

Como-Eustis Sanitary Infrastructure – Capacity Engineering Report Executive Summary

There exists a need to establish a special sanitary sewer availability connection charge district (SSSACCD) for the Como – Eustis area of St Paul. Public Works has been actively communicating, coordinating, and meeting with internal and external partners/stakeholders from early 2023 through today. The Public Works Sewer Utility is focused on delivering a capital improvement project for the Como-Eustis sanitary lift station that will increase sanitary sewer capacity and support future development for many years to come. The establishment of a SSSACCD is a process that involves several City departments (PW, PED, OFS/Real Estate, DSI, and CAO), Council action, and Mayor's Office approval.

The Department of Planning and Economic Development has submitted a list of potential development and re-development properties in the Luther Seminary / Como - Eustis sanitary lift station area. Based on the potential development, flows to the Como – Eustis lift station will result in a greater than 120% increase in flow to the lift station with a corresponding increase in the station run time, and pump starts and run times.

The Como-Eustis sanitary lift station was originally constructed in 1918 and has been upgraded and expanded several times over the years. It serves residential and commercial properties located in the northwest quadrant of the City. See Figure 1 and Figure 2 for the location of the existing lift station, the area currently served by the Como – Eustis lift station, and location and description of the proposed improvements further explained below. Currently, the Como - Eustis lift station is a high-risk pump station with limited capacity. In the event of a failure the City has little time to respond before property flooding occurs. Sewage flow increases from development/redevelopment presents a significant increased potential for catastrophic failures, corresponding property damage, and must be mitigated.

An engineering study has been completed to evaluate proposed development/redevelopment impacts to existing gravity sanitary sewer and lift station infrastructure. Some developments/redevelopments within the Como-Eustis service area are likely / imminent, while others are unknown and / or speculative. The engineering study determined that sewer capacity improvements are needed before any additional development/redevelopment occurs in the Como-Eustis pump station service area.

Como-Eustis Special Sanitary Sewer Connection Charge District (Como-Eustis SSSCCD)

Capacity Improvement Projects

Phase 1 lift station capacity improvements to allow planned development to occur must be bid in 2026 and constructed in 2027. Total estimated project cost is \$4,100,000, including final-engineering, construction, construction administration/inspection, and contingencies.

Phase 2 lift station capacity improvements to support speculative future development is planned, but the timing is unknown. Total estimated project cost is \$1,500,000, including final-engineering, construction, construction administration/inspection, and contingencies.

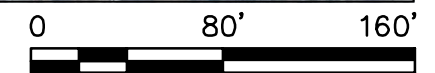
SEWER AVAILABILITY CHARGE (SAC) COSTS GARNERED

Improvement generated SAC Units that can be used towards future development= $616,320 \text{ gpd} / 274 \text{ gpd/SAC} = 2,249 \text{ SAC Unit capacity}$.

Property owner cost per SAC Unit: $\$5,600,000 / 2,249 \text{ SAC capacity} = \$2,490$



LOCATION MAP



CITY OF SAINT PAUL
COMO EUSTIS LIFT STATION IMPROVEMENTS

FIGURE 1

X POTENTIAL REDEVELOPMENT SITE

PHASE 1:

- INITIAL LIFT STATION CAPACITY IMPROVEMENTS TO ALLOW IMMINENT DEVELOPMENT TO OCCUR IN PED IDENTIFIED AREAS 1,2, AND 4, OR PROPERTIES GENERALLY LYING ADJACENT TO AND NORTH OF COMO AVE.
- MUST BE BID IN 2026 AND CONSTRUCTED IN 2027-2028.
- TOTAL ESTIMATED PROJECT COST IS \$4,100,000, INCLUDING FINAL-ENGINEERING, CONSTRUCTION, CONSTRUCTION-OVERSIGHT, AND CONTINGENCIES.

PHASE 2:

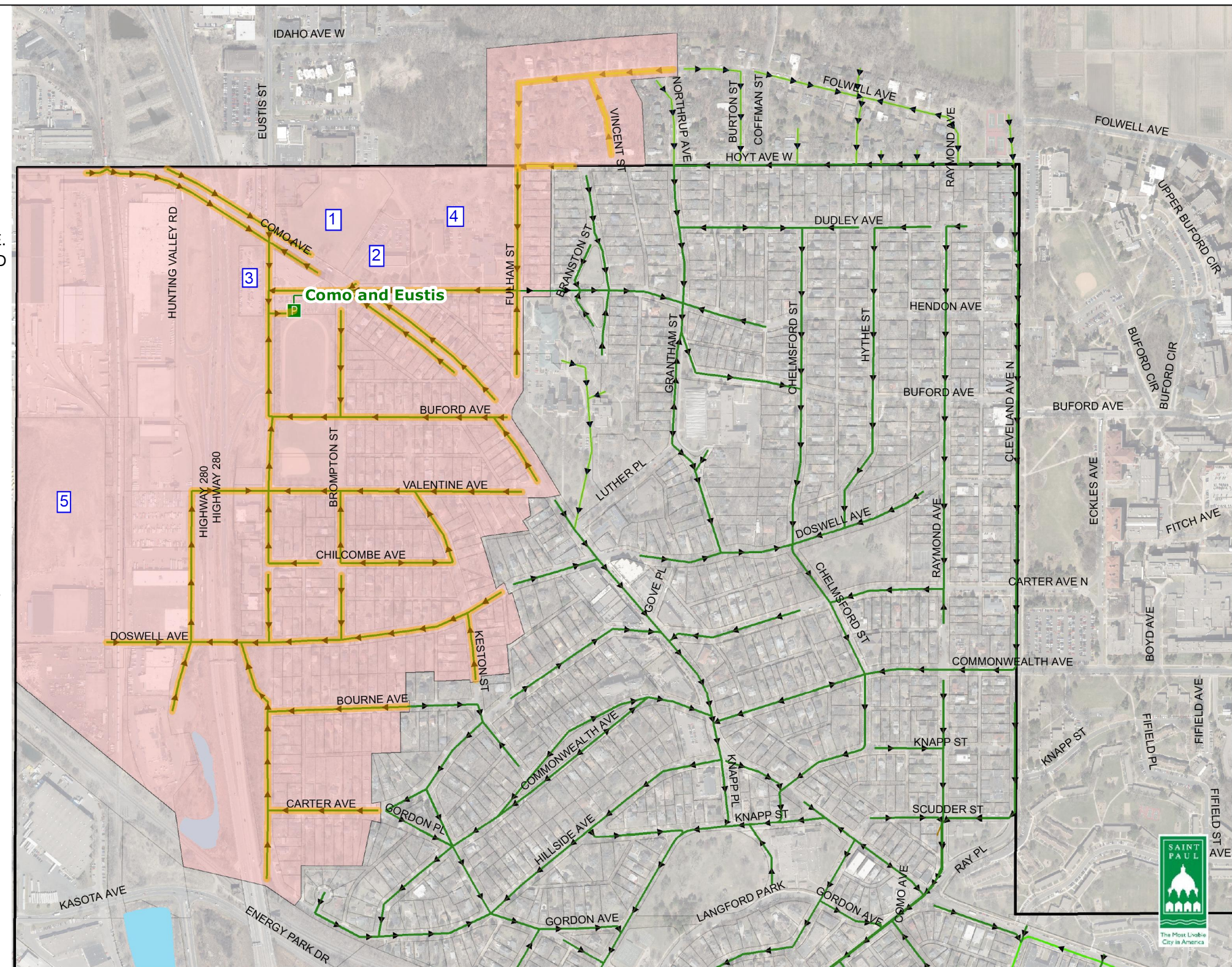
- FUTURE LIFT STATION CAPACITY IMPROVEMENTS TO SUPPORT SPECULATIVE DEVELOPMENT IN PED IDENTIFIED AREAS 3 AND 5, OR PROPERTIES GENERALLY LYING ADJACENT TO, AND EAST AND WEST OF HWY-280 HAS BEEN STUDIED, IS PLANNED BUT THE TIMING IS UNKNOWN.
- TOTAL ESTIMATED PROJECT COST IS \$1,500,000, INCLUDING FINAL-ENGINEERING, CONSTRUCTION, CONSTRUCTION-OVERSIGHT, AND CONTINGENCIES.

Legend

- Sanitary Gravity Mains
- Private Sanitary Mains
- MCES Gravity Sanitary Mains

LS

-  Como-Eustis LS
 City of St Paul Streets
 City of St Paul Boundary
 Rivers and Lakes



Information shown on this map is for planning purposes only and is subject to change.
Printed on: 9/17/2018

**CITY OF SAINT PAUL - PW SEWERS
COMO-EUSTIS LIFT STATION SERVICE AREA**

COMO EUSTIS LIFT STATION SERVICE AREA

CITY OF SAINT PAUL

COMO EUSTIS LIFT STATION IMPROVEMENTS

FIGURE 2



Stantec Consulting Services Inc.
733 Marquette Avenue, Suite 1000
Minneapolis MN 55402-2314

April 28, 2026

Project/File: 173420193

City of Saint Paul

Mr. Aaron Hass
Department of Public Works
25 West 4th Street
1500 City Hall Annex
Saint Paul, MN 55431

Dear Mr. Aaron Hass,

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

Dear Mr. Hass,

We have evaluated the existing Como Eustis lift station for capacity, reviewed potential development within the existing Como Eustis sewer shed and the anticipated impact on flows to the lift station, and reviewed several options for proposed lift station improvements that will best meet future demand requirements. As a result of this analysis, we recommend that the City of Saint Paul consider proposed improvements that can be implemented in three project phases: Phase 1 consisting of an increase in initial pumping capacity and an expanded wet well to serve the more immediate needs of the sewer shed (based on the more imminent and likely redevelopment); Phase 2, consisting of an ultimate lift station capacity increase and pump replacement to serve the more long-term, speculative redevelopment; and Phase 3 consisting of system improvements that include the installation of a new forcemain downstream of the lift station, and replacement of two gravity sewer crossings under TH280. Figure 1 shows the location of the proposed improvements. The following items summarize the evaluation completed to date.

PREVIOUS LIFT STATION IMPROVEMENTS

The Como Eustis lift station was originally constructed in 1918, renovated in 1958, 1999 and most recently again in 2019-2020 under City Project No. 19S-2054, and TKDA project Number 15530.003. When the lift station was renovated in 2019-2020, the Luther Seminary Upper and Lower Campuses and the HealthPartners redevelopments were speculative, with insufficient information available to plan for lift station capacity improvements. The project consisted of the following major items:

- Pump replacement
- Piping replacement in wet well and valve vault
- Installation of a new meter manhole.

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

- Installation of a new control panel with VFD to control pump starts
- Installation of a new natural gas generator

COMO EUSTIS LIFT STATION - EXISTING CONDITIONS AND SYSTEM ANALYSIS

The Como - Eustis lift station is a high-risk lift station due to limited wet well storage. Limited storage means that, in the event of a lift station failure, city pump operators have little time to respond before property flooding occurs. The lowest adjacent service elevation is 174.58 located at 1385 Hunting Valley Road and shown in Figure 6.

Risks to the city, associated with existing flow conditions, probable failure modes, and response time at the Como – Eustis lift station were mitigated to the extent possible with 2019-2020 lift station renovation. Improvements implemented at that time included panel replacement, pump replacement, and installation of a backup generator with automatic transfer switch.

At this time, the sewer conveyance system in the Como-Eustis sewer appears to be functioning properly, and as designed. There is no evidence of any system capacity issues, sometimes referred to as a “pinch point,” or a localized area that can reduce the sanitary sewer system capacity. Evidence of a pinch point could include peak-flow driven flooding or overflows, flooding of low elevation properties, and/or lift station pump overruns and failures. While the existing system is functioning properly, it is challenging to accurately predict future system flows as they may vary greatly with changes in land use, or changes in building function/use. In addition, the timing and type of development/redevelopment is largely unknown and based on assumptions. As a result, future design flows are largely speculative and based on assumptions.

Peak Flow Factor

Throughout this report, peak flow factor will be shown in calculations of different scenarios. Determining pump design capacities requires an evaluation of average day flows as well as the peak flows that will be experienced at different times throughout the day. Pumps are designed to convey the peak flow coming to the lift station. A peaking factor (or peak flow factor) of 4.0 has been used throughout this analysis and evaluation of the Como-Eustis lift station. This number is typical for the planning of these types of improvements and follows design practices set by the 10 States Standards (Recommended Standards for Wastewater Facilities).

Stantec evaluated the existing system (post 2019-2020 improvements) and the associated response time based on the following data provided:

- City of Saint Paul strip maps
- TKDA record drawings
- Existing forcemain records: 1600' of 10" DIP
- Discharge Elevation = 271.0. Pumping water elevation= 168.0
- Existing wet well diameter = 96"
- Existing wet well volume below elevation 174.5 = 1,450 gallons

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

Estimated response times for different storage volumes are provided in the tables below:

Table 1. Response time based on wet well volume only

Condition	Flow Rate (GPM)	Storage Volume (Gallons)	Response time (Hours/Minutes)
Existing Average	96	1,450	15 Minutes
Existing Design Peak PFF=4.0	386	1,450	3.7 Minutes
Proposed Peak Flow	850	1,450	1.7 Minutes

We then analyzed the additional storage provided in the existing sewer shed piping system beyond the existing wet well, to include storage in upstream pipes and structures. The calculated storage volumes below are based on available pipe and manhole volumes below an elevation of 174.5. Figure 6 in the Appendix shows the location of the pipes and structures included in this analysis.

- Available wet well storage= 1,450 gallons
- Available pipe storage = 11,043 gallons
- Available MH storage= 2,320 gallons
- Existing upstream storage, including wet well, gravity pipes and manholes= 14,813 gallons.

Table 2. Response time based on 14,813 gallons of wet well/piping system storage under various flow rates

Condition	Flow Rate (GPM)	Storage Volume (Gallons)	Response time (Hours/Minutes)
Existing Average	96	14,813	2 hr/35 Minutes
Existing Design Peak PFF=4.0	386	14,813	38 Minutes
Current Max Average	167	14,813	1 hour/28 Minutes
Proposed Peak Flow	850	14,813	17.4 Minutes

COMO EUSTIS LIFT STATION - EXISTING PUMP CAPACITY

Stantec completed a hydraulic model of the existing system using the new Flygt NP 3202 w/460 impeller (294 mm).

- Based on the hydraulic model, the station capacity = 781 gpm @ 117.5 ft. TDH
- Per discussions with City Staff, flow testing results, and the existing flow meter:
Pump No. 1 capacity = 790 gpm; Pump No. 2 capacity = 778 gpm.

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

- From this, we conclude that the hydraulic model and field observations are consistent, and the meter appears to be accurate.
- The current lift station firm capacity is 780 gpm.

COMO EUSTIS LIFT STATION - EXISTING FLOWS

Stantec has reviewed flow data from 2020 through 2025, since the new flow meter has been installed. The results of the flow metering are as follows:

- Peak months recorded to date appear to be April and May of 2020.
- Max. Day Flow = 241,000 gpd
- High Average Day Flow= 139,000 gpd. High Average Flow = 96.5 gpm.
- Expected Peak Flow = (Average x 4.0 PFF) = 386 gpm

COMO EUSTIS LIFT STATION – PROPOSED FLOWS

Several areas within the Como Eustis Lift Station sewer shed have been identified by the City as likely to develop/redevelop. The existing lift station does not currently have capacity to accommodate these potential future flows. The potential development/redevelopment has been separated into that which is most likely to redevelop in the immediate future, and that which is much more speculative, and is assumed to be much further in the future. Anticipated future flows from the potential development/redevelopment areas are summarized below.

Development (Imminent and Likely Development):

The City of Saint Paul Department of Planning and Economic Development (PED) has provided a summary of five (5) potential development and re-development projects within the Luther Area and west of TH280. The area is located within the Como Eustis sewer shed and is shown on Figures 2 and 3 in the Appendix. City staff has indicated this potential redevelopment could result in 300-607 additional SAC units. Future flow calculations will be based on the high estimate of 607 SACs. Based on this information, the flows to the Como Eustis Lift Station will increase significantly. The timing of any proposed development and demolition of existing services has not been identified. Proposed flow increases are as follows and as identified in the PED data included in Figures 2, 3, and 4.

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

Table 3. Anticipated SAC units for Imminent and Likely Development/Redevelopment

Site	Name	Proposed SAC's	Location of Flow
1	Health Partners	50	North
2	Lutheran Services	17	North
3	MnDOT	119	North
4	Luther Seminar	392	North
5	Quality Metals	29	South
Total New Development		607	

Anticipated future Phase 1 flow rates are summarized below:

- Additional flow = 607 SAC's x 275 gpd/SAC = 166,925 gpd
- Additional average flow= 116 gpm
- Additional peak flow = 116 gpm x 4.0 = 464 gpm

Imminent Development / Redevelopment - Required Design Flow:

Based on an existing peak sewer flow of 386 gpm, and an estimated additional post-development peak flow 464 gpm, we have the following conclusions:

- Required Peak Design Flow = 850 gpm
- The projected development will double the current flow to the lift station with a corresponding increase in the station run time.

Speculative Future Potential Development / Redevelopment

City staff has indicated that there are other areas within or adjacent to the existing sewer shed that have the potential to redevelop in the future but are currently only speculative in nature. The three primary areas that have been identified include the north and south parcels of the existing Les Bolstad Golf Course, as well as the existing industrial area west of TH280 that lies within the existing sewer shed. There may also be other areas that may redevelop that have not yet been identified. As future development or redevelopment occurs, additional flows may need to be directed to the Como Eustis Lift Station.

The Les Bolstad golf course consists of two parcels separated by Larpenteur Avenue. The portion of the course north of Larpenteur consists of 135 acres. The portion of the course south of Larpenteur consists of 19 Acres. The area west of TH280 consists of 31 acres of current industrial development. This excludes the 12.8 AC for the Quality Metals parcel that has been included in the Phase 1 development analysis. These parcels are shown on Figure 5 in the Appendix.

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

If the City were to upgrade the existing Lift Station to accommodate potential future Phase 2 flows, future 75 Hp pumps could provide an ultimate capacity of roughly 2097 gallons per minute (GPM). Subtracting the existing flows (386 gpm) plus potential phase 1 redevelopment flows (464 gpm) from the ultimate capacity of 2097 yields roughly an additional 1247 gpm from Phase 2 that could be added to the lift station's service area. Converting this peak flow rate of 1247 gpm to SAC units and allocating proportionate amounts of SAC units based on area results in the potential SAC development per parcel shown below:

Table 4. Potential SAC units for Speculative Redevelopment

Area	Location	Size (AC)	Potential SAC availability	Location of Flow
1	Les Bolstad Golf Course North of Larpenteur	135	1190 SAC's	North
2	Les Bolstad Golf Course South of Larpenteur	19	168 SAC's	North
3	West of TH280 (South of Como and North of RR)	31	275	North & South
TOTAL		185	1633	

Speculative Development Driven - Required Design Flow:

- Additional flow = 1633 SAC's x 274 gpd/SAC= 449,075 gpd
- Additional average flow= 449,075 gpd / 60 / 24 = 312 gpm
- Additional peak flow= 312 gpm x 4.0 PFF =1247 gpm
- Combined peak flow from Phase 1 and Phase 2 development (ultimate peak flow) = 850 gpm + 1247 gpm = 2097 gpm.

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

FIRM CAPACITY SUMMARY

Firm capacity is defined as the capacity with one pump out of service with the lift station flowing through a single forcemain. The following table summarizes the firm capacity under existing and proposed conditions:

Table 5. Firm Capacity

Existing Firm Capacity	One existing pump through the existing 10" forcemain.	786 gpm
Phase 1 Firm Capacity	Two existing pumps through the existing 10" forcemain	1250 gpm
Phase 2 Firm Capacity	Two 60 Hp. pumps flowing through the proposed 12" forcemain.	2500 gpm
Phase 3 Firm Capacity	Two existing pumps through the new 12" forcemain	1425 gpm

Downstream System Capacity Limitations:

Table 5 provides firm capacities for the proposed improvements only and does not account for any limitations with the downstream gravity system. We have determined that the existing 15" diameter gravity sewer downstream of the existing forcemain discharge limits the overall capacity of the system. In particular, the approximately 150-foot long segment of 15" RCP in Hendon Avenue, between the two legs of Branston Street, is at an approximate slope of 1.2% and has a capacity of 3176 gpm. However, we assume conservatively that only roughly half of this pipe capacity is available for added sewer flows (1500 gpm). This pipe segment will be the limiting factor in the overall system capacity and the amount of future development that can be accommodated without further downstream improvements. Further investigation, including flow monitoring, will be needed to more accurately determine the existing flows and the amount of remaining available pipe capacity downstream of the forcemain. We would recommend improvements to replace this short segment of pipe with a larger diameter to improve available capacity. This could be completed in conjunction with the proposed Phase 3 improvements consisting of the installation of a new 12" forcemain along Hendon Ave. The upgrades must be completed prior to the implementation of proposed Phase 2 improvements to accommodate the anticipated speculative redevelopment flows.

LIFT STATION RISKS

The Como Eustis lift station is considered a high-risk lift station due to limited wet well storage. A risk analysis was completed during a previous engineering study, and a summary of the results is included in Table A-1 in the Appendix. Any of the events defined in the table could trigger sewage to back up into adjacent properties. Currently, operators do not have adequate time to respond to a failure at this station with the current flows. This limited storage presents an issue with regard to response time. Should a major control panel or power outage occur, the response time at this station is less than 16 minutes under average flows and less than 3 minutes under current peak flows. See Appendix for the table summarizing potential outcomes under various failure modes.

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

OPTIONS AND COSTS TO IMPROVE STATION RELIABILITY AND RESPONSE TIME

Based on the analysis completed to date, the existing lift station does not have the capacity or storage capacity to accommodate either the most imminent/likely or the more speculative potential redevelopment.

The following are options that we have evaluated, and the City may consider to improve the overall capacity and resiliency of the Como Eustis Lift Station. Cost estimates are included for each option. Cost estimate ranges include a 25% construction contingency and an additional 20% for administration/engineering and construction administration and inspection costs.

OPTION NO. 1: INCREASE GRAVITY STORAGE UPSTREAM OF STATION

Additional storage up stream could be gained by replacing approximately 90 feet of 12" sanitary sewer with a 48" gravity sanitary sewer. This task would result in an increased storage of approximately 7900 gallons and provide an additional nine minutes of response time during peak flows.

ESTIMATED COST OPTION 1 = \$749,650

OPTION NO. 2: INSTALL THIRD PUMP TO EXISTING LIFT STATION

There is a possibility of adding a third pump to the original upstream wet well. This structure was converted to a gravity sewer manhole with the previous lift station improvements. This structure is identified as MH C within the attached Figures. The additional pump added to MH C could be submersible or a permanently mounted vacuum pump. This third pump would be provided with power from the existing lift station control panel. The existing generator does not have the capacity to run the 2 existing pumps and a new 3rd pump. This would provide a lesser ability to meet firm capacity in the event of an electrical failure, relying solely on the generator to power the pumps, as it could not power all 3 pumps. However, a third independent pump would provide the benefit of reducing the need for additional storage required to increase response time.

ESTIMATED COST OPTION 2 = \$813,305

OPTION NO. 3: COMBINE UPSTREAM STORAGE AND THIRD PUMP

Combining Option No. 1 and Option No. 2 results in additional storage as well as additional pumping capacity, ultimately providing greater system reliability and an increase in the required response time.

ESTIMATED COST OPTION 3 = \$1,246,275

OPTION NO. 4: CONSTRUCT NEW LIFT STATION TO REPLACE EXISTING LIFT STATION

To provide for ultimate flows with additional response time, a new lift station on the west side of Eustis Street has been considered. This station would accommodate all flow from the existing lift station service area, in addition to future flows from the likely redevelopment areas 1, 2, 3, 4 and 5 as shown on Figure 2. This proposed lift station would be a triplex station with an independent valve vault with a 12' diameter wet well, and would require approximately 350 feet of 10-inch forcemain to reach the existing forcemain located within the HealthPartners parking lot. However, this site requires the acquisition of land from the Minnesota Department of Transportation. The new forcemain to be directionally drilled under Eustis Avenue. Eustis to be open cut for the gravity manhole. Connection will be made to the existing forcemain at the existing lift station site. Under this option, the existing Como Eustis lift station would be removed and abandoned. This

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

option has been reviewed and is considered less desirable due to the large capital costs as well as uncertainty with the acquisition of the additional property.

ESTIMATED COST OPTION 4 = \$4,840,000 to \$5,400,000

OPTION NO. 5: CONSTRUCT NEW LIFT STATION TO REDUCE FLOW TO EXISTING LIFT STATION

This option is similar to Option No. 4 in that a new lift station would be constructed on the west side of Eustis Street within the vacant outlot owned by MnDOT to the south of the current HealthPartners overflow parking lot. However, with this option, the existing lift station in the HealthPartners parking lot would remain in service. The proposed lift station would include an independent valve vault with a 10' diameter wet well, and would require approximately 350 feet of 10-inch forcemain to reach the existing forcemain located within the HealthPartners parking lot. Flows from new development areas from the North (developments 1, 2, 3, and 4) will be routed to the existing lift station, along with current flows from the north area as shown on Figure 7. The new station will accept flow from new development No. 5 as well as the existing flows from the south service area. The new forcemain would be directionally drilled under Eustis Avenue. Eustis Street would be open cut for the gravity manhole installation. Connection will be made to the existing forcemain at the existing lift station site. This option has been reviewed and is considered less desirable due to the large capital costs as well as uncertainty with the acquisition of the additional property.

ESTIMATED COST OPTION 5 = \$3,020,000 to \$3,354,000

OPTION NO. 6: CONSTRUCT NEW WET WELL TO ACCOMMODATE FUTURE PHASE 2 PUMPS

The existing wet well is not large enough to accommodate three pumps; therefore, to meet ultimate development conditions, a new, larger wet well is required. This option allows an economically phased approach that provides system reliability to meet current needs, as well as the ability to expand the lift station in the future to meet projected flows from the speculative development. This wet well is proposed to be constructed just upstream (west of) the existing wet well located within the HealthPartners parking lot. Immediately, it will provide additional storage and space for a third, 45 Hp pump needed to accommodate anticipated the more likely and immediate development flows. Ultimately, this wet well will be reconfigured to accommodate three larger, 60 Hp pumps as described in Option 7 below. This will allow this lift station to meet the potential demand from the ultimate service area that includes the development of the Les Bolstad Golf Course, or other yet to be identified development.

ESTIMATED COST OPTION 6 = \$4,100,000

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

OPTION NO. 7: INSTALL PARALLEL 12" FORCEMAIN ALONG HENDON AVENUE

The existing lift station currently discharges into a 10" forcemain. This forcemain extends from the HealthPartners parking lot, westerly along Hendon Avenue approximately 1600' to the east to a gravity manhole at Branston Street. In order to provide increased capacity as well as increased reliability due to the age of the existing forcemain, it is proposed to install a 12" forcemain that runs parallel to the existing 10". This new forcemain would discharge to the same gravity manhole. This would provide an increase to the system's capacity as shown in Table 5 above.

ESTIMATED COST OPTION 7 = \$1,270,000

OPTION NO. 8: INSTALL THREE LARGE PUMPS AND CONTROL MODIFICATIONS

To accommodate future (speculative) development flows, larger pumps will be required. Pumps to meet the anticipated flows are estimated to be 60 Hp submersible pumps. These speculative, ultimate flows will require the following improvements:

- Remove existing 45 Hp pumps (2) from the current wet well
- Replace proposed 45 Hp pump from new wet well (installed under Option 6) with 60 Hp pump
- Install 2 new 75 Hp pumps within the proposed wet well (installed under Option 6)
- Replace VFDs and associated wiring with larger pumps
- Replace existing 8" valves with 12" valves within the current valve vault
- Install a larger generator sized to run either 2 or 3 – 60Hp pumps. The current assumption is that the generator will be sized for 3 pumps and will be natural gas

ESTIMATED COST OPTION 8 = \$1,500,000

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

RECOMMENDATIONS

The existing lift station does not have the capacity to meet the anticipated peak flows from either the imminent/likely or the more speculative development/redevelopment. In addition, the minimal storage results in inadequate response times and a high risk of flooding due to system failure. To provide for immediate improvements to system reliability and response time, in addition to accommodating the increased flows from the 2 potential phases of development/redevelopment, we recommend implementing improvements to the lift station in a 3-phase approach as described below. The proposed improvements are shown on Figures 8-10 in the Appendix.

Phase 1 Improvements:

We recommend incorporating Options 1, 2, and 6 from above into a single project. These improvements are depicted in Figures 8 and 9 in the Appendix.

- Install 48" diameter gravity pipe to replace existing 12"
- Construct new 12" diameter wet well, meter/valve vault, control panel, electrical service, and associated system wiring and site work
- The proposed third pump (Flygt NP 3202 with 460 impeller) can meet the expected capacity requirements.
- Proposed phase 1 improvements will result in a firm capacity of 1250 gpm, which will exceed the estimated Phase 1 development/redevelopment peak flows.

Phase 2 Improvements:

We recommend implementing the proposed improvements as described in Option 8 above and shown on Figure 10 in the Appendix. This will provide additional capacity for the speculative development/redevelopment, if/when it occurs.

- Remove existing pumps
- Replace with larger, 60 Hp pumps
- Phase 3 anticipated peak flow = 2017 gpm
- Potential Phase 3 Lift Station Firm Capacity = 2500 gpm with the installation of a parallel 12" forcemain, and two pumps flowing through the new 12" forcemain.
- The potential capacity with two pumps running through the existing 10" and future 12" forcemain results in a potential capacity of 3000 gpm.
- The firm capacity with two pumps running through a single future 12" forcemain is 2500 gpm.
- Assumptions used to reach these conclusions are:

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

- o Future maximum forcemain velocity less than 10 feet per second.
- o Future submersible pump size is 60 HP.
- o The future larger pumps will be installed in the Phase 1 wet well.
- o Space and air conditioning for larger VFD's for future pumps to be installed in the proposed Phase 1 control panel.
- o Electric service will be increased to 400amp as part of Phase 1 to accommodate future, larger phase 2 pumps.

Phase 3 Improvements:

We recommend implementing the proposed forcemain improvements as described in Option 7 above and shown on Figure 1 in the Appendix. Phase 3 improvements also include the replacement of the existing 12" diameter sanitary sewer crossings of TH280 at Doswell Avenue and Valentine Avenue with new 16" diameter sewer. The TH280 sewer crossing improvements are being accelerated and completed as an independent project in conjunction with MnDOT's TH280 improvements project in the spring/summer of 2026 that allows the project to be completed while MnDOT has the roadway closed for construction.

- Construct new parallel 12" diameter forcemain as described in Option 7 above. (\$1,270,000)
- The anticipated cost of the TH280 sewer crossings replacement is approximately \$2,000,000.
- The forcemain replacement will provide an increased firm capacity of 1800 gpm based on the implementation of the Phase 1 improvements.
- The TH280 sanitary sewer crossings will provide upstream system conveyance reliability as well as reduce the known Inflow and Infiltration (I/I) issues in this area.

ESTIMATED OPINION OF PROBABLE COSTS

A summary of estimated costs for the 3 phases of the proposed improvements is summarized below.

Table 6. Estimated Costs

	Phase 1	Phase 2*	Phase 3 (Hendon Ave Forcemain)	Phase 3 (Gravity Crossings)	Total
Construction	\$2,705,000	\$938,000	\$876,000	\$1,500,000	\$6,019,000
17%-35% Contingency	\$853,000	\$328,000	\$219,000	\$250,000	\$1,650,000
17%-25% Engineering/ Administrative	\$542,000	\$234,000	\$175,000	\$250,000	\$1,201,000
Total Project	\$4,100,000	\$1,500,000	\$1,270,000	\$2,000,000	\$8,870,000

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

*Due to the speculative nature and unknown timing of the Phase 2 improvements, no inflationary factor was included in the cost estimate. All estimated costs above are in current (2026) dollars.

COMO-EUSTIS SPECIAL SEWER AVAILABILITY CONNECTION CHARGE DISTRICT (SSACCD)

Como-Eustis sanitary sewer shed, or service area lacks sufficient sanitary sewer capacity and requires sanitary sewer infrastructure improvements to meet sewer demand caused by new development or uses on the parcels of land located within the Como-Eustis Area. The Como-Eustis existing conditions sanitary sewer service area and future development areas are shown in attached Figures 2, 3 and 5.

To meet the expected demand for the sanitary sewer capacity in the Como-Eustis Area caused by new development or uses, the City intends to increase the sewer capacity by constructing lift station improvements (Improvements) and the total project costs (TPC), to be incurred by the City for such Improvements is estimated at \$5,600,000 and that but for these Improvements new development in the Como-Eustis Area would not occur.

Under the provisions of Chapter 76 of the City's Legislative Code, the City's sewer utility, has determined that the establishment of the Como-Eustis Special Sanitary Sewer Availability Connection Charge District (SSSACCD) is required and the Como-Eustis Special Sanitary Sewer Availability Connection Charge (SSSACC) must be calculated. This requires City Council and Mayor approval, and public hearings be held. The SSSACC will be required of a property owner within the SSSACCD when new development, redevelopment, and changed use of their property generates increased demand for sanitary sewer service.

The Como-Eustis lift station SSSACC is calculated as follows:

- Capacity Improvement estimated costs = \$5,600,000.
 - o Phase 1 (Option 6) Improvements = \$4,100,000
 - o Phase 2 (Option 8) Improvements = \$1,500,000
- One SAC unit equals two hundred seventy-four (274) gallons of maximum potential daily wastewater flow usage. This is based on average flow. (MCES Sewer Availability Charge Procedure Manual – January 1, 2019)
- Estimated added SAC Units based on Imminent Development/Redevelopment (Phase 1) = 607, Speculative Development (Phase 2) = 1633, Total estimated SACs based on both Redevelopment Scenarios = 2,240 SACs
- Existing firm capacity with one existing pump pushing wastewater through the existing 10" forcemain is 786 gpm.
- Post Improvements firm capacity with two pumps pushing wastewater through a single future 12" forcemain is 2500 gpm.
- Improvement generated capacity is $2500 \text{ gpm} - 786 \text{ gpm} = 1,714 \text{ gpm}$
- The average daily flow associated with a peak flow of 1,714 gpm is $1,714 / 4\text{PFF} = 428 \text{ gpm} * 60 \text{ min} * 24 \text{ hr} = 616,320 \text{ gpd}$ average flow

Reference: Como Eustis Lift Station Capacity Analysis and Recommendations

- Improvement generated SAC Units that can be used towards future development= 616,320 gpd / 274 gpd/SAC = 2,249 SAC Unit capacity. This (2,249) correlates very closely with SAC capacity based on development alone (2,240). Firm capacity will always be slightly higher to ensure capacity needs are met which results in a slightly lower cost per SAC Unit (\$2,500 vs \$2,490 respectively)

SEWER AVAILABILITY CHARGE (SAC) COSTS GARNERED

Property owner cost per SAC Unit : \$5,600,000/2,249 SAC capacity = \$2,490

Please reach out to me if you have any questions or would like to discuss this report in more detail.

Regards,

Stantec Consulting Services Inc.



Eric Lembke PE
Principal
Phone: (612) 712-2079
Mobile: (651) 775-5156

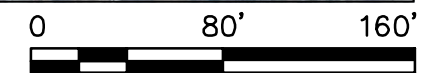
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APPENDIX attachments:

Figure No. 1 Location Map
Figure No. 2 Como Eustis Lift Station Service Area
Figure No. 3 Potential Development/Redevelopment (Luther Area)
Figure No. 4 Phase 1 Sewer Shed Work Sheet- Potential SAC Units
Figure No. 5 Speculative Potential Redevelopment
Figure No. 6 Como-Eustis Sewer Shed Lowest Service Elevation
Figure No. 7 Flow Distribution Map
Figure No. 8 Phase 1 and 2 Site Plan
Figure No. 9 Phase 1 Lift Station Plan
Figure No. 10 Phase 2 Lift Station Plan
Table No. A1: Lift Station Failure Modes
Opinion of Probable Costs Phase 1
Opinion of Probable Costs Phase 2
Opinion of Probable Costs Phase 3 – Hendon Avenue Forcemain
Opinion of Probable Costs Phase 3 – TH 280 Gravity Crossing



LOCATION MAP



CITY OF SAINT PAUL
COMO EUSTIS LIFT STATION IMPROVEMENTS

FIGURE 1

[X] POTENTIAL REDEVELOPMENT SITE (SEE FIGURE 4)

PHASE 1:

- INITIAL LIFT STATION CAPACITY IMPROVEMENTS TO ALLOW IMMINENT DEVELOPMENT TO OCCUR IN PED IDENTIFIED AREAS 1,2, AND 4, OR PROPERTIES GENERALLY LYING ADJACENT TO AND NORTH OF COMO AVE.
- MUST BE BID IN 2026 AND CONSTRUCTED IN 2027-2028.
- TOTAL ESTIMATED PROJECT COST IS \$4,100,000, INCLUDING FINAL-ENGINEERING, CONSTRUCTION, CONSTRUCTION-OVERSIGHT, AND CONTINGENCIES.

PHASE 2:

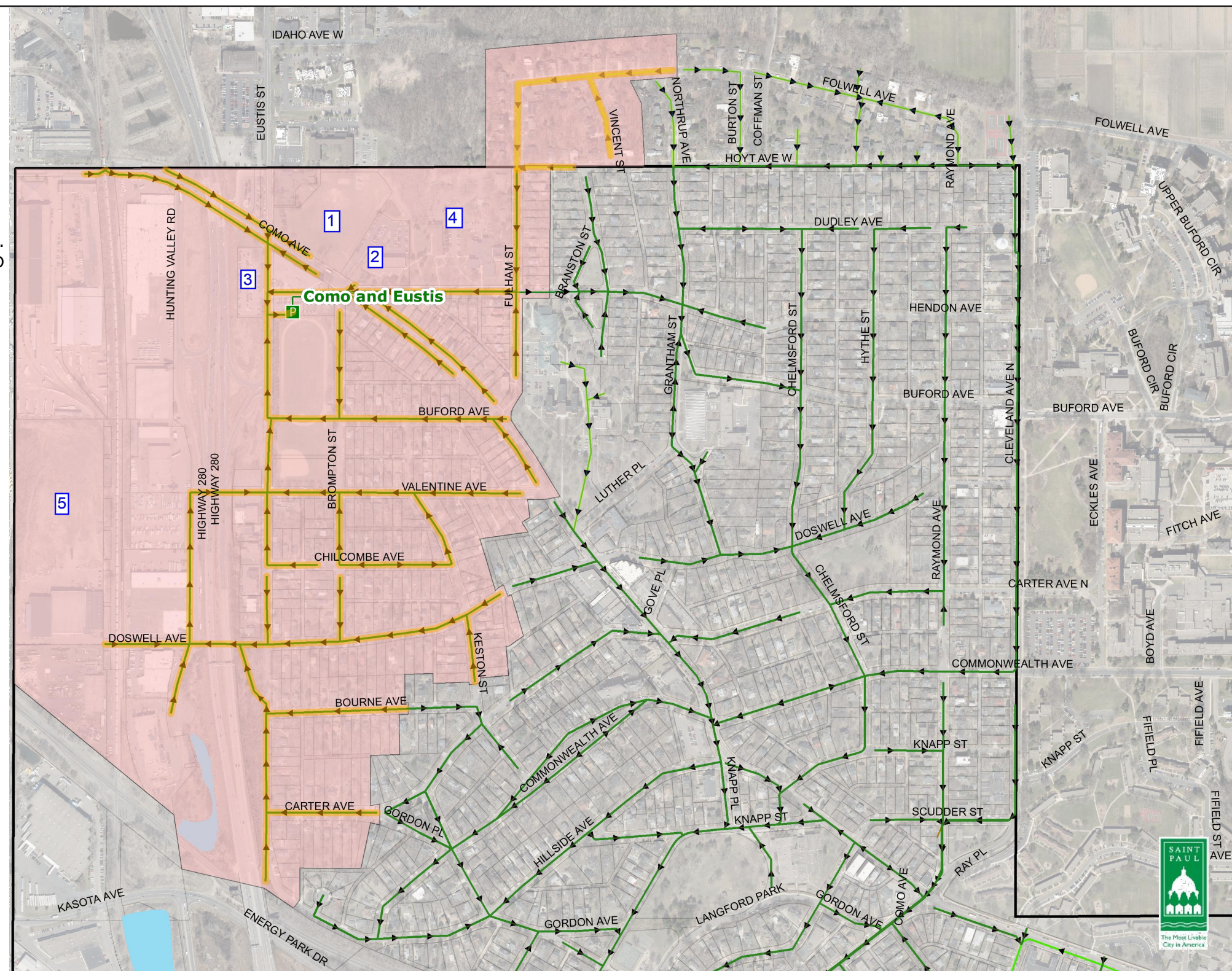
- FUTURE LIFT STATION CAPACITY IMPROVEMENTS TO SUPPORT SPECULATIVE DEVELOPMENT IN PED IDENTIFIED AREAS 3 AND 5, OR PROPERTIES GENERALLY LYING ADJACENT TO, AND EAST AND WEST OF HWY-280 HAS BEEN STUDIED, IS PLANNED BUT THE TIMING IS UNKNOWN.
- TOTAL ESTIMATED PROJECT COST IS \$1,500,000, INCLUDING FINAL-ENGINEERING, CONSTRUCTION, CONSTRUCTION-OVERSIGHT, AND CONTINGENCIES.

Legend

- Sanitary Gravity Mains
- Private Sanitary Mains
- MCES Gravity Sanitary Mains

LS

- Como-Eustis LS
- City of St Paul Streets
- City of St Paul Boundary
- Rivers and Lakes



Information shown on this map is for planning purposes only and is subject to change.
Printed on: 9/17/2018

**CITY OF SAINT PAUL - PW SEWERS
COMO-EUSTIS LIFT STATION SERVICE AREA**

COMO EUSTIS LIFT STATION SERVICE AREA

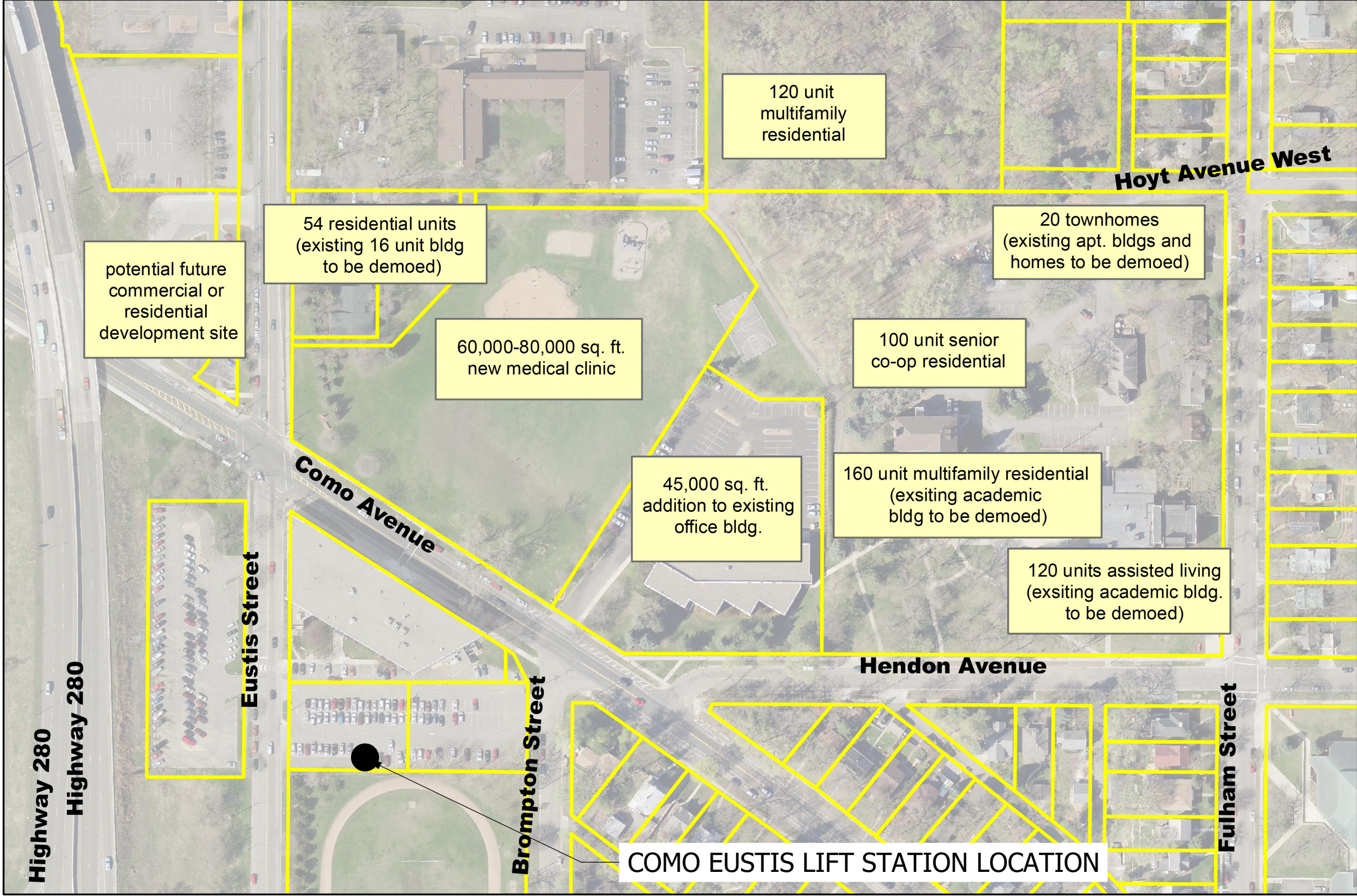
COMO-EUSTIS LIFT STATION DEVELOPMENT MAP PROVIDED
BY SAINT PAUL PED 09/17/2018; EDITED 11/17/2023

CITY OF SAINT PAUL

COMO EUSTIS LIFT STATION IMPROVEMENTS

FIGURE 2

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PHASE 1 POTENTIAL REDEVELOPMENT (LUTHER AREA)

FIGURE 4: PHASE 1 - PED SUPPLIED POTENTIAL SAC UNITS FOR REDEVELOPMENT/DEVELOPMENT (11/19/2024)

Map ID	PIN	Address	Owner	Acres	Zoning	Existing Land Use	Future Land Use	Land Use Intensity Increase	SAC Increase Estimate*	Timeline
1	202923240069	0 FULHAM ST	HEALTH PARTNERS REAL ESTATE**	4.37	T1	vacant lot	108,175sf medical clinic	108,175sf medical clinic		50 2-5 years
2	202923240063	2485 COMO AVE	LUTHERAN SOCIAL SERVICES OF MINNESOTA	2.25	T1	44,000sf office	89,000sf office	45,000sf office		17 1-2 years
3	202923230008	0 EUSTIS ST	Mn DOT	1.1	B3	parking lot	100 Units; 5,000sf retail; 5,000sf restaurant	100 Units; 5,000sf retail; 5,000sf restaurant		119 5+ years
4	202923240071	2481 COMO AVE	LUTHER SEMINARY - LOW***	8.5	T1	50,000sf office/classroom/230 person assembly; 55 room dorm; 5 single family homes; 9-unit apartment	50,000sf office/classroom/230 person assembly; 150 units senior housing; 4 single-family homes	85 residential units		85 2-5 years
	202923240071	2481 COMO AVE	LUTHER SEMINARY - HIGH****	8.5	T1	50,000sf office/classroom/230 person assembly; 55 room dorm; 5 single family homes; 9-unit apartment	120 assisted living units/180 market rate units/100 senior co-op units/60 affordable units/20 townhomes	approx. 392 residential units		392 2-5 years
5	202923320001	2575 DOSWELL AVE	QUALITY METALS INC	12.8	I2	100,000sf industrial	300,000sf industrial	200,000sf industrial		29 5+ years
LOW TOTAL									300	
HIGH TOTAL									607	

*Assumes 1 SAC per unit. Other uses calculated according to Met Council 2022 Estimate Tool: <https://metro council.org/Wastewater-Water/Funding-Finance/Rates-Charges/Sewer-Availability-Charge/SAC-Pubs/SAC-Estimation-Tool-Excel.aspx>

**Estimate from Health Partners, 2024

***Estimate based on 2023 United Properties proposal. Project not moving forward.

****Estimate based on 2020 Master Properties proposal. Project not moving forward.

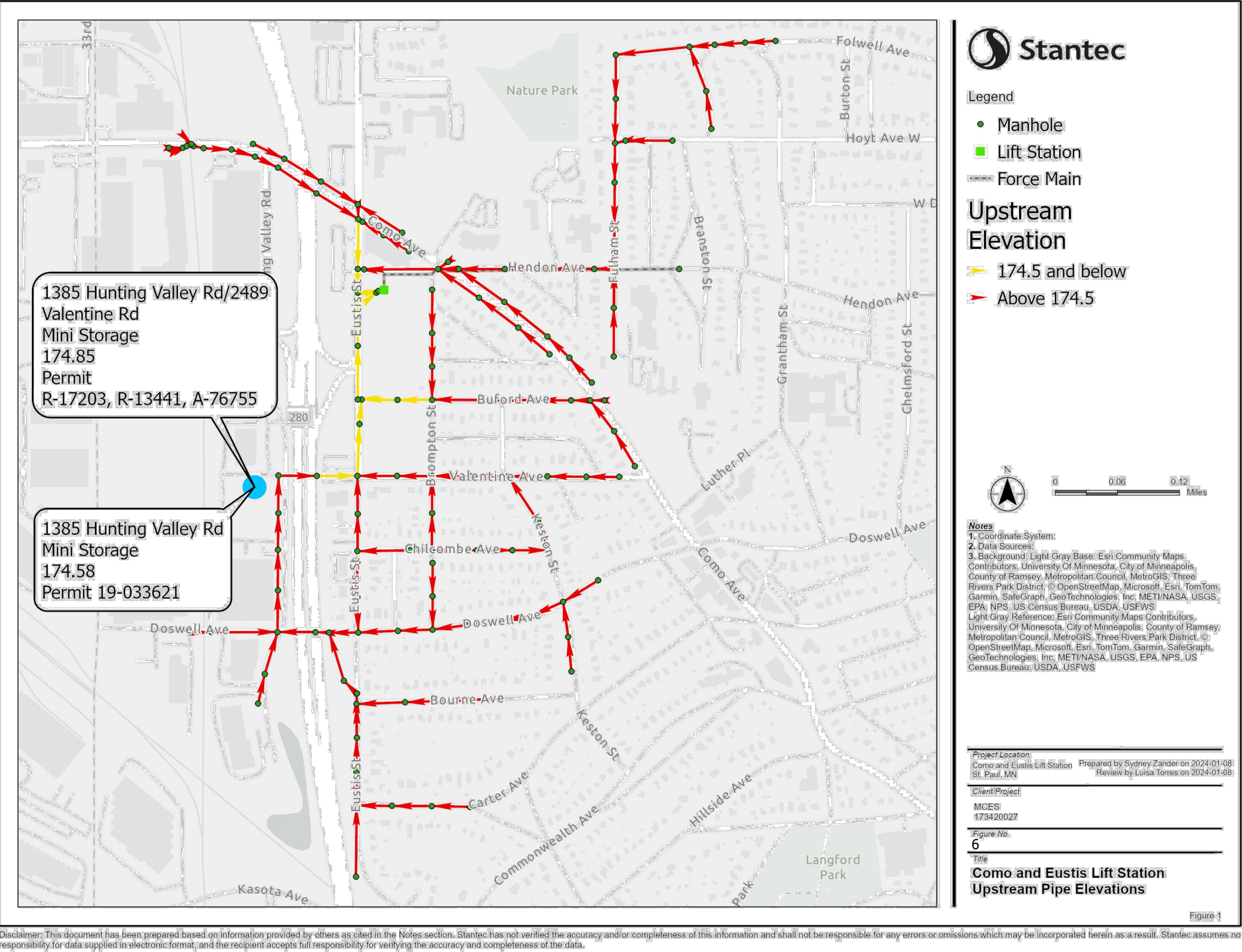
PHASE 1 - PED SUPPLIED POTENTIAL SAC UNITS FOR REDEVELOPMENT/DEVELOPMENT, 12/12/2023 - purpose is to show changing PED development SAC.

Map ID	PIN	Address	Owner	Acres	Zoning	Existing Land Use	Future Land Use	Land Use Intensity Increase	SAC Increase Estimate*	Timeline
1	202923240069	0 FULHAM ST	HEALTH PARTNERS REAL ESTATE	4.37	T1	vacant lot	80,000sf medical clinic	80,000sf medical clinic	37	2-5 years
2	202923240063	2485 COMO AVE	LUTHERAN SOCIAL SERVICES OF MINNESOTA	2.25	T1	44,000sf office	89,000sf office	45,000sf office	17	2-5 years
3	202923230008	0 EUSTIS ST	Mn DOT	1.1	B3	parking lot	100 Units; 5,000sf retail; 5,000sf restaurant	100 Units; 5,000sf retail; 5,000sf restaurant	119	5+ years
4	202923240071	2481 COMO AVE	LUTHER SEMINARY	8.5	T1	50,000sf office/classroom/230 person assembly; 55 room dorm; 5 single family homes; 9-unit apartment	50,000sf office/classroom/230 person assembly; 150 units senior housing; 4 single-family homes	85 residential units	85	1-2 years
5	202923320001	2575 DOSWELL AVE	QUALITY METALS INC	12.8	I2	100,000sf industrial	300,000sf industrial	200,000sf industrial	29	5+ years
TOTAL									287	

*Assumes 1 SAC per unit. Other uses calculated according to Met Council 2022 Estimate Tool: <https://metro council.org/Wastewater-Water/Funding-Finance/Rates-Charges/Sewer-Availability-Charge/SAC-Pubs/SAC-Estimation-Tool-Excel.aspx>

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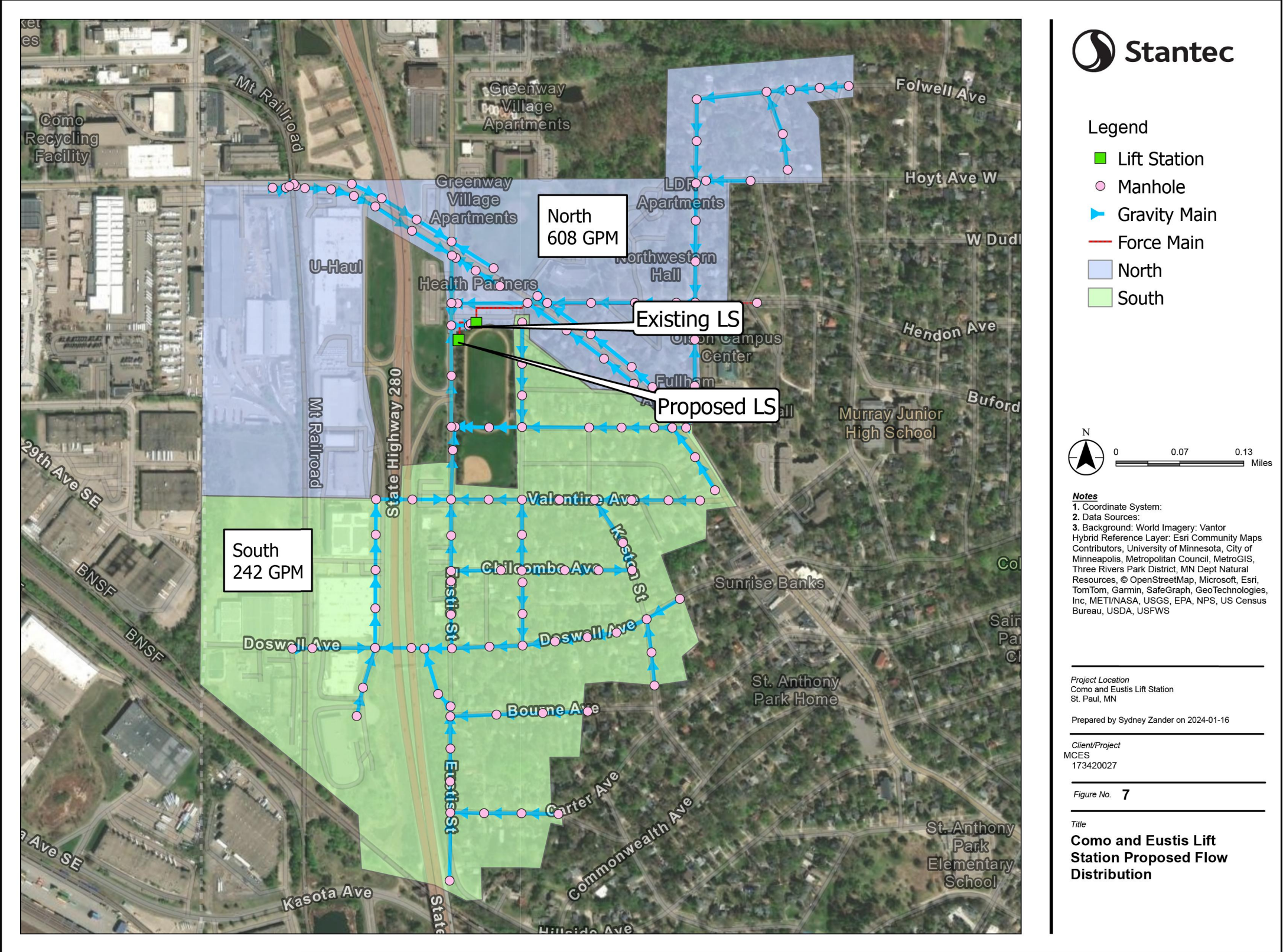
COMO-EUSTIS LIFT STATION SEWER SHED LOWEST ELEVATION



COMO-EUSTIS SEWER SHED LOWEST SERVICE ELEVATION

CITY OF SAINT PAUL
COMO EUSTIS LIFT STATION IMPROVEMENTS

FIGURE 6

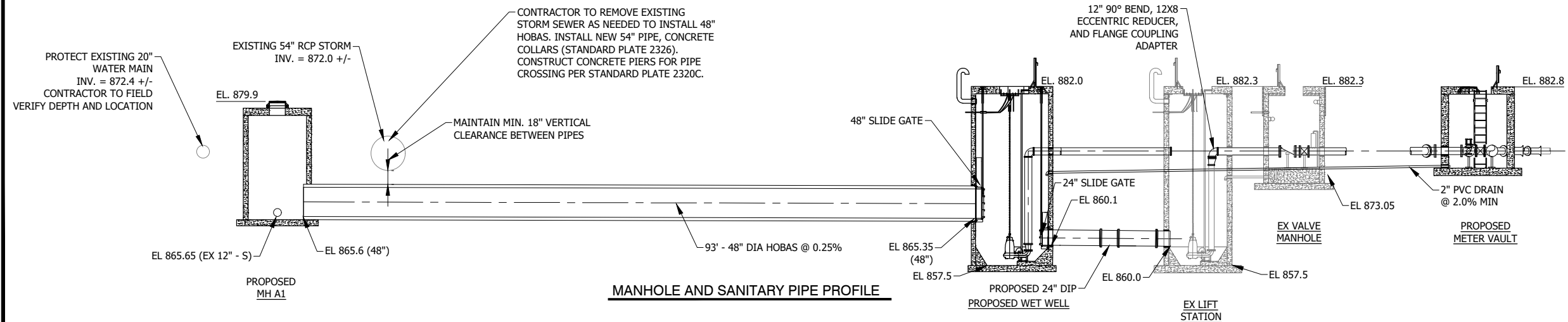
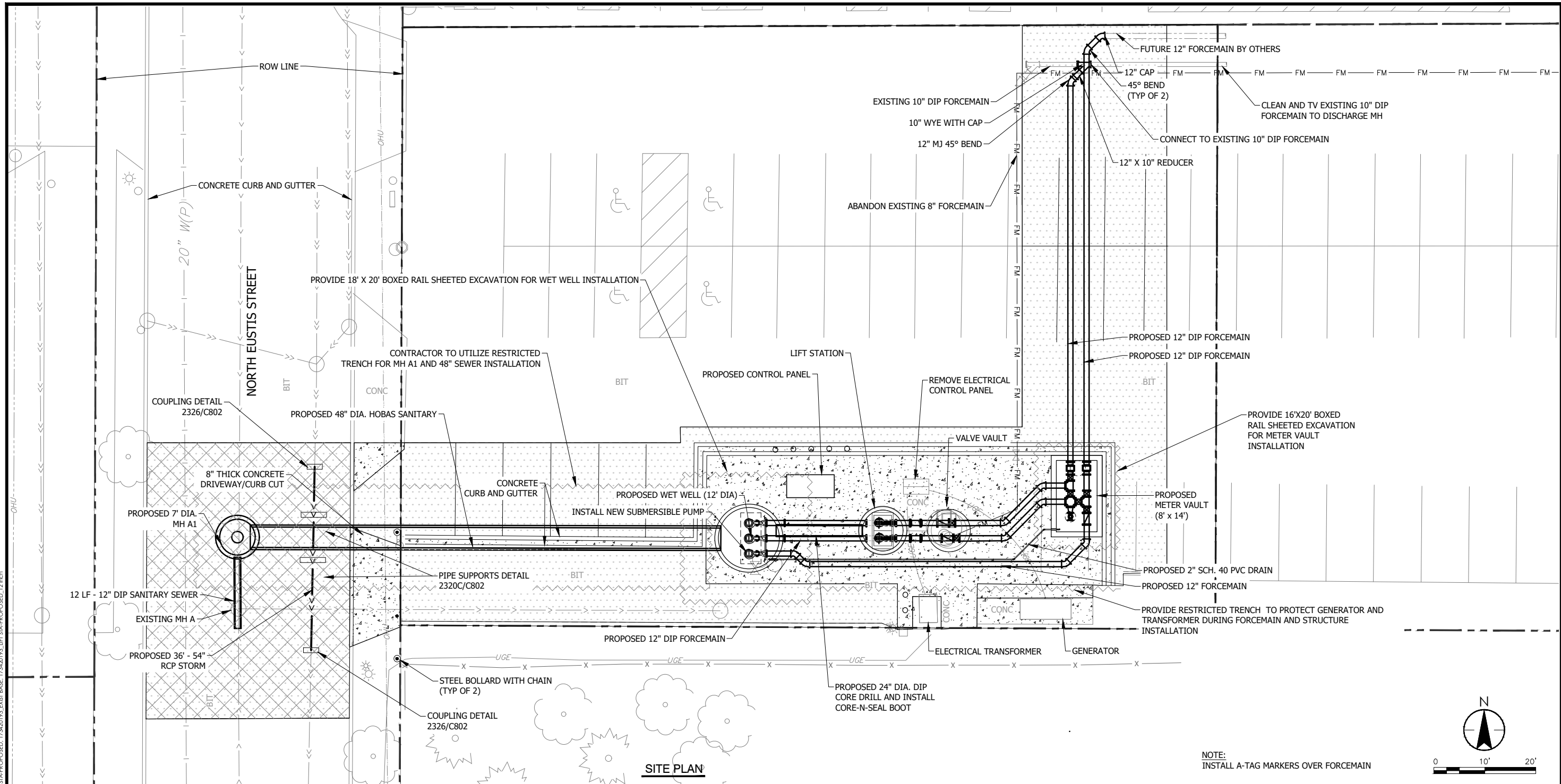


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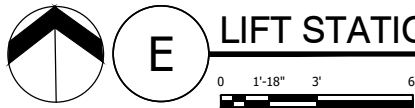
FLOW DISTRIBUTION

CITY OF SAINT PAUL
COMO EUSTIS LIFT STATION IMPROVEMENTS

FIGURE 7



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LIFT STATION AND VALVE MANHOLE - PLAN - PHASE 1

733 Marquette Avenue, Suite 1000
Minneapolis, MN 55402
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PRINT NAME: ERICS. LEMBKEDATE: _____ UC NO. 42748

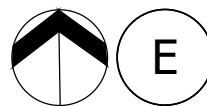
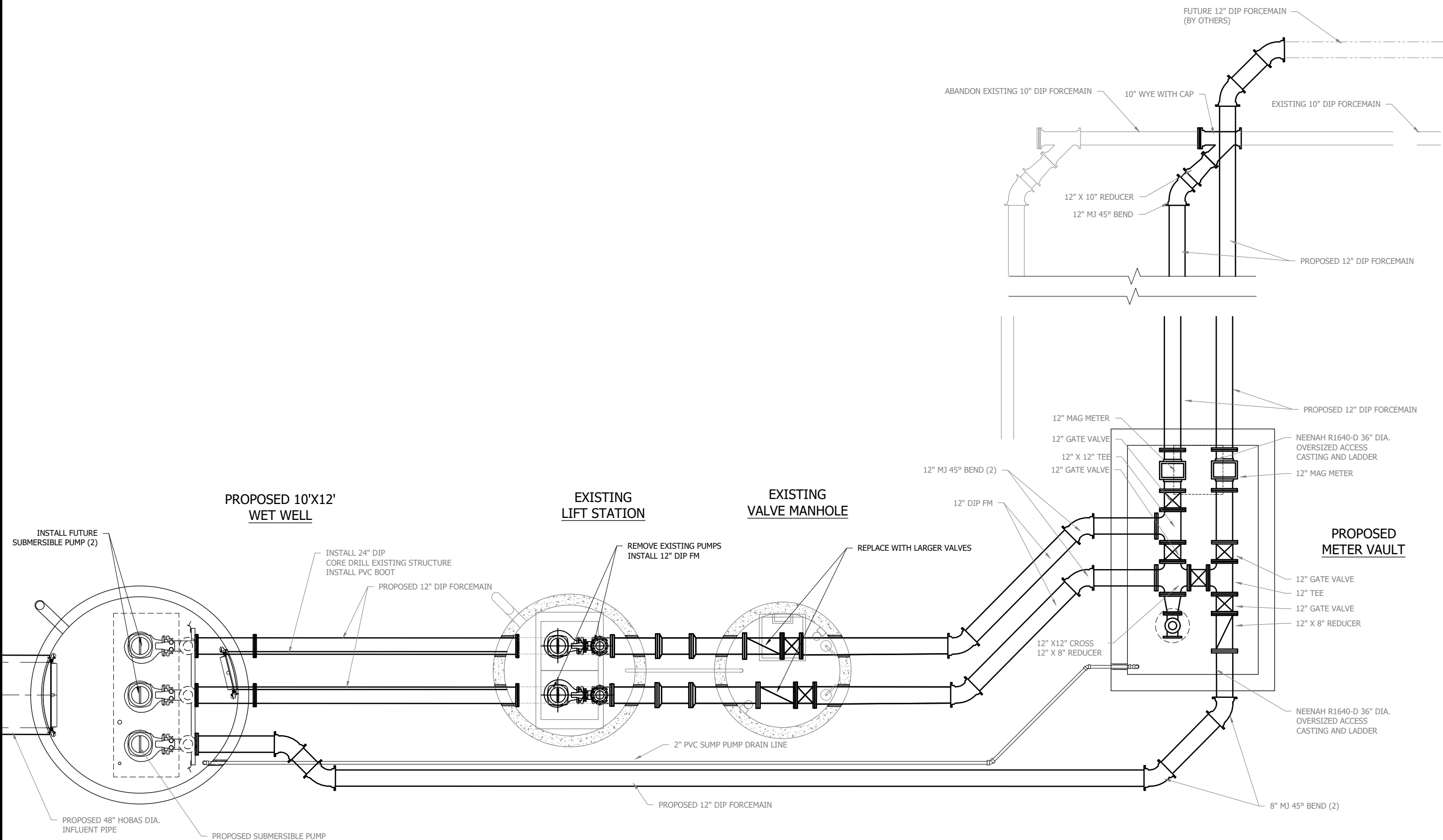
ST. PAUL, MINNESOTA

COMO - EUSTIS LIFT STATION PUMP STATION CAPACITY IMPROVEMENTS PROJECT (PHASE 1)
PHASE 1 LIFT STATION PLAN

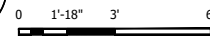
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APPROVED	DLK	
PROJ. NO.	173420193	

FIGURE 9

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LIFT STATION AND VALVE MANHOLE - PLAN - PHASE 2



733 Marquette Avenue, Suite 1000
Minneapolis, MN 55402
www.stantec.com

PRINT NAME: ERIC S. LEMBKE

DATE: _____ UC. NO. 42748

ST. PAUL, MINNESOTA

COMO - EUSTIS LIFT STATION PUMP STATION CAPACITY
IMPROVEMENTS PROJECT (PHASE 1)
PHASE 2 LIFT STATION PLAN

NO	REVISION	DATE
SURVEY		
DRAWN	BRH	
DESIGNED	DLK	
CHECKED	DLK	
APPROVED	DLK	
PROJ. NO.	173420193	

FIGURE 10

Table A1. Lift Station Failure Modes

Failure Mode	Risk Likelihood	Impact after Mitigation Applied	Mitigation	Priority 1-High 5-Low	Cost	Comment
Power Failure	High Certainty >90%	Moderate	Backup generator with automatic transfer switch.	1	\$2500/day	City installed a permanent on-site generator in 2019
Control Panel Failure	High Certainty >90%	Catastrophic	1. Deploy portable pump station 2. Install 3 rd pump and storage 3. Construct New Station to reduce flow to existing station	1 1 2	\$2500/day Option 3. \$1,405,000 to \$1,563,000 Option 4. \$3,020,000 to \$3,354,00	City installed replacement control panel in 2019
Telemetry Failure	High Certainty >90%	Catastrophic	Staff pump station 24/7	1	\$2500/day	City will be installing new system to minimize failure
Back-Up Power Fail	High Certainty 10%-50%	Catastrophic	Deploy Portable generator	1	\$2500/day	City installed new generator panel in 2019
Pump Failure	Moderate 10%-50	Moderate	Add third pump, see option No. 3.	1	Option 3: \$1,405,000 to \$1,563,000	Lift station has only two pumps. Failure of a single pump

Failure Mode	Risk Likelihood	Impact after Mitigation Applied	Mitigation	Priority 1-High 5-Low	Cost	Comment
			Construct new station to reduce flow to existing station	2	Option 5: \$3,020,000 to \$3,354,000 Option 6: \$4,100,000	leaves the city without firm capacity.
Valves	Low 3%-10%	Low	Activate bypass valves	1	\$2500/day	Valve vault piping replaced in 2019.
Portable Pump Connection Failure	Low <3%	Low	Tanker trucks, Jet vactor, storage tanks.	3	\$10,000/day	City purchased portable pump in 2022. This pump can be set up if a single pump fails or if control panel fails, but set up time exceeds available response time.
Forcemain Failure	Low 3%-10%	Low	Installing parallel 12" diameter forcemain	1	\$1,270,000	City will be installing new forcemain to minimize failure

OPINION OF PROBABLE COSTS
 COMO EUSTIS SANITARY LIFT STATION REHABILITATION PROJECT
 PHASE 1
 CITY OF ST. PAUL

No.	Description	UNITS	Estimated Quantity	Unit Price	Extension
BASE BID					
	COMO EUSTIS LIFT STATION				
	DIVISION 1				
1	MOBILIZATION & DEMOBILIZATION	LUMP SUM	1	\$100,000.00	\$100,000.00
2	DSI PERMIT ALLOWANCE	ALLOW	1	\$5,000.00	\$5,000.00
3	CONSTRUCTION ALLOWANCE	ALLOW	1	\$100,000.00	\$100,000.00
4	POT HOLE EXISTING UTILITIES	ALLOW	1	\$30,000.00	\$30,000.00
	DIVISION 2				
5	SILT FENCE	LF	250	\$6.00	\$1,500.00
6	BIO ROLL	LF	250	\$10.00	\$2,500.00
7	STRAW MULCH	TN	2	\$1,000.00	\$2,000.00
8	TEMPORARY CONVEYANCE AND HAULING WASTE WATER	LUMP SUM	1	\$150,000.00	\$150,000.00
9	TRAFFIC CONTROL	LUMP SUM	1	\$35,000.00	\$35,000.00
10	STREET SWEEPING	HOURS	50	\$160.00	\$8,000.00
11	SAW CUT BITUMINOUS PAVEMENT	LF	455	\$10.00	\$4,550.00
12	SAW CUT CONCRETE DRIVEWAY/SLAB	LF	34	\$12.00	\$408.00
13	REMOVE BITUMINOUS PAVEMENT PARKING LOT	SY	1,100	\$25.00	\$27,500.00
14	REMOVE CONCRETE DRIVEWAY	SY	16	\$60.00	\$960.00
15	REMOVE CONCRETE SLAB/MEDIAN	SY	45	\$50.00	\$2,250.00
16	REMOVE CURB & GUTTER (EUSTIS)	LF	70	\$20.00	\$1,400.00
17	REMOVE CURB & GUTTER (PARKING LOT)	LF	360	\$25.00	\$9,000.00
18	REMOVE EXISTING METER MANHOLE	LUMP SUM	1	\$25,000.00	\$25,000.00
19	REMOVE EXISTING ELECTRIC CONTROL PANEL	LUMP SUM	1	\$20,000.00	\$20,000.00
20	REMOVE 8" DIP SSWR FM WITH BENDS, & VALVES	LF	30	\$40.00	\$1,200.00
21	REMOVE 12" DIP SANITARY SEWER	LF	20	\$50.00	\$1,000.00
22	REMOVE 54" RCP STORM SEWER	LF	36	\$100.00	\$3,600.00
23	ABANDON 10" FORCEMAIN	LF	100	\$50.00	\$5,000.00
24	ABANDON 12" DIP SANITARY SEWER	LF	110	\$50.00	\$5,500.00
25	REMOVE EXISTING MH A	LUMP SUM	1	\$10,000.00	\$10,000.00
26	ABANDON EXISTING MH B	LUMP SUM	1	\$5,000.00	\$5,000.00
27	REMOVE EXISTING MH C	LUMP SUM	1	\$15,000.00	\$15,000.00
28	REMOVE BOLLARD	EACH	8	\$500.00	\$4,000.00

No.	Description	UNITS	Estimated Quantity	Unit Price	Extension
	DIVISION 3				
29	CONSTRUCT 12' DIA. WET WELL STRUCTURE CAISSON, INCL. WATERPROOFING	LUMP SUM	1	\$300,000.00	\$300,000.00
30	CONSTRUCT VALVE AND METER VAULT	LUMP SUM	1	\$150,000.00	\$150,000.00
31	CONSTRUCT CONCRETE PIPE SUPPORTS	EACH	2	\$10,000.00	\$20,000.00
32	CONSTRUCT CONCRETE PIPE COLLARS	EACH	2	\$5,000.00	\$10,000.00
33	CONCRETE CURB AND GUTTER	LF	450	\$100.00	\$45,000.00
34	CONCRETE MEDIAN	SY	25	\$150.00	\$3,750.00
35	CONCRETE PAD FOR CONTROL PANEL	LUMP SUM	1	\$10,000.00	\$10,000.00
36	CONCRETE WALK	SY	230	\$20.00	\$4,600.00
37	CONCRETE APRON EUSTIS	SY	30	\$100.00	\$3,000.00
	DIVISION 5				
38	24" SLUICE GATE	EACH	1	\$10,000.00	\$10,000.00
39	48" SLUICE GATE	EACH	1	\$25,000.00	\$25,000.00
40	48"x 116" TRIPLE LEAF WET WELL HATCH	LUMP SUM	1	\$15,000.00	\$15,000.00
41	RETRO-GRATES TRIPLE LEAF, BELOW WET WELL HATCH	LUMP SUM	1	\$10,000.00	\$10,000.00
42	ALUMINUM LADDER VALVE VAULT	EACH	2	\$5,000.00	\$10,000.00
43	PIPE SUPPORTS IN WET WELL AND VALVE VAULT	LUMP SUM	1	\$25,000.00	\$25,000.00
44	INSTALL STEEL BOLLARD	EACH	8	\$2,000.00	\$16,000.00
	DIVISION 9				
45	WET WELL AND VALVE VAULT PAINTING (INTERIOR)	LUMP SUM	1	\$50,000.00	\$50,000.00
	DIVISION 26				
46	ELECTRICAL INSTALL, DIVISION 26	LUMP SUM	1	\$75,000.00	\$75,000.00
	DIVISION 31				
47	SUBGRADE PREPARATION	SY	1,150	\$25.00	\$28,750.00
48	DEWATERING	LS	1	\$100,000.00	\$100,000.00

No.	Description	UNITS	Estimated Quantity	Unit Price	Extension
	DIVISION 32				
49	BITUMINOUS WEAR, TYPE SP 9.5	TN	210	\$150.00	\$31,500.00
50	BITUMINOUS NON-WEAR, TYPE SP 9.5	TN	70	\$150.00	\$10,500.00
51	CONCRETE PAVEMENT	SY	230	\$50.00	\$11,500.00
52	CONCRETE DRIVEWAY APRON	SY	30	\$50.00	\$1,500.00
53	FORCEMAIN PAVEMENT MARKERS	EA	10	\$250.00	\$2,500.00
54	AGGREGATE BASE, CLASS 5	TN	650	\$75.00	\$48,750.00
55	LAWN SEED MIX 25-131	SY	100	\$2.00	\$200.00
56	SUPPLEMENTAL TOPSOIL	CY	40	\$35.00	\$1,400.00
57	4" SOLID LINE, DOUBLE YELLOW PAINT	LF	60	\$5.00	\$300.00
58	4" SOLID LINE, SINGLE YELLOW PAINT	LF	500	\$5.00	\$2,500.00
	DIVISION 33				
59	2" PVC DRAIN LINE	LF	65	\$20.00	\$1,300.00
60	RESTRICTED TRENCH EXCAVATION	LS	1	\$100,000.00	\$100,000.00
61	INSTALL 8'0" DIAMETER MH A1, INCL. WATERPROOFING	EA	1	\$25,000.00	\$25,000.00
62	INSTALL 48" HOBAS SS	LF	94	\$800.00	\$75,200.00
63	INSTALL 54" RCP STORM	LF	40	\$150.00	\$6,000.00
64	INSTALL 12" DIP SANITARY SEWER	LF	20	\$100.00	\$2,000.00
65	INSTALL 24" DIP SANITARY SEWER	LF	17	\$125.00	\$2,125.00
66	CORE DRILL FOR 12" FM, CORE-N-SEAL PROPOSED WET WELL, EXISTING WET WELL AND VALVE VAULT	EA	11	\$1,500.00	\$16,500.00
67	CORE DRILL FOR 24" DIP, CORE-N-SEAL PROPOSED WET WELL, EXISTING WET WELL AND VALVE VAULTS.	EA	2	\$3,500.00	\$7,000.00
68	DIP FITTINGS	LB	1,700	\$8.00	\$13,600.00
69	CONNECT TO EXISTING SAN SEWER PIPE	EA	2	\$5,000.00	\$10,000.00
70	CONNECT TO EXISTING 10" DIP FM	EA	1	\$6,000.00	\$6,000.00
71	CLEAN AND TELEVIEW EXISTING FM	LF	1,500	\$125.00	\$187,500.00
	DIVISION 40				
72	NEW VALVE VAULT PIPING, FITTINGS AND VALVES	LUMP SUM	1	\$150,000.00	\$150,000.00
73	EXISTING VALVE VAULT PIPING, FITTINGS AND VALVES	LUMP SUM	1	\$150,000.00	\$150,000.00
74	12" MAG METER	EA	2	\$10,000.00	\$20,000.00
75	INSTALL 12" DIP FM	LF	300	\$120.00	\$36,000.00
76	INSTALL CONTROL PANEL	LUMP SUM	1	\$225,000.00	\$225,000.00
	DIVISION 43				
77	INSTALL SUBMERSIBLE PUMP, BASE ELBOW, AND GUIDE RAILS NEW WET WELL	LUMP SUM	1	\$75,000.00	\$75,000.00
Sub-Total					\$2,705,343.00
	TOTAL CONSTRUCTION				\$2,705,343.00
	CONTINGENCY 31%				\$852,183.05
	ENGINEERING, ADMIN, LEGAL 20%				\$541,880.20
	TOTAL PROJECT				\$4,099,406.25

OPINION OF PROBABLE COSTS
 COMO EUSTIS SANITARY LIFT STATION REHABILITATION PROJECT
 PHASE 2 NEW PUMPS IN UPSTREAM WETWELL
 CITY OF ST. PAUL

No.	Description	UNITS	Estimated Quantity	Unit Price	Extension
<i>BASE BID</i>					
	COMO EUSTIS LIFT STATION				
1	TRAFFIC CONTROL	LUMP SUM	1	\$5,000.00	\$5,000.00
2	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	1	\$10,000.00	\$10,000.00
3	DSI PERMIT FEE ALLOWANCE	LUMP SUM	1	\$2,000.00	\$2,000.00
4	STREET SWEEPING	HR	5	\$200.00	\$1,000.00
5	TEMPORARY CONVEYANCE OF WASTEWATER	LUMP SUM	1	\$25,000.00	\$25,000.00
6	PROCESS PIPING PAINTING OF WET WELL AND VALVE VAULT PIPING	LUMP SUM	1	\$50,000.00	\$50,000.00
7	INSTALL NEW PUMPS, BASE ELBOWS AND GUIDE RAILS	EA	3	\$120,000.00	\$360,000.00
8	INSTALL ADDITIONAL 8", SCH. 40 PVC, STILLING IN THE WET WELL	EA	3	\$2,500.00	\$7,500.00
9	WET WELL PIPING	LUMP SUM	1	\$75,000.00	\$75,000.00
10	FILL EXISTING WET WELL BASE WITH NON-SHRINK GROUT	CY	24	\$500.00	\$12,000.00
11	CONNECT TO EXISTING FORCEMAIN	EA	2	\$5,000.00	\$10,000.00
12	ELECTRICAL WIRING AND TEMP WIRING.	LUMP SUM	1	\$50,000.00	\$50,000.00
13	CONTROL PANEL	LUMP SUM	1	\$100,000.00	\$100,000.00
14	GENERATOR AND GAS PIPING	LUMP SUM	1	\$225,000.00	\$225,000.00
15	STARTUP AND COMMISSIONING-BY INTEGRATOR	LUMP SUM	1	\$5,000.00	\$5,000.00
Sub-Total					\$937,500.00
	TOTAL CONSTRUCTION				\$937,500.00
	CONTINGENCY 35%				\$328,125.00
	ENGINEERING, ADMIN, LEGAL 25%				\$234,375.00
	TOTAL PROJECT				\$1,500,000.00

OPINION OF PROBABLE COSTS
COMO EUSTIS LIFT STATION FORCEMAIN
PHASE 3 (HENDON AVE FORCEMAIN)
CITY OF ST. PAUL

No.	Description	UNITS	Estimated Quantity	Unit Price	Extension
BASE BID					
1	ALLOWANCE FOR SEWER REPAIRS (TIME AND MATERIAL)	ALLOW	1	\$50,000.00	\$50,000.00
2	ALLOWANCE FOR POTHOLING UTILITIES (TIME AND MATERIAL)	ALLOW	1	\$20,000.00	\$20,000.00
3	ALLOWANCE FOR DSI PERMIT	ALLOW	1	\$5,000.00	\$5,000.00
4	TRAFFIC CONTROL	LUMP SUM	1	\$25,000.00	\$25,000.00
5	MOBILIZATION & DEMOBILIZATION	LUMP SUM	1	\$50,000.00	\$50,000.00
6	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	380	\$5.00	\$1,900.00
7	REMOVE CONCRETE CURB OR CURB AND GUTTER	LIN. FT.	250	\$15.00	\$3,750.00
8	DEWATERING	LUMP SUM	1	\$10,000.00	\$10,000.00
9	STREET SWEEPING (WITH PICKUP BROOM)	HOURL	20	\$165.00	\$3,300.00
10	AGGREGATE BASE CLASS 5	TON	530	\$60.00	\$31,800.00
11	FULL DEPTH RECLAMATION	SY	3938.22	\$20.00	\$78,764.44
12	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	40	\$3.00	\$120.00
13	TYPE SPWEXXC WEARING COURSE MIXTURE	TON	50	\$180.00	\$9,000.00
14	TYPE SPNWBXXC NON-WEARING COURSE MIXTURE	TON	63	\$150.00	\$9,450.00
15	GRANULAR PIPE BEDDING	TON	318	\$40.00	\$12,720.00
16	AGGREGATE FOUNDATION FOR SEWERS	TON	3	\$35.00	\$105.00
17	12" PVC PIPE SEWER, C900	LIN. FT.	1500	\$150.00	\$225,000.00
18	SEWER REPAIRS	LS	1	\$75,000.00	\$75,000.00
19	STORM DRAIN INLET PROTECTION	EACH	34	\$100.00	\$3,400.00
20	SILT FENCE, TYPE MS	LF	2434	\$6.00	\$14,604.00
21	FIELD CORE DRILL SANITARY SEWER CONNECTIONS	EACH	1	\$1,500.00	\$1,500.00
22	ADJUST VALVE BOX	EACH	7	\$1,000.00	\$7,000.00
23	ADJUST FRAME AND RING CASTING	EACH	11	\$750.00	\$8,250.00
24	CONSTRUCT MANHOLE, DESIGN TYPE I	EACH	2	\$15,000.00	\$30,000.00
25	CONCRETE CURB AND GUTTER	LIN. FT.	250	\$50.00	\$12,500.00
26	SEDIMENT CONTROL LOGS	LIN. FT.	2434	\$5.00	\$12,170.00
27	COMMON TOPSOIL BORROW (LV)	CU. YD.	80	\$40.00	\$3,200.00
28	SEEDING	ACRE	1	\$5.00	\$5.00
29	4" SOLID LINE PAINT	LF	28755	\$3.00	\$86,265.00
30	4" DOUBLE SOLID LINE, PAINT	LF	138	\$5.00	\$690.00
31	INSTALL PAVEMENT MARKERS FOR FORCE MAINS	EACH	20	\$250.00	\$5,000.00
32	JACKING/RECEIVING PIT	EACH	2	\$40,000.00	\$80,000.00
Sub-Total					\$875,493.44
TOTAL CONSTRUCTION					\$875,493.44
CONTINGENCY 25%					\$218,873.36
ENGINEERING, ADMIN, LEGAL 20%					\$175,098.69
TOTAL PROJECT					\$1,269,465.49

OPINION OF PROBABLE COSTS
COMO EUSTIS LIFT STATION FORCEMAIN
PHASE 3 (GRAVITY CROSSINGS)
CITY OF ST. PAUL

No.	Description	UNITS	Estimated Quantity	Unit Price	Extension
BASE BID					
1	CLEARING AND GRUBBING	LUMP SUM	1	\$21,000.00	\$21,000.00
2	REMOVE CONCRETE CURB OR CURB AND GUTTER	LIN. FT.	200	\$10.00	\$2,000.00
3	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ. YD.	80	\$8.50	\$680.00
4	REMOVE CONCRETE WALK	SQ FT.	120	\$2.30	\$276.00
5	REMOVE PIPE SEWER	LIN. FT.	150	\$1.00	\$150.00
6	REMOVE PIPE SEWER - CIPP LINED	LIN. FT.	800	\$1.00	\$800.00
7	DEWATERING	LUMP SUM	1	\$36,000.00	\$36,000.00
8	AGGREGATE SURFACING, CLASS 5	TON	300	\$40.00	\$12,000.00
9	STREET SWEEPING (WITH PICKUP BROOM)	HOUR	40	\$185.00	\$7,400.00
10	GRANULAR BACKFILL	TON	400	\$10.00	\$4,000.00
11	GRANULAR PIPE BEDDING	TON	300	\$10.00	\$3,000.00
12	AGGREGATE FOUNDATION FOR SEWERS	TON	60	\$25.00	\$1,500.00
13	15" CS PIPE APRON	EACH	2	\$250.00	\$500.00
14	4" PVC, SDR 26	LIN. FT.	20	\$35.00	\$700.00
15	6" PVC, SDR 26	LIN. FT.	40	\$40.00	\$1,600.00
16	8" PVC PIPE SEWER, SDR 26	LIN. FT.	60	\$44.00	\$2,640.00
17	15" CS PIPE SEWER	LIN. FT.	85	\$25.00	\$2,125.00
18	15" PVC PIPE SEWER, SDR 26	LIN FT.	20	\$130.00	\$2,600.00
19	16" PVC PIPE SEWER, C900 DR 25	LIN. FT.	180	\$120.00	\$21,600.00
20	TEMPORARY CONVEYANCE	LUMP SUM	1	\$45,000.00	\$45,000.00
21	INSTALL SEWER COUPLING (6" DIA. OR LESS)	EACH	3	\$900.00	\$2,700.00
22	INSTALL SEWER COUPLING (8" DIA)	EACH	2	\$1,000.00	\$2,000.00
23	INSTALL SEWER COUPLING (12" DIA OR GREATER)	EACH	4	\$2,300.00	\$9,200.00
24	FIELD CORE DRILL SANITARY SEWER CONNECTIONS	EACH	4	\$1,200.00	\$4,800.00
25	CLEAN AND TELEWISE SANITARY SEWER	LIN. FT.	2,500	\$6.00	\$15,000.00
26	ADJUST VALVE BOX	EACH	7	\$450.00	\$3,150.00
27	16"X 12" REDUCER	EACH	3	\$2,500.00	\$7,500.00
28	ADJUST FRAME AND RING CASTING	EACH	2	\$500.00	\$1,000.00
29	CASTING ASSEMBLY	EACH	2	\$1,200.00	\$2,400.00
30	CONSTRUCT 10" OUTSIDE DROP	LIN. FT.	21	\$800.00	\$16,800.00
31	4" CONCRETE WALK	SQ. FT.	120	\$11.00	\$1,320.00
32	CONCRETE CURB AND GUTTER	LIN. FT.	200	\$55.00	\$11,000.00
33	CONCRETE DRIVEWAY PAVEMENT	SQ. YD.	80	\$129.00	\$10,320.00
34	RELOCATE PORTABLE PRECAST CONCRETE BARRIER	LIN. FT.	250	\$3.00	\$750.00
35	INSTALL SIGN SPECIAL	EACH	6	\$250.00	\$1,500.00
36	SEED SOUTHERN BOULEVARD	POUND	20	\$8.00	\$160.00
37	12" SOLID LINE PAINT	LIN. FT.	15	\$170.00	\$2,550.00
38	PAVEMENT MESSAGE PAINT	SQ. FT.	25	\$95.00	\$2,375.00
39	ALLOWANCE FOR SEWER REPAIRS (TIME AND MATERIAL)	****	****	\$50,000.00	\$50,000.00
40	ALLOWANCE FOR POTHOLING UTILITIES (TIME AND MATERIAL)	****	****	\$20,000.00	\$20,000.00
Sub-Total Base Bid					\$330,096.00

ALTERNATE NO. 2 (TRENCHLESS SEWER INSTALLATION UNDER TH280)					
41	TRAFFIC CONTROL	LUMP SUM	1	\$4,500.00	\$4,500.00
42	MOBILIZATION (5% MAXIMUM)	LUMP SUM	1	\$50,000.00	\$50,000.00
43	REMOVE CATCH BASIN OR MANHOLE	EACH	5	\$450.00	\$2,250.00
44	REMOVE PIPE APRON	EACH	2	\$100.00	\$200.00
45	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN. FT.	400	\$2.00	\$800.00
46	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN. FT.	70	\$5.00	\$350.00
47	REMOVE PAVEMENT	SQ. YD.	1,300	\$10.00	\$13,000.00
48	COMMON EXCAVATION (P)	CU. YD.	620	\$35.00	\$21,700.00
49	AGGREGATE BASE PLACED (CV), CLASS 5	TON	1,200	\$31.00	\$37,200.00
50	LEAN MIX BACKFILL - ABANDON SEWERS IN-PLACE	CU. YD.	65	\$185.00	\$12,025.00
51	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	125	\$1.00	\$125.00
52	TYPE SPWEA340C WEARING COURSE MIXTURE	TON	150	\$170.00	\$25,500.00
53	TYPE SPNWB330C NON-WEARING COURSE MIXTURE	TON	300	\$140.00	\$42,000.00
54	OBSTRUCTION REMOVAL	HOUR	20	\$950.00	\$19,000.00
55	16" PVC PIPE SEWER, C900 CERTA-LOK	LIN. FT.	600	\$160.00	\$96,000.00
56	30" STEEL CASING PIPE	LIN. FT.	600	\$780.00	\$468,000.00
57	CONSTRUCT MANHOLE, DESIGN TYPE I	EACH	6	\$14,000.00	\$84,000.00
58	STORM DRAIN INLET PROTECTION	EACH	14	\$130.00	\$1,820.00
59	SEDIMENT CONTROL LOGS	LIN. FT.	600	\$4.00	\$2,400.00
60	SILT FENCE, TYPE MS	LIN. FT.	600	\$4.00	\$2,400.00
61	COMMON TOPSOIL BORROW (LV)	CU. YD.	260	\$42.00	\$10,920.00
62	ROLLED EROSION PREVENTION PRODUCT, CAT. 20	SQ. YD.	1,600	\$3.00	\$4,800.00
63	SEEDING	ACRE	0	\$700.00	\$280.00
64	SEED SOUTHERN SHORTGRASS ROADSIDE	POUND	8	\$50.00	\$400.00
65	4" SOLID LINE PAINT	LIN. FT.	750	\$4.00	\$3,000.00
66	JACKING/RECEIVING PIT	EACH	4	\$65,000.00	\$260,000.00
Sub-Total Alternate No. 2					\$1,162,670.00
TOTAL CONSTRUCTION					\$1,492,766.00
CONTINGENCY 17%					\$253,617.00
ENGINEERING, ADMIN, LEGAL 17%					\$253,617.00
TOTAL PROJECT					\$2,000,000.00