FEASIBILITY REPORT

HY-10 RAMSEY
STREET RECONSTRUCTIONS

CITY IMPROVEMENT PROJECT NO. 18-02

October 18, 2018

Prepared By:

City of Ramsey
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October 18, 2018

Honorable Mayor and City Council
City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

Re: Feasibility Report - City of Ramsey Improvement Project #18-02
HY-10 Ramsey Street Reconstructions

Dear Mayor and City Council Members:

Transmitted herewith is a Feasibility Report for the proposed HY-10 Ramsey Street Reconstructions project including; 146th Avenue from Ferret Street to its termini cul-de-sac, 147th Avenue from Ferret Street to 380 feet west of Armstrong Boulevard, and Ferret Street from 146th Avenue to its termini cul-de-sac. The report examines the feasibility of reconstructing the bituminous street section and completing other appurtenant improvements.

This Feasibility Report examines the scope of the proposed improvements, explores estimated costs and available funding sources, defines a preliminary project schedule, and determines the necessity, feasibility and general cost-effectiveness of the proposed improvements, including any alternate designs, as well as whether the improvements would best be completed separately or in conjunction with another project.

I would be happy to discuss this report with you at your convenience. Please feel free to contact me at 763-433-9825 or bwestby@cityoframsey.com with any questions.

Sincerely,
City of Ramsey

Bruce Westby, PE
City Engineer

Enclosure

C: Kurt Ulrich, City Administrator
Leonard Linton, Civil Engineer IV

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.

Bruce Westby, PE

Date: October 18, 2018 License No. 40116

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Leonard Linton, PE

Date: October 18, 2018 License No. 21112

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1. EXECUTIVE SUMMARY

City Improvement Project No. 18-02 proposes to reconstruct streets within the HY-10 Ramsey neighborhood including 146th Avenue, 147th Avenue, and Ferret Street. The streets total approximately 1,400 linear feet (0.27 miles) in length. A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A.***

The streets were constructed in 1988 with bituminous curb to a width of 40 feet from face-of-curb to face-of-curb, and are generally centered within a 66-foot wide right-of-way. However, during the Highway 10/Armstrong Interchange project the west end of 146th Avenue was reconstructed and a temporary cul-de-sac was constructed.

The storm sewer system consists of openings in the bituminous curb at the north end of the Ferret Street cul-de-sac and the east end of the 146th Avenue cul-de-sac. Utility easements exist north of Ferret Street and along the northern boundary of the eastern Ferret Street cul-de-sac which has shallow ditches leading towards Armstrong Boulevard. Storm runoff from 147th Avenue is collected in catch basins placed as part of the 2012 Sunwood Drive re-alignment project, and is carried under Armstrong Boulevard to existing regional ponds.

The existing bituminous pavement section ranges from 1.6 to 6.1 inches thick, with an average thickness of 2.9 inches, and the aggregate base ranges from 4.3 to 15.5 inches thick, with an average thickness of 9.7 inches. This was determined from Ground Penetrating Radar (GPR) analysis performed by Braun Intertec in 2017, as well as from field observations and record plan documents. Copies of Braun Intertec's GPR results are attached in ***Appendix C.*** The pavement section was built on sandy subgrade material generally considered suitable for pavement support.

City staff evaluates and rates the condition of pavement sections on all City streets on an annual basis using the Pavement Surface Evaluation and Rating (PASER) system. In the summer of 2017, the pavement section of the above referenced street segments were rated with a PASER rating of 2 which indicates these streets require complete reconstruction. City staff patch the streets at least once per year, particularly before winter so the street can be plowed without further damaging the pavement in the process. Pictures of the street are located in ***Appendix A.***

On July 11, 2017, the City Council adopted Resolution #17-07-170 authorizing the preparation of a Feasibility Report for the reconstruction of HY-10 Ramsey. These streets were originally included in the City's CIP as proposed 2015 overlay improvements. However, the overlay work was delayed when construction of the Highway 10 & Armstrong Boulevard Interchange was funded. Then following completion of the Interchange, the pavement was re-evaluated and Staff determined it would be best to reconstruct these streets in the future. This project is now listed in the current 10-year CIP as a total reconstruction.

Upon ordering the Feasibility Report, the City Council directed Staff to review the existing street alignments and explore whether the streets should be reconstructed in the same locations, or whether it might make sense to realign or extend one or more of the streets to better serve existing properties and/or to connect to the new Bunker Lake Industrial Park.

Engineering Staff explored numerous alternative street alignments and/or extensions. In May of 2018, the Development Review Committee (DRC), consisting of Staff from various departments,

reviewed several design alternatives and recommended the following. Reconstruct all streets in their current footprints using pavement sections similar to the existing sections, and replace all existing bituminous curb on 146th Avenue and Ferret Street. The DRC also recommended extending the existing watermain 147th Avenue to the west side of Ferret Street since 147th Avenue will likely not be modified during redevelopment, and construct concrete curb and gutter along 147th Avenue to Ferret Street. Due to the uncertainty of future redevelopment scenarios, Staff determined there are too many unknowns to justify the expense of realigning or extending any of the streets at this time.

This Feasibility Report proposes to reconstruct the existing bituminous pavement section using the Full Depth Reclamation (FDR) process. This process generally involves reclaiming the entire existing bituminous pavement section, along with an inch or more of the existing aggregate base material. A portion of this reclaim (ground and mixed) material is proposed to be spread and compacted on top of the reshaped and compacted existing aggregate base. Three and one-half inches of bituminous pavement is proposed to be placed on top of a minimum of 6 inches of aggregate base/reclaim material. This pavement section generally meets the existing pavement section on these streets, and would generally meet the City of Ramsey's standard pavement design for residential streets.

Though the design strength of the proposed pavement section may be slightly less than a typical industrial park pavement section, Staff believes it will provide a useful life of at least 30 years based on the life achieved by the existing pavement section. And due to the large number of parcels currently on the market in this development, Staff believes there is great potential for redevelop of HY-10 Ramsey within the next 10 to 20 years, which could result in the potential realignment of streets.

The engineer's opinion of probable costs including streets, drainage, and public water utilities is $287,646.45. Estimated costs include 10-percent contingency costs plus 23-percent indirect costs for administrative, engineering, finance and legal costs. A summary of the engineer's opinion of probable costs is included in ***Appendix B.***

The project is proposed to be funded using a combination of special assessments to benefitting properties, street reconstruction bond proceeds, and stormwater utility funds. Sewer and Water Utility Funds would be used to pay for any public utility improvements.

Nine (9) parcels have been identified as receiving special benefit from the improvements. Four of the parcels have permanent structures, and the other five are undeveloped. Several of these parcels are currently listed for sale, including two City-owned parcels. These parcels are identified in the preliminary Assessment Map and Roll, which is attached in ***Appendix C***.

Assessments were calculated using the area method, which is typically used for commercial applications. Staff recommends ordering a special benefit consultation report for this project to verify the proposed assessment amount will not exceed the benefit to the properties. If the report concludes the benefit to the properties is less than the proposed preliminary assessment rate, Staff will then propose to lower the assessment rate accordingly during the Assessment Hearing, which is proposed for October 8, 2019. If the report verifies the assessment rate as proposed is justified, Staff will propose to adopt the final assessment roll using the rate as preliminarily proposed.

This project would best be constructed as a stand-alone project and is necessary, feasible, and cost-effective from an engineering standpoint, and can be constructed as proposed herein.

On August 28, 2018, the City Council adopted Resolution #18-174 accepting the draft Feasibility Report and ordering a public input meeting for the reconstruction of HY-10 Ramsey. Staff conducted a public input meeting on September 13, 2018 with the intent of explaining the proposed improvements, estimated costs, and funding program, including the use of special assessments, but even though meeting notices were mailed to all owners of benefiting properties, which included all properties having access onto street segments proposed to be improved, none of the property owners attended the meeting, or called in advance to discuss the project.

Following the public input meeting, Staff was contacted by two benefiting property owners. Both stated they would be opposed to reconstructing the streets at this time due to the uncertainties associated with the future redevelopment potential. The property owners stated they are fine with the condition of the pavement as is, and asked if the City had received any complaints from other property owners. Staff has not received any such complaints, and believes this development will redevelop within the next 10 to 20 years, and that new streets will be required because of redevelopment. For these reasons, Staff recommends that this project be shelved until such time that it is no longer needed, or until the property owners request that the streets be repaired.

2. INTRODUCTION

2.1 Authorization

The preparation of this report was authorized by the Ramsey City Council on July 11, 2017. This project has been designated as City Improvement Project No. 18-02

2.2 Program Overview

In support of the City's long-term Street Maintenance Program, the entire existing bituminous pavement section will be reconstructed using a full-depth reclamation (FDR) process. The existing bituminous curb is proposed to be replaced by this project.

The City's pavement evaluation process involves a visual evaluation of each street's pavement surface based on the type, extent and severity of each pavement distress observed. Numerous types of pavement distresses may exist within a pavement section including, but not limited to, alligator cracking, block cracking, longitudinal cracking, transverse cracking, rutting, raveling, shoving, potholes and patches. This field data is then used to rate the pavement condition.

The City uses the Pavement Surface Evaluation and Rating (PASER) system to rate pavement condition. A PASER rating is a numerical index between 1 and 10 indicating the condition of a pavement based on the various pavement distresses recorded during visual observations. A PASER rating of 10 represents brand new pavement, while a PASER rating of 1 represents a pavement section that has fallen into complete disrepair requiring full reconstruction.

In the summer of 2017, City staff evaluated and rated the condition of the pavement along the HY-10 Ramsey street segments. A PASER rating of 2 was determined for 147th Avenue and Ferret Street. A PASER rating of 7 was determined for 146th Avenue, however, as previously noted a portion of this street segment was reconstructed with a temporary bituminous pavement section as part of the Armstrong Interchange project.

2.3 Scope

City of Ramsey Improvement Project 18-02 proposes to reconstruct the existing bituminous pavement using the FDR process, and to complete other appurtenant work on 146th Avenue from Ferret Street to its termini cul-de-sac, 147th Avenue from 380 feet west of Armstrong Boulevard to Ferret Street, and Ferret Street from 146th Avenue to its termini cul-de-sac which totals approximately 1,400 feet (0.27 miles) in length.

A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A.***

3. EXISTING CONDITIONS

3.1 Existing Pavement and Soil Conditions

All streets proposed to be improved were constructed in 1988 with bituminous pavement, class 5 aggregate base, bituminous curb, and bituminous curb cuts for storm runoff. The streets were constructed to a width of 40-feet from face-of-curb to face-of-curb. The streets are generally centered within a 66-foot wide right-of-way.

The only pavement maintenance treatments applied to the street segments included crack sealing and seal coating in 1994 and 2001. Spot patching has been performed on an as-needed basis, and has been a yearly treatment recently. In 2017, Staff observed a PASER rating of 2 on 147th Avenue and Ferret Street, and a PASER rating of 7 on 146th Avenue.

In June 2018 traffic counts were taken on 147th Avenue, a traffic volume of 147 average annual daily traffic (AADT) was recorded. Ferret Street and 146th Avenue would be expected to have similar traffic volumes. The only access to these street segments is Armstrong Boulevard. Five of the parcels have active uses. The speed limit is 30 mph for these street segments.

Based on extensive geotechnical exploration of adjacent projects and staff knowledge of the general area, groundwater is not anticipated to be a significant issue for work completed with this proposed project.

In 2017, Braun Intertec was employed to complete a ground penetrating radar (GPR) analysis for the project area, which included driving a GPR equipped vehicle throughout all street segments within the project area. A summary table and charts of the GPR Analysis are attached in ***Appendix C***. The GPR data determined an average bituminous pavement thickness of 2.9 inches, and an average aggregate base thickness of 9.7 inches. The average street pavement and base section thickness is therefore 12.6 inches, with a minimum section of 7.5 inches located on 147th Avenue, 160 feet east of Ferret Street.

3.2 Watermain

Watermain was installed along 147th Avenue up to the beginning of the proposed improvements in 2012 as part of the Sunwood Drive re-alignment project. The existing watermain is believed to be in good condition and no repairs are anticipated to be required as part of this project. However, Staff plans to leak test the watermain during development of plans and specifications.

3.3 Sanitary Sewer

Sanitary sewer was installed under Armstrong Boulevard in City-owned right-of-way east of the 146th Avenue temporary cul-de-sac as part of the Armstrong Boulevard Interchange project in 2015. The existing sanitary sewer is believed to be in good condition and no repairs are anticipated to be required as part of this project. However, Staff plans to televise the sewer during development of plans and specifications.

3.4 Storm Sewer/Drainage

Storm sewer was installed along 147th Avenue up to the beginning of the proposed improvements in 2012 as part of the Sunwood Drive re-alignment project. Currently storm water runoff drains off of the two existing cul-de-sacs to low areas. This storm sewer is believed to be in good condition and no repairs are anticipated to be required as part of this project. However, Staff plans to televise the sewer during development of plans and specifications.

3.5 Streets

3.5.1 Existing Typical Sections

The width of 146th Avenue, 147th Avenue, and Ferret Street is 40-feet from face-of-curb to face-of-curb. The cul-de-sac on Ferret Street has a 50-foot radius to the back of curb. The streets are generally centered within a 66-foot wide City-owned right-of-way, with a 130-foot wide diameter right-of-way around the cul-de-sac on Ferret Street. The project is proposed to end at the throat of the 46-foot radius temporary cul-de-sac on 146th Avenue.

3.5.2 Maintenance History

HY-10 Ramsey was originally constructed in 1988. 146th Avenue, 147th Avenue, and Ferret Street received crack seal and seal coat in 1994 and 2001. The street segments have regularly received spot patching on an as-needed basis.

3.6 Land Use

The parcels within the construction area are zoned the COR.

4. PROPOSED IMPROVEMENTS

4.1 Street and Stormwater Improvements

4.1.1 Street Improvements

146th Avenue and Ferret Street are proposed to be reconstructed with bituminous pavement and bituminous curb. 147th Avenue is proposed to be reconstructed with bituminous pavement and concrete curb and gutter, which will better facilitate drainage over time.

The proposed surface improvements are shown on ***Figure 1 in Appendix A.***

Street Design:
146th Avenue, 147th Avenue, and Ferret Street are currently urban commercial streets with bituminous curb and pavement, 40 feet wide from face-of-curb to face-of-curb. The cul-de-sac on Ferret Street is 100-feet in diameter from back-of-curb to back-of-curb. Existing and proposed traffic counts are low for typical commercial streets.

All street segments are proposed to be reconstructed at their current width. A typical section for the proposed pavement reconstruction improvements is shown in ***Figure 2*** in ***Appendix A.***

City staff is proposing a pavement section design of 1.5 inches bituminous wear course, 2 inches bituminous base course, and a minimum of 6 inches of aggregate base composed of existing aggregate base and FDR reclaim material. This pavement section would be constructed over the existing subgrade and/or aggregate base after it is reshaped and compacted.

4.1.2 Storm Sewer Improvements

The existing storm sewer system does not include storm sewer pipe. Storm sewer pipe will be extended west along 147th Avenue for future connection to the existing system. No stormwater treatment improvements are required for this project since the streets are proposed to be reconstructed at their current widths.

4.1.3 Geotechnical Considerations

Braun Intertec was employed to complete a ground penetrating radar (GPR) analysis for the project area. This determined an average street pavement and base section thickness of 12.6 inches. Based on staff knowledge of the area and several soil borings taken for adjacent projects, City staff proposes completing a full-depth reclamation of the existing pavement resulting in a minimum of 6 inches of aggregate base composed of existing aggregate base and FDR reclaim material, and 3.5-inches of new bituminous pavement. The proposed improvements should have a service life of at least 30-years, assuming maintenance such as overlays, crack sealing and seal coating is routinely performed.

4.1.4 Other Considerations

Future Development:
Several parcels within the improvement area are currently listed for sale, including two City-owned parcels. The Development Review Committee reviewed this project to consider several design alternatives, which included possible roadway and utility extensions. Based on the uncertainty of future development, Staff felt it would be most cost-effective to reconstruct the bituminous pavement to minimum standards and to not extend utilities or upgrade concrete curb and gutter beyond 147th Avenue. Staff also believes it would not be cost-effective to realign streets or connect to other streets in the area at this time considering that several parcels are for sale and redevelopment is likely to occur within the next 10 to 20 years.

Driveways:
Existing driveway aprons may need to be reconstructed to varying degrees. The limits of construction will vary with each driveway apron based on the elevation of the street abutting the driveway and the driveway pavement type. During design, Staff will evaluate the construction limits for each driveway and will incorporate this into the plans, but as with all street reconstruction projects, the exact limits of construction will be determined in the field during construction. Right-of-entry forms will be obtained from private property owners where work is required outside City right-of-ways and easements.

Irrigation Systems:
Developed properties along the project corridor may have private irrigation systems. Staff will notify property owners of pending construction as far in advance as practical to allow them time to move their irrigation systems out of harm's way before work begins.

Parking Restrictions:
Parking is currently provided along both sides of the streets and is not currently restricted except for overnight parking per City code. During this project, parking will be restricted during allowable working hours.

Pavement Corings:
Existing pavement thicknesses have been found to be inconsistent throughout the City. It is now standard practice to have City Staff on-site during pavement installation to insure the proper quantities are being placed. As further conformation, Staff is proposing to collect GPR data or to have pavement corings taken at the conclusion of all reconstruction projects. This is already a requirement on all State Aid projects, and will leave more data on the pavement section for future street maintenance projects.

4.2 Stormwater Treatment

No stormwater retention and/or treatment improvements will be required with this project since the project will not result in the addition of new impervious areas.

4.3 Water Main Improvements

Trunk watermain is proposed to be extended from mid-block 147th Avenue, through the intersection of 147th Avenue and Ferret Street. This segment of 147th Avenue is being constructed with concrete curb and gutter, and extending the watermain with this improvement will than not require 147th Avenue to be disturbed with future development. A hydrant will be added at the west end of 147th Avenue for flushing purposes.

4.4 Sanitary Sewer Improvements

No sanitary sewer improvements are proposed with this project.

4.5 Construction Methods

The existing bituminous pavement section will be reconstructed using the FDR process previously outlined within this report.

4.6 Private Utilities

Staff has not yet met with the telephone, gas, power and cable utilities regarding this project. During preparation of plans and specifications, Staff will meet with the private utility companies to discuss the proposed improvements as noted in the project schedule within this report. The alignment and footprint of the streets will be considered to minimize impacts to private utilities. No impacts to power poles or street lights are anticipated with this project.

Should any utility company indicate they wish to upgrade, replace and/or otherwise modify their services during this project, any such upgrades, replacements and/or modifications will be at the sole discretion and cost of the utility company.

4.7 Permits

Permits that are anticipated to be required as part of the proposed improvements include:

- MPCA General Stormwater Permit (NPDES)..... Grading and Storm Water

A stormwater permit from the Lower Rum River Watershed Management Organization will not be required with this project.

4.8 Right-of-Ways/Easements

It is anticipated all improvements will occur within existing City right-of-ways and/or easements, with the possible exception of tying into private driveways and green areas. It is therefore not anticipated that the City will need to acquire additional permanent right-of-way or easements for this project. As such, costs for right-of-way or easement acquisitions are not included in the probable project costs.

City Staff will work with private property owners as needed to obtain any required right of entries.

5. FINANCING

5.1 Opinion of Cost

A detailed opinion of probable costs for the proposed improvements can be found in ***Appendix B*** of this report. The opinion of probable costs incorporates anticipated 2019 construction costs for the proposed improvements with 10-percent contingency costs, plus 23-percent indirect costs for administrative, engineering, financing and legal costs.

City staff prepared the Feasibility Report in-house as part of staff's normal duties.

5.2 Funding

5.2.1 Assessments

The City's adopted Special Assessments Policy allows special assessments to be levied against all benefitting properties in an amount not to exceed 25% of eligible street reconstruction costs. Eligible costs include costs required to reconstruct the street at its current width, and to reconstruct the pavement without increasing its structural capacity. Benefitting properties are considered to be any developable parcel that has, or has the ability to create, one or more direct accesses onto the segment of 146th Avenue, 147th Avenue or Ferret Street being reconstructed. A total of 9 benefitting properties have been identified for this project. The Preliminary Assessment Map and Roll are included in ***Appendix B***.

The engineer's opinion of probable costs for eligible assessment costs totals $287,646.45. Assessable industrial parcels are preliminarily proposed to be assessed for up to 25 percent of eligible project costs, which totals $61,496.39. Assessment terms are proposed at ten years. Interest rates are proposed at two percent above the bond interest rate.

The "area" method of assessment as identified in the City of Ramsey's Special Assessments Policy was applied to assign preliminary assessment amounts for this project. State Statute and the City Charter do not allow for assessments to exceed benefit to the property. Therefore, Staff wants to ensure all assessments applied with this project will not exceed the benefit to assessed properties. Staff therefore recommends ordering a benefit appraisal consultation report for this project in accordance with the City's Special Assessments Policy at the time a construction contract is awarded.

5.2.2 City Contribution

The City contribution to the project would include all funding in excess of the amount collected through special assessments to benefiting properties. No funds have been budgeted for this project. The City's share of eligible project costs related to surface (street) improvements is proposed to come from the previously encumbered 5-year Street Reconstruction and Overlay Program bonds. Water and Stormwater Utility Funds are proposed to pay for all utility improvements.

Table 1 illustrates the proposed project funding based on the design proposed within this report. This funding program assumes construction will occur in 2019.

TABLE 1
Proposed Project Funding

	ASSESSMENTS	CITY FUNDS	TOTAL
Surface	**$ 61,496.39**	**$ 175,493.40**	**$ 236,989.79**
Storm Sewer	**--**	**$ 19,894.85**	**$ 19,894.85**
Water Main	**--**	**$ 30,761.81**	**$ 30,761.81**
TOTALS	**$ 61,496.39**	**$ 226,150.06**	**$ 287,646.45**

Total Project Cost		**$ 287,646.45**
Less Special Assessments	-	$ 61,496.39
Subtotal	**=**	**$ 226,150.06**
Less City Bonding Funds	-	$ 175,493.40
Subtotal	**=**	**$ 50,656.66**
Less Stormwater Utility Funds	-	$ 19,894.85
Subtotal	**=**	**$30,761.81**
Less Water Main Utility Funds	-	$30,761.81
TOTAL Remaining Cost	**=**	**$0**

6. PROJECT SCHEDULE

The proposed project schedule is as follows:

Council Orders Feasibility Report ..... July 11, 2017

Council Reviews Feasibility Report/Orders Public Informational Meeting..... August 28, 2018

Staff Conducts Public Information Meeting ..... September 13, 2018

Council Accepts Feasibility Report/Orders Public Hearing ..... September 25, 2018

Council Conducts Public Hearing/Orders Plans and Specifications..... October 9, 2018

Staff Conducts Private Utility Coordination Meeting ..... November, 2018

Council Approves Plans and Specifications / Authorizes Ad for Bids..... January 22, 2019

Staff Receives Bids ..... February 20, 2019

Council Awards Contract..... February 26, 2019

Contractor Begins Construction..... May, 2019

Contractor Completes Construction..... August 30, 2019

Council Orders Assessment Hearing ..... September 10, 2019

Council Conducts Assessment Hearing..... October 8, 2019

7. CONCLUSIONS AND RECOMMENDATIONS

City of Ramsey Improvement Project No. 18-02 proposes to reconstruct the bituminous pavement section, to remove the existing bituminous curb and replace it with a combination of B618 concrete curb and gutter and bituminous curb, and to complete miscellaneous appurtenant work on the following street segments within the HY-10 Ramsey commercial subdivision:

1. 146th Avenue (approx. 230 linear feet) – Ferret Street to bulb of east cul-de-sac.
2. 147th Avenue (approx. 190 linear feet) – Ferret Street to 180 feet west of Armstrong Boulevard.
3. Ferret Street (approx. 900 linear feet) – 146th Avenue to north cul-de-sac.

It is the recommendation of City staff that City Project No. 18-02 is feasible, necessary, and cost-effective from an engineering standpoint, and this project would best be constructed as a stand-alone project as proposed herein.

The following Staff recommendations related to the proposed project are presented for Council consideration and concurrence:

1. Staff recommends shelving the project until such time that it is no longer needed, or until the property owners request that the streets be repaired.

The City Council is asked to act on the following items related to the proposed project:

1. Adopt Resolution #18-217 accepting this Feasibility Report, but shelving the project until such time that it is no longer needed, or until the property owners request that the streets be repaired.

APPENDIX A

Figure 1 – Project Scope
Figure 2 – Typical Section
Project Site Pictures

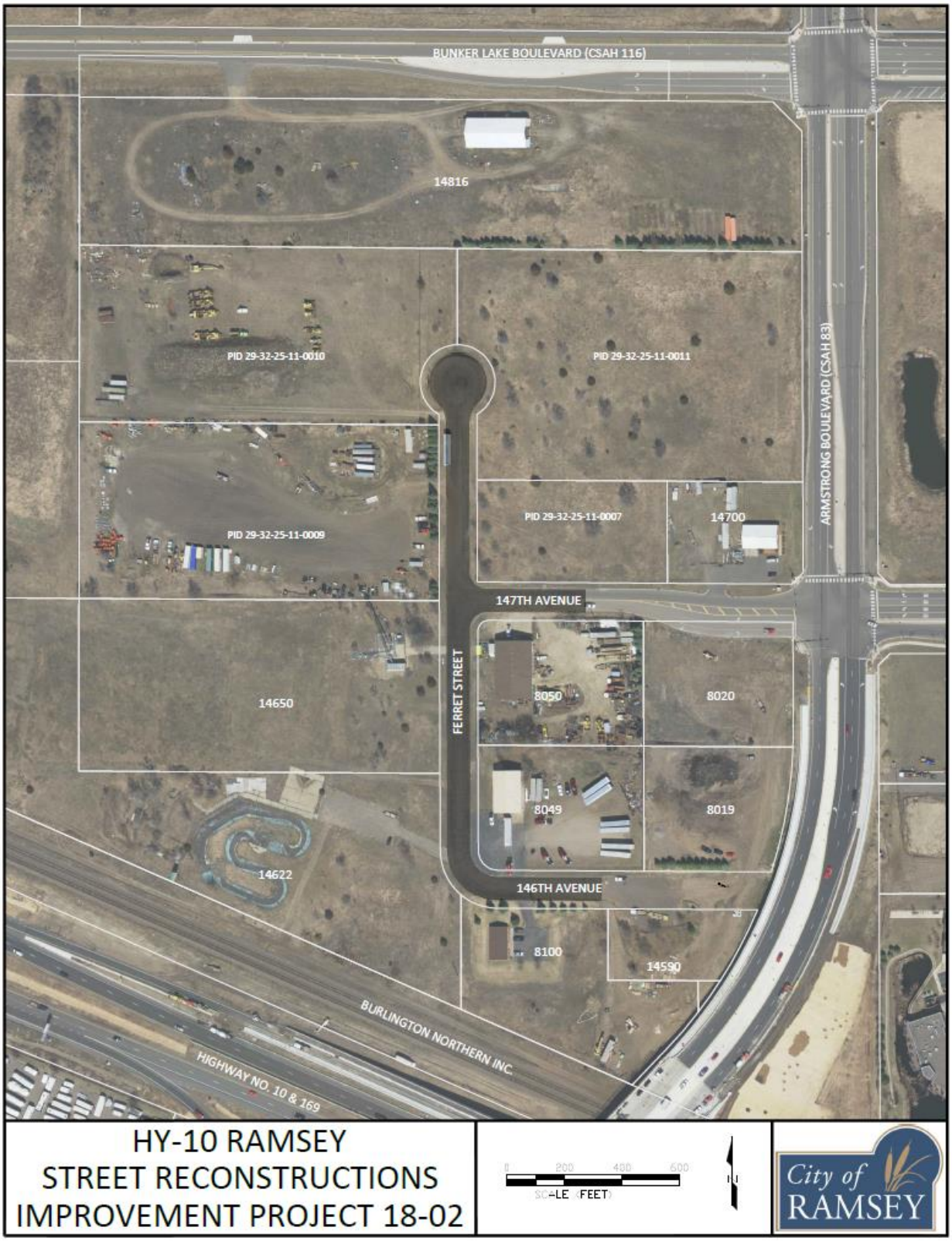


FIGURE 1
PROJECT SCOPE

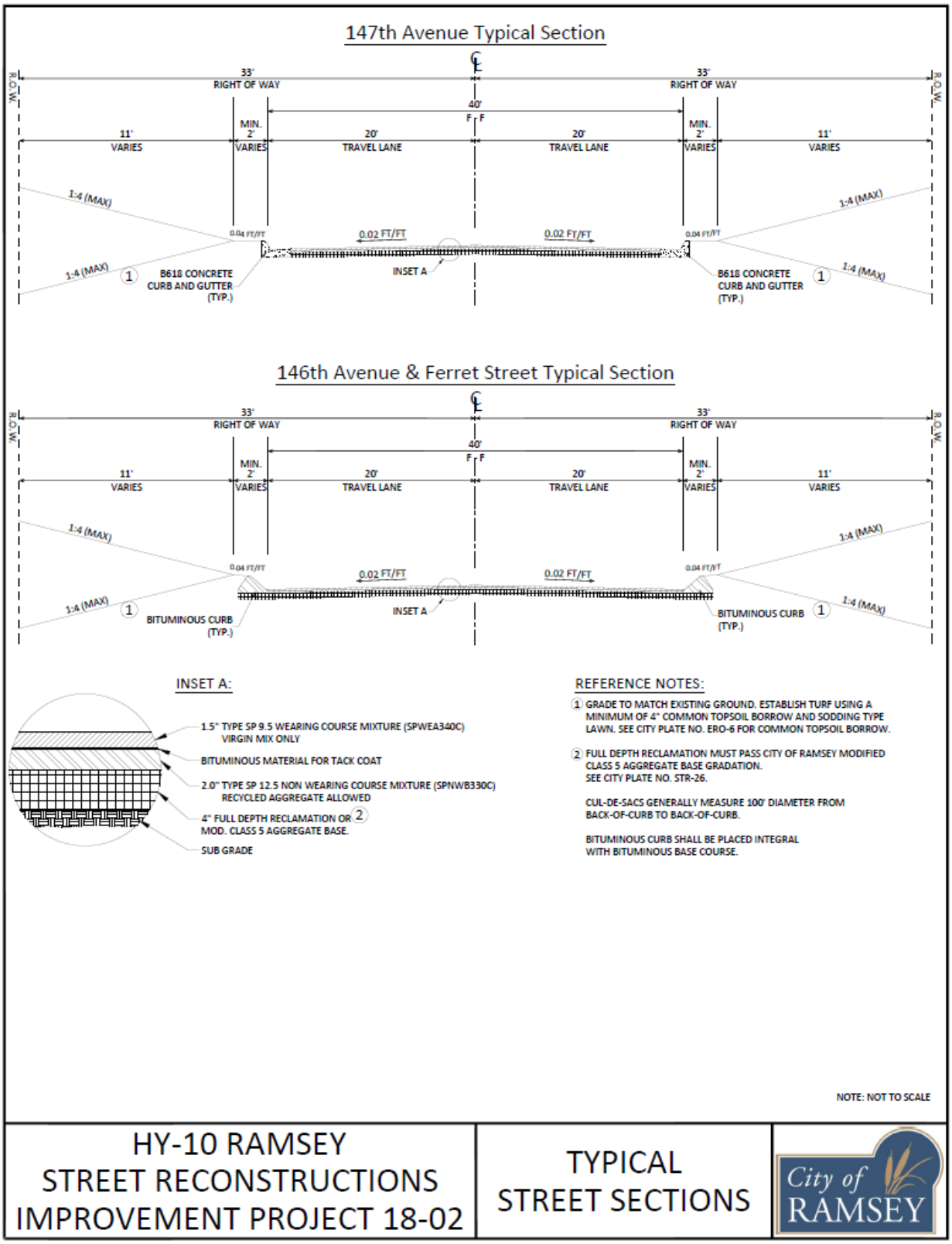


FIGURE 2
TYPICAL SECTIONS – PROPOSED IMPROVEMENTS

PROJECT SITE PICTURES

1: 146th Avenue from Ferret Street

2: Ferret Street from 146th Avenue

3**: Ferret Street from north cul-de-sac**

4: **147th Avenue from Ferret Street**

APPENDIX B

Opinion of Probable Costs
Preliminary Assessment Map
Preliminary Assessment Roll

18-02 HY-10 RAMSEY STREET RECONSTRUCTIONS					
Preliminary Engineer's Estimate 6/11/2018					
STREET CONSTRUCTION					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Cost**	**Cost Extension**
1	Mobilization	LS	1	$ 8,000.00	$ 8,000.00
2	Sawing Bituminous Pavement – Full Depth	LF	200	$ 4.00	$ 800.00
3	Common Excavation (EV)	CY	30	$ 30.00	$ 900.00
4	Salvage Topsoil (LV)	CY	100	$ 15.00	$ 1,500.00
5	Subgrade Preparation	RDST	14	$ 225.00	$ 3,150.00
6	Water	MGAL	30	$ 30.00	$ 900.00
7	Aggregate Base Class 5	CY	210	$ 20.00	$ 4,200.00
8	Bituminous Pavement Reclamation – Full Depth	SY	6,505	$ 1.50	$ 9,757.50
9	Haul Bit Pavement Reclamation (LV)	CY	760	$ 9.00	$ 6,840.00
10	Mill Bituminous Pavement (1.5" Depth)	SY	245	$ 3.00	$ 735.00
11	Bituminous Material for Tack Coat	GAL	450	$ 2.50	$ 1,125.00
12	Type SP 9.5 Wearing Course Mixture (SPWEA340C) (1.5")	TON	550	$ 75.00	$ 41,250.00
13	Type SP 12.5 Non Wearing Course Mixture (SPNWB330C) (2.0")	TON	700	$ 66.00	$ 46,200.00
14	Type SP 9.5 Wearing Course Mixture (SPWEA340C) for Driveways	TON	57	$ 75.00	$ 4,275.00
15	Adjust Valve Box	EA	2	$ 250.00	$ 500.00
16	Adjust Frame and Ring Casting	EA	3	$550.00	$ 1,650.00
17	Concrete Curb & Gutter Design B618	LF	430	$ 22.00	$ 9,460.00
18	Bituminous Curb	LF	2,700	$ 8.00	$ 21,600.00
19	Traffic Control	LS	1	$ 2,500.00	$ 2,500.00
20	Silt Fence, Type MS	LF	50	$ 2.50	$ 125.00
21	Storm Drain Inlet Protection	EA	5	$ 150.00	$ 750.00
22	Common Topsoil Borrow (LV)	CY	35	$ 50.00	$ 1,750.00
23	Seeding	ACRE	0.25	$ 5,000.00	$ 1,250.00
24	Erosion Control Blankets Category III	SY	1,100	$ 2.00	$ 2,200.00
				Total Street Construction Cost	*$ 171,417.50*
				10% Contingency Cost	*$ 17,141.75*
				23% Indirect Cost	*$ 43,368.68*
				Total Street Project Cost	*$ 231,927.88*
WATERMAIN CONSTRUCTION					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Cost**	**Cost Extension**
25	6" Gate Valve & Box	EA	1	$ 1,300.00	$ 1,300.00
26	12" Gate Valve & Box	EA	1	$ 2,000.00	$ 2,000.00
27	F&I Hydrant	EA	1	$ 5,000.00	$ 5,000.00
28	Connect to Existing Watermain	EA	1	$ 1,500.00	$ 1,500.00
29	6" Watermain Ductile Iron Class 53	LF	35	$ 40.00	$ 1,400.00
30	12" Watermain Ductile Iron Class 52	LF	210	$ 50.00	$ 10,500.00
31	Ductile Iron Fittings	LBS	148	$ 7.00	$ 1,036.00
				Total Watermain Construction Cost	*$ 22,736.00*
				10% Contingency Cost	*$ 2,273.60*
				23% Indirect Cost	*$ 5,752.21*
				Total Watermain Project Cost	*$ 30,763.81*
STORM SEWER CONSTRUCTION					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Cost**	**Cost Extension**
32	Geotextile Fabric Type IV	SY	63	$ 3.50	$ 220.50
33	Concrete Flume	EA	2	$ 200.00	$ 400.00
34	15" RC Pipe Apron with Trash Guard	EA	2	$ 800.00	$ 1,600.00
35	15" RC Pipe Sewer, Design 3006 Class III	LF	340	$ 35.00	$ 11,900.00
35	Construct Drainage Structure Design 48-4020	EA	1	$ 2,125.00	$ 2,125.00
36	F&I Casting Assembly	EA	1	$ 800.00	$ 800.00
37	Random Rip Rap Class III	CY	14	$ 100.00	$ 1,400.00
				Total Storm Sewer Construction Cost	*$ 18,445.50*
				10% Contingency Cost	*$ 1,844.55*
				23% Indirect Cost	*$ 4,666.71*
				Total Storm Sewer Project Cost	*$ 24,956.76*
				TOTAL ESTIMATED PROJECT COST	**$ 287,646.45**

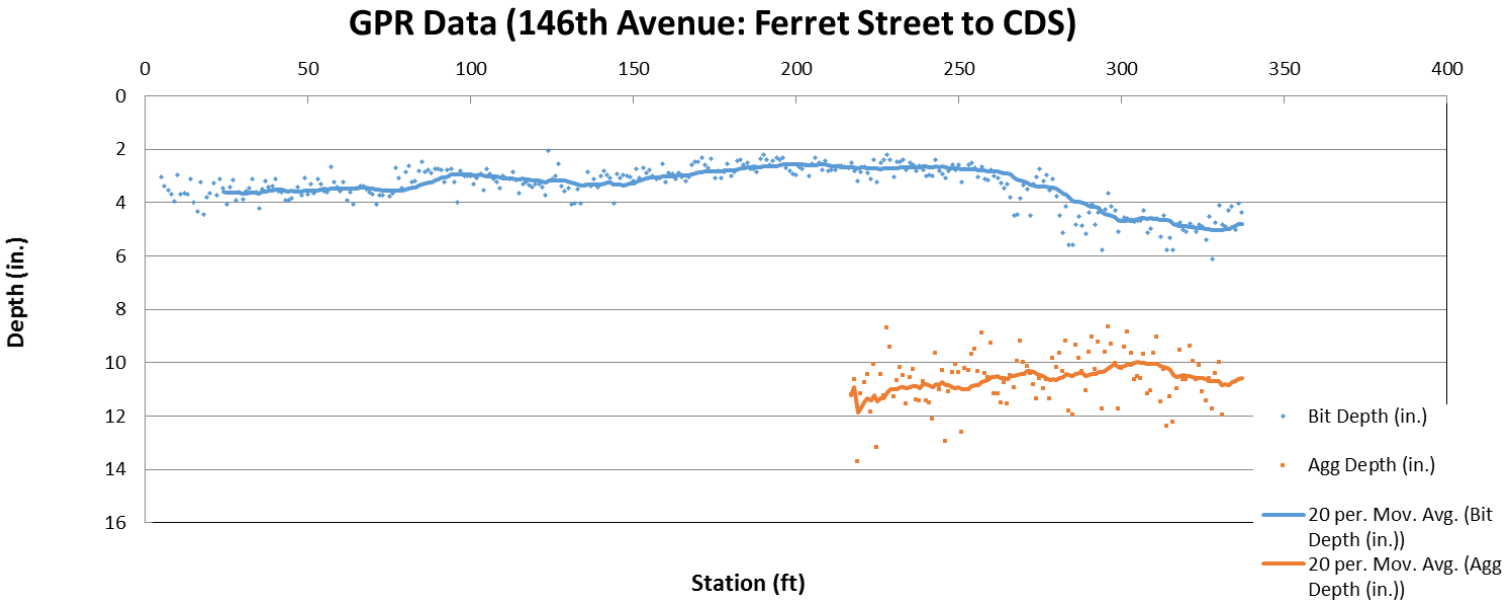

BUNKER LAKE BOULEVARD (CSAH 116)
14816
ARMSTRONG BOULEVARD (CSAH 83)
PID 29-32-25-11-0010
PID 29-32-25-11-0011
PID 29-32-25-11-0009
PID 29-32-25-11-0007
14700
147TH AVENUE
FERRET STREET
14650
8050
8020
8049
8019
14622
146TH AVENUE
8100
14590
BURLINGTON NORTHERN INC
HIGHWAY NO. 10 & 169
HY-10 RAMSEY
ASSESSABLE PROPERTIES
0 300 600 900
SCALE (FEET)
City of RAMSEY

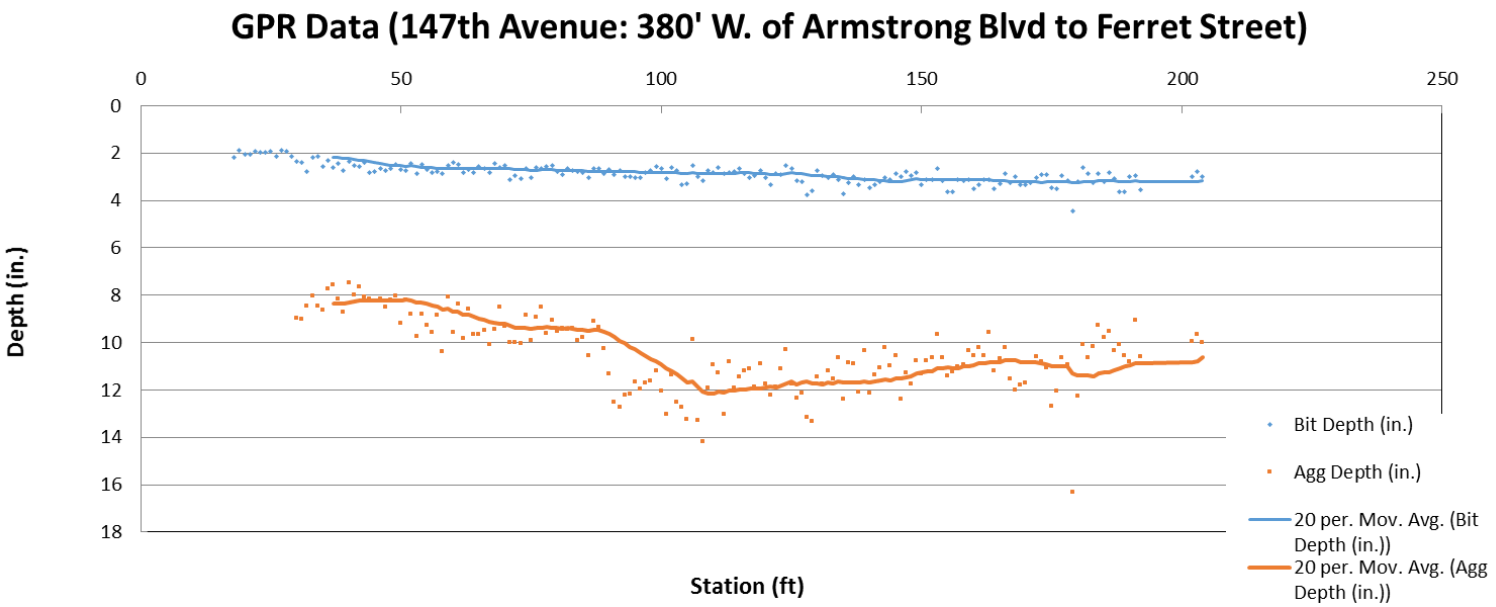
PRELIMINARY ASSESSMENT ROLL - IP #18-02										
PID No.	Property Owner	Property Area (Sq Ft)	Benefitting Area (Sq Ft)	Benefitting Area (%)	Special Assessment ($ / Sq Ft)	Property Address	City	Sate	Zip	Property Area Assessment
293225110007	NATIONAL GROWTH LLC	58,574.92	58,574.92	100	$ 0.0425525000					$ 2,492.51
293225110009	FALLS DON & NYHUSMOEN SIDNEY	191,350.66	191,350.66	100	$ 0.0425525000					$ 8,142.45
293225110010	STANTON TRUSTEE JAMES	194,538.18	194,538.18	100	$ 0.0425525000					$ 8,278.09
293225110011	NATIONAL GROWTH LLC	233,844.74	233,844.74	100	$ 0.0425525000					$ 9,950.68
293225140005	KRH LAND LLC	187,962.50	187,962.50	100	$ 0.0425525000	14650 FERRET ST NW	RAMSEY	MN	55303	$ 7,998.27
293225140008	LEUKAM JOHN	62,496.16	62,496.16	100	$ 0.0425525000	8050 147TH AVE NW	RAMSEY	MN	55303	$ 2,659.37
293225140011	CHALICH PETER	62,341.55	62,341.55	100	$ 0.0425525000	8049 146TH AVE NW	RAMSEY	MN	55303	$ 2,652.79
293225140012	CHALICH PETER	80,718.46	80,718.46	100	$ 0.0425525000	8100 146TH AVE NW	RAMSEY	MN	55303	$ 3,434.77
293225140015	KRH LAND LLC	373,361.48	373,361.48	100	$ 0.0425525000	14622 FERRET ST NW	RAMSEY	MN	55303	$ 15,887.46
	TOTALS	**1,445,188.65**	**1,445,188.65**							**$ 61,496.39**
NOTES:										
1) Area method of assessment applied per City of Ramsey Special Assessments Policy.										
2) Properties abutting project streets with access only onto project streets assessed for 100% of property area.										

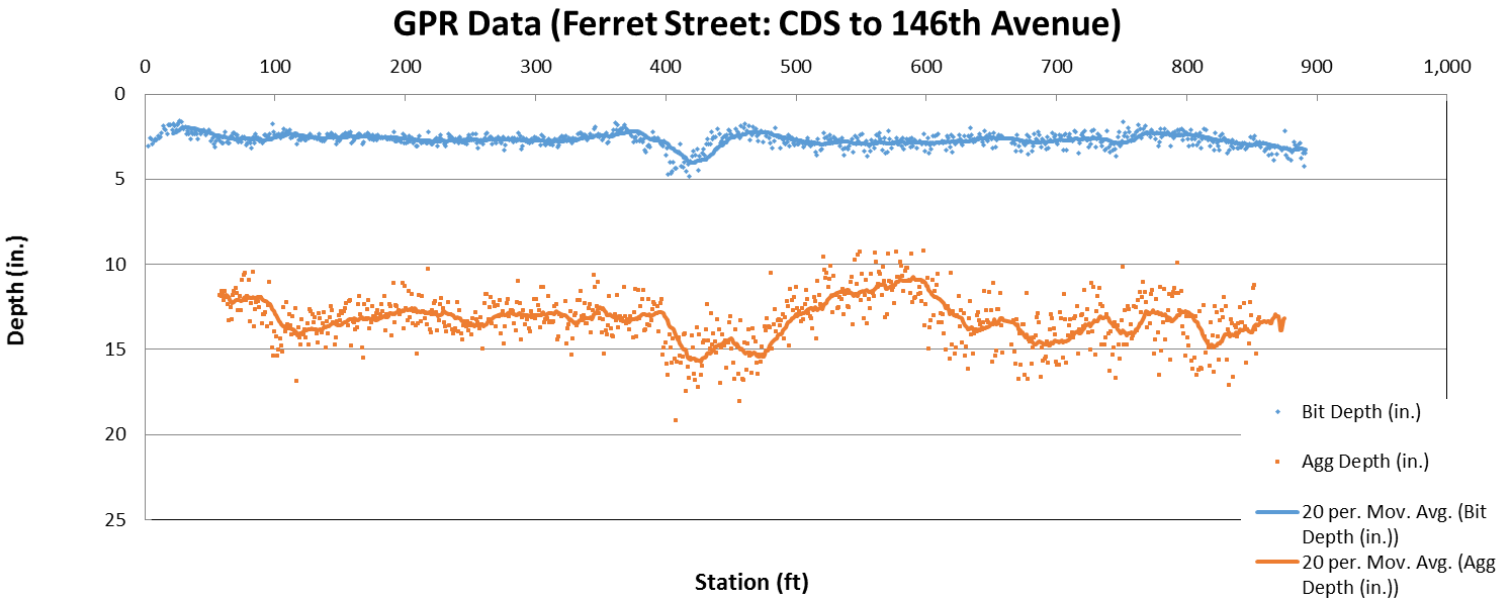
APPENDIX C

Ground Penetrating Radar (GPR) Results

HY-10 Ramsey GPR Summary										
Project Segment		**Pavement**			**Aggregate**			**Section**		
Street	**Segment Description**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Avg**	**Location**
146th Avenue	Ferret Street / CDS	2.0	6.1	3.4	4.3	10.5	6.8	8.6	10.6	296’ east of Ferret Street.
147th Avenue	380’ west of Armstrong Blvd. / Ferret Street	1.9	4.5	2.9	5.0	11.9	7.6	7.5	10.5	160’ east of Ferret Street.
Ferret Street	CDS / 146th Avenue	1.6	4.9	2.7	6.6	15.5	10.6	9.3	13.3	250’ north of 146th Avenue
Project Summary		*1.6*	*6.1*	*2.9*	*4.3*	*15.5*	*9.7*	*7.5*	*12.6*	*147th Avenue 160’ east of Ferret Street.*




GPR Data (147th Avenue: 380' W. of Armstrong Blvd to Ferret Street)
Depth (in.)
Station (ft)
0
50
100
150
200
250
0
2
4
6
8
10
12
14
16
18
Bit Depth (in.)
Agg Depth (in.)
20 per. Mov. Avg. (Bit Depth (in.))
20 per. Mov. Avg. (Agg Depth (in.))


GPR Data (Ferret Street: CDS to 146th Avenue)
Depth (in.)
Station (ft)
0
100
200
300
400
500
600
700
800
900
1,000
0
5
10
15
20
25
Bit Depth (in.)
Agg Depth (in.)
20 per. Mov. Avg. (Bit Depth (in.))
20 per. Mov. Avg. (Agg Depth (in.))