Alpena Study

Alpena Area-Wide Comprehensive Transportation Plan

Alpena County, Michigan

Photo by: Jan Kellogg

Prepared for:
Alpena County, the City of Alpena, Alpena Township, Alpena Public Schools, the Alpena County Road Commission, and the Michigan Department of Transportation

In Cooperation with:
The Alpena Intergovernmental Road Subcommittee
The Michigan Department of Transportation

With the Assistance of:
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NEMCOG

Alpena Area-Wide Comprehensive Transportation Plan

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MDOT
Michigan Department of Transportation

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June 1, 2003

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CHAPTER 1: Introduction

Background

The Alpena County Intergovernmental Road Subcommittee is comprised of representatives of the Alpena County Board of Commissioners, the Alpena County Road Commission, the City of Alpena, Alpena Township, Alpena Public Schools, and the Board of Township Supervisors. It was formed in 1998 to address the increasingly critical needs of the County-wide transportation infrastructure. The Subcommittee had perceived that increased commercial and industrial development was causing major changes in traffic patterns within the community, and that it was causing significant traffic congestion on some roads and streets with high traffic volumes. It was perceived that transportation safety was being compromised, that growth & development was occurring without regard to the well-being of the transportation system, and that future growth, if not planned for, will only exacerbate these problems. Each jurisdiction had attempted at various times to fix certain inadequacies of the transportation system. However, these were short-term, and could not address the long-range needs of the transportation infrastructure. Time and resources were expended only to have the same transportation problems recur a short time later. It became clear that a long-term plan was needed to help guide future decisions for development and transportation issues in the Community of Alpena.

On behalf of the Subcommittee, the Northeast Michigan Council of Governments (NEMCOG) submitted a request for $68,000 in funding to the Michigan Department of Transportation (MDOT), Bureau of Transportation Planning, to complete an 18-month study that would lead to an Alpena area-wide transportation plan. Five entities on the Subcommittee, through resolution, pledged an additional $2,400 each in matching funds: Alpena County, the City of Alpena, Alpena Township, Alpena Public Schools, and the Alpena County Road Commission. MDOT funding was approved to begin on October 1, 2001.

Study Area

Urban land uses are generally expanding outward from the City of Alpena west along M-32, and the tendency is toward strip commercial development. High numbers of access points, large unconnected parking lots, above ground utilities and a lack of street trees and landscaping present an unattractive appearance to this segment of the corridor. Heavy traffic volumes associated with local business activity, residential trip generation, and area-wide tourism activity result in traffic safety problems, and is most apparent during peak hours of the day.

There is also a great deal of traffic movement between the north and south areas of the City of Alpena. To the north of the Thunder Bay River, there are several major trucking facilities, the Alpena Community College, many major industrial employers, the General Hospital and other medical facilities, elementary schools, a golf course, and several large residential areas. To the south of the Thunder Bay River, there are sizable residential areas, a school bus facility and several schools including the high school and junior high school, many large retail commercial centers, a transit facility, the County Road Commission, City and County government buildings, and office buildings.

The study area involves five local units of governments including: Alpena County, the City of Alpena, and the Townships of Alpena, Maple Ridge, and Wilson. For study purposes, the boundary is defined as a rectangle encompassing an area that lies just beyond the Alpena Regional Airport to the west, approximately ¼ mile north of Hamilton Road, Wessel Road to the east, then south- just past Bare Point Road. Where appropriate, land use activity outside the

study area was considered, however, the primary focus of the study is in the area within the above described boundary. **Figure 1.1** depicts the boundary of the study area.

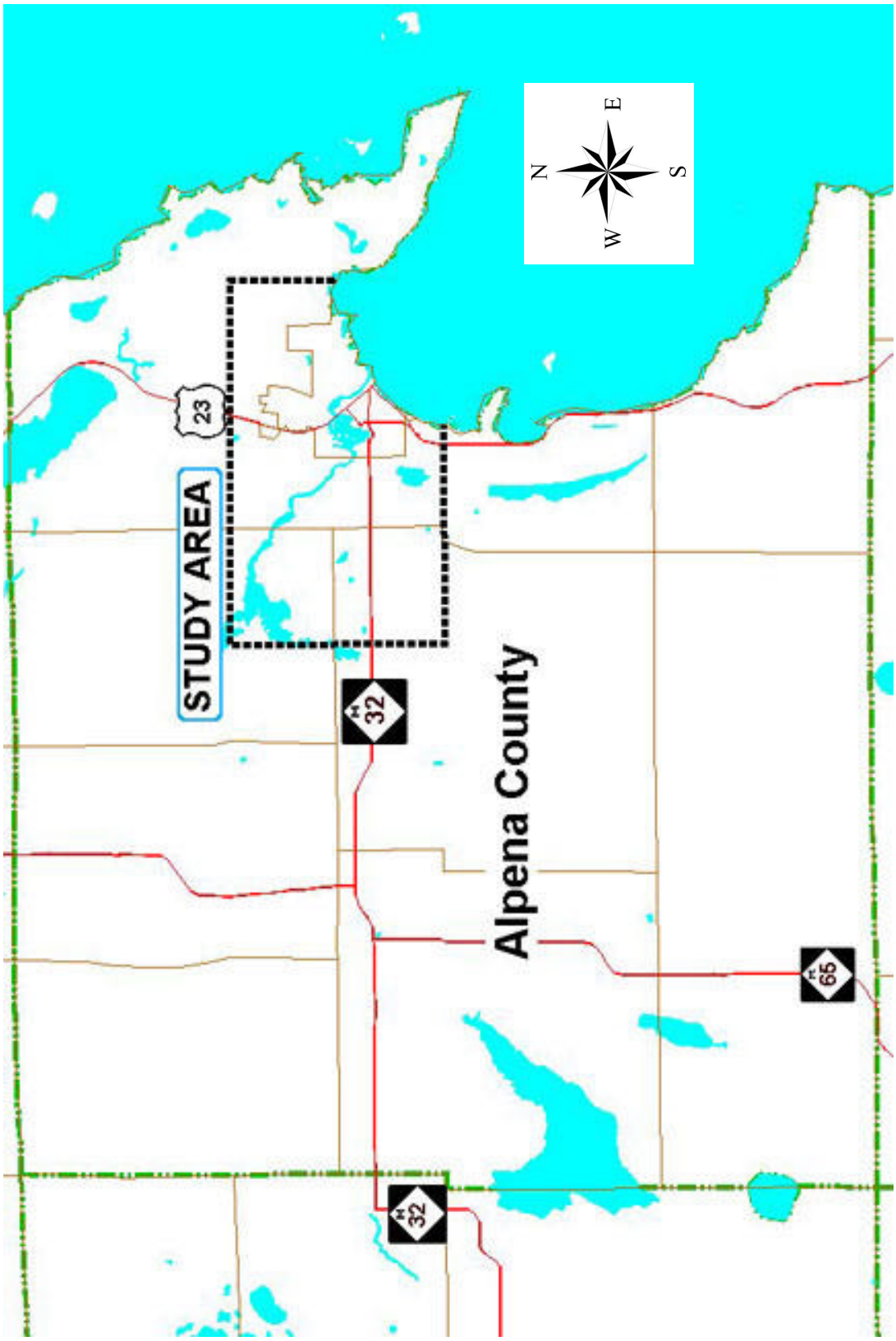


Figure 1.1, *Study Area*

Purpose of the Planning Process

The objective of this project was to develop a comprehensive plan to address both the short-term and long-range transportation needs of the Alpena area. In order to develop a plan that would be supported by the entire community, the transportation planning committee comprised Intergovernmental Road Subcommittee members as well as representatives of: the business community, Alpena General Hospital, the transit authority, the law enforcement community, MDOT, NEMCOG, the Citizens Against a Residential Bypass, the Citizens for Bypass Issues, and the Townships of Long Rapids, Maple Ridge, Sanborn, and Wilson.

A coordinated approach that combines land use planning and transportation planning was used to address the issues in this Plan. Local communities have recognized the need to develop new policies and guidelines to alleviate future negative impacts to the transportation system, that are associated with on-going development. It is essential that proactive and remedial measures be incorporated at the local level to prevent further traffic congestion, to address safety issues, and to provide for the long-term sustainability of the area's local economy.

The results of this study from October 1, 2001 to May 31, 2003 have been compiled into a Plan that includes existing conditions, projected future conditions, access management standards that address land use compatibility and development issues, and community goals and objectives. Adoption of the plan as a master plan amendment will serve as the legal foundation for regulating land use activity in the communities, through their respective zoning ordinances. Model zoning ordinance language for access management, billboards, signs, stormwater management and aesthetics are included as an appendix.

It was the intent of this planning process to develop policies and guidelines to facilitate a coordinated approach to land use and transportation planning. Information that was generated showed current transportation system conditions (both assets and deficiencies), predicted future conditions, and provided direction on how to handle future demands upon the system. The Plan includes community goals & objectives, and contains short-term, intermediate, and long-term recommendations that can be implemented toward attaining these goals. Partnerships between local units of government, MDOT, public agencies, and private interests are being maintained in order to pool resources toward these goals.

The Recommendations listed numerically in Chapter 8 of the Plan have been located on a 24" x 36" Community Map. This Map summarizes the results of the Plan, and is available for general distribution to assist each community with its efforts to attain a better transportation system.

CHAPTER 2: Existing Conditions

Developing an accurate representation of existing conditions is a critical preliminary step in the comprehensive planning process. This chapter identifies existing conditions in the study area. A series of graphics, maps, and photos are included to show the area's demographics, existing land use, transportation facilities, and community character. Accompanying text describes these existing conditions in detail. Planning and zoning, future land use, and traffic conditions are provided in subsequent chapters.

Data Sets

Information in this plan came from a number of sources, including: Alpena County, the City of Alpena, Alpena County Road Commission, MDOT, Michigan State University, the Alpena Convention & Visitors Bureau, the Alpena Regional Airport, the US Census Bureau, the USDA NRCS Office, NEMCOG, and the Townships of Alpena, Maple Ridge, and Wilson.

Previous Studies and Reports

There are several past studies and reports that are of importance to this Plan: the 2000 *City of Alpena North Sub-Area Plan*, the 1997 *Bagley/Hobbs Corridor Study*, the 1995 *Alpena County Resource Plan* , the 1988 *Economic Adjustment Strategy for Alpena County*, the 1988 *US-23 Improvement Study*, and the 1979 *Alpena Area External Origin and Destination Survey*. Excerpts from some of these documents may be found in appropriate sections of this Plan, and will be cited.

Existing Land Use (Note: the entire study area encompasses approximately 25,486 acres)

Land use classifications are important from a traffic generation standpoint. A map of the study area was created that shows the year 2001 land use. The categories of land use are those from the Michigan Resource Inventory System (MIRIS) classifications (**Appendix A**). The classifications were merged into 10 categories for transportation analysis purposes: Residential, Commercial, Industrial, Institution/Recreational, Agricultural, Nonforest, Upland Forest, Lowland Forest, Wetlands, and Surface Water. Text provides detailed descriptions of each category. **Figure 2.1** on the following page shows the existing land use for the study area. **Table 2.1** below is a summary of existing land use and future land use categories.

Table 2.1 *Summary of Existing and Future Land Use within the Study Area*

Category	Existing Acres	Percent	Future Acres	Percent
Residential	3,697	14.5%	9,073	35.6%
Commercial	680	2.7%	1,707	6.7%
Industrial	3,003	11.8%	4,511	17.7%
Institution/Recreational	828	3.2%	968	3.8%
Agricultural	35	0.1%	1,274	5.0%
Non-Forest	1,698	6.7%	"Conservation" 6,473	25.4%
Upland Forest	3,591	14.1%		
Lowland Forest	7,573	29.7%		
Wetlands	2,773	10.9%		
Surface Water	1,608	6.3%	1,478	5.8%

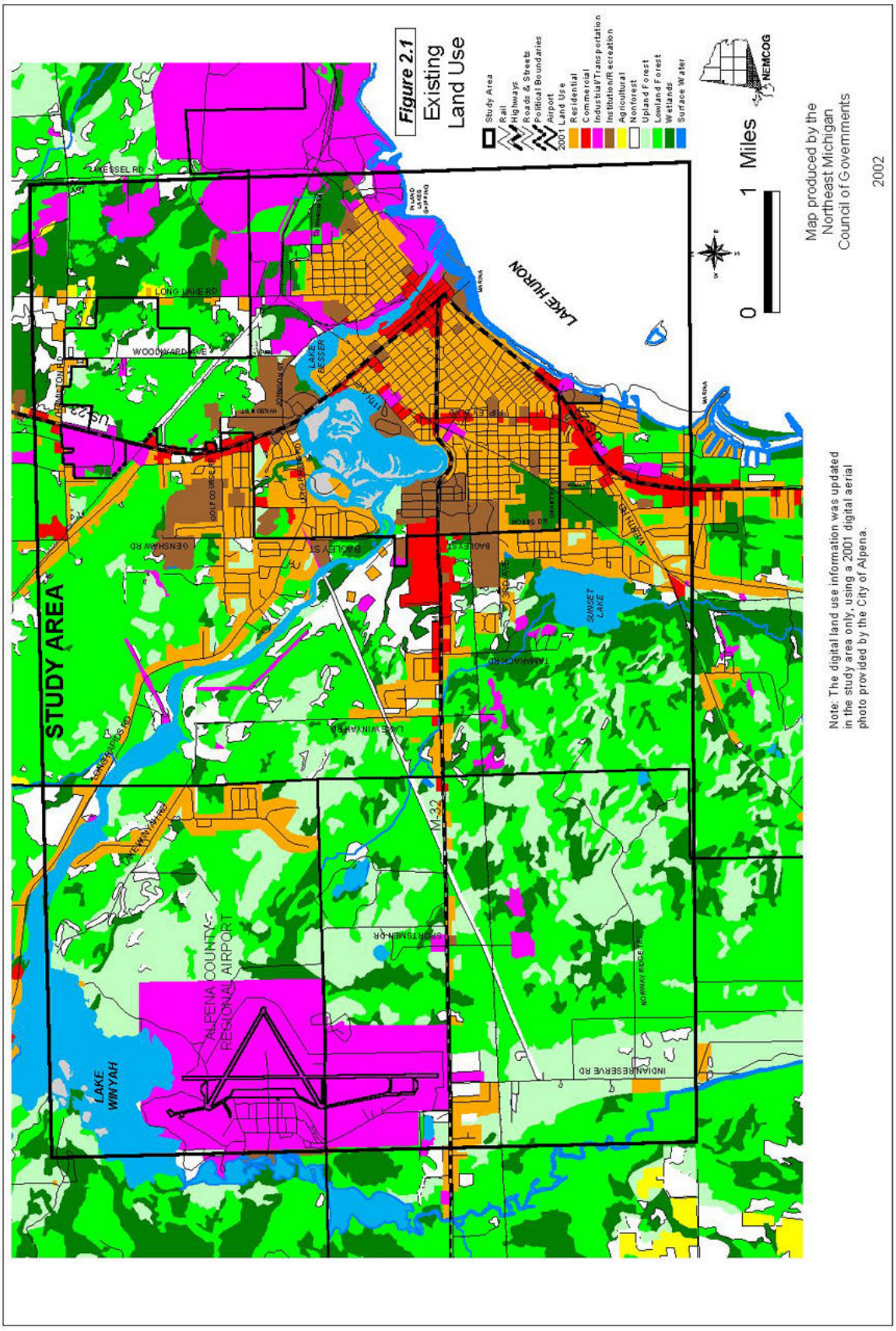


Figure 2.1
Existing Land Use
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Airport
2001 Land Use
Residential
Commercial
Industrial/Transportation
Institution/Recreation
Agricultural
Nonforest
Upland Forest
Lowland Forest
Wetlands
Surface Water
NEMCOG
0
1 Miles
Map produced by the Northeast Michigan Council of Governments
2002
Note: The digital land use information was updated in the study area only, using a 2001 digital aerial photo provided by the City of Alpena.
STUDY AREA
LAKE HURON
LAKE WINYAH
ALPENA COUNTY REGIONAL AIRPORT
LAKE KESSEL RD
LONG LAKE RD
WOODWARD AVE
US-23
M-32
SUNSET LAKE
INDIAN RESERVE RD

Residential Land Use

Residential land use includes residential dwelling structures such as: single family or duplexes, multi-family low rise residential, multi-family medium & high rise residential, and mobile home parks. The total residential land use in the Alpena study area is approximately 3,697 acres, or 14.5% of the total. Community master plans show a desired future residential land use of 9,073 acres, or 35.6% of the total. **Figure 2.2** depicts the future land use for the study area.

Certain transportation characteristics can be associated with residential land use. For example, on average, there are 9.57 daily vehicle trips generated per dwelling unit per single-family detached unit[1]. Techniques for reducing residential vehicle trips may include: allowing mixed-use in site developments so that residents may walk or bicycle to close-by destinations, allowing room for the development of transit facilities, developing trails programs to provide continuous community trails, and providing safe pedestrian and bicycle crossing facilities at all major roads.

Additionally, residential areas that are close to a highway or major truck route are subject to the impacts of traffic noise, exhaust pollution, vehicle light glare, and vibration. It may be possible to use aesthetically pleasing and practical designs to reduce these impacts, and local community zoning can play an important role in the location of residential areas and in development design standards that include buffering, landscaping, and screening. Zoning is examined in **Chapter 3**, *The Status of Planning and Zoning,* in this Plan.

Commercial Land Use

The commercial land use category includes classifications related to the sale of products and services such as: central business districts, shopping centers/malls, strip commercial, and neighborhood compact groups of stores that are surrounded by noncommercial uses. This category includes parking areas related to the commercial businesses. The total commercial land use in the study area is approximately 680 acres, or 2.7% of the total. Community master plans show a desired future commercial land use of 1,707 acres, or 6.7% of the total.

Commercial areas are very important economic assets to the community, and, they are necessarily large generators of vehicular traffic. For example, a shopping center can generate as high as 70.67 daily vehicle trips per 1,000 sq. ft. of gross leasable area (G.L.A.), a general office building can generate between 8.46 and 24.6 daily vehicle trips per 1,000 gross square feet (G.S.F.), or a business park approximately 14.37 daily vehicle trips per 1,000 G.S.F. A quality restaurant can generate about 96.51 daily vehicle trips per 1,000 G.S.F., and a walk-in bank, 265.21 daily vehicle trips per 1,000 G.S.F.[2] All commercial roadways in each jurisdiction should have an on-going access management program so that the capacity of roadways are preserved and the smooth flow of traffic is maintained. This is especially important as development continues westward from Alpena along M-32. Details of access management techniques may be found in **Chapter 6**, *Access Management*.

There are several other transportation-related factors to consider as a community develops new commercial areas: 1) Scenic and aesthetic qualities; Scenic views may be impaired by structures erected between the roadway and a distant view, which can detract from the visual experience of the community, 2) Types of lighting fixtures; Light glare from parking areas and other facilities close to the roadway can be a visual problem for motorists and 3) Signage; Areas of commercial activity may allow the construction of large signage which can have a significant visual impact for motorists. Visual issues are addressed in more detail in the “Visual Resources and Community Character” section of this chapter. Billboards and signage are addressed in the model zoning ordinance language found in **Appendix B**.

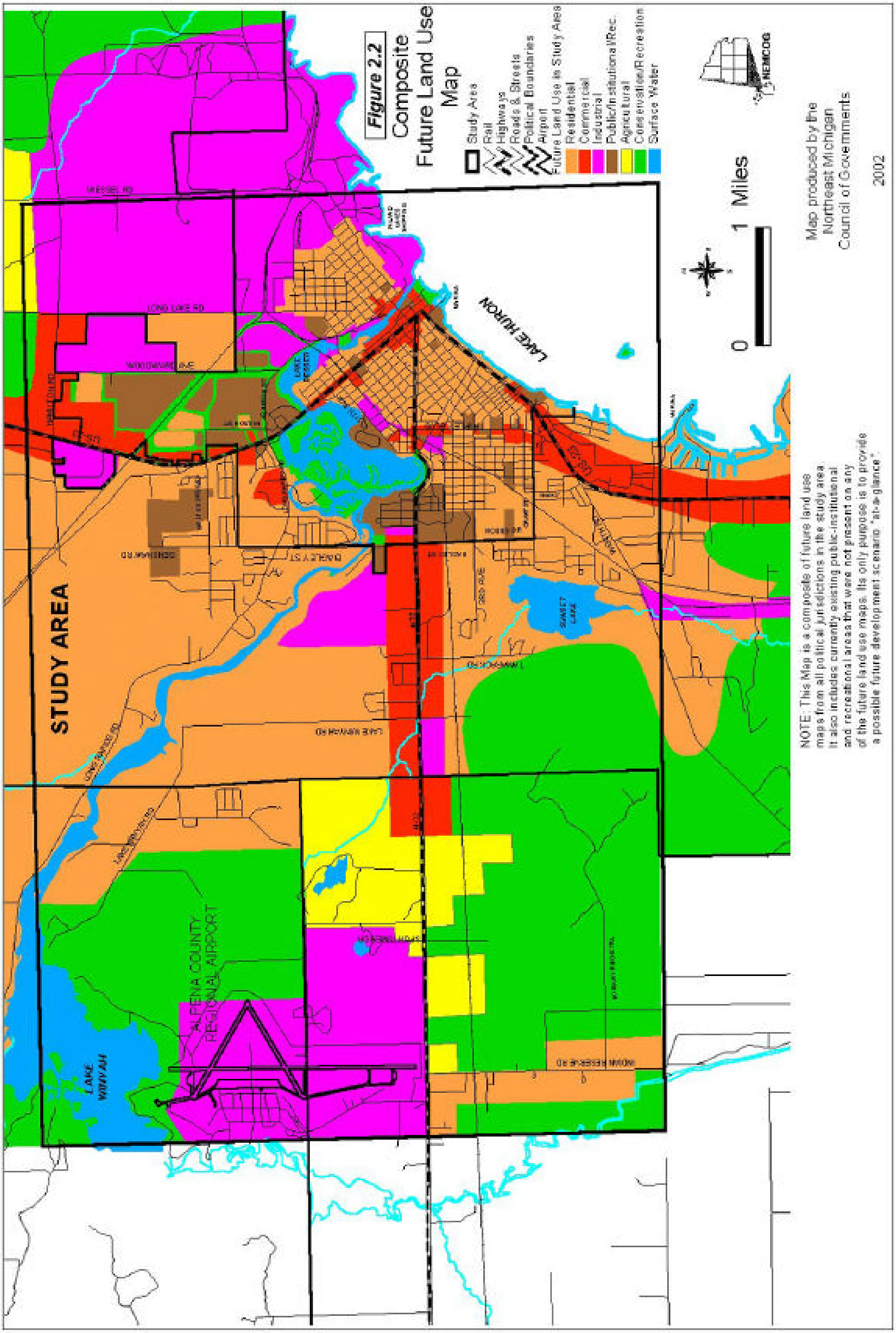


Figure 2.2
Composite
Future Land Use
Map
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Airport
Future Land Use in Study Area
Residential
Commercial
Industrial
Public/Institutional/Rec.
Agricultural
Conservation/Recreation
Surface Water
0
1 Miles
NEMCOG
Map produced by the
Northeast Michigan
Council of Governments
2002
NOTE: This Map is a composite of future land use
maps from all political jurisdictions in the study area.
It also includes currently existing public-institutional
and recreational areas that were not present on any
of the future land use maps. Its only purpose is to provide
a possible future development scenario "at-a-glance".
LAKE HURON
STUDY AREA
ALPENA COUNTY
REGIONAL AIRPORT
LAKE
WINYAH
SUNSET
LAKE
WESSEL RD
LONG LAKE RD
INDIAN RESERVE RD
LAKE WINYAH RD

Industrial/Transportation Land Use

Industrial land use includes manufacturing and industrial parks, light industries that fabricate or package products, oil & gas drilling and production facilities, lumber mills, chemical plants, brick-making plants, large power facilities, waste product disposal areas, areas of stockpiled raw materials, and transportation facilities that normally handle heavy materials. The total industrial land use in the study area is approximately 3,003 acres, or 11.8% of the total. Community master plans show a desired future Industrial land use of 4,511 acres, or 17.7% of the total.

Industrial areas generate somewhat less vehicular traffic than commercial areas, however jurisdictions of the adjacent roadways should also incorporate sound access management techniques for these areas. For example, docking bays for vehicles carrying materials, equipment, and products should have an approach to a rear-access road or a parallel access drive. These types of modifications can greatly reduce many of the potential turning conflicts with traffic on the main traveled roadway. A Manufacturing plant and warehouse can generate as much as 3.85 and 4.88 daily vehicle trips, respectively, per 1,000 G.S.F., an industrial park building and a light industry building can each generate approximately 6.97 daily vehicle trips per 1,000 G.S.F.[2]

Institution/Recreational Land Use

Institution/recreational land use includes a variety of classifications such as education, government, religious, health, correctional, and military facilities, all indoor and outdoor recreational facilities, and all cemeteries. The buildings, parking areas, and immediate grounds are included in this category, however all surface water, forest, barren land, and wetlands associated with these facilities are entered into their own respective categories. The current total institution/recreational land use in the study area is approximately 828 acres, or 3.2% of the total. The future land use map shows approximately 968 acres, or 3.8% of the total. An example of an institutional traffic generator would be a research and development center, which generates 7.70 average daily vehicle trips per 1,000 G.S.F. An elementary school may generate approximately 13.39 daily vehicle trips, as measured per employee.[2] Schools in the Alpena area have special bus routing issues relating to the location of the bus garage on M-32, and the location of the schools to the east and west of South Bagley Street. If a crossing of the DNR rail-trail were allowed to the south of the bus garage to the junior high school, then many busses would not have to drive east and south through the already busy M-32/Bagley intersection to reach these schools.

Agricultural Land Use

The agricultural land use category generally includes land that is used for the production of food and fiber, but also includes land used for non-food livestock such as horses. These classes are: cropland, orchards (including vineyards and ornamental horticulture), confined feeding operations for livestock of any kind, permanent pasture lands, farmsteads, greenhouse operations, and horse training areas. The total agricultural land use in the study area is approximately 35 acres, or only 0.1% of the total, although the future land use composite map shows that the community would like this to increase to 1,274 acres, or 5.0% of the total. Besides the practical applications of agricultural operations, such as providing food and products, large tracts of scenic farmland can have a significant positive impact on travelers.

[1] *Trip Generation,* 6th Edition, Institute of Traffic Engineers (ITE)
[2] *Trip Generation,* 5th Edition, (ITE), Table 5-3

Nonforest

Nonforest land includes “open land” and rangeland classifications such as barren land, herbaceous open land, and shrubland. Herbaceous open land is usually subjected to continuous disturbance such as mowing, grazing, or burning, and typically it can have a variety of grasses, sedges, and clovers. Shrubland is land in transition from being open to becoming an eventual forest. There are native shrubs and woody plants like blackberry, dogwood, willow, sumac, and tag alder. The nonforest land in the study area is approximately 1,698 acres, or 6.7% of the total. Open land can provide an important habitat and food source to a variety of wildlife in the study area. This Plan explores natural features, soils, and urban forest issues in Chapter 3, *Environmental Analysis*. Open land and upland forested land are generally found to be more suitable for structural and roadway development than are lowland forest or wetland areas.

Upland Forest

Forest land use areas are generally at least 10% stocked by trees of any size. The upland forest category includes upland hardwoods like maple & beech, other upland species like aspen & birch, species of pine like red, white or jack pine, and other upland conifers like white spruce, blue spruce, eastern hemlock, and balsam fir. Upland forest in the study area is approximately 3,591 acres, or 14.1% of the total. Open land and upland forested land are generally found to be more suitable for structural and roadway development than are lowland forest or wetland areas.

Lowland Forest

Lowland forest areas are dominated by tree species that grow in very wet soils. Lowland hardwoods include ash, elm, soft maple, cottonwood and others. Lowland conifers include cedar, tamarack, black and white spruce, and balsam fir. The lowland forest in the study area is approximately 7,573 acres, or 29.7% of the total. Lowland forest can provide an important habitat, food, and water source to a variety of wildlife in the study area. It is less likely to be suitable for structural and roadway development than either upland forest or high open areas. However, when development occurs in these areas, there are landscaping/planting techniques that may preserve overall visual qualities by blending the structures and open areas with the surrounding landscape.

Wetlands

Wetlands are those areas where the water table is at or near the land surface for a significant part of most years. Examples of wetlands are marshes, mudflats, wooded swamps, and shallow areas along rivers or lakes or ponds. Wetland areas include both non-vegetated mud flats and areas of hydrophytic vegetation. The wetlands category in the study area is approximately 2,773 acres, or 10.9% of the total. Wetland areas can provide important habitat, food, and water sources to a variety of wildlife in the study area, and these areas are also less likely to be suitable for structural and roadway development than either upland forest or high open areas.

Surface Water

The surface water category includes areas such as lakes, reservoirs, ponds, rivers, and streams. Inland surface water in the study area is approximately 1,608 acres, or 6.3% of the total. Besides a major power source for the Community of Alpena, surface water provides scenic vistas, recreational opportunities, and habitat for a variety of wildlife. On the other hand, the limited number of bridges across the Thunder Bay River make surface water a formidable obstacle to the north-south movement of traffic in this community.

[2] *Trip Generation*, 5th Edition, Institute of Traffic Engineers (ITE)

Land Ownership (Note: the approximate total number of acres in the study area is 25,486)

Publicly Owned Land

The amount of publicly-owned land in the study area is approximately 7,256 acres, or 28.5% of the total.

The major tracts of publicly owned land in the study area belong to the State of Michigan, and can be found in Wilson Township. These lands are part of the Alpena State Forest, and total about 4,050 acres, or 15.9% of the study area. The County owns approximately 2,947 acres, or 11.6%, the City owns approximately 256.5 acres, or 1%, and the federal government owns about 2.5 acres, or less than 0.01%. **Figure 2.3** on page 2-8, shows the locations of existing publicly-owned vs. privately-owned land. Inland surface water comprises about 6.3% of the total, or 1,608 acres.

The significance of publicly owned land is twofold:

1) It is being managed by a public agency (most of this land is State owned), so there is the potential for right-of-way (ROW) agreements to be developed with other public agencies.

2) In most cases, its potential to be developed is minimal. Thus, access management issues are less likely to become a concern, and it may be easier to maintain or preserve natural scenic qualities along roadways that traverse public land.

Privately Owned Land

Privately-owned land, or 65.2% of the total in the study area, has the potential to be impacted by development pressures. Residential, commercial, industrial, and institutional development can cause changes in roadway access points and traffic generation patterns (both of which affect travel times, crash rates, roadway capacities and rates of road surface wear). Changing vehicular traffic patterns also have an impact on residential neighborhoods, pedestrians, and bicyclists, so it is important to establish community development guidelines and regulations that will maximize efficiency, safety, and comfort in all aspects of transportation in the community.

Local governments assume the major role in establishing “access management” techniques for privately-owned land in their jurisdictions. While MDOT has the responsibility of regulating driveway access along State highways, it still falls to local jurisdictions to regulate development so that rear access drives are built, driveways are shared, and parking lots between businesses are connected. Property owners do have the right to reasonable access to the general system of streets and highways. However, at the same time, adjacent roadway users have the right to freedom of movement, safety, and efficient expenditure of public funds. Balancing these interests is critical at locations where significant changes to the transportation system and/or surrounding land uses are occurring. The safe and efficient operation of the transportation system calls for effectively managing driveways, streets, or other access points. More about access management techniques is found in **Chapter 6**, *Access Management*.

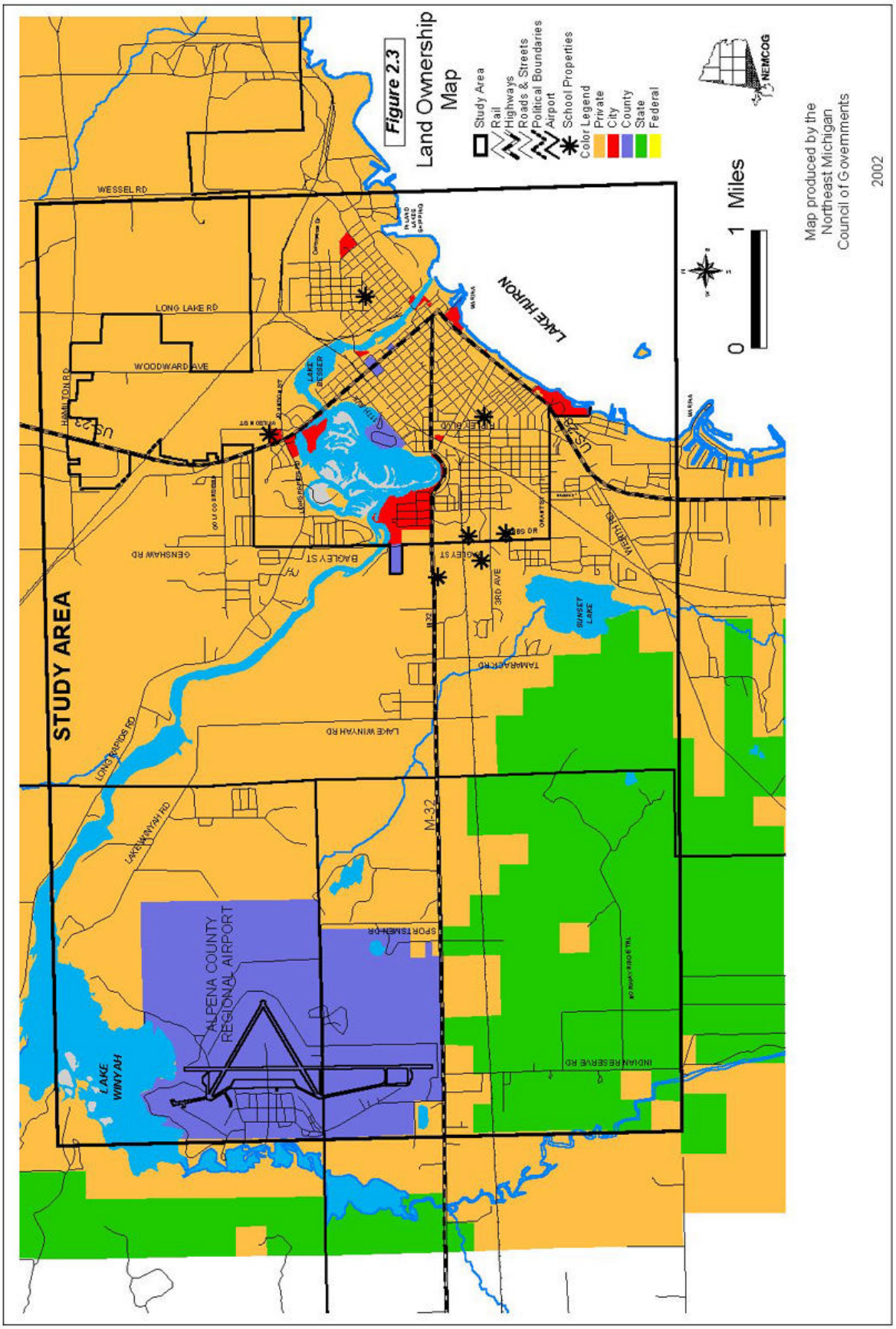
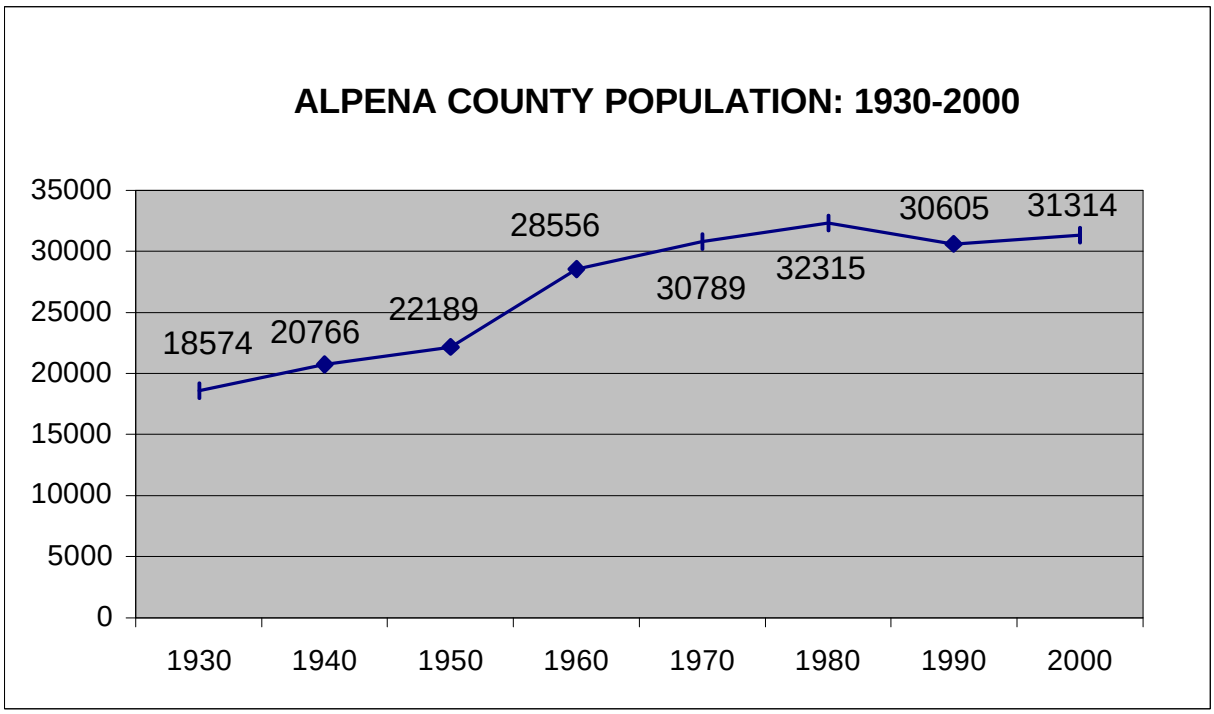


Figure 2.3
Land Ownership Map
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Airport
School Properties
Color Legend
Private
City
County
State
Federal
NEMCOG
0
1 Miles
Map produced by the Northeast Michigan Council of Governments
2002
STUDY AREA
LAKE HURON
WESSEL RD
LONG LAKE RD
WOODWARD AVE
HAMILTON RD
US 23
GENSHAW RD
BAGLEY ST
3RD AVE
M-32
LAKE WINYAH RD
LONG RAPIDS RD
ALPENA COUNTY REGIONAL AIRPORT
LAKE WINYAH
SUNSET LAKE
INDIAN RESERVE RD

Demographics

Population

The 2000 Census showed that Alpena County, with a population of 31,314, continues to be the most populated County in the Northeast region. Since 1990 there has been an increase in population of 2.3 percent (709 persons). The county population density averages 54.6 persons per square mile, however, two thirds of the total population is located in the City of Alpena and Alpena Township. The study area, which includes all of the City, the central portion of Alpena Township and parts of Wilson and Maple Ridge Townships, encompasses the most populated area of the County.



Source: U.S. Census Bureau

In general, the rural areas of the County have experienced faster rates of population growth than the more developed areas (see **Table 2.2**). Between 1990 and 2000, Alpena Township had a modest increase in population of 1.9 percent (176 persons). The City of Alpena experienced a loss in population for the fourth consecutive decade, although the 0.4 percent decline was significantly less than the out-migration experienced in the 1980's when the population decreased by 7 percent. Six of the municipalities had population increases between 1990-2000. Percentage wise, the fastest growing municipalities in the County were the Townships of Green, Maple Ridge, Wilson and Wellington. The percentage gains found in these areas ranged from a high of 13.3 percent in Maple Ridge Township to 9 percent in Wilson Township. Maple Ridge Township also had the largest net increase in residents with the addition of 201 persons between 1990 and 2000.

Table 2.2
Population For Alpena County & Municipalities, 1990-2000

Municipality	1990 Pop.	2000 Pop.	% Change '90-'00
Alpena Co.	30,605	31,314	2.3%
City of Alpena	11,354	11,304	-0.4%
Alpena Twp.	9,602	9,788	1.9%
Green Twp.	1,095	1,205	10.0%
Long Rapids Twp.	1,021	1,019	-0.2%
Maple Ridge Twp.	1,514	1,715	13.3%
Ossineke Twp.	1,654	1,761	6.5%
Sanborn Twp.	2,196	2,152	-2.0%
Wellington Twp.	269	296	10.0%
Wilson Twp.	1,902	2,074	9.0%

Source: U.S. Bureau of the Census

Seasonal Population

Obtaining accurate numbers of seasonal residents and tourists is difficult. Because the U.S. Census is conducted each decade in April, the numbers only reflect those persons who live in the county on a year-round basis.

In 2000, the Census demonstrated that 10.8 percent of the housing units in the county were seasonal, a decrease of almost 2 percent since 1990. The percentage of Alpena County's housing units that are seasonal is much less than that of the surrounding counties.

A rough estimate of the number of county seasonal residents can be calculated by multiplying the number of county seasonal housing units (1,658) by the county's average number of persons per household (2.6), for a total of 3,979 persons. Seasonal residents, therefore, could have added another 13 percent to the county's year-round residents, for a total of approximately 35,293 persons, compared to the actual 2000 Census figure of 31,314 persons. This figure does not include those seasonal visitors or tourists staying in area motels, campgrounds or family homes.

Tourism

With over 13,000 acres of lakes, 300 miles of streams and tributaries, and 61 miles of Lake Huron shoreline, Alpena County's water resources are a major tourism draw. Besides boating, fishing, and swimming, other tourist activities include: camping, hunting, sightseeing, hiking, biking, skiing, golfing, snowmobiling, ice fishing, shopping, and more.

An Alpena County tourism study was completed in 2002 (and is in progress for other counties), and was funded by Travel Michigan. The *Michigan Tourism Business* study was conducted by Michigan State University (MSU) using tourism models developed at MSU. These models require the entry of existing data such as lodging room taxes/assessments, government reports of tourism-related sales and employment, visitor surveys, camping, seasonal homes, and other information. The results of this study show that in the year 2000, Alpena County hosted approximately 445,000 person trips, or 165,000 party trips- assuming an average of 2.6 persons per party of tourists. A "tourist" is defined in the study as a person who travels 50 miles or more

to reach their destination, and consists of all travelers including seasonal home owners and visiting friends and relatives.

Tourism activity grew by 10% between 1999 and 2000. An estimated $34 million was spent by tourists in Alpena County during 2000, resulting in 760 direct tourism-related jobs, $9.1 million in personal income (wages & salaries) and $14 million in value added (wages, salaries, profits, rents, and sales taxes). Of the 760 direct jobs created, about 258 were in restaurants, 182 in retail trade, 173 in hotels or campgrounds, and 145 other. These numbers do not include government jobs. The study goes on to describe employment by sector, value added sales, secondary sales, taxes, and other useful information. This study was provided courtesy of the Alpena Convention and Visitors Bureau.

Population Projections

Projections from three different sources are shown below in **Table 2.3**. NEMCOG predictions and predictions from the University of Michigan (U of M) show the county's population growing between 2000 and 2020, while projections from the Michigan Department of Management and Budget (DMB) show a decline in population.

With a range of a 7 percent loss to a 13 percent gain, the projections do not give a clear picture on the future trend of the population. Population estimates for Alpena County prepared by the Census Bureau for July 2000 and July 2001 show a population loss of less than 0.1 percent respectively.

Table 2.3
Population Projections For Alpena County 2000-2020

Source	2000*	2010**	2020**
NEMCOG	31,314	35,319	35,497
U of M	31,314	34,567	35,220
DMB	31,314	30,100	29,000

Source: 1990 figures from the U.S. Bureau of the Census
NEMCOG: Northeast Michigan Council of Governments.
U of M: Regional Economic Models, Inc by the University of Michigan through the Mich. Department of Transportation
DMB: Michigan Department of Management and Budget

Age Distribution

2000 census data shows that 42.1 percent of Alpena County's population was 45 years old or older, a 5.5 percent increase since 1990 (**Table 2.4**). The breakdown of County's population by age grouping shows a significant shift in the 25-44 and the 45-64 age groups from 1990 to 2000. The percentage of those in the 45-64 age group grew by 3.4 percent while the 25-44 age group declined by 3.8 percent. Since the total population increased by 709 persons between 1990 and 2000 and the population of people over 45 grew by 1,944 persons during the same time period, the shift towards an older population is most likely due to the existing residents getting older.

Table 2.4 Population By Age For Alpena County 1990-2000				
Age	1990	% of Total Pop.	2000	% of Total Pop
Under 5	2,005	6.7%	1,716	5.5%
5-17	6,042	19.7%	5,702	18.0%
18-24	2,392	7.8%	2,436	7.8%
25-44	8,968	29.3%	8,309	25.5%
45-64	6,604	21.6%	7,784	25.0%
65+	4,593	15.0%	5,357	17.1%
Median Age	35.3 years		40.4 years	
Source: U.S. Bureau of the Census				

Growth and Development

Residential Development

An analysis of the building permits issued in the study area can give insight to the trends and magnitude of growth in the area. In the study area, building permits are issued by each of the four municipalities. As can be seen in **Table 2.5**, the majority of new dwellings have been constructed in Alpena Township. The number of new homes being built in the Township has remained relatively constant with an average of 54 new homes being built per year since 1997.

The number of new homes being built has significantly outpaced the number of new residents that have moved into the area. Over the past 5 years it is estimated that 435 homes have been built in the municipalities included in the study area, while the population increased by 354. The most likely cause for this pace of construction is the decrease in average household size and more people living alone. The increase in building activity cannot be attributed entirely to the construction of seasonal homes, since there was an overall decrease in the number of seasonal homes in Alpena County (1,810 to 1,658) from 1990 to 2000. However, one factor which may help to explain the 'disappearing' seasonal homes is that existing seasonal homes are being converted to full time occupancy.

Table 2.5 Building Permits 1997 - 2001										
Year	1997		1998		1999		2000		2001	
Community	New Res.	New Comm.	New Res.	New Comm.	New Res.	New Comm.	New Res.	New Comm.	New Res.	New Comm.
Alpena Twp.	51	9	64	19	57	11	42	12	55	11
Maple Ridge	7*		7*		7*		7*		7*	
Wilson	15*	1*	14	3	23	0	20	0	19	2
City of Alpena	14	6	7	7	7	2	9	6	3	6
Totals	87	16	92	29	94	13	78	18	84	19
Source: Township Building inspectors *Estimated values										

An increase in commute times, as shown in **Table 2.6,** suggests that many of the new homes being built in the County are in rural areas farther from places of employment. From 1990 to 2000 the average commute time for an Alpena County worker increased by18 percent from 14.4 minutes to 17 minutes. The vast majority of workers in Alpena County get to work by driving alone. Compared to 1990, approximately the same number of people carpool to work as did in 2000, but the use of public transportation as a means to get to employment destinations decreased by 37.5 percent. The number of people walking to work also decreased during this time period also from 360 (3.0%) to 330 (2.4%).

Table 2.6

Alpena County Work Commute 1990 & 2000

	1990		2000	
Mode of Transportation	#	%	#	%
Drove Alone	10,024	82.3%	11,452	83.8%
Carpooled	1,016	8.3%	1,092	8.0%
Public Transportation (includes taxi)	88	0.7%	55	0.4%
Walked	360	3.0%	330	2.4%
Worked at home	512	4.2%	577	4.2%
Other means	187	1.5%	160	1.2%
Average Commute time (minutes)	14.4	NA	17.0	NA

Source: U.S. Bureau of the Census

Using the information in **Table 2.6**, the amount of additional miles being driven due to people living farther from places of employment can be estimated. Assuming an average commute speed of 45 miles per hour, the average commute in Alpena County increased by 2 miles from 10.8 miles to 12.8 miles. Assuming two commute trips per day, 250 work days per year, and 11,452 commuters (number of people who drive alone to work) the net of effect of the outward growth trend is an additional 11.5 million miles per year being driven on Alpena County Roads.

Commercial Development

Over the past 5 years there has been an average of 19 new commercial buildings built per year in the City and Townships included in the study area. The majority of the new commercial development has occurred in Alpena Township. Over the past 5 years an average of 12 new commercial buildings per year have been constructed. New commercial construction is primarily taking place in the commercial corridors located on M-32 and US-23 North and South.

Due to limited space, the City of Alpena has had significantly less construction of new commercial buildings. Most of the commercial construction in the City takes the form of redevelopment of existing structures or use of space. There is, however, some acreage south and east of the corner of Hamilton Road and US-23 that may some day be developed for retail, service industry, or some other purpose. The 2000 *City of Alpena North Sub-Area Plan*'s future land use map shows areas on the east side of Woodward Avenue that could become light industrial, heavy industrial, and recreational. However, some of these areas, currently zoned R-2, may find other uses such as residential.

Alpena Community College (ACC) is in the process of producing a college campus master plan, however this is not yet available to be shared with the Transportation Plan Committee. In the 2000 *City of Alpena North Sub-Area Plan*, the future land use map shows the College acreage north of the railroad tracks and west of Woodward avenue as institutional, office/research, and some residential areas. The sub-area plan goes on to recommend:

- Future uses for the area should be located along thoroughfares that can accommodate their expected demand and impact
- As the study area develops, additional internal roads should be provided where necessary and appropriate
- Future signalization or other traffic safety design should be installed at Johnson and Woodward or at other intersections as warranted in the future
- An extension of Henry Street east to Woodward should be considered to provide secondary access to US-23
- Wilson Street might be extended to the north to a new east/west road between US-23 and Long Lake Road
- A road connector should be considered from Johnson Street east of the railroad tracks to the northeast to connect with Long Lake Road, to alleviate potential congestion to the southeast

A Campus Plan may be ready for the public sometime in 2003. Some of the issues identified by the College, relating to the Transportation Plan are: 1) finding a solution to students having to cross Johnson Street with potentially hazardous traffic conditions; 2) a greater presence of public transportation will be needed in the future for students and faculty; and 3) Hamilton Road is paved, however Woodward Avenue north of the railroad tracks will need to be paved, and new roads that will serve future developments will need to be constructed.

Very few new commercial buildings have been built in Wilson township, and this is also assumed to be true in Maple Ridge Township but data could not be obtained to verify the exact number of permits that have been issued.

In terms of traffic generation, the most intense commercial development has been on M-32 west of Bagley. Uses tailored to the automobile such as gas stations, drive through restaurants, drive through banks, hotels and regional retail stores have significantly impacted the traffic dynamics and characteristics of M-32, Bagley Street, and the surrounding area.

In addition to the new commercial buildings being constructed, residential areas and single family homes along the commercial corridors of M-32, US-23 North, and US-23 South are transitioning into commercial uses. As the commercial areas extend outward, residential lots and residences are being converted for commercial use. The conversion of residential lots to commercial uses creates access management problems: the narrow lots, each with its own curb cut, are merged with other lots to form a large site with many curb cuts close together. The high number of access points combined with an increase in traffic generated by the commercial uses entering and exiting the roadway significantly impact the function and capacity of the roadway.

Industrial Development

Until the middle 1980's the Alpena County economy was centered in the manufacturing sector with a few large industries making up a majority of the industrial base. Although the large industrial plants are still a vital component to the regional economy, the trend has been towards the development of smaller businesses with fewer employees. According to the *Michigan Industrial Directory*, the number of industrial employers has increased from 50 to 65 , however the number of employees in these industries decreased from 2,874 to 2,429. Small machine shops make up the largest number of industrial businesses with 20 shops operating in Alpena County.

In addition to the diversification of the industrial workforce, advances in technology has allowed employers to increase production and hire fewer workers. One noticeable example is cement

production at the Lafarge Corporation which now has the same amount of production with 300 employees as Huron Portland Cement did in 1978 with a labor force of 1,000. In the context of the Alpena-Area Wide Transportation Study, the result has been a lessening impact on the road system by the industrial labor force.

Renaissance Zones

In 1998, six renaissance zones were designated in Alpena County, all of which are in the study area. Four of the zones are in the City of Alpena and the other two are in Wilson Township at the Alpena County Regional Airport. The renaissance zone designation promotes economic development through tax exemptions from State Income Tax, Single Business Tax, General Property Tax (not including debt retirement and special assessments) and Education Tax for eligible businesses. The renaissance zone designation provides property owners and residents tax exemptions for a period of 15 years. Although the clock begins ticking at the time of the designation, extensions can be requested. All of the zones are awaiting development at the time of this writing.

Commerce Industrial Park Sub Zone 1

Located just to the east of Long Lake Road in Alpena, this is a 16 lot, 21.76 acre industrial park and access road which is zoned Light Industrial. Sites average 1 acre in size and the park is designed and intended for small industrial uses.

Oxbow Park Sub Zone 2

This is a 39.7 acre former City landfill on the northwest corner of the City of Alpena. Plans for a neo-traditional mixed use development have been proposed for this site, called Oxbow Village. Proposed uses for the development would include a combination of residential, office, recreation, and institutional.

National Guard Armory Site Sub Zone 3

Located in downtown Alpena, and presently owned by the State of Michigan, this 0.70 acre site is home to the historic Armory Building. The State will be divesting itself of the property following the relocation of the National Guard offices.

Southwest Residential Site Sub zone 4

A city-owned 14.85 acre site on the east side of US-23, south of Hamilton Road, the intention is to sell the property for residential development.

Alpena County Regional Airport, West Side Sub zone 5

This is an 87-acre site located on the west side of the main entrance drive (Airport Road) into the airport. There are plans to develop the property closest to M-32 into a commercial retail center, with industrial developments just to the north, on the same site. Large parcels are available for commercial and industrial development in both Sub zone 5 and Sub zone 6. Water and sewer services as well as cable and fiber optics utilities extend to these sites.

Alpena County Regional Airport, East Side Sub zone 6

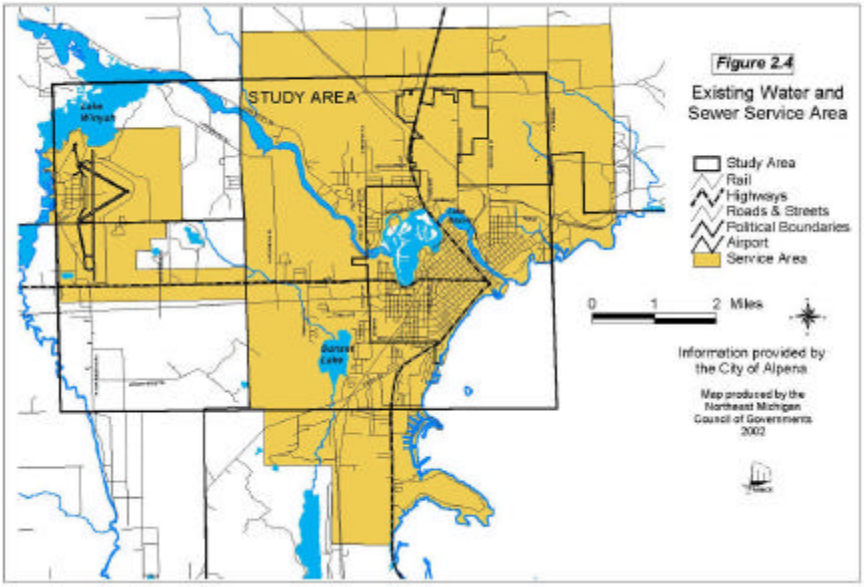
This is a120-acre site located on the east side of the airport property, abutting the north side of M-32. There will be a continuation of an existing roadway on the east side of Airport Road, to provide access for future industrial developments. There are additional airplane hangars being constructed at the west edge of this property, for increased capacity that will be needed. A land use plan is being developed at this time, which will show the intended development layout for all airport properties.

Water and Sewer

Public water and sewer is available throughout the city, portions of Alpena Township and lines have been extended west along M-32 through Wilson Township to Alpena County Airport. Water is supplied by the City of Alpena Water Filtration Plant and all wastewater in the public system is treated at the City of Alpena Waste Water Treatment Plant. The Alpena Waste Water Treatment Plant has an average daily flow capacity of 5.5 million gallons per day. The annual average daily flow over the past two years has been approximately 2.5 million gallons per day.

Alpena Township and the City of Alpena each manage, operate and maintain the water and wastewater facilities within their boundaries. Per a 1977 agreement signed with Alpena Township, the City of Alpena provides up to 1.5 million gallons of water to the Township per day and accepts up to 2 million gallons of sewage per day. Data from an Alpena Township water and waste water feasibility study prepared by Wade-Trim in July of 2000 shows that the average daily water usage in the Township is approximately 600,000 gallons and the average daily wastewater flow is approximately 500,000 gallons. Considering the average daily water demand for a residential unit is 260 gallons per day, and wastewater flow from a residential unit is 215 gallons per day, a considerable amount of capacity is available to accommodate future growth in Alpena Township.

Also per the 1977 agreement , service area boundaries were established (**Figure 2.4**) that limited the extension of the sewer and water infrastructure. When initially established, the boundary went north to Bloom Road, East to Wessel Road, West to the Alpena Township Line and south to Partridge Point. The agreement was amended in 1998 to extend the service area to include sewer and water lines to the Alpena Regional Airport and other amendments to the agreement for other extensions are being explored.



Intermodal Transportation

Roads and Streets (This section contains a general overview only. For capacities and traffic conditions in the study area, see **Chapter 5**, *Traffic Conditions*.)

Alpena County has no interstate highway but is served by US-23 which runs along Lake Huron from Mackinaw City to Standish, and by state highway M-32 that connects Alpena with Gaylord and I-75. M-65 running north and south bisects the western portion of the county. State and federal highways include approximately 72 miles of M-32, M-65 and US-23. The county also supports 205.5 miles of local primary roads and 454.5 miles of local secondary roads.

The City of Alpena's street program includes approximately 56.4 miles of local streets and roads. State highway M-32 extends 2 miles into the City, and there are 3.56 miles of US-23 within the boundaries of the City. Refer to **Figure 2.5**, *Road Classifications Map,* which shows Principal Arterials, Minor Arterials, Collectors, and local roads and streets.

Principal arterials carry a major portion of trips that are entering and leaving the urban area, passing through the urban area to a farther destination, and generally accommodate the highest traffic volumes at faster speeds. They serve the major urban centers of activity, and tie into minor arterials as well as major rural connections to outlying areas.

Minor arterials connect with the principal arterials to augment that major system. There is somewhat more emphasis on local land access and lower speeds, than on high speed travel to farther destinations. Minor arterials serve trips between urban connections and collector roads from more rural areas. Unlike collectors, they do not directly serve identifiable neighborhoods.

Access to local streets and roads, as well as direct access to properties is provided by collector roads in residential neighborhoods, commercial areas, and industrial areas. Collectors are generally lower speed and lower volume roads than arterials. Trips on collectors are distributed from arterials through diverse areas to their ultimate destinations, either to local roads or to properties adjacent to the collectors. Collectors bring together traffic from local road and street systems and channel that traffic to the arterial system.

The local road and street system provides direct access between abutting properties and the collectors. Local roads and streets are generally lower speeds and lower volumes than either arterials or collectors. Through traffic is deliberately discouraged on this system.

Air Transportation

Air travel is based at the Alpena County Regional Airport, elevation 689 feet above sea level. The 3,000 acres owned by the airport is mostly undeveloped, but with 11,500 feet of concrete runway and state of the art communications and radar systems, the airport has the ability to accommodate any type of commercial or military aircraft. The airport is also home to the Combat Readiness Training Center (CRTC) of the Michigan National Guard. Passenger service is provided by North Country Aviation of Gaylord, and Mesaba Airline / Northwest Air Link. Charter services are provided by Freedom Transportation and Aviation North. Air freight service is provided by FED-EX, UPS and Airborne Express. Flight training is provided by the Fixed Base Operator (FBO) Aviation North, and medivac services are provided by North Flight of Traverse City, Wings of Mercy and Life Flight.

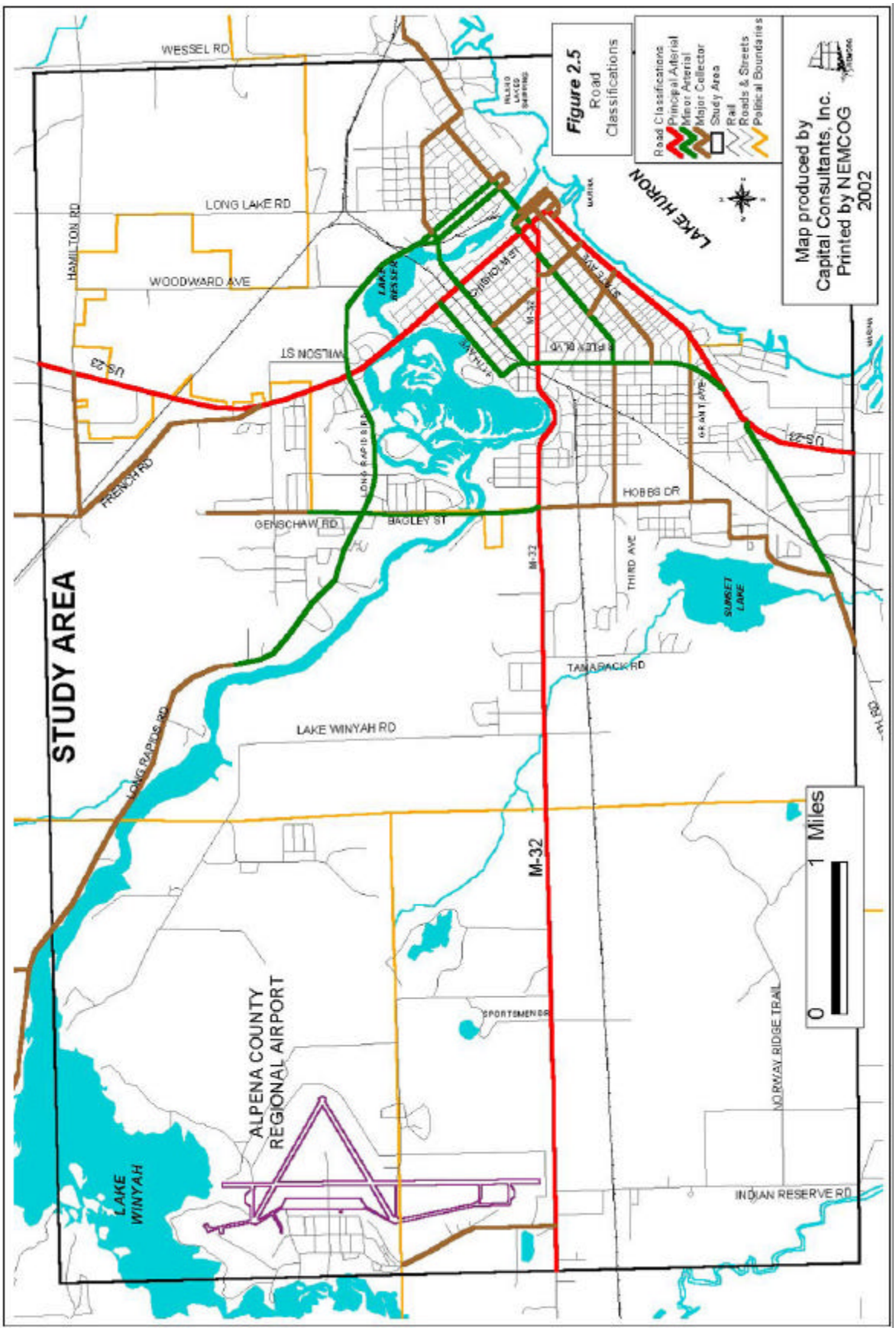


Figure 2.5
Road Classifications
Road Classifications
Principal Arterial
Minor Arterial
Major Collector
Study Area
Rail
Roads & Streets
Political Boundaries
Map produced by
Capital Consultants, Inc.
Printed by NEMCOG
2002
STUDY AREA
WESSEL RD
LONG LAKE RD
HAMILTON RD
WOODWARD AVE
US-23
FRENCH RD
WILSON ST
LAKE HURON
M-32
HOBBS DR
GENSCHAW RD
BAGLEY ST
THIRD AVE
SUNSET LAKE
TAMARACK RD
LAKE WINYAH RD
LONG RAPIDS RD
ALPENA COUNTY
REGIONAL AIRPORT
LAKE WINYAH
SPORTSMENS RD
NORWAY RIDGE TRAIL
INDIAN RESERVE RD
0
1 Miles

The airport is administered by the Airport Manager, as a department of the County. The CRTC jointly maintains the airport by sustaining a crash-rescue unit, maintaining tower operations (08:00-16:00 Mon-Sat), snowplowing the runways, and performing other routine maintenance activities. Available fuel includes 100 LL and Jet-A for most types of aircraft.

Table 2.7 shows the amount of freight and passengers that have traveled through the Airport from 1997 to 2000. The amount of inbound and outbound freight increased robustly between 1997 and 1998 but began to slow and then decline from 1999 to 2001. In 1998 inbound freight increased by 20 percent and outbound freight increased by 36 percent. In 1999 the amount of inbound freight grew only 0.7 percent and outbound freight grew by 5 percent. Over the next two years the amount of inbound and outbound freight declined 20 percent and 32 percent respectively. Although the amount of decline was certainly affected by the events of September 11, 2001, it appears there was an existing downward trend in airfreight being shipped in and out of Alpena County.

Passenger service at Alpena Regional Airport had dramatic increases from 1997 to 1998 and from 1998 to 1999 with 68 percent and 75 percent increases respectively. The amount of passengers passing through the airport leveled off in 1999 and changed little from 1999 to 2001. Factoring in the effects that September 11 had on passenger service, the amount passengers flying through Alpena probably would have otherwise increased modestly in 2001.

Table 2.7 Alpena Regional Airport Usage 1997-2001

Year	Freight (inbound) lbs.	Freight (outbound) lbs.	Passengers
2001	923,248	417,363	21,033
2000	1,119,710	540,194	21,073
1999	1,163,812	618,503	21,603
1998	1,155,783	587,065	12,313
1997	954,903	430,350	7,310

Source: Alpena Regional Airport

Rail

Freight rail service is provided by Lake State Rail which is primarily used to deliver raw materials and products to and from the industrial users in the area. No passenger service is offered. Alpena is the end of the line for the rail line and Lake State Rail has one inbound and one outbound train per day, Monday - Saturday. Although the volume of freight is expected to increase, no extension or expansion of the line is anticipated. The rail bridge over the Thunder Bay River was replaced in July 2002 using a 50-50 loan from

the Michigan Department of Transportation.

Marine Facilities

The City of Alpena has two channels used for great lakes shipping. One is the Port of Alpena and the other is for the Lafarge Corporation. The shipping season for Alpena Harbor is from March 15 to December 17. Over the past decade the amount of freight shipped has steadily increased approximately 7% per year (**Table 2.8**). In 1991 a total of 2,284 thousand short tons were shipped in or out of Alpena and in 2000, 3,405 thousand short tons were shipped. Most of the tonnage being shipped is outbound with over 70% of the total tonnage consisting of cement being shipped out of Alpena (**Table 2.9**). Coal and Limestone are the major commodities being shipped into Alpena with 432 thousand short tons of coal and 384 thousand short tons of limestone being shipped into Alpena in 2000.

Table 2.8 Alpena Total Shipping 1991 – 2000 (thousand short tons)

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	2,284	2,486	2,547	2,672	2,767	2,345	2,901	3,078	3,947	3,405

Source: U.S. Army Corps of Engineers, Waterborne commerce of the United States, Waterways and Harbors, Great Lakes

Table 2.9 Alpena Shipping Traffic 2000 (thousand short tons)

Commodity	Inbound	Outbound	Total
Coal Ignite	249	17	266
Coal Coke	165	0	165
Starches, gluten, glue	0	6	6
Limestone	340	45	385
Iron ore	26	0	26
Slag	4	0	4
Non-metal mineral	26	0	26
Cement & concrete	19	2,486	2,507
Misc. mineral prod.	0	20	20
Total	829	2,574	3405

Source: U.S. Army Corps of Engineers, Waterborne commerce of the United States, Waterways and Harbors, Great Lakes

Transit

Alpena Dial-A-Ride - The Alpena Dial-A-Ride, managed by the Thunder Bay Transportation Corporation (TBTC), provides a city-wide public demand response service providing door to door transportation within the City of Alpena, which operates seven days a week, with hours of 7 a.m. to 7 p.m. Monday through Thursday; 7a.m. to 10 p.m. on Friday; 8 a.m. to 10 p.m. on Saturday and 8a.m. to 6 p.m. on Sunday. The Alpena Dial-A-Ride service operates seven 22-passenger buses equipped with lifts.

Thunder Bay Transportation Corporation – In 2001, the TBTC, a non-profit corporation, provided public transportation services for 57,167 passengers. TBTC operates five days a week, Monday through Friday, and at other times and days by special contract. TBTC operates a fleet of 28 vehicles, of which 24 are equipped with lifts. Revenues are obtained from the fare boxes (80%), the State (19%), and local funds (1%)

Northeast Michigan Community Mental Health - NMCMH operates a fleet of 49 vehicles (cars, mini-vans and vans) in its four-county service area. The agency primarily provides transportation for developmentally disabled persons and persons with mental illnesses to allow them access to services such as supported employment programs, drop-in centers and day activity centers. Most of the vans are wheelchair lift equipped and have space set aside for wheelchairs. The typical hours of operation are Monday through Friday, 8:00 a.m. to 5:00 p.m. with transportation generally pre-arranged. Vehicles are available around the clock for limited emergency use. Staff members use agency vehicles to transport clients for special purposes.

Northeast Michigan Rehabilitation and Opportunities Center, Inc. (NEMROC) – NEMROC operates three (3) vans and four (4) passenger cars for transporting of disabled adults and some students to job sites and individualized learning events in the community as part of the Vocational – Rehabilitation and Employment program. Transportation services are provided Monday through Friday, with the majority of the use occurring between 8:30 a.m. and 3:00 p.m., additional one crew does provide night transportation between 4:00 p.m. and 10:00 p.m. Additional client transportation needs are met through services provided by Alpena Dial-A-Ride and Thunder Bay Transportation with funding provided through Northeast Michigan Community Mental Health.

District Health Department No. 4 - The Health Department provides transportation services in the form of mileage reimbursements for clients on maternal and infant support services programs and the Day One program. Destinations are generally medical care providers, primarily in Alpena. Funding for this transportation service comes from the appropriate program budget. Like other human service agencies, the Health Department utilizes Thunder Bay Transportation for transporting persons to Caring Place Adult Day Center in Alpena. Hours of operation are typically Monday through Friday, 8 a.m. to 5 p.m., with a heavier demand experienced on Tuesday and Fridays.

Indian Trails, Incorporated – Indian Trails provides statewide public transportation services on a daily basis. The bus route follows US-23 through Alpena County. Buses operate seven days a week, with a southbound run in the morning and northbound run in the afternoon. The company operates 44-passenger buses on this route. Buses are wheelchair lift equipped and have space set aside to accommodate wheelchairs. MDOT subsidizes this transportation service for areas in northern Michigan. This system functions as a daily link between select cities and allows people to travel outside the area to other parts of the state and country.

Alpena Area Senior Citizen Council – The Alpena Area Senior Citizen Council provides transportation for disabled seniors for medical, shopping and recreational purposes. Transportation services are typically provided through volunteer drivers, who use their own vehicles and receive mileage reimbursements. Hours of operation are Monday through Friday, from 8 a.m. to 5 p.m.

Family Independence Agency (FIA) – The Alpena, FIA office provides transportation services to children, adults, seniors, and disabled persons who are clients the agency. Transportation services are typically provided through volunteer drivers, who use their own vehicles and receive mileage reimbursements. Funding sources include Medicaid which is federal and Volunteer Services, a state program. Trips for medical and dental appointments are the primary

focus, however, volunteer drivers also transport FIA clients for shopping, training, and school purposes. Transportation is typically pre-arranged one or more days in advance and services are dependent upon availability of volunteer drivers.

Taxi / Shuttle Services – Demand response public transportation service is provided by Harley Light Trucking and Shuttle Service of Lewiston, primarily serving Alcona, Alpena and Montmorency Counties. J & S Cab Service of Alpena provides service primarily to Alpena, Montmorency and Presque Isle Counties.

Charter/Rental bus service is provided by Mert's Tour Service. Located in the City of Alpena, these passenger busses serve portions of Michigan's lower and upper peninsula. Mert's Service specializes in escorted tours and senior citizen trips. There are motor coaches available for 21-25 passengers.

Bus freight is carried by G & A Bus Line which transports U.S. mail between the Alpena Post Office and Gaylord's postal sorting center. This service is provided on a daily basis via M-32. Smith Bus Line also acts as a U.S. mail contractor and Mert's Bus Tours offers long/short distance package carrier services

Limousine services are provided by Diamond Limousine service. Located in the City of Alpena, this chauffeur-driven service is offered county wide and is also available for private transportation to and from other areas in Michigan.

Shuttle services are provided by Holiday Inn and Fletcher Motel between Alpena County Regional Airport and their respective lodging facilities. Passenger van schedules coincide with airline arrivals and departures.

Car rental agencies include Avis Rent A Car, Hertz Rent A Car and Superior Car Rental. Located with Alpena County Regional Airport. These companies offer local, state and national rentals

Bicycle and Pedestrian Facilities

In the City of Alpena there is a well developed recreational trail system called the Alpena Bi-Path (see **Figure 2.6**, *Alpena Bi-Path*, page 2-23). This system of trails is approximately 10 miles long and connects the residential areas with the downtown area and numerous parks and beaches. The path extends from Mich-E-Ke-Wis Park, on the east side of State Avenue north to the downtown area, then along the Thunder Bay River and the east side of Lake Besser, then west to the Wildlife Sanctuary and south past the County Fairgrounds, south on Ripley Boulevard and back to the Mich-E-Ke-Wis Park. There are two western segments that head west to Bagley Street, then loop back to Ripley Boulevard.

There is a need to find alternative Bagley Street connectivity of the path for two reasons: the shoulder is inadequate for bicycle traffic, and the Bagley Street bridge over the Thunder Bay River is too narrow to allow pedestrian and bicycle traffic along with the heavy flow of vehicular traffic. It will be in the community's best interest to seek a separate bridge and path facility along Bagley Street.

In addition to the Bi-Path, there are many sidewalk facilities along streets and roads within the City of Alpena. Most urbanized areas in the Township of Alpena, however, do not have sidewalks available for pedestrian use.

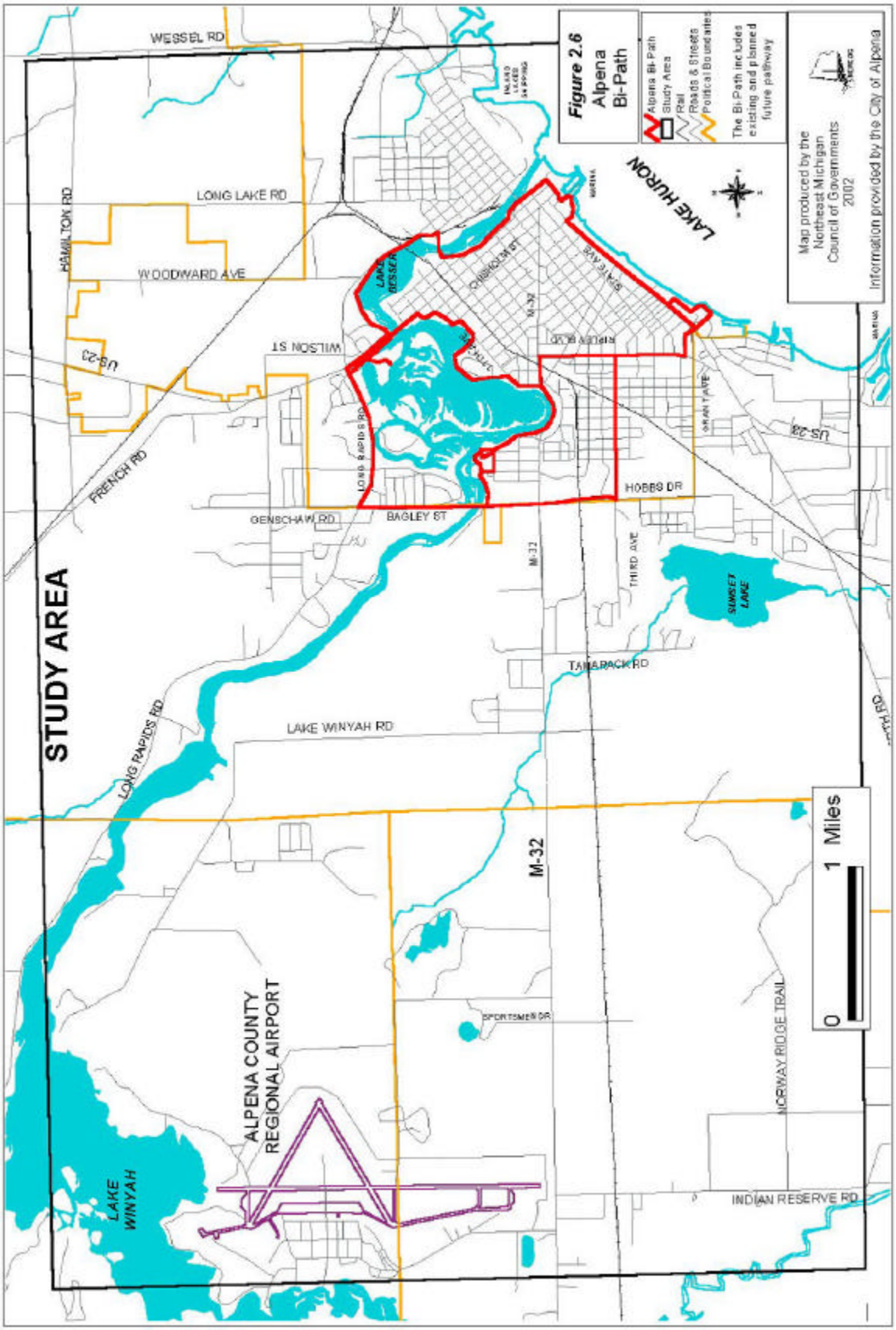


Figure 2.6
Alpena
Bi-Path
Alpena Bi-Path
Study Area
Rail
Roads & Streets
Political Boundaries
The Bi-Path includes existing and planned future pathway
Map produced by the Northeast Michigan Council of Governments 2002
Information provided by the City of Alpena
LAKE HURON
WESSEL RD
LONG LAKE RD
HAMILTON RD
WOODWARD AVE
US-23
WILSON ST
FRENCH RD
LONG RAPIDS RD
GENSCHAW RD
BAGLEY ST
HOBBS DR
M-32
THIRD AVE
SUNSET LAKE
TAMARACK RD
LAKE WINYAH RD
STUDY AREA
ALPENA COUNTY REGIONAL AIRPORT
LAKE WINYAH
SPORTSMEN DR
NORWAY RIDGE TRAIL
INDIAN RESERVE RD
0
1 Miles

Visual Resources and Community Character

The way that transportation facilities are developed and managed affects not only the efficiency of moving people and products, but it affects the way that both visitors and residents perceive their surroundings- the entire character of the community. The visual resources of Alpena are many, and the community character is varied within the study area. The following impressions are brought together 1) from trips along the main US-23 North, US-23 South, and M-32 West "gateways" into the community of Alpena; 2) from driving County roads and City streets; and 3) from bicycling on the Alpena Bi-Path.

On US-23 North, heading south, the Alpena Township building is seen on the east side of the road. Occasional small businesses and homes line the east and west sides of the road farther south, among patches of lowland forest and small open areas. Hamilton Road intersection marks the entryway to a well-maintained area of industrial sites to the west. Small businesses become more numerous just south of the French Road intersection, and are interspersed with motel facilities on either side of the road, and a large golf course to the west. The Alpena Civic Center on the northeast corner of US-23 and Johnson Street marks the beginning of a significant cultural hub that also includes the Alpena Community College, the Besser Museum and Planetarium, and the new Thunder Bay Recreation Center to the east. Continuing south, through the City of Alpena, travelers are able to enjoy the remarkable architecture of some of the public buildings, churches, and homes found there. There are also many well-managed small parks, connected by a pedestrian/bicycle pathway, at which a traveler may enjoy a bagged lunch or just sit and take in the view.

On US-23 South, heading north past Bare Point Road, small businesses, homes, and automobile dealerships are to the east and west sides of the road. Past the intersection of Werth Road and US-23, the business areas expand briefly into bustling retail shopping centers, then recede into small business areas again, past Ripley Boulevard. Occasional City parks begin to appear on the east side of the road as the small businesses give way to architecturally exceptional homes looking east toward the shore of Lake Huron. The beautiful Bay View Park and Alpena Boat Harbor are last seen to the east before turning northwest to intercept the M-32 intersection.

From the Airport, along M-32, there is very low density residential development, and an occasional small business, interspersed among open field and forested areas. The M-32 West entryway to the Community of Alpena (from approximately 1 mile west of Bagley Street to the intersection) is less inviting and is typical of strip commercial highway developments, designed to serve only automobiles and not pedestrians or bicyclists. With the exception of a shared restaurant driveway with landscaping on the north side of M-32, there are large unconnected parking lots in front of buildings, numerous access points, minimal landscaping amenities, an absence of street trees, and an excess of tall business signs, which add to a visual clutter. The considerable width of the roadway makes a safe crossing by pedestrians or bicyclists virtually impossible, thus encouraging more people to use vehicles to go even short distances in this area. Ironically, the use of a vehicle does not guarantee safety on this segment of roadway, for there are few physical barriers to control and channel traffic, contributing to a vehicular "free-for-all" of conflict points. The center lane is used as both an acceleration or 'merging' lane, and as a left turn lane- two diametrically opposed uses. Access management techniques, traffic calming methods, and aesthetics improvements are needed on this segment.

East of the Bagley intersection, on M-32/Washington Avenue are well-groomed cemeteries on either side of the roadway which then yield to a pleasing view of the wildfowl sanctuary and a

roadside park to the north. Small businesses and well-maintained homes begin to line both sides of the road, and these continue until M-32 intersects US-23. Continuing to the east, across the river, there is a quaint “Old Town” district consisting of stores, restaurants, and a park. Just farther to the east are the scenic open water vistas of Misery Bay and Lake Huron.

Visual Assets

Visual Detractions

Visual detractions, or “visual clutter”, may include such things as overhead utility lines and poles, excessive signage, dilapidated buildings, and typical strip development that lacks landscaping or other visual enhancements.

These areas could benefit from buried utility lines, streetscaping, a green median in the center lane, and the installation of bicycle and pedestrian facilities.

CHAPTER 3: Environmental Analysis

Without a doubt, the greatest attractions for the residents and visitors of northern Michigan are the area's natural environment and rural atmosphere in this portion of the State. Recreational activities such as hunting, fishing, golfing, snowmobiling, boating and a multitude of other outdoor activities attract people from urban areas of Michigan, as well as from other states. Many long time visitors decide to move to the area upon retirement. Because of the abundant outdoor recreational opportunities, the natural environment is a major economic base and income generator.

Climate

Summer months are usually mild with considerable sunshine. The average annual total precipitation for the county is 28.8 inches. Most of the of the summer precipitation consists of rain and thunderstorms which normally occur during the months of June, July and August. Thunderstorms will occur on an average of 24 days each year. Michigan is located on the northeast fringe of the Midwest tornado belt. The lower frequency of tornadoes occurring in Michigan may be, in part, the result of the tempering effect of Lake Michigan water temperature during the spring and early summer months, a prime period of tornado activity. During 1950-87, Michigan has averaged 15 tornadoes each year. During this same period, 4 tornadoes occurred within Alpena county. Hailstorms average less than one per summer. The average length of the summer growing season is 156 days. The average date of the fall frost is October 4th.

Winter months are generally cloudy with little sunshine and frequent snow flurries. Nearly all of the precipitation in winter is in the form of sleet and snow, usually accumulating in sufficient amount to form a ground cover for summer grasses and winter grains. The 1961 through 1990 average seasonal snowfall was 87.4 inches. The following snowfall extremes, based on the time period of this station's published record, are: greatest observation-day total, 16.3 inches, recorded January 26, 1978; greatest monthly total, 49.4 inches, recorded March 1926; greatest seasonal total, 166.3 inches, recorded during 1970-71; least seasonal total, 26.9 inches, recorded during 1936-37; and greatest snow depth, 35 inches, recorded February 18, 1936.

For most of the county, runoff from the spring thaw poses little danger of flooding. However, over the past 45 years, the Alpena area has transitioned from farm and forest to subdivisions, apartments, offices, streets and parking lots. The change from pervious to impervious surfaces has created some flooding and stormwater runoff problems. Buildings and roads have been built where stormwater once flowed and critical parts of the natural drainage system have been replaced with a haphazard manmade system. In the spring of 1998, there was a major flood event in a portion of the study area (**Figure 3.1**). The City, in cooperation with the MDOT has since made replacements of culverts to correct these problems.

Flooding affected residents, neighborhoods, and commercial businesses in the Oxbow subdivision and portions of Ralph Street, Parker Avenue, Thomas Avenue, and Arbor Lane. Sanitary sewer manholes were submerged allowing excessive infiltration into the sanitary sewer system and backing up in homes of higher elevation.

The flooding that occurred was felt to be a result of several climactic factors, including a late snowfall, a rapid snow melt due to warm temperatures, and heavy rains which combined to overwhelm the existing natural and manmade drainage system. Additionally, runoff from land areas to the north and west, that normally flows through other natural and manmade stormwater conveyance systems, entered the Fletcher Creek drainage basin and was a major contributor to the flooding.

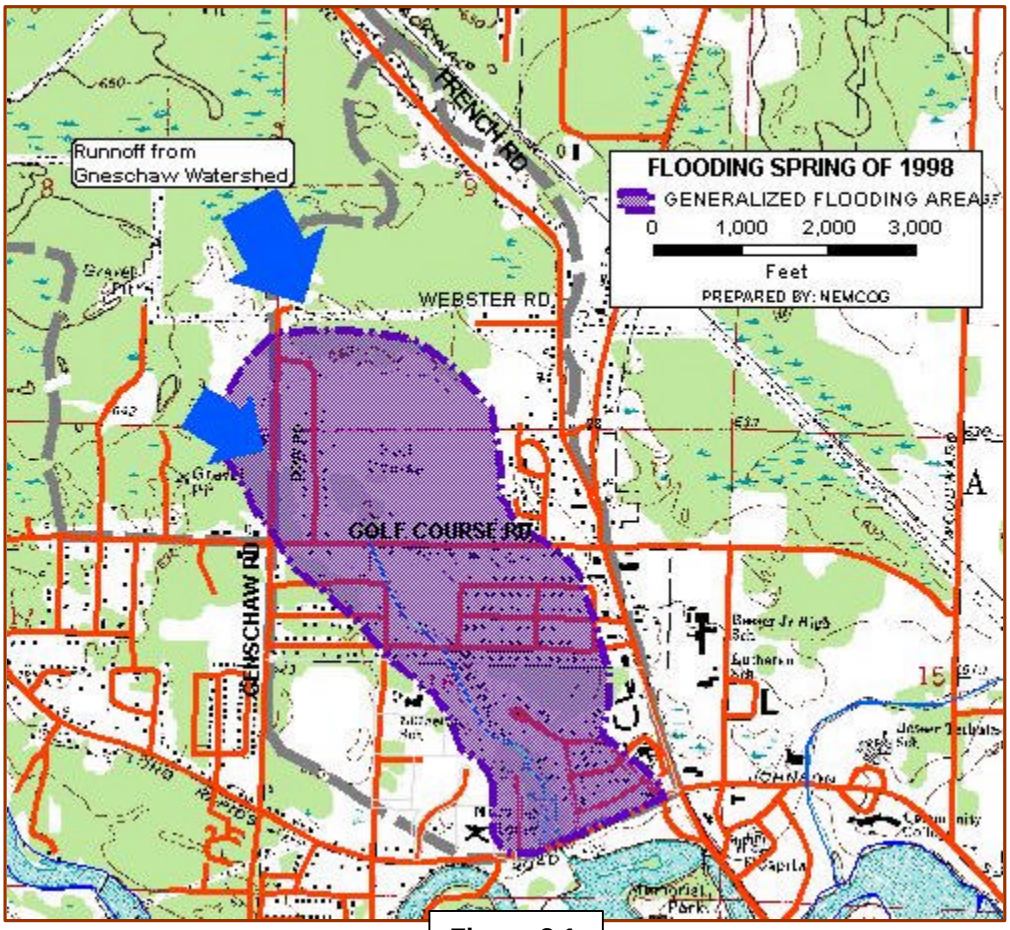


Figure 3.1

Topography

The county presents little topographic relief of any magnitude as the general elevation ranges from about 580 to 1140 feet above mean sea level (ASL), a difference of only 560 feet. The elevation ranges from about 600 feet ASL in the City of Alpena to the high area of 1140 feet ASL near the southwest corner of the county.

The county has some topographic diversity, however, with sloping and choppy areas, gently undulating areas, low swells or ridges, level plains, areas of swampy soils, and numerous streams and lakes. The broader surface features are expressions of glacial activity. The more hilly areas, for the most part are moraines. Glacial outwash deposits underlie some of the level plains, and the other parts of the level plains are sandy drift that were probably deposited under the ice sheet. This topography is well suited for a diverse agriculture, recreation and forest industry. This topography also makes for a beautiful setting in which to live.

Soils and Soil Constraints

Soil characteristics help define the land's capacity to support certain types of land uses. Soils most suitable for development purposes are well-drained soils with slopes less than 10%. Adequate drainage is important to minimize storm water impacts and maximize the efficient operation of septic drain fields. Moderate sloping areas can be developed with less environmental impact and at a much lower cost than steeply sloped areas. Constraint maps have been prepared using information from the USDA Alpena County Soil survey. As of the date of this study, the soils data was not yet certified, but was available in completed digital format. The constraint maps should only be used as a general guide, and on-site verification of soil conditions should be completed prior to any specific land use planning or development.

Slopes 18% and greater

Steep slopes have severe constraints for building homes and roads and are difficult and costly to develop (**Figure 3.2**, page 3-4). Erosion during and after construction can be difficult to manage and construction on steep slopes can have lasting environmental impacts. The mass grading required and special design standards such as erosion control, stormwater retention, re-vegetation and slope stabilization all increase construction costs.

In the study area the majority of the steep slopes are found south of M-32 between Tamarack and Indian Reserve roads in sections 25 and 36 of Wilson Township and sections 30 and 31 in Alpena Township. It is interesting to note that the majority of the soils shown in these areas are the Proper-Deford-Rousseau complex and while slopes range from 0-40%, the building constraints listed for these soils is only moderate. North of M-32 some steep slopes are located in section 24 of Wilson Township between Lake Winyah Road and the County Airport property. Active and reclaimed quarries may account for some of these slopes.

Hydric Soils

Hydric soils are saturated, flooded, or ponded during part of the growing season and are classified as poorly drained and very poorly drained soils (**Figure 3.3**, page 3-5). Hydric soils have poor potential for development. Civil engineering techniques can be employed to improve drainage and maintain adequate separation from the water table, although such techniques are expensive and difficult to maintain. Development in hydric soils can also have long term impacts on water and wildlife resources. The areas mapped include hydric soils and soils that are hydric in depressional areas.

In the study area, most of the hydric soils are found in Wilson and Maple Ridge Townships. The portions of these two Townships included in the study area are predominantly classified as hydric or hydric in depressional areas. Due to the amount of development in and around the City of Alpena, these areas are not shown as having hydric soils, although some areas of these soils can be found. In Alpena Township, hydric soils are found in the south in the Sunset Lake area and in the north in sections 2, 3, 10, and 11 near Hamilton and Wessel Roads.

Building Constraints

The USDA Soil Survey for Alpena County rates soils for various uses such as building site development and the most limiting factors are identified (**Figure 3.4**, page 3-6). The rating system is slight, moderate or severe limitations. Using the rating system developed by USDA, soils limitations for building have been mapped. Areas with well drained soils and slopes less than 10 percent tend to have slight limitations for building development .

The map shows that severe building constraints can be found in the north east corner of the study area and paralleling the south side of the Thunder Bay river from Lake Besser to Lake Winyah. Building limitations due to wetness, flooding and/or ponding are predominant in the west half of the study and are also found mixed in with the rocky soils found in the north east corner. The majority of the central portion of the study area is covered by existing development or has moderate building constraints. A small amount of lands in the study area have building constraints due to slope. Areas with unique characteristics, such as dams, and areas where access was denied for purpose of the soil survey, were labeled “Variable” and are located in a limited number of areas. Several pits and quarries can be found scattered through out the study area.

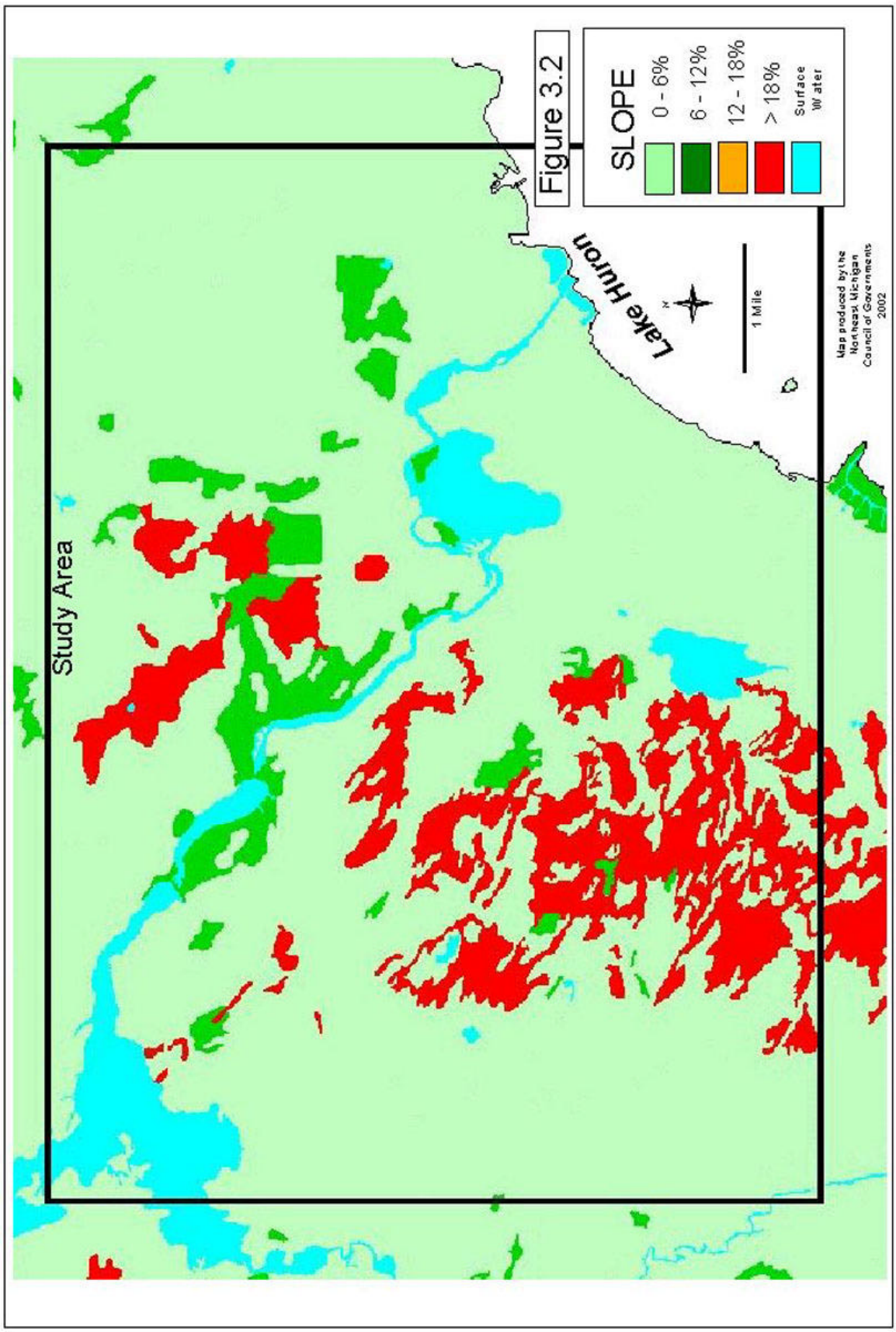


Figure 3.2
SLOPE
0 - 6%
6 - 12%
12 - 18%
> 18%
Surface Water
Lake Huron
Study Area
1 Mile
Map produced by the Northeast Michigan Council of Governments 2002

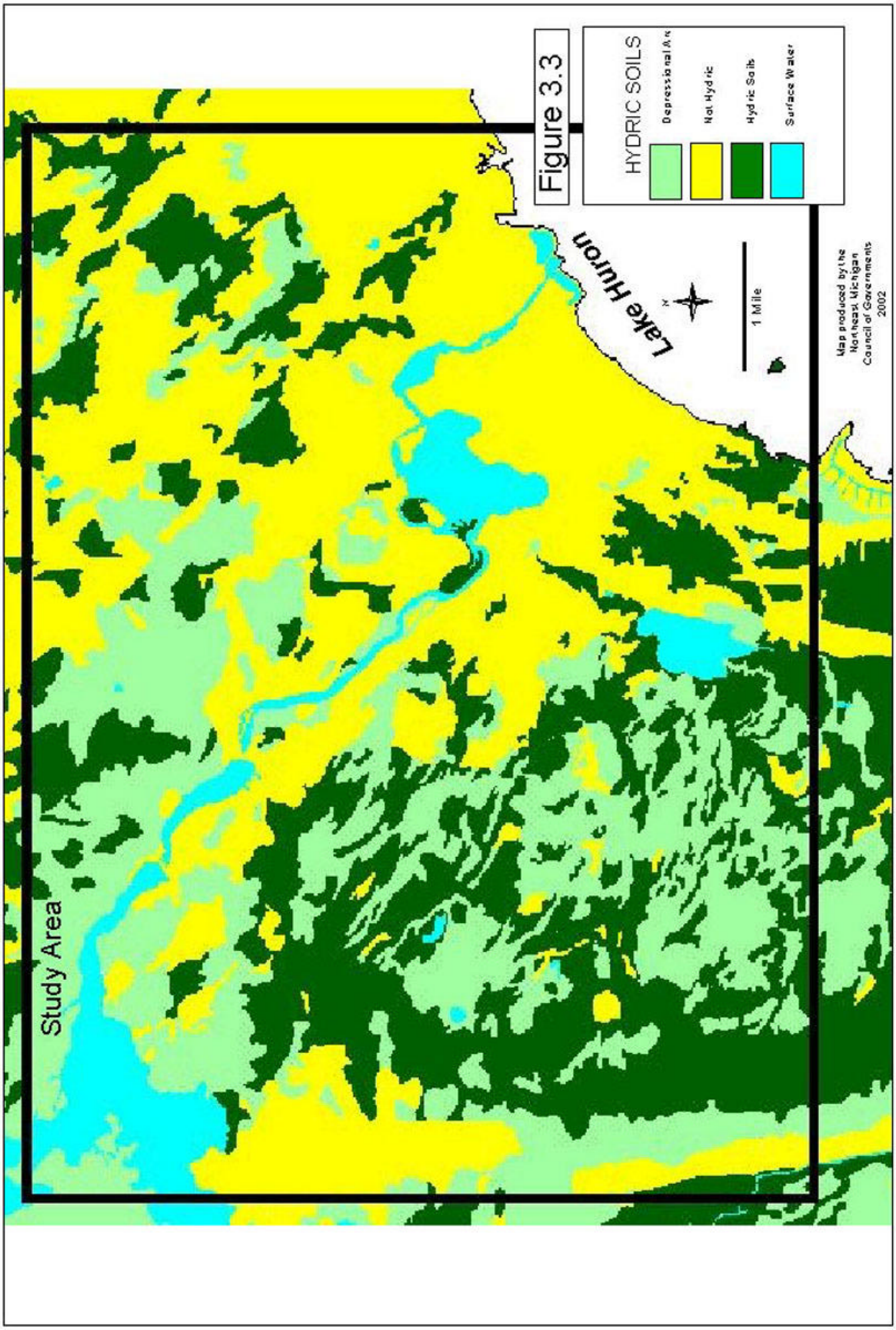


Figure 3.3
HYDRIC SOILS
Depressional Area
Not Hydric
Hydric Soils
Surface Water
Lake Huron
N
1 Mile
Map produced by the Northeast Michigan Council of Governments 2002
Study Area

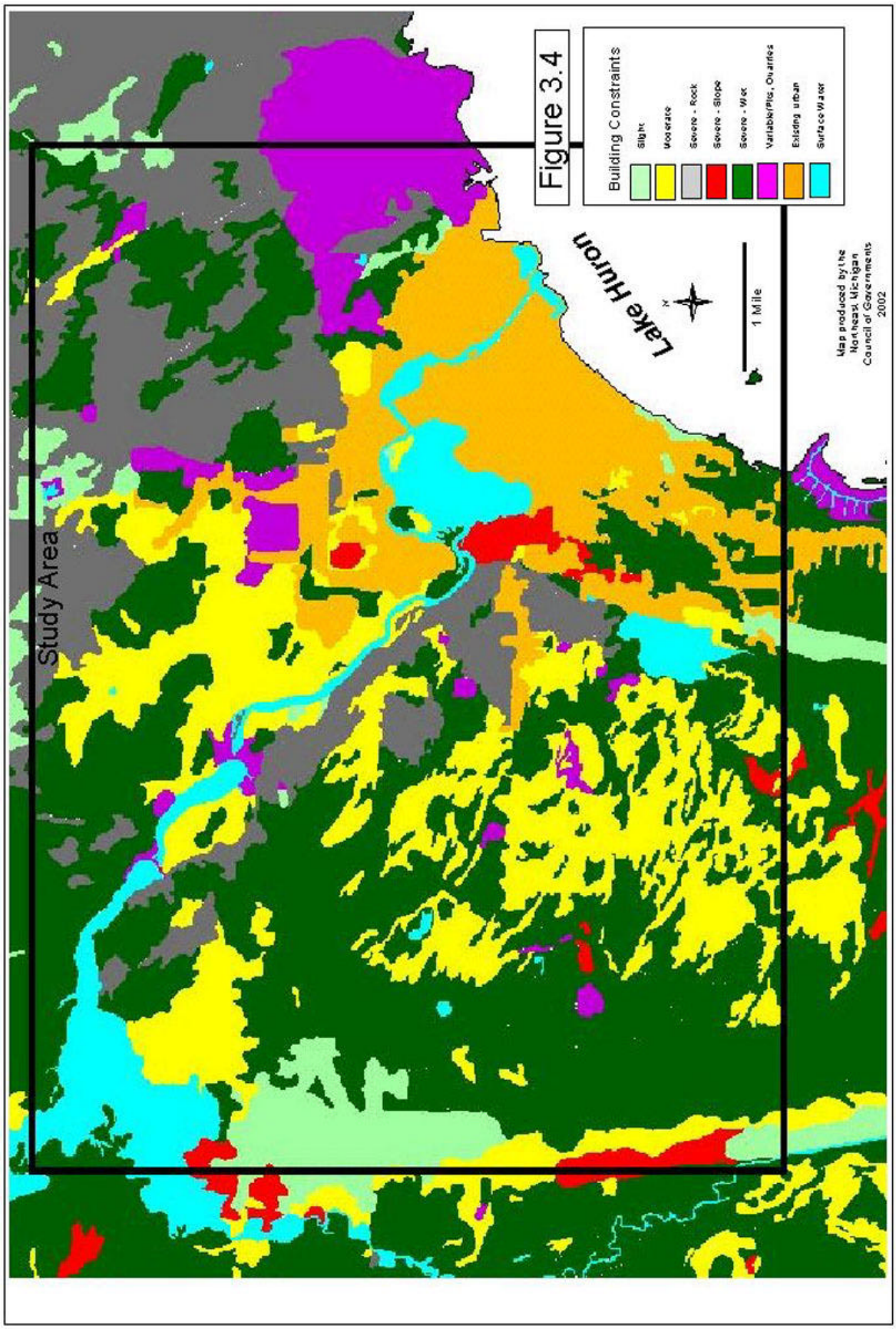


Figure 3.4
Building Constraints
Slight
Moderate
Severe - Rock
Severe - Slope
Severe - Wet
Variable/Pits, Quarries
Existing urban
Surface Water
Lake Huron
N
1 Mile
Map produced by the Northeast Michigan Council of Governments 2002
Study Area

Water Resources

Surface Water

There are 5 major surface water resources found in the study area, four of which are directly linked and diagonally bisect the study area. Lake Winyah, located in far northwest corner of the study area is connected to the Wildfowl Sanctuary and to Lake Besser by the Thunder Bay River which then empties into Thunder Bay and Lake Huron. Lake Winyah and Lake Besser are hydro-electric impoundment's created by dams. Three dams are located in the study area; Norway Point dam (also known as the 7 mile dam) located in section 12 of Maple Ridge Township, Four Mile dam located in section 7 of Alpena Township and Ninth Street dam located in the City. The other major surface water feature found in the study area is Sunset Lake which is located in the south east quadrant of the study area in sections 29 and 32 of Alpena Township.

Groundwater

Contaminated groundwater is often a dangerous problem because it can travel unnoticed until detected in a water supply well. Some contamination may remain undetected because no odor, taste, or color is evident. Once contaminated, groundwater is difficult and expensive to clean up. The contaminant disperses in the groundwater, is difficult to remove, and may persist for decades. It is always simpler, less expensive, and easier to prevent groundwater contamination than it is to clean it up.

In many areas in the county the depth to groundwater within this matrix of sand, gravel and clay is less than 50 feet below the surface. Near lakes, streams, and wetlands the depth to ground water is much shallower and commonly can be found only a few feet below the surface. Because of the abundance of shallow groundwater in the county, many drinking water wells are also shallow, just deep enough to reach the uppermost region of the aquifer. The combination of shallow wells and high water table places the ground water of Alpena County (and the study area) at special risk for contamination. For groundwater protection planning, it should be assumed that the entire county is vulnerable to contamination.

Wetlands

A wetland is land where water is found, either on the surface or near the surface, at any time during the year. Poorly drained soils and water loving vegetation also may be present. Wetlands are often referred to as marshes, swamps or bogs. Residents of Michigan are becoming increasingly aware of the value of wetlands. Beyond their aesthetic value, wetlands improve water quality of lakes and streams by filtering polluting nutrients, organic chemicals and toxic heavy metals. Wetlands are closely related to high groundwater tables and serve to discharge or recharge aquifers. By absorbing excess water when river levels are high and releasing water when levels are low, wetlands help prevent floods and droughts. Wetlands are also dynamic ecosystems which are home to a wide variety of plants and animals.

Wetlands are present throughout the study area with almost every section included in the study having some amount of wetlands (**Figure 3.5**). Large areas of wetlands are found northeast of the City of Alpena in Section 10, 11, 14 and 15 in Alpena Township. Other large wetlands are found surrounding much of Sunset Lake and on the east side of the airport in sections 13 and 14 of Maple Ridge Township and section 23 and 24 of Wilson Township.

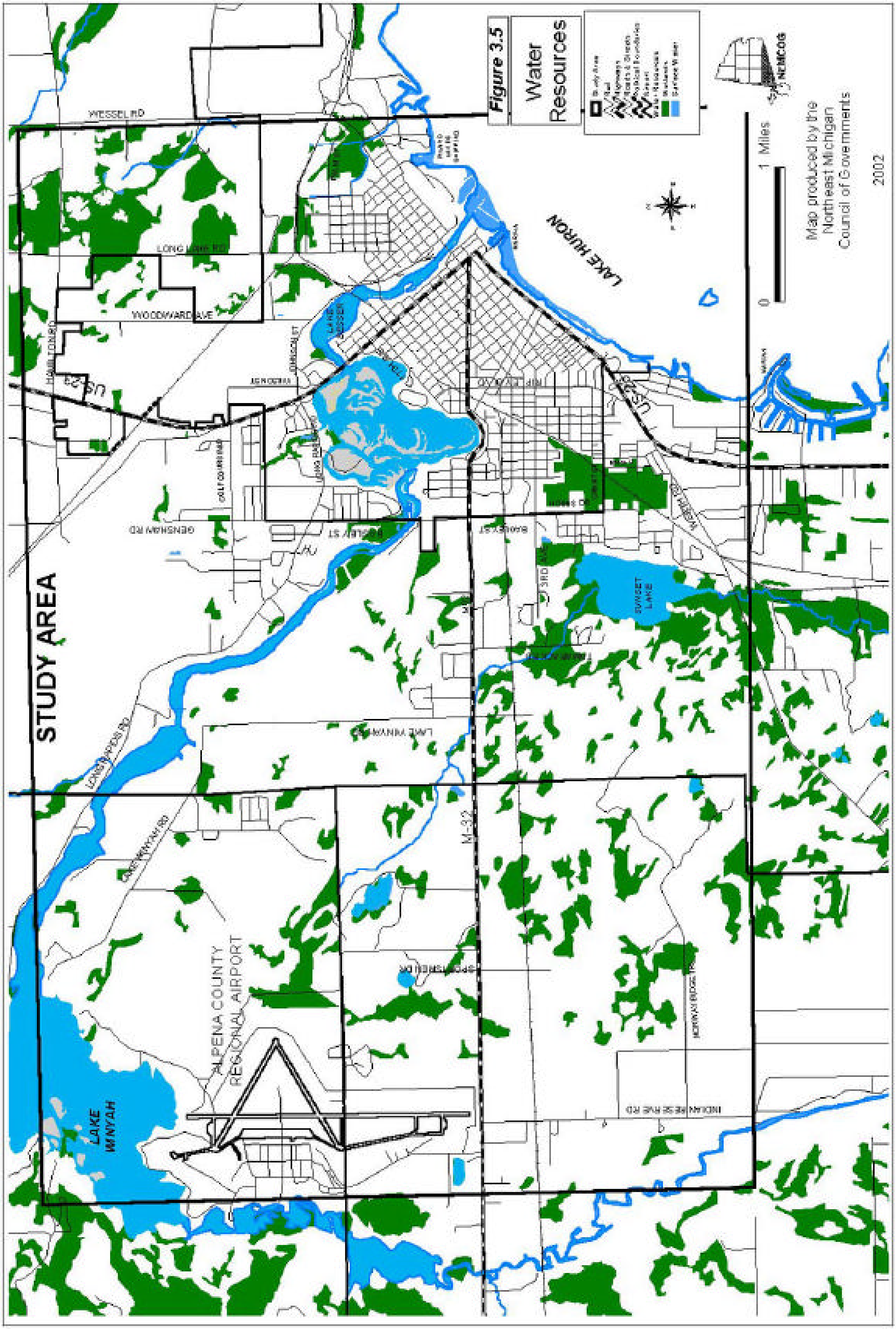


Figure 3.5
Water Resources
STUDY AREA
LAKE HURON
ALPENA COUNTY REGIONAL AIRPORT
LAKE WINYAH
SUNSET LAKE
M-32
US-23
WESSEL RD
LONG LAKE RD
WOODWARD AVE
GENSHAW RD
0
1 Miles
Map produced by the Northeast Michigan Council of Governments
2002

Fishing, Wildlife, and Hunting

Sheltered by evergreen and hardwood forest, Alpena County's wildlife includes raccoon, fox mink beaver, wildcat, deer, elk, black bear, partridge, and turkey. . Hunting for white tailed deer and small game species such as cottontail rabbit, tree squirrels, wild turkey, and ruffed grouse attracts many people to the county annually (see "Tourism Traffic" in **Chapter 5**). Other game species of importance to trappers are beaver, otter, muskrat, raccoon opossum, skunk and weasel. Alpena County also provides prime water fowl habitat which is supplemented by private ponds, beaver dams, pothole wetlands and wooded flood plain areas. Alpena County is part of the Mississippi flyway.

Fishing

Alpena County offers the sport fisherman and abundance of fishing opportunities. The many lakes, rivers and streams, as well as the near shore waters of Lake Huron, offer a wide range of warm, cool and cold water species. Historically, the Thunder Bay River provided an important link between inland habitats and Lake Huron, with the fish using the corridor for spawning and nursery habitats. Although most of the riverine habitat is now inaccessible to Lake Huron fishes, due to the presence of hydro-power projects, the watershed is still providing nutrient input to the near-shore waters of Thunder Bay and is important to the fishery resources from an energy standpoint.

Within a 20 mile radius, Alpena County offers multiple opportunities for sport fishing on rivers, lakes and Great Lakes. In addition to world class catches of brown trout, pan fish, crappies and salmon, other fish include rainbow trout, lake trout, brook trout largemouth bass, small mouth bass, perch, walleye and pike.

Lake Huron offers many fishing opportunities. Brown trout, lake trout, rainbow trout and salmon are all plentiful. Fishing on Thunder Bay can be accessed from the North Point to Scarecrow Island as well as from Rock Port and Squaw Bay. Although fishing from shore is possible at both Squaw Bay and Small Boat Harbor, charter boat services are available. Since 1990, according to the Michigan Department of Natural Resources (MDNR) fish stocking report, Lake Huron has been stocked with over 1.2 million brown trout and 2.8 million lake trout.

One of the most scenic and rustic waterways in the area is the 8,970 acres of Fletcher Pond. Located on the extreme western border of Alpena County, this impoundment was created by damming of the Thunder Bay River. It is Michigan's 12th largest inland body of water, but the maximum depth is only 10 feet. Although the shallow, stump-laden waters hamper power boats, Fletcher Pond offers some of the best largemouth and small mouth bass fishing in the State. Pike, crappies, perch and other pan fish are also abundant in these water. Year long fishing activity includes ice fishing which generally begins in late December.

Long Lake is located on the northern border of Alpena County. Covering 5,652 acres, its maximum depth is 25 feet. Long term fish stocking programs make walleye abundant in these waters. Largemouth and small mouth bass, pike and pan fish are also caught

Beaver lake covers 665 acres and is located in the southwest part of the county. This lake contains largemouth and small mouth bass, perch, pike, and other pan fish. Since 1990 the MDNR has stocked the lake with 56,000 pike, 104,000 walleye and 2,000 tiger musky.

The waterway that appears to have the least fishing activity is the Thunder Bay River. This picturesque river winds its way along the country side, through the City of Alpena, and into Lake Huron. Most of Michigan's game and pan fish are found along this river that covers over 100 miles of Alpena County. There are several impoundments along the river's path, varying is size from Fletcher Pond to smaller Lake Winyah. Formed when the Seven Mile dam was constructed, Lake Winyah is a favorite area for those seeking the challenge of landing northern pike. Since 1990, The MDNR has stocked the Thunder Bay River with over 600,000 walleye, 225,000 steelhead.

Hunting

Hunting opportunities are available in Alpena County for most species of animals and game birds common to Michigan. White tail deer are abundant for the big game hunter and black bear populations, though low overall, are high in areas of dense forest. Along with privately owned forest lands, more than 43,000 acres of State land provide ample habitat for wild turkey, partridge, woodcock and other upland birds. Small game such as the cottontail rabbit, snowshoe hare and squirrel are also abundant in these woodlands. State owned lands are open to the public for hunting unless posted.

Unfortunately, the large deer population combined with indiscriminate feeding practices were contributing factors to the spread of Bovine Tuberculosis (TB) in Alpena County and across northern Michigan. TB is a serious disease caused by bacteria attacking the respiratory system. There are three main types of TB - human, avian, and bovine. Human TB is rarely transmitted to non-humans, and avian TB is typically restricted to birds. Bovine TB - also known as 'cattle TB' is the most infectious of the three, and is capable of infecting most mammals.

Although the State of Michigan attained Bovine TB accredited-free state status in 1979, it is now thought that during earlier periods of high TB reactor rates in Michigan cattle there was spillover of Bovine TB from infected cows into Michigan's white-tailed deer population. In 1994, a TB infected deer was killed by a hunter in Alpena County. Since then over 87,000 deer have been tested with 397 testing positive or being suspected of having the disease[1]. In 2001 Alpena County had 21 deer test positive for TB. Although primarily found in bovine's, and not considered a health risk to humans, humans can and have contracted Bovine TB. Several other species of animals in Alpena County and Northern Michigan have been found with the disease. TB has been found in coyotes, raccoons, black bear, bobcat, red fox and opossum. In 2001 Alpena County had 1 coyote and 1 black bear test positive[1].

The effort to eradicate the disease has led to an aggressive TB testing campaign and the creation of a 42 county surveillance area and Deer Management Unit (DMU) 452. Hunters in the surveillance area are asked to submit deer heads for testing, in DMU 452 testing is mandatory. The entire southwest quarter of Alpena County is included in DMU 452 and the rest of Alpena County is in the surveillance area. There also have been changes in deer feeding rules, increases in quotas and hunting days, and the banning of new deer or elk farms. As the eradication effort continues, more changes in hunting and feeding rules can be expected.

[1] Source: State of Michigan Bovine Tuberculosis Eradication Project Report February 5, 2002

Table 3.1 Alpena County Inventory of Game Species		
Species	Relative abundance	Management Potential
Deer	High	Good. Timber cuttings on private land could increase deer carrying capacity
Bear	Low overall High in places	Limited. Population holding at low level. High in less populated forest land held for hunting recreation. Gradual reduction is expected.
Bobcat	Medium overall	Good. Long range maintenance of swamplands is vital.
Raccoon	Moderate	Good. Moderate hunting and trapping pressure maintains population at a desired level
Squirrel	Moderate	Good. Population fluctuates with winters and crops.
Snowshoe Hare	Up and Down	Good. Fluctuate on 10 to 15 year cycle. Continued survival depends on large areas of swamp land
Ruffed Grouse	Moderate	Good. Population numbers are Increasing. Habitat improves with clear cutting coniferous cover
Waterfowl	Low to Medium	Canada Geese number increasing. Wood Duck numbers have Increased with local nest box placement. No change in mallard numbers.
Wild Turkey	Moderate	Good. Population is expanding numbers continue to increase
Fox, Beaver, Badger, Muskrat	Low to Moderate	Low level. Populations fluctuate.
Source: Tom Carlson, DNR Wildlife habitat biologist, Atlanta MI. 1989		

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Threatened and Endangered Species

Alpena County is also home to a number of different plants and animals that are threatened endangered or are of special concern. The following list presents the Endangered (E) or Threatened (T) plant and animal species of Alpena County which are protected under the Endangered Species Act of the State of Michigan (Public Act 203 of 1974 as amended). This list also includes plant and animal species of Special Concern (SC). While not afforded legal protection under the act, many of these species are of concern because of declining or relict populations in the state. Protection of Special Concern species before they reach dangerously low population levels, would prevent the need to list them in the future by maintaining adequate numbers of self-sustaining populations.

TABLE 3.2 Alpena County Threatened and Endangered Species

Scientific Name	Common Name	Type	Federal Status	State Status
Acipenser fulvescenske	sturgeon	Fish		T
Adlumia fungosa	Climbing fumitory	Vascular Plant		SC
Armoracia lacustris	Lake cress	Vascular Plant		T
Asplenium rhizophyllum	Walking fern	Vascular Plant		T
Botrychium hesperium	Western moonwort	Vascular Plant		T
Buteo lineatus	Red-shouldered hawk	Bird		T
Cacalia plantaginea	Prairie indian-plantain	Vascular Plant		SC
Calypso bulbosa	Calypso or fairy-slipper	Vascular Plant		T
Carex concinna	Beauty sedge	Vascular Plant		SC
Carex scirpoidea	Bulrush sedge	Vascular Plant		T
Chlidonias niger	Black tern	Bird		SC
Cirsium pitcheri	Pitcher's thistle	Vascular Plant	LT	T
Clemmys insculpta	Wood turtle	Reptile		SC
Crataegus douglasii	Douglas's hawthorn	Vascular Plant		SC
Cryptogramma stelleri	Slender cliff-brake	Vascular Plant		SC
Cypripedium arietinum	Ram's head lady's-slipper	Vascular Plant		SC
Dryopteris filix-mas	Male fern	Vascular Plant		SC
Emydoidea blandingii	Blanding's turtle	Reptile		SC
Gavia immer	Common loon	Bird		T
Haliaeetus leucocephalus	Bald eagle	Bird	PS,LT,PDL	T
Iris lacustris	Dwarf lake iris	Vascular Plant	LT	T
Lanius ludovicianus migrans	Migrant loggerhead shrike	Bird		E
Notropis anogenus	Pugnose shiner	Fish		SC
Nycticorax nycticorax	Black-crowned night-heron	Bird		SC
Pandion haliaetus	Osprey	Bird		T
Percina copelandi	Channel darter	Fish		E
Pinguicula vulgaris	Butterwort	Vascular Plant		SC
Pterospora andromedea	Pine-drops	Vascular Plant		T
Salix pellita	Satiny willow	Vascular Plant		SC
Sis trurus catenatus catenatus	Eastern massasauga	Reptile	C	SC
Somatochlora hineana	Hine's emerald	Invertebrate	LE	E
Sterna caspia	Caspian tern	Bird		T
Sterna hirundo	Common tern	Bird		T
Tanacetum huronense	Lake huron tansy	Vascular Plant		T
Trichostema brachiatum	False pennyroyal	Vascular Plant		T
Trimerotropis huroniana	Lake huron locust	Invertebrate		T

Source: Michigan County Element Lists-March 2001, Michigan Natural Feature Inventory
*State Status: E = endangered; T = threatened; SC = special concern
**Federal Status: C = being considered for federal status; LE = listed endangered; LT = listed threatened; PS = partial status; PDL = proposed delist

Sites of Environmental Contamination

The Michigan Environmental Response Act 307 of 1982, as amended , provides for the identification, evaluation and risk assessment of sites of environmental contamination in the State. The Environmental Response Division (ERD) is charged with administering this law. A site of environmental contamination, as identified by ERD, is “a location at which contamination of soil, ground water, surface water, air or other environmental resource is confirmed, or where there is potential for contamination of resources due to site conditions, site use or management practices.

The agency publishes a list of environmentally contaminated sites by county showing the sites by name pollutant(s) and site status. A Site Assessment Model (SAM) score is computed to assess the relative risk a site may pose and to help determine the aggressiveness of clean up efforts. SAM scores range from 0 to 48 with 0 being the least contaminated and 48 the most contaminated. In some instances where the score is high and further contamination is possible, immediate response may be required. Conversely, a location where the score is low and the conditions of the site are not likely to change, no action may be the preferred course.

In the study area there are currently 14 contamination sites which are listed in **Table 3.3**. The status of 6 of the sites are listed as active which means that some level of clean up activity is ongoing and no action is being taken on the remainder.

Table 3.3 Alpena Area-Wide Transportation Plan Contamination Sites

#	Site ID & Status	Location	Source	Pollutant	Score
1	04000003 Active	M-32 3.3MI W of Bagley St	Refuse Systems	Lead , Benzene , Zinc	34
2	04000005 No Action	US 23N Former Kurvan Bait Shop	Sporting goods store	Benzene , Xylene , Toluene	20
3	04000009 Active	Phelps Collins A N G Base	National security	TCE Carbon Tet. BTEX , 1,2 Dichlorobenzene , 1,3 Dichlorobenzene	43
4	04000015 Active	N Long Lake Homant Oil Company	Petro Bulk Storage	BTEX	27
5	04000024 No Action Taken	132 Tuttle	Private Residence	Fuel Oil	27
6	04000026 No Action Taken	2919 Garden St Alpena Manufacturing	Metal Working Machinery	Solvents , Cutting Oils	17
7	04000030 No Action Taken	620 West Campbell Alpena Oil	Petroleum Bulk Stations	benzene , toluene , xylenes	28
8	04000039 Active	416 Ford Avenue Abitibi-Price Corp	Misc Manufacturing Industries	BTEX Metals	44
9	04000066 Active	235 Water Street Alpena Oil Company	Petroleum Bulk Stations	Petroleum Products	23
10	04000074 No Action Taken	1055 Lynn Drive	Private Households	Arsenic Copper , Calcium	34
11	04000075 No Action Taken	2341 Third Avenue	Private Households	Metals	32
12	04000077 No Action Taken	Third Avenue Soil Piles	Nonclassifiable Establishments	Metals	29
13	04000081 Active	5 Wood Street Tandem Transport	Truck Terminal Facilities	Diesel Fuel , Metals	40
14	04000125 No Action Taken	1000 Highland Court	8811	Fluorine , Fluoranthene	25

Source: Department of Environmental Quality

CHAPTER 4: Status Of Planning And Zoning

Introduction

Zoning is the primary tool that local communities have to manage growth and development. Through local zoning, communities are able to preserve and enhance the character, property values and economic viability of the area. In addition, zoning regulations are key to protecting both recent and proposed investments in the highway and utility infrastructure by maintaining traffic capacity, the steady flow of traffic, and enhanced safety, through access management.

The purpose of this chapter is to present the status of planning and zoning in the transportation study area. Furthermore, the presence of key zoning regulations that deal with site plan review, access management, screening & landscaping, signage, and lighting in each community will be documented. It is not the intention to compare the strengths and weaknesses of zoning regulations among the various zoning ordinances, but rather to give a comprehensive perspective on planning and zoning.

Community Planning

Table 4.1 presents the status of planning and zoning activities in the study area. Alpena Township, Wilson Township, Maple Ridge Township and the City of Alpena each have master plans and exercise zoning authority. In January of 2000, the County of Alpena re-established a County Planning Commission after being dissolved in 1985. A primary goal of the new Planning Commission is to prepare a new master plan to replace the existing General Development Plan which was adopted in 1968.

Table 4.1
Status of Planning and Zoning – Alpena Study Area

Political Unit	Future Land Use Plan Date Adopted	Zoning Ordinance Date Adopted	Other Related Planning Documents or General Law Ordinances
City of Alpena	November 10, 1998	July 21, 1986 Amended Oct. 1997	North Sub-Area Plan, Capital improvement Plan, Recreation Plan
Alpena Township	March 11, 1993	August 15, 1983 Amended Feb 1995	Recreation Plan
Wilson Township	1980	May 21, 1974	Recreation Plan
County of Alpena	1968	No Zoning Authority	County Recreation Plan

Future Land Use Plans

These community future land use plans present a desired future land use for the study area. The future land use is a vision of how the community wants to develop over the planning horizon, usually 20 years. Future land use plans typically consist of a map which displays future land use areas and accompanying text describing compatible uses in each land use area. An analysis of proposed types and intensities of future land uses within the corridor areas will provide a perspective into the potential changes, both in development and traffic conditions.

City of Alpena

The City of Alpena Comprehensive plan, adopted November 10, 1998 describes13 future land use categories. **Table 4.2** is a listing and description of these categories.

Table 4.2
City of Alpena Future Land Use Categories

Categories	Descriptions
Low Density Residential	Intended for uses with less than 4 units per acre with predominantly low density single family detached dwellings along with other complimentary uses and facilities such as parks and schools.
Medium Density Residential	This area is designed to provide a transitional residential area between single family residential and more intense land uses. A mixture of housing types including single family, duplex, attached two family and cluster units would be allowed with a density of four to six units per acre.
High Density Residential	This category is intended for dwelling units with densities above six units per acre and would allow apartments, condominiums and townhouses. It is anticipated that uses in this category would generate significant traffic and should be located near a major thoroughfare.
Planned Development/ Residential	This designation encourages the use of property as a residential Planned Unit Development (PUD). The PUD would allow a mix of densities with emphasis on creative and innovative housing design.
Office/Service	Intended uses in this classification include offices, museums, hospitals, public facilities, colleges and schools
Central Business District	This area is designed to provide for commercial development that is pedestrian oriented and offers a mix of uses within a central core. Automobile uses which tend to detract from retail frontage and hinder pedestrian circulation are discouraged.
Local Business	This designation is designed to provide opportunities for local services and convenience shopping for the day to day needs of the surrounding neighborhood.
General Business	This district includes the widest range and most intensive variety of retail and service businesses. Uses in this designation would be auto dependent and may attract customers on a regional scale. The intended uses typically desire maximum exposure and would be and associated with roadways with high traffic volumes.
Light Industrial	The light industrial district is designed to accommodate the industrial operations whose external and physical effects are restricted to the immediate area. Uses in this designation would be serviced primarily by small trucks only and not located on major thoroughfares.
Heavy Industrial	This category would require service by major trucks and would be located near major thoroughfares and/or rail lines Uses would involve large tracts of contiguous land and the use of heavy machinery and the storage and procession of chemicals and raw materials would be allowed. Uses may generate industrial waste, noise, odor and traffic problems and should be adequately screened from adjacent residential uses.
Planned Development/ Residential-Commercial-Industrial	This designation could include areas proposed under a unified development scheme incorporating a single land use or mixture of industrial, commercial and residential uses.
Public and Quasi Public	This category would include government service buildings, libraries and public and private schools
Park/Public Open Space	This classification includes the existing parks identified in the City's Park and Recreation Master Plan and also uses such as the City Maria, County Fairgrounds, and environment preserves.

Source: City of Alpena Master Plan

As can be seen on the Composite Future Land Use Map that includes the City of Alpena (**Figure 4.1**), most of the northern third of the city is planned to have either light or heavy industrial use. While there are some large existing industrial land uses located in this area, a large quantity of this area is vacant land (**Figure 4.2**). As a result, the northeast portion of the city has the potential for considerable industrial growth. If built out as planned, this area will generate much higher volumes of commuter traffic coming to and from places of employment and increased volumes of truck traffic.

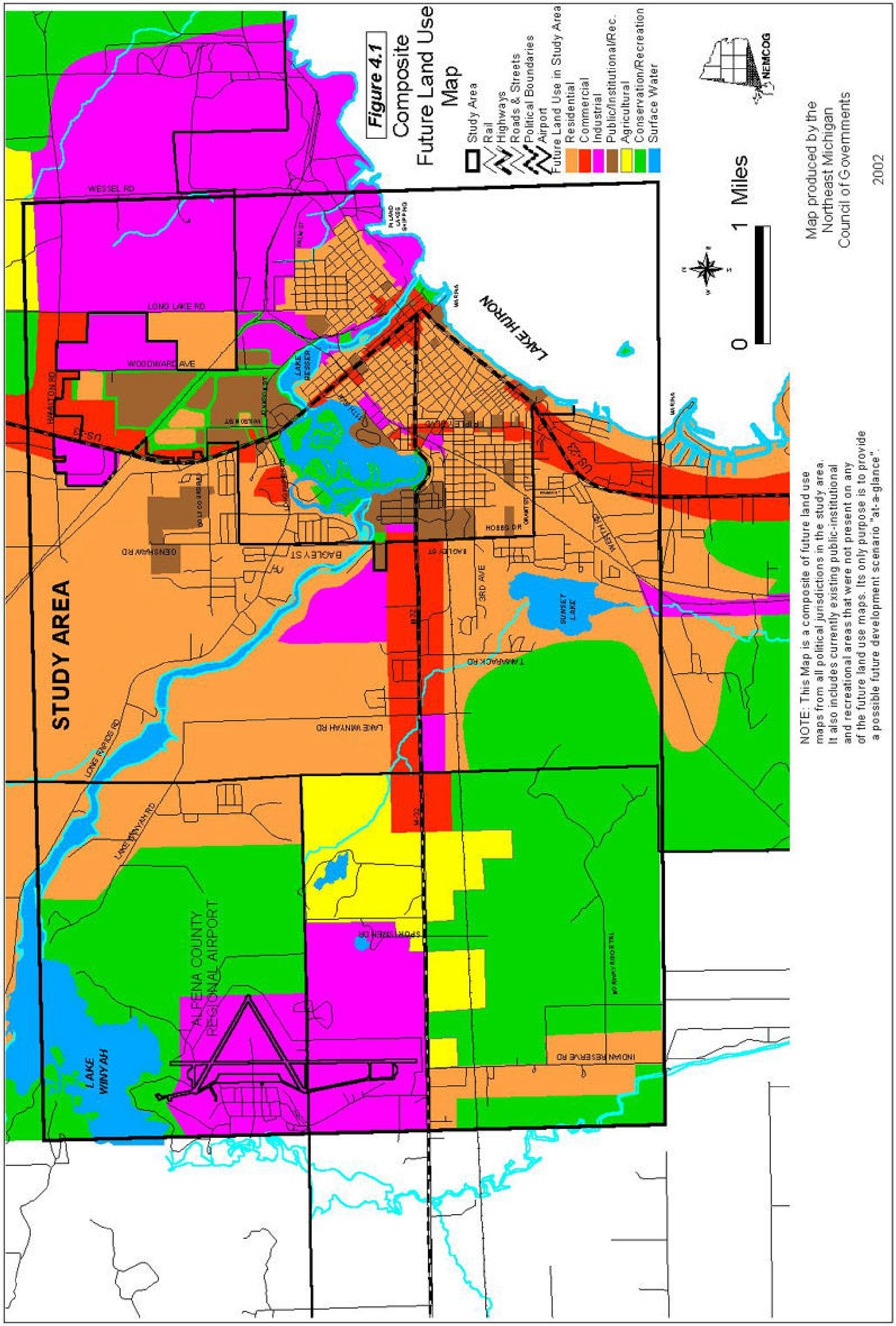


Figure 4.1
Composite
Future Land Use
Map
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Airport
Future Land Use in Study Area
Residential
Commercial
Industrial
Public/Institutional/Rec.
Agricultural
Conservation/Recreation
Surface Water
NEMCOG
0
1
Miles
Map produced by the
Northeast Michigan
Council of Governments
2002
NOTE: This Map is a composite of future land use
maps from all political jurisdictions in the study area.
It also includes currently existing public-institutional
and recreational areas that were not present on any
of the future land use maps. Its only purpose is to provide
a possible future development scenario "at-a-glance".
STUDY AREA
LAKE HURON
ALPENA COUNTY
REGIONAL AIRPORT
LAKE
WINYAH
SUNSET
LAKE
LAKE
BESSER

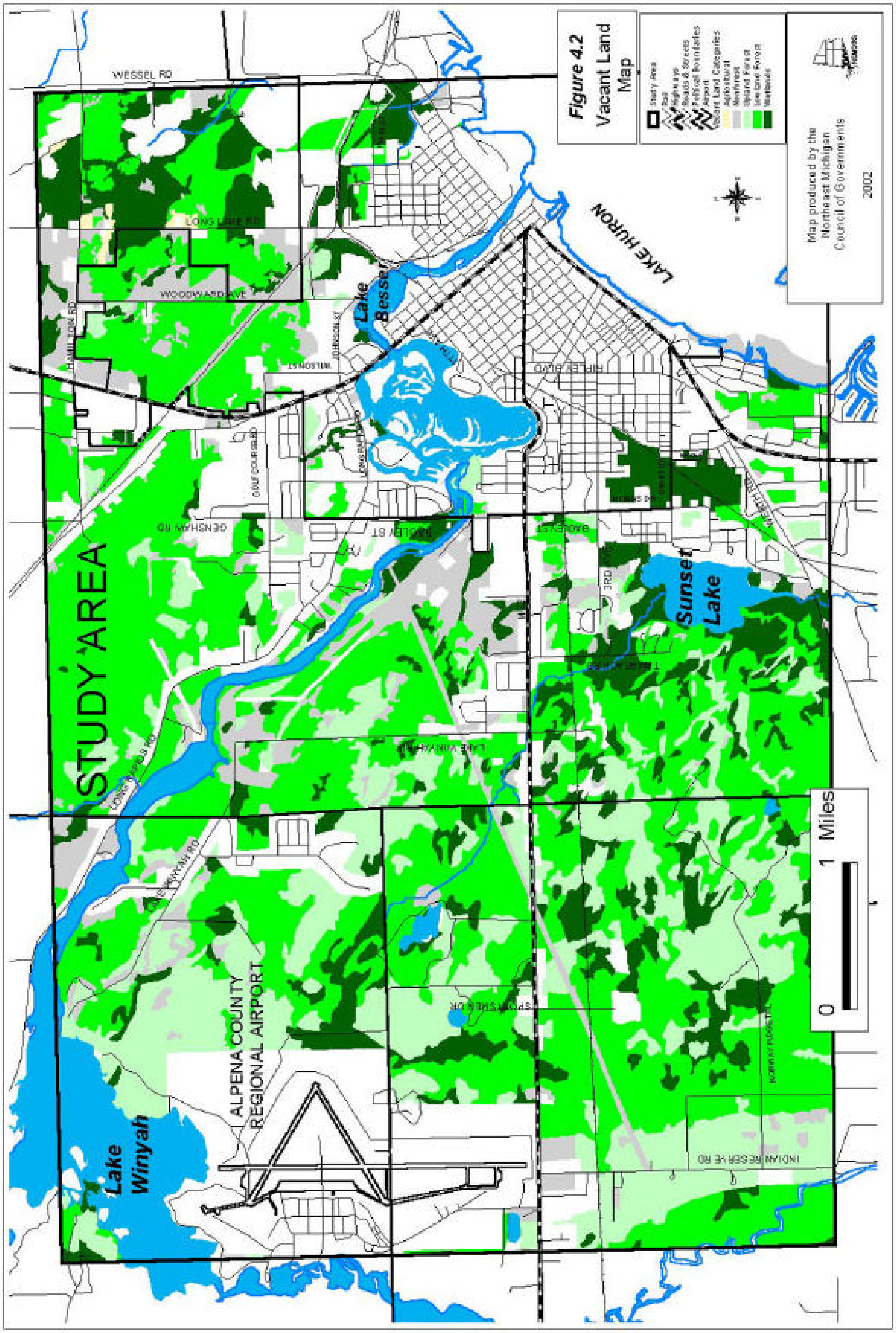


Figure 4.2
Vacant Land
Map
Map produced by the
Northeast Michigan
Council of Governments
2002
WESSEL RD
LONG LAKE RD
WOODWARD AVE
LAKE HURON
Lake
Besser
STUDY AREA
Sunset
Lake
ALPENA COUNTY
REGIONAL AIRPORT
Lake
Winyah
0
1
Miles

Excluding the northern industrial area of the City, almost all the remaining area of the City is developed. Residential and Institutional uses cover the largest land areas, and commercial uses are mainly found downtown and along Chisholm Street and Ripley Boulevard**.** While there is very little open land for new development, plans include the possibility of redevelopment of some institutional and residential areas for future commercial uses. As can be seen by comparing the Existing Land Use and the Composite Future Land Use maps, considerable expansion of the downtown commercial area is anticipated. Increased downtown traffic can be expected as redevelopment to commercial uses occurs.

Township of Alpena

The Township of Alpena adopted its master plan in 1979 and the plan was last updated in 1992. The plan identifies 8 future land use categories. **Table 4.3** is a summary of these categories.

Table 4.3
Township of Alpena Future Land Use Categories

Categories	Descriptions
Conservation	This category includes lands that were identified as having unique or fragile environmental characteristics and are intended to be protected from potential development.
Forest/Recreation	This designation is used for lands which have either wetland conditions or rock formations at or near the ground surface. This designation is intended to preserve the open and natural characteristics of the area and provide extensive hunting and recreational lands as well as provide areas for timber supply. It is anticipated that this area could accommodate dispersed residential development on large parcels given the proper conditions exist for private wells and septic systems.
Agricultural	The agricultural designation is based on the soil capability of the area and is intended to preserve good farm soils for productive agricultural activities.
Waterfront Residential	Much of the existing residential development has occurred on the shorelines and waterways and this designation is intended to identify areas that need special residential development standards necessary to protect the water resources from the specific and typical development problems found in water front areas.
Low Density Residential	The Low Density Residential category identify areas of second tier development around existing residential development and as in-fill development between the M-32 and Long Rapids Road corridors.
Medium Density Residential	The medium-density residential designation is intended to incorporate all existing subdivided areas in the central portions of the Township.
Commercial	The primary areas designated for commercial development are the U.S. 23 South corridor, the U.S. 23 North corridor to Bradbury Road and the M-32 corridor.
Industrial	Two primary areas are designated for industrial use. More intensive industrial uses are intended to be located east of U.S. 23 North, along Hamilton and Wessel Road. Lighter industrial uses and transportation related uses are intended to be located on the west side between M-32 and the thunder bay river. Two other areas designated for industrial uses are south of M-32 near the Township western boundary and a mile long corridor along the rail lines and Piper Road, northeast of Devil's Lake.
Source: Township of Alpena Master Plan, March 31, 1993	

The Composite Future land use map (**Figure 4.1**) shows that the majority of growth in the Township is to take place on the periphery of the City with strips of commercial development along the US-23 and M-32 corridors. There will be concentrations of residential development which would be served by Golf Course Road, French Road, Bagley Street, Grant Avenue, Genschaw Road, Hobbs Drive, and Werth Road. Unlike the City, development in the Township is not limited by available land. Growth is limited by the water and sewer (municipal) services boundary. The future land use map delineates the area of future growth and shows how far these services will need to be extended. The map shows that these services are not currently provided north of Villeneuve, Guyotte and Bradbury roads to the north.

The boundaries now extend west to include the airport, and also include Partridge Point to the south. An arrangement has been proposed to extend the municipal services boundaries to include all of Alpena Township. Outside the existing municipal services boundary, Agricultural, Forest Recreation and Conservation uses cover the majority of land in the remainder of the Township. Residential uses are planned for the US-23 North corridor from the northern services boundary into the Township with a node of commercial use located at the intersection of Long Lake Road and US-23. Waterfront Residential is planned for the Long Lake shore line and the Lake Huron Shoreline along US-23 South.

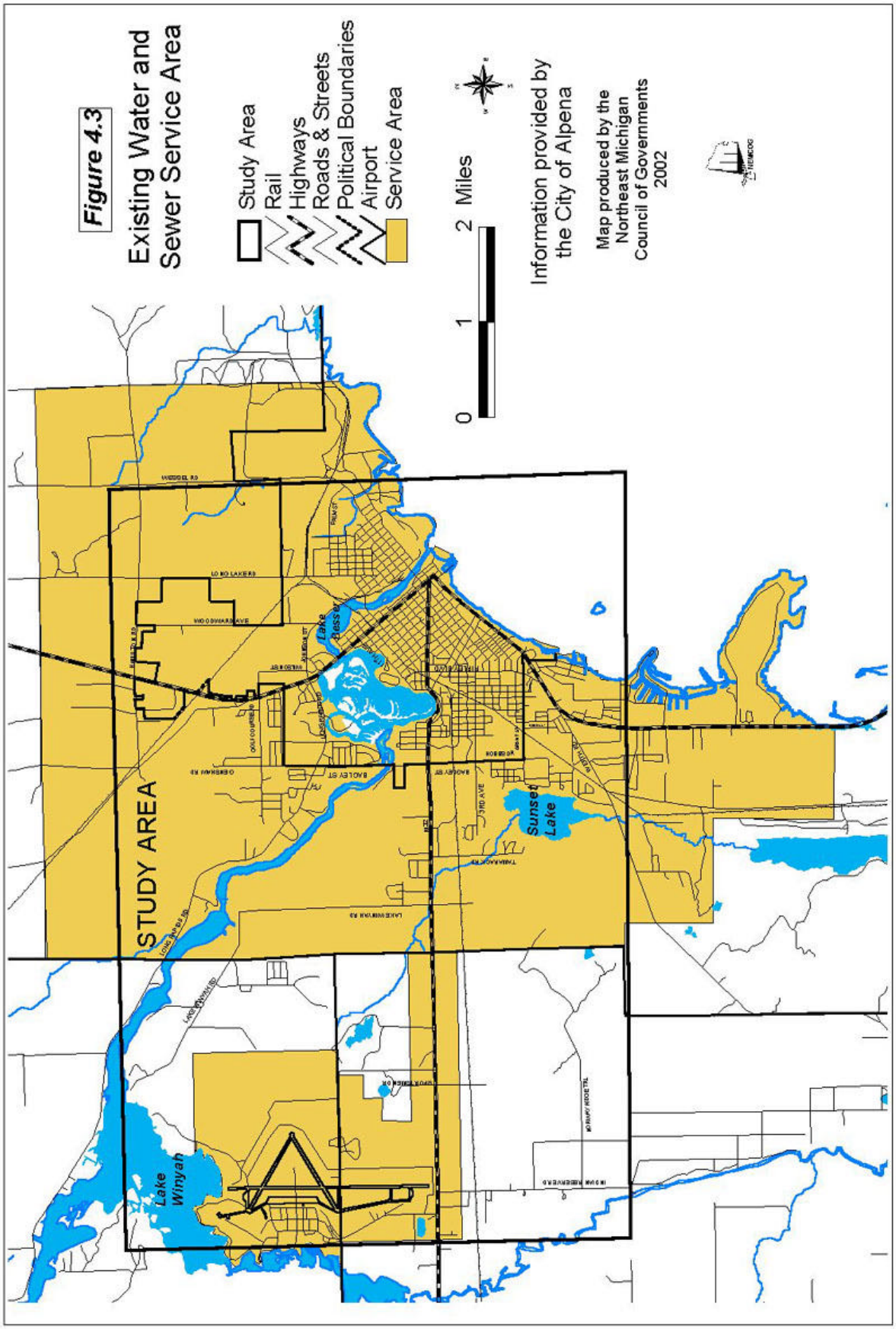


Figure 4.3
Existing Water and Sewer Service Area
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Airport
Service Area
0
1
2 Miles
Information provided by the City of Alpena
Map produced by the Northeast Michigan Council of Governments 2002
STUDY AREA
Lake Besser
Sunset Lake
Lake Winyah

Wilson Township

Wilson Township adopted its master plan in 1980. The plan identifies four future land use categories which are listed in table 4.4.

Table 4.4
Wilson Township Future Land Use Categories

Categories	Descriptions
Residential	This category includes lands in areas where existing residential land uses are in place and future residential activity should be encouraged along the same lines set in the past. Lower densities are encouraged in agricultural areas to insure stability of the farming economic base. Concentrated development should only occur on lands that can adequately handle on site disposal systems. As growth continues care should be taken in areas with less suitable soils.
Commercial	Future commercial activities are encouraged to locate in area where existing activities have already established trends. Sites should be located to serve as convenience shopping areas for limited residential neighborhoods. Areas are on major through fares with good ties to good collector roads that serve the area.
Industrial	The future industrial areas include areas adjacent to the Phelps Collins Airport and the Quarry. Light industrial uses are encouraged to located near the airport to take advantage of air freight service available. The quarry is recognized as an important part of the Township economy and is encouraged to continue.
Recreational	Existing recreational uses include active recreation at

Source: Wilson Township Master Plan, 1980

Transportation Related Zoning (Site Plan Review, Access Management, Screening, Signage, and Lighting)

Zoning ordinances of the communities were reviewed in regard to the process used for approving land uses, landscaping and screening regulations, signage regulations, and access management controls, all of which affect different aspects of transportation. The quality and total extent of development in the communities can have visual impacts, effects on comfort, and even safety impacts on motorists and others. Light glare from parking areas and other facilities close to the roadway can be a visual distraction for motorists. Certain types of lighting fixtures or screening can help to minimize these effects. Large signs by the roadway can interfere with otherwise scenic views or be distracting to motorists. Sign regulations can limit size, spacing, and types of signs. Multiple driveway developments and physical barriers between commercial parking lots can create more conflicts between traffic, affecting safety. Sound access management techniques can help to alleviate these problems. In short, zoning ordinances can address these issues, and help to guide a community's development in a way that is consistent with its goals and objectives.

City of Alpena

Site Plan Review

The City of Alpena Zoning Ordinance requires Site Plan Review for practically all developments with the exception of one and two family dwellings. All site plans for principal permitted uses are initially submitted to the Building Official who has the authority to review the application and

make a determination. The Building Official also has the option of referring the site plan to the Planning Commission for their review and decision. Within 30 days of submission of the application, the Building Official must either make a determination on the site plan or refer the application to the Planning Commission. The ordinance requires that the planning commission be made aware of all decisions made by the Building Official.

Decisions made on applications for uses subject to special conditions are made by the Planning Commission. Determinations on applications for planned unit developments are made by the City Council after review by the Planning Commission. Public hearings are required for all uses subject to special conditions and planned unit developments.

If a site plan is to be reviewed by the Planning Commission, the ordinance requires that the Building Official and Planning Department prepare a recommendation on the application for the Planning Commission. Prior to the final determination on any site plan, the Building Official or the Planning Commission must seek recommendations from the Police Chief, Fire Chief, City Engineer and where appropriate the Alpena County Road Commission, the District Health Department, the County Drain Commissioner, the Michigan Department of Natural Resources and/or the Michigan Department of Transportation. The Planning Commission or Building Official may use recommendations from any of the agencies to establish conditions that would accompany the approval of the site plan.

The amount of documentation and supporting information that is required to be submitted with the application for site plan review is dependant on the type of land use being requested. Less intense land uses require much less information. The Zoning Ordinance specifically lists 9 land uses that fall into this category which are; day care homes, efficiency apartments, bed and breakfast facilities, manufactured dwelling units, dwellings above stores and offices, family care facilities, rooming rouses, boarding houses and outdoor cafe's. All other site plan reviews require the submission of very detailed information about the site, the surrounding area, and the proposed development.

Access

Most of the zoning ordinance regulations regarding access and access management are contained within the site plan approval standards. Within the standards there are several requirements which are intended to develop and maintain good access, provide for efficient and safe pedestrian and vehicle circulation flows and provide for adequate access for emergency vehicles. The standards are basically non-quantitative and application is based on the judgement of the Building Official or the Planning Commission. Administration of several standards requires the Planning Commission or Building Official make specific determinations on the meaning of terms such as "adequate, excessive, adversely and effectively".

Outside of the site plan review standards, the City of Alpena Zoning Ordinance has limited language on access management and access controls. There is a regulation that requires accesses for certain uses must be provided by using an "existing or planned major thoroughfare, freeway service drive or collector street". The Planning Commission may waive this requirement if certain circumstances exist, or, in their judgement, substantial safety improvements can be achieved by allowing access by some other means.

Some specific access design criteria are included in the parking lot design standards. The regulations include requirements that establish limits on the number of access points (1 per each 66 feet of lot width), determine the location of access points, and provisions for maneuvering lanes that provide for safe circulation and prevent backing directly onto a street.

Screening

Landscaping and screening requirements are included in site plan review standards and greenbelts, obscuring walls or specific landscaping requirements are often listed as requirements for approval of the more intense or unattractive land uses. The ordinance has specific design criteria for greenbelts, walls and landscaping. Requirements on height, width, and type of screening can either be specifically listed or the planning commission can make a determination of the type of screening that should be required. Suitable plant materials are suggested and minimum size requirements of plants are listed. Plantings are required to reach the desired height in 5 years and must be kept in a healthy and vigorous growing condition. Heights of obscuring walls depend on the land use and wall and fence materials are subject to review and approval.

Signage

Detailed sign regulations are contained in one subsection of the ordinance. The ordinance lists general design criteria and regulations for all signs and specific criteria which identifies the types and sizes of signs allowed in each zoning district. Signs cannot be placed in the right-of-way unless specifically allowed and signs may not constitute a traffic hazard or be placed in clear vision areas at intersections. If illumination of a sign is permitted, lights cannot exceed 60 watts, lights shall be shielded and directed downwards, and the sign cannot be lit in such a way that it is hazardous to traffic.

In residential districts, ground signs are generally limited to 32 square feet and wall signs are limited to 4 square feet. Signs may not be illuminated and no minimum set back is required.

In Business districts the allowable size and height for ground signs is a function of the size of the lot and signs can range from 40 square feet to 80 square feet and be 13 to 17 feet high. Signs in the business district may be illuminated and there is no required setback for ground signs. Projecting signs are allowed in the business district but are limited to 10 square feet, must be located at least 8 feet off the ground and cannot project more than 3 feet beyond the property line. Temporary and portable signs are allowed which can be up to 50 square feet and can be on the premises for periods from 14 days to 3 months depending on the purpose of the sign.

Billboards are allowed in the industrial district in addition to all the types and sizes of signs allowed in the business district. Billboards must be setback 25 feet from property lines and 50 feet from street lines at any street intersection. They may not exceed 300 square feet and may not have an overall height of more than 15 feet. Billboards must be spaced at least 2,000 feet apart from each other and may not be closer than 500 feet to any park, recreation area, bridge, school, or church.

Signs for schools, churches, and nonprofit institutions in all zoning districts may be up to 50 square feet and may be illuminated. Signs for these uses must be setback 1/3 of the lot depth but not more than 100 feet.

Lighting

Similar to the signage regulations, lighting requirements are contained in a subsection of the City of Alpena Zoning Ordinance. The Ordinance requires lights be shielded to reduce glare, be directed downward, they may not interfere with adjacent highways or property, and cannot be flashing, moving, or intermittent.

Alpena Township

Site Plan Review

With the exception of single family dwellings, site plan review is required in all districts for all new uses, expansion or renovation of existing uses, or changes of use of existing structures. The Planning and Zoning Commission reviews and makes a determination on all site plans. For an application to be considered for principal permitted uses, 10 copies of the site plan must be submitted to the Zoning Administrator no later than 10 days before the next meeting of the Planning and Zoning Commission. Special approval uses require a public hearing be held prior to making a determination on the application. The approval standards for site plans for permitted uses or special uses do not require or suggest reviews by other agencies or departments.

The zoning ordinance requires that applications for site plan review contain detailed information about the site, the surrounding area, and the proposed development. The Planning and Zoning Commission has the ability to waive, in whole or in part, any of the information required by the Ordinance, although, the means of how the Planning and Zoning Commission would have the opportunity to review the request prior to the submission of the formal application is not clearly articulated.

In addition to the site plan review standards, there are also performance standards for all uses, general approval standards for special approval uses, and specific criteria listed for twelve special land uses. These are: airports, campgrounds, towers, drive-in restaurants, drive-in theaters, kennels, mobile home parks, open air businesses, race tracks, mining, stables and car washes.

Access

Contained in the site plan approval procedures, there are general statements that give the planning commission the responsibility to consider the location and design of driveways and accesses points to insure the safety and convenience of pedestrian and vehicle traffic and to allow for the harmonious coexistence of new and existing land uses.

In the General Provisions Article of the Ordinance there is an Access Management section. Currently the regulations only apply to M-32 and US 23, although this section is being revised to include more roads and more detailed standards. In this section, there are specific and quantitative requirements that limit the number of accesses, and design criteria is provided for the construction of driveways. The section includes regulations on spacing, width, and location of driveways, provisions for landscaping, and considerations for high traffic uses. Prior to the Planning and Zoning Commission's review of site plans that fall under these provisions, a review by the Alpena County Road Commission and the Michigan Department of Transportation is required.

There are general access requirements included in the parking lot design standards which require the zoning administrator to review and approve parking lot access to insure the greatest possible public welfare and safety. Several of the identified special approval uses include specific access requirements that provide for the location of access points. The specific uses that have access criteria are drive-in theaters, race tracks and car washes.

Screening

The ordinance does not contain a landscaping section but does have specific requirements for landscape plantings under the access management section. There are general screening requirements listed in the performance standards, which requires a 6' high obscuring fence to screen open storage areas. In the special approval section, specific screening requirements are listed for drive in restaurants, mobile home parks, race tracks and car washes. A greenbelt of 25 feet is required next to all lakes and streams. Contained in the greenbelt regulations are limits to the type and amount of change that can be done to the land and vegetation within the greenbelt.

Signage

There are detailed sign regulations in one section of the ordinance. The ordinance lists general design criteria and regulations for all signs and specific criteria which identifies the types and sizes of signs allowed in each zoning district. Signs cannot be placed in clear vision areas at intersections, and if illuminated, the lights must be non-glaring and not interfere with traffic control devices. Free standing signs must be setback 10 feet from the front lot line. Businesses that depend on passerby traffic that are not on a major route may have three off-premises directory signs.

In single family residential districts, agricultural, forest, and conservation district signs are limited to 4 to 10 square feet.

In the mixed residential, office and restricted business districts the allowable size for a sign is 32 square feet.

In all other commercial and industrial districts signs up to 80 square feet area allowed.

Allowable sign heights are not listed in this section, so height limitations for each district would be controlled in other sections as applicable.

In the Township of Alpena, the Michigan Department of Transportation is responsible for regulating and permitting billboards and off premise signs.

Lighting

Other than the requirements listed regarding the illumination of signs, no specific language on lighting is included in the ordinance.

Wilson Township

Site Plan Review

Site plan review is required for all new land uses, expansion or renovation of existing land uses, or the change of use of existing structures with the exception of one and two family residential units. The Planning Commission has the responsibility of reviewing and making determinations on all site plans for principal permitted uses, special approval uses and for Planned Unit Developments. Site plan review of a principal permitted use requires 6 sets of site plans be submitted to the Zoning Administrator no less than 10 days before the Planning Commission meeting. A public hearing is required for Special Approval Uses and Planned Unit Developments.

The Ordinance requires that site plans include detailed information on the site, the surrounding area, and the proposed development. The Planning Commission has the ability to waive, in whole or in part, information listed that is to be included in the site plan. Although, the means to implement the waiver for site plans submitted for principal and special uses is not clearly articulated, as the Planning Commission will generally see the sight plan for the first time after the formal application is submitted and the request is on the agenda for consideration. Regarding site plans that are reviewed as part of a Planned Unit Development, at least one informal conference is required prior to the formal submission of the site plan. These informal meetings provide the applicant the opportunity to meet with township representatives and refine the information that is to be included on the site plan.

Site plan reviews for principal and special uses do not require review or comment by other agencies or departments. Only as part of the application process for a Planned Unit Development, does the ordinance indicate that the Zoning Administrator may request representatives from Township and County agencies and departments to attend the preliminary informal conferences. However, submission of a PUD site plan to any other agency or department for review and comment is not typically required as a part of the formal approval process for a PUD. If a proposed development wishes to construct roads that deviate from the private road standards listed in the PUD section, the approval must be received from the fire chief, sheriff, drain commissioner and the road commission.

Access

Although the Wilson Township Zoning Ordinance does not have a specific access management section, access requirements and standards are included in the site plan review, special use permit, and Planned Unit Development processes.

General access and circulation standards are listed in the site plan review approval procedures. The approval procedures require that the planning commission consider the location and design of ingress and egress, the safety and circulation of pedestrians and vehicles within the site and adjacent streets, and that the new land use fits harmoniously with existing land uses.

More detailed access review standards are included as conditions of specific uses and/or are included in the review process for special approval uses. Golf courses, colleges, churches, motels, professional offices fraternal lodges, personal service establishments and similar high traffic uses are required to have accesses located on either a major thoroughfare or a primary county road or state trunkline. When considering special approval uses, the Planning Commission must determine that the use will not have a detrimental impact upon surrounding land uses in regard to the potential traffic generation. Special approval uses must have suitable access to the site for truck traffic, provide for the safe movement of pedestrian traffic and the site must not use minor residential streets to accommodate the use.

Additional access standards are applicable for plans reviewed under the Planned Unit Development (PUD) requirements. Internal traffic flow, ingress and egress, and external traffic flow are considered. The standards require that the traffic systems be designed to promote safety, convenience, easy access, and separation of vehicles from pedestrians. The review standards also promote the design of internal circulation systems within a PUD that are not connected to external street systems. The PUD requirements have specific design criteria for private streets. As previously stated, streets must be built to public road standards unless approval is received from the fire chief, sheriff, drain commissioner, and road commission. The Planning Commission must determine that any proposed deviations are not inimical to the health, safety and welfare of the Township. The PUD requirements list minimum right-of-way

and pavement widths ranging from 30 feet ROW with 18 feet of pavement to 60 feet ROW with 36 feet of pavement, depending upon the number of dwellings or use served by the street.

Screening

The Wilson Township Zoning Ordinance specifically requires several land uses to be screened with an obscuring fence or wall. Some of the uses that require screening are drive in restaurants, parking lots, hospitals and funeral home service entrances, utility buildings, junk yards and open storage areas. Screening walls or fences range in height from 6 to 8 feet and the design and materials must be approved by the Zoning Administrator. The requirement for an obscuring fence or wall may be waived by the Planning Commission if the Commission determines that the required screening would serve no good purpose.

The Zoning Ordinance also contains standards for the installation of buffer yards. The standards include suggested plant materials, minimum size for plantings, spacing criteria and maintenance provisions. The regulation includes a stipulation that if the existing vegetation meets the intent of the section the existing vegetation can be substituted for required buffer yard plantings. Buffer yards are specifically required for only a few uses in the Ordinance. The most common and effective application of this section is as a condition attached to a site plan, special use, planned unit development, or variance as determined on a site-by-site basis.

Signage

Sign requirements are contained in a single section of the Ordinance. General sign requirements applicable to all districts are listed and each district has specific regulations controlling the number, size, and placement of signs in each particular district. General requirements include a setback of 10 feet for all signs that are 30 square feet or larger. The setback for billboards and non-accessory signs is equal to the setback that would be required for a main use or building. Signs may be illuminated but flashing or intermittent lighting is not allowed. One off-premises sign may be allowed for businesses that are not on a major route but are dependant on passerby traffic. The Planning Commission, as opposed to the Zoning Board of Appeals, is given the authority in this section to modify sign requirements based on a finding of unusual circumstances or that no good or practical purpose is served by the strict compliance with the standards.

Residential nameplate signs in the residential, forest and conservation districts are limited to no more than one per dwelling with a maximum size of 2 square feet. Accessory signs for non-dwellings or businesses are limited to one per site with a maximum size of 24 square feet.

In the business district, one sign up to 300 square feet is allowed for each non-dwelling structure. In the industrial district, one sign up to 500 square feet is allowed for each non-dwelling.

Lighting

The Ordinance has requirements on outdoor lighting and the entire section on outdoor lighting is as follows: “All outdoor lighting, whether for illuminating parking areas, buildings, signs and/or other structures shall be shielded, shaded, designed and /or directed away from all adjacent residential districts and uses; and further shall not glare upon or interfere with persons and vehicles using public streets.”

Maple Ridge Township

Site Plan Review

The site plan review section indicates that site plan review is required, with the exception of one and two family residential units, for all uses that are either; within 400' of waters identified in the comprehensive plan or as determined by the Township Board as "locally significant", uses that are "any use of complex of uses" on a site of three or more acres, or uses that require special approval, conditional or exceptional use for which a site plan is required by Ordinance. Although it appears the intent of the ordinance is to be to very encompassing in its site plan review requirements, some uses that could have a significant impact would be exempted from the site plan review process. Any use allowed by right, under 3 acres and not within 400' feet of designated waters does not fall under the site plan review process. Some examples of uses that could be constructed that would be exempted from site plan review process include multi-family dwellings, banks, clinics or medical offices, professional offices, small retail uses, restaurants and auto laundries.

The graphic requirements sub-section of the site plan review section requires that site plans include information showing the proposed development and structures on properties within 100' of the proposed development. The requirements for showing site characteristics and its natural features on the site plan is limited to 20' contours (greater detail can be required if deemed necessary) and soil borings for sites over 3 acres. A statement regarding the impact specifications is required to be submitted with all site plans. The impact specification includes descriptions of the development, possible impacts on the surrounding population, demand infrastructure and public services, and impact on natural resources. A engineered grading plan and soil erosion and sedimentation measures need to be included on sites over three acres.

Site plan reviews are completed by the Zoning Board and review or comment by other agencies or departments is not required.

Access

The Maple Ridge Township Zoning Ordinance does not have a specific access management section. Minimal access and circulation standards are listed in the site plan review standards. The standards require that the zoning board consider the location and design of ingress and egress, the safety and circulation of pedestrians and vehicles, and the impacts on adjacent streets and uses. The ordinance has minimal access requirements associated with specific principle uses or conditional/special uses.

Screening

The Zoning Ordinance specifically requires several land uses to be screened with an obscuring fence or wall. Some of the uses that require screening are drive in restaurants, parking lots, hospitals and funeral home service entrances, public swimming pools utility buildings, junk yards and open storage areas. Screening walls or fences must be 6 feet in height and the design and materials must be approved by the Zoning Administrator. The requirement for a obscuring fence or wall may be modified or waived by the Zoning Board of Appeals it it is determined that the required screening would serve no good purpose.

The Zoning Ordinance also contains standards for the installation greenbelts or plantings. The standards include suggested plant materials, minimum size for plantings, spacing criteria and maintenance provisions. The regulation includes a stipulation that if the existing vegetation

meets the intent of the section the existing vegetation can be substituted for required buffer yard plantings. Buffer yards are specifically required for only a few uses in the Ordinance. The most common and effective application of this section is as a condition attached to a site plan or a conditional/special use or as a condition for a variance as determined on a site by site basis.

Signage

Sign requirements are contained in a single section of the Ordinance. General sign requirements applicable to all districts are listed and each district has specific regulations controlling the number, size and placement of signs in each particular district. General requirements include a setback of 10 feet for all signs that are 30 square feet or larger. Signs may be illuminated but flashing or intermittent lighting is not allowed. One off premises sign may be allowed for businesses that are not on a major route but are dependant on passer by traffic. The Zoning Board of Appeals is given the authority in this section to modify sign requirements based on a finding of unusual circumstances or no good or practical purpose is served by the strict compliance with the standards.

Residential nameplate signs in the residential, forest and conservation districts are limited to no more than one per dwelling with a maximum size of 2 square feet. Accessory signs for non-dwellings or businesses are limited to one per site with a maximum size of 18 square feet.

In the general business district, one free standing sign up to 300 square feet is allowed. structure. In the industrial district, one sign up to 500 square feet is allowed. Wall signs up to 25% of the wall area of the mounting wall are allowed in the business and industrial districts.

Lighting

The Ordinance has requirements on outdoor lighting and the entire section on outdoor lighting is as follows: “All outdoor lighting, whether for illuminating parking areas, buildings, signs and/or other structures shall be shielded, shaded, designed and /or directed away from all adjacent residential districts and uses; and further shall not glare upon or interfere with persons and vehicles using public streets.”

Zoning Map and Districts

Master plans, including the future land use plan, are implemented through zoning, capital improvement programs, and recreation planning. Zoning is the primary tool used by most communities to implement their master plan. Zoning regulates the type, intensity and location of development in a community. Within the study area, the Township of Alpena, Wilson Township and The City of Alpena have zoning authority.

While each of the municipalities in the study area has its own zoning ordinance and a wide variety of unique zoning districts, it is beneficial to develop a composite zoning map that shows each of the different zoning districts of the municipalities in a common basic format. The composite zoning map categorizes each zoning district into one of five basic intended uses; Residential, Commercial, Industrial, Agricultural, or Forest Recreation/Conservation.

As can be seen by the Composite zoning Map (**Figure 4.4**), approximately half of the study area is currently zoned for residential uses. Pockets of industrially zoned properties are found

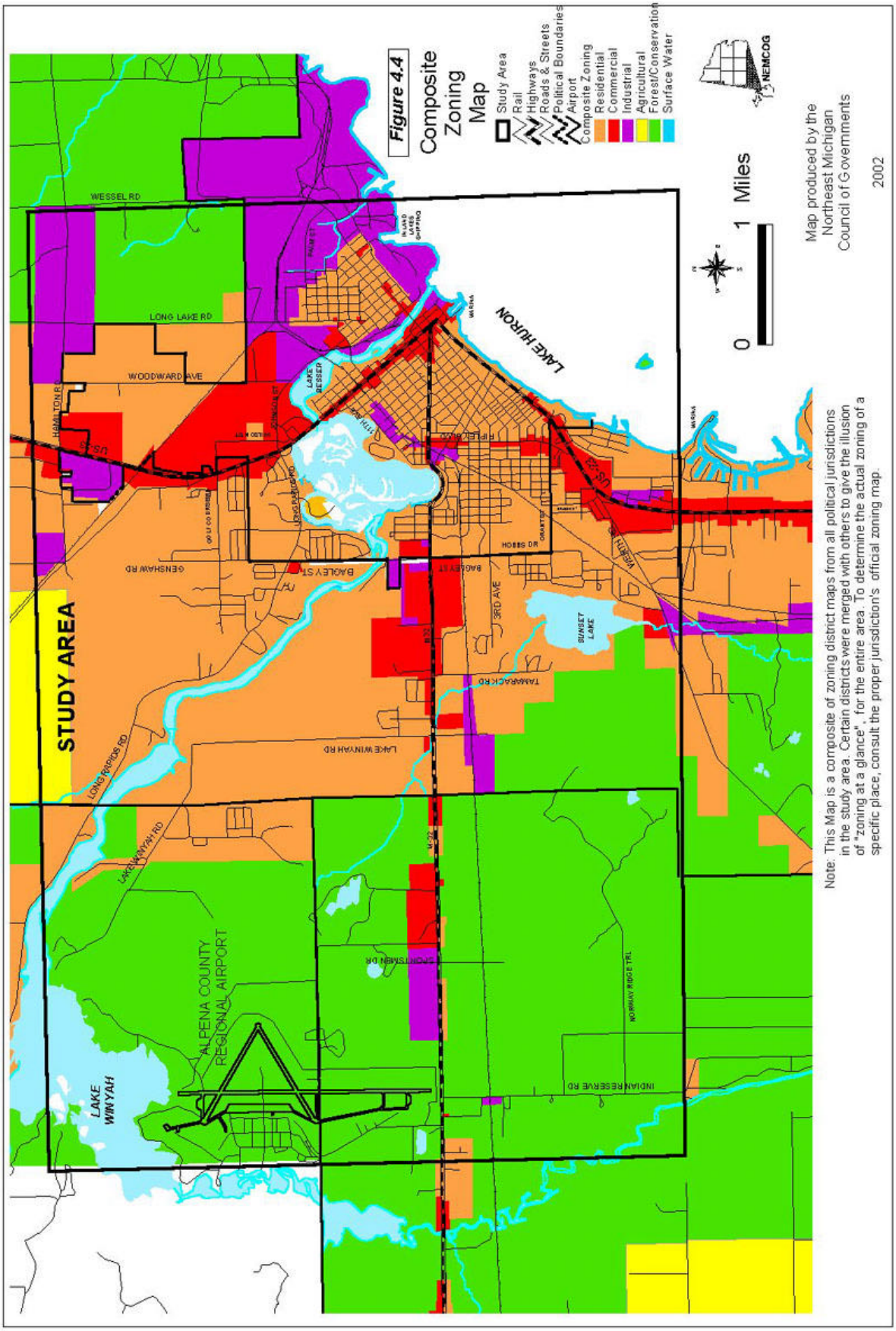


Figure 4.4
Composite Zoning Map
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Airport
Composite Zoning
Residential
Commercial
Industrial
Agricultural
Forest/Conservation
Surface Water
NEMCOG
0
1 Miles
Map produced by the Northeast Michigan Council of Governments
2002
Note: This Map is a composite of zoning district maps from all political jurisdictions in the study area. Certain districts were merged with others to give the illusion of "zoning at a glance", for the entire area. To determine the actual zoning of a specific place, consult the proper jurisdiction's official zoning map.
STUDY AREA
LAKE HURON
LAKE WINYAH
ALPENA COUNTY REGIONAL AIRPORT
WESSEL RD
LONG LAKE RD
WOODWARD AVE
HAMILTON RD
US-23
GENSHAW RD
BAGLEY ST
3RD AVE
SUNSET LAKE
TAMARACK RD
LAKE WINYAH RD
LONG RAPIDS RD
SPORTSMEN DR
NORWAY RIDGE TRL
INDIAN RESERVE RD

throughout the study area but the large majority of the industrially zoned properties are found in the northeast portion of the study area on the east side of US-23 and the Thunder Bay River. Commercial zoning is found primarily along the US-23 north and south and M-32. Forest Recreation/Conservation zoned lands are predominant in the western third and the north east quarter of the study area. No agriculturally zoned lands are found in the study area.

City of Alpena

The City of Alpena adopted the current Zoning Ordinance in 1986 and the Ordinance was last amended in February 2001. The City has a total of 18 different zoning districts; 8 residential and 10 nonresidential. The Ordinance has a pyramidal hierarchy which means that typically all uses allowed in a district are also allowed in the districts above it in the hierarchy. For example, all the uses allowed in R-1 are allowed in R-2, all the uses allowed in R-1 and R-2 are allowed in R-3. In some of the residential districts the only difference between the districts is the size and area requirements as the uses allowed in each district are identical. The majority of the land in the City is zoned in conformity, with the future land use plan. A notable exception is in the northern part of the city which is zoned residential and is shown on the future land use plan as industrial.

R-1 and R-2 One Family Districts are designed to be the most restrictive of the residential districts. The intent is to provide for and environment of predominantly low density, one-family detached dwellings along with other residentially related facilities which serve the residents in the district

Minimum lot area: R-1 9600 sq. ft., R-2 8400 sq. ft
Minimum front set back: R-1 20 ft., R-2 20 ft.
Minimum lot width: R-1 80 ft., R-2 70 ft.

R-C Residential Cluster Districts are designed to permit the development of one-family dwellings attached or detached which, through design innovation, will allow for flexibility in site layout and planning so as to provide for the sound physical handling of the site in situations where site amenities, such as tree cover, wetlands, streams and other natural features may be preserved or where the site is of such physical dimensions or has a land use relationship to other land in near proximity that would cause normal subdivision to be unnecessarily restrictive.

Minimum lot area: As determined by planning commission
Minimum front set back: 20 ft.
Minimum lot width: As determined by planning commission

RT Two Family Residential Districts are designed to afford a transition of use in existing housing areas by permitting new construction or conversion of existing structures between adjacent residential and commercial, office thoroughfare or other uses which would affect residential character. This district also recognizes the existence of older residential areas of the City where larger residences in order to extend the economic life o these structures and allow the owners to justify the expenditures for repairs and modernization. This district also allows the construction of two-family residences where slightly greater densities are permitted.

Minimum lot area: 3600 sq. ft.
Minimum front set back: 25 ft.
Minimum lot width: 30 ft.

RM-1, RM-2 and RM-3 Multiple family Residential Districts are designed to provide sites for multiple –family dwelling structures, and related uses, which will generally serve as zones of transition between the nonresidential districts and lower-density single family districts. The multiple-family district is further provided to serve the needs for the apartment type of unit in and otherwise medium density single -family community.

Minimum lot area: RM-1, 1200 sq. ft./room; RM-2, 800 sq. ft/room; RM-3, 400 sq. ft./room
Minimum front set back: RM-1, 30 ft.; RM-2, 30 ft.; RM-3, 50 ft.
Minimum lot width: NA

MHP Mobile Home District is to give recognition to the fact that mobile homes can provide satisfactory living conditions provided certain minimum standards are maintained. Mobile home parks possess site development, use and density characteristics and private drive systems similar to multiple family residential development. They are, in this Ordinance, provided for as a transitional use between nonresidential development and residential districts or between multiple-family residential districts and one-family residential districts

Minimum Park size: 15 acres
Minimum lot area: 5,500 sq. ft.
Minimum front set back: 25 ft.
Minimum lot width: Per Mobile Home Commission Requirements

OS-1 Office Service District are designed to accommodate uses such as offices, banks and personal services which can serve as transitional areas between residential and commercial districts and to provide a transition between major thoroughfares and residential districts.

Minimum lot area: NA
Minimum front set back: 20 ft.
Minimum lot width: NA

B-1 Local Business District are designed to meet the day-to-day convenience shopping and service needs of persons residing in adjacent residential areas.

Minimum lot area: NA
Minimum front set back: 10 ft.
Minimum lot width: NA

CBD-1 Central Business District is designed to provide for office buildings and the great variety of large retail stores and related activities which occupy the prime retail frontage by serving the comparison, convenience and service needs of the entire City area as well as a substantial area other adjacent surrounding residential developments and agricultural area beyond the City limits. The retail stability of the district is promoted by encouraging the development of a continuous retail and service frontage and by prohibiting automotive related services and non-retail uses.

Minimum lot area: NA
Minimum front set back: 10 ft.
Minimum lot width: NA

CBD-2 Central Business District is designed to accommodate office and retail uses serving the overall community and general region. The CBD-2 districts are primarily representative of areas along major thoroughfares which are in transition to commercial and office uses. These areas were originally platted and used for residential purposes. The small lot sizes and close proximity

to low-density residential areas restrict the range of office and retail services provided within these districts to activities which are primarily conducted within enclosed buildings and having negligible impacts on adjoining residential uses. Correspondingly, automotive-related services are generally prohibited. Uses within the CBD-2 district are similar to those of the CBD-1 district, but reflect greater decentralization and dependence on access by vehicle.

Minimum lot area: NA
Minimum front set back: 10 ft.
Minimum lot width: NA

B-2 General Business District is designed to provide sites for more diversified business types requiring a city-wide general market area and /or arterial exposure. The General Business Districts are thus typically located along major thoroughfares.

Minimum lot area: NA
Minimum front set back: 10 ft.
Minimum lot width: NA

B-3 Commercial District is designed to provide sites for more diversified business types requiring a city-wide general market area and/or arterial exposure which due to the nature and potential diversity of the land uses of the District, could result in external physical effects. Further, through proper planning and development controls, potential effects would be limited to the District.

Minimum lot area: NA
Minimum front set back: 10 ft.
Minimum lot width: NA

I-1 Light Industrial District is designed so as to primarily accommodate wholesale activities warehouses and industrial operations whose external, physical effect are restricted to the area of the district and in no manner affect in a detrimental way any of the surrounding districts. The I-1 District is so structured as to permit, along with any specified uses, the manufacturing, compounding, processing, packaging, assembly and/or treatment of finished or semi-finished products form previously prepared material. It is further intended that the processing of raw material for shipment in bulk form, to be used in an industrial operation at another location, not be permitted.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

I-2 Light Industrial District is designed so as to primarily accommodate wholesale activities, warehouses and industrial operations whose external, physical effects are restricted to the area of the district and in no manner affect in a detrimental way any of the surrounding districts. The I-2 District is so structured as to permit, along with any specified uses, the manufacturing, compounding, processing, packaging, assembly and/or treatment of finished or semi-finished products form previously prepared material. It is further intended that the processing of raw material for shipment in bulk form, to be used in an industrial operation at another location, not be permitted.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

I-3 Heavy Industrial District is designed primarily for manufacturing, assembly and fabrication activities including large scale or specialized industrial operations, whose external physical effects will be felt to some degree by surrounding districts. The I-3 District is so structured as to permit the manufacturing, processing and compounding of semi-finished or finished products from raw materials as well as from previously prepared material.

Minimum lot area: NA
Minimum front set back: 50 ft.
Minimum lot width: NA

Township of Alpena

The Township of Alpena administers it's own zoning ordinance. The Ordinance was adopted on August 15, 1983 and last amended February 1, 1999. The current ordinance establishes thirteen zoning districts.

C Conservation district is intended to designate large tracts of land for recreational and resource conservation purposes. Allowed uses in the district are forestry and agriculture, private or public campgrounds, parks recreational areas, single family residences and cabins and private storage structures.

Minimum lot area: 5 acres
Minimum front set back: 25 ft.
Minimum lot width: 300 ft.

FR Forest Recreation District is designed to promote the use of wooded and rural areas of the Township in a manner that will retain the basic attractiveness of natural resources, and provide enjoyment for both visitors, and the community at large

Minimum lot area: 40,000 sq. ft.
Minimum front set back: 25 ft.
Minimum lot width: 150 ft.

A Agricultural District is designed to conserve large tracts of productive agricultural land for active farming use. The district is intended to include agricultural accessory uses, one-family dwelling units and other open space or low density recreational uses consistent with an agricultural setting.

Minimum lot area: 10 Acres
Minimum front set back: 25 ft.
Minimum lot width: 300 ft.

WR Waterfront Residential District is primarily established to provide residential site and uses on Lake Huron, inland lakes and streams within the Township in keeping with the master plan. In additions to waterfront residential uses, the district will allow as a special approval use certain commercial and recreational developments which are water-related, providing such development is designed to be compatible with the residential character of neighboring properties. Further, all development plans are intended to insure the continued maintenance of high environmental quality in the Township waters and shoreline areas.

Minimum lot area: 15,000 sq. ft.
Minimum front set back: 25 ft.

Minimum lot width: 100 ft.

R-1 One-Family Residence District is designed to provide for one family dwelling sites and the residentially related uses in keeping with the master plan of residential development in Alpena Township. The uses permitted by right and on special condition are intended to promote a compatible arrangement of land uses for homes, with the intent to keep neighborhoods relatively quiet and free of unrelated traffic influences

Minimum lot area: 20,000 sq. ft. (9,600 sq. ft. if served by water and sewer)
Minimum front set back: 25 ft.
Minimum lot width: 100 ft. (80 ft. if served by water and sewer)

R-2 Rural Residential District is designed to provide one family home sites in areas more rural in character. The inclusion of farm and agricultural uses is most important in differentiating from the R-1 District.

Minimum lot area: 20,000 sq. ft. (9,600 sq. ft. if served by water and sewer)
Minimum front set back: 25 ft.
Minimum lot width: 100 ft. (80 ft. if served by water and sewer)

R-3 Mixed Residential District is designed to provide one-family and multiple family home sites in Township areas where the character of existing uses is somewhat mixed, there being incidences of business and mobile homes among one-family residences.

Minimum lot area: 15,000 sq. ft. (9,600 sq. ft. if served by water and sewer)
Minimum front set back: 25 ft.
Minimum lot width: 100 ft. (80 ft. if served by water and sewer)

OS Office Service District is intended to accommodate various office, professional and personal service uses. This district can serve as a transitional area between the higher intensity retail and commercial uses and the lower-intensity residential uses. This district is specifically intended to prohibit retail commercial establishments which require high volume, short-term parking.

Minimum lot area: NA
Minimum front set back: 25ft.
Minimum lot width: NA

B-1 Restricted Business District is designed to give Alpena Township a business district that is somewhat more selective than a General Business District, to provide for the establishment of neighborhood shopping areas, personal services and professional office areas that are primarily compatible with and of service to Township residential uses.

Minimum lot area: NA
Minimum front set back: 25.
Minimum lot width: NA

B-2 General Business District is designed to provide sites for more diversified business types and are often located so as to serve passerby traffic

Minimum lot area: NA
Minimum front set back: 25 ft.
Minimum lot width: NA

B-3 Community Business District is established to cater to the needs of a larger consumer population and are generally characterized by an integrated or planned cluster of establishments served by a common parking area and generating large volumes of vehicular and pedestrian traffic.

Minimum lot area: NA
Minimum front set back: 75 ft.
Minimum lot width: NA

I-1 Light Industrial District is designed so as to primarily accommodate wholesale activities, warehouses, major repair operations, manufacturing and other industrial activities whose external, physical effects are such that it should be restricted to the area of the district and in no manner affect in a detrimental way any of the surrounding districts.

Minimum lot area: NA
Minimum front set back: 30 ft.
Minimum lot width: NA

I-2 Mixed Industrial district is designed primarily for manufacturing, assembling, and fabrication activities including large scale or specialized industrial operations, whose external physical effects will be felt to some degree to surrounding districts. The I-2 District is so structured as to permit the manufacturing, processing and compounding of semi-finished products from raw materials.

Minimum lot area: NA
Minimum front set back: 50 ft.
Minimum lot width: NA

Wilson Township

Wilson Township's original zoning ordinance was adopted on May 21, 1974, and was last amended on December 9, 1999. The township has 11 zoning districts. It should be noted that that the R-2 district is designated as the Agricultural district. Six of the districts allow residential uses and 4 of the districts allow commercial or industrial uses. The districts have a pyramidal hierarchy.

R-1 Residential district is designed to provide for one0-family dwelling sites and residentially related uses. The uses permitted by right and on special approval are intended to promote a compatible arrangement of land uses for homes, keeping neighborhoods relatively quite and free of unrelated traffic influences.

Minimum lot area: 20,000
Minimum front set back: 30 ft.
Minimum lot width: 100 ft.

R-2 Agricultural district is designed to serve farm and agricultural uses in areas which are rural and farm in character. The inclusion of farms and agricultural uses in most important in differentiating from R-1 districts.

Minimum lot area: 40,000
Minimum front set back: 40 ft.
Minimum lot width: 100

R-3 General Residential district is designed to provide for multiple-family structures which may be necessary to meet the needs of apartment dwellers. This district is further intended to be a transition use district.

Minimum lot area: 20,000
Minimum front set back: 50 ft.
Minimum lot width: 100

RR Recreational district is designed to accommodate cottage and seasonal home developments. It is intended that the seasonal home areas be reasonably homogeneous by discouraging the mixing of recreation home areas with commercial resorts, business services, and major institutional or community services.

Minimum lot area: 40,000
Minimum front set back: 40 ft.
Minimum lot width: 100

CR Conservation and Resource district is designed to protect and conserve natural and scenic resources and promote environmental quality and preserve community character. The CR district applies to stream and river corridors, lakeshores, impoundment waters, and/or scenic highways as deemed appropriate.

Minimum lot area: 40,000
Minimum front set back: 40 ft.
Minimum lot width: 150

FF Farm and Forest district is designed to promote the use of wooded and rural areas in a manner that will retain the basic attractiveness of natural resources, and provide enjoyment for both visitors and the community at large. The intent of the District is to hold rural areas for resource purposes, and to allow some multiple uses of marginal farm-forest lands.

Minimum lot area: 40,000
Minimum front set back: 40 ft.
Minimum lot width: 150

B-1 Local and Tourist Business district establishes a business district that is more selective that a General Business District. It provides for the establishment of neighborhood shopping areas, personal services and professional office areas that are compatible with, and of service to, residential uses. Tourist services are included as being in character with the District.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

B-2 General Business district is designed to provide site for more diversified business types and are often located to serve passerby traffic. Tourist services are included as being in character with the district.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

B-3 Business and Light Manufacturing district is designed to proved sites for light manufacturing and wholesale storage and as a distribution area to retail stores or industrial users. These sites do not necessarily have to abut or be adjacent to a primary or secondary County road but must have access to these roads without passing through a residential district, provided that the entrance and exit are approved in written form by the County road commission.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

I Industrial district is designed to accommodate wholesale activities, warehouses, major repair operation, manufacturing and other industrial operations, subject to certain performance requirements relative to their impact on the community and adjacent non-industrial districts.

Minimum lot area: NA
Minimum front set back: 30 ft.
Minimum lot width: NA

Maple Ridge Township

Maple Ridge Township's original zoning ordinance was adopted on May 20, 1974, and was last amended in May 1992. The township has 9 zoning districts. It should be noted that that the R-2 district is designated as the Agricultural district. Six of the districts allow residential uses and 3 of the districts allow commercial or industrial uses. The districts have a pyramidal hierarchy.

R-1 Residential district is designed to provide for one-family dwelling sites and residentially related uses. The uses permitted by right and on special approval are intended to promote a compatible arrangement of land uses for homes, keeping neighborhoods relatively quite and free of unrelated traffic influences.

Minimum lot area: 20,000 sq. ft. (12,000 sq. ft. with water and/or sewer)
Minimum front set back: 30 ft.
Minimum lot width: 100 ft.

R-2 Agricultural district is designed to serve farm and agricultural uses in areas which are rural and farm in character. The inclusion of farms and agricultural uses in most important in differentiating from R-1 districts.

Minimum lot area: 40,000 sq. ft (22,000sq. ft. with water and/or sewer)
Minimum front set back: 40 ft.
Minimum lot width: 100 ft.

R-3 General Residential district is designed to provide for multiple-family structures which may be necessary to meet the needs of the apartment dwelling. This district is further intended to be a transition use district.

Minimum lot area: 20,000 sq. ft. (12,000 sq. ft. with water and/or sewer)
Minimum front set back: 40 ft.
Minimum lot width: 100

RR Recreational district is designed to accommodate cottage and seasonal home developments. It is intended that the seasonal home areas be reasonably homogeneous by discouraging the mixing of recreation home areas with commercial resorts, business services, and major institutional or community services.

Minimum lot area: 40,000 sq. ft. (22,000 sq. ft. with water and/or sewer)
Minimum front set back: 40 ft.
Minimum lot width: 100 ft.

CR Conservation and Resource district is designed to protect and conserve natural and scenic resources and promote environmental quality and preserve community character. The CR district applies to stream and river corridors, lakeshores, impoundment waters, and/or scenic highways as deemed appropriate.

Minimum lot area: 40,000 sq. ft. (22,000 sq. ft. with water and/or sewer)
Minimum front set back: 40 ft.
Minimum lot width: 150 ft.

FF Farm and Forest district is designed to promote the use of wooded and rural areas in a manner that will retain the basic attractiveness of natural resources, and provide enjoyment for both visitors and the community at large. The intent of the District is to hold rural areas for resource purposes, and to allow some multiple uses of marginal farm-forest lands.

Minimum lot area: 40,000 sq. ft. (22,000 sq. ft. with water and/or sewer)
Minimum front set back: 40 ft.
Minimum lot width: 150 ft.

B-1 Local and Tourist Business district establishes a business district that is more selective that a General Business District. It provides for the establishment of neighborhood shopping areas, personal services and professional office areas that are compatible with, and of service to, residential uses. Tourist services are included as being in character with the District.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

B-2 General Business district is designed to provide site for more diversified business types and are often located to serve passerby traffic.

Minimum lot area: NA
Minimum front set back: 40 ft.
Minimum lot width: NA

I Industrial district is designed to accommodate wholesale activities, warehouses, major repair operation, manufacturing and other industrial operations, subject to certain performance requirements relative to their impact on the community and adjacent non-industrial districts.

Minimum lot area: NA
Minimum front set back: 30 ft.
Minimum lot width: NA

CHAPTER 5: Traffic Conditions

Introduction

This chapter reviews the traffic characteristics of the roads within the Alpena transportation study area. The assessment of the traffic within the study area involved the collection of various roadway attributes including speed limits, traffic controls, traffic volumes, and crash data. This section of the Transportation Plan will identify existing and/or potential future operational deficiencies among the study area's roads, streets, and intersections and offer remedial options. To some degree, this section will also address economic and aesthetic issues that relate both to traffic conditions and the development of transportation facilities to accommodate all modes of traffic.

The Alpena area is served by two state highways; US-23 is a north-south roadway; some 100 miles from I-75 at Standish. M-32 is an east-west roadway connecting to US-23 in the center of the City of Alpena and running west approximately 75 miles to US-131, 12 miles beyond I-75 at the City of Gaylord. US-23 and M-32 are "all weather" routes open year round to legal axle loads and 102" wide trailers. M-32 is considered part of the State's priority commercial network.

The Alpena Regional Airport has a 9000 foot paved main runway and 5030 foot paved crosswind runway, and is located 5 miles west of Alpena on M-32.

The area is also the end of the line for the Lake State Railway, whose service includes the Alpena area and extends south into lower Michigan.

Alpena County, including the City of Alpena, has maintained the following approximate number of roadway miles:

Rural Routes	
Principal Arterial	38 miles
Minor Arterial	26 miles
Major Collector	150 miles
Minor Collector	49 miles
Local	411 miles
	674 Rural Route miles
Urban Routes	
Principal Arterial	12 miles
Minor Arterial	13 miles
Collector	15 miles
Local	89 miles
	129 Urban Route miles

Very few lane miles have been added in the last 10 years.

Existing Conditions

This is a summary of the existing travel conditions among the streets and roads within the study area.

Speed Limits and Traffic Controls

Speed limits are set to match roadway design and area characteristics. Speed limits generally reflect the speed at which most drivers feel comfortable and safe traveling a particular roadway. Many other

factors, however, are taken into consideration such as functionality of the road, sight distances, safe stopping distances, and school zones. The speed limits in this study area vary from 25 M.P.H. within the City of Alpena to 55 M.P.H. on highways and rural roads throughout the study area. There are 14 intersections controlled by traffic signals, and two intersections have flashing signals, within the study area. The traffic signals are located at the following intersections:

- Ripley Boulevard and US-23 South
- Ripley Boulevard and Grant Avenue
- Bagley/Hobbs and Third Avenue
- Third Avenue and Ripley Boulevard
- Bagley Street and M-32
- Bagley Street and Long Rapids Road
- Long Rapids Road and US-23 North
- M-32/Washington Blvd and Ripley Boulevard
- US-23 North/Chisholm and Eleventh Avenue
- US-23 North/Chisholm and Ninth Avenue
- US-23 North/Chisholm and Second Avenue
- US-23 North/Chisholm and Third Avenue
- Park Place and Second Avenue
- Miller Street and Second Avenue

Signals with a left turn phase are located at the intersections of Bagley Street at M-32, Ripley Boulevard at US-23, and North US-23 at Long Rapids Road. Traffic signals and existing speed limits for streets, roads, and highways are displayed graphically in **Figure 5.1**, on the following page.

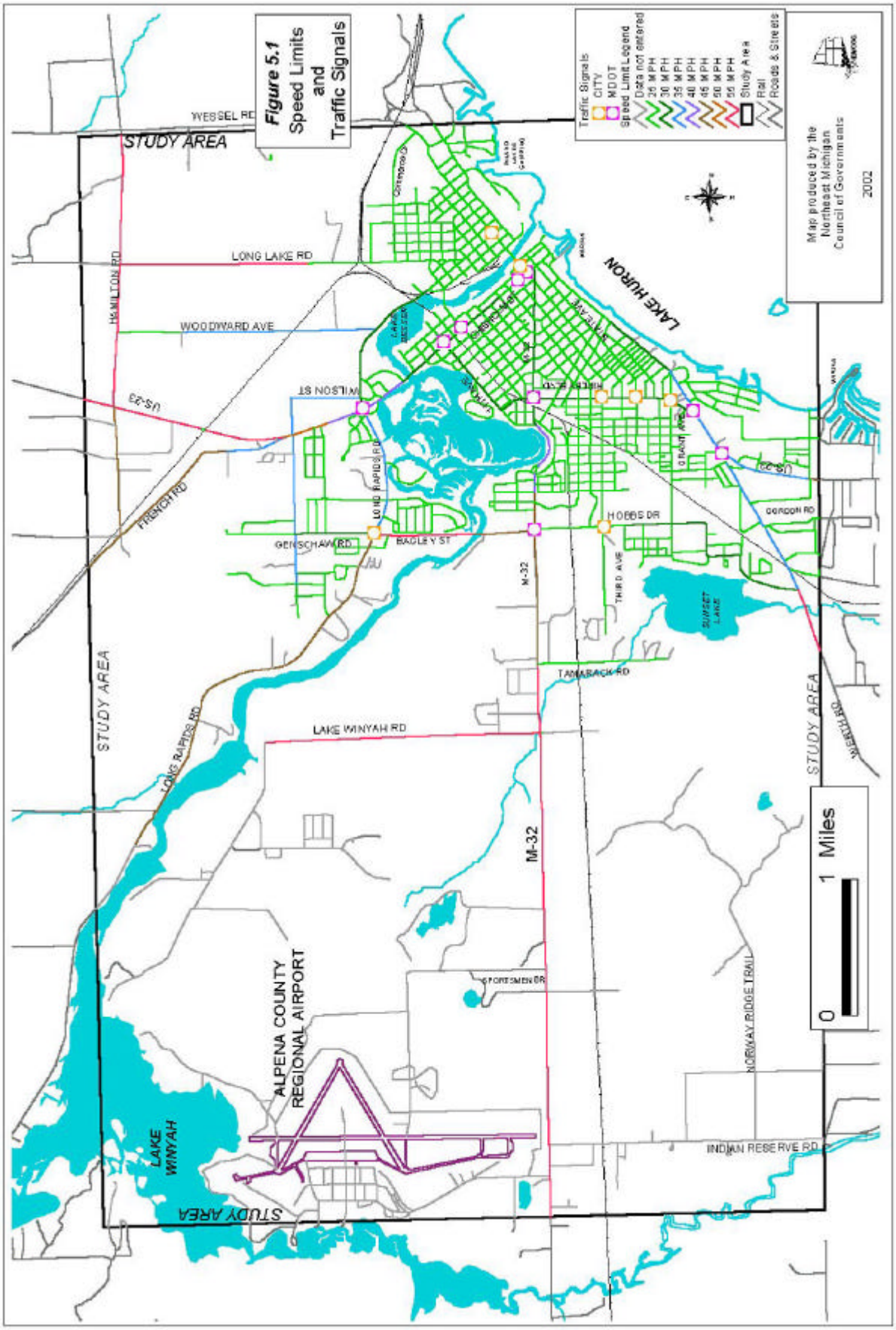
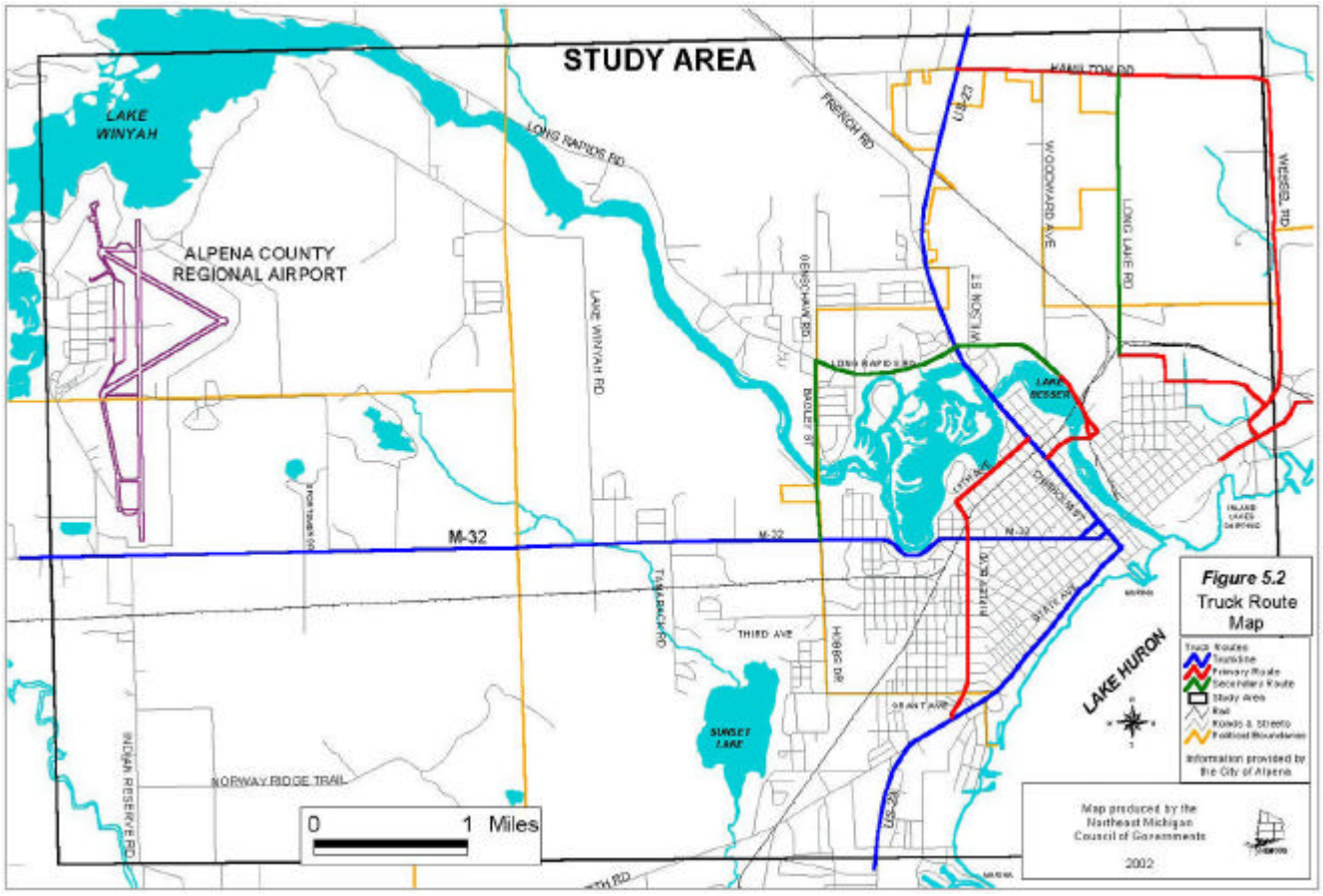


Figure 5.1
Speed Limits and Traffic Signals
Traffic Signals
CITY
MDOT
Speed Limit Legend
Data not entered
25 MPH
30 MPH
35 MPH
40 MPH
45 MPH
50 MPH
55 MPH
Study Area
Rail
Roads & Streets
Map produced by the Northeast Michigan Council of Governments
2002
STUDY AREA
WESSEL RD
LONG LAKE RD
HAMILTON RD
WOODWARD AVE
US-23
WILSON ST
FRENCH RD
LONG RAPIDS RD
GERSCHAW RD
BAGLEY ST
HOBBS DR
GORDON RD
THIRD AVE
M-32
TAMARACK RD
LAKE WINYAH RD
LAKE HURON
SUNSET LANE
ALPENA COUNTY REGIONAL AIRPORT
SPORTSMEN DR
NORWAY RIDGE TRAIL
INDIAN RESERVE RD
LAKE WINYAH
0
1 Miles

Truck and Commercial Traffic Routes

Alpena has long been an important industrial commerce area, which means that a significant amount of industrial truck traffic is generated here every day. There are several major producers located south and west of the Thunder Bay River that generate approximately 27 truck trips per day, however the majority of local industrial truck traffic originates on the north and east side of the Thunder Bay River, generating approximately 154 truck trips per day. Additional truck traffic is generated elsewhere in the state and country, and delivers goods and materials to the Alpena industrial sites, retail shopping centers, food distributors, fuel distributors, and warehouses.



The routes generally used by large commercial and industrial vehicles while enroute in the study area include US-23/Chisholm, Hamilton Road, Wessel Road, Long Lake Road, Johnson Street, Bagley Street, Woodward Avenue, Ford Avenue, Long Rapids Road, M-32, Ripley Boulevard, 11th Avenue, 9th Avenue, and Miller Street. The City of Alpena produces a map which displays the truck routes

Major Traffic Generators

To determine the location of significant traffic generators, assumptions were made that major employers, large trucking firms, schools, fast food restaurants and party stores, major hotels and conference centers, and large retail centers were all sources of significant traffic generation (the Existing Land Use section in **Chapter 2** discusses numbers of trips generated by type of land use). These locations have been placed on the study area map (**Figure 5.3**), and are classified by type of traffic generation.

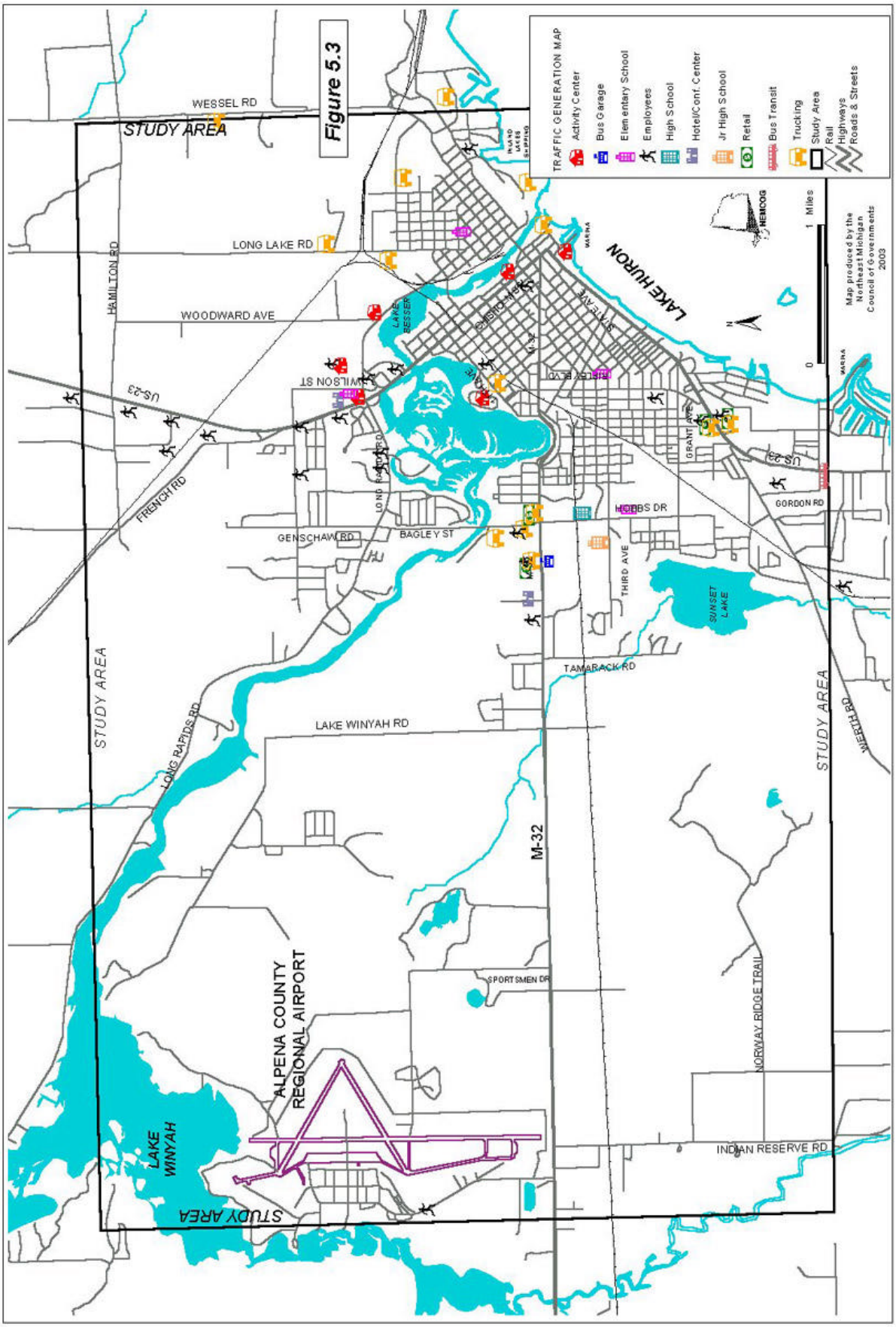


Figure 5.3
TRAFFIC GENERATION MAP
Activity Center
Bus Garage
Elementary School
Employees
High School
Hotel/Conf. Center
Jr High School
Retail
Bus Transit
Trucking
Study Area
Rail
Highways
Roads & Streets
1 Miles
0
Map produced by the Northeast Michigan Council of Governments 2003
WESSEL RD
STUDY AREA
LONG LAKE RD
HAMILTON RD
WOODWARD AVE
LAKE HURON
LAKE BESSER
WILSON ST
US-23
FRENCH RD
GENSCHAW RD
BAGLEY ST
LONG RAPIDS RD
HOBBS DR
GORDON RD
GRANT AVE
THIRD AVE
SUNSET LAKE
TAMARACK RD
LAKE WINYAH RD
M-32
WERTH RD
ALPENA COUNTY REGIONAL AIRPORT
SPORTSMEN DR
NORWAY RIDGE TRAIL
INDIAN RESERVE RD
LAKE WINYAH
STUDY AREA

Although residential areas also generate significant automobile traffic, the 14.5% of the land area that is residential is relatively dispersed throughout the study area, and does not warrant specific map identifier points.

Parking Facilities and Alleys

There is currently adequate municipal parking within the City of Alpena. The City owns and maintains 25 parking lots (for a total of over 1,500 parking spaces), in addition to allowing curbside parking on many streets in the downtown area. Parking is not metered in the City of Alpena. The parking lots associated with the City's parks provide not just a functional car storage area, but also promote a "gathering place" atmosphere.

In contrast, are parking areas such as those found in some retail shopping centers along US-23 South and M-32 West. These are wide expanses of asphalt in front of buildings that are set farther back from the roadway, which can discourage the safe use of the parking areas by pedestrians and bicyclists. These large parking areas appear to have more parking spaces than are needed (many remain empty throughout the day).

Alleys can perform many functions as part of a transportation network. Some of the alleys in the City of Alpena have been paved, while others exist only on paper. Retaining the right-of-way of these alleys can provide the City with alternatives for the future.

Origins, Destinations, Through Traffic

Weekday origin and destination studies were conducted by the Michigan Department of Transportation in 1962, in 1976, and again in 1987 to ascertain the movement of traffic in the Alpena urbanized area. Surveys were conducted to determine the approximate percentage of trips that had a local destination, and the percentage which were through trips to some other destination.

The 1962 study found that:
89.5% of the trip movements were local trips
10.5% were through trips to some other destination

The 1976 study found that:
91.6% of the trip movements were local trips
8.4% were through trips to some other destination

The 1987 study found that:
90% of the trip movements were local trips
10% were through trips to some other destination

In all three cases, approximately 90% of the vehicles were local traffic, and only about 10% were vehicles that were passing through the urbanized area to get to some other destination. This is in contrast to urban areas to the north and south of Alpena, which in 1987 showed Rogers City with 75% local traffic, and the City of Harrisville with 60% local traffic. There is a reasonable measure of confidence that conditions in Alpena have not significantly changed in such a way that would alter the 90% local and 10% through trip percentages at the writing of this Plan.

Employee Survey:

To plan for future transportation infrastructure needs, it is beneficial to determine which routes are most heavily used by the 90% local traffic. In order to determine where local trips originate, and which preferred routes are taken to local destinations, Capital Consultants conducted a survey of employees. Three major places of employment were asked to distribute the survey. Special appreciation is expressed to the Alpena Public Schools and Besser Company for their assistance in providing and collecting their employees' surveys. The following are questions on the survey:

1. How do you get to work?

_____ Automobile _____ Bus _____ Other

2. Which direction do you live from your work place?

_____ North _____ South _____ West

North = toward Rogers City
South = toward Tawas
West = toward Hillman

3. Which roadways do you take to reach your work place?

_____

4. How far is your home from your work place?

_____ 0-5 miles _____ 5-10 miles _____ over 10 miles

5. Do you have any comments towards improving traffic operations in this area?

_____

Survey Results (487 Respondents)

The method of commuting included:

Car/Truck	98%
Bus	5 respondents
Walk	3 respondents
Car Pool	2 respondents

Commute Distance and Direction the Resident lives from Downtown:

	0-5 Miles	5-10 Miles	Over 10 Miles
North	7%	6%	12%
South	14%	5%	12%
East	6%	-	-
West	12%	4%	12%

Roads Used most frequently by Commuters:

US-23	33%
Long Rapids	27%
Bagley	19%
M-32	14%
Werth Road	13%
Hobbs	12%

The most frequent Survey Comments included the following:

Commuters would like a second access to Thunder Bay Junior High on 3rd St. The only access is from the east by way of Bagley to 3rd street. They would prefer an access to the west (3rd to Tamarack to M-32 with Tamarack to be paved and a stop light to be placed on M-32/Tamarack).

Commuters would like to lengthen the left turn lane and include a left turn signal heading west on Long Rapids Road to Bagley Street.

Commuters would like a safer more efficient way of getting traffic in and out of the Wal-Mart and Home Depot properties. Suggestions were a second entrance off of Bagley Street, a signal at the current Wal-Mart and Home Depot entrance or to slow the speed down in the commercial area of M-32.

There were many complaints about the turn signal at 11th Street. When turning onto Chisholm (US-23 North), traffic is backed up for long periods.

Tourism Traffic

Tourism plays a role in trip generation, and evidence provided by the Alpena Convention and Visitors Bureau supports the concept that Alpena County is a chosen destination. An Alpena County tourism study was completed in 2002 by Michigan State University (MSU) that showed a 10% rise in tourism activity between 1990 and 2000. The MSU models use existing data such as lodging room taxes/assessments, government reports of tourism-related sales and employment, visitor surveys, camping data, seasonal homes data, and other information. The results of this study further show that in the year 2000, Alpena County hosted approximately 445,000 person trips, or 165,000 party trips-assuming an average of 2.6 persons per party of tourists. In this study, tourists included all travelers of more than 50 miles, including seasonal home owners and visiting friends and relatives.

Although tourism adds to the number of trips generated in the study area, the origin/destination studies show that this source of traffic does not contribute significantly more to congestion or road capacity problems than other locally generated sources.

Access Management Policies

Access management is the process of providing for access to land developments, while simultaneously preserving the safe flow of traffic on the surrounding public road system. Good access management can:

- Reduce crashes and crash potential;
- Preserve roadway capacity and the useful life of roads;
- Decrease travel time and congestion;
- Improve access to properties;
- Coordinate land use and transportation decisions;
- Improve air quality;
- Maintain travel efficiency and related economic prosperity.

Since zoning ordinances are expected to reflect community policies, and provide an enforcement mechanism for those policies, support for policies on access management should be found in the zoning language in each ordinance. It is the intent of this section to examine the zoning ordinances of each respective community in the study area for appropriate language on access management techniques. This will be indicative of each community's policies. A summary of provisions relating to access management in each ordinance is as follows:

CITY OF ALPENA

Most of the zoning ordinance regulations regarding access and access management are contained within the site plan approval standards. Within the standards there are several requirements which are intended to develop and maintain good access, provide for efficient and safe pedestrian and vehicle circulation flows and provide for adequate access for emergency vehicles. The standards are basically non-quantitative and application is based on the judgement of the Building Official or the Planning Commission. Administration of several standards requires the Planning Commission or Building Official to make specific determinations on the meaning of terms such as "adequate, excessive, adversely and effectively".

Outside of the site plan review standards, the City of Alpena Zoning Ordinance has limited language on access management and access controls. There is a regulation that requires that accesses for certain uses must be provided by using an "existing or planned major thoroughfare, freeway service

drive or collector street". The Planning Commission may waive this requirement if certain circumstances exist, or, in their judgement, substantial safety improvements can be achieved by allowing access by some other means.

Some specific access design criteria are included in the parking lot design standards. The regulations include requirements that establish limits on the number of access points (1 per each 66 feet of lot width), determine the location of access points, and provisions for maneuvering lanes that provide for safe circulation and prevent backing directly onto a street.

TOWNSHIP OF ALPENA

Contained in the site plan approval procedures, there are general statements that give the planning commission the responsibility to consider the location and design of driveways and access points to insure the safety and convenience of pedestrian and vehicle traffic and to allow for the harmonious coexistence of new and existing land uses.

In the General Provisions Article of the Ordinance there is an Access Management section. Currently the regulations only apply to M-32 and US-23, although this section is being revised to include more roads and more detailed standards. In this section, there are specific and quantitative requirements that limit the number of accesses, and design criteria is provided for the construction of driveways. The section includes regulations on spacing, width, and location of driveways, provisions for landscaping, and considerations for high traffic uses. Prior to the Planning and Zoning Commission's review of site plans that fall under these provisions, a review by the Alpena County Road Commission and the Michigan Department of Transportation is required.

There are general access requirements included in the parking lot design standards which require the zoning administrator to review and approve parking lot access to ensure the greatest possible public welfare and safety. Several of the identified special approval uses include specific access requirements that provide for the location of access points. The specific uses that have access criteria are drive-in theaters, race tracks and car washes.

WILSON TOWNSHIP

Although the Wilson Township Zoning Ordinance does not have a specific access management section, access requirements and standards are included in the site plan review, special use permit, and Planned Unit Development processes.

General access and circulation standards are listed in the site plan review approval procedures. The approval procedures require that the planning commission consider the location and design of ingress and egress, the safety and circulation of pedestrians and vehicles within the site and adjacent streets, and that the new land use fits harmoniously with existing land uses.

More detailed access review standards are included as conditions of specific uses and/or are included in the review process for special approval uses. Golf courses, colleges, churches, motels, professional offices, fraternal lodges, personal service establishments, and similar high traffic uses are required to have accesses located on either a major thoroughfare or a primary county road or state trunkline. When considering special approval uses, the Planning Commission must determine that the use will not have a detrimental impact upon surrounding land uses in regard to the potential traffic generation. Special approval uses must have suitable access to the site for truck traffic, provide for the safe movement of pedestrian traffic, and the site must not use minor residential streets to accommodate the use.

Additional access standards are applicable for plans reviewed under the Planned Unit Development (PUD) requirements. Internal traffic flow, ingress and egress, and external traffic flow are considered. The standards require that the traffic systems be designed to promote safety, convenience, easy access, and separation of vehicles from pedestrians. The review standards also promote the design of internal circulation systems within a PUD that are not connected to external street systems. The PUD requirements have specific design criteria for private streets. As previously stated, streets must be built to public road standards unless approval is received from the fire chief, sheriff, drain commissioner, and road commission. The Planning Commission must determine that any proposed deviations are not inimical to the health, safety and welfare of the Township. The PUD requirements list minimum right-of-way (ROW) and pavement widths ranging from 30 feet ROW with 18 feet of pavement to 60 feet ROW with 36 feet of pavement, depending upon the number of dwellings or use served by the street.

MAPLE RIDGE TOWNSHIP

The Maple Ridge Township Zoning Ordinance does not have a specific access management section. Minimal access and circulation standards are listed in the site plan review standards. The standards require that the zoning board consider the location and design of ingress and egress, the safety and circulation of pedestrians and vehicles, and the impacts on adjacent streets and uses. The ordinance has minimal access requirements associated with specific principle uses or conditional/special uses.

Crashes and Safety

Alpena County crash data was provided by Michigan Technological University (MTU) through their RoadSoft GIS software development program. Also, very accurate referencing and crash descriptions were secured from MDOT. The Michigan State Police (MSP) crash data was processed by MTU for the years 1995 through 1999. The data is originally from UD-10 forms that are completed by police officers at crash sites, entered into the MSP computer system, and then an automated process is used to locate approximately 70% of the crashes for use in geographic information systems (GIS). The remaining 30% of crash locations on the forms must be examined by individuals who will then manually enter the locations of crashes into the GIS. The years 2000 and 2001 crash data have gone through the automated process, but there are still about 30% of these crashes which have not yet been manually located. For this reason, the data from these years were not used for analyses in this Plan. Digital crash information includes crash type, date, time of day, and weather conditions. The scope of this Plan includes the location of crashes, and a summary of the types of crashes found in the study area.

The number of crashes occurring in the study area are as follows:

1995: 655 crashes
1996: 701 crashes
1997: 659 crashes
1998: 614 crashes
1999: 1,196 crashes

It is not known whether the number of crashes in 1999 were an anomaly or if there is a new trend toward a greater number of crashes in the Study Area. The subsequent years 2000 and 2001 crash data are needed for this determination.

A breakdown of the percentages of each type of crash for the most recent year available, 1999, is as follows:

Type of crash	*Number of crashes*	*Percent of total*
Miscellaneous single vehicle	143	12.0%
Miscellaneous multiple vehicles	497	41.6%
Overturned vehicle	5	0.4%
Head-on collision	10	0.8%
Head-on involving left turn	23	1.9%
Rear-end collision	303	25.4%
Side swipe	108	9.0%
Pedestrian involved	1	0.1%
Bicycle involved	17	1.4%
Animal involved	89	7.4%

These percentages are fairly representative of the types of crashes found in the previous years. A crash location map for the year 1999 is shown on the following page, **Figure 5.4**. The crashes appear to be relatively dispersed, and are in no apparent concentration by type, except that there are normally a greater number of crashes that occur at major intersections than occur along road segments. The reasons for this include more conflict points occurring at intersections, a certain percentage of drivers disregarding a traffic control, and drivers exceeding a safe speed when traffic ahead is slowing near an intersection.

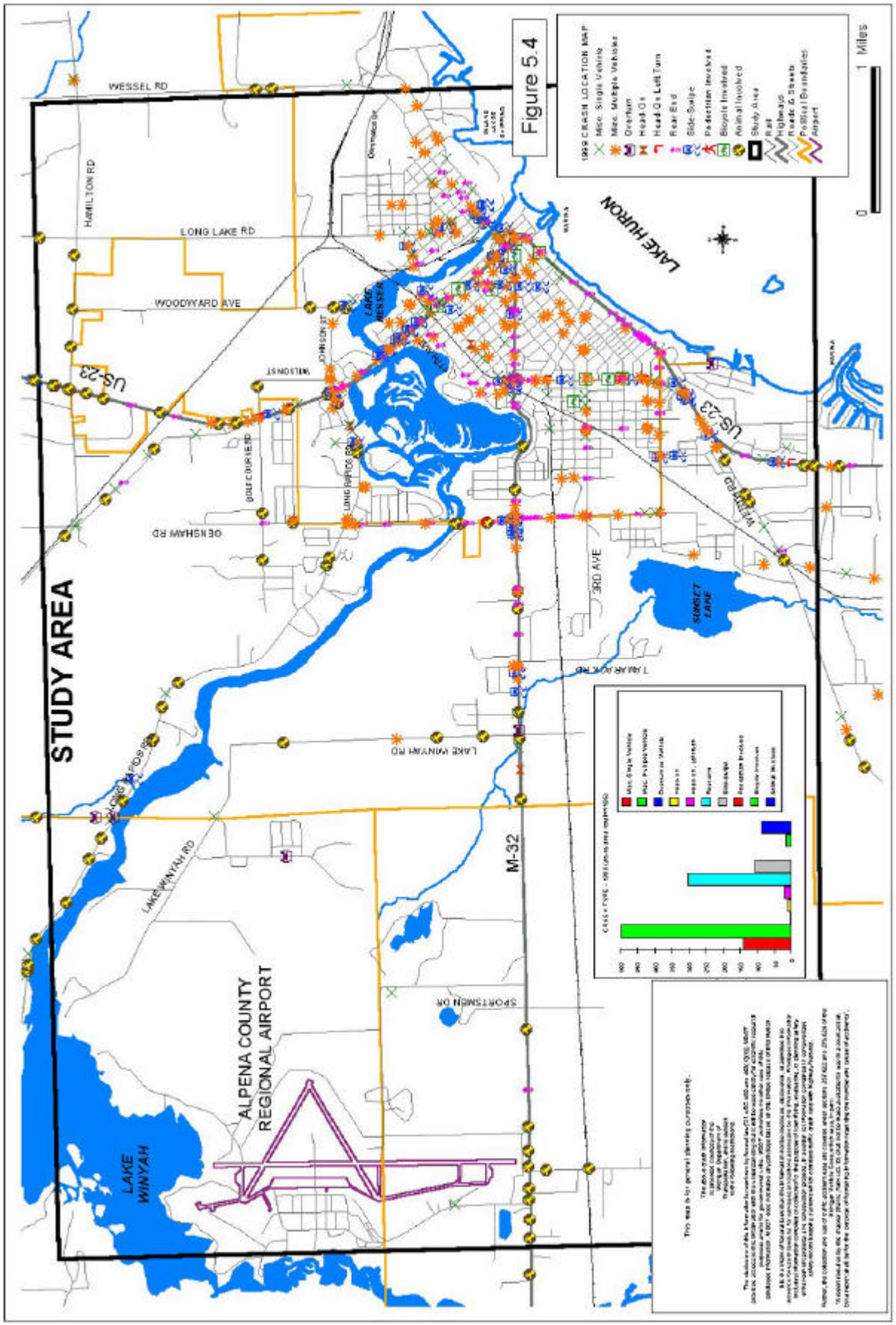


Figure 5.4
STUDY AREA
WESSEL RD
HAMILTON RD
LONG LAKE RD
WOODYARD AVE
US-23
LAKE HURON
LAKE WINYAH RD
M-32
ALPENA COUNTY REGIONAL AIRPORT
LAKE WINYAH
SUNSET LAKE
3RD AVE
SPORTSMEN DR
0
1 Miles

Historical analysis of crash data provides important information on the concentration, crash type, and severity of traffic crashes. Analyses can glean significant information from the frequency and location of "correctable" crashes that should lead to improvements to driving environments. Correctable crashes are those types of which engineers and planners are able to reduce their number and severity through signal improvements, right-of-way acquisition, site distance improvements intersection geometry, traffic control devices, and access management techniques. Access management is important because it will reduce the number of potential traffic conflicts that increase the possibility of crashes occurring. Correctable crash types can include head on-left turn, rear end, and angle crashes.

It can be seen that the correct description of crash conditions are very important to traffic engineers and planners. All agencies including the Michigan State Police, Alpena County Sheriff and Alpena City Police should coordinate efforts to report information the same way, and follow the procedure described in the UD-10 reporting manual. Necessary information includes the type of crash, whether the crash was influenced by a signal, and if the crash was within 250 feet of an intersection. Given the broad variety of roadway types and the overlapping enforcement agencies in the study area, acquiring an accurate inventory of historical crash experience can be difficult.

By analyzing the crash information, two (2) intersections were recognized as high-incidence crash locations. However, the closeness of intersections have created overlapping counts because mid-block and intersection crashes were intermixed. These locations were:

US-23 at M-32, with US-23 at 2nd Avenue
US-23 at 9th Avenue, with US-23 at 11th Avenue

Improvements have been made to these intersections during the course of this study (2002), and it is expected that these improvements will mitigate many potential problems that had previously existed.

There is also the potential for a reduction in correctable crashes at the following locations:

US-23 at 9th Avenue had 20% correctable crashes
US-23 at 11th Avenue had 28% correctable crashes
US-23 at Long Rapids Road had 40% correctable crashes
US-23 at Golf Course Road had 51% correctable crashes
M-32 at Bagley Street had 20% correctable crashes
M-32 at Ripley Boulevard had 40% correctable crashes

There were no crash tabulations available for County Roads and City Streets. Further investigation and review is warranted at intersections where at least 20% of the crashes were correctable to see if there are defined crash patterns. Investigations should include reviewing the UD-10 reports.

Current Traffic Volumes

Existing traffic data was compiled from the following sources: the Michigan Department of Transportation, the City of Alpena, the Alpena County Road Commission, and the Northeast Michigan Council of Governments. Traffic data was collected in the form of 24-hour daily traffic volumes along corridors in the study area. The traffic surveys were random and unadjusted to seasonal and daily variations. However, an attempt was made to update the data to Year 2001 volumes by adding 1% per year for older data. **Figure 5.5** graphically shows 2-way ADT traffic volumes (using volume bars of varying widths) on Alpena's major street and roadway network.

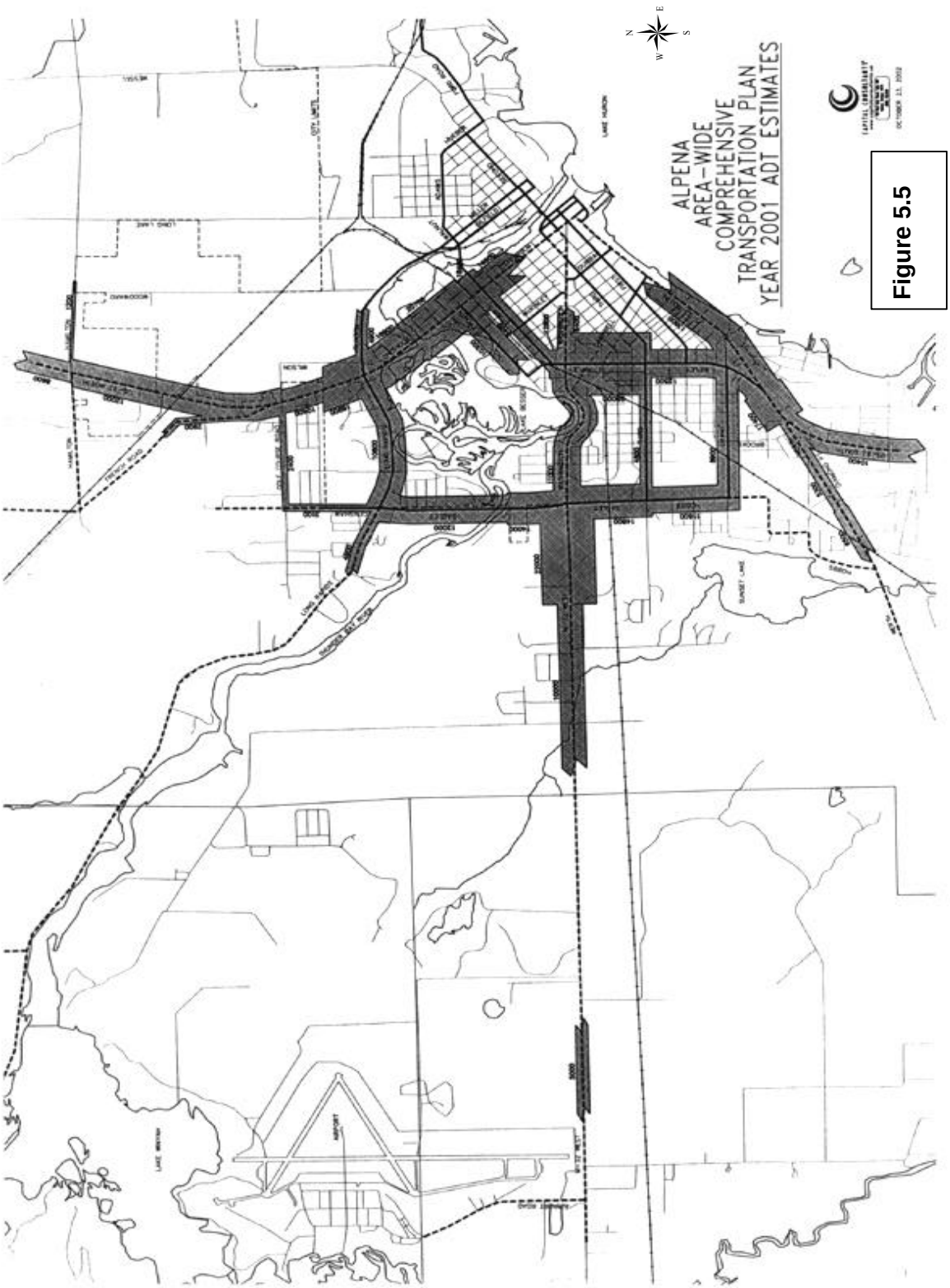

ALPENA
AREA-WIDE
COMPREHENSIVE
TRANSPORTATION PLAN
YEAR 2001 ADT ESTIMATES

Figure 5.5

Current Operating Conditions (Capacities and Potential Deficiencies)

Important facts worth noting of the traffic volume collection and evaluation process are as follows:

- State highways US-23 and M-32 carry the largest percentage of traffic volumes and most of the intersectional congestion and related crashes.
- Ripley Boulevard in the City of Alpena carries the highest single daily traffic, approximately 28,000 vehicles per day (vpd) south of 5th Avenue.
- Traffic volumes occurring in the City's center have seen a slight decline.
- Commercial Developments (especially Home Depot and Super Wal-Mart) on M-32 west of Bagley Street have increased traffic by 25% in the past three (3) years from 17,600 vpd to 22,000 vpd.
- The majority of traffic generation and activity centers are situated on or near the two state highways, M-32 and US-23 (over 80%).
- There is a lack of adequate access management as evidenced by the high volume of turning in-out-in-out traffic on the state highways and a few major streets such as South Bagley Street, from M-32 to Grant Avenue.

Figure 5.6 shows existing volume/capacity (V/C) ratios at the PM Peak Hour flow. The ratio has a general threshold value of 0.50 showing congestion is beginning to become a problem. Current ADT values show only four (4) intersection locations with a ratio equal to or greater than 0.50.

M-32 and Bagley Street from the south.
M-32 and Bagley Street from the west.
Long Rapids Road and Bagley street from the south (prior to 2002 improvements).
US-23 and 11th Avenue from the north.

The only major congested area (based on numbers only) is the intersection of M-32 and Bagley Street from the south.

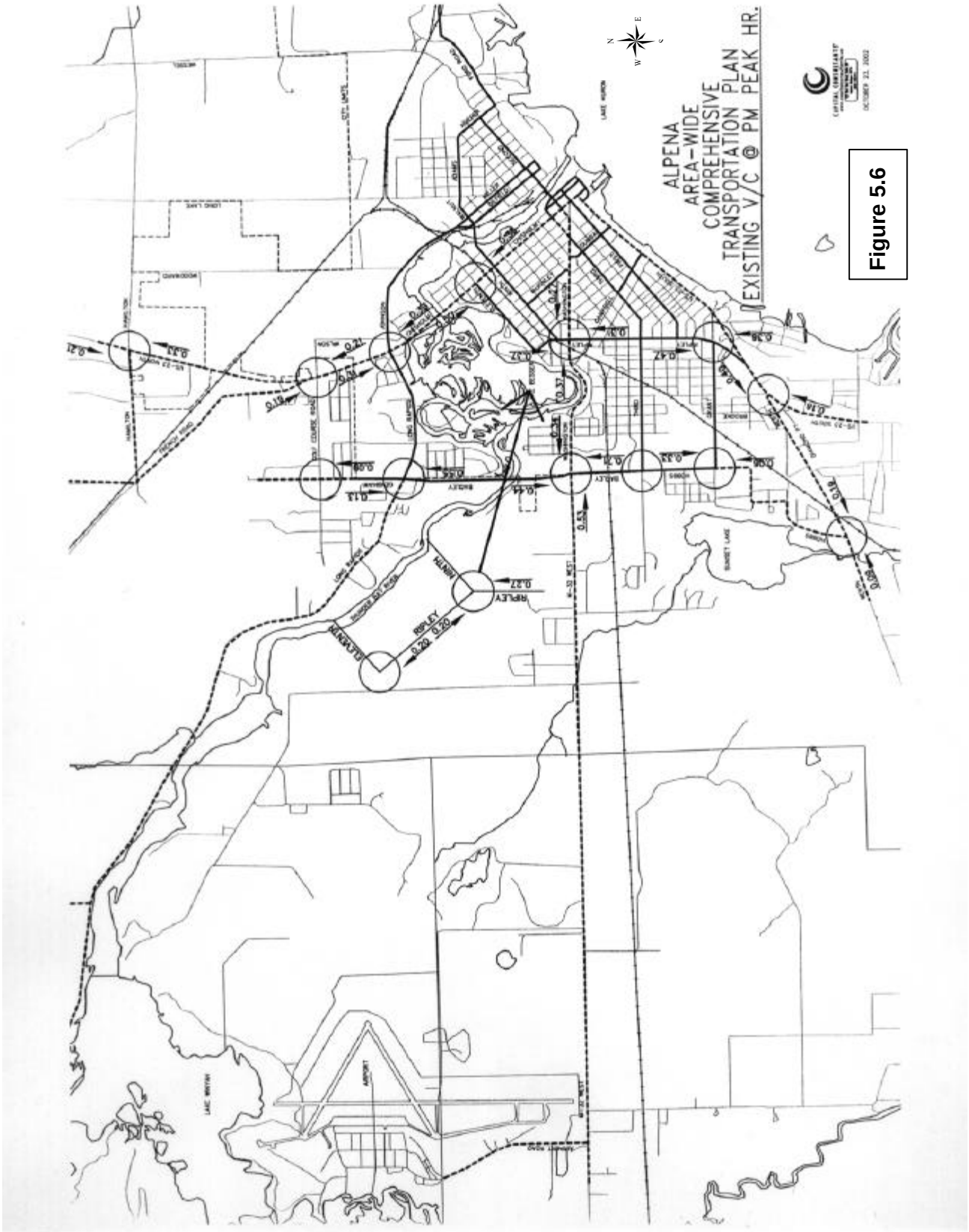

ALPENA
AREA-WIDE
COMPREHENSIVE
TRANSPORTATION PLAN
EXISTING V/C @ PM PEAK HR.

Figure 5.6

Planned Improvements and Anticipated Transportation Infrastructure Needs (MDOT, County Road Commission, City of Alpena, Townships, Alpena Community College)

There are important improvements planned over the next several years that will affect the study area's transportation system. It is anticipated that some of these projects will affect more than one jurisdiction and that there will be a cooperative effort between jurisdictions, where possible, to ensure mutually beneficial outcomes. The following projects are dependent on jurisdictional cooperation and on necessary funding to be available.

Michigan Department of Transportation

2003 Add right turn lane at 11th and Chisholm Street if City of Alpena obtains right of way
Signage upgrade on US-23 in Alpena County, started late 2002
2004 US-23 reconstruction project from Island Drive to Timm Road
Widen US-23 (State Street) from 2 to 3 lanes from Grant Street to Blair Street
Signage upgrade on M-65 (outside of this study area, but mentioned as an existing north-south route)
2005
2006 Widen and reconstruct M-32 to five lanes from Bagley Street to Walter Street, and from three lanes from Walter Street to Lake Winyah Road

Anticipated needs:

-Widen M-32 from 2 to 3 lanes from 8th Ave. to 11th Ave. and improve radii at the Washington and Ripley Boulevard intersection
-Re-align French Road at US-23, and widen US-23 from 2 to 3 lanes from French Road north to Hamilton Road
-A coordinated signal timing system for Ripley Boulevard to improve traffic progression (City of Alpena)
-Reconfigure US-23 (Chisholm Street) to be all 3-lanes instead of the present configuration of 2, then 3, then 2 lanes again in the downtown area.

Alpena County Road Commission

2003
2004
2005
2006 (resurface or reconstruct..) French Road from US-23, north 1 ½ miles

City of Alpena

2003 Pedestrian lighting upgrade, street amenities, downtown (DDA, continuing through 2008…)
Signage (DDA)
Cemetery road paving (continuing through 2008…)
Marina amenities and aesthetics improvements
Thin overlay resurfacing project
Intersection improvements (continuing through 2008…)
High-use alley paving (through 2005)
Johnson Street reconstruction (through 2004)

Park Place resurfacing
Sidewalk improvement program (continuing through 2008…) (Marina sidewalk, through 2006)
2004 Downtown streetscape improvements, Washington Avenue and Second Avenue (DDA)
Island View Drive resurfacing
Hueber Street resurfacing
Chip seal gravel streets
Long Rapids Road, Oxbow Development
2005 Tuttle Street resurfacing
Wisner Street resurfacing
June Street resurfacing
Long Lake Avenue resurfacing
Walnut Street resurfacing
Carter Street resurfacing
2006 Fair Street resurfacing
Cavanaugh Street resurfacing
Dawson Street resurfacing
Ripley Boulevard improvements (continuing through 2007)
2007 River Street reconstruction
Merchant Street reconstruction
Bagley corridor improvements

Alpena Township

2003
2004
2005
2006 Sidewalks along M-32 from Bagley Street to Walter Street

Alpena Public Schools

Anticipated Needs:

A rail-trail crossing is needed, south of the M-32 bus garage to the Junior High School. Approximately 70% of the bus fleet would use this crossing in the morning, and 37% in the afternoon.

Alpena Community College
(Comprehensive plan is not available at the time of this writing)

2003
2004
2005
2006
2007

Projected Conditions

Future Traffic Volumes

To determine long-term traffic growth in the Alpena area the following references were reviewed and applied:

- MDOT Statewide Model Growth Roles for US-23 and M-32 (Tranplan).
- *Michigan Sub-State Area Long Range Plan*, 1995-2015.
- Population data from the US Census, Years 1980, 1990 and 2000.
- ADT comparisons between 1997 and subsequent years.
- MDOT Sufficiency Rating documents from 1988 and 1999.

The overall conclusions toward establishing a rational and defendable yearly growth were as follows:

- Alpena County is slowly gaining population annually.
- The City of Alpena is seeing a slight reduction in population annually.
- Traffic flow growth in the last five (5) years was directly related to new commercial developments on M-32 west of Bagley Street and a desire to traverse through the City efficiently using Ripley Boulevard.
- Economic indicators, based on 2015 Statewide Model estimates are negative except for the growing percentage of second homes and an increase in service jobs (commercial and retail).

On major state roads for the Alpena area, there were no capacity deficiencies discovered for the current years through the Statewide Traffic Model.

It was determined that future traffic volumes should be calculated at 1% growth per year (**Figure 5.7**) to establish the basis for capacity and congestion calculations that are subsequently presented. Projected traffic conditions were established based on 2020 projected traffic volumes for the study area corridors. The following is a summary of the projected travel conditions along these corridors.

Future Operating Conditions-2020 (Capacities and Potential Deficiencies)

It is generally expected that suburban areas around the perimeter of the City will have increased traffic, but the City population and traffic will stay about the same. **Figure 5.8** shows future V/C (volume/capacity) ratios at the PM Peak Hour flow. As stated previously, the ratio has a general threshold value of 0.50 showing congestion is beginning to become a problem. Future ADT values show only seven (7) intersection locations with a ratio equal to or greater than 0.50.

M-32 and Bagley Street from the south.
M-32 and Bagley Street from the west.
M-32 and Bagley Street from the north (analysis was completed prior to 2002 improvements).
Long Rapids Road and Bagley Street from the south (analysis was prior to 2002 improvements).
11th Avenue and US-23 from the northwest.
Grant Avenue and Ripley Boulevard from the north.
Grant Avenue and Ripley Boulevard from the south.

The major congested area (based on numbers only) is the M-32 & Bagley intersection from the south.

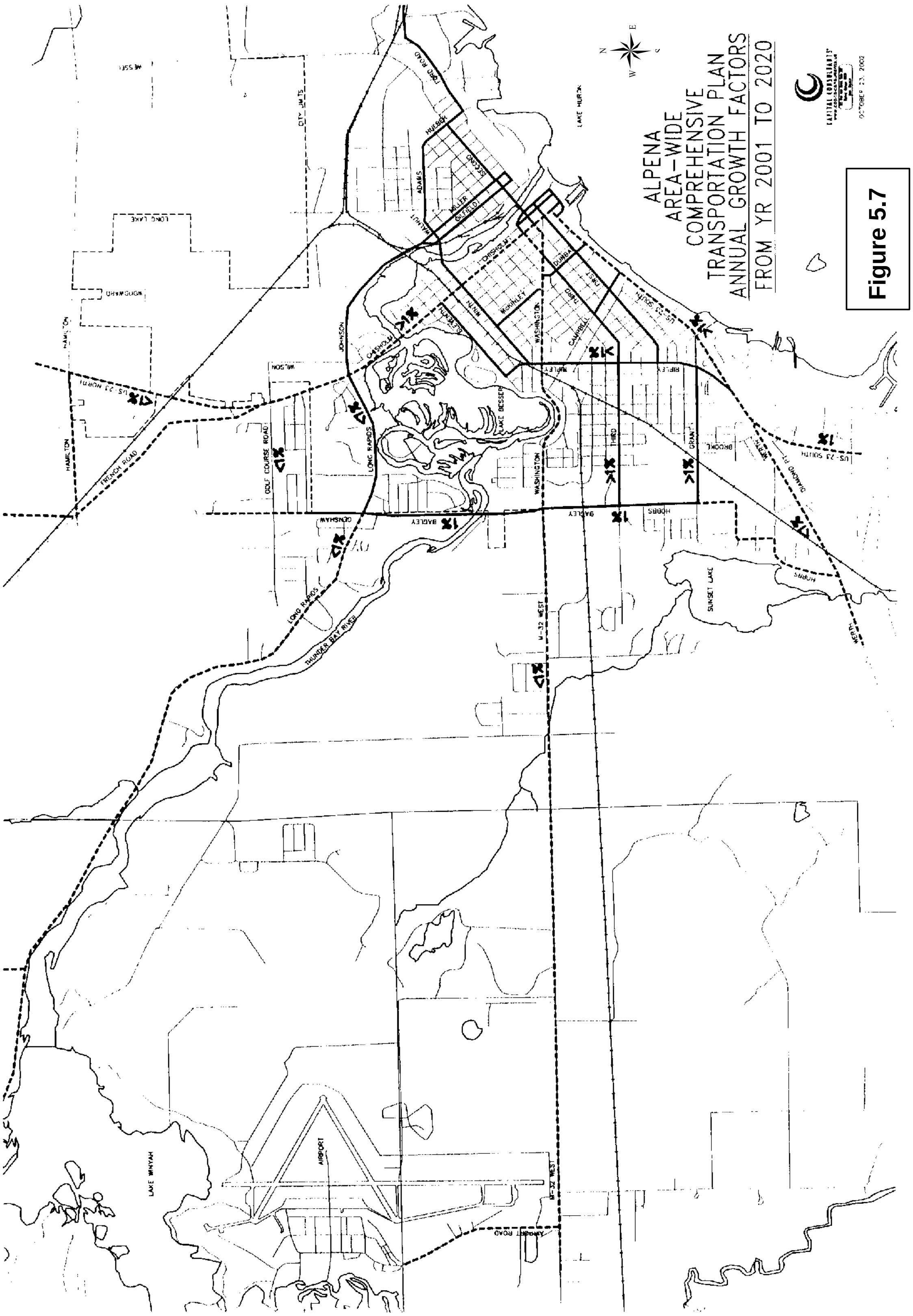

ALPENA
AREA-WIDE
COMPREHENSIVE
TRANSPORTATION PLAN
ANNUAL GROWTH FACTORS
FROM YR 2001 TO 2020

Figure 5.7

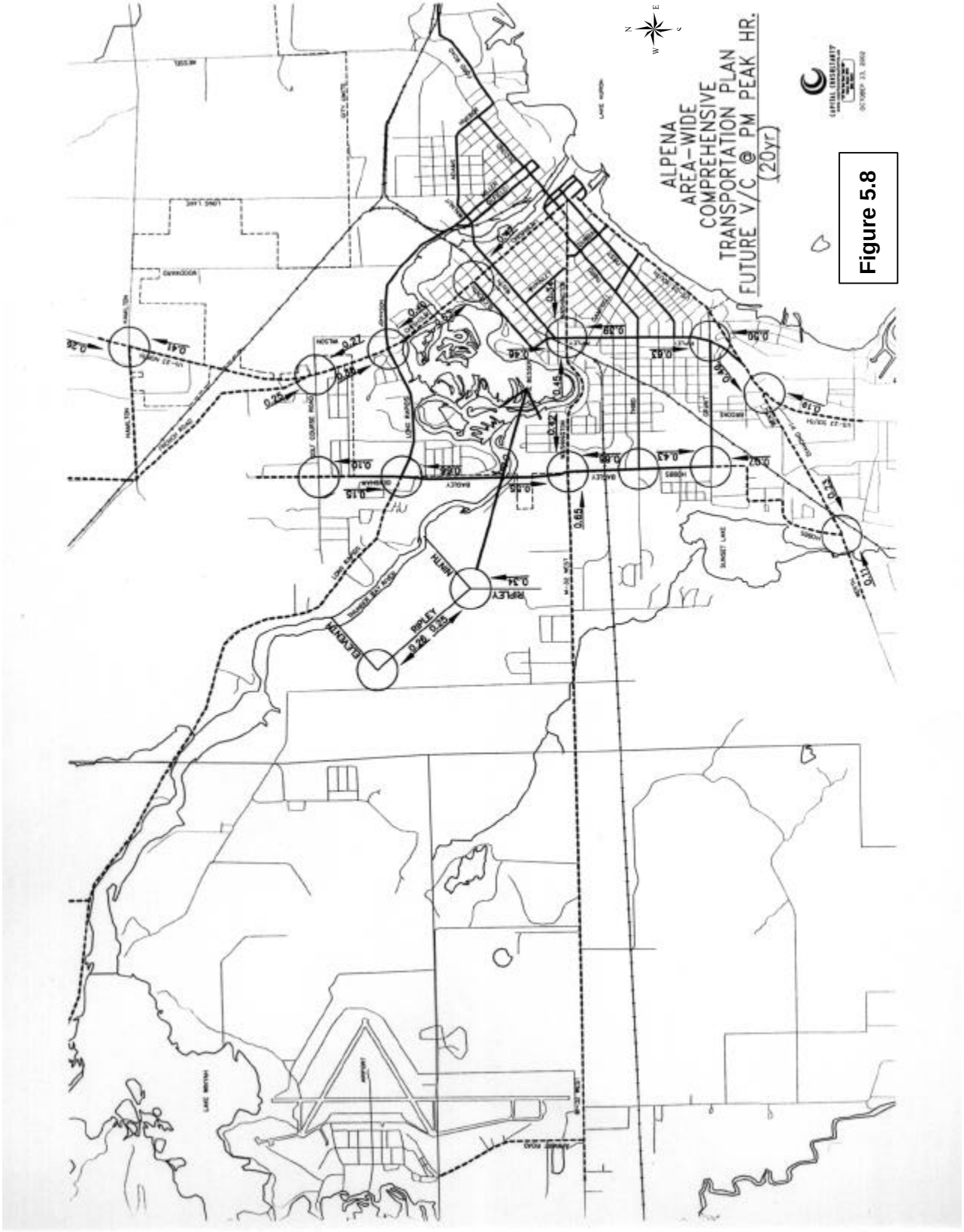

ALPENA
AREA-WIDE
COMPREHENSIVE
TRANSPORTATION PLAN
FUTURE V/C @ PM PEAK HR.
(20yr)

Figure 5.8

From an engineering standpoint, certain monitoring of the roadway/street operations will be required to maintain the transportation system, and include the following:

1. A Crash Analysis (to be done by local agencies) in which three (3) years of historical crash data is collected and reviewed for concentration, crash types, injury rates and in some cases rate per 100 million vehicle miles.

   This analysis is a retro-look of failures in the traffic flow and/or signatures of flows in the vehicles-operating environment. The analysis is very effective in determining which are the "correctable crashes" that can lead to direct corrective action.

2. Traffic Volume Surveys are important for growing and changing communities. A monitoring of traffic volumes can discover changing traffic patterns due to congestion or home-to-work travel needs.

   Correlation of traffic volume growth with census data and/or housing statistics can provide valuable information on work place shifts, land-use changes and an indication of sudden volume peaks, which may require urgent attention.

3. Congestion Measures
   Peak-hour traffic volumes (V) divided by the probable roadway capacity (C) provides the V/C measure, which is an indicator of roadway congestion. This fraction at 1.00 indicates total capacity utilization (i.e., a 'stand still' vehicle flow). Therefore, a ratio of 0.5 to 0.6 represents an average utilization of peak-hour roadway capacity. When the ratio is greater than 0.5, a Level Of Service (LOS) study is recommended.

4. Traffic Impact Studies
   To evaluate the impact of new developments, a Traffic Impact Study is needed. In this effort, existing traffic conditions are defined, background traffic growth is projected to date of project completion and the development site-related traffic is calculated. The increase in traffic is mitigated by roadway improvements.

   A critical part of this analysis is the calculation of LOS for each vehicle movement. This is the indication of time delays encountered by the various turning movements. See **Chapter 6**, which includes "Thresholds for Requiring Traffic Impact Studies".

Community or regional transportation issues may require the development of any one or more of these analyses to effectively manage traffic flows on streets and roadways.

Efficient traffic progression is essential on major roadways to maximize the safety and capacity of a roadway segment. Many variables are in effect when analyzing a roadway segment, including signal spacing, cycle length, and roadway speeds. Optimum traffic signal progression can be achieved depending on the cycle length and travel speeds. Long cycle lengths and the distances between them are proportional with high travel speeds, while shorter cycle lengths and the distances between them are proportional with lower speeds. According to the National Highway Institute, the following table (**Table 5.1**) displays the optimum signal spacing as a function of roadway speed and cycle length.

Table 5.1, Length of Signal Cycle

Cycle Length (sec)	Speed, MPH 25	30	35	40	45	50	55
	Spacing in Feet						
60	1,100	1,320	1,540	1,760	1,980	2,200	2,420
70	1,280	1,540	1,800	2,060	2,310	2,590	2,830
80	1,470	1,760	2,060	2,350	2,640	2,940	3,230
90	1,650	1,980	2,310	2,640	2,970	3,300	3,630
100	1,840	2,200	2,570	2,940	3,300	3,670	4,040
110	2,020	2,420	2,830	3,230	3,630	4,040	4,440
120	2,200	2,640	3,080	3,520	3,960	4,400	4,840

The number of vehicles that can flow on a roadway in a safe and effective manner defines its operating guidelines. Roadway capacity is defined based on prevailing conditions that include the type of roadway, types of traffic, and control measures, including distance between signals. Capacity usually is best based on reasonable daily events, and can be difficult to configure to seasonal variations or special events. It should be noted that it is not practical to design to the greatest capacity of a given roadway. According to the Institute of Transportation Engineers, roadway capacity guidelines include the following volumes (**Table 5.2**) per the type of road segment per hour:

Table 5.2, Roadway Capacity Guidelines

Roadway Type	2-lane (9 samples) max total volume	4-lane (6 samples) one-way volume	5-lane (1 sample) one-way volume
Urban	NA	2,100-3,800 vehicles	2,100 vehicles
Rural	1,500-3,100 vehicles	NA	NA

Many options are available to improve the operating conditions of the less productive road segments or intersections. A traffic engineer can choose to install a left turn lane or left turn signal phase, add a tapered right turn lane, or improve intersection radii. If suitable conditions exist, roundabouts are another way to improve an intersection, since by their design, they improve safety by eliminating left turn conflicts and reducing the opportunities for crashes, without the cost of traffic signals. Simple adjustments made to traffic signal controls can also improve the way an intersection or road segment is working. These suggestions when combined with access management and traffic calming techniques greatly assist in reducing vehicular conflicts with pedestrians, bicycles, and other vehicles. See **Chapter 6**, Access Management, for techniques that will increase roadway capacity, maintain the smooth flow of traffic, and increase overall safety for all modes of traffic. See **Chapter 8**, Improvement Strategies and Recommendations, which offers specific recommendations for improving the Alpena area's transportation system.

CHAPTER 6: Access Management

Introduction

Access management provides a systematic approach to balancing the access and mobility necessities of a roadway. Access management can be defined as the process of managing access to land development, while simultaneously preserving the flow of traffic on the surrounding public road system.

Property owners have a "right to reasonable" access to the general system of streets and highways. At the same time, adjacent roadway users have the right to freedom of movement, safety, and efficient expenditure of public funds. Balancing these interests is critical at locations where significant changes to the transportation system and/or surrounding land uses are occurring. The safe and efficient operation of the transportation system calls for effectively managing highway access, via driveways, streets, or other access points.

The specific techniques for managing access involve the application of established traffic engineering and planning principles. Ideally, these principles will:

- Limit the number of traffic conflicts (driveways and roadway turning movements);
- Separate basic conflict areas;
- Separate turning volumes from through movements;
- Provide sufficient spacing between at-grade intersections, including driveways;
- Maintain progressive safe traffic flow along arterials;
- Provide adequate on-site storage areas with good internal circulation.

The application of these principles will minimize disruptions to through traffic caused by access drives and intersections. More specifically, good access management can:

- Reduce crashes and crash potential;
- Preserve roadway capacity and the useful life of roads;
- Decrease travel time and congestion;
- Improve access to properties;
- Coordinate land use and transportation decisions;
- Improve air quality;
- Maintain travel efficiency and related economic prosperity.

Driveway Spacing

Access management increases the spacing between driveways, thus reducing the number and variety of events to which drivers along the corridor must respond. Close spacing between unsignalized driveways forces the driver to watch for ingress and egress traffic at several locations simultaneously. Increased spacing translates into fewer accidents, savings in travel time, and preservation of corridor capacity.

Driveways should be located to limit interference with the free movement of roadway traffic, and to provide the most favorable sight distance and driveway grade. No direct access drive should be located in the operational area of a signalized intersection.

Driveway spacing and location standards are based upon several factors. These include characteristics such as site frontage, roadway width, roadway classification, driver sight distance, and (most importantly) roadway speed. The following is a discussion of various factors that dictate driveway spacing and location.

Roadway Speed

The prevailing speed on the roadway is a primary factor in determining proper driveway spacing. Naturally, the higher the speed of the roadway, the more distance that is required for a motorist to react to changing traffic conditions. Thus, greater driveway spacing is required for higher speeds. Local driveway spacing standards can be derived from a variety of references, including MDOT's *Access Management Guidebook*. **Table 6.1** displays desirable separation distances for access drives and **Figure 6.1** displays the recommended driveway spacing for the rural areas where the speed limit is 55 mph.

Table 6.1 Desirable Separation of Adjacent Driveways

Highway Speed	Minimum Driveway Spacing
25 mph	135 feet
30 mph	185 feet
35 mph	245 feet
40 mph	300 feet
45 mph	350 feet
50 mph & above	455 feet

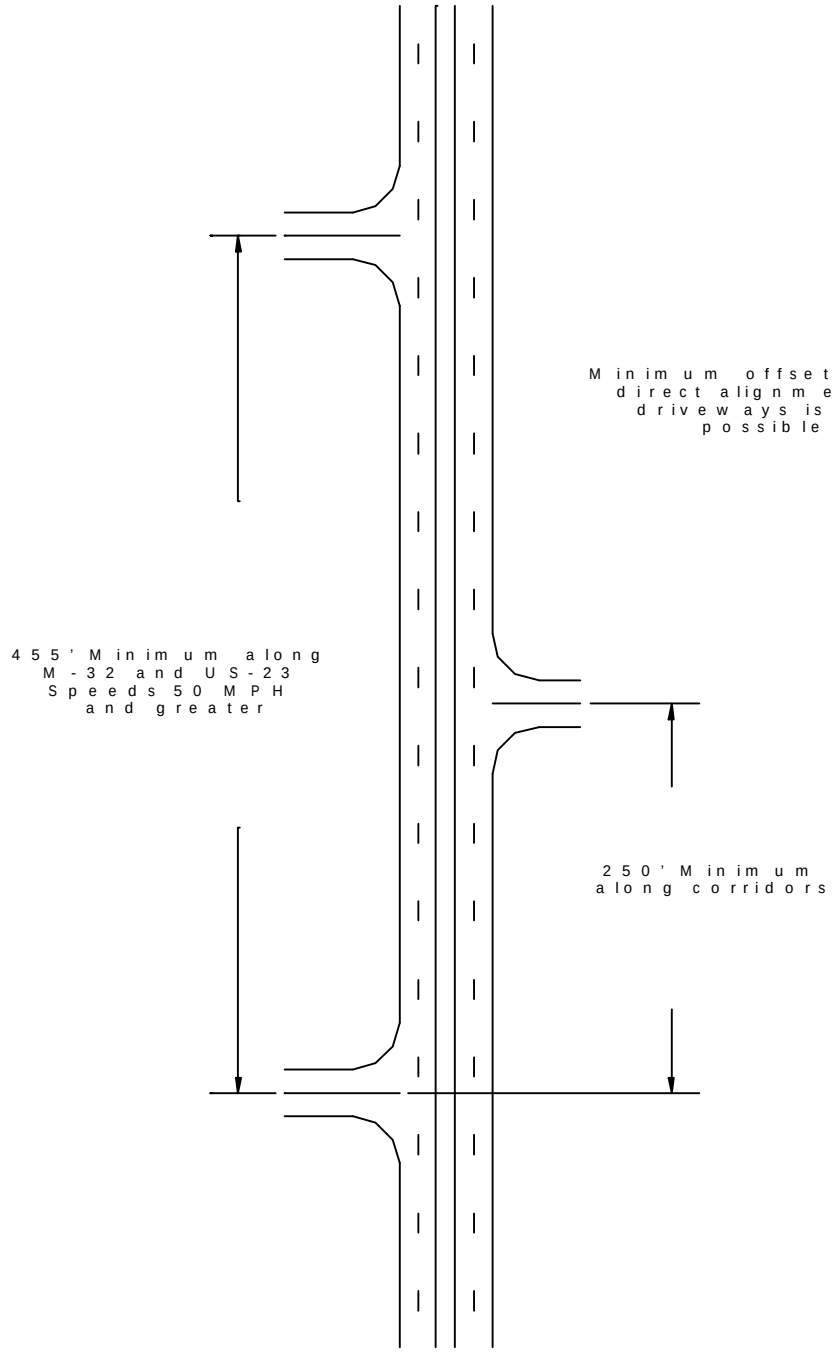

Minimum offset where direct alignment of driveways is not possible
455' Minimum along M-32 and US-23 Speeds 50 MPH and greater
250' Minimum along corridors

Figure 6.1

All site plans for proposed developments should show the location of all proposed and existing driveways within the area of the proposed development. The location of all of the proposed driveways should be reviewed to determine if proper driveway spacing will be maintained.

Sight Distance

Access drives should be placed at locations that provide adequate intersection and stopping sight distance. These locations often occur at the top or bottom of inclines. In hilly areas, proper locations can be at a premium, and shared access might be necessary. Often, the best locations for sight distance may create unfavorable driveway grades on the site. Due to the relatively level topographic relief in the study area, this does not appear to be a problem. Another potential issue might involve the trimming of brush or vegetation near intersections, within the highway right-of-way, so that approaching motorists have an adequate view of other approaching vehicles.

The required stopping sight distance (the sum of brake reaction distance and braking distance) is listed in the MDOT publication *Access Management Guidebook*, 2001:

Design Speed	Stopping Sight Distance for Design
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
65 mph	645 feet
70 mph	730 feet

Location of Nearby Intersections

As previously stated, access driveways should not be placed in the area of operation of an adjacent intersection. Greater spacing may be required due to stacking requirements of the approaches to the intersection. This can be particularly evident around signalized intersections.

Achieving proper corner clearance involves regulating the distance between a crossroad intersection and the nearest driveway location. Corner clearance is defined as the distance, measured along the back of the arterial curb, from the nearest edge of an access drive to the nearest edge of the intersection.

Moving the basic driveway conflict area away from the vicinity of an intersection can be accomplished by regulating the distance from the driveway to the intersection. The major effect is that vehicles will be delayed less by standing queues at signalized intersections. A possible tradeoff is that access to some corner commercial properties may be partially or totally denied access.

Minimum driveway setbacks should be considered at individual intersections, and should be based on typical queue lengths that still allows sufficient movement to and from a driveway. In rural areas, minimum corner clearances of 300 feet on major arterials and

200 feet on the side roads should be maintained. In many instances, the minimum corner clearance will be governed by the clear vision corners.

In urban areas such as near the City of Alpena, slightly shorter corner clearances are acceptable as speed limits decrease, depending on the particular intersection. The location of existing driveways and the amount of available roadway frontage that the property has will dictate this. Each proposed driveway will need to be reviewed on an individual basis.

Type and Size of Development

Location and spacing requirements are more critical for access driveways to large developments or high traffic generators such as Wal-Mart and Home Depot. These driveways often operate as major intersections themselves, with signalization sometimes present. Greater spacing must be provided to allow for left turn storage on the main roadway and to reduce conflict points.

Maximum Number of Access Drives Per Property Frontage

This general access control standard limits the number of driveways per property relative to the length of available frontage. Regulating the number of driveways permitted for a specific frontage could have a significant impact on the business activity at that location. This should be considered before denial for an additional driveway is given, or before an existing driveway is closed. The allowable number of access drives typically follows the recommendations outlined below:

- Normally, only one driveway is permitted for residential usage and, depending upon site conditions, two may be permitted for non-residential usage.
- If property frontage exceeds 600 feet, additional driveways may be permitted.
- Development may be restricted to a single ingress/egress point if served by an adequate collector road or side street.

Driveway Design

Establishing access drive design criteria is essential in improving traffic operations and safety. Design standards outline geometric requirements regarding driveway widths, corner radii, taper lengths, and passing lanes to name a few. Driveways directly accessing either corridor must follow MDOT's driveway design standards listed in the, "Rules Regulating Driveways, Banners, and Parades, 1998." The following is a discussion of driveway design standards for typical access locations.

Commercial Driveways

Width - All commercial driveways should have a width sufficient for the particular land use and anticipated traffic flow with a minimum width of 16 feet for a one-way drive and 25 feet for a two-way drive. The maximum width should be 19 feet for a one-way drive and 36 feet for a two-way drive. As an exception, 39 feet may be allowed or required to provide for an entrance lane and *two* exit lanes. These widths should be measured at right angles to the centerline of the driveway at the right-of-way line.

Radii - All commercial driveways should have radii large enough to accommodate the largest vehicle that will normally use it without creating undue congestion or hazard on the through highway. The minimum entrance radius allowed should be 25 feet and the minimum exit radius allowed should be 20 feet.

Tapers, Deceleration Lanes, and Passing Lanes - When a commercial establishment will generate high traffic volumes, deceleration tapers may be required. Larger commercial establishments may require deceleration lanes and passing lanes opposite the driveway to facilitate the anticipated traffic flow. These design considerations are addressed in detail in ensuing sections.

Angled Driveways - When the property owner desires to construct dual commercial driveways at other than 90 degrees to the centerline of the road, the near driveway on the right side as approaching should not have less than a 45 degree angle with the centerline of the road and the far driveway should not have less than a 60 degree angle with the centerline of the road.

Profile - All commercial driveways should be built to a sidewalk elevation at the right-of-way line. Beyond the right-of-way line, the grade should not exceed 8 percent. Some examples of layouts for driveways are shown in **Figure 6.2** and **Figure 6.3**.

Private Street Entrances

A private street entrance is defined as any driveway serving two or more residential parcels.

Width - The minimum width allowed is 22 feet and the maximum width allowed is 30 feet.

Radii - The minimum entrance radius allowed is 20 feet. The minimum exit radius allowed is 15 feet.

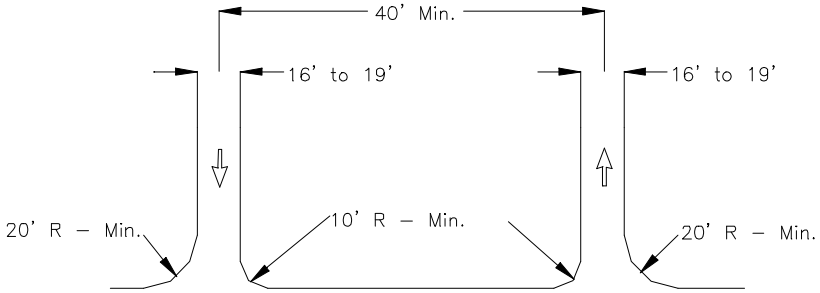
Residential Driveways

A residential driveway is defined as any driveway serving the residents of a single or two-family dwelling, or a farmyard adjacent to a farm resident.

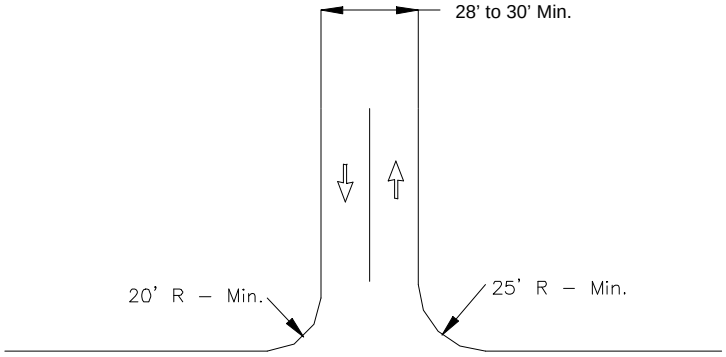
Width - All residential driveways should have a minimum width of 10 feet and a maximum width of 20 feet, measured at right angles to the centerline of the driveway at the right-of-way line.

Offset - To facilitate vehicle movements, the driveway approach should be offset from the near side of the driveway 8 feet and from the far side of the driveway 4 feet; measured at the pavement edge.

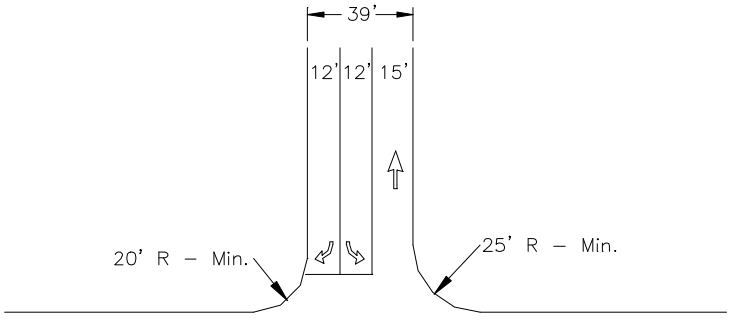
Profile - All residential driveways should be built to a sidewalk elevation at the right-of-way line.



DETAIL A: TYPICAL ONE–WAY PAIR
DRIVEWAY CONFIGURATION



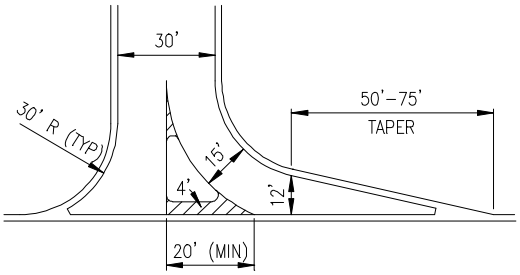
DETAIL B: TYPICAL TWO–WAY DRIVEWAY
ONE ENTRANCE LANE, ONE EXIT LANE



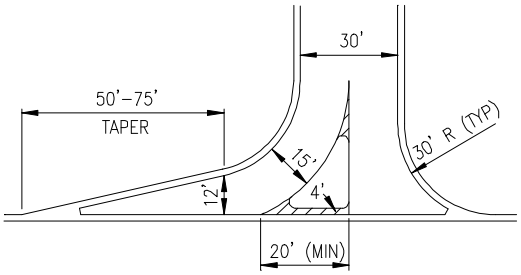
DETAIL C: TYPICAL TWO–WAY DRIVEWAY
ONE ENTRANCE LANE, TWO EXIT LANES

Figure 6.2

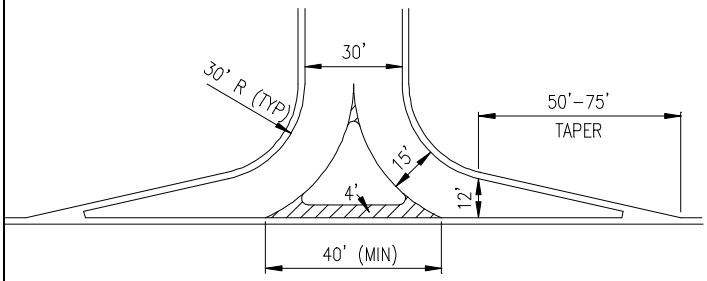
CHANNELIZATION ISLAND OPTIONS FOR CONTROLING TURNS



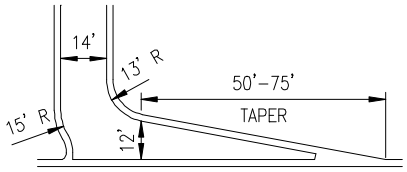
TO PREVENT LEFT TURN INGRESS MOVEMENTS



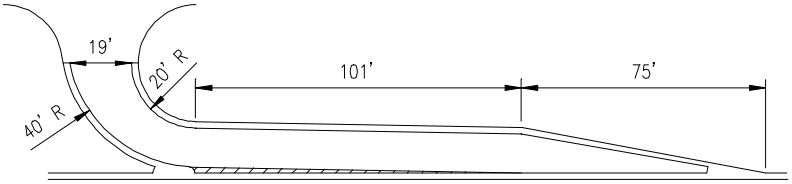
TO PREVENT LEFT TURN EGRESS MOVEMENTS



RIGHT IN/RIGHT OUT ONLY (TO PREVENT LEFT TURN INGRESS & EGRESS)



TO ALLOW RIGHT –TURN IN ONLY (PASSENGER CARS)



TO ALLOW RIGHT TURN IN ONLY (FOR TRUCKS)

Figure 6.3

Joint Driveways

When both property owners abutting a common property line agree, they may construct a joint commercial driveway that should meet these rules as if their frontages were under a single ownership. Joint driveways may be either commercial or residential, however, a commercial lot should not share a driveway with a residential lot. When consolidating residential driveways, consideration must be given to social issues such as maintenance and conflicts over usage. Driveway consolidation is addressed in detail later in the following section of this report.

Driveway Consolidation

Shared access drives are used to reduce the number of access points along a corridor while maintaining reasonable access to adjacent land uses. A shared access drive generally serves only two land uses that individually generate a relatively low number of trips.

As stated previously, a joint commercial driveway may be constructed if both property owners abutting a common property line agree. This general operating practice encourages adjacent property owners to construct shared driveways in lieu of separate driveways. Strategies for implementing this access control measure include closing existing driveways or authorizing joint-use driveways. The feasibility of this measure is viewed primarily at the permit-authorization stage. A shared access drive will result in a reduction in the concentration of driveways along a roadway, thus reducing the frequency and severity of conflicts.
The physical means by which access can be consolidated between two adjacent properties involves the construction of a joint-use driveway between the two properties. It is recommended that both property owners own the shared access drive. That is, the driveway should straddle the property line dividing the two establishments. The resulting joint-use parking area should be accompanied by an efficient internal circulation plan.

Service Roads

Service or frontage roads provide access and internal circulation to a number of developments. Service drives and frontage roads are useful because they provide a pathway to many sites while minimizing the number of access drives along the corridor. Service drives may be appropriate when a concentration of establishments exists. If locations exist where heavy traffic enters and exits various sites in a concentrated area, it is desirable to divert this traffic off of the main roadway so that the turning movements will occur off of the main roadway. The service drive may be configured such that development traffic can access the main roadway at a signalized intersection where movements can be controlled, or at a collector road (side street).

Service drives are usually constructed and maintained by the property owner or an association of adjacent owners. The service drive itself should be constructed to public roadway standards in regard to both cross section and materials design, as well as alignment. Since, by definition, these internal roadways would be serving several uses with numerous driveways, any additional use such as on-street parking should be prohibited. The alignment of service and frontage drives should be based on several factors including presence of existing buildings, location of property lines, existing

wetlands constraints, and maximizing service drive operations. Some typical service road applications are shown in **Figure 6.4**.

Auxiliary Lanes

Right Turn Deceleration Taper

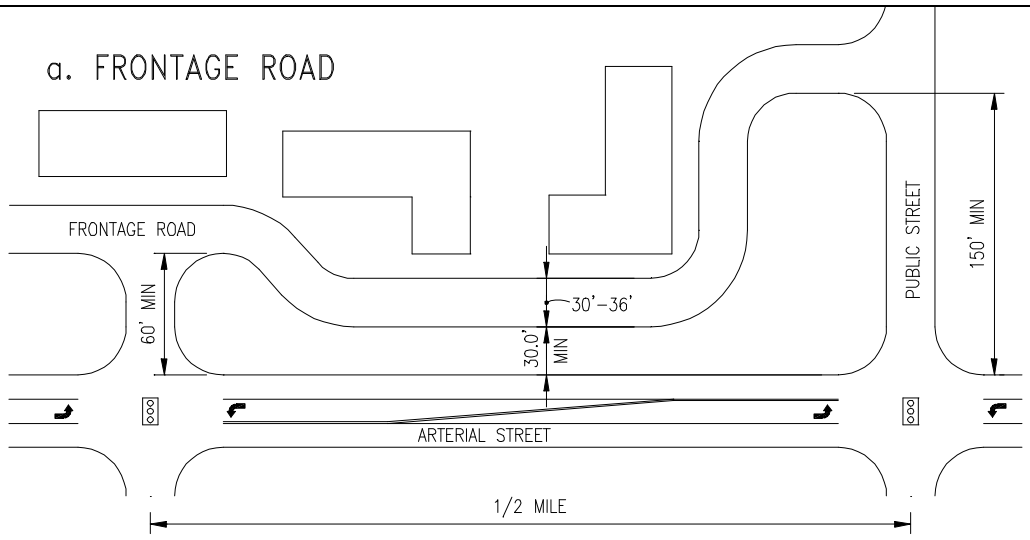
The following is a guideline for requiring the installation of a right turn deceleration taper along arterials or collectors approaching an access drive. Deceleration tapers reduce the potential for rear end collisions by removing turning vehicles from the high speed through lanes. Deceleration tapers are recommended when the right turn volume into a driveway exceeds 300 vehicles per day. The length of these tapers is based on the travelling speed of the roadway. **Table 6.2** displays desirable taper lengths as a function of roadway speed and **Figure 6.5** displays the typical layout for the right turn lanes and deceleration tapers. Also included in **Figure 6.5** is a Warrant Graph for determining the need for a right-turn lane or deceleration taper.

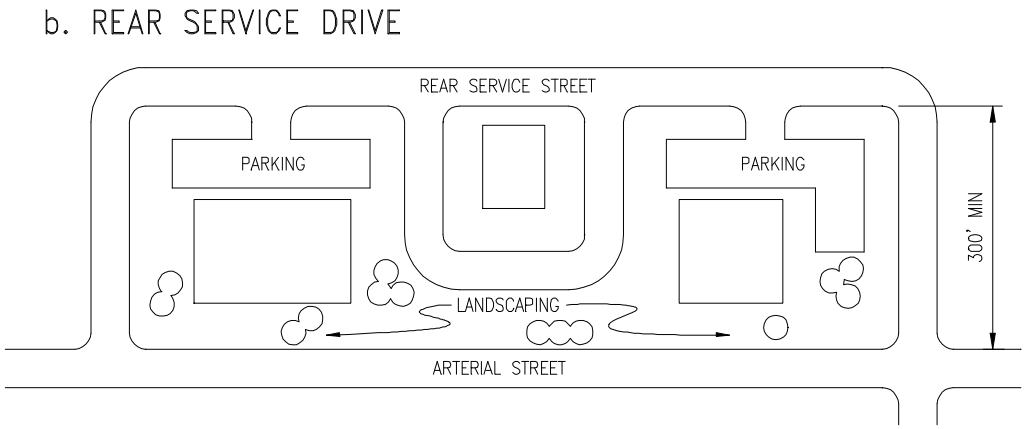
Table 6.2 Desirable Deceleration Taper Lengths

Highway Speed	Taper Length
30 mph	50 feet
35 mph	75 feet
40 mph	100 feet
45 mph	130 feet
50 mph	180 feet
55 mph	225 feet

Right Turn Deceleration Lane

The following is a guideline for requiring the installation of a right turn deceleration lane. Deceleration lanes also reduce the potential for rear end collisions by removing turning vehicles from the high speed through lanes. Deceleration lanes are recommended when the right turn volume into a driveway exceeds 600 vehicles per day. The length of a deceleration lane can vary from 75 to 250 feet and is dependent on the amount of stacking required for vehicles entering the driveway. Deceleration lanes are often placed at signalized access points. Tapers of the appropriate length should be placed in advance of these lanes.


a. FRONTAGE ROAD
FRONTAGE ROAD
60' MIN
30'-36'
30.0' MIN
PUBLIC STREET
150' MIN
ARTERIAL STREET
1/2 MILE


b. REAR SERVICE DRIVE
REAR SERVICE STREET
PARKING
PARKING
LANDSCAPING
300' MIN
ARTERIAL STREET

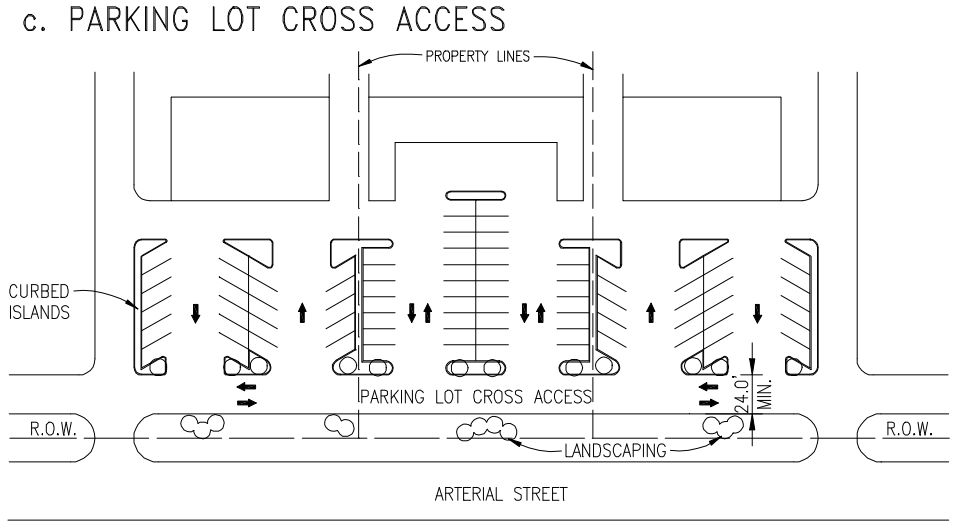
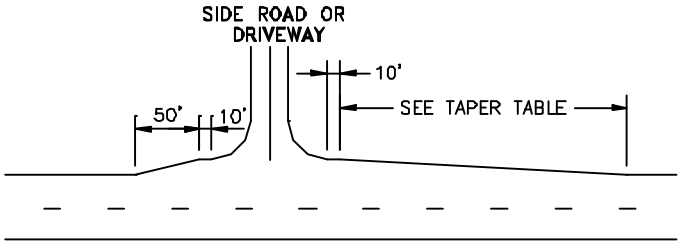
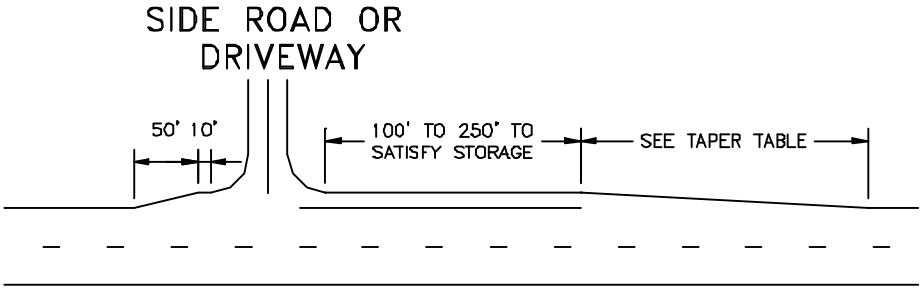

c. PARKING LOT CROSS ACCESS
PROPERTY LINES
CURBED ISLANDS
PARKING LOT CROSS ACCESS
24.0' MIN.
R.O.W.
R.O.W.
LANDSCAPING
ARTERIAL STREET

Figure 6.4

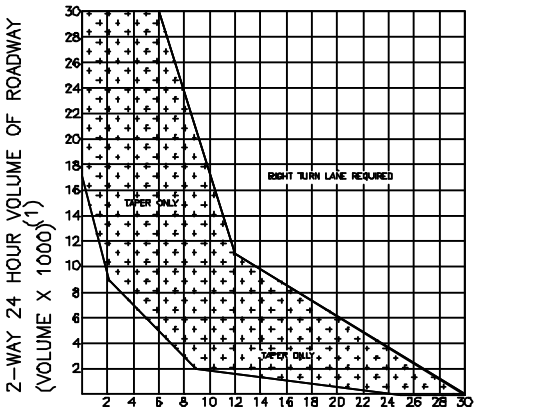


DETAIL A: TYPICAL RIGHT TURN TAPER



DETAIL B: TYPICAL RIGHT TURN LANE

WARRANTS FOR RIGHT TURN DECELERATION LANE OR TAPER



NOTES:
1. BASED UPON EXISTING TRAFFIC VOLUME DATA (COUNTS NO MORE THAT 1 YEAR OLD)
2. BASED UPON RECOGNIZED TRIP GENERATION AND DISTRIBUTION ANALYSIS.

Figure 6.5

Two-Way Left Turn lane

The following is a guideline for requiring the installation of a two-way left turn lane. Center left- turn lanes are provided to remove left turning vehicles from through traffic lanes and store them in the median area until an acceptable gap appears. A center left turn lane completely shadows turning vehicles from both through traffic streams resulting in less accidents. Delay to through vehicular traffic would also be reduced since left turning vehicle queues would not block the through lanes.

A center left turn lane is warranted on multi-lane highways that have closely spaced driveways with a uniform and medium density of left turns along the highway. Highway volumes and speeds should exceed 10,000 vehicles per day and 30 miles per hour respectively. High accident rates involving left turn maneuvers also warrant a center left turn lane.

Additional Exit Lane for an Access Drive

The following is a guideline for determining whether an additional egress lane should be established for an access drive. Additional lanes allow right turn or left turn egress maneuvers to be made more efficiently because drivers are not delayed by egress vehicles wanting to turn in alternate directions. The egress capacity of the driveway is also significantly increased. Total driveway delay should decrease significantly because of the increased capacity due to the separation of egress turning traffic.

This technique is applicable for all highway types and at driveway locations where egress maneuvers are hindered because separate turning lanes are not provided. Highway speeds should normally exceed 30 miles per hour with highway volumes surpassing 5,000 vehicles per day. Existing driveway volumes should exceed 1,000 vehicles per day (approximately 500 egress trips).

Medians

One approach to managing access is to use medians of various designs to limit left-turn vehicle movements, channel traffic so that it flows more efficiently, and provide cross walk 'safe havens' for pedestrians and bicyclists. Landscaped green medians also provide for a more beautiful community and tend to 'calm' or slow the speed of through traffic.

Some cross-section examples of medians can be seen in **Figure 6.6**, from the AASHTO *Geometric Design of Highways and Streets* manual, 1994 edition. These types of medians are used to separate and channel traffic on arterial roadways. According to the manual:

> *The principal advantages of dividing the multilane arterial are increased safety, comfort, and ease of operation. Of significance is the reduction in head-on collisions and virtual elimination of such accidents on sections with wide medians. These accidents usually are serious. Where median lanes for left turns are provided, rear-end collisions and other inconveniences to through traffic resulting from left-turn movements are greatly reduced. Pedestrians crossing the divided arterial are required to watch traffic in only one direction at a time and are given a welcome respite at the median. Where the median is wide enough, crossing and left-turning vehicles can slow down or stop between the one-way pavements to take advantage of breaks in traffic and cross when it is safe to do so. Divided multilane arterials make for more relaxed and pleasant operation, particularly in inclement weather and at night when headlight glare is bothersome. Headlight glare is reduced somewhat by narrow medians but can almost be eliminated by wide medians.*

The National Highway Institute (NHI), in *Course No. 15255*, reports that not only do the use of curbed medians and channelized intersections increase operational safety, but capacity of the roadway is also increased. The reason for this is that highway traffic flow is smoothed by having decreased traffic conflicts. Opposing lanes are separated, traffic is automatically regulated by physically prohibiting certain movements, motorists are more aware of the proper use of travel lanes and intersections, turning movements are positively controlled, and pedestrians are protected by a safe refuge area.

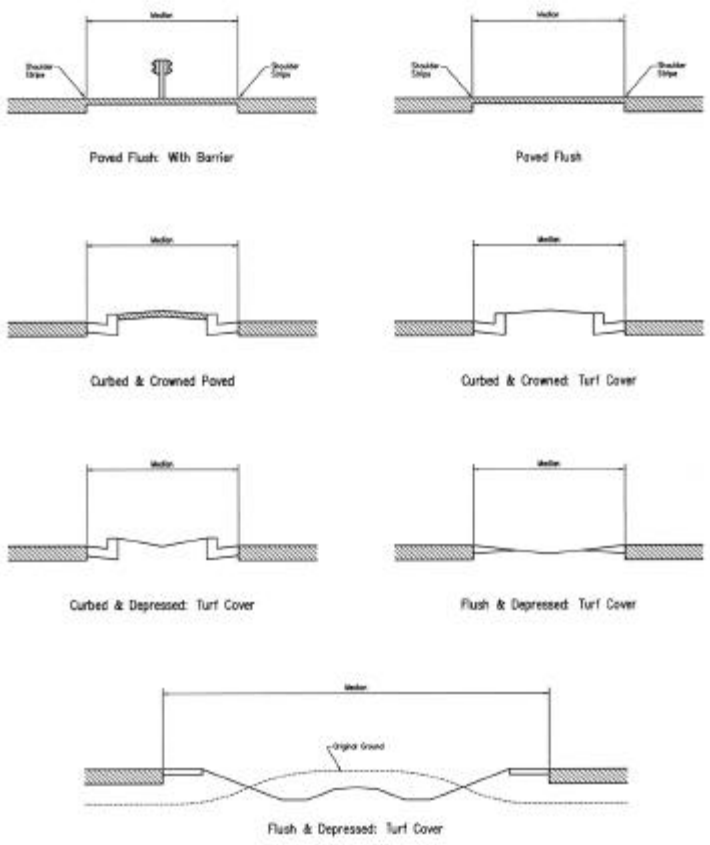
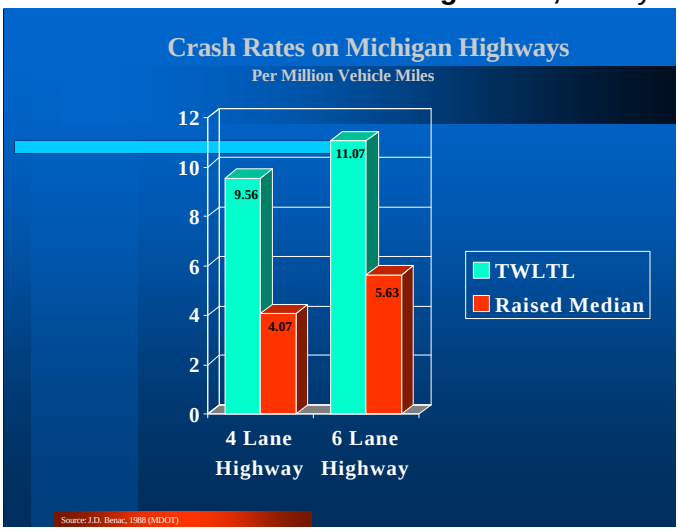
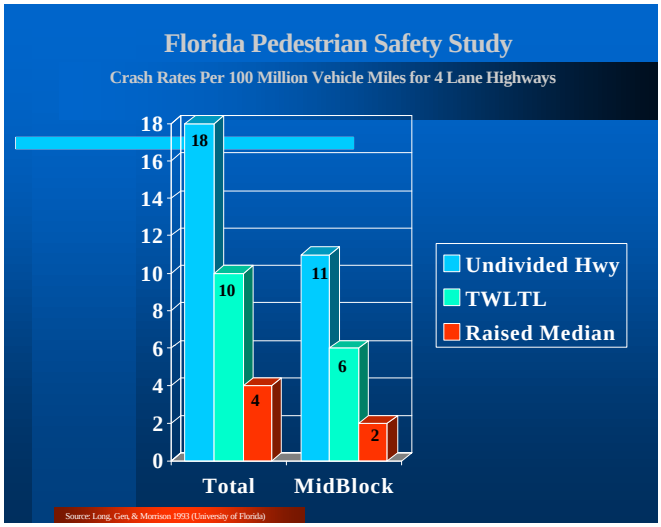


Figure 6.6, Typical Medians on Divided Arterials
Source: AASHTO, Geometric Design of Highways and Streets, 2001

The following two graphs (**Figure 6.7)** show the motorist and pedestrian safety benefits of retrofitting arterials that had a two-way left turn lane (TWLTL) with a raised median.

Figure 6.7, Safety Benefits of Medians





There is always some concern that good access management, while enhancing safety, can be a detriment to economic development. In fact, good access management techniques including the use of medians to channel traffic and limit left turning movements can be beneficial or at least not harmful to businesses located along the managed arterial roadway, according to a 1996 study by the Iowa Department of Transportation (IDOT). The IDOT study compared business owners' opinions on roadways in several municipalities on which access management improvements were made. In almost all cases before the changes were made, the business owners felt that limiting turning movements would harm their business. After the improvements were made, however, the vast majority (86%) felt that their business sales had either stayed the same (53%) or had increased (33%). Another 9% were uncertain, and 5% felt that their sales had been hurt by the improvements (see **Figure 6.8**)

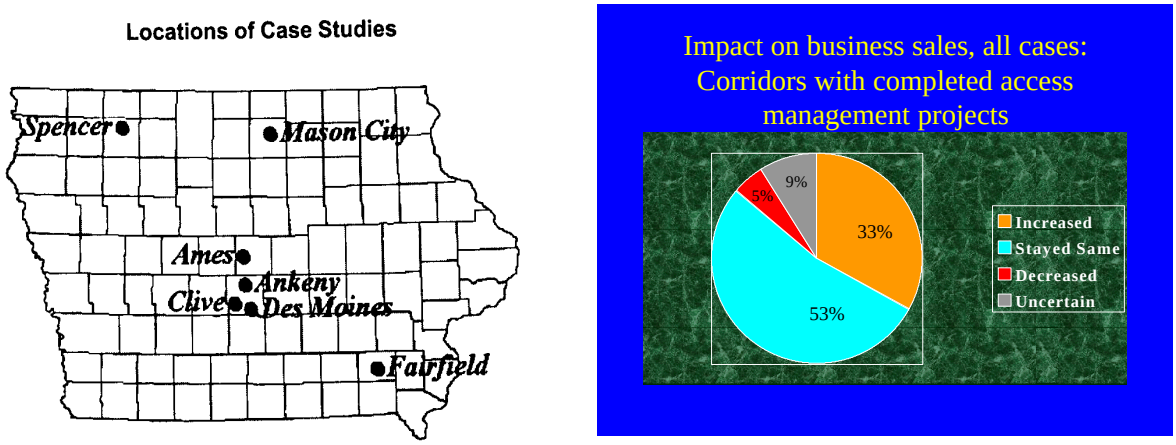


Figure 6.8, Business survey conducted in Iowa municipalities;
Source: Iowa Access Management Research & Awareness Project 1996, IDOT

Trees and Landscaping

According to Walkable Communities, Inc., motorists will drive a safer and more prudent speed on a roadway with street tree plantings than on one without plantings, on an otherwise identically designed roadway. Speed limit signs make little difference, since motorists tend to drive at a speed that seems comfortable regardless of the posted speed limit. Trees and other landscaping gives motorists the impression that the roadway is narrower, and therefore it feels more comfortable to drive at a lower speed.

Closely planted trees along a roadway can also provide the motorist with a sense of speed when the trees appear to be going by very quickly, causing the motorist to drive a little slower. Interestingly, slower vehicles do not necessarily decrease the capacity of a roadway. This is because a smaller gap is possible between vehicles, allowing for a greater volume of traffic in any given segment. If tree plantings are used in combination with good access management designs, traffic will consist of a constant smooth flow of closely spaced vehicles. Studies show that this is a much safer condition than fast moving traffic that is forced to periodically stop and start again due to conflicts with merging and turning vehicles.

Traffic Signals

In general, traffic signals should only be placed where warranted, and at a sufficient distance from each other to preserve the traffic capacity of corridors in the study area. Traffic signals placed too closely together will decrease traffic progression and increase motorist delay. Traffic progression must always be considered when deciding the placement of a new signal.

Thresholds for Requiring Traffic Impact Studies

The following discussion consists of pertinent excerpts from *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities* (McKenna Associates; 1994). This manual was sponsored by Tri-County Regional Planning, the Michigan Department of Transportation, and the Southeast Michigan Council of Governments, and is a widely used and accepted guide for requiring, conducting, and evaluating traffic impact studies.

Communities often are concerned with the traffic implications of land use decisions. In some cases, communities deny proposed development based on perceived traffic impacts without having a clear understanding of how to evaluate and mitigate traffic impacts. Conversely, some developments are established that result in unforeseen traffic consequences to the street system.

A traffic impact analysis is a specialized study that assesses the effects that a particular development will have on the surrounding transportation network. The lack of uniform requirements and procedures for traffic impact studies result in a number of problems, some of which include:

- Some communities require traffic impact studies only after there is a problem.
- Some communities require traffic impact studies for very small scale projects which have ultimately negligible impacts on the roadway.
- Some communities allow very large-scale projects to be developed without evaluating likely traffic impacts and necessary mitigation for predicted future traffic.
- The lack of uniform procedures may lead to unnecessary analyses, costs, and delays during both preparation and review of site plans.

The purpose of this section is to provide guidelines for requiring traffic impact studies as well as determining what type of study should be required.

Types of Traffic Impact Studies

Four basic types of traffic studies exist. They are described below.

Rezoning Traffic Study - A traffic study for a rezoning request is different than one for a specific use. A community needs to consider all of the uses that potentially could be developed under the requested zoning district, regardless of any specific use being proposed. A traffic study for rezoning should compare the potential trip generation of land uses allowed under the requested zoning, with those uses allowed under the permitted zoning. The community staff or the planning commission may want to identify three to four typical uses in both the current and requested zoning district.

Traffic Impact Assessment - This type of study is recommended for smaller scale projects which should not have a significant impact on the overall transportation system, but will have impacts at the site access points. The analysis for this type of study focuses on the proposed site driveways.

Traffic Impact Statement - This is the traditional traffic impact study that evaluates impacts at site access points as well as appropriate nearby intersections.

Regional Traffic Analysis - This type of study is recommended for very large regional developments such as large shopping malls and arenas. The study evaluates the impacts on the local streets and the regional transportation facilities such as freeways and major through arterials.

Trip Generation Thresholds

The trip generation of a proposed development is the number of inbound and outbound vehicle trips that are expected to be generated by a development throughout an average day or during a peak hour. The process of using trip generation thresholds is as follows:

- Estimate the trip generation for the proposed development.
- Compare that generation to excepted thresholds.
- Determine the type (if any) of traffic study needed.

Trip generation thresholds are commonly used as discussed below.

Thresholds for Rezoning Requests

Evaluating the traffic impacts of a proposed rezoning is difficult to determine since a rezoning usually permits any one of a number of uses. The following are recommended thresholds for requiring a rezoning traffic study.

- Requests for a rezoning consistent with the long-range land use plan when community officials believe the timing of the change may not be appropriate due to traffic issues. This threshold is recommended only for a rezoning which permits uses that could generate 100 or more additional trips in a peak hour, or at least 1,000 more additional trips per day than would be generated by the majority of the uses permitted under current zoning.

- Requests for a rezoning which are inconsistent with the community master plan for a site that could generate at least 100 directional trips during the peak hour, or over 750 trips in an average day.
- Proposed rezoning along a roadway that the community has identified as a critical corridor, congested corridor, or safety management corridor. This could be applied to all such rezonings or only those which would generate additional traffic as noted in the previous paragraph.
- Proposed amendments to the future land use plan that would recommend uses that generate higher traffic volumes.

Thresholds for Site Plans, Plats, Mobile Home Parks, and Condominium Projects

Traffic studies for site plans, plats, mobile home parks, and condominium projects should be more detailed than those for rezoning since the use and proposed site design are established. Thus, even if an initial traffic study was completed for a rezoning, a more detailed study would usually be required for the site plan. The following thresholds for requiring a traffic impact statement are recommended for most cases.

- Any proposed site plan or subdivision plan which would be expected to generate over 100 directional trips during the peak hour, or over 750 trips in an average day. A less detailed study (traffic impact assessment) is recommended for projects which could generate 50-99 directional trips during a peak hour or 500-749 trips during an average day.
- A change in an approved Planned Unit Development (PUD) to a more intense use (on a case-by-case basis).
- Any proposed development along a corridor identified in the community master plan or long range transportation plan as a critical, congested, or safety management corridor which would be expected to generate over 50 directional trips during the peak hour, or over 500 trips in an average day.
- For new phases or changes to a development where a traffic study is more than two years old and roadway conditions have changed significantly (volumes increasing more than two percent annually).
- A change in use or expansion at an existing site where traffic is expected to increase by at least 50 directional trips in a peak hour.
- Special land uses, conditional land uses, planned unit developments, and other uses which are required to provide a traffic impact study in the zoning ordinance.

- Where required by the road agency to evaluate access issues. Typically this is based on an access code, administrative rules, or policy.

Table 6.3, on the following pages, shows the development size, for various land uses, necessary to meet or exceed the three trip generation thresholds to be used to determine which study should be required. Table 6.3 can be used by planning commissions and developers as a reference for “break points” in the type of analysis that should be preformed. However, for consistency, the most current edition of *Trip Generation* by the Institute of Transportation Engineers should be used to calculate trip generations, unless there is local data which warrants consideration of other factors.

Table 6.4 summarizes the trip generation thresholds for requiring either a traffic impact assessment or a traffic impact statement, as well as the tasks that would be required for the respective study. As an example, according to the Tables 6.3 and 6.4, a full traffic impact study should be completed if 150 or more single family units are proposed for a site (which would likely generate 100 trips during the peak hour in the peak direction).

Table 6.3 Land Use Thresholds Based on *Trip Generation* Characteristics

Land Use	Land Use Variable	50 Trips During Peak Hour in Peak Direction	100 Trips During Peak Hour in Peak Direction	750 Daily Trips
Residential: Single Family	units	70	150	70
Residential: Apartments	units	115	245	120
Residential: Condominiums/Townhouses	units	125	295	120
Residential: Mobile Home Park	units	140	305	150
Shopping Center	gross leasable area (sq. ft.)	5,200	15,500	2,700
Fast Food Restaurant w/ Drive-Thru	gross floor area (sq. ft.)	2,600	5,200	1,200
Convenience Store w/ gas Pumps	gross floor area (sq. ft.)	650 (or 3 pumps)	1,300 (or 5 pumps)	1,000
Bank w/ drive-in	gross floor area (sq. ft.)	2,200	4,400	2,800
Hotel/Motel	rooms	120	250	90
General Office	gross floor area (sq. ft.)	22,000	55,000	45,000
Medical/Dental Office	gross floor area (sq. ft.)	18,600	37,000	26,000
Research and Development	gross floor area (sq. ft.)	37,000 (or 1.5 acres)	85,000 (or 4.5 acres)	70,000 (or 4 acres)
Light Industry	gross floor area (sq. ft.)	58,000 (or 4 acres)	115,000 (or 8 acres)	115,000 (or 11.5 acres)
Manufacturing	gross floor area (sq. ft.)	125,000	250,000	195,000

Table 6.4 Requirements for Various Types of Traffic Impact Studies

Task	Trip Threshold (Based on *Trip Generation* Rates- Land Use Threshold Table 6.3)		
	Rezoning Traffic Study	**Traffic Impact Assessment** **50-99 Peak Hour, Peak Direction or 500-749 Daily**	**Traffic Impact Statement** **100+ Peak Hour, Peak Direction or 750+ Daily**
Impact Analyses:			
Existing conditions analysis at site (levels of service as determined by techniques outlined in the *Highway Capacity Manual*)	O	X	X
Sight distance evaluation	X	X	X
Opposing driveway locations		X	X
Existing conditions at nearby intersections	O		X
Study area & future road summary			X
Comparison of trip generation associated with uses allowed, requested v. current permitted uses	X		
Trip generation for specific uses		X	X
Trip distribution analysis	O	X	X
Background traffic growth	O		X
Future conditions analysis at nearby intersections	O		X
Mitigation identification and evaluation	O	X	X
Site Issues:			
Evaluate number, location, and spacing of access points	O	X	X
Evaluate access design, queuing, etc.		X	X
Evaluate site circulation		O	O
Other Analyses:			
Accident history			O
Gap analysis for unsignalized locations		O	O
Evaluate long-range traffic impacts on computer model - MDOT/MPO participation	O		O

Key: X required O may be appropriate on a case-by-case basis

Summary

The key to access management is consistency. Following the guidelines for requiring traffic studies and carefully considering the design and placement of each and every driveway are also critical. Every effort must be made to provide access to adjoining properties with minimal impact to the roadway. As additional development occurs along the corridor, good opportunities will arise to implement proper access management techniques that will 1) limit the number of driveways, 2) separate and channel traffic, 3) cause businesses to share access driveways and parking lots, and 4) reduce the volume of vehicles by creating good pedestrian and bicycle facilities.

References

Institute of Transportation Engineers (ITE), *Guidelines for Driveway Location and Design*, ITE Technical Committee 5B-13, 1987.

Kent County Road Commission (KCRC), *Rules to Regulate Driveways, Banners and Parades*, 1989.

McKenna Associates, Inc. et al., *Evaluating Traffic Impact Studies*, Tri-County Regional Planning, Michigan Department of Transportation (MDOT), Southeast Michigan Council of Governments (SEMCOG), 1994.

McKenna Associates, Inc. et al., *US-27 Corridor/Subarea Access Management Plan*, Dewitt Charter Township, 1993.

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Dan Burden and Michael Wallwork, P.E., *Creating Walkable Communities*, Walkable Communities, Inc., High Springs, Florida, 1999.

American Association of State Highway Transportation Officials (AASHTO), *Geometric Design of Highways and Streets*, 2001 Edition.

Michigan Department of Transportation, *Access Management Guidebook*, 2001

CHAPTER 7: Goals and Objectives

This chapter presents the goals and objectives, developed by the Alpena Area-Wide Comprehensive Transportation Plan Committee, that serve as the purpose and intent of the Plan. This plan covers a twenty year planning horizon and as a result, the goals are intended to reach beyond current physical, political and institutional constraints. The process of developing goals commenced with examining existing conditions including land use, land ownership, status of planning and zoning, natural resources, traffic conditions, road capacities, and the future needs for the transportation infrastructure.

To aid in the development of goals and objectives, community assets and problem areas were identified. The current existing conditions regarding land use, land ownership, planning and zoning, and natural resources were covered in **Chapter 2** through **Chapter 4**. Traffic conditions and road capacities along with potential problem areas (both current and future predictions) were covered in **Chapter 5**.

From these goals and objectives will come improvement strategies and recommendations, **Chapter 8**.

Note: These goals and objectives were developed by consensus of the committee members. Present constraints such as existing right-of-way, funding, and agency/department policy were considered but were not the over-riding factors when developing the goals and objectives.

Inter-governmental Cooperation

Goal: Support intergovernmental cooperation between all local jurisdictions in the project area as well as local, regional and state agencies.

Objectives:

Encourage the adoption of this Plan by the Planning Commissions of the City of Alpena, Alpena County, Alpena Township, Wilson Township and Maple Ridge Township. Also encourage the adoption of this Plan by the Alpena City Council, the County Road Commission, the County Board of Commissioners, and the Township Boards of Alpena, Wilson, and Maple Ridge.

The Alpena County Intergovernmental Road subcommittee should continue to meet to discuss issues and concerns and to foster intergovernmental cooperation.

Adopt site development guidelines that are consistent between communities.

For development projects that may impact multiple jurisdictions, communities should work together to make the necessary improvements to the transportation infrastructure.

Access Management

Goal: Preserve roadway capacity, reduce crashes and crash potential, decrease travel time and congestion.

Objectives:

Adopt and implement access management standards that regulate driveway design and location, provide for shared access through frontage roads, provide for rear service drives, provide for shared driveways and require connected parking lots.

The Michigan Department of Transportation and the local road agency should review and comment on site plans prior to a planning commission's public hearing and approval.

Reduce the number of car trips by continuing to develop pedestrian and bicycle facilities.

Educate business owners on the need and benefits of access management.

Capacity

Goal: Develop and maintain a transportation system that enhances the efficiency and capacity of the road system.

Objectives:

Consider area-wide traffic patterns and road capacities when making land use decisions.

Provide adequate facilities for the use of alternative modes of transportation such as public transit, walking and bicycles. Provide adequate rail facilities for the shipment of freight.

Minimize the delay impact of traffic signals at intersections by setting the phase timing of the traffic signals to maximize capacities.

Explore options to provide an improved route to move local north/south traffic more efficiently..

Continue to monitor capacity, speed, and safety along M-32 and US-23. Information to be reviewed jointly by the Michigan Department of Transportation and local jurisdictions.

Safety

Goal: Maintain and improve the safety of the transportation system.

Objectives:

Consolidate to minimize the number of driveways along highways, primary roads, and major collectors. Promote alternate designs for access.

Support the continuing development of a safe non-motorized trail system.

Preserve the safe, steady flow of traffic in urbanized areas by using traffic calming practices such as green buffers with sidewalks, landscaping, green median islands, and street tree plantings.

Land Use Planning

Goal: Plan for growth and development that maintains community character, protects or enhances property values, and provides for economic viability.

Objectives:

Coordinate access management with local land use planning.

Encourage higher density residential, commercial and industrial development in areas with minimal environmental constraints and where needed infrastructure such as water, sewer, and roadway network can be provided.

Encourage development served by internal roadways, to reduce demand for access points onto M-32, US-23, and primary county roads.

Educate local units of governments, businesses, and general public on the importance of coordinating access management with land use planning.

Creative parking lot alternatives that enhance safety and promote community character should be explored.

Continue to develop the interconnectivity of all travel modes to move people and products.

Natural Features

Goal: Protect environmentally sensitive areas such as ecological corridors, agricultural lands, wetlands, streams, inland lakes, steep slopes, and groundwater recharge areas.

Objectives:

Encourage the integration of wetlands, woodlands, and meadows into site development as aesthetic and functional features.

Encourage the use of native plant species within roadway landscaping designs, where appropriate, to enhance the communities' existing character.

Recognize the importance of trees; encourage the retention of existing native trees and the establishment of street trees in residential neighborhoods, and the planting of shade trees in commercial developments.

Preserve adequate drainage by integrating natural or constructed drainage systems into developments and into the transportation infrastructure.

Community Character

Goal: Maintain the community character of the Alpena area while providing facilities and services that meet the needs of its citizens.

Objectives:

Support the retention of existing parks, and the establishment of new roadside parks like Washington park, Arthur Sytek Park, and Island Park to preserve open space and provide outdoor recreational opportunities for residents and travelers.

Incorporate streetscaping projects along strip commercial areas.

Support the concept of “active living” through a program of ‘walkable’ community design.

Pursue finding a way to establish a bridge across the Thunder Bay River for a motorized trail (snowmobiles) and a bridge for a non-motorized trail across the Thunder Bay River. A motorized trail bridge is needed to the west of Bagley Street, and a non-motorized trail bridge is needed on the east side of Bagley Street.

Intermodal Transportation

Goal: Provide good air travel and public transit access to essential destinations. Provide focus on the transit dependent population which includes low income, elderly, and persons with disabilities. Continue to ensure adequate rail facilities.

Objectives:

Provide adequate facilities for the use of alternative modes of transportation such as public transit, walking and bicycles. Provide adequate rail facilities for the shipment of freight.

Maintain a transit system that delivers reliable and timely service that focuses on employment, medical, and human service trips. Provide coordination among existing transit facilities to maximize operational efficiency.

Continue to develop airport facilities and airline schedules to meet air travel and freight needs.

Use education and advertising to develop an interest in both air travel and transit ridership.

Maximize federal, state, local, foundation, private, and agency financial participation to fund capital and operational expenditures for all public transportation facilities.

CHAPTER 8: IMPROVEMENT STRATEGIES & RECOMMENDATIONS

Based on goals, objectives, observations and ideas of the Alpena Area-Wide Transportation Plan Committee, public input, existing and projected roadway operating conditions, existing and projected traffic conditions, current traffic engineering standards, and current literature on safety and design alternatives, the following Improvement Strategies are listed to satisfy goals and objectives of the study.

IMPROVEMENT STRATEGY GROUPS

Improvement Strategies Group 1: Inter-governmental Cooperation

Goal: Support intergovernmental cooperation between all local jurisdictions in the project area as well as local, regional and state agencies.

Improvement Strategies

The Alpena County Intergovernmental Road subcommittee should continue to meet to discuss issues and concerns and to foster intergovernmental cooperation. Only continued communication can ensure that all of the necessary agencies and departments are working toward specific goals at the same time. Good communication between agencies, planning commissions, and local governments is especially important during new development, as access management issues occur.

Each local government should establish and adopt development guidelines that are consistent between communities. Additionally, regulations should be adopted that conform to MDOT's Access Management Guidelines.

For development projects that may impact multiple jurisdictions, communities should work together to make the necessary improvements to the transportation infrastructure. Site plan reviews should be conducted by all affected jurisdictions, including road agencies, so that comments and suggestions can be returned to the governing jurisdiction.

This Plan should be adopted by all participating planning commissions, governing boards and councils, and local road agencies.

Improvement Strategies Group 2: Access Management

Goal: Preserve roadway capacity, reduce crashes and crash potential, decrease travel time and congestion.

Improvement Strategies

Driveways should be regulated by spacing, location, and type of access as recommended in the MDOT Access Management Guidebook and the Access Management section of this Plan. Language to achieve this should be adopted in community ordinances.

Businesses should be required to share driveways & parking facilities. Parking facilities should also be required to have good internal circulation designs to minimize conflicts with pedestrians and other vehicles. Access management techniques should be used when constructing or redesigning parking areas. Parking facilities should be connected between commercial properties so that traffic may travel

between businesses without having to disrupt the movement of traffic on the main traveled roadway. More details concerning parking areas are covered in **Chapter 6**, *Access Management*.

Where space permits, new businesses should be issued temporary driveway permits with the understanding that a frontage road or rear access drive will be required as neighboring businesses develop. Businesses should be required to have driveway access permits before building permits are issued.

In areas of existing strip development with open access to the roadway, redevelopment requirements should stipulate that parking will be restructured to accommodate newer standards, and direct access will be limited to that as recommended in the MDOT Access Management Guidebook and the Access Management section of this Plan.

Informational access management sessions should be held with local retailers, realtors, and builders associations.

Improvement Strategies Group 3: Capacity

Goal: Develop and maintain a transportation system that enhances the efficiency and capacity of the road system.

Improvement Strategies

Communities should consider an examination of area-wide traffic patterns and road capacities as part of the site plan review process. A community policy should exist in all jurisdictions whereby the Michigan Department of Transportation and the local road agency should have an opportunity to review and comment on site plans prior to a planning commission's public hearing and approval.

Left turn/U-turn cross-overs, and right turn lanes should be placed where necessary to remove local destination traffic from the through lanes. Right 'passing flares' on the shoulder of a two-lane road should be provided where possible so that through vehicles may continue past a left turning vehicle.

The traffic signal delay impacts at intersections should be minimized by setting the phase timing to maximize vehicle progression.

Consider constructing a roundabout at an intersection that requires reconstruction, at which the capacity is too difficult to improve using common designs. Roundabouts offer a safe, smooth traffic flow alternative to traffic signals where there is an intersection with problems such as three or more roads converging, high crash rates occurring, low capacity, unacceptable vehicle progression, excessive vehicle speeds, a high volume of left turning movements, or where there is a need for aesthetics. They can be used to provide an attractive "gateway" or "entrance" at intersections that are at the boundaries of a community. Where capacity is a problem, roundabouts offer the advantage of processing traffic continuously and efficiently, so that the intersections can be widened without having to widen the entire length of roadway. As a general comparison, a 180 – 225 feet diameter roundabout will process 6,000 vehicles per hour (vph). A well-designed 65 feet diameter "mini" roundabout can process a peak-hour volume of 1,200 vph. Properly designed roundabouts have experienced considerable success.

Improvement Strategies Group 4: Safety

Maintain and Improve the safety of the transportation system.

Improvement Strategies

Accurate identification of crash locations and crash conditions are important to traffic engineers and planners. All crash information should be reported in the same way by all agencies, including the Michigan State Police, the Alpena County Sheriff Department, and the Alpena City Police. There should be coordinated training sessions on procedures described in the reporting manual for entering UD-10 crash information.

Examine the concept of raised green medians with periodic left turn/u-turn cross-overs in place of two-way-left-turn-lanes (TWLTL) in the developing segments of M-32 and US-23. This would provide more separation of traffic, physically channel the flow of traffic, and reduce left turn movements for safety and for ease of driving. Obtain additional right-of-way for this type of improvement.

Bicycle lanes should be provided on main-traveled roadways where it is not possible to provide a separate trail facility.

Pedestrian crosswalk distances at intersections should be kept as short as possible through the use of 'bulbouts', medians, median islands, and shorter driveway turning radii. Intersections along designated truck routes are necessarily excluded from this recommendation, due to increased turning radii requirements for this type of commercial traffic.

Green buffers and sidewalks should be provided along the urban and suburban roadways, for an added margin of safety for all non-motorized traffic.

Pedestrian mid-block crossings should be clearly marked; the crossings should include signage to alert motorists, and should have a 'safe haven' abbreviated median halfway across where possible.

Light glare should be minimized. Developments should be required to use outdoor lighting fixtures which are shielded and that direct the light downward to where it is needed. Road agencies should use top-shielded or flat-lens cobra head style fixtures for lighting highways and major arterials. Fixtures should produce no skyward or horizontal light glare. Additionally, the Lighting Research Center in Troy NY recommends that lighting levels in parking areas and around commercial buildings should be used which are no greater than 10 fc (foot-candles) for both safety (avoiding hazards) and security (protection from crime). This relatively low output not only saves energy, but preserves the night vision of motorists and pedestrians.

Improvement Strategies Group 5: Land Use Planning

Goal: Plan for growth and development to maintain community character, protect or enhance property values, and provide for economic vitality.

Improvement Strategies

Continue to improve business areas with physical enhancements such as green buffers with sidewalks, landscaping, median islands, and street trees. Utility cables should be placed underground where possible, to avoid visual clutter.

Development should be encouraged to take place on internal roadways or along parallel access drives, to reduce demand for access points onto M-32, US-23, and county primary roads.

Access management informational sessions should be held with planning commissions and local area business interests to gain support for an aggressive access management policy.

Some parking areas found at retail shopping centers along US-23 South and M-32 West are wide expanses of asphalt in front of buildings that are set farther back from the roadway. This design can discourage a safe use of the parking areas by pedestrians and bicyclists. These large parking areas appear to have more parking spaces than are needed (many remain empty throughout the day). There are economic and aesthetic improvement opportunities for redeveloping these parking areas in the future, to include more trees and landscaping, protected walkways for pedestrians, a public transit shelter, public artworks, and even park benches in a landscaped area. Such improvements, along with pathway development projects, may encourage other modes of travel to and from these retail centers.

Zoning ordinances that require more parking spaces and pavement than are necessary can be revisited. It is possible to provide an alternative parking lot with more greenspace, and at the same time save the costs of having to pave more parking area than is necessary for any particular type of development. One common practice is to “greenbank” parking spaces, so that they could be made available if necessary at some point in the future. It is also possible for zoning ordinances to allow the development of more commercial buildings within an otherwise paved parking expanse. This would encourage the clustering of commercial businesses and the sharing of parking spaces among them, providing an efficient use of space while discouraging the tendency toward sprawl.

Alleys can perform many functions as part of a transportation network. The City of Alpena should retain the right-of-way of alleys so that there will be alternatives for the future. In residential areas, alleys can provide access to a property’s rear garage entrance, or access to an otherwise “street-locked” piece of property. In commercial areas, alleys can provide a rear access driveway so that delivery vehicles do not interfere with the flow of traffic on the main roadway. The connectivity of some rights-of-way could be examined for future pedestrian and bicycle pathways, if they are ever needed. Or, some of the rights-of-way can be used for future landscaping projects to further beautify the City, or as rights-of-way for a redevelopment project. Some of the alleys in the City of Alpena have been paved, while others exist only on paper.

Improvement Strategies Group 6: Natural Features

Goal: Protect environmentally sensitive areas such as ecological corridors, agricultural lands, wetlands, streams, inland lakes, steep slopes, and groundwater recharge areas.

Improvement Strategies

As new areas develop, open space should be reserved for parks and recreational facilities. Open space preservation can also include farm land, forest land, open fields, and wetlands. The redevelopment of areas with existing infrastructure should be encouraged as another way to help preserve existing open space.

Prior to the creation and submittal of formal development plans, developers should be required to attend a “pre-application conference” with affected jurisdiction(s). This will give the community(s) or agency(s) an opportunity to provide expectations for the integration of wetlands, woodlands, and meadows into site

development and roadway projects. This meeting will save a developer the expense of engineering and submitting a formal plan at the very beginning, and provides information that will increase the likelihood that a formal plan will be accepted with only minor changes necessary.

Trees are important in the urban and suburban environment for absorbing stormwater runoff, lowering urban temperatures in the summer, and providing some measure of windbreak in the winter. Trees are also aesthetically pleasing to residents and travelers. Existing native trees should be retained to the maximum extent possible, and street and shade trees should continue to be planted in commercial developments and residential neighborhoods.

Improvement Strategies Group 7: Community Character

Goal: Maintain the community character of the Alpena area while providing facilities and services that meet the needs of its citizens.

Improvement Strategies

Establish new, and retain existing, public roadside parks that preserve open space and provide outdoor recreational opportunities as part of the transportation network.

The City of Alpena, the Township of Alpena, and the County of Alpena should pursue an expanded bicycle and pedestrian trail system which will connect recreational parks, commercial areas and other points of interest throughout the community. A community-wide trails plan should be drafted.

Require new developments to have a green buffer and landscaping to enhance visual characteristics.

Examine local zoning ordinances to ensure that there are adequate lighting, signage, and billboard controls. See **Chapter 4**, Transportation Related Zoning.

Use landscaping along urbanized road segments to beautify the communities within the study area. Such landscaping can be within green medians and along the roadways as a buffer for sidewalks and non-motorized trails. Native plant and tree species on roadway landscape designs should be used where possible.

Utility lines should be buried instead of placed on poles, along new roadways or those that require reconstruction. This will enhance the visual character of the community.

Minimize the impacts of commercial and industrial traffic in residential neighborhoods and in the downtown business district, by maintaining capacity on existing commercial routes.

Support the concept of “active living” through a program of ‘walkable’ community design.

Use the MDOT Transportation Enhancement Grant process to improve the appearance and efficiency of intermodal transportation facilities.

Improvement Strategies Group 8: Intermodal Transportation

Goal: Provide access to essential destinations for all residents, particularly the transit dependent population which includes low income, elderly, and persons with disabilities.

Improvement Strategies

Maintain an efficient transit system that delivers reliable, timely service by designing routes and times to focus on employment, medical, and human service trips.

Maximize operational efficiency by coordinating schedules among existing transit service agencies.

Maintain an economical and affordable public transit system by maximizing federal, state, local, agency, and private sources of funding for capital and operational expenditures. Develop an interest in ridership through education and advertising.

Provide adequate facilities for the use of alternative modes of transportation such as public transit, walking and bicycles. Provide adequate rail facilities for the shipment of freight.

Continue to develop airport facilities and airline schedules to meet air travel and freight needs.

Use education and advertising to develop an interest in both air travel and transit ridership.

Continue to maintain opportunities for commercial marine freight and passenger service. Explore the possibility of a commercial ferry service

Use the MDOT Transportation Enhancement Grant process to improve the appearance, efficiency, and safety of intermodal transportation facilities.

Improvement Strategies Group 9: Alpena Area "Bypass Route" or Alternate Commercial Route

Discussion

The 1988 *US-23 Improvement Study*, by Schimpeler-Corradino Associates (pages 46, 47, & 48), had presented two options for through commercial traffic to 'bypass' the urban area of Alpena.

The first option presented in the *US-23 Improvement Study* is US-23 to Ripley Boulevard, to 11th Street, and back to Chisholm/US-23. That study suggests that this option should be discarded because it "requires the use of existing and developed roadway that already experiences traffic problems…..instead of bypassing Alpena, this option is just a different way through that city and would merely recreate problems currently experienced on US-23."

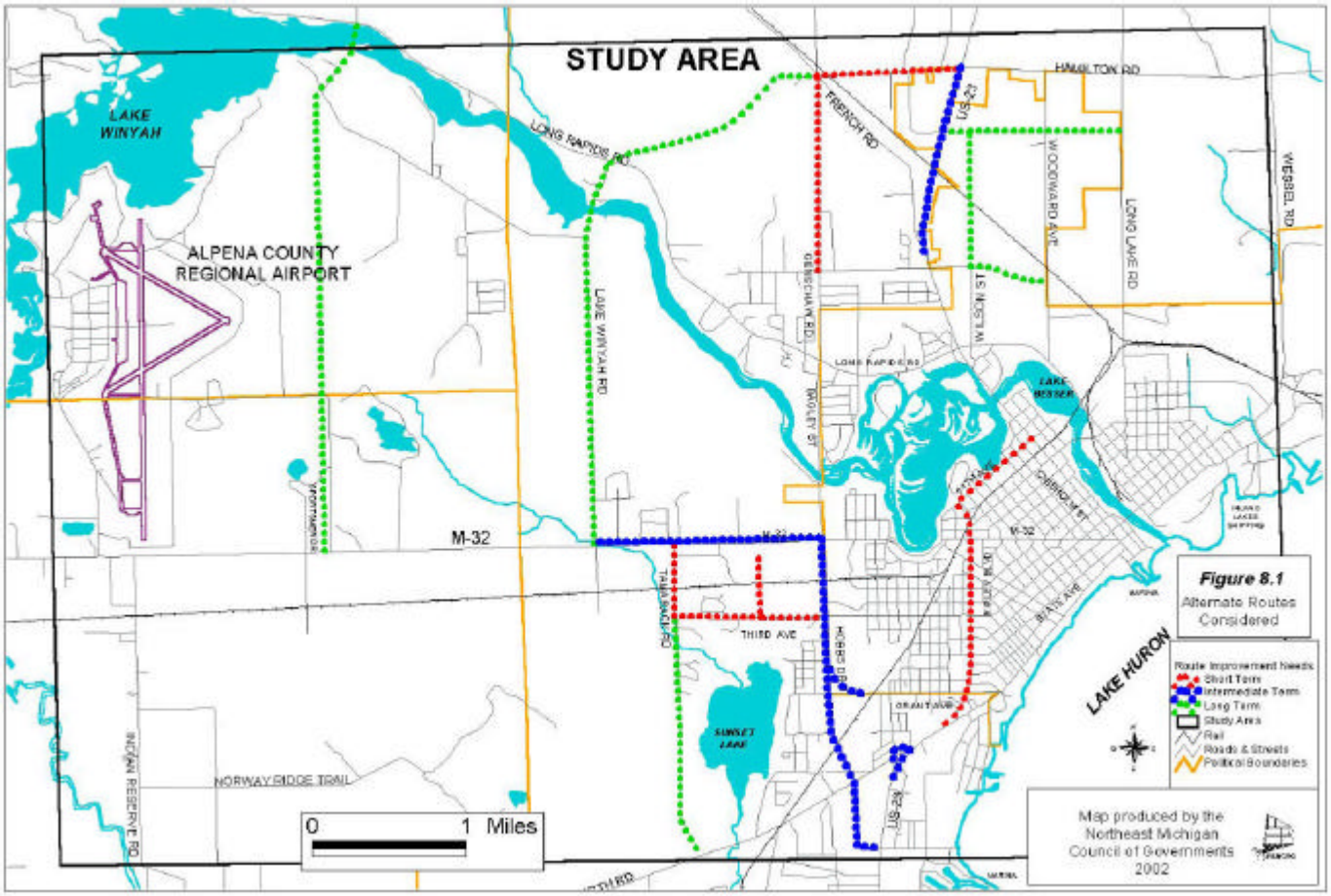
It should be noted for the purposes of the *Alpena Area-Wide Comprehensive Transportation Plan* that while the above route does not function as a "bypass", with continued improvements it is a viable and efficient alternate route for the north/south movement of traffic through the City.

The second option presented in the *US-23 Improvement Study* suggests constructing a new road angling west from South US-23, than north to intercept Bagley Street. Continuing on Bagley Street, the route

would cross to Genschaw Road, then new construction would complete the Genschaw connection north to Hamilton Road, then east on Hamilton Road to US-23. The study states that the completion of "this facility requires construction of an extension south from Hobbs Road (again a continuation of Bagley but with a different name) across the D&M railroad tracks to Werth Road. The Alpena County Road Commission owns right-of-way from Hobbs Road to the tracks. The Commission needs to acquire the right-of-way from the tracks to Werth Road, which includes the taking of two residences." It further states that the new construction can continue either to Bare Point Road or directly to US-23, depending on what properties are purchased.

The above options are shown on **Figure 8.1**, as well as the possible future routes that have been proposed during the development of this Plan.

Refer to the *City of Alpena North Alpena Sub-Area Plan*, which proposes street improvements and construction, such as the extension of Henry Street to Woodward Avenue. Wilson Street is shown extending north to a future east-west road connecting US-23 to Long Lake Road.



Improvement Strategies

Alpena "bypass" routes farther to the west were also considered as part of the *Alpena Area-Wide Comprehensive Transportation Plan* study. During the course of the study, a series of volume to capacity (V/C) ratio calculations were conducted to evaluate area congestion problems. However, based on these key intersection congestion calculations, the V/C ratios indicate that there is not existing congestion nor will there be future congestion sufficiently heavy to justify building an entirely new Alpena bypass route farther west from the urban area at this time (See cost comparisons of alternate route construction in **Appendix C**). Farther west, the M-65 north-south route presently exists for non-locally generated traffic that intends to bypass the Alpena area. The roadways studied currently have sufficient capacities, and will have sufficient future capacities when certain improvements and additions are made to the existing roadway system. Specifically, local north-south traffic flow can be greatly enhanced by making improvements in the connectivity and capacities of the following routes:

a) Ripley Boulevard corridor with US-23
b) Bagley Street corridor with Hobbs Drive/Werth Road/Gordon Road/US-23 South
c) Bagley Street corridor with Genschaw Road/Hamilton Road/US-23 North
d) Bagley Street bridge improvements
e) School bus garage connection with Junior High property
f) Third Avenue connection with Tamarack Road to M-32
g) Brook Street/Diamond Point Road/US-23 Intersection
h) A continuous south and east connection between Hobbs Drive and Grant Avenue

Other potential Alpena north-south routes that were considered included the following:

1) Extend Sportsmen Drive northward across the eastern edge of the Alpena Regional Airport property, and build a bridge, northwest of the Norway Point Dam, to connect this new road with Cathro Road to the north.

2) Upgrade a length of Lake Winyah Road from M-32 to Four Mile Dam, construct a bridge across the Thunder Bay River, construct a new road from Long Rapids Road northeast to Hamilton Road.

3) Extend Tamarack Road southward to Werth Road. After crossing the Werth Road/Mud Creek bridge, there are three possible options to move traffic southward to US-23:
    a) Upgrade and widen Piper Road from Werth Road to Jesse Road, construct Jesse Road eastward to US-23
    b) Continue the route northeastward to Gordon Road, upgrade Gordon Road south, then east to US-23
    c) Continue the route northeastward to Diamond Point Road, upgrade the intersection of Werth Road and Diamond Point Road, upgrade and widen Diamond Point Road to US-23

These proposed new westernmost bypass routes, as well as the proposed south extension of Tamarack Road to Werth Road, may involve significant wetland areas as depicted on both land use/land cover maps and USDA soil survey maps. When wetlands are affected, a costly Environmental Impact Statement (EIS) and a lengthy, costly permitting process are required. Before an EIS is considered, all aspects of a potential route must be carefully explored.

Completing the Tamarack Road to Werth Road extension southwest of Sunset Lake is not considered a viable option until an environmental analysis is completed to determine if there is a

feasible route with adequate soils on which to construct a new road. USDA soils information shows a significant area of hydric soils to the southwest of Sunset Lake (see **Figure 3.3**, in **Chapter 3**). These soils are described as saturated, flooded, or ponded during part of the growing season and are classified as poorly drained and very poorly drained soils. A more detailed environmental analysis is not within the scope of the *Alpena Area-Wide Comprehensive Transportation Plan.*

Extending Lake Winyah Road north to Hamilton should be a consideration in the distant future, depending on how much growth takes place in the area. At the present time, there is not sufficient traffic to justify the construction of this new north-south route and bridge. Refer to **Figure 5.6** Existing Volume to Capacity ratios, on page 5-17, and **Figure 5.8** Future Volume to Capacity ratios, on page 5-22.

Extending Sportsmen Drive north to Cathro Road is not a viable option at the present time, due to its extreme distance from the urban environment to the east. Although the route would be very beneficial to emergency response vehicles that need to travel north and south of the river in Maple Ridge Township, it is anticipated that very little traffic would use this route compared to its enormous projected cost. It may be more practical to make sure that there are emergency teams and vehicles on opposite sides of the river to serve those populations. This route should be considered in a future study, when more growth has occurred, and there is the potential that more traffic will use this route. (See cost comparisons of alternate route construction – **Appendix C**)

Recommendations

Areas for future improvements have been identified and are separated into three main categories. These categories include Short Term Needs, Intermediate Term Needs, and Long Term Needs. Depending on available funding and other factors, Short Term Needs are those projects that should generally targeted to start within 1 to 5 years. Intermediate Term needs are projects that should be started within 6 to 10 years, and Long Term Needs are projects that should be started or revisited from 11 to 20 years and beyond. The items in each category are listed by “high priority”, “medium priority”, or “low priority”.

Short Term Needs:

1. Construct a rail/trail crossing, to connect the Alpena Public Schools Bus Garage with the Junior High School property. –high priority

2. Obtain additional right-of-way for intersection improvements at US-23 and 11th Avenue (City of Alpena and MDOT). -high priority

3. Obtain right-of-way from Wal-Mart and build an access road from the parking lot to Bagley Street (Alpena Township and Alpena CRC). -high priority

4. An access management corridor analysis is needed along M-32 west and Bagley Street corridors, to promote the connection of parking lots and consolidation of driveways. –high priority

5. Investigate Bagley Street Bridge alternatives in the immediate future, to separate and protect pedestrians and bicyclists from fast moving motor vehicles. –high priority

6. Seek funding for the design and construction of a non-motorized pathway along the east side of Bagley Street with a safe, new bridge over the Thunder Bay River. -high priority

7. Determine the location of a preferred north-south snowmobile route. Seek funding for the design and construction of a new bridge over the Thunder Bay River at a location west of Bagley Street for snowmobiles during the winter months. -high priority

8. Resurface Ripley Boulevard, and Install a coordinated signal timing system to gain improved progression along this corridor (City of Alpena). -high priority

9. Widen M-32 to 3 lanes from 11th Avenue east to 8th Avenue, and improve radii at intersections (MDOT and City of Alpena). -high priority

10. During the reconstruction of US-23 (State Street) in 2004, from Grant Avenue to Blair Street, study options for pedestrian crossing facilities from the residential areas to the City parks. Install if warranted. –high priority

11. Zoning ordinances need to be amended to include thorough language to regulate driveway spacing, parking lot connectivity, and to allow more commercial space with fewer parking stalls. –high priority

12. Extend Genschaw Road north to Hamilton Road. –high priority

13. Upgrade Tamarack Road. Extend Third Avenue west to Tamarack Road. This will connect the north-south route Tamarack Road to Third Avenue to Hobbs Drive (from the M-32 commercial area). –high priority

14. Determine the placement of needed right turn lanes at the intersection of Hobbs Drive and Third Avenue. Signal timing can be adjusted for non-peak hours. –medium priority

15. Add left turn lanes at the intersection of Hobbs Drive and Grant Avenue. –medium priority

16. Restripe pavement to more clearly designate US-23 lanes between the Alpena General Hospital and the bridge. The merging lanes in this segment are a source of confusion for motorists. -medium priority

17. Conduct an impact study for extending Hobbs Drive straight south to Werth Road, to line up with the Gordon Road intersection. Begin acquiring right-of-way south of the railroad tracks for its construction. Acquire permits for a railroad crossing. –medium priority

18. Conduct an impact study for extending Tamarack Road south to Werth Road. –medium priority

19. Conduct an impact study for connecting Burkholder Drive westward to Lake Winyah Road. –medium priority

Intermediate Term Needs:

20. The US-23/Werth Road/Brooke Street/Diamond Point Road intersection requires a detailed traffic analysis to determine the operational improvements that will be necessary to accommodate future traffic. –high priority

21. Widen M-32 to 5 lanes west from Bagley Street to Walter Street. Widen M-32 to 3 lanes from Walter Street west to Lake Winyah Road (MDOT). At the same time, construct a separate bicycle/pedestrian pathway in the M-32 right-of-way from Bagley Street west to Lake Winyah Road (MDOT and Alpena Township). This will provide pathway continuity between the City of Alpena and Alpena Township along the commercial corridor. Install raised green medians with periodic left turn/u-turn cross-overs instead of two way left turn lanes in the developing segments of M-32 (right-of-way acquisition will be needed). This will provide more separation of traffic and physically channel the turning movements of traffic for safety and for ease of driving. Highway lighting may be needed on this segment. –high priority

22. Improve lane alignment along Ripley Boulevard. –medium priority

23. Rebuild Bagley Street south of M-32 to include three lanes, and improve the lane alignment from Third Avenue to M-32. –medium priority

24. Widen US-23 North from French Road to Hamilton Road (MDOT). At the same time, construct a separate bicycle/pedestrian pathway in the US-23 right-of-way from Johnson Street north to Hamilton Road (MDOT, the City of Alpena, and Alpena Township). This will provide pathway continuity between the City of Alpena and Alpena Township along this commercial corridor. Install raised green medians with periodic left turn/u-turn cross-overs in place of two way left turn lanes in the developing segments of US-23 (right-of-way acquisition will be needed). This will provide more separation of traffic and physically channel the turning movements of traffic for safety and for ease of driving. –medium priority

25. Obtain right-of-way from Alpena Public Schools to construct a diagonal curve connecting Hobbs Drive with Grant Avenue, to facilitate the movement of traffic on Hobbs Drive between south Bagley Street and Grant Avenue. –medium priority

26. Improve Informational signage for directions to major destination points. –low priority

Long Term Needs:

27. Connect the Wilson Street and Henry Street/Golf Course Road corridor eastward to Woodward Avenue. Construct an east-west road from US-23 to intersect with Woodward Avenue and Long Lake Road. Continue Wilson Street northward to intersect the new east-west road. These improvements will enable future Alpena Community College developments and City of Alpena developments to take place. Refer to the *City of Alpena North Sub-Area Plan*, March 2000. –medium priority

28. Determine if there is sufficient growth to warrant a new major north-south road, and construction of a bridge farther to the west of the City of Alpena. This may include re-evaluating the option of 1) extending Lake Winyah Road northward to the Thunder Bay River and constructing a bridge; and 2) constructing a new road from the Four Mile Dam Road northeast to Hamilton Road. –medium priority

29. Continue to explore options for a north-south route that is farther west from the urbanized area, as the community of Alpena grows. This may include the option of 1) constructing a new north-south road along the east edge of the Airport property to the Thunder Bay River and constructing a bridge, and 2) completing the Cathro Road to Boilore Road to Bloom Road connection to US-23. –medium priority

30. If recommended by an impact study, construct the Tamarack Road extension south to Werth Road when needed. – low priority

All of the above Recommendations are shown on **Figure 8.2**, on the following page, and it is intended that this map serve as the “blueprint” for improving the area-wide transportation system. It summarizes the Transportation Plan at a glance, and is intended for distribution to all participating communities and agencies.

The numbers on the Recommendations Map refer to the numbers on the list above, and are color-coded to identify them as tasks to address in the “Short-term”, the “Intermediate-term”, or the “Long-term”.

POSSIBLE FUNDING SOURCES

It may be possible to secure funding for the above projects from a variety of sources. Listed below, are examples of some, but not all, of the available sources:

Economic Development Administration (EDA); Job creation or retention projects

Community Development Block Grant (CDBG) Program; Job creation or retention projects

Surface Transportation Program (STP); County primary and local road improvements

Transportation Economic Development Fund:
- Category A; Road improvements directly related to job creation or retention
- Category D; Secondary all-season road system improvements
- Category E; Eligible counties have 34% or more commercial forest land
- Category F; Improvements in federal-aid urbanized areas

Transportation Enhancement Fund; Intermodal transportation projects or aesthetic improvements

Michigan Department of Natural Resources:
- Michigan Natural Resources Trust Fund
- Off-Road Trail Improvement Grants
- Recreation Improvement Grant Funds
- Recreational Trails Program Grants
- Snowmobile Trail Local Grants Program
- Waterways Program Grants

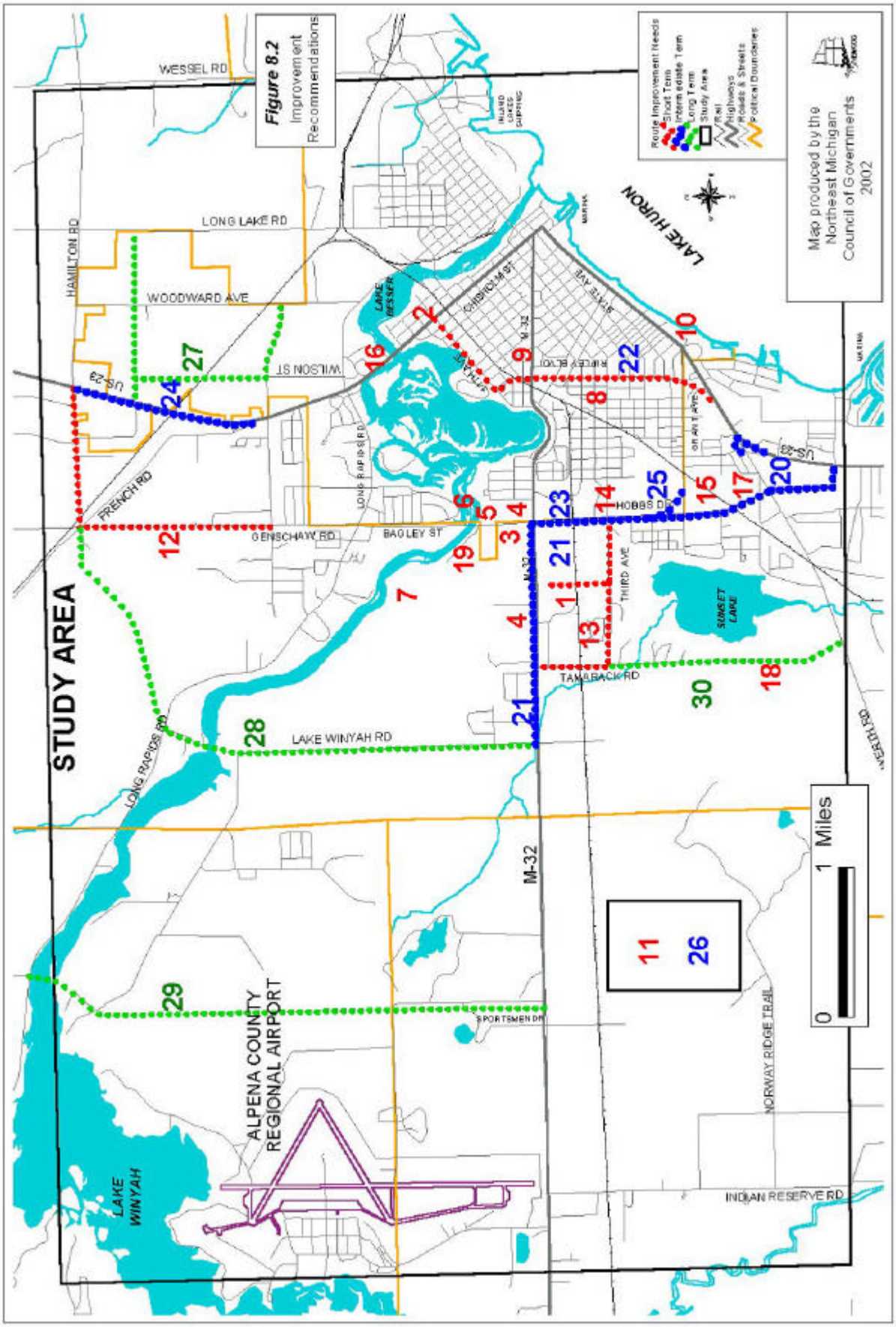


Figure 8.2
Improvement Recommendations
Route Improvement Needs
Short Term
Intermediate Term
Long Term
Study Area
Rail
Highways
Roads & Streets
Political Boundaries
Map produced by the Northeast Michigan Council of Governments 2002
STUDY AREA
WESSEL RD
LONG LAKE RD
HAMILTON RD
WOODWARD AVE
WILSON ST
US-23
FRENCH RD
GENSCHAW RD
BAGLEY ST
LONG RAPIDS RD
LAKE HURON
LAKE BESSER
CHISHOLM ST
BAY STATE
RIFLEY BLVD
M-32
HOBBS DR
THIRD AVE
SUNSET LAKE
TAMARACK RD
LAKE WINYAH RD
LONG RAPIDS RD
M-32
ALPENA COUNTY REGIONAL AIRPORT
SPORTSMEN DR
NORWAY RIDGE TRAIL
INDIAN RESERVE RD
LAKE WINYAH
0
1 Miles

APPENDIX A

MICHIGAN RESOURCE INVENTORY SYSTEM (MIRIS) CLASSIFICATIONS

ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN

June 2003

Michigan DNR Land Use Classification System

1. URBAN
   - 11 RESIDENTIAL
     - 111 MULTI-FAMILY, HIGH RISE
     - 112 MULTI-FAMILY, LOW RISE
     - 113 SINGLE FAMILY, DUPLEX
     - 115 MOBILE HOME PARK
   - 12 COMMERCIAL, SERVICES, INSTITUTIONAL
     - 121 PRIMARY/CENTRAL BUSINESS DISTRICT
     - 122 SHOPPING CENTER/MALL
     - 123 MOTELS
     - 124 SECONDARY BUSINESS/STRIP COMMERCIAL
     - 126 INSTITUTIONAL
   - 13 INDUSTRIAL
     - 133 WOOD PRODUCTS
     - 138 INDUSTRIAL PARK
   - 14 TRANSPORTATION, COMMUNICATIONS, UTILITIES
     - 141 AIR TRANSPORTATION
     - 142 RAIL TRANSPORTATION
     - 143 WATER TRANSPORTATION
     - 144 ROAD TRANSPORTATION
     - 145 COMMUNICATION S
     - 146 UTILITIES
   - 17 EXTRACTIVE
     - 171 OPEN PIT
     - 172 UNDERGROUND
     - 173 WELLS
   - 19 OPEN LAND, OTHER
     - 193 OUTDOOR RECREATION
     - 14 CEMETERIES
2. AGRICULTURE
   - 21 CROPLAND
   - 22 ORCHARDS, BUSH FRUIT, VINEYARDS, ORNAMENTAL HORTICULTURE
   - 23 CONFINED FEEDING
   - 24 PERMANENT PASTURE
   - 29 OTHER
3. NONFORESTED
   - 31 HERBACEOUS
   - 32 SHRUB
4. FORESTED
   - 41 DECIDUOUS

411 NORTHERN HARDWOOD
412 CENTRAL HARDWOOD
413 ASPEN /WHITE BIRCH ASSOCIATION
414 LOWLAND HARDWOOD

42 CONIFEROUS
421 PINE
422 OTHER UPLAND CONIFER
423 LOWLAND CONIFER
426 CHRISTMAS TREE PLANTATION

5 WATER
51 STREAM
52 LAKE
53 RESERVOIR
54 GREAT LAKES

6 WETLANDS
61 FORESTED
611 WOODED
612 SHRUB, SCRUB
62 NONFORESTED
621 AQUATIC BED
622 EMERGENT
623 FLATS

7 BARREN
72 BEACH, RIVERBANK
73 SAND DUNE
74 EXPOSED ROCK

FOREST CLASSIFICATION

THE FOREST COVER TYPES ARE IDENTIFIED ACCORDING TO A 5-DIGIT CODE. THE FIRST FOUR DIGITS ARE GIVEN IN THE SPECIES DESCRIPTION KEY. THE FIFTH DIGIT IS
DEFINED IN THE STAND SIZE AND STOCKING KEY.

411 NORTHERN HARDWOOD
4111 SUGAR MAPLE PREDOMINATES
4112 RED MAPLE PREDOMINATES
4113 ELM PREDOMINATES
4114 BEECH PREDOMINATES
4115 YELLOW BIRCH PREDOMINATES
4116 CHERRY PREDOMINATES
4117 BASSWOOD PREDOMINATES
4118 WHITE ASH PREDOMINATES
4119 OTHER NORTHERN HARDWOODS

412 OAK/HICKORY
4121 RED OAK PREDOMINATES
4122 WHITE OAK PREDOMINATES
4123 BLACK OAK PREDOMINATES

413 ASPEN, WHITE BIRCH & ASSOCIATED SPECIES
- 4131 TREMBLING ASPEN PREDOMINATES
- 4132 BIGTOOTH ASPEN PREDOMINATES
- 4133 WHITE BIRTH PREDOMINATES
- 4134 OTHER SPECIES

414 LOWLAND HARDWOODS
- 4141 ASH PREDOMINATES
- 4142 ELM PREDOMINATES
- 4143 SOFT MAPLE PREDOMINATES
- 4144 COTTONWOOD PREDOMINATES
- 4145 BALM-OF-GILEAD PREDOMINATES
- 4146 ASPEN PREDOMINATES
- 4147 WHITE BIRCH PREDOMINATES
- 4149 OTHER LOWLAND HARDWOODS

421 PINE
- 4211 WHITE PINE PREDOMINATES
- 4212 RED PINE PREDOMINATES
- 4213 JACK PINE PREDOMINATES
- 4214 SCOTCH PINE PREDOMINATES
- 4219 OTHER

422 OTHER UPLAND CONIFERS
- 4221 WHITE SPRUCE PREDOMINATES
- 4222 BLACK SPRUCE PREDOMINATES
- 4223 BALSAM FIR PREDOMINATES
- 4224 DOUGLAS FIR PREDOMINATES
- 4225 LARCH PREDOMINATES
- 4226 HEMLOCK PREDOMINATES
- 4229 OTHER

423 LOWLAND CONIFERS
- 4231 CEDAR PREDOMINATES
- 4232 BLACK SPRUCE PREDOMINATES
- 4233 TAMARACK PREDOMINATES
- 4234 BALSAM FIR-WHITE SPRUCE PREDOMINATES
- 4235 BALSAM FIR PREDOMINATES
- 4236 JACK PINE PREDOMINATES
- 4230 OTHER

429 MANAGED CHRISTMAS TREE PLANTATION
- 4291 SCOTCH PINE
- 4292 DOUGLAS FIR
- 4293 BLUE SPRUCE
- 4294 WHITE PINE
- 4299 OTHER

STAND SIZE AND STOCKING KEY
- 0 NONSTOCKED, (LESS THAN 17 %)
- 1 SEEDLING-SAPLING, POOR (17-39%)
- 2 SEEDLING-SAPLING, MEDIUM (40-69%)
- 3 SEEDLING-SAPLING, WELL (GREATER THAN 69%)

4 POLETIMBER, POOR (17-39%)
5 POLETIMBER, MEDIUM (40-69%)
6 POLETIMBER, WELL (GREATER THAN 69%)
7 SAWTIMBER, POOR (17-69%)
8 SAWTIMBER, MEDIUM (40-69%)
9 SAWTIMBER, WELL (GREATER THAN 69%)

NEMCOG Land Cover / Land Use Classification System:

The Michigan DNR numeric classifications are grouped, by NEMCOG, into the following 10 Land Use classes for map display purposes.

1) Residential
2) Commercial
3) Industrial
4) Institution/Recreational
5) Agricultural
6) Non-Forest
7) Upland Forest
8) Lowland Forest
9) Wetlands
10) Surface Water

Land Use Classes:	1	2	3	4	5	6	7	8	9	10
MDNR Classification:	11	12	13	19	21	31	41	414	611	51
	111	121	14	126	22	32	42	423	612	52
	112	122	17	192	23	33	411		621	53
	113	123	132	193	24	72	410		622	54
	114	124	138	194	29	73	412		623	
	115	127	141			74	413			
	116	125	142				415			
		133	143				420			
			144				421			
			145				422			
			146				426			
			171							
			172							
			173							

APPENDIX B

MODEL ZONING ORDINANCE LANGUAGE

ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN

June 2003

NOTE: The language in these ordinances is not meant to be adopted verbatim, but should be adjusted to meet the needs of the individual jurisdiction seeking to adopt such language. It should then be reviewed by the jurisdiction's attorney before adoption.

Landscaping, Screening, Buffering, and Fencing

It is the intent of this ordinance to require buffer zones and landscape screening to reduce the negative impacts between incompatible land uses, minimize visual impacts of development along major highway corridors (road names), and to provide for landscaping within parking lots. In addition, the intent is to preserve and enhance the aesthetic qualities, character, privacy and land use values along major highway corridors (road names).

Section 1 Application

These requirements shall apply to all uses, for which site plan review is required under Section _____ of the Zoning Ordinance. No site plan shall be approved unless the site plan shows landscaping, greenbelt buffers, and screening consistent with the requirements set forth in this ordinance. Screening is the enclosure of an area by a visual barrier, which may include a landscape buffer, solid fencing or other materials. Fencing is the enclosure of an area by the materials identified in Section 7.

Section 2 Landscape Plan Required

A separate detailed landscape plan shall be submitted as part of a site plan review. The landscape plan shall include, but not necessarily be limited to, the following items:

1. Location, spacing, size, and root type [bare root (BR) or balled and burlaped (BB)] and descriptions for each plant type proposed for use within the required landscape area.

2. Minimum scale: 1" = 100' *(same scale as required for site plan)*.

3. Existing and proposed contours on-site and one hundred fifty (150) feet beyond the site at intervals not to exceed two (2) feet.

4. Typical straight cross-section including slope, height, and width of berms and type of ground cover, or height and type of construction of wall or fence, including footings.

5. Significant construction details to resolve specific site conditions, such as tree wells to preserve existing trees or culverts to maintain natural drainage patterns.

6. Planting and staking details in either text or drawing form to ensure proper installation and establishment of proposed plant materials.

7. Identification of existing trees and vegetative cover to be preserved.

8. Identification of grass and other ground cover and method of planting.

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

Section 3 Screening between Land Uses

1. Upon any improvement for which a site plan is required, screening shall be constructed at least six (6) feet in height along all adjoining boundaries with residentially zoned or used property. Either a landscape buffer or solid wall may be used as provided below, or when the distance between structures or adjoining lots is greater than twice the minimum setbacks would require, a fence meeting the requirements of Section 7 may be required at the discretion of either the Planning Commission or Planning Department. A landscape buffer may consist of earthen berms and/or living materials so as to maintain a minimum opacity of at least eighty (80) percent. Opacity shall be measured by observation of any two (2) square yard area of landscape screen between one (1) foot above the established grade of the area to be concealed and the top or the highest point of the required screen. The plantings must meet this standard based upon reasonably anticipated growth over a period of three (3) years. The applicant shall agree in writing to install solid fencing after the expiration of thirty-six (36) months, in the event that the landscaping has not totally blocked the view of areas required to be screened.

2. Where there is a need to provide a greater noise or dust barrier or to screen more intense development, a solid wall shall be required. Such wall shall be six (6) feet or more in height as measured on the side of the proposed wall having the higher grade, and shall be constructed on both sides with face brick, poured-in-place simulated face brick, precast brick panels having simulated face brick, or stone.

Section 4 Parking Lot Landscaping

Separate landscaped areas shall be required either within or at the perimeter of parking lots. There shall be one (1) tree for every eight (8) parking spaces, with minimum landscaped space within a designated parking area of fifty (50) square feet. A minimum distance of three (3) feet shall be established between proposed tree or shrub plantings and the backside of the curb or edge of the pavement.

1. Individual landscaped areas shall be a minimum of eighteen (18) feet wide and three hundred twenty-four (324) square feet in area.

2. Individual landscaped areas shall be wider than fifteen (15) feet where necessary to accommodate snow removal without plant damage.

3. Parking lot landscaping shall be so designed to provide directional guidance to drives, including ingress, egress, and interior circulation.

Section 5 Highway Landscape Buffers

1. A strip of land with a minimum width determined by the front yard setback of its zoning classification shall be located between the abutting right-of-way of a public street, freeway, or major thoroughfare, and shall be landscaped with a minimum of one (1) tree not less than twelve (12) feet in height or a minimum caliper of two and one-half (2 ½) inches (whichever is greater at the time of planting) for each thirty (30) lineal feet, or major portion thereof, of frontage abutting said right-of-way. The remainder of the buffer shall be landscaped in grass, ground cover, shrubs, and/or other natural, living, landscape material. The area along the roadway proposed to be grassed shall be minimized and directly related to the necessity, if any, for an ornamental landscape character.

2. Access ways from public rights-of-way through required landscape strips shall be permitted, but such access ways shall not be subtracted from the lineal dimension used to determine the minimum number of trees required unless the calculation would result in a violation of the spacing requirement set forth in this section.

Section 6 Site Landscaping

1. In addition to any landscape areas and/or parking lot landscaping required by this ordinance, at least ten (10) percent of the site area, including existing thoroughfare right-of-way, shall be landscaped.

2. Areas used for storm drainage purposes, such as unfenced drainage courses or retention areas in front or side yards, may be excluded as a portion of the required landscaped area not to exceed five (5) percent of the site area.

Section 7 Fencing and Screening

Unless otherwise specified or determined by the Planning Commission, Planning Department or Zoning Board of Appeals, fencing and screening shall be a minimum of six (6) feet in height. Gateposts at entrances and exits shall not exceed twelve (12) feet in height.

1. Mechanical Equipment *(This subsection does not apply to single-family residential uses, or to any use in an industrial land use category except if it abuts a residential area).* When located outside of a building, support equipment including air conditioning and heating devices, water and gas meters, but not including plumbing or exhaust vents, or chimneys, are to be screened to the height of the particular piece of equipment, as follows:
   a. Roof-Mounted Equipment: To be screened by architectural features from the view of abutting streets and parcels.
   b. Equipment at Grade: When located on the ground adjacent to a building, mechanical equipment is to be screened by landscaping, a solid wall or fencing from the view of the street or surrounding properties.

2. Outdoor Storage: to be screened on all sides by a solid wall or fencing.

3. Public Utility Substations: To be screened on all sides by a solid wall or fencing, and landscaping.

4. Side and Rear Lot Lines: The side and rear property lines of all nonresidential uses are to be screened as follows:
   a. Adjacent to a Residential Use or Zone: See requirements of Section 3 above.
   b. Industrial and Commercial Zones: A solid wall or fencing is to be located on the side and rear property lines of any site within an Industrial or Commercial zone that abuts another zoning district or land use.

5. Swimming Pools: yard areas with private pools are to be fenced to discourage unsupervised access and use by small children. Such fencing is to be minimum of four (4) feet high, and equipped with a self-closing and self-latching gate. Latching devices are to be located at a minimum height of four (4) feet. Such fencing may be omitted where building walls without doorways abut the pool area.

Section 8 Barrier Fences

Barrier fences containing barbed wire, electric charges or sharp materials at the top of a fence or wall less than six (6) feet in height are prohibited unless needed to protect the public safety and approved by the Planning Commission or Planning Department.

Section 9 Fire Hazard

No fence shall be approved which constitutes a fire hazard either of itself or in connection with the existing structures in the vicinity, nor which will interfere with access by the Fire Department in case of fire to buildings in the vicinity or which will constitute a hazard to street traffic or to pedestrians.

Section 10 General Landscape Development Standards

1. Minimum Plant Material Standards:
   a. All plant material shall be hardy to Alpena County, free of disease and insects and conform to the standards of the American Association of Nurserymen. A list of recommended plants is available from the Zoning Administrator.
   b. All plant materials shall be installed in such a manner so as not to alter drainage patterns on site or adjacent properties or obstruct vision for reasons of safety, ingress or egress.
   c. All plant material shall be planted in a manner so as to not cause damage to utility lines (above and below ground) and public roadways.
   d. Minimum plant sizes at time of installation:

Deciduous Canopy Trees	2 ½“ caliper
Deciduous Ornamental Trees:	2” caliper
Evergreen Tree:	6’ height
Deciduous Shrub:	2’ height
Upright Evergreen Shrub:	2’ height
Spreading Evergreen Shrub:	18” – 24” spread

   e. Existing plant material, which complies with the standards and intent of the ordinance, as determined by the Zoning Administrator, shall be credited toward meeting the landscape requirements.
   f. The plant material shall achieve its horizontal and vertical screening effect within four (4) years of initial installation.
   g. The overall landscape plan shall not contain more than thirty-three (33) percent of any one plant species.
   h. The following trees are not permitted as they split easily; their wood is brittle and breaks easily; their roots clog drains and sewers; and they are unusually susceptible to disease or insect pests:

Common Name	**Horticultural Name**
Boxelder	*Acer Negundo*
Ginkgo	*Ginkgo Biloba (female only)*
Honey Locust	*Gleditsia Triacanthos (with thorns)*
Mulberry	*Morus Species*
Poplars	*Populus Species*
Black Locust	*Robinia species*
Willows	*Salix Species*
American Elm	*Ulmus Americana*
Siberian Elm	*U. Pumila*
Slippery Elm: Red Elm	*U. Rubra*
Chinese Elm	*U. Parvifola*

2. Minimum Standard for Berms:
   a. Berms shall be constructed so as to maintain a side slope not to exceed a one foot (1') rise to a three feet (3') run ratio.
   b. Berms not containing planting beds shall be covered with grass or living groundcover maintained in a healthy growing condition.
   c. Berms shall be constructed in a way that does not alter drainage patterns on site or adjacent properties or obstruct vision for reasons of safety, ingress or egress.
   d. If a berm is constructed with a retaining wall or by terracing, the earthen slope shall face the exterior of the site.

Model Billboard Ordinance

The regulation of billboards is intended to enhance and protect community character and image by minimizing visual blight and pollution, and to minimize traffic safety hazards due to diversion of the driver's attention and blockage of sight distances. Billboard regulations address the location, size, height and related characteristics of such signs.

Section 1 Title

This ordinance shall be known and may be cited as the Billboard Ordinance of _____ (name of community).

Section 2 Intent

The sign standards contained in this ordinance are declared necessary to protect the general health, peace, safety and welfare of the citizens of _____ (name of community) and are based on the following objectives:

- To avoid excessive property and use signing in order to give each use optimum visibility to passer-by traffic and if possible, to prevent one sign from blocking the view of another sign.
- To place signs in such a way that scenic views are respected and visual obstructions to the natural landscape are minimized.
- To protect the character of _____ (name of community).

Section 3 Definitions

BILLBOARD – An outdoor sign advertising services or products, activities, persons, or events which are not made, produced, assembled, stored, distributed, leased, sold, or conducted upon the premises upon which the billboard is located. Billboards may also be referred to as off-premise signs.

Section 4 Billboard Regulations

Billboards may be established in the Commercial and Industrial (*Note: could be limited to just commercial or industrial*) zoning district classification(s) provided that they meet the following conditions:

1. Not more than three (3) billboards may be located per linear mile of street or highway regardless of the fact that such billboards may be located on different sides of the subject street or highway. The linear mile measurement shall not be limited to the boundaries of _____ (name of community) where the particular street or highway extends beyond such boundaries. Double faced billboard structures (i.e., structures having back-to-back billboard faces) and V-type billboard structures having only one face visible to traffic proceeding from any given direction on a street or highway shall be considered as one billboard. Additionally, billboard structures having tandem billboard faces (i.e., two parallel billboard faces facing the same direction and side-by-side to one another) shall be considered as one billboard. Otherwise, billboard structures having more than one billboard face shall be considered as two billboards and shall be prohibited in accordance with the minimum spacing requirement set forth in subsection below.

2. No billboard shall be located within one thousand (1,000) feet of another billboard abutting either side of the same street or highway.

3. No billboard shall be located within two hundred (200) feet of a residential zone and/or existing residence. If the billboard is illuminated, this required distance shall instead be three hundred (300) feet.

4. No billboard shall be located closer than seventy-five (75) feet from a property line or public right-of-way. No billboard shall be located within ten (10) feet from any interior boundary lines of the premises on which the billboard is located. (A community could also limit it to the setback of a principal structure in the zoning district.)

5. The surface display area of any side of a billboard may not exceed *fifty-six (56) sq. feet (Coordinate standards with abutting communities).*

6. The height of a billboard shall not exceed thirty (30) feet above the elevation of the centerline of the abutting roadway.

7. No billboard shall be on top of, cantilevered or otherwise suspended above the roof of any building.

8. A billboard may be illuminated, provided such illumination is concentrated on the surface of the sign and is so located as to avoid glare or reflection onto any portion of an adjacent street or highway, the path of on-coming vehicles, or any adjacent premises. In no event shall any billboard have flashing or intermittent lights, nor shall the lights be permitted to rotate or oscillate. Lighting fixtures used to illuminate an outdoor advertising sign shall be mounted on the top of the sign structure. Bottom-mounted outdoor advertising-sign lighting shall not be used. All lighting fixtures or lamps rated at a total of MORE than 1800 foot candles (fc), and all flood or spot lamps rated at a total of MORE than 900 fc, shall not emit any direct light above a horizontal plane through the lowest direct-light-emitting part of the fixtures or lamps. Any lighting fixtures or lamps rated at a total of MORE than 1800 fc, and all flood or spot lamps rated at a total of MORE than 900 fc, shall be mounted at a height equal to or less than the value 3 + (D/3), where D is the distance in feet to the nearest property boundary. The maximum height of the fixtures or lamps may not exceed 25 feet. Billboards shall not be illuminated between the hours of 11:00 PM and 06:00 AM local time.

9. A billboard must be constructed in such a fashion that it will withstand all wind and vibration forces, which can normally be expected to occur in the vicinity. A billboard must be maintained so as to assure proper alignment of structure, continued structural soundness, and continues readability of message.

10. A billboard established within a business, commercial, or industrial area, as defined in the Highway Advertising Act of 1972 (1972 PA 106, as amended) bordering interstate highways, freeways or primary highways as defined in said Act shall in addition to complying with the above condition, also comply with all applicable provisions of said Act and the regulations promulgated thereunder, as such may form time to time be amended.

11. No person, firm or corporation shall erect a billboard within _____ (name of community) without first obtaining a permit from the _____ (name of community) Zoning Administrator, which permit shall be granted upon a showing of compliance with the provisions of this ordinance and payment of a fee. Permits shall be issued for a period of one year, but shall be renewable annually upon inspection of the billboard by the

_____ (name of community) Zoning Administrator confirming continued compliance with this ordinance and payment of the billboard permit fee. The amount of the billboard permit fee required hereunder shall be established by resolution of the _____ (governing body) and shall bear a reasonable relationship to the cost and expense of administering this permit requirement. The _____ (governing body) shall further have the right to amend the aforementioned resolution from time to time within the foregoing limits of reasonableness. *(NOTE: A community adopting this provision should be prepared to demonstrate that the amount of its billboard permit fee is reasonably related to the actual costs incurred by the community in administering the permit requirement.)*

Model Sign Ordinance

An ordinance to regulate and control the size, location, number and types of signs within _____ (name of community). The purpose of this ordinance is to permit signs that will not, by their size, location, construction or manner of display, endanger the public safety of any person, will be consistent with the intent and purposes of the _____ (name of community) Zoning Ordinance and will enhance the public interest and general welfare.

Section 1 Title

This ordinance shall be known and may be cited as the Sign Ordinance of _____ (name of community).

Section 2 Intent

The sign standards contained in this ordinance are declared to be necessary to protect the general health, safety and welfare of the citizens of _____ (name of community), and are based on the following objectives:

- To reflect the primary purpose of signage as being the identification of a particular user or use on a property, but not necessarily every activity or service performed thereon.
- To promote signs that are visible at eye level and can be readily seen from moving vehicles with the least amount of eye distraction.
- To avoid excessive property and use signing in order to give each use optimum visibility to passer-by traffic and if possible, to prevent one sign from blocking the view of another sign.
- To place and size signs in a way that scenic views are respected and visual obstructions to the natural landscape are minimized.
- To protect the character of _____ (name of community) by encouraging the design of institutional, business or industrial signs that reflect the community's favorable environment as a permanent and seasonal home community.
- To maintain and enhance economic stability by retaining aesthetic appeal to tourists and visitors, and encouraging signing practices that will compliment the community's natural environment.

Section 3 Definitions

FREESTANDING SIGN OR GROUND SIGN - a sign supported by permanent uprights or braces in the ground.

ILLUMINATED SIGNS - A sign that provides artificial light directly (or through any transparent or translucent material) from a source of light connected with the sign, or a sign illuminated by a light shielded so that no direct rays from it are visible from any public right-of-way or from the abutting property.

MEASUREMENT OF SIGN AREA - The entire area within the sign perimeter enclosing its extreme limits, together with any frame or other material forming an integral part of the display, excluding the necessary supports or uprights on which the sign is placed, but including any sign-tower is considered the area of measurement. Where a sign has two (2) or more faces, the area of all faces shall be included in determining the area of the sign, except that where two (2) faces are placed back to back and are at no point more than two (2) feet from one another, the area of the sign shall be taken as the area of one (1) face if the two (2) faces are of equal size, or as the area of the larger face if the two (2) faces are of unequal area. In the case of a sphere, the total area of the sphere is divided by two (2) for purposes of determining the total maximum permitted sign area.

OUTDOOR BUSINESS OR INFORMATIONAL SIGN - a freestanding, overhanging, or wall mounted sign located outside of a structure on which information is displayed pertaining to a product, use, occupancy, function, service or activity located within that structure on the same property as the sign.

OVERHANGING SIGN - a sign that extends beyond any structure wall and is affixed to the structure so that its sign surface is perpendicular to the structure wall.

POLE SIGNS - A sign supported by one (1) or more uprights, poles or braces places in or upon the ground surface and not attached to any building and having a clear space of at least ten (10) feet from the ground to the bottom of the sign.

PORTABLE SIGN - any sign that is designed to be transported, including but not limited to signs:

- With wheels removed;
- With chassis or support constructed without wheels;
- Designed to be transported by trailer or wheels;
- Converted A- or T-frame signs;
- Attached temporarily or permanently to ground, a structure, or other signs;
- Mounted on a vehicle for advertising purposes, parked and visible from the public right-of-way, except signs identifying the related business when the vehicle is being used in normal day-to-day operations of that business;
- Menu and sandwich boards;
- Searchlight stand; and
- Hot air, forced air or gas-filled balloons or umbrellas used for advertising.

SIGN - a structure, including its base, foundation and erection supports upon which is displayed any words, letters, figures, emblems, symbols, designs, or trademarks by which any message or image is afforded public visibility from out of doors on behalf of and for the benefit of any product, place, activity, individual, firm, corporation, institution, profession, association, business or organization.

SIGN SURFACE - that portion of a sign excluding its base, foundation and erection supports on which is displayed information pertaining to a product, use, occupancy, function, service, or activity located within that structure, on the same property as the sign.

Section 4 Maximum Sign Area by Zoning District

The size of any publicly displayed sign, including temporary and portable signs, symbol or notice on a premise to indicate the name of the occupant, to advertise the business transacted therein, shall be regulated as follows:

Use District	Maximum Size of Sign
Residential	Ten (10) square feet
Agricultural	Twenty-four (24) square feet
Commercial	Thirty-two (32) square feet
Industrial	Fifty-six (56) square feet

Note: Billboards or off-premise signs are regulated by the _____ (name of community) Billboard Ordinance.

Section 5 Signs Prohibited

Any sign not expressly permitted by this ordinance is prohibited.

Section 6 Supplemental Sign Regulations

In addition to the size limitations stated by district, the following conditions shall apply to all signs erected in any use district:

1. No sign, except non-illuminated residential name plates or temporary residential real estate signs, shall be erected or altered until approved by the Zoning Administrator or authorized by an approved site plan or building permit.

2. No signs shall be located on any street corner which would obscure the vision of drivers using the streets, or conflict with traffic control signals at the intersection of any streets. No signs shall obstruct the vision of drivers at any driveway, parking lot or other route providing ingress or egress to any premises.

3. Illumination of signs shall be directed, shaded or designed so as not to interfere with the vision of persons on the adjacent highway, streets or properties. Signs which are illuminated by external lighting fixtures shall have those fixtures mounted on top of the sign structure. Bottom-mounted outdoor sign lighting shall not be used. Illuminated signs shall not be of the flashing, moving or intermittent type unless approved by the Zoning Administrator, who shall find that the lighting is non glaring, does not interfere with traffic control devices, and does not involve the principal notice or message carried on the sign.

4. Freestanding signs, pole signs or advertising pylons may be permitted in a required front yard for uses set ten (10) feet or more behind the front property line. No freestanding sign shall exceed the maximum height limits of the District where located.

5. All directional signs required for the purpose of orientation, when established by the (Village or City), County, State, or Federal governments, shall be permitted in all Districts.

6. No sign shall project beyond or overhang the wall, roof or any architectural feature by more than five (5) feet. No sign shall project into the public right-of-way.

7. The number of signs allowed shall be decided by the Planning and Zoning Commission at the time of site plan review. Factors considered will include building size, location and length of street frontage, lot size, and proximity of other signs.

8. In no case shall a sign or signs exceed a total of ten percent (10%) of the building face to which they are attached.

9. The Zoning Board of Appeals may upon application by the property owner, modify the area of sign permitted where, in unusual circumstances no good or practical purpose would be served by strict compliance with the requirements of this ordinance.

10. Political and campaign signs shall not be erected more than _____ days before an election and shall be removed before _____ days following the election.

Anti-Blight Ordinance

AN ORDINANCE OF THE _____(CITY or VILLAGE), _____ COUNTY, MICHIGAN, PROVIDING FOR THE REGULATION AND CONTROL OF JUNK MOTORIZED VEHICLES, ABANDONED MOBILE HOMES AND HOUSE TRAILERS AND OTHER JUNK DEFINED HEREIN.

Section 1 Purpose and Intent

Consistent with the letter and spirit of and by the authority granted to the (City, Village or County) by the State of Michigan Act No. 344 of the Public Acts of 1945, as amended, it is the purpose of the Ordinance to prevent, reduce, or eliminate blight or potential blight in _____ (name of community) by the prevention or elimination of certain environmental causes of blight or blighting factors, which exist or which may in the future exist in the community.

Section 2 Causes of Blight or Blighting Factors

It is hereby determined that the following uses, structures, and activities are causes of blight or blighting factors which, if allowed to exist, will tend to result in blighted or undesirable neighborhoods. On and after the effective date of this ordinance, no person, firm, or corporation of any kind shall maintain, or permit to be maintained, any of the causes of blight or blighting factors upon any property in _____ (name of community) owned, leased, rented, or occupied by such person, firm, or corporation.

1. No more than two motor vehicles shall be kept, parked, or stored in any district zoned for residential use, unless the vehicle is in operating condition and properly licensed or is kept inside a building.

   Vehicles that are not in operating condition or not properly licensed shall not be parked nor stored in the front or side yard of a parcel, as defined by the _____ (name of community) Zoning Ordinance. Such vehicles may be parked in the rear yard provided a minimum distance of twenty (20) feet shall be maintained between the vehicle and any abutting lot used for residential purposes.

2. The open parking or storage of recreational trailers, boats, campers, snowmobiles, jet skis, motor homes, or similar vehicles not owned by the owner of the parcel or lands not specifically designated for such parking and storage shall be permitted for a period of up to seventy-two (72) hours. However, a camper, motor home, or travel trailer not owned by the owner of the parcel may be parked in the rear yard of a single-family lot for a period of up to four (4) weeks provided a permit has first been secured from the Zoning Administrator.

3. Residents of _____ (name of community) may store their own trailer, boat, and similar vehicles on their own property for an indefinite period of time, provided the vehicles are in operable condition and are not stored within any front yard or required side yard setback area. *(Communities may want to set a maximum number allowed.)*

4. A travel trailer, camper, or motor home parked or stored on a residential lot shall not be connected to sanitary facilities and shall not be occupied.

5. Unusable or inoperable machinery, equipment, or parts of machines not suited for use upon the premises, or old and/or used building materials and other materials either discarded, unsightly, or showing evidence of a need for repair shall not be kept or stored outside of a building anywhere in _____ (community name). However, building materials intended to be used to improve the premises may be stored outside if piled off the ground so as not to become a suitable environment for rats, rodents or similar vermin. The temporary storage of building materials to be used for the purpose of new construction shall also be permitted. In no case shall usable or unusable machinery, building materials, or other items be stored on a permanent basis in a truck trailer or other type of trailer, with or without its wheels.

6. In any area, the existence of any structure or part of a structure, which because of fire, wind or other natural disaster, or physical deterioration, is no longer habitable as a dwelling, nor useful for any other purpose for which it may have been intended, shall be prohibited.

Section 3 Enforcement and Penalties

1. This ordinance shall be enforced by the Zoning Administrator who is hereby vested with the power necessary for the enforcement of this ordinance. In the exercise of this power, he/she can conduct investigations into the presence of blight or blighting factors on specific properties. Incidental to such investigations, he/she may enter into any land or structure to be investigated. A failure or refusal to permit such entry after the issuance of an order by the Zoning Administrator shall constitute a violation of this ordinance.

2. The owner, if possible, and the occupant of any property upon which any of the causes of blight or blighting factors as set forth in Section 2 are found to exist shall be notified in writing to remove or eliminate the causes of blight or blighting factors from the property within ten (10) days after service of the notice. The notice may be served personally or by registered mail, return receipt requested. Additional time may be granted by the enforcement officer where bona fide efforts to remove or eliminate the causes of blight or blighting factors are in progress.

3. Failure to comply with the notice within the time allowed by the owner and/or occupant shall constitute a violation of this ordinance.

4. Violation of this ordinance shall be considered a civil municipal infraction *(or misdemeanor which shall be punishable upon conviction thereof by a fine not to exceed $100.00, or by imprisonment not exceeding 30 days, or by both fine and imprisonment at the discretion of the court)*. Each day of violation of this ordinance shall be considered as a separate offense.

Model Outdoor Lighting Ordinance for Cities and Towns

The following is model text for an outdoor night-lighting ordinance that cities and towns can use, based on ordinances that have been successfully implemented in Kennebunkport, Maine, and Tucson, Arizona. This information has been made available by the International Dark Sky Association, Tucson, Arizona. Terms such as "Town", "Town Meeting", "Code Enforcement Officer", "building official", "Subdivision Plat", "Board of Selectmen", and "Lighting Committee" will need to be changed to conform to local ordinance usage.

STATEMENT OF NEED AND PURPOSE: Good outdoor lighting at night benefits everyone. It increases safety, enhances the Town's night time character, and helps provide security. New lighting technologies have produced lights that are extremely powerful, and these types of lights may be improperly installed so that they create problems of excessive glare, light trespass, and higher energy use. Excessive glare can be annoying and may cause safety problems. Light trespass reduces everyone's privacy, and higher energy use results in increased costs for everyone. There is a need for a lighting ordinance that recognizes the benefits of outdoor lighting and provides clear guidelines for its installation so as to help maintain and compliment the Town's character. Appropriately regulated, and properly installed, outdoor lighting will contribute to the safety and welfare of the residents of the Town.

This ordinance is intended to reduce the problems created by improperly designed and installed outdoor lighting. It is intended to eliminate problems of glare, minimize light trespass, and help reduce the energy and financial costs of outdoor lighting by establishing regulations which limit the area that certain kinds of outdoor-lighting fixtures can illuminate and by limiting the total allowable illumination of lots located in the Town of _____. All business, residential, and community driveway, sidewalk, and property luminaires should be installed with the idea of being a "good neighbor", with attempts to keep unnecessary direct light from shining onto abutting properties or streets.

ARTICLE 1

1.1. DEFINITIONS: For the purposes of this Ordinance, terms used shall be defined as follows:

Direct Light: Light emitted directly from the lamp, off of the reflector or reflector diffuser, or through the refractor or diffuser lens, of a luminaire.

Fixture: The assembly that houses the lamp or lamps and can include all or some of the following parts: a housing, a mounting bracket or pole socket, a lamp holder, a ballast, a reflector or mirror, and/or a refractor or lens.

Flood or Spot light: Any light fixture or lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction.

Fully-shielded lights: outdoor light fixtures shielded or constructed so that no light rays are emitted by the installed fixture at angles above the horizontal plane as certified by a photometric test report.

Glare: Light emitting from a luminaire with an intensity great enough to reduce a viewer's ability to see, and in extreme cases causing momentary blindness.

Grandfathered luminaires: Luminaires not conforming to this code that were in place at the time this code was voted into effect. When an ordinance "grandfathers" a luminaire, it means that such already-existing outdoor lighting does not need to be changed unless a period of time is specified for adherence to the code.

Height of Luminaire: The height of a luminaire shall be the vertical distance from the ground directly below the centerline of the luminaire to the lowest direct-light-emitting part of the luminaire.

Indirect Light: Direct light that has been reflected or has scattered off of other surfaces.

Lamp: The component of a luminaire that produces the actual light.

Light Trespass: The shining of light produced by a luminaire beyond the boundaries of the property on which it is located.

Lumen: A unit of luminous flux. One foot-candle is one lumen per square foot. For the purposes of this Ordinance, the lumen-output values shall be the INITIAL lumen output ratings of a lamp.

Luminaire: This is a complete lighting system, and includes a lamp or lamps and a fixture.

Outdoor Lighting: The night-time illumination of an outside area or object by any man-made device located outdoors that produces light by any means.

Temporary outdoor lighting: The specific illumination of an outside area of object by any man-made device located outdoors that produces light by any means for a period of less than 7 days, with at least 180 days passing before being used again.

ARTICLE 2

2.1 REGULATIONS: All public and private outdoor lighting installed in the Town of _____ shall be in conformance with the requirements established by this Ordinance. All previous language in _____ bylaws and ordinances regarding outdoor lighting is replaced with this ordinance.

2.2 CONTROL OF GLARE -- LUMINAIRE DESIGN FACTORS:

A. Any luminaire with a lamp or lamps rated at a total of MORE than 1800 lumens, and all flood or spot luminaires with a lamp or lamps rated at a total of MORE than 900 lumens, shall not emit any direct light above a horizontal plane through the lowest direct-light-emitting part of the luminaire.
B. Any luminaire with a lamp or lamps rate at a total of MORE than 1800 lumens, and all flood or spot luminaires with a lamp or lamps rated at a total of MORE than 900 lumens, shall be mounted at a height equal to or less than the value 3 + (D/3), where D is the distance in feet to the nearest property boundary. The maximum height of the luminaire may not exceed 25 feet.

2.3 EXCEPTIONS TO CONTROL OF GLARE:

A. Any luminaire with a lamp or lamps rated at a total of 1800 lumens or LESS, and all flood or spot luminaires with a lamp or lamps rated at 900 lumens or LESS, may be used without restriction to light distribution or mounting height, except that if any spot of flood luminaire rated 900 lumens or LESS is aimed, directed, or focused such as to cause direct light from the luminaire to be directed toward residential buildings on adjacent or nearby land, or to create glare perceptible to persons operating motor vehicles on public ways, the luminaire shall be redirected or its light output controlled as necessary to eliminate such conditions.
B. Luminaires used for public-roadway illumination may be installed at a maximum height of 25 feet and may be positioned at that height up to the edge of any bordering property.
C. All temporary emergency lighting needed by the Police or Fire Departments or other emergency services, as well as all vehicular luminaires, shall be exempt from the requirements of this article.
D. All hazard warning luminaires required by Federal regulatory agencies are exempt from the requirements of this article, except that all luminaires used must be red and must be shown to be as close as possible to the Federally required minimum lumen output requirement for the specific task.
E. Luminaires used primarily for sign illumination may be mounted at any height to a maximum of 25 feet, regardless of lumen rating.
F. Law Governing Conflicts. Where any provision of federal, state, county, or town statutes, codes, or laws conflicts with any provision of this code, the most restrictive shall govern unless otherwise regulated by law.

2.4 OUTDOOR ADVERTISING SIGNS.

A. Top Mounted Fixtures Required. Lighting fixtures used to illuminate an outdoor advertising sign shall be mounted on the top of the sign structure. All such fixtures shall comply with the shielding requirements of Section 2.2. Bottom-mounted outdoor advertising-sign lighting shall not be used.
B. Outdoor advertising signs of the type constructed of translucent materials and wholly illuminated from within do not require shielding. Dark backgrounds with light lettering or symbols are preferred, to minimize detrimental effects. Unless conforming to the above dark background preference, total lamp wattage per property shall be less than 41 watts.
C. Compliance Limit. Existing outdoor advertising structures shall be brought into conformance with this Code within ten years from the date of adoption of this provision.
D. Prohibitions. Electrical illumination of outdoor advertising off-site signs between the hours of 11:00 p.m. and sunrise is prohibited.

2.5. RECREATIONAL FACILITIES.

A. Any light source permitted by this Code may be used for lighting of outdoor recreational facilities (public or private), such as, but not limited to, football fields, soccer fields, baseball fields, softball fields, tennis courts, or show areas, provided all of the following conditions are met: (1) All fixtures used for event lighting shall be fully shielded as defined in Section 2.2 of this Code, or be designed or provided with sharp cut-off capability, so as to minimize up-light, spill-light, and glare. (2) All events shall be scheduled so as to complete all activity before or as near to 10:30 p.m. as practical, but under no circumstances shall any illumination of the playing field, court, or track be permitted after 11:00 p.m. except to conclude a scheduled event that was in progress before 11:00 p.m. and circumstances prevented concluding before 11:00 p.m.

2.6. PROHIBITIONS.

A. Laser Source Light. The use of laser source light or any similar high intensity light for outdoor advertising or entertainment, when projected above the horizontal is prohibited.
B. Searchlights. The operation of searchlights for advertising purposes is prohibited.

C. Outdoor Advertising Off-Site Signs. Electrical illumination of outdoor advertising off-site signs is prohibited between the hours of 11:00 p.m. and sunrise.

2.7. TEMPORARY OUTDOOR LIGHTING.

A. Any temporary outdoor lighting that conforms to the requirements of this Ordinance shall be allowed. Nonconforming temporary outdoor lighting may be permitted by the Board of Selectmen after considering: (1) the public and/or private benefits that will result from the temporary lighting; (2) any annoyance or safety problems that may result from the use of the temporary lighting; and (3) the duration of the temporary nonconforming lighting. The applicant shall submit a detailed description of the proposed temporary nonconforming lighting to the Board of Selectmen, who shall consider the request at a duly called meeting of the Board of Selectmen. Prior notice of the meeting of the Board of Selectmen shall be given to the applicant and to the _____ Lighting Committee. The Board of Selectmen shall render its decision on the temporary lighting request within two weeks of the date of the meeting. A failure by the Board of Selectmen to act on a request within the time allowed shall constitute a denial of the request.

ARTICLE 3

3.1 EFFECTIVE DATE AND GRANDFATHERING OF NONCONFIRMING LUMINAIRES:

A. This ordinance shall take effect immediately upon approval by the voters of the Town of _____ at an annual or special Town Meeting and shall supersede and replace all previous ordinances pertaining to outdoor lighting.
B. All luminaires lawfully in place prior to the date of the Ordinance shall be grandfathered. However, any luminaire that replaces a grandfathered luminaire, or any grandfathered luminaire that is moved, must meet the standards of this Ordinance. Advertising signs are grandfathered only for a period of ten years, as specified in section 2.4.C.
C. Grandfathered luminaires that direct light toward streets or parking lots that cause disability glare to motorists or cyclists should be either shielded or re-directed within 90 days of notification, so that the luminaires do not cause a potential hazard to motorists or cyclists.

ARTICLE 4

4.1 NEW SUB-DIVISION CONTRUCTION.

A. Submission Contents. The applicant for any permit required by any provision of the laws of this jurisdiction in connection with proposed work involving outdoor lighting fixtures shall submit (as part of the application for permit) evidence that the proposed work will comply with this Code. The submission shall contain but shall not necessarily be limited to the following, all or part of which may be part or in addition to the information required elsewhere in the laws of this jurisdiction upon application for the required permit: plans indicating the location on the premises, and the type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices; description of the illuminating devices, fixtures, lamps, supports, reflectors, and other devices and the description may include, but is not limited to, catalog cuts by manufacturers and drawings (including sections where required); photometric data, such as that furnished by manufacturers, or similar showing the angle of cut off or light emissions.
B. Additional Submission. The above required plans, descriptions and data shall be sufficiently complete to enable the plans examiner to readily determine whether compliance with the requirements of this Code will be secured. If such plans, descriptions and data cannot enable this ready determination, by reason of the nature or configuration of the devices, fixtures, or lamps proposed, the applicant shall additionally submit as evidence of

compliance to enable such determination such certified reports of tests as will do so provided that these tests shall have been performed and certified by a recognized testing laboratory.

C. Subdivision Plat Certification. If any subdivision proposes to have installed street or other common or public area outdoor lighting, the final plat shall contain a statement certifying that the applicable provisions of the Town of _____ Outdoor Lighting Code will be adhered to.
D. Lamp or Fixture Substitution. Should any outdoor light fixture, or the type of light source therein, be changed after the permit has been issued, a change request must be submitted to the building official for his approval, together with adequate information to assure compliance with this code, which must be received prior to substitution.

ARTICLE 5

5.1 NOTIFICATION REQUIREMENTS:

A. The Town of _____ building permit shall include a statement asking whether the planned project will include any outdoor lighting.
B. Within 30 days of the enactment of this ordinance, the Code Enforcement Officer shall send a copy of the Outdoor Lighting Ordinance, with cover letter to all local electricians and local electric utility (including at least those in the Towns of _____, [list immediately-adjacent towns here], as listed in the Yellow Pages).

ARTICLE 6

6.1 VIOLATIONS, LEGAL ACTIONS, AND PENALTIES:

A. Violation. It shall be a civil infraction for any person to violate any of the provisions of this Code. Each and every day during which the violation continues shall constitute a separate offense.
B. Violations and Legal Actions: If, after investigation, the Code Enforcement Officer finds that any provision of the Ordinance is being violated, he shall give notice by hand delivery or by certified mail, return-receipt requested, of such violation to the owner and/or to the occupant of such premises, demanding that violation be abated within thirty (30) days of the date of hand delivery or of the date of mailing of the notice. If the violation is not abated within the thirty-day period, the Code Enforcement Officer may institute actions and proceedings, either legal or equitable, to enjoin, restrain, or abate any violations of this Ordinance and to collect the penalties for such violations.
C. Penalties: A violation of this Ordinance, or any provision thereof, shall be punishable by a civil penalty of not less than fifty dollars nor more than one thousand dollars for any individual (and not more than ten thousand dollars for any corporation, association, or other legal entity) for each violation. The imposition of a fine under this Code shall not be suspended. Each day of violation after the expiration of the thirty-day period provided in paragraph B shall constitute a separate offense for the purpose of calculating the civil penalty.

M-32 and US-23 Access Management Overlay Zone

The M-32 and US-23 Access Management Overlay Zone is defined as that area lying within three hundred (300) feet of the highway either side of the M-32 or US-23 right-of-way (and having access to M-32 or US-23) in _____ (name of community). The following regulations shall prevail over any specific district regulations specified herein and shall apply to all zoning districts within the corridor.

Section 1 Purpose and Intent

The intent of this ordinance is to provide standards, which will preserve the traffic capacity and speed, and enhance the safety of the highway by regulating safe and reasonable access, though not always direct access, between public roadways and adjacent land. Access controls help provide for orderly growth and prevent harmful aspects of "commercial strip" development. This in turn will protect the long-term viability of existing and new businesses in addition to protecting property values of commercial and residential development along the corridor. It is recognized that existing development may not be able to meet all of the standards contained in this ordinance upon expansion or redevelopment. In such cases, the standards contained herein shall be applied to the maximum extent possible

The standards of this section are further intended to:

- Minimize disruptive and potentially hazardous traffic conflicts thereby reducing the frequency of fatal, injury and property damage crashes;
- Separate traffic conflict areas by reducing the number of direct access points;
- Provide efficient spacing and size standards between access points and between access points and intersections;
- Establish uniform access standards to ensure fair and equal application;
- Implement the goals and recommendations of the M-32 and US-23 Corridor Plan;
- Protect the substantial public investment in the roadway system by preserving capacity and avoiding the need for unnecessary and costly reconstruction which disrupts business;
- Require coordinated access among several landowners;
- Ensure reasonable access to properties, though the access may not always be direct access;
- Coordinate local management decisions on development proposals with access permit decisions by the Michigan Department of Transportation and the Alpena County Road Commission or _____ City (or Village) Department of Public Works.

Section 2 Definitions

ACCESS MANAGEMENT OVERLAY ZONE - A regulatory technique whereby land use regulations in addition to the standard zoning ordinance are applied in a designated area along a major road or arterial street.

ACCESS POINT - A location for vehicular access via a public or private driveway or road.

ACCESS POINT SPACING - The distance between access points along a street or road.

ARTERIAL STREET - Streets where the movement of through traffic is the primary function; service to adjacent land uses is a secondary function.

COMMERCIAL STRIP - Intense commercial development occurring along a major road or arterial street, which severely inhibits or interrupts continuous use of the roadway for through traffic purposes.

CORRIDOR - The M-32 or US-23 corridor [from _____ Road to _____ Road,] including the street right-of-way and lands that are within three hundred (300) feet of the highway right-of-way either side of the M-32 or US-23. *(This definition may need to be changed in developed urban settings.)*

CORRIDOR PLAN - The M-32 and US-23 Corridor Plan compiled in 2000 and adopted in _____ by _____ (county, village or city name). The Corridor Plan documents the rationale for this ordinance and sets forth access management standards and recommendations.

CURB CUT - A gap in the curb along a street or road, affording vehicular access to the property.

DEDICATION - Transferal of property or roads to the public for a public purpose.

DRIVEWAY SPACING - The distance between driveway centerlines along a street or road.

EASEMENT - A grant of one or more of the property rights by a property owner to and/or for the use by the public, or another person or entity.

FRONTAGE ROAD - A public or private drive which generally parallels a public street between the right-of-way and the front building setback line, providing specific access points to private properties while maintaining separation between an arterial street and adjacent land uses.

LOT - A division of land separated from other land by description on a recorded plat or by metes and bounds description, including a condominium unit in a condominium subdivision; having frontage upon a public or private street or easement and having sufficient size to comply with the requirements of the Zoning Ordinance for minimum area, setbacks, coverage, and open space.

PARALLEL ACCESS - Private driveways or public roads running parallel to a public street, providing access to parcels or lots at specific points.

PARCEL - A division of land comprised of one or more contiguous lots under the same ownership or control.

RESIDENTIAL STRIP - Intense residential development occurring along a major road or arterial street, which severely inhibits or interrupts continuous use of the roadway for through traffic purposes.

ROAD AGENCY - The agency with jurisdiction within the public street right-of-way, either Alpena County Road Commission, _____ City (or Village) Department of Public Works or the Michigan Department of Transportation.

REASONABLE ACCESS - A property owner's legal right, incident to property ownership, to access a public road right-of-way. Reasonable access includes indirect access via frontage roads, service drives, side streets or shared driveways.

REAR ACCESS DRIVES - Driveways which provide access to properties from the rear of principal structures, such as behind shopping centers, downtown areas, or commercial corridors.

RIGHT-OF-WAY - The property occupied by an alley, street, highway, or other thoroughfare or easement permanently established for passage of persons or vehicles.

SERVICE DRIVE - A drive designed to provide shared access to specific access points along the arterial roadway to one or more developments within the corridor. A service road is generally parallel to the arterial road along either the front or rear of a site, but may be perpendicular or have another alignment. Service roads may be in front of, or along the rear of, buildings fronting M-32 or US-23.

SETBACKS - The minimum-unoccupied distance from a front, side, or rear property boundary and the principal and accessory buildings on the property.

SHARED ACCESS - Use of one access point onto a public roadway by multiple parcels.

SITE CONDOMINIUM - A division of land on the basis of condominium ownership, which is not subject to the provisions of the Land Division Act, P.A. 591 of 1996, as amended (formerly the Subdivision Control Act, P.A. 288 of 1967).

Section 3 Access Management Overlay District Standards

The standards of this section shall apply to any project within the M-32 or US-23 Access Management Overlay Zone. The access standards of this section are applied simultaneously with the standards of the zoning district for uses and dimensional requirements listed in the Schedule of Regulations. The standards shall be applied to any existing site, which is proposed for redevelopment or a change in use, to the extent possible, as determined by the Planning Commission.

The standards herein are based on findings and recommendations within the M-32 and US-23 Corridor Plan. The access standards may be more restrictive than those provided by the Alpena County Road Commission and the Michigan Department of Transportation. If there is a conflict with access standards of the agency having jurisdiction within the right-of-way, the more restrictive standards, as determined by the _____ (name of community) Planning Commission with input from the road agency, shall apply.

1. **Structure Setback –** No structure other than signs or billboards, as allowed in the Sign and Billboard Ordinances, utility structures that are not buildings, transfer stations or substations, shall be permitted within ***one hundred (100) feet*** of the highway right-of-way. *(This minimum setback will need to be changed in urban and existing small lot situations.)*

2. **Parking Setback & Green Zone –** No parking shall be located within ***fifty (50) feet*** of highway right-of-way. The fifty (50) feet setback shall be landscaped as required in **Section ____ Landscaping, Screening, Buffers, and Fencing,** with informal clusters of trees and shrubs suitable to the soil type encountered. *(This minimum setback will need to be changed in urban and existing small lot situations.)*

3. **Egress –** Lots in all zoning districts shall have driveways and adequate turn around space so that vehicles will not back onto M-32 or US-23.

4. **Minimum Lot Width –** Two hundred (200) feet for single family residential zoning districts and four hundred (400) feet for multi-family residential, commercial, office, and industrial zoning districts, smaller lots in existence on or before the adoption of this standard are exempt. Adjacent parcels in common ownership at the effective date of this ordinance shall be considered as one parcel.

5. **Vehicular Access –** One vehicle access point shall be permitted for each two hundred (200) foot lot for single family residential zoning districts and for each four hundred (400) foot lot for multi-family residential, commercial, office, and industrial zoning districts. One driveway may be permitted for each separately owned parcel, created prior to the adoption of this ordinance, with less than two hundred (200) feet of frontage for single family residential zoning and less than four hundred (400) feet for multifamily residential, commercial, office, and industrial zoning districts, provided the parcel is wide enough for the minimum driveway width. Where parcel size is insufficient to meet the access standards of this ordinance section, a shared driveway or other means of access may be required.

6. **Stormwater Drainage –** Driveways shall be constructed such that drainage is channeled away from the street right-of-way.

7. **Ingress/Egress Angle –** All driveways shall be on a ninety (90) degree angle with the roadway unless physical modifications and directional signs are used to enforce one-way operations or restricted turning movements.

8. **Driveway Locations –** Driveways shall not be constructed along any acceleration or deceleration lanes or tapers.

9. **Costs –** All costs associated with site plan review, traffic analysis and traffic impact analysis shall be paid by the applicant.

Section 4 Access Point Standards

Location and Spacing

1. Access points shall be located so that no undue interference with the free movement of road traffic will result, to provide the required sight distance, and to provide the most favorable driveway grade based on standards in Michigan Department of Transportation Driveway Criteria, Rule 63, of the Administrative Rules Regulating Driveways, Banners and Parades on and over Highways.

2. If an access point curb radius extends beyond the frontage of the property, written consent from the affected property owner allowing the design must be provided.

3. In order to minimize left turn conflicts, new access points shall be aligned with those across the roadway where possible. If alignment is not possible, access points shall be offset a minimum of two hundred fifty (250) feet on M-32 or US-23 from those on the opposite side of the highway, measured centerline to centerline of access points. Longer offsets may be required depending on the expected inbound left-turn volumes of the access points.

4. Where parcels, lots, or building sites have frontage or access on more than one roadway, access shall be provided from the lesser traveled street. Where spacing requirements can be met, high traffic volumes will be generated, or the subject side street is inappropriate for nonresidential traffic, access onto M-32 or US-23 will be considered.

5. In the case of expansion, alteration, change of use or redesign of an existing development where existing access points do not comply with the guidelines set forth herein, the closing, relocation, or redesign of the access point may be required.

6. Table 1, below, displays desirable separation distances for access drives and the recommended access point spacing for various areas along M-32 and US-23. All site plans for proposed developments should show the location of all proposed and existing access points within the area of the proposed development. The location of all of the proposed access points should be reviewed to determine if proper access point spacing will be maintained.

Table 1
Desirable Separation of Adjacent Access Points

Highway Speed	Minimum Access Point Spacing*
25 mph	130 feet
30 mph	185 feet
35 mph	245 feet
40 mph	300 feet
45 mph	350 feet
50 mph & above	455 feet

* Measured from centerline to centerline

7. Driveway profile shall be designed and constructed according to Michigan Department of Transportation Driveway Criteria, Rule 63, of the Administrative Rules Regulating Driveways, Banners and Parades on and over Highways.
8. Adequate storage for vehicles parking or waiting to be serviced shall be provided so as not to interfere with pedestrian movements, vision requirements or traffic operations on the highway.

9. Traffic signs and pavement markings shall conform to the current Michigan Manual of Uniform Traffic Control Devices.

10. Minimum Corner Clearance – Access points shall be subject to the schedule defined in Table 2 below.

Table 2
Access Point Spacing From Intersections

Access Points along M-32 or US-23		
Intersecting Street	Full Movement Access Point (Feet)	Channelized for right-turn-in, right-turn-out (Feet)
Arterial	250	100
Signalized Non-Arterial	125	75
Other Street	100	75
Access Points Along Side Streets Intersecting M-32 or US-23		
Arterial	Full Movement Access Point (Feet)	Channelized for right-turn-in, right-turn-out (Feet)
Arterial	200	100
Signalized Non-Arterial	100	75
Other Street	75	75
* Measured from nearest edge of access point throat to the nearest edge of intersection		

11. In the case where an intersection setback cannot be met, the _____ (name of community) Planning Commission may require that the access point be constructed on an alternative street or be provided through a shared access point, which meets the applicable intersection setback. Where no other alternative exists, the Planning Commission may allow construction of the drive along a property line farthest from the intersection to minimize the impacts to the intersection.

12. Additional access points may be permitted for commercial property as follows:
    a. One additional access point may be allowed for a site with continuous frontage of four hundred (400) feet or more if no other access opportunities are available.
    b. Two additional access points may be allowed for a site with continuous frontage of eight hundred (800) feet or more in no other access opportunities are available.

13. Additional access may be allowed if the applicant provides justification that traffic safety will be improved with the additional access point based upon standard traffic engineering criteria that encompasses analyses of trip generation, distribution and level of service. The _____ (City, Village, County) has the final decision regardless of conclusions drawn from such analysis.

14. Adjacent property owners may and are encouraged to consolidate their access points by using either a joint driveway system or a frontage road. All frontage roads are to be placed on private property outside of the right-of-way. Easements from participating property owners must be submitted to _____ (name of community).

15. Requirements for minimum intersection or corner sight distance for commercial and private road approaches should be in accordance with American Association of State Highway and Transportation Officials (AASHTO) guidelines defined in Chapter 9 of "A Policy on Geometric Design of Highways and Streets," 1984, as amended. Where special circumstances are present (e.g., frontage limitations) the following:

Posted Speed Limit (MPH)	Minimum Sight Distance (In Feet)
25	250
30	300
35	350
40	400
45	450
50	500
55	550

Intersection sight distance will be measured fifteen (15) feet from the edge of pavement on paved roads. The eye height will be assumed to be three and one-half (3.5) feet and the object height will be three and one-half (3.5) feet if the above reduced values are used.

16. All traffic signage and pavement markings at the proposed commercial driveway shall conform to the current Michigan Manual of Uniform Traffic Control Devices.

Section 5 Service Drives, Cross-Connections, and Internal Circulation

All land in a parcel having a single tax code number, as of the date of this amendment, fronting on _____ (name of road), shall be entitled to one (1) driveway or road access point per parcel from said highway. Parcels when subsequently subdivided, either as metes and bounds described parcels, as a plat created in accord with P.A. 288 of 1967 as amended, or as a site condominium in accord with Act 59 of 1978 as amended, shall provide access by subdivision roads, other private or public roads or by service drives. Notwithstanding the requirement of the _____ (name of community) Land Division Ordinance, the standards for service drives shall be as follows:

1. Width: A minimum of twenty-four (24) feet with construction to County Road Commission or City or Village Department of Public Works standards for base and thickness of asphalt.

2. A minimum of fifteen (15) feet snow storage/landscaping area must be reserved along both sides of the service drive with the edge of the service drive located a minimum of fifteen (15) feet from the major thoroughfare right-of-way.

3. All driveway radii shall be concrete curbs.

4. The location of the entrance to the service drive from a public or private road shall be subject to the schedule defined in Table 2 to provide for adequate stacking and maneuvering.

5. The service drive shall be a private road maintained by adjoining property owners or users who shall enter into a formal legal agreement together for the joint maintenance of the service drive.

6. Landscaping along the service drive shall conform to the requirements of Section _____ (insert reference to appropriate landscaping standards). Installation and maintenance of landscaping shall be the responsibility of the developer, owner or a property owners association.

7. All separate parking areas shall use no more than one (1) access point or driveway to the service drive.

8. The _____ (name of community) Planning Commission shall review and approve all service drives to insure safe and adequate continuity of the service drive between contiguous parcels.

9. Parking lot cross-connections may be used as an alternative to frontage service roads if, in the opinion of the Planning Commission, such cross-connections are designed with equivalent standards and function, and do not interfere with safe internal parking lot circulation patterns. The connector drives must be recorded easements and maintained by adjoining property owners or users who shall enter into a formal legal agreement together for the joint maintenance of the service drive.

Section 6 Access Management Approval Process for Projects within the M-32 and US-23 Access Management Overlay Zone

In order to help assure consistent review by the _____ (name of community) Planning Commission and the appropriate road agency, and in addition to any review requirements imposed by this ordinance, the following procedure shall be followed for projects located within the M-32 and US-23 Access Management Overlay Zone.

1. Single Family Residential Development – residential development not required to follow the site plan review process shall follow these procedures:

    a. The applicant shall submit a scaled drawing of the parcel showing location of proposed residence and buildings and location of the proposed access point to _____ (name of community) staff for review of completeness of information and compliance with corridor plan and overlay zone regulations.
    b. After the _____ (name of community) staff has determined the submittal is complete, and meets the criteria set forth in this ordinance, the applicant will then request a driveway permit from the road agency.
    c. After the applicant has received a driveway permit from the road agency, the _____ (name of community) staff will issue a zoning permit detailing the location of the access point.

2. For all other development requiring site plan approval or plat approval the procedures noted below shall be followed:

    a. The applicant shall be required to submit _____ copies of the site plan or tentative preliminary plat to the _____ (name of community) staff for review of completeness of information and compliance with corridor plan and overlay zone regulations.
    b. Based on criteria detailed in Table 3 the _____ (name of community) staff will determine the necessity and type traffic impact study. The traffic impact study shall be reviewed and accepted by the road agency and the _____ (name of community) Planning Commission. _____ (name of community) may utilize it's own traffic

consultant to review the applicant's traffic study, with the cost of the review being borne by the applicant.

c. After the _____ (name of community) staff has determined the submittal is complete, a copy of the site plan and supporting documentation will be sent to appropriate road agency for comment. Comments will be obtained from the road agency within a reasonable time frame of _____ days.
d. After comments have been received from the road agency, the _____ (name of community) Planning Commission will review and act on the site plan. If the Planning Commission requires modification of the site plan access, the modified site plan must be sent back to the road agency for comment.
e. After the site plan is approved by the _____ (name of community) Planning Commission, the Planning Commission informs the road agency of the site plan decision.
f. The applicant requests driveway permit from the road agency.

Table 3 Requirements for Various Types of Traffic Impact Studies

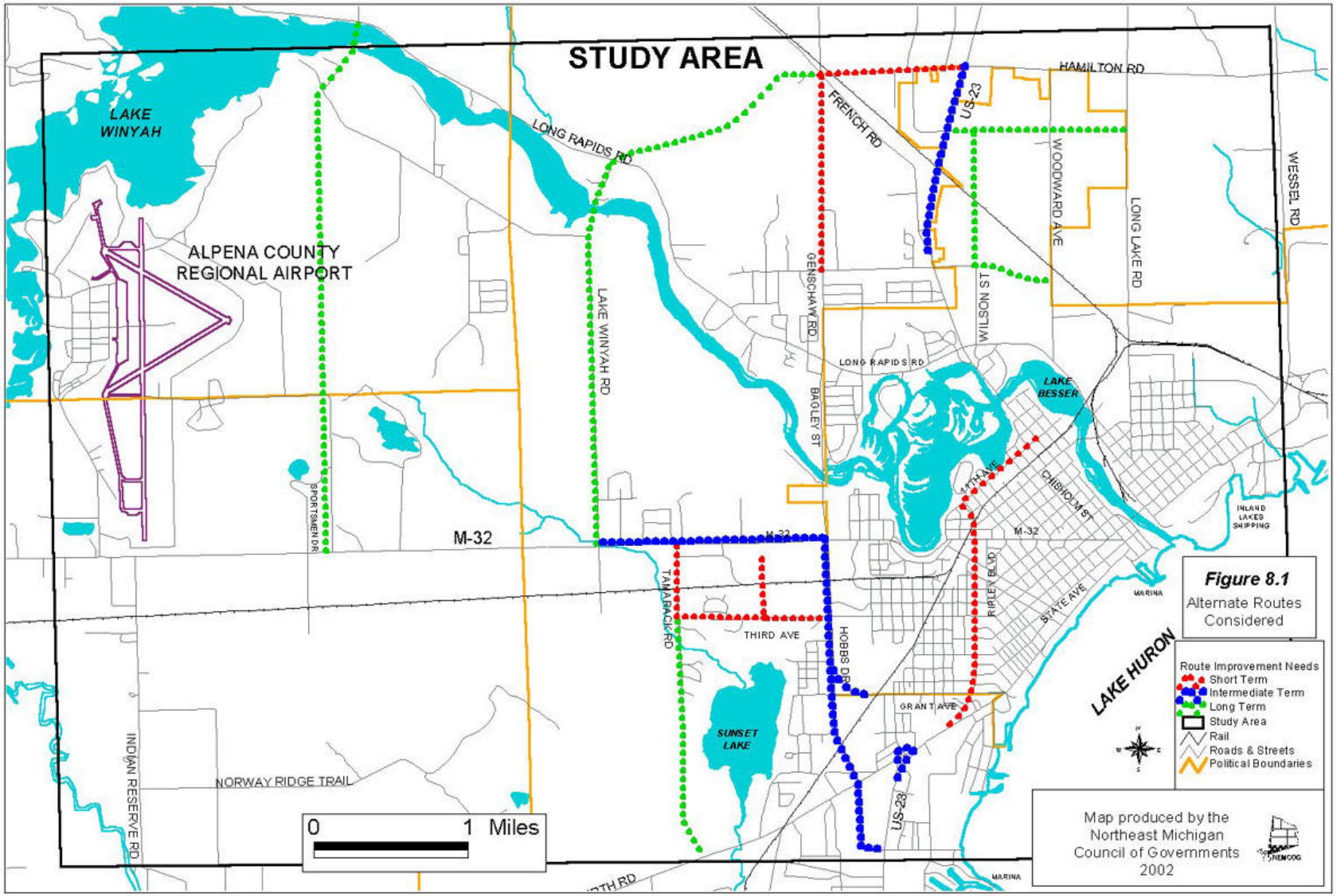
Task	Trip Threshold (Based on Trip Generator Rates – See Land Use Threshold Table)		
	Rezoning Traffic Study	**Traffic Impact Assessment**	**Traffic Impact Statement**
Impact Analysis		**50-99 Peak Hour, Peak Direction or 500-749 Daily**	**100+ Peak Hour, Peak Direction of 750+ Daily**
Existing conditions analysis at site (levels of service as determined by techniques outlined in the *Highway Capacity Manual*)	O	X	X
Sight distance evaluation	X	X	X
Opposing driveway locations		X	X
Existing conditions at nearby intersections	O		X
Study area & future road summary			X
Comparison of trip generation associated with uses allowed, requested v. current permitted uses	X		
Trip generation for specific uses		X	X
Trip distribution analysis	O	X	X
Background traffic growth	O		X
Future conditions analysis at nearby intersections	O		X
Mitigation identification & evaluation	O	X	X
Site Issues:			
Evaluate number, location & spacing of access points	O	X	X
Evaluate access design, queuing, etc.		X	X
Evaluate site circulation		O	O
Other Analyses:			
Crash history			O
Gap analysis for unsignalized locations		O	O
Evaluate long-range traffic impacts on computer model-MDOT/MPO participation	O		O
Key: X = required; O = may be appropriate on a case-by-case basis			

APPENDIX C

COST ESTIMATES FOR THE CONSTRUCTION OF ALTERNATE COMMERCIAL ROUTES

ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN

June 2003


STUDY AREA
LAKE WINYAH
ALPENA COUNTY REGIONAL AIRPORT
LONG RAPIDS RD
FRENCH RD
US-23
HAMILTON RD
WOODWARD AVE
LONG LAKE RD
WESSEL RD
LAKE WINYAH RD
GENSCHAW RD
WILSON ST
BAGLEY ST
LONG RAPIDS RD
LAKE BESSER
SPORTSMEN DR
M-32
CHISHOLM ST
INLAND LAKES SHIPPING
TAMARACK RD
THIRD AVE
HOBBS DR
RIPLEY BLVD
STATE AVE
MARINA
LAKE HURON
SUNSET LAKE
GRANT AVE
INDIAN RESERVE RD
NORWAY RIDGE TRAIL
0 1 Miles
Figure 8.1
Alternate Routes Considered
Route Improvement Needs
Short Term
Intermediate Term
Long Term
Study Area
Rail
Roads & Streets
Political Boundaries
Map produced by the Northeast Michigan Council of Governments 2002
NEMCOG

Alpena Area-Wide Comprehensive Transportation Plan - Basis for Cost Estimates

The following options were considered during the course of this study:

Brooks Avenue –

- Upgrade existing street to Class A Standards by crush & shape.
- Assume stable soils in area.
- Existing/Proposed Width = 22lft.
- Existing/Proposed Length = 2140lft.

Genschaw/Hamilton Route –

- Upgrade existing Genschaw Road, from Golf Course Road to north extents, to Class A Standards by crush & shape.
    - Assume stable soils in area.
    - Existing/Proposed Width = 22lft.
    - Existing/Proposed Length = 1985lft.
- New Class A road from north end of Genschaw, north to Hamilton Road.
    - Assume poor soils in area.
    - Proposed Width = 22lft.
    - Proposed Length = 4650lft.
- Upgrade existing Hamilton Road from Genschaw, extended east to North Industrial Highway, to Class A Standards by crush & shape.
    - Assume stable soils in area.
    - Existing/Proposed Width = 22lft.
    - Existing/Proposed Length = 3250lft.
- Use existing Class A Hamilton Road from North Industrial Highway, east to US-23.

3rd Avenue – Extension to Tamarack

- Use existing Class A 3rd Avenue from Bagley, west to street that runs in the SW direction.
- New Class A road from this point west to Tamarack Road.
    - Assume poor soils in area.
    - Proposed Width = 22lft.
    - Proposed Length = 1850lft.

Bus Garage Connection – to Junior High School

- New Class A road from bus garage south to Junior High School.
- Assume stable soils in area.
- Proposed Width = 22lft.
- Proposed Length = 2600lft.

Lake Winyah Extension - To existing West end of Hamilton Road

- Upgrade existing road to first curve left, to Class A Standards by crush & shape.
    - Assume stable soils in area.
    - Existing/Proposed Width = 22lft.
    - Existing/Proposed Length = 9500lft.
- New Class A road from this point NE to Hamilton Road (see Genschaw estimate) including bridge over river.
    - Assume poor soils in area.
    - Proposed Width = 22lft.
    - Proposed Length = 9500lft.

- Bridge over Thunder Bay River.

Sportsman Drive Extension - To existing West end of Hamilton Road

- New Class A road (see Genschaw estimate) including bridge over river.
- Assume poor soils in area.
- Proposed Width = 22lft.
- Proposed Length = 28,500lft.
- Bridge over Thunder Bay River.

Tamarack Road Extension - To Werth Road

- Upgrade existing road from M-32 south to 3rd Avenue, to Class A Standards by crush & shape.
    - Assume stable soils in area.
    - Existing/Proposed Width = 22lft.
    - Existing/Proposed Length = 2640lft.
- New Class A road from 3rd south to Werth Road.
    - Assume poor soils in area.
    - Proposed Width = 22lft.
    - Proposed Length = 7050lft.

Werth Road – Hinckley – Gordon Road Connection

- New Class A road.
- Assume stable soils in area.
- Proposed Width = 22lft.
- Proposed Length = 2640lft.

Werth Road – Devils Lake Road – Wayne – US-23 Connection

- Upgrade existing roads to Class A Standards by crush & shape.
- Assume stable soils in area.
- Existing/Proposed Width = 22lft.
- Existing/Proposed Length = 4600lft.

Werth Road – Devils Lake Road – Jesse – US-23 Connection

- Upgrade existing roads to Class A Standards by crush & shape.
- Assume poor soils in area.
- Existing/Proposed Width = 22lft.
- Existing/Proposed Length = 7500lft.

Assumptions –

- Class A Standards for this project consist of 4" bituminous and 6" aggregate base.

Note: based on ADT and congestion calculations, there is NOT justification for constructing a By-Pass Route farther to the west of the urban area at this time. Traffic flow can be enhanced by making improvements at existing intersections and road segments. Refer to Figure 5.6 Existing Volume to Capacity ratios, on page 5-17, and Figure 5.8 Future Volume to Capacity ratios, on page 5-22.

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ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN
NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC
Engineers Opinion of Probable Construction Costs

Brooks Avenue (2,140 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	0	ACRE	$600.00	$0.00
A3	Geotextile Stabilization Fabric	0	SYD	$3.00	$0.00
A4	Geogrid Stabilization Material	0	SYD	$4.00	$0.00
A5	Silt Fence	0	LFT	$3.00	$0.00
A6	Embankment	0	CYD	$10.00	$0.00
A7	Subgrade Undercutting, Type II	0	CYD	$16.00	$0.00
A8	Subbase, CIP	0	CYD	$15.00	$0.00
A9	12" 21AA Aggregate Base	0	SYD	$12.00	$0.00
A10	6" 22A Aggregate Base	5500	SYD	$4.00	$22,000.00
A11	Bit Base Crushing and Shaping	5500	SYD	$1.00	$5,500.00
A12	Shoulder, Cl II, 6"	1425	SYD	$6.00	$8,550.00
A13	Machine Grading Modified	2.14	STA	$1,700.00	$3,638.00
A14	Underdrain, Subbase, 4"	0	LFT	$4.00	$0.00
A15	Underdrain Outlet, 4"	0	LFT	$7.00	$0.00
A16	Underdrain, Outlet Ending, 4"	0	EACH	$150.00	$0.00
A17	Bituminous Pavement, MDOT Mixture 13A	1210	TON	$55.00	$66,550.00
A18	Pavement Markings, Waterborne, 4", White	4280	LFT	$0.10	$428.00
A19	Pavement Markings, Waterborne, 4", Yellow	2140	LFT	$0.10	$214.00
A20	Bridge Construction	0	EACH	$1,900,000.00	$0.00
A21	Slope Restoration	2855	SYD	$3.00	$8,565.00
				SUBTOTAL	**$140,445.00**
				15% CONSTRUCTION CONTINGENCY	**$21,066.75**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$28,089.00**
				TOTAL=	**$189,600.75**

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ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN

NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Genschaw Extension to Hamilton Route (9,885 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	7.1	ACRE	$600.00	$4,260.00
A3	Geotextile Stabilization Fabric	27900	SYD	$3.00	$83,700.00
A4	Geogrid Stabilization Material	11900	SYD	$4.00	$47,600.00
A5	Silt Fence	9300	LFT	$3.00	$27,900.00
A6	Embankment	2760	CYD	$10.00	$27,600.00
A7	Subgrade Undercutting, Type II	37000	CYD	$16.00	$592,000.00
A8	Subbase, CIP	31775	CYD	$15.00	$476,625.00
A9	12" 21AA Aggregate Base	11900	SYD	$12.00	$142,800.00
A10	6" 22A Aggregate Base	13400	SYD	$4.00	$53,600.00
A11	Bit Base Crushing and Shaping	13400	SYD	$1.00	$13,400.00
A12	Shoulder, Cl II, 6"	6590	SYD	$6.00	$39,540.00
A13	Machine Grading Modified	5.24	STA	$1,700.00	$8,908.00
A14	Underdrain, Subbase, 4"	9300	LFT	$4.00	$37,200.00
A15	Underdrain Outlet, 4"	190	LFT	$7.00	$1,330.00
A16	Underdrain, Outlet Ending, 4"	19	EACH	$150.00	$2,850.00
A17	Bituminous Pavement, MDOT Mixture 13A	5570	TON	$55.00	$306,350.00
A18	Pavement Markings, Waterborne, 4", White	19770	LFT	$0.10	$1,977.00
A19	Pavement Markings, Waterborne, 4", Yellow	9885	LFT	$0.10	$988.50
A20		0	0	0	$0.00
A21	Slope Restoration	13180	SYD	$3.00	$39,540.00
				SUBTOTAL	**$1,933,168.50**
				15% CONSTRUCTION CONTINGENCY	**$289,975.28**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$386,633.70**
				TOTAL=	**$2,609,777.48**

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NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Third Avenue Extension to Tamarack (1,850 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	2.8	ACRE	$600.00	$1,680.00
A3	Geotextile Stabilization Fabric	11100	SYD	$3.00	$33,300.00
A4	Geogrid Stabilization Material	4730	SYD	$4.00	$18,920.00
A5	Silt Fence	3700	LFT	$3.00	$11,100.00
A6	Embankment	1100	CYD	$10.00	$11,000.00
A7	Subgrade Undercutting, Type II	14750	CYD	$16.00	$236,000.00
A8	Subbase, CIP	12700	CYD	$15.00	$190,500.00
A9	12" 21AA Aggregate Base	4730	SYD	$12.00	$56,760.00
A10	6" 22A Aggregate Base	0	SYD	$4.00	$0.00
A11	Bit Base Crushing and Shaping	0	SYD	$1.00	$0.00
A12	Shoulder, Cl II, 6"	1250	SYD	$6.00	$7,500.00
A13	Machine Grading Modified	0	STA	$1,700.00	$0.00
A14	Underdrain, Subbase, 4"	3700	LFT	$4.00	$14,800.00
A15	Underdrain Outlet, 4"	80	LFT	$7.00	$560.00
A16	Underdrain, Outlet Ending, 4"	8	EACH	$150.00	$1,200.00
A17	Bituminous Pavement, MDOT Mixture 13A	1040	TON	$55.00	$57,200.00
A18	Pavement Markings, Waterborne, 4", White	3750	LFT	$0.10	$375.00
A19	Pavement Markings, Waterborne, 4", Yellow	1850	LFT	$0.10	$185.00
A20		0	0		$0.00
A21	Slope Restoration	2500	SYD	$3.00	$7,500.00
				SUBTOTAL	**$673,580.00**
				15% CONSTRUCTION CONTINGENCY	**$101,037.00**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$134,716.00**
				TOTAL=	**$909,333.00**

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NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Bus Garage Connection (2,600 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	4	ACRE	$600.00	$2,400.00
A3	Geotextile Stabilization Fabric	0	SYD	$3.00	$0.00
A4	Geogrid Stabilization Material	0	SYD	$4.00	$0.00
A5	Silt Fence	0	LFT	$3.00	$0.00
A6	Embankment	1540	CYD	$10.00	$15,400.00
A7	Subgrade Undercutting, Type II	0	CYD	$16.00	$0.00
A8	Subbase, CIP	0	CYD	$15.00	$0.00
A9	12" 21AA Aggregate Base	0	SYD	$12.00	$0.00
A10	6" 22A Aggregate Base	6650	SYD	$4.00	$26,600.00
A11	Bit Base Crushing and Shaping	0	SYD	$1.00	$0.00
A12	Shoulder, Cl II, 6"	1750	SYD	$6.00	$10,500.00
A13	Machine Grading Modified	0	STA	$1,700.00	$0.00
A14	Underdrain, Subbase, 4"	0	LFT	$4.00	$0.00
A15	Underdrain Outlet, 4"	0	LFT	$7.00	$0.00
A16	Underdrain, Outlet Ending, 4"	0	EACH	$150.00	$0.00
A17	Bituminous Pavement, MDOT Mixture 13A	1465	TON	$55.00	$80,575.00
A18	Pavement Markings, Waterborne, 4", White	5200	LFT	$0.10	$520.00
A19	Pavement Markings, Waterborne, 4", Yellow	2600	LFT	$0.10	$260.00
A20		0	0	0	$0.00
A21	Slope Restoration	3475	SYD	$3.00	$10,425.00
				SUBTOTAL	**$171,680.00**
				15% CONSTRUCTION CONTINGENCY	**$25,752.00**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$34,336.00**
				TOTAL=	**$231,768.00**

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ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Lake Winyah Extension to existing Hamilton Road (19,000 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	14.5	ACRE	$600.00	$8,700.00
A3	Geotextile Stabilization Fabric	57000	SYD	$3.00	$171,000.00
A4	Geogrid Stabilization Material	24500	SYD	$4.00	$98,000.00
A5	Silt Fence	19000	LFT	$3.00	$57,000.00
A6	Embankment	5700	CYD	$10.00	$57,000.00
A7	Subgrade Undercutting, Type II	76000	CYD	$16.00	$1,216,000.00
A8	Subbase, CIP	65000	CYD	$15.00	$975,000.00
A9	12" 21AA Aggregate Base	24500	SYD	$12.00	$294,000.00
A10	6" 22A Aggregate Base	24500	SYD	$4.00	$98,000.00
A11	Bit Base Crushing and Shaping	24500	SYD	$1.00	$24,500.00
A12	Shoulder, Cl II, 6"	12700	SYD	$6.00	$76,200.00
A13	Machine Grading Modified	9.5	STA	$1,700.00	$16,150.00
A14	Underdrain, Subbase, 4"	19000	LFT	$4.00	$76,000.00
A15	Underdrain Outlet, 4"	380	LFT	$7.00	$2,660.00
A16	Underdrain, Outlet Ending, 4"	38	EACH	$150.00	$5,700.00
A17	Bituminous Pavement, MDOT Mixture 13A	10800	TON	$55.00	$594,000.00
A18	Pavement Markings, Waterborne, 4", White	38000	LFT	$0.10	$3,800.00
A19	Pavement Markings, Waterborne, 4", Yellow	19000	LFT	$0.10	$1,900.00
A20	Bridge Construction	1	EACH	$1,900,000.00	$1,900,000.00
A21	Slope Restoration	26000	SYD	$3.00	$78,000.00
				SUBTOTAL	**$5,778,610.00**
				15% CONSTRUCTION CONTINGENCY	**$866,791.50**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$1,155,722.00**
				TOTAL=	**$7,801,123.50**

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ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN
NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC
Engineers Opinion of Probable Construction Costs

Sportsmen Drive Extension to existing west end of Hamilton Road (28,000 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	43.2	ACRE	$600.00	$25,920.00
A3	Geotextile Stabilization Fabric	171000	SYD	$3.00	$513,000.00
A4	Geogrid Stabilization Material	73000	SYD	$4.00	$292,000.00
A5	Silt Fence	57000	LFT	$3.00	$171,000.00
A6	Embankment	17000	CYD	$10.00	$170,000.00
A7	Subgrade Undercutting, Type II	227000	CYD	$16.00	$3,632,000.00
A8	Subbase, CIP	195000	CYD	$15.00	$2,925,000.00
A9	12" 21AA Aggregate Base	73000	SYD	$12.00	$876,000.00
A10	6" 22A Aggregate Base	0	SYD	$4.00	$0.00
A11	Bit Base Crushing and Shaping	0	SYD	$1.00	$0.00
A12	Shoulder, Cl II, 6"	19000	SYD	$6.00	$114,000.00
A13	Machine Grading Modified	0	STA	$1,700.00	$0.00
A14	Underdrain, Subbase, 4"	57000	LFT	$4.00	$228,000.00
A15	Underdrain Outlet, 4"	1140	LFT	$7.00	$7,980.00
A16	Underdrain, Outlet Ending, 4"	114	EACH	$150.00	$17,100.00
A17	Bituminous Pavement, MDOT Mixture 13A	16060	TON	$55.00	$883,300.00
A18	Pavement Markings, Waterborne, 4", White	57000	LFT	$0.10	$5,700.00
A19	Pavement Markings, Waterborne, 4", Yellow	28500	LFT	$0.10	$2,850.00
A20	Bridge Construction	1	EACH	$1,900,000.00	$1,900,000.00
A21	Slope Restoration	38000	SYD	$3.00	$114,000.00
				SUBTOTAL	**$11,902,850.00**
				15% CONSTRUCTION CONTINGENCY	**$1,785,427.50**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$2,380,570.00**
				TOTAL=	**$16,068,847.50**

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ALPENA AREA-WIDE COMPREHENSIVE TRANSPORTATION PLAN

NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Tamarack Road Extension to Werth Road (9,690 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	10.7	ACRE	$600.00	$6,420.00
A3	Geotextile Stabilization Fabric	42300	SYD	$3.00	$126,900.00
A4	Geogrid Stabilization Material	18000	SYD	$4.00	$72,000.00
A5	Silt Fence	14100	LFT	$3.00	$42,300.00
A6	Embankment	4200	CYD	$10.00	$42,000.00
A7	Subgrade Undercutting, Type II	56200	CYD	$16.00	$899,200.00
A8	Subbase, CIP	48175	CYD	$15.00	$722,625.00
A9	12" 21AA Aggregate Base	18000	SYD	$12.00	$216,000.00
A10	6" 22A Aggregate Base	6750	SYD	$4.00	$27,000.00
A11	Bit Base Crushing and Shaping	6750	SYD	$1.00	$6,750.00
A12	Shoulder, Cl II, 6"	6460	SYD	$6.00	$38,760.00
A13	Machine Grading Modified	2.64	STA	$1,700.00	$4,488.00
A14	Underdrain, Subbase, 4"	14100	LFT	$4.00	$56,400.00
A15	Underdrain Outlet, 4"	290	LFT	$7.00	$2,030.00
A16	Underdrain, Outlet Ending, 4"	29	EACH	$150.00	$4,350.00
A17	Bituminous Pavement, MDOT Mixture 13A	5445	TON	$55.00	$299,475.00
A18	Pavement Markings, Waterborne, 4", White	19380	LFT	$0.10	$1,938.00
A19	Pavement Markings, Waterborne, 4", Yellow	9690	LFT	$0.10	$969.00
A20		0	0	0	$0.00
A21	Slope Restoration	12920	SYD	$3.00	$38,760.00
				SUBTOTAL	**$2,633,365.00**
				15% CONSTRUCTION CONTINGENCY	**$395,004.75**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$526,673.00**
				TOTAL=	**$3,555,042.75**

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NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Werth Road-Hinckley-Gordon Road Connection (2,640 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	4	ACRE	$600.00	$2,400.00
A3	Geotextile Stabilization Fabric	0	SYD	$3.00	$0.00
A4	Geogrid Stabilization Material	0	SYD	$4.00	$0.00
A5	Silt Fence	0	LFT	$3.00	$0.00
A6	Embankment	1570	CYD	$10.00	$15,700.00
A7	Subgrade Undercutting, Type II	0	CYD	$16.00	$0.00
A8	Subbase, CIP	0	CYD	$15.00	$0.00
A9	12" 21AA Aggregate Base	0	SYD	$12.00	$0.00
A10	6" 22A Aggregate Base	6750	SYD	$4.00	$27,000.00
A11	Bit Base Crushing and Shaping	0	SYD	$1.00	$0.00
A12	Shoulder, Cl II, 6"	1760	SYD	$6.00	$10,560.00
A13	Machine Grading Modified	0	STA	$1,700.00	$0.00
A14	Underdrain, Subbase, 4"	0	LFT	$4.00	$0.00
A15	Underdrain Outlet, 4"	0	LFT	$7.00	$0.00
A16	Underdrain, Outlet Ending, 4"	0	EACH	$150.00	$0.00
A17	Bituminous Pavement, MDOT Mixture 13A	1485	TON	$55.00	$81,675.00
A18	Pavement Markings, Waterborne, 4", White	5280	LFT	$0.10	$528.00
A19	Pavement Markings, Waterborne, 4", Yellow	2640	LFT	$0.10	$264.00
A20		0	0	0	$0.00
A21	Slope Restoration	3520	SYD	$3.00	$10,560.00
				SUBTOTAL	**$173,687.00**
				15% CONSTRUCTION CONTINGENCY	**$26,053.05**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$34,737.40**
				TOTAL=	**$234,477.45**

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ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Werth Road-Piper Road-Wayne Road-US-23 Connection (4,600 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	0	ACRE	$600.00	$0.00
A3	Geotextile Stabilization Fabric	0	SYD	$3.00	$0.00
A4	Geogrid Stabilization Material	0	SYD	$4.00	$0.00
A5	Silt Fence	0	LFT	$3.00	$0.00
A6	Embankment	0	CYD	$10.00	$0.00
A7	Subgrade Undercutting, Type II	0	CYD	$16.00	$0.00
A8	Subbase, CIP	0	CYD	$15.00	$0.00
A9	12" 21AA Aggregate Base	0	SYD	$12.00	$0.00
A10	6" 22A Aggregate Base	11800	SYD	$4.00	$47,200.00
A11	Bit Base Crushing and Shaping	11800	SYD	$1.00	$11,800.00
A12	Shoulder, Cl II, 6"	1760	SYD	$6.00	$10,560.00
A13	Machine Grading Modified	4.6	STA	$1,700.00	$7,820.00
A14	Underdrain, Subbase, 4"	0	LFT	$4.00	$0.00
A15	Underdrain Outlet, 4"	0	LFT	$7.00	$0.00
A16	Underdrain, Outlet Ending, 4"	0	EACH	$150.00	$0.00
A17	Bituminous Pavement, MDOT Mixture 13A	2600	TON	$55.00	$143,000.00
A18	Pavement Markings, Waterborne, 4", White	9200	LFT	$0.10	$920.00
A19	Pavement Markings, Waterborne, 4", Yellow	4600	LFT	$0.10	$460.00
A20		0	0	0	$0.00
A21	Slope Restoration	6200	SYD	$3.00	$18,600.00
				SUBTOTAL	**$265,360.00**
				15% CONSTRUCTION CONTINGENCY	**$39,804.00**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$53,072.00**
				TOTAL=	**$358,236.00**

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ALTERNATE ROUTES FOR COMMERCIAL TRAFFIC

Engineers Opinion of Probable Construction Costs

Werth Road-Piper Road-Jesse Road-US-23 Connection (7,500 lft)

Item #	ITEM DESCRIPTION	Estimated Quantity	Item Unit	Unit Price	Total Price
A1	Mobilization	1	LSUM	$25,000.00	$25,000.00
A2	Clearing & Grubbing	0	ACRE	$600.00	$0.00
A3	Geotextile Stabilization Fabric	45000	SYD	$3.00	$135,000.00
A4	Geogrid Stabilization Material	19200	SYD	$4.00	$76,800.00
A5	Silt Fence	15000	LFT	$3.00	$45,000.00
A6	Embankment	4500	CYD	$10.00	$45,000.00
A7	Subgrade Undercutting, Type II	59800	CYD	$16.00	$956,800.00
A8	Subbase, CIP	51250	CYD	$15.00	$768,750.00
A9	12" 21AA Aggregate Base	19200	SYD	$12.00	$230,400.00
A10	6" 22A Aggregate Base	0	SYD	$4.00	$0.00
A11	Bit Base Crushing and Shaping	0	SYD	$1.00	$0.00
A12	Shoulder, Cl II, 6"	5000	SYD	$6.00	$30,000.00
A13	Machine Grading Modified	0	STA	$1,700.00	$0.00
A14	Underdrain, Subbase, 4"	15000	LFT	$4.00	$60,000.00
A15	Underdrain Outlet, 4"	300	LFT	$7.00	$2,100.00
A16	Underdrain, Outlet Ending, 4"	30	EACH	$150.00	$4,500.00
A17	Bituminous Pavement, MDOT Mixture 13A	4225	TON	$55.00	$232,375.00
A18	Pavement Markings, Waterborne, 4", White	15000	LFT	$0.10	$1,500.00
A19	Pavement Markings, Waterborne, 4", Yellow	7500	LFT	$0.10	$750.00
A20		0	0	0	$0.00
A21	Slope Restoration	10000	SYD	$3.00	$30,000.00
				SUBTOTAL=	**$2,643,975.00**
				15% CONSTRUCTION CONTINGENCY	**$396,596.25**
				20% FOR LEGAL, ADMINISTRATION & ENGINEERING	**$528,795.00**
				TOTAL=	**$3,569,366.25**

Disclaimer: Estimates are for Road (Class A Standards) Construction Only.

Does not include purchase of land for right-of-way purposes or mitigation for wetlands crossings.

Does not include curb and gutter, sidewalk, utility upgrades, driveways or guardrail.