

6.0 Additional Recommendations Legislative Designation of Unique Reservoir Sites, Ecologically Unique Streams, and Policy Issues

In addition to making recommendations regarding strategies for meeting current and future water needs, TWDB rules for S.B. 1 regional planning allow the regional water planning groups (RWPG) to include recommendations in the regional water plan with regard to unique sites for reservoir development, legislative designation of ecologically unique streams, and policy issues. The North East Texas RWPG elected to consider recommendations in each of these areas, which are presented in this chapter.

6.1 Reservoir Sites

TWDB rules (31 TAC, Section 357.9) for the preparation of regional water supply plans provide that the regional water planning groups “...may recommend sites of unique value for construction of reservoirs by including descriptions of the sites, reasons for the unique designation and the expected beneficiaries of the water supply to be developed at the site.” TWDB rules further specify that the following criteria are to be applied to determine whether a site is unique for reservoir construction:

- (1) *site-specific reservoir development is recommended as a specific water management strategy or in an alternative long term scenario in an adopted regional water plan;*
- (2) *the location, hydrologic, geologic, topographic, water availability, water quality, environmental, cultural, and current development characteristics, or other pertinent factors make the site uniquely suited for:*
 - (a) *reservoir development to provide water supply for the current planning period; or*
 - (b) *where it might reasonably be needed to meet needs beyond the 50 year planning period.*

Pursuant to TWDB rules, the approved scope of work for the preparation of the North East Texas Regional Water Plan included a subtask to “...determine which sites for future reservoir development to include in the regional water plan.” Accordingly, consultants to the North East Texas RWPG conducted a “reconnaissance-level” assessment of previously identified reservoir sites in the region. This assessment was based on a review and limited update of information contained in previous studies for 17 reservoir sites. It should be noted that the “proposed” and “potential” designations used here and in the *Reservoir Site Assessment Study* (Appendix B) were made only to assist in the planning process and are not intended to convey a relative priority among the various reservoir sites.

The 1997 State Water Plan recommended development of two new reservoirs within the North East Texas Region – the George Parkhouse II reservoir project (Lamar County) and the Marvin Nichols I reservoir project (Red River, Franklin, Morris and Titus counties), both of which are located within the Sulphur River Basin. It is noted in the 1997 State Water Plan that development of the Nichols I reservoir could eliminate or significantly delay the need for the Parkhouse II reservoir. Also, the recently completed *Comprehensive Sabine Watershed Management Plan* includes a recommendation that the Sabine River Authority develop the Prairie Creek Reservoir and Pipeline Project (Gregg and Smith counties) to supply projected needs within portions of the North East Texas Region. It should be noted that the Prairie Creek Reservoir and Pipeline Project is being pursued at this time because of the federal fish and wildlife conservation easement limitation on the Waters Bluff reservoir site. If the conservation easement were removed, the Waters Bluff reservoir would be the Sabine River Authority’s top priority project to meet projected water needs in the upper Sabine River Basin.

In addition to the Martin Nichols I, George Parkhouse II, and Prairie Creek reservoir sites, available information on 14 other reservoir sites within the North East Texas Region were also reviewed. These are:

Cypress Creek Basin

Black Cypress (Cass and Marion)
Caddo Lake Enlargement (Marion and Harrison)
Little Cypress (Harrison)

Sabine River Basin

Big Sandy (Wood and Upshur)
Carl Estes (Van Zandt)
Carthage (Harrison)
Kilgore II (Gregg and Smith)
Waters Bluff (Wood)

Red River Basin

Barkman (Bowie)
Big Pine (Lamar and Red River)
Liberty Hills (Bowie)
Pecan Bayou (Red River)

Sulphur River Basin

Marvin Nichols II (Titus)
Parkhouse I (Delta and Hopkins)

Figure 6.1 shows the approximate location of the previously proposed and potential reservoir sites in the North East Texas Region.

The *Reservoir Site Assessment Study* (Appendix B) provided information on various characteristics of each reservoir site, including:

- Location;
- Impoundment size and volume;
- Site geology and topography;
- Dam type and size;
- Hydrology and hydraulics;
- Water quality;
- Project firm yield for water supply;
- Other potential benefits (e.g., flood control, hydro power generation, recreation);
- Land acquisition and easement requirements;
- Potential land use conflicts;
- Environmental conditions and impacts from reservoir development;
- Local, state, and federal permitting requirements; and,
- Project costs updated to second quarter 1999 price levels using the *Engineering News Record* Construction Cost Index.

6.1(a) Cypress Creek Basin

As indicated above, three potential reservoir sites in the Cypress Creek Basin were included in the *Reservoir Site Assessment Study* (Appendix B) for the North East Texas Region – Black Cypress, the enlargement of Caddo Lake, and Little Cypress. Each potential site is briefly described below.

Insert Figure 6.1

6.1(b) Black Cypress

The Black Cypress reservoir site is located on the Black Cypress Bayou in Cass and Marion counties, north of Lake O' the Pines and about seven miles northwest of the City of Jefferson. The dam site is located at River Mile 17.0. Preliminary analyses of the site describe a conservation pool at an elevation of 253.0 feet mean sea level (msl), which would give the reservoir a conservation storage capacity of 447,262 ac-ft and a surface area of 21,951 acres. The reservoir would also have a flood pool of 230,000 ac-ft at an elevation of 262.0 feet msl with a surface area of 29,214 acres. The maximum design water surface elevation would be 270.98 feet msl, which would give the reservoir a total storage capacity of 972,206 ac-ft and a total surface area of 38,329 acres.

Previous studies describe a 74.59 foot high earth filled dam with a top elevation of 274.59 feet msl. The spillway would be a high crest ogee overflow, 600 feet long with a vertical upstream face, and a crest length of 600 feet. The outlet works would consist on a single 10 foot diameter conduit and two 4.5 foot by 10 foot gates.

The estimated firm yield of the project would be 176,770 ac-ft/yr. However, it should be noted that this estimate does not reflect application of the state environmental water needs criteria. Total costs to develop the reservoir are estimated to be approximately \$350.6 million, with an annualized unit cost of \$149 per ac-ft (\$.046/1,000 gallons) firm yield. Potential beneficiaries of the project include municipal and industrial users within the Cypress Creek Basin and/or water users outside of the basin. In addition to water supply, other potential benefits of the project include recreation, flood control, and hydroelectric power generation.

Based on available information, there are no wetland mitigation banks or conservation easements within or adjacent to the reservoir site. However, the Texas Parks & Wildlife Department has identified Black Cypress Bayou as a potential ecologically unique stream segment that would be in conflict with the development of the reservoir. Analysis also indicates that there are three municipal solid waste landfill site and one Superfund site in the reservoir study area. There are no permitted industrial or hazardous waste locations or air quality monitoring stations in or near the reservoir site. State and federal agency listings for threatened, endangered, or rare plant or animal species indicate that several species potentially occur or have habitat in the project location. The reservoir site is also within and adjacent to an area that has been classified by the U.S. Fish & Wildlife Service as having excellent quality bottomlands of high value to waterfowl. Also, available data indicates that there are two hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(c) Caddo Lake Enlargement

Caddo Lake is located in the Cypress Creek basin and forms part of the boundary between Harrison and Cass counties. The lake currently has a storage capacity of 128,600 ac-ft and has a surface area of 25,400 acres at a mean lake elevation of 168.5 msl. Raising the elevation of Caddo Lake by two feet would provide an additional 186,500 ac-ft of storage and, based on previous studies, would increase the firm yield of the reservoir by approximately 94,160 ac-ft/yr. The total cost to increase the storage capacity of Caddo Lake is estimated to be nearly \$214 million (1999 dollars). The total annualized cost considering debt service and operation and maintenance is approximately \$18 million, which results in a cost per ac-ft of firm yield of \$195 (\$.60/1,000 gallons). Potential beneficiaries of the project include municipal and industrial users within the Cypress Creek Basin and/or water users outside of the basin. In addition to water supply, other potential benefits of the project could include recreation and some amount of flood control.

Based on readily available information, there are no wetland mitigation banks or conservation easements within or adjacent to the reservoir site. However, the Texas Parks & Wildlife Department has identified Black Cypress Bayou and Cypress Creek as potential ecologically unique stream segments that would be in conflict with the enlargement of the reservoir. Analysis also indicates that there is one municipal solid waste landfill site and one Superfund site in the reservoir study area. There are no permitted industrial or hazardous waste locations or air quality monitoring stations in or near the reservoir site. State and federal agency listings for threatened, endangered, or rare plant or animal species indicate that several species potentially occur or have habitat in the project location. The reservoir site is also within and adjacent to an area that has been classified by the U.S. Fish & Wildlife Service as having excellent quality bottomlands of high value to waterfowl and is within or adjacent to an area classified as having good quality bottomlands with moderate waterfowl benefits. Also, available data indicates that there are three hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(d) Little Cypress

The Little Cypress reservoir site is located approximately nine miles northwest of the City of Marshall, within Harrison County. The dam site is at River Mile 21.3 on the Little Cypress Bayou. Previous studies have evaluated a reservoir with a conservation pool elevation of 233.1 feet msl, with a storage capacity of 217,234 ac-ft. The maximum design water surface elevation would be 252.0 feet msl. An earth fill dam 58 feet high and with a crest length of 7,000 feet would be constructed to form the reservoir. The dam would have an ogee weir type spillway with a crest elevation of 233.1 and a 400 foot crest length. The outlet works would consist of a single conduit with a 10 foot diameter and two 4.5 foot by 10 foot gates.

Previous studies of the Little Cypress reservoir site have evaluated a project with a firm yield of 144,900 ac-ft/yr. In current dollars (1999), the total cost to develop the reservoir would be approximately \$290.8 million with an annualized cost of nearly \$22 million. The unit cost of water from the project on an annualized basis would be \$151 per ac-ft (\$0.47/1,000 gallons) of firm yield. Potential beneficiaries of the project include municipal and industrial users within the Cypress Creek Basin and/or water users outside of the basin. In addition to water supply, other potential benefits of the project could include recreation and some amount of flood control.

Based on readily available information, there are no potential ecologically unique stream segments of high importance, wetland mitigation banks, or conservation easements within or adjacent to the reservoir site. The potential Little Cypress reservoir is within and adjacent to the Little Cypress Bayou site and listed as priority two: good quality bottomlands with moderate waterfowl benefits. Analyses indicate that there are no municipal solid waste landfill sites, Superfund sites, permitted industrial or hazardous waste locations, or air quality monitoring stations in or near the reservoir site. State and federal agency listings for threatened, endangered, or rare plant or animal species indicate that several species potentially occur or have habitat in or near the project location. Also, available data indicates that there are five hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

A summary of key characteristics of the three reservoir sites that were examined in the Cypress Creek Basin is provided in Table 6.1.

Table 6.1 Potential Reservoir Sites in the Cypress Creek Basin

Reservoir Site	Conservation Storage (ac-ft)	Surface Area (acres)	Firm Yield (ac-ft/yr)	Total Project Development Cost (\$1,000)	Annualized Cost Per ac-ft
Black Cypress	447,262	21,951	176,770	\$ 350,631	\$ 149
Caddo Lake	186,500	3,350	94,090	\$ 213,752	\$ 195
Little Cypress	217,324	15,763	144,900	\$ 290,759	\$ 151

6.1(e) Red River Basin

The scope of work for the *Reservoir Site Assessment Study* (Appendix B) identified Barkman, Liberty Hills, and Big Pine as potential reservoir sites within the portion of the Red River Basin that lies within the North East Texas Region. These sites are also listed in the 1997 State Water Plan as potential sites. However, a thorough search for previous studies and reports on these sites found little documentation on the Barkman and Liberty Hills sites. The Liberty Hills site is, also located in Bowie County.

Potential beneficiaries of new reservoirs in the Red River Basin portion of the North East Texas Region include municipal and industrial users within the basin and/or users outside of the basin. Other potential benefits include recreation, hydroelectric power generation, and flood control.

6.1(f) Barkman

The Barkman site is located near the City of Texarkana in Bowie County. This site has apparently not been studied in detail as no information was found with regard to type and size of the dam, project firm yield, or costs.

The U.S. Fish and Wildlife Service (USFWS) and TPWD combined lists for threatened, endangered, or rare species identify eight birds, three fish, two mammals, three reptiles, and one vascular plant to potentially occur or have habitat within the potential Barkman reservoir project location. Current Natural Resource Conservation Service (NRCS) data shows six hydric soil associations are within the potential Barkman reservoir footprint. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist. There are no known existing or proposed wetland mitigation bank projects, no designated bottomland hardwood areas, no high importance ecologically unique stream segments, and no conservation easements that are located near or adversely affected by the potential Barkman reservoir. The analyses indicate that there are no recorded Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within reservoir study area.

6.1(g) Liberty Hill

The Liberty Hill site is also located in Bowie County on Mud Creek. The preferred alternative site is located about three miles upstream of the authorized site, near the Davenport Road crossing at river mile 7.8. This site has apparently not been studied in detail as no information was found with regard to type and size of the dam, project firm yield or costs.

The USFWS and TPWD combined lists for threatened, endangered, or rare species lists eight birds, three fish, two mammals, three reptiles, and one vascular plant to potentially occur or have habitat within the potential Liberty Hills project location. There are no known existing or proposed wetland mitigation bank projects, no designated bottomland hardwood areas, no high importance ecologically unique stream

segments, and no conservation easements that are located near or adversely affected by the potential Barkman reservoir. The analyses indicate that there are no recorded Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within reservoir study area. Current NRCS (Natural Resource Conservation Service) data shows one hydric soil association is within the potential Liberty Hills reservoir footprint. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(h) Big Pine

The Big Pine site is located on Pine Creek primarily in Red River County with a small portion of the reservoir area located in Lamar County. The land area required for the reservoir is 9,200 acres. No information was found regarding the type and size of the dam. The project has an estimated firm yield of 35,840 ac-ft/yr and a project development cost of approximately \$52.4 million dollars. The cost per ac-ft of firm yield on an annualized basis is \$129 (\$0.39/1,000 gallons). This site has apparently not been studied in detail as no information was found with regard to type and size of the dam, project firm yield or costs.

The USFWS and TPWD combined lists for threatened, endangered, or rare species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant to potentially occur or have habitat within the potential project location. There are no known existing or proposed wetland mitigation bank projects, ecologically unique stream segments of high importance, and no conservation easements that are located near or adversely affected by the potential Barkman reservoir. The analyses indicate that there are no recorded Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within reservoir study area. Current NRCS (Natural Resource Conservation Service) data shows no hydric soil associations within the potential Big Pine reservoir footprint. The potential Big Pine reservoir is located within the Red River basin, which represents a negligible quantity of the remaining bottomland hardwood in Texas. The potential Big Pine reservoir is within and adjacent to the Sulphur River Bottom West site and listed as priority one: excellent quality bottomlands of high value to waterfowl.

6.1(i) Sabine River Basin

A number of potential reservoir sites in the upper portion of the Sabine River Basin have been previously studied and were reviewed in the *Reservoir Site Assessment Study* (Appendix B). These are the Big Sandy, Carl Estes, Carthage, Kilgore II, Prairie Creek, and Waters Bluff sites, each of which is described below.

6.1(j) Big Sandy

The Big Sandy reservoir site is located in Upshur and Wood counties at River Mile 10.6 of the Big Sandy Creek north of the City of Big Sandy. At an elevation of 336 feet msl, the conservation storage capacity of the reservoir would be 69,300 ac-ft and it would cover 4,400 surface acres. An earth fill dam 54 feet high and with a crest length of 2,175 feet would be constructed to create the impoundment. The outlet works would consist of a 10 foot diameter conduit controlled by two 4.5 foot by 10 foot gates.

The estimated firm yield of the Big Sandy Reservoir would be 46,600 ac-ft/yr. Total cost to develop the project is estimated to be \$79.6 million. The annualized cost per ac-ft of firm yield would be \$133 (\$0.41/1,000 gallons). Potential beneficiaries of the project include municipal and industrial water users within the upper portion of the Sabine River Basin and/or water users outside of the basin. Recreation is another potential benefit of the project.

Based on available information, there are no potential ecologically unique streams of high importance, wetland mitigation banks, or conservation easements within or adjacent to the site. Analysis also indicates that there is one municipal solid waste landfill site and no Superfund sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. State and federal agency listings for threatened, endangered, or rare species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant to potentially occur or have habitat within the proposed project location. The reservoir site is also within and adjacent to two areas that have been classified by the U.S. Fish & Wildlife Service as having good quality bottomlands with moderate waterfowl benefits. The marsh area has previously been identified as a significant stream segment by TPWD. Also, available data indicates that there are two hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(k) Carl Estes

The Carl L. Estes reservoir site is located on the main-stem of the Sabine River at River Mile 479.7, approximately eight miles west of the City of Mineola. The reservoir would inundate land in portions of Rains, Wood, and Van Zandt Counties. The conservation storage capacity of the reservoir at an elevation of 379.0 feet msl would be 393,000 ac-ft and the reservoir would inundate 24,900 surface acres. The reservoir would have a flood pool elevation of 403.0 feet msl, which would store 1,205,200 ac-ft with a surface area of 44,000 acres. The dam would be approximately 15,800 feet in length and constructed of compacted earth fill. The flood spillway would be an uncontrolled ogee shaped spillway with a crest elevation of 403.0 feet msl. The outlet works for the dam would consist of a multilevel opening to a 180 inch diameter conduit through the dam and a stilling basin.

The optimal project size in terms of unit costs of water would provide a firm yield of 95,630 ac-ft/yr. The estimated cost to develop the reservoir is \$374.9 million. The project would provide water at a unit cost of approximately \$300 per ac-ft (\$0.93/1,000 gallons) of firm yield. Estimated costs may not accurately reflect bottomland hardwood mitigation costs. Potential beneficiaries of the project include municipal and industrial water users within the upper portion of the Sabine River Basin and/or water users in the Trinity River Basin. In addition to water supply, other potential benefits of the project include recreation, hydroelectric power generation, and flood control.

Based on readily available information, there are no potential ecologically unique streams of high importance or conservation easements within or adjacent to the reservoir site. The potential Carl Estes reservoir is within and adjacent to the Sulphur River Bottom West site and is listed as Priority 2 bottomland hardwoods: good quality bottomlands with moderate waterfowl benefits. There is a proposed wetland mitigation bank project that is located near the reservoir site. Analysis also indicates that there are two municipal solid waste landfill site but no Superfund sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. State and federal agency listings for threatened, endangered, or rare plant or animal species indicate that seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species potentially occur or have habitat in the project location. Also, available data indicates that there are four hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist. The project may negatively impact two downstream reaches of the Sabine River identified by TPWD as “significant stream segments” due to unique federal holdings and the bottomland hardwood.

6.1(l) Carthage

The Carthage reservoir site is located on the main stem of the Sabine River immediately upstream of the U.S. Highway 59 crossing and downstream of the City of Longview. The reservoir site is located in portions of four counties: Gregg, Harrison, Panola, and Rusk counties. At an elevation of 244 feet msl, the reservoir would have a conservation storage capacity of 651,914 ac-ft and surface area of 41,200 acres. The estimated firm yield of the project is 537,000 ac-ft/yr and the total cost to develop the project is approximately \$462.4 million. On an annualized basis, the unit cost of water from the project would be approximately \$65 per ac-ft of firm yield (\$0.20/1,000 gallons). The potential beneficiaries of the project are municipal and industrial water users in the upper portions of the Sabine Basin and/or users outside of the basin. Other potential benefits include recreation, hydroelectric power generation, and flood control.

Based on available information, there are no conservation easements within or adjacent to the reservoir site. There is one existing mitigation bank consisting of 175 acres that is located near the reservoir site. The potential Carthage reservoir is within and adjacent to the Lower Sabine River Bottom West site listed as priority one bottomland hardwood area described as excellent quality bottomlands of high value to waterfowl. There is one potential ecologically unique stream segment that was included on the TPWD list of candidate segments that would be impounded by the reservoir. Analyses also indicates that there are four municipal solid waste landfill sites, one Superfund site, and two permitted industrial and hazardous waste locations within or adjacent to the reservoir study area. There are no air quality monitoring stations in the area. State and federal agency listings for threatened, endangered, or rare plant or animal species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species that potentially occur or have habitat in or near the project location. Also, available data indicates that there are four hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(m) Kilgore II

The Kilgore II reservoir site is located on a tributary of the Sabine River, the upper portion of Wilds Creek near the City of Kilgore. The reservoir site is located within portions of Gregg, Rusk, and Smith counties. With a conservation pool elevation of 398 feet msl, the reservoir would have a conservation storage capacity of 16,270 ac-ft and a surface area of 817 acres. The estimated firm annual yield of the project is 5,500 ac-ft. Previous studies examined as part of the *Reservoir Site Assessment Study* (Appendix B) did not include cost estimates from which to prepare updated costs of reservoir development. The reservoir site has been previously studied as a potential local water supply source for the City of Kilgore.

Based on readily available information, there are no potential ecologically unique streams of high importance, bottomland hardwoods, wetland mitigation banks, or conservation easements within or adjacent to the reservoir site. Analysis also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir site. However, state and federal agency listings for threatened, endangered, or rare plant or animal species indicate that two fish species potentially occur or have habitat in or near the project location. Available data indicates that there are no hydric soil associations (i.e., potential wetlands) within the reservoir site.

6.1(n) Prairie Creek

As indicated previously, the Prairie Creek Reservoir is included as a recommended project in the Sabine River Authority's *Comprehensive Sabine Watershed Management Plan*. Development of the project would provide additional water supplies to municipal and industrial water users within the upper portion of the Sabine River Basin, particularly in Longview area. The reservoir site is located approximately 11 miles west of the City of Longview in Gregg and Smith counties. The location of the dam site is immediately upstream of the FM 2207 crossing of Prairie Creek, which is a tributary of the Sabine River. With a conservation pool elevation of 318.0 feet msl, the storage capacity and surface area of the reservoir would be 45,164 ac-ft and 2,280 acres, respectively. At the probable maximum flood (PMF) elevation of 339.5 feet msl, the reservoir surface area would be 4,282 acres.

Previous studies of the Prairie Creek site envision a compacted earth fill dam, approximately 3,000 feet in length and a maximum height of 87 feet, which corresponds to an elevation of 245.0 feet msl. The spillway for the dam would be ogee shaped with a crest elevation of 300 feet msl with two 20 foot by 20 foot tainter gates for controlled floodwater releases. The outlet works would consist of a multilevel opening with a 66-inch diameter conduit through the dam and a stilling basin.

As part of the *Reservoir Site Assessment Study* (Appendix B), the firm yield of the proposed Prairie Creek Reservoir was reevaluated using the TWDB Daily Reservoir Analysis Model. This was performed to determine the firm yield of the project with consideration of the environmental pass-through requirements contained in the *State Consensus Environmental Guidelines Planning Criteria*. Previous studies estimated a firm yield of the project of 19,700 ac-ft/yr. Consideration of the environmental pass-through requirements reduces the estimated yield to 17,215 ac-ft/yr.

The Sabine River Authority is considering the Prairie Creek Reservoir as the first component of a larger project that would be developed in phases. The second phase would include diversion of flows from the Sabine River to the reservoir to develop a firm yield of approximately 29,685 ac-ft/yr and, ultimately, construction of a 90 inch pipeline from the Toledo Bend Reservoir to develop a total firm yield of 115,000 ac-ft/yr. The cost to develop the reservoir as a stand-alone project is estimated to be \$56.4 million, which would provide water at an annualized cost of \$257 per ac-ft of firm yield (\$0.79/1,000 gallons). The addition of the diversion of flows from the Sabine River would increase the project development costs to \$60.2 million and would reduce the unit cost of water to \$161 per ac-ft (\$0.50/1,000 gallons) of firm yield. The addition of supplies delivered to the Prairie Creek Reservoir from the Toledo Bend Reservoir would provide water supply at a unit cost of \$167 per ac-ft of firm yield (\$0.51/1,000 gallons).

Based on available information, there are no potential ecologically unique streams of high importance, wetland mitigation banks, or conservation easements within or adjacent to the site. There are no USFWS priority designated bottomland hardwood areas located within or adjacent to the proposed Prairie Creek reservoir; however, TPWD as estimated 12 percent of the area is of this habitat type. Analysis also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. However, state and federal agency listings for threatened, endangered, or rare plant or animal species indicate that seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species potentially occur or have habitat in or near the project location. Also, available data indicates that there are four hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(o) Waters Bluff

The Waters Bluff reservoir site is located on the main stem of the Sabine River approximately 3.5 miles upstream of the U.S. Highway 271 crossing and approximately four miles west of the City of Gladewater. The reservoir site lies within portions of Smith, Upshur, and Wood counties. The reservoir would have a conservation storage capacity of 525,163 ac-ft at a conservation pool elevation of 303 feet msl and would cover 36,396 surface acres. The maximum flood pool elevation would be 314.7 feet msl. The dam for the Waters Bluff Reservoir would be a homogeneous earthen embankment 70 feet high with a crest elevation of 320 feet msl and a crest length of 11,000 feet. The spillway would be a concrete gravity ogee with a crest elevation of 276.0 feet msl, with eleven 40 foot wide by 28 foot high tainter gates for control.

As reported from previous studies, the estimated firm yield of Waters Bluff Reservoir would be 324,000 ac-ft/yr. Updated estimates of the costs to develop the reservoir are \$466.5 million, with an annualized unit cost of water of \$109 per ac-ft of firm yield (\$0.34/1,000 gallons). The potential beneficiaries of the project are municipal and industrial water users in the upper portions of the Sabine Basin and/or users outside of the basin. Other potential benefits include recreation, hydroelectric power generation, and flood control.

There are two stream segments in or near the Waters Bluff reservoir site that the TPWD has identified as potential ecologically unique streams. There are also four existing or proposed wetland mitigation banks and two existing conservation easements within or near the reservoir site. The U.S. Fish & Wildlife Service has also identified areas within or near the site that are classified as having excellent quality bottomlands of high value to waterfowl habitat and good quality bottomlands with moderate waterfowl benefits. In addition, analyses indicate that there are six municipal solid waste landfill sites, but no Superfund sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. State and federal agency listings for threatened, endangered, or rare plant or animal species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species that potentially occur or have habitat in or near the project location. Also, available data indicates that there are six hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

A summary of key characteristics of the six reservoir sites that were examined in the Sabine River Basin is provided in Table 6.2.

Table 6.2 Potential Reservoir Sites in the Sabine River Basin

Reservoir Site	Conservation Storage (ac-ft)	Surface Area (acres)	Firm Yield (ac-ft/yr)	Total Project Development Cost (\$1,000)	Annual Cost Per ac-ft
Big Sandy	69,300	4,405	46,600	\$ 100,100	\$ 133
Carl Estes	393,000	24,900	95,630	\$ 245,000	\$ 301
Carthage	651,914	41,200	537,000	\$ 495,838	\$ 65
Kilgore II	16,270	817	5,500	NA	NA
Prairie Creek	45,164	2,280	17,215	\$ 56,403	\$ 257
Prairie Creek with Diversion	45,164	2,280	29,685	\$ 60,248	\$ 161
Prairie Creek with Pipeline	45,164	2,280	115,000	\$ 174,553	\$ 167
Waters Bluff	525,163	36,396	324,000	\$ 466,549	\$ 109

6.1(p) Sulphur River Basin

Five reservoir sites in the Sulphur River Basin were examined as part of the *Reservoir Site Assessment Study* (Appendix B): Marvin Nichols I, Marvin Nichols II, George Parkhouse I, George Parkhouse II, and Pecan Bayou. Each is described below.

6.1(q) Marvin Nichols I

The Marvin Nichols I reservoir site is located on the main stem of the Sulphur River at River Mile 114.7. The dam site is located upstream of the confluence of the Sulphur River and White Oak Creek. The reservoir site is located in Red River and Titus Counties about 120 miles east of the City of Dallas and about 45 miles west of the City of Texarkana. According to the 1997 *State Water Plan*, the potential beneficiaries of the Marvin Nichols I reservoir include municipal and industrial water users in the vicinity of the project within the Sulphur River Basin, water users in the Cyresss Creek Basin, and/or water users in the Dallas-Ft. Worth Metroplex. Other potential benefits include recreation, hydroelectric power generation, and flood control.

With a conservation pool elevation of 312.0 feet msl, the conservation storage capacity of the Marvin Nichols I reservoir would be 1,369,717 ac-ft and the surface area would be 62,128 acres. At the probable maximum flood (PMF) elevation of 319.1 feet msl, the reservoir would store 1,864,788 ac-ft and have a surface area of 77,612 acres.

As envisioned in previous studies of the site, the dam for the Marvin Nichols I reservoir would consist of a 25,000 foot long earthen embankment dike built along the low stream divide between the Sulphur River and the White Oak Bayou. In addition, four dikes would be required at low points along the stream divide varying in length from 2,000 feet to 8,000 feet. The main dam would have a maximum height of 71 feet at the flood plain crossing. The flood spillway crest would be 940 feet long and would include nineteen 40 foot by 40 foot gates at a crest elevation of 285 feet msl.

Previous studies of the Marvin Nichols I site have estimated the firm yield of the project to be 624,000 ac-ft/yr. However, additional yield studies were performed as part of the *Reservoir Site Assessment Study* (Appendix B) using the recently completed TNRCC Water Availability Model (WAM) for the Sulphur River Basin and the TWDB Daily Reservoir Analysis Model. Reservoir operations simulations performed with these models, and with environmental releases as specified in the *Consensus Environmental Guidelines Planning Criteria*, indicate a firm yield of 550,842 ac-ft/yr for the Marvin Nichols I reservoir.

The yield for Marvin Nichols I Reservoir differs from the value given in the Region C report, which is 619,000 acre-feet per year. The difference in yield is the result of different assumptions with regards to the operation of the project:

- The North East Region's yield of 550,842 acre-feet is based on the assumption that Marvin Nichols I will impound only available unappropriated flows, after satisfying the environmental flow requirements in accordance with the Consensus Water Planning (CWP) criteria. This assures that Wright Patman Reservoir, with a senior water right downstream of Marvin Nichols I, is full before Marvin Nichols I can impound any water.
- Regions C's yield of 619,100 acre-feet per year is based on an assumption that Marvin Nichols I could impound inflows so long as the ability to divert water from Lake Wright Patman is protected.

The yield simulation performed for the North East Texas RWPG involves application of TNRCC's Sulphur River Basin WAM, which considers the seasonal variation of conservation storage in Lake Wright Patman, and a daily reservoir operations model used by the TWDB (SIMDLY), which allows passage of environmental flows in accordance with the state's criteria. The assumption used by Region C would require the negotiation of an of a written agreement between the operators of Marvin Nichols I and Wright Patman reservoirs (including the City of Texarkana, the water rights holder) before any application can be filed with the TNRCC for water right for Marvin Nichols I Reservoir. Should that agreement happen in future, it will enhance the yield of Marvin Nichols I Reservoir..

During the next planning period, the Region C and the North East Texas RWPG will continue to cooperate on studies of the Marvin Nichols I reservoir site. Other concerns that should also be addressed in a future evaluation of cooperative joint reservoir operating policies include maintaining base environmental flows, navigation potential, minimum lake levels, recreational impacts, and water supply needs for the paper manufacturing plant down stream. As part of this cooperative effort, the regions will examine potential operation of Marvin Nichols I Reservoir and reach agreement on a method of operation and the resulting yield.

Additional information concerning the firm yield of the Marvin Nichols I reservoir site can be found in Appendix B.

The estimated cost to develop the Marvin Nichols I reservoir, updated to 1999 dollars, is \$446.5 million. The total annualized cost of the project, including debt service and operations and maintenance costs, is \$31.6 million, which results in a unit cost of roughly \$61 per ac-ft of firm yield (\$0.19/1,000 gallons).

Based on available information, there do not appear to be potential ecologically unique streams of high importance, wetland mitigation banks, or conservation easements within or adjacent to the site. However, two reaches of the Sabine River within the project boundary has previously been identified by TPWD as significant stream segments based on the presence of unique federal holdings and a USFWS priority 1 bottomland woodland site. Additionally, TPWD has included one reach of these reaches on a recommended list of ecologically unique streams segments. A review of available information also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. However, state and federal agency listings for threatened, endangered, or rare plant or animal species identify seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species that potentially occur or have habitat in or near the project location. The reservoir site is also within and adjacent to the Sulphur River Bottom west site, which is listed by the U.S. Fish & Wildlife Service as having excellent quality bottomlands of high value to waterfowl. Also, available data indicates that there are six hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(r) Marvin Nichols II

The Marvin Nichols II reservoir site is located on White Oak Creek, which is a tributary of the Sulphur River located primarily in Titus County. The site is immediately south of the proposed Marvin Nichols I reservoir site described above. Potential beneficiaries of the project include municipal and industrial water users in the vicinity of the project within the Sulphur River Basin, water users in the Cypress Creek Basin, and water users in the Dallas-Ft. Worth Metroplex. Other potential benefits include recreation, hydroelectric power generation, and flood control.

At an elevation of 312.0 feet msl, the reservoir would have conservation storage capacity of 772,000 ac-ft and a surface area of 35,900 acres. The estimated firm yield of the project is 280,100 ac-ft/yr and the cost to develop the project is approximately \$250 million in 1989 dollars.

Based on readily available information, there do not appear to be potential ecologically unique streams of high importance, or wetland mitigation banks, within or adjacent to the site. There is one conservation easement located within or adjacent to the footprint of the potential Marvin Nichols II reservoir. A review of available information also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. However, state and federal agency listings for threatened, endangered, or rare plant or animal species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant several species that potentially occur or have habitat in or near the project location. The reservoir site is also within and adjacent to the Sulphur River Bottom west site, which is listed by the U.S. Fish & Wildlife Service as having excellent quality bottomlands of high value to waterfowl. Also, available data indicates that there are eight hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(s) George Parkhouse I

The George Parkhouse I reservoir site is located approximately 110 miles east of the City of Dallas on the South Fork of the Sulphur River, which forms the border between Delta and Hopkins Counties. The dam site would be located at River Mile 3.0 downstream of the existing Cooper Reservoir. Potential beneficiaries of the project include municipal and industrial water users within the Sulphur River Basin and/or water users in the Dallas-Ft. Worth Metroplex. Other potential benefits include recreation, hydroelectric power generation, and flood control.

The conservation storage capacity of the George Parkhouse I reservoir would be 685,706 ac-ft and the reservoir would have a surface area of 29,740 acres at a pool elevation of 401.0 feet msl. At an elevation of 414.2 feet msl, which is the elevation for the probable maximum flood (PMF), the reservoir surface area would be 31,240 acres. The dam would consist of a 20,000 foot long earthen embankment constructed across the South Sulphur River with an additional half mile long earthen dike built across the low stream divide between the North Sulphur River and the South Sulphur River. The dam would have a gated ogee shaped flood spillway with a crest elevation of 390.0 feet msl and four 40 foot gated bays to discharge flood flows.

The estimated firm yield of the Parkhouse I reservoir is 113,500 ac-ft/yr. The cost to develop the project would be \$224.7 million and the project would provide water at an annualized unit cost of approximately \$151 per ac-ft of firm yield (\$0.47/1,000 gallons).

Based on available information, there are no potential ecologically unique streams of high importance, bottomland hardwoods, wetland mitigation banks, or conservation easements within or adjacent to the reservoir site. Analyses also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. However, state and federal agency listings for threatened, endangered, or rare plant or animal species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant several species that potentially occur or have habitat in or near the project location. Also, available data indicates that there are two hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(t) George Parkhouse II

The George Parkhouse II reservoir site is located on the North Sulphur River at River Mile 5.0. The reservoir site is approximately 110 miles east of the City of Dallas and would straddle the county line between Delta and Lamar Counties. The Parkhouse II site is recommended for development in the 1997 *State Water Plan*. Potential beneficiaries of the project include municipal and industrial water users within the Sulphur River Basin and/or water users in the Dallas-Ft. Worth Metroplex. Other potential benefits include recreation, hydroelectric power generation, and flood control. It should be noted that the development of the Marvin Nichols I reservoir would significantly delay or eliminate the need for this reservoir as a supply source for the Dallas-Ft. Worth Metroplex.

Previous studies have investigated a reservoir with a conservation pool elevation of 401.0 feet msl, which would have a conservation storage capacity and surface area of 243,600 ac-ft and 12,300 acres, respectively. With a probable maximum flood elevation of 415.7 feet msl, the Parkhouse II reservoir would have a surface area of 17,400 acres. The dam would have a gated ogee shaped flood spillway with a crest elevation of 390.0 feet msl. Flood discharges would be through eight 40 foot gated bays.

Previous studies of the George Parkhouse II reservoir site estimated the firm yield of the project to be 136,700 ac-ft without consideration of potential environmental pass-through requirements. A reevaluation of the project firm yield using the TNRCC WAM for the Sulphur River Basin and the TWDB Daily Reservoir Analysis Model indicates a firm yield with environmental releases of 131,850 ac-ft. At a cost of approximately \$192 million to develop the reservoir, the annualized cost of water from the project would be \$93 per ac-ft of firm yield (\$0.29/1,000 gallons).

Based on available information, there do not appear to be major natural resource conflicts at the reservoir site. There are no potential ecologically unique streams of high importance, wetland mitigation banks, priority designated bottomland hardwoods, or conservation easements within or adjacent to the site. A review of available information also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations located within or adjacent to the reservoir study area. However, state and federal agency listings for threatened, endangered, or rare plant or animal species identify seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species that potentially occur or have habitat in or near the project location. Also, available data indicates that there are six hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

6.1(u) Pecan Bayou

The Pecan Bayou reservoir site is located in Red River County on Pecan Bayou, which is a tributary of the Sulphur River. Previous studies have examined 20 alternative sites, of which three were chosen for evaluation. The alternative that would produce the greatest firm yield would have a storage capacity of 688 ac-ft and a surface area of 122 acres. This alternative would have an earthen dam approximately 2,950 feet long with a top elevation of 384 feet msl. The estimated firm yield of the project is 1,866 ac-ft/yr. The total cost to develop the project would be \$13.9 million. The unit cost of water from the reservoir would be \$637 per ac-ft of firm yield (\$1.96/1,000). Potential beneficiaries of this project include municipal and industrial water users in the vicinity of the site in Red River County.

Based on a review of readily available information, there are no potential ecologically unique streams of high importance, bottomland hardwoods, wetland mitigation banks, or conservation easements within or adjacent to the reservoir site. Analyses also indicates that there are no Superfund sites, municipal solid waste landfill sites, permitted industrial and hazardous waste locations, or air quality monitoring stations

located within or adjacent to the reservoir study area. However, state and federal agency listings for threatened, endangered, or rare plant or animal species lists seven birds, four fish, three mammals, one mollusk, four reptiles, and one vascular plant species that potentially occur or have habitat in or near the project location. Also, available data indicates that there are three hydric soil associations within the reservoir site. The number of hydric soil associations does not indicate the number of potential wetlands, but rather that a wetland area could occur where these hydric soil associations exist.

A summary of key characteristics of the five reservoir sites that were examined in the Sulphur River Basin is provided in Table 6.3.

Table 6.3 Potential Reservoir Sites in the Sulphur Basin

Reservoir Site	Conservation Storage (ac-ft)	Surface Area (acres)	Firm Yield (ac-ft/yr)	Total Project Development Cost (\$1,000)	Annualized Cost Per ac-ft
Nichols I	1,369,717	62,128	550,842	\$ 446,518	\$ 61
Nichols II	772,000	35,900	280,100	\$ 250,316	
Parkhouse I	685,706	29,740	113,500	\$ 224,726	\$ 151
Parkhouse II	243,600	12,300	131,850	\$ 160,022	\$ 93
Pecan Bayou	688	112	1,866	\$ 13,858	\$ 637

6.1(v) Recommendations for Reservoir Development and Reservoir Site Preservation

The North East Texas RWPG recommends that the Marvin Nichols I site be developed to provide a source of future water supply for water users both within the North East Texas Region and the Dallas-Ft. Worth Metroplex (Region C). The Region C RWPG has indicated that the Marvin Nichols I site is their preferred option for reservoir development within the Sulphur River Basin. Should this site prove not feasible, the Region C RWPG has indicated that its secondary preference would be to develop an equivalent amount of water supply through the construction of the George Parkhouse I and II sites and the Marvin Nichols II site.

The development of the Marvin Nichols I reservoir site as a future water source for the Dallas-Ft. Worth Metroplex would require interbasin transfer authorizations from the Texas Natural Resource Conservation Commission. Among its many provisions, S.B. 1 includes provisions (Texas Water Code, Section 11.085) requiring the TNRCC to weigh the benefits of a proposed new interbasin transfer to the receiving basin against the detriments to the basin supplying the water. S.B. 1 also established the following criteria to be used by the TNRCC in its evaluation of proposed interbasin transfers:

- The need for the water in the basin of origin and in the receiving basin;
- Factors identified in the applicable regional water plan(s);
- The amount and purposes of use in the receiving basin;
- Any feasible and practicable alternative supplies in the receiving basin;
- Water conservation and drought contingency measures proposed in the receiving basin;
- The projected economic impact that is expected to occur in each basin;
- The projected impacts on existing water rights, instream uses, water quality, aquatic, and riparian habitat, and bays and estuaries;
- Proposed mitigation and compensation to the basin of origin.

The North East Texas RWPG supports the full application of the criteria for authorization of interbasin transfers contained in current state law. With regard to compensation to the basin of origin, the North East Texas RWPG recommends that a portion of the firm yield of the Marvin Nichols I reservoir, or other

projects developed in the Sulphur River Basin for interbasin transfer, be reserved for future use within the basin. The specific terms of such compensation, along with other issues associated with development of the project (e.g., financing, operation of the reservoir, etc.), should be addressed by the appropriate representatives of the Sulphur Basin Authority, in coordination with the Franklin County Water District and the Titus County Freshwater Supply District No. 1, and with the entities in Region C and within the North East Texas Region that are seeking the additional water supply.

The North East Texas RWPG also endorses the recommendation contained in the recently adopted *Comprehensive Sabine Watershed Management Plan* that the Sabine River Authority (SRA) develop the Prairie Creek Reservoir. Located centrally in the upper portion of the Sabine Basin, the proposed reservoir would enable the SRA to supply projected future manufacturing needs in Harrison County. As previously noted, the Prairie Creek Reservoir and Pipeline Project is being pursued by the Sabine River Authority at this time due to the conservation easement limitation on the Waters Bluff reservoir site. If the conservation easement were removed, the Water Bluff Reservoir would become the Sabine River Authority's top priority project to meet projected water needs in the upper Sabine River Basin.

The North East Texas RWPG also recommends that 15 of the 17 reservoir sites identified within the region, and described above, be designated by the Texas Legislature as unique for future reservoir development. However, the North East Texas RWPG also requests that the Texas Legislature clarify the intent and implications of such designations, particularly with regard to potential impacts on private landowners. The Black Cypress reservoir site and the enlargement of Caddo Lake should not be considered for this designation.

The North East Texas RWPG also has concerns about local property owners who would be directly impacted by reservoir construction. A particular concern is that landowners be compensated fairly for the value of any land acquired for reservoir development.

6.2 Legislative Designation of Ecologically Unique Stream Segments

TWDB rules for S.B. 1 regional water planning describe the process by which RWPGs may prepare and submit recommendations for legislative designation of ecologically unique river and stream segments. This process involves multiple steps with the North East Texas RWPG, the Texas Parks and Wildlife Department (TPWD), the TWDB and, ultimately, the Texas Legislature each having a role. According to state law, the North East Texas RWPG may recommend legislative designation of river or stream segments within the North East Texas Region as "ecologically unique." TWDB rules (30 Texas Administrative Code 357.8) state:

Regional water planning groups may include in adopted regional water plans recommendations for all or parts of river and stream segments of unique ecological value located within the regional water planning area by preparing a recommendation package consisting of a physical description giving the location of the stream segment, maps, and photographs of the stream segment and a site characterization of the segment documented by supporting literature and data.

According to state law (Texas Water Code Sections 6.101 and 10.053), state agencies and local units of government cannot develop a water supply project that would destroy the ecological value of a river or stream segment that has been designated by the Texas Legislature as ecologically unique. Also, the TWDB is prohibited from financing water supply projects that would be located on a stream segment that has been designated as ecologically unique.

TWDB rules provide that the RWPGs forward any recommendations regarding legislative designation of ecologically unique streams to the TPWD and include TPWD's written evaluation of such recommendations in the adopted regional water plan. The RWPG's recommendation is then to be considered by the TWDB for inclusion in the state water plan. Finally, the Texas Legislature will consider any recommendations presented in the state water plan regarding designation of stream segments as ecologically unique.

6.2(a) Criteria for Designation of Ecologically Unique Stream Segments

TWDB rules also specify the criteria that are to be applied in the evaluation of potential ecologically unique river or stream segments. These are:

- Biological Function: Stream segments that display significant overall habitat value, including both quantity and quality, considering the degree of biodiversity, age, and uniqueness observed, and including terrestrial, wet land, aquatic or estuarine habitats;
- Hydrologic Function: Stream segments that are fringed by habitats that perform valuable hydrologic functions relating to water quality, flood attenuation, flow stabilization or groundwater recharge and discharge;
- Riparian Conservation Areas: Stream segments that are fringed by significant areas in public ownership including state and federal refuges, wildlife management areas, preserves, parks, mitigation areas or other areas held by governmental organizations for conservation purposes, or segments that are fringed by other areas managed for conservation purposes under a governmentally approved conservation plan;
- High Water Quality/Exceptional Aquatic Life/High Aesthetic Value: Stream segments and spring resources that are significant due to unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality; or
- Threatened or Endangered Species/Unique Communities: sites along streams where water development projects would have significant detrimental effects on state- or federally-listed threatened and endangered species, and sites along segments that are significant due to the presence of unique, exemplary, or unusually extensive natural communities.

6.2(b) Candidate Stream Segments

To assist each of the 16 RWPGs, the TPWD developed a list of candidate stream segments in each region that appear to meet the criteria for designation as ecologically unique. For the North East Texas Region, TPWD prepared a report entitled *Ecologically Significant River and Stream Segments of Region D, Regional Water Planning Area* (May 2000) that presents information on 15 stream segments within the region that meet one or more of the criteria for designation as ecologically unique. TPWD staff have provided further guidance by identifying five of the 15 stream segments as having "high importance" for consideration. The information provided to the North East Texas RWPG by TPWD is summarized in Table 6.4, and figure 6.2 shows the location.

Table 6.4 – Potential Ecologically Unique River and Stream Segments in the North East Texas Region

River Segment Number	Basin	Waterway	Location	Justification	Biological Function	Hydrologic Function	Riparian Conservation Areas	High Water Quality, Exceptional Aquatic Life, High Aesthetic Value	Threatened or Endangered Species, Unique Communities	TNRCC Segment Identification
1	Red River	Sanders Creek ¹	Lamar County	Pat Mayse State Wildlife Management Area			✓			--
2		Red River ²	Lake Texoma Dam downstream to Louisiana border	Paddlefish and blue sucker					✓	0202, 0201
3	Sulphur River	Sulphur River and White Oak Creek ²	Hwy IH-30 crossing downstream to Wright Patman Reservoir	TPWD Proposed acquisition, White Oak Creek Wildlife Management Area			✓			0303
4		Sulphur River ^{1,2}	From a point 0.9 miles downstream of Basset Creek in Bowie/Cass County upstream to the IH-30 bridge in Bowie/Morris County	Paddlefish					✓	--
5	Cypress Creek	Big Cypress Creek ¹	From a point 0.6 miles downstream of US 259 in Morris/Upshur County to Fort Sherman Dam in Camp/Titus County	Paddlefish					✓	0404

Table 6.4 – Potential Ecologically Unique River and Stream Segments in the North East Texas Region (cont.)

River Segment Number	Basin	Waterway	Location	Justification	Biological Function	Hydrologic Function	Riparian Conservation Areas	High Water Quality Exceptional Aquatic Life, High Aesthetic Value	Threatened or Endangered Species, Unique Communities	TNRCC Segment Identification
6	Cypress Creek	*Black Cypress Bayou ^{1,2}	From US 59 in central Marion County upstream to the point where Black Cypress Creek becomes Black Cypress Bayou east of Avinger in south Cass County	Priority bottomland hardwood habitat	✓					--
7		Frazier Creek ¹	From the confluence with Jim Bayou in Marion County upstream to its headwaters located three miles north of Almira in west Cass County	Eco-region stream and fish	✓			✓		--
8		Black Cypress Bayou ²	Headwaters to Caddo Lake	Paddlefish; Chestnut lamprey; Cypress minnow; Mud, Black-side, River and Goldstriped darters; and Iron-colored shiner					✓	
9		*Black Cypress Creek ^{1,2}	From the point where Black Cypress Creek becomes Black Cypress Bayou east of Avinger in south Cass County upstream to its headwaters located four miles northeast of Daingerfield in the eastern part of Morris County	Priority bottomland hardwood habitat; eco-region stream; benthic macroinvertebrates; and fish	✓			✓		0402
10		Cypress Creek ²	Caddo Lake State Park	Unique State holdings			✓			0402

Table 6.4 – Potential Ecologically Unique River and Stream Segments in the North East Texas Region (cont.)

River Segment Number	Basin	Waterway	Location	Justification	Biological Function	Hydrologic Function	Riparian Conservation Areas	High Water Quality, exceptional Aquatic Life, High Aesthetic Value	Threatened or Endangered Species, Unique Communities	TNRCC Segment Identification
11	Cypress Creek	*Big Cypress Bayou ^{1,2}	From upper Caddo Lake in Marion/Harrison county upstream to SH 43 in Marion/Harrison County	Priority bottomland hardwood habitat and Caddo Lake State Park	✓		✓			0402
12		Cypress Creek ²	Lake O' the Pines to Caddo Lake	Paddlefish; Chestnut lamprey; Cypress minnow; Mud, Black-side, River and Goldstriped darters; and Iron-colored shiner					✓	0402
13		Little Cypress Bayou ¹	From the confluence with Big Cypress Creek in Harrison County to a point 0.6 mile upstream of FM 2088 in Wood County	Eco-region stream and benthic macroinvertebrates				✓		0409
14		*Sabine River ¹	From US 59 in south Harrison County upstream to Easton along the Rusk/Harrison County line	Texas Natural Rivers System nominee; diverse riparian assemblage including hardwood forest and wetlands; natural areas; exceptional aesthetic value; priority bottomland hardwood habitat; and paddlefish	✓			✓	✓	0505

Table 6.4 – Potential Ecologically Unique River and Stream Segments in the North East Texas Region (cont.)

River Segment Number	Basin	Waterway	Location	Justification	Biological Function	Hydrologic Function	Riparian Conservation Areas	High Water Quality, Exceptional Aquatic Life, High Aesthetic Value	Threatened or Endangered Species, Unique Communities	TNRCC Segment Identification
15	Sabine River	Glade Creek ^{1,2}	From the confluence with the Sabine River in the northwestern corner of Gregg County near Gladewater upstream to its headwaters located about five miles southwest of Gilmer in Upshur County	Significant bio-diversity; unique habitat-swamp/bog area	✓				✓	--
16		Sabine River ^{1,2}	From FM 14 in Wood/Smith County upstream to FM 1804 in Wood/Smith County	Priority bottomland hardwood habitat; Paddlefish	✓				✓	0506
17		Sabine River ²	Little Sandy Hunting and Fishing Club south of Crow and Hawkins (Wood County)	Unique Federal holdings				✓		0506
18		Little Sandy Creek ^{1,2}	From Lake Hawkins in Wood County upstream to its headwaters in Wood County	Significant bio-diversity; unique swamp/bog area	✓				✓	--
19		Purtis Creek ¹	Van Zandt County	Purtis Creek State Park			✓			--

NOTE: Information regarding potential ecologically unique river and stream segments was obtained from the following sources:

¹ Draft list provided by the Texas Parks and Wildlife Department (TPWD) - May 1999 and report prepared by TPWD entitled, *Ecologically Significant River and Stream Segments of Region D Regional Water Planning Area* – May 2000.

² *A Natural Resource Survey for Proposed Reservoir Sites and Selected Stream Segments in Texas* (TPWD Report for the Texas Water Development Board) – May 1991

* TPWD Higher Priority Sites

Insert Figure 6.2

6.2(c) Recommendation

At the regular meeting on May 17, 2000, the North East Texas RWPG considered nominations for legislative designation of river or stream segments in the region as ecologically unique. It was decided that the RWPG would not offer any recommendations in the initial water plan for the North East Texas Region. Rather, the North East Texas RWPG requests the Texas Legislature to reconsider and possibly amend current state law to clarify the implications of stream segment designation. Specifically, the North East Texas RWPG has concerns regarding the potential impacts of stream designation on private property owners and on governmental activities other than water development. With such legislative clarification, the North East Texas RWPG intends to reconsider the issue of ecologically unique stream segment designations in the first five year update of the regional water plan.

6.3 Policy Recommendations

TWDB rules for S.B. 1 regional water planning (31 TAC Chapter 357.7(a)(9)) also provide that regional water planning groups may include in their regional water plans:

...regulatory, administrative, or legislative recommendations the regional water planning group believes are needed and desirable to: facilitate the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the state and the regional water planning area. The regional water planning group may develop information as to the potential impact once proposed changes in law are enacted.

The approved scope of work for the development of the regional water plan for the North East Texas Region includes three tasks relating to the development of regulatory, administrative, or legislative recommendations:

- Task 10: Identification and definition of water policy issues;
- Task 14: Evaluation of policy issues; and
- Task 19: Development of policy recommendations for inclusion in the regional water plan.

Throughout the planning process, several major policy issues arose repeatedly in meetings of the North East Texas RWPG and through public outreach efforts. These issues are future interbasin transfers from the North East Texas Region; conversion from groundwater to surface water supplies; groundwater policy; various regulatory policies of the Texas Natural Resource Conservation Commission; and, improvements to the S.B. 1 regional water supply planning process. Each of these issues is briefly discussed in the section below. Also presented are the recommendations adopted by the North East Texas RWPG on each issue.

6.3(a) Future Interbasin Transfers from the North East Texas Region

The North East Texas Region currently supplies surface water to other areas of the state through interbasin transfers and is identified in the current state water plan as a likely source of additional future water supply for various entities in Region C. Specifically, the 1997 State Water Plan includes recommendations that one or more new reservoirs be developed in the Sulphur River Basin as a source of future water supply for the Dallas-Ft. Worth Metroplex. In addition to potential future water transfers

from the North East Texas Region to Region C, there may also be water management strategies for meeting needs within the North East Texas Region that will involve conveyance of supplies from one river basin to another within the region.

Among its many provisions, S.B. 1 includes provisions (Texas Water Code, Section 11.085) requiring the Texas Natural Resource Conservation Commission (TNRCC) to weigh the benefits of a proposed new interbasin transfer to the receiving basin against the detriments to the basin supplying the water. However, these provisions relate only to river basins of origin, not to the water planning regions of origin. S.B. 1 established the following criteria to be used by the TNRCC in its evaluation of proposed interbasin transfers:

- The need for the water in the basin of origin and in the receiving basin;
- Factors identified in the applicable regional water plan(s);
- The amount and purposes of use in the receiving basin;
- Any feasible and practicable alternative supplies in the receiving basin;
- Water conservation and drought contingency measures proposed in the receiving basin;
- The projected economic impact that is expected to occur in each basin;
- The projected impacts on existing water rights, instream uses, water quality, aquatic and riparian habitat, and bays and estuaries;
- Proposed mitigation and compensation to the basin of origin.

As an added protection to water rights and water users in a basin of origin, S.B. 1 also included a requirement that amending an existing water right for a new interbasin transfer would result in the water right acquiring a new priority date. The effect of this requirement is to give all other water rights in the basin of origin a higher priority than the amended right.

Current state law and policy regarding interbasin transfers of surface water provide a useful starting point for inter-regional discussions on the development of a new reservoir in the Sulphur River Basin. Several of the criteria that TNRCC is to consider in its review of interbasin transfers are of particular relevance, including:

- Future needs for water supply in the Sulphur River Basin;
- Economic impacts of future reservoir development and interbasin transfer on the Sulphur River Basin;
- Environmental impacts; and
- Mitigation of impacts to Sulphur River Basin and compensation for the interbasin transfer.

6.3(b) Future Water Needs

A widely held view within the North East Texas Region is that future water needs within the region must be assured before additional interbasin transfers are permitted. Many residents of the region express support for future reservoir development and interbasin transfers provided the region's long term water demands are met. This sentiment is supported by TWDB rules for regional water planning, which require that the evaluation of interbasin transfer options include consideration of "...the need for water in the basin of origin and in the proposed receiving basin."

The results of the supply and demand assessment for the North East Texas Region indicate that at the regional level, currently available surface and groundwater supplies are adequate to meet projected needs through 2050 and beyond. This conclusion also applies for each of the river basins within the region. More importantly, however, the supply and demand assessment indicates that 131 individual water user

groups are projected to experience shortages during the planning period, including several in the Sulphur River Basin. However, most of these shortages are projected to occur in small communities and rural areas and it is generally believed that local water supply options will be the preferred strategy for meeting those needs.

The issue of how much water is needed in the basins of North East Texas Region for local use is not as simple as just comparing estimates of existing water supply to projections of future water demand. It should be remembered that the water demand projections adopted by the NETRWPG and the TWDB for development of the regional plan are based largely on an extrapolation of past growth trends. While this is a common and accepted method for forecasting future conditions, there are nonetheless significant uncertainties in the projections.

Shifting demographics and economic and technological change could result in substantially higher demand for water in the North East Texas Region than is currently projected. For example, there is an observed trend over the past decade in many areas of the U.S. of higher population growth in small and medium sized cities and rural areas. This has been attributed in part to advancements in telecommunications and the evolving information and service based economy, which no longer requires a concentration of labor in large cities. Another factor is the aging of the population and the trend toward retirement in rural areas. Also, development of a new reservoir in the Sulphur Basin could, itself, act as a significant catalyst for economic development and growth in the area. In fact, some in the planning region have expressed interest in building reservoirs as part of an overall regional economic development strategy.

Such factors suggest that the RWPG may want to review a possible policy recommendation regarding the definition of "need" in the basin of origin. Some members have also suggested broadening the test of need for interbasin transfers to consideration of projected needs throughout the *region* of origin, not just the basin of origin.

6.3(c) Economic and Environmental Impacts

It is also important that the NETRWPG consider potential economic and environmental impacts associated with reservoir development. For example, a significant amount of taxable private property could be removed from local tax roles thereby increasing the tax burden on other property owners. New development induced by construction of a reservoir could more than offset these effects over time, but there could be a long interval between removal of private property from tax rolls and the new development. Additional recreational and tourism opportunities could also provide an economic stimulus in areas in proximity to a new reservoir.

Reservoir development would also alter the natural environment, perhaps resulting in significant losses of ecologically valuable wetlands and riparian areas. However, state and federal regulations require that such impacts be minimized and mitigated to the extent possible, often through the set-aside and protection of other valuable ecological resources. Some water planners in the region have expressed the concern that mitigation requirements for large reservoirs in one basin might have to be met by restricting uses of riparian areas in other basins, thus limiting future possibilities for development at those sites.

6.3(d) Compensation

Perhaps the most important consideration in inter-regional discussions regarding reservoir development and interbasin transfers is the question of compensation. A common view is that future interbasin transfers should be of direct benefit to both the basin-of-origin and the receiving basin. As noted in the case of future water needs, RWPG members have also expressed strong interest in the distribution of

benefits to the region as well as the basin of origin. In essence, it is a question of equity or fairness. There are several ways that compensation for the transfer of additional water supplies from the Sulphur Basin could be approached. Examples include:

- Retaining ownership of the water rights by an entity in the basin of origin with a portion of the water transferred out of basin under long term contract;
- Reserving some portion of the yield of a new reservoir for future use within the basin of origin;
- Setting rates on water sales sufficient to cover both the costs of developing and operating a new reservoir plus additional revenues for other purposes (e.g., supporting the functions of the local project sponsor); and
- Direct payments to governmental entities in the impacted area.

Given the significance and implications of new reservoir development and future interbasin transfers across regional lines, the North East Texas RWPG should consider adopting a policy statement addressing the issue of future water needs within the basins of origin and/or within the North East Texas Region as a whole, economic and environmental impacts of reservoir development, and inter-regional equity and compensation issues. It should be noted the issue of compensation is applicable to all reservoir development whether an interbasin transfer is contemplated or not.

6.3(e) Recommendations

At its meeting on June 21, 2000, the North East Texas RWPG adopted the following recommendation with regard to the development of new reservoirs in the Sulphur River Basin and future exports of water supplies from that basin to the Dallas-Ft. Worth Metroplex:

The North East Texas RWPG recommends that the Marvin Nichols I site be developed to provide a source of future water supply for water users both within the North East Texas Region and the Dallas-Ft. Worth Metroplex (Region C). The Region C RWPG has indicated that the Marvin Nichols I site is their preferred option for reservoir development within the Sulphur River Basin. Should this site prove not to be feasible, the Region C RWPG has indicated that its secondary preference would be to develop an equivalent amount of water supply through the construction of the Parkhouse I and II sites and the Marvin Nichols II site.

The development of the Marvin Nichols I reservoir site as a future water source for the Dallas-Ft. Worth Metroplex would require interbasin transfer authorizations from the Texas Natural Resource Conservation Commission. Among its many provisions, S.B. 1 includes provisions (Texas Water Code, Section 11.085) requiring the Texas Natural Resource Conservation Commission (TNRCC) to weigh the benefits of a proposed new interbasin transfer to the receiving basin against the detriments to the basin supplying the water. S.B. 1 also established the following criteria to be used by the TNRCC in its evaluation of proposed interbasin transfers:

- The need for the water in the basin of origin and in the receiving basin;
- Factors identified in the applicable regional water plan(s);
- The amount and purposes of use in the receiving basin;
- Any feasible and practicable alternative supplies in the receiving basin;
- Water conservation and drought contingency measures proposed in the receiving basin;
- The projected economic impact that is expected to occur in each basin;
- The projected impacts on existing water rights, instream uses, water quality, aquatic, and riparian habitat, and bays and estuaries;
- Proposed mitigation and compensation to the basin of origin.

The North East Texas RWPG supports the full application of the criteria for authorization of interbasin transfers contained in current state law. With regard to compensation to the basin of origin, the North East Texas RWPG recommends that a portion of the firm yield of the Marvin Nichols I reservoir, or other projects developed in the Sulphur River Basin for interbasin transfer, be reserved for future use within the basin. The specific terms of such compensation, along with other issues associated with development of the project (e.g., financing, operation of the reservoir, etc.) should be addressed by the appropriate representatives of the Sulphur River Basin Authority, in coordination with the Franklin County Water District and the Titus County Freshwater Supply District No. 1, and with the entities in Region C and Region D seeking the additional water supply.

6.3(f) Conversion of Public Water Supplies from Groundwater to Surface Water

Many water suppliers in the North East Texas Region rely solely on local groundwater supplies. Most of these suppliers will likely continue to use groundwater for future needs. However, in some areas, groundwater supplies will not be adequate to meet future needs and alternative sources of supply need to be considered. Also, in many areas of the region, groundwater supplies are of poor quality and do not meet current state and federal drinking water standards. Where groundwater supplies are available but are of poor quality, one supply strategy could be to develop additional groundwater with advanced treatment. However, because of the cost of treatment, and particularly the cost of disposal of the waste streams, acquisition of surface water supplies may be the most economically viable alternative.

Acquisition of surface water supplies would require that there be both legal and physical access to surface water supplies. Some communities may be in relatively close proximity to an existing surface water source but do not have access to those supplies because the water is fully committed to other users. In other cases, the physical infrastructure required to transport surface water from its source to a user does not exist and may be too costly.

Building regional water supply systems may offer the potential for significant cost savings in acquiring new water supplies and improving the reliability and quality of supplies. For some small water systems, regional approaches to water supply may be the only economically viable approach to conversion from groundwater to surface water. Connecting a number of independent systems can take many forms. It can include the development of regional water supply facilities, the physical consolidation or interconnection of two or more existing water systems, or the management of two or more independent systems by a single entity. Some local water providers and customers may object to loss of direct local control over the system, or they may feel that cost sharing formulas are unfair. For such reasons, each proposal for a regional system must be considered on a case-by-case basis.

6.3(g) Recommendations

Given the potential limitations on both the quantity and quality of groundwater supplies within the North East Texas Region, the North East Texas RWPG recommends the following:

- The TWDB should provide funding support for an in-depth assessment of groundwater-supplied public water systems that have or may have difficulty achieving compliance with state and federal drinking water standards due to the quality of source waters. The assessment should identify and evaluate alternative means of achieving or maintaining compliance with state and federal standards including the potential for acquisition of alternative water supplies and regionalization of systems of public water supply systems within the North East Texas Region. This assessment should be completed on a schedule that

will allow the results to be incorporated, as appropriate, into the first update of the North East Texas Regional Water Plan.

6.3(h) Groundwater Policy

The North East Texas RWPG has concerns about policies relating to groundwater availability. The concerns relate to the methods prescribed by the TWDB to estimate water availability from the major and minor aquifers within the region.

The Carrizo-Wilcox formation is the major aquifer in the region for water supply purposes. The methodology used in the past by the TWDB indicates that there are large quantities of groundwater available from this formation which may, in fact, be unavailable at the locations, depths, or standards of quality that permit economically feasible development by water users. That is, the variability of the aquifers is such that suitable areas for groundwater development could be great distances from the areas of need, requiring construction of expensive pipelines to transport the groundwater. Alternatively, a suitable groundwater supply formation may be at such depths below the surface that drilling and energy costs to develop the source would be prohibitive, especially for small rural water systems. In some areas, groundwater quality is poor and would require costly treatment to achieve compliance with state and federal drinking water standards (i.e., removal of natural contaminants such as iron, fluoride, hydrogen sulfide, salts, or other elements). These same concerns also apply to other smaller aquifers within the North East Texas Region.

Another area of concern regarding groundwater has been the role it should play in planning for overall water supply. Some have proposed reserving this resource for agriculture and/or rural water users while directing other users to surface water supplies. Another suggestion is to reserve groundwater primarily as a backup supply in periods of drought and use renewable surface water supplies as the primary source under normal conditions. Since the management of water across the region is divided among hundreds of mostly small water providers, such policies would have the effect only of articulating broad planning goals to work toward in the future.

6.3(i) Recommendations

The North East Texas RWPG supports the completion of the TWDB's Groundwater Availability Modeling (GAM) Program. It is hoped that the development of new modeling tools will result in more accurate and realistic assessments of groundwater availability within the North East Texas Region. In particular, TWDB is urged to consider water quality and economic factors in future estimates of groundwater availability. Specifically, any groundwater availability model developed for aquifers within the North East Texas Region should have the ability to generate estimates of the quantities of groundwater that are available that meets current state and federal drinking water standards for total dissolved solids without treatment (i.e., 1,000 mg/l).

6.3(j) Texas Natural Resource Conservation Commission Regulations

The TNRCC minimum requirement of 0.6 gallons per minute per connection for public drinking water systems is a significant issue for many water providers in the North East Texas Region. Currently, this requirement is not reflected in TWDB rules relating to regional water planning. Many providers indicate that this requirement exceeds the real needs of water users and would require major additions to supplies, storage, and delivery capacities. In areas of marginal groundwater quantity, numerous wells may be required. Well spacing of approximately one half mile between wells means new well fields would occupy extensive geographic areas. In order to protect the investment in a new field from the effects of the rule of capture, providers must also purchase enough land to provide a buffer around the targeted

supply. These new well fields might have to be located at remote sites, possibly triggering complaints, common in other parts of the state, of one population mining groundwater at the expense of the exporting area. Costs of new pipeline construction are also a major concern.

MTBE and other contaminants pose a significant threat to water supply sources in the North East Texas Region, as the incident this spring at Lake Tawakoni illustrated all too well. There are two dimensions to this issue. On the one hand, the North East Texas RWPG has urged TNRCC to phase out the use of the MTBE specifically, and both the state and federal regulators across the country are looking for substitute components for reformulated gasoline. Aside from the regulatory imposition of the use of MTBE (and this is only one of many potential contaminants that can find their way into drinking water sources), there is the additional lesson from the Tawakoni experience that those providers with more than one water source were best able to deal with that crisis. It is desirable for water user groups with vulnerable sources to plan on emergency access to backup supplies.

TNRCC regularly updates its list of streams, lakes and other water bodies that fail to meet the water quality standards established for specific water uses. Many of these water bodies are drinking water sources. This issue differs from the MTBE contamination episode at Lake Tawakoni, which was an accidental spill that was removed from the system in a matter of weeks. That temporary circumstance did not have a long term effect on overall water quality of the lake. The planning process needs to take account, however, of continuing problems in drinking water sources that may lead to placement on the state list.

6.3(k) Recommendations

The North East Texas RWPG adopted the following recommendations with regard to TNRCC regulatory policies:

- There should be consistency between TWDB rules for regional water supply planning and TNRCC rules for public drinking water systems with regard to minimum requirements for water supply;
- TNRCC should expedite the effort to replace MTBE in reformulated gasoline with additives that do not pose risks to drinking water supplies.

It should be noted that the issue of compensation is applicable to all reservoir development whether an inner basin transfer is contemplated or not.

6.3(l) Improvements to the Regional Water Supply Planning Process

The North East Texas RWPG believes that the regional water planning process should provide greater flexibility in development of water demand projections. TWDB rules and guidelines regarding population and water demand projections tend to confine rural and smaller urban areas to past rates of growth without allowing for consideration of alternative scenarios for future growth and economic development initiatives. Because the region has a relatively small population and water demands, the impact of a major new water user, such as a paper mill or a power plant, could dramatically alter the water supply and demand equation at a county or even basin level. There is no mechanism in the current process to provide for these potential increases, until the five year review period.

TWDB rules also build into municipal water demand projections conservation assumptions which may be unrealistic. In rural areas that already have low rates of per capita use, there often is an increase in per capita use as development takes hold in the area. Assumptions about conservation in these areas that

already use far less on a per capita basis than the very large and rapidly growing urban areas could have the effect of limiting future development. There are more than 30 water user groups in the North East Texas Region with per capita usage levels well below the 115 gallons per capita per day (gpcd) level set as the “floor” approved municipal water demand projections. Some usage rates are in the 70-80 gpcd range, a sharp contrast with large urban areas where 200 gpcd or more is not uncommon. Landscape watering, a prime target for urban water conservation programs, is much less prevalent in rural areas. Further, the housing stock is not undergoing rapid growth or replacement, thus reducing the potential impact of plumbing fixture efficiency standards.

The North East Texas RWPG also has concerns about the TWDB requirement that regional water plans include specific recommendations as the strategies to be implemented to meet the water needs of individual water users. In many cases it is believed that while there may be a “preferred strategy,” flexibility is necessary to allow for changing circumstances and conditions.

6.3(m) Recommendations

The North East Texas RWPG offers the following recommendations with regard to improvements to the S.B. 1 regional water planning process:

- TWDB should revise its rules for regional water planning to permit greater flexibility in the calculation of future water demands to allow for the consideration of alternative scenarios of population growth and economic development;
- TWDB should revise procedures for calculating water demand reduction projections contained in its conservation scenarios by recognizing a floor for the application of demand reduction for rural and small city areas where the per capita water consumption levels are already very low;
- TWDB should revise its rules for regional water planning to allow multiple options to be put forth as recommended strategies for meeting the needs of individual water user groups.