

FEASIBILITY REPORT

CSAH 35

TRUNK WATER MAIN EXTENSION

INTRODUCTION

The purpose of this report is to determine the feasibility of improving C.S.A.H. 35 from C.S.A.H. 5 to 1400 feet east by extension of the municipal water distribution system.

Such improvement was petitioned for and the petition was executed by owners of more than 35% of the property abutting on the proposed improvement. This report has been prepared pursuant to Council resolution of November 10, 2014. Refer to Map A for project location.

PROJECT NEED

The City received a petition from the owners of certain properties abutting the proposed improvement on each side of C.S.A.H 35 as shown on Map B. The petition was initiated by the owner of a residential acreage on the north side of C.S.A.H. 35 having a failing water well. The owner of the property lying immediately east of this acreage (abutting the most easterly segment of the proposed improvement) also executed the petition, however, the status of the well on that property was not declared. The other properties represented on the petition currently abut water mains and will not be regarded as being benefitted by the proposed improvement. A tract of land lying west of the acreage having the failing well was not represented on the petition but will be regarded as deriving additional benefit from the proposed improvement.

DESIGN

The City's Comprehensive Plan designates the area abutting on the north side of the proposed improvement for general industrial development. Optimum development of this area would typically involve establishing an internal street and utility corridor system serving properties lying on each side of the internal system. C.S.A.H. 35 and C.S.A.H. 5 would serve as higher order transportation routes providing access only to the internal street system. Due to the existing fragmentation of land and lack of any specific development plan, C.S.A.H. 35 needs to be utilized as the utility corridor for serving existing parcels. An extension from the existing 10" trunk water main located on the west side of C.S.A.H. 5 within the C.S.A.H. 35 right-of-way will therefore be required to provide service to the properties as petitioned for. Whereas the properties that currently do not have access to water are located on the north side of C.S.A.H. 35, the water main should be located on the north side of the highway as shown on Map A to allow for ordinary connection of services to the main.

The City's Water Distribution System Master Plan (Water Plan) identifies the need for a 10" trunk water main to serve this future industrial area. Because no other utility corridor can be identified at this time to ensure the trunk extension identified in the Water Plan will be accomplished, it is proposed that the water main to be extended be 10" in size.

Developing a looped water distribution network is the ordinary standard to be achieved in a municipal water system. A looped network increases maximum flow capacity at any point on the system by allowing that point to be fed from two or more directions and improves service reliability through redundancy. The proposed extension will not be looped until additional extensions are made. The recommended 10" size of the proposed extension will provide higher flow capacity for fire protection along the extension than an 8" main would. In addition to achieving the long term goals of the Water Plan, installation of a 10" trunk main rather than an 8" lateral main mitigates some of the interim deficiencies of providing a non looped extension.

The water main extension should include installation of properly spaced fire hydrants. To provide the best access for emergency use, the most easterly fire hydrant should be adjacent to the driveway to the existing residences near the east end of the proposed extension. Because the proposed extension will not be looped and the main will extend beyond the most easterly of the proposed fire hydrants, a flushing hydrant should be installed at the end of the extension.

COSTS AND FINANCING

The total estimated improvement project cost, including engineering and contingencies, is \$183,250. Of the total cost for a water main project, that portion which would be incurred in constructing a water main of the size adequate for only providing service to abutting properties is to be considered lateral water costs. Such lateral costs are based on the installation of an 8" main. The remaining costs would be defined as trunk costs or those additional costs associated with providing service to an area larger than that which abuts on the project. Trunk costs also include fire hydrants. These costs of the proposed improvement are estimated as follows:

Lateral Costs:	\$149,500
Trunk Costs:	<u>\$33,750</u>
Total Project:	\$183,250

Special assessments for water main projects are levied in two components, trunk assessments and lateral assessments.

Trunk assessments. Trunk assessments are levied on the basis of area benefitted by a water extension and the current trunk assessment rate which is independent of a particular project's cost. The trunk rate is defined by ordinance and originates from a July 1975 determination of estimated costs for all trunk improvements needed at that time and the total area to be served by those improvements. An adjustment using a construction cost index maintains current value of the trunk rate. A trunk fund receives all trunk assessments and is utilized to retire those debt costs attributable to trunk project costs. The trunk fund may receive more or less assessments than trunk costs for each project undertaken. The entire area being served by the proposed extension has been previously assessed for trunk water benefit and is therefore not subject to trunk water assessments as a result of the proposed improvement.

Lateral assessments. Lateral assessments are based on the lateral costs as previously defined and the rate determining frontage or Residential Equivalent Connections (RECs) applicable to the project. The lateral costs divided by the rate determining units establishes the assessment rate. The amount of

assessments is equal to the assessment rate multiplied by assessable units. Assessable units may be less than rate determining units when a portion or portions of the project abut property that is not benefitted by the project.

The selection of REC or frontage units tends to be based on the status of the abutting property. Frontage is generally, but not always, used when assessments are to be levied to undeveloped property. The use of frontage units yields a uniformly distributed rate which is beneficial in equitably reapportioning assessments at the time development occurs. REC units are typically used where the number of individual connections or lots is able to be identified at the time the project is undertaken. In the case of this project, it is proposed that over 700 feet of undeveloped frontage will be assessed for the improvement. With there being no clear advantage in the use of REC units and in consideration of the extent of undeveloped property abutting the project, it is proposed to utilize frontage units.

As per past City practice in implementing the City's Assessment Policy, the rate determining frontage would be established on the basis of what would be potentially benefitted frontages if not for the separation created by C.S.A.H. 35 and/or frontages of properties served by existing water mains. In other words, the lateral assessment rate would be equal to the lateral costs divided by the frontage that would abut each side of the length of the water extension. Per the City's Assessment Policy, frontages of irregularly shaped lots are to be equal to the average width of the lot. In the event that the literal application of its provisions would result in inequitable distribution of special assessments or special assessments exceeding the benefit of the improvement, the Assessment Policy also reserves the right of City Council to adjust the assessments for an improvement so as to achieve a more equitable distribution and/or representation of the benefit received. The proposed extension does involve conditions that may warrant implementing minor deviations from the Assessment Policy to ensure equitable distribution of assessments. These conditions include the additional costs of crossing C.S.A.H. 5 without a corresponding increase in lot frontage, the extension abuts larger tracts of land having average widths increased by portions of the tracts lying over 300 feet from the proposed extension, and the extension abuts only a portion of the tracts adjacent to the easterly end of the extension. Given these conditions, it is proposed that the rate determining frontage be based on the project length. The length of rate determining frontage will be equal to the twice the project length of 1,366.4 feet or 2,732.8 feet. Consistent with developing an assessment rate based on project length and in consideration of the lot size and shape condition previously noted, it is proposed that the assessable frontage be actual frontage rather than an adjusted frontage based on average width. The properties proposed to be assessed lateral benefit are shown on Map B.

Using the rate method proposed above, the lateral assessment rate would be calculated as the \$149,500 in lateral costs divided by the 2,732.8 feet of rate determining frontage or \$54.71/ foot. Due to the unusually high assessments that would result from strict use of the City's Assessment Ordinance, it is believed that these assessments would exceed the benefit derived from the project as defined by the intent of Minnesota Statutes. It is therefore recommended that the lateral assessment be based on the current value of the previous calculated water lateral assessment rates used in similar situations, which is estimated to be \$36.97 per foot at the time the project is undertaken. Final lateral assessments will be determined at the time of project financing.

Financing Summary. Estimated assessments, trunk fund obligations, and "City Share" costs of the project are as follows:

	<u>LATERAL</u>	<u>TRUNK</u>	<u>TOTAL</u>	
Assessments	\$37,251.30	\$0.00	\$37,251.30	(20.3%)
Trunk Fund (due from)		\$33,750.00	\$33,750.00	(18.4%)
City Share	<u>\$112,248.70</u>	<u>\$0.00</u>	<u>\$112,248.70</u>	(61.3%)
TOTAL	\$149,500.00	\$33,750.00	\$183,250.00	

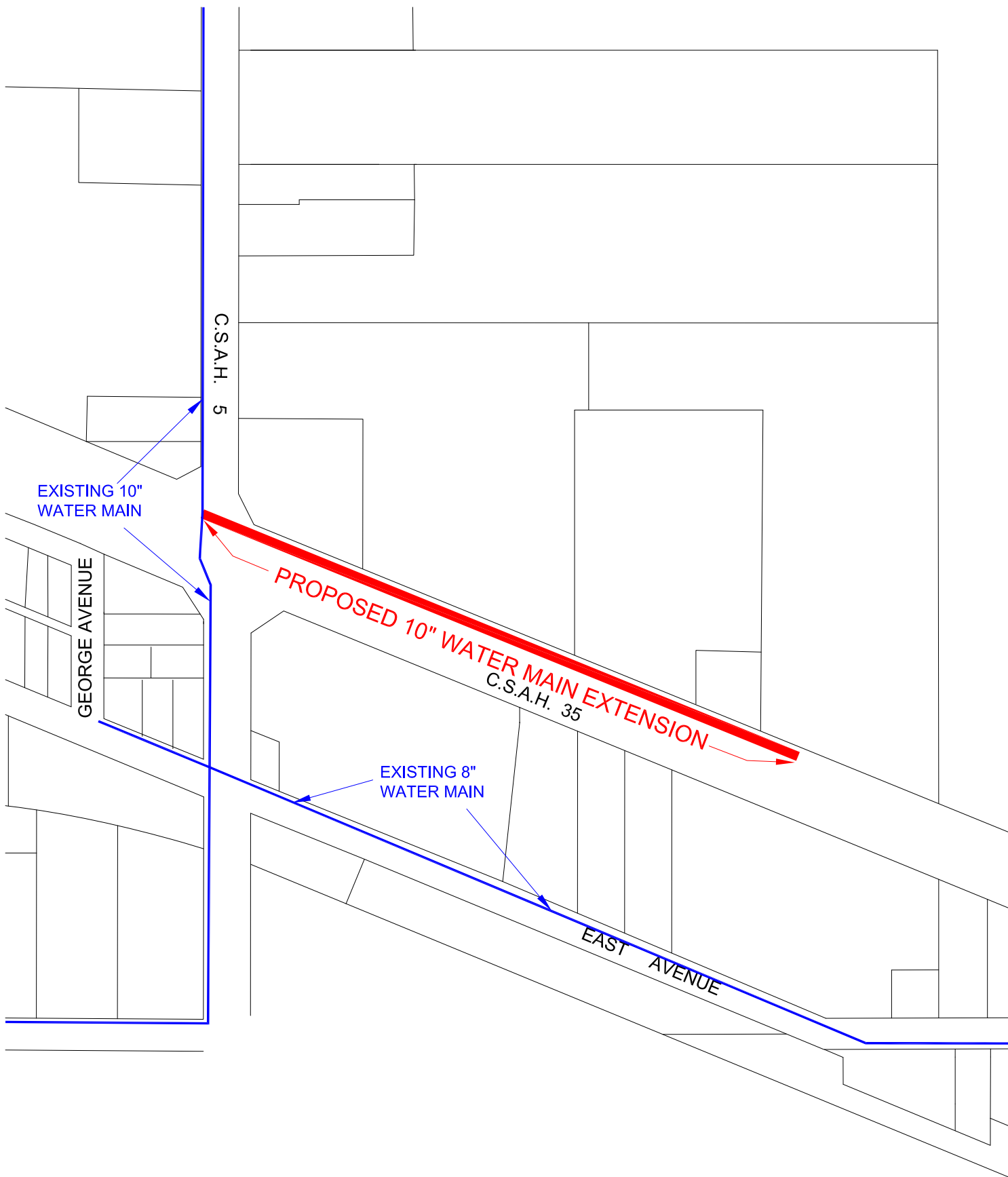
It is proposed that the project be initially financed by PIR bonding. Temporary use of 401 Construction Fund reserves may be needed until bond proceeds are received. Revenues from special assessments levied as a result of the project along with the annual special tax levy required to recover the city share of the project would be utilized for bond repayment.

COMBINATION WITH OTHER PROJECTS

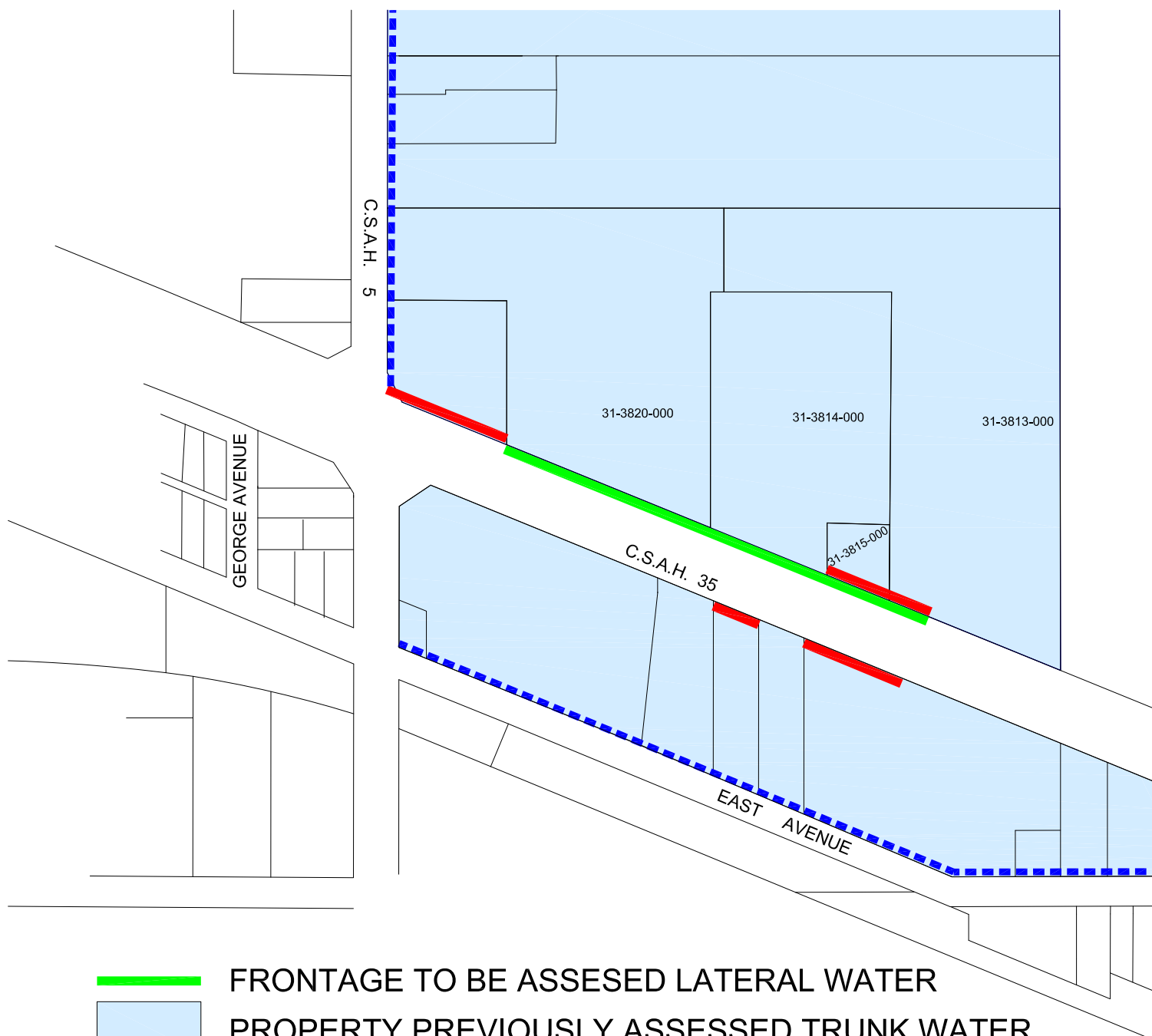
The proposed improvement should be combined with any sanitary sewer, storm sewer and water main extension projects ordered to be completed in 2015.

CONCLUSION

The proposed project is a feasible and cost effective way to provide water service to the properties abutting the north side of C.S.A.H. 35 from C.S.A.H. 5 to 1400 feet east.



Map A



Map B