



# FEASIBILITY STUDY – BA 367

## ENGINEERING DEPARTMENT

### CITY OF EDINA

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#### STREET IMPROVEMENTS

#### WEST 70<sup>th</sup> STREET – FRANCE AVENUE to TH 100

November 13, 2009

**LOCATION:** West 70<sup>th</sup> Street extends from France Avenue to TH 100 as shown in **Figure 1** below.



**Figure 1 - Project Location Map**

#### INITIATION & ISSUES:

A traffic study for the Greater Cornelia / West 70<sup>th</sup> Street area was conducted to evaluate traffic volumes, speeds and safety, address pedestrian / bicycle concerns identify potential solutions for the study corridor and provide recommendations that best fit the community's needs.

Based on the analysis and findings of the study the following recommendations were presented and adopted by Edina City Council Resolution No. 2009-34 on March 17, 2009. See **Appendix A** for a copy of the resolution and staff report.

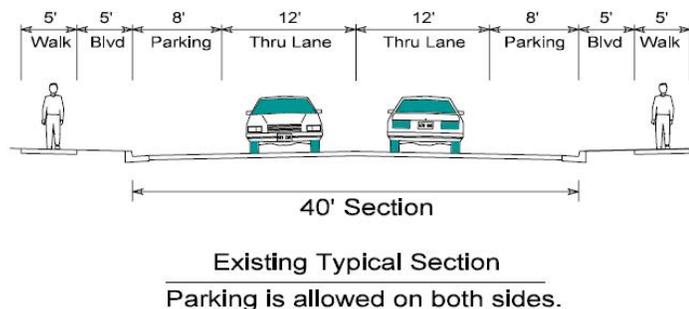
1. Removal of free right on Northbound TH 100 to east bound West 70<sup>th</sup> Street.
2. Creation of a school speed zone around Cornelia Elementary School.

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3. Construct bike lanes on both sides of West 70<sup>th</sup> Street and parking on the north side of the roadway; endeavoring to preserve the existing curb to curb width to the maximum extent possible.
4. Exclusive left turn lanes at West Shore Drive, Wooddale Avenue and Cornelia Drive.
5. Pavement rehabilitation or reconstruction to lower noise of the roadway
6. Explore possibility for offering driveway turn around on private property
7. Enhance landscaping along the corridor
8. Install improved signage directing through traffic to use routes other than West 70<sup>th</sup> Street.
9. Promote additional lane geometrics on TH 62 between TH 100 and France Avenue (or beyond)
10. Proper planning for future redesign of West 77<sup>th</sup> Street corridor.
11. Installation of a “smart”: signal system along the corridor; including a new traffic signal at West Shore Drive, pedestrian activated crossing at Wooddale Avenue and modifications to the existing traffic signal at Cornelia Drive; with the intent that all cost would be funded by Municipal State Aid.
12. Evaluate roundabout at the intersection of West 70<sup>th</sup> Street and Valley View Road
13. Further Evaluation of roundabouts at the intersection of West 70<sup>th</sup> Street and TH 100.

**EXISTING CONDITIONS:** West 70<sup>th</sup> Street between France Avenue and TH 100 is currently a 40-ft two lane, urban undivided roadway constructed in 1962. The existing cross section is shown in **Figure 2**. The roadway includes the following typical characteristics:

- Left turn lanes are present at West Shore Drive, Wooddale Avenue, Cornelia Drive and Valley View Road.
- Traffic control signals currently exist at TH 100 ramps, Cornelia Drive and France Avenue. All other street access is controlled with stop signs.
- The roadway has a posted speed limit of 30 MPH.
- Parking is allowed on both sides of the roadway.
- The roadway is constructed of concrete with integral curb.



**Figure 2 - Existing Typical Cross Section**

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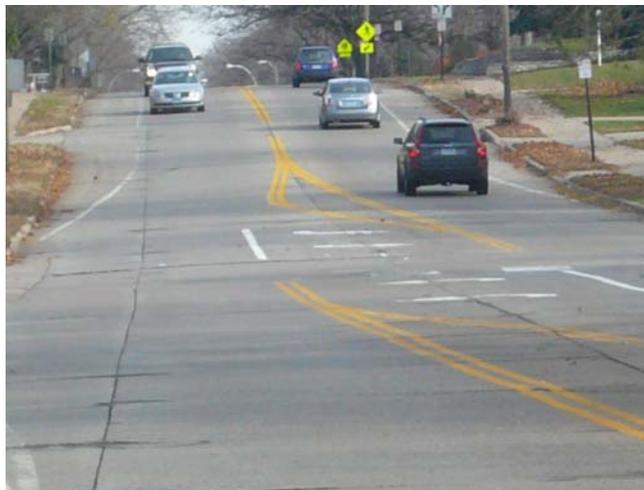
The following photos illustrate the existing conditions.



**Photo 1 – Valley View Road Intersection**



**Photo 2 – Cornelia Drive Intersection**



**Photo 3 – Typical Two Lane with Parking**

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**Photo 4 – West Shore Drive Intersection**



**Photo 5 – Pavement Condition**



**Photo 6 – Christ Presbyterian Church Entrance**

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**CORRIDOR ANALYSIS:** In order to determine a final recommendation for the improvement, analysis of specific elements and alternatives within the corridor was required. The following sections outline the analysis conducted.

**A. Traffic Analysis:** A traffic analysis was conducted evaluating the corridor with the proposed improvements and alternatives for existing and future (2030) traffic conditions.

**Intersection Analysis:**

The existing conditions analysis is based on turning movement counts observed from 5/5/2009 to 5/7/2009. The future 2030 analysis assume that the turning movements remain proportional to those observed in 2009. A constant 1.5% annual growth rate was applied to all 2009 volumes to arrive at projected 2030 volumes. The results of the analysis indicate that today and through 2030 all the intersections would be operating at acceptable levels with the improvements outlined in this feasibility report. Details of the analysis and tables showing the detail results are included in **Appendix B** of this report.

**Corridor Analysis:**

The operation of 70<sup>th</sup> Street between intersections was also analyzed. This procedure looked at the existing and projected 2030 daily traffic volume though the corridor and compared it to the roadway capacity. Based on the FHWA Highway Capacity Manual and the Cities Transportation Plan the capacity of a two lane roadway with turn lanes would range from 17,000 vehicles per day at LOS D to 21,000 vehicles per day at LOS E.

The existing daily traffic volume was counted in April 2009 and showed an average daily volume ranging from 9,700 to 10,000. This volume is approximately 25 – 35 percent less then that counted in 2005 of 12,500 to 13,600. In order to verify the accuracy of these counts additional counts were conducted in May 2009. These counts showed daily volumes ranging from 10,500 to 12,600, approximately 10 – 15 percent less then the 2005 counts. Based on any of these existing daily volumes 70<sup>th</sup> Street is within the capacity of a two lane roadway with turn lanes.

The projected 2030 daily traffic volume was determined two ways. The first is based on the Cities Transportation Plan and regional modeling. These volumes range from 17,200 to 19,300. The volumes were based on the 2005 daily traffic counts. It can be assumed that these volumes can be reduced by the 10 – 15 percent based on the new traffic counts. The resulting projected 2030 daily volumes would then range from 15,000 to 16,800. The second way to determine the projected 2030 volumes would be to increase the existing counts by 1.5% per year similar to the procedure found in the intersection analysis section. This would result in a project 2030 daily volume ranging from 14,100 to 17,100. With either procedure the projected 2030 daily volume is within the capacity of a two lane roadway with turn lanes.

**Traffic Signal Warrant Analysis:**

The intersection of 70<sup>th</sup> Street & West Shore Drive does not meet MnMUTCD signal warrants based solely on traffic volume. However, assuming this traffic signal will be apart of a traffic control system and is a critical intersection within the roadway network, it would be warranted. Twelve hours of traffic data was used to perform the analysis. The analysis worksheets are included in **Appendix B**.

Warrant 1A: 8 Hour Minimum Vehicle Volume – Not Met

The traffic volumes on 70<sup>th</sup> Street meet the minimum required 600 vehicles per hour during 11 of the 12 hours. However, the traffic volumes on West Shore Drive fail to reach the minimum 150 vehicles per hour required in all 12 hours. The intersection satisfies Warrant 1A during 0 hours which is less than the required 8 hours.

Warrant 1B: 8 Hour Interruption of Continuous Traffic – Not Met

The traffic volumes on 70<sup>th</sup> Street meet the minimum required 900 vehicles per hour during 7 of the 12 hours. Traffic volumes on West Shore Drive reach the required minimum of 75 vehicles during 2 of the 12 hours. The intersection satisfies warrants during 1 hour which is less than the required 8 hours.

Warrant 2: Four Hour Minimum Vehicle Volume – Not Met

Traffic volumes do not exceed the minimum thresholds at any time throughout the day.

Warrant 3: Peak Hour – Not Met

The traffic volumes do not meet the minimum thresholds required or the anticipated total delay on the minor approach does not exceed the minimum required 4 vehicle-hours.

Warrant 4: Pedestrian Volume – Not Met

The pedestrian volumes are less than the required minimum of 100 pedestrians per hour during all 12 hours.

Warrant 5: School Crossing – Not Met

The nearest school is Cornelia Elementary School. There is already a signalized intersection at 70<sup>th</sup> Street and Cornelia Drive to accommodate school children.

Warrant 6: Coordinated Signal System- **Met**

One of the goals of the corridor is to maintain safe speed and progression of traffic in the corridor. The intersection of West Shore Drive would be an important part of the proposed smart signal corridor signal system. Therefore the intersection would meet this warrant.

Warrant 7: Crash Experience- Not Met

There have not been at least 5 crashes susceptible to correction within the past 12 months. The Mn/DOT crash database indicates that no crashes occurred at this intersection during 2006 and 2007. In addition, traffic volumes on the largest minor approach exceed the

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minimum required 60 vehicles per hour in 3 of the 12 hours which is less than the required 8 hours.

Warrant 8: Roadway Network – Not Met

The intersection is not anticipated to meet the minimum required volumes for Warrants 1, 2, or 3 within 5 years and is not known to experience significant weekend traffic.

**B. Pavement  
Rehabilitation /  
Reconstruction:**

One of the primary goals of the 70<sup>th</sup> Street project is to improve the roadway surface and reduce the existing roadway noise levels.

Several rehabilitation options were considered for the section of 70th from France Avenue to TH 100. We were able to eliminate several of the options due to the elevation increase and constraints associated with the urban section and lateral tie-ins to adjacent streets and access points. Any significant elevation increase to the roadway would reduce the curb section, require transitions to be constructed at all contact points and necessitate adjustments to drainage, flow and other structures. This analysis resulted in the following options being dismissed: bituminous overlay, white topping, unbonded concrete overlay, crack and seat with an overlay and rubblization with an overlay. We also considered several variations of these techniques, of which are alternatives considered below:

**70<sup>th</sup> Street from France Avenue to TH 100 Rehabilitation Options**

Alternative A – Remove and Replace, Reconstruct

This alternative would provide for a complete removal of the existing pavement and subgrade and reconstruction of a new pavement section with a bituminous pavement surface. This approach provides for flexibility in design to accommodate other required repairs to subgrade and soil conditions, utilities, geometric improvements, and turn lanes. It also creates opportunity in the design to address roadway geometrics, profiles and cross slope changes. This is the highest cost alternative, but provides the lowest risk and greatest return on life. The entire corridor would be designed to current standards and a new pavement surface would provide maintenance free service for many years. Estimated life for this pavement option would be 35 to 40 years, with the incorporation of standard preventive and routing maintenance activities.

Alternative B – Concrete Mill, Rubblize and Bituminous Overlay

This approach provides for milling the existing concrete to a depth of approximately 2 inches and rubblizing the remaining concrete pavement to produce a structurally sound base which prevents reflective cracking of the existing concrete joints and distresses. This section of rubblized concrete would then be overlaid with a minimum 4.0 inches of bituminous to provide a new pavement surface. This process has been successfully implemented on other urban and rural highways and non residential roadways, but there are several variables to consider including condition of the subgrade, drainage, structures and elevation increases resulting from the required overlay

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thickness. Elevation adjustments to structures and adjacent facilities would still be required and impacts to drainage and storm water systems would have to be evaluated and corrected. Several of these projects have been completed in Minnesota and adjacent states. The expected life of this repair is 14 to 22 years.

Alternative C - Concrete Pavement Restoration (CPR)

This alternative incorporates a variety of concrete repair techniques to correct any deficiencies in the concrete pavement and reestablish the pavement smoothness. This is done by performing partial and full depth concrete repairs, concrete panel replacements, joint sealant replacement, dowel bar retrofit and diamond grinding of the concrete surface to reestablish the ride. The viability of a CRP is dependent on the condition of the concrete pavement; type of repairs used, and desired life. If viable, the pavement would need to be surveyed and assessed so repair types and quantities could be determined and a plan could be prepared. This approach would add no increase to the pavements elevation, but would not allow for roadway profile or cross slope correction. Existing concerns with concrete noise resulting from the condition of the pavement would be improved, but not eliminated. Depending on the condition of the in place pavement, concrete pavement restorations can extend the pavement life by an estimated 10 to 20 years.

Alternative D - Ultra Thin Bonded Wearing Course (UTBWC)

This option provides for utilizing a gap graded, ultra thin (5/8" to 1") hot-mix asphalt (HMA) mixture applied over a thick polymer modified asphalt emulsion membrane. The emulsion membrane seals the existing surface and produces high binder content at the interface of the existing roadway surface and the gap-graded mix all in one pass. UTBWC has been used in Minnesota on both bituminous and concrete pavements and has shown benefit as means of extending pavement life. This technique, if viable, would provide a sort term economical repair with a rapid construction turn around and minimal traffic impacts which would extend the life of this road by an estimated 3 to 7 years.

Life of Roadway Alternative Evaluation						
Alternatives	Cost	Anticipated Life	Risk	Correcting Issue	Viability	Noise Reduction
A - Remove and Replace , Reconstruct	○	●	●	●	●	●
B - Concrete Mill, Rubblize and Bit Overlay	●	○	●	○	○	○
C - Concrete Pavement Restoration (CPR)	●	○	○	○	○	○
D - Ultra Thin Bonded Wearing Course (UTBWC)	○	○	○	○	○	●

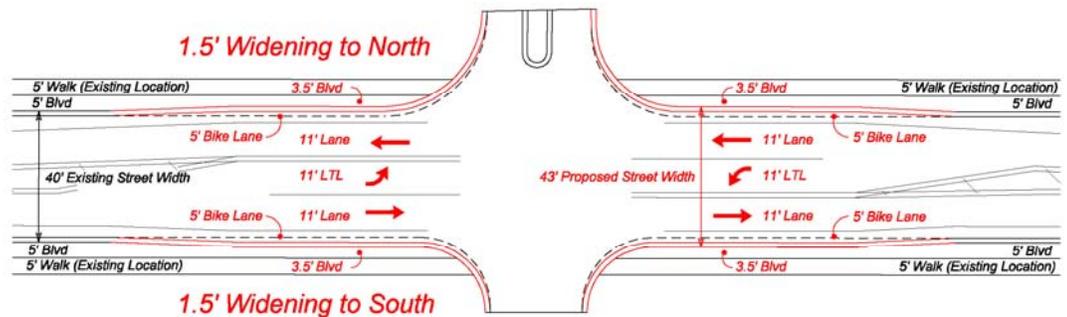
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**C. Roadway Geometrics:** Several roadway geometric alternatives were analyzed they included;

Bike Lanes

One of the goals of the 70<sup>th</sup> Street project was to provide bike lanes through the corridor. In order to provide the safest situation for bikes exclusive bike lanes were added to the plan on both sides of the roadway from Valley View Road to just east of TH 100. This lane would be 4 foot in width and adjacent to the travel lanes. In order to provide these lanes though out the corridor, the roadway would need to be widened 1.5 feet on either side only in the areas where left turn lanes are provided. **Figure 3** below illustrates the typical extent of the impact of this widening at the intersections. As shown, the widening would be all within the existing boulevard between the street and sidewalk.



**Figure 3 – Typical Bike Lane Widening Area**

One of the impacts of the bike lanes would be the elimination of parking on the south side of 70<sup>th</sup> Street and reduction of parking on the north side. The roadway thru lanes widths would also be reduced from the typical 12 foot to 11 foot. TH 100 to the west and between Valley View Road and France Avenue bike lanes could not be provided without significant widening therefore bikes would be required to share the road with vehicles. Signing would be included in these areas indicating vehicles must share the road with bikes.

Parking

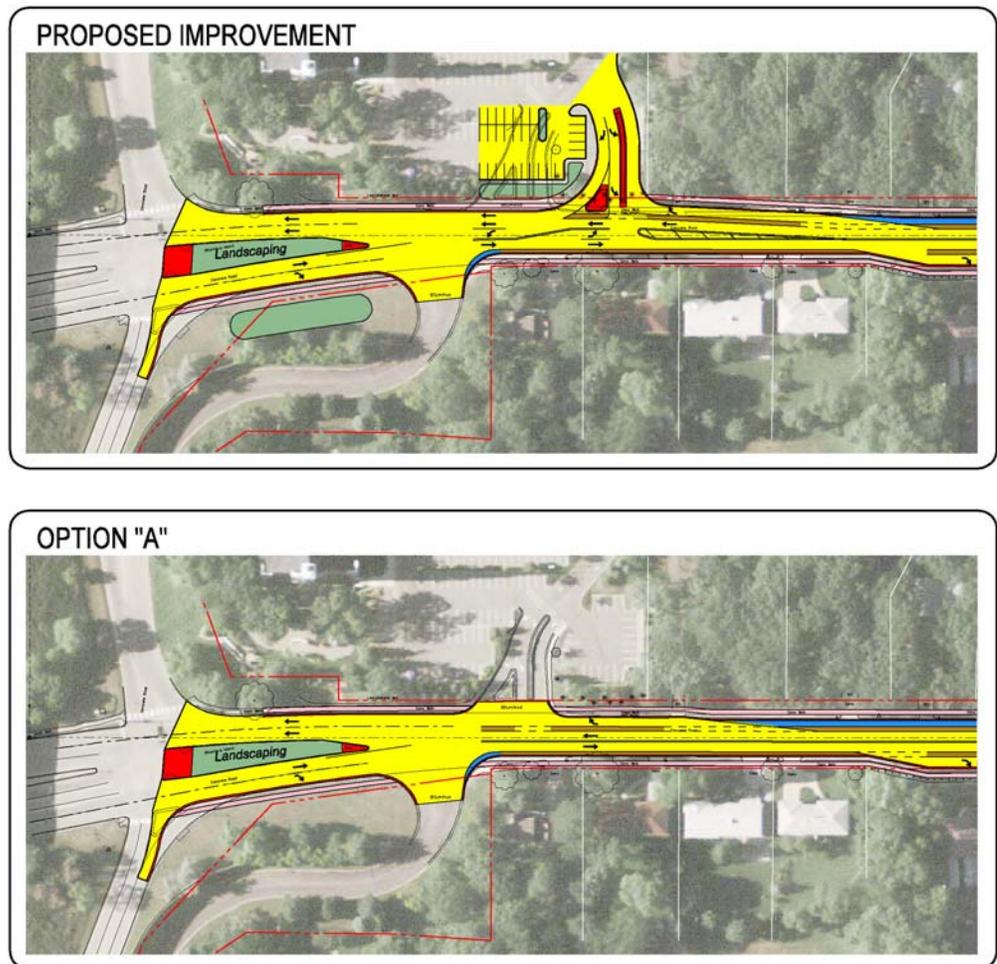
Currently there are 96 parking spaces combined on the north and south sides of 70<sup>th</sup> Street. With the addition of the bike lanes all parking would be eliminated on the south side and reduced to 46 spaces on the north side.

Christ Presbyterian Church Entrance

Just east of TH 100 and Normandale Blvd on the north side of 70<sup>th</sup> Street is an access to the Christ Presbyterian Church (CPC). The entrance currently does not line up with Normandale Blvd and is offset to the east. This is a confusing area with westbound traffic maneuvering to turn on Normandale Blvd or access TH 100 and eastbound traffic merging from two lanes into one. An alternative is

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being considered to better define the access into CPC and provide turn lanes from 70<sup>th</sup> Street. By shifting the driveway to the east approximately 100 feet a short (50 foot) left turn lane can be provide for both the access to CPC and Normandale Blvd. This would have minor impact to the CPC Church parking lot. In addition a westbound right turn lane into CPC is also included. This will require a small amount of right of way from the adjacent property which is own by CPC. Both the left turn lane and right turn lane would delineate the traffic movements thus providing a safer situation for both the turning traffic and through traffic on 70<sup>th</sup> Street. **Figure 4** below shows the existing and proposed access change.



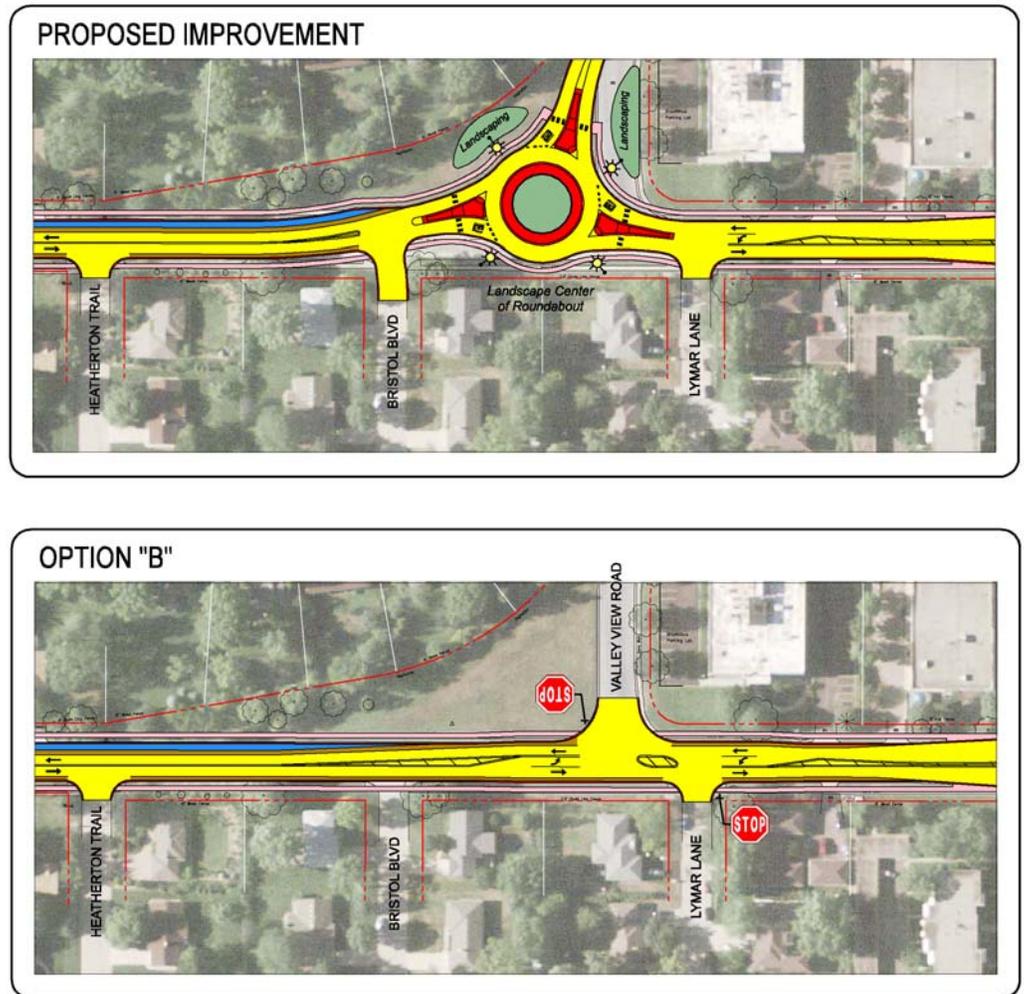
**Figure 4 - Christ Presbyterian Church Access**

Valley View Road Intersection

The intersection of Valley View Road was analyzed with its existing configuration and a roundabout. The intersection analysis details included in **Appendix B** shows that a roundabout provides better traffic operations than the existing conditions or the construction of a traffic signal. One of the primary benefits to the roundabout would be the control of speeds in the corridor. Average speed though the

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roundabout will be 15 to 20 mph. The inclusion of the roundabout in conjunction with the other corridor improvements (traffic signals, narrowing of the lanes, addition of the bike lines), will provide the most improved “Traffic Calming” effect in the corridor. No additional right of way would be required to construct the roundabout. **Figure 5** below shows the existing configuration and the proposed roundabout.



**Figure 5 - Valley View Road**

**D. Comprehensive Plan Analysis:**

The proposed plan and improvements are consistent with the City's Comprehensive Plan. West 70<sup>th</sup> Street is identified in the following sections. Copies of the text and figures are included in **Appendix C**.

- Chapter 4 – Figure 4.5 – Community Design Corridors
- Chapter 7 - Section 7.2 - Problem Locations
- Chapter 7 – Section 7.3 – Deficiencies and Improvement Needs
- Chapter 7 – Section 7.5 – Implementation (Roadway Network)
- Chapter 7 – Figure 7.10 – Sidewalk Facilities
- Chapter 7 – Figure 7.11 – Bicycle Facilities
- Appendix T.2 – Bike Plan

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**PROPOSED  
IMPROVEMENTS:**

Outlined below is how each recommendation from the Greater Cornelia / West 70<sup>th</sup> Street Study has been addressed.

**Phase I**

1. Removal of free right on Northbound TH 100 – **Will be completed spring 2010.** This improvement is currently in the final design phase being reviewed by MnDOT State Aid. It is anticipated the improvements will be made early 2010 ahead of this project.
2. School speed zone – **Completed.** In September 2009 the City approved the “Edina Speed Zone Study” for implantation. 70<sup>th</sup> Street adjacent to the Cornelia Elementary School was included as part of the study and a school speed zone was implemented. In addition a driver feedback sign showing actual speeds was also included in the corridor.
3. Bike lanes / Parking – **Included as part of this proposal.** Bike lanes are proposed on both sides of West 70<sup>th</sup> Street. Parking would remain on the north side of the roadway. Minor widening (1.5 feet on each side) is included in the areas adjacent to the left turn lanes. In addition, with the implementation of the bike lanes the corridor speed limit will be reduced to 25 MPH.
4. Left turn lanes – **Included as part of this proposal.** Left turn lanes are provided at West Shore Drive, Wooddale Avenue and Cornelia Drive.
5. Pavement rehabilitation or reconstruction – **Included as part of this proposal.** Complete removal of the existing concrete pavement and reconstruction of the roadway with bituminous to lower noise.
6. Driveway turn arounds – **Included as part of this proposal.** Property owners will be provided information on the cities contractor to negotiate installation of turn arounds on their property at their expense.
7. Landscaping – **Included as part of this proposal.** Area of potential landscaping have been identified and shown on the proposed layout.
8. Directional Signage – **Included as part of this proposal.** Installation of improved signage directing through traffic to use routes other than West 70<sup>th</sup> Street will be included as part of the final design plans.
9. TH 62 Improvements – **Ongoing with MnDOT.** The City will continue to work with MnDOT, Hennepin County and other agencies to promote additional lane geometrics on TH 62 between TH 100 and France Avenue (or beyond).
10. West 77<sup>th</sup> Street Improvements – **Ongoing with Developer.** City staff continues to work with the developer adjacent to West 77<sup>th</sup> Street to insure proper planning for future redesign of the corridor.

### Phase II

11. Smart Signal System – **Included as part of this proposal.** A “Smart”: signal system will be installed in the 70<sup>th</sup> Street corridor; including a new traffic signal at West Shore Drive, pedestrian activated crossing at Wooddale Avenue and modifications to the existing traffic signal at Cornelia Drive. The system will include provisions to monitor and react to speed and traffic volume in the corridor. This improvement is being included in the proposed project to provide for the most improved traffic operations and safety and provide the best “traffic calming” effect for the corridor.
12. Roundabout at Valley View Road – **Included as part of this proposal.** The installation of a roundabout at the intersection of West 70<sup>th</sup> Street and Valley View Road was evaluated and it is recommended for installation. As indicated previously, the roundabout would provide the best traffic operation and traffic calming effect for the Valley View Road intersection and adjacent roadways.

### Phase III

13. Roundabouts at TH 100 – **Future project with MnDOT.** Evaluation of roundabouts at the intersection of West 70<sup>th</sup> Street and TH 100 will be evaluated at a later date.

### Other Improvements

In addition to the proposed improvement discussed above several other improvements are being proposed with the project. These include:

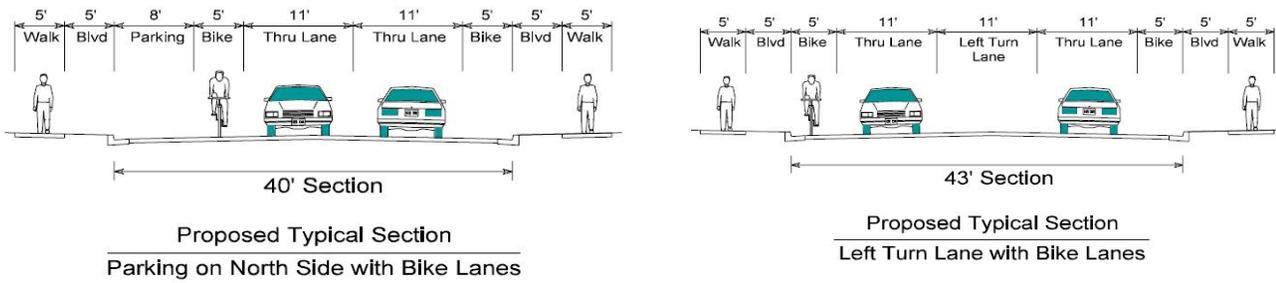
Sidewalks – Sidewalks will be evaluated during the final design phase of the project. Only those sidewalks that need replacement will be included in the project. All sidewalks that are replaced will be constructed in the same location as they are today. No drainage repairs will be made with this project.

Pedestrian Curb Ramps – Similar to the sidewalks, pedestrian curb ramps will only be replaced where they are impacted by the intersection construction or are in need of repair.

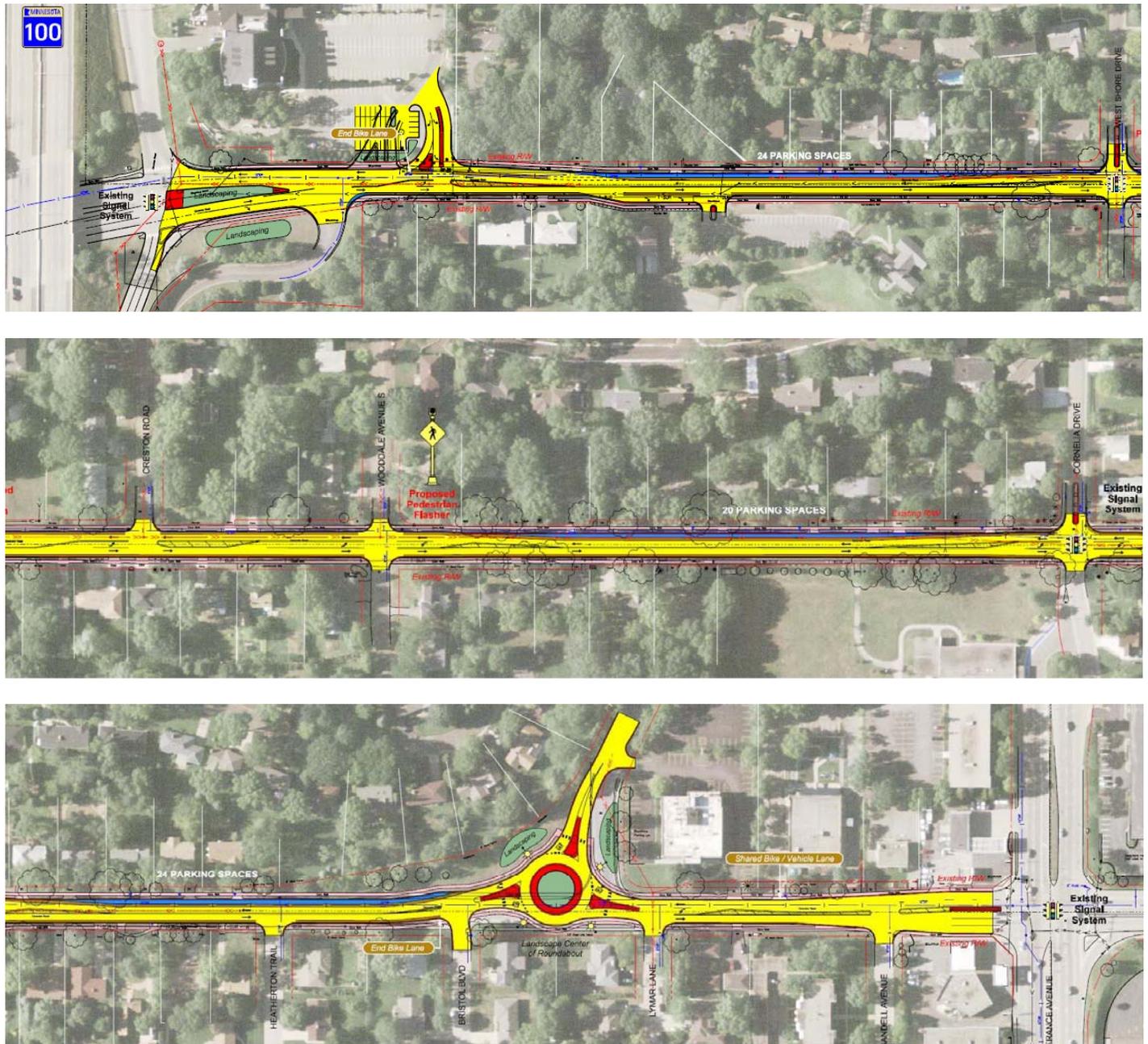
Street Lighting – The existing street lighting in the corridor will be reviewed during final design and additional street lighting will be added at intersection where required.

The proposed plan is shown below in **Figures 6 and 7**. A full size layout is included in **Appendix D**

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**Figure 6 – Proposed Typical Sections**



**Figure 7 - Proposed Project Layout**

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**RIGHT-OF-WAY  
& EASEMENTS**

The right of way along West 70<sup>th</sup> Street is typically 80 feet. The only additional right of way that will be required would be for the construction or the right turn lane into Christ Presbyterian Church. No additional right-of-way and or easements will be required from adjacent property.

**FEASIBILITY:**

The proposed improvements as outlined in this study are found to be necessary, cost effective and feasible from an engineering stand point.

**PROJECT COSTS:**

**The total estimated project cost is \$3,057,600.** The total cost includes indirect costs of 15% for engineering and clerical costs and 7.5% for first year finance costs. The estimated construction cost does include a 20% contingency. Funding for the entire project will be from a combination of special assessment and Municipal State Aid funds. A breakdown of costs is outlined in the table below.

<b>Estimated Project Costs</b>				
Item	Total Cost with Options	Project Deducts		
		CPC Driveway Improvements	Smart Signal Improvements	Valley View Road Roundabout
Streets	\$1,520,000	\$25,000	\$0	\$105,000
Utilities	\$200,000	\$0	\$0	\$20,000
Traffic Signals	\$360,000	\$0	\$120,000	\$0
Contingency (20%)	\$416,000	\$5,000	\$24,000	\$25,000
<b>Total Construction Cost</b>	<b>\$2,496,000</b>	<b>\$30,000</b>	<b>\$144,000</b>	<b>\$150,000</b>
Engineering / Financing (22.5%)	\$561,600	\$6,750	\$32,400	\$33,750
<b>Total Project Cost</b>	<b>\$3,057,600</b>	<b>\$36,750</b>	<b>\$176,400</b>	<b>\$183,750</b>

**ASSESSMENTS:**

**A special assessment of \$ 523,420 is proposed for this project.** The assessments will be levied against the benefitting adjacent properties, see attached preliminary assessment role in **Appendix E**. The methodology used for these assessments are based on the City Council adopted State Aid Assessment Policy, see **Appendix E**. Per the policy, assessments will be based on a Residential Equivalent Unit (REU) and will be 20% of the project cost with the remaining 80% being funded through Municipal State Aid (monies appropriated through the gas tax fund). Methodology for different church, park, school, medium density residential, and commercial properties are described below:

Church Property – 6901 Normandale Boulevard:

$$14.85 \text{ REU} = (55,680 \text{ gross sf} / 1000 \text{ sf}) \times (0.8 \text{ from chart}) / (3 \text{ accesses}) \times (1 \text{ access on W } 70^{\text{th}})$$

Park Property – Arneson Acres: 4709 West 70<sup>th</sup> Street:

$$14 \text{ REU} = \text{Layout of park property with similar size lots in neighborhood: } (28 \text{ lots total}) / (2 \text{ potential accesses})$$

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School Property – Cornelia Elementary School: 7000 Cornelia Drive:  
8 REU = Highlands Elementary School is very similar in size; 551 students at Cornelia Elementary School and 550 Students at Highlands Elementary School. This school was assessed in 2000 at 24 REU's. One-third assessment will apply due to Cornelia Elementary School being a side yard and no direct access to W 70<sup>th</sup> St.

Condominiums - 7000 Sandell Avenue:  
3 REU = (18 units) x (0.5 from chart) x (1/3 side yard)

Residential Duplex – 7001-7003 Lynmar Lane:  
0.53 REU = (2 units) x (0.8 from chart) x (1/3 side yard)

Commercial Properties –  
4040 West 70<sup>th</sup> Street:  
22.54 REU = (30,050 sf / 1000 sf) x (1.5 from chart) / (2 accesses) X (1 access on W 70<sup>th</sup> St)

3950 West 70<sup>th</sup> Street:  
17.98 REU = (11,987 sf / 1000 sf) x (1.5 from chart) / (1 access on W 70<sup>th</sup> St)

3910 West 70<sup>th</sup> Street:  
3.01 REU = (2,009 sf / 1000 sf) x (1.5 from chart) / (1 access on W 70<sup>th</sup> St)

6996 France Avenue:  
1.37 REU = (1,830 sf / 1000 sf) x (1.5 from chart) / (1 access on W 70<sup>th</sup> St)

3901 West 70<sup>th</sup> Street:  
2.61 REU = (3,483 sf / 1000 sf) x (1.5 from chart) / (2 accesses) X (1 access on W 70<sup>th</sup> St)

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

Open House / Information Meeting	November 12 <sup>th</sup> , 2009
City Council Orders Public Hearing	November 17 <sup>th</sup> , 2009
Public Hearing	December 15 <sup>th</sup> , 2009
Detail Design / Plan Approval	December 2009 – February 2010
Bid Opening	March 2010
Award Contract	April 2010
Begin Construction	May 2010
Complete Construction	October 2010