

***Preliminary Discussion of
Edwards Aquifer Recharge & Recirculation
Springflow Protection Alternative***

***Edwards Aquifer
Recovery Implementation Program
Steering Committee and Stakeholders***

**HDR Engineering / Todd Engineers
June 14, 2010**

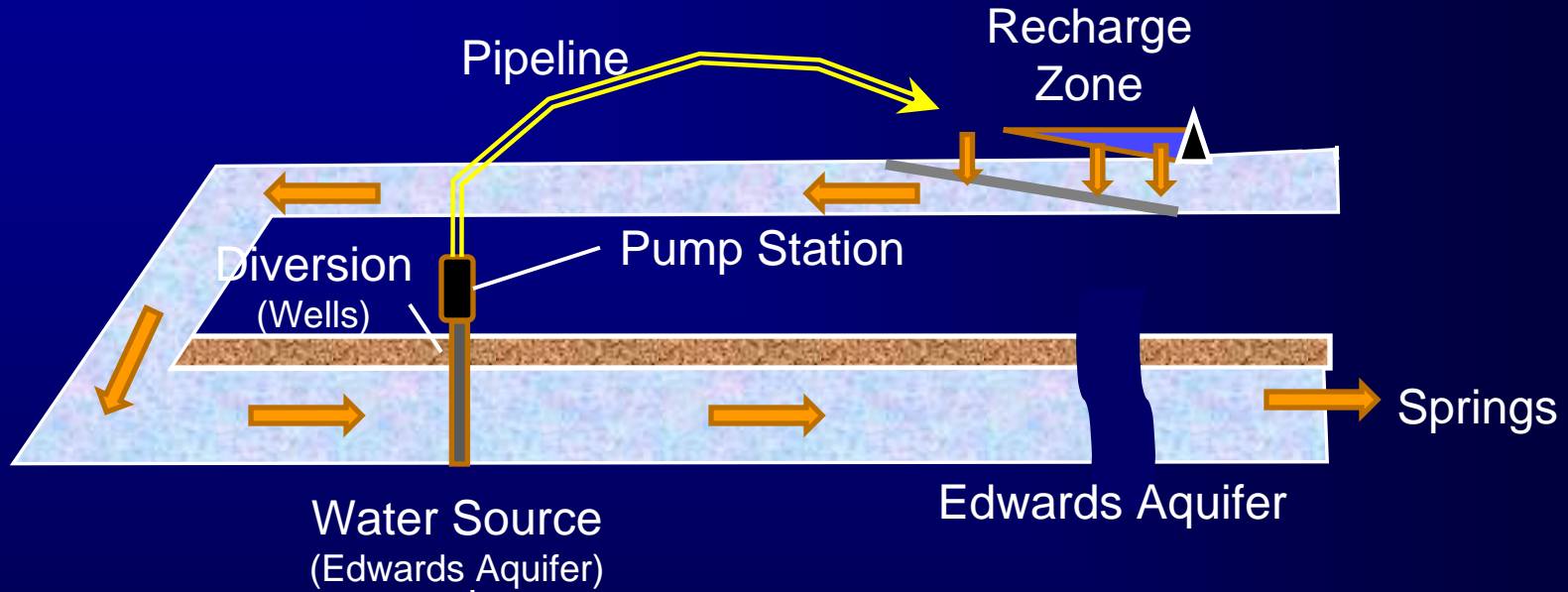
Topics of Discussion

- 1) Introduction & Source Waters**
- 2) Recharge & Recirculation Modeling**
- 3) Preliminary Cost Estimates**



Project Components

Recharge and Recirculation: Edwards to Recharge Zone

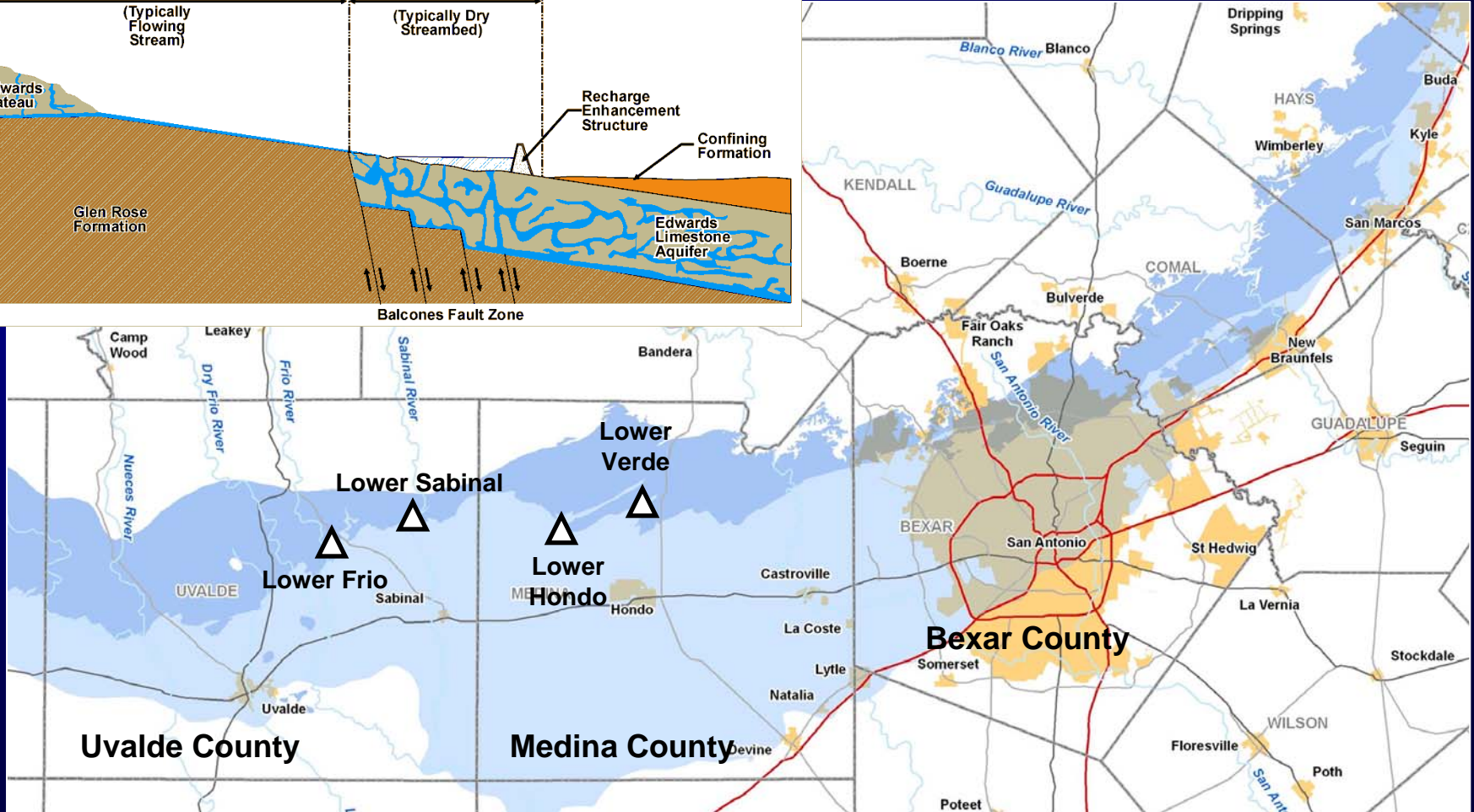
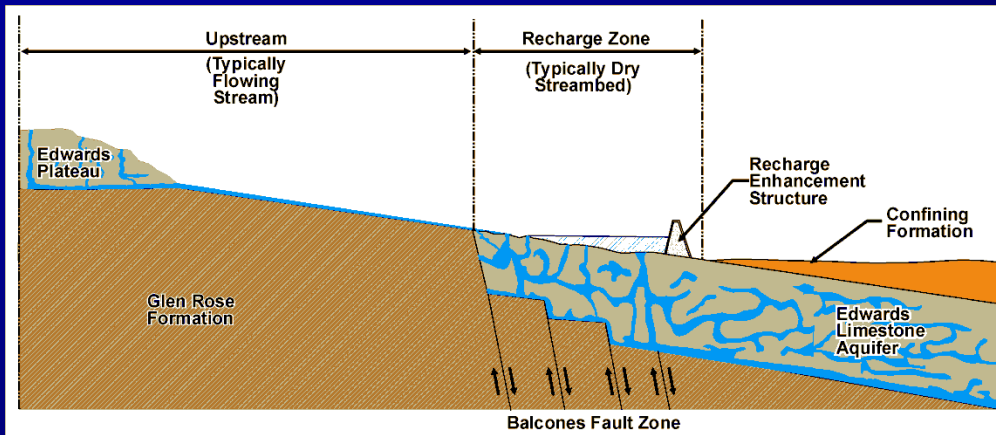


Recharge Recovery & Recirculation

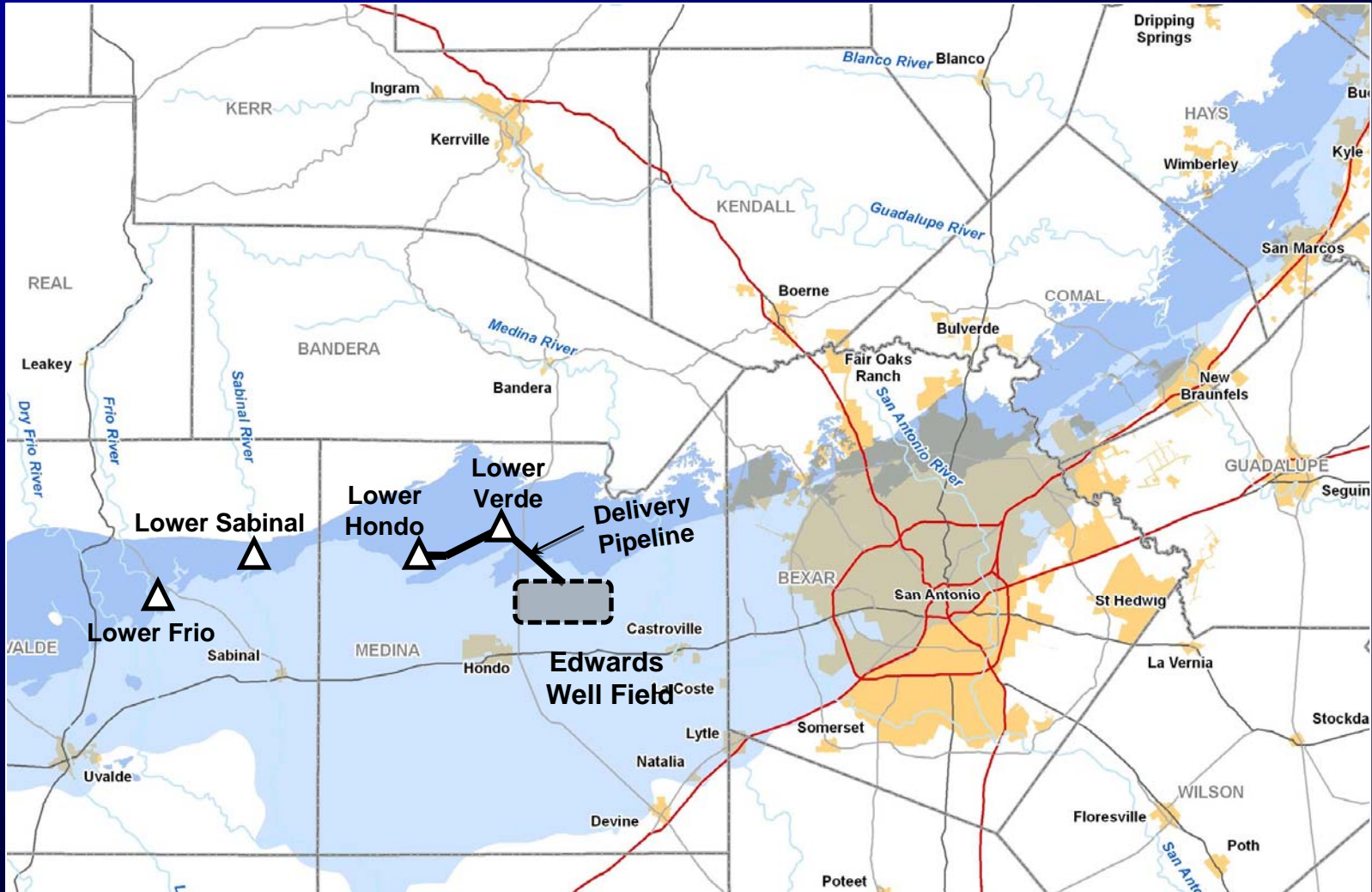
Type 2 Recharge Structures

Unused Irrigation Permits

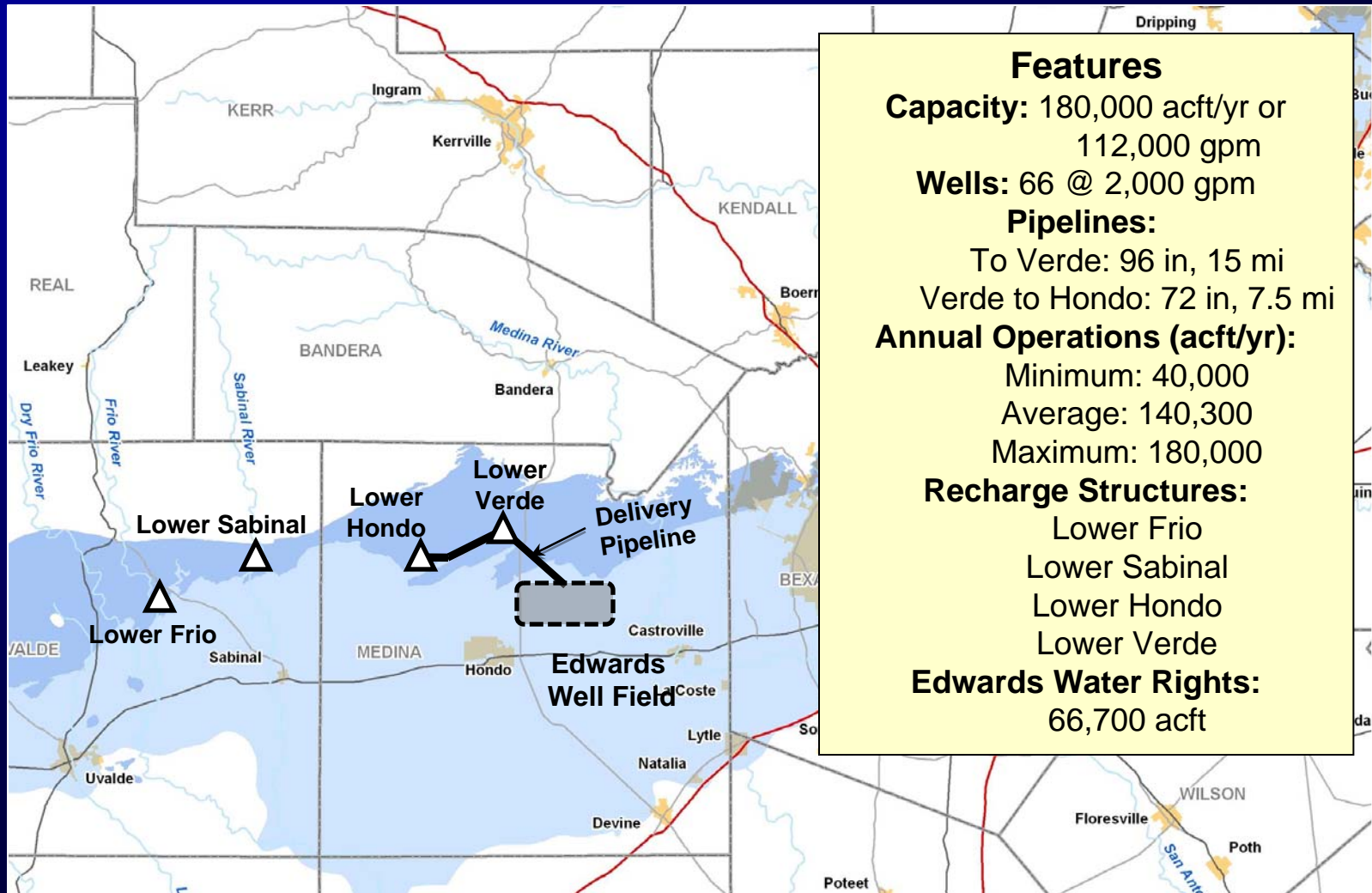
Type 2 Edwards Recharge Structures & Unused Irrigation Permits (40,000 acft/yr, CPM 4)



Recharge & Recirculation for Springflow Protection



Preliminary Design



Capital and Project Costs

Item	R & R Facilities	Type II Structures	Total
Capital Costs			
Dams and Reservoirs	\$0	\$60,552,000	\$60,552,000
Pump Station and Storage	\$26,011,000	\$0	\$26,011,000
Transmission Pipeline	\$106,452,000	\$0	\$106,452,000
Well Fields	\$62,414,000	\$0	\$62,414,000
Purchase of GW Rights and Relocations	\$367,350,000	\$0	\$367,350,000
Total Capital Cost	\$562,227,000	\$60,552,000	\$622,779,000
Project Cost			
Engineering, Legal Costs and Contingencies	\$191,457,000	\$23,536,000	\$214,993,000
Environmental & Archaeology Studies and Mitigation	\$1,117,000	\$14,295,000	\$15,412,000
Land Acquisition and Surveying	\$1,045,000	\$14,476,000	\$15,521,000
Interest During Construction (3 years)	\$90,702,000	\$4,785,000	\$95,487,000
Total Project Cost, including Capital	\$846,548,000	\$124,339,000	\$970,887,000

Annual Operating Costs

Item	Minimum Year	Average Year	Maximum Year	Type II Structures
Annual Costs				
Debt Service (6 percent, 20 years)	\$73,806,000	\$73,806,000	\$73,806,000	\$819,000
Reservoir Debt Service (6 percent, 40 years)	\$0	\$0	\$0	\$7,639,000
Operation and Maintenance				
Storage, Pipeline, Pump Station	\$2,339,000	\$2,339,000	\$2,339,000	\$0
Dam and Reservoir	\$0	\$0	\$0	\$908,000
Pumping Energy Costs (\$0.06/kW-hr)	\$1,743,000	\$6,114,000	\$7,891,000	\$0
Purchase of Water	\$0	\$0	\$0	\$696,000
Total Annual Cost	\$77,888,000	\$82,259,000	\$84,036,000	\$10,062,000
Level of Operation (acft/yr)	40,000	140,300	180,000	N/A