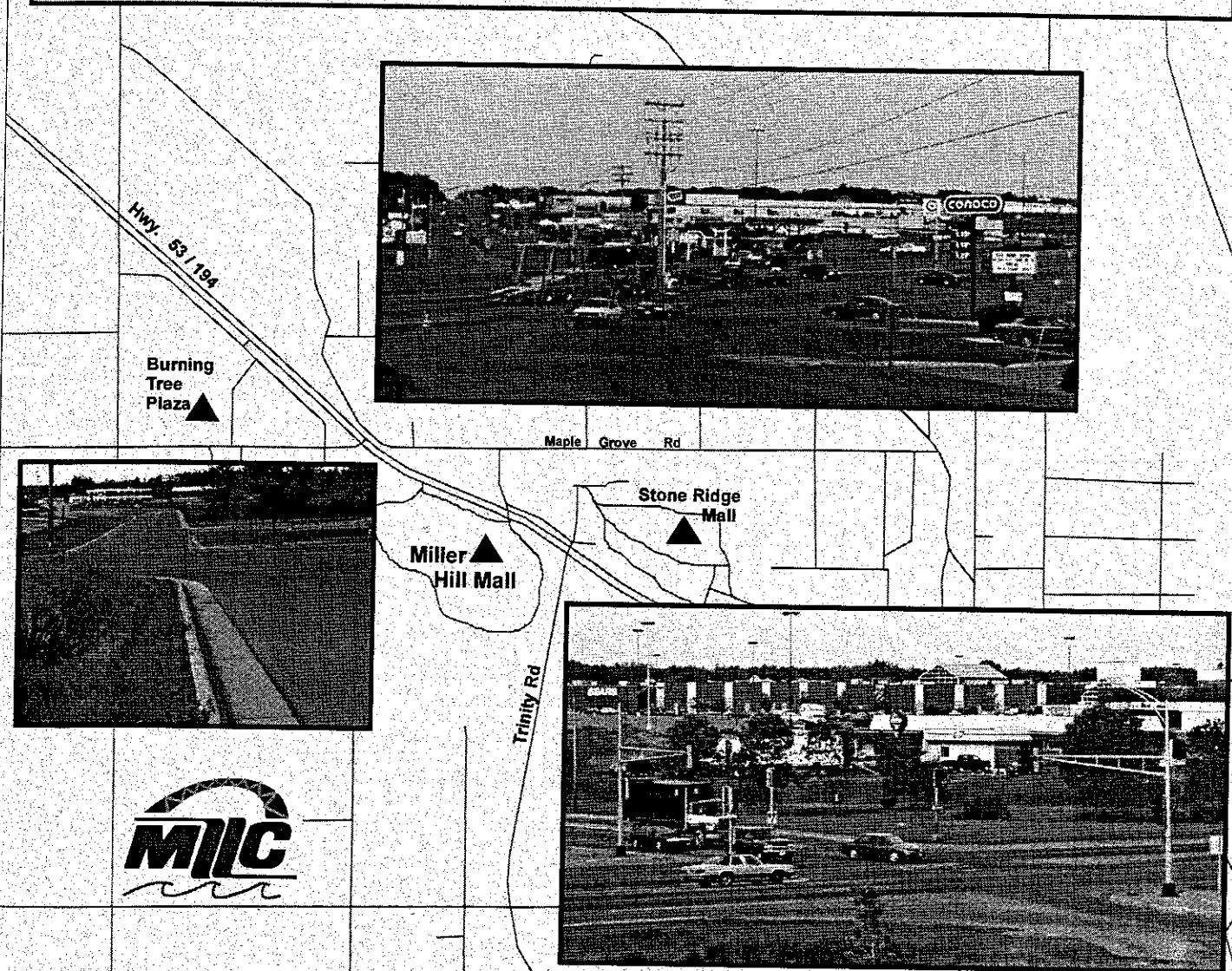


# **The 1995 Miller Hill Corridor Study Short-Term Recommendation Status Report May 1998**



**Prepared by the Duluth-Superior Metropolitan Interstate Committee**

**Duluth/Superior urban area communities cooperating in planning and development  
through a joint venture of the Arrowhead Regional Development Commission  
and the Northwest Regional Planning Commission**

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# Miller Hill Status Report - April 1998

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# Miller Hill Status Report - April 1998

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# **The 1995 Miller Hill Traffic Corridor Study Short-Term Recommendation Status Report**

## **Introduction**

In 1995, MIC staff, along with a Study Advisory Committee and a private consulting firm, conducted a detailed analysis of traffic flow within the Miller Hill commercial corridor. The efforts of this study were primarily focused on potential impacts on the roadway network from proposed large-scale commercial developments under consideration at the time. In addition, MIC staff analyzed existing transportation deficiencies for this area to determine mitigation measures for the short and long-term vitality of the corridor. Proactive recommendations were developed that would maintain the function and integrity of the main roadways within the corridor.

*NOTE: Currently, in May 1998, neither large-scale commercial development has occurred in the corridor as was proposed in 1995. This includes the potential expansion of the Miller Hill Mall (Simon Development) and the land fronting Trinity Road / Central Entrance to the south of Stone Ridge Plaza commonly referred to as the OPUS site.*

## **Purpose**

With the completion of the Miller Hill Corridor Traffic Study in 1995, it was intended that the MIC staff revisit the recommendations at a later date to monitor implementation status. This document is designed to examine the information from the 1995 study and incorporate it into a review/status report of the traffic issues (existing and short-term only) facing the Miller Hill corridor to determine if prior recommendations are still valid. MIC staff will also review the recent changes to the proposed development (OPUS site) in the Miller Hill Mall area to determine local area roadway impacts.

Maps A, B, & C, beginning on page 3 indicate the study area and traffic counts in the corridor. These maps illustrate the regional significance of the Miller Hill area and the amount of traffic moving through the area.

## **Assumptions**

1. Traffic generation and therefore current and potential congestion is currently and will continue to be an area of concern in the corridor in the foreseeable future.
2. Recommendations described in the 1995 Miller Hill Traffic Corridor Study are still valid, in particular mitigation measures that addressed existing and short-term (less than five years) traffic flow problems.
3. No additional traffic counts or traffic modeling was conducted for this report. From solely empirical evidence along with the fact that retail growth has only increased in the corridor, it is assumed that traffic volumes have remained as indicated in the 1995 report. (If anything has occurred it is likely that traffic counts have increased slightly.) Therefore, this fact supports lending credence to the recommendations stated in the 1995 Miller Hill Traffic Corridor Study.

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4. Status report is focused primarily on recommendations to the physical improvement of the roadway network thereby benefiting vehicular traffic. The 1995 study discussed in greater detail recommendations for transit, bicycle and pedestrian movement in the corridor. These modes of travel are important to a well-balanced transportation system serving the area. MIC staff still supports these other mode recommendations.

#### **Status of Long Term Recommendations – 1995 Miller Hill Corridor Traffic Study**

The reader will note this report DOES NOT address the long-term roadway recommendations as identified in the 1995 study. These include issues regarding adding capacity to specific intersections and roadways in the corridor, implementation of documented improvements to the Highway 53 corridor south of the Six-Corners intersection and conceptual plans for a connector route linking Highway 53 and the Miller Hill area with Arrowhead Road.

In the early stages of this status report, MIC members directed staff to focus efforts on the discussion of the improvements currently needed in the corridor. It was decided that immediate and short-term (less than 5-year time frame) traffic measures should be looked at and explored for implementation feasibility prior to greater analysis of the long-term traffic problems potentially facing the corridor. The current and short-term traffic flow problems within the corridor need to be addressed regardless of expanded commercial growth. To the extent that MIC staff is able to gain agreement from the various jurisdictions on mitigation measures to existing traffic flow problems, our charge for this status report has been accomplished.

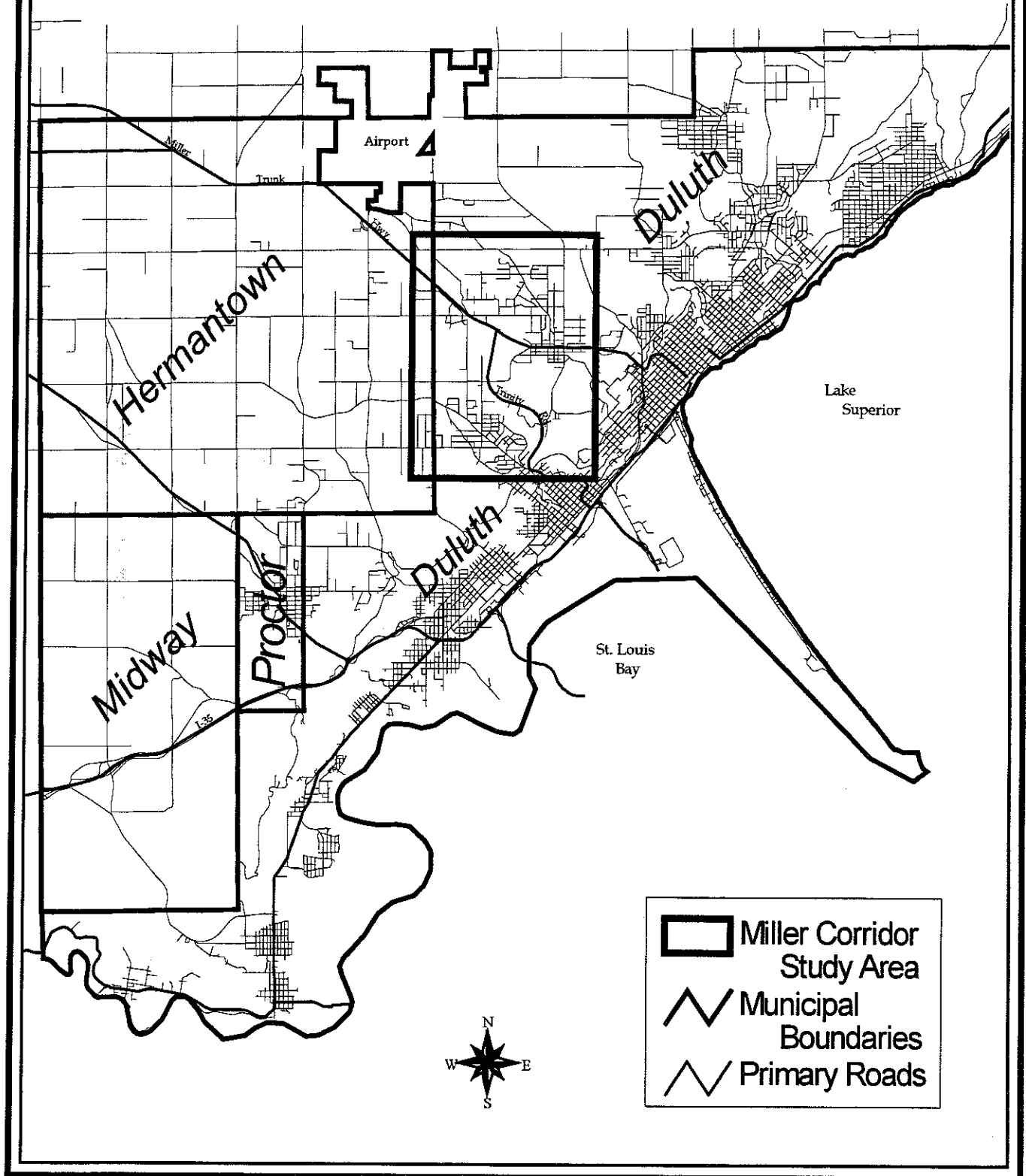
The MIC still supports the long-term potential recommendations concerning the connector issue from Highway 53 to Arrowhead Road, or possible variations, from a purely technical transportation system standpoint. However, these conceptual plans need further analysis and public input to be more widely accepted and endorsed. Staff awaits and will continue to explore an opportunity to fully discuss these issues with the affected parties. However, until such time as all potential stakeholders are in agreement on the need to develop specific traffic control options for this corridor, MIC staff will not proceed forward with possible route alignments or plans related to this area unless otherwise directed by MIC Board members.

**As was stated in the 1995 Miller Hill Corridor Traffic Study, this study is not intended to debate the merits or faults of commercial development in the Miller Hill area. MIC staff intended to identify present and ongoing problems with the roadway network and to examine any potential impacts of new development to traffic flow in the corridor.**

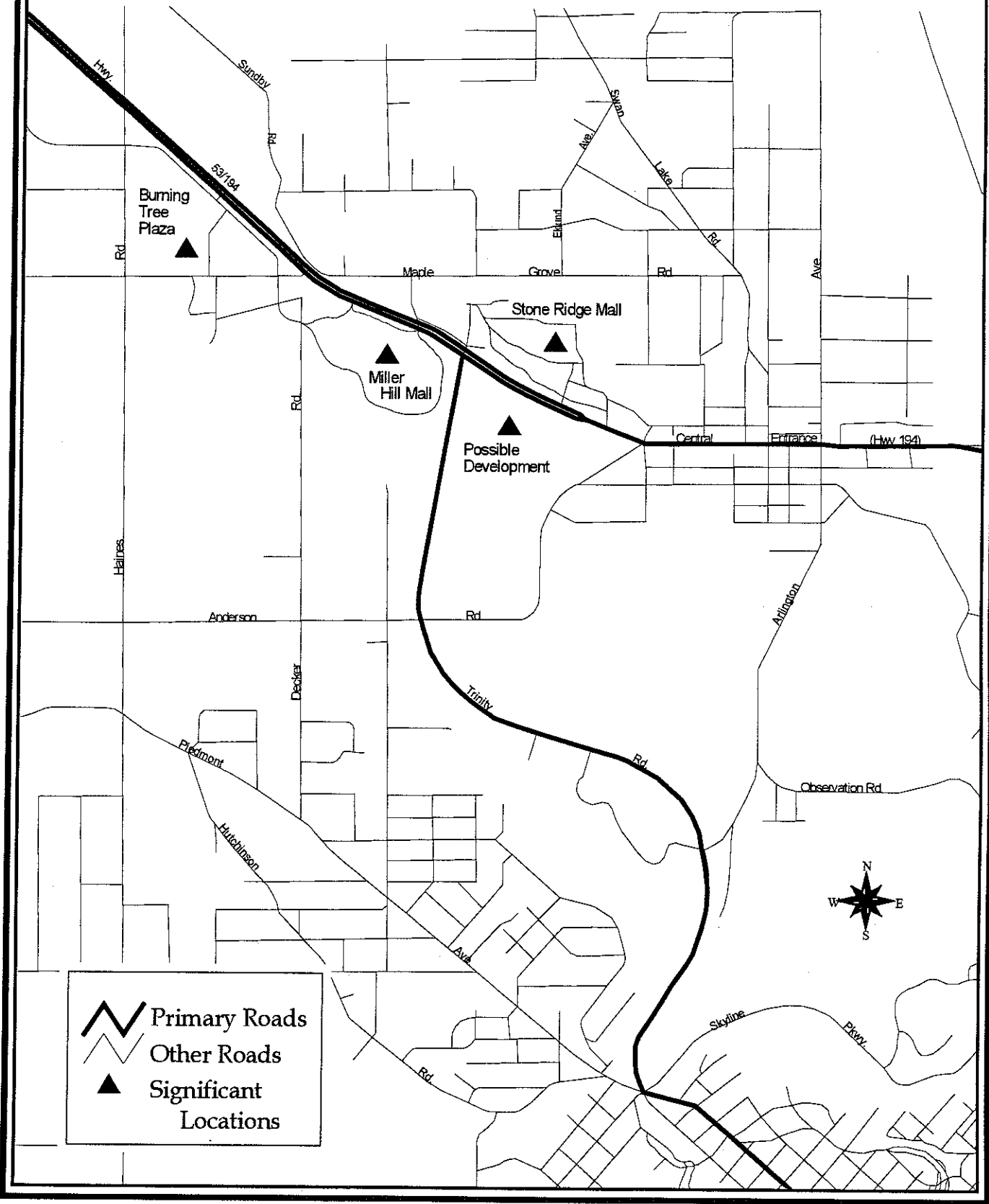
**For greater detail and in-depth analysis of traffic issues facing the Miller Hill commercial area, please refer to the following MIC documents:**

- **The Miller Hill Corridor Traffic Study, October 1995; and**
- **The Miller Hill Corridor Traffic Study – Technical Appendices, October 1995.**

# Location of Miller Trunk Corridor Study Area

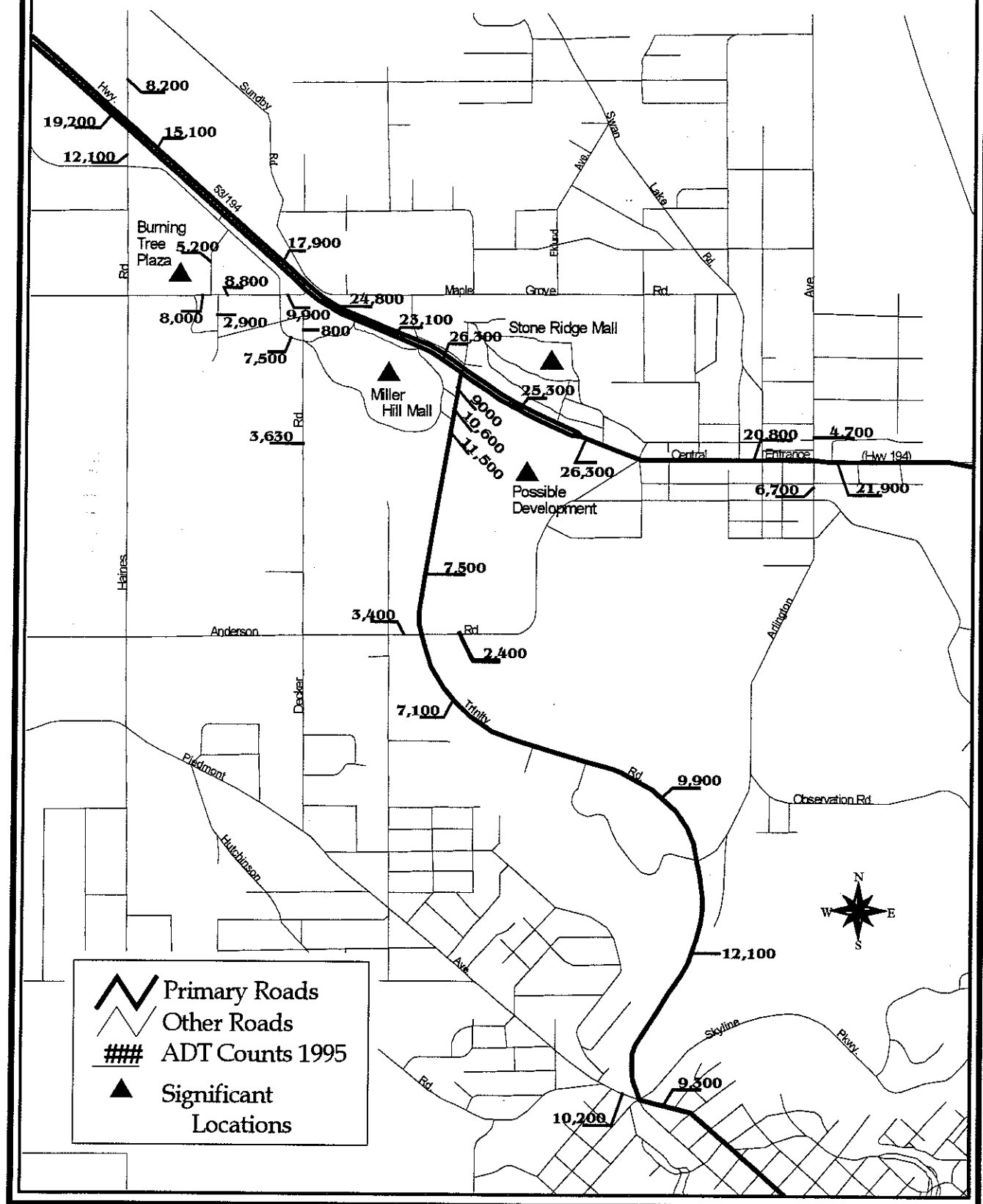


# Miller Corridor Study Area





## Miller Trunk Corridor Traffic Volumes



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## **Data Collection**

Below is the list of variables used in the 1995 Miller Hill Corridor Traffic Study. They are restated here in order to provide the reader with pertinent background information that identifies MIC tasks undertaken with completion of the prior report. Staff used the majority of this data along with new data where needed in compilation of this document.

- Identification of Primary and Secondary Intersections
- Traffic Turning Movement Counts
- Current Land Use, Zoning and Aerial Photos
- Historic Average Daily Traffic Counts (ADT's)
- Projected ADT's from the Traffic Model (TRANPLAN)
- Projected Trip Generation for Miller Mall Expansion and the OPUS Development
- Identification / Trip Generation for Vacant Parcels in the Study Area
- Truck Traffic Counts
- Accident Information
- Demographic / Market Research Information

## **Overview of Issues**

The 1995 Miller Hill Corridor Study Advisory Committee identified the following as an accumulation of transportation problems currently occurring, or that are expected to increase with the addition of more commercial activity throughout the study area unless mitigating activities are implemented. Below are the problems/issues noted by the Study Advisory Committee:

- Much of the commercial activity is located on or adjacent to Trunk Highways (TH) 194 and 53. This causes many short trips (between sites) to occur on the Highway.
- Very few frontage roads exist along the TH 53/194 corridor. As in the case above, trips between sites are forced to use the highway adding to growing congestion.
- A high number of access points exist on TH 53 and 194. Many sites have individual access points onto the Highway and should be connected via a service road to reduce the access points. The excessive number of access points lead to unsafe operating conditions as vehicles enter areas with high operating speeds.
- A high number of signalized intersections exist along the TH 53/194 corridor (unsynchronized). This causes time delays and adds to the congestion problem.
- Recent increases in the amount of commercial development (Kohls, Burning Tree Plaza, Wal-Mart, Stone Ridge Mall, etc...) has added traffic within the corridor. In

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some cases the individual site has caused a transportation deficiency to occur. The accumulated effect of all the recent development has attributed to the transportation problems currently being experienced within the study area.

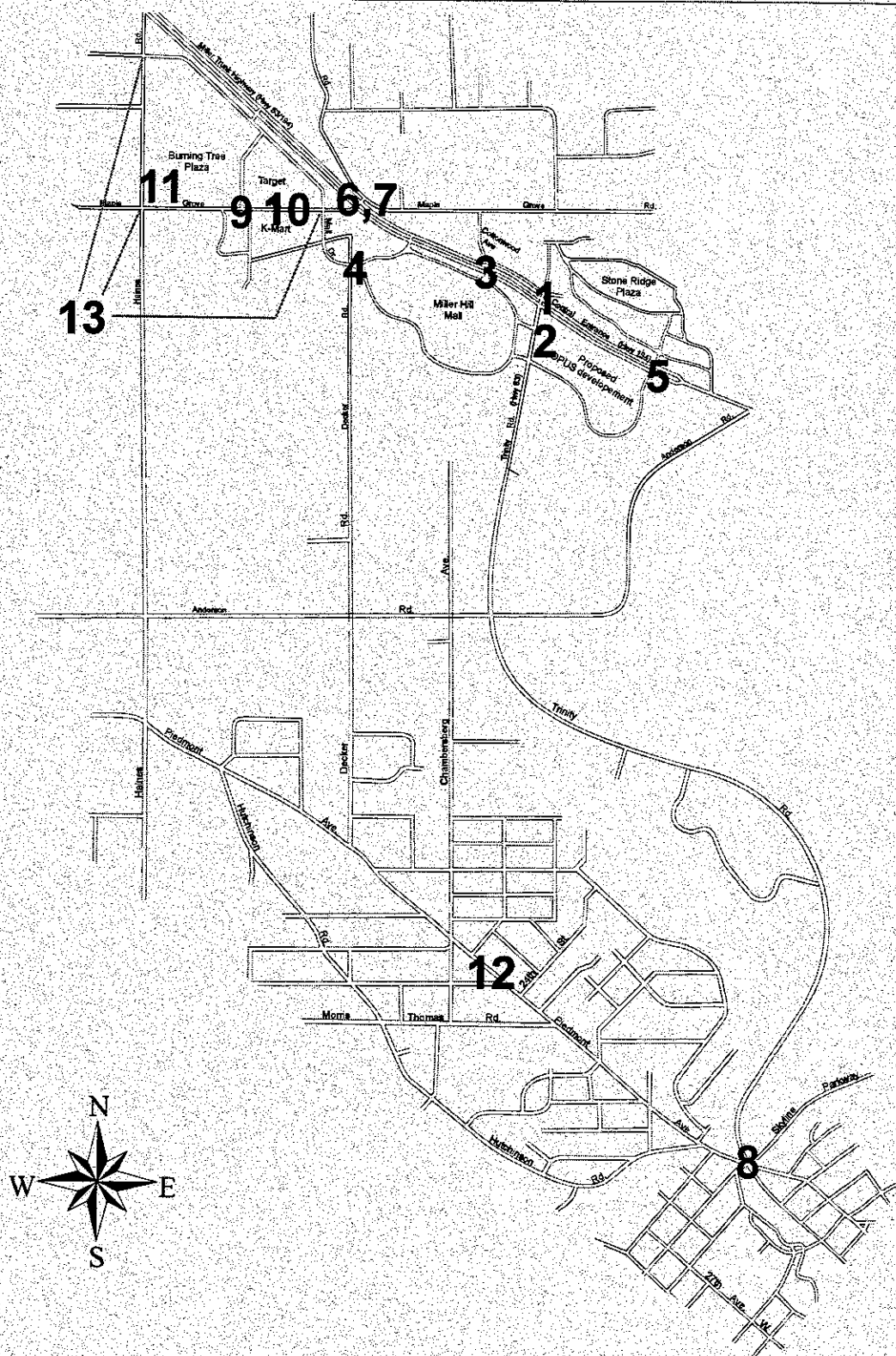
- Neighborhood cut-through traffic has increased in the neighborhoods close to the Miller Hill shopping areas. Much of the increase in neighborhood traffic can be attributed to the activities of the commercial area. Other factors such as current deficiencies (congestion, safety, and connectivity) on the major and minor arterials, probably play an even bigger role.
- No direct access to the heart of the commercial district exists from the northeast. If traveling to the Miller Hill commercial area from the northeast, the current roadway options are to use Arlington Avenue (to Central Entrance), Haines Road (to TH 53), or to cut through on local streets. Both Arlington Avenue and Haines Road are classified as minor arterials, which means they provide a high to medium level of mobility between sub-areas. The distance between minor arterial should be no more than 1/3-1/2 mile apart, otherwise neighborhood/local streets are utilized more for travel between sub-areas (used as a minor arterial) instead of for mobility within the neighborhoods as they were designed. The current spacing between Arlington Avenue and Haines Road is approximately 2.5 miles. This tends to indicate that a spacing and connectivity deficiency does exist.
- The lack of a sidewalk and crosswalk network exists for pedestrians to utilize when traveling between the various commercial sites. This is important considering the number of short trips between sites that currently are made via the automobile traveling on and off the principal and minor arterials. A good pedestrian network would not eliminate all the short trips currently being made on principal and minor arterials, but would help provide options to those individuals that do not or choose not to drive, and would make transit and bicycling a more attractive alternative.
- Bicycle routes are needed for cyclists when traveling to the Miller Hill area or between the various commercial sites. This is very similar to the issue discussed above. There is a need for a good network of bicycle routes accessing the Miller Hill commercial area from all points within the region.
- A good transit hub or transit access is needed to service all the commercial sites in the area.
- There is potential for a high number of trips to be generated from the remaining commercially zoned sites located in the study area.
- A high number of trucks (67%) are not destined for a site within the study area and are just passing through.

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- There are current capacity or other deficiencies noted at:
    - Hwy 53/Maple Grove Road intersection
    - Joshua Avenue/Trinity Road/Central Entrance intersection
    - Hwy 53/Cottonwood Avenue intersection
    - Burning Tree Road/Maple Grove Road intersection
    - Target/K-Mart accesses onto Maple Grove Road
  - If the Miller Hill Mall expands, OPUS development occurs, or both happen, it is projected that:
    - Miller Hill Mall would generate an additional 8,000 trips.
    - The OPUS development would generate approximately 6,000 trips.
    - Traffic at the Hwy 53/Maple Grove Road intersection would get worse.
    - Traffic at the Joshua Avenue/Trinity Road/Central Entrance intersection would increase.
    - Trinity Road between Anderson Road and Central Entrance would need improvement.
    - The Mall Drive/Decker Road intersection would require improvement.
    - The Stone Ridge Mall/OPUS/Central Entrance intersection would require improvement.

The resolution of the OPUS development proposal will affect the future of the entire Miller Hill corridor. The original large retail development proposal was defeated in a public referendum and has since been replaced with a scaled down proposal. However, this version revealed that it would be extremely costly to develop this site. Rocky terrain, wetlands, and intersection improvements have added significantly to the costs associated with completing this project. At the time of this status report, it was uncertain whether OPUS would advance with the project, so staff proceeded with the assumption that the project would go ahead. Regardless of development, all of the short-term recommendations contained in this status report need to be completed unless specifically stated.

# **Short-Term Recommendations**

## Locations of Short-Term Recommendations



# Status of 1995 Miller Hill Corridor Traffic Study

## Short-Term Recommendations

# pgs.	Recommendation	Jurisdiction	Completed	Programmed (a)	Planning Process (b)	Not Programmed
1 pgs. 12-13	Improve Hwy. 53/ Cottonwood Ave./ North Frontage Rd. Intersection	City of Duluth				X
2 pgs. 14-15	Improve Trinity Rd. between south Mall entrance and the intersection of Trinity Rd. and Central Entrance	MnDOT and Developers		FY 2000		
3 pgs. 16-17	Improve the intersection of Trinity Rd./Central Entrance/ Joshua Ave.	City of Duluth and MnDOT		FY 2000		
4 pgs. 18-19	Improve intersection of Decker Rd./ Mall Dr.	City of Duluth and Developers				X
5 pgs. 20-21	Improve intersection of Stone Ridge entrance/ OPUS Site/ Central Entrance	MnDOT and Developers	Solution A		Solution B	
6 pgs. 22-23	Improve intersection of Maple Grove Rd./Miller Trunk Hwy. (Phase 1)	St. Louis Co. and MnDOT			MnDOT Work Plan FY 2002	
7 pgs. 24-25	Improve intersection of Maple Grove Rd./Miller Trunk Hwy. (Phase 2)	St. Louis Co. and MnDOT				X
8 pgs. 26-27	Improve Six Corners intersection	MnDOT	X			
9 pgs. 28-29	Improve intersection of Maple Grove Rd./ Burning Tree Rd.	St. Louis Co.			ROW acquisition	
10 pgs. 30-31	Align K-Mart/ Target Access Drives	St. Louis Co. Target and K-Mart owners		Scheduled for summer 1998		
11 pg. 32	Limit access from Burning Tree Plaza onto Haines Rd.	Burning Tree Owners	X			
12 pg. 33	Improve Piedmont Ave. from Six Corners intersection to Haines Rd.	St. Louis Co.		1998-2000 MIC TIP - FY 2000		
13 pg. 34	Install traffic signals at the intersections of Haines Rd./ Mall Dr., Haines Rd./ Maple Grove Rd., and Maple Grove Rd./ Mall Dr.	St. Louis Co.		Scheduled for summer 1998		

(a) Programmed: Included in a jurisdiction plan scheduled for implementation and/or has funding dedicated.

(b) Planning Process: Concept plans have been discussed or documented.

See pages 12-34 for complete status reports on the above short-term recommendations.

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**Recommendation : Improve Highway 53/Cottonwood Avenue/North Frontage Road Intersection.**

**Problem:**

The current intersection has inadequate storage on the southbound leg of Cottonwood Avenue. North Frontage Road is located too close to the intersection of Highway 53/Cottonwood Avenue. Vehicles turning left from North Frontage Road onto Cottonwood Avenue can impede northbound Cottonwood Avenue traffic if there are vehicles stacking at a red signal.

**Proposed Solution:**

- A. Add dedicated turn lanes and through lanes on Cottonwood Avenue at intersection with Highway 53. Currently there are no clear markings on north leg of Cottonwood Avenue where it intersects with Highway 53. Stacking and right turn on red movements would be improved with dedicated lanes.
- B. Examine moving the intersection of Frontage Road at Cottonwood Avenue to the north. The existing Frontage Road exit is located too close to Highway 53 to provide enough stacking of Cottonwood Avenue vehicles waiting at the red light at Highway 53.

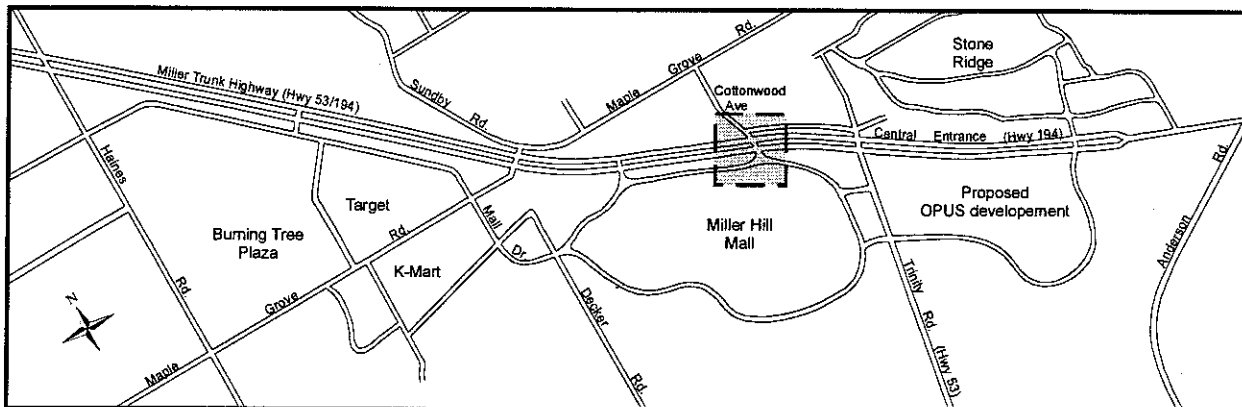
**Estimated Cost (1995):** \$25,000 (Solution A)

**Jurisdiction:** City of Duluth

**Status:**

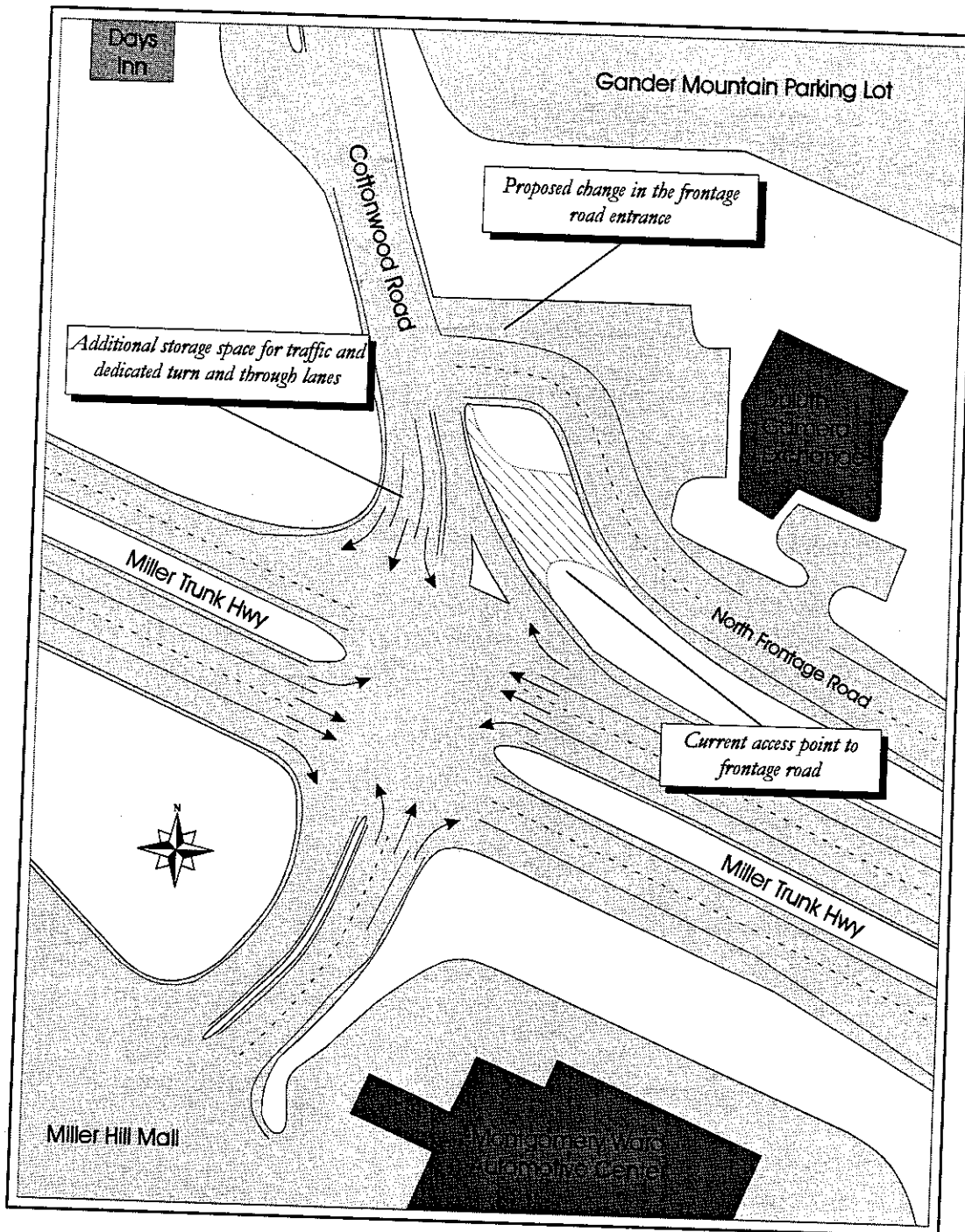
Complete	Programmed	Planning Process	Not Programmed
			X

**Highway 53/194--Cottonwood Ave. Intersection**





# Miller Trunk Highway and Cottonwood Road



## Proposed Improvements to the Miller Trunk Hwy / Cottonwood Avenue / North Frontage Road intersection

- 1) Add dedicated approach lanes on Cottonwood Avenue at intersection with Highway 53.
- 2) Examine potential frontage road geometric improvements for the long term.



**Recommendation:** Improve Trinity Road (Highway 53) between the current most southerly Miller Hill Mall entrance and the intersection of Trinity Road and Central Entrance.

**Problem:**

Increased traffic from either Simon or Opus development will cause capacity problems in this area.

**Proposed Solutions:** (contingent upon either development)

- A. Expand Trinity Road to four lanes between the southerly Miller Hill Mall Entrance and the intersection of Trinity Road and Central Entrance.
- B. Add a traffic signal with a northbound and southbound left turn lane at the southerly Miller Hill Mall entrance. This intersection would be where the Opus development access road will enter onto Trinity Road.
- C. Maintain smooth traffic flow on Trinity Road by allowing for only two southbound and one northbound access points along Trinity Road. Convert northerly Miller Hill Mall entrance to a right in and right out only.

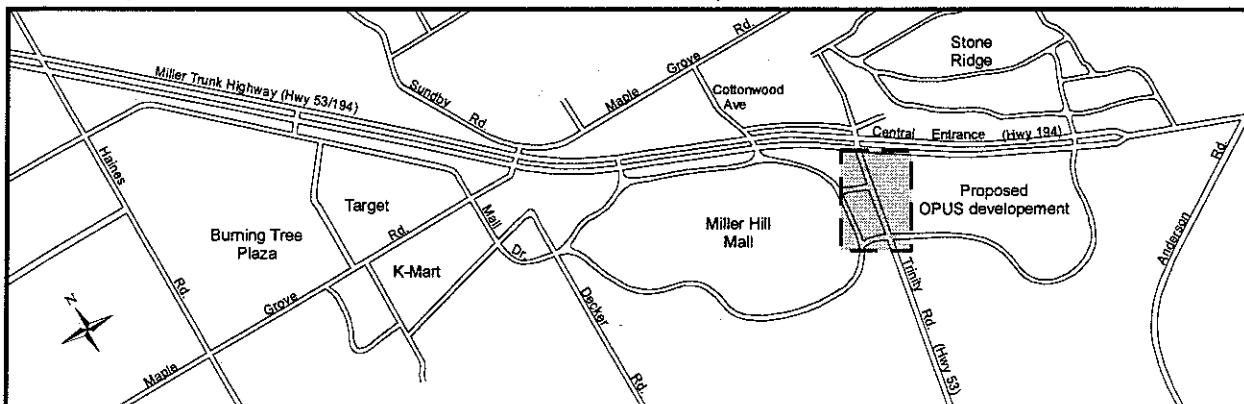
**Estimated Cost (1995):** \$520,000

**Jurisdiction:** MnDOT, City of Duluth, and Developers

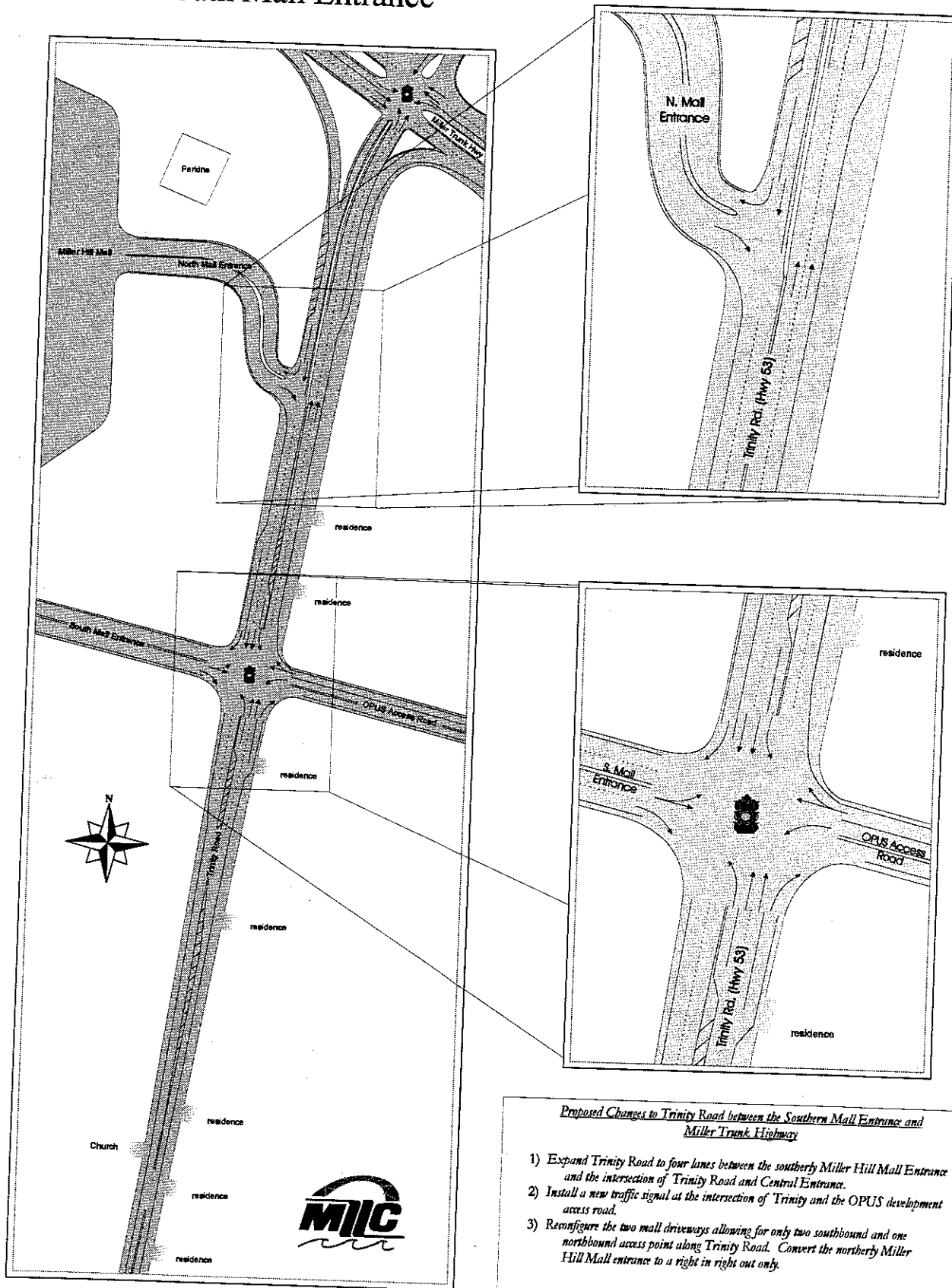
**Status:**

Complete	Programmed	Planning Process	Not Programmed
	Solutions A,B,&C		

Trinity Road from south mall entrance to Hwy 53



# Trinity Road--Central Entrance to South Mall Entrance



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**Recommendation:** Improve the intersection of Trinity Road/Central Entrance/Joshua Avenue.

**Problem:**

Traffic from eastbound Highway 53/194 merges onto southbound Trinity Road at a high rate of speed causing safety concerns for traffic entering Miller Hill Mall from Trinity Road. The north leg of this intersection (Joshua Avenue) is not properly aligned with the rest of the intersection causing stacking problems.

**Proposed Solution:**

- A. Upgrade and improve signals, align lanes of Trinity Road and Joshua Avenue to provide channelization at the intersection, and tighten radius for Miller Trunk Highway southbound right turn onto Trinity Road.
- B. Add westbound left off of Trinity Road onto Miller Trunk Highway, and add southbound left off of Central Entrance onto Trinity Road

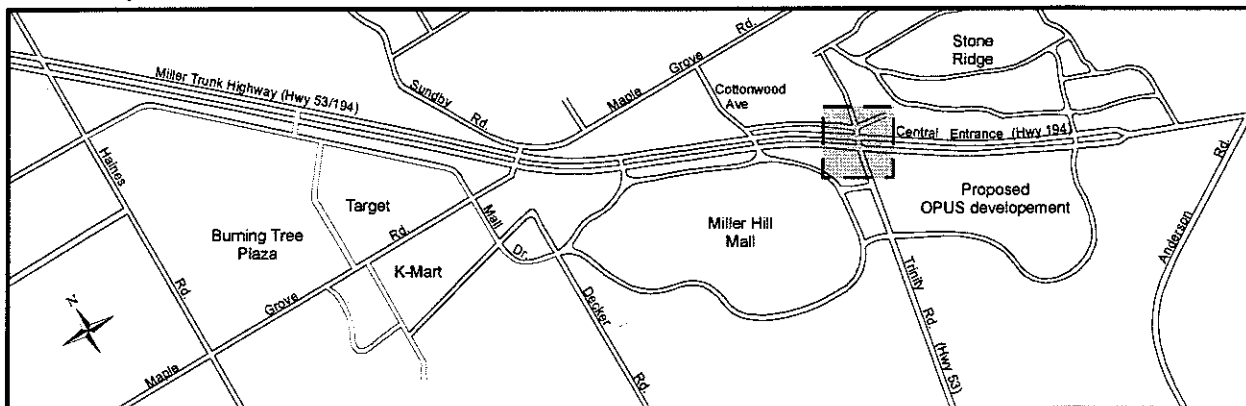
**Estimated Cost (1995):** \$500,000

**Jurisdiction:** City of Duluth and MnDOT

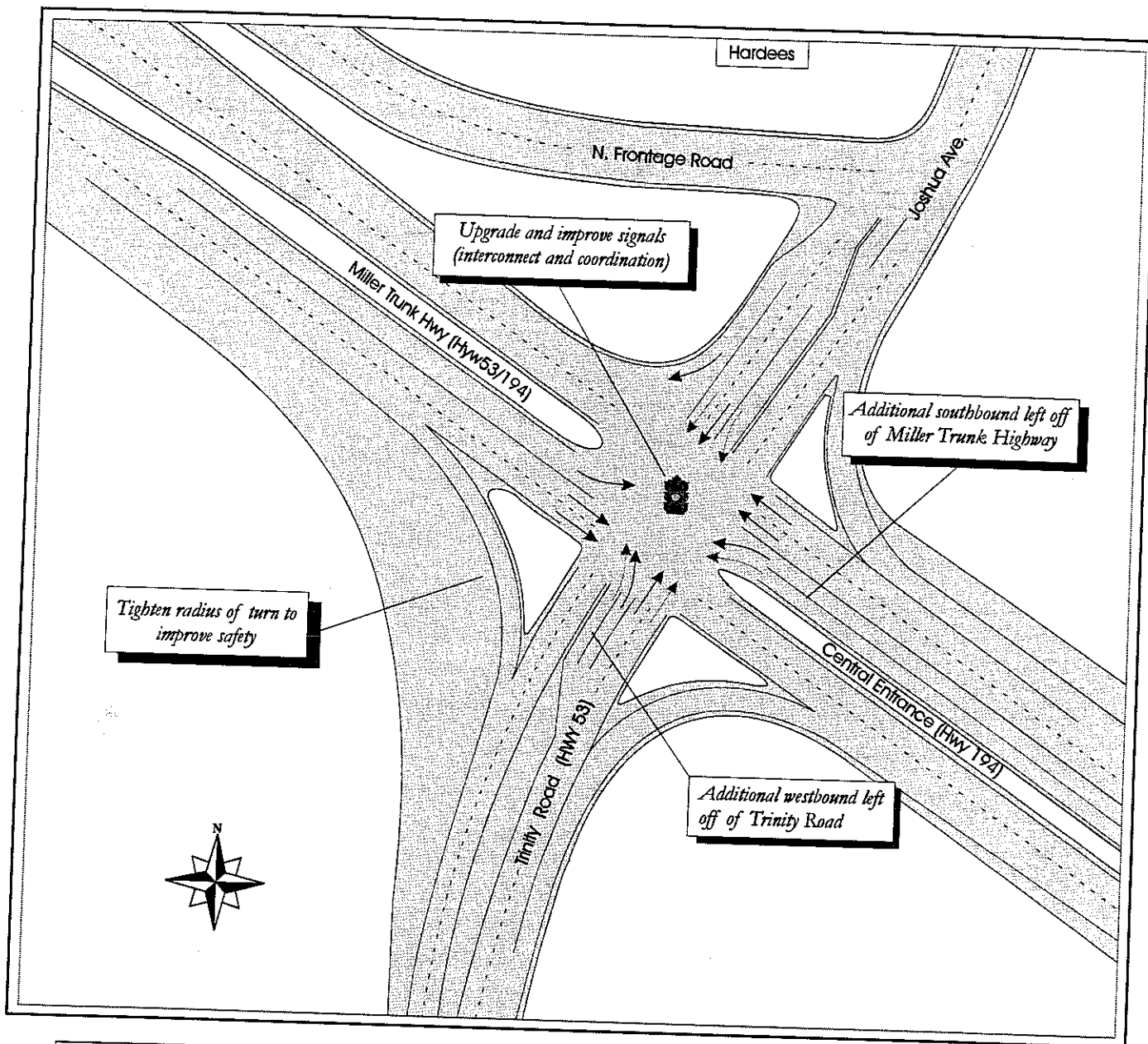
**Status:**

Complete	Programmed	Planning Process	Not Programmed
	Solutions A&B – FY 2000		

Trinity Road/Central Entrance/Joshua Avenue Intersection



# Miller Trunk Highway and Trinity Road/Joshua Avenue



## Proposed Changes to the Trinity Road / Central Entrance / Joshua Avenue intersection

- 1) Upgrade and improve signals (interconnect and coordination)
- 2) Additional westbound left off of Trinity Road onto the Miller Trunk Highway
- 3) Additional southbound left off of Central Entrance onto Trinity Road
- 4) Tighten radius for Trunk Highway 53 southbound right turn lane onto Trinity Road to improve safety.



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**Recommendation:** Improve Decker Road/Mall Drive intersection.

**Problem:**

Currently this is the most heavily used Miller Hill Mall entrance. The potential Mall expansion would increase traffic at the intersection over what it can effectively and safely accommodate.

**Proposed Solution:**

Extend the throat length of the approach leaving Miller Hill Mall to allow for additional vehicle stacking.

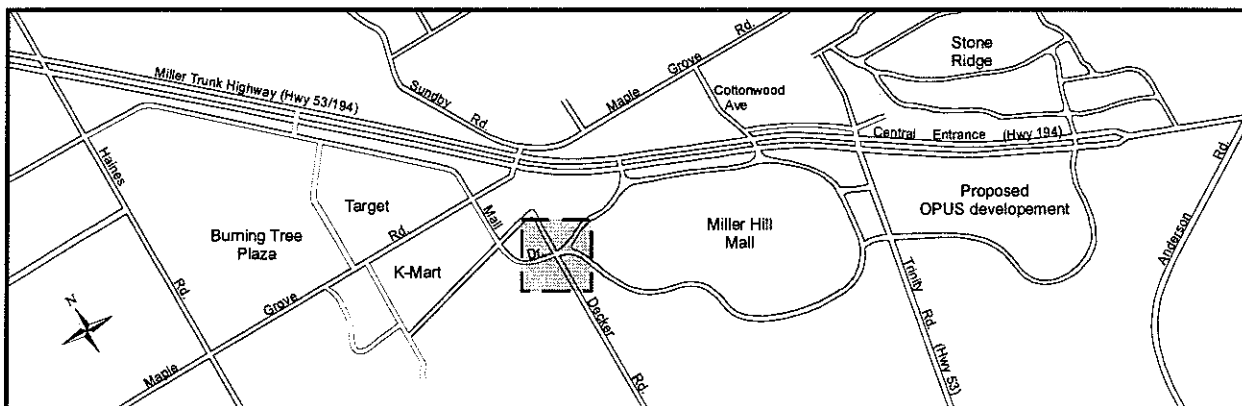
**Estimated Cost (1995):** \$200,000

**Jurisdiction:** City of Duluth and Simon developers

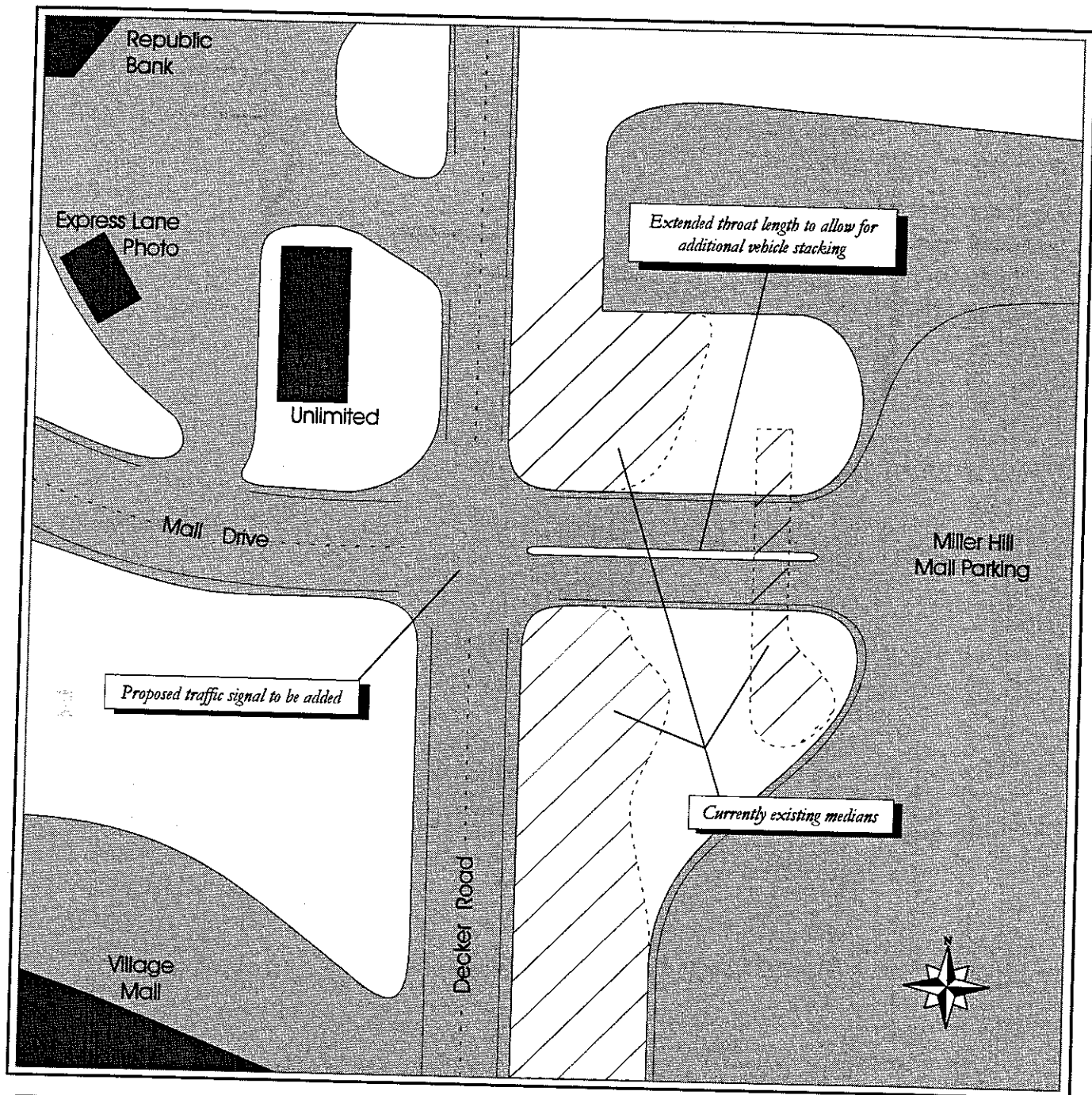
**Status:**

Complete	Programmed	Planning Process	Not Programmed
			X

Decker Road/Mall Drive Intersection



# Decker Road / Mall Drive Intersection



## Proposed Changes to the Decker Road / Mall Drive intersection

- 1) Alleviate congestion by adding traffic signals.
- 2) Extend the throat length of the approach leaving Miller Hill Mall to allow for additional vehicle stacking.



**Recommendation:** Improve Stone Ridge Mall/OPUS Site/Central Entrance intersection.

**Problem:**

There is not enough room for adequate stacking on the Stone Ridge side of the intersection. With the development of the OPUS site across the highway, there will be a need for a through movement as well.

**Proposed Solution:**

- A. Improve Stone Ridge Mall side of the intersection. Extend throat length of the approach onto Central Entrance.
- B. Provide access improvements to OPUS site. Provide east bound right turn lane on Central Entrance, provide through lane from Stone Ridge side of intersection, and modify existing signal to accommodate the new OPUS driveway (dependent on OPUS development).

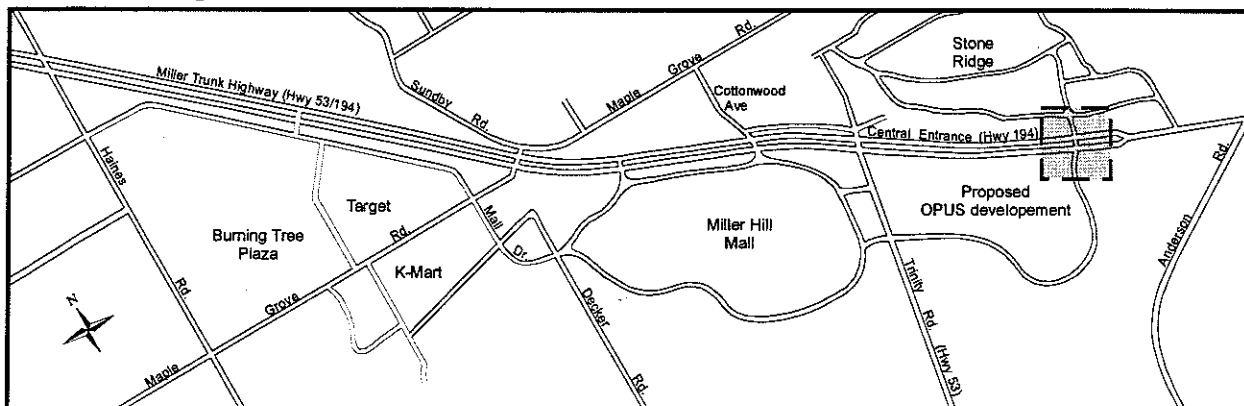
**Estimated Cost (1995):** N/A

**Jurisdiction:** MnDOT and OPUS developers (dependent on OPUS development)

**Status:**

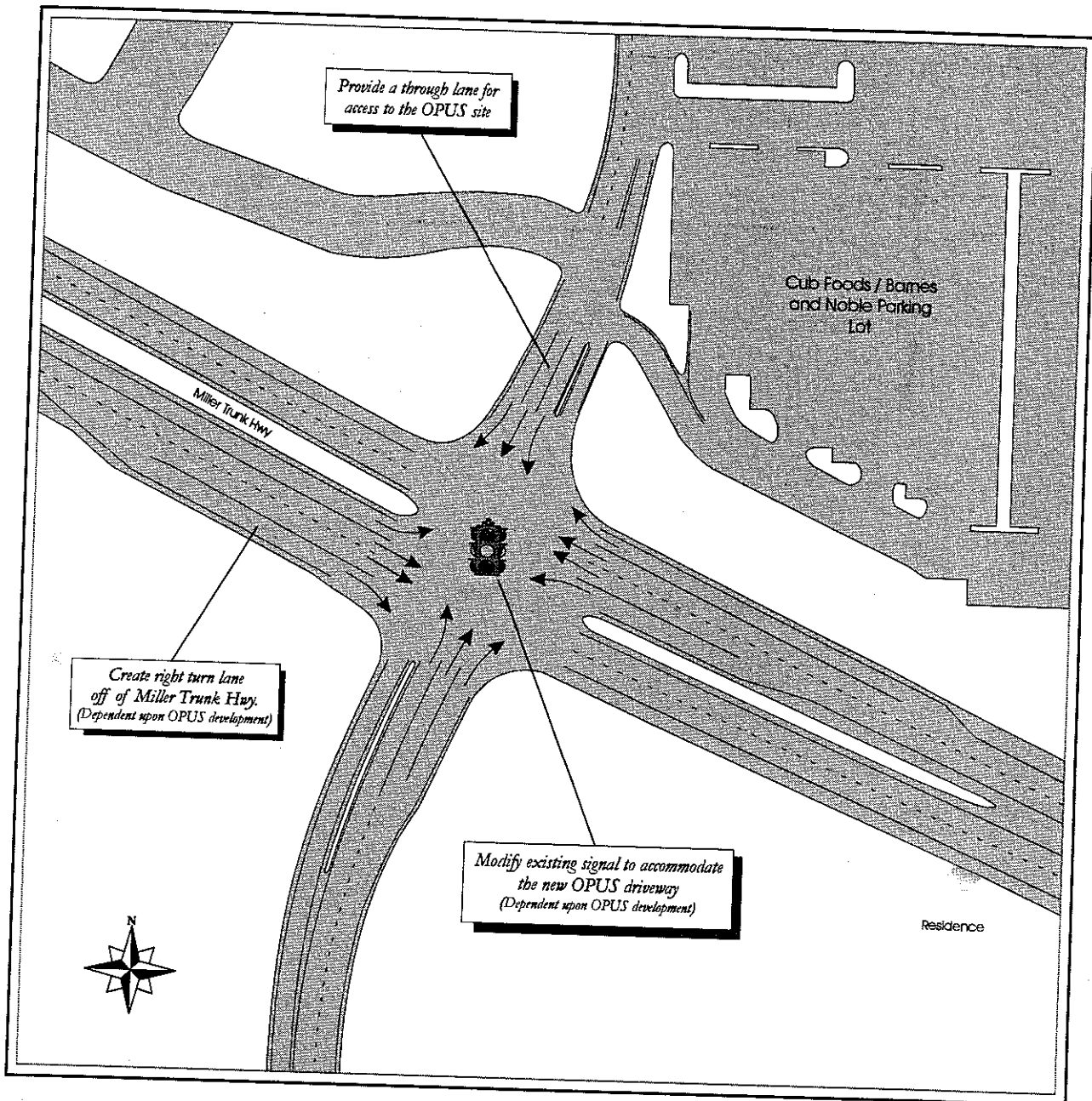
Complete	Programmed	Planning Process	Not Programmed
Solution A		Solution B	

Stone Ridge Mall/OPUS site/Central Entrance Intersection





# Stone Ridge / OPUS / Central Entrance Intersection



## Proposed Changes to the Stone Ridge / Central Entrance / OPUS site intersection

- 1) \*Provide east bound right turn lane on Central Entrance for access to OPUS site.
- 2) \*Modify existing signal to accommodate the new OPUS driveway.
- 3) \*Provide a through lane from Stone Ridge to allow access to the OPUS site.

*\*Dependent upon OPUS development*



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**Recommendation:** Improve Miller Trunk (Highway 53) /Maple Grove Road intersection (Phase 1).

**Problem:**

Lane channelization and turn movements at the intersection are needed at this time according to the traffic model. Continued growth will intensify the problem, especially if one or both mall development proposals are constructed. During busy times the existing left turn lane is insufficient to hold the number of vehicles turning left onto Maple Grove Road.

**Proposed Solution:**

- A. Add signal detectors on Maple Grove Road and change phasing of current signals.
- B. Add westbound double left off Miller Trunk Highway and widen intersection approaches for through traffic.

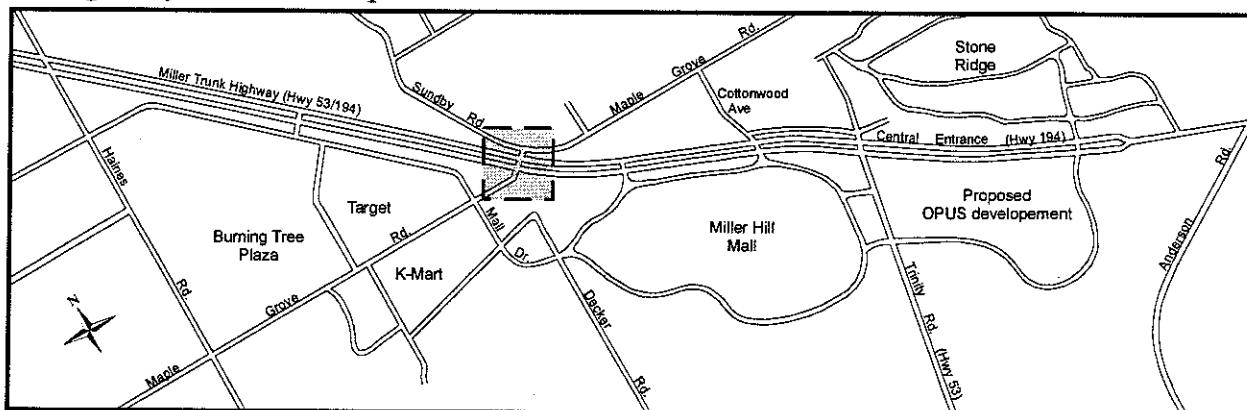
**Estimated Cost (1995):** \$250,000

**Jurisdiction:** MnDOT and St. Louis County

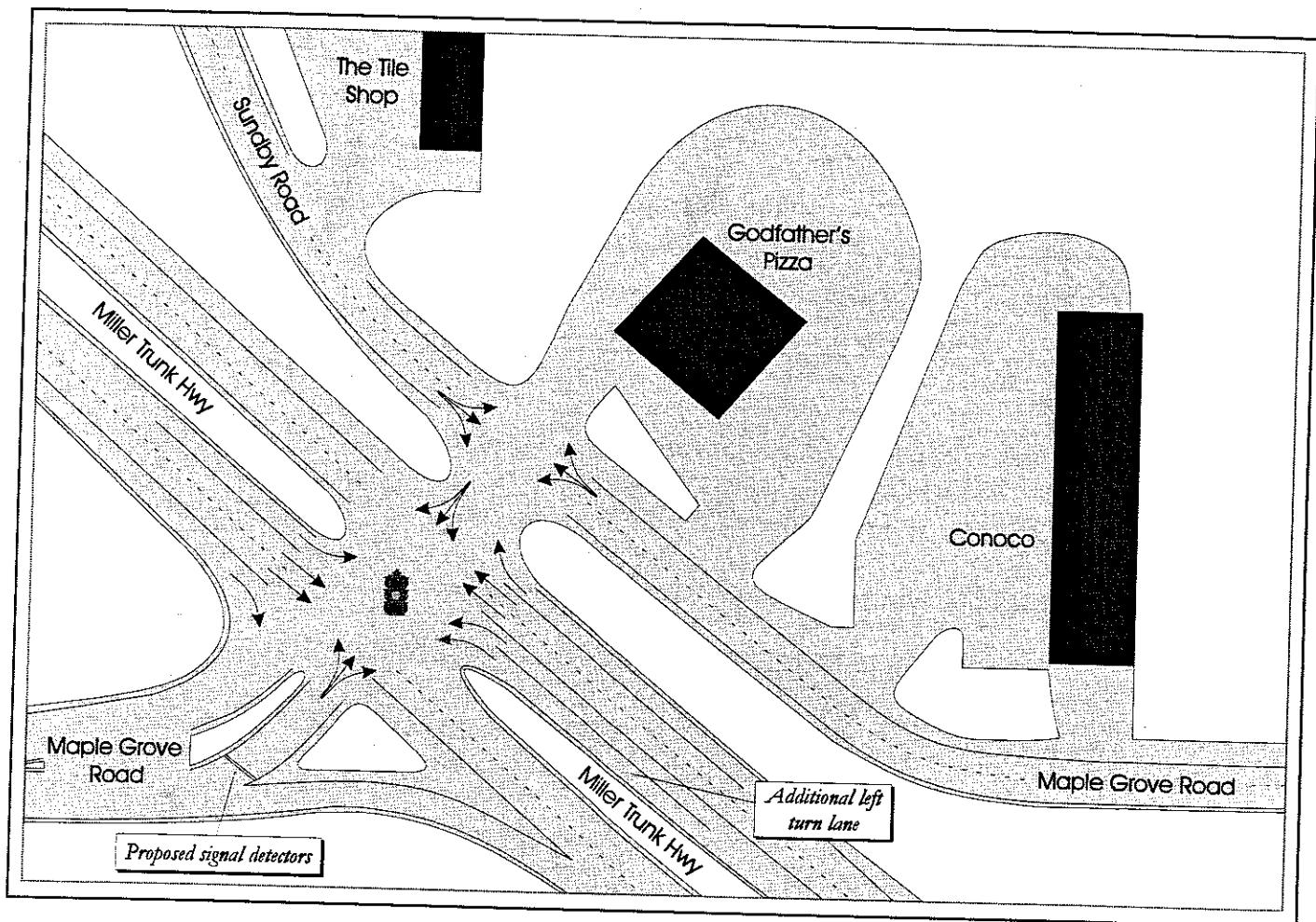
**Status:**

Complete	Programmed	Planning Process	Not Programmed
		Solutions A&B - MnDOT Work Plan FY 2002	

**Highway 53/194--Maple Grove Road Intersection**



# Miller Trunk Highway and Maple Grove Road (Phase 1)



## Proposed Changes to the Miller Trunk Highway and Maple Grove Intersection

- 1) Signal detectors on Maple Grove Road
- 2) Additional westbound left off Miller Trunk Highway onto Maple Grove Road



**Recommendation: Improve Miller Trunk (Highway 53) /Maple Grove Road intersection (Phase 2).**

**Problem:** Sundby Road/Maple Grove Road intersection is located too close to Miller Trunk Highway. There is not enough room for vehicle stacking on the north leg of the Maple Grove Road/Miller Trunk Highway intersection. Through traffic is often blocked for vehicles using the Sundby Road to Maple Grove Road connection. Too many commercial access points at this intersection only increase congestion and safety concerns.

**Proposed Solution:** Two possible options are described here, although other options should also be explored. These options are conceptual in nature and do not imply actual alignments.

Option 1 – Detach Sundby Road/Maple Grove Road leg from Highway 53. The detached road would serve as a service/frontage road for businesses fronting Highway 53 and Maple Grove Road. Create new intersection at Highway 53 west of existing intersection by connecting Sundby Road to Mall Drive. Improve Sundby and Maple Grove Roads by widening and paving shoulders and constructing sidewalks.

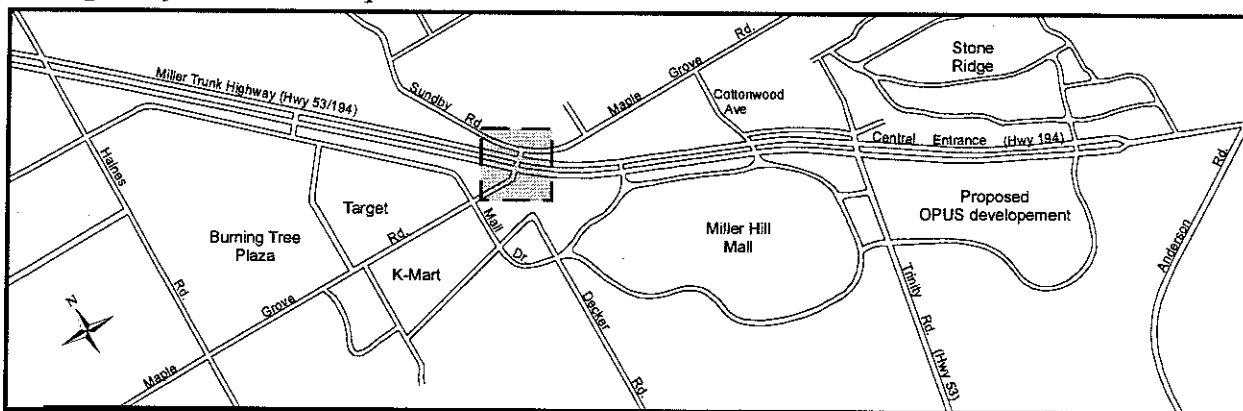
Option 2 – Close Maple Grove Road to through traffic east of Mall Drive. Detach Sundby Road/Maple Grove Road from Highway 53. Create two new intersections, one at Decker Road extended and the other at the same location as Option 1.

**Jurisdiction:** St. Louis County and MnDOT

**Status:**

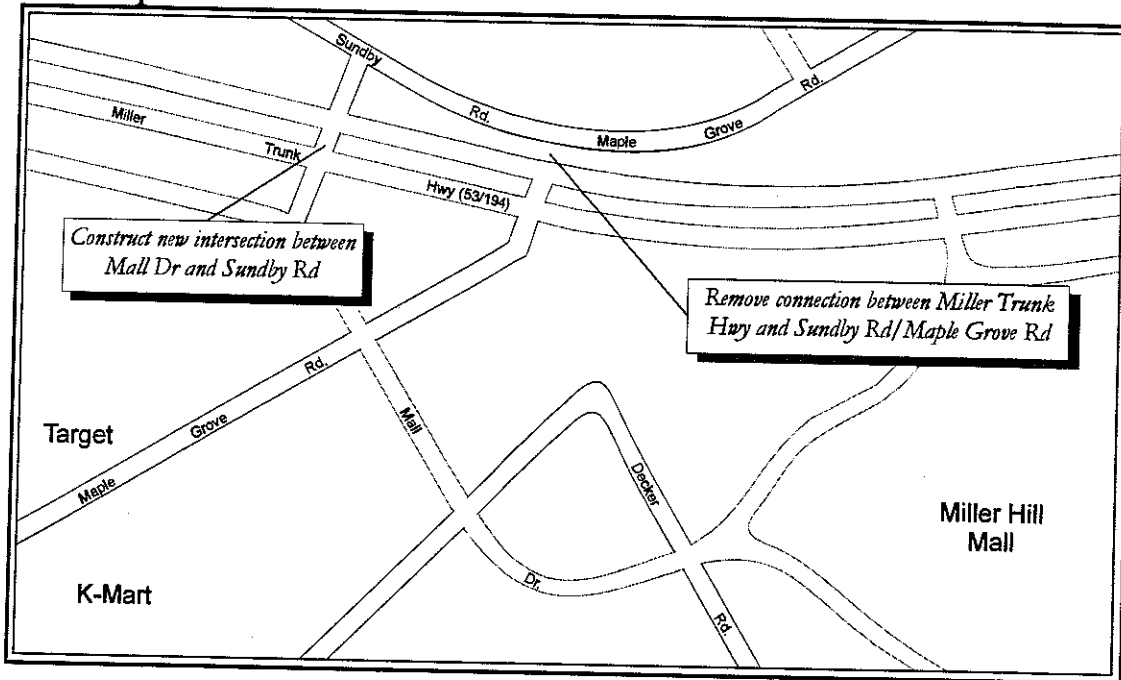
Complete	Programmed	Planning Process	Not Programmed
			X

**Highway 53/194--Maple Grove Road Intersection**

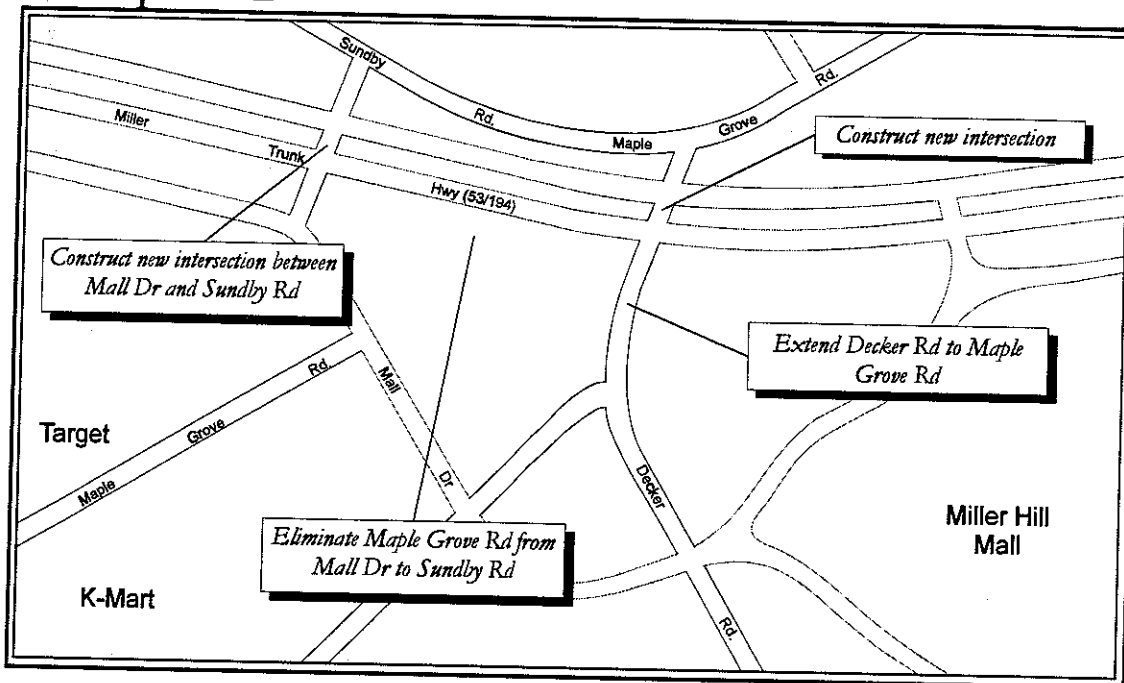


# Miller Trunk Highway and Maple Grove Road (Phase II)

## \*Option 1



## \*Option 2



\*These options are conceptual in nature and do not imply actual alignments.

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**Recommendation:** Improve the Six Corners intersection of Trinity Road/Piedmont Avenue/Skyline Parkway/ 24<sup>th</sup> Avenue West.

**Problem:**

This is a congested intersection with six legs meeting at one spot. The intersection was controlled by stop signs at all legs. A more safe and efficient control device was necessary.

**Proposed Solution:**

Implement four-phased traffic signal at all legs of the intersection. Provide right turn channelization off of Trinity Road and Piedmont Avenue.

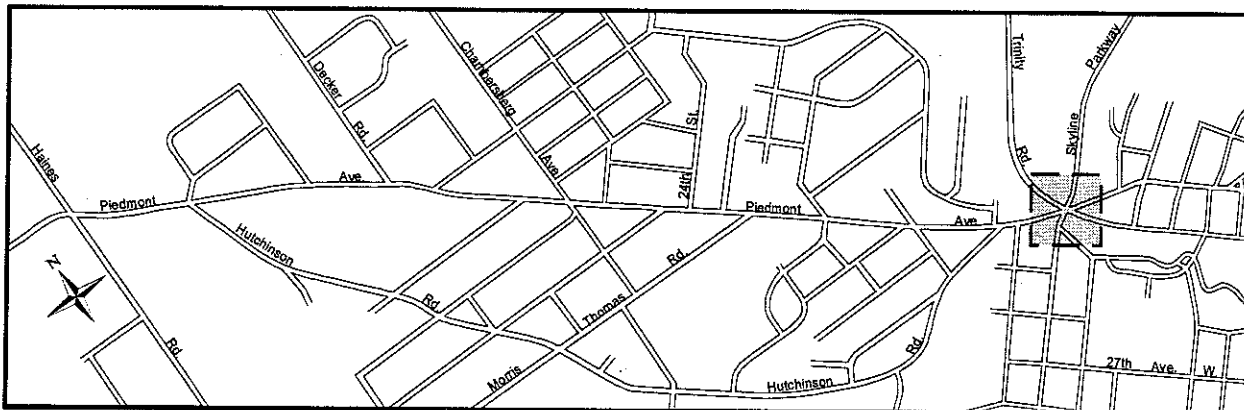
**Jurisdiction:** MnDOT

**Status:**

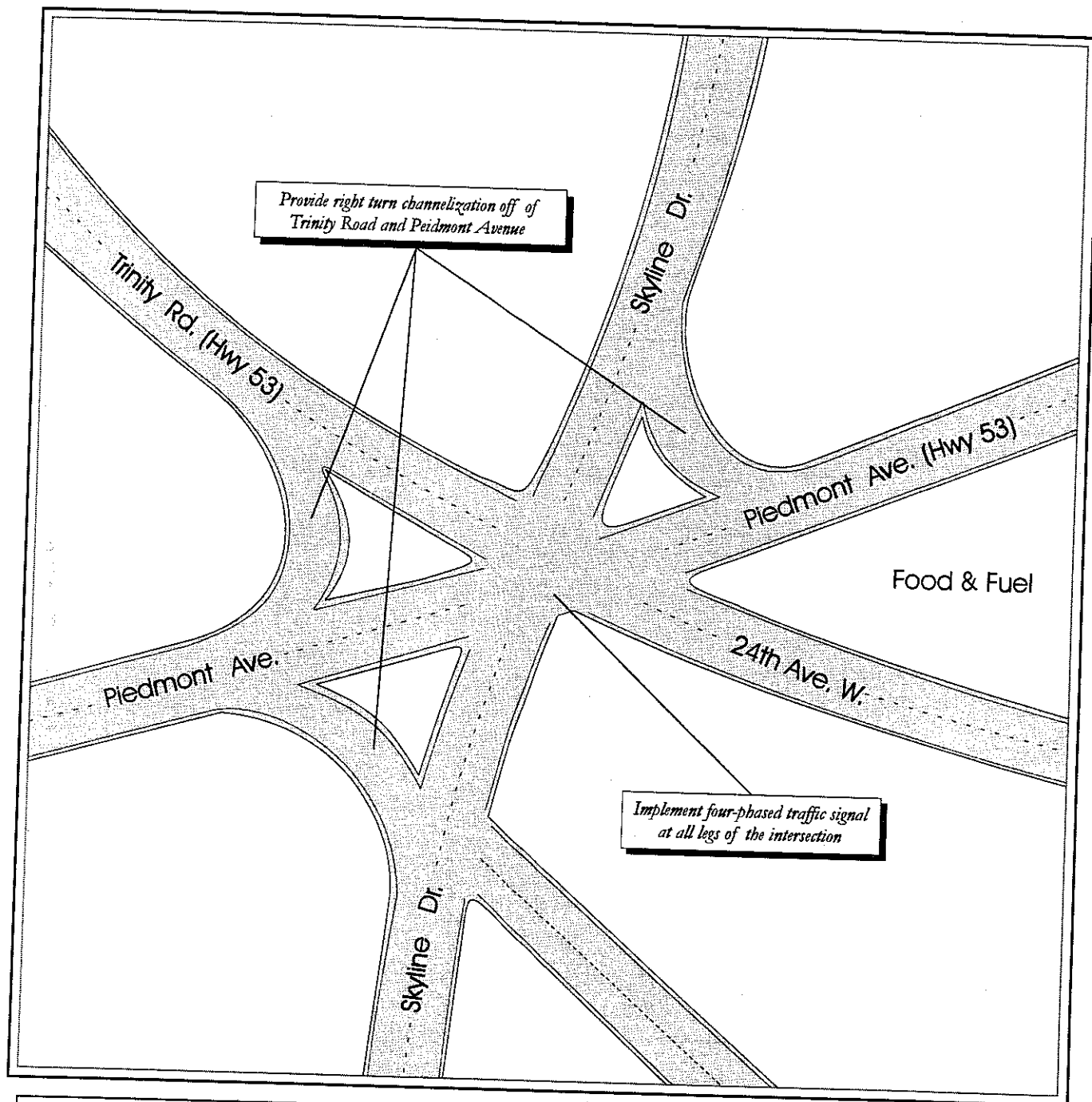
Complete	Programmed	Planning Process	Not Programmed
X			

At this time, MnDOT has hired a consultant to examine options for reconstruction of Piedmont Avenue south of the Six Corners intersection. As part of this project, level of service at the intersection will be reviewed to see if the present stoplight is adequate or if other alternatives should be examined.

**Six Corners Intersection**



# Six Corners Intersection of Trinity Road/ Piedmont Ave/Skyline Parkway/24th Ave W.



## Improvement of Six Corners Intersection

- 1) Implement four-phased traffic signal at all legs of the intersection.
- 2) Provide right turn channelization off of Trinity Road and Piedmont Avenue.



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**Recommendation:**    **Improve Burning Tree Road /Maple Grove Road intersection.**

**Problem:** The north and south legs of Burning Tree Road do not align properly causing vehicles to have conflicting movements when entering and exiting the intersection. This intersection is controlled by a four-way stop sign and is congested during peak traffic times. Right-of-way issues need to be resolved between the City of Duluth, St. Louis County, and adjacent property owners.

**Proposed Solution:**

- A. Resolve right-of-way issues.
- B. Signalize and properly align all four legs of this intersection.

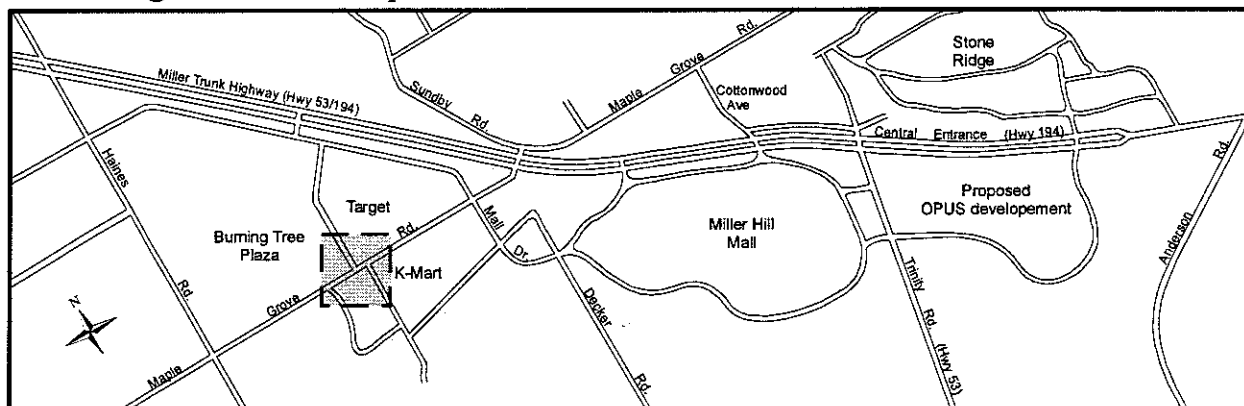
**Estimated Cost (1995):**     \$250,000

**Jurisdiction:** St. Louis County and City of Duluth

**Status:**

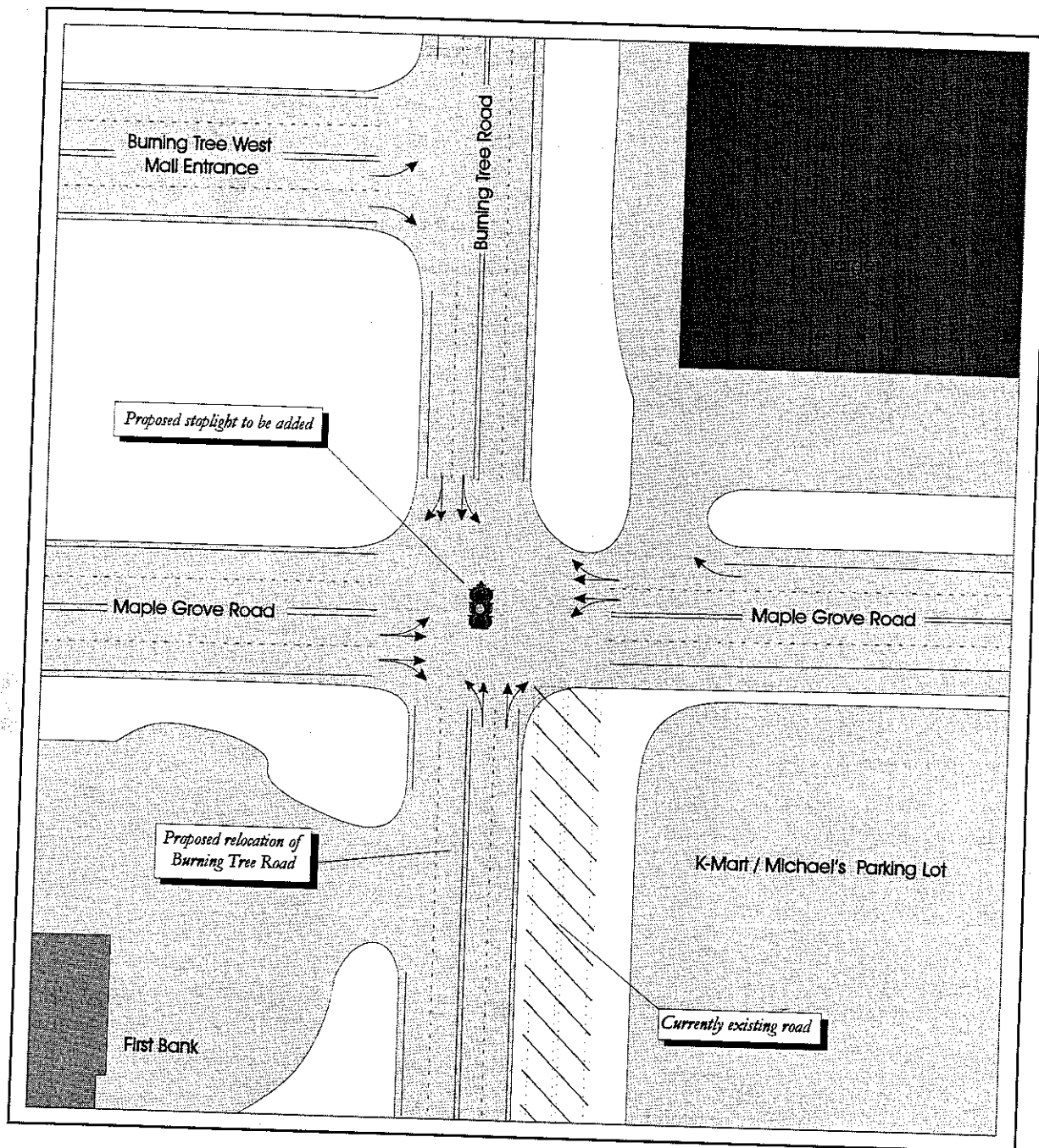
Complete	Programmed	Planning Process	Not Programmed
		City and County are attempting right-of-way acquisition.	

**Burning Tree Road/Maple Grove Road Intersection**





# Burning Tree Road and Maple Grove Road



## Proposed Improvements to the Burning Tree / Maple Grove Road Intersection

- 1) Properly align all four legs of the intersection.
- 2) Signalize the intersection.



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## **Recommendation:   Align K-Mart/Target Access Drives**

**Problem:** Vehicles traveling between K-Mart and Target must first make a right turn onto Maple Grove Road and then immediately switch lanes to make a left turn into either store's parking lot. This movement has to be done in a very short space in an area of high traffic. Buses also must make this movement, causing traffic delays and safety concerns. Maple Grove Road in this area has a steady stream of traffic and needs signalized intersections to the east and west to create gaps for cross traffic to execute movements between sites.

### **Proposed Solution:**

Align the entrances to K-Mart and Target on Maple Grove Road. This recommendation needs to be coordinated with the installation of traffic signals at the intersections of Maple Grove/Burning Tree Road and Maple Grove Road/Mall Drive.

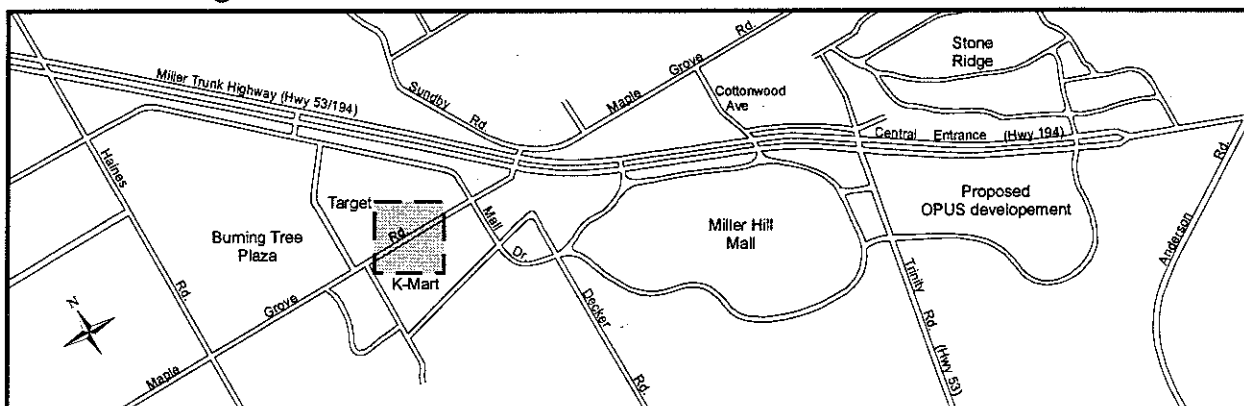
**Estimated Cost (1995):       \$10,000**

**Jurisdiction:** St. Louis County and owners of Target and K-Mart

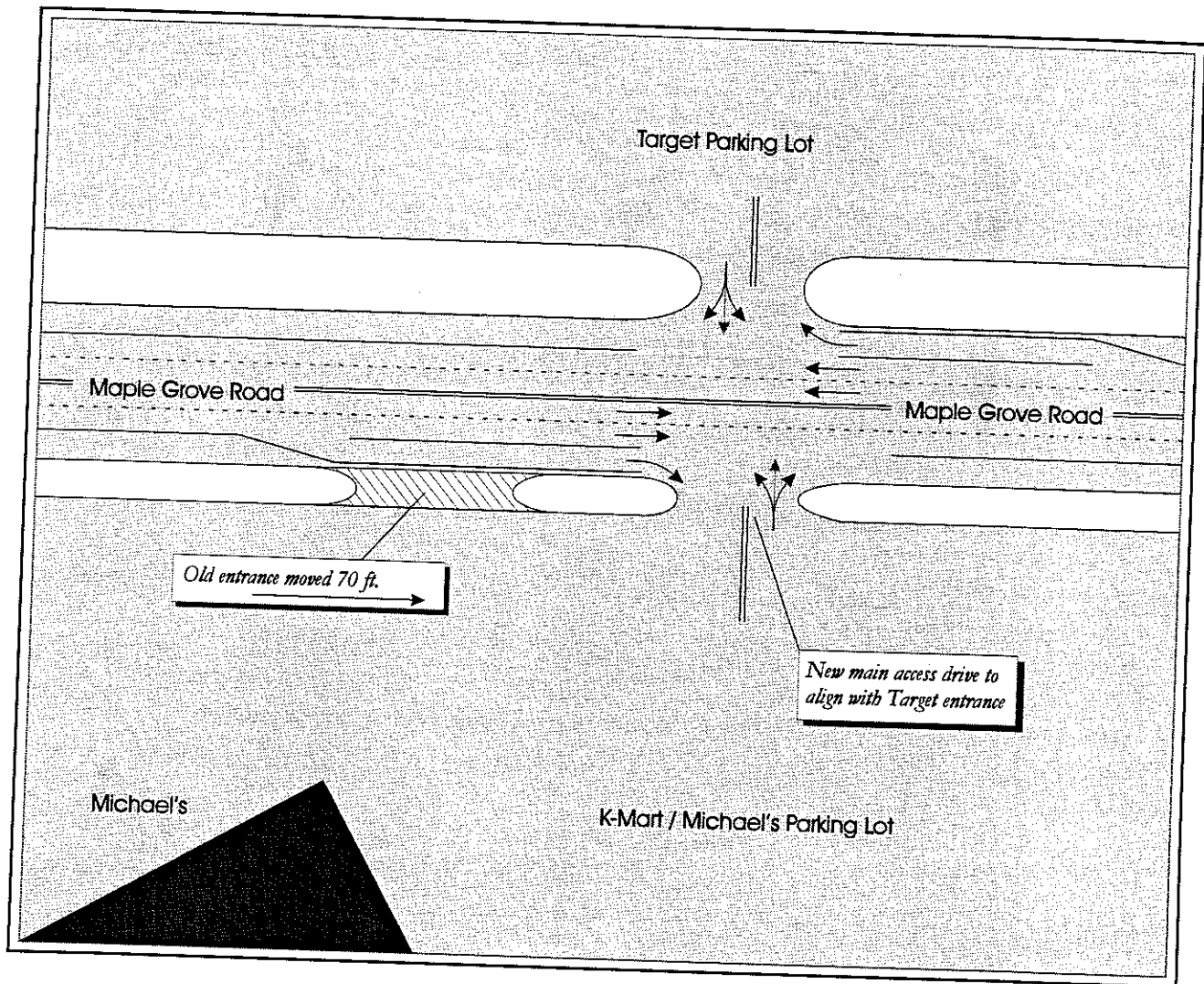
### **Status:**

Complete	Programmed	Planning Process	Not Programmed
	Scheduled for summer 98		

### **K-Mart/Target Access Drives**



# Entrances to K-Mart and Target



## Proposed changes for the Maple Grove Road / Target - K-Mart Entrances

- 1) Align main access drives from Target and K-Mart on Maple Grove Road.

**Recommendation:** Limit access from Burning Tree Plaza onto Haines Road.

**Problem:** The access onto Haines Road from Burning Tree Plaza is located too close to the intersection of Maple Grove/Haines Road. Vehicles turning left from the Burning Tree Plaza onto Haines Road cause safety concerns.

**Proposed Solution:**

- A. Limit access road from Burning Tree Plaza onto Haines Road to exit only/right turn out only.

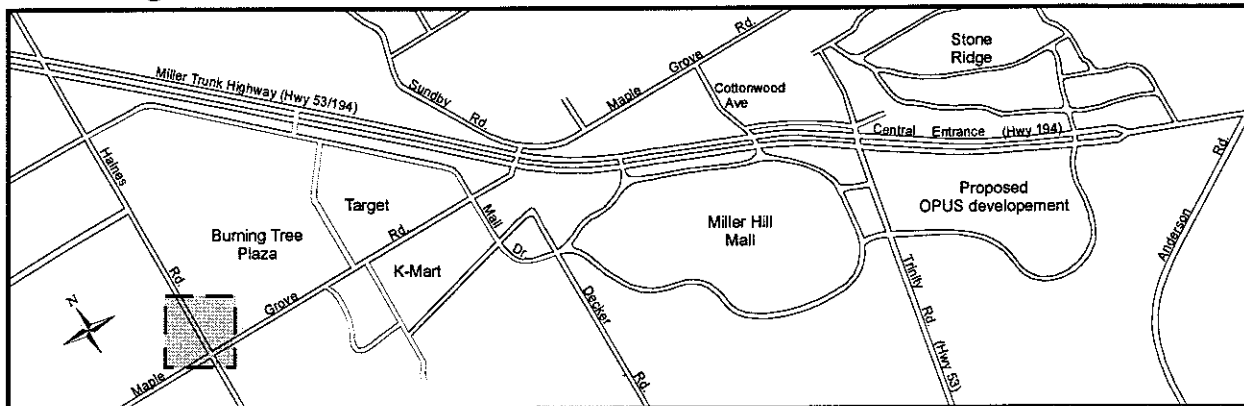
**Estimated Cost (1995):** N/A

**Jurisdiction:** Burning Tree Owners

**Status:**

Complete	Programmed	Planning Process	Not Programmed
X			

**Burning Tree Plaza/Haines Road Intersection**



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**Recommendation:** Improve Piedmont Avenue west of Six-Corners intersection.

**Problem:** The link between Hermantown and the Six-Corners area needs to be preserved. Piedmont Avenue pavement and curb and gutter are deteriorating. Sidewalk, bus stops, curb cuts, and sewer work are other areas that need rebuilding or reconditioning.

**Proposed Solution:**

Implement Piedmont Avenue reconstruction project. Reconstruct 1.8 miles of Piedmont Avenue from Six Corners intersection to Haines Road. This project includes new storm sewer, curb and gutter, sidewalks, and driving surface.

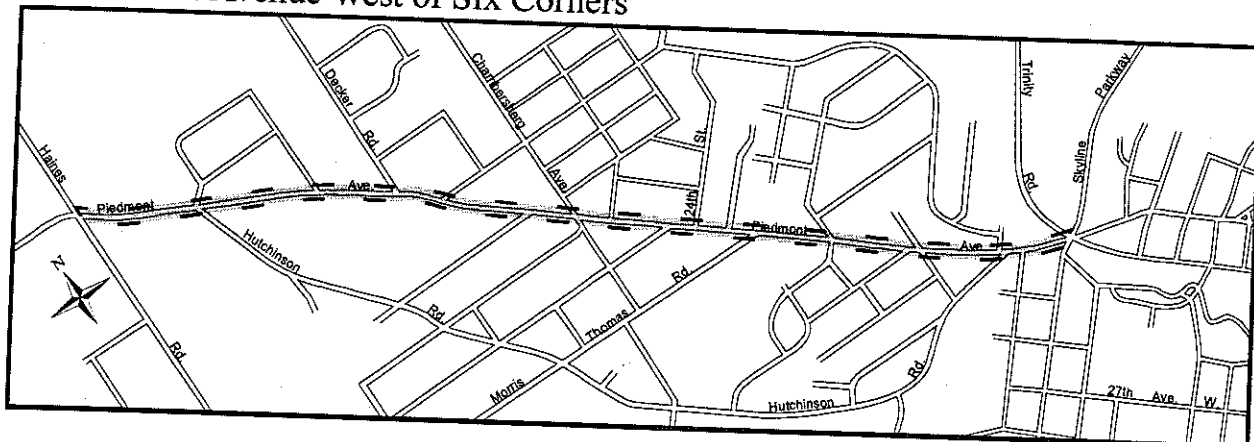
**Estimated Cost (1997):** \$3,100,000

**Jurisdiction:** St. Louis County

**Status:**

Complete	Programmed	Planning Process	Not Programmed
	1998-2000 MIC TIP - FY 2000		

Piedmont Avenue West of Six Corners



**Recommendation:** Install traffic signals at the intersections of Haines Road/Mall Drive, Haines Road/Maple Grove Road, and Maple Grove Road/Mall Drive

**Problem:** These intersections are controlled by stop signs and become congested during times of heavy traffic. The installation and coordination of these signals along with the other recommended improvements in the area will increase traffic mobility in the Miller Hill area.

**Proposed Solution:**

Install and coordinate traffic signals at the intersections of Haines Road/Mall Drive, Haines Road/Maple Grove Road, and Maple Grove Road/Mall Drive.

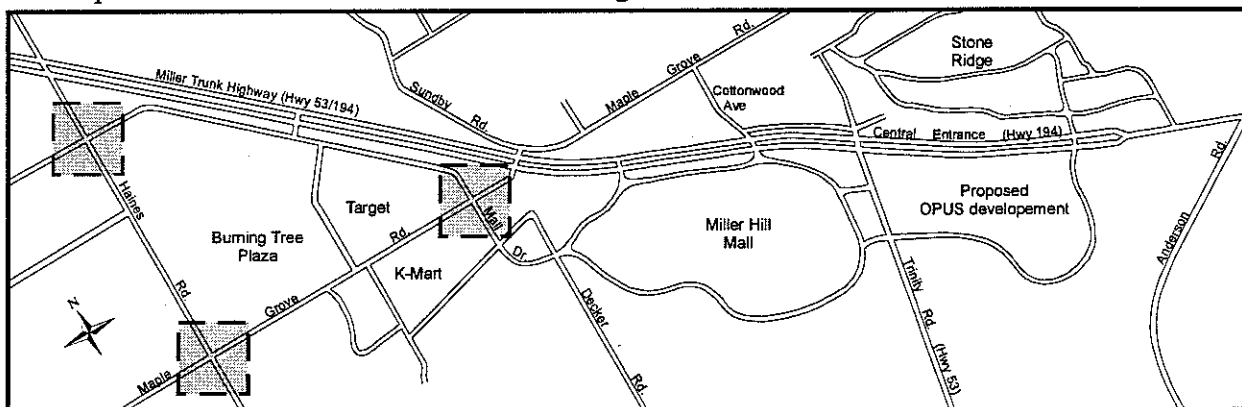
**Estimated Cost:** N/A

**Jurisdiction:** St. Louis County

**Status:**

Complete	Programmed	Planning Process	Not Programmed
	Scheduled for summer 98		

Proposed installations of new traffic signals



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## PEDESTRIAN/BICYCLE

The pedestrian/bicycle recommendations are scaled down from the 1995 Miller Hill Corridor Study. The recommendations in this report focus on the areas directly adjacent to the Miller Hill retail area. All of the recommendations below were included in the 1995 study.

**Recommendation:**    **Improve and develop facilities for pedestrians and bicycles by interconnecting existing sidewalks in commercial areas.**

**Problem:**

A lack of pedestrian and bicycle facilities exists in the Miller Hill area to interconnect the various commercial areas. Dedicated walkways through parking lots are needed to encourage inter-connectivity of sites and encourage walking and biking between commercial sites. The reliance on single occupancy vehicles for movement between adjacent commercial areas contributes to congested roadways. Walkways could link sidewalks that presently exist in front of most commercial establishments. Such facilities would increase safety and allow an opportunity for aesthetic enhancement of commercial areas. Curb cuts for wheelchair access to sidewalks should also be a component of any planned improvements.

Cost estimates for walkways within commercial sites have not been calculated. Design of such facilities could vary significantly depending on location. Exact sidewalk specifications including cost is best left for the developer/owner of a commercial site and the appropriate governmental jurisdiction to negotiate. These recommendations only state that internal sidewalk/bikeway facilities should be accounted for in development review of commercial areas.

**Proposed Solutions:**

- Provide an internal walkway/access to K-Mart and Target from Maple Grove Road.
- Construct a new sidewalk on the south side of Maple Grove Road from Mall Drive to the intersection with Highway 53.
- Construct a sidewalk on the west side of Burning Tree Road between Mall Drive and Mountain Shadow Drive. Provide internal walkway/access to Super One Grocery Store, Burning Tree Plaza and Village Mall West.
- Construct a sidewalk on the south side of Mt. Shadow Drive between Burning Tree Road and Mall Drive. Provide an internal walkway/access to Village Mall East.

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- Construct a sidewalk and/or bike pathway on the south side of Highway 53 between Maple Grove Road and Trinity Road. This would provide a non-motorized method of travel adjacent to the roadway. Right-of-way does exist to build such a facility. Internal walkways should be provided to link the proposed facility with the mall.
  - Construct a sidewalk on side of Cottonwood Avenue between Highway 53 and Maple Grove Road.
  - Construct a sidewalk and/or bike pathway on the north side of Highway 53 (or the south side of North Frontage Road) between Cottonwood Avenue and Joshua Avenue.
  - Construct a sidewalk on the west side of Joshua Avenue between Highway 53 and a proposed bike/pedestrian path that would extend eastward toward the Stone Ridge Plaza.
  - Construct a bike/pedestrian pathway through the Stone Ridge Plaza from Joshua Avenue eastward to the Sundby Road cul-de-sac east of Cub Foods. Internal walkways should be provided to the major retail stores at this shopping center from the main pathway.
  - Construct a sidewalk along the Sundby Road cul-de-sac east of Cub Foods to Central Entrance.
  - Construct a sidewalk on the south side of Central Entrance from the Anderson Road intersection to the point where the sidewalk does exist (near Teak Avenue; approximately 500 feet). Sidewalk would then exist on both sides of Central Entrance between Anderson Road and Arlington Avenue.

### **Intersections**

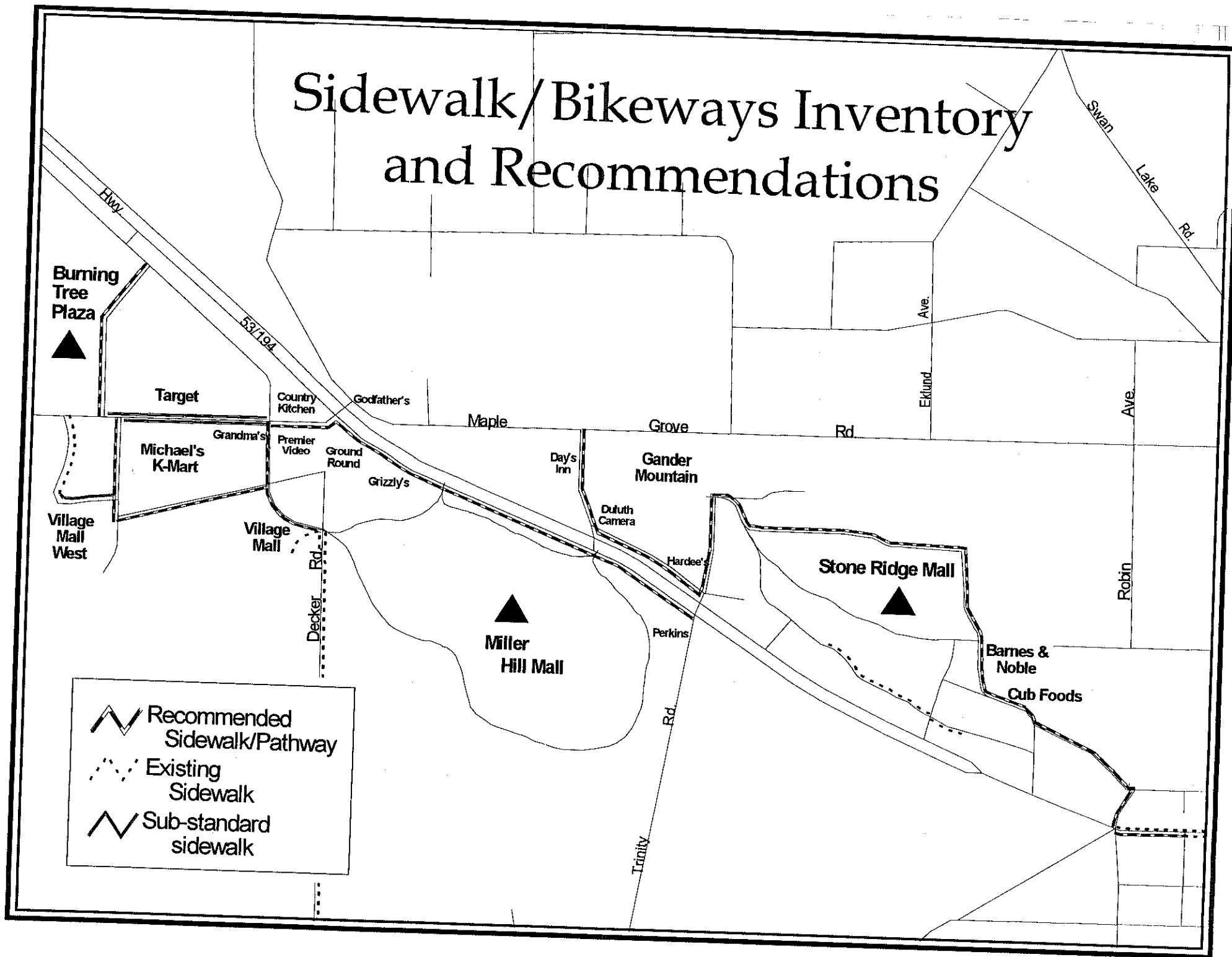
Crosswalks with full signalization and pavement markings are recommended at the following intersections:

- Maple Grove Road/Haines Road
- Maple Grove Road/Burning Tree Road
- Maple Grove Road/Mall Drive
- Maple Grove Road/Highway 53
- Highway 53/Central Entrance/Trinity Road/Joshua Avenue
- Six Corners intersection at Piedmont Avenue/Skyline Drive/Trinity Road/24<sup>th</sup> Avenue West
- Decker Road/Mall Drive/Miller Hill Mall Entrance \*
- Trinity Road/Miller Hill Mall Entrance/OPUS Entrance\*
- Central Entrance/Stone Ridge Plaza/OPUS Entrance\*

\*contingent upon development



# Sidewalk/Bikeways Inventory and Recommendations



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# TRANSIT

## **Existing Transit Service:**

The Duluth Transit Authority (DTA) currently operates three regular routes that service the Miller Hill Corridor: Lakeside/Mall Route, West 4<sup>th</sup> Blvd./Eklund/Mall Route, and Duluth Heights/Mall Route.

In connection with their regular route, the DTA provides service between the Miller Hill Mall, Target, and K-Mart. The Mall Area Short Hop or MASH has a fare of 25 cents.

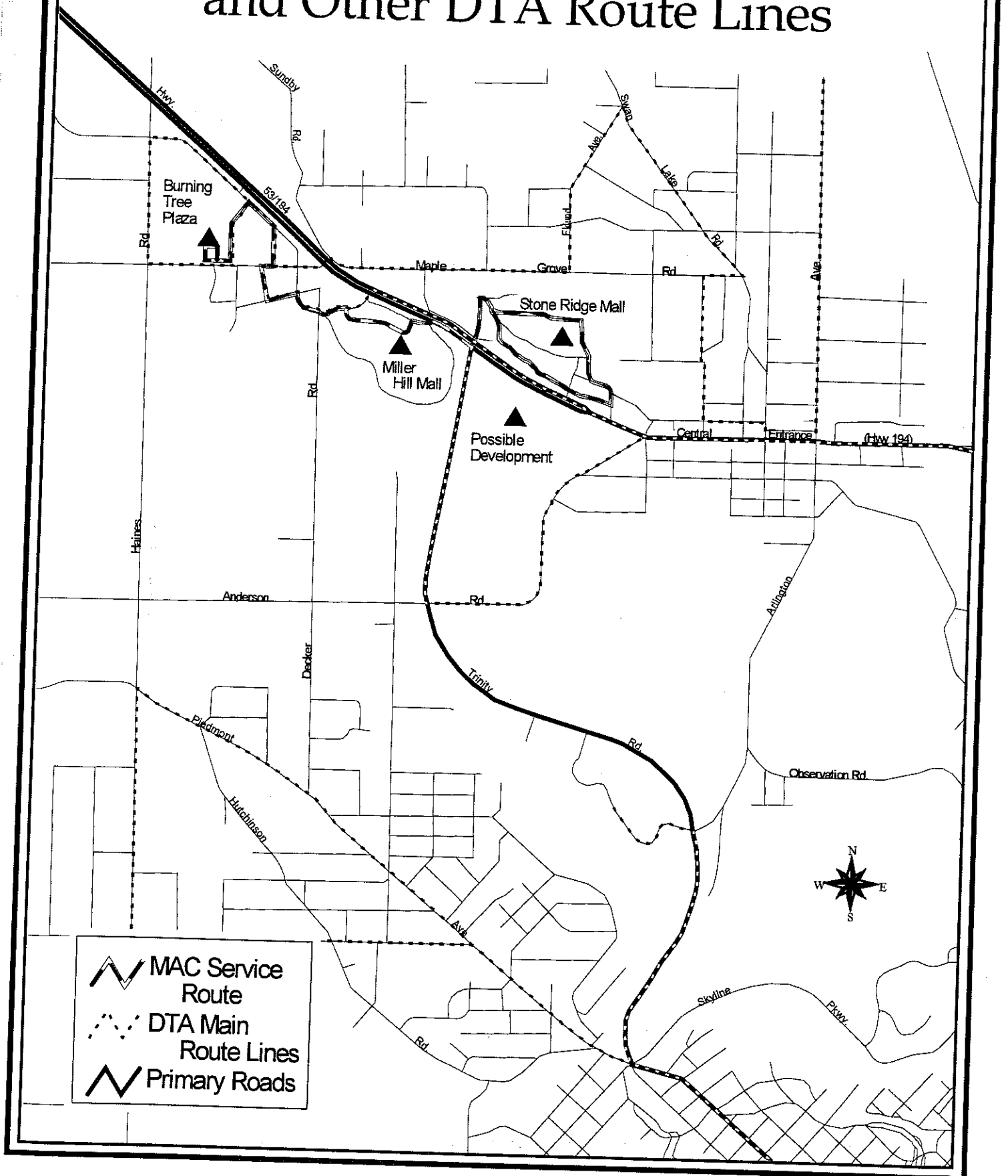
The DTA operates a shuttle bus service within the Miller Hill Shopping Corridor. The Mall Area Connector (MAC) circulates between the Miller Hill Mall, Stone Ridge Mall, Target, K-Mart, Super One, and Burning Tree Plaza. The fare is 25 cents and MAC buses are handicapped accessible.

The DTA also operates the STRIDE program, which provides transport for disabled individuals who are unable to ride regular route service. Stride is a demand-based operation that serves the entire Duluth-Superior area.

## **Transit Recommendations/Status**

<b><u>1995 Transit Recommendations:</u></b>	<b><u>1998 Status</u></b>
<i>Add MAC service to other retail sites in the Miller Hill Corridor.</i>	Demand for MAC service is low at this time. If demand increases service can be expanded.
<i>Add more direct service routes from other parts of the city.</i>	Direct route from West Duluth to Miller Hill has been modeled and is under consideration for implementation.
<i>Examine the potential for a transit hub in the Miller Hill Corridor.</i>	Recommendation is also from the Vision for Transit and is a long-term goal of the DTA.
<i>Implement Park &amp; Ride Lots in the Miller Hill Corridor.</i>	One lot has been established at the corner of Piedmont Avenue and Haines Road. Continue to monitor need for additional lots.
<i>Implement Travel Demand Management Strategies in the Miller Hill Corridor.</i>	Continue monitoring MAC and MASH services and other TDM strategies for need.
<i>Transit Site Design Issues.</i>	DTA should be involved in site plan analysis for any new development.

# Miller Trunk Corridor with MAC and Other DTA Route Lines



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# Traffic Analysis for 1998 OPUS Development Proposal

## Introduction

The driving force behind the 1995 Miller Hill Traffic Corridor Study was the proposal of two large developments in the Miller Hill area. The Simon Development Corporation proposed expanding the Miller Hill Mall by almost 50% and the OPUS Corporation proposed a 287,000 square foot shopping center at a 35 acre site located south of Stone Ridge Mall across Central Entrance/Highway 194 and east of Miller Hill Mall on Trinity Road/Highway 53. The addition of these two developments would have had a significant impact on the roadway network in the Miller Hill area.

Since the completion of the 1995 study, neither development has taken place. Both development proposals were on a City of Duluth referendum in November 1995. Voters approved the Simon development but the OPUS development proposal was defeated. Since that time, Simon has not indicated when or if they will expand the Miller Hill Mall and OPUS has changed the scope of their development proposal with a scaled down version. This analysis focuses on the new OPUS development proposal and the effect it will have on the adjacent roadway system.

The following is a comparison of the major elements of the two OPUS site proposals.

### 1995 OPUS Proposal

- Shopping Center - 261,000 sq. ft.
- 2 Fast Food Restaurants
- Sit-Down Restaurant - 6000 sq. ft.
- Retail Site (General) - 8000 sq. ft.

### 1998 OPUS Proposal

- Shopping Center - 160,000 sq. ft.
- Sit-Down Restaurant - 6000 sq. ft.
- Hotel - 80 rooms
- Bank - 5000 sq. ft.

## Trip Generation

This analysis will examine how the 1998 OPUS proposal affects the adjacent roadways around the development site.

### General Assumptions

- The traffic analysis from 1995 Miller Hill Traffic Corridor Study is still valid.
- The traffic patterns remain largely unchanged from 1995.

### Methodology

- Trip generation rates for the 1998 OPUS development proposal were derived from the ITE Trip Generation Manual.
- A reduction of 30% was used to account for linked trips within the development. A linked trip is defined as a trip that attracts people to businesses that have a shared driveway and parking facility.

- A reduction factor was applied to reflect lower trip generation projections for the Miller Mall area as compared to national averages. Historically, the Miller Hill Mall area has generated approximately 86.8 percent as many trips as a retail facility of similar size.
- A reduction factor of 41.5% was used to account for pass-by trips. Pass-by trips are defined as trips coming directly from the traffic stream on the street adjacent to the retail facility. The stop at the retail facility is not the primary purpose of the trip. This traffic would be on the adjacent roadway regardless of the location of the retail business.
- An overall driveway count was derived for the 1998 OPUS proposal and compared to the 1995 OPUS proposal driveway count.

**Table 1**

<b>Unadjusted Trips</b>			
<b>Land Use</b>	<b>Size</b>	<b>Daily Trip Rate</b>	<b>Daily Volumes</b>
Shopping Center	160,000 sq. ft.	64.47	10,085
Restaurant	6000 sq. ft.	200.895	1205
Hotel	80 rooms	7.99	645
<b>Total</b>			<b>11,935</b>

Trip generation rates for a multi-purpose development differ from the individual components of the project. One trip to a multi-purpose development can satisfy a number of trip purposes at the same time. It is assumed that trip generation rates are lower for multi-purpose developments than for each of the individual components of the project. A reduction of 30% was applied to the restaurant because it is assumed that the restaurant patrons may shop as part of this trip or be guests at the hotel.

**Table 2**

<b>Reduction for Multi-Purpose Linked Trips</b>	
Restaurant generated trips	1,205
Restaurant reduction rate	30%
<b>Restaurant total reflecting multi-purpose linked trips</b>	<b>844</b>

Some land uses such as retail establishments and restaurants attract traffic from the passing stream of traffic. This traffic, called pass-by trips, is not considered newly generated traffic from retail developments. One example of a pass-by trip may be someone stopping at a retail site on his or her trip home from work. In this example the retail site did not generate this trip. A reduction of 41.5% was used to account for pass-by trips and applied to the retail and restaurant operations.

**Table 3**

<b>Reduction for Pass-by Trips</b>	
Shopping Center	10,085
Restaurant	844
Pass-by reduction rate	41.5%
<b>Restaurant and shopping center total reflecting pass-by trips</b>	<b>6393</b>

The Miller Hill Mall area trip generation rates are lower than national averages. Adjustments were made to reflect a more accurate representation of projected trips generated from the proposed OPUS development.

**Table 4**

<b>Reduction for Lower Trip Generation Rates than National Average</b>	
Hotel (Table 1) + Shopping Center and Restaurant (Table 3)	7038
Miller Mall Rate of Actual Count/ITE	86.8%
<b>Anticipated 1998 OPUS Driveway Count</b>	<b>6109</b>

After reduction factors are taken into account, the anticipated driveway counts for the 1995 and 1998 OPUS proposals are compared.

**Table 5**

<b>Difference in Generated Traffic of OPUS Proposals 1995 &amp; 1998</b>	
Anticipated 1995 OPUS Driveway Count	12,900
Anticipated 1998 OPUS Driveway Count	6109
Percent of 1995 Proposal	<b>47%</b>

### **Conclusion**

The size and type of retail facilities at the proposed OPUS development dictate how many trips will be generated. The major differences in the 1995 proposed development and the 1998 proposed development are the smaller shopping center and the lack of fast food restaurants in the 1998 proposal. These two differences lower the overall traffic impact of the new proposal.

The result of this trip generation analysis shows the 1998 OPUS proposal is anticipated to generate 47% of the traffic that the 1995 OPUS proposal was predicted to generate. If the recommendations of the 1995 Miller Hill Corridor Traffic Study are carried out, the roadway system adjacent to the proposed site will be able to handle the increase in traffic.

Note: Braun Intertec performed traffic analysis for OPUS as part of the Environmental Assessment Worksheet. The results of their traffic generation analysis were similar to the above information.

## Intersection Analysis (1998 OPUS Development)

### Methodology

- Three intersections were analyzed (Miller Trunk Hwy & Stone Ridge Drive, Miller Trunk Hwy & Trinity Road, and Trinity Road and South Mall Entrance) to determine the impact of peak hour traffic on the closest intersections to the proposed development.
- Actual 1995 Turning Movement Counts (TMC) were compared with TMC from the 1995 proposed OPUS development to determine the proportional distribution of turning movements.
- The difference between the actual 1995 TMC and anticipated 1995 OPUS Development TMC was multiplied by .47 (derived from Trip Generation Analysis) to reflect the lower impact of the new OPUS proposal.
- The anticipated impact of the 1995 Miller Hill Mall Simon Expansion was added to the anticipated impact of the 1998 OPUS Project to examine total potential peak hour impact at the three intersections.

### Miller Trunk Hwy. & Trinity Rd. Turning Movement Counts - P.M. Peak Hour

#### 1995 Existing

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
107	924	112	243	1032	77	184	77	110	30	74	58

#### Proposed 1998 OPUS Development

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
107	1012	151	290	1113	77	238	90	136	32	85	58

#### Proposed 1998 OPUS Development with Potential Miller Hill Simon Development

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
115	1136	214	301	1293	77	315	96	144	32	88	62

## Central Entrance & Stone Ridge Drive Turning Movement Counts - P.M. Peak Hour

### 1995 Turning Movement Counts

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
227	964	0	92	1232	160	0	0	0	185	0	128

### Proposed 1997 OPUS Development

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
219	933	128	177	1319	171	72	4	128	207	4	143

### 1997 OPUS Development with Potential Miller Hill Simon Development

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
233	991	128	183	1393	181	72	4	128	216	4	149

## Trinity Rd. & South Mall Entrance Turning Movement Counts - P.M. Peak Hour

### 1995 Turning Movement Counts

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
70	0	90	0	0	0	119	491	0	0	445	52

### Proposed 1997 OPUS Development

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
72	24	92	106	24	71	121	498	91	61	447	52

### 1997 OPUS Development with Potential Miller Hill Simon Development

Eastbound			Westbound			Northbound			Southbound		
L	T	R	L	T	R	L	T	R	L	T	R
100	24	128	106	24	71	168	527	91	61	447	72



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### **Conclusion**

The results of the intersection analysis are consistent with the trip generation analysis. The 1998 proposed OPUS commercial development will add less than half the traffic to adjacent intersections than was anticipated with the 1995 OPUS proposal.

### **Trip Distribution (OPUS Development)**

#### **Assumptions**

- The traffic counts from 1995 Miller Hill Study are still valid.

#### **Methodology**

- Trip distribution ratios were derived from the TRANPLAN Transportation Model.
- Trips were distributed onto adjacent roadways based on the TRANPLAN ratios, which operates much like a gravity model.

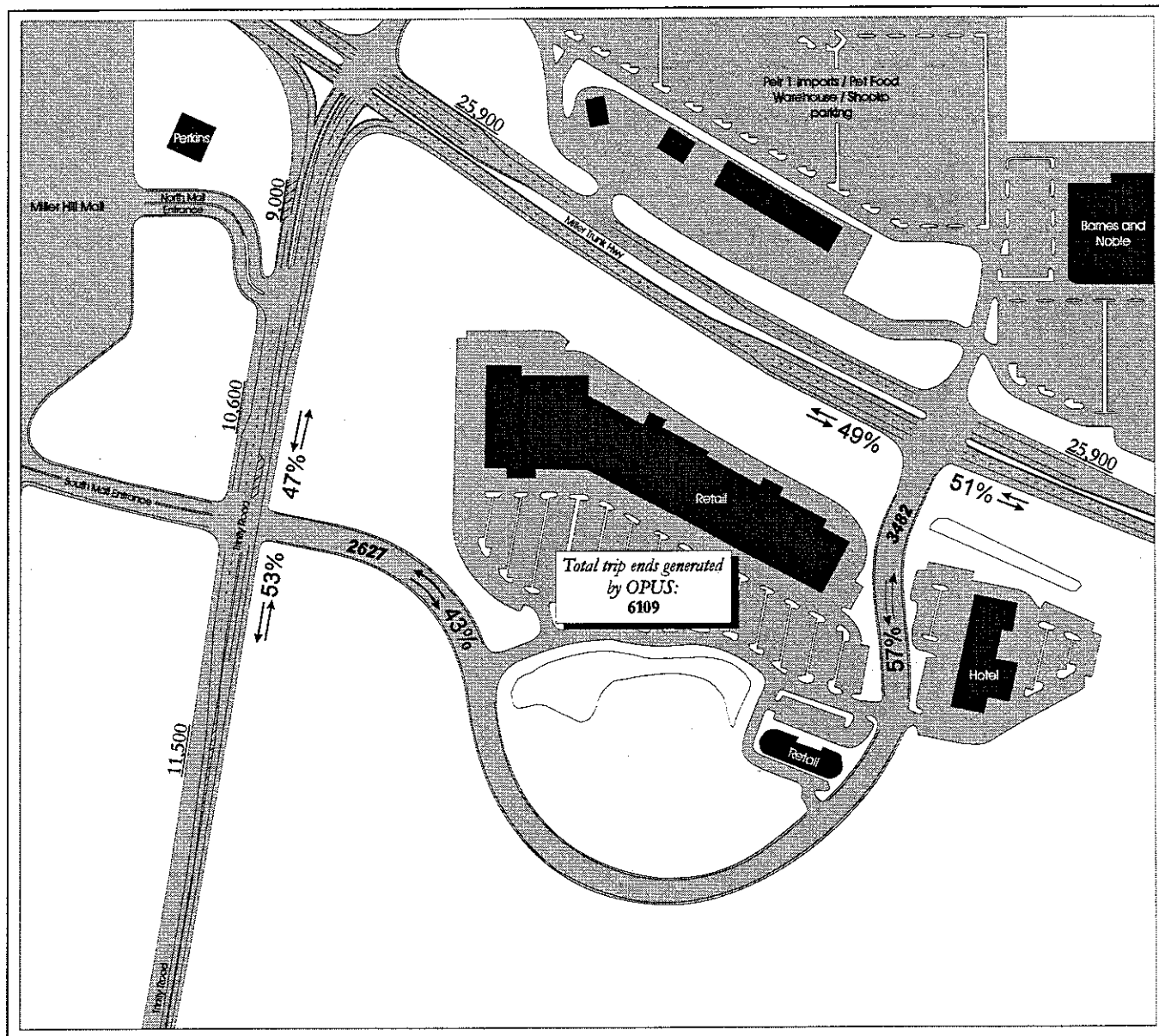
See map titled "Proposed OPUS Development: Trip Generation and Distribution" for distribution of trips generated by the proposed OPUS commercial development (page 44). The proposed OPUS commercial site is anticipated to generate 6109 trip ends per day. Of those trips, 57% are anticipated to enter and exit on Central Entrance at the intersection across from Stone Ridge Mall. The other 43% of OPUS generated traffic will enter and exit at the Trinity Road intersection across from Miller Hill Mall. Of the traffic entering and exiting on Central Entrance, 49% will have an origin/destination from the west and 51% will have an origin/destination from the east. At the Trinity Road exit/entrance, 53% of the traffic will have an origin/destination from the south while 47% will use the north leg of Trinity Road.

### **Conclusion**

This trip distribution analysis graphically shows where traffic generated by the proposed development will enter the adjacent roadway system. Recommended changes in the road system near this development (see pages 14,16,& 20) will accommodate increased traffic.

As stated in the Environmental Assessment Worksheet completed as part of the OPUS development proposal, the developer will be responsible to make improvements to the intersections at the OPUS access road and Trinity Road and Central Entrance. Other intersections in the area identified in this plan need improvements regardless of whether this project proceeds or not.

# Proposed OPUS Development: Trip Generation and Distribution



## Key

- 1234 Average Daily Traffic
- ← 50% Trip Distribution
- 1234 Trip Ends Generated by OPUS Proposal



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## Summary

The 1995 Miller Hill Corridor Traffic Study detailed strategies to alleviate current traffic problems and deficiencies in the corridor with a series of recommendations. The recommendations were developed to maintain the function and integrity of the major roadways in the Miller Hill area. The intention of this status report is to review progress in implementing these recommendations. The MIC policy board directed staff to concentrate on the immediate and short-term problems. Thus, the focus of this report has been to determine jurisdictional responsibility of the short-term recommendations and facilitate communication among jurisdictions in order to proceed with implementation of the recommendations.

A table summarizing all the short-term recommendations is on page 11. This table shows a status of what has been accomplished to date. Each short-term recommendation is summarized in detail on pages 12-34. Each recommendation is documented indicating its location and includes a diagram of the recommended changes. The status table and the short-term recommendation section give the reader a clear impression of the progress in implementing the recommendations from the 1995 Miller Hill Corridor Traffic Study. It also shows the reader what still needs to be done to address the deficiencies in the Miller Hill Corridor.

This status report is a step in the continuing implementation of the 1995 Miller Hill Corridor Traffic Study. The role for the MIC at this stage in the process is to continue monitoring any significant changes in the corridor. The MIC will also promote communication between jurisdictions and facilitate meetings to assist in improving traffic flow in the Miller Hill corridor.