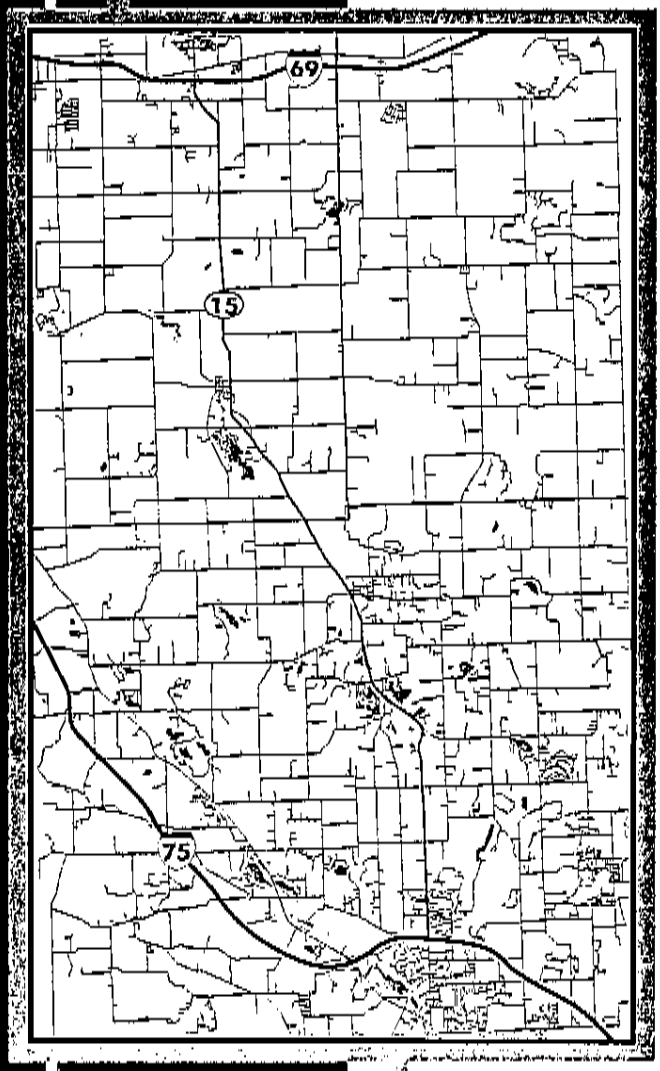
CORRADINO

TECHNICAL MEMORANDUM No. 3
EVALUATION OF PRACTICAL ALTERNATIVES

Environmental Assessment of M-15 from I-75 to I-69 in Oakland and Genesee Counties

CS 25071 & 63071 - JN 49153



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March 2001

Summary

This report on the potential for improving M-15 from I-69 to I-75 presents the results of the evaluation of Practical Alternatives. The Practical Alternatives include widening M-15 to four lanes for through travel with the center of the roadway dedicated to either a landscaped median, i.e., a narrow boulevard, or to a paved area for vehicles to turn, i.e., a five-lane road.

A five-lane roadway can be constructed in either an urban or rural cross-section type. The difference is drainage and sometimes amenities in the form of sidewalks or walkways/bicycle paths. The five-lane urban section is compact, with curb-and-gutter drainage, and requires a minimum of right-of-way. Where more right-of-way is available, the rural section allows for side slope drainage to a ditch. In either case, the outside lane can be widened to allow for bicycle travel concurrent with vehicular travel on the roadway. The five-lane section would be augmented at intersections by exclusive left-turn and right-turn lanes. In addition, on the far sides of intersections, there may be a taper lane that allows right-turning vehicles from the cross road to return smoothly to the two-lane traffic flow. Travel demand projections at this point do not indicate any locations where more than five lanes would be required with the exception of auxiliary lanes at the I-75 and I-69 interchanges.

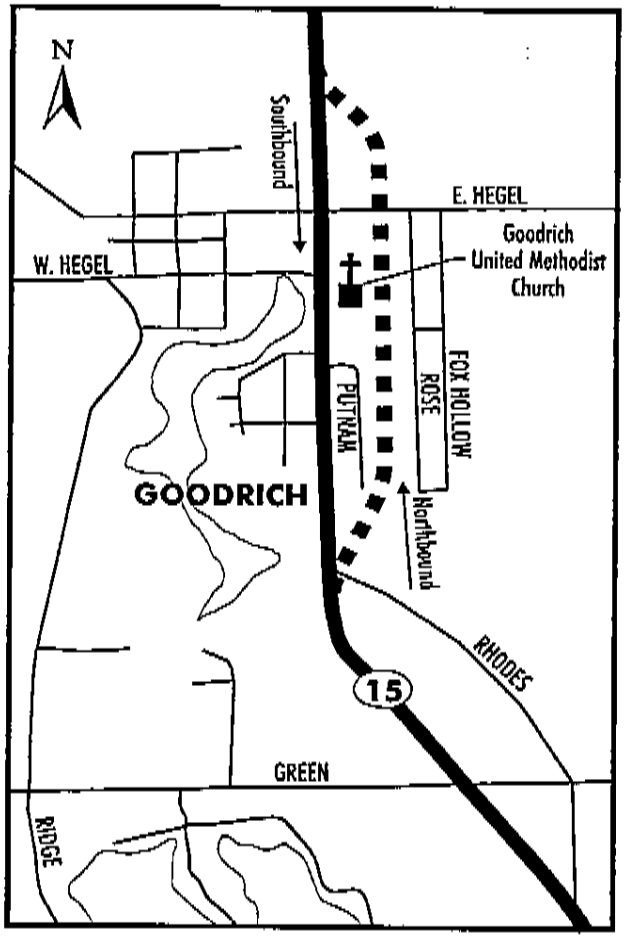
A narrow boulevard provides a median which acts as a separator between the two travel directions, improving safety. The narrow boulevard shoulder areas provide adequate room for U-turns. Provision for U-turns is necessitated because many cross streets and driveways will not have median openings (i.e., access management). For many adjacent land uses, there will be only "right turns in" and "right turns out" of the property. Left turns would be accomplished by a right turn from the cross street/driveway into traffic flow and then a subsequent U-turn.

Because of the different widths of these proposed roadway cross-sections, they have different impacts. To minimize them, the placement of the road (i.e., left or right of the existing centerline of M-15) was key to the analysis of alternatives. This was more the case with the boulevard as the five-lane alternative can be built mostly in the existing right-of-way of 120 feet.

In refining the alignments of the alternatives, important resources, like wetlands and historic properties, were avoided to the extent possible while balancing the displacements of houses and businesses. Historic and wetland resources are protected by federal and/or state laws.

It is worthy to note the Goodrich area as it relates to the road refinements. The five-lane alternative could be carried through town, holding the west right-of-way line where it is today. Or, a one-way pair could be constructed with M-15's width not being adjusted and this section dedicated to southbound traffic (Figure S-1). The north leg of the one-way pair would be aligned along the rear of the lots of the houses that face Rose Lane. This alignment was followed to preserve as much land as possible that would be contiguous to the Goodrich United Methodist Church. That church, in conjunction with a private developer, plans a 100-unit senior center on its property. Expansions of the church building itself are also planned.

Figure S-1
One-Way Pair Concept Drawing



The north leg of the one-way pair would have minor wetland involvement and no impacts to historic resources. Some concerns exist about aesthetics and noise. The south leg of the road, i.e., M-15, would continue to operate within the existing right-of-way and offer the opportunity for enhancements to the community, including historic resources. The existing pavement for through traffic could be narrowed and street trees, "bumpouts" for plantings and street furniture, and other features could be added. The speed limit could be lowered to 35 miles per hour from the present 45 miles per hour. These features would enhance the characteristics of a potential historic district on the west side of the road south of West Hegel (Main Street) and a potential *National Register* house on the east side (8083 State Road).

The one-way pair concept was developed in response to the historic character of the Village's core. It was believed that two buildings on the east of M-15 (8049 and 8083 State Road) were of historical significance and eligible for *National Register* listing. The Goodrich/Atlas Historical Web Page refers to the property at 8049 State Road as "...the first frame house built in 1838 by Enos Goodrich," the founder of the Village. A 1960 local historical study sponsored by the Goodrich Women's Club also cited it as "...built by Enos Goodrich in 1838." However, more detailed study by the M-15 consultants reveals that the original Goodrich house is on the northwest corner of the intersection of M-15 at Park (8122 State Road). Additionally, the architectural integrity of the building at 8049 State Road is so seriously compromised that it is likely not to be listed on the *National Register*, regardless of its age. Therefore, a driving force leading to the one-way pair concept has been removed.

Nevertheless, it must be recognized that farther south on the east side of M-15 (8083 State Road) is the Hawes House (circa 1870). It is believed to be architecturally intact and potentially eligible for the *National Register*.

On the west side of M-15 in Goodrich is a district of buildings that is potentially eligible for the *National Register*. If the five-lane alternative were constructed it would be shifted east to avoid taking any frontage from the historic district. This would cause M-15 to encroach into the yard of the Hawes House on the opposite side of the road. This type widening would likely allow construction of a five-lane M-15, but would not enhance the community or its historic resources.

Another area of note is from just north of Hubbard Road to I-75. There, the boulevard concept would be very narrow, i.e., right-of-way at 120 feet. This is possible because adjoining property does not have direct access to M-15 but is channeled to cross streets. However, it does not appear possible to extend even the very narrow boulevard concept south beyond Cranberry Lake Road as it would interfere with access/egress of Amy Drive and several properties in the vicinity that front on M-15. Additionally, a proposal under review by Independence Township to develop the property in the northwest quadrant of the interchange has a stipulation that access must not be provided to Cranberry Lake Road. That means it must gain access to M-15 which will not be compatible with the boulevard concept in this area.

The refined Practical Alternatives were presented to the public at a workshop held on January 24. At that time, and through the end of February, input was received on the rating of six evaluation factors that allowed discrimination between the two build alternatives. These factors are:

- Displacements
- Historics
- Wetlands
- Community Cohesion
- Construction Cost
- Roadway Safety

About five dozen citizens and 11 members of the consultant team (engineers, planners, and specialists in historics and wetlands) separately rated the six evaluation factors. The results listed below indicate that both groups agree roadway safety is the highest rated evaluation factor with displacements rated second. Both groups agree "historics" is fourth and construction cost is the lowest rated factor, with the consultant scoring it even lower than the citizens. The citizens believed the third most important factor is community cohesion; the consultant scores it fifth, but less than one point lower than the citizens. The reverse happens with "wetlands" with the consultant scoring it third highest and the citizens fifth; but the spread is also less than one point.

Evaluation Factor	Citizen Weight		Consultant Weight	
Displacements	18.82%	(2)	18.97%	(2)
Historics	16.49%	(4)	16.98%	(4)
Wetlands	16.30%	(5)	17.17%	(3)
Community Cohesion	17.33%	(3)	16.43%	(5)
Construction Cost	12.13%	(6)	9.48%	(6)
Roadway Safety	18.93%	(1)	20.97%	(1)
	100.00%		100.00%	

Each of these factor weightings were used in the evaluation of the alternatives.

As might be expected, after several refinements have been made to the alternatives, they have impacts that are very close in many categories in most sectors. So, the resulting evaluations by roadway sector are very close. Table S-1 and Figure S-2 indicate which roadway alternative scored higher in the evaluation. The total possible score is 100. The data below reflect the difference between the higher scoring option and the other one. For example, in Sector A2, the five-lane alternative scores 1.82 points higher than the narrow boulevard; and, in Sector B2, the one-way pair scores 12.06 points higher than widening M-15.

Table S-1
Evaluation Results

Sector	Higher Scoring Road Type	Score Difference[1]
A2	Five-Lane	1.82 points
B1	Narrow Boulevard	4.04 points
B2	One-Way Pair	12.06 points
B3	Narrow Boulevard	6.80 points
C1	Narrow Boulevard	5.50 points
C2	Very Narrow Boulevard	5.28 points
D	Narrow Boulevard	3.38 points
E	Five-Lane	2.53 points
F1	Narrow Boulevard	3.29 points
F2	Very Narrow Boulevard	6.89 points

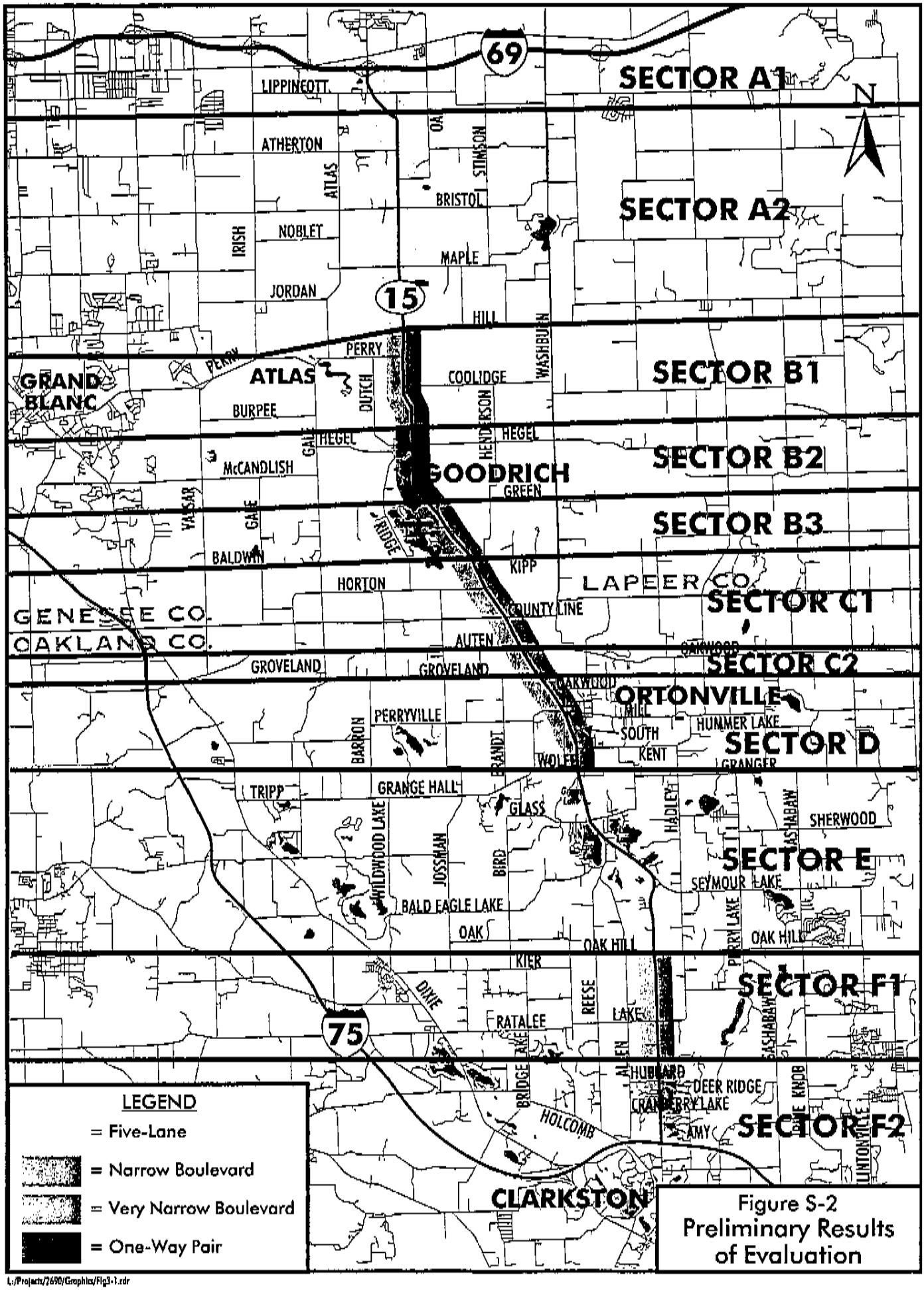
Source: The Corradino Group

[1]Average of Citizen and Consultant Scores

Following the evaluation, the results and the data from which they are derived were reviewed again to determine if there were yet other refinements in road type to reduce impacts. In doing so, the consultant offers the following modifications to the higher scoring option in Sectors A2, B2, and E.

In Sector A2 it is proposed to continue the five-lane section of Sector A1 south to Maple Road where the narrow boulevard would begin. This five-lane extension will reduce displacements by 43 houses and one business and wetlands taken by 1.09 acres compared to a narrow boulevard.

In Sector B2 (Goodrich), the consultant proposes a five-lane M-15 rather than the one-way pair. Widening M-15 will encroach on the front lawn of the historic Hawes House, but this is not considered a reason to stop the widening of M-15. Creating a five-lane M-15, while disruptive to those along the existing road, will not affect those in the nearby neighborhood to the east and the plans of the United Methodist Church. But, it is not certain the church's planned expansion and a senior housing development would be located in such a way to avoid interfering with the one-way northbound pair. Also, lots now vacant at the south end of the proposed one-way pair could develop with housing prior to funding becoming available to buy property for the route. Finally, the cost of the one-way pair is likely to be two-thirds more than widening M-15 to five lanes when accounting for a potential noise wall protecting houses along Rose Lane and urban design treatment along M-15. So, in Sector B2 a five-lane reconstruction of M-15 is a more definitive option with no fatal flaws.



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In Sector D, the narrow boulevard scored higher. A change to a five-lane roadway was examined to reduce the possible taking of residences (four additional) and businesses (13 additional). Weighing against that are the safety benefits of a boulevard which are particularly important in this section of M-15 which directly serves the Brandon Township schools. So, the narrow boulevard remains the preferred option in Sector D.

In Sector E, a five-lane roadway is proposed to extend to Seymour Lake Road but become a boulevard south of there. This will involve taking three more residences and three more businesses than if the five-lane option went all the way to Oak Hill Road. The wetlands taken would be increased by 1.2 acres. But, the number of crashes in 2025 would be reduced by almost 25 percent (from 204 to 155).

These changes result in the proposal shown on Figure S-3. It is associated with the impacts listed on Table S-2. In total, the proposed widening of M-15 would take up to 38 houses and 40 businesses (about two per mile) (see Appendix A for a preliminary listing of potential displacements), impact five properties potentially eligible for the *National Register*, take as much as 18 acres of wetlands, and cost about $75 million for construction ($3.72 million per mile).

Next Steps

This report contains the consultant proposal on how to widen M-15 if it is permitted by state and federal reviewers. It is to be discussed with the public in early April. That input will be included in an Environmental Assessment made available for circulation in May. A public hearing is tentatively scheduled for June. Following the public hearing, a recommendation on how to improve M-15 will be made. It will be available for public review in early October 2001.

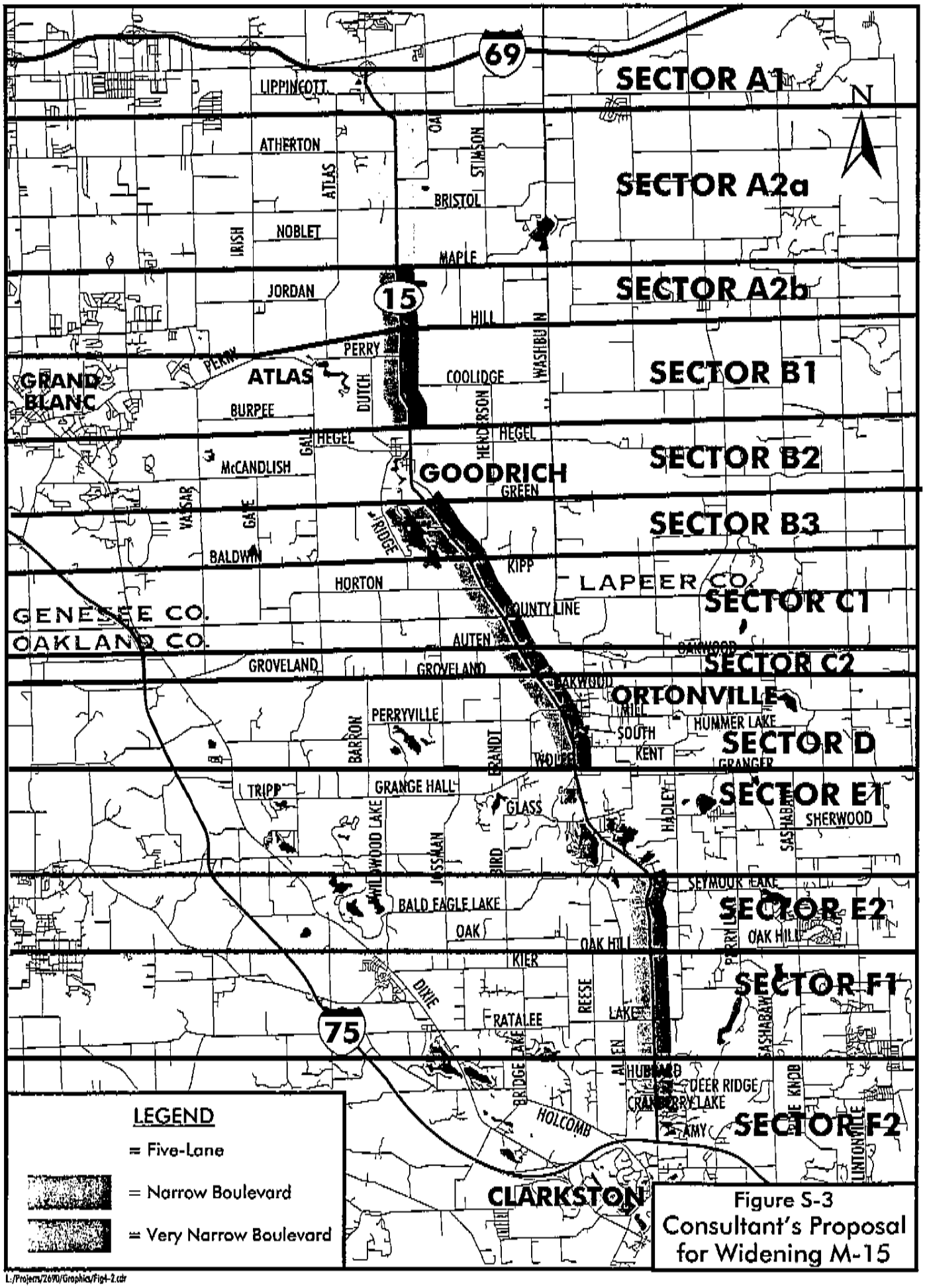

Figure S-3
Consultant's Proposal
for Widening M-15

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Table S-2
Evaluation Data
Consultant's Proposal for Widening M-15

Sector →	Sector A						Sector B						Sector C			
	A1- 0.66 miles		A2a - 2.64 miles		A2b - 1.00 miles		B1 - 2.14 miles		B2 - 1.25 miles		B3 - 1.25 miles		C1 - 1.70 miles		C2 - 0.59 miles	
	I-69 to S of Lippincott		S of Lipp. to Maple		Maple to Hill		Hill to N of Hegel		N of Hegel to Green (Goodrich)		Green to Kipp		Kipp to Auten		Auten to Groveland	
Improvement →	Five-Lane		Five-Lane		Narrow Blvd.		Narrow Blvd.		Five-Lane		Narrow Blvd.		Narrow Blvd.		Very Narrow Blvd.*	
Factor ↓	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.
1. Displacements																
Homes	0	0.0	3	1.1	2	2.0	7	3.3	4	3.2	0	0.0	5	2.9	1	1.7
Businesses	0	0.0	2	0.8	1	1.0	0	0.0	10	8.0	0	0.0	0	0.0	0	0.0
2. Histories (Properties Directly Affected)																
Maybe Nat. Reg.	0	--	1	--	0	--	0	--	1	--	0	--	0	--	0	--
3. Wetlands (acres)																
Highest value	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	1.45	1.2	0.00	0.0	0.00	0.0	1.57	2.7
Medium value	0.00	0.0	0.40	0.2	0.62	0.6	0.04	0.0	0.01	0.0	0.03	0.0	0.10	0.1	0.00	0.0
Lowest value	0.06	0.1	0.90	0.3	2.98	3.0	0.31	0.1	0.07	0.1	0.14	0.1	0.08	0.0	0.00	0.0
Total (acres)	0.06	0.09	1.30	0.49	3.60	3.60	0.35	0.16	1.53	1.22	0.17	0.14	0.18	0.11	1.57	2.66
4. Community Cohesion																
High/Medium/Low	Medium		Medium		Medium		Medium		High		Medium		Medium		Medium	
5. Construction Cost																
(millions of 2001 dollars)	$2.29	$ 3.47	$9.46	$ 3.58	$4.07	$ 4.07	$7.37	$ 3.44	$4.57	$ 3.66	$4.40	$ 3.52	$5.11	$ 3.01	$2.58	$ 4.37
6 Roadway Safety																
Total Accidents Year 2025	32	48.5	121	45.8	19	19.0	39	18.2	54	43.2	24	19.2	34	20.0	12	20.3

Source: The Corradino Group

* Fen area calls for the narrowest possible cross section.

Table S-2 (continued)
Evaluation Data
Consultant's Proposal for Widening M-15

Sector →	Sector D		Sector E				Sector F				Total	
	D - 1.80 miles		E1 - 2.51 miles		E2 - 1.28 miles		F1 - 2.20 miles		F2 - 1.25 miles		20.27 miles	
	Groveland to Wolfe (Ortonville)		Wolfe to Lake Seymour		Lake Seymour to Oak Hill		Oak Hill to N of Hubbard		N of Hubbard to I-75		I-69 to I-75	
Improvement →	Narrow Blvd.		Five-Lane		Narrow Blvd.		Narrow Blvd.		Very Narrow Blvd.		Five Lane & Narrow	
Factor ↓	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.
1. Displacements												
Homes	5	2.8	0	0.0	3	2.3	8	3.6	1	0.8	39	1.9
Businesses	16	8.9	4	1.6	5	3.9	1	0.5	0	0.0	39	1.9
2. Historics (Properties Directly Affected)												
Maybe Nat. Reg.	2	--	0	--	0	--	0	--	1	--	5	--
3. Wetlands (acres)												
Highest value	1.03	0.6	1.10	0.4	1.48	1.2	1.01	0.5	0.00	0.0	7.64	0.4
Medium value	1.55	0.9	0.61	0.2	0.66	0.5	0.09	0.0	0.00	0.0	4.11	0.2
Lowest value	0.23	0.1	0.50	0.2	0.76	0.6	0.06	0.0	0.00	0.0	6.09	0.3
Total (acres)	2.81	1.56	2.21	0.88	2.90	2.27	1.16	0.53	0.00	0.00	17.84	0.88
4. Community Cohesion												
High/Medium/Low	Medium		Medium		Medium		Medium		Medium		NA	
5. Construction Cost												
(millions of 2001 dollars)	$7.21	$ 4.01	$9.17	$ 3.65	$4.83	$ 3.77	$9.53	$ 4.33	$4.82	$ 3.86	$ 75.41	$ 3.72
6 Roadway Safety												
Total Accidents Year 2025	40	22.2	124	49.4	31	24.2	53	24.1	60	48.0	643	31.7

Source: The Corradino Group

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Appendix A: Possible Residential and Business Displacements Associated with the Consultant's Proposal for Widening M-15 from I-69 to I-75

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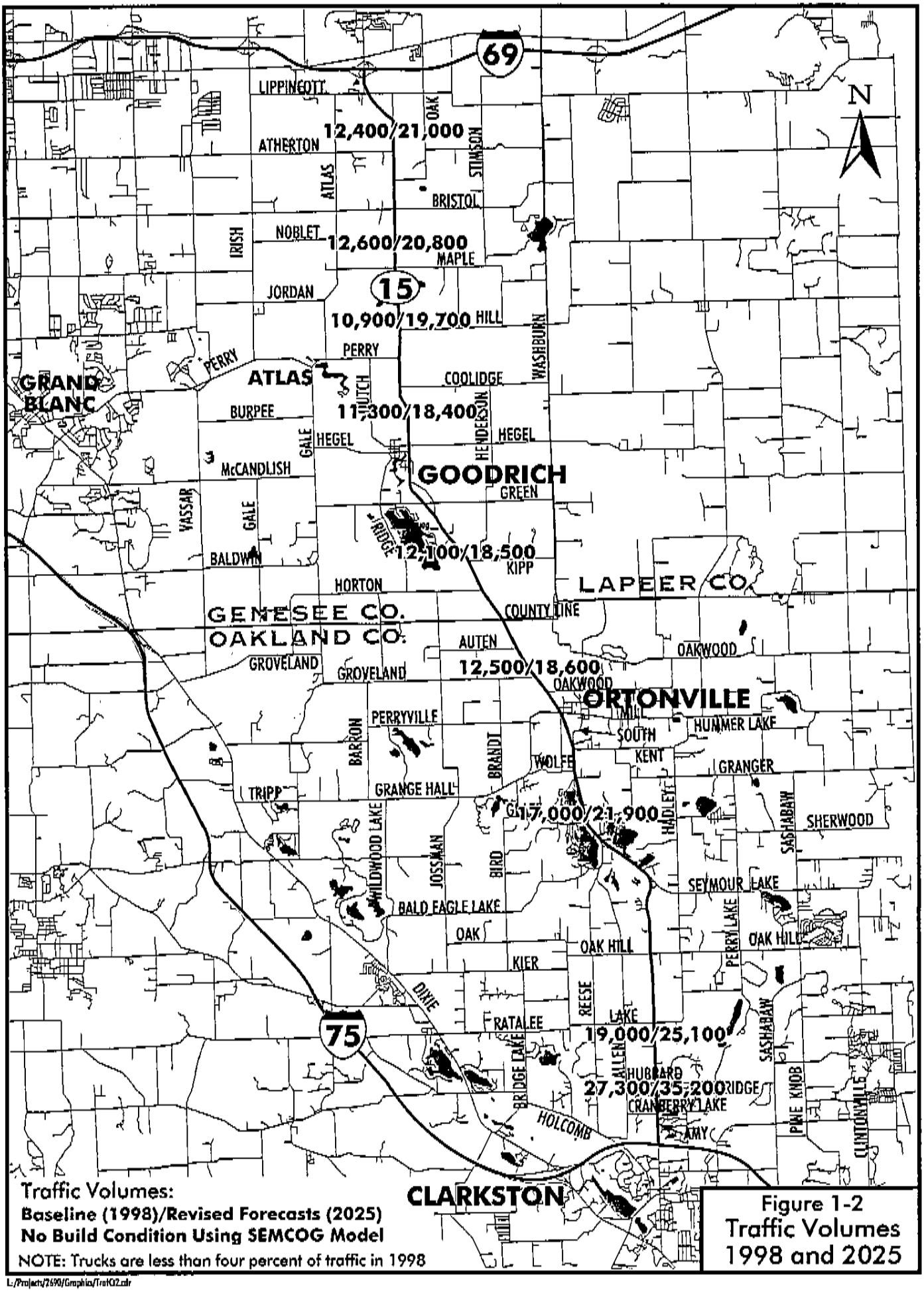
1. Overview

This report is one of several that, over a 22-month period, examines alternatives for improving transportation in a corridor that is generally defined as being one-mile on either side of M-15 between I-75 and I-69 in Oakland and Genesee Counties, Michigan (Figure 1-1). The goal is to gain approval of the Federal Highway Administration (FHWA) to advance the project from this environmental analysis phase to the design phase. Technical analyses define and analyze the impacts of "build" alternatives versus not implementing any improvements in the corridor (i.e., doing nothing). Alternatives formulation and analysis is guided by interaction with the public, other stakeholders, and agencies that have a regulatory role in project development (for example, those dealing with wetlands, endangered species, and cultural resources).

This chapter provides an overview of the project: its history, purpose, and schedule. It is followed by chapters that discuss: 1) the range of alternatives to be considered; 2) the process used to perform the evaluation of these options in moving toward the best course of action; 3) the results of that evaluation; and, 4) the consultant's findings. All of this information will be reviewed with the public prior to advancing to the next phase of work.

1.1 History

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 each of these communities is, 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 Genesee and Oakland counties.



Traffic Volumes:
Baseline (1998)/Revised Forecasts (2025)
No Build Condition Using SEMCOG Model
NOTE: Trucks are less than four percent of traffic in 1998

Figure 1-2
Traffic Volumes 1998 and 2025

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was held in the latter part of August. At that time, preliminary (Illustrative) alternatives were presented to the public for review. Preliminary traffic analysis related to the number of required lanes in the corridor to satisfy future travel demand were presented. A workshop preceded the public meetings. It examined alternative land use "what if" scenarios that could affect travel in the next 20+ years. That information was used to determine if land use shifts could change the need for improving M-15.

Following the August public meeting, technical studies were conducted to support a screening/evaluation of the preliminary (Illustrative) alternatives. Another round of public meetings was held in October to gain input on this evaluation (Figure 1-3).

A "scoping document" was prepared. It informed the public and agencies at all levels of government of the practical alternatives under consideration and sought more in-depth agency involvement in the impact analysis and alternatives evaluation. Agency guidance will be instrumental in determining the final alternative consistent with legal and regulatory guidance. A process of soliciting this input began in September with meetings in Lansing and Ortonville (see Technical Memorandum No. 2 for the scoping document).

Since the October 2000 public meetings, the consultant has focused on two basic alternatives: a five-lane cross section (four through-lanes and a center lane for turning vehicles) and a narrow-boulevard (four lanes for through travel and a landscaped median to protect turning vehicles). A one-way pair concept has been studied in the Village of Goodrich. These "Practical" Alternatives remained after the first-level evaluation. They were refined and presented to the public in a workshop held on January 24, 2001. Since then, the alternatives and their impact data have received additional refinement.

The evaluation of the Practical Alternatives is the subject of this technical memorandum. It will be summarized along with other required information in a document known as an Environmental Assessment. It will be the subject of comment at a public hearing tentatively scheduled for June 2001. Based on input from the public and ongoing dialogue with other stakeholders and agencies, further refinements will be made to develop the recommended alternative. A Recommended Alternative Report will be prepared after the public hearing based on public and agency comments. If no significant environmental impacts have been found, a Finding of No Significant Impact (FONSI) will be sought from FHWA; otherwise, an Environmental Impact Statement will be prepared. If the interchanges at I-69 and/or I-75 are modified, Interchange Justification studies may

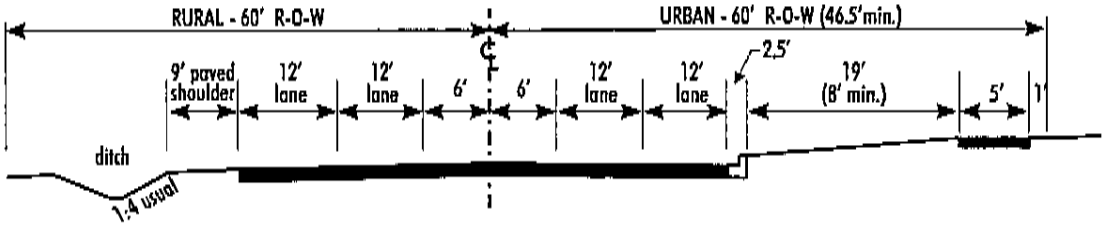
- Eliminating the bypasses of Goodrich and Lake Louise and the Irish Road alternative as their impacts are sufficiently negative even though they each divert some traffic from some sections of M-15.

- Eliminating the widening of M-15 to a wide boulevard as its potential impacts on displacements (197 homes) and wetlands (about 34 acres) are so major that another option(s) must be found. This is particularly the situation in the wetlands area as public sentiment and state and federal regulations render the M-15 wide boulevard an option that will have difficulty in gaining acceptance. Those regulations call for other less-impacting alternatives including those with design exceptions. The M-15 narrow boulevard may be considered one such option.

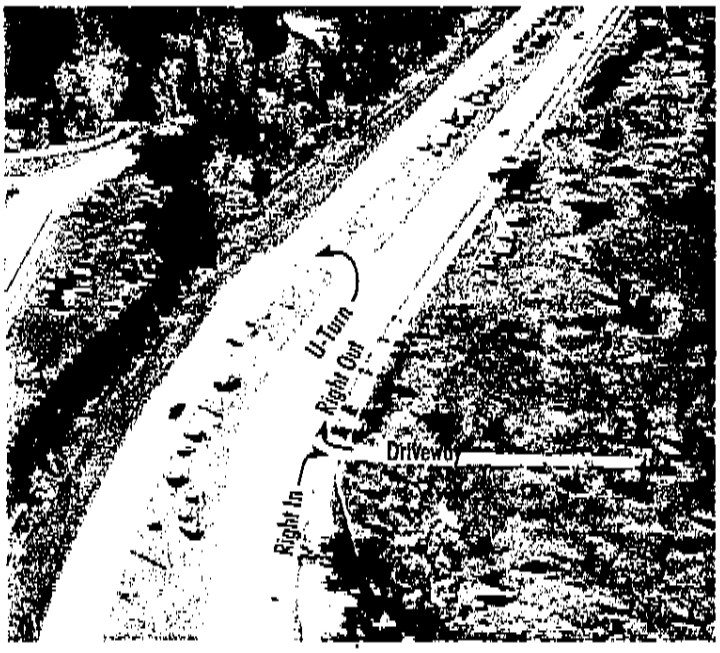
- Continuing to consider widening M-15 to five lanes or to a narrow boulevard, with a one-way pair for about a mile in Goodrich. These options can alleviate many of the impacts associated with all other alternatives and handle the expected traffic. They are considered Practical Alternatives recommended to be carried forward into the next phases of the study along with the do-nothing option.

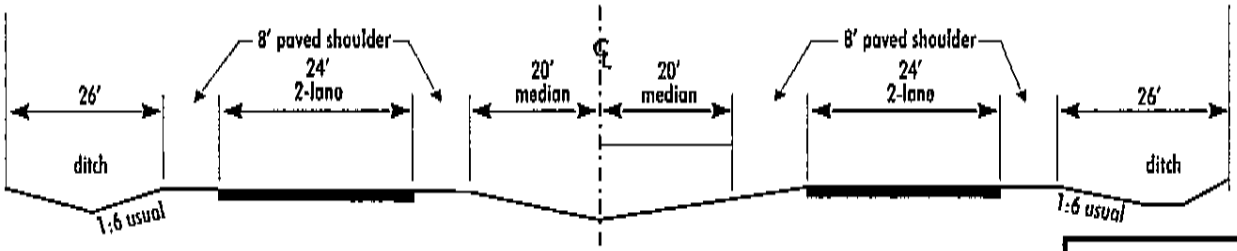
2.2 Practical Alternatives

The Practical Alternatives, in addition to doing nothing, include widening M-15 to four lanes for through travel with the center of the roadway dedicated to either a landscaped median or to a paved area for vehicles to turn. A five-lane roadway can be constructed in either an urban or rural cross-section type (Figure 2-1). The difference is drainage and sometimes amenities in the form of sidewalks or walkways/bicycle paths. The five-lane urban section is compact, with curb-and-gutter drainage, and requires a minimum of right-of-way. Where more right-of-way is available, the rural section allows for side slope drainage to a ditch. In either case, the outside lane can be widened to allow for bicycle travel concurrent with vehicular travel on the roadway. The five-lane section would be augmented at intersections by exclusive left-turn and right-turn lanes. In addition, on the far sides of intersections, there may be a taper lane that allows right-turning vehicles from the cross road to return smoothly to the two-lane traffic flow. Travel demand projections at this point do not indicate any locations where more than five lanes would be required with the exception of auxiliary lanes at the I-75 and I-69 interchanges.



TYPICAL RURAL/URBAN 5-LANE, 93'-120' R-O-W





TYPICAL NARROW BOULEVARD, 172' R-O-W

Figure 2-1
Road Types

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A narrow boulevard provides a median which acts as a separator between the two travel directions, improving safety. The narrow boulevard shoulder areas provide adequate room for U-turns. Provision for U-turns is necessitated because many cross streets and driveways will not have median openings (i.e., access management). For many adjacent land uses, there will be only "right turns in" and "right turns out" of the property. Left turns would be accomplished by a right turn from the cross street/driveway into traffic flow and then a subsequent U-turn.

Because of the different widths of these proposed roadway cross-sections, they have different impacts (refer to Figure 2-1). To minimize them, the placement of the road (i.e., left or right of the existing centerline of M-15) was key to starting the second phase of the analysis of alternatives. This was more the case with the boulevard as the five-lane alternative can be built mostly in the existing right-of-way of 120 feet.

In refining the alignments of the alternatives, important resources, like wetlands and historic properties, were avoided to the extent possible while balancing the displacements of houses and businesses. Historic and wetland resources are protected by federal and/or state laws.

To start the refinement process, a preliminary assessment by a specialist was made of historic resources in the corridor. All structures over 50 years old were categorized with regard to their potential for *National Register* eligibility. A scale of 1 to 3 was used, with 1 representing sites that, on a preliminary basis, were judged to have reasonable potential for eligibility. Sites classified as 2 were considered to be of secondary interest. Sites classified as 3 were considered to be of possible interest. The last two categories were included as research sometimes finds such sites to be of greater significance than is readily apparent in a preliminary survey.

Wetlands in the corridor were similarly examined and rated by a specialist in three categories. For the highest score of 1, wetlands were generally forested, classed as a fen (a particularly valuable wetland type), or part of a large wetland complex protecting key lakes and streams. The lowest scoring wetlands (3) are typically associated with roadside ditches and are generally considered low-diversity communities, often inhabited by non-native species. These lower scoring wetlands have value in filtering runoff and storing stormwater, and have functions well worth preserving or replicating, but they are generally easier to replicate

through compensatory mitigation than forested and other higher-scoring wetlands. The intermediate-scoring wetlands (2) fell between the higher and lower value wetlands in composition and function.

With potential historic sites and wetlands located, the alignments of the five-lane and narrow boulevard alternatives were examined to determine where they should deviate from a centerline configuration. There are numerous situations where there are important resources on both sides of the road. In these cases, judgments were made regarding the value of the resource and the number of resources and/or acreages involved. The following paragraphs explain the considerations made in shifting the alignment east or west to avoid or minimize impacts to these identified resources.

South of the I-69 interchange there are established commercial uses at the intersection of Lippincott Road, and numerous driveways to residences to the south. This area was considered best served by a five-lane road under either alternative due to the extensive dislocations that would be necessary if a narrow boulevard were constructed.

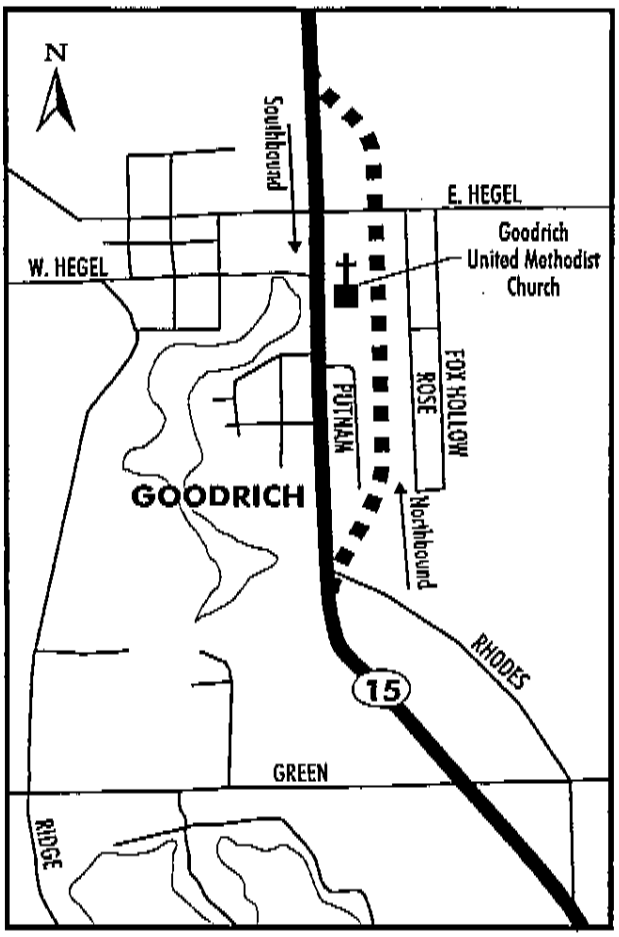
Further south, there is a potential *National Register*-eligible historic site that fronts onto Montague. M-15 abuts its back yard. The narrow boulevard would take land from the site, but it is likely that the depth of the lot would allow construction.

South of Atherton Road, on the west side of M-15, is the Louhelen Bahai School and Conference Center. It is potentially eligible for listing on the *National Register*. The narrow boulevard alignment was shifted to avoid it. The alignment stays on the east to avoid an old school house, likely to be *National Register*-eligible, on the southwest corner of M-15 and Bristol Road. The five-lane alternative would fit through this section in existing right-of-way.

At Coolidge Road the alignment would shift slightly to the east to avoid impacts to Burkland Textron Industries.

In Goodrich, the five-lane alternative could be carried through town, holding the west right-of-way line where it is today. Or, a one-way pair could be constructed with M-15's width not being adjusted and this section dedicated to southbound traffic (Figure 2-2). The north leg of the one-way pair would be aligned along the rear of the lots of the houses that face Rose Lane. This alignment was followed to preserve as much land as

Figure 2-2
One-Way Pair Concept Drawing



possible that would be contiguous to the Goodrich United Methodist Church. That church, in conjunction with a private developer, plans a 100-unit senior center on its property. Expansions of the church building itself are also planned.

The north leg of the one-way pair would have minor wetland involvement and no impacts to historic resources. Some concerns exist about aesthetics and noise. The south leg of the road, i.e., M-15, would continue to operate within the existing right-of-way and offer the opportunity for enhancements to the community, including historic resources. The existing pavement for through traffic could be narrowed and street trees, "bumpouts" for plantings and street furniture, and other features could be added. The speed limit could be lowered to 35 miles per hour from the present 45 miles per hour. These features would enhance the characteristics of a potential historic district on the west side of the road south of West Hegel (Main Street) and a potential *National Register* house on the east side (8083 State Road).

The one-way pair concept was developed in response to the historic character of the Village's core. It was believed that two buildings on the east of M-15 (8049 and 8083 State Road) were of historical significance and eligible for *National Register* listing. The Goodrich/Atlas Historical Web Page refers to the property at 8049 State Road as "...the first frame house built in 1838 by Enos Goodrich," the founder of the Village. A 1960 local historical study sponsored by the Goodrich Women's Club also cited it as "...built by Enos Goodrich in 1838." However, more detailed study by the M-15 consultants reveals that the original Goodrich house is on the northwest corner of the intersection of M-15 at Park (8122 State Road). Additionally, the architectural integrity of the building at 8049 State Road is so seriously compromised that it is likely not to be listed on the *National Register*, regardless of its age. Therefore, a driving force leading to the one-way pair concept has been removed. This conclusion has been reviewed with the State Historic Preservation Officer.

Nevertheless, it must be recognized that farther south on the east side of M-15 (8083 State Road) is the Hawes House (circa 1870). It is believed to be architecturally intact and potentially eligible for the *National Register*.

On the west side of M-15 in Goodrich is a district of buildings that is potentially eligible for the *National Register*. If the five-lane alternative were constructed it would be shifted east to avoid taking any frontage from the historic district. This would cause M-15 to encroach into the yard of the Hawes House on the opposite side of the road. This type widening would likely allow construction of a five-lane M-15, but would not enhance the community or its historic resources.

At the south end of Goodrich, the northbound leg of the one-way pair would pass through several platted residential lots. If these lots were developed, or if other development occurred along this alignment (like the senior center), it would make the one-way pair less feasible.

Between Auten and Groveland roads there are fen wetlands (Category 1, highest) on both sides of M-15, but the Category 1 wetlands on the east are more extensive. So, the alignment of the narrow boulevard through this area is shifted slightly to the west of existing M-15. In this area, the boulevard would be made very narrow, with a 120-foot-wide right-of way, to avoid as much of the fen area as possible. The five-lane option would largely fit into existing right-of-way.

From Groveland Road to Mill Street in Ortonville, the alignment was shifted to the east. South of Groveland on the east side is a Category 2 historic farmstead. There is a lake across M-15. Further south is another Category 2 farmhouse and the Ortonville Cemetery on the west side of M-15. The Ortonville Cemetery is potentially *National Register*-eligible. It acts as the control in this section. The narrow boulevard alternative would hold the future pavement edge near where it is today, but push new right-of-way acquisition to the east where the commercial development of Ortonville begins. By comparison, the five-lane alternative would fit within existing right-of-way and maintain the existing centerline.

The shift of the narrow boulevard to the east would end south of Narin Street. The principal concern moving south in this area is commercial and residential development. The narrow boulevard would take from both

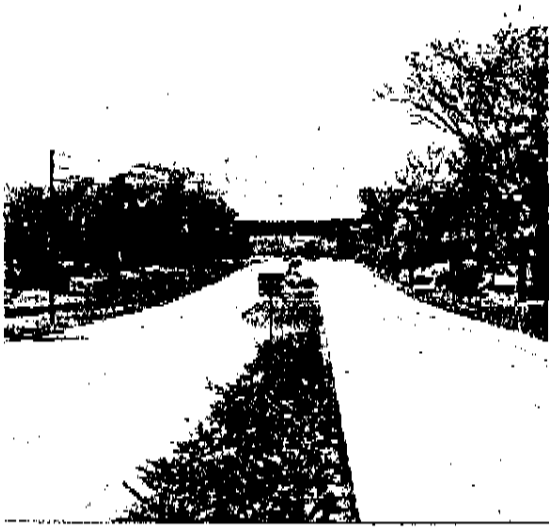
sides. No wetlands or historic sites are of sufficient magnitude to cause the alignment to vary. Duck Creek passes through this area, but its emergent wetlands (Category 2) are on both sides of M-15.

At Wolfe Road, the Old Stone house gift shop is potentially eligible for the *National Register* (Category 1). Two round rock pillars in its front are likely in the existing right-of-way. It is believed that the setback of this architectural resource will allow preservation of its setting, even with the pavement closer. Directly across M-15 is St. Ann's Catholic Church.

North of Glass Road, the alignment of a narrow boulevard would be moved to the east to avoid taking the entire row of cottages along the west side of the road that line Bald Eagle Lake. This shift to the east is maintained south to the vicinity of Weideman Drive. There are extensive wetlands (Category 1 and 2) through this section, but their greater extent is on the west side, pushing the alignment to the east. A five-lane section would fit within existing right-of-way.

South of Weideman Drive the narrow boulevard alignment shifts to the west of the existing centerline due to extensive wetlands (Category 1) on the east. More wetlands hold the alignment to this side south of Oak Hill Road. At that point, the alignment shifts back to the east due to a Category 2 historic site on the west side of M-15 north of Ratalee Lake road. The alignment remains centered the rest of the way south due to the extensive development on both sides of the road. This is true despite the presence of a potential *National Register* home on the east side of M-15 on the north side of Deer Ridge Drive. It is noteworthy a boulevard here would be very narrow, i.e., right-of-way at 120 feet. This is possible because adjoining property does not have direct access to M-15 but is channeled to cross streets. However, it does not appear possible to extend even the very narrow boulevard concept south beyond Cranberry Lake Road as it would interfere with access/egress of Amy Drive and several properties in the vicinity that front on M-15. Additionally, a proposal under review by Independence Township to develop the property in the

Figure 2-3
Very Narrow Boulevard



northwest quadrant of the interchange has a stipulation that access must not be provided to Cranberry Lake Road. That means it must gain access to M-15 which will not be compatible with the boulevard concept in this area.

3. Evaluation

This section provides information on the importance of six evaluation factors; the data defining the performance of each alternative by analysis sector; and, the evaluation results.

3.1 Factors

The refined Practical Alternatives were presented to the public at a workshop held on January 24. At that time, and through the end of February, input was received on the rating of six evaluation factors that allowed discrimination between the two build alternatives. These factors are:

- Displacements
- Historics
- Wetlands
- Community Cohesion
- Construction Cost
- Roadway Safety

Displacements defines through field inventory the number of houses, businesses and platted residential lots that would be totally taken by the widening of M-15.

Historics is an assessment of those properties considered eligible for listing on the *National Register of Historic Places* that could be adversely affected by widening M-15 compared to doing nothing. Field work by specialists and detailed document review, along with personal interviews, are the basis of this assessment.

A meeting with the State Historic Preservation Officer has been conducted to discuss historic properties issues in Goodrich, particularly two properties on the east side of M-15.

Wetlands impacts are measured in the number of acres that could be taken by widening M-15. Wetlands are divided into three categories, as discussed earlier, based upon field analysis by specialists.

Community cohesion is the assessment by professional planners of the degree to which a community's social interaction and/or the services now provided (e.g., fire, school transportation) are expected to be disrupted by widening M-15. It was observed that even though a boulevard would be wider than a five-lane road, the boulevard would have somewhat less negative effect on community cohesion because of the refuge the median would provide and the enhanced character of the road associated with landscaping the median.

Construction cost includes the cost to excavate/backfill, install utilities and traffic signals, provide drainage, and build the roadway. It is sensitive to the soil conditions, particularly wetlands. It accounts for waterway crossings. But, it does not include property acquisition/relocation or the cost of design or project administration. A contingency of 15 percent of all construction cost items is added to address uncertainties. Usually, the narrower five-lane road is less costly than the boulevard in the same sector.

Roadway safety accounts for the difference in roadway type. Generally speaking, Michigan experience indicates a boulevard will have roughly half the crashes of a five-lane facility.

3.1.1 Weighting

About five dozen citizens and 11 members of the consultant team (engineers, planners, and specialists in historics and wetlands) separately rated the six evaluation factors. The results listed below indicate that both groups agree roadway safety is the highest rated evaluation factor with displacements rated second. Both groups agree "historics" is fourth and construction cost is the lowest rated factor, with the consultant scoring it even lower than the citizens. The citizens believed the third most important factor is community cohesion; the consultant scores it fifth, but less than one point lower than the citizens. The reverse happens with "wetlands" with the consultant scoring it third highest and the citizens fifth; but the spread is also less than one point.

Evaluation Factor	Citizen Weight		Consultant Weight	
Displacements	18.82%	(2)	18.97%	(2)
Historics	16.49%	(4)	16.98%	(4)
Wetlands	16.30%	(5)	17.17%	(3)
Community Cohesion	17.33%	(3)	16.43%	(5)
Construction Cost	12.13%	(6)	9.48%	(6)
Roadway Safety	18.93%	(1)	20.97%	(1)
	100.00%		100.00%	

Each of these factor weightings are used in the evaluation of the alternatives.

3.2 Evaluation

Table 3-1 illustrates the data used to evaluate the alternatives. It is divided into sectors (Figure 3-1) to allow the evaluation process to be more manageable and easier to report. It is noteworthy that Sector A1 is not included in the evaluation as the road improvement from I-69 to just south of Lippincott Road is limited to five lanes. Nevertheless, it is noted there will be no takings of homes or businesses, nor impacts on historic properties or wetlands. The construction cost is expected to be $2.29 million (2001 dollars).

The information of Table 3-1 was used by the consultant to score the two alternatives from 1 to 100. Generally, a score above 50 indicates that a positive effect is expected, fully realizing that, as with any road widening, some intrusion will occur. These scores of 1 to 100 were then weighted by the factor weightings noted in the previous section. For example, if the total consultant unweighted score of the displacements impacts in Sector A2 for the five-lane option is 84.50, then the weighted score using citizens' weight (.1882) is 15.90 (or 84.5 x .1882 = 15.90). The weighted score of each of six evaluation factors is then added to determine the total score of an alternative. The maximum possible weighted score is 100.

As might be expected, after several refinements have been made to the alternatives, they have impacts that are very close in many categories in most sectors. The sector-by-sector evaluation presented below reflects that.

Table 3-1
Evaluation Data
Practical Alternatives to Widening M-15

Sector →	Sector A				Sector B												Sector C							
	A2 - 3.64 miles				B1 - 2.14 miles				B2 - 1.25 miles				B3 - 1.25 miles				C1 - 1.70 miles				C2 - 0.59 miles			
	S of Lippincott to Hill				Hill to N of Hegel				N of Hegel to Green (Goodrich)				Green to Kipp				Kipp to Auten				Auten to Groveland			
Improvement →	Five-Lane		Narrow Blvd.		Five-Lane		Narrow Blvd.		Five-Lane		One-way Pair *		Five-Lane		Narrow Blvd.		Five-Lane		Narrow Blvd.		Five-Lane		Very Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.
1. Displacements																								
Homes	3	0.8	46	12.6	0	0.0	7	3.3	3	2.4	3	2.4	0	0.0	0	0.0	1	0.6	5	2.9	0	0.0	1	1.7
Businesses	2	0.5	4	1.1	0	0.0	0	0.0	11	8.8	10	8.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Vacant DU Lots **	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2. Historic (Properties Directly Affected)																								
Maybe Nat. Reg.	1	--	1	--	0	--	0	--	1	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--
3. Wetlands (acres)																								
Highest value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	1.16	1.45	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	2.66	1.57	2.66
Medium value	0.74	0.20	1.22	0.34	0.02	0.01	0.04	0.02	0.01	0.01	0.38	0.30	0.01	0.01	0.03	0.02	0.05	0.03	0.10	0.06	0.00	0.00	0.00	0.00
Lowest value	2.28	0.63	4.71	1.29	0.16	0.07	0.31	0.14	0.07	0.06	0.14	0.11	0.07	0.06	0.14	0.11	0.03	0.02	0.08	0.05	0.00	0.00	0.00	0.00
Total (acres)	3.02	0.83	5.93	1.63	0.18	0.08	0.35	0.16	1.53	1.22	1.97	1.58	0.08	0.06	0.17	0.14	0.08	0.05	0.18	0.11	1.57	2.66	1.57	2.66
4. Community Cohesion																								
High/Medium/Low	Medium		Medium		Medium		Medium		High		Medium to High		Medium		Medium		Medium		Medium		Medium		Medium	
5. Construction Cost																								
(millions of 2001 dollars)	$13.20	$3.63	$14.66	$4.03	$7.28	$3.40	$7.37	$3.44	$4.57	$3.66	$6.46	$5.17	$4.18	$3.34	$4.40	$3.52	$5.06	$2.98	$5.11	$3.01	$2.52	$4.27	$2.58	$4.37
6 Roadway Safety																								
Total Accidents Year 2025	167	45.9	75	20.6	86	40.2	39	18.2	54	43.2	24	19.2	54	43.2	24	19.2	76	44.7	34	20.0	26	44.1	12	20.3

Source: The Corradino Group

* In Goodrich (Sector B2) a one-way pair would be developed.

** The number of total lakes of platted but "unbuilt" residential lots.

Table 3-1 (continued)
Evaluation Data
Practical Alternatives to Widening M-15

Sector →	Sector D				Sector E				Sector F								Total			
	D - 1.80 miles				E - 3.79 miles				F1 - 2.20 miles				F2 - 1.25 miles				20.27 miles			
	Groveland to Wolfe (Ortonville)				Wolfe to Oak Hill				Oak Hill to N of Hubbard				N of Hubbard to I-75				I-69 to I-75			
Improvement →	Five-Lane		Narrow Blvd.		Five-Lane		Narrow Blvd.		Five-Lane		Narrow Blvd.		Five-Lane		Narrow Blvd.		Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.
1. Displacements																				
Homes	0	0.0	4	2.2	0	0.0	10	2.6	1	0.5	8	3.6	1	0.8	1	0.8	9	0.4	85	4.2
Businesses	3	1.7	16	8.9	6	1.6	22	5.8	0	0.0	1	0.5	0	0.0	0	0.0	22	1.1	55	2.7
Vacant DU Lots **	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	0.0	3	0.1
2. Historic (Properties Directly Affected)																				
Maybe Nat. Reg.	2	--	2	--	0	--	1	--	0	--	0	--	1	--	1	--	5	--	5	--
3. Wetlands (acres)																				
Highest value	0.53	0.29	1.03	0.57	2.22	0.59	4.02	1.06	0.62	0.28	1.01	0.46	0.00	0.00	0.00	0.00	6.39	0.32	9.08	0.45
Medium value	0.80	0.44	1.55	0.86	0.96	0.25	1.50	0.40	0.04	0.02	0.09	0.04	0.00	0.00	0.00	0.00	2.63	0.13	4.91	0.24
Lowest value	0.17	0.09	0.23	0.13	0.76	0.20	2.24	0.59	0.00	0.00	0.06	0.03	0.00	0.00	0.00	0.00	3.60	0.18	7.97	0.39
Total (acres)	1.50	0.83	2.81	1.56	3.94	1.04	7.76	2.05	0.66	0.30	1.16	0.53	0.00	0.00	0.00	0.00	12.62	0.62	21.96	1.08
4. Community Cohesion																				
High/Medium/Low	Medium		Medium		Medium		Medium		Medium		Medium		Medium		Medium		NA		NA	
5. Construction Cost																				
(millions of 2001 dollars)	$6.56	$3.64	$7.21	$4.01	$13.96	$3.68	$18.87	$4.98	$8.28	$3.76	$9.53	$4.33	$3.70	$2.96	$4.82	$3.86	$71.60	$3.53	$83.30	$4.11
6 Roadway Safety																				
Total Accidents Year 2025	89	49.44	40	22.2	204	53.8	92	24.3	119	54.1	53	24.1	95	76.0	43	34.4	1002.0	49.4	468.0	23.1

Source: The Corradino Group

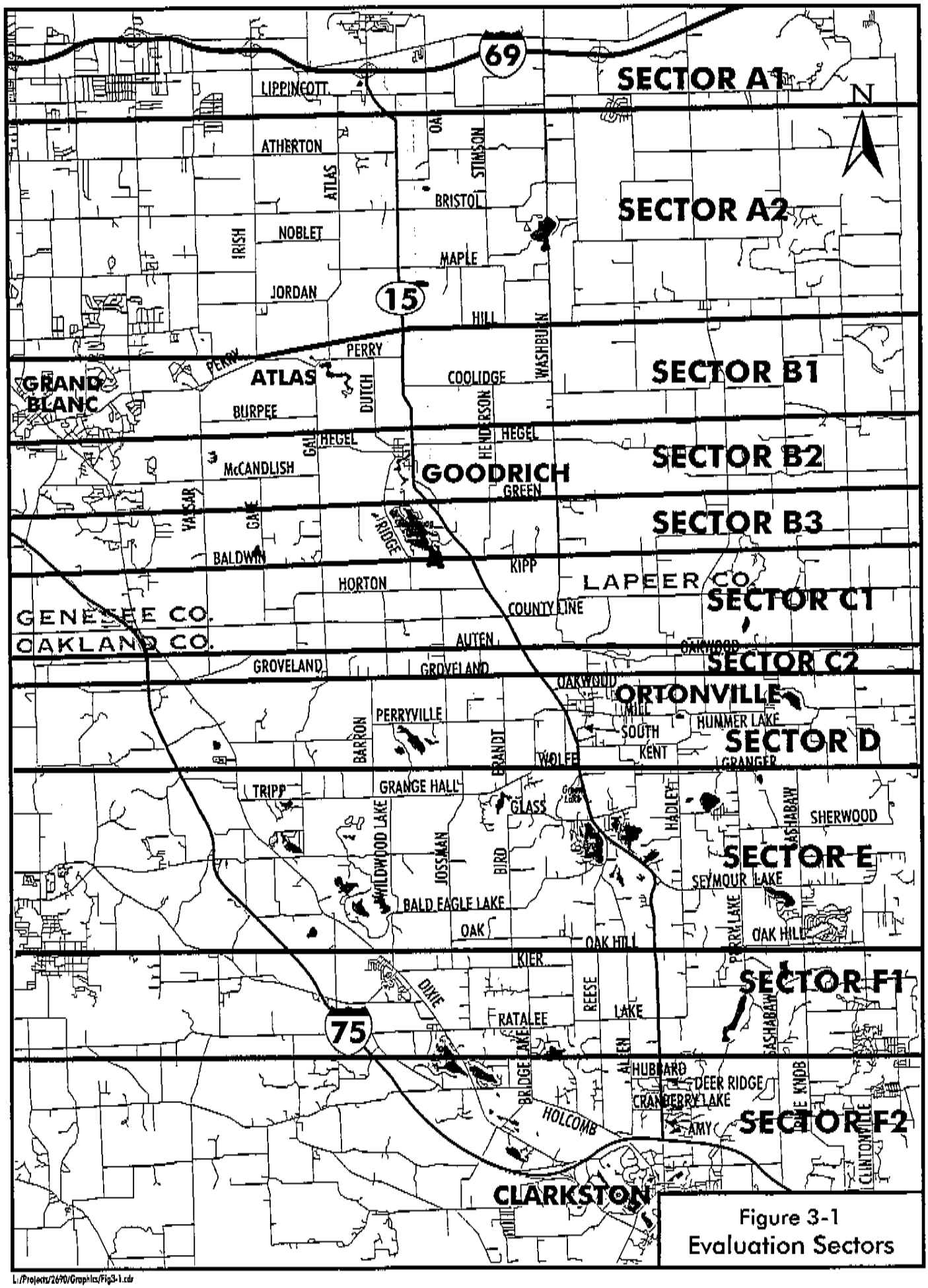


Figure 3-1
Evaluation Sectors

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3.2.1 Sector A2

The evaluation data for Section A2, a 3.64-mile section of M-15 from just south of Lippincott Road to Hill, are listed in Table 3-2. By studying these data, members of the consultant team provided the highest overall score to widening M-15 to five lanes (see totals in Table 3-3). This reflects that many fewer displacements of homes and businesses and acres of wetlands would be involved with a five-lane improvement versus a narrow boulevard. On the other hand, the safety features of a boulevard weigh back in favor of it over a five-lane road but not enough to allow the boulevard to score higher overall. It is noteworthy that because the citizens' evaluation factor weights and those of the consultant are so close, the resultant scoring produces virtually identical results (66.86 using citizens' weights; 66.60 using consultant's weights).

Table 3-2
Sector A2 Evaluation Data

	A2 - 3.64 miles S of Lippincott to Hill			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	3	0.8	46	12.6
Businesses	2	0.5	4	1.1
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	1	--	1	--
3. Wetlands (acres)				
Highest value	0.00	0.00	0.00	0.00
Medium value	0.74	0.20	1.22	0.34
Lowest value	2.28	0.63	4.71	1.29
Total (acres)	3.02	0.83	5.93	1.63
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$13.20	3.63	$14.66	4.03
6 Roadway Safety				
Total Accidents Year 2025	167	45.9	75	20.6

Source: The Corradino Group

* The number of total takes of platted but "unbuilt" residential lots.

Table 3-3
Sector A2 Evaluation Results

	Five-Lane	Narrow Boulevard
Consultant Unweighted Scores		
Displacements	84.50	44.00
Historics	60.07	58.79
Wetlands	69.14	62.50
Community Cohesion	52.79	64.64
Construction Cost	76.71	72.21
Roadway Safety	59.86	88.14
Citizens Weighted Scores		
Displacements (18.82%)	15.90	8.28
Historics (16.49%)	9.91	9.69
Wetlands (16.30%)	11.27	10.19
Community Cohesion (17.33%)	9.15	11.20
Construction Cost (12.13%)	9.31	8.76
Roadway Safety (18.93%)	11.33	16.69
Total	66.86	64.81
Consultant Weighted Scores		
Displacements (18.97%)	16.03	8.35
Historics (16.98%)	10.20	9.98
Wetlands (17.17%)	11.87	10.73
Community Cohesion (16.43%)	8.68	10.62
Construction Cost (9.48%)	7.28	6.85
Roadway Safety (20.97%)	12.55	18.48
Total	66.60	65.01

Source: The Corradino Group

3.2.2 Sector B1

The evaluation data allows the consultant to score the narrow boulevard alternative higher in Sector B1. This reflects advantages in the safety and community cohesion areas which overcome the negative of the potential displacement of seven homes. There is very little difference between alternatives in the areas of wetlands impacts and construction costs.

Table 3-4
Sector B1 Evaluation Data

	B1 - 2.14 miles Hill to N of Hegel			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	0	0.0	7	3.3
Businesses	0	0.0	0	0.0
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	0	--	0	--
3. Wetlands (acres)				
Highest value	0.00	0.00	0.00	0.00
Medium value	0.02	0.01	0.04	0.02
Lowest value	0.16	0.07	0.31	0.14
Total (acres)	0.18	0.08	0.35	0.16
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$7.28	3.40	$7.37	3.44
6 Roadway Safety				
Total Accidents Year 2025	86	40.2	39	18.2

Source: The Corradino Group
* The number of total takes of platted but "unbuilt" residential lots.

Table 3-5
Sector B1 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	91.43	76.57
Historics	83.57	82.79
Wetlands	83.14	79.93
Community Cohesion	52.43	64.07
Construction Cost	77.43	76.86
Roadway Safety	62.07	90.21
Citizens Weighted Scores		
Displacements (18.82%)	17.21	14.41
Historics (16.49%)	13.78	13.65
Wetlands (16.30%)	13.55	13.03
Community Cohesion (17.33%)	9.09	11.10
Construction Cost (12.13%)	9.39	9.32
Roadway Safety (18.93%)	11.75	17.08
Total	74.77	78.59
Consultant Weighted Scores		
Displacements (18.97%)	17.34	14.53
Historics (16.98%)	14.19	14.05
Wetlands (17.17%)	14.28	13.72
Community Cohesion (16.43%)	8.62	10.53
Construction Cost (9.48%)	7.34	7.29
Roadway Safety (20.97%)	13.01	18.91
Total	74.78	79.04

Source: The Corradino Group

3.2.3 Sector B2

The primary force in creating the concept of a one-way pair in Goodrich has been removed as it was determined that the original Enos Goodrich house is not affected by widening M-15. Nevertheless, the evaluation data indicate the one-way pair approach has fewer impacts on historic and wetland resources, a better effect on community cohesion, and a lower expected exposure to vehicle crashes. Displacements impacts are about even while construction cost favors widening M-15. In light of these characteristics, the consultant scores highest the one-way pair.

Table 3-6
Sector B2 Evaluation Data

	B2 - 1.25 miles N of Hegel to Green (Goodrich)			
Improvement →	Five-Lane		One-way Pair *	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	3	2.4	3	2.4
Businesses	11	8.8	10	8.0
Vacant DU Lots **	0	0.0	3	2.4
2. Historics (Properties Diredly Affected)				
Maybe Nat. Reg.	1	--	0	--
3. Wetlands (acres)				
Highest value	1.45	1.16	1.45	1.16
Medium value	0.01	0.01	0.38	0.30
Lowest value	0.07	0.06	0.14	0.11
Total (acres)	1.53	1.22	1.97	1.58
4. Community Cohesion				
High/Medium/Low	High		Medium to High	
5. Construction Cost				
(millions of dollars)	54.57	3.66	56.46	5.17
6 Roadway Safety				
Total Accidents Year 2025	54	43.2	24	19.2

Source: The Corradino Group

* In Goodrich (Sector B2) a one-way pair would be developed.

** The number of total lakes of platted but "unbuilt" residential lots.

Table 3-7
Sector B2 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 One-Way Pair
Consultant Unweighted Scores		
Displacements	71.50	73.57
Historics	50.00	83.57
Wetlands	57.64	54.21
Community Cohesion	38.43	52.93
Construction Cost	76.21	64.21
Roadway Safety	61.57	89.00
Citizens Weighted Scores		
Displacements (18.82%)	13.43	13.85
Historics (16.49%)	8.25	13.78
Wetlands (16.30%)	9.40	8.84
Community Cohesion (17.33%)	6.66	9.17
Construction Cost (12.13%)	9.24	7.79
Roadway Safety (18.93%)	11.66	16.85
Total	58.66	70.27
Consultant Weighted Scores		
Displacements (18.97%)	13.56	13.96
Historics (16.98%)	8.49	14.19
Wetlands (17.17%)	9.90	9.31
Community Cohesion (16.43%)	6.32	8.70
Construction Cost (9.48%)	7.23	6.09
Roadway Safety (20.97%)	12.91	18.66
Total	58.40	70.90

Source: The Corradino Group

3.2.4 Sector B3

Widening M-15 to either fives lanes or a boulevard in Sector B3 is not expected to take any homes or businesses, would have no impact on historic properties and virtually none on wetlands. The construction costs are virtually the same. So, the boulevard's advantages in roadway safety and community cohesion allow it to score higher in Sector B3.

Table 3-8
Sector B3 Evaluation Data
Practical Alternatives to Widening M-15

	B3 - 1.25 miles Green to Kipp			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	0	0.0	0	0.0
Businesses	0	0.0	0	0.0
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	0	--	0	--
3. Wetlands (acres)				
Highest value	0.00	0.00	0.00	0.00
Medium value	0.01	0.01	0.03	0.02
Lowest value	0.07	0.06	0.14	0.11
Total (acres)	0.08	0.06	0.17	0.14
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$4.18	3.34	$4.40	3.52
6 Roadway Safety				
Total Accidents Year 2025	54	43.2	24	19.2

Source: The Corradino Group

* The number of total takes of platted but "unbuilt" residential lots.

Table 3-9
Sector B3 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	91.43	91.43
Historics	82.43	82.07
Wetlands	84.43	81.43
Community Cohesion	52.43	63.57
Construction Cost	78.64	76.29
Roadway Safety	61.86	90.64
Citizens Weighted Scores		
Displacements (18.82%)	17.21	17.21
Historics (16.49%)	13.59	13.53
Wetlands (16.30%)	13.76	13.27
Community Cohesion (17.33%)	9.09	11.02
Construction Cost (12.13%)	9.54	9.25
Roadway Safety (18.93%)	11.71	17.16
Total	74.90	81.44
Consultant Weighted Scores		
Displacements (18.97%)	17.34	17.34
Historics (16.98%)	13.99	13.93
Wetlands (17.17%)	14.50	13.98
Community Cohesion (16.43%)	8.62	10.45
Construction Cost (9.48%)	7.46	7.24
Roadway Safety (20.97%)	12.97	19.00
Total	74.88	81.94

Source: The Corradino Group

3.2.5 Sector C1

Sector C1 is virtually free of historic and wetland impacts, regardless of widening option. The construction costs are about the same. And, while five homes would be taken with a boulevard, compared to one with a five-lane widening, the safety and community cohesion advantages allow the boulevard to score highest here.

Table 3-10
Sector C1 Evaluation Data

	C1 - 1.70 miles Kipp to Auten			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	1	0.6	5	2.9
Businesses	0	0.0	0	0.0
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	0	--	0	--
3. Wetlands (acres)				
Highest value	0.00	0.00	0.00	0.00
Medium value	0.05	0.03	0.10	0.06
Lowest value	0.03	0.02	0.08	0.05
Total (acres)	0.08	0.05	0.18	0.11
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$5.06	2.98	$5.11	3.01
6 Roadway Safety				
Total Accidents Year 2025	76	44.7	34	20.0

Source: The Corradino Group

* The number of total takes of platted but "unbuilt" residential lots.

Table 3-11
Sector C1 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	86.93	79.14
Historics	83.00	82.36
Wetlands	83.50	81.14
Community Cohesion	53.50	64.64
Construction Cost	82.57	82.07
Roadway Safety	60.93	89.21
Citizens Weighted Scores		
Displacements (18.82%)	16.36	14.89
Historics (16.49%)	13.69	13.58
Wetlands (16.30%)	13.61	13.23
Community Cohesion (17.33%)	9.27	11.20
Construction Cost (12.13%)	10.02	9.96
Roadway Safety (18.93%)	11.53	16.89
Total	74.48	(79.75)
Consultant Weighted Scores		
Displacements (18.97%)	16.49	15.01
Historics (16.98%)	14.09	13.98
Wetlands (17.17%)	14.34	13.93
Community Cohesion (16.43%)	8.79	10.62
Construction Cost (9.48%)	7.83	7.78
Roadway Safety (20.97%)	12.77	18.70
Total	74.31	(80.04)

Source: The Corradino Group

3.2.6 Sector C2

Once again, the consultant observes significant advantages of the boulevard (very narrow in this sector) over the five-lane widening option for M-15 in the safety and community cohesion areas. All other impacts are virtually even for each alternative. This results in a higher score for the boulevard option.

Table 3-12
Sector C2 Evaluation Data

	C2 - 0.59 miles Auten to Groveland			
Improvement →	Five-Lane		Very Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	0	0.0	1	1.7
Businesses	0	0.0	0	0.0
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	0	--	0	--
3. Wetlands (acres)				
Highest value	1.57	2.66	1.57	2.66
Medium value	0.00	0.00	0.00	0.00
Lowest value	0.00	0.00	0.00	0.00
Total (acres)	1.57	2.66	1.57	2.66
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$2.52	4.27	$2.58	4.37
6 Roadway Safety				
Total Accidents Year 2025	26	44.1	12	20.3

Source: The Corradino Group
* The number of total lakes of platted but "unbuilt" residential lots.

Table 3-13
Sector C2 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	91.43	82.64
Historics	83.57	82.79
Wetlands	41.43	41.43
Community Cohesion	52.79	65.00
Construction Cost	70.43	69.36
Roadway Safety	64.57	90.29
Citizens Weighted Scores		
Displacements (18.82%)	17.21	15.55
Historics (16.49%)	13.78	13.65
Wetlands (16.30%)	6.75	6.75
Community Cohesion (17.33%)	9.15	11.26
Construction Cost (12.13%)	8.54	8.41
Roadway Safety (18.93%)	12.22	17.09
Total	67.65	72.73
Consultant Weighted Scores		
Displacements (18.97%)	17.34	15.68
Historics (16.98%)	14.19	14.05
Wetlands (17.17%)	7.11	7.11
Community Cohesion (16.43%)	8.68	10.68
Construction Cost (9.48%)	6.68	6.58
Roadway Safety (20.97%)	13.54	18.93
Total	67.54	73.03

Source: The Corradino Group

3.2.7 Sector D

The boulevard option has advantages in Sector D in roadway safety and community cohesion and disadvantages in displacements and wetlands. Because safety rates higher than displacements and community cohesion is higher than wetlands for the citizens' rating but lower for the consultant's, the boulevard scores higher overall.

Table 3-14
Sector D Evaluation Data

	D - 1.80 miles Groveland to Wolfe (Ortonville)			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	0	0.0	4	2.2
Businesses	3	1.7	16	8.9
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Not. Reg.	2	--	2	--
3. Wetlands (acres)				
Highest value	0.53	0.29	1.03	0.57
Medium value	0.80	0.44	1.55	0.86
Lowest value	0.17	0.09	0.23	0.13
Total (acres)	1.50	0.83	2.81	1.56
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$6.56	$3.64	$7.21	$4.01
6 Roadway Safety				
Total Accidents Year 2025	89	49.44	40	22.2

Source: The Corradino Group

* The number of total takes of platted but "unbuilt" residential lots.

Table 3-15
Sector D Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	86.57	74.00
Historics	52.14	51.07
Wetlands	59.93	51.36
Community Cohesion	49.14	61.93
Construction Cost	76.57	72.50
Roadway Safety	58.57	86.86
Citizens Weighted Scores		
Displacements (18.82%)	16.29	13.93
Historics (16.49%)	8.60	8.42
Wetlands (16.30%)	9.77	8.37
Community Cohesion (17.33%)	8.52	10.73
Construction Cost (12.13%)	9.29	8.79
Roadway Safety (18.93%)	11.09	16.44
Total	63.55	66.69
Consultant Weighted Scores		
Displacements (18.97%)	16.42	14.04
Historics (16.98%)	8.85	8.67
Wetlands (17.17%)	10.29	8.82
Community Cohesion (16.43%)	8.08	10.18
Construction Cost (9.48%)	7.26	6.88
Roadway Safety (20.97%)	12.28	18.21
Total	63.18	66.79

Source: The Corradino Group

3.2.8 Sector E

The five-lane option has positive differences in displacements, historics, and wetlands impacts. Its cost is about 25 percent less than the boulevard alternative. All these factors allow the five-lane option to widening M-15 to score higher.

Table 3-16
Sector E Evaluation Data

	E - 3.79 miles Wolfe to Oak Hill			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	0	0.0	10	2.6
Businesses	6	1.6	22	5.8
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	0	--	1	--
3. Wetlands (acres)				
Highest value	2.22	0.59	4.02	1.06
Medium value	0.96	0.25	1.50	0.40
Lowest value	0.76	0.20	2.24	0.59
Total (acres)	3.94	1.04	7.76	2.05
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$13.96	3.68	$18.87	4.98
6 Roadway Safety				
Total Accidents Year 2025	204	53.8	92	24.3

Source: The Corradino Group

* The number of total lakes of platted but "unbuilt" residential lots.

Table 3-17
Sector E Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	85.64	72.29
Historics	79.07	49.21
Wetlands	53.21	42.14
Community Cohesion	50.29	63.36
Construction Cost	75.64	65.29
Roadway Safety	55.71	84.57
Citizens Weighted Scores		
Displacements (18.82%)	16.12	13.60
Historics (16.49%)	13.04	8.12
Wetlands (16.30%)	8.67	6.87
Community Cohesion (17.33%)	8.71	10.98
Construction Cost (12.13%)	9.18	7.92
Roadway Safety (18.93%)	10.55	16.01
Total	66.27	63.50
Consultant Weighted Scores		
Displacements (18.97%)	16.25	13.71
Historics (16.98%)	13.42	8.35
Wetlands (17.17%)	9.14	7.24
Community Cohesion (16.43%)	8.26	10.41
Construction Cost (9.48%)	7.17	6.19
Roadway Safety (20.97%)	11.68	17.73
Total	65.93	63.64

Source: The Corradino Group

3.2.9 Sector F1

The impact data in Sector F1 indicate the boulevard has advantages in the roadway safety and community cohesion areas. These offset the disadvantages in displacements and wetlands impacts. So, the boulevard scores higher than the five-lane option.

Table 3-18
Sector F1 Evaluation Data

	F1 - 2.20 miles Oak Hill to N of Hubbard			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	1	0.5	8	3.6
Businesses	0	0.0	1	0.5
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	0	--	0	--
3. Wetlands (acres)				
Highest value	0.62	0.28	1.01	0.46
Medium value	0.04	0.02	0.09	0.04
Lowest value	0.00	0.00	0.06	0.03
Total (acres)	0.66	0.30	1.16	0.53
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$8.28	3.76	$9.53	4.33
6 Roadway Safety				
Total Accidents Year 2025	119	54.1	53	24.1

Source: The Corradino Group
* The number of total takes of platted but "unbuilt" residential lots.

Table 3-19
Sector F1 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	86.50	71.57
Historics	83.57	82.64
Wetlands	64.93	59.36
Community Cohesion	52.50	63.36
Construction Cost	76.86	74.93
Roadway Safety	57.00	84.93
Citizens Weighted Scores		
Displacements (18.82%)	16.28	13.47
Historics (16.49%)	13.78	13.63
Wetlands (16.30%)	10.58	9.68
Community Cohesion (17.33%)	9.10	10.98
Construction Cost (12.13%)	9.32	9.09
Roadway Safety (18.93%)	10.79	16.08
Total	69.85	72.92
Consultant Weighted Scores		
Displacements (18.97%)	16.41	13.58
Historics (16.98%)	14.19	14.03
Wetlands (17.17%)	11.15	10.19
Community Cohesion (16.43%)	8.63	10.41
Construction Cost (9.48%)	7.29	7.11
Roadway Safety (20.97%)	11.95	17.81
Total	69.61	73.12

Source: The Corradino Group

3.2.10 Sector F2

The impact data in Sector F2 reflect the same impacts for both alternatives in all categories except cost and roadway safety. This is because the boulevard here is very narrow, i.e., contained in the existing 120 feet of right-of-way as is the five-lane option. This is possible because direct access from adjoining properties is mostly limited to cross streets. So, the boulevard's higher score in the roadway safety area makes its the highest scoring option in Sector F2.

Table 3-20
Sector F2 Evaluation Data

	F2 - 1.25 miles N of Hubbard to I-75			
Improvement →	Five-Lane		Narrow Blvd.	
Factor ↓	#	Per Mi.	#	Per Mi.
1. Displacements				
Homes	1	0.8	1	0.8
Businesses	0	0.0	0	0.0
Vacant DU Lots *	0	0.0	0	0.0
2. Historics (Properties Directly Affected)				
Maybe Nat. Reg.	1	--	1	--
3. Wetlands (acres)				
Highest value	0.00	0.00	0.00	0.00
Medium value	0.00	0.00	0.00	0.00
Lowest value	0.00	0.00	0.00	0.00
Total (acres)	0.00	0.00	0.00	0.00
4. Community Cohesion				
High/Medium/Low	Medium		Medium	
5. Construction Cost				
(millions of dollars)	$3.70	2.96	$4.82	3.86
6 Roadway Safety				
Total Accidents Year 2025	95	76.0	43	34.4

Source: The Corradino Group
* The number of total takes of platted but "unbuilt" residential lots.

Table 3-21
Sector F2 Evaluation Results

	Alternative 1 Five-Lane	Alternative 2 Narrow Boulevard
Consultant Unweighted Scores		
Displacements	86.79	86.71
Historics	31.79	31.43
Wetlands	91.79	91.79
Community Cohesion	52.07	63.93
Construction Cost	87.93	85.57
Roadway Safety	52.43	78.57
Citizens Weighted Scores		
Displacements (18.82%)	16.33	16.32
Historics (16.49%)	5.24	5.18
Wetlands (16.30%)	14.96	14.96
Community Cohesion (17.33%)	9.02	11.08
Construction Cost (12.13%)	10.67	10.38
Roadway Safety (18.93%)	9.92	14.87
Total	66.15	72.80
Consultant Weighted Scores		
Displacements (18.97%)	16.46	16.45
Historics (16.98%)	5.40	5.33
Wetlands (17.17%)	15.76	15.76
Community Cohesion (16.43%)	8.56	10.51
Construction Cost (9.48%)	8.34	8.12
Roadway Safety (20.97%)	10.99	16.47
Total	65.51	72.64

Source: The Corradino Group

4. Findings

The data reflect the many refinements made to the alternatives so that the resulting evaluations by sector are very close (Table 4-1 and Figure 4-1).

Table 4-1
Evaluation Results

Sector	Higher Scoring Road Type	Score Difference[1]
A2	Five-Lane	1.82 points
B1	Narrow Boulevard	4.04 points
B2	One-Way Pair	12.06 points
B3	Narrow Boulevard	6.80 points
C1	Narrow Boulevard	5.50 points
C2	Very Narrow Boulevard	5.28 points
D	Narrow Boulevard	3.38 points
E	Five-Lane	2.53 points
F1	Narrow Boulevard	3.29 points
F2	Very Narrow Boulevard	6.89 points

Source: The Corradino Group

[1]Average of Citizen and Consultant Scores

Following the evaluation, the results and the data from which they are derived were reviewed again to determine if there were yet other refinements in road type to reduce impacts. In doing so, the consultant offers the following modifications to the higher scoring option in Sectors A2, B2, and E.

In Sector A2 it is proposed to continue the five-lane section of Sector A1 south to Maple Road where the narrow boulevard would begin. This five-lane extension will reduce displacements by 43 houses and one business and wetlands taken by 1.09 acres.

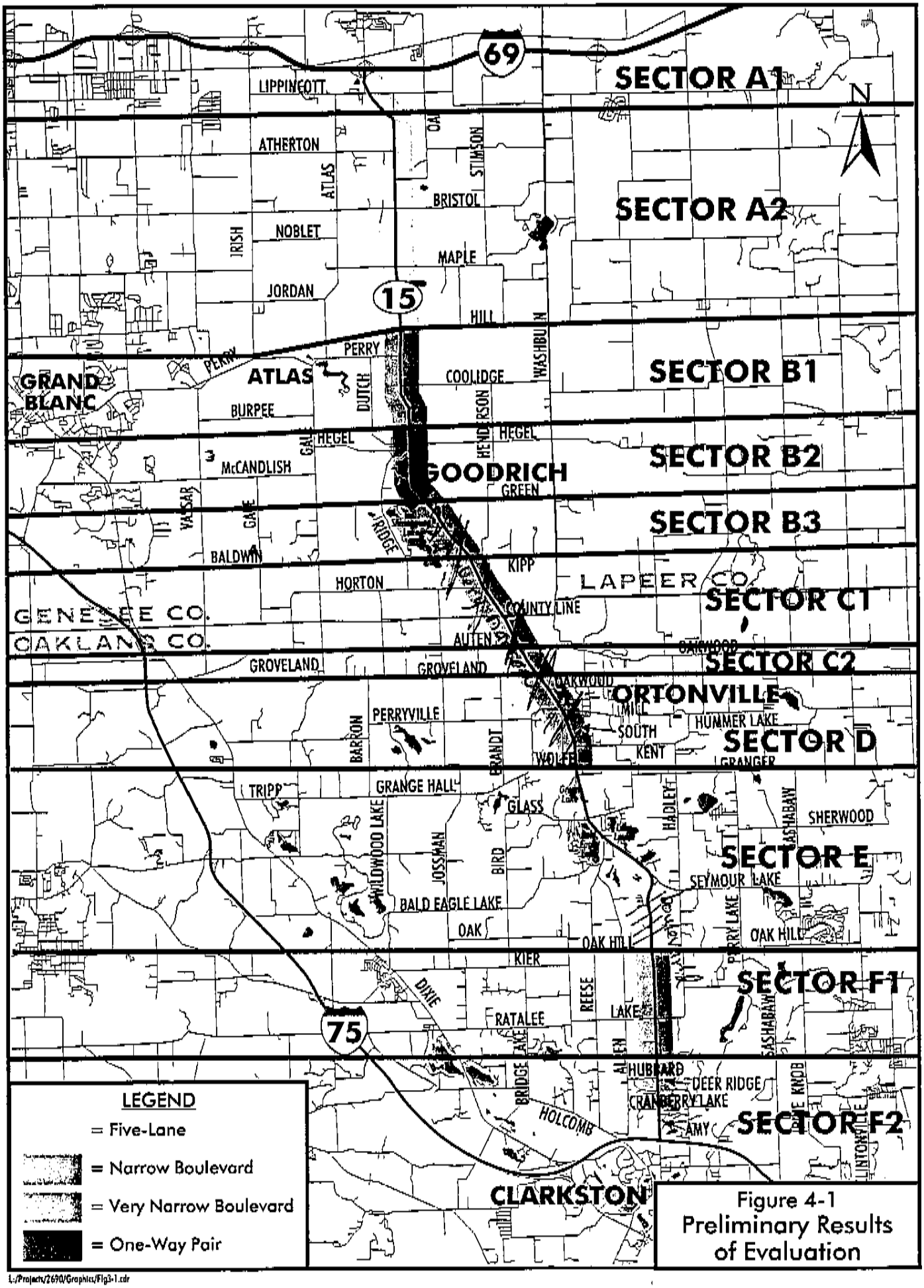

Figure 4-1
Preliminary Results of Evaluation

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In Sector B2 (Goodrich), the consultant proposes a five-lane M-15 rather than the one-way pair. Widening M-15 will encroach on the front lawn of the historic Hawes House but this is not considered a reason to stop the widening of M-15. Creating a five-lane M-15, while disruptive to those along the existing road, will not affect those in the nearby neighborhood to the east and the plans of the United Methodist Church. But, it is not certain the church's planned expansion and a senior housing development would be located in such a way to avoid interfering with the one-way northbound pair. Also, lots now vacant at the south end of the proposed one-way pair could develop with housing prior to funding becoming available to buy property for the route. Finally, the cost of the one-way pair is likely to be two-thirds more than widening M-15 to five lanes when accounting for a potential noise wall protecting houses along Rose Lane and urban design treatment along M-15. So, in Sector B2 a five-lane reconstruction of M-15 is a more definitive option with no fatal flaws.

In Sector D, the narrow boulevard scored higher. A change to a five-lane roadway was examined to reduce the possible taking of residences (four additional) and businesses (18 additional). Weighing against that are the safety benefits of a boulevard which are particularly important in this section of M-15 which directly serves the Brandon Township schools. So, the narrow boulevard remains the preferred option in Sector D.

In Sector E, a five-lane roadway is proposed to extend to Seymour Lake Road but become a boulevard south of there. This will involve taking three more residences and three more businesses than if the five-lane option went all the way to Oak Hill Road. The wetlands taken would be increased by 1.2 acres. But, the number of crashes in 2025 would be reduced by almost 25 percent from 204 to 155.

These changes result in the proposal shown on Figure 4-2. It is associated with the impacts listed on Table 4-2. In total, the proposed widening of M-15 would take up to 38 houses and 40 businesses (about two per mile) (see Appendix A for a preliminary listing of potential displacements), impact five properties potentially eligible for the *National Register*, take as much as 18 acres of wetlands, and cost about $75 million for construction ($3.72 million per mile).

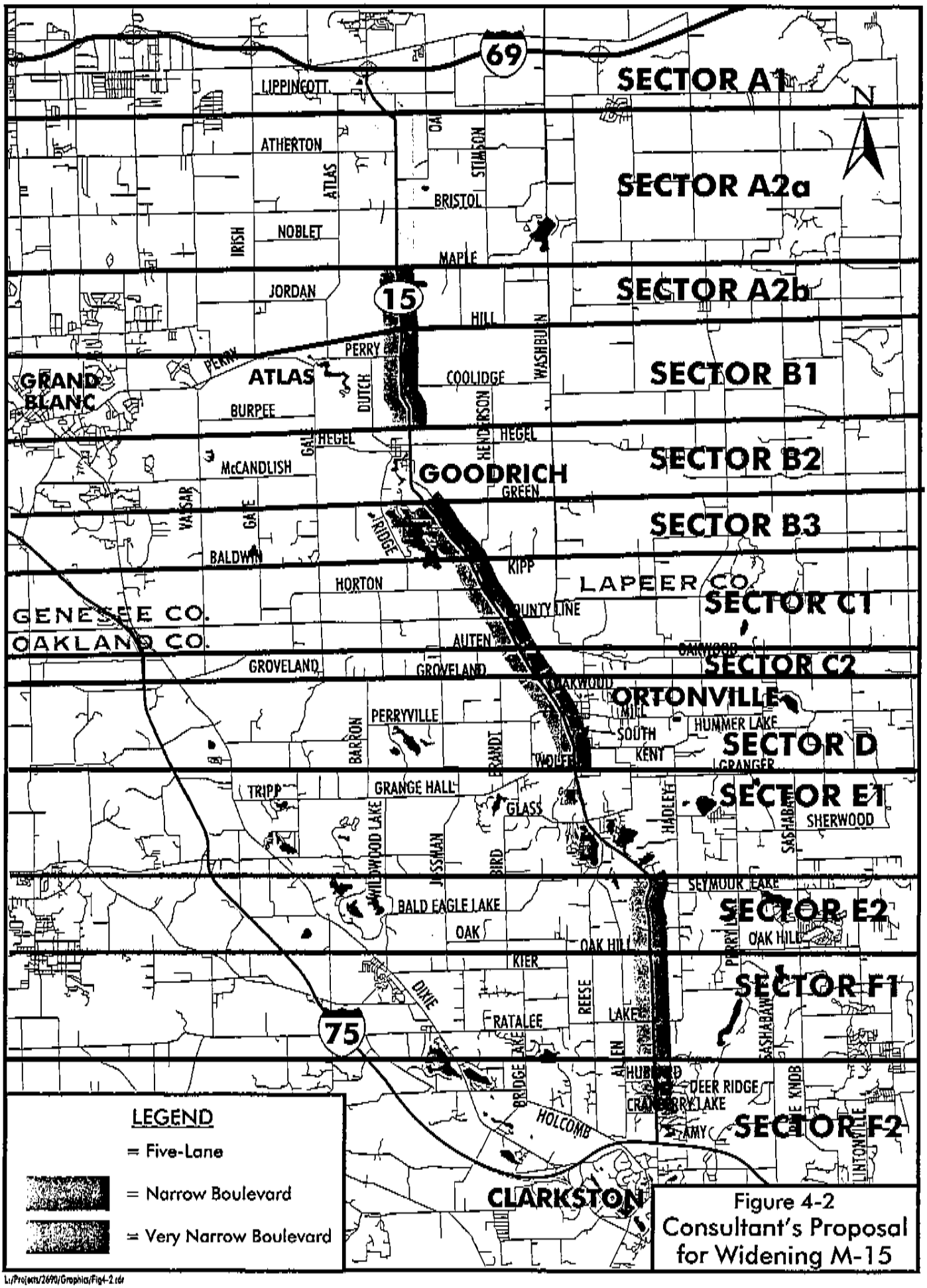

Figure 4-2
Consultant's Proposal for Widening M-15

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Table 4-2
Evaluation Data
Consultant's Proposal for Widening M-15

Sector →	Sector A						Sector B						Sector C			
	A1 - 0.66 miles		A2a - 2.64 miles		A2b - 1.00 miles		B1 - 2.14 miles		B2 - 1.25 miles		B3 - 1.25 miles		C1 - 1.70 miles		C2 - 0.59 miles	
	I-69 to S of Lippincott		S of Lipp. to Maple		Maple to Hill		Hill to N of Hegel		N of Hegel to Green (Goodrich)		Green to Kipp		Kipp to Auten		Auten to Graveland	
Improvement →	Five-Lane		Five-Lane		Narrow Blvd.		Narrow Blvd.		Five-Lane		Narrow Blvd.		Narrow Blvd.		Very Narrow Blvd.*	
Factor ↓	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.
1. Displacements																
Homes	0	0.0	3	1.1	2	2.0	7	3.3	4	3.2	0	0.0	5	2.9	1	1.7
Businesses	0	0.0	2	0.8	1	1.0	0	0.0	10	8.0	0	0.0	0	0.0	0	0.0
2. Historics (Properties Directly Affected)																
Maybe Nat. Reg.	0	--	1	--	0	--	0	--	1	--	0	--	0	--	0	--
3. Wetlands (acres)																
Highest value	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	1.45	1.2	0.00	0.0	0.00	0.0	1.57	2.7
Medium value	0.00	0.0	0.40	0.2	0.62	0.6	0.04	0.0	0.01	0.0	0.03	0.0	0.10	0.1	0.00	0.0
Lowest value	0.06	0.1	0.90	0.3	2.98	3.0	0.31	0.1	0.07	0.1	0.14	0.1	0.08	0.0	0.00	0.0
Total (acres)	0.06	0.09	1.30	0.49	3.60	3.60	0.35	0.16	1.53	1.22	0.17	0.14	0.18	0.11	1.57	2.66
4. Community Cohesion																
High/Medium/Low	Medium		Medium		Medium		Medium		High		Medium		Medium		Medium	
5. Construction Cost																
(millions of 2001 dollars)	$2.29	$ 3.47	$9.46	$ 3.58	$4.07	$ 4.07	$7.37	$ 3.44	$4.57	$ 3.66	$4.40	$ 3.52	$5.11	$ 3.01	$2.58	$ 4.37
6 Roadway Safety																
Total Accidents Year 2025	32	48.5	121	45.8	19	19.0	39	18.2	54	43.2	24	19.2	34	20.0	12	20.3

Source: The Corradino Group

* Fen area calls for the narrowest possible cross section.

Table 4-2 (continued)
Evaluation Data
Consultant's Proposal for Widening M-15

Sector →	Sector D		Sector E				Sector F				Total	
	D - 1.80 miles		E1 - 2.51 miles		E2 - 1.28 miles		F1 - 2.20 miles		F2 - 1.25 miles		20.27 miles	
	Groveland to Wolfe (Ortonville)		Wolfe to Lake Seymour		Lake Seymour to Oak Hill		Oak Hill to N of Hubbard		N of Hubbard to I-75		I-69 to I-75	
Improvement →	Narrow Blvd.		Five-Lane		Narrow Blvd.		Narrow Blvd.		Very Narrow Blvd.		Five Lane & Narrow	
Factor ↓	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.	#	Per Mi.
1. Displacements												
Homes	5	2.8	0	0.0	3	2.3	8	3.6	1	0.8	39	1.9
Businesses	16	8.9	4	1.6	5	3.9	1	0.5	0	0.0	39	1.9
2. Historics (Properties Directly Affected)												
Maybe Nat. Reg.	2	--	0	--	0	--	0	--	1	--	5	--
3. Wetlands (acres)												
Highest value	1.03	0.6	1.10	0.4	1.48	1.2	1.01	0.5	0.00	0.0	7.64	0.4
Medium value	1.55	0.9	0.61	0.2	0.66	0.5	0.09	0.0	0.00	0.0	4.11	0.2
Lowest value	0.23	0.1	0.50	0.2	0.76	0.6	0.06	0.0	0.00	0.0	6.09	0.3
Total (acres)	2.81	1.56	2.21	0.88	2.90	2.27	1.16	0.53	0.00	0.00	17.84	0.88
4. Community Cohesion												
High/Medium/Low	Medium		Medium		Medium		Medium		Medium		NA	
5. Construction Cost												
(millions of 2001 dollars)	$7.21	$ 4.01	$9.17	$ 3.65	$4.83	$ 3.77	$9.53	$ 4.33	$4.82	$ 3.86	$ 75.41	$ 3.72
6 Roadway Safety												
Total Accidents Year 2025	40	22.2	124	49.4	31	24.2	53	24.1	60	48.0	643	31.7

Source: The Corradino Group

5. Next Steps

This report contains the consultant proposal on how to widen M-15 if it is permitted by state and federal reviewers. It is to be discussed with the public in early April. That input will be included in an Environmental Assessment made available for circulation in May. A public hearing is tentatively scheduled for June. Following the public hearing, a recommendation on how to improve M-15 will be made. It will be available for public review in early October 2001.

Residential Properties

Sector	Lot #	Street #	Street Name	County	City	Zip
A2A	400-010	2437	State Rd	Genesee	Davison	48423
A2A	200-010	3249	State Rd	Genesee	Davison	48423
A2A	12	3511	State Rd	Genesee	Davison	48423
A2B	100-002	5014	State Rd	Genesee	Goodrich	48438
A2B	100-003	5030	State Rd	Genesee	Goodrich	48438
B1	200-008	6117	State Rd	Genesee	Goodrich	48438
B1	400-001	6275	State Rd	Genesee	Goodrich	48438
B1	300-009	6376	State Rd	Genesee	Goodrich	48438
B1	300-011	6460	State Rd	Genesee	Goodrich	48438
B1	100-030	7090	State Rd	Genesee	Goodrich	48438
B1	200-014	8013	State Rd	Genesee	Goodrich	48438
B1	100-013	7250	State Rd	Genesee	Goodrich	48438
B2	200-015	8005	State Rd	Genesee	Goodrich	48438
B2	200-010	8049	State Rd	Genesee	Goodrich	48438
B2	200-009	8057	State Rd	Genesee	Goodrich	48438
C1	200-001	10100	State Rd	Genesee	Goodrich	48438
C1	200-027	10252	State Rd	Genesee	Goodrich	48438
C1	400-011	10532	State Rd	Genesee	Goodrich	48438
C1	02-01-126-020	1580	Ortonville Rd	Oakland	Ortonville	48462
C1	02-01-151-002	1375	Ortonville Rd	Oakland	Ortonville	48462
C2	02-01-376-019	995	Ortonville Rd	Oakland	Ortonville	48462
D	02-12-202-003	610	Ortonville Rd	Oakland	Ortonville	48462
D	02-12-202-002	520	Ortonville Rd	Oakland	Ortonville	48462
D	03-18-152-003	456	Ortonville Rd	Oakland	Ortonville	48462
D	03-18-151-004	400	Ortonville Rd	Oakland	Ortonville	48462
D	03-18-326-008	507	Ortonville Rd	Oakland	Ortonville	48462
E2	03-29-403-001	1520	Seymore Lake Rd	Oakland	Clarkston	48348
E2	03-32-128-005	3003	Ortonville Rd	Oakland	Clarkston	48348
E2	03-32-128-006	3065	Ortonville Rd	Oakland	Clarkston	48348
F1	08-05-101-018	10415	Ortonville Rd	Oakland	Clarkston	48348
F1	08-05-451-011	9700	Ortonville Rd	Oakland	Clarkston	48348
F1	08-05-451-014	9600	Ortonville Rd	Oakland	Clarkston	48348
F1	08-08-200-008	9398	Ortonville Rd	Oakland	Clarkston	48348
F1	08-08-200-009	9356	Ortonville Rd	Oakland	Clarkston	48348
F1	08-08-200-018	9052	Ortonville Rd	Oakland	Clarkston	48348
F1	08-08-200-007	9410	Ortonville Rd	Oakland	Clarkston	48348
F1	08-08-400-005	8920	Ortonville Rd	Oakland	Clarkston	48348
F2	08-17-201-013	8490	Ortonville Rd	Oakland	Clarkston	48348

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Businesses

Sector	Lot #	Street	Address	Name	County	City	Zip
A2A	400-017	3355	State Rd	Shell Gas Station / Zips Party Store	Genesee	Davidson	48423
A2A	12	3511	State Rd	Vacant (used to be shell gas)	Genesee	Davidson	48423
A2B	400-009	5545 S.	State Rd	Last Chance Party Store	Genesee	Goodrich	48438
B2	400-028	8340	State Rd	Village Greenery	Genesee	Goodrich	48439
B2	18/17s / 19/18	8241 S.	State Rd	Wren In the Willow	Genesee	Goodrich	48438
B2		8233 S.	State Rd	Willsons Weenies	Genesee	Goodrich	48438
B2		8223 S.	State Rd	Donut Shop	Genesee	Goodrich	48438
B2	17n/16/15s / 15n/14	8223 S.	State Rd	Goodrich Car Care	Genesee	Goodrich	48438
B2		8221	State Rd	Custom Stereo & Alarm	Genesee	Goodrich	48438
B2		8191 S.	State Rd	Morts Barber Shop	Genesee	Goodrich	48438
B2		8191 S.	State Rd	Goodrich Dry Cleaners	Genesee	Goodrich	48438
B2		8217	State Rd	Town Pride Carpet	Genesee	Goodrich	48438
B2	200-012	8039 S.	State Rd	Church & Sons's Auto Center / Subway	Genesee	Goodrich	48438
B2	200-014	7127	State Rd	Bohlen Builders	Genesee	Goodrich	48438
D	02-12-276-005	180 N.	Ortonville Rd	POH Medical Center	Oakland	Ortonville	48462
D	02-12-426-006	15 N.	Ortonville Rd	Marathon Food Center	Oakland	Ortonville	48462
D	02-12-428-001 / 03 07-351-007	1	Mill St.	Rite Aid	Oakland	Ortonville	48462
D	03-07-351-008	4 N.	Ortonville Rd	Ace Hardware	Oakland	Ortonville	48462
D	03-07-352-001	11 S.	Ortonville Rd	Little Caesars	Oakland	Ortonville	48462
D	03-07-354-009	105	Ortonville Rd	Vacant	Oakland	Ortonville	48462
D	03-18-153-009	345 S.	Ortonville Rd	Oxford Bank	Oakland	Ortonville	48462
D	03-18-153-010	425	M15	Willow Pointe Flowers	Oakland	Ortonville	48462
D	03-18-151-003	384 N.	Ortonville Rd	Vacant	Oakland	Ortonville	48462
D	03-18-152-002	440	Ortonville Rd	Village Hair & Nail Beauty Supply	Oakland	Ortonville	48462
D	03-18-152-004	456	Ortonville Rd	Jayco Roofing	Oakland	Ortonville	48462
D	03-18-152-005	490 N.	Ortonville Rd	Country Countertops, Inc.	Oakland	Ortonville	48462
D	03-18-178-002	495	South St.	Clark Oil & Refining Company	Oakland	Ortonville	48462
D	03-18-326-011	595	Ortonville Rd	Brandon Tire	Oakland	Ortonville	48462
D	03-18-154-001	470	South St.	A & W	Oakland	Ortonville	48462
D	03-18-351-007	830	Ortonville Rd	Brandon Family Dentistry	Oakland	Ortonville	48462
E1	03-30-226-001	2140 S.	Ortonville Rd	Alderman Animal Hospital	Oakland	Ortonville	48462
E1	03-30-226-002	2160	Ortonville Rd	Vacant	Oakland	Ortonville	48462
E1	03-18-352-019	880 N.	Ortonville Rd	Forster Auto Wash	Oakland	Ortonville	48462
E1	03-18-352-025	910	Ortonville Rd	James Lumber Company	Oakland	Ortonville	48462
E2	03-32-300-039	3960	Ortonville Rd	MVA	Oakland	Clarkston	48348
E2	03-32-300-039	3970	Ortonville Rd	Auto Parts	Oakland	Clarkston	48348
E2	03-32-300-039	3980 S.	Ortonville Rd	The City Press	Oakland	Clarkston	48348
E2	03-32-300-037	3994 S.	Ortonville Rd	And I Do	Oakland	Clarkston	48348
E2	03-32-400-028	3983 S.	Ortonville Rd	Jeff Harrell Builder, Inc.	Oakland	Clarkston	48348
F1	08-05-101-056	10439	Ortonville Rd	Michigan Township Participating Plan	Oakland	Clarkston	48348