Public Works
Engineering Department

Feasibility Report

Project 14-21

South Lake Owasso Drainage Improvements

Prepared by: Jesse Freihammer
City Engineer/Asst. Public Works Director
City of Roseville

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

_____, P.E.

Registration No. 47272

SOUTH LAKE OWASSO DRAINAGE IMPROVEMENTS
FEASIBILITY REPORT
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July 11, 2016

City Council
City of Roseville
2660 Civic Center Drive
Roseville, MN 55113

RE: PROJECT 14-21, South Lake Owasso Drainage Improvements
Feasibility Report

Dear Mayor and City Council Members:

At their March 28, 2016 meeting, the City Council adopted Resolution No. 11310 ordering the preparation of a Feasibility Report for the South Lake Owasso Drainage Improvements.

The total estimated project cost is $310,000 which includes contingencies.

During the process of studying the existing conditions within the project area, two Public Information meetings were held and input was received from area residents and other City department staff. The comments from these meetings are incorporated into the report.

In accordance with the City Council request, the study has been completed. It is my recommendation that the project as proposed in this study is feasible.

If you have questions regarding the findings and recommendations in the report please contact me directly.

Sincerely,

Jesse Freihammer, P. E.
City Engineer/Asst. Public Works Director
651-792-7042
jesse.freihammer@cityofroseville.com

INTRODUCTION

On March 28, 2016, the Roseville City Council adopted Resolution No. 11310 ordering the preparation of a Feasibility Report for drainage improvements along South Lake Owasso Boulevard. This report details that investigation.

Currently the roadway is a private road and it is gravel. The road narrows as you travel east until you eventually reach a dead end. Residents have noted that there has been drainage issues along the road for many years. Washouts or holes that develop in the gravel road are very common. Because of the grade standing water can often be found after rain events. Untreated runoff also eventually flows north through the properties and into Lake Owasso.

The proposed project involves the installation of a permeable paver drain system. This system would address the drainage issues and direct discharge into Lake Owasso. This system would also provide the residents with a hard surface to drive on.

It is expected that if this improvement is approved, the work will start in the summer of 2017, with completion within 2-4 weeks. The project was initiated by council/staff as part of our ongoing drainage improvement projects. As outlined by state law, projects initiated by council/staff require a 4/5 vote by the City Council for approval.

PUBLIC INVOLVEMENT

The public involvement process for this proposed project consisted of two neighborhood meetings, one in 2014 and one in 2016. Meeting notices were sent out at least two weeks in advance to all property owners abutting the street to be reconstructed.

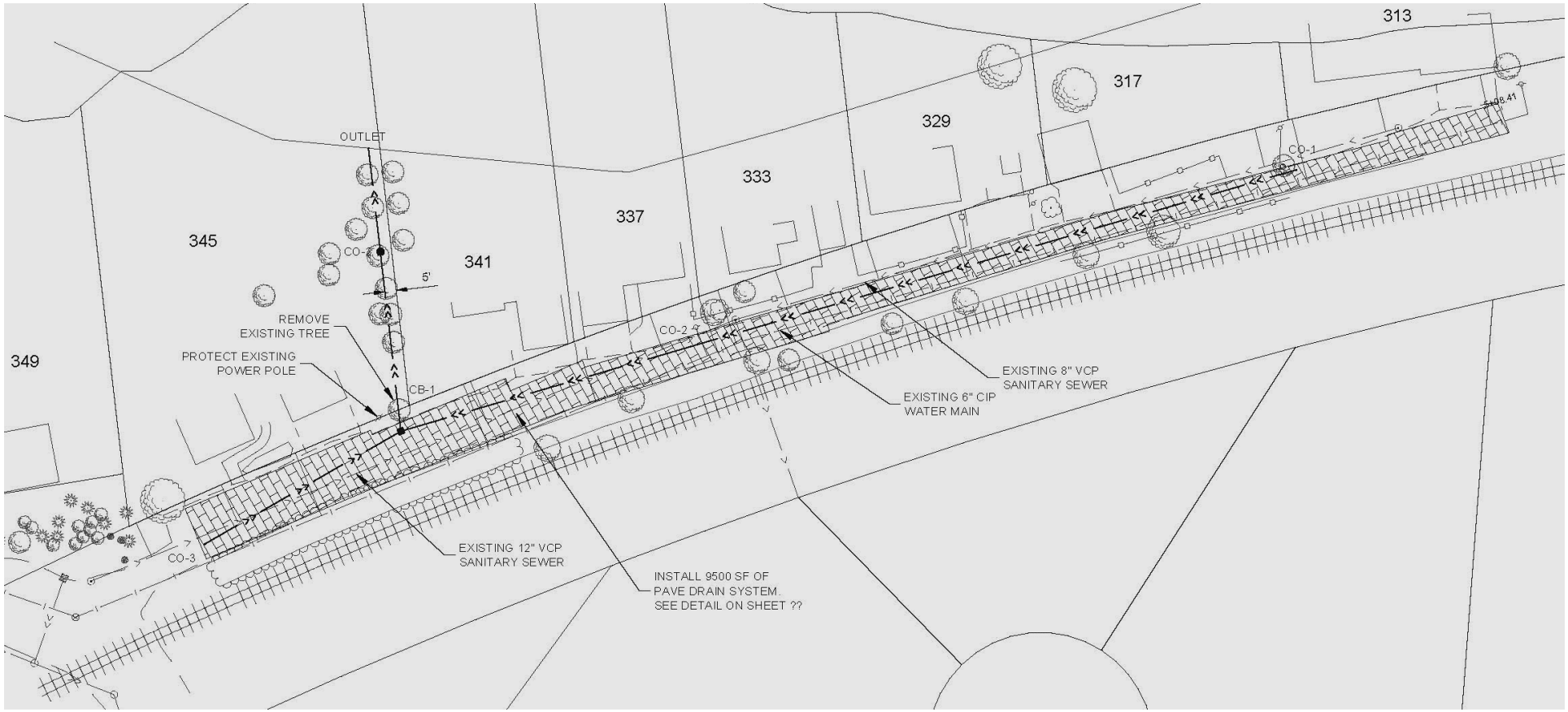
The first meeting was held at 6:00 p.m. on May 21, 2014, at Roseville City Hall, where staff presented information regarding the issues with the drainage in the area. Residents provided input regarding neighborhood concerns along the corridor.

The second meeting was on January 19, 2016, at 6:00 p.m., at Roseville City Hall, where staff showed the residents a proposed drainage improvements. At this meeting staff showed the permeable paver drain system. Contour maps and drainage plans were also shown.

At the January 19 meeting staff also reviewed the estimated project costs and estimated assessments for the benefiting properties.

This report summarizes the design items that were discussed during the public involvement process.

Project Map


313
317
329
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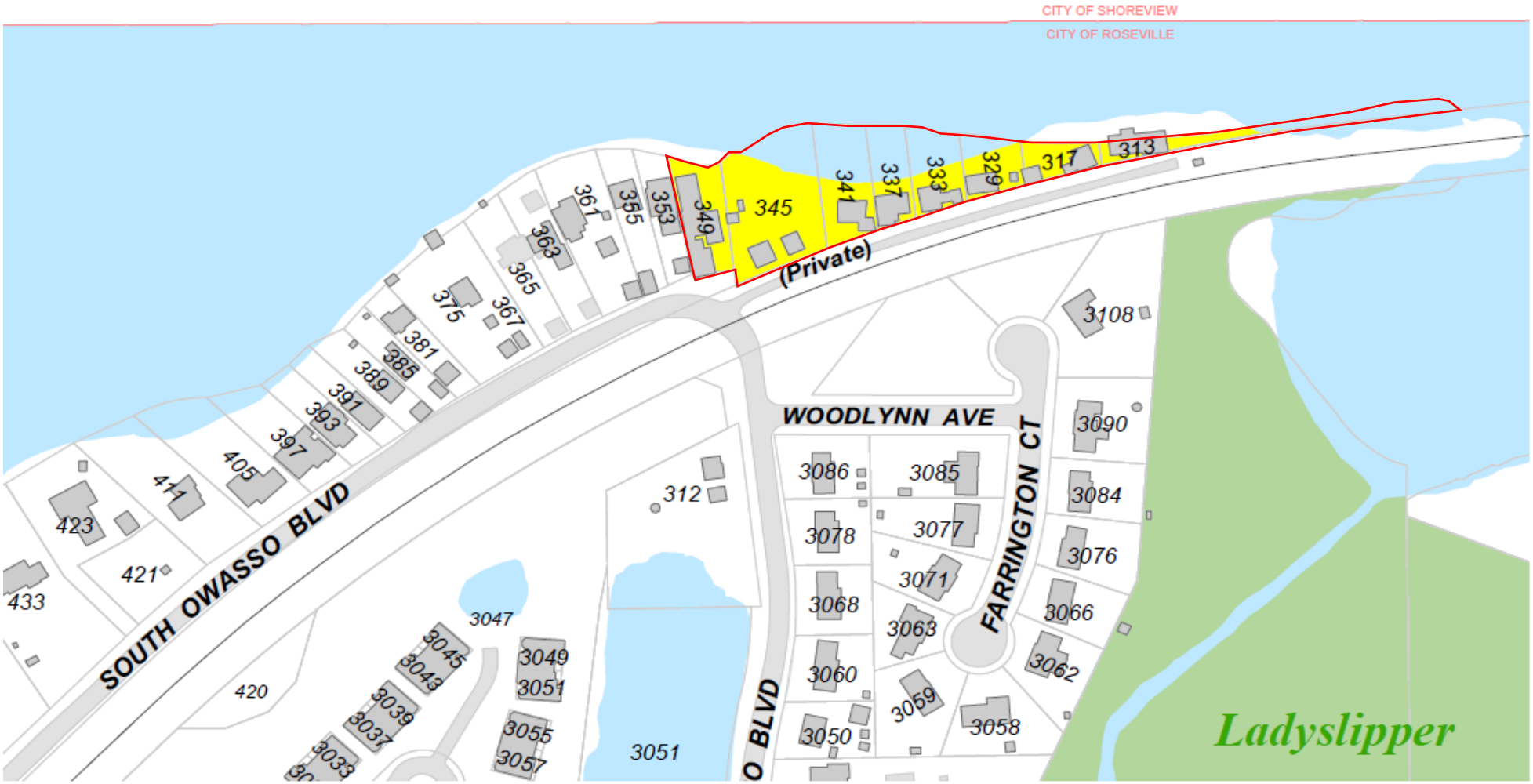
349
OUTLET
CO-1
CO-2
CO-3
CB-1
5'
REMOVE
EXISTING TREE
PROTECT EXISTING
POWER POLE
EXISTING 8" VCP
SANITARY SEWER
EXISTING 6" CIP
WATER MAIN
EXISTING 12" VCP
SANITARY SEWER
INSTALL 9500 SF OF
PAVE DRAIN SYSTEM.
SEE DETAIL ON SHEET ??

Property Map



ST-14-21 South Lake Owasso Drainage Improvement Project

ROSEVILLE

Prepared by:
Engineering Department
January 14, 2016

Properties Impacted

CONCLUSIONS & RECOMMENDATIONS

A. All portions of the project proposed are feasible.
B. Estimated project cost:

	Project Cost
Drainage Improvements	$310,263
Total	**$310,263**

The following is a summary of the recommendations discussed in this report.

A. Construct the project in 2017.

B. Construct roadway using Pave Drain system.

C. Construct storm sewer improvements to address water quality, meet watershed requirements, and address drainage concerns along the corridor.

D. Fund the project with storm water utility funds and assessments as detailed this report.

E. Schedule a public hearing for the South Lake Owasso Drainage improvements project on August 8, 2016.

EXISTING CONDITIONS

General Comments

South Owasso Boulevard is a private gravel road that serves 8 properties and terminates at the farthest east property. The width of road varies. At the west end it is approximately 16 feet and get as narrow as 10 feet at the east end. The road is gravel and shows many signs of rutting and washouts. Residents have commented that water overland flows off the road and through their yards to get to the lake.

Special Considerations

A. Storm Water
The runoff from this entire area flows directly in to Lake Owasso.

B. Utilities
This is a mature neighborhood that has the majority of the utilities located on overhead power poles. A summary of the existing private utilities:

- Xcel Power: Overhead lines run along the roadway.

C. Railroad
The construction limits of this work will be within a private easement within the railroad's right-of-way.

PROPOSED CONSTRUCTION

General Comments

City staff has worked closely with the neighborhood to develop preliminary plans that meet the needs of both the neighborhood and the City at large. This is a stormwater and drainage improvement project and stormwater funds will be used to pay for a portion of the costs along with a grant from the Ramsey-Washington Metro Watershed District and the proposed assessments.

The benefit of a permeable road is that it will provide a structural surface to drive on, and also capture stormwater which will alleviate drainage issues that the adjacent private property owners have, and also improve the water quality of Lake Owasso. The permeable system captures stormwater by having open joints between the blocks that will allow water to be stored in the rock base. Once in the rock base, the underlying soils will allow for some infiltration, and the additional water will be stored before being routed into a perforated drain tile system that will carry water to the storm sewer.

This permeable system will capture a 2.5" rainfall before it is routed into the storm sewer, and it can reduce the rate at which water goes to the lake by 80% for the 100 year rainfall. Ramsey-Washington Metro Watershed District label Lake Owasso's water quality as "At Risk" for being impaired for nutrients. This project will help protect the lake by improving the quality of stormwater going to the lake by removing 2 lbs of phosphorus on an annual basis. Two pounds of phosphorus could produce up to 1,000 lbs of algae if it makes it into Lake Owasso.

The proposed improvements will fit within the existing footprint of the private road. This is necessary in order to stay within the access easement that the property owners have with the railroad.

The vertical concrete curb will only be installed on the south side of the project. The curb was requested by the residents as a means to prevent sediment from washing down the railroad embankment and onto the permeable paver surface.

Existing street grades will be altered to slope away from the properties. This will allow the water to flow away from the existing homes and then infiltrate through the permeable pavers system.

The existing manholes and other structures will be adjusted as necessary as part of this project. Two additional storm sewer structures will need to be added for the underdrain portion of the permeable paver system. The sanitary sewer mains are scheduled to be lined in 2016 before this project. Staff is not recommending replacement of the watermain due to the low historical occurrence of watermain breaks in this area. There may be some maintenance work on sanitary and water main structures such as manholes, valves and hydrants as a part of this project that will be funded by the appropriate utility fund. The sanitary sewer mains in this area have already been re-lined.

If unsuitable material is encountered beneath the existing pavement during construction, it will be removed and replaced with suitable backfill material. Any sod that is damaged as a result of the project will be replaced.

Efforts will be made to protect and retain the trees that currently exist in the corridor. When necessary, however, trees will be removed to allow for the proposed improvements. Several trees are expected to be removed as part of the storm sewer piping that will run through one property and into the lake.

Staff will work with other public and quasi-public utilities to coordinate other utility improvements with the street reconstruction project. Minor changes to the existing electric, telephone, and cable TV may be necessary for this project.

Since the improvements will provide a better driving surface, staff looked at a scenario as if the road surface were constructed to determine the costs for comparison. The estimated cost to construct a new bituminous roadway in place of the existing gravel roadway comes out to $96,900. If this type of roadway was constructed, 100% of the costs would be assessed to the property owners because it is a private road.

Special Considerations

All items in this section of the report have been presented and discussed with the residents during the public involvement process.

A. Storm Water

The goal of the project is to collect stormwater and treat the water before it discharges into the Lake. This will be achieved by using the pervious pave drain system as well as underdrains. These infiltration trenches will capture the water, treat it, and then pipe it into the Lake. This will help to preserve future water quality in Lake Owasso.

B. Erosion Control

As part of the project plans and specifications, staff is required to prepare a storm water pollution prevention plan (SWPPP) for the purposes of enforcing erosion and sediment control rules. The SWPPP will include erosion and sediment control methods that will be implemented throughout the project. Silt fence, bio-rolls, erosion control blanket, and other best management practices will be utilized where direct runoff might occur. Inlet protection will be used to protect both the existing and new catch basins during construction. Street sweeping will occur, as needed, on all paved street surfaces throughout the project, including intersecting streets. Exposed soils and aggregate material will be watered as needed as a dust-control measure. An erosion and sediment control plan sheet and storm water pollution prevention plan will be created during the design phase of this project. Immediate turf establishment in areas of soil disturbance will be required such as placing seed and erosion control blanket. After street and utility work is completed, sod and/or hydro mulched seed will be placed as the permanent turf establishment in all disturbed areas. The City, in coordination with the watershed district, will closely monitor all erosion and sediment

control measures throughout the construction process. The selected contractor will be required to install all preventative measures and maintain them as required by the City, CRWD, MPCA, and other regulatory agencies.

C. Private Utilities

Private utility companies have been notified that this project is being considered for construction in 2016. The Xcel overhead powerlines should not be affected by this work.

D. Railroad

City Staff has already contacted the railroad and approval for this project has already been received. It should be noted that this proposed work will be in a private easement, not road right of way. This private easement is for access and is between the property owners and the railroad.

E. Permits

Permits will be required from the following agencies for the proposed project:

Agency	Required Permit
Minnesota Pollution Control Agency (MPCA)	NPDES Erosion & Storm water
Ramsey Washington Metro Watershed District (RWMWD)	Storm water

During final design for the project, City staff will coordinate with each of the agencies to ensure all requirements are met.

PROPOSED FUNDING

A. Special Assessments

State Statute 429 has two major points to consider when justifying assessments, first, the assessment has to treat similar properties equally, and second, the amount of the assessment has to be equal to or less than the resulting increase in property value. Assuming this project is completed by summer 2017, the final assessment amount would be determined following an assessment hearing in the fall of 2017 and a thorough review of the proposed assessments by the Council. The following City of Roseville assessment policies are being followed:

- For new storm sewer improvements, all properties that benefit that have not been assessed for storm water in the past, will be assessed 25% of the stormwater improvement costs.

Assessment Summary	
Estimated total project cost	$310,263
Lots Benefitting	8
Cost per Lot	$38,782.87
Assessment Rate	
25% of cost/lot	**$9,695.72**

- Alternatively, if surface improvements to the road were to be assessed, all properties that access the private road would be assessed 100% of a private road improvement costs.

  Assessment Summary
  Estimated total project cost $96,900

  Assessment Rate
  100% of cost/lot **$12,112.50**

- Benefit Appraisal study was conducted to determine the potential benefit to the assessed properties within the project area. The result of the study is as follows:
  - Maximum Assessment Rate
    - 313 S Owasso Blvd W - $10,000
    - 317 S Owasso Blvd W - $10,000
    - 329 S Owasso Blvd W - $10,000
    - 333 S Owasso Blvd W - $10,000
    - 337 S Owasso Blvd W - $10,000
    - 341 S Owasso Blvd W - $10,000
    - 345 S Owasso Blvd W - $10,000
    - 349 S Owasso Blvd W - $3,333

Since the property owners would see more benefit than just the storm water improvements and would also see a new pavement benefit, staff reasons the assessment rate be more similar to the private road improvement assessment rate of $12,112.50 per lot. Since this rate is greater than the maximum assessment rate based on the Benefit appraisal, staff recommends that the improvements be assessed at the maximum assessment rate.

B. Proposed Funding Summary

	Estimated cost	Assessments	Watershed Grant	Stormwater Fund
Stormwater Improvements	$310,263	$73,333	$50,000	$186,930

C. Schedule

If the City Council approves the project for construction the following is the recommended schedule for this project.

City Council Receives Feasibility Report and Orders the Public Improvement Hearing	July 11, 2016
Conduct Public Improvement Hearing and Order Preparation of Plans and Specifications	August 8, 2016
City Council Approves Plans and Specifications and Orders Ad for Bids	September 14, 2016
Anticipated Bid Opening	February 2017
City Council Accepts Bids and Awards the Construction Contract	March 2017
Begin Construction	Summer 2017
Complete Construction	Summer 2017
City Council Conducts the Final Assessment Hearing	Fall 2017

Preliminary Assessment Roll

Parcel ID	Site Address	Assessment	Notes
12923120040	349 South Owasso Blvd W Roseville, MN 55113	$3,333.00	Maximum assessed rate based on benefit appraisal. This parcel does not receive the full benefits from the Stormwater improvements.
12923120006	341 South Owasso Blvd W Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.
12923120005	337 South Owasso Blvd SW Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.
12923120004	333 South Owasso Blvd W Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.
12923120003	329 South Owasso Blvd Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.
12923120002	317 South Owasso Blvd W Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.
12923120007	345 South Owasso Blvd W Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.
12923120001	313 South Owasso Blvd W Roseville, MN 55113	$10,000.00	Maximum assessed rate based on benefit appraisal.