

Review of Austin’s South I-35 Water & Wastewater Program Costs

November 12, 2010

Contents

Introduction.....	2
Description of SI35 Program	2
Description of Water Facilities.....	3
Description of Wastewater Facilities.....	4
SI35 Costs.....	6
SI35 Current Phase 1 Costs	6
SI35 Future Costs.....	7
SI35 Offsite Costs	9
Water Treatment Plant Capacity Costs.....	9
Wastewater Treatment Plant Capacity Costs.....	12
Other Offsite Costs.....	14
Summary of SI35 Costs.....	15
SI35 Impact Fee Revenues	16
Total Net Costs.....	17
Paying for New Facilities	18
Conclusions.....	19

Copyright © 2010 by Fodor & Associates LLC

Introduction

The Austin Water Utility (AWU) is currently constructing water and wastewater facilities to serve future growth east and west of the portion of Interstate Highway 35 south of Austin. This project is referred to as the “South I-35 Program” (SI35). The SI35 Program area consists of largely undeveloped land outside of the City of Austin’s City Limits, but within the City’s 5-mile Extraterritorial Jurisdiction (ETJ).

The purpose of the SI35 Program is to provide water and wastewater infrastructure to serve anticipated future growth in a large, undeveloped area. As such, it provides a unique opportunity to examine growth-related costs to serve future development in Austin.

This review of the SI35 Program evaluates the infrastructure costs required to serve this area. In addition to evaluating costs, this review examines how this infrastructure will be funded and how much of this cost will be paid for by the future development anticipated in the SI35 Program area.

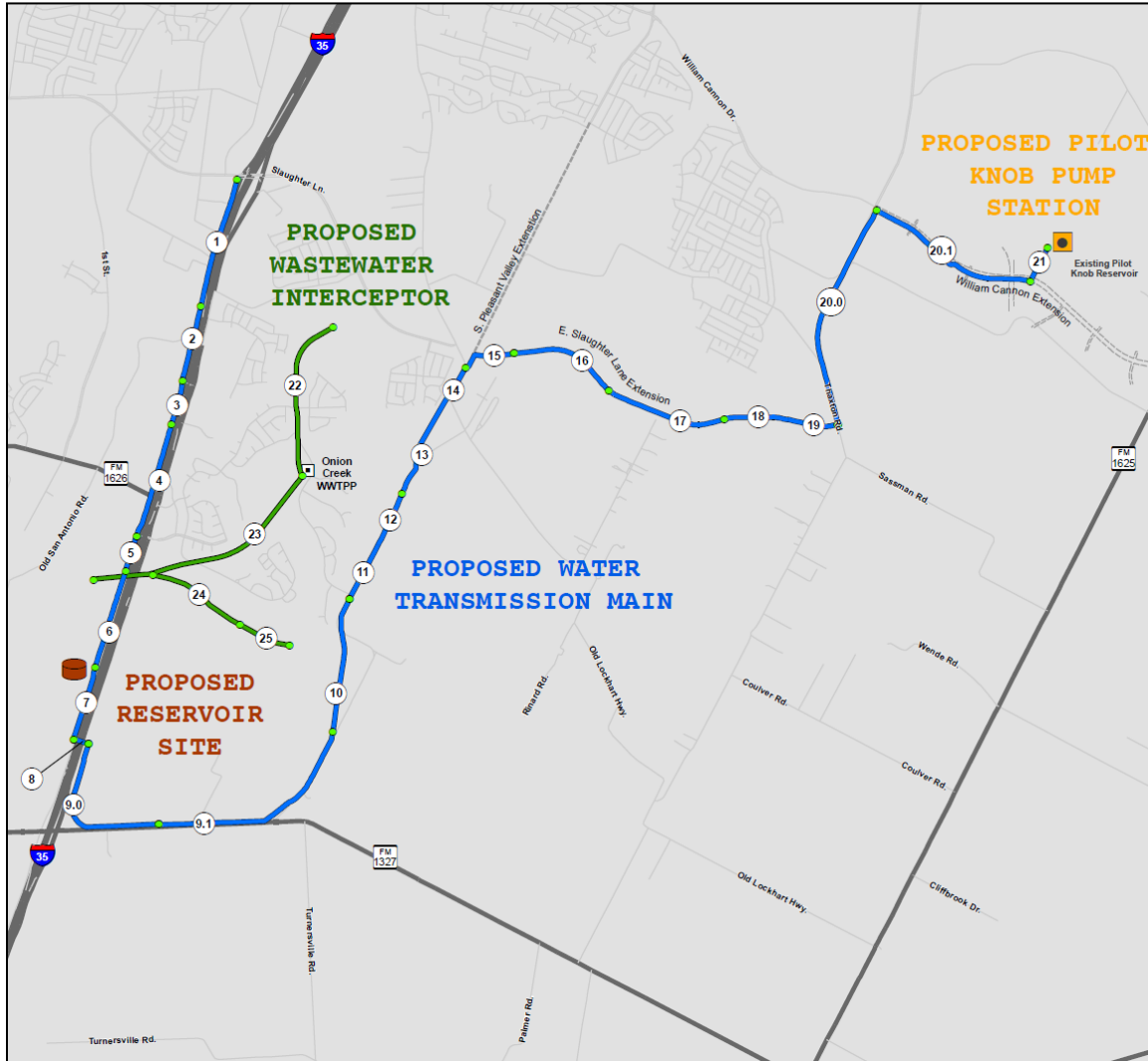
Description of SI35 Program

Phase 1 of the SI35 Program has been underway since 2008 and is scheduled to be completed in 2011. Phase 1 will provide the initial water and wastewater capacity to serve the SI35 Program area, but additional transmission mains and related infrastructure will be needed in the future to provide service access to the entire area. There are also additional investments in offsite water and wastewater conveyance and treatment capacity that will be dedicated to this area. All of these must be credited towards the ultimate cost of serving the SI35 Program area.

The current SI35 Program involves recently completed and ongoing construction to complete approximately 13 miles of water transmission mains and 3 miles of wastewater mains. Figure 1 provides an overview of these facilities. These facilities will provide the initial infrastructure to serve the 15,740-acre SI35 Program area.¹

¹ The service area is based on *South I-35 Program Water/Wastewater Program Wastewater Interceptor Technical Memorandum*, by Program Management Consultant, December 9, 2008, pages 2-4 to 2-6, and Figure 2-2 (additional supporting information provided by Program Manager, Joe Hoepken, via email of 8/3/10).

Figure 1: Program overview map of the current SI35 Program (Phase 1) facilities under construction. Water mains are shown in blue (segments 1-21) and wastewater lines in green (segments 22-25). From AWU Web site, dated January 5, 2010.



Description of Water Facilities

The new water facilities begin at the existing Pilot Knob Water Reservoir with the construction of a new 20 million gallon per day (MGD) Pilot Knob Pump Station to provide the water pressure to serve a 48-inch diameter water main that will serve the entire SI35 Program area. The 13 miles of water mains travel in a westerly direction and eventually cross Interstate Highway 35 and then travel north along the highway. An elevated water reservoir will be constructed along IH-35 to maintain adequate water pressure.

While the SH35 Program information is focused on the onsite improvements, water will be delivered to the area at Pilot Knob via the City's water treatment facilities and existing system of water mains. Therefore, offsite water treatment and distribution capacity are also allocated to this area.

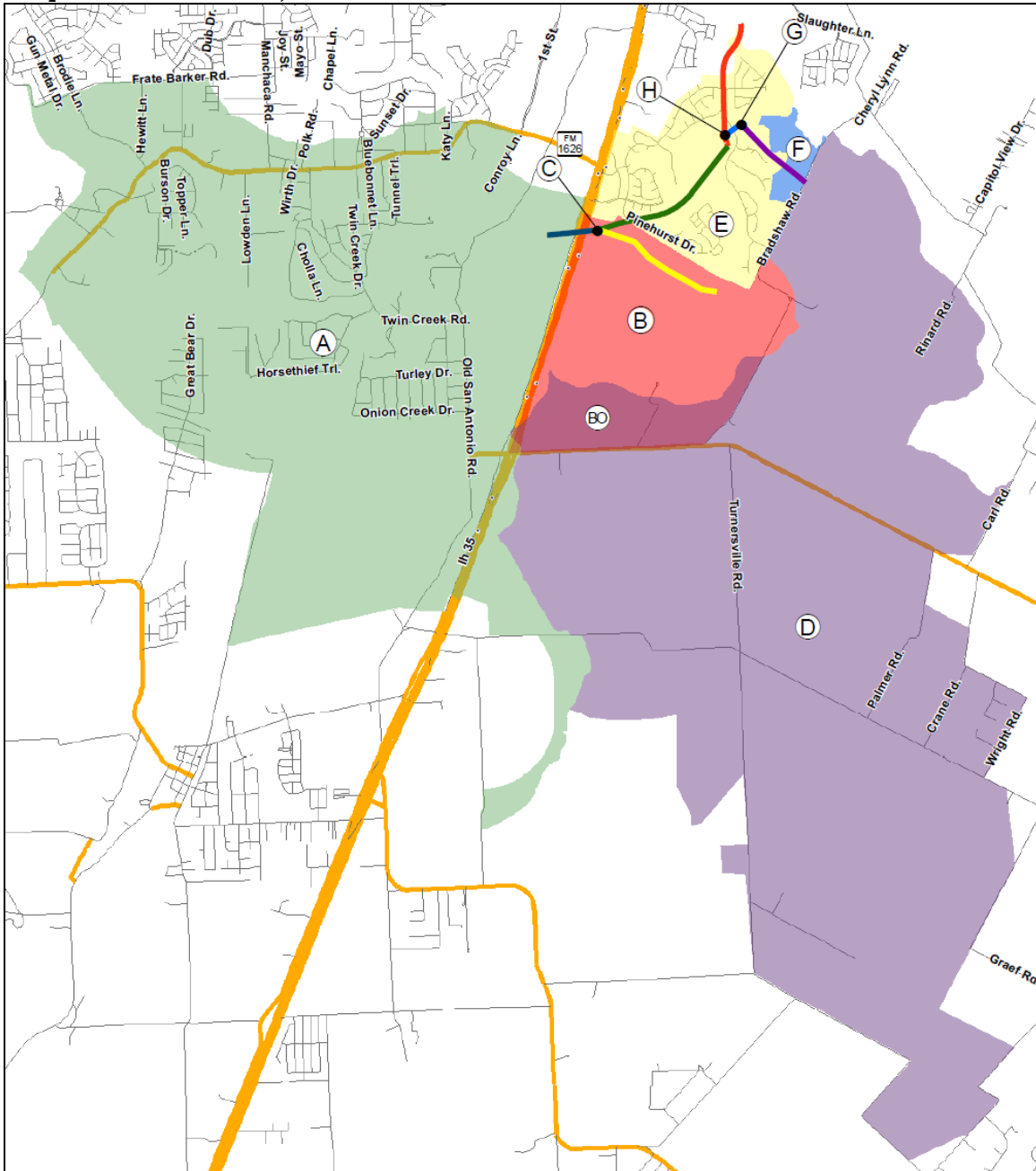
Description of Wastewater Facilities

The three miles of SI35 wastewater (WW) mains are referred to as "interceptors" and constitute the initial trunk lines required to serve the area. Additional WW mains will be required to serve the entire area. The wastewater flows in a northerly direction toward the Onion Creek Wastewater Treatment Plant (WWTP), and then continues north to eventually connect with the City's large South Austin Regional WWTP. The Onion Creek WWTP consists of several small packaged units that serve existing development and provide reclaimed water for a golf course. However, all future SI35 Program area development will be served by the South Austin Regional WWTP. Offsite wastewater mains and treatment capacity are allocated to serve this area.

Figure 2 shows the 15,740-acre SI35 Program area (all colored areas) and the current wastewater lines that have been completed or are under construction. The wastewater mains are shown as colored lines with the following coding:

- Yellow line: 24-inch diameter "tie-in interceptor"
- Blue and green lines: 42-inch "golf course interceptor" (I-35 to Rinard)
- Red line: 54-inch "Onion Creek interceptor" (Rinard to Slaughter)
- Purple line: 36-inch Zachary Scott interceptor

Figure 2: SI35 Program area map. (Source: Interceptor Service Area Map, Figure 2-2, Wastewater Interceptor Technical Memorandum, December 9, 2008, by URS Corporation for AWU.)



SI35 Costs

This study addresses the capital cost for water and wastewater infrastructure and does not evaluate other costs, fees, or utility rates for providing ongoing service. The rates charged for these ongoing services will be the same in the SI35 Program area as they are in the rest of the AWU service area. All AWU ratepayers (customers) will contribute towards the operation of the utility and towards the financing of new infrastructure.

The SI35 Program area will likely be developed over a period of 20 years or more. Rather than trying to forecast an unpredictable development process, the costs and revenues associated with the Program area are treated as present values (as though all development and all services are completed in 2010). This provides an estimate of the full cost to serve the entire area today in current dollars. Financing costs, such as interest on bonds, are not included in this analysis.

All costs in this report are in 2010 dollars, unless identified otherwise. Construction costs have been fairly stable over the past two years, so costs from 2008 and 2009 are treated as 2010 values. Costs figures for prior years (before 2008) are adjusted to 2010 values using the ENR Construction Cost Index for the nearest city (Dallas). The full cost of serving the SI35 Program area includes all past, present, and future capital costs by AWU required to provide water and wastewater infrastructure to this area. While a significant portion of these costs are in the current Phase 1 of the Program, there are also major past and future investments that are and will be part of serving the full area. The main cost areas described in this report are as follows:

- SI35 Current Phase 1 Costs (current and recent construction projects)
- SI35 Future Costs (additional water/wastewater mains required to serve area)
- SI35 Offsite Costs (value of the capacity of offsite facilities devoted to SI35)

SI35 Current Phase 1 Costs

Table 1 provides a comprehensive summary of the \$102 million current program costs identified from the program start in 2008 to the current time. These costs include the construction, design, engineering, and land costs associated with the SI35 facilities described previously. Also included are the direct program management and administrative costs for the program consultant and AWU staff.

Table 1

Current South I-35 Phase 1 Water/Wastewater Program Costs (Costs include construction, design, and engineering.)	
<u>Water System</u>	
Water Transmission Mains ¹	\$37,886,871
Pilot Knob Pump Station, 20 MGD ¹	\$8,695,295
Proposed Elevated Water Reservoir #1 ²	\$5,636,000
<i>Water Subtotal:</i>	<u>\$52,218,166</u>
<u>Wastewater System</u>	
Wastewater Interceptors ¹	\$27,753,984
Zachary Scott WW Interceptor ³	\$8,263,816
<i>Wastewater Subtotal:</i>	<u>\$36,017,800</u>
<u>Other Direct Costs</u>	
Program Management Consultant ¹	\$10,338,079
Real Estate Costs (land, easements, access) ⁴	\$1,230,366
Staff Costs ⁴	\$2,167,350
<i>Other Subtotal:</i>	<u>\$13,735,795</u>
Total Current (Phase 1) Costs	<u>\$101,971,761</u>

(1) Costs are from a detailed table provided by AWU Project Manager Joe Hoepken dated 7/19/10. Some missing figures for design and engineering costs were estimated based on other projects. Contingency costs were not included, so final costs could be higher.

(2) Cost from CIP Spending Plan, FY2010-14. 3.5 million gallon storage capacity.

(3) Construction cost for Zachary Scott from City web site:
<http://www.ci.austin.tx.us/water/downloads/questionandanswzacharyscottproject.pdf>. Design and engineering costs added based on other WW systems.

(4) Real estate and staff costs are as of 8-10-10 from AWU. Additional costs may be incurred.

SI35 Future Costs

In order to serve the entire SI35 Program area, future water and wastewater infrastructure will be required. To estimate the cost of this future infrastructure, the *AWU 2003 Strategic Water Resources Plan* was used to identify additional facilities that will be needed. The Plan maps were used to identify future facilities in the Program area beyond those currently under construction. These facilities were then identified in the Plan's *Proposed Projects Tables*. The Plan identifies approximately 23 miles of additional water mains and 19 miles of additional wastewater mains. The Plan lists the estimated cost for each segment in 2003. These costs were adjusted to 2010 values, and are shown in Tables 2 and 3 below.

Table 2

Additional Future Water Segments Required to Serve South I-35 Program Area					
Plan Index #	Pressure Zone	Facility Name	Pipe Size (inches)	Pipe Length (feet)	Adjusted 2010 Cost
40	SO	FM 1626/Manchaca Rd. from S. 1st St. Conceptual	24"	12,841	\$5,256,232
51	SO	Onion Creek Conceptual	16"	8,158	\$2,602,076
68	SO	SH 45 Manchaca to IH35 Conceptual	16"	9,171	\$2,925,182
127	SOB	South IH35 & Turnersville Rd. Conceptual	16"	16,798	\$5,357,890
129	SOB	FM 1327 - North Turnersville Rd. Conceptual	24"	15,638	\$6,401,134
131	SOB	FM 1327 East Conceptual	16"	8,203	\$2,616,429
133	SOB	Turnersville Rd. East Conceptual	24"	3,081	\$1,261,152
134	SOB	Turnersville Rd. East Loop Conceptual	16"	15,126	\$4,824,589
146	SO	IH35 S. TM Conceptual	24"	20,056	\$8,209,563
147	SO	Manchaca Rd. Conceptual	24"	10,455	\$4,279,566
Total:				119,527	\$43,733,812

Source: Strategic Water Facilities Plan 2003, Water System Map and Water Proposed Projects Table. 2003 cost are adjusted to 2010 values using the ENR Construction Cost Index (CCI) for Dallas.

Table 3

Additional Future Wastewater Facilities Required to Serve South I-35 Program Area					
Plan Index #	Wastewater Basin	Facility Name	Pipe Size (inches)	Pipe Length (feet)	Adjusted 2010 Cost
310	Rinard	Rinard Creek East Interceptor SER	15"-30"	23,000	\$7,947,420
311	Rinard	Rinard Creek West Extension SER	12"-15"	5,000	\$1,309,065
312	Maha	Turnersville Maha to Rinard Conceptual	8"	4,000	\$1,004,724
313	Onion	Bradshaw Onion Extension Conceptual	12"	3,000	\$765,504
314	Rinard	Rinard Creek West Interceptor SER	18"-24"	10,000	\$3,136,440
315	Onion	IH35 East Onion Extension Conceptual	12"	3,700	\$943,590
316	Blanco River	Blanco to Rinard Conceptual	8"	5,500	\$1,382,160
317	Onion	Turnersville Onion Creek Conceptual	8"	1,500	\$382,752
318	Rinard	Rinard Creek East Extension SER	12"	1,500	\$382,752
376	Onion	Upper Onion Creek Interceptor SER	30"-42"	21,500	\$9,629,934
377	Onion	Hays Onion Interceptor SER	18"-24"	22,000	\$7,110,150
Totals:				100,700	\$33,994,491

Source: Strategic Water Resources Plan, 2003, Wastewater Proposed Projects Table and Wastewater System Map. 2003 cost are adjusted to 2010 values using the ENR Construction Cost Index (CCI) for Dallas.

The total future water system costs are \$43,733,812 and the total wastewater costs are \$33,994,491, for a total future onsite infrastructure cost of \$77,728,303. As shown in Table 4, there are some additional projects identified for the SI35 Program area in various planning documents that will have further costs, but for which there are no current estimates. Zero values have been used in Table 4 as placeholders.

Table 4

Summary of Future Costs to Serve South I-35 Program Area	
Category	Cost
<u>Water System</u>	
Future Water Mains to Serve South I-35 Program Area	\$43,733,812
Proposed Elevated Water Reservoir #2 ¹	Unknown
Expand Pilot Knob Pump Station to 50 MGD ¹	Unknown
<u>Wastewater System</u>	
Future WW Interceptors to Serve South I-35 Program Area	\$33,994,491
Cost of Future W/WW SER reimbursements by AWU ¹	Unknown
Total Known Future Costs:	\$77,728,303

(1) No cost estimates were available for these components or projects.
SER = service extension request.

A number of the future water and wastewater projects may be in the form of service extension requests, or SERs, which are formal requests by private developers for service. Depending on the project, either AWU or a private developer may build the main extensions required to serve the development. If a private developer builds the project, AWU will reimburse the developer for some or all of the costs, including design and engineering costs. The reimbursement is usually based on the portion of the project that is required to serve other future development. For example, if a development requires an 8-inch water main, but AWU determines that a 16-inch main is required to serve future development, AWU will pay the difference in cost for constructing the 16-inch main instead of the 8-inch main.

SI35 Offsite Costs

The SI35 Program area will require offsite water treatment and wastewater treatment plant capacity, as well as offsite conveyance capacity. Some of the necessary treatment capacity has already been built, and some additional capacity may be needed in the future. The estimated cost of this treatment plant capacity is based on the cost to provide the capacity today.

Water Treatment Plant Capacity Costs

AWU is proposing to add a third water treatment plant (WTP) to the system, which is being called “WTP#4” (the third plant was decommissioned in 2008). WTP#4 will have an initial capacity of 50 MGD by 2014, but could be expanded to an ultimate capacity of 300 MGD in the future.

As shown in Table 5, the estimated costs for WTP#4 total \$508 million, including land and construction costs (water intake, WTP, pipelines, design, and administrative costs). This cost estimate includes \$54.2 million in inflation costs to account for likely construction cost increases from 2010 to 2014.² To obtain a present value for the plant, the \$54.2 million is deducted from the total, resulting in a present value of \$453.8 million. Dividing this present value by the 50 million gallons per day capacity, results in a unit cost of \$9.08 per gallon/day of water treatment capacity.

Table 5

Water Treatment Plant Costs in Austin¹	
Metric	Water Treatment Plant #4
WTP#4 Phase 1 Capacity (MGD)	50
Plant Costs	\$465,100,000
Land Costs, 92 acres	<u>\$42,900,000</u>
Total WTP Cost Estimate	\$508,000,000
Deduct Inflation Costs ²	<u>-\$54,200,000</u>
Present Value of WTP	\$453,800,000
Cost per Gallon/Day of Capacity	\$9.08

1) Cost data from Memo to Mayor and City Council, from Rudy Garza, Assistant City Manager, July 22, 2009, titled "Responses to WTP4 Questions," page 15. Total Plant Cost includes intake, WTP, pipelines, design, and administrative costs.

2) Cost estimate includes \$54.2 million for inflation cost for work conducted from 2010 to 2014. Inflation costs are deducted here to obtain a present value in 2010. MGD = million gallons per day.

The peak day water demand is used to establish the water treatment capacity needed to serve the area and the associated water treatment facility costs. Peak day demand is estimated by multiplying average daily water use of a new single-family dwelling by a system peaking factor to estimate the average peak demand for each of the 45,489 new houses planned for the SI35 Program area. Various City studies were consulted to determine the appropriate water use and peaking factor to use in calculating peak day demand.

According to data in the *2008 Cost of Services Study*, the average demand for existing single-family residential customers is calculated in Table 6 to be 275 gallons per day (gpd).³ This study reports that the peaking factor is 1.66 for single-family residential. The peak demand is therefore 457 gpd per single-family residential unit (1.66 x 275). This figure represents an average peak demand for existing AWU

² The WTP#4 cost breakdown showing inflation costs is from the response to a Public Information Request by Austin Water Utility, City of Austin, Texas, 9/24/09.

³ *Cost of Service Rate Study 2008*, Table B-13, page B-14

customers. However, new single-family residential units will tend to be larger and have correspondingly higher water demands than the average for existing units.

Table 6

Existing Residential Water Demand (Based on 2008 Cost of Service Rate Study)	
Metric	Single-Family Residential
Number of Accounts ¹	185,620
Water Sales (kgal/year) ¹	18,637,701
Average Daily Water Use per Account or Unit, gpd	275
Peaking Factor (max day) ²	1.66
Peak Day Demand per Unit, gpd ³	457

(1) *Cost of Service Rate Study 2008*, by Red Oak Consulting, August 2009, Table B-1. Note that the 3% water loss reported by AWU was not include here on the assumption that new water services would have fewer losses.

(2) *Cost of Service Rate Study 2008*, Table B-13, page B-14.

(3) Peak day demand = average daily use x peaking factor.

Notes: kgal = 1000 gallons; gpd = gallons per day.

The AWU *2007 Impact Fee Reports* provides a second source of information on water demand. System-wide average water use per *service unit* is reported to be 445 gpd.⁴ A “service unit” is equivalent to a 5/8-inch meter service, which is standard for a typical single-family house. A residential peaking factor of 1.7 is used in this report for calculating water treatment capacity, resulting in a peak demand of 756 gpd per single-family residential unit. This is the figure AWU applies to new residential units when calculating the water system impact fee.

A third source of information on water demand is the City of Austin’s *Utilities Criteria Manual*.⁵ This manual specifies that the peak day water demand for estimating system capacity for residential users is 530 gpd/person. The “living unit equivalent” or LUE is the AWU equivalent of a new single family dwelling for planning purposes. Each LUE is assumed to have 3.5 occupants.⁶ Based on these data, the peak water demand for a new single-family dwelling is 1,855 gpd (3.5 x 530). While this demand figure is the Utility’s standard reference for sizing water mains, based on our review of city-wide treatment capacity, it may be a little high for estimating water treatment plant capacity requirements.

Water demand based on each of the three calculation methods is shown in Table 7. The associated water treatment plant costs range from \$4,150 to \$16,843 per new

⁴ *2007 Impact Fee Reports*, AWU, page LUA-7

⁵ *Utilities Criteria Manual*, City of Austin, Texas, Section 2.9.2, Water Systems, Updated February 2010.

⁶ *Living Unit Equivalent (LUE) Guidance Document*, Austin Water Utility, Utility Development Services Division, Draft, July 22, 2010.

single-family dwelling, depending on the water demand estimate. The midpoint cost of \$6,864 per new single-family dwelling is assumed to be the most reasonable value for treatment plant capacity costs, and is used in this report.

Table 7

Water Treatment Capacity Cost for Serving South I-35 Program Area			
Metric	Based on Water Demand from Cost of Services Rate Study 2008	Based on Water Demand from 2007 Impact Fee Reports	Based on Water Demand from 2010 Austin Utilities Criteria Manual
Total Service Area, acres (1)	15,740	15,740	15,740
Living Unit Equivalents per Acre (1)	2.89	2.89	2.89
SFDs in South I-35 Program Area (LUEs)	45,489	45,489	45,489
Peak Water Demand per SFD, gpd	457	756	1,855
Total Water Demand for SI35 Program area, gpd	20,788,290	34,389,382	84,381,353
Treatment Plant Unit Cost per gpd Capacity	\$9.08	\$9.08	\$9.08
Total Water Treatment Plant Cost	\$188,757,675	\$312,255,585	\$766,182,685
Water Treatment Plant Cost per SFD	\$4,150	\$6,864	\$16,843

(1) Based on South I-35 Program Water/Wastewater Program Wastewater Interceptor Technical Memorandum, by Program Management Consultant, December 9, 2008, pages 2-4 to 2-6, and Figure 2-2.
SFD = single-family dwelling.

Wastewater Treatment Plant Capacity Costs

The City's two large regional wastewater treatment plants (WWTPs) were recently expanded to increase capacity. As shown in Table 8, the combined additions to the two WWTPs were 40 million gallons per day (MGD) capacity. At current construction costs the value of the additions was approximately \$187 million, or \$4.67 per gallon per day (gpd) of treatment capacity. This estimate may not fully reflect the cost of the treatment capacity, as plant expansions may not include the value of the land and may utilize some existing plant equipment. However, it is based on the best available cost data for central wastewater treatment facilities in Austin.

Table 8

Regional WWTP Expansion Costs¹					
Facility	Capacity Addition, MGD	Year Completed	Cost to Build	Adjusted 2010 Cost	2010 Cost per gpd Capacity
Southern Austin Regional WWTP	25	2006	\$97,612,000	\$111,019,966	\$4.44
Walnut Creek WWTP	15	2005	\$65,499,000	\$75,893,961	\$5.06
Combined WWTPs	40		\$163,111,000	\$186,913,927	\$4.67

(1) Source: *Impact Fee Report: Impact Fee Land Use Assumptions and Impact Fee Capital Improvements Plan*, Year 2007 Update, Austin Water Utility, September 10, 2007, Table 13, page CIP-32.

The peak wastewater demand for the SI35 Program area was calculated by AWU, and the calculations are reproduced in Table 9 below. In addition to the peak demand per single-family residential unit, a factor for “I&I” flow of 750 gpd/acre is added to account for inflow and infiltration into the wastewater system from stormwater and ground water during wet periods.⁷

Table 9

SI35 Wastewater Flow at Full Development	
Metric	Value
Total Service Acres in Program Area ¹	15,740
Living Unit Equivalents per Acre ²	2.89
Total Living Units in Program Area	45,489
Total Average Daily Flow at 245 gpd/LUE ¹	11,144,707
Peak Flow = Ave Flow x Peaking Factor (1.84) ¹	20,506,261
I&I Flow at 750 gpd/acre ³	11,805,000
Total Peak Flow, gpd	32,311,261
Peak Flow per LUE, gpd ²	710

(1) Based on South I-35 Program Water/Wastewater Program Wastewater Interceptor Technical Memorandum, by Program Management Consultant, December 9, 2008, pages 2-4 to 2-6, and Figure 2-2.

(2) Living Unit Equivalents (LUEs) are used for planning purposes and are a measure of the typical flow of water used or wastewater produced by a new single family residence. Value for LUE per acre comes from the Technical Memorandum cited above.

(3) I&I flow is from inflow and infiltration into wastewater system. Data from Technical Memorandum cited above.

For a wastewater treatment plant cost of \$4.67 per gpd, the total peak flow of 32 MGD results in a plant cost of \$151 million, as shown in Table 10. The treatment plant capacity cost is \$3,319 per new SFD, based on full development of the area with the equivalent of 45,489 single-family dwellings.

⁷ AWU is considering increasing the standard I&I rate used for sizing wastewater systems to 1500 gpd/acre, which would increase total peak flow in Table 9 by 11.8 MGD.

Table 10

Wastewater Treatment Plant Costs for SI35 Program Area	
Metric	Value
Total Peak Flow, gpd	32,311,261
Treatment Plant Cost per gpd of Capacity	\$4.67
WW Treatment Plant Costs	\$150,985,617
Total SFDs in Program Area	45,489
WW Treatment Plant Cost per SFD	\$3,319

Other Offsite Costs

There are additional costs associated with the capacity of offsite facilities that will serve the South I-35 Program area. These include the upstream water distribution system costs and the downstream wastewater collection costs for the additional capacity required to serve this area. The costs of these offsite facilities have not been included, since there was insufficient information to identify all the affected facilities, assess their functions, and assign capacities and costs. Some of these prior investments include the Onion Creek interceptor completed in 1986, a South IH 35 Water Transmission Main completed in 1988 at a cost of \$2,812,000, the Slaughter Lane Water Transmission Main completed in 1992 at a cost of \$2,673,000, and the Pilot Knob Water Transmission Main completed in 1992 at a cost of \$9,749,000.⁸

The offsite costs total \$463 million, as summarized in Table 11. Zero values have been assigned as placeholders for the unknown distribution and collection system costs.

Table 11

Summary of Offsite Infrastructure Costs Required to Serve South I-35 Program Area	
Category	Cost
Cost of Offsite Water Treatment Capacity	\$312,255,585
Offsite Upstream Water Main Capacity Costs ¹	Unknown
Cost of Offsite Wastewater Treatment Capacity	\$150,985,617
Offsite Downstream WW Main Capacity Costs ²	Unknown
Total Offsite Infrastructure Costs	\$463,241,202

(1) Offsite costs required to accommodate S-I35 upstream water volume are unknown.

(2) Offsite costs required to accommodate S-I35 downstream wastewater volume are unknown.

⁸ Source: AWU *2007 Impact Fee Reports*, Table 1, Water Impact Fee Projects and Table 2, Wastewater Impact Fee Projects. Cost are assumed to be for the year in which the project was built and have not been adjusted to 2010 values.

Summary of SI35 Costs

The present value of all costs required to provide the water and wastewater facilities to serve the SI35 Program area is \$519 million, as shown in Table 12. The breakout of costs is shown graphically in Figure 3. This is equivalent to a cost of \$11,419 per new single-family house, as shown in Table 13. The breakout of costs per house is shown graphically in Figure 4.

Table 12

Total Costs to Serve South I-35 Program Area	
Cost Area	Cost
Total Current (Phase 1) Costs	\$101,971,761
Total Known Future Costs	\$77,728,303
Total Offsite Infrastructure Costs (Treatment Plants, Mains)	\$463,241,202
Total Cost:	\$642,941,266

Figure 3

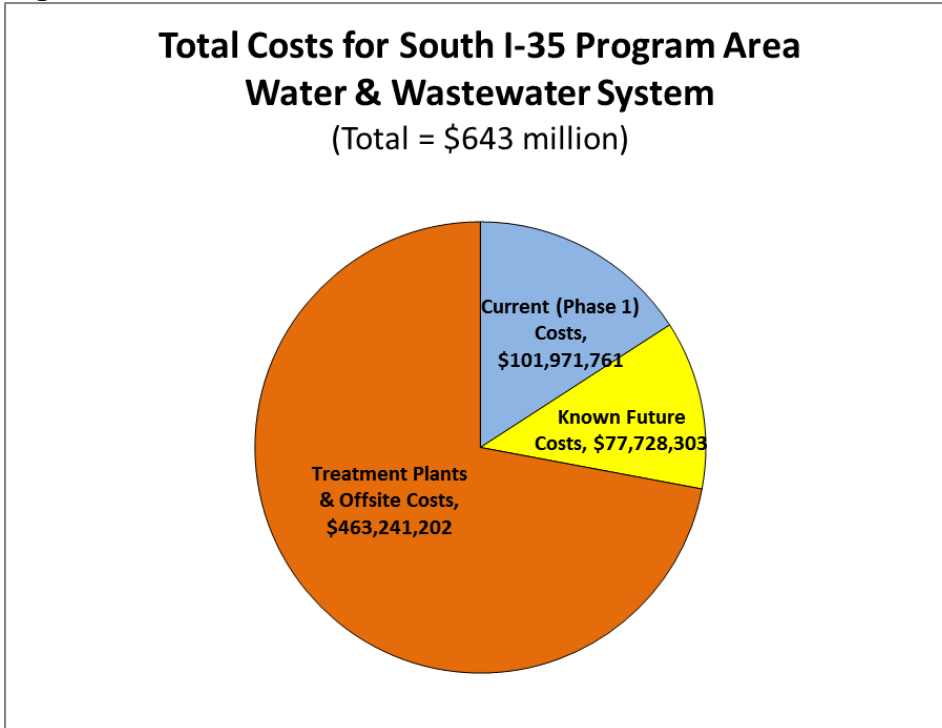


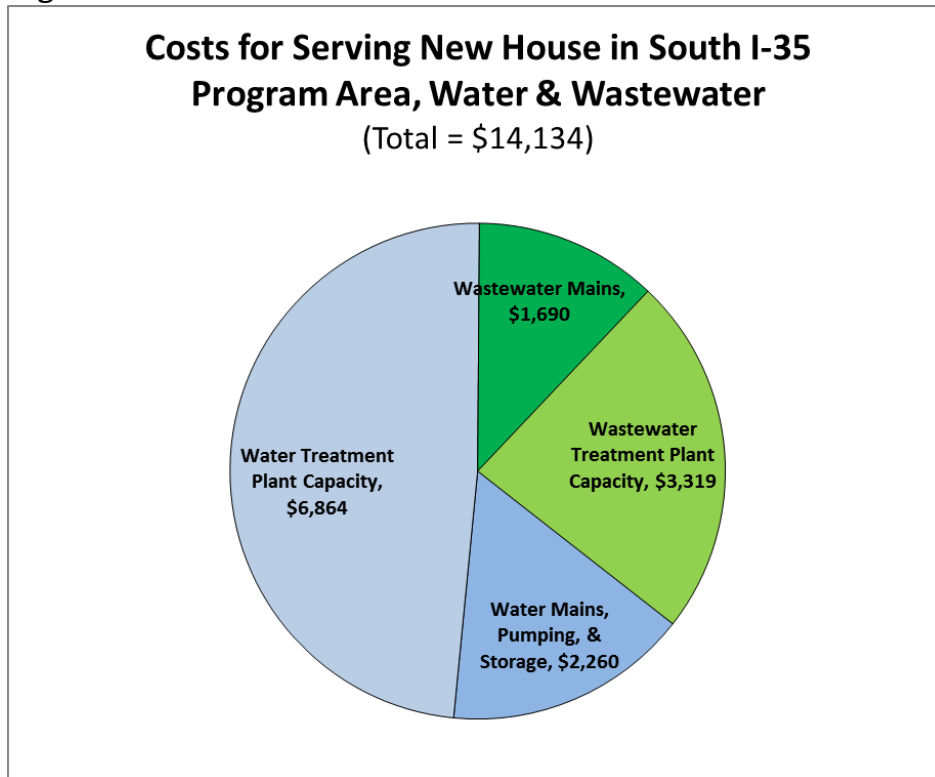
Table 13

Water & Wastewater System Costs for Serving a New House in South I-35 Program Area¹	
Category	Cost per SFD
Water Mains, Pumping, & Storage	\$2,260
Water Treatment Plant Capacity	\$6,864
Water System Subtotal:	\$9,125
Wastewater Mains	\$1,690
Wastewater Treatment Plant Capacity	\$3,319
Wastewater System Subtotal:	\$5,009
Total Water and Wastewater System:	\$14,134

(1) Based on the equivalent of 45,489 single-family dwellings (SFDs) in Program area.

(2) "Other Direct Costs" from Phase 1 reported in Table 1 (land, construction management and project administration) are distributed 50/50 to the costs shown for water and wastewater mains.

Figure 4



SI35 Impact Fee Revenues

AWU collects impacts fees from new development for water and wastewater service. The fees are intended to recover a portion of the capital costs required to serve new

developments. The fees vary depending on the service area. The SI35 Program is in the Extraterritorial Jurisdiction (ETJ) outside of City Limits in the Desired Development Zone (DDZ). The impact fees for a new single-family dwelling in this area are \$1,800 for water and \$1000 for wastewater. Based on full buildout, with the equivalent of 45,489 single-family dwellings, the total revenue from impact fees will be \$127 million, as shown in Table 14.

Table 14

Future Impact Fee Revenues from SI35 Program Area			
Impact Fee Type	Fee per SFD¹	Number of SFD Units	Total Revenue
Water Impact Fee	\$1,800	45,489	\$81,879,480
Wastewater Impact Fee	\$1,000	45,489	\$45,488,600
Total Impact Fee Revenue	\$2,800		\$127,368,080

(1) Based on impact fee per service unit for development in the DDZ-ETJ from the City of Austin Water and Wastewater Impact Fee Schedule,

<http://www.ci.austin.tx.us/water/downloads/impactfeeschedule.pdf>

SFD = single-family dwelling.

Total Net Costs

The net cost for serving the SI35 Program area is the total capital cost, minus any revenues that directly offset this cost. Impact fee revenues directly offset capital costs, so these are deducted from the total cost to obtain a net cost. As shown in Table 15, the net cost is \$516 million. This is equivalent to a net cost of \$11,334 per new single-family dwelling.

Table 15

Total Net Water & Wastewater System Cost for South I-35 Program Area		
	Program Area	Cost per New SFD¹
Total All Costs	\$642,941,266	\$14,134
Less Future Impact Fee Revenues	-\$127,368,080	-\$2,800
Total Net Cost	\$515,573,186	\$11,334

(1) Assumes full buildout of the SI35 Program area with the equivalent of 45,489 single-family dwellings (SFD).

Paying for New Facilities

AWU uses a combination of current revenues, revenue bonds, and commercial paper (short-term loans) to finance capital improvements. Typically, about 80% of these improvements are ultimately financed by revenue bonds. As a result, there are additional financing costs associated with interest payments on the bond debt. Financing costs have not been included in this analysis. The cost and revenue figures reported here represent present values and are calculated as if all construction and development in the SI35 Program area were conducted in 2010.

AWU funds all capital improvements, such as those in the SI35 Program, through the revenues it generates from all utility customers and from the impact fees charged to new development. The net cost of \$516 million will be funded entirely through utility rate revenues. All AWU ratepayers will contribute towards the cost of capital improvements required to serve new growth. New development will constitute a relatively small share of the total ratebase, and will therefore contribute a correspondingly small share of the net costs it generates.

The SI35 Program area represents a large area targeted for future expansion. However, even if this area were entirely developed today, its water demand would represent only about 7% of AWU's total 2010 ratebase. Under a more realistic scenario, development will occur all around the City, and this area will develop gradually over a period of 20 years or so. Under this scenario, the SI35 Program area would constitute about 5% of the AWU ratebase by the year 2030, based on projections from the *2003 Strategic Water Resources Plan*.⁹ Given that the SI35 Program area would be nearing buildout about the time most of the 20-year bonds issued for the project would be repaid, it is reasonable to estimate that development in the Program area will pay somewhat less than 5% of these costs. Other AWU ratepayers (outside the Program area) will fund the balance of more than 95% of the costs to serve new development in the SI35 Program area, or at least \$490 million.

Table 16

Funding of Net Cost of Water & Wastewater System to Serve SI35 Program Area		
	Program Area	Per New SFD
Net Cost Funded by Future SI35 Development (5%)	\$25,778,659	\$567
Net Cost Funded by Existing Ratepayers (95%)	\$489,794,527	\$10,767
Total Net Cost	\$515,573,186	\$11,334

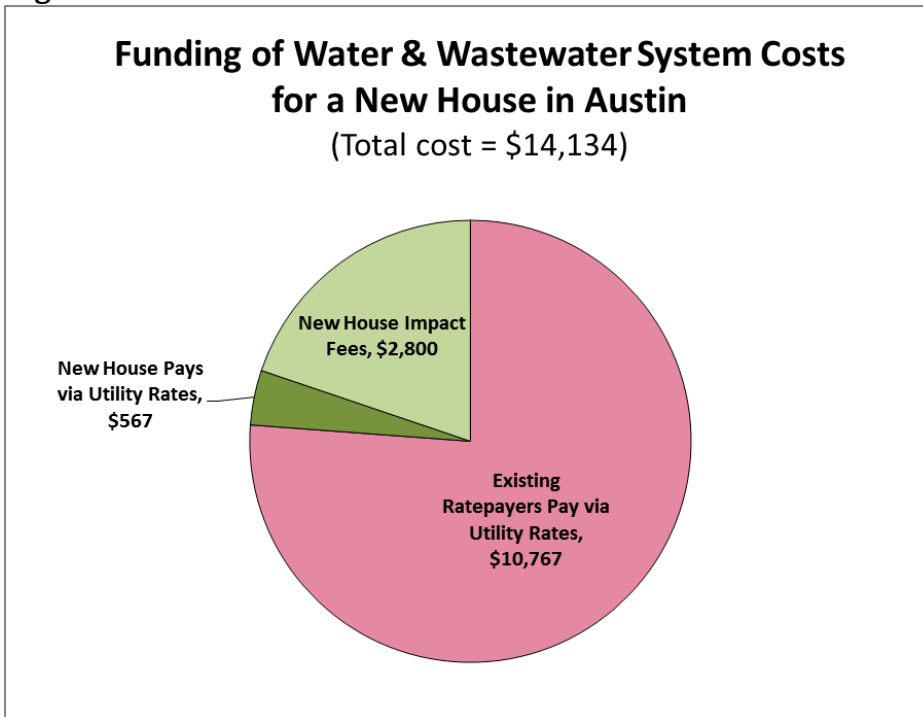
⁹ The total water demand from the SI35 Program area is estimated to reach 20.8 MGD at full buildout. This is 5.4% of the total systemwide water demand of 387 MGD projected in the *2003 Strategic Water Resources Plan* for the year 2030.

Conclusions

The current construction on the SI35 Program represents a \$102 million commitment towards what will be a total investment of \$643 million in water and wastewater infrastructure to serve this area. As summarized in Table 15, new development will contribute \$127 million in impact fees, leaving a net cost of \$516 million.

The total SI35 Program area cost represents a cost of \$14,134 to serve each new house. Deducting the impact fees paid with each house of \$2,800, leaves a net cost of \$11,334 per house. At least 95% of this costs, or \$10,767 will be paid by other utility customers through their rates, and not by the new development. As shown in Figure 5, new development pays for only 24% of the water and wastewater infrastructure costs it creates, with the remaining 76% funded by existing ratepayers.

Figure 5



Applying the findings of this review more generally to new development in Austin, the water and wastewater infrastructure required to serve each new single-family house built on the urban fringe will generate a net cost to existing utility ratepayers of about \$11,000.



Notes on Methodology:

The costs reported here for serving the SI35 Program area are conservative (low) for the following reasons:

- *Significant offsite costs for water and wastewater conveyance were not included due to the lack of information necessary to identify and allocate these costs.*
- *No construction contract contingency fees were included in Phase 1 costs (Table 1) for water and wastewater mains, since many contracts had not been completed and contingency costs were not included in data provided by AWU.*
- *Additional costs for consultants and staff may be required to complete the current Phase 1 of the Program beyond the figures reported here.*
- *The lower figure of 750 gpd/acre for I&I (inflow and infiltration) was used to calculate wastewater demand for wastewater treatment capacity costs.*

Copyright © 2010 by Fodor & Associates LLC