TECHNICAL MEMORANDUM

Wilson & Company Inc

City of Santa Fe
Midtown Engineering Support

To:	Lee Logston, Project Manager City of Santa Fe	**Date:**	08/11/2022 (rev. 8/25/22)
From:	Ross Gabaldon, PE	**Prepared by:**	Ross Gabaldon, PE
TM No.:	WWW-01	**Reviewed by:**	Brian Ambrogi, PE
Subject:	Technical Memorandum- Existing Water and Sewer Infrastructure		

SECTION 1: SUMMARY

The purpose of this report is to evaluate the existing water and sewer utility system's current capacity and determine if the existing water and sewer systems are able to satisfy the demands of the proposed new development for the Santa Fe Midtown area. The following options will be evaluated to determine the most critical infrastructure upgrades necessary to support the Midtown development:

- Sewer System
    - Existing Conditions – Evaluate the present-day flows and available capacity of the existing system
    - Full build-out scenario – Evaluate infrastructure upgrades necessary to the existing system to accommodate full build-out demands and prioritize recommended improvements to align with the respective phases of development.
- Water System
    - Existing Conditions – Evaluate the present-day flows and available capacity of the existing system
    - Full build-out scenario – Evaluate infrastructure upgrades necessary to the existing system to accommodate full build-out demands and prioritize recommended improvements to align with the respective phases of development.

The water and sewer systems were modeled in WaterCAD Connect Edition Update 2, Version 10.02.01.06 and SewerCAD Connect Edition Update 2, Version 10.02.00.55 (respectively) to determine the impact the future demands will have on pressure and flow on the water system and capacity on the sewer system. All assumptions for sewer and water flow rates are shown in **Table 1A and 1B** (attached)

SECTION 2: INTRODUCTION

This technical memorandum was developed in conjunction with the City of Santa Fe and Opticos Design to determine the water and sewer demand of a proposed re-development of the existing Midtown College Campus and evaluate the impacts these new demands would have on infrastructure capacity and sizing. The proposed project location can be found in **Figure 1**, see

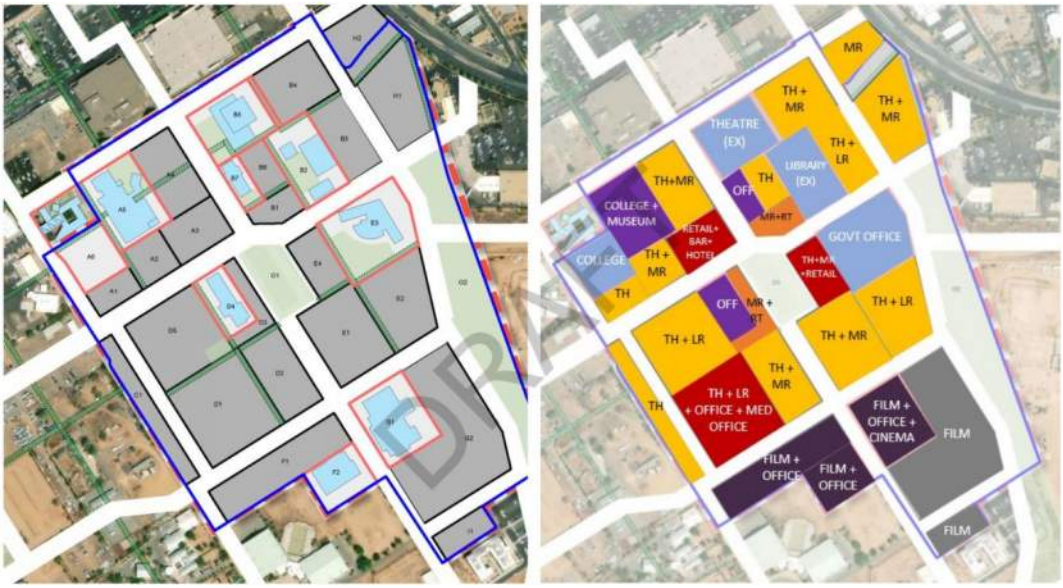
Figure 2 for a more detailed layout of the proposed improvement area (definitions for lot codes can be found in **Table 1A and 1B**). Generally, the project is contained within the old community college campus, located near the intersection of Cerillos Rd. and St. Michaels Dr.

Figure 1: Project Location Map

SECTION 3: DESIGN CRITERIA / ASSUMPTIONS

General:

The proposed redevelopment of the campus consists of a variety of parcels, each parcel will be used for multifamily dwellings, commercial, office, or mixed use. See **Figure 2** below for a detailed layout of the various parcels as developed by Opticos Design.



(2-A) *(2-B)*

Figure 2 (A) Land Use Division (B) Land Use Category, See Table 1A & 1B for key

Wilson & Company has developed individual water and sewer demands for each parcel based on land-use data provided by Opticos Design and the City of Santa Fe. Water and sewer demands were calculated based on the use and on a per capita daily demand.

Water Base Flow Assumptions:

Residential

- Residents Per Unit (residential) = 3.41 Persons
- Usage Rate (residential) = 70 GPCPD (gallons per capita per day)

$$Base\ Demand = Residents * Usage * No.of\ Units$$

Office/Commercial

- Occupancy = 0.0032 Occupants / SqFt
- Usage Rate = 25 GPCPD

$$Base\ Demand = Occupancy * Usage * Area$$

Restaurant/Bar

- Occupancy = 330 Customers/day
- Usage Rate = 7 GPCPD

A peaking factor was applied to all water base flows, to determine the flow at the peak hour of the day. A peaking factor of 1.4 was used throughout the system. This peaking factor is used in similar sized developments in New Mexico and is also used by the City of Albuquerque for new xeriscaped residential and commercial developments.

$$Peak\ Flow = Base\ Flow * 1.4$$

Sewer Base Flow Assumptions:

Sewer flows are assumed to consist of 95% of the water base flow for residential and commercial applications. It is assumed that all landscaping will be xeriscaped and require low or no water. Irrigation flows for parks are accounted for separately in the model.

$$SAS\ Flow = Water\ Base\ Flow * 0.95$$

Peaking factors were also applied to the sewer flows. A separate peaking factor for residential and commercial has been used, with a higher peaking factor used for commercial/restaurants as compared to the residential peaking factor. A 1.3x peak factor was used for residential and a 1.6x peaking factor was used for all other parcels in this study. These peaking factors are used in similar sized developments in New Mexico and is also used by the City of Albuquerque for new xeriscaped residential and commercial developments.

$$SAS\ Peak\ Flow = 1.3(residential)\ or\ 1.6(commercial) * SAS\ Base\ Flow$$

SECTION 4: DESIGN ANALYSIS – WATER LINE

WATER SYSTEM DESIGN CRITERIA:

The water system was evaluated in two ways, to determine the capability of the existing system.

- Peak Flow Condition: The system is evaluated at peak flow, to determine if any pipes require upsizing
- Fire Flow condition: The system is run with fire flows (determined per IFC, maximum 2,000 GPM for the area), with the base water demand (not peak) also applied. No special requirements beyond IFC code from the Fire Marshall were specified.

For the initial model run, the system was run at peak flow, with no fire flow. In this condition, the existing system was found to be adequate to handle the peak flows for the area. The system was also evaluated at the base flow + fire flow and was found adequate in this scenario as well. Based on the calculated base and peak flows the existing water system was found to be capable of handling the proposed future demands of the development. As there is no justification to increase capacity of the existing system, no alternatives beyond simple pipe re-routing were analyzed in this report.

Option 1- Additional Waterline
This option is necessary to redirect existing water lines that are currently in the footprint of the future development. These redirected lines will be constructed in the new roadway and in the right of way. All new water lines will be a one to one replacement of existing lines, with no size increases.

As stated previously the existing water system currently will be able to meet the demands required of the future development. The system will have the adequate flows for base and peak demands and meet the required fire flow for the area. These scenarios were evaluated using WaterCAD analysis and design. See **Exhibit 3** for the results of the water modelling, anticipated flows, pipe diameter, and fire flow requirements. See **Exhibit 4** for a layout of the proposed vs. existing pipe line layout.

Additionally, this system was evaluated for fire flows. Based on information provided by the city, hydrants are tested in groups, rather than individually. Hydrant coverage and area flow availability can be seen on **Exhibit 5.** Flows in this exhibit are divided by block, and an average flow rating for any group of hydrants can be obtained by dividing the available flow in the block by the desired number of hydrants. The coverage area for each hydrant is also shown.

ASSUMPTIONS (All water lines):

- Water lines are adequately sized to provide for current and future demands (per modelling results)
- The required minimum fire flow of 2000 GPM will be met by all improvements
- The water analysis using WaterCAD is only taking into account the future development of the proposed project area, not pass-through demands for adjacent areas outside the project area. Evaluation of pass-through flows that would impact the overall City system were beyond the scope of this study.
- Relocated Lines will be installed in new roadways, no asphalt cost included in estimates

Option 1 Pros:
Waterlines will be relocated into accessible Public Right-of-Ways to eliminate future conflicts with area development. Connections along the north end and West of the property will be greatly improved by having a pipe located in the public ROW to connect to.

Option 1 Cons:
The costs incurred for the additional waterline and installation are estimated at $820,180.

Option 2- Do Nothing
Water lines currently interfere with planned development. Additionally, the water line running along the north of the property is within the shopping center parking lot which will present design difficulties and disruption to existing business. Design standards do not allow for the placement of permanent structures on top of utility lines. All areas with new water lines in this alternate will be designated as a public right-of-way.

Option 2 Pros:

Existing infrastructure is already sufficient for flows. The do-nothing scenario would require no costs to the City or future developers.

Option 2 Cons:
There can be no development on top of the existing waterlines. The new development would need to work around the existing water lines and provide easements. Connecting to the existing water line along the back of the cerillos road shopping center would cause design difficulties and disruption to the existing businesses currently served from this water line. This alternate is not recommended

SECTION 5: DESIGN ANALYSIS –SEWER LINE

SEWER SYSTEM ANALYSIS

The existing sewer system divides the existing flow into two sewer sheds, a northern connection point along Cerrillos Road, and a southern connection at Siringo Road. A field visit was performed by Wilson & Company to the proposed site and the existing sewer system was inspected. During inspection, the sewer system connected to the south at Siringo Road was found to exceed the design capacity, and surcharging manholes. The northern connection had a large underutilized sanitary sewer between the manhole on the south end of the breezeway at the Tony Anaya building to Cerillos Road. South of the Tony Anaya building the existing sewer system was in poor condition and undersized, and will need to be replaced.

Due to the poor condition of the Siringo Road sewer and the available capacity between the Tony Anaya Building and Cerillos Road, it was determined that all flow in the area could be successfully re-routed to the Cerillos Road connection point, immediately to the south of the Tony Anaya Building. Replacement of the Siringo Road sewer line with a larger line was briefly considered, but determined to be cost prohibitive due to the length and location of pipe that would need to be replaced.

The total sewer base flow for future development was calculate to be 301 GPM and the peak flow was determined to be 426 GPM.

Option S1 Sewer Redesign
Due to issues with capacity of the southern sewer line it is recommended that the existing system within the campus be replaced with the intent of directing all flow towards the north, connecting to the main line on Cerrilos Rd. This diversion of flow will help alleviate the surcharging issues on the Siringo Road Sewer by diverting some of the existing flows to the north. The design analysis in Sewer CAD was used to design the proposed sewer lines with adequate slopes, depths, and capacity to accommodate the full build-out flow condition. **Exhibit 1** illustrates the proposed sewer line improvements. Due to the change of direction of the sewer, the existing sewer lines cannot be re-used, and it is recommended that all sewer lines in the improvement area be replaced with new lines. See **Exhibit 1** for the results of the sewer modelling, including depths, slopes, pipe diameters, and anticipated flows. See **Exhibit 2** for a layout of the proposed system compared to the existing system.

Option S1 Assumptions:

- Sewer is sized to service all lots of the proposed development
- Sewer shall provide gravity service to all of the proposed development
- Velocity in sewer lines shall be less than 10 ft/sec, and greater than 2.2 ft/sec
- The sewer analysis using SewerCAD is only taking into account the future development of the proposed project area, and not the city at-large
- Sewer design flow shall be at 50% full
- The 30" Silar Road interceptor is in need of repair, and it is assumed that this interceptor will be re-lined (Via CIPP) under this project

Option S1 Pros:

Option S1 will follow the existing and proposed roadways allowing sewer pipes found to be under existing facilities to be abandoned. This option also helps to alleviate the flow on the southern sewer that presently exceeds capacity. New sewers will be able to be installed in optimal locations to avoid existing utilities and provide service to buildings.

Option S1 Cons:

Construction costs for the project will be an extra cost versus using the existing system, however the existing system is currently overloaded and cannot be used for future midtown development. Current underground composition is unknown, and conditions may present the need for rock or undesirable material excavation. A geotechnical investigation is recommended before proceeding. Pavement cuts will be required for sections that will be under existing roadways. This option is an estimated $1.1 million in capital cost.

Option S2 – Do Nothing

When Wilson and Company and City of Santa Fe officials inspected manholes in May of 2022 it was discovered that sewer lines were full and flowing over the bench along the Siringo sewer. The additional demand from the development could cause additional surcharging of the manholes, overflows, and sewer backups affecting customers and residents. Continuing with the development without the sewer redesign is not a viable option.

Option S2 Assumptions:

- Existing sewers will be used
- Existing sewers are currently over capacity (field observation)
- Existing sewers are currently in poor condition, and run underneath existing buildings
- Lines will be installed in new roadways, no asphalt cost included in estimates

Option S2 Pros:

This option unfortunately does not have any benefits if chosen. Future development of the area would create demands the existing system cannot handle leading to potential environmental hazards.

Option S2 Cons:

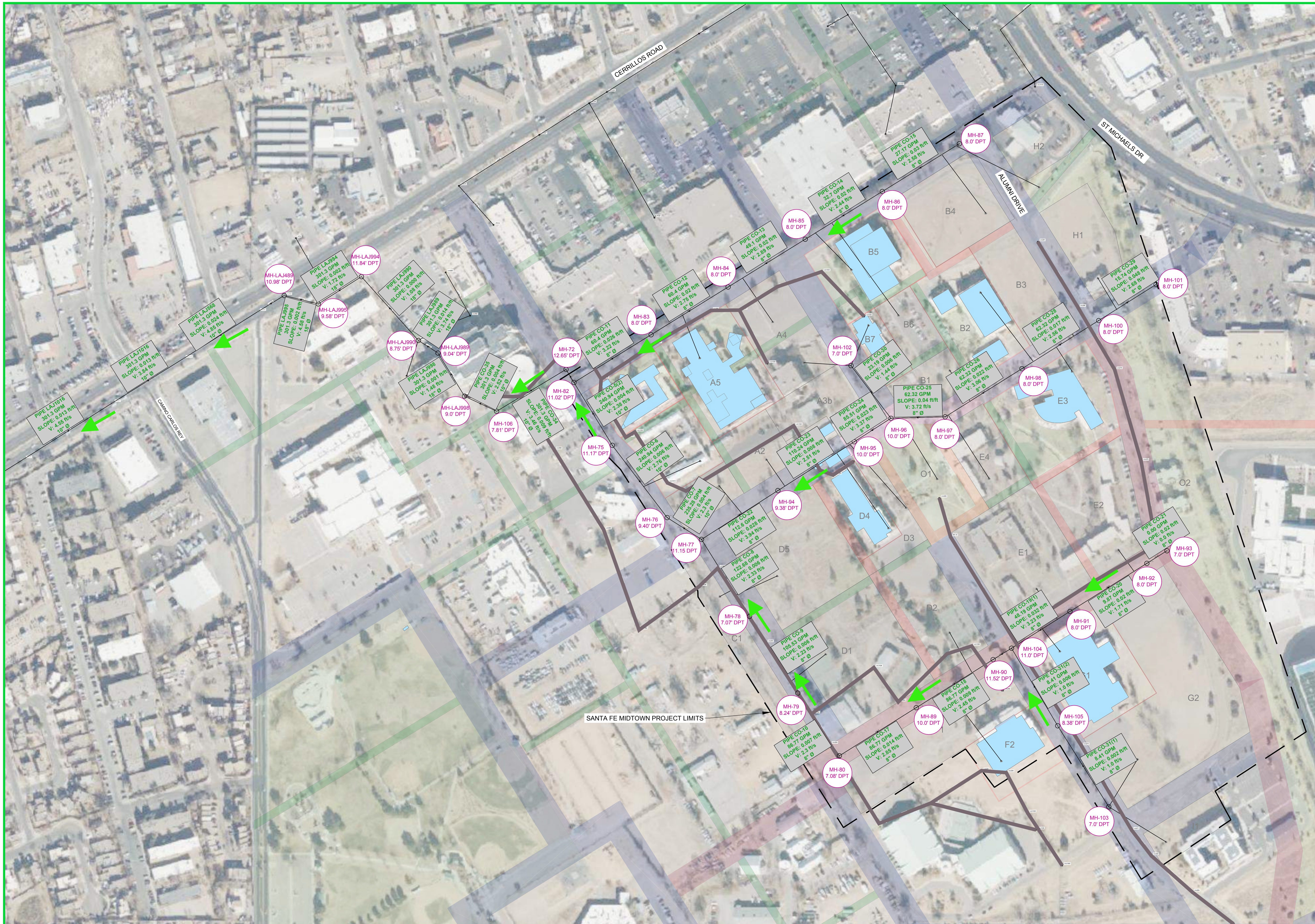
The extra demands on the sewer system will likely lead to sewer backups affecting residents and businesses. The existing sewer system is not in ideal locations and will likely still need relocation

to fit within public right-of-way. This option was not evaluated further since the existing system is over capacity.

SECTION 6: RECOMMENDATION OF ALTERNATIVE

It is the opinion of the Engineer that Option 1 be selected for the water line, and Option 1 be selected for the sewer line. These options both allow for the full build out of future development while providing sufficient capacity and locating all new utilities in the public right-of-way. Additionally, Option 1 will improve existing conditions on the sewer lines, by re-directing flows away from an over-capacity sewer line. Approximate costs of the recommended alternates are listed below, see **Table 2** for a more detailed breakdown of the costs for each alternative.

	RECOMMENDED ALTERNATIVE	**ALTERNATIVE COST**
WATER	WATER OPTION 1	$ 820,180.33
SEWER	SEWER OPTION 1	$ 1,105,233.70
	SUBTOTAL PROJECTED COST:	**$ 1,925,414.03**
	NMGRT @ 8.625%:	**$ 166,066.96**
	20% CONTINGENCY:	**$ 385,082.81**
	GRAND TOTAL:	**$ 2,476,563.80**



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CITY OF SANTA FE - MIDTOWN INFRASTRUCTURE IMPROVEMENTS

SCALE: 1"=150'

SEWER SYSTEM DETAILS
EXHIBIT 1

WILSON & COMPANY

CITY OF SANTA FE -
MIDTOWN INFRASTRUCTURE
IMPROVEMENTS

PROPOSED SEWER TO CONNECT TO EXISTING MANHOLE LAJ998

SANTA FE MIDTOWN PROJECT LIMITS

CERRILLOS ROAD

ST MICHAELS DR.

ALAMO DRIVE

LUJAN ST

CAMINO CARLOS REY

SIRINGO RD

KEY

EXISTING SEWER

PROPOSED SEWER

EXISTING SEWER TO BE ABANDONED

SCALE: 1"=200'

PROPOSED/
EXISITNG SEWER
EXHIBIT 2

CERRILLOS ROAD

ST MICHAELS DR

ALUMNI DRIVE

LLANO STREET

AVAILABLE PRESSURE @ PK DEMAND = 103 PSI

FIRE FLOW AVAILABLE: 9,061 GPM MINIMUM REQUIRED: 1,625 GPM

FIRE FLOW AVAILABLE: 5,868 GPM MINIMUM REQUIRED: 1,625 GPM

FIRE FLOW AVAILABLE: 4,000 GPM MINIMUM REQUIRED: 2,000 GPM

AVAILABLE PRESSURE @ PK DEMAND = 95 PSI

FIRE FLOW AVAILABLE: 9,520 GPM MINIMUM REQUIRED: 1,688 GPM

AVAILABLE PRESSURE @ PK DEMAND = 108 PSI

SANTA FE MIDTOWN PROJECT LIMITS

FIRE FLOW AVAILABLE: 6,329 GPM MINIMUM REQUIRED: 1,688 GPM

AVAILABLE PRESSURE @ PK DEMAND = 106 PSI

AVAILABLE PRESSURE @ PK DEMAND = 96 PSI

FIRE FLOW AVAILABLE: 6,440 GPM MINIMUM REQUIRED: 2,000 GPM

FIRE FLOW AVAILABLE: 6,610 GPM MINIMUM REQUIRED: 2,000 GPM

AVAILABLE PRESSURE @ PK DEMAND = 97 PSI

FIRE FLOW AVAILABLE: 7,131 GPM MINIMUM REQUIRED: 2,000 GPM

FIRE FLOW AVAILABLE: 9,117 GPM MINIMUM REQUIRED: 2,000 GPM

FIRE FLOW AVAILABLE: 6,206 GPM MINIMUM REQUIRED: 2,000 GPM

AVAILABLE PRESSURE @ PK DEMAND = 102 PSI

DISCLAIMER: THE MODELING NETWORK IS INTENDED TO EVALUATE WATER MAINS ONLY. THE SERVICE LINES SHOWN ARE PLACED BY MODELING SOFTWARE TO APPLY DEMANDS WITHIN THE SYSTEM AND MAY NOT ACCURATELY REFLECT THE LOCATION OF CONNECTION POINT OF THE SERVICE LINE CONNECTION. DISCREPANCIES IN SERVICE CONNECTION LOCATION DO NOT IMPACT INDIVIDUAL LINE FLOW, FIRE FLOW REQUIREMENTS, OR SYSTEM PRESSURES AS CALCULATED BY THE HYDRAULIC MODEL.

WILSON & COMPANY

CITY OF SANTA FE - MIDTOWN INFRASTRUCTURE IMPROVEMENTS

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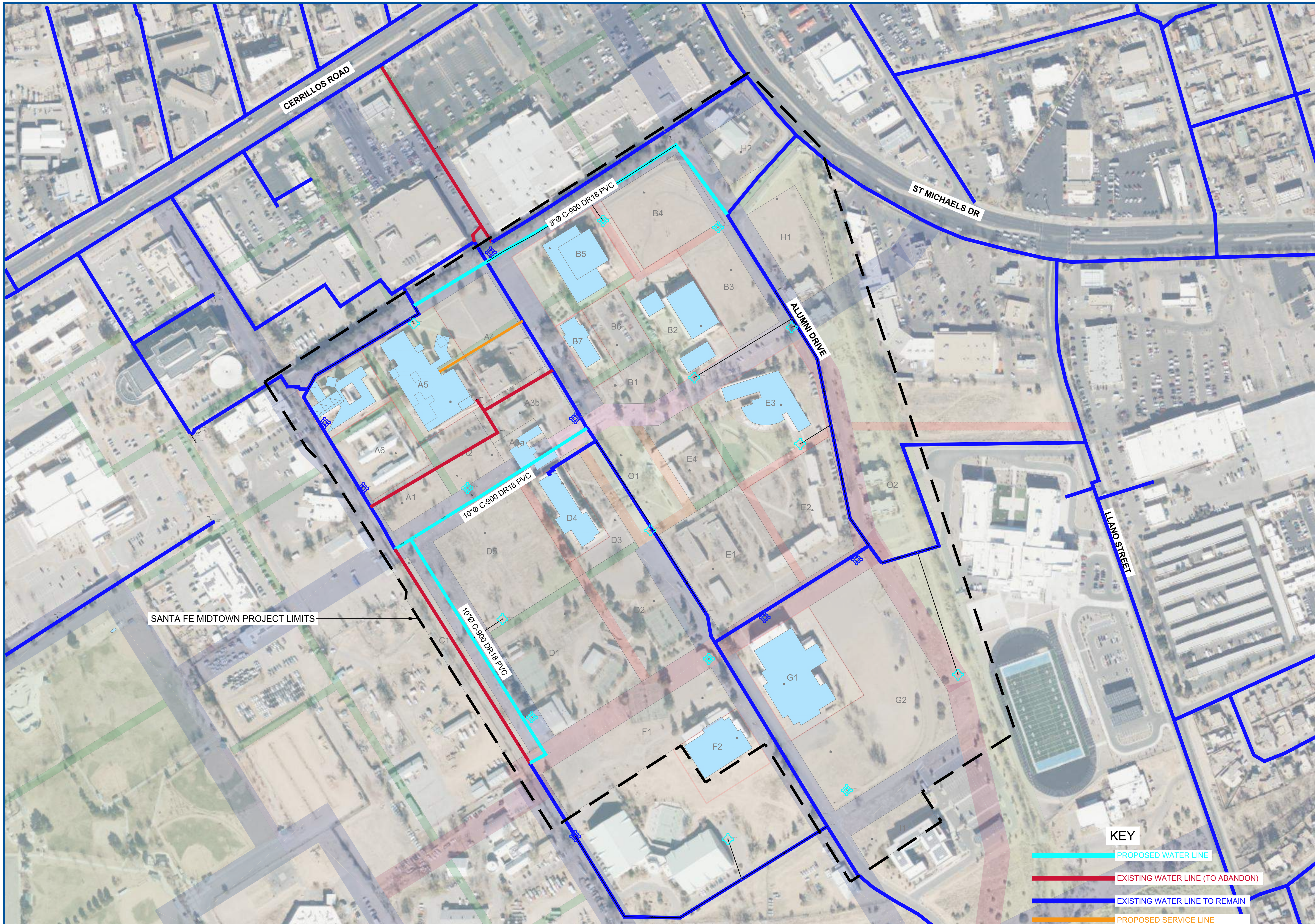
SCALE: 1"=300'

0 150' 300'

PIPE INFORMATION EXHIBIT 3



WILSON & COMPANY

CITY OF SANTA FE -
MIDTOWN INFRASTRUCTURE
IMPROVEMENTS

SCALE: 1"=300'

0 150' 300'

WATER SYSTEM
LAYOUT
EXHIBIT 4

SANTA FE MIDTOWN HYDRANT BLOCKS		
HYDRANT	**FIRE FLOW REQ (gpm)**	**FIRE FLOW AVAIL (gpm)**
BLOCK A		
NEW-HY-12	1688	10000
EX-HY-02	2000	4556
EX-HY-03	1688	9856
NEW-HY-04	1688	6323
EX-HY-08	2000	4000
EX-HY-04	1625	9118
AVERAGE	**1782**	**7309**
BLOCK B		
EX-HY-04	1625	9118
EX-HY-08	2000	4000
NEW-HY-13	2000	10000
NEW-HY-18	2000	4000
NEW-HY-05	1625	5997
NEW-HY-22	2000	4000
AVERAGE	**1875**	**6186**
BLOCK D		
NEW-HY-04	1688	6323
EX-HY-08	2000	4000
NEW-HY-16	2000	4000
NEW-HY-01	2000	6546
EX-HY-09	2000	4000
NEW-HY-21	2000	4000
NEW-HY-06	2000	6607
NEW-HY-20	2000	4000
AVERAGE	**1961**	**4935**
BLOCK E		
NEW-HY-20	2000	4000
NEW-HY-13	2000	10000
NEW-HY-18	2000	4000
NEW-HY-15	1750	10000
EX-HY-06	2000	9022
EX-HY-01	2000	9427
AVERAGE	**1958**	**7742**
BLOCK F		
EX-HY-06	2000	9022
EX-HY-01	2000	9427
NEW-HY-06	2000	6607
NEW-HY-02	2000	4556
NEW-HY-17	2000	8818
AVERAGE	**2000**	**7686**

CERRILLOS ROAD

ST MICHAELS DR

ALUMNI DRIVE

LLANO STREET

SANTA FE MIDTOWN PROJECT LIMITS

BLOCK A
AVG. REQ HYDRANT FLOW (GPM)=1782
TOTAL AVAILABLE FIRE FLOW (GPM)=7309

BLOCK B
AVG. REQ HYDRANT FLOW (GPM)=1875
TOTAL AVAILABLE FIRE FLOW (GPM)=6186

BLOCK D
AVG. REQ HYDRANT FLOW (GPM)=1961
TOTAL AVAILABLE FIRE FLOW (GPM)=4935

BLOCK E
AVG. REQ HYDRANT FLOW (GPM)=1958
TOTAL AVAILABLE FIRE FLOW (GPM)=7742

BLOCK F
AVG. REQ HYDRANT FLOW (GPM)=2000
TOTAL AVAILABLE FIRE FLOW (GPM)=7686

NEW-HY-12
EX-HY-02
EX-HY-03
NEW-HY-04
EX-HY-08
EX-HY-04
NEW-HY-05
NEW-HY-18
NEW-HY-13
NEW-HY-15
EX-HY-06
EX-HY-01
NEW-HY-17
NEW-HY-02
NEW-HY-21
EX-HY-09
NEW-HY-01
NEW-HY-06
NEW-HY-16

NOTES:

1. AVERAGE REQUIRED FIRE FLOW IS BASED UPON THE AVERAGE REQUIRED FIRE FLOW PER HYDRANT. THE TOTAL AVILABLE FIRE FLOW IS CUMULATIVE FOR HYDRANTS WITHIN THAT AREA (E.G. BLOCK E HAS AN AVERAGE REQUIRED FIRE FLOW OF 1,958 GPM AND A TOTAL AVILABLE FORE FLOW OF 7,686 GPM THIS MEANS THAT WITHIN BLOCK E THE SYSTEM AS MODELED WILL SUPPORT 4 FIRE HYDRANTS RUNNING SIMULTANEOUSLY AND MAINTAIN A MINIMUM RESIDUAL PRESSURE OF 20 PSI)

WILSON & COMPANY

CITY OF SANTA FE -
MIDTOWN INFRASTRUCTURE
IMPROVEMENTS

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SCALE: 1"=300'
0 150' 300'

FIRE FLOW
COVERAGE
EXHIBIT 5

City of Santa Fe Midtown - EOPC

ITEM NO.	ITEM DESCRIPTION:	UNIT:	QTY:	UNIT PRICE	BID AMOUNT
SANITARY SEWER SYSTEM					
	PHASE 1				
MISCELLANEOUS					
	MOBILIZATION	LS	1	$30,502.03	$ 30,502.03
	DEMOBILIZATION	LS	1	$2,148.03	$ 2,148.03
	UTILITY RELOCATION ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	LABORATORY TESTING SERVICES ALLOWANCE	LS	1	$4,000.00	$ 4,000.00
	SUBSURFACE UTILITY LOCATING ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	8" SDR 35 SEWER PIPE, (STD. SPEC. SEC 091), FURNISH & PLACE IN OPEN TRENCH, CIP	LF	3457	$49.00	$ 169,393.00
	SERVICE LINE CONNECTION TO SEWER MAIN, INCL TRENCH SADDLE AND CONNECTION, CIP	EA	9	$4,000.00	$ 36,000.00
	TRENCHING, BACKFILL, AND COMPACTION FOR 4" TO 15" SEWER PIPE 8' OR LESS IN DEPTH, PIPE NOT INCLUDED, COMPL.	LF	4354	$21.07	$ 91,747.21
	MH, 4' DIA, TYPE "C" OR "E", 6' TO 10' DEEP, CIP.	EA	15	$8,763.75	$ 131,456.25
	MH, 4' DIA, TYPE "C" OR "E", 10' TO 14' DEEP, CIP.	EA	4	$10,000.00	$ 40,000.00
	10" SDR 35 SEWER PIPE, (STD. SPEC. SEC 091), FURNISH & PLACE IN OPEN TRENCH, CIP	LF	1114	$76.24	$ 84,961.86
	TRENCHING, BACKFILL, AND COMPACTION FOR 4" TO 15" SEWER PIPE 8' TO 12' IN DEPTH, PIPE NOT INCLUDED, COMPL.	LF	217	$30.27	$ 6,568.59
	PUMP SEWAGE BETWEEN MANHOLES BECAUSE OF SEWERLINE REPLACEMENT OR REPAIR, COMPL.	LS	1	$15,883.14	$ 15,883.14
	30" CIPP LINING ON SILAR ROAD, CIP	LF	280	$500.00	$ 140,000.00
	PHASE 2				
	MOBILIZATION	LS	1	$13,386.80	$ 13,386.80
	DEMOBILIZATION	LS	1	$942.73	$ 942.73
	UTILITY RELOCATION ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	LABORATORY TESTING SERVICES ALLOWANCE	LS	1	$4,000.00	$ 4,000.00
	SUBSURFACE UTILITY LOCATING ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	SERVICE LINE CONNECTION TO SEWER MAIN, INCL TRENCH SADDLE AND CONNECTION, CIP	EA	2	$4,000.00	$ 8,000.00
	8" SDR 35 SEWER PIPE, (STD. SPEC. SEC 091), FURNISH & PLACE IN OPEN TRENCH, CIP	LF	1684	$49.00	$ 82,516.00
	TRENCHING, BACKFILL, AND COMPACTION FOR 4" TO 15" SEWER PIPE 8' OR LESS IN DEPTH, PIPE NOT INCLUDED, COMPL.	LF	1933	$21.07	$ 40,728.31
	MH, 4' DIA, TYPE "C" OR "E", 6' TO 10' DEEP, CIP.	EA	8	$8,763.75	$ 70,110.00
	MH, 4' DIA, TYPE "C" OR "E", 10' TO 14' DEEP, CIP.	EA	3	$10,000.00	$ 30,000.00
	10" SDR 35 SEWER PIPE, (STD. SPEC. SEC 091), FURNISH & PLACE IN OPEN TRENCH, CIP	LF	849	$76.24	$ 64,727.76
	TRENCHING, BACKFILL, AND COMPACTION FOR 4" TO 15" SEWER PIPE 8' TO 12' IN DEPTH, PIPE NOT INCLUDED, COMPL.	LF	600	$30.27	$ 18,162.00
				PHASE 1 SANITARY SYSTEM	**$ 762,660.10**
				PHASE 2 SANITARY SYSTEM	**$ 342,573.60**
				SANITARY SEWER SYSTEM SUBTOTAL	**$ 1,105,233.70**
WATER SYSTEM					
	PHASE 1				
	MOBILIZATION	LS	1	$23,260.16	$ 23,260.16
	DEMOBILIZATION	LS	1	$1,638.04	$ 1,638.04
	UTILITY RELOCATION ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	LABORATORY TESTING SERVICES ALLOWANCE	LS	1	$4,000.00	$ 4,000.00
	SUBSURFACE UTILITY LOCATING ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	DUCTILE IRON MJ FITTINGS, ALL SIZES, CLASS 250, INCL. JOINING MATERIAL,W JOINT RESTRAINTS CIP.	LS	1	$18,962.50	$ 18,962.50
	10" WATERLINE PIPE, EXCL FITTINGS, INCL TRACE WIRE, TRENCH & COMPACTED BACKFILL, UP TO 6' DEPTH, CIP	LF	1517	$125.00	$ 189,625.00
	FIRE HYDRANT ASSEMBLY, 4' BURY, MJ, INCL BLOCKING & AGGREGATE, CIP.	EA	8	$10,000.00	$ 80,000.00
	2" WATER SERVICE LINE, NEW SINGLE CONNECTION TO NEW WATER MAIN, CIP, SD 2363	EA	1	$806.80	$ 80,000.00
	6" PVC Water Main, cip, <100'	LF	128	$57.33	$ 7,338.24
	8" PVC Water Main, cip, >100'	LF	1350	$100.00	$ 135,000.00
	6" GATE VALVE, CIP	EA	8	$2,560.92	$ 20,487.36
	8" GATE VALVE, CIP	EA	2	$3,800.00	$ 7,600.00
	10" GATE VALVE, CIP	EA	2	$3,500.00	$ 7,000.00
	PHASE 2				
	MOBILIZATION	LS	1	$9,014.98	$ 9,014.98
	DEMOBILIZATION	LS	1	$634.86	$ 634.86
	UTILITY RELOCATION ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	LABORATORY TESTING SERVICES ALLOWANCE	LS	1	$4,000.00	$ 4,000.00
	SUBSURFACE UTILITY LOCATING ALLOWANCE	LS	1	$5,000.00	$ 5,000.00
	DUCTILE IRON MJ FITTINGS, ALL SIZES, CLASS 250, INCL. JOINING MATERIAL,W JOINT RESTRAINTS CIP.	LS	1	$11,250.00	$ 11,250.00
	10" WATERLINE PIPE, EXCL FITTINGS, INCL TRACE WIRE, TRENCH & COMPACTED BACKFILL, UP TO 6' DEPTH, CIP	LF	900	$125.00	$ 112,500.00
	FIRE HYDRANT ASSEMBLY, 4' BURY, MJ, INCL BLOCKING & AGGREGATE, CIP.	EA	6	$10,000.00	$ 60,000.00
	6" PVC Water Main, cip, <100'	LF	96	$57.33	$ 5,503.68
	6" GATE VALVE, CIP	EA	6	$2,560.92	$ 15,365.52
	10" GATE VALVE, CIP	EA	2	$3,500.00	$ 7,000.00
				PHASE 1 WATER SUBTOTAL	**$ 584,911.30**
				PHASE 2 WATER SUBTOTAL	**$ 235,269.04**
				WATER SYSTEM SUBTOTAL	**$ 820,180.33**
MISCELLANEOUS					

CONSTRUCTION SUBTOTAL	$ 1,925,414.03
NMGRT @ 8.6250 (Santa Fe)	$ 166,066.96
20% CONTINGENCY	$ 385,082.81
TOTAL	$ 2,476,563.80