



FEASIBILITY STUDY – BA 355

ENGINEERING DEPARTMENT

CITY OF EDINA

GOLF TERRACE NEIGHBORHOOD ROADWAY IMPROVEMENTS
JANUARY 4, 2011
Revised March 15, 2011

LOCATION:

The Project includes Dalrymple Road, Golf Terrace, Lakeview Drive, Sherwood Avenue, Saint Andrews Avenue and Wind Road. The drawing below is a detailed project location map of the Golf Terrace Neighborhood Roadway Improvements (Figure 1).



Figure 1. Project Area Map

INITIATION & ISSUES: The Golf Terrace Neighborhood project was initiated by the Engineering Department as part of the City's street reconstruction program and Capital Improvement Program to update aging infrastructure and address several issues including drainage problems, sanitary sewer problems and watermain improvements.

Comprehensive Plan

All Engineering projects are reviewed for compatibility with the City of Edina 2008 comprehensive Plan Update. Figure 7.10, Sidewalk Facilities and 7.11, Bicycle Facilities in the Appendix.

Figure 7.10, Sidewalk Facilities, does not indicate any proposed sidewalk or paths through the project.

Figure 7.11, Bicycle Facilities indicates a secondary bicycle route along the north and west side of the project boundary along Golf Terrace and Sherwood Avenue. Refer to the "Proposed Improvements, Bicycle Facilities" for more information on the bicycle route.

Staff Issues

The following are existing features and resident comments that present issues in determining the feasibility of the project and are addressed in this report:

- Surface rainwater drainage and storm sewer issues
- Poor condition of existing pavement
- Existing landscaping, retaining walls, driveways, etc.
- Sanitary sewer and watermain deficiencies
- Existing mature trees
- Existing lighting

Resident Input

The residents of the reconstruction area were invited to an Open House on September 20, 2010 to discuss the City's process for street reconstruction.

This meeting was followed up with a questionnaire sent to the property owners on October 4, 2010. The questionnaires were completed and returned by 59 of the 93 property owners, a return rate of 63%. The full questionnaire and responses can be found in the Appendix.

The two key issues that were addressed in this questionnaire were the addition of new sidewalks and installation of decorative lighting. The responses to those questions are shown in Table 1.

GOLF TERRACE IMPROVEMENT PROJECT –
 Results from October 4, 2010 Questionnaire Sheet

Questionnaires Sent	Questionnaires Returned	Prefer New Sidewalk		Change Existing Lighting	
		Yes	No	Yes	No
93	59	14	44	21	35
% of Returned Questionnaires	63%	24% *	75% *	36% *	59% *

Percentages are based on responses of returned questionnaires and may not equal 100% if questions were not answered on questionnaire.

Table 1. Results from Questionnaire

A neighborhood informational meeting was then held on December 2, 2010 to discuss the improvements planned for this neighborhood. The meeting was attended by 17 residents representing 16 properties. Input from this meeting and comments received throughout the planning of this project have been included in the Appendix.

A public hearing was held on January 18, 2011; the public hearing was closed at that meeting. A number of residents raised concerns about the water quality of Harvey Lake and the walkability of Lakeview Drive (around the north side of the lake). Staff was directed to work with the Minnehaha Creek Watershed District (MCWD) to explore options for reducing the pollutant loading of Harvey Lake and to investigate funding sources for treating the stormwater runoff. Staff met with the MCWD to discuss potential options and then held a second neighborhood informational meeting on February 22, 2011 to share our findings with residents. The meeting was attended by 17 property owners.

The analysis and recommendations of these meetings are addressed in the “Water Quality” and “Walkability” sections that follow.

EXISTING CONDITIONS: Public Utilities

Sanitary Sewer

The sanitary sewer was installed in three phases during 1941, 1945 and 1952. There have been very few sewer blockages in this neighborhood. The trunk sanitary sewer mains were inspected using a televising system and are in satisfactory condition with the exception of a few localized areas.

Watermain

The watermain was installed in in three phases during 1940, 1947 and 1951. There have been minor reports of trunk watermain and service pipe issues in this neighborhood.

Storm Sewer

The limited storm sewer in this neighborhood was installed in 1952. This includes storm piping to regulate the water level in Lake Harvey. The project area is located within the legal boundary of Minnehaha Creek Watershed.

Private Utilities

Providers of privately owned gas, electric, communications and cable television utilities are present in the neighborhood. All the utilities are overhead with the exception of the gas lines.

Street lighting consists of standard “cobra head” lights mounted on wood poles that are typically located at intersections. A few homeowners have front yard lights that help illuminate the street corridors.

Streets

Roadways in this neighborhood were originally constructed in the early 1940’s and early 1950’s. The majority of the north half of the neighborhood currently does not have curb and gutter and the roadway widths vary from 26 to 28 feet wide. The south half of the neighborhood has curb and gutter with a width of approximately 30-feet wide. The pavement condition varies throughout the neighborhood and is in relatively poor condition (Photos 1 & 2).

The average Pavement Condition Index (PCI) for the City of Edina is 57 and the average PCI for Golf Terrace is 7. Examples of the raveling and alligator cracking can be seen in photos 1 & 2. The City of Edina recently hired a consultant to evaluate all bituminous roadways within the City. The streets were graded based on a number of conditions such as sagging, alligator cracking, raveling and potholes. Streets are rated on a scale from 0 to 100; with 0 being extremely poor and 100 representing a brand new road surface. It is the City’s practice to complete a total reconstruction of the streets when the PCI is less than 45, a Mill and Overlay project when the PCI is between 45 and 65, and Seal Coats for PCI greater than 65 and less than 95.

Street grades vary widely throughout the area with some areas that are extremely flat allowing storm runoff to collect along the edges of the roadway causing additional deterioration of the pavement.

The pavement throughout these streets appears to be near the end of its useful life while the costs to maintain and repair the roadways are steadily increasing. Overlaying or seal coating the pavement is no longer feasible.

Walkability

The streets within the project limits do not currently have sidewalks. The traffic volumes and speeds generally allow for vehicles and pedestrians to share the roadway. The section of Lakeview Drive along the north side of Harvey Lake was mentioned by residents as an area that is heavily used by pedestrians. This section of roadway carries approximately 305 vehicles per day, approximately 27 feet wide and has an 8 foot grass boulevard near the lake.

Landscaping

Some property owners have placed boulders or other obstructions within the City right-of-way creating barriers along the roadway. These types of barriers and landscaping items are prohibited from being placed in the boulevard in accordance with Edina City Code 1200.02. Other typical items exist adjacent to the roadway such as retaining walls, concrete driveways, landscaping, shrubs, trees and fences.



Photo 1. Existing Pavement Condition



Photo 2. Existing Pavement Condition

**PROPOSED
IMPROVEMENTS:**

The Golf Terrace Neighborhood project involves localized rehabilitation of sanitary sewer, upgrades to the storm sewer system, upgrades to fire hydrants, construct concrete curb and gutter, and reconstruction of bituminous pavement.

Public Utilities

Sanitary Sewer

Locations with settlements, cracks and deformities will require spot repairs, limited sections of replacement and manhole rehabilitation. Two segments of cured in place pipe lining (CIPP) are proposed on Golf Terrace and Lakeview Drive west of Lake Harvey to reduce clear water infiltration.

Watermain

A 6-inch watermain is proposed on Lakeview Drive along the north side of Lake Harvey to loop the watermain and to provide future connects to two homes that currently service through the back yards of their neighbors to the north. In addition, watermain rehabilitation utilizing pipe bursting techniques will be done to all existing watermains within the project limits.

Storm Sewer

The addition of barrier style B618 curb and gutter is proposed for all streets within the project that currently do not have curb and gutter. The southerly half of the project will receive spot repairs to curb and gutter that are no longer functioning properly.

The storm sewer network will have modifications to improve existing drainage issues at various locations throughout the neighborhood. Some of the existing structures will be removed and replaced due to their poor condition.

Installation of sump drains will be installed where feasible to allow the property owners to connect their sump pump discharges directly into the storm sewer system.

Private Utilities

The local gas utility company, CenterPoint Energy, has indicated that they may upgrade or replace gas mains within the project limits. CenterPoint Energy may also coordinate moving gas meters to the exterior of the homes. This work is not part of the City's project but will be coordinated to occur prior to our construction activities.

The other privately utility owners have expressed some interest in upgrading some of their networks within the project limits.

Streets

The City is recommending the addition of barrier style concrete curb and gutter on all streets that do not currently have curb and gutter. A barrier style curb provides the best control of water runoff and better defines the roadway while providing protection to the yards and pavement edge from snowplow damage in the winter months. The project will reconstruct the streets with a bituminous pavement surface.

Residents requested that staff look into the feasibility of installing traffic calming measures with the project. Based on that discussion staff is recommending installing landscape islands at the intersections of the Wilson Road /Wind Road and Wilson Road/Lakeview Drive. These islands would be similar to the islands installed at West 70th Street and Cornelia Drive. Sidewalks will be installed at these locations to separate pedestrian and vehicles through the island areas (Figure 2).

In addition, bump-outs will be installed at the intersections of Southview Lane and Sherwood Avenue, Southview Lane and Dalrymple Road, and Southview Lane and St. Andrews Avenue. These bump-outs will be similar to the bump-out on the north side of Southview Lane and Concord Avenue (Figure 3).

Staff is proposing to reconfigure the intersection of the Lakeview Drives at the northeast corner of Harvey Lake (Figure 4). This revision should help to slow traffic at this intersection and redirect traffic off of Lakeview Drive north of Lake Harvey.



Figure 2. Landscape Island



Figure 3. Aerial Photo of Bump Out



Figure 4. Lakeview Drive Reconfiguration

Walkability

Based on traffic volumes in the neighborhood, sidewalks are not recommended. Staff also believes that an educational campaign should be included with this project to educate drivers that pedestrians have the right of way and vehicles need to yield to pedestrians.

Residential Roadway Lighting and Sidewalks

The questionnaire asked if residents wanted to add sidewalk or reconstruct the street lights in the project area. The results from Figure 2 show that property owners do not want to add sidewalk or reconstruct the street lights within the project. Therefore, staff is not recommending these items be part of the project.

Bicycle Facilities

The Comprehensive Plan, Figure 7.11 Bicycle Facilities, indicates a secondary bicycle route along the north and west side of the project boundary along Golf Terrace and Sherwood Avenue. Staff believes a “share the road” philosophy is the best application for bicyclists since the vehicle volumes are relatively low (630 ADT) and the existing road width does not allow for dedicated bike lanes without removing the on-street parking along Golf Terrace. Bike route markers will be installed along with share the road signs.

WATER QUALITY:

Drainage Area

The shaded area shown in purple in Figure 5 illustrates the existing 30 acres that drain to Harvey Lake. The drainage area is made up of the following public and private property:

- City Right of Way – 4.3 acres, 14% of area
 - 2 acres are impervious (roads)
 - 2.3 acres are pervious (boulevards)
- Harvey Lake – 6.3 acres, 21% of area
- Private Property – 19.4 acres, 65% of area
 - 4.5 acres are impervious (driveways, roofs, etc)
 - 14.9 acres are pervious (grass areas)

Public right of way/property consists of 4.3 acres (14%) of the overall drainage area to the lake. Of that area, only 2.3 acres (8%) of the land is available for some type of stormwater treatment.

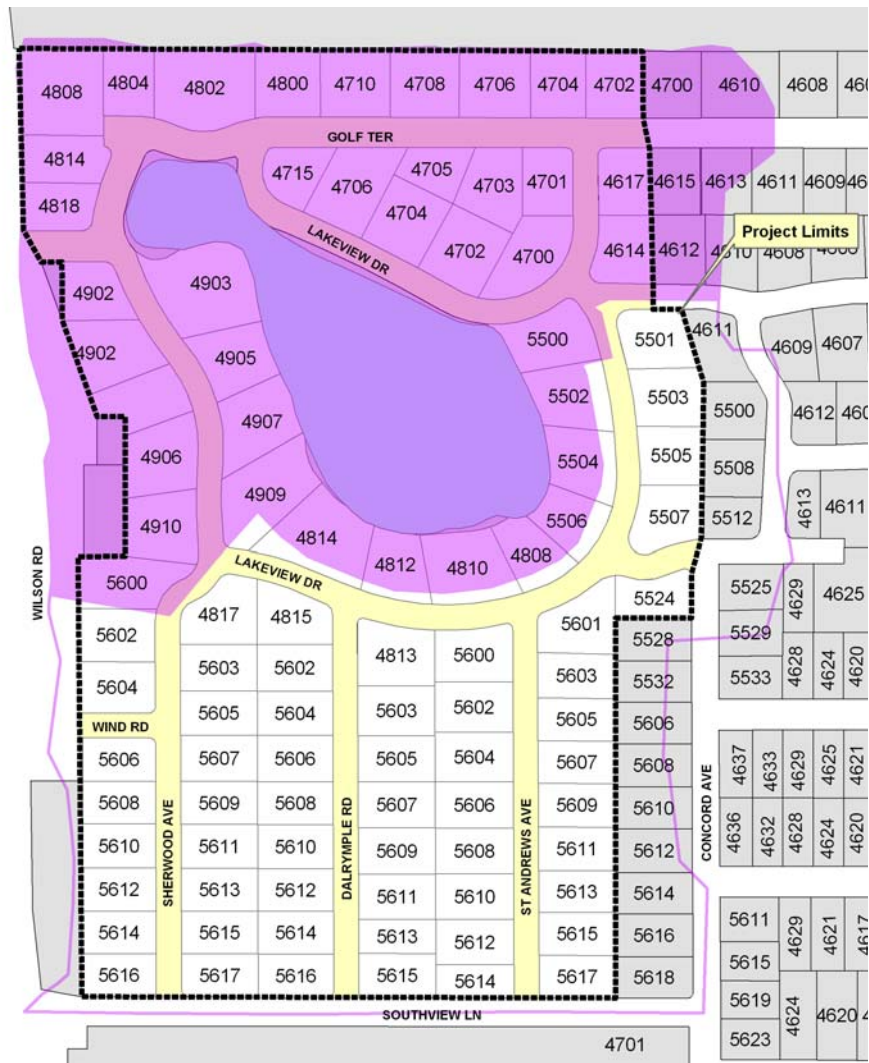


Figure 5. Existing Drainage Area

Options

The meeting with the MCWD explored in more detail five options for potentially improving the water quality.

1. Filtration swales/Rain Gardens
2. Shoreline restoration and buffers
3. Stormwater treatment devices
4. Pervious pavement
5. Pond Dredging

Each option was discussed in detail and evaluated with staff members from the Watershed. Table 2 represents the highlights of the discussion.

OPTION	BENEFIT (+)	DRAWBACK (-)
Filtration Swales	<ul style="list-style-type: none"> • Reduce sediment and pollutant loading prior to discharge 	<ul style="list-style-type: none"> • Typically expensive • High maintenance • Soil corrections needed can only treat small areas
Rain Gardens	<ul style="list-style-type: none"> • Reduce sediment and pollutant loading prior to discharge 	<ul style="list-style-type: none"> • Need 3 ft of separation from groundwater table • Typically expensive • High maintenance • Soil corrections needed • Can only treat small areas
Shoreline Restoration & Buffers	<ul style="list-style-type: none"> • Reduce sediment and pollutant loading prior to discharge • Prevent shoreline erosion 	<ul style="list-style-type: none"> • High maintenance until established • Reduce useable yard space
Stormwater Treatment Devices	<ul style="list-style-type: none"> • Reduce sediment and pollutant loading prior to discharge • Prevent shoreline erosion 	<ul style="list-style-type: none"> • Expensive • Should not be installed below normal water level of the lake
Pervious Pavements	<ul style="list-style-type: none"> • Reduce sediment and pollutant loading prior to discharge • Prevent shoreline erosion 	<ul style="list-style-type: none"> • Expensive to install • High maintenance costs • Need specialized and expensive equipment to maintain • Need 3 ft separation form groundwater table
Pond Dredging	<ul style="list-style-type: none"> • Reduce internal phosphorous loading • May improve short term water quality 	<ul style="list-style-type: none"> • Watershed won't permit • Expensive • Does not solve external loading issues • Have to pump down the lake

Table 2. Treatment Options

Staff Recommended Option

It is impossible to provide the required 3 foot of vertical separation from the groundwater table with most of the options stated above. Therefore, after thorough review, Staff is recommending installing a combination of a filtration swale along the north side of Harvey Lake and encourage residents to install shoreline restoration/buffers around the southern two-thirds of Harvey Lake (Figure 6).

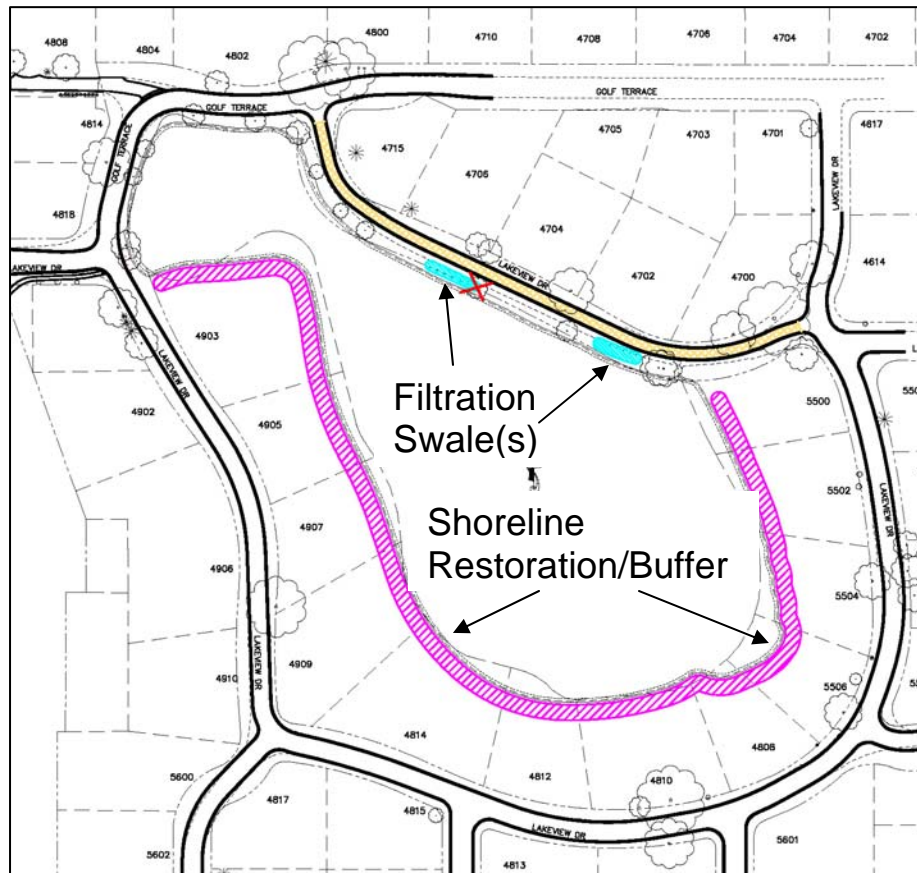


Figure 6. Treatment Options

Filtration Swales

In order to create room for the swale, Lakeview Drive (shown in yellow) would be narrowed to 18 feet wide. The road would remain as two way traffic with the intersections at either end reconfigured to discourage traffic from utilizing the narrowed roadway. Parking would be allowed only on the north side of the roadway. The narrowed roadway would reduce the impervious surface draining to Harvey Lake by approximately 0.14 acres or 3% of the impervious surface area in the entire project. The assessable cost of roadway construction would be reduced by approximately \$20,000.

The filtration swale would be graded to capture and treat the stormwater runoff thru horizontal filtration. The swale would be planted with native plantings and the aesthetics would be similar to a rain garden (Photo 3). The construction costs for the filtration swale are approximately \$10,000 to \$15,000 and would be funded through the Storm Sewer Utility fund. It is anticipated that the combination of the reduction in road width and the filtration swale would remove approximately 2 lbs. of phosphorus loading to Harvey Lake.



Photo 3. Filtration Swale

Shoreline Restoration/Buffers

Shoreline restoration/buffers (Photo 4) should be implemented in conjunction with the filtration swales. From aerial photos, the lawns of most of the properties surrounding the lake are mowed to the waters' edge. All of these properties are encouraged to install shoreline stabilization and a buffer strip along the shoreline. According to MCWD Wetland Protection Rule, the minimum buffer strip would be 20'. This buffer strip would filter approximately 4 acres of runoff from private property before it drains directly into Harvey Lake. The cost of the lake shore restoration and buffer zone would be the responsibility of the private homeowners.

MCWD does have grants which can offset a portion of the construction cost to the homeowner. The homeowners would be responsible for securing these grants and the continued maintenance of the buffer.



Photo 4. Shoreline Restoration/Buffer

**RIGHT-OF-WAY
& EASEMENTS:**

The right-of-way for Dalrymple Road, Golf Terrace, Lakeview Drive, Sherwood Avenue, Saint Andrews Avenue and Wind Road is 50 feet wide. The right-of-way on Golf Terrace is 60 feet wide. All proposed improvements stay within this right-of-way and no additional easement requirements are anticipated.

PROJECT COSTS:

The total estimated project cost is \$2,828,000 (Table 3). The total cost includes direct costs for engineering, clerical and construction finance costs from start of project to final assessment hearing. Funding for the entire project will be from a combination of special assessment and utility funds. The estimated roadway construction cost is \$1,130,000 and will be 100 percent funded by special assessments. The new concrete curb and gutter is included under the storm sewer fund not under the roadway special assessment. Utility improvements and repairs amount to \$1,698,000 and will be funded through the respective utility fund.

Item	Amount	Total Cost
Roadway:	\$1,130,000	
Roadway Total:		\$ 1,130,000
Utilities:		
Storm Sewer	\$ 508,000	
Watermain	\$ 900,000	
Sanitary Sewer	\$ 290,000	
Utility Total:		\$ 1,698,000
Total Project:		\$ 2,828,000

Table 3. Estimated Project Costs

ASSESSMENTS:

The assessments are based on the City's Special assessment policy, dated September 7, 2010. Based on this policy there are 91 residential equivalent units (REU). The estimated assessment per REU is \$12,500. (Figure 7)

Two parcels were not notified of the Public Hearing; 4702 Golf Terrace and 5524 Concord Avenue. Therefore, these two parcels have been removed from the pending assessment role.



**Figure 7.
 Preliminary
 Assessment
 Map**

Feasibility Study
Golf Terrace Neighborhood Improvements No. BA-355
January 4, 2011
Revised March 15, 2011

PROJECT SCHEDULE: The following schedule is feasible from an Engineering standpoint:

Open House #1	September 14, 2009
Open House #2	September 20, 2010
Neighborhood Informational Meeting #1	December 2, 2010
Council Orders Public Hearing	December 18, 2010
Receive Feasibility Report	January 4, 2011
Public Hearing	January 18, 2011
Neighborhood Informational Meeting #2	February 22, 2011
City Council Action Continued	March 15, 2011
Bid Opening	April 2011
Award Contract	Spring 2011
Begin Construction	Spring 2011
Complete Construction	Fall 2011
Final Assessment Hearing	Fall 2012

FEASIBILITY: Staff believes the construction of this project is necessary, cost effective and feasible to improve the public infrastructure in the Golf Terrace Neighborhood.

- APPENDIX:**
- A. Revised Preliminary Assessment Roll
 - B. Invite Letter to the February 22, 2011 Golf Terrace Neighborhood Informational Meeting
 - C. Power Point Presentation from the February 22, 2011 Golf Terrace Neighborhood Informational Meeting