

2015 -2016

Capital Improvement

Plan

Adopted December 8, 2014

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SECTION I - INTRODUCTION

The North Harris County Regional Water Authority (the "Authority") was created by the 76th Texas Legislature in 1999 and confirmed by a special public election in 2000. The Authority's mission included finding and assuring a long-term supply of quality drinking water at the lowest responsible cost. The new entity was also charged with promoting water conservation, as well as maintaining regulatory compliance. This last assignment was critical because the Harris-Galveston Subsidence District (the "HGSD") had published its 1999 Regulatory Plan requiring our area *to reduce groundwater withdrawals to no more than 20 percent of total water demand by the year 2030*. Since no individual MUD or well owner had the ability to convert to surface water on their own, the Authority became the single entity to negotiate for a secure, long-term supply of drinking water for all the municipal utility districts, small municipalities and other permitted well owners within its boundaries. Perhaps the most critical task was to develop and construct the infrastructure to bring that water to the subdivisions within the boundaries of the Authority. The Authority was not given taxing ability; rather funding for the conversion to surface water comes from pumpage fees charged to the well owners and the sale of surface water.

Several disincentives were built into the HGSD Regulatory Plan, including a \$3.00/1,000 gallons (groundwater pumped) "penalty" fee that would be triggered: 1) If the Groundwater Reduction Plan (the "GRP") was not submitted and certified according to the timeline; 2) If construction had not begun on the surface water delivery infrastructure by 2005; and 3) If the mandated groundwater pumpage reductions were not accomplished within the 2010, 2020 and 2030 timelines. (This disincentive fee was later raised to \$7.00/1,000 gal.) The Authority has met all of the applicable deadlines to date.

As the GRP was being developed, it became apparent that some water districts within the Authority were experiencing difficulty with either water quality or water quantity to meet accelerating demand. These districts would soon be forced to decide whether or not to drill a new well -- sometimes at a cost of more than a million dollars -- that may be minimally used once the area converted to surface water in 2010.

From the outset, the Authority's cornerstone precept was fairness and equity among all water users within its boundaries, and promised that the overall cost of accommodating the HGSD mandate would be shared by everyone. Random drilling of new wells that were not ideally positioned to be incorporated into the long term distribution system was clearly not cost-effective. Recognizing this, the Authority initiated a bold new strategy to share existing groundwater supplies by 'connecting' the districts that had surplus capacity in their wells with the ones that needed additional water immediately. This innovative solution – called the Groundwater Transfer Program (the "GTP") – involved constructing portions of the 2010 distribution lines significantly earlier than originally planned. The necessary components of the GTP were completed and the GTP was placed in operation in January 2006. After very successfully meeting its intended purpose, the GTP ended in June 2010 with the conversion to surface water by the involved districts.

The Authority's system was ready to begin delivering surface water in September 2009. However, the first districts did not begin to take surface water until February 2010. The remaining districts

scheduled to receive surface water continued to come online as their chloramination facilities were ready with the last district coming on line in March 2011.

In 2003, the Authority adopted its initial **Capital Improvement Plan** ("CIP") for years 2004-2005. The primary focus of that CIP, and the one following it, was to define and construct the infrastructure necessary to launch the GTP. Subsequent plans expanded on this foundation by outlining and implementing a broad-based program to provide the remainder of the infrastructure necessary to enable the initial conversion to surface water in 2010. The 2015-2016 Capital Improvement Plan (the "2015-2016 CIP") provides for enhancements to the 2010 system to enable a continuous satisfactory level of conversion to surface water and focuses on the planning and initial development of the infrastructure needed to meet the HGSD 2025 mandate.

The HGSD updated its Regulatory Plan ("Plan") in January 2013. The updated Plan extended the 2020 and 2030 conversion deadlines each back five years to 2025 and 2035 respectively. Also the conversion requirements were reduced to 60% in 2025 and set at 80% for 2035. Additionally, existing certified GRPs were required to incorporate any changes required by the updated Regulatory Plan and be resubmitted for certification no later than July 1, 2014. The Authority submitted its updated GRP to the HGSD on June 26, 2014. The 2015-2016 CIP defines components of the plan detailed in the Authority's updated GRP needed to facilitate continued compliance with the HGSD's conversion requirements.

SECTION II – THE 2015-2016 CAPITAL IMPROVEMENT PLAN

Overview

The 2015-2016 CIP continues the systematic planning and development process that began when the Authority's Board adopted the Authority's first CIP in 2003. The primary focus of the 2015-2016 CIP is to initiate the development of the infrastructure defined in the Authority's updated GRP thereby enabling timely implementation of the GRP and continued compliance with the HGSD's conversion requirements.

Significant activities addressed in the 2015-2016 CIP are:

- Continue evaluating the need for additional regional water wells and enhancements to the 2010 system and take necessary efforts to optimize use of the system.
- Provide infrastructure to areas adjacent to the 2010 service area to enable continued compliance with HGSD mandates and the phased implementation of the 2025 distribution system.
- Finalize the alignment of the portion of the 2025 transmission line, which lies generally north of Beltway 8 from just west of IH 45 to just west of State Highway 249, and initiate securing the necessary easements.
- Identify and purchase the sites for the 2035 regional water plant, a 2025 regional pump station and two meter sites.
- Provide funding to increase the Authority's allocation of water from the existing Northeast Water Purification Plant (NEWPP) to 43 MGD.
- Provide funding for the Authority's share of the initial efforts on the major expansion of the NEWPP.
- Provide funding for the Authority's share of the cost of Major Rehabilitation, reconstruction and upgrading of the existing NEWPP.
- Provide funding to purchase up to an additional 7.4 MGD capacity in the Greens Road Water Line.
- Provide funding for the Authority's share of the cost for acquisition of real estate and the design of the proposed joint transmission line from the NEWPP site to the Authority's proposed 2025 transmission line.
- Pay the Authority's portion of the initial loan costs for the Luce Bayou Interbasin Diversion Project.
- Provide funding for the Chloramination Credit.
- Provide funding to help encourage and facilitate implementation of reuse systems.

• Provide professional services to perform the wide variety of activities required to implement the 2015-2016 CIP.

Details on the specific projects are presented in Appendix B.

Considerations

The 2015-2016 CIP has been developed using the best, currently available information for the scope of each project along with cost information from a variety of sources, including cost experience from the Authority's projects completed to date. While the Authority's body of empirical cost data is expanding, especially in terms of water lines, the cost base is still evolving in several areas. Accordingly, the following points are offered to help keep the implementation of this 2015-2016 CIP in perspective:

- It is possible that conditions would evolve on a project that could materially impact the cost of the project.
- Real estate and construction costs can be and are influenced by variables over which the Authority has no control.
- It is common to experience unexpected costs in the implementation of a CIP. Provision of a contingency is the most practical way to attempt to address this issue.

Financial

While the 2004-2005 CIP used the best cost estimation available at the time, it did not have the benefit of building upon actual prior Authority project experience; instead, the costing was based on the general project definition presented in the GRP. As the actual design of the projects proceeded and the criteria within which the Authority needed to develop its projects became clearer, it has become possible to sharpen the definition of the projects. As a result, the ability to estimate the project costs has improved. The estimated costs included in the 2015-2016 CIP have been updated and/or based - wherever possible and practical - on experience gained thus far on actual Authority projects.

The proceeds from the Authority's Series 2003, 2005 and 2008 Senior Lien Revenue Bonds, capital contributions and interest earned (collectively called "Revenue Bonds") total approximately \$437 million. As seen in the following table, approximately \$52 million of Revenue Bonds will be used to implement the 2015-2016 CIP. The remaining approximately \$180 million of the near \$232 million needed to implement the 2015-2016 CIP will be funded through sources To Be Determined, i.e. bonds, capital contributions, etc.

Through September 2014, approximately 88 percent of the Revenue Bonds earmarked for the implementation of the CIP have been authorized (encumbered). The 2015-2016 CIP schedules the remainder of those funds to be authorized by the end of 2016.

SUMMARY OF 2015-2016 CAPITAL IMPROVEMENT PLAN

Category	Authorizations ¹ (Thousands)		Fiscal Year Planned Authorizations (Thousands)				Total		
	1/	1/03-9/30/14	10/1	/14-12/31/14		2015		2016	
Acquisition	\$	29,340	\$	60	\$	18,298	\$	12,776	\$ 60,474
Design		53,902		298		23,847		7,923	85,970
Construction		242,301		1,868		1,843		71,427	317,439
Equipment									
Other		59,448		329		45,303		47,879	152,959
Total Authorizations	\$	384,991	\$	2,555	\$	89,291	\$	140,005	\$ 616,842
Source of Funds									
Revenue Bonds	\$	384,991	\$	2,555	\$	44,077	\$	5,300	\$ 436,923
To Be Determined		-		-		45,214		134,705	179,919
Total Funds	\$	384,991	\$	2,555	\$	89,291	\$	140,005	\$ 616,842

¹ Authorizations do not typically represent actual expenditures.

APPENDIX A GLOSSARY OF TERMS

GLOSSARY OF TERMS

Acquisition Includes the cost to purchase land and easements and the acquisition

services (i.e. ROW Services, appraisals, legal, etc.) required to accomplish

the purchase

Authorization Amount designated for or authorized for the performance of work, service,

equipment or participation agreements - the values typically do not

represent actual expenditure of funds

Design Includes the cost for program management, project planning, design

related services, design management and other engineering and planning

activities

Construction Includes the cost of the construction contract, contingencies, construction

administration, construction observation and materials testing

Equipment Includes the cost of any equipment that may be purchased separately from

a construction contract

FWSD Fresh Water Supply District

ID Improvement District

MUD Municipal Utility District

N/A Not Applicable or Contingency CIP No.

Other A general category that may include participation commitments with other

parties, acquisition, design, construction, equipment or any other relevant

costs

PUD Public Utility District

UD Utility District

VAR Various districts or key map locations as applicable

WCID Water Control & Improvement District

APPENDIX B PROJECT DETAIL FORMS

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: SPEARS ROAD REGIONAL PUMP STATION	District: N/A	C.I.P. Number:
		Key Map: 372J

Description: Project provides for the siting study, site acquisition, design, construction and upgrades/enhancements of this regional pump station. (Formerly called the T. C. Jester Regional Pump Station)

Catamany	Authorizations	(Thousands)	Fiscal Year Planned (Thousar		Project Total	
Category	1/1/03-9/30/14	10/1/14- 12/31/14	2015 2016		Fioject Iolai	
Acquisition	5,924				5,924	
Design	3,457	40	124	50	3,671	
Construction	36,977		1,623		38,600	
Equipment						
Other			500	500	1,000	
Total Authorizations	46,358	40	2,247	550	49,195	
Source of Funds						
Revenue Bonds	46,358	40	2,247		48,645	
To Be Determined				550	550	
Total Funds	46,358	40	2,247	550	49,195	

Project: REGIONAL WELLS	District: VAR	C.I.P. Number:
		Key VAR Map:

Description: Project provides for the acquisition of well sites and design and construction of new wells and appurtenances and/or the purchase of existing wells. The wells will be constructed or purchased as needed to augment supplies of water as needed by the Authority to facilitate operation of its System.

Category	Authorization	s (Thousands)	Fiscal Year Planne (Thousa		Project Total	
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	-	
Acquisition	3				3	
Design	93				93	
Construction						
Equipment						
Other			1,000	2,000	3,000	
Total Authorizations	96	0	1,000	2,000	3,096	
Source of Funds						
Revenue Bonds	96		1,000		1,096	
To Be Determined				2,000	2,000	
	· · · · · · · · · · · · · · · · · · ·					
Total Funds	96	0	1,000	2,000	3,096	

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: LOUETTA REGIONAL WATER PLANT	District:	C.I.P. Number: 5
	2	Key Map: 329R

Description: Project provides for the site acquisition, design, construction and upgrades/enhancements of this regional water plant.

Category	Authorization	s (Thousands)	Fiscal Year Planne (Thous		Project Total
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	-
Acquisition	967		150		1,117
Design	1,481		534		2,015
Construction	17,412		220	5,567	23,199
Equipment					
Other					
Total Authorizations	19,860	0	904	5,567	26,331
Source of Funds					
Revenue Bonds	19,860		904		20,764
To Be Determined				5,567	5,567
Total Funds	19,860	0	904	5,567	26,331

Project: GREENS ROAD WATER LINE	District:	C.I.P. Number: 18
	N/A	Key Map: VAR

Description: Project provides for the Authority's portion of the cost of the City of Houston Greens Road water line. The City of Houston constructed a water line from the 84-inch line delivering water from the Northeast Water Tretment Plant to the Greenspoint area. The City upsized the line to provide for water the Authority will be purchasing form the City of Houston.

Category	Authorization	s (Thousands)	Fiscal Year Planne (Thousa		
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	-
Acquisition					
Design	147				147
Construction					
Equipment					
Other	26,534		4,456		30,990
Total Authorizations	26,681	0	4,456	0	31,137
Source of Funds					
Revenue Bonds	26,681				26,681
To Be Determined			4,456		4,456
		_		_	
Total Funds	26,681	0	4,456	0	31,137

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: WEST REGIONAL WATER PLANT (formerly Telge Regional	District:	C.I.P. Number: 21
Water Plant)	1	Key Map: 368E

Description: Project provides for the siting study and site acquisition for this regional water plant. This facility will be part of the 2035 Water Distribution and Transmission System.

Category	Authorization	s (Thousands)	Fiscal Year Planne (Thous		Project Total
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	· · · · · · · · · · · · · · · · · · ·
Acquisition			245	3,083	3,328
Design					
Construction					
Equipment					
Other					
Total Authorizations	0	0	245	3,083	3,328
Source of Funds					
Revenue Bonds			245	3,083	3,328
To Be Determined					
Total Funds	0	0	245	3,083	3,328

Project: HARDY REGIONAL PUMP STATION	District:	C.I.P. Number: 23
	N/A	Key Map: 333S

Description: Project provides for the siting study and site acquisition for this regional pump station and another site for a meter station. This facility will be part of the 2025 Water Distribution and Transmission System.

Category	Authorizations (Thousands)		Fiscal Year Planne (Thous	Project Total	
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	
Acquisition			3,573	1,338	4,911
Design					
Construction					
Equipment					
Other					
Total Authorizations	0	0	3,573	1,338	4,911
Source of Funds					
Revenue Bonds			245		245
To Be Determined			3,328	1,338	4,666
Total Funds	0	0	3,573	1,338	4,911

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: SH 249 REGIONAL PUMP STATION		C.I.P. Number: 24
	N/A	Key Map: 370S

Description: Project provides for the siting study and site acquisition for this regional pump station. This facility will be part of the 2025 Water Distribution and Transmission System.

Category	Authorizations (Thousands)		Fiscal Year Planned Authorizations (Thousands)		Project Total
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	-
Acquisition	4,625	60	355		5,040
Design	528	2	105		635
Construction		334			334
Equipment					
Other			50	50	100
Total Authorizations	5,153	396	510	50	6,109
Source of Funds					
Revenue Bonds	5,153	396	510		6,059
To Be Determined				50	50
Total Funds	5,153	396	510	50	6,109

Project: 2025 TRANSMISSION LINE (formerly 2020 TRANSMIS	
LINE)	VAR Key Map: VAR

Description: Project provides for the engineering and acquisition activities required to facilitate the purchase of the easement in the Centerpoint corridor along Beltway 8 from the City of Houston take point just west of IH45 to just west of State Hwy. 249. This line will be part of the 2025 Water Distribution and Transmission System.

Category	Authorizations (Thousands)		Fiscal Year Planned Authorizations (Thousands)		Project Total
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	-
Acquisition	170		9,306	5,107	14,583
Design	1,390		10,491	80	11,961
Construction					
Equipment					
Other					
Total Authorizations	1,560	0	19,797	5,187	26,544
Source of Funds					
Revenue Bonds	1,560		17,149		18,709
To Be Determined			2,648	5,187	7,835
Total France	4.500	0	40.707	5.407	20.544
Total Funds	1,560	0	19,797	5,187	26,544

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: WATER SUPPLY	District:	C.I.P. Number: 26
	ALL	Key Map: VAR

Description: Provides funding to pay the City of Houston for water in accordance with the Authority's Water Supply Contract with the City. Funding included herein will pay for the final payment on the initial 31 MGD allocation and funding for purchasing an additional allocation of water from an expanded Northeast Water Purification Plant (NEWPP). Additionally, funds will be used to pay the Authority's share of the cost of Major Rehabilitation, reconstruction and upgrading of the NEWPP.

Category	Authorization	s (Thousands)	Fiscal Year Planned Authorizations (Thousands)		Project Total
<u> </u>	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	•
Acquisition					
Design					
Construction					
Equipment					
Other	21,800		33,333	36,589	91,722
Total Authorizations	21,800	0	33,333	36,589	91,722
Source of Funds					
Revenue Bonds	21,800		4,804		26,604
To Be Determined			28,529	36,589	65,118
Total Funds	21,800	0	33,333	36,589	91,722

Project: LUCE BAYOU INTERBASIN DIVERSION PROJECT	District:	C.I.P. Number: 27
	ALL	Key Map: VAR

Description: Provides funding to pay the City of Houston for the Authority's portion of the Right-of-Way and related costs for the project. The project will deliver surface water from the Trinity River to Lake Houston. The water will be treated by the City of Houston and then delivered to the Authority and other users.

Category	Authorization	s (Thousands)	Fiscal Year Planned Authorizations (Thousands)		Project Total		
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016			
Acquisition							
Design							
Construction							
Equipment							
Other	3,313		118	117	3,548		
Total Authorizations	3,313	0	118	117	3,548		
Source of Funds	Source of Funds						
Revenue Bonds	3,313		118	117	3,548		
To Be Determined							
Total Funds	3,313	0	118	117	3,548		

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: 2025 DISTRIBUTION SYSTEM (formerly 2020 DISTRIBUTION	District:	C.I.P. Number: 28
SYSTEM)	VAR	Key Map: VAR

Description: Project provides for the design, real estate acquisition and construction of the initial component(s) of the 2025 Distribution System.

Category	Authorizations (Thousands)		Fiscal Year Planned (Thousa	Project Total	
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	-
Acquisition			4,669	3,248	7,917
Design			5,915	3,343	9,258
Construction				59,194	59,194
Equipment					
Other					
0Total Authorizations	0	0	10,584	65,785	76,369
Source of Funds2					
Revenue Bonds			10,584		10,584
To Be Determined				65,785	65,785
Total Funds	0	0	10,584	65,785	76,369

Project: CHLORAMINATION SYSTEMS	District:	C.I.P. Number: 29
	VAR	Key Map: VAR

Description: Provides funding to pay a Chloramination Credit to Public Water Systems (the "PWSs") converted to surface water. The Chloramination Credit is intended to reimburse the PWSs for the cost of chloramination facilities they constructed in order to use surface water.

Category	Authorizations (Thousands)		Fiscal Year Planned Authorizations (Thousands)		Project Total
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	1
Acquisition					
Design					
Construction					
Equipment					
Other	5,344	329	1,545	1,545	8,763
Total Authorizations	5,344	329	1,545	1,545	8,763
Source of Funds					
Revenue Bonds	5344	329			5,673
To Be Determined			1,545	1,545	3,090
Total Funds	5,344	329	1,545	1,545	8,763

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: SYSTEM IMPROVEMENTS	District:	C.I.P. Number: 100
	VAR	Key Map: VAR

Description: Project provides design, real estate acquisition and construction of improvements to existing systems and other supplemental additions to facilitate the efficient operation of the Authority's System.

Category	Authorization	ns (Thousands)	Fiscal Year Planned Authorizations (Thousands)		Project Total
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	·
Acquisition					
Design	606		1,884		2,490
Construction	3,465	1,534		6,666	11,665
Equipment					
Other	284		700	500	1,484
Total Authorizations	4,355	1,534	2,584	7,166	15,639
Source of Funds					
Revenue Bonds	4,355	1,534	1,000		6,889
To Be Determined			1,584	7,166	8,750
Total Funds	4,355	1,534	2,584	7,166	15,639

Project: CENTRAL CONTROL SYSTEM	District:	C.I.P. Number: 101
	VAR	Key Map: VAR

Description: Project provides the design and construction of the initial phase of the Supervisory Control and Data Acquistion (SCADA) System to facilitate the operation of the Authority's System.

Category	Authorizations (Thousands)		Fiscal Year Planne (Thousa	Project Total				
	1/1/03-9/30/14	10/1/14-12/31/14	2015	2016	•			
Acquisition	1				1			
Design	2,274				2,274			
Construction	4,912				4,912			
Equipment								
Other			500	500	1,000			
Total Authorizations	7,187	0	500	500	8,187			
Source of Funds	Source of Funds							
Revenue Bonds	7,187		500		7,687			
To Be Determined				500	500			
Total Funds	7,187	0	500	500	8,187			

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

Project: WATER REUSE	District:	C.I.P. Number: 102
	VAR	Key Map: VAR

Description: Project provides for engineering and other services to support the Authority's Water Reuse efforts and an allowance to participate in a pilot water reuse project.

Category	Authorizations	(Thousands)	Fiscal Yea Authorizations		Drainet Total	
	1/1/03-9/30/14	10/1/14- 12/31/14	2015	2016	Project Total	
Acquisition						
Design	40				40	
Construction						
Equipment						
Other			500	2,000	2,500	
Total Authorizations	40	0	500	2,000	2,540	
Source of Funds						
Revenue Bonds	40		500		540	
To Be Determined				2,000	2,000	
Total Funds	40	0	500	2,000	2,540	

Project: SUPPORT AND SPECIALTY	District:	C.I.P. Number: 200
	VAR	Key Map: VAR

Description: Provides various support and specialty professional services such as program management, control surveying, well location assessments, corrosion protection analysis, surge analysis, GIS and pricing policy/model updates.

Category	Authorizations	s (Thousands)		Fiscal Year Planned Authorizations (Thousands)	
	1/1/03-9/30/14	10/1/14- 12/31/14	2015	2016	Project Total
Acquisition	591				591
Design	19,948	256	4,794	4,450	29,448
Construction					
Equipment					
Other					
Total Authorizations	20,539	256	4,794	4,450	30,039
Source of Funds					
Revenue Bonds	20,539	256	2,700	2,100	25,595
To Be Determined			2,094	2,350	4,444
Total Funds	20,539	256	4,794	4,450	30,039

Revenue Bonds

To Be Determined

Total Funds

0

NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

1,571

5,108

6,679

Project: CONTINGENCY			District:	C.I.P. Number: N/A Key Map: VAR		
	VAR					
Description: Provides funding for cosfacilitate escalation of program compo						
Catamani	Authorizations	itions (Thousands)		lanned Authorizations housands)	Product Total	
Category	1/1/03-9/30/14	10/1/14- 12/31/14	2015	2016	Project Total	
Acquisition						
Design						
Construction						
Equipment						
Other			2,601	4,078	6,679	
Total Authorizations	0	0	2,601	4,078	6,679	
Source of Funds						

0

1,571

1,030

2,601

4,078

4,078