Region C Water Planning Group Meeting

TRA Central

Wastewater Treatment Plant

October 10, 2005

Agenda

- Action Items
  - Unique Stream Segments
  - Appoint Committee to Develop Slate of Officers

Action Item

Unique Stream Segments

Unique Stream Segments

- Review of Recent Activity
  - March 2005: Unique Stream Segment Committee presented results of their analysis as a discussion item
  - April 2005: Unique Stream Segment Committee presented their memo as an action item. Topic was tabled.
  - May 2005: Mary Vogelson asked that the item be added to the agenda at the next RCWPG meeting.

Unique Stream Segments

- Concerns raised at the April meeting:
  - Were the suggested stream segments supported by local entities?
  - What would be the impact on private landowners?
  - What are the impacts of recommending stream segments for designation as unique?
  - What are other regions doing?

Unique Stream Segments

- Some answers:
  - The Legislature simply said that the designation of a unique stream segment would only prevent construction of a reservoir on a designated segment by a political subdivision of the state.
  - However, SB 2 guidelines require additional analysis of impacts to recommended segments. This implies some greater protection of the stream segments.

Unique Stream Segments

- Recommendations in IPPs
  - 12 RWPGs are not recommending segments
  - 2 are recommending segments
    - Region E has 3 segments
    - Region H has 8 segments
    - All 11 recommended segments are adjacent to state or federal lands
  - 2 are undecided (Regions C and P)

Recommended Segments in the Initially Prepared Plans

- Region E Segments
  - the portion of the Rio Grande that is bordered by the Big Bend National Park and the Black Gap Wildlife Management Area
  - the stretches of Alamito Creek and Cienega Creek that lie within the boundaries of Big Bend Ranch State Park (Rio Grande Wild and Scenic River)

Recommended Segments in the Initially Prepared Plans

- Region H Segments
  - Armand Bayou fringed by the Armand Bayou Coastal Preserve (part of the Great Texas Coastal Birding Trail)
  - Austin Bayou fringed by the Brazoria National Wildlife Refuge (part of the Great Texas Coastal Birding Trail)
  - Bastrop Bayou fringed by the Brazoria National Wildlife Refuge (part of the Great Texas Coastal Birding Trail)

Recommended Segments in the Initially Prepared Plans

- Region H Segments
  - Big Creek (Fort Bend) fringed by the Brazos Bend State Park (part of the Great Texas Coastal Birding Trail)
  - Big Creek (San Jacinto) fringed by the Sam Houston National Forest and the Big Creek Scenic Area (part of the Great Texas Coastal Birding Trail)

Recommended Segments in the Initially Prepared Plans

- Region H Segments
  - Cedar Creek Lake fringed by the San Bernard National Wildlife Refuge (part of the Great Texas Coastal Birding Trail)
  - Menard Creek fringed by the Big Thicket National Preserve
  - Oyster Bayou part of the Anahuac National Wildlife Refuge

Committee Recommendations for Region C to Consider

- Coffee Mill Creek as designated by TPWD
- Lost Creek as designated by TPWD (with the proviso that maintenance and repair of the dams of the existing Lake Jacksboro and Lost Creek Lake should not be prevented)
- Clear Creek upstream from F.M. 2164

Committee Recommendations for Region C to Consider

- Brazos River in Parker County if Region G recommends designation of the segment upstream that is recommended by TPWD for their region (Region G did not recommend this segment.)
- Purtis Creek in Henderson County if Region D recommends designation of the segment upstream that is recommended by TPWD for their region (Region D did not recommend this segment.)

Committee Recommendations for Region C to Consider

- Hickory Creek in Denton County if TPWD indicates that such designation would be appropriate
- Fish Creek (upstream of Moss Lake) in Cooke County if TPWD indicates that such designation would be appropriate

Unique Stream Segments

- Does the RCWPG want to recommend to the Texas Legislature any stream segments for designation as “unique”?

Action Item

Appointment of an Executive Committee to Develop Slate of Officers for 2006

Agenda

- Discussion Items
  - Draft Responses to Public Comments
  - Timing of New Reservoirs
  - Update on Supplemental Work
  - Update on Infrastructure Financing Report/Survey
  - Newsletter
  - Schedule

Discussion Item

Draft Responses to Public Comments

Public Comments

- RCWPG received
  - 38 oral comments at the public hearing
  - 99 letters/emails from the public
  - 2 letters from state/federal agencies
  - 19 form emails (first format) *(286 total, including those submitted prior to June 1)*
  - 134 form email (second format)
  - 111 form letters submitted prior to June 1 – request to include as part of public comment period

Types of Comments Received

- Support the plan (64)
- Against the plan for various reasons
  - New reservoirs & conservation (57)
  - Others (6)
- Specific line-item requests for adjustments (8)
- Undetermined position regarding the plan (4)
- Form e-mails and letters opposing the plan (531; 153 during comment period)

Draft Responses

- All comments were considered and a response was prepared for each.
- Many comments did not result in recommended changes to the plan.
- None of the recommended adjustments result in significant changes to the plan.

Types of Changes

- Additional information is recommended to be included as an additional appendix regarding the water conservation determination
- Additional information is recommended to be included as an additional appendix regarding key water quality parameters
- Reevaluation of residential water audits and inclusion in advanced conservation for many WUGs

Types of Changes

- A table summarizing recreational opportunities at area reservoirs is recommended to be added to Chapter 1
- Corrections to tables, mostly those of wholesale water providers
- Corrections to typos
- Additional text to clarify information presented in the plan

Discussion Item

Timing of New Reservoirs

Selection and Timing of Recommended Strategies

- Strategy selection and timing are based on:
  - Evaluation methodology set forth by SB1 Guidelines
  - Discussions with local and regional water providers
    - Consistent with “bottom-up” planning

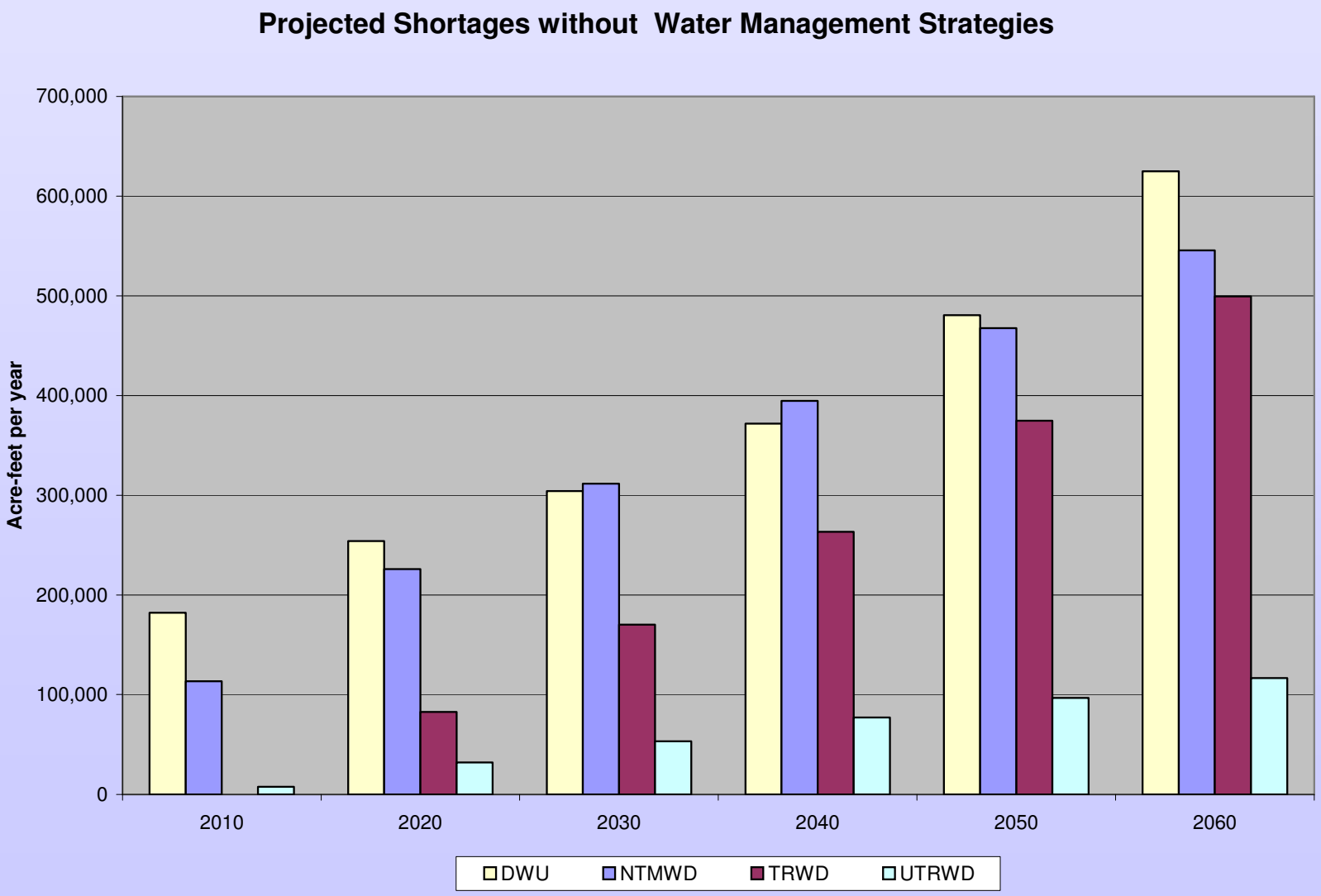
Selection and Timing of Recommended Strategies

- Strategy evaluations included:
  - Costs
  - Quantity
  - Quality of water
  - Reliability of supplies
  - Impacts of strategy on:
    - Environmental factors
    - Agriculture and rural areas
    - Natural resources
    - Third party

Selection and Timing of Recommended Strategies

- Timing Considerations included:
  - Quantity of supply relative to needs of user
  - Timing and quantities of needs of multi-users for large strategies
  - Existing and future infrastructure considerations for multi-users (i.e., ability to share infrastructure)
  - Time to implement
  - Long-term cost to users
  - Uncertainty factors
    - Political (Oklahoma water)
    - Technical, environmental, and cost issues for large-scale desalination

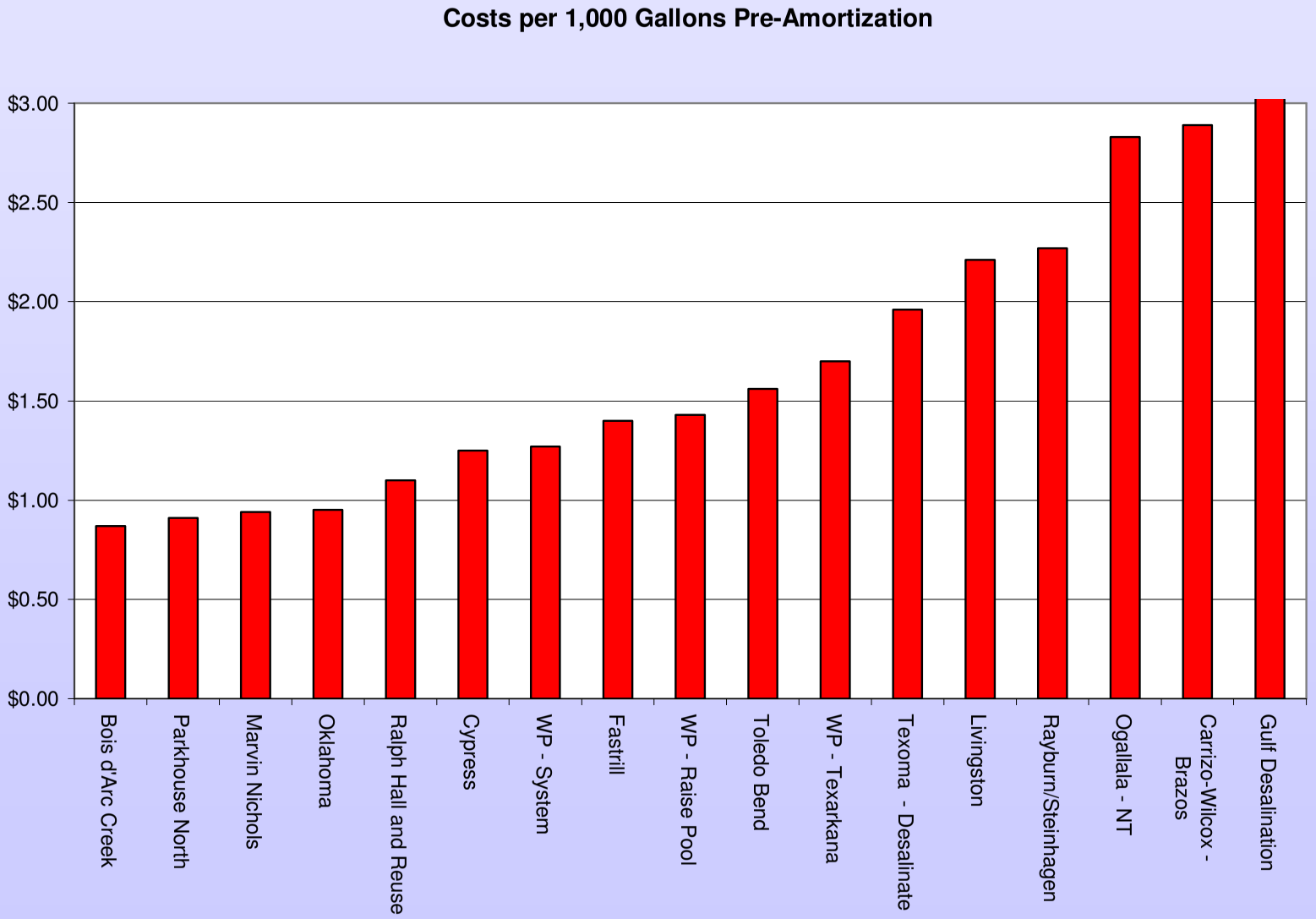
Needs of Regional Wholesale Providers



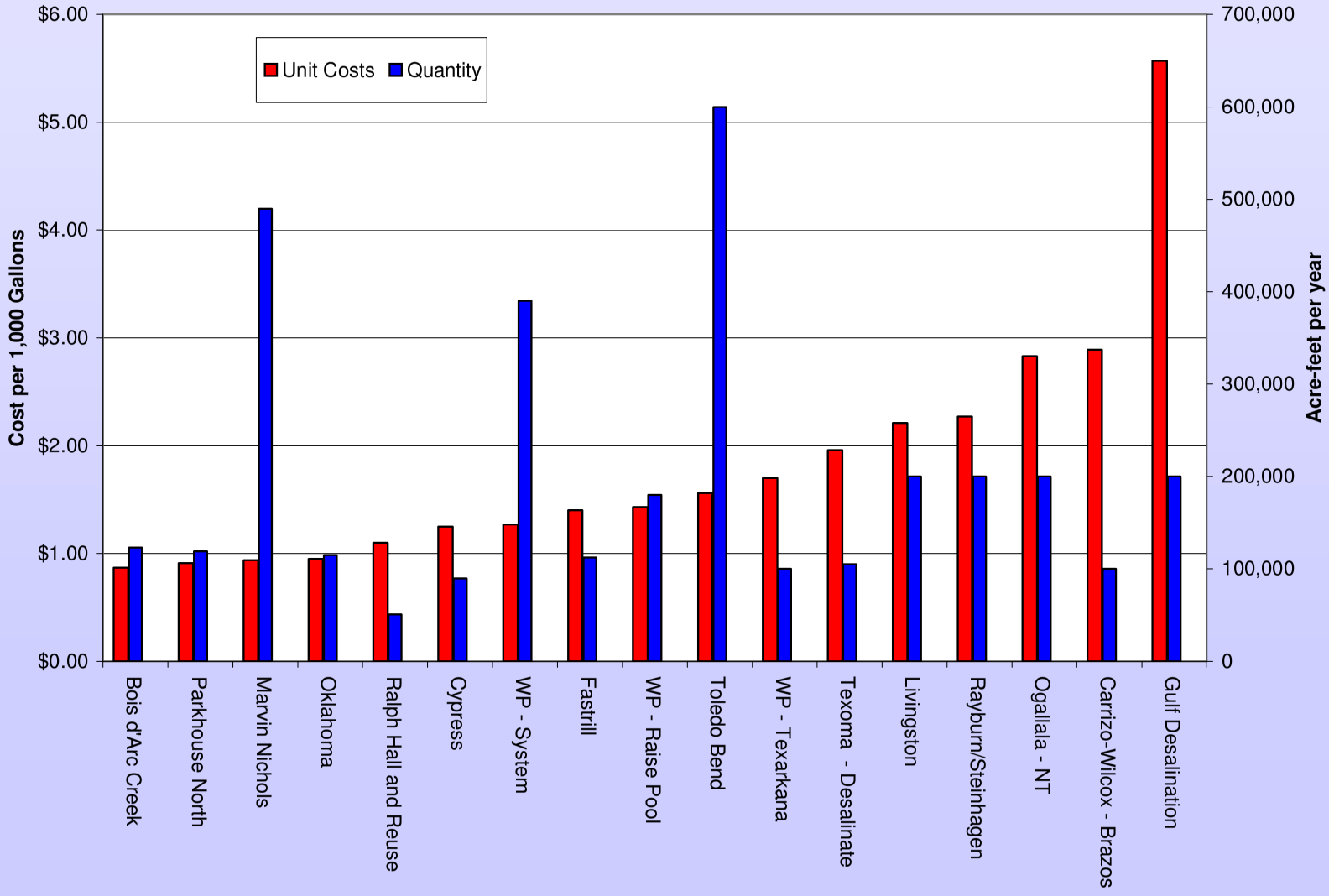
Strategy Selection and Timing

- Selection and timing for each provider generally followed:
  - 1) Conservation by WWP and customers
  - 2) Reuse
  - 3) Connection to existing supplies committed to providers (Lake Fork, Palestine, etc.)
  - 4) Interim/ Local supplies
  - 5) New sources

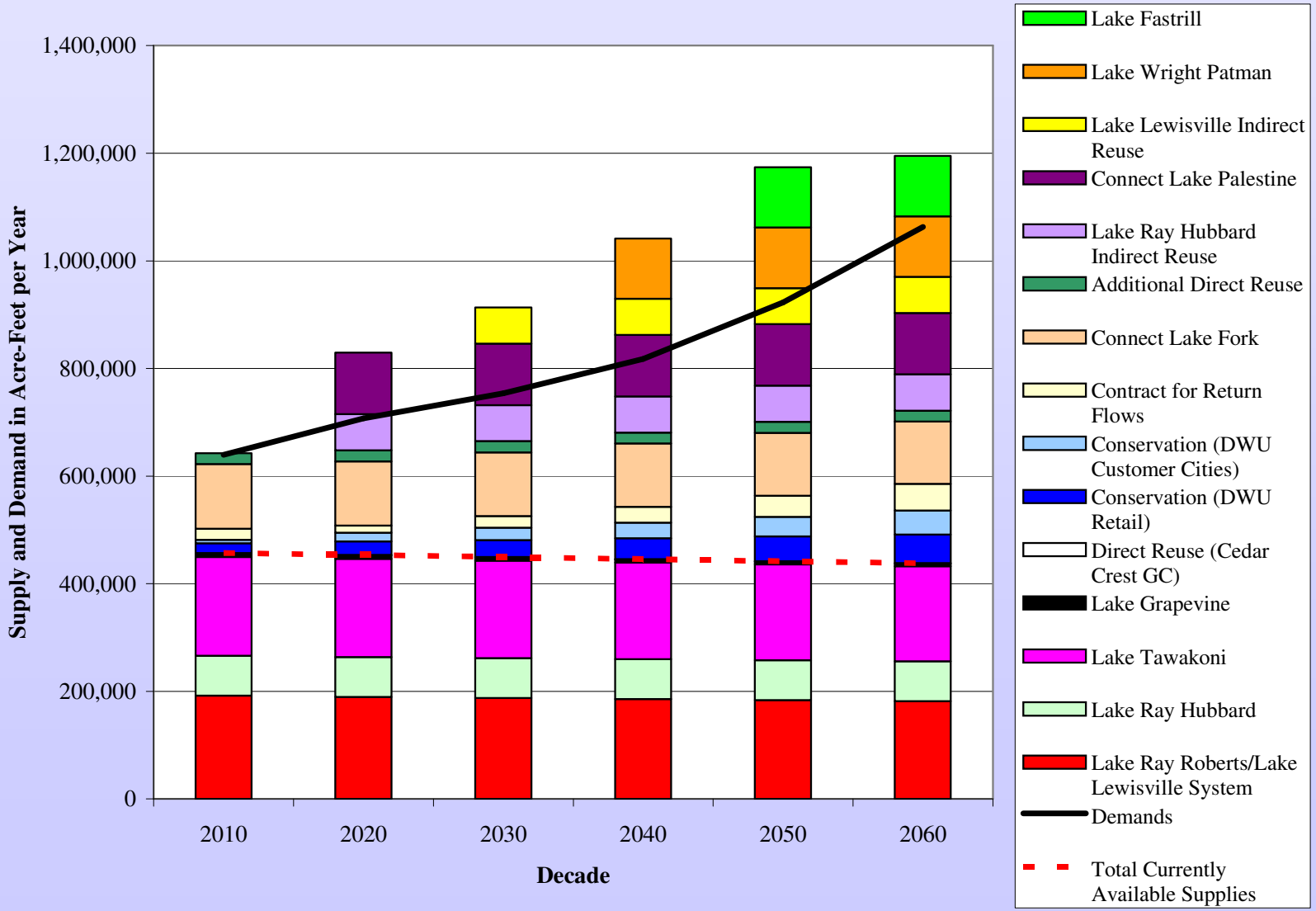
Potential New Sources



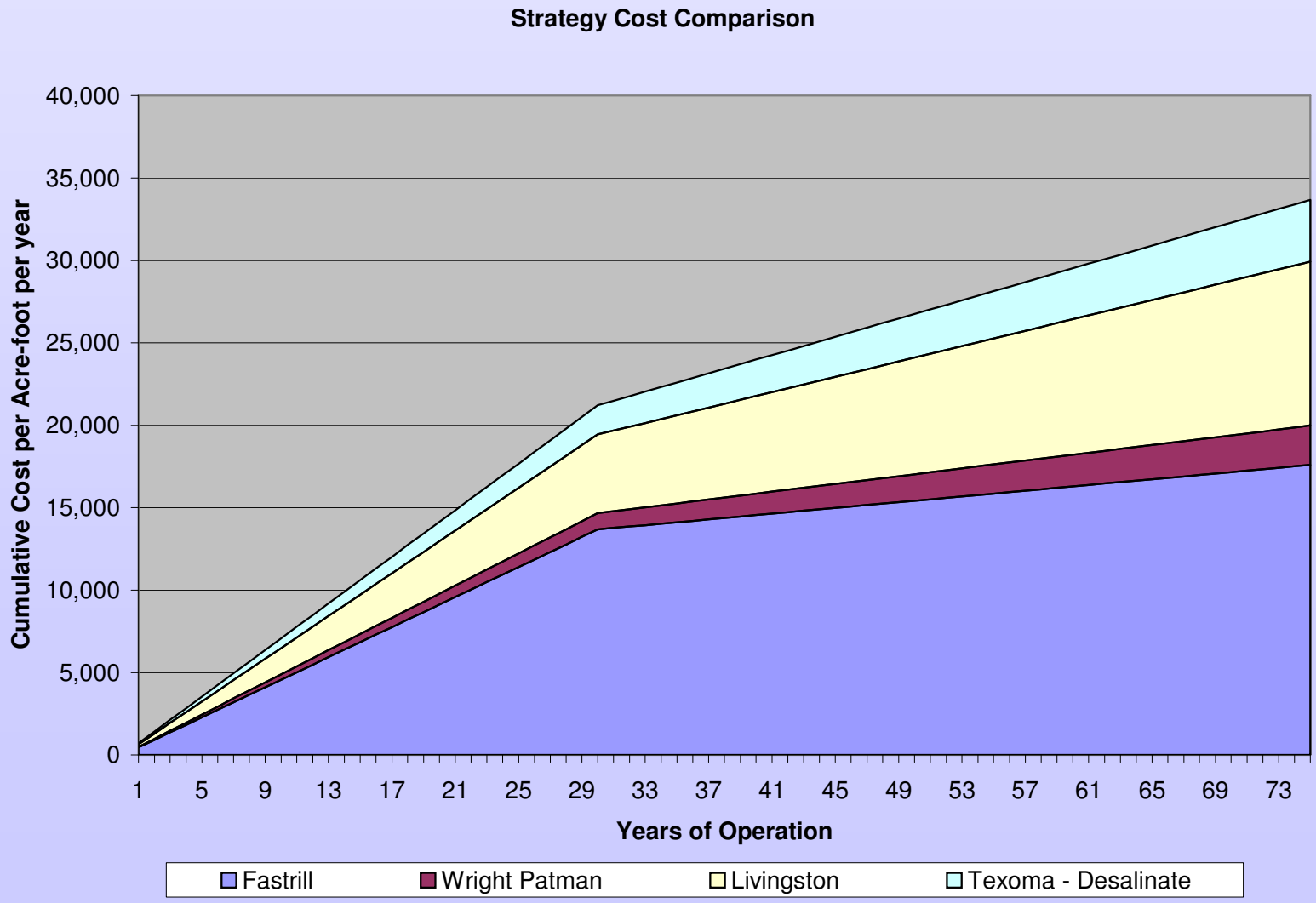
Potential New Sources



Dallas Water Utilities



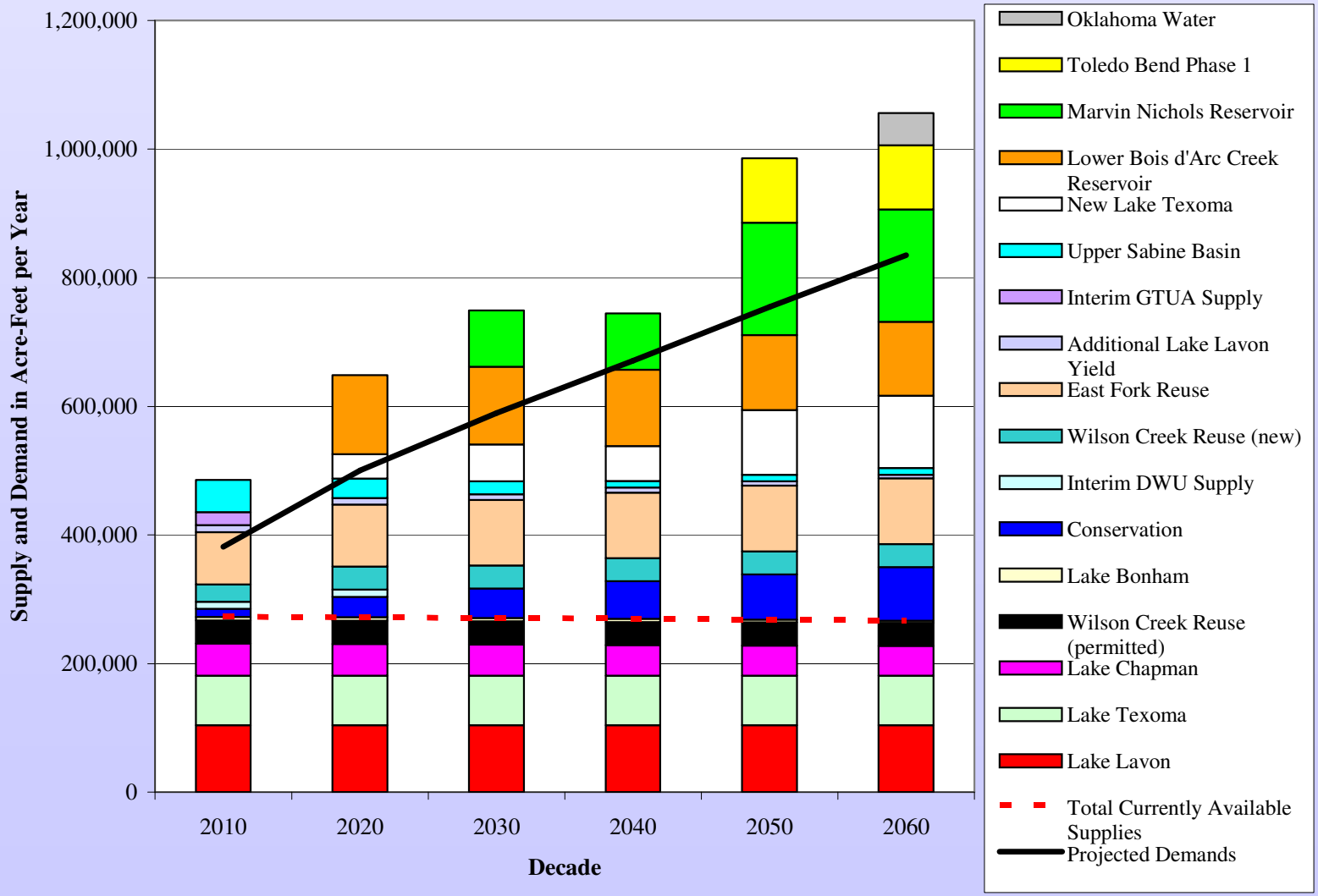
Cost of Different Strategy Options for DWU



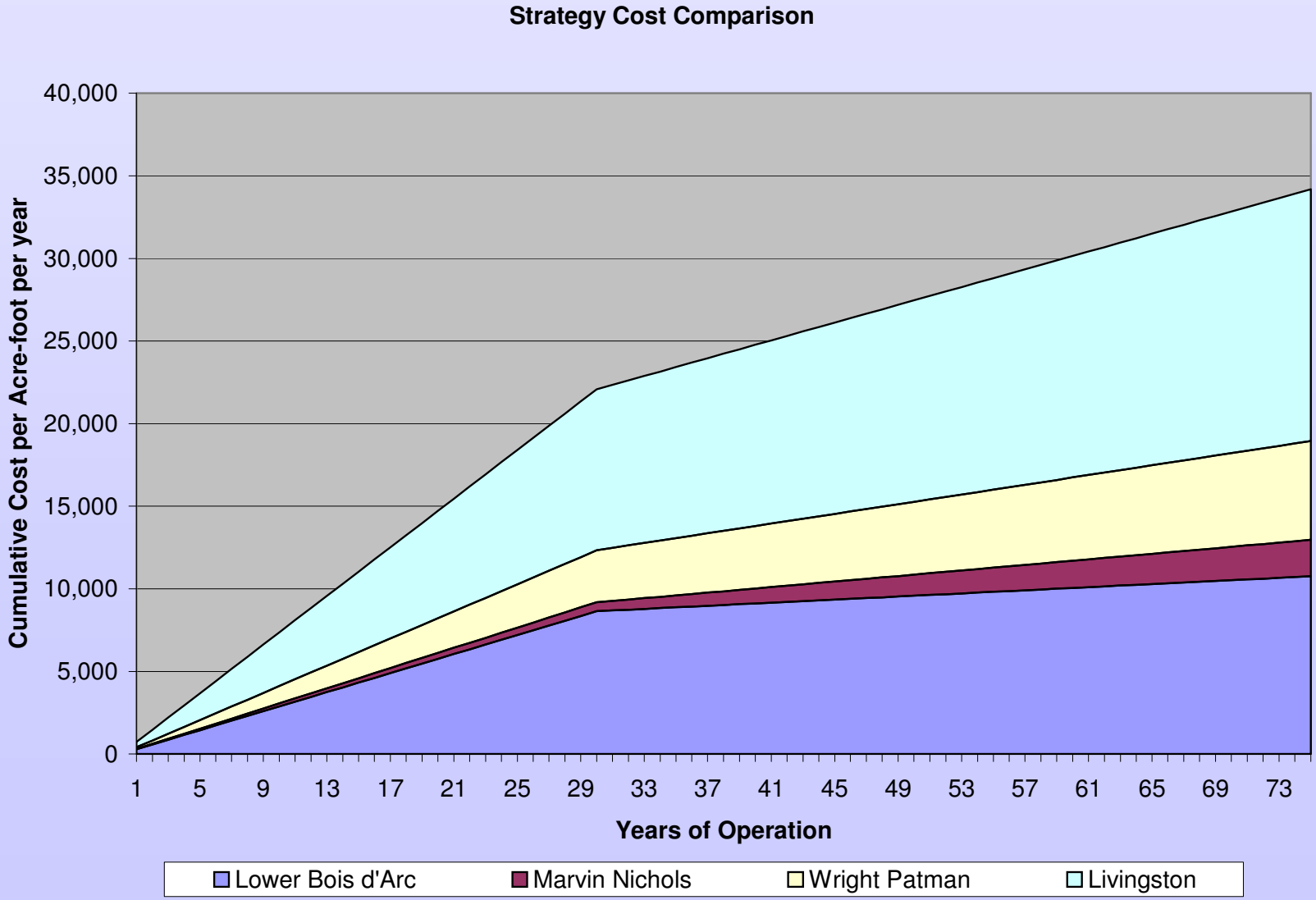
Timing of DWU Strategies

- DWU plans to utilize conservation, reuse and committed supplies from Lake Fork and Lake Palestine to meet near-term shortages
- New reservoir (Fastrill) is the last strategy proposed
  - Allows system operation with Lake Palestine
  - Provides water beyond 2060

North Texas MWD



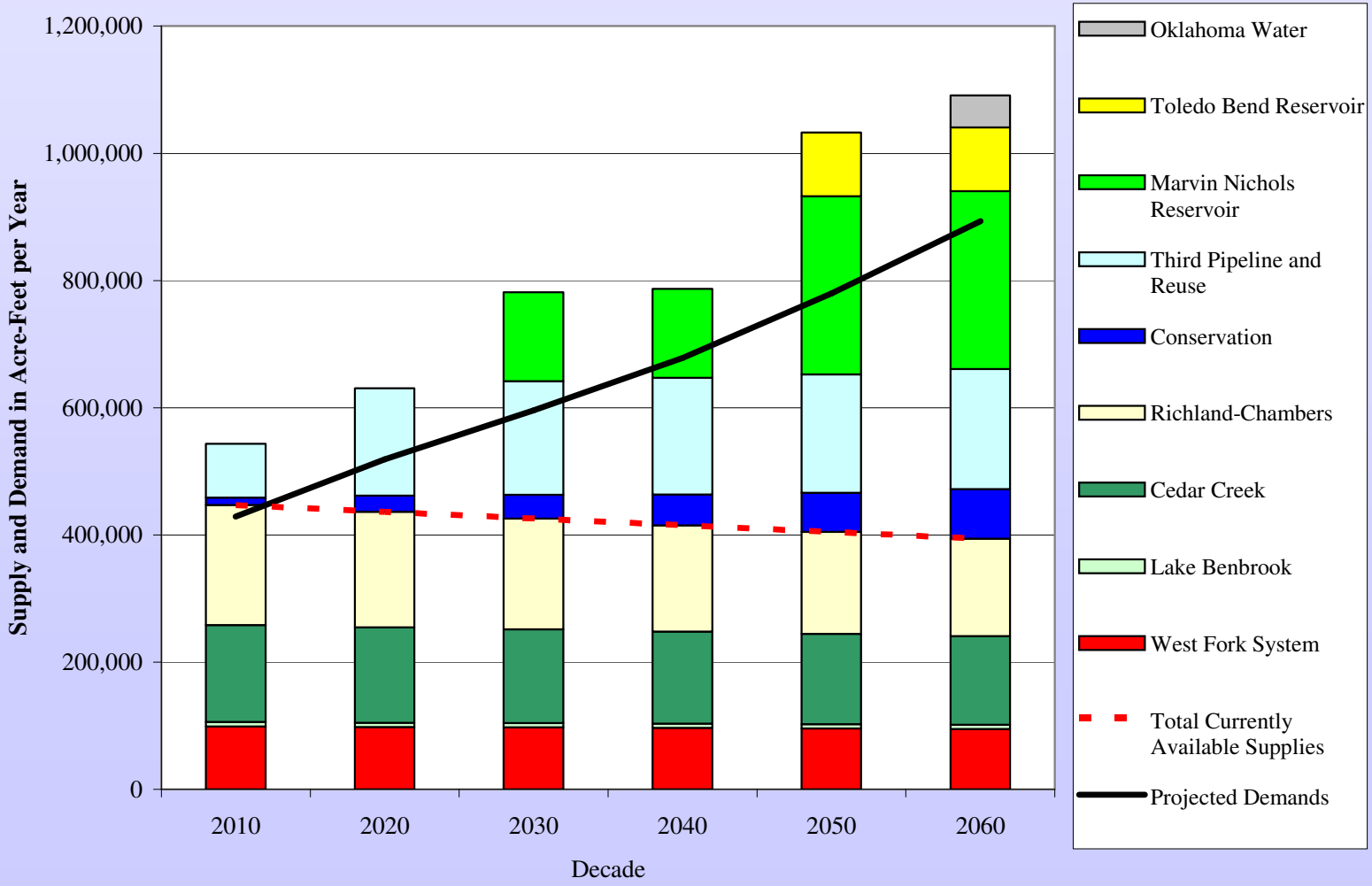
Cost of Different Strategy Options for NTMWD



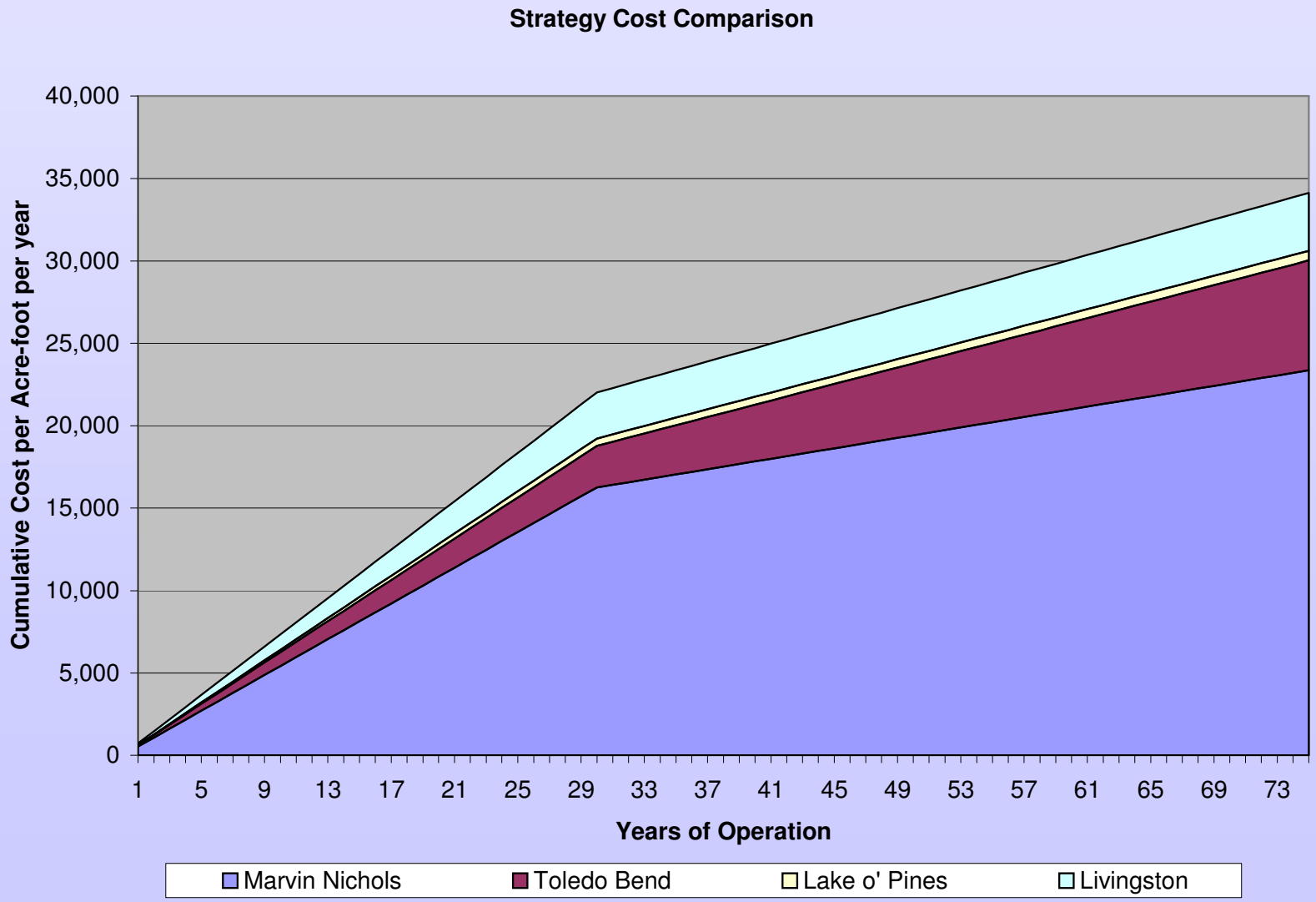
Timing of NTMWD Strategies

- Quantity of Supply Needed
  - NTMWD needs additional supplies in 2020
  - NTMWD reuse doesn't fill 2020 gap
  - Other major providers pursuing reuse and existing supplies in 2020
    - Limits implementation of regional strategies in 2020
- Cost of Water
  - Lower Bois d'Arc has lowest long-term costs of new supply strategies
  - Marvin Nichols has second lowest costs
  - Both strategies are closer to area of need, reducing energy use and costs

Tarrant Regional Water District



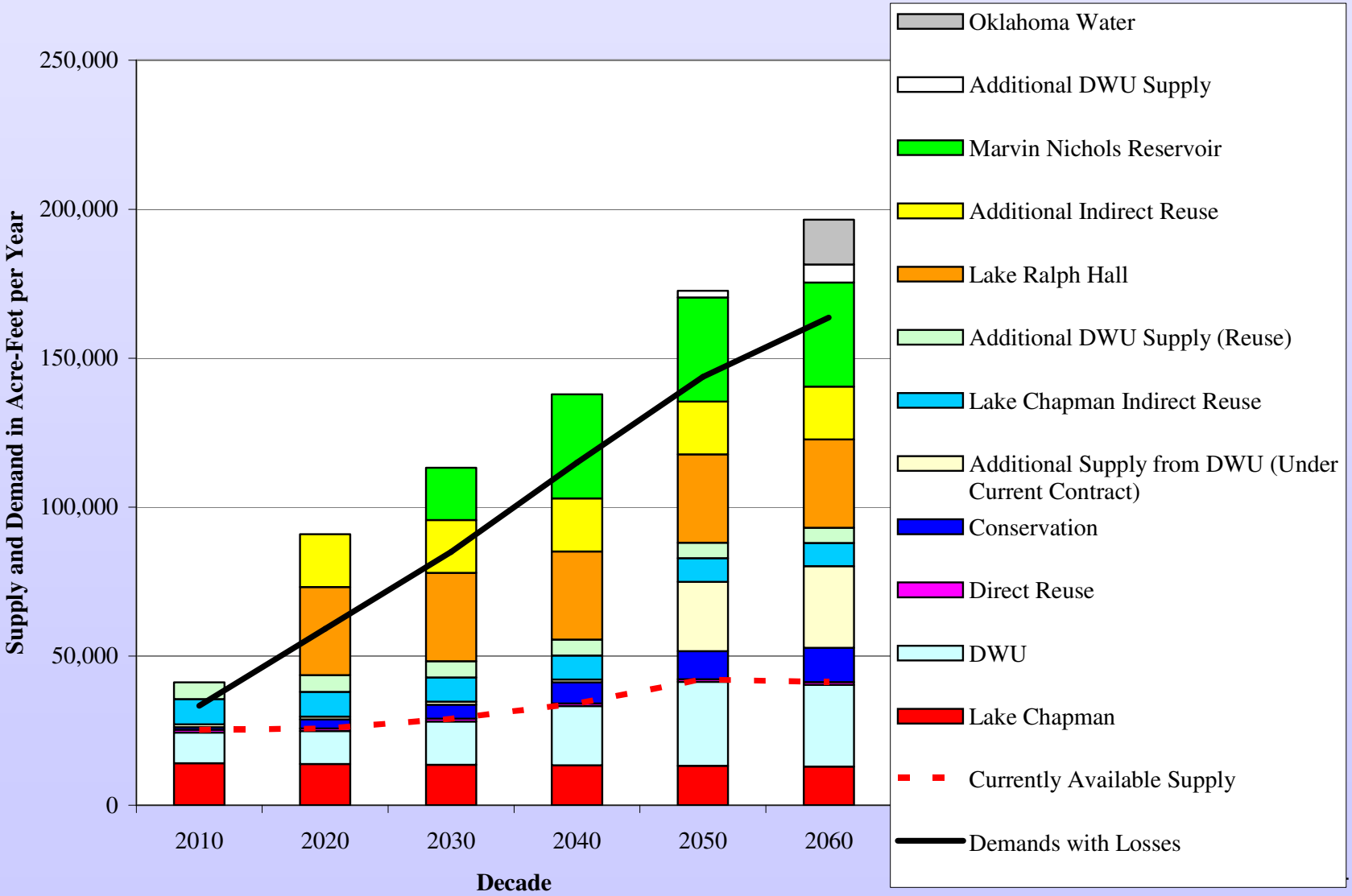
Cost of Different Strategy Options for TRWD



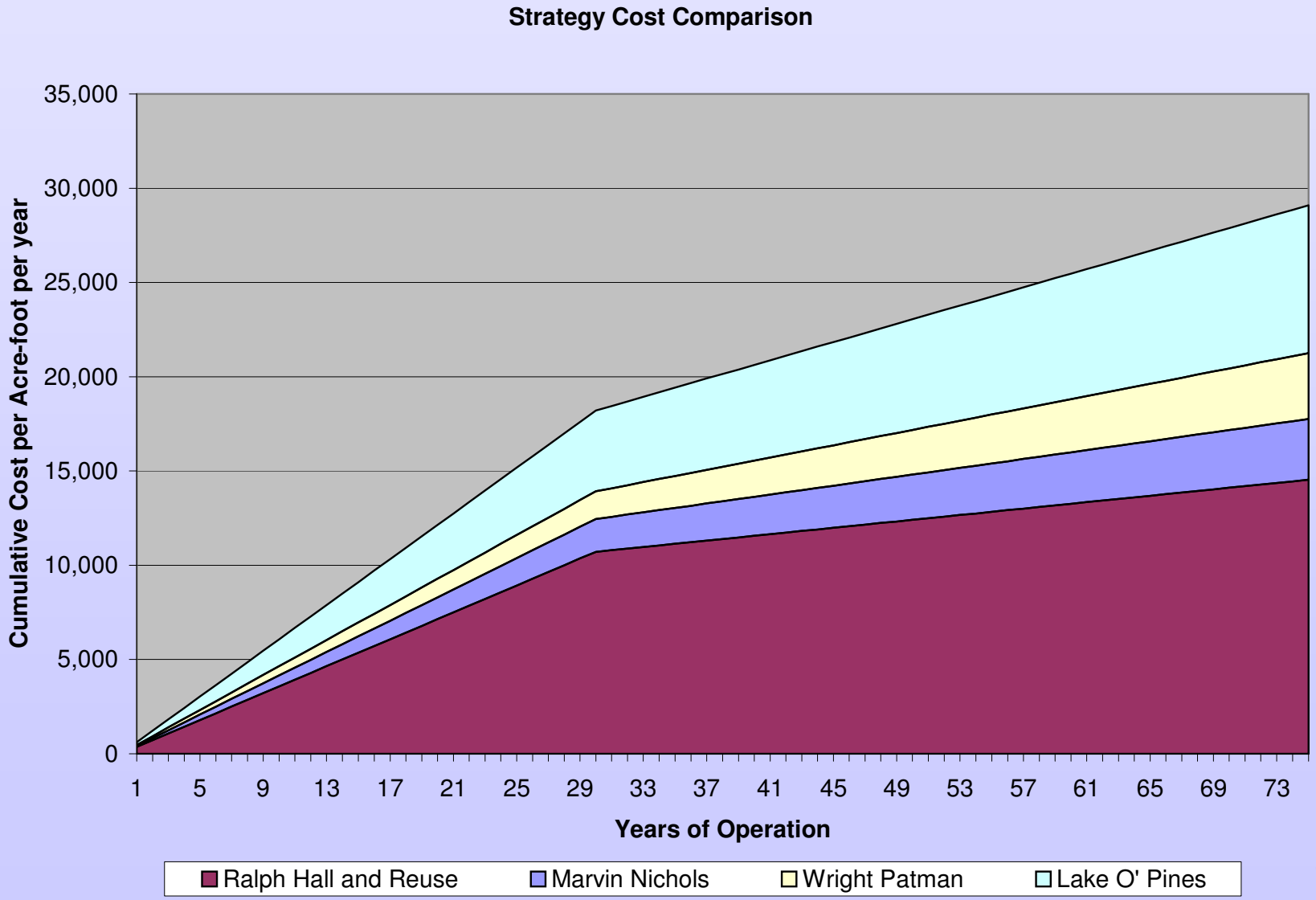
Timing of TRWD Strategies

- Quantity of Supply Needed
  - TRWD needs additional supplies after 2030
  - NTMWD and UTRWD are also looking to develop new supplies by 2030
  - Marvin Nichols and Toledo Bend have greater total potential supply available to Region C for planning beyond 2060
- Cost of Water
  - Marvin Nichols has lowest costs for strategies available to TRWD
  - Regional strategies offer lower costs and phasing opportunities

Upper Trinity RWD



Cost of UTRWD Strategy Options



Timing of UTRWD Strategies

- Quantity of supplies needed:
  - UTRWD has water needs in 2020.
  - Multi-user strategies are on-line in 2030.
- Cost of Water
  - Lake Ralph Hall with Reuse is the most cost effective strategy available in 2020.
  - Close to area of need, reducing energy use and costs.

Summary

- Reviewed timing of recommended new reservoirs
- Discussed water management strategies with suppliers
- Timing of strategies considered quantity, quality, cost, multi-user needs
- Not all suppliers have shortages at same time.

Conclusions

- Long transmission connection to existing supplies is not cost effective for every supplier.
  - Operational costs for supplies located long distances from provider have greater long-term cost impacts to customers
  - Uncertainty with energy costs in the future
- New sources for regional WWPs are implemented after conservation, reuse, existing committed supplies and local supplies
- The IPP represents the plans of the Region C large water suppliers.
- RCWPG has no regulatory authority and cannot reject or approve a project for development

Discussion Item

Update on Supplemental Work

Supplemental Work

- Two studies
  - Water Conservation Study
    - Per capita water use in various regions of the State
  - Reuse Study
    - Description of current and pending reuse projects
    - Evaluation of impacts of proposed reuse on return flows in the Trinity River Basin

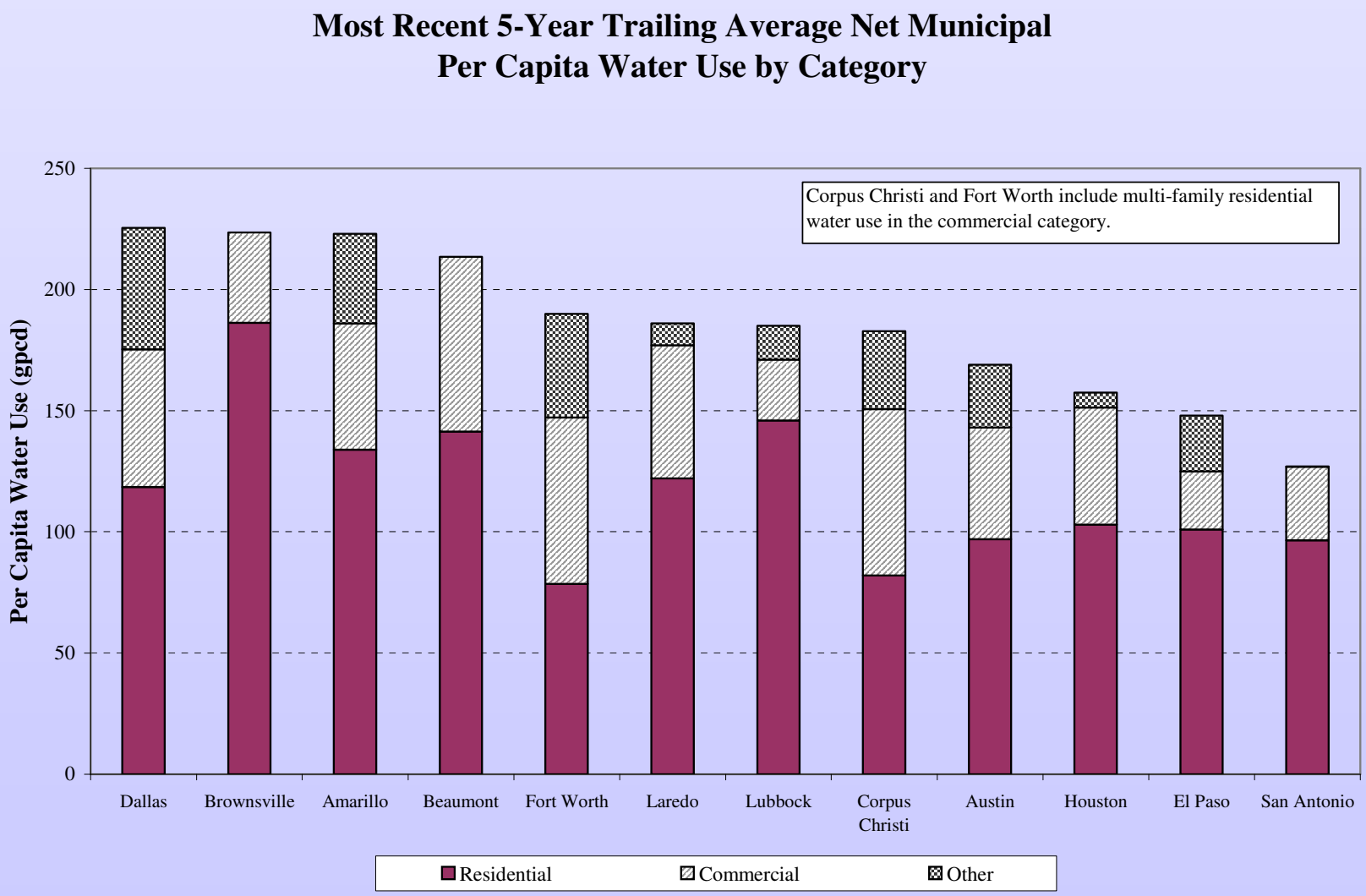
Water Conservation

- Trends in per capita use in various regions
- Comparison of historical per capita municipal use for 12 cities across Texas
- Analysis of the impact on water use by various factors, including climate, conservation measures, water quality, per capita income, and others

Year 2000 Trends in Per Capita Use by Region

- Municipal per capita use ranged from less than 140 to more than 200 gpcd
- Total per capita use ranged from 235 to more than 8,000 gpcd
- Differences in GPCD due to
  - Accounting of water use
  - Higher commercial use in some areas
  - Higher institutional use in some areas

Comparison of GPCD by City



Results by 5-Year Trailing Average

- Per capita use greater than 200 gpcd
  - Amarillo
  - Dallas
  - Brownsville
  - Beaumont
- San Antonio has lowest current municipal use of 127 gpcd

Results by 5-Year Trailing Average

- Increase of more than 10% in per capita use since 1984
  - Beaumont
  - Amarillo
  - Brownsville
  - Lubbock
- Decrease of more than 10% in per capita use since 1984
  - San Antonio
  - El Paso
  - Houston

Analysis of Factors Affecting Municipal Water Use

- Precipitation
- Temperature
- Existing conservation measures
- Commercial development
- Water Prices
- Per Capita Income

Results of Factor Compared to Impact on Water Use

- Weak evidence that climatic conditions have significant impact on per capita use in some cities
- Increasing water rates may be related to decreasing per capita water use in Fort Worth
- Cities with lower municipal gpcd also had lower commercial gpcd

Water Reuse

- Water reuse projects performed under Chapter 210
- Water reuse plans for large dischargers
- Consolidation of water reuse plans into a regional plan
- Recent water right amendments involving reuse
- Pending water right applications involving reuse

Reuse Projects Under Chapter 210 Direct Reuse

- 22 entities in Region C representing 26 projects have received reuse authorization from TCEQ under Chapter 210
  - Some projects have not been implemented

Reuse Plans for Large Dischargers

- 16 entities in Region C currently discharge more than 2 MGD
- 5 of these dischargers have reuse plans
  - Dallas
  - Flower Mound
  - Lewisville
  - North Texas Municipal Water District
  - Weatherford

Recent Water Right Amendments Involving Reuse

- TCEQ recently granted reuse-based amendments to water right certificates of adjudication to
  - Tarrant Regional Water District
    - Richland Chambers and Cedar Creek wetlands reuse project (granted 2/8/05)
  - Trinity River Authority
    - Mountain Creek WWTP to Joe Pool Lake (granted 6/27/05)
  - North Texas Municipal Water District
    - Wilson Creek WWTP to Lake Lavon (granted 9/8/05)

Pending Water Right Applications Involving Reuse

- Trinity River Authority
- City of Dallas
- Upper Trinity Regional Water District
- City of Irving
- North Texas Municipal Water District

Pending Water Right Applications Involving Reuse

- Trinity River Authority (TRA)
  - Administratively complete as of Sept. 7, 2000
  - Request amendment to CA 08-4248 to impound historical and future return flow discharges from 4 of TRA's WWTPs in Lake Livingston
  - Seeking bed and banks permit to convey return flows

Pending Water Right Applications Involving Reuse

- City of Dallas
  - Administratively complete as of Dec. 5, 2001
  - Request amendment to CA 08-2456E and 08-2462G to impound historical and future return flow discharges in Lake Lewisville and Lake Ray Hubbard
  - Seeking bed and banks permit to convey return flows

Pending Water Right Applications Involving Reuse

- Upper Trinity Regional Water District
  - Administratively complete as of May 28, 2002
  - Request amendment to Permit 5778 to divert return flows (up to 9,664 AF/Y) from Lake Chapman into Lake Lewisville
  - Seeking bed and banks permit to convey return flows

Pending Water Right Applications Involving Reuse

- City of Irving
  - Administratively complete as of July 31, 2002
  - Request amendment to CA03-4799C to divert return flows (up to 54,000 AF/Y) from Lake Chapman into Lake Lewisville
  - Current certificate requires that water diverted but not consumed in the Trinity Basin be returned to the Trinity Basin
  - Application seeks to remove the requirement to return the water to the basin and instead reuse it

Pending Water Right Applications Involving Reuse

- North Texas Municipal Water District (NTMWD)
  - 2 permits involving reuse pending before TCEQ
  - CA08-2410F declared administratively complete on September 28, 2005
    - Request would allow NTMWD to divert up to 206,600 AF/Y of return flows from East Fork Trinity River
    - Seeking bed and banks permit to convey return flows

Pending Water Right Applications Involving Reuse

- NTMWD (continued)
  - Permit Number 5871 declared administratively complete on Feb. 24, 2005
    - Request would allow NTMWD to divert up to 750 AF/Y from the East Fork Trinity River for irrigation purposes to facilitate development of a constructed wetland in Kaufman County
    - The constructed wetland would become part of the NTMWD East Fork Reuse Project

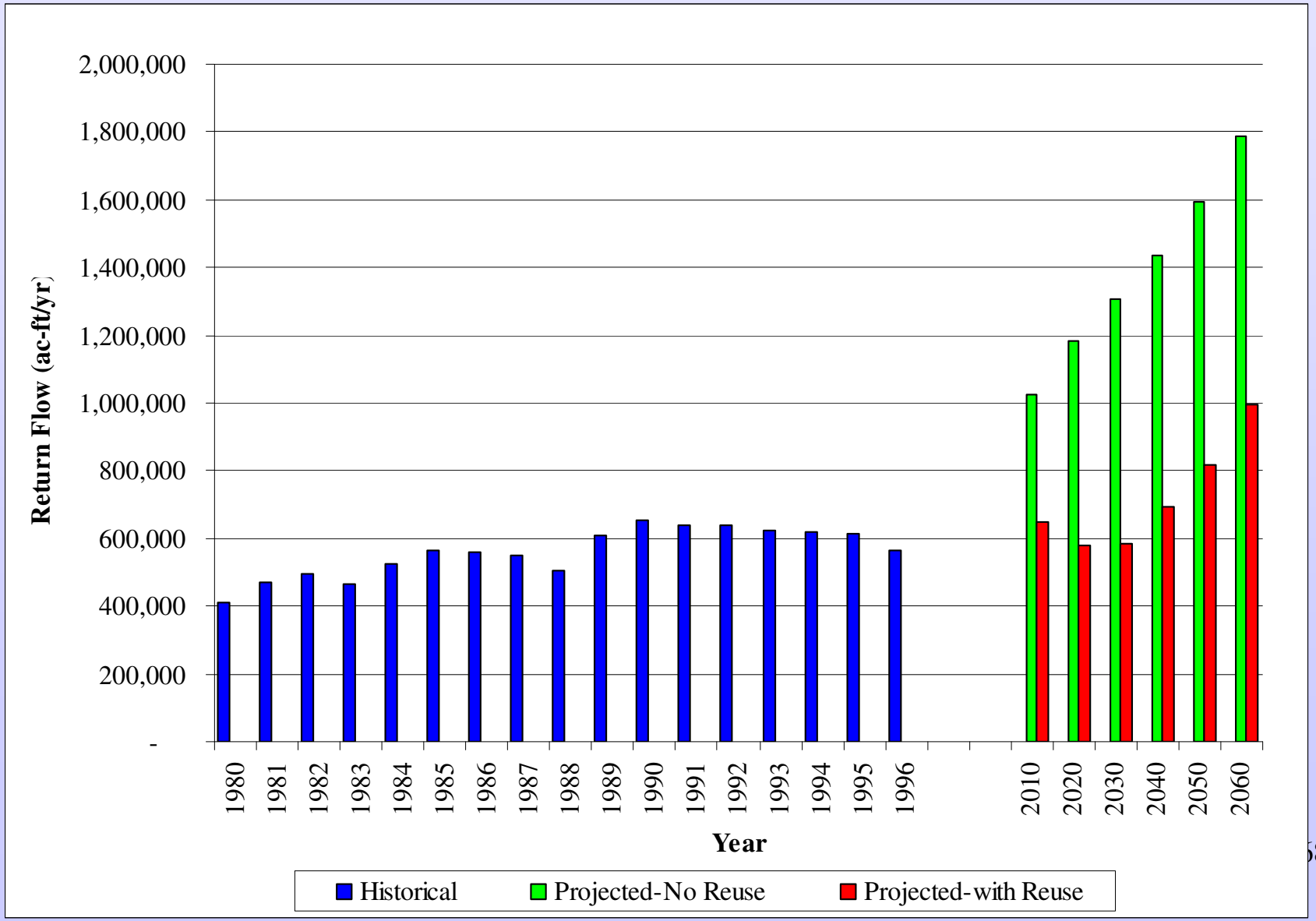
Current and Future Estimates of Trinity Basin Return Flows in Region C

- Historical Return Flow
  - Average of 69% of the municipal and manufacturing water use in the 5-county Metroplex area is returned to the Trinity Basin
  - Approximately 50% is returned in the other counties

Current and Future Estimates of Trinity Basin Return Flows in Region C

- Future return flows were developed by county based on projected demands for municipal and manufacturing purposes
- Return flow factors of 69% and 50% used for Metroplex counties and other counties, respectively
- All indirect (historical and future) and future direct reuse subtracted from projected return flows to estimate net return flows

Historical and Projected Return Flows in Trinity Basin in Region C



Current and Future Estimates of Trinity Basin Return Flows in Region C

- Results of recommended Region C strategies on projected return flow
  - Years 2010-2030 return flows remain at same level as historical flows
  - Years 2040-2060 return flows increase

Potential for Reclaimed Water in Water Management Strategies

- Potential is a function of the amount of water used and wastewater treated in the basin
- Potential to reuse 400,000 AF/Y in 2010 while maintaining the same level of historical return flows
- Potential to reuse over 1 million AF/Y in 2060

Potential for Reclaimed Water in Water Management Strategies

- Potential to use these flows depends on
  - Location of discharges
  - Type of water needs
  - Ability of existing surface water sources to assimilate large quantities of wastewater effluent
- Region C plan proposes 372,000 AF/Y of reuse of return flows in 2010 and nearly 800,000 AF/Y by 2060

Discussion Item

Update on Infrastructure Financing Report/Survey

Infrastructure Financing Survey

- Mailed 268 surveys to WUGs and WWPs
- Made up to two follow-up phone calls to entities whose surveys had not been received
  - 192 phone calls – first round of calls
  - 111 phone calls – second round of calls
- 74% overall response rate
  - 86% of WWPs responded
  - 73% of WUGs responded

Survey Results

- Is the entity planning to implement the recommended water management strategies?
  - 132 agreed
  - 35 did not respond to question or gave a mixed answer
  - 29 disagreed
  - 1 chose not to participate
  - 1 felt survey was not applicable because the WSC is dissolving

WWP Survey Results

- How do the responding WWPs plan to pay for recommended strategies?
- $12.7 billion
  - Bonds 89% = $11,345,628,000
  - State Programs 6% = $797,521,000
  - Cash Reserves 2% = $283,143,000
  - Federal Programs 1.3% = $168,681,000
  - Other Programs 0.7% = $92,506,000

WUG Survey Results

- How do the responding WUGs plan to pay for recommended strategies?
- $672.1 million
  - Bonds 61% = $412,387,000
  - State Programs 8% = $56,380,000
  - Cash Reserves 7% = $48,227,000
  - Loans 7% = $43,728,000
  - Federal Programs 4% = $27,923,000

WUG Survey Results

- Other Programs 4% = $25,300,000
- Cost Information Not Available* 9% = $58,183,000

  *Note: 8 of the responding WUGs (representing $24,202,000) indicated that they did not know the percentage of funding options they might pursue but that they would likely seek some form of state funding.

Survey Results

- Types of state funding programs likely to be sought
  - TWDB State Revolving Fund
  - TWDB Bonds
  - TWDB Water and Wastewater Loan Program
  - TWDB Grants
  - TWDB State Participation Program
  - All TWDB programs available at the time
  - Texas Community Development Program (TCDP)
  - Texas Agricultural Finance Authority

Survey Results

- Types of other funding options likely to be sought
  - Water sales revenue
  - Incorporate costs into annual budget
  - Significant contribution from a large water customer
  - USDA programs
  - Community Development Block Grant Program (CDBG)
  - Economic Development Corporation (EDC) Contributions
  - RDA grants and loans

Chapter 9 Updates

- Working on completing Sections 9.1 (preferred strategies) and 9.2 (preferred funding)

Discussion Item

Newsletter

Newsletter

- The last Region C newsletter for this round of planning is scheduled to be distributed at the end of the year with the approval of the *2006 Region C Water Plan.*
- Draft material will be provided to the RCWPG prior to the December meeting.

Discussion Item

Schedule

Schedule

- Mid November – “red lined” version of report showing recommended changes
- Mid December – RCWPG meeting to approve final plan to send to the TWDB
- January 5, 2006 – Region C Plan due to TWDB
- Spring 2006 – TWDB reviews reports and obtains any outstanding information

Schedule

- Summer and Fall 2006 – TWDB prepares 2007 State Water Plan
- Fall 2006 – Draft State Water Plan available for public review and comment
- Winter 2006 – TWDB finalizes State Water Plan
- January 2007 – 2007 State Water Plan due to Texas Legislature

Summary of Speaker Comments- July Meeting

- Summary of speaker comments were posted on the Region C web site in advance of today's meeting
- www.regioncwater.org, see meeting data for 7-11-05

Thank you for coming

Materials are available at www.regioncwater.org