



TRINITY RIVER CORRIDOR PROJECT

Dallas Floodway Improvements

Refinement of the Balanced Vision Plan –

- I-30 Signature Bridge
- Reverse Lake Flow

Update to the Trinity River Committee

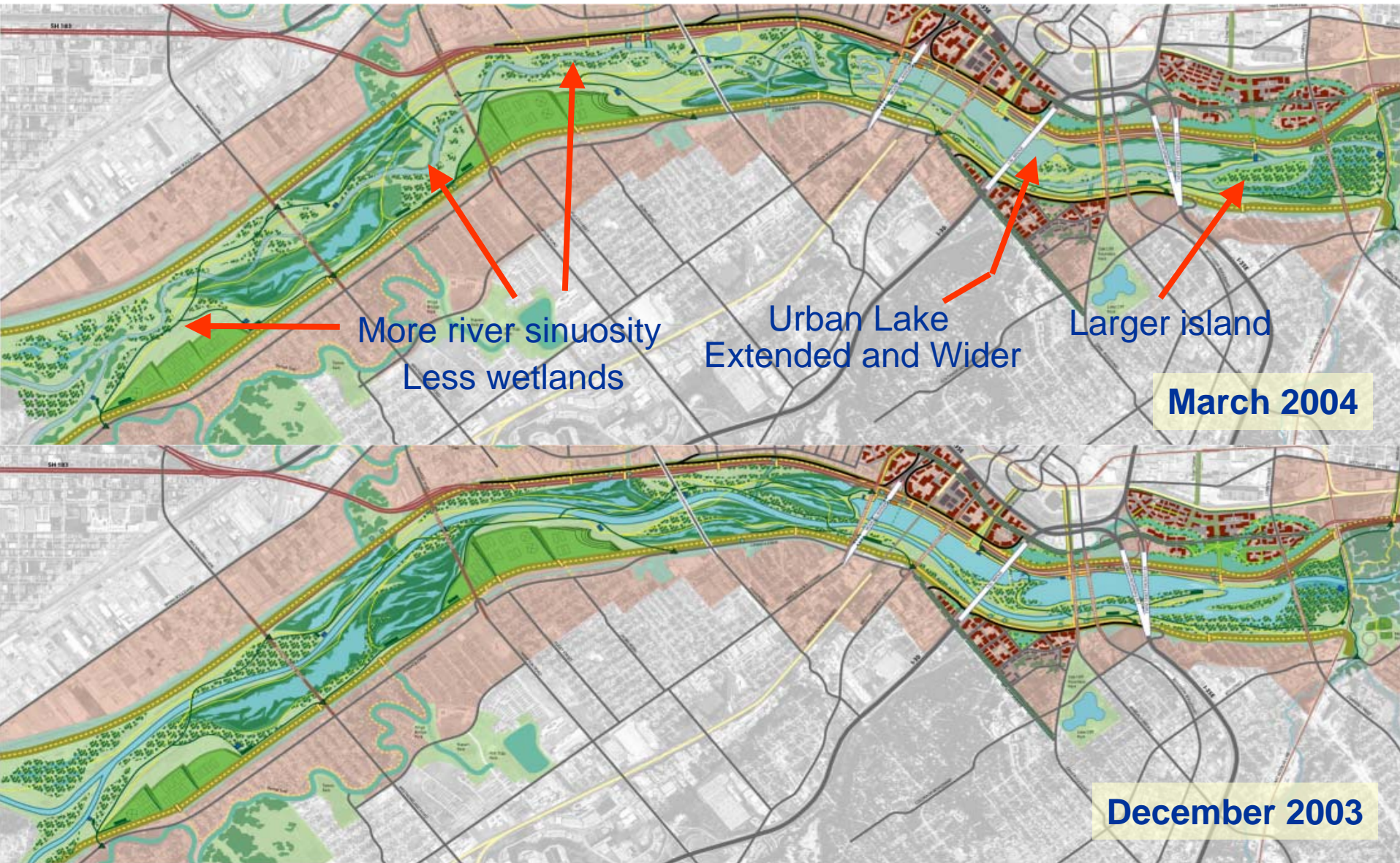
22-March-2004

Purpose

- On March 1, 2004, CDM and City staff presented the modeling results and refinements of the Balanced Vision Plan for the Dallas Floodway to the Trinity River Committee
- The TRC requested further refinements to better accommodate the future I-30 Signature Bridge initiative and to present further details concerning the alternative of reverse lake flow at the next scheduled TRC meeting (March 22, 2004)
- As a collaborative effort, City staff, CDM, and the Urban Design Team refined the lakes configuration to better accommodate the I-30 Signature Bridge initiative as presented on slide 4
- The remainder of this presentation focuses on the analysis for the reverse lake flow alternative as compared to conventional lake flow

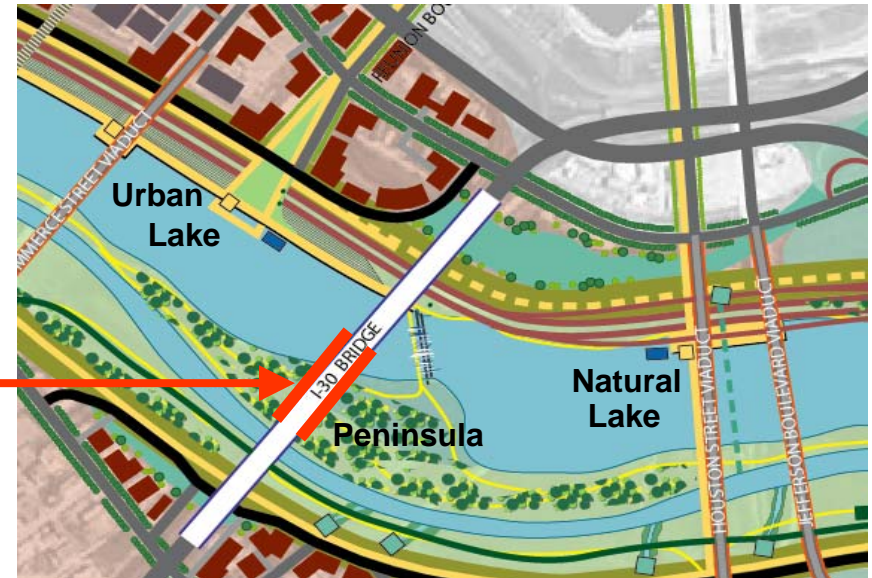


General Comparisons: 8 Dec 03 and 22 Mar 04

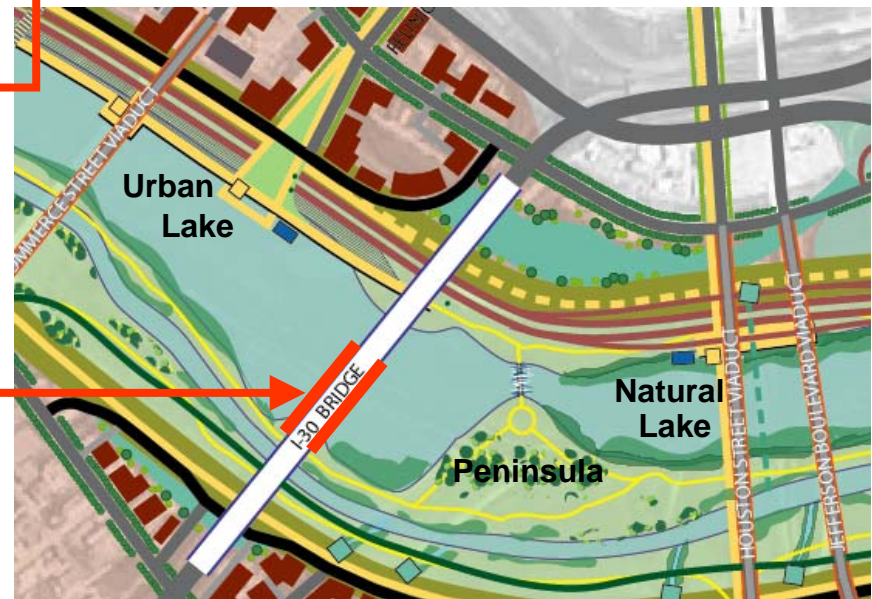


I-30 Signature Bridge: Refined Lake Shape

- The Urban Lake shape has been refined to better accommodate the future location of the I-30 signature bridge span
- Urban Lake has been widened and extended downstream, while peninsula has a lower elevation
- The Calatrava design team will try to keep the bridge span as far east as possible, but further reshaping of the river/lake under the bridge span may be necessary and would be pursued with the USACE as part of their study



I-30 Signature
Bridge Span

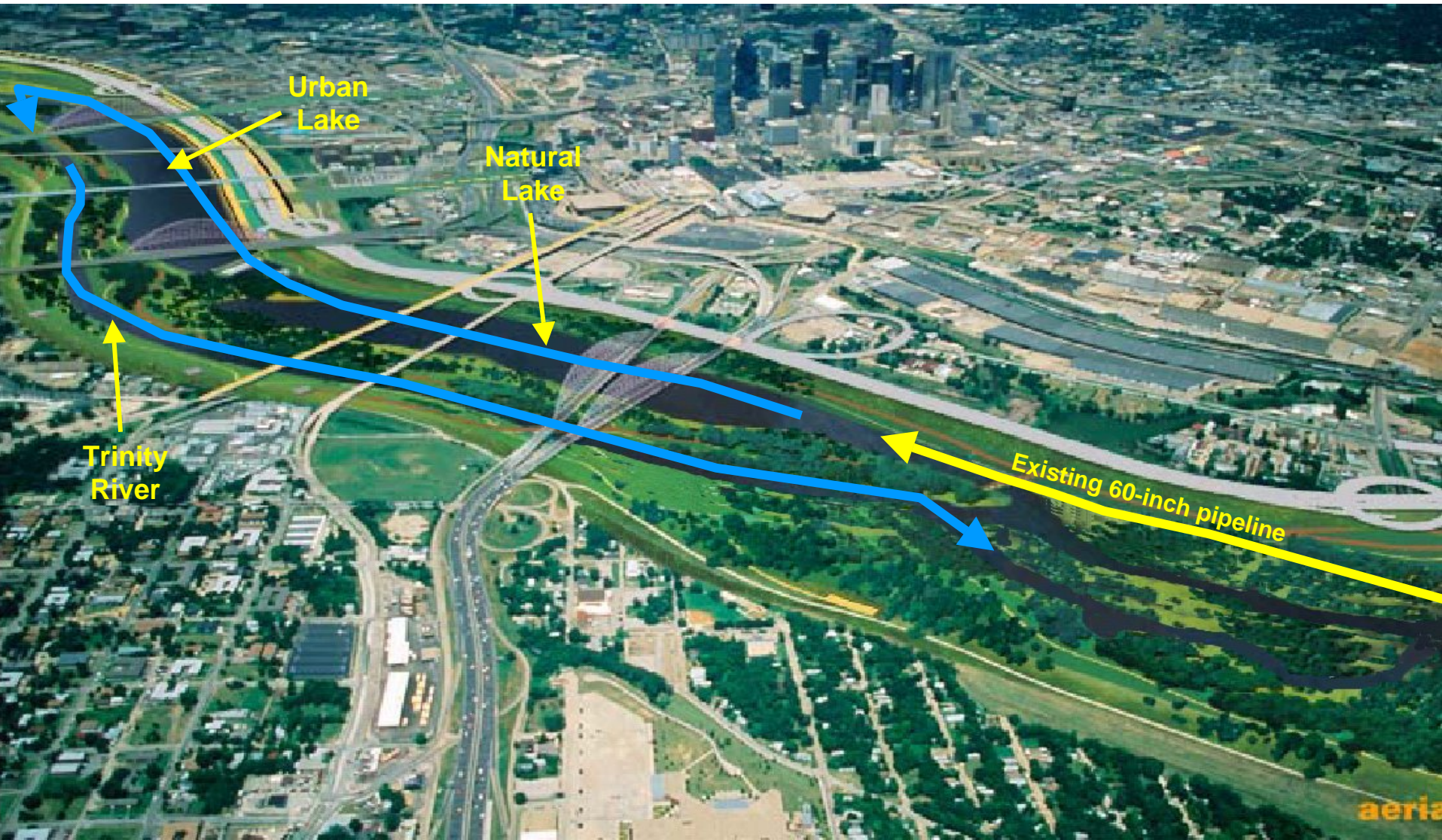


Reverse Lake Flow Alternative

- Instead of the Urban Lake being set at three feet higher than the Natural Lake, the lake elevations are reversed where the Natural Lake is three feet higher than the Urban Lake
- The existing 60-inch pipe would deliver source water from the Central Wastewater Treatment Plant (CWWTP) to the southern end of the Natural Lake
- The CWWTP water would enter the Natural Lake from its lake bottom, where the underground pipe is currently located
- CWWTP water would flow from the Natural Lake through the Urban Lake and re-enter the Trinity River upstream of Continental Street Viaduct.
- Some of the flow from the Urban Lake would pass through a “Tailwater Wetland” while the majority could be used for a recreational whitewater course.



Reverse Lake Flow Alternative



Reverse Lake Flow: Effects on Flood Control

- The reverse lake flow alternative would produce no change in how the Dallas Floodway protects the downtown Dallas vicinity
- The Dallas Floodway levee protection would not be impacted
- The only change to the lake berm system that would protect the two lakes from a 2-year flood is that the discharge point would be located near Continental instead of near Corinth



Reverse Lake Flow: Effects on Ecosystem Restoration

- **The reverse lake flow alternative would produce higher dissolved oxygen levels for:**
 - The two miles of the Trinity River from Continental to the southern end of the Natural Lake**
 - The western portion of the split river / island feature that would not otherwise benefit from the conventional lake flow alternative**
- **Higher dissolved oxygen levels would contribute to enhanced aquatic habitat, wetlands features along this two-mile river segment and the split river / island feature, and riparian habitat**
- **Better conveyance for the upper half of the Dallas Floodway would allow additional tree plantings, reducing the 40 percent deficit for the upper half of the Dallas Floodway to 15 percent.**



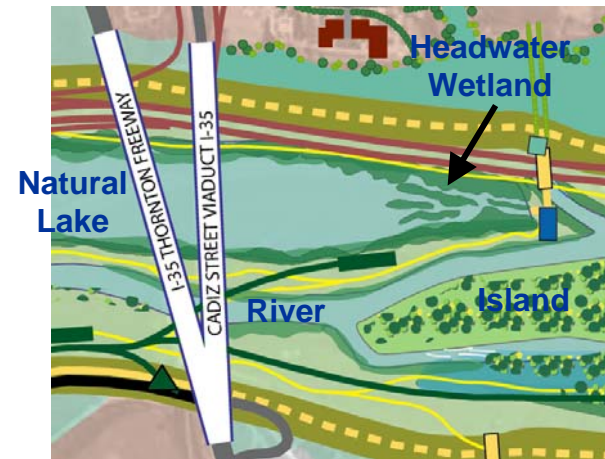
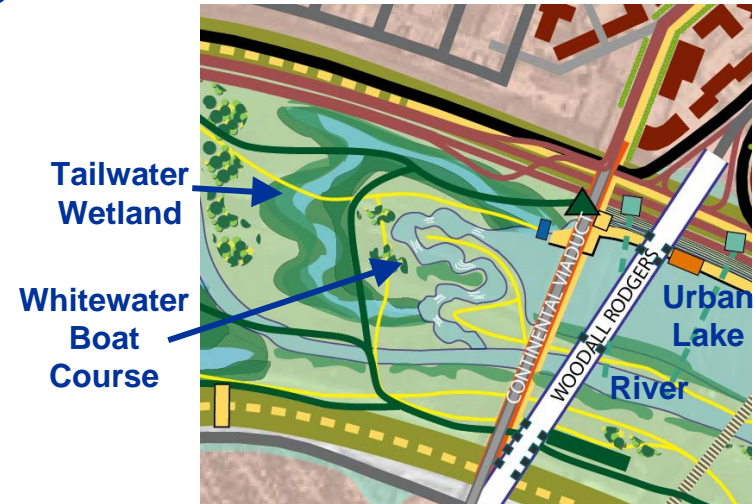
Reverse Lake Flow: Effects on Aesthetics

- A water feature with three-foot of drop that would face north, instead of south
- Urban Lake visitors would be able to see this feature, which enhances the primary purpose of the Urban Lake with respect to aesthetics
- The movement of the flow in the lakes would not be noticeable, except at the water feature



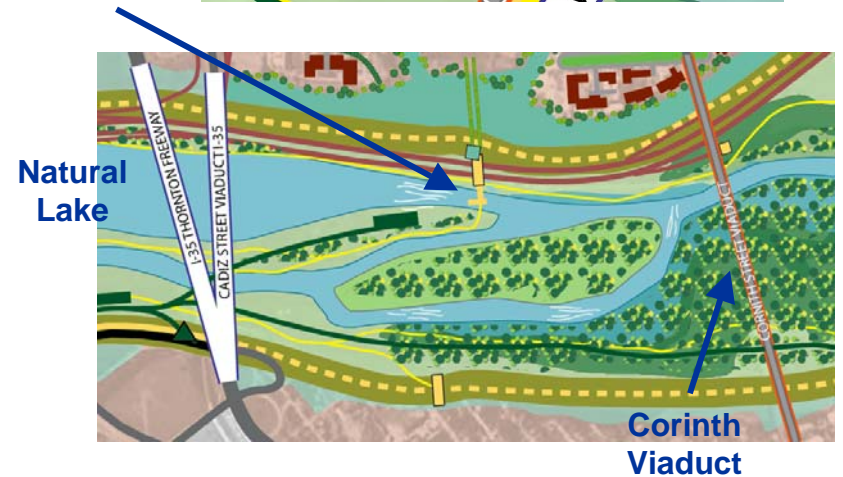
Reverse Lake Flow: Effects on Aesthetics

- The Continental Street Viaduct (to be pedestrian) would become a viewing platform for an upstream discharge point and recreational boating (e.g., whitewater) course.
- The Headwater Wetland is reduced in size and moved to the south end of the Natural Lake but would be compensated by another "continuously fed" wetlands system at the northern end of the Urban Lake called a Tailwater Wetland.
- The Urban Lake would be 3 feet lower than in the Urban Design Plan, which is counter to the goal to produce a lake setting as close to the top of the levees as possible



Reverse Lake Flow: Effects on Recreation

- A reverse lake flow alternative would locate a possible whitewater boat course just upstream of the Continental Bridge in a highly visible location close to the Urban Lake
- In the conventional approach, the whitewater course would be viewable from the Trinity banks or levees.

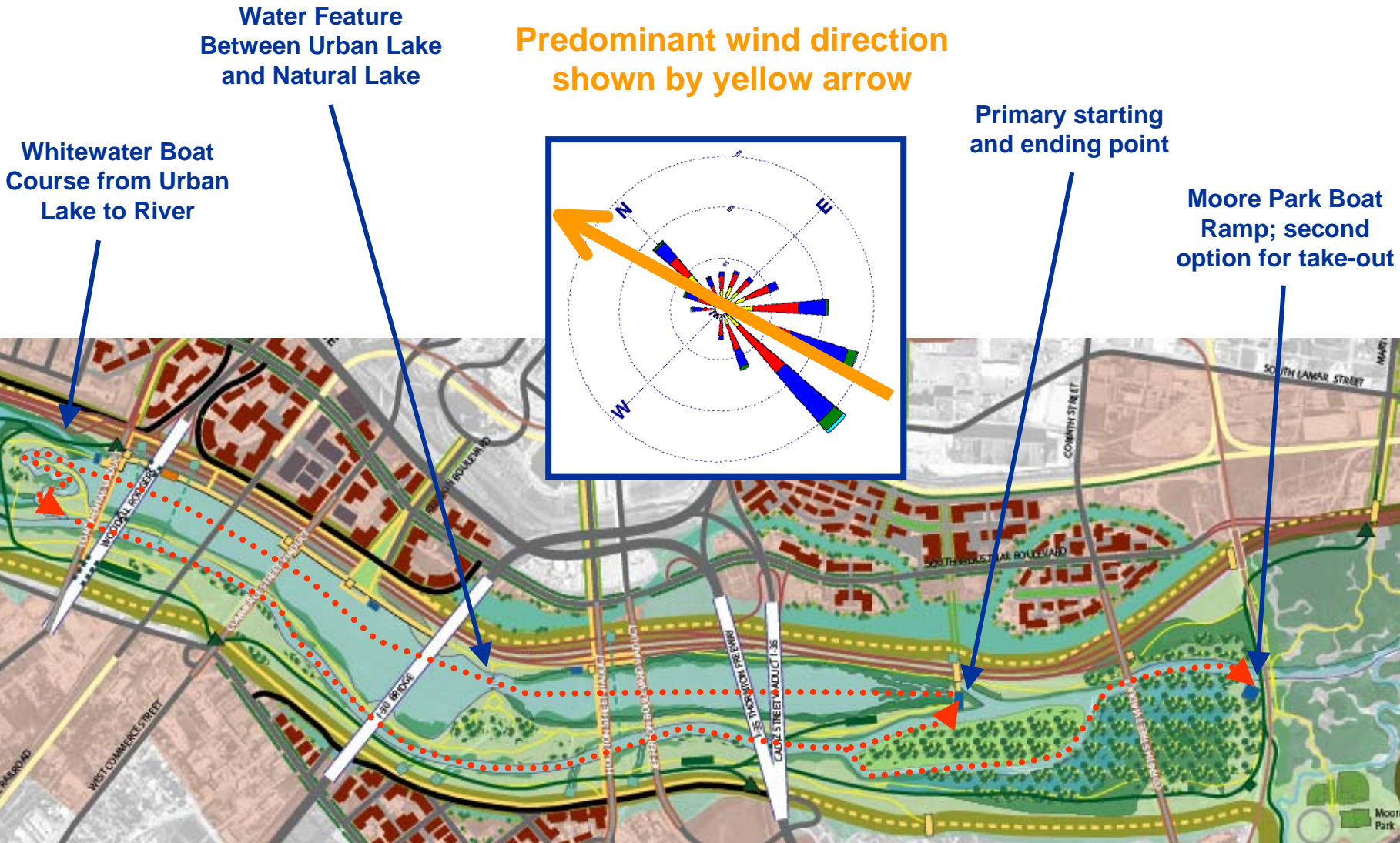


Reverse Lake Flow: Effects on Recreation

- A reverse lake flow alternative would produce a four-mile boat loop opportunity that would start at the southern end of the Natural Lake, pass through the lake transition water feature, move through the Urban Lake and return to the point of origin along the two-mile Trinity River segment
- Boaters would be assisted by the prevailing winds across the two-mile run through the two lakes and water features, while the two-mile river segment would take them back with the river current to the starting point of their trip
- For conventional lake flow, the four-mile boat loop would require four portages, while the reverse lake flow would require two such portages



Reverse Flow 4-mile Boat Loop



Reverse Flow 4-mile Boat Loop: Portages

Water Feature
Between Urban Lake
and Natural Lake

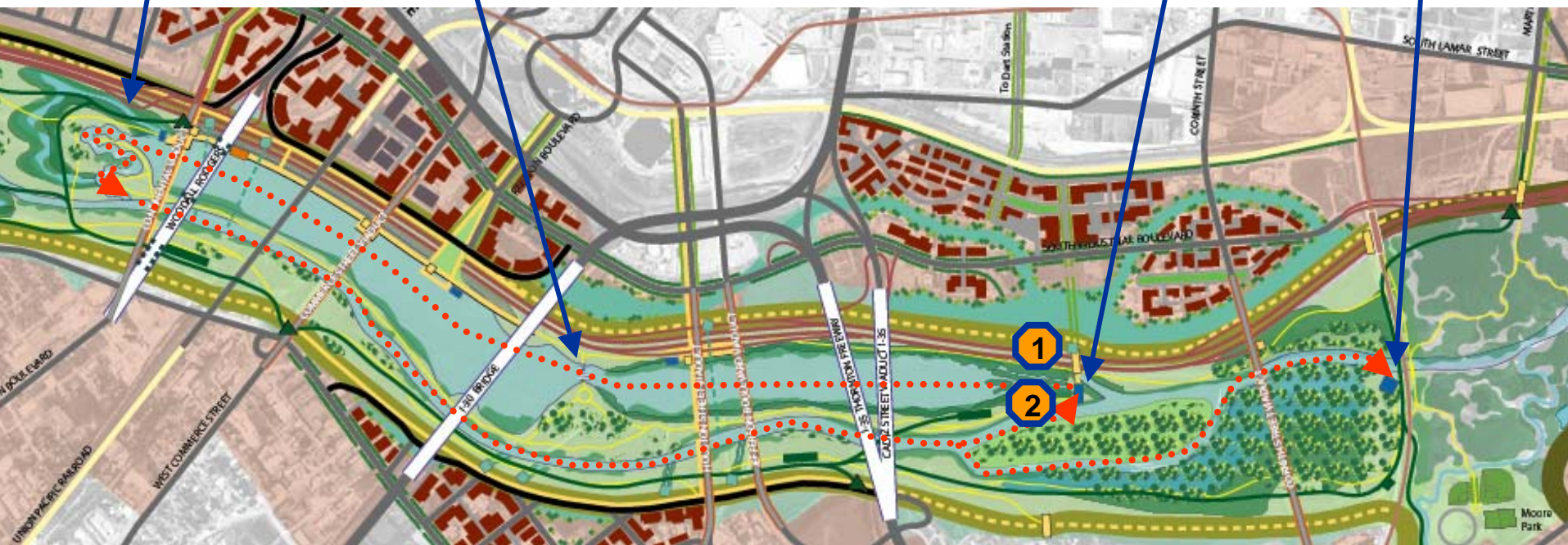
Portages for boaters 

1. Put-in at Natural Lake
2. Take-out from river

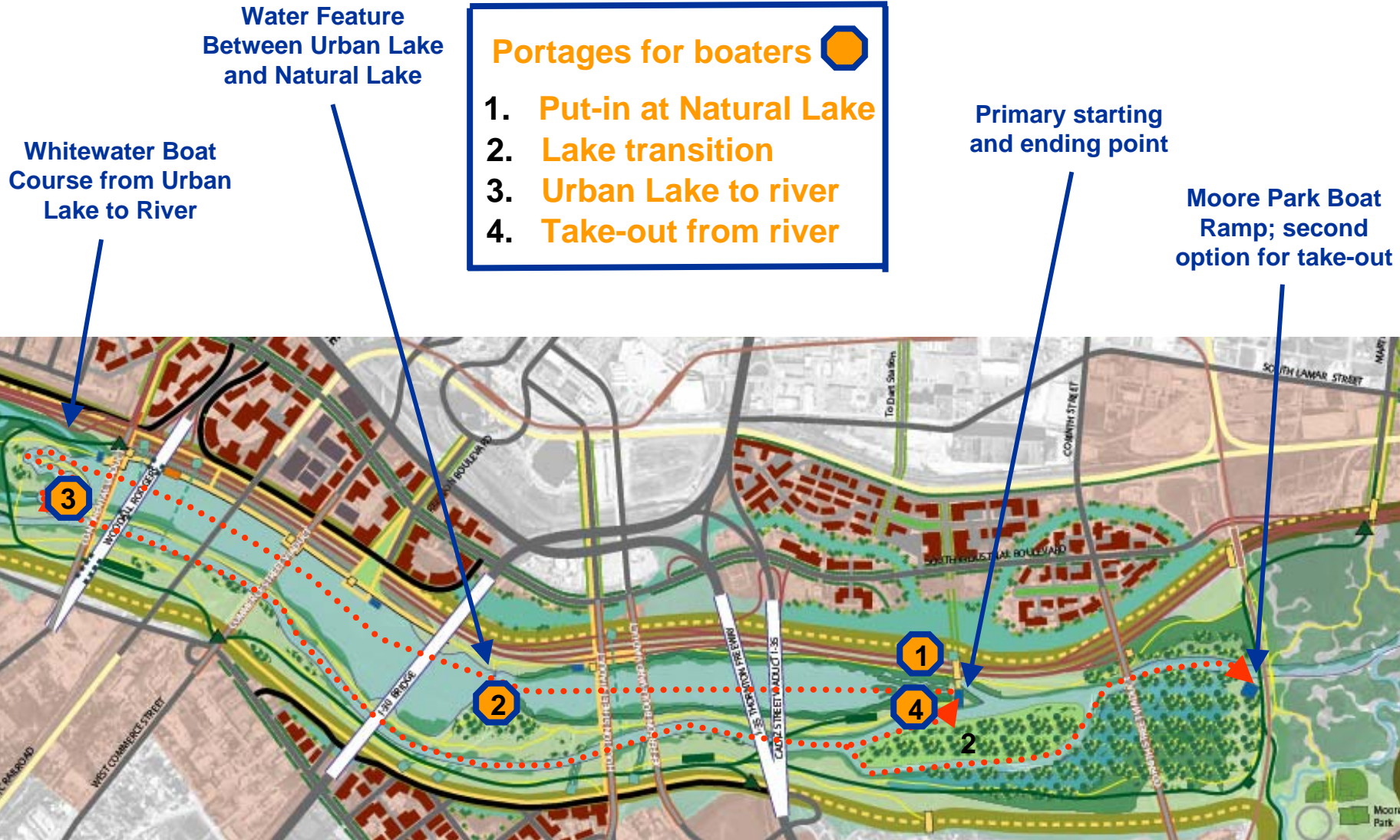
Primary starting
and ending point

Moore Park Boat
Ramp; second
option for take-out

Whitewater Boat
Course from Urban
Lake to River



Conventional Flow 4-mile Boat Loop: Portages

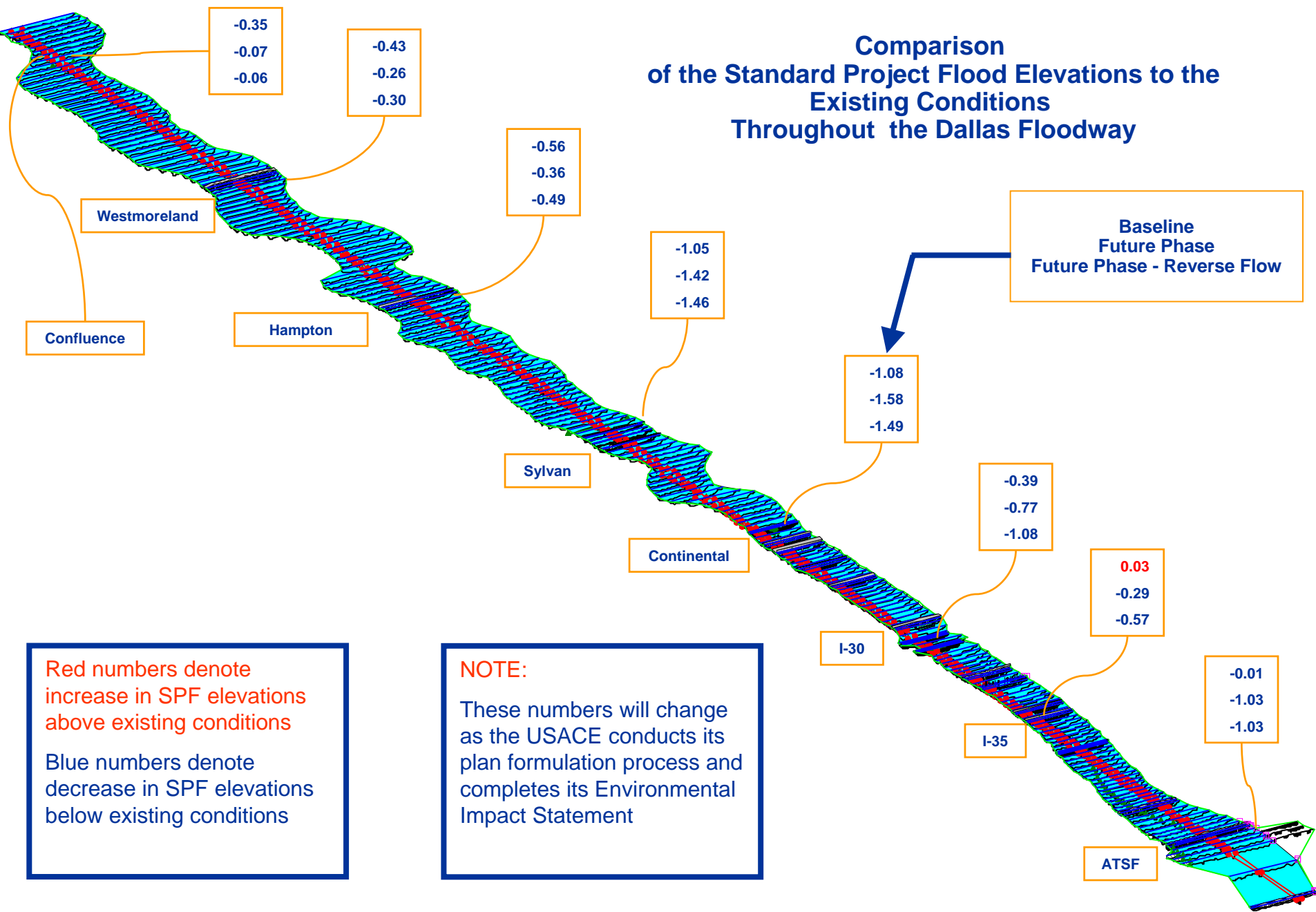


Reverse Lake Flow: Effects on Cost

- **The reverse lake flow alternative eliminates the need for 2.2 miles of new pipe that would carry CWWTP water from the I-35 vicinity to the northern end of the Urban Lake resulting in a \$6 million cost savings**
- **The annual energy cost savings are estimated to be \$40,000 per year**
- **If annual energy cost savings are held at zero, the amount of CWWTP source water can be increased from 50 million gallons per day to 58 million gallons per day**
- **Additional small cost savings would be realized for reduced size of the pumps and less annual operation / maintenance costs**



Comparison of the Standard Project Flood Elevations to the Existing Conditions Throughout the Dallas Floodway



Red numbers denote increase in SPF elevations above existing conditions

Blue numbers denote decrease in SPF elevations below existing conditions

NOTE:
 These numbers will change as the USACE conducts its plan formulation process and completes its Environmental Impact Statement

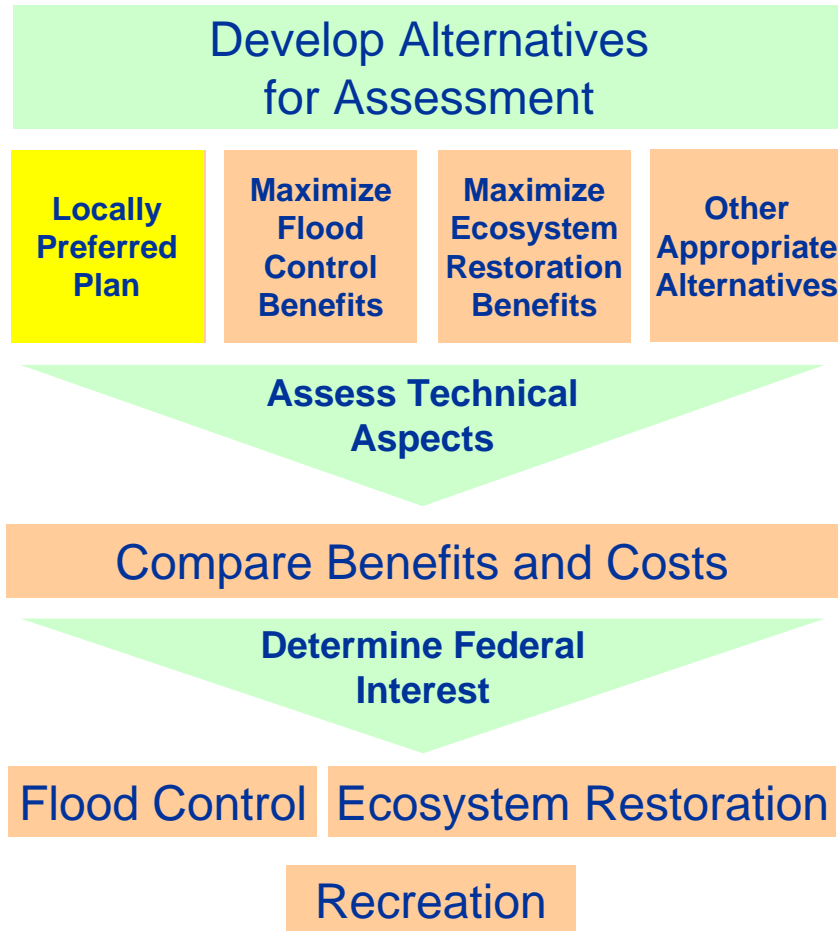


Recommendation and Next Steps

- **City staff recommends (with TRC support) that a briefing memo packet is provided to full City Council for status update and City Council resolution is pursued for April 14, 2004**
- **Adopt the lake configuration change to better accommodate the future I-30 Signature Bridge**
- **Adopt the direction of lake flow to a reverse lake flow configuration**
- **Turn over hydraulic models and digital terrain models to the USACE by end of March 2004**
- **USACE will progress with plan formulation for the Dallas Floodway during 2004-2005, while continuing to receive City and Urban Design feedback**



Next Steps (continued)



- **USACE feasibility study and EIS process carries through 2004 - 2006**
- **Draft report due in late 2005**
- **Final EIS due in late 2006, which also includes the Trinity Parkway project**



Next Steps (continued)

- **CDM will complete their work on water quality and environmental restoration this Spring**
- **USACE will produce a Supplemental Draft Environmental Impact Statement (EIS) report by late 2005 that will establish the extent of Federal participation for the Dallas Floodway initiatives**
- **The City will have a concurrent study initiated in 2005 with the Bureau of Reclamation for the lakes' water delivery system, if Federal funding is established**
- **The City will pursue design of lakes and amenities for the Dallas Floodway during 2006, while USACE finalizes the EIS**



I-30 Signature Bridge: Refined Lake Shape

- This rendering shows the possible location of the I-30 Signature Bridge span based on preliminary information
- Much more design is needed to fully explore the possibilities of centrally locating the bridge with respect to the Urban Lake

