

EXECUTIVE SUMMARY

ES.1 The Need for Reclaimed Water in Fort Worth

The City of Fort Worth and surrounding areas are projected to experience significant growth in population over the next several decades. In order to help meet its future water supply needs, the City is pursuing opportunities that include conservation and the use of highly treated wastewater effluent to reduce demands for potable water.

The regional water supply planning process, originally mandated by the 75th Texas Legislature in Senate Bill 1, has identified a number of future water management strategies for the City of Fort Worth and Tarrant Regional Water District (TRWD), who currently provides the City with raw water. In addition to conservation and reuse, future water management strategies for TRWD in the 2006 Region C Water Plan include construction of the Marvin Nichols Reservoir in the Sulfur River Basin, importing water from Toledo Bend Reservoir and importing water from Oklahoma.

Through Senate Bill 1 and subsequent legislation, the Texas Legislature has placed a strong emphasis on the efficient use of water resources. As a result of Senate Bill 1, the Texas Water Code now requires that an applicant for a water right involving an interbasin transfer of raw water develop and implement a water conservation plan that will result in the “highest practicable levels of water conservation and efficiency achievable...”¹ Since three of the planned future water supplies for TRWD (and, hence Fort Worth) involve interbasin transfers, it will be necessary to demonstrate that this requirement has been met prior to approval and implementation of these projects.

Water reuse has been identified as a Best Management Practice for water conservation by the Water Conservation Implementation Task Force established by the 78th Texas Legislature under Senate Bill 1094². Therefore, in addition to other water conservation efforts, development of a water reuse program will provide for efficient use of the City’s water resources and will assist TRWD in securing necessary future water supplies to meet anticipated growth within the City of Fort Worth and surrounding areas.

Although previous studies related to water reuse have identified some potentially viable alternatives for the City, these studies have not developed a detailed, comprehensive plan that evaluates and prioritizes alternatives for the City and its service area. The purpose of this study is to provide the City with a plan that can be used to guide implementation of a direct reuse program to support future water supply requirements for the City. In addition, during development of this plan, the City has worked closely with its wholesale customers, TRWD, Trinity River Authority (TRA) and other surrounding cities to identify potential approaches to its reuse program that could include regional support and cooperation among these entities.

This study includes the evaluation of alternatives for direct non-potable reuse. No indirect reuse is considered here. However, it should be noted that TRWD has been issued a water right permit to

¹ Texas Water Code, Subtitle B, Chapter 11, §11.085

² Texas Water Development Board, Report 362, Water Conservation Implementation Task Force, *Water Conservation Best Management Practices Guide*, November 2004

implement a major indirect reuse project that diverts return flows from the Trinity River to a constructed wetland and ultimately into Richland Chambers and Cedar Creek Reservoirs³. Implementation of a direct reuse program for the City of Fort Worth is intended to complement these ongoing reuse efforts by TRWD.

ES.2 Projected Population Growth and Water Supply Needs

According to population projections from the 2005 Fort Worth Water Master Plan Update, the City's population is expected to exceed 1,000,000 by the year 2025. As a result of this population growth, and growth of customer cities within the City's water service area, average day water demands are expected to increase to 332 MGD (371,840 acre-feet/year) and maximum day demands are expected to increase to nearly 700 MGD (780,640 acre-feet/year). This growth will result in the need for development of additional water supplies by Tarrant Regional Water District (TRWD), and additional water treatment and distribution facilities by the City. Substitution of reclaimed water for potable water usage will help to defer the need for additional raw water supplies and potable water treatment and distribution facilities.

ES.3 Potential Reclaimed Water Users and Service Areas

An analysis of potential reclaimed water users was performed based on information from several sources. A list of top water users, with metered water usage, was provided by the City, from which potential customers were identified. To supplement these data, the City surveyed several potential reclaimed water users and then met with these potential customers to discuss potential reclaimed water quantity and quality requirements. Demands within the Mary's Creek Basin for the anticipated Walsh, Brown and Murrin Ranch developments were taken from a recent study conducted by Alan Plummer Associates, Inc. (APAI) for the City.⁴ The City of Fort Worth Parks and Community Services Department also provided projected demands for all of its facilities that could use reclaimed water. In addition, several surrounding cities and wholesale customers have indicated an interest in receiving reclaimed water from the City and were included in the study. These entities were contacted in order to determine potential reclaimed water demands.

The potential customers were evaluated based on location and ranking to identify areas of high reclaimed water use. Emphasis was placed on locating large customers and clusters of smaller customers. Individual projects to serve the potential customers were then conceptualized and grouped together to form reclaimed water service areas. The following five reclaimed water service areas were identified, and are generally shown on Figure ES-1:

1. Central System
2. Eastern System
3. Northern System

³ Amendment to Certificate of Adjudication, 08-5035C (Richland Chambers Reservoir) and 08-4976C (Cedar Creek Reservoir), Texas Commission on Environmental Quality, granted February 8, 2005.

⁴ Draft Feasibility Study – Mary's Creek Water Recycling Center. Alan Plummer Associates, Inc. June 2004

4. Southern System
5. Western System

Within each of these service areas, the potential reclaimed water customers and demands were identified, and are included in Tables ES-1 through ES-5.

ES.4 Treated Wastewater Availability

Currently, the Village Creek Wastewater Treatment Plant (VCWWTP) discharges approximately 110 MGD of treated effluent on an annual average basis. A small portion of this flow (~400,000 gpd) is used to provide irrigation water for the Waterchase Golf Course, currently the City's only existing reclaimed water customer. The remainder of the effluent is available for supply to additional reclaimed water projects and provides more than enough water to meet projected direct non-potable reclaimed water demands for the City. However, the location of the VCWWTP on the far eastern side of the City makes it difficult to serve all areas of the City economically from this source.

As a part of this study, the City has had several meetings with Trinity River Authority (TRA) to discuss the potential of purchasing reclaimed water from the TRA Denton Creek Regional Wastewater System (DCRWS) to serve potential reclaimed water customers in the northern part of the City. TRA has indicated that it is very interested in partnering with the City in this way. The DCRWS currently discharges approximately 3 MGD of treated effluent on an annual average basis. This flow is projected to increase to nearly 12 MGD by 2013, and is adequate to serve the projected reclaimed water demands in the Northern service area.

Reclaimed water can also be provided from small satellite wastewater treatment facilities, called water recycling centers (WRCs). A WRC is a strategically located wastewater treatment plant that intercepts wastewater flows from a specific area of the collection system, treats the water to standards appropriate for specific reclaimed water applications and then delivers the effluent to users within its geographical proximity. As is summarized below, alternatives with WRCs were considered in all service areas except the Eastern Service Area.

ES.5 Suitability of VCWWTP and DCRWS Effluent for Reclaimed Water Projects

There are two types of nonpotable reuse practiced in Texas – Type I for which there is a high probability of contact with the public and which, therefore, requires more stringent water quality, and Type II for which public access is controlled and thus does not require the stringent water quality of Type I. An example of Type I reuse would be irrigation of a school's landscaping or athletic fields. An example of Type II reuse would be irrigation of a golf course. Water quality from VCWWTP consistently meets Type I quality standards. As a part of this project, the City obtained formal authorization from the TCEQ to provide reclaimed water for both Type I and Type II uses.

Data provided by TRA for DCRWS did not include measurements for turbidity, which is one of the regulated Type I parameters. These data did indicate that the DCRWS effluent does consistently meet the Type I requirements for CBOD, and with some operational adjustments and/or chlorine disinfection could meet the Type I requirements for fecal coliform. The City is currently discussing water quality issues with TRA in order to insure that Type I quality water could be available from this treatment facility.



**Figure ES-1
City of Fort Worth
Reclaimed Water Service Areas**

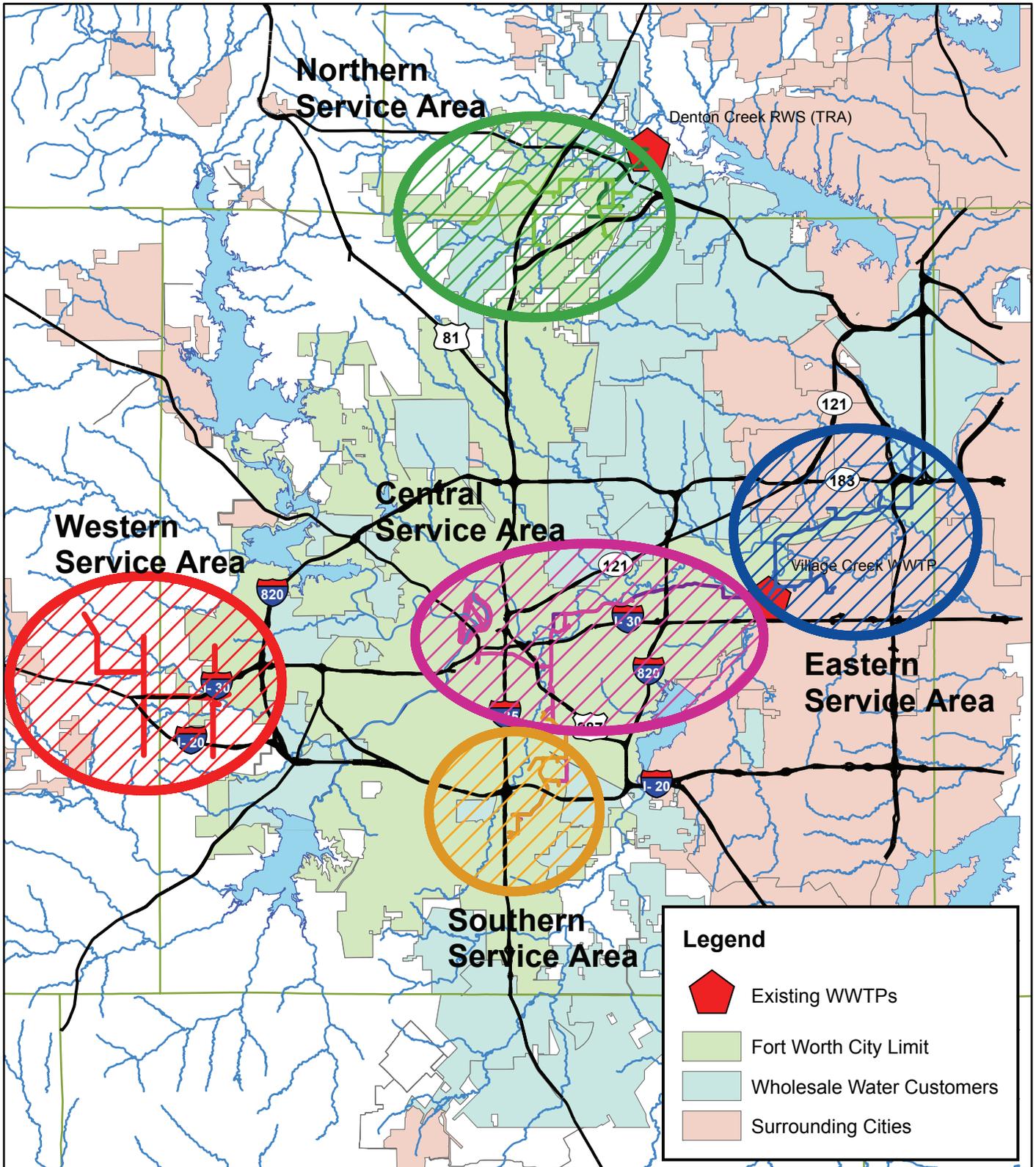


Table ES-1: Central System Reclaimed Water Service Area Demands

Potential Customer	Ann. Avg. Water Demand	System Capacity
	(MGD)	(MGD)
Cobb Park ⁽¹⁾	0.17	3.96
Gateway Park	0.05	1.21
Harris Methodist Hospital	0.05	0.05
Meadowbrook GC	0.06	1.73
Sycamore Creek GC	0.03	0.74
Sycamore Park	0.04	0.86
Trinity River Vision Project ⁽²⁾	0.76	7.50
Woodhaven GC	0.09	1.16
Total	1.25	17.20

- (1) Cobb Park is also included in the Southern System Service Area
- (2) The water demands for the Trinity River Vision Project include evaporative make-up water only, and could be expanded in the future to include irrigation water demand, once that data is available from the developers.

Table ES-2: Eastern System Reclaimed Water Service Area Demands

Potential Customer	Ann. Avg. Water Demand	System Capacity
	(MGD)	(MGD)
American Airlines	0.03	0.52
City of Arlington		
<i>JW Dunlop Sports Center</i>	<i>0.01</i>	<i>0.10</i>
<i>River Legacy Park</i>	<i>0.04</i>	<i>0.40</i>
<i>Chester Ditto Golf Course</i>	<i>0.17</i>	<i>0.50</i>
City of Euless		
<i>Texas Star Golf Course</i>	<i>0.52</i>	<i>3.33</i>
<i>Texas Star</i>	<i>0.21</i>	<i>2.00</i>
<i>Softball World</i>	<i>0.02</i>	<i>0.50</i>
D/FW International Airport	1.53	6.06
Riverside GC	0.24	1.28
Total	2.77	14.69

Table ES-3: Northern System Reclaimed Water Service Area Demands

Potential Customer	Ann. Avg. Water Demand	System Capacity
	(MGD)	(MGD)
Alliance Center East Assoc.	0.36	0.95
Alliance Center West Assoc.	1.12	2.96
Alliance Gateway Phase I Assoc.	0.24	0.62
Alliance Gateway Phase II Assoc.	0.44	1.17
Alliance Gateway Phase III Assoc.	0.56	1.48
Alliance Lonestar Association	0.43	1.13
Circle T Ranch / Westlake	0.96	2.53
Frac Water (Gas Drilling)	0.05	0.05
Texas Motor Speedway	0.03	0.07
Total	4.19	10.97

Table ES-4: Southern System Reclaimed Water Service Area Demands

Potential Customer	Ann. Avg. Water Demand	System Capacity
	(MGD)	(MGD)
Alcon Laboratories	0.38	3.00
Ball Metal Container	0.01	0.01
Cobb Park ⁽¹⁾	0.17	3.96
Glen Garden GC	0.09	0.46
Miller Brewing Co.	0.19	0.25
Mrs. Bairds Bakeries	0.10	0.10
Rolling Hills Soccer	0.15	3.65
Tarrant County College	0.01	0.31
Total	1.09	11.73

(1) Cobb Park is also included in the Central System Service Area

Table ES-5: Western System Reclaimed Water Service Area Demands

Potential Customer	Ann. Avg. Water Demand ⁽¹⁾	System Capacity ⁽²⁾
	(MGD)	(MGD)
Blue Haze Elementary	0.01	0.15
East of Walsh Ranch	0.16	3.92
Leonard Golf Links	0.05	1.15
Lost Creek GC	0.18	0.93
New Commercial	0.14	2.25
New Golf Course	0.74	3.89
New Park	0.20	4.72
New Public Facility	0.04	0.86
New Residential	2.07	32.84
New School	0.13	3.06
Tannahill Intermediate	0.01	0.29
West of Walsh Ranch	0.06	1.52
Total	3.79	10.00

- (1) Annual average water demands as reported in the June 2004 Draft Feasibility Study for the Mary’s Creek Water Recycling Center
- (2) Intermediate storage tanks and booster pump stations are included in the Western System Service Area to meet system pressure requirements and reduce overall system capacity requirements.

ES.6 Screening-Level Evaluation of Service Area Conceptual Projects

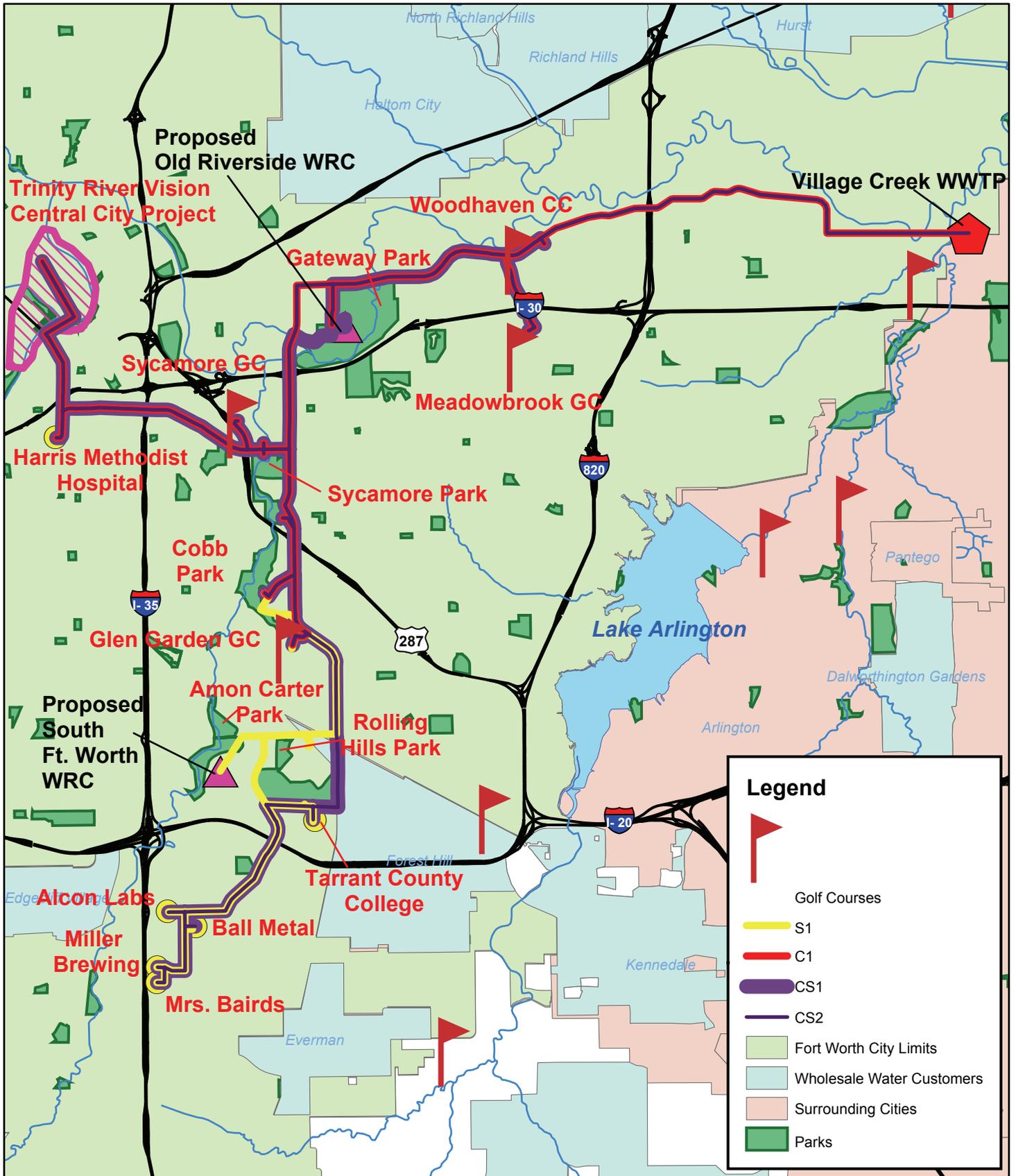
An initial, screening-level evaluation of conceptual treatment and conveyance projects for each service area was performed. The purpose of this screening-level evaluation was to determine whether each service area could be served more economically from a WRC or an existing WWTP. However, since the Eastern System is located close to VCWWTP, no alternative with a WRC was considered for this service area. Similarly, since the Western System is located so far away from an existing WWTP, no alternative using an existing WWTP was considered for this service area. A description of each alternative is provided below and a summary of the opinion of probable costs for each alternative is provided following the descriptions. All costs are based on a capital recovery period of 20 years and an annual interest rate of 5.5%. For the screening evaluation, all costs for constructing and operating the WRCs are included in order to compare the WRC alternatives with the alternatives that receive water from an existing WWTP. The screening level costs do not included financial credit for benefits.

ES.6.1 Central System Alternative 1 (C1)

Alternative C1 serves the Central System customers only, from the VCWWTP, as shown on Figure ES-2.



Figure ES-2
Central/Southern Alternatives



ES.6.2 Southern System Alternative 1 (S1)

Alternative S1 serves the Southern System customers only, from a proposed WRC located near Amon Carter Park, east of IH-35 and north of IH-20, as shown in Figure ES-2.

ES.6.3 Central/Southern System Alternative 1 (CS1)

Alternative CS1 includes a proposed WRC at the site of the abandoned City of Fort Worth Riverside WWTP. Treated effluent from the WRC would serve all customers within the Central and Southern service areas, as shown on Figure ES-2.

ES.6.4 Central/Southern System Alternative 2 (CS2)

Alternative CS2 uses treated effluent from VCWWTP to serve all customers within the Central and Southern service areas, as shown on Figure ES-2.

ES.6.5 Eastern System Alternative 1 (E1)

Alternative E1 uses treated effluent from VCWWTP to serve customers in the Cities of Arlington, Euless and Grand Prairie, as well as the Centreport and D/FW areas (see Figure ES-3).

ES.6.6 Northern System Alternative 1 (N1)

Alternative N1 serves the Northern System customers from a WRC located east of IH-35, as shown in Figure ES-4.

ES.6.7 Northern System Alternative 2 (N2)

Alternative N2 serves the Northern System customers from the TRA Denton Creek Regional Wastewater System (DCRWS), as shown in Figure ES-4.

ES.6.8 Western System Alternative 1 (W1)

Alternative W1 serves the proposed developments within the Mary's Creek Basins from a WRC located between IH-20 and IH-30, as shown in Figure ES-5. As will be discussed in a later section, due to timing of flow availability in this area, it is anticipated that initially raw water from a TRWD raw water line will be used to provide nonpotable water service to this area. It should also be noted that initially, Alternative W1 included service to Z Boaz Park, Z Boaz Golf Course and Hawks Creek Golf Course. Service to these areas increased the unit cost of service significantly and, therefore, was eliminated from the alternative. However, these customers could be considered for service in the future.

ES.6.9 Summary of Screening-Level Evaluation

Table ES-6 presents a summary of the opinions of probable cost for all alternatives considered in the screening-level evaluation to identify the preferred alternative in each service area. Alternatives N2 and E1 provide reclaimed water at the lowest unit cost, primarily due to the proximity of these service areas to existing wastewater treatment facilities.



Figure ES-3
Eastern System Alternative

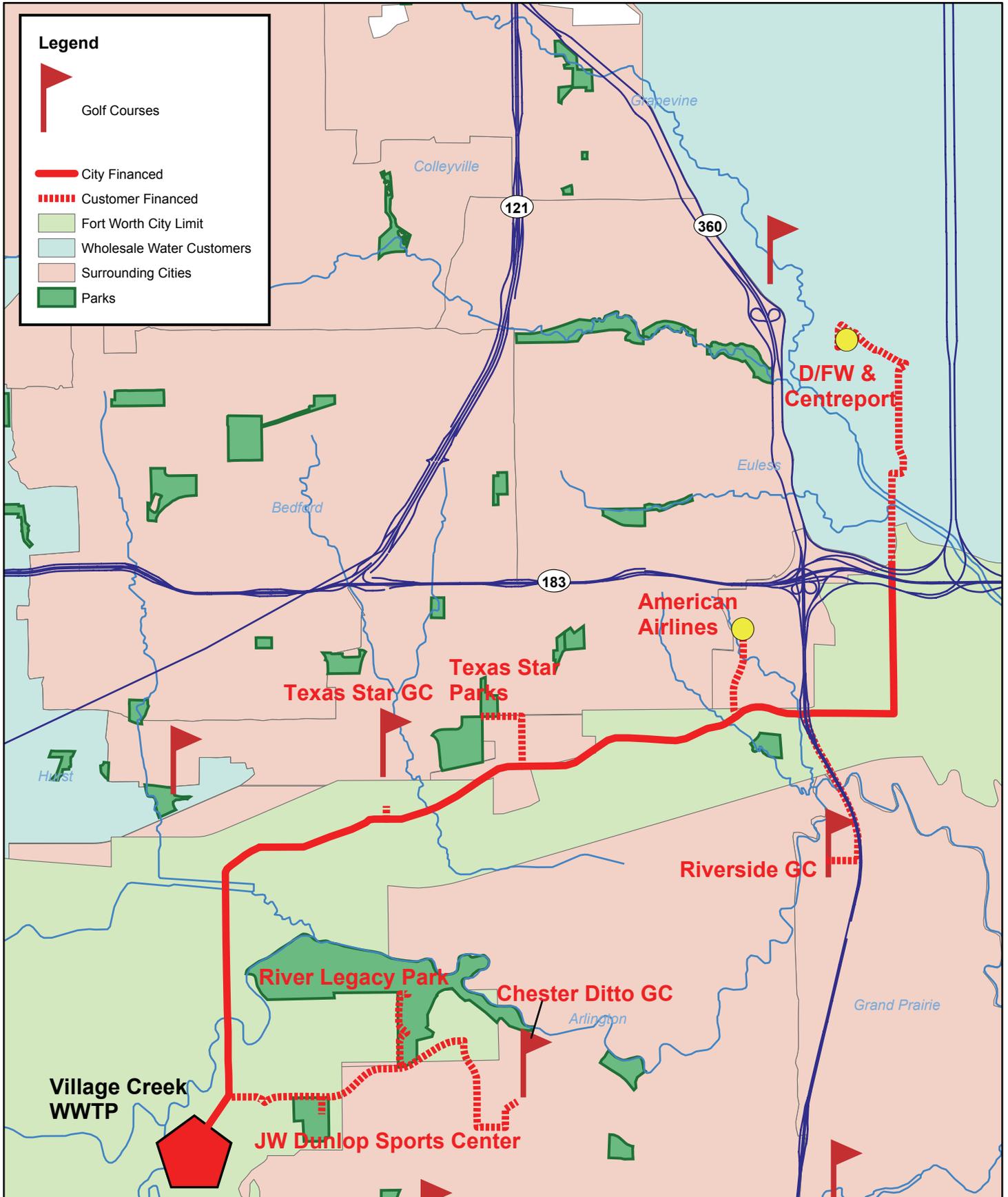
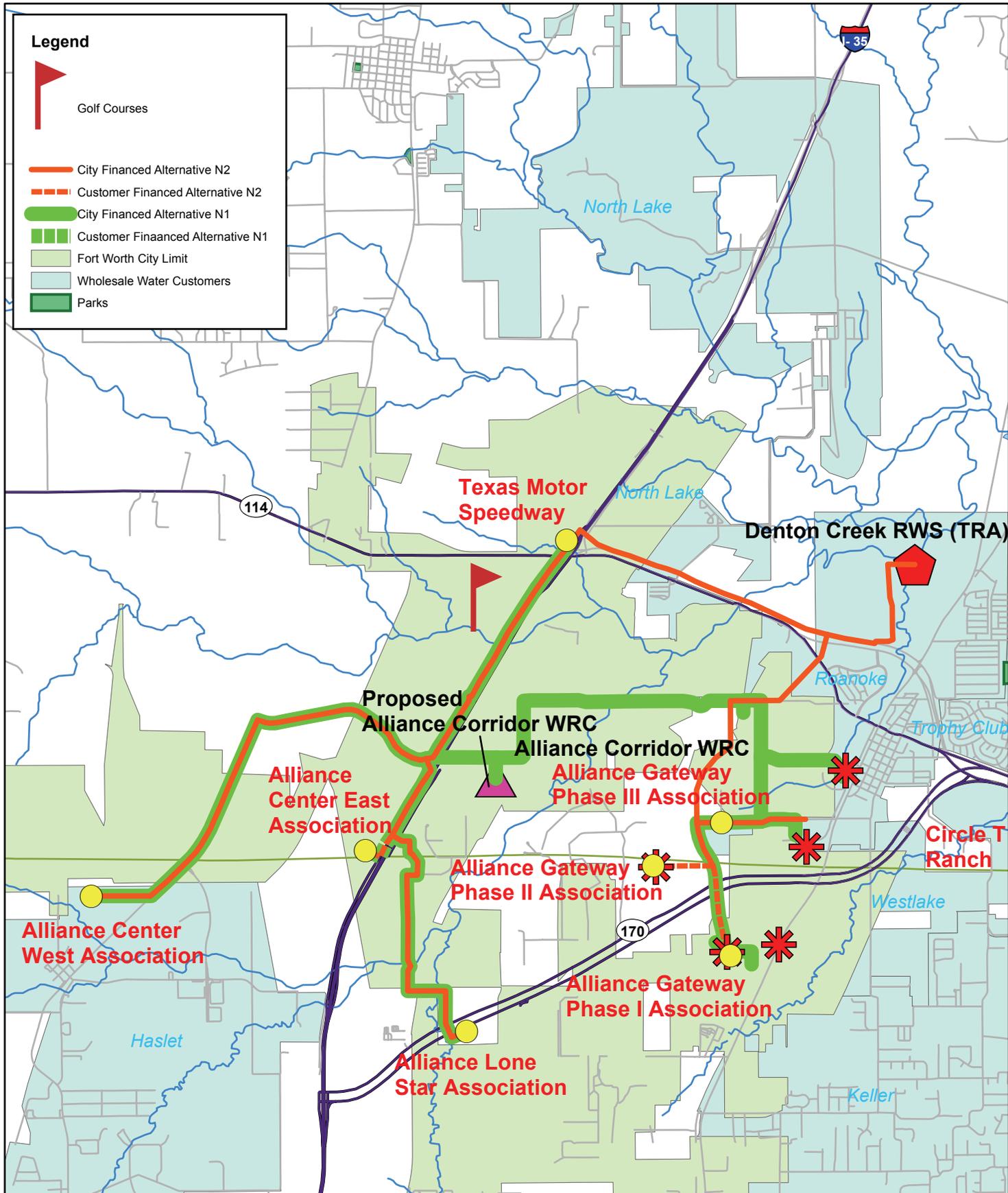


Figure ES-4 Northern System Alternatives



**Figure ES-5
Western Alternative**

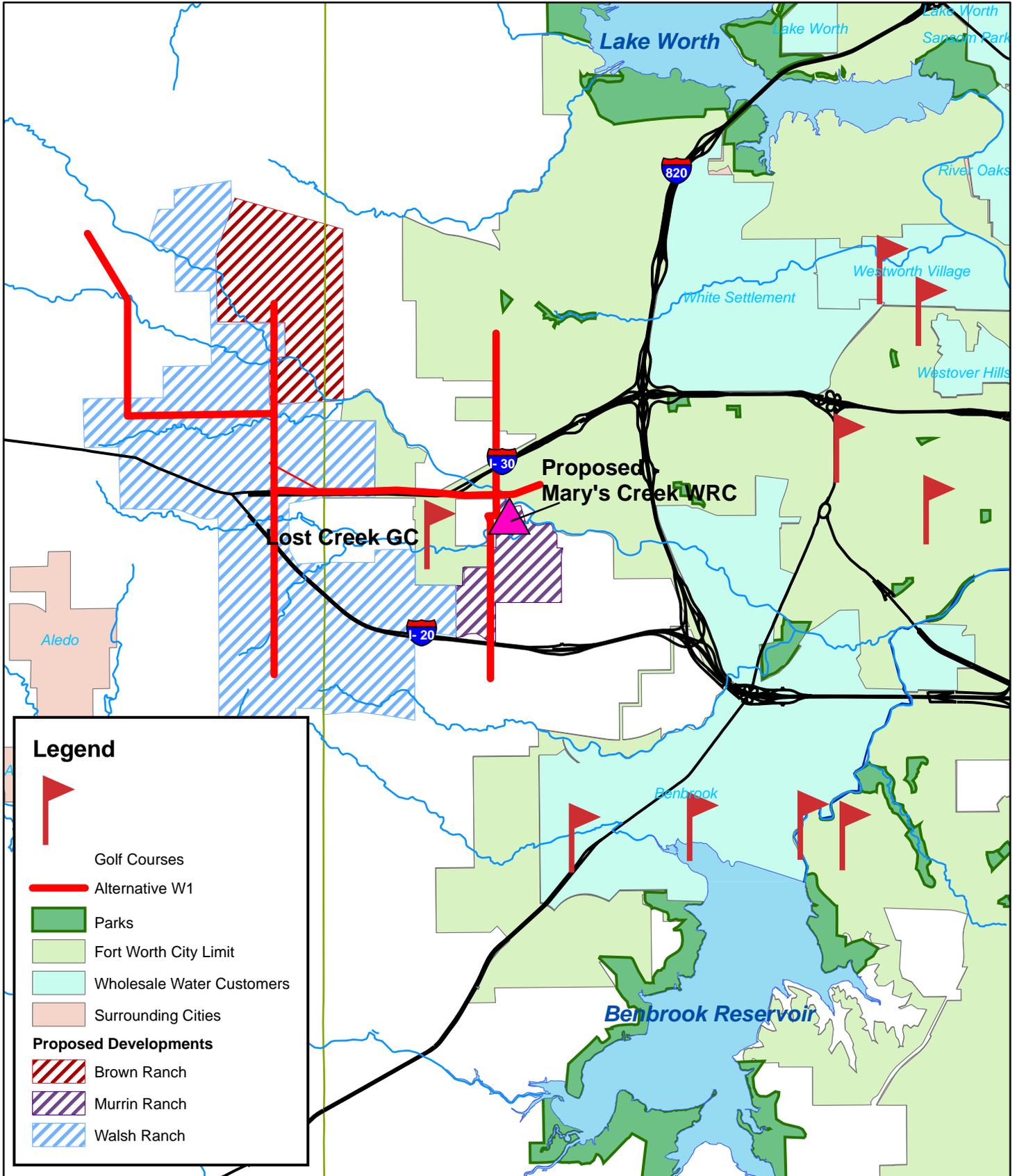


Table ES-6: Summary of Costs for All Service Areas (without benefits)

Alt.	Annual Avg. Demand	Peak System Demand	Capital Cost ¹	Debt Service	O&M	Energy	Purchase Cost	Overall Unit Cost
	MGD	MGD	\$MM	\$/yr	\$/yr	\$/yr	\$/1000G	\$/1000G
C1	1.25	17.21	\$32.70	\$2,736,000	\$316,000	\$60,000	N/A	\$3.22
S1	1.10	11.74	\$21.75	\$1,820,000	\$176,000	\$221,000	N/A	\$2.87
CS1	2.18	19.47	\$56.93	\$4,764,000	\$398,000	\$439,000	N/A	\$3.45
CS2	2.18	14.47	\$40.75	\$3,410,000	\$412,000	\$135,000	N/A	\$2.40
E1	2.77	14.69	\$15.52	\$1,298,000	\$215,000	\$95,000	N/A	\$0.82
N1	4.19	11.07	\$54.45	\$4,556,000	\$304,000	\$679,000	N/A	\$1.84
N2	4.19	11.07	\$17.09	\$1,430,000	\$188,000	\$103,000	\$0.25	\$0.81
W1	3.79	18.12	\$72.79	\$6,091,000	\$455,000	\$772,000	N/A	\$3.03

¹ Net Present Value of capital cost after accounting for interest during construction.

Based on the screening-level evaluation the preferred alternatives for each service area are as follows:

Central/Southern Service Areas: Alternative CS2

Eastern Service Area: Alternative E1

Northern Service Area: Alternative N2

Western Service Area: Alternative W1

ES.7 Preferred Alternative Phasing

A detailed evaluation of the preferred alternatives identified above was performed in order to identify project phasing and perform the subsequent feasibility study. Figures ES-6 through ES-9 show the identified project phases for each preferred alternative.

ES.8 Project Feasibility Evaluation

The feasibility evaluation includes an assessment of probable construction and operation and maintenance costs for each project and the system as a whole, an evaluation of potential benefits of the reclaimed water system, a review of potential financing strategies and funding opportunities, and development of a recommended initial rate structure for the City of Fort Worth reclaimed water system. In addition, it includes a discussion of administrative, regulatory and public relations issues that may impact project feasibility.



Figure ES-6
Central/Southern Alternative (Alt. CS2) Phasing

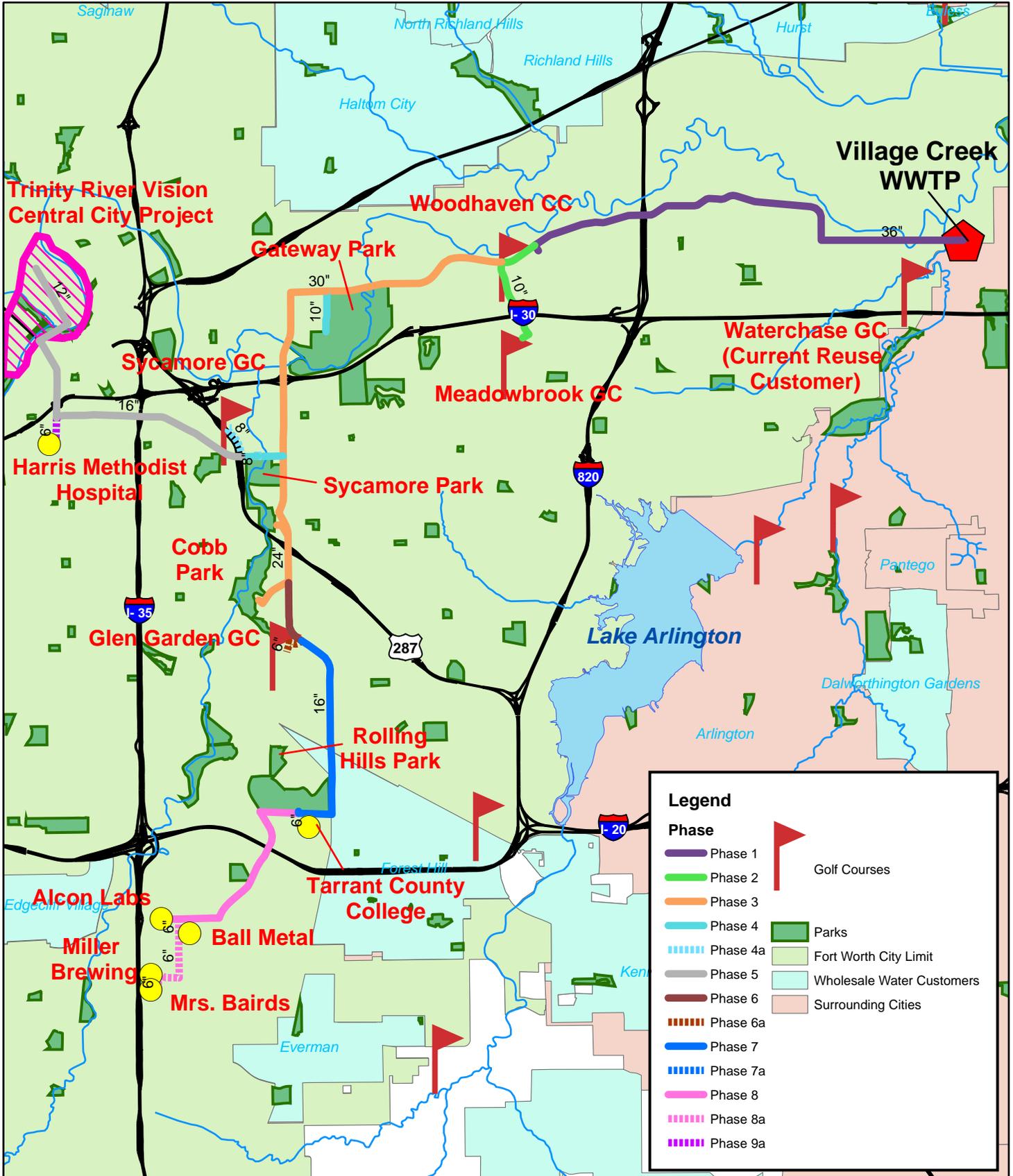


Figure ES-7 Eastern Alternative Phasing

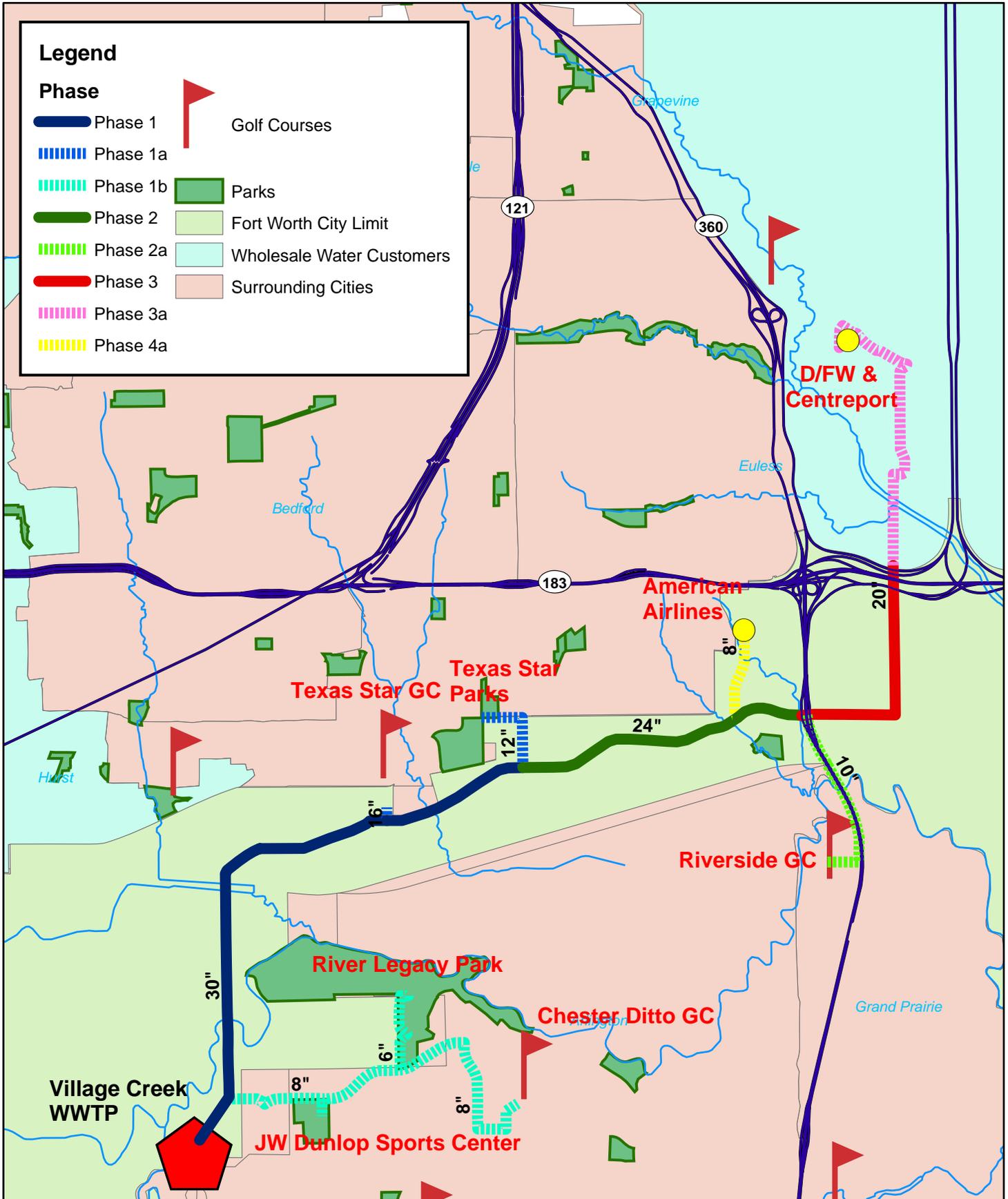




Figure ES-8
Northern System Alternative Phasing

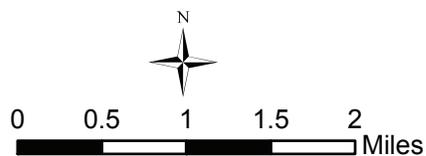
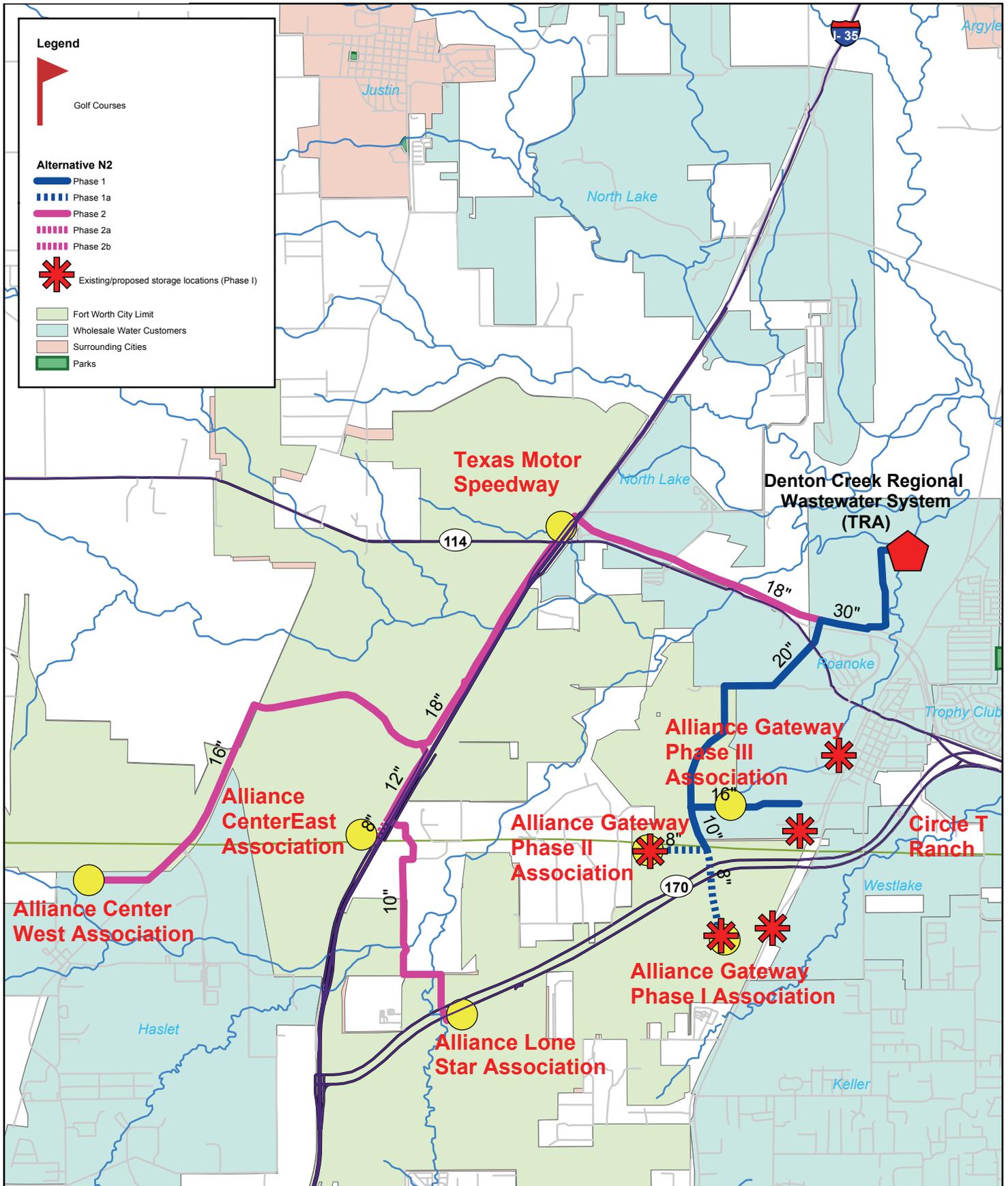
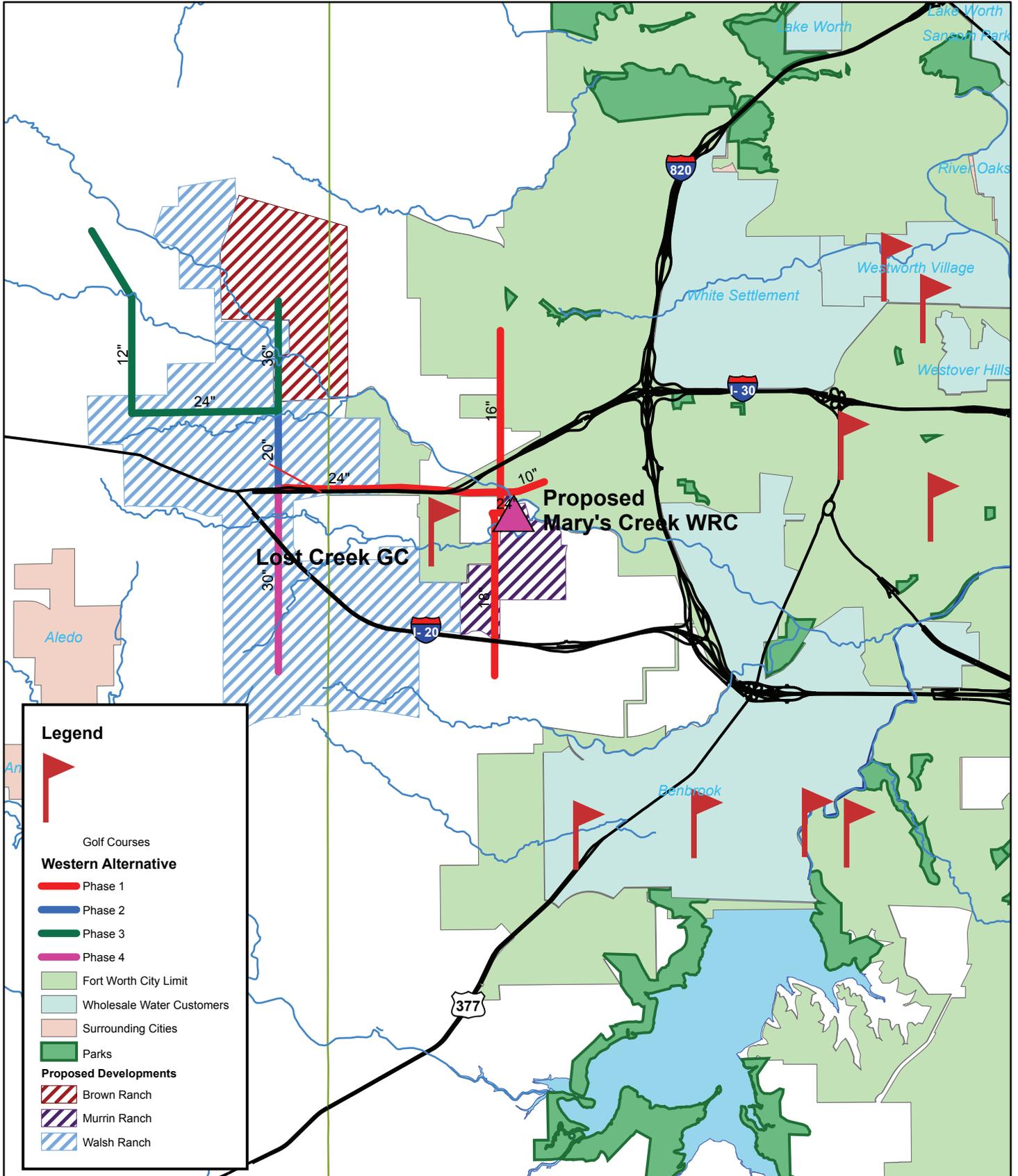


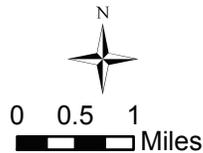


Figure ES-9
Western System Alternative Phasing



Legend

- Golf Courses
- Western Alternative**
 - Phase 1
 - Phase 2
 - Phase 3
 - Phase 4
- Fort Worth City Limit
- Wholesale Water Customers
- Surrounding Cities
- Parks
- Proposed Developments**
 - Brown Ranch
 - Murrin Ranch
 - Walsh Ranch



ES.8.1 Benefits of Reclaimed Water Projects

A number of benefits associated with reclaimed water projects were evaluated and are presented in Chapter 7. These include, reduction of potable water demand, reduction in nutrient and BOD loadings to receiving streams, deferral of water and wastewater treatment plant expansions, deferral of collection system improvements, reduction in raw water requirements and deferral of reservoir construction. Three of the key benefits, reduction of potable water demand, deferral of water treatment plant expansions and raw water cost avoidance are summarized below.

Reduction of potable water demand

Reduction of potable water demand is an important component of the City's water conservation program and is critical to acquiring permits for future water supplies. Based on an evaluation of future demands with implementation of the preferred reclaimed water alternatives, potable water usage is projected to be reduced by about 8.8 gpcd, which is approximately a 4.4% decrease in the current per capita usage rate.

Deferral of water treatment plant expansions

In the 2005 Water Master Plan, a number of water treatment plant expansions and new facilities were identified. An evaluation of the potential reduction in peak demands resulting from implementation of the reclaimed water projects indicated that the overall required treatment capacity could be reduced by almost 70 MGD by the year 2025. This deferral of facilities was estimated to have a value of approximately \$9.7 million (in 2006 dollars).

Raw water cost avoidance

A direct benefit to the City resulting reclaimed water usage is reduced raw water usage. Currently the City pays TRWD \$0.65/1000 gallons for raw water. Any raw water usage that is offset by reclaimed water usage by the City or its wholesale water customers can be attributed as a direct benefit of the reclaimed water system.

ES.8.2 Net Cost of Reclaimed Water

As discussed in the previous section, a number of benefits can be attributed to the development of reclaimed water systems. Many of these benefits do not have a direct monetary value and are difficult to quantify in terms of a cost savings to the City. However, as referenced above, deferral of WTP facility expansions and avoidance of raw water costs were two benefits that were directly quantifiable and can be credited to the cost of the reclaimed water system. Table ES-7 provides a summary of the net opinion of probable cost with these benefits credited. With benefits, the system-wide cost of the reclaimed water is estimated to be approximately \$0.73/1000 gallons based on full utilization of the projected demands.

ES.8.3 Financing Strategies and Funding Opportunities

Several financing strategies are available for reclaimed water projects. These include federal or state grants, federal or state loans, and rate/fee restructuring. Capital costs can be funded through federal

or state grants or loans. Some limited federal financing is available through the U.S. Department of Agriculture (USDA) and U.S. Bureau of Reclamation (USBR).

Table ES-7: Summary of Costs, Recommended Alternatives, Including Benefits

Alt.	Service Area	Annual Avg. Demand	Peak System Demand	Identified Capital Benefits ¹	Capital Cost ²		
		MGD	MGD	\$MM	\$MM		
E1	Eastern	2.77	14.69	\$2.08	\$13.44		
N2	Northern	4.19	11.07	\$3.14	\$13.94		
W1	Western	3.79	18.12	\$2.84	\$37.10		
CS2	Central/ Southern	2.179	14.47	\$1.63	\$39.12		
Total, All Projects		12.93	58.35	\$9.70	\$103.61		

Alt.	Service Area	Debt Service ³	O&M	Energy	Purchase Cost ⁴	Operational Benefits ⁵	Overall Unit Cost ⁶
		\$/yr	\$/yr	\$/yr	\$/1000G	\$/1000G	\$/1000G
E1	Eastern	\$1,125,000	\$215,000	\$95,000	N/A	\$0.37	\$0.39
N2	Northern	\$1,167,000	\$188,000	\$103,000	\$0.25	\$0.65	\$0.10
W1	Western	\$3,105,000	\$455,000	\$772,000	N/A	\$0.65	\$1.13
CS2	Central/ Southern	\$3,273,000	\$412,000	\$135,000	N/A	\$0.65	\$1.68
Total, All Projects		\$8,670,000	\$1,270,000	\$1,105,000	\$0.08	\$0.59	\$0.73

¹Includes credit for deferral of WTP expansions (see Section 7.3.4)- benefit distributed based on annual average demand of each project.

² Net Present Value of capital cost after accounting for interest during construction.

³Assumes a capital recovery period of 20 years and an annual interest rate of 5.5%.

⁴Purchase cost applies to water purchased from TRA's DCRWS for the Northern System.

⁵Includes credit for purchase of raw water. On Eastern system, only water used by wholesale customers is credited.

⁶Assumes 50-year project life.

State financing programs are available through the Texas Water Development Board (TWDB) and include the Clean Water or Drinking Water State Revolving Funds and State Participation Funding. The Clean Water State Revolving Fund is typically used to finance reuse and wastewater projects. The State Participation Funding program enables the TWDB to assume a temporary ownership interest in regional projects when the local sponsors are unable to assume debt for the optimally sized facility. While this program has typically been used for water system construction, the TWDB has indicated that it can also be applied to reuse projects if excess capacity is provided in the reuse facilities to meet anticipated future demands. The goal of this program is to allow for the "right sizing" of projects in consideration of future growth.

Debt recovery and operations and maintenance costs can be recovered through monthly water or sewer rates and/or through direct charges for the reclaimed water. Many utilities have struggled with how to set volume rates for reclaimed water. Often, in order to insure that the water is marketable, the reclaimed water rate is set as a percentage of the potable water rate. In other instances, elimination of effluent discharges to receiving streams was the goal of the program and reclaimed water was provided to customers at a very minimal cost. However, as experience with reclaimed water rate systems develops, it is becoming recognized that the best method of allocating costs is

through a cost-of-service evaluation that is consistent and defensible. Often sharing costs among the wastewater, water and reclaimed water users is justified and can minimize the burden on any one group of users.

ES.8.4 Preliminary Reclaimed Water Rates for the City of Fort Worth

Several meetings were held with City staff to discuss approaches to establishing a rate for users of reclaimed water. During these meetings, the following guidelines were established:

- The reclaimed water rate should be low enough to be marketable and to attract new customers to the system;
- The reclaimed water rate should not be lower than the going cost of raw water (currently \$0.65/1000 gallons) and should not be higher than the going rate for potable water (currently \$2.37 - \$4.01 per 1000 gallons depending on class and tier);
- The reclaimed water rate should be based on a cost-of-service evaluation of the entire reclaimed water system as a whole;
- City of Fort Worth retail and wholesale water customers (hereafter referred to as “in-system” customers) should pay a lower rate for reclaimed water than other “out-of-system” customers.
- Sales contracts with reclaimed water users should be formulated in a way that allows for modification of the rates annually, based on updates to the cost-of-service evaluation.

In order to determine the basis and range of rates being used in Texas and nationally, a review of reclaimed water rates was carried out. In Texas, reclaimed water rates for those cities that have relatively large established reclaimed water programs range between \$0.86 and \$1.20 per thousand gallons.

Based on the guidelines presented above, and the review of water rates, the City staff recommended a preliminary initial reclaimed water rate of \$0.75/1000 gallons for in-system customers. Based on a similar structure for water rates, staff also recommended that out-of-system rates be increased by 25% to a rate of $1.25 \times \$0.75 = \$0.94/1000$ gallons. This rate has not yet been approved by the City and, as discussed above, would be subject to modification based on future cost-of-service evaluations.

ES.8.5 Projected Payback Periods for Reclaimed Water Projects

As a part of the feasibility evaluation, projected payback periods for each of the reclaimed water projects were evaluated. The payback period was defined as the time elapsed between the initial capital investment in the project and the break-even point, i.e. when the total cumulative revenue from the project is equal to the total cumulative expenditures (including debt service and operation and maintenance costs). It should be noted that the estimated payback period is very sensitive to financing assumptions, such as interest rate and inflation. For this evaluation, the following assumptions were made:

- Capital Recovery Period = 20 years for City financing and 34 years for state participation financing
- Project Life = 50 years
- Annual interest rate = 5.5%
- Annual inflation rate = 4.0%
- Investment return rate = 5.0%
- Initial (2006) commodity charge for raw water = \$0.65 per 1000 gallons
- Initial (2006) commodity charges for reclaimed water = \$0.75 per 1000 gallons (in-system) and \$0.94 per 1000 gallons (out-of-system)

In addition, it was assumed that the commodity charges for both raw water and reclaimed water increased at the annual inflation rate. For simplicity, all operation and maintenance costs (including energy) were also inflated at this rate.

Two financing options were evaluated. The first used a loan with equal annual debt service payments, based on the assumptions outlined above. The second assumed that the City would obtain state participation funding for 50% of each project from the TWDB.

Figure ES-10 summarizes the payback period for each service area and all projects as a whole, based on the evaluation of the two financing options. Figure ES-10 indicates that the projects for the Northern System Service Area and Eastern System Service Area have relatively short payback periods as compared to the projects in the Western and Central/Southern Service Areas. In general, the payback period does not vary greatly between the two financing options. However, the analysis confirmed that for all projects as a whole, the accumulated debt is significantly less with state participation financing.

As discussed above, reclaimed water projects provide a number of benefits, many of which are difficult to quantify in terms of a direct financial benefit. Based on the financial evaluation of the individual projects and the reclaimed water system as a whole (including all 4 recommended projects), the following conclusions can be made:

- The Northern and Eastern System projects are the most cost-effective and provide the greatest near-term benefits. These projects will serve customers that have expressed a serious interest in receiving reclaimed water as soon as facilities can be constructed.
- The Central/Southern and Western System projects require more initial cost support than the Northern and Eastern System projects.
- The Central/Southern System project is the most expensive on a unit cost basis. However, there is some potential to supply additional demands in this service area, for example within the proposed Central City Project, and to additional smaller irrigation customers along the route. The

proposed facilities provide some additional capacity, particularly if users can be encouraged to provide on-site storage.

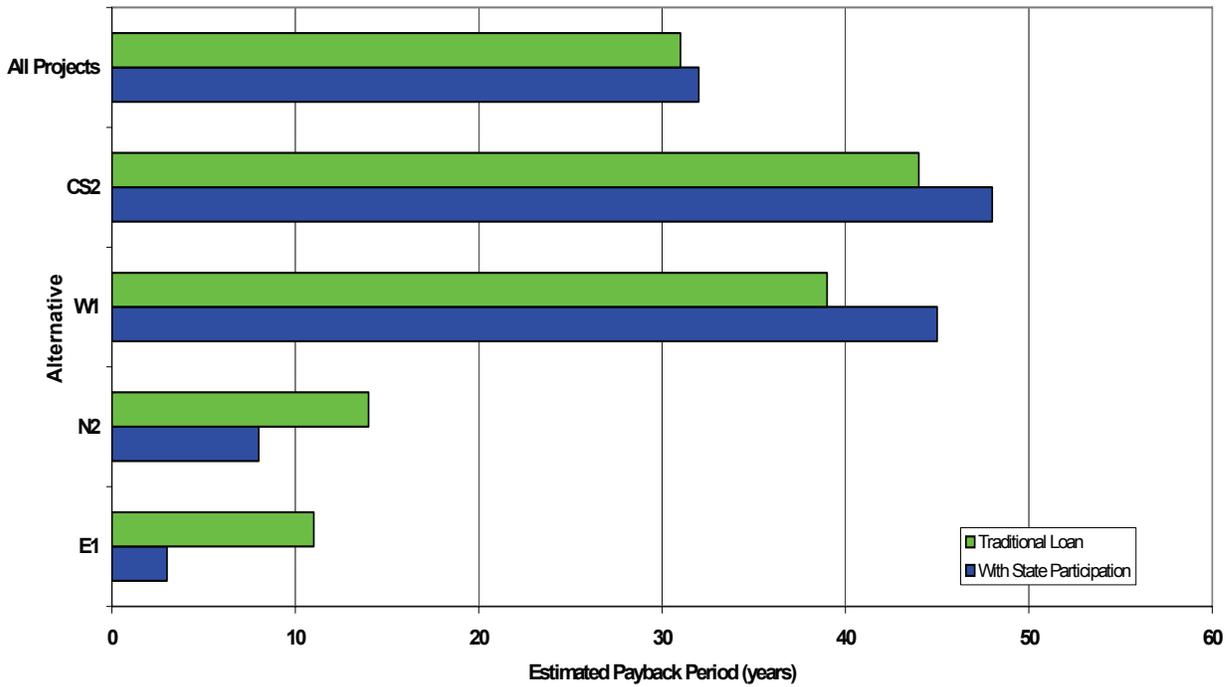


Figure ES-10: Summary of Payback Period for Reclaimed Water Projects

When evaluated as a system, the reclaimed water projects provide significant benefit to the City in terms of reduction in per capita potable water usage, achieving water conservation goals, and deferral of water and wastewater system facility expansions. Implementation of the reclaimed water system will demonstrate the City’s commitment to efficient use of its water resources. This commitment is critical to the success of acquiring new water supply sources necessary to support future growth within the City of Fort Worth and in other communities within TRWD’s service area.

Based on the feasibility evaluation, it is recommended that the City proceed with implementation of the reclaimed water system, including all four projects. The City should continue to explore alternative financing approaches, including federal or state grant or loan programs, and participation from customers and/or developers.

ES.9 Public Information Plan

The City of Fort Worth has conducted three public meetings related to the Recycled Water Implementation Plan. The first public meeting was held early in the study and provided information about the project team and the scope of work to be performed. The second meeting was held following development of the initial project alternatives and provided information about proposed service areas and preliminary project costs. The third public meeting was held following submission of the draft report and presented a summary of the final recommended alternatives, feasibility evaluation and implementation plan.

In order to facilitate communications with community leaders about the proposed reclaimed water program, a public information committee (PIC) was established. The reclaimed water PIC is a subcommittee of the City's water conservation advisory committee. City staff and its consultant met with the committee on three occasions during the course of this study. The PIC discussed the potential projects, reclaimed water system policies and procedures and potential financing and rate structures.

ES.9.1 Proposed Public Information Program

Since well-designed public outreach programs have been demonstrated to contribute to the success of reclaimed water projects, an important component of the City's implementation plan will be the development of an effective public outreach program. Such a program would identify key stakeholder groups and use a phased approach to informing these groups, soliciting input and gaining trust and support.

Target stakeholders in the initial phases of the recycled water program will likely include industries, park facilities, and golf courses. Future expansion of the recycled water program will most likely depend on generating interest with additional stakeholders for reclaimed water uses. Public involvement with existing stakeholders and revised outreach materials will need to be developed as appropriate to bring additional stakeholders on board.

ES.10 Reclaimed Water Implementation Plan

The primary objectives of this project are to provide recommendations and evaluate the feasibility of reclaimed water projects for the City of Fort Worth and to develop an implementation plan for the viable reclaimed water projects. Advancement of Fort Worth's Reclaimed Water Program will involve the development of a number of policies and procedures and establishment or modification of ordinances supporting the program. The development of the program will also build upon the experience of the Waterchase Golf Course reclaimed water project, which has been in operation since 1999. Additionally, an organizational structure will need to be established to provide the leadership, marketing, and operations infrastructure necessary for a successful program.

The various actions for further developing the City of Fort Worth Reclaimed Water Program and pursuing the implementation of recommended reclaimed water projects are summarized in Table ES-8. A summary of the proposed project phasing timeline is provided in Figure ES-11 and a detailed timeline is presented in Figure ES-12.

ES.10.1 Administrative Actions

The following are recommended administrative actions that are fundamental to the reclaimed water program. It would be beneficial to implement these actions early in the program.

Reclaimed Water Program Organization

In order to implement a reclaimed water program, the City will need to establish a program organization with a designated manager, limited administrative staff, functional support from Water Operations and Wastewater Operations, and interdepartmental support. This approach will utilize the experience of the existing water/wastewater operations staff and will minimize the initial costs of establishing a reclaimed water program.

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Table ES-8: Reclaimed Water Implementation Steps

FISCAL YEAR 2006-2007
<ul style="list-style-type: none"> ● Perform Administrative Actions <ul style="list-style-type: none"> ● Initiate actions to establish reclaimed water program organizational structure. ● Develop and adopt policies and procedures. ● Update City ordinances (i.e. rates, financial provisions). ● Develop and adopt reclaimed water standard contract. ● Pursue state/federal funding opportunities ● Negotiate and finalize agreement with TRA for DCRWS reclaimed water. ● Identify any specific water quality requirements for potential customers. If necessary, perform testing for additional parameters at WWTP. ● Initiate Public and Water Customer Reclaimed Water Awareness Program. ● Initiate reclaimed water marketing and sales activities. ● Perform routing delineation and surveying for Northern System, Phase 1 pipeline and pump station. ● Perform environmental permitting for Northern System, Phase 1 pipeline and pump station.
FISCAL YEAR 2007-2008
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin and complete right-of-way acquisition and design for Northern System, Phase 1 pipeline and pump station. ● Perform routing delineation and surveying for the Western System, Phase 1 pipeline and pump station. ● Perform environmental permitting for the Western System, Phase 1 pipeline and pump station.
FISCAL YEAR 2008-2009
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Perform routing delineation and surveying for Eastern System, Phase 1 pipeline and pump station. ● Perform environmental permitting for Eastern System, Phase 1 pipeline and pump station. ● Begin construction of Northern System, Phase 1 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Western System, Phase 1 pipeline and pump station.
FISCAL YEAR 2009-2010
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin and complete right-of-way acquisition and design for Eastern System, Phase 1 pipeline and pump station. ● Complete construction of Northern System, Phase 1 pipeline and pump station. ● Perform routing delineation and surveying for Northern System, Phase 2 pipeline. ● Perform environmental permitting for Northern System, Phase 2 pipeline. ● Begin construction of Western System, Phase 1 pipeline and pump station. ● Perform routing delineation and surveying for Western System, Phase 2 pipeline and pump station. ● Perform environmental permitting for Western System, Phase 2 pipeline and pump station.
FISCAL YEAR 2010-2011
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin construction of Eastern System, Phase 1 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Northern System, Phase 2 pipeline. ● Complete construction for Western System, Phase 1 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Western System, Phase 2 pipeline. ● Perform routing delineation and surveying for Western System, Phase 3 pipeline and pump station. ● Perform environmental permitting for Western System, Phase 3 pipeline and pump station.

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Table ES-8: Reclaimed Water Implementation Steps (cont'd)

FISCAL YEAR 2011-2012
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Complete construction of Eastern System Phase 1 pipeline and pump station. ● Perform routing delineation and surveying for Eastern System Phase 2 and 3 pipelines. ● Perform environmental permitting for Eastern System Phase 2 and 3 pipelines. ● Begin construction of Northern System, Phase 2 pipeline. ● Begin construction for Western System, Phase 2 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Western System, Phase 3 pipeline and pump station. ● Perform routing delineation and surveying for Western System, Phase 4 pipeline. ● Perform environmental permitting for Western System, Phase 4 pipeline.
FISCAL YEAR 2012-2013
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin and complete right-of-way acquisition and design for Eastern System Phase 2 pipeline. ● Begin and complete right-of-way acquisition and design for Eastern System Phase 3 pipeline. ● Complete construction of Northern System, Phase 2 pipeline. ● Complete construction of Western System, Phase 2 pipeline and pump station. ● Begin construction of Western System, Phase 3 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Western System, Phase 4 pipeline. ● Perform routing delineation and surveying for Central System, Phase 1 pipeline and pump station. ● Perform environmental permitting for Central System, Phase 1 pipeline and pump station.
FISCAL YEAR 2013-2014
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue Reclaimed water marketing and sales activities. ● Begin and complete construction of Eastern System, Phase 2 pipeline. ● Begin and complete construction of Eastern System, Phase 3 pipeline. ● Complete construction of Western System, Phase 3 pipeline and pump station. ● Begin construction of Western System, Phase 4 pipeline. ● Begin preliminary studies for Western System, Phase 7 WRC. ● Begin and complete right-of-way acquisition and design for Central System, Phase 1 pipeline and pump station. ● Perform routing delineation and surveying for Central System, Phase 2, 3 and 4 pipelines. ● Perform environmental permitting for Central System, Phase 2, 3 and 4 pipelines.
FISCAL YEAR 2014-2015
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Complete construction of Western System, Phase 4 pipeline. ● Complete preliminary studies for Western System, Phase 5 WRC. ● Begin design of Western System, Phase 5 WRC. ● Begin construction of Central System, Phase 1 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Central System, Phase 2, 3 and 4 pipelines.
FISCAL YEAR 2015-2016
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Complete design of Western System, Phase 5 WRC. ● Complete construction of Central System, Phase 1 pipeline and pump station. ● Begin and complete construction of Central System, Phase 2 pipeline. ● Begin construction of Central System, Phase 3 pipeline. ● Begin and complete construction of Central System, Phase 4 pipeline. ● Perform routing delineation and surveying for Central System, Phase 5 and 6 pipelines. ● Perform environmental permitting for Central System, Phase 5 and 6 pipelines.

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Table ES-8: Reclaimed Water Implementation Steps (cont'd)

FISCAL YEAR 2016-2017
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin construction of Western System, Phase 5 WRC. ● Complete construction of Central System, Phase 3 pipeline. ● Begin and complete right-of-way acquisition and design for Central System, Phase 5 pipeline. ● Begin and complete right-of-way acquisition and design for Central System, Phase 6 pipeline. ● Perform routing delineation and surveying for Central System, Phase 7 pipeline and pump station. ● Perform environmental permitting for Central System, Phase 7 pipeline and pump station.
FISCAL YEAR 2017-2018
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Complete construction of Western System, Phase 5 WRC. ● Begin construction of Central System, Phase 5 pipeline. ● Begin and complete construction of Central System, Phase 6 pipeline. ● Begin and complete right-of-way acquisition and design for Central System, Phase 7 pipeline and pump station. ● Perform routing delineation and surveying for Central System, Phase 8 pipeline. ● Perform environmental permitting for Central System, Phase 8 pipeline.
FISCAL YEAR 2018-2019
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin and complete preliminary studies for Western System, Phase 6 WRC expansion. ● Complete construction of Central System, Phase 5 pipeline. ● Begin construction of Central System, Phase 7 pipeline and pump station. ● Begin and complete right-of-way acquisition and design for Central System, Phase 8 pipeline.
FISCAL YEAR 2019-2020
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin and complete design of Western System, Phase 6 WRC expansion. ● Complete construction of Central System, Phase 7 pipeline and pump station. ● Begin construction of Central System, Phase 8 pipeline.
FISCAL YEAR 2020-2021
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Begin construction for Western System, Phase 6 WRC expansion. ● Complete construction of Central System, Phase 8 pipeline.
FISCAL YEAR 2021-2022
<ul style="list-style-type: none"> ● Continue Wastewater Treatment Plant testing of additional parameters, as necessary. ● Continue Public and Water Customer Reclaimed Water Awareness Program. ● Continue reclaimed water marketing and sales activities. ● Complete construction for Western System, Phase 6 WRC expansion.

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Figure ES-11: Reclaimed Water Implementation Plan Phasing

Project	Fiscal Year, Phase and Capital Costs in Millions of Dollars*													
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Northern				Phase 2a/2b (\$0.02/\$1.47)										
	Phase 1 (\$7.41)			Phase 2 (\$9.68)										
Western		Phase 1 (\$13.39)		Phase 2 (\$6.09)	Phase 3 (\$14.28)									
						Phase 4 (\$3.33)			Phase 5 (\$20.38)				Phase 6 (\$15.08)	
Eastern			Phase 1a/1b (\$0.70/\$1.83)			Phase 2a (\$0.80)								
			Phase 1 (\$10.22)			Phase 2 (\$3.15)								
						Phase 3a (\$2.48)								
						Phase 3 (\$1.95)		Phase 4a (\$0.27)						
Central/Southern							Phase 1 (\$14.31)							
								Phase 2 (\$1.31)						
								Phase 3 (\$9.89)						
								Phase 4 (\$0.67)						
								Phase 4a (\$0.19)	Phase 5 (\$5.41)					
									Phase 6 (\$0.65)					
									Phase 6a (\$0.10)	Phase 7 (\$5.82)				
										Phase 7a (\$0.06)	Phase 8 (\$2.28)			
											Phase 8a (\$0.51)			
											Phase 9a (\$0.15)			
*City Financed	Customer Financed													

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Figure ES-12: Reclaimed Water Implementation Plan Detailed Timeline

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Central System																					
Phase 1																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 2																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 3																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 4																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 5																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 6																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 7																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
Phase 8																					
Route Delineation/Survey/Permitting																					
ROW/Design																					
Construction																					
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026

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Policies and Procedures

The Reclaimed Water Program will require the development and implementation of a number of policies and procedures. These may relate to design specifications, cross-connection control, funding sources and rules, rate structure, site inspection authority, enforcement policies, operations and maintenance manuals, reclaimed water user manuals and emergency response plans.

Update City Ordinances to Include Reclaimed Water Provisions

Several aspects of the reclaimed water program may require modification of existing ordinances or creation of new ordinances. Potential considerations include:

- Establishment of pricing structure and pricing policies for reclaimed water.
- Potential restrictions on the use of raw water within the targeted reclaimed water service areas.
- Potential requirements for the use of reclaimed water for specific user groups within the targeted reclaimed water service areas.
- Potential requirements for developers to install dual distribution systems in new developments within the targeted reclaimed water service areas.

Reclaimed Water Customer Contract

A standard contract to be executed with reclaimed water customers should be developed and adopted. The contract should include provisions necessary to address issues uniquely related to reclaimed water as well as other considerations typically included in City water customer contracts. It is important that the contract includes provisions that protect the potable water system from cross connection with the recycled water.

ES.10.2 Other Actions

Waterchase Golf Course Reclaimed Water Project Experience

The City has been providing reclaimed water to the Waterchase Golf Course since 1999. The City can use this project as a development tool and building block for future reclaimed water projects. Much has been learned during the development and implementation of this project, and many of the assumptions and policies can be reviewed and refined based on this experience and provide beneficial knowledge for future operations and maintenance practices.

Wastewater Treatment Plant Testing Program

Based on a review of historical effluent data at Village Creek WWTP (VCWWTP) and TRA's Denton Creek Regional Wastewater System (DCRWS), both plants have demonstrated the ability to meet the quality requirements for both Type I and Type II reclaimed water applications (see Chapter 5). In Type I applications, there is likely public contact in areas irrigated with reclaimed water. In Type II projects, public contact is controlled. However, as flows from these plants increase, and

approach their rated design capacities, careful observations should be made of the CBOD and turbidity levels. Any trends of increased concentrations should be addressed, possibly with optimization of operations or additional treatment capacity. Under the current flow and loading conditions, the effluent from either plant could be used for Type I or Type II reclaimed water projects.

Chapter 210 Reclaimed Use Notification

At the commencement of the study, the City held a reclaimed water authorization for Type II reclaimed water service to the Waterchase Golf Course. As a part of this study, the City submitted a general reclaimed water notification to the TCEQ to cover both Type I and Type II uses of reclaimed water throughout a much larger service area. The notification identified a number of potential uses for the reclaimed water. Official authorization for this notification was received from the TCEQ on August 28, 2006. A copy of the reuse authorization is included as Appendix M.

Public Information/Public Awareness Campaign

Since well-designed public outreach programs have been demonstrated to play a significant role in the success of reclaimed water projects, an important component of the City's implementation plan will be developing an effective public outreach program. Such a program would inform stakeholders, solicit their input, and develop and enhance their support for the beneficial use of reclaimed water. It is anticipated that this effort would continue the use of a Public Information Committee (PIC), specific to reclaimed water, as has already been established for this project.

ES.10.3 Reclaimed Water Workgroup Goals and Accomplishments

A reclaimed water workgroup was established in order to begin the process of developing the appropriate administrative framework to support the reclaimed water program. The workgroup held 9 meetings between October 31, 2006 and March 8, 2007. The primary goals of the workgroup were as follows:

1. Identify and develop a general description of administrative documents necessary for the reclaimed water program;
2. Development of draft administrative documents identified in item 1, above. Draft documents developed by the workgroup include:
 - a. A reclaimed water ordinance that defines the purpose of the program, application procedures, user and provider responsibilities, and prohibitions;
 - b. A standard service agreement for reclaimed water users;
 - c. The rate and fee structure for the reclaimed water program.
3. Identify existing City documents that require modification to incorporate aspects of the reclaimed water program. Establish and procedure and timeline for modification of these documents.

Copies of the draft reclaimed water ordinance and standard service agreements are included in Appendices N and O, respectively. It should be noted that in addition to the projects recommended in this report, the City is planning the construction of a truck depot at its Village Creek WWTP. Reclaimed water will be available at this depot to permitted haulers for transport to user sites. The ordinance and service agreement documents incorporate special provisions to address this reclaimed water hauling program.

The rate structure adopted by the workgroup is the same as the structure discussed in Section ES.8.4. These rates include an in-system volume charge of \$0.75/1000 gallons and an out-of-system volume charge of \$0.94/1000 gallons. In addition it was decided that the same general fee structure used for the potable water system would be used for the reclaimed water system. The reclaimed water rates will be incorporated into the City's existing ordinance for water and wastewater rates.

The ordinance and service agreement documents, together with the rate structure are scheduled to be taken to the City Council for approval in April 2007. Adoption of these documents by the City Council will provide the necessary foundation to begin contracting with users once facilities have been constructed.

ES.11 Summary- Recommended Reclaimed Water Projects

This study has identified four direct, nonpotable reclaimed water projects that can be implemented to serve the City of Fort Worth and surrounding communities. The feasibility evaluation has indicated that these projects are viable and provide a number of benefits to the City, its wholesale customers, its raw water provider (Tarrant Regional Water District), and surrounding communities participating in the reclaimed water program. In addition, a partnership with Trinity River Authority to use treated effluent from the Denton Creek Regional Wastewater System for the Northern service area will help TRA to defer upgrades necessary to comply with more stringent TPDES permitting requirements.

As a part of this project, the City has taken significant steps toward the implementation of its reclaimed water program. Development of the ordinance and service agreement documents, together with modifications to existing policy and procedure documents to incorporate specific provisions of the reclaimed water program are well underway.

The recommendation to implement the four proposed reclaimed water projects is based on the likelihood of customer interest and feasibility of the projects. Potential customers in both the Northern and Eastern service areas have expressed a serious interest in purchasing reclaimed water as soon as it is available. In addition, the developer of the Walsh Ranch area in the Western service area has indicated willingness to install dual distribution systems for that area. The City needs to pursue further discussions with these potential customers to finalize their commitment to reclaimed water use. Other potential customers identified in this report should also be contacted directly to confirm their interest, needs and expectations.

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