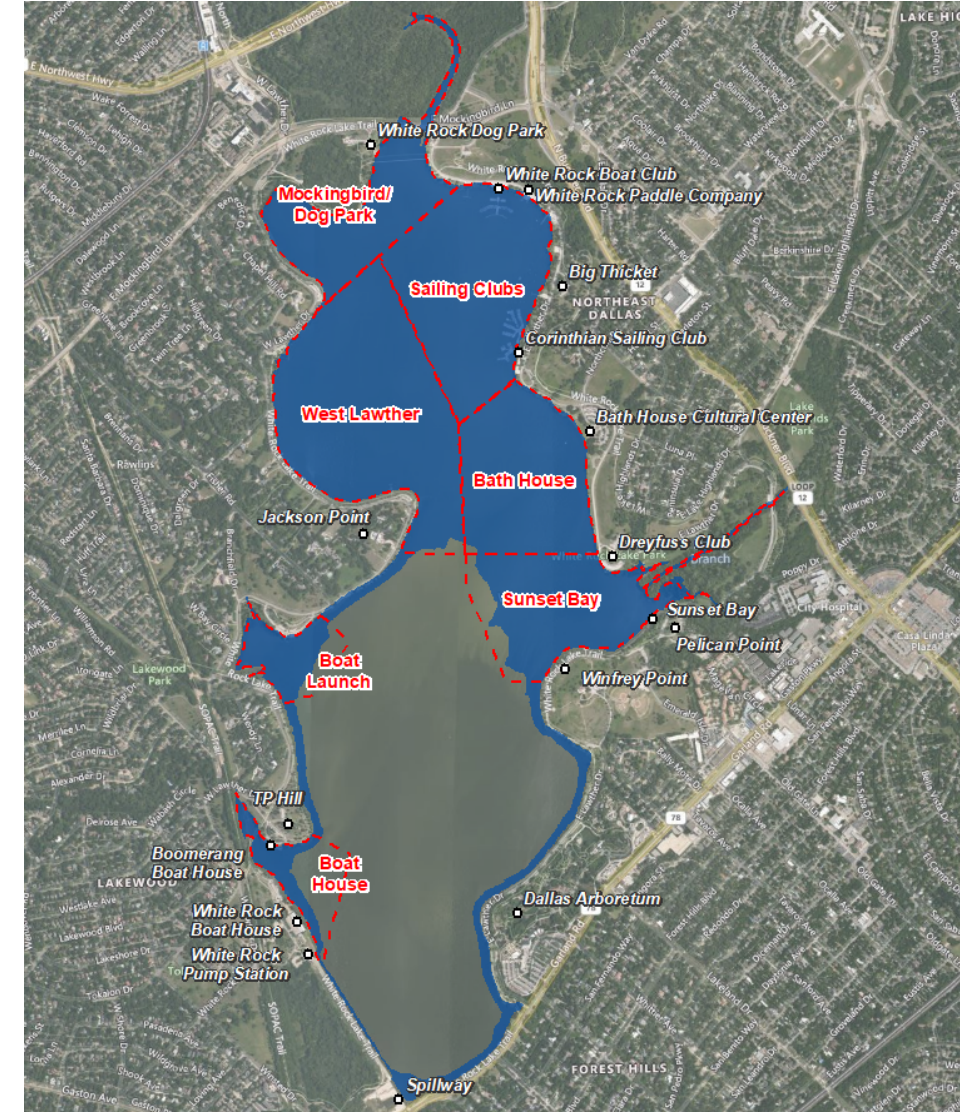
- Restore lake depth to enhance watersport recreation.
- Remove sediment from shoreline area to improve aesthetics for waterside recreation.
- Minimize negative impacts to aquatic habitat and other environmentally sensitive areas.
- Evaluate long-term strategies for sustainable sediment control.



Dredging Focus Areas



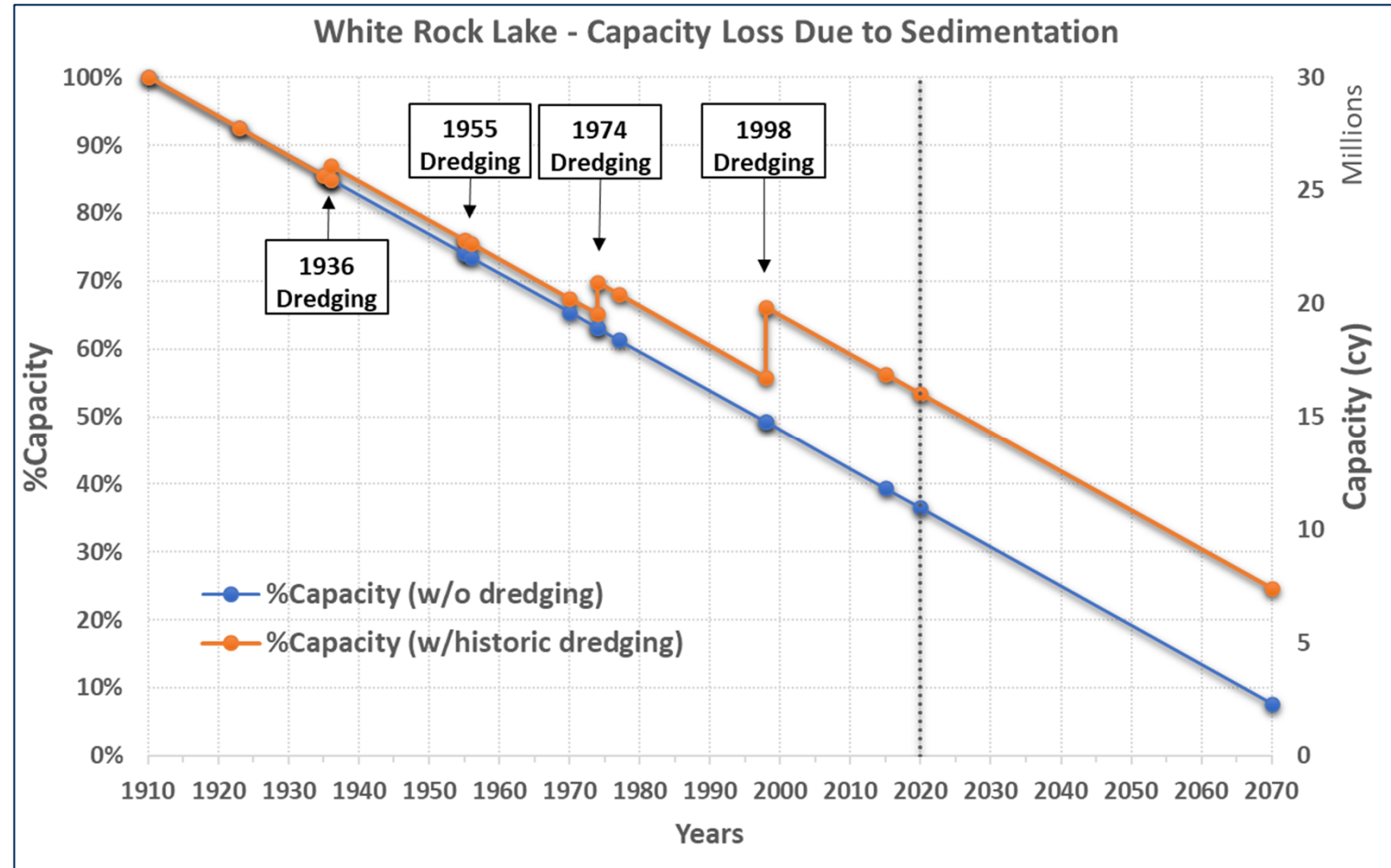
- **Target Depth for recreation: 8 feet**
- Areas with recreation focus
- Areas with depth < 10 feet
- Other areas identified by stakeholders



Sedimentation Rate Analysis



- Study Estimate
170,000 CY/year
- Planning purposes
- Based on measured capacity of lake at various points in time
- Demonstrated with a constant loss rate



Sediment Sampling



- Trace concentrations of some COCs below allowable threshold
- Concentrations of COCs do not pose substantial risk to dredging contractors or lake environment
- Sediment appears to meet criteria for landfill disposal applications
- Additional analysis for reuse/land applications – part of future design



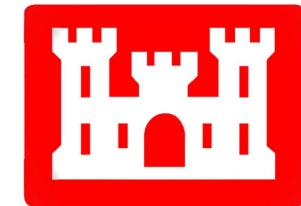
Permitting Considerations



- **Local:** City of Dallas – Floodplain, Construction
- **State:** TCEQ – Water Quality Certification
- **Federal:** USACE – Section 404 Permit
 - May require Environmental Assessment
- **State:** Texas Parks and Wildlife Department – Aquatic Resource Relocation
- **State:** Texas Historical Commission – Cultural Resources
- **Federal:** US Fish and Wildlife Service – Threatened or Endangered Species



City of Dallas



Dredging Alternatives



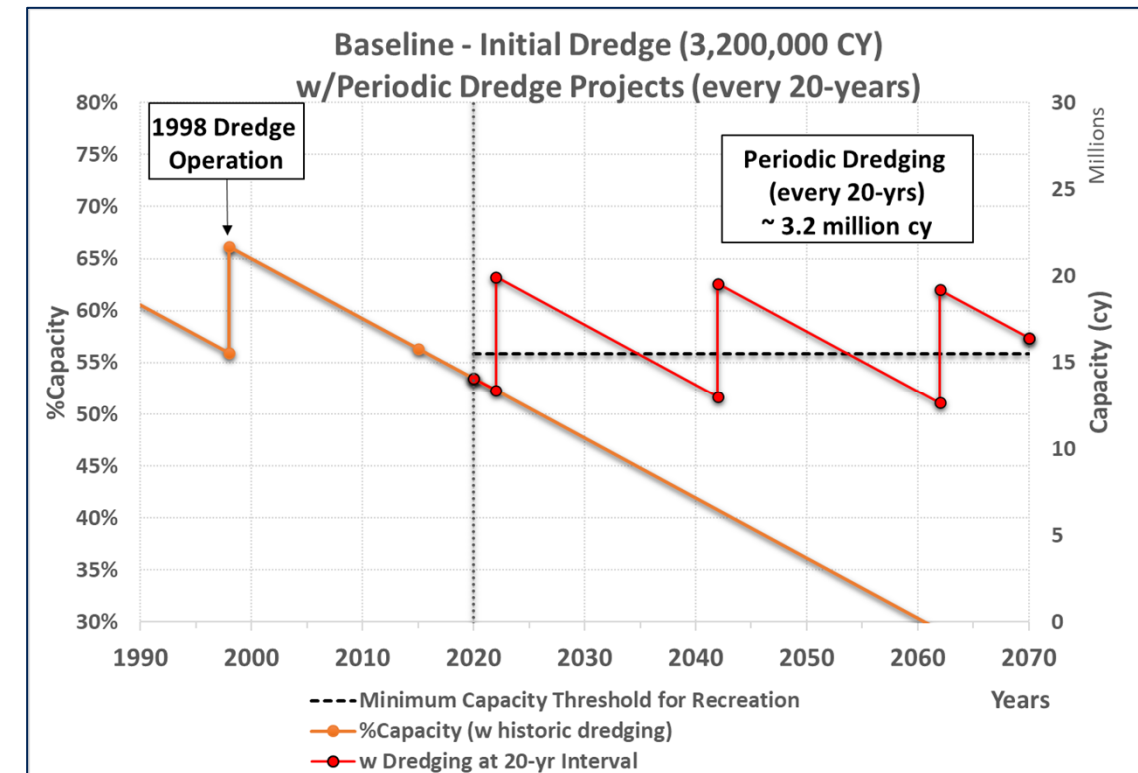
- Four potential alternatives developed to restore and maintain lake level in desired areas
- Additional data available for future City interpretation
- Costs presented as range (low and high) including contingency to cover unknowns



Baseline Scenario



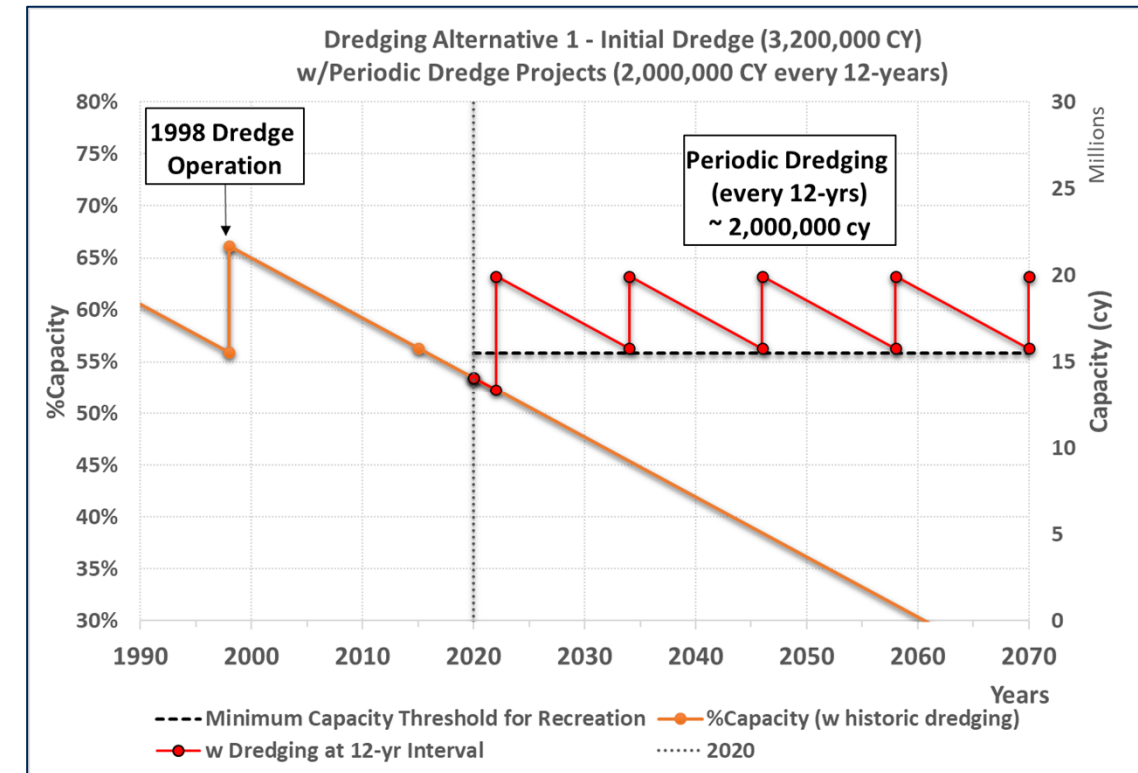
- Aligns with historic dredging activities
- Large dredge every 20-25 years
- Recurrent periods with impacts to recreation
- \$50 - \$88 million recurring (20-year cycle)
- **\$3.0 - \$5.3 million annualized over 50-yr period**



Alternative #1



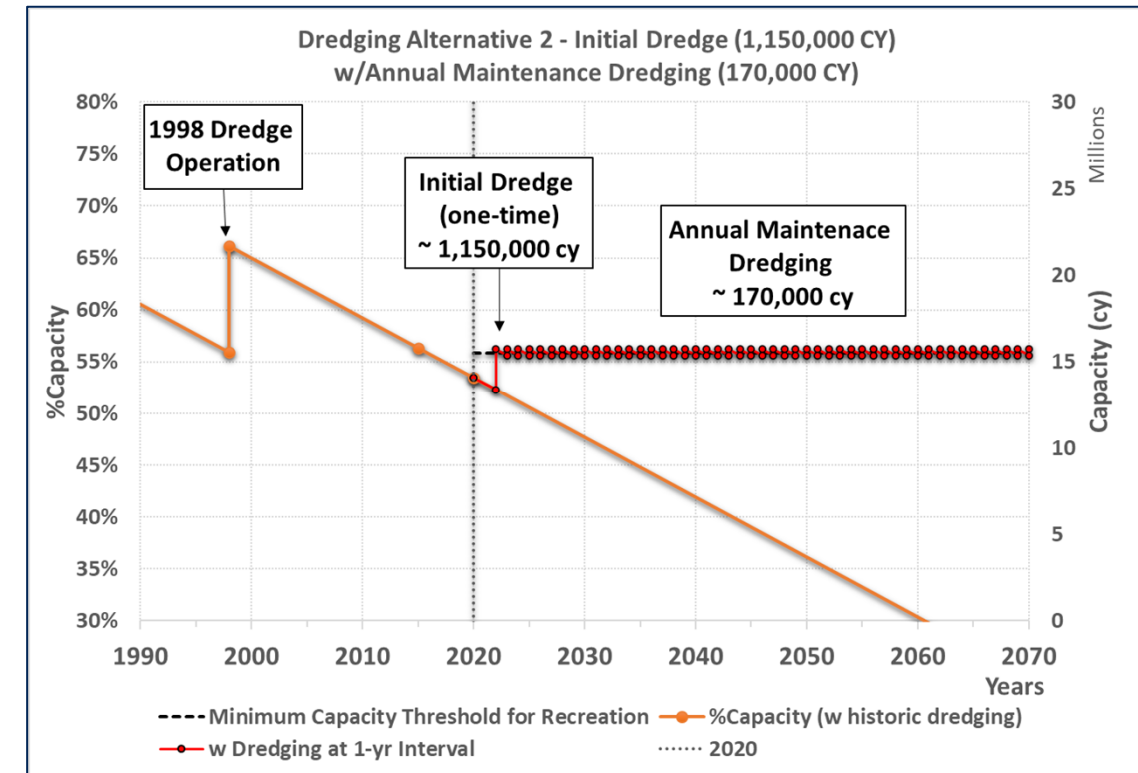
- Large initial dredge followed by more frequent (12-year) large dredge projects
- \$50 - \$88 million upfront
- \$32 - \$56 million recurring (12-year cycle)
- **\$3.6 - \$6.3 million annualized over 50-yr period**



Alternative #2



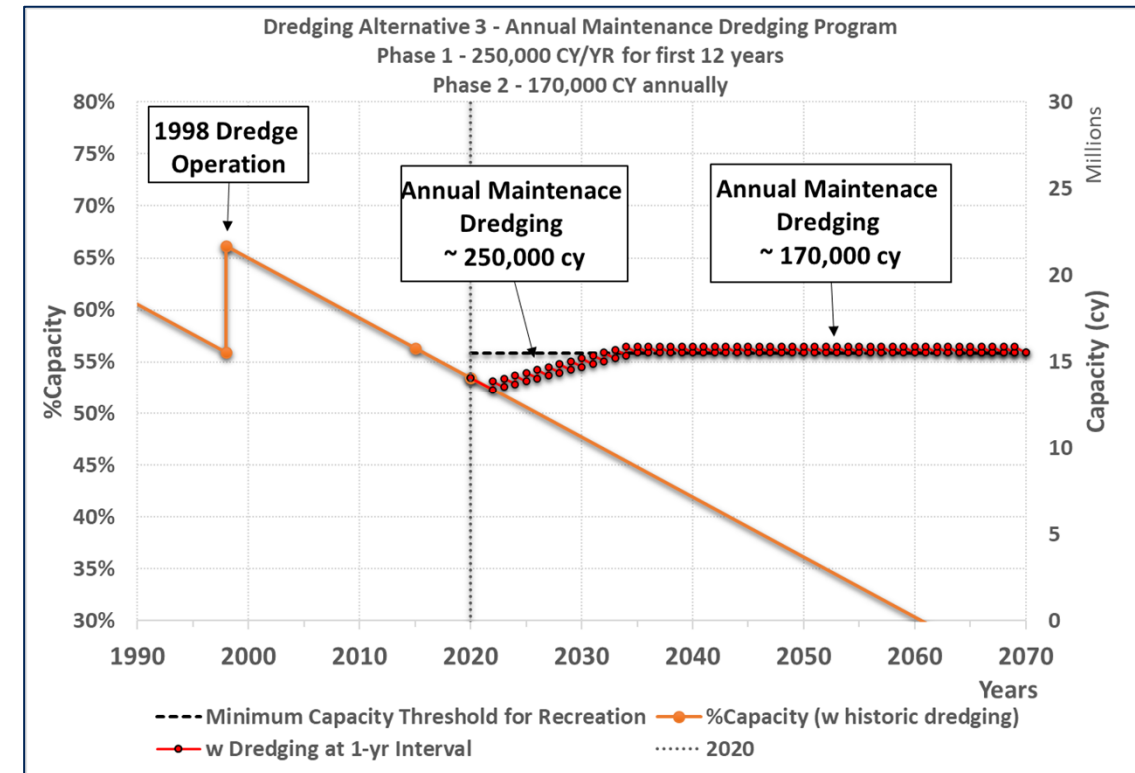
- Medium initial dredge followed by smaller annual maintenance
- \$19 - \$34 million upfront
- \$4 - \$6 million annually
- **\$4.2 - \$6.7 million annualized over 50-yr period**



Alternative #3



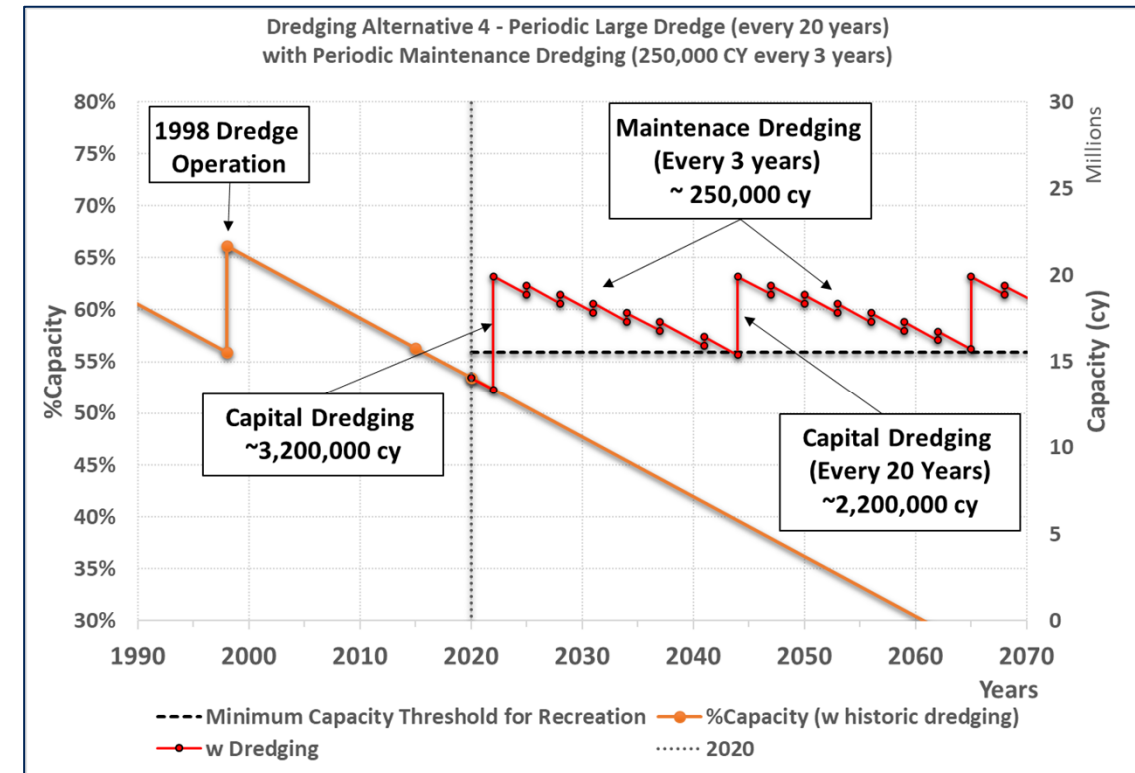
- Small annual dredging program for 12 years, followed by annual maintenance
- \$7 - \$12 million first 12 years
- \$4 - \$6 million annually
- **\$4.5 - \$7.4 million annualized over 50-yr period**



Alternative #4



- Large periodic dredging with interim routine dredging
- \$35 - \$88 million upfront and every 20 years
- \$7 - \$12 million recurring (3-year cycle)
- **\$4.4 - \$8.5 million annualized over 50-yr period**



Alternatives Comparison



Dredging Scenario	Description	Recurring Impacts to Recreation Activities	Total Cost (Millions – 2020 \$)	Annualized Cost (Millions – 2020 \$)
Baseline (Historical)	Large Dredging Projects (20-25 yr cycle)	Yes	150 – 265	3.0 – 5.3
Alternative 1	Large Dredging Projects (12 yr cycle)	No	178 – 314	3.6 – 6.3
Alternative 2	One Large Dredging Project + Annual Maintenance Dredging	No	208 – 333	4.2 – 6.7
Alternative 3	Annual Maintenance Dredging Phase 1 – First 12 yrs Phase 2 – Year 13 onwards	Yes	226 – 370	4.5 – 7.4
Alternative 4	Large Dredging Projects (20-yr cycle) + Small Maintenance Dredging (3-yr cycle)	No	218 – 423	4.4 – 8.5



Funding Opportunities



- City funding likely to be through bonds
 - General Obligation (longer term)
 - Certificate of Obligation (shorter term)
- Limited to no grant/loan funding available for recreational dredging
- Potential alternative sources:
Lake User Fees, Special Tax Districts



Typical Project Timeline



	Year 1				Year 2				Year 3				Year 4				Year 5			
Procure Funding (Timing TBD)																				
Engineering Design																				
Permitting (local, state, federal)																				
Public Review & Comment																				
Dredging Operations & Disposal																				



Potential Obstacles



- Project Cost
- Dewatering/Disposal Location
- Environmental Permitting



Recommendations



- Continue coordination with stakeholders
- Identify dewatering/disposal, possible reuse opportunities
- Evaluate potential funding sources during budget planning
- Scale operation to available funding using base data developed for study





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