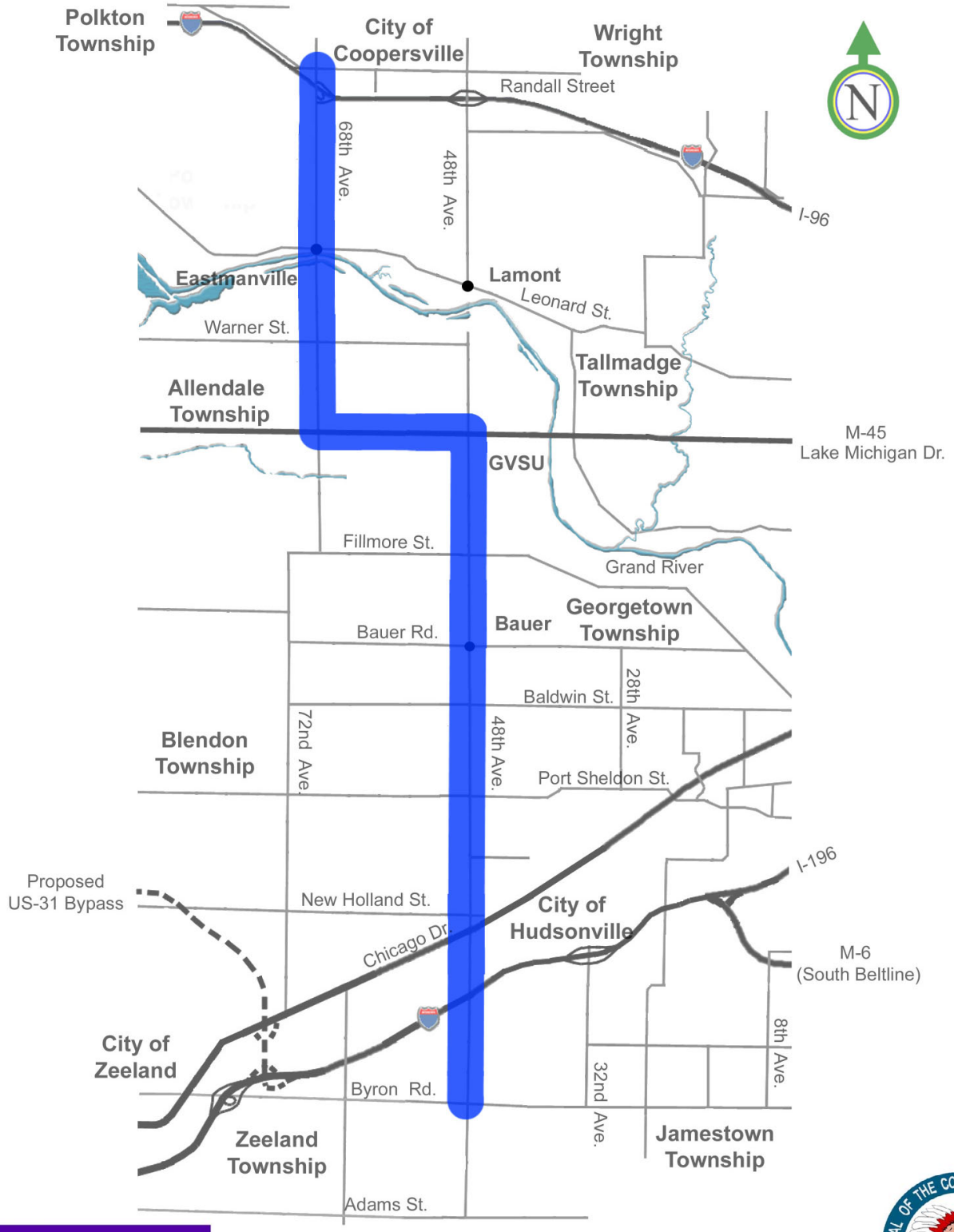
North-South Corridor Study Report

Ottawa County, Michigan



GVMC

North-South Corridor Study

May, 2004

Prepared by: URS Corporation-Great Lakes

Prepared for: Grand Valley Metro Council and the
Ottawa County Planning Commission

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EXECUTIVE SUMMARY

It is common knowledge that Ottawa County is one of the fastest growing areas of the state. This growth, primarily in the form of residential and commercial development, is changing some of the traditional rural land uses in the county and causing many citizens and community leaders to wonder how it will affect their area. The purpose of this study is to focus on the transportation impacts of this anticipated growth for the eastern part of Ottawa County. While this area is currently served with four major *east-west* transportation facilities (I-96, M-45, Chicago Drive and I-196), it has no major *north-south* facility to serve the growing areas of Coopersville, Allendale(GVSU), Hudsonville and Zeeland. All the *north-south* routes in this mostly rural area of the county are currently two-lane county roadways. In addition, there are only two crossings of the Grand River, which traverses the study area, one on M-45 (Lake Michigan Drive) near GVSU and the other at 68th Avenue in Eastmanville.

The anticipated growth in population and area-wide employment opportunities will result in increased traffic volumes for all roadways. However, since it is not practical or desirable to expand all the two-lane north-south roadways into major multilane facilities, the following communities and agencies wanted to identify other ideas and concepts for preserving a single major north-south transportation corridor to serve the area for the long term future:

- Allendale Township
- Blendon Township
- Georgetown Township
- Jamestown Township
- Polkton Township
- Tallmadge Township
- Wright Township
- Zeeland Township
- City of Coopersville
- City of Hudsonville
- Grand Valley State University (GVSU)
- Grand Valley Metro Council (GVMC)
- County of Ottawa Planning Department
- Ottawa County Road Commission (OCRC)
- Michigan Department of Transportation (MDOT)

Study Goals and Objectives

The primary study goals were to:

- Develop a viable north-south corridor from the southern border of Ottawa County to the City of Coopersville with connections to I-196, GVSU and I-96
- Determine the feasibility of and develop recommendations for various corridor management techniques/strategies that will protect and preserve the current and future roadway condition, capacity, safety and aesthetics
- Determine the feasibility and need for additional bridge crossings across the Grand River from Polkton and Allendale Townships east to the Ottawa/Kent County border.
- Determine which, if any, corridors should be preserved for potential future local bridge crossing
- Ensure the ability of the selected corridor to expand for needed capacity

Study Process

Since this study covered a very large area of the county, involved several agencies and communities, and attempted to address several complex issues, the study team decided to approach this effort by using a sequencial planning process that:

1. Assumed a future area growth scenario
2. Estimated future traffic volumes based on the growth scenario
3. Identified possible alternative corridors and Grand River crossings
4. Utilized public meetings to gain input on practical corridor alternatives
5. Selected a preferred corridor
6. Identified future road designs based on each community's anticipated needs
7. Prepared cost estimates for entire corridor
8. Prioritized where improvements were needed along corridor
9. Provided guidelines for communities to preserve the corridor for future growth

Study Recommendations

The Recommended Corridor**, Alternative A**, is depicted on the cover of this report. It includes 48th Avenue (from Byron Road north to M-45, Lake Michigan Drive), M-45 (between 48th and 68th Avenues) and 68th Avenue (from M-45 north to Randall Street in the City of Coopersville).

Long range (over the next 30+ years) recommended improvements along the corridor include:

- Upgrade 48th Avenue to a 2-lane County *Primary* road from Byron Road north to Chicago Drive
- Upgrade 48th Avenue to a 4-lane roadway from Chicago Drive to Barry Street
- Upgrade 48th Avenue to a 5-lane roadway from Barry Street to Bauer Road
- Upgrade 48th Avenue to a 4-lane boulevard from Bauer Road to M-45 Lake Michigan Drive
- Utilize the recently improved M-45 between 48th Avenue and 68th Avenue
- Upgrade 68th Avenue to a 5-lane roadway from M-45 north to Cardinal Street
- Upgrade 68th Avenue to a 4-lane boulevard from Cardinal Street north to the Grand River
- Widen the existing 68th Avenue Grand River crossing to a 5-lane bridge or add a sister bridge
- Upgrade 68th Avenue to a 5-lane roadway from the Grand River north to Randall Street

The most important need identified by this study is to **establish and preserve the right of way** for this entire corridor now, before it is fully developed, so that any future road projects will have a fair chance of being funded and built.

The **most urgent segment** in the corridor needing attention is along **68th Avenue north of M-45** where current and forecasted traffic volumes exceed desired capacities for this two-lane roadway. This segment contains recommended and costly bridge widenings over the Grand River in Eastmanville and over the I-96 freeway in Coopersville. Therefore, there is a real need to move forward with the more detailed planning/engineering steps and to obtain funding and community support. The 68th Avenue bridge widening work over the I-96 freeway has been approved since this study first began and is being rebuilt during the 2004 construction season.

In addition to the above recommendations, the study recommends that each community along this corridor consider the following:

- Modify local zoning ordinances (building setbacks, establish overlay districts, etc.) so as to preserve the selected corridor for desired development patterns and future transportation improvements
- Develop a township Traffic Circulation Plan for anticipated developments adjacent to corridor
- Incorporate access management techniques in township development policies
- Incorporate a non-motorized trail plan along one or both sides of the corridor
- Create aesthetic guidelines (landscaping, signing, lighting, etc.) for the corridor

1.0 INTRODUCTION

The communities and townships in eastern Ottawa County can clearly see that long range planning needs to be done to accommodate the impending population growth and traffic increases headed their way. The greater Grand Rapids area is expanding westward and the lakeshore area is expanding eastward. Georgetown Township's population alone grew by 9000 residents from 1990 to 2000. Coopersville, Hudsonville and Zeeland are also experiencing growth due to their close proximity to the growing traffic corridors along I-96 and I-196. The new M-6 freeway, serving communities along the southern Grand Rapids area, is scheduled to be open in 2005 and will alter some travel patterns in that area. In addition, Allendale, the home of Grand Valley State University, is experiencing rapid growth in both residential and commercial development.

The Grand Valley Metropolitan Council (GVMC) and the Ottawa County Planning Commission are well aware of these growth patterns and decided to assist these communities by initiating the North-South Corridor Study to look at possible transportation improvement alternatives and community actions that will help address these growth concerns. All these agencies realize that addressing this growth issue and its related transportation needs, is a complex long-term venture that will require a coordinated plan for the next 20 to 50 years.

This study represents one of the earlier planning steps in that it first identified the location of the preferred north-south corridor within the study area and second made recommendations to "manage" this corridor from a transportation perspective. The term "manage" refers to the joint responsibilities and actions needed by the Ottawa County Road Commission (primarily responsible for funding and design of future road improvements) and the corridor communities (primarily responsible for approving land use changes and site developments along the corridor).

Study Area

The study area used for the north-south corridor study was bounded by:

- North – I-96 / Coopersville area
- South – Ottawa /Allegan County Line
- East – Ottawa /Kent County line
- West – 96th Avenue

Scope of Work

Since the study area was already well served by major *east-west* transportation corridors (I-96, I-196, M-45 Lake Michigan Drive and Chicago Drive), there appeared to be a need to look at ways to address the future *north-south* transportation needs of the area. Although the agencies initially proposed numerous and complex issues to be addressed by this study, the means to analyze some issues was not readily available, so the study effort focused on the following scope of work:

- Analyze current traffic and capacity for major routes in the area through the year 2025
- Consider impacts on the road system for a maximum build-out scenario
- Develop alternatives that accommodate growth through the year 2025 and beyond
- Consider potential additional Grand River crossings
- Involve the public in the development of a viable North-South Corridor
- Determine the preferred road type in the corridor
- Provide access management guidelines for the communities along the corridor
- Develop cost estimates for desired improvements

1.1 TYPES OF TRANSPORTATION STUDIES

Corridor Study

Corridor studies focus on the "big picture" approach to solving existing and future transportation concerns. These studies look at several transportation improvement options within a *large geographic area* of several square miles that may contain several roadways and communities serving the study area. These studies also look to address transportation solutions over a long-range timeframe with 20 years being the minimal future design year. The end result of most corridor studies is to identify one roadway as being the primary route to be upgraded to handle future traffic growth. Most major routes on the county, state and federal highway systems were initially developed from some version of a corridor study.

Traffic Circulation Study

These studies focus on a variety of street systems operating in a *smaller geographic area* like a township, city, downtown area, school, shopping center and other major commercial or residential development. These studies look at existing and future travel patterns and identify where traffic bottlenecks will occur and which streets or intersections will need improvement. They look at where traffic signals will be needed or where special signal timing or left turn phases will improve traffic flow. They look at major intersection operations, emergency access control, one way streets versus two-way operation, traffic short cuts, commercial traffic impacts, etc. A key output of these studies are specific recommendations to improve the traffic circulation through and/or around the identified study area. These studies also attempt to prioritize the capital improvements needed so funding sources can be more effectively utilized.

Access Management Study

These studies usually focus on driveway and intersecting street access issues along *one major highway or street* in a city or township. Access management is a set of proven techniques that can help reduce traffic congestion, preserve traffic flow, improve traffic safety, prevent crashes, and preserve existing highway capacity. These actions preserve the public investment in roads by managing the location, design, and type of access drives allowed to properties along a roadway. The idea is to balance motorist access to adjacent properties while also protecting the integrity and purpose of the major roadway.

The Access Management Guidebook, prepared by the Planning and Zoning Center, Inc. for the Michigan Department of Transportation in 2001, provides detailed information on various access management strategies and illustrates which items need to be considered in an access management study.

Traffic Impact Analysis or Traffic Impact Study

This type of study usually focuses on a *single development* (school, restaurant, shopping center, subdivision, etc) and how its traffic will impact the local highway network and the community's nearby residents and businesses. These are considered to be specialized studies that are unique for the type of traffic generated and the location of the proposed development. Since traffic concerns are a major "hot button" public issue, traffic impact studies should become a regular part or requirement of a local agency's site development review process. These studies can determine if the new traffic patterns generated to/from the proposed development will work safely for the intended site location. The studies identify improvements needed for internal on-site traffic operations as well as or off-site locations.

Evaluating Traffic Impact Studies, a study published by the Michigan Department of Transportation in 1994, serves as a comprehensive guide for how, when, and why a community should conduct this type of analysis during the site development process.

1.2 CORRIDOR STUDY PROCESS

The North-South Corridor study process:

- Identified initial study issues, possible corridors and possible river crossings
- Analyzed 2025 traffic volumes for possible corridors (using community master land use plans and the GVMC model to forecast future traffic volumes)
- Refined the possible corridors down to three practical alternatives (Alternatives A, B and C)
- Used public meeting input, community leader input, and preliminary cost estimates to select Alternative A as the Recommended Corridor
- Reviewed alternatives and possible highway cross section designs with each community
- Offered Township guidelines for managing the corridor for future development and land use change

1.3 STUDY ISSUES

This portion of Ottawa County has experienced considerable growth over the past several decades and is expected to continue to grow in the future. No continuous north-south corridor currently exists within the study area. The only existing continuous north-south route in the county is US-31, west of the study area. The US-31 Bypass is planned by MDOT, but it is years away from construction, and is also west of the study area. Existing north-south roadways within the study area are experiencing increased travel demand and spot congestion, with some portions of 68th Avenue near Eastmanville currently considered to be capacity deficient. Existing communities, businesses, and GVSU are concerned with:

- Impacts associated with a widened or improved corridor
- Increasing congestion, discontinuous streets, limited connections to I-196 and I-96, and limited Grand River crossings within the study area
- Traffic operation issues such as local driveway access, travel delay at major intersections, safety, high crash intersections and requests for new traffic signals
- Traffic speeds through residential areas, truck traffic, and cut-through traffic
- Planning and zoning issues, such as development without adequate infrastructure (roads and utilities)
- Political issues, such as limited funding, consensus on growth scenarios, development densities and farm land preservation
- Improving non-motorized facilities within the study area

1.4 STUDY GOALS AND PRIORITIES

The North-South Corridor Study sought to select a north-south corridor for future travel demand while balancing impacts to the community. This corridor would be developed as the major north-south through route, and may prevent the need to widen other area local roadways to five lanes. Specific objectives included:

- Identify a primary north-south corridor, with connections to I-196, GVSU and I-96
- Develop corridor management techniques that could be used by the communities to preserve and protect the corridor for future needs as a primary transportation facility
- Analyze potential Grand River crossing locations and their effectiveness in meeting the first stated goal
- Determine which corridors and Grand River crossings should be preserved for future needs
- Recommend corridor right-of-way widths that will allow for future vehicular and non-motorized traffic in the corridor

2.0 HISTORICAL TRENDS AND PROJECTIONS

The eastern half of Ottawa County has seen its population, employment, land use and vehicular traffic on local roadways change considerably over the past 30 years, a trend that is forecasted to continue well into the future. The area is transforming from an agricultural economy to one based on service-oriented businesses and bedroom communities for nearby job markets. In addition, Grand Valley State University in Allendale has matured into a large regional university with a student population of 20,000.

In response to the recent and anticipated growth along the M-45 (Lake Michigan Drive) corridor, this roadway was widened from a two-lane roadway to a four-lane boulevard. This 7-mile improvement project was built over several years and cost nearly $50 million, including two new major bridges over the Grand River ($10 million). This project was completed in 2002. This roadway, I-196, I-96 and Chicago Drive (old M-21), are four major state trunklines traversing the study area. These facilities primarily serve east-west travel, and there are no state trunklines planned to serve north-south travel in the study area. Instead, the north-south travel patterns are accommodated via the county primary and local road systems.

2.1 MAXIMUM BUILD OUT SCENARIO

One of the initial study objectives was to attempt to project population and corresponding travel patterns beyond the traditional 20 year design horizon. The proposed future scenario was to depict the east Ottawa County study area as having experienced its "maximum build out" potential for some distant future year. The intent of this kind of analysis was to generate long-range thinking and consider corresponding transportation planning issues so that this study was not limited by traditional short-term transportation improvement options. Meeting this initial objective, while admirable, quickly proved to be a formidable task and the study team had to adjust its expectations in order to proceed with meeting other primary study goals.

Some of the issues encountered with this "Maximum Build Out" scenario were:

- There appeared to be no reliable source that projected population growth for the study area communities beyond 20-25 years
- No one could predict the type of development or where it would locate over this long term period
- Local agency Master Plans usually need updating every 10 years to adjust to changing land use
- Certain areas in the corridor may stay rural with open space tendencies while others may become more urban
- Housing densities and farmland preservation issues may vary by township
- Utility expansion such as water and sewer can have a significant impact on changing traditional development patterns
- The current Transportation Planning Models commonly relied on for this type of future analysis did not go beyond year 2025 and did not cover the entire study area

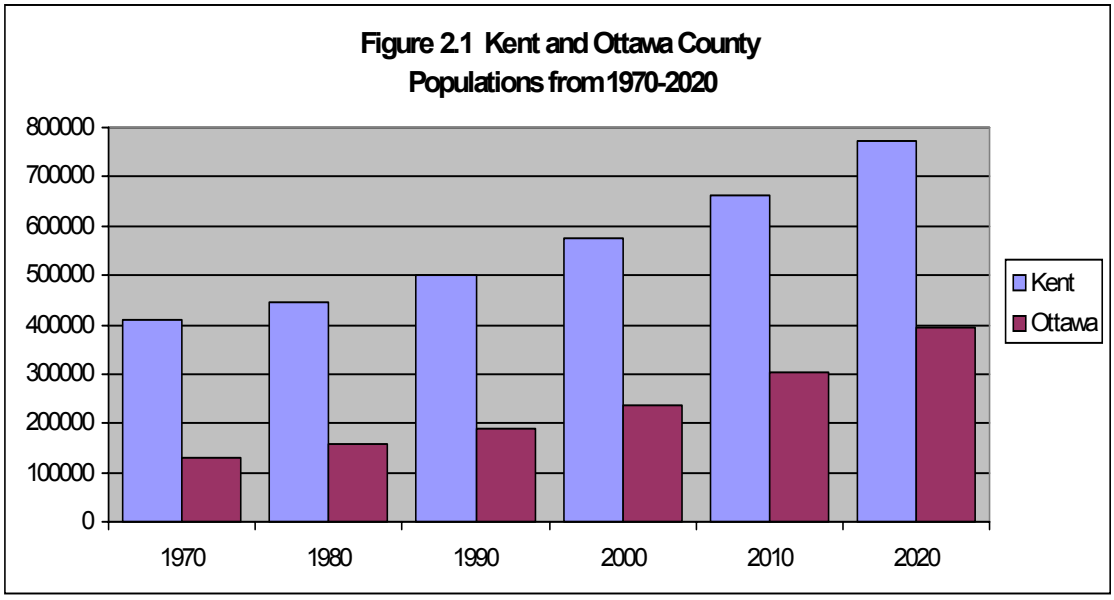
The study team concluded that any attempt to depict a "maximum build out" scenario, with land use details for each community, was well beyond the scope and capability of this study. However, it was also concluded that while future land use options were numerous, the resulting transportation solutions were much more predictable. For example, it was concluded that the predominant transportation mode of the future would still be the automobile for this area of the county and they

would still travel on county roads. Therefore, the corridor study process continued, but with an emphasis on determining where these roads would be located and how many lanes would be needed to accommodate future traffic volumes. The team subsequently partially returned to the traditional planning models with 20 year traffic forecast and relied on local community knowledge and public input to seek reasonable transportation solutions for this study.

As transportation planning models expand their coverage to include wider areas of Kent, Ottawa and perhaps Muskegon counties and new community Master Plans are updated, these new tools may be used to re-evaluate the recommendations contained in this study.

2.2 POPULATION

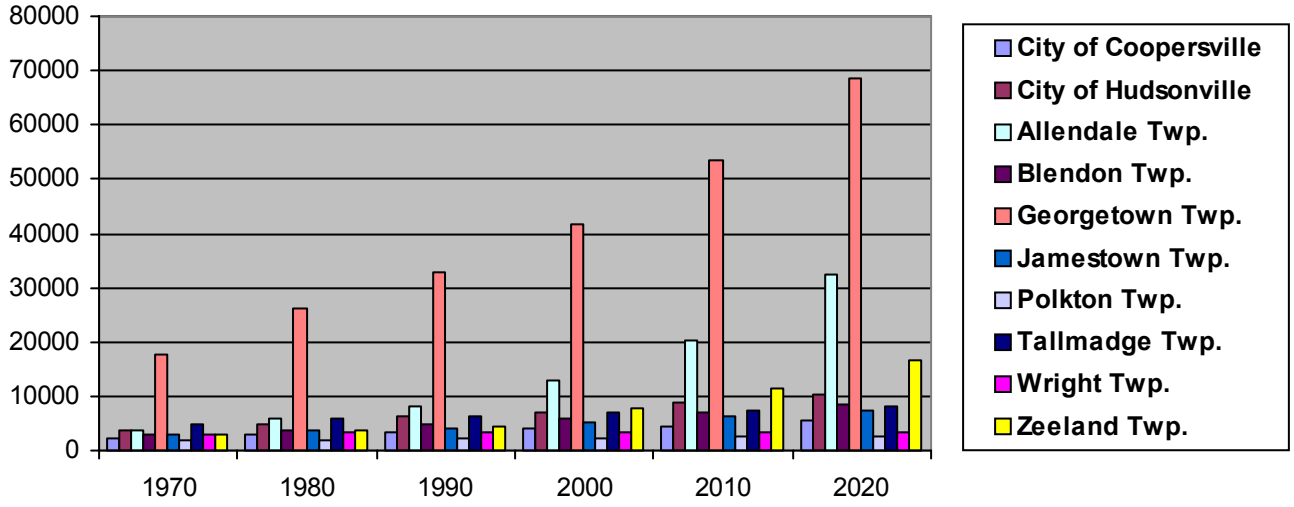
Over the past three decades, the population of Ottawa County increased by 110,000 residents and Kent County by 163,000 (**Figure 2.1**). Projections show continued growth for each County through 2020, with Ottawa and Kent Counties adding an additional 155,000 and 197,000 residents respectively.



Source: 1970 to 2000 Populations from U.S. Census Bureau. 2010 and 2020 forecasts were provided by West Michigan Regional Planning Commission.

Existing and projected population growth, by individual municipalities within the study area, are shown in **Figure 2.2**. Georgetown and Allendale Townships are projected to experience the largest increase in residents, and Allendale and Zeeland Townships the largest percentage of growth between today and 2020. Overall, the study area communities are anticipated to grow by 66,700 residents, a 69 percent increase between 2000 and 2020. None of the study area municipalities are projected to experience a decline in population.

Figure 2.2 Populations of Study Area Municipalities from 1970-2020



Source: 1970 to 2000 Populations from U.S. Census Bureau. 2010 and 2020 forecasts were provided by West Michigan Regional Planning Commission.

2.3 EMPLOYMENT

The study area is becoming primarily a bedroom community for the nearby metropolitan employment areas of Grand Rapids, Holland and Muskegon. Employment opportunities in these metropolitan areas have grown quickly, at twice the rate of population over the last 30 years, and are expected to continue to grow. The largest employment generators within the study area are Grand Valley State University in Allendale, and businesses in the communities of Hudsonville, Allendale and Coopersville.

2.4 LAND USE CHANGE

As indicated earlier, no specific future land use analysis was performed for the communities in the corridor due to the many complexities and variables involved. However, the Michigan State University's (MSU) US-31 Land Use Study was reviewed. This study looked at past (1988 and 2001) and future (through 2020) land use changes within a four county area (Allegan, Kent, Muskegon and Ottawa Counties).

The general study findings showed that the rate of land use change within Ottawa County, although large in comparison to the statewide average, was likely to slow in the coming years. Other conclusions from the MSU study were:

- Land Use change from non-urban uses to urban uses is likely to continue for the foreseeable future
- The completion of M-45 widening in Tallmadge and Allendale Townships will likely hasten additional near-term development along it
- Eastern Ottawa County will continue to transform from a rural area to a suburban area, as the number of farms and agricultural related businesses continue to decline while the number of service sector jobs and businesses continue to grow

The MSU analysis also concluded that most communities within the study area will continue to have an abundance of developable land beyond 2020, making land use decisions a key factor that will shape the study area in years beyond 2020.

A brief analysis of the aerial photographs for the recommended 19.5-mile corridor shows the following current land use frontage (the total frontage is twice the length of the corridor, to account for the two sides of the roadway):

- 17.3 miles of open space (fields, forest, rivers, etc.)
- 14.4 miles of residential
- 5.3 miles of business (industrial and commercial)
- 2.0 miles of church/school (primarily GVSU property)

The major land use along the Alternative A corridor is still an open area, primarily used for agriculture, as shown in **Figures 2.3 and 2.4**.

Figure 2.3 Land Use Frontage along the Alternative A Corridor

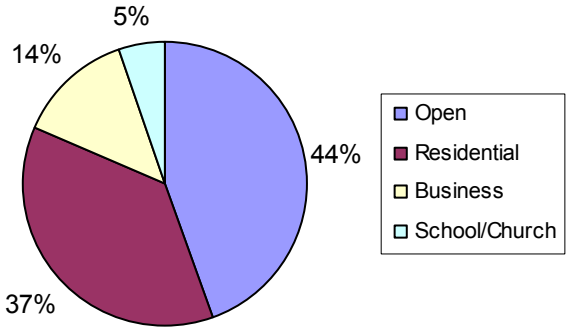
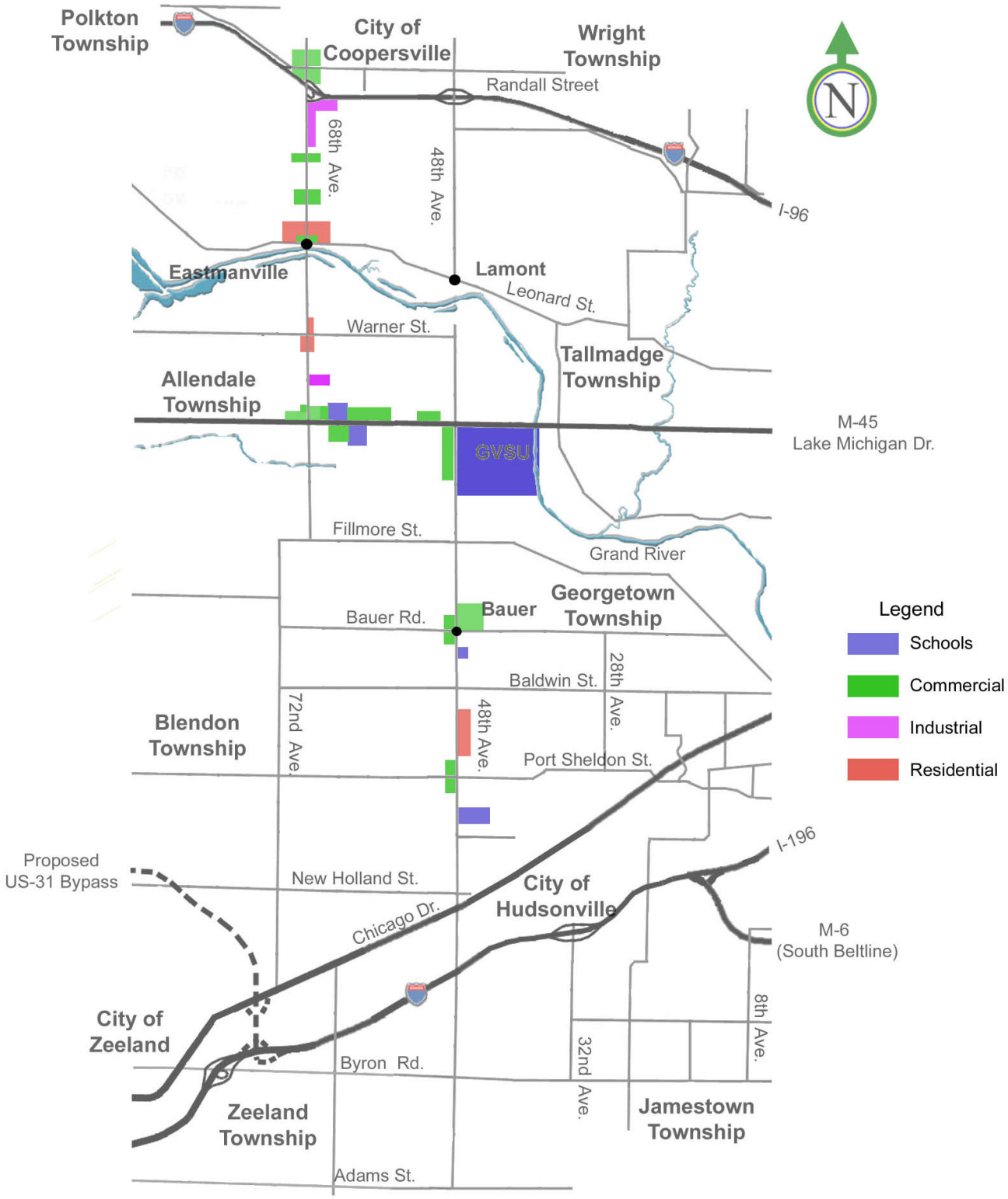


Figure 2.4 Land Use Plans along the Alternative A Corridor



2.5 VEHICULAR TRAFFIC

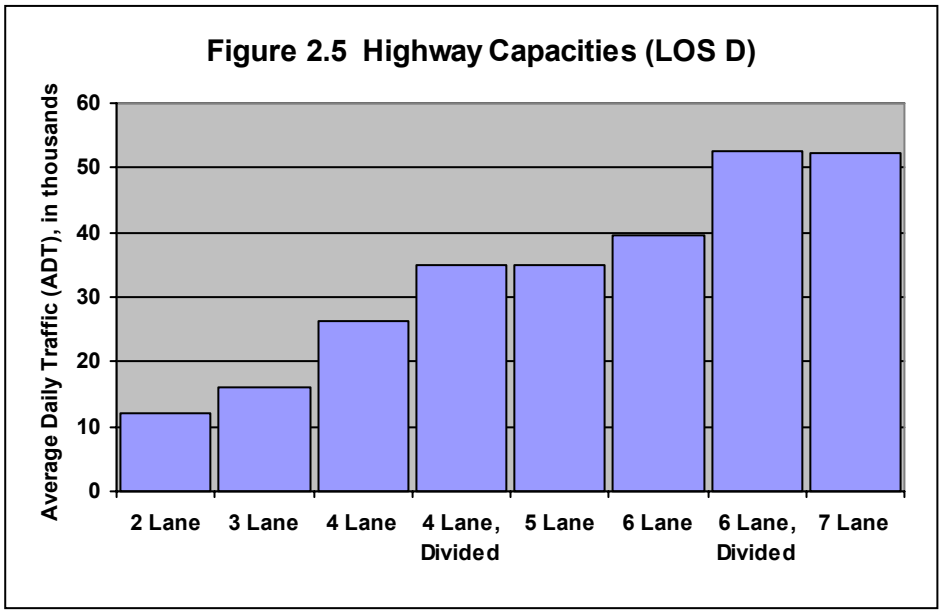
2.5.1 Grand Valley Metro Council (GVMC) Transportation Planning Model

Although the Study Team initially wanted to provide forecasted traffic volumes for the roadways in the study area that represented the "maximum build out" growth scenario, it chose to instead rely on the baseline 2025 conditions modeled by the GVMC. This transportation model is currently utilized as an accepted evaluation tool for all planned transportation projects (OCRC and MDOT) within the region. The future travel estimates generated by this planning model are based on population forecasted throughout the region and the land use master plan assumptions developed by the local communities. The GVMC transportation model was also initially used to forecast traffic projections for various Grand River crossing alternatives and corridors within the study area. However, these traffic projections were limited because the model did not cover the entire study area and many townships were located on the outer fringe of the model's traffic assignments. For example, the model could not adequately simulate a trip from GVSU(in the model area) to Holland(outside the model area).

However, while no other transportation planning models exist at this time, transportation planners envision that a more comprehensive model may be developed in the future that will cover the metropolitan areas of Holland, Muskegon and Grand Rapids.

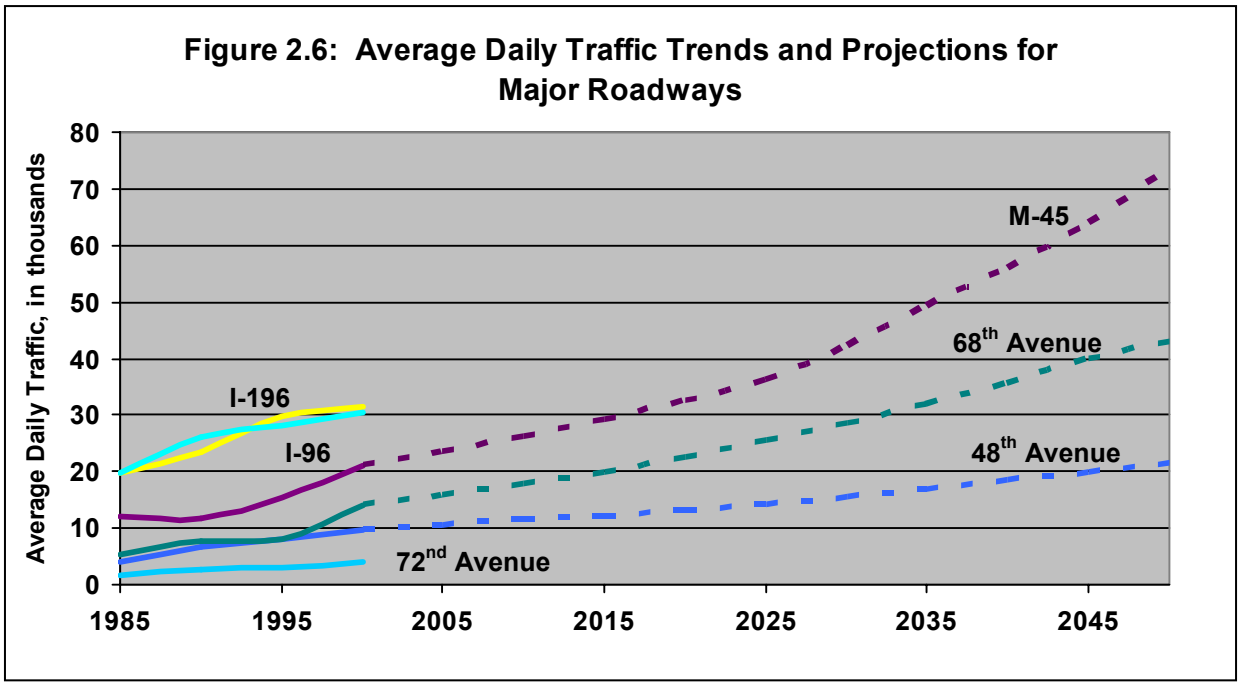
2.5.2 Highway Capacity (Level-of-Service)

The maximum traffic carrying capacity of a roadway is dependent on such factors as the number of lanes, lane widths, shoulder widths, geometry (horizontal and vertical curves), speed, cross-slope, sight distance, number of drives, signalized or unsignalized intersections, etc. The carrying capacity of various roadway types is commonly used in traffic models to identify when they will become congested. This can be represented graphically as shown in **Figure 2.5**. Capacities are typically given a grade or Level of Service (LOS), with LOS A being the best and F the worst. Level of Service D is considered to be an acceptable highway design criteria in that it would carry the most traffic volume for the dollars spent to build the facility. The actual carrying capacity of a specific roadway should be determined by a qualified roadway or traffic engineer on a case by case basis. The bar graphs in **Figure 2.5** also represent the maximum capacities utilized by the GVMC planning model. For example, a two- lane road is perceived to be congested by the motorist when its traffic volumes reach approximately 12,000 vehicles per day (LOS D). This number is considered a key indicator or "trigger" that actions (road improvements) need to be taken to provide traffic relief for this roadway.



Source: GVMC

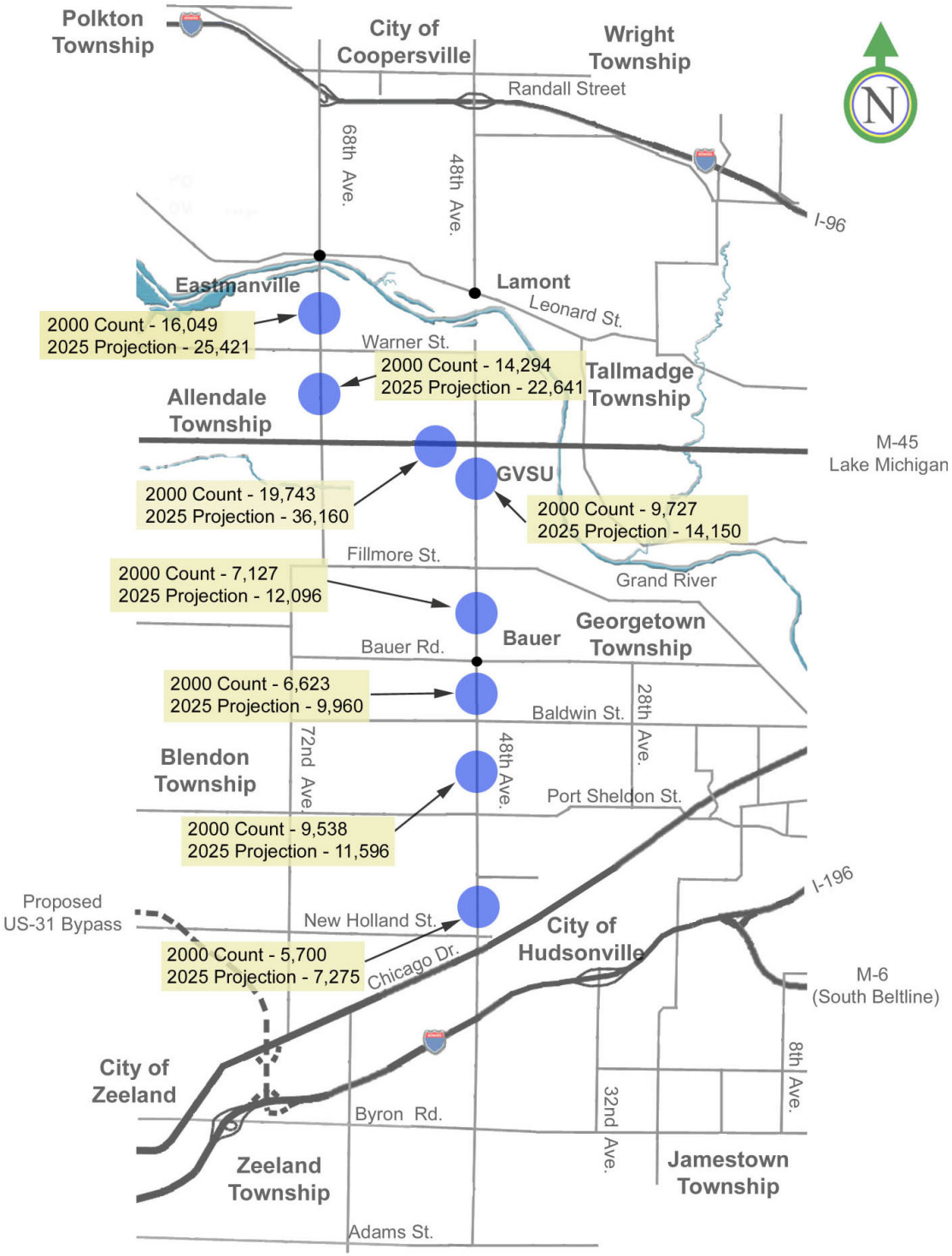
In developing areas, national studies have shown that vehicular traffic growth usually exceeds that of population growth, which has been the case in this area as well. Average Daily Traffic (ADT) trends and projections on select study area roadways are shown on **Figure 2.6**. This graph shows that current traffic volumes on 68th Avenue (near Eastmanville) has approached the trigger value of 12,000 vehicles. M-45's current traffic volumes are known to be 17,000 vehicles per day through Allendale and nearly 22,000 vehicles per day in Standale. Projections illustrated beyond 2025 are uncertain, but they are useful in determining possible trends for the distant future.



Source: OCRC, MDOT, and GVMC

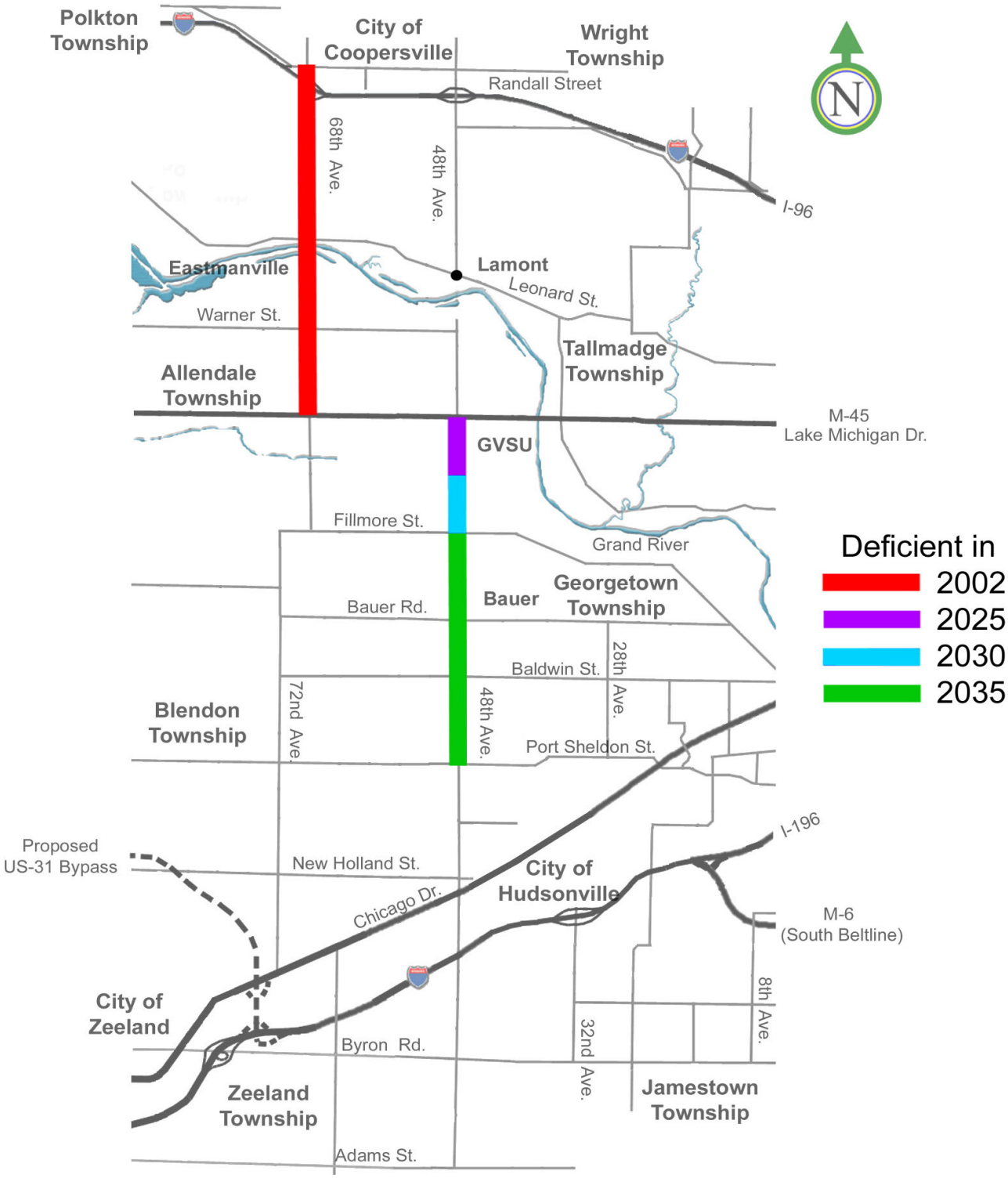
Future traffic model projections were performed for this study area in 10 year increments to determine which roadways would likely need major improvements and estimated a future date for when they would be needed. **Figures 2.7 and 2.8** represent the findings of the analysis done by the Grand Valley Metro Council. This analysis indicated that portions of 68th Avenue are already in need of improvement, while improvements to 48th Avenue at the south end of the corridor may not be needed until beyond year 2025.

Figure 2.7 Average Daily Traffic Counts and Projections at Spot Locations



Source: GVMC traffic model

Figure 2.8 Capacity Deficiencies



Source: GVMC traffic model

2.6 SUMMARY

In summary, the study area communities of eastern Ottawa County have seen varying, but positive population, economic, and vehicular traffic growth over the last three decades, which is projected to continue, but perhaps at a somewhat slower rate through 2025. The key factor behind this growth is the Grand Rapids and Holland area's strong and diverse economy. As the area continues to grow, the need for an improved north-south corridor will increase for the current and future residents, commuters and visitors of the study area.

3.0 CORRIDOR ALTERNATIVES CONSIDERED

This section discusses the various corridors that were considered as part of this study. The traditional sequential transportation planning process was followed in that the study team generated an initial list of many *possible* corridor alternatives to study. This list was analyzed based on the intended study objectives and further refined down to three *practical* alternatives. The *practical* alternatives (A, B and C) were then presented to the public for evaluation and comment in October, 2002. The public comments were reviewed and further analysis was performed. This analysis was reviewed with each community and resulted in a consensus recommendation. That recommendation selected Corridor A as the *preferred* alternative for this study.

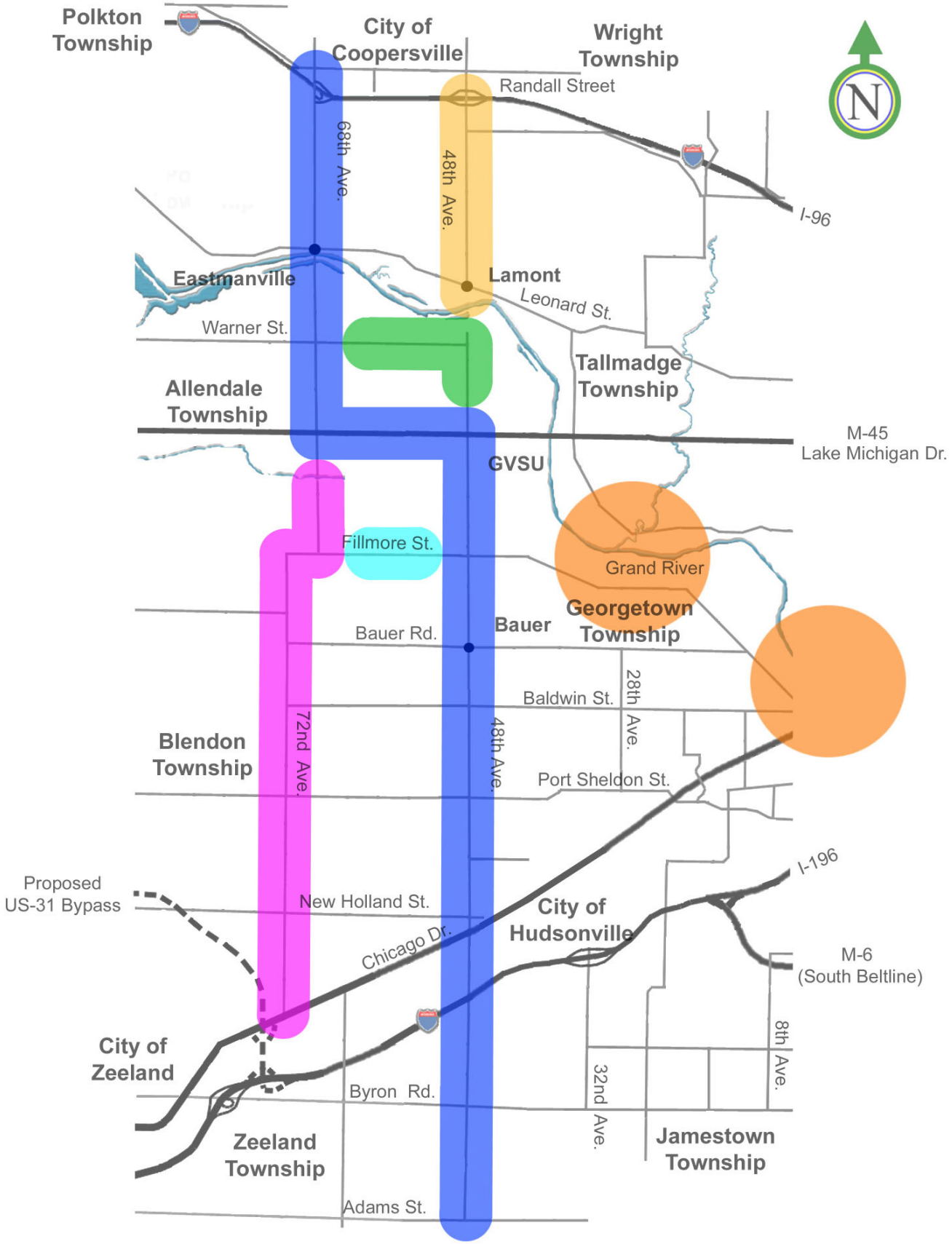
Once Corridor A was determined, the efforts then focused on developing the preferred road type to plan for within the corridor. This analysis used several tools including forecasted traffic volumes from the GVMC 2025 model, local community knowledge of master plans, highway design criteria, capacity analysis, cost, potential environmental issues, etc.

3.1 POSSIBLE CORRIDORS

Several general corridors were considered, four of which were modeled by GVMC. An additional corridor was previously modeled by MDOT as part of the I-196/Baldwin Road Connector Study. The initial corridors considered were (see **Figure 3.1**):

- 48th/68th Avenue via M-45 (includes an expanded 68th Avenue Grand River crossing)
- 48th/68th Avenue via Warner Street (includes an expanded 68th Avenue Grand River crossing)
- 48th/68th Avenue via Fillmore Street (includes an expanded 68th Avenue Grand River crossing)
- 48th Avenue (includes a new 48th Avenue Grand River crossing at Lamont)
- 72nd/Fillmore/68th Avenue (includes an expanded 68th Avenue Grand River crossing)
- 28th/Linden Drive (includes a new Grand River crossing)
- Cottonwood Drive/Burton Street (includes a new Burton Street Grand River crossing)

Figure 3.1 Corridors Considered



3.1.1 48th/68th Avenue via M-45

This corridor makes use of 48th Avenue from Byron Road north to M-45, M-45 west to 68th Avenue, and 68th Avenue north to Randall Street in Coopersville. It uses the existing 68th Avenue crossing of the Grand River.

The GVMC traffic model indicated that this corridor and Grand River crossing would fulfill most of the north-south transportation needs of the study area through the design year of 2025, and beyond. An additional location for crossing the Grand River would not be needed for this alternative.

3.1.2 48th/68th Avenue via Warner Street

This corridor is similar to the 48th/68th Avenue via M-45 corridor, except that it stays on 48th Avenue north of M-45 and then connects to 68th Avenue via Warner Street. It uses the existing 68th Avenue crossing of the Grand River. Portions of 48th Avenue and Warner Street would need to be paved and designated as a county primary roadway.

The GVMC traffic model indicated that this corridor and Grand River crossing would fulfill most of the north-south transportation needs of the study area through the design year of 2025, and beyond. An additional Grand River crossing would not be needed with this alternative and traffic volumes would be similar to those in the 48th/68th Avenue via M-45 corridor.

3.1.3 48th/68th Avenue via Fillmore Street

This corridor would be similar to the 48th/68th Avenue via Warner Street corridor, but would use Fillmore Street instead of Warner Street.

The GVMC traffic model indicated that this corridor and Grand River crossing would fulfill the transportation needs of the study area through the design year of 2025, and beyond. However, it is not adjacent to GVSU, so there would be minimal benefit to one of the study area's main traffic generators. Traffic volumes would be similar to those in the 48th/68th Avenue via M-45 corridor.

3.1.4 48th Avenue

This corridor would upgrade 48th Avenue throughout the entire study area, and include a new Grand River crossing near Lamont. Since this alternative involved extending 48th Avenue north of Warner Street some roadway alignment concepts were looked at to minimize the impacts on Lamont. These concepts are illustrated in **Appendix B**.

The GVMC traffic model indicated that this corridor and Grand River crossing would fulfill most of the transportation needs of the study area through the design year of 2025, and beyond. It would provide a new Grand River crossing and a very direct route through the study area, with connections to GVSU and I-96.

3.1.5 72nd/Fillmore/68th Avenue Corridor

This corridor makes use of two existing primary paved roads to form a continuous north-south corridor through the study area. It would utilize the existing 68th Avenue crossing of the Grand River rather than providing a crossing in a new location.

This corridor is near the western edge of the study area and is not highly used at the present. It would provide a continuous route through the study area, but it does not pass near GVSU or the Georgetown/Hudsonville area, and would not likely benefit emerging travel trends. In addition, 72nd Avenue is less than a mile east of the proposed US-31 Bypass interchange with I-196, which means that 72nd Avenue is too close and would not warrant an interchange with I-196.

3.1.6 28th/Linden Drive Corridor

This corridor would utilize 28thAvenue south of the Grand River and provide a new Grand River crossing between 28th and Linden Drive. Traffic would use Linden Drive east to 8th Avenue or west to Leonard and 48th Avenue in order to connect with I-96.

This corridor would provide a new Grand River crossing within the study area. However, the crossing would not provide good access for many of the study area residents. It would likely function as an access route to the east-west road, M-45, for residents of Georgetown, rather than improved north-south access throughout the area. In addition, it does not pass near the traffic generators of GVSU, Allendale, or Coopersville.

3.1.7 Cottonwood Drive/Burton Street Corridor

This Grand River crossing corridor was not analyzed as part of this study, but was looked at extensively as part of MDOT's Baldwin Road Connector Study. That study determined that the corridor's benefits were not enough to warrant any further study, and that the recommended Baldwin Road Connector would best address Georgetown Township's access and congestion concerns.

This Grand River crossing is on the extreme east side of this study area. It is questionable whether it would fulfill the study's stated purpose of establishing a north-south corridor as well as other corridors being considered.

3.2 OTHER RELATED CORRIDOR ALTERNATIVES

3.2.1 I-196/48th Avenue Interchange

An interchange at I-196/48th Avenue was reviewed and modeled by GVMC. The 2025 traffic projections at this location did not warrant the planning, design, or construction of a new interchange at this time. In addition, The Michigan Department of Transportation would not support a new interchange at 48th Avenue because of the nearby location of the existing 32nd Avenue interchange at Hudsonville and the proposed new US-31 freeway bypass near Zeeland. However, if significant land use changes occur due to intense development in this area then the interchange feasibility may warrant another review.

3.2.2 68th Avenue/I-96 Interchange Improvements

The 68th Avenue ramp to westbound I-96 ramp in Coopersville is currently accessed off Randall Street north of the interchange. Redesigning this interchange to operate as a more traditional operation would be possible, but perhaps not practical at this time. A relocated on-ramp would have a high cost as well as geometric design concerns, and does not seem to be a key issue at this time. Therefore, it was eliminated from further consideration.

A more significant improvement alternative for this interchange relates to the need to widen the existing 2-lane 68th Avenue bridge over I-96. This structure was in need of repair and needs widening to accommodate existing and projected traffic volumes for the area. It also needed to be raised to accommodate new standards for underclearance for bridges over I-96. Fortunately, MDOT, the Ottawa County Road Commission, Polkton Township and the City of Coopersville have recently reached a funding agreement to have this bridge widened as part of a larger MDOT repaving project along I-96.

3.2.3 48th Avenue/Railroad Grade Separation

48th Avenue crosses the C&O Railroad just north of Chicago Drive. A grade separation at this location would eliminate railroad crossing issues such as safety and traffic backups. However, a grade separated interchange and bridge would be needed to connect Chicago Drive with 48th Avenue. The cost of this intersection configuration would be very high. Since the projected 48th Avenue traffic volumes are relatively low, it appears that this alternative concept is not warranted at this time.

3.2.4 Transit

At this time, transit options such as bus or light rail would not be useful for the type of travel expected in the corridor. GVSU does utilize buses for its student/faculty commuters between the Allendale and downtown Grand Rapids campuses.

3.3 PRACTICAL ALTERNATIVES

The study team reviewed the numerous *possible* north-south corridors and narrowed the number down to three alternatives, which were presented at the public meetings. These three corridors appeared to be the most *practical* alternatives for meeting most of the goals and objectives of the study.

3.3.1 Alternative A (48th/68th Avenue via M-45)

This alternative makes use of 48th Avenue from Byron Road north to M-45, M-45 west to 68th Avenue, and 68th Avenue north to Randall Street, as shown on the cover of this report. It uses the existing 68th Avenue crossing of the Grand River rather than providing a new crossing.

Suggested improvements along this corridor include:

- Upgrade 48th Avenue to a 2-lane county primary road from Byron Road north to Chicago Drive
- Upgrade 48th Avenue to a 4-lane roadway from Chicago Drive to Barry Street
- Upgrade 48th Avenue to a 5-lane roadway from Barry Street to Bauer Road
- Upgrade 48th Avenue to a 4-lane boulevard from Bauer Road to M-45
- Utilize M-45 between 48th Avenue and 68th Avenue
- Upgrade 68th Avenue to a 5-lane roadway from M-45 north to Cardinal Street
- Upgrade 68th Avenue to a 4-lane boulevard from Cardinal Street north to the Grand River
- Widen the existing 68th Avenue Grand River crossing to a 5-lane bridge or add a sister bridge
- Upgrade 68th Avenue to a 5-lane road from the Grand River north to Randall Street
- Widen the existing 68th Avenue/I-96 bridge to 5 lanes

3.3.2 Alternative B (48th/68th Avenue via Warner Street)

Alternative B is a modification of Alternative A and provides a 48th-68th connection north of M-45 using Warner Street. Traffic would be expected to use both east-west routes.

Suggested Alternative B improvements include all those in Alternative A as well as the following:

- Widen 48th Avenue to a 5 lane roadway from M-45 north to Warner Street
- Improve Warner Street from a two-lane gravel local road to a two-lane paved county primary road

3.3.3 Alternative C (48th Avenue)

This alternative would upgrade all of 48th Avenue from Byron Road north to I-96, including a new Grand River crossing near Lamont (see **Appendix B** for possible river crossings concepts). This alternative appeared to be the most direct and continuos north-south corridor that served all of the major traffic generators and growth areas. However, it involved a major new river crossing structure and would significantly change some established travel patterns at the north end of the corridor.

4.0 CORRIDOR SELECTION

The study team's next task in the sequential planning process was to select a *preferred* corridor. After that was determined, they worked with the local agencies along the corridor to determine what kind of future roadway is needed and/or desired in the corridor to accommodate their projected growth and land use. The public meeting comments were also used to help make these decisions.

4.1 PUBLIC MEETING SUMMARY

Citizen involvement was a major emphasis of this study. Public meetings were held to review the Practical Alternatives and obtain input on north-south travel issues and other citizen concerns. These meetings were advertised in the Advance newspaper (see **Appendix A**) and held at Allendale's Township Hall on October 29, 2002 and Georgetown's Township Hall on October 30, 2002, from 4:00-6:00 PM and 7:00-9:00 PM each evening.

The public meetings utilized a workshop format, with a half-hour long PowerPoint presentation at each session, followed by a question-and-answer session. The following items were available to the attendees for viewing:

- 30"x 40" boards of most of the PowerPoint presentation slides
- An aerial plot of the study area with key names and some zoning categories (industrial, commercial, park, schools, etc.) shown on it
- An FHWA video on access management
- A handout containing a map of preliminary corridor options and potential impacts/benefits

One hundred and twenty-six citizens attended the two meetings. Ninety-six citizens attended the October 29 meeting in Allendale Township, and thirty citizens attended the October 30 meeting in Georgetown Township. Comment forms were available at both meetings for citizens to provide input on the study. Forty-three comments were received during the comment period, ending December 2, 2002. A summary of the comments included:

- 16 percent supported Alternative A
- 5 percent supported Alternative B, 2 percent opposed it
- 35 percent supported either Alternative A or B
- 19 percent supported Alternative C, while 44 percent opposed it

Other suggestions or comments included:

- Traffic light needed at 68th & Leonard (two comments received)
- Using 48th Avenue south to M-45, M-45 east to Linden, Linden west to Leonard, Leonard west to 48th Avenue, and 48th Avenue north to I-96
- Using 48th Avenue south to M-45, M-45 east to Linden, and extend Linden north to a new interchange with I-96
- Don't put in-direct lefts on 48th Avenue
- Improve 72nd Avenue as well as 48th Avenue to minimize traffic on 48th Avenue
- A study of 48th Avenue is premature, and should only be considered after a commitment is made to construct the US-31 Bypass
- An application has been made to the state to designate Lamont as a State Historical Preservation area

One of the exhibits presented at these meetings was **Table 4.1** which summarizes the "Pros and Cons" of the three practical alternatives.

Table 4.1 **Practical North-South Alternatives**		
Alternative	**Pros**	**Cons**
Alternative A 68th/48th Ave. via M-45 (Lake Michigan Drive)	• Direct north end connection with I-96 and Coopersville. • Direct service to Allendale and GVSU • Close proximity to Hudsonville • Uses the most existing Ottawa County/State primary road systems.	• Longer overall route than 48th Ave. Alternative • Could add to future congestion on M-45 through Allendale • Requires improvements to the existing 68th Avenue Grand River crossing in Eastmanville • No direct south access to I-196 • Costly to build south end (RR crossing, muck soils)
Alternative B 68th/48th Ave. via Warner St.	• Same as above, plus • Provides access to Allendale's industrial/commercial zoned area north of M-45 • Provides alternate to M-45 through Allendale	• Same as above, plus • Requires significant investment to improve 48th north of M-45 and Warner Street(not county primary routes at this time) • Bypasses Allendale's existing commercial areas • Increases traffic volumes on a roadway that is currently in a rural residential area
Alternative C 48th Avenue	• Direct service to Allendale and GVSU • Close proximity to Hudsonville • Most direct N-S corridor • Improves attractiveness of 48th Avenue/I-96 Interchange area for development • Provides alternative relief for 68th Avenue /Leonard Street intersection in Eastmanville	• Requires costly new road approach and bridge crossing over the Grand River plus related environmental issues. • Requires significant investment to improve 48th north of M-45 • Impacts the Lamont community, and is opposed by Tallmadge Township and Lamont residents • No direct south access to I-196 • Costly to build south end (RR crossing, muck soils)

4.2 RECOMMENDED CORRIDOR

Following the public meetings an evaluation of the comments was made and further analysis was performed, resulting in a Recommended Corridor.

The Recommended Corridor is Alternative A. Alternative A fulfills most of the objectives of the area with a practical solution for the near and long term needs of the corridor.

Alternative A utilized the existing county primary system that already services the major traffic generators in the corridor. It also retained the existing Grand River crossing location at Eastmanville and was expected to incur the least overall environmental impacts and cost.

The major reason for not selecting Alternative B was that it duplicated the travel times associated with Alternative A, but merely utilized a different route (Warner Street). It also required more local road miles to be paved and added to the county Primary system. However, Alternative B could become a good alternate bypass route in future years should M-45 become too congested. For example, when traffic counts on M-45 approach 35,000 vehicles per day, plans to establish Warner Street as a county primary option should be in progress. M-45 in Allendale currently carries 19,000 vehicles per day and would be considered congested when the volumes reach 35,000.

The major issues for not selecting Alternative C were related to high dollar cost (a new Grand River crossing alone would cost $16-24 million), environmental impacts of a new river crossing and the potential impacts on the Lamont community. All these factors were considered to be too great an impact to justify the small gain in travel time offered by this direct route alternative in comparison with Alternative A.

4.3 RECOMMENDED ROAD TYPE FOR THE CORRIDOR

The determination of the future road type to build (two, three, four or five-lane facility - see **Figures 4.2** through **4.6)** in the recommended corridor, is very important for all involved. The Ottawa County Road Commission needs this determination so they can begin planning for funding the improvements, perform environmental studies, acquire right-of-way if needed, coordinate utility placement and eventually complete design plans and build the proposed facility. The local agencies need to know the road type so they can coordinate their local zoning, land use plans, building setbacks and site developments to match the intended road type operation.

In the past, when a two-lane road needed widening to handle increased traffic, the traditional road type improvement was to simply add one lane on each side resulting in a four-lane facility. As traffic volumes continued to increase, the next road type improvement was to add some more pavement and convert the four-lane roadway to a five-lane facility. The recent reconstruction of some sections of Baldwin Street in Georgetown Township is an example of this road improvement process. Today, most counties choose to widen their two-lane roadways directly to a five-lane operation because its additional cost is well worth the additional safety and capacity.

The five-lane facility is a practical solution because it can normally be built within existing roadway right-of-way and not significantly impact established local residences and businesses. However, while this design has several advantages, it also has its limitations for long-term community development goals. These limitations became a major reason why the communities along this

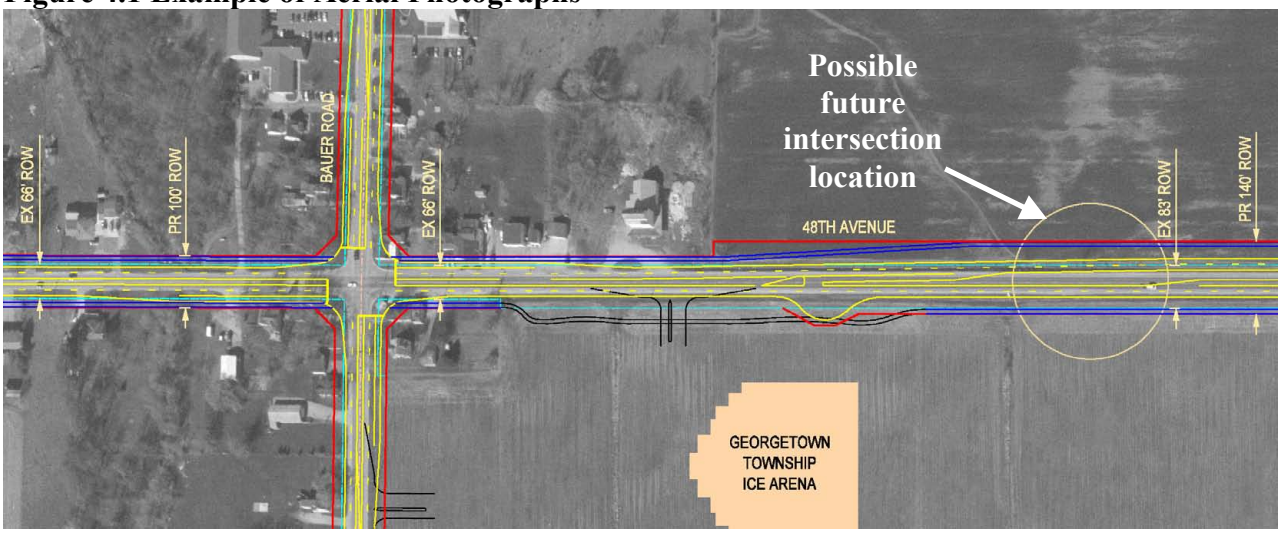
corridor wanted to look at other options instead of merely following the traditional widening options of the past.

Each community was made aware of the benefits and limitations of each road type option. Some communities indicated their anticipated growth would be best served by a four-lane divided roadway that would accommodate future highway traffic, non-motorized users, provide driveway access control and allow opportunities for landscaping. Others believed a five-lane roadway would be sufficient.

A primary focus of the study was to maximize the corridor's ability to carry traffic today, in 2025, and beyond. GVMC's modeling showed that some portions of the corridor need to be able to handle as many as 25,500 vehicles per day in 2025, which correlated to at least a 4-lane facility. The right-of-way widths in the recommended cross-sections have room to add an extra lane in each direction, in order to preserve the corridor for the years beyond 2025. The individual communities along the corridor considered the following conceptual road types or cross-sections as part of their evaluations. Some of these cross-sections include room for non-motorized trails, sidewalks, landscaping opportunities, and utilities. Some areas along the corridor do not currently need such amenities. However, they may be desired in the future.

Aerial photographs with overlay drawings of the recommended road types, bridge improvements, intersection locations and suggested proposed future right-of-way widths were provided to all agencies in the corridor for their planning purposes.

Figure 4.1 Example of Aerial Photographs



Based on the study objectives and anticipated population and growth scenarios, the following road types were developed for the corridor, beginning from the south.

Figure 4.2 Two-Lane Roadway
Upgrade 48th Avenue to a county primary road from Byron Road north to Chicago Drive. No major widening is needed for this segment of the corridor, and there does not seem to be a desire for a non-motorized trail. If land uses in this area change in the future, a cross-section similar to those shown in ***Figures 4.4 or 4.6*** *may be needed.*

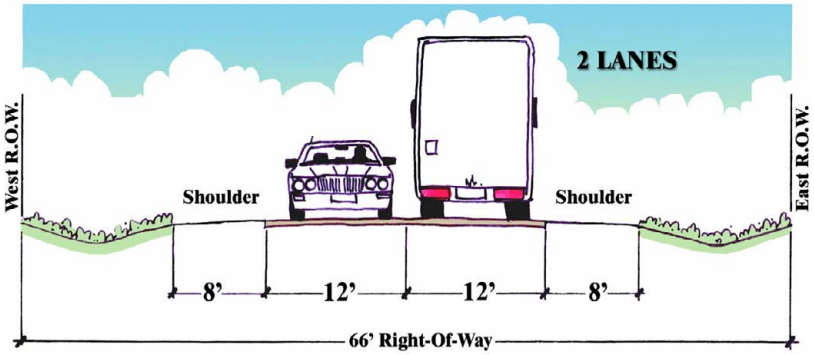


Figure 4.3 Four-Lane Rural Roadway
Upgrade 48th Avenue to a 4-lane roadway with full shoulders from Chicago Drive north to Barry Street. Additional future lanes could be added on the outside if needed in this agricultural area.

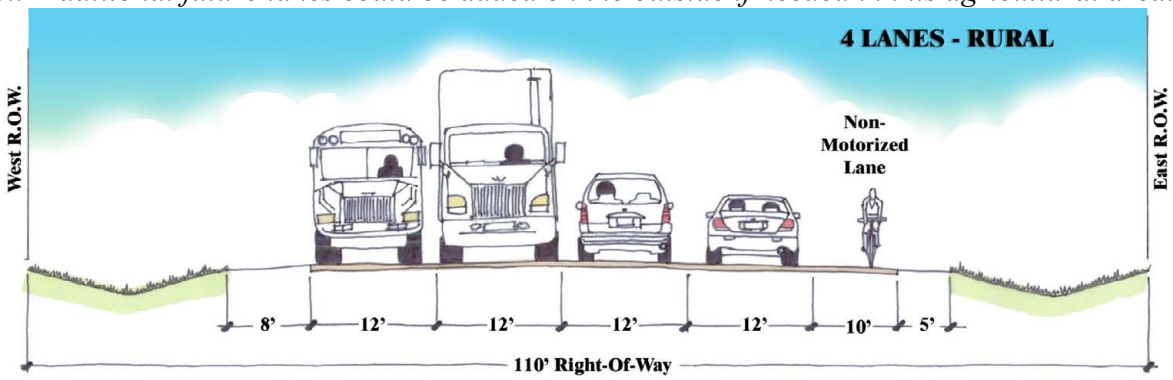


Figure 4.4 Five-Lane Urban Roadway
Upgrade 48th Avenue to a 5-lane roadway from Barry Street north to Bauer Road. This same road type is also planned for 68th Avenue north of M-45 to Cardinal Street.

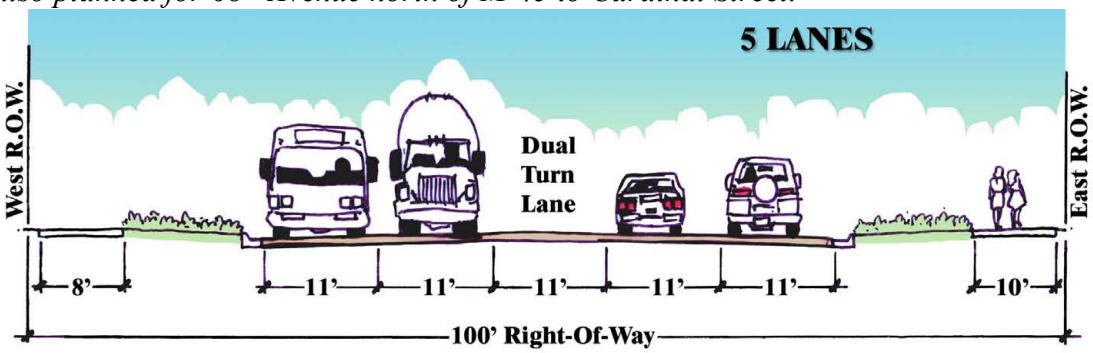


Figure 4.5 Four-Lane Narrow Median Boulevard
Upgrade 48th Avenue to a boulevard from Bauer Road north to M-45, and on 68th Avenue from Cardinal Street in Allendale to the Grand River. Additional future lanes could be added in the median if needed.

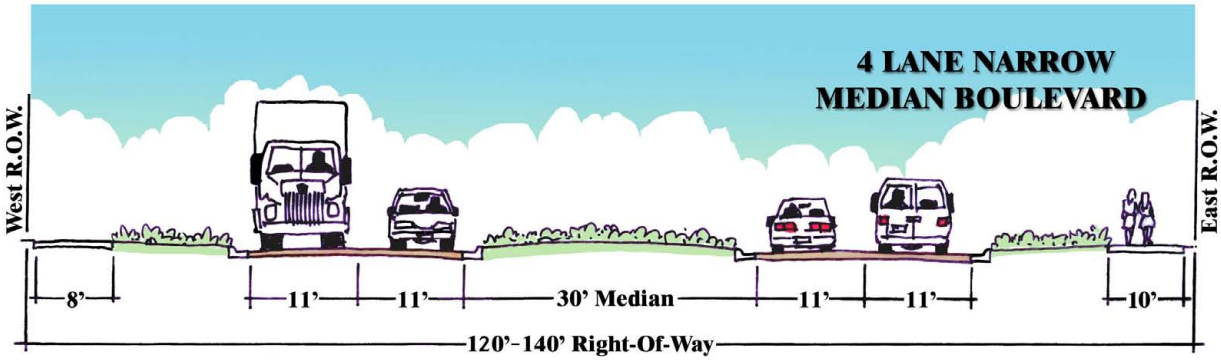
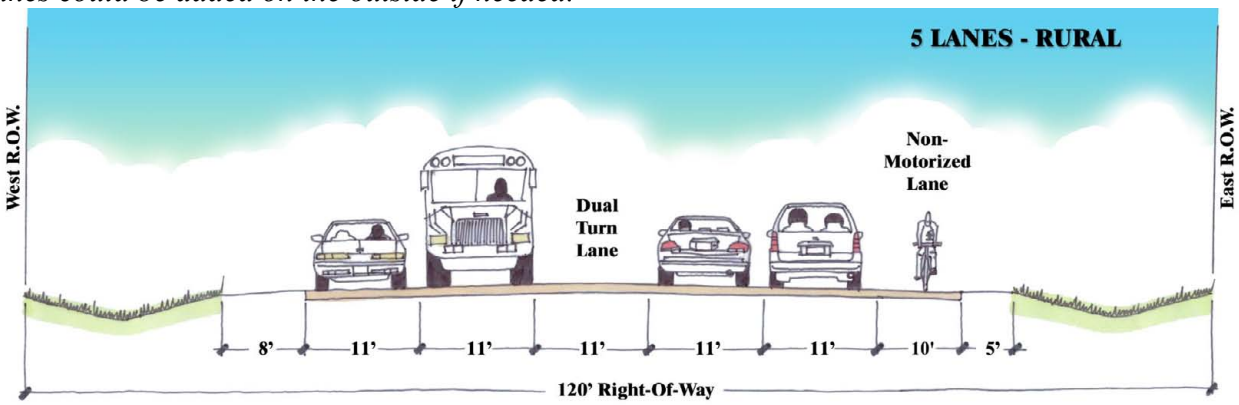


Figure 4.6 Five-Lane Rural Roadway
Upgrade 68th Avenue to a 5-lane road with full shoulders from the Grand River to I-96. Additional lanes could be added on the outside if needed.



4.4 RIGHT-OF-WAY WIDTH/NUMBER OF LANES

Existing public right-of-way widths within the study area vary from 66 feet to 200 feet (M-45). The number of lanes or roadway type design that can fit within a given right-of-way depends on several factors, some of which include:

- Drainage type (rural with open ditches or urban curbed with underground storm sewers)
- Median (none, paved, raised, depressed)
- Non-motorized trail on shoulder, separate path, one or both sides of roadway
- Landscaping requirements
- Intersection design
- Topography
- Design speed
- Roadway geometrics

4.5 NON-MOTORIZED USERS

Most of the communities involved with this long-range study expressed a desire to include provisions for non-motorized users within the right-of-way of the recommended North-South corridor. The communities also preferred that a separate pathway be built instead of using a wider paved highway shoulder. In some areas additional highway right-of-way may be needed to accommodate the separated path design, depending on how far the path is located from the roadway.

The Ottawa County Planning and Parks Department completed a Non-Motorized Pathways Study in 2002. It contained recommendations for local pathways along portions of 48th/68th Avenue in the Allendale area as well as for a major regional east-west facility along M-45 Lake Michigan Drive, Chicago Drive and along both sides of the Grand River. The proposed pathways contained in the North-South corridor study can be planned and designed to connect with the East-West facilities.

The actual design of specific non-motorized facilities needs to be refined by each township to determine the preferred path width (8-14 feet), placement (on one side or both sides), establish how far from the road to build it and to evaluate the cost considerations. The federal government (AASHTO) has developed design guidelines which are readily available for communities to follow.

According to the Ottawa County Planning Study, the cost for building a separate ten-foot path could be $164,000 per mile (one side) whereas a four-foot paved shoulder (both sides) is only $100,000 per mile. The county road commission can generally incorporate the wider paved shoulders into its plans when the roadway is resurfaced or reconstructed. However, the cost for this additional pavement will generally require supplemental funding since the OCRC budget is not set up to cover these additional roadside costs. This is even more apparent for funding as a separate pathway. The cost of building and maintaining separate pathways requires funding from local agencies or special grants. Building these facilities over a long range timeframe can also be done in piecemeal manner by having larger developments incorporate the pathway into their own plans as part of the site approval process. An example of this requirement is contained in Blendon Township's overlay zoning ordinance shown in **Appendix E**.

4.6 INTERSECTION DESIGN OPTIONS

It is fair to assume that as this area of the county grows, all the major county roadways intersecting this corridor will need a traffic signal to safely handle increased traffic volumes. These intersections are key development targets which communities need to be aware of so they can work closely with the OCRC to assure that access to these intersections is balanced with a safe design.

The following figures relate to optional intersection designs available within the corridor. These design options are important considerations to the road design engineer in that they are used to determine the final right-of-way needs at key intersections. Many of these key intersections have already experienced development in some or all quadrants and the road designer will evaluate the cost and/or impact on acquiring land to fit the preferred design option. Clear vision corners and their right-of-way needs are part of this evaluation. Detailed traffic studies will assist the road designer in determining the number of turn lanes needed to accommodate forecasted traffic movements. All three types of intersection designs have been included in the Recommended Alternative. The location and spacing of intersections is further discussed in the Corridor Management Section of this report.

Figure 4.7 Direct Left Turn Intersection

This is the most common type of intersection. After stopping at the intersection, motorists are allowed to turn left onto the cross-street. *Direct left turn intersections are proposed along most sections of the corridor, with the exception of 48th at Chicago Drive, the boulevard sections of 48th and 68th Avenues and the 68th Avenue/Randall Street intersection in Coopersville.*

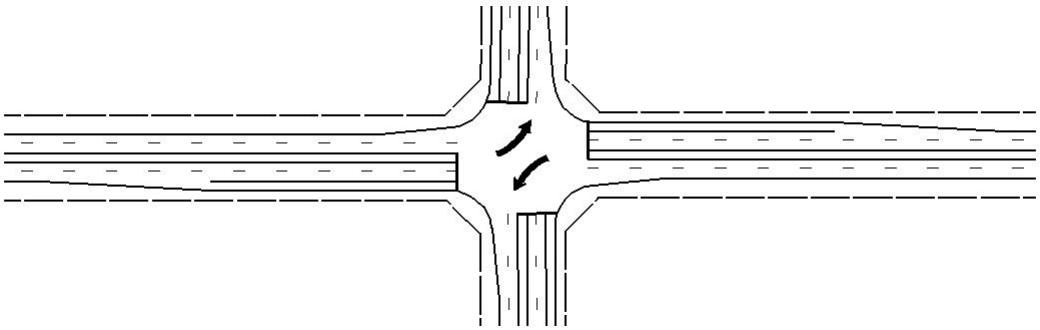


Figure 4.8 Indirect Left Turn Intersection

MDOT utilizes this type of intersections on many of its boulevard roadways, including the recent reconstruction of M-45 in Allendale, US-31 between Holland and Grand Haven, and the East Beltline in Grand Rapids. The advantage of this intersection design is that it provides more "green" signal time for all legs of the intersection by diverting left turns away from the intersection. It is also considered to be a safer intersection operation. *Indirect left turn intersections are proposed for the 48th and 68th Avenue boulevard sections of the corridor.*

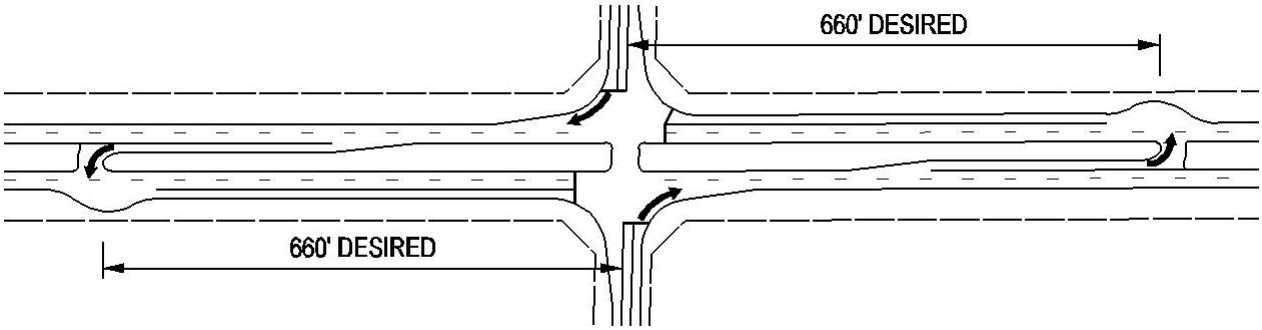
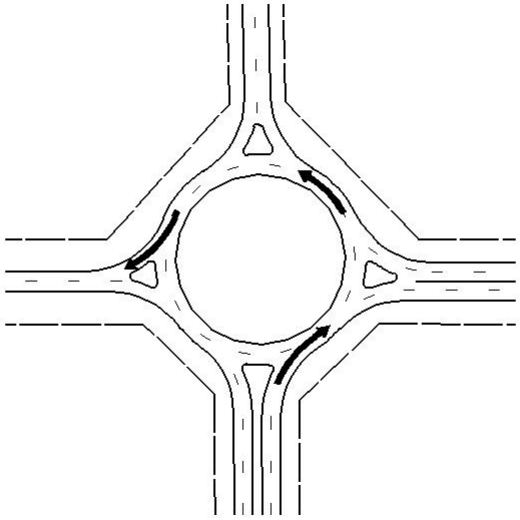


Figure 4.9 Roundabout Intersection

A roundabout intersection eliminates the traffic signal from the intersection and replaces it with a large circle, forcing everyone to turn right into the circle until they reach their desired turning roadway. Roundabout diameters, in order to provide for desired truck turning movements and minimum desired speeds through them, typically require more right-of-way than conventional intersections. Roundabouts typically work best where traffic volumes on all legs of the intersection are similar and most traffic wants to turn versus go through the intersection. *A roundabout concept is proposed at the 68th Avenue/Randall Street intersection in Coopersville.*



5.0 CORRIDOR MANAGEMENT AND PRESERVATION

The recommended north-south corridor traverses many communities and townships. It contains different road type recommendations along its route and the need to implement these improvements varies from near term to long term. In addition, the cost to make these improvements is considerable and financial planning and other engineering studies are still needed before any improvements can be built. This means that a coordinated and consistent effort is needed by the Ottawa County Road Commission and the local communities along these roadways, to preserve and/or "manage" this corridor so that future improvements have a fair chance for successful implementation.

While there are many things that need to be accomplished, the most significant items are:

- Preserve enough roadway right-of-way to allow room for the future road widening
- Establish proper building "set back" distances
- Provide driveway and street "access management" control measures along the corridor
- Identify funding and set priorities along the corridor

5.1 PRESERVE HIGHWAY RIGHT-OF-WAY

The road type concept drawings in **Section 4** contain examples of the desired highway right-of-way widths needed to build the various highway improvements proposed for the corridor. Actual proposed right-of-way widths were also indicated on the aerial drawings provided to the county and townships. The proposed right-of-way width along the entire corridor varies from 66 to 200 feet. It appears that additional right-of-way is not needed for those road sections planned to remain as two-lane and/or planned to be widened to four/five-lane facilities. If non-motorized facilities on a separate path are desired to be incorporated into the five lane roadways, then more right-of-way will be needed. The sections planned for four-lane boulevards will need additional right-of-way if these facilities are to be built to desired design standards and include non-motorized features.

The current practice of the Ottawa County Road Commission is to require sixty feet of dedicated highway right-of-way for any new subdivision of land applying for plats (Subdivision Control Act). This sixty feet on one side (or a total of 120 feet) provides enough room to build all the road type recommendations except for the divided boulevard section with separate non-motorized pathways. These facilities will need a total width of 120-140 feet if all the desired roadside enhancements are to be included. Major intersections may require additional right-of-way parcels to accommodate turning movements and clear vision corners.

5.2 BUILDING SETBACKS

The distance a building is built from the highway right-of-way depends on the "look and feel" that a community desires. If this corridor is to be considered the major north-south route serving an open space area of Ottawa County then the buildings should be located far away from this main roadway. If the desired look is more of a community or "town center" then the buildings can be closer to the roadway. These setbacks need to blend with the community's Master Plan for development and should apply to residences, businesses, schools, churches, etc.

Building setbacks are sometimes specified by communities as "the distance from the centerline of the highway to the front of a building". Other communities specify that "the setback distance is measured from the front of the building to the front property line or public right-of-way or highway

easement". Because of variable ways to describe building setbacks, and realizing that setback distances can also differ based on zoning districts, the following table is intended to serve as a guide for the communities to review their current local zoning ordinances. This is an important step since the current local setback distances may not meet the needs of the new proposed long-range plan for a wider future highway.

Residential Setbacks:	Suggested Building Setbacks along Corridor (Distance measured from centerline of roadway)
Two-lane roadway (66-120' row)	60+75=135' Minimum
Four/five-lane roadway (66-120'row)	60+75=135' Minimum
Four-lane divided roadway (140' row)	70+75=145' Minimum

The intent of the North-South Corridor is to handle increased traffic volumes as the corridor develops. These suggested setback distances are greater than normally expected for county roadways because residential development directly *fronting* on a major highway is not a good situation over the long-range timeframe considered in this study. Building new single family residences further from the highway is one method to minimize the impact of living near this future busy corridor. Other concepts are to encourage access to the corridor via common residential drives or platted streets rather than a driveway directly on the corridor. Greater setbacks also give the homeowner more landscaping options to help screen the home from the highway.

Commercial Setbacks:	Suggested Building Setbacks along Corridor (Distance measured from centerline of roadway)
Two-lane roadway (66-120' row)	60+40=100' Minimum
Four/Five-lane roadway (66-120'row)	60+40=100' Minimum
Four-lane divided roadway (140' row)	70+40=110' Minimum

The intent of the commercial setbacks is to maintain an open feel to the corridor but still provide the visibility to commercial businesses. The open feel is maintained by having a 40' greenbelt buffer between the highway right-of-way and the buildings. Most parking lots will be placed behind the buildings and access will be provided by side streets or rear access roads. Other commercial developments can have buildings set further back and utilize frontage road access and parking.

Town/Village Center Setbacks:	Suggested Building Setbacks along Corridor (Distance measured from centerline of roadway)
Two-lane roadway (66-120' row)	60+25=85' Minimum
Four/Five-lane roadway (66-120'row)	60+25=85' Minimum
Four-lane divided roadway (140' row)	70+25=95' Minimum

Most Town or Village setbacks are intended to present a more "closed in" or urban feel and hence allow building setbacks to be closer to the main roadway. Some Town Center concepts propose to have buildings directly on the right-of-way line or sidewalk to create the small town feel. While there may be some areas along the corridor that are attractive for this new development concept (like near GVSU in Allendale), the study prefers that these locations be accessed from side street roadways with limited direct access to 48th/68th Avenue. The above setback guideline would still

allow room for pedestrian activities and/or landscape buffer between the buildings and roadway right-of-way.

Enforcement of a setback ordinance is generally easier for new developments on vacant land than it is for fitting into older established developments. Each township will need to be flexible in evaluating each new building request so that it preserves the highway corridor and still blends with nearby land use. Townships can also establish different setback requirements for different highways. Some roadways are expected to remain residential low volume facilities and can therefore support closer setbacks than the busier routes. Georgetown Township's current setback guideline for 48th Avenue (and others roadways) is an example of this practice and is shown (in part) in **Appendix D.**

5.3 ACCESS MANAGEMENT AND SERVICE DRIVES

Access Management

During the public meetings a video was shown explaining the benefits of controlling the number and location of driveways and cross streets accessing a major highway corridor. This video was prepared by the Federal Highway Administration and the Ottawa County Planning Commission is providing copies to all agencies along this corridor. The major benefit of access control is that its implementation results in a safer and smoother operating roadway because the conflict points (intersections and driveways) are kept to a minimum. The most common example of a roadway *without* sufficient access control is 28th Street in Grand Rapids.

Roadway facilities can generally be grouped into one of three types of access control:

- **Fully Controlled Facilities (freeways)** – only permit access via interchanges, i.e. I-96 at 68th Avenue. There is no direct freeway access from private driveways or at-grade intersections.
- **Partially Controlled Facilities** – may only permit access via public roads, i.e. US-31 in Holland and parts of the East Beltline, where access is provided at select public road intersections, but no private driveways are allowed.
- **Uncontrolled Facilities (most county roads)** – have no access controls, i.e. 48th, 68th, 120th Avenues, Port Sheldon Road and Leonard Street.

The Access Management Guidebook has many good recommendations and examples for access management. Some of the recommendations are summarized in this section. A major tool of access management is access control, which denies private driveway entrances at some locations. Besides access control, access management can include a variety of techniques (See **Appendix F**, Hamburg Township Zoning Ordinance, for another example of techniques that can be used). Some specific access management actions for the recommended corridor include:

- Discourage or eliminate all drives within 600 – 1000 feet of major intersections. Major intersections are located about one mile apart and represent the county's major road system (i.e., Fillmore, Bauer, Baldwin, Port Sheldon). Minor intersections would be entrances to subdivision plats or commercial developments. Encourage common drive entrances with internal access road connectors to service properties (**Figures 5.2-5.5**).
- Where driveways presently exist, or are proposed within a 1000 feet of an intersection, add a raised median or curb to prevent direct left turns across the centerline of the roadway or promote "right in/right out" operations.
- Align driveways and cross-streets on opposing sides of the roadway where possible.
- Consolidate private driveways so that adjacent properties share a common driveway (See **Appendix H**, Delta Charter Township Mutual Access Easement Agreement).
- Issue "temporary" private access permits, pending location of future alternate access points.
- Restrict turning movements into and out of properties to limit the number of conflict points.
- On corner parcels, allow access only on the lower functioning (side street) roadway when possible.

One of the challenges facing each community will be to implement an access management plan along the corridor over a number of years. Future development may occur randomly on smaller parcels or come in large site developments once new utility services become available. One sequential long-range strategy to use is illustrated in **Appendix G** where *temporary* driveways are allowed to be built and operated. The example shows the initial plan and possible 5 and 15 year increments of development along the roadway. As adjacent developments occur the temporary drives are closed and internal traffic circulation is shifted to the side street intersections per the access management plan. This strategy sometimes requires that a bond be set aside to provide money to fund the final planned driveway access scheme.

It is recommended that the 48th Avenue/68th Avenue corridor be developed as a partially controlled facility. New private drives along these roadways should be limited in order to preserve the corridor for its intended purpose of moving future volumes of traffic.

New intersections should be limited to quarter-mile points along 48th and 68th Avenues to maintain safe and efficient traffic progression and allow for good future traffic signal timing throughout the corridor. These locations are depicted with large circles on the aerial graphics provided to each township. The townships should further consider developing a traffic circulation plan along the corridor to provide adequate outlets for these quarter mile spaced intersections (see **Figures 5.1 and 5.2** *for illustrations of this concept)*

There are several reasons why a community should develop a **traffic circulation plan**:

- The end result is a street network that allows internal traffic circulation options to outlet to more than one major roadway
- It improves access options for emergency vehicles
- It establishes a desired street interconnectivity plan for future development to follow in site plans
- It matches desired road development with expected land use plans
- It lets residents and businesses know the community is proactive to traffic impact issues

Figure 5.1 Traffic Circulation along the Corridor

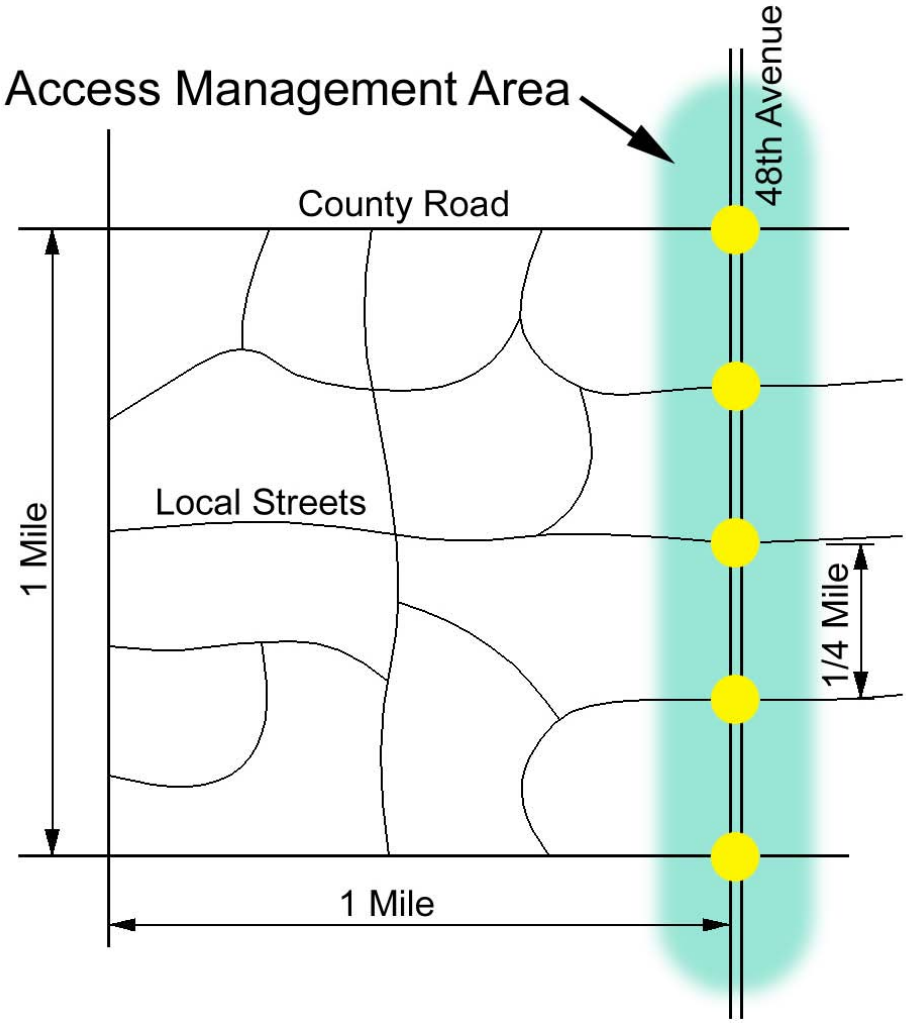


Figure 5.2 Conceptual Access Management on 48th Avenue

Service Drives

Service drives, or frontage roads, serve to minimize the number of conflict points along a major highway corridor while still providing reasonable access to the adjacent land uses. Service drives and frontage roads are designed to provide for internal traffic circulation and access to many properties and therefore reduce the number of trips and traffic turning conflicts that occur on the main roads.

For service drives, design is the key to their overall effectiveness. The distance between the main road and the service drive or the first internal cross access (also known as storage) is important as vehicle queues (backups) must be accommodated. If queues are not accommodated, there is a strong chance that the internal circulation on the service drive will be impaired. The same factors need to be accounted for as vehicles enter the area served by the service drive to prevent the backing up of vehicles onto the main route. While design is important, signage and pavement markings also facilitate the efficient movement of traffic into and out of a developed area.

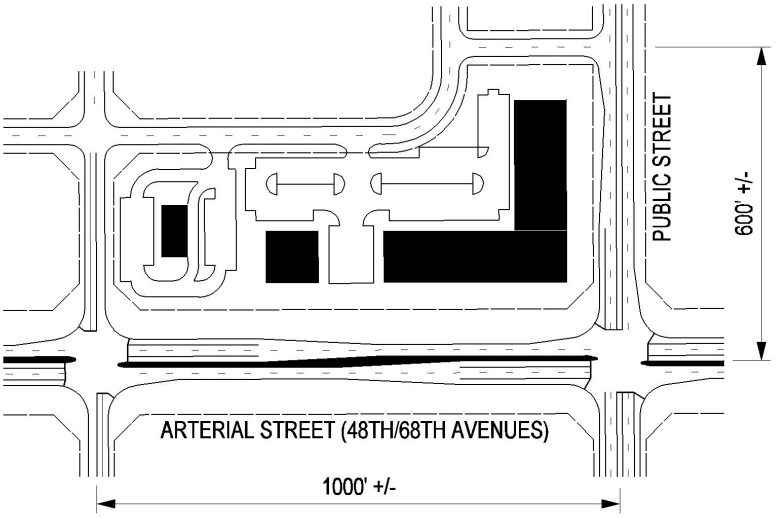
Determining the best alignment and depth of a service drive requires the consideration of many factors including existing roadway alignment, current road right-of-way, the width and depth of adjacent parcels, and the location of existing and planned buildings. Drives providing access to a single commercial property should provide at least forty (40) feet of storage. For drives providing access to several commercial uses, the storage should be increased to 80-100 feet for smaller traffic generators and potentially 100-300 feet for larger developments. The number and type of trips generated by a development and those expected from future adjacent parcels will determine the best design for the service drive.

The three types of service drives illustrated in **Figures 5.3-5.5** provide different examples of how to address access and site circulation issues. The type of service drive needed is usually dictated by physical conditions of the property, the intended traffic circulation and existing development (if any) already within the development area.

The rear service drive plan is probably most conducive to areas where little or no development has taken place. This plan allows the service drive to provide a land use buffer between the major road frontage parcels and the back lots. This plan also allows the local units of government to have more

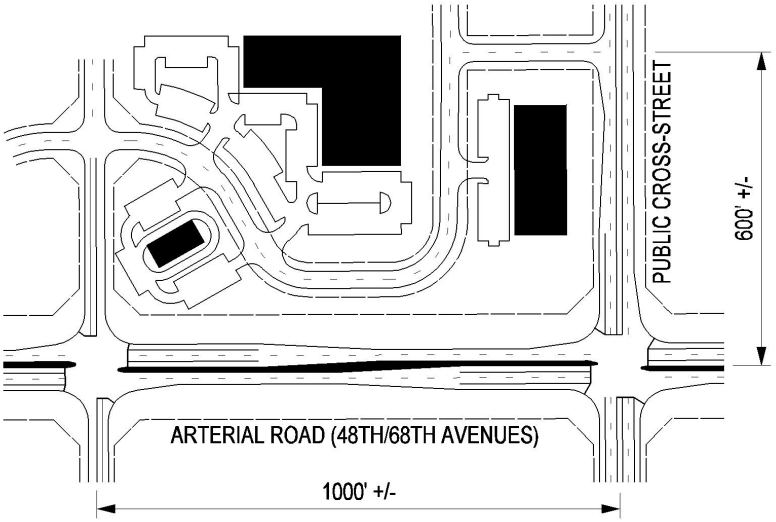
control over the depth of the major road frontage lots and to negotiate for cost participation with land owners for constructing the service drive.

Figure 5.3 Rear Service Drive



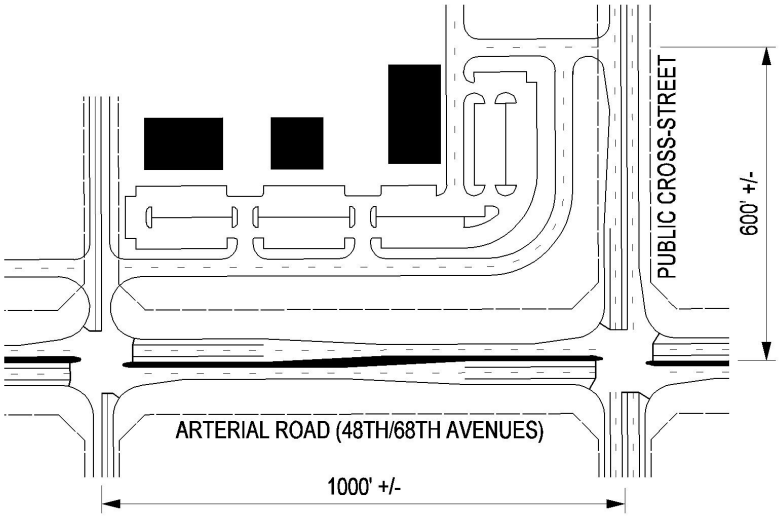
The meandering service drive is used most often in areas where parcels may be oddly shaped or because of the pattern of development. This service road design may require special retro-fitting to provide access where developments have been placed within close proximity to one another.

Figure 5.4 Meandering Service Drive



The front service road is most often used in areas where existing or future developments are setback a good distance from the major road right-of-way. In areas where developments are located on or near busy highway intersections, this type of drive is effective at providing internal circulation among users while keeping traffic and turning movements away from the main roadways

Figure 5.5 Front Service Drive



Service drives are usually constructed and maintained by an individual property owner or an association of adjacent owners. Service drives are usually constructed to public roadway standards unless specific circumstances dictate otherwise. In theory, these service drives provide off street access to numerous parcels so that on street parking and separate access drives are not needed.

5.4 LAND USE/ZONING CONTROLS

Land use and zoning controls along this corridor should be compatible with the roadway's expected traffic patterns. To accomplish this, a community may elect to modify or change its existing policies or develop an "overlay district" for the corridor. Some examples of overlay zoning districts in West Michigan include:

- Grand Rapids, Grand Rapids Township, and Plainfield Township's East Beltline overlay district
- Algoma Township, Plainfield Township, and Rockford's 10-Mile Road overlay district
- Blendon Township, 48th, 72nd, 96th Avenues and Port Sheldon (See **Appendix E**)

6.0 OTHER CORRIDOR IMPROVEMENT OPTIONS

Some of the study team members were interested in efforts to enhance this north-south corridor so as to make it a key asset for their community. This section of the report is intended to be a first step in identifying types of visual aesthetics that could be implemented along the corridor. Aesthetics is defined literally by Webster as "the science of beauty and taste, or the knowledge of fine arts and art criticism." The construction of a new roadway facility is an ideal time to consider the addition of aesthetic elements such as landscaping, lighting, community artwork, signage, etc. Allendale Township is currently in the process of designing and constructing gateway signage, landscaping, and lighting, on M-45 through their community.

A successful design usually includes public involvement from the beginning. The preliminary stages of the design process are the easiest times to involve the public, consider their concerns, reduce controversy and allow for revisions in the design concept. A series of design charette meetings with video and/or photographs of the area are typically utilized during these types of meetings.

6.1 COMMUNITY SIGNAGE AND ARTWORK

Gateway Signage

Gateway/signage elements can be incorporated into the roadway design to identify significant areas or municipalities. A location or municipality specific gateway could be developed at key locations throughout the corridor where right-of-way allows. Gateways can provide landmarks to identify key points in the area for tourists and provide a "way-finding" or landmark mechanism for travelers, providing a sense of progress through the corridor.

The styles for the gateways may be varied and diverse. They should reflect the character of the area and the unique attributes of the surrounding neighborhoods. Typical gateways might reflect locally significant structures, architecture styles typical of the area, or may incorporate public art.

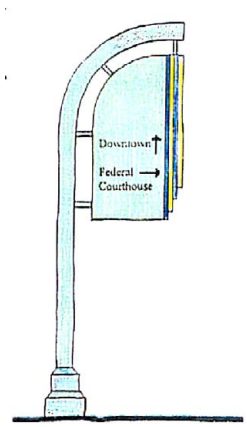


Figure 6.1 Civic Signage

Civic Signs

Placement of these signs provides more complete or additional information to the traveling public, particularly visitors to the region. These types of signs are used to help motorists find community features such as post offices, township halls, schools, museums, parks, points of interest, etc. **Figure 6.1** shows an example of this type of sign.

Public Art

Public art can be an important component of winning acceptance of specific recommended improvements. In addition to providing identification for neighborhoods or important civic locations, public art is an expression of a city or township understanding of the cultural value of art and its commitment to creative expression.

Although implementation of most of the public art projects will occur after road construction, it is critical to the success of the corridor's aesthetics that the public art not appear as a "tacked-on" element. Early identification of the locations for artwork is an important first step to achieve the goal of integrating art into a corridor.

6.2 DECORATIVE LIGHTING

Decorative lighting such as the light shown in **Figure 6.2** provides an attractive landscape element, but more importantly it increases pedestrian safety and comfort in otherwise dark areas and in crossing areas that are shared by cars and pedestrians. This lighting is not meant as roadway lighting, which is typically higher and less frequent. Decorative lighting installation is already underway for a portion of Lake Michigan Drive in Allendale.

Pedestrian light standards should be provided at locations where pedestrian traffic is expected, such as 48th Avenue along GVSU and near Bauer Road, and at the Grand River crossing. Design of these fixtures should blend with the design of other light fixtures used within each municipality.

Accommodations should be provided for future accent lighting at the base level of aesthetic plan implementation. Locations for these accommodations should include areas to receive public art and gateway monuments. At a minimum, design and construction allowance for future accent lighting should include the installation of conduit and pull boxes and distribution of power sources to anticipate future lighting fixtures.

Figure 6.2 Pedestrian Lighting

6.3 LANDSCAPING

Figure 6.3 Plantings

The plantings along the corridor should be composed of varying groups of plants, differentiated by their relative growth height (**Figure 6.3**). Generally, as the plant height increases, the water demand is more concentrated and plant density decreases. Irrigation may be needed to ensure the survival of some desired planting. Plant selection should also consider its adaptability to road salt conditions commonly encountered along major highway corridors.

Michigan State University's horticulture web site www.hrt@msu.edu or other popular landscape nurseries provide help to landscapers for selecting salt tolerant plant species.

The plantings can vary in density, function, color, massing, scale, and diversity. Plantings can accent roadway structures like bridges, walls and medians or landscaping can become a focal point in itself. Planting, like other urban design elements, can also act as a common element to unify the corridor themes. Earth berms may also be incorporated to hide parking lots or shield opposing head light glare on divided highways.

Since this is an existing corridor, existing trees and shrubs should be saved or tied into the recommended modifications as best as possible. Conservation will be paramount with regard to existing vegetation. Selective clearing may be incorporated, however, to enhance desirable views or to remove undesirable species.

In addition to plantings, hardscaping of certain areas, such as medians and roadside pedestrian areas, or where accents are desired, may be considered. Hardscaping includes decorative pavements, planter boxes, brick pavers, benches, etc.

Landscape Regulation Recommendations

An important issue to consider with roadway development is the physical/aesthetic appearance of those areas near or adjacent to the roadway. Proper planning and implementation of regulations can enhance the look and functionality of a corridor. Landscape regulations are put in place to preserve natural beauty, create a healthy environment, protect natural habitats and maintain property values. The achievement of these objectives serves to enhance the corridor for citizens of the community and users of the facility (**Appendix I** contains the most recent tree planting guideline of the Ottawa County Road Commission and a sample ordinance in use for the East Beltline).

A landscape plan or section is a vital part of the site planning process. The landscape plan should usually include the following considerations:

- Location, general type and quality of existing vegetation, including specimen trees.
- Existing vegetation to be saved.
- Methods and details for protecting existing vegetation during construction.
- Location, sizes, and labels for all proposed plantings.
- Existing and proposed contours on site and beyond the edges of the site (usually 100-200 feet) to be at reasonable intervals (usually 2-5 feet).
- Typical cross section, including slope, height and width, of berms and the type of ground cover to be placed on them.
- Location, height and type of any walls.
- Plant list(s) showing the required and proposed quantities.
- Description of landscape maintenance program, including statement that all diseased, damaged or dead materials shall be replaced in accordance with the standards of the ordinance.

Additionally, there should be tree and landscape preservation requirements and those requirements should address the following concepts:

- Site plans should preserve all quality existing trees wherever feasible, especially in buffer areas. Relocation of existing trees within the site is also encouraged.
- Existing trees may be used to fulfill landscaping requirements, if such trees are in healthy growing condition, are at least the minimum size, are the appropriate type, and are spaced according to their likely mature size.
- The area below the drip line of an existing tree to be saved should remain undisturbed. No impervious material should be placed under the drip line and a tree protection fence must be installed around the trees during construction at the limit of disturbance. Tree protection symbols notes and details must be shown on the site plan.

- Should any tree designated for preservation, for which landscaping credit is given, die; the owner shall replace the tree with the equivalent species or with a tree which will obtain the same height, spread and growth characteristics. The replacement tree must be a minimum of 2.5 inches caliper.

Front yard landscaping standards should vary according to the type of use. Generally, trees and shrubs should be clustered in locations that are most effective in preserving the aesthetics of the corridor. Ordinance language should provide the Planning Commission the opportunity to amend the number, type or mixture of landscaping to be provided depending on the physical location and makeup of the site. The standards should include provisions for the following (specific recommendations have been included for reference, obviously, they can be altered depending on the will of the jurisdiction looking to adopt these types of regulations):

- Office, institutional, multifamily residential or mixed-use areas: plantings should include a minimum of 3 evergreen trees, 2 shade trees and 8 shrubs for every 100 feet of building frontage. The number of plants shall be proportional to the length of frontage, with fractions rounded up.
- Commercial-use areas: plantings should include a mixture of 5 trees for every 100 feet of building frontage. The number of plants required shall be proportional to the frontage, with fractions rounded up. Additional landscaping may be used, but is not required. A mixture of evergreen, ornamental and shade trees is encouraged.
- Parking areas: Continuous plantings, berms or walls shall be installed to a minimum of four (4) feet in height along the corridor (plantings measured after three years in the ground). The requirement for plantings, berms, or walls for parking areas that abut the corridor may be waived if the motor vehicles in the parking lot will be substantially screened from the road by the final topography or existing vegetation.
- Town Center Properties: a concept landscape plan that meets the intent of these standards shall be submitted in accordance with the site plan review or PUD application.

Parking areas (usually those accommodating 10-20 spaces or more) should also have provisions/standards for landscaping. As mentioned previously, the Planning Commission should have the authority to amend the number or type of plantings required for parking areas.

- Landscaped islands and shade trees shall be located throughout the parking lot so as to relieve and shade expanses of parking, and contribute to the orderly circulation of motor vehicle and pedestrian traffic. Landscaped islands should have a minimum size (150-200 square feet) and a minimum width (8-10 feet). Each island should be planted with at least one canopy tree that is located at least three (3) feet from the edge of the island.
- Landscape islands shall be calculated on the basis of one (1) island for every 10-20 parking spaces. Landscape islands may be aggregated. Landscaped corners can count towards the required number of islands.

The following are suggested minimum standards for plants and other landscape features:

a. Canopy/shade trees	2.5 inches in caliper
b. Evergreen Trees	5 feet in height
c. Shrubs	24 inches in height
d. Walls	Walls shall be of clay, brick, stone or other appropriate material.

There should be a brief section on maintenance of plants to dictate how and when materials should be cared for and removed.

- All landscaping plants shall be hardy when planted and maintained in accordance with their natural growth patterns. Withered, diseased or dead plants shall be replaced within a reasonable amount of time, but no longer than one growing season.
- Plants must be controlled by pruning, trimming, or other suitable methods so that they do not interfere with public utilities, restrict pedestrian or vehicular access, or constitute a traffic hazard.
- All planted areas must be maintained in a substantially weed free condition.

Finally, the jurisdiction may want to provide a list of credited and unaccredited species to be used. Unaccredited species may be allowed but not credited toward the required landscape provisions. Some plantings should not be encouraged due to their brittleness, susceptibility to disease or insects, or other characteristics. Those species should probably be spelled out within any ordinance.

7.0 COST ESTIMATE

Most of this study's recommended improvements are "unfunded" at this time. However, there are some recommendations that are being funded and are currently under construction or planned. The landscaping and special ornamental lighting work along M-45 in Allendale will be completed in 2004 and the proposed interchange upgrade for I-96 at 68th Avenue in Coopersville will be built in 2004.

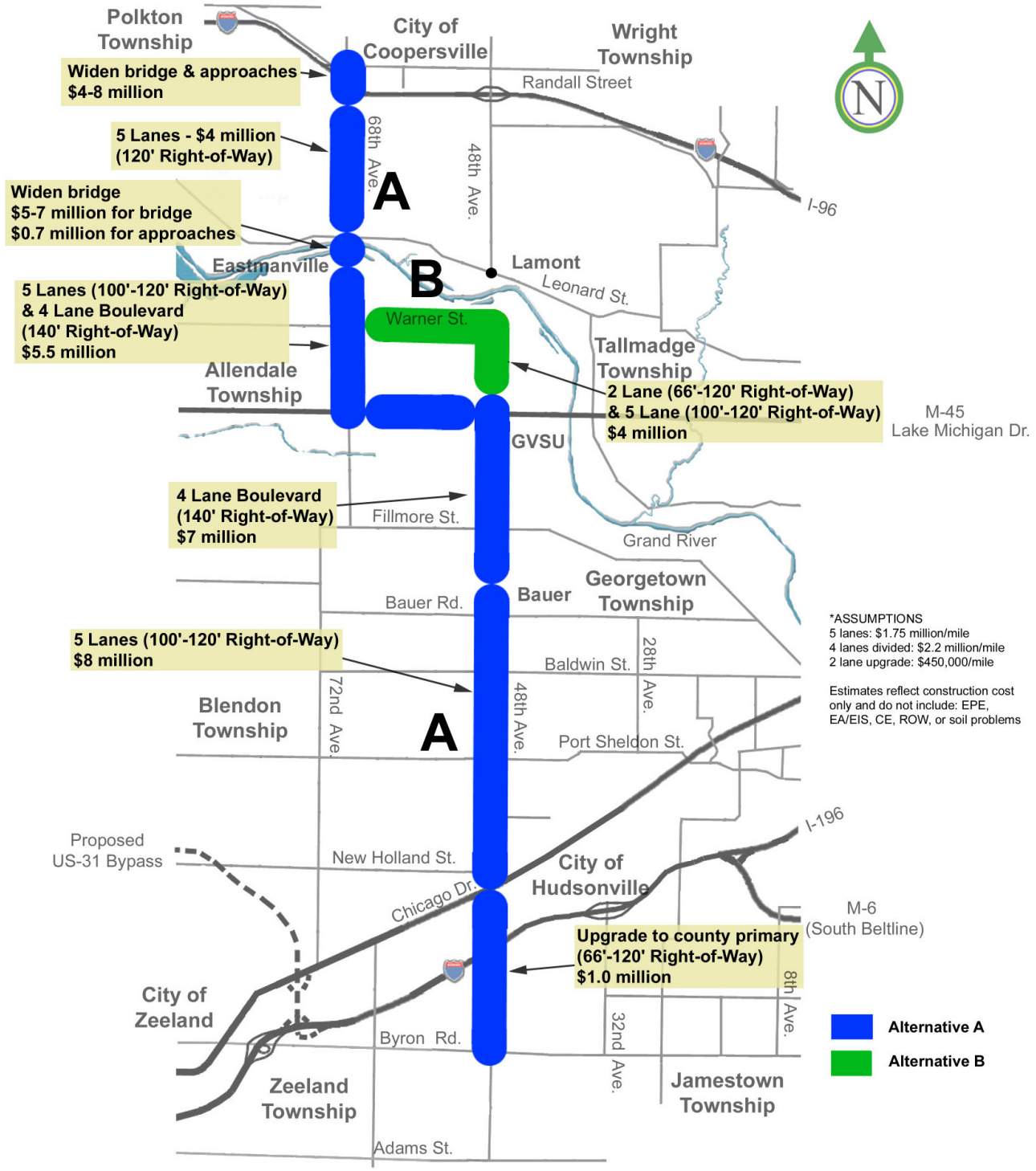
Funded projects are those so designated to have funds (state, county, local and/or private) committed in the GVMC or MACC's current 2003 – 2005 Transportation Improvement Program (TIP) and 5-Year Plan, or in MDOT's 5-Year Plan. Projects planned further out than 5 years, which are the majority of improvements identified in this study, can be added to the Long-Range Plans of GVMC, MACC, OCRC, or MDOT, but are typically "unfunded" at this time (i.e. there are no planning, design, or construction funds committed to them).

The Recommended **Alternative A** has been divided into segments for cost estimating purposes (**Figure 7.1**). This also reflects possible construction phasing over a period of years. The cost estimates provided are for construction costs only and do not include more detailed studies, construction engineering, right-of-way, soil problems, environmental issues, aesthetic enhancements, etc. All costs are in year 2003 dollars.

- Alternative A has a total estimated corridor cost of $35-$41 million
- Alternative B includes all the costs of Alternative A, with an additional $4 million, for a total estimated corridor cost of $39-$45 million

As referenced throughout this report, implementing all these improvements will be a long-range collaborative effort for the road agencies, planning agencies and the communities along the corridor. While the total cost of all improvements is extensive, the intended effort is to build logical smaller segments as their need arises and funding is identified.

Figure 7.1 Cost Estimate for Recommended Alternative



8.0 NEXT STEPS

This study was intended to take a long-range look at what transportation improvements will be needed to meet the anticipated population and development growth in this area of Ottawa County. Funding and building these transportation improvements plus coordinating the land use changes, will be an ongoing effort for the next 5 to 30 years. In order for this long-range plan to succeed, the following steps should be taken by the agencies responsible for the land use and highway development along this recommended corridor:

- Each township needs to update their master plans and zoning so that they include special provisions for the recommended corridor. This means establishing new building setback requirements that reflect the future highway right-of-way and any major town center or commercial developments for the corridor.
- The townships need to establish an access management plan and traffic circulation plan to guide developers in locating future intersecting streets and driveways along the corridor.
- Each township needs to develop new or updated plans for incorporating non-motorized pathways along the corridor. They need to set priorities for funding all non-motorized facilities planned for their township and consider possible connections with other planned pathways in the area.
- All townships should seek to obtain common zoning requirements or special overlay zoning along the corridor for building setbacks, landscaping, non-motorized facilities, access management, commercial signing, lighting, etc.
- All townships should seek to obtain common landscaping requirements(like suggested in Section 6.3) along the corridor.
- All townships should consider notifying their residents, land owners and developers of the significance and implications of this special corridor designation.
- Local funding for some of these improvements can be pursued through transportation enhancement grants, private sources, or included as a site development requirement for commercial properties.
- The Ottawa County Road Commission needs to plan for the future engineering studies, right-of-way acquisition and construction costs for improving each segment along the corridor.
- The Ottawa County Road Commission needs to establish a long-term budget strategy for funding the proposed corridor improvements. Some successful efforts have already occurred in the most critical area of 68th Avenue, north of Lake Michigan Drive. An agreement with MDOT has been obtained to widen the 68th Avenue bridge over I-96 near Coopersville, the county has also completed the widening and signalization of the intersection at Leonard Street, and an effort to look at feasible Grand River Bridge widenings has just started.
- The Ottawa County Road Commission needs to continue to monitor plats to ensure adequate dedication of right-of-way and the County Planning and Grants Department needs to monitor land use changes.
- The Ottawa County Road Commission needs to monitor driveway permits for compliance with access management plans.
- The Grand Valley Metro Council needs to update their transportation modeling efforts to encompass land use changes along this corridor and north of the Grand River.
- The Grand Valley Metro Council needs to help the OCRC in obtaining federal funding for the planned improvements.

- The Michigan Department of Transportation needs to coordinate with the planned county/state road intersection improvements in the corridor. This has already resulted in a mutual benefit for the proposed I-96 at 68th Avenue interchange upgrade in Coopersville.

8.1 TRIGGERS AND HURDLES

During the development of this long-range study effort the question often asked was: "What events or factors will tell us when to build these improvements or take other action?" The team determined that many issues, action steps and critical decisions are "triggered" by key items or events. The following are some of the key "**triggers**" identified in this study:

- 12,000 vehicles a day on a two-lane highway means the highway needs to be widened
- Right angle accident patterns indicate a traffic signal may be needed
- Rear end accident patterns indicate a special center or right turn lane may be needed
- Increased accidents indicate traffic congestion is being experienced more frequently and relief can occur by adding more lanes, improving signal timing, restricting turn movements and/or revising driveway operations.
- Requests for zoning changes indicate a change in land use along the corridor

The study team also discussed several reasons, issues or "**hurdles**" that would prevent or delay the implementation of this long-range plan. Some of these are:

- Funding – All agencies involved in this study realize that funding the proposed roadway, bridge and non-motorized improvements will be a long-term venture. The Ottawa County Road Commission's current Act 51 state budget allocation is only $4 million per year and that is intended to fund road improvements to its 385 miles of county primary roadways. The county can leverage some of this money with federal highway matching funds to further stretch their funding capabilities. This budget is not sufficient to fund the proposed improvement in this corridor or other county needs. Therefore, they will have to seek additional funding sources (bonding, property taxes, grants or private sources), re-prioritize project needs in the county or implement these improvements over a very long timeframe.
- Right-of-way may be difficult to obtain for an entire project and some properties may have to go through condemnation proceedings. Townships and county personnel should be watching the corridor to see if some key properties come on the market for sale and therefore can be acquired from a willing seller.
- Residential development is occurring along the corridor and homeowners may not agree with their roadway becoming a major roadway. It is important to make the public aware of the long-range plan to improve this corridor.
- Efforts to develop a traffic circulation plan that improves access to the county roads will meet with resistance as some subdivision developments desire an "exclusive" or "private" neighborhood feel.
- Access management is difficult to implement where existing development is in nonconformance. Townships need strong criteria for allowing variances and must be flexible to intermediate driveway operations. For example, a township's access management plan may require a combined service drive to operate behind a series of commercial properties. However, some properties may be allowed to use an intermediate driveway directly accessing the corridor until the remaining properties are developed. The key to this being successful is approving site plan layouts that will match the future access plan for sharing

drives. It will also be difficult to get frontage residential development to agree on a shared driveway use with their neighbor and formal easements or agreements may be needed.

- Aesthetic roadside enhancements are very desirable, but difficult to fund. Donations or grant programs are generally utilized as funding sources.

8.2 CONCLUSION

This study fulfilled most of its goals and objectives:

- It identified a primary north-south corridor with connections to GVSU and I-96. A connection with I-196 may be possible in the future, but does not appear feasible at this time.
- It recommended that portions of the corridor be preserved as a controlled access facility, with intersections no closer than every quarter mile and access (driveways) near these intersections be specifically controlled.
- It looked at various Grand River crossing locations and concluded that by 2025, additional capacity at the existing 68th Avenue crossing would more than satisfy the study area needs.
- It worked with each community to recommend a road improvement desired by each community that should be preserved to provide an acceptable level of traffic service within the corridor, based on the facility type (4-lane, 5-lane, boulevard, etc.).

This study's recommendations now allow the communities that sponsored it to modify their policies and plan for a single major north-south corridor through eastern Ottawa County, with the hope of preserving the area's desired quality life.

Appendix A: Public Meeting Flyer

You are invited to a Community-Wide Discussion on the North-South Corridor Study

(Allendale Township, Blendon Township, the City of Coopersville, Georgetown Township, the City of Hudsonville, Jamestown Township, Polkton Township, Tallmadge Township, Wright Township, and Zeeland Township, Ottawa County, Ottawa County Road Commission, Grand Valley Metropolitan Council, and Grand Valley State University)

When:

Tuesday, October 29, 2002
Allendale Township Hall
6676 Lake Michigan Drive
Allendale, MI 49401-0539

Wednesday, October 30, 2002
Georgetown Township Hall
1515 Baldwin Road
Jenison, MI 49429-0769

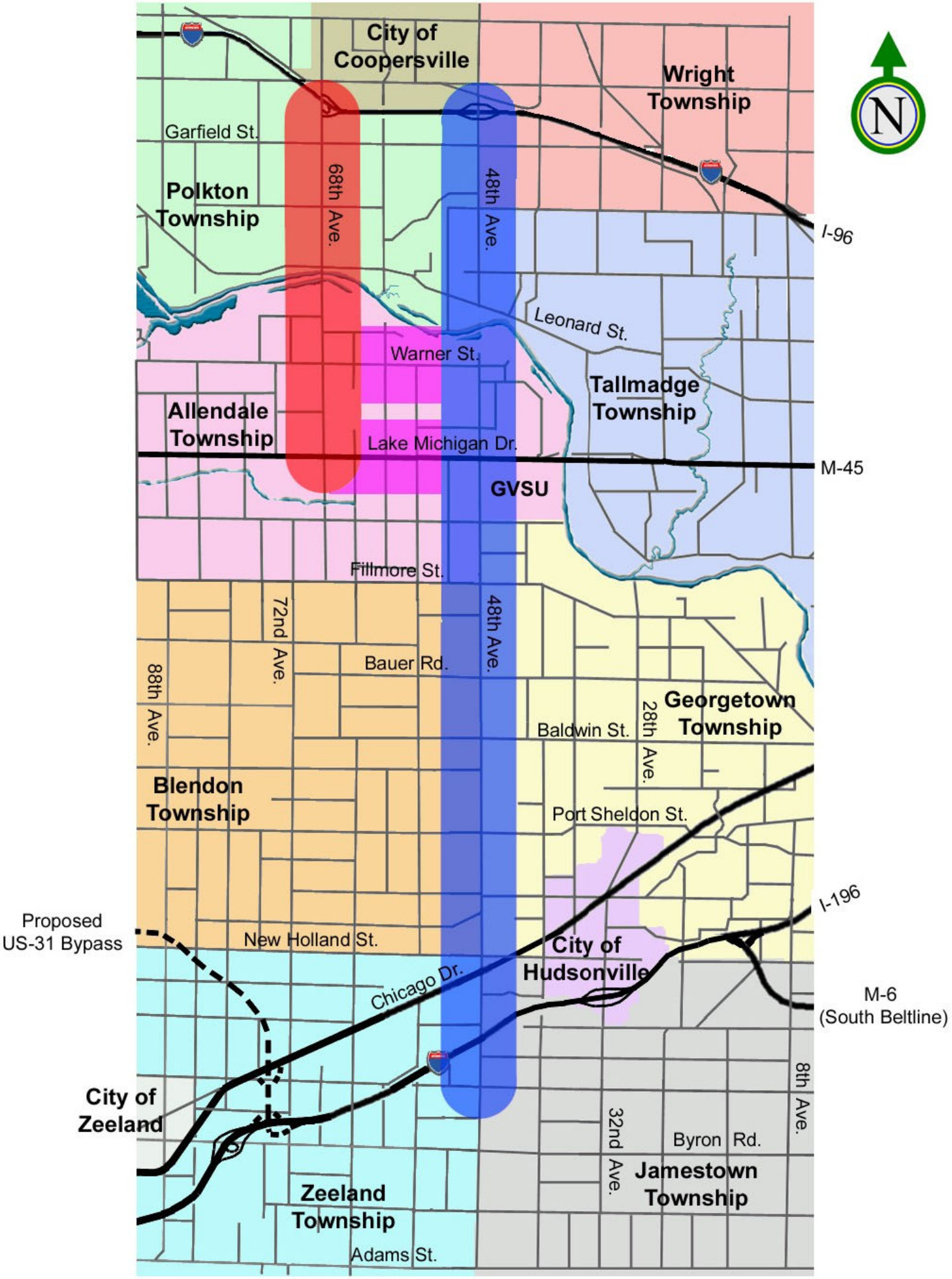
These will be open discussion meetings from 4:00 to 5:00 p.m. & 7:00 to 9:00 p.m. A short presentation will be provided at 4:15 p.m. and 7:15 p.m.

The purpose of these meetings is to:

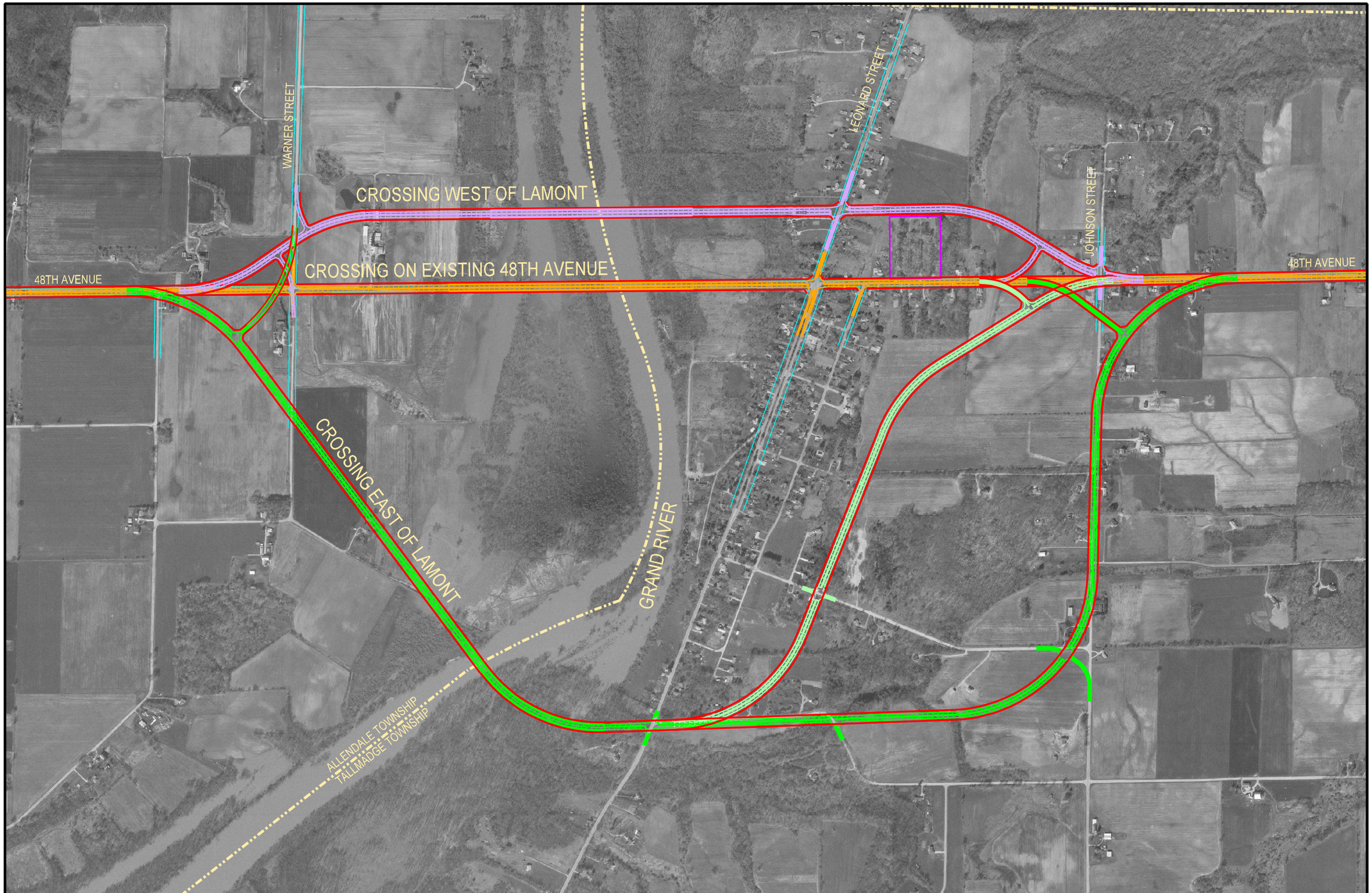
- Look at long-range (20 – 50 years) future growth patterns for central Ottawa County
- Identify a major north-south transportation corridor from the Hudsonville area north to Coopersville.
- Discuss the advantages/disadvantages of corridor options
- Determine what type of highway is needed (2 lane, 5 lane, divided highway)
- Identify land use and development implications

Questions regarding the study or the public meetings can be directed to Sara Schrader at the Ottawa County Planning and Grants Department. Sara can be contacted by telephone at 738-4852 or e-mail at plan@co.ottawa.mi.us.

PRACTICAL NORTH-SOUTH CORRIDOR OPTIONS		
Corridor	**Pros**	**Cons**
68th/48th Ave. via M-45 (Lake Mich. Drive)	• Direct north end connection with I-96 and Cooperville. • Direct service to Allendale and GVSU • Proximity service to Hudsonville • Uses the most existing Ottawa County/State primary road systems.	• Longer overall route than 48th Ave. Alternative • Could add to future congestion on M-45 through Allendale • Requires improvements to the existing 68th Avenue Grand River crossing in Eastmanville • No direct south access to I-196 • Costly to build south end (RR crossing, muck soils)
68th/48th Ave. via Warner St.	• Same as above, plus • Provides access to Allendale's industrial/commercial zoned area north of M-45 • Provides alternate to M-45 through Allendale	• Same as above, plus • Requires significant investment to improve 48th north of M-45 and Warner Street(not county primary routes at this time) • Bypasses Allendale's existing commercial areas
48th Avenue	• Almost the same as others, plus • Most direct N-S corridor • Improves attractiveness of 48th Avenue/I-96 Interchange area for development • Provides alternative relief for 68th Avenue /Leonard Street intersection in Eastmanville	• Requires costly new road approach and bridge crossing over the Grand River plus related environmental issues. • Requires significant investment to improve 48th north of M-45 • Impacts the Lamont community • No direct south access to I-196 • Costly to build south end (RR crossing, muck soils)


City of Coopersville
Wright Township
N
Garfield St.
Polkton Township
68th Ave.
48th Ave.
I-96
Leonard St.
Warner St.
Tallmadge Township
Allendale Township
Lake Michigan Dr.
M-45
GVSU
Fillmore St.
72nd Ave.
48th Ave.
88th Ave.
Bauer Rd.
Georgetown Township
Baldwin St.
28th Ave.
Blendon Township
Port Sheldon St.
I-196
Proposed US-31 Bypass
New Holland St.
City of Hudsonville
Chicago Dr.
M-6 (South Beltline)
City of Zeeland
8th Ave.
32nd Ave.
Byron Rd.
Jamestown Township
Zeeland Township
Adams St.

Appendix B: 48th Avenue Grand River Crossing Concepts



0ft 300ft 600ft 1200ft 2400ft

LEGEND

- CORPORATE BOUNDARY
- EXISTING ROW
- PROPOSED ROW
- PROPOSED ROADWAY
- PROPOSED BRIDGE
- PROPOSED NON-MOTORIZED TRAIL

GVMC

URS

NORTH-SOUTH CORRIDOR STUDY

APPENDIX B
48TH AVENUE GRAND RIVER
CROSSING CONCEPTS

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Appendix C: 68th Avenue Grand River Bridge Concepts

0ft 100ft 200ft 400ft 800ft

LEGEND

- CORPORATE BOUNDARY
- EXISTING ROW
- PROPOSED ROW
- PROPOSED ROADWAY
- PROPOSED BRIDGE
- PROPOSED NON-MOTORIZED TRAIL

GVMC

URS

NORTH-SOUTH CORRIDOR STUDY

APPENDIX C-1
SISTER BRIDGE EAST OF EXISTING

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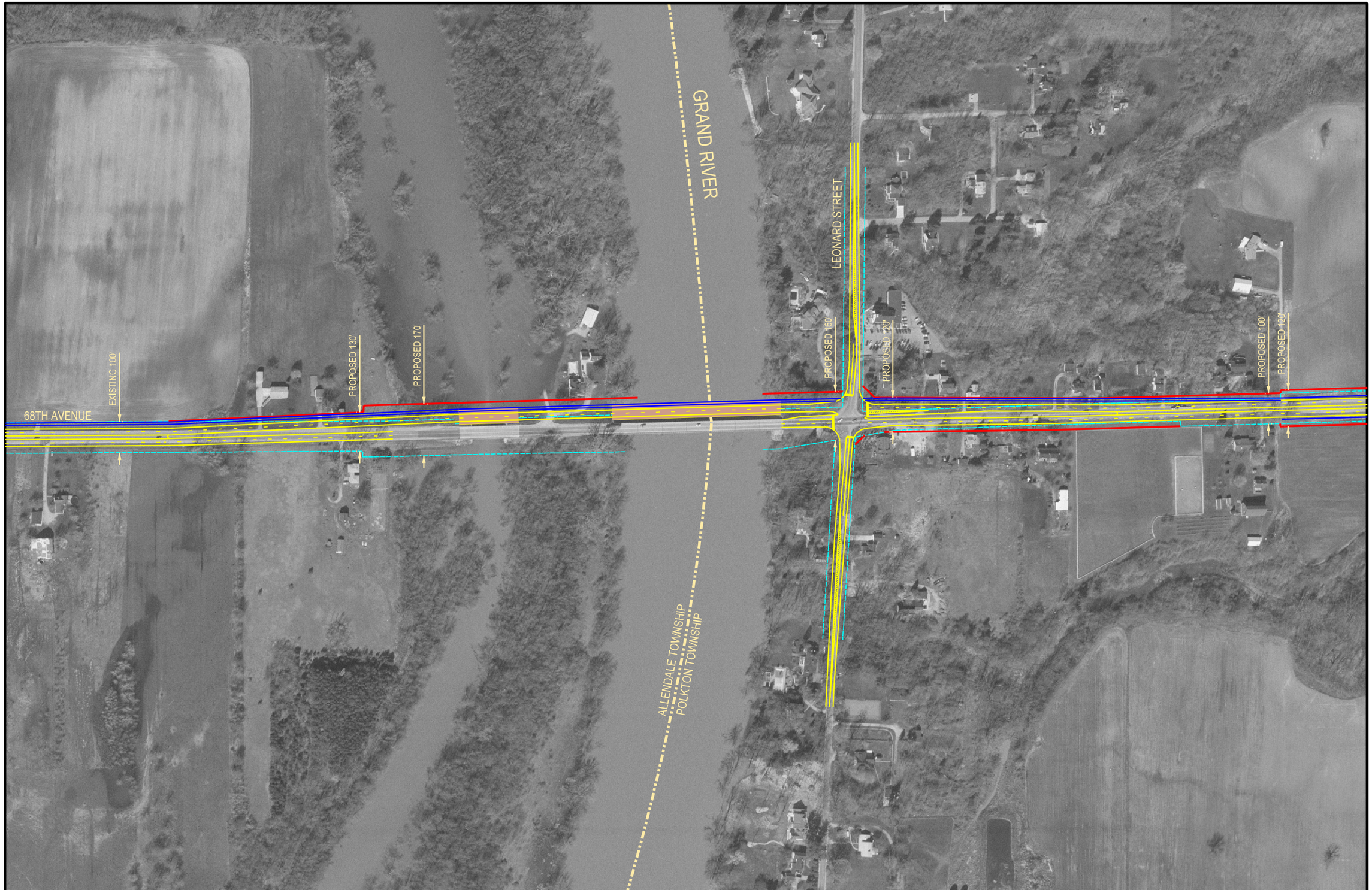

0ft 100ft 200ft 400ft 800ft

LEGEND

- CORPORATE BOUNDARY
- EXISTING ROW
- PROPOSED ROW
- PROPOSED ROADWAY
- PROPOSED BRIDGE
- PROPOSED NON-MOTORIZED TRAIL

GVMC

URS

NORTH-SOUTH CORRIDOR STUDY

APPENDIX C-2
SISTER BRIDGE WEST OF EXISTING

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0ft 100ft 200ft 400ft 800ft

LEGEND

- CORPORATE BOUNDARY
- EXISTING ROW
- PROPOSED ROW
- PROPOSED ROADWAY
- PROPOSED BRIDGE
- PROPOSED NON-MOTORIZED TRAIL

GVMC

URS

NORTH-SOUTH CORRIDOR STUDY

APPENDIX C-3
WIDEN EXISTING BRIDGE

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Appendix D: Georgetown Township Setback Zoning Ordinance

CHAPTER 24 - SCHEDULE OF DISTRICT REGULATIONS

DISTRICT	Minimum Lot Size Per Unit (a)		Maximum Lot Coverage (percent)	Minimum Yard Setbacks (b)(o)(v)				Maxim Build Heigh
	Area (Square Feet)	Width (Feet)		Front (s) (t)	Side		Rear	Stories
					Least One	Total		
AG Agriculture	40,000	200	20	40	20	40	75	2½
RR Residential	30,000 (c)	200(c)	20	40	20	40	50	2½
LDR Residential	11,475 (d)	85(n) (d)	30	40	10	20	40	2½
LMR Residential	7,700 (e)(f)	70(n)	30	30	5	15	30	2½
MDR Residential	10,000 (d)(f)	80(n)	30	35	10	20	35	2½
MHR Residential (i) (j)	10,000 (e-g)	80(n)	35	35	10	20	35	2½
HDR Residential (i) (j)	(e-h),(u)	---	40	30	15	30	30	2½
MHP Residential (i)	----	---	35	---	---	---	---	1
OS Commercial	11,050	85	---	30 (l)	(m)		75	2
NS Commercial	11,050	85	---	30 (l)	(m)		50	2½
CS Commercial	11,050	85	---	30 (l)	(m)		40	2½
HS Commercial	15,000	100	35	30 (k)	10 (m)	25	40	2½
I Industrial	40,000	150	40	45 (r)	20 (m)	40	40	3

* Footnotes are integral part of these District Regulations and should be read in conjunction with the above schedule.

Chapter 24 SCHEDULATION OF REGULATIONS & FOOTNOTES

(a) Each dwelling structure shall have a minimum floor area per dwelling unit in accord with the following schedule

Structure		Area Per Unit
(1) Single Family Detached AG, RR, LDR, MDR, MHR, HDR		Each dwelling unit shall have a minimum finished living area of one thousand (1,000) square feet entirely above finished lot grade. Homes with more than one story completely above finished lot grade, including tri-levels shall have a minimum of six hundred and fifty (650) square feet on the main floor, PROVIDED, no less than three hundred and fifty (350) square feet of finished living area shall be provided on each floor above. (revised 9-23-02)
(2) Single Family Detached LMR		Each dwelling unit shall have a minimum finished living area of eight hundred fifty (850) square feet entirely above finished lot grade. Homes with more than one story completely above finished lot grade, including tri-levels shall have a minimum of six hundred and fifty (650) square feet on the main floor PROVIDED no less than two hundred (200) square feet of finished living area shall be provided on each floor above. (revised 9-23-02)
(3) Attached Single Family Including Two Family and Townhouses		Each dwelling unit shall have a minimum finished living area of nine hundred (900) square feet of floor area with a minimum of five hundred (500) square feet on the ground floor for units of more than one (1) story
(4) Multiple Family Dwellings	Efficiency	350 square feet
	1 Bedroom	600 square feet
	2 Bedroom	800 square feet
	3 Bedroom	1,000 square feet; plus an additional eighty (80) square feet for each bedroom in excess of three bedrooms

(b) Additional front setback requirements for certain streets.

i. In all districts, required setbacks along any of the following streets shall be measured from a point 50 ft. from the centerline of the street, if the public right-of-way measures 50 ft. or less from such centerline. Streets upon which this requirement applies include the following: (revised 7/25/95) (revised 4-10-2000)

Cottonwood (Port Sheldon to Baldwin)
Jackson
Kenowa
Main
Pt. Sheldon (Main to 44th St.)
Rosewood
School (*name changed to Cottonwood Dr.)*
8th (Pt. Sheldon to 44th St.)
12th (Pt. Sheldon to Baldwin)
14th (Pt. Sheldon to Van Buren)
22nd (Edson to Jackson)
40th
42nd
VanBuren

ii. In all districts, required setbacks along any of the following streets shall be measured from a point 60 feet from the centerline of the street, if the public right-of-way measures 60 feet or less from such centerline. Streets upon which this requirement applies include the following: (Revised 3-27-2000) (Revised 4-10-2000)

Baldwin
Bauer
Cottonwood (Baldwin to Fillmore)
Fillmore
Pt. Sheldon (44th St. from Kenowa to 48th Ave.) (revised 6-25-01)
8th (44th St. to Jackson)
18th (Pt. Sheldon to Rosewood)
20th
28th
36th
44th St.

iii. In all districts, required setbacks along any of the following streets shall be measured from a point 70 feet from the centerline of the street, if the public right-of-way measures 70 feet or less from such centerline. Streets upon which this requirement applies include the following: (revised 2-24-2003)

48th Ave.

(c) Lots serviced by public sanitary sewer and water may be reduced to fifteen thousand (15,000) square feet with a minimum width of one hundred ten (110) feet. Installation of dry sewer does not fulfill the requirement for public sewer.

(d) Lots not serviced by public water and sanitary sewer (installation of dry sewer-mains fulfills the requirements of installed sewer) shall have a minimum size of thirteen thousand three hundred (13,300) square feet and a minimum width of ninety five (95) feet.

(e) All lots shall be serviced by public water and sanitary sewer.

(f) All two family dwelling structures shall have a minimum lot area of fifteen thousand (15,000) square feet and a minimum lot width of one hundred twenty (120) feet, provided when public water and sanitary sewer are available (installation of dry sewer mains fulfills this obligation on installed sewer) the minimum frontage requirement is reduced to one hundred (100) feet and the lot area is reduced to fourteen thousand (14,000) square feet.

(g) Townhouses shall be located on a minimum site of one (1) acre, and the minimum lot area per unit shall equal seven thousand eight hundred (7,800) square feet for the first unit and two thousand seven hundred (2,700) square feet for each additional unit. Minimum lot width of one hundred fifty (150) feet is required.

(h) For multiple family dwelling structures, the first dwelling unit shall have four thousand (4,000) square feet and each additional unit shall be provided with two thousand two hundred fifty (2,250) square feet of lot area.

(i) The maximum density per acre permitted in MHR, HDR, and MHP Districts is as follows:
MHR Eight (8) units per acre
HDR Fifteen (15) units per acre
MHP Ten (10) units per acre

(j) There shall be a minimum distance of twenty five (25) feet between ends of contiguous buildings.

(k) Required off-street loading areas shall not be provided in the front yard.

(l) Except for necessary drives and walks the required front yard shall be landscaped and shall not be used for parking, loading, or accessory structures.

(m) Where a side and/or rear yard abuts a Residential District, there shall be a minimum yard of not less than twenty five (25) feet, exclusive of parking and drives. Such yard shall contain a

Appendix E: Blendon Township Zoning Overlay Ordinance

CHAPTER 4
48th, 72nd, and 96th AVENUES AND PORT SHELDON OVERLAY ZONING DISTRICTS

Section 04.01 Description and Purpose

48th Avenue, 72nd Avenue, 96th Avenue and Port Sheldon have been identified as an important transportation corridors through the Township. The intent of the Overlay Zoning Districts is to provide specific standards for the corridor to preserve roadway capacity, and safety, ensure that development does not limit the future ability to improve these roadways and maintain the open, rural character of the Township as viewed from these major road corridors. Among the specific purposes of the Corridor Overlay Zoning District are:

04.01.01 Maximize the capacity of the road by limiting, and controlling the number, and location of driveways and requiring alternate means of access through shared driveways, service drives, and access from side streets.

04.01.02 Preserve future right-of-way needs in a timely manner and minimizing disruption of existing businesses through preservation of additional right-of-way that may be necessary to widen the road. Maintain consistent setbacks along 48th Avenue, 72nd Avenue, 96th Avenue and Port Sheldon, which currently have variable right-of-way.

04.01.03 Promote alternative means of transportation through development of non-motorized pathways.

04.01.04 Preserve frontage buffers on sites along the corridor as they develop and redevelop to maintain the desired open space and preserve the desired rural character of the township as viewed along the major corridors.

04.01.05 Promote preservation of existing natural features such as woodlands along the corridors, which provide important ecological and aesthetic functions.

Section 04.02 Applicability

04.02.01 **Scope of Application.** The development or redevelopment of lots and parcels of land having frontage along 48th Avenue, 72nd Avenue, 96th Avenue or Port Sheldon or having any land area within three-hundred (300) feet of the centerline of 48th Avenue or Port Sheldon shall comply with the provisions of this overlay zoning district in addition to the applicable regulations of the underlying zoning district. The lot area, and bulk requirements of the underlying zoning district shall be complied with subject to the requirements of this overlay zoning district. Where a conflict exists between the requirements of this overlay zoning district and the underlying zoning district the most restrictive requirement shall apply.

04.02.02 **Uses Permitted.** The uses permitted shall be regulated by the underlying zoning district. The review and approval process applicable in the underlying zoning district shall be followed.

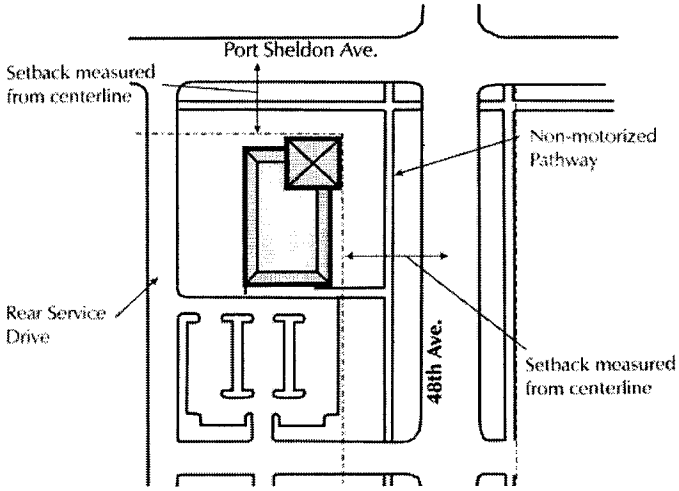
Section 04.03 Dimensional Requirements

The development or redevelopment of lots and parcels within the 48th Avenue, 72nd Avenue, 96th Avenue and Port Sheldon overlay District shall comply with the dimensional requirements of the underlying zoning district, except the minimum front yard setback provided in the following table shall be maintained as open landscape area:

Building setback measured from the centerline of road	90 feet
Parking lot setback measured from the centerline of road	80 feet

Section 04.04 Transportation Related Requirements

04.04.01 **Driveway Access.** All driveways shall comply with the requirements of ***Section 12.04, Access, Driveways and Service Drives.***



04.04.02 **Shared Driveways, Frontage Roads And Service Drives.** All non-residential uses shall be required to install service roads to allow connection to adjacent lots that are zoned or planned for non-residential use. Service roads shall generally be parallel or perpendicular to the front lot line. Service roads that are parallel to 48th Avenue, 72nd Avenue, 96th Avenue or Port Sheldon shall be at least thirty (30) feet from the front yard setback required by ***Section 04.03*** above. All service drives shall be designed in accordance with the requirements of ***Section 12.04, Access, Driveways and Service Drives.***

04.04.03 **Non-motorized Transportation.** An eight (8) foot wide bike path shall be required along all road frontages for all uses requiring site plan, site condominium, condominium or subdivision plat approval. Bike paths shall comply with the requirements of ***Section 12.06 Bicycle Paths and Sidewalks***.

04.04.04 **Traffic Impact Study.** A traffic impact study shall be required as part of the site plan submission for any development within the overlay zoning district where the proposed development meets the warrants for such traffic impact study. The warrant for a traffic impact study and the standards used in preparing and approving such traffic impact study shall comply with ***Section 12.07, Traffic Impact Studies***.

Appendix F: Hamburg Township Access Management Zoning Ordinance

The intent of this section is to establish standards for driveway spacing and the number of driveways for application during the site plan review process. The standards of this section are intended to promote safe and efficient travel within the township; minimize disruptive and potentially hazardous traffic conflicts; separate traffic conflict areas by reducing the number of driveways; provide efficient spacing standards between driveways, and between driveways and intersections; implement the Master Plan, the M-36 Corridor Plan and other subarea plan recommendations; protect the substantial public investment in the street system; and to ensure reasonable access to properties, though not always the most direct access.

The standards herein apply to site plans and plats along roads which are under the jurisdiction of the Livingston County Road Commission or Michigan Department of Transportation (MDOT). Both of those agencies have driveway design and permit requirements, however, those general standards may not be sufficient to meet the particular traffic issues and objectives of Hamburg Township. Therefore, the driveway standards herein may be more restrictive than those provided by the road agencies. Construction within the public right-of-way under the jurisdiction of Livingston County or MDOT still must also meet the permit requirements of the road agency. Where any conflicts arise, the more stringent standard shall apply.

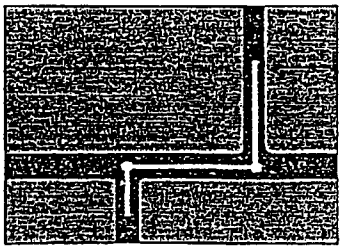
Section 10.8.2 Definitions.

A. **Arterials, Collectors and Local Roads.** Arterials, collectors and local roads are as classified in the Township Master Plan. Arterial Roads are as follows:

1. M-36;
2. Hamburg Road;
3. Winans Lake Road;
4. Chilson Road;
5. Strawberry Lake Road;
6. Pettysville Road;
7. McGregor Road; and,
8. Whitewood/Shehan Road.

B. **Commercial Driveway.** For the purposes of this section, a commercial driveway is defined as any vehicular access except those serving one (1) or two (2) dwelling units or an essential public service use, building or structure.

C. **Offset.** The distance between the centerline of the subject driveway and the centerline of driveways on the opposite side of the street.



OFFSET OF ACCESS POINTS

Section 10.8.3 General Standards for Driveway Location.

A. Driveways shall be located so as to minimize interference with the free movement of traffic, to provide adequate sight distance, and to provide the most favorable driveway grade.

B. Driveways, including the radii but not including right turn lanes, passing lanes and tapers, shall be located entirely within the right-of-way frontage, unless otherwise approved by Livingston County or the Michigan Department of Transportation and upon written certification from the adjacent property owner agreeing to such encroachment.

Section 10.8.4 Standards for the Number of Commercial Driveways.

The number of commercial driveways shall be the minimum necessary to provide reasonable access for regular traffic and emergency vehicles, while preserving traffic operations and safety along the public roadway. A single means of direct or indirect access shall be provided for each separately owned parcel. Where possible, this access shall be via a shared driveway or a service drive. Where it is not possible to provide shared access, this access may be by a single driveway. Additional driveways may be permitted for a property only under one of the following:

A. One (1) additional driveway may be allowed for properties with a continuous frontage of over five hundred (500) feet, and one (1) additional driveway for each additional five hundred (500) feet of frontage, if the Planning Commission determines there are no other reasonable access opportunities.

B. Two one-way driveways may be permitted along a frontage of at least one hundred twenty five (125) feet, provided the driveways do not interfere with operations at other driveways or along the street.

C. The Planning Commission may determine additional driveways are justified due to the amount of traffic generated by the use without compromising traffic operations along the public street, based upon a traffic impact study submitted by the applicant.

Section 10.8.5 Driveway Spacing Standards.

A. **Between Driveways.** The minimum spacing between two commercial driveways on the same side of the road shall be determined based upon posted speed limits along the parcel frontage. The minimum spacings indicated below are measured from centerline to centerline.

Table 10.8.5A

Posted Speed Limit (MPH)	Minimum Driveway Spacing (In Feet)
25	125
30	155
35	185
40	225
45+	300

B. For sites with insufficient street frontage to meet the above criterion, the Planning Commission may require construction of the driveway along a side street, a shared driveway with an adjacent property, construction of a driveway along the property line farthest from the intersection or require a service/frontage road.

C. **Offsets.** To reduce left-turn conflicts, new commercial driveways should be aligned with driveways or streets on the opposite side of the roadway where possible. If alignment is not possible, driveways should be offset a minimum of two hundred fifty (250) feet along an Arterial roadway and one hundred fifty (150) feet along other roadways. Longer offsets may be required depending on the expected inbound left-turn volumes of the driveways, or sight distance limitations.

D. **Spacing from Intersections.** Minimum spacing requirements between a proposed commercial driveway and an intersection either adjacent or on the opposite side of the street may be set on a case-by-case basis by the Planning Commission during site plan review but in no instance shall be less than the distances listed below. The following measurements are from the near edge of the proposed driveway, measured at the throat perpendicular to the street, to the near lane edge of the intersecting street or pavement edge for uncurbed sections.

Table 10.8.5.B

Minimum Commercial Driveway Spacing from Street Intersections		
Location of Driveway	Minimum Spacing for a Full Movement Driveway	Minimum Spacing for a Channelized Driveway Restricting Left Turns
Along Arterial from intersection with another Arterial	300 feet	300 feet
Along Arterial from intersection with a Collector or Local Street	250 feet	125 feet
Along Collector or Local Street from an intersection with an Arterial	125 feet	75 feet
Along a Collector from intersection with a non-arterial	125 feet	125 feet
Along a Local Street or Private Road from intersection with a non-arterial intersection	75 feet	75 feet

For sites with insufficient street frontage to meet the above criterion, the Planning Commission may require construction of the driveway along a side street, a shared driveway with an adjacent property, construction of a driveway along the property line farthest from the intersection or require a service/frontage road.

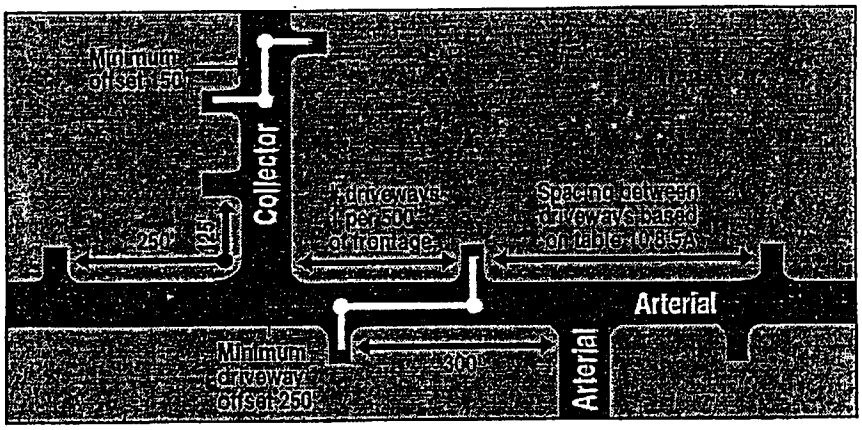


Figure 10.8
Hamburg Township Commercial Driveway Standards
The above generally illustrates the standards of this section; refer to the text for specific requirements.

Section 10.8.6 Standards for Shared Driveways and Service/Frontage Roads.

The use of service roads, in conjunction with driveway spacing, is intended to preserve traffic flow along major thoroughfares and minimize traffic conflicts, while retaining reasonable access to the property. Where noted above, or where the Planning Commission determines that reducing the number of access points may have a beneficial impact on traffic operations and safety while preserving the property owner's right to reasonable access, access from a side street, a shared driveway or service road connecting two or more properties or uses may be required. In particular, service drives, frontage roads or at least a connection between uses may be required in the following cases:

A. Where the driveway spacing standards of this section can not be met.

B. Where recommended in the M-36 Corridor Plan and other corridor or sub-area master plans.

C. When the driveway could potentially interfere with traffic operations at an existing or potential traffic signal location.

D. The site is along an Arterial, particularly along segments experiencing congestion or a relatively high number of accidents.

E. The property frontage has limited sight distance.

F. The fire department recommends a second means of emergency access.

Section 10.8.7 Design Standards for Service Drives.

Service roads, as an alternate to numerous individual driveways serving a series of uses or lots, shall be designed according to the following additional standards:

A. **Location.** Service roads shall generally be parallel or perpendicular to the front property line and may be located either in front of, adjacent to, or behind, principal buildings and may be placed in required yards. In considering the most appropriate alignment for a service road, the Planning Commission shall consider the setbacks of existing and/or proposed buildings and anticipated traffic flow for the site.

B. **Access Easement.** The service road shall be within an access easement permitting traffic circulation between properties. This easement shall be at least forty (40) feet wide.

C. **Construction and Materials.** Service roads shall have a base, pavement, and curb and gutter in accordance with Township standards, except the width of the service road shall be twenty-six (26) feet wide, measured from curb edge-to-edge.

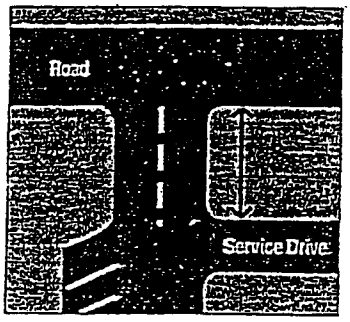
D. **Parking.** The service road is typically intended to be used exclusively for circulation, not as a parking maneuvering aisle. The Planning Commission may require the posting of "no parking" signs along the service road. In reviewing the site plan, the Planning Commission may permit temporary parking in the easement area where a continuous service road is not yet available, provided that the layout allows removal of the parking in the future to allow extension of the service road. The Planning Commission may approve angled or parallel parking.

E. **Access Points.** The Planning Commission shall approve the location of all accesses to the service/frontage road, based on the driveway spacing standards of this Article. The throat depth of the access points shall be considered adequate to minimize conflicts with traffic on the public road, in consideration of expected traffic volumes.

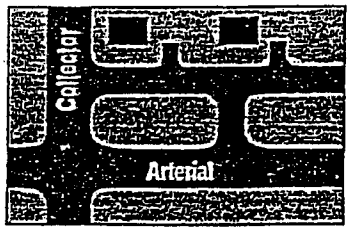
F. **Temporary Access.** The Planning Commission may approve temporary access points where a continuous service road is not yet available and a performance bond or escrow is created to assure elimination of temporary access when the service road is continued.

G. **Elevation.** The site plan shall indicate the proposed elevation of the service/frontage road at the property line and the Township shall maintain a record of all service road elevations so that their grades can be coordinated.

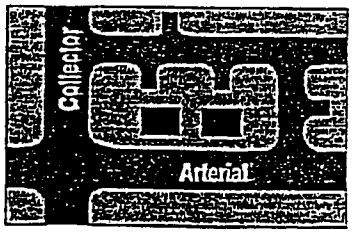
H. **Maintenance.** Each property owner shall be responsible for maintaining the service/frontage road.



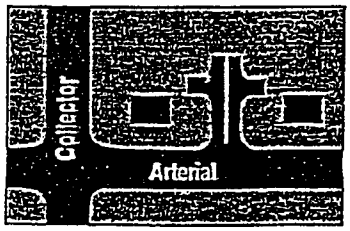
THROAT DEPTH



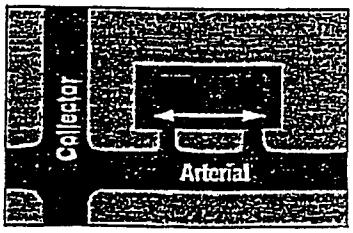
FRONTAGE ROADS



REAR SERVICE DRIVES



SHARED DRIVEWAY



PARKING LOT CONNECTIONS (RETROFIT)

Section 10.8.8 Commercial Driveway Design.

Commercial driveways shall be designed according to the standards of the Livingston County Road Commission or MDOT, as applicable, and in accordance with the following:

A. For high traffic generators, or for commercial driveways along roadways experiencing or expected to experience congestion, all as determined by the Planning Commission, two egress lanes may be required (one being a separate left turn lane).

B. Where a boulevard entrance is desired by the applicant or Planning Commission, a fully curbed island shall separate the ingress and egress lanes. The radii forming the edges on this island shall be designed to accommodate the largest vehicle that will normally use the driveway. The minimum area of the island shall be one hundred eighty (180) square feet. The Planning Commission may require landscaping on the section outside the public right-of-way. Such landscaping shall be tolerant of roadway conditions. Direct alignment of boulevard entrances is discouraged.

C. All commercial driveways shall provide an unobstructed clear vision area between a height of three (3) feet and ten (10) feet in a triangular area measured ten (10) feet back from the point of intersection of the driveway and the street right-of-way (see graphic)

Section 10.8.9 Standards For Shared Residential Driveways (Residential Zoning Districts).

A. The number of residential driveways shall be the minimum necessary to provide reasonable access for regular traffic and emergency vehicles, while preserving traffic operations and safety along the public roadway. A single means of direct or indirect access shall be provided for each separately owned parcel. Where possible along arterials and collectors, access shall be via a shared driveway. Where it is not possible to provide shared access, this access may be by an individual driveway.

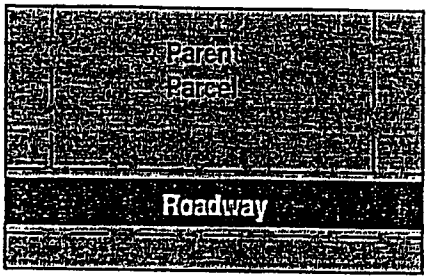
B. A lot split for a parcel that has frontage along an arterial road that will result in more than one parcel with access to said arterial, shall meet the following shared access requirements:

Table 10.8.9

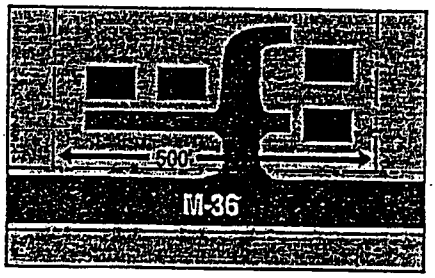
Road Type	One Driveway For Each
M-36	500 ft. of frontage
Other Arterials	250 ft. of frontage
Other Roads	Based on minimum lot width (frontage) of the zoning district

1. All lots created that do not provide the above required frontage shall have shared access from the single driveway meeting the standards of subsection C below, a private road meeting the standards of the Township Private Road Ordinance or a public street.

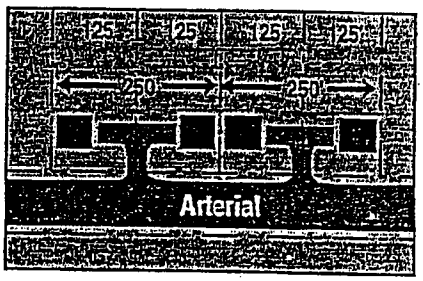
2. The Planning Commission may approve additional driveways where safe traffic operations will be maintained based upon vehicular speeds, traffic volumes relationship to other access points, sight distance and comments of MDOT or the Livingston County Road Commission.



A. Parent Parcel before split



B. 1 access point per 500 feet of frontage along M-36



C. 1 access point per 250 feet of frontage along other arterial roads

C. Two (2) single family lots may have access from a private driveway when the following conditions are met:

1. The driveway surface shall be a uniform minimum sixteen (16) feet wide, measured edge to edge. The width may be reduced to twelve (12) feet if the length of the shared driveway is less than three hundred (300) feet or if there are significant topographic, wetland, or other natural features on the site and sixteen (16) foot wide passing flares are provided at least every three hundred (300) feet.

2. The driveway shall be constructed of materials suitable to accommodate emergency vehicles.

3. There shall be a recorded shared access easement. The applicant shall provide record of the shared access agreement and documentation that shared access agreement has been recorded with the Livingston County Registrar of Deeds prior to the issuance of a Land Use permit.

4. The driveway shall be maintained by the landowners to ensure adequate access for emergency vehicles. (It is the land owners responsibility to maintain this access).

Section 10.8.10 Modification of Standards for Special Situations.

During site plan review the Planning Commission shall have the authority to modify the standards of this Article upon consideration of the following:

A. The standards of this section would prevent reasonable access to the site.

B. Access via a shared driveway or service/frontage road is not possible due to the presence of existing buildings or topographic conditions.

C. Roadway improvements (such as the addition of a traffic signal, a center turn lane or bypass lane) will be made to improve overall traffic operations prior to project completion, or occupancy of the building.

D. The use involves the redesign of an existing development or a new use which will generate less traffic than the previous use.

E. The proposed location and design is supported by the Livingston County Road Commission or MDOT as an acceptable design under the conditions. The Planning

Commission may also request the applicant provide a traffic impact study to support the requested access design.

F. The modification shall be of the minimum amount necessary, but in no case shall spacing of a full-access driveway be less than sixty (60) feet, measured centerline to centerline.

G. Where there is a change in use or expansion at a site that does not comply with standards herein, the Planning Commission shall determine the amount of upgrade needed in consideration of the existing and expected traffic pattern and the capability to meet the standards herein to the extent practical. (See also section 11.8, Nonconforming sites).

Appendix G: Example Long Range Strategy for Implementing an Access Management Plan

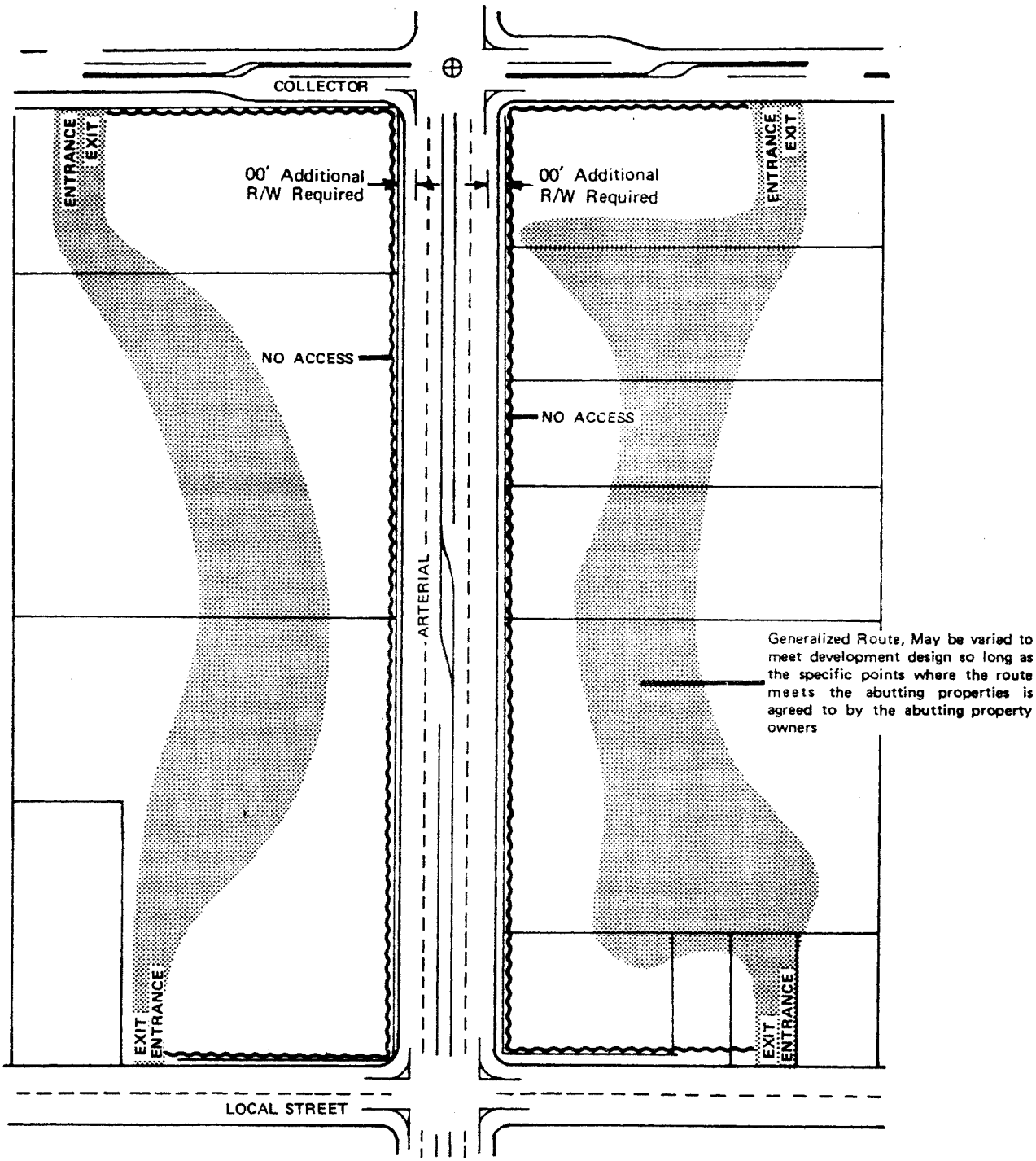


FIGURE 36

ACCESS MANAGEMENT PLAN

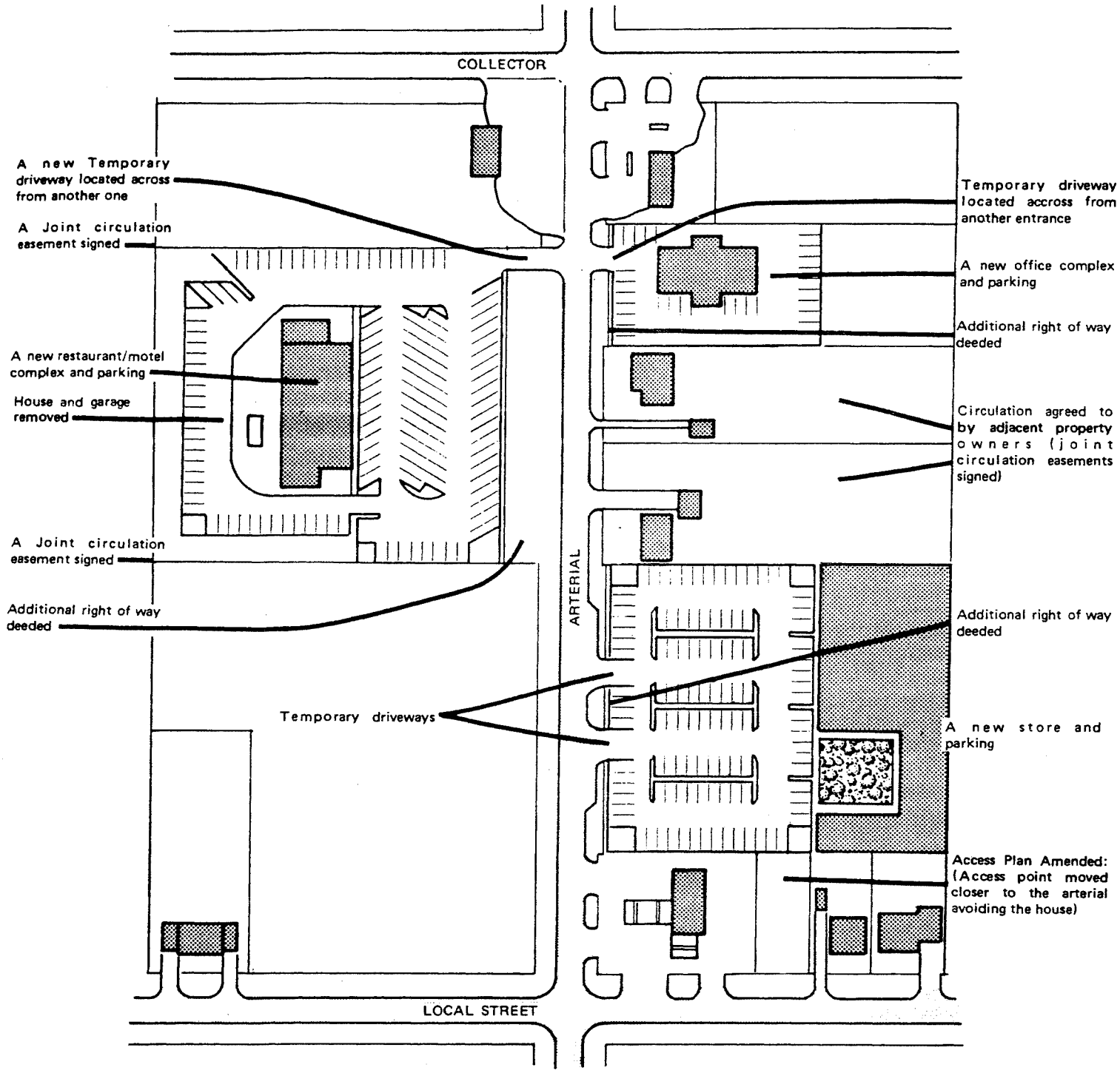


FIGURE 37

5 YEARS AFTER PLAN APPROVAL

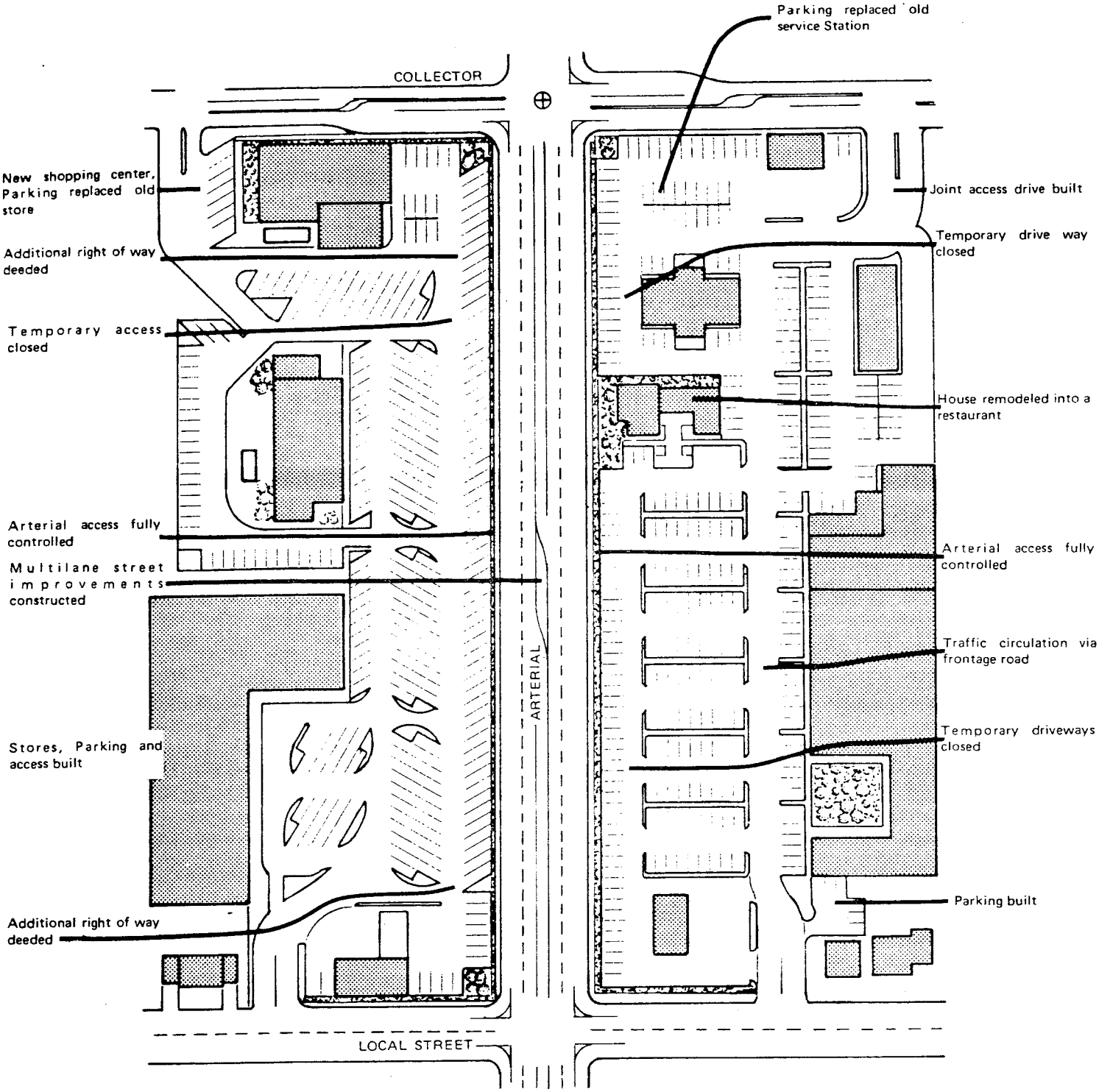


FIGURE 38

15 YEARS AFTER PLAN APPROVAL

Appendix H: Mutual Access Easement Agreement

Mutual Access Easement Agreement

By and Between:

_____ Development Company, Inc.,
Delta Charter Township,
&
_____

This agreement is made and entered into this _____ day of _____ 200__ by and between _____ Development Company, Inc., henceforth referred to as DEVELOPER ; _____, henceforth referred to as 2ND PARTY; and Delta Charter Township, henceforth referred to as Delta.

WHEREAS, DEVELOPER is the current owner and interest holder of the property legally described as *(insert legal description)*, henceforth referred to as "Parcel A"; and Delta is the current holder and interest holder of the property legally described as *(insert legal description)*, henceforth referred to as "Parcel B"; and 2ND PARTY is the owner and interest holder of the property legally described as *(insert legal description)*, henceforth referred to as Parcel C , and

WHEREAS, Chapter 21 of the 1990 Delta Township Zoning Ordinance, as amended, entitled "Arterial Access Management Regulations" mandates, where possible, the establishment of shared driveways, parking lot connections, and other cross access arrangements for properties along regional arterial roadways such as West Saginaw Highway (M-43), and

WHEREAS, it is has been stipulated by the Delta Township Planning Commission, in approving the preliminary site plan for the _____ (*name of development)* at Delta Township shopping that it is necessary to establish a means of cross access between Parcel A, Parcel B, and Parcel C, in order to facilitate efficient traffic operations and improve public safety along regional arterial roadways, now

THEREFORE, in consideration of the foregoing and the terms and conditions contained herein, the above named parties agree as follows:

1. Access Easement

a. An easement shall be created which shall allow the above named parties and the general public vehicular and pedestrian access across Parcel A, Parcel B, and Parcel C. Said easement being illustrated on the attached Exhibit A, and legally described as follows:

(insert legal description)

b No physical barrier including, but not limited to, curbs, structures, buildings, signs, parking spaces, and product displays shall be placed across the easement in such a manner as to block access across and/or between Parcel A, Parcel B, and/or Parcel C.

c. Details pertaining to the placement of the access drive within the easement shall be illustrated on the final site plans for any future developments on Parcel A, Parcel B, and/or Parcel C, or any portions thereof. Said plans shall be submitted to the Delta Charter Township for review and approval.

d. Properties located adjacent to the easement shall be permitted to connect their parking areas, aisleways, driveways, etc. to the access drive within the easement. The easement and corresponding access drive shall be open for use by the general public.

e. The easement shall be permanently recorded with the Eaton County Register of Deeds.

2. The owners of Parcel A, Parcel B, and Parcel C hereby covenant and agree that this agreement shall be binding and shall inure to the benefit of the parties hereto, their successors, assigns, tenants, and subtenants, and that the covenants herein contained shall be deemed to be covenants running with the land.

3. DEVELOPER shall be responsible for the payment of any and all costs and expenses incurred and arising out of any use of the easement for any of the purposes described and set forth in this agreement including, but not limited to, any cost and expenses incurred in the construction, maintenance and repair of the pavement within that portion of the easement area located on Parcel A. 2ND PARTY shall be responsible for the payment of any and all costs and expenses incurred and arising out of any use of the easement for any of the purposes described and set forth in this agreement including, but not limited to, any cost and expenses incurred in the construction, maintenance and

repair of the pavement within that portion of the easement area located on Parcel C.

4. DEVELOPER and 2ND PARTY shall be responsible for the payment of any and all costs and expenses incurred and arising out of the initial construction of the access drive within that portion of the easement area located on Parcel B. DEVELOPER and 2ND PARTY shall each pay one-half (1/2) of the costs and expenses of construction of said access drive. DEVELOPER shall construct said access drive within the easement area on Parcel B up to the western property line of said parcel concurrent with the construction of the _____ (*name of development)* at Delta shopping center. 2ND PARTY shall reimburse DEVELOPER for its portion of the costs of construction upon completion of said access drive on Parcel B.

5. Each party shall separately operate the easement area located on their respective parcels and shall maintain the same in good condition and repair at their own cost and expense so long as such easement area shall exist.

This document drafted on _____ by:

_____
_____
_____
_____
_____

Sample provided by Delta Charter Township, Eaton County, Michigan.

IN WITNESS WHEREOF, _____and _____ the _____ and _____, respectively, of _____ Development Company, Inc. have hereunto set their hands on the date affixed hereto.

Witnessed by: _____ Development Company, Inc.

_____
Date

Date

Its:

_____
Date

Date

Its:

STATE OF)ss
)ss

COUNTY OF)ss

On this _____ day of_____, 200__ before me personally appeared_____ and _____ the _____, and_____, respectively, of _____ Development Company, Inc. to me known as the persons who executed the foregoing instrument and acknowledged the same to be their own free act and deed.

Notary Public, _____County,
Acting in _____ County,
My Commission Expires:

IN WITNESS WHEREOF, _____and _____ the _____ and _____, respectively, of 2ND PARTY have hereunto set their hands on the date affixed hereto.

Witnessed by: 2ND PARTY

_____
Date

Date

Its:

_____
Date

Date

Its:

STATE OF)ss
)ss

COUNTY OF)ss

On this _____ day of_____, 200__ before me personally appeared_____ and _____ the _____, and_____, respectively, of 2ND PARTY to me known as the persons who executed the foregoing instrument and acknowledged the same to be their own free act and deed.

Notary Public, _____County,
Acting in _____ County,
My Commission Expires:

IN WITNESS WHEREOF, Representatives of the Charter Township of Delta have hereunto set their hands on the dates affixed hereto.

Witnessed by: DELTA CHARTER TOWNSHIP

_____
Date Date

Its: Supervisor

_____
Date Date

Its: Supervisor

STATE OF MICHIGAN)ss
)ss

COUNTY OF EATON)ss

On this _____ day of_____, 200__ before me personally appeared_____ to me known to be respectively the Supervisor and Clerk of Delta Charter Township, who acknowledged that they executed the foregoing instrument of their own free act and deed in behalf of the Charter Township of Delta.

Notary Public, _____County,
Acting in _____ County,
My Commission Expires:

Appendix I: Ottawa County Road Commission Tree Planting Guidelines and North East Beltline Overlay District Ordinance

OTTAWA COUNTY ROAD COMMISSION POLICIES WITH PROCEDURES	NUMBER: 03 EFFECTIVE DATE: 3-25-04 REVISION NUMBER: 1
SUBJECT: Tree Planting	

Purpose:

The purpose of this guideline is to identify requirements regarding tree size and species, location, and general conditions for trees planted within County road right-of-way by adjacent property owners, developers or the Ottawa County Road Commission.

Plant Size and Species:

All trees planted shall be a minimum of 1-1/2 inches in diameter. Tree species shall be in accordance with Appendix A.

Location: (Note: Right-of-Way/R.O.W. measured from centerline)

Rural Primary and Rural Local Roads

Less than 50' R.O.W. – new plantings not permitted
50' or more R.O.W. – according to Appendix A

Urban Primary and Local Collectors

33' R.O.W.	-	plantings not permitted		
43' R.O.W.	-	2 or 3 lane road	-	34' to 36' from centerline
	-	4 lane road	-	34' to 36' from centerline with 10' minimum from back of curb
	-	5 lane road	-	plantings not permitted
50' & 60' R.O.W.	-	2 – 4 lane road	-	40' to 43' from centerline
	-	5 lane road	-	40' to 43' from centerline

Local Residential and Commercial

33' R.O.W.	-	2 lane road	-	25' to 26' from centerline with 10' minimum from back of curb

General Conditions

1. Tree planting shall not be permitted in ditches, on ditch slopes, or between ditch and roadway.

2. Required distance from centerline or back of curb shall not be reduced due to existing sidewalks, bike paths, structures, or utilities.

3. Sight distance at intersections and driveways shall be maintained in accordance with current Ottawa County Road Commission and AASHTO guidelines.

4. Other plantings such as shrubs and bushes may be permitted provided they do not reach a height greater than two (2) feet and a registered horticulturalist certifies they are salt tolerant.

5. Adjacent property owners shall be responsible to maintain tree plantings and to trim and remove all foliage less than 8-feet from ground level.

6. The Ottawa County Road Commission shall not be responsible for damage or removal of tree plantings by accidents, vandalism, disease, or normal road maintenance activities such as applying road salt or brine. Tree removal may be necessary in the future to accommodate road widening, reconstruction, or other normal uses of road right-of-way, and in such cases, compensation will not be made by Ottawa County Road Commission.

Adopted by the Board of County Road Commissioners: March 25, 2004

This policy supersedes and rescinds the tree planting policy of March 13, 1975

APPENDIX A
Ottawa County Road Commission
Tree Planting Policy

Problem:

In this age of environmental concern, the Road Commission is experiencing some criticism for tree removal along roads, which are being rebuilt and improved. We do find it necessary to remove trees for construction purposes in order to provide a safe and adequate roadway, however, our concern for the environment is also great. Having to deal with both of these concerns jointly on each project, and doing so within the statutory limitations and requirements and still meeting acceptable standards, is a never-ending problem.

Our concern is great! We cannot overlook either concerns for the sole benefit of the other! Our past programs and methods for saving roadside trees such as tiling, curbing, steeper backslopes, etc. is already evidence of our concern and appears to be about all that can be done in terms of the existing conditions. We must continue to build safe and adequate roads! We must continue to have public support and acceptance!

Objective:

Recognizing their responsibility for providing and maintaining safe and adequate highway facilities under their jurisdiction, and the inherent role they can have in achieving favorable social, economic and environmental benefits; the Ottawa County Road Commission is desirous of continuing to preserve natural aesthetic and historical values, to the extend possible, and further to provide a program to further enhance and beautify Primary roadway facilities.

Program:

The Commission has full power and authority over all trees, plants, and shrubs growing natural, planted or hereafter planted in said right-of-way and has the right to adopt rules and regulations relative thereto as may be necessary from time to time.

To this extent, the Commission will implement a tree-planting program along Primary Road Construction projects where full title to a right-of-way from adjacent property owners of at least 50 feet from the centerline of right-of-way has been secured.

This program in conjunction with such a project will provide for planting two (2) trees on the right-of-way adjacent to each residential dwelling or each vacant residential lot as hereinafter specified.

The Commission or its designated representative may also place additional trees at their discretion at locations which would be beneficial for enhancement of the roadside and for achieving a more favorable social, economic or environmental atmosphere for the traveling public. Existing valuable roadside trees will be considered in determining the number and location of such trees to be planted.

Tree Planting:

All tree planting under this program will be planned, supervised, and performed by trained Road Commission personnel or be performed under contract under the supervision of the Road Commission.

Planting will be done only within the right-of-way and approval of the adjacent property owners will be requested for determining the location and type of trees to be planted.

Trees will be planted as near the edge of the right-of-way as possible and in such a manner that the probability of being disturbed for highway reconstruction or utility construction in the foreseeable future will be minimal. This will require the coordinated efforts of the Engineering Department of the Road Commission.

Plants will be trimmed, mulched, wrapped, braced if necessary, watered and properly fertilized at the time of planting and maintained for one season by the Commission after which the adjacent property owner will be requested to care for the trees.

Factors to be considered in determining proper species and locations will be safety, maximum aesthetic benefits, drainage, topography, soils, desirable spacing, physical obstruction, shade tolerance, mature height, mature root spread, disease tolerance and sensitivity to road salt.

Planting Stock, Size and Species:

All trees planted by the Commission will normally be at least one and one-half inches (1-1/2") in diameter.

The following list of trees has been selected for use because of their form, hardiness, foliage, cleanliness and relative resistance to salt, insects, diseases, damage and drought:

1. Acer Platanoides (Norway Maple and varieties)
   a. Emerald Queen
   b. Cleveland
   c. Summershade
   d. Superform

2. Acer Rubrum (Red Maple and varieties)
   a. Red Sunset
   b. October Glory

3. Acer Saccharum (Sugar Maple)
   a. Sugar Maple
   b. Green Mountain

4. Tilia Cordata (Littleleaf Linden and varieties)
   a. Greenspire
   b. Euchlora
   c. Redmond

Any other tree proposed must include a statement from a registered horticulturalist that the species / variety is salt tolerant.

The following trees will not be allowed in the road right-of-way due to their sensitivity to road salt.

Redbud
English Hawthorn
Crabapple
Red Pine
Scotch Pine
Eastern White Pine
American Plum
Arborvitae
Gray and Red Osier Dogwood
Tulip Tree
American Sycamore
Pin Oak
Silky Sassafras
Japanese Maple
Flowering Cherry
Hemlock

AN ORDINANCE ADDING ARTICLE 18A TO CHAPTER 61, TITLE V OF THE CODE OF THE CITY OF GRAND RAPIDS, THE ZONING ORDINANCE.

ORDINANCE NO. 2002 --

THE PEOPLE OF THE CITY OF GRAND RAPIDS DO ORDAIN:

Section 1. That Article 18A, Section 5.219.1 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"ARTICLE 18A. NORTH EAST BELTLINE OVERLAY DISTRICT

Sec. 5.219.1. Description and Purpose.

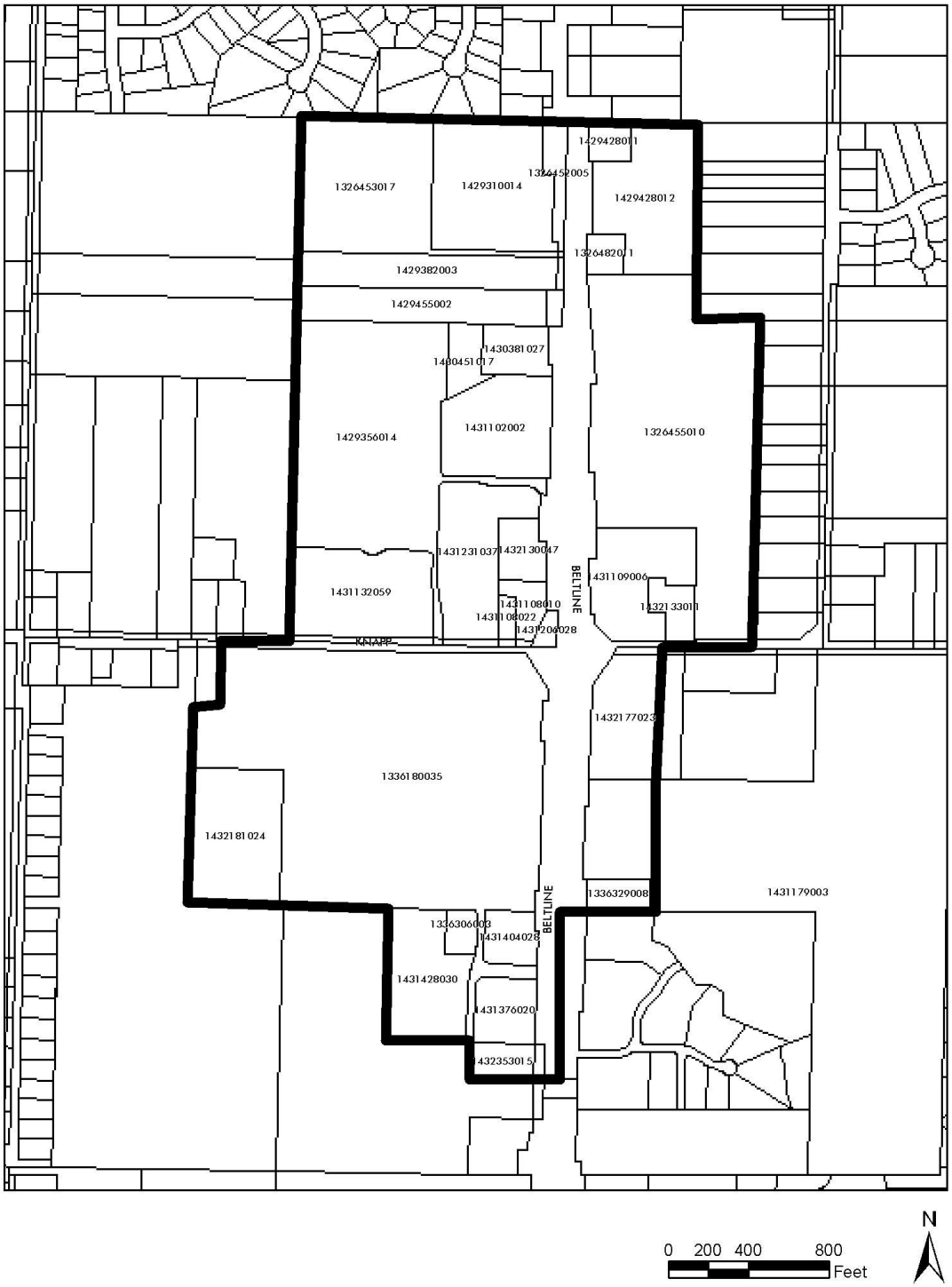
The purpose of this overlay zone is to implement the North East Beltline Joint Development Plan; to provide a consistent development framework; to specify practical development standards; to preserve the natural road edge, scenic views and steep slopes; and to protect the transportation capacity of this important community and transportation corridor. This zone is compatible with a similar zone in Plainfield Township and Grand Rapids Township. It is the intent that the requirements of this overlay zone apply to all land abutting or gaining access from the East Beltline between I-96 and Grand River Avenue; unless otherwise defined.

The following standards shall not apply to developments (including PUD's) approved prior to January 1, 2002, nor to subsequent amendments or modifications of such developments or PUD's. However, the requirements of this ordinance shall apply to the elements of a PUD, approved prior to the effective date of this ordinance, that were not specifically addressed in the conditions of approval. That may include building and parking lot setbacks, landscaping, parking, lighting, signs, grading, stormwater management, motor vehicle and pedestrian access, and architectural facades and building design.

Amendments or modifications to PUD's, approved prior to the effective date of this ordinance, shall not require that elements of approved plans, not directly applicable to the amendment or modification, be brought into compliance with the new standards. Minor deviations of PUD's approved prior to the effective date of this ordinance shall not be subject to the requirements of this ordinance. Other zoning ordinance requirements, not addressed in this section shall be in effect unless they conflict with the requirements of this section.

It is recognized that the Town Center is developing as a commercial node at the intersection of the East Beltline and Knapp. Accordingly, certain exceptions are taken in this ordinance for properties along the East Beltline and located near the intersection of Knapp and the East Beltline as more fully shown on Exhibit A attached hereto (the "Town Center Properties")."

Exhibit A: Town Center Properties



Section 2. That Section 5.219.2 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.2 Modifications from the Requirements.

Notwithstanding the provisions, including specific waiver provisions, of the Overlay District, the Planning Commission may approve a modification from the requirements of the Overlay District based on competent, material and substantial evidence that:

1. Special conditions or circumstances exist which are peculiar to the land or use and which are not applicable to other lands or uses in the Overlay District;
2. The literal interpretations of this Ordinance would deprive the applicant of property rights commonly enjoyed by other properties in the Overlay District; and
3. The authorizing of such modification will not be of substantial detriment to neighboring property and will not be contrary to the spirit and purpose of this Ordinance."

Section 3. That Section 5.219.3 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.3 Setbacks.

(1) Background.

One of the goals of the North East Beltline Joint Development Plan is to maintain "…a natural edge along the East Beltline through gracious development setbacks, preserving natural vegetation and utilizing innovative and low maintenance landscapes along the corridor and the highway right-of-way.

(2) Setbacks of Buildings and Parking Lots from the East Beltline.

Buildings and parking lots shall be setback from the East Beltline according to the following schedule:

a. Parking Lot Setback– 90 feet, which is measured from the outside edge of the existing through lane, as of January 1, 2002, to the edge of a parking lot. Within the setback, a minimum 25-foot wide landscaped area, measured from the right-of-way to the edge of a parking lot, is required.

b. Setback for a Building equal to or less than 35' high – 140 feet measured from the outside edge of the existing through lane, as of January 1, 2002, with a minimum twenty-five foot setback between the building and the right-of-way line.

Building height is measured as the vertical distance from the mean of the lowest and highest elevation points adjoining the exterior walls of the structure to the highest point of a flat roof;

to the deck line of a mansard roof; and to the mean height between the eave and ridge of the highest roof section for a gable, hip or gambrel roof.

c. Building Setbacks for Buildings greater than 35' high require 2 additional feet of horizontal setback, for every 1 additional foot in building height above 35 feet.

(3) Setback Modifications.

As part of establishing or amending a PUD or undertaking a Site Plan review, the Planning Commission may reduce the building and parking setbacks to the minimum required setback in the underlying zone district and make a recommendation to the City Commission to approve such a modification under any of the following circumstances:

a. The property is not capable of being developed if the minimum building setback is applied.

b. Application of the minimum building setback results in a PUD or site plan that negatively impacts environmental features such as steep slopes, wetlands, or vegetation.

c. Application of the minimum building setback results in a PUD or site plan that does not further the goals of the Master Plan.

d. The property is one of the Town Center Properties."

Section 4. That Section 5.219.4 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.4 Landscaping.

(1) Purpose.

The purpose of this section is to maintain the natural edge and views along the East Beltline, establish a healthy environment by reducing air pollution and heat gain associated with large paved areas, protect wildlife habitat, safeguard property value, and enhance the community's visual character for our citizens' use and enjoyment.

(2) Landscape Plan.

A concept landscape plan indicating design intent shall be submitted as part of site plan or PUD applications. Following PUD or site plan approval, a final landscape plan shall be submitted to the Planning Director to confirm compliance with the approved concept landscape plan. The final plan shall include, but not necessarily be limited to, the following:

a) Location, general type and quality of existing vegetation, including specimen trees.

b) Existing vegetation to be saved.

c) Methods and details for protecting existing vegetation during construction.

d) Location, sizes, and labels for all proposed plantings.

e) Existing and proposed contours on site and 150 feet beyond edges of the site at intervals not to exceed two (2) feet.

f) Typical cross section, including slope, height and width, of berms and the type of ground cover to be placed on them.

g) Location, height and type of any walls.

h) Plant list(s) showing the required and proposed quantities.

i) Description of landscape maintenance program, including statement that all diseased, damaged or dead materials shall be replaced in accordance with the standards of this ordinance.

(3) Tree and Landscape Preservation Requirements.

a) Site plans should preserve all quality existing trees wherever feasible, especially in buffer areas. Relocation of existing trees within the site is also encouraged.

b) Existing trees may be used to fulfill landscaping requirements, if such trees are in healthy growing condition, are at least the minimum size, are the appropriate type, and are spaced according to their likely mature size.

c) The area below the drip line of an existing tree to be saved should remain undisturbed. No impervious material should be placed under the drip line and a tree protection fence must be installed around the trees during construction at the limit of disturbance. Tree protection symbols notes and details must be shown on the site plan.

d) Should any tree designated for preservation, for which landscaping credit is given, die; the owner shall replace the tree with the equivalent species or with a tree which will obtain the same height, spread and growth characteristics. The replacement tree must be a minimum of 2.5 inches caliper.

(4) Unaccredited Species.

The following list is of species that are permitted but will not be credited toward required landscaping because of their brittleness, susceptibility to disease and insects, excessive root structure, excessive litter, and or other undesirable characteristics. The

planting of these species is not encouraged.

Botanical Name	Common Name
Acer Negundo	Box Elder
Ailanthus Altissima	Tree of Heaven
Catalpa Speciosa	Catalpa
Elaeagnus Angustifolia	Russian Olive
Gingko Biloba (female)	Female Gingko
Maclura Pomifera	Osage Orange
Morus Spp.	Mulberry
Populus Spp.	Cottonwood, Poplar, Aspen
Salix Spp.	Willow
Juglans Nigra	Black Walnut
Robinia Spp.	Black Locust
Acer Saccharinum	Silver Maple
Ulmus Pumila	Siberian Elm
Ulmus Rubra	Slippery Elm

(5) Front Yard Landscaping.

Within the required minimum twenty-five foot buffer area fronting on the East Beltline landscaping should be installed according to the following standards for office, institutional, multifamily or mixed-use areas; commercial-use areas; or parking areas.

a) General provisions:

(i) Plants may be clustered into groups or planted in rows.

(ii) Trees and shrubs should be clustered in locations that are most effective in screening undesirable views.

b) Office, institutional, multifamily residential or mixed-use areas: plantings should include a minimum of 3 evergreen trees, 2 shade trees and 8 shrubs for every 100 feet of building frontage. The number of plants shall be proportional to the length of frontage, with fractions rounded up. The Planning Commission may allow a reduction in the number or a variation in the mixture of the tree types.

c) Commercial-use areas: plantings should include a mixture of 5

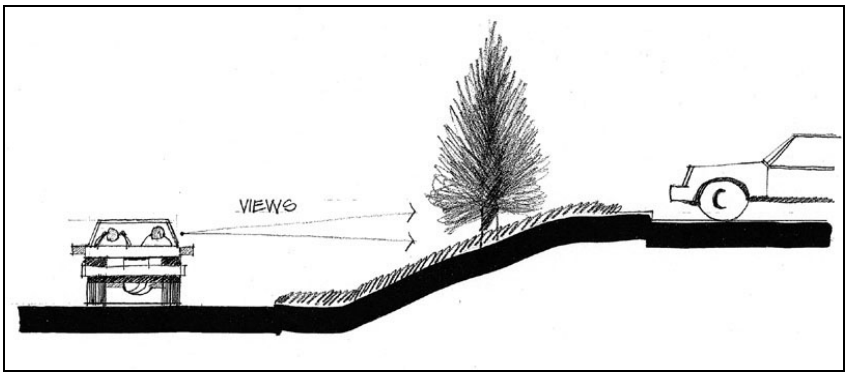
trees for every 100 feet of building frontage. The number of plants required shall be proportional to the frontage, with fractions rounded up. Additional landscaping may be used, but is not required.

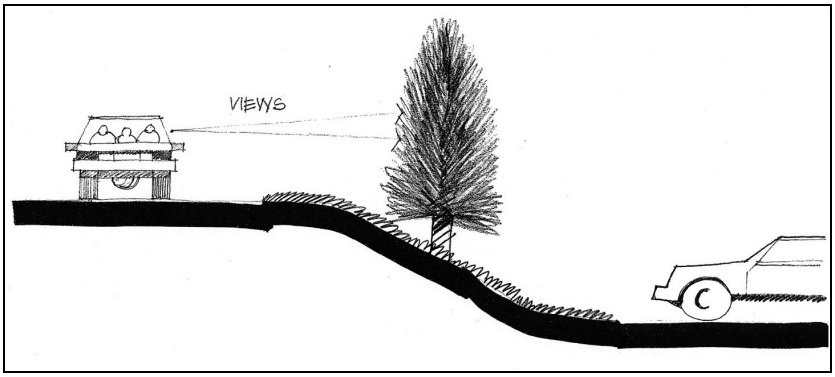
A mixture of evergreen, ornamental and shade trees is encouraged. The Planning Commission may allow a reduction in the number or a variation in the mixture of the tree types.

d) Parking areas: Continuous plantings, berms or walls shall be installed to a minimum of four (4) feet in height along the East Beltline (plantings measured after three years in the ground).

The requirement for plantings, berms, or walls for parking areas that abut the East Beltline may be waived by the Planning Commission if, in the judgment of the Planning Commission, the motor vehicles in the parking lot will be substantially screened from the road by the final topography or existing vegetation. (See illustrations below)

e) Town Center Properties: a concept landscape plan that meets the intent of these standards shall be submitted in accordance with subsection (2) above as part of site plan review or PUD application. The Planning Commission may waive the landscape provisions of subsection (5) for Town Center properties.





(6) Parking Area Landscaping.

For all parking areas that accommodate 10 cars or more, the following standards apply.

a) Landscaped islands and shade trees shall be located throughout the parking lot so as to relieve and shade expanses of parking, and contribute to the orderly circulation of motor vehicle and pedestrian traffic. Landscaped islands must be a minimum of one hundred, sixty (160) square feet and a minimum of nine (9) feet wide. Each island should be planted with at least one canopy tree that is located at least three (3) feet from the edge of the island.

b) Landscape islands shall be calculated on the basis of one (1) landscape island for every 10 parking spaces. Landscape islands may be aggregated. Landscaped corners count towards the required number of islands.

c) The Planning Commission may reduce the number of required landscape islands if it finds that adequate relief and shade is provided by other plantings in and around the parking area.

(7) Minimum Standards for plants and other landscape features.

a. Canopy/shade trees	2.5 inches in caliper
b. Evergreen Trees	5 feet in height
c. Shrubs	24 inches in height
d. Walls	Walls shall be of clay, brick, stone or other appropriate material.

(8) Maintenance of Plants.

a) All landscaping plants shall be hardy when planted and maintained in accordance with their natural growth patterns. Withered, diseased or dead plants shall be replaced within a reasonable amount of time, but no longer than one growing season.

b) Plants must be controlled by pruning, trimming, or other suitable methods so that they do not interfere with public utilities, restrict pedestrian or vehicular access, or constitute a traffic hazard.

c) All planted areas must be maintained in a substantially weed free condition."

Section 5. That Section 5.219.5 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.5 Parking.

(1) Permeable surface for paving.

At the discretion of the Planning Commission, parking areas that are in excess of the minimum may be surfaced with permeable asphalt, permeable concrete or turf blocks. The calculations for required stormwater management and retention measures may be adjusted for the use of such paving.

(2) Alternative Parking Arrangements.

a) Cooperative Parking - At the discretion of the Planning Commission provisions for cooperative parking may be allowed. Cooperative provisions for off-street parking would be made by contract between two or more adjacent property owners. The parking area provided on any one lot could be reduced to not less than one half the number of required spaces for the use occupying such lot. The lots shall be interconnected for vehicular passage.

b) Shared Parking - Where a mix of land uses creates staggered peak periods of parking, shared parking agreements that have the effect of reducing the total amount of needed parking spaces, are encouraged. In these cases the required number of parking spaces may be reduced. Retail, office, institutional and entertainment uses may share parking areas. In no case shall shared parking include the parking required for residential uses.

(3) Bicycle Parking.

One bicycle parking space shall be provided for every twenty motor vehicle spaces of the first 200 required for non-residential uses. Bicycle parking shall be provided within a convenient distance to the entrance to the building. Bicycle parking spaces shall consist of a securely fixed structure that supports the bicycle frame without damage to wheels or frame and allows the frame and both wheels to be locked to the structure."

Section 6. That Section 5.219.6 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.6 Lighting:

(1) Purpose.

The purpose of this ordinance is to provide reasonable regulations

to direct the location, design and use of certain outdoor lighting at appropriate illumination levels while minimizing its undesirable effects. Specifically, the ordinance aims to accomplish, where possible, the following benefits for the public health, safety and general welfare, and otherwise in the public interest:

a) Maintain safe nighttime driver performance on public roadways by minimizing both brightly-lighted surfaces and lighting glare.

b) Promote lighting that provides security but is not unduly intrusive or a nuisance to nearby residents and drivers.

c) Preserve the qualities of the corridor by eliminating intrusive artificial light and lighting that unnecessarily contributes to "sky glow".

(2) Definitions.

Average Illumination Levels: The overall average of all points on the surface of the illuminated area including the brightest and the dimmest points.

Cut-Off-Angle: The angle between the vertical axis of a luminaire and the first line of sight (of a luminaire) at which the light source is no longer visible.

Cut-off Fixtures: Cut-off fixtures control glare by directing light well below the horizon, out of the viewer's line of sight.

Floodlight: A light fixture designed to light a scene or object to a level greater than its surroundings. The beam of floodlights may range from narrow field angles of 10 degrees to wide angles (more than 100 degrees).

Flush Mounted or Recessed Luminaire: A luminaire that is mounted above a ceiling (or behind a wall or other surface) with the opening of the luminaire level with the surface.

Foot-candle: A measure of light falling on a given surface. One foot-candle is equal to the amount of light generated by one candle shining on a square foot surface one foot away. Foot-candle may be measured both horizontally and vertically by a light meter.

Glare: The condition that results from insufficiently shielded light sources or areas of excessive light within the field of view.

Illuminating Engineering Society of North America (IESNA): An association of professionals in the field of lighting and related professions.

Luminaire: A complete lighting unit, often referred to as a fixture.

Lumen: A measure of light energy generated by a light source. Manufacturers list lumen ratings for all their lamps. Average

lumen levels are slightly lower than initial lumen ratings.

Maximum to Minimum Illumination Ratio: The ratio of the maximum illumination level to the minimum level.

Mounting Height: The vertical distance between the surface to be illuminated and the bottom of the light source.

Uniformity Ratio: The ratio of average illumination to minimum illumination.

(3) Waiver.

The Planning Commission may modify the requirements of this section of the ordinance if it determines that in so doing, it will not jeopardize the intent of the ordinance.

(4) Lighting Plan.

After site plan or PUD approval, a lighting plan consistent with the approved site plan or PUD shall be submitted to the Planning Director in accordance with the following:

a) A site plan drawn to a scale of one-inch equaling no more than thirty (30) feet showing the buildings, landscaping, parking and service areas, location and type of all proposed outdoor lighting.

b) Analyses and luminance level diagrams showing that the proposed installation conforms to the lighting level standards in this ordinance. Diagrams shall indicate illumination levels at ground level based on no greater than a twenty-five (25) foot on-center grid and shall project twenty-five (25) feet onto adjacent properties or to the setback limit line, whichever is greater. Illumination levels should also be measured for all surrounding streets at the public right-of-way.

c) Specifications for all proposed lighting fixtures including mounting heights, photometric data, designation as Illumination Engineering Society of North America (IESNA) "cut-off" fixtures, Color Rendering Index (CRI) of all lamps (bulbs), and other descriptive information on the fixtures.

d) The lighting plan shall provide a design for illuminations in accordance with this Ordinance.

(5) Exemptions.

The following outdoor light fixtures are exempt from the provisions of this ordinance.

(a) Outdoor light fixtures installed prior to the effective date of this ordinance and replacements of such fixtures are exempt from the provisions of this ordinance.

(b) Fossil fuel light produced directly or indirectly by the combustion of natural gas or other utility-type fuels.

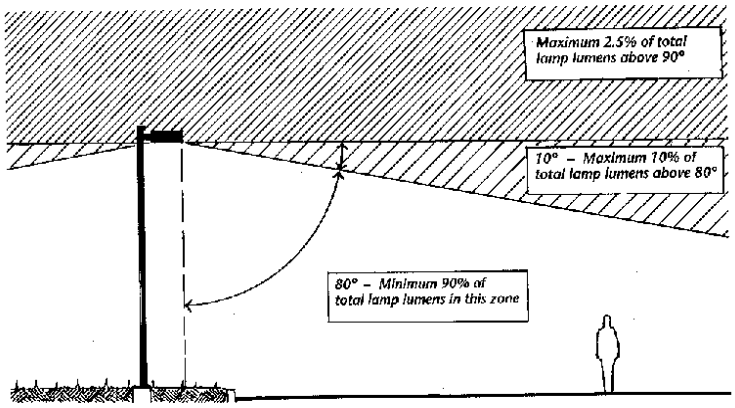
(c) Streetlights located within a public right-of-way.

(d) Outdoor light fixtures, which use an incandescent light bulb of 150 watts or less except where they create a hazard or nuisance from, glare or spill light.

(e) Lighting necessary for road or utility construction or emergencies.

(6) Outdoor Light Fixtures.

All outdoor fixtures, including building mounted fixtures, shall be full cut-off fixtures as defined by IESNA.



Full cut-off Fixture as defined by IESNA

(7) Parking Lot Lighting.

Parking lot lighting shall be designed to provide the minimum lighting necessary to ensure adequate vision and comfort and not to cause glare or direct illumination onto adjacent properties or streets.

a) Alternatives.

a. The design for an area may suggest the use of fixtures from particular period or architectural style, as either alternatives or supplements to the lighting described above.

b. If such fixtures are not “cut-off” fixtures as defined by IESNA, the maximum initial lumens by each fixture shall not exceed 2000 (equivalent to a 150-watt incandescent bulb).

c. Mounting heights of such alternative fixtures shall not exceed fifteen (15) feet.

b) Mounting heights of standard cut-off fixtures shall not exceed thirty (30) feet. However, an increase up to forty (40) feet may be permitted for large commercial developments if it reduces the total number of lighting fixtures and corresponding support posts, improves overall lighting performance and sufficient justification is submitted that proves the lighting meets the intent of the ordinance.

c) Mounting heights of fixtures that are located within 200 feet of a residential use district shall not exceed twenty (20) feet.

d) Average horizontal illumination levels shall be no greater than 2.4 foot-candles with a maximum to minimum ratio no greater than 10:1 and an average to minimum uniformity ratio not to exceed 4:1.

e) Average horizontal illumination levels may be increased near building entrances where pedestrian activity is substantial. In such locations, average horizontal illumination levels shall be no greater than 4.0 foot-candles with a maximum to minimum ratio no greater than 10:1 and an average to minimum uniformity ratio not to exceed 4:1.

f) The light shall not materially trespass onto surrounding properties

(8) Lighting of Gasoline Stations/Convenience Store Aprons and Canopies.

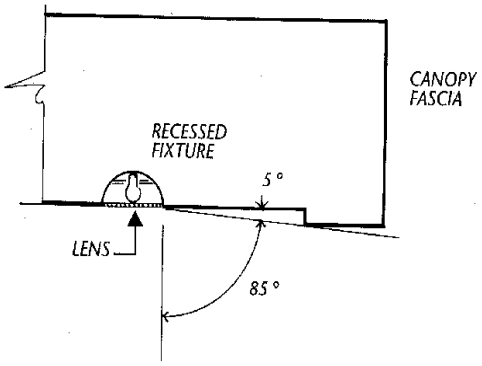
a) Lighting levels on gasoline station/convenience store aprons and under canopies shall be adequate to facilitate the activities taking place in such locations. Lighting of such areas shall not be used to attract attention to businesses. Signs allowed under the appropriate section of these regulations shall be used for that purpose.

b) Areas on the apron away from the gasoline pump islands used for parking or vehicle storage shall be illuminated in accordance with the requirements for parking areas set forth in paragraph 6 of this Section. If no gasoline pumps are provided, the entire apron shall be treated as a parking area.

c) Areas around the pump islands and under canopies shall be illuminated so that the horizontal average at grade level is no more than 22 foot-candles with a maximum to minimum ratio no greater than 10:1 and an average to minimum

uniformity ratio not to exceed 4:1.

d) Light fixtures mounted on canopies shall be recessed so that the lens cover is recessed or flush with the bottom surface (ceiling) of the canopy and/or shielded by the fixture or the edge of the canopy so that light is restrained to no more than 85 degrees from vertical.



e) Gas Pump Canopy

As an alternative (or supplement) to recessed ceiling lights, indirect lighting may be used where light is beamed upward and then reflected down from the underside of the canopy. In this case light fixtures must be shielded so that direct illumination is focused exclusively on the underside of the canopy.

1) Lights shall not be mounted on the top or sides (fascias) of the canopy, and the sides of the canopy shall not be illuminated.

2) All lighting levels are encouraged to be reduced by at least 50% after 11:00 PM.

3) The level of light trespass onto surrounding properties or roads shall not exceed 0.1 foot-candles.

(9) Security Lighting.

The purpose of and need for security lighting (e.g. the lighting for safety of persons and property) must be demonstrated. To the extent that an area is illuminated for other purposes, independent security lighting will be discouraged.

All security fixtures shall be shielded and aimed so that

illumination is directed only to designated areas and not cast onto other areas. In no case shall lighting be directed above a horizontal plane through the top of the lighting fixture and the fixture shall include shields that prevent the light source or lens from being visible from adjacent properties and roadways. The use of general floodlighting fixtures shall be discouraged.

(10) Illumination of Building Facades.

When buildings and structures are to be illuminated, the Planning Commission shall approve a design for the illumination and the following shall apply:

a) Lighting fixtures shall be carefully located, aimed and shielded so that light is directed only onto the building façade. Lighting fixtures shall not be directed toward adjacent streets, roads, or properties.

b) Lighting fixtures mounted on the building and designed to "wash" the façade with light are preferred.

c) The illumination of landscaping shall not generate excessive light levels, cause glare, or direct light beyond the landscaping.

d) All lighting levels are encouraged to be reduced by at least 50% after 11:00 PM.

e) The light shall not materially trespass onto surrounding properties

(11) Night Lighting.

Outdoor fixtures for off-street parking lots are encouraged to be turned off no later than one hour after the site/building closes, except for lights which are necessary for security purposes."

Section 7. That Section 5.219.7 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.7 Signs.

The purpose of this section is to control signs intended to be visible from the public right-of-way and to avoid sign clutter along the East Beltline.

(1) Definitions.

Abandoned sign: A sign which no longer identifies or advertises a bona fide business, owner, lessor, person, service, product or activity, or for which no legal owner can be found.

Community Special Event Sign: A sign, either portable or non-portable, displayed only for a limited time, to call attention to

special events of interest to the general public which are sponsored by governmental agencies, schools or other groups which are non-profit and whose purpose is charitable, philanthropic, religious or benevolent.

Construction Sign: A sign, which identifies the owners, lenders, contractors, architects, and engineers of a project under construction, as well as the project itself.

Directional Sign: A sign which gives directions, instructions, or facility information for the movement of vehicles or pedestrians on the lot on which the sign is located, such as parking or exit and entrance signs, but not including a commercial message.

Essential Services: The erection, construction, alteration or maintenance of public utilities by a municipal corporation, public utility, or cable television company including gas, electrical, steam, communication, safety, water supply systems, or disposal systems, including equipment and accessories in connection therewith necessary for furnishing utility services for public health or safety or general welfare; but not including sanitary landfills.

Foot-candle: A measure of light falling on a given surface. One foot-candle is equal to the amount of light generated by one candle shining on a square foot surface one foot away. Foot-candle may be measured both horizontally and vertically by a light meter.

Ground Sign: A freestanding sign the bottom of which is no more than 24 inches above the finished grade.

Governmental Sign: A sign erected or required to be erected by a local government, county, or the state or the federal government.

Maximum to Minimum Illumination Ratio: The ratio of the maximum illumination level to the minimum level.

Off-premise Sign: A sign which relates to or advertises an establishment, product, merchandise, good, service or entertainment which is not located, sold, offered, produced, manufactured or furnished at the property or within a PUD on which the sign is located (including, but not limited to, billboards).

On-premise Sign: A sign which pertains solely to the use of the property on which it is located such as to an establishment, product, merchandise, good, service or entertainment which is located, sold, offered, produced, manufactured or furnished at the property or within a PUD on which the sign is located.

Portable Sign: A sign that is not permanent or affixed to a building or structure and by its nature may be or is intended to be moved from one location to another, whether rented or owned, such as "A" frame signs or signs attached to or painted on vehicles parked

and visible from the public right-of-way, unless the vehicle is used for vehicular purposes in the normal day-to-day operations of the business.

Pylon Sign: A freestanding sign, the bottom of which is more than 24-inches above the finished grade, and which is supported by a structure, poles, or braces which are less than 50 percent of the width of the sign.

Residential Community *Sign: A* sign identifying a recognized platted subdivision, site condominium project, multi-family development, or other residential development, which subdivision, project or development has been approved by the local government as provided by this ordinance.

Roof Sign: A sign erected above (or which extends above) the roof line of a building.

Sign: A device, fixture, placard, or structure that uses any color, form, graphic, illumination, symbol, or writing to advertise, announce the purpose of, or identify the purpose of any business, establishment, person, entity, product, service or activity, or to communicate information of any kind to the public.

Wall Sign: A sign painted or attached directly to and parallel to the exterior wall of a building. A wall sign shall extend no greater than 12 inches from the exterior face of a wall to which it is attached, shall not project beyond the wall to which it is attached, and shall not extend above the roofline of the building to which it is attached.

(2) General Provisions.

a) Signs prohibited: Pylons signs; moving, flashing or blinking signs; off-premise signs; portable signs; roof signs; inflatable signs.

b) Exempt signs: Governmental signs, signs for essential services.

c) Directional signage: No more than 3 feet in height and 3 square feet in size, except that such dimensions may be exceeded if approved during site plan review.

d) Illumination: It is the intent of this section to ensure that illuminated signs do not create glare or unduly illuminate the surrounding area.

The following provisions shall apply to externally illuminated signs:

1) Lighting fixtures shall be carefully located, aimed and shielded so that light is directed only onto the sign façade. Lighting fixtures shall not be aimed at

adjacent streets, roads or properties.

2) Light fixtures shall be of a type such that the light source (bulb) is not directly visible from adjacent streets, roads or properties.

3) To the extent possible, fixtures shall be mounted and directed downward (IE. below the horizontal).

e) Measurement Methods

1) The area of a sign shall be measured as the area within a single, continuous perimeter composed of any straight line geometric figure which encloses the extreme limits of writing, representation, emblem, logo, or any other figure of similar character, together with any frame of other material or color forming an integral part of the display or used to differentiate the sign from the background against which it is placed, excluding only the pedestal, poles or other structure necessary to support the sign.

2) The area of the freestanding or projecting sign that has two (2) or more faces shall be measured including the area of all sign faces, except if 2 such faces are placed back to back and are of equal size, and are no more than 2 feet apart at any point the are of the 2 back to back faces shall be counted as the 1 face.

3) The height of a sign shall be measured as the vertical distance from the highest point of the sign to the finished grade of the ground immediately beneath the sign excluding any artificially constructed earthen berms.

(3) Residential Communities.

a. One ground sign identifying a residential community is allowed at each entrance road to the development, except that not more than two such identification signs shall be allowed per development and they shall be at least 300 feet apart. The sign shall not exceed 6 feet in height and shall be a maximum of 32 square feet in size.

b. The ground sign shall be outside of clear vision corners.

(4) Office Uses.

a. One ground sign identifying an office or multiple office-building developments is permitted at each entrance road to the development, except that not more than two such identification

signs shall be allowed per development and they shall be at least 300 feet apart. The sign and any mounting structure shall not exceed 6-feet in height and shall be a maximum of 60 square feet in size.

b. One ground sign identifying an individual office building is allowed. The sign and any mounting structure shall not exceed 6-feet in height and shall be a maximum of 32 square feet in size.

c. Ground signs shall be set back a minimum of 20 feet from a public or private right-of-way and outside of clear vision corners.

d. One wall-mounted sign is permitted per building. Each sign shall be a maximum of 24 square feet in size. The wall-mounted signs shall be reasonably uniform in nature and location.

(5) Commercial Uses

a. One ground sign identifying a multiple commercial-building developments is allowed at each entrance road to the development, except that not more than two such identification signs shall be allowed per development and they shall be at least 300 feet apart. The sign and any mounting structure shall not exceed 6-feet in height and shall be a maximum of 60 square feet in size.

b. One ground sign identifying an individual commercial building is allowed. The sign and any mounting structure shall not exceed 6-feet in height and shall be a maximum of 32 square feet in size.

c. Ground signs shall be set back a minimum of 20 feet from a public or private right-of-way and outside of clear vision corners.

d. One wall-mounted sign is permitted per tenant per entrance. Each sign shall be a maximum of 1.5 square feet for each linear foot of store frontage. Wall-mounted signs shall be reasonably uniform in nature and location.

(6) Institutional Uses.

a. One ground-mounted entrance sign identifying an institution is allowed at each entrance road to the institution, except that not more than two such identification signs shall be allowed per development and they shall be at least 300 feet apart. The sign shall not exceed 6 feet in height and shall be a maximum of 60 square feet in size.

b. Ground signs shall be set back a minimum of 20 feet from a

public or private right-of-way and outside of clear vision corners.

c. One wall-mounted sign is permitted for each office building. The sign shall not exceed 16 square feet in size.

(7) Notwithstanding the foregoing, the limitations on signage in the Town Center Properties may be waived by the Planning Commission."

Section 8. That Section 5.219.8 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.8 Grading and Stormwater.

(1) Description and Purpose.

Hillsides and natural landforms can be included in the category of critical natural areas. Unlike many other types of features such as woodlots, wildlife and even groundwater, once landforms are gone they are not renewable. For this reason, they play an important role in building community character. This fact is clearly evident on the East Beltline with its rolling topography. The majority of participants in the planning process for the North East Beltline Joint Development Plan viewed these visual attributes as important features.

Development of hillsides can affect the equilibrium of vegetation, surface geology, slopes, soils and run-off. It can also drastically change the way community or neighborhood character is perceived. For these reasons, the following regulations of Subsection (2) and (3) shall apply, except in the Town Center Properties which shall be subject only to Subsection 3(a) and (b) and (c) below.

(2) Protection of wetlands, streams and steep slopes.

a. Streams and Wetlands:

1) Grading or removal of vegetative cover shall not be permitted within 25 feet of a wetland in any zoning district.

2) Grading, removal of vegetative cover and new structures shall not be permitted within 50 feet of an intermittent stream or 75 feet of a perennial stream.

3) In residential subdivisions, wetlands shall be located in required open space rather than on residential lots unless the planning commission determines that the

location in open space cannot be reasonably achieved.

4) Wetlands and the required buffers for wetlands and streams shall be delineated on final plats and site plans with a clear notation of use restrictions.

b. Steep Slopes: Steep slopes are slopes of 25% or greater.

1) Grading or removal of vegetative cover shall not be permitted on land with existing steep slopes, except when:

1. The contiguous area of steep slopes is less than 20,000 square feet; and

2. There is insufficient area outside of stream and wetland buffers for required sedimentation and erosion control measures.

2) Areas containing existing steep slopes should preferably be included in open space lots.

c. Waiver: Disturbance of Wetlands, Streams and Steep Slopes:

Grading or removal of vegetative cover on wetlands, streams, wetland buffers or steep slopes is not permitted unless the planning commission determines, based on justification provided by the developer that it is necessary for road or utility construction, trails, pathways, or storm water management facilities. If permitted, the grading or removal of vegetative cover shall only be to the extent necessary to accommodate the proposed development. In these cases, the planning commission may require planting of areas where grading or removal of vegetative cover has taken place.

(3) Site Plan Review Procedures.

The following site plan review procedures shall apply and will help to minimize the negative impacts of extensive site grading:

a) Site plan review by the Planning Commission shall be required for any parcel larger than one acre. This stipulation will apply to all land uses including residential, commercial, and office/institutional.

b) A grading plan indicating existing and proposed contours at a two-foot interval shall be required as part of a site plan submittal.

c) The City's Environmental Protection Services Department shall closely study and evaluate the potential impacts of proposed grading changes.

d) To judge the "fit" of any new development with existing site features and surrounding properties, staff and the Planning Commission shall use the following criteria in reviewing all site plans. These standards are intended to provide a frame of reference for the appellant in the preparing site plans as well as for the reviewing authority in making judgments concerning them. These standards will not be regarded as inflexible requirements nor are they intended to discourage creativity, invention or innovation. These criteria include the following:

1) Cut and fill slopes shall be minimized.
2) Proper grading and elevation relationships to adjacent properties shall be maintained.
3) The most significant slopes and ridgelines shall be maintained in their natural state by clustering development.
4) The negative effects of grading shall be minimized thereby preserving the natural character of key site areas.
5) Mass grading of large pads and excessive terracing shall be minimized.
6) Unstable slopes or slopes subject to erosion shall be protected.
7) Storm water runoff that could result from major changes in topography shall be minimized.
8) Using innovative and low maintenance techniques, steep slopes shall be re-vegetated.
9) Essential grading will be shaped so that it complements natural landforms.
10) Large tracts will be graded in workable units following a scheduled timeline so that construction does not result in large areas left bare and exposed to winter/spring runoff.
11) Innovative architecture that responds to a site and its topography will be used."

Section 9. That Section 5.219.9 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.9 Motor Vehicle Access.

(1) Purpose.

The purpose of this section is to control and limit motor vehicle access ways and the distance between them onto the East Beltline. Access ways or driveways must be correctly spaced so as to protect the capacity of this highway and to protect the safety of motorists using the highway while allowing reasonable access.

(2) Definition of Access.

For the purposes of this section of this ordinance an "access" is an entrance and/or exit for motor vehicles to or from the East Beltline or other public road.

(3) Non-signalized Access Spacing.

Adjacent accesses shall be spaced as far apart as on-site circulation allows. Table (1) shows the minimum non-signalized access spacing as a function of posted speed. These distances are based on average acceleration and deceleration considered adequate to maintain good traffic operations. A longer spacing may be required if sight distances are limited at the proposed access location.

Table 1

Posted	**Center-to-Center**	
Speed	**Of Access**	
(MPH)	**FT**	**M**
25	130	40
30	185	55
35	245	75
40	300	90
45	350	105
50 & above	455	140

(4) Lack of Sufficient Frontage to Maintain Adjacent Spacing.

a. In the event that a particular parcel lacks sufficient frontage to maintain adequate spacing, the Planning Commission may require one or more the following.

(1) An access point to a side street.

(2) Access to frontage roads or service drives where they exist or can be constructed.

(3) A shared driveway with the adjacent owners. In such case the driveway midpoint should be located at the property line between two parcels. All parties shall agree to the joint driveway in writing.

If options listed above are not reasonably feasible, the Planning Commission may allow the next lowest spacing from Table (1). For example, on 50 mph roadway requiring 140 meters (455 ft.) spacing, the distance may be reduced to no less then 105m (350 ft.), which is the spacing for 45 mph speed.

If all the above options are impossible, an access point may be allowed within the property limits.

b. In the event that two or more adjacent parcels do not have sufficient frontage to maintain adequate spacing for access, the Planning Commission may require the dedication of joint access easements or cross access easements for shared access to the public street.

c. If the property is one of the Town Center Properties, and compliance with Table 1 is not reasonably feasible, then the Planning Commission may waive the requirements of this Section.

(5) Passing Flares at Driveways, Right-Turn Lanes or Tapers at Intersections, and Left-Turn Lanes or Passing Flares at Intersections shall be provided in accordance with Michigan Department of Transportation guidelines.

(6) Intersection Corner Clearance:

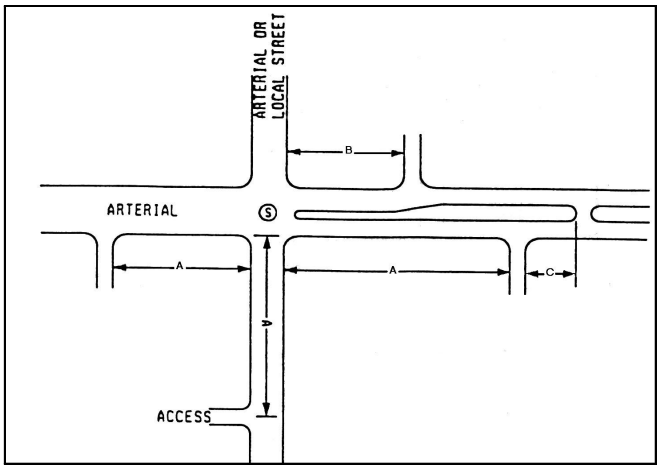
Accesses shall not be situated within the functional boundary of at-grade intersections. This boundary includes the longitudinal limits of right turn and left turn lanes. An access point may be allowed within the above boundary if the entire property frontage is located within this boundary. In all quadrants of an intersection access points should be located according to the dimensions shown below.

(a) Signalized Intersection Control:

Accesses shall be offset from intersections and indirect left

turn crossovers according to this table and diagram:

Item	Feet	Meters
A	460	140
B	230	70
C	150	44

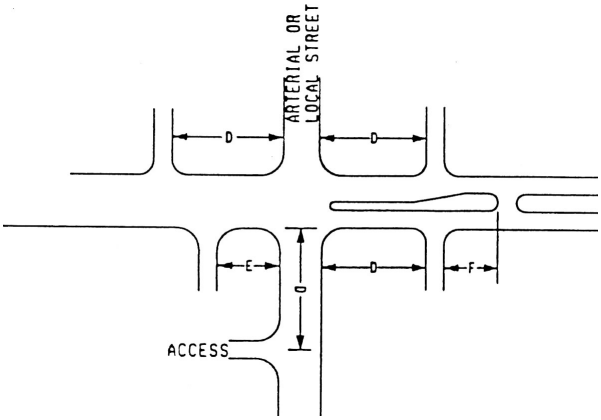


The above dimensions are for a 40 to 55 mph posted speed.

(b) Stop Sign Intersection Control:

Accesses shall be offset from intersections and indirect left turn crossovers according to this table and diagram:

Item	Feet	Meters
D	230	70
E	170	50
F	150	44



(7) Access Design.

All access points shall be designed to meet the Michigan Department of Transportation guidelines and standards."

Section 10. That Section 5.219.10 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.10 Pedestrian Access.

1) Paved walkways shall be provided for access to adjacent parks, shopping areas, transit stops anticipated walkways and institutions. Pedestrian movement shall be accommodated within parking lots.

2) Paved walkways, available to the public, shall be provided along all of the East Beltline, and along Five Mile, Three Mile, Knapp, Leonard, Bradford and part of Leffingwell as shown in the adopted North East Beltline Joint Development Plan."

Section 11. That Section 5.219.11 to be added to Chapter 61 of Title V of the Code of the City of Grand Rapids to read as follows:

"Sec. 5.219.11 Commercial and Office Architectural Façades and Building Design.

(1) All new buildings and structures for commercial and office uses shall be so designed to incorporate the following architectural design features:

a. Height and Scale - the scale and mass of a building shall be reasonably compatible with adjacent and nearby buildings.

b. Other Architectural Features - Buildings shall posses architectural variety and enhance community character. Where appropriate, all buildings shall provide architectural features, details and ornaments such as archways, colonnades, cornices, and other architectural features. Building walls over 100 feet in length shall be broken up with varying building lines, windows and architectural accents."