

WHITE ROCK LAKE DREDGING FEASIBILITY STUDY

Park & Recreation Board Briefing – September 17, 2020



Dallas Park & Recreation



dallas water utilities
city of dallas

BA

BROWNSTONE ASSOCIATE

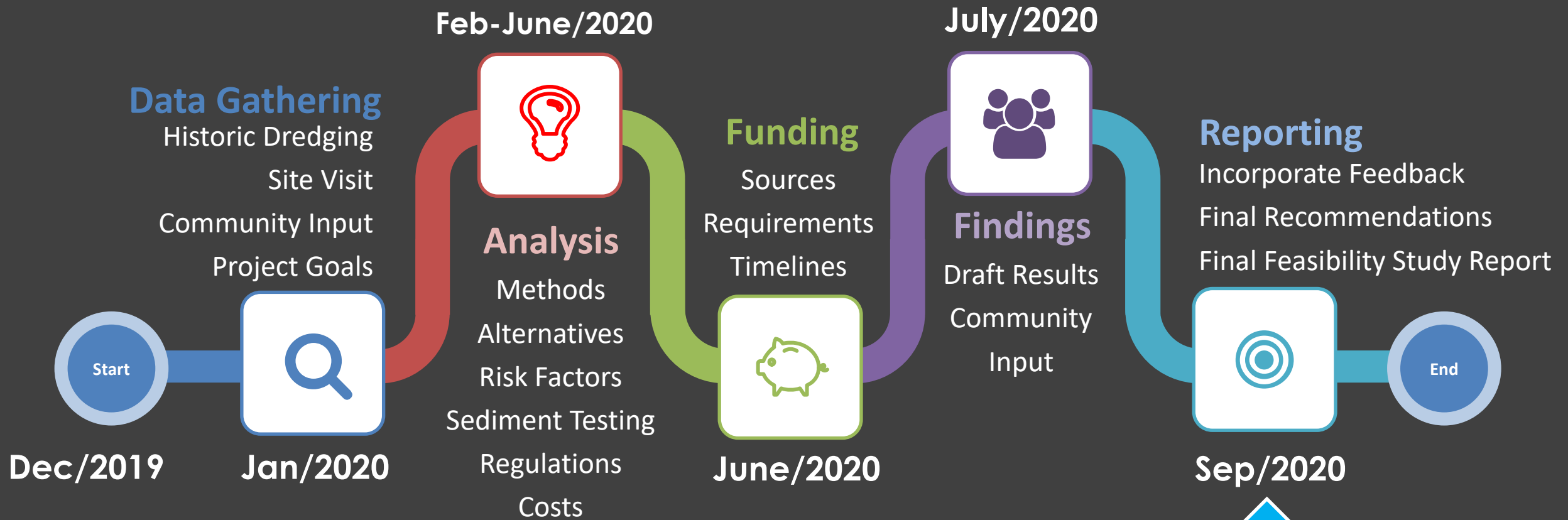


- Dallas Park & Recreation Department partnering with Dallas Water Utilities on high-level feasibility study including:
 - Approaches
 - Regulatory requirements
 - Costs
 - Potential funding sources
- Freese and Nichols and Brownstone Associates consulting



Background Feasibility Study





Timeline

Feasibility Study

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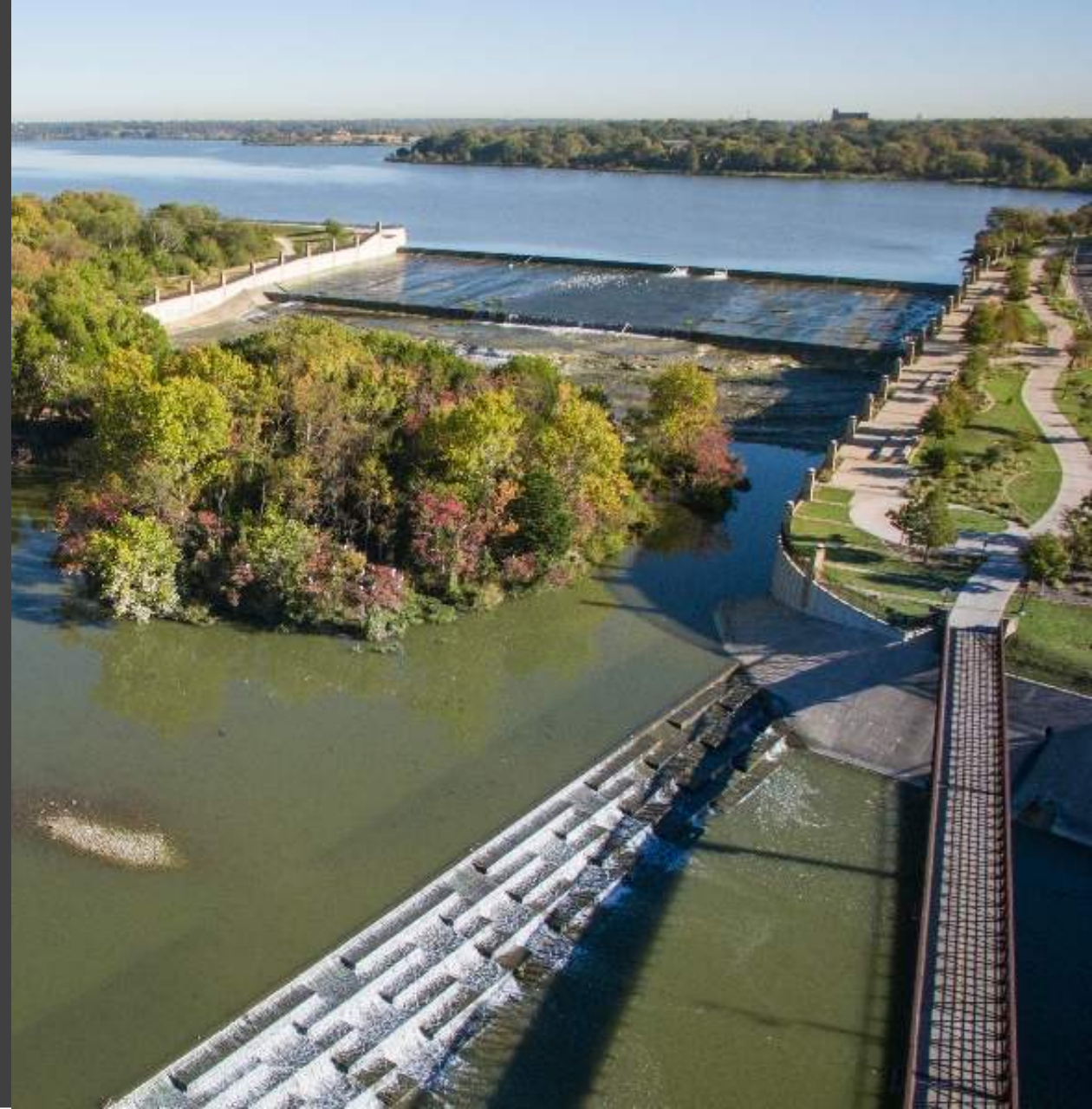


Public Survey (Google Form) – live through January/February, approximately 70 responses

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



Public Involvement



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

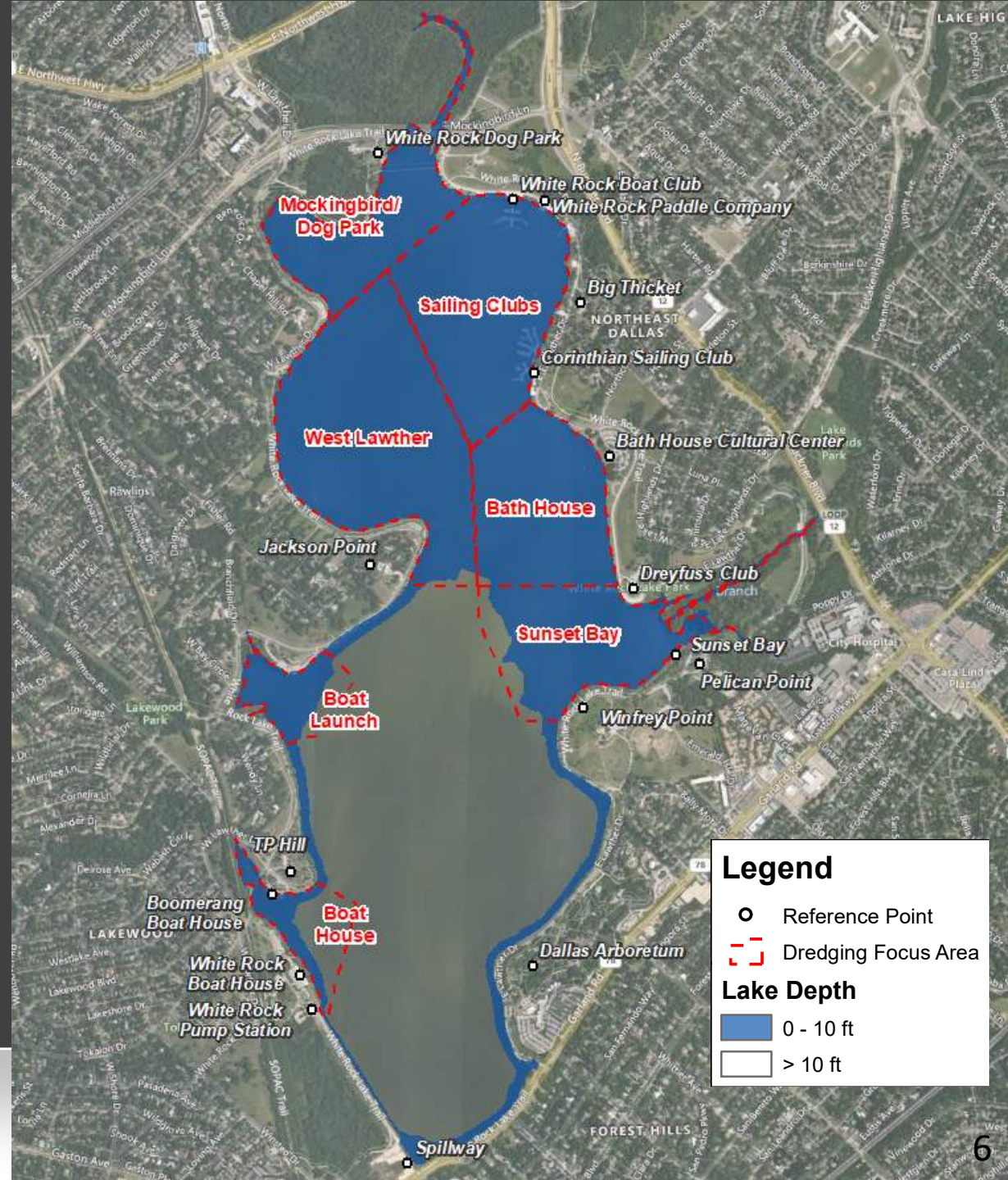
Goals & Objectives



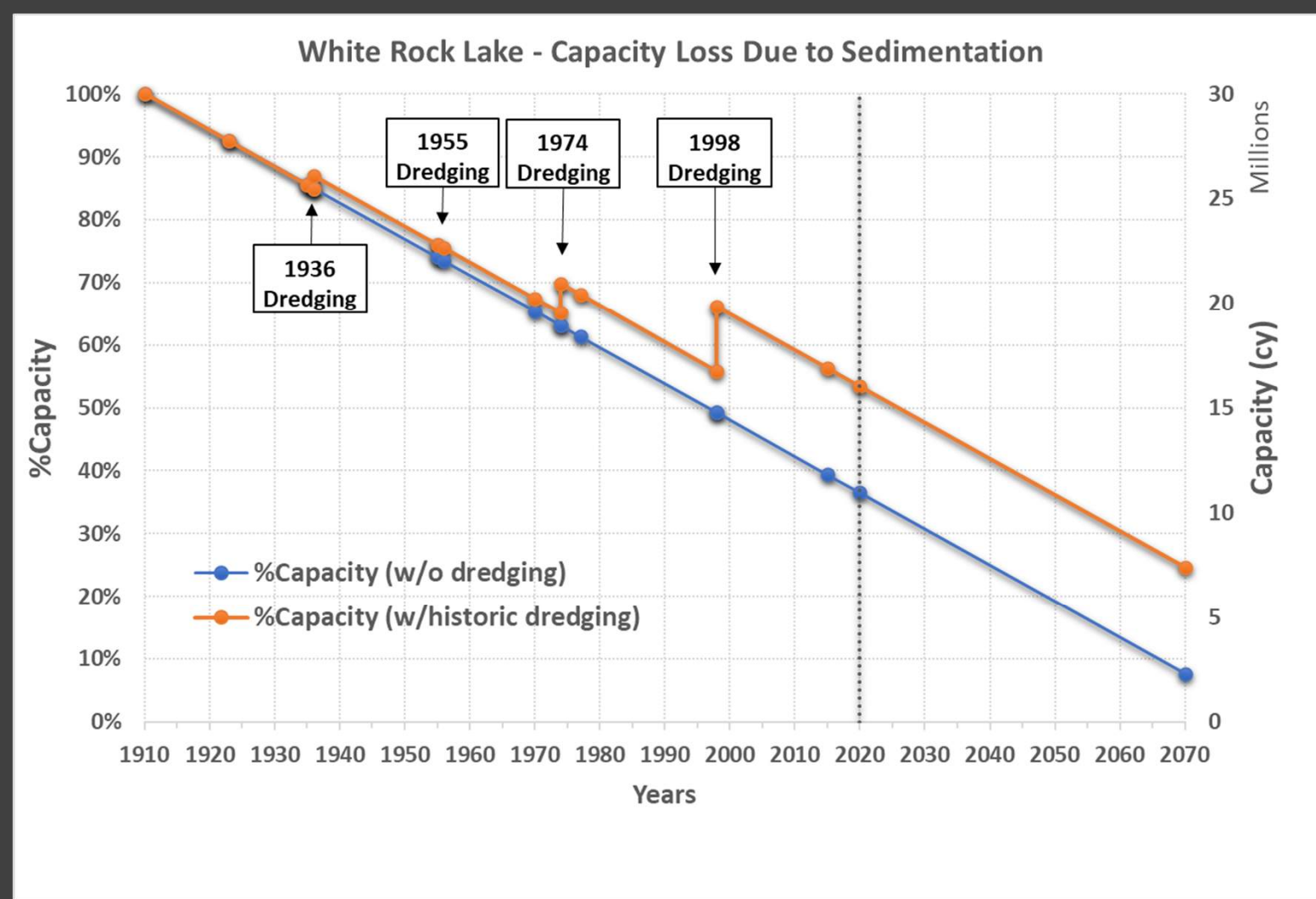
Goal: Depth for recreation (8 feet)

- Areas with recreation focus
- Areas with depth < 10 feet
- Other areas identified by stakeholders

Dredging Focus Areas



- 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



Amount of Sediment

Sedimentation Rate Analysis

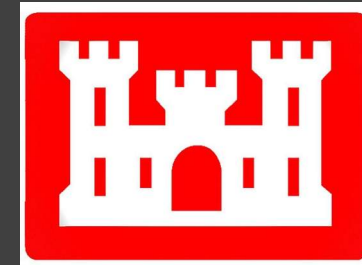


- Trace concentrations of some COCs below allowable threshold
- Concentrations of COCs do not pose substantial risk to dredging contractors or lake environment
- Sediment appears to meet criteria for landfill disposal applications
- Additional analysis for reuse/land applications – part of future design

Sampling Results & Conclusions



- Local: City of Dallas
 - Floodplain, Construction permits
- State: TCEQ
 - Water Quality Certification
- Federal: USACE – Section 404 Permit
 - May require an Environmental Assessment



Environmental Considerations

Permitting



- 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



Environmental Considerations

Permitting



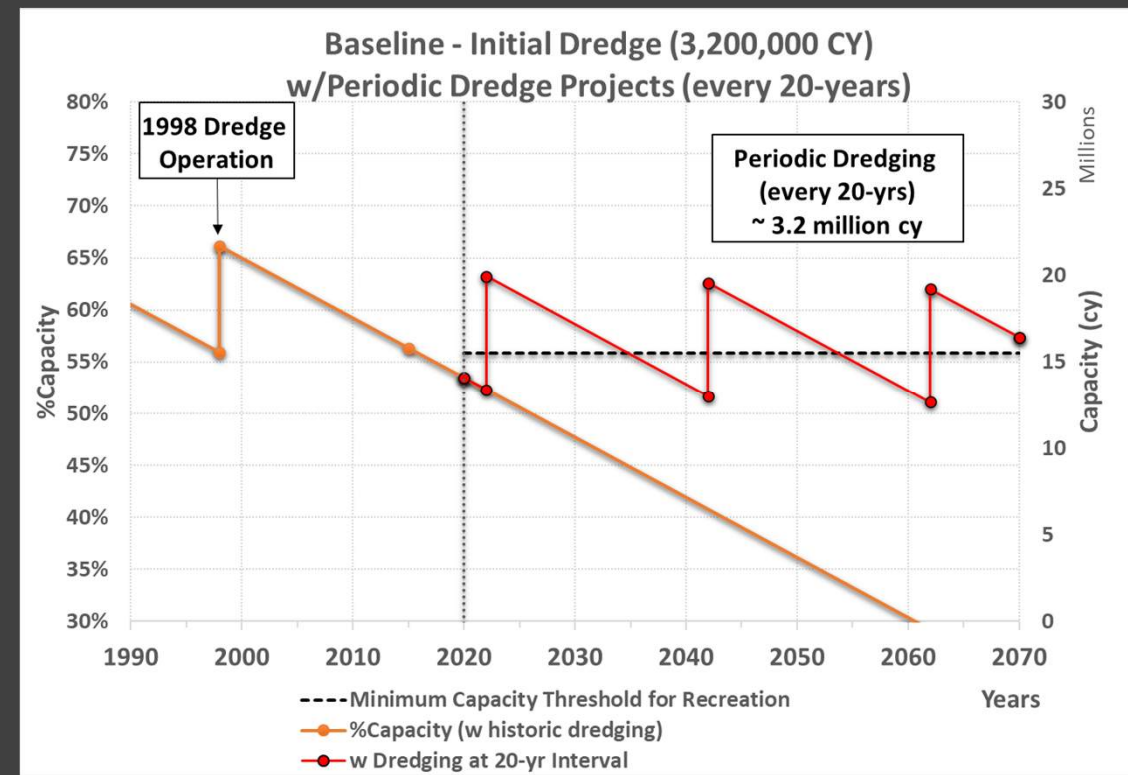
- Potential alternatives developed to restore and maintain lake level in desired areas
- Four potential alternatives
 - Data available for City interpretation
- Costs are presented as a range (low and high) including a contingency to cover unknowns

Dredging Alternatives

Overview



- 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 cost over 50-yr period

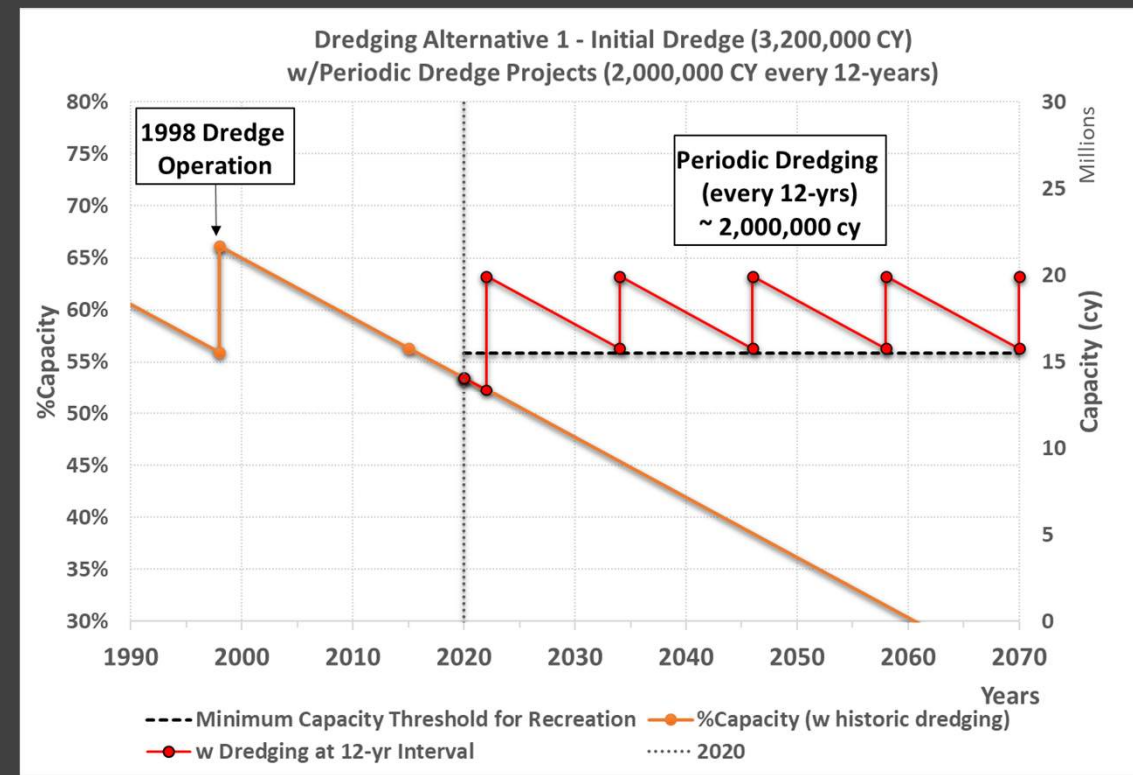


Dredging Alternatives

Baseline Scenario



- 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 cost over 50-yr period

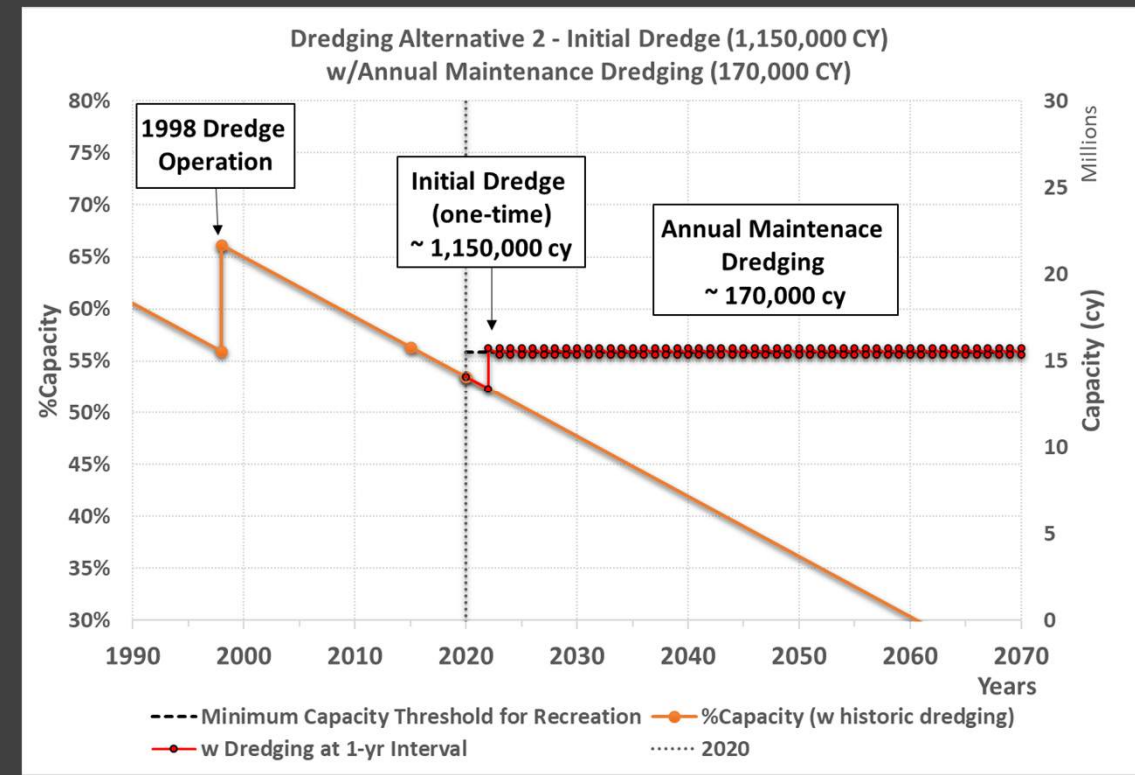


Dredging Alternatives

Alternative 1



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

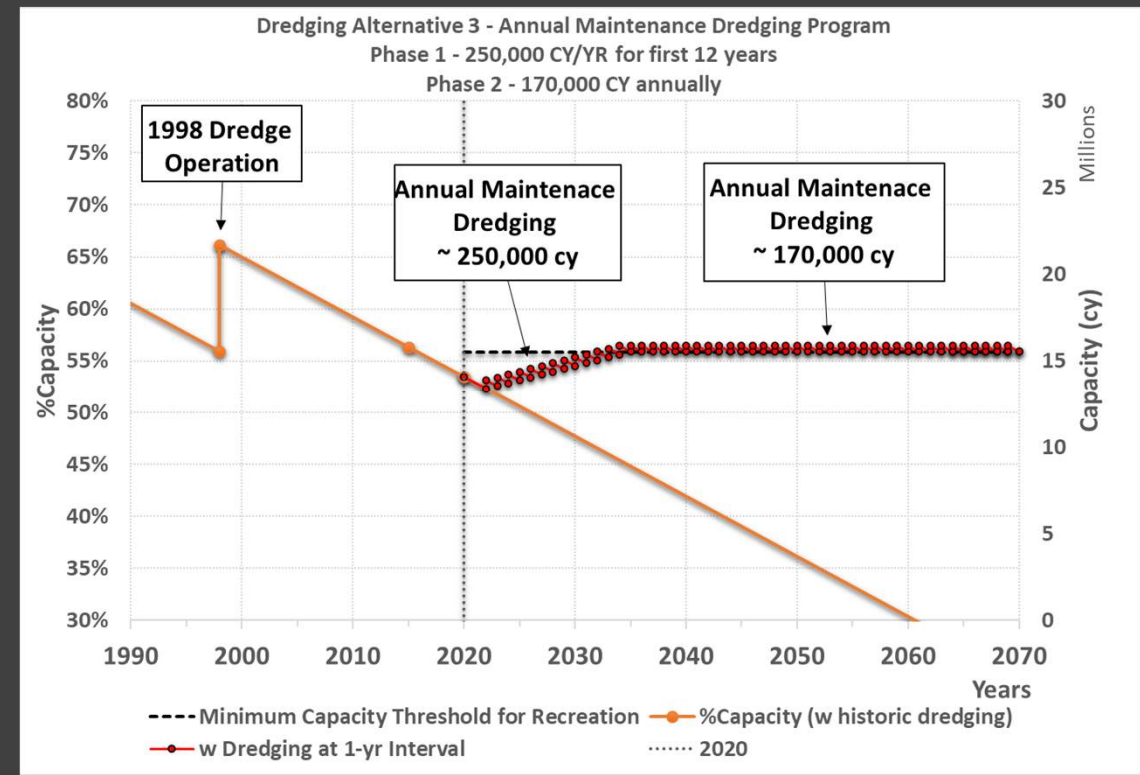


Dredging Alternatives

Alternative 2



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

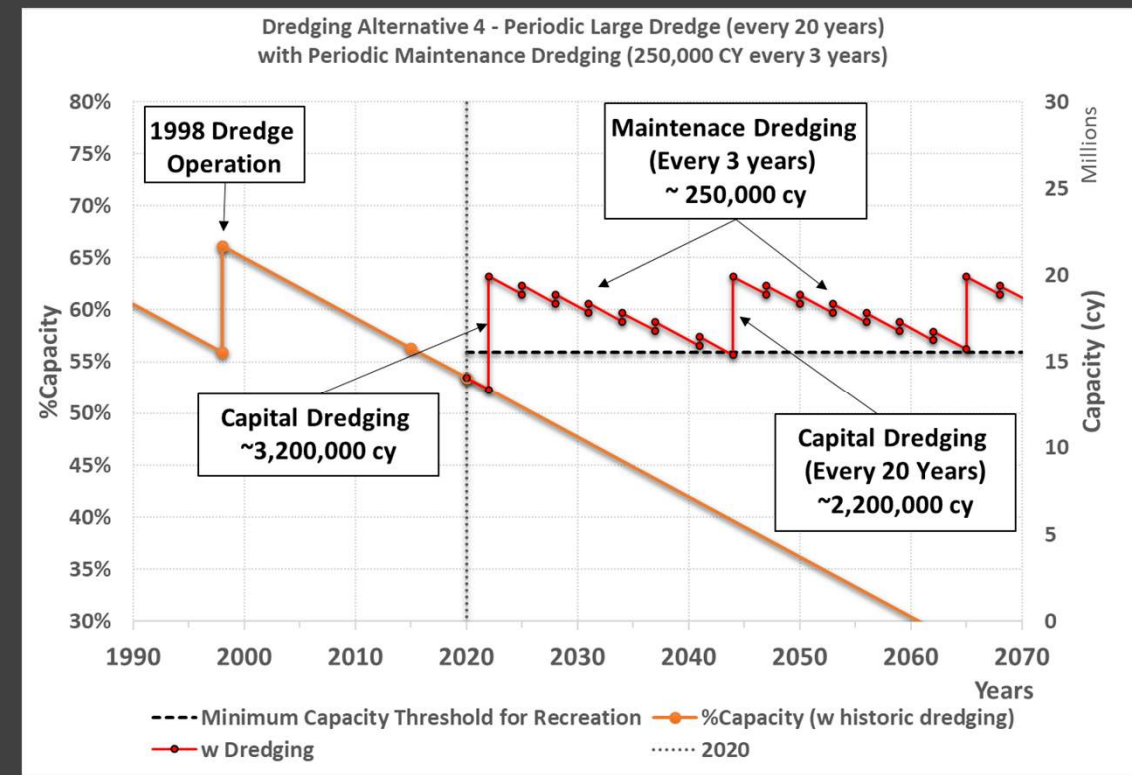


Dredging Alternatives

Alternative 3



- Large periodic dredging projects 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 cost over 50-yr period



Dredging Alternatives

Alternative 4



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

**All alternatives evaluated over a 50-year period*

Dredging Alternatives Comparison



- 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



Funding Opportunities



	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																				

Typical Project Timeline



1. Project Cost
2. Dewatering/Disposal Location
3. Environmental Permitting



Potential Obstacles & Concerns



1. Continue coordination with stakeholder groups.
2. Identify dewatering/disposal, possible reuse opportunities.
3. Evaluate potential funding sources during budget planning.
4. Scale operation to available funding using base data developed for study.



Photo credit: Dallas Park and Recreation Department

Recommendations





Questions

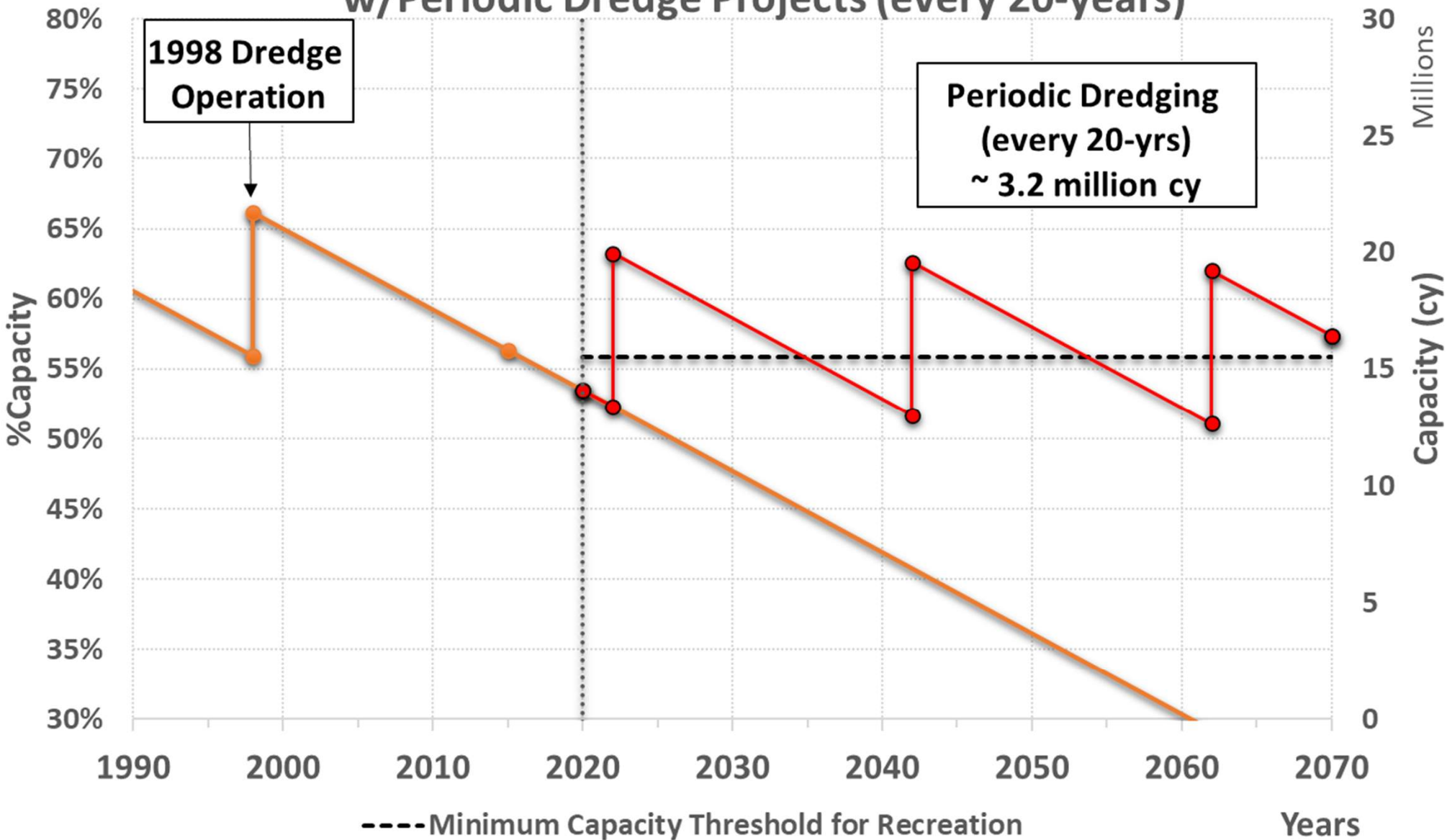




Appendix Slides



Baseline - Initial Dredge (3,200,000 CY) w/Periodic Dredge Projects (every 20-years)



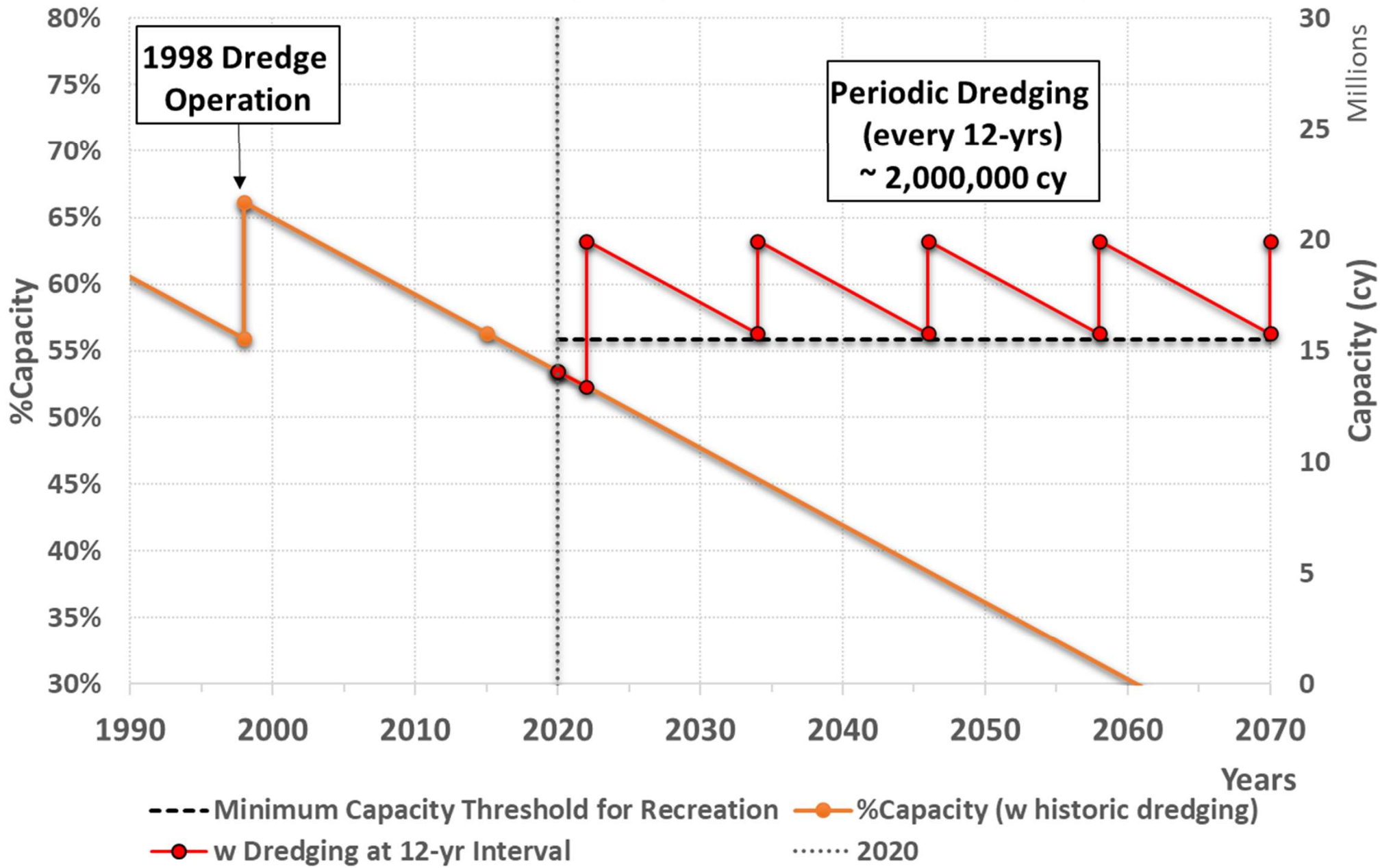
- Minimum Capacity Threshold for Recreation
- %Capacity (w historic dredging)
- w Dredging at 20-yr Interval

BASELINE

\$50M - \$88M
recurring
(20-year cycle)

\$3.0M - \$5.3M
annualized cost
(50-yr period)

**Dredging Alternative 1 - Initial Dredge (3,200,000 CY)
w/Periodic Dredge Projects (2,000,000 CY every 12-years)**

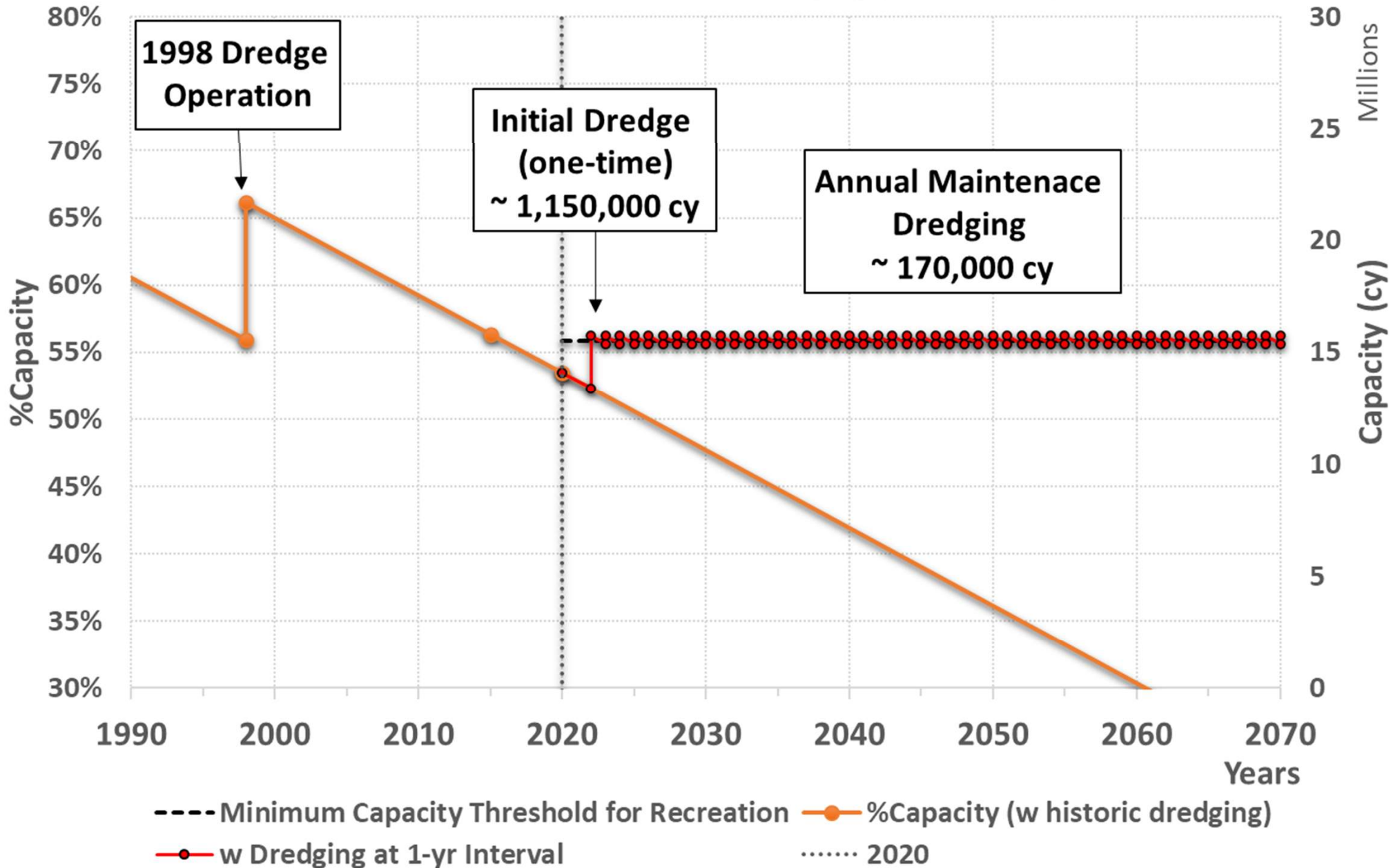


ALTERNATIVE 1

\$32M - \$56M
recurring
(12-year cycle)

\$3.6M - \$6.3M
annualized cost
(50-yr period)

**Dredging Alternative 2 - Initial Dredge (1,150,000 CY)
w/Annual Maintenance Dredging (170,000 CY)**



ALTERNATIVE 2

\$19M - \$34M
upfront

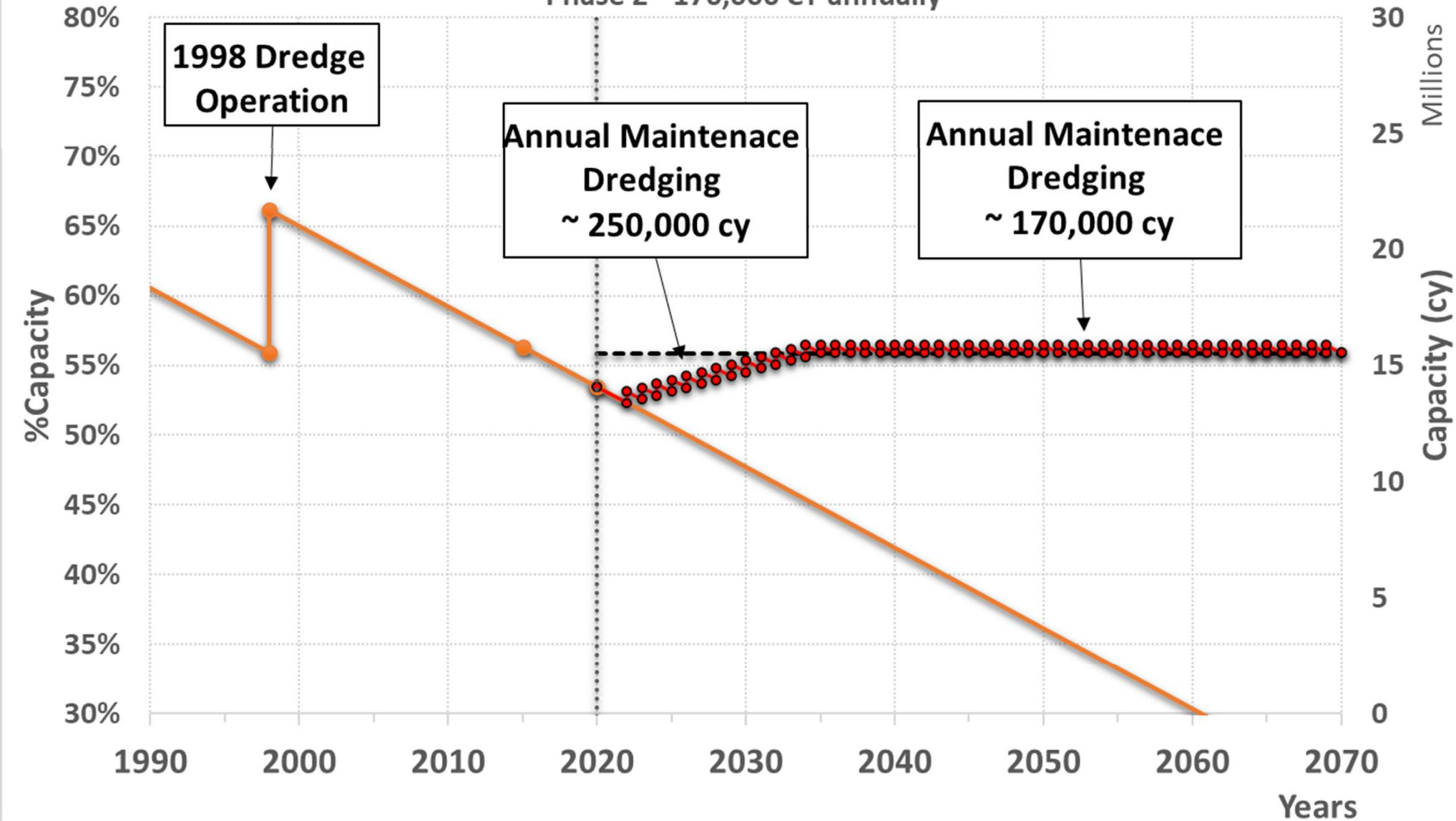
\$4M - \$6M
annual
maintenance

\$4.2M - \$6.7M
annualized cost
(50-yr period)

Dredging Alternative 3 - Annual Maintenance Dredging Program

Phase 1 - 250,000 CY/YR for first 12 years

Phase 2 - 170,000 CY annually



- - - - Minimum Capacity Threshold for Recreation ● - - %Capacity (w historic dredging)
 ● - - w Dredging at 1-yr Interval 2020

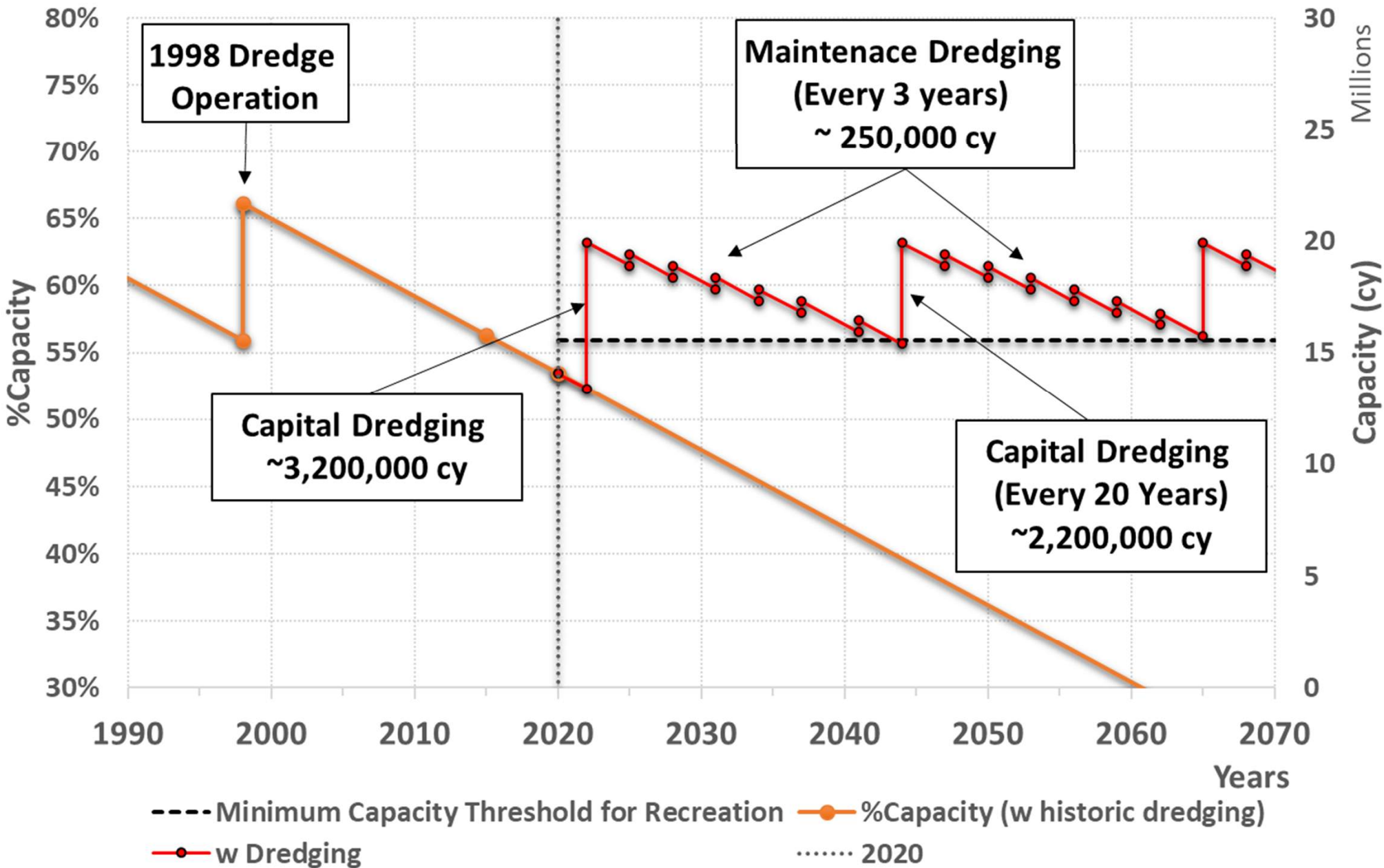
ALTERNATIVE 3

\$7M - \$12M
annual (12 yrs)

\$4M - \$6M
annual
maintenance

\$4.5M - \$7.4M
annualized cost
(50-yr period)

**Dredging Alternative 4 - Periodic Large Dredge (every 20 years)
with Periodic Maintenance Dredging (250,000 CY every 3 years)**



ALTERNATIVE 4

\$35M - \$88M
upfront and
every 20 yrs

\$7 M- \$12M
recurring
(3-year cycle)

\$4.4M - \$8.5M
annualized cost
(50-yr period)