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Preliminary Engineering Report

2018 Street & Utility Improvements

City of Hopkins & City of St. Louis Park

Hopkins Project No. 2017-10

BMI Project No. T19.114259

November, 2017

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Preliminary Engineering Report

2018 Street & Utility Improvements

in

Hopkins, MN

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

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EXECUTIVE SUMMARY

Background Information

The Hopkins City Council ordered preparation of this Preliminary Engineering Report at its June 20, 2017 meeting. In general, the goal of the project is to preserve the investments Hopkins has made in its infrastructure with proper upkeep through the City's Pavement Management Program. The preliminary design report has been completed to identify the appropriate improvements needed as well as the associated project costs and preliminary estimated assessments. A joint power agreement was made with the City of St. Louis Park with Hopkins as the lead in the project. This agreement was made because Texas Avenue and Division Street are on the border between the City of Hopkins and the City of St. Louis Park. It is more feasible to reconstruct the entire street within the same contract instead of only reconstructing half of the street.

Proposed Improvements

This report examines potential street and utility construction in the Cottageville neighborhood in the cities of Hopkins and St. Louis Park. These areas are depicted in Figure 1 of Appendix B. The proposed improvements are described in the body of this report and are graphically illustrated in Appendix B. In brief, the proposed improvements consist of:

- Full reconstruction of the street section with new concrete curb and gutter along with replacement of watermain, sanitary sewer, and storm sewer. Reconstruction will occur on the following corridors:
    - Lake Street NE, from Blake Road N to Texas Avenue
    - Murphy Street, from Lake Street NE to Oxford Street
    - Oxford Street, from Blake Road N to Texas Avenue
    - Cambridge Street, from Blake Road N to Texas Avenue
    - Division Street, from Texas Avenue S to the westerly limits
    - Texas Avenue, from MN Highway 7 Service Road to about 100 feet south of Lake Street NE
- Concrete paving of the alley south of Lake Street NE and west of Texas Avenue
- Sanitary Sewer lining in areas across the City identified by the Public Works Department
- Storm Manhole Rehabilitation/Replacement in the intersection of 17th Ave and 1st St S

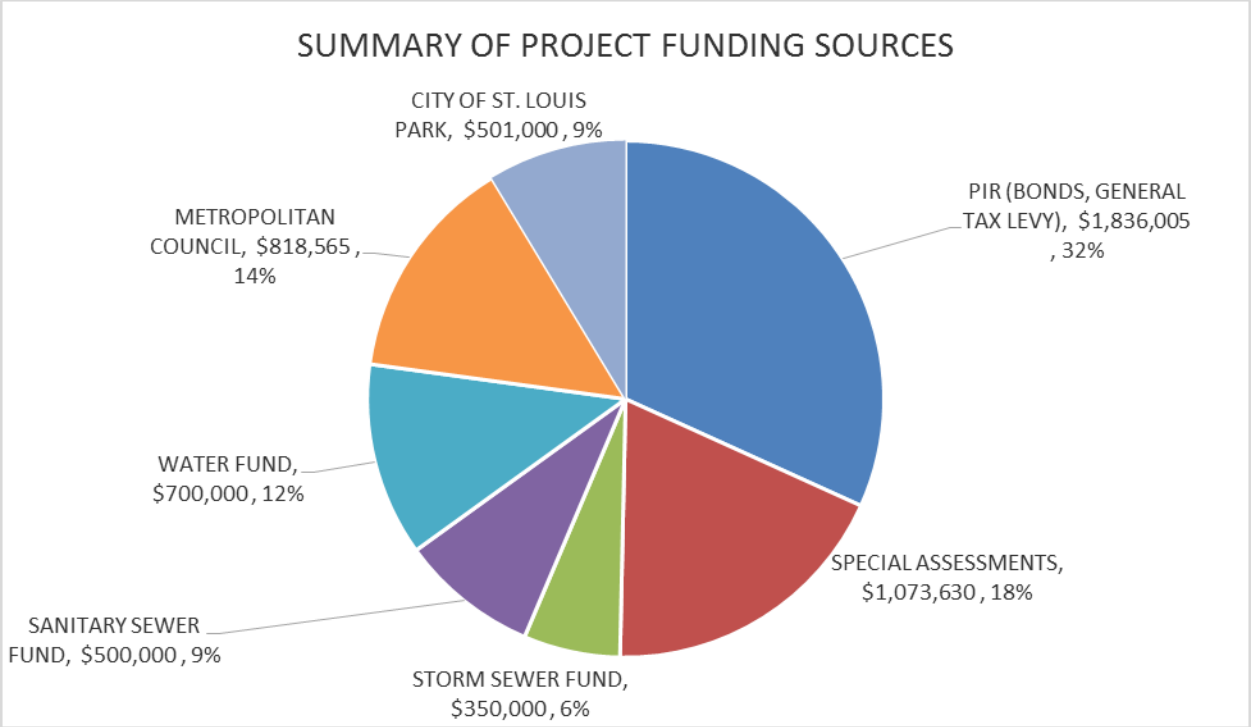
Estimated Costs & Proposed Funding

Cost estimates have been prepared for addressing the varying needs of all areas reviewed. Detailed cost estimates are provided in Appendix A and summarized below in Table ES-1.

Table ES-1 – Estimated Cost of Proposed 2018 Improvements Project

STREET	$ 1,998,600
SANITARY SEWER	$ 1,336,800
WATERMAIN	$ 860,600
STORM SEWER	$ 145,900
CONTINGENCIES (10%)	$ 434,200
ENGINEERING & ADMINISTRATION (21%)	$ 1,003,000
TOTAL ESTIMATED PROJECT COST	**$ 5,779,200**

The project is proposed to be funded with general obligation bonds, utility funds, and assessments to individual properties. There will also be funding from Metropolitan Council and the City of St. Louis Park to pay for their share of the cost.



1. *PROJECT INTRODUCTION*

This report examines the proposed street and utility improvements including storm sewer, water main, sanitary sewer, and street reconstruction along the following streets as shown on Figure 1 in Appendix B:

- Lake Street NE from Blake Road N to Texas Avenue
- Murphy Street from Lake Street NE to Oxford Street
- Oxford Street from Blake Road N to Texas Avenue
- Cambridge Street from Blake Road N to Texas Avenue
- Division Street from Texas Avenue S to the westerly limits
- Texas Avenue from MN Highway 7 Service Road to about 100 feet south of Lake Street NE
- Alley south of Lake St NE and west of Texas Avenue

This report also examines the following related improvements which are proposed to be designed/bid and constructed in the same project, but without involvement of special assessments:

- Sanitary Sewer lining along 14th Avenue N, from Hwy 7 to Mainstreet
- Sanitary Sewer lining along various other locations in the City

Specifically the project as a whole involves:

- Addition/replacement of storm sewer
- Water main replacement
- Water service replacement
- Sanitary sewer replacement and rehabilitation
- Sanitary sewer service replacement
- Concrete curb & gutter replacement and addition
- Bituminous street removal and reconstruction

2. *BACKGROUND*

The 2018 Street & Utility Improvements project was initiated following its presence for several years in the City's Capital Improvement Plan. Hopkins City Council ordered the preparation of this feasibility report at its June 20, 2017 council meeting. The feasibility study and report has been completed to better identify the infrastructure improvements needed in the proposed project area and to better define costs associated with the improvements. This report will be used as the basis for final design and is also a required step in the State's Chapter 429 process for special assessments.

This project will also be coordinated with the City of St. Louis Park because two of the streets, Texas Avenue and Division Street, are partially within the St. Louis Park City limits. The City of St. Louis Park will pay for all improvements in St. Louis Park and contribute proportional amounts to design and construction administration.

3. *EXISTING CONDITIONS*

3.1 STREETS

The bituminous streets within the project areas are aged and exhibit various levels of wear and distress. This is evident on the surface by transverse, block, and alligator cracking. The majority of the project area streets have concrete curb and gutter, though portions have no curbing. In some areas, the curb height is only a few inches, indicating the presence of patching or overlaying of the existing pavement and gutter. There is evidence of previous additional street repairs and maintenance throughout the project area including numerous street patches.

Existing Pavement Conditions

Consistent with observations of the existing pavements made during preparation of this report, the City of Hopkins' Pavement Management System also indicates that the "Pavement Condition Index" (PCI) for many of the street segments in the neighborhood is below the threshold where rehabilitation is cost effective. As such, street reconstruction is appropriate in these areas. The same PCI applies to the St. Louis Park side of Texas Avenue and Division Street because the entire width of the street was constructed at the same time.

The streets within the neighborhood have varying width (measured curb face to curb face, or edge to edge) and slope (grade). Table 3.1 below summarizes these and other existing conditions. Parking is typically allowed on both sides of the streets throughout the neighborhood, except for on the steeper hills of Oxford St and Cambridge St. Large, mature trees are located in the boulevards, near the back of curb, throughout the project area.

Table 3.1: Summary Existing Corridor Conditions

Roadway	Existing Street Width	Existing Curb Type	Existing Longitudinal Grade [%]	Existing ROW Width	Existing Sidewalk
Lake St NE	36 feet	Concrete B618 C&G	0.50 – 3.75	66 feet	South side: Blake Rd N to Texas Ave North side: Blake Rd N to Murphy St
Murphy St	23 feet	No Curb	2.20 – 4.60	33 feet	None
Oxford St	23 - 32 feet	Concrete B618 C&G west of Murphy, No Curb to east	0.50 – 14.50	50 feet	Both sides: Blake Rd N to about 500 ft east of Blake Rd N
Cambridge St	29.5-38.5 feet	Concrete B618 C&G to about 400 ft east of Blake Rd N, No Curb to east	0.50 – 10.50	50 feet	Both sides: Blake Rd N to about 400 ft east of Blake Rd N
Division St	30 feet	Concrete B618 C&G	0.60 – 10.75	66 feet	None
Texas Ave	36 feet	Concrete B618 C&G	0.50 – 3.45	66 feet	None

Subgrade soil sampling was completed throughout the entire project area by Braun Intertec in the summer of 2017. A copy of Braun's Geotechnical Evaluation Report is included in Appendix F of this report. Fifteen soil borings were taken throughout the project area and summarized in Table 3.2 below. Ground penetrating radar was also used to better delineate and identify discernable bituminous and aggregate base layers.

Table 3.2

Street	Bituminous Thickness	Subgrade Material
Lake Street NE	5" – 6"	Mixture of silty sand, poorly graded sand with some gravel, sandy lean clay, fat clay and clayey sand.
Murphy Street	3"	Mixture of clayey sand, poorly graded sand with some gravel and sandy lean clay.
Oxford Street	3"	Poorly graded sand with some gravel.
Cambridge Street	3" – 4"	Mixture of silty sand with some gravel, clayey sand with trace organics, lean clay with sand, lean clay, poorly graded sand and some buried topsoil.
Division Street	3"	Mixture of silty sand, poorly graded sand with some gravel.
Texas Avenue	6" – 6.5"	Mixture of poorly graded sand with some gravel, clayey sand, lean clay, some buried topsoil, clayey sand, lean clay with sand, sandy lean clay and some trace organics.

The soils found just beneath pavements in the project area were most commonly fill soils classified as silty sand or clayey sand. A few of the borings in the project area found buried topsoil and swamp deposits of organic lean clay, lean clay and fat clay. Topsoil and swamp deposits are undesirable materials for roadway construction as they are unable to adequately support heavy vehicles, leading to earlier failure of overlying pavements.

An existing bituminous alley in poor condition is south of Lake Street NE and west of Texas Avenue serves multi-family residential properties along Lake St NE. The alley is delineated by overhead utility poles and residential parking areas/garages. There is a high point in the alley which creates drainage to both the east towards Texas Avenue and to the west towards Minnehaha Creek. The existing width of the alley varies from about 12 to 16 feet in width, however several feet are not usable in spots because of the overhead utility poles. A minimum of 10 feet is the existing usable width. The alley serves 11

properties off of Lake Street NE and borders many garages for the Creekwood Estates apartments to the south.

3.2 STORM SEWER

The existing storm sewer system materials were inventoried in August, 2017. The existing storm sewer systems serving the neighborhood are comprised of a mixture of concrete block and precast concrete catch basins connected by reinforced concrete pipe (RCP).

There are multiple storm sewer systems serving the project area. Portions of the project area flow to catch basins that drain directly to Minnehaha Creek at Lake Street NE. Several catch basins near Blake Rd N connect to a storm line that runs south on Blake Rd through Cottageville Park and ultimately ends up in Minnehaha Creek.

Another system collects drainage from roughly the easterly 30 percent of the project area and discharges to the east into St. Louis Park. The discharge pipe is an existing 18" diameter RCP and leaves the site from the intersection of Texas Avenue and Lake Street NE.

Some drainage issues have been identified throughout the project area through evaluation of site grades and elevations by the project team, feedback from the neighborhood residents, and discussions with City Staff. These drainage issues can be generalized as:

1. Due to the flat grades of some of the streets and long stretches of streets with no catch basins, localized drainage problems are prevalent.

2. Some drainage structures were also found to be in very poor condition during the field survey. Such structures are often comprised of block or brick, and appear to have been patched with mortar in previous decades. Over time, the mortar has deteriorated from freeze thaw, leaving several structures subject to leakage or potential drastic failure.

Recommendations to alleviate these drainage problems are included in section 4.2 of this report and shown in the Appendix B figures.

3.3 SANITARY SEWER

The existing condition of the sanitary sewer system was evaluated through discussions with City staff and videoed inspection of the interior of the sewer piping by a City contractor. Manhole structures were visually inspected in the field by Bolton & Menk. All roadways in the project area have sanitary sewer mains. There are two lines on Texas Avenue, one for the City of Hopkins and one for city of St. Louis Park.

The existing sanitary sewer system consists of 8 to 9-inch diameter clay pipe. Clay pipe is susceptible to infiltration and root intrusion over time due to the large number of joints and the deterioration of the gasket material originally used to seal the joints.

The majority of the manholes are made of concrete block and built in either the early 1950's or late 1940's. A small number are precast concrete, indicating they were replaced at some point after initial construction of the other infrastructure. Block manholes are also susceptible to infiltration over time due to cracks and deterioration of the mortared joints. Precast concrete manholes continue to be used in modern construction and are generally acceptable provided proper gaskets were provided in initial construction.

Service lines in the neighborhood are typically 4-inch or 6-inch and their material may be clay, orangeburg, transite, or PVC. Based on discussions with City Staff and observations of sewer service replacements to individual properties performed within the last 20 years, a higher proportion of orangeburg sewer service pipe is anticipated compared to other areas in the City of Hopkins. Orangeburg pipe, which can generally be described as layered tar paper wrapped in a round manner to create a pipe, was commonly installed around the time the neighborhood was original developed. Orangeburg pipe is widely known to 'rot' where exposed to water, generally on the bottom of the pipe, and ultimately collapse as it ages and is unable to support the surrounding soil.

Proposed sanitary sewer improvements are discussed later in this report.

3.4 WATER MAIN

The existing layout and condition of the water main was determined from record drawings and discussions with City staff. Water main runs along a portion of all the streets within the project area. The water main is primarily 6-inch cast iron pipe (CIP), with some 12-inch pipe on Texas Ave (one line for Hopkins and one line for St. Louis Park). CIP is a common watermain material, however upon reaching its useful life tends to fail. Because it is so brittle, as the soils around the pipe move slowly over decades, CIP cannot support shearing forces and ultimately breaks. The watermain system was installed in the late 1940s and early 1950s. CIP installed around this time period was also occasionally installed with lead-packed fittings.

Service lines in the neighborhood are typically ¾-inch or 1-inch and their material may be copper, galvanized steel, or lead.

4. PROPOSED IMPROVEMENTS

4.1 STREETS

All of the streets within the 2018 project limits are scheduled for full reconstruction. This is based on the City of Hopkins' Capital Improvement Plan (CIP), observed pavement conditions, City of St. Louis Park input, and pavement and soil sampling. These streets

have reached a point where maintenance procedures such as seal coating or milling and overlaying are no longer cost effective strategies.

Proposed reconstruction improvements include replacing the concrete curb and gutter and complete pavement section. In areas where there is no existing concrete curb and gutter, it will be added. Existing drainage patterns are not proposed to change and the elevation of the existing roadways at their edge is proposed to approximate the existing elevations. Attempts at lowering the road will be made where appropriate to improve drainage toward the street where beneficial and practical. Proposed street widths from face of curb to face of curb will vary for each street throughout the project area. The following street widths are proposed:

- **Lake St NE** is proposed be reconstructed at a width of 36-feet, consistent with the existing street width and will allow for parking lanes to remain on each side of the street. The drive lanes will shared use lanes intended for both bicycles and motorists. Pavement markings called "sharrows" (pictured to the right) indicating the shared use are proposed to be installed.

- **Murphy Street** is proposed to be reconstructed at 24-feet-wide with concrete curb and gutter to be added. This widens the roadway by approximately one foot, though the existing width varies slightly along the roadway length. 24-foot-width is narrower than most other local Hopkins streets but this is the widest street possible in this area without substantial impacts due to the existing conditions and limited right-of-way.

- **Oxford Street** is proposed to be reconstructed at 32-feet-wide from Blake Rd N to Murphy St, which matches the existing width. From Murphy St to Texas Ave, the street is proposed to be 26-feet-wide with concrete curb and gutter to be added, which widens the roadway by approximately three feet. 26-foot-width is narrower than most other local Hopkins Streets but this is the widest street possible in the area without substantial impacts due to the existing conditions. There are currently parking restrictions on both sides of the street from Murphy St to Texas Ave and by widening the road by three feet, parking will now be allowed on one side of the road creating an additional 15 to 20 spaces of parking.

- **Cambridge Street** is proposed to be reconstructed at 38-feet-wide from Blake Rd N to approximately 400 feet to the east, which is consistent with the existing street width in that area. From 400 feet east of Blake Rd to Texas Ave, Cambridge Street is proposed to be reconstructed to 32-feet-wide with concrete curb and gutter to be added. This widens the roadway by approximately three feet in this segment and is consistent with other City of Hopkins streets with similar use.

- **Division Street** is proposed to be reconstructed to 30-feet-wide, which matches the existing street width and is consistent with other similar City of Hopkins streets. The north half of the road is within the City limits of St. Louis Park, who will contribute to those costs.

- **Texas Avenue** is proposed to be reconstructed to 34-feet-wide. This will narrow the road by approximately two feet and will allow for five-foot concrete bike lanes on both sides of the road. These bike lanes will be integral with the concrete curb and gutter. The east half of Texas Ave and the north block between Division St and MN Highway 7 Service Rd is within the City limits of St. Louis Park, who will contribute to those costs.

  Several factors were taken into consideration for the proposed Texas Avenue roadway improvements. The proposed improvements to Texas Avenue do not include space for on-street parking. Two alternative typical sections Texas Avenue were also developed which would allow for parking. The evaluation of all three alternatives reached three primary observations which led to the proposed improvements identified above:

  1. Bike lanes would be a beneficial addition to the corridor as they would provide connectivity with the planned signal by MnDOT at Highway 7, compatibility with Texas Avenue north of Highway 7, compatibility with the St. Louis Park side of the corridor, and is consistent with City set goals for providing a transportation network for all modes of transportation.

  2. Texas Avenue would be wider if parking lanes were included with designated bike lanes, which would create more impacts to the existing boulevard including trees and loss of driveway length.

  3. A parking study was performed over a three week period in August and September, 2017. City and Bolton & Menk staff surveyed the area 37+ times on varying days of the week and at different times of day, including nights and weekends. A total of nine cars were observed to be parked on Texas Ave in that three week period. Between this survey and past observations by City Staff, it was determined that eliminating parking on both sides of the street would not have a significant impact on daily routine use, though it is acknowledged that for special events Texas Avenue parking could be useful to residents.

The minimum proposed street grade is 0.5% consistent with City standards. Street grades flatter than 0.50% are undesirable for drainage. In some areas, new low-points may need to be created during on streets with flat grades for proper drainage. These locations, if necessary, will be confirmed during the final design process. Overall drainage patterns/directions throughout the project area are not proposed to change.

The recommended and proposed typical section for all the streets consists of four inches of bituminous pavement over eight inches of aggregate base. In addition, 12” of granular base and geotextile fabric is also proposed on Lake Street NE and parts of Cambridge St and Texas Ave due to poor underlying soils. Spot subgrade corrections usually range from 12 to 24 inches when needed.

The bituminous alley south of Lake St NE is proposed to be reconstructed with 6 inches of concrete over 8 inches of aggregate base. There will also be concrete curb and gutter installed on the south side of the alley to act as a barrier between cars and the apartment garages. The curb and gutter will also facilitate proper drainage to each end of the alley.

4.2 STORM SEWER

Full replacement of the existing storm sewer is proposed due to age and undersized existing piping, location of the system in close proximity to other underlying utilities being replaced, and incompatibility of existing drainage inlets with proposed curb locations. Additional drainage inlets are proposed in areas to help improve drainage and assist in removing water from flowing in the streets, including the area on Lake St NE by the bridge over Minnehaha Creek. Catch basins will be relocated away from driveways and pedestrian ramps.

4.3 SANITARY SEWER

The information used to evaluate the existing condition of the sanitary sewer includes televised recordings of the sewers, record drawings, manhole reports, and discussions with City staff. Due to the age of the sanitary sewer system and the City of Hopkins policy to replace clay sewers during street projects, all of the sanitary sewer is recommended to be completely replaced with PVC pipe. New service wyes will be provided to each home. Per City policy, sanitary services which are not PVC are proposed to be replaced with PVC pipe to the right-of-way (ROW) line. New precast concrete manholes will be installed and incorporate the City standard 27-inch diameter cover with concealed pick-holes.

The City of St. Louis Park sanitary sewer is proposed to remain without improvement at this time. St. Louis Park may consider rehabilitation of the sewer line in the future.

A portion of the existing sanitary sewer along Lake Street NE runs under Minnehaha Creek. This segment of sanitary sewer is proposed to be rehabilitated with a Cured-In-Place-Pipe (CIPP) liner. This trenchless method is proposed as a more cost effective improvement for improvement of the pipe under the creek, which is intuitively challenging and costly to access.

The Metropolitan Council is planning replacement of its existing 24-inch diameter forcemain with installation of two side by side (“dual”) 18-inch diameter forcemain pipes along Lake Street between Blake Road and Texas Avenue. The Metropolitan Council will be funding this replacement and has secured its own engineer for preparation of construction plans. The plans are proposed to be included for competitive bidding with the construction plans for proposed improvements described herein by the cities of Hopkins and St. Louis Park. The work for all three agencies will therefore be performed by a single construction contractor under one contract to be administered by the City of Hopkins.

Table 4-1 summarizes the proposed sanitary sewer improvements:

ROADWAY	FROM / TO	EXISTING PIPE			PROPOSED IMPROVEMENTS
		DIA.	MATL	AGE	
Lake St NE	Bridge over Minnehaha Creek to Texas Ave	8	CLAY	71	Reconstruct with 8" PVC
Lake St NE	Blake Rd N to Texas Ave	24	CIP	47	Reconstruct with Dual 18" PVC
Lake St NE	Minnehaha Creek	8	CIP	71	Lining
Murphy St	Lake St NE to Oxford St	8	CLAY	71	Reconstruct with 8" PVC
Oxford St	Blake Rd N to Texas Ave	8	CLAY	71	Reconstruct with 8" and 12" PVC
Cambridge St	Blake Rd N to Texas Ave	8	CLAY	71	Reconstruct with 8" and 12" PVC
Division St (Hopkins)	Texas Ave to Dead End	8	CLAY	71	Reconstruct with 8" PVC
Division St (St. Louis Park)	Texas Ave to Dead End	None			None
Texas Ave (Hopkins)	Lake St NE to Division St	8	CLAY	71	Reconstruct with 8" PVC
Texas Ave (St. Louis Park)	Lake St NE to Hwy 7 Service Rd	9	CLAY	58	Future Lining

4.4 WATER MAIN

It is proposed to replace all of the City of Hopkins' cast-iron water system with ductile iron pipe (DIP) as a part of this project. 8-inch pipe is a typical recommended minimum main size because the cost differential is relatively low compared to smaller sizes, but the capacity for supplying water, especially the capacity needed for fighting fires, is much greater. On some streets, as shown in the proposed improvement figures in the Appendix, a 12-inch pipe is recommended to match existing sizes or improve the capacity of the system in a manner compatible with surrounding infrastructure, such as that being installed on Blake Road in 2018-2019. Per City policy all water service lines are proposed to be replaced to the right-of-way with a new 1-inch diameter copper service line. A new curb stop valve and box will be provided on each service, approximately on the right-of-way line.

There will also be directionally drilled watermain or watermain that is pipe burst under the bridge at Minnehaha Creek and between Cambridge St and Division St due to the difficulties of open excavation in these areas. This pipe will be a form of plastic pipe (HDPE) instead of ductile iron pipe.

Table 4-2 summarizes the proposed watermain improvements:

ROADWAY	FROM / TO	EXISTING PIPE			PROPOSED IMPROVEMENTS
		DIA.	MATL	AGE	
Lake St NE	Bridge over Minnehaha Creek to Texas Ave	6	Cast	71	Reconstruct with 12" DIP
Lake St NE	Minnehaha Creek	6	Cast	71	Drill/Burst with 12" HDPE
Murphy St	Lake St NE to Oxford St	6	Cast	70	Reconstruct with 8" DIP
Oxford St	Blake Rd N to Texas Ave	6	Cast	66	Reconstruct with 8" DIP
Cambridge St	Blake Rd N to Texas Ave	6	Cast	70	Reconstruct with 12" DIP
Cambridge St/ Division St	Cambridge St to Division St	4	Cast	70	Drill/Burst with 8" DIP
Division St (Hopkins)	Texas Ave to Dead End	6	Cast	70	Reconstruct with 8" DIP
Division St (St. Louis Park)	Texas Ave to Dead End	None			None
Texas Ave (Hopkins)	Lake St NE to Division St	12	Cast/Ductile	62	Reconstruct with 12" DIP
Texas Ave (St. Louis Park)	Lake St NE to Hwy 7 Service Rd	12	Cast/Ductile	62	None

4.5 PEDESTRIAN FACILITIES

The existing sidewalks on Lake St NE, Oxford St, and Cambridge St will be removed and replaced in the same locations. The sidewalk on the south side of Lake St NE will be made more consistent with a 5-foot wide sidewalk and 5-foot wide boulevard. There will be no additional sidewalks on these streets to what is already in place.

The City of St. Louis Park is proposing the addition of a 5-foot wide sidewalk with a 6-foot wide boulevard on the east side of Texas Ave between Lake St NE and Highway 7 and the west side of Texas Ave between Division St and Highway 7.

4.6 DRIVEWAYS

All existing driveways within the project areas receiving new concrete curb and gutter will receive a new 5-foot concrete apron to match the proposed concrete curb. Where sidewalk is being placed the apron will extend to the sidewalk. The new concrete aprons will be constructed according to City standards. In addition to the 5-foot driveway apron,

additional driveway pavement disturbed as a part of the project will be replaced in-kind to match the existing driveway with the street improvements.

4.7 Lawn Sprinkler Systems

There may be existing sprinkler systems in the residential neighborhood. Adjacent property owners will need to assist in locating and identifying the type of sprinkler systems that are in place prior to and during construction. The contractor will be required to make every effort to preserve the in place systems during construction. Where this is found to be unfeasible, the contractor will be required to remove and replace or salvage and reinstall the existing sprinkler system.

4.8 Street Signing and Striping

The existing street name signs will be replaced by the contractor in order to update the signs to the new City standards. Regulatory signs such as STOP signs will be replaced in order to conform to new retroreflectivity requirements. Existing zebra crosswalk striping and centerline striping will be repainted upon completion of the paving. New pavement markings will be placed for the bike lanes on Texas Ave and the shared use lanes on Lake St NE.

4.9 TURF RESTORATION

Boulevards will be graded as necessary to facilitate drainage from the existing yards to the streets. Turf areas disturbed by construction, either due to boulevard grading or utility service construction, will be graded to match the new street and sidewalk grades and restored with lawn type sod in residential yards. In park or other areas maintained by the City, areas will be restored with seed and mulch (hydroseed).

4.10 BOULEVARD TREES

As with all projects being considered by the City of Hopkins, it is a goal of this project to protect healthy boulevard trees and/or make improvements to the urban tree canopy where feasible. Residents echoed the desire to protect healthy trees and remove dead/dying trees in questionnaire responses. Design and construction of improvements, including appropriate selection of street widths and utility main placement, are proposed to be completed in a manner to achieve the City's goals to save healthy trees. An evaluation of boulevard tree species and condition was completed in consideration of the adjacent street and utility improvements to facilitate design and construction and meet this criteria.

Due to their susceptibility to the Emerald Ash Borer, green ash trees are generally considered undesirable trees. Similarly, Silver Maple trees are more susceptible to storm damage than other species, create a lot of litter because of their soft wood and weak, brittle branches, and thus are not desirable trees to Public Works staff and local residents. Silver maples are also known to have an intrusive root system that can damage sidewalks and curbs and penetrate sewer joints. Finally, American Elm also exist in the project area and are still susceptible to Dutch Elm disease. These three undesirable species, as well as other trees that are either dead or in poor health, should either be removed or otherwise not protected through the design/construction process.

An inventory of the trees located in the right of way was performed in August 2017 by City Public Works Staff. Consistent with the recent 2016 and 2017 Street & Utility Improvements projects, trees that are dead or in very poor condition, and "undesirable" species in fair or poor condition, are proposed to be removed and replaced. Approximately 50 boulevard tree species within the project area, less than the amount in the 2017 project area, are considered undesirable due to condition/species. Specific tree removals will be identified in the final construction plans for the project. Properties located adjacent to boulevard tree removals will be contacted and allowed to provide input on proposed tree replacements. Certain trees may be identified during design or construction to be removed. This may be due to the street reconstruction, grading, utility replacement, sidewalk replacement, water service replacement, sewer service replacement, or other factors. Options to preserve highly desirable trees in harm's way include small retaining walls or moving service lines around trees. The City will work

with the homeowners to replace these trees as part of the project in the event tree removal is necessary.

This project provides an opportunity to increase the health of the neighborhood forest by replacing some of the undesirable species with trees better suited for boulevard areas. Up to two trees are proposed to be installed per each tree removed. The City has usually planted new 2-inch balled and burlapped trees. A list of species to be planted will be formulated during final design in cooperation with the City's Public Works department.

5. *NEIGHBORHOOD MEETING*

A neighborhood meeting occurred on September 27, 2017 with residents and property owners that are affected by the improvements, both in Hopkins and St. Louis Park. The City Engineer and Bolton & Menk, Inc. representatives presented the scope of the project with a discussion of existing and proposed street and utility conditions, proposed bicycle and pedestrian facilities, and project schedule. Feedback from the residents are documented in Appendix D of this report. Details related to assessment computation and payment options were not provided at this meeting because St. Louis Park residents will not be assessed. There will be a 2nd neighborhood meeting on November 1, 2017 for Hopkins residents only. This meeting will go over the proposed project costs and special assessments. There will also be a 2nd neighborhood meeting on November 14, 2017 for St. Louis Park residents only, which will focus on the sidewalk and bike lane improvements along Texas Avenue.

Residents within the project area were also mailed questionnaires in July shown in Appendix D. Fifteen questionnaires were returned with comments. The most common questionnaire responses related to:

a. Specific drainage problems
b. Opposition to any sidewalk improvements
c. Desire for additional sidewalks
d. Dead or dying trees in the neighborhood
e. A desire to widen Oxford St and Cambridge St near Texas Ave
f. Reducing the slope of the hill on Cambridge St and Oxford St
g. Individual sewer and water service problems, history of backups/root blockages
h. Other unique issues specific to individual properties (individual tree conditions, water service line, driveways, landscaping, etc.)

6. *ESTIMATED COSTS*

Estimated construction costs presented in this report include a 10 percent contingency factor. Overhead costs, estimated at 21 percent, include legal, engineering, administrative and fiscal

costs. Final costs and assessments will be determined by using low-bid construction costs of the proposed work.

Proposed construction costs for the 2018 Street and Utility Improvements (including curb and gutter, bituminous street, pedestrian facilities, storm sewer, sanitary sewer, water main, and turf restoration) are itemized in Appendix A and are summarized in Table 6.1 below. These cost estimates are based upon public construction cost information. Because the consultant has no control over the cost of labor, materials, competitive bidding process, weather conditions and other factors affecting the cost of construction, all cost estimates are opinions for general information of the client and no warranty or guarantee as to the accuracy of construction cost estimates is made. It is recommended that costs for project financing should be based upon actual, competitive bid prices with reasonable contingencies.

Table 6.1

SUBTOTAL OF PROPOSED STREET IMPROVEMENTS	$1,988,600.00
SUBTOTAL OF PROPOSED STORM SEWER IMPROVEMENTS	$ 145,900.00
SUBTOTAL OF PROPOSED WATER MAIN IMPROVEMENTS	$ 860,600.00
SUBTOTAL OF PROPOSED SANITARY SEWER IMPROVEMENTS	$ 1,336,800.00
STREET & UTILITY SUBTOTAL	**$4,342,000.00**
CONTINGENCIES (10%)	$ 434,200.00
ENGINEERING AND ADMINISTRATION (21%)	$ 1,003,000.00
TOTAL ESTIMATED COST	**$5,779,200.00**

7. *ASSESSMENT RATES*

Street improvements throughout the project area will be assessed to adjacent and benefitting properties according to the City of Hopkins' assessment policy. St. Louis Park residents will not be assessed. Street improvement work includes pavement and sidewalk removals, grading, subgrade correction, aggregate base, curbing, sidewalks, driveways and pavements construction, and restoration.

According to the City's assessment policy, residential street improvement costs are assessed to the benefitting properties. In summary, assessments to benefitting properties are determined based on the following criteria:

- Properties are assessed based on 70% of the actual street improvement costs. This is referred to as a **"Street Assessment"**.
    - North/South Avenue improvements are typically assessed to properties with direct frontage based on a front foot basis (length) along the Avenue
    - East/West Street improvements are typically assessed to properties located within one block north/south of the Street on a unit basis (per each property)

- For this project, all of the streets have properties with direct frontage. Therefore, assessments for all of the streets were treated in similar fashion to north/south Avenues.

- **"Street Assessments"** to any individual property are capped at front foot rate increase annually by 3% over the prior year's amount. An assessment cap for residential properties of $88.89 per front foot has been established by adding 3% to the 2017 assessment cap according to City policy. This cap is applied only to single-family and two-family residential properties in the project area and is not applicable to the following properties; 1321 Division Street (Division Street Property Apartments), 1301 Cambridge Street (Cambridge Towers), 1210/1220 Cambridge Street (Sela Investments Apartments), 525 Blake Road N (Commercial Building), 1202-1304 Oxford Street (Oxford Village), and 1328 Lake Street NE (Creekwood Estates Apartments). These six apartment and commercial properties in the neighborhood will receive a benefit appraisal to determine an accurate assessment amount.

- Utility (sanitary sewer, storm sewer, water) main improvements are 100% paid by the respective utility funds. No assessment for utility mains is proposed and there costs do not contribute to either the **"Street Assessments"** or **"Utility Assessments".**

- Utility service lines are owned by the individual property per City Code. As a result, the City assesses for the cost of the individual service line replacements. This is referred to as a "**Utility Assessment"**. The City participates in a share of these costs because the replacement is mandatory where mains are reconstructed, and therefore properties are assessed for only 50% of the cost of the service replacement.

- The estimated cost of the water service replacement from the main to property line is $2,600. With the proposed 50/50 "**Utility Assessment**" split, $1300 will be assessed to each property where water services are replaced. The estimated cost of the sewer service replacement from the main to the property line is $2,000. With the proposed 50/50 "**Utility Assessment**" split, $1,000 will be assessed to each property where sewer services are replaced. Thus, a property proposed to receive both a new water service and sewer service would have a proposed **"Utility Assessment"** of $2,300.

In the case that sanitary sewer services are made of Orangeburg or Transite, or are in disrepair, replacement or lining of the entire line will also be required from the property line to the house. On past projects, the property owner has been given one year to affect the necessary repairs and the City will provide the option to use the City's Contractor to perform this work and be fully assessed to the property owner

A preliminary assessment roll is included in Appendix C of this report. Total estimated assessments are $1,073,630.41.

8. *RIGHT-OF-WAY/EASEMENTS/PERMITS*

The majority of the proposed improvements will be limited to the existing street ROW along all corridors. Temporary construction easements may be needed for work outside the street ROW such as driveway apron replacement, grading and turf restoration.

Permits will be required from the Minnesota Pollution Control Agency for grading (National Pollutant Discharge Elimination System permit), Minnesota Department of Health for Water Main Replacement, and the Minnehaha Creek Watershed District.

9. *PROJECT SCHEDULE*

If this Preliminary Engineering Report is accepted by the City Council, the following schedule is proposed:

Order Public Improvement Hearing..... November 6, 2017

Conduct Public Improvement Hearing .....December 5, 2017

Order Final Plans & Specifications.....December 5, 2017

Final Design..... December 6 – March 6, 2018

Present Final Plans / Authorize Ad for Bids.....March 6, 2018

Open Bids .....April 12, 2018

Accept Bids / Order Public Assessment Hearing.....April 17, 2018

Conduct Public Assessment Hearing / Adopt Assessment Roll /

Award Project .....May 15, 2018

Construction.....May/June – November 2018

10. *FEASIBILITY AND RECOMMENDATION*

From an engineering standpoint, this project is feasible, cost effective, and necessary and can best be accomplished by letting competitive bids for the work. It is recommended that the work be done under one contract in order to complete the work in an orderly and efficient manner. The City, its financial consultant, and the persons assessed will have to determine the economic feasibility of the proposed improvements.

Appendix A:

Preliminary Cost Estimate

ENGINEER'S ESTIMATE

2018 STREET & UTILITY IMPROVEMENTS
CITY OF HOPKINS, MN
BMI PROJECT NO. T19.114259

ITEM NO.	ITEM	UNIT	UNIT PRICE	ESTIMATED QUANTITIES												ESTIMATED STREET COSTS BY CORRIDOR										TOTAL ESTIMATED COSTS					
				STREET									UTILITIES			STREET											UTILITIES					
				Murphy St	Oxford St	Cambridge St	Texas Ave Hopkins	Texas Ave SLP	Division St Hopkins	Division St SLP	Lake St NE	Alley	STREET TOTAL	SANITARY SEWER	WATER	STORM SEWER	Murphy St	Oxford St	Cambridge St	Texas Ave Hopkins	Texas Ave SLP	Division St Hopkins	Divison St SLP	Lake St NE	Alley	STREET	SANITARY SEWER	WATER	STORM SEWER	TOTAL QUANTITY	TOTAL COST
1	MOBILIZATION	LUMP SUM	$ 250,000.00	0.05	0.08	0.09	0.08	0.08	0.03	0.03	0.14	0.03	0.61	0.16	0.16	0.07	$ 12,500	$ 20,000	$ 22,500	$ 20,000	$ 20,000	$ 7,500	$ 7,500	$ 35,000	$ 7,500	$ 152,500	$ 40,000	$ 40,000	$ 17,500	1.00	$ 250,000
2	CLEARING AND GRUBBING (TREE)	EACH	$ 235.00	0	10	4	2	8	6	2	12	0	44				$ -	$ 2,350	$ 940	$ 470	$ 1,880	$ 1,410	$ 470	$ 2,820	$ -	$ 10,340	$ -	$ -	$ -	44	$ 10,300
3	TREE TRIMMING	LUMP SUM	$ 2,100.00	0.05	0.08	0.09	0.08	0.08	0.03	0.03	0.14	0.03	0.61	0.16	0.16	0.07	$ 105	$ 168	$ 189	$ 168	$ 168	$ 63	$ 63	$ 294	$ 63	$ 1,281	$ 336	$ 336	$ 147	1.00	$ 2,100
4	REMOVE BITUMINOUS PAVEMENT (TRAILS AND DRIVEWAYS)	SQ YD	$ 5.00	83	183	283	62	42	167	63	0	42	925				$ 415	$ 915	$ 1,415	$ 310	$ 210	$ 835	$ 315	$ -	$ 210	$ 4,625	$ -	$ -	$ -	925	$ 4,600
5	REMOVE CONCRETE PAVEMENT (WALKS, DRIVEWAYS, AND ALLEYS)	SQ YD	$ 7.00	146	719	835	184	174	83	42	837	50	3070				$ 1,022	$ 5,033	$ 5,845	$ 1,288	$ 1,218	$ 581	$ 294	$ 5,859	$ 350	$ 21,490	$ -	$ -	$ -	3070	$ 21,500
6	REMOVE CURB & GUTTER	LIN FT	$ 3.00	59	1221	1558	946	1416	781	781	2600	0	9362				$ 177	$ 3,663	$ 4,674	$ 2,838	$ 4,248	$ 2,343	$ 2,343	$ 7,800	$ -	$ 28,086	$ -	$ -	$ -	9362	$ 28,100
7	REMOVE CONCRETE STEP	EACH	$ 200.00	0	10	10	0	0	0	0	0	0	20				$ -	$ 2,000	$ 2,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,000	$ -	$ -	$ -	20	$ 4,000
8	REMOVE RETAINING WALL	SQ FT	$ 15.00	0	100	100	0	0	0	0	100	0	300				$ -	$ 1,500	$ 1,500	$ -	$ -	$ -	$ -	$ 1,500	$ -	$ 4,500	$ -	$ -	$ -	300	$ 4,500
9	SALVAGE & REINSTALL FENCE	LIN FT	$ 25.00	0	20	20	0	20	0	0	20	0	80				$ -	$ 500	$ 500	$ -	$ 500	$ -	$ -	$ 500	$ -	$ 2,000	$ -	$ -	$ -	80	$ 2,000
10	SAWING CONCRETE PAVEMENT (FULL-DEPTH)	LIN FT	$ 4.50	94	56	131	75	75	19	0	113	113	676				$ 423	$ 252	$ 590	$ 338	$ 338	$ 63	$ -	$ 509	$ 509	$ 3,042	$ -	$ -	$ -	676	$ 3,000
11	SAWING BITUMINOUS PAVEMENT (FULL-DEPTH)	LIN FT	$ 2.50	75	206	319	56	38	150	56	169	94	1163				$ 188	$ 515	$ 798	$ 140	$ 95	$ 375	$ 140	$ 423	$ 235	$ 2,908	$ -	$ -	$ -	1163	$ 2,900
12	COMMON EXCAVATION	CU YD	$ 18.00	784	3107	3408	1367	1768	979	954	3592	405	16364				$ 14,112	$ 55,926	$ 61,344	$ 24,606	$ 31,824	$ 17,622	$ 17,172	$ 64,656	$ 7,290	$ 294,552	$ -	$ -	$ -	16364	$ 294,600
13	SUBGRADE EXCAVATION	CU YD	$ 18.00	36	147	166	77	93	47	47	495	41	1149				$ 648	$ 2,646	$ 2,988	$ 1,386	$ 1,674	$ 846	$ 846	$ 8,910	$ 738	$ 20,682	$ -	$ -	$ -	1149	$ 20,700
14	SELECT GRANULAR BORROW	CU YD	$ 12.00	396	1621	1828	845	1018	512	512	2474	317	9523				$ 4,752	$ 19,452	$ 21,936	$ 10,140	$ 12,216	$ 6,144	$ 6,144	$ 29,688	$ 3,804	$ 114,276	$ -	$ -	$ -	9523	$ 114,300
15	TOPSOIL BORROW (SPECIAL)	CU YD	$ 35.00	92	298	303	139	198	98	98	321	0	1547				$ 3,220	$ 10,430	$ 10,605	$ 4,865	$ 6,930	$ 3,430	$ 3,430	$ 11,235	$ -	$ 54,145	$ -	$ -	$ -	1547	$ 54,100
16	EXPLORATORY EXCAVATION	HOUR	$ 450.00	2	4	4	8	8	4	2	12	2	46				$ 900	$ 1,800	$ 1,800	$ 3,600	$ 3,600	$ 1,800	$ 900	$ 5,400	$ 900	$ 20,700	$ -	$ -	$ -	46	$ 20,700
17	CLASS 5 AGGREGATE BASE	TON	$ 16.00	542	2199	2506	1089	1418	696	652	2831	625	12558				$ 8,672	$ 35,184	$ 40,096	$ 17,424	$ 22,688	$ 11,136	$ 10,432	$ 45,296	$ 10,000	$ 200,928	$ -	$ -	$ -	12558	$ 200,900
18	CLASS 2 AGGREGATE SURFACING (GRAVEL DRIVEWAY)	TON	$ 30.00	0	17	26	0	0	9	9	0	0	61				$ -	$ 510	$ 780	$ -	$ -	$ 270	$ 270	$ -	$ -	$ 1,830	$ -	$ -	$ -	61	$ 1,800
19	MILL OR RECLAIM BITUMINOUS SURFACE	SQ YD	$ 2.00	1001	3737	4315	1911	2907	1102	1102	3908	771	20754				$ 2,002	$ 7,474	$ 8,630	$ 3,822	$ 5,814	$ 2,204	$ 2,204	$ 7,816	$ 1,542	$ 41,508	$ -	$ -	$ -	20754	$ 41,500
20	BITUMINOUS WEARING COURSE (SPWEA240C)	TON	$ 66.00	109	454	528	201	270	142	142	513	0	2359				$ 7,194	$ 29,964	$ 34,848	$ 13,266	$ 17,820	$ 9,372	$ 9,372	$ 33,858	$ -	$ 155,694	$ -	$ -	$ -	2359	$ 155,700
21	BITUMINOUS NON-WEARING COURSE (SPNWB230C)	TON	$ 60.00	109	454	528	201	270	142	142	513	0	2359				$ 6,540	$ 27,240	$ 31,680	$ 12,060	$ 16,200	$ 8,520	$ 8,520	$ 30,780	$ -	$ 141,540	$ -	$ -	$ -	2359	$ 141,500
22	BITUMINOUS MATERIAL FOR TACK COAT	GAL	$ 3.50	55	206	237	105	160	61	61	215	0	1100				$ 193	$ 721	$ 830	$ 368	$ 560	$ 214	$ 214	$ 753	$ -	$ 3,850	$ -	$ -	$ -	1100	$ 3,900
23	3" BITUMINOUS DRIVEWAY & PAVEMENT (SPWEA240B)	SQ YD	$ 30.00	83	183	283	62	42	167	63	0	42	925				$ 2,490	$ 5,490	$ 8,490	$ 1,860	$ 1,260	$ 5,010	$ 1,890	$ -	$ 1,260	$ 27,750	$ -	$ -	$ -	925	$ 27,800
24	MODULAR BLOCK RETAINING WALL	SQ FT	$ 35.00	0	200	200	0	0	0	0	200	0	600				$ -	$ 7,000	$ 7,000	$ -	$ -	$ -	$ -	$ 7,000	$ -	$ 21,000	$ -	$ -	$ -	600	$ 21,000
25	4" CONCRETE WALK	SQ FT	$ 5.00	0	5168	5061	0	5190	0	0	7530	0	22949				$ -	$ 25,840	$ 25,305	$ -	$ 25,950	$ -	$ -	$ 37,650	$ -	$ 114,745	$ -	$ -	$ -	22949	$ 114,700
26	TRUNCATED DOMES	SQ FT	$ 50.00	0	24	24	0	0	0	0	48	0	96				$ -	$ 1,200	$ 1,200	$ -	$ -	$ -	$ -	$ 2,400	$ -	$ 4,800	$ -	$ -	$ -	96	$ 4,800
27	CONCRETE STEP	EACH	$ 250.00	0	10	0	0	0	0	0	0	0	10				$ -	$ 2,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,500	$ -	$ -	$ -	10	$ 2,500
28	B618 CONCRETE CURB & GUTTER	LIN FT	$ 14.00	744	2411	2457	200	0	797	797	2604	610	10620				$ 10,416	$ 33,754	$ 34,398	$ 2,800	$ -	$ 11,158	$ 11,158	$ 36,456	$ 8,540	$ 148,680	$ -	$ -	$ -	10620	$ 148,700
29	B660 CONCRETE CURB & GUTTER	LIN FT	$ 45.00	0	0	0	1124	1605	0	0	0	0	2729				$ -	$ -	$ -	$ 50,580	$ 72,225	$ -	$ -	$ -	$ -	$ 122,805	$ -	$ -	$ -	2729	$ 122,800
30	6" CONCRETE DRIVEWAYS & PEDESTRIAN RAMPS	SQ YD	$ 60.00	146	178	294	184	174	83	42	0	50	1151				$ 8,760	$ 10,680	$ 17,640	$ 11,040	$ 10,440	$ 4,980	$ 2,520	$ -	$ 3,000	$ 69,060	$ -	$ -	$ -	1151	$ 69,100
31	6" CONCRETE ALLEY	SQ YD	$ 60.00	0	0	0	0	0	0	0	0	694	694				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 41,640	$ 41,640	$ -	$ -	$ -	694	$ 41,600
32	ALLEY CONCRETE TIE-BARS	EACH	$ 15.00	0	0	0	0	0	0	0	0	260	260				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,900	$ 3,900	$ -	$ -	$ -	260	$ 3,900
33	TRAFFIC CONTROL	LUMP SUM	$ 15,000.00	0.05	0.08	0.09	0.08	0.08	0.03	0.03	0.14	0.03	0.61	0.16	0.16	0.07	$ 750	$ 1,200	$ 1,350	$ 1,200	$ 1,200	$ 450	$ 450	$ 2,100	$ 450	$ 9,150	$ 2,400	$ 2,400	$ 1,050	1.00	$ 15,000
34	ZEBRA CROSSWALK BLOCK - WHITE LATEX	SQ FT	$ 1.50	0	108	108	216	324	0	0	216	0	972				$ -	$ 162	$ 162	$ 324	$ 486	$ -	$ -	$ 324	$ -	$ 1,458	$ -	$ -	$ -	972	$ 1,500
35	4" SOLID LINE - YELLOW LATEX	LIN FT	$ 1.00	0	0	1200	750	750	0	0	1050	0	3750				$ -	$ -	$ 1,200	$ 750	$ 750	$ -	$ -	$ 1,050	$ -	$ 3,750	$ -	$ -	$ -	3750	$ 3,800
36	TRAFFIC SIGN POST	EACH	$ 165.00	3	8	7	22	18	1	6	9	0	74				$ 495	$ 1,320	$ 1,155	$ 3,630	$ 2,970	$ 165	$ 990	$ 1,485	$ -	$ 12,210	$ -	$ -	$ -	74	$ 12,200
37	SIGN PANELS (TYPE C)	SQ FT	$ 18.00	6	12	10	38	30	0	12	14	0	122				$ 108	$ 216	$ 180	$ 684	$ 540	$ -	$ 216	$ 252	$ -	$ 2,196	$ -	$ -	$ -	122	$ 2,200
38	SIGN PANELS (TYPE D)	SQ FT	$ 20.00	0	3	3	5	5	2	0	3	0	21				$ -	$ 60	$ 60	$ 100	$ 100	$ 40	$ -	$ 60	$ -	$ 420	$ -	$ -	$ -	21	$ 400
39	LANDSCAPE ALLOWANCE	LUMP SUM	$ 20,000.00	0.05	0.08	0.09	0.08	0.08	0.03	0.03	0.14	0.03	0.61	0.16	0.16	0.07	$ 1,000	$ 1,600	$ 1,800	$ 1,600	$ 1,600	$ 600	$ 600	$ 2,800	$ 600	$ 12,200	$ 3,200	$ 3,200	$ 1,400	1.00	$ 20,000
40	DECIDUOUS TREE - 2-INCH DIAMETER B&B (SUGAR MAPLE)	EACH	$ 400.00	0	2	1	1	2	1	1	2	0	10				$ -	$ 800	$ 400	$ 400	$ 800	$ 400	$ 400	$ 800	$ -	$ 4,000	$ -	$ -	$ -	10	$ 4,000
41	DECIDUOUS TREE - 2-INCH DIAMETER B&B (WHITE OAK)	EACH	$ 400.00	0	2	1	1	2	1	1	2	0	10				$ -	$ 800	$ 400	$ 400	$ 800	$ 400	$ 400	$ 800	$ -	$ 4,000	$ -	$ -	$ -	10	$ 4,000
42	DECIDUOUS TREE - 2-INCH DIAMETER B&B (PARKWAY NORWAY MAPLE)	EACH	$ 400.00	0	2	1	0	1	1	0	2	0	7				$ -	$ 800	$ 400	$ -	$ 400	$ 400	$ -	$ 800	$ -	$ 2,800	$ -	$ -	$ -	7	$ 2,800
43	DECIDUOUS TREE - 2-INCH DIAMETER B&B (RED OAK)	EACH	$ 400.00	0	2	1	0	1	1	0	2	0	7				$ -	$ 800	$ 400	$ -	$ 400	$ 400	$ -	$ 800	$ -	$ 2,800	$ -	$ -	$ -	7	$ 2,800
44	DECIDUOUS TREE - 2-INCH DIAMETER B&B (GREENSPIRE LINDEN)	EACH	$ 400.00	0	1	1	0	1	1	0	2	0	6				$ -	$ 400	$ 400	$ -	$ 400	$ 400	$ -	$ 800	$ -	$ 2,400	$ -	$ -	$ -	6	$ 2,400
45	DECIDUOUS TREE - 2-INCH DIAMETER B&B (PRINCETON AMERICAN ELM)	EACH	$ 400.00	0	1	1	0	1	1	0	2	0	6				$ -	$ 400	$ 400	$ -	$ 400	$ 400	$ -	$ 800	$ -	$ 2,400	$ -	$ -	$ -	6	$ 2,400
46	INLET PROTECTION	EACH	$ 220.00	0	8	8	32	12	6	0	7	0	73				$ -	$ 1,760	$ 1,760	$ 7,040	$ 2,640	$ 1,320	$ -	$ 1,540	$ -	$ 16,060	$ -	$ -	$ -	73	$ 16,100
47	SILT FENCE	LIN FT	$ 2.00	0	0	0	0	0	0	0	300	0	300				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 600	$ -	$ 600	$ -	$ -	$ -	300	$ 600
48	STREET SWEEPER WITH OPERATOR	HOUR	$ 150.00	6	10	10	12	12	4	4	16	0	74				$ 900	$ 1,500	$ 1,500	$ 1,800	$ 1,800	$ 600	$ 600	$ 2,400	$ -	$ 11,100	$ -	$ -	$ -	74	$ 11,100
49	TURF RESTORATION	SQ YD	$ 4.00	1033	3349	3413	1561	2229	1107	1107	3617	0	17416				$ 4,132	$ 13,396	$ 13,652	$ 6,244	$ 8,916	$ 4,428	$ 4,428	$ 14,468	$ -	$ 69,664	$ -	$ -	$ -	17416	$ 69,700
50	REMOVE SANITARY SEWER PIPE	LIN FT	$ 6.00											4853			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,118	$ -	$ -	4853	$ 29,100
51	REMOVE SANITARY MANHOLE	EACH	$ 500.00											22			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,000	$ -	$ -	22	$ 11,000
52	SANITARY MANHOLE CASTING	EACH	$ 1,050.00											22			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23,100	$ -	$ -	22	$ 23,100
53	8" PVC SDR 35 SANITARY SEWER PIPE	LIN FT	$ 52.00											3959			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 205,868	$ -	$ -	3959	$ 205,900
54	12" PVC SDR 35 SANITARY SEWER PIPE	LIN FT	$ 85.00											1411			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 119,935	$ -	$ -	1411	$ 119,900
55	LINE 8" SANITARY SEWER PIPE	LIN FT	$ 22.00											2377			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 52,294	$ -	$ -	2377	$ 52,300
56	12" x 6" SDR 26 PVC SERVICE WYE	EACH	$ 700.00											38			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 26,600	$ -	$ -	38	$ 26,600
57	6" PVC SDR 26 SANITARY SEWER SERVICE PIPE	LIN FT	$ 37.00											1688			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 62,456	$ -	$ -	1688	$ 62,500
58	8" x 6" SDR 26 PVC SERVICE WYE	EACH	$ 500.00											59			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,500	$ -	$ -	59	$ 29,500
59	SANITARY MANHOLE	EACH	$ 3,500.00											22			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 77,000	$ -	$ -	22	$ 77,000
60	RECONNECT SANITARY SEWER SERVICE	EACH	$ 340.00											97			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 32,980	$ -	$ -	97	$ 33,000
61	DUAL 18" FORCEMAIN	LUMP SUM	$ 615,000.00											1			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 615,000	$ -	$ -	1	$ 615,000
62	CONNECT TO EXISTING SANITARY SEWER PIPE	EACH	$ 1,200.00											5			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,000	$ -	$ -	5	$ 6,000
63	REMOVE WATERMAIN	LIN FT	$ 4.50												3710		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,695	$ -	3710	$ 16,700
64	ABANDON WATERMAIN	LIN FT	$ 6.00												307		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,842	$ -	307	$ 1,800
65	REMOVE HYDRANT	EACH	$ 430.00												11		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,730	$ -	11	$ 4,700
66	CONNECT TO EXISTING WATER MAIN	EACH	$ 1,600.00												6		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,600	$ -	6	$ 9,600
67	HYDRANT	EACH	$ 4,250.00												11		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 46,750	$ -	11	$ 46,800
68	12" BUTTERFLY VALVE & BOX	EACH	$ 2,200.00												17		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 37,400	$ -	17	$ 37,400
69	8" GATE VALVE & BOX	EACH	$ 2,000.00												12		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 24,000	$ -	12	$ 24,000
70	6" GATE VALVE & BOX	EACH	$ 1,300.00												8		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,400	$ -	8	$ 10,400
71	8" DIP WATER MAIN	LIN FT	$ 45.00												2287		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 102,915	$ -	2287	$ 102,900
72	6" DIP WATER MAIN	LIN FT	$ 42.00												220		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,240	$ -	220	$ 9,200
73	12" DIP WATER MAIN	LIN FT	$ 65.00												3247		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 211,055	$ -	3247	$ 211,100
74	DIP FITTINGS	POUND	$ 8.00												4000		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 32,000	$ -	4000	$ 32,000
75	DIRECTIONAL DRILL 8" WATERMAIN	LIN FT	$ 135.00												307		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 41,445	$ -	307	$ 41,400
76	DIRECTIONAL DRILL 12" WATERMAIN	LIN FT	$ 160.00												52		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,320	$ -	52	$ 8,300
77	1" TYPE K COPPER SERVICE PIPE	LIN FT	$ 32.00												2855		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 91,360	$ -	2855	$ 91,400
78	1" CURB STOP & BOX	EACH	$ 370.00												104		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 38,480	$ -	104	$ 38,500
79	1" CORPORATION STOP	EACH	$ 460.00												104		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 47,840	$ -	104	$ 47,800
80	CONNECT TO EXISTING WATER SERVICE	EACH	$ 275.00												104		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 28,600	$ -	104	$ 28,600
81	TEMPORARY WATER SERVICE	EACH	$ 500.00												104		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 52,000	$ -	104	$ 52,000
82	REMOVE STORM SEWER PIPE	LIN FT	$ 7.00													818	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,726	818	$ 5,700
83	REMOVE DRAINAGE STRUCTURE	EACH	$ 350.00													30	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,500	30	$ 10,500
84	STORM SEWER CASTING	EACH	$ 800.00													33	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 26,400	33	$ 26,400
85	15" RC PIPE SEWER CL V DESIGN 3006 (STORM)	LIN FT	$ 42.00													865	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,330	865	$ 36,300
86	STORM MANHOLE	EACH	$ 1,800.00													2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,600	2	$ 3,600
87	STORM CATCH BASIN	EACH	$ 1,200.00													31	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 37,200	31	$ 37,200
88	CONNECT TO EXISTING STORM PIPE	EACH	$ 1,000.00													6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,000	6	$ 6,000
SUBTOTAL																	$ 92,100	$ 339,900	$ 375,700	$ 207,500	$ 282,100	$ 105,900	$ 94,300	$ 408,500	$ 92,500	$ 1,998,600	$ 1,336,800	$ 860,600	$ 145,900		$ 4,342,000
CONTINGENCIES (10%)																	$ 9,200	$ 34,000	$ 37,600	$ 20,800	$ 28,200	$ 10,600	$ 9,400	$ 40,900	$ 9,300	$ 199,900	$ 133,700	$ 86,100	$ 14,600		$ 434,200
ENGINEERING AND ADMINISTRATION (21%)																	$ 21,300	$ 78,500	$ 86,800	$ 47,900	$ 65,200	$ 24,500	$ 21,800	$ 94,400	$ 21,400	$ 461,700	$ 308,800	$ 198,800	$ 33,700		$ 1,003,000
TOTAL ESTIMATED PROJECT COST																	$ 122,600	$ 452,400	$ 500,100	$ 276,200	$ 375,500	$ 141,000	$ 125,500	$ 543,800	$ 123,200	$ 2,660,200	$ 1,779,300	$ 1,145,500	$ 194,200		$ 5,779,200

Appendix B:
Figures

MN HIGHWAY 7

DIVISION STREET

CAMBRIDGE STREET

TEXAS AVENUE

BLAKE ROAD N

MURPHY STREET

OXFORD STREET

LAKE STREET NE

ALLEY

LEGEND

HOPKINS STREETS

ST. LOUIS PARK STREETS

SHARED STREETS

HORZ. 0 150 300

SCALE FEET

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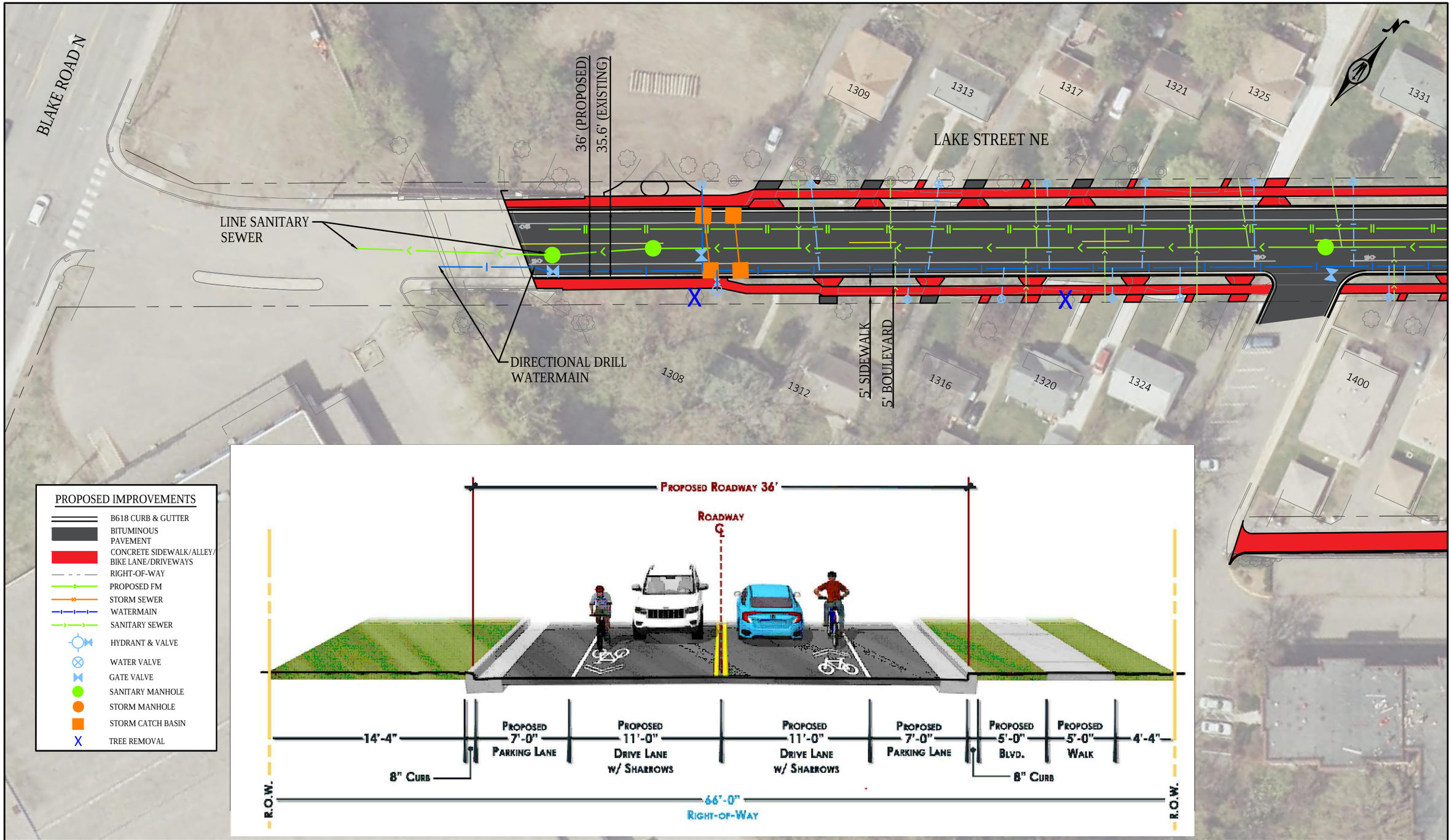
CITY OF HOPKINS, MINNESOTA
2018 STREET & UTILITY IMPROVEMENTS
PROJECT LOCATION MAP

Sheet 1.1



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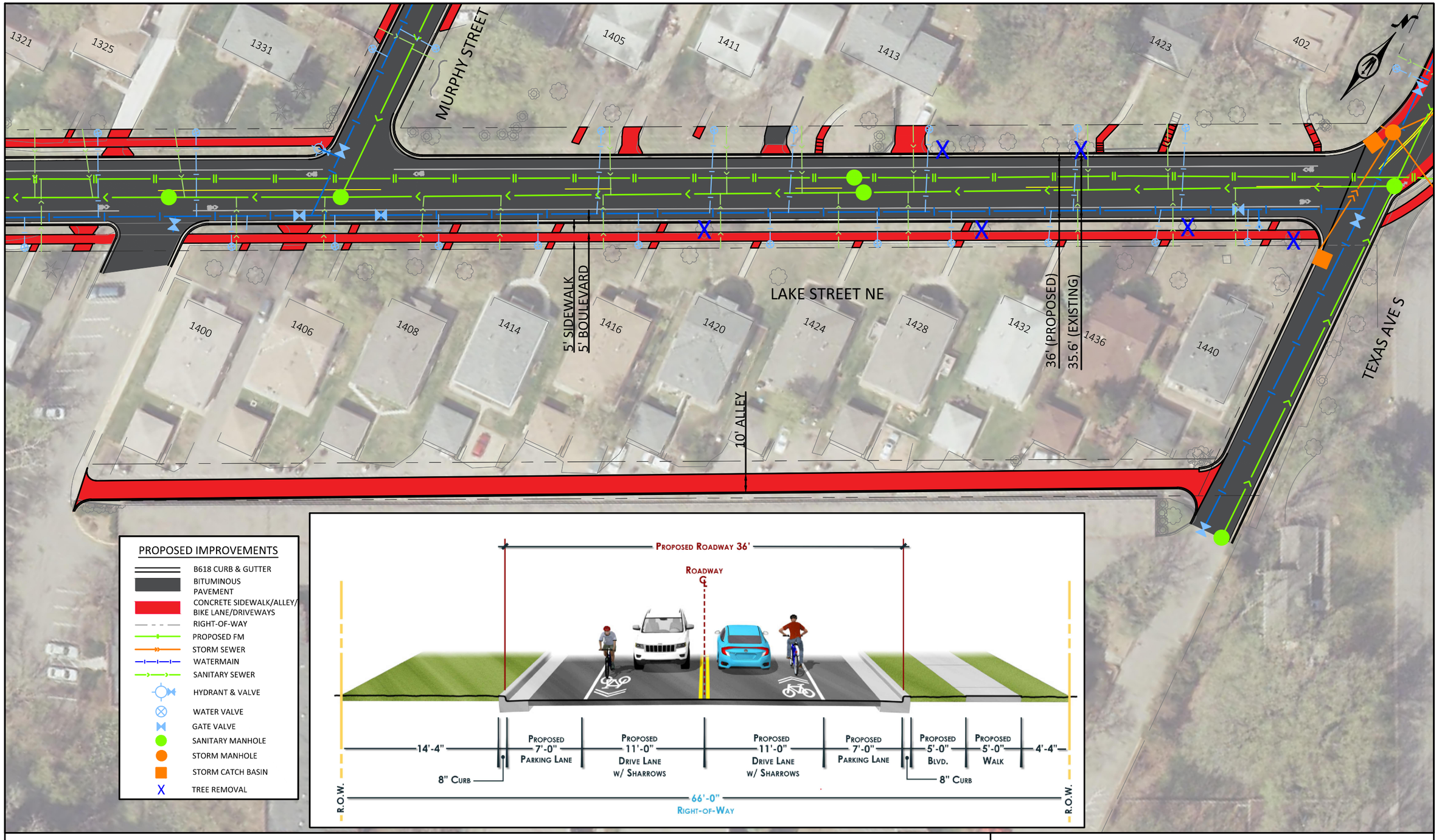
CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
LAKE STREET NE

Sheet 2.1



PROPOSED IMPROVEMENTS

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK/ALLEY/ BIKE LANE/DRIVEWAYS
- RIGHT-OF-WAY
- PROPOSED FM
- STORM SEWER
- WATERMAIN
- SANITARY SEWER
- HYDRANT & VALVE
- WATER VALVE
- GATE VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- TREE REMOVAL

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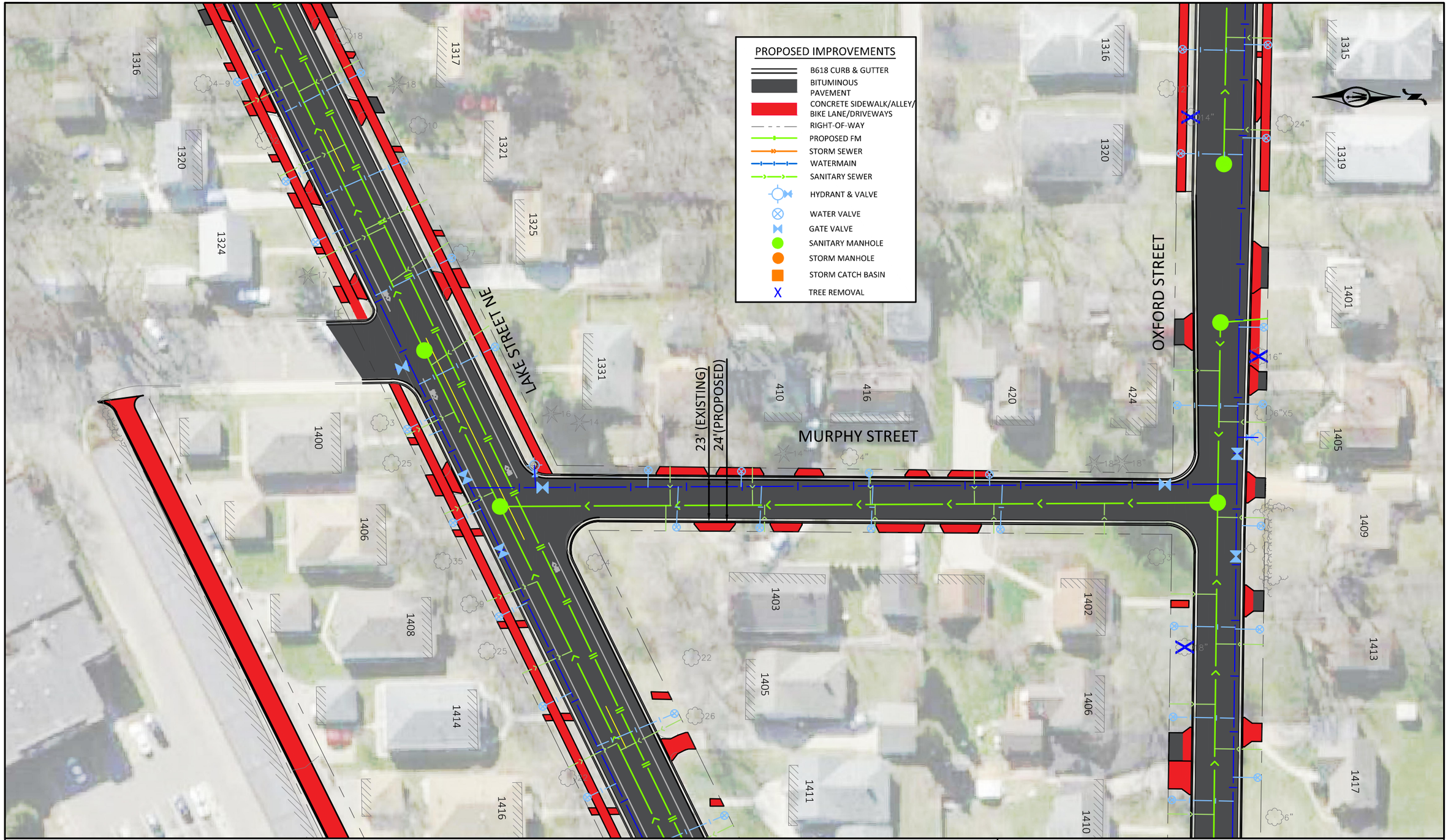
CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
LAKE STREET NE & ALLEY

Sheet 2.2



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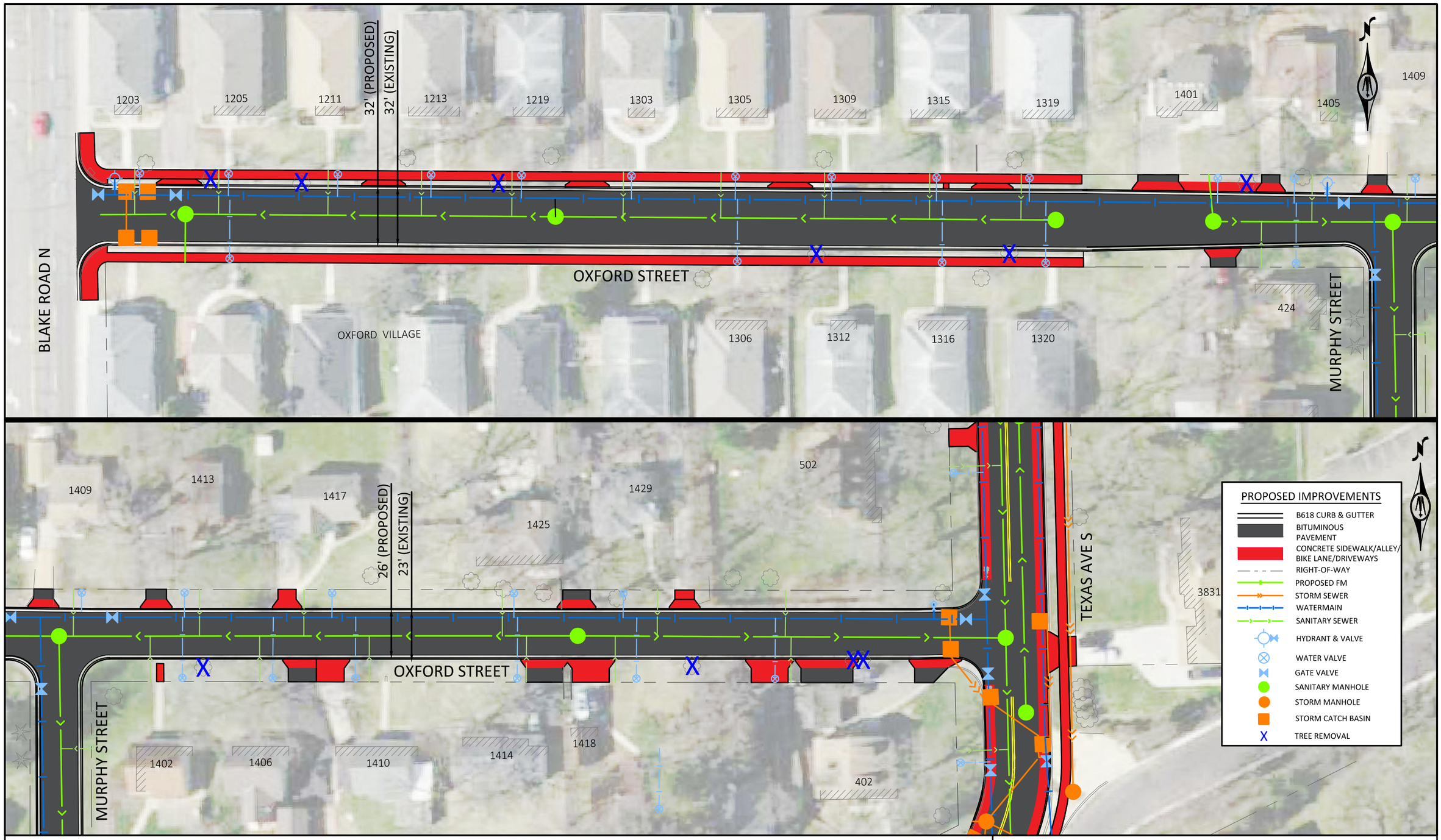
CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
MURPHY STREET

Sheet 2.3



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CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
OXFORD STREET

Sheet 2.4

PROPOSED IMPROVEMENTS

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK/ALLEY/ BIKE LANE/DRIVEWAYS
- RIGHT-OF-WAY
- PROPOSED FM
- STORM SEWER
- WATERMAIN
- SANITARY SEWER
- HYDRANT & VALVE
- WATER VALVE
- GATE VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- TREE REMOVAL

BLAKE ROAD N

DRAINAGE AND UTILITIES EASEMENT

38' (PROPOSED)

38.5' (EXISTING)

CAMBRIDGE STREET

DIRECTIONAL DRILL/ PIPE BURST WATERMAIN

1313

1401

1220

1402

604

29.5' (EXISTING)

32' (PROPOSED)

3769

1401

1407

1409

1413

1417

1421

1429

602

CAMBRIDGE STREET

1426

1430

518

1402

1406

1410

1414

1418

1422

TEXAS AVE S

0 50 100

SCALE FEET

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CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
CAMBRIDGE STREET

Sheet 2.5

DIVISION STREET

19.1' (EXISTING)
20' (PROPOSED)

EASEMENT

DIRECTIONAL DRILL/
PIPE BURST WATERMAIN

1321
1406
1410
1416
1418
1424
1426
1430
1498
620

TEXAS AVE S

29.6' (EXISTING)
30' (PROPOSED)

DIVISION STREET

1410
1416
1418
1424
1426
1430
1498
620
7922
7919

PROPOSED IMPROVEMENTS

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK/ALLEY/ BIKE LANE/DRIVEWAYS
- RIGHT-OF-WAY
- PROPOSED FM
- STORM SEWER
- WATERMAIN
- SANITARY SEWER
- HYDRANT & VALVE
- WATER VALVE
- GATE VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- X TREE REMOVAL

0 50 100
SCALE FEET

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CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
DIVISION STREET

Sheet 2.6

LAKE STREET NE

OXFORD STREET

CAMBRIDGE STREET

TEXAS AVE S

5' SIDEWALK

6' BOULEVARD

5' BIKE LANE

34' (PROPOSED)

35.6 (EXISTING)

5' BIKE LANE

REMOVE BOULDERS

REMOVE LANDSCAPING

402

502

514

518

604

610

614

620

3831

3821

3801

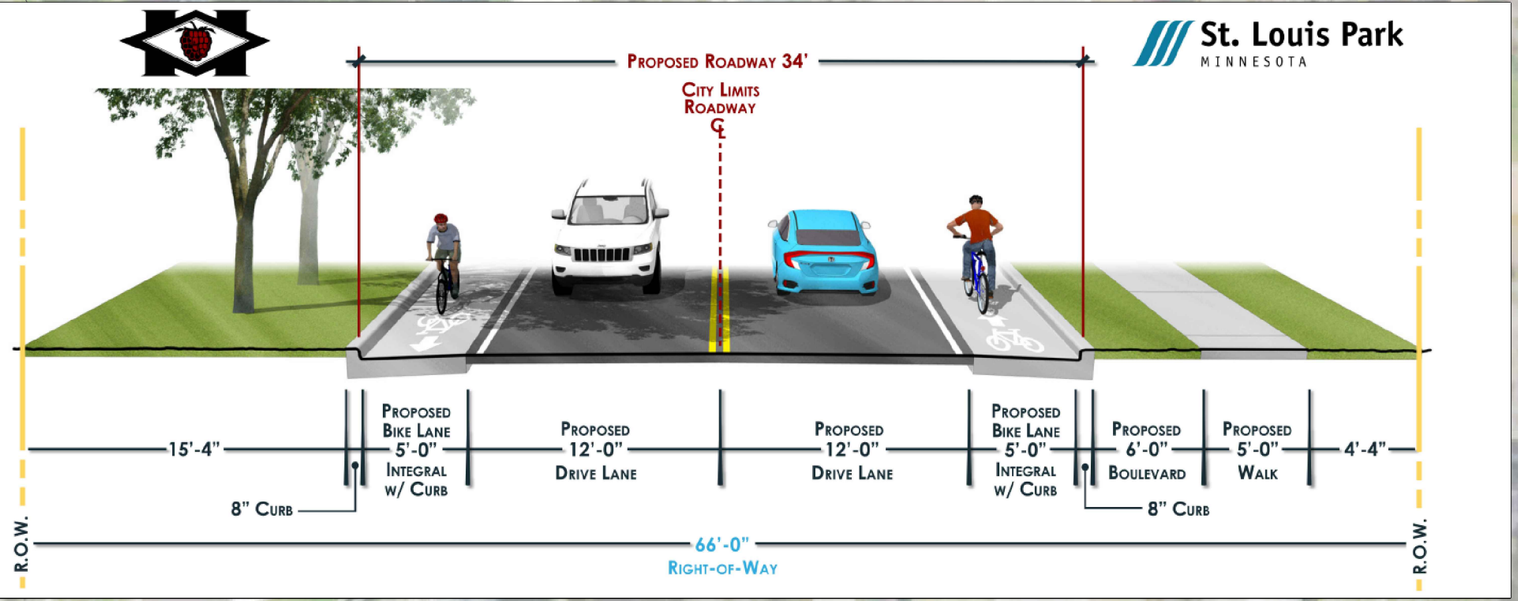
3769

3763

7919

PROPOSED IMPROVEMENTS

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK/ALLEY/ BIKE LANE/DRIVEWAYS
- RIGHT-OF-WAY
- PROPOSED FM
- STORM SEWER
- WATERMAIN
- SANITARY SEWER
- HYDRANT & VALVE
- WATER VALVE
- GATE VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- TREE REMOVAL



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SCALE FEET

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CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
TEXAS AVE S

Sheet 2.7

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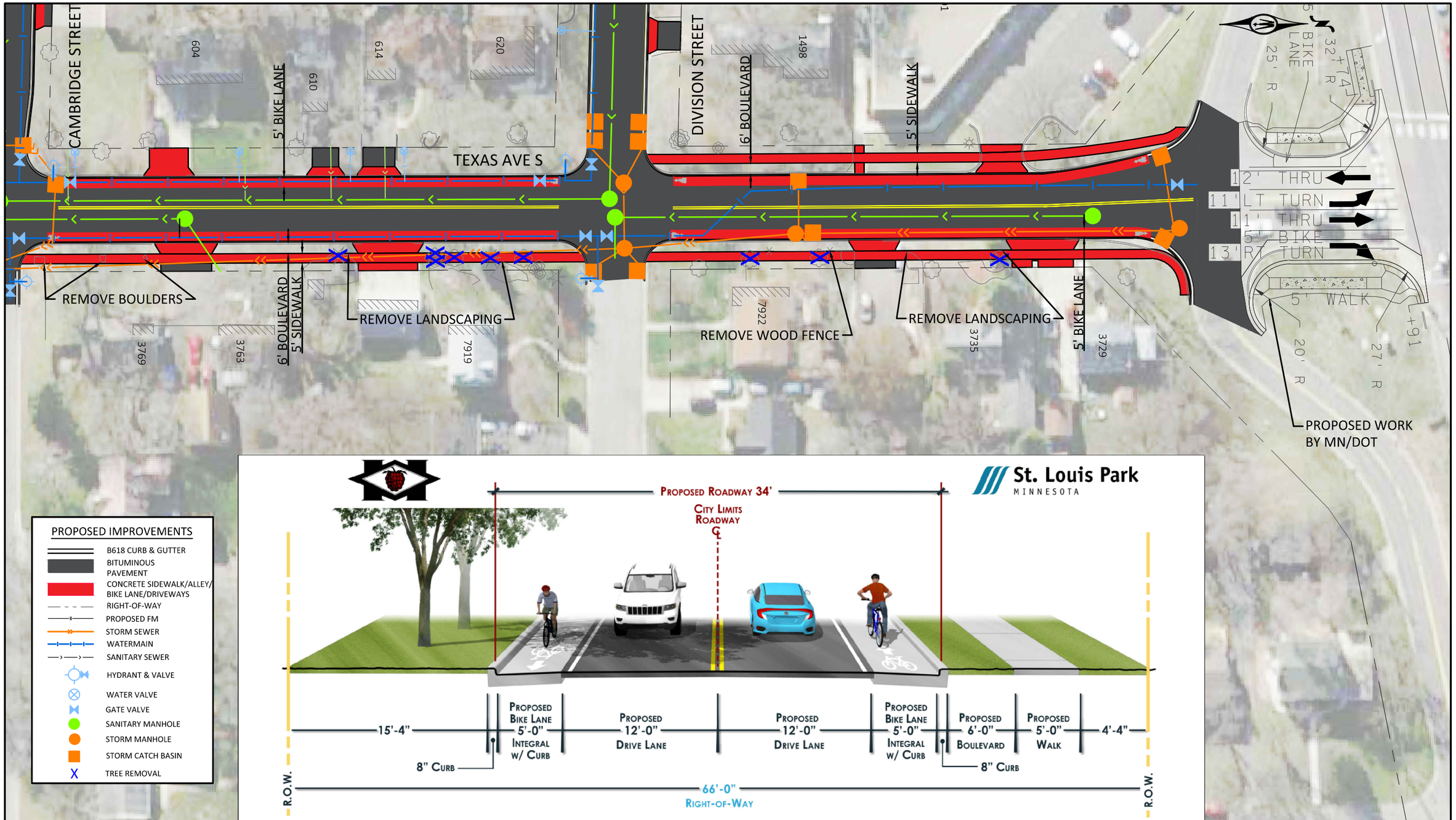

PROPOSED IMPROVEMENTS

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK/ALLEY/ BIKE LANE/DRIVEWAYS
- RIGHT-OF-WAY
- PROPOSED FM
- STORM SEWER
- WATERMAIN
- SANITARY SEWER
- HYDRANT & VALVE
- WATER VALVE
- GATE VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- TREE REMOVAL

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SCALE FEET

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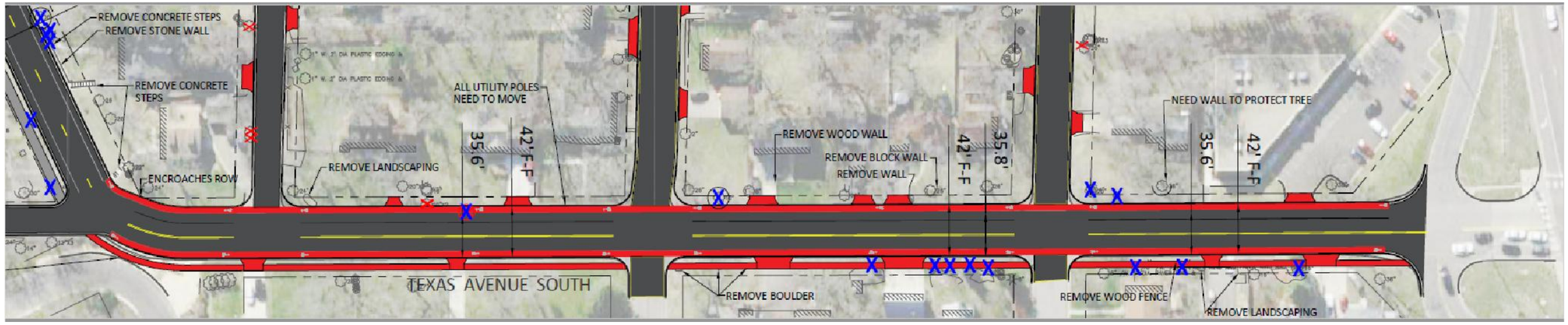
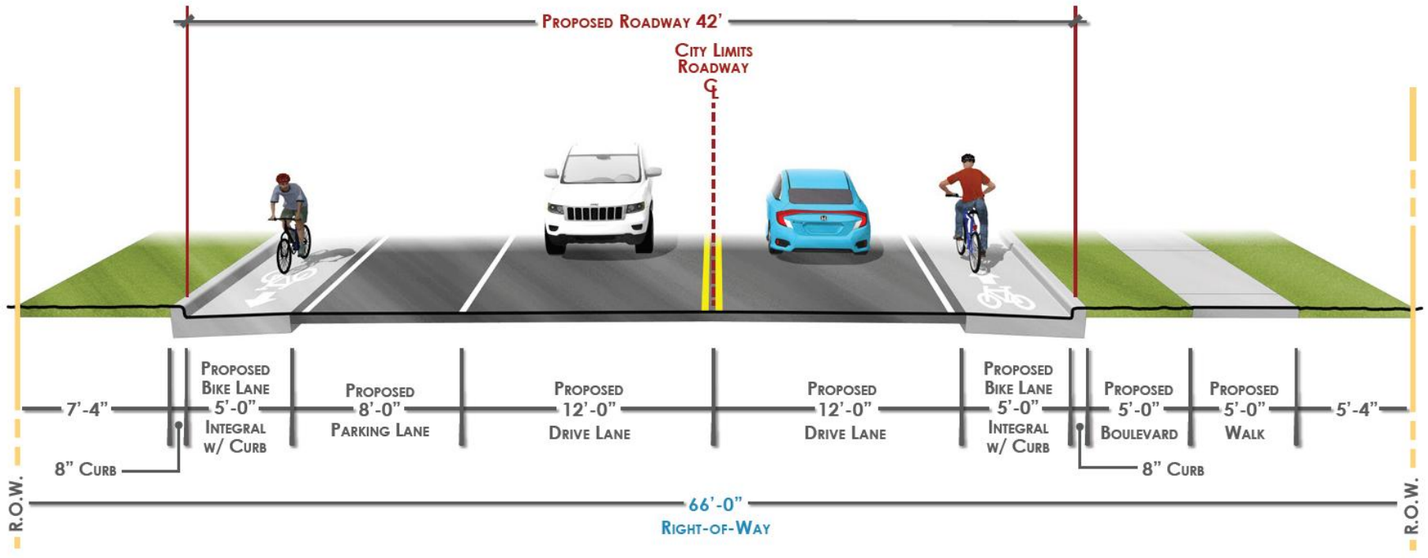
CITY OF HOPKINS
2018 STREET & UTILITY IMPROVEMENTS
TEXAS AVE S

Sheet 2.8





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TEXAS AVENUE SOUTH
ALTERNATIVE LAYOUT 1

Sheet 3.1

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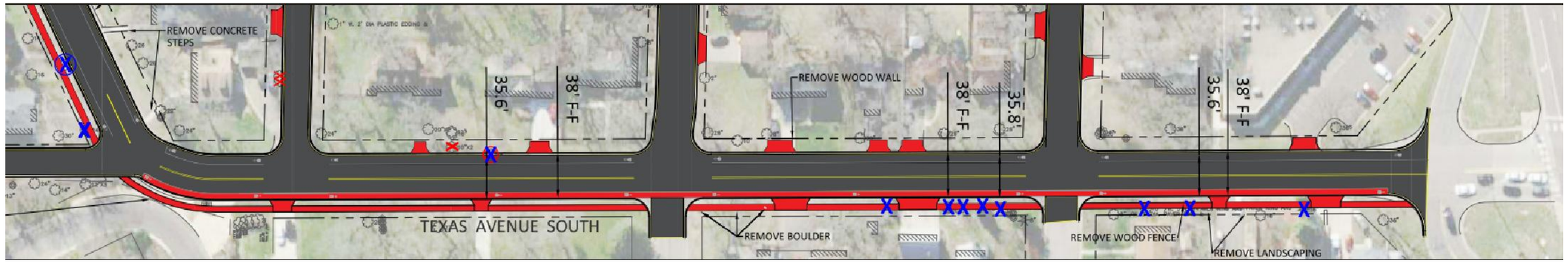

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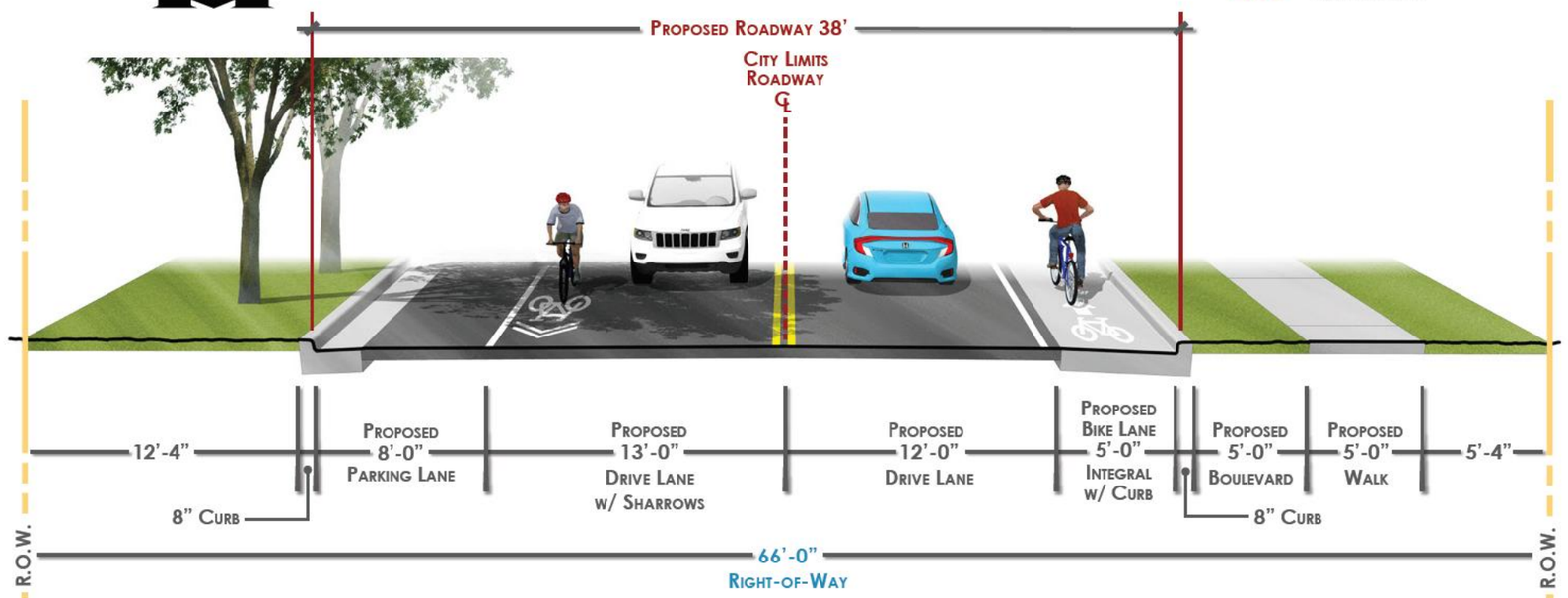

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TEXAS AVENUE SOUTH
ALTERNATIVE LAYOUT 2

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Appendix C:

Preliminary Assessment Roll

PRELIMINARY ASSESSMENT ROLL

2018 STREET & UTILITY IMPROVEMENTS
CITY OF HOPKINS, MN
BMI PROJECT NO. T19.114259

10/10/2017

								FRONT FOOT ASSESSMENTS											A	STREET ASSESSMENT CAP	B				
PID	ADDITION NAME	ADDITION CODE	ADDRESS		OWNER NAME	OWNER NAME 2	GROUP	FRONT FOOTAGE	ADJUSTED FRONT FOOTAGE	DIVISION ST	TEXAS AVE S	CAMBRIDGE ST	OXFORD ST	LAKE ST NE	MURPHY ST	SUBTOTAL FRONT FOOT ASSESSMENT	ALLEY LAKE ST NE	SUBTOTAL UNIT ASSESSMENT	STREET ASSESSMENT WITHOUT CAP CONSIDERED	ASSESSMENT RATE CAP PER FRONT FOOT	STREET ASSESSMENT PER CAP	PROPOSED STREET ASSESSMENT (Lesser of Column A or B)	PROPOSED SEWER SERVICE ASSESSMENT	PROPOSED WATER SERVICE ASSESSMENT	TOTAL PROPOSED ASSESSMENT
053-1911721110007	AUDITOR'S SUBD. NO. 239	37110	1430	DIVISION ST	GREAT LAKE HOME BLDRS LLC		A	**60.00**		$ 158.61	$ -	$ -	$ -	$ -	$ -	$ 9,516.60		$ -	$ 9,516.60	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110006	AUDITOR'S SUBD. NO. 239	37110	1426	DIVISION ST	NATALIE J & AARON R MORLAND		A	**60.00**		$ 158.61						$ 9,516.60			$ 9,516.60	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110005	AUDITOR'S SUBD. NO. 239	37110	1424	DIVISION ST	D L CHRISTENSON-WALLEN		A	**60.00**		$ 158.61						$ 9,516.60			$ 9,516.60	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110004	AUDITOR'S SUBD. NO. 239	37110	1418	DIVISION ST	ALLURE DEVELOPMENTS LLC		A	**60.00**		$ 158.61						$ 9,516.60			$ 9,516.60	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110002	AUDITOR'S SUBD. NO. 239	37110	1410	DIVISION ST	SHIRLEY M & R B JAMISON II		A	**60.00**		$ 158.61						$ 9,516.60			$ 9,516.60	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110003	AUDITOR'S SUBD. NO. 239	37110	1416	DIVISION ST	PAUL & SHIRLEY BENGTSON		A	**60.00**		$ 158.61						$ 9,516.60			$ 9,516.60	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110001	AUDITOR'S SUBD. NO. 239	37110	1406	DIVISION ST	THOMAS YARDIC & ROBIN YARDIC		A	**122.29**		$ 158.61						$ 19,396.42			$ 19,396.42	$ 88.89	$ 10,870.36	$ 10,870.36	$ 1,000.00	$ 1,300.00	**$ 13,170.36**
053-1911721110030	AUDITOR'S SUBD. NO. 239	37110	518	TEXAS AVE	ANDRE M PLEASANT		B	**74.92**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 23,262.66		$ -	$ 23,262.66	$ 88.89	$ 6,659.64	$ 6,659.64	$ 1,000.00	$ 1,300.00	**$ 8,959.64**
053-1911721110109	Q R SMITH ADDN TO HOPKINS	37570	402	TEXAS AVE	S BINENSTOCK & C BINENSTOCK		B	**77.17**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 23,961.29		$ -	$ 23,961.29	$ 88.89	$ 6,859.64	$ 6,859.64	$ 1,000.00	$ 1,300.00	**$ 9,159.64**
053-1911721110012	AUDITOR'S SUBD. NO. 239	37110	602	TEXAS AVE	DANIEL L STOVER		B	**50.00**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 15,525.00		$ -	$ 15,525.00	$ 88.89	$ 4,444.50	$ 4,444.50	$ 1,000.00	$ 1,300.00	**$ 6,744.50**
053-1911721110008	AUDITOR'S SUBD. NO. 239	37110	620	TEXAS AVE	SCOTT LUDWIG		B	**49.57**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 15,391.49		$ -	$ 15,391.49	$ 88.89	$ 4,406.28	$ 4,406.28	$ 1,000.00	$ 1,300.00	**$ 6,706.28**
053-1911721110031	AUDITOR'S SUBD. NO. 239	37110	514	TEXAS AVE	RICHARD & DIANE ENGLUND		B	**89.81**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 27,886.01		$ -	$ 27,886.01	$ 88.89	$ 7,983.21	$ 7,983.21	$ 1,000.00	$ 1,300.00	**$ 10,283.21**
053-1911721110009	AUDITOR'S SUBD. NO. 239	37110	614	TEXAS AVE	SILVIA ARREGUI JIMENEZ		B	**56.50**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 17,543.25		$ -	$ 17,543.25	$ 88.89	$ 5,022.29	$ 5,022.29	$ 1,000.00	$ 1,300.00	**$ 7,322.29**
053-1911721110010	AUDITOR'S SUBD. NO. 239	37110	610	TEXAS AVE	BERGS ABODES TEXAS LLC		B	**57.00**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 17,698.50		$ -	$ 17,698.50	$ 88.89	$ 5,066.73	$ 5,066.73	$ 1,000.00	$ 1,300.00	**$ 7,366.73**
053-1911721110011	AUDITOR'S SUBD. NO. 239	37110	604	TEXAS AVE	GERALD & MARLYS SCHIEFERT		B	**58.00**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 18,009.00		$ -	$ 18,009.00	$ 88.89	$ 5,155.62	$ 5,155.62	$ 1,000.00	$ 1,300.00	**$ 7,455.62**
053-1911721110032	AUDITOR'S SUBD. NO. 239	37110	502	TEXAS AVE	LOU ANN OLSON		B	**109.70**		$ -	$ 310.50	$ -	$ -	$ -	$ -	$ 34,061.85		$ -	$ 34,061.85	$ 88.89	$ 9,751.23	$ 9,751.23	$ 1,000.00	$ 1,300.00	**$ 12,051.23**
053-1911721110016	AUDITOR'S SUBD. NO. 239	37110	1417	CAMBRIDGE ST	THOMAS J SCHREINER		C	**50.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 8,427.50		$ -	$ 8,427.50	$ 88.89	$ 4,444.50	$ 4,444.50	$ 1,000.00	$ 1,300.00	**$ 6,744.50**
053-1911721110026	AUDITOR'S SUBD. NO. 239	37110	1418	CAMBRIDGE ST	MICHAEL/JANELLE SCHNECKLOTH		C	**50.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 8,427.50		$ -	$ 8,427.50	$ 88.89	$ 4,444.50	$ 4,444.50	$ 1,000.00	$ 1,300.00	**$ 6,744.50**
053-1911721110027	AUDITOR'S SUBD. NO. 239	37110	1422	CAMBRIDGE ST	AQUILA PROPERTIES LLC		C	**49.06**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 8,269.06		$ -	$ 8,269.06	$ 88.89	$ 4,360.94	$ 4,360.94	$ 1,000.00	$ 1,300.00	**$ 6,660.94**
053-1911721110029	AUDITOR'S SUBD. NO. 239	37110	1430	CAMBRIDGE ST	FARIDA HABIB		C	**57.95**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 9,767.47		$ -	$ 9,767.47	$ 88.89	$ 5,151.18	$ 5,151.18	$ 1,000.00	$ 1,300.00	**$ 7,451.18**
053-1911721110013	AUDITOR'S SUBD. NO. 239	37110	1429	CAMBRIDGE ST	R E & A L ANDERSON		C	**60.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 10,113.00		$ -	$ 10,113.00	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110014	AUDITOR'S SUBD. NO. 239	37110	1425	CAMBRIDGE ST	ELIZABETH & THOMAS MILLER		C	**60.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 10,113.00		$ -	$ 10,113.00	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110015	AUDITOR'S SUBD. NO. 239	37110	1421	CAMBRIDGE ST	ELIZABETH & THOMAS MILLER		C	**60.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 10,113.00		$ -	$ 10,113.00	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110017	AUDITOR'S SUBD. NO. 239	37110	1413	CAMBRIDGE ST	GARY J DUDA		C	**60.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 10,113.00		$ -	$ 10,113.00	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110019	AUDITOR'S SUBD. NO. 239	37110	1407	CAMBRIDGE ST	SHANE SHOWERS		C	**69.88**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,778.27		$ -	$ 11,778.27	$ 88.89	$ 6,211.63	$ 6,211.63	$ 1,000.00	$ 1,300.00	**$ 8,511.63**
053-1911721110028	AUDITOR'S SUBD. NO. 239	37110	1426	CAMBRIDGE ST	BENJAMIN A & KRISTY NORDEEN		C	**80.80**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 13,618.84		$ -	$ 13,618.84	$ 88.89	$ 7,182.31	$ 7,182.31	$ 1,000.00	$ 1,300.00	**$ 9,482.31**
053-1911721110122	AUDITOR'S SUBD. NO. 239	37110	1410	CAMBRIDGE ST	MARIO P LORETO		C	**66.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,124.30		$ -	$ 11,124.30	$ 88.89	$ 5,866.74	$ 5,866.74	$ 1,000.00	$ 1,300.00	**$ 8,166.74**
053-1911721110020	AUDITOR'S SUBD. NO. 239	37110	1401	CAMBRIDGE ST	MARY TSCHIDA		C	**70.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,798.50		$ -	$ 11,798.50	$ 88.89	$ 6,222.30	$ 6,222.30	$ 1,000.00	$ 1,300.00	**$ 8,522.30**
053-1911721110022	AUDITOR'S SUBD. NO. 239	37110	1406	CAMBRIDGE ST	KEITH WASHINGTON		C	**66.67**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,237.23		$ -	$ 11,237.23	$ 88.89	$ 5,926.30	$ 5,926.30	$ 1,000.00	$ 1,300.00	**$ 8,226.30**
053-1911721110025	AUDITOR'S SUBD. NO. 239	37110	1414	CAMBRIDGE ST	KATHRYN ANN CORAZZO		C	**66.00**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,124.30		$ -	$ 11,124.30	$ 88.89	$ 5,866.74	$ 5,866.74	$ 1,000.00	$ 1,300.00	**$ 8,166.74**
053-1911721110021	AUDITOR'S SUBD. NO. 239	37110	1402	CAMBRIDGE ST	STEPHEN & PENNY SHIMIZU		C	**66.73**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,247.34		$ -	$ 11,247.34	$ 88.89	$ 5,931.63	$ 5,931.63	$ 1,000.00	$ 1,300.00	**$ 8,231.63**
053-1911721110018	AUDITOR'S SUBD. NO. 239	37110	1409	CAMBRIDGE ST	ANDREW & NAOMI NELSON		C	**69.89**		$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 11,779.96		$ -	$ 11,779.96	$ 88.89	$ 6,212.52	$ 6,212.52	$ 1,000.00	$ 1,300.00	**$ 8,512.52**
053-1911721110053	AUDITOR'S SUBD. NO. 239	37110	1315	CAMBRIDGE ST	ALFRED K PETERSON JR		C	**140.00**	**125.00**	$ -	$ -	$ 168.55	$ -	$ -	$ -	$ 21,068.75		$ -	$ 21,068.75	$ 88.89	$ 11,111.25	$ 11,111.25	$ 1,000.00	$ 1,300.00	**$ 13,411.25**
053-1911721110038	AUDITOR'S SUBD. NO. 239	37110	1401	OXFORD ST	ANDREW CHAUSSEE		D	**73.12**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 12,056.03		$ -	$ 12,056.03	$ 88.89	$ 6,499.64	$ 6,499.64	$ 1,000.00	$ 1,300.00	**$ 8,799.64**
053-1911721110064	AUDITOR'S SUBD. NO. 239	37110	1203	OXFORD ST	ROSA ZAVALA RAMIREZ		D	**50.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 8,244.00		$ -	$ 8,244.00	$ 88.89	$ 4,444.50	$ 4,444.50	$ 1,000.00	$ 1,300.00	**$ 6,744.50**
053-1911721110068	AUDITOR'S SUBD. NO. 239	37110	1306	OXFORD ST	TCHAD TU HENDERSON		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110061	AUDITOR'S SUBD. NO. 239	37110	1213	OXFORD ST	RYAN & PATRICIA GODFREY		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110056	AUDITOR'S SUBD. NO. 239	37110	1315	OXFORD ST	STEVEN D JOHNSON		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110062	AUDITOR'S SUBD. NO. 239	37110	1211	OXFORD ST	JERAN PROPERTIES LLC		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110059	AUDITOR'S SUBD. NO. 239	37110	1303	OXFORD ST	COMM INVOLVEMENT PROGRAMS		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110066	AUDITOR'S SUBD. NO. 239	37110	1316	OXFORD ST	CHAD BROVOLD		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110057	AUDITOR'S SUBD. NO. 239	37110	1309	OXFORD ST	ROBERT W GIBSON		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110063	AUDITOR'S SUBD. NO. 239	37110	1205	OXFORD ST	JIK PROPERTIES LLC		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110058	AUDITOR'S SUBD. NO. 239	37110	1305	OXFORD ST	RICHARD D & DIANE M ENGLUND		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110060	AUDITOR'S SUBD. NO. 239	37110	1219	OXFORD ST	SCOTT R & DENISE SPORER		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110055	AUDITOR'S SUBD. NO. 239	37110	1319	OXFORD ST	JASON LAWRENCE LAINE		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110065	AUDITOR'S SUBD. NO. 239	37110	1320	OXFORD ST	JESSICA PLOWMAN		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110067	AUDITOR'S SUBD. NO. 239	37110	1312	OXFORD ST	ROBERT & CHRISTINE JOHANSEN		D	**55.00**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,068.40		$ -	$ 9,068.40	$ 88.89	$ 4,888.95	$ 4,888.95	$ 1,000.00	$ 1,300.00	**$ 7,188.95**
053-1911721110033	AUDITOR'S SUBD. NO. 239	37110	1429	OXFORD ST	JAMIE R CLINE		D	**58.07**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,574.58		$ -	$ 9,574.58	$ 88.89	$ 5,161.84	$ 5,161.84	$ 1,000.00	$ 1,300.00	**$ 7,461.84**
053-1911721110115	Q R SMITH ADDN TO HOPKINS	37570	1406	OXFORD ST	KELLY J NELSON		D	**59.92**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 9,879.61		$ -	$ 9,879.61	$ 88.89	$ 5,326.29	$ 5,326.29	$ 1,000.00	$ 1,300.00	**$ 7,626.29**
053-1911721110113	Q R SMITH ADDN TO HOPKINS	37570	1410	OXFORD ST	ALAN D HESS		D	**69.91**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 11,526.76		$ -	$ 11,526.76	$ 88.89	$ 6,214.30	$ 6,214.30	$ 1,000.00	$ 1,300.00	**$ 8,514.30**
053-1911721110116	Q R SMITH ADDN TO HOPKINS	37570	1402	OXFORD ST	LINDSAY WARNER		D	**61.82**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 10,192.88		$ -	$ 10,192.88	$ 88.89	$ 5,495.18	$ 5,495.18	$ 1,000.00	$ 1,300.00	**$ 7,795.18**
053-1911721110035	AUDITOR'S SUBD. NO. 239	37110	1417	OXFORD ST	SANDRA HUNNER		D	**77.83**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 12,832.61		$ -	$ 12,832.61	$ 88.89	$ 6,918.31	$ 6,918.31	$ 1,000.00	$ 1,300.00	**$ 9,218.31**
053-1911721110111	Q R SMITH ADDN TO HOPKINS	37570	1414	OXFORD ST	MARIE A HUNNER		D	**65.26**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 10,760.07		$ -	$ 10,760.07	$ 88.89	$ 5,800.96	$ 5,800.96	$ 1,000.00	$ 1,300.00	**$ 8,100.96**
053-1911721110123	AUDITOR'S SUBD. NO. 239	37110	1409	OXFORD ST	JEFFREY L PETERSON		D	**65.55**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 10,807.88		$ -	$ 10,807.88	$ 88.89	$ 5,826.74	$ 5,826.74	$ 1,000.00	$ 1,300.00	**$ 8,126.74**
053-1911721110036	AUDITOR'S SUBD. NO. 239	37110	1413	OXFORD ST	GRANT MIXDORF		D	**65.55**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 10,807.88		$ -	$ 10,807.88	$ 88.89	$ 5,826.74	$ 5,826.74	$ 1,000.00	$ 1,300.00	**$ 8,126.74**
053-1911721110037	AUDITOR'S SUBD. NO. 239	37110	1405	OXFORD ST	ERIC E KIRSCCHNER		D	**66.65**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 10,989.25		$ -	$ 10,989.25	$ 88.89	$ 5,924.52	$ 5,924.52	$ 1,000.00	$ 1,300.00	**$ 8,224.52**
053-1911721110034	AUDITOR'S SUBD. NO. 239	37110	1425	OXFORD ST	MAX LUNDEEN & ANGELA LUNDEEN		D	**102.14**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 16,840.84		$ -	$ 16,840.84	$ 88.89	$ 9,079.22	$ 9,079.22	$ 1,000.00	$ 1,300.00	**$ 11,379.22**
053-1911721110110	Q R SMITH ADDN TO HOPKINS	37570	1418	OXFORD ST	HEIDI M JANZIG		D	**64.86**		$ -	$ -	$ -	$ 164.88	$ -	$ -	$ 10,694.12		$ -	$ 10,694.12	$ 88.89	$ 5,765.41	$ 5,765.41	$ 1,000.00	$ 1,300.00	**$ 8,065.41**
053-1911721110114	Q R SMITH ADDN TO HOPKINS	37570	1411	LAKE ST N E	CARL D MCKINLEY		E	**78.44**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 17,047.37		$ -	$ 17,047.37	$ 88.89	$ 6,972.53	$ 6,972.53	$ 1,000.00	$ 1,300.00	**$ 9,272.53**
053-1911721110108	Q R SMITH ADDN TO HOPKINS	37570	1423	LAKE ST N E	D M BERG & C OLSON-BERG		E	**53.08**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 11,535.88		$ -	$ 11,535.88	$ 88.89	$ 4,718.28	$ 4,718.28	$ 1,000.00	$ 1,300.00	**$ 7,018.28**
053-1911721110082	AUDITOR'S SUBD. NO. 239	37110	1321	LAKE ST N E	MARIA MEZA		E	**56.15**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,203.08		$ -	$ 12,203.08	$ 88.89	$ 4,991.17	$ 4,991.17	$ 1,000.00	$ 1,300.00	**$ 7,291.17**
053-1911721110105	AUDITOR'S SUBD. NO. 363	37125	1312	LAKE ST N E	MINNEHAHA CREEK WTRSHED DIST		E	**55.38**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,035.74		$ -	$ 12,035.74	$ 88.89	$ 4,922.73	$ 4,922.73	$ 1,000.00	$ 1,300.00	**$ 7,222.73**
053-1911721110112	Q R SMITH ADDN TO HOPKINS	37570	1413	LAKE ST N E	DAVID WIEBELHAUS		E	**72.60**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 15,778.16		$ -	$ 15,778.16	$ 88.89	$ 6,453.41	$ 6,453.41	$ 1,000.00	$ 1,300.00	**$ 8,753.41**
053-1911721110118	Q R SMITH ADDN TO HOPKINS	37570	1405	LAKE ST N E	ESSO PROPERTIES LLC		E	**67.00**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 14,561.11		$ -	$ 14,561.11	$ 88.89	$ 5,955.63	$ 5,955.63	$ 1,000.00	$ 1,300.00	**$ 8,255.63**
053-1911721110083	AUDITOR'S SUBD. NO. 239	37110	1317	LAKE ST N E	MICHELLE T SHARP		E	**56.15**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,203.08		$ -	$ 12,203.08	$ 88.89	$ 4,991.17	$ 4,991.17	$ 1,000.00	$ 1,300.00	**$ 7,291.17**
053-1911721110120	AUDITOR'S SUBD. NO. 239	37110	1331	LAKE ST N E	SCOTT L VAN DER HAEGHEN		E	**104.10**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 22,624.05		$ -	$ 22,624.05	$ 88.89	$ 9,253.45	$ 9,253.45	$ 1,000.00	$ 1,300.00	**$ 11,553.45**
053-1911721110124	AUDITOR'S SUBD. NO. 239	37110	1325	LAKE ST N E	AMY H FRIESEN		E	**60.59**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 13,168.02		$ -	$ 13,168.02	$ 88.89	$ 5,385.85	$ 5,385.85	$ 1,000.00	$ 1,300.00	**$ 7,685.85**
053-1911721110104	AUDITOR'S SUBD. NO. 363	37125	1316	LAKE ST N E	RACHEL E BROWN AND		E	**55.30**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,018.35		$ -	$ 12,018.35	$ 88.89	$ 4,915.62	$ 4,915.62	$ 1,000.00	$ 1,300.00	**$ 7,215.62**
053-1911721110117	Q R SMITH ADDN TO HOPKINS	37570	1403	LAKE ST N E	ANNA T FELKEY LOVAS		E	**69.03**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 15,002.29		$ -	$ 15,002.29	$ 88.89	$ 6,136.08	$ 6,136.08	$ 1,000.00	$ 1,300.00	**$ 8,436.08**
053-1911721110085	AUDITOR'S SUBD. NO. 239	37110	1309	LAKE ST N E	C J I DEALWIS & C F DEALWIS		E	**56.15**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,203.08		$ -	$ 12,203.08	$ 88.89	$ 4,991.17	$ 4,991.17	$ 1,000.00	$ 1,300.00	**$ 7,291.17**
053-1911721110106	AUDITOR'S SUBD. NO. 363	37125	1308	LAKE ST N E	MINNEHAHA CREEK WTRSHED DIST		E	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08		$ -	$ 12,040.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110102	AUDITOR'S SUBD. NO. 363	37125	1324	LAKE ST N E	MICHAEL D MATTER		E	**55.25**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,007.48		$ -	$ 12,007.48	$ 88.89	$ 4,911.17	$ 4,911.17	$ 1,000.00	$ 1,300.00	**$ 7,211.17**
053-1911721110103	AUDITOR'S SUBD. NO. 363	37125	1320	LAKE ST N E	PAUL G SICARD		E	**55.17**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 11,990.10		$ -	$ 11,990.10	$ 88.89	$ 4,904.06	$ 4,904.06	$ 1,000.00	$ 1,300.00	**$ 7,204.06**
053-1911721110086	AUDITOR'S SUBD. NO. 239	37110	1305	LAKE ST N E	MINNEHAHA CREEK WTRSHED DIST		E	**56.15**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,203.08		$ -	$ 12,203.08	$ 88.89	$ 4,991.17	$ 4,991.17	$ 1,000.00	$ 1,300.00	**$ 7,291.17**
053-1911721110084	AUDITOR'S SUBD. NO. 239	37110	1313	LAKE ST N E	DEBRA BUTLER		E	**56.15**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,203.08		$ -	$ 12,203.08	$ 88.89	$ 4,991.17	$ 4,991.17	$ 1,000.00	$ 1,300.00	**$ 7,291.17**
053-1911721110039	AUDITOR'S SUBD. NO. 239	37110	424	MURPHY AVE	JAMES C BROTHERTON JR		F	**65.12**		$ -	$ -	$ -	$ -	$ -	$ 342.95	$ 22,332.90		$ -	$ 22,332.90	$ 88.89	$ 5,788.52	$ 5,788.52	$ 1,000.00	$ 1,300.00	**$ 8,088.52**
053-1911721110040	AUDITOR'S SUBD. NO. 239	37110	420	MURPHY AVE	MICHELLE J BEACOM		F	**65.12**		$ -	$ -	$ -	$ -	$ -	$ 342.95	$ 22,332.90		$ -	$ 22,332.90	$ 88.89	$ 5,788.52	$ 5,788.52	$ 1,000.00	$ 1,300.00	**$ 8,088.52**
053-1911721110041	AUDITOR'S SUBD. NO. 239	37110	416	MURPHY AVE	HSUEH HSIANG WU/HONGXIA MIN		F	**60.00**		$ -	$ -	$ -	$ -	$ -	$ 342.95	$ 20,577.00		$ -	$ 20,577.00	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110042	AUDITOR'S SUBD. NO. 239	37110	410	MURPHY AVE	DAVID P PETRUSKA		F	**60.00**		$ -	$ -	$ -	$ -	$ -	$ 342.95	$ 20,577.00		$ -	$ 20,577.00	$ 88.89	$ 5,333.40	$ 5,333.40	$ 1,000.00	$ 1,300.00	**$ 7,633.40**
053-1911721110090	AUDITOR'S SUBD. NO. 363	37125	1440	LAKE ST N E	MITCHELL H ALBERS		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110091	AUDITOR'S SUBD. NO. 363	37125	1436	LAKE ST N E	M J DAHL		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110093	AUDITOR'S SUBD. NO. 363	37125	1428	LAKE ST N E	JOSHUA D JONES		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110095	AUDITOR'S SUBD. NO. 363	37125	1420	LAKE ST N E	SUNDAL PROPERTIES LLC		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110097	AUDITOR'S SUBD. NO. 363	37125	1414	LAKE ST N E	GARY SHELTON		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**

PRELIMINARY ASSESSMENT ROLL

2018 STREET & UTILITY IMPROVEMENTS
CITY OF HOPKINS, MN
BMI PROJECT NO. T19.114259

10/10/2017

PID	ADDITION NAME	ADDITION CODE	ADDRESS		OWNER NAME	OWNER NAME 2	GROUP	FRONT FOOT ASSESSMENTS											A	STREET ASSESSMENT CAP	B				
								FRONT FOOTAGE	ADJUSTED FRONT FOOTAGE	DIVISION ST	TEXAS AVE S	CAMBRIDG E ST	OXFORD ST	LAKE ST NE	MURPHY ST	SUBTOTAL FRONT FOOT ASSESSMENT	ALLEY LAKE ST NE	SUBTOTAL UNIT ASSESSMENT	STREET ASSESSMENT WITHOUT CAP CONSIDERED	ASSESSMENT RATE CAP PER FRONT FOOT	STREET ASSESSMENT PER CAP	PROPOSED STREET ASSESSMENT (Lesser of Column A or B)	PROPOSED SEWER SERVICE ASSESSMENT	PROPOSED WATER SERVICE ASSESSMENT	TOTAL PROPOSED ASSESSMENT
053-1911721110100	AUDITOR'S SUBD. NO. 363	37125	1400	LAKE ST N E	CREEKWOOD ESTATES APTS LLC		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110096	AUDITOR'S SUBD. NO. 363	37125	1416	LAKE ST N E	MELISSA D GENDRON		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110099	AUDITOR'S SUBD. NO. 363	37125	1406	LAKE ST N E	STEVEN & CHERYL BINENSTOCK		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110092	AUDITOR'S SUBD. NO. 363	37125	1432	LAKE ST N E	ANDREW WIEBERDINK		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110094	AUDITOR'S SUBD. NO. 363	37125	1424	LAKE ST N E	JEFFREY W GREER		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110098	AUDITOR'S SUBD. NO. 363	37125	1408	LAKE ST N E	LM & CB HOLDINGS LLC		G	**55.40**		$ -	$ -	$ -	$ -	$ 217.33	$ -	$ 12,040.08	$ 4,480.00	$ 4,480.00	$ 16,520.08	$ 88.89	$ 4,924.51	$ 4,924.51	$ 1,000.00	$ 1,300.00	**$ 7,224.51**
053-1911721110052	AUDITOR'S SUBD. NO. 239	37110	1321	DIVISION ST	DIVISION STREET PROPERTY LLP		H	**140.00**		$ 158.61						$ 22,205.40		$ -	$ 22,205.40		$ -	$ 22,205.40	$ 1,500.00	$ 4,000.00	**$ 27,705.40**
053-1911721110126	KNOWLWOOD CROSSINGS	09777	1301	CAMBRIDGE ST	CAMBRIDGE TOWERS		H	**268.00**				$ 168.55				$ 45,171.40		$ -	$ 45,171.40		$ -	$ 45,171.40	$ 2,000.00	$ 4,700.00	**$ 51,871.40**
053-1911721110049	AUDITOR'S SUBD. NO. 239	37110	1220	CAMBRIDGE ST	SELA INVESTMENTS LTD L L P		H	**544.00**				$ 168.55				$ 91,691.20		$ -	$ 91,691.20		$ -	$ 91,691.20	$ 3,300.00	$ 9,300.00	**$ 104,291.20**
053-1911721110125	KNOWLWOOD CROSSINGS	09777	525	BLAKE RD N	CH RETAIL FUND II/MPLS KNOLL		H	**137.00**				$ 168.55				$ 23,091.35		$ -	$ 23,091.35		$ -	$ 23,091.35	$ 2,000.00	$ 4,700.00	**$ 29,791.35**
053-1911721110127	OXFORD VILLAGE	10367	1202-1304	OXFORD ST	OXFORD VILLAGE LTD PRTNRSHP		H	**325.00**					$ 164.88			$ 53,586.00		$ -	$ 53,586.00		$ -	$ 53,586.00	$ 2,520.00	$ 5,550.00	**$ 61,656.00**
053-1911721110121	AUDITOR'S SUBD. NO. 239	37110	1328	LAKE ST N E	CREEKWOOD ESTATES APTS LLC		H	**80.00**						$ 217.33		$ 17,386.40	$ 49,280.00	$ 49,280.00	$ 66,666.40		$ -	$ 66,666.40	$ 6,000.00	$ 5,200.00	**$ 77,866.40**
																						PRELIMINARY TOTAL AMOUNT TO BE ASSESSED			**$ 1,073,630.41**

Hopkins Project Area

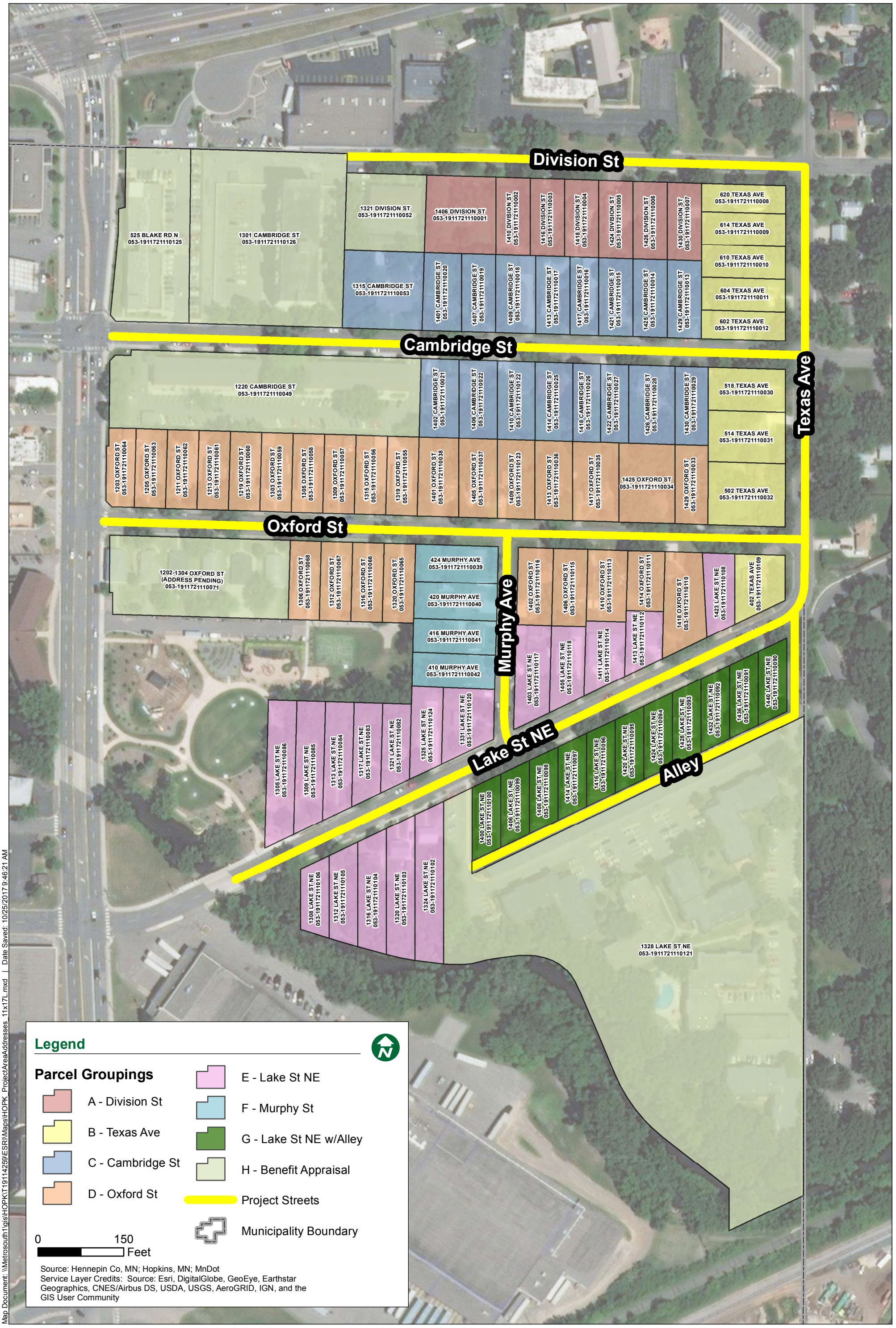
City of Hopkins, MN

2018 Assessment Roll

October 2017

BOLTON & MENK

Real People. Real Solutions.



Legend

Parcel Groupings

- A - Division St
- B - Texas Ave
- C - Cambridge St
- D - Oxford St
- E - Lake St NE
- F - Murphy St
- G - Lake St NE w/Alley
- H - Benefit Appraisal
- Project Streets
- Municipality Boundary

0 150 Feet

Source: Hennepin Co, MN; Hopkins, MN; MnDot
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Map Document: \\Metrosouth1\gis\HOPK\T19114259\ESRI\Maps\HOPK_ProjectAreaAddresses_11x17L.mxd | Date Saved: 10/25/2017 9:46:21 AM

Hopkins Project Area

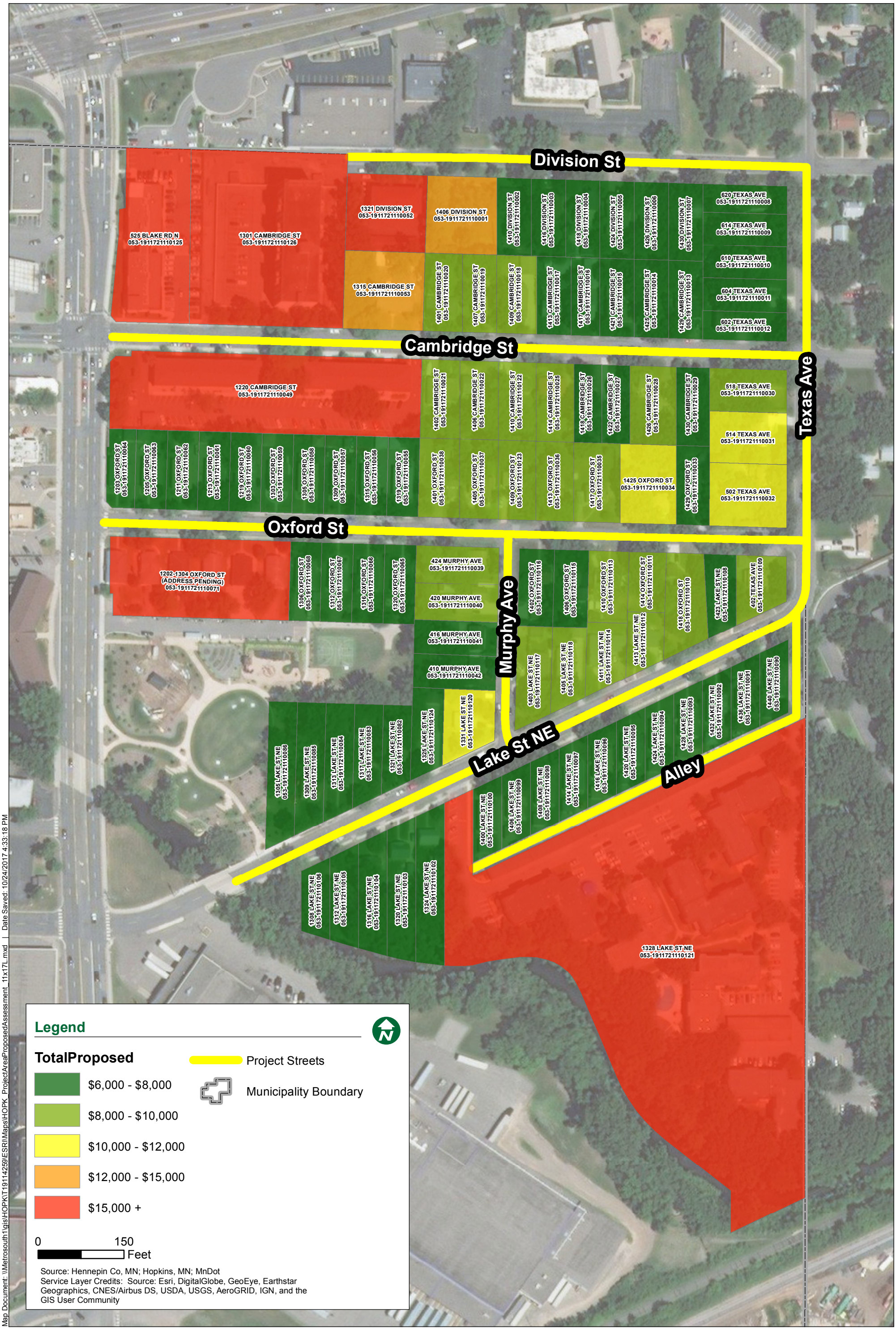
City of Hopkins, MN

2018 Proposed Total Assessment

October 2017

BOLTON & MENK

Real People. Real Solutions.



Legend

TotalProposed

- $6,000 - $8,000
- $8,000 - $10,000
- $10,000 - $12,000
- $12,000 - $15,000
- $15,000 +

Project Streets

Municipality Boundary

0 150 Feet

Source: Hennepin Co, MN; Hopkins, MN; MnDot
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Map Document: \\Metrosouth1\gis\HOPK\T19114259\ESRI\Maps\HOPK_ProjectAreaProposedAssessment_11x17L.mxd | Date Saved: 10/24/2017 4:33:18 PM

Appendix D:
Neighborhood Meeting
&
Resident Questionnaire

2018 STREET & UTILITY IMPROVEMENTS NEIGHBORHOOD MEETING #1 (9/27/17) SUMMARY

Q: 3750 Texas Ave was surprised by the sewer service that crosses his property and connect to the Church up the hill. The Church used to be on the entire block but the lot got subdivided. There is a Sanitary Manhole to the west of the driveway. Is there a way to move this sewer service off of the property?
A: It may be a possibility to move the service into the street before it crosses the property at 3750 Texas Ave. This will be looked at as design progresses.

Q: 1418 Cambridge St asked about specific concerns for removing the asphalt driveway and the garden area in front of their retaining wall.
A: The design team will follow up with the homeowner during final design.

Q: There was a concern about Lake St and Texas Ave access while Blake Rd construction occurred.
A: The project will be staged so that not all access will be blocked at the same time.

Q: Creekwood apartments has an annual striping project for their parking lot and plow the snow during the winter. During these times, those cars are forced to park on adjacent streets such as Texas Ave. Where will these cars park during those times if there is no parking allowed on Texas Ave.
A: This is a private issue for the apartments and it would only happen a few times a year. The project team can talk to the apartment complex to let them know they need to stripe and plow the lot in segments so that not all of their cars are forced to park on adjacent streets.

Q: What is going to be the impact on street parking due to the new apartments on Oxford?
A: There will be very minor to essentially zero impacts to street parking because the apartments have an underground garage and an outside lot. A study was done that shows there will only be a few additional cars on the street during peek times.

Q: Can there be parking on the east side of Oxford St?
A: Oxford Street is proposed to be widened by 3 feet so there is a possibility for more parking. This will be looked into as the design progresses to see if parking is feasible on this block.

Q: Can you park on the bike lanes overnight?
A: No, there will be no parking allowed on the bike lanes at any time.

Q: Is Texas Ave going to have parking lanes?
A: No, there will be no parking on either side of Texas Ave due to the bike lanes.

Q: The resident at 3831 Texas Ave went through a bad experience on a recent project on Lake St for the new forcemain. The irrigation and invisible fence was damaged by the past project and construction vehicles parked in the driveway. There are concerns with adding sidewalk on Texas Ave because of shoveling responsibilities to the homeowner and several elderly

residents on the block. There was issues with vehicles driving over turf from Lake St to Texas Ave but the current barrier has solved that issue.

A: There will be additional forcemain work in the area for Met Council but communication will be much better. There will be a project representative on-site full-time for residents to call with questions or concerns. The barrier will be replaced with this project. The sidewalk concerns will be discussed with the City of St. Louis Park.

Q: A sidewalk on Cambridge St in St. Louis Park would be a good idea because there a lot of pedestrians from St. Louis Park that walk to Cottageville Park.

A: This will be discussed with the City of St. Louis Park.

Q: One resident is opposed to the bike lane that is proposed in Lake St NE because they have never seen bikes along the corridor and on-street parking is needed.

A: The bike lane on Lake St NE is just a shared use lane with cars and on-street parking will remain.

Q: Where will cars park when Lake St NE and the alley south of it are being constructed?

A: The alley and Lake St NE will be constructed at different times so you will be able to park on one or the other.

Q: What are the assessments for this project?

A: The project team will go over assessments in more detail at the next neighborhood meeting on November 1st with Hopkins residents. St. Louis Park residents will not be assessed for the project.

Q: Was Texas Ave surveyed at night during the Parking Survey?

A: Yes, Texas Avenue was surveyed at night and on weekends to get different times of day and different days of the week.

CITY OF HOPKINS

PUBLIC WORKS-ENGINEERING DIVISION

2018 STREET AND UTILITY IMPROVEMENT QUESTIONNAIRE

PLEASE RETURN TO CITY HALL (1010 1ST ST S, HOPKINS MN 55343) BY: AUGUST 25, 2017

Street and utility improvements are proposed for your street in 2018. This questionnaire is a valuable resource for the City in identifying issues to receive attention. Your comments and concerns are greatly appreciated.

1. DRAINAGE

_____ I have observed standing water in the street or my front yard after a significant rain. It is located at:

_____

2. SANITARY SEWER

_____ We have NOT experienced problems with our sanitary sewer service.
_____ We have experienced problems or replaced our sewer service. Please describe:

_____

3. WATERMAIN

_____ We have NOT experienced problems with our water service.
_____ We have experienced problems or replaced our water service. Please describe:

_____

4. SIDEWALKS

Do you have interest in seeing additional sidewalks within your neighborhood? If so, where?

_____

5. IRRIGATION SYSTEM / INVISIBLE FENCE

_____ Yes, we have an irrigation system. _____ Yes, we have an invisible pet fence.

6. TREES / LANDSCAPING

Do you have concerns about trees or landscaping in your front yard? If so, describe.

_____

7. GENERAL COMMENTS / QUESTIONS

Please describe any issues you suggest be considered as part of this project:

_____
_____
_____

The following information is optional but is useful if we have a question about your responses:

Name:_____ Phone No.:_____

Address:_____

THANK YOU FOR YOUR RESPONSE!

Should you have any questions please contact Eric Klingbeil, Assistant City Engineer, at 952-548-6357 or eklingbeil@hopkinsmn.com or Nick Amatuccio at 612-965-3926 or nickam@bolton-menk.com

2018 Street & Utility Improvements Questionnaire Summary

- Sidewalk
  - More people do not want sidewalks than do
  - People who do want them on both sides of Lake and Texas, South Side of Cambridge, and on Oxford
- Drainage
  - Most people reported no issues
  - 1309 and 1313 Lake St did report an issue of standing water in the curb
- Sewer Issues
  - Two reported with at least one Orangeburg service but both fixed
- Water Issues
  - One reported – leak by the main that was fixed
- Landscaping
  - A couple of residents were concerned about fences and other landscaping being disturbed by construction
  - Some residents concerned about trees being harmed during roadwork
  - Several dead trees in the neighborhood
- Other
  - Blind approach driveway on Oxford near Texas
  - One person wanted to widen Oxford for better street parking
  - Reducing the slope of hill and increasing sight distance on Cambridge
  - Widen Cambridge to make safer for pedestrians

Appendix E:

Geotechnical Evaluation

Geotechnical Evaluation Report

2018 Street and Utility Improvement Project
Hopkins, Minnesota

Prepared for

Bolton & Menk, Inc.

Professional Certification:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Neil G. Lund, PE
Senior Engineer
License Number: 46212
August 3, 2017

Project B1605339

Braun Intertec Corporation

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

August 3, 2017 Project B1705981

Nick Amatuccio, PE
Bolton & Menk, Inc.
12224 Nicollet Avenue
Burnsville, MN 55337-1649

Re: Geotechnical Evaluation
2018 Street and Utility Improvements
City of Hopkins, Minnesota

Dear Mr. Amatuccio:

We are pleased to present this Geotechnical Evaluation Report for the 2018 Street and Utility Improvement Project in Hopkins, Minnesota. Our results and recommendations in light of the geotechnical issues influencing design and construction are presented in the attached report, which we request you read in its entirety.

Remarks

Thank you for making Braun Intertec Corporation your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please call Neil Lund at 952.995.2284.

Sincerely,

BRAUN INTERTEC CORPORATION

Neil G. Lund, PE
Senior Engineer

Matthew S. Oman, PE
Principal Engineer

Table of Contents

Table of Contents (continued)

Description **Page**

Appendix

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the proposed 2018 Street and Utility Improvement Project in Hopkins, Minnesota. The total length of street reconstruction proposed for the project is about 7,170 feet and includes the following:

- Lake Street NE, from Blake Road to Texas Avenue N
- Murphy Street, from Lake Street NE to Oxford Street
- Oxford Street, from Blake Road N to Texas Avenue N
- Cambridge Street, from Blake Road N to Texas Avenue N
- Division Street, from the west end of the roadway to Texas Avenue N
- Texas Avenue N, from Alley to TH 7 Service Road
- Alley, from Texas Avenue N to the west end

A.2. Purpose

The purpose of this geotechnical evaluation was to characterize subsurface geologic conditions at selected exploration locations and provide geotechnical recommendations for the design and construction of the Hopkins 2018 Street and Utility Improvement Project.

A.3. Background Information and Reference Documents

To facilitate our evaluation, we were provided with or reviewed the following information or documents:

- A base map of the project area provided by Bolton & Menk, Inc.
- *Geologic Atlas of Hennepin County* available from the Minnesota Geological Survey.

A.4. Project Area Conditions

Based on our referenced documents and past experience, the native soils underlying the project area include sandy glacial outwash.

The 2018 Street and Utility Improvement Project area is mostly zoned Low-Density Multiple Family (R-2), with some areas zones for medium-high density residential and limited or neighborhood business.

The current streets with bituminous pavement and concrete curb and gutter. The topography is rolling; surface elevations generally decrease from north to south and east to west.

A.5. Scope of Services

Our scope of services for this project was originally submitted as a Proposal to Mr. Mike Waltman of Bolton & Menk, Inc., for which we received e-mail authorization to proceed on June 8, 2016. Tasks performed in accordance with our authorized scope of services included:

- Clearing exploration locations of underground utilities.
- Performing penetration test borings (labeled ST-1 through ST-15) and extending them to 15 feet (Murphy, Oxford, Texas and Alley – eight borings) or 25 feet (Division, Lake and Cambridge – seven borings) below the current pavement surface. One boring on Oxford Street, ST-7, could not be drilled due to the traffic and parking from an adjacent construction site.
- Providing signs and flaggers as needed to protect motorists and our field crew during drilling.
- Performing laboratory moisture content tests and mechanical analyses (#200 sieve only) on selected penetration test samples.
- Preparing this report containing a CAD sketch, exploration logs, a summary of the geologic materials encountered, results of laboratory tests, and recommendations for subgrade preparation, pavement thickness design and utility placement.

Exploration locations and surface elevations at the exploration locations were determined using GPS technology that utilizes the Minnesota Department of Transportation's (MnDOT's) permanent GPS Virtual Reference Network (VRN).

Our scope of services was performed under the terms of our September 1, 2013, General Conditions.

B. Results

B.1. Exploration Logs

B.1.a. Log of Boring Sheets

Log of Boring sheets for our penetration test borings are included in the Appendix. The logs identify and describe the geologic materials that were penetrated, and present the results of penetration resistance tests, laboratory tests performed on penetration test samples retrieved from them and groundwater measurements.

Strata boundaries were inferred from changes in the penetration test samples and the auger cuttings. Because sampling was not performed continuously, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may also occur as gradual rather than abrupt transitions.

B.1.b. Geologic Origins

Geologic origins assigned to the materials shown on the logs and referenced within this report were based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

B.2. Geologic Profile

B.2.a. Pavement Materials

The borings first encountered an average bituminous pavement thickness of 4.3 inches as shown in Table 1. The aggregate base averaged 7.5 inches.

Table 1. Pavement Thickness Summary

Boring	Street	Pavement Thickness (in.)		Notes
		Bituminous	Aggregate Base	
ST-01	Division St	3	8	
ST-02	Division St	3	8	
ST-03	Texas Ave S	6 1/2	8	
ST-04	Cambridge St	4	6	

Boring	Street	Pavement Thickness (in.)		Notes
		Bituminous	Aggregate Base	
ST-05	Cambridge St	3	7	
ST-06	Texas Ave S	6	8	
ST-08	Oxford St	3	8	
ST-09	Texas Ave S	--	--	Poor pavement condition; could not be measured
ST-10	Murphy St	3	9	
ST-11	Lake St NE	--	--	Not noted by drillers
ST-12	Lake St NE	5	7	
ST-13	Lake St NE	6	6	
ST-14	Alley	--	5	Bituminous pavement degenerated or not present
ST-15	Alley	--	--	Pavement degenerated
AVERAGE		**4.3**	**7.5**	

In Borings ST-09, ST-14 and ST-15, the pavement condition at the drilling locations was poor enough that distinct bituminous and aggregate base layers could not be measured. In ST-11, the boring was drilled in the roadway but the drillers did not note pavement thickness.

B.2.b. Geologic Materials

Table 2 provides a summary of the soil boring results, in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in Table 2.

Table 2. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Pavement section	N/A	N/A	▪ See Table 1.
Fill (not incl. buried topsoil)	SP, SM, SC, CL	4 to 30	▪ General penetration resistance of less than 10 BPF. ▪ Moisture condition from moist to wet. ▪ Thicknesses at boring locations varied from 1 to 11 feet. ▪ Highly variable, with soils intermixed. ▪ Some organic layers (see buried topsoil strata description). ▪ Possible cobbles and boulders.
Buried topsoil	CL	--	▪ Present in ST-04, ST-09, ST-14, beginning at depths between about 1/2 and 4 feet

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
			▪ 3 to 4 1/2 feet thick ▪ Black, wet, and slightly organic to organic
Alluvium/glaciofluvium	SP-SM, SM, SC, CL	4 to 5 BPF	▪ Present in ST-03, ST-11 and ST-12. ▪ Moisture condition generally wet.
Glacial deposits (outwash)	SP, SP-SM	4 to 50 blows in 1 inch	▪ General penetration resistance of 11 BPF or greater (medium dense). ▪ Variable amounts of gravel; may contain cobbles and boulders. Difficult drilling noted between 20 and 25 feet in ST-01 and ST-02. Pushed rock noted in ST-04. ▪ Moisture condition highway variable. Shallow samples relatively dry (2 to 3 percent moisture by weight). Water table penetrated in some borings (see Table 3).

*Abbreviations defined in the attached Descriptive Terminology sheets.

For simplicity in this report, we define fill to mean existing, uncontrolled or undocumented fill.

B.2.c. Groundwater

Groundwater was observed during our drilling operations as shown in Table 3.

Table 3. Groundwater Observation Summary

Boring	Surface Elevation (ft)*	Observed Groundwater Depth (ft)	Corresponding Groundwater Elevation (ft)
ST-01	920	23 1/2	896 1/2
ST-11	905	10	895
ST-12	906	12**	894
ST-13	917 1/2	24 1/2	893

*Rounded to nearest 1/2 foot.

**Water level measured at 17 feet after extraction of auger. See Log of Boring for details.

The most groundwater elevation was approximately between 893 and 896 1/2 feet. At the time we staked our borings, we measured the surface water elevation of Minnehaha Creek as 898 1/2.

Seasonal and annual fluctuations of groundwater should be anticipated.

B.3. Laboratory Test Results

Laboratory test results, including moisture content, organic content and mechanical analysis (#200 sieve only) tests, are summarized in Table 4. The moisture contents of the sandy fill soils (above the apparent water table) were around 2 to 3 percent, indicating the materials were likely below their optimum moisture contents for compaction. The higher moisture contents of noted clayey soils, ranging from 19 to 26 percent, are likely above their optimum moisture contents for compaction.

Table 4. Laboratory Testing Results

Borehole	Soil Classification	Depth	%<#200 Sieve	Water Content (%)	Organic Content (%)
ST-01	SP	5	--	2	--
ST-02	SP	5	--	3	--
ST-04	CL	5	--	27	6
ST-06	SP	2 1/2	88	26	--
ST-10	SC	2 1/2	--	12	--
ST-12	SC	7 1/2	40	18	--
ST-14	SC	2 1/2	--	10	--
ST-15	SP	2 1/2	--	2	--

C. Basis for Recommendations

C.1. Design Details

C.1.a. Traffic Loads

Traffic counts for the streets were not available. Based on the mixed zoning in the project area, we anticipate they will experience approximately 100,000 equivalent single axle loads (ESALs) over a 20-year service life.

C.1.b. Anticipated Grade Changes

Based on the nature of construction, we anticipate grade changes will be minimal.

C.1.c. Utility Depths

Design utility depths were not available. Based on the maximum requested boring depths, we assume sanitary sewer depths will be within 15 to 25 feet below grade. We also assume water main will

generally be less than 10 feet below grade and storm sewer improvements will be approximately 5 feet below grade.

C.1.d. Precautions Regarding Changed Information

We have attempted to describe our understanding of the proposed construction to the extent it was reported to us by others. Depending on the extent of available information, assumptions may have been made based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, we should be notified. New or changed information could require additional evaluation, analyses and/or recommendations.

C.2. Design and Construction Considerations

C.2.a. Reuse of Pavement Materials

Our borings encountered a bituminous layer averaging slightly less than 4 1/2 inches thick. This varied among the streets in the project area, with Lake Street NE and Texas Avenue S having thicknesses of about 6 inches. The aggregate base was 6 to 9 inches thick.

In our opinion, full-depth reclamation (FDR) can be utilized in order to obtain materials for aggregate base on the project. A proper reclamation depth will likely vary between about 8 and 10 inches. It may be possible to increase this thickness on Lake Street NE and Texas Avenue S.

We recommend thorough quality control practices, including frequent sieve analyses of the reclaimed material, if the product will be reused directly on site as aggregate base or a stabilizing material with minimal processing.

C.2.b. Pavement Subgrades and Drainage

The pavement subgrades will consist of mixed materials. Relatively sandy fill and glacial outwash soils were common below the pavement section, though areas of clayey sand and buried topsoil were also present.

We anticipate the majority of the subgrade soils present beneath the existing roads will generally be suitable for pavement support in their current condition or with minor rework such as surface compaction. The exception is the buried topsoils, which should be removed from excavations for pavements and in utility trenches. The shallow clayey sand or lean clay fill, present in ST-03, ST-06, ST-09, ST-10 and ST-12, may be wet or become wet upon exposure. These soils in particular may require additional work, such as drying or moisture conditioning, before they can be properly compacted.

C.2.c. Utility Support and Impact of Groundwater

The reuse of the utility trench backfill soils will have potential impacts on the pavement subgrades. If the backfill is not properly compacted, there is the potential for subgrade instability and settlement (and premature deterioration) of the driving surface. We anticipate the trench soils will consist of a mix of granular outwash soils (poorly graded sand and poorly graded sand with silt, poorly graded sand), along with clayey glaciofluvium or alluvium and, in some instances, buried topsoil fill.

Depending on the conditions at the time of excavation, drying of the clayey and silty soils may be necessary to achieve the levels of compaction recommended for utility support. Clayey and particularly silt-rich trench soils that are exposed to moisture will be more susceptible to strength loss and may also become unstable, which will require moisture conditioning or removal and replacement with suitable soils. Buried topsoil should be avoided for utility trench backfill at any depth.

Groundwater was present in a limited number of borings, all in sandy soils at depths likely for sanitary sewer placement. A coarse stabilizing aggregate could help with utility placement in wet or saturated conditions in these soils.

D. Recommendations

D.1. Pavements

D.1.a. Subgrade Preparation and Proofrolls

For preparation of any exposed subgrades prior to placement of new pavement sections or reclaimed aggregate (see below), we recommend proofrolling the subgrade soils with a loaded tandem-axle truck. This will assist in identifying any soft or weak areas that will require additional soil correction work. Areas that yield or rut more than 1 to 2 inches due to wheel traffic, depending on conditions, should be corrected. Failed areas should be compacted, or if too wet, we recommend that the upper 1 to 2 feet of the resulting subgrade be scarified, dried to a moisture content not more than 1 percentage point above optimum, and compacted to a minimum of 100 percent of its standard Proctor maximum dry density (ASTM D 698).

If there are areas that still cannot be compacted, we recommend subexcavating the unstable materials to a minimum depth of 1 to 2 feet depending on the outcome of the proofroll, as well replacement material. The soils should be replaced them with suitable, properly compacted materials such as select granular material, aggregate base or larger diameter crushed aggregate (“3-inch minus”).

D.1.b. Backfill and Material Compaction

We recommend compacting soils used as backfill for subcuts or material replacement be compacted to a minimum of 100 percent of standard Proctor density within 3 feet of the top of the subgrade. For fills more than 3 feet below final subgrades, 95 percent compaction is sufficient. The moisture content of the fill and backfill should be as shown in the table below depending on the classification of the backfill soils. Our compaction requirements are summarized in Table 5.

Table 5. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D 698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage Points
Below pavements, within 3 feet of subgrade elevations	100	-3/+3 (sandy soils) -2/+1 (clayey soils)
Below pavements, more than 3 feet below subgrade elevations Below utilities	95	-3/+3 (sandy soils) -2/+3 (clayey soils)

D.1.c. Design Sections

Laboratory tests to determine an R-value for pavement design were not included in the scope of this project. Given the most common soils in the top 5 feet of pavement sections, which include mostly silty sand with various other soils, we recommend using an R-value of 30 for pavement thickness design of the overall project. In our opinion, due to the variability of the subgrade soils, this R-value is a reasonable value to apply on a block-by-block basis. Further testing or refinement of the R-value used for design is possible and can be provided upon request. We recommend falling weight deflectometer (FWD) for this purpose.

Based upon the assumed traffic loads and an R-value of 30, we recommend a new pavement section for the streets in the 2018 Street Reconstruction meet the minimum thicknesses presented in Table 8.

Table 6. Recommended Bituminous Pavement Thickness Design

Layer	Thickness (in.)	MnDOT Specification/Designation
Bituminous Wear	2 (1 lift)	SPWEB240C
Bituminous Non-wear	2 (1 lift)	SPNWB230C (or SPWEB240C)
Aggregate Base (Class 5 or 6) or Reclaim	8	3138 3135

If a paved surface with a tighter and smoother look is desired, we recommend using a smaller maximum aggregate size in the wear course (SPWEA240C). Differences in performance will generally be minor, though the smaller aggregate size may be more prone to dimpling or distortion under concentrated or static loads.

The above pavement design is based upon a 20-year performance life. This is the amount of time before major reconstruction is anticipated. This performance life assumes maintenance such as seal coating and crack sealing is routinely performed. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

D.1.d. Materials and Compaction

We recommend specifying pavement materials as recommended in Table 6.

We recommend compacting the aggregate base or reclaim materials to meet the requirements of MnDOT specification 2211.3.D.2.c. (Penetration Index Method). We recommend compacting bituminous pavements to at least 92 percent of the maximum theoretical Rice density per the Maximum Density Method (specification 2360.3.D.1), with bituminous materials and placement practices meeting the requirements of MnDOT Specification 2360.

D.2. Utilities

D.2.a. Subgrades and Trench Backfill

The native and fill soils encountered at likely utility elevations generally appear suitable for pipe and utility structure support and we anticipate that utilities can be installed per manufacturer bedding requirements. However, we encountered some wet, clayey or silty soils in several borings; these soils may limited stability and not be suitable for backfill or support of utilities if wet. We recommend providing a contingency for further subcutting and soil replacement of utility backfill soils in clayey or silty soils. This will generally include any soils in existing fill materials above the native outwash, or those in alluvium/glaciofluvium at similar depths (5 to 10 feet).

In addition, the buried topsoil and fat clay (ST-12) are not considered suitable backfill materials under any circumstances. These soils should be removed and replaced with suitable grading materials where encountered during excavation. At pipe elevations, we recommend a minimum subcut and replacement with crushed-faced rock that is free of material 1 inch in diameter or smaller.

A geotechnical engineer should observe all utility trench excavations and subcuts.

D.2.b. Excavation Side Slopes

The project area soils appear to meet OSHA Type A, B and C requirements. We recommend constructing excavation side slopes to lie back at a horizontal to vertical slope of 1 1/2 to 1 or flatter. In significant depths of organic soils these side slopes may be need to made flatter, or supplemental support may be necessary.

All excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states that excavation safety is the responsibility of the contractor. Reference to these OSHA requirements should be included in the project specifications.

Trenches deeper than 20 feet must be designed by a professional engineer.

D.2.c. Selection, Placement and Compaction of Backfill

We recommend compacting backfill placed above and below utilities as shown in Table 5.

To achieve compaction over wet or waterbearing subgrades, we recommend the use of sands or gravel with less than 5 percent by weight passing the number 200 sieve and less than 50 percent passing the number 40 sieve.

D.2.d. Excavation Dewatering

We recommend removing groundwater from the utility excavations if encountered, and removing any water that seeps into excavations from sidewalls or the adjacent sitework. Sumps and pumps will generally be suitable for short-term, small-scale water removal under the soil conditions likely to be encountered for this project. Alternative approaches should be considered for long-term or large-scale groundwater removal, particularly in sand such as those encountered on the project, which can become unstable during dewatering with pumps from within excavations.

D.2.e. Corrosion Potential

If founded in sandy soils, corrosion protection should not be required for ductile iron pipe. Type I cement may also be specified for concrete utilities.

Some clayey soils were present at likely utility depths, which are considered at least moderately corrosive to ductile iron pipe. We recommend corrosion protection or the use of corrosion-resistant pipe material if utilities will be bedded within such soils, particular if in close proximity to static groundwater.

D.3. Construction Quality Control

D.3.a. Excavation Observations

We recommend having a geotechnical engineer observe all excavations related to subgrade preparation, utility placement and pavement construction. The purpose of the observations is to evaluate the competence of the geologic materials exposed in the excavations and the adequacy of required excavation oversizing.

D.3.b. Materials Testing

We recommend density tests be taken in excavation backfill and additional required fill placed below pavements and utilities. This includes DCP tests for aggregate base or reclaim and imported granular materials.

We recommend Gyratory tests on bituminous mixes to evaluate strength and air voids and density tests to evaluate compaction.

D.3.c. Pavement Subgrade Proofroll

We recommend that proofrolling of the pavement subgrades be observed by a geotechnical engineer to determine if the results of the procedure meet project specifications and to delineate the extent of additional pavement subgrade preparation work that may be necessary.

D.3.d. Cold Weather Precautions

If site grading and construction is anticipated during cold weather, all snow and ice should be removed from cut and fill areas prior to additional grading. No fill should be placed on frozen subgrades. No frozen soils should be used as fill.

Concrete delivered to the site should meet the temperature requirements of ASTM C 94. Concrete should not be placed on frozen subgrades. Concrete should be protected from freezing until the necessary strength is attained.

E. Procedures

E.1. Penetration Test Borings

The penetration test borings were drilled with a truck-mounted core and auger drill equipped with hollow-stem auger. The borings were performed in accordance with ASTM D 1586. Penetration test samples were taken at 2 1/2- or 5-foot intervals. Actual sample intervals and corresponding depths are shown on the boring logs.

E.2. Material Classification and Testing

E.2.a. Visual and Manual Classification

The geologic materials encountered were visually and manually classified in accordance with ASTM Standard Practice D 2488. A chart explaining the classification system is attached. Samples were placed in jars or bags and returned to our facility for review and storage.

E.2.b. Laboratory Testing

The results of the laboratory tests performed on geologic material samples are noted on or follow the appropriate attached exploration logs. The tests were performed in accordance with ASTM or AASHTO procedures.

E.3. Groundwater Measurements

The drillers checked for groundwater as the penetration test borings were advanced, and again after auger withdrawal. The boreholes were then backfilled as noted on the boring logs.

F. Qualifications

F.1. Variations in Subsurface Conditions

F.1.a. Material Strata

Our evaluation, analyses and recommendations were developed from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth, and therefore strata boundaries and thicknesses must be

inferred to some extent. Strata boundaries may also be gradual transitions, and can be expected to vary in depth, elevation and thickness away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until additional exploration work is completed, or construction commences. If any such variations are revealed, our recommendations should be re-evaluated. Such variations could increase construction costs, and a contingency should be provided to accommodate them.

F.1.b. Groundwater Levels

Groundwater measurements were made under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. It should be noted that the observation periods were relatively short, and groundwater can be expected to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

F.2. Continuity of Professional Responsibility

F.2.a. Plan Review

This report is based on a limited amount of information, and a number of assumptions were necessary to help us develop our recommendations. It is recommended that our firm review the geotechnical aspects of the designs and specifications, and evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs and specifications.

F.2.b. Construction Observations and Testing

It is recommended that we be retained to perform observations and tests during construction. This will allow correlation of the subsurface conditions encountered during construction with those encountered by the borings, and provide continuity of professional responsibility.

F.3. Use of Report

This report is for the exclusive use of the parties to which it has been addressed. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

F.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix

DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

100' 0 200'

SCALE: 1"= 200'

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BRAUN INTERTEC
The Science You Build On.
11001 Hampshire Avenue S
Minneapolis, MN 55438
PH. (952) 995-2000
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Base Dwg Provided By:

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
2018 STREET AND UTILITY IMPROVEMENTS
HOPKINS, MINNESOTA

Project No:	B1705981
Drawing No:	B1705981
Scale:	1"= 200'
Drawn By:	JAG
Date Drawn:	6/23/17
Checked By:	NGL
Last Modified:	7/28/17
Sheet: of	Fig:

BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-01**

LOCATION: See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	Tests or Notes
920.1	0.0						
919.2	0.9	PAV	3 inches of bituminous over 8 inches of aggregate base.				
918.1	2.0	FILL	FILL: Silty Sand, fine- to medium-grained, brown, moist.				
		SP	POORLY GRADED SAND, fine-grained, brown, moist, medium dense. (Glacial Outwash)	19			
				18		2	
			Fine- to coarse-grained, with Gravel at 7 1/2 feet.	30			
				23			
			Fine- to medium-grained, trace Gravel at 12 1/2 feet.	15			
				30			
			Fine- to coarse-grained, with Gravel at 20 feet.	24			Difficult drilling at 20 to 25 feet.
					▽		An open triangle in the water level (WL) column indicates the depth at which groundwater was observed while drilling. A solid triangle indicates the groundwater level in the boring on the date indicated. Groundwater levels fluctuate.
894.1	26.0		END OF BORING. Water observed at 23 12 feet with 24 1/2 feet of hollow-stem auger in the ground. Boring then grouted.				

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2017\05981.GPJ BRAUN_V8_CURRENT.GDT 8/3/17 11:44

BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-02**

LOCATION: See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	Tests or Notes
922.9	0.0						
922.0	0.9	PAV	3 inches of bituminous over 8 inches of aggregate base.				
920.9	2.0	FILL	FILL: Silty Sand, fine- to medium-grained, brown, moist.				
		SP	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, moist, loose to medium dense. (Glacial Outwash)	14			
			Fine-grained, trace Gravel below 5 feet.	19		3	
				8			
				13			
				19			
				20			
				50/1"			Difficult drilling at 20 to 25 feet.
896.9	26.0			41			
			END OF BORING.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-03**

LOCATION: Offset 20 feet south from originally staked location. See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
908.3	0.0					
907.1	1.2	PAV	6 1/2 inches of bituminous over 8 inches of aggregate base.			
		FILL	FILL: Clayey Sand, trace organic at top of layer, dark brown, moist.	8		
904.3	4.0	CL	LEAN CLAY with SAND, brown, moist, rather soft. (Glaciofluvium)	4		
901.3	7.0	SP	POORLY GRADED SAND, fine- to medium-grained, brown, moist, medium dense to dense. (Glacial Outwash)	26		
				27		
			With Gravel below 12 1/2 feet.	31		
892.3	16.0			22		
			END OF BORING. Water not observed to cave-in depth of 7 feet immediately after withdrawal of auger. Boring then backfilled.			

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-04**

LOCATION: Offset 4 feet east from originally staked location. See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	Tests or Notes
917.6	0.0						
916.8	0.8	PAV	4 inches of bituminous over 6 inches of aggregate base.				
		FILL	FILL: Silty Sand, fine- to medium-grained, with Gravel, dark brown, moist.	5			
913.6	4.0	FILL	FILL: Lean Clay with Sand, organic, black, moist. (Buried Topsoil)	5		27	OC=6%
910.6	7.0	FILL	FILL: Lean Clay, brown, moist.	6			
908.6	9.0	FILL	FILL: Intermixed Clayey Sand/Poorly Graded Sand, with Gravel, brown and black, wet.	30			
905.6	12.0	SP	POORLY GRADED SAND, fine-grained, brown, moist, medium dense. (Glacial Outwash)	21			
901.6	16.0			50/6"			Pushed rock.
			END OF BORING. Water not observed to cave-in depth of 8 feet immediately after withdrawal of auger. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-05**

LOCATION: See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **7/6/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
928.6	0.0					
927.8	0.8	PAV	3 inches of bituminous over 7 inches of aggregate base.			
		FILL	FILL: Poorly Graded Sand, fine- to medium-grained, trace Gravel, brown, moist.	7		
				5		
921.6	7.0	SP	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, brown, moist, very loose to very stiff. (Glacial Outwash)	4		
				5		
				10		
				13		
				44		
902.6	26.0			53		
			END OF BORING.			
			Water not observed to cave-in depth of 14 feet immediately after withdrawal of auger.			
			Boring then backfilled.			

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BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-06**

LOCATION: Offset 25 feet north and 20 feet west from originally staked location. See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	P200 %	Tests or Notes
909.0	0.0							
907.8	1.2	PAV	6 inches of bituminous over 8 inches of aggregate base.					
905.0	4.0	FILL	FILL: Lean Clay with Sand, dark brown, moist.	6		26	88	
902.0	7.0	FILL	FILL: Sandy Lean Clay, brown, moist.	6				
893.0	16.0	SP	POORLY GRADED SAND, fine- to medium-grained, with Gravel, brown, moist, medium dense. (Glacial Outwash)	15 12 29* 16				*No recovery.
			END OF BORING. Water not observed to cave-in depth of 9 feet immediately after withdrawal of auger. Boring then backfilled.					

BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-08**

LOCATION: See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
928.6	0.0					
927.7	0.9	PAV	3 inches of bituminous over 8 inches of aggregate base.			
		SP	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, moist, medium dense. (Glacial Outwash)	14		
				23		
				15		
				14		
				27		
912.6	16.0			23		
			END OF BORING.			
			Water not observed while drilling.			
			Boring then backfilled.			

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-09**

LOCATION: Offset 30 feet north from originally staked location. See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
909.2	0.0					
908.2	1.0	FILL	FILL: Poorly Graded Sand with Silt, fine- to coarse-grained, with Gravel, brown, moist.	*		*Pavement in poor condition at boring location.
905.2	4.0	FILL	FILL: Clayey Sand, with Gravel, brown and black, moist.	20		
903.2	6.0	FILL	FILL: Lean Clay with Sand, slightly organic, black, wet. (Buried Topsoil)	4		
900.2	9.0	FILL	FILL: Clayey Sand, dark brown, moist.	6		
897.2	12.0	FILL	FILL: Poorly Graded Sand, fine- to coarse-grained, with Clay inclusions, trace Gravel, dark brown, moist.	21		
893.2	16.0	SP	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, moist, medium dense to dense. (Glacial Outwash)	37 / 15		
			END OF BORING. Water not observed to cave-in depth of 7 feet immediately after withdrawal of auger. Boring then backfilled.			

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-10**

LOCATION: See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **7/6/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	Tests or Notes
914.6	0.0						
913.6	1.0	PAV	3 inches of bituminous over 9 inches of aggregate base.				
		FILL	FILL: Clayey Sand, dark brown, wet.	6		12	
910.6	4.0	FILL	FILL: Intermixed Poorly Graded Sand and Clayey Sand, trace Gravel, brown, moist.	5			
907.6	7.0	FILL	FILL: Sandy Lean Clay, dark brown, moist.	7			
905.6	9.0	SP	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, moist, medium dense. (Glacial Outwash)	14			
				18			
898.6	16.0			26			
			END OF BORING. Water not observed to cave-in depth of 7 feet immediately after withdrawal of auger. Boring then backfilled.				

BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-11**

LOCATION: Offset 20 feet south from originally staked location. See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
905.0	0.0	FILL	FILL: Silty Sand, fine-grained, with Gravel, dark brown and black, wet.	*		*Pavement thickness not noted by drillers.
				22		
				18		
898.0	7.0	SC	CLAYEY SAND, light brown and gray, wet, rather soft. (Alluvium)	4		
895.0	10.0	SP	POORLY GRADED SAND, fine-grained, coarser with depth, with Gravel, gray, waterbearing, very loose to medium dense. (Glacial Outwash)	4	▽	
				4		
				4		
				5		
879.0	26.0			15		
			END OF BORING. Water observed at a depth of 10 feet while drilling. Boring then grouted.			

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BRAUN INTERTEC

LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-12**

LOCATION: See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **7/6/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	P200 %	Tests or Notes
906.2	0.0							
905.2	1.0	PAV	5 inches of bituminous over 7 inches of aggregate base.					
		FILL	FILL: Clayey Sand, with Gravel, dark brown and black, moist.	5				
				5				
900.2	6.0	CL	CLAYEY SAND, brown, wet, rather soft. (Glaciofluvium)	4		18	40	
897.2	9.0	CH	FAT CLAY, gray, wet, rather soft. (Glaciofluvium)	5				
894.2	12.0	SP	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, reddish brown, waterbearing, loose to medium dense. (Glacial Outwash)	5	▽			
				13	▼			
				10				
880.2	26.0			8				
			END OF BORING. Water observed at 12 feet with 12 feet of hollow-stem auger in the ground. Water observed at 17 feet with 24 1/2 feet of hollow-stem auger in the ground. Boring then grouted.					

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LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-13**

LOCATION: Offset 20 feet west from originally staked location. See attached sketch.

DRILLER: C. McClain | METHOD: 3 1/4" HSA, Autohammer | DATE: **7/6/17** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
917.6	0.0					
916.6	1.0	PAV	6 inches of bituminous over 6 inches of aggregate base.			
		FILL	FILL: Silty Sand, fine- to medium-grained, trace Gravel, brown, moist.	10		
				5		
				4		
908.6	9.0					
		SP	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, brown, moist, very loose to medium dense. (Glacial Outwash)	3		
				13		No recovery.
				22		
898.6	19.0					
		CL	SANDY LEAN CLAY, trace Gravel, reddish brown, moist. (Glacial Till)	17		
893.6	24.0					
		SC	CLAYEY SAND, trace Gravel, brown, waterbearing.		▽	
891.6	26.0			11		
			END OF BORING. Water observed at 24 1/2 feet with 24 1/2 feet of hollow-stem auger in the ground. Boring then grouted.			

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LOG OF BORING

Braun Project B1705981
GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-14**

LOCATION: Offset 20 feet east and 5 feet south from originally staked location. See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	Tests or Notes
912.0	0.0						
911.6	0.4	PAV	5 inches of aggregate base.	*			*Bituminous not present or in poor condition at boring location.
		FILL	FILL: Clayey Sand, slightly organic, black and dark brown, wet. (Buried Topsoil)	7		10	
907.0	5.0	SP	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, moist, loose to medium dense. (Glacial Outwash)	14			
				9			
				11			
				12			
896.0	16.0			17			
			END OF BORING. Water not observed while drilling. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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GEOTECHNICAL EVALUATION
Hopkins 2018 Street Improvements
Hopkins, Minnesota

BORING: **ST-15**

LOCATION: See attached sketch.

DRILLER: M. Takada | METHOD: 3 1/4" HSA, Autohammer | DATE: **6/30/17** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	MC %	Tests or Notes
914.8	0.0						
914.4	0.4	SC/SP	CLAYEY SAND, dark brown, wet. (Topsoil/Road Surface)	*			*Pavement in poor condition.
			POORLY GRADED SAND, fine- to coarse-grained, with Gravel, light brown, moist, medium dense. (Glacial Outwash)	20		2	
				22			
				23			
				16			
				15			
898.8	16.0			15			
			END OF BORING.				
			Water not observed to cave-in depth of 7 feet immediately after withdrawal of auger.				
			Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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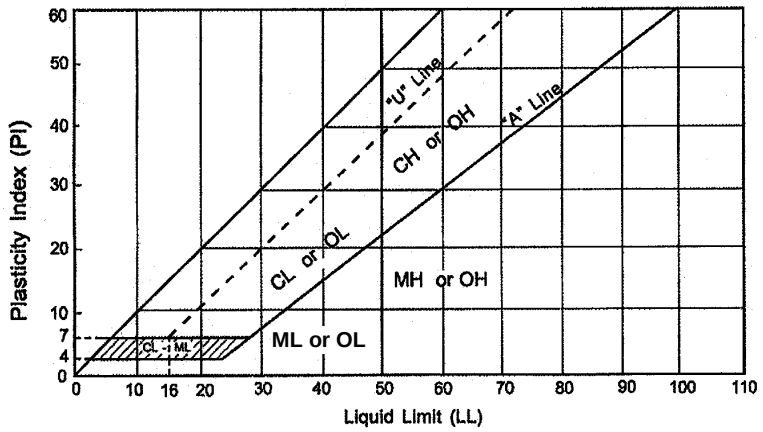
BRAUN INTERTEC

Descriptive Terminology of Soil

Standard D 2487
Classification of Soils for Engineering Purposes
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [a]				Soils Classification	
				Group Symbol	Group Name [b]
Coarse-grained Soils more than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines [e]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [c]	GW	Well-graded gravel [d]
			$C_u < 4$ and/or $1 > C_c > 3$ [c]	GP	Poorly graded gravel [d]
		Gravels with Fines More than 12% fines [e]	Fines classify as ML or MH	GM	Silty gravel [d f g]
			Fines classify as CL or CH	GC	Clayey gravel [d f g]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines [i]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [c]	SW	Well-graded sand [h]
			$C_u < 6$ and/or $1 > C_c > 3$ [c]	SP	Poorly graded sand [h]
		Sands with Fines More than 12% [i]	Fines classify as ML or MH	SM	Silty sand [f g h]
			Fines classify as CL or CH	SC	Clayey sand [f g h]
Fine-grained Soils 50% or more passed the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line [j]	CL	Lean clay [k l m]
			PI < 4 or plots below "A" line [j]	ML	Silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [k l m n]
				OL	Organic silt [k l m o]
	Silts and clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [k l m]
			PI plots below "A" line	MH	Elastic silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [k l m p]
				OH	Organic silt [k l m q]
Highly Organic Soils	Primarily organic matter, dark in color and organic odor			PT	Peat

a. Based on the material passing the 3-inch (75mm) sieve.
b. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name.
c. $C_u = D_{60}/D_{10}$ $C_c = \frac{(D30)^2}{D_{10} \times D_{60}}$
d. If soil contains ≥15% sand, add "with sand" to group name.
e. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
f. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
g. If fines are organic, add "with organic fines: to group name.
h. If soil contains ≥15% gravel, add "with gravel" to group name.
i. Sand with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 10 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI < 4 or plots below "A" line.
p. PI plots on or above "A" lines.
q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**OC**	Organic content, %
WD	Wet density, pcg	**S**	Percent of saturation, %
MC	Natural moisture content, %	**SG**	Specific gravity
LL	Liquid limit, %	**C**	Cohesion, psf
PL	Plastic limits, %	**Ø**	Angle of internal friction
PI	Plasticity index, %	**qu**	Unconfined compressive strength, psf
P200	% passing 200 sieve	**qp**	Pocket penetrometer strength, tsf

Particle Size Identification

Boulders..... over 12"
Cobbles ..... 3" to 12"
Gravel
  Coarse ..... 3/4" to 3"
  Fine..... No. 4 to 3/4"
Sand
  Coarse ..... No. 4 to No. 10
  Medium..... No. 10 to No. 40
  Fine..... No. 40 to No. 200
Silt ..... <No. 200, PI< 4 or below "A" line
Clay ..... <No. 200, PI ≥ 4 and on or about "A" line

Relative Density of Cohesionless Soils

Very Loose..... 0 to 4 BPF
Loose..... 5 to 10 BPF
Medium dense ..... 11 to 30 PPF
Dense ..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils

Very soft..... 0 to 1 BPF
Soft..... 2 to 3 BPF
Rather soft ..... 4 to 5 BPF
Medium..... 6 to 8 BPF
Rather stiff ..... 9 to 12 BPF
Stiff ..... 13 to 16 BPF
Very stiff..... 17 to 30 BPF
Hard..... over 30 BPF

Drilling Notes

Standard penetration test borings were advanced by 3 1/4" or 6 1/4" ID hollow-stem augers, unless noted otherwise. Jetting water was used to clean out auger prior to sampling only where indicated on logs. All samples were taken with the standard 2" OD split-tube samples, except where noted.

Power auger borings were advanced by 4" or 6" diameter continuous flight, solid-stern augers. Soil classifications and strata depths were inferred from disturbed samples augered to the surface, and are therefore, somewhat approximate.

Hand auger borings were advanced manually with a 1 1/2" or 3 1/4" diameter auger and were limited to the depth from which the auger could be manually withdrawn.

BPF: Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments, and added to get BPF. Where they differed significantly, they are reported in the following form: 2/12 for the second and third 6" increments, respectively.

WH: WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WR: WR indicates the sampler penetrated soil under weight of rods alone; hammer weight, and driving not required.

TW: TW indicates thin-walled (undisturbed) tube sample.

Note: All tests were run in general accordance with applicable ASTM standards.

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