

Memorandum



CITY OF DALLAS

DATE April 5, 2019

TO Honorable Members of the Mobility Solutions, Infrastructure and Sustainability Committee

SUBJECT **Love Field/Bachman Lake – Feasibility Study**

On Monday, April 8, 2019, the Mobility Solutions, Infrastructure and Sustainability Committee will be briefed on the Love Field / Bachman Lake Feasibility Study. The briefing materials are attached for your review.

Please contact Terry S. Lowery, Director of Dallas Water Utilities, if you have any questions or concerns.

A handwritten signature in blue ink, appearing to read 'Majed Al-Ghafry'.

Majed Al-Ghafry, P.E.
Assistant City Manager

c: Honorable Mayor and Members of the City Council
T.C. Broadnax, City Manager
Chris Caso, City Attorney (Interim)
Carol A. Smith, City Auditor (Interim)
Biliera Johnson, City Secretary
Preston Robinson, Administrative Judge
Kimberly Bizzor Tolbert, Chief of Staff to the City Manager

Jon Fortune, Assistant City Manager
Joey Zapata, Assistant City Manager
Nadia Chandler Hardy, Assistant City Manager and Chief Resilience Officer
M. Elizabeth Reich, Chief Financial Officer
Laila Aleqresh, Chief Innovation Officer
Directors and Assistant Directors

Love Field / Bachman Lake - Feasibility Study

**Mobility Solutions,
Infrastructure and Sustainability
Committee**

April 8, 2019

**Richard Wagner, PE
Assistant Director
Dallas Water Utilities**

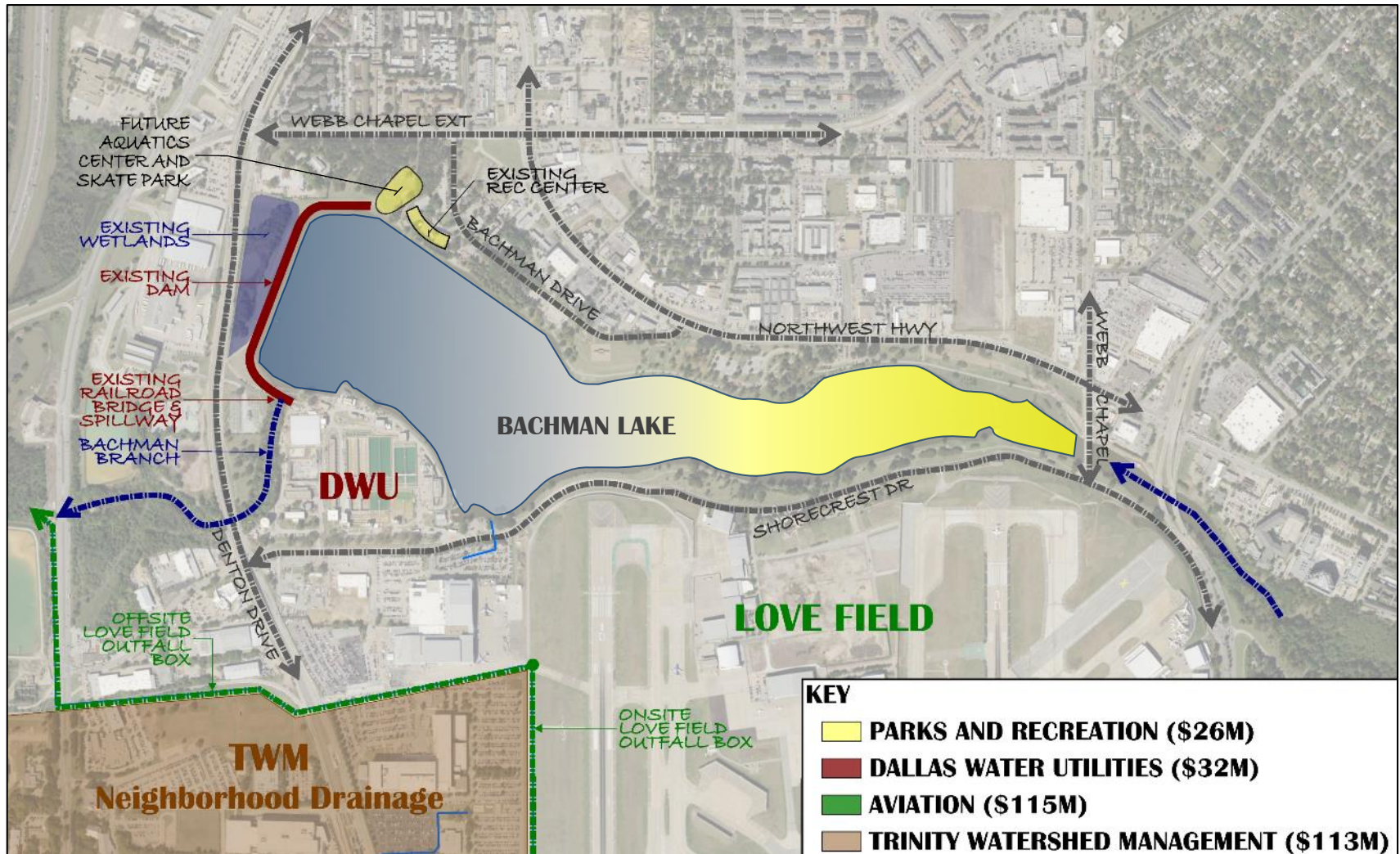


Purpose

- Provide background information for the Love Field / Bachman Lake Feasibility Study
- Discuss the objectives of the study
- Present Task Force findings and recommendation
- Seek Committee feedback



2016 City Infrastructure Needs (\$286M)



Detailed Description of Costs

- In 2016, four City departments had infrastructure needs at or near Bachman Lake
- Aviation – Relieve airport flooding (2012 Love Field Drainage Master Plan)
 - Onsite drainage improvements (\$85M)
 - Offsite drainage improvements (\$30M)
- Trinity Watershed Management – Reduce neighborhood flooding and upgrade pumping
 - Hampton PS And Nobles Branch (\$93M)
 - Knights Branch Inwood/Mockingbird (\$16M)
 - Lemmon at University (\$1M)
 - Knights Branch at Denton Drive (\$3M)



Detailed Costs (cont'd)

- Dallas Water Utilities – Rehabilitation of Bachman Dam and Spillway (2013 Dam Assessment)
 - Dam and Spillway Improvements (\$32M)
- Parks Department – Recreational Amenities
 - Aquatic Center (\$6M)
 - Recreation Center Renovation (\$4M)
 - Skate Park (\$4M)
 - Greenbelt Trail Extension and Ped Bridge (\$2M)
 - Bachman Lake Dredging (\$10M)
- Total Infrastructure Costs (\$286M)



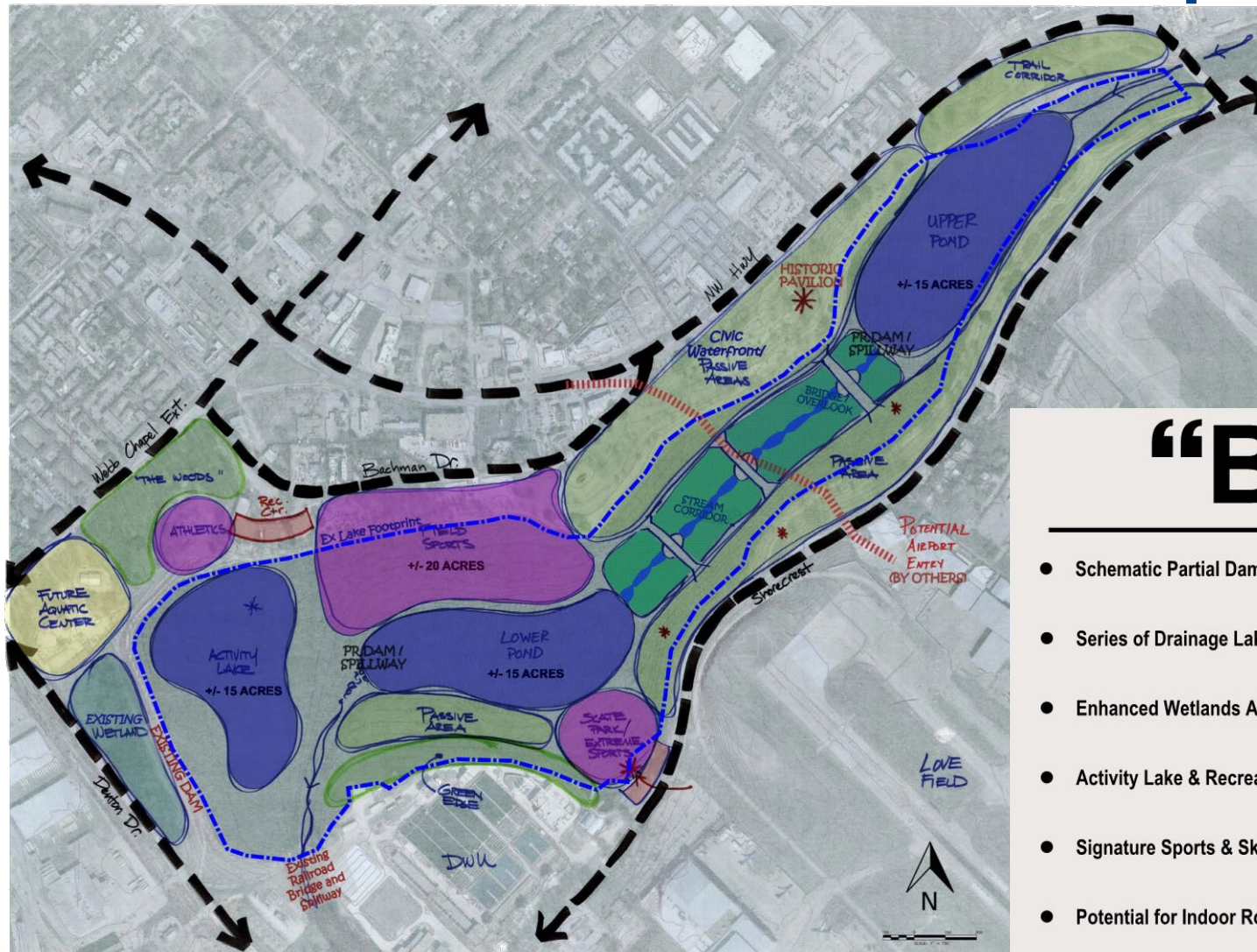
Study Objectives

- September 14, 2016 – Council awarded the Love Field / Bachman Lake Feasibility Study
- Address multiple City infrastructure needs at Bachman Lake in a holistic way that –
 - Reduces the overall cost of the improvements
 - Minimizes the adverse impacts of large construction projects in the area
 - Improves the recreational amenities at the lake

Concept A – Preserve Linear Lake (\$53M)

- Involves a partial dam removal which will reduce the footprint of Bachman Lake
- Pros: Allows airport flows to be redirected to lake, dam no longer needs to be regulated by the State, preserves traditional aquatic activities including rowing
- Cons: Reduces footprint of the lake, possible wildlife attractant issues

Alternatives Considered – Concept B



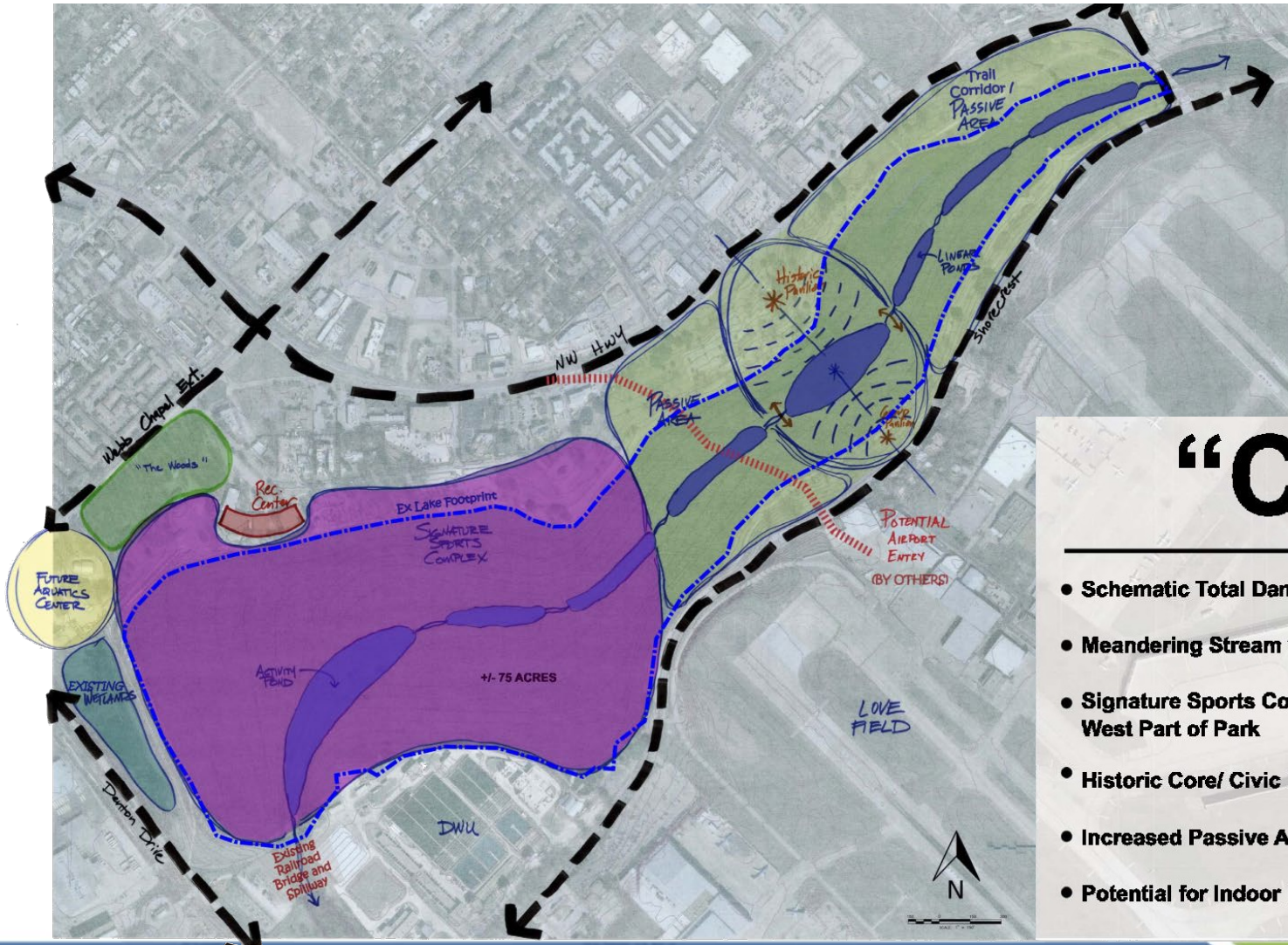
“B”

- Schematic Partial Dam Removal, Pools
- Series of Drainage Lakes
- Enhanced Wetlands Areas
- Activity Lake & Recreation at Northwest Corner
- Signature Sports & Skate Park Areas
- Potential for Indoor Rowing Facility

Concept B – Connected Lakes (\$51M)

- Involves a partial dam removal which will convert Bachman Lake into a series of smaller lakes
- Pros: Allows airport flows to be redirected to lake, dam no longer needs to be regulated by the State, retains some opportunity for recreational boating
- Cons: Eliminates a continuous Bachman Lake, ponds will be subject to frequent silting, wildlife attractant issues

Alternatives Considered – Concept C



“C”

- Schematic Total Dam Removal, Stream
- Meandering Stream w/ Linear Ponds
- Signature Sports Complex at West Part of Park
- Historic Core/ Civic Heart
- Increased Passive Areas
- Potential for Indoor Rowing Facility

Concept C – Conversion to Stream Like Environment (\$67M)

- Involves complete dam removal which will convert Bachman Lake into a stream-like environment, similar to Turtle Creek
- Pros: Allows airport flows to be redirected to creek, dam no longer needs to be regulated by the State, opens up land for additional recreational programming
- Cons: Eliminates Bachman Lake, lacks ability to support rowing (could be compensated for elsewhere)

Task Force Formation

- March 2018 - Council requested City staff to develop a task force to further evaluate alternatives
- October 2018 – Task Force was created consisting of 6 constituents and 4 City staff
 - 2 constituents each from Council Districts 2, 6 and 13
 - Clinton Haley, Esther Benavides, Tim Dickey, Joe Carreon, Peter Dauterman and Richard Misdorn
 - 4 City staff from Aviation, DWU and Parks
 - Mark Duebner, Richard Wagner, Sarah Standifer and Leong Lim

Task Force Timeline and Findings

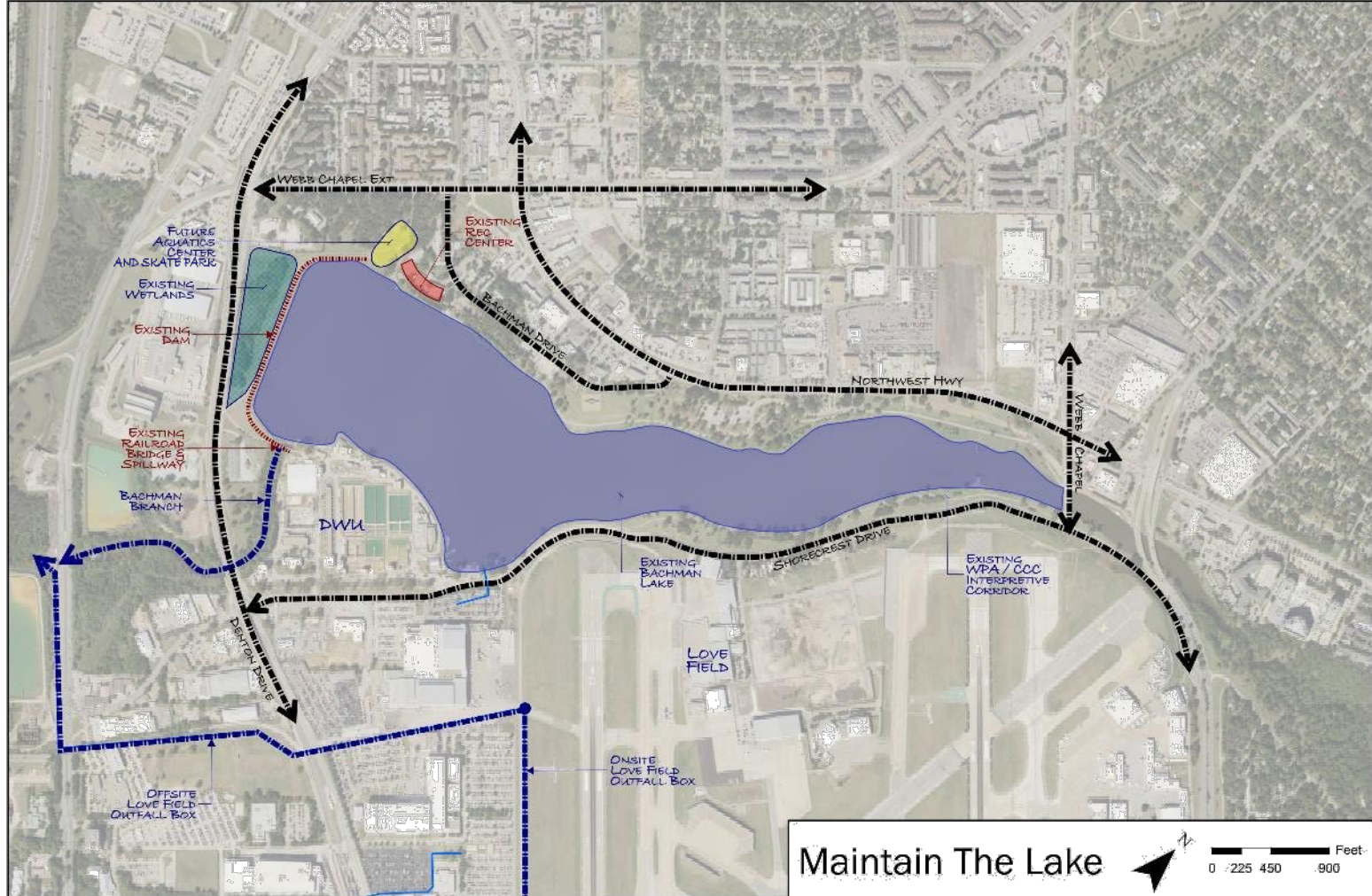
- November 5, 2018 – Task Force kick-off meeting
 - Project objectives, infrastructure needs and alternatives were discussed
 - Options B and C were removed from consideration
 - Additional recommendations were needed that incorporate quality of life considerations
- November 16, 2018 – Task Force met at Aviation offices to discuss flooding
 - Video of airport flooding was presented and discussed
 - Continued discussion of additional options
 - Task Force requested to visit Bachman dam at next meeting

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Task Force Timeline and Findings

- December 20, 2018 – Task Force met at Bachman Water Treatment Plant
 - Conducted tour of dam and spillway to discuss deficiencies
 - Task Force voted to move forward with development of two options –
 - “Maintain the Lake” – Footprint of the lake remains unchanged and departments proceed as originally planned
 - “Transform the Lake” – Alternative A with amenities added to the overall plan
- February 27, 2019 – Task Force met at City Hall
 - Presented findings developed by Consultant and discussed both options

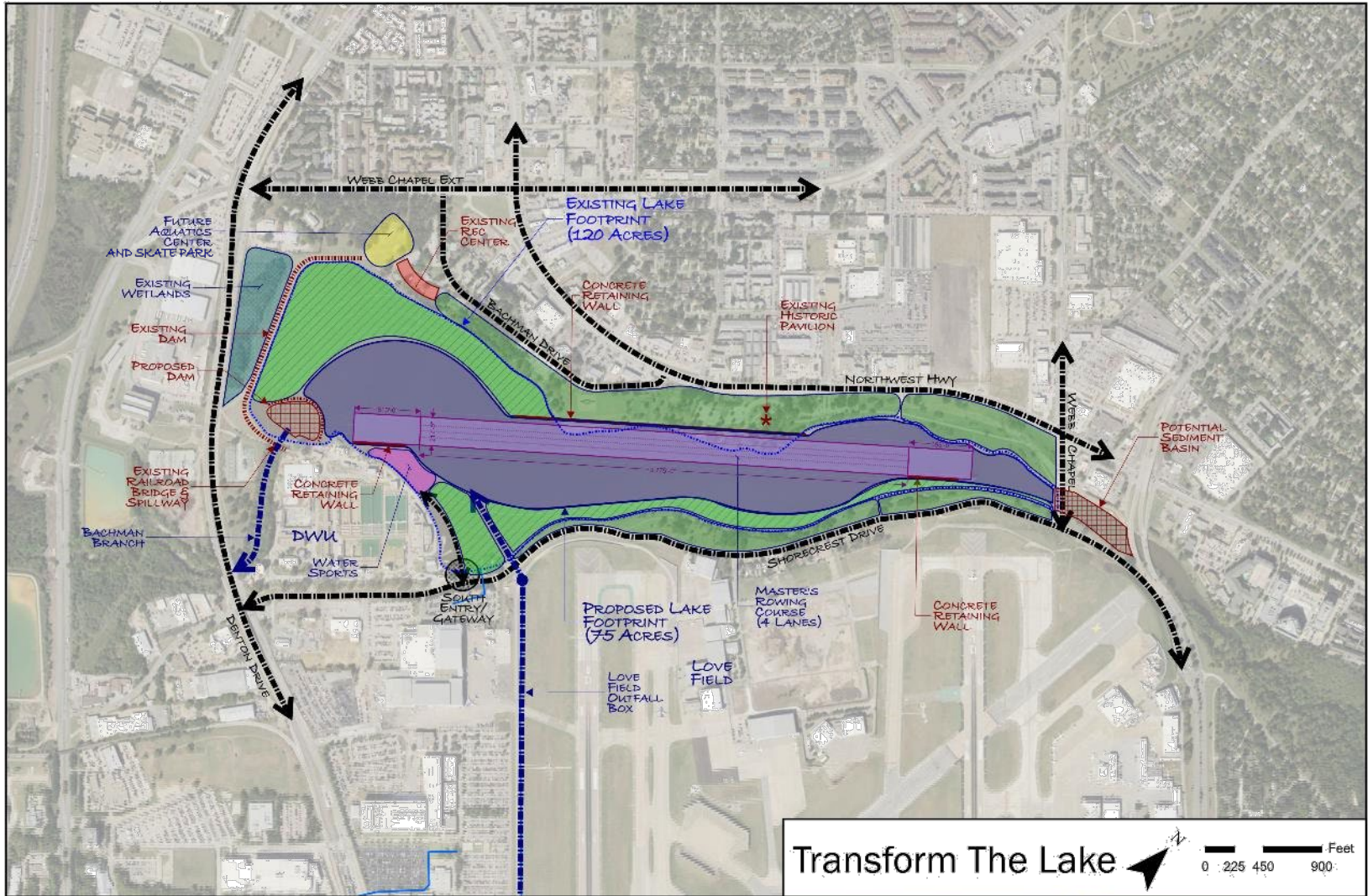
“Maintain the Lake”



“Maintain the Lake”

- Footprint of the lake remains unchanged and departments proceed as originally planned with infrastructure improvements
- Pros: Less expensive upfront capital cost, lake footprint and current programming remain the same
- Cons: Dam remains regulated by the State, dredging of the lake remains an issue

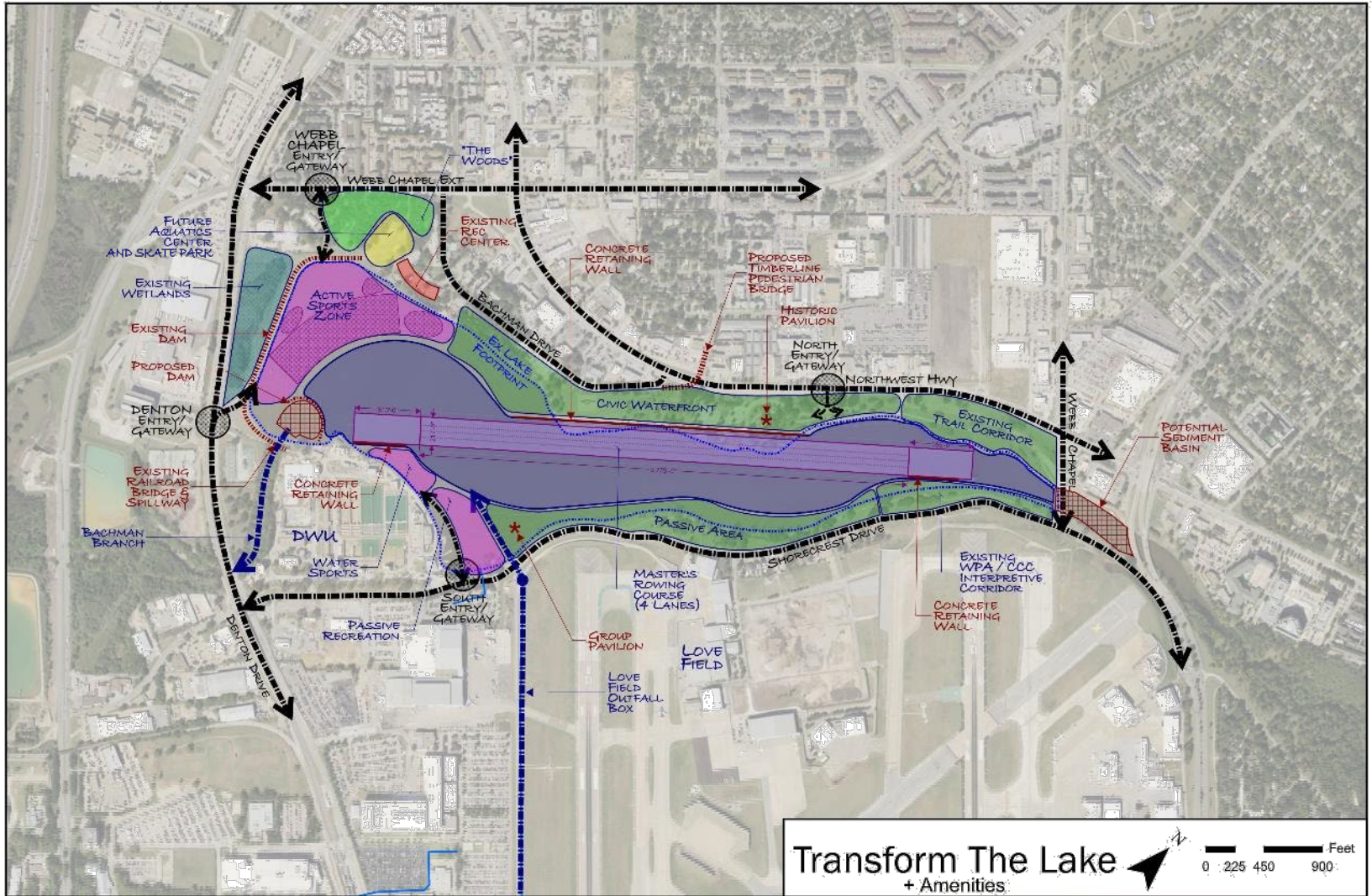
“Transform the Lake”



“Transform the Lake”

- Involves a partial dam removal which will reduce the footprint of Bachman Lake and create space for additional recreational amenities
- Pros: Dam no longer needs to be regulated by the State, allows airport flows to be directed to lake, preserves aquatic activities
- Cons: More expensive capital option, reduces the footprint of Bachman Lake, siltation and evaporation issues associated with very shallow lake, possible regulatory issues

“Transform the Lake” + Amenities



“Transform the Lake” + Amenities

- Involves a partial dam removal which will reduce the footprint of Bachman Lake and adds recreational amenities
- Pros: Dam no longer needs to be regulated by the State, allows airport flows to be directed to lake, preserves aquatic activities and enhances recreational amenities
- Cons: Most expensive capital option, reduces the footprint of Bachman Lake, siltation and evaporation issues associated with very shallow lake, possible regulatory issues

Preliminary Cost Estimates

BACHMAN LAKE ALTERNATIVES (in millions)				
<i>Item</i>	<i>Maintain the Lake</i>	<i>Maintain the Lake (Drain for Dam Work)</i>	<i>Transform the Lake</i>	<i>Transform the Lake + Amenities</i>
<u>Love Field Drainage</u>				
Onsite Stormwater Drainage	\$104	\$104	\$107	\$107
Offsite Stormwater Drainage	\$23	\$23	\$2	\$2
SUB TOTAL	\$127	\$127	\$109	\$109
<u>Dam & Lake Renovations</u>				
Dam Renovation & Railroad Bridge	\$33	\$30	\$12	\$12
Earthwork (Excavation, Fill, & Dredging)	\$ -	\$ -	\$30	\$30
Lake Dredging	\$10	\$8	\$ -	\$ -
Upstream Sediment Basin	\$ -	\$ -	\$12	\$12
SUB TOTAL	\$43	\$38	\$54	\$54
<u>Recreation Facilities</u>				
Aquatic Center	\$6	\$6	\$6	\$6
Recreation Center Renovation	\$4	\$4	\$4	\$4
Skate Park	\$4	\$4	\$4	\$4
Rowing and Water Sports Area	\$ -	\$ -	\$9	\$9
SUB TOTAL	\$14	\$14	\$23	\$23
<u>Additional Amenities</u>				
Additional Amenities Considered	\$ -	\$ -	\$ -	\$26
TOTAL	\$184	\$179	\$186	\$212
Currently Identified Funding	\$47	\$52	\$26	\$26
Funding Gap	\$137	\$127	\$160	\$186

Notes: A) "Maintain the Lake" ties to original 2016 Infrastructure Needs with 2019 updates

B) Original TWM stormwater costs removed based on 2012 Love Field Drainage Master Plan and Army Corp Funding

Path Forward

- The task force has recommended to move forward with the “Maintain the Lake” option
- City staff seeks Committee feedback on the Task Force recommendation

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Assistant Director
Dallas Water Utilities**



Appendix

- Additional amenities included in the “Transform the Lake” + Amenities option
 - Timberline Pedestrian Bridge (\$3M)
 - Active Sports Zone, Sports Fields, BMX Track (\$12M)
 - Passive Sports Zone, Basketball, Tennis (\$3M)
 - Civic Waterfront, Pavilions, Overlooks (\$3M)
 - Indoor Rowing Center (\$4.5M)
 - Entries, Gateways, Woods (\$0.5M)
 - Total Amenities (\$26M)