
1. *Introduction*

This scoping document support the development of an Environmental Assessment (EA) for M-15 between I-69 and I-75 in Oakland and Genesee counties, Michigan (Figure 1-1). The EA process will: (1) evaluate conditions surrounding the M-15 corridor between I-75 and I-69; (2) develop and evaluate improvement alternatives; (3) narrow those to practical, then feasible alternatives, and finally a recommended alternative; and, (4) gain environmental approval from FHWA on the recommended alternative so that it can advance to the design phase. Corridor alternatives will be evaluated using objective criteria (including cost) in consideration of legal and regulatory requirements. This will be a cooperative process, affording early and continuing involvement of the general public, elected officials, public agencies and regulatory bodies, private providers of transportation, and other stakeholders in Oakland and Genesee counties.

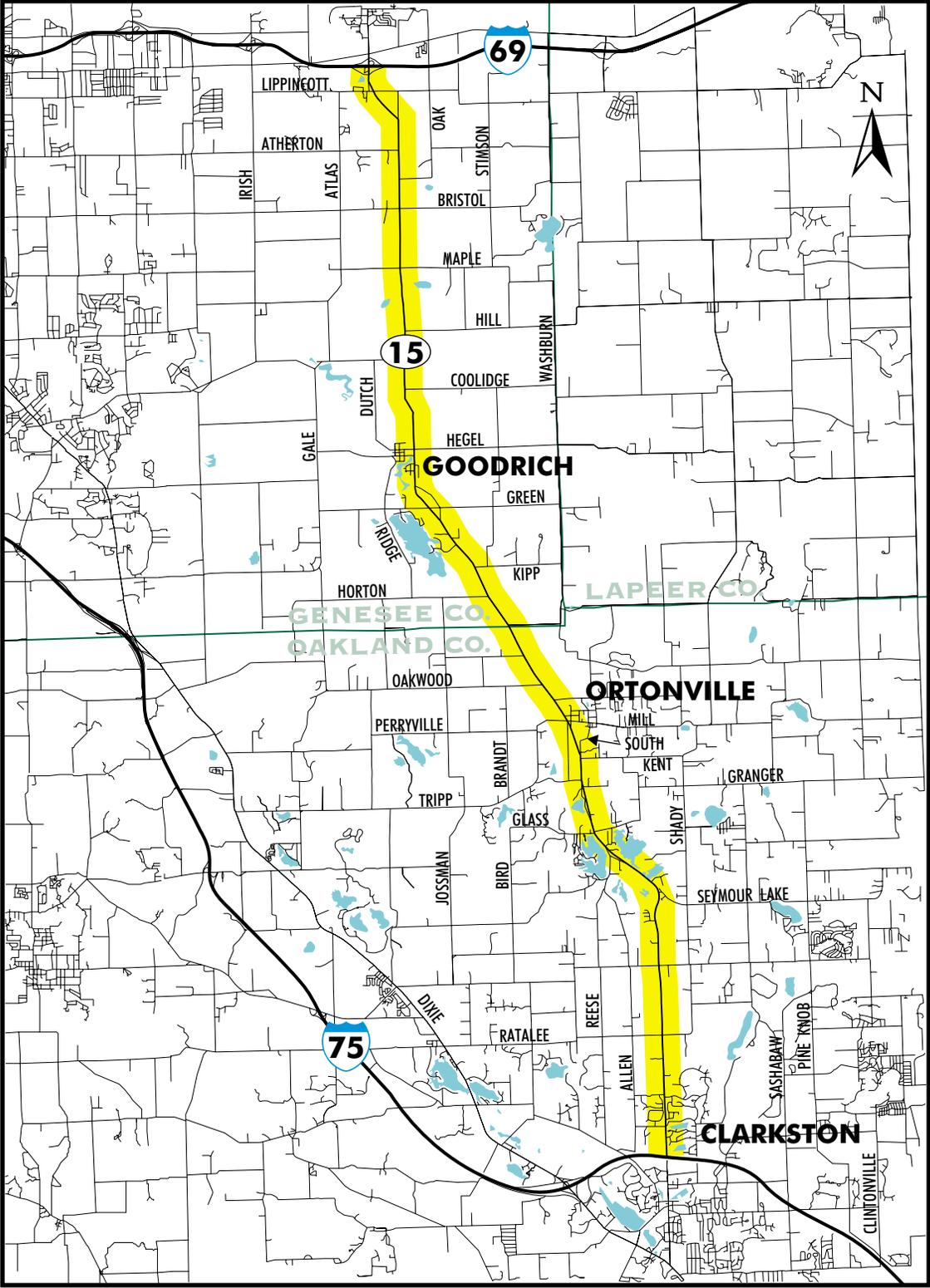
M-15 is a north-south arterial extending 70 miles (110 kilometers) from U.S. 24 in Oakland County to M-25 in Bay County. The current analysis is confined to the 20-mile (32-kilometer) section between I-75 and I-69. South of I-75 is the Village of Clarkston in Oakland County. North of the junction with I-69 is the City of Davison in Genesee County. These two communities fall outside the study area. Ortonville in Oakland County and Goodrich in Genesee County are directly served by M-15. The core or “downtown” sections of these communities are, for the most part, “off line”, meaning that M-15 does not bisect these districts, but skirts them. The project is almost equally divided between the two counties.

The original study area was bounded by I-75 on the south, I-69 on the north and a band generally one mile wide to the east and west of M-15. The study area boundary has been expanded from these minimums as a result of the public involvement process.

This document describes the alternatives under consideration and identifies the social, economic and natural environmental issues relevant to the proposed project.

This 20-mile (32 km) route consists for the most part of two 12-foot lanes with ditch drainage in 120 feet of right-of-way (or permanent easement). Widening have occurred at the north and south project ends near the interstates, and turn lanes are present at some cross roads. The terrain is rolling with more relief in the southern part of the corridor and numerous lakes. The route carries fairly high traffic volumes, especially at its southern end. It has little access management. Geometric conditions and vertical alignment provide less than desirable sight distances at some locations. Relative to other trunklines, commercial traffic is relatively light.

Figure 1-1
Study Area



2. *Planning Basis and Need*

2.1 Land Use and Development

The Michigan Department of Transportation (MDOT) developed a “Preliminary Project Statement” in 1995 that first addressed congestion in the corridor. That study found that in the previous decade, traffic volumes on M-15 in Oakland County had increased at up to seven percent per year. Population projections indicated that such growth would continue in the area placing continuing pressure on M-15. Safety analysis performed at that time concluded that the accident experience reflected a roadway with capacity and turning movement deficiencies. Traffic volume growth in the Genesee County portion of the corridor was found to be more moderate, but new housing projects were underway, with the expectation of more to come. The findings of the Preliminary Project Statement are summarized below.

- Existing and forecast travel indicated a need for construction of a five-lane section in Oakland County, with a boulevard be considered as an alternative.
- A feasibility study and a corridor management study should be initiated.
- Local roadway development on the part of Oakland County and the affected townships should be encouraged to provide alternative north-south routes for local circulation. Most of those routes that offer parallel service to M-15 are gravel roads.

Since the time of MDOT’s Preliminary Project Statement, traffic demand has continued to grow. And, the growth in Genesee County has increased to the point that projected travel demand now demonstrates a need for four travel lanes on M-15 in that county, as well as in Oakland County. No other state or federal routes connect with M-15 in the project area. The closest parallel state or federal roads are M-24, which is approximately 10 miles (16 km) to the east and M-54 which is approximately 7 miles (11.5 km) to the west. M-15 is not part of the National Highway System, but it is part of the Surface Transportation Program.

The most recent federal legislation relating to transportation is the Transportation Equity Act for the 21st Century (TEA21). M-15 is listed as a “high priority project” in Section 1602 of TEA21. TEA21 provided \$500,000 in funding for operational improvements on M-15 from I-75 north to the Genesee County line.

The Village of Goodrich in its State Road/M-15 Corridor Plan dated April 1999 stated that additional work is necessary to improve access management along the corridor. Brandon Township and the Village of Ortonville have requested that capacity and other operational improvements be made to M-15.

Land use along M-15 in Oakland County is predominately single-family residential with lot sizes ranging from one to 2.4 acres in the east, 2.5 to 4.9 acres in the central to up to 10 acres or greater in the west. Commercial and industrial zoning on M-15 is located around Ortonville and the southern corridor boundary. Sewers do not serve Northern Oakland County along M-15, which limits the density of development.

Land use in Genesee County along M-15 is mostly residential, ranging from suburban to urban. Commercial zoning is located at the northern boundary of the corridor and in the Village of Goodrich along M-15. Within one mile of M-15 there is also land zoned for recreational/conservation and residential/agricultural uses. Many wetlands and small lakes also lie in the corridor in both counties.

The study area is expected to see a high level of population growth in the future. Oakland is one of the fastest growing counties in Michigan. From 1980 to 1990 its population grew almost seven percent while the State of Michigan only grew 0.36 percent. The Southeastern Michigan Council of Governments (SEMCOG) projects that the townships surrounding the Oakland County portion of the corridor will be urbanized by the year 2010. Brandon Township grew from 9,526 to 12,051 (26.5%) from 1980 to 1990. Independence Township grew from 21,537 to 24,722 (14.8%) from 1980 to 1990. The areas around the portion of the M-15 corridor in Genesee County are also growing. Davison Township grew from 13,708 to 14,671 (7.0%) from 1980 to 1990. The Village of Goodrich grew from 795 to 916 (15.2%) in the same 10-year period. These trends indicate the need to study improving highway capacity in the corridor.

MDOT's 1995 M-15 report called for a major reconstruction of M-15, some widening, vertical alignment improvement, improved drainage and ditching, roadside control islands and tree cutting and trimming. It also stated that there was a need for bridge repair, improvement to slopes and sight distances. Discussions with engineers indicate that, with reconstruction, the entire roadway base will need to be replaced. Road resurfacing was completed in Genesee County in 1999 and is currently underway on M-15 in Oakland County.

2.2 Accidents

Safety has always been an important issue in the corridor. Both Ortonville (45 mph) and Goodrich (40 mph) have speed restrictions. Horizontal and vertical curve sections also limit overall travel speed. Sight distance limitations, congested intersections and frequent driveway entrances contribute to "friction" and potential conflicts along the roadway. As congestion increases there are fewer chances to pass slower vehicles, which then set overall travel speeds. Furthermore, MDOT's Sufficiency Report indicates nearly four miles (6 km) of the rural segment of M-15 has sight restrictions that prohibit passing. If M-15 in Ortonville and Goodrich is excluded, nearly 22 percent of M-15 has passing sight restrictions. This is one factor that contributes to the safety and capacity deficiencies of this road.

MDOT's 1995 report on M-15 included a safety analysis of the corridor. It concluded that the existing crash experience is indicative of a roadway with capacity and turning movement deficiencies.

Safety analysis covered Oakland and Genesee counties separately over a five-year period, January 1, 1989 to December 31, 1993. In the Genesee County part of the corridor there were 581 crashes over 9.8 miles (15.8 km). Of these, 188 resulted in 292 injuries and one fatality. The fatality was the result of a driver crossing the centerline and hitting a tree. Table 2-1 lists the number of crashes by type, with the most frequent being "rear-end."

Type of Crash	Frequency	Percent
Rear-end	156	26
Animal	126	22
Angle	85	15
Fixed-object	82	14
Head-on	31	5
Sideswipe	18	3
Rear-end left-turn	16	3
Overturn	15	3
Head-on left-turn	11	2
Driveway related	8	1
Other	33	6
Total	581	100

The Traffic Improvement Association of Oakland County has provided more recent accident information for Genesee County. In 1996 and 1997 there were 201 crashes (Table 2-2). The two most frequent types of crashes were animal (24%) and rear-end (19%). The link on M-15 that had the highest rate of accidents was from East Hegel Road to Coolidge Road (1 mile) with 48 accidents per mile. The next highest link was from

Type of Crash	Frequency	Percent
Animal	49	24
Rear-End	38	19
Angle	36	18
Sideswipe	16	8
Fixed object	12	6
Head-on left turn	10	5
Rear-end left-turn	9	5
Run Off Road	6	3
Head-on	5	2
Other	20	10
Other	33	6
Total	201	100
Source: Traffic Improvement Association of Oakland County.		

Green Road to East Hegel Road (1 mile) with 47 accidents per mile. Intersecting crossroads (200 feet or closer to the intersection) with the highest number of accidents were Hill Road and Atherton Road with eight accidents each.

Safety analysis data from January 1, 1989 to December 31, 1993 for the Oakland County part of the corridor shows that 943 crashes over 9.7 miles (15.6 km) (Table 2-3); 298 resulted in 470 injuries and seven fatalities. Four of the fatalities occurred in three separate crashes where a vehicle crossed the centerline and hit another vehicle head-on. The most common crash type (37%) was rear-ending. Rear-end crashes generally occur in congested conditions when drivers follow the car in front of them too closely.

Type of Crash	Frequency	Percent
Rear-end	355	37
Angle	167	18
Animal	96	10
Fixed-object	81	9
Head-on	57	6
Head-on left-turn	28	3
Overturn	25	3
Rear-end left-turn	22	2
Other	112	12
Total	943	100

Source: Michigan Department of Transportation

Recent accident information for Oakland County indicated there were 660 crashes for M-15, north of I-75, in Oakland County between 1996 and 1998 (Table 2-4). The most common crash type remained rear-end with 45 percent of the total. The link on M-15 that had the highest number of accidents per mile was from Grange Hall Road to Groveland Road (0.66 miles), with nearly 26 crashes per mile. The next highest link was from I-75 to Rattalee Lake (2 miles), which had 25.5 crashes per mile. The intersection that had the highest frequency of accidents was M-15 at Glass Road. There was an average of 19 crashes a year at this intersection.

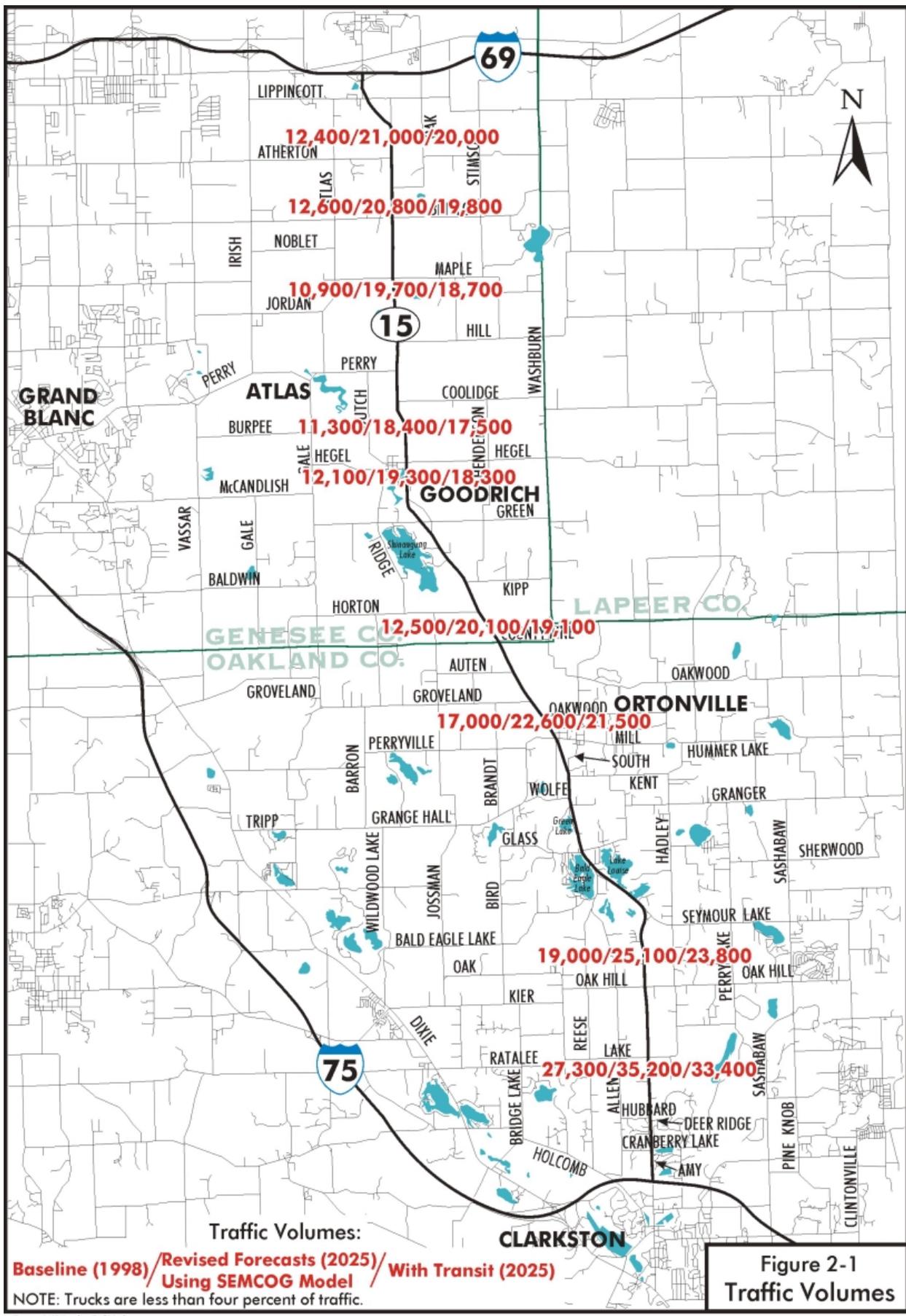
The above data are still being refined and will likely be updated in the future.

2.3 Transportation Demand and Capacity

In 1998 traffic counts on M-15 varied from a high of 27,300 vehicles per day (vpd) north of I-75 to 10,100 vpd near Goodrich. Most of Oakland County had traffic counts that were over 17,000 vpd (Figure 2-1). In Genesee County no 1998 counts were over 12,600 vpd. Preliminary analysis of future travel demand has been simulated using SEMCOG's travel model for 2025. These projections of M-15 traffic for 2025 range from 35,200 vpd north of I-75 to 18,400 vpd north of Goodrich. M-15 through most of Oakland County is projected to have over 22,000 vpd in 2025. Genesee County is forecast to have over 17,000 vpd throughout.

Two-lane roads in urban settings can carry 17,000 vpd, as travel demand is generally spread throughout the day and night and vehicles are not pressing to pass. However, in rural areas, where longer distance travel prevails, autos want to pass trucks and other cars. As traffic volumes increase, fewer and fewer sufficient gaps are presented for safe passing. The result is lower roadway capacity as traffic flow is controlled by the slowest moving vehicles. Under these conditions, and at volumes of 17,000 vpd or more, four-lane roads of some type are preferred.

Type of Crash	Frequency	Percent
Rear-end	300	45
Angle	92	14
Animal	78	12
Sideswipe	42	7
Fixed-object	34	5
Head-on left-turn	23	3
Head-on	16	2
Rear-end left-turn	13	2
Run off Road	13	2
Overturn	10	2
Other	39	6
Total	660	100
Source: Traffic Improvement Association of Oakland County.		



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3. *Illustrative Alternatives*

This section describes the alternatives being considered to accommodate future travel demand.

3.1 Do-Nothing Alternative

A “do nothing” or “no build” alternative will be considered throughout the course of the environmental analysis. Making no improvements to M-15, beyond the current repaving now underway, will remain an option through the public hearing stage of the project.

3.2 Mass Transit Alternative

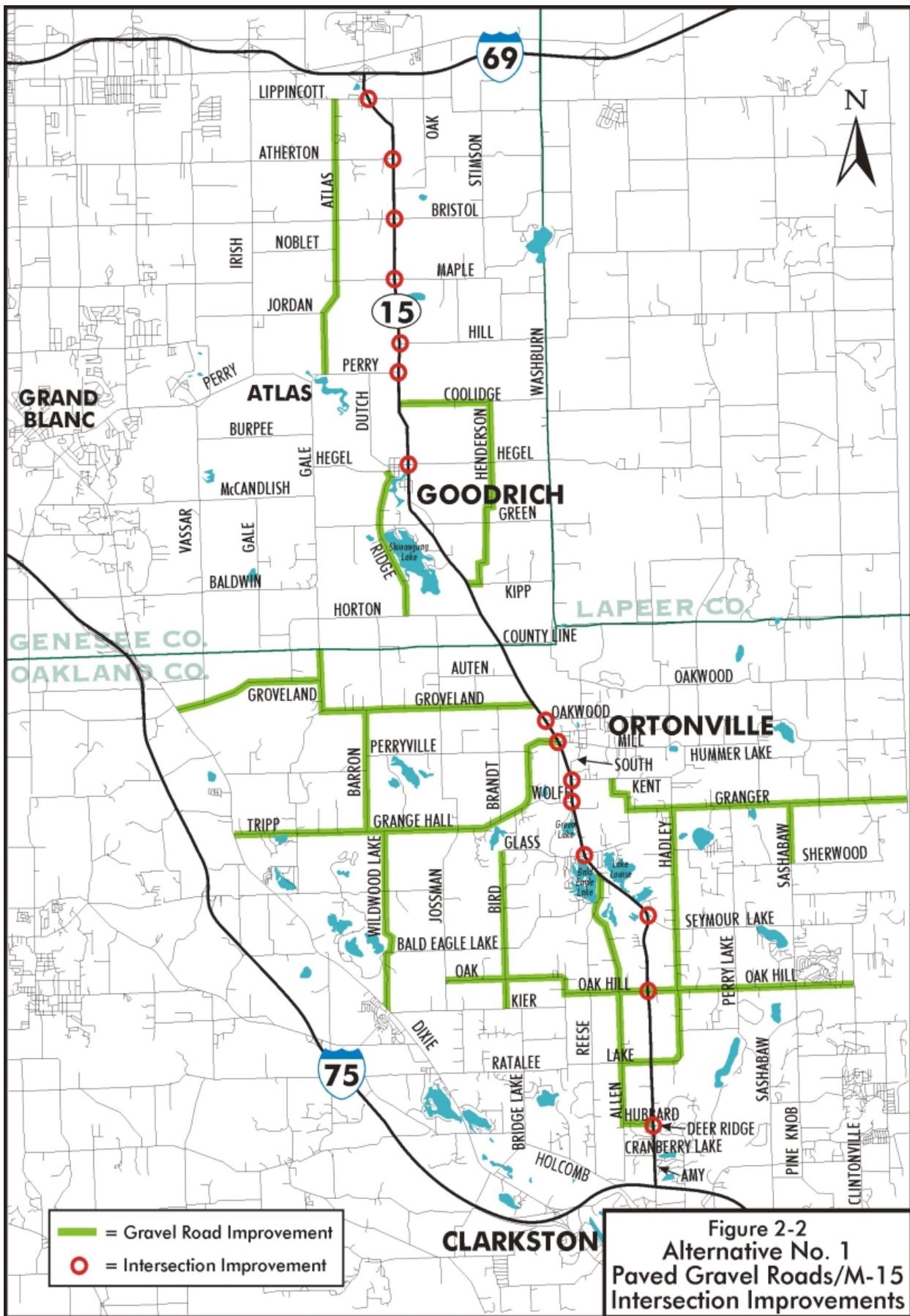
Mass transit must be considered in all federally-funded projects that address substantial improvements to the transportation network. In this case, mass transit has been considered from the standpoint of the maximum potential diversion from personal vehicles that might be achieved. Even under the most favorable conditions, it is unlikely that more than five percent of the travel on M-15 could ever be diverted from the auto. This diversion would not affect the need for four lanes on M-15 (Figure 2-1). Therefore, the non-auto alternative is not considered a viable option and will not be the focus of additional analysis.

3.3 Low Cost Improvements/TSM - Alternative No. 1

Low-cost improvements need to be considered as an alternative to widening the roadway for its entire 20-mile length. Low-cost improvements include transportation systems management (TSM) techniques that are designed to maximize the use of the existing transportation system. A number of options are proposed under this umbrella of low cost improvements and each is discussed below. Together they comprise Alternative No. 1 (Figure 3-1).

Pave Gravel Roads

Many of the roads in Oakland and Genesee Counties are gravel. They generally serve low traffic volumes at low speeds. Paving these roads would substantially increase their capacity and their usefulness. In this role, they could provide relief to M-15.



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