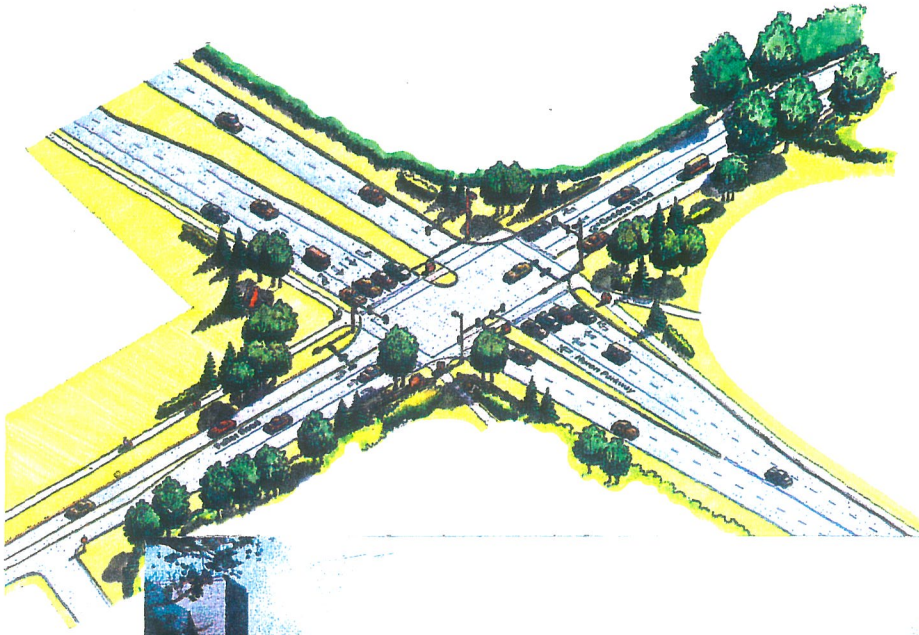
Geddes/Fuller/Conrail

Corridor Study



June 1994

BRW

II. RECOMMENDATION

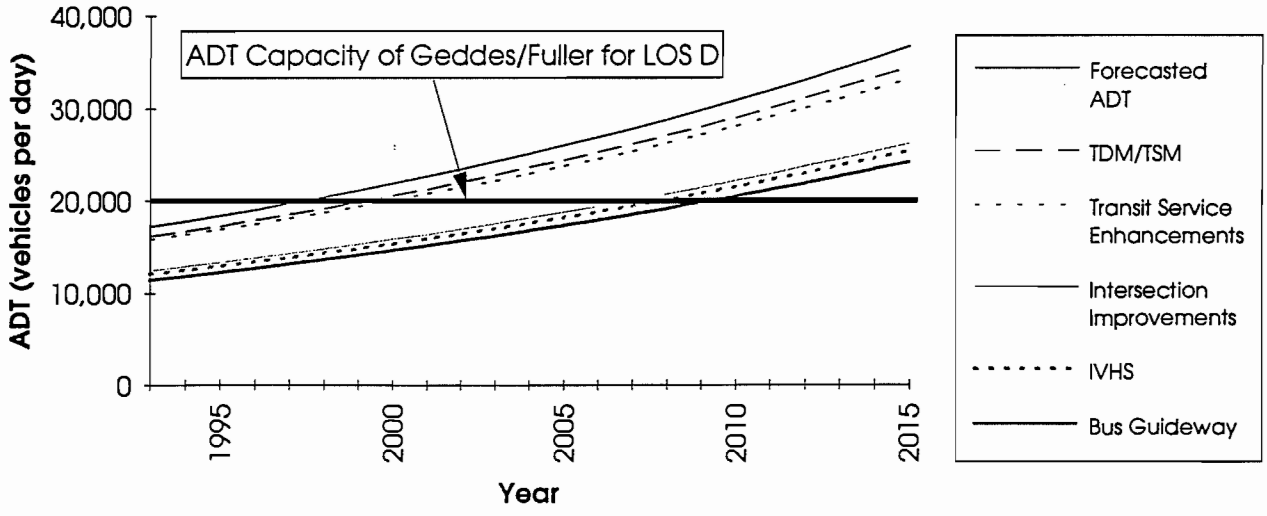
The recommendation for the Geddes/Fuller/Conrail corridor is a combination of the following:

- Intersection Improvements, Signal Optimization and Progression
- One Lane Bus Guideway on Conrail
- Transit Service Enhancements
- Travel Demand Management/Transportation System Management
- Intelligent Vehicle-Highway System Technologies (Long Term)

The bus guideway received the highest ranking of all strategies in the Screen 3 analysis. The TDM/TSM strategies received the highest rankings in the cost-benefit analysis. Each recommendation is described in detail in the following sections.

This recommendation's overall potential impact on the Geddes/Fuller corridor is illustrated in Figure 5. This figure shows the average daily traffic capacity of Geddes/Fuller for LOS D as a solid horizontal line crossing the ordinate at 20,000 vehicles per day. (Los D indicates high-density, but stable traffic flow, restricted speeds and vehicle movement, and poor pedestrian levels of comfort.) Forecasted traffic volumes are represented by the top curve. The intersection of these two lines indicates that traffic conditions will meet LOS D conditions sometime in 1995. Based upon the Screen 3 evaluation, the ability of each strategy to reduce vehicles per day extends the intersection point between the LOS D horizontal line and the traffic volumes over time. Assuming all strategies of the recommended alternative were implemented, LOS D conditions can be extended at least 13 years and not met until the year 2008. These final observations indicate that other means of satisfying travel demand must accompany the bus guideway in order to maintain LOS D traffic conditions or better.

Figure 5
Comparison of Reduction in Average Daily Traffic (ADT) from Recommended Improvements



INTERSECTION IMPROVEMENTS, SIGNAL OPTIMIZATION AND PROGRESSION

- Optimize all signalized intersections within the primary study area.
- Set timing plans differently for morning and evening peak hours.
- Coordinate efforts with Washtenaw Road Commission and the City of Ann Arbor to coordinate traffic signal progression within the Geddes/Fuller corridor.

Specific recommendations are provided in Table 2. Figures II-A and II-B illustrate potential intersection improvements at Geddes/Fuller and Huron Parkway.

TABLE 2
SIGNALIZED INTERSECTION RECOMMENDATIONS

Intersection	Recommendation
Geddes/Fuller and Huron Parkway	• Optimize existing phasing for peak a.m. and peak p.m. • Add right turn lanes for EB and WB Geddes/Fuller. • Extend left turn bay on WB Geddes Road. • Improve pavement conditions on EB and WB approach legs. • (Future) Add an additional left turn lane to WB Geddes Road.
Geddes Road and U.S. 23	• Realign SB on-ramp with existing signal at SB off-ramp. • Widen existing bridge to provide for left turn lanes at both intersections. If widening bridge is not possible, provide short left turn bays off ends of existing bridge. • Provide right turn lanes at ramp terminals. • Interconnect traffic signals and optimize timing to improve progression.
Geddes Road and Dixboro Road	• Extend left turn lanes. • If possible, add right turn lanes. • Consider double left turn bay for NB Dixboro Road. • Consider provision of EB channelized right turn lane with yield sign.
Dixboro Road and Huron River Drive	• Extend EB left turn bay. • Lengthen SB right turn lane.
Washtenaw Avenue and Huron Parkway	• Optimize existing signal. • Add right turn lanes on NB and SB Huron Parkway. • Designate exclusive right turn lanes on EB and WB Washtenaw Avenue.
Huron Parkway and Glazier Way	• Signalize and optimize signal. • Stripe pavement to aid turning movements. • If possible, pave Glazier Way east of Huron Pkwy.
Huron Parkway and Huron River Drive	• Signalize and optimize signal.

Figure II-A and II-B
Visual Representation of Potential Geddes/Fuller and Huron Parkway Intersection Improvements

ONE LANE BUSWAY ON CONRAIL

- Plan, design, and construct a single-lane bus guideway on Conrail right-of-way from LeForge Road to the University of Michigan Medical Center including:

  - Satellite Park-and-Ride near Guideway Stations
  - Feeder Buses to Park-and-Ride and Stations
  - Pedestrian Traffic Enhancements

  Buses using the guideway will provide direct transit service from downtown Ypsilanti to downtown Ann Arbor. Figure II-C is a visual representation of the proposed bus guideway. The bus guideway should be completed as soon as possible. In Table 3, however, the Bus Guideway is listed as an intermediate recommendation only because implementing this size of a system typically requires more than five years.

TRANSIT SERVICE ENHANCEMENTS

- Increase transit frequency to 15-minute headways (7½ minutes in peak hours) for Route 3 regular fixed-route buses.

- Operate three feeder buses in the peak hours.

- Continue with AATA fare subsidies for non-SOV commuters.

TRAVEL DEMAND MANAGEMENT/ TRANSPORTATION SYSTEM MANAGEMENT (TDM/TSM)

Parking Restrictions and Management

- Allocate (as necessary) HOV-reserved parking stalls near building entrances at the University of Michigan, Medical Center, and VA Hospital.

- HOVs receive free parking.

- Pending utilization of the reserved stalls, increase the number of HOV-reserved parking stalls accordingly over time.

Park-and-Ride with Bus Transfer

- Continue negotiations for park-and-ride at existing, underutilized parking lots for weekday use only.

- Provide signing of these sites.

Figure II-C
Visual Representation of the Proposed Bus Guideway

Employee Rideshare

- Continue with existing RideShare program.
- Market RideShare with the proposed transportation enhancements.
- Direct efforts toward a public information campaign.

Area Bicycle Circulation System

- Coordinate future bicycle circulation plans with existing plans as established by the City of Ann Arbor and Washtenaw County.

Pedestrian Circulation System

- Coordinate efforts with the City of Ann Arbor to assure consistency with the Ann Arbor Master Plan.

- Facilitate site-specific, pedestrian circulation plans as alternative strategies are adopted.

- Begin a pedestrian system beautification program where existing sidewalks and pathways are cleared of weeds, overgrown shrubbery, and debris. Procurement of a funding mechanism should also begin for this effort.

- Consider grade-separated crossings of Conrail right-of-way.

- Develop an area-wide plan that links pedestrian and bicycle circulation plans together.

INTELLIGENT VEHICLE-HIGHWAY SYSTEM TECHNOLOGIES (LONG-TERM)

Smart Buses, Kiosks, and ATIS Transit Information

- Implement Ann Arbor Transportation Authority's planned Intelligent Transportation System (ITS), incorporating buses, kiosks and ATIS Transit Information.

Traffic Surveillance and Changeable Message Signs

- Traffic surveillance equipment on major roadways and intersections.

    - Fuller road (Oak Way to Glen)
    - Huron Parkway and Geddes/Fuller intersection
    - Washtenaw and Huron Parkway
    - Plymouth Road (Nixon Road to Huron Parkway)

- Changeable message items along U.S. 23 that display real-time parking and traffic information.

DISCUSSION OF RECOMMENDED STRATEGIES

Traffic signal optimization and progression will provide immediate and noticeable improvements to motorists in the corridor. Intersection improvements such as adding and lengthening turning lanes will improve travel conditions even more. Increased traffic flow, reduced delay and emissions, and reduced accident potential all result from intersection improvements. However, many of these benefits may only be short-term. Long-term benefits associated with these two strategies may diminish after 5 to 7 years because of increasing travel demand. Figure II-A and II-B illustrates potential improvements to the Geddes/Fuller and Huron Parkway intersection—a key intersection in the Geddes/Fuller corridor.

Transit enhancements include the increased frequency of buses plus the addition of smart bus technology and information kiosks. These enhancements have the potential of reducing congestion. Development of the smart bus technology is currently funded under an existing grant to AATA.

The TDM/TSM strategies provide a cost-effective alternative for the corridor. These strategies promote the use of multi-occupancy modes of transportation. Given the increasing travel demand for the forecast years, transit enhancements will be needed just to maintain existing service conditions. The enhancements may also attract new riders who are currently single-occupant drivers.

HOV-priority parking scored highly in both cost effectiveness and in meeting the goals and objectives. Success of this strategy depends upon coordinated efforts with the University of Michigan, Medical Center, and the VA Hospital. Officials within these institutions must come to understand the potential future congestion problems and the significant influence they can make in the Geddes/Fuller corridor. Priority parking for HOVs may also be complemented with other RideShare programs at these facilities.

Park-and-ride lots should be pursued for those sites not requiring new construction. Use of existing, underutilized lots will provide a low-cost means of utilizing existing facilities and promote multi-occupant modes of travel.

Of all the strategies evaluated, the bus guideway most comprehensively satisfies the study's goals and objectives. (A visual representation of the bus guideway is presented in Figure II-B.) However, the bus guideway is not the most cost effective strategy. Cost is a relative measure and can be highly subjective at this level of analysis. For this study, costs were measured as direct expenses for a strategy plus a measure of disutility.

(Disutility is explained in detail under the Ridership section of this report.) Other costs not considered were factors such as quality of life, economic development and environmental preservation. These are important factors and weighed heavily in the selection of the study's goals and objectives and in the selection of a recommended alternative.

The bus guideway will have a current annual cost of approximately $2.5 million over a 30 year life. This includes capital, operating and maintenance costs. Right-of-way costs are not included with this figure. Actual costs will increase above the $2.5 million figure as inflation affects operating costs. Ridership on the guideway is forecasted at about 5500 riders per day in the year 2015 assuming 7½-minute headway operation.

Accompanying the bus guideway are park-and-ride lots, feeder buses to these lots, and pedestrian traffic enhancements. Individually, these features provide marginal benefits. Feeder buses to park-and-ride lots, like the bus guideway, support the goals and objectives well, but at a high cost. On the other hand, the cost effectiveness of pedestrian enhancements is good, but alone does not provide significant support of the goals and objectives. Park-and-ride lots near bus guideway stations did not fare well in either respect because of the high cost to construct them, and the fixed number of spaces they provide. However, each of these strategies are necessary to complement ridership on the guideway.

Bicycle and pedestrian circulation systems are also recommended. These strategies not only provide mobility without negatively affecting the environment, but also add to the quality of life. These non-motorized facilities have long useful lives, require little maintenance, and can be enjoyed by many people virtually year-round.

Finally, for the long-term future, IVHS technologies may be considered. Presently, costs for traffic surveillance equipment, changeable message signs, and all accompanying hardware and software are very high. Given these high costs and the unknown benefits gained from such technology, immediate procurement is not warranted. As technology improves and costs drop, IVHS technologies may prove to be a viable option in the future.

The recommendations represent a family of improvements which all need to be implemented to provide necessary relief to projected congestion through the twenty-year planning period. Some of the recommendations will be difficult to achieve. The implementation of the bus guideway faces significant challenges in right-of-way issues and negotiations. Other recommendations must face competition for funding from other important community needs.

Failure to implement all of the recommendations is likely to lead to unacceptable levels of traffic congestion. The most important immediate recommendation is to improve the operation of the intersections. The

biggest positive impact to the corridor will result from extended turning lanes, signal timing and progression improvements. The second most important combination of recommendations are those dealing with transit. Additions to transit service in the corridor -- increased frequency, feeder buses, advanced technologies (underway), and preferential treatments -- should occur soon. Preliminary engineering, design and right-of-way negotiations for the bus guideway should also begin immediately. Actual construction of the guideway is not likely to occur within the first five years of the plan's implementation, but will be important.

Many of the improvements are not scheduled for implementation until after the first five years of the plan (such as construction of the bus guideway). Thus, a comprehensive reassessment of the corridor should be undertaken at the end of the five-year period. This reassessment needs to include a new look at traffic, forecasts and congestion in the corridor. It needs to assess the ability of improvements undertaken during the first five years to accommodate travel demand in the corridor. Finally, it needs to assess the likelihood of continued implementation of recommendations scheduled beyond the first five years of the plan. If traffic projections continue to be realized and some of the improvements are not able to be implemented as planned, a new assessment of alternatives (including roadway widening) will need to take place.

POTENTIAL STAGING AND FUNDING OF THE RECOMMENDED ALTERNATIVE

Funding and implementation of each of the recommended strategies was considered and a possible staging plan was developed. Potential sources of funding are described below.

FEDERAL FUNDING SOURCES: ISTEA

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) serves to develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner. ISTEA proposes broad changes to the way transportation decisions are made by emphasizing diversity and balance of modes and preservation of existing systems over construction of new facilities, especially roads, and by proposing a series of social, environmental and energy factors which must be considered in transportation planning, programming and project selection. ISTEA is designed to assist identification of solutions to transportation problems. Programs exist within ISTEA that serve to allocate funding; ISTEA merely defines the procedure to acquire such funding.

- *Section 3 (New Starts)*: Funds allocated through the Federal Transit Administration (FTA) and distributed to transit agencies on a

discretionary basis for "New Starts." Various agencies desiring use of these funds must compete for them; the FTA distributes the funds based upon evaluations of competing agencies' needs and feasibility of the request. The statutory maximum matching rate for Section 3 is 80 percent federal and 20 percent state and local.

- *Section 9*: Funds allocated through the FTA to transit agencies where agencies need not compete for the funding. The amount of funding allocated is determined using a formula which considers the population, population density, and service provided.

- *Surface Transportation Program (STP)*: A principal capital funding program under ISTEA for roadway and intersection improvements. A portion of these funds can be used by the State.

- *Transportation Enhancements:* Funding for non-motorized, landscaping, etc. enhancements. These enhancements serve to broaden the definition of eligible transportation activities to include pedestrian and bicycle facilities and to enhance community and environmental quality. Funding for transportation enhancements can be issued as grants.

STATE FUNDING SOURCES

- *Act of the (State of Michigan) Legislature, No. 51 (also called the Michigan Transportation Fund)*: Allocates a gasoline and vehicle weight tax to public street enhancements. If these street enhancements complement pedestrian and bicycle movement, such funding can also be used for those pedestrian and bicycle improvements adjacent to the street. Ten percent of the fund, designated as Comprehensive Transportation Fund (CTF), may be used to fund transit.

LOCAL FUNDING SOURCES

- *City of Ann Arbor Streets Millage*: Millage utilized to acquire necessary local matching fund allocations for public street improvements within Ann Arbor. Intersection improvements are eligible for these funds.

- *City of Ann Arbor Parks Millage*: Millage utilized to acquire necessary local matching fund allocations for parks development and enhancements, and to operate and maintain parks within Ann Arbor. Intersection improvements adjacent to or within parks may be eligible for this funding.

- *City of Ann Arbor Special Assessment Districts*: Property developments and adjacent property owners can be required to provide funding for street improvements and pedestrian enhancements.

- *City of Ann Arbor Transit Millage:* Millage used to supplement federal transit operations funding.

- *City of Ann Arbor General Fund Revenues*

TRANSIT AGENCIES

- *Ann Arbor Transportation Authority*: AATA is the primary transit agency in Ann Arbor. Potential opportunity for AATA to supply funding is dependent upon ridership (transit demand), fare structure, and service provisions. Specific details of funding potential for AATA have not been determined.

- *Other Agencies*: Other transit and paratransit agencies may provide funding for enhancements if such enhancements benefit their agencies directly as well. For example, a paratransit agency may contribute if allowed use on the bus guideway.

OTHER FUNDING SOURCES

- *University of Michigan*: Transportation enhancements conducive to safe and efficient movement of people and goods relative to the University of Michigan may receive funding by the University. Opportunity may exist to receive such funding for transit service, park-and-ride lots and bicycle facilities, given that many students ride bicycles to campus.

- *Large Employers*: Large employment centers may contribute funding for pedestrian and bicycle enhancements on and around their facilities. Such site enhancements could be incorporated into an area-wide pedestrian and bicycle circulation plan.

- *Public/Private Partnerships:* Funding from private sources may be combined with public funding in partnerships to fund projects or portions of projects such as the bus guideway.

Given the complexity of the recommended alternative, funding will not come from a single source, but from many sources. In general, available funding sources may be classified as:

- Federal,
- State,
- Local,
- Transit Agencies, and
- Other.

Funding for larger projects typically are covered by a combination of these sources. Because of the national demand for funding, acquiring funds from any one of these sources can be an arduous and competitive task.

Consequently, city officials have identified sometimes creative means to acquire funds. Brief descriptions of funding sources as mentioned in the table follow.

Table 3 shows this plan as well as responsible agencies and potential funding sources of capital and operating costs. Most of the recommended strategies can be implemented within 5 years.

TABLE 3
POTENTIAL STAGING OF THE RECOMMENDED ALTERNATIVE

	Capital Cost	Annual O&M Cost	Responsible Agency	Potential Source of Funding
SHORT-TERM (0 TO 5 YEARS)				
One-Lane Bus Guideway on Conrail				
Environmental Impacts Studies, Preliminary Engineering and Design	$1,400,000	--	AATA	Section 9 Act 51
Parking Restrictions and Management				
HOV-Priority Parking	$37,000	$38,000	Employer Specific	
Parking Fee	--	$163,000		
Increase to 10% HOV-Priority Parking	$37,000	--		
Transit Service Enhancements				
Increase Transit to 15-Minute Headway	$1,290,000	$727,000	AATA	Local
Purchase and Operate 3 Feeder Buses in Peak Hours	$645,000	$363,000	AATA	Section 9 or Local
Continue Fare Subsidies		$3,000	AATA	U of MI
Smart Buses, Kiosks, and ATIS Transit Information				
Implement AATA Smart Bus	$645,000	$166,000	AATA	Section 3 Local
Park and Ride with Bus Transfer				
Use Existing Lots for P&R	--	Negotiable	AATA	STP
Employee RideShare Program				
Market RideShare Public Information Campaign	--	$21,000	AATA	Act 51

	Capital Cost	Annual O&M Cost	Responsible Agency	Potential Source of Funding
Area Bicycle Circulation Program				
Coordinate Plans with City and Washtenaw County	$1,256,000	$38,000	City of Ann Arbor	Act 51 Local
Pedestrian Circulation System				
Assure Consistency with Master Plan	--	--	City of Ann Arbor	Local STP
Site Specific Circulation Plans	$125,000	$2,000		
System Beautification Project		$30,000		
Signal Optimization, Phasing, Progression				
Optimize All Signals in Primary Study Area	$31,000	$4,000	City of Ann Arbor	Act 51 Local
Set Timing Plans for AM/PM Peaks	--	--		
Coordinate Efforts with Washtenaw County and City	--	--		
Intersection Improvements				
Geddes/Fuller and Huron Parkway	$414,000	TBD	City of Ann Arbor	STP Act 51 Local
Add Right Turn Lanes for EB and WB Geddes\Fuller	--	--		
Extend Left Turn Bay on WB Geddes/Fuller	--	--		
Improve Pavement Conditions on EB and WB Geddes/ Fuller	--	--		
Geddes Road and U.S. 23	$300,000*	TBD	Michigan DOT	STP Act 51 Local
Interconnect and Progress Signals	--	--		
Geddes Road and Dixboro Road	$300,000	TBD	Washtenaw County Road Commission	STP Act 51 Local
Extend Left Turn Bays	--	--		
Add Right Turn Lanes	--	--		

	Capital Cost	Annual O&M Cost	Responsible Agency	Potential Source of Funding
Dixboro Road and Huron River Drive	$320,000	TBD		
Extend EB Left Turn Bay	--	--		
Lengthen SB Right Turn Lane	--	--		
Huron Parkway and Glazier Way	$1,000,000	$4,000		
Signalize and Optimize Signal	—	—		
Huron Parkway and Huron River Drive	$300,000	TBD	City of Ann Arbor	STP Act 51 Local
Signalize and Optimize Signal	--	--		
Washtenaw Avenue and Huron Parkway	$380,000	TBD		
Add Right Turn Lanes on NB and SB Huron Parkway	--	--		
Right Turn Lanes on EB and WB Washtenaw Avenue	--	--		
Roadway Improvement				
Pave Glazier Way East of Huron Parkway	$1,000,000	$4,000	City of Ann Arbor	STP Act 51 Local Special Assess-ment
INTERMEDIATE FUTURE (6 TO 10 YEARS)				
One Lane Bus Guideway on Conrail				
Construct Guideway, LeForge Road to Medical Center	$15,802,000	$1,142,000	AATA	Section 3 Act 51
Satellite Park-and-Ride near Guideway	$816,000	$95,000	AATA	Section 3 Act 51
Feeder Buses to P&R/Bus Guideway	$3,048,000	$1,635,000	AATA	Section 3 Act 51

	Capital Cost	Annual O&M Cost	Responsible Agency	Potential Source of Funding
Pedestrian Traffic Enhancements	$121,000	$2,000	AATA	Section 3 Enhance-ments
Intersection Improvements				
Geddes/Fuller and Huron Parkway	TBD	TBD	City of Ann Arbor	STP Local Act 51
Add A Second Left Turn Lane to WB Geddes Road				
Geddes Road and U.S. 23	TBD	TBD	Michigan DOT	STP Act 51
Realign SB On-Ramp with SB Off-Ramp				
Widen Existing Bridge				
Provide Right Turn Lanes at Ramp Terminals				
Geddes Road and Dixboro Road	TBD	TBD	Washtenaw County Road Commission	STP Act 51
Consider Double Left Turns for NB Dixboro				
Consider EB Channelized Right Turn with Yield				
LONG-TERM (11 + YEARS)				
ATMS-Traffic Surveillance				
Video Surveillance and Signal Control	$1,924,000	$200,000	TBD	TBD
CMS Parking and Traffic Information				
Sites Along U.S. 23	$386,000	$50,000	Michigan DOT	TBD
Intersection Improvements				
Geddes Road and Dixboro Road	TBD	TBD	Washtenaw County Road Commission	STP Act 51 Local
Consider Double Left Turns for NB Dixboro				
Consider EB Channelized Right Turn with Yield				

TBD = To Be Determined
* Not including bridge reconstruction

NEXT STEPS

Implementation of the recommended alternative requires the following steps:

1. Communicate results of this study with other city, county, state, and federal officials. Coordinate with the appropriate officials to initiate implementation of recommended strategies, in particular intersection improvements, traffic signal optimization and progression, bicycle and pedestrian facilities, etc. Incorporate short-term plan recommendations into Ann Arbor's Capital Improvement Program.

2. Continue working with Conrail officials and undertake detailed design of the bus guideway. Investigate further potential placement of a bus guideway in Conrail's right-of-way.

3. Begin discussions with the University of Michigan, Medical Center, and VA Hospital regarding conversion of existing parking stalls to HOV-priority parking. Consideration may be given to executing a pilot study of this strategy to further refine its application for possible future use.

4. Watch for preliminary results of the AATA smart bus program. Identify potential applications of such technologies as they might apply with the bus guideway.

5. Procure additional funding for transit operational enhancements and for the purchase of additional buses.

Complete implementation requires direct, frequent, and open communication among city, county, state and federal officials. It is imperative that efforts are coordinated among all of these officials if recommendations are to be implemented. Progress of the implementation process should be monitored periodically by the Steering Committee.and Citizens' Advisory Committee. The Steering Committee should also continue to guide the transportation plan.