

# Texas Water Development Board

## PROJECT FUNDING REQUEST

BOARD DATE: July 23, 2015

TEAM MANAGER: Nancy Richards

<b>APPLICANT</b>	North Harris County Regional Water Authority
<b>TYPE OF ASSISTANCE</b>	\$551,760,000 Northeast Water Purification Plant Expansion \$222,135,000 Second Source Transmission Line Phase I (108-inch) \$135,385,000 Second Source Transmission Line Phase II (84-inch) \$44,125,000 2025 Distribution System
<b>LEGAL PLEDGE</b>	Senior Lien Revenues Bonds

### STAFF RECOMMENDATION

☒ Approve      ☐ No Action

### ACTION REQUESTED

Approve, by resolution, a request from **North Harris County Regional Water Authority (Harris County)** for a \$953,405,000 multi-year loan commitment from the State Water Implementation Revenue Fund for Texas to finance the planning, acquisition, design and construction of the Northeast Water Purification Plant expansion; the Second Source Phases I and II water transmission lines, and the internal distribution lines.

### BACKGROUND

Passed by the 83<sup>rd</sup> Legislature and approved by Texas voters through a constitutional amendment the State Water Implementation Fund for Texas (SWIFT) and, the State Water Implementation Revenue Fund for Texas (SWIRFT) were created to provide affordable, alternative financing options to develop projects that are recommended water management strategies in the State Water Plan. The program, referred to as SWIFT, provides financing through low-interest loans, deferral of loan repayments, and incremental repurchase terms for projects with state ownership aspects. All SWIFT projects presented for consideration have been prioritized based on criteria outlined in Texas Administrative Code Title 31 §363.1304 and are included on the prioritized list of projects approved by the Board on May 6, 2015.

Multi-Year Commitment	Expiration Date
<b>\$8,160,000 Series 2015A</b>	<b>December 31, 2015</b>
<b>\$58,125,000 Series 2015B</b>	<b>December 31, 2015</b>
<b>\$10,900,000 Series 2015C</b>	<b>December 31, 2015</b>
<b>\$3,250,000 Series 2015D</b>	<b>December 31, 2015</b>
<b>\$113,170,000 Series 2016</b>	<b>December 31, 2016</b>
<b>\$282,250,000 Series 2017</b>	<b>December 31, 2017</b>
<b>\$342,470,000 Series 2018</b>	<b>December 31, 2018</b>
<b>\$80,470,000 Series 2019</b>	<b>December 31, 2019</b>
<b>\$36,700,000 Series 2020</b>	<b>December 31, 2020</b>
<b>\$17,910,000 Series 2021</b>	<b>December 31, 2021</b>

*Project: Northeast Water Purification Plant Expansion**Project Number 51023*

Groundwater subsidence in the greater Houston area coupled with increasing water demands requires that the North Harris County Regional Water Authority (Authority) and its four regional partners expand the existing Northeast Water Purification Plant (Plant). The Authority will co-fund the expansion of the Plant to increase the water treatment capacity from 80 million gallons per day (MGD) to 400 MGD. The expansion will provide the participants with additional surface water supply to help meet the regulatory requirements of the Harris-Galveston Subsidence District and the Fort Bend Subsidence District. The Authority will own approximately 35% of the expansion project capacity. The regional partners have all submitted applications for their proposed shares which will be presented for consideration in tandem with this request.

**NORTHEAST WATER PURIFICATION PLANT REGIONAL PARTNERS**

ENTITY	APPROXIMATE % SHARE OF PROJECT CAPACITY	AMOUNT
<b>NORTH FORT BEND WA</b>	<b>21%</b>	<b>\$251,845,000</b>
<b>CENTRAL HARRIS CO. RWA</b>	<b>2%</b>	<b>\$22,655,000</b>
<b>NORTH HARRIS CO. RWA</b>	<b>35%</b>	<b>\$551,760,000</b>
<b>WEST HARRIS CO. RWA</b>	<b>26%</b>	<b>\$306,200,000</b>
<b>CITY OF HOUSTON</b>	<b>16%</b>	<b>\$183,635,000</b>
<b>TOTAL</b>	<b>100%</b>	<b>\$1,316,095,000</b>

*Project: Second Source Transmission Line Phase I (108-inch line)**Project Number 51021*

The project consists of a 108-inch transmission pipeline jointly shared by Central Harris County Regional Water Authority, the City of Houston, and the North Harris County Regional Water Authority. The line will convey treated surface water approximately 17 miles east from the Plant to the City's Acres Homes Pump Station, terminating just west of IH-45. The City will manage the project.

**SECOND SOURCE TRANSMISSION LINE PHASE I REGIONAL PARTNERS**

ENTITY	APPROXIMATE % SHARE OF PROJECT CAPACITY	AMOUNT
<b>CITY OF HOUSTON</b>	<b>43%</b>	<b>\$112,490,000</b>
<b>CENTRAL HARRIS CO. RWA</b>	<b>2%</b>	<b>\$9,460,000</b>
<b>NORTH HARRIS CO. RWA</b>	<b>55%</b>	<b>\$222,135,000</b>
<b>TOTAL</b>	<b>100%</b>	<b>\$344,085,000</b>

*Project: Second Source Transmission Line Phase II (84-inch line)**Project Number 51009*

The project consists of 84-inch transmission pipeline jointly shared by the Authority and Central Harris County Regional Water Authority. The transmission pipeline continues the 108-inch transmission pipeline from the Northeast Water Purification Plant, west from Interstate 45 to the

North Harris County Regional Water Authority 249 Pump Station. The North Harris County Regional Water Authority will manage the project.

#### SECOND SOURCE TRANSMISSION LINE PHASE II REGIONAL PARTNERS

ENTITY	APPROXIMATE % SHARE OF PROJECT CAPACITY	AMOUNT
<b>CENTRAL HARRIS CO. RWA</b>	<b>15%</b>	<b>\$9,515,000</b>
<b>NORTH HARRIS CO. RWA</b>	<b>85%</b>	<b>\$135,385,000</b>
<b>TOTAL</b>	<b>100%</b>	<b>\$144,900,000</b>

#### *Project Background: Internal Distribution System*

##### *Project Number 51004*

The Internal Distribution System project will provide treated surface water to various municipal water districts and cities to facilitate compliance with the Harris-Galveston Subsidence District regulatory requirements. The initial phase will consist of approximately 12 miles of pipeline ranging in size from 12 to 60-inches in diameter. The Authority will be the sole participant in this project.

#### 2025 DISTRIBUTION SYSTEM

ENTITY	APPROXIMATE % SHARE OF PROJECT CAPACITY	AMOUNT
<b>NORTH HARRIS CO. RWA</b>	<b>100%</b>	<b>\$44,125,000</b>
<b>TOTAL</b>	<b>100%</b>	<b>\$44,125,000</b>

#### FINANCIAL

##### Key Issues

The SWIFT program has the ability to offer applicants multi-year funding commitments. This flexibility allows the TWDB to manage program demands while allowing the applicant to fund large projects over time. Each annual commitment installment will have its own expiration date and the applicable subsidy rate will be applied for up to five years only.

The Authority has requested a multi-year commitment over a period of seven years, 2015 through 2021. The subsidy rate of 22% will be applied to loans closing before 2020.

##### Pledge and Repayment

The Authority is pledging a senior lien on their water system revenue to repay the proposed debt. The Authority will generate gross revenues sufficient to pay and provide for the timely payment of the bonds through groundwater pumpage fees, surface water fees, and service fees assessed pursuant to the Authority's rules and regulations. The Authority has included a covenant to maintain rates and charges sufficient to pay all operation and maintenance expenses. The Authority also intends to collect net revenues for each fiscal year at least equal to 110% of the annual debt service requirement for all outstanding senior lien obligations for the fiscal year, or adjusted net revenues for each fiscal year at least equal to 120% of the annual debt service requirement for all outstanding senior lien obligations of the fiscal year. They also plan to collect net revenues for each fiscal year in an amount sufficient to pay all debt service on senior lien obligations that are due during the fiscal year, and to pay all other obligations of the system

that is expected to be paid from net revenues. An annual review of the net revenues is required to ensure necessary revenues are in place to repay the proposed debt service.

Cost Savings

Based on a 30-year maturity schedule and current interest rates, the Authority could save approximately \$9,000,397 over the life of the \$80,435,000 Series 2015 (A, B, C&D) loans by utilizing TWDB funding.

Internal Risk Score

Staff assigns a risk score of 2B to the Authority, which means that the applicant's repayment capacity is strong. The applicant's earnings trends and coverage ratios, while sound, may be more susceptible to adverse effects of changes in circumstances and economic conditions than the higher rated obligations. This means that the Authority's repayment capacity is adequate.

**LEGAL**

Key Issues

None.

Conditions

Standard SWIFT, tax-exempt, and net revenue conditions and further conditioned as follows:

- Attachments:
1. Project Data Summary
  2. Debt Service Schedules
  3. Total Project Budget
  4. Engineering/Environmental Review/Budget-Plant
  5. Engineering/Environmental Review/Budget-108 inch Line
  6. Engineering/Environmental Review/Budget-84 inch Line
  7. Engineering/Environmental Review/Budget-Internal Distribution
  8. Resolution (15- )
  9. Water Conservation Review
  10. Location Map

<b>Authority</b>	North Harris County Regional Water Authority	
<b>Program</b>	State Water Implementation Fund for Texas	
<b>Commitment Codes</b>	LM15029 LM16029 LM17029 LM18029 LM19029 LM20029 LM21029	Project No. 51023
	LM15023 LM16023 LM17023 LM18023 LM19023 LM20023	Project No. 51021
	LM15011 LM16011 LM17011 LM18011 LM19011	Project No. 51009
	LM15005 LM16005	Project No. 51004
<b>Project Number</b>	51023 – Northeast Purification Plant Expansion 51021 – Second Source Phase I (108-inch) 51009 – Second Source Phase II (84-inch) 51004 – Internal Distribution System	
<b>Intended Use Plan Year</b>	N/A	
<b>Fund Number</b>	361	
<b>Type of Pledge</b>	2	
<b>Revenue Pledge Level</b>	First	
<b>Legal Description</b>	North Harris County Regional Water Authority Senior Lien Revenue Bonds Proposed Series 2015	
<b>Tax-Exempt or Taxable</b>	Tax-Exempt	
<b>Refinance</b>	No	
<b>Outlay Requirement</b>	No	
<b>Disbursement Method</b>	Escrow	
<b>Outlay Type</b>	N/A	
<b>Population</b>	574,317	
<b>Rural</b>	No	
<b>Water Connections</b>	Wholesale Provider	
<b>Wastewater Connections</b>	N/A	
<b>Qualifies as Disadvantaged</b>	N/A	
<b>Disadvantaged Level</b>	9	
<b>Clean Water State Revolving Fund Type</b>	N/A	
<b>Financial, Managerial and Technical Review Complete?</b>	N/A	

<b>SWIFT Financing Type</b>	Low-Interest Loan
<b>SWIFT Characteristics</b>	N/A
<b>Phase Committing</b>	P, A, D, and C
<b>Pre-Design</b>	Yes
<b>Project Consistent with Water Plan</b>	Yes
<b>Water Conservation Plan</b>	Adopted
<b>Water Rights Certification Required</b>	N/A
<b>Internal Risk Score</b>	2B
<b>External Ratings</b>	
<b>Standard and Poor's</b>	AA+
<b>Moody's</b>	Aa2
<b>Fitch</b>	AA
<b>Special Issues</b>	Multi-year Funding Requested for SWIFT

### **Project Team**

Team Manager	Nancy Richards
Financial Analyst	Charles R. Nichols
Engineering Reviewer	James Bronikowski
Environmental Reviewer	Jean Devlin
Attorney	Annette Mass

ISSUE BEING EVALUATED  
FOR ILLUSTRATION PURPOSES ONLY  
North Harris County Regional Water Authority  
Senior Lien Revenue Bonds Proposed Series 2015A

**Dated Date:** 12/1/2015  
**Delivery Date:** 12/1/2015  
**First Interest:** 2/1/2016  
**First Principal:** 8/1/2016  
**Last Principal:** 8/1/2045  
**Fiscal Year End:** 12/31  
**Required Coverage:** 1.0

**Source:** SWIFT-LOW  
**Insurance:** No  
**Case:** Revenue  
**Admin.Fee:** \$ -  
**Admin. Fee Payment Date:** N/A

FISCAL YEAR	PROJECTED NET SYSTEM REVENUES	CURRENT DEBT SERVICE	PRINCIPAL PAYMENT	INTEREST RATE	\$8,160,000 ISSUE		TOTAL DEBT SERVICE	COVERAGE
					INTEREST PAYMENT	TOTAL PAYMENT		
2016	131,079,069	30,676,062	270,000	0.35%	134,407	404,407	31,080,469	4.22
2017	131,079,069	30,672,050	270,000	0.71%	200,654	470,654	31,142,704	4.21
2018	131,079,069	30,672,725	270,000	0.92%	198,729	468,729	31,141,454	4.21
2019	131,079,069	30,675,618	270,000	1.08%	196,259	466,259	31,141,877	4.21
2020	131,079,069	30,675,931	270,000	1.28%	193,345	463,345	31,139,276	4.21
2021	131,079,069	30,671,693	270,000	1.49%	189,884	459,884	31,131,577	4.21
2022	131,079,069	30,679,194	270,000	1.71%	185,853	455,853	31,135,047	4.21
2023	131,079,069	30,664,943	270,000	1.83%	181,233	451,233	31,116,176	4.21
2024	131,079,069	30,668,056	270,000	1.92%	176,297	446,297	31,114,353	4.21
2025	131,079,069	30,673,187	270,000	2.02%	171,108	441,108	31,114,295	4.21
2026	131,079,069	30,678,812	270,000	2.26%	165,646	435,646	31,114,458	4.21
2027	131,079,069	30,670,406	270,000	2.44%	159,557	429,557	31,099,963	4.21
2028	131,079,069	30,667,043	270,000	2.59%	152,972	422,972	31,090,015	4.22
2029	131,079,069	30,665,193	270,000	2.70%	145,979	415,979	31,081,172	4.22
2030	131,079,069	30,672,256	270,000	2.80%	138,695	408,695	31,080,951	4.22
2031	131,079,069	30,673,581	270,000	2.88%	131,140	401,140	31,074,721	4.22
2032	131,079,069	30,674,393	270,000	2.95%	123,359	393,359	31,067,752	4.22
2033	131,079,069	30,678,043	270,000	3.01%	115,391	385,391	31,063,434	4.22
2034	131,079,069	22,626,500	270,000	3.06%	107,269	377,269	23,003,769	5.70
2035	131,079,069	22,624,662	270,000	3.11%	99,007	369,007	22,993,669	5.70
2036	131,079,069	17,071,893	270,000	3.15%	90,616	360,616	17,432,509	7.52
2037	131,079,069	17,073,043	270,000	3.19%	82,108	352,108	17,425,151	7.52
2038	131,079,069	17,071,462	270,000	3.22%	73,492	343,492	17,414,954	7.53
2039	131,079,069	-	270,000	3.25%	64,790	334,790	334,790	391.53
2040	131,079,069	-	270,000	3.28%	56,004	326,004	326,004	402.08
2041	131,079,069	-	270,000	3.31%	47,143	317,143	317,143	413.31
2042	131,079,069	-	270,000	3.33%	38,211	308,211	308,211	425.29
2043	131,079,069	-	270,000	3.34%	29,223	299,223	299,223	438.06
2044	131,079,069	-	270,000	3.36%	20,194	290,194	290,194	451.69
2045	131,079,069	-	330,000	3.37%	11,128	341,128	341,128	384.25
		\$ 648,576,746	\$ 8,160,000		\$ 3,679,692	\$ 11,839,692	\$ 660,416,438	

<b>AVERAGE (MATURITY) LIFE</b>	<b>15.27 YEARS</b>
<b>NET INTEREST RATE</b>	<b>2.952%</b>
<b>COST SAVINGS BASED ON 2015 SERIES ABC&amp;D</b>	<b>\$9,000,397</b>
<b>AVERAGE ANNUAL REQUIREMENT</b>	<b>\$22,013,881</b>

ISSUE BEING EVALUATED  
FOR ILLUSTRATION PURPOSES ONLY  
North Harris County Regional Water Authority  
Senior Lien Revenue Bonds Proposed Series 2015B

**Dated Date:** 12/1/2015  
**Delivery Date:** 12/1/2015  
**First Interest:** 2/1/2016  
**First Principal:** 8/1/2016  
**Last Principal:** 8/1/2045  
**Fiscal Year End:** 12/31  
**Required Coverage:** 1.0

**Source:** SWIFT-LOW  
**Insurance:** No  
**Case:** Revenue  
**Admin.Fee:** \$ -  
**Admin. Fee Payment Date:** N/A

FISCAL YEAR	PROJECTED NET SYSTEM REVENUES	CURRENT DEBT SERVICE	PRINCIPAL PAYMENT	INTEREST RATE	\$58,125,000 ISSUE		TOTAL DEBT SERVICE	COVERAGE
					INTEREST PAYMENT	TOTAL PAYMENT		
2016	131,079,069	31,080,469	1,940,000	0.35%	954,359	2,894,359	33,974,828	3.86
2017	131,079,069	31,142,704	1,940,000	0.71%	1,424,671	3,364,671	34,507,375	3.80
2018	131,079,069	31,141,454	1,940,000	0.92%	1,410,839	3,350,839	34,492,293	3.80
2019	131,079,069	31,141,877	1,940,000	1.08%	1,393,088	3,333,088	34,474,965	3.80
2020	131,079,069	31,139,276	1,940,000	1.28%	1,372,155	3,312,155	34,451,431	3.80
2021	131,079,069	31,131,577	1,940,000	1.49%	1,347,284	3,287,284	34,418,861	3.81
2022	131,079,069	31,135,047	1,940,000	1.71%	1,318,320	3,258,320	34,393,367	3.81
2023	131,079,069	31,116,176	1,940,000	1.83%	1,285,127	3,225,127	34,341,303	3.82
2024	131,079,069	31,114,353	1,940,000	1.92%	1,249,663	3,189,663	34,304,016	3.82
2025	131,079,069	31,114,295	1,940,000	2.02%	1,212,377	3,152,377	34,266,672	3.83
2026	131,079,069	31,114,458	1,940,000	2.26%	1,173,130	3,113,130	34,227,588	3.83
2027	131,079,069	31,099,963	1,940,000	2.44%	1,129,383	3,069,383	34,169,346	3.84
2028	131,079,069	31,090,015	1,940,000	2.59%	1,082,067	3,022,067	34,112,082	3.84
2029	131,079,069	31,081,172	1,940,000	2.70%	1,031,821	2,971,821	34,052,993	3.85
2030	131,079,069	31,080,951	1,940,000	2.80%	979,480	2,919,480	34,000,431	3.86
2031	131,079,069	31,074,721	1,940,000	2.88%	925,198	2,865,198	33,939,919	3.86
2032	131,079,069	31,067,752	1,940,000	2.95%	869,288	2,809,288	33,877,040	3.87
2033	131,079,069	31,063,434	1,940,000	3.01%	812,038	2,752,038	33,815,472	3.88
2034	131,079,069	23,003,769	1,940,000	3.06%	753,683	2,693,683	25,697,452	5.10
2035	131,079,069	22,993,669	1,940,000	3.11%	694,319	2,634,319	25,627,988	5.11
2036	131,079,069	17,432,509	1,940,000	3.15%	634,024	2,574,024	20,006,533	6.55
2037	131,079,069	17,425,151	1,940,000	3.19%	572,894	2,512,894	19,938,045	6.57
2038	131,079,069	17,414,954	1,940,000	3.22%	510,989	2,450,989	19,865,943	6.60
2039	131,079,069	334,790	1,940,000	3.25%	448,463	2,388,463	2,723,253	48.13
2040	131,079,069	326,004	1,940,000	3.28%	385,335	2,325,335	2,651,339	49.44
2041	131,079,069	317,143	1,940,000	3.31%	321,664	2,261,664	2,578,807	50.83
2042	131,079,069	308,211	1,940,000	3.33%	257,489	2,197,489	2,505,700	52.31
2043	131,079,069	299,223	1,940,000	3.34%	192,907	2,132,907	2,432,130	53.89
2044	131,079,069	290,194	1,940,000	3.36%	128,033	2,068,033	2,358,227	55.58
2045	131,079,069	341,128	1,865,000	3.37%	62,888	1,927,888	2,269,016	57.77
		\$ 660,416,439	\$ 58,125,000		\$ 25,932,975	\$ 84,057,975	\$ 744,474,414	

<b>AVERAGE (MATURITY) LIFE</b>	<b>15.15 YEARS</b>
<b>NET INTEREST RATE</b>	<b>2.945%</b>
<b>COST SAVINGS BASED ON 2015 SERIES ABC&amp;D</b>	<b>\$9,000,397</b>
<b>AVERAGE ANNUAL REQUIREMENT</b>	<b>\$24,815,814</b>



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North Harris County Regional Water Authority  
Senior Lien Revenue Bonds Proposed Series 2015C

**Dated Date:** 12/1/2015  
**Delivery Date:** 12/1/2015  
**First Interest:** 2/1/2016  
**First Principal:** 8/1/2016  
**Last Principal:** 8/1/2045  
**Fiscal Year End:** 12/31  
**Required Coverage:** 1.0

**Source:** SWIFT-LOW  
**Insurance:** No  
**Case:** Revenue  
**Admin.Fee:** \$ -  
**Admin. Fee Payment Date:** N/A

FISCAL YEAR	PROJECTED NET SYSTEM REVENUES	CURRENT DEBT SERVICE	PRINCIPAL PAYMENT	INTEREST RATE	\$10,900,000 ISSUE		TOTAL DEBT SERVICE	COVERAGE
					INTEREST PAYMENT	TOTAL PAYMENT		
2016	131,079,069	33,974,828	365,000	0.35%	178,750	543,750	34,518,578	3.80
2017	131,079,069	34,507,375	365,000	0.71%	266,834	631,834	35,139,209	3.73
2018	131,079,069	34,492,293	365,000	0.92%	264,231	629,231	35,121,524	3.73
2019	131,079,069	34,474,965	365,000	1.08%	260,891	625,891	35,100,856	3.73
2020	131,079,069	34,451,431	365,000	1.28%	256,953	621,953	35,073,384	3.74
2021	131,079,069	34,418,861	365,000	1.49%	252,274	617,274	35,036,135	3.74
2022	131,079,069	34,393,367	365,000	1.71%	246,824	611,824	35,005,191	3.74
2023	131,079,069	34,341,303	365,000	1.83%	240,579	605,579	34,946,882	3.75
2024	131,079,069	34,304,016	365,000	1.92%	233,907	598,907	34,902,923	3.76
2025	131,079,069	34,266,672	365,000	2.02%	226,892	591,892	34,858,564	3.76
2026	131,079,069	34,227,588	365,000	2.26%	219,508	584,508	34,812,096	3.77
2027	131,079,069	34,169,346	365,000	2.44%	211,277	576,277	34,745,623	3.77
2028	131,079,069	34,112,082	365,000	2.59%	202,375	567,375	34,679,457	3.78
2029	131,079,069	34,052,993	365,000	2.70%	192,921	557,921	34,610,914	3.79
2030	131,079,069	34,000,431	365,000	2.80%	183,073	548,073	34,548,504	3.79
2031	131,079,069	33,939,919	365,000	2.88%	172,861	537,861	34,477,780	3.80
2032	131,079,069	33,877,040	365,000	2.95%	162,341	527,341	34,404,381	3.81
2033	131,079,069	33,815,472	365,000	3.01%	151,570	516,570	34,332,042	3.82
2034	131,079,069	25,697,452	365,000	3.06%	140,591	505,591	26,203,043	5.00
2035	131,079,069	25,627,988	365,000	3.11%	129,422	494,422	26,122,410	5.02
2036	131,079,069	20,006,533	365,000	3.15%	118,078	483,078	20,489,611	6.40
2037	131,079,069	19,938,045	365,000	3.19%	106,577	471,577	20,409,622	6.42
2038	131,079,069	19,865,943	365,000	3.22%	94,930	459,930	20,325,873	6.45
2039	131,079,069	2,723,253	365,000	3.25%	83,166	448,166	3,171,419	41.33
2040	131,079,069	2,651,339	365,000	3.28%	71,288	436,288	3,087,627	42.45
2041	131,079,069	2,578,807	365,000	3.31%	59,309	424,309	3,003,116	43.65
2042	131,079,069	2,505,700	365,000	3.33%	47,235	412,235	2,917,935	44.92
2043	131,079,069	2,432,130	365,000	3.34%	35,084	400,084	2,832,214	46.28
2044	131,079,069	2,358,227	365,000	3.36%	22,879	387,879	2,746,106	47.73
2045	131,079,069	2,269,016	315,000	3.37%	10,622	325,622	2,594,638	50.52
		\$ 744,474,415	\$ 10,900,000		\$ 4,843,240	\$ 15,743,240	\$ 760,217,655	

<b>AVERAGE (MATURITY) LIFE</b>	<b>15.1 YEARS</b>
<b>NET INTEREST RATE</b>	<b>2.943%</b>
<b>COST SAVINGS BASED ON 2015 SERIES ABC&amp;D</b>	<b>\$9,000,397</b>
<b>AVERAGE ANNUAL REQUIREMENT</b>	<b>\$25,340,589</b>

ISSUE BEING EVALUATED  
FOR ILLUSTRATION PURPOSES ONLY  
North Harris County Regional Water Authority  
Senior Lien Revenue Bonds Proposed Series 2015D

**Dated Date:** 12/1/2015  
**Delivery Date:** 12/1/2015  
**First Interest:** 2/1/2016  
**First Principal:** 8/1/2016  
**Last Principal:** 8/1/2045  
**Fiscal Year End:** 12/31  
**Required Coverage:** 1.0

**Source:** SWIFT-LOW  
**Insurance:** No  
**Case:** Revenue  
**Admin.Fee:** \$ -  
**Admin. Fee Payment Date:** N/A

FISCAL YEAR	PROJECTED NET SYSTEM REVENUES	CURRENT DEBT SERVICE	PRINCIPAL PAYMENT	INTEREST RATE	\$3,250,000 ISSUE		TOTAL DEBT SERVICE	COVERAGE
					INTEREST PAYMENT	TOTAL PAYMENT		
2016	131,079,069	34,518,578	110,000	0.35%	53,085	163,085	34,681,663	3.78
2017	131,079,069	35,139,209	110,000	0.71%	79,238	189,238	35,328,447	3.71
2018	131,079,069	35,121,524	110,000	0.92%	78,453	188,453	35,309,977	3.71
2019	131,079,069	35,100,856	110,000	1.08%	77,447	187,447	35,288,303	3.71
2020	131,079,069	35,073,384	110,000	1.28%	76,260	186,260	35,259,644	3.72
2021	131,079,069	35,036,135	110,000	1.49%	74,850	184,850	35,220,985	3.72
2022	131,079,069	35,005,191	110,000	1.71%	73,208	183,208	35,188,399	3.73
2023	131,079,069	34,946,882	110,000	1.83%	71,325	181,325	35,128,207	3.73
2024	131,079,069	34,902,923	110,000	1.92%	69,315	179,315	35,082,238	3.74
2025	131,079,069	34,858,564	110,000	2.02%	67,200	177,200	35,035,764	3.74
2026	131,079,069	34,812,096	110,000	2.26%	64,975	174,975	34,987,071	3.75
2027	131,079,069	34,745,623	110,000	2.44%	62,495	172,495	34,918,118	3.75
2028	131,079,069	34,679,457	110,000	2.59%	59,812	169,812	34,849,269	3.76
2029	131,079,069	34,610,914	110,000	2.70%	56,963	166,963	34,777,877	3.77
2030	131,079,069	34,548,504	110,000	2.80%	53,995	163,995	34,712,499	3.78
2031	131,079,069	34,477,780	110,000	2.88%	50,917	160,917	34,638,697	3.78
2032	131,079,069	34,404,381	110,000	2.95%	47,747	157,747	34,562,128	3.79
2033	131,079,069	34,332,042	110,000	3.01%	44,501	154,501	34,486,543	3.80
2034	131,079,069	26,203,043	110,000	3.06%	41,192	151,192	26,354,235	4.97
2035	131,079,069	26,122,410	110,000	3.11%	37,826	147,826	26,270,236	4.99
2036	131,079,069	20,489,611	110,000	3.15%	34,407	144,407	20,634,018	6.35
2037	131,079,069	20,409,622	110,000	3.19%	30,941	140,941	20,550,563	6.38
2038	131,079,069	20,325,873	110,000	3.22%	27,431	137,431	20,463,304	6.41
2039	131,079,069	3,171,419	110,000	3.25%	23,886	133,886	3,305,305	39.66
2040	131,079,069	3,087,627	110,000	3.28%	20,306	130,306	3,217,933	40.73
2041	131,079,069	3,003,116	110,000	3.31%	16,696	126,696	3,129,812	41.88
2042	131,079,069	2,917,935	110,000	3.33%	13,057	123,057	3,040,992	43.10
2043	131,079,069	2,832,214	110,000	3.34%	9,395	119,395	2,951,609	44.41
2044	131,079,069	2,746,106	110,000	3.36%	5,717	115,717	2,861,823	45.80
2045	131,079,069	2,594,638	60,000	3.37%	2,023	62,023	2,656,661	49.34
		\$ 760,217,657	\$ 3,250,000		\$ 1,424,663	\$ 4,674,663	\$ 764,892,320	

<b>AVERAGE (MATURITY) LIFE</b>	<b>14.94 YEARS</b>
<b>NET INTEREST RATE</b>	<b>2.933%</b>
<b>COST SAVINGS BASED ON 2015 SERIES ABC&amp;D</b>	<b>\$9,000,397</b>
<b>AVERAGE ANNUAL REQUIREMENT</b>	<b>\$25,496,411</b>

ISSUE BEING EVALUATED  
FOR ILLUSTRATION PURPOSES ONLY  
North Harris County Regional Water Authority  
Senior Lien Revenue Bonds Proposed Series 2016-2021

**Dated Date:** 12/1/2016  
**Delivery Date:** 12/1/2016  
**First Interest:** 2/1/2017  
**First Principal:** 8/1/2017  
**Last Principal:** 8/1/2045  
**Fiscal Year End:** 12/31  
**Required Coverage:** 1.0

**Source:** SWIFT-LOW  
**Insurance:** No  
**Case:** Revenue  
**Admin.Fee:** \$ -  
**Admin. Fee Payment Date:** N/A

FISCAL YEAR	PROJECTED NET SYSTEM REVENUES	CURRENT DEBT SERVICE	PRINCIPAL PAYMENT	INTEREST RATE	\$872,970,000 ISSUE		TOTAL DEBT SERVICE	COVERAGE
					INTEREST PAYMENT	TOTAL PAYMENT		
2017	135,241,250	35,330,133	30,100,000	0.71%	14,764,018	44,864,018	80,194,151	1.69
2018	135,241,250	35,311,663	30,100,000	0.92%	21,931,414	52,031,414	87,343,077	1.55
2019	135,241,250	35,289,989	30,100,000	1.08%	21,655,999	51,755,999	87,045,988	1.55
2020	135,241,250	35,261,330	30,100,000	1.28%	21,331,220	51,431,220	86,692,550	1.56
2021	135,241,250	35,222,671	30,100,000	1.49%	20,945,338	51,045,338	86,268,009	1.57
2022	135,241,250	35,190,085	30,100,000	1.71%	20,495,945	50,595,945	85,786,030	1.58
2023	135,241,250	35,129,893	30,100,000	1.83%	19,980,934	50,080,934	85,210,827	1.59
2024	135,241,250	35,083,924	30,100,000	1.92%	19,430,706	49,530,706	84,614,630	1.60
2025	135,241,250	35,037,450	30,100,000	2.02%	18,852,184	48,952,184	83,989,634	1.61
2026	135,241,250	34,988,757	30,100,000	2.26%	18,243,261	48,343,261	83,332,018	1.62
2027	135,241,250	34,919,804	30,100,000	2.44%	17,564,506	47,664,506	82,584,310	1.64
2028	135,241,250	34,850,955	30,100,000	2.59%	16,830,367	46,930,367	81,781,322	1.65
2029	135,241,250	34,779,563	30,100,000	2.70%	16,050,777	46,150,777	80,930,340	1.67
2030	135,241,250	34,714,185	30,100,000	2.80%	15,238,679	45,338,679	80,052,864	1.69
2031	135,241,250	34,640,383	30,100,000	2.88%	14,396,481	44,496,481	79,136,864	1.71
2032	135,241,250	34,563,814	30,100,000	2.95%	13,528,999	43,628,999	78,192,813	1.73
2033	135,241,250	34,488,229	30,100,000	3.01%	12,640,748	42,740,748	77,228,977	1.75
2034	135,241,250	26,355,921	30,100,000	3.06%	11,735,340	41,835,340	68,191,261	1.98
2035	135,241,250	26,271,922	30,100,000	3.11%	10,814,280	40,914,280	67,186,202	2.01
2036	135,241,250	20,635,704	30,100,000	3.15%	9,878,772	39,978,772	60,614,476	2.23
2037	135,241,250	20,552,249	30,100,000	3.19%	8,930,321	39,030,321	59,582,570	2.27
2038	135,241,250	20,464,990	30,100,000	3.22%	7,969,830	38,069,830	58,534,820	2.31
2039	135,241,250	3,306,991	30,100,000	3.25%	6,999,707	37,099,707	40,406,698	3.35
2040	135,241,250	3,219,619	30,100,000	3.28%	6,020,253	36,120,253	39,339,872	3.44
2041	135,241,250	3,131,498	30,100,000	3.31%	5,032,371	35,132,371	38,263,869	3.53
2042	135,241,250	3,042,678	30,100,000	3.33%	4,036,663	34,136,663	37,179,341	3.64
2043	135,241,250	2,953,295	30,100,000	3.34%	3,034,634	33,134,634	36,087,929	3.75
2044	135,241,250	2,863,509	30,100,000	3.36%	2,028,090	32,128,090	34,991,599	3.86
2045	135,241,250	2,708,347	30,170,000	3.37%	1,017,332	31,187,332	33,895,679	3.99
		\$ 730,309,551	\$ 872,970,000		\$ 381,379,180	\$ 1,254,349,180	\$ 1,984,658,731	

AVERAGE (MATURITY) LIFE	14.67 YEARS
NET INTEREST RATE	2.978%
COST SAVINGS	
AVERAGE ANNUAL REQUIREMENT	\$68,436,508

**North Harris County Regional Water Authority  
Total Funding**

<b>Budget Items</b>	<b>TWDB Funds</b>	<b>Local &amp; Other Funds</b>	<b>Total Cost</b>
<b>Construction</b>			
Construction	\$582,256,821	\$0	\$582,256,821
<b>Construction Total</b>	<b>\$582,256,821</b>	<b>\$0</b>	<b>\$582,256,821</b>
<b>Basic Engineering Services</b>			
Planning	\$38,012,082	\$0	\$38,012,082
Design	\$73,691,176	\$0	\$73,691,176
Construction Engineering	\$2,500,000	\$0	\$2,500,000
<b>Basic Engineering Services Total</b>	<b>\$114,203,258</b>	<b>\$0</b>	<b>\$114,203,258</b>
<b>Special Services</b>			
Environmental	\$520,369	\$0	\$520,369
Project Management (by engineer)	\$1,057,264	\$0	\$1,057,264
<b>Special Services Total</b>	<b>\$1,577,633</b>	<b>\$0</b>	<b>\$1,577,633</b>
<b>Contingency</b>			
Contingency	\$126,108,555	\$0	\$126,108,555
<b>Contingency Total</b>	<b>\$126,108,555</b>	<b>\$0</b>	<b>\$126,108,555</b>
<b>Other</b>			
Land/Easements Acquisition	\$15,060,922		\$15,060,922
<b>Other Total</b>	<b>\$15,060,922</b>	<b>\$0</b>	<b>\$15,060,922</b>
<b>Fiscal Services</b>			
Financial Advisor	\$1,632,142	\$0	\$1,632,142
Bond Counsel	\$3,009,000		\$3,009,000
Bond Reserve Fund	\$49,049,357	\$0	\$49,049,357
Capitalized Interest	\$58,137,170	\$0	\$58,137,170
Issuance Costs	\$1,807,554	\$0	\$1,807,554
Fiscal/Legal	\$562,588		\$562,588
<b>Fiscal Services Total</b>	<b>\$114,197,811</b>	<b>\$0</b>	<b>\$114,197,811</b>
<b>Grand Total</b>	<b>\$953,405,000</b>	<b>\$0</b>	<b>\$953,405,000</b>

**North Harris County Regional Water Authority  
51023 – Northeast Water Purification Plant Expansion  
Engineering and Environmental Review**

**Engineering:**

Key Issues:

None.

Project Need/Description

Need: The need for surface water treatment facility infrastructure improvements follows the passage of rules and regulations issued by the Harris-Galveston Subsidence District (Subsidence District) to decrease groundwater usage and consequently increase surface water usage in the Subsidence District. Groundwater subsidence in the greater Houston area coupled with increasing water demands requires that the City of Houston (City) and regional partners expand the existing Northeast Water Purification Plant (NEWPP).

Project Description: The City along with the North Harris County Regional Water Authority, West Harris County Regional Water Authority, Central Harris County Regional Water Authority, and North Fort Bend Water Authority (Authorities) is seeking financial assistance for the planning, design, and construction of an expansion to the existing NEWPP that will increase the surface water intake and treated water production capacity from 80 million gallons per day (MGD) to 400 MGD. The expansion will provide the project participants with an additional surface water supply to help achieve the regulatory requirements of the Harris-Galveston Subsidence District and the Fort Bend Subsidence District that restrict groundwater usage.

**Project Schedule:**

<b>Project Task</b>	<b>Schedule Date</b>
Closing	12/1/2015
Engineering Feasibility Report Completion (End of Planning Phase)	12/31/2016
Start of Construction	12/31/2017
Design Phase Complete	12/31/2018
Construction Completion	1/31/2025

**Environmental Section:**

Key Issues:

None known at this time.

Environmental Summary:

Pursuant to the requirements of 31 Texas Administrative Code (TAC) §363.14, all financial assistance shall be conditioned to read that funding for design and construction costs for specific project elements will not be released until the environmental review has been completed and a favorable environmental determination has been issued.

**Houston**  
**51023 - Northeast Water Purification Plant Expansion**

Budget Items	Houston	North Fort Bend Water Authority	Central Harris County Regional Water Authority	North Harris County Regional Water Authority	West Harris County Regional Water Authority	TWDB Total Funds
<b>Construction</b>						
Construction	\$164,613,118	\$0	\$0	\$336,094,399	\$0	\$500,707,517
<b>Construction Total</b>	<b>\$164,613,118</b>	<b>\$0</b>	<b>\$0</b>	<b>\$336,094,399</b>	<b>\$0</b>	<b>\$500,707,517</b>
<b>Basic Engineering Services</b>						
Planning	\$1,502,421	\$0	\$0	\$32,021,093	\$0	\$33,523,514
Design	\$12,423,339	\$0	\$0	\$49,074,352	\$0	\$61,497,691
Construciton						
Engineering	\$4,177,947	\$0	\$0	\$0	\$0	\$4,177,947
<b>Basic Engineering Services Total</b>	<b>\$18,103,707</b>	<b>\$0</b>	<b>\$0</b>	<b>\$81,095,445</b>	<b>\$0</b>	<b>\$99,199,152</b>
<b>Contingency</b>						
Contingency	\$0	\$0	\$0	\$68,897,149	\$0	\$68,897,149
<b>Contingency Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$68,897,149</b>	<b>\$0</b>	<b>\$68,897,149</b>
<b>Other</b>						
Capacity Buy-In	\$0	\$250,799,616	\$19,256,750		\$306,200,000	\$576,256,366
<b>Other Total</b>	<b>\$0</b>	<b>\$250,799,616</b>	<b>\$19,256,750</b>	<b>\$0</b>	<b>\$306,200,000</b>	<b>\$576,256,366</b>
<b>Fiscal Services</b>						
Financial Advisor	\$0	\$645,886	\$0	\$652,142	\$0	\$1,298,028
Bond Counsel	\$0	\$399,498	\$0	\$1,480,000	\$0	\$1,879,498
Capitalized Interest	\$0	\$0	\$0	\$34,194,200	\$0	\$34,194,200
Fiscal/Legal	\$0	\$0	\$3,398,250	\$170,000	\$0	\$3,568,250
Bond Reserve Fund	\$0	\$0	\$0	\$28,488,665	\$0	\$28,488,665
Issuance Costs	\$918,175	\$0	\$0	\$688,000	\$0	\$1,606,175
<b>Fiscal Services Total</b>	<b>\$918,175</b>	<b>\$1,045,384</b>	<b>\$3,398,250</b>	<b>\$65,673,007</b>	<b>\$0</b>	<b>\$71,034,816</b>
<b>Grand Total</b>	<b>\$183,635,000</b>	<b>\$251,845,000</b>	<b>\$22,655,000</b>	<b>\$551,760,000</b>	<b>\$306,200,000</b>	<b>\$1,316,095,000</b>

**North Harris County Regional Water Authority  
51021 – Second Source Transmission Line  
Phase I (108-inch)  
Engineering and Environmental Review**

**Engineering:**

Key Issues:

None.

Project Need/Description

Need: The need for surface water treatment facility infrastructure improvements follows the passage of rules and regulations issued by the Harris-Galveston Subsidence District (Subsidence District) to decrease groundwater usage and consequently increase surface water usage in the Subsidence District. Groundwater subsidence in the greater Houston area coupled with increasing water demands requires that the City of Houston and regional partners expand the existing Northeast Water Purification Plant (NEWPP). To accommodate the planned plant expansion, the City and both the North Harris County Regional Water Authority and Central Harris County Regional Water Authority will require a system to transport this increase in water supply to their service areas.

Project Description: The City and the Authorities are seeking financial assistance for the planning, design, and construction of a 108" shared transmission pipeline approximately 17 miles in length from the City's NEWPP to just west of IH 45. This pipeline will convey treated surface water from the NEWPP to the City and Authorities and allow them to supplement their current water supplies.

**Project Schedule:**

<b>Project Task</b>	<b>Schedule Date</b>
Closing	12/1/2015
Engineering Feasibility Report Completion (End of Planning Phase)	3/31/2016
Start of Construction	2/28/2017
Design Phase Complete	9/30/2025
Construction Completion	5/31/2028

**Environmental Section:**

Key Issues:

None known at this time.

Environmental Summary:

Pursuant to the requirements of 31 Texas Administrative Code (TAC) §363.14, all financial assistance shall be conditioned to read that funding for acquisition, design, and construction costs for specific project elements will not be released until the environmental review has been completed and a favorable environmental determination has been issued.

## 51021 - Second Source Transmission Line Phase I (108-inch)

Budget Items	Houston TWDB Funds	Central Harris County Regional Water Authority	North Harris County Regional Water Authority	TWDB Total Funds
<b>Construction</b>				
Construction	\$103,652,532	\$0	\$134,922,895	\$238,575,427
<b>Construction Total</b>	<b>\$103,652,532</b>	<b>\$0</b>	<b>\$134,922,895</b>	<b>\$238,575,427</b>
<b>Basic Engineering Services</b>				
Planning	\$563,808	\$0	\$5,840,989	\$6,404,797
Design	\$5,638,197	\$0	\$17,420,472	\$23,058,669
Construciton Engineering	\$2,073,013	\$0	\$0	\$2,073,013
<b>Basic Engineering Services Total</b>	<b>\$8,275,018</b>	<b>\$0</b>	<b>\$23,261,461</b>	<b>\$31,536,479</b>
<b>Special Services</b>				
Environmental	\$0	\$0	\$399,843	\$399,843
Project Management (by engineer)	\$0	\$0	\$1,057,264	\$1,057,264
<b>Special Services Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,457,107</b>	<b>\$1,457,107</b>
<b>Contingency</b>				
Contingency	\$0	\$0	\$29,305,109	\$29,305,109
<b>Contingency Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$29,305,109</b>	<b>\$29,305,109</b>
<b>Other</b>				
Capacity Buy-In	\$0	\$8,041,000	\$0	\$8,041,000
Land/Easements	\$0	\$0	\$5,496,000	\$5,496,000
<b>Other Total</b>	<b>\$0</b>	<b>\$8,041,000</b>	<b>\$5,496,000</b>	<b>\$13,537,000</b>
<b>Fiscal Services</b>				
Financial Advisor	\$0	\$0	\$600,000	\$600,000
Bond Counsel	\$0	\$0	\$910,000	\$910,000
Capitalized Interest	\$0	\$0	\$13,667,620	\$13,667,620
Fiscal/Legal	\$0	\$1,419,000	\$300,000	\$1,719,000
Bond Reserve Fund	\$0	\$0	\$11,494,808	\$11,494,808
Issuance Costs	\$562,450	\$0	\$720,000	\$1,282,450
<b>Fiscal Services Total</b>	<b>\$562,450</b>	<b>\$1,419,000</b>	<b>\$27,692,428</b>	<b>\$29,673,878</b>
<b>Grand Total</b>	<b>\$112,490,000</b>	<b>\$9,460,000</b>	<b>\$222,135,000</b>	<b>\$344,085,000</b>



**North Harris County Regional Water Authority  
51009 – Second Source Transmission Line  
Phase II (84-inch)  
Engineering and Environmental Review**

**Engineering:**

Key Issues:

None.

Project Need/Description

Need: The North Harris County Regional Water Authority (NHCRWA) has entered into contractual agreements with the City of Houston (City) to purchase treated surface water from the City's Northeast Water Purification Plant (NEWPP) for use in complying with the Harris-Galveston Subsidence District regulatory conversion requirements as detailed in the NHCRWA's Groundwater Reduction Plan. The City, the NHCRWA and the Central Harris County Regional Water Authority (CHCRWA) have also proposed to design and construct a 108" shared transmission pipeline approximately 17 miles in length from the NEWPP to just west of IH 45.

Project Description: The NHCRWA and the CHCRWA are seeking financial assistance for the planning, design, and construction of an 84" transmission pipeline approximately 7.5 miles in length from the end of the proposed 108" transmission line to just west of Highway 249, terminating at the NHCRWA's proposed SH 249 Regional Pump Station.

**Project Schedule:**

<b>Project Task</b>	<b>Schedule Date</b>
Closing	12/1/2015
Engineering Feasibility Report Completion (End of Planning Phase)	3/31/2016
Start of Construction	9/1/2018
Design Phase Complete	7/31/2019
Construction Completion	7/31/2021

**Environmental Section:**

Key Issues:

None known at this time.

Environmental Summary:

Pursuant to the requirements of 31 Texas Administrative Code (TAC) §363.14, all financial assistance shall be conditioned to read that funding for acquisition, design, and construction costs for specific project elements will not be released until the environmental review has been completed and a favorable environmental determination has been issued.

**51009 - Second Source Transmission Line Phase II (84-inch)**

<b>Budget Items</b>	<b>North Harris County Regional Water Authority</b>	<b>Central Harris County Regional Water Authority</b>	<b>Total TWDB Funds</b>
<b>Construction</b>			
Construction	\$81,241,362	\$0	\$81,241,362
<b>Construction Total</b>	<b>\$81,241,362</b>	<b>\$0</b>	<b>\$81,241,362</b>
<b>Basic Engineering Services</b>			
Planning	\$150,000	\$0	\$150,000
Design	\$4,238,852	\$0	\$4,238,852
Construction Engineering	\$2,500,000	\$0	\$2,500,000
<b>Basic Engineering Services Total</b>	<b>\$6,888,852</b>	<b>\$0</b>	<b>\$6,888,852</b>
<b>Special Services</b>			
Environmental	\$120,526	\$0	\$120,526
<b>Special Services Total</b>	<b>\$120,526</b>	<b>\$0</b>	<b>\$120,526</b>
<b>Contingency</b>			
Contingency	\$20,708,212	\$0	\$20,708,212
<b>Contingency Total</b>	<b>\$20,708,212</b>	<b>\$0</b>	<b>\$20,708,212</b>
<b>Other</b>			
Land/Easements Acquisition	\$9,564,922	\$0	\$9,564,922
Capacity Buy-In	\$0	\$8,087,750	\$8,087,750
<b>Other Total</b>	<b>\$9,564,922</b>	<b>\$8,087,750</b>	<b>\$17,652,672</b>
<b>Fiscal Services</b>			
Financial Advisor	\$380,000	\$0	\$380,000
Bond Counsel	\$619,000	\$0	\$619,000
Bond Reserve Fund	\$6,995,914	\$0	\$6,995,914
Capitalized Interest	\$8,374,070	\$0	\$8,374,070
Fiscal/Legal	\$92,588	\$1,427,250	\$1,519,838
Issuance Costs	\$399,554	\$0	\$399,554
<b>Fiscal Services Total</b>	<b>\$16,861,126</b>	<b>\$1,427,250</b>	<b>\$18,288,376</b>
<b>Grand Total</b>	<b>\$135,385,000</b>	<b>\$9,515,000</b>	<b>\$144,900,000</b>

**North Harris County Regional Water Authority  
51004 – 2025 Distribution System  
Engineering and Environmental Review**

**Engineering:**

Key Issues:

None.

Project Need/Description

Need: The North Harris County Regional Water Authority (Authority) has entered into contractual agreements with the City of Houston (City) to purchase treated surface water from the City's Northeast Water Purification Plant (NEWPP) for use in complying with the Harris-Galveston Subsidence District (Subsidence District) regulatory conversion requirements as detailed in the Authority's Groundwater Reduction Plan. In addition to the expansion of the NEWPP, a transmission pipeline will be built from the NEWPP to the Authority's service area boundary to provide treated surface water for the various type water districts and cities (collectively called MUDs) to facilitate compliance with the Subsidence District's regulatory conversion requirements.

Project Description: The Authority is requesting financial assistance for the planning, design, and construction of new water distribution lines to provide treated surface water to the numerous MUD's that the Authority serves. This initial phase will consist of approximately 12 miles of pipelines that will range from 12" to 60" in diameter.

**Project Schedule:**

<b>Project Task</b>	<b>Schedule Date</b>
Closing	12/1/2015
Engineering Feasibility Report Completion (End of Planning Phase)	3/31/2016
Start of Construction	5/1/2016
Design Phase Complete	9/30/2016
Construction Completion	12/31/2017

**Environmental Section:**

Key Issues:

None known at this time.

Environmental Summary:

Pursuant to the requirements of 31 Texas Administrative Code (TAC) §363.14, all financial assistance shall be conditioned to read that funding for acquisition, design, and construction costs for specific project elements will not be released until the environmental review has been completed and a favorable environmental determination has been issued.

## 51004 - 2025 Distribution System

Budget Items	TWDB Funds	Local & Other Funds	Total Cost
<b>Construction</b>			
Construction	\$29,998,165	\$18,333,333	\$48,331,498
<b>Construction Total</b>	<b>\$29,998,165</b>	<b>\$18,333,333</b>	<b>\$48,331,498</b>
<b>Basic Engineering Services</b>			
Design	\$2,957,500	\$2,957,500	\$5,915,000
<b>Basic Engineering Services Total</b>	<b>\$2,957,500</b>	<b>\$2,957,500</b>	<b>\$5,915,000</b>
<b>Special Services</b>			
Environmental	\$0	\$214,829	\$214,829
<b>Special Services Total</b>	<b>\$0</b>	<b>\$214,829</b>	<b>\$214,829</b>
<b>Contingency</b>			
Contingency	\$7,198,085	\$3,666,667	\$10,864,752
<b>Contingency Total</b>	<b>\$7,198,085</b>	<b>\$3,666,667</b>	<b>\$10,864,752</b>
<b>Other</b>			
Land/Easements Acquisition	\$0	\$4,669,000	\$4,669,000
<b>Other Total</b>	<b>\$0</b>	<b>\$4,669,000</b>	<b>\$4,669,000</b>
<b>Fiscal Services</b>			
Bond Reserve Fund	\$2,069,970	\$0	\$2,069,970
Capitalized Interest	\$1,901,280	\$0	\$1,901,280
<b>Fiscal Services Total</b>	<b>\$3,971,250</b>	<b>\$0</b>	<b>\$3,971,250</b>
<b>Grand Total</b>	<b>\$44,125,000</b>	<b>\$29,841,329</b>	<b>\$73,966,329</b>

A RESOLUTION OF THE TEXAS WATER DEVELOPMENT BOARD  
APPROVING AN APPLICATION FOR FINANCIAL ASSISTANCE TO NORTH HARRIS COUNTY  
REGIONAL WATER AUTHORITY  
IN THE FORM OF A MULTI-YEAR COMMITMENT  
FROM THE STATE WATER IMPLEMENTATION REVENUE FUND FOR TEXAS  
THROUGH THE PROPOSED PURCHASE OF  
\$953,405,000 NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY SENIOR LIEN  
REVENUE BONDS, PROPOSED SERIES 2015 THROUGH PROPOSED SERIES 2021

(15- )

WHEREAS, the North Harris County Regional Water Authority located in Harris County, Texas, (Authority) has filed applications for financial assistance in the total amount of \$953,405,000 from the State Water Implementation Revenue Fund for Texas (SWIRFT), to finance the planning, design, acquisition, and construction of certain water supply project(s) as identified below; and

WHEREAS, the Authority seeks financial assistance from the Texas Water Development Board (TWDB) in the form of a multi-year commitment through the TWDB's proposed purchase of \$953,405,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2015 through Proposed Series 2021, (together with all authorizing documents "Obligations"), all as is more specifically set forth in the application and in recommendations of the Executive Administrator's staff; and

WHEREAS, the Authority has offered a pledge of system revenue as sufficient security for the repayment of the Obligations; and

WHEREAS, the commitment is approved for funding under the TWDB's pre-design funding option, and initial and future releases of funds are subject to 31 TAC § 363.1307; and

WHEREAS the commitment is approved for an interest rate subsidy through December 31, 2019; and

WHEREAS, interest rate subsidies are available to the Authority at the following levels: 35.5% for loans of a term of 20 years, 27% for loans of a term of 25 years, and 22% for loans of a term of 30 years. The interest rate subsidy applicable to each proposed series will be set through each financing agreement executed between the TWDB and the Authority, pursuant to this Resolution; and

WHEREAS, the TWDB hereby finds:

1. that the application and assistance applied for meet the requirements of Texas Water Code, Chapter 15, Subchapters G and H and 31 TAC Chapter 363, Subchapters A and M;
2. that the project is a recommended water management strategy in the State Water Plan adopted pursuant to Texas Water Code § 16.051, in accordance with Texas Water Code § 15.474(a);
3. that a water conservation plan, if required by Texas Water Code § 11.1271, has been submitted and implemented in accordance with 31 TAC § 363.1309(b)(1);

4. that the Authority satisfactorily completed any request by the Executive Administrator or a regional planning group for information relevant to the project, including a water infrastructure financing survey under Texas Water Code § 16.053(q), in accordance with 31 TAC § 363.1309(b)(2);
5. that the current water audit, if required by Texas Water Code § 16.0121, has been completed by the Authority and filed with the TWDB in accordance with 31 TAC § 358.6; and
6. that the Authority has acknowledged its legal obligation to comply with any applicable requirements of federal law relating to contracting with disadvantaged business enterprises, and any applicable state law relating to contracting with historically underutilized businesses, in accordance with Texas Water Code § 15.435(h) and 31 TAC § 363.1309(b)(3).

NOW THEREFORE, based on these findings, the TWDB resolves as follows:

A commitment is made by the TWDB to North Harris County Regional Water Authority for financial assistance in the amount of \$953,405,000 from the State Water Implementation Revenue Fund for Texas, to be evidenced by the TWDB's proposed purchase of North Harris County Regional Water Authority Senior Lien Revenue Bonds, in accordance with the schedule proposed below.

- a) \$80,435,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2015 to expire on December 31, 2015;
- b) \$113,170,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2016 to expire on December 31, 2016;
- c) \$282,250,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2017 to expire on December 31, 2017;
- d) \$342,470,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2018 to expire on December 31, 2018;
- e) \$80,470,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2019 to expire on December 31, 2019;
- f) \$36,700,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2020 to expire on December 31, 2020; and
- g) \$17,910,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2021 to expire on December 31, 2021.

Further, the commitment described above consists of the following:

- a) Project No. 51023 (Northeast Water Purification Plant Expansion) in the amount of \$551,760,000;
- b) Project No. 51021(Second Source Transmission Line Phase I) in the amount of \$222,135,000;
- c) Project No. 51009 (Second Source Transmission Line Phase II) in the amount of \$135,385,000; and
- d) Project 51004 (2025 Distribution System) in the amount of \$44,125,000.

Such commitment is conditioned as follows:

**Standard Conditions:**

1. this commitment is contingent on a future sale of bonds by the TWDB or on the availability of funds on hand;
2. this commitment is contingent upon the issuance of a written approving opinion of the Attorney General of the State of Texas stating that all of the requirements of the laws under which said Obligations were issued have been complied with; that said Obligations were issued in conformity with the Constitution and laws of the State of Texas; and that said Obligations are valid and binding obligations of the Authority;
3. this commitment is contingent upon the Authority's continued compliance with all applicable laws, rules, policies and guidance as these may be amended from time to time to adapt to a change in law, in circumstances, or any other legal requirement;
4. this commitment is contingent upon the Authority executing a separate financing agreement, approved as to form and substance by the Executive Administrator, and submitting that executed agreement to the TWDB consistent with the terms and conditions described in the financing agreement;
5. the Authority shall use a paying agent/registrar in accordance with 31 TAC Section 363.42(c)(2), and shall require the paying agent/registrar to provide a copy, to the TWDB and to the TWDB's designated Trustee, of all receipts documenting debt service payments.

**The Following Conditions Must Be Included in the Obligations:**

6. the Obligations must provide that the Obligations can be called for early redemption only in inverse order of maturity, and on any date beginning on or after the first interest payment date which is 10 years from the dated date of the Obligations, at a redemption price of par, together with accrued interest to the date fixed for redemption;
7. the Obligations must include a provision wherein the Authority, or an obligated person for whom financial or operating data is presented to the TWDB in the application for financial assistance either individually or in combination with other issuers of the Authority's Obligations or obligated persons, will, at a minimum, regardless of the amount of the Obligations, covenant to comply with requirements for continuing disclosure on an ongoing basis substantially in the manner required by Securities and Exchange Commission (SEC) in 17 CFR § 240.15c2-12 (Rule 15c2-12) and determined as if the TWDB were a Participating Underwriter within the meaning of such rule, such continuing disclosure undertaking being for the benefit of the TWDB and the beneficial owners of the Authority's Obligations, if the TWDB sells or otherwise transfers such Obligations, and the beneficial owners of the TWDB's bonds if the Authority is an obligated person with respect to such bonds under SEC Rule 15c2-12;
8. the Obligations must contain a provision requiring the Authority to maintain and collect sufficient rates and charges to produce system revenues in an amount necessary to meet the debt service requirements of all outstanding obligations and to maintain the funds established and required by the Obligations;

9. the Obligations must include a provision requiring the Authority to use any loan proceeds from the Obligations that are determined to be surplus proceeds remaining after completion of the project for the following purposes as approved by the Executive Administrator: (1) deposit into the Interest and Sinking Fund or other debt service account for the payment of interest or principal on the Obligations owned by the TWDB; or (2) eligible costs for the project as authorized by the Executive Administrator;
10. the Obligations must contain a provision that the TWDB may exercise all remedies available to it in law or equity, and any provision of the Obligations that restricts or limits the TWDB's full exercise of these remedies shall be of no force and effect;
11. loan proceeds are public funds and, as such, the Obligations must include a provision requiring that these proceeds shall be held at a designated state depository institution or other properly chartered and authorized institution in accordance with the Public Funds Investment Act, Government Code, Chapter 2256, and the Public Funds Collateral Act, Government Code, Chapter 2257;
12. loan proceeds shall not be used by the Authority when sampling, testing, removing or disposing of contaminated soils and/or media at the project site. The Obligations shall include an environmental indemnification provision wherein the Authority agrees to indemnify, hold harmless and protect the TWDB from any and all claims, causes of action or damages to the person or property of third parties arising from the sampling, analysis, transport, storage, treatment, recycling and disposition of any contaminated sewage sludge, contaminated sediments and/or contaminated media that may be generated by the Authority, its contractors, consultants, agents, officials and employees as a result of activities relating to the project to the extent permitted by law;
13. the Obligations must include a provision stating that the Authority shall report to the TWDB the amounts of project funds, if any, that were used to compensate historically underutilized businesses that worked on the project, in accordance with 31 TAC § 363.1312;
14. the Obligations must contain a provision that the TWDB will purchase the Obligations, acting through the TWDB's designated Trustee, and the Obligations shall be registered in the name of Cede & Co. and closed in book-entry form in accordance with 31 TAC Section 363.42(c)(1);
15. the Obligations must include a provision prohibiting the Authority from using the proceeds of this loan in a manner that would cause the Obligations to become "private activity bonds" within the meaning of § 141 of the Internal Revenue Code of amended (Code) and the Treasury Regulations promulgated thereunder (Regulations);
16. the Obligations must provide that no portion of the proceeds of the loan will be used, directly or indirectly, in a manner that would cause the Obligations to be "arbitrage bonds" within the meaning of § 148(a) of the Code and Regulations, including to acquire or to replace funds which were used, directly or indirectly, to acquire Nonpurpose Investments (as defined in the Code and Regulations) which produce a yield materially higher than the yield on the TWDB's bonds that are issued to provide financing for the loan (Source Series Bonds), other than Nonpurpose Investments acquired with:



- a. proceeds of the TWDB's Source Series Bonds invested for a reasonable temporary period of up to three (3) years after the issue date of the Source Series Bonds until such proceeds are needed for the facilities to be financed;
  - b. amounts invested in a bona fide debt service fund, within the meaning of § 1.148-1(b) of the Regulations; and
  - c. amounts deposited in any reasonably required reserve or replacement fund to the extent such amounts do not exceed the least of maximum annual debt service on the Obligations, 125% of average annual debt service on the Obligations, or 10 percent of the stated principal amount (or, in the case of a discount, the issue price) of the Obligations;
17. the Obligations must include a provision requiring the Authority take all necessary steps to comply with the requirement that certain amounts earned on the investment of gross proceeds of the Obligations be rebated to the federal government in order to satisfy the requirements of § 148 of the Code. The Obligations must provide that the Authority will:
- a. account for all Gross Proceeds, as defined in the Code and Regulations, (including all receipts, expenditures and investments thereof) on its books of account separately and apart from all other funds (and receipts, expenditures and investments thereof) and retain all records of such accounting for at least six years after the final Computation Date. The Authority may, however, to the extent permitted by law, commingle Gross Proceeds of its loan with other money of the Authority, provided that the Authority separately accounts for each receipt and expenditure of such Gross Proceeds and the obligations acquired therewith;
  - b. calculate the Rebate Amount, as defined in the Code and Regulations, with respect to its loan, not less frequently than each Computation Date, in accordance with rules set forth in § 148(f) of the Code, § 1.148-3 of the Regulations, and the rulings thereunder. The Authority shall maintain a copy of such calculations for at least six years after the final Computation Date;
  - c. as additional consideration for the making of the loan, and in order to induce the making of the loan by measures designed to ensure the excludability of the interest on the TWDB's Source Series Bonds from the gross income of the owners thereof for federal income tax purposes, pay to the United States the amount described in paragraph (b) above within 30 days after each Computation Date;
  - d. exercise reasonable diligence to assure that no errors are made in the calculations required by paragraph (b) and, if such error is made, to discover and promptly to correct such error within a reasonable amount of time thereafter, including payment to the United States of any interest and any penalty required by the Regulations;
18. the Obligations must include a provision prohibiting the Authority from taking any action that would cause the interest on the Obligations to be includable in gross income for federal income tax purposes;

19. the Obligations must provide that the Authority will not cause or permit the Obligations to be treated as “federally guaranteed” obligations within the meaning of § 149(b) of the Code;
20. the Obligations must provide that neither the Authority nor a related party thereto will acquire any of the TWDB’s Source Series Bonds in an amount related to the amount of the Obligations to be acquired from the Authority by the TWDB;

**Revenue Pledge**

21. the Obligations must require the accumulation of a reserve fund of no less than average annual debt service requirements, to be accumulated in equal monthly installments over the initial sixty (60) months following the issuance of the Obligations;
22. if the Authority has existing revenue obligations with the same pledge of security as the proposed Obligations that will remain outstanding after any loan(s) made by the TWDB pursuant to this commitment, the Obligations must contain a provision providing that the lien or liens securing the Obligations issued to the TWDB shall be at least on a parity with lien or liens securing such outstanding obligations;
23. the Obligations must contain a provision providing that additional parity revenue obligations may only be incurred if (i) the Adjusted Net Revenues for the most recently completed Fiscal Year, or any consecutive twelve (12) month period out of the eighteen (18) month period immediately preceding the Issue Date for such parity revenue obligations, were at least equal to the Coverage Requirement (which shall include debt service on the proposed series or installment of parity revenue obligations then being issued) for the current Fiscal Year, (ii) the Pro-Forma Net Revenues for the most recently completed Fiscal Year, or any consecutive twelve (12) month period out of the eighteen (18) month period immediately preceding the Issue Date for such parity revenue obligations were at least equal to the Pro-Forma Coverage Requirement (which shall include debt service on the proposed series or installment of parity revenue obligations then being issued for the current Fiscal Year or (iii), if the parity revenue obligations are being issued for the purpose of refunding previously issued parity revenue obligations and the issuance of such parity revenue obligations will result in a reduction in the maximum Annual Debt Service Requirements of the parity revenue obligations to be outstanding following the issuance of such parity revenue obligations;

**Conditions to Close or for Release of Funds:**

24. prior to closing, the Authority shall submit documentation evidencing the adoption and implementation of sufficient system rates and charges sufficient for the repayment of all currently outstanding system debt service requirements;
25. prior to closing, and if not previously provided with the application, the Authority shall submit executed contracts for engineering, and, if applicable, financial advisor and bond counsel contracts, for the project that are satisfactory to the Executive Administrator. Fees to be reimbursed under the contracts must be reasonable in relation to the services performed, reflected in the contract, and acceptable to the Executive Administrator;

26. prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the Authority shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB;
27. prior to release of funds for construction, the Authority must provide the TWDB with evidence that the necessary acquisitions of land, leases, easements, and rights-of-way have been completed, or that the Authority has the legal authority necessary to complete the acquisitions;
28. prior to release of funds for design or construction for specific project elements, the environmental review must be completed and a favorable environmental finding must have been issued;
29. prior to closing, the Authority's bond counsel must prepare a written opinion that states that the interest on the Obligations is excludable from gross income or is exempt from federal income taxation. Bond counsel may rely on covenants and representations of the Authority when rendering this opinion;
30. prior to closing, the Authority's bond counsel must prepare a written opinion that also states that the Obligations are not "private activity bonds." Bond counsel may rely on covenants and representations of the Authority when rendering this opinion;
31. the transcript must include a No Arbitrage Certificate or similar Federal Tax Certificate setting forth the Authority's reasonable expectations regarding the use, expenditure and investment of the proceeds of the Obligations; and
32. the transcript must include evidence that the information reporting requirements of § 149(e) of the Code will be satisfied. This requirement may be satisfied by filing an IRS Form 8038 with the Internal Revenue Service. In addition, the applicable completed IRS Form 8038 or other evidence that the information reporting requirements of § 149(e) have been satisfied must be provided to the Executive Administrator within fourteen (14) days of closing. The Executive Administrator may withhold the release of funds for failure to comply.

APPROVED and ordered of record this, the 23<sup>rd</sup> day of July, 2015.

TEXAS WATER DEVELOPMENT BOARD

\_\_\_\_\_  
Bech K. Bruun, Chairman

DATE SIGNED: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
Kevin Patteson  
Executive Administrator

**WATER CONSERVATION REVIEW**

Entity: \_\_\_\_\_

Review date: \_\_\_\_\_

**WATER CONSERVATION PLAN DATE:****Approvable****Adopted**

	<b>Total GPCD</b>	<b>Residential GPCD</b>	<b>Water Loss GPCD</b>	<b>Water Loss Percent</b>
<b>Baseline</b>				
<b>5-year Goal</b>				
<b>10-year Goal</b>				

**WATER LOSS AUDIT YEAR:**

Total water loss (GPCD): \_\_\_\_\_

Total water loss (percent): \_\_\_\_\_

Wholesale Water

Total no. of connections: \_\_\_\_\_

Length of mains (miles): \_\_\_\_\_

Connections per mile: \_\_\_\_\_

If &gt; 16 connections per mile and &gt; 3,000 connections, Infrastructure Leakage Index (ILI): \_\_\_\_\_

**WATER LOSS THRESHOLDS:**

If population ≤ 10K, connections/mile &lt; 32 :

If population ≤ 10K, connections/mile ≥ 32 :

If population &gt; 10K :

<b>Apparent Loss</b> Gallons per connection per day	<b>Real Loss</b> Gallons per mile per day	<b>Real Loss</b> Gallons per connection per day	<b>Apparent Threshold</b> Gallons per connection per day	<b>Real Threshold</b> Gallons per mile per day	<b>Real Threshold</b> Gallons per connection per day

Does the applicant meet Water Loss Threshold requirements?

Yes

No

NA

**ADDITIONAL INFORMATION:****STAFF NOTES AND RECOMMENDATIONS:**

## DEFINITIONS

**Adopted** refers to a water conservation plan that meets the minimum requirements of the water conservation plan rules and has been formally approved and adopted by the applicant's governing body.

**Apparent loss** refers to unauthorized consumption, meter inaccuracy, billing adjustments, and waivers.

**Approvable** refers to a water conservation plan that substantially meets the minimum requirements of the water conservation plan rules but has not yet been adopted by the applicant's governing body.

**Best Management Practices** are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

**GPCD** means gallons per capita per day.

**Infrastructure Leakage Index (ILI)** is the current annual real loss divided by the unavoidable annual real loss (theoretical minimum real loss) and only applies to utilities with more than 5,000 connections, average pressure greater than 35 psi, and a connection density of more than 32 connections per mile. The **ILI** is recommended to be less than 3 if water resources are greatly limited and difficult to develop, between 3 and 5 if water resources are adequate to meet long-term needs but water conservation is included in long-term water planning, and between 5 and 8 if water resources are plentiful, reliable, and easily extracted. The **ILI** is recommended as a bench marking tool, but until there is increased data validity of the variables used in the calculation, the **ILI** should be viewed with care.

**NA** means not applicable.

**Produced water** is the total amount of water purchased or produced by the utility.

**Real loss** comes from main breaks and leaks, storage tank overflows, customer service line breaks, and leaks.

**Residential GPCD** is the amount of water per capita used solely for residential use and ideally includes both single and multi-family customer use.

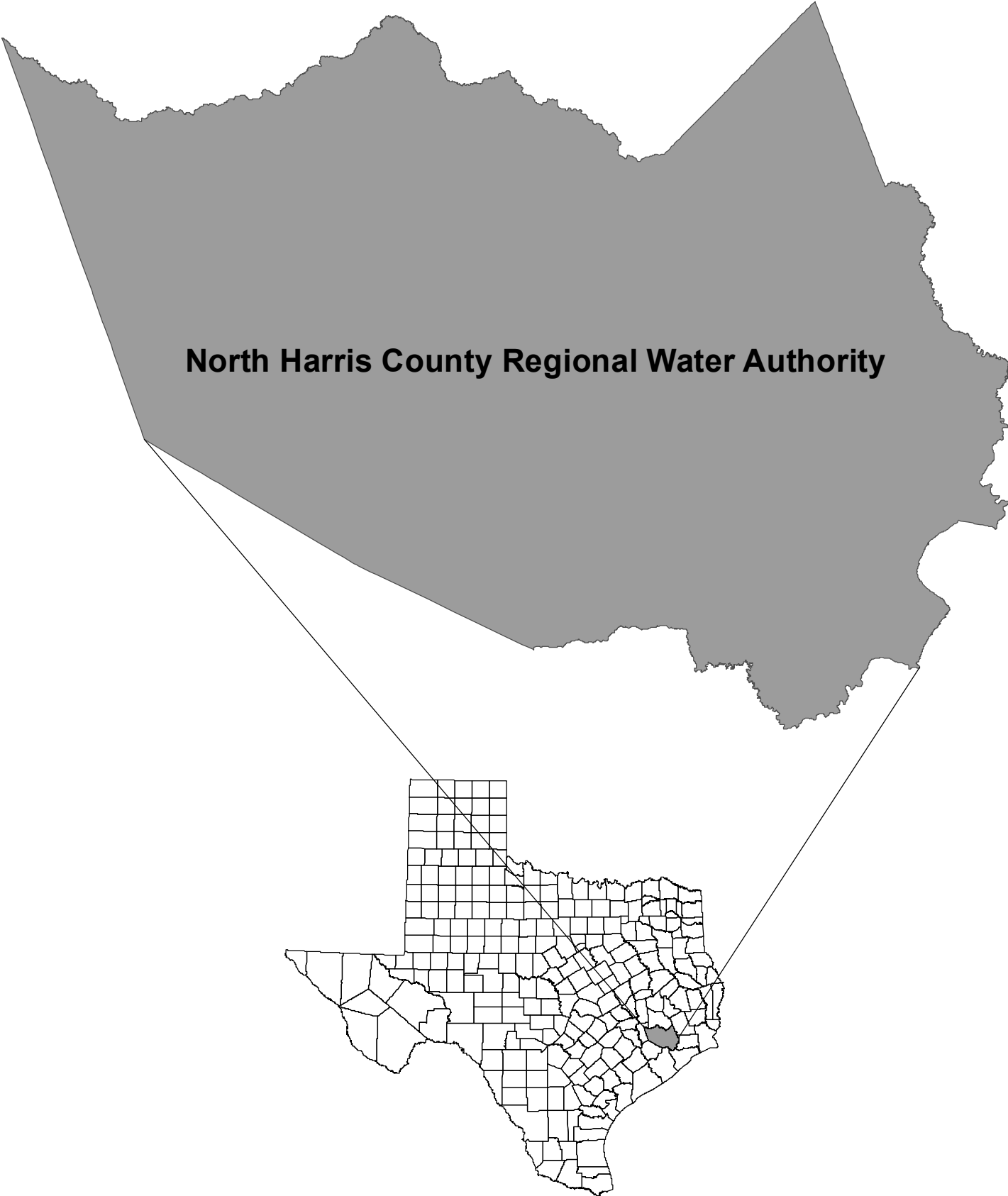
**Total baseline GPCD** is the amount of all water purchased or produced by the utility divided by the service area population and then divided by 365.

**Total water loss** is the sum of the apparent and real water losses.

**Water loss** is the difference between the input volume and the authorized consumption within a water system. Water Loss consists of real losses and apparent losses.

**Water Loss Thresholds** are levels of real and apparent water loss determined by the size and connection density of a retail public utility, at or above which a utility receiving financial assistance from the Texas Water Development Board must use a portion of that financial assistance to mitigate the utility's system water loss.

**North Harris County Regional Water Authority,  
Harris County**



# Texas Water Development Board

## PROJECT FUNDING REQUEST

BOARD DATE: July 26, 2018

TEAM MANAGER: Nancy Richards

<b>APPLICANT</b>	North Harris County Regional Water Authority
<b>TYPE OF ASSISTANCE</b>	\$222,070,000 Northeast Water Purification Plant Expansion \$601,845,000 Internal Distribution
<b>LEGAL PLEDGE</b>	Senior Lien on the Water System Revenues

### STAFF RECOMMENDATION

☒ Approve ☐ No Action

### ACTION REQUESTED

Approve by resolution a request from North Harris County Regional Water Authority (Harris County) to amend Texas Water Development Board Resolution No. 15-077, as amended by TWDB Resolution Nos. 16-079 and 17-083, to authorize a \$823,915,000 increase in financial assistance from the State Water Implementation Revenue Fund for Texas for costs related to the Northeast Water Purification Plant and Internal Distribution Expansion projects.

### BACKGROUND

Passed by the 83rd Texas Legislature and approved by Texas voters through a constitutional amendment, the State Water Implementation Fund for Texas (SWIFT) and the State Water Implementation Revenue Fund for Texas (SWIRFT) were created to provide affordable, alternative financing options to develop projects that are recommended water management strategies in the State Water Plan. The program, referred to as SWIFT, provides financing through low-interest loans, deferral of loan repayments, and incremental repurchase terms for projects with state ownership aspects. SWIFT projects presented for consideration have been scored and ranked utilizing prioritization criteria outlined in Texas Administrative Code Title 31 §363.1304 and are included on the prioritized list of projects approved by the Board on April 5, 2018.

Multi-Year-Commitment (includes new and previous commitments)	Expiration Date
\$469,345,000 Series 2018	December 1, 2018
\$230,200,000 Series 2019	December 1, 2019
\$78,670,000 Series 2020	December 1, 2020
\$38,530,000 Series 2021	December 1, 2021
\$23,070,000 Series 2022	December 1, 2022
\$39,615,000 Series 2023	December 1, 2023
\$82,525,000 Series 2024	December 1, 2024
\$8,445,000 Series 2025	December 1, 2025
\$438,395,000 Series 2026-2030	December 1, 2026-2030

### **Project Background: Northeast Water Purification Plant Expansion**

The North Harris County Regional Water Authority (Authority) was created in 1999 to negotiate a secure, long-term, reliable, quality supply of wholesale drinking water for all the independent neighborhoods, municipal utility districts, small municipalities, and permitted well owners within its boundaries. The Authority and its four regional partners are co-funding the expansion of the Northeast Water Purification Plant to increase the plant's water treatment capacity from the current 80 million gallons per day (MGD) to 400 MGD. The need for surface water treatment facility infrastructure improvements follows the passage of rules and regulations issued by the Harris-Galveston Subsidence District (District) to decrease groundwater usage and consequently increase surface water usage. The Authority will have 35 percent capacity ownership in the plant. The Authority is requesting additional funds for its portion of the increased costs of the NEWPP.

### **Project Background: 2020 Internal Distribution Expansion**

The Authority is also requesting financial assistance for the planning, acquisition, design, and construction of new water distribution lines to provide treated surface water to the numerous MUDs that the Authority serves. The initial phase consisted of approximately 12 miles of pipelines ranging from 12 to 60-inch in diameter, three 12 million-gallon ground storage tanks, four 25,000-gallon hydro-pneumatic tanks, and a booster pump station. Funding for the second phase of work, committed in 2017, consisted of approximately 15 miles of pipelines ranging from 12 to 48-inch in diameter, metering facilities, and chloramination facilities. This funding request specifically pertains to the remainder of work included in the water management strategy, and consists of approximately 70 additional miles of 12 to 84-inch diameter transmission pipelines, several booster pump stations, and all necessary interconnections, valves, and appurtenances.

## **FINANCIAL**

### Key Issues

The Authority received commitments in previous SWIFT funding cycles to finance the planning, acquisition, design, and construction of the NEWPP and its Internal Distribution Expansion. The Authority is requesting an additional multi-year commitment of \$601,845,000 for the Internal Distribution Expansion and an additional \$220,070,000 in SWIFT financing for the NEWPP due to progressions in the design phase as cost estimates are refined.

The Authority is also requesting a financial structure that allows for smaller principal payments through 2027. By modifying its principal payments, the Authority expects to reduce the required surface water and groundwater pumpage fee impacts. The Authority will use bond proceeds to fund the bond reserve requirement and is requesting 24 months of capitalized interest, as it has in previous requests.

### Multi-year Commitment

The Authority has requested a multi-year commitment through 2030.



### Pledge and Repayment

The Authority is pledging a senior lien on its water system revenues to cover the proposed debt. All senior lien obligations are additionally secured by, and payable from, amounts in the Interest and Sinking Fund (I&S), the Coverage Fund, and the Reserve Fund.

The current rates for surface water and the groundwater pumpage fees are \$3.70 and \$3.30, respectively. The Authority has projected annual rate increases through 2023. Based on the Authority's current projections, surface and pumpage fees are expected to increase to \$5.85 and \$5.40, respectively.

The revenue shown on the attached debt service schedule includes utilizing capitalized interest and shows the necessary revenue increases needed to generate sufficient revenues to meet the existing and proposed debt service requirements.

### Cost Savings

Based on a 30-year maturity and current interest rates, the Authority could save approximately \$79,158,806 over the life of the \$469,345,000 Series 2018 closing which includes the current request and the Authority's previous multi-year commitments, which total \$388,565,000.

### Internal Risk Score

Staff assigns a 2B to the Authority and the proposed project to be funded by the Texas Water Development Board (TWDB). This means that the Authority's repayment capacity is adequate. The risk score is based on TWDB analysis of the Authority's revenues.

The financial sustainability indicators for the Authority are adequate. These indicators are more heavily weighted than the other internal risk score factors and show the Authority's short-term and long-term ability to repay the debt. As discussed above, the Authority may need to increase water rates to meet the existing and proposed debt service, or utilize the various reserve funds. Additionally, the long-term condition of the system is sound with an asset condition ratio of 43 years. An asset condition ratio of 12 to 24 years is considered typical.

The Authority scored well on indicators showing the overall health of the Authority. The Authority has been able to retain its revenues, as evidenced by an increase in the fund balance over the last five years relative to revenues. In addition, the Authority maintains a strong liquidity position with cash and short-term investments equal to 3,615 days of operating expenses. An amount greater than 250 days is considered to be a strong level of liquidity, which provides stability to the Authority by providing the resources needed to cover short-term, unplanned needs.

The Authority's service area socioeconomic indicators are on par with the state's median overall. The median household income (MHI) of \$55,584 is 102 percent of the state's median income of \$54,727. The Authority's unemployment rate of 4.3 percent (County level data) is above the state average of 3.8 percent.

In addition, property growth in the service area has been stable over the last five years. The Authority is the largest water provider in Harris County, expanding its economic base to include not just the energy sectors but also medical, manufacturing and retail industries. The Authority's top ten customers represent 24 percent of the system revenues and are long-term contract customers.

The Authority's debt profile is quickly increasing; however, the socioeconomic indicators are on par with the state's median, they have a sizeable customer base and service area, strong liquidity, and maintain ample reserves in accordance with the bond covenants. Therefore, the Authority is assigned a risk score of 2B.

## **LEGAL**

### Key Issues

None.

### Conditions

Standard SWIFT, tax-exempt, and net revenue conditions.

Attachments: 1. Project Data Summary  
2. Debt Service Schedule  
3. Engineering/Environmental Review  
4. Total Budget/51004 Budget/51023 Budget  
5. Resolution (18- )  
6. Resolution (15-077)  
7. Resolution (16-089)  
8. Resolution (17-083)  
9. Water Conservation Review  
10. Location Map

**Project Data Summary**

<b>Responsible Authority</b>	North Harris County Regional Water Authority
<b>Program</b>	State Water Implementation Fund for Texas
<b>Commitment Codes</b>	LM18845-Project # 51023 LM18832-Project #51004
<b>Project Number</b>	51023- Northeast Water Purification Plant Expansion 51004-Internal Distribution Project
<b>Intended Use Plan Year</b>	N/A
<b>Type of Pledge</b>	2-Revenue
<b>Revenue Pledge Level</b>	First
<b>Legal Description</b>	\$469,345,000 North Harris County Regional Water Authority Revenue Bonds, Proposed Series 2018. \$939,450,000 North Harris County Regional Water Authority Revenue Bonds, Proposed Series 2019-2030.
<b>Tax-Exempt or Taxable</b>	Tax-Exempt
<b>Refinance</b>	No
<b>Outlay Requirement</b>	No
<b>Disbursement Method</b>	Escrow
<b>Outlay Type</b>	N/A
<b>Population</b>	938,598
<b>Rural</b>	No
<b>Water Connections</b>	Wholesale Provider
<b>Wastewater Connections</b>	N/A
<b>Qualifies as Disadvantaged</b>	N/A
<b>Disadvantaged Level</b>	9 – N/A
<b>Clean Water State Revolving Fund Type</b>	N/A
<b>Financial, Managerial and Technical Review Complete?</b>	N/A
<b>SWIFT Financing Type</b>	Low-Interest Loan
<b>SWIFT Characteristic</b>	N/A
<b>Phase Committing</b>	Planning, Acquisition, Design, and Construction
<b>Pre-Design</b>	Yes
<b>Project Consistent with Water Plan</b>	Yes
<b>Water Conservation Plan</b>	Adopted
<b>Water Rights Certification Required</b>	N/A
<b>Internal Risk Score</b>	2B
<b>External Ratings</b>	
<b>Standard and Poor's</b>	AA-
<b>Moody's</b>	A1
<b>Fitch</b>	A+
<b>Special Issues</b>	Multi-year Funding Commitment

**Project Team**

Team Manager	Nancy Richards
Financial Analyst	Charles R. Nichols
Engineering Reviewer	James Bronikowski
Environmental Reviewer	Sara Sopczynski
Attorney	Annette Mass

ISSUE BEING EVALUATED  
FOR ILLUSTRATION PURPOSES ONLY  
North Harris County Regional Water Authority

**\$469,345,000 North Harris County Regional Water Authority, Senior Lien Revenue Bonds, Proposed Series 2018**

<b>Dated Date:</b>	<b>11/1/2018</b>	<b>Source:</b>	<b>SWIFT-LOW-30YR</b>
<b>Delivery Date:</b>	<b>11/1/2018</b>	<b>Rate:</b>	<b>3.17%</b>
<b>First Interest:</b>	<b>6/15/2019</b>	<b>Insurance:</b>	<b>No</b>
<b>First Principal:</b>	<b>12/15/2020</b>	<b>Case:</b>	<b>Revenue</b>
<b>Last Principal:</b>	<b>12/15/2048</b>	<b>Admin.Fee:</b>	<b>\$0</b>
<b>Fiscal Year End:</b>	<b>12/31</b>	<b>Admin. Fee Payment Date:</b>	<b>N/A</b>
<b>Required Coverage:</b>	<b>1.0</b>		

FISCAL YEAR	PROJECTED NET SYSTEM REVENUES	CURRENT DEBT SERVICE	\$469,345,000 ISSUE				\$939,440,000 ISSUE Series 2019 - 2030		TOTAL DEBT SERVICE	COVERAGE
			PRINCIPAL PAYMENT	INTEREST RATE	INTEREST PAYMENT	TOTAL PAYMENT	TOTAL PAYMENT	TOTAL PAYMENT		
2019	\$81,273,552	\$64,321,188	-	-	\$16,172,214	\$16,172,214	-	-	\$80,493,402	1.01
2020	90,479,557	64,334,782	\$1,000,000	1.58%	14,410,884	15,410,884	\$9,632,183	89,377,849	1.01	
2021	105,455,557	64,358,541	1,000,000	1.68%	14,395,084	15,395,084	17,062,097	96,815,722	1.09	
2022	105,104,557	65,799,061	1,000,000	1.73%	14,378,284	15,378,284	20,140,778	101,318,123	1.04	
2023	121,414,558	65,822,939	1,000,000	1.80%	14,360,984	15,360,984	21,807,930	102,991,853	1.18	
2024	123,913,558	65,871,384	1,000,000	1.92%	14,342,984	15,342,984	24,041,333	105,255,701	1.18	
2025	130,013,558	65,925,586	1,000,000	2.02%	14,323,784	15,323,784	28,554,143	109,803,513	1.18	
2026	132,339,558	65,983,857	1,000,000	2.10%	14,303,584	15,303,584	30,180,984	111,468,425	1.19	
2027	134,838,558	66,010,625	1,000,000	2.15%	14,282,584	15,282,584	33,076,736	114,369,945	1.18	
2028	137,313,558	66,062,533	16,570,000	2.22%	14,261,084	30,831,084	36,117,055	133,010,672	1.03	
2029	143,762,558	66,127,560	16,920,000	2.39%	13,893,230	30,813,230	45,570,787	142,511,577	1.01	
2030	149,142,558	66,185,620	17,305,000	2.53%	13,488,842	30,793,842	51,739,621	148,719,083	1.00	
2031	153,655,558	66,237,625	17,725,000	2.65%	13,051,026	30,776,026	56,510,608	153,524,258	1.00	
2032	154,091,558	66,280,349	18,170,000	2.76%	12,581,313	30,751,313	57,649,873	154,681,535	1.00	
2033	154,499,558	66,329,845	18,645,000	2.85%	12,079,821	30,724,821	57,651,706	154,706,372	1.00	
2034	146,880,558	58,328,567	19,150,000	2.93%	11,548,439	30,698,439	57,643,360	146,670,366	1.00	
2035	147,229,558	58,380,128	19,685,000	3.01%	10,987,344	30,672,344	57,646,242	146,698,714	1.00	
2036	147,545,558	52,884,427	20,250,000	3.06%	10,394,825	30,644,825	57,650,523	141,179,775	1.05	
2037	144,828,558	52,951,900	20,840,000	3.11%	9,775,175	30,615,175	57,654,941	141,222,016	1.03	
2038	145,077,558	53,010,412	21,455,000	3.15%	9,127,051	30,582,051	57,653,623	141,246,086	1.03	
2039	146,289,558	38,118,939	22,100,000	3.20%	8,451,219	30,551,219	57,648,649	126,318,807	1.16	
2040	145,464,558	38,165,511	22,770,000	3.23%	7,744,019	30,514,019	57,658,531	126,338,061	1.15	
2041	145,601,558	38,227,130	23,470,000	3.25%	7,008,548	30,478,548	57,652,826	126,358,504	1.15	
2042	145,697,558	38,291,120	24,195,000	3.28%	6,245,773	30,440,773	57,649,270	126,381,162	1.15	
2043	145,754,558	38,341,270	24,950,000	3.30%	5,452,177	30,402,177	57,651,690	126,395,137	1.15	
2044	145,766,558	38,380,812	25,735,000	3.34%	4,628,827	30,363,827	57,651,950	126,396,588	1.15	
2045	145,735,558	38,427,195	26,550,000	3.35%	3,769,278	30,319,278	57,643,795	126,390,268	1.15	
2046	145,657,558	34,300,783	27,395,000	3.38%	2,879,853	30,274,853	57,647,736	122,223,372	1.19	
2047	145,532,558	20,444,319	28,275,000	3.39%	1,953,902	30,228,902	57,655,811	108,329,032	1.34	
2048	150,457,558	-	29,190,000	3.41%	995,379	30,185,379	57,650,373	87,835,752	1.71	
2049	150,233,558	-	-	-	-	-	57,663,513	57,663,513	2.61	
2050	149,955,558	-	-	-	-	-	44,115,354	44,115,354	3.40	
2051	149,955,558	-	-	-	-	-	39,345,923	39,345,923	3.81	
2052	149,955,558	-	-	-	-	-	36,951,511	36,951,511	4.06	
2053	149,955,558	-	-	-	-	-	35,494,567	35,494,567	4.22	
2054	149,955,558	-	-	-	-	-	33,037,680	33,037,680	4.54	
2055	149,955,558	-	-	-	-	-	27,893,518	27,893,518	5.38	
2056	149,955,558	-	-	-	-	-	27,351,801	27,351,801	5.48	
2057	149,955,558	-	-	-	-	-	23,722,439	23,722,439	6.32	
2058	149,955,558	-	-	-	-	-	20,860,207	20,860,207	7.19	
2059	149,955,558	-	-	-	-	-	9,379,021	9,379,021	15.99	
2060	149,955,558	-	-	-	-	-	4,839,751	4,839,751	30.98	
		\$1,583,904,008	\$469,345,000		\$311,287,505	\$780,632,505	\$1,715,150,431	\$4,079,686,944		

<b>AVERAGE (MATURITY) LIFE</b>	<b>20.91 YEARS</b>
<b>NET INTEREST RATE</b>	<b>3.172%</b>
<b>COST SAVINGS</b>	<b>\$79,158,806</b>
<b>AVERAGE ANNUAL REQUIREMENT</b>	<b>\$101,992,174</b>

Disclaimer: This is a working document and is provided as a courtesy. All information contained herein, including the proposed interest rate, is subject to change upon further review of the TWDB in accordance with 31 Texas Administrative Code Chapters 363, 371, 375, or 384, as applicable. The TWDB does not function as a financial advisor to anyone in connection with this financing. The information contained in this document is used by TWDB staff to analyze the application for financing is illustrative only and does not constitute any guaranty of future rates. The TWDB makes no claim regarding the applicability of the information at closing, at which time actual rates will be set.

**North Harris Co Regional Water Authority  
51004 NHCRA Internal 2020 Distribution  
Engineering and Environmental Review**

**Engineering:**

Key Issues:

North Harris County Regional Water Authority is requesting additional financial assistance to include the remaining elements of the selected water management strategy into this project scope.

Project Need/Description

**Project Need:** The North Harris County Regional Water Authority (Authority) has entered into contractual agreements with the City of Houston (City) to purchase treated surface water from the City's Northeast Water Purification Plant (NEWPP) for use in complying with the Harris-Galveston Subsidence District (Subsidence District) regulatory conversion requirements as detailed in the Authority's Groundwater Reduction Plan. In addition to the expansion of the NEWPP, a transmission pipeline will be built from the NEWPP to the Authority's service area boundary to provide treated surface water for the various type water districts and cities (collectively called MUDs) to facilitate compliance with the Subsidence District's regulatory conversion requirements.

**Project Description:** The Authority is requesting financial assistance for the planning, acquisition, design, and construction of new water distribution lines to provide treated surface water to the numerous MUD's that the Authority serves. The initial phase funded consisted of approximately 12 miles of pipelines ranging from 12" to 60" in diameter, three 12-million-gallon ground storage tanks, four 25,000 gallon hydro-pneumatic tank, and a booster pump station. Funding for the second phase of work was committed in 2017 and consisted of approximately 15 miles of pipelines ranging from 12" to 48" in diameter, metering facilities, and chloramination facilities.

This funding request specifically pertains to the remainder of work included in the water management strategy, and consists of approximately 70 additional miles of 12" to 84" diameter transmission pipelines, several booster pump stations, and all necessary interconnections, valves, and appurtenances.

**Project Schedule:**

<b>Project Task</b>	<b>Schedule Date</b>
Closing	11/1/2018
Start of Construction	9/1/2018
Design Phase Complete	12/1/2029
Construction Completion	8/31/2031

**Environmental Section:**

Key Issues:

None.

Environmental Summary:

Pursuant to the requirements of 31 Texas Administrative Code (TAC) § 363.14, all financial assistance shall be conditioned to read that funding for planning, acquisition, design, and construction costs for specific project elements will not be released until the environmental review has been completed and a favorable environmental determination has been issued.

As required by 31 TAC § 363.14, the environmental review of a segment of the proposed project has been completed. A favorable Environmental Determination was issued on December 28, 2017. In addition, the Authority must comply with the special conditions included in this finding.

**North Harris County Regional Water Authority  
51023 Houston - NEWPP Expansion  
Engineering and Environmental Review**

**Engineering:**

Key Issues:

North Harris County Regional Water Authority is requesting additional financial assistance to cover its share of increased project costs.

Project Need/Description

Need: The need for surface water treatment facility infrastructure improvements follows the passage of rules and regulations issued by the Harris-Galveston Subsidence District (Subsidence District) to decrease groundwater usage and consequently increase surface water usage in the Subsidence District. Land subsidence in the greater Houston area coupled with increasing water demands requires that the City of Houston (City) and regional partners expand the existing Northeast Water Purification Plant (NEWPP).

Project Description: The City along with the North Harris County Regional Water Authority, West Harris County Regional Water Authority, Central Harris County Regional Water Authority, and North Fort Bend Water Authority (Authorities) is seeking financial assistance for the planning, design, and construction of an expansion to the existing NEWPP that will increase the surface water intake and treated water production capacity from 80 million gallons per day (MGD) to 400 MGD. The expansion will provide the project participants with an additional surface water supply to help achieve the regulatory requirements of the Harris-Galveston Subsidence District and the Fort Bend Subsidence District that restrict groundwater usage.

**Project Schedule:**

Project Task	Schedule Date
Closing	11/1/2018
Start of Construction	12/31/2017
Design Phase Complete	12/31/2019
Construction Completion	1/31/2025

**Environmental Section:**

Key Issues:

None.

Environmental Summary:

As required by 31 Texas Administrative Code § 363.14, the environmental review of the proposed project has been completed. A favorable Environmental Determination was issued on November 14, 2016. In addition, the Authority must comply with the special conditions included in this finding.

**North Harris County Regional Water Authority  
Total Funding**

<b>Budget Items</b>	<b>Previous SWIFT Commitment</b>	<b>Current SWIFT Request</b>	<b>Total SWIFT Funding</b>
<b>Construction</b>			
Construction	\$779,308,297	\$332,206,000	\$1,111,514,297
<b>Construction Total</b>	<b>\$779,308,297</b>	<b>\$332,206,000</b>	<b>\$1,111,514,297</b>
<b>Basic Engineering Services</b>			
Planning	\$39,461,039	\$12,773,000	\$52,234,039
Design	\$79,004,444	\$18,639,000	\$97,643,444
Construction Engineering	\$3,300,000	\$5,761,000	\$9,061,000
<b>Basic Engineering Services Total</b>	<b>\$121,765,483</b>	<b>\$37,173,000</b>	<b>\$158,938,483</b>
<b>Special Services</b>			
Environmental	\$620,369	\$0	\$620,369
Application	\$265,270	\$50,000	\$315,270
Testing	\$2,423,600	\$6,329,000	\$8,752,600
Inspection	\$6,100,000	\$15,821,000	\$21,921,000
Project Management (by engineer)	\$5,385,172	\$13,174,000	\$18,559,172
<b>Special Services Total</b>	<b>\$14,794,411</b>	<b>\$35,374,000</b>	<b>\$50,168,411</b>
<b>Contingency</b>			
Contingency	\$130,150,669	\$46,377,429	\$176,528,098
<b>Contingency Total</b>	<b>\$130,150,669</b>	<b>\$46,377,429</b>	<b>\$176,528,098</b>
<b>Other</b>			
Land/Easements Acquisition	\$30,775,262	\$40,172,000	\$70,947,262
Capacity Buy-In	\$32,386,012	\$187,626,758	\$220,012,770
<b>Other Total</b>	<b>\$63,161,274</b>	<b>\$227,798,758</b>	<b>\$290,960,032</b>
<b>Fiscal Services</b>			
Financial Advisor	\$2,012,069	\$8,239,150	\$10,251,219
Bond Counsel	\$3,579,388	\$9,063,065	\$12,642,453
Bond Reserve Fund	\$63,739,514	\$51,581,793	\$115,321,307
Capitalized Interest	\$70,342,882	\$74,201,805	\$144,544,687
Issuance Costs	\$2,173,481	\$950,000	\$3,123,481
Fiscal/Legal	\$1,052,532	\$950,000	\$2,002,532
<b>Fiscal Services Total</b>	<b>\$142,899,866</b>	<b>\$144,985,813</b>	<b>\$287,885,679</b>
<b>Grand Total</b>	<b>\$1,252,080,000</b>	<b>\$823,915,000</b>	<b>\$2,075,995,000</b>

**North Harris County Regional Water Authority**  
**51004 - 2020 Distribution System**

Budget Items	Previous SWIFT Commitments	Current SWIFT Commitment	Total SWIFT Commitments
<b>Construction</b>			
Construction	\$157,165,965	\$332,206,000	\$489,371,965
<b>Construction Total</b>	<b>\$157,165,965</b>	<b>\$332,206,000</b>	<b>\$489,371,965</b>
<b>Basic Engineering Services</b>			
Planning	\$2,767,232	\$12,773,000	\$15,540,232
Design	\$10,005,883	\$18,639,000	\$28,644,883
Construciton Engineering	\$800,000	\$5,761,000	\$6,561,000
<b>Basic Engineering Services Total</b>	<b>\$13,573,115</b>	<b>\$37,173,000</b>	<b>\$50,746,115</b>
<b>Special Services</b>			
Environmental	\$100,000	\$0	\$100,000
Testing	\$2,423,600	\$6,329,000	\$8,752,600
Inspection	\$6,100,000	\$15,821,000	\$21,921,000
Application	\$126,789	\$50,000	\$176,789
Project Management (by engineer)	\$1,824,200	\$13,174,000	\$14,998,200
<b>Special Services Total</b>	<b>\$10,574,589</b>	<b>\$35,374,000</b>	<b>\$45,948,589</b>
<b>Contingency</b>			
Contingency	\$11,635,686	\$45,123,688	\$56,759,374
<b>Contingency Total</b>	<b>\$11,635,686</b>	<b>\$45,123,688</b>	<b>\$56,759,374</b>
<b>Other</b>			
Land/Easements	\$8,719,000	\$40,172,000	\$48,891,000
<b>Other Total</b>	<b>\$8,719,000</b>	<b>\$40,172,000</b>	<b>\$48,891,000</b>
<b>Fiscal Services</b>			
Financial Advisor	\$165,000	\$6,018,450	\$6,183,450
Bond Counsel	\$270,330	\$6,620,295	\$6,890,625
Capitalized Interest	\$11,191,553	\$58,641,935	\$69,833,488
Fiscal/Legal	\$27,000	\$650,000	\$677,000
Bond Reserve Fund	\$11,606,762	\$39,215,632	\$50,822,394
Issuance Costs	\$16,000	\$650,000	\$666,000
<b>Fiscal Services Total</b>	<b>\$23,276,645</b>	<b>\$111,796,312</b>	<b>\$135,072,957</b>
<b>Grand Total</b>	<b>\$224,945,000</b>	<b>\$601,845,000</b>	<b>\$826,790,000</b>



**Houston**  
**51023 - Northeast Water Purification Plant Expansion Total Costs**

Budget Items	Houston	North Fort Bend Water Authority	Central Harris County Regional Water Authority	North Harris County Regional Water Authority	West Harris County Regional Water Authority	TWDB Total Funds
<b>Construction</b>						
Construction	\$271,607,327	\$0	\$0	\$336,094,399	\$0	\$607,701,726
<b>Construction Total</b>	<b>\$271,607,327</b>	<b>\$0</b>	<b>\$0</b>	<b>\$336,094,399</b>	<b>\$0</b>	<b>\$607,701,726</b>
<b>Basic Engineering Services</b>						
Planning	\$1,502,421	\$0	\$0	\$36,387,839	\$0	\$37,890,260
Design	\$12,423,339	\$0	\$0	\$45,490,784	\$0	\$57,914,123
Construciton						
Engineering	\$4,177,947	\$0	\$0	\$0	\$0	\$4,177,947
Project Management	\$0	\$0	\$347,203	\$28,817	\$0	\$376,020
<b>Basic Engineering Services Total</b>	<b>\$18,103,707</b>	<b>\$0</b>	<b>\$347,203</b>	<b>\$81,907,440</b>	<b>\$0</b>	<b>\$100,358,350</b>
<b>Contingency</b>						
Contingency	\$0	\$0	\$0	\$70,150,890	\$0	\$70,150,890
<b>Contingency Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$70,150,890</b>	<b>\$0</b>	<b>\$70,150,890</b>
<b>Other</b>						
Capacity Buy-In	\$0	\$370,283,978	\$29,169,242	\$187,626,758	\$397,700,000	\$984,779,978
<b>Other Total</b>	<b>\$0</b>	<b>\$370,283,978</b>	<b>\$29,169,242</b>	<b>\$187,626,758</b>	<b>\$397,700,000</b>	<b>\$984,779,978</b>
<b>Fiscal Services</b>						
Financial Advisor	\$0	\$645,886	\$0	\$2,772,842	\$0	\$3,418,728
Bond Counsel	\$0	\$399,498	\$0	\$3,822,770	\$0	\$4,222,268
Capitalized Interest	\$0	\$0	\$0	\$49,263,070	\$0	\$49,263,070
Fiscal/Legal	\$0	\$0	\$5,623,555	\$450,000	\$8,500,000	\$14,573,555
Bond Reserve Fund	\$0	\$0	\$0	\$40,841,831	\$0	\$40,841,831
Issuance Costs	\$4,743,966	\$0	\$0	\$900,000	\$0	\$5,643,966
<b>Fiscal Services Total</b>	<b>\$4,743,966</b>	<b>\$1,045,384</b>	<b>\$5,623,555</b>	<b>\$98,050,513</b>	<b>\$8,500,000</b>	<b>\$117,963,418</b>
<b>Grand Total</b>	<b>\$294,455,000</b>	<b>\$371,329,362</b>	<b>\$35,140,000</b>	<b>\$773,830,000</b>	<b>\$406,200,000</b>	<b>\$1,880,954,362</b>

\*North Harris County Regional Water Authority's current funding request is allocated towards Capacity Buy-In for their share of total project costs and for the costs of issuance.

A RESOLUTION OF THE TEXAS WATER DEVELOPMENT BOARD  
AMENDING TEXAS WATER DEVELOPMENT BOARD  
RESOLUTION NO. 15-077 AS AMENDED BY TEXAS WATER DEVELOPMENT BOARD  
RESOLUTION NOS. 16-079 AND 17-083  
TO PROVIDE ADDITIONAL FINANCIAL ASSISTANCE TO THE NORTH HARRIS COUNTY  
REGIONAL WATER AUTHORITY  
IN THE AMOUNT OF \$823,915,000

(18 - )

WHEREAS, at its July 23, 2015 meeting, the Texas Water Development Board (TWDB), through TWDB Resolution No. 15-077, made a multi-year commitment to provide financial assistance to North Harris County Regional Water Authority (Authority) from the State Water Implementation Revenue Fund for Texas (SWIRFT) through the TWDB's proposed purchase of \$953,405,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds Proposed Series 2015 through 2021 for Project Nos. 51023, 51021, 51009 and 51004; and

WHEREAS, at its July 21, 2016, meeting, the TWDB through TWDB Resolution No. 16-079, amended TWDB Resolution No. 15-077 to increase the financial assistance commitment in the amount of \$225,675,000 for Project Nos. 51021 and 51004; and

WHEREAS, at its July 20, 2017, meeting, the TWDB through TWDB Resolution No. 17-083, amended TWDB Resolution No. 15-077, as amended by TWDB Resolution No. 16-079, to increase the financial assistance commitment in the amount of \$73,000,000 for Project No. 51004, all as is more specifically set forth in TWDB Resolution Nos. 15-077, 16-079, and 17-083 (Resolutions) and accompanying documentation, to which documents express reference is made;

WHEREAS, the Authority seeks an amendment to TWDB Resolution No. 15-077 as amended by TWDB Resolution Nos. 16-079 and 17-083, for additional financial assistance for Project Nos. 51004 and 51023 through the TWDB's proposed purchase of \$823,915,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2018 through Proposed Series 2030; and

WHEREAS, Project Nos. 51023, 51021, 51009, and 51004 are all funded under the State Water Implementation Revenue Fund for Texas (SWIRFT) and therefore, all Projects will follow the same program requirements; and

WHEREAS, the TWDB hereby finds that finds that due to the significant scope and complexity of the Projects funded under the commitment, there is reason to allow the

Executive Administrator to review and, where appropriate, to provide approval of the movement of funds between the Projects funded by the TWDB through TWDB Resolution Nos. 15-077 as amended by TWDB Resolution Nos. 16-079 and 17-083; and

WHEREAS, the TWDB hereby finds that the proposed amendment to TWDB Resolution No. 15-077 as amended by TWDB Resolution Nos. 16-079 and 17-083, as requested by the Authority, is reasonable and within the public interest and will serve a public purpose; and

WHEREAS, in accordance with the Texas Water Code, the TWDB has carefully considered all matters required by law;

NOW, THEREFORE, based on these considerations and findings, the TWDB resolves as follows:

1. The commitment made through the Resolution to the North Harris County Regional Water Authority for financial assistance from the State Water Implementation Revenue Fund for Texas is amended, and shall be evidenced by the TWDB's proposed purchase of the North Harris County Regional Water Authority Senior Lien Revenue Bonds, in accordance with the annual loan closing schedule proposed below:
  - a. \$469,345,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2018;
  - b. \$230,200,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2019;
  - c. \$78,670,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2020.
  - d. \$38,530,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2021.
  - e. \$23,070,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2022.
  - f. \$39,615,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2023.
  - g. \$82,525,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2024.

- h. \$8,445,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2025.
  - i. \$58,205,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2026.
  - j. \$45,900,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2027.
  - k. \$183,895,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2028.
  - l. \$72,790,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2029.
  - m. \$77,605,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2030.
2. Further, the commitment described above consists of the remaining funds for the following Projects:
- a. Project No. 51023 (Northeast Water Purification Plant Expansion) in the remaining amount of \$486,195,000;
  - b. Project No. 51021 (Second Source Transmission Lines Phase I) in the remaining amount of \$135,000,000;
  - c. Project No. 51009 (Transmission pipeline for Second Source) in the remaining amount of \$115,905,000;
  - d. Project No. 51004 (2025 Internal Distribution Expansion) in the remaining amount of \$671,695,000.
3. All other terms and conditions of TWDB Resolution No. 15-077, as amended by TWDB Resolution Nos. 16-079 and 17-083, shall remain in full force and effect.

APPROVED and ordered of record this the 26th day of July, 2018.

TEXAS WATER DEVELOPMENT BOARD

\_\_\_\_\_  
Peter M. Lake, Chairman

DATE SIGNED:\_\_\_\_\_

ATTEST:

\_\_\_\_\_  
Jeff Walker, Executive Administrator

A RESOLUTION OF THE TEXAS WATER DEVELOPMENT BOARD  
APPROVING AN APPLICATION FOR FINANCIAL ASSISTANCE TO NORTH HARRIS COUNTY  
REGIONAL WATER AUTHORITY  
IN THE FORM OF A MULTI-YEAR COMMITMENT  
FROM THE STATE WATER IMPLEMENTATION REVENUE FUND FOR TEXAS  
THROUGH THE PROPOSED PURCHASE OF  
\$953,405,000 NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY SENIOR LIEN  
REVENUE BONDS, PROPOSED SERIES 2015 THROUGH PROPOSED SERIES 2021

(15-077)

WHEREAS, the North Harris County Regional Water Authority located in Harris County, Texas, (Authority) has filed applications for financial assistance in the total amount of \$953,405,000 from the State Water Implementation Revenue Fund for Texas (SWIRFT), to finance the planning, design, acquisition, and construction of certain water supply project(s) as identified below; and

WHEREAS, the Authority seeks financial assistance from the Texas Water Development Board (TWDB) in the form of a multi-year commitment through the TWDB's proposed purchase of \$953,405,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2015 through Proposed Series 2021, (together with all authorizing documents "Obligations"), all as is more specifically set forth in the application and in recommendations of the Executive Administrator's staff; and

WHEREAS, the Authority has offered a pledge of system revenue as sufficient security for the repayment of the Obligations; and

WHEREAS, the commitment is approved for funding under the TWDB's pre-design funding option, and initial and future releases of funds are subject to 31 TAC § 363.1307; and

WHEREAS the commitment is approved for an interest rate subsidy through December 31, 2019; and

WHEREAS, interest rate subsidies are available to the Authority at the following levels: 35.5% for loans of a term of 20 years, 27% for loans of a term of 25 years, and 22% for loans of a term of 30 years. The interest rate subsidy applicable to each proposed series will be set through each financing agreement executed between the TWDB and the Authority, pursuant to this Resolution; and

WHEREAS, the TWDB hereby finds:

1. that the application and assistance applied for meet the requirements of Texas Water Code, Chapter 15, Subchapters G and H and 31 TAC Chapter 363, Subchapters A and M;
2. that the project is a recommended water management strategy in the State Water Plan adopted pursuant to Texas Water Code § 16.051, in accordance with Texas Water Code § 15.474(a);
3. that a water conservation plan, if required by Texas Water Code § 11.1271, has been submitted and implemented in accordance with 31 TAC § 363.1309(b)(1);

4. that the Authority satisfactorily completed any request by the Executive Administrator or a regional planning group for information relevant to the project, including a water infrastructure financing survey under Texas Water Code § 16.053(q), in accordance with 31 TAC § 363.1309(b)(2);
5. that the current water audit, if required by Texas Water Code § 16.0121, has been completed by the Authority and filed with the TWDB in accordance with 31 TAC § 358.6; and
6. that the Authority has acknowledged its legal obligation to comply with any applicable requirements of federal law relating to contracting with disadvantaged business enterprises, and any applicable state law relating to contracting with historically underutilized businesses, in accordance with Texas Water Code § 15.435(h) and 31 TAC § 363.1309(b)(3).

NOW THEREFORE, based on these findings, the TWDB resolves as follows:

A commitment is made by the TWDB to North Harris County Regional Water Authority for financial assistance in the amount of \$953,405,000 from the State Water Implementation Revenue Fund for Texas, to be evidenced by the TWDB's proposed purchase of North Harris County Regional Water Authority Senior Lien Revenue Bonds, in accordance with the schedule proposed below.

- a) \$80,435,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2015 to expire on December 31, 2015;
- b) \$113,170,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2016 to expire on December 31, 2016;
- c) \$282,250,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2017 to expire on December 31, 2017;
- d) \$342,470,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2018 to expire on December 31, 2018;
- e) \$80,470,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2019 to expire on December 31, 2019;
- f) \$36,700,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2020 to expire on December 31, 2020; and
- g) \$17,910,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2021 to expire on December 31, 2021.

Further, the commitment described above consists of the following:

- a) Project No. 51023 (Northeast Water Purification Plant Expansion) in the amount of \$551,760,000;
- b) Project No. 51021(Second Source Transmission Line Phase I) in the amount of \$222,135,000;
- c) Project No. 51009 (Second Source Transmission Line Phase II) in the amount of \$135,385,000; and
- d) Project 51004 (2025 Distribution System) in the amount of \$44,125,000.

Such commitment is conditioned as follows:

**Standard Conditions:**

1. this commitment is contingent on a future sale of bonds by the TWDB or on the availability of funds on hand;
2. this commitment is contingent upon the issuance of a written approving opinion of the Attorney General of the State of Texas stating that all of the requirements of the laws under which said Obligations were issued have been complied with; that said Obligations were issued in conformity with the Constitution and laws of the State of Texas; and that said Obligations are valid and binding obligations of the Authority;
3. this commitment is contingent upon the Authority's continued compliance with all applicable laws, rules, policies and guidance as these may be amended from time to time to adapt to a change in law, in circumstances, or any other legal requirement;
4. this commitment is contingent upon the Authority executing a separate financing agreement, approved as to form and substance by the Executive Administrator, and submitting that executed agreement to the TWDB consistent with the terms and conditions described in the financing agreement;
5. the Authority shall use a paying agent/registrar in accordance with 31 TAC Section 363.42(c)(2), and shall require the paying agent/registrar to provide a copy, to the TWDB and to the TWDB's designated Trustee, of all receipts documenting debt service payments.

**The Following Conditions Must Be Included in the Obligations:**

6. the Obligations must provide that the Obligations can be called for early redemption only in inverse order of maturity, and on any date beginning on or after the first interest payment date which is 10 years from the dated date of the Obligations, at a redemption price of par, together with accrued interest to the date fixed for redemption;
7. the Obligations must include a provision wherein the Authority, or an obligated person for whom financial or operating data is presented to the TWDB in the application for financial assistance either individually or in combination with other issuers of the Authority's Obligations or obligated persons, will, at a minimum, regardless of the amount of the Obligations, covenant to comply with requirements for continuing disclosure on an ongoing basis substantially in the manner required by Securities and Exchange Commission (SEC) in 17 CFR § 240.15c2-12 (Rule 15c2-12) and determined as if the TWDB were a Participating Underwriter within the meaning of such rule, such continuing disclosure undertaking being for the benefit of the TWDB and the beneficial owners of the Authority's Obligations, if the TWDB sells or otherwise transfers such Obligations, and the beneficial owners of the TWDB's bonds if the Authority is an obligated person with respect to such bonds under SEC Rule 15c2-12;
8. the Obligations must contain a provision requiring the Authority to maintain and collect sufficient rates and charges to produce system revenues in an amount necessary to meet the debt service requirements of all outstanding obligations and to maintain the funds established and required by the Obligations;



9. the Obligations must include a provision requiring the Authority to use any loan proceeds from the Obligations that are determined to be surplus proceeds remaining after completion of the project for the following purposes as approved by the Executive Administrator: (1) deposit into the Interest and Sinking Fund or other debt service account for the payment of interest or principal on the Obligations owned by the TWDB; or (2) eligible costs for the project as authorized by the Executive Administrator;
10. the Obligations must contain a provision that the TWDB may exercise all remedies available to it in law or equity, and any provision of the Obligations that restricts or limits the TWDB's full exercise of these remedies shall be of no force and effect;
11. loan proceeds are public funds and, as such, the Obligations must include a provision requiring that these proceeds shall be held at a designated state depository institution or other properly chartered and authorized institution in accordance with the Public Funds Investment Act, Government Code, Chapter 2256, and the Public Funds Collateral Act, Government Code, Chapter 2257;
12. loan proceeds shall not be used by the Authority when sampling, testing, removing or disposing of contaminated soils and/or media at the project site. The Obligations shall include an environmental indemnification provision wherein the Authority agrees to indemnify, hold harmless and protect the TWDB from any and all claims, causes of action or damages to the person or property of third parties arising from the sampling, analysis, transport, storage, treatment, recycling and disposition of any contaminated sewage sludge, contaminated sediments and/or contaminated media that may be generated by the Authority, its contractors, consultants, agents, officials and employees as a result of activities relating to the project to the extent permitted by law;
13. the Obligations must include a provision stating that the Authority shall report to the TWDB the amounts of project funds, if any, that were used to compensate historically underutilized businesses that worked on the project, in accordance with 31 TAC § 363.1312;
14. the Obligations must contain a provision that the TWDB will purchase the Obligations, acting through the TWDB's designated Trustee, and the Obligations shall be registered in the name of Cede & Co. and closed in book-entry form in accordance with 31 TAC Section 363.42(c)(1);
15. the Obligations must include a provision prohibiting the Authority from using the proceeds of this loan in a manner that would cause the Obligations to become "private activity bonds" within the meaning of § 141 of the Internal Revenue Code of amended (Code) and the Treasury Regulations promulgated thereunder (Regulations);
16. the Obligations must provide that no portion of the proceeds of the loan will be used, directly or indirectly, in a manner that would cause the Obligations to be "arbitrage bonds" within the meaning of § 148(a) of the Code and Regulations, including to acquire or to replace funds which were used, directly or indirectly, to acquire Nonpurpose Investments (as defined in the Code and Regulations) which produce a yield materially higher than the yield on the TWDB's bonds that are issued to provide financing for the loan (Source Series Bonds), other than Nonpurpose Investments acquired with:

- a. proceeds of the TWDB's Source Series Bonds invested for a reasonable temporary period of up to three (3) years after the issue date of the Source Series Bonds until such proceeds are needed for the facilities to be financed;
  - b. amounts invested in a bona fide debt service fund, within the meaning of § 1.148-1(b) of the Regulations; and
  - c. amounts deposited in any reasonably required reserve or replacement fund to the extent such amounts do not exceed the least of maximum annual debt service on the Obligations, 125% of average annual debt service on the Obligations, or 10 percent of the stated principal amount (or, in the case of a discount, the issue price) of the Obligations;
17. the Obligations must include a provision requiring the Authority take all necessary steps to comply with the requirement that certain amounts earned on the investment of gross proceeds of the Obligations be rebated to the federal government in order to satisfy the requirements of § 148 of the Code. The Obligations must provide that the Authority will:
- a. account for all Gross Proceeds, as defined in the Code and Regulations, (including all receipts, expenditures and investments thereof) on its books of account separately and apart from all other funds (and receipts, expenditures and investments thereof) and retain all records of such accounting for at least six years after the final Computation Date. The Authority may, however, to the extent permitted by law, commingle Gross Proceeds of its loan with other money of the Authority, provided that the Authority separately accounts for each receipt and expenditure of such Gross Proceeds and the obligations acquired therewith;
  - b. calculate the Rebate Amount, as defined in the Code and Regulations, with respect to its loan, not less frequently than each Computation Date, in accordance with rules set forth in § 148(f) of the Code, § 1.148-3 of the Regulations, and the rulings thereunder. The Authority shall maintain a copy of such calculations for at least six years after the final Computation Date;
  - c. as additional consideration for the making of the loan, and in order to induce the making of the loan by measures designed to ensure the excludability of the interest on the TWDB's Source Series Bonds from the gross income of the owners thereof for federal income tax purposes, pay to the United States the amount described in paragraph (b) above within 30 days after each Computation Date;
  - d. exercise reasonable diligence to assure that no errors are made in the calculations required by paragraph (b) and, if such error is made, to discover and promptly to correct such error within a reasonable amount of time thereafter, including payment to the United States of any interest and any penalty required by the Regulations;
18. the Obligations must include a provision prohibiting the Authority from taking any action that would cause the interest on the Obligations to be includable in gross income for federal income tax purposes;

19. the Obligations must provide that the Authority will not cause or permit the Obligations to be treated as “federally guaranteed” obligations within the meaning of § 149(b) of the Code;
20. the Obligations must provide that neither the Authority nor a related party thereto will acquire any of the TWDB’s Source Series Bonds in an amount related to the amount of the Obligations to be acquired from the Authority by the TWDB;

#### **Revenue Pledge**

21. the Obligations must require the accumulation of a reserve fund of no less than average annual debt service requirements, to be accumulated in equal monthly installments over the initial sixty (60) months following the issuance of the Obligations;
22. if the Authority has existing revenue obligations with the same pledge of security as the proposed Obligations that will remain outstanding after any loan(s) made by the TWDB pursuant to this commitment, the Obligations must contain a provision providing that the lien or liens securing the Obligations issued to the TWDB shall be at least on a parity with lien or liens securing such outstanding obligations;
23. the Obligations must contain a provision providing that additional parity revenue obligations may only be incurred if (i) the Adjusted Net Revenues for the most recently completed Fiscal Year, or any consecutive twelve (12) month period out of the eighteen (18) month period immediately preceding the Issue Date for such parity revenue obligations, were at least equal to the Coverage Requirement (which shall include debt service on the proposed series or installment of parity revenue obligations then being issued) for the current Fiscal Year, (ii) the Pro-Forma Net Revenues for the most recently completed Fiscal Year, or any consecutive twelve (12) month period out of the eighteen (18) month period immediately preceding the Issue Date for such parity revenue obligations were at least equal to the Pro-Forma Coverage Requirement (which shall include debt service on the proposed series or installment of parity revenue obligations then being issued for the current Fiscal Year or (iii), if the parity revenue obligations are being issued for the purpose of refunding previously issued parity revenue obligations and the issuance of such parity revenue obligations will result in a reduction in the maximum Annual Debt Service Requirements of the parity revenue obligations to be outstanding following the issuance of such parity revenue obligations;

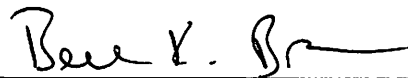
#### **Conditions to Close or for Release of Funds:**

24. prior to closing, the Authority shall submit documentation evidencing the adoption and implementation of sufficient system rates and charges sufficient for the repayment of all currently outstanding system debt service requirements;
25. prior to closing, and if not previously provided with the application, the Authority shall submit executed contracts for engineering, and, if applicable, financial advisor and bond counsel contracts, for the project that are satisfactory to the Executive Administrator. Fees to be reimbursed under the contracts must be reasonable in relation to the services performed, reflected in the contract, and acceptable to the Executive Administrator;

26. prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the Authority shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB;
27. prior to release of funds for construction, the Authority must provide the TWDB with evidence that the necessary acquisitions of land, leases, easements, and rights-of-way have been completed, or that the Authority has the legal authority necessary to complete the acquisitions;
28. prior to release of funds for design or construction for specific project elements, the environmental review must be completed and a favorable environmental finding must have been issued;
29. prior to closing, the Authority's bond counsel must prepare a written opinion that states that the interest on the Obligations is excludable from gross income or is exempt from federal income taxation. Bond counsel may rely on covenants and representations of the Authority when rendering this opinion;
30. prior to closing, the Authority's bond counsel must prepare a written opinion that also states that the Obligations are not "private activity bonds." Bond counsel may rely on covenants and representations of the Authority when rendering this opinion;
31. the transcript must include a No Arbitrage Certificate or similar Federal Tax Certificate setting forth the Authority's reasonable expectations regarding the use, expenditure and investment of the proceeds of the Obligations; and
32. the transcript must include evidence that the information reporting requirements of § 149(e) of the Code will be satisfied. This requirement may be satisfied by filing an IRS Form 8038 with the Internal Revenue Service. In addition, the applicable completed IRS Form 8038 or other evidence that the information reporting requirements of § 149(e) have been satisfied must be provided to the Executive Administrator within fourteen (14) days of closing. The Executive Administrator may withhold the release of funds for failure to comply.

APPROVED and ordered of record this, the 23<sup>rd</sup> day of July, 2015.

TEXAS WATER DEVELOPMENT BOARD



Bech K. Bruun, Chairman

DATE SIGNED: 7-23-15

ATTEST:



Kevin Patteson  
Executive Administrator

**A RESOLUTION OF THE TEXAS WATER DEVELOPMENT BOARD  
AMENDING TEXAS WATER DEVELOPMENT BOARD RESOLUTION 15-077  
TO INCREASE THE COMMITMENT FOR FINANCIAL ASSISTANCE GRANTED TO NORTH  
HARRIS COUNTY REGIONAL WATER AUTHORITY**

(16-079)

WHEREAS, at its July 23, 2015 meeting, the Texas Water Development Board (TWDB), by TWDB Resolution No. 15-077, made a multi-year commitment to provide financial assistance to North Harris County Regional Water Authority (Authority) from the State Water Implementation Revenue Fund for Texas (SWIRFT) through the TWDB's proposed purchase of \$953,405,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds Proposed Series 2015 through 2021 for Project Nos. 51023, 51021, 51009 and 51004; and

WHEREAS, the Authority has filed applications requesting that the TWDB amend TWDB Resolution No. 15-077 to increase the commitment in the amount of \$225,675,000 from the SWIRFT for Project Nos. 51021 and 51004; and

WHEREAS, the Authority, has requested that the TWDB amend TWDB Resolution No. 15-077 for additional financial assistance for Project Nos. 51021 and 51004, in the form of a multi-year commitment through the TWDB's proposed purchase of \$225,675,000 additional North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2016 through Proposed Series 2021 (together with all authorizing documents "Obligations"), all as is more specifically set forth in the application and in recommendations of the Executive Administrator's staff; and

WHEREAS, the Authority has offered a pledge of a first lien on the system revenue as sufficient security for the repayment of the Obligations; and

WHEREAS, interest rate subsidies are available to the Authority at the following levels: 35% for a loan of a term of 20 years, 25% for a loan of a term of 21 to 25 years, and 20% for a loan of a term of 26 to 30 years. The interest rate subsidy applicable to each proposed series will be set through each financing agreement executed between the TWDB and the Authority, pursuant to this Resolution; and

WHEREAS, the TWDB hereby finds that the amendment to TWDB Resolution No. 15-077 as requested by the Authority, is reasonable and within the public interest and will serve a public purpose; and

WHEREAS, in accordance with the Texas Water Code, the TWDB has carefully considered all matters required by law.

NOW, THEREFORE, based on these considerations and findings, the TWDB resolves as follows:

1. The commitment made through TWDB Resolution 15-077 to the North Harris County Regional Water Authority for financial assistance from the State Water Implementation Revenue Fund for Texas is amended.
2. The commitment made through TWDB Resolution 15-077 as hereby amended shall be evidenced by the TWDB's proposed purchase of the North Harris County Regional Water

Authority Senior Lien Revenue Bonds in accordance with the annual loan closing schedule proposed below:

- a. \$195,050,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2016 to expire on December 31, 2016;
  - b. \$388,565,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2017 to expire on December 31, 2017;
  - c. \$379,950,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2018 to expire on December 31, 2018;
  - d. \$80,470,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2019 to expire on December 31, 2019;
  - e. \$36,700,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2020 to expire on December 31, 2020; and
  - f. \$17,910,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2021 to expire on December 31, 2021.
3. TWDB Resolution No. 15-077 is further amended to reflect the commitment described above consisting of the following Projects:
- a. Project No. 51023 (Northeast Water Purification Plant Expansion) in the remaining amount of \$543,600,000;
  - b. Project No. 51021 (Second Source Transmission Lines Phase I) in the remaining amount of \$281,865,000;
  - c. Project No. 51009 (Transmission pipeline for Second Source) in the remaining amount of \$124,485,000;
  - d. Project No. 51004 (Internal Distribution Expansion) in the remaining amount of \$148,695,000.
4. All other terms and conditions of TWDB Resolution No. 15-077 shall remain in full force and effect.

APPROVED and ordered of record this the 21st day of July, 2016.

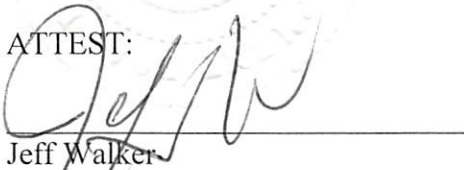

TEXAS WATER DEVELOPMENT BOARD



Bech K. Bruun, Chairman

DATE SIGNED: 7-21-16

ATTEST:



Jeff Walker  
Executive Administrator

**A RESOLUTION OF THE TEXAS WATER DEVELOPMENT BOARD  
AMENDING TEXAS WATER DEVELOPMENT BOARD  
RESOLUTION NO. 15-077 AS AMENDED BY RESOLUTION NO. 16-079  
TO PROVIDE FINANCIAL ASSISTANCE TO THE NORTH HARRIS COUNTY REGIONAL  
WATER AUTHORITY  
IN THE AMOUNT OF \$73,000,000**

**(17-083)**

WHEREAS, at its July 23, 2015 meeting, the Texas Water Development Board (TWDB), through TWDB Resolution No. 15-077, made a multi-year commitment to provide financial assistance to North Harris County Regional Water Authority (Authority) from the State Water Implementation Revenue Fund for Texas (SWIRFT) through the TWDB's proposed purchase of \$953,405,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds Proposed Series 2015 through 2021 for Project Nos. 51023, 51021, 51009 and 51004; and

WHEREAS, at its July 21, 2016, meeting, the TWDB through TWDB Resolution No. 16-079, amended TWDB Resolution No. 15-077 to increase the financial assistance commitment in the amount of \$225,675,000 for Project Nos. 51021 and 51004, all as is more specifically set forth in the TWDB's Resolution Nos. 15-077 and 16-079 (Resolutions) and accompanying documentation, to which documents express reference is made; and

WHEREAS, the Authority seeks an amendment to TWDB Resolution No. 15-077 as amended by TWDB Resolution No. 16-079 for additional financial assistance for Project No. 51004 through the TWDB's proposed purchase of \$73,000,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2017 through Proposed Series 2019; and

WHEREAS, interest rate subsidies are available to the Authority at the following levels: 35% for a term of 20 years, 25% for a term of 21 to 25 years, and 20% for a term of 26 to 30 years. The interest rate subsidy applicable to each proposed series will be set through each financing agreement executed between the TWDB and the Authority, pursuant to this Resolution; and

WHEREAS, these interest rate subsidies given above are based on assumptions necessary to generate an optimum debt service structure for the anticipated TWDB SWIRFT bond issuance, and are subject to modification as necessary to preserve and maintain the integrity of the SWIRFT Program;

WHEREAS, the TWDB hereby finds that the proposed amendment to TWDB Resolution No. 15-077, as amended by TWDB Resolution No. 16-079, as requested by the Authority, is reasonable and within the public interest and will serve a public purpose; and

WHEREAS, in accordance with the Texas Water Code, the TWDB has carefully considered all matters required by law and, in particular whether the request for additional

financial assistance meets the criteria provided by Texas Water Code § 15.437 relating to the prioritization of the Project.

NOW, THEREFORE, based on these considerations and findings, the TWDB resolves as follows:

1. The commitment made through TWDB Resolution No. 15-077, as amended by TWDB Resolution No. 16-079, to the North Harris County Regional Water Authority for financial assistance from the State Water Implementation Revenue Fund for Texas is amended, and shall be evidenced by the TWDB's proposed purchase of the North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2017 through 2019 in accordance with the annual closing schedule proposed below:
  - a. \$391,715,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2017;
  - b. \$386,850,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2018;
  - c. \$143,420,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2019;
  - d. \$36,700,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2020; and
  - e. \$17,910,000 North Harris County Regional Water Authority Senior Lien Revenue Bonds, Proposed Series 2021.
2. Further, the commitment described above consists of the following Projects:
  - a. Project No. 51023 (Northeast Water Purification Plant Expansion) in the remaining amount of \$500,755,000;
  - b. Project No. 51021 (Second Source Transmission Lines Phase I) in the remaining amount of \$187,010,000;
  - c. Project No. 51009 (Transmission pipeline for Second Source) in the remaining amount of \$121,940,000; and
  - d. Project No. 51004 (Internal Distribution Expansion) in the remaining amount of \$166,890,000.
3. All other terms and conditions of TWDB Resolution No. 15-077, as amended by TWDB Resolution No. 16-079, shall remain in full force and effect.



APPROVED and ordered of record this the 20th day of July, 2017.

TEXAS WATER DEVELOPMENT BOARD



Bech K. Bruun

Bech K. Bruun, Chairman

DATE SIGNED: 7-20-17

ATTEST:

Jeff Walker

Jeff Walker  
Executive Administrator

**WATER CONSERVATION REVIEW**

Entity: \_\_\_\_\_

Review date: \_\_\_\_\_

**WATER CONSERVATION PLAN DATE:****Approvable****Adopted**

	<b>Total GPCD</b>	<b>Residential GPCD</b>	<b>Water Loss GPCD</b>	<b>Water Loss Percent</b>
<b>Baseline</b>				
<b>5-year Goal</b>				
<b>10-year Goal</b>				

**WATER LOSS AUDIT YEAR:**

Total water loss (GPCD): \_\_\_\_\_

Total water loss (percent): \_\_\_\_\_

Wholesale Water

Total no. of connections: \_\_\_\_\_

Length of mains (miles): \_\_\_\_\_

Connections per mile: \_\_\_\_\_

If &gt; 16 connections per mile and &gt; 3,000 connections, Infrastructure Leakage Index (ILI): \_\_\_\_\_

**WATER LOSS THRESHOLDS:**

<b>Apparent Loss</b> Gallons per connection per day	<b>Real Loss</b> Gallons per mile per day	<b>Real Loss</b> Gallons per connection per day	<b>Apparent Threshold</b> Gallons per connection per day	<b>Real Threshold</b> Gallons per mile per day	<b>Real Threshold</b> Gallons per connection per day

If population ≤ 10K, connections/mile &lt; 32 :

If population ≤ 10K, connections/mile ≥ 32 :

If population &gt; 10K :

Does the applicant meet Water Loss Threshold requirements?

Yes

No

NA

**ADDITIONAL INFORMATION:****STAFF NOTES AND RECOMMENDATIONS:**

## DEFINITIONS

**Adopted** refers to a water conservation plan that meets the minimum requirements of the water conservation plan rules and has been formally approved and adopted by the applicant's governing body.

**Apparent loss** refers to unauthorized consumption, meter inaccuracy, billing adjustments, and waivers.

**Approvable** refers to a water conservation plan that substantially meets the minimum requirements of the water conservation plan rules but has not yet been adopted by the applicant's governing body.

**Best Management Practices** are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

**GPCD** means gallons per capita per day.

**Infrastructure Leakage Index (ILI)** is the current annual real loss divided by the unavoidable annual real loss (theoretical minimum real loss) and only applies to utilities with more than 5,000 connections, average pressure greater than 35 psi, and a connection density of more than 32 connections per mile. The **ILI** is recommended to be less than 3 if water resources are greatly limited and difficult to develop, between 3 and 5 if water resources are adequate to meet long-term needs but water conservation is included in long-term water planning, and between 5 and 8 if water resources are plentiful, reliable, and easily extracted. The **ILI** is recommended as a bench marking tool, but until there is increased data validity of the variables used in the calculation, the **ILI** should be viewed with care.

**NA** means not applicable.

**Produced water** is the total amount of water purchased or produced by the utility.

**Real loss** comes from main breaks and leaks, storage tank overflows, customer service line breaks, and leaks.

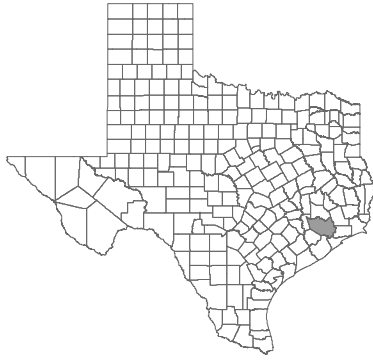
**Residential GPCD** is the amount of water per capita used solely for residential use and ideally includes both single and multi-family customer use.

**Total baseline GPCD** is the amount of all water purchased or produced by the utility divided by the service area population and then divided by 365.

**Total water loss** is the sum of the apparent and real water losses.

**Water loss** is the difference between the input volume and the authorized consumption within a water system. Water Loss consists of real losses and apparent losses.

**Water Loss Thresholds** are levels of real and apparent water loss determined by the size and connection density of a retail public utility, at or above which a utility receiving financial assistance from the Texas Water Development Board must use a portion of that financial assistance to mitigate the utility's system water loss.



## North Harris CO Regional WA Harris County

