

Water Conservation Plan

for

**San Jacinto River Authority
Highlands Division**

Prepared by

San Jacinto River Authority

Adopted: February 28, 2019

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Section 1. Introduction

In 1996, severe drought conditions affected every region of the State. Water systems throughout the State were forced to cope with water shortages or system capacity problems. In response to the 1996 drought, the 75th Texas Legislature enacted Senate Bill 1, which directed the State to take a regional approach to water planning. One of the provisions of the legislation required the Texas Commission on Environmental Quality (TCEQ) to adopt rules requiring wholesale and retail public water suppliers to develop water conservation and drought contingency plans.¹

Water conservation and drought contingency plans work together to help Texans manage short-term and long-term water shortages. The goal of a water conservation plan is to achieve lasting, long-term improvements in water use efficiencies using strategies to reduce the amount of water withdrawn from a particular source, and to ensure that the water withdrawn is used in an efficient manner. Drought contingency plans are short-term in nature, using temporary supply and demand management measures in response to temporary and potentially recurring water shortages and other emergencies.

The San Jacinto River Authority (SJRA), as a water right holder and wholesale water supplier, is required to submit a Water Conservation and Drought Contingency Plan to the TCEQ and Texas Water Development Board (TWDB). SJRA was created by the Texas Legislature in 1937 to:

“Provide water for domestic, municipal, commercial, industrial and mining purposes within and without the watershed of [the San Jacinto River], including water supplies for cities, towns and industries, and in connection therewith to construct or otherwise acquire water transportation, treatment and distribution facilities and supplemental sources of water.”²

The SJRA service area includes all of Montgomery County and portions of Waller, Grimes, Walker, San Jacinto, Fort Bend, and Liberty Counties (Figure 1-1). The SJRA also serves customers and is authorized to operate in east Harris County through an agreement with the City of Houston.

SJRA is governed by a Board of Directors. The General Manager oversees approximately 170 employees and all facilities across five divisions: Lake Conroe, Highlands, Groundwater Reduction Plan (GRP), Woodlands, and Flood Management. The following is provided as the Water Conservation Plan (including utility description, service area description, and customer data) for the Highlands Division (the Division). The Division’s Drought Contingency Plan is provided under a separate cover.

¹ Senate Bill 1, 75th Legislature, Section 12.1272 of the Texas Water Code.

² House Bill No. 832, 45th Legislature, Regular Session, Austin, TX, 1937.

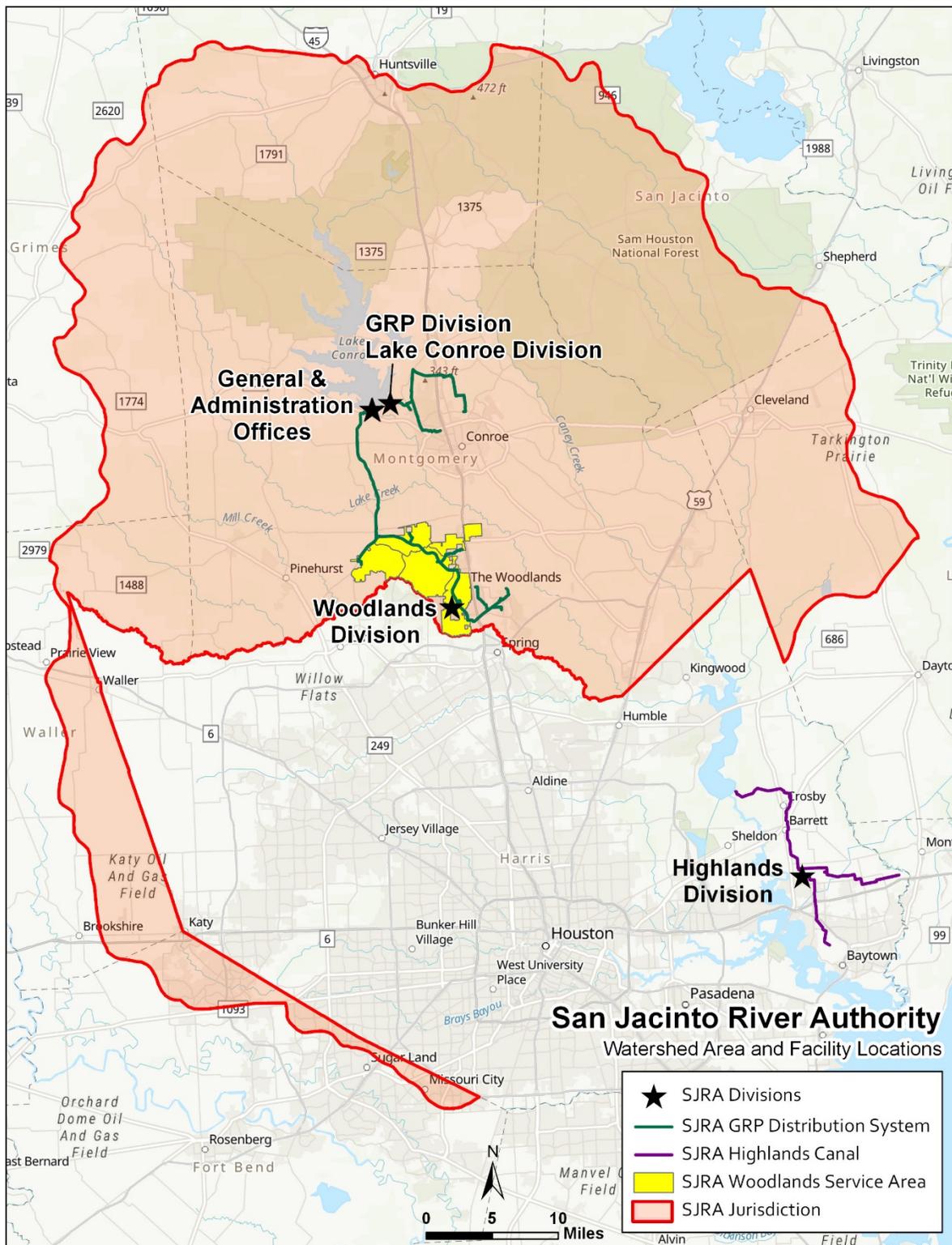


Figure 1-1. Watershed Area and Facility Locations

Section 2. Utility and Service Area Description

2.1 Utility Description

In 1945, SJRA purchased the Highlands Canal System, which serves municipal, industrial, and agricultural/irrigation customers in southeast Harris County. Water available for this system is obtained from the following:

SJRA obtained a 55,000 ac-ft/yr run-of-river right Certificate of Adjudication (COA) 10-4964 from water stored in and diverted from Lake Houston. The Highlands Canal System transfers this water from Lake Houston to the approximately 1,400-acre Highlands Reservoir, which serves as a regulating reservoir for the system, and then South and East Baytown and Cedar Bayou area, respectively, via approximately 27 miles of canals

In 1994, SJRA and the Devers Canal Rice Producers Association (DCRPA) purchased the bulk assets of Trinity Water Reserve, Inc. Those assets included the Devers Canal System, which covers parts of Liberty, Chambers, and Jefferson Counties, as well as Permit No. 5271, which authorizes a 58,500 ac-ft/yr diversion from the Trinity River at a point in south central Liberty County. The purchase arrangements included the transfer of 56,000 ac-ft/yr of water rights to SJRA. The remaining 2,500 ac-ft/yr of water rights was transferred to DCRPA. Permit No. 5271 was successfully amended to reflect the purchase arrangement. SJRA's 56,000 ac-ft/yr right is permitted for multiple uses. A portion of this water is also utilized to serve industrial customers in southeast Harris County.

In 2003, SJRA purchased an additional 30,000 ac-ft/yr of Trinity River water rights from the Chambers Liberty Counties Navigation District (CLCND) under Certificate of Adjudication No. 08-4279.

In 2004, SJRA was granted 14,944 ac-ft/yr of water rights associated with groundwater based effluent return flows from its three wastewater treatment plants in the San Jacinto River Basin (Permit 5809). A portion of this water is also utilized to serve customers in southeast Harris County.

In 2008, the SJRA was granted 14,100 ac-ft/yr of unappropriated firm yield (additional storage) of Lake Houston under Permit No. 5807.

In 2009 the SJRA was granted 40,000 ac-ft/yr of yield (additional run-of-river) from the San Jacinto River to be diverted at Lake Houston through Permit No. 5808. This supply is considered interruptible based on flow conditions within the San Jacinto River but may be utilized within SJRA's service area.

SJRA operates Lake Conroe, one of two major surface water supply reservoirs located in the San Jacinto River Basin. Completed in 1973, Lake Conroe is owned by SJRA and the City of Houston. SJRA owns one-third (33,333 ac-ft/yr) and the City of Houston owns two-thirds (66,667 ac-ft/yr) of the total 100,000 ac-ft/yr permitted water rights from the lake under Certificate of Adjudication (COA) 10-4963.

Lake Conroe's water right's availability to the Highlands Division will be extremely limited due to use of the lake as a supply for the SJRA Groundwater Reduction Plan (GRP) Division. Lake Houston, which is owned by the City of Houston, is the other surface water supply reservoir in the basin.

SJRA meets wholesale raw water needs in the Highlands Division service area through a combination of sources. Water from run-of-river COA 10-4964 and Permit 10-5808, along with Lake Houston reservoir yield from Permit 10-5807, and SJRA's reuse authorized under Permit 10-5809 is diverted at the southeast corner of Lake Houston via SJRA's pump station to supply the Highlands Canal System. SJRA's water rights in the Trinity River as appropriated in Permit 08-5271 and COA 08-4279 are utilized via the CWA conveyance system and pumped to the Highlands Canal System at two locations south and east of the Highlands Reservoir. SJRA's supplies are summarized in Table 2-1 below.

Table 2-1. SJRA Water Rights Portfolio

Source*	Permitted Amount (ac-ft/yr)
Trinity River (COA 08-4279)	30,000
Lake Conroe (COA 10-4963)	33,333
Lake Houston (COA 10-4964)	55,000
Trinity River (Permit 08-5271)	56,000
Lake Houston (Permit 10-5807)	14,100
Lake Houston (Permit 10-5808)	40,000
Reuse (Permit 10-5809)	14,944
*Please note that not all water sources shown are available to all SJRA Divisions.	

2.2 Service Area Description

The approximately 2,453 square mile area of SJRA's jurisdiction within the San Jacinto River Basin is bounded on the north and the east by the Trinity River Basin and the Trinity-San Jacinto Coastal Basin, on the west by the Brazos River Basin, and on the south by Harris County. The Division is a wholesale provider of surface water (via the Highlands Canal System) for industrial, agricultural/irrigation, and municipal uses. The Highlands Division service area, per Agreement with City of Houston, covers approximately 316 square miles in Harris County east of the San Jacinto River. Figure 2-1 illustrates the layout of the Highlands Canal System.

Via the Highlands Canal System, the Division provides water to the Crosby MUD, Newport MUD, and Harris County MUD No. 50 (Figure 2-2), industrial customers in the Baytown and Cedar Bayou areas, and agricultural/irrigation customers. The three MUD's service area is approximately 7.7 square miles. In 2018, there was a total of 76,812 ac-ft diverted from the system (Table 2-2). The Division does not own or operate wastewater infrastructure.

Table 2-2. 2018 Surface Water Diversion

Municipal	1,500 ac-ft
Industrial	74,717 ac-ft
Agricultural/Irrigation	595 ac-ft
Total	76,812 ac-ft

In 2018, total wholesale municipal supplies via the Highlands Canal System were 1,500 ac-ft. The Baytown Industrial Complex/Cedar Bayou area in eastern Harris County is home to numerous industries to which the Division provides water. In 2018, there was a total of 74,717 ac-ft diverted from the Highlands Canal System to provide wholesale raw water to the Division’s industrial customers. Water supplied by the Division to the Baytown and Cedar Bayou areas is used in petroleum refining and chemical production industries to produce products such as petrochemicals, other chemicals, and refined products.

Wholesale raw water is also provided by the Division to multiple agricultural/irrigation customers in eastern Harris County for irrigating approximately 600 acres. In 2018, there was a total of 595 ac-ft diverted for agricultural/irrigation uses. A full report of the Division’s municipal, industrial, and agricultural/irrigation customer information can be found in Appendix A, the Water Utility Profiles.

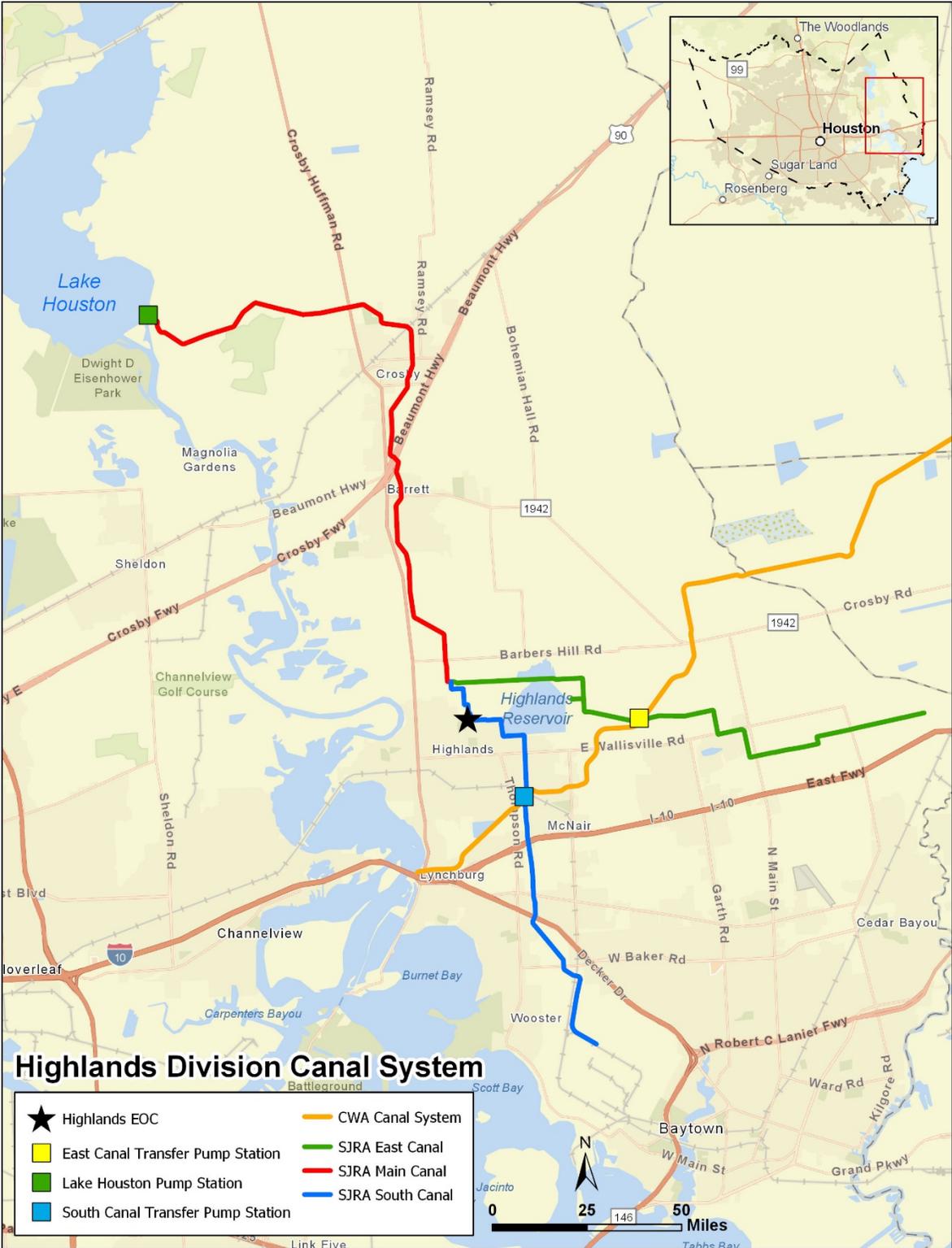


Figure 2-1. Highlands Canal System Layout

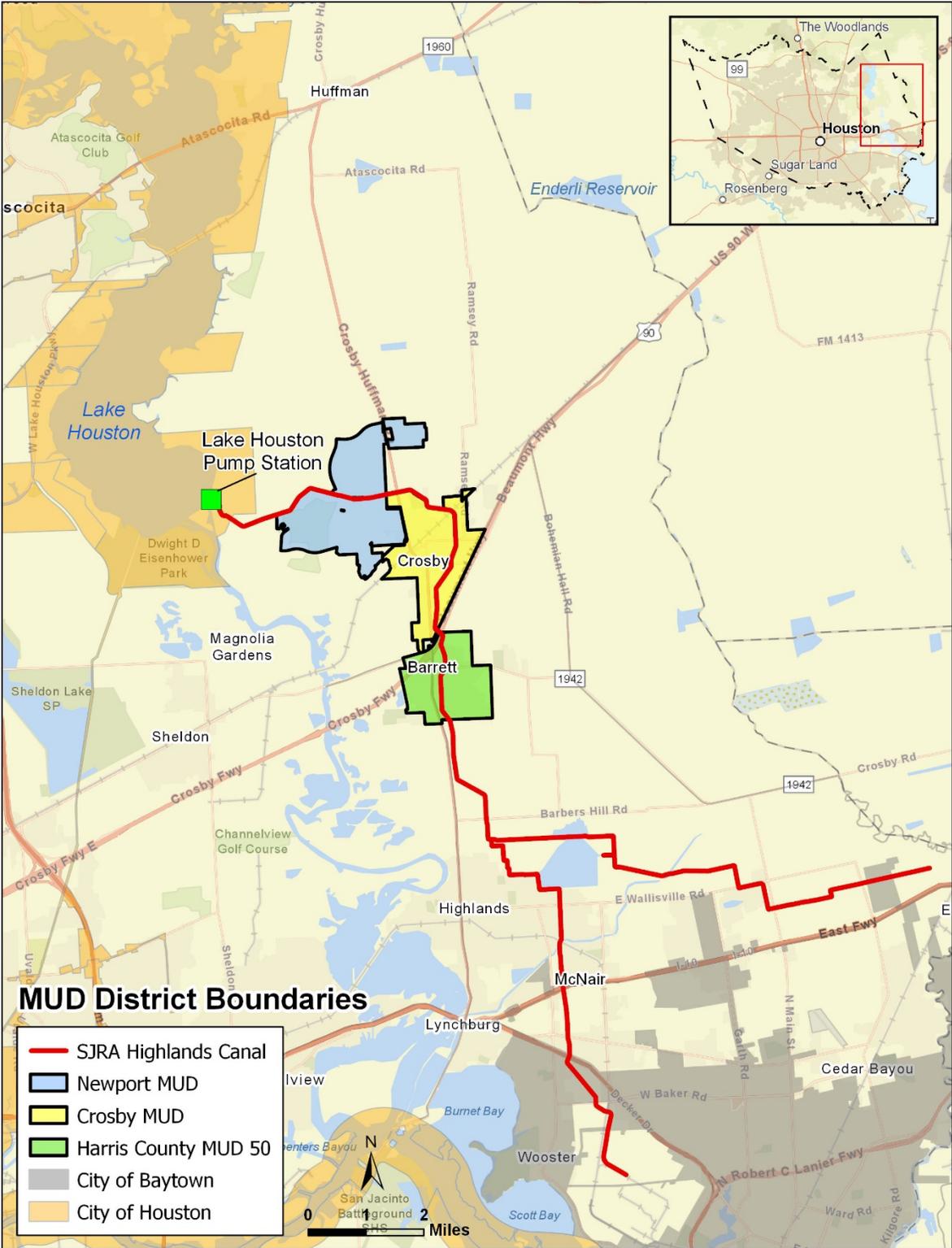


Figure 2-2. MUD District Boundaries

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Section 3. Water Conservation Plan

In the Texas Water Code, water conservation is defined as follows:

“(A) The development of water resources; and,

“(B) Those practices, techniques, and technologies that will reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.”³

Based upon these concepts of water conservation, the Division’s objective is to develop a water conservation plan that increases water use efficiency, thereby reducing water demands, without adversely affecting population and the economic growth potential of its customers.

3.1 Highlands Division 5- and 10-year Water Conservation Target Goals

The Division does not have direct control over the demands that it serves. A large majority of the water is supplied to industrial customers. The Division is not involved in the day-to-day operations of its customers. Since the last Water Conservation Plan update (February 2014), the Highlands Division’s industrial customers have performed facility expansions which have led to increases in contracted amounts of raw water. The water conservation measures described below include those under the direct control of, and being implemented by, the Division as well as goals supported and encouraged by the Division for implementation by its customers. The SJRA Highlands Division is to achieve a reduction in surface water demand, for municipal customers only, at a rate of 2.5% over a 5-year period, and 5% over a 10-year period. Average per-capita demand for the Division for 2014 through 2018 was 107.8 gallons per capita per day (gpcd). It is the goal of the Division to reduce per-capita demand to 105.1 gpcd by the end of 2024 and 102.4 gpcd by the end of 2029. The Highlands Division manages an open canal transmission system and all diversions are made directly from that system, but the Division encourages its customers to use best management practices to keep water loss below 10%, annually.

³ TWC, Section 17.001 (23) (A) and (B).

3.2 Water Conservation Methods

The Division's water conservation plan includes the following water conservation methods. Each method is described in greater detail in the following subsections.

- Metering and Record Management;
- Leak Detection and Repair, and Minimization of Conveyance Losses;
- Recycling and Reuse;
- Rate Structure;
- Contractual Requirements for Customer Water Conservation Plans;
- Customer Conservation Plan Guidance;
- Customer Reporting Requirements;
- Public Information and Education;
- Encouraging Customer Conservation Practices; and
- Implementation, Enforcement, Coordination with Regional Water Planning Group (RWPG), and Updating of the Plan.

There are two reservoirs (Lake Conroe and Lake Houston) in the San Jacinto River system however, they are operated by separate entity's therefore the Highlands Division does not have a reservoir system operations plan.

3.2.1 Metering and Record Management

The customers of the Division are responsible for metering as required by their water supply contracts. The long-term water supply contracts with each customer were developed at different times and therefore the specific language in each contract may vary. The most recent contract language is as follows:

Buyer shall, at its expense, install and maintain the necessary measuring equipment, including venturi or other standard type water meters, totalizers and recording devices, with such metering equipment to be installed and maintained at the Point of Delivery, or at such other point as approved by the Authority, in such manner as will accurately meter the quantity of water delivered to Buyer hereunder.

Meters shall be read daily by the employees or agents of Buyer, and the date, time and the amount of water taken each day shall be reported to the Authority monthly on or before the fifth (5th) business day of the following calendar month. Unless and until mutually agreed upon and confirmed in writing by the parties, Buyer agrees to provide to the

Authority by electronic mail (a) current flow meter readings not less frequently than hourly, and (b) current totalizer readings {at approximately (\pm 2 hours) the same time on}{as of} the last calendar day of each month.

Subject to Buyer's reasonable security and safety requirements, the Authority shall have access to and the right to inspect at all reasonable times Buyer's measuring equipment, appliances and all pertinent records and data for the purpose of verifying the quantity of water delivered hereunder.

The metering equipment installed and maintained by Buyer hereunder shall be checked by representatives of Buyer and the Authority jointly at {one hundred eighty (180) calendar day periods}{on an annual basis during the month of {MONTH}}, and more often at the reasonable request of either party (the "Inspection Date"), for the purpose of determining its accuracy. In the event a representative is not designated by either party for the purpose of making such test or calibration, or such representative fails to appear, then the test and calibration made by the other party shall be binding upon the party who fails to designate a representative or whose representative fails to appear. Any required test or calibration of the metering equipment shall be done by the employees or agents of Buyer; provided, however, that the Authority shall be given not less than five (5) business days' notice of such testing and calibration and shall be permitted to have one or more representatives present to observe such testing and calibration. If any such test shows a deviation of more than two percent (2%) from the manufacturer's tolerances, standards or specifications, such meter shall be promptly recalibrated, as nearly as practicable, to such manufacturer's tolerances, standards or specifications, and the volume of water delivered during one-half (1/2) of the period extending back to the immediately preceding Inspection Date shall be adjusted accordingly for payment purposes.

The Authority may, at its option and expense, install and operate one or more check meters, but unless otherwise agreed in writing by the parties, or unless Buyer's measuring equipment is out of service or not registering accurately, measurement for purposes of this Contract shall be made by Buyer's measuring equipment. All such check meters shall be of standard make and shall be subject at all reasonable times to inspection and examination by an employee or agent of Buyer, but the reading, calibration and adjustment of such check meters shall be made only by the Authority. Should the Authority enter upon Buyer's premises for the purposes permitted above, the Authority

shall exercise due care and diligence while on Buyer's premises, and all of Buyer's security and safety rules shall be strictly observed.

The data collected from the metering of customers allows the Division and SJRA to maintain a detailed record management system of water deliveries. As described in the contract language above, customers of the Division are responsible for installing and maintaining meters at their points of delivery (canal system diversion locations). Also as described in the contracts, access to these meters will be given to the Division by each customer for inspection purposes. Meters must be maintained by each customer to the level of accuracy specified in the customer's wholesale water supply contract with the Division.

3.2.2 Leak Detection and Repair, and Minimization of Conveyance Losses

The Division is committed to conservation through monitoring and improvement of its delivery system. The Division, specifically, continues to make efforts to minimize losses through its canal system through various practices. The Division has undertaken a number of measures in implementing system improvements, including routine inspections and evaluations of the Highlands Canal System, hydraulic modeling and flow measurement, and establishment and implementation of a 10-Year Project Plan. The Division has also initiated the use of computerized maintenance management system (CMMS) software to assist in the management, scheduling, and recording of all maintenance activities. Supervisory control and data acquisition (SCADA) infrastructure has been added to the Highlands Canal System to monitor canal flows, levels, and numerous controls and data at the raw water pump stations. The Division encourages customers to take measures to reduce water loss (below 10%) to prevent waste and facilitate achievement of the Water Conservation Plan demand reduction goals as specified above.

3.2.3 Recycling and Reuse

SJRA utilizes a number of once-through reuse supplies across its divisions. Currently, the Division meets a portion of its needs through indirect reuse of effluent flows from The Woodlands, Texas, via SJRA's Woodlands Division wastewater treatment plants, in the San Jacinto River Basin. The Division will continue to consider and evaluate opportunities for reuse as they develop.

3.2.4 Rate Structure

SJRA utilizes a non-promotional rate structure for contracts with customers of the Division; these rates are periodically reviewed and adjusted as necessary. SJRA also encourages the Division's customers to establish rate structures promoting conservation for sales to their wholesale and retail customers.

3.2.5 Contractual Requirements for Customer Water Conservation Plans

SJRA will enforce the terms of contracts with wholesale water supply customers related to water conservation measures and Water Conservation Plan requirements. Additionally, SJRA will include in all water supply contracts entered into, renewed, or amended after the adoption of the Division's Water Conservation Plan a requirement that customers develop and implement water conservation plans as required by Title 30, Texas Administrative Code, Chapter 288 30 TAC §288). Per 30 TAC §288, any future contract, renewal, or amendment will also require that successive sales from SJRA customers to others include a contractual stipulation for water conservation requirements. At a minimum, customer conservation plans must comply with the requirements of 30 TAC §288.

The long-term water supply contracts with each customer were developed at different times and therefore the specific language in each contract may vary. The most recent contract language regarding Water Conservation and Drought Contingency Plans is as follows:

Buyer shall develop and implement water conservation and drought contingency plans to conserve water resources and to promote practices that will reduce loss or waste of water, improve efficiency in the use of water, or increase the recycling and reuse of water. Buyer's water conservation plan and drought contingency plan shall be at least equal to or more stringent than that adopted by the Authority, and Buyer shall comply with all requirements of the TCEQ, Texas Water Development Board, and any other federal, state or local regulatory agency with jurisdiction. Buyer shall forward its water conservation plan and drought contingency plan to the Authority for its review and approval within one hundred eighty (180) calendar days following the date the Authority adopts any revision to its existing water conservation and drought contingency plans.

Upon written request from the Authority, Buyer shall report progress made in implementation of its water conservation and drought contingency plans on an annual basis on or before February 1st of each year during the term of this Contract. Buyer shall amend its water conservation and drought contingency plans to reflect revisions to the Authority's plans, programs, and rules within one hundred eighty (180) calendar days after notice from the Authority of the adoption of such revisions.

SJRA may periodically update this language, as well as the Water Conservation and Drought Contingency Plans for the Division to meet legal requirements or address changing conditions; subsequent to such revisions, customers of the Division are requested to update their water conservation and drought contingency plans as applicable.

3.2.6 Customer Conservation Plan Guidance;

SJRA will provide to customers upon request, model water conservation plans as developed by TCEQ, meeting the contractual requirements described in Section 3.2.5 above for each customer type. Additionally, SJRA will at customer request review draft customer water conservation and drought contingency plans for consistency with contractual requirements and the Division's Water Conservation and Drought Contingency Plans. Customers can contact the Division for information regarding the Division's Plans and contractual requirements.

3.2.7 Customer Reporting Requirements

In 2011, the 82nd Texas Legislature passed Senate Bill (SB) 181, which addressed the need for consistency in water use reporting by municipalities, water utilities, and others. Subsequently, TWDB and TCEQ developed detailed guidance and procedures for calculating and reporting water use, water loss, and other factors.

While SJRA is not directly impacted by these requirements as a wholesale provider, the Division and other divisions provide contractual water supply to a number of entities which are impacted by SB181. The broad range of water uses served by SJRA and the requirements of multiple State reporting programs creates a need for consistent customer reporting. As such, SJRA requires customer water usage reports, including any values for per-capita water demand, to follow the procedures established by TWDB and TCEQ.⁴ Water use reports should include data at the sector level (single family residential, multi-family residential, industrial, commercial, agricultural, etc.) and should additionally include estimated population served and calculated water loss. Further, SJRA may request that customers annually submit to SJRA a copy of all conservation plan reporting forms, if required by TCEQ, that are submitted to TCEQ.

3.2.8 Public Information and Education

SJRA has the option to utilize a plethora of water conservation resources that the TWDB, American Water Works Association, and American Public Works Association originally created as components of their own public education campaigns. Individual pamphlets and educational messages provided from these entities would be selected for specialized water conservation needs as they arise. SJRA also provides and constantly updates conservation information and efficient water use on the Authority website at <http://www.sjra.net/>.

SJRA will provide, as needed and/or requested, water conservation literature to the customers of the Division. The Division is committed to promoting improvements in industrial, municipal, and

⁴ TWDB et al. 2012. Guidance and Methodology for Reporting on Water Conservation and Water Use

agricultural/irrigation processes to achieve conservation with its customers.

SJRA, across all divisions, will make information available through its public information and education program for plumbers and customers to use when purchasing and installing plumbing fixtures, water-using appliances, and watering equipment. Information regarding retrofit devices, such as low-flow shower heads or toilet dams that reduce water use by replacing or modifying existing fixtures or appliances, will also be provided.

Other public information approaches which SJRA has utilized in the past and may implement in the future include public tours of various facilities across all divisions, participation in local environmental events, classroom water conservation educational programs, and joint operation of a mobile teaching lab.

3.2.9 Encouraging Customer Conservation Practices

SJRA and the Division encourages their customers to consider implementing rules, measures, and emerging technologies that promote water conservation and efficient use. Recommended measures include, but are not limited to, the following:

- Prohibitions on wasting water;
- Time-of-day watering restrictions;
- Water conservation pricing structures;
- Landscape irrigation conservation, including integrating rainfall/freeze sensors into irrigation systems;
- Water reuse
- Rainwater harvesting
- Public education programs

Additional information on conservation practices for a wide range of water uses can be found at the TWDB website (<http://www.twdb.texas.gov/>).

3.2.10 Implementation, Enforcement, Coordination with RWPG, and Updating of the Plan

The Highlands Division Manager and/or designees will act as the administrator(s) of the Water Conservation Plan for the Highlands Division. The administrator(s) will oversee the execution and implementation of all elements of the program and monitor the progress of the plan. Additionally, the administrator(s) will be responsible for submission of an annual report to the TCEQ and TWDB on the progress of, and any changes to, the Water Conservation Plan. SJRA is responsible for maintaining adequate records for Plan compliance with TCEQ and TWDB.

SJRA will enforce the terms of contracts with wholesale water supply customers related to water conservation measures and Water Conservation Plan requirements.

The Division is located within the Region H Regional Water Planning Area. In accordance with the TCEQ rules, the Division provides a copy of its Water Conservation Plan to the Region H Regional Water Planning Group (RWPG). A copy of the transmittal letter is included in Appendix B.

Every five years, SJRA will examine the Division's Water Conservation Plan and revise as necessary. The Water Conservation Plan for the Division has been adopted by a resolution of the Board of Directors of SJRA. A copy of the resolution is included in Appendix B.

Appendix A
Water Utility Profiles

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San Jacinto River Authority – Highlands Division

**TCEQ Form 20162: Profile and Water Conservation Plan
Requirements for Wholesale Public Water Supplies**

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Texas Commission on Environmental Quality

PROFILE AND WATER CONSERVATION PLAN
REQUIREMENTS FOR WHOLESALE
PUBLIC WATER SUPPLIERS

This form is provided to assist wholesale public water suppliers in water conservation plan development. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: San Jacinto River Authority-Highlands Division

Address: General & Administration Highlands Division
P.O. Box 329 P.O. Box 861
Conroe, TX 77305 Highlands, TX 77562

Telephone Number: (936) 588-3111 (936) 828-3980

Water Right No.(s): COA 10-4963, COA 08-4279, COA 10-4964, Permit 08-5271, Permit 10-5807, Permit 10-5808, Permit 10-5809

Regional Water Planning Group: Region H Water Planning Group

Form Completed by: Kimberly Wright

Title: Highlands Division Manager

Person responsible for implementing conservation program: SJRA-Highlands Division Phone: (936) 828-3980

Signature: [Handwritten Signature] Date: 2/28/2019

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

PROFILE

I. WHOLESALE SERVICE AREA POPULATION AND CUSTOMER DATA

A. Population and Service Area Data

1. Service area size (in square miles): 2,453 square miles (SJRA’s jurisdiction is in the San Jacinto River Basin) 316 square miles (Highlands service area via agreement with the City of Houston), 7.7 square miles (Highlands Division Municipal Customers), Highlands Division serves customers at discrete diversion locations along the canal system. Please see Attachment A for SJRA service area and Attachment B for Highlands canal system layout.

(Please attach a copy of service-area map.)

2. Current population of service area: Total population of service area: 13,699
(Crosby Mud (2,299) and Newport Mud (11,400))

3. Current population served for:

a. Water – 13,745

b. Wastewater _____

4. Population served for previous five years:

Year	Population
2014	11,655
2015	12,350
2016	12,670
2017	13,232
2018	13,745

5. Projected population for service area in the following decades:

Year	Population
2020	14,004
2030	20,016
2040	20,509
2050	20,824
2060	21,171

6. List source or method for the calculation of current and projected population size.

The previous and projected population data was provided by Crosby MUD and Newport MUD. The projections provided are based on an increase of 1% each year. This is the same method utilized by the MUDs in their projection calculations.

B. Customers Data

List (or attach) the names of all wholesale customers, amount of annual contract, and amount of annual use for each customer for the previous year:

Wholesale Customer	Contracted Amount (acre-feet)	Previous Year (2018) Amount of Water Delivered (acre-feet)
1. Crosby Mud	1,120 (1 MGD)	619.79
2. Newport Mud	2,072 (1.85 MGD)	880.26
3. Harris Co Mud 50	560 (0.5 MGD)	0
4. _____	_____	_____
5. _____	_____	_____

II. WATER USE DATA FOR SERVICE AREA

A. Water Delivery

Indicate if the water provided under wholesale contracts is treated or raw water and the annual amounts for the previous five years (in acre feet):

*Includes municipal use only.

Year	Treated Water	Raw Water*
2014	0	1,646
2015	0	1,547
2016	0	1,946
2017	0	987
2018	0	1,500
Totals	0	7,626

B. Water Accounting Data

1. Total amount of water diverted at the point of diversion(s) for the previous five years (in acre-feet) for all water uses: ***Diverted by SJRA Highlands Division customers**

<i>Year</i>	2014	2015	2016	2017	2018
<i>Month</i>					
January	5,778	4,833	5,394	5,807	5,966
February	4,763	4,570	5,171	5,415	5,449
March	5,594	5,593	5,544	5,657	6,333
April	5,577	5,723	5,642	5,314	5,662
May	6,048	5,299	6,084	5,949	6,089
June	6,007	5,758	6,029	6,140	6,349
July	6,567	6,984	6,471	6,609	7,361
August	6,442	6,819	6,455	5,827	7,661
September	5,769	5,837	5,991	4,859	6,805
October	5,173	6,098	5,795	5,714	6,632
November	5,096	5,579	5,528	5,636	6,183
December	5,042	5,517	5,687	5,750	6,322
Totals	67,859	68,611	69,792	68,687	76,812

2. Wholesale population served and total amount of water diverted for **municipal use** for the previous five years (in acre-feet):

<i>Year</i>	<i>Total Population Served</i>	<i>Total Annual Water Diverted for Municipal Use</i>
2014	11,655	1,646
2015	12,350	1,547
2016	12,670	1,946
2017	13,232	987
2018	13,745	1,500

C. *Projected Water Demands*

If applicable, project and attach water supply demands for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

III. **WATER SUPPLY SYSTEM DATA**

A. *Projected Water Demands*

List all current water supply sources and the amounts authorized (in acre feet) with each.

Water Type	Source	Amount Authorized
Surface Water	Lake Houston (4964)	55,000 acre-feet
	Lake Houston (5807)	14,100 acre-feet
	Lake Conroe (4963)	33,334 acre-feet
	Trinity River (5271)	56,000 acre-feet
	San Jacinto River (5808)	40,000 acre-feet
Groundwater	N/A	N/A
Other	GW-Based Effluent Reuse(5809)	14,944 acre-feet

B. *Treatment and Distribution System - [N/A- (The Highlands Division system is raw water only.)]*

1. Design daily capacity of system (MGD):

2. Storage capacity (MGD):
 - c. Elevated _____
 - d. Ground _____

3. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks.

IV. WASTEWATER SYSTEM DATA

A. Wastewater System Data (if applicable)- [N/A- The Highlands Division does not provide wastewater services.]

1. Design capacity of wastewater treatment plant(s) (MGD):
2. Briefly describe the wastewater system(s) of the area serviced by the wholesale public water supplier. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

B. Wastewater Data for Service Area [N/A- The Highlands Division does not provide wastewater service.)]

1. Percent of water service area served by wastewater system: _____ %
2. Monthly volume treated for previous five years (in 1,000 gallons):

<u>Year</u>	2014	2015	2016	2017	2018
<u>Month</u>					
January	_____	_____	_____	_____	_____
February	_____	_____	_____	_____	_____
March	_____	_____	_____	_____	_____
April	_____	_____	_____	_____	_____
May	_____	_____	_____	_____	_____
June	_____	_____	_____	_____	_____
July	_____	_____	_____	_____	_____
August	_____	_____	_____	_____	_____
September	_____	_____	_____	_____	_____
October	_____	_____	_____	_____	_____
November	_____	_____	_____	_____	_____
December	_____	_____	_____	_____	_____
Totals	_____	_____	_____	_____	_____

V. ADDITIONAL REQUIRED INFORMATION

In addition to the description of the wholesaler’s service area (profile from above), a water conservation plan for a wholesale public water supplier must include, at a minimum, additional information as required by Title 30, Texas Administrative Code, Chapter 288.5. Note: If the water conservation plan does not provide information for each requirement an explanation must be included as to why the requirement is not applicable.

A. Specific, Quantified 5 & 10-Year Targets

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable unaccounted-for water, and the basis for the development of these goals. Note that the goals established by wholesale water suppliers under this subparagraph are not enforceable.

B. Metering Devices

The water conservation plan must include a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply.

C. Record Management Program

The water conservation plan must include a monitoring and record management program for determining water deliveries, sales, and losses.

D. Metering/Leak-Detection and Repair Program

The water conservation plan must include a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system.

E. Reservoir Systems Operations Plan

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plan shall include optimization of water supplies as one of the significant goals of the plan.

F. Contract Requirements for Successive Customer Conservation

The water conservation plan must include a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of Title 30 TAC Chapter 288. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

G. Enforcement Procedure and Official Adoption

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

H. Coordination with the Regional Water Planning Group(s)

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

Example statement to be included within the water conservation plan:

The service area of the _____ (name of water supplier) is located within the _____ (name of regional water planning area or areas) and _____ (name of water supplier) has provided a copy of this water conservation plan to the _____ (name of regional water planning group or groups).

I. Plan Review and Update

A wholesale water supplier shall review and update its water conservation plan, as appropriate based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan no later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

J. Additional Conservation Strategies

Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of this chapter, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

1. Conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
2. A program to assist agricultural customers in the development of conservation, pollution prevention and abatement plans;
3. A program for reuse and/or recycling of wastewater and/or graywater;
4. A cost-share program;
5. A technical assistance and outreach program;
6. A program for purchase and direct distribution of water conservation equipment; and
7. Any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

Best Management Practices

The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.

San Jacinto River Authority – Highlands Division

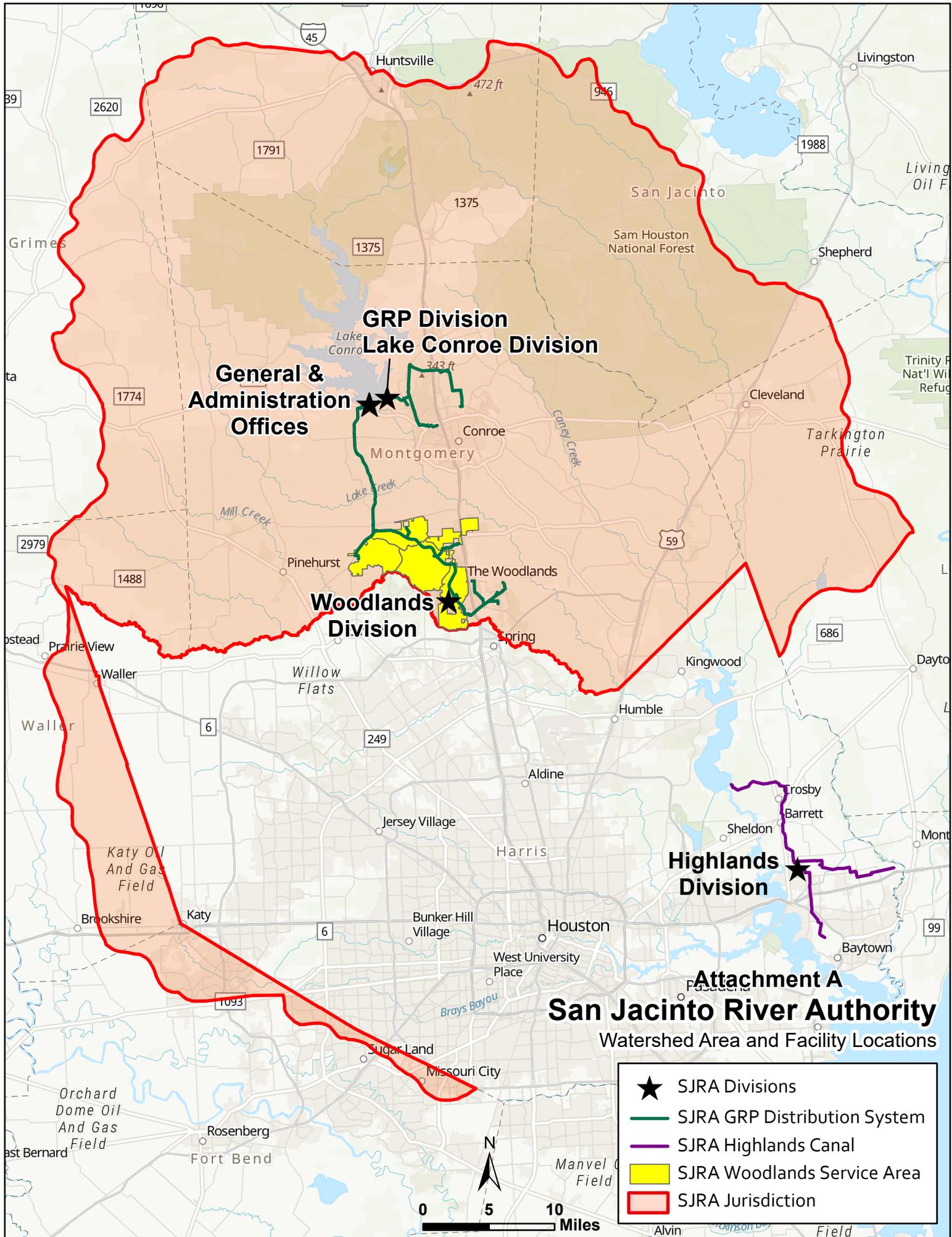
**Attachments to TCEQ Form
20162: Profile and Water Conservation Plan
Requirements for Wholesale Public Water Supplies**

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Attachment A

SJRA Service Area

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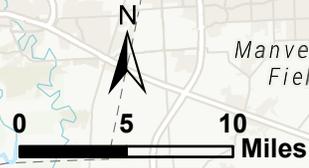
GRP Division
Lake Conroe Division
General & Administration Offices

Woodlands Division

Highlands Division

Attachment A
San Jacinto River Authority
 Watershed Area and Facility Locations

- ★ SJRA Divisions
- SJRA GRP Distribution System
- SJRA Highlands Canal
- SJRA Woodlands Service Area
- SJRA Jurisdiction

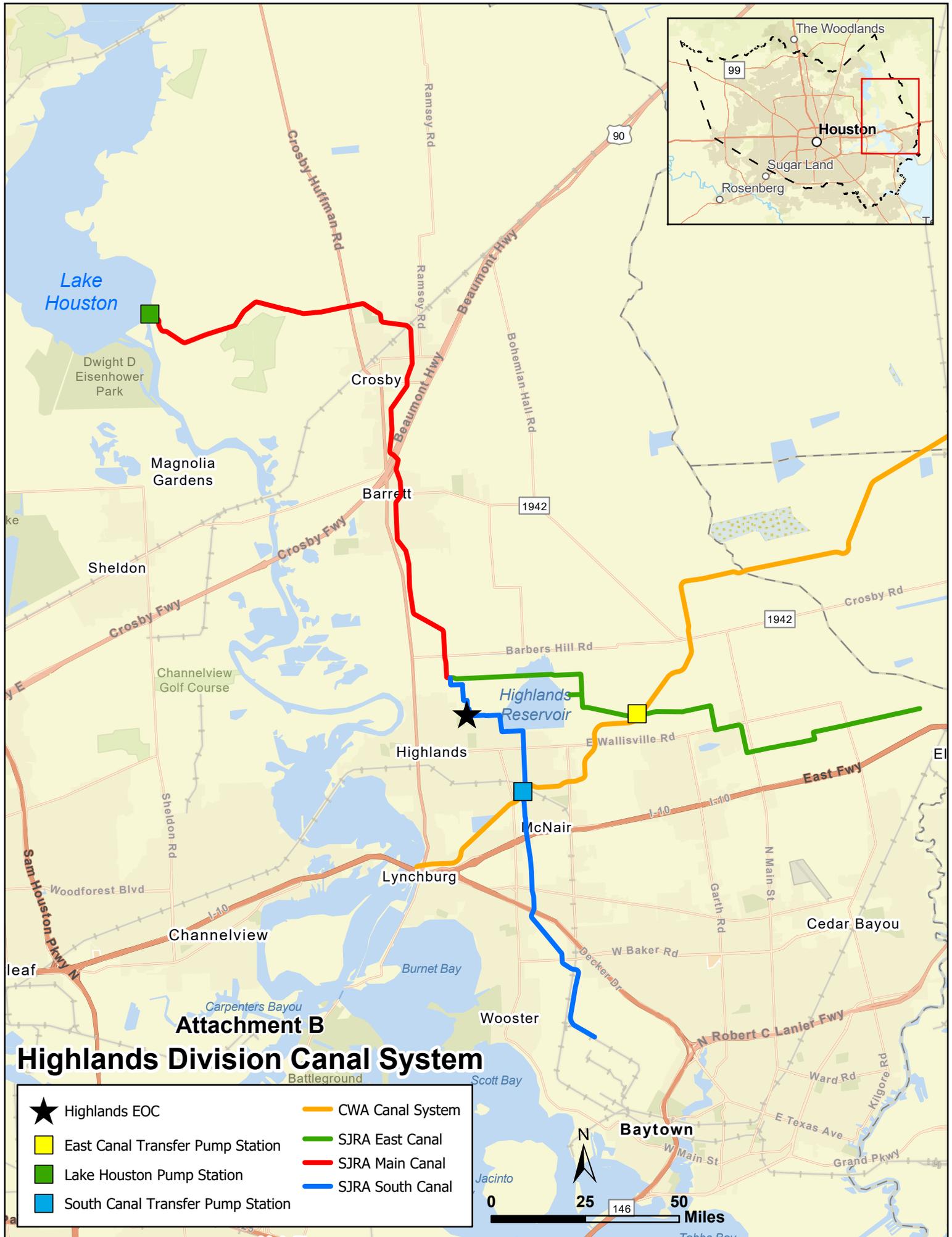


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Attachment B

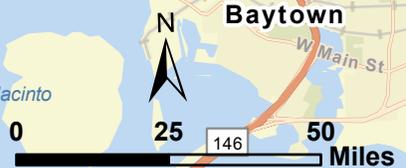
Highlands Division Canal System

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**Attachment B
Highlands Division Canal System**

- | | | | |
|---|-----------------------------------|---|------------------|
| ★ | Highlands EOC | — | CWA Canal System |
| ■ | East Canal Transfer Pump Station | — | SJRA East Canal |
| ■ | Lake Houston Pump Station | — | SJRA Main Canal |
| ■ | South Canal Transfer Pump Station | — | SJRA South Canal |



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San Jacinto River Authority – Highlands Division

TCEQ Form 10213: Industrial/Mining Water Conservation Plan

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Texas Commission on Environmental Quality

INDUSTRIAL/MINING WATER CONSERVATION PLAN

This form is provided to assist entities in conservation plan development for industrial/mining water use. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: San Jacinto River Authority-Highlands Division

Address: General & Administration Highlands Division
P.O. Box 329 P.O. Box 861
Conroe, TX 77305 Highlands, TX 77562

Telephone Number: (936) 588-3111 (936) 828-3980

Form Completed by: Kimberly Wright

Title: Highlands Division Manager

Signature:  Date: 2/28/2019

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Water Use

1. Annual diversion appropriated or requested (in acre-feet): 173,377 (Lake Houston, Lake Conroe, Trinity River, Effluent Reuse)
2. Maximum diversion rate (cfs): 783

B. Water Sources

1. Please indicate the maximum or average annual amounts of water currently used and anticipated to be used (in acre-feet) for industrial/mining purposes: **NOTE: The amounts shown in the below table are current and anticipated usages based on 2018, the allocation of the usages to each water right/source will vary annually based on its availability. The total acre-feet diverted by highlands Division Industrial customers equals 74,717 ac-ft. This is higher than the total allocated to each water right due to the open canal system. Anticipated use for 2019 is 1% higher than 2018 applied 1% increase to firm Water Right 4964.**

Source	Water Right No.(s)	Current Use (2018)	Anticipated Use (2019)
Surface Water			
Lake Houston (4964)	4964	3,876	4,611
Trinity (5271)	5271	16,912	16,912
Lake Houston (5807)	5807	14,100	14,100
San Jacinto (5808)	5808	37,905	37,905
GW Effluent Reuse (5809)	5809	697	697
Groundwater			
Purchased			
TOTAL		73,490	74,225

2. How was the surface water data and/or groundwater data provided above (B1) obtained?
Master meter ; Customer meter ; Estimated _____; Other _____
Lake Houston Pump Station, East Canal Transfer Pump Station, South Canal Transfer Pump Station – Industrial Only, plus industrial customer meter readings
3. Was purchased water raw or treated?
If both, % raw ; % treated _____ and Supplier(s): _____

C. Industrial/Mining Information

1. Major product(s) or service(s) produced by applicant: 2911 (Petroleum refining and chemical production), 2821 (Plastics Material and Synthetic Resins), 2822 (Synthetic Rubber), 2874 (Phosphatic Fertilizers)
2. North American Industry Classification System (NAICS):
324110 (Petroleum refining and related chemical production)
325192 325312 _____

II. WATER USE AND CONSERVATION PRACTICES

A. Water Use in Industrial or Mining Processes

<i>Production Use</i>	<i>% Groundwater</i>	<i>% Surface Water</i>	<i>% Saline Water</i>	<i>% Treated Water</i>	<i>*Water Use (in acre-ft.)</i>
Cooling, condensing, & refrigeration	0	100	0	0	
Processing, washing, transport	0	100	0	0	
Boiler feed	0	100	0	0	
Incorporated into product	0	100	0	0	
Other	0	100	0	0	

<i>Facility Use</i>	<i>% Groundwater</i>	<i>% Surface Water</i>	<i>% Saline Water</i>	<i>% Treated Water</i>	<i>*Water Use (in acre-ft.)</i>
Cooling tower(s)	0	100	0	0	
Pond(s)	0	100	0	0	
Once through	0	100	0	0	
Sanitary & drinking water	0	100	0	0	
Irrigation & dust control	0	100	0	0	

*Water Use information is not provided by customers to the applicant for reporting as indicated above for *Product Use* and *Facility Use*.

1. Was fresh water recirculated at this facility? Yes
2. Provide a detailed description of how the water will be utilized in the industrial or mining process.
Various cooling and petroleum/chemical processing.

3. Estimate the quantity of water consumed in production and mining processes and is therefore unavailable for reuse, discharge, or other means of disposal.

100% of all water used for production is not available for SJRA reuse.

4. Monthly water demand for previous year (2018) (in acre-feet). *Contracted amounts.

Month	Diversion Amount	% of Water Returned (If Any)	Monthly Demand (In Acre-Feet)
January	Lake Houston/Trinity River	0	6,615
February	Lake Houston/Trinity River	0	6,032
March	Lake Houston/Trinity River	0	6,926
April	Lake Houston/Trinity River	0	6,603
May	Lake Houston/Trinity River	0	7,509
June	Lake Houston/Trinity River	0	7,687
July	Lake Houston/Trinity River	0	8,822
August	Lake Houston/Trinity River	0	9,073
September	Lake Houston/Trinity River	0	8,368
October	Lake Houston/Trinity River	0	8,125
November	Lake Houston/Trinity River	0	7,778
December	Lake Houston/Trinity River	0	8,092
TOTALS		0	91,630 (Contracted)

5. Projected monthly water demand for next year (2019) (in acre-feet). *Contracted amounts.

Month	Diversion Amount	% of Water Returned (If Any)	Monthly Demand (In Acre-Feet)
January	Lake Houston/Trinity River	0	6,615
February	Lake Houston/Trinity River	0	6,032
March	Lake Houston/Trinity River	0	6,926
April	Lake Houston/Trinity River	0	6,603
May	Lake Houston/Trinity River	0	7,509
June	Lake Houston/Trinity River	0	7,687
July	Lake Houston/Trinity River	0	8,822
August	Lake Houston/Trinity River	0	9,073
September	Lake Houston/Trinity River	0	8,368
October	Lake Houston/Trinity River	0	8,125

November	Lake Houston/Trinity River	0	7,778
December	Lake Houston/Trinity River	0	8,092
TOTALS		0	91,630 (Contracted)

B. Specific and Quantified Conservation Goal

Water conservation goals for the industrial and mining sector are generally established either for (1) the amount of water recycled, (2) the amount of water reused, or (3) the amount of water not lost or consumed, and therefore is available for return flow.

1. Water conservation goal (water use efficiency measure)

Type of goal(s):

% reused water

% of water not consumed and therefore returned

Other (Maintain efficient delivery system that controls conveyance losses, minimize process losses, utilize innovative technologies, and continue methods of public information, education, and awareness.)

2. Provide specific and quantified five-year and ten-year targets for water savings and the basis for development of such goals for this water use/facility.

The SJRA Highlands Division is to achieve a reduction in water demand, for municipal customers only, of 2.5% over a 5-year period, and 5% over a 10-year period. The Highlands Division manages an open canal transmission system and all diversions are made directly from that system, therefore the Division encourages its customers to use best management practices to keep water loss below 10%, annually. Efforts should include those to maintain efficient delivery system that controls conveyance losses, minimize process losses, utilize innovative technologies, continue methods of public information, education and awareness, and incorporate re-use and recycling strategies.

3. Describe the methods and/or device(s) within an accuracy of plus or minus 5% used to measure and account for the amount of water diverted from the supply source.

Customer installed water meters. Customer contracts require regular meter calibrations and reporting to the SJRA Highlands Division.

4. Provide a description of the leak-detection and repair, and water-loss accounting measures used.

Monthly, maintenance staff inspects the Raw Water System for leaks and when necessary performs maintenance and repairs. Staff also controls vegetation with chemicals along the canal system to minimize the loss for capacity. Monitoring of the System via SCADA (alarms defined) and daily rounds and inspections by maintenance staff, ensures that overflows throughout the System are minimal.

5. Equipment and/or process modifications used to improve water use efficiency.
Customers are provided assistance by SJRA staff in completion of their own Water Conservation and Drought Contingency Plans. Customers are required to submit their plans to SJRA per the contract requirements. SJRA is not involved with process modifications made by their customers. Customers are required to provide annual meter calibrations to ensure accuracy and to control losses.

6. Other water conservation techniques used.

Best Management Practices

The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>

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San Jacinto River Authority – Highlands Division

**TCEQ Form 10244: System Inventory and Water Conservation Plan for
Agricultural Water Suppliers Providing Water to More than One User**

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Texas Commission on Environmental Quality

SYSTEM INVENTORY AND WATER CONSERVATION PLAN
FOR AGRICULTURAL WATER SUPPLIERS
PROVIDING WATER TO MORE THAN ONE USER

This form is provided to assist entities in conservation plan development for agricultural water suppliers providing water to more than one user. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: San Jacinto River Authority - Highlands Division
General and Administration Highlands Division
PO Box 329 PO Box 861
Address: Conroe, TX 77305 Highlands, TX 77562
Telephone Number: (936) 5883111 Fax: (936) 828-3980
Form Completed by: Kimberly Wright
Title: Highlands Division Manager
Signature: [Handwritten Signature] Date: 2/28/2019

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Structural Facilities

- 1. Description of service area: Agricultural lands within the Crosby and Baytown area, approximetly 600 acres.
2. Total miles of main canals and pipelines: 27
3. Total miles of lateral canals and pipelines: 0
4. Description of canal construction:
a. Miles of unlined canals 27
b. Miles of lined canals 0
c. Miles of enclosed pipelines 0
d. Other _____

5. Description of canal conditions and recent or planned improvements:

The Highlands Canal System was constructed in the 1940s with various modifications and improvements. The San Jacinto River Authority has a 10-Year Project Plan in place to identify and repair problem locations throughout the canal system.

6. Reservoir capacity, if applicable: **3,800 acre-feet**

7. Description of pumps and pumping stations:

Lake Houston Pump Station- 90.0 MGD Firm Capacity

East Canal Transfer Pump Station- 8.25 MGD Firm Capacity

South Canal Transfer Pump Station- 22.0 MGD Firm Capacity

8. Description of meters and/or measuring devices:

The Highlands Division pump stations, including the Lake Houston Pump Station and East Canal Transfer Pump Station use differential metering devices. South Canal Transfer Pump Station uses a propeller style meter.

9. Description of customer gates and measuring devices:

Irrigation customers use multiple intakes and flowmeters that are calibrated on a schedule defined in their contract or no less than annually.

10. Description of any other structural facilities not covered above:

SJRA has approximately 55 canal structures, siphons, and culverts to allow the canal system to cross under roads, ditches, railroads, etc. These structures also provide flow control capabilities.

B. Management Practices

1. Total water available to district (in acre-feet/year): **55,000 (irrigation only)*** ***Note SJRA's water right for COA 10-4964 includes a multi-purpose right which allows for irrigation use. Agricultural use comprises less than 1.4% of the total water use for this permit. The only agricultural users include several small turf grass farmers that receive untreated water from SJRA through the Highlands System. The responses in this section are attributable to this irrigation use only, unless otherwise stated.**
 - a. Maximum water rights allocation to district: 55,000 (See information above)
 - b. Water rights number(s): COA 10-4964
 - c. Other water contracted to be delivered by district: Permit 5807, Permit 5808, Permit 5271, Permit 5809, COA 10-4963

2. Average annual water diverted by district (in acre-feet/year): **75,786 (2018, All Uses)- Water diverted from Lake Houston Pump Station, East Canal Transfer Pump Station, and the South Canal Transfer Pump Station**

3. Average annual water delivered to customers (in acre-feet/year): **76,812 (2018, All Uses)**

4. Delivery efficiency (percentage): **100% *Note that due to the Highlands Division open canal system diverted water as allocated to a water right is typically less than the water delivered/diverted by the Highlands Division customers.**

5. Historical diversion and deliveries for the previous three years (**in acre-feet/year**):

<i>Year</i>	<i>Total Water Diverted Annually</i>	<i>Irrigation Water Delivered Annually</i>	<i>Municipal Water Delivered Annually</i>	<i>Total Water Delivered Annually</i>	<i>Estimated Delivery Efficiency (%)</i>
2016	69,792	627	1946	69,792	100%
2017	68,687	567	987	68,687	100%
2018	76,812	595	1,500	76,812	100%
Average	71,764	596.33	1,478	71,764	100%

6. Practices and/or devices used to account for water deliveries:

SJRA does routine inspections for leaks along the canal system and at structures to minimize conveyance losses.

Agriculture customers are required to calibrate water meters as defined in their contract or no less than once annually.

7. Water pricing policy:

Raw Water Rate Order adopted by the Board of Directors and effective January 1, 2019 - 0.465 per 1,000 gallons.

Short term contract rates may be up to four times the raw water rate reflected above.

8. Operating rules and policies which encourage water conservation:

Customers are required to calibrate meters no less than annually.

SJRA does routine inspections for leaks along the canal system and at structures to minimize conveyance losses.

SJRA targets a minimum canal free board to minimize overtopping.

9. Provide specific, quantified five-year and ten-year targets for water savings in the spaces below, including maximum allowable losses for the storage and distribution system. Water savings may be represented in acre-feet or in water use efficiency. If necessary, please provide an explanation in the space provided.

The SJRA Highlands Division is to achieve a reduction in water demand for municipal customers only, of 2.5% over a 5-year period, and 5% over a 10-year period. The Highlands Division manages an open canal transmission system and

all diversions are made directly from that system, therefore the Division encourages its customers to use best management practices to keep water loss below 10%, annually. Efforts should include those that maintain an efficient delivery system that controls conveyance losses, minimize process losses, utilize innovative technologies, continue methods of public information, education and awareness, and incorporate re-use and recycling strategies.

Quantified five-year and ten-year targets for water savings:

a. 5-year goal:

Savings in acre-feet N/A or system efficiency as a percentage N/A %

b. 10-year goal:

Savings in acre-feet N/A or system efficiency as a percentage N/A %

(Examples of Typical Efficiencies for Various Types of Irrigation Systems –
Surface: 50-80%; Sprinkler: 70-85%; LEPA: 80-90%; Micro-irrigation: 85-95%)

10. Describe the practice(s) and/or device(s) which will be utilized to measure and account for the amount of water diverted from the source(s) of supply:

- Flowmeters are used at the Lake Houston Pump Station and East Canal Transfer Pump Station.

- Irrigation customers use a propeller style metering device.

11. Describe the monitoring and record management program for water deliveries, sales, and losses:

SJRA records water pumped daily and records water delivered through a monthly Raw Water report.

12. Describe any methods that will be used for water loss control, leak detection, and repair:

Maintain an efficient delivery system that controls conveyance losses to a practical level. Continue 10-Year Project Plan updates to identify and repair leaking or problem areas in system. (Siphon structures are evaluated/prioritized annually). Continue to routinely inspect for leaks and when necessary, repair. Perform other routine maintenance, such as clearance of vegetation to minimize conveyance losses.

13. Describe any program for customer assistance in the development of on-farm water conservation and pollution prevention measures:

Customers are provided assistance by SJRA staff in completion of their own Water Conservation and Drought Contingency Plans. Customers are required to submit their plans to SJRA per their contract requirements. SJRA also provides methods of public information, education, and awareness.

14. Describe any other water conservation practice, method, or technique which the supplier shows to be appropriate for achieving conservation (if applicable):

N/A

C. User profile

1. Total number of acres or square miles in service area: **Approximately 316 square miles**
2. Average number of acres irrigated annually: **~600**
3. Projected number of acres to be irrigated in 10 years: **~600 - Depends on needs of local irrigators.**
4. Number of active irrigation customers: **2**
5. Total irrigation water delivered annually (in acre-feet): **595 Acre-feet**
6. Types of crops grown by customers:
Grass
7. Types of irrigation systems used by customers:
Sprinkler Systems/Irrigators
8. Types of drainage systems used by customers:
Natural water run-off

9. Further description of irrigation customers:

Golf course irrigation, grass/turf farm irrigation

10. List of municipal customers and number of acre-feet allocated annually:

Refer to TCEQ Form 20162

11. List of industrial and other large customers and number of acre-feet allocated annually:

Refer to TCEQ Form 10213

D. Additional Requirements

1. A requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in 30 TAC chapter 288; if the customer intends to resell the water, then the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter. Provide a detailed description of how the water will be utilized in the production process including how the water is diverted and transported from the supply source(s).
2. Evidence of official adoption of the water conservation plan and goals, by ordinance, rule, resolution, or tariff, indicating that the plan reflects official policy of the supplier.
3. Documentation of coordination with the Regional Water Planning Groups in order to insure consistency with the appropriate approved regional water plans.

Best Management Practices

The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>

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Appendix B

**Resolutions Passed by SJRA
Transmittal Letter to Region H RWPG**

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RESOLUTION NO. 2019-R-03

RESOLUTION ADOPTING REVISED WATER CONSERVATION PLANS AND DROUGHT CONTINGENCY PLANS; AUTHORIZING THE IMPLEMENTATION OF SUCH REVISED PLANS; REPEALING AND RESCINDING ALL PRIOR PLANS; AND CONTAINING OTHER PROVISIONS RELATING TO THE SUBJECT

WHEREAS, the San Jacinto River Authority (the "Authority") has water rights issued by the Texas Commission on Environmental Quality and its predecessor agencies (collectively, the "TCEQ") to divert water from the San Jacinto River and Trinity River basins; and

WHEREAS, the Authority, by and through its Highlands Division, owns and operates water supply and distribution systems and facilities, including the Lake Houston Pump Station, East Canal Transfer Pump Station, Highlands Reservoir, and the Highlands Canal System, in order to sell and deliver water out of such rights to certain customers generally located in eastern Harris County; and

WHEREAS, the Authority also owns an interest in Lake Conroe Dam and Reservoir, located in Montgomery and Walker Counties ("Lake Conroe") upstream on the San Jacinto River from the Lake Houston Reservoir, and holds certain contract rights and water rights issued by the TCEQ to divert or release and use water from Lake Conroe; and

WHEREAS, the Authority, by and through its Lake Conroe Division, operates Lake Conroe and sells water out of such rights to customers located in Montgomery County, generally in close proximity to Lake Conroe; and

WHEREAS, the Authority, by and through its Woodlands Division, owns and operates an extensive water supply and distribution system and facilities for providing regional, wholesale services to customers in the area of The Woodlands; and

WHEREAS, the Authority, by and through its Groundwater Reduction Plan Division (the "GRP Division"), owns and operates a surface water treatment facility and transmission system that will withdraw water from Lake Conroe for treatment, distribution and sale to its Woodlands Division and certain other customers; and

WHEREAS, in connection with the management of such facilities, systems and operations, the Authority has previously adopted various Water Conservation Plans and Drought Contingency Plans (collectively, the "Plans") in accordance with the requirements of Chapter 11, Texas Water Code, as amended, and the rules of the TCEQ under Chapter 288 of Title 30, Texas Administrative Code, as amended; and

WHEREAS, the Board of Directors of the Authority has determined that it is in the public interest to revise and replace the Plans; Now, Therefore,

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SAN JACINTO RIVER AUTHORITY, THAT:

Section 1: The Plans, as previously adopted and amended by the Authority, are hereby repealed and rescinded in its entirety.

Section 2: The Board of Directors of the Authority hereby approves and adopts the revised water conservation and drought contingency plans, each dated as of the date hereof, titled as follows: *Water Conservation Plan for San Jacinto River Authority Highlands Division; Drought Contingency Plan for San Jacinto River Authority Highlands Division; Water Conservation Plan for San Jacinto River Authority Lake Conroe Division; Drought Contingency Plan for San Jacinto River Authority Lake Conroe Division; Water Conservation Plan for San Jacinto River Authority Woodlands Division; Drought Contingency Plan for San Jacinto River Authority Woodlands Division; Water Conservation Plan for San Jacinto River Authority GRP Division; and Drought Contingency Plan for San Jacinto River Authority GRP Division* (collectively, the "Revised Plans").

Section 3: The Revised Plans, together with any amendments thereto which may be made from time to time, shall be maintained on file in the official records of the Authority and filed, as appropriate, with the TCEQ, the Texas Water Development Board and any other agencies with jurisdiction.

Section 4: It shall be the policy of the Authority that the programs and procedures set forth in the Revised Plans be implemented immediately. The General Manager of the Authority shall report to the Board of Directors of the Authority and other interested agencies annually on the implementation and effectiveness of the Revised Plans in accordance with the procedures set forth in the Revised Plans.

Section 5: The General Manager of the Authority is hereby designated as the official responsible for implementation of the Revised Plans in accordance with the guidelines set forth in the Revised Plans.

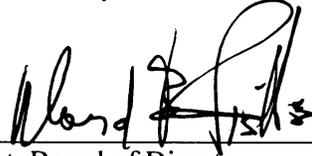
Section 6: It shall be the policy of the Authority to support and assist its wholesale and retail customers in (1) designating their pre-assigned officials as having the responsibility and authority to implement the Revised Plans, (2) allowing for enforcement of the Revised Plans, and (3) providing civil penalties for noncompliance with the Revised Plans.

Section 7: It shall be the policy of the Authority that the *Water Conservation Plan for San Jacinto River Authority GRP Division* and the *Drought Contingency Plan for San Jacinto River Authority GRP Division* establish minimum requirements which shall be adopted, respectively, in a water conservation plan and a drought contingency by each participant in the Authority's Groundwater Reduction Plan. The General Manager of the Authority and the GRP Administrator are hereby authorized and directed to take such actions as are deemed necessary and appropriate to ensure that the participants in the Authority's Groundwater Reduction Plan (the "Participants") adopt water conservation plans and drought contingency plans that are reasonably determined to meet or exceed such minimum requirements. Further, it shall be the policy of the Authority to support and assist the Participants in (1) adopting such water

conservation plans and drought contingency plans, and (2) implementing and enforcing such water conservation plans and drought contingency plans.

Section 8: This Resolution shall be and remain in full force and effect from and after the date of its passage and approval.

PASSED AND APPROVED this 28th day of February, 2019.



President, Board of Directors



Secretary, Board of Directors

(SEAL)



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San Jacinto River Authority

ADMINISTRATIVE OFFICE
P.O. Box 329 · Conroe, Texas 77305
(T) 936.588.3111 · (F) 936.588.3043

March 12, 2019

Mark Evans, Chair
Region H Water Planning Group
c/o San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305

Re: Water Conservation and Drought Contingency Plans

Dear Mr. Evans:

Please find enclosed one (1) copy of the revised Water Conservation and Drought Contingency Plans for the San Jacinto River Authority's Lake Conroe, GRP, Woodlands, and Highlands Divisions. San Jacinto River Authority's Board of Directors adopted the enclosed plans on February 28, 2019. These revisions have been completed to meet the regulatory requirement to update and submit the Plans to TCEQ and TWDB by May, 1, 2019. Electronic versions of the Plans are available on San Jacinto River Authority's website at <http://www.sjra.net/about/wc-dcp/>.

If you have any questions, please do not hesitate to contact Daniel Hilderbrandt, P.E. at (936) 588-7121 or dhilderbrandt@sjra.net.

Sincerely,

Ronald Kelling, P.E.
Deputy General Manager
San Jacinto River Authority

Cc: Mark Smith, P.E.
Chris Meeks
Kimberly Wright
Bret Raley
Daniel Hilderbrandt, P.E.

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Appendix C

Highlands Division TCEQ Form 20645 - Water Conservation Implementation Report Form and Summary of Updates/Revisions to Water Conservation Plan

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
 Water Availability Division - MC-160, P.O. Box 13087 Austin, Texas 78711-3087
 Telephone (512) 239-4691, FAX (512) 239-2214

**WATER CONSERVATION IMPLEMENTATION REPORT
 FORM AND SUMMARY OF UPDATES/REVISIONS TO
 WATER CONSERVATION PLAN**

(Texas Water Code §11.1271(b) and Title 30 Texas Administrative Code §288.30(1) to (4))

Please note, this form replaces the following forms: TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers)

This Form is applicable to the following entities:

1. **Water Right Holders of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses.**
2. **Water Right Holders of 10,000 acre-feet or more for irrigation uses.**

The above noted entities are required by rule to submit updates to their water conservation plan(s) and water conservation implementation report(s) every five years. The most current five-year submittal deadline is **May 1st, 2019**. See 30 Texas Administrative Code (TAC) §288.30(1) to (4). Entities must also submit any revisions to their water conservation plan within 90 days of adoption when the plans are revised in between the five-year submittal deadlines. This form may be used for the five-year submittal or when revisions are made to the water conservation plans in the interim periods between five-year submittals. Please complete the form as directed below.

1. Water Right Holder Name: San Jacinto River Authority
2. Water Right Permit or Certificate Nos. COA 10-4963, COA 10-4964, COA 10-4965, COA 10-4966, Permit 5807, Permit 5808, Permit 5809, COA 08-4279, Permit 5271
3. Please Indicate by placing an 'X' next to all that Apply to your Entity:

Water Right Holder of 1,000 acre-feet or more for non-irrigation uses

- Municipal Water Use by Public Water Supplier
- Wholesale Public Water Supplier
- Industrial Use
- Mining Use
- Agriculture Non-Irrigation

Water Right Holder of 10,000 acre-feet or more for irrigation uses

- Individually-Operated Irrigation System
- Agricultural Water Suppliers Providing Water to More Than One User

Water Conservation Implementation Reports/Annual Reports

4. Water Conservation Annual Reports for the previous five years were submitted to the Texas Water Development Board (TWDB) for each of the uses indicated above as required by 30 TAC §288.30(10)(C)? Yes No

TCEQ no longer requires submittal of the information contained in the detailed implementation report previously required in Forms TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers). However, the Entity must be up-to-date on its Annual Report Submittals to the TWDB.

Water Conservation Plans

5. For the five-year submittal (or for revisions between the five-year submittals), attach your updated or revised Water Conservation Plan for each of the uses indicated in Section 3, above. Every updated or revised water conservation plan submitted must contain each of the minimum requirements found in the TCEQ rules and must be duly adopted by the entity submitting the water conservation plan. Please include evidence that each water conservation plan submitted has been adopted.

- Rules on minimum requirements for Water Conservation Plans can be found in 30 TAC 288.
http://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288
- Forms which include the minimum requirements and other useful information are also available to assist you. Visit the TCEQ webpage for Water Conservation Plans and Reports. https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/conserv.html

Call 512-239-4691 or email to wcp@tceq.texas.gov for assistance with the requirements for your water conservation plan(s) and report(s).

6. For each Water Conservation Plan submitted, state whether the five and ten-year targets for water savings and water loss were met in your *previous* water conservation plan.

Yes _____ No

If the targets were not met, please provide an explanation.

The previous Water Conservation Plan for the Highlands Division set a goal of 1% reduction in water use per year. The Highlands Division's total water use increased ~8,959 acre-feet between 2014 and 2018. Also the average 5-year water usage between 2009-2013 was 69,106.8 acre-ft/year, and the average 5-year water usage between 2014-2018 was 70,352.2 acre-ft/year. This results in a 1.8% increase in the average 5-year water use for the Division. This increase was largely due to the Division's major industrial customers increasing their contract demands due to facility/plant expansions. The Highlands Division provides wholesale raw water and has no direct control over its customers usages, however encourages all its customers to utilize best management practices.

7. For each five-year submittal, does each water conservation plan submitted contain *updated* five and ten-year targets for water savings and water loss?

Yes No _____

If yes, please identify where in the water conservation plan the updated targets are located (page, section).

Section 3.1, Page 3-1

8. In the box below (or in an attachment titled "Summary of Updates or Revisions to Water Conservation Plans), please identify any other revisions/updates made to each water conservation plan that is being updated or revised. Please specify the water conservation plan being updated and the location within the plan of the newly adopted updates or revisions.

SJRA Highlands Division
- Updated 5 and 10-year water conservation and water loss goals. (Section 3.1)
- Removed water conservation methods "Conservation Coordination", "Conservation Stakeholder Group", and "Awards and Recognition". The Highlands Division does not plan to utilize these methods in at least the next five years. (Previously included in Section 3)
- Revised/Updated all Figures. (Throughout)
- Other minor text revisions (Throughout)

9. Form Completed by (Point of Contact): Kimberly Wright
(If different than name listed above, owner and contact may be different individual(s)/entities)

Contact Person Title/Position: Kimberly Wright, Highlands Division Manager

Contact Address: P.O. Box 329 Conroe, TX 77305

Contact Phone Number: 936-588-3111 Contact Email Address: kwright@sjra.net

Signature: 

Date: 2/28/2019

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