

# Falcon Avenue and Ginger Avenue Improvements

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City of Harris  
Chisago County, Minnesota  
May 2022

Prepared by:

MSA Professional Services  
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St. Paul, MN 55107  
[www.msa-ps.com](http://www.msa-ps.com)

Project No. 09520023

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# Falcon Avenue and Ginger Avenue Improvements

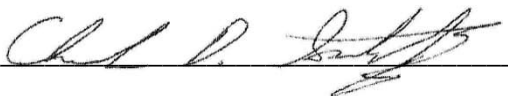
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City of Harris, Minnesota

## SUBMITTAL 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.

Print Name: Charles Schwartz, P.E.

Signature: 

Date: April 5, 2022

License #: 25765

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## I. INTRODUCTION

On January 10, 2022, the City Council unanimously authorized this Falcon Avenue and Ginger Avenue Feasibility Study. The study is necessary to assess whether improvements should be made to the roadway and determine estimated costs of the improvements as recommended. The road improvements on Falcon Avenue will begin at the intersection of Stark Road and Falcon Avenue. The project will extend north up Falcon Avenue approximately 1.5 miles until it reaches 450<sup>th</sup> Street. The road improvements on Ginger Avenue will begin at the intersection of 425<sup>th</sup> Street and Ginger Avenue. The project will extend north up Ginger Avenue approximately 0.5 miles until it reaches 430<sup>th</sup> Street.

Exhibit I.1 – Falcon Avenue Project Area

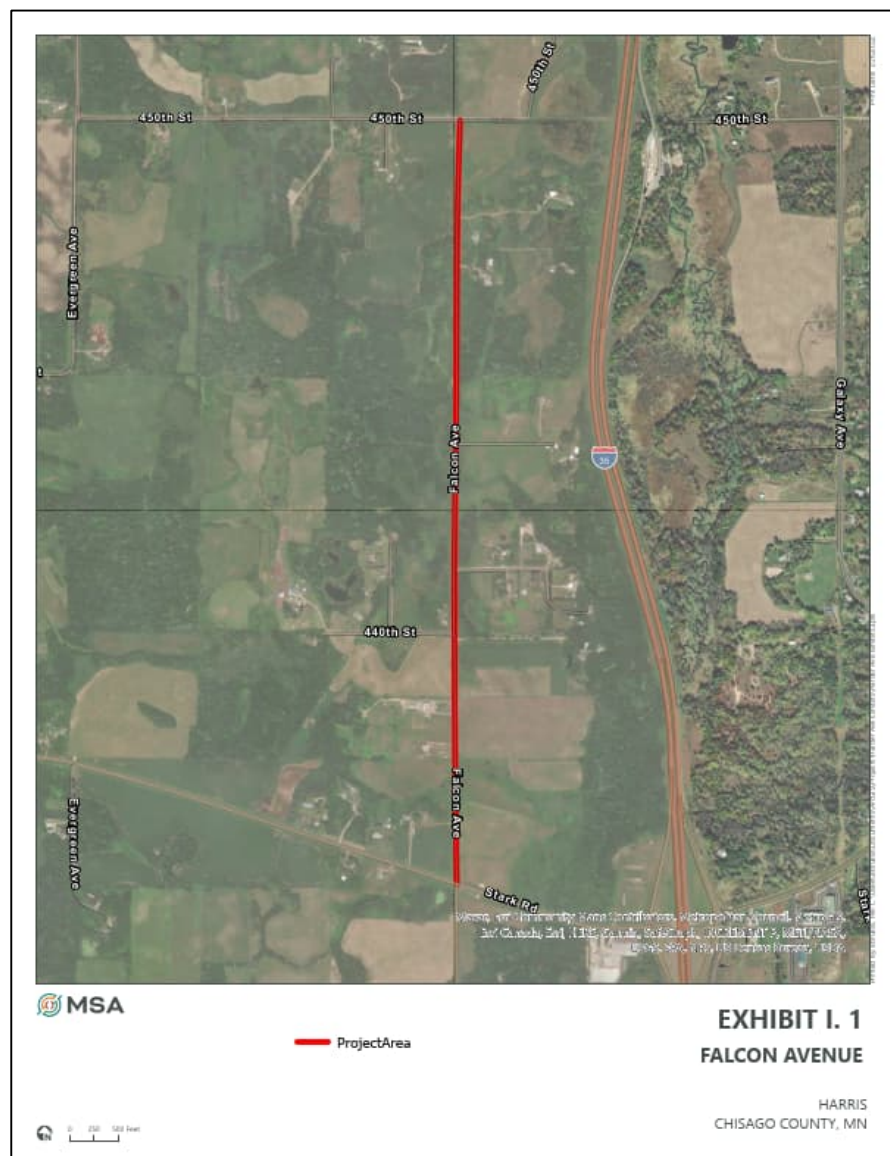
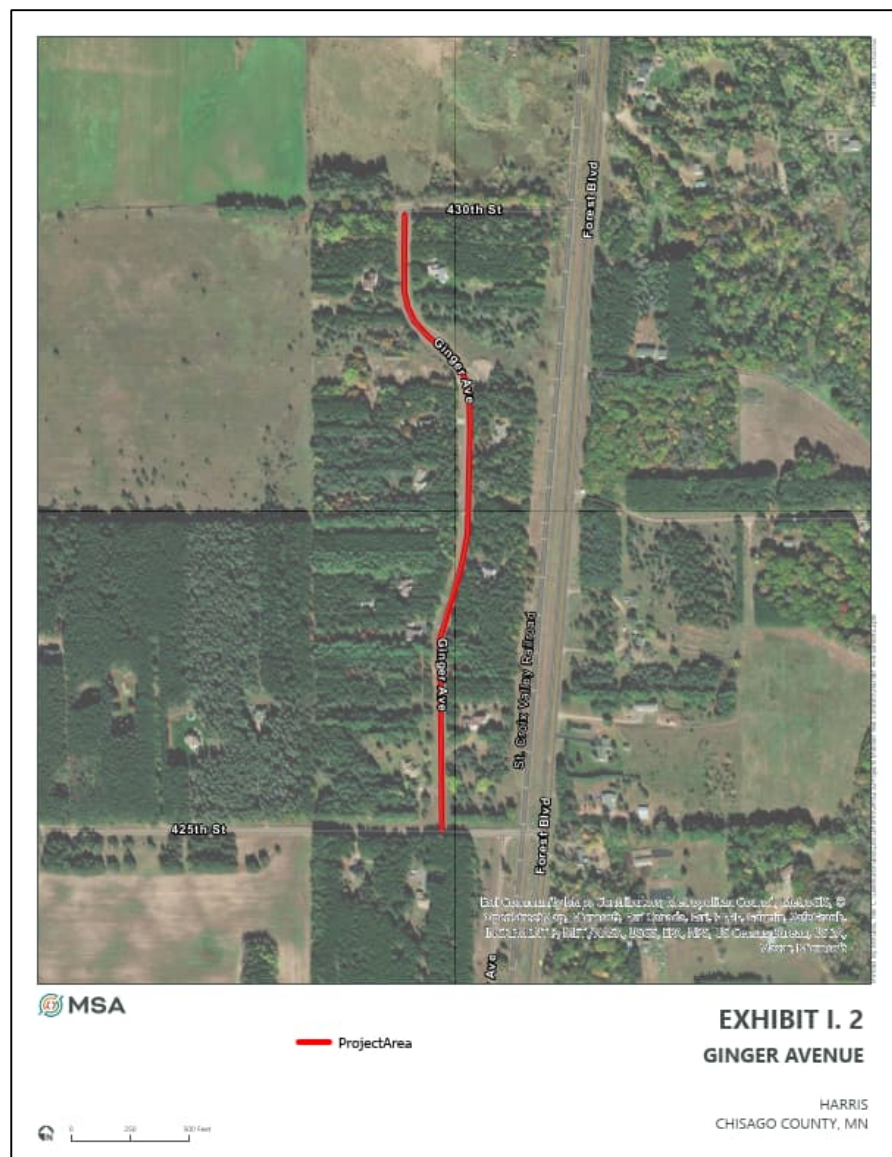


Exhibit I.2 – Ginger Avenue Project Area



## II. PURPOSE

The purpose of this study is to analyze the necessity, possible alternatives, and cost effectiveness of the proposed street improvements. The study discusses the existing conditions, proposed improvements, estimated construction costs, and financing sources necessary to complete the proposed work.

### III. EXISTING CONDITIONS

The existing conditions of the roadway were evaluated to determine current system capacity and areas of concern. As part of the project scope, a site visit and review of available information of the project area was completed. Below is a summary of the information collected on the conditions, separated into the project groupings.

#### SOILS/BEDROCK

According to the Natural Resources Conservation Service (NRCS) database, the underlying soils at Falcon Avenue can generally be described as:

- Zimmerman fine sand, 1 to 12% slopes, hydrologic soil group A. Group A soils typically have a high infiltration rate (low runoff potential) when thoroughly wetted.
- Isanti loamy fine sand, hydrologic soil group A/D. Group D soils typically have a very slow infiltration rate (high runoff potential) when thoroughly wetted. These soils have a very slow rate of water transmission.
- Lino loamy fine sand, hydrologic soil group A/D.
- Braham loamy fine sand, 2 to 12% slopes, hydrologic soil group B. Group B soils have a moderate infiltration rate when thoroughly wetted.
- Sartell fine sand, 1 to 6% slopes, hydrologic soil group A.
- Seelyeville muck, hydrologic soil group A/D.
- Markey muck, hydrologic soil group A/D.
- Cathro muck, hydrologic soil group B/D.
- Blomford loamy sand, lacustrine substratum, hydrologic soil group B/D.
- Kratka loamy fine sand, thick solum, hydrologic soil group B/D.

On February 23, 2022, Falcon Avenue soil borings were completed by Independent Testing Technologies (ITT). Their findings were presented in a March 14, 2022 report. Below the aggregate, boring SB-5 encountered silty sand (SM) fill to 2.5 feet, followed by native, poorly graded sand with silt (SP-SM) to 5.0 feet, poorly graded sand (SP) to 13.0 feet and then sandy lean clay (CL) to termination at 14.9 feet. Boring SB-6 encountered clayey sand (SC) fill to 4.0 feet, followed by black silty sand (SM) to 8.5 feet, poorly graded sand with silt (SP-SM) to 11.0 feet and then poorly graded sand (SP) to termination at 14.9 feet. Boring SB-7 encountered silty sand (SM) fill to 2.5 feet, followed by native, silty sand (SM) to 8.0 feet and then poorly graded sand (SP) to termination at 14.9 feet. Groundwater was encountered in all three borings at depths of 7.5 to 14.0 feet during drilling.

According to the Natural Resources Conservation Service (NRCS) database, the underlying soils at Ginger Avenue can generally be described as:

- Zimmerman fine sand, 1 to 12% slopes, hydrologic soil group A. Group A soils typically have a high infiltration rate (low runoff potential) when thoroughly wetted.
- Sartell fine sand, 6 to 12% slopes, hydrologic soil group A

No soil borings were completed on Ginger Avenue.

#### TRAFFIC

Falcon Avenue is a low volume local road, providing access to residential households located along the project route as well as access to the gun club. Ginger Avenue is a low volume local road, providing access to residential households located along the project route. At this time, average daily traffic (ADT) for either road have not been accessed by the City or MnDOT.

#### EXISTING ROADWAY

Falcon Avenue is a rural roadway (no curb and gutter). It is approximately 30 ft wide throughout its entire length. According to the Chisago County GIS Map, the right-of-way width is 66-feet along the Falcon Avenue corridor. The driving surface throughout the project area is gravel. Falcon Avenue consists of a gravel surface mixed with underlying sand sub-base. According to the soil borings, the aggregate thickness varied between 12 – 18 inches.

It has been the observation of the City of Harris that Falcon Avenue exhibits reasonable strength and therefore the roadway sub-base should not require substantial strengthening before paving the surface. The City will assess the need for additional gravel prior to paving and possibly add gravel as necessary as part of their normal street maintenance practice for gravel roads. For the purpose of this report, no additional gravel is included in the project scope. The surface and shoulder width of Falcon Avenue appear wide enough to install 24-foot wide pavement in accordance with the City's standard street section.

Ginger Avenue is a rural roadway (no curb and gutter). It is approximately 23 ft wide throughout its entire length. It was originally paved in the early 2000s and is believed to be 1.5 to 2-inches thick. According to the Chisago County GIS Map, the right-of-way width is 66-feet along the Ginger Avenue corridor. The driving surface throughout the project area is bituminous pavement.

## IV. PROPOSED IMPROVEMENTS – FALCON AVENUE

A “shape and pave” project typically includes adding aggregate base course (gravel) as needed, shaping of the crown of the roadway, minor ditch grading to facilitate drainage, and paving the surface of the roadway. Exhibit A.1 depicts the typical cross section recommended for this project.

Falcon Avenue is ideally suited for the shape and pave improvement project. We propose that these roadways be improved to best fit the existing roadway embankment to minimize expenses.

Falcon Avenue has an assumed typical thickness of 14 inches of gravel. The improvement includes shaping of the crown of the roadway before placing the 3.5-inch mat of Hot Mix Asphalt. The improvements will be within the permitted right-of-way; primarily contained within the existing roadway as traveled and the shoulder area. No minor grading of ditches to accommodate the desired width of the roadways is included in the project scope.

In keeping with the City of Harris design standards, the return radii at intersections will be a minimum of 30 feet for collector roads. The bituminous mat will be extended out at mailboxes and driveways. These extensions will be implemented to strengthen the shoulder and prevent the edge of bituminous pavement mat from breaking off or raveling. Widening the edge of the bituminous mat at driveways also protects the pavement of the driving lane. Where driveways are paved and extended close to the edge of the traveled way, the bituminous pavement will be extended to meet the existing driveway pavement.

We recommend the City contract for final preparation of the aggregate base course as well as the placement of the bituminous pavement. It is assumed that the City would complete any necessary drainage improvements and final restoration. With small projects, the City would pay a premium for the mobilization of different crews to accomplish these tasks. The increased costs on a small project drive the costs to a point that they would not be sustainable.

## **V. PROPOSED IMPROVEMENTS – GINGER AVENUE**

The City's assessment policy details a standard practice for new construction. Under this definition, streets are assessed 100% to the abutting benefited properties. Improvements include the installation of the 1.5 inches wearing course to complete this unfinished road. For this project, driveways and intersection points will be milled and the overlay will be crowned to ensure adequate drainage.

We recommend the City contract for placement of the bituminous pavement. It is assumed that the City would complete any necessary drainage improvements and final restoration. With small projects, the City would pay a premium for the mobilization of different crews to accomplish these tasks. The increased costs on a small project drive the costs to a point that they would not be sustainable.

## **VI. RIGHT-OF-WAY, EASEMENTS AND PERMITS**

The Falcon Avenue and Ginger Avenue right-of-way is 66-feet wide. Both the proposed options will not exceed the current width of the right-of-way.

## **VII. INFORMATIONAL MEETINGS**

City Staff has not yet held the neighborhood meeting to solicit public feedback for the proposed project. The City will conduct Improvement and Assessment Hearings in accordance with the MN 429 Special Assessment Statute as the improvements are to be assessed.

## **VIII. RECOMMENDED IMPROVEMENT OPTIONS**

MSA Professional Services, Inc. (MSA) develops opinions of construction cost based on the complexity of the proposed project and the bid prices received on previous similar projects. The

volume of projects bidding, the cost of raw materials, the cost of fuels and other various factors can have a significant impact on the cost of construction.

In this case, we have bid prices other projects in nearby communities. This study assumes the overlay process can be completed at reasonably similar prices.

The estimated construction costs and associated overhead costs for the proposed improvements are summarized in Table VI.1 below. A detailed estimate considered can be found in the Appendix on Table A.1.

Table VII.1: Estimated Project Costs

IMPROVEMENT AREA	ESTIMATED PROJECT COSTS
FALCON AVENUE IMPROVEMENTS (TOTAL)	\$465,000
FALCON AVENUE IMPROVEMENTS (LESS \$175,000 COUNTY CONTRIBUTION)	\$290,000
GINGER AVENUE IMPROVEMENTS	\$70,300

## IX. FINANCING AND ASSESSMENTS – FALCON AVENUE

It is our recommendation the City assess total project costs less Chisago County's \$175,000 contribution. It is assumed the improvements as discussed in this report will be financed through the "adjusted front footage method" of assessment. To determine the adjusted front footage of each lot, the assessable cost is divided by the actual frontage benefiting from the improvement. Street construction projects are typically assessed over a 20-year period. Per City Assessment Manual, interest is assessed at 2% over the average interest rate of bonds rounded to the nearest ¼ percent. Assessment range from \$6,325 – \$27,959 per parcel. Assuming an interest rate of 5% over a 20-year period, assessment for a 24-foot wide road equates to total annual cost of \$508 – \$2,244 depending upon each parcels front footage.

## X. FINANCING AND ASSESSMENTS – GINGER AVENUE

It is assumed the Ginger Avenue improvements as discussed in this report will be financed through the "per lot method" of assessment. Street construction projects are typically assessed over a 20-year period. Per City Assessment Manual, interest is assessed at 2% over the average interest rate of bonds rounded to the nearest ¼ percent. Assessment amount would be \$7,030 per parcel. Assuming an interest rate of 5% over a 20-year period, assessment for a 24-foot wide road equates to total cost of \$561 per lot annual cost.

## XI. NECESSITY AND COST-EFFECTIVENESS

It is our opinion that Falcon Avenue should be paved with 3.5-inches of bituminous. The continuous grading efforts and additions of gravel to maintain the surface are costly to the City and deplete natural resources. As is typical in rural residential areas, traffic along gravel roads can cause annoying and irritating dust problems. The overall strength can be improved with these projects. Ginger Avenue should be paved with a 1.5-inch, second lift of pavement.

The proposed shape and pave for Falcon Avenue and overlay improvements for Ginger Avenue are cost effective for the City. Other paving options for improving the roadway surface are not suitable. Portland cement concrete paving is expensive and unrealistic for this application. The life cycle costs of concrete can only be justified for roads subjected to heavy and frequent traffic loading.

The paving of Falcon Avenue and Ginger Avenue is also feasible from an engineering perspective. The City of Harris has improved streets in various parts of the City and found the improvements to increase the value of the properties benefiting from the improvements. The street cross section shows both an acceptable width for the pavement surface and shoulders and the structural strength to support the anticipated traffic loading.

If necessary, minor drainage improvements should be completed by City forces ahead of the improvements included herein to protect the street structure from saturation during the more frequent rainfalls and spring snowmelt.

## XII. PROJECT SCHEDULE

Task	Action	Date
1	Council Receives the Feasibility Study and Orders the Improvement Hearing	April 11, 2022
2	First Published Notice	April 21, 2022
3	Second Published Notice	April 28, 2022
4	Improvement Hearing and Council Orders Improvement	May 9, 2022
5	Council Approves Plans and Orders Bid Advertisement	June 13, 2022
6	First Published Notice	June 23, 2022
7	Second Published Notice	June 30, 2022
8	Bid Letting	July 7, 2022
9	Council Receives Bids and Orders Assessment Hearing	July 11, 2022
10	First Published Notice	July 21, 2022
11	Second Published Notice	July 28, 2022
12	Assessment Hearing	August 11, 2022
12	Council Awards Project	September 12, 2022

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13	Construction Begins	September 2022
14	Construction Complete	October 2022
15	Warranty Review	Summer 2023

### **XIII. CONCLUSION & RECOMMENDATION**

It is recommended that the City chooses to complete the shape and pave on Falcon Avenue and overlay on Ginger Avenue. The total estimated project cost of the project, which includes the roadway improvements as well as overhead and contingency cost on Falcon Avenue, is \$465,000 and Ginger Avenue is \$70,300. It is recommended that this study be used as a guide for the layout, design, cost allocation, and project scheduling for the public improvements.

If the improvements considered within the scope of this report are to be completed during the 2022 construction season, it is critical to initiate the public hearing process, then order plans and specifications as soon as possible to allow the construction project to start in the early part of summer. The project identified herein, is necessary, cost effective, and feasible from an engineering perspective. The project is proposed to be financed through the assessment of the improvements to abutting properties, in accordance with Minnesota Statute 429.

## APPENDIX

Table A.1

PROJECT DESCRIPTION: FALCON AVENUE FEASIBILITY STUDY

MSA PROJECT NUMBER: 09520023

CREATED BY: EEB

CHECKED BY: CDS

DATE UPDATED 4/6/2022  
 ESTIMATE YEAR: 2021  
 CONSTRUCTION YEAR: 2022


ITEM NO.	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE
	<u>SCHEDULE 1.0 - STREET</u>				
1	MOBILIZATION	1	LS	\$11,100.00	\$11,100.00
2	REMOVE BITUMINOUS PAVEMENT	198	SY	\$6.00	\$1,188.00
3	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	178	LF	\$4.00	\$712.00
4	SALVAGE MAIL BOX	10	EA	\$150.00	\$1,500.00
5	SUBGRADE EXCAVATION (EV)	208	CY	\$18.00	\$3,744.00
6	AGGREGATE SURFACING, (LV), CLASS II	186	CY	\$35.00	\$6,510.00
7	AGGREGATE BASE CLASS 5	1760	TON	\$18.00	\$31,680.00
8	MILL BITUMINOUS SURFACE (1.5")	13	SY	\$20.00	\$260.00
9	BITUMINOUS MATERIAL FOR TACK COAT	1144	GAL	\$5.00	\$5,720.00
10	TYPE SP 9.5 WEAR COURSE MIXTURE 2B (STREET)	2086	TON	\$65.00	\$135,590.00
11	TYPE SP 12.5 NON-WEARING COURSE MIXTURE 2B (STREET)	2781	TON	\$65.00	\$180,765.00
12	TRAFFIC CONTROL	1	LS	\$2,000.00	\$2,000.00
CONSTRUCTION SUBTOTAL					\$380,769.00
 CONTINGENCY AND SOFT COSTS: 22%					\$83,769.00
TOTAL COST:					\$464,538.00

Table A.2


PROJECT DESCRIPTION: GINGER AVENUE FEASIBILITY STUDY

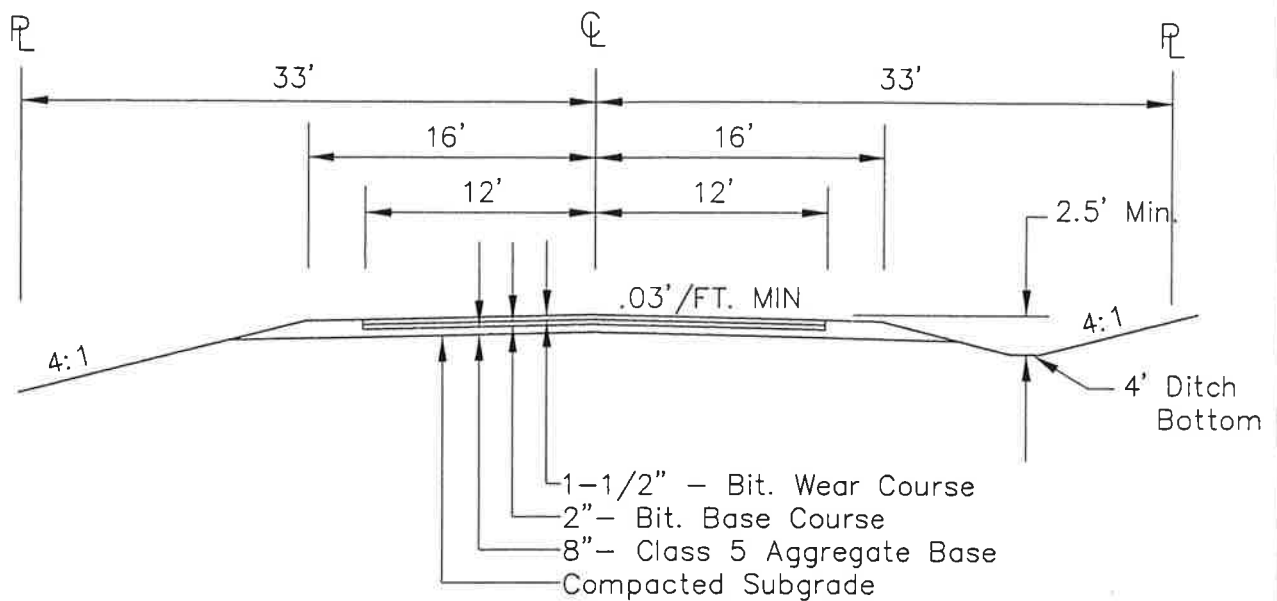
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CREATED BY: EEB

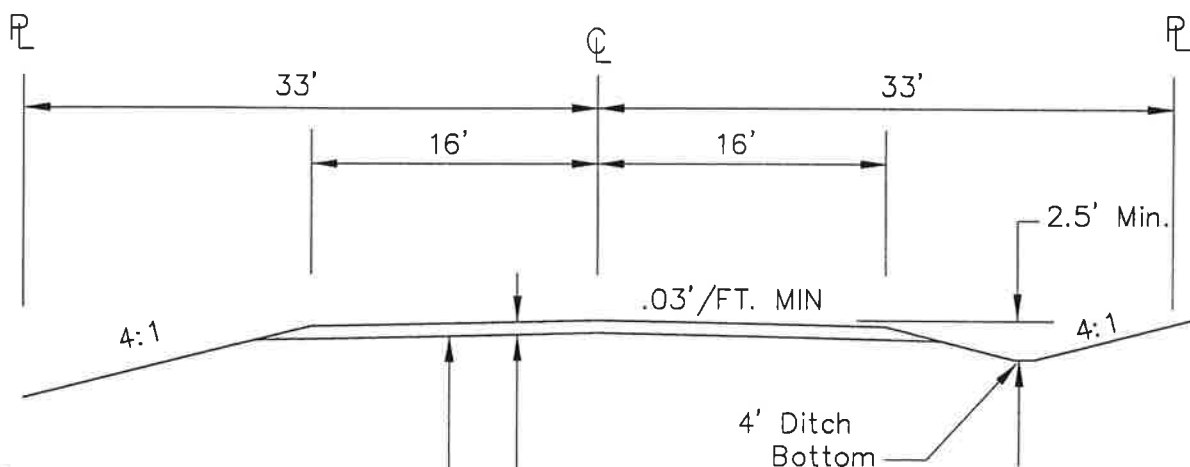
CHECKED BY: CDS

DATE UPDATED 4/6/2022  
 ESTIMATE YEAR: 2021  
 CONSTRUCTION YEAR: 2022

ITEM NO.	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE
	<u>SCHEDULE 1.0 - STREET</u>				
1	MOBILIZATION	1	LS	\$3,000.00	\$3,000.00
2	REMOVE CONCRETE PAVEMENT	10	SY	\$10.00	\$100.00
3	SAWING CONCRETE PAVEMENT (FULL DEPTH)	28	LF	\$10.00	\$280.00
4	MILL BITUMINOUS SURFACE (1.5")	72	SY	\$20.00	\$1,440.00
5	BITUMINOUS MATERIAL FOR TACK COAT	411	GAL	\$5.00	\$2,055.00
6	TYPE SP 9.5 WEARING COURSE MIXTURE 2B (STREET)	750	TON	\$65.00	\$48,750.00
7	TRAFFIC CONTROL	1	EA	\$2,000.00	\$2,000.00
CONSTRUCTION SUBTOTAL					\$57,625.00
 CONTINGENCY AND SOFT COSTS: 22%					\$12,678.00
TOTAL COST:					\$70,303.00



### BITUMINOUS STREET



#### NOTES:

1. All organic or other unsuitable material shall be removed from beneath the roadway.
2. A test roll of the prepared subgrade shall be preformed by the owner in the presence of a city inspector. The city has the authority to require additional subgrade correction.

### GRAVEL STREET

STANDARD DETAILS  
TYPICAL SECTIONS FOR RESIDENTIAL STREETS  
RURAL SECTION

HARRIS, MINNESOTA

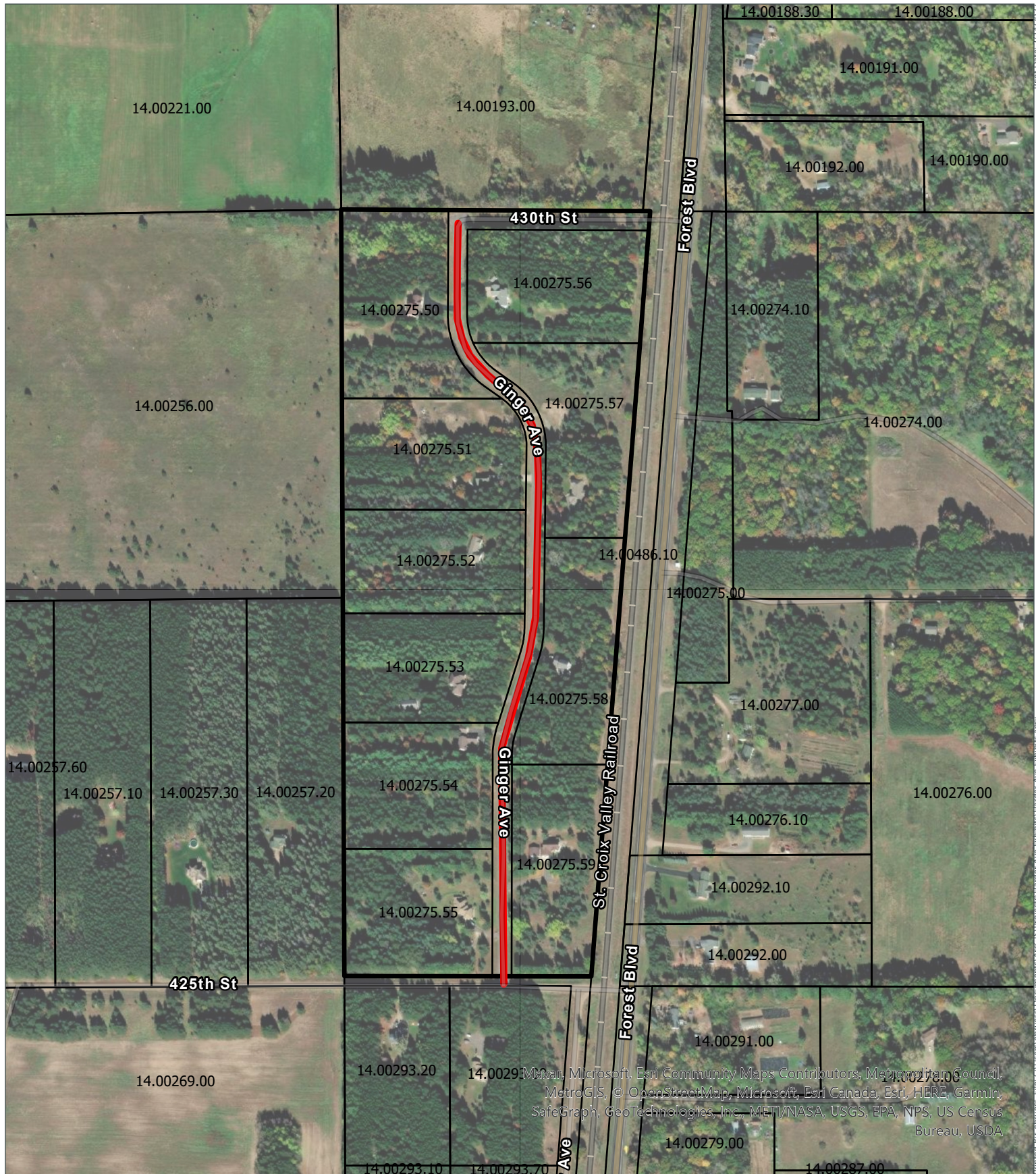
Last Revision:  
MAR.2005

BRA Plate No.  
M-1

City Plate No.  
STR-09







- ProjectArea
- AssessmentArea
- Parcels



## EXHIBIT A. 3 GINGER AVENUE

HARRIS  
CHISAGO COUNTY, MN

Exhibit A.3

FALCON AVENUE IMPROVEMENTS PROJECT

HARRIS, MINNESOTA

MSA PROJECT NO. 09520023

ASSESSMENT ROLE

NO.	PIN NUMBER	OWNER	PROPERTY ADDRESS	CITY	STATE	ZIP	Adjusted Front Footage	Assessment
1	14.00102.00	GOPHER RIFLE & REVOLVER CLUB	5180 450TH ST	HARRIS	MN	55032	1,326	\$27,959
2	14.00108.00	HAMMERSTROM JUDY ANN	5149 450TH ST	HARRIS	MN	55032	663	\$13,979
3	14.00111.00	HAMMERSTROM JUDY ANN	5149 450TH ST	HARRIS	MN	55032	663	\$13,979
4	14.00119.00	DONNA M REKUCKI REVOCABLE TRUST	44358 FALCON AVE	HARRIS	MN	55032	1,326	\$27,959
5	14.00121.00	HANSON BRUCE H	44050 FALCON AVE	HARRIS	MN	55032	597	\$12,588
6	14.00225.02	BARIL ELIZABETH V			MN		320	\$6,747
7	14.00225.01	BARIL ELIZABETH V			MN		320	\$6,747
8	14.00226.20	MIELKE JOHN M & BONNIE E	43838 FALCON AVE	HARRIS	MN	55032	330	\$6,958
9	14.00226.00	CROSSEN PAUL & DARLENE	43774 FALCON AVE	HARRIS	MN	55032	330	\$6,958
10	14.00234.00	NELSON MARGARET R	5204 STARK RD	HARRIS	MN	55032	629	\$13,262
11	14.00210.20	GENE L PIERCE TRUST			MN		610	\$12,862
12	14.00210.15	PIERCE RANDY G & DEBORAH J	43625 FALCON AVE	HARRIS	MN	55032	400	\$8,434
13	14.00210.10	PIERCE RANDY G & DEBORAH J	43625 FALCON AVE	HARRIS	MN	55032	400	\$8,434
14	14.00210.00	PIERCE RANDY G & DEBORAH J	43625 FALCON AVE	HARRIS	MN	55032	517	\$10,901
15	14.00209.10	THIEMAN TODD			MN		300	\$6,325
16	14.00209.00	DEHEN JOSEPH DAVID	43967 FALCON AVE	HARRIS	MN	55032	360	\$7,591
17	14.00133.00	MAGELLAN PIPELINE COMPANY LLC & ATTN: BECKY SPENCE			MN		330	\$6,958
18	14.00132.30	HARRIS ROBIN A	5356 441ST ST	HARRIS	MN	55032	333	\$7,021
19	14.00131.00	HARRINGTON THOMAS & VERONICA	44371 FALCON AVE	HARRIS	MN	55032	1,326	\$27,959
20	14.00127.20	BLOMQUIST KYLE E	44501 FALCON AVE	HARRIS	MN	55032	754	\$15,898
21	14.00127.00	ANDERSON DAVID CHARLES & PAMELA K ANDERSON	44695 FALCON AVE	HARRIS	MN	55032	572	\$12,061
22	14.00123.10	BEAN MICHAEL J	44799 FALCON AVE	HARRIS	MN	55032	1,326	\$27,959

Total 289,538

GINGER AVENUE IMPROVEMENTS PROJECT

HARRIS, MINNESOTA

MSA PROJECT NO. 09520023

ASSESSMENT ROLE

NO.	PIN NUMBER	OWNER	ADDRESS	CITY	STATE	ZIP	Adjusted Front Footage	Assessment
1	14.00275.50	LAKE PAUL & JENNIFER	42936 GINGER AVE	HARRIS	MN	55032	716	\$7,030
2	14.00275.51	HEIDELBERGER WALLACE W & LINDA	42816 GINGER AVE	HARRIS	MN	55032	408	\$7,030
3	14.00275.52	CARLSEN RONALD F	42756 GINGER AVE	HARRIS	MN	55032	355	\$7,030
4	14.00275.53	LARSON ANDREW J & MEAGAN L	42676 GINGER AVE	HARRIS	MN	55032	386	\$7,030
5	14.00275.54	COE RANDALL LEE	42656 GINGER AVE	HARRIS	MN	55032	434	\$7,030
6	14.00275.55	SCHEELE VICTORIA	42530 GINGER AVE	HARRIS	MN	55032	436	\$7,030
7	14.00275.56	WINDINGSTAD MARY	42941 GINGER AVE	HARRIS	MN	55032	391	\$7,030
8	14.00275.57	GUSTAFSON SUSAN J & DENNIS O	42797 GINGER AVE	HARRIS	MN	55032	763	\$7,030
9	14.00275.58	SCHMIDT DAREK	42705 GINGER AVE	HARRIS	MN	55032	761	\$7,030
10	14.00275.59	PELTIER BRANDON	42561 GINGER AVE	HARRIS	MN	55032	725	\$7,030

Total 70,300