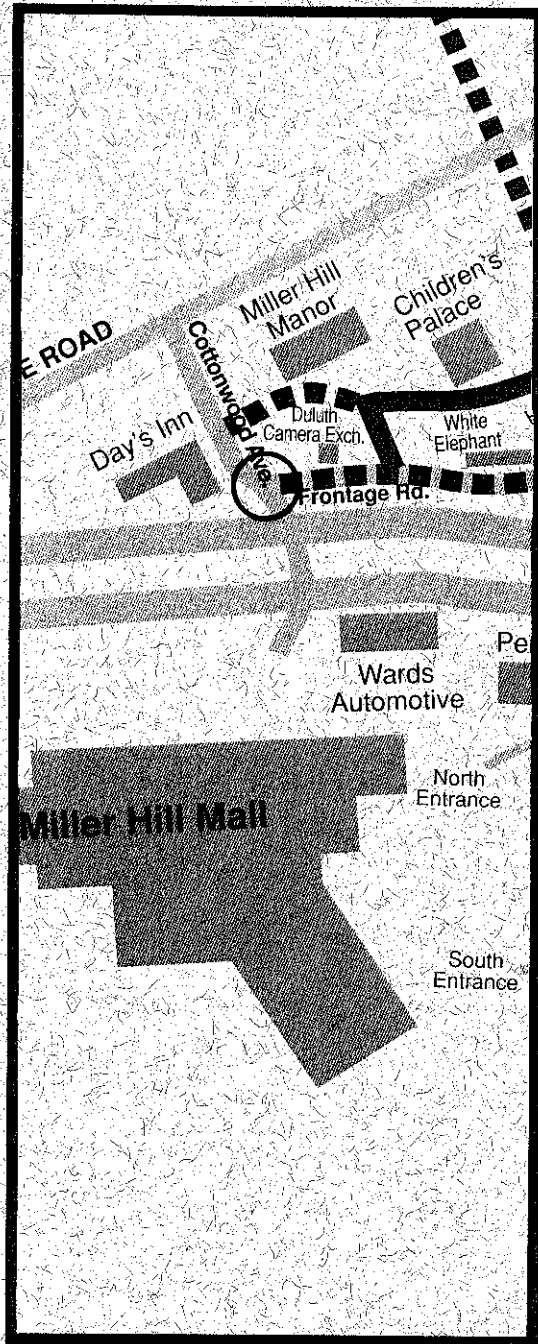


MILLER TRUNK HIGHWAY CORRIDOR TRAFFIC ANALYSIS STUDY

February 1992

Prepared by the
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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This study was funded by the Federal Highway Administration, Minnesota Department of Transportation, Wisconsin Department of Transportation, the Northwest Regional Planning Commission and the Arrowhead Regional Development Commission.

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MILLER TRUNK HIGHWAY CORRIDOR TRAFFIC ANALYSIS STUDY**

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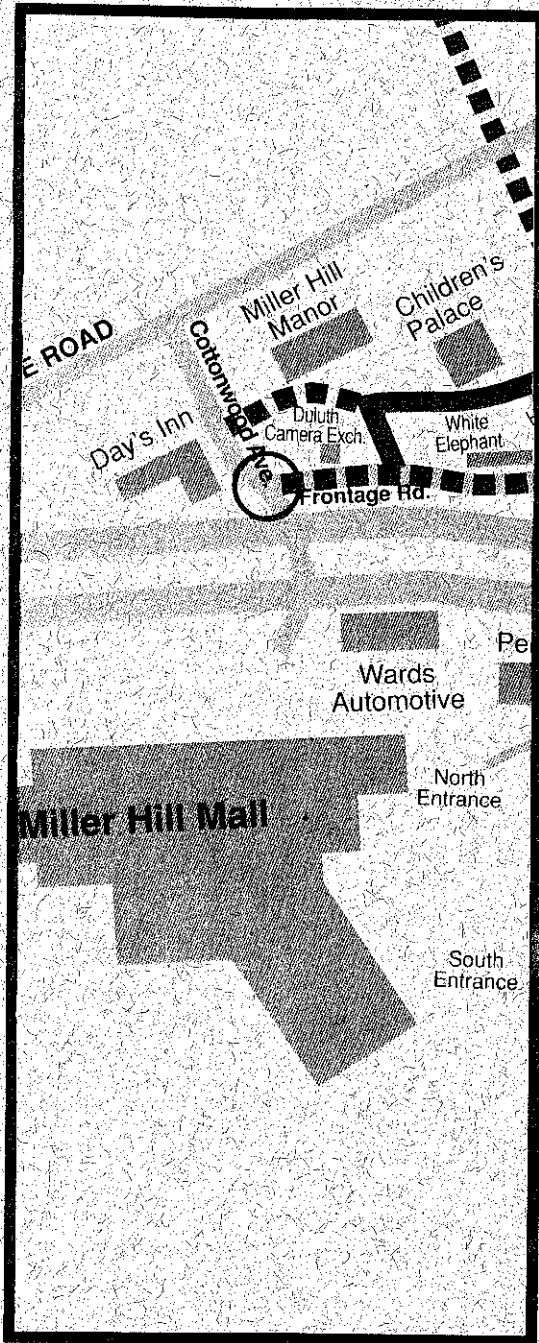
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Introduction and Methodology

INTRODUCTION

The Miller Hill corridor is a rapidly expanding commercial district located adjacent to Trunk Highways 194 and 53, also known as the Miller Trunk Highway, in the cities of Duluth and Hermantown. The roadway serves as the major transportation link between downtown Duluth, Hermantown and outlying northern residential communities. It also serves the bulk of traffic traveling between the Iron Range communities and the Duluth-Superior area.

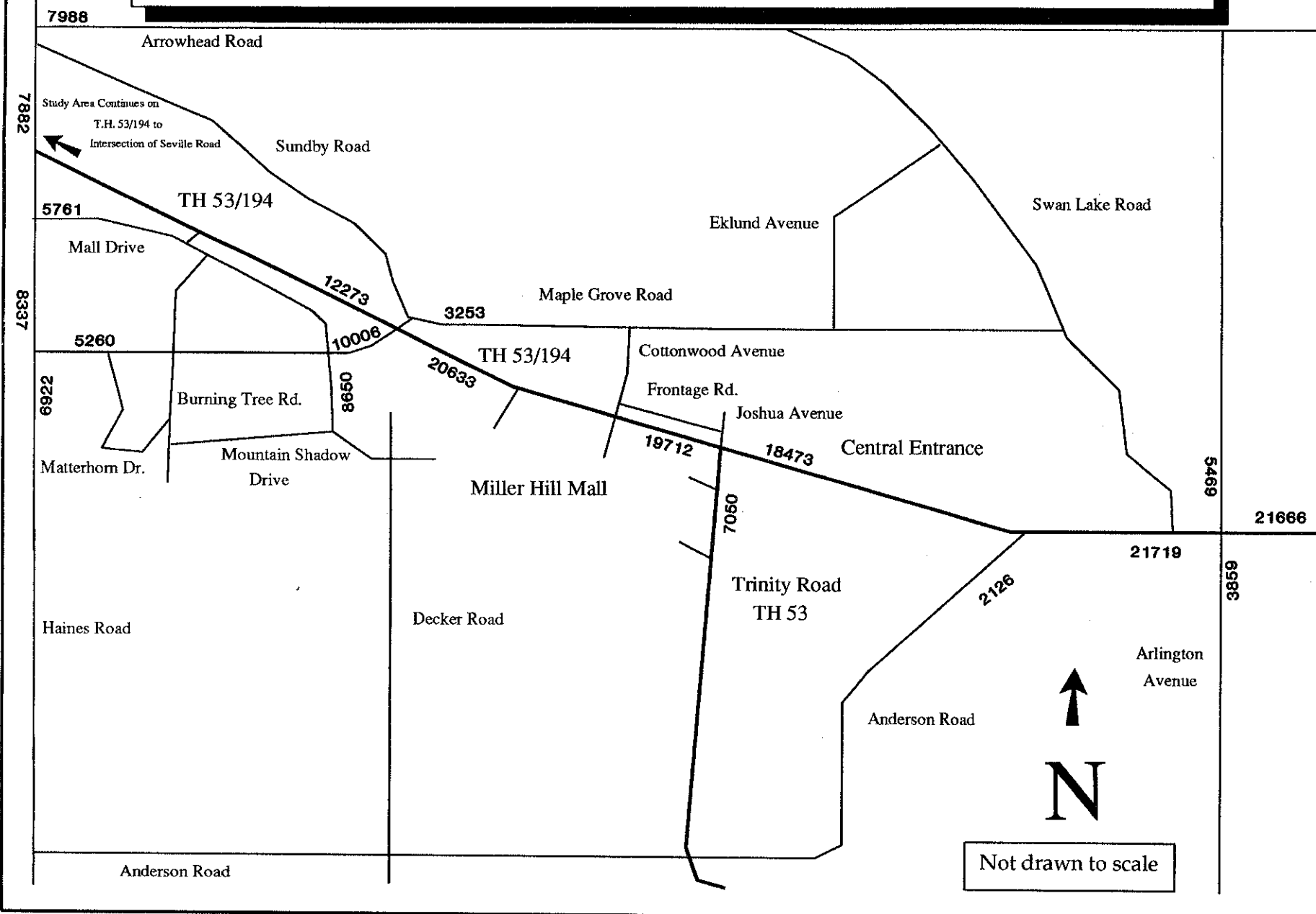
Commercial strip development along this route has grown steadily since the 1960's. The opening of the Miller Hill Mall in 1973 stimulated the development of adjacent sites as retail goods and service facilities. This rate of development accelerated following the recovery of the regional economy in 1984. The end of the recession and the Miller Hill Mall management's confidence in the potential for a rise in retail sales for the Duluth-Superior market prompted a major expansion of the Miller Hill Mall in 1987. The expansion included the construction of a new Sears department store as the anchor to an extension of the Mall's shopping concourse. The effective result of this has been the doubling of the commercial square footage in the Miller Hill Mall.

Other commercial development is expanding further north along Trunk Highway 53/194, including Knox and Menards building supply centers and Walmart department store. Undeveloped areas in the immediate Miller Hill Mall area are filling in with commercial development, such as the Children's Palace which located across from the Miller Hill Mall and a new shopping center being proposed just south of the Miller Hill Mall on Trunk Highway 194. The Miller Trunk Highway corridor commercial area now serves a larger regional market, including shoppers from northeastern Minnesota, northwestern Wisconsin, Ontario and Upper Michigan.

Frequent requests for new driveway accesses to the trunk highways, commercial-residential land use conflicts, environmental concerns, and interrupted traffic flows have prompted the Duluth-Superior Metropolitan Interstate Committee to undertake this study of the corridor area. The Miller Trunk Highway Corridor Traffic Analysis recommends access points, and intersection and roadway improvements to the area based on the existing and projected traffic volumes and level of service analysis. The study area covers land areas lying on either side of Trunk Highways 194 and 53 in the cities of Duluth and Hermantown from Arlington Avenue to Seville Road.

Once adopted by the Metropolitan Interstate Committee (MIC), the recommended improvements in this study will be condensed into an Implementation Plan. This plan will include potential dates for construction, estimated improvement costs, and responsible implementing jurisdictions. This plan will be periodically reviewed and updated by the MIC. In addition to the Implementation Report, the MIC will also publish a Technical Report that will contain the technical information used in developing the recommendations.

Miller Trunk Highway Corridor Traffic Analysis - 1990 Average Daily Traffic Volumes



Source: Minnesota Department of Transportation, City of Duluth, Metropolitan Interstate Committee

METHOD

The Miller Trunk Highway Corridor Traffic Analysis was guided by an advisory committee consisting of planning, engineering, safety and policy representatives from the City of Hermantown, the City of Duluth, St. Louis County, the Minnesota Department of Transportation (MNDOT), the Duluth Transit Authority and a Miller Hill Area Merchants representative. Over a period of approximately one year, the technical subcommittees met and reviewed data collected, conducted field surveys and made recommendations. A summary of the methods used to collect and analyze data follows.

Traffic and Pedestrian Volume Counts

Average daily traffic and peak hour traffic volumes of key arterials and intersections within the study area were obtained through a coordinated effort of the Minnesota Department of Transportation, the City of Duluth, the Miller Hill Mall and the Metropolitan Interstate Committee. Average daily traffic volume of key arterials were obtained through tube counts conducted by the Minnesota Department of Transportation and the City of Duluth.

The Metropolitan Interstate Committee conducted turning movement and pedestrian counts at key intersections using an "IDEAS" software package with a Titan 64 Data Recorder. The Wisconsin Department of Transportation provided training and assistance in the use and operation of the software and data recorder. Intersection turning movement counts were factored to average daily traffic volume through the assistance of the Minnesota Department of Transportation.

The Miller Hill Mall provided a print-out of the daily count of vehicles entering the five mall entrances.

Accident Rate Analysis

Accident rates of key intersections on Trunk Highway 53/194 within the study area were obtained from the Minnesota Department of Transportation.

Field Surveys

Several field surveys were conducted to obtain information on the location of trunk highway crossovers, driveway entrances, intersection geometrics and major landmarks. This information was then used to create several maps used during the study process. Sub-committees also conducted field surveys of the entire study area before discussing and making recommendations.

Current Land Use, Zoning, Property and Aerial Maps

A series of aerial maps of the study area obtained from the City of Duluth and the Minnesota Department of Transportation, and current land use, zoning and property maps were used to assist in the study process.

Level-of-Service for Intersections

Initially, plans were to use the Highway Capacity Software and turning movement counts to determine a level-of-service for each key intersection. All signals on the trunk highways within the study area have a fully actuated type of signal control. This means all signal phases are controlled by detector actuations. In this form of control, cycle lengths and green times may vary considerably in response to demand. Certain phases in the cycle may be optional, and may be skipped entirely if no demand is sensed by detectors. Under this type of operation, traffic on roadways intersecting the main thoroughfare are monitored, "actuating" a green signal.

It was determined that the Highway Capacity Software did not give an accurate level-of-service for these fully actuated signals. Instead, the Minnesota Department of Transportation, based on years of experience in calibrating the timing of the signals, estimated the level-of-service for all key intersections within the study area to be level C or higher during peak hour. Level of service C or better indicates that the intersection functions with a stable flow of traffic with minor inconveniences to drivers.

Site Impact Analysis of Potential Developments

Several proposed land developments were examined in the corridor. Watson Centers has proposed an approximately 287,000 square foot shopping center north of T.H. 53 near the intersection with Trinity Road. A review of the Traffic Impact Analysis Study of the Watson Centers development (Klaers, Powers and Associates, January 1988) and Supplementary Traffic Impact Analysis (Klaers, Powers and Associates, May 1989) was conducted to determine if the projected traffic impact results needed revision and updating. MNDOT and MIC review concurred with the results of the study.

A Walmart department store is currently under construction at a location south of T.H. 53 west of Haines Road in Hermantown. Other proposed developments examined as part of the study include a combination retail/residential development north of T.H. 53 across from the Target store and a motel/residential development to be located south of the Village Mall. The traffic impacts of each of these potential developments were discussed by the Study Advisory Committee. Impacts of the proposed developments are included in the section entitled "Impact of Proposed Land Development Concepts" on page 49.

ACCESS MANAGEMENT

Trunk Highway 194/53 through Duluth and Hermantown serves as a principal arterial, carrying a high volume of traffic to major centers of activity in the metropolitan area. It connects to minor arterials which distribute travel to smaller activity centers and geographic areas within the urban area. Access to the trunk highway, in the form of intersections, crossovers and driveways, is limited to permit a faster, safer and more efficient flow of traffic. Turn lanes serve to remove turning vehicles from the main traffic flow. Service roads are utilized to separate slower moving vehicles traveling to centers of activity located along the trunk highway.

Techniques of Access Management:

1) Limit number of conflict points

These techniques directly reduce the frequency of either basic conflicts or encroachment conflicts, or reduce the area of conflict at some or all driveways on the highway by limiting or preventing certain kinds of maneuvers.

2) Separate basic conflict areas

These techniques either reduce the number of driveways or directly increase the spacing between driveways and intersections. They indirectly reduce the frequency of conflicts by separating turning vehicles at adjacent access points and by increasing the decision-process time for the through driver between successive conflicts with driveway vehicles at successive driveways.

3) Reduce deceleration requirements

These techniques reduce the severity of conflicts by increasing driveway turning speeds, by decreasing through highway speeds or by increasing driver perception time.

4) Remove turning vehicles from the through lanes

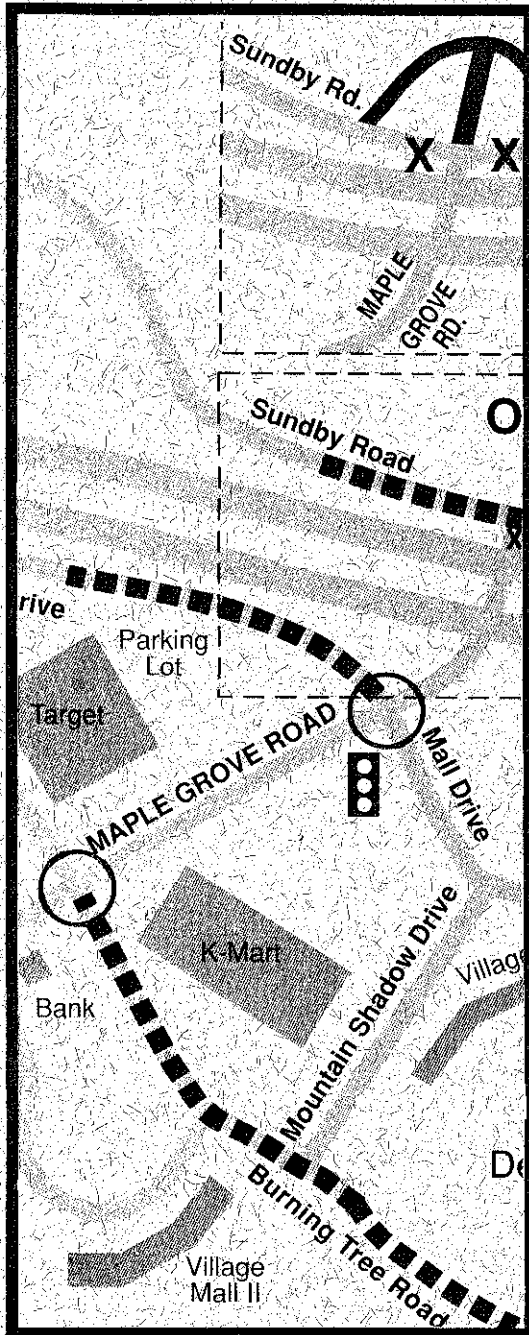
These techniques directly reduce both the frequency and severity of conflicts by providing separate paths and storage areas for turning vehicles.

Using these functional objectives as a guide, 66 alternative actions or techniques have been identified. A description of each of these techniques is available through the MIC.

Recommended Access Management Guidelines:

As a first step, the Study Advisory Committee discussed access management guidelines to guide their recommendations and future transportation planning within the study area. The committee developed specific short and long term recommendations by applying these guidelines to existing and future conditions within the study area. The committee recommended:

- 1) intersection improvements, including signalization and geometric changes, based on existing accident rates, turning movement counts and level-of-service estimates;
- 2) road extensions and the extension and/or creation of service roads to improve traffic flows by looking at overall traffic patterns, new developments and problem areas;
- 3) closure or movement of driveways and crossovers and the addition of turn lanes on the trunk highway to improve traffic flows;
- 4) transit involvement and new research areas, based on current service to and within the study area and future development plans;
- 5) the establishment of an official bicycle route by the City of Duluth and an addition to the current bicycle route, based on existing bicycle routes and access needs; and
- 6) the establishment of policies concerning pedestrian traffic in existing and future developments, based on existing pedestrian counts at intersections and problem areas.



Recommendations for Duluth

- ***Intersections***
- ***Service Roads***
- ***Median Crossovers***
- ***Access***
- ***Roadway Changes***

INTRODUCTION

This section will examine major intersections, service roads, median crossovers, and driveway access points in the section of the corridor that is within the City of Duluth and recommend improvements to overcome deficiencies identified by the Study Advisory Committee. The following sections will examine these transportation facilities along the corridor within the city of Hermantown.

For each identified area, a brief definition of the problem is stated, followed by recommended improvements to overcome the noted deficiency. The identified areas and recommendations are organized geographically beginning with the easternmost intersection of the corridor and working to the west. The unit of government responsible for implementing the proposed recommendations is given in parenthesis after each recommendation.

Intersection of Arlington Avenue and Central Entrance

Problem: A problem with delays to left turning vehicles from both north and southbound lanes on Arlington Avenue onto Central Entrance due to high turning movements. This intersection connects a residential area, Duluth Heights, with the commercial development along Central Entrance. Residents are concerned about the lack of sidewalks on Arlington Avenue. Arlington also changes from four lanes on the north leg of the intersection to two lanes on the south leg, causing confusion for motorists and pedestrians.

Short Range Recommendations:

Stripe the north and south legs of Arlington Avenue to provide left turn lanes. Protected left turn signal phases for northbound and southbound traffic on Arlington Avenue should be investigated. (Minnesota Department of Transportation, St. Louis County)

Remove parking on both sides of Arlington Avenue south of Central Entrance. Recommend that all new construction along Arlington Avenue include sidewalks. (St. Louis County)

Intersection of Anderson Road and Central Entrance

Problem: Robin Avenue provides access to residential area south of Central Entrance. The avenue intersects with Central Entrance at a point just east of the major intersection at Anderson Road/Central Entrance. This causes problems with turning vehicles on Central Entrance.

Short Range Recommendations for Anderson Road and Central Entrance:

Construct right turn lane on eastbound Central Entrance for Robin Avenue entrance. (Minnesota Department of Transportation)

Long Range Recommendations:

If infill development along Palm Street occurs, close Robin Avenue access to Central Entrance and extend Palm Street through to Anderson Road to provide access to neighborhood. (City of Duluth)

Intersection of Trinity Road and South Mall Entrance

Problem: Left-turning vehicles from the northbound lane of Trinity Road obstruct through-traffic. The roadway is sufficiently wide to provide a left turn lane.

Short Range Recommendations:

Correct dip in Trinity Road in front of South Mall Entrance. (Minnesota Department of Transportation)

Add left turn lane for Trinity Road northbound traffic in front of South Mall Entrance. (Minnesota Department of Transportation)

Intersection of Trinity Road and North Mall Entrance

Problem: Same as above.

Short Range Recommendations:

Add left turn lane for Trinity Road northbound traffic in front of North Mall Entrance. (Minnesota Department of Transportation)

Intersection of Trinity Road and Central Entrance

Problem: This is a major intersection of two trunk highways: T.H. 53 (Trinity Road) and T.H. 194 (Central Entrance), which are combined at this intersection. Joshua Avenue on the north leg of the intersection is a dead-end roadway providing access to commercial properties on the north side of the highway only. The proposed Watson Center, a shopping center complex at the northeast corner (currently Duluth Ready Mix Cement), will add large traffic volumes to the intersection (see page 49 for project impacts). The north (Joshua) and south (Trinity) legs of the intersection do not currently align. The intersection of the north frontage road and Joshua Avenue is located too close to the main intersection with the highway, causing a lack of space for vehicle storage. (See next recommendation on page 12 for details.) Also, vehicles turning from eastbound T.H. 53/194 to southbound Trinity Road travel through the turn lane at high speeds, causing merging problems on southbound Trinity Road.

Short Range Recommendation:

Tighten radius for Trunk Highway 53/194 southbound right turn lane onto Trinity Road to slow vehicle speeds. (Minnesota Department of Transportation)

Long Range Recommendations:

Install new signals. Align lanes of Trinity Road and Joshua Avenue at intersection. Realign and extend median on north leg of intersection to the north, eliminating left turns from the Duluth Ready Mix Cement plant site (proposed Watson Center). (The proposed Watson development site plan shows this entrance eliminated and a new major entrance further north on Joshua Avenue.) The median extension would also make the service road connection from the west to Joshua Avenue a right turn in/right turn out only and limit access. Joshua Avenue should be extended north to provide access to Hardee's parking lot. (See service road recommendation on page 12.) (Minnesota Department of Transportation, City of Duluth)

Extend Joshua Avenue from Trunk Highway 53/194 to Arrowhead Road. (City of Duluth)

**Service Road Connection on the North Side of Trunk Highway 53
Between Joshua Avenue and Cottonwood Avenue**

Problem: The existing service road on the north side of T.H. 53 serves the area as a frontage road. The road currently has a poor pavement condition and is also utilized for parking. Access will be restricted due to the potential redevelopment of the Duluth Ready Mix site and resulting reconstruction of the Joshua/Trinity/T.H. 53 intersection.

Short Range Recommendations:

Improve condition of the existing service road on the north side of Trunk Highway 53 between Joshua Avenue and Cottonwood Avenue. (St. Louis County, City of Duluth)

Long Range Recommendations:

If redevelopment of the Duluth Ready Mix site at Joshua Avenue occurs, a median should be constructed on the north leg of Joshua Avenue to control access to the existing frontage road and the Watson development. The median is necessary to prevent vehicles from queuing up for left turns onto the frontage road and blocking traffic at the intersection.

The median will restrict turns from Joshua onto the frontage road. To provide access to businesses on the north side of T.H. 53, construct a backage road behind Hardee's on the vacated Willow Street along the southern edge of Children's Palace parking lot, continuing down to connect to the existing service road on the north side of T.H. 53. As an option, this new service road could be continued to connect with Cottonwood Avenue north of the Camera Exchange. This would provide improved access from Cottonwood. (City of Duluth, Minnesota Department of Transportation)

Intersection of Cottonwood Avenue and Trunk Highway 53

Problem: The existing frontage road connecting Cottonwood Avenue with Joshua Avenue intersects Cottonwood too close to the major intersection of Cottonwood Avenue and T.H. 53.

Short Range Recommendations:

Construct a median on north leg of Cottonwood Avenue to eliminate left turns as a result, access to the frontage road and Duluth Camera Exchange would be restricted for southbound traffic on Cottonwood Avenue. An optional alternative would extend the new backage road recommended for behind Hardee's (see previous recommendation) to connect with Cottonwood Avenue north of the Duluth Camera Exchange, providing improved access to these properties. (Minnesota Department of Transportation, City of Duluth)

Intersection of Penney's Entrance and Trunk Highway 53

Refer to Intersection of Maple Grove Road and Trunk Highway 53 page 16.

**Accesses on South Side of Trunk Highway 53
Between Penney's Entrance and Maple Grove Road**

Short Range Recommendation:

There are currently two accesses to Wendy's and Ponderosa, just south of the Maple Grove Road/Trunk Highway 53 intersection. The closure of the access closest to Maple Grove is recommended to improve safety. (Minnesota Department of Transportation)

Intersection of Maple Grove Road and Mall Drive

Problem: Intersection is currently controlled by a four-way stop. High traffic volumes cause congestion during peak periods.

Short Range Recommendations:

Signalize intersection. (St. Louis County, City of Duluth)

**Mall Drive Frontage Road Connection on the South Side of Trunk Highway 53
Between Maple Grove Road and Haines Road**

Problem: The service road has become major frontage road connection between commercial properties in the area. There is currently no clear median between the Target parking lot and the frontage road. Vehicles entering and leaving the parking lot at various points cause numerous conflicts with traffic on frontage road.

Short Range Recommendation:

Reduce size and number of median openings along Target parking lot to improve safety. (City of Duluth)

Crossover on Trunk Highway 53 Between Maple Grove Road and Haines Road

Problem: This median crossover currently provides an access point from T.H. 53 to the Mall Drive frontage road on the south side of the highway near Burning Tree Road. The crossover has been temporarily partitioned to allow only left-turning movements from the westbound lane of T.H. 53 onto the frontage road.

Short Range Recommendation:

Permanently reconstruct the crossover at the service road access to Trunk Highway 53 in front of Super One so that it allows only right turn in/right turn out for eastbound Trunk Highway 53 and a left turn in only from westbound Trunk Highway 53. (Minnesota Department of Transportation)

Target and K-Mart Accesses to Maple Grove Road

Problem: The parking lots for each of these properties have accesses directly onto Maple Grove Road which are located in close proximity. The large traffic volumes on Maple Grove Road during peak periods cause difficulty for vehicles attempting to travel from one parking lot, across Maple Grove, to the other.

Long Range Recommendation:

After signalization of Maple Grove Road and Mall Drive, monitor problem of nonalignment of driveways to see if traffic gaps created by the signalization improves ease of access between the two driveways. If problem still exists, develop realignment strategy. (St. Louis County)

Intersection of Maple Grove Road and Burning Tree Road

Problem: Burning Tree Road provides access to numerous commercial properties on both sides of Maple Grove Road. Burning Tree Road intersects Maple Grove Road and is controlled by a four-way stop. The sections of Burning Tree Road on each side of Maple Grove do not align, causing vehicles to make a swerving movement across the intersection. Additional proposed commercial and residential development is proposed south of the Village Mall, requiring access.

Short Range Recommendation:

Align Burning Tree Road lanes on each side of Maple Grove Road. (City of Duluth)

Long Range Recommendation:

Extend Burning Tree Road to Decker Road and widen to four lanes between Maple Grove and Decker. (City of Duluth)

Intersection of Decker Road and Mall Drive

Problem: Intersection provides access to Miller Hill Mall parking lot from Mall Drive and Decker Road. The intersection is currently controlled by a four-way stop. Traffic congestion occurs during peak periods.

Short Range Recommendation:

The extent of traffic congestion is not critical. No change is recommended at this time. Monitor traffic volumes for signal warrant. (City of Duluth)

Intersection of Mountain Shadow Drive and Mall Drive

Problem: The intersection is controlled by a stop sign on Mountain Shadow Drive. Traffic congestion during peak periods causes difficulty entering traffic on Mall Drive.

Short Range Recommendation:

The extent of traffic congestion is not critical. No change is recommended. Monitor traffic volumes for future problems. (City of Duluth)

Intersection of Maple Grove Road and Trunk Highway 53

Problem: There is lack of adequate storage on the north leg of the intersection for southbound traffic from both Maple Grove Road and Sundby Road. Vehicles queuing up at the north leg of the intersection enter the Maple Grove/T.H. 53 intersection and block the through traffic along Maple Grove and Sundby. This close proximity also results in confusion for drivers as many vehicles fail to stop at the stop signs at Maple Grove Road and Sundby Road and vehicles incorrectly enter/exit Godfather's Pizza driveways.

Long Range Recommendations:

1. Option A: Close north leg of the Maple Grove Road intersection and Trunk Highway 53. Extend Sundby Road east to the intersection of the Penney's Entrance and Trunk Highway 53. Maple Grove Road from the east would intersect with Sundby Road north of the intersection of the Penney's Entrance and Trunk Highway 53. (Minnesota Department of Transportation, City of Duluth, St. Louis County)

Option B: Create a new roadway connection between Sundby and Maple Grove Road located behind the Godfather's Pizza building. Connect this road segment with Trunk Highway 53 at the current intersection with Maple Grove Road. (Minnesota Department of Transportation, City of Duluth)

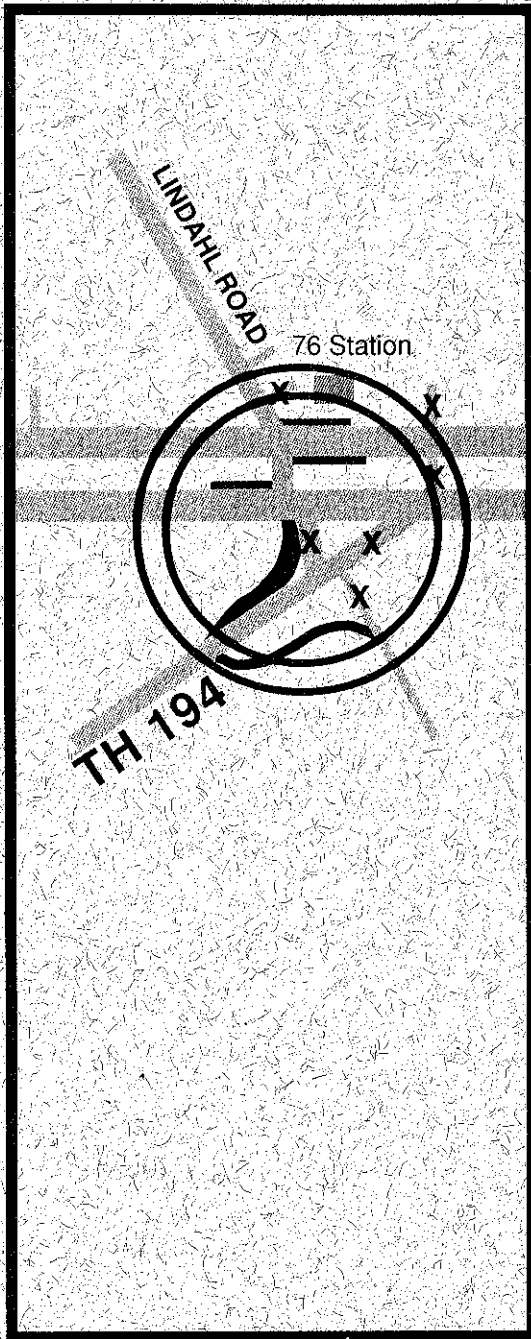
Access on North Side of Trunk Highway 53 Between Maple Grove Road and Haines Road (Potential Development Site)

Problem: A residential/commercial development is proposed for an undeveloped area across T.H. 53 from Target. Access has been requested onto T.H. 53 from the development.

Short Range Recommendations:

Recommend a right in/right out access onto Trunk Highway 53 from residential/commercial development on north side of Trunk Highway 53 between Maple Grove Road and Haines Road. See chapter titled "Impact of Proposed Land Development Concepts". (Minnesota Department of Transportation)

Obtain easement through property for future connection to Sundby Road. (Minnesota Department of Transportation, City of Duluth)



Recommendations for Hermantown

- ***Intersections***

INTRODUCTION

This section will examine each major intersection in the corridor that is within the city of Hermantown and recommend improvements to overcome deficiencies identified by the Study Advisory Committee. The following section will examine these transportation facilities along the corridor within the city of Hermantown.

For each identified area, a brief definition of the problem is stated, followed by recommended improvements to overcome the noted deficiency. The identified areas and recommendations are organized geographically beginning with the easternmost intersection of the corridor and working to the west. The jurisdictions responsible for implementing the proposed recommendations are given in parenthesis after each intersection.

Intersection of Haines Road and Maple Grove Road

Problem: Haines Road and Maple Grove Road is a four way stop intersection. High traffic volumes cause congestion during peak hours.

Short Range Recommendations:

Signalize intersection if warranted. (St. Louis County)

Stripe the westbound lane of Maple Grove Road from intersection to Sam's Club as a driving lane/right turn lane. (St. Louis County)

Intersection of Haines Road and Mall Drive

Problem: With the development of Walmart Department Store in Hermantown and the extension of Mall Drive through that development to T.H. 53, projected traffic volumes indicate a signal is needed to prevent congestion.

Short Range Recommendation:

Signalize intersection, prior to Walmart opening. (St. Louis County, City of Hermantown)

Intersection of Haines Road and Trunk Highway 53

Problem: High traffic volumes cause a problem with current access to commercial area parking lot.

Short Range Recommendation:

Close left turn lane opening in median for the north entrance to Cinema 5, making the entrance a right in/right out only.

Intersection of Haines Road and Arrowhead Road

Problem: Traffic congestion during peak periods.

Short Range Recommendation:

Signalize intersection; provide a left-turn lane for westbound Arrowhead Road traffic. (St. Louis County)

Intersection of Arrowhead Road and Trunk Highway 53

Problem: On the north leg of Arrowhead Road there is a problem with left turning traffic from T.H. 53 making immediate left turns into the Menards/Amoco driveway. This creates problems for the through traffic on Arrowhead, and could block traffic on T.H. 53.

Short Range Recommendation:

St. Louis County has programmed improvements to the intersection including geometrics and signals for 1992. The plan includes a widening of Arrowhead Road from T.H. 53 to Airbase Road. Right-turn lanes, a center double left-turn only lane, and through lanes will provide smoother traffic flow. A special left-turn only lane will be added for left turns from Arrowhead to the Menards/Amoco driveway. (St. Louis County, Minnesota Department of Transportation, City of Hermantown)

Intersection of Stebner Road and Trunk Highway 53

Problem: Driveway consolidation needed.

Long Range Recommendations:

Move Gordy's driveway on Stebner Road further north to provide more distance from the intersection. (St. Louis County)
Consolidate driveways at Woodridge Office Building and Gordy's on Trunk Highway 53 and construct a service road behind these properties. (City of Hermantown, Minnesota Department of Transportation)

Intersection of Lavaque Road and Trunk Highway 53

Long Range Recommendation:

No changes needed at this time, but future development is expected. Continue to monitor need for a traffic signal. (St. Louis County, Minnesota Department of Transportation)

Intersection of Ugstad Road and Trunk Highway 53

Problem: This intersection, used as a major route to Hermantown High School, is viewed as unsafe by the Hermantown School District. There is poor sight distance for Trunk Highway 53 northbound traffic due to a hill preceding the intersection and for Trunk Highway 53 southbound traffic due a curve preceding the intersection. The median does not provide sufficient storage for school buses. Currently a large "Caution School Bus Crossing" sign is located next to the Trunk Highway 53 northbound lane.

The Miller Trunk Highway Corridor Traffic Analysis Study Advisory Committee had concerns that a traffic signal could result in a higher accident rate at this intersection. However, a signal would be the most economical alternative to the problem. Purchasing the right-of-way required to widen the median to provide for sufficient school bus storage would be cost-prohibitive and would involve land currently designated as a Superfund environmental cleanup site. As an additional factor, a signal may be needed for traffic utilizing Ugstad Road north to Fish Lake as the corridor develops.

The Minnesota Department of Transportation requested a signal for programming as a result of the 1990 Governor's Safety Program. However, the request was denied due to the currently low accident rate. The Minnesota Department of Transportation plans to request programming for a signal again in 1992.

Short Range Recommendations:

Install traffic signal. (St. Louis County, Minnesota Department of Transportation)

Intersection of Trunk Highways 53 and 194 and Lindahl Road

Problem: There are several problems at this intersection. The main conflict involves the high-speed movement of left turns from T.H. 53 to T.H. 194 due to the approximately 120 degree angle of the intersection. Also, both Lindahl Road and T.H. 194 intersect with T.H. 53 at angles and are not aligned properly. The private driveway south of the intersection on T.H. 194 is too close to the intersection. There are also problems caused by the vehicles making left turns from T.H. 53 to T.H. 194; the large turn radius causes vehicle's left turn signal indicators to remain on, causing subsequent safety problems on T.H. 194.

Short Range Recommendations:

Install a left turn lane from eastbound T.H. 53 to Lindahl Road.

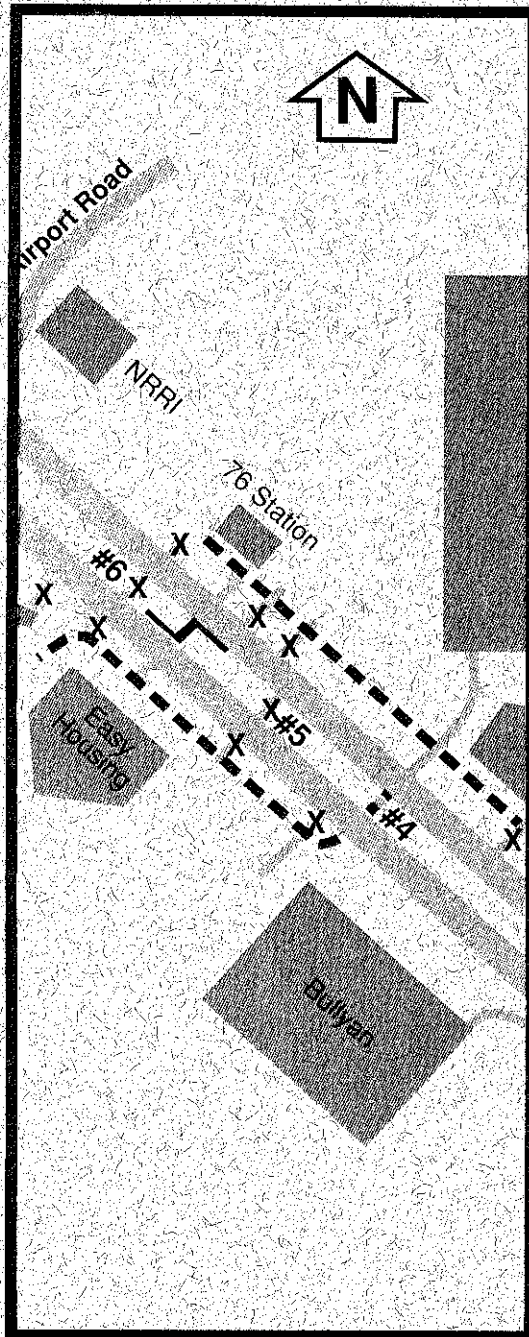
Installing a flashing light on the "Turn Off Your Signal" sign on T.H. 194. (Minnesota Department of Transportation)

Long Range Recommendations:

Trunk Highway 194: Move the T.H. 194 access west on T.H. 53 align with Lindahl Road and intersect with T.H. 53 at a ninety degree angle. Construct left and right turn lanes for westbound T.H. 53/94 and eastbound T.H. 53. Consolidate driveways at the gas station on the northeast corner would have driveways consolidated into one. (Minnesota Department of Transportation)

Move to the west, the driveway on Trunk Highway 194 eastbound which is currently close to the intersection, making a service road along old Trunk Highway 194 from the new driveway location to the existing location. Construct a bypass turn lane on Trunk Highway 194 westbound for the new driveway location. (Minnesota Department of Transportation)

Lindahl Road Crossover: Move the Lindahl Road access (on T.H. 53) west to line up with T.H. 194 access at ninety degree angle. Eliminate southernmost driveway of 76 station on the north leg of Lindahl Road. (St. Louis County, Minnesota Department of Transportation)



Recommendations for Hermantown

- ***Median Crossovers***
- ***Driveways***
- ***Turn Lanes***
- ***Service Roads***

INTRODUCTION

This section will examine service roads, median crossovers, driveway access points in the corridor that is within the city of Hermantown and recommend improvements to overcome deficiencies identified by the Study Advisory Committee. The following section will examine these transportation facilities along the corridor within the City of Hermantown.

For each identified area, a brief definition of the problem is stated, followed by recommended improvements to overcome the noted deficiency. The identified areas and recommendations are organized geographically beginning with the easternmost intersection of the corridor and working to the west. The jurisdictions responsible for implementing the proposed recommendations are given in parenthesis after each recommendation.

Haines Road to Arrowhead Road

SOUTHBOUND:

Short Range:

1. A new driveway entrance is planned on Trunk Highway 53 for Mall Drive extension to Walmart, just east of D & D Auto, as part of the Walmart development, in addition to a new crossover #1.5 and traffic signals. A new right turn lane into the driveway will be required. (Minnesota Department of Transportation)

Long Range:

1. There are two driveways at the Bob Lewis vacant property and two driveways at the vacant lot just east of Bob Lewis. Eliminate the easternmost Bob Lewis driveway. Eliminate the easternmost vacant lot driveway. Construct a road connection between the westernmost driveway at the vacant lot and Mall Drive through Eggebrechth's. Construct a driveway to Bob Lewis property off the new road connection to Mall Drive. (City of Hermantown, Minnesota Department of Transportation)

NORTHBOUND:

Short Range:

1. Construct a new left turn lane in front of the new crossover #1.5 at Walmart. (Minnesota Department of Transportation)

Long Range:

1. Eliminate all three existing U-Haul & Knox driveways and construct a new driveway between the existing U-Haul driveway and the easternmost Knox driveway. Move crossover #1 east to line up with the new U-Haul/Knox driveway. There is potential for a service road off Haines Road connecting to a new combined U-Haul/Knox driveway. (City of Hermantown, St. Louis County, Minnesota Department of Transportation)

Arrowhead Road to Stebner Road

SOUTHBOUND:

Long Range:

1. Extend the service road behind Skyline Lanes around the Duluth Clinic, making a connection with the driveway on Trunk Highway 53 in front of Duluth Clinic. Eliminate the driveway in front of Skyline Lanes. Encourage use of the Stebner Road entrance. Construct a new right turn lane in front of Duluth Clinic. (City of Hermantown, St. Louis County, Minnesota Department of Transportation)
2. Improve and streamline the frontage road between Skyline Motel, the apartment complex and the office building. Move the crossover #2 east to line up with the westernmost office building driveway. Eliminate the easternmost office building driveway. Construct a left turn lane at the new crossover #2 location. (City of Hermantown, St. Louis County, Minnesota Department of Transportation)

NORTHBOUND:

Long Range:

1. Consolidate the Menards/Energy Plus driveways at Menards and reinforce the shoulder for a right turn lane in front of the driveway. Extend the existing service road to Menards and bulb out to increase the storage area. (City of Hermantown, Minnesota Department of Transportation)

Eliminate the driveway and crossover #2 at Starlight Satellite Systems, moving them to line up with Mobile Housing. Bulb out the driveway to increase the storage area. (City of Hermantown, Minnesota Department of Transportation)

The area needs further geometric analysis. Storage space at driveways that enter Trunk Highway 53 from the service road is a concern. (City of Hermantown, Minnesota Department of Transportation)

2. Move Gordy's driveway on Stebner Road north to allow more storage area for vehicles at the intersection. Construct a service road behind Gordy's from Stebner Road to the developable property east of the Woodridge Building. Eliminate the driveways at Gordy's and Woodridge Office Building on Trunk Highway 53. (City of Hermantown, St. Louis County, Minnesota Department of Transportation)

Stebner Road to Lavaque Road

SOUTHBOUND:

Short Range:

1. Add a left turn lane for crossover #8. (Minnesota Department of Transportation)

Long Range:

1. Consolidate the driveways at Billman's, Ethan Allen, and Skyline Motors into one driveway with a service road in front of crossover #7. Construct a right turn lane for service road entrance at Billman's. (City of Hermantown, Minnesota Department of Transportation)
2. Consolidate crossovers #5 and #6 into one crossover. Consolidate the driveways at Airliner Motel/Easy Housing, Easy Housing and at the wooded lot east of Easy Housing into one driveway which lines up with the combined crossover (#5 and #6). Move the Bullyan driveway east to line up directly with crossover #4, reducing the size of crossover #4. Construct a service road between the Airliner/Easy Housing joint driveway and the Bullyan driveway. (City of Hermantown, Minnesota Department of Transportation)

NORTHBOUND:

Long Range:

1. Eliminate the two driveways in front of Bullyan. Construct an access to Bullyan off the Birchwood Estates driveway. Construct a service road from Bullyan to the 76 gas station. (City of Hermantown, Minnesota Department of Transportation)
2. Eliminate the vacant truck lot driveway east of the 76 gas station and one of the 76 gas station driveways. Retain one 76 gas station driveway to line up with the new location of consolidated crossover (#5 and #6). (Minnesota Department of Transportation)

Lavaque Road to Ugstad Road

SOUTHBOUND:

Short Range:

1. Add a left turn lane for crossover #9. Crossover #9 and a joint Spur/Credit Union driveway are programmed by MNDOT to be moved east in 1991. The service road between the Credit Union and Spur will be retained due to an easement agreement with Spur. (Minnesota Department of Transportation)

Long Range:

1. Eliminate the two access driveways for Apartment Building (Gallagher's) on T.H. 53 and orient entrance to Ugstad Road. (St. Louis County)
2. Eliminate crossover #13. (Minnesota Department of Transportation)
3. Eliminate crossover #10 and #11. Construct a new crossover with a left turn lane between the two old crossovers.(Minnesota Department of Transportation)
4. Move crossover #12 east to line up with United Truck Body entrance. Add a left turn lane. (Minnesota Department of Transportation)

NORTHBOUND:

Long Range:

1. Open access between Galleria and United Truck Body properties. (City of Hermantown)
2. Construct a left turn lane for the new crossover to be built between #10 and #11. (Minnesota Department of Transportation)
3. Construct a left turn lane for the new crossover #12. (Minnesota Department of Transportation)

Ugstad Road to Lindahl Road

SOUTHBOUND:

Short Range:

1. Add a left turn lane for crossover #17. (Minnesota Department of Transportation)
2. Add a left turn lane for crossover #16. (Minnesota Department of Transportation)
3. Add a left turn lane for crossover #15. (Minnesota Department of Transportation)

Long Range:

1. Consolidate the Minnesota Outdoor Rec driveways at crossover (#16). (Minnesota Department of Transportation)
2. Construct a new Rose Road connection at new crossover (moved #14). (Minnesota Department of Transportation)
3. Move crossover #14 west to line up with new Rose Road and add a left turn lane. (Minnesota Department of Transportation)

NORTHBOUND:

Short Range:

1. Add a left turn lane for crossover #17. (Minnesota Department of Transportation)
2. Add a left turn lane for crossover #16. (Minnesota Department of Transportation)
3. Add a left turn lane for crossover #15. (Minnesota Department of Transportation)

Long Range:

1. Extend Gopher Oil service road to Ugstad Road and eliminate one Gopher Oil driveway. (Minnesota Department of Transportation)
2. Add a left turn lane for crossover #14. (Minnesota Department of Transportation)
3. Construct a driveway at crossover #15 and make a service road extension to Abrahamson Road behind Economy Garages. (City of Hermantown, Minnesota Department of Transportation)

Lindahl Road to Seville Road

SOUTHBOUND:

Short Range:

1. Add a left turn lane for crossover #21. (Minnesota Department of Transportation)

Long Range:

1. Consolidate the two Town and Country and the two Mr. Quik Wrench driveways to one driveway in front of crossover (#21). (Minnesota Department of Transportation)
2. Eliminate crossover #19. (Minnesota Department of Transportation)
3. Eliminate the three Arrowhead Concrete driveways which do not line up with crossover #18. (Minnesota Department of Transportation)

NORTHBOUND:

Short Range:

1. Add a left turn lane for crossover #20. (Minnesota Department of Transportation)

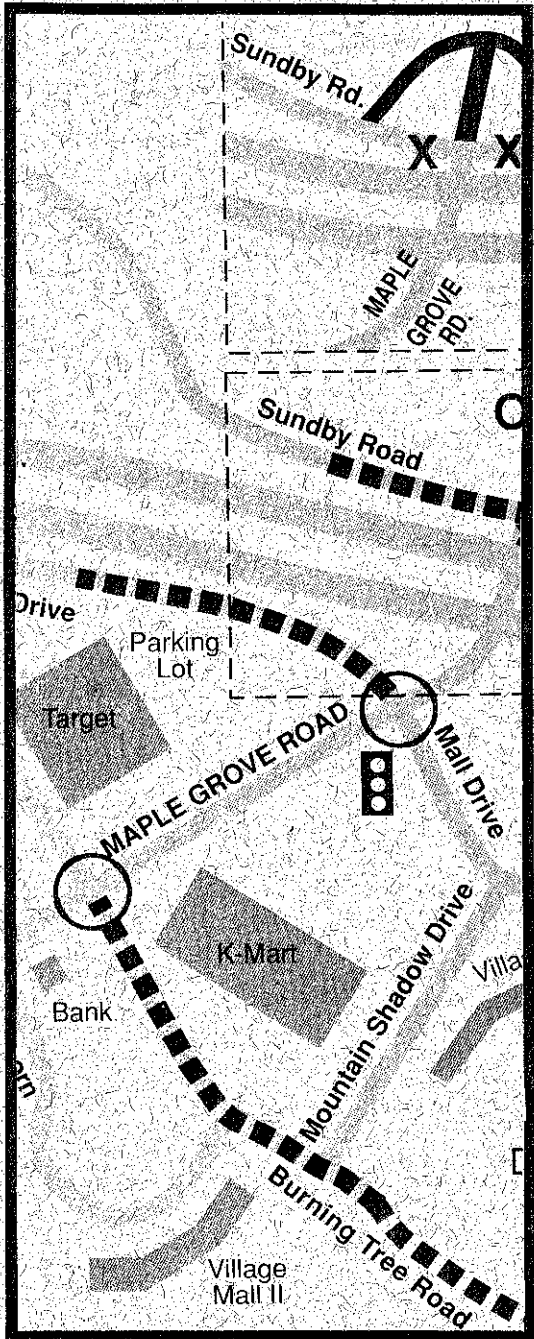
Long Range:

1. Eliminate the easternmost Super America driveway. Block off the access between Super America and the vacant corner lot east of Super America. Construct a service road connection behind the vacant lot from Vaux Road to the Super One driveway. (City of Hermantown, Minnesota Department of Transportation)

GUIDE TO LOCATION OF NEW HERMANTOWN CROSSOVERS ON TH 53

<u>Crossover Number</u>	<u>Property on North</u>	<u>Property on South</u>
HAINES TO ARROWHEAD:		
1	U-Haul	undeveloped lot
1.5	undeveloped lot	Walmart
ARROWHEAD TO STEBNER:		
2	Mobile Housing	Office Building
STEBNER TO LAVAQUE:		
3	undeveloped lot	R.J. Sport & Cycle
4	Birchwood Estates	Bullyan
New 5 & 6	76 Station	Easy Housing
7	NRRI	Billmans
8	Pella Products	Northside Truck
LAVAQUE TO UGSTAD:		
9	small business complex	Hermantown Credit Union
10	undeveloped lot	undeveloped lot
12	United Truck Body	undeveloped lot
UGSTAD TO TH 194 (LINDAHL):		
14	Gopher Oil	Rose Road
15	undeveloped lot	Lucky's Sales and Service
16	Abrahamson Road	Mn Outdoor Recreation
17	Prop Shop	Grace Lutheran Church
TH 194 TO SEVILLE:		
18	residential	Arrowhead Concrete
20	Vaux Road	undeveloped lot
21	Super America	Mr. Quik Wrench

•Crossover numbers are not consecutive due to alterations and deletions of crossovers.



Summary of Recommendations

MAP 1

Map 1 illustrates recommendations from the beginning of the study area at the intersection of Arlington Avenue and Central Entrance in the city of Duluth, and ending with the intersection of Maple Grove Road and Trunk Highway 53.

MAP 1

Intersection of Arlington Avenue and Central Entrance

- Stripe the north and south legs of Arlington for left turn lanes.
- Protected left turn signal for northbound and southbound traffic on Arlington Avenue. (If needed after lane markings.)
- Remove parking on both sides of Arlington Avenue south of Central Entrance.
- Recommend that all new construction along Arlington include sidewalks.

Intersection of Anderson Road and Central Entrance

- Construct right turn lane on eastbound Central Entrance for Robin Avenue entrance.

Long Range Recommendations:

- Close Robin Avenue access to Central Entrance and extend Palm Street to Anderson Road.

Intersection of Trinity Road and South Mall Entrance

- Correct dip in Trinity Road and add left turn lane for Trinity Road northbound traffic in front of South Mall Entrance.

Intersection of Trinity Road and North Mall Entrance

- Add left turn lane for Trinity Road northbound traffic in front of North Mall Entrance.

Intersection of Trinity Road and Central Entrance

- Tighten radius on the right turn lane from Trunk Highway 53 southbound onto Trinity Road, install new signals and align lanes through the intersection between Trinity Road and Joshua Avenue.
- Realign and extend median on north leg of intersection, to effect a right turn in/right turn out from the Ready Mix Cement site (proposed Watson Center).

Long Range Recommendations:

- Extend Joshua Avenue from Trunk Highway 53/194 to Arrowhead Road.

Service Road Connection on the North Side of Trunk Highway 53 Between Joshua Avenue and Cottonwood Avenue

- Improve condition of the existing service road.

Long Range Recommendations:

- Construct a backage road behind Hardee's on the vacated Willow Street along the southern edge of Children's Palace parking lot, continuing down to connect to the existing service road on the north side of T.H. 53. Optional: This new service road could be continued to connect with Cottonwood Avenue, north of the Duluth Camera Exchange.

Intersection of Cottonwood Avenue and Trunk Highway 53

- Construct a median on north leg of Cottonwood Avenue to effect right in/right out only on service road.

Accesses on South Side of Trunk Highway 53 Between Penney's Entrance and Maple Grove Road

- Close the access closest to Maple Grove to improve safety.

Intersection of Maple Grove Road and Mall Drive

- Signalize intersection.

Mall Drive Between Maple Grove Road and Haines Road

- Reduce size and number of median openings along Target parking lot to improve safety.

Target and K-Mart Accesses to Maple Grove Road

- After signalization of Maple Grove Road and Mall Drive intersection, monitor problem of nonalignment of K-Mart and Target driveways to see if traffic gaps created by the signalization improves ease of access between K-Mart and Target. If problem still exists, develop realignment strategy.

Intersection of Maple Grove Road and Burning Tree Road

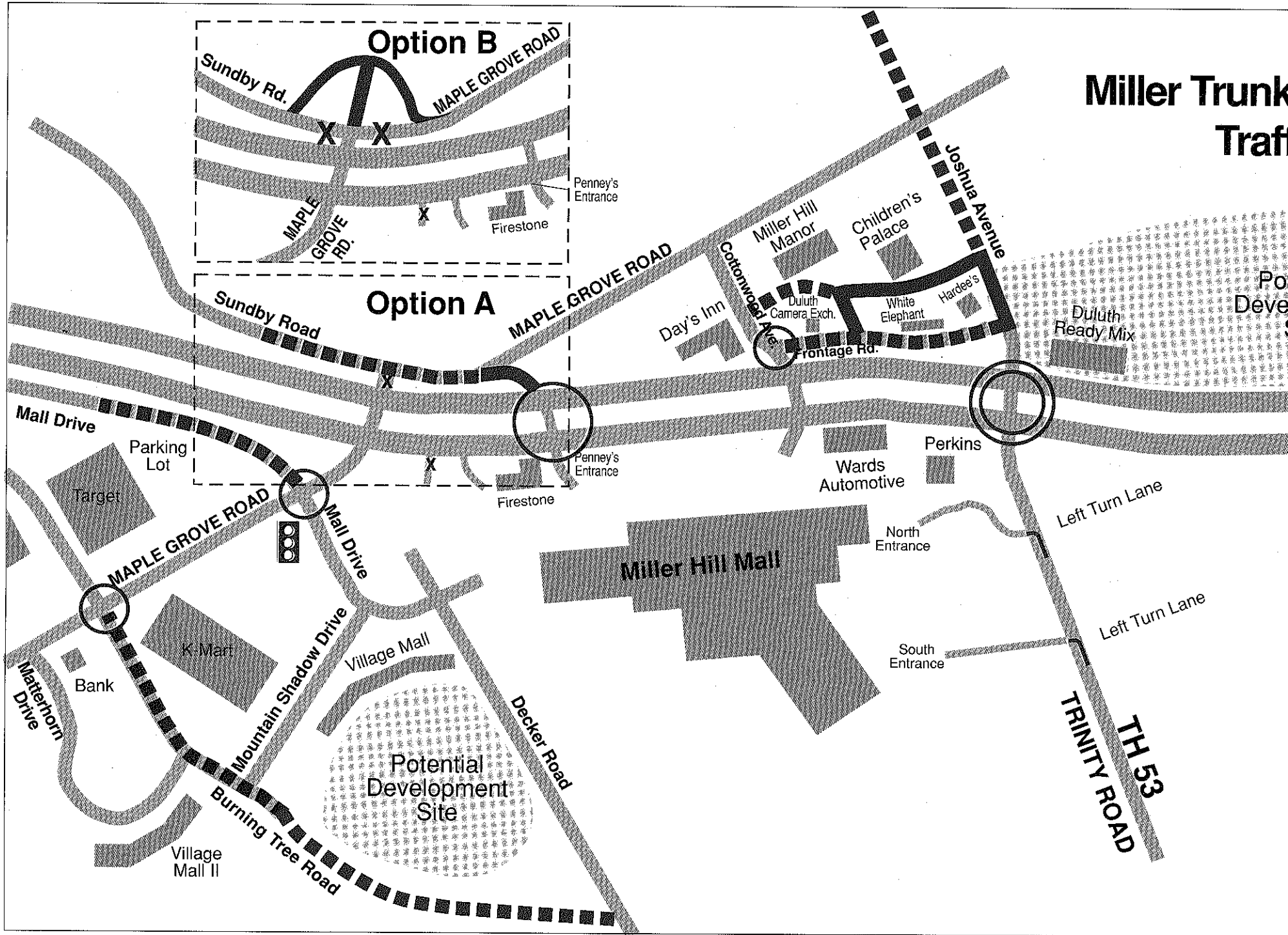
- Align Burning Tree Road lanes on each side of Maple Grove Road.

Long Range Recommendation:

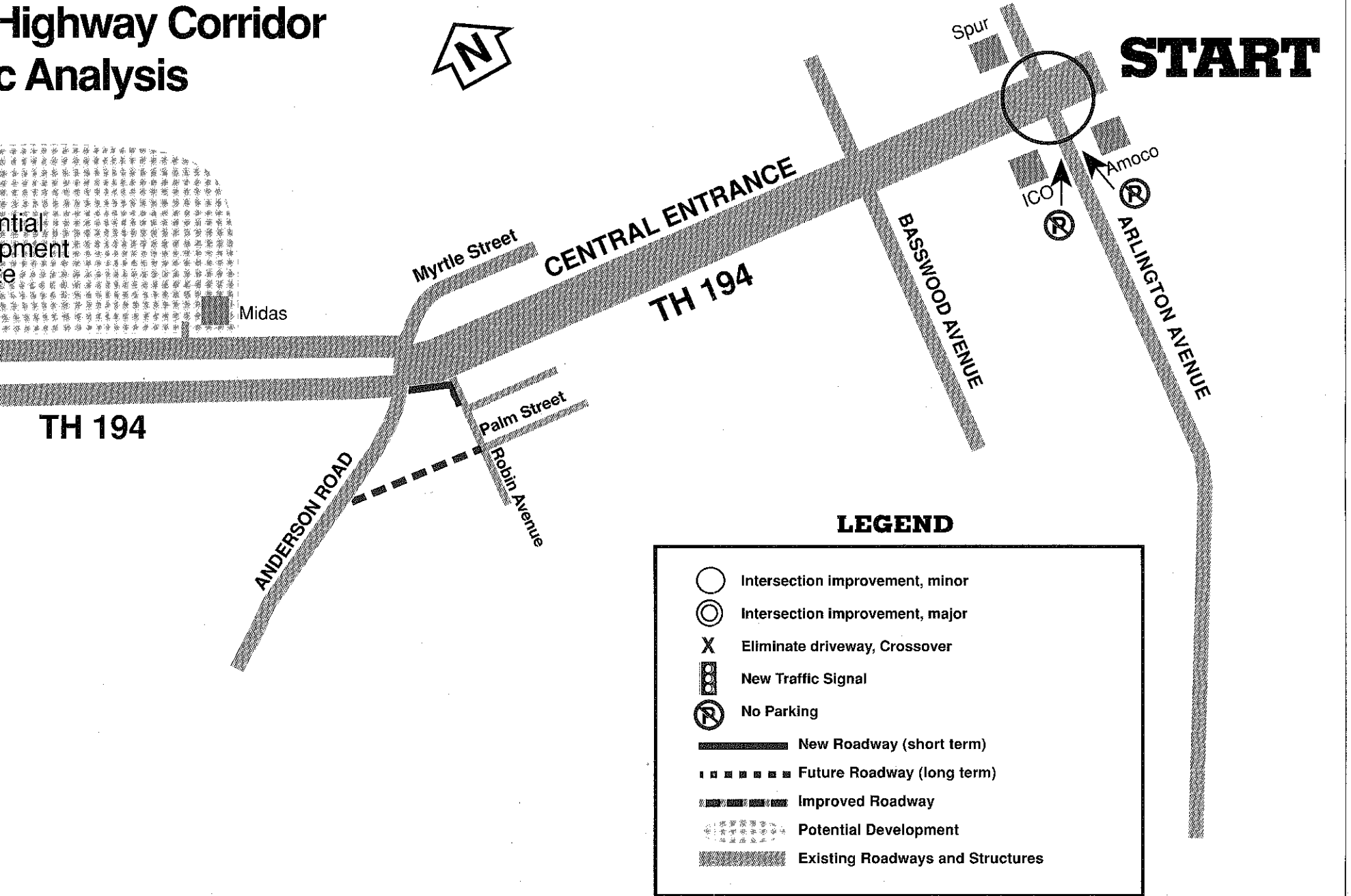
- Extend Burning Tree Road to Decker Road and widen to four lanes between Maple Grove and Decker Road.

Intersection of Maple Grove Road and Trunk Highway 53

- **Option A:** Close north leg of the Maple Grove Road intersection and Trunk Highway 53. Extend Sundby Road east to the intersection of the Penney's Entrance and Trunk Highway 53 and connect to Maple Grove Road.
- **Option B:** Extend north leg of intersection to allow adequate space for vehicle storage; extend Maple Grove Road and Sundby Road to meet at the newly extended leg.



Highway Corridor Analysis



LEGEND

	Intersection improvement, minor
	Intersection improvement, major
	Eliminate driveway, Crossover
	New Traffic Signal
	No Parking
	New Roadway (short term)
	Future Roadway (long term)
	Improved Roadway
	Potential Development
	Existing Roadways and Structures

MAP 2

Map 2 illustrates the recommendations from the intersection of Haines Road and Trunk Highway 53 in the city of Duluth, and ending with the intersection of Stebner Road and Trunk Highway 53 in the city of Hermantown.

MAP 2

Median Crossover on Trunk Highway 53 Between Maple Grove Road and Haines Road

- Permanently reconstruct the median crossover at the service road access to Trunk Highway 53 near Super One to allow only right turn in/right turn out for eastbound Trunk Highway 53 and a left turn in only from westbound Trunk Highway 53.

Access on North Side of Trunk Highway 53 Between Maple Grove Road and Haines Road

- Recommend a right in/right out access onto Trunk Highway 53 from proposed residential/commercial development.
- Obtain easement through property for future connection to Sundby Road.

Intersection of Haines Road and Maple Grove Road

- Signalize intersection if warranted.
- Stripe the westbound lane of Maple Grove Road from intersection to the Sam's Club (Wholesale Club) as a driving lane/right turn lane.

Intersection of Haines Road and Mall Drive

- Signalize intersection prior to Walmart opening.

Intersection of Haines Road and Trunk Highway 53

- Close left turn lane opening in median for the north entrance to Cinema 5, making the entrance a right in/right out only.

Intersection of Haines Road and Arrowhead Road

- Signalize intersection and provide left-turn lanes for Arrowhead Road traffic.

Intersection of Arrowhead Road and Trunk Highway 53

- Widen Arrowhead Road from T.H. 53 to Airbase Road to provide right-turn lanes, a center double left-turn only lane, and through lanes. There will also be a left-turn lane for turns from Arrowhead Road to the Menards/Amoco driveway.

Haines Road to Arrowhead Road

SOUTHBOUND:

Short Range Recommendation:

- New driveway entrance is planned on Trunk Highway 53 for Mall Drive extension as part of the Walmart development, in addition to a new median crossover #1.5 and traffic signals. A new right turn lane into the driveway will be required.

Long Range Recommendations:

- Eliminate the easternmost Bob Lewis (vacant) driveway.
- Eliminate the easternmost vacant lot driveway.
- Construct a road connection between the westernmost driveway from TH 53 at the vacant lot to Mall Drive through Eggebrecth's (formerly Rathert's) and construct a driveway to the Bob Lewis property off the new road connection.

Haines Road to Arrowhead Road, continued

NORTHBOUND:

Short Range Recommendation:

- Construct a new left turn lane in front of the new crossover #1.5 at Walmart.

Long Range Recommendations:

- Consolidate all three existing U-Haul & Knox driveways into one new driveway.
- Consider a new service road connecting to a new combined U-Haul/Knox driveway with Haines Road.
- Move crossover #1 east to line up with the new U-Haul/Knox driveway.

Arrowhead Road to Stebner Road

SOUTHBOUND:

Long Range Recommendations:

- Extend the service road behind Skyline Lanes around the Duluth Clinic, making a connection with the driveway on Trunk Highway 53 in front of Duluth Clinic.
- Eliminate the driveway in front of Skyline Lanes.
- Improve and streamline the frontage road between Skyline Motel, the apartment complex and the office building.
- Move the crossover #2 east to line up with the westernmost office building driveway.
- Eliminate the easternmost office building driveway.
- Construct a left turn lane at the new crossover #2 location.

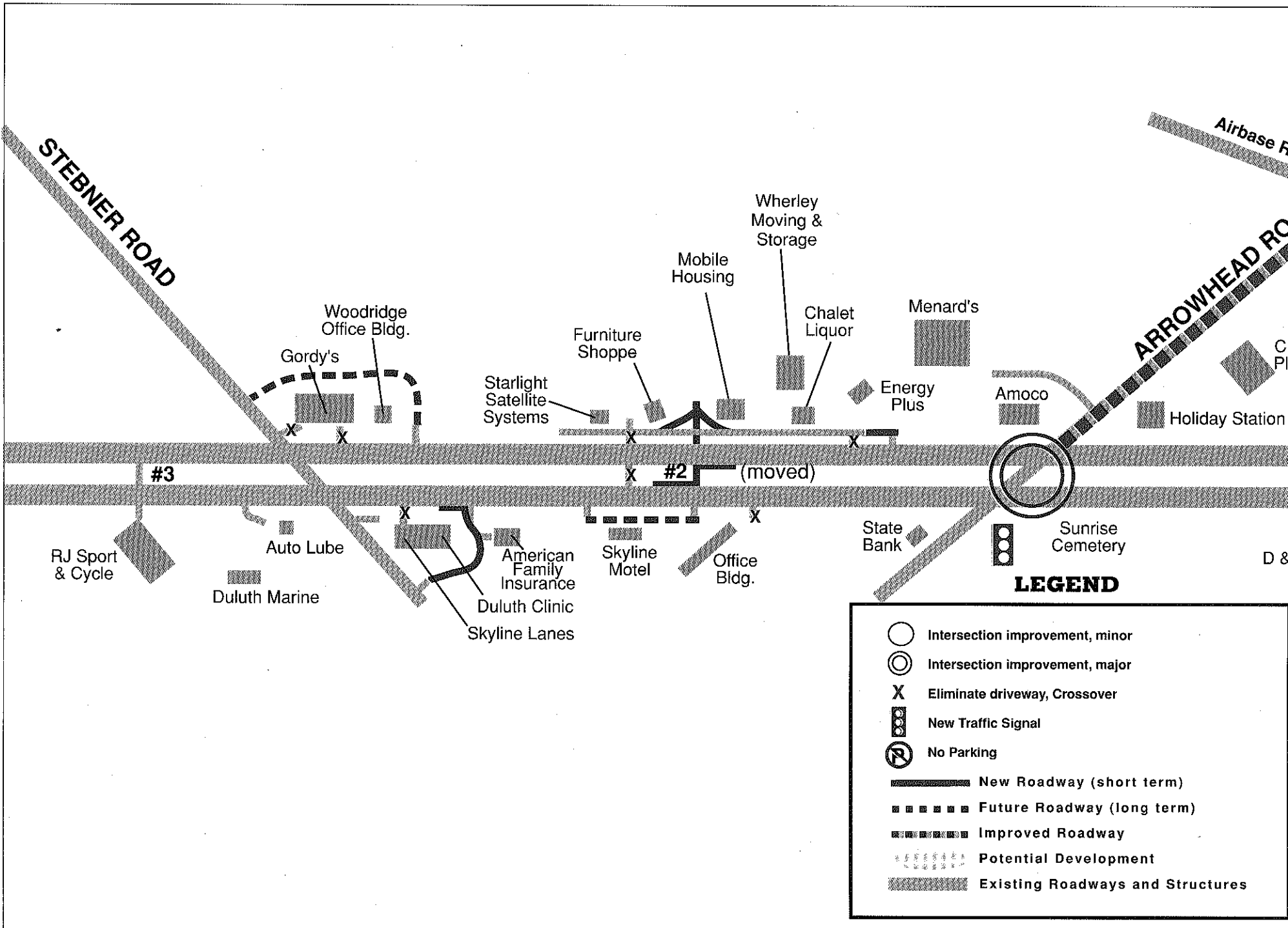
NORTHBOUND:

Long Range Recommendations:

- Consolidate the Menards/Energy Plus driveways and reinforce the shoulder for a right turn lane into the driveway.
- Extend the service road to Menards and "bulb out" to increase the storage area.
- Eliminate the driveway and crossover #2 at Starlight Satellite Systems, moving them to line up with Mobile Housing. Bulb out the driveway to increase the storage area.
- Move Gordy's driveway on Stebner Road north to allow more storage area for vehicles at the intersection.
- Construct a service road behind Gordy's from Stebner Road to the developable property east of the Woodridge Building.
- Eliminate the driveways at Gordy's and Woodridge Office Building on Trunk Highway 53, once new service road is complete.

Intersection of Stebner Road and Trunk Highway 53

- Move Gordy's driveway on Stebner Road further north from the intersection to provide more distance from the intersection.
- Consolidate driveways at Woodridge Office Building and Gordy's on Trunk Highway 53 and construct a service road behind these properties.



STEBNER ROAD

Airbase R
ARROWHEAD RO

Woodridge Office Bldg.

Gordy's

Starlight Satellite Systems

Furniture Shoppe

Mobile Housing

Wherley Moving & Storage

Chalet Liquor

Menard's

Energy Plus

Amoco

Holiday Station

#3

#2 (moved)

RJ Sport & Cycle

Auto Lube

Duluth Marine

American Family Insurance

Skyline Motel











Office Bldg.

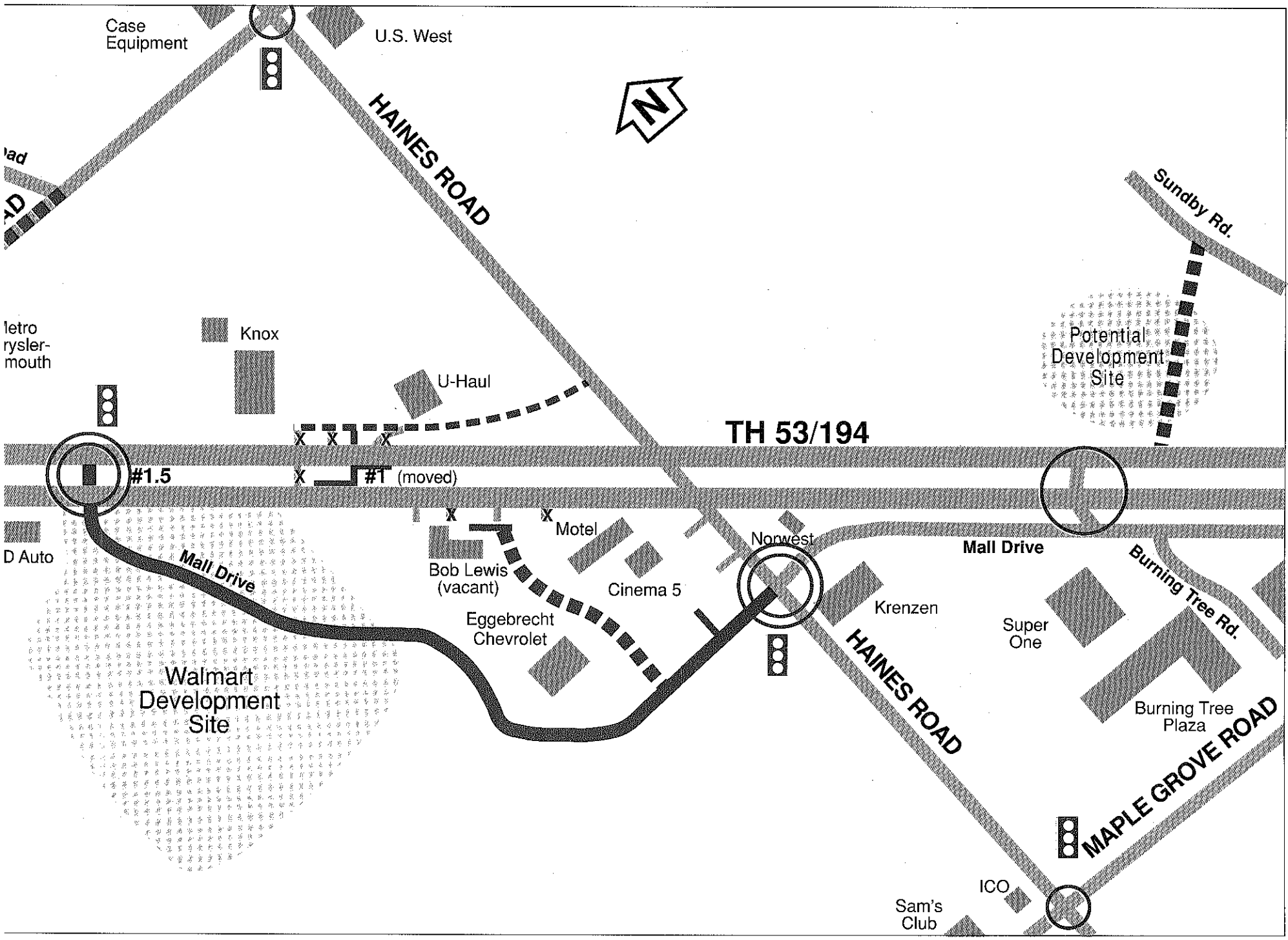
State Bank

Sunrise Cemetery

Duluth Clinic
Skyline Lanes

LEGEND

-  Intersection improvement, minor
-  Intersection improvement, major
-  Eliminate driveway, Crossover
-  New Traffic Signal
-  No Parking
-  New Roadway (short term)
-  Future Roadway (long term)
-  Improved Roadway
-  Potential Development
-  Existing Roadways and Structures



Case Equipment

U.S. West

HAINES ROAD



Sundby Rd.

Potential Development Site

Knox

U-Haul

TH 53/194

#1.5

#T (moved)

Metro Chrysler-mouth

D Auto

Mall Drive

Bob Lewis (vacant)

Motel

Cinema 5

Norwest

Mall Drive

Burning Tree Rd.

Eggebrecht Chevrolet

Krenzen

Super One

Walmart Development Site

Burning Tree Plaza

HAINES ROAD

MAPLE GROVE ROAD

Sam's Club

ICO

MAP 3

Map 3 illustrates the median crossover and access recommendations beginning west of Stebner Road, continuing along Trunk Highway 53/194, and ending with the intersection at Rose Road.

MAP 3

Intersection of Lavaque Road and Trunk Highway 53

- No changes needed at this time. Continue to monitor need for a traffic signal.

Intersection of Ugstad Road and Trunk Highway 53

- Install traffic signal.

Stebner Road to Lavaque Road

SOUTHBOUND:

Short Range Recommendation:

- Add a left turn lane in front of crossover #8.

Long Range Recommendations:

- Consolidate the driveways at Billman's, the vacant business, and Skyline Motors into one driveway with a service road in front of crossover #7.
- Construct a right turn lane from consolidated driveways at Billman's.
- Consolidate crossovers (#5 and #6) to one crossover.
- Consolidate the driveways at Airliner Motel/Easy Housing, Easy Housing and at the vacant lot east of Easy Housing into one driveway which lines up with the combined crossover (#5 and #6). Move the Bullyan driveway east to line up directly with crossover #4, reducing the size of crossover #4.
- Construct a service road from the Airliner/Easy Housing joint driveway to the new Bullyan driveway.

NORTHBOUND:

Long Range Recommendations:

- Eliminate the two driveways in front of Bullyan.
- Construct an access to Bullyan off the Birchwood Estates driveway.
- Construct a service road from Bullyan to the 76 gas station.
- Eliminate the vacant truck lot driveway east of the 76 gas station and one of the 76 gas station driveways. Retain one 76 gas station driveway to line up with the new location of consolidated crossover (#5 and #6).

Lavaque Road to Ugstad Road

SOUTHBOUND:

Short Range Recommendation:

- Add a left turn lane in front of crossover #9. Crossover #9 and a joint Spur/Credit Union driveway are to be moved east in 1991.

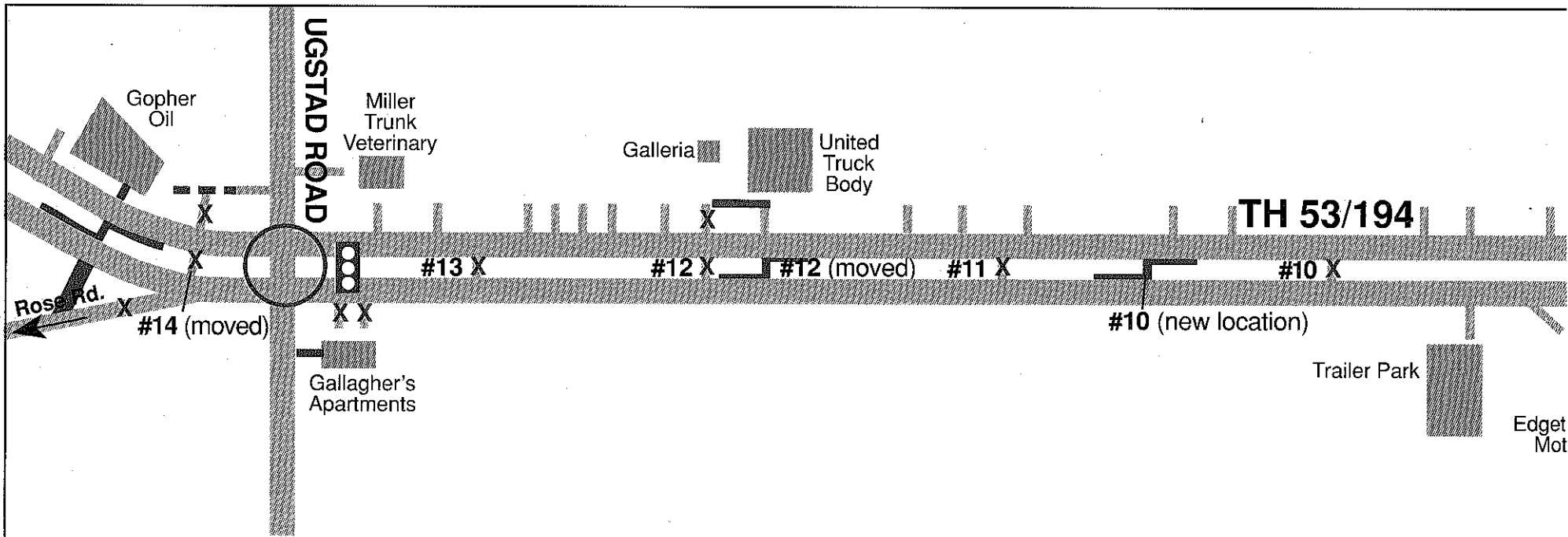
Long Range Recommendations:

- Orient entrance at Gallagher's property to Ugstad Road.
- Eliminate crossover #13.
- Eliminate crossovers #10 and #11. May need a crossover in the future if the area is developed.

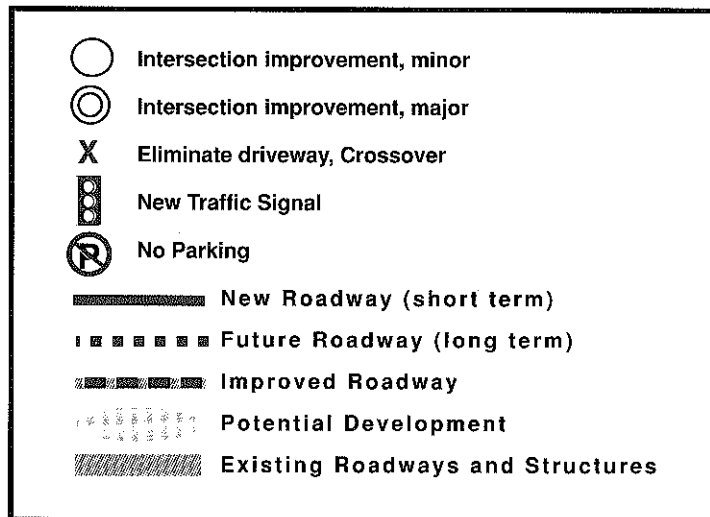
NORTHBOUND:

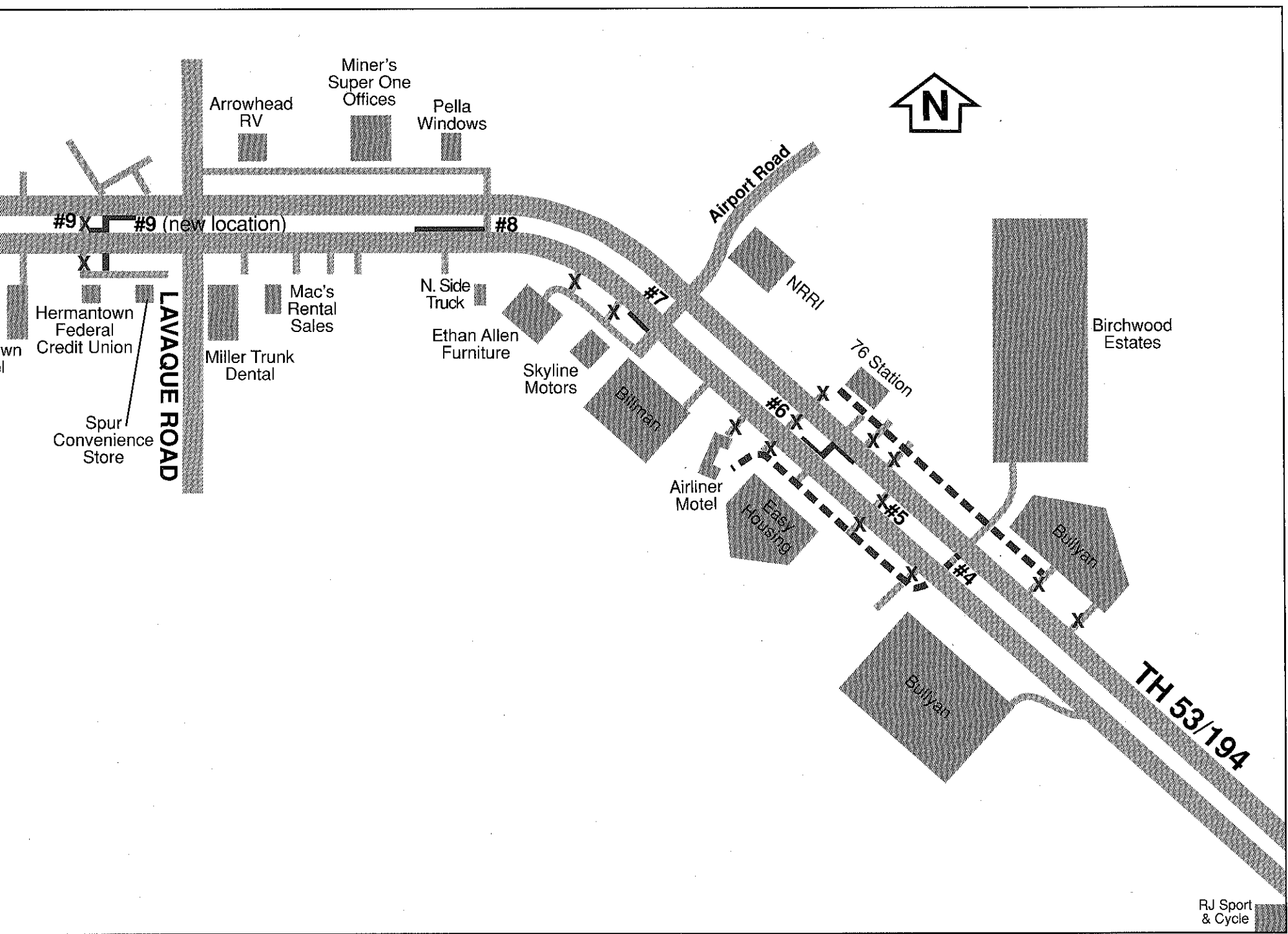
Long Range Recommendations:

- Close access at Galleria and construct a connection to United Truck Body driveway.
- Construct left turn lanes at crossover #12.



LEGEND





MAP 4

Map 4 begins with the intersection at Rose Road and continues along Trunk Highway 53/194, ending with recommendations at Vaux Road and Trunk Highway 53.

MAP 4

Ugstad Road to Lindahl Road

SOUTHBOUND:

Short Range Recommendations:

- Add a left turn lane for crossover #17.
- Add a left turn lane for crossover #16.
- Add a left turn lane for crossover #15.
- Move crossover #14 west to line up with Gopher Oil driveway.
- Construct a new Rose Road connection at new crossover #14 to line up with the Gopher Oil driveway.

Long Range Recommendation:

- Consolidate the Minnesota Outdoor Rec driveways at crossover #16.

NORTHBOUND:

Long Range Recommendations:

- Extend Gopher Oil service road to Ugstad Road and eliminate one Gopher Oil driveway.
- Construct a driveway at crossover #15 and make a service road extension to Abrahamson Road behind Economy Garages.

Intersection of Trunk Highways 53 and 194 and Lindahl Road

- Install a left turn lane from eastbound T.H. 53 to Lindahl Road.
- Install a flashing light on the "Turn Off Your Signal" sign on T.H. 194.

Long Range Recommendations:

- Trunk Highway 194: Move the T.H. 194 access west on T.H. 53 to align with Lindahl Road and intersect with T.H. 53 at a ninety degree angle.
- Construct left and right turn lanes for westbound T.H. 53/194 and eastbound T.H. 53.
- Construct left turn lane for Lindahl Road.
- Consolidate driveways at the gas station on the northeast corner. Eliminate southernmost driveway of 76 station on the north leg of Lindahl Road.
- Move to the west the driveway on Trunk Highway 194 which is currently to close to the intersection. Construct a service road along old Trunk Highway 194 from the new westerly entrance to the existing driveway.
- Construct a bypass turn lane on Trunk Highway 194 westbound for the new driveway location.

Lindahl Road to Seville Road

SOUTHBOUND:

Short Range Recommendation:

- Add a left turn lane in front of crossover #21.

Long Range Recommendations:

- Consolidate the two Town and Country and the two Mr. Quik Wrench driveways to one driveway in front of crossover #21.
- Eliminate crossover #19.
- Eliminate the three Arrowhead Concrete driveways which do not line up with crossover #18.

NORTHBOUND:

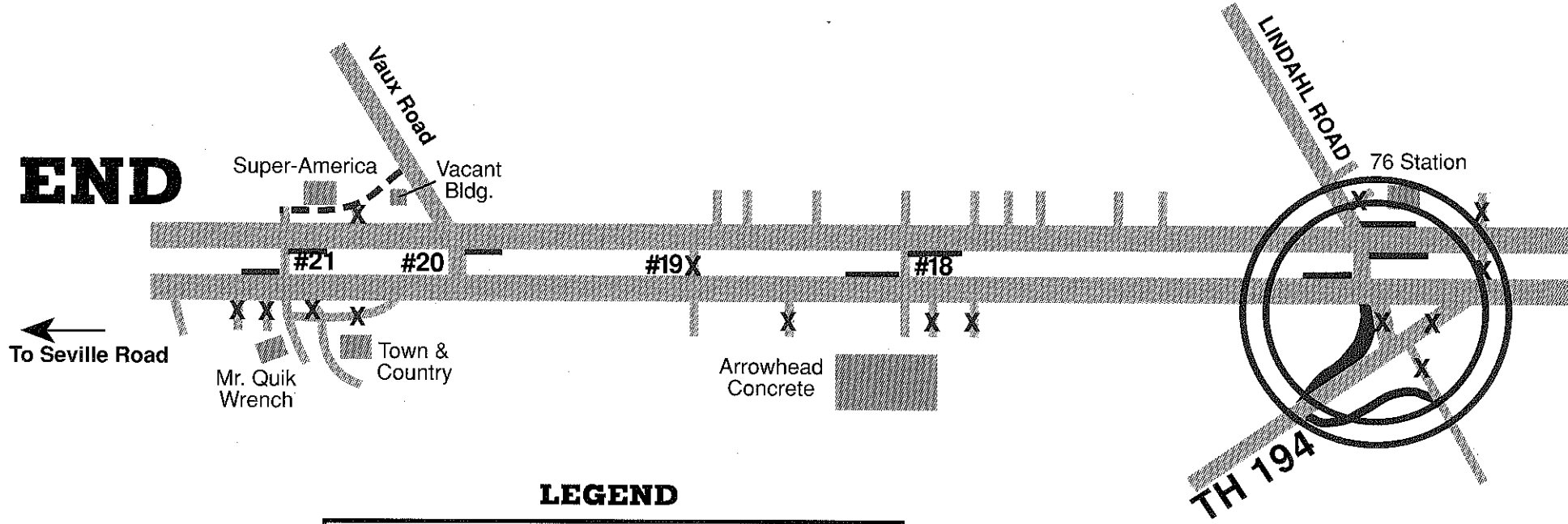
Short Range Recommendations:

- Add a left turn lane in front of crossover #20.











Long Range Recommendations:

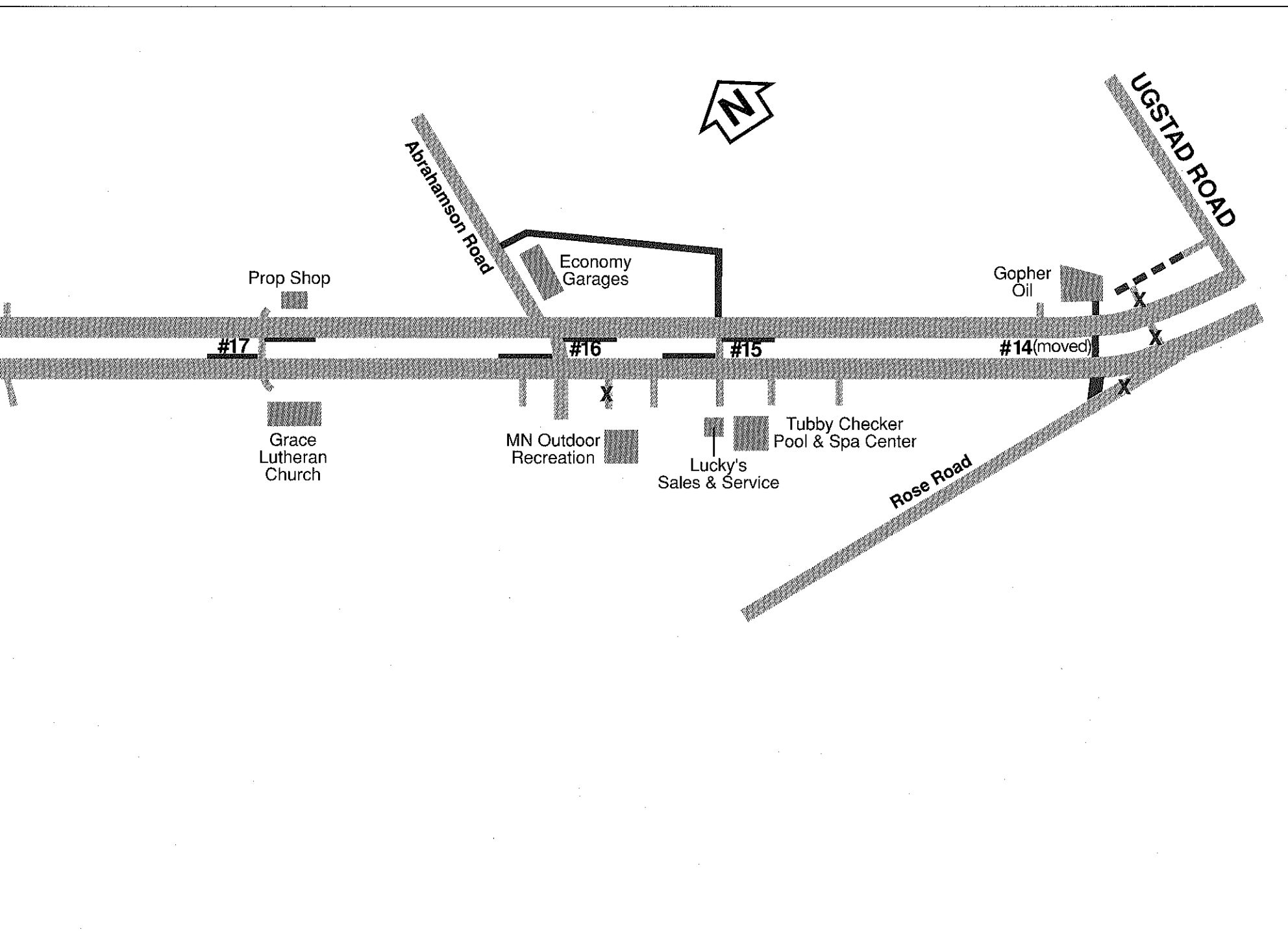
- Eliminate the easternmost Super America driveway. Block off the access between Super America and the vacant corner lot east of Super America.
- Construct a service road connection behind the vacant lot from Vaux Road to the Super America driveway.

END



LEGEND

-  Intersection improvement, minor
-  Intersection improvement, major
-  Eliminate driveway, Crossover
-  New Traffic Signal
-  No Parking
-  New Roadway (short term)
-  Future Roadway (long term)
-  Improved Roadway
-  Potential Development
-  Existing Roadways and Structures



Abramanson Road

UGSTAD ROAD

Prop Shop

Economy Garages

Gopher Oil

#17

#16

#15

#14(moved)

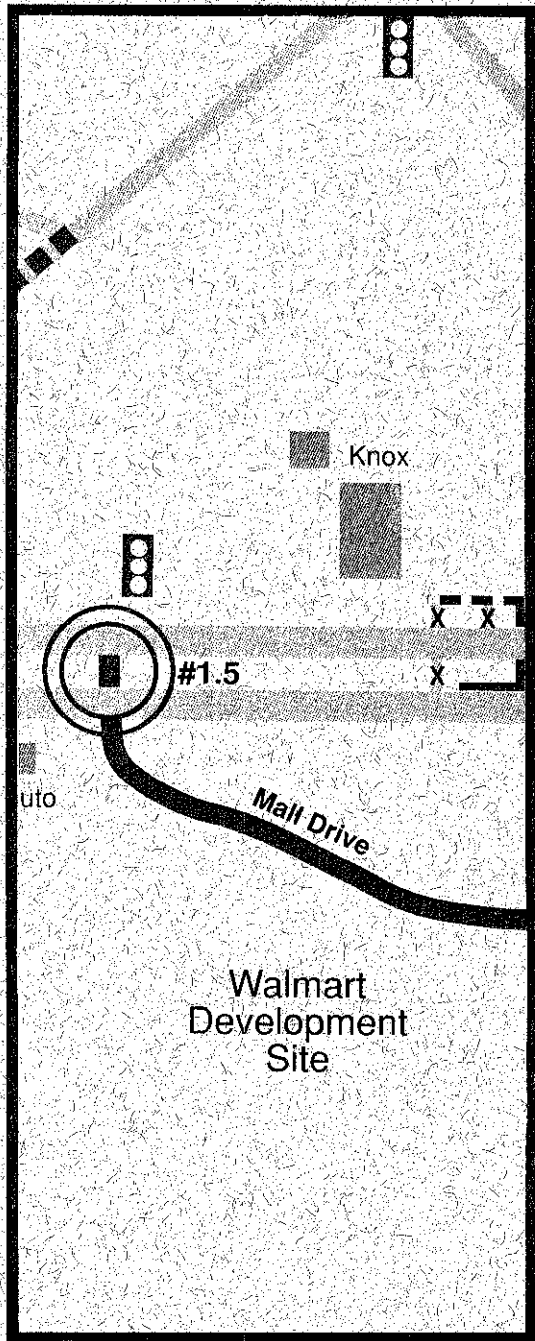
Grace Lutheran Church

MN Outdoor Recreation

Lucky's Sales & Service

Tubby Checker Pool & Spa Center

Rose Road



Impact of Proposed Land Development Concepts

IMPACT OF PROPOSED LAND DEVELOPMENTS

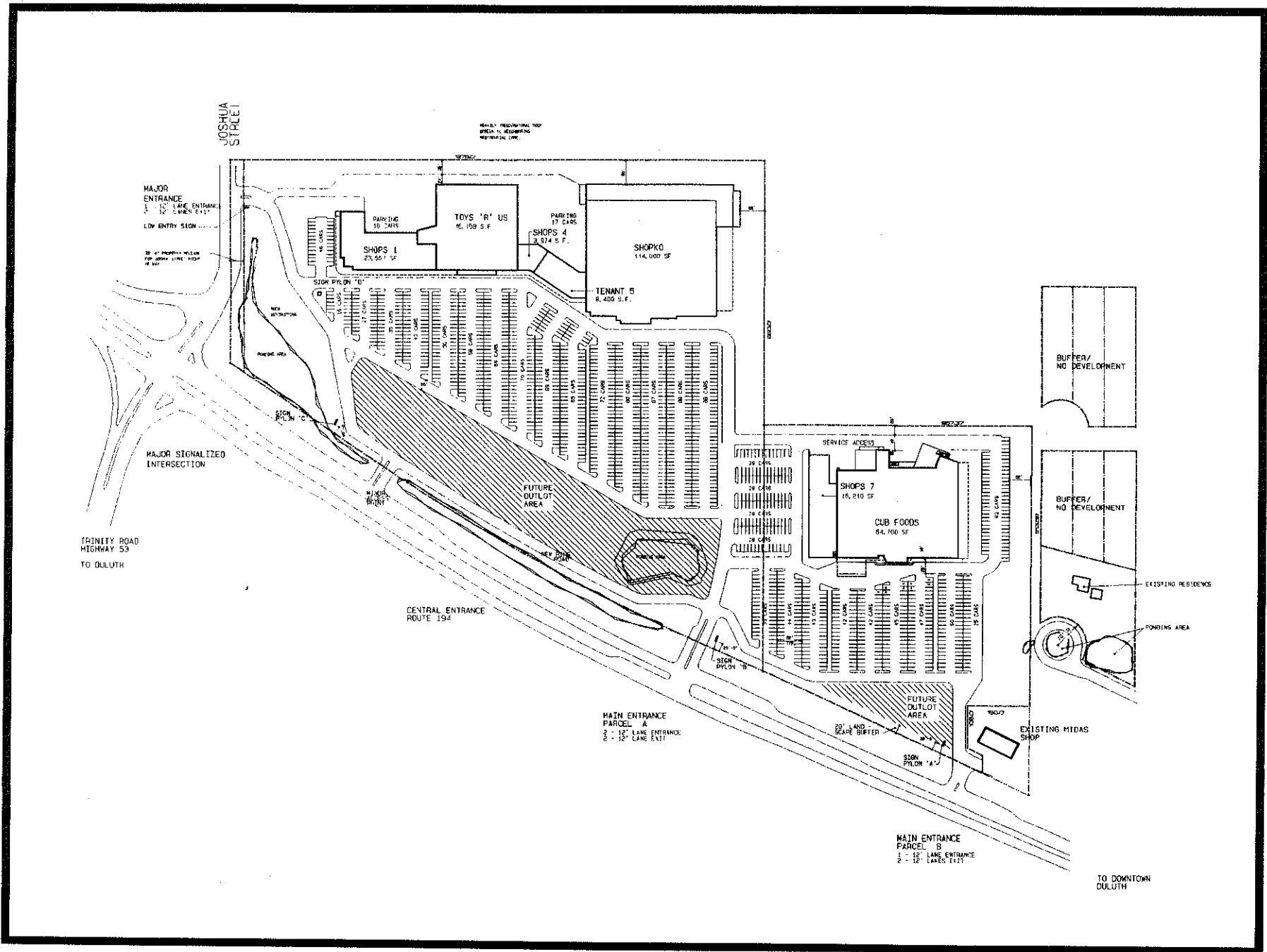
Watson Center

Watson Centers has proposed a retail shopping center development to be located in an area north of Central Entrance (T.H. 194) and east of the intersection with Trinity Road (T.H. 53). The center is proposed to include approximately 287,000 square feet of retail space and has received approval from the Duluth City Council for rezoning of a portion of the area.

Watson Centers prepared a traffic impact study for the development as part of its state permit application process. The study was prepared by the consulting firm of Klaers, Powers & Associates. The study indicated that the development will add approximately 8,200 to 13,500 vehicle trips per day to the site. The low estimate is based on MNDOT District 1 staff estimates of generation rates in the Duluth area. The higher estimate is based on the Institute of Traffic Engineers Trip Generation Manual of nationwide trip generation rates for specific size and type of developments. The study examined the impacts of the center under two scenarios: one with a new Joshua Avenue roadway connection between the Trinity Road/Miller Trunk intersection and Arrowhead Road, and one without a Joshua Avenue connection. Due to the direct access a new Joshua Avenue would have to the proposed Watson Development, traffic circulation would be significantly impacted. The City of Duluth currently does not plan to construct Joshua Avenue in the immediate future.

The study concluded that the existing transportation network would not be negatively impacted from the increased traffic volumes generated by the Watson Development. The capacity analysis performed as part of the study indicated that all intersections would operate at a level of service C or better. (Level of service is an indication of traffic flow through an intersection, with level C being considered "stable flow of traffic, with some brief, occasional congestion".) However, the analysis did indicate the new intersection proposed to be created as part of the development - the second entrance to the Watson development on Central Entrance (T.H. 194) (a full intersection with median cross-over), would have a level of service E. This new intersection would be unsignalized and at this level of service exhibits levels of traffic congestion. A traffic signal may be required to improve the intersection. If Joshua Avenue were built, the intersections of Maple Grove Road/Joshua Avenue and Miller Trunk/Joshua/Trinity would also be over-capacity and require improvements. MIC, MN/DOT and City of Duluth staff reviewed the results of the Watson Center Traffic Impact Study and accepted the results as shown.

This traffic analysis of the Miller Trunk Highway Corridor did not examine the need for Joshua Avenue. The MIC has already established a need for this roadway connection as part of the area's long range transportation plan. This need was established prior to the proposal for the Watson development. (See the MIC Long Range Element of the Duluth-Superior Transportation Plan (1986) for details.)



MAP 1: Watson Development Site

Walmart Department Store

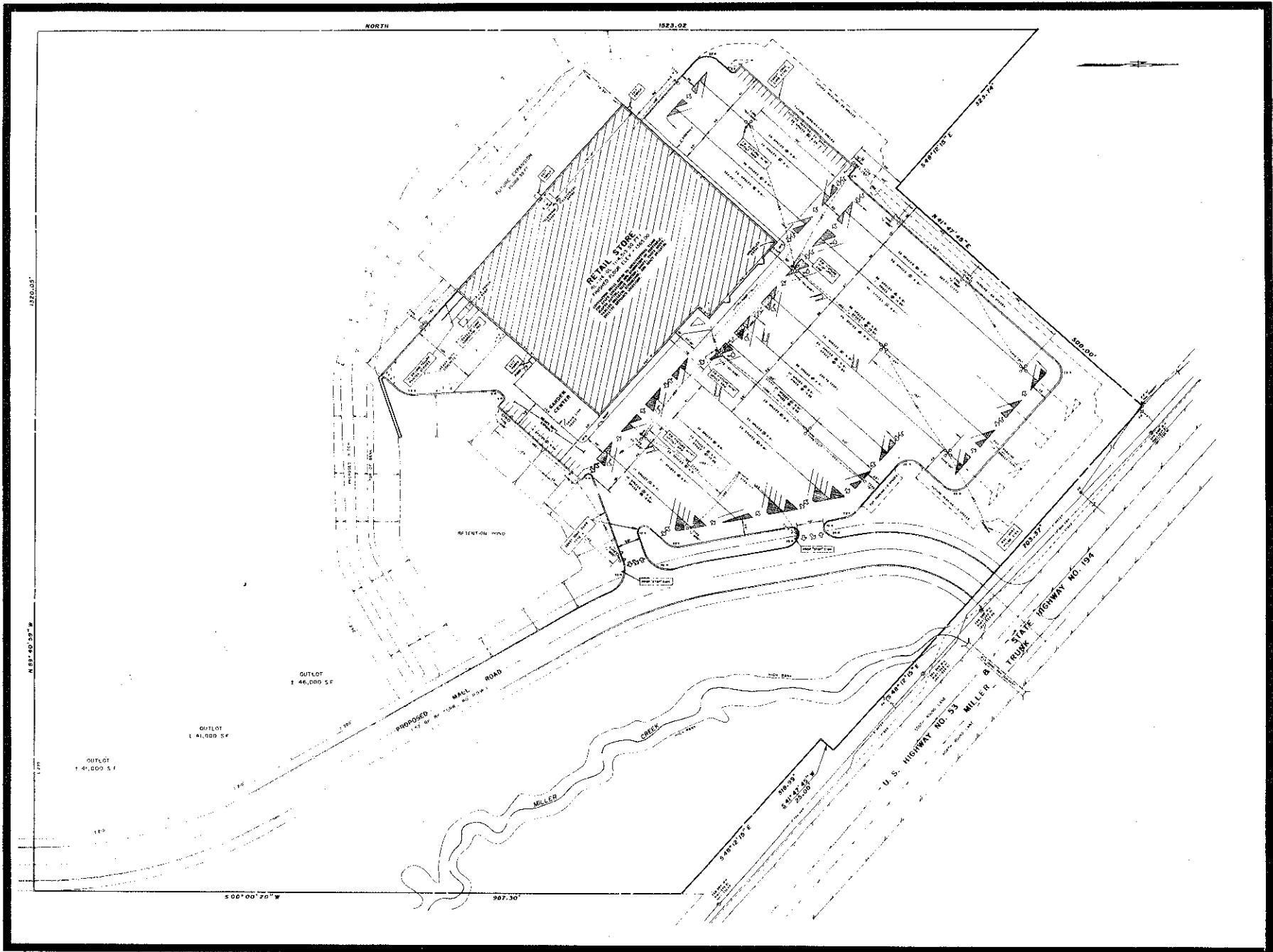
The Walmart Corporation has proposed a retail development in the City of Hermantown to be located south of T.H. 53 and west of the Haines Road. The development would include only a Walmart department store only, without any adjacent development at this time. The store would be approximately 115,000 square feet with potential expansion of 30,000 additional square footage. Potential separate development areas are also available adjacent to the site which could accommodate up to 30,000 square feet of additional development. This total is expected to generate 5,340 vehicle trips per day to the site. See map on page 52.

The site will be served by an extension of the existing frontage road (Mall Drive) from Haines Road to T.H. 53. The frontage road will be constructed as part of the development and will intersect T.H. 53 at a point approximately mid-way between the Haines and Arrowhead Road intersections. The new intersection created on T.H. 53 with the frontage road will require signalization. It has been agreed that the frontage road extension will be constructed prior to the opening of the development.

Other intersections in the area, with the exception of Haines Road and Mall Drive are expected to continue to function with a reasonable level of service. In order to accommodate the increased traffic, signals will be required at the intersection of Haines Road and Mall Drive. The multiple jurisdictions responsible for this intersection: the cities of Hermantown and Duluth and St. Louis County will need to work cooperatively toward funding for this project. MNDOT examined the following intersections in the area and proposed the following priority for signalization:

1. Mall Drive/Maple Grove Road
2. Mall Drive/Haines Road
3. Maple Grove Road/Haines Road
4. Mall Drive/Decker Road

The technical sub-committee also discussed potential easements for future access roads to the site. These easement locations are currently under consideration by the City of Hermantown for future access.



MAP 2: Walmart Development Site

Retail/Residential Development Across from Target

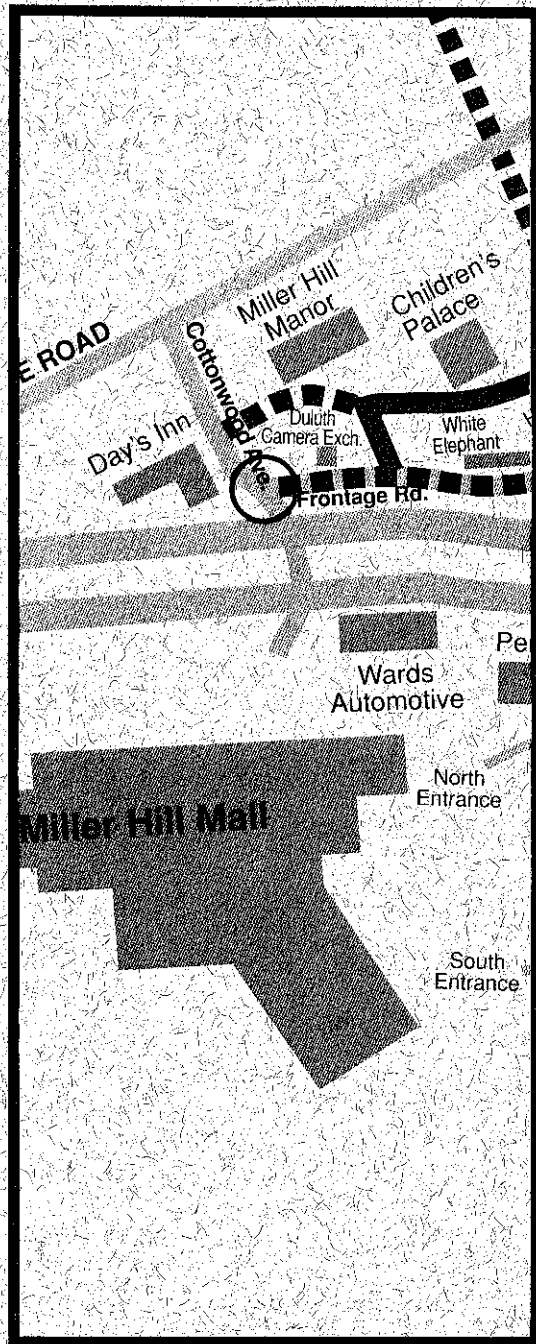
A "planned unit development" consisting of a restaurant, convenience store, motel, and adjacent multifamily residential complexes has been proposed in an area north of T.H. 53 between the highway and Sundby Road. The development would consist of 80-100 motel units (30,000 square feet), a 4-5,000 square foot restaurant, and approximately 45,000 square feet of apartments. The developer has proposed a service road which would connect the T.H. 53 to provide access to the commercial area. The intersection with the highway would connect to the north-bound lanes of T.H. 53, providing "right-in, right-out" turns only.

The Study Advisory Committee (Duluth Technical Subcommittee) reviewed several versions of this development proposal. It was decided that if this or another development occurred on this site, a service road connection to Sundby Road would be a necessary improvement. Depending on the outcome of longer range plans for the nearby intersection of T.H. 53/Maple Grove Road intersection, connection of this service road should not be aligned with the median cross-over on T.H. 53 to provide a full intersection.

Motel/Residential Development south of Village Mall

A motel and residential development has been proposed for the area south of the Decker Road behind the Village Mall. The development is in the preliminary planning stages at this time. An extension of Burning Tree Road, from its present terminus at Mt. Shadow Drive, to Decker Road is proposed as part of the development.

The Study Advisory Committee (Duluth Technical Subcommittee) recommended the Burning Tree Road extension be completed as part of this development and that the roadway be widened to four lanes from Maple Grove Road to accommodate this and other development in the area.



Transit, Bikeways, and Pedestrian Recommendations

TRANSIT

Background

The Duluth Transit Authority (DTA) currently maintains regular service to the Miller Hill area via two routes: 1) Duluth Heights-Miller Mall route, and 2) Lakeside-to-the-Mall route. In addition, passengers may use a transfer and make a connection to a route serving the Mall area from any other DTA route. The Mall Area Short Hop -"MASH" service connects the Miller Hill Mall with the K-Mart, Target and Super One Stores. Passengers can ride between any of these locations, on any available bus, for a special ten cent fare.

Recommendations

1. Planning for new development or roadway changes in the Miller Trunk Highway corridor should always involve the DTA to ensure the safe and efficient movement of buses in the area. (City of Duluth, City of Hermantown, St. Louis County, Minnesota Department of Transportation, Duluth Transit Authority)
2. Research into the possibility of extending DTA service into Hermantown to the new Walmart development. (The Metropolitan Interstate Committee will be studying service extension to Hermantown during 1992.) (Metropolitan Interstate Committee, Duluth Transit Authority)
3. Research the possibility of expanding the DTA's MASH Service or developing a shuttle bus service for the Miller Trunk Highway commercial corridor. (Duluth Transit Authority, Metropolitan Interstate Committee)

BIKEWAYS

Background

There is currently an asphalt bicycle trail which runs just south of Trunk Highway 194 from the Harbor View housing near the intersection of Trunk Highway 194 and Mesaba Avenue west to Arlington Avenue. From Arlington Avenue, bicyclists may continue west on Palm Street to Basswood Avenue, north on Basswood Avenue to Myrtle Street and west on Myrtle Street to TH194. At that point, the only option bicyclists have is to reach the Miller Hill Mall area is to travel west on the shoulder of Trunk Highway 194 or to take Arlington Avenue south to Trunk Highway 53 (Trinity Road) and travel north on the shoulder of Trunk Highway 53. Either option is unsafe due to high traffic volumes.

Recommendations

1. Keep bicycle traffic off trunk highways by providing safe alternatives. (City of Duluth, City of Hermantown)
2. Develop an asphalt bicycle trail from the intersection of Anderson Road and Myrtle Street to the Watson development site, thereby providing an alternative to traveling on the shoulder of the trunk highway. After this point, bicyclists would be able to use intersections and service roads in the Mall area. (City of Duluth)
3. The City of Duluth should establish an official bikeway system within the City of Duluth, developed in conjunction with local bicyclists, including an official route for the Miller Trunk Highway corridor. (City of Duluth)

PEDESTRIANS

Background

The Metropolitan Interstate Committee conducted counts of pedestrian traffic at all key intersections for the study. With the pedestrian counts as a base, the Study Advisory Committee reviewed each intersection for adequacy of crosswalks and traffic signals for pedestrians and determined that no additional safety measures were needed.

Pedestrian traffic accommodations away from intersections within the study area are almost nonexistent. There are only two sidewalks, one on Arlington Avenue north of Trunk Highway 194 and one on Maple Grove Road north of Haines Road.

Recommendations

1. Private businesses within the Miller Trunk Highway commercial corridor should evaluate the need to accommodate safer pedestrian travel on their property, including the need for additional lighting and marked pedestrian walkways. (Private businesses in the Miller Trunk Highway commercial corridor)
2. Consideration should be given to incorporating sidewalks into future construction or reconstruction plans for roads in the Miller Trunk Highway corridor (except trunk highways.) (City of Duluth, City of Hermantown, St. Louis County, Minnesota Department of Transportation)
3. Research the possibility of expanding the Duluth Transit Authority's Mall Area Short Hop (MASH) service or developing a shuttle bus service for the Miller Trunk Highway commercial corridor. (Duluth Transit Authority, Metropolitan Interstate Committee)