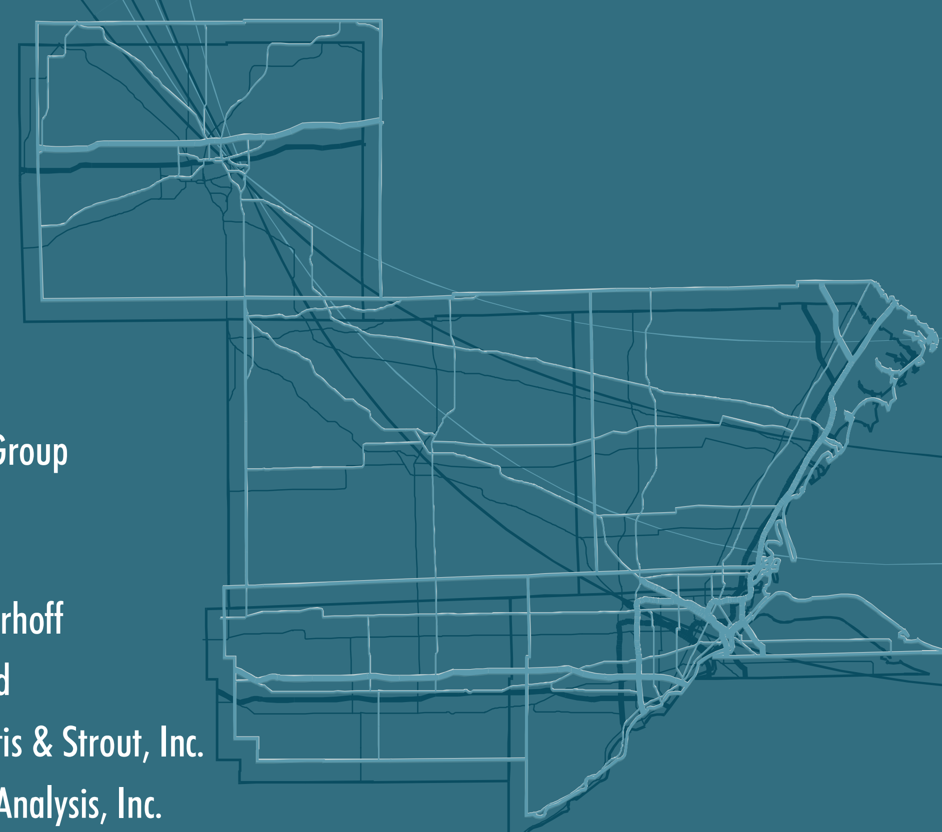
FINAL REPORT

I-73 Corridor Study

Connecting Jackson, Michigan to Toledo, Ohio

Submitted to:

Michigan Department of Transportation



Submitted by:

The Corradino Group

In association with:

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Findings

The information provided throughout this document forms the basis for the consultant to develop findings about the next steps in the project. To reach this point, a process was used over the 16-month project to facilitate broad-based public involvement. Through it, thousands of public comments on the project's reports have been received and almost 5,000 attendees have participated in six rounds of public meetings. The community has been asked for their input on factors they believe are most important in examining transportation improvements for the area. That input reflects that displacing people, absorbing farmland, and impacting wetlands were of utmost concern. The evaluation of alternatives reflects the importance of these issues.

It is worthy to note two groups have organized as a result of the I-73 Feasibility Study to stop the development of a high-type roadway in the area. CAUSE (Citizens Against Urban Sprawl Expressway/www.stopi73.com) is mainly focused on Monroe County. SPRAWL (Society to Protect Rural Area, Wetland and Lakes/ www.i73.org) is opposed to any high-type facility in Lenawee County. Both groups have stimulated hundreds of communications and a number of resolutions to support their positions. It is also noteworthy that several public bodies declined when asked by SPRAWL to pass a resolution opposing the high-type road associated with the project. They favored waiting for the completion of this feasibility study.

Based on public input and other information developed through this project, the consultant believes three routes to connect Jackson to Toledo by a high-type facility (i.e., rural freeway or boulevard) are preferred from the many options examined. These are illustrated on Figure S-3. On the other hand, if none of these facilities were built, traffic in the year 2020 on U.S. 127 from I-94 to U.S. 12/U.S. 223; and on U.S. 223 from Rome Center to U.S. 23; and on M-50 from U.S. 127 to Napoleon would be enough to require four thru lanes, with a fifth lane for turning vehicles (Figure S-4). The impacts of widening these roads are expected to be similar to Routes 1, 2 and 3 (shown on Figure S-1), in all areas except displacements, farmland impacts and effects on wetlands. For farmland and wetland impacts, the absolute potential takings and takings per mile are much more extensive for the build-new options. On the other hand, displacements associated with improving existing roads are greater than those for Route 1 and are comparable on a per mile basis among all options. And, it should be noted that if Route 1 were built, widening would still be needed of M-50, from U.S. 127 to Napoleon, and U.S. 223, from Rome Road to U.S. 23. Almost all impacts of improving existing facilities are associated with these two sections of road.

So, three courses of action are clear to the consultant:

1. Do nothing.

2. Proceed with the environmental analysis limiting the scope to the do-nothing option plus widening existing roads shown on Figure S-4.

3. Proceed with the environmental analysis to include the do-nothing option, widening existing roads plus new high-type roads defined by Routes 1, 2 and 3 shown on Figure S-3.

By taking Step 3, all options are preserved while further details are developed. That is why the consultant believes Step 3 should be taken. It is now up to MDOT, with public input provided at the last round of meetings, to determine the course to be followed.

Summary

The information provided throughout this document allows the consultant to develop certain findings about the next steps in the project.

To establish the basis upon which findings can be articulated, it is necessary to first assess the purpose and need for improvements of any kind in the I-73 study area. Those subjects are covered next.

Purpose and Need

The purpose and need for a project can be viewed from many perspectives. Here, the purpose is to provide an improved transportation link between the Jackson, Michigan and Toledo, Ohio areas to strengthen the National Highway System and the flow of people and goods over that system.

For transportation projects, need is traditionally understood in terms of: 1) system linkage; 2) transportation demand and available capacity; 3) federal, state, and/or local authority that drives a project; 4) social demands and/or economic development; and, 5) safety and roadway deficiencies. Environmental issues are also a key factor.

The U.S. Congress found in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) that the construction of the Interstate Highway System had greatly enhanced economic growth in the United States, but that many regions of the U.S. were not adequately served by interstate or comparable highways. Congress also found that the development of transportation corridors is the most efficient and effective way of integrating regions by improving efficiency and safety of travel and further promoting commerce and economic development. With these findings, Congress designated certain highway corridors as having national significance. It was the purpose of Congress in ISTEA to include these corridors on the National Highway System, to prepare long-range plans and feasibility studies for them, to allow the states to give priority to funding the construction of these corridors, and to provide increased funding for segments of these corridors identified for construction. The U.S. Congress was responding to both national and regional needs in defining what has been labeled the I-73/I-74 Corridor in ISTEA. That corridor includes a connection between the Jackson and Toledo areas (refer to Figure 1-3).

The Michigan Department of Transportation (MDOT) has long supported the need for a central Michigan freeway passing through Jackson. A "Location Study Report for US 127" dated May 1970 identified freeway construction from south of Jackson to a new east-west freeway resulting from the reconstruction of U.S.

223. Right-of-way was acquired south of Jackson to U.S. 12 for a widened road (200' of right-of-way exists). That proposed road was part of the long-range network of high performance facilities envisioned in that era. But, years of limited financial resources for roadway development and redirection of the state's transportation priorities from constructing new roads to maintaining existing ones meant that such a road leading from Jackson to Toledo was not developed.

In 1989 renewed support for improvements surfaced when over 14,000 signatures were collected on petitions submitted to Michigan State Representative Philip Hoffman. These petitions reflected concern about traffic safety on U.S. 127 between M-50 and U.S. 223. Three long-term options were noted for improvements south to U.S. 223: a freeway; a four-lane, divided highway; and, a five-lane roadway. Then, in the fall of 1995 a number of governmental units endorsed construction of I-73/I-74 to connect Michigan to South Carolina.[1]

The *Michigan Long-Range Plan*, completed in 1994, documented a need in southeast Michigan for an improved corridor. The *Plan* indicates, "it is evident from the 2015 congestion projections under the do-nothing scenario that the greatest traffic pressure is south on US-127 and then southeast on US-223 through Adrian to US-23."[2]

A survey of Lenawee County citizens conducted in 1999 by the Lenawee County Planning Commission found that 48 percent of those surveyed support an interstate highway in Lenawee County and 62 percent support US-223 as a four-lane highway in Lenawee County.[3]

The earlier documentation of need noted above is supported by more recent analysis cited below.

System Linkage

A number of routes now connect the Jackson and Toledo areas. A freeway connection exists via I-94 and U.S. 23. A "diagonal" connection exists via linkage of U.S. 127 and U.S. 223 or M-50. The increasing traffic over the "diagonal" connector is evident by the extent to which traffic volumes decline on U.S. 127 past the junction with U.S. 223. The U.S. 223 routing, serving Adrian and Blissfield, offers a competitive travel time to the I-94/U.S. 23 connection between the Jackson and Toledo areas and the distance is shorter. (Travel runs between U.S. 127 at I-94, and U.S. 223 at U.S. 23, found a one-way trip over I-94 and U.S. 23 takes approximately one hour and a trip over U.S. 127 and U.S. 223 takes an extra two minutes, on average.) Because commercial truck operations are concerned with both travel time and distance, the US 223 route is attractive for many truck trips.

[1] Adrian City Commission, Adrian Township Board of Trustees, Village of Britton Council, Cambridge Township Board of Trustees, Village of Cement City Council, Deerfield City Council, Hudson City Council, Tecumseh City Council, Lenawee County Board of Commissioners.
[2] Pg. 15, *Michigan Sub-State Area Long Range Plans, Final Report Summary* (The Corradino Group, December 1994).
[3] Survey mailed to 5,000 households in Lenawee County by the Lenawee County Planning Commission in July 1999, with a 13.3 percent return rate.

The National Highway System linkage over U.S. 127 and U.S. 223 as it now exists is not considered as providing quality roadway service. U.S. 127 does not directly connect to the Ohio Turnpike (I-80/90). The proposed project would address the inadequate linkage in the National Highway System in this region.

Transportation Demand and Capacity

Future travel demand has been simulated using MDOT's statewide travel model. The computer model is based on projections of data, such as population, income, and employment[4], to forecast how much people will drive and where they want to go in the year 2020. A series of simulations of various alternative routings finds that travel demand in 2020 will result in a poor level of travel service on a number of the two-lane roads serving the area (Figure S-1 shows No Build conditions). U.S. 127 south of Jackson, M-50 east of U.S 127, and much of the length of U.S. 223, between U.S. 127 and U.S. 23, are expected to experience travel demand requiring more than a two-lane facility.

In particular, year 2020 traffic volumes under No-Build conditions along U.S. 223 east and west of Adrian are projected to be 17,000 vehicles per day or more. Two-lane roads in urban settings can carry such volumes, where travel demand is spread evenly throughout the day and night and where vehicles are not pressing to pass. However, in rural areas, where longer distance travel prevails, autos want to pass trucks. 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 four-lane roads of some type are preferred.

When No-Build conditions are compared to a build alternative that provides a proposed high-type roadway (i.e., boulevard or freeway), simulations show that travelers divert from other, less attractive travel paths to the new proposed road. The greater the increase in projected traffic over No-Build conditions, the more effectively the new link satisfies future travel demand. U.S. 223 in the Adrian area would be the most heavily used mid-corridor segment of the new route, according to these simulations of future travel. It is projected to carry 25,000 to 30,000 vehicles daily, an increase of 40 to 75 percent over what would be carried in 2020 if existing roads were not improved (Figure S-2). This means an improved highway through this area would provide better transportation service than the existing roadway network. And, in doing so, it would control traffic growth on a number of two-lane roads, leaving mostly local traffic and preserving the function of those facilities.

Federal, State, and/or Local Governmental Mandate

The federal legislative mandate for the project has been noted in the introduction to this section. Funding has been provided through the Transportation Equity Act for the 21st Century (TEA21) for a feasibility study and preparation of, if needed subsequently, an environmental impact statement. If the environmental work were undertaken, it would likely extend another two to three years beyond the conclusion of the feasibility study. Funding has not been authorized by Congress for work beyond the environmental phase.

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[4] More specifically, for trip productions, the model uses number of households, household income, persons per household, and urban or rural zone location. For trip attractions it uses employment data by type.

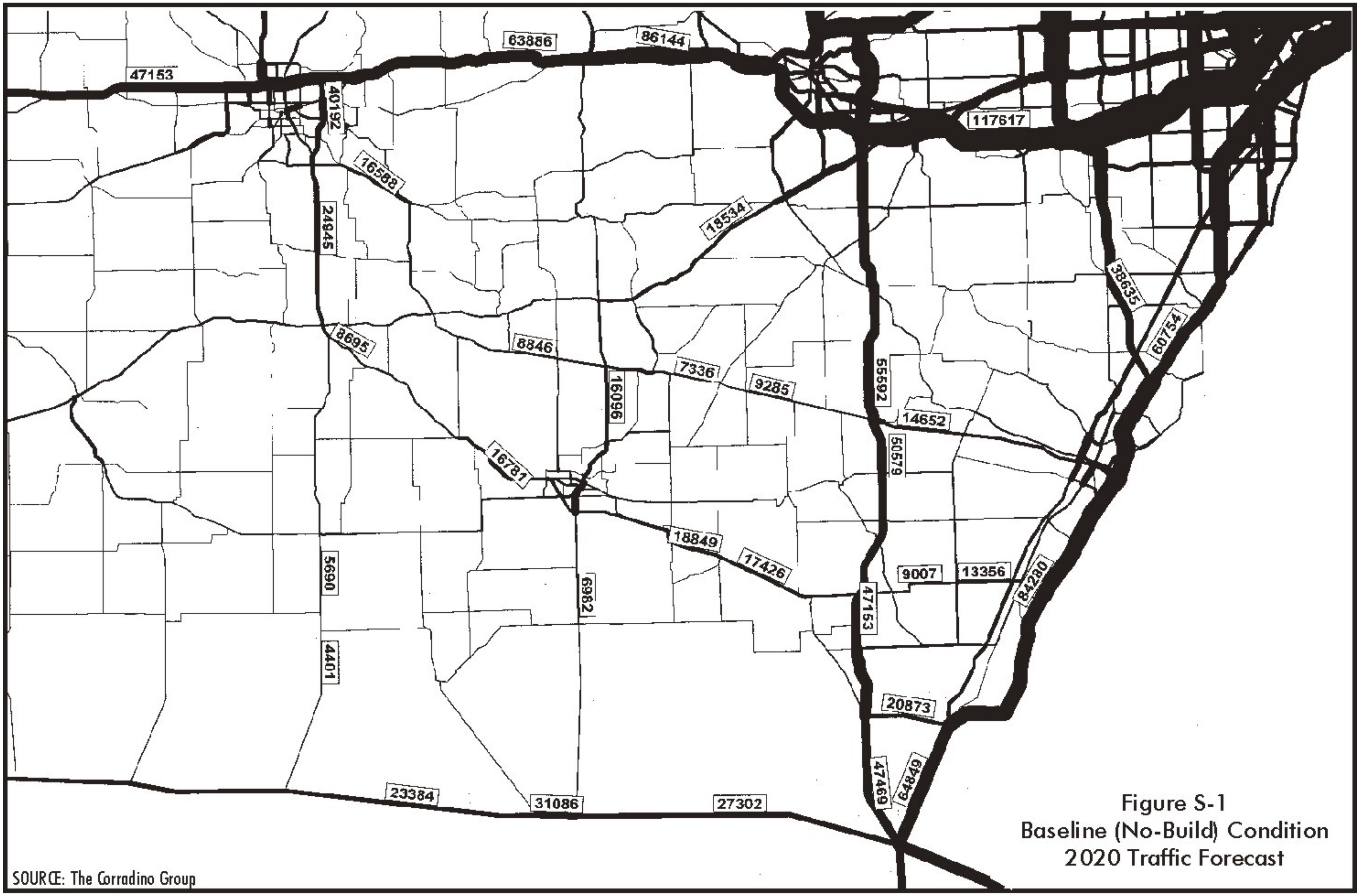

Figure S-1
Baseline (No-Build) Condition
2020 Traffic Forecast

SOURCE: The Corradino Group

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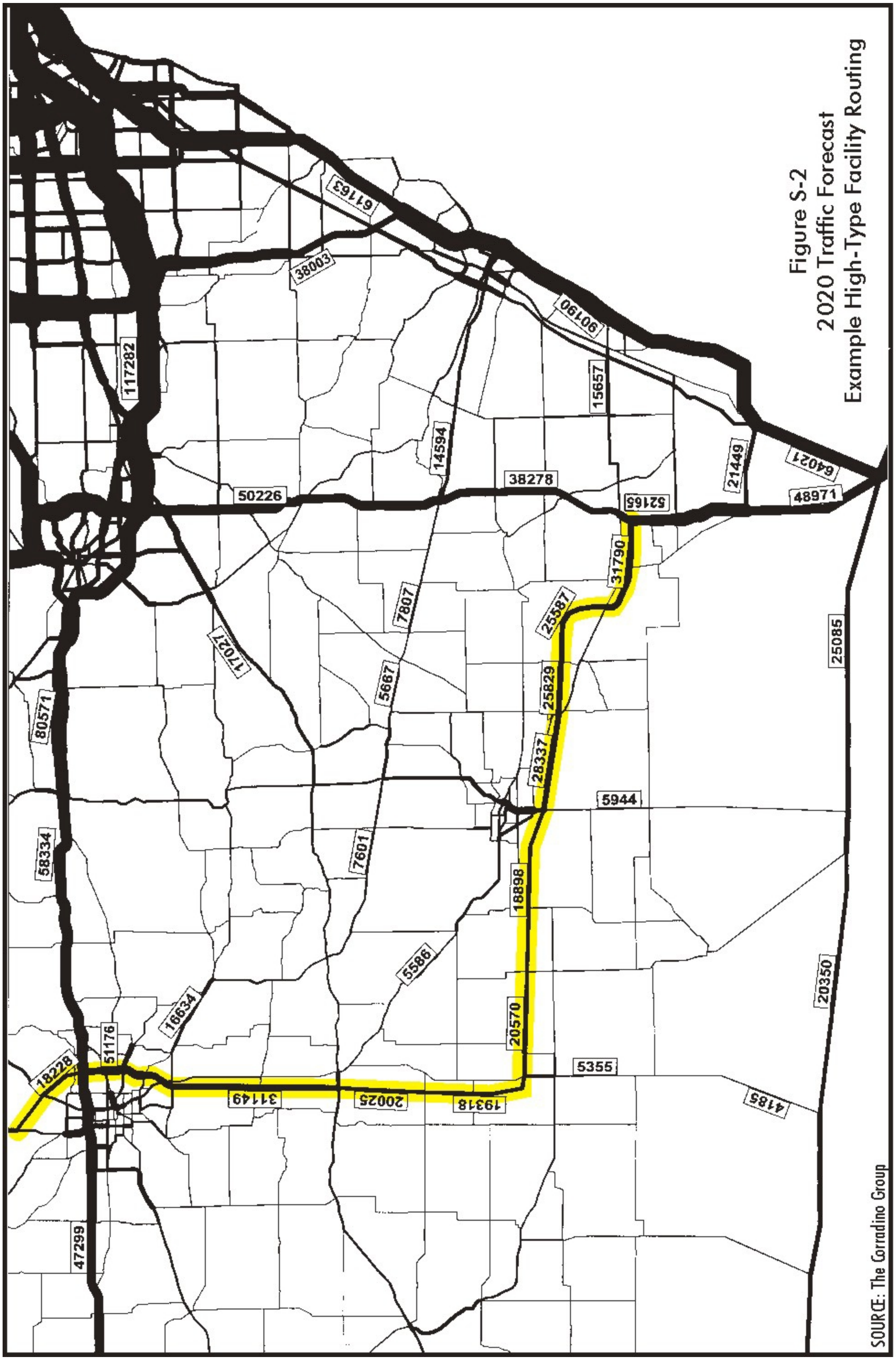

Figure S-2
2020 Traffic Forecast
Example High-Type Facility Routing

SOURCE: The Corradino Group
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Social Demands and/or Economic Development

The population of the study area (Hillsdale, Jackson, Lenawee, and Monroe counties) is expected to grow by approximately 11 percent from the year 2000 to 2020. The resultant growth in jobs is projected to almost double the growth in population (21%). And, the growth in vehicle travel (trips per day) is forecast to exceed by 300 percent the growth in population. These factors indicate the need to study ways to improve highway capacity in the region.

Growth in the study area is perhaps best typified by the recent opening of the L&W plant on U.S. 223 just east of Blissfield. This operation serves the Jeep plant in Toledo. It is importing jobs. And, it is likely to import new residents to the study area as well. It is this type development that supports the population, job and traffic forecasts cited above.

Community leaders, especially in Lenawee County, have made known their concerns to MDOT for years that poor access limits development in the area. Accessibility is a primary factor in the decision-making of businesses seeking to expand or relocate. The presence of high quality accessibility is no guarantee that an area will grow, but poor accessibility is a constraint to growth.

Safety and Roadway Deficiencies

Safety is always an important issue and has been an issue in this corridor. Public meetings were held in the fall of 1999 to discuss safety conditions along U.S. 223 between U.S. 127 and Adrian, especially speeding trucks. Both US 223 and M-50 have speed restrictions through towns. Horizontal and vertical curve sections also limit overall travel speed.

Speed Restrictions

From northwest to southeast a traveler beginning at U.S. 127 south of the I-94 freeway section in Jackson, would encounter the following:

- Eight no-passing zones on U.S. 127 between M-50 and U.S. 223.
- Four speed zones in that section of U.S. 127.
- Twenty-four no-passing zones on U.S. 223 between U.S. 127 and the Adrian Bypass.
- A no-passing zone on the Adrian Bypass/U.S. 223.
- A speed zone in Palmyra on U.S. 223.
- Six no-passing zones on U.S. 223 between Adrian and Blissfield.
- Speed zones on U.S. 223 through Blissfield.
- Two no-passing zones on U.S. 223 between Blissfield and U.S. 23.

This means more than 40 no-passing zones are present between Jackson and U.S. 23 besides speed zones in Devils Lake, Adrian, Palmyra and Blissfield.

Accident History

The accident rates on U.S. 127, U.S. 223, and M-50 (expressed as the number of accidents per 100 million vehicle miles of travel) can be compared to county and statewide averages for two-lane rural roads (that are part of Michigan trunk line system) to understand the relative safety of the existing roads (Table S-1). As can be seen, key sections of U.S. 127 (between U.S. 223 and U.S. 12), U.S. 223 (between M-34 and M-52) and M-50 (from M-52 to U.S. 127) have accident histories above the average of the MDOT District and the state as a whole. And, in the context of a new high-type road, i.e., rural freeway or boulevard, the data on Table S-2 show that rural freeways in Michigan have the lowest crash rates, and divided "non-freeways" (like boulevards) are second lowest. Rural two-lane facilities have an accident history close to the MDOT's District Average and five-lane roads (non-boulevard) have the highest accident exposure. To the extent that crash patterns are evident on the above-mentioned roads, MDOT continues to monitor these conditions and make improvements such as turn-lane additions, minor widenings, flareouts at intersections, and the like. **In no case do the data of Table S-1 or Table S-2 indicate an unsafe roadway system.**

Table S-1
Accident Rates in Study Area
(Number of Accidents per 100 million Vehicle Miles Traveled)

Location	1994	1995	1996	1997	1998	5-Year Avg.
Hillsdale Co.	488	458	452	448	NA	462
Jackson Co.	310	318	321	296	NA	311
Lenawee Co.	447	442	402	391	NA	420
Monroe Co.	183	196	192	182	NA	188
MDOT Dist. Avg.	332	367	330	278	NA	319
Statewide Average	307	330	323	307	NA	317
US 127						
- M-50 to US 12	230	254	310	260	184	248
- US 12 to US 223	544	311	233	311	272	334
- US 223 to M-34	220	267	212	215	170	217
- M-34 to State line	169	202	142	182	135	166
US 223						
- US 127 to M-34	232	272	248	190	124	213
- M-34 to M-52	464	624	384	544	384	480
- M-52 to US 23	164	158	180	157	126	157
M-50						
- US 127 to US 12	388	347	364	380	295	355
- US 12 TO M-52	407	330	414	465	397	403

Note that the vehicle mile of travel basis was 1998 for all years presented.
Source: MDOT

Table S-2
Michigan Crash Rates by Roadway Class

Roadway Type	Crashes Per 100 Million Miles
Rural Freeways	134
Rural Divided Non-Freeways	272
Rural Two-lane	311
Five-Lane Roadways	717*

Source: Transportation Research Board, Paper Number 97, 1997
* Five-Lane Roadway data is from Traffic and Safety Division of MDOT

Public Involvement

The public was invited to participate in this process. At the writing of this report, thousands of comments have been received. And almost 5,000 attendees have participated in the six rounds of public meetings. Throughout the study, the community has been asked for their input on factors that are most important in examining transportation improvements for the area. That input reflects that displacing people, absorbing farmland, and impacting wetlands were of utmost concern. These data were used in the evaluation of alternatives.

It is also important to note that public input received includes resolutions from a number of groups:

- Bedford Township Board
- Erie Township Board
- La Salle Township Board
- Whiteford Township Board
- Monroe County Board of Commissioners
- Grand River Environmental Action Team
- Northwest (Jackson) School District
- Citizens (14) from Jackson, Michigan
- Michigan Audubon Society
- Rome Grange Executive Committee
- Madison Township Board
- Riga Township Board

The first four groups largely focus their interest on County Road 151 in Monroe County. They are opposed to it as a high-type roadway facility. On the other hand, the Monroe County Board of Commissioners, while citing the same link, resolved that it opposes designation "... in the I-73 Study of any path through or across any portion of the County of Monroe for the construction of a new interstate highway." The next three groups mostly concentrate on connections of U.S. 127 South to U.S. 127 North using property that is in a mostly natural state with much of it owned by the Michigan Department of Corrections. They are opposed to this connection and stress using I-94/U.S. 127 instead. The Michigan Audubon Society calls for the improvement and maintenance of existing surface transportation corridors and opposes new highways that will jeopardize and destroy wetlands and open land areas crucial to the sustainability of southern Michigan's wildlife and resources. Finally, the Rome Grange is against the use of the M-34/Beecher Road corridor because of the absorption of farmland expected with the proposed project.

It is worthy to note two groups organized to stop the development of a high-type roadway in the study area. CAUSE (Citizens Against Urban Sprawl Expressway/www.stopi73.com) is mainly focused on Segment A3a in Monroe County. SPRAWL (Society to Protect Rural Area, Wetland and Lakes/www.i73.org) is opposed to any high-type facility in Lenawee County. Both groups have stimulated hundreds of communications to support their position.

Finally, it is noted that public bodies like the Hudson City Council, Tecumseh City Council, and the Lenawee County Board of Commissioners declined when asked by SPRAWL to pass a resolution opposing the high-type road associated with the project. These bodies favored waiting for the completion of this feasibility study.

Findings

The information in this report leads the consultant to believe there are three basic routes by which to connect Jackson to Toledo by a high-type facility (i.e., rural freeway or boulevard) (Figure S-3):

Route 1: Segments A16, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

Route 2: Segments A2a, A9, A10b, A11, A11a, B8, B9, B10a, B10b, B11, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

Route 3: Segments A2a, A9, A10b, B22a, B10b, B11, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

If nothing were done in the study area, traffic in the year 2020 on U.S. 127 from I-94 to U.S. 12/U.S. 223 and on U.S. 223 from Rome Center to U.S. 23 and on M-50 from U.S. 127 to Napoleon is enough to require four thru lanes, with a fifth lane for turning vehicles (Figure S-4). And the impacts of widening these roads are similar to Routes 1, 2 and 3 in all areas except displacements, farmland impacts and effects on wetlands. For farmland and wetland impacts, the absolute potential takings (i.e., numbers of acres) and takings per mile are much more extensive for the build-new options. On the other hand, displacements associated with improving existing roads are greater than those for Route 1 (136 displacements versus 117) and are comparable on a per mile basis among all options. And, it should be noted that if Route 1 were built, widening would still be needed of M-50, from U.S. 127 to Napoleon, and U.S. 223, from Rome Road to U.S. 23. Almost all impacts of improving existing facilities are associated with these two sections of road.

So, these data lead the consultant to conclude there is a need to improve the roads in the study area. And, while the three routes considered for a new high-type facility, prior to refinements, are more extensive than widening major roads, they are considered by the consultant to be manageable. Further, while the economic consequences of any improvement are yet to be determined, the option to improve 41 miles of existing roads like U.S. 127, M-50 and U.S. 223 will be associated with traffic impacts during construction that will be worse than building the new routes. Such construction will be much more extensive in time (several construction seasons versus one) and scope (dozens of miles versus a few) than the current disruption associated with widening U.S. 223 from Palmyra to Blissfield. Businesses are particularly susceptible to the disruptive effect of roadway construction.

Therefore, three courses of action are available to MDOT:

1. Do nothing.

2. Proceed with the environmental analysis <u>limiting the scope</u> to the do-nothing option and widening existing roads shown on Figure S-4.

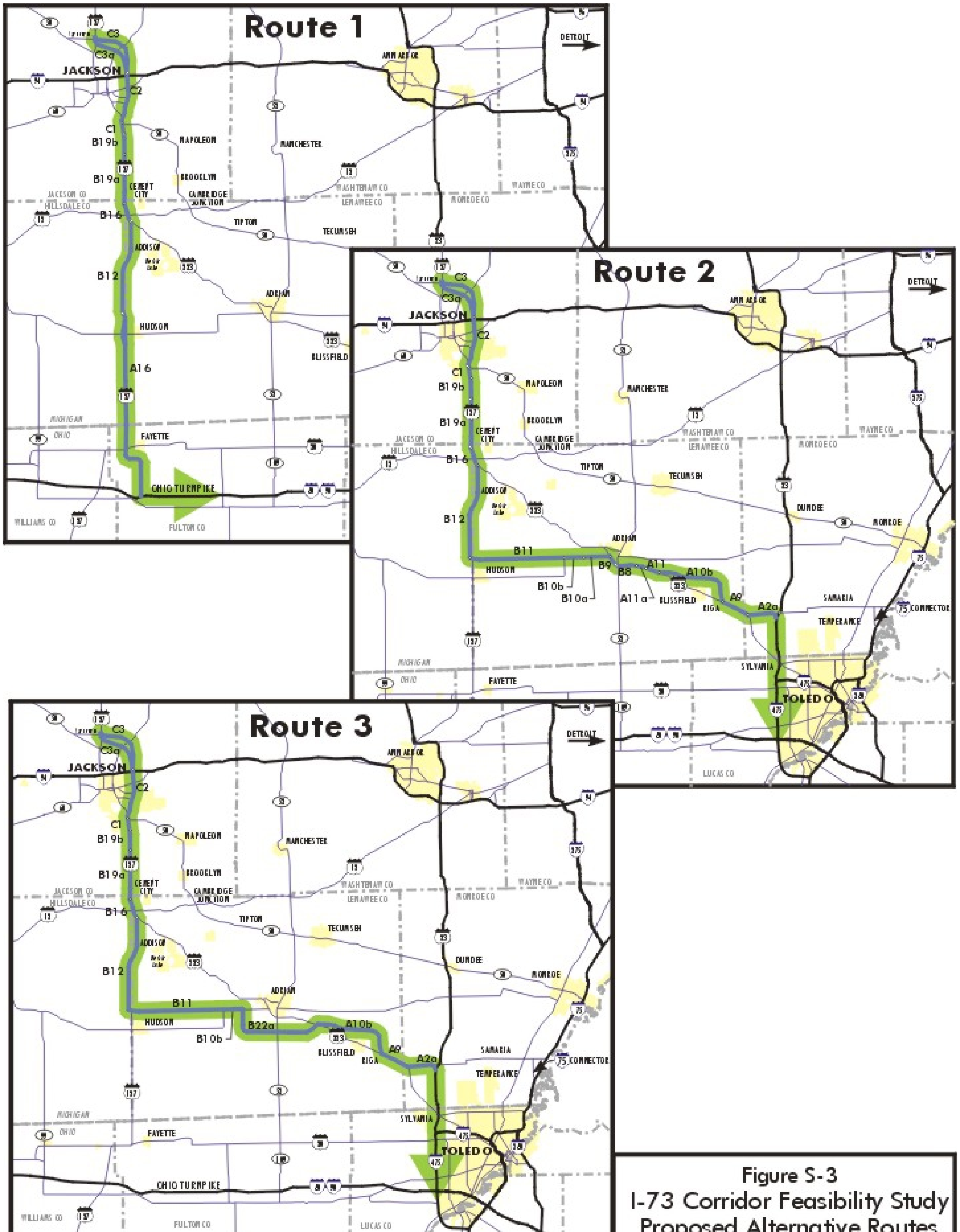

Figure S-3
I-73 Corridor Feasibility Study
Proposed Alternative Routes
as of May 22, 2000

SOURCE: The Corradino Group

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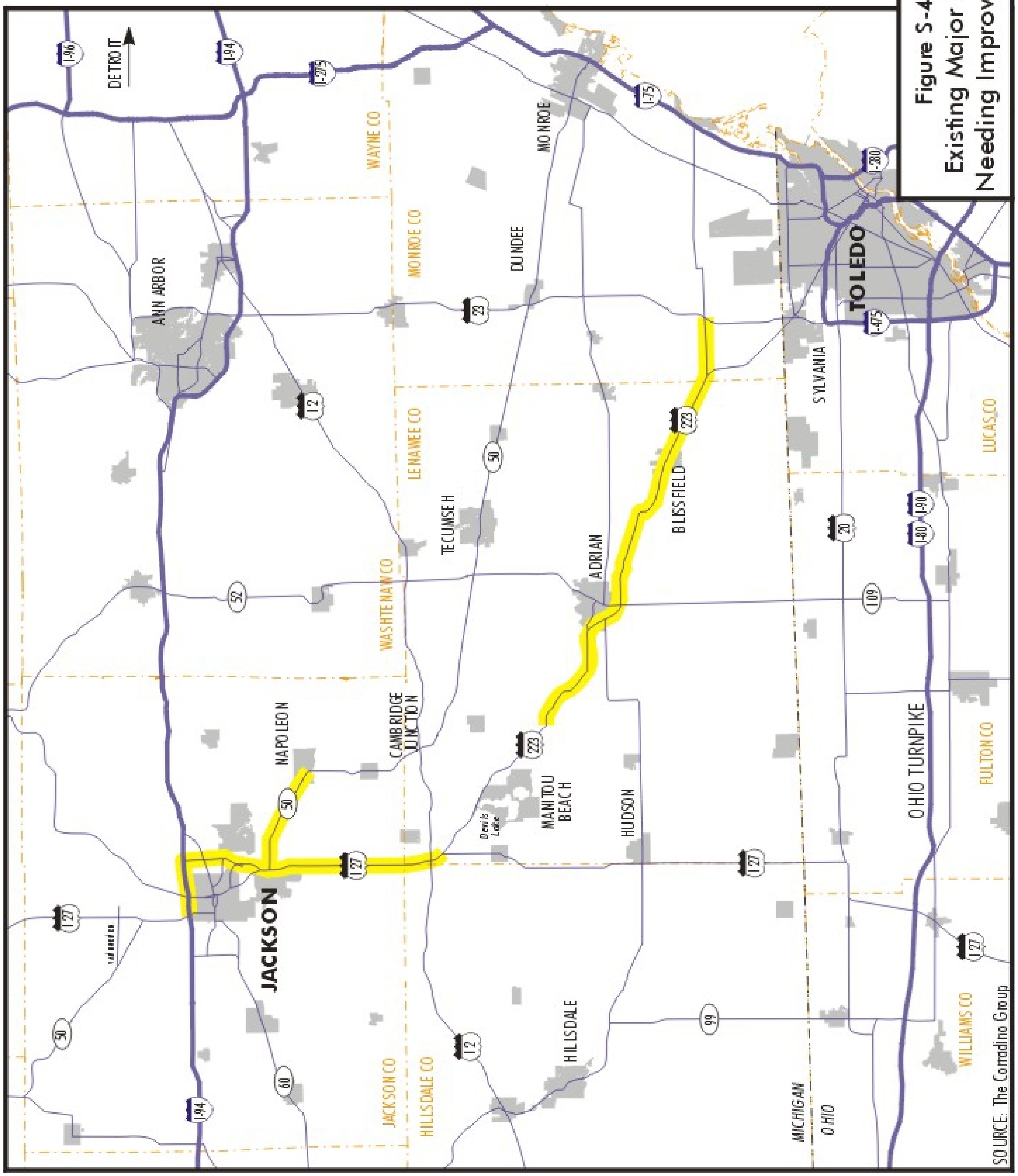

Figure S-4
Existing Major Roads
Needing Improvements

3. Proceed with the environmental analysis to include the do-nothing option, widening existing roads <u>plus new high-type roads</u> defined by Routes 1, 2 and 3 shown on Figure S-3.

The consultant believes Step 3 should be taken. By doing so, the options of doing nothing or only widening existing roads will be preserved. It is now up to MDOT, with public input provided at the last round of meetings of this feasibility study, to determine the course to be followed.

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1. Overview

The I-73 Feasibility Study, sponsored by the Michigan Department of Transportation, is examining whether a new interstate should be constructed to link Jackson, Michigan, to Toledo, Ohio. A new major highway corridor generally running north-south through Ohio into Michigan presents a variety of important transportation, economic, and social opportunities. These are accompanied by just as many, and varied, challenges ranging from environmental issues, to river crossings, to the potential severing of farmlands. It is the overall purpose of this study to understand the opportunities and challenges associated with selecting a corridor, if one exists. And, in order to do so, improvements to existing roads will also be examined. This latter alternative is a reasonable and prudent option to a new high-type facility like I-73.

1.1 This Report

This is the final in a series of reports to be produced over the 16-month project (Figure 1-1). It covers the process of examining the impact of improvements to existing roads in the corridor as well as alternative high-type facilities, such as a boulevard or rural freeway.

Overall, the feasibility study is viewed as a process where, at the outset, many options are examined across a broad background of data to narrow the focus to a fewer number of alternatives that have greater potential to work (Figure 1-2). The process then increases the depth of analysis on these fewer alternatives, again moving toward defining those more likely to be implemented.

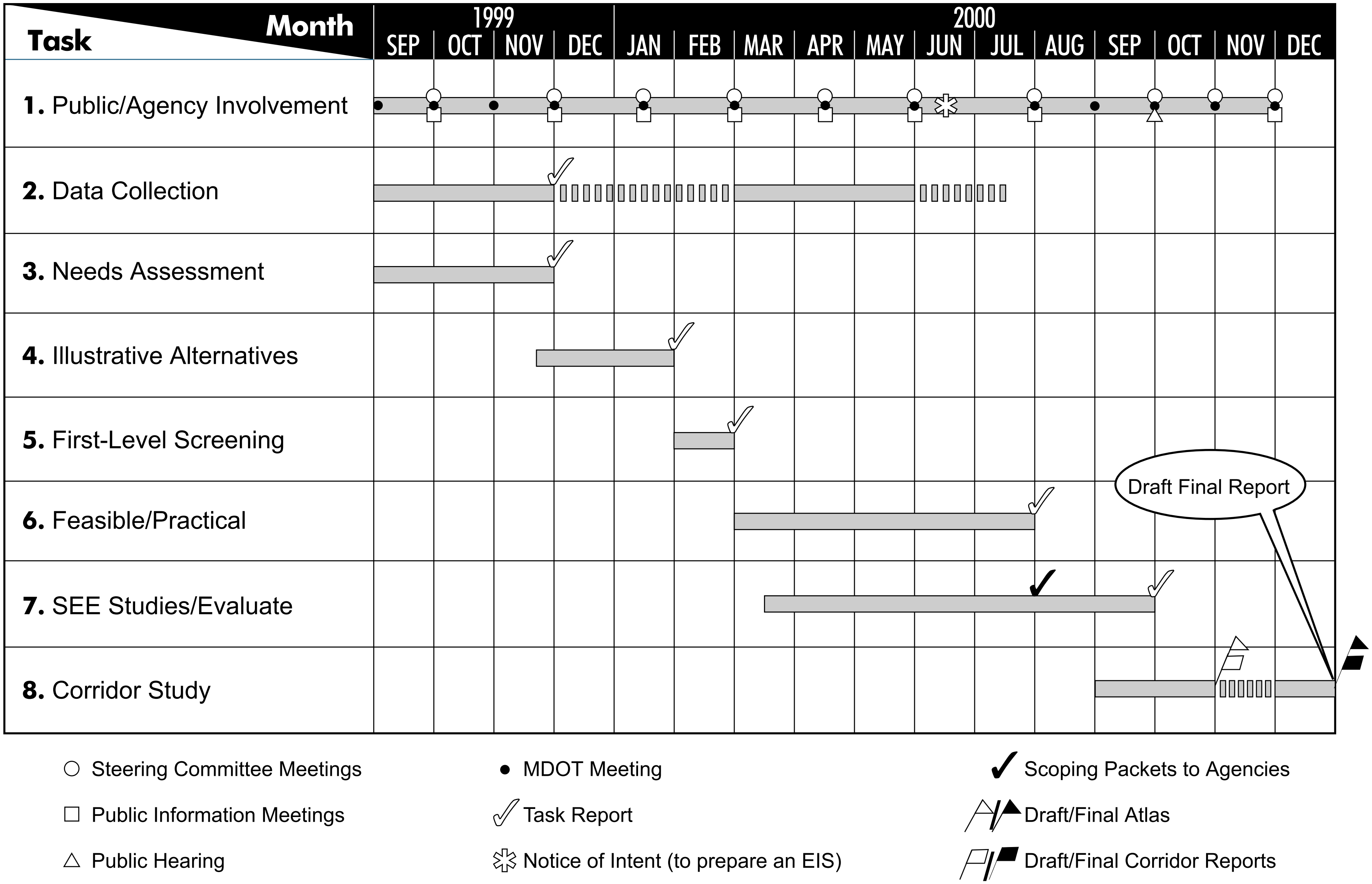
This narrowing process has proceeded to a point where a determination by MDOT on how to proceed is appropriate.

1.2 Project History

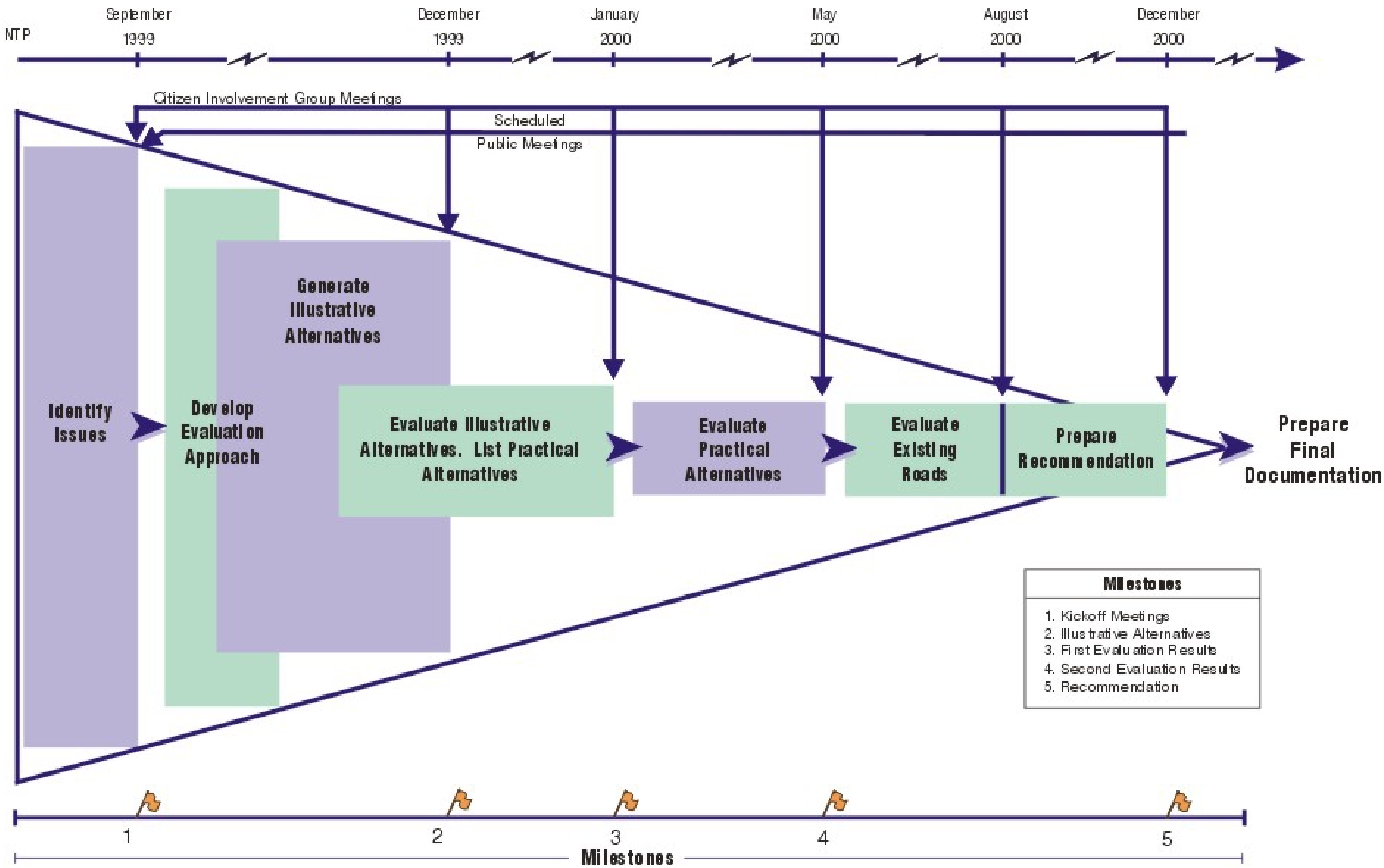
The earliest proposals for an interstate-like road in southeast Michigan serving the Jackson area were for a central Michigan freeway in the U.S. 27/U.S. 127 corridors. This occurred during the early days of the Interstate System (early 1960s) as part of a combined interstate and arterial highway program in Michigan designed to connect the state's major population and recreation centers. Part of this proposed central freeway was built as U.S. 127 north of Lansing, but other portions were sidelined due to commitments to complete the Interstate System first. In addition, Ohio did not support requests to provide an interchange at the Ohio Toll Road, which was considered a logical southern terminus for this expressway.

Figure 1-1

Project Schedule



Source: The Corradino Group



Source: The Corradino Group

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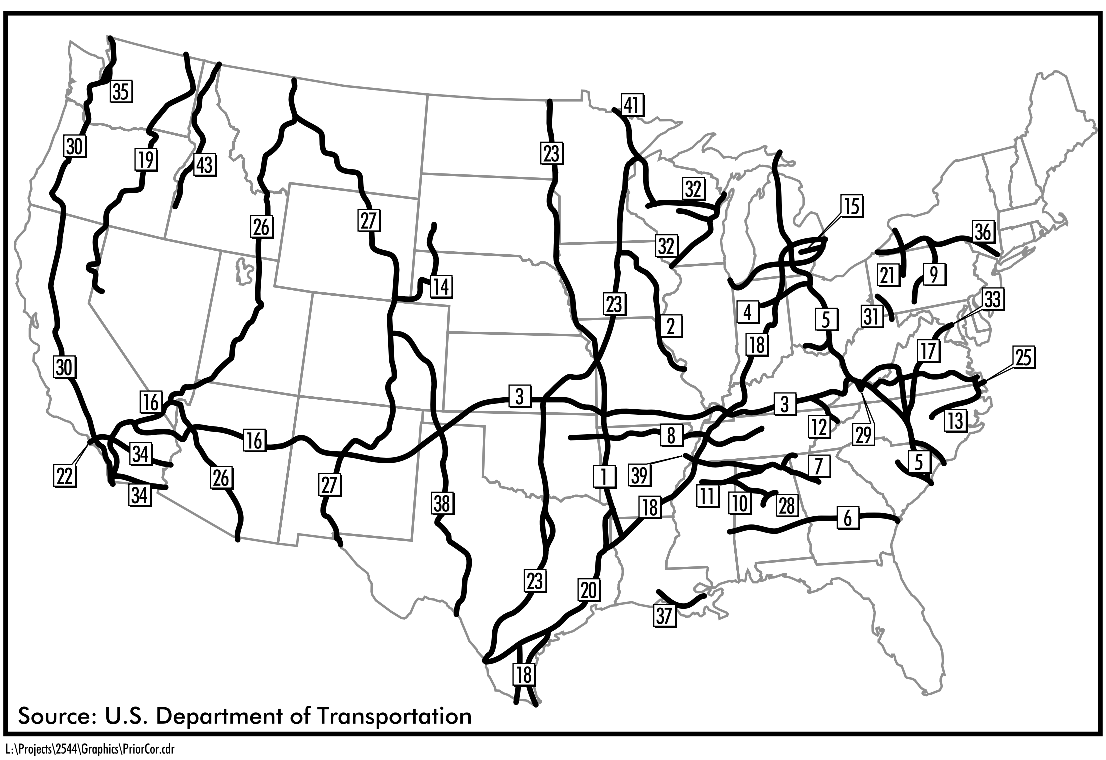
Figure 1-2
Feasibility Study Process

During the 1970s, non-interstate, rural freeways remained a low priority as efforts focused on completing the Interstate System. In 1982, the Michigan Legislature endorsed a mandate that MDOT focus its limited funding on managing and maintaining the existing system, rather than expanding it. Federal policy reinforced this position when the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) stated that the federal highway system was complete, except for those few corridors labeled in the legislation as "high priority". One of those was labeled the I-73/74 corridor. The ISTEA language describing the I-73 corridor offered an opportunity to study completing U.S. 27/U.S. 127 "central Michigan" freeway envisioned back in the early 1960s.

Nationally, an I-73/74 committee formed to explore the idea of an interstate highway stretching from South Carolina to Michigan, passing through North Carolina, Virginia, West Virginia, and Ohio (Corridor **5** on Figure 1-3). The Michigan DOT participated in those committee meetings from the early 1990s.

In November 1995, the National Highway System (NHS) Designation Act passed Congress with a modified description of the corridor in Michigan. And, in 1997, efforts began on legislation to follow ISTEA, now known as the Transportation Equity Act for the 21st Century (TEA-21). In shaping this law, each member of Congress was asked to designate one or more "high priority" projects in his/her district. MDOT submitted over $1 billion in projects to its Congressional Delegation that included $120 million for improvements in the I-73 corridor. Four received funding in TEA-21: I-75/North Down River Road interchange reconstruction; an interchange at U.S. 27 and M-57; and, both a corridor feasibility study and an environmental impact study for the Jackson-to-Toledo portion of the I-73 corridor.

Figure 1-3
High Priority Corridors
5 = I-73/I-74 Corridor



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The "high priority corridor" in TEA-21 is defined as follows:

> "A North/South corridor from Charleston, South Carolina, through Winston-Salem, North Carolina, to Portsmouth, Ohio, to Cincinnati, Ohio, to termini at Detroit, Michigan, and Sault Ste. Marie, Michigan. The Sault Ste. Marie terminus shall be reached via a corridor connecting Adrian, Jackson, Lansing, Mount Pleasant, and Grayling, Michigan."

The only portion of the corridor in Michigan that is not freeway is the section between Jackson and Toledo which is the focus of this study.

1.3 Current Study

The I-73 Feasibility Study is being sponsored by the Michigan Department of Transportation. Guidance has been provided through public involvement and an Advisory Committee of which membership has been open to anyone who requests admittance. The Advisory Committee exceeds seven dozen members.

A first round of public meetings was held in the corridor on September 21 and 22, 1999. Approximately 250 people attended meetings in Jackson, Adrian, and Erie Township (refer to Figure 1-1). The scope of the project (Technical Memorandum No. 1) was explained and the public was asked to give its views of problems and needs in the corridor, including recommended solutions. The public was then asked to help screen alternatives documented in Technical Memorandum No. 2 by ranking the importance of seven evaluation factors at the second round of public meetings held on December 8 and 9. More than 100 participated in the scoring process.

The first-level evaluation of Illustrative Alternatives using these criteria was the subject of Technical Memorandum No. 3. A round of public meetings to review these findings and receive additional input was held on January 25 and 26, 2000. (Another meeting was held in Tecumseh on February 16, bringing total attendance to more than 1,100.) The result of this process was the elimination of about half the original corridor segments. One, Segment A16, recommended by the consultant for elimination, was re-entered into the analysis as the citizens at the Adrian and Jackson meetings requested it as part of an alternative that would avoid penetrating the center of the corridor. Because the study process was responsive to such input, Segment A16 became part of the second-level evaluation.

In early April, over 2,300 people attended open houses to review mapping and video simulations of the remaining, i.e., “practical” alternatives. These were then subject to evaluation to assess their impacts. Public meetings were held on May 30, 31, and June 1, 2000 to discuss the consultant’s recommendation about the new high-type facility. About 700 people attended. MDOT concurred in this recommendation. So, the phase of work dealing with “new route” options was then concluded. Improvements to existing roads were examined next. Public workshops were conducted to examine the results on August 22 and 23, 2000. These drew about 450 people.

Information about the project is found at the Web site www.mdot.state.mi.us/I-73/Index.htm. All reports are provided there. Comments on this report as well as any aspect of the project can be called in to the free phone hot-line (800/270-5654) or transmitted via email to lopezjos@mdot.state.mi.us or gcorradino@ corradino.com.

2. Illustrative Alternatives

In the period from September through December 1999, the public assisted the project by identifying corridors which might accept a new high-type roadway (boulevard or rural freeway). The following general corridors were suggested for study at that time (Figure 2-1).

- A U.S. 127 Corridor linking the Ohio Turnpike north to Jackson. An interchange was added to the Turnpike in 1998 east of U.S. 127 at Ohio State Route 66. A link would have to be created between the interchange at O-66 and U.S. 127.

- An M-52 Corridor linking the Ohio Turnpike north to Adrian, and then via U.S. 223 to U.S. 127 and Jackson.

- A U.S. 223 Corridor linking U.S. 23 to U.S. 127 and Jackson.

- An M-50 Corridor linking U.S. 23 to either U.S. 12 (and then U.S. 127 to Jackson) or directly into U.S. 127 in Jackson.

- A potential corridor that runs east-west across Lenawee and Monroe counties from Luna Pier via County Road 151 to U.S. 223 through Blissfield and Adrian, and then via M-34 to U.S. 127 near Hudson, then north via U.S. 127

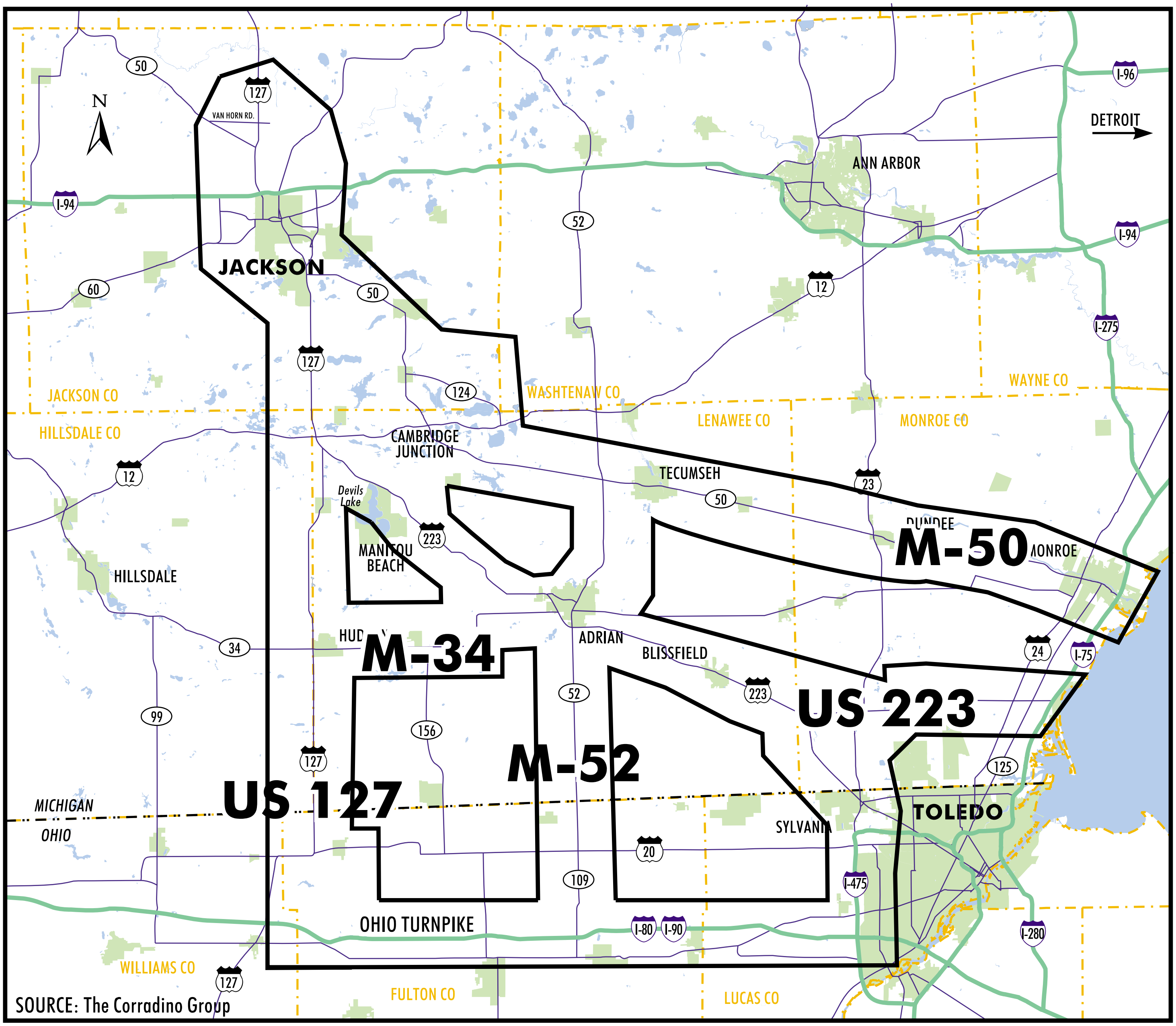
Within these corridors, more specific alignments were identified (Figure 2-2).

2.1 Study Area Description

The study area takes in portions of Jackson, Lenawee, Monroe, and Hillsdale Counties in Michigan, plus the very southwest corner of Washtenaw County. It also penetrates into northern Fulton and Lucas Counties in Ohio, to make connections to the Ohio Turnpike or to I-475 in the Toledo area. On a diagonal between Jackson and Toledo, the corridor measures 60+ miles (100 kilometers). If an alignment passed due south from Jackson and then east to Toledo, the corridor could be as much as 70+ miles (110 kilometers) long.

Within the study area, numerous regional transportation systems exist which are related to land uses. These include:

Figure 2-1
Potential Corridors



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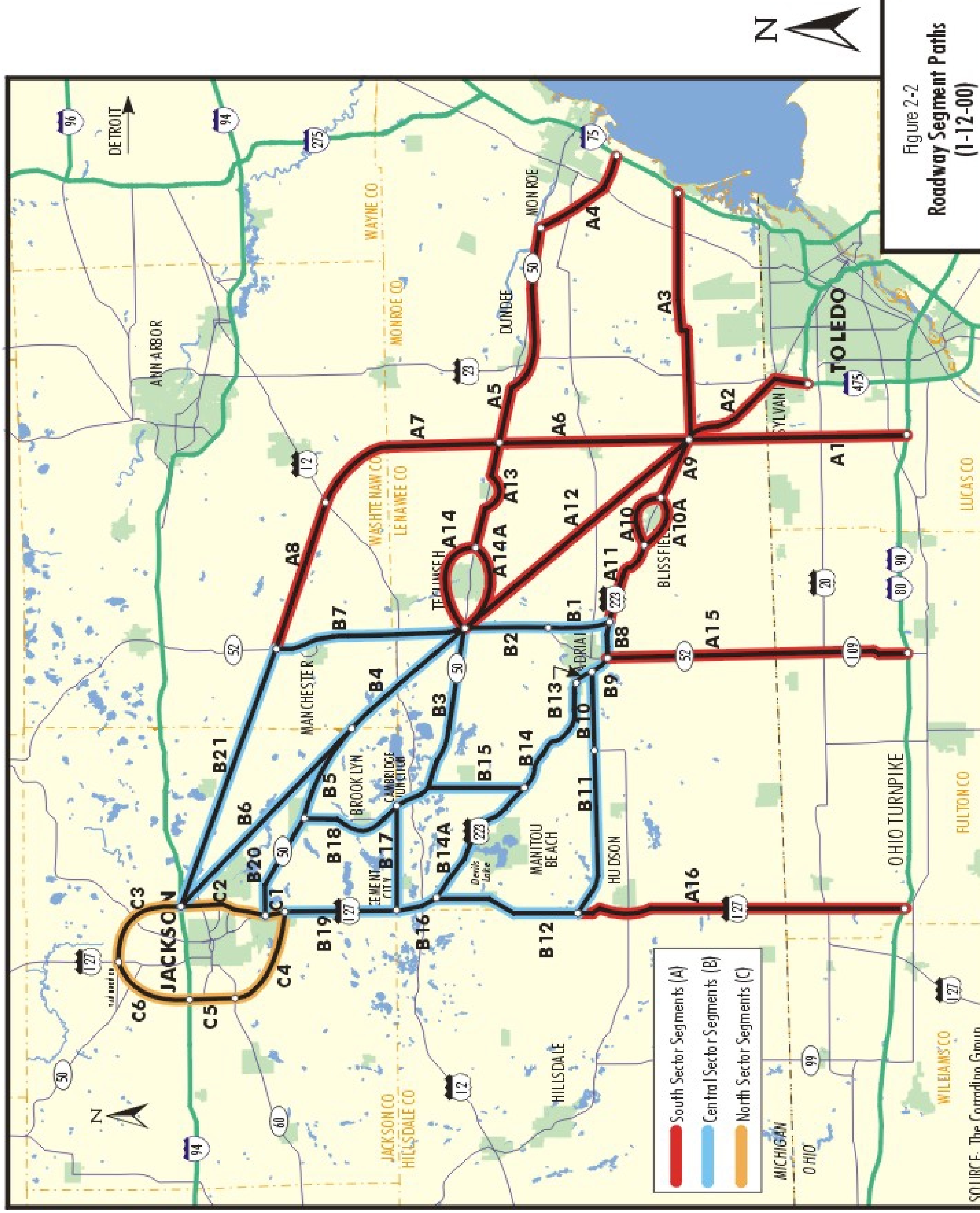


Figure 2-2
Roadway Segment Paths
(1-12-00)

- Major north-south roadways such as U.S. 127, M-52, U.S. 23, and U.S. 24 as well as I-75 along the east edge of the study area. Major east-west routings include from south to north: the Ohio Turnpike (which is also Interstate 80/90), M-34, U.S. 223, M-50, US 12, and at the north limit of the study area, I-94 in the Jackson area.

- A number of major railroad lines radiate from Detroit and include the Conrail line running to Jackson, the Norfolk/Southern line running from Adrian to Detroit, the Grand Trunk Western Railroad traversing Monroe County from the southwest to the northeast and Detroit, and the CSX line that runs north from Toledo to central Wayne County.

- Headwaters of five major rivers exist in the area: the Grand River and Huron River in the Jackson area, the Kalamazoo River south of Jackson, the River Raisin in the Adrian area, and the St. Joseph River in the south.

The south and east portion of the study area is largely devoted to agriculture (Figure 2-3). This land is relatively flat and has very good soils. In fact conversation with officials indicate it is all considered "prime" farmland. The area to the north and west contains more lakes, more wetlands, more hills, more woodlands, and generally speaking, more development.

2.2 Demographics

2.2.1 Population

The four Michigan counties principally touched by the project have grown moderately in the last decade and are expected to increase in population over the next 20 years, with the four counties increasing by a total of over 50,000 (Table 2-1). The projected increase from 450,000 people in 2000 to over 500,000 in 2020 is about 11 percent growth. Monroe will grow fastest at 13 percent, while Jackson will continue to be the most populous.

Table 2-1
Population

Area	1970	1980	1990	2000	2005	2010	2015	2020
Hillsdale	37,393	42,145	43,515	47,347	49,169	51,059	53,078	55,118
Jackson	143,325	151,602	150,130	157,144	159,944	163,006	166,447	169,967
Lenawee	82,141	90,154	91,782	99,618	102,180	104,888	107,830	110,843
Monroe	119,678	134,824	133,905	145,077	149,509	154,171	159,206	164,320
Total	**382,537**	**418,725**	**419,332**	**449,186**	**460,802**	**473,124**	**486,561**	**500,248**
Michigan	8,899,065	9,256,635	9,310,470	9,932,684	10,185,091	10,452,529	10,743,519	11,040,321
U.S.	203,982,313	227,225,622	249,440,652	274,676,222	286,034,283	297,783,320	310,192,792	322,771,740

Source: Woods & Poole Economics, Inc.

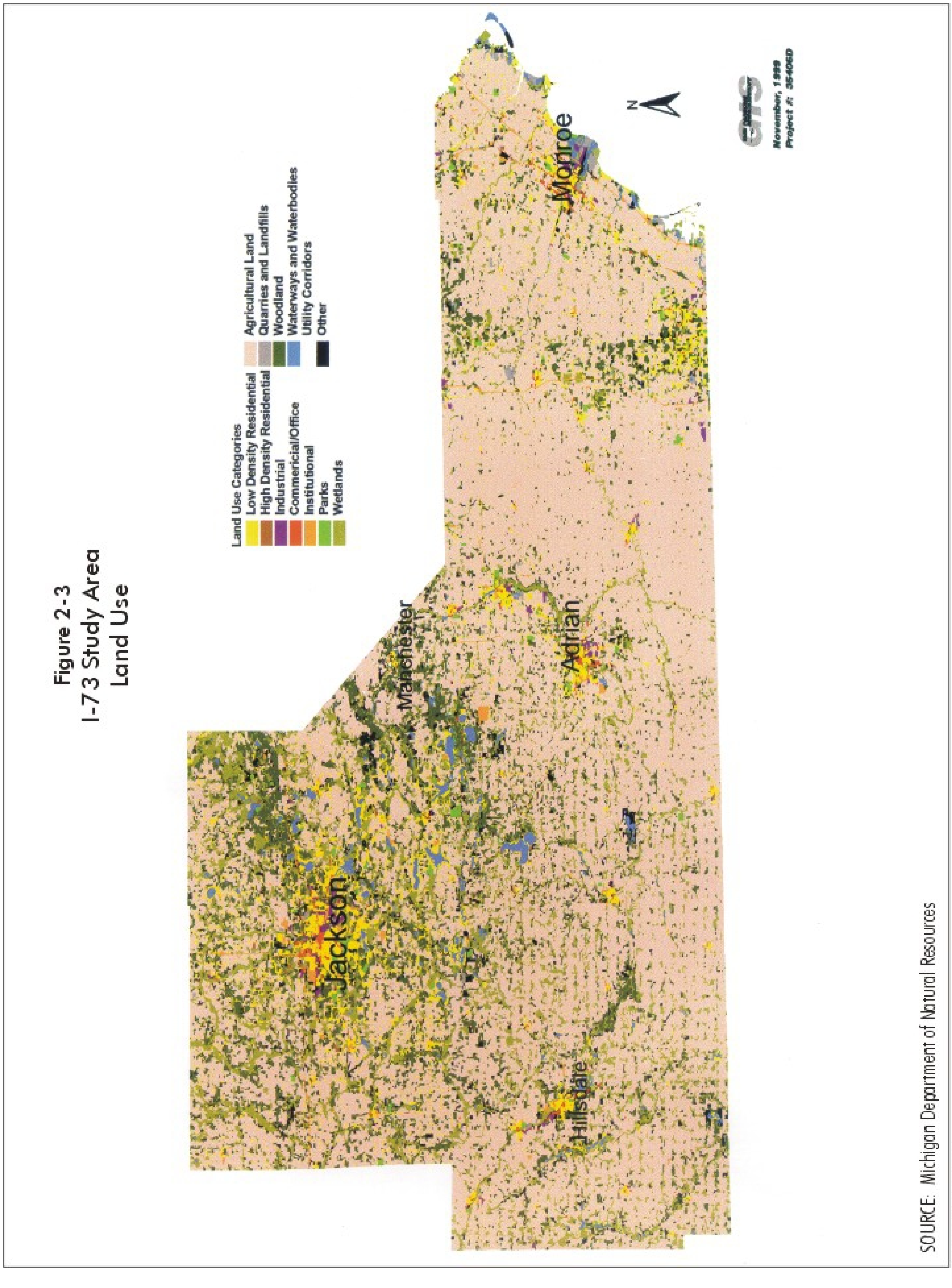


Figure 2-3
I-73 Study Area
Land Use

SOURCE: Michigan Department of Natural Resources

2.2.2 Employment

Employment in the area is expected to increase by nearly 43,000 to 245,248, over the next 20 years (over 21%) (Tables 2-2 and 2-3). This is higher than the projected increase in population (11%). This may be explained by workers commuting into these counties, although traditionally counties like Hillsdale are net exporters of jobs. Hillsdale County and Monroe County are expected to have the fastest growth in employment, at over 20 percent in the twenty years.

Table 2-2
Total Employment

Area	1970	1980	1990	2000	2005	2010	2015	2020
Hillsdale	13,472	14,704	18,135	23,133	24,879	26,396	27,618	28,517
Jackson	58,293	62,959	66,004	76,344	79,712	83,112	86,784	90,805
Lenawee	35,792	35,534	39,358	46,515	48,770	51,028	53,440	56,065
Monroe	28,386	33,348	45,580	56,392	60,054	63,510	66,786	69,861
Total	**135,943**	**146,545**	**169,077**	**202,384**	**213,415**	**224,046**	**234,628**	**245,248**
Michigan	3,558,459	4,039,399	4,810,401	5,591,945	5,882,447	6,181,471	6,487,738	6,799,761
U.S.	91,281,598	114,231,174	139,184,603	61,178,317	170,555,400	80,243,248	190,216,050	200,442,893

Source: Woods & Poole Economics, Inc.

Table 2-3
Percent Growth in Total Employment

Area	1970 to 1980	1980 to 1990	1990 to 2000	2000 to 2010	2010 to 2020
Hillsdale	9.14%	23.33%	27.56%	14.11%	8.04%
Jackson	8.00%	4.84%	15.67%	8.87%	9.26%
Lenawee	-0.72%	10.76%	18.18%	9.70%	9.87%
Monroe	17.48%	36.68%	23.72%	12.62%	10.00%
Total	**7.80%**	**15.38%**	**19.70%**	**10.70%**	**9.46%**
Michigan	13.52%	19.09%	16.25%	10.54%	10.00%
U.S.	25.14%	21.84%	15.80%	11.83%	11.21%

Source: Woods & Poole Economics, Inc.

Hillsdale County has traditionally had the highest percentage of farm employment of the four counties, while Jackson has had the lowest (Table 2-4). This trend is expected to continue. However, the percentage of farm employment has been rapidly declining and is expected to continue to decline, although at a slower pace, in each of the counties. In 1970 farm employment made up nearly 16 percent of Hillsdale County's total jobs. By 2000 this is expected to drop to just over six percent and by 2020 this is expected to drop to around 4.5 percent. In Jackson County farm employment made up only three percent of the total employment. By 2000 this is expected to drop to under two percent and by 2020 it is expected to drop to 1.4 percent of total employment. This is reflective of fewer but larger farms, and the increase in employment in other job categories. All of the counties in the project corridor have a higher percentage of farm employment than Michigan and the United State's averages.

Table 2-4
Farm Employment as Percent of Total Employment

Area	1970	1980	1990	2000	2005	2010	2015	2020
Hillsdale	15.79%	14.11%	9.16%	6.24%	5.64%	5.18%	4.80%	4.52%
Jackson	3.23%	3.03%	2.43%	1.86%	1.75%	1.64%	1.53%	1.42%
Lenawee	9.55%	7.10%	5.01%	3.69%	3.38%	3.11%	2.87%	2.65%
Monroe	9.61%	7.09%	4.17%	2.94%	2.69%	2.47%	2.28%	2.12%
Total	7.47%	6.05%	4.22%	3.08%	2.84%	2.63%	2.44%	2.26%
Michigan	2.92%	2.41%	1.71%	1.27%	1.16%	1.07%	0.99%	0.92%
U.S.	4.34%	3.32%	2.26%	1.76%	1.62%	1.50%	1.38%	1.28%

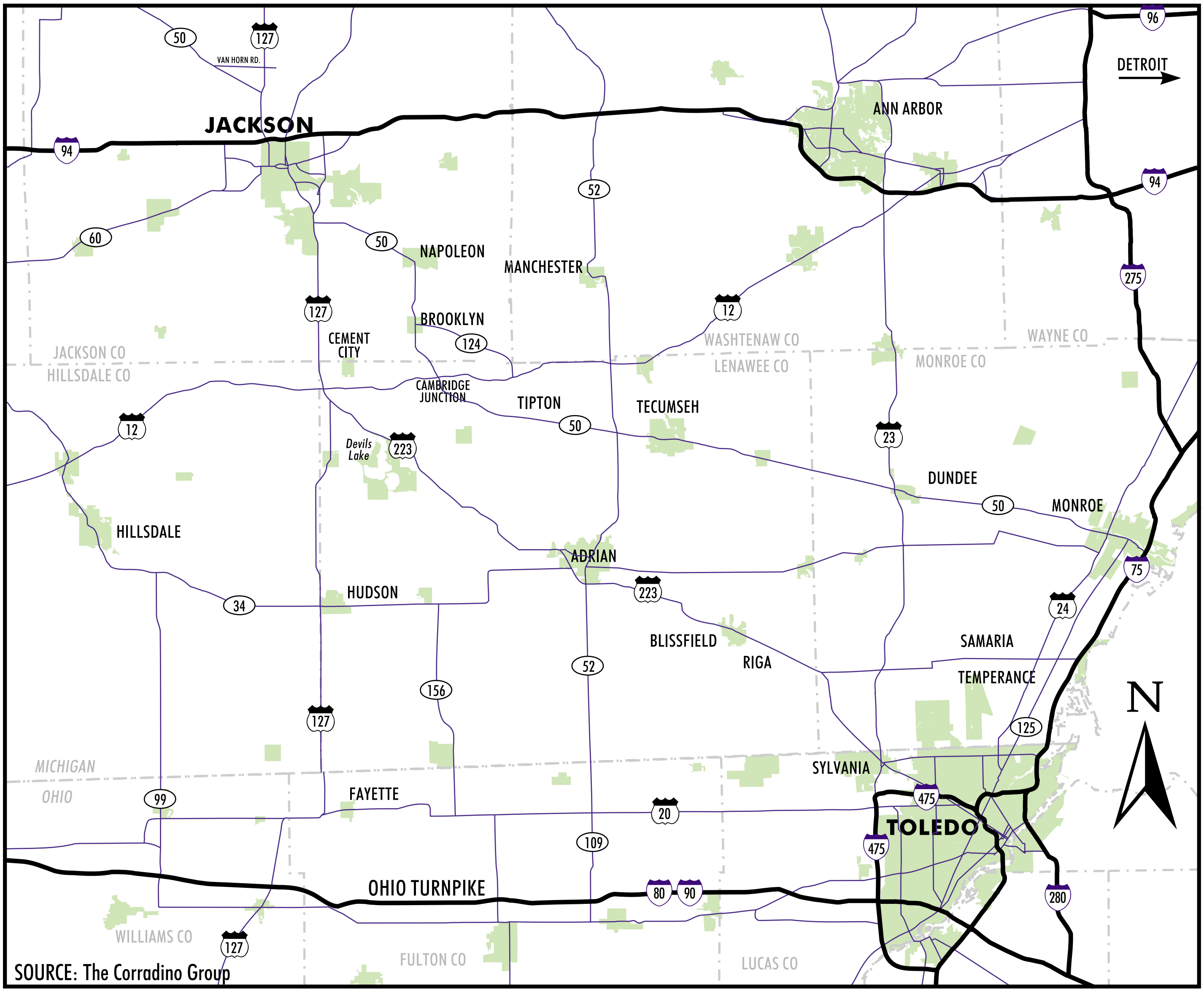
Source: Woods & Poole Economics, Inc.

2.3 Roads

The study area analyzed is served by the following major roadway corridors: U.S. 127 from the Ohio Turnpike north to Jackson; a combination of M-52 north from the Turnpike to U.S. 223 to U.S. 127 to Jackson; U.S. 23 to U.S. 223 to U.S. 127 to Jackson; and, M-50 west from Monroe to Jackson (Figure 2-4). A system of "mile" roads prevails at the local level, serving local trips. These tend to be on a north/south/east/west grid in the south and east of the study area, but the grid is not uniform in the hilly country to the north and west with its myriad lakes.

The east side of the study area is bounded by I-75, which locally connects Toledo with Detroit, but originates in Miami and terminates in Ste. Sault Marie. The major U.S. highways are U.S. 127, U.S. 223, and U.S. 23. Other state and federal roads serve the four counties that include the study area (like M-99 and U.S. 12) but do not affect the major Jackson to Toledo corridor.

Figure 2-4
Project Location



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2.4 Traffic

2.4.1 1998 Traffic

Traffic volumes on U.S. 23 ranged from 30,300 vehices per day (vpd) south of U.S. 223, to about 32,000/ 33,000 at M-50, to 49,900 at I-94 (Figure 2-5). I-94 volumes in 1998 ranged from about 45,000 west of Ann Arbor-Saline Road to approximately 51,900 east of M-52, to about 61,000 vpd between U.S. 127 north and south.

U.S. 127 south of I-94 carried between 25,000 and 18,000 as it goes south to M-50. The traffic fell to 16,600 south of there, eventually falling to 2,800 vpd north of the Ohio border.

M-50 carried from 12,800 to 6,100 vph in 1998 as it moves from U.S. 127 east to M-52. Volumes were between 6,000 and 8,000 east of M-52 (except in Tecumseh) to U.S. 23. The volume rose to about 9,500 east of U.S. 23.

U.S. 12 carried daily volumes from 3,800 east of U.S. 127, to about 13,100 east of M-52 near Clinton. Traffic then rose to about 24,000 as U.S. 23 is approached.

M-52 carried between 5,000 and 7,000 vpd in 1998 between I-94 and M-50. Traffic then rose from 10,000 vpd north of Adrian to about 24,000 vpd through Adrian. South of the city, daily volumes were in the range of 7,200 and then lower farther south.

U.S. 223 carried approximately 9,800 vpd from about Rome Center to Adrian's western city limit. Through Adrian the U.S. 223 Bypass experienced traffic up to 18,000+ vpd at M-52 then holding at about 11,000 to 13,000 vpd through Blissfield before dropping to about 9,000 vpd at U.S. 23.

M-34 carried about 4,700 vpd between U.S. 127 and M-156, rising to 6,200 just west of Adrian.

These 1998 traffic volumes on M-50, U.S. 12, M-52, U.S. 223, and M-34 are indicative of the need for two-lane roads except at city centers where roads like U.S. 12, M-52 and U.S. 223 are four lanes.

2.4.2 Year 2020 Traffic

Figure 2-6 shows the 1998 traffic count data and the year 2020 forecast under the No-Build condition. Generally, volumes grow by 50 to 100 percent on most key roadway links. Traffic (50,000 to 60,000 vpd) on U.S. 23 for most of its length in the study area can be handled by the existing roadway at Level of Service D (Table 2-5). I-94 between the interchanges with U.S. 127 at Jackson, on the other hand, will need to be improved. It is part of a separate study to determine how and when improvements will be made. Important to this I-94 study will be data from the I-73 Corridor project indicating that if a new link of road extends U.S. 127 north from I-94 across the state prison property, as much as 18,000 vpd could be diverted from I-94 in this area.

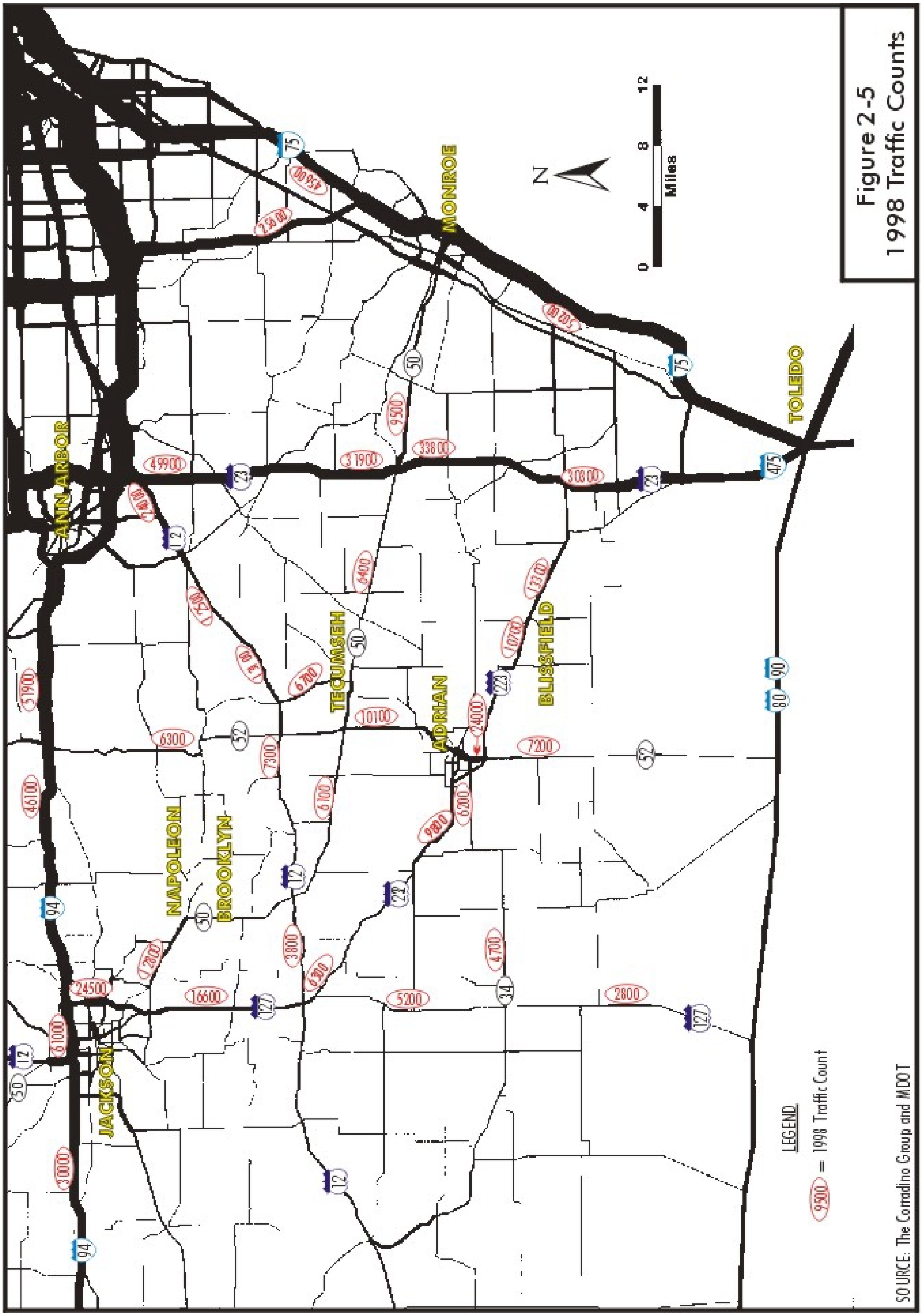


Figure 2-5
1998 Traffic Counts
N
0 4 8 12
Miles
ANN ARBOR
MONROE
TOLEDO
TECUMSEH
ADRIAN
BLISSFIELD
NAPOLEON
BROOKLYN
JACKSON
49900
31900
33800
30300
9500
51900
46100
6300
7300
6100
10100
7200
24000
6200
9800
6400
6700
10700
3800
16600
5200
4700
2800
24500
61000
30000
LEGEND
9500 = 1998 Traffic Count
SOURCE: The Corradino Group and MDOT

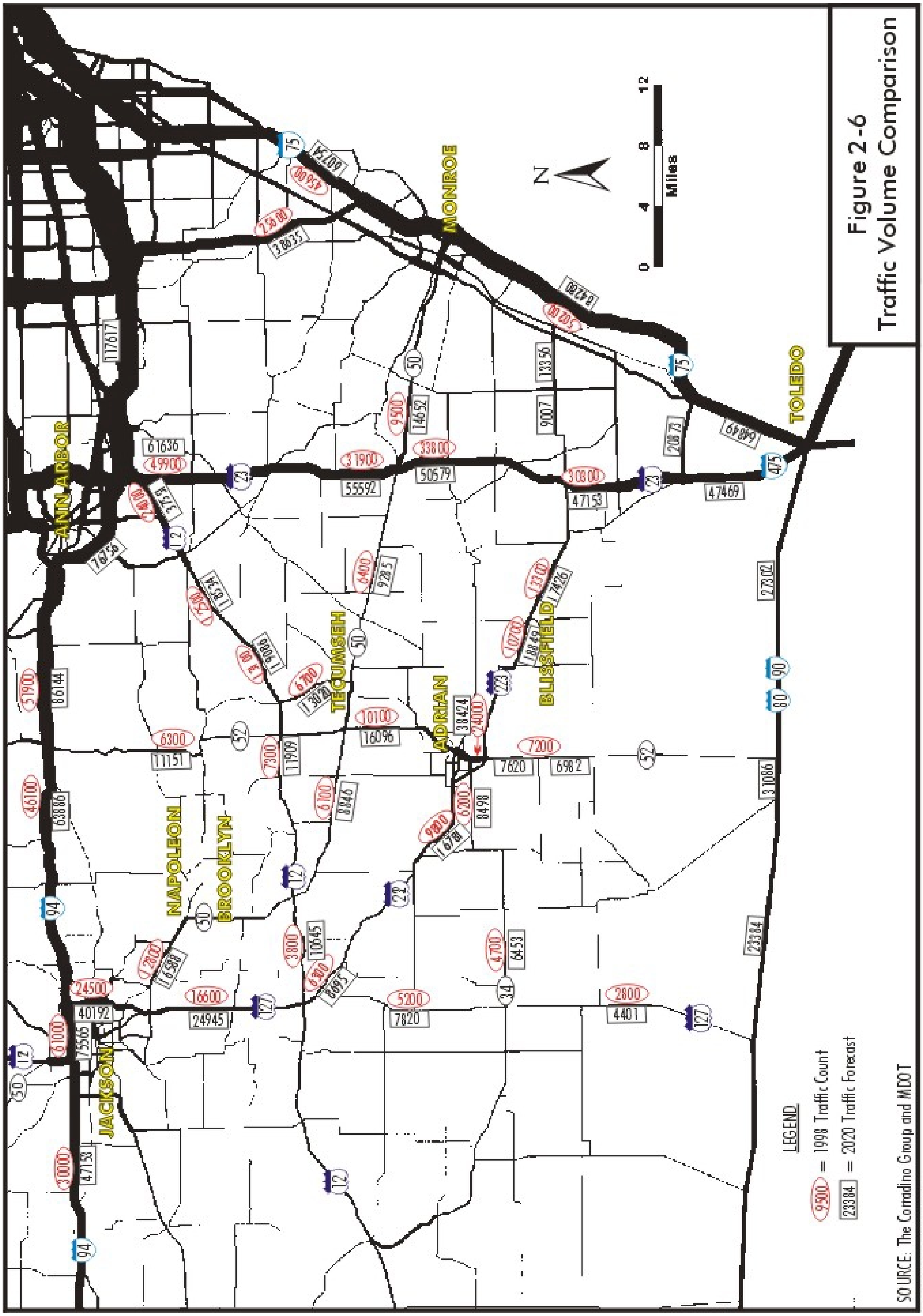


Figure 2-6
Traffic Volume Comparison
ANN ARBOR
MONROE
TOLEDO
TECUMSEH
ADRIAN
BLISSFIELD
NAPOLEON
BROOKLYN
JACKSON
N
0 4 8 12
Miles
LEGEND
9500 = 1998 Traffic Count
23384 = 2020 Traffic Forecast
SOURCE: The Corradino Group and MDOT

Table 2-5
Generalized Annual Average Daily Capacity
Of Several Typical Roadways

STATE TWO-WAY ARTERIALS

UNINTERRUPTED FLOW

Unsignalized Lanes/Divided	Level of Service A	B	C	D	E
2 Undivided	8,900	13,900	18,900	24,800	33,100
4 Divided	21,500	35,800	50,100	60,100	71,600
6 Divided	32,200	53,700	75,200	90,200	107,400

INTERRUPTED FLOW

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes/Divided	Level of Service A**	B	C	D***	E***
2 Undivided	N/A	10,800	15,600	16,600	16,600
4 Divided	N/A	23,500	33,200	35,000	35,000
6 Divided	N/A	35,800	49,900	52,500	52,500
8 Divided	N/A	45,300	61,400	64,400	64,400

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes/Divided	Level of Service A**	B**	C	D	E
2 Undivided	N/A	N/A	9,900	14,900	16,200
4 Divided	N/A	N/A	22,900	32,500	34,300
6 Divided	N/A	N/A	35,500	48,900	51,700
8 Divided	N/A	N/A	44,700	60,100	63,400

Class III (more than 4.50 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes/Divided	Level of Service A**	B**	C	D	E
2 Undivided	N/A	N/A	3,300	12,100	15,800
4 Divided	N/A	N/A	7,800	27,800	33,600
6 Divided	N/A	N/A	12,100	43,300	50,500
8 Divided	N/A	N/A	15,300	54,200	62,100

Class IV (more than 4.50 signalized intersections per mile and within primary city central business district of urbanized area over 500,000)

Lanes/Divided	Level of Service A**	B**	C	D	E
2 Undivided	N/A	N/A	3,700	13,800	15,300
4 Divided	N/A	N/A	8,900	29,900	32,600
6 Divided	N/A	N/A	14,000	45,500	49,000
8 Divided	N/A	N/A	17,500	56,200	60,100

Source: The Florida Department of Transportation
Systems Planning Office
605 Suwannee Street – Mail Station 19
Tallahassee, Florida 32399-0450

http://www.dot.state.fl.us/planning

FREEWAYS

Group 1 (within urbanized area over 500,000 and leading to or passig within 5 miles of the primary city central business district)

Lanes	Level of Service A	B	C	D	E
4	21,200	34,300	51,500	66,200	81,700
6	32,600	52,700	79,000	101,600	125,400
8	44,500	71,800	107,800	138,600	171,100
10	55,600	89,800	134,700	173,200	213,800
12	65,200	105,400	158,100	203,200	250,900

Group 2 (within urbanized area and not in Group 1)

Lanes	Level of Service A	B	C	D	E
4	20,900	32,800	49,200	62,600	74,500
6	32,100	50,400	75,600	96,200	114,500
8	43,800	68,800	103,200	131,300	156,300
10	54,700	86,000	129,000	164,200	195,400
12	64,100	100,800	151,200	192,400	229,100

NON-STATE ROADWAYS

MAJOR CITY/COUNTY ROADWAYS

Lanes	Level of Service A**	B**	C	D	E
2 Undivided	N/A	N/A	8,600	14,600	16,000
4 Divided	N/A	N/A	19,800	31,700	33,900
6 Divided	N/A	N/A	30,800	47,800	51,000

OTHER SIGNALIZED ROADWAYS
(signalized intersection analysis)

Lanes	A**	B**	C	D	E
2 Undivided	N/A	N/A	4,800	10,900	11,900
4 Divided	N/A	N/A	11,600	23,800	25,400

ADJUSTMENTS

DIVIDED/UNDIVIDED

(after corresponding two-way volume indicated percent)

Lanes	Median	Left Turn Bays	Adjustment Factors
2	Divided	Yes	+5%
2	Undivided	No	-20%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

ONE-WAY

(after corresponding two-way volume indicated percent)

One-Way Lanes	Equivalent Two-Way lanes	Adjustment Factors
2	4	-40%
3	6	-40%
4	8	-40%
5	8	-25%

* The table does not constitu te a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor o r intersection design, where more refined techniques exist. Values shown are annual average daily volumes (based on K100 factors, not peak -to-daily ratios) for levels of service, and are based on the 1997 Update to the Highway Capacity Manual and Florida traffic, roadway and signalization data. The table's input value assumptions and level of service criteria appear on the following page.
** Cannot be achieved.
*** Volumes are comparable because intersection capacities have been reached

September 1998

U.S. 127 south of I-94 is expected to carry from 40,000 to 25,000 vpd in 2020 as it moves south to U.S. 12/ U.S. 223. Four thru travel lanes will be needed to adequately handle the traffic. Further south, forecast traffic on U.S. 127 can be accommodated by a two-lane facility according to the forecasts for 2020.

M-52 in the city of Adrian is four lanes and can carry the forecast 2020 traffic. M-52 north of Adrian to M-50 is expected to experience traffic volumes close to its capacity (16,000 volume versus 17,000 capacity). But, this analysis has assumed no widening. M-34 traffic in 2020 can be handled by two lanes. But, traffic volumes forecast for M-50 from U.S. 127 to Napoleon; and U.S. 223 from west of Adrian to U.S. 23 cannot be handled safely and efficiently by the current two-lane facilities, because, practically speaking, volumes are expected to equal or exceed capacity.[1]

It is important to recognize the above needs will still be evident regardless of improvements made to U.S. 23 and I-94. The traffic in the study area when no I-73 is built requires some level of upgrade of the major facilities mentioned above.

It is also noted that this analysis is limited to a study of roadway capacity/congestion issues. Safety and operational concerns are addressed on an ongoing basis, as needs and conditions warrant. This study is not intended to highlight these types of issues as they are part of MDOT's continuous road-management activities.

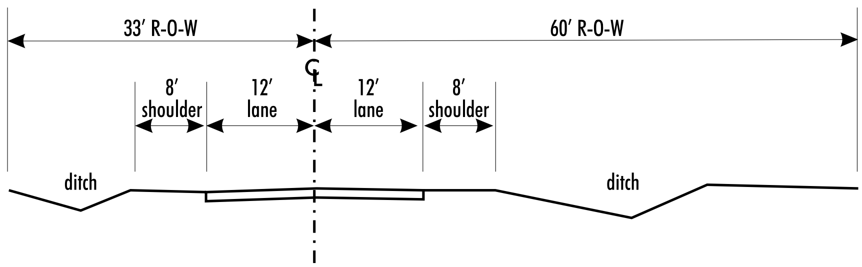
2.5 Roadway Types

The I-73 Corridor Feasibility Study alternatives comprised several types of facilities, ranging from rural local roads, rural "Super 2s", a boulevard or a rural freeway (Figure 2-7). Ultimately the roadway type(s) that best meets the traffic, safety, economic needs and quality of life of the corridor and maintains its environmental integrity will be selected if further analysis is undertaken. It will be joined by the "do nothing" option, which will remain an alternative throughout the analysis, until the U.S.D.O.T. approves any project that MDOT might propose.

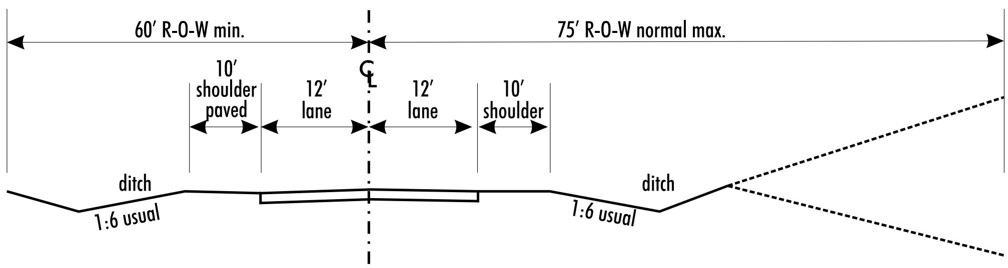
[1]U.S. 12 also qualifies for four-laning from U.S. 23 to M-52. But, its volumes remain virtually unchanged by the I-73 corridor alternatives so its needs and impacts are the same regardless of whether a new high-type facility is built or not.

Figure 2-7
Roadway Types

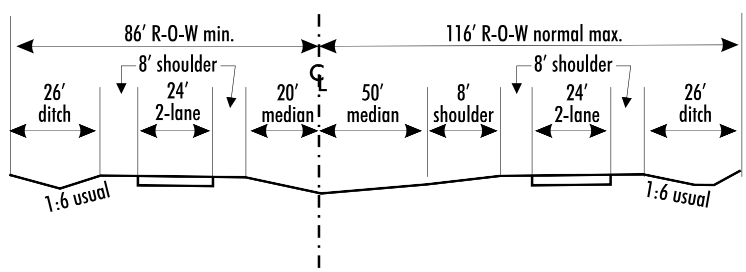
LOCAL 2-LANE, 66′-120′ R-O-W
SCALE 1″ = 20′



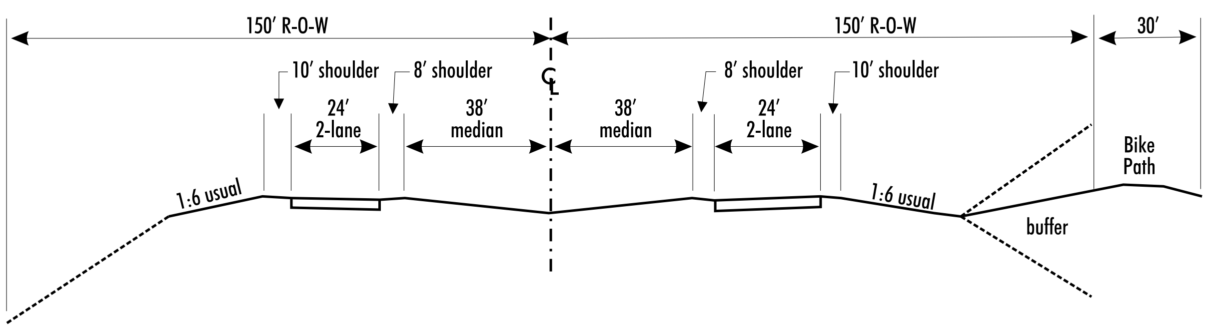
SUPER 2-LANE, 80′-150′ R-O-W
SCALE 1″ = 20′



BOULEVARD, 172′-232′ R-O-W
SCALE 1″ = 50′



RURAL FREEWAY, 300′ R-O-W (PLUS 30 ′ BIKE PATH)
SCALE 1″ = 50′



SOURCE: Michigan Department of Transportation

L:/Projects/2544/Graphics/CrossSec.cdr

3. Evaluation of Illustrative Alternatives

The roadway segments shown on Figure 2-2 were determined in conjunction with the public. At the early part of the analysis they were considered "paths" over which roadway improvements could be made. Generally, when an improvement is called for in an area where no roadway now exists (i.e., on new alignment), the path was considered 1,000 feet wide, knowing that later in the study this would be refined to 400 feet, or less. By using this broader definition, the full range of potential impacts could be assessed. Where an Illustrative Alternative followed an existing roadway alignment, a path 500 feet wide was used. In urban areas the path was 200 feet wide, recognizing that the build-up nature of such locations will dictate a tighter fit. Finally, if a railroad were to be relocated, a 500-foot wide path was used.

3.1 Evaluation Factors

To evaluate the Illustrative Alternatives, factors discussed below were chosen because they provided meaningful information by which to differentiate among the options at an early point in the study. Later, the number of evaluation factors was expanded to include issues such as engineering difficulty, impacts on archaeologic resources, open spaces/parks, and the like.

To manage the evaluation database, a geographic information system (GIS) was first used. GIS is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced data. For example, historic structures may be defined as points, and areas like farmland and wetlands can be mapped. With this background information, one can determine how many points and how much land may be affected by a given roadway alternative.

For the first-level screening of alternatives, evaluation characteristics that were mapped using the GIS system were: (1) population; (2) known sites listed in the National Register of Historic Places; (3) sites with environmental contamination; (4) waterways and waterbodies; and, (5) all major land uses. Land use data were supplied by the Michigan Department of Natural Resources through their MIRIS system. Data from that system were aggregated into categories such as residential development, industry, commercial/office locations, institutions, parks, wetlands, farmland, quarries and landfills, woodlands, and utility corridors. Illustrative alternatives were evaluated in terms of impacts to farmland, wetlands, and landfills.

In Ohio, the consultant performed windshield surveys to define population and waterway impacts and used available information to determine wetlands effects. Farmland impacts in Ohio were determined by extending on a rate basis (i.e., per mile) the experience along the same route segment in Michigan.

In addition to the GIS-based information discussed above, the consultant addressed project need by using MDOT's statewide travel simulation computer model to assign projected year 2020 traffic to a network of major roads in the area, including a facility to represent the proposed I-73.

Below are brief descriptions of the evaluation characteristics. The results of their evaluation are presented later in this chapter.

3.1.1 Households/Population

Estimates of persons potentially displaced by a roadway alternative were based on densities. Data from the 1990 Census were used and factored to 2000, as 2000 information was not available and more current data were not provided for any smaller unit than a township. Smaller areas such as Census Block Groups were needed to estimate potential impacts. They were only available in the 1990 database. The portion of each Census Block Group possibly affected by an alternative and the average densities of population and housing in the tract were combined to determine the number of persons affected. These estimates were on the "high side."

3.1.2 Historic Sites

The National Register of Historic Places is a list of resources that are identified as having significance based on a variety of criteria related to history and its interpretation. These may include objects, property, structures, and the like. They are protected by both Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act of 1966. In this analysis of Illustrative Alternatives, the number of National Register listed properties and/or districts potentially impacted were counted.

3.1.3 Sites with Environmental Contamination

A review of sites with a record of environmental contamination finds them clustered in the developed areas. The information in this evaluation category was drawn from the MIRIS System for landfill locations and from U.S. Environmental Protection Agency (EPA) databases, two of which are most pertinent: CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) lists sites on or likely eligible for Superfund status; and, RCRIS (Resource Conservation and Recovery Information System) lists sites that generate, store, or dispose of hazardous waste, including even sites that store old paint for removal or swimming pool supplies. This category also includes landfills. Quarries were added to this database as they were considered large tracts to avoid.

3.1.4 Waterways and Waterbodies

Impacts to waterways were considered for each alternative segment where it would cross a major river (i.e., the River Raisin, Portage River or Grand River), perennial stream, intermittent stream or lake. A perennial stream is a waterway that has flowing water present throughout the year whereas an intermittent stream may be a dry channel at some point during the year. Therefore, in general, the crossing of a perennial stream was considered of greater impact than the crossing of an intermittent stream. The major rivers noted above are perennial but were separated to highlight the significance of the crossing.

3.1.5 Farmland

The federal Farmland Protection Act does not prohibit use of such land, but does require consideration of alternatives that minimize farmland use. The GIS process allowed the calculation of the extent of farmland taken by each alternative.

3.1.6 Wetlands

Wetlands are protected by state and federal laws because of their important ecological role. Impacts to wetlands are unavoidable, therefore, there must be a demonstration that there is no practicable alternative to the impact. And, the impacts must be mitigated. Mitigation usually involves replacing wetlands at a ratio of greater than one to one. For purposes of this evaluation, National Wetland Inventory maps, produced by U.S. Fish & Wildlife Department were compared to the MIRIS mapping.

3.1.7 Traffic Flow

By applying MDOT's statewide travel simulation model, preliminary traffic simulations were made to the network of future roadways, including the proposed I-73, placed in various locations. The results provided an understanding of how various roadways will likely serve traffic in the year 2020.

3.2 Evaluation Data

The information cited below is presented by Sector (A, B, C) to allow a more manageable differentiation among the proposals. The evaluation of these data is presented in the next section of this report.

3.2.1 Sector A

Eighteen roadway paths were included in this sector. Each is shown on Figure 2-2. The evaluation data are summarized on Table 3-1 for comparison purposes.

At this level of analysis, it was determined that the most significant displacement impact was associated with Segment A14 which had the potential of affecting more than 600 people (more than 250 dwelling units) as it tried to skirt the north side of Tecumseh. Likewise, Segments A1 and A3 had the potential for significant amounts of displacements (536 and 578 people, respectively). But, the number of people affected per mile was considerably less than for Segment A14. On the other hand, segments with potential displacements of nine or fewer people per mile of path were A6, A7, A8, A9, A10a, A15, and A16.

There are no sites listed on the National Register of Historic Properties affected in Sector A.

Table 3-1

Sector A Evaluation Data - First-Level Screening

Segments	A1		A2		A3		A4		A5		A6		A7		A8		A9	
Length Miles	15.16		6.09		16.92		6.96		15.18		12.23		12.29		10.42		3.89	
Factors	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile
Displacements																		
Population - 2000	536	35.4	87	14.3	578	34.1	251	36	237	15.6	76	6.2	98	8.0	89	8.6	27	6.9
Historics																		
National Register Sites	0		0		0		0		0		0		0		0		0	
Contaminated Sites																		
CERCLIS sites	0		1		0		0		0		0		0		0		0	
Landfill	0		0		0		0		0		0		0		0		0	
Open Pit	0		0		0		0		0		0		0		1		0	
Waterways																		
River Raisin	0		0		0		0		0		1		0		0		0	
Portage River	0		0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0		0		0	
Intermittent Streams	6		7		12		4		7		6		8		5		6	
Perennial Streams	5		1		0		1		2		3		4		1		0	
Lakes	0		0		0		0		0		0		0		0		0	
Farmland																		
Acres	315	20.8	316	51.9	2,177	128.7	476	68.3	1,654	109	1,475	120.6	1,389	113.0	1,344	129	294	75.6
Wetlands																		
Acres	27	1.79	NS	--	37	2.2	NS	--	42	2.1	13	1.1	6	0.5	60	5.8	NS	--

Segments	A10		A10a		A11		A12		A13		A14		A14a		A15		A16	
Length Miles	4.26		4.66		6.54		19.21		6.68		6.97		7.27		21.11		21.11	
Factors	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile
Displacements																		
Population - 2000	54	12.7	22	4.6	151	23.1	389	20.2	97	14.6	664	95.2	248	34.2	151	7.2	189	9.0
Historics																		
National Register Sites	0		0		0		0		0		0		0		0		0	
Contaminated Sites																		
CERCLIS sites	0		0		0		0		0		0		0		0		0	
Landfill	0		0		0		0		0		0		0		0		0	
Open Pit	0		0		0		0		0		1		1		1		1	
Waterways																		
River Raisin	1		1		1		2		0		0		1		0		0	
Portage River	0		0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0		0		0	
Intermittent Streams	8		4		1		23		2		1		1		16		14	
Perennial Streams	0		0		0		0		2		1		2		7		8	
Lakes	0		0		0		0		0		1		0		0		1	
Farmland																		
Acres	502	117.9	538	115.3	438	66.9	2,429	126.5	539	80.7	835	119.7	821	112.9	576	27.3	1,541	73.0
Wetlands		0		0		0		0		0		0		0		0		0
Acres	8	1.9	14	2.9	29	4.4	107	5.6	NS	--	38	5.4	64	8.8	46	2.2	70	3.3

NS - No significant quantity.

Source: The Corradino Group

Only Segment A2 was associated with the potential impact of a contaminated site. Segments A8, A14, A14a, A15, and A16 had the likelihood of affecting an open pit of some magnitude. It is noteworthy, though, that roadway paths in and around towns were considered to have greater potential of encountering some environmentally contaminated sites (e.g., gas stations) than those in rural areas.

Over one-half of the segments in Sector A had some significant potential for impacting waterways. This was particularly the case for Segments A12, A14, A14a and A16 which could either impact the River Raisin and/or a large number of other intermittent and perennial streams and/or lakes. No roadway segment avoided waterway impacts totally. Segments A3 and A9 were the only two to avoid perennial streams.

Twelve of 18 roadway paths were associated with major farmland impacts. Segments A3, A5, A6, A7, A8, A10, A10a, A12, A14, and A14a were each associated with large potential absorptions of farmland per mile of roadway path. Segments A8 and A12 had the possibility of even more negative effects because their paths would sever farms. The least number of total farmland acres potentially absorbed was associated with Segments A1, A2, and A9.

Wetlands impacts were potentially greatest for Segments A8, A12, A14a, and A16 which could impact more than 60 acres each. Segment A14 was associated with a lesser absolute impact but performed close to the four segments just cited on a per-mile basis. Segments A2, A4, A9, and A13 were expected to have little association with wetlands.

Traffic flow issues are reviewed for all segments at the end of this section.

3.2.2 Sector B

There were 22 segments in Sector B (Table 3-2). Of these, Segments B9 and B13 were very short (about 1.5 miles), but because they would be near Adrian, they had the potential to impact more than 85 people per mile of roadway path. That equates to about 35 to 40 dwelling units per mile. The greatest number of absolute displacements was associated with Segments B6 and B21 with close to 650 people potentially impacted. Both of these segments would go through a highly developed area east of Jackson. The fewest displacement impacts were associated with Segments B15 and B16 (fewer than 60 people or less than 7 per mile). These segments minimized contact with towns and would use existing roads to a great extent.

Potential impacts of National Register Historic properties were likely to be associated with Segments B3, B17, and B18. The effects of Segment B3 would be direct on the Nathaniel S. Wheeler House and the Walker Tavern at U.S. 12 and M-50. Impacts of Segments B17 and B18 were expected to be associated with the latter property but be indirect.

About one-half the segments in Sector B were expected to be associated with some site of environmental contamination or a quarry. But, only Segment B20 was expected to have an effect on a nationally-listed CERCLIS property. Building Segment B19 would likely have an effect on the Liberty landfill. No other segments would affect a landfill.

Table 3-2

Sector B Evaluation Data - First-Level Screening

Segments	B1		B2		B3		B4		B5		B6		B7		B8		B9		B10		B11	
Length Miles	4.26		5.25		13.31		9.26		7.33		17.33		12.10		2.05		1.51		5.16		10.90	
Factors	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile
Displacements																						
Population - 2000	86	20.3	108	20.6	194	14.6	113	12.2	146	19.9	645	37.2	232	19.2	76	37	130	85.8	205	39.8	76	6.9
Historics																						
National Register Sites	0		0		2		0		0		0		0		0		0		0		0	
Contaminated Sites																						
CERCLIS sites	0		0		0		0		0		0		0		0		0		0		0	
Landfill	0		0		0		0		0		0		0		0		0		0		0	
Open Pit	1		0		1		0		1		1		0		0		1		0		0	
Waterways																						
River Raisin	0		0		1		0		1		0		1		0		1		0		0	
Portage River	0		0		0		0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0		0		0		0		0	
Intermittent Streams	2		2		3		4		0		0		3		1		0		1		5	
Perennial Streams	1		1		2		2		1		6		2		0		0		0		3	
Lakes	0		0		0		3		4		3		0		0		0		0		0	
Farmland																						
Acres	174	40.9	194	37	673	50.6	821	88.7	816	111.3	998	57.6	384	31.7	116	56.7	25	16.6	336	65.1	762	69.9
Wetlands																						
Acres	43	10.1	NS	--	44	3.3	138	14.9	182	24.8	651	37.6	15	1.2	NS	--	10	6.6	4	0.8	35	3.2

Segments	B12		B13		B14		B14a		B15		B16		B17		B18		B19		B20		B21	
Length Miles	10.56		1.32		7.51		10.56		9.07		2.67		6.86		6.05		6.43		7.42		19.46	
Factors	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile
Displacements																						
Population - 2000	211	19.9	134	101.6	265	35.2	297	28.1	59	6.5	11	4.0	166	24.3	156	25.8	47	7.3	198	26.6	666	34.2
Historics																						
National Register Sites	0		0		0		0		0		0		1		1		0		0		0	
Contaminated Sites																						
CERCLIS sites	0		0		0		0		0		0		0		0		0		1		0	
Landfill	0		0		0		0		0		0		0		0		1		0		0	
Open Pit	0		0		0		1		1		0		0		0		1		1		0	
Waterways																						
River Raisin	0		0		0		0		0		0		1		1		0		0		0	
Portage River	0		0		0		0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0		0		2		0		0	
Intermittent Streams	9		0		3		0		7		0		1		2		0		0		5	
Perennial Streams	3		0		2		0		1		1		1		2		2		3		4	
Lakes	0		0		0		0		0		0		0		0		0		0		0	
Farmland																						
Acres	951		5	3.8	798	106.3	957	90.7	326	35.9	92	34.4	281	41	204	33.7	154	24	132	17.8	1,715	88.1
Wetlands																						
Acres	107		NS	--	54	7.2	199	18.9	64	7.1	13	4.9	46	6.7	89	14.7	97	15.1	18	2.4	433	22.3

NS - No significant quantity.

Source: The Corradino Group

Segments B4, B5, and B6 were likely to have major lake-related impacts. Additionally, Segments B5 and B19 would affect major streams, the River Raisin and the Grand River, respectively. Segments B10 and B13 were likely to experience the least negative stream impacts.

Segments B4, B5, B12, B14, B14a, and B21 were expected to involve the use of about 90 acres per mile of farmland if they were built. Additionally, Segments B4, B5, and B21 would be built on new right-of-way thereby severing farms.

Segment B6 was expected to affect about 650 acres of wetlands, by far the most significant impact of any roadway segment in Sector B. The impacts of Segments B4, B5, B14a, B18, and B21 were also noted because of their large potential wetlands impacts in absolute numbers of acres and the numbers of acres per mile of roadway path. The least impacting segments were B2, B8, and B13.

Traffic flow issues are covered at the close of this section.

3.2.3 Sector C

There were six roadway path segments in Sector C. Two of those, Segments C4 and C6, had significant potential to displace people as they could cut new or wider paths through urbanized areas (Table 3-3). The other alternatives were expected to stay within existing right-of-way and to have no displacement impact.

Table 3-3
Sector C Evaluation Data - First-Level Screening

Segments	C1		C2		C3		C4		C5		C6	
Length Miles	2.15		5.68		6.11		8.13		3.06		5.80	
Factors	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile	No.	per mile
Displacements												
Population - 2000	0	0.0	0	0.0	239	39.2	417	51.3	0	0.00	541	93.2
Historics												
National Register Sites	0		0		0		0		0		0	
Contaminated Sites												
CERCLIS sites	0		0		0		0		0		0	
Landfill	0		0		0		0		0		0	
Open Pit	0		0		0		0		0		1	
Waterways												
River Raisin	0		0		0		0		0		0	
Portage River	0		0		1		0		0		0	
Grand River	0		2		1		1		0		0	
Intermittent Streams	1		3		2		3		0		0	
Perennial Streams	0		0		1		2		0		1	
Lakes	0		0		0		0		0		0	
Farmland												
Acres	23	10.7	21	3.7	468	76.6	77	9.5	18	5.9	397	68.4
Wetlands												
Acres	4	1.9	18	3.2	209	34.2	57	7	9	2.9	179	30.8

Source: The Corradino Group

No National Register Historic Properties were expected to be affected in Sector C.

Segment C6 could impact a quarry. All other roadway paths would likely avoid major environmental sites. But, because of the increased urbanization of the areas traversed by the five other segments, some impact could be expected.

Waterway issues of consequence were most likely to be incurred with Segments C3 and C4. The number of streams potentially crossed was an issue. Likewise, Segment C3 would affect the Portage River. Segment C2 would cross the Grand River twice.

Farmland use was expected to be most significant with Segments C3 and C6. Each could consume about 400 acres, or more, at a rate of about 70 acres per mile. The other segments were expected to cause the use of considerably less farmland.

Segments C3 and C6 were likely to be associated with major wetlands issues. Both could affect almost 200 acres. Segment C4 would cause the use of almost five dozen wetland acres.

3.2.4 Traffic Flow

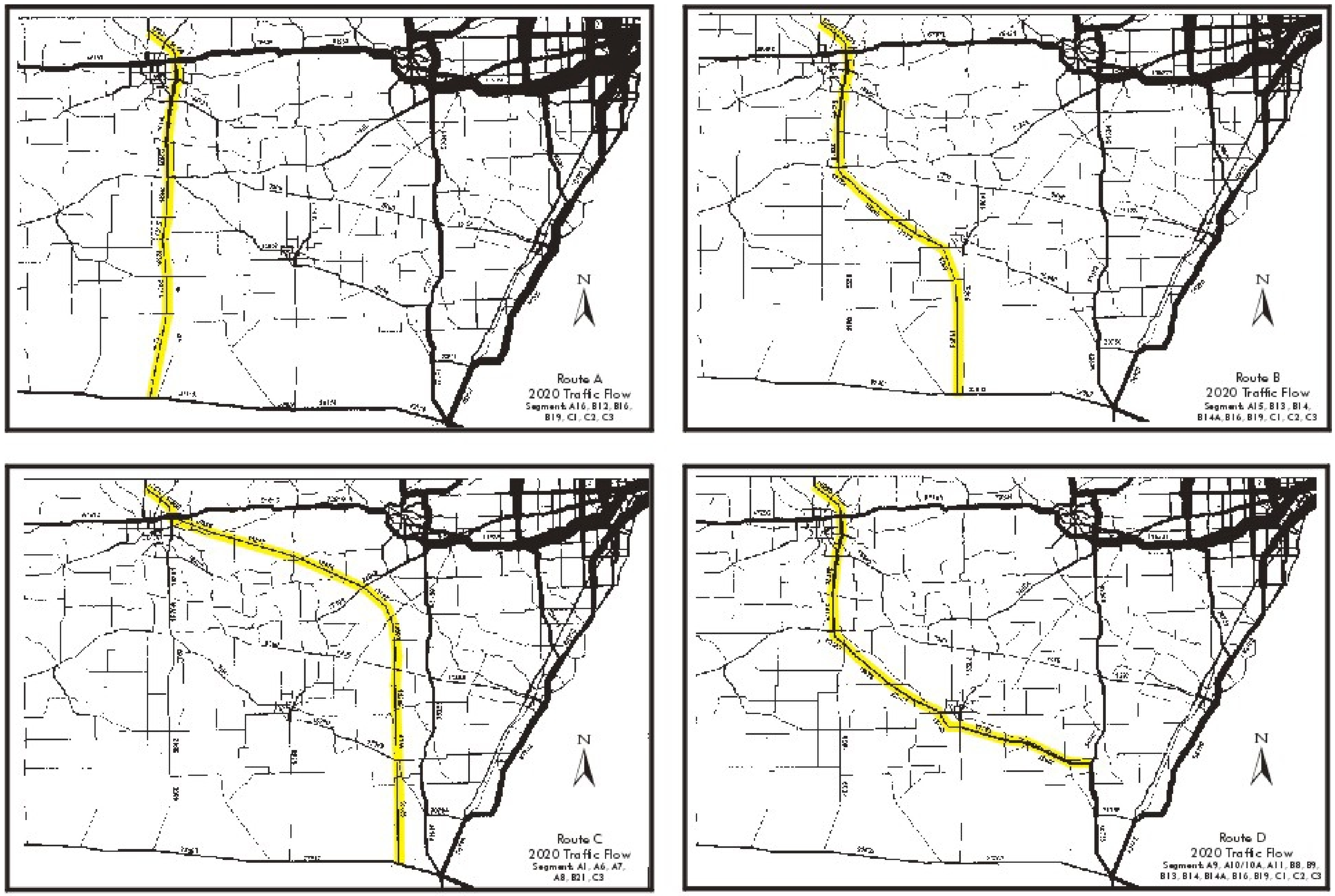
Examination of the previously-discussed characteristics of each roadway segment was straight forward because the issues are fixed with a path's width and length. Traffic flow, on the other hand, changes for a specific segment based on the other segments to which it is connected. And, mathematically, there are many segment combinations that are possible.

So, to address traffic flow, vehicle assignments for 2020 were made to 12 complete routes (i.e., combinations of segments) (refer to Figure 2-6). A composite of the alternatives is presented in Figure 3-1.

In examining the data presented on these graphics, it is noteworthy that a high-type roadway (boulevard or more) in a rural setting needs a demand of 17,000 vehicles per day or more in the year 2020 to be feasible. So, examining the traffic flow data as a whole leads to the following understandings. The best traffic-serving segments are those which facilitate diagonal travel and/or that serve an urban center. In Sector A these included Segments A9, A10, A11, A13, A14, and A14a. In Sector B the best performing segments were B1, B2, B3, B16, and B19. And, in Sector C, Segments C1, C2 and C5 performed at a high level.

Route segments that serve lower volumes of traffic were somewhat indirect like Segments A7 or A15 and/or did not provide service to concentrations of population and other activities, like Segment A16. The low performing traffic flow segments in Sector A were: A1, A6, A7, A15 and A16; in Sector B: B12, B17, and B21; and, in Sector: C4 and C6.

The segments not mentioned above can be considered to perform in an acceptable range from a traffic flow standpoint.



SOURCE: The Corradino Group

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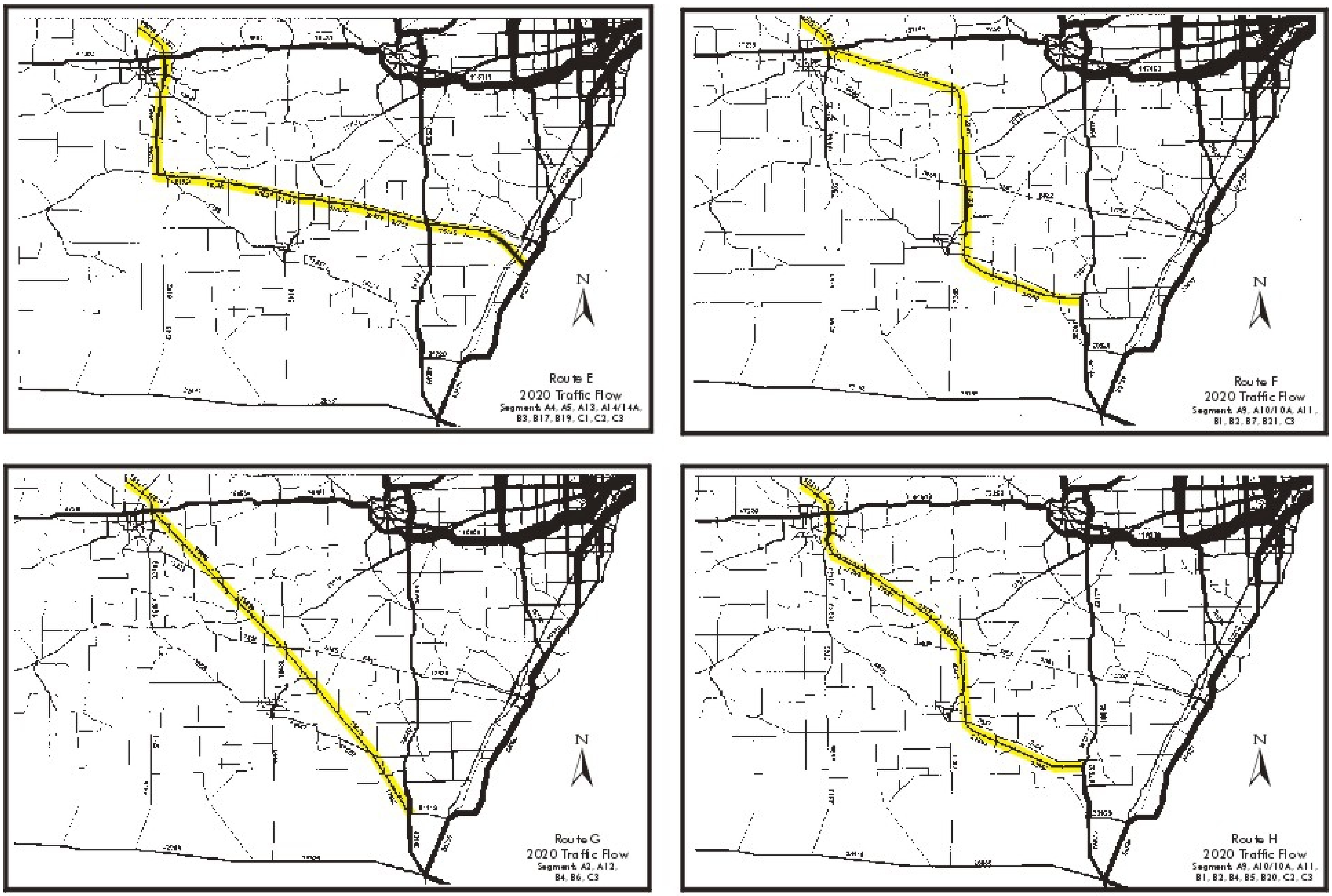
Figure 3-1
Composite of Traffic Flow Graphics



SOURCE: The Corradino Group

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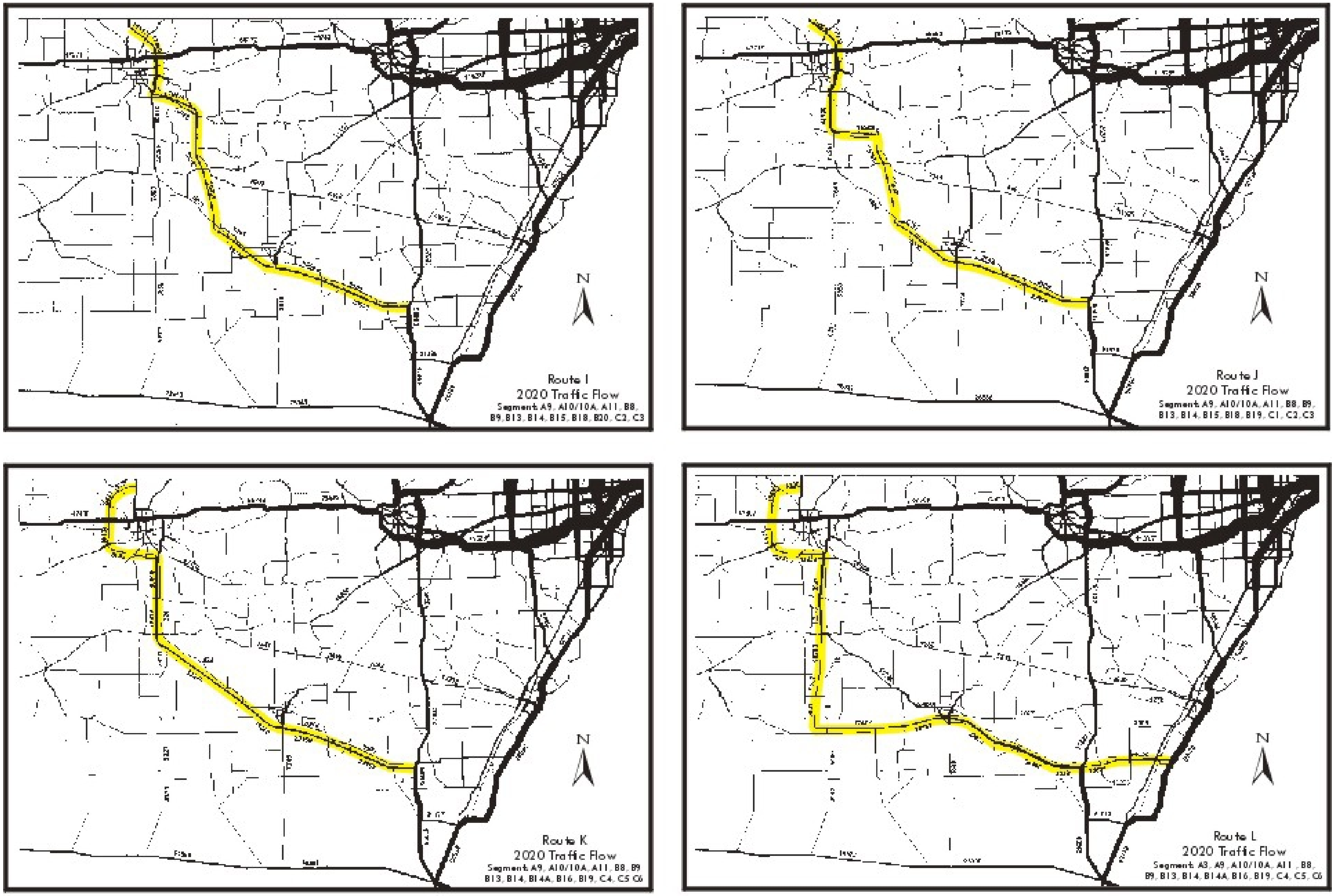
Figure 3-1 (cont.)
Composite of Traffic Flow Graphics



SOURCE: The Corradino Group

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Figure 3-1 (cont.)
Composite of Traffic Flow Graphics

One comment that should be made here is about public transportation. Information for the area indicates transit is provided mostly to serve special-needs trips. Commuter-type transit service is very limited in the corridor. And recently completed studies of high-type transit (commuter rail at relatively high speeds and with relatively frequent service) near the corridor show that the potential is for 1,200 person trips per day (two directions) which is less than a lane of highway can carry in an hour. So, transit's impact on lessening the travel demand in this corridor over the next 20 years, which is forecast to be hundreds of thousands of vehicle trips per day, is very limited.

Telecommuting was also examined for its effects on reducing the demand for highway travel. Research shows telecommuting has very little effect on vehicle miles traveled. More people walk to work than telecommute. Levels of current and future telecommuting are restricted by factors such as how many workers can telecommute, how many want to, how often they will telecommute, and many other factors. Often the type of job a person has won't allow telecommuting or the workplace won't allow it. And, many people do not want to telecommute. Many want interaction with other people. Also they may feel that if they are not seen at work they may be less likely to see job advancement.

Research has also shown that many people who telecommute quit after a short period of time. One study found that only 32 to 60 percent continued after two years. Another study found that 50 percent quit after nine months. Finally, the number of telecommuters has declined recently. In 1993 there were 8.5 million telecommuters, in 1994 there were 9.1 telecommuters, and in 1995 this fell to 8.2 telecommuters. Reasons given for quitting included different jobs, different job responsibilities, and manager concerns.

So, research on telecommuting has not provided a basis to reduce the amount of vehicular travel in the I-73 Corridor.

3.3 Evaluation Results

3.3.1 Weighting of Evaluation Factors

The alternative path segments defined earlier in this report were presented at three public meetings conducted on December 8 and 9, 1999. At each meeting, those in attendance were asked to provide their ranking of seven evaluation factors (Figure 3-2). Twenty-one forms were completed by those attending the Monroe meeting on December 8; 40 were completed through the Adrian meeting; and, another 20 were completed by those attending the Jackson meeting. Twenty-six participants in the Advisory Committee and eight members of the consultant team were also involved in the process. The latter included two engineers, three planners, a landscape architect, and two environmental scientists.

The results indicate all five groups ranked the "Historics" and "Contaminated Sites" factors sixth and seventh, respectively (Table 3-4). The total weight assigned to these two measures when combined ranges from about 16 percent (Jackson and Consultant) to about 22 percent (Monroe).

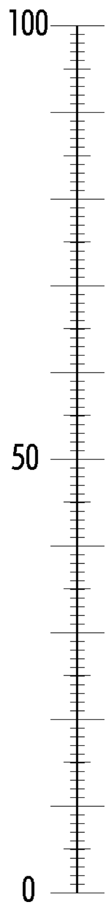
How Important Are These Factors?

We want to know how important you believe the following factors are when trying to improve the road system in the I-73 Corridor.

To provide us your opinion, please rank the following factors “1” through “7”, with “1” indicating the factor you believe is <u>most important</u> and “7” indicating the factor you believe is <u>least important</u>. Use each number <u>only once</u>. When finished, return your form to a project representative.

Your opinions will be used to evaluate the alternatives. Thank you.

Factor	***Rank***
Displacement of People ✹	________
Effects on Historic Properties ✹	________
Effects on Contaminated Sites ✹	________
Effects on Waterways ✹	________
Effects on Farmland ✹	________
Effects on Wetlands ✹	________
Traffic Flow ✹	________



Source: The Corradino Group

Figure 3-2
Evaluation Factors

Table 3-4
First-Level Screening
Evaluation Factors Ranking/Weighting

Evaluation Factor	Monroe[1]	Adrian	Jackson	Advisory Committee	Consultant
Displacements	18.54% (2)	18.66% (1)	18.75% (1)	20.06% (1)	21.43% (1)
Historics	11.73% (6)	10.09% (6)	11.25% (6)	12.36% (6)	10.27% (6)
Contaminated Sites	10.03% (7)	8.04% (7)	5.54% (7)	7.01% (7)	5.80%(7)
Waterways	12.07% (5)	14.64% (4)	13.75% (5)	14.97% (3)	12.05% (5)
Farmland	19.90% (1)	17.86% (2)	17.14% (3)	13.87% (4)	15.63% (3)
Wetlands	12.76% (4)	14.64% (4)	14.82% (4)	12.91% (5)	13.39% (4)
Traffic Flow	14.97% (3)	16.07% (3)	18.75% (1)	18.82% (2)	21.43% (1)

[1] % reflects weight; ( ) reflects ranking
Source: The Corradino Group

All groups but the Advisory Committee ranked "Displacements," "Farmland," and "Traffic Flow" in the top three positions, but not necessarily in that order. Those participating through the Monroe meeting ranked Farmland first (19.90%); those participating through the Adrian meeting ranked Displacements first (18.66%); those participating through the Jackson meeting ranked Displacements and Traffic Flow (18.75%) in a first-position tie as did the Consultant but with a higher weight (21.43%). As a matter of interest, the Consultant's rankings were the same as those resulting from the Jackson meeting, and the weightings were more closely aligned with the Jackson meeting results than any other.

While the Advisory Committee viewed Displacements and Traffic Flow in the top two positions, it was the only group to score "Waterways" in third position. Farmland was placed fourth while the other four groups rank it third or higher.

3.3.2 Evaluation of Illustrative Alternatives

The consultant, with the results of the different weightings available to it, examined the evaluation information presented earlier in this report. Eight members of the consultant team engaged in this process. In scoring the performance of each alternative, a range of 1 to 100 was used. A score over 50 was considered good. The results of the segment-by-segment scoring are presented below.

3.3.2.1 Sector A

In the analysis of the 18 alternative segments in Sector A, the consultant scored Segments A6, A7, A8 and A9, along with Segments A15 and A16 as having the least negative affect in ***displacing people*** (Table 3-5). Each segment was expected to effect fewer than 10 people per mile. Segment A14 was associated with the largest number of potential displacements (in total and per mile of roadway path) and received the lowest score. And, while Segment A1 would displace the second highest number of people (536), it had a displacement rate of about 35 people per mile and would largely be built over an existing roadway so it scored around 50.

All Sector A segments scored in the 70s or higher reflecting no impacts on ***National Historic Properties***, but these scores recognized the potential to affect some currently unknown historic aspects of the communities served, other than those nationally listed.

Most Sector A segments scored high in assessing ***contaminated sites*** impacts. But, Segments A2, A8, A14, A14a, A15 and A16 were poor performers in this category, as each would affect some site considered of significance.

The scores in the ***waterways*** impact assessment category reflected the likelihood that every alternative segment has the potential to affect a number of streams. Those segments in Sector A affecting the River Raisin were scored lowest.

Table 3-5
Sector A
Consultant's Scoring of Illustrative Alternatives

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A10a	A11	A12	A13	A14	A14a	A15	A16
Displacements	50.63	73.88	49.75	48.13	71.88	83.38	82.00	81.88	82.88	75.63	85.63	63.38	64.13	72.63	15.63	48.38	83.63	83.63
Historics	77.50	73.75	75.63	76.88	76.88	79.38	79.38	79.38	76.25	73.75	73.75	75.63	81.25	75.63	75.00	75.63	73.13	76.88
Contaminated Sites	86.25	41.88	85.00	78.13	83.75	88.75	88.75	44.38	86.88	81.88	81.88	85.63	88.75	82.50	36.25	35.63	38.38	37.13
Waterways	45.00	70.63	68.75	71.88	49.38	40.63	63.75	50.00	78.75	41.88	46.25	50.00	20.63	68.13	18.13	26.88	44.38	28.13
Farmland	45.63	55.00	18.75	41.00	16.25	20.63	14.38	8.13	43.13	10.00	10.63	49.13	8.13	33.38	8.75	10.63	58.38	23.75
Wetlands	46.25	89.38	72.50	90.00	72.50	76.25	79.00	37.25	89.38	74.13	61.88	54.38	37.13	89.75	36.75	29.00	51.25	44.00
Traffic Flow	31.88	66.25	65.00	66.88	70.00	34.38	32.50	60.00	79.38	76.25	76.25	75.63	46.25	70.00	70.63	70.63	26.88	24.38

Source: The Corradino Group

The lowest scores overall for any evaluation factor in Sector A were assigned by the consultant team to ***farmland*** impacts. Segments A3, A5, A6, A7, A8, A10, A10a, A12, A14, and A14a were scored very low because of the large potential absorption of farmland per mile of roadway path. Segments A8 and A12 were considered particularly negative because these paths would sever farms.

Wetlands impacts were viewed as negative for Segments A8, A12, A14a, and A16. A14 would impact fewer total acres of wetland but its impact on a per-mile basis was high. So, it also scored low.

Most roadway paths that were north-south and that did not directly serve significant activity centers scored low in the ***traffic flow*** category (A1, A6, A7, A15, and A16). Most other segments performed adequately or better.

Findings

By combining the results of the consultant's evaluation of each segment by individual factor with the weights provided by the citizens in each group, plus its weights, the first-level screening began. The consultant's scores were considered positive at a value above 50. However, to ensure the screening process had a "factor of safety" embedded in it, a segment was initially considered for more analysis if it had an overall score of 55 or higher and at least that score with three groups or more.

By examining Table 3-6, it can be seen that the preliminary finding was that Sector A segments to be dropped were: A1, A8, A12, A14, A14a, A15, and A16. Segment A15 was the highest overall scorer among these. However, this segment had low traffic handling capability, significant waterway issues, and a concern about quarry impacts. So, while marginal, the consultant proposed that it should be dropped.

It is noted these were considered preliminary findings which were modified by ***continuity considerations*** discussed at the end of this chapter.

3.3.2.2 Sector B

The evaluation of the 22 Sector B alternatives is shown on Table 3-7. Segments B9 and B13 scored lowest in the ***displacements*** category as they would impact over 85 people per mile on relatively short route paths. Segments B6, B8, B10, and B21 would have relatively high displacements per mile and scored low. Segments B11, B15, B16, and B19 were the highest scorers with expected displacements of fewer than 10 per mile.

Segment B3 performed poorly in the ***historic*** impacts category as it would directly affect two sites. Segments B17 and B18 were expected to have an indirect affect on the Walker Tavern site, so it scored low.

Many Sector B segments would affect a quarry, landfill, or CERCLIS ***contaminated*** site thought to present problems. The lowest performer was Segment B20 believed to have an effect on a nationally-listed CERCLIS property. Segment B19 was likely to impact the Liberty landfill so it too scored very low.

Table 3-6
Sector A
Results of Evaluation by Group

Evaluation Group	Segment																	
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A10a	A11	A12	A13	A14	A14a	A15	A16
Monroe	52.31	67.34	57.63	64.11	59.67	57.55	58.92	50.33	74.40	58.80	59.74	63.28	46.09	67.41	34.52	41.04	55.47	45.63
Adrian	50.83	68.49	58.22	64.79	59.90	57.02	59.13	50.72	75.21	59.16	59.98	62.55	44.64	68.14	34.34	40.95	54.81	45.06
Jackson	49.83	69.27	58.14	64.79	60.21	56.35	58.25	51.78	75.28	59.77	60.53	62.67	44.48	68.21	36.06	42.61	54.77	45.41
Advisory Committee	50.81	69.08	59.77	65.28	61.97	58.01	60.33	54.06	76.39	61.60	62.77	63.61	46.84	69.29	36.91	44.08	54.92	46.65
Consultant	49.39	69.11	58.21	64.19	61.35	56.86	58.34	53.41	75.84	61.40	62.53	63.50	45.87	68.56	36.76	44.12	54.75	46.19
Average Score	50.63	68.66	58.40	64.63	60.62	57.16	59.00	52.06	75.42	60.15	61.11	63.12	45.58	68.32	35.72	42.56	54.94	45.79

Indicates score below threshold of 55.

Source: The Corradino Group

Table 3-7
Sector B
Consultant's Scoring of Illustrative Alternatives

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B14a	B15	B16	B17	B18	B19	B20	B21
Displacements	64.75	64.75	72.00	73.88	64.88	46.00	64.75	46.00	27.13	44.50	82.88	63.50	12.50	48.38	54.00	82.75	87.63	61.38	59.63	81.63	59.50	48.88
Historics	74.38	77.50	18.13	77.50	75.63	76.88	75.00	76.88	82.50	77.50	76.88	78.75	75.00	76.25	74.38	66.88	77.50	36.88	36.25	76.88	75.63	78.75
Contaminated Sites	38.13	87.50	37.50	85.63	36.88	36.88	85.63	80.00	41.25	83.13	88.75	86.25	80.63	86.88	36.88	37.50	86.88	81.25	81.25	24.38	26.88	87.50
Waterways	76.88	77.50	45.63	19.38	16.88	19.38	48.75	88.13	69.38	86.88	54.13	53.75	91.88	62.75	86.25	76.25	81.63	47.50	45.00	30.63	55.63	35.88
Farmland	56.25	63.88	59.38	27.75	11.25	45.38	67.88	60.50	79.63	50.13	45.00	32.00	88.13	23.38	32.75	65.75	67.50	62.00	64.75	73.00	75.75	30.63
Wetlands	25.00	89.38	67.50	20.00	13.75	8.13	77.88	89.38	43.25	81.50	59.00	31.63	90.00	38.25	18.25	37.63	46.88	40.00	21.25	21.63	69.50	12.88
Traffic Flow	78.75	78.75	68.75	50.00	51.25	48.13	67.50	64.38	65.00	52.50	52.50	34.38	67.50	65.00	65.00	50.63	69.38	44.38	65.00	78.13	65.63	45.00

Source: The Corradino Group

Major impacts on ***waterways*** were likely to occur in Sector B. Segments B4, B5 and B6 performed lowest because of the potential impacts on lakes in the area. Additionally, Segment B19 would cross the Grand River twice resulting in a low score. On the other hand, Segments B10 and B13 scored very high because each was associated with few potential waterway issues.

Segments B4, B5 and B21 would involve building new roads over ***farmland*** thereby severing it. This caused a low score. Additionally, Segments B12, B14, and B14a were expected to absorb about 90 acres per mile of farmland. This caused low scores as well. Segments B9 and B13 are short "urban" paths with low farmland absorption and, therefore, had high scores.

Wetlands impacts were most significant with Segments B4, B5, B6, B14a, B18 and B21. They received low scores. The high scoring segments in Sector B were B2, B8, and B13.

Segments B1, B2, B3, B16, and B19 had the potential to serve large volumes of ***traffic*** so they scored highest in this category. Segment B12, B17, and B21 had much lower traffic handling potential and score low.

Findings

By combining the results of the consultant's scoring by evaluation factor with the weights of each group, and using the threshold of 55 to be achieved overall and with at least three of five groups, the preliminary findings were that Segments B4, B5, B6, B12, B14, B14a, B17, B18, and B21 should be eliminated (Table 3-8).

3.3.2.3 Sector C

Of the six segments in Sector C, three--C3, C4 and C6--were associated with significant ***displacement*** issues, with C6 having the largest impact (Table 3-9). The other segments were expected to stay within existing right-of-way so their displacement effects were likely to be nonexistent.

All alternatives served urban places in which further analysis may have surfaced some ***historic*** issues. But, none was expected to impact a National Register Property. So, all scored high.

Likewise, no issues were expected with major ***contaminated*** sites except for C6 which was expected to encroach on a quarry. So, it scored lowest.

Segments C3 and C4 were given low scores because of their expected ***waterway*** impacts. Segment C3 would affect the Portage River; Segment C2 would cross the Grand River twice.

Farmland impacts caused the lowest scores for Segments C3 and C6 as each would consume about 400 acres. Likewise, the wetlands impacts of these two segments made them poor performers.

Traffic was expected to be accommodated best by Segments C1 and C2. Segment C5 also performed fairly well. On the other hand, Segments C4 and C6 were likely to carry relatively low volumes and were given low scores.

Table 3-8
Sector B
Results of Evaluation by Group

Evaluation Group	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B14a	B15	B16	B17	B18	B19	B20	B21
Monroe	60.00	75.13	55.46	49.27	38.30	40.85	68.82	69.29	58.31	64.40	64.16	51.70	69.42	53.46	51.42	61.61	73.70	53.67	54.21	59.27	63.08	45.88
Adrian	60.27	75.43	56.49	47.24	37.43	39.17	68.04	69.91	57.86	64.85	63.39	50.47	69.60	53.11	52.14	61.75	73.17	52.72	53.03	58.19	63.29	43.94
Jackson	61.30	75.32	56.96	47.07	38.61	39.99	67.86	69.51	58.44	64.13	62.85	49.55	68.98	52.95	52.90	61.94	72.71	51.56	52.38	59.88	64.39	43.40
Advisory Committee	62.21	75.52	56.03	49.14	40.45	40.61	67.73	69.57	57.78	64.69	64.19	51.55	67.73	55.03	54.65	62.41	73.94	51.79	52.83	59.79	63.32	45.42
Consultant	62.00	75.08	58.02	48.82	40.42	40.72	67.92	68.23	57.20	62.78	63.51	49.78	66.42	53.50	53.23	62.13	73.31	51.93	53.53	61.54	63.99	44.11
Average Score	61.16	75.30	56.59	48.31	39.04	40.27	68.07	69.30	57.92	64.17	63.62	50.61	68.43	53.61	52.87	61.97	73.36	52.34	53.20	59.73	63.61	44.55

Indicates score below threshold of 55.

Source: The Corradino Group

Table 3-9
Sector C
Consultant's Scoring of Illustrative Alternatives

	C1	C2	C3	C4	C5	C6
Displacements	91.25	93.13	43.63	35.38	81.25	16.38
Historics	77.50	83.75	75.63	74.38	83.75	76.88
Contaminated Sites	81.25	80.63	81.88	83.75	83.75	38.13
Waterways	87.50	51.25	27.50	23.75	91.88	85.63
Farmland	83.38	90.00	37.88	80.88	89.00	40.38
Wetlands	74.75	61.13	8.13	35.75	64.13	8.75
Traffic Flow	83.13	83.13	56.88	28.75	66.88	28.75

Source: The Corradino Group

Findings

The preliminary findings were that Segments C1, C2, and C5 had merit while the remaining segments should be dropped (Table 3-10).

Continuity Considerations

Besides the considerations noted above, it was necessary to examine the ability of the remaining segments to be combined into logical, continuous routes. So, some segments were dropped and others added.

In Sector A, Segment A7 did not connect north to a series of viable segments. So, it was recommended to be dropped. Additionally, Segments A4, A5, and A13 were suggested for elimination because they couldn't be connected around Tecumseh. Segments A14 and A14a served traffic well and avoided National Historic Properties, but they had serious problems in all other evaluation categories. They were the lowest scoring segments of the almost 50 evaluated in this report. So, this lack of continuity caused the elimination of Segments A4, A5, and A13.

In Sector B, Segment B7 was recommended to be dropped because, like Segment A7, it connected to no viable northern segment. Segments B11, B17 and B19 were connected by returning Segment B12 to the evaluation. Segment B12 was weak in the evaluation categories dealing with farmlands, wetlands, and traffic flow; further analysis would be undertaken to mitigate these impacts. Overall Segment B12 had a score over 50 so it was evaluated positively by the consultant. And, when considering that Segment B12 was associated with a path 1,000 feet wide in this early analysis, it was expected the farmland and wetland impacts would lessen with a more detailed evaluation.

Table 3-10
Sector C
Results of Evaluation by Group

Evaluation Group	C1	C2	C3	C4	C5	C6
Monroe	83.29	79.52	45.58	51.51	80.28	39.67
Adrian	83.38	78.19	43.47	48.61	79.83	39.53
Jackson	83.31	78.47	43.36	47.46	79.23	39.21
Advisory Committee	83.54	78.37	44.96	46.96	79.48	40.42
Consultant	83.62	79.48	44.37	46.53	78.77	37.58
Average Score	83.43	78.81	44.35	48.21	79.52	39.28

Segment columns: C1–C6. Boxed values indicate score below threshold of 55.

Source: The Corradino Group

In a similar manner, Segments B13, B15, and B20 lacked connections to form a complete route between Jackson and Toledo. To do that, it was recommended that Segments B14 and B18 be included in the next level of analysis. Both scored positively. It was recognized that Segment B14 had farmland and wetland issues that were negative as measured at this level of analysis. Further work would be undertaken. Segment B18 was considered to have a potential indirect affect on the historic Walker Tavern and on wetlands. The issues would be examined in detail in the next level of evaluation.

In Sector C, the west-side-of-Jackson segments were recommended to be dropped. On the other hand, Segments C1 and C2 were considered viable. However, terminating at that time the potential new route at I-94 was considered short sighted. So, it was recommended that Segment C3 be included in the next level of analysis. It had a number of complications, but more detailed work could help determine if there were any way to complete a east-side loop around Jackson. A west-side loop did not appear viable.

3.4 Next Steps

The segments recommended in January 2000 to undergo refinement and more rigorous analysis are shown on Figure 3-3. They are:

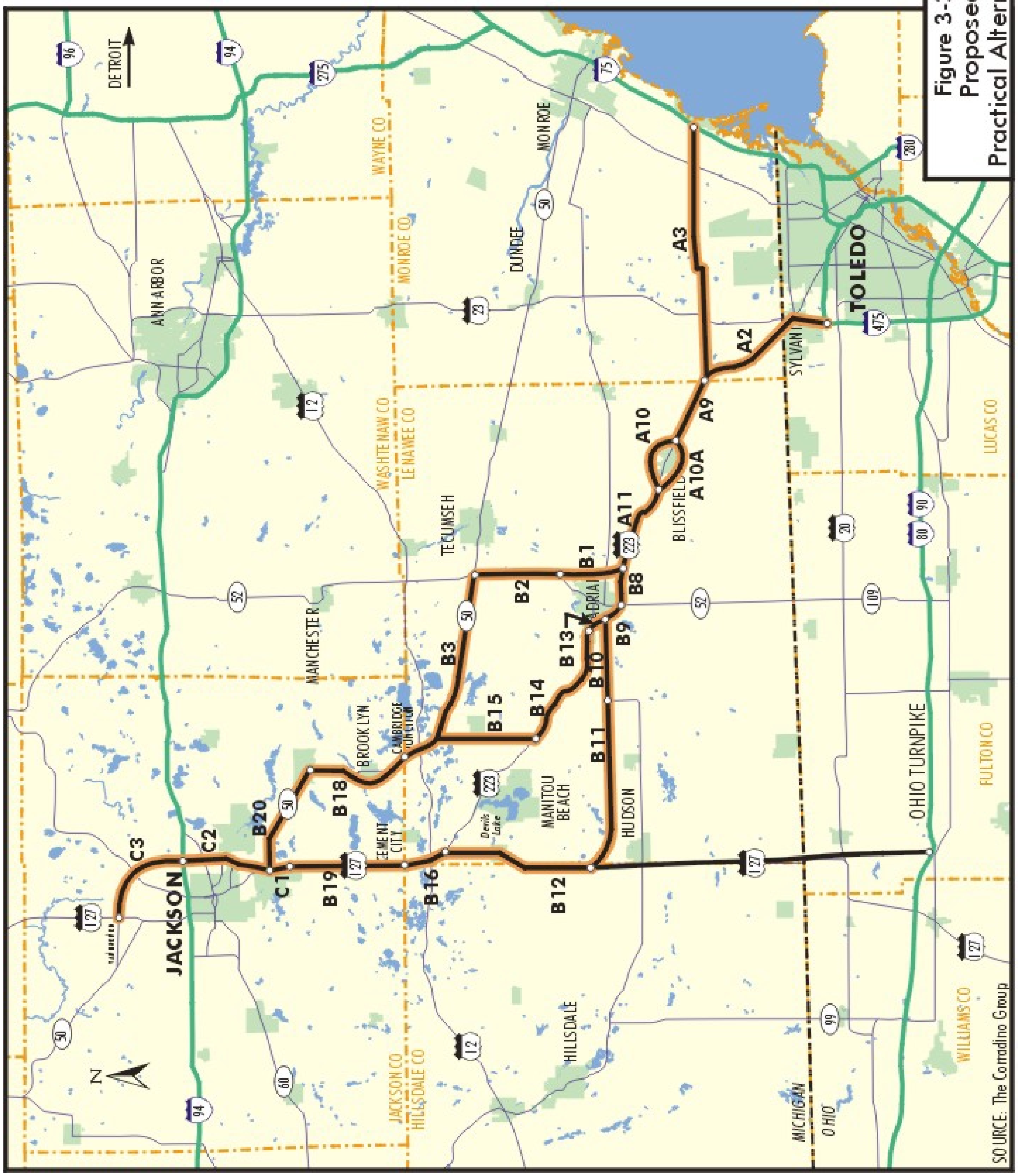


Figure 3-3
Proposed
Practical Alternatives

- **Sector A:**
  - A2
  - A3
  - A9
  - A10
  - A10a
  - A11
- **Sector C:**
  - C1
  - C2
  - C3
- **Sector B:**
  - B1
  - B2
  - B3
  - B8
  - B9
  - B10
  - B11
  - B12
  - B13
  - B14
  - B15
  - B16
  - B18
  - B19
  - B20

Based on the public input received at the January 25 and 26, and February 16, 2000 public meetings, the consultant's recommendations were modified by including Segment A16 in the next level of analysis. It was believed by many citizens that use of Segment A16, in combination with other U.S. 127 segments, would avoid impacting the core of the study area.

4. Second-Level Evaluation

This section of the Final Report documents the process of determining the feasibility of high-type roadway improvements in the corridor by evaluating which of many options remaining after the first-level evaluation have the most potential so they can be carried forward into the next level of analysis and which alternative corridor segment paths should be dropped. It was conducted with the public completing almost 400 evaluation forms by which the alternatives were screened. (About half the forms were completed at the April 2000 round of public meetings and the others returned by mail/email/fax.) Almost 2,500 people attended these meetings to help refine the alternatives.

4.1 Corridor Segment Paths

A corridor segment presented at this point in the I-73 Feasibility Study had advanced through layers of analysis in attempting to “fit” it with its human and natural environments. That information was again presented by sector of the study area (A, B, and C) to allow a manageable discussion of the proposals. The broad objective at this point, based on examining the alternatives by their impacts, was to determine how the corridor segments can be reduced to a fewer number, and then the segments connected into feasible routes.

The segments shown on Figure 4-1 were determined in conjunction with the public. They were modified through public comment from those presented at the April meetings. For example, Segment A3a was modified to avoid a proposed manufactured housing project of more than 300 units. That development was then in litigation. If the vacant parcel on which it would be located were to be developed, the displacement of hundreds of homes would be a significant negative impact. To avoid it, the turn north to U.S. 223 was placed further west through a privately-owned (open to the public) golf course.

Another example of a modification drawn from the April public meetings is Segment A10b. Rather than the proposed use of Riga Road, the corridor segment path was shifted to the east to Tagsold Highway. Fewer residential displacements would be associated with this adjusted segment.

One final example of a response to public input was inclusion of Segment B22 moving south of Adrian on a new alignment. The proposed use of the existing U.S. 223 Bypass in Adrian prompted public input to consider such a path.

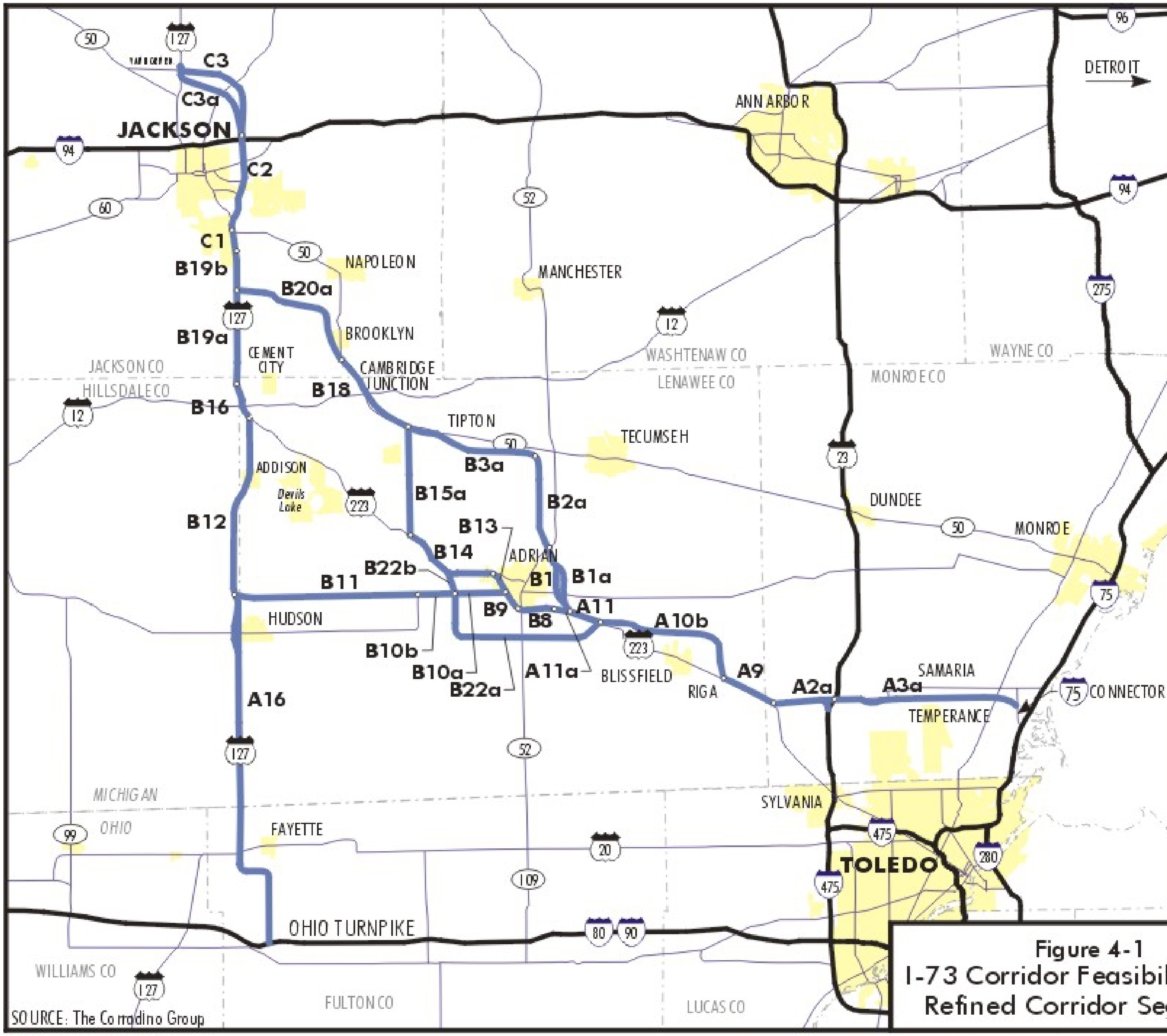


Figure 4-1
I-73 Corridor Feasibility Study
Refined Corridor Segments

L:\Projects\2544\Graphics\Map5-1.cdr

Generally, when an improvement is called for in an area where no roadway now exists (i.e., on new alignment), the path was considered 300 feet wide. Where an alternative followed an existing roadway alignment in urban areas, like U.S. 223 in Adrian, the path was 200 feet wide, recognizing that the build-up nature of such locations will dictate a tighter fit. Finally, because Segment A16 was expected to carry fewer than 15,000 vehicles per day in 2020, i.e., two lanes of traffic, its width was not increased for almost its entire length.

4.2 Evaluation Factors

The alternative path segments were presented at seven public meetings conducted on April 11 and 12, 2000. At each meeting, aerial photos, atlases and video simulations of corridor segments were presented to solicit input so the segments could be refined. Additionally, those in attendance were asked to provide their ranking of ten evaluation factors (Figure 4-2). The number of evaluation factors was expanded by four (archaeologic resources, community cohesion, engineering difficulties and open space/park/recreation land) since the first evaluation, while one -- contaminated sites -- was dropped. Public input was helpful in making these adjustments.

To manage the evaluation database, a geographic information system (GIS) being used was augmented by field analysis and recent aerial mapping. For example, historic structures and archaeologic sites were researched then field verified. Another example is that residential structures located on aerial maps were also field verified.

The four new evaluation factors are described as follows:

4.2.1 Archaeologic Properties

The assessment of the presence of historic resources began with a literature review. This was followed by a windshield survey to identify and photograph sites that may be of archaeologic significance. Almost two dozen archaeologic sites are considered potentially impacted by the proposed project.

4.2.2 Community Cohesion

The consultant team used its judgment to predict the degree of disruption (High/Medium/Low) a community may experience if a four-lane, high-type roadway were to penetrate it. A community can be a city, such as Adrian, a village like Samaria, or a small but cohesive enclave such as exists along Segments B11 and B20a, to name just two. Cohesion is considered to be impacted to some degree if the social exchange and/or the services (e.g., fire, school transportation) now provided are likely to be affected by the proposed new highway.

4.2.3 Engineering Difficulties

Each corridor segment was examined for the following characteristics which affect its ability to be built: soils, water/railroad crossings, interface with utilities, wetland incursions, and geometric constraints. Based on these factors, a judgment was made as to the difficulty in engineering/constructing each corridor segment according to the classifications: little, some, moderate or major difficulty.

Figure 4-2
EVALUATION FACTORS
Second-Level Evaluation

How Important Are These Factors?

We want to know how important you believe the following factors are when trying to improve the road system in the I-73 Corridor.

To provide us your opinion, please rank the following factors "1" through "10", with "1" indicating the factor you believe is most important and "10" indicating the factor you believe is least important. For example, if protecting historic properties is your highest priority, assign it the score of "1." Or, if avoiding the displacement of people is your key concern, assign it a "1." But, don't assign the number "1," or any other number, more than once. When finished, return your form to a project representative or send it to the address below.

Please place your name and street address (and email address, if available) below. Return the form so it is received no later than May 1, 2000 so your opinions can be used to evaluate the alternatives,. Thank you.

Factor	***Rank***
Archaeologic Resources	________
Displacement of People	________
Community Cohesion	________
Engineering Difficulties	________
Farmland	________
Historic Properties	________
Open Space/Parks/Recreation	________
Traffic Flow	________
Waterways	________
Wetlands	________

NAME: ________________________________

STREET ADDRESS: ________________________________

Email ADDRESS: ________________________________

Return form to:
The Corradino Group
200 South Fifth Street
Suite 300N
Louisville, Kentucky 40202
email: gcorradino@corradino.com
fax: 502.587.2636

Remember: Form must be at Corradino's by May 1, 2000.

4.2.4 Open Space/Park/Recreation

Aerial photography plus field reconnaissance identified state, local (public and private) parks and other recreational amenities potentially taken by each corridor segment. The taking of a public park/open space is subject to the conditions of Section 4(f) of the Department of Transportation Act of 1966. This law forbids the use of significant parkland by the U.S. Department of Transportation unless there is no "prudent and feasible" alternative. This law is limited in its extension to privately-owned parks, golf courses, and recreational lands.

4.3 Weighting of Factors

Almost 400 forms were completed, about half by those attending the April meetings, and the rest by people who returned the forms by mail/email/fax (Table 4-1).

As can be seen, those citizens who turned in the evaluation forms at the April 11 and 12 meetings ranked as the top three factors Displacements, Farmland and Wetlands protection. These carry almost 40 percent of the weight of all ten factors. When adding the fourth and fifth factors (protecting Waterways and Community Cohesion), the total weight increased to almost 60 percent.

When viewing the evaluation factor weightings returned by mail/email/fax, the consistency with the preferences of the citizens who completed the forms at the April meetings is very high (lower portion of Table 4-1). The top three factors are the same (Displacements, Wetland and Farmland protection) with about 40 percent of the weight. The top five factors are the same for each group with each assigning about 60 percent of the weight. And, while there is some variation in the ranking of the last five factors, each group ranked Archaeological Resources and Engineering Difficulties ninth and tenth, respectively, with a total weight of less than 12.5 percent.

Because the two citizen group weightings were so similar, and the people who participated in each came from across the study area, they were combined for the evaluation process. Those data are compared to the consultant's weightings on Table 4-2. The ten members of the consultant team who participated in the evaluation included three each who are planners, environmental specialists and engineers, plus an architectural historian. The major difference between the consultant's weightings/rankings and the public's is in three factors: the consultant ranked Traffic Flow second; the public ranked it eighth; the consultant ranked Farmland fifth, the public, second; the consultant ranked Waterways eighth, the public fourth. The similarities are: the consultant ranked Displacement of People first as did the public; the consultant and the public both ranked Wetlands third; both ranked sixth and seventh (although not in that order but at a total weight of about 20%) Historic Properties and Open Space issues. And, both groups considered Archaeologic Resources and Engineering Difficulties in either ninth or tenth place but the consultant gave these factors less weight (consultant = 7.82%, public = 11.68%). It is interesting to note that the consultant's rankings were very much like those turned in by the public at the Adrian meeting (Table 4-3).

It was the consolidated public weightings and the consultant's scores shown on Table 4-2 that were used in the subsequent scoring of alternatives.

Table 4-1
Public Ranking of Evaluation Factors

Evaluation Factor	Returned at Meeting	Returned by Mail/Fax
Archaeologic Resources	6.69% (9)	6.33% (9)
Displacement of People	14.62% (1)	14.81% (1)
Community Cohesion	10.34% (5)	10.50% (5)
Engineering Difficulties	5.80% (10)	4.64% (10)
Farmland	12.42% (2)	12.03% (3)
Historic Properties	10.32% (6)	10.14% (7)
Open Space/Parks/Recreation	9.16% (8)	10.43% (6)
Traffic Flow	9.19% (7)	7.83% (8)
Waterways	10.52% (4)	10.92% (4)
Wetlands	10.94% (3)	12.37% (2)
	100.00%	100.00%

Source: The Corradino Group

Meeting Top 3:	Displacement of People	Farmland	Wetlands	Weight = 37.98%		
Mail Top 3:	Displacement of People	Wetlands	Farmland	Weight = 39.16%		
Meeting Top 4:	Displacement of People	Farmland	Wetlands	Waterways	Weight = 48.50%	
Mail Top 4:	Displacement of People	Wetlands	Farmland	Waterways	Weight = 50.05%	
Meeting Top 5:	Displacement of People	Farmland	Wetlands	Waterways	Community Cohesion	Weight = 58.84%
Mail Top 5:	Displacement of People	Wetlands	Farmland	Waterways	Community Cohesion	Weight = 60.54%

Source: The Corradino Group

Table 4-2
Evaluation Factor Weights/Rankings

Evaluation Factor	Public	Consultant
Archaeologic Resources	6.50% (9)	3.64% (10)
Displacement of People	14.72% (1)	16.18% (1)
Community Cohesion	10.43% (5)	10.91% (4)
Engineering Difficulties	5.18% (10)	4.18% (9)
Farmland	12.21% (2)	10.73% (5)
Historic Properties	10.22% (6)	9.64% (7)
Open Space/Parks/Recreation	9.84% (7)	10.54% (6)
Traffic Flow	8.47% (8)	13.09% (2)
Waterways	10.73% (4)	9.27% (8)
Wetlands	11.70% (3)	11.82% (3)
	100.00%	100.00%

Source: The Corradino Group

Table 4-3
Evaluation Factor Weights/Rankings
Adrian Meeting Attendees and Consultant

Evaluation Factor	Adrian Meeting	Consultant
Archaeologic Resources	5.32% (9)	3.64% (10)
Displacement of People	13.87% (1)	16.18% (1)
Community Cohesion	11.31% (3)	10.91% (4)
Engineering Difficulties	4.65% (10)	4.18% (9)
Farmland	10.57% (5)	10.73% (5)
Historic Properties	10.17% (8)	9.64% (7)
Open Space/Parks/Recreation	10.51% (6)	10.54% (6)
Traffic Flow	12.05% (2)	13.09% (2)
Waterways	10.30% (7)	9.27% (8)
Wetlands	11.25% (4)	11.82% (3)
	100.00%	100.00%

Source: The Corradino Group

It is also important to note that public input received prior to the definition of feasible routings of the proposed highway facility included resolutions from a number of groups:

- Bedford Township Board
- Erie Township Board
- La Salle Township Board
- Whiteford Township Board
- Monroe County Board of Commissioners
- Grand River Environmental Action Team
- Northwest (Jackson) School District
- Citizens (14) from Jackson, Michigan
- Michigan Audubon Society
- Rome Grange Executive Committee

The first four groups largely focused their interest on Segment A3a (i.e., County Road 151). They are opposed to it as a high-type roadway facility. On the other hand, the Monroe County Board of Commissioners, while citing the same link, A3a, resolved that it opposes designation "...in the I-73 Study of any path through or across any portion of the County of Monroe for the construction of a new interstate highway." The next three groups mostly concentrated on Segments C3/C3a. They are opposed to them and stress using I-94/ U.S. 127 instead. The Michigan Audubon Society called for the improvement and maintenance of existing surface transportation corridors and opposes new highways that will jeopardize and destroy wetlands and open land areas crucial to the sustainability of southern Michigan's wildlife and resources. Finally, the Rome Grange is against the use of the M-34/Beecher Road corridor (Segments B10 and B11) because of the absorption of farmland expected with the proposed project.

It is also worthy to note two groups had organized to stop the development of a high-type roadway in the study area. CAUSE (Citizens Against Urban Sprawl Expressway/www.stopi73.com) is mainly focused on Segment A3a in Monroe County. SPRAWL (Society to Protect Rural Area, Wetland and Lakes/www.i73.org) is opposed to any high-type facility in Lenawee County. Both groups have stimulated hundreds of communications to support their positions.

4.4 Evaluation Data

The information cited below is presented by Sector (A, B, C) to allow a manageable differentiation among the proposals.

4.4.1 Sector A

Seven corridor segments were included in this sector. Each is shown on Figure 4-1. The evaluation data are summarized on Table 4-4. Traffic flow issues are reviewed for all segments at the end of this section.

There are nine ***archaeologic resources*** known to exist in Sector A (Table 4-4). None are listed on the National Register. No sites were associated with Segments A2a and A9. One each were likely to be affected by Segments A11a and A16; both of which were believed to have a high potential for listing on the National Register of Historic Places. There were two archaeologic sites each likely to associated with Segments A3a and A11. One of the Segment A11 sites is large and has a high potential for listing on the National Register. Neither site along Segment A3a was considered to have such high potential. On the other hand, Segment A10b was believed to affect three sites, all with high potential for Register listing.

Displacements in Sector A were expected to be fewer than four dozen housing units for any segment. Segment A3a was expected to cause the acquisition of 46 homes, at a rate of about one every quarter mile of new road length. This is about the same rate of displacements as Segments A9 and A11a. The greatest rate of housing displacement was expected to be associated with Segment A11 -- 13 per mile or 21 total units. Segment A10b was expected to impact three dwellings in about nine miles, while Segment A16 was likely to affect eight homes in more than 21 miles.

The consultant judged the most significant ***community cohesion*** impact in Sector A to be associated with Segment A3a as it crossed the southern part of Monroe County, east of U.S. 23 and affected St. Anthony and Samaria, to name two communities of significance. All other segments were considered to be associated with a low impact on community cohesion except Segment A2a. It is expected to have a medium impact as it would affect a relatively close-knit community associated with Riga.

All Sector A segments were considered buildable. But, major ***engineering difficulties*** were expected with Segment A3a because of the presence of a number of utilities, numerous drainage issues and two railroad crossings. Segment A10b was likely to encounter moderate engineering challenges created by two crossings of the River Raisin and the presence of utilities. All other corridor segments present relatively few engineering issues of consequence.

Table 4-4
Sector A Evaluation Data - Second-Level Screening

EVALUATION FACTOR	A2a		A3a		A9		A10b		A11		A11a		A16	
Length	4.7		11.1		3.2		9.2		1.6		0.5		21.3	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources														
Sites	0		2		0		3		2		1		1	
2. Displacements														
Homes	34	7.2	46	4.1	12	3.8	3	0.3	21	13	2	4.0	8	0.4
3. Community Cohesion														
High/Medium/Low	Medium		High		Low		Low		Low		Low		Low	
4. Engineering Difficulty														
Little/Some/Moderate/Major	Little		Major		Some		Moderate		Some		Some		Little	
5. Farmland														
Acres	103	21.9	102	9.2	69	21.6	328	35.7	23	14.2	2	4.0	270	12.7
Farmland Quality (High/Medium/Low)	High		Medium		High		High		Medium		Low		Medium	
6. Historics														
Nat. Reg. Poten. Standing Sruct. Sites	0		2		1		0		0		0		0	
Centennial Farms	0		0		0		1		0		0		0	
7. Open Space/Recreation Areas														
State Parks	0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses	0		0		0		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities	1		2		0		0		0		0		0	
8. Traffic Flow														
Vehicles/day - Year 2020 (1,000s)	33		18		33		27		29		29		13	
9. Waterways														
River Raisin	0		0		0		2		0		0		0	
Portage River	0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0	
Perennial Streams	0		0		0		0		0		0		2	
Intermittent Streams	0		14		0		5		1		0		2	
Lake/Pond	0		0		0		0		0		0		1(1)	
Assoc. with significant wetlands	0		0		0		0		0		0		0	
10. Wetlands														
Acres	6	1.3	66	6.0	NS	--	9	1.0	NS	--	NS	--	21	1.0

(1) Remnant oxbow to the Tiffin River

NS = Not Significant Quantity

Source: The Corradino Group

Segment A10b will likely require the use of more than 300 acres of ***farmland*** at a rate of 36 per mile. And, the quality of the land was considered high. (In assessing quality of farmland, consideration was given to current use, crop yield and size of farmed tracts.) Segment A16 was expected to consume 270 acres of medium-quality farmland but at a much lower rate than Segment A10b. Segments A2a and A3a were likely to take more than 100 acres each. Segment A2a was likely to do so at a rate of more than 20 acres per mile, while Segment A3a's absorption was placed at fewer than ten acres per mile. The Segment A2a farmland was considered of a higher quality. Segment A9 was likely to also use a high quality of farmland at a rate of more than 20 acres per mile of new roadway.

Four of the seven segments in Sector A were expected to avoid ***historic*** places of significance (Segments A2a, A11, A11a and A16). Segment A3a was likely to affect two properties. And, while neither is on the National Register, at least one (circa 1850) is believed to have high potential for such listing. The structure of potential significance along Segment A9 is a bridge while one known Centennial farm was likely to be affected along Segment A10b.

Corridor segments in Sector A were not likely to impact publicly-owned ***parks/open spaces***. But, Segment A2a would likely affect the privately-owned Legacy Golf Course by a taking along its north edge. The private golf course on Segment A3a would likely be cut in two; the St. Joe's ballfield was also expected to be impacted along Segment A3a.

While a complete description of ***traffic flow*** data is included in the last part of this report section, it is noteworthy that the Segment A3a and A16, connectors to the roadway system outside the study, were expected to carry the least amount of traffic. The 2020 volume on Segment A16 was forecast to be 8,000 vehicles per day (vpd) in Ohio with a maximum of 13,000 vpd in Michigan. These volumes are made up of non-local traffic but they can be handled by two lanes of road.

The traffic expected on Segment A3a is higher, but it is not "interstate-oriented;" it's mostly local. This latter characteristic mitigates against its inclusion as part of a proposed interstate highway system.

Segment A10b was associated with the most significant ***waterway*** issues in Sector A as two crossings of the River Raisin would be needed. Segment A3a must deal with an intricate drainage system. Segment A16 would likely affect two perennial streams and a remnant oxbow of the Tiffin River.

Wetlands impacts were not expected to be of consequence on Segments A9 and A11a. Segment A16 would likely impact about 21 acres of wetlands at a rate of one per mile of roadway length. This is the same impact (i.e., about one acre per mile) expected with Segments A2a and A10b. On the other hand, Segment A3a was likely to cause taking of more than five dozen acres of wetlands at a rate of six per mile.

4.4.2 Sector B

Twenty-one corridor segments were studied in Sector B (Table 4-5). There are 13 ***archaeologic sites*** potentially impacted by them. But, no such impacts were expected with Segments B2a, B3a, B8, B9, B10a, B11, B13, B18, B19a/19b, B20a or B22b. One site each associated with Segments B14a and B22a is considered highly likely to be eligible for the National Register. It is also noteworthy that the Segment B22a archaeologic site is relatively large.

The potential for ***acquisition of homes*** touched every corridor segment in Sector B. It was most significant along Segment B11 in terms of the total number of dwellings (104). Segments B10a, B10b and B14a were considered most impacting in terms of homes per mile of new roadway (at least 17 per mile). Fewer than a dozen home were expected to be taken along Segments B2a, B3a, B9, B13, B14b, B19a, B19b, and B22b.

Impacts on ***community cohesion*** were considered to be high along Segment B1, just east of Adrian, and in the Brooklyn area (Segments B18 and B20a). Elsewhere, the impacts were considered likely to be low in areas where residential development is dispersed. Medium impacts were expected along Segments B2a, B3a, B10b, B11, B15a, and B22a/22b.

While all corridor segments are considered buildable, major ***engineering difficulties*** would be encountered in developing Segment B8 as the new road would have to transition from an elevated to a cut/depressed section to minimize impacts in south Adrian. Likewise, major challenges were expected to be associated with Segment B9 because of the active railroad next to M-34 causing grade/connection challenges. The river crossings and soils conditions presented major engineering challenges with Segment B20a.

Farmland absorption was considered likely to be most extensive in absolute quantities (more than 200 acres) along Segments B11, B12, B20a and B22a. One of these segments -- B22a -- would be on new alignment while Segments B11, B12, and B20a would move over existing, but fairly narrow roads. The greatest potential use of farmland per mile (more than 20 acres per mile) was expected with Segments B1a, B11, B15a, B20a, B22a, and B22b. All farmland in Sector B was rated either of medium or low quality.

Historic impacts were potentially most significant along Segments B10b and B18. Segment B10b would likely affect the Wigg School and another structure, circa 1850. Segment B18 would impact a school house (now an antiques store), circa 1860 and M50 itself, which is considered of historical importance. And, while none of these properties are on the National Register, they have high potential to be listed. Other segments with at least one property of high potential for listing on the Register included B8, B10a, B12, and B14a. Segment B18 was associated with three structures of historical importance (two homes, one barn); however, they are all considered of low to moderate eligibility for the National Register of Historic Places.

Parks/open spaces of major import were associated with Segments B2a (publicly-held Rails-to-Trails corridor), and B18 and B19b (publicly-owned roadside parks). Segment B13 would likely impact a private softball field; Segment B22a was expected to affect a private golf course.

Table 4-5

Sector B Evaluation Data - Second-Level Screening

EVALUATION FACTOR	B1		B1a		B2a		B3a		B8		B9		B10a		B10b	
Length	4.2		4.2		5.3		8.0		2.4		1.3		2.6		2.4	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources																
Sites	1		1		0		0		0		0		0		1	
2. Displacements																
Homes	48	11.4	19	4.5	9	1.7	11	1.4	12	5.0	7	5.4	45(1)	17.3	43	17.9
3. Community Cohesion																
High/Medium/Low	High		Low		Medium		Medium		Low		Medium		Medium		Low	
4. Engineering Difficulty																
Little/Some/Moderate/Major	Moderate		Moderate		Moderate		Moderate		Major		Major		Little		Some	
5. Farmland																
Acres	32	7.6	122	29.0	76	14.3	115	14.4	9	3.8	3	2.3	22	8.5	20	8.3
Farmland Quality (High/Medium/Low)	Low		Low		Medium		Medium		Low		Low		Low		Medium	
6. Historics																
Nat. Reg. Poten. Standing Sruct. Sites	0		0		0		0		1		0		2		2	
Centennial Farms	0		0		0		0		0		0		0		0	
7. Open Space/Recreation Areas																
State Parks	0		0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses	0		0		1		0		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities	0		0		0		0		0		0		0		0	
8. Traffic Flow																
Vehicles/day - Year 2020 (1,000s)	24		24		36		26		30		30		19		19	
9. Waterways																
River Raisin	0		2(2)		0		0		0		1		0		0	
Portage River	0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0		0	
Perennial Streams	0		1		2		2		0		0		0		0	
Intermittent Streams	1		6		2		2		1		0		0		1	
Lake/Pond	0		0		1(3)		0		0		0		0		0	
Assoc. with significant wetlands	0		0		0		0		0		0		0		0	
10. Wetlands																
Acres	9	2.1	12	2.9	60	11.3	62	7.8	NS	--	5	3.8	1	0.4	2	0.8

(1) Edge of Manufactured Housing Enclave

NS = Not Significant Quantity

(2) Includes the South Branch of River Raisin

(3)Approximately 1-acre farm pond.

Source: The Corradino Group

Table 4-5 (continued)
Sector B Evaluation Data - Second-Level Screening

EVALUATION FACTOR	B13		B14a		B14b		B15a		B16		B18		B19a		B19b		B20a		B22a		B22b	
Length	3.8		2.4		3.1		6.5		2.5		5.5		4.5		2.0		8.4		9.7		1.5	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources																						
Sites	0		2		2		3		1		0		0		0		0		1		0	
2. Displacements																						
Homes	3	0.8	36	15.0	2	0.6	41	6.3	13	5.2	42	7.6	3	0.7	6	3.0	50	6.0	40	4.1	7	4.7
3. Community Cohesion																						
High/Medium/Low	Low		Low		Low		Medium		Low		High		Low		Low		High		Medium		Medium	
4. Engineering Difficulty																						
Little/Some/Moderate/Major	Little		Some		Little		Little		Some		Moderate		Some		Moderate		Major		Moderate		Some	
5. Farmland																						
Acres	NS	--	15	6.2	40	12.9	190	29.2	4	1.6	39	7.1	15	3.3	NS	--	259	30.8	303	31.2	54	36.0
Farmland Quality (High/Medium/Low)	NA		Low		Medium		Medium		Medium		Low		Low		NA		Low		Medium		Medium	
6. Historics																						
Nat. Reg. Poten. Standing Sruct. Sites	0		2		0		1		0		2		0		0		3		0		0	
Centennial Farms	0		0		0		1		0		0		0		0		0		0		0	
7. Open Space/Recreation Areas																						
State Parks	0		0		0		0		0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses	0		0		0		0		0		1		0		1		0		0		0	
Private Preserves/Golf Courses/Recreational amenities	1		0		0		0		0		0		0		0		0		1		0	
8. Traffic Flow																						
Vehicles/day - Year 2020 (1,000s)	24.5		24.5		24.5		19.5		31		18.5		39		39		17		16		16	
9. Waterways																						
River Raisin	0		0		0		0		0		1		0		0		0		1(1)		0	
Portage River	0		0		0		0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		1		1		1		1		0		0	
Perennial Streams	0		2		0		4		1		1		0		1		1		0		0	
Intermittent Streams	1		0		1		3		1		7		1		0		5		3		1	
Lake/Pond	0		0		0		0		0		2(2)		0		0		0		0		0	
Assoc. with significant wetlands	0		0		0		0		0		0		0		0		3		0		0	
10. Wetlands																						
Acres	3	0.8	4	1.7	5	1.6	22	3.4	8	3.2	39	7.1	41	9.1	21	10.5	118	14.1	33	3.4	5	3.3

(1) Includes the South Branch of River Raisin
(2) Washington Lake and McKeichey Lake (Doty's Lake)
Source: The Corradino Group

NS = Not Significant Quantity
NA = Not Applicable

Traffic was forecast to be relatively high on all segments except B20a and B22a/22b. But, these latter segments would split traffic with existing facilities (B20a with M50 and B22a/22b with U.S. 223) thereby diverting thru traffic, including many trucks, and preserving the existing road's function of serving locally-destined traffic with less congestion.

Waterway impacts were expected to be most significant along Segments B1a, B18, B20a and B22a. Each segment would cross the River Raisin and/or the Grand River plus a number of other streams. Segments B1, B8, B10a, B10b, B13, B14b, and B22b were expected to have no more than one stream crossing and, therefore, fewer impacts.

Segments B2a, B3a, B12 B19a, B19b and B20a were considered likely to have the greatest impacts on ***wetlands*** in terms of absolute quantity and the number of acres affected per mile. The least impact was expected to occur with Segment B8.

4.4.3 Sector C

There were four corridor segments in Sector C. Only one, Segment C3a, is associated with an ***archaeologic site*** (Table 4-6).

The number of ***homes expected to be displaced*** was relatively low or non-existent on Segments C1 and C2, respectively. Segments C3 and C3a were each likely to cause taking of 18 housing units.

Impacts on ***community cohesion*** in Sector C were expected to be low for each segment.

There are likely to be moderate ***engineering difficulties*** associated with both Segments C3 and C3a, largely due to river crossings and the presence of poor structural soils.

Farmland absorption was expected to be zero with Segments C1 and C2 . But, both Segments C3 and C3a would consume about 100 acres of farmland which is considered of relatively low quality.

One Centennial Farm would likely be impacted with Segment C3a. No other farmsteads or structures of ***historic*** significance were encountered in Sector C. Also, no public or private ***parks/open spaces*** were expected to be encountered in Sector C.

Traffic flow was forecast to be very high on Segments C1 and C2. It was considered likely to be much lower on Segments C3 and C3a. This traffic on Segments C3/C3a was expected to be diverted from I-94 which would lessen its congestion.

Segments C2, C3 and C3a would affect the Grand River. And, Segment C3 would also impact the Portage River. But, Segment C2 would have the least impact on ***waterways*** as the road (U.S. 127) already crosses the streams affected.

Table 4-6

Sector C Evaluation Data - Second-Level Screening

EVALUATION FACTOR	C1		C2		C3a		C3	
Length	2.0		5.6		5.8		6.7	
Factors	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources								
Sites	0		0		1		0	
2. Displacements								
Homes	4	2.0	0	0.0	18	3.1	18	2.7
3. Community Cohesion								
High/Medium/Low	Low		Low		Low		Low	
4. Engineering Difficulty								
Little/Some/Moderate/Major	Some		Some		Moderate		Moderate	
5. Farmland								
Acres	0	0.0	0	0.0	110	19.0	83	12.4
Farmland Quality (High/Medium/Low)	NA		NA		Low		Low	
6. Historics								
Nat. Reg. Poten. Standing Sruct. Sites	0		0		0		0	
Centennial Farms	0		0		1		0	
7. Open Space/Recreation Areas								
State Parks	0		0		0		0	
Local Public Parks/Preserves/Golf Courses	0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities	0		0		0		0	
8. Traffic Flow								
Vehicles/day - Year 2020 (1,000s)	34		51		18		18	
9. Waterways								
River Raisin	0		0		0		0	
Portage River	0		0		0		1	
Grand River	0		2		1		1	
Perennial Streams	0		0		0		0	
Intermittent Streams	0		3		3		2	
Lake/Pond	0		0		0		1 (1)	
Assoc. with significant wetlands	0		0		3		3	
10. Wetlands								
Acres	6	3.0	11	2.0	75	13.6	119	17.8

(1) Intermittent Pond

Source: The Corradino Group

NS = Not Significant Quantity

NA = Not Applicable

Wetlands would be associated with crossing the rivers with Segments C3 and C3a. These segments would impact between 75 and 120 acres of wetlands. Fewer than one dozen wetland acres were expected to be affected by Segments C1 and C2.

4.4.4 Traffic Flow

Traffic flow simulations were prepared of 2020 travel under the baseline (No-Build) option (Figure 4-3) and seven combinations of corridor segments into continuous paths. For the baseline condition, no major construction beyond that which will be initiated in 2000 was included in the network. Trip generators expected to be active in the year 2020, including Cabela's along U.S. 23 at Dundee, were included. Forecasts of future traffic under the build condition included a new high-type road with limited access and speeds at the state limit.

In reviewing the traffic data, the general rule is that a daily volume of 17,000 vehicles (two-way) sustained over a reasonable length of highway is the threshold at which four lanes are justifiable in a rural setting. As sustained volumes exceed this threshold, restricting access becomes essential either in the form of a boulevard or a freeway.

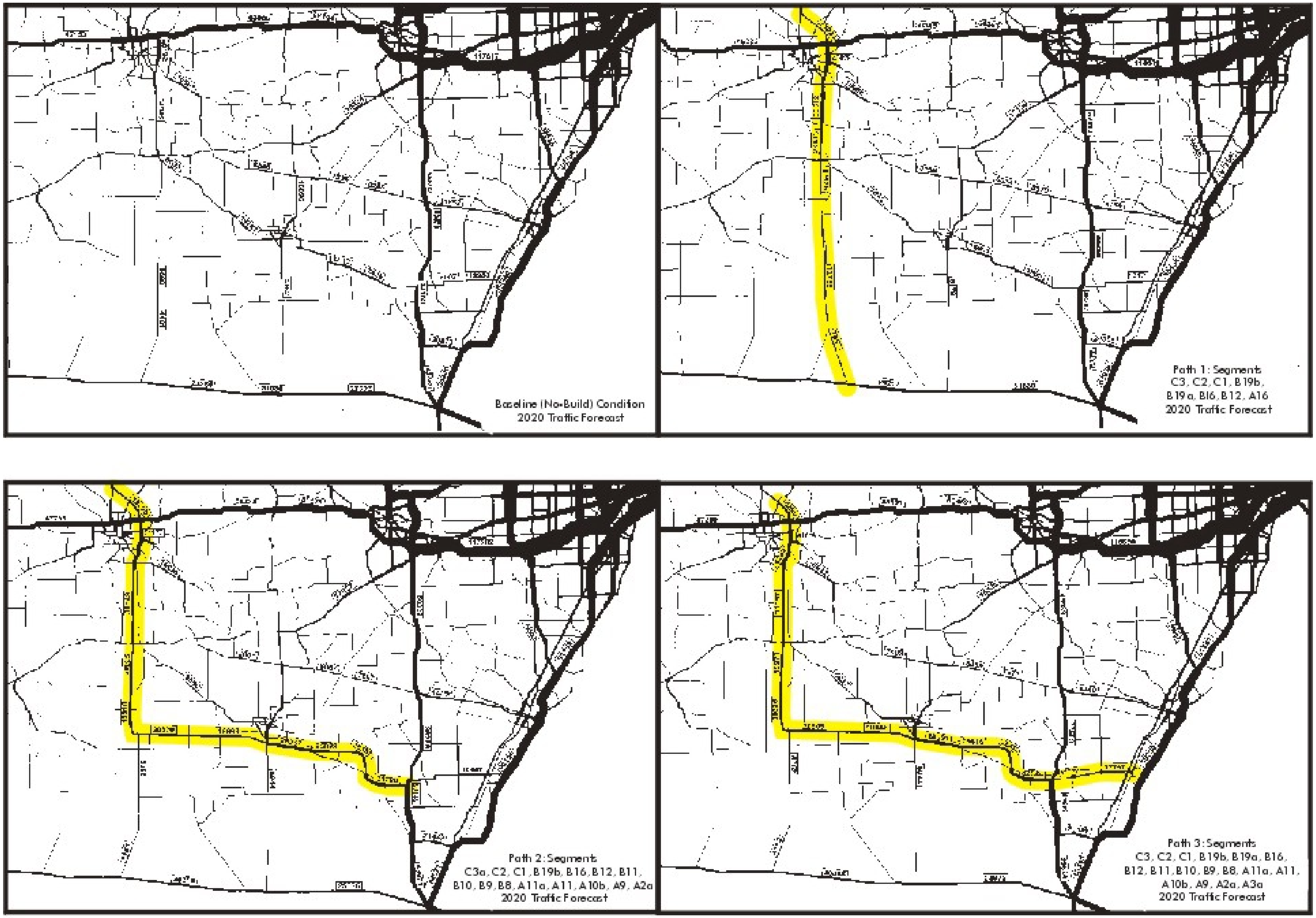
It can be seen in examining Figure 4-3 for the No-Build condition, that maximum traffic on U.S. 223 will range from 17,500 to 19,000 vehicles per day in 2020. Daily vehicular traffic on U.S. 127 north of its connection with U.S. 223 to I-94 is expected to be 25,000 south of U.S. 50 and over 40,000 at I-94. So, regardless of the outcome of this project, U.S. 223 from west of Adrian to U.S. 23 and U.S. 127 from I-94 to U.S. 12/U.S. 223 are candidates for four thru travel lanes with some access control.

M-50 for most of its length from U.S. 12 to U.S. 23 is expected to carry 9,000± trips per day, with higher volumes (16,500) north of Napoleon and east of U.S. 23 (14,700). The section between U.S. 127 and Napoleon is also a candidate for four thru travel lanes.

Examination of Table 4-7 and Figure 4-3 for the "build" alternatives illustrates Segment A16 was expected to carry a maximum flow of 13,000 vehicles per day dropping to 8,000 daily trips as the segment enters Ohio. This is the lowest of any link in the system of new segments. The largest maximum volumes (34,000 to 51,000 vehicles per day or more) were expected to regularly occur on U.S. 127 south of I-94 (Segments B19a, B19b, C1 and C2). At the other end of the spectrum, much lower volumes were encountered on a portion of Segments A3a and C3/C3a. But, the traffic on Segments C3/C3a was considered "interstate-oriented" and would relieve congestion

Table 4-7
I-73 Feasibility Study
2020 Traffic Forecasts
Vehicles Per Day (VPD)

Segment	Forecast VPD
A2a	30,000 to 33,000
A3a	11,500 to 18,000
A9	30,000 to 33,000
A10b	24,000 to 27,000
A11/A11a	26,000 to 29,000
A16	8,000 to 13,000
B1/B1a	24,000
B2a	29,000 to 35,500
B3a	22,000 to 26,000
B8	19,000 to 30,000
B9	19,000 to 30,000
B10	19,000
B11	15,000 to 21,000
B12	14,000 to 20,000
B13	22,000 to 24,500
B14	22,000 to 24,500
B15a	19,500
B16	26,500 to 31,000
B18	15,500 to 18,500
B19a	31,000 to 39,000
B19b	31,000 to 39,000
B20a	16,000 to 17,000
B22	12,000 to 16,000
C1	34,000
C2	47,000 to 51,000
C3	14,000 to 18,000
C3a	14,000 to 18,000



SOURCE: The Corradino Group

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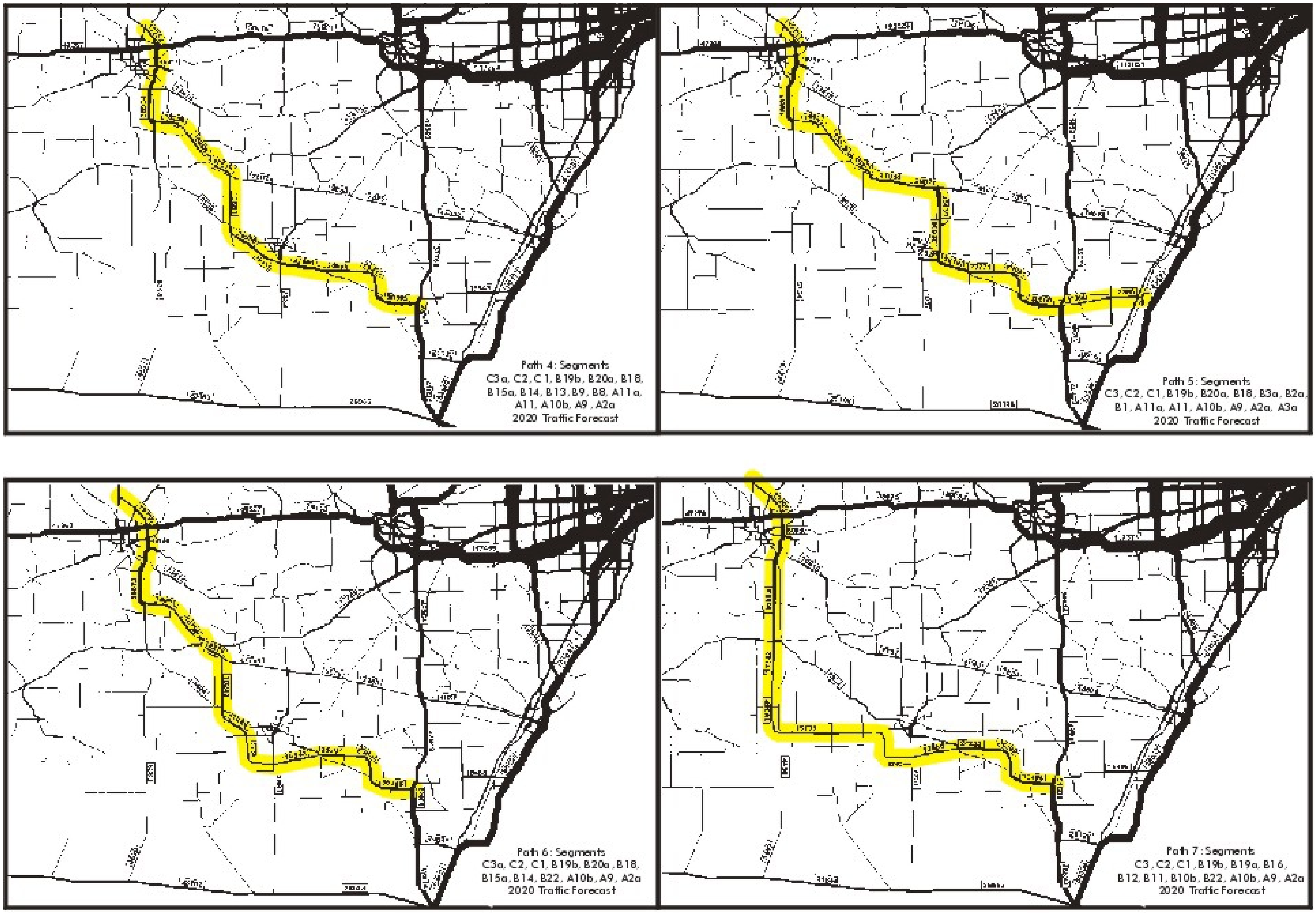
Figure 4-3



SOURCE: The Corradino Group

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Figure 4-3 (cont.)

on I-94, while the traffic on Segment A3a was considered largely local. This latter characteristic made Segment A3a a candidate for local consideration to serve the expected growth and development in the southern portion of Monroe County. However, it mitigated against its inclusion as part of an interstate route.

In the center part of the corridor, around Adrian, the creation of a new bypass by way of Segment B22 produced a split in traffic with the existing U.S. 223 Bypass. This is logical in that significant development along U.S. 223 would continue to draw traffic regardless of a new, high-speed bypass. The volumes of Segment B22 ranged from 12,000 to 16,000 vehicles per day depending on whether it was connected with Segment B10 (M-34) or Segment B14 (U.S. 223). This was considered thru traffic (including many trucks) without a destination in the Adrian area. Segment B22 could be considered a way to maintain the viability of the existing U.S. 223 Bypass by diverting non-local traffic from the commercial core.

Segments at Blissfield and Palmyra (A10b and A11/A11a) as well as on the eastern edge of Adrian (B1, B1a and B2a) were expected to carry some of the larger volumes (24,000 vpd for Segment A10b to 35,500 vpd for Segment B2a). And, this level of traffic continued over Segment B3a before dropping to a range of 16,000 to 17,000 on Segment B20a. Link B20a "mirrored" Segment B11. These segments functioned to divert thru traffic from key roads (like M-50 and U.S. 223) thereby allowing the latter to serve locally-destined traffic with less congestion. Segment B22 served a similar function.

A path on the west side of Adrian (B15a) was expected to carry 19,500 vehicle trips per day, somewhat less than its eastern counterpart segments (B2a at up to 35,500 vpd).

4.5 Evaluation Results

The questions to be addressed in this phase of the study are:

1. What do the overall results indicate?

2. How do the corridor segments perform that connect to the highway system external to the study area?

3. What is the best way to connect segments through the core of the study area, i.e., the Adrian/Brooklyn/Tipton/Napoleon areas?

4. With the answers to the first three questions, can logical routes be developed from the remaining segments to connect Jackson to Toledo?

The answers follow.

4.5.1 Overall Results

The consultant team scored the performance of each alternative using a range of 1 to 100. A score of above 50 is considered good. The results of the segment-by-segment scoring using the evaluation data are summarized on Tables 4-8, 4-9, and 4-10.

Table 4-8
Sector A
Consultant's Score of Alternatives

Evaluation Factors	Segment						
	A2a	A3a	A9	A10b	A11	A11a	A16
Archeological	87.70	55.30	87.70	16.10	28.50	41.00	36.00
Displacements	62.30	71.30	76.40	88.10	56.30	74.50	86.00
Community Cohesion	57.60	38.50	75.10	71.50	76.20	78.00	73.80
Engineering Difficulty	86.40	50.00	77.80	65.00	77.90	77.90	85.70
Farmlands	49.00	70.50	50.00	37.50	64.00	83.00	61.70
Historic Places	87.90	44.30	48.60	72.90	87.40	87.90	87.90
Open Space	59.50	48.50	89.00	89.00	89.00	89.00	89.00
Traffic Issues	80.30	47.00	80.80	74.00	73.50	73.50	45.70
Waterways	91.50	66.20	91.50	42.30	84.40	91.50	65.90
Wetlands	79.30	57.10	90.00	80.60	90.00	90.00	82.30

Source: The Corradino Group

Table 4-9
Sector B
Consultant's Score of Alternatives

Evaluation Factors	Segment									
	B1	B1a	B2a	B3a	B8	B9	B10a	B10b	B11	B12
Archeological	52.80	52.80	87.20	87.20	87.20	87.70	87.70	55.30	87.70	56.80
Displacements	65.10	71.20	84.60	85.10	72.10	70.60	46.80	47.50	60.60	67.30
Community Cohesion	37.50	73.50	55.40	53.10	75.50	58.90	58.00	74.00	56.00	72.50
Engineering Difficulty	65.20	65.10	64.10	64.50	49.60	53.30	86.40	76.80	64.90	76.70
Farmlands	79.30	66.20	67.60	65.60	83.60	85.30	75.50	71.00	55.00	54.50
Historic Places	88.40	88.90	88.90	88.90	62.00	87.90	55.50	47.80	87.40	60.00
Open Space	89.00	89.00	43.00	89.00	89.00	89.00	89.00	89.00	89.00	89.00
Traffic Issues	72.20	71.20	82.70	72.60	76.40	73.40	63.20	62.00	66.20	63.50
Waterways	83.90	38.60	68.40	66.70	83.90	65.50	91.50	84.40	62.90	57.20
Wetlands	67.30	70.60	43.30	49.90	90.00	67.30	86.70	84.40	62.40	48.40

Evaluation Factors	Segment										
	B13	B14a	B14b	B15a	B16	B18	B19a	B19b	B20a	B22a	B22b
Archeological	84.70	33.20	40.20	40.00	48.00	87.70	87.70	87.70	87.20	35.00	86.70
Displacements	87.90	50.10	87.60	66.80	71.80	65.40	87.60	77.90	67.50	72.00	74.20
Community Cohesion	76.00	70.50	73.00	54.00	76.00	39.50	75.50	76.70	39.00	57.30	57.40
Engineering Difficulty	86.40	76.60	86.40	86.40	77.80	64.60	77.60	65.30	52.30	64.90	77.80
Farmlands	89.00	79.00	69.10	57.00	81.20	74.20	83.70	90.00	66.00	52.00	55.40
Historic Places	88.40	50.50	87.40	60.50	87.90	41.40	87.90	87.90	59.00	84.40	88.40
Open Space	60.30	89.00	89.00	89.00	89.00	58.00	89.00	58.50	89.00	62.00	89.00
Traffic Issues	70.90	71.90	71.40	61.10	79.00	60.50	84.70	84.70	59.70	60.60	59.10
Waterways	84.40	72.30	83.90	62.80	76.30	39.00	65.80	62.70	46.50	51.10	83.90
Wetlands	84.30	79.10	79.00	65.80	69.00	51.10	46.90	45.90	38.50	66.60	68.80

Source: The Corradino Group

Table 4-10
Sector C
Consultant's Score of Alternatives

Evaluation Factor	Segment			
	C1	C2	C3a	C3
Archeological	87.70	89.40	54.80	83.90
Displacements	83.70	91.10	79.60	82.00
Community Cohesion	76.20	77.50	73.50	73.00
Engineering Difficulty	77.60	78.50	64.60	64.60
Farmlands	90.50	90.50	67.20	73.20
Historic Places	87.90	87.90	62.00	88.40
Open Space	89.00	89.00	89.00	89.00
Traffic Issues	82.30	90.00	67.30	67.30
Waterways	91.50	65.10	46.10	36.50
Wetlands	69.50	77.80	38.90	31.00

Source: The Coradino Group

By combining the consultant's evaluation of each segment by individual factor with the weights provided by the citizens, and its own weightings, the "bottom line" scores for all segments are achieved (Table 4-11). Because the corridor segments and the database were refined through several layers of analysis, these bottom line scores should be judged against a threshold higher than the first-level screening. At that time, the threshold was 55. In this case, 60 was used.

As can be seen, all segments had a performance score, using both the citizens and consultant weightings, above the threshold of 60 except Segments A3a, B18 and B20a. And, while the details supporting these performances are presented below, this was an early indication that several segments may be eligible for elimination.

4.5.2 Performance of External Connectors

Segments A2a, A3a, A16, and C3/3a are considered connectors to the highway system external to the study area. Their performances are key because somehow the study area must be connected to the external highway system if the purpose of the U.S. Congress of creating an I-73/I-74 highway from South Carolina to Sault Ste. Marie, Michigan, is to be met.

As alluded to earlier, Segment A3a was the lowest performer among these alternatives with an overall score of about 56 (Table 4-12). Segments A2a, A16, C3 and C3a scored higher than 65. Segment A3a performed lowest of the group when considering community cohesion, engineering difficulties, historic properties impacts, and effects on open spaces/parks. Another major issue is that it served mostly local, non-interstate-type traffic. It was a candidate for elimination, particularly when compared to Segment A2a which had fewer negatives in eight out of ten evaluation areas, except displacement of people and farmland impacts, where Segment A2a's rate of impacts (units per mile) was 50 percent to 100 percent higher.

Table 4-11
Overall Evaluation Results

Evaluation Group	Segment						
	A2a	A3a	A9	A10a	A11	A12a	A16
Citizens	72.07	56.37	75.83	65.86	73.43	80.25	72.98
Consultant	71.53	55.82	76.12	68.92	74.47	80.81	73.15
Average Score	71.80	56.10	75.98	67.39	73.95	80.53	73.06

Evaluation Group	Segment									
	B1	B1a	B2a	B3a	B8	B9	B10a	B10b	B11	B12
Citizens	70.77	69.31	68.20	72.07	78.03	74.27	72.07	68.77	67.88	63.85
Consultant	70.86	70.47	68.22	72.00	77.89	73.91	70.53	68.50	67.39	64.42
Average Score	70.82	69.89	68.21	72.04	77.96	74.09	71.30	68.64	67.64	64.14

Evaluation Group	Segment										
	B13	B14a	B14b	B15a	B16	B18	B19a	B19b	B20a	B22a	B22b
Citizens	81.60	67.52	78.01	64.05	76.25	57.08	78.17	73.55	59.78	61.69	73.19
Consultant	80.70	68.39	78.89	64.69	77.04	56.42	78.41	73.51	59.36	62.68	72.16
Average Score	81.15	67.96	78.45	64.37	76.65	56.75	78.29	78.53	59.57	62.18	72.68

Evaluation Group	Segment			
	C1	C2	C3a	C3
Citizens	83.70	83.87	64.79	68.45
Consultant	83.32	84.30	65.84	68.59
Average Score	83.51	84.08	65.32	68.52

Source: The Corradino Group

Table 4-12
External Connector Comparison

Consultant's Scores

Evaluation Factor	Segment				
	A2a	A3a	A16	C3a	C3
Archaeologic Resources	87.70	55.30	31.00	54.80	83.90
Displacement of People	62.30	71.30	86.00	79.60	82.00
Community Cohesion	57.60	38.50	73.80	73.50	73.00
Engineering Difficulties	86.40	50.00	85.70	64.60	64.60
Farmland	49.00	70.50	61.70	67.20	73.20
Historic Properties	87.90	44.30	87.90	62.00	88.40
Open Space/Parks/Recreation	59.50	48.50	89.00	89.00	89.00
Traffic Flow	80.30	47.00	45.70	67.30	67.30
Waterways	91.50	66.20	65.90	46.10	36.50
Wetlands	79.30	57.10	82.30	38.90	31.90

Evaluation Results

Evaluation Group	Segment				
	A2a	A3a	A16	C3a	C3
Citizens	72.07	56.37	72.98	64.79	68.45
Consultant	71.53	55.82	73.15	65.84	68.59
Average Score	71.80	56.10	73.06	65.32	68.52

Source: The Corradino Group

Segment A16 was re-entered into the analysis after the first evaluation based on citizen input. Since then, it had been refined, keeping the right-of-way to its current width because the 2020 traffic forecast didn't indicate a need for a four-lane facility. But, this link would lead to others on U.S. 127 to the north that would carry much larger volumes of traffic and avoid penetrating the core of the study area. So, from a continuity standpoint, Segment A16 was considered to have merit.

Segment A16 scored about 73 overall. Its lowest performance was in the "archaeologic" area, an impact which can be mitigated. So, Segment A16 was considered a viable "external connector."

Segments C3 and C3a had also been refined since the first-level evaluation. Their overall performance scores were greater than 65. Previous impacts on displacements are significantly less. Impacts on waterways and wetlands still remained a major concern. Nevertheless, these segments were considered viable external connectors, especially when considering that they can reduce congestion on I-94 by diverting up to 18,000 vehicles per day.

So, the findings here were that Segment A3a is the least viable "external connector." It can be replaced by Segment A2a. Segments A16 and C3/C3a were also considered worthy of continued analysis.

4.5.3 Options to Serve the Core Study Area

The issue here is how to serve the core of the study area, i.e., Adrian, Brooklyn, Tipton and Napoleon with the segments being studied. The key segments are:

- B18 and B20
- B2a vs. B15a
- B3a vs. B8, B9, B10a and B10b

The lowest performers in this comparison were Segments B18 (Score 56.75) and B20a (Score 59.57) (Table 4-13). Both had potentially significant impacts in the area of community cohesion and waterway impacts. Segment B18 also had concerns in the area of historic impacts while Segment B20a was associated with significant wetlands issues. These results came even after refinements had been made to avoid impacts along these segments.

A key comparison of alternative segments to get to Segments B18/B20a is between Segments B2a and B15a to the east and west of Adrian, respectively. Overall, Segment B2a performed better than Segment B15a (Table 4-13). This was particularly the case in areas such as displacements of people and use of farmland. Segment B2a also attracted more traffic. So, Segment B2a was considered a better route to the Irish Hills than Segment B15a.

The key issue then was whether it was prudent to use Segment B3a to connect Segment B2a to Segments B18/B20a or was it better to go through Adrian (Segments B8, B9, B10a, B10b) or south of it (Segment B22a) to lessen impacts (Table 4-10). Overall, going through Adrian (Segments B8, B9, B10a and B10b) was considered better than going through the Irish Hills (Segment B3a). On the other hand, a route south of Adrian (Segment B22a) was likely to be associated with more impacts in key areas like displacement of people, use of farmland, and potential waterway issues. Nevertheless, when examining the overall performance of the combination of Segments B3a, B18 and B20a compared to going through (Segments B8, B9, B10a, B10b and B11) or south (Segments B22a, B10b and B11) of Adrian the latter choices were considered better.

4.5.4 Logical Routes

If Segments B3a, B18 and B20a were eliminated, as well as Segment A3a, the question became: can logical routes be constructed to connect Jackson to Toledo from the remaining segments?

Three basic routes can be developed (Figure 4-4):

Route 1: Segments A16, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

Route 2: Segments A2a, A9, A10b, A11, A11a, B8, B9, B10a, B10b, B11, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

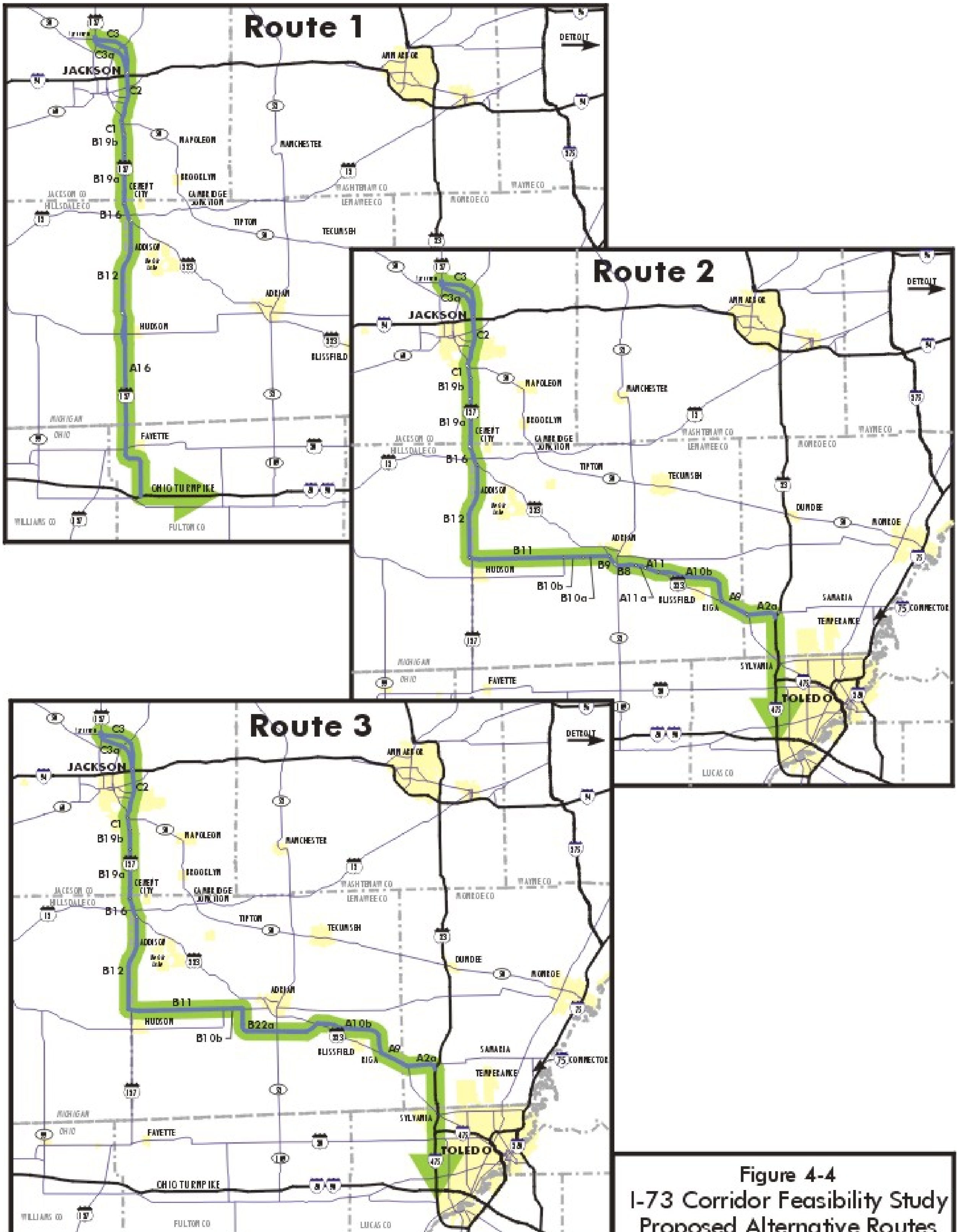
Route 3: Segments A2a, A9, A10b, B22a, B10b, B11, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

Table 4-13
Core Segments Comparison

	Segment		Segment		Segment					
Evaluation Factor	B18	B20a	B2a	B15a	B3a	B8	B9	B10a	B10b	B22a
Archaeologic Resources	87.70	87.20	87.90	40.00	87.20	87.20	87.70	87.70	55.30	35.00
Displacement of People	65.40	67.80	84.60	66.80	85.10	72.10	70.60	46.80	47.50	72.00
Community Cohesion	39.50	39.00	55.40	54.00	53.10	75.50	58.90	58.00	74.00	57.30
Engineering Difficulties	64.60	52.30	64.10	86.40	64.50	49.60	53.30	86.40	76.80	64.90
Farmland	74.20	66.00	67.60	59.00	65.60	83.60	85.30	75.50	71.00	52.00
Historic Properties	41.40	59.00	88.90	60.50	88.90	62.00	87.90	55.50	47.80	84.40
Open Space/Parks/Recreation	58.00	89.00	45.00	89.00	89.00	89.00	89.00	89.00	89.00	62.00
Traffic Flow	60.50	59.70	82.70	61.10	72.60	76.40	73.40	63.20	62.00	60.60
Waterways	39.00	46.50	68.40	62.80	66.70	83.90	65.50	91.50	84.40	51.60
Wetlands	51.10	38.50	43.30	65.80	49.90	90.00	67.30	86.70	84.40	66.50

Evaluation Results

	Segment		Segment		Segment					
Evaluation Group	B18	B20a	B2a	B15a	B3a	B8	B9	B10a	B10b	B22a
Citizens	57.08	59.78	69.31	64.05	72.07	78.03	74.27	72.07	68.77	61.69
Consultant	56.42	59.36	70.47	64.69	72.00	77.89	73.91	70.53	68.50	62.68
Average Score	56.75	59.57	69.89	64.37	72.04	77.96	74.09	71.30	68.64	62.18



SOURCE: The Corradino Group
L:\Projects\2544\Graphics\Fig4-3.cdr

Figure 4-4
I-73 Corridor Feasibility Study
Proposed Alternative Routes
as of May 22, 2000

The segments eliminated are A3a, B1, B1a, B2a, B3a, B13, B14, B15a, B18 and B20a.

Route 1 would likely be a boulevard or a rural-type freeway from Hudson to the north. But, it would be no more than a Super two-lane road between Hudson and I-80/90 based on traffic forecasts.

Route 2 penetrating the core of Adrian would be a better performer (i.e., have fewer impacts) if it were a boulevard. If a freeway were the option, Route 3 may be better for Adrian.

An overview of these routes is provided on Tables 4-14, 4-15 and 4-16. Route 1 would be the shortest of the three at about 55 miles. Overall, before refinements, it would be associated with the possible acquisition of about ten dozen homes (2 per mile); about 600 acres of farmland (11 per mile) and 300 acres of wetlands (fewer than 6 per mile). It is noteworthy that two-thirds of the possible wetlands impacts are associated with two segments -- B12 and C3/C3a. Likewise, those two segments account for more than two-thirds of the expected housing displacements (117 homes) and half of the farmland possibly used (595 acres).

Other impacts associated with Route 1 include possible effects on four archaeologic sites, one structure of historic significance and one Centennial Farm. None of these are now on the National Register of Historic Places. One roadside park would likely be affected.

Routes 2 and 3 are 70+ miles long. The number of homes possibly taken, before refinements, is 392 and 345 for Route 2 and Route 3, respectively. Almost 170 housing units are along Segments B11 and B12, which are common to both routes. The major difference is that Route 2 includes another 45 homes on Segment B10a.

Farmland use is expected to be about 1,150 acres for Route 2 and close to 1,400 acres for Route 3. Almost 800 of these acres are along Segments A10b, B11 and B12. Between 350 and 385 acres of wetlands would possibly be impacted by Routes 2 and 3. Almost 250 of these are on three segments -- B11, B12 and C3/C3a.

Other impacts include the possible encroachment on from seven (Route 3) to ten (Route 2) archaeologic sites; between four and eight historic structures and two Centennial Farms; and, the impact on one roadside park and privately-owned golf course.

The year 2020 traffic these routes carry is usually above 20,000 vehicles per day and up to 51,000 on Segment C2 just south of I-94. And, as noted earlier, if nothing is done in the study area, traffic on U.S. 127 from I-94 to U.S. 12/U.S. 223 and on U.S. 223 from Adrian to U.S. 23 in the year 2020 is enough to require four lanes.

To help these routes perform better, refinements listed on Table 4-17 should be examined if additional work is undertaken.

Table 4-14
Proposed Route 1
Expected Impacts

EVALUATION FACTOR	A16		B12		B16		B19a		B19b		C1		C2		C3a		C3	
Length (about 55 miles)	21.3		10.9		2.5		4.5		2.0		2.0		5.6		5.8		6.7	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources																		
Sites (4)	1		1		1		0		0		0		0		1		0	
2. Displacements																		
Homes (117 2.1/mile)	8	0.4	65	6.0	13	5.2	3	0.7	6	3.0	4	2.0	0	0.0	18	3.1	18	2.7
3. Community Cohesion																		
High/Medium/Low	Low		Low		Low		Low		Low		Low		Low		Low		Low	
4. Engineering Difficulty																		
Little/Some/Moderate/Major	Little		Some		Some		Some		Moderate		Some		Some		Moderate		Moderate	
5. Farmland																		
Acres (592 10.8/mile)	270	12.7	206	18.9	4	1.6	15	3.3	NS	--	NS	--	NS	--	110	19.0	83	12.4
Farmland Quality (High/Medium/Low)	Medium		Medium		Medium		Low		NA		NA		NA		Low		Low	
6. Historics																		
Nat. Reg. Poten. Standing Struct. Sites (1)	0		1		0		0		0		0		0		0		0	
Centennial Farms (1)	0		0		0		0		0		0		0		1		0	
7. Open Space/Recreation Areas																		
State Parks (0)	0		0		0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses (1)	0		0		0		0		1		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities (0)	0		0		0		0		0		0		0		0		0	
8. Traffic Flow																		
Vehicles/day - Year 2020 (1,000s)	13		20		31		39		39		34		51		18		18	
9. Waterways																		
River Raisin	0		0		0		0		0		0		0		0		0	
Portage River	0		0		0		0		0		0		0		0		1	
Grand River	0		0		0		1		1		0		2		1		1	
Perennial Streams	2		7		1		0		1		0		0		0		0	
Intermittent Streams	2		2		1		1		0		0		3		3		2	
Lake/Pond	1 (1)		0		0		0		0		0		0		0		1 (2)	
Assoc. with significant wetlands	0		0		0		0		0		0		0		3		3	
10. Wetlands																		
Acres (305 5.5/mile)	21	1.0	100	10.9	8	3.2	41	9.1	21	10.5	6	3.0	11	2.0	75	13.6	119	17.8

(1) Remnant oxbow of the Tiffin River
(2) Intermittent Pond
Source: The Corradino Group

NS = Not Significant Quantity
NA = Not Applicable

Table 4-15
Proposed Route 2
Expected Impacts

EVALUATION FACTOR	A2a		A9		A10b		A11		A11a		B8		B9		B10a		B10b		B11		B12	
Length (about 72 miles)	4.7		3.2		9.2		1.6		0.5		2.4		1.3		2.6		2.4		10.0		10.9	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources																						
Sites (10)	0		0		3		2		1		0		0		0		1		0		1	
2. Displacements																						
Homes (392 5.4/mile)	34	7.2	12	3.8	3	0.3	21	13.0	2	4.0	12	5.0	7	5.4	45[1]	17.3	43	17.9	104	10.4	65	6.0
3. Community Cohesion																						
High/Medium/Low	Medium		Low		Low		Low		Low		Low		Medium		Medium		Low		Medium		Low	
4. Engineering Difficulty																						
Little/Some/Moderate/Major	Little		Some		Moderate		Some		Some		Major		Major		Little		Some		Moderate		Some	
5. Farmland																						
Acres (1,143 15.9/mile)	103	21.9	69	21.6	328	35.7	23	14.2	2	4.0	9	3.8	3	2.3	22	8.5	20	8.3	242	24.2	206	18.9
Farmland Quality (High/Medium/Low)	High		High		High		Medium		Low		Low		Low		Low		Medium		Medium		Medium	
6. Historics																						
Nat. Reg. Poten. Standing Struct. Sites (7)	0		1		0		0		0		1		0		2		2		0		1	
Centennial Farms (2)	0		0		1		0		0		0		0		0		0		0		0	
7. Open Space/Recreation Areas																						
State Parks (0)	0		0		0		0		0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses (1)	0		0		0		0		0		0		0		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities (1)	1		0		0		0		0		0		0		0		0		0		0	
8. Traffic Flow																						
Vehicles/day - Year 2020 (1,000s)	33		33		27		29		29		30		30		19		19		21		20	
9. Waterways																						
River Raisin	0		0		2		0		0		0		1		0		0		0		0	
Portage River	0		0		0		0		0		0		0		0		0		0		0	
Grand River	0		0		0		0		0		0		0		0		0		0		0	
Perennial Streams	0		0		0		0		0		0		0		0		0		3		7	
Intermittent Streams	0		0		5		1		0		1		0		0		1		5		2	
Lake/Pond	0		0		0		0		0		0		0		0		0		0		0	
Assoc. with significant wetlands	0		0		0		0		0		0		0		0		0		0		0	
10. Wetlands																						
Acres (351 4.9/mile)	6	1.3	NS	--	9	1.0	NS	--	NS	--	NS	--	5	3.8	1	0.4	2	0.8	44	4.4	100	10.9

(1) Edge of Manufactured Housing Enclave
Source: The Corradino Group

NS = Not Significant Quantity
NA = Not Applicable

Table 4-15 (continued)
Proposed Route 2
Expected Impacts

EVALUATION FACTOR	B16		B19a		B19b		C1		C2		C3a		C3	
Length (about 72 miles)	2.5		4.5		2.0		2.0		5.6		5.8		6.7	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources														
Sites (10)	1		0		0		0		0		1		0	
2. Displacements														
Homes (392 5.4/mile)	13	5.2	3	0.7	6	3.0	4	2.0	0	0.0	18	3.1	18	2.7
3. Community Cohesion														
High/Medium/Low	Low		Low		Low		Low		Low		Low		Low	
4. Engineering Difficulty														
Little/Some/Moderate/Major	Some		Some		Moderate		Some		Some		Moderate		Moderate	
5. Farmland														
Acres (1,143 15.9/mile)	4	1.6	15	3.3	NS	--	NS	--	NS	--	110	19.0	83	12.4
Farmland Quality (High/Medium/Low)	Medium		Low		NA		NA		NA		Low		Low	
6. Historics														
Nat. Reg. Poten. Standing Struct. Sites (7)	0		0		0		0		0		0		0	
Centennial Farms (2)	0		0		0		0		0		1		0	
7. Open Space/Recreation Areas														
State Parks (0)	0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses (1)	0		0		1		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities (1)	0		0		0		0		0		0		0	
8. Traffic Flow														
Vehicles/day - Year 2020 (1,000s)	31		39		39		34		51		18		18	
9. Waterways														
River Raisin	0		0		0		0		0		0		0	
Portage River	0		0		0		0		0		0		1	
Grand River	0		1		1		0		2		1		1	
Perennial Streams	1		0		1		0		0		0		0	
Intermittent Streams	1		1		0		0		3		3		2	
Lake/Pond	0		0		0		0		0		0		1(2)	
Assoc. with significant wetlands	0		0		0		0		0		3		3	
10. Wetlands														
Acres (351 4.9/mile)	8	3.2	41	9.1	21	10.5	6	3.0	11	2.0	75	13.6	119	12.8

(1) Intermittent Pond

Source: The Corradino Group

NS = Not Significant Quantity

NA = Not Applicable

Table 4-16
Proposed Route 3
Expected Impacts

EVALUATION FACTOR	A2a		A9		A10b		B22a		B10b		B11		B12		B16		B19a		B19b		C1		C2		C3a		C3	
Length (about 73 miles)	4.7		3.2		9.2		9.7		2.4		10.0		10.9		2.5		4.5		2.0		2.0		5.6		5.8		6.7	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources																												
Sites (8)	0		0		3		1		1		0		1		1		0		0		0		0		1		0	
2. Displacements																												
Homes (345 4.7/mile)	34	7.2	12	3.8	3	0.3	40	4.1	43	17.9	104	10.4	65	6.0	13	5.2	3	0.7	6	3.0	4	2.0	0	0.0	18	3.1	18	2.7
3. Community Cohesion																												
High/Medium/Low	Medium		Low		Low		Medium		Low		Medium		Low		Low		Low		Low		Low		Low		Low		Low	
4. Engineering Difficulty																												
Little/Some/Moderate/Major	Little		Some		Moderate		Moderate		Some		Moderate		Some		Some		Some		Moderate		Some		Some		Moderate		Moderate	
5. Farmland																												
Acres (1,387 19/mile)	103	21.9	69	21.6	328	35.7	303	31.2	20	8.3	242	24.2	206	18.9	4	1.6	15	3.3	NS	--	NS	--	NS	--	110	19.0	83	12.4
Farmland Quality (High/Medium/Low)	High		High		High		Medium		Medium		Medium		Medium		Medium		Low		NA		NA		NA		Low		Low	
6. Historics																												
Nat. Reg. Poten. Standing Sruct. Sites (4)	0		1		0		0		2		0		1		0		0		0		0		0		0		0	
Centennial Farms (2)	0		0		1		0		0.0		0		0		0		0		0		0		0		1		0	
7. Open Space/Recreation Areas																												
State Parks (0)	0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses (1)	0		0		0		0		0		0		0		0		0		1		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities (2)	1		0		0		1		0		0		0		0		0		0		0		0		0		0	
8. Traffic Flow																												
Vehicles/day - Year 2020 (1,000s)	33		33		27		16		19		21		20		31		39		39		34		51		18		18	
9. Waterways																												
River Raisin	0		0		2		1[1]		0		0		0		0		0		0		0		0		0		0	
Portage River	0		0		0		0		0		0		0		0		0		0		0		0		0		1	
Grand River	0		0		0		0		0		0		0		0		1		1		0		2		1		1	
Perennial Streams	0		0		0		0		0		3		7		1		0		1		0		0		0		0	
Intermittent Streams	0		0		5		3		1		5		2		1		1		0		0		3		3		2	
Lake/Pond	0		0		0		0		0		0		0		0		0		0		0		0		0		1[2]	
Assoc. with significant wetlands	0		0		0		0		0		0		0		0		0		0		0		0		3		3	
10. Wetlands																												
Acres (378 5.2/mile)	6	1.3	NS	--	9	1.0	33	3.4	2	0.8	44	4.4	100	10.9	8	3.2	41	9.1	21	10.5	6	3.0	11	2.0	75	13.6	119	17.8

(1) Includes the South Branch of River Raisin
(2) Intermittent Pond
Source: The Corradino Group

NS = Not Significant Quantity
NA = Not Applicable

Table 4-17
Areas of Refinement

Segment	Refinement Considerations
A2a	Examine placing road to one side of U.S. 223 to lessen displacing people
A9	Examine placing road to one side of U.S. 223 to lessen displacing people
A10b	Adjust road alignment to address archaeologic issues
A11	Adjust road alignment to address archaeologic issues Examine placing road to one side of U.S. 223 to lessen displacing people
A11a	Adjust road alignment to address archaeologic issues
A16	Adjust road alignment to address archaeologic issues
B8	Examine boulevard vs. freeway options to address engineering difficulties
B9	Examine boulevard vs. freeway options to address engineering difficulties
B10a	Examine placing road to one side of U.S. 223 to lessen displacing people Adjust road alignment to address historic issues
B10b	Adjust road alignment to address archaeologic and historic issues
B11	Examine placing road to one side of M-34/Beecher Road to lessen displacing people and using farmland
B12	Examine placing the road to one side of U.S. 127 to lessen displacing people and using farmland Adjust road alignment to address archaeologic and historic issues Adjust road alignment at wetlands areas to minimize impacts
B16	Adjust road alignment to address archaeologic issues
B19a	Adjust road alignment at wetlands areas to minimize impacts
B19b	Adjust road alignment at wetlands areas to minimize impacts
C1	Attempt to use only available right-of-way to minimize impacts
C2	Attempt to use only available right-of-way to minimize impacts
C3a	Adjust road alignment at archaeologic sites and wetland areas to minimize impacts
C3	Adjust road alignment at archaeologic sites and wetland areas to minimize impacts

Source: The Corradino Group

5. Impacts of Improving Existing Roads

By the beginning of July 2000, the study had reached a point at which work on defining a new major highway corridor connecting Jackson to Toledo had been concluded. Three alternative paths had been defined with the concurrence of the Michigan Department of Transportation. The next step to be taken before the consultant could prepare its overall findings was to examine improvements to existing roads. This alternative is considered a reasonable and prudent option to a new high-type facility like I-73. So, the effects of only improving major roadways were studied to create a basis upon which a decision on whether and how to move forward could be made.

5.1 Approach

Traffic data have been reviewed to define the type of improvements needed in the I-73 study area if a new high-type facility (i.e., a boulevard or freeway) were NOT built (refer to Figure 2-6). Forecasts for 2020 indicate widening will be needed of U.S. 127 from I-94 south to U.S. 12/U.S. 223; M-50 from U.S. 127 to Napoleon; and, U.S. 223 from Rome Road to U.S. 23[2] (Figure 5-1).

A four-lane “thru” roadway with a fifth lane for turning vehicles would be the logical improvement to be studied. The minimum right-of-way is 120 feet in non-urban areas. However, use of 150 feet at this point in the study appeared appropriate as it accommodates a narrow boulevard. The right-of-way in urban/town centers of 90 feet is appropriate. Using 150 feet/non-urban and 90 feet/urban is consistent with the I-73 Study to date where a 300-foot-wide path, usually down the center of existing roadways, was examined for a new boulevard/freeway.

It is again noted that this analysis is limited to a study of roadway capacity/congestion issues. Safety and operational concerns are addressed on an ongoing basis, as needs and conditions warrant. This study is not intended to highlight these types of issues as they are part of MDOT’s continuous road-management activities.

5.2 Evaluation Factors

To evaluate the alternatives, the following factors were chosen because they provide meaningful information by which to differentiate among the options.

[2]U.S. 12 also qualifies for four-laning from U.S. 23 to M-52. But, its volumes remain virtually unchanged by the I-73 corridor alternatives so its needs and impacts are the same regardless of whether a new high-type facility is built or not.

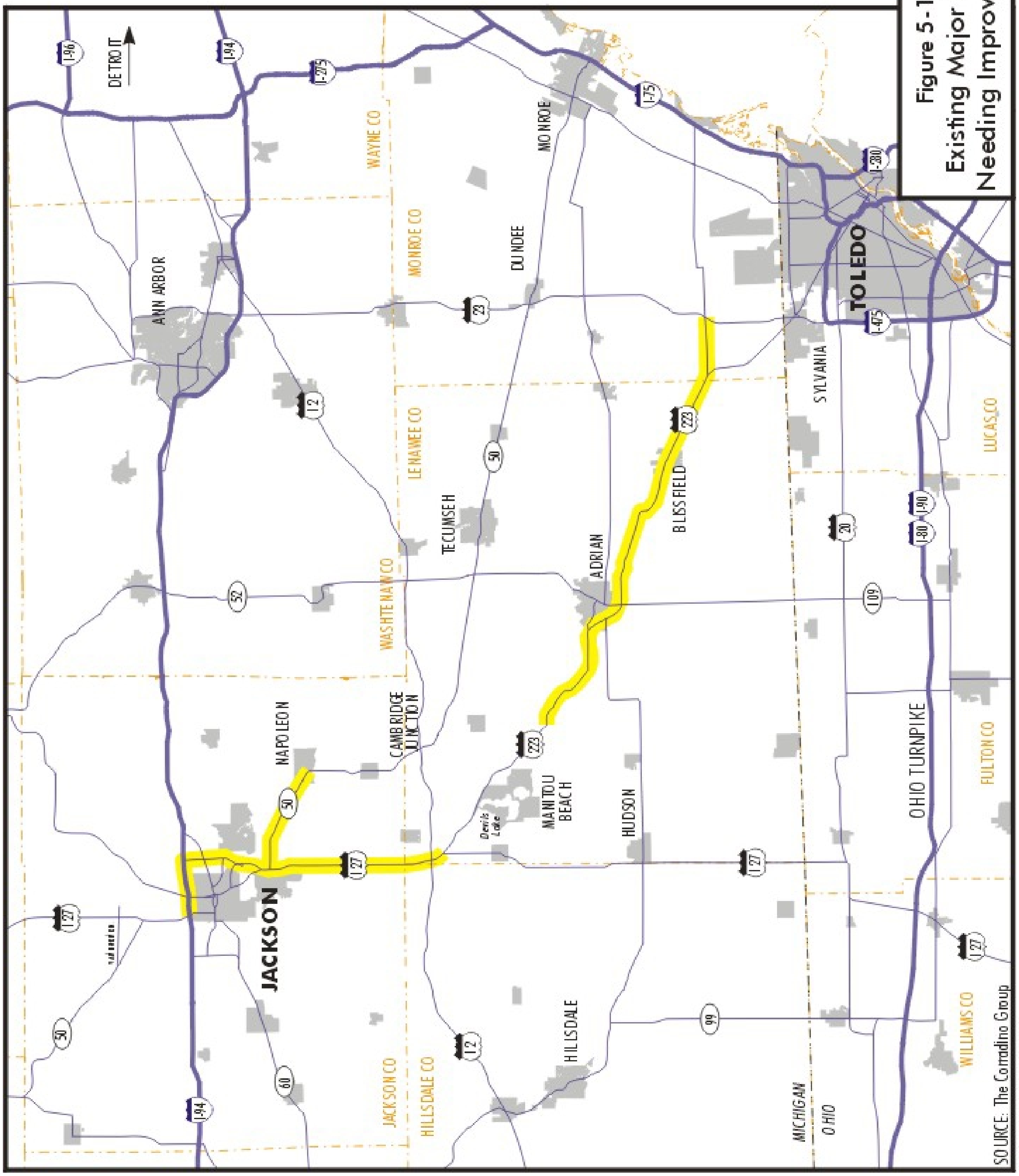


Figure 5-1
Existing Major Roads
Needing Improvements

- Archaeologic resources;
- Displacement of people;
- Community cohesion;
- Engineering difficulties;
- Farmland;
- Historic properties;
- Open space/parks/recreation;
- Traffic flow;
- Waterways; and,
- Wetlands.

These factors are the same as those used in the second-level evaluation of high-type roadway options.

5.3 Results

The data on Table 5-1 provide a basis to compare the widening proposals with the "build-new" concepts, with the understanding that these are two different approaches in terms of right-of-way requirements, traffic handling capacity, and overall length and location. Nevertheless, in the areas of farmland and wetland impacts, the effects of building new high-type facilities are more extensive in absolute terms as well as on a per-mile basis. The same is true on an absolute basis for displacements; but, the "widen" and "build-new" options are quite comparable on a per-mile basis. In all other areas but engineering difficulty, the two improvement approaches compare closely. Comparisons in the engineering area are not readily possible at this level of analysis.

Table 5-2 shows the composite impact data for improving existing roads and building a new high-type facility. The build-new options cover the study area from end to end and, so, are longer by as little as 14 miles (Route 1) and as much as 30+ miles (Routes 2 and 3). Nevertheless, total impacts are similar for the two different concepts in all areas except displacements, farmland impacts and effects on wetlands. For farmland and wetland impacts, the absolute potential takings (i.e., numbers of acres) and takings per mile are much more extensive for the build-new options. On the other hand, displacements associated with improving existing roads are greater than those for Route 1 (136 displacements versus 117) and are comparable on a per mile basis among all options. And, it should be noted that if Route 1 were built, widening would still be needed of M-50, from U.S. 127 to Napoleon, and U.S. 223, from Rome Road to U.S. 23. Almost all impacts of improving existing facilities are associated with these two sections of road.

Table 5-1
Comparison of Roadway Sections
Improve Existing Roads Versus New High-Type Facility

EVALUATION FACTOR	U.S. 127 (I-94 to U.S. 223)		Segments B16, B19a, B19b, C1, C2		M-50 (U.S. 127 to Napoleon)		Segment B20a		U.S. 223 (Rome Road to U.S. 23)		Segments A2a, A9, A10b, A11, A11a, B8, B9, B13, B14a, B14b	
Length	16.6		16.6		6.7		8.4		28.0		32.2	
Factors	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources												
Sites	0		1		1		0		6		10	
2. Displacements												
Homes	5	0.3	26	1.6	52	7.8	50	6.0	79	2.8	132	4.1
3. Community Cohesion												
High/Medium/Low	Low		Low		High		High		Low		Low	
4. Engineering Difficulty												
Little/Some/Moderate/Major	Some		Some		Moderate		Major		Some		Some to Major	
5. Farmland												
Acres	NS	NA	19	1.1	5	0.07	259	30.8	86	3.1	592	18.4
Farmland Quality (High/Medium/Low)	Low to Medium		Low to Medium		Low		Low		Medium to High		Low to High	
6. Historic Properties												
Nat. Reg. Poten. Standing Sruct. Sites	0		0		1		3		4		4	
Centennial Farms	0		0		0		0		1		1	
7. Open Space/Recreation Areas												
State Parks	0		0		0		0		0		0	
Local Public Parks/Preserves/Golf Courses	0		1		0		0		0		0	
Private Preserves/Golf Courses/Recreational amenities	0		0		0		0		0		2	
8. Traffic Flow												
Vehicles/day - Year 2020 (1,000s)	25 to 40		31 to 51		17		17		17 to 38		24 to 33	
9. Waterways												
River Raisin	0		0		0		0		3		3	
Portage River	0		0		0		0		0		0	
Grand River	2		4		0		1		0		0	
Perennial Streams	0		1		2		1		3		2	
Intermittent Streams	4		5		0		5		12		9	
Lake/Pond	0		0		0		0		0		0	
Assoc. with significant wetlands	0		0		0		3		0		0	
10. Wetlands												
Acres	2	0.1	87	5.2	3	0.4	118	14.1	2	0.1	32	1.0

NS = Not Significant Quantity

NA = Not Applicable

Source: The Corradino Group

Table 5-2
Comparison of Options
Improve Existing Roads Versus New High-Type Facility

EVALUATION FACTOR	Improve Existing Roads		New High-Type Facility: Proposed Route 1		New High-Type Facility: Proposed Route 2		New High-Type Facility: Proposed Route 3	
Length	41.3		55		72		73	
Factors	#	/mi	#	/mi	#	/mi	#	/mi
1. Archeological Resources								
Sites	7		4		10		8	
2. Displacements								
Homes	136	3.3	117	2.1	392	5.4	345	4.7
3. Community Cohesion								
High/Medium/Low	Low to High		Low		Low		Low to Medium	
4. Engineering Difficulty								
Little/Some/Moderate/Major	Same to Moderate		Some		Some to Moderate		Some to Moderate	
5. Farmland								
Acres	93	2.3	592	10.8	1143	15.9	1387	19
Farmland Quality (High/Medium/Low)	Low to High		Low to Medium		Medium to High		Medium to High	
6. Historic Properties								
Nat. Reg. Poten. Standing Sruct. Sites	5		1		7		4	
Centennial Farms	1		1		2		2	
7. Open Space/Recreation Areas								
State Parks	0		0		0		0	
Local Public Parks/Preserves/Golf Courses	0		1		1		1	
Private Preserves/Golf Courses/Recreational amenities	0		0		1		2	
8. Traffic Flow								
Vehicles/day - Year 2020 (1,000s)	17 to 40		13 to 51		18 to 51		16 to 51	
9. Waterways								
River Raisin	3		0		3		3	
Portage River	0		1		1		1	
Grand River	2		6		6		6	
Perennial Streams	5		11		12		12	
Intermittent Streams	16		14		25		26	
Lake/Pond	0		2		1		1	
Assoc. with significant wetlands	0		6		6		6	
10. Wetlands								
Acres	7	0.2	305	5.5	351	4.9	378	5.2

NS = Not Significant Quantity
NA = Not Applicable
Source: The Corradino Group

6. Consultant's Findings

The information provided throughout this document allows the consultant to develop certain findings about the next steps in the project.

To establish the basis upon which findings can be articulated, it is necessary to first assess the purpose and need for improvements of any kind in the I-73 study area. Those subjects are covered next.

6.1 Purpose and Need

The purpose and need for a project can be viewed from many perspectives. Here, the purpose is to provide an improved transportation link between the Jackson, Michigan and Toledo, Ohio areas to strengthen the National Highway System and the flow of people and goods over that system.

For transportation projects, need is traditionally understood in terms of: 1) system linkage; 2) transportation demand and available capacity; 3) federal, state, and/or local authority that drives a project; 4) social demands and/or economic development; and, 5) safety and roadway deficiencies. Environmental issues are also a key factor.

The U.S. Congress found in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) that the construction of the Interstate Highway System had greatly enhanced economic growth in the United States, but that many regions of the U.S. were not adequately served by interstate or comparable highways. Congress also found that the development of transportation corridors is the most efficient and effective way of integrating regions by improving efficiency and safety of travel and further promoting commerce and economic development. With these findings, Congress designated certain highway corridors as having national significance. It was the purpose of Congress in ISTEA to include these corridors on the National Highway System, to prepare long-range plans and feasibility studies for them, to allow the states to give priority to funding the construction of these corridors, and to provide increased funding for segments of these corridors identified for construction. The U.S. Congress was responding to both national and regional needs in defining what has been labeled the I-73/I-74 Corridor in ISTEA. That corridor includes a connection between the Jackson and Toledo areas (refer to Figure 1-3).

The Michigan Department of Transportation (MDOT) has long supported the need for a central Michigan freeway passing through Jackson. A "Location Study Report for US 127" dated May 1970 identified freeway construction from south of Jackson to a new east-west freeway resulting from the reconstruction of U.S.

223. Right-of-way was acquired south of Jackson to U.S. 12 for a widened road (200' of right-of-way exists). That proposed road was part of the long-range network of high performance facilities envisioned in that era. But, years of limited financial resources for roadway development and redirection of the state's transportation priorities from constructing new roads to maintaining existing ones meant that such a road leading from Jackson to Toledo was not developed.

In 1989 renewed support for improvements surfaced when over 14,000 signatures were collected on petitions submitted to Michigan State Representative Philip Hoffman. These petitions reflected concern about traffic safety on U.S. 127 between M-50 and U.S. 223. Three long-term options were noted for improvements south to U.S. 223: a freeway; a four-lane, divided highway; and, a five-lane roadway. Then, in the fall of 1995 a number of governmental units endorsed construction of I-73/I-74 to connect Michigan to South Carolina.[3]

The *Michigan Long-Range Plan*, completed in 1994, documented a need in southeast Michigan for an improved corridor. The *Plan* indicates, "it is evident from the 2015 congestion projections under the do-nothing scenario that the greatest traffic pressure is south on US-127 and then southeast on US-223 through Adrian to US-23."[4]

A survey of Lenawee County citizens conducted in 1999 by the Lenawee County Planning Commission found that 48 percent of those surveyed support an interstate highway in Lenawee County and 62 percent support US-223 as a four-lane highway in Lenawee County.[5]

The earlier documentation of need noted above is supported by more recent analysis cited below.

6.1.1 System Linkage

A number of routes now connect the Jackson and Toledo areas. A freeway connection exists via I-94 and U.S. 23. A "diagonal" connection exists via linkage of U.S. 127 and U.S. 223 or M-50. The increasing traffic over the "diagonal" connector is evident by the extent to which traffic volumes decline on U.S. 127 past the junction with U.S. 223. The U.S. 223 routing, serving Adrian and Blissfield, offers a competitive travel time to the I-94/U.S. 23 connection between the Jackson and Toledo areas and the distance is shorter. (Travel runs between U.S. 127 at I-94, and U.S. 223 at U.S. 23, found a one-way trip over I-94 and U.S. 23 takes approximately one hour and a trip over U.S. 127 and U.S. 223 takes an extra two minutes, on average.) Because commercial truck operations are concerned with both travel time and distance, the US 223 route is attractive for many truck trips.

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[3] Adrian City Commission, Adrian Township Board of Trustees, Village of Britton Council, Cambridge Township Board of Trustees, Village of Cement City Council, Deerfield City Council, Hudson City Council, Tecumseh City Council, Lenawee County Board of Commissioners.

[4] Pg. 15, *Michigan Sub-State Area Long Range Plans, Final Report Summary* (The Corradino Group, December 1994).

[5] Survey mailed to 5,000 households in Lenawee County by the Lenawee County Planning Commission in July 1999, with a 13.3 percent return rate.

The National Highway System linkage over U.S. 127 and U.S. 223 as it now exists is not considered as providing quality roadway service. U.S. 127 does not directly connect to the Ohio Turnpike (I-80/90). The proposed project would address the inadequate linkage in the National Highway System in this region.

6.1.2 Transportation Demand and Capacity

Future travel demand has been simulated using MDOT's statewide travel model. The computer model is based on projections of data, such as population, income, and employment[6], to forecast how much people will drive and where they want to go in the year 2020. A series of simulations of various alternative routings finds that travel demand in 2020 will result in a poor level of travel service on a number of the two-lane roads serving the area (Figure 6-1 shows No Build conditions). U.S. 127 south of Jackson, M-50 east of U.S 127, and much of the length of U.S. 223, between U.S. 127 and U.S. 23, are expected to experience travel demand requiring more than a two-lane facility.

In particular, year 2020 traffic volumes under No-Build conditions along U.S. 223 east and west of Adrian are projected to be 17,000 vehicles per day or more. Two-lane roads in urban settings can carry such volumes, where travel demand is spread evenly throughout the day and night and where vehicles are not pressing to pass. However, in rural areas, where longer distance travel prevails, autos want to pass trucks. 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 four-lane roads of some type are preferred.

When No-Build conditions are compared to a build alternative that provides a proposed high-type roadway (i.e., boulevard or freeway), simulations show that travelers divert from other, less attractive travel paths to the new proposed road. The greater the increase in projected traffic over No-Build conditions, the more effectively the new link satisfies future travel demand. U.S. 223 in the Adrian area would be the most heavily used mid-corridor segment of the new route, according to these simulations of future travel. It is projected to carry 25,000 to 30,000 vehicles daily, an increase of 40 to 75 percent over what would be carried in 2020 if existing roads were not improved (Figure 6-2). This means an improved highway through this area would provide better transportation service than the existing roadway network. And, in doing so, it would control traffic growth on a number of two-lane roads, leaving mostly local traffic and preserving the function of those facilities.

6.1.3 Federal, State, and/or Local Governmental Mandate

The federal legislative mandate for the project has been noted in the introduction to this section. Funding has been provided through the Transportation Equity Act for the 21st Century (TEA21) for a feasibility study and preparation of, if needed subsequently, an environmental impact statement. If the environmental work were undertaken, it would likely extend another two to three years beyond the conclusion of the feasibility study. Funding has not been authorized by Congress for work beyond the environmental phase.

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[6] More specifically, for trip productions, the model uses number of households, household income, persons per household, and urban or rural zone location. For trip attractions it uses employment data by type.

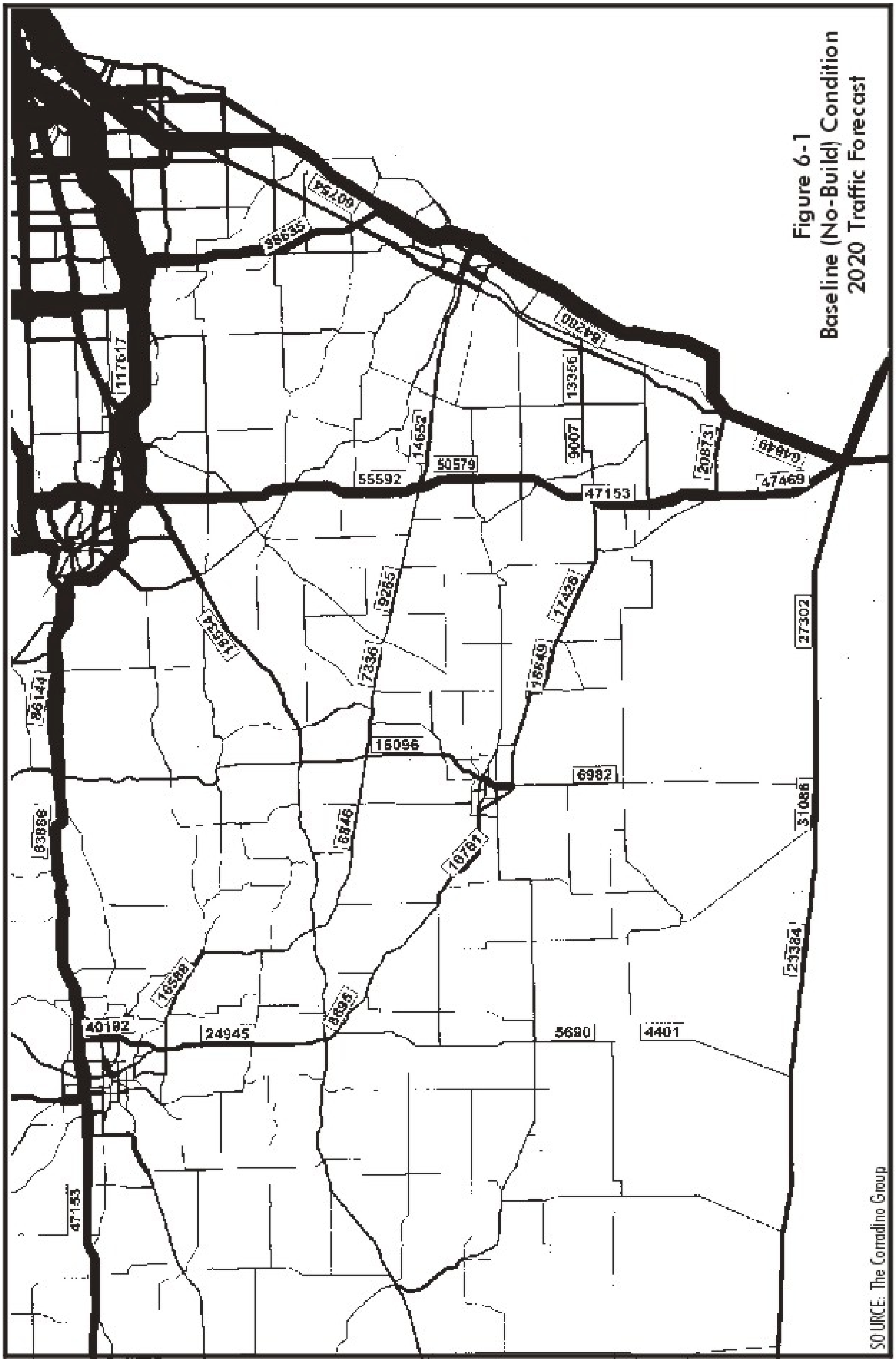

Figure 6-1
Baseline (No-Build) Condition
2020 Traffic Forecast

SOURCE: The Corradino Group

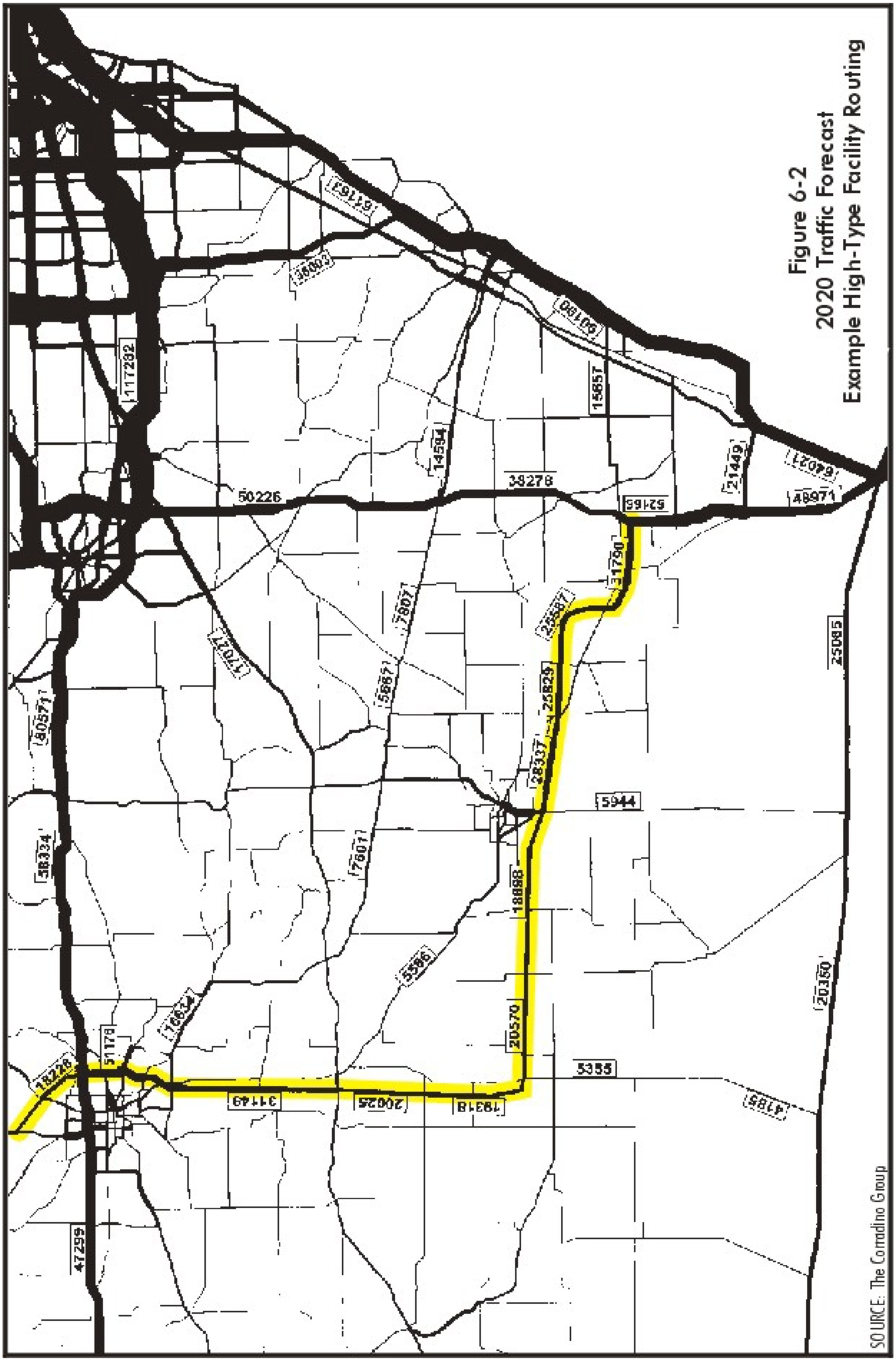

Figure 6-2
2020 Traffic Forecast
Example High-Type Facility Routing

SOURCE: The Corradino Group

6.1.4 Social Demands and/or Economic Development

The population of the study area (Hillsdale, Jackson, Lenawee, and Monroe counties) is expected to grow by approximately 11 percent from the year 2000 to 2020. The resultant growth in jobs is projected to almost double the growth in population (21%). And, the growth in vehicle travel (trips per day) is forecast to exceed by 300 percent the growth in population. These factors indicate the need to study ways to improve highway capacity in the region.

Growth in the study area is perhaps best typified by the recent opening of the L&W plant on U.S. 223 just east of Blissfield. This operation serves the Jeep plant in Toledo. It is importing jobs. And, it is likely to import new residents to the study area as well. It is this type development that supports the population, job and traffic forecasts cited above.

Community leaders, especially in Lenawee County, have made known their concerns to MDOT for years that poor access limits development in the area. Accessibility is a primary factor in the decision-making of businesses seeking to expand or relocate. The presence of high quality accessibility is no guarantee that an area will grow, but poor accessibility is a constraint to growth.

6.1.5 Safety and Roadway Deficiencies

Safety is always an important issue and has been an issue in this corridor. Public meetings were held in the fall of 1999 to discuss safety conditions along U.S. 223 between U.S. 127 and Adrian, especially speeding trucks. Both US 223 and M-50 have speed restrictions through towns. Horizontal and vertical curve sections also limit overall travel speed.

Speed Restrictions

From northwest to southeast a traveler beginning at U.S. 127 south of the I-94 freeway section in Jackson, would encounter the following:

- Eight no-passing zones on U.S. 127 between M-50 and U.S. 223.
- Four speed zones in that section of U.S. 127.
- Twenty-four no-passing zones on U.S. 223 between U.S. 127 and the Adrian Bypass.
- A no-passing zone on the Adrian Bypass/U.S. 223.
- A speed zone in Palmyra on U.S. 223.
- Six no-passing zones between Adrian and Blissfield on U.S. 223.
- Speed zones through Blissfield on U.S. 223.
- Two no-passing zones on U.S. 223 between Blissfield and U.S. 23

This means more than 40 no-passing zones are present between Jackson and U.S. 23 besides speed zones in Devils Lake, Adrian, Palmyra and Blissfield.

Accident History

The accident rates on U.S. 127, U.S. 223, and M-50 (expressed as the number of accidents per 100 million vehicle miles of travel) can be compared to county and statewide averages for two-lane rural roads (that are part of Michigan trunk line system) to understand the relative safety of the existing roads (Table 6-1). As can be seen, key sections of U.S. 127 (between U.S. 223 and U.S. 12), U.S. 223 (between M-34 and M-52) and M-50 (from M-52 to U.S. 127) have accident histories above the average of the MDOT District and the state as a whole. And, in the context of a new high-type road, i.e., rural freeway on boulevard, the data on Table 6-2 show that rural freeways in Michigan have the lowest crash rates, and divided "non-freeways" (like boulevards) are second lowest. Rural two-lane facilities have an accident history close to the MDOT's District Average and five-lane roads (non-boulevard) have the highest accident exposure. To the extent that crash patterns are evident on the above-mentioned roads, MDOT continues to monitor these conditions and make improvements such as turn-lane additions, minor widenings, flareouts at intersections, and the like. **In no case do the data of Table 6-1 or Table 6-2 indicate an unsafe roadway system.**

Table 6-1
Accident Rates in Study Area
(Number of Accidents per 100 million Vehicle Miles Traveled)

Location	1994	1995	1996	1997	1998	5-Year Avg.
Hillsdale Co.	488	458	452	448	NA	462
Jackson Co.	310	318	321	296	NA	311
Lenawee Co.	447	442	402	391	NA	420
Monroe Co.	183	196	192	182	NA	188
MDOT Dist. Avg.	332	367	330	278	NA	319
Statewide Average	307	330	323	307	NA	317
US 127						
- US 12 to M-50	230	254	310	260	184	248
- US 12 to US 223	544	311	233	311	272	334
- US 223 to M-34	220	267	212	215	170	217
- M-34 to State line	169	202	142	182	135	166
US 223						
- US 127 to M-34	232	272	248	190	124	213
- M-34 to M-52	464	624	384	544	384	480
- M-52 to US 23	164	158	180	157	126	157
M-50						
- US 127 to US 12	388	347	364	380	295	355
- US 12 TO M-52	407	330	414	465	397	403

Note that the vehicle mile of travel basis was 1998 for all years presented.
Source: MDOT

Table 6-2
Michigan Crash Rates by Roadway Class

Roadway Type	Crashes Per 100 Million Miles
Rural Freeways	134
Rural Divided Non-Freeways	272
Rural Two-lane	311
Five-Lane Roadways	717*

Source: Transportation Research Board, Paper Number 97, 1997
* Five-Lane Roadway data is from Traffic and Safety Division of MDOT

6.1.6 Public Involvement

The public was invited to participate in this process. At the writing of this report, thousands of comments have been received. And almost 5,000 attendees have participated in the six rounds of public meetings. Throughout the study, the community has been asked for their input on factors that are most important in examining transportation improvements for the area. That input reflects that displacing people, absorbing farmland, and impacting wetlands were of utmost concern (refer to Table 4-2). These data were used in the evaluation of alternatives.

It is also important to note that public input received includes resolutions from a number of groups:

- Bedford Township Board
- Erie Township Board
- La Salle Township Board
- Whiteford Township Board
- Monroe County Board of Commissioners
- Grand River Environmental Action Team
- Northwest (Jackson) School District
- Citizens (14) from Jackson, Michigan
- Michigan Audubon Society
- Rome Grange Executive Committee
- Madison Township Board
- Riga Township Board

The first four groups largely focus their interest on Segment A3a (i.e., County Road 151). They are opposed to it as a high-type roadway facility. On the other hand, the Monroe County Board of Commissioners, while citing the same link, i.e., A3a, resolved that it opposes designation "... in the I-73 Study of any path through or across any portion of the County of Monroe for the construction of a new interstate highway." The next three groups mostly concentrate on Segments C3/C3a. They are opposed to them and stress using I-94/U.S. 127 instead. The Michigan Audubon Society calls for the improvement and maintenance of existing surface transportation corridors and opposes new highways that will jeopardize and destroy wetlands and open land areas crucial to the sustainability of southern Michigan's wildlife and resources. Finally, the Rome Grange is against the use of the M-34/Beecher Road corridor (Segments B10 and B11) because of the absorption of farmland expected with the proposed project.

It is also worthy to note two groups have organized to stop the development of a high-type roadway in the study area. CAUSE (Citizens Against Urban Sprawl Expressway/www.stopi73.com) is mainly focused on Segment A3a in Monroe County. SPRAWL (Society to Protect Rural Area, Wetland and Lakes/www.i73.org) is opposed to any high-type facility in Lenawee County. Both groups have stimulated hundreds of communications to support their position.

Finally, it is noted that public bodies like the Hudson City Council, Tecumseh City Council, and the Lenawee County Board of Commissioners declined when asked by SPRAWL to pass a resolution opposing the high-type road associated with the project. These bodies favored waiting for the completion of this feasibility study.

6.2 Findings

The information in Chapters 4 and 5 leads the consultant to believe there are three basic routes by which to connect Jackson to Toledo by a high-type facility (i.e., rural freeway or boulevard) (Figure 6-3):

Route 1: Segments A16, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

Route 2: Segments A2a, A9, A10b, A11, A11a, B8, B9, B10a, B10b, B11, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

Route 3: Segments A2a, A9, A10b, B22a, B10b, B11, B12, B16, B19a, B19b, C1, C2, C3 or C3a.

If nothing were done in the study area, traffic in the year 2020 on U.S. 127 from I-94 to U.S. 12/U.S. 223 and on U.S. 223 from Rome Center to U.S. 23 and on M-50 from U.S. 127 to Napoleon is enough to require four thru lanes, with a fifth lane for turning vehicles (Figure 6-4). And the impacts of widening these roads are similar to Routes 1, 2 and 3 in all areas except displacements, farmland impacts and effects on wetlands. For farmland and wetland impacts, the absolute potential takings (i.e., numbers of acres) and takings per mile are much more extensive for the build-new options. On the other hand, displacements associated with improving existing roads are greater than those for Route 1 (136 displacements versus 117) and are comparable on a per mile basis among all options. And, it should be noted that if Route 1 were built, widening would still be needed of M-50, from U.S. 127 to Napoleon, and U.S. 223, from Rome Road to U.S. 23. Almost all impacts of improving existing facilities are associated with these two sections of road.

So, these data lead the consultant to conclude there is a need to improve the roads in the study area. And, while the three routes considered for a new high-type facility, prior to refinements, are more extensive than widening major roads, they are manageable. Further, while the economic consequences of any improvement are yet to be determined, the option to improve 41 miles of existing roads like U.S. 127, M-50 and U.S. 223 will be associated with traffic impacts during construction that will be worse than building the new routes. Such construction will be much more extensive in time (several construction seasons versus one) and scope (dozens of miles versus a few) than the current disruption associated with widening U.S. 223 from Palmyra to Blissfield. Businesses are particularly susceptible to the disruptive effect of roadway construction.

Therefore, three courses of action are available to MDOT:

1. Do nothing.

2. Proceed with the environmental analysis <u>limiting the scope</u> to the do-nothing option plus widening existing roads shown on Figure 6-4.

3. Proceed with the environmental analysis to include the do-nothing option, widening existing roads <u>plus new high-type roads</u> defined by Routes 1, 2 and 3 on Figure 6-3.

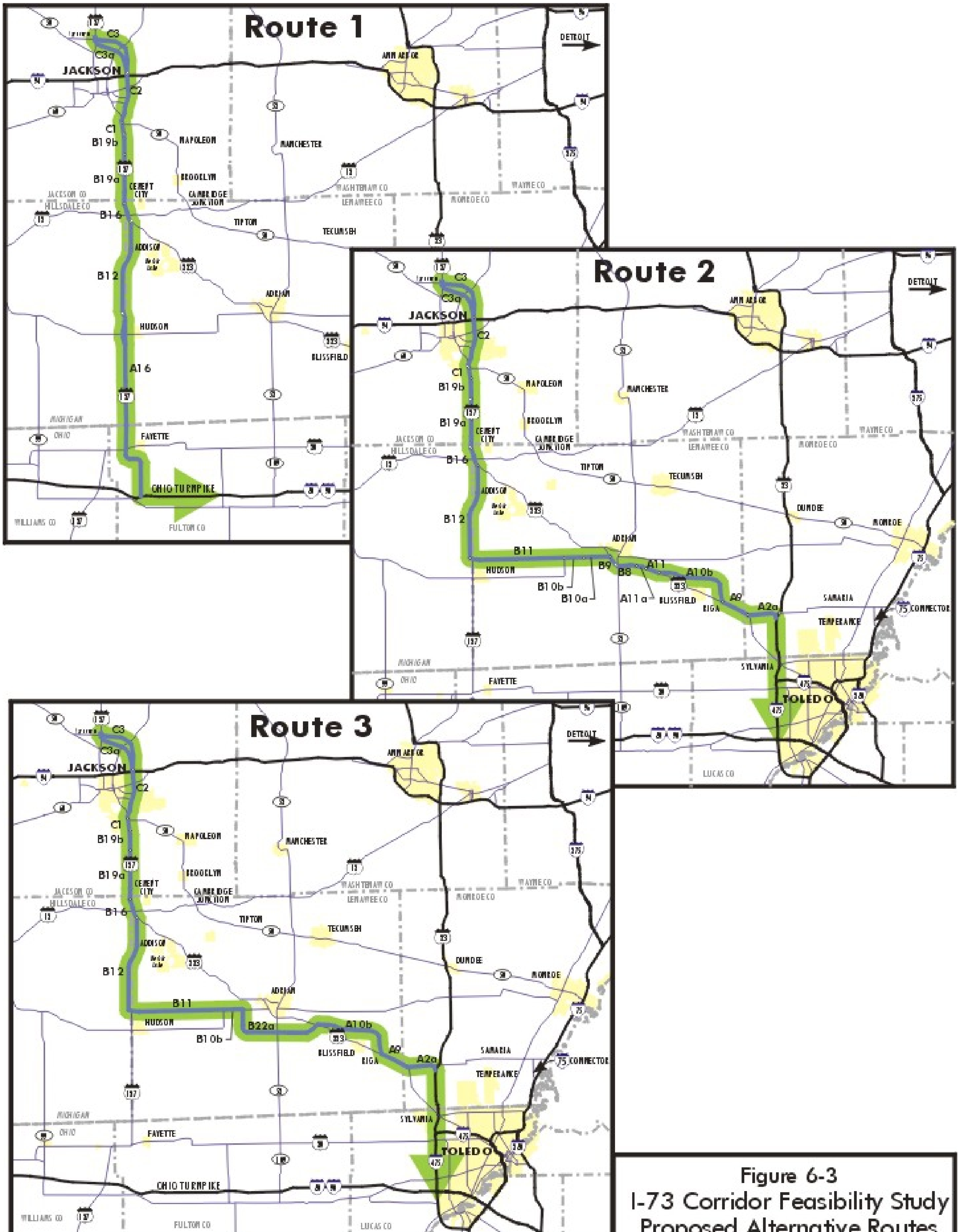

Figure 6-3
I-73 Corridor Feasibility Study
Proposed Alternative Routes
as of May 22, 2000

SOURCE: The Corradino Group

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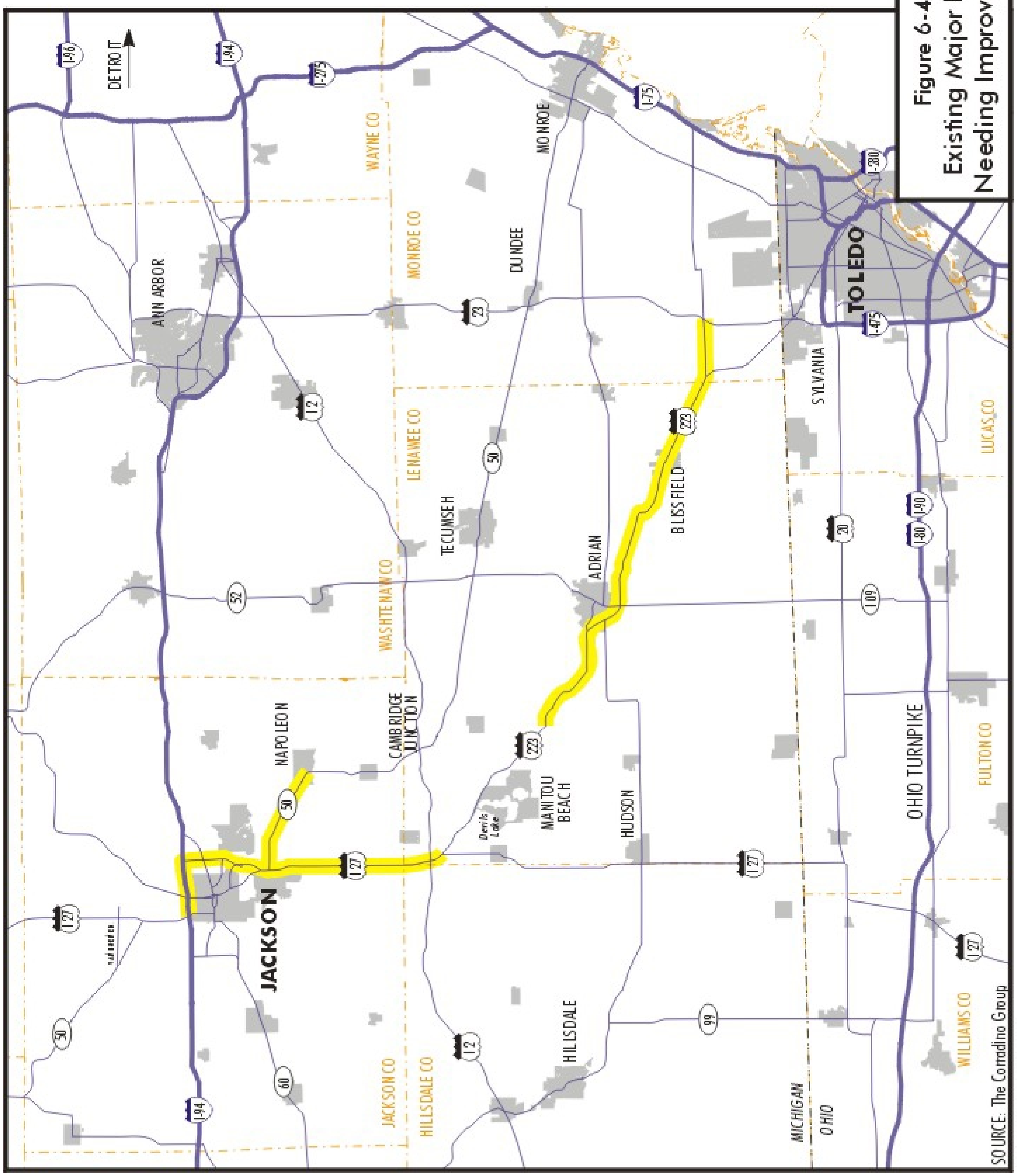
Figure 6-4
Existing Major Roads
Needing Improvements



The consultant believes Step 3 should be taken. By doing so, the options of doing nothing or only widening existing roads will be preserved. It is now up to MDOT, with public input provided at the last round of meetings of this feasibility study, to determine the course to be followed.