



*2022-2023*

*Capital Improvement*

*Plan*

**Adopted December 6, 2021**

**AECOM**

# **TABLE OF CONTENTS**

---

## **SECTION**

**SECTION I – INTRODUCTION**

**SECTION II – THE 2022-2023 CAPITAL IMPROVEMENT PLAN**

## **APPENDICES**

Appendix A – Glossary of Terms

Appendix B – Project Detail Forms

## 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. The HGSD has issued several revisions to their regulatory plan and the currently adopted plan, (HGSD 2013 Regulatory Plan), stipulates a 60% conversion by 2025 and 80% by 2035 while increasing the disincentive fee to approximately \$9.58/1000 gallons for calendar year 2020. The Authority has met all 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.

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 HGSD approved the Authority's updated GRP October 14, 2015.

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 2022-2023 Capital Improvement Plan (the "2022-2023 CIP") provides for enhancements to the 2010 system to facilitate a continuous satisfactory level of conversion to surface water and focuses on the planning and initial development of the infrastructure, especially those requiring coordination with other regional water providers and long delivery periods, needed to meet the HGSD 2025 and eventual 2035 conversion mandates.

## **SECTION II – THE 2022-2023 CAPITAL IMPROVEMENT PLAN**

---

### **Overview**

The 2022-2023 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 2022-2023 CIP is to continue the planning and development of the infrastructure required to enable the Authority to meet the HGSD's 2025 conversion requirement.

Significant activities addressed in the 2022-2023 CIP are:

- Continue maintenance and enhancements of the Authority's existing Regional Pump Station and Water Plant.
- 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.
- Identify and purchase the sites for the third Regional Pump Station and second Regional Water Plant.
- Construction of the 2025 transmission line.
- Provide funding for the Authority's share of the major expansion of the Northeast Water Purification Plant (the "NEWPP").
- Pay the Authority's portion of the project costs for the Luce Bayou Interbasin Transfer Project.
- Continue the planning and design and construction of the 2025 distribution system.
- 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 2022-2023 CIP.
- Details on the specific projects are presented in *Appendix B*.

### **Considerations**

The 2022-2023 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 and construction cost tabulations from similar projects in the Greater Houston Region. 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 2022-2023 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 2022-2023 CIP have been updated and/or based - wherever possible and practical - on experience gained thus far on actual Authority projects.

The Authority has applied for, and was granted, financing through the Texas Water Development Board ("TWDB") via the State Water Implementation Fund for Texas ("SWIFT") program. During SWIFT program years 2015-2018 the TWDB has committed \$2.076 billion of financial support to the Authority.

As seen in the following table, approximately \$49 million of Revenue Bonds will be used to implement the 2022-2023 CIP. Additionally, approximately \$455 million of SWIFT funds are committed to implement the 2022-2023 CIP. The remaining approximately \$12 million of the near \$516 million needed to implement the 2022-2023 CIP will be funded through sources, To Be Determined, i.e., bonds, capital contributions, etc.

**SUMMARY OF 2022-2023 CAPITAL IMPROVEMENT PLAN**

Category	Fiscal Year Planned Authorizations		Total
	(Thousands \$)		
	2022	2023	
Acquisition	35,452	3,505	38,957
Design	19,318	5,760	25,078
Construction	145,678	129,359	275,037
Equipment	0	0	0
Other	81,770	95,093	176,863
<b>Total Authorizations</b>	<b>282,218</b>	<b>233,717</b>	<b>515,935</b>
<b>Source of Funds</b>			
Revenue Bonds	30,343	18,519	48,862
SWIFT Funds	249,923	204,691	454,614
Other	1,952	10,507	12,459
<b>Total Funds</b>	<b>282,218</b>	<b>233,717</b>	<b>515,935</b>

**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 C.I.P. Number
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
SWIFT	State Water Implementation Fund for Texas
TWDB	Texas Water Development Board
UD	Utility District
VAR	Various districts or key map locations as applicable
WCID	Water Control & Improvement District

**APPENDIX B**  
**PROJECT DETAIL FORMS**

<b>Project:</b> BMMEL UD	<b>District:</b>	<b>C.I.P. Number</b>	1
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for the siting study, real estate acquisition, design and construction to extend a portion of the North Harris County Regional Water Authority's 2010 system to connect to Bammel UD. *To be provided by Bammel UD.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	40		40
Design			
Construction	1,510		1,510
Equipment			
Other			
<b>Total Authorizations</b>	1,550	0	1,550
<b>Source of Funds</b>			
Revenue Bonds	775		775
SWIFT Funds			
Other*	775		775
<b>Total Funds</b>	1,550	0	1,550

<b>Project:</b> SPEARS ROAD REGIONAL PUMP STATION	<b>District:</b>	<b>C.I.P. Number</b>	2
	VAR	<b>Key Map:</b>	372J
<b>Description:</b> Project provides for the siting study, real estate acquisition, design, construction and upgrades/enhancements of this regional pump station.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design			
Construction			
Equipment			
Other	200		200
<b>Total Authorizations</b>	200	0	200
<b>Source of Funds</b>			
Revenue Bonds	200		200
SWIFT Funds			
Other			
<b>Total Funds</b>	200	0	200

<b>Project:</b> REGIONAL WELLS	<b>District:</b>	<b>C.I.P. Number</b>	3
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for the real estate 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 for emergency supplies of water as needed by the Authority to facilitate operation of its System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design			
Construction			
Equipment			
Other	2,000		2,000
<b>Total Authorizations</b>	2,000	0	2,000
<b>Source of Funds</b>			
Revenue Bonds	2,000		2,000
SWIFT Funds			
Other			
<b>Total Funds</b>	2,000	0	2,000

<b>Project:</b> LOUETTA REGIONAL WATER PLANT	<b>District:</b>	<b>C.I.P. Number</b>	5
	2, 4	<b>Key Map:</b>	329R
<b>Description:</b> Project provides for the siting study, real estate acquisition, design, construction and upgrades/enhancements of this regional water plant.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design	270		270
Construction		2,366	2,366
Equipment			
Other	100	100	200
<b>Total Authorizations</b>	370	2,466	2,836
<b>Source of Funds</b>			
Revenue Bonds	370	2,466	2,836
SWIFT Funds			
Other			
<b>Total Funds</b>	370	2,466	2,836

<b>Project:</b> 2025 DISTRIBUTION SYSTEM (6C-1 AND 6C-2)	<b>District:</b>	<b>C.I.P. Number</b>	6
	1	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for site study, real estate acquisition, design and construction of certain projects within the 2025 System. There are two new projects that have been identified as 6C-1 and 6C-2, extending from the existing North Harris County Regional Water Authority’s 2010 system. The Project will serve Faulkey Gully MUD and Northwest Harris County MUD No. 5.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	184		184
Design			
Construction	4,078		4,078
Equipment			
Other			
<b>Total Authorizations</b>	4,262	0	4,262
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	4,262		4,262
Other			
<b>Total Funds</b>	4,262	0	4,262

<b>Project:</b> 2025 DISTRIBUTION SYSTEM (7D-1)	<b>District:</b>	<b>C.I.P. Number</b>	7
	4	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for site study, real estate acquisition, design and construction of the second phase of certain projects within the 2025 System. There is a new project that has been identified as 7D-1, extending from the existing CIP No. 7 Projects. 7D-1 will be extending the 2025 System to serve Northwest Harris County MUD No. 32.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	1,706		1,706
Design			
Construction	4,138		4,138
Equipment			
Other			
<b>Total Authorizations</b>	5,844	0	5,844
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	5,844		5,844
Other			
<b>Total Funds</b>	5,844	0	5,844

<b>Project:</b> WEST REGIONAL WATER PLANT	<b>District:</b>	<b>C.I.P. Number</b>	21
	1	<b>Key Map:</b>	368E
<b>Description:</b> Project provides for the siting study and real estate acquisition for this regional pump station. This facility will be part of the 2035 Water Distribution and Transmission System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	6,145		6,145
Design	1,233		1,233
Construction			
Equipment			
Other			
<b>Total Authorizations</b>	<b>7,378</b>	<b>0</b>	<b>7,378</b>
<b>Source of Funds</b>			
Revenue Bonds	7,378		7,378
SWIFT Funds			
Other			
<b>Total Funds</b>	<b>7,378</b>	<b>0</b>	<b>7,378</b>

<b>Project:</b> HARDY ROAD TRANSMISSION SYSTEM	<b>District:</b>	<b>C.I.P. Number</b>	23
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for the siting study and real estate acquisition for this regional pump station. This facility will be part of the 2025 Water Distribution and Transmission System. Project also provides for the site study, design, real estate acquisition and construction of the initial components of the Project 23 series of projects for the 2025 Transmission System. *To be provided by City of Houston.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	7,254	1,434	8,688
Design	6,261		6,261
Construction		77,246	77,246
Equipment			
Other			
<b>Total Authorizations</b>	<b>13,515</b>	<b>78,680</b>	<b>92,195</b>
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	12,338	68,173	80,511
Other*	1,177	10,507	11,684
<b>Total Funds</b>	<b>13,515</b>	<b>78,680</b>	<b>92,195</b>

<b>Project:</b> WATER SUPPLY	<b>District:</b>	<b>C.I.P. Number</b>	26
	ALL	<b>Key Map:</b>	VAR
<b>Description:</b> Provides funding to pay the City of Houston for water in accordance with the Authority's Water Supply Contract and Supplement No. 2 to the Contract with the City. Funding included herein will help pay for the Authority's portion of the cost to expand the 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 existing NEWPP.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design			
Construction			
Equipment			
Other	69,800	85,000	154,800
<b>Total Authorizations</b>	69,800	85,000	154,800
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	69,800	85,000	154,800
Other			
<b>Total Funds</b>	69,800	85,000	154,800

<b>Project:</b> LUCE BAYOU INTERBASIN DIVERSION PROJECT	<b>District:</b>	<b>C.I.P. Number</b>	27
	ALL	<b>Key Map:</b>	VAR
<b>Description:</b> Provides funding to pay the City of Houston for the Authority's portion of the project costs. 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	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design			
Construction			
Equipment			
Other	2,670	2,993	5,663
<b>Total Authorizations</b>	2,670	2,993	5,663
<b>Source of Funds</b>			
Revenue Bonds	2,670	2,993	5,663
SWIFT Funds			
Other			
<b>Total Funds</b>	2,670	2,993	5,663

<b>Project:</b> 2025 DISTRIBUTION SYSTEM (Project 28)	<b>District:</b>	<b>C.I.P. Number</b>	28
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for the site study, design, real estate acquisition and construction of the initial components of the Project 28 series of projects for the 2025 Distribution System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	392		392
Design	150		150
Construction	28,825		28,825
Equipment			
Other			
<b>Total Authorizations</b>	29,367	0	29,367
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	29,367		29,367
Other			
<b>Total Funds</b>	29,367	0	29,367

<b>Project:</b> 2025 DISTRIBUTION SYSTEM (Project 31)	<b>District:</b>	<b>C.I.P. Number</b>	31
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for the site study, design, real estate acquisition and construction of the initial components of the Project 31 series of projects for the 2025 Distribution System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	13,515		13,515
Design			
Construction	102,827		102,827
Equipment			
Other			
<b>Total Authorizations</b>	116,342	0	116,342
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	116,342		116,342
Other			
<b>Total Funds</b>	116,342	0	116,342



<b>Project:</b> 2025 DISTRIBUTION SYSTEM (Project 35)	<b>District:</b>	<b>C.I.P. Number</b>	35
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for the site study, design, real estate acquisition and construction of the initial components of the Project 35 series of projects for the 2025 Distribution System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition	6,216	2,071	8,287
Design	5,754		5,754
Construction		49,447	49,447
Equipment			
Other			
<b>Total Authorizations</b>	11,970	51,518	63,488
<b>Source of Funds</b>			
Revenue Bonds			
SWIFT Funds	11,970	51,518	63,488
Other			
<b>Total Funds</b>	11,970	51,518	63,488

<b>Project:</b> SYSTEM IMPROVEMENTS	<b>District:</b>	<b>C.I.P. Number</b>	100
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides funding for possible required expansions or upgrades to the distribution system or transmission system, additional flushing hydrants, replacement flow control and/or metering station components, additional connection to districts receiving surface water, and other supplemental additions to facilitate the efficient operation of the Authority's System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design			
Construction			
Equipment			
Other	2,000	2,000	4,000
<b>Total Authorizations</b>	2,000	2,000	4,000
<b>Source of Funds</b>			
Revenue Bonds	2,000	2,000	4,000
SWIFT Funds			
Other			
<b>Total Funds</b>	2,000	2,000	4,000

<b>Project:</b> CENTRAL CONTROL SYSTEM	<b>District:</b>	<b>C.I.P. Number</b>	101
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides the design and construction of the Supervisory Control and Data Acquisition (SCADA) System and implementation of an Advanced Metering System (AMI) Infrastructure Program, upgrades to same and related activities to facilitate the operation of the Authority's System.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design	100	100	200
Construction	4,000		4,000
Equipment			
Other			0
<b>Total Authorizations</b>	4,100	100	4,200
<b>Source of Funds</b>			
Revenue Bonds	4,100	100	4,200
SWIFT Funds			
Other			
<b>Total Funds</b>	4,100	600	4,200

<b>Project:</b> WATER REUSE	<b>District:</b>	<b>C.I.P. Number</b>	102
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Project provides for engineering and other services to support the Authority's Water Reuse efforts and an allowance to participate in water reuse projects.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design	50	50	100
Construction	300	300	600
Equipment			
Other			
<b>Total Authorizations</b>	350	350	700
<b>Source of Funds</b>			
Revenue Bonds	350	350	700
SWIFT Funds			
Other			
<b>Total Funds</b>	350	350	700

<b>Project:</b> SUPPORT AND SPECIALTY	<b>District:</b>	<b>C.I.P. Number</b>	200
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Provides various support and specialty professional services such as program management, control surveying, well location assessments, corrosion protections analysis, surge analysis, GIS and Technical Advisor services.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design	5,500	5,610	11,110
Construction			
Equipment			
Other			
<b>Total Authorizations</b>	5,500	5,610	11,110
<b>Source of Funds</b>			
Revenue Bonds	5,500	5,610	11,110
SWIFT Funds			
Other			
<b>Total Funds</b>	5,500	5,610	11,110

<b>Project:</b> CONTINGENCY	<b>District:</b>	<b>C.I.P. Number</b>	N/A
	VAR	<b>Key Map:</b>	VAR
<b>Description:</b> Provides funding for costs in excess of original program estimates and unexpected necessary expenses such as those to facilitate escalation of program components, to facilitate system operations and to enable payment of exceptional real estate judgements.			
Category	Fiscal Year Planned Authorizations (Thousands)		Project Total
	2022	2023	
Acquisition			
Design			
Construction			
Equipment			
Other	5,000	5,000	10,000
<b>Total Authorizations</b>	5,000	5,000	10,000
<b>Source of Funds</b>			
Revenue Bonds	5,000	5,000	10,000
SWIFT Funds			
Other			
<b>Total Funds</b>	5,000	5,000	10,000