CORRADINO

Petoskey Area-wide Transportation Study
Final Report

Submitted to:

Northwest Michigan Council of Governments

Submitted by:

The Corradino Group of Michigan, Inc.

In association with:

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Summary

This report documents the planning process and consultant recommendations of the Petoskey Area-wide Transportation Plan. To reflect community preferences, Petoskey will likely see, over the next 25 years, investment of about 30 percent of available resources on "new" facilities, as compared to spending 70 percent on maintenance. The "new" facilities that are a community priority are upgrading intersections, traffic signalization and, then, adding lanes on existing roads. To create a truly multimodal plan, transit and walking/bicycling facilities are also considered important parts of the future system to maintain the quality of life of the area for residents and its attractiveness to tourists. But, neither transit nor non-motorized facilities will reduce roadway congestion significantly.

The resistance to road projects that is encountered in many communities complicates developing an "action" plan that has many new, local roadway projects. Recognizing this, two basic approaches to developing the plan were reviewed by the study's Steering Committee: 1) do nothing on major road improvements; or, 2) take a strategic approach to prepare for major road improvements at some time in the future. With both options, transit, non-motorized and intersection improvements would be part of the plan.

After review, the Committee rejected the "do nothing" option as an unsatisfactory course to address the communities' transportation issues. Likewise, the Committee reviewed the proposal of limiting growth in order to control traffic. The Committee felt strongly that this is not a strategy it could adopt because Petoskey is a regional employment and shopping area. If growth were controlled in Petoskey, Bear Creek and Resort Townships, growth will happen in the outlying areas contributing to sprawl. People will still travel into and through Petoskey to reach employment and shopping, so traffic will continue to increase. Nonetheless, the Steering Committee recognized growth needs to be managed so that it occurs in certain areas, thus becoming more compact and efficient.

Therefore, the components of the Petoskey Area-wide Transportation Plan include both short-term improvements at intersections and a strategy to address long-term road improvement needs. Additionally, non-motorized and transit improvements are key components of the plan. Each is discussed below.

S.1 Components of the Plan

S.1.1 Transit

The concept of an area-wide bus system is presented in Section 4.1 of this report and summarized on Tables S-1 and S-2. Implementation of the proposal will require almost $500,000 in annual local tax subsidy (2007 dollars). It is recommended, as in many Michigan communities, that a voter referendum be held to implement this part of the plan. Before the people vote, a transit test for the Petoskey area should be conducted during one summer. The test would have two vehicles providing fixed-route, shuttle service linking downtown Petoskey with the Anderson Road shopping/

Table S-1
2005 Michigan Public Transit Facts (Reconciled)
Selected Systems

System	Eligible Expense	Total Passengers	Cost per Passenger	Cost per Mile	Total Vehicles
Urban Small					
Harbor Transit, Grand Haven	$1,499,817	178,679	$ 8.39	$ 3.83	15
Macatatwa Area Express, Holland	$2,580,467	187,407	$13.77	$ 3.75	26
Lake Erie Transit (SMART)	$1,783,432	279,829	$ 6.37	$ 3.28	12
Non-Urban County					
Bay Area Transportation Authority, Traverse City	$4,426,431	407,389	$10.87	$ 2.59	65
Blue Water, Port Huron	$2,751,189	211,514	$13.01	$ 3.28	16
Lake Erie Transit (SMART)	$ 917,942	84,882	$10.81	$ 3.52	9

Source: Michigan Department of Transportation, Public Transportation Management System, Performance Indicators Report.

Table S-2
Petoskey Area Transportation Study
Estimated Transit Ridership

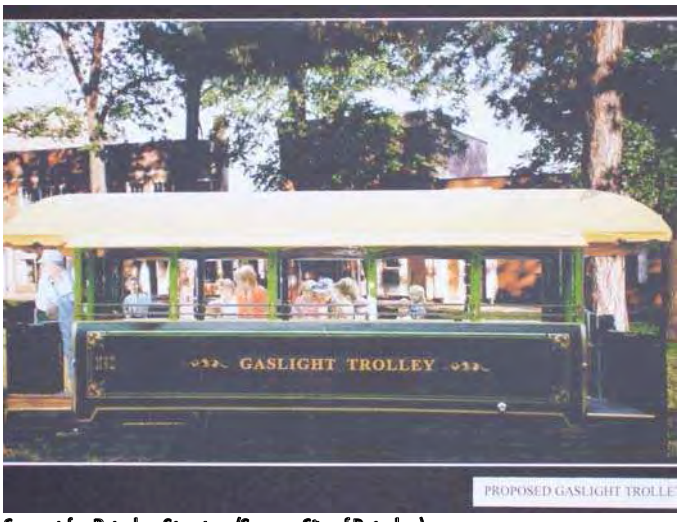
Routes	In Service Vehicles	Hours[a]	Passengers Per Hour	Annual Passengers	Cost[b] (2007 Dollars)	Cost Per Trip
Fixed Route Transit[c]	4	9,216	8	73,728	$552,960	$7.50
Dial-a-Ride/Flex Route	12	12,288	4	49,152	$737,280	$15
Total Transit	16	24,576	12	122,880	$1,290,240	$10.50

[a] Assumes operation on weekdays (256 per year) from 7 a.m. to 6 p.m.
[b] Assumes hourly operating cost of $60 per hour, which is comparable to similar size systems in Michigan
[c] Only two buses would operate on the fixed route service from October to March
Source: The Corradino Group of Michigan, Inc.

casino area and Bay View. The service would operate at 20 minutes between vehicles. Assuming the test is initiated in May and runs through the end of August, test program's operating from 7:00 a.m. until 7:00 p.m. on weekdays and 11:00 a.m. to 7:00 p.m. on weekend days, the operating cost would be about $150,000. This includes costs for drivers, maintenance and fuel but does not include the cost for the vehicles.

Two minibuses or trolley-type vehicles should be leased for the test period at a cost of up to $6,000 per month per vehicle. Leasing vehicles from an existing publicly-funded transit operation that has spares is an option. The Bay Area Transit Authority (BATA) in Traverse City, the Eastern Upper Peninsula Transportation Authority (EUPTA) in Sault Ste. Marie, and Charlevoix Transit are systems that should be contacted.

Studying the downtown streetcar is part of the plan recognizing a private-public partnership will be needed to make the concept a reality. A study will cost between $200,000 and $300,000.



Concept for Petoskey Streetcar (Source: City of Petoskey)

S.1.2 Non-motorized

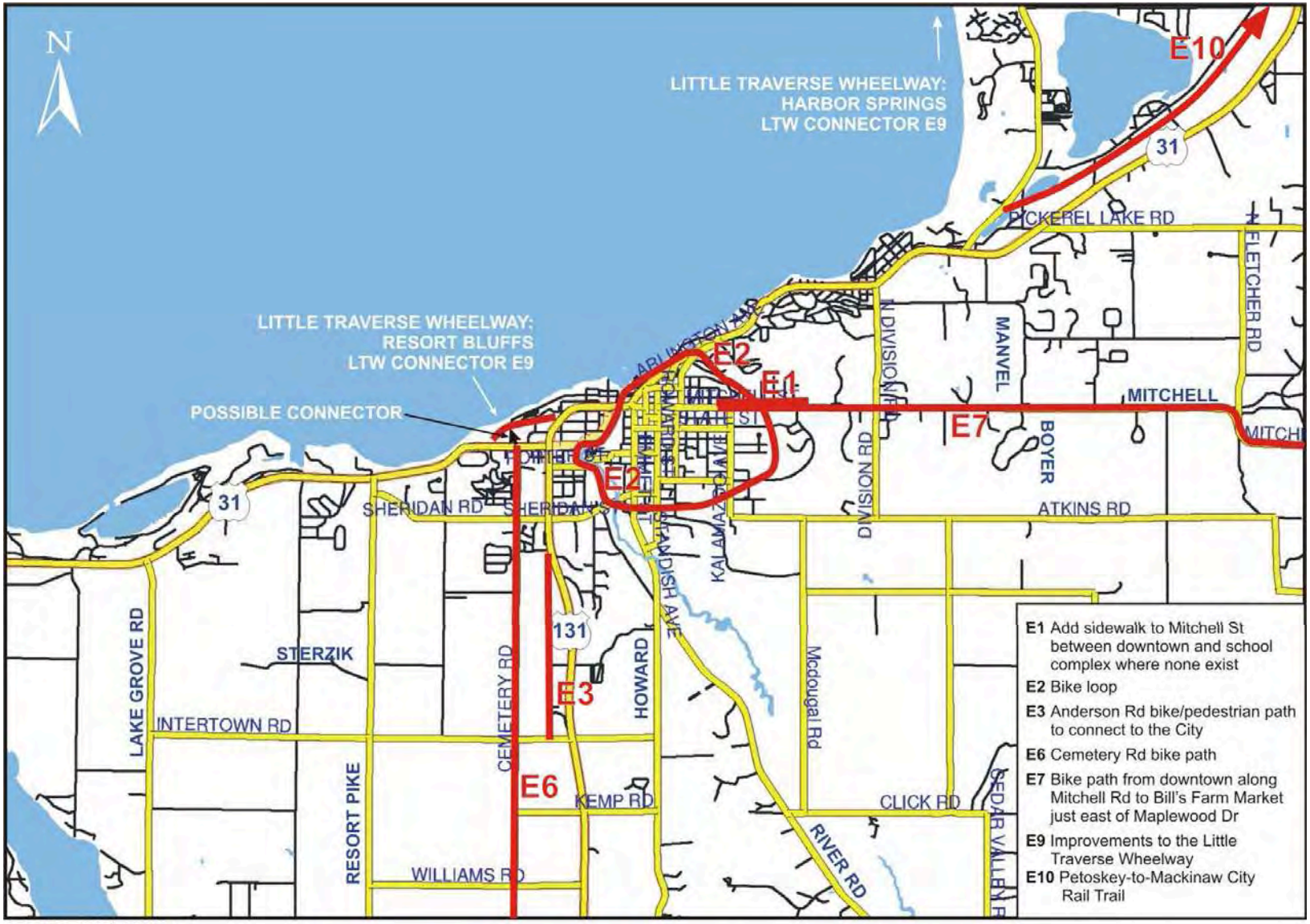
Another component of the multimodal system addresses non-motorized needs – walking and bicycling (as discussed in Section 5 of the report and summarized in Table S-3 and Figure S-1). While not a congestion solution, non-motorized improvements address quality-of-life issues. The total cost of the recommended projects is estimated at approximately $5 million.

Table S-3
Non-motorized Improvements

Project	Length (Miles)	Cost[a] (2007 Dollars)	Comment
Mitchell Road Sidewalk from downtown to High School	.62	$70,000	Would improve pedestrian access for students and faculty at campus. City currently plans to rebuild sidewalks to City boundary. Bear Creek Township would have to construct sidewalk from City boundary to campus entrance.
Public Facility bicycle/pedestrian path	4.28	$805,000	City has plans to construct bicycle path looping through the city to connect major public facilities and improve access to the Bear River natural area.
Anderson Road bicycle/pedestrian path	1.22	$230,000	Improved pedestrian access along this commercial strip would facilitate more pedestrian/bicycle trips to the area and support future transit enhancements.
Cemetery Road bicycle/pedestrian path	4.15	$780,000	This project would facilitate bicycle travel between the Strathmore development and other residential uses and the City.
Downtown to Maplewood Drive along Mitchell Road	3.21	$605,000	This project would create a viable bicycle route for travel from the growing residential areas of Bear Creek Township.
Improvements to Little Traverse Wheelway	1.6 (Resort Bluffs) 3.5 (M-119)	$1,300,000[b] $660,000	The Resort Bluffs project is scheduled for construction in 2008. The M-119 project is being planned but there is no firm commitment for construction at this time.
Regional Non-motorized Develop Petoskey-to-Mackinaw City Rail Trail	3.0 in Bear Creek Township	$565,000	This is a Top of Michigan Trails Council proposal in cooperation with the Michigan Department of Natural Resources.

[a] Estimated (does not include right-of-way or topographical or environmental engineering costs) based on $188,000 per mile for a 10' asphalt bicycle/pedestrian path and $115,000 per mile for a 5' concrete sidewalk.
[b] Cost for the Resort Bluffs section is much higher than typical bike paths because of steep and unstable slopes.

Figure S-1
Non-motorized Improvements



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Source: The Corradino Group of Michigan, Inc.

S.1.3 Roadway

The consultant recommends the intersection improvements be made as defined in Section 3 of the report and summarized on Table S-4. The total cost is estimated at up to $3.25 million. Additionally, Petoskey should take steps to apply access management principles on U.S. 31 beginning with a comprehensive study which would cost up to $100,000. Effective access management has been proven to reduce crashes, increase roadway capacity, and reduce travel time and delay.

Table S-4
Petoskey Area-wide Transportation Study
Proposed Intersection Improvements
2030 Non-summer Traffic

Intersection		2007 LOS[a]	2030 LOS without Improvement	Proposed Improvements		
#	Location			Type	LOS	Estimated Cost (2007 Dollars)
1	U.S. 131/Intertown Road	E	F	Add traffic signal	B	$75,000 to $150,000
2	U.S. 131/Lears Road	F	F	Add traffic signal	A	$75,000 to $150,000
3	W. Mitchell/Madison Streets	C	D	No change	D	NA
4	Mitchell Road/S. Division Road	B	D	No change	D	NA
5	U.S. 31/ Division Road	F	F	Vacate north leg of intersection. Add traffic signal and one additional lane in each direction on U.S. 31 (see Figure 3-21)	D	$500,000 to $900,000
6	U.S. 31/Pickerel Lake Road	F	F	Add traffic signal and one additional lane in each direction on U.S. 31. Study closing west leg of intersection (see Figure 3-22)	B	$500,000 to $900,000
7	U.S. 31/M-119	D	F	Provide: dual left-turn lanes for eastbound U.S. 31; dual right-turn lanes for southbound M-119; exclusive right-turn lane for westbound U.S. 31 (See Figure 3-23)	C	$500,000 to $1 million
8	U.S. 31/Cemetery Road/ Greenwood Road	F	F	Add signal	C	$75,000 to $150,000
9	Cemetery Road/Lears Road	A	C	No change	C	NA

[a] LOS means Level of Service; A is best; D is acceptable; E is approaching gridlock; F is gridlock.
Source: The Corradino Group of Michigan, Inc.

While not an intersection improvement, the extension of Atkins Road from its current eastern end at Kalamazoo Avenue to Howard Street is a recommended project. It will improve access to North Central Michigan College. The cost is estimated at $1.0 to $1.5 million.

A three-pronged strategy is recommended in moving forward with a plan that recognizes congestion must be addressed by major (non-intersection) local road improvements/investments at some time in the future. The first part of the strategy is to develop a partnership to manage growth among the

governments of Petoskey, Bear Creek and Resort Townships, Emmet County and the Little Traverse Bay Bands of the Odawa Indians. The second part of the road improvement strategy is to take steps to preserve right-of-way (by early acquisition or securing options/rights-of-first-refusal to purchase land) to allow roads to be widened, or built new at a later date. The roads could eventually be four lanes wide (two in each direction) with a fifth lane at strategic locations to accommodate turning and/or passing movements. Sidewalks will also be provided, as needed. As congestion increases, incremental widening in the "reserved corridor" is the logical course. Improvements to accommodate turning/passing at the most-critical locations would be the first increments. Possible corridors in which these investments could be made are discussed in Chapter 3 of this report. One concept suggested by the study's Steering Committee is (Figure S-2):

> Starting at U.S. 31 and Manvel Road, head south on Manvel and connect to Mitchell Road; head west on Mitchell Road to Division Road; head south on Division Road to Atkins Road; head west on Atkins Road to McDougal Road; head south on McDougal Road and construct an extension to Lears Road; head west on Lears Road to where it becomes Hagar Road; Hagar Road connects to U.S. 131. The cost of this concept, exclusive of property purchase, is up to $35 million (2007 dollars).

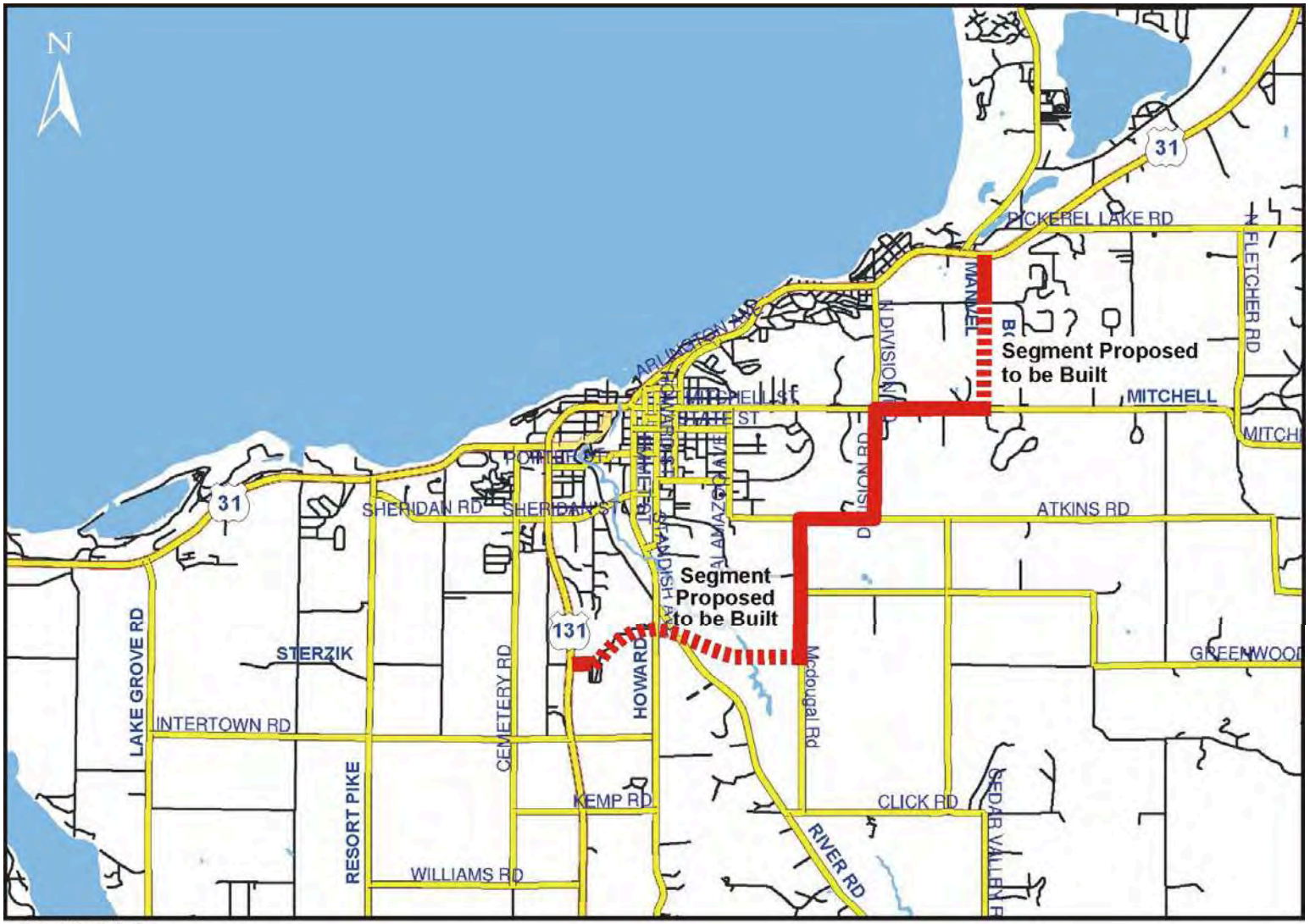
In examining this concept, it is noted the owner of a portion of the Manvel Road area that would need to be acquired is not in favor of this option. The College is not in favor of going through its natural area that is in or near the portion of Lears Road proposed as part of the plan. Further study will determine how to avoid this latter area.

A final part of the roadway improvement strategy is to join with other communities to change Michigan law so builders/developers pay their fair share of the community's infrastructure improvements that benefit them. Michigan does not have legislation authorizing counties to collect impact fees and/or excise taxes from developers/builders. A 2003 report by the PIRGIM Education Fund[1] recommended that such legislation be enacted and that impact fee ordinances be crafted so that development pays the full marginal cost of required infrastructure.

If these steps are taken, then the right-of-way, in large part, could be available along with additional private sector revenue to allow major local road improvements to be made with limited negative effects. Additional funding will be needed from local communities plus state and federal transportation sources, as appropriate. A pool of federal money, that must be matched, is available to initiate the "first" project that is the priority of the local community.

[1] PIRGIM Education Fund, *Development Impact Fees in Michigan: A Tool to Stop Sprawl Subsidies and Promote Efficient Growth*, July 2003

Figure S-2
Petoskey Area-wide Transportation Study
Proposed Major Local Road Improvements (▬) Alternative 10



Source: The Corradino Group of Michigan, Inc.

S.2 Next Steps

The data on Table S-5 define the staging of each component of the Petoskey Area-wide Transportation Plan that is recommended by the consultant. It is expected that full-scale implementation of a comprehensive transit system will require a referendum of the public at a county-wide level. It is also expected, because the cost of the system is significant ($500,000 of new government revenue needed each year), and transit's ability to relieve congestion in Petoskey is limited, that a referendum to finance the system is a second-level priority. In the meantime, a test program can be implemented by leasing two vehicles from a nearby transit system (in Traverse City or Charlevoix or Sault Ste. Marie) to create a fixed-route system during one summer. The cost of such a test is $200,000 (in 2007 dollars). The test is a first-level priority.

Implementing a downtown streetcar is considered a second-level priority because it depends on forming a public-private partnership. A detailed study at a cost of up to $300,000 to determine engineering and financial details, and the interest of a private sector participant(s), is a first-level priority. Establishing a Business Improvement District (BID) is an option to determine if those who would benefit most from the streetcar system would endorse a special tax assessment to finance the project.

The individual non-motorized improvements range from $70,000 to almost $2 million for a total investment of approximately $5 million (2007 dollars). The consultant recommends these improvements be implemented beginning in 2009 and continuing through 2025. This requires an average annual investment of about $300,000.

The roadway improvements begin with an Access Management Study recommended to be conducted in 2009 at a cost of up to $100,000. The consultant's recommendations also include a host of intersection modifications which would total as much as $4.75 million (2007 dollars), including the extension of Atkins Road. Implementation would begin in 2009 and extend through 2015. This equates to an average annual investment of approximately $675,000. The definition of which intersection improvements go first is a matter of continuing local agency discussions (including the Odawa Indians) in cooperation with MDOT. As noted earlier, a pool of federal money (less than $1 million) is available from a High-Priority Project ("earmark"). These dollars, when matched with non-federal monies, could fund new signals at U.S. 31 and Lears Road, U.S. 31 and Intertown Road, or, perhaps, improvements at the U.S. 31/Division Road area. In addition to the intersection improvements, an access management study should be pursued in cooperation with MDOT at a cost of up to $100,000.

Closing Country Club Road is considered by the consultant to create no significant traffic congestion. Bear Creek Township has recommended three conditions must be met to allow that closure to occur:

A. The Bay View Country Club donates property along U.S. 31 for the widening at Division Road (discussed next);
B. A conservation easement be placed on the property; and,
C. Country Club Road be left as an easement for utilities, and the like.

Table S-5
Petoskey Area-wide Transportation Plan Recommendations

Plan Component	Plan Element	Responsibility	Cost[a]	Priority
Transit	Test Fixed-Route Service during summer season	City of Petoskey with vehicle(s) leased from system in Traverse City or Charlevoix or Sault Ste. Marie.	$200,000	2009 or 2010
	Hold referendum to decide if a transit system is to be implemented. Annual implementation cost of transit system @ $500,000 (in 2007 dollars).	Local governments, Odawa Indians	NA	2011 – 2015, following test of summertime service
	Study developing downtown streetcar service	Petoskey and private partner	Study Cost: $200,000 to $300,000	2009 – 2015
Non-motorized	Mitchell Road sidewalk from downtown to high school	City of Petoskey/Bear Creek Township	$71,000	2009 – 2025
	Public facility bicycle/pedestrian path	City of Petoskey	$805,000	2009 – 2025
	Anderson Road bicycle/pedestrian path	Bear Creek Township	$230,000	2009 – 2025
	Cemetery Road bicycle/pedestrian path	Bear Creek/Resort Townships	$780,000	2009 – 2025
	Downtown to Maplewood Drive along Mitchell Road	Petoskey/Bear Creek Township	$605,000	2009 – 2025
	Improvements to Little Traverse Wheelway	Petoskey/MDOT/Top of Michigan Trails Council	$1,960,000[b]	2009 – 2025
	Develop Petoskey-to-Mackinaw City Rail Trail	Top of Michigan Trails Council/Michigan Department of Natural Resources	$565,000	2009 – 2025

Table S-5 (continued)
Petoskey Area-wide Transportation Plan Recommendations

Plan Component	Plan Element	Responsibility	Capital Cost[a]	Priority
Roadways	U.S. 131/Intertown Road	Road Commission/MDOT	$75,000 to $150,000	2009 – 2015
	U.S. 131/Lears Road	Road Commission/MDOT	$75,000 to $150,000	2009 – 2015
	U.S. 31/Division Road	Road Commission/MDOT	$500,000 to $900,000	2009 – 2015
	U.S. 31/Pickerel Lake Road	Road Commission/MDOT	$500,000 to 900,000	2009 – 2015
	U.S. 31/M-119	Road Commission/MDOT	$500,000 to $1 million	2009 – 2015
	U.S. 31/Cemetery/ Greenwood Road	Road Commission/MDOT/ City of Petoskey	$75,000 to $150,000	2009 – 2015
	Extend Atkins Road	City of Petoskey/North Central Michigan College/Road Commission	$1.0 to $1.5 million	2009 – 2015
	Access Management Study	City of Petoskey/Bear Creek/Road Commission/MDOT	$50,000 to $100,000	2009 – 2010
	Close Country Club Road	With Bear Creek Township conditions/Road Commission	NA	Tied to widening U.S. 31 at Division Road
	Right-of-way Preservation	Local units of government	To be determined	2016 – 2030
	Major local road widening/construction	Local units of government and Odawa Indians	$23.5 to $35.0 million	2021 – 2040
Policy	Manage growth	Local units of government and Odawa Indians	NA	2008+
	Secure legislation to allow assessment of Development Impact Fees	Local units of government and Odawa Indians	NA	2008+

[a] Cost does not include right-of-way purchase.
[b] Cost for the Resort Bluffs section is much higher than typical bike paths because of steep and unstable slopes.

Source: The Corradino Group of Michigan, Inc.

Closing Country Club Road could be a first-level priority, if it is tied to improving U.S. 31 at Division Road, which is one of the conditions listed above.

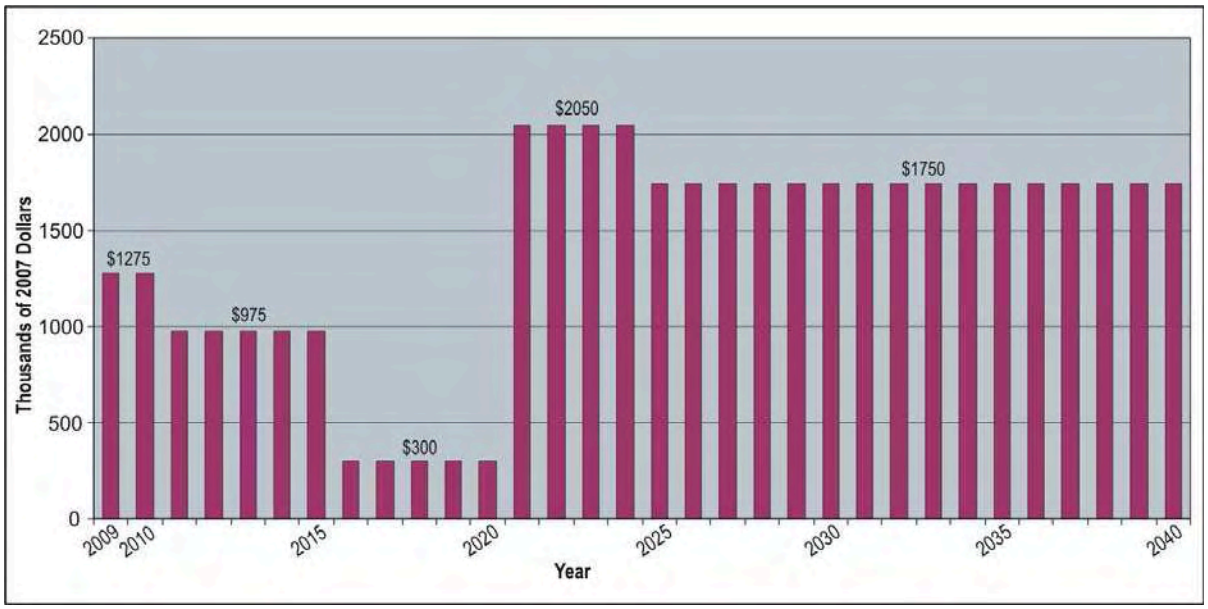
The Roadway Component of the plan also calls for making major local road improvements beginning in 2021 and extending to 2040. Advanced acquisition to prepare the right-of-way along a path, such as that suggested in Figure S-2 should begin in 2016. New legislation would be helpful to allow Development Impact Fees to be collected from private sector interests wishing to develop major projects in the Petoskey area. Efforts to secure legislative approval, in concert with other Michigan communities, should begin in 2008. Likewise, developing, and then implementing, a strategy to manage growth should begin in 2008. Then, major local road improvements can begin by 2021, with some revenue from the private sector available through Development Impact Fees to be added to other government funding.

To implement these proposals, an annual average revenue stream of (Figure 6-2):

1. $1,275,000 in 2009 for an Access Management Study, the transit test, and non-motorized and intersection/Atkins Road improvements;
2. $1,275,000 in 2010 for the streetcar study, and non-motorized and intersection/Atkins Road improvements;
3. $975,000 annually from 2011 through 2015 for both non-motorized and intersection/Atkins Road improvements;
4. $300,000 per year for the period 2016 through 2010 for additional non-motorized improvements;
5. $2,050,000 per year from 2021 and 2025 as major local road improvements are added to the final non-motorized projects;
6. $1,750,000 annually from 2025 to 2040 for implementing the major local road improvement program (Figure S-3).

These consultant recommendations are now subject to local government and Odawa Indian Tribe review and action. After final priorities are adopted, they should undergo regular review. As the program of improvements gets into full swing, it may be appropriate for a transportation coordinator to be employed to manage timely implementation of the authorized projects.

Figure S-3
Petoskey Area-wide Transportation Study
Funding Needed to Implement Consultant's Recommendations



Source: The Corradino Group of Michigan, Inc.

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1. Introduction

The Petoskey Area Transportation Study Committee, with funding from the Michigan Department of Transportation (MDOT) and guidance from the Northwest Michigan Council of Governments, has initiated the Petoskey Area-wide Transportation Study (PATS). The PATS has several objectives, which include:

- Identifying and prioritizing local road improvements and transportation systems management techniques to relieve congestion and increase mobility in the area;
- Considering impacts of transportation improvements and traffic generators in surrounding communities;
- Involving, at a prominent level, the public in a number of activities that can lead towards developing a consensus for identified transportation improvements; and,
- Addressing and identifying land use and community development policies that complement the transportation system improvements, while protecting the integrity of the area's rural, residential, and commercial areas.

1.1 Study Area

The study area for the project includes the City of Petoskey, Bear Creek Township, and Resort Township in Emmet County, Michigan (Figure 1-1) and involves representatives of these governments plus the Little Traverse Bay Bands of Odawa Indians. The area is one of the most distinctive and recognizable places in Michigan. This is directly attributable to its location on the shores of Little Traverse Bay, its proximity to other area lakes, its vibrant and historic downtown, and beautiful countryside. This is a destination that experiences significant traffic congestion. Many people believe congestion is unacceptable and needs to be addressed. Over the years, many solutions, including a bypass, have been proposed. The bypass concept was the subject of several studies by MDOT; it was concluded that the project lacked community support and that MDOT would not pursue it. This study is not a bypass study. It is an examination of the appropriate transportation, mobility, land use and policy decisions that can be brought together to address transportation needs in the community.

1.2 Project Schedule

The study is being conducted over a 12-month period (Figure 1-2). The key tasks are:

1. Data Collection
2. Local Road Network Analysis
3. Transportation Improvement Strategies
4. Public Participation

Figure 1-1
Study Area

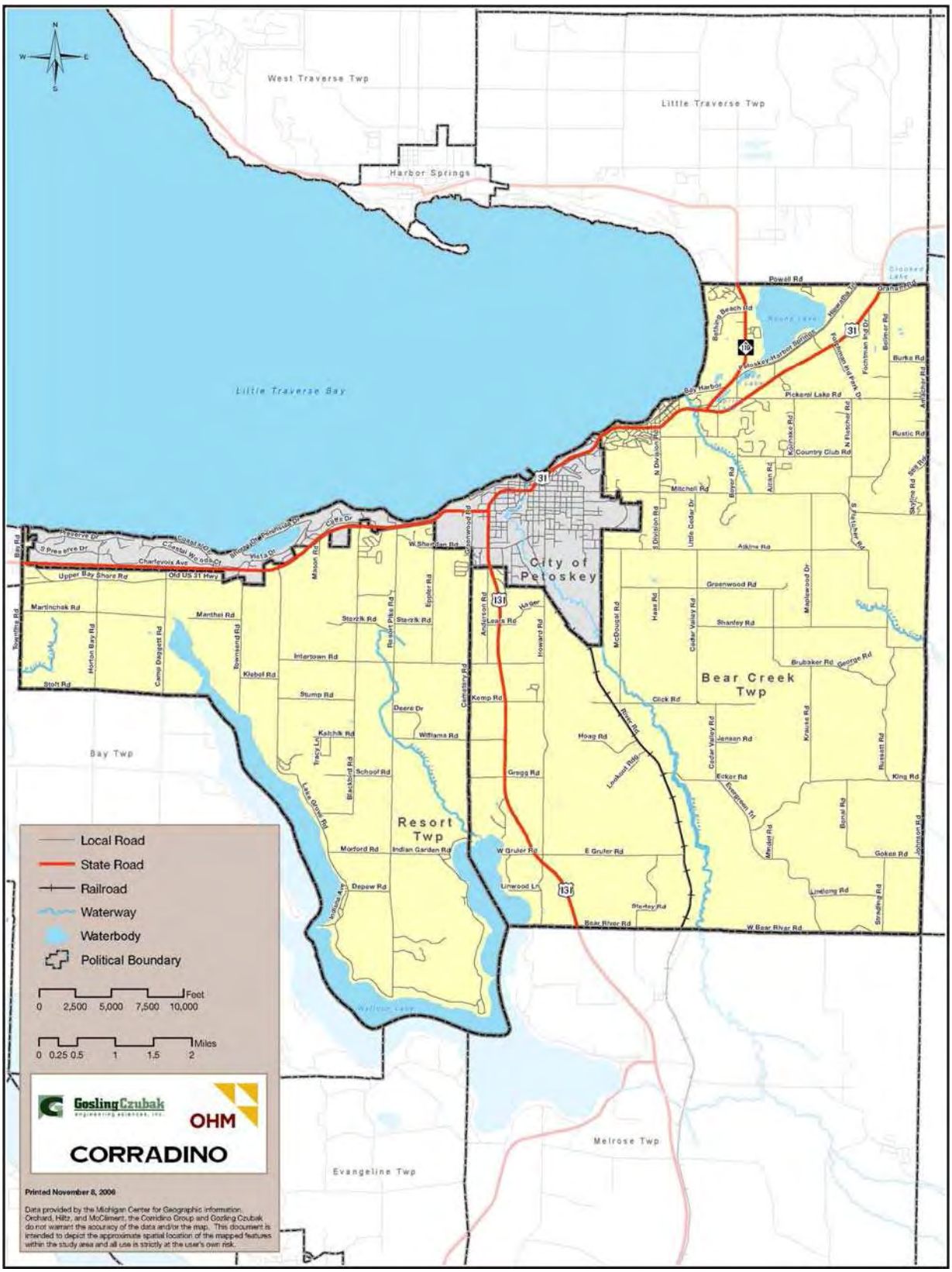
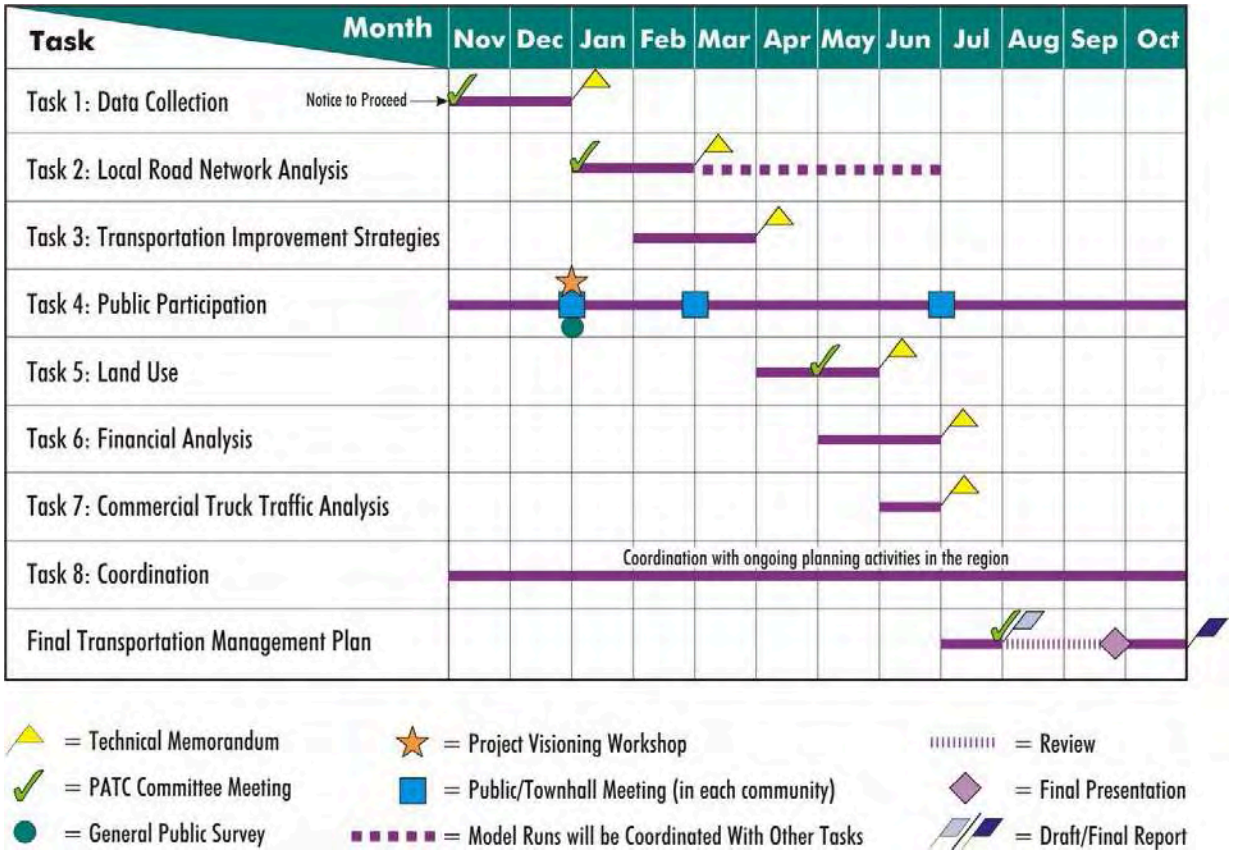


Figure 1-2
Schedule



5. Land Use
6. Financial Analysis
7. Commercial Truck Traffic Analysis
8. Coordination

This report presents information focuses on the preliminary evaluation of the transportation elements being considered for the plan. The transportation alternatives derive from a "project bank" created through citizen involvement plus input from local community leaders/government officials. The scenarios developed cover transit and non-motorized proposals plus proposed improvements on roadway segments as well as at intersections:

To evaluate the alternative transportation projects, the consultant team examined a variety of data that relate to nine key performance measures:

- Minimize Road Congestion
- Maximize Safe Travel
- Better Connect Links in the Roadway Network
- Minimize Purchase of Private Property to Build Transportation Facilities

- Protect Open Spaces/Parks
- Preserve Agricultural Land
- Avoid Wetland Impacts
- Maintain Good Air Quality
- Control Noise at Sensitive Locations

The public, as well as the project's Steering Committee and consultant, weighted/scored these criteria to provide guidance to the evaluation process.

2. Public Engagement and Evaluation Process

As depicted in Figure 1-2, the public was engaged in the process in January 2007 at three meetings held at different parts of the community to review the project's work plan and schedule and provide comments to the technical team on the direction of the study. On February 1, 2007, both the general public and two senior classes as Petoskey High School helped define a list of road, transit, and pedestrian/bicycle (non-motorized) improvements to serve the study area over the next 20 to 25 years. This list of improvements was presented to the community on June 26, 27 and 28, 2007, for further review. At that time, the nine evaluation factors were weighted by the participants. The various transportation alternatives were evaluated and the preliminary findings presented to the public on August 28, 29 and 30, 2007. The preliminary findings were reviewed leading to this final report to aid the community in developing the area-wide transportation plan. That plan must be adopted by the elected officials in Petoskey, Bear Creek Township and Resort Township to be official.

This document, and all products of the study, are available on the project's Web site, www.petoskeytransportationstudy.com.

2.1 Survey Results

As a first step to broaden public involvement in the study process, a survey by mail was conducted in March 2007. The survey was developed in cooperation with the Northwest Michigan Council of Government's staff, plus engagement of the project's Steering Committee. The returns of the survey indicate that, for the study area as a whole, the results have a confidence level of 95 percent and a margin of error of ±3 percent. Similarly, results for the three individual communities are also at the 95 percent confidence level with a margin of error of ±5 percent for the Petoskey and Bear Creek Township responses and a margin of error of ±6 percent for the survey results from Resort Township. The margin of error is related to the number of returns—the lower number of returns, the higher the margin of error.

Overall, 1,017 properly completed questionnaires were returned by the end of March from full-time or seasonal residents of the area. This is 29 percent of the 3,500 survey forms that were mailed. The distribution of the responses among the communities that make up the study area is as follows:

- City of Petoskey residents (full- or part-time): 351, or 37.2 percent of total
- Bear Creek Township residents (full- or part-time): 367, or 35.9 percent of total
- Resort Township residents (full- or part-time): 275, or 26.9 percent of total

The responses from residents of the three communities in the study area compares as follows to the population distribution as of the 2000 Census.

- City of Petoskey: 6,247 people, or 45.1 percent of study area
- Bear Creek Township: 5,121 people, or 37.0 percent of study area

- Resort Township: 2,472 people, or 17.9 percent of study area

So, while survey responses from Bear Creek Township are in direct proportion with its share of the study area's population, the returns for the City of Petoskey are under-represented and those of Resort Township are over-represented.

Of the respondents, 89 percent from Petoskey consider themselves year-round residents of the city; 83 percent of the respondents from Bear Creek Township consider themselves to be year-round residents; and, 74 percent of the respondents from Resort Township consider themselves year-round residents. For the entire study area, 75 percent of the respondents consider themselves year-round residents.

Of those in the study area who are seasonal residents, Petoskey respondents indicate they spend an average of 28 weeks per year in the area; the Bear Creek Township respondents who are seasonal residents spend an average of 20 weeks in the study area; while the average stay for those who are seasonal residents of Resort Township is 22 weeks. For the study area as a whole, the average stay for those who are seasonal residents is 23 weeks.

Other general characteristics of the survey respondents, which the survey requested be the head of household, include:

1) The majority fall in the age group of 55-and-over (51.4% for Petoskey; 59.5% for Bear Creek Township; 58.2% for Resort Township; and, 46.2% for the study area as a whole).
2) The largest single group who responded to the survey in each of the three communities is made up of those in the 35-to-54 age category, which represents between 35 and 39 percent of the total responses in each of the three communities and the entire study area.
3) Most respondents were male in each of the three communities: 62 and 70 percent in Bear Creek and Resort Townships, respectively; 52 percent in Petoskey; and, 60 percent in the study area as a whole.
4) The travel distance and time to work indicate that that the shortest trip is for Petoskey respondents (4.7 miles and 10.9 minutes) as compared to about a seven-mile trip that lasts more than 14 minutes for each of the Bear Creek and Resort Township respondents. The overall travel distance and time to work for all respondents are 6.3 miles and 13 minutes, respectively.

2.1.1 Survey Response and Specific Technical Questions

Four specific technical questions were posed with the objective of providing insight for the analysis of the Area-wide Transportation Study. The first question is as follows:

> ***Your local governments provide services in a number of areas. Please rank the importance to you on a scale of 1 to 5, where 5 means you feel the service is very important and 1 means you feel it is not important at all. You may choose any number between 1 and 5, but please choose only one.***

Data in Figure 2-1 indicate fire protection, police protection and roads in each of the study area communities receive responses at least 85 percent of the time in the two highest importance categories (4 or 5 on the scale of 5). In Petoskey, sewer/water service also received an importance rating at the top of the scale (4 or 5) from 90 percent of the respondents.

Very few respondents rate government services at the other end of the scale, i.e., "least important." For example, in Petoskey, only 12 percent of the respondents give "parks-and-recreation" the lowest importance ratings (levels of 1 or 2 on a scale of 5). In Bear Creek and Resort Townships, only about 19 percent of the respondents rate parks-and-recreation and sewer/water services at the low end of the importance scale. Overall, for the entire study area, survey respondents are very satisfied with the services provided by their government.

A second question with respect to services, particularly as they relate to transportation issues, is as follows:

> ***Please tell us, how important are the following statements? We will again use a scale of 1 to 5, where 5 means you feel the proposal is very important and 1 means you feel it is NOT important at all. You may use any number between 1 and 5, but please choose only one (Figure 2-2).***

In Petoskey, at least half of the respondents scored the following areas at the highest level of importance (rating 4 or 5 on a scale of 5):

- Upgrading intersections (turn lanes, etc.)
- Improving the coordination of traffic signals
- Adding lanes on existing roads
- Spending more on maintenance of existing transportation facilities such as roads, sidewalks, bike paths and public transportation

In Petoskey, the following items were provided rankings of 1 or 2, on a scale of 5, by at least 25 percent of the respondents:

- Expanding public transportation service to all
- Adding more traffic signals
- Landscaping roadway corridors to improve their appearance
- Building new roads

The last item received the lowest importance ratings by the largest number of respondents (38%).

In Bear Creek Township, at least 50 percent of the respondents rated at the highest importance each of the following: upgrading intersections; improving the coordination of traffic signals; adding lanes on existing roads; and, spending more on maintenance of existing facilities.

Figure 2-1A
City of Petoskey Respondents

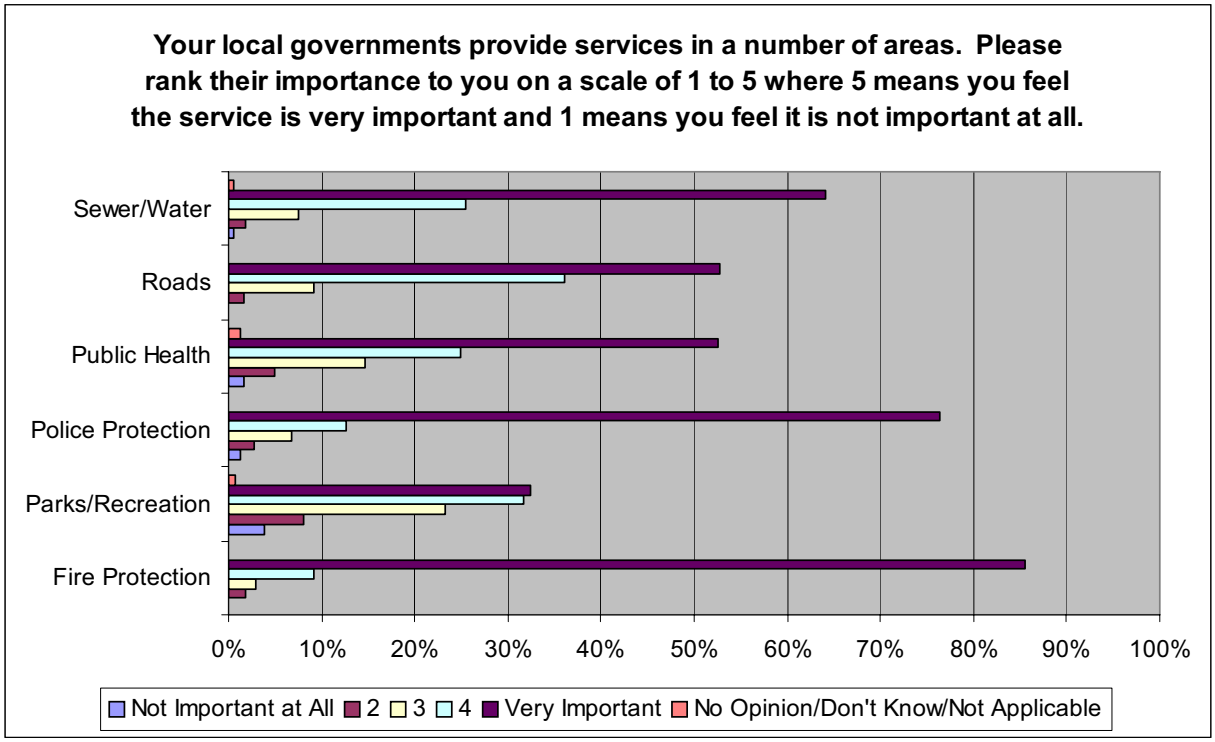


Figure 2-1B
Bear Creek Township Respondents

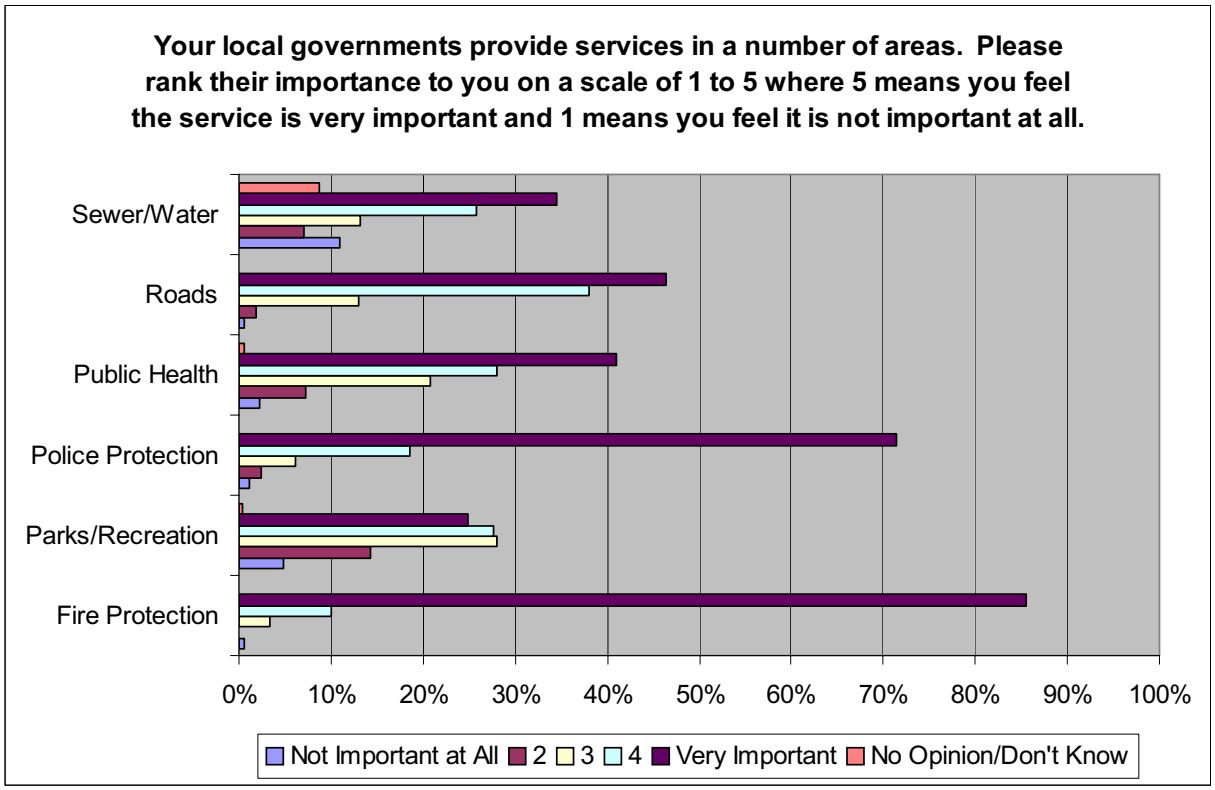


Figure 2-1C
Resort Township Respondents

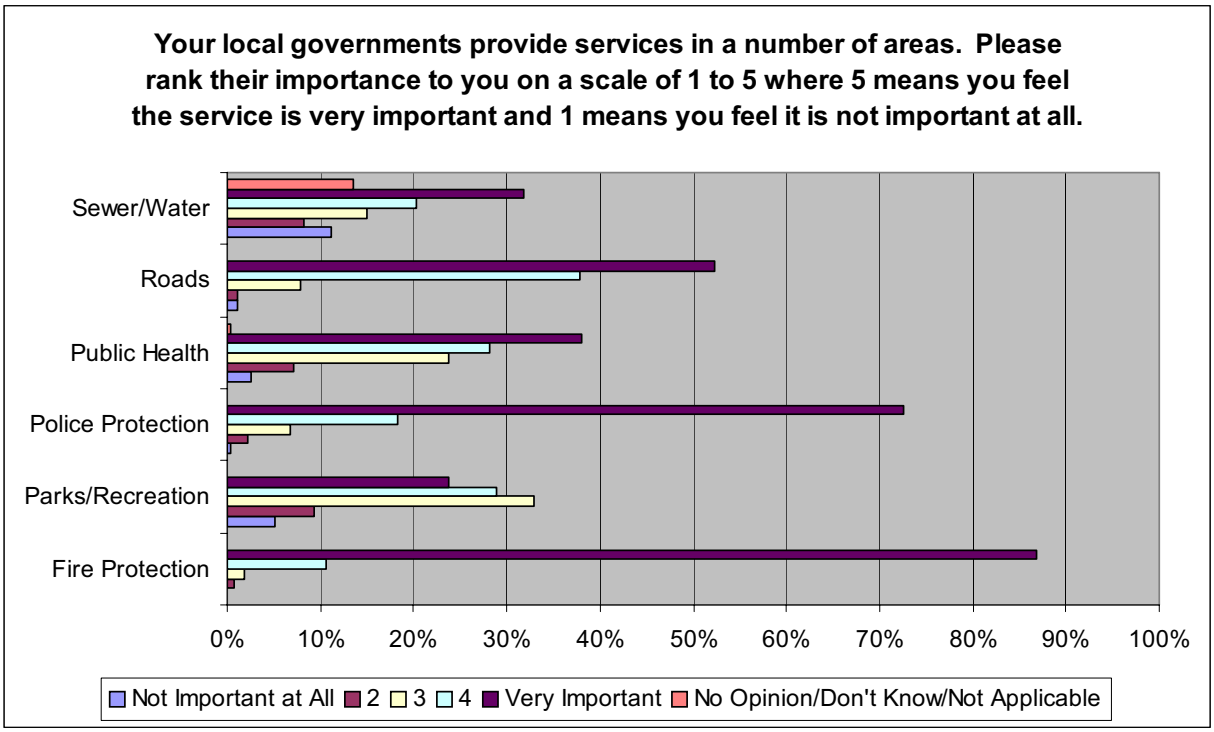


Figure 2-1D
All Study Area Respondents

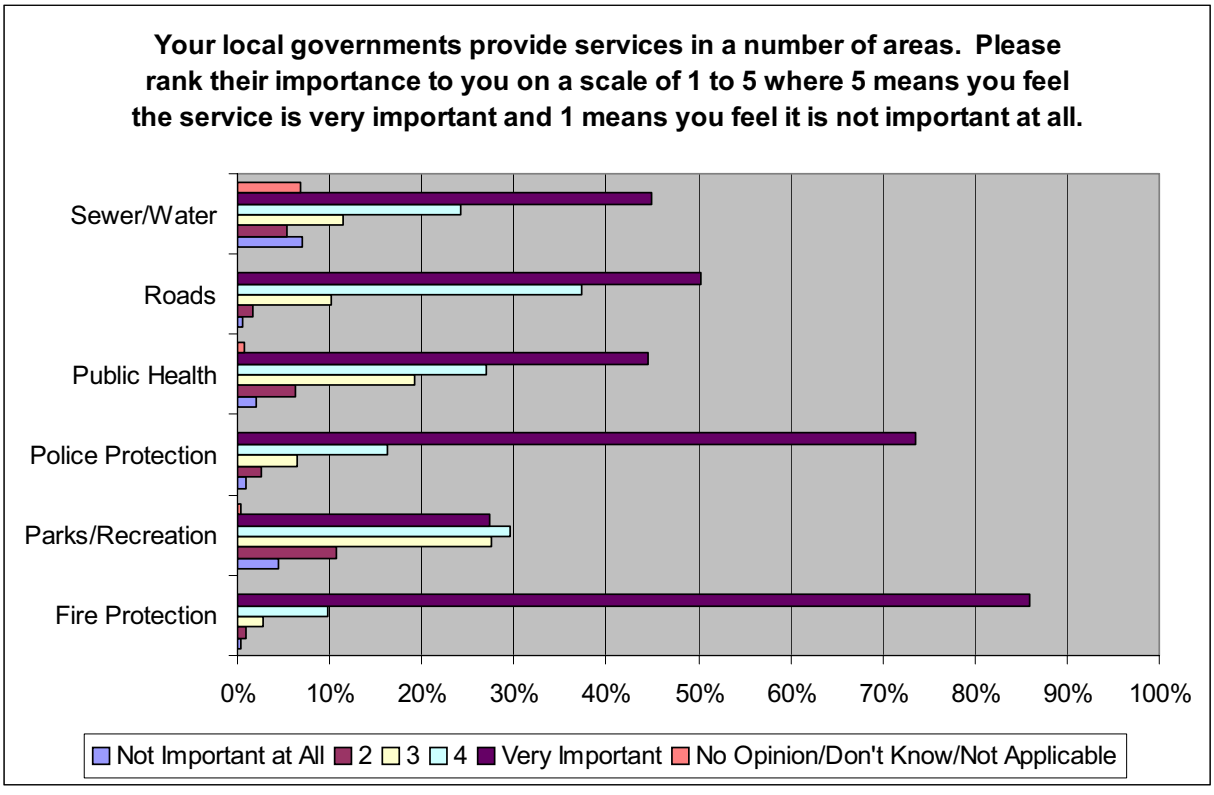


Figure 2-2
Survey Responses
Importance of Existing Government Services

Source: The Corradino Group of Michigan, Inc.

In Bear Creek Township, the lowest rated proposals receiving importance scores of 1 or 2 from at least 25 percent of the respondents are as follows:

- Building sidewalks, bike paths and bike lanes
- Expanding public transportation service to all
- Adding more traffic signals
- Landscaping roadway corridors to improve their appearance
- Building sections of roads to fill the gaps that exist
- Building new roads
- Spending more to build new transportation facilities such as roads, sidewalks, bike paths and public transportation

The most significant negative among these are: building new roads (37.6% with importance rankings of 1 and 2); landscaping roadway corridors to improve their appearance (44.2%); and, building more sidewalks, bike paths and bike lanes.

In Resort Township, the items that were scored at the highest level of importance by at least 50 percent of the respondents are:

- Upgrading intersections (turn lanes, etc.)
- Improving the coordination traffic signals
- Adding lanes on existing roads
- Spending more on maintenance of existing transportation facilities

The items that received at least 25 percent of the respondents' lowest ratings are:

- Building sidewalks, bike paths and bike lanes
- Expanding public transportation service to all
- Adding more traffic signals
- Landscaping roadway corridors to improve their appearance
- Building new roads
- Spending more to build new transportation facilities such as roads, sidewalks, bike paths and public transportation

Overall, respondents from the entire study area scored at the highest level of importance (ratings 4 or 5 on scale of 5) the following:

- Upgrading intersections (turn lanes, etc.)
- Improving the coordination of traffic signals
- Adding lanes on existing roads
- Spending more on maintenance of existing transportation facilities such as roads, sidewalks, bike paths and public transportation

Those factors with the largest number of "low importance" ratings (1 or 2) for all survey area respondents are:

- Expanding public transportation service to all
- Adding more traffic signals

- Landscaping roadway corridors to improve their appearance
- Building new roads

Closely coordinated with the items in the previous question was the following issue:

> ***If you had $100 to spend on improving the Petoskey area transportation system, how would you split it between maintaining the existing transportation facilities and building new ones?***

For all practical purposes, the split is about $70/$30, i.e., maintain existing facilities and building more facilities, respectively, among the respondents in each community and the study area as a whole.

When asked how $100 might be spent on roads, public transportation, bicycle paths or sidewalks (Figure 2-3), Bear Creek and Resort Township residents each responded that about $61 should be spent on roads. On the other hand, Petoskey residents indicated that about $55 should be spent on roads. All three communities agree that about $12 of the $100 should be spent on bicycle paths. Respondents in Bear Creek Township and Resort Township agree that about $11 of the $100 should be spent on sidewalks, while Petoskey respondents indicated almost $15 should be spent on sidewalks.

Petoskey residents indicate close to $18 should be spent on public transportation, compared to about $17 in Bear Creek Township and $16 in Resort Township.

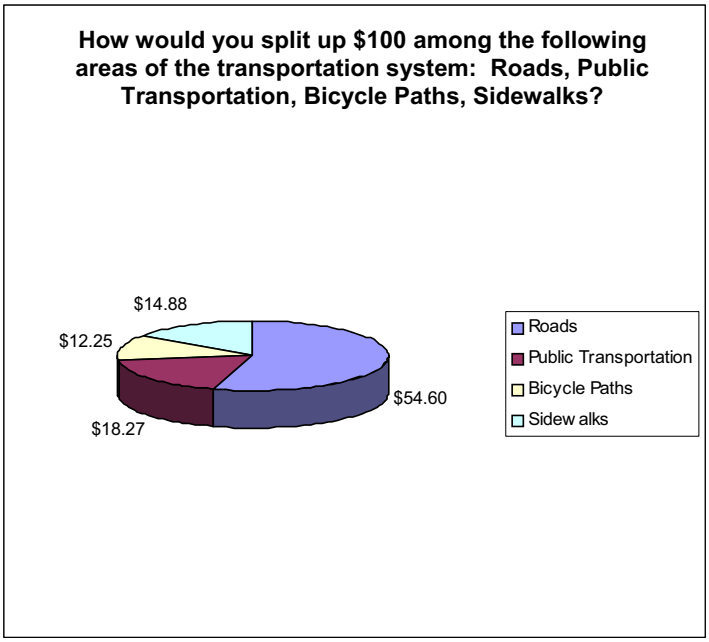
When all three communities are combined, the respondents from the entire study area indicate about $12 should be spent on sidewalks and $12 on bicycle paths, $17 on public transportation, and $59 on roads.

2.1.2 Findings and Next Steps

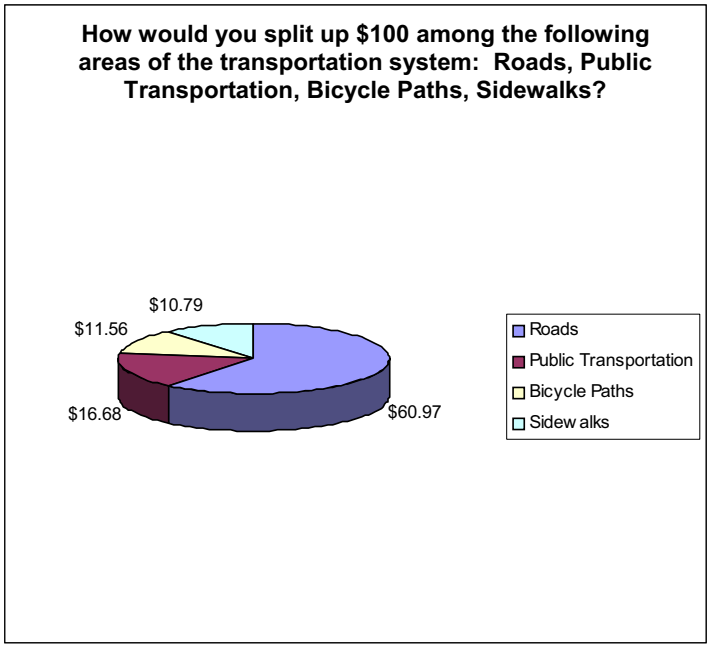
These results indicate that at least 74 percent of survey respondents are either year-round residents of the three communities in the study area, or are seasonal residents who spend at least 20 weeks of the year in the study area. Therefore, the respondents were in a position to fully understand transportation and related services available in their community. When it comes to spending money, respondents agree that they expect roadways to be the principal mode to be focused on (at least 55 percent of every dollar spent). Nonetheless, survey respondents favor spending more on maintenance of existing roads, rather than building new ones by a 70 to 30 split, respectively. The respondents also believe about 25 percent of transportation funding should go to bicycle paths and sidewalks. Interestingly, the respondents from each community would allocate more funding to public transportation than either bikeway or sidewalks as individual items, while, at the same time, indicating that one of their least important interests is to "improve the public transportation service to all." Further discussion of these issues occurred throughout the planning process to define the mix of transportation improvements by mode and the investment in each of them.

Figure 2-3
Survey Responses
Allocation of Resources

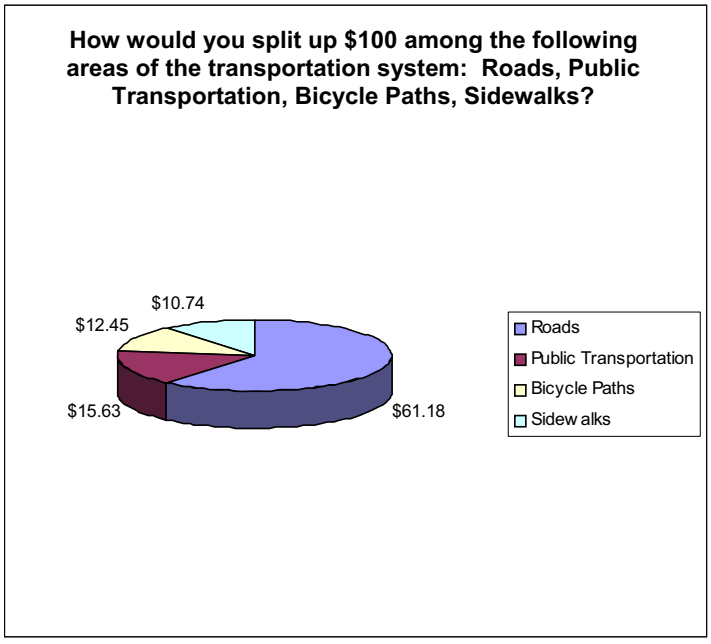
A. Petoskey



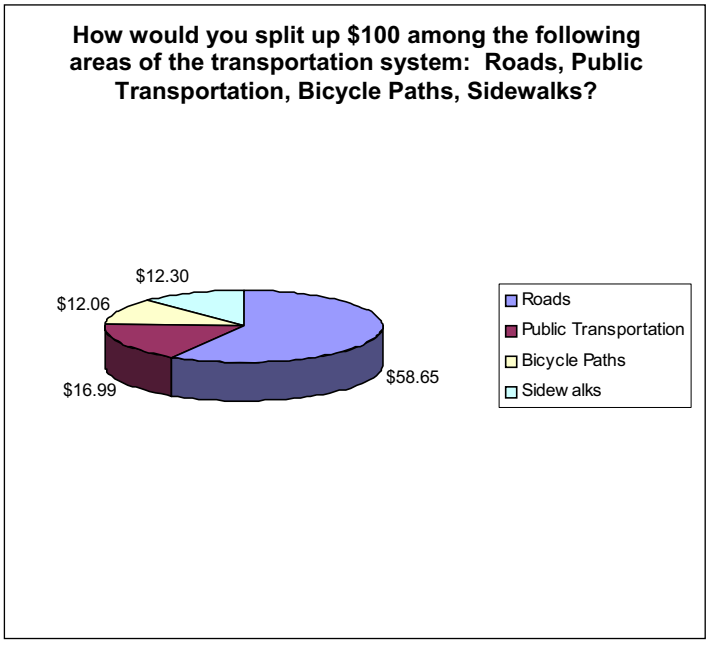
B. Bear Creek Township



C. Resort Township



D. Entire Study Area



2.2 Evaluation Process

The Petoskey Area-wide Transportation Study evaluated roadway, transit, and non-motorized proposals to address transportation issues in the area, which include heavy congestion on U.S. 31; new development and resulting pressure on the roadway system; and, lack of connectivity in the network, particularly in the east-west direction. Nine evaluation factors were developed to evaluate these proposals (Table 2-1). The calculations by which the performance of the transportation system can be measured by the nine factors are also included in Table 2-1. A brief explanation of each evaluation factor is presented here.

Table 2-1
Evaluation Factors and Performance Measures

Evaluation Factor	Performance Measure
Minimize Road Congestion	Volume/capacity indices of key roadway links
Maximize Safe Travel	Change in crashes compared to baseline system in vehicle miles of travel on 12 roadway segments
Better Connect Links in the Road Network	Change in travel time from baseline system for designated origin-destination pairs
Minimize Purchase of Private Property to Build Transportation Facilities	Number of residential and business properties potentially taken[a]
Protect Open Spaces/Parks	Number of acres of public and non-public park potentially lost
Preserve Agricultural Land	Number of acres potentially taken in agriculturally-zoned area
Avoid Wetland Impacts	Number of acres potentially taken in wetland areas
Maintain Good Air Quality	CO concentrations at 12 points in the network and consistent with noise and safety factors analysis
Control Noise at Sensitive Locations (e.g., homes, schools, hospitals, etc.)	"Significant change" in noise due to traffic volume change at 12 points in the network

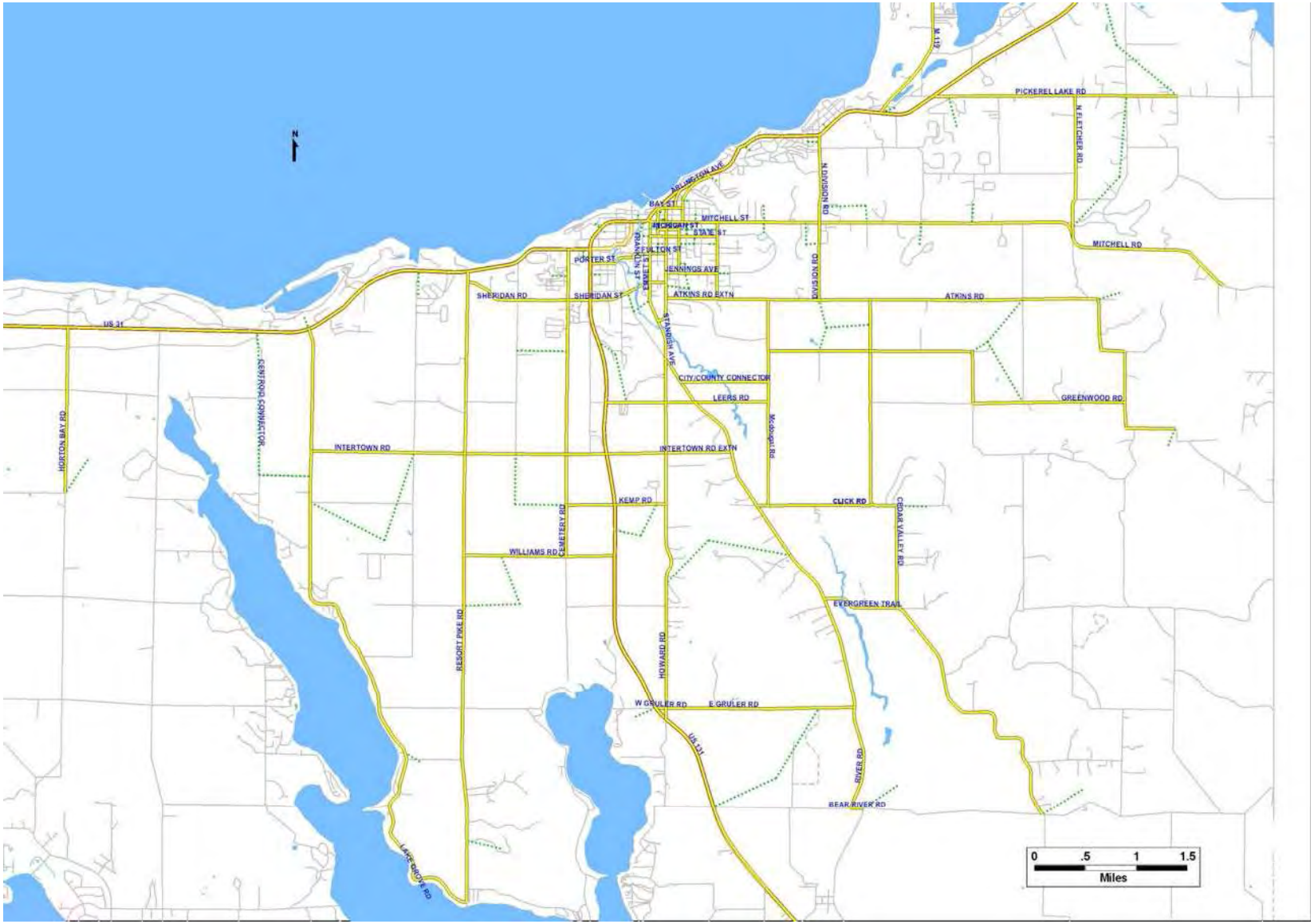
[a]On all roads proposed to be improved/built new
Source: The Corradino Group of Michigan, Inc.

Minimize Road Congestion – The level of congestion on the roadway system has been defined by measuring the volume-to-capacity ratio on key roadway links (Figure 2-4).

Maximize Safe Travel – Each alternative transportation system proposed will be related to the resultant vehicle miles of roadway travel which can be related to crashes on the segments shown on Figure 2-5.

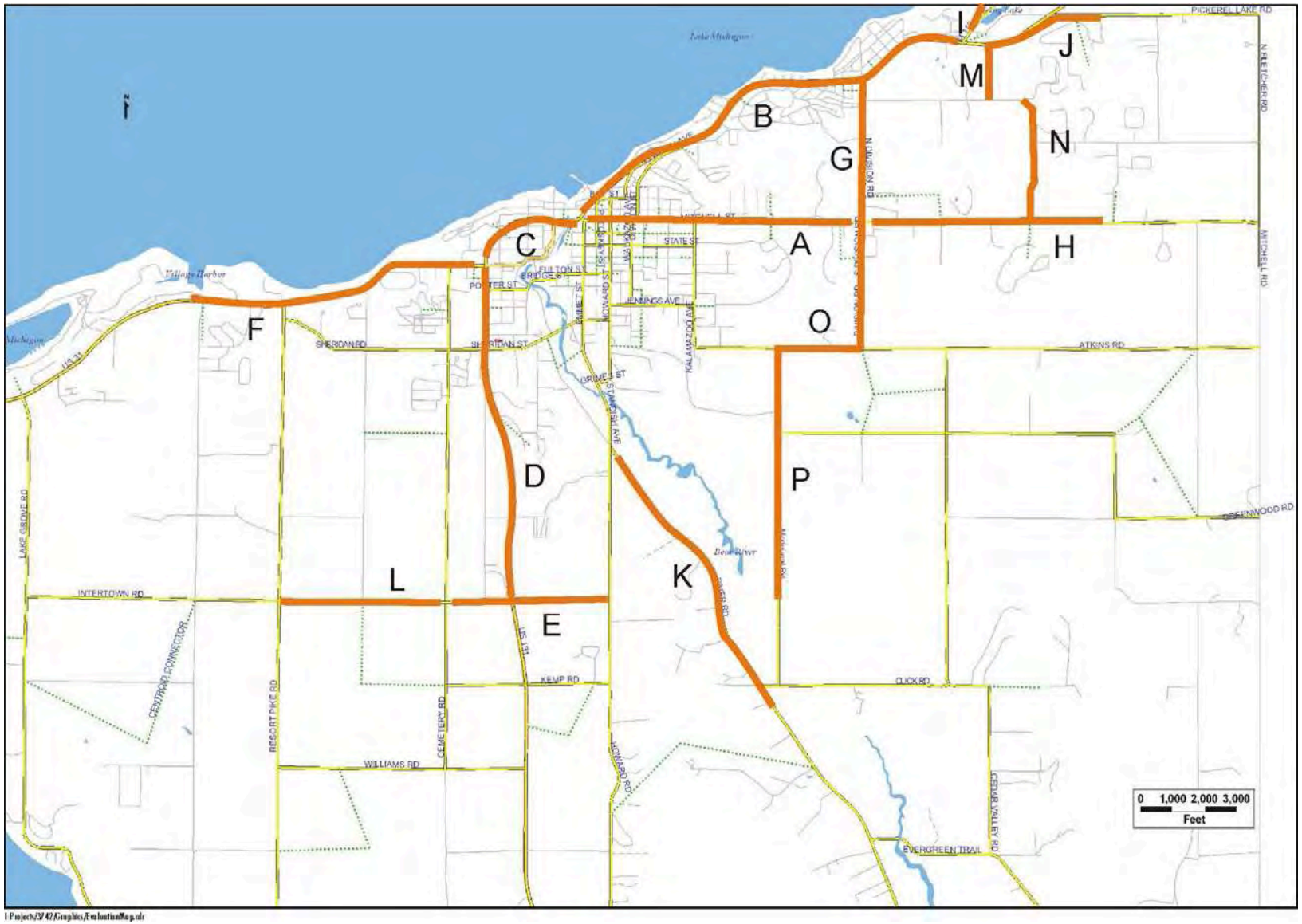
Better Connect Links in Road Network – Public involvement meetings in January and February 2007 indicated concern about the lack of "connectivity" in the study area. To measure the degree to which different connections affect overall travel, the movements between pairs of zones (origins to destinations) have been examined (Figure 2-6).

Figure 2-4
Road Segments for Which to Calculate Congestion



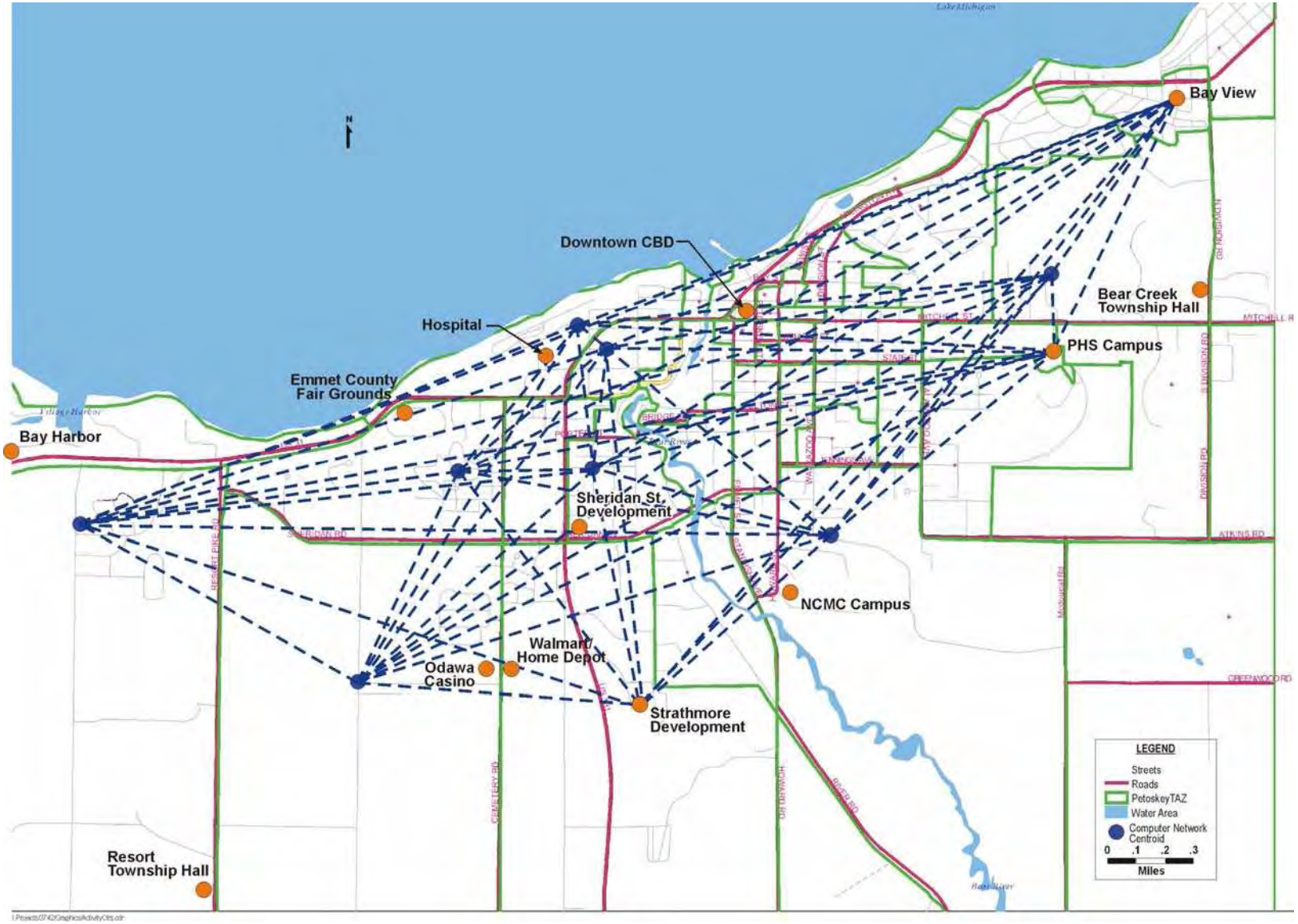
Source: The Corradino Group of Michigan, Inc.

Figure 2-5
Road Segments for Which to Calculate Crashes



Source: The Corradino Group of Michigan, Inc.

Figure 2-6
Key Locations Between Which to Measure Travel Time Changes



Source: The Corradino Group of Michigan, Inc.

Minimize Purchase of Private Property to Build Transportation Facilities – Concepts for modifying the transportation system to develop the plan could involve private property acquisition. The extent to which this could occur was measured on key roadways proposed for improvement.

Protect Open Space/Parks – This issue is very much like that of use of private property for transportation facilities. The acres of public parkland/open space possibly needed to develop various transportation elements tested for inclusion in the plan was measured for key roadways proposed for improvement.

Preserve Agricultural Land – Each proposed transportation project was evaluated relative to its use of agriculturally-zoned land for key roadways proposed for improvement.

Avoid Wetland Impacts – Wetlands are critical components of the natural habitat and are also costly if a project impacts them and they must be replaced. Use of wetlands was measured for key roadways proposed for improvement.

Maintain Good Air Quality – To assess the relative performance of alternative transportation elements tested to develop the transportation plan, concentrations of carbon monoxide (a gas that can cause health impacts) were calculated at 13 locations along the roadway system where people congregate (Figure 2-7).

Control Noise at Sensitive Locations – Homes, schools, and hospitals are among land uses considered sensitive to noise. The expected change in noise at 13 sensitive locations was measured (Figure 2-7).

2.2.1 Weighting the Evaluation Factors

Figures 2-8 and 2-9 are forms that were used by the Steering Committee and public to weight the factors to guide the evaluation process. The consultant was also involved in weighting these factors.

It is noted that in the Evaluation Factor weighting process, use of the Ranking form (1 to 9) (Figure 2-8) was to guide completion of the Rating form (1 to 100) (Figure 2-9). But the Evaluation Factor weighting of the citizens resulted in 40 percent of the forms having large inconsistencies between the Rank and the Rate scorings of the same individuals. In other words, Ranked factors 1 through 9 did not align with the top-to-bottom Ratings on 40 percent of the forms. Additionally, a number of the Rankings were incorrect. For example, more than one factor was Ranked No. 1. So, to include all the forms of the citizens who participated in the process, only the Ratings (scale 1 to 100) were used. This is the most fair and inclusive way to address this issue and does no harm to the process. The same approach was taken with the Steering Committee members' forms.

Figure 2-7
Key Locations at Which Changes in Noise and Air Quality (Carbon Monoxide) are Calculated

I:Projects/3742/Graphics/EvaluationMap.cdr

Source: The Corradino Group of Michigan, Inc.

Figure 2-8
Ranking of Evaluation Factors

How Important Are These Factors?

We want to know how important you believe the following factors are in developing the Petoskey Area-wide Transportation Study. These factors will be used to help determine which changes should be made to the highway, transit, and non-motorized elements of the transportation system in the Petoskey area.

To provide your opinion, please rank the following factors "1" through "9," with "1" indicating the factor you believe is most important and "9" indicating the factor you believe is least important. Use each number only once. When finished, return your form to a project representative or send it to the e-mail address or fax number listed below.

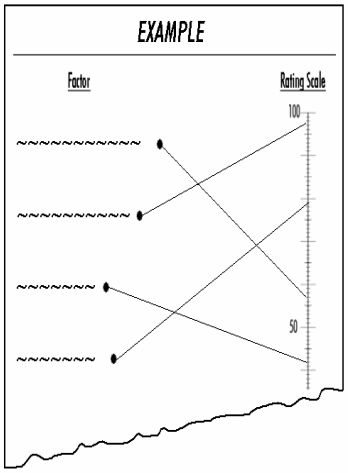
Your opinions will be used to evaluate the projects being considered for the plan. Thank you.

Factor	Rank
Minimize Road Congestion	_____
Maximize Safe Travel	_____
Better Connect Links in the Road Networks	_____
Minimize Purchase of Private Property to Build Transportation Facilities	_____
Protect Open Spaces/Parks	_____
Preserve Agricultural Land	_____
Avoid Wetland Impacts	_____
Maintain Good Air Quality	_____
Control Noise at Sensitive Locations (e.g., homes, schools, hospitals, etc.)	_____

Northwest Michigan Council of Governments
E-mail: jan@northernlakes.net
Fax: 231.582.3213

Figure 2-9
Rating of Evaluation Factors

How Important Are These Factors?



We want to know how important you believe the following factors are in developing the Petoskey Area-wide Transportation Plan. These factors will be used to help determine which changes should be made to the highway, transit, and non-motorized elements of the transportation system in the Petoskey area.

To provide your opinion, please rate the following factors "0" through "100," with the highest rating indicating the factor you believe is most important. To do this, draw a line from the dot (•) following the factor name to the scale to indicate your opinion. An example is shown to the right. When finished, return your form to a project representative or send it to the e-mail address or fax number listed below.

Your opinions will be used to evaluate projects being considered for the plan. Thank you.

Factor

Minimize Road Congestion •

Maximize Safe Travel •

Better Connect Links in the Road Networks •

Minimize Purchase of Private Property to Build Transportation Facilities •

Protect Open Spaces/Parks •

Preserve Agricultural Land •

Avoid Wetland Impacts •

Maintain Good Air Quality •

Control Noise at Sensitive Locations (e.g., homes, schools, hospitals, etc.) •

Rating Scale

Northwest Michigan Council of Governments
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2.2.2 Weight Results

Three groups weighted the evaluation factors – 32 members of the community attending the June 2007 public meetings; 11 members of the Steering Committee and ten members of the consulting team (Table 2-2). Overall, the results are very similar. For example, each group scored "Minimize Road Congestion," "Maximize Safe Travel" and "Better Connect Links in Roadway Network" among the three most important factors (see green boxes □ on Table 2-2). At the lower part of the scale, the citizens rated "Minimize Purchase of Private Property" eighth, while the consultant and Steering Committee members weighted it seventh and eighth, respectively (see red circles ○ on Table 2-2). The latter groups each weighted "Controlling Noise at Sensitive Locations" lowest; the citizens weighted it seventh (see red triangles △ on Table 2-2).

Again, the results reflect similar perspectives of each group of these key issues which reflect how a transportation plan can affect quality of life in the study area. It is noted that "Better Connect Links in Roadway Network" scores slightly higher here than it did in the survey results discussed earlier.

Table 2-2
Petoskey Area-wide Transportation Study
Weighting of Evaluation Factors

Factor \ Weight	Citizens		Steering Committee		Consultant	
	Weight	Rank	Weight	Rank	Weight	Rank
Minimize Road Congestion	14.4	2	14.6	2	14.1%	1
Maximize Safe Travel	14.8	1	14.7	1	12.8%	3
Better Connect Links on Roadway Network	13.0	3	14.5	3	13.8%	2
Minimize Purchase of Private Property	7.9	9	8.3	8	9.8%	7
Protect Open Spaces/Parks	11.8	4	11.3	4	12.1%	4
Preserve Agricultural Land	8.6	8	10.1	6	10.0%	6
Avoid Wetlands Impacts	10.4	5	10.6	5	10.9%	5
Maintain Good Air Quality	9.6	6	8.7	7	8.3%	8
Control Noise at Sensitive Locations	9.5	7	7.0	9	8.2%	9

Source: The Corradino Group of Michigan, Inc.

3. Roadway Alternatives

The plan resulting from this study is multimodal, i.e., it has recommendations on a combination of modes – transit, pedestrian/bicycle and roadway. The major mode of travel in the study area is auto. Therefore, proposed roadway improvements are a key, but not the sole, element. Transit and pedestrian/bicycle proposals are also included. However, it is noted here that analysis of those latter two modes indicates they will remove some, but not enough, traffic from Petoskey roadways to significantly reduce congestion. That doesn't imply they are not worthy parts of the overall plan. But, it does say transit and non-motorized modes of travel will not eliminate the need to consider roadway improvements in the area.

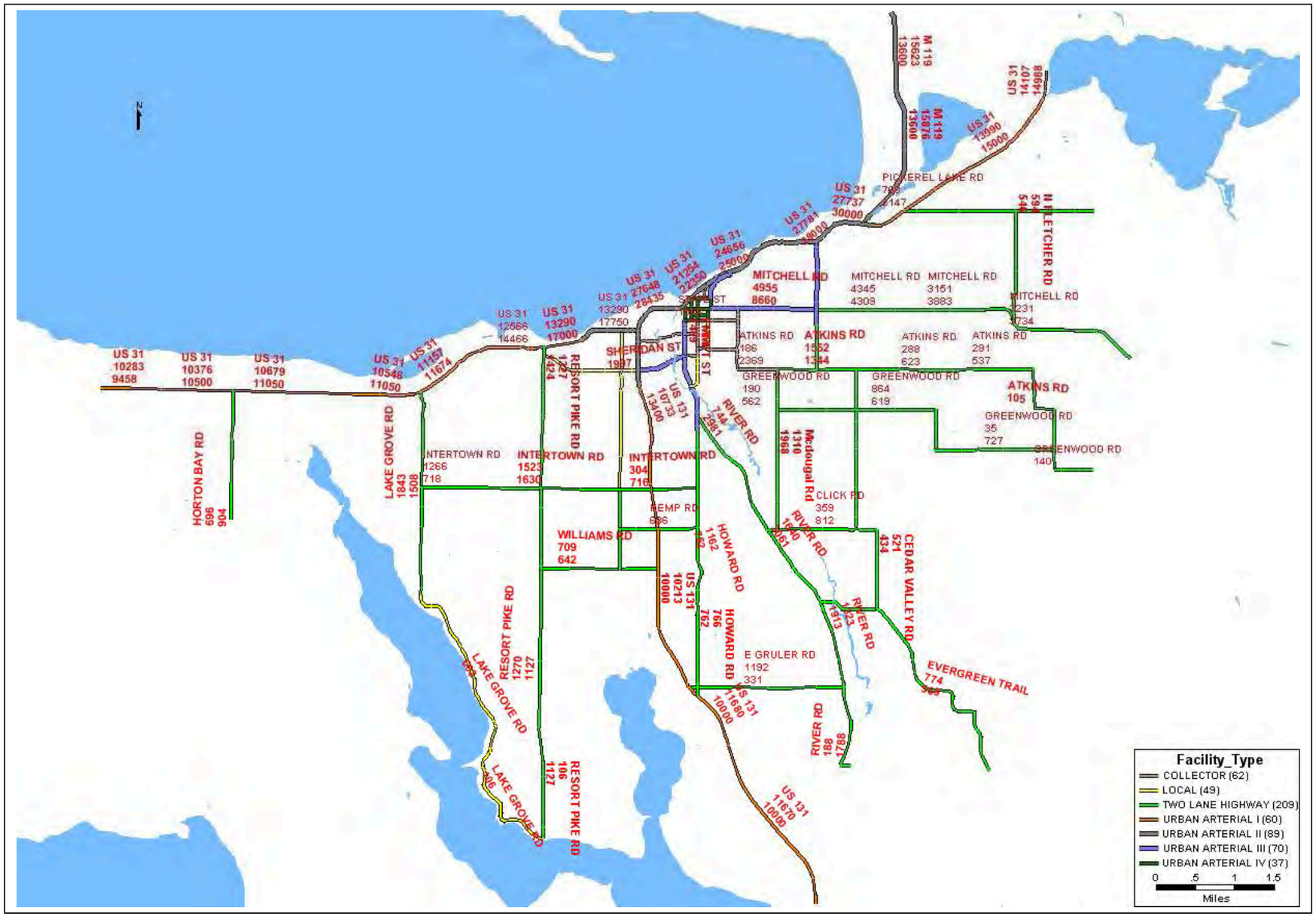
3.1 Travel Demand Model – Summary

For the Petoskey Area-wide Transportation Study (PATS), the MDOT model for the area was updated. The details of that process are reported in Technical Memorandum No. 2, which can be found on the project Web site, www.petoskeytransportationstudy.com. A summary is provided here. The two most significant aspects of the updated model are that it is based on seasonal traffic (weekend day in August) and that it accounts for congestion on the roads.

To determine the degree of congestion on the Petoskey area road system, an assignment was made of 2000 summer traffic to the existing roadway network (Figure 3-1). As can be seen, significant congestion is experienced on U.S. 31, U.S. 131 and portions of M-119. If 2030 summer traffic were placed on the existing road network, even more congestion would be evident, without improvements. As a matter of fact, the traffic congestion reflected on Figure 3-2 would require, if no improvements were made, one additional lane in each direction (for the most part) on U.S. 31 until near Petoskey where two additional lanes in each direction would be needed (Figure 3-3). From downtown to the M-119 split, one additional lane in each direction would be needed. Two additional lanes in each direction would be needed from the split north on U.S. 31 out of the study area to handle 2030 summer traffic. An additional lane in each direction would also be needed on M-119 north from the split with U.S. 31.

This study, however, is not about fixing state roads but local roads. Previous state-sponsored studies on improving U.S. 31 congestion by developing a beltway/bypass, from a point west of Lake Grove Road at U.S. 31 to a point east of Manvel Road, resulted in a decision that rejected a bypass solution (Figure 3-4). This study's objective was, therefore, to determine if any local road segments can be improved to ease area congestion, the "barometer" being what will happen on Petoskey's "Main Street," U.S. 31. This recognizes U.S. 31 will likely experience some congestion no matter what local improvements are made. In conducting this analysis it must be remembered that more than 70 percent of the traffic is considered local, not through trips.

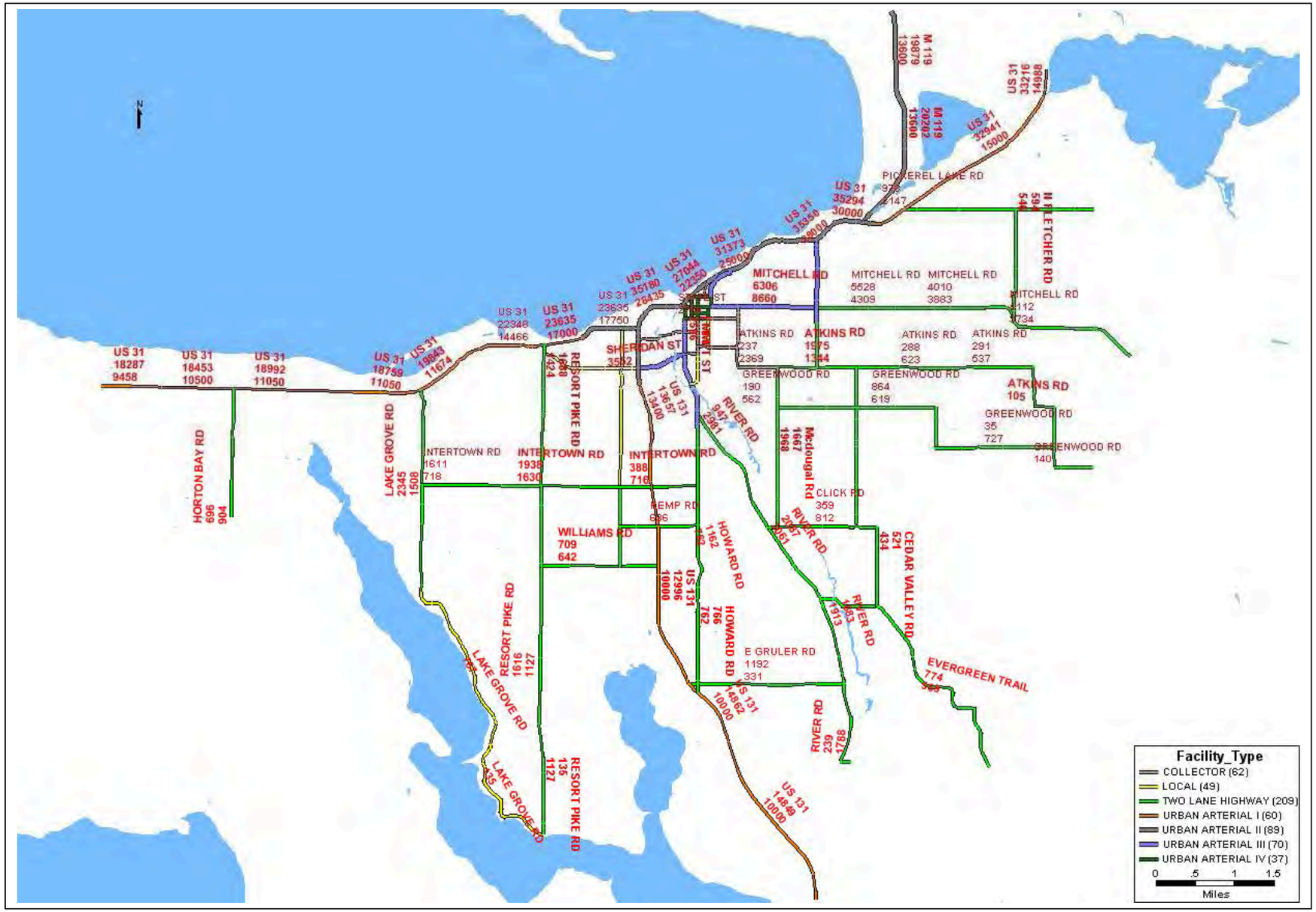
Figure 3-1
2000 Annual Average Daily Traffic Compared to Modeled Values
(Labels: Road Name/Model Volume/AADT)



Source: The Corradino Group of Michigan, Inc.

Figure 3-1
2000 Annual Average Daily Traffic Compared to Modeled Values
(Labels: Road Name/Model Volume/AADT)

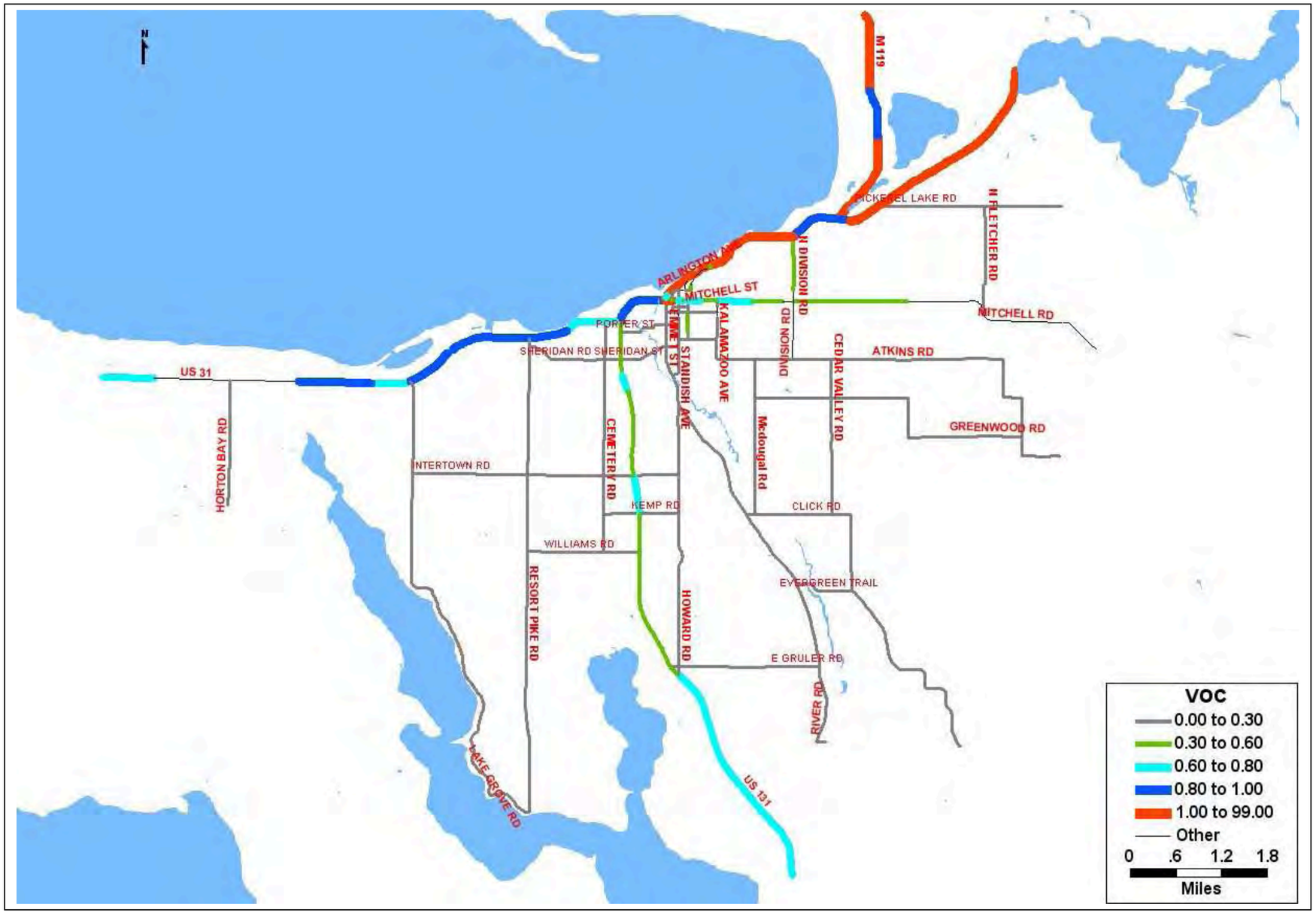
Figure 3-2
Base Year (2000) Summer Daily Volumes Compared to AADT
(Labels: Road Name/AADT/Summer Daily Volume)



Source: The Corradino Group of Michigan, Inc.

Figure 3-2
Base Year (2000) Summer Daily Volumes Compared to AADT
(Labels: Road Name/AADT/Summer Daily Volume)

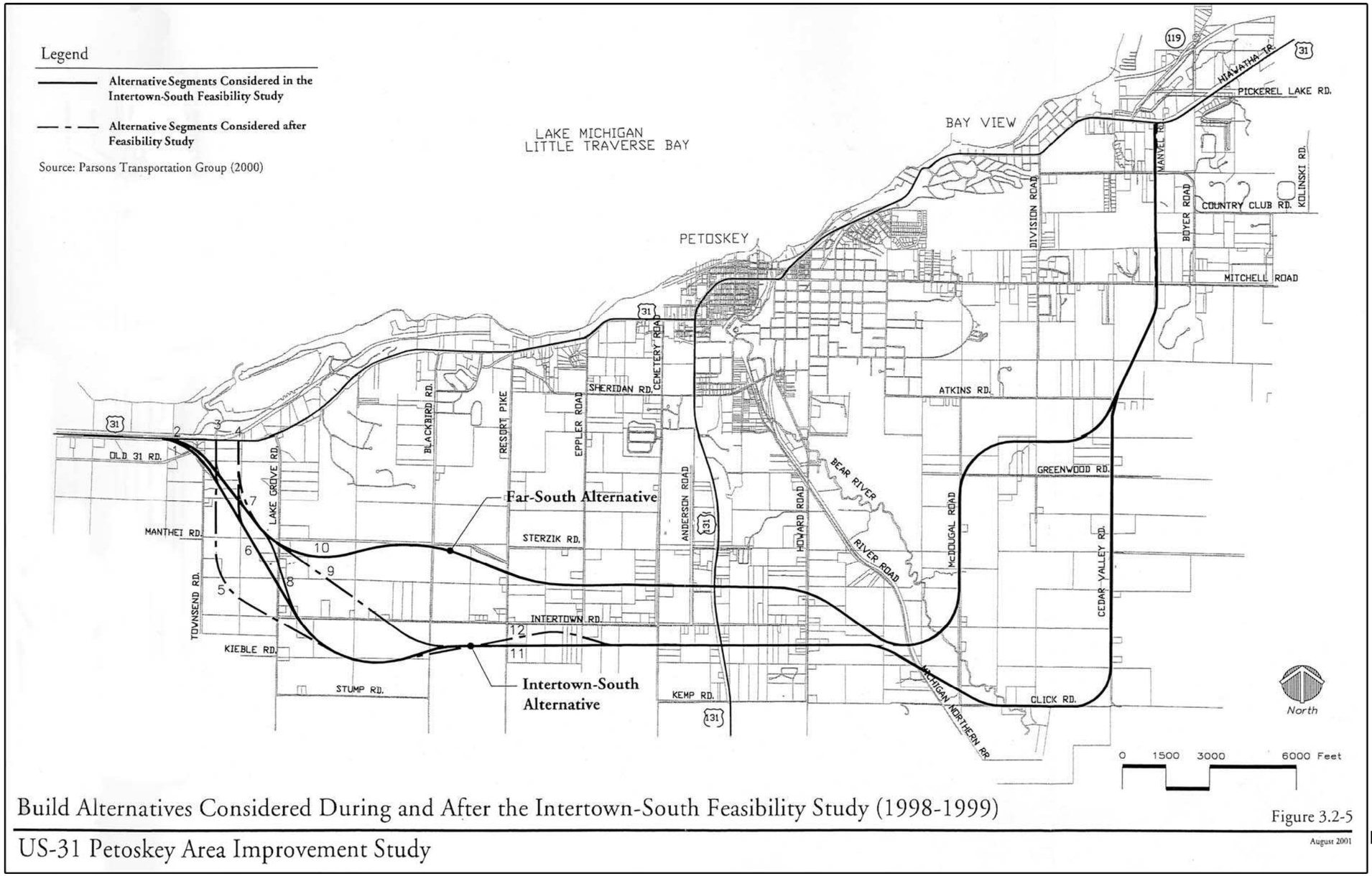
Figure 3-3
Petoskey Volume-over-Capacity (V/C) Map for Summer Weekend Peak Hour – Year 2000



Source: The Corradino Group of Michigan, Inc.

Figure 3-3
Petoskey Volume-over-Capacity (V/C) Map for Summer Weekend Peak Hour – Year 2000

Figure 3-4
Build Alternatives Considered During and After the Intertown-South Feasibility Study



Source: Parsons Transportation Group (2000)

Figure 3-4
Build Alternatives Considered During and After the Intertown-South Feasibility Study

3.2 Testing Improvements

The full list of road improvements developed through public involvement is shown in Table 3-1. After early screening, the list was reduced to those projects in green; the reason for de-listing is cited in red on Table 3-1.

Table 3-1
Roadway Improvements Developed through Public Involvement

Project ID	Project Description	Action	Comment
R1	Add turn lane on U.S. 31 from Murray Rd. to Eppler Rd.	Project remains	
R2	Extend Atkins Rd. west to the NCMC parking lot	Project remains	
R3	Extend Greenwood Rd. to the west to connect to NCMC	Project eliminated	Project would impact wetlands, existing recreational fields, and has topographical constraints
R4	Extend McDougal Rd. to Northmen Dr.	Project remains	
R5	Improve access from Division Rd. to U.S. 31	Project remains	
R6	Intertown Rd./U.S. 131 intersection widening	Project remains	
R7	Extend Intertown Rd. east from Howard Rd. to McDougal Rd.	Project eliminated	Not necessary as several other projects fill this function
R8	Extend Northmen to S. Division Rd.	Project eliminated	Neighborhood intrusion, wetlands, sight distance
R9	Extend Greenwood Rd. west to U.S. 131	Project eliminated	Topographical constraints
R10	Connect Howard St. to Howard Rd.	Project eliminated	Topographical constraints
R11	Four lanes on U.S. 31 from east of Manvel Rd. to M-119	Project remains	
R12	Extension of Lears Rd. to McDougal Rd.	Project remains	
R13	Extension of McDougal Rd. north through school campus to Mitchell St.	Project eliminated	Not necessary. Purpose achieved by Project R4.
R14	Extension of Manville Rd. to Mitchell Rd.	Project remains	
R15	Extension of Surrey Rd. to Mitchell Rd.	Project eliminated	Community intrusion, wetlands
R16	Four lane on U.S. 31 from Bay View to Oden (north of Bear Creek Twp.)	Project eliminated	The study is not to address trunkline improvements
R17	Extend Intertown Rd. east from Howard Rd. to River Rd.	Project remains	
R18	Pickerel Lake and U.S. 31 intersection improved safety	Project remains	

Table 3-1 (continued)
Roadway Improvements Developed through Public Involvement

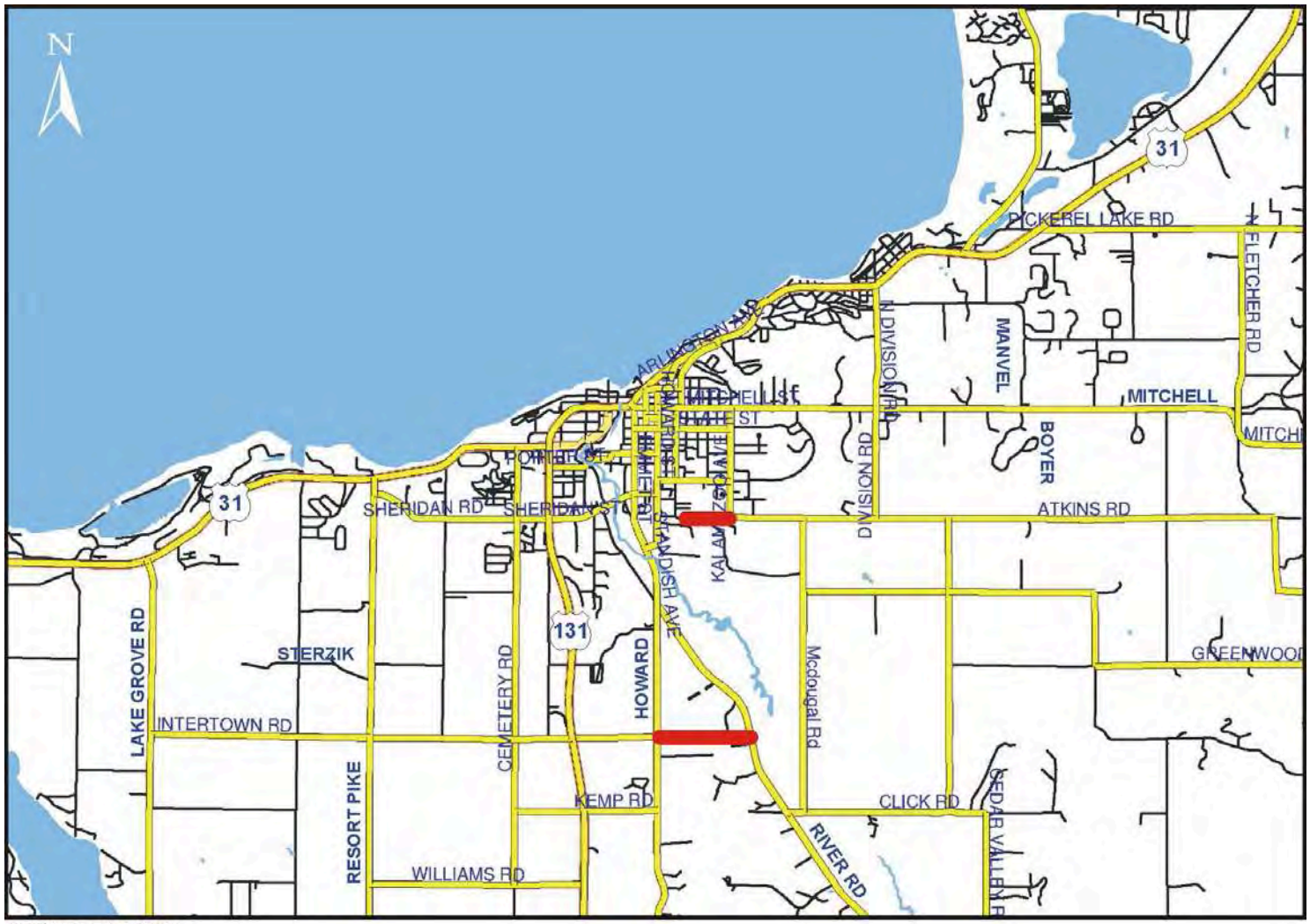
Project ID	Project Description	Action	Comment
R19	Access management along U.S. 31 in Bay View area	Project remains	
R20	Widen Intertown Rd. from Lake Grove Rd. to U.S. 131	Project remains	
R21	Extend Click Rd. to Howard	Project eliminated	Wetlands, topographical constraints
R22	Extend Hoag Rd. to Howard	Project eliminated	Wetlands, topographical constraints
R23	Boulevard on U.S. 131 from Strathmore to W. Sheridan Rd.	Project eliminated	The study is not to address trunkline improvements
R24	Close Country Club Rd.	Project remains	
R25	Truck Route from M-119 south and west to River Rd.	Project remains	
R26	Add right-turn-only lane on U.S. 31 northbound to Manville Rd.	Project remains	
R27	Realign Madison St./U.S. 31 intersection	Project remains	
R28	Jackson/Greenwood realignment at U.S. 31	Project remains	
R29	Truck route on Division Rd. to Atkins to McDougal to River Rd.	Project remains	
R30	Create new non-stop route from 31 N to southbound U.S. 131	Project eliminated	Would require unrealistic amount of new road construction…also quasi-bypass
R31	Right-turn-only lane on U.S. 31 northbound to Lake St.	Project remains	
R32	City/County connector	Project remains	
R33	Mitchell/Division Intersection improvements	Project added	Seen as important intersection which will handle heavy mix of traffic

Source: The Corradino Group of Michigan, Inc.

3.2.1 Traffic Measures (Congestion, Crashes, Connectivity)

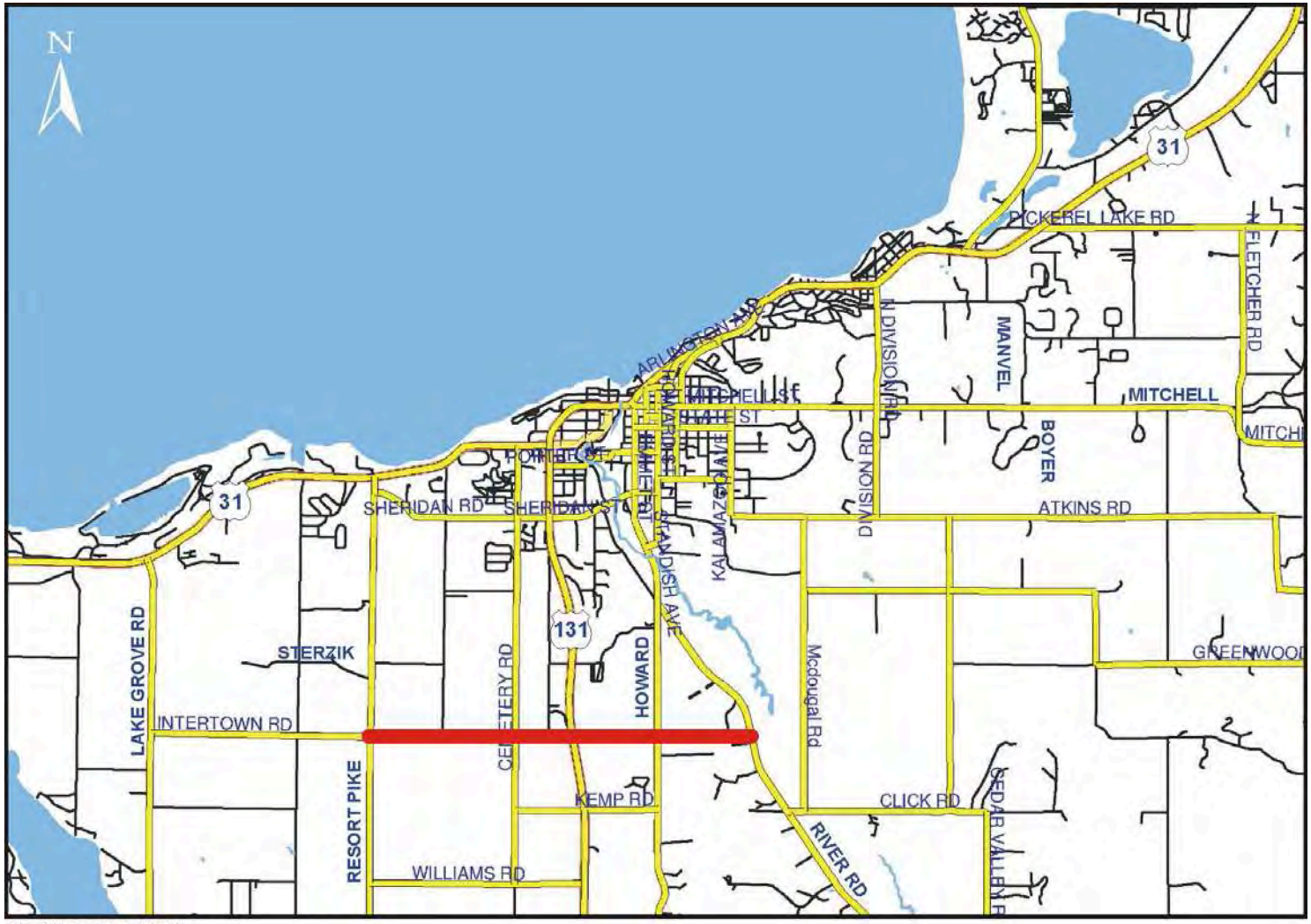
With the projects that remained on the list, the consultant then created a series of alternatives to first determine the extent to which limited east-west improvements could make a difference in congestion – Alternatives 1, 2 and 3, shown on Figures 3-5, 3-6 and 3-7. Then Alternative 4, shown on Figure 3-8, was analyzed to determine if a limited north-south improvement would affect congestion. A test was also conducted to assess if a combination of limited east-west/north-south road improvements could affect congestion (Alternative 5, shown on Figure 3-9).

Figure 3-5
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements (▬) – Alternative 1



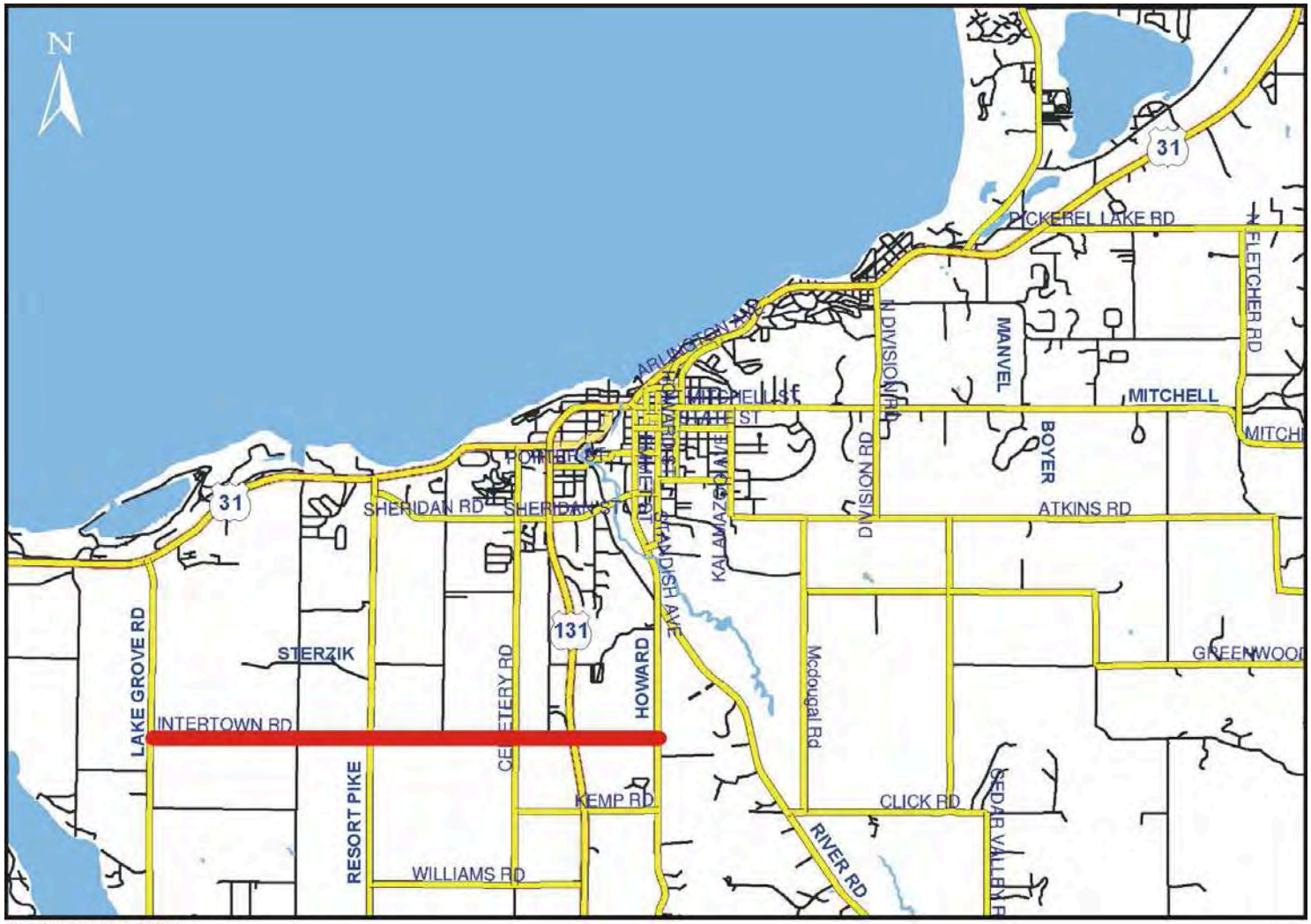
Source: The Corradino Group of Michigan, Inc.

Figure 3-6
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements ( ) – Alternative 2



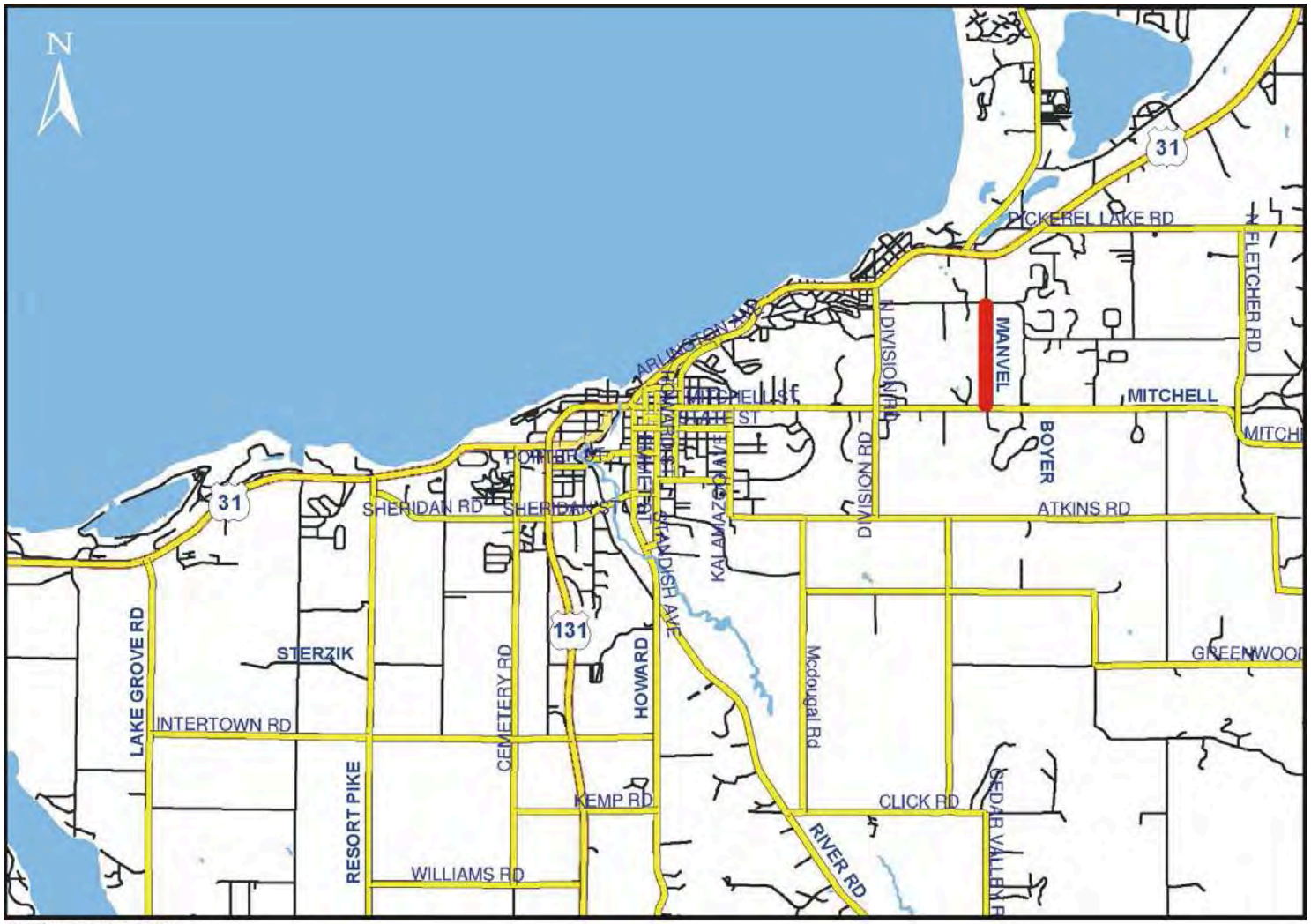
Source: The Corradino Group of Michigan, Inc.

Figure 3-7
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements ( ) – Alternative 3



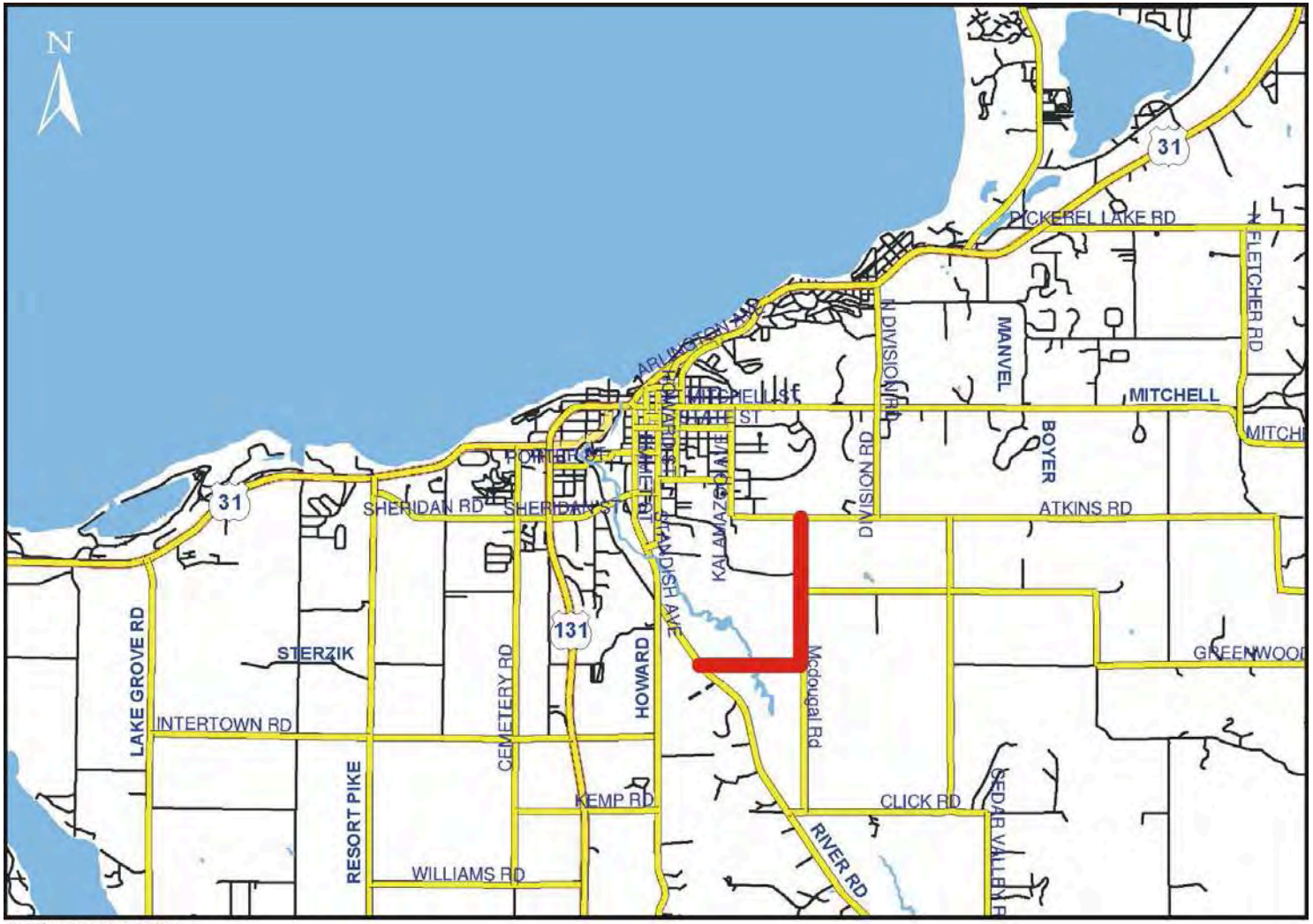
Source: The Corradino Group of Michigan, Inc.

Figure 3-8
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements ( ) – Alternative 4



Source: The Corradino Group of Michigan, Inc.

Figure 3-9
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements ( ) – Alternative 5



Source: The Corradino Group of Michigan, Inc.

While the complete congestion results on all roads in the network are provided in Technical Report No. 4, "Preliminary Evaluation of Transportation Alternatives," the measure used here to determine the potential to relieve congestion – the second-highest rated evaluation factor among citizens and Steering Committee participants and the highest-rated evaluation factor of the consultant (refer to Table 2-2) – is the volume-to-capacity index on segments of U.S. 31 (Figure 3-10 and Table 3-2). The data can be interpreted as follows: a V/C value of greater than one indicates roads are congested; values of 1.20 to 1.30 represent gridlock during the peak hour; values greater than 1.3 mean gridlock will spread from the peak hours into other portions of the day.

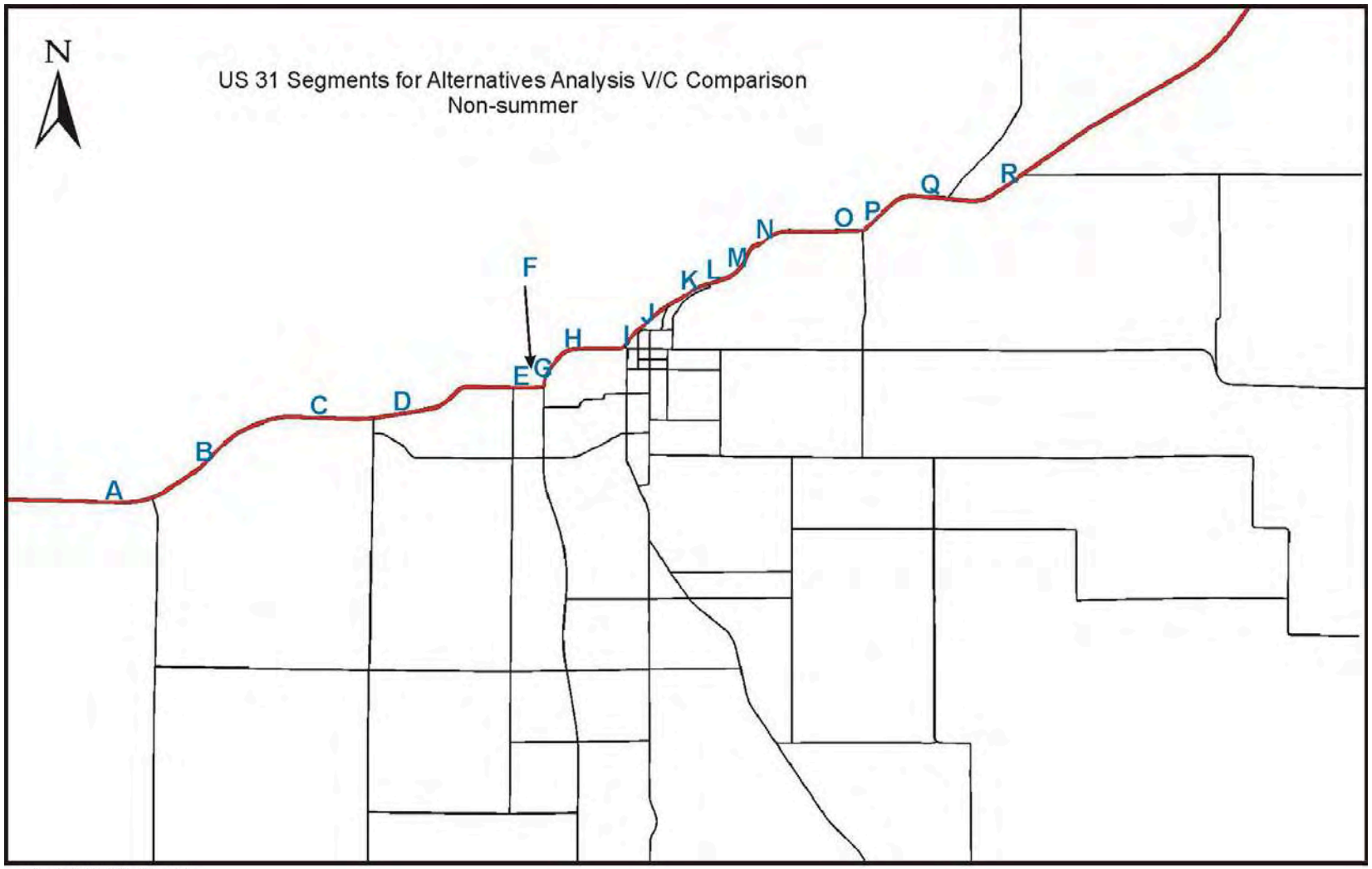
Table 3-2
Petoskey Area-wide Transportation Study
Measurements of U.S. 31 Congestion (V/C Ratio)
Alternatives 1 through 5

Segment	Alternatives					
	No-Build	1	2	3	4	5
A	1.71	1.71	1.71	1.71	1.71	1.71
B	1.82	1.81	1.79	1.81	1.82	1.80
C	1.98	1.97	1.96	1.97	1.98	1.97
D	2.06	2.04	2.02	2.04	2.06	2.04
E	1.33	1.32	1.30	1.32	1.33	1.31
F	1.39	1.39	1.37	1.39	1.40	1.38
G	1.50	1.50	1.49	1.49	1.50	1.47
H	1.70	1.69	1.68	1.70	1.70	1.67
I	1.70	1.69	1.68	1.70	1.70	1.67
J	1.70	1.69	1.68	1.70	1.70	1.68
K	2.66	2.66	2.65	2.65	2.65	2.63
L	2.89	2.89	2.88	2.88	2.89	2.86
M	3.01	2.96	2.98	2.98	3.01	2.97
N	3.01	2.95	2.98	2.98	3.01	2.96
O	2.75	2.71	2.73	2.73	2.75	2.71
P	1.65	1.65	1.65	1.65	1.61	1.65
Q	1.64	1.64	1.65	1.65	1.61	1.65

Source: The Corradino Group of Michigan, Inc.

As can be seen, the incremental improvements of Alternatives 1 through 5 have no effect in relieving congestion on U.S. 31 – the Main Street of the Petoskey area. So, Alternatives 1 though 5 were not considered practical alternatives to address congestion.

Figure 3-10
Petoskey Area-wide Transportation Study
Segments of U.S. 31 for Measurement of Congestion



Source: The Corradino Group of Michigan, Inc.

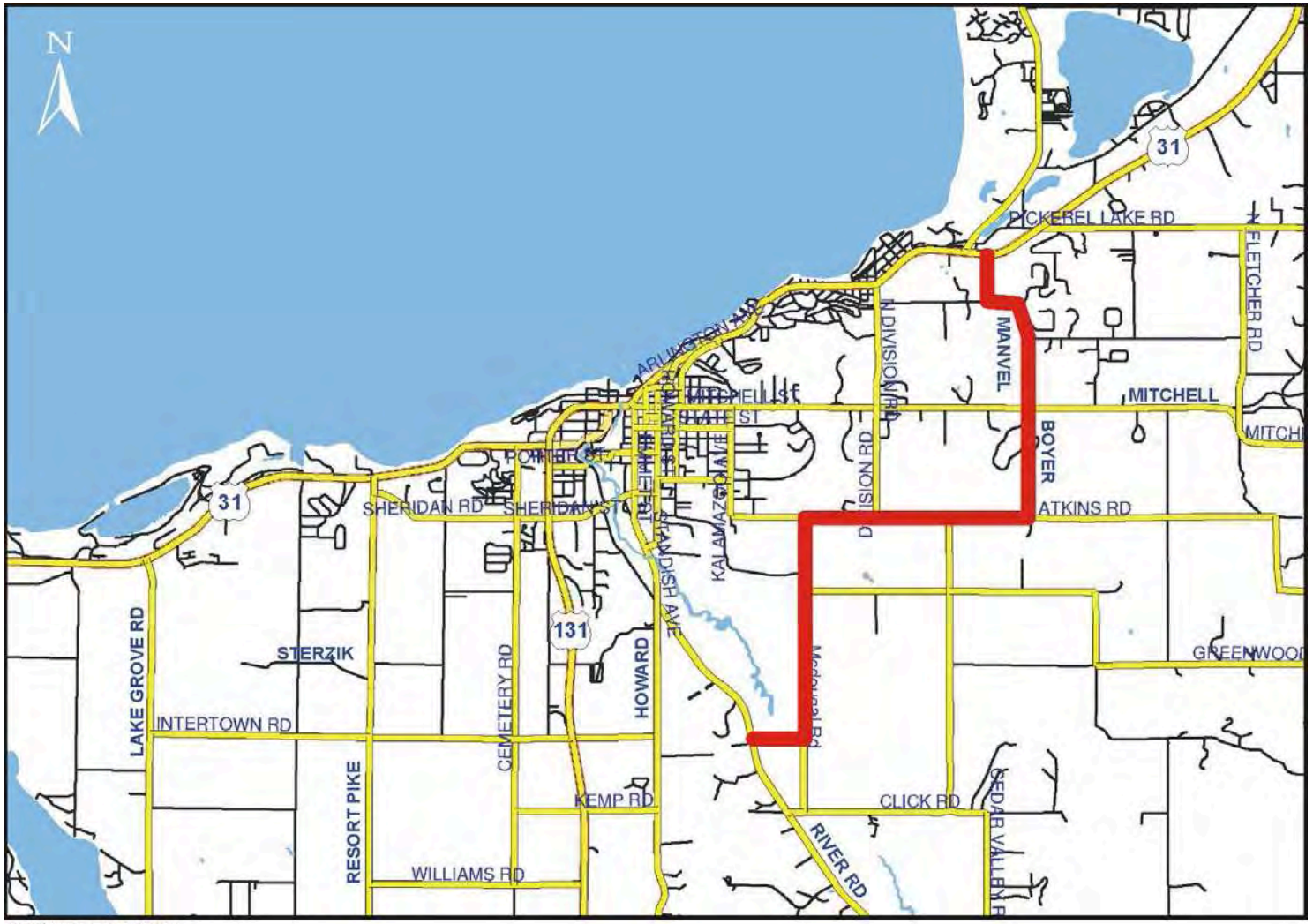
Alternatives of more-extensive lengths of roadway segments were examined. Alternative 6 includes a combination of east-west/north-south connections by way of Manvel/Boyer/Atkins/McDougal and Intertown, purposefully stopping at River Road (Figure 3-11). Alternative 7 extends Alternative 6 via Intertown Road past River Road to U.S. 131 (Figure 3-12). In reviewing the data on Table 3-3 it can be seen these more extensive routes, combining east-west and north-south segments, have a more significant effect on relieving congestion on U.S. 31 than the first five alternatives. And, it is also clear that extending the Intertown Road connection beyond River Road to U.S. 131 (Alternative 7) has a more positive effect on roadway congestion than Alternative 6.

Table 3-3
Petoskey Area-wide Transportation Study
Measurements of U.S. 31 Congestion (V/C Ratio)
Alternatives 1 though 6

Segment	Alternative							
	No-Build	1	2	3	4	5	6	7
A	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
B	1.82	1.81	1.79	1.81	1.82	1.80	1.82	1.78
C	1.98	1.97	1.96	1.97	1.98	1.97	1.98	1.95
D	2.06	2.04	2.02	2.04	2.06	2.04	2.05	1.98
E	1.33	1.32	1.30	1.32	1.33	1.31	1.32	1.28
F	1.39	1.39	1.37	1.39	1.40	1.38	1.39	1.34
G	1.50	1.50	1.49	1.49	1.50	1.47	1.39	1.16
H	1.70	1.69	1.68	1.70	1.70	1.67	1.59	1.32
I	1.70	1.69	1.68	1.70	1.70	1.67	1.59	1.32
J	1.70	1.69	1.68	1.70	1.70	1.68	1.59	1.32
K	2.66	2.66	2.65	2.65	2.65	2.63	2.44	1.98
L	2.89	2.89	2.88	2.88	2.89	2.86	2.67	2.21
M	3.01	2.96	2.98	2.98	3.01	2.97	2.75	2.26
N	3.01	2.95	2.98	2.98	3.01	2.96	2.74	2.25
O	2.75	2.71	2.73	2.73	2.75	2.71	2.51	1.63
P	1.65	1.65	1.65	1.65	1.61	1.65	1.36	1.12
Q	1.64	1.64	1.65	1.65	1.61	1.65	1.36	1.12

It was then determined to test an alternative to the Manvel/Boyer connector. So, Division Road was included in Alternative 8 (Figure 3-13). Alternative 7 (using Manvel/Boyer) performs marginally better than Alternative 8 (using Division/Lears) in relieving congestion (Table 3-4).

Figure 3-11
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements (▬) – Alternative 6



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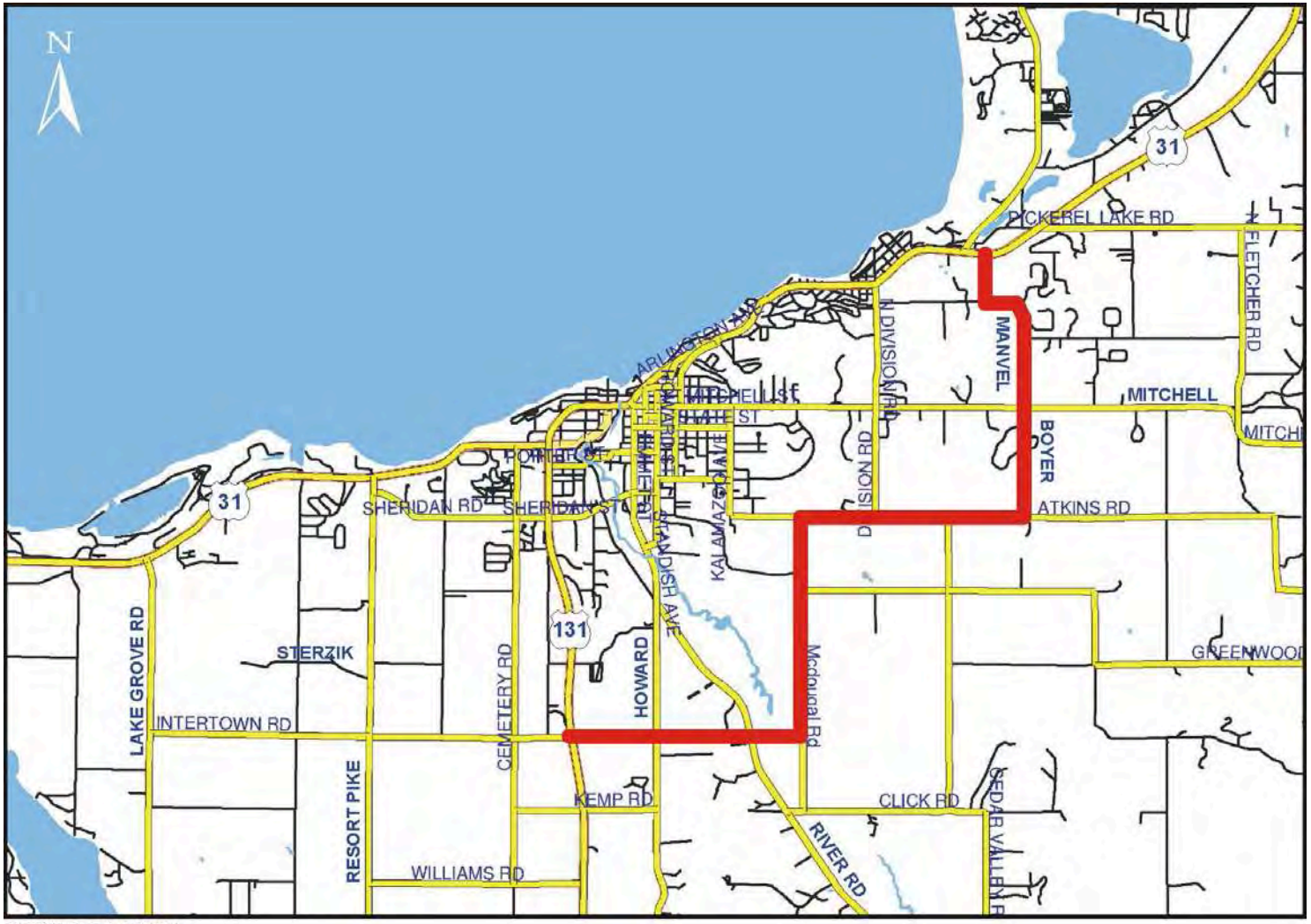
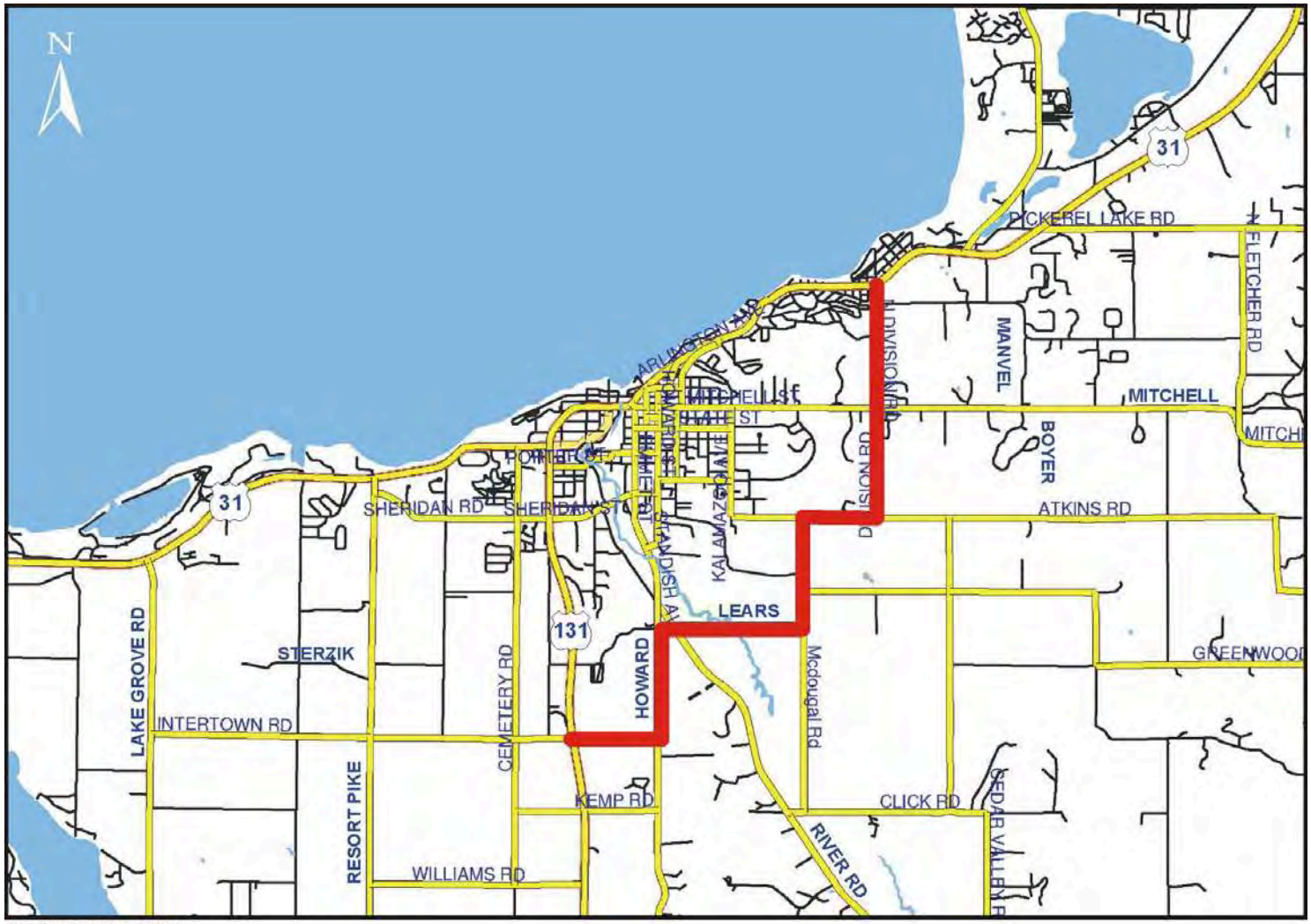
Source: The Corradino Group of Michigan, Inc.

Figure 3-12
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements ( ) – Alternative 7



Source: The Corradino Group of Michigan, Inc.

Figure 3-13
Petoskey Area-wide Transportation Study
Proposed Roadway Improvements (▬) – Alternative 8



Source: The Corradino Group of Michigan, Inc.

Table 3-4
Petoskey Area-wide Transportation Study
Measurements of U.S. 31 Congestion (V/C Ratio)
Alternatives 1 through 8

Segment	Alternative								
	No-Build	1	2	3	4	5	6	7	8
A	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
B	1.82	1.81	1.79	1.81	1.82	1.80	1.82	1.78	1.80
C	1.98	1.97	1.96	1.97	1.98	1.97	1.98	1.95	1.96
D	2.06	2.04	2.02	2.04	2.06	2.04	2.05	1.98	2.03
E	1.33	1.32	1.30	1.32	1.33	1.31	1.32	1.28	1.31
F	1.39	1.39	1.37	1.39	1.40	1.38	1.39	1.34	1.38
G	1.50	1.50	1.49	1.49	1.50	1.47	1.39	1.16	1.18
H	1.70	1.69	1.68	1.70	1.70	1.67	1.59	1.32	1.34
I	1.70	1.69	1.68	1.70	1.70	1.67	1.59	1.32	1.34
J	1.70	1.69	1.68	1.70	1.70	1.68	1.59	1.32	1.34
K	2.66	2.66	2.65	2.65	2.65	2.63	2.44	1.98	2.02
L	2.89	2.89	2.88	2.88	2.89	2.86	2.67	2.21	2.26
M	3.01	2.96	2.98	2.98	3.01	2.97	2.75	2.26	2.36
N	3.01	2.95	2.98	2.98	3.01	2.96	2.74	2.25	2.35
O	2.75	2.71	2.73	2.73	2.75	2.71	2.51	1.63	2.16
P	1.65	1.65	1.65	1.65	1.61	1.65	1.36	1.12	1.65
Q	1.64	1.64	1.65	1.65	1.61	1.65	1.36	1.12	1.65

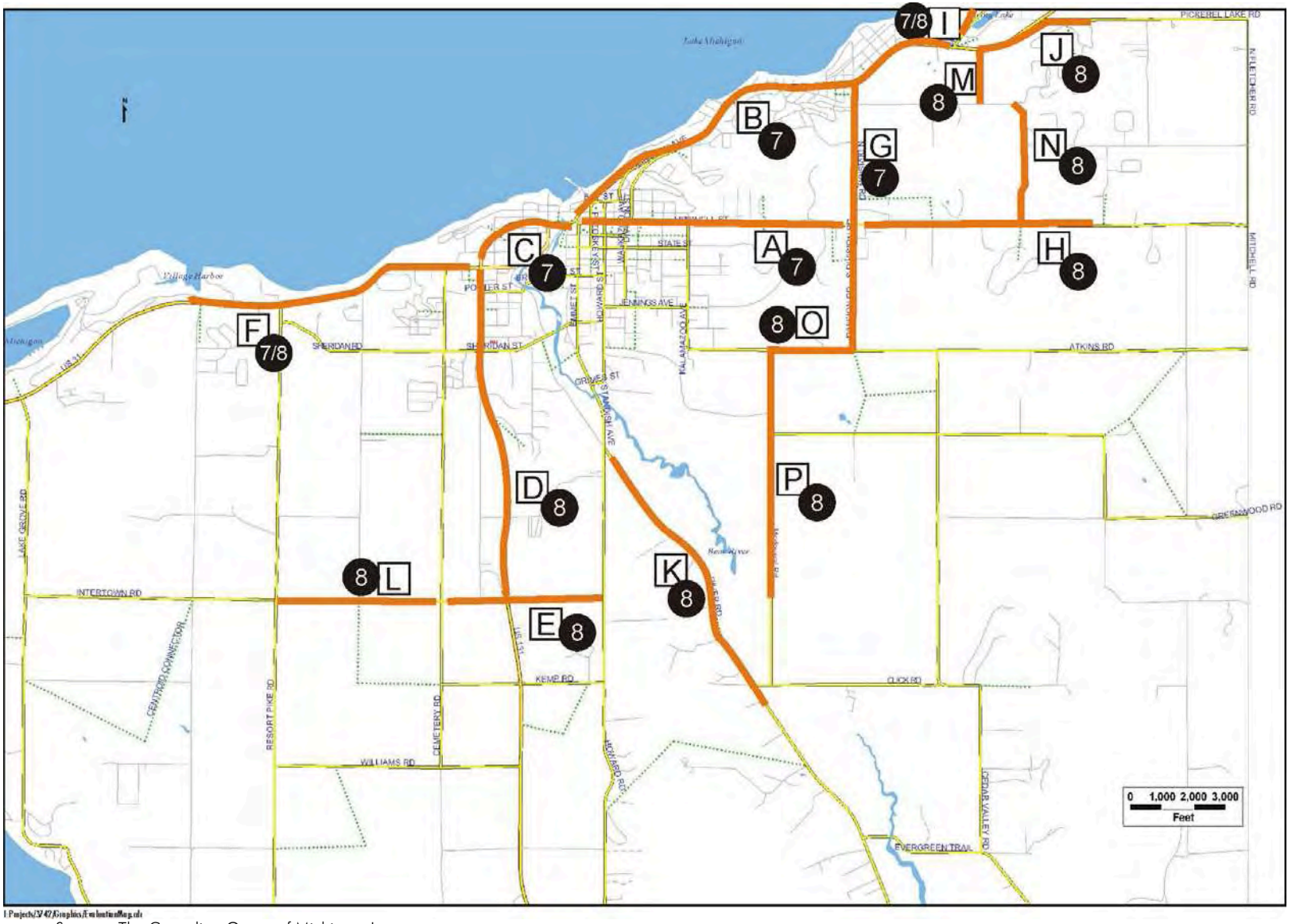
The expected crash experience on U.S. 31, and other key roadways shown on Figure 3-14 and Table 3-5, favors Alternative 8 (using Division/Lears) over Alternative 7 (using Manvel/Boyer/Intertown) as it is expected to be associated with fewer crashes on 10 of 14 roadway segments on which crashes are forecast to be different between alternatives.

Table 3-5
Petoskey Area-wide Transportation Study
Forecast of Crashes along Key Roadway Segments

Segment	Average Crashes Per Year Per Mile in 2030 No Build	Average Crashes Per Year Per Mile with Alt. 7 2030	Average Crashes Per Year Per Mile with Alt. 8 2030
A	10.3	7.8	9.4
B	81.4	60.7	62.0
C	182.9	141.2	144.2
D	24.0	26.1	25.8
E	0.3	5.4	4.2
F	52.4	52.4	52.4
G	19.7	7.3	51.0
H	10.1	12.3	10.1
I	32.9	32.9	32.9
J	56.3	58.8	58.4
K	7.5	4.0	3.7
L	3.0	3.8	3.4
M	0.3	7.1	0.3
N	0.4	8.0	0.4
O	3.4	23.4	21.6
P	5.8	30.5	27.8

Source: The Corradino Group of Michigan, Inc.

Figure 3-14
● Alternatives with Fewer Expected Crashes by Roadway Segment [A]



Source: The Corradino Group of Michigan, Inc.

Data to compare each alternative's ability to better connect key locations in the study area, as depicted in Figure 2-6, are summarized in Tables 3-6A through 3-6D. Alternative 7, the connection that uses Manvel/Boyer/Intertown Roads, versus Division/Lears Roads (Alternative 8), performs marginally better. For example, the travel time between the Resort Township Hall and the Bear Creek Township Hall is forecast to be about 16 minutes for Alternative 7 (Manvel/Boyer/Intertown) and about 17 minutes for Alternative 8 (Division/Lears) in 2030 summertime traffic (see circles O on Table 3-6C). The difference is less in non-summer traffic (see boxes □ on Table 3-6C).

3.2.2 Property Issues

One key difference between Alternatives 7 and 8 is whether traffic is accommodated east or west of the U.S. 31/M-119 split. Alternative 7 would use Manvel/Boyer and Alternative 8, Division. Another difference is the east-west connection between McDougal and U.S. 131. Alternative 7 would use Intertown Road as the east-west connector, while Alternative 8 would use Lears Road.

Data presented on Table 3-7 examines each alternative's impacts on private property, open space/public parks, agricultural land or wetlands. It is noted that each roadway segment in the two alternatives will require two additional lanes to accommodate 2030 traffic. To conduct these property measurements, the widened roads were located off the center line, where appropriate, to avoid impacts. (The reader is referred to Appendices A and B for aerial photos of the proposed paths.)

The results depicted in Table 3-7 and Figure 3-15 indicate Alternative 7 (Manvel/Boyer/Intertown) would impact about 35 acres of residential property and 31 houses while Alternative 8 (Division/Lears) would impact 30 acres of residential property and 35 houses (Figure 3-16). Approximately 21 acres of farmland would be impacted by Alternative 7, along with 17 on-farm buildings, while Alternative 8 would affect seven acres of farmland with 24 on-farm buildings.

Alternative 7 (Manvel/Boyer/Intertown) would impact one business property (0.3 acres) and no open space impacts, but Alternative 8 (Division/Lears) would impact about four acres of business property and one-half acre of open space (golf course).

Alternative 7 would impact 10.5 wetland acres, while Alternative 8 would affect about nine acres.

Overall, Alternative 7 (6.7 miles) would have marginally more property-related impacts than Alternative 8 (5.2 miles). On a per-mile-of-road basis the four alternatives are generally the same.

3.2.3 Noise

The principle that applies in noise analyses is that unless traffic doubles there is not a perceptible change in traffic noise. A perceptible change is a 3 decibel increase (3dBA). It is noted that this principle applies to situations where there is a constant level of background traffic – that is, when there is a vehicle present within hearing at all times. This is the case for the roads examined in Petoskey.

Table 3-6A
Petoskey Area-wide Transportation Study
2030 Travel Times (minutes) to/from Downtown

Place To/From	No-Build		Alternative 7		Alternative 8	
	Summer	Non-Summer	Summer	Non-Summer	Summer	Non-Summer
Resort Twp. Hall	13.12	4.12	11.64	3.79	11.99	3.87
Casino	5.70	4.91	4.84	4.64	4.87	4.65
Strathmore Dev.	3.78	2.76	2.46	2.46	2.62	2.39
Bear Creek Twp Hall	7.52	5.16	5.64	4.28	5.87	4.31

Table 3-6B
Petoskey Area-wide Transportation Study
2030 Travel Times (minutes) to/from Casino

Place To/From	No-Build		Alternative 7		Alternative 8	
	Summer	Non-Summer	Summer	Non-Summer	Summer	Non-Summer
Resort Twp. Hall	12.81	6.23	12.20	6.20	12.51	6.21
Strathmore Dev.	4.77	4.57	4.32	4.50	4.44	4.42
Bear Creek Twp. Hall	9.65	9.20	9.28	8.64	9.44	8.69

Table 3-6C
Petoskey Area-wide Transportation Study
2030 Travel Times (minutes) to/from Resort Township Hall

Place To/From	No-Build		Alternative 7		Alternative 8	
	Summer	Non-Summer	Summer	Non-Summer	Summer	Non-Summer
Casino	12.81	6.23	12.20	6.20	12.51	6.21
Strathmore Dev.	12.19	6.78	11.13	5.14	11.56	5.13
Bear Creek Twp. Hall	17.07	8.90	16.09	7.79	16.56	7.91

Table 3-6D
Petoskey Area-wide Transportation Study
2030 Travel Times (minutes) to/from Bear Creek Township Hall

Place To/From	No-Build		Alternative 7		Alternative 8	
	Summer	Non-Summer	Summer	Non-Summer	Summer	Non-Summer
Resort Twp. Hall	17.07	8.90	16.09	7.79	16.56	7.91
Casino	9.65	9.20	9.28	8.64	9.44	8.69
Strathmore Dev.	7.73	7.09	6.91	6.46	7.19	6.42

Table 3-7
Petoskey Area-wide Transportation Study
Possible Property-related Impacts of Alternatives 7 and 8

Alternative 7

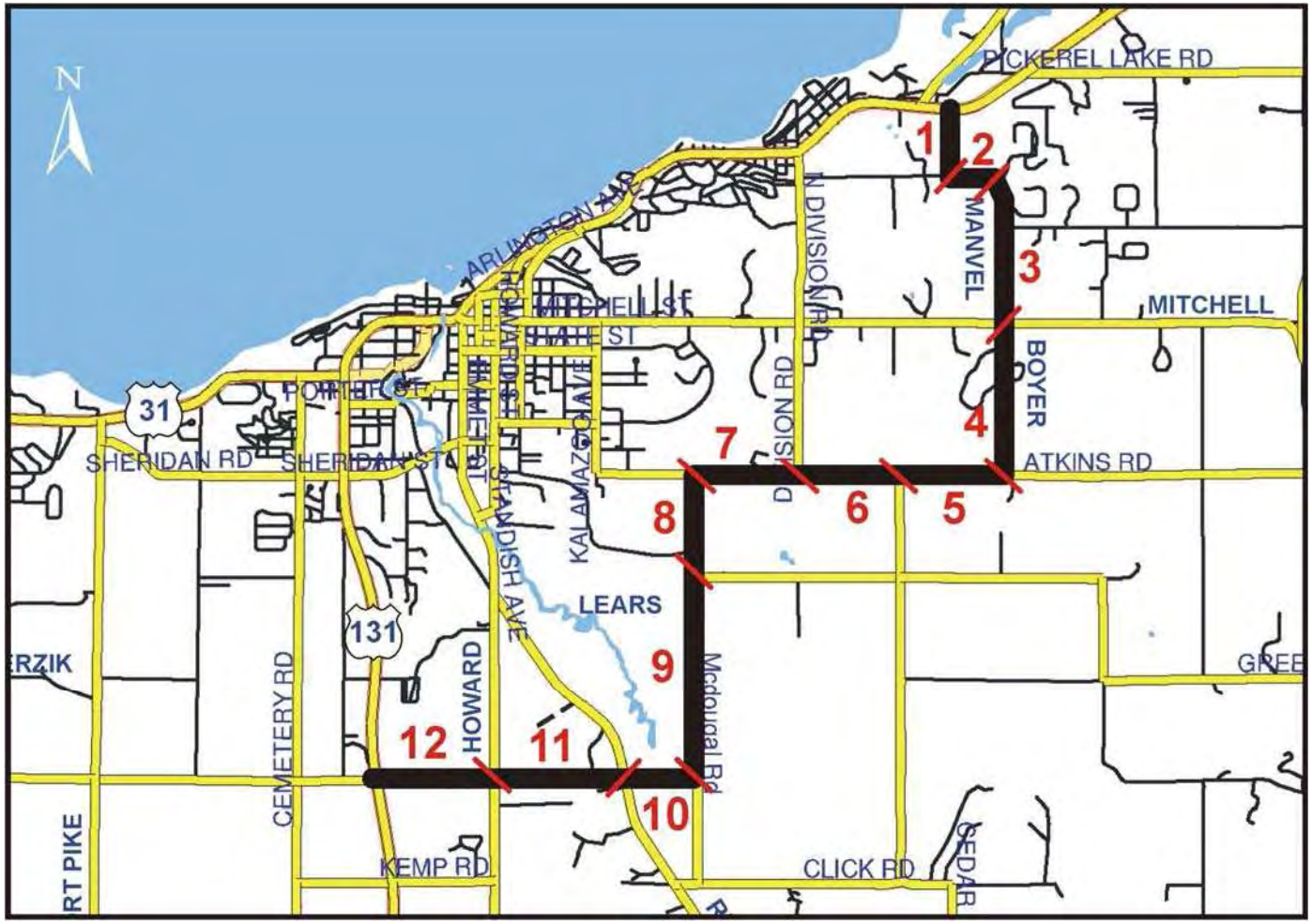
Unit	Road Segments Shown on Figure 3-16												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Residential Property (acres)													
Developed	0.3	0.0	1.3	4.6	1.2	1.0	0.8	0.6	0.4	0.0	0.0	0.0	10.2
Undeveloped	1.8	1.6	3.5	6.1	2.2	2.2	2.5	2.6	2.8	0.0	0.0	0.0	25.3
Total Acres	2.1	1.6	4.8	10.7	3.4	3.2	3.3	3.3	3.2	0.0	0.0	0.0	35.5
No. of Houses	*2*	*0*	*5*	*7*	*4*	*4*	*4*	*3*	*2*	*0*	*0*	*0*	*31*
Farmland (acres)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	4.8	9.2	3.8	21.1
On-farm Buildings	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*3*	*2*	*2*	*10*	*17*
Business/Industrial Acres	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
Open Space/Park Acres	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetlands Acres	1.8	0.7	0.3	0.2	0.0	0.3	0.5	0.0	1.0	2.8	2.9	0.0	10.5

Alternative 8

Unit									Total
	1	2	3	4	5	6	7	8	
Residential Property (acres)									
Developed	1.3	1.6	0.8	0.6	0.2	0.0	0.0	0.0	4.5
Undeveloped	2.9	2.9	2.5	2.6	1.5	12.1	0.7	0.0	25.2
Total Acres	4.2	4.5	3.3	3.2	1.7	12.1	0.7	0.0	29.7
No. of Houses	*14*	*12*	*4*	*3*	*1*	*1*	*0*	*0*	*35*
Farmland (acres)	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.7	7.0
On-farm Buildings	*0*	*0*	*0*	*0*	*0*	*0*	*10*	*14*	*24*
Business/Industrial Acres	1.4	0.5	0.0	0.0	0.0	1.4	0.7	0.0	4.0
Open Space/Park Acres	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Wetlands Acres	0.0	2.1	0.5	0.0	0.0	6.6	0.0	0.0	9.2

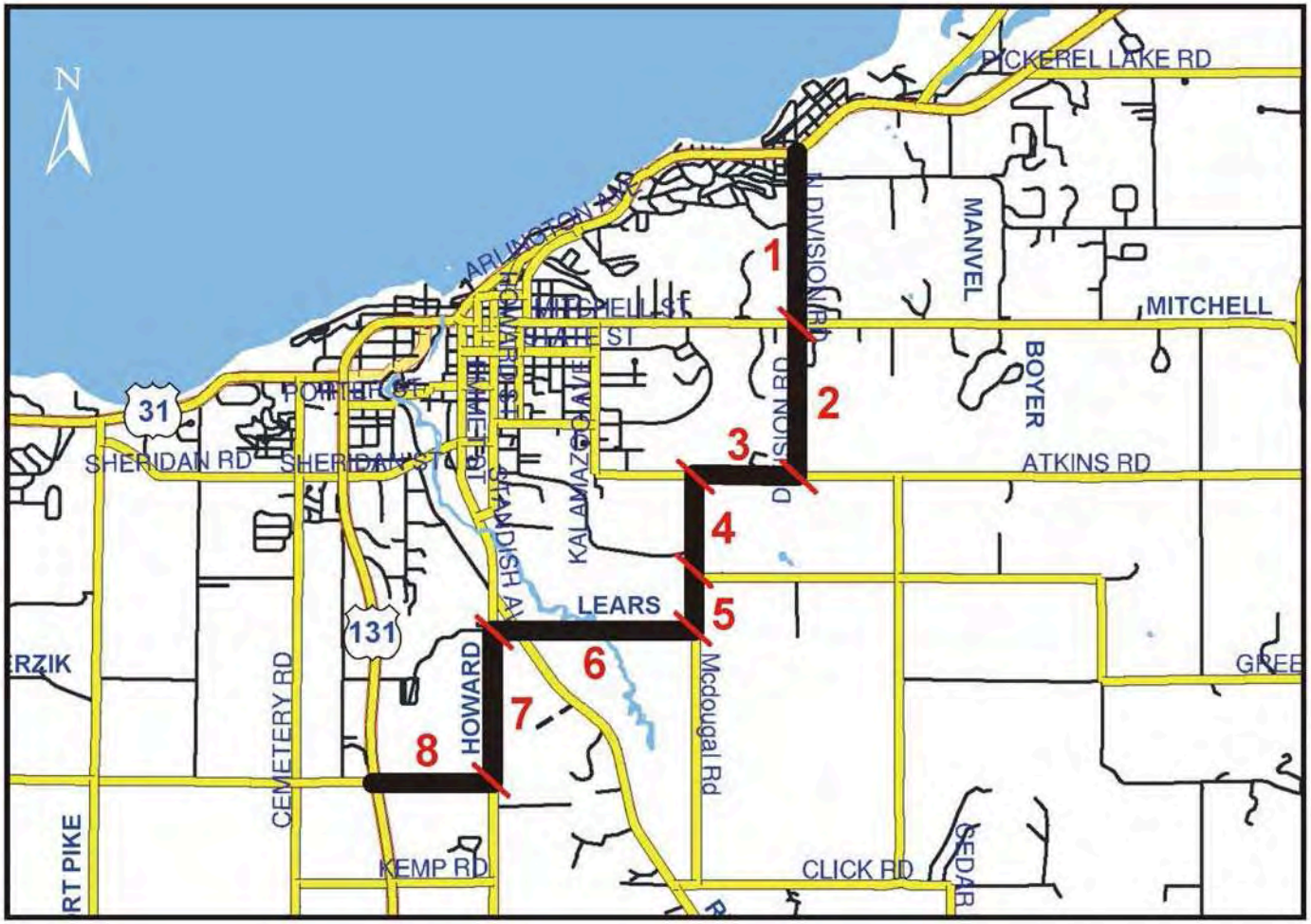
Source: The Corradino Group of Michigan, Inc.

Figure 3-15
Petoskey Area-wide Transportation Study
Alternative 7 Roadway Segments



Source: The Corradino Group of Michigan, Inc.

Figure 3-16
Petoskey Area-wide Transportation Study
Alternative 8 Roadway Segments



Source: The Corradino Group of Michigan, Inc.

Receivers chosen are illustrated in Figure 2-7 and include: west at Bay Harbor, east in Bay View, south along Resort Pike and Cemetery roads, and new development along U.S. 131 near Sheridan Road and Intertown Road (Strathmore). Other locations include the Emmet County Fairgrounds, the Northern Michigan Hospital, downtown Petoskey, the Bear Creek Township Hall and two schools: Petoskey High School and the campus of North Central Michigan College (Table 3-8).

Table 3-8
Petoskey Area-wide Transportation Study
Future Noise Level Changes from 2000 Conditions

	Location	Primary Road	Noise Levels		
			2030 No-Build	2030 Alt 7	2030 Alt 8
1.	Bay Harbor	U.S. 31 - Charlevoix Ave. @ Harborview	3.9	3.3	3.3
2.	Emmet County Fair	U.S. 31 - Charlevoix Ave. @ Fairgrounds	3.2	2.9	3.1
3.	Hospital	U.S. 31- W. Mitchell St. @ Hospital	2.6	1.4	1.5
4.	Downtown CBD	E. Mitchell Street @ Howard	1.3	0.8	0.8
5.	Bay View	U.S. 31 - Woodland & Division	2.5	1.3	1.5
6.	Resort Township Hall	Resort Pike Road	1.7	0.5	1.3
7.	Odawa Casino	Cemetery Road	1.9	1.9	1.9
8.	Wal-Mart/Home Depot	Cemetery Road	1.9	1.9	1.9
9.	Sheridan Dev.	U.S. 131- Spring @ Sheridan Street	2.3	0.0	0.1
10.	Strathmore Dev.	U.S. 131 @ Intertown Road	2.2	-0.6	-0.9
11.	Bear Creek Township Hall	Mitchell Road @ Division Road	1.5	-3.4	5.9
12.	PHS Campus	E. Mitchell Street	2.3	0.9	1.8
13.	NCMC Campus	Howard Street	1.5	0.0	-4.0

The anticipated noise level changes are, in most cases, imperceptible, i.e., less than 3-dBA. This does not mean a person would not be aware of more traffic. It simply means that, on an objective basis, the average person would not hear a difference. The most noticeable increase would be if no action were taken to improve traffic flow in sensitive areas like Bay Harbor. A bit east on U.S. 31, at the Fairgrounds, the same conditions would be true.

At Bear Creek Township Hall, traffic volumes would increase on Division Road with Alternative 8 (Division/Lears), such that almost a 4-decibel increase would be expected compared to the No-Build condition (5.9 dBA versus 1.5 dBA) (see ovals ⬭ on Table 3-8). Conversely, Alternative 7 (Manvel/Boyer/Intertown) would provide another alternative travel route, and volumes would drop on Division Road, with a resulting perceptible noise level reduction (see box ☐ on Table 3-8). Based on the projected traffic volumes on Howard Street at North Central Michigan College's campus, there would be a perceptible noise level reduction, but the traffic volumes on Howard Street are so low, that the reduction is not as meaningful as it would be on an arterial.

Overall, then, from a noise standpoint, Alternative 7 (Manvel/Boyer/Intertown) performs marginally better than Alternative 8 (Division/Lears).

3.2.4 Air Quality

Carbon monoxide (CO) is a colorless, odorless gas that is poisonous because it prevents the body from absorbing oxygen. It is among a number of air pollutants that U.S. EPA regulates under the authority of the Clean Air Act. Because of its very localized and immediate effects, it is often used in evaluations of air quality effects. It is also a product of the internal combustion engine and is, thus, associated with "mobile sources," especially cars; diesel engines produce little CO. Like other air pollutants regulated by EPA, CO is much better controlled than it was some years ago.

Information available from the Michigan Department of Environmental Quality (MDEQ) indicates the nearest air quality monitors that measure CO are in the Upper Peninsula at the Seney National Wildlife Refuge and in Grand Rapids. CO values are expressed in parts per million (ppm) as the second highest one-hour value, and the second highest eight-hour value recorded over a year's time. The most recent values (2006) for the two closest monitoring stations are:

- Seney National Wildlife Refuge: one-hour @ 0.7 ppm/eight-hour @ 0.4 ppm
- Grand Rapids: one-hour @ 2.6 ppm/eight-hour @ 1.9 ppm

The greater urban density leads to the higher levels in Grand Rapids. All the above values fall well below the EPA standards of 35 ppm and 9 ppm for one and eight hours, respectively.

Background CO values in Petoskey would be expected to fall between the Seney and Grand Rapids values. To be conservative, a value of 2.0 ppm was used.

The analysis consisted of running CALINE3, which is a model for calculating concentrations of CO for comparison to the 35 ppm and 9 ppm EPA standards. MOBILE6.2 is a separate computer model that provides emission factors for vehicles. It uses a variety of inputs related to vehicle fleet, temperature and other factors to predict how many grams of CO (and other pollutants) will be emitted (come out of the tailpipe) by an average vehicle in a mile of driving. The emission factors for the appropriate years are entered into CALINE3 together with information on traffic and receptor distance from the roadway, and other more technical information, to determine concentrations of CO in ppm.

For purposes of comparison of existing with future build and No-Build conditions, receptors were assumed to be 50 feet from the centerline of a road. The results show that, in every case (except at NCMC, where traffic volumes are negligible on Howard Street), the future CO concentrations will go down compared to 2000 conditions, even where traffic volumes substantially increase (Table 3-9). This is because vehicles will continue to become cleaner burners of fuel. By 2030, all vehicles will have been produced to the highest standards, and, as a whole, the entire fleet will be cleaner than they are today. For example, the fleet of the future is very likely to include more hybrids that will produce very little CO. The switch is not possible to forecast and, so, has not been incorporated into the analysis.

Overall, the air quality conditions of Alternatives 7 and 8 are expected to be better than the No Build condition and virtually no different from each other.

Table 3-9
Petoskey Area-wide Transportation Study
Future Changes in Carbon Monoxide from 2000 Conditions

	Location	Primary Road	Carbon Monoxide (ppm)		
			2030 No-Build	2030 Alt 7	2030 Alt 8
1.	Bay Harbor	U.S. 31 - Charlevoix Ave. @ Harborview	-0.1	-0.3	-0.3
2.	Emmet County Fair	U.S. 31 - Charlevoix Ave. @ Fairgrounds	-0.3	-0.3	-0.4
3.	Hospital	U.S. 31- W. Mitchell St. @ Hospital	-0.8	-1.1	-1.1
4.	Downtown CBD	E. Mitchell Street @ Howard	-0.5	-0.5	-0.5
5.	Bay View	U.S. 31 - Woodland & Division	-0.7	-1.0	-1.1
6.	Resort Township Hall	Resort Pike Road	0.0	0.0	-0.1
7.	Odawa Casino	Cemetery Road	-0.1	-0.1	-0.1
8.	Wal-Mart/Home Depot	Cemetery Road	-0.1	-0.1	-0.1
9.	Sheridan Dev.	U.S. 131- Spring @ Sheridan Street	-0.4	-2.7	-0.7
10.	Strathmore Dev.	U.S. 131 @ Intertown Road	-0.3	-0.6	-0.6
11.	Bear Creek Township Hall	Mitchell Road @ Division Road	-0.1	0.2	-0.2
12.	PHS Campus	E. Mitchell Street	-0.2	-0.3	-0.3

Source: The Corradino Group of Michigan, Inc.

3.2.5 Overall Results

Table 3-10 summarizes the performance of each alternative in the several impact categories presented earlier. The results are very comparable, not starkly different. The point, though, was not to define a specific route but to demonstrate the degree of impacts that could occur in addressing traffic issues with a long-range solution in the Petoskey area. It is stressed, though, that these proposals would alleviate, not eliminate, summertime congestion.

Table 3-10
Petoskey Area-wide Transportation Study
Summary of Impacts

Impact Area	Alternative 7 (Manvel/Boyer/Intertown)	Alternative 8 (Division/Lears)
Congestion	✓	
Crashes		✓
Connectivity	✓	
Property Issues	✓	✓
Noise	✓	
Air Quality	✓	✓

✓Designates better performing alternative.

3.3 Sensitivity Analysis

As noted earlier, 2030 summertime traffic is used throughout the analysis which raises the question: Doesn't that overstate the need for road improvements in the study area? So, average daily traffic – not summertime traffic – was used to test the sensitivity of the results. That test indicates non-summer traffic is still significant on U.S. 31 (Table 3-11) and that two new lanes will still be needed by 2030 on all road segments that make up Alternatives 7 and 8 to relieve congestion. Even then, gridlock on U.S. 31 will be felt for several hours each day from the vicinity of Lewis Street to Division Road (Segments K through O on Table 3-11 and Figure 3-10).

Table 3-11
Petoskey Area-wide Transportation Study
Measurements of U.S. 31 Congestion (V/C Ratio)
Non-summer Traffic

Segment	No Build	Alternative 7	Alternative 8
A	0.96	0.96	0.96
B	1.02	1.00	1.01
C	1.11	1.09	1.10
D	1.16	1.12	1.14
E	0.75	0.72	0.74
F	0.78	0.76	0.77
G	1.18	0.91	0.93
H	1.34	1.03	1.05
I	1.34	1.03	1.05
J	1.34	1.04	1.05
K	2.09	1.56	1.59
L	2.27	1.74	1.77
M	2.37	1.78	1.86
N	2.36	1.77	1.85
O	2.16	1.62	1.70
P	1.30	0.88	1.30
Q	1.29	0.88	1.30

Another sensitivity analysis to determine if roadway improvements could be avoided is to control the study area's growth to bring U.S. 31 congestion to a level at which the volume is not greater than the road's capacity on a "weighted average" basis, i.e., most (not all) U.S. 31 road segments would not have more traffic than available capacity.

To address congestion on U.S. 31 through growth control, only about 20 percent of the projected growth in trips in the study area could develop over the period 2000 to 2030. The forecasts that are the basis of the study's projections are that population will grow by 40 percent and employment by 100 percent by 2030. Limiting this growth will reduce travel by housing fewer people and creating fewer jobs/attractions which draw visitors to the area.

3.4 Proposed Revisions

During the review of the consultant's preliminary results, the study's Steering Committee indicated that Alternative 8 should be modified to extend Lears Road to U.S. 131 to create Alternative 9. As a result of the traffic model assignments, Alternative 9 performs in the same range as Alternatives 7 and 8 (Table 3-12). But farm-related impacts would be eliminated, including possible acquisition of seven acres and 24 on-farm buildings. This makes Alternative 9 less impacting than Alternative 7 or 8 (Table 3-13). It is noted that the last segment of Alternative 9 – the extension of Lears Road – would be part of the improvements made to an Odawa Indian facility now moving toward implementation.

Table 3-12
Petoskey Area-wide Transportation Study
Measurements of U.S. 31 Congestion (V/C Ratio)
Alternatives 1 through 9

Segment	Alternative									
	No-Build	1	2	3	4	5	6	7	8	9
A	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.70
B	1.82	1.81	1.79	1.81	1.82	1.80	1.82	1.78	1.80	1.81
C	1.98	1.97	1.96	1.97	1.98	1.97	1.98	1.95	1.96	1.97
D	2.06	2.04	2.02	2.04	2.06	2.04	2.05	1.98	2.03	2.04
E	1.33	1.32	1.30	1.32	1.33	1.31	1.32	1.28	1.31	1.32
F	1.39	1.39	1.37	1.39	1.40	1.38	1.39	1.34	1.38	1.38
G	1.50	1.50	1.49	1.49	1.50	1.47	1.39	1.16	1.18	1.17
H	1.70	1.69	1.68	1.70	1.70	1.67	1.59	1.32	1.34	1.32
I	1.70	1.69	1.68	1.70	1.70	1.67	1.59	1.32	1.34	1.33
J	1.70	1.69	1.68	1.70	1.70	1.68	1.59	1.32	1.34	1.33
K	2.66	2.66	2.65	2.65	2.65	2.63	2.44	1.98	2.02	2.00
L	2.89	2.89	2.88	2.88	2.89	2.86	2.67	2.21	2.26	2.23
M	3.01	2.96	2.98	2.98	3.01	2.97	2.75	2.26	2.36	2.33
N	3.01	2.95	2.98	2.98	3.01	2.96	2.74	2.25	2.35	2.32
O	2.75	2.71	2.73	2.73	2.75	2.71	2.51	1.63	2.16	2.12
P	1.65	1.65	1.65	1.65	1.61	1.65	1.36	1.12	1.65	1.63
Q	1.64	1.64	1.65	1.65	1.61	1.65	1.36	1.12	1.65	1.63

Source: The Corradino Group of Michigan, Inc.

Table 3-13
Petoskey Area-wide Transportation Study
Possible Property-related Impacts of Alternatives 7, 8 and 9

Alternative 7

Unit	Road Segments Shown on Figure 3-15												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Residential Property (acres)													
Developed	0.3	0.0	1.3	4.6	1.2	1.0	0.8	0.6	0.4	0.0	0.0	0.0	10.2
Undeveloped	1.8	1.6	3.5	6.1	2.2	2.2	2.5	2.6	2.8	0.0	0.0	0.0	25.3
Total Acres	2.1	1.6	4.8	10.7	3.4	3.2	3.3	3.3	3.2	0.0	0.0	0.0	35.5
No. of Houses	*2*	*0*	*5*	*7*	*4*	*4*	*4*	*3*	*2*	*0*	*0*	*0*	*31*
Farmland (acres)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	4.8	9.2	3.8	21.1
On-farm Buildings	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*3*	*2*	*2*	*10*	*17*
Business/Industrial Acres	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
Open Space/Park Acres	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetlands Acres	1.8	0.7	0.3	0.2	0.0	0.3	0.5	0.0	1.0	2.8	2.9	0.0	10.5

Alternative 8

Unit	Road Segments Shown on Figure 3-16								Total
	1	2	3	4	5	6	7	8	
Residential Property (acres)									
Developed	1.3	1.6	0.8	0.6	0.2	0.0	0.0	0.0	4.5
Undeveloped	2.9	2.9	2.5	2.6	1.5	12.1	0.7	0.0	25.2
Total Acres	4.2	4.5	3.3	3.2	1.7	12.1	0.7	0.0	29.7
No. of Houses	*14*	*12*	*4*	*3*	*1*	*1*	*0*	*0*	*35*
Farmland (acres)	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.7	7.0
On-farm Buildings	*0*	*0*	*0*	*0*	*0*	*0*	*10*	*14*	*24*
Business/Industrial Acres	1.4	0.5	0.0	0.0	0.0	1.4	0.7	0.0	4.0
Open Space/Park Acres	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Wetlands Acres	0.0	2.1	0.5	0.0	0.0	6.6	0.0	0.0	9.2

Alternative 9

Unit								Total
	1	2	3	4	5	6	7	
Residential Property (acres)								
Developed	1.3	1.6	0.8	0.6	0.2	0.0	0.0	4.5
Undeveloped	2.9	2.9	2.5	2.6	1.5	12.1	0.0	24.7
Total Acres	4.2	4.5	3.3	3.2	1.7	12.1	0.0	29.0
No. of Houses	*14*	*12*	*4*	*3*	*1*	*1*	*0*	*35*
Farmland (acres)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On-farm Buildings	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Business/Industrial Acres	1.4	0.5	0.0	0.0	0.0	1.4	0.0	3.3
Open Space/Park Acres	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Wetlands Acres	0.0	2.1	0.5	0.0	0.0	6.6	0.0	9.2

Source: The Corradino Group of Michigan, Inc.

3.5 Country Club Road

An analysis of Country Club Road was conducted to determine if its closure between Division and Surrey will cause significant congestion on other facilities if no other improvements are made. Figures 3-17 and 3-18 depict that, in 2030, Country Club Road could carry as many as 2,300 two-way vehicles on a summertime day near its intersection with Division Road. If that link were cut, about 1,600 trips per day (two-way) would shift to U.S. 31, Division Road and Mitchell Road. This diversion would not create significant additional congestion. For example, the congestion index (V/C) on Division would go from 0.43 to 0.47, if Country Club Road were closed. On Mitchell, it would rise from 0.78 with Country Club Road open to 0.86 with it closed. Therefore, closing Country Club Road will not have a negative ripple-wave traffic effect. On the other hand, if either Alternatives 7 or 8 were pursued, they would draw significant traffic from Country Club Road to make its closure inconsequential.

Upon review of the consultant's preliminary findings, it was recommended by Bear Creek Township that closing Country Club Road should only be considered if three conditions are met:

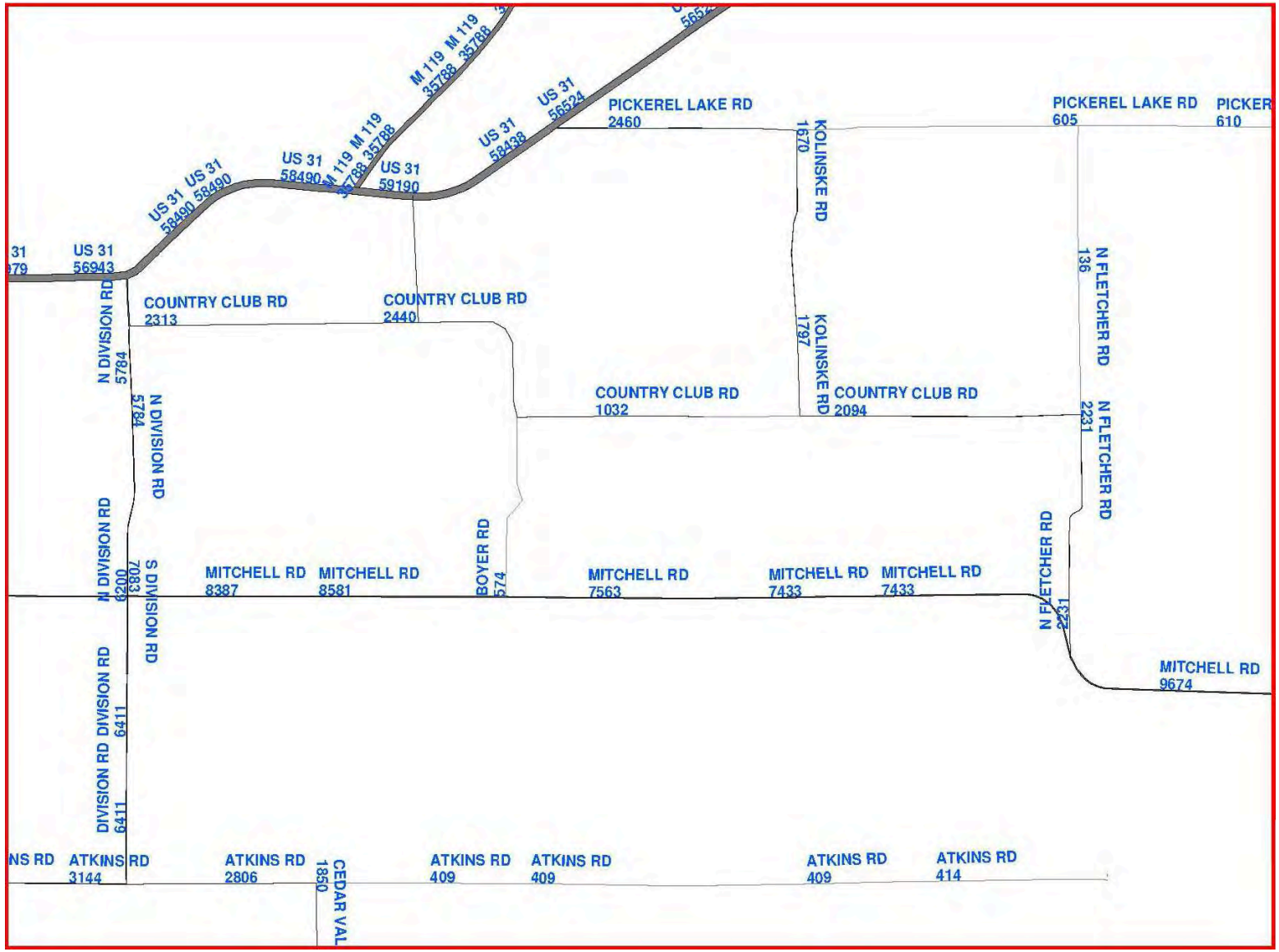
A. The Bay View Country Club donates property along U.S. 31 for the widening at Division Road (discussed next);
B. A conservation easement be placed on the property; and,
C. Country Club Road be left as an easement for utilities, and the like.

3.6 Intersection Improvements

Originally, six key intersections were analyzed (Table 3-14 and Figure 3-19). With the review of the preliminary results of the analyses of locations, three additional intersections were included in the study. They are discussed at the end of this section. Peak hour traffic count data were collected in July 2007. Growth to 2030 was based on traffic model results. Currently, six intersections are operating at Levels of Service (LOS) E or F (Figure 3-19). LOS F can be considered gridlock. The two Mitchell Road intersections operate today at LOS C or better today. With 2030 non-summer traffic, they will operate at LOS D. More significant improvements are needed at the U.S. 31 intersections with Division Road and at Pickerel Lake Road.

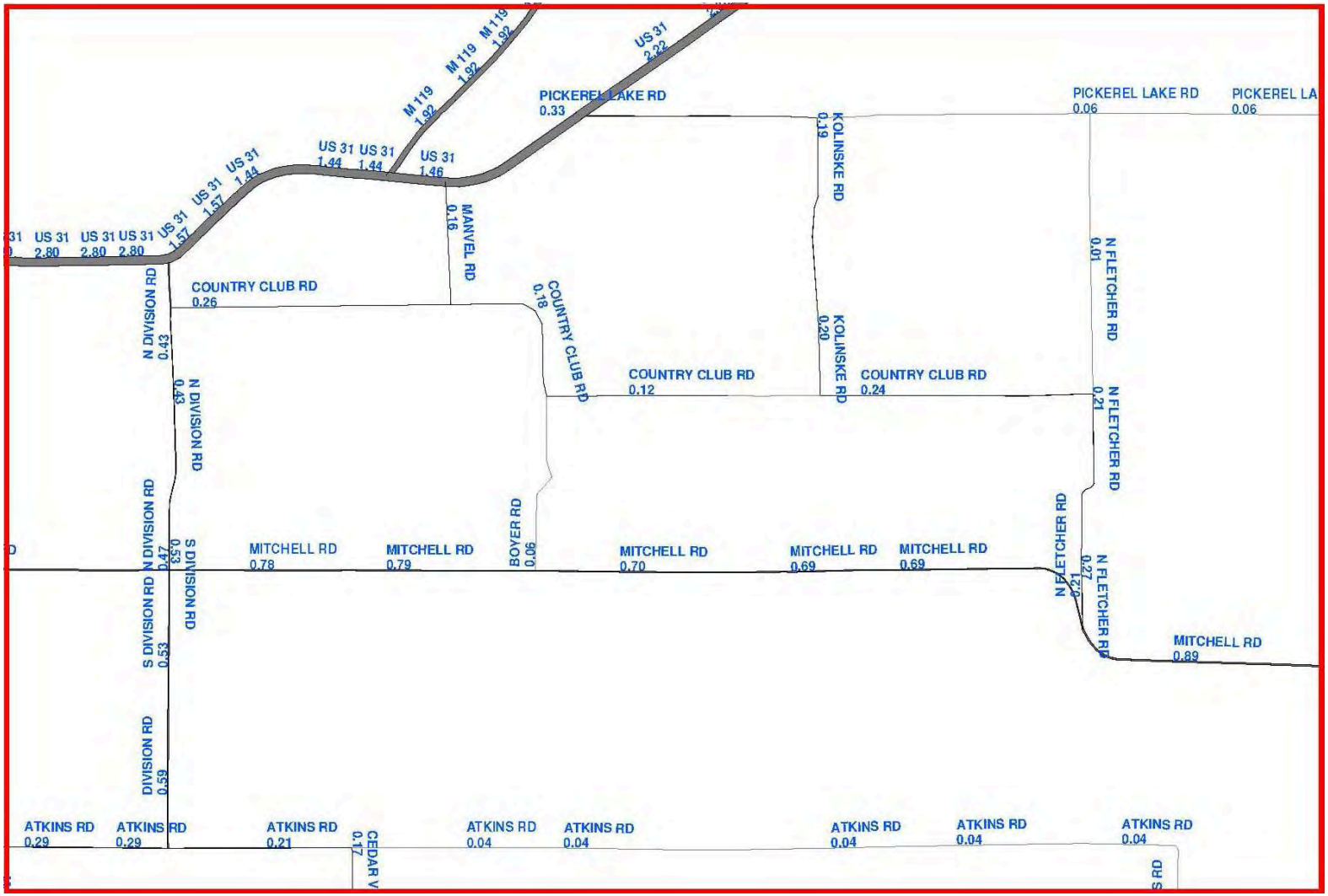
Improvements need to be made at six intersections as listed on Table 3-14 just to handle current traffic. A signal should be, and soon is to be, installed at U.S. 131 at Lears Road. Another signal should be installed at the intersection of U.S. 131 at Intertown Road. These improvements will improve the LOS to no worse than B (Table 3-14).

Figure 3-17A
2030 No-Build Summer Traffic
with Country Club Road



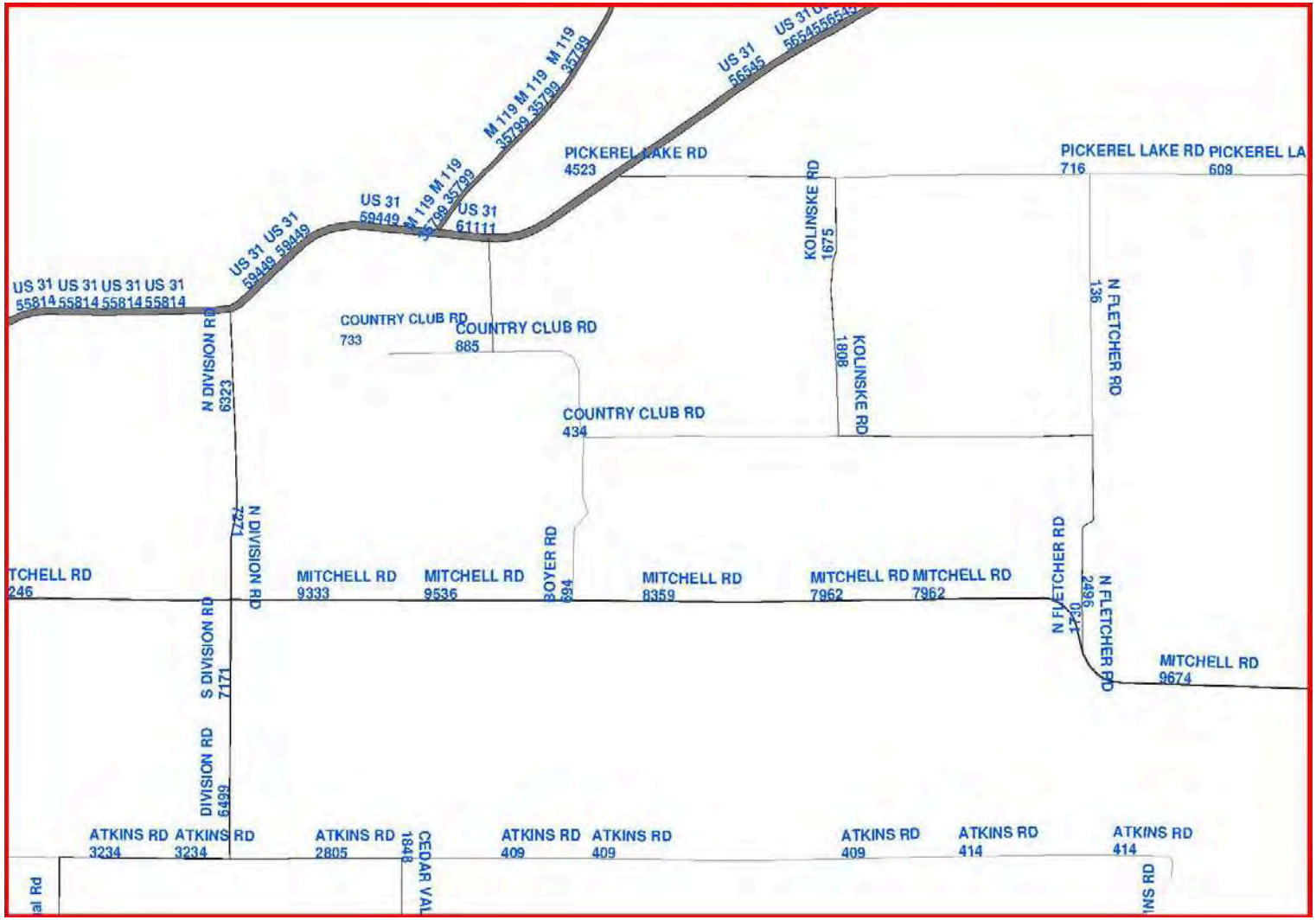
Source: The Corradino Group of Michigan, Inc.

Figure 3-17B
2030 Congestion (V/C) with Summer Traffic
with Country Club Road



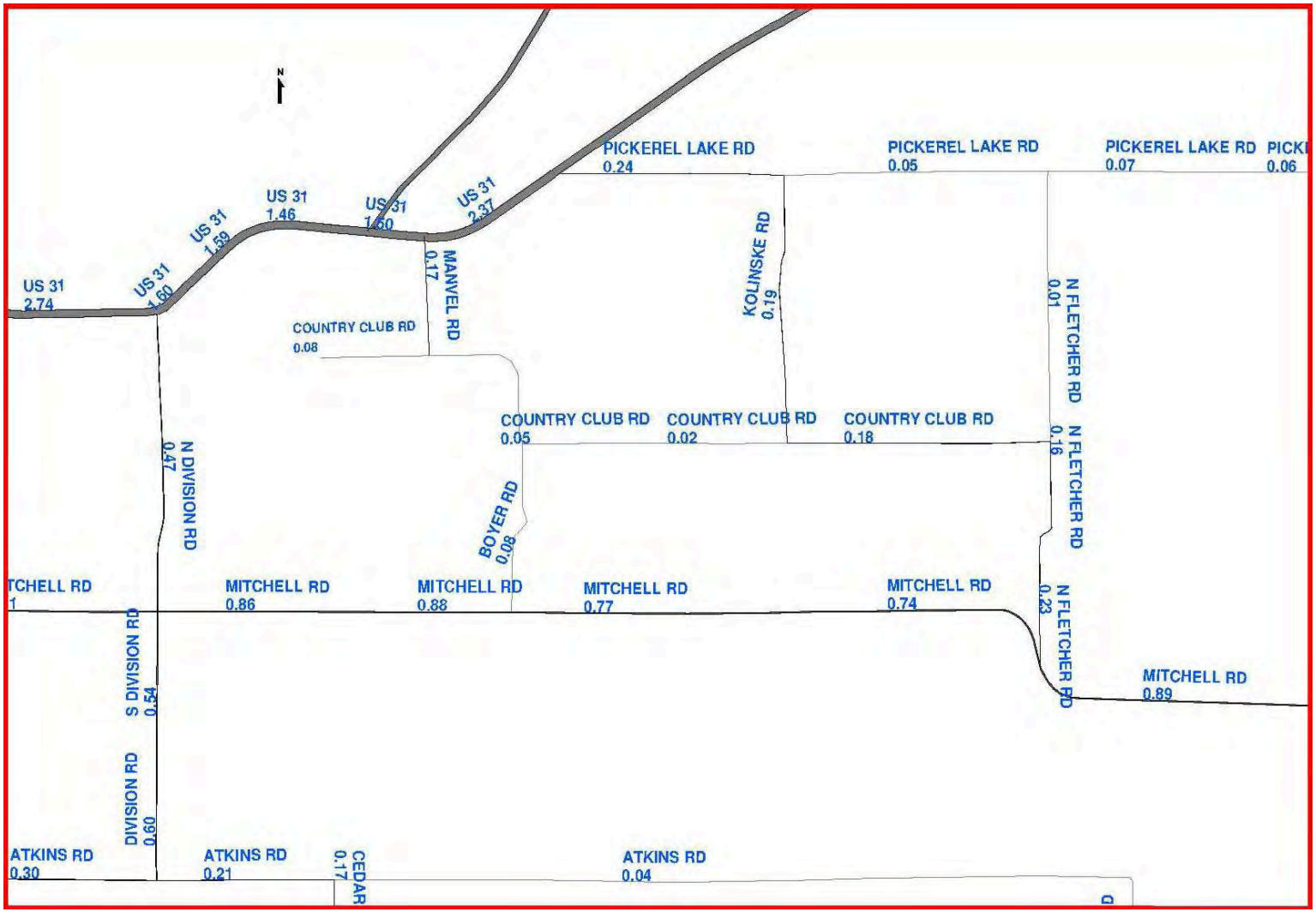
Source: The Corradino Group of Michigan, Inc.

Figure 3-18A
2030 No-Build Summer Traffic
without Country Club Road



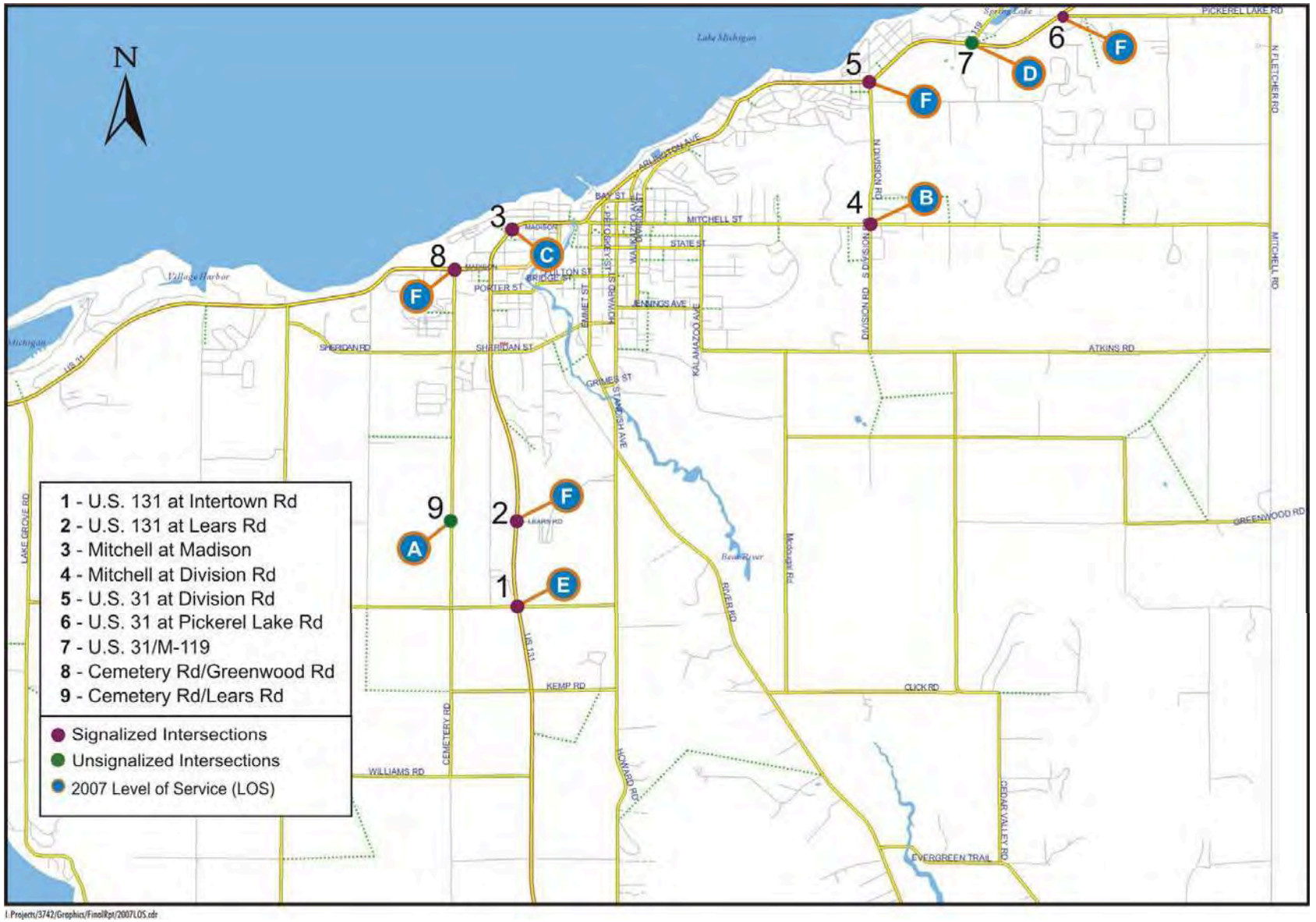
Source: The Corradino Group of Michigan, Inc.

Figure 3-18B
2030 Congestion (V/C) with Summer Traffic
without Country Club Road



Source: The Corradino Group of Michigan, Inc.

Figure 3-19
Petoskey Area-wide Transportation Study
Intersections Proposed for Improvements
2007 Level of Service



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Source: The Corradino Group of Michigan, Inc.

At the U.S. 31/Division intersection, the consultant's early recommendation was to install a traffic signal and widen U.S. 31 by one lane in each direction (Figure 3-20). The reaction of the Bay View Association and its members, plus the project's Steering Committee, was not supportive of this proposal. Instead, vacating the block of Division north of U.S. 31, plus realigning the intersection, was offered as an alternative solution (Figure 3-21). Vacating the north leg appears very doable based on July 2007 traffic counts which indicate there are no left-turn movements from U.S. 31 to Division Road north, fewer than a half dozen right-turns from U.S. 31, and only eight through movements on Division Road in the afternoon peak hour. By closing the north leg of Division Road it would then be possible to realign U.S. 31. It is understood the owner of Holiday Station would cooperate in the realignment. Golf course property opposite Holiday Station also would have to be acquired for the realignment of U.S. 31. This is a privately-owned "park-like" facility and, as such, is not protected by federal laws – only public parks are afforded legal protection. To minimize potential acquisition on Holiday Station and the golf course, use of 11-foot lanes should be considered (rather than 12-foot lanes).

At the U.S. 31/Pickerel Lake Road intersection, one lane needs to be added in each direction and a signal installed (Figure 3-22). In moving to make these improvements, closing the west leg of the intersection should be studied in more detail; it would improve conditions at this intersection that affect safety, if the signal were installed.

Table 3-14
Petoskey Area-wide Transportation Study
Proposed Intersection Improvements
2030 Non-summer Traffic

Intersection		2007 LOS[a]	2030 LOS without Improvement	Proposed Improvements		
#	Location			Type	LOS	Estimated Cost (2007 Dollars)
1	U.S. 131/Intertown Road	E	F	Add traffic signal	B	$75,000 to $150,000
2	U.S. 131/Lears Road	F	F	Add traffic signal	A	$75,000 to $150,000
3	W. Mitchell/Madison Streets	C	D	No change	D	NA
4	Mitchell Road/S. Division Road	B	D	No change	D	NA
5	U.S. 31/ Division Road	F	F	Vacate north leg of intersection. Add traffic signal and one additional lane in each direction on U.S. 31 (see Figure 3-21)	D	$500,000 to $900,000
6	U.S. 31/Pickerel Lake Road	F	F	Add traffic signal and one additional lane in each direction on U.S. 31. Study closing west leg of intersection (see Figure 3-22)	B	$500,000 to $900,000
7	U.S. 31/M-119	D	F	Provide: dual left-turn lanes for eastbound U.S. 31; dual right-turn lanes for southbound M-119; exclusive right-turn lane for westbound U.S. 31 (See Figure 3-23)	C	$500,000 to $1 million
8	U.S. 31/Cemetery Road/	F	F	Add signal	C	$75,000 to $150,000

	Greenwood Road					
9	Cemetery Road/Lears Road	A	C	No change	C	NA

[a] LOS means Level of Service; A is best; D is acceptable; E is approaching gridlock; F is gridlock.
Source: The Corradino Group of Michigan, Inc.

Figure 3-20
Proposed Improvements at U.S. 31 and Division Road
Original Consultant Proposal

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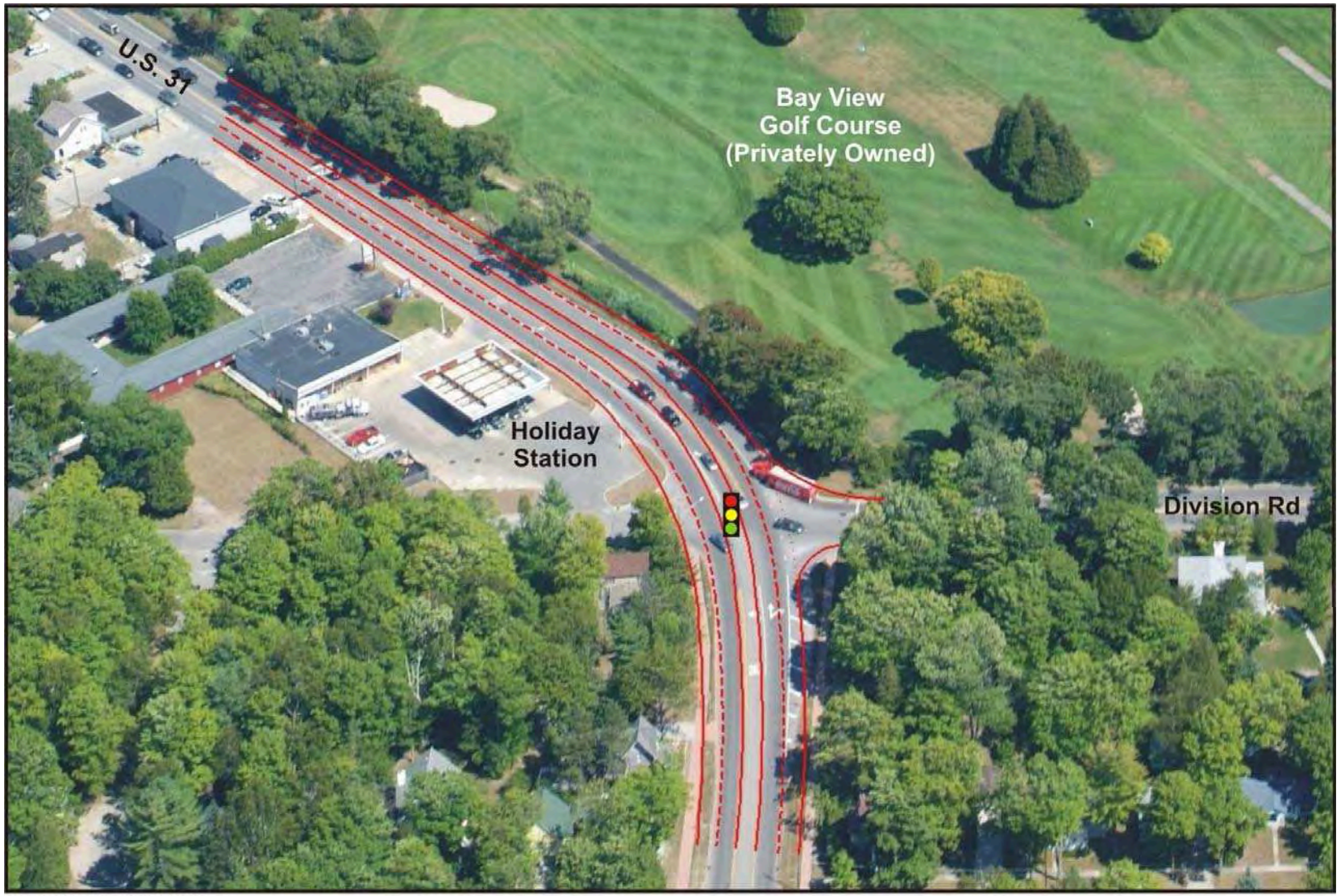
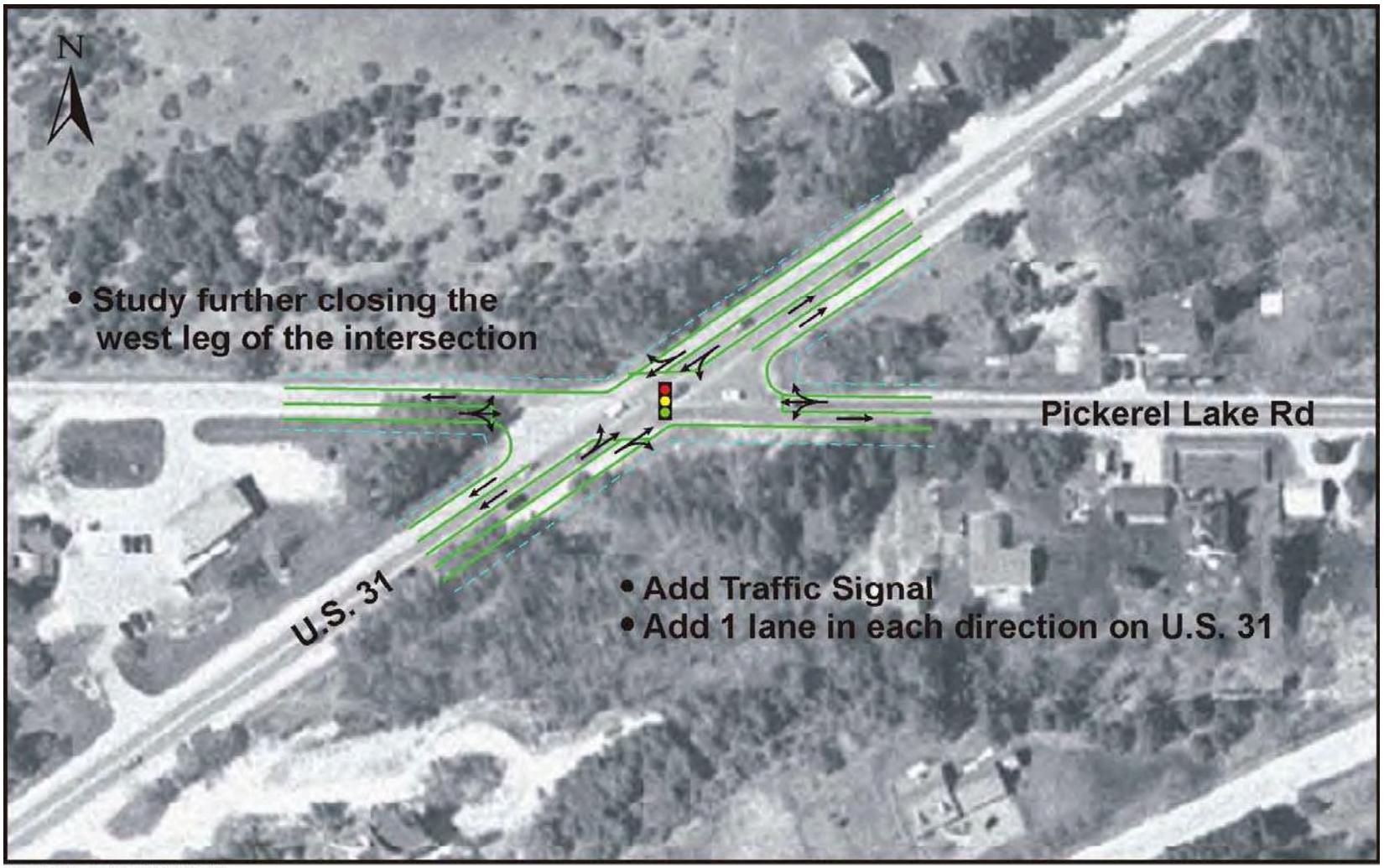
Source: The Corradino Group of Michigan, Inc.

Figure 3-21
Alternative Proposal at U.S. 31 and Division Road



I:Projects/3742/Graphics/FinalRpt/US31&Division.cdr
Source: The Corradino Group of Michigan, Inc.

Figure 3-22
Proposed Improvements at Pickerel Lake Road and U.S. 31



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Source: The Corradino Group of Michigan, Inc.

3.6.1 Additional Intersections Improvements

Following review of the preliminary evaluation of alternatives, the study's Steering Committee indicated three additional intersections needed analysis:

- U.S. 31 at M-119
- U.S. 31 at Cemetery/Greenwood Road
- Cemetery Road at Lears Road

3.6.1.1 U.S. 31 at M-119

Traffic counts were conducted at the U.S. 31/M-119 intersection in September 2007 during the peak hour of traffic (4:45 to 5:45 p.m.). With permitted and protected signal phasing for the eastbound left-turn signal phase, and the ability for the southbound right turns from M-119 to turn-on-red, the intersection now operates at LOS D at a volume-to-capacity ratio of 0.90. This confirms the observation of heavy queuing that likely affects upstream and downstream locations.

Improvements to the intersection would include the control of access of the driveway on the northwest side of the intersection, as well as on the northeast side of the intersection (Figure 3-23). Proposed improvements include dual eastbound left-turn lanes, dual southbound right-turn lanes, as well as an exclusive westbound right-turn lane. All of these improvements would require ROW on each approach for some length beyond the intersection itself. For example, two lanes must be accommodated on M-119 to accept the dual left-turn demand from eastbound U.S. 31.

3.6.1.2 U.S. 31 at Cemetery/Greenwood Roads

This unsignalized intersection operates at LOS F based on September 2007 peak-hour counts. Installing a signal is warranted. In doing so, the spacing with the signal at U.S. 31/U.S. 131 (West Mitchell Street (about 1,100 feet to the east) must be considered as it is at about the minimum separation at which traffic signal progression can be achieved.

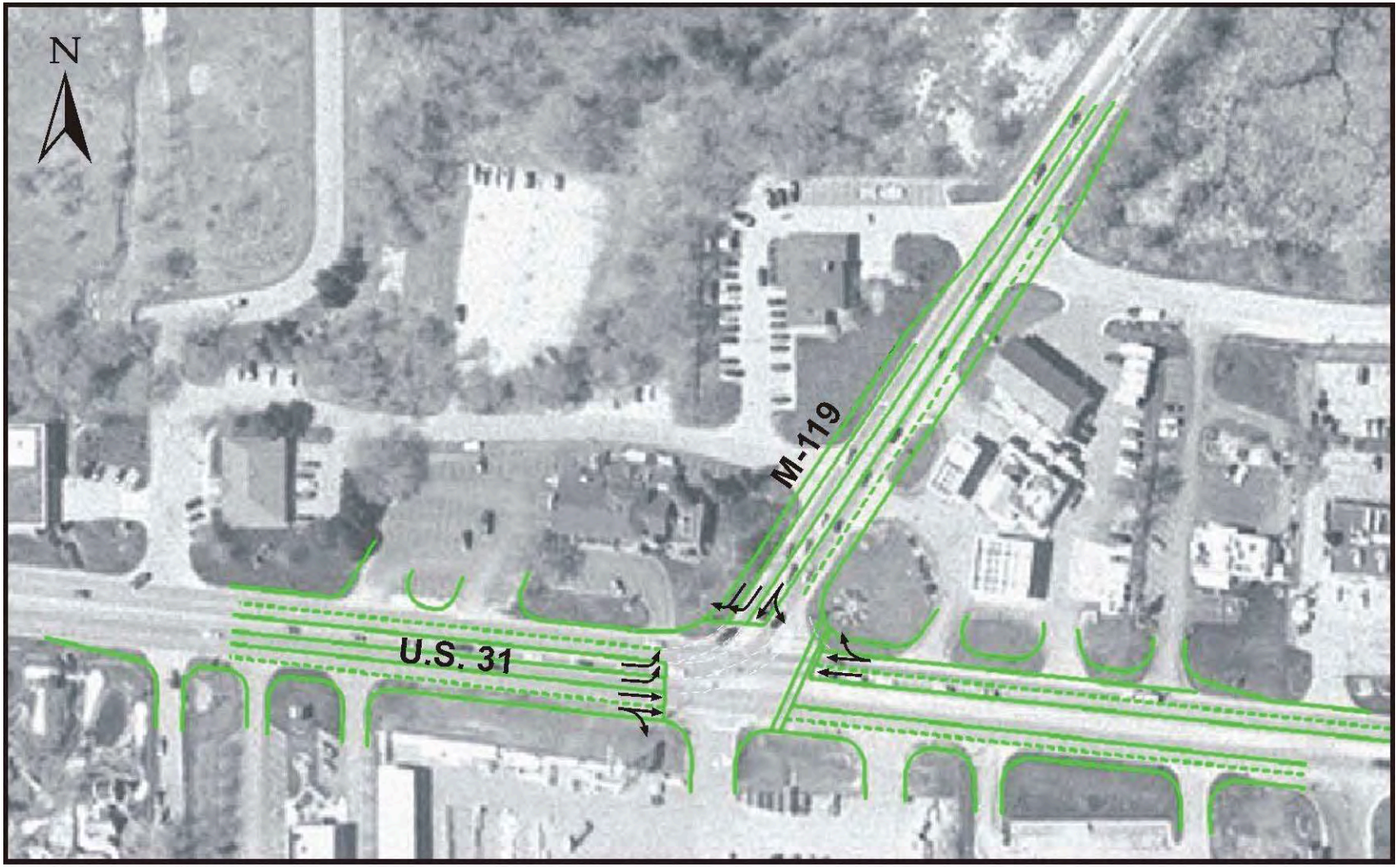
3.6.1.3 Cemetery Road at Lears Road

The four-way-stop-controlled intersection operates at LOS A in this hour based on September 2007 peak-hour counts. The intersection could easily double in volume and still achieve LOS C.

3.6.2 Atkins Road

While not an intersection improvement, the extension of Atkins Road from its current eastern end at Kalamazoo Avenue to Howard Street is a recommended project. It will improve access to North Central Michigan College. The cost is estimated at $1.0 to $1.5 million.

Figure 3-23
Proposed Improvements at U.S. 31 and M-119



I:Projects/3742/Graphics/FinalRpt/US31&119.cdr
Source: The Corradino Group of Michigan, Inc.

3.6.3 Cost

The cost of the improvements at the six intersections discussed above could range from $2.725 million to $4.75 million (Table 3-14). It is recommended these improvements be programmed over seven years, for an average yearly investment of $390,000 to $675,000 per year. MDOT support is needed and is possible at all intersections as they involve state roads.

3.7 Access Management

The goal of access management is to limit/control direct roadway access through techniques to help preserve the existing capacity of the road. Effective access management has been proven to reduce crashes, increase roadway capacity, and reduce travel time and delay. A few access management design principles were applied to address the interrelated issues of land use development, zoning, traffic operations, and safety through the increasingly congested U.S. 31 corridor.

3.7.1 Access Management Examples

Three different locations along and near U.S. 31 were identified to highlight several specific design principles (Figure 3-24). The locations selected move from east to west. Each location could benefit from improved access management; however, it is important to recognize the corridor is generally well managed at the present time.

The first proposal is to have adjacent parcel owners/operators join together to share access between them. This has several benefits, but the main one is that it eliminates multiple turns, trips, and potential traffic conflicts to and from the parcels from the major arterial. The benefits are accomplished by allowing "chained or linked trips" to not use U.S. 31 to move to the next businesses, where that is the intended desire. Figure 3-25 illustrates at U.S. 31 and Rice Street the potential shared access areas between businesses (yellow) that would be ultimately be paved access between parking lots. Traffic could be reduced in this location if, for example, a motorist, when done washing the car at the car wash (brown building on left of photo) would gain access to the fast food establishments to the right (east) on U.S. 31 or the next several businesses further to the east.

Another benefit to obtaining shared access easements is that they allow consolidation or closure of access points (driveways) on U.S. 31. Because there is connection between the parcels, multiple drives at each location are no longer necessary. These are shown in red on Figure 3-25.

Fast food restaurants often petition for separate "in" and "out" driveways. However there are many examples where this is not the case and they generally occur where these uses redevelop or improve, which occurs about once every 15 years. With the proper access management plan and access management ordinances in place, when a site plan is revised/amended the consolidation of driveways can be accomplished as part of the approvals process.

Figure 3-24
Petoskey Area-wide Transportation Study
Three Areas at which Access Management Concepts are Proposed

Source: The Corradino Group of Michigan, Inc.

Figure 3-25
Petoskey Area-wide Transportation Concepts
Access Management Concepts in Area of U.S. 31 and Rice Street

Source: The Corradino Group of Michigan, Inc.

Figure 3-26 highlights an access management proposal for U.S. 31 between Beaubian and Lafayette. At Oleson's food store all exiting traffic should use the signalized intersection which would allow closure or consolidation of the west driveway, or at least full channelization which would mean only allowing right turns in and right turns out for westbound traffic.

Figure 3-27 highlights in red closures of multiple access points to a parking lot on Jackson Street and some along U.S. 131 shown. Driveway design is very critical to entering and exiting vehicle speeds. Where excessive grade differences occur, or tight radii do not allow vehicles to comfortably track through the turn, vehicle operation difficulties often occur on the major street. This ultimately results in congestion or more crashes, or both. A few driveway radii could be improved and made larger and they are shown in orange on Figure 3-27. A few driveways have a lack of definition or are too wide, which causes problem allowing vehicles to enter and exit at unexpected locations within the driveway. By redefining driveways, access will be comfortable and consistent, greatly reducing the potential for problems.

Figure 3-26
Petoskey Area-wide Transportation Concepts
Access Management Concepts in Area of U.S. 31 between Beaubian and Lafayette Avenues

Source: The Corradino Group of Michigan, Inc.

Figure 3-27
Petoskey Area-wide Transportation Concepts
Access Management Concepts in Area of U.S. 31 and U.S. 131

Source: The Corradino Group of Michigan, Inc.

4. Transit Alternatives

The following section presents public transit projects for the study area. The proposals developed through the public involvement process are:

- Bus transit (fixed route; not mapped)
- High-speed rail to Traverse City and Mackinaw
- Ferry from Petoskey to Harbor Springs
- Downtown rail trolley

4.1 Bus

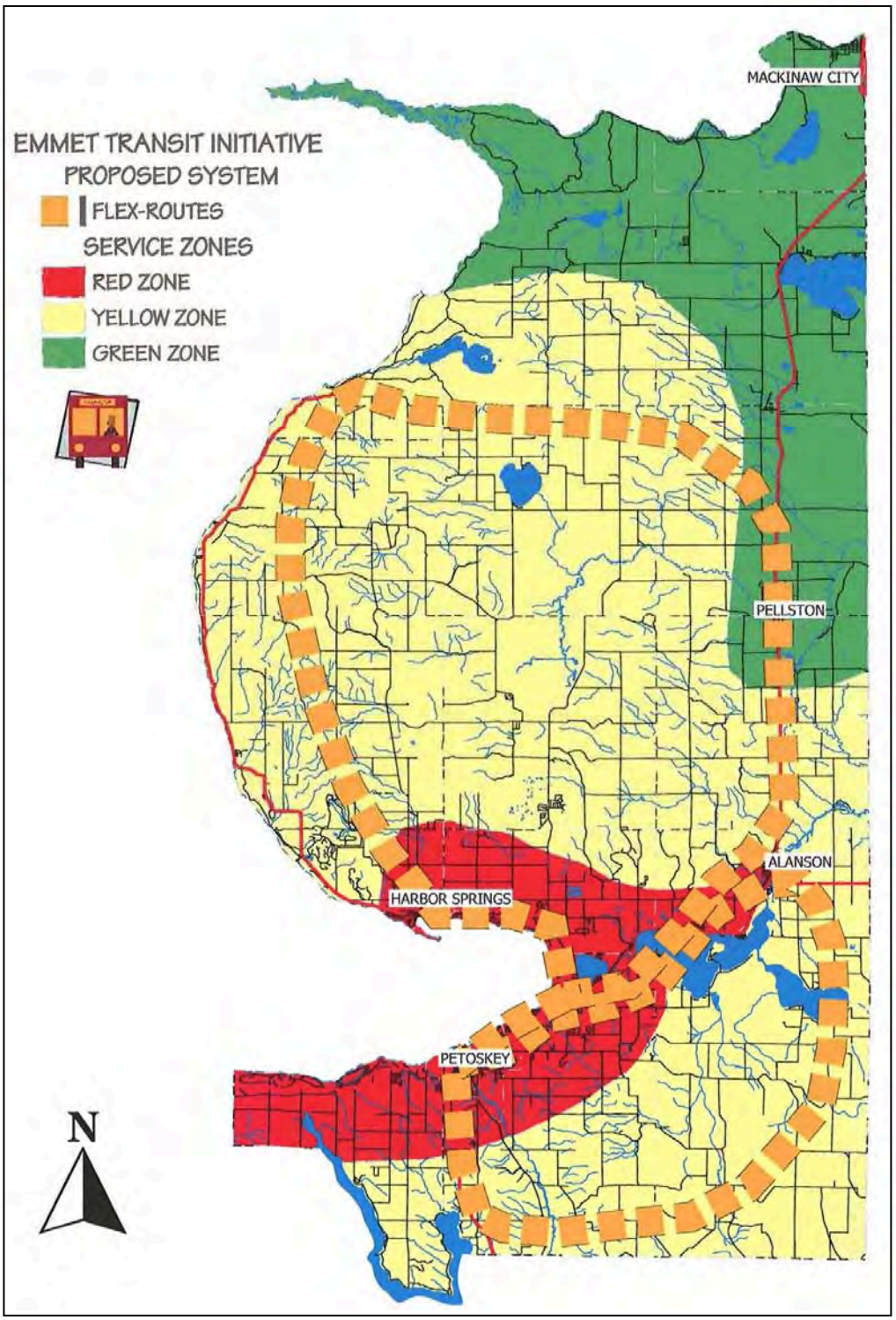
Currently, there is no local public transit service in the Petoskey area. But, there are a variety of services that provide non-school-related transportation (approximately 90,000 trips annually) in Emmet County.[2] These include the Friendship Centers of Emmet County, Straits Regional Ride, the Family Independence Agency, and some local shuttle and taxi services.

A Straits Regional Ride van in Petoskey

In 2005, a transit coordination study was prepared for the Petoskey area. It recommended a county-wide transit system (Figure 4-1) featuring demand-response service and a network of flexible routes with 12 to 15 vehicles and an annual operating cost of $1,270,000 (in 2005 dollars). It was estimated that approximately $381,000 would need to come from contracts and local sources. To date, the study recommendations have not been carried forward at either the municipal or county level.

[2] Community Access Transportation Team, *Emmet County Transportation Coordination Plan, Emmet 20/20*.

Figure 4-1
Proposed County Transit System, Emmet County Transportation Coordination Plan, 2005



Source: _____

If a transit service were to be implemented, some local financial commitment is needed. Most public transit systems in Michigan are supported by either local general fund dollars or a special property tax millage. Table 4-1 shows characteristics of services in other comparable Michigan communities.

Friendship Center Van

For example, BATA provides service to Grand Traverse and Leelanau Counties. The total population of the service area is 90,000. Local funds come from a voter-approved .35 millage/property tax assessment that generates about $2 million per year. BATA offers fixed-route and dial-a-ride rural services along with some out-county service. Its annual ridership is more than 400,000, with almost eight passengers per service hour carried on its fixed-route service in Traverse City and four passengers per service hour on its dial-a-ride and out-county services.

It is anticipated that a public transit system in Emmet County would primarily be dial-a-ride or flexible-route service, both of which are demand-responsive[3] and suited for areas of low population density. To get people who have access to an automobile into transit, some type of fixed-route service may be needed. However, typical fixed-route service is determined to be viable in areas with populations in excess of 4,000 people per square mile. The City of Petoskey has a density of about 1,200 people per square mile according to the 2000 census. But, in light of the increases in population and the pressure on the roadway system in the summer season, a fixed-route service may be desirable for the community to explore. It could provide easy connections between major destination areas (downtown, the Anderson Road commercial area, hotels, the casinos, Bay View, and the college). The service would likely operate on reduced schedules in the winter time, if deemed feasible after a summer season trial.

Based on the above discussion, and assuming a system of similar size to what was recommended in the 2005 Coordination Study (but with a fixed-route component), a county-wide transit service could have characteristics as shown in Table 4-2.

In this scenario, the overall annual operating cost of the system would be about $1.4 million. Start-up and capital costs for new systems are typically covered by state and federal funds. Historically the state has provided the 20 percent match for federal funds. However, in recent years the state has not been able to match all requests on funding.

[3] Demand response service essentially is a form of subscription transportation where trips are pre-arranged by appointment or phone call.

Table 4-1
2005 Michigan Public Transit Facts (Reconciled)
Selected Systems

System	Eligible Expense	Total Passengers	Cost per Passenger	Cost per Mile	Total Vehicles
Urban Small					
Harbor Transit, Grand Haven	$1,499,817	178,679	$ 8.39	$ 3.83	15
Macatatwa Area Express, Holland	$2,580,467	187,407	$13.77	$ 3.75	26
Lake Erie Transit (SMART)	$1,783,432	279,829	$ 6.37	$ 3.28	12
Non-Urban County					
Bay Area Transportation Authority, Traverse City	$4,426,431	407,389	$10.87	$ 2.59	65
Blue Water, Port Huron	$2,751,189	211,514	$13.01	$ 3.28	16
Lake Erie Transit (SMART)	$ 917,942	84,882	$10.81	$ 3.52	9

Source: Michigan Department of Transportation, Public Transportation Management System, Performance Indicators Report.

Table 4-2
Petoskey Area Transportation Study
Estimated Transit Ridership

Routes	In Service Vehicles	Hours[a]	Passengers Per Hour	Annual Passengers	Cost[b] (2007 Dollars)	Cost Per Trip
Fixed Route Transit[c]	4	9,216	8	73,728	$552,960	$7.50
Dial-a-Ride/Flex Route	12	12,288	4	49,152	$737,280	$15
Total Transit	16	24,576	12	122,880	$1,290,240	$10.50

[a] Assumes operation on weekdays (256 per year) from 7 a.m. to 6 p.m.

[b] Assumes hourly operating cost of $60 per hour, which is comparable to similar size systems in Michigan

[c] Only two buses would operate on the fixed route service from October to March

Source: The Corradino Group of Michigan, Inc.

Operating funds from the state are distributed to eligible transit systems based upon a formula contained in Public Act 51. The formula is expense-based and provides Non-urban Systems up to 60 percent of their eligible operating expenses and Urban Systems up to 50 percent of their eligible operating expenses. For the 2007 Fiscal Year, the state is providing Non-urban Systems about 39 percent of their eligible operating expenses. Operating funds from the federal government are available for a system in Emmet County. This program authorizes up to 50 percent of eligible operating expenses although, as with state funding, the amount needed is not fully authorized. For 2007, non-urban systems are receiving 16 percent of eligible operating expenses.

If the current allocations of 38 percent state and 16 percent federal continue, Emmet County would have to provide 46 percent of transit system operating costs through local funding. With a $1.29 million budget, that amount is approximately $590,000. Assuming that 15 percent would come

from fares, the public subsidy of the system would be $578,000. The ridership on the system would be about 148,000 trips per year, once the system had time to become established.

This level of transit use equates to 5,000 person trips per day. Today there are 96,000 person trips (there will be 163,000 in 2030) in the study area. So, transit would represent less than five percent of the travel in the study area in the future. It is an important component of a multimodal system, but not enough to relieve roadway congestion.

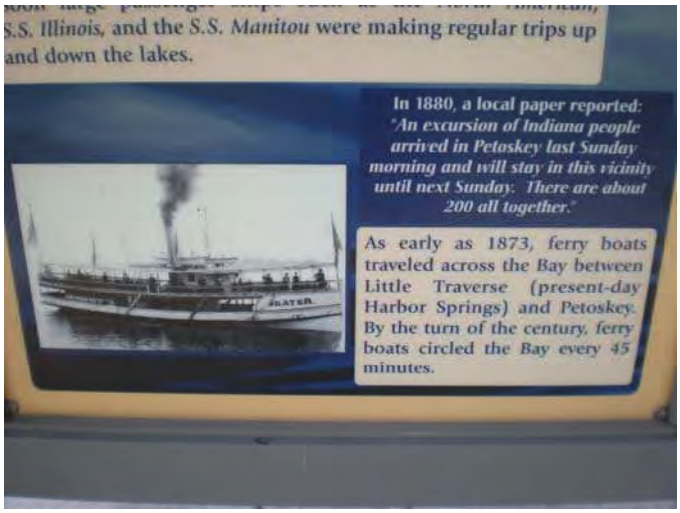
4.2 High-capacity Transit

Several high-capacity-transit scenarios were proposed as part of the initial set of transportation concepts developed for the project with the public. These include:

- Light rail/monorail from Petoskey to Charlevoix/Traverse City
- High speed rail to Traverse City and Mackinaw City
- Ferry from Petoskey to Harbor Springs
- Downtown streetcar

Of these, the two proposals that are feasible within the time frame of this plan are the ferry and downtown trolley concepts. These are discussed next.

4.2.1 Ferry Service

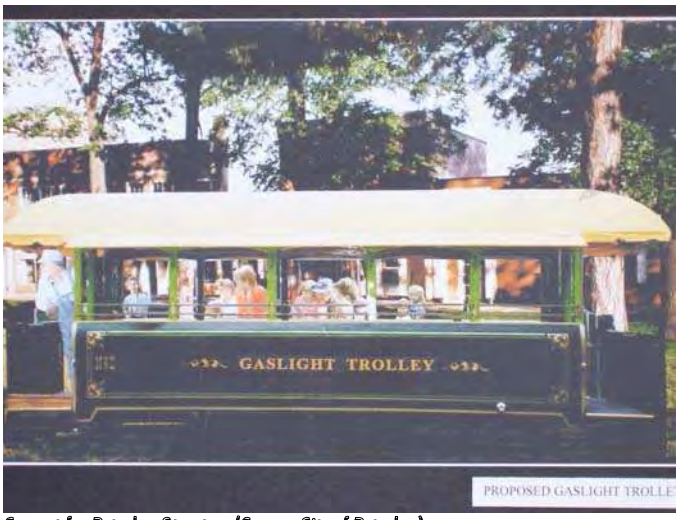


Public and private ferryboat operations exist in several areas of Michigan, including: Mackinaw Island, the St. Mary's River Ferry System in the Sault Ste. Marie area, and the Beaver Island ferry operating between Charlevoix and Beaver Island. Ferries were once one of the primary forms of transportation in Petoskey, but have not operated in the area for decades. The most recent proposal was for a ferry to operate on a route that would include Bay Harbor, Petoskey, and Harbor Springs. The ferry was to be privately operated. The service never became operational.

Initially, a ferry service in Petoskey would likely be tourist oriented, providing vacationers a unique way to travel between Harbor Springs and Petoskey. However, ferry service is the least-certain component of the area's future transportation system.

4.2.2 Downtown Streetcar

The City of Petoskey owns a 20-passenger streetcar that could be used for a downtown trolley service. Currently, there are seven miles of active rail left in Emmet County part of which travel through downtown Petoskey. The existing track (formerly owned by Grand Rapids and Illinois Railroad) is still used for freight service from the south to Fulton Street and for passenger cars to its end point at Winter Park Lane. The right-of-way within the City is owned by the State of Michigan and administered by MDOT. Currently, there is an historic train that comes from southern Michigan through Traverse City to Petoskey every summer and uses the tracks. In the meantime, the City is working with MDOT to acquire the passenger-only right-of-way segment for use as a greenway corridor through downtown that would include a pedestrian and bicycle trail and the rail trolley from Winter Sports Park Lane to Emmet Street. This service is also likely to be tourist-oriented. While potentially a part of the future transportation plan, its implementation could be driven by a public-private partnership.



Concept for Petoskey Streetcar (Source: City of Petoskey)

5. Non-motorized Alternatives

Non-motorized facilities are sidewalks, bike lanes, and streets/roads with paved shoulders, and separated pathways. While there are sidewalks and separated pathways in the Petoskey area, there are no on-street bike lanes or signed bike routes. Most roads in the townships do not have paved shoulders. The two non-motorized facilities in Petoskey are the Little Traverse Wheelway and the city's sidewalk system. These are discussed next followed by an assessment of opportunities for development of a more enhanced non-motorized system and its potential effect on the entire transportation system.

5.1 The Pedestrian Environment

Figure 5-1 shows major pedestrian activity centers in the study area. Most of these are served by sidewalks. One gap is on Mitchell Road in Bear Creek Township from the City boundary to the Mitchell Street entrance to Petoskey High School where no sidewalk exists. PHS does have pedestrian connections from Hill Street on the south side of the street and a bike path along Northmen Drive. A second gap is in the U.S. 131 commercial corridor and along Anderson Road where no sidewalks exist.

Sidewalks in downtown Petoskey

As described below, the City has a substantially-complete network of sidewalks while there are essentially no sidewalks in the townships. One of the issues in building non-motorized facilities in the study area is the steep hills and bluffs. For example, the Resort Bluffs area west of Magnus Park has been a major impediment for years to completing the Little Traverse Wheelway.

Figure 5-1
Major Pedestrian Activity Centers

Source: The Corradino Group of Michigan, Inc.

5.1.1 City of Petoskey

Most of the streets in the City of Petoskey have sidewalks on one side or the other. The City maintains 25 miles of sidewalks that connect most parts of the City. However, as noted in the transportation element of early drafts of Blueprint Petoskey,[4] "…there are some areas that connections need to be made or improved." Approximately ten percent of the streets are without sidewalks. The City's goal is to have sidewalks on at least one side of all streets. Typically, the City rebuilds sidewalks in conjunction with other street and road improvements. Currently, the next project with a major sidewalk component is the reconstruction of Mitchell Street from downtown to the City limits. The City is also considering developing a multi-use trail along the Grand Rapids and Illinois Railroad right-of-way while promoting passenger rail and trolley use of the rail lines and improving the Bear River Valley to incorporate a mutli-use trail to create a complete loop of the City.

5.1.2 Bear Creek Township

With the exception of the sidewalks in Bay View and the portion of the Little Traverse Wheelway along M-119, there are no sidewalks in Bear Creek Township. Projects being contemplated include a sidewalk along Anderson Road and a sidewalk along Mitchell Road from the Petoskey city boundary (between Bay View Avenue and Lincoln Place) and the entrance to the Petoskey schools campus. This would complete a sidewalk connection along Mitchell from the school to downtown.

5.1.3 Resort Township

There are no sidewalks in Resort Township, although there is a section of the Little Traverse Wheelway along U.S. 31. There are no plans for constructing sidewalks at this time.

5.2 The Bicycling Environment

The most recognizable non-motorized facility in the Petoskey area is the Little Traverse Wheelway. This 26-mile path connects Charlevoix and Harbor Springs. The part of the trail between Petoskey's Bayfront Park and Petoskey State Park follows closely the path of the original wheelway that stretched from Petoskey to Harbor Springs in the 1880s and 1890s (a bicycle trail developed to link the two communities).

Cyclists on Little Traverse Wheelway (Date Unknown)

Source: Top of Michigan Trails Council

[4] Blueprint Petoskey

The trail is generally eight to ten feet wide and made of asphalt. There are two locations on the trail where it is necessary to travel on the shoulder of the highway and where improvements are planned. These are described below.

- Magnus Park in Petoskey to Resort Township East Park in Bay Harbor: This is the Resort Bluffs segment of the trail which currently requires use of the shoulder of U.S. 31. The City has acquired easements along the railroad grade below the bluff for construction of this section of the separated pathway, which is more complex than a typical bicycle pathway because of steep slopes and washouts in the area that have to be bridged and stabilized. Construction, funded with local and state money, is scheduled for 2008. The 1.6-mile project will cost $1.3 million (with approximately $1,000,000 in transportation enhancement [TE] funds and $290,000 in local match).

- Little Traverse Township Park to Harbor Springs: This nearly 3.5-mile segment still requires use of the roadway shoulder on M-119. According to the Web site of the Little Traverse Wheelway Committee, progress has been made on obtaining the necessary easements to finish the trail. The trailhead will be built at the ball fields at Lake and Hoyt Streets on the east sides of Harbor Springs. Construction grants have been obtained and the segment is expected to be built in 2008.

- There is abandoned state-owned rail right-of-way on the west side of U.S. 31/North in which a trail is proposed generally beginning near M-119/U.S. 31 and moving toward Oden and, eventually, to Mackinaw City. About three miles of this trail is in Bear Creek Township connecting to the Little Traverse Wheelway.

There are no current data about use of the Little Traverse Wheelway. To better understand use of the trail, information from the closest, similar facility (the Traverse Area Recreational Trail [TART]) was reviewed. A survey on the TART trail indicated that from May through September of 2002 there were an estimated 150,000 visits to the trail. Given that the service area population for the TART trail is about 100,000 and the service area for the Little Traverse Wheelway is around 30,000 people, it is possible that there are 50,000 visits to the trail during the May to September period.

5.3 Bicycle/Pedestrian Crash Data

Crash data for accidents involving bicycles and pedestrians were gathered for the period of 2000 – 2006. Table 5-1 presents a summary of the crash experience during this period. The locations of these crashes are shown on Figure 5-2.

Figure 5-2
Bicycle/Pedestrian Crash Locations

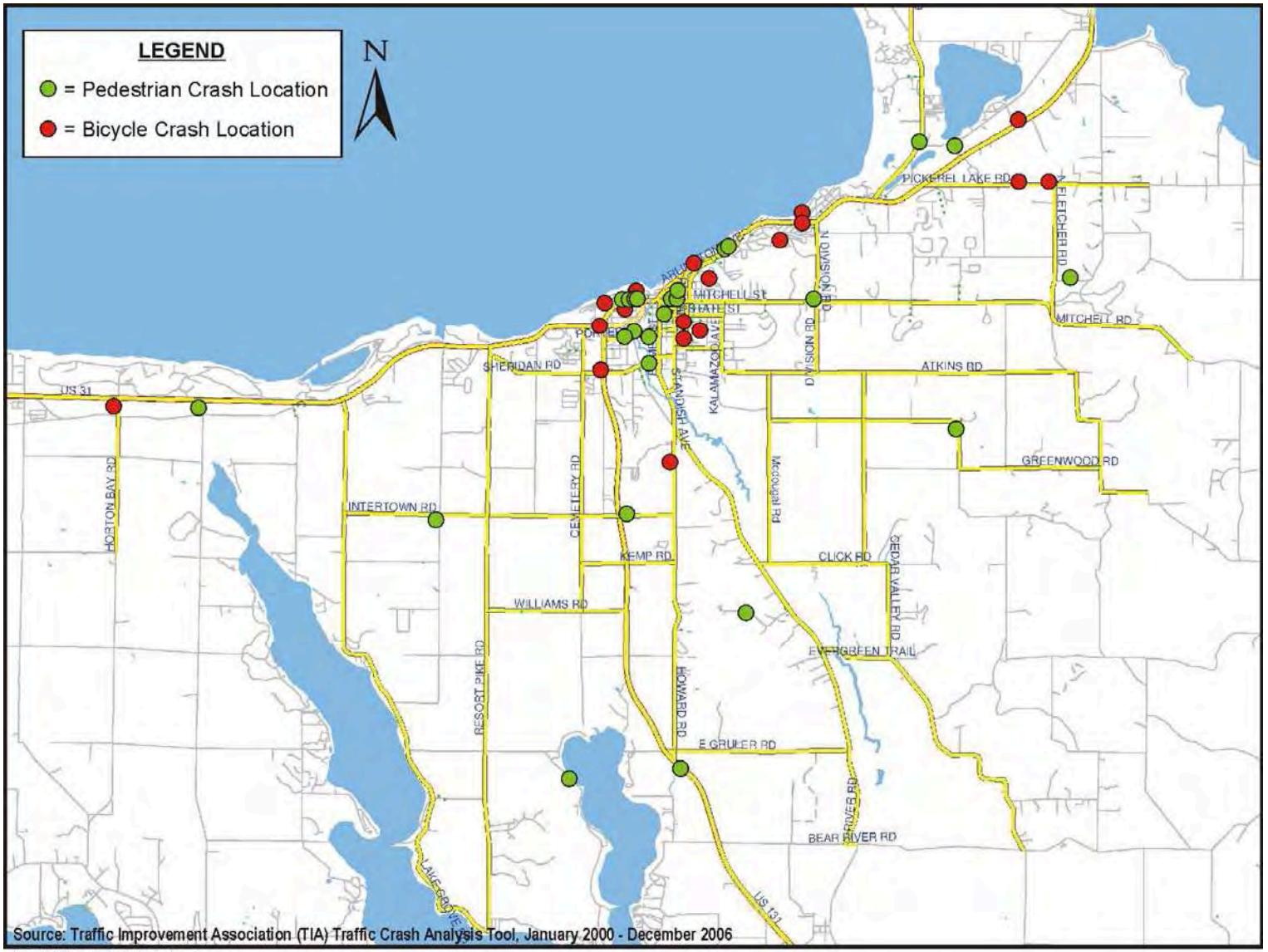


Table 5-1
Bicycle/Pedestrian Crash Report Summary (January 1, 2000-December 31, 2006)

Area	Total Bike Crashes	Fatality (Persons)[a]	Injury (Persons)[a]	No Injury (Persons)[a]	Total Pedestrian Crashes	Fatality (Persons)[a]	Injury (Persons)a	No Injury (Persons)[a]
City of Petoskey	11	0	10	19	16	0	15	12
Resort Township	1	1	0	1	3	1	3	0
Bear Creek Township	7	0	7	10	8	2	7	3
TOTAL	19	1	17	30	27	3	25	15

[a] Includes all persons involved in crash
Source: Traffic Improvement Association

5.4 Existing Non-motorized Trip Characteristics

To understand Petoskey's potential to increase the number of people walking and bicycling, several data sources were reviewed. First, was the 2000 U.S. Census (Table 5-2). The number of people either walking or bicycling to work is very low with more people walking (primarily in the City of Petoskey) than riding a bicycle. Second, the current and future overall number of trips are estimated. According to the model Corradino has developed and is using for this study, the number of summertime internal person trips in 2000 and expected in 2030 are 82,300 and 119,600, respectively.

The national average is 7.2 percent of all person trips are made by walking and .70 percent are made by bicycling.[5] Using those averages as benchmarks, Table 5-3 illustrates the number of trips that could be made by walking and bicycling.

As can be seen, the total number of trips made by walking and bicycling are very few when compared to all trips being made in the study area. Given the relatively comprehensive sidewalk network in the City of Petoskey, improvements to the pedestrian environment will likely see only modest increases. Improvements to the bicycling environment both in the City and in the townships could result in greater use of non-motorized travel options. Nonetheless, it is important to note that bicycling and pedestrian facilities have many benefits that go beyond their ability to relieve traffic congestion on the roadway network.

[5] National Walking and Bicycling Survey

Table 5-2
Petoskey Area Transportation Study
Means of Transportation to Work by Jurisdiction
(workers 16 years and over)

	City of Petoskey		Bear Creek Township		Resort Township		Emmet County		State of Michigan	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Car, truck, or van:	2,623	84.7	2,248	91.1	1,172	92.1	13,501	90.5	4,217,141	92.9
Drove alone	2,195	70.9	1,932	78.3	1,049	82.5	11,560	77.5	3,776,535	83.2
Carpooled	428	13.8	316	12.8	123	9.7	1,941	13.0	440,606	9.7
Public transportation:	0	0.0	0	0.0	9	0.7	33	0.2	60,537	1.3
Bus or trolley bus	0	0.0	0	0.0	9	0.7	26	0.2	54,423	1.2
Streetcar or trolley car	0	0.0	0	0.0	0	0.0	0	0.0	560	0.0
Subway or elevated	0	0.0	0	0.0	0	0.0	0	0.0	576	0.0
Railroad	0	0.0	0	0.0	0	0.0	0	0.0	290	0.0
Ferryboat	0	0.0	0	0.0	0	0.0	4	0.0	466	0.0
Taxicab	0	0.0	0	0.0	0	0.0	3	0.0	4,222	0.1
Motorcycle	0	0.0	0	0.0	0	0.0	7	0.0	1,698	0.0
Bicycle	0	0.0	3	0.1	10	0.8	22	0.1	10,034	0.2
Walked	354	11.4	90	3.6	3	0.2	595	4.0	101,506	2.2
Other means	14	0.5	0	0.0	5	0.4	52	0.3	21,691	0.5
Worked at home	104	3.4	127	5.1	73	5.7	707	4.7	127,765	2.8
Total Workers 16 and Over	3,095	100.0	2,468	100.0	1,272	100.0	14,917	100.0	4,540,372	100.0

Source, U.S. Census Bureau, Census 2000

Table 5-3
Number of Daily Trips Made by Walking/Bicycling in Petoskey Area

Year	Total Daily Person Trips	# Walking	# Bicycling
2000	82,263	5,923	592
2030	119,585	8,610	861

5.5 Proposed Facilities

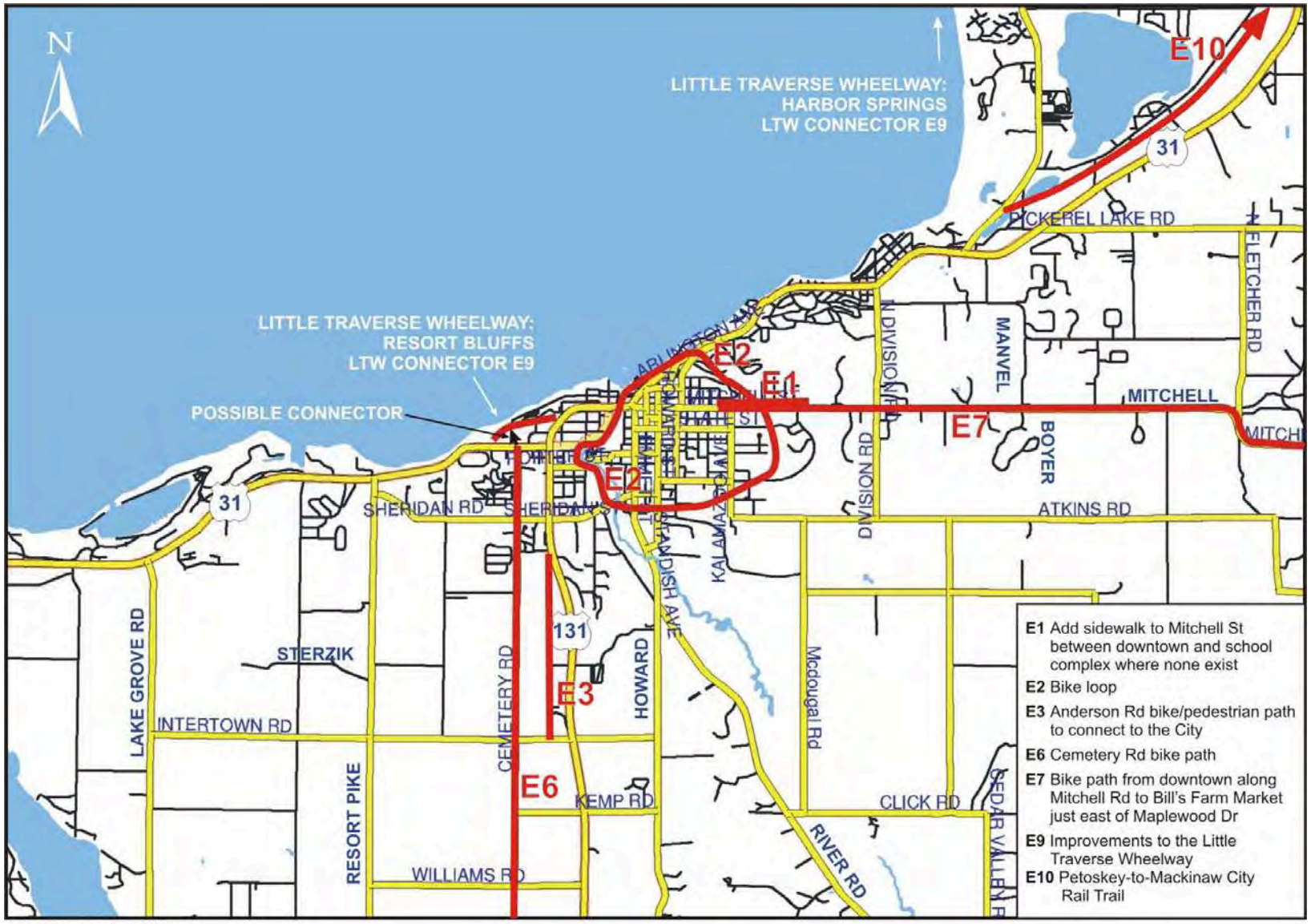
Several proposals for non-motorized facilities developed through public involvement are:

- Add sidewalk to Mitchell Street between downtown and school complex
- Public Facility Bike Loop
- Anderson Road bicycle/pedestrian path
- Bike Path through Bay View on old Railroad Land
- Sidewalks in appropriate locations for townships
- Cemetery Road bicycle/pedestrian path
- Bike path from downtown along Mitchell Road to Bill's Farm Market just east of Maplewood Drive
- Improved bike path along M-119 into Petoskey
- Little Traverse Wheelway Improvements (Magnus Park and M-119) (added after June public meetings)
- Develop new Petoskey-to-Mackinaw City rail trail.

Based on discussions with staff at the Bay View Association, the proposal for a bike path for the old railroad right-of-way in Bay View, which is owned by Bay View, is not feasible as the right-of-way has been or is being developed for other uses. In addition, when MDOT rebuilt U.S. 31 through Bay View the sidewalk was enhanced to bike path specifications. It was intended to be the link in the Little Traverse Wheelway through Bay View. An improved bike path along M-119 into Petoskey is not necessary as the Little Traverse Wheelway existing bike path appears to be more than adequate. But, Wheelway improvements at Magnus Park and M-119 will reinforce existing plans and concepts for completing the Little Traverse Wheelway.

Figure 5-3 and Table 5-4 present information that relates to the non-motorized elements to be part of the plan. It is recognized that off-road pedestrian/bicycle paths cannot be built everywhere. To encourage use of bicycles and walking as alternate modes of transportation, future transportation projects should include non-motorized considerations including marked bike lanes, crosswalks, signage, etc. Many areas now include on-street bike lanes or an off-street path as a mandatory element of new roadway projects. The City of Petoskey has been aggressive in development of its sidewalk program. As development expands into the townships, equal consideration of non-motorized elements should be included.

Figure 5-3
Non-motorized Improvements



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Source: The Corradino Group of Michigan, Inc.

Table 5-4
Non-motorized Improvements

Project	Length (Miles)	Cost[a] (2007 Dollars)	Comment
Mitchell Road Sidewalk from downtown to High School	.62	$70,000	Would improve pedestrian access for students and faculty at campus. City currently plans to rebuild sidewalks to City boundary. Bear Creek Township would have to construct sidewalk from City boundary to campus entrance.
Public Facility bicycle/pedestrian path	4.28	$805,000	City has plans to construct bicycle path looping through the city to connect major public facilities and improve access to the Bear River natural area.
Anderson Road bicycle/pedestrian path	1.22	$230,000	Improved pedestrian access along this commercial strip would facilitate more pedestrian/bicycle trips to the area and support future transit enhancements.
Cemetery Road bicycle/pedestrian path	4.15	$780,000	This project would facilitate bicycle travel between the Strathmore development and other residential uses and the City.
Downtown to Maplewood Drive along Mitchell Road	3.21	$605,000	This project would create a viable bicycle route for travel from the growing residential areas of Bear Creek Township.
Improvements to Little Traverse Wheelway	1.6 (Resort Bluffs) 3.5 (M-119)	$1,300,000[b] $660,000	The Resort Bluffs project is scheduled for construction in 2008. The M-119 project is being planned but there is no firm commitment for construction at this time.
Regional Non-motorized Develop Petoskey-to-Mackinaw City Rail Trail	3.0 in Bear Creek Township	$565,000	This is a Top of Michigan Trails Council proposal in cooperation with the Michigan Department of Natural Resources.

[a] Estimated (does not include right-of-way or topographical or environmental engineering costs) based on $188,000 per mile for a 10' asphalt bicycle/pedestrian path and $115,000 per mile for a 5' concrete sidewalk.
[b] Cost for the Resort Bluffs section is much higher than typical bike paths because of steep and unstable slopes.

6. Consultant Recommendations

For the 2030 Petoskey Area-wide Transportation Plan to reflect the community preferences, it will likely see, over the next 25 years, investment of about 30 percent of available resources on "new" facilities, as compared to spending 70 percent on maintenance. The "new" facilities that are a community priority are upgrading intersections, traffic signalization and, then, adding lanes on existing roads. To create a truly multimodal plan, transit and walking/bicycling facilities are considered important parts of the future system to maintain the quality of life of the area for residents and its attractiveness to tourists. But, neither transit nor non-motorized facilities will reduce roadway congestion significantly.

The resistance to road projects that is encountered in many communities complicates developing an "action" plan that has many new, local roadway projects. Recognizing this, two basic approaches to developing the plan were reviewed by the study's Steering Committee: 1) do nothing on major local road improvements; or, 2) take a strategic approach to prepare for major road improvements at some time in the future. With both options, transit, non-motorized and intersection improvements would be part of the plan.

After review, the Committee rejected the "do nothing" option as an unsatisfactory course to address the communities' transportation issues. Likewise, the Committee reviewed the proposal of limiting growth in order to control traffic. The Committee felt strongly that this is not a strategy it could adopt because Petoskey is a regional employment and shopping area. If growth were controlled in Petoskey, Bear Creek and Resort Townships, growth will happen in the outlying areas contributing to sprawl. People will still travel into and through Petoskey to reach employment and shopping, so traffic will continue to increase. Nonetheless, the Steering Committee recognized growth needs to be managed so that it occurs in certain areas, thus becoming more compact and efficient.

Therefore, the components of the Petoskey Area-wide Transportation Plan include both short-term improvements at intersections and a strategy to address long-term road improvement needs. Additionally, non-motorized and transit improvements are key components of the plan. Each is discussed below.

6.1 Components of the Plan

6.1.1 Transit

The concept for an area-wide bus system is presented in Section 4.1 of this report and summarized on Tables 4-1 and 4-2. Implementation of the proposal will require almost $500,000 in annual local tax subsidy (2007 dollars). It is recommended, as in many Michigan communities, that a voter referendum be held to implement this part of the plan. Before the people vote, a transit test for the Petoskey area should be conducted during one summer. The test would have two vehicles providing fixed-route, shuttle service linking downtown Petoskey with the Anderson Road shopping/casino area and Bay View. The service would operate at 20 minutes between vehicles.

Assuming the test is initiated in May and runs through the end of August, operating from 7:00 a.m. until 7:00 p.m. on weekdays and 11:00 a.m. to 7:00 p.m. on weekend days, the test program's operating cost would be about $150,000. This includes costs for drivers, maintenance and fuel but does not include the cost of the vehicles.

Two minibuses or trolley-type vehicles should be leased for the test period at a cost of up to $6,000 per month per vehicle. Leasing a vehicle from an existing publicly-funded transit operation that has spares is an option. The Bay Area Transit Authority (BATA) in Traverse City, the Eastern Upper Peninsula Transportation Authority (EUPTA) in Sault Ste. Marie, and Charlevoix Transit are systems that should be contacted.

Ferry service is not considered a realistic option for including in the plan. Recent examination of a Petoskey-to-Harbor Springs ferry by the private sector led to abandoning the concept.

Studying the downtown streetcar is part of the plan recognizing a private-public partnership will be needed to make the concept a reality. A study will cost between $200,000 and $300,000.

6.1.2 Non-motorized

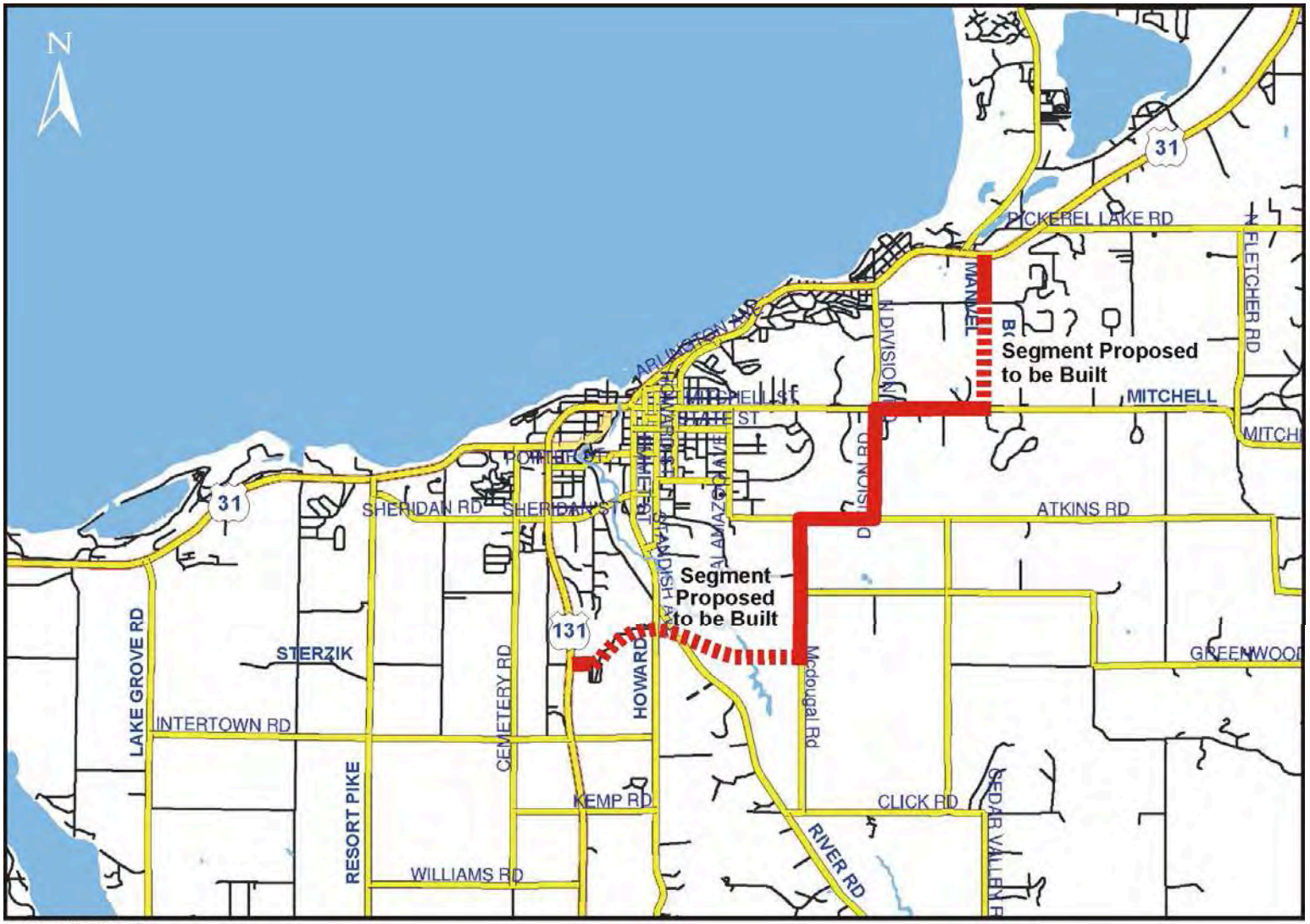
Another component of the multimodal system addresses non-motorized needs – walking and bicycling (as discussed in Section 5 of the report and summarized in Table 5-4 and Figure 5-3). While not a congestion solution, non-motorized improvements address quality-of-life issues. The total cost of the recommended projects is estimated at approximately $5 million.

6.1.3 Roadway

The consultant recommends intersection improvements be made as defined in Section 3 of the report and summarized on Table 3-14. The total cost is estimated at up to $3.25 million. Additionally, Petoskey should take steps to apply access management principles on U.S. 31 beginning with a comprehensive study, which could cost up to $100,000. Effective access management has been proven to reduce crashes, increase roadway capacity, and reduce travel time and delay.

A three-pronged strategy is recommended in moving forward with a plan that recognizes congestion must be addressed by major (non-intersection) local road improvements/investments at some time in the future. The first part of the strategy is to develop a partnership to manage growth among the governments of Petoskey, Bear Creek and Resort Townships, Emmet County and the Little Traverse Bay Bands of the Odawa Indians. The second part of the road improvement strategy is to take steps to preserve right-of-way (by early acquisition or securing options/rights-of-first-refusal to purchase land) to allow roads to be widened, or built new at a later date. The roads would eventually be four lanes wide (two in each direction) with a fifth lane at strategic locations to accommodate turning and/or passing movements. As congestion increases, incremental widening in the "reserved corridor" is the logical course. Improvements to accommodate turning/passing movements at the most-critical locations would be the first increments. Possible corridors in which these investments could be made are discussed in Chapter 3 of this report. One concept suggested by the study's Steering Committee is (Figure 6-1):

Figure 6-1
Petoskey Area-wide Transportation Study
Proposed Major Local Road Improvements (▬) Alternative 10



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Source: The Corradino Group of Michigan, Inc.

Starting at U.S. 31 and Manvel Road, head south on Manvel and connect to Mitchell Road; head west on Mitchell Road to Division Road; head south on Division Road to Atkins Road; head west on Atkins Road to McDougal Road; head south on McDougal Road and construct an extension to Lears Road; head west on Lears Road to where it becomes Hagar Road; Hagar Road connects to U.S. 131. The cost of this concept, exclusive of property purchase, is up to $35 million (2007 dollars).

In examining this concept, it is noted the owner of a portion of the Manvel Road area that would need to be acquired is not in favor of this option. The College is not in favor of going through its natural area that is in or near the portion of Lears Road proposed as part of the plan. Further study will determine how to avoid this latter area.

A final part of the roadway improvement strategy is to join with other communities to change Michigan law so builders/developers pay their fair share of the community's infrastructure improvements that benefit them. Michigan does not have legislation authorizing counties to collect impact fees and/or excise taxes from developers/builders. A 2003 report by the PIRGIM Education Fund[6] recommended that such legislation be enacted and that impact fee ordinances be crafted so that development pays the full marginal cost of required infrastructure.

If these steps are taken, then the right-of-way, in large part, could be available along with additional private sector revenue to allow major local road improvements to be made with limited negative effects. Additional funding will be needed from local communities plus state and federal transportation sources, as appropriate. A pool of federal money (less than $1 million) is now available from a High-Priority Project ("earmark").

6.2 Next Steps

The data on Table 6-1 define the staging of each component of the Petoskey Area-wide Transportation Plan that is recommended by the consultant. It is expected that full-scale implementation of a comprehensive transit system will require a referendum of the public at a county-wide level. It is also expected, because the cost of the system is significant ($500,000 of new government revenue needed each year), and transit's ability to relieve congestion in Petoskey is limited, that a referendum to finance the system is a second-level priority. In the meantime, a test program can be implemented by leasing a vehicle from a nearby transit system (in Traverse City or Charlevoix or Sault Ste. Marie) to operate a fixed-route system during one summer. The cost of such a test is $200,000 (in 2007 dollars). The test is a first-level priority.

Implementing a downtown streetcar is considered a second-level priority because it depends on forming a public-private partnership. A detailed study at a cost of up to $300,000 to determine engineering and financial details, and the interest of a private sector participant(s), is a first-level priority. Establishing a Business Improvement District (BID) is an option to determine if those who would benefit most from the streetcar would endorse a special tax assessment to finance the project.

[6] PIRGIM Education Fund, *Development Impact Fees in Michigan: A Tool to Stop Sprawl Subsidies and Promote Efficient Growth*, July 2003

Table 6-1
Petoskey Area-wide Transportation Plan Recommendations

Plan Component	Plan Element	Responsibility	Cost[a]	Priority
Transit	Test Fixed-Route Service during summer season	City of Petoskey with vehicle(s) leased from system in Traverse City or Charlevoix or Sault Ste. Marie.	$200,000	2009 or 2010
	Hold referendum to decide if a transit system is to be implemented. Annual implementation cost of transit system @ $500,000 (in 2007 dollars).	Local governments, Odawa Indians	NA	2011 – 2015, following test of summertime service
	Study developing downtown streetcar service	Petoskey and private partner	Study Cost: $200,000 to $300,000	2009 – 2015
Non-motorized	Mitchell Road sidewalk from downtown to high school	City of Petoskey/Bear Creek Township	$71,000	2009 – 2025
	Public facility bicycle/pedestrian path	City of Petoskey	$805,000	2009 – 2025
	Anderson Road bicycle/pedestrian path	Bear Creek Township	$230,000	2009 – 2025
	Cemetery Road bicycle/pedestrian path	Bear Creek/Resort Townships	$780,000	2009 – 2025
	Downtown to Maplewood Drive along Mitchell Road	Petoskey/Bear Creek Township	$605,000	2009 – 2025
	Improvements to Little Traverse Wheelway	Petoskey/MDOT/Top of Michigan Trails Council	$1,960,000[b]	2009 – 2025
	Develop Petoskey-to-Mackinaw City Rail Trail	Top of Michigan Trails Council/Michigan Department of Natural Resources	$565,000	2009 – 2025

Table 6-1 (continued)
Petoskey Area-wide Transportation Plan Recommendations

Plan Component	Plan Element	Responsibility	Capital Cost[a]	Priority
Roadways	U.S. 131/Intertown Road	Road Commission/MDOT	$75,000 to $150,000	2009 – 2015
	U.S. 131/Lears Road	Road Commission/MDOT	$75,000 to $150,000	2009 – 2015
	U.S. 31/Division Road	Road Commission/MDOT	$500,000 to $900,000	2009 – 2015
	U.S. 31/Pickerel Lake Road	Road Commission/MDOT	$500,000 to 900,000	2009 – 2015
	U.S. 31/M-119	Road Commission/MDOT	$500,000 to $1 million	2009 – 2015
	U.S. 31/Cemetery/ Greenwood Road	Road Commission/MDOT/ City of Petoskey	$75,000 to $150,000	2009 – 2015
	Extend Atkins Road	City of Petoskey/North Central Michigan College/Road Commission	$1.0 to $1.5 million	2009 – 2015
	Access Management Study	City of Petoskey/Bear Creek/Road Commission/MDOT	$50,000 to $100,000	2009 – 2010
	Close Country Club Road	With Bear Creek Township conditions/Road Commission	NA	Tied to widening U.S. 31 at Division Road
	Right-of-way Preservation	Local units of government	To be determined	2016 – 2030
	Major local road widening/construction	Local units of government and Odawa Indians	$23.5 to $35.0 million	2021 – 2040
Policy	Manage growth	Local units of government and Odawa Indians	NA	2008+
	Secure legislation to allow assessment of Development Impact Fees	Local units of government and Odawa Indians	NA	2008+

[a] Cost does not include right-of-way purchase.
[b] Cost for the Resort Bluffs section is much higher than typical bike paths because of steep and unstable slopes.

Source: The Corradino Group of Michigan, Inc.

The non-motorized improvements, listed on Table 5-4 and illustrated on Figure 5-3, range from $70,000 to almost $2 million for a total investment of approximately $5 million (2007 dollars).

The consultant recommends these improvements be implemented beginning in 2009 and continuing through 2025. This requires an average annual investment of about $300,000.

The roadway improvements begin with an Access Management Study recommended for 2009 at a cost of up to $100,000. The consultant's recommendations also include a host of intersection modifications which would total as much as $3.25 million (2007 dollars). Implementation would begin in 2009 and extend through until 2015. This equates to an average annual investment of approximately $465,000. The definition of which intersection improvements go first is a matter of continuing local agency discussions (including the Odawa Indians) in cooperation with MDOT. As noted earlier, a pool of federal money (less than $1 million) is now available from a High-Priority Project ("earmark"). These dollars, when matched with non-federal monies, could fund new signals at U.S. 31 and Lears Road, U.S. 31 and Intertown Road, or, perhaps, improvements at the U.S. 31/Division Road area. In addition to the intersection improvements, an access management study should be pursued in cooperation with MDOT at a cost up to $100,000.

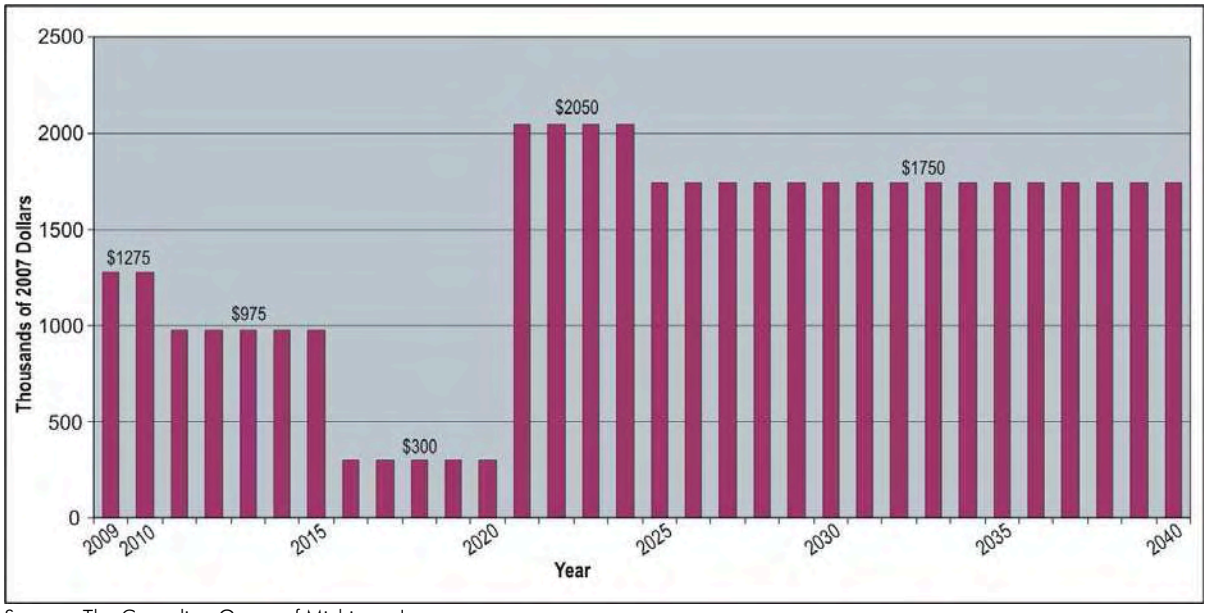
Closing Country Club Road is considered by the consultant to create no significant traffic congestion. Bear Creek Township has recommended that a number of conditions must be met to allow that closure to occur. As such, it could very well be a first-level priority, if it is tied to the improvement of U.S. 31 at Division Road, which is one of the conditions.

The Roadway Component of the plan also calls for making major local road improvements beginning in 2021 and extending to 2040. Advanced acquisition to preserve the right-of-way along a path such as that suggested in Figure 6-1 should begin in 2016. New legislation would be helpful to allow Development Impact Fees to be collected from private sector interests wishing to develop major projects in the Petoskey area. Efforts to secure legislative approval, in concert with other Michigan communities, should begin in 2008. Likewise, developing, and then implementing, a strategy to manage growth should begin in 2008. Then, major local road improvements can begin by 2021, with some revenue from the private sector gained through Development Impact Fees to be added to other government funding.

To implement these proposals, an annual average revenue stream of (Figure 6-2):

1. $1, 275,000 in 2009 for an Access Management Study, the transit test, and non-motorized and intersection/Atkins Road improvements;
2. $1,275,000 in 2010 for the streetcar study, and non-motorized and intersection/Atkins Road improvements;
3. $975,000 annually from 2011 through 2015 for both non-motorized and intersection/Atkins Road improvements;
4. $300,000 per year for the period 2016 through 2010 for additional non-motorized improvements;
5. $2,050,000 per year from 2021 and 2025 as major local road improvements are added to the final non-motorized projects;
6. $1,750,000 annually from 2025 to 2040 for implementing the major local road improvement program.

Figure 6-2
Petoskey Area-wide Transportation Study
Funding Needed to Implement Consultant's Recommendations



Source: The Corradino Group of Michigan, Inc.

These consultant recommendations are now subject to local government and Odawa Indian Tribe review and action. After final priorities are adopted, they should undergo regular review. As the program of improvements gets into full swing, it may be appropriate for a transportation coordinator to be employed to manage timely implementation of the authorized projects.