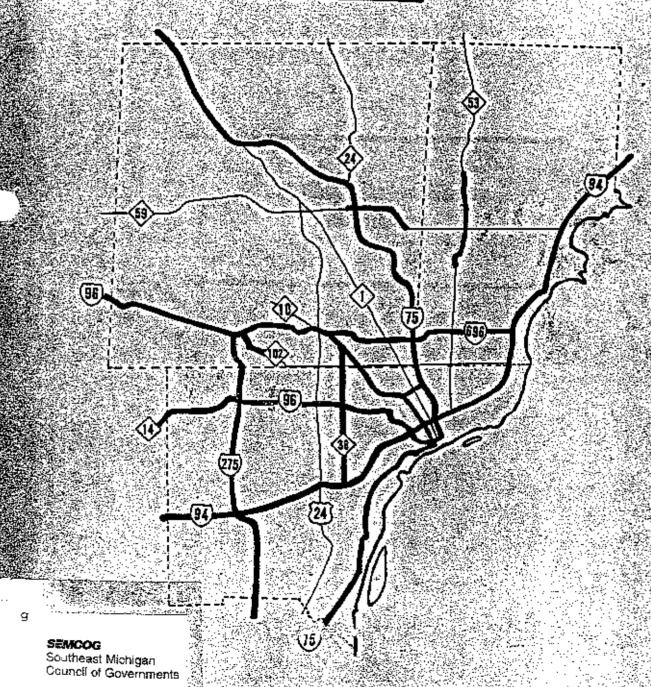
EXHIBIT A

GREATER DETROIT AREA FIREFULLY REHABILITATION PROGRAM



GREATER DETROIT FREEWAY REHABILITATION

Goal Statements

The development of urban transportation systems is entering a new era, one in which total management programs are becoming mandatory. No longer can a freeway system simply be constructed or reconstructed; it now requires an operations program that permits periodic review and adjustment of traffic flow and a comprehensive maintenance plan that goes beyond maintenance to extend the service life of the facility.

As one of the nation's major urbanized areas, access into and about the Detroit metropolitan area is essential if it is to maintain economic viability and develop a competitive edge within the international market. In line with that, the adoption of goals by the Policy Committee of the Greater Detroit Area Freeway Rehabilitation Committee is a pro-active step by the City of Detroit, Wayne, Oakland and Macomb Counties, the Southeast Michigan Council of Governments (SEMCOG) and the Michigan Department of Transportation (MDOT) is defining the actions which will preserve, promote, and enhance the freeway system as it has been established. These goals delineate the means by which the freeway system will operate and be maintained, a process which benefits the people of the area and their lifestyles.

The goals enumerated below are viewed as the foundation to the establishment and completion of a freeway reconstruction/rehabilitation program within the Greater Detroit Area.

- Goal #1 The Greater Detroit Freeway Rehabilitation Policy Committee is responsible for developing a comprehensive freeway reconstruction and rehabilitation program that best serves the communities within the greater Detroit area. To that end, all major improvements will recognize the importance of neighborhood values and maintain the continuity of neighborhoods while providing the needed access to and from neighborhoods to the remainder of the metropolitan area.
- Goal #2 The Greater Detroit Freeway Rehabilitation Policy Committee has reviewed and accepted the seven draft policy statements of the Greater Detroit Economic Development Group. In turn, the Policy Committee, as agency representatives for the people of greater Detroit, within the means it has available, will adhere and promote the concepts within those seven policies. The emphasis of these policies is to enhance economic viability and the quality of life of the metropolitan area through improved mobility and transportation infrastructure.
- Goal #3 The Greater Detroit Freeway Rehabilitation Policy Committee is committed to a freeway reconstruction/rehabilitation program that includes an Operating Management Strategy which preserves the system and will implement new design concepts and transportation technologies as they are developed. These may include Intelligent Vehicle Highway System, Incident Management, a Freeway Operations Program, High Occupancy Vehicle lanes, express and complimentary transit service, and Demand Management through more efficient use of the surface arterial system. Current yellow book and safety standards will be applied where appropriate.
- Goal #4 The Greater Detroit Area Freeway Rehabilitation Policy Committee will seek and support inter-modal service along transportation corridors, where appropriate, which enhances the mobility of area residents and preserves the operation of the freeway system.

GREATER DETROIT FREEWAY REHABILITATION

- Goal #5 The Greater Detroit Freeway Rehabilitation Policy Committee is committed to maintaining the present level of urban mobility along freeway corridors. To this end, the greater Detroit area freeway system should strive to maintain the system so that it operates at no lower than Level of Service E. If redesign is required, then every effort should be made to develop that design within existing right-of-way, using urban design standards.
- Goal #6 The Greater Detroit Freeway Rehabilitation Policy Committee will cooperatively establish priorities and set an aggressive schedule, commensurate with the financial capability of each agency, in its effort to develop and refine a freeway rehabilitation plan.

GREATER DETROIT FREEWAY REHABILITATION STUDY SUMMARY OF AGENCY RESPONSES TO PRELIMINARY PROPOSALS OCTOBER, 1990

MDOT met individually with each of the transportation and planning agencies from the City of Detroit, Wayne, Oakland and Macomb Counties as well as SEMCOG, Detroit DOT and SMART. These meetings provided the representatives from these agencies an opportunity to discuss their viewpoints on the draft goals and preliminary 1991-1997 proposals for the Greater Detroit Area Freeway Rehabilitation Program. Their reactions and the possible impacts to their local programs were recorded and are listed below.

MDOT was represented at these meetings by John Kazenko, Jim Brush and Dave Geiger.

CITY OF DETROIT

Comments:

* The Michigan/Ontario Study should be merged into this study as a new crossing could effect travel patterns.

THE STUDY HAS BEEN RELEASED AND NO ADDITIONAL CROSSING POINTS ARE RECOMMENDED IN THE GREATER DETROIT AREA. HOWEVER, AN ADDITIONAL SPAN IS PROPOSED FOR THE BLUE WATER BRIDGE CROSSING IN PORT HURON.

* Concerned about creating new "walled section" of freeways through Detroit. It is an expensive alternative, especially if that is being considered for the Southfield (M-39).

THE CONSTRUCTION OF WALLED SECTIONS ARE SUGGESTED SO THAT NECESSARY ADDITIONAL CAPACITY CAN BE ACHIEVED WITHIN EXISTING RIGHT-OF-WAY AND AVOID ANY NEIGHBORHOOD DISRUPTION. AS RECOMMENDED IN GOAL #1. THE CORRIDOR STUDY PROCESS WILL EVALUATE THIS OPTION AGAINST OTHERS TO DETERMINE ITS DESIRABILITY AND EFFECTIVENESS.

* Should consider parallel non-freeway alternatives for possible traffic relief; i.e. Evergreen and Greenfield for the Southfield; 12 Mile Road for I-696. Also asked if there is a potential for shifting funding to parallel routes if capacity improvements is more cost effective along these non-freeway alternatives.

PARALLEL NON-FREEWAY ALTERNATIVE WILL BE CONSIDERED AS INDICATED IN THE LAST PHRASE OF GOAL #3. THE ACTUAL EVALUATION OF THOSE NON-FREEWAY ROUTES WILL OCCUR IN THE CORRIDOR STUDY PHASE, CAUTION HAS TO BE TAKEN HOWEVER, BECAUSE GOAL #1 EMPHASIZES NEIGHBORHOODS AND NEIGHBORHOOD VALUES. SO THE BALANCE BETWEEN THESE TWO GOALS COULD BE DELICATE.

* Incident Management Program should consider upgrading surface street identification signs and improved surface street signalization. Also stress the importance of this program to encourage use of the local street system especially during construction, as detour routes.

IF THE LOCAL STREET SYSTEM IS USED FOR DETOUR ROUTING, THEN IMPROVEMENTS TO THOSE STREETS AND ITS SIGNING IS NECESSARY. THE INCIDENT MANAGEMENT PROGRAM WILL ALSO HAVE TO EVALUATE THE CONDITION AND NEED FOR NEW SIGNING AS A FUNCTION OF ITS OPERATION.

 Improvements to the Southfield Freeway has questionable economic benefits to the City of Detroit.

EACH CORRIDOR HAS A BENEFIT/DISBENEFIT TO THE COMMUNITIES IN THE GREATER DETROIT AREA. RESOLVING CAPACITY AND CONDITION DEFICIENCIES IS MDOT'S INITIAL CONCERN, WITH THE ECONOMIC BENEFITS/DISBENEFITS BEING CONSIDERED WITHIN THE CORRIDOR OPTIONS.

Problems exist at the I-96 and I-94 interchange more so than at I-94 and I-75. A significant increase in commercial traffic (semi-trucks) has been noticed recently.

THIS LOCAL OBSERVATION IS HELPFUL.

* There is no need for southbound to westbound ramps from the Lodge Freeway to the Davison or the reverse routing. Interchanges along the Lodge already service the neighborhoods in those areas (Lodge at Linwood and at Livernois).

MDOT WILL REMOVE THIS PROPOSAL FROM ITS LIST.

SEMCOG

Comments:

- * HOV lanes for improvement of level of service if this is pursued, then the HOV lanes must be put into use immediately after construction and not after they have been used as a travel lane.
- * I-275 SEMCOG has received a strong push from the western suburbs to begin a study on I-275 and all the interchanges along it. SEMCOG has indicated the Haggerty Road Connector proposal has to reach construction phase before any significant work can be accomplished.

MDOT SUPPORTS SEMCOG'S POSITION AND WOULD HOPE THOSE ISSUES WOULD BE DISCUSSED WITHIN THE UPDATE OF THE LONG RANGE PLAN.

- * I-96/Milford Road Interchange Ford Motor is expanding its operations at the proving grounds which will impact that interchange as well as the freeway.
- Northwestern Extension It's SEMCOGs understanding that the Road Commission for Oakland County favors ending this route at 14 Mile Road.
- * There has been a strong interest in completing the new Down River trunkline. It is not being considered in this study since this new route is not intended to be a freeway.

THIS STUDY IS FOCUSED UPON THE EXISTING FREEWAY SYSTEM AND ITS CAPACITY AND CONDITION NEEDS.
NON-FREEWAY AND PROPOSED FREEWAYS ARE NOT INCLUDED. FUNDING OPTIONS AND CONSTRUCTION SCHEDULING ARE THE KEY ELEMENTS THAT NEED RESOLVING.

- SEMCOG feels strongly in favor of the freeway corridor priorities being developed as part of their long range plan update.
- SEMCOG is currently not involved in any transit corridor studies in or around 8 Mile Road.

WAYNE COUNTY

Comments:

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 Wayne County feels that the south-to-west and the east-to-north bound ramps between the Lodge and the Davison might be considered once the Davison Freeway is upgraded.

BASED ON THE CONCERNS OF THE CITY OF DETROIT. THIS ISSUE SHOULD BE DISCUSSED WITHIN THE SEMCOG LONG RANGE PLAN UPDATE PROCESS.

* The Southfield freeway has only 204 feet of right-of-way and is questionable whether additional lanes could be added to this corridor without the purchase of right-of-way. The freeway now has extensive changes in the vertical elevations between interchanges and has adjacent service roads.

THE SOUTHFIELD MAY BE ONE CORRIDOR WHERE BALANCING THE DIFFERING ELEMENTS IN THE STUDY GOAL STATEMENTS MAY BE DIFFICULT.

* Wayne County thinks that MDOT should consider, as part of this study, the Davison beyond the existing one mile freeway. Such an extension could impact both I-94 and I-96, as well as provide a good alternative route during major reconstruction.

THE PRIMARY PURPOSE OF THIS STUDY IS FOR THE REHABILITATION OF THE EXISTING FREEWAY SYSTEM. WITH A CONSENSUS OF THE PRIMARY UNITS OF GOVERNMENT WHICH ARE IMPACTED BY THE DECISION. THE PROGRAM RESULTING FROM THIS EFFORT IS TO ASSIST MDOT IN SECURING FEDERAL FUNDING AND DOCUMENTING THE PROCESS THROUGH WHICH CORRIDOR PRIORITIES WERE ESTABLISHED. NEW FREEWAY SEGMENTS IS AN ELEMENT THAT SHOULD BE ADDRESSED IN THE SEMCOG LONG RANGE PLANNING PROCESS.

* They feel strongly that a complete Davison Corridor Study is needed and should be added to the list.

FREEWAY IMPROVEMENTS ARE PROPOSED FOR THE EXISTING FREEWAY SEGMENT. OTHER SEGMENTS OF THE CORRIDOR SHOULD BE DEALT WITH IN THE LONG RANGE PLANNING PROCESS.

* Level of Service E would be an acceptable level of service for freeway operations and F should be acceptable at certain times during the year. However we should not restrict design to level of service E & F, if we can achieve a better service level.

GOAL #5 INDICATES THAT LEVEL OF SERVICE E IS THE MINIMUM. IF THROUGH ADDED LANES AND INCIDENT MANAGEMENT THE LEVEL OF SERVICE REACHES D. WITHOUT NEIGHBORHOOD DISRUPTION, THEN THIS HIGHER LEVEL OF SERVICE WILL BE PURSUED.

 Freeway extensions should also be considered within the study as their impacts might influence the priority decision on which freeways receive priority for reconstruction.

AGREED THAT FREEWAY EXTENSIONS WILL IMPACT SOME SEGMENTS OF THE EXISTING SYSTEM, HOWEVER, ANY FREEWAY EXTENSIONS ARE MANY YEARS IN THE FUTURE AND THE EXISTING SYSTEM NEEDS ATTENTION NOW. THE LONG RANGE PLANNING PROCESS CAN EXAMINE ANY NEW EXTENSIONS WHICH CAN INFLUENCE THE INTERIM OR LONG RANGE IMPROVEMENT PROGRAM.

OAKLAND COUNTY PLANNING

Comments:

 Goal #3 should emphasize the better utilization of the existing arterial system when it is more cost effective.

AGREED. THE CHANGE WILL BE MADE.

* The existing 2½ miles of Northwestern Highway should be included in this study.

THE IMPACTS OF TRAFFIC ENTERING OR LEAVING THE SYSTEM VIA THE NORTHWESTERN IS INCLUDED. SINCE IT IS NOT A FREEWAY IT IS NOT BEING EVALUATED WITHIN THAT SYSTEM.

* I-75: I-696 to Crooks Road should have the corridor study completed before any MDOT reconstruction work or any design and widening is undertaken. Additional access points and possible urban design should be evaluated, (13 and 15 Mile Roads).

THIS PROPOSAL HAS MERIT. IT WILL BE PRESENTED TO THE POLICY COMMITTEE TO OBTAIN THEIR COMMENT AND PRIORITY CONSIDERATION.

THE ROAD COMMISSION OF OAKLAND COUNTY

Comments:

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* I-75 north of Square Lake Road does not show as capacity deficient and the OCRC feels there is a need for improvements.

THE MDOT DATA ANALYSIS DOES NOT INDICATE A PROBLEM, HOWEVER, THROUGH THE LONG RANGE PLANNING PROCESS THIS SEGMENT OF 1-75 CAN BE EXAMINED MORE CLOSELY. IF THERE IS SOME EVIDENCE OF A NEED, THEN ADJUSTMENTS WILL BE MADE IN THE PROGRAM.

 There has been a spinoff from the proposed Auburn Mills Mall with more intense land speculation along the I-75 corridor to the northwest.

THE CORRIDOR STUDY WHICH HAS BEEN INITIATED, WHICH IS BEING CONDUCTED BY SCHIMPELER-CORRADINO ASSOCIATES, WILL EVALUATE THE POSSIBLE DEVELOPMENT WHICH CAN OCCUR IN THAT CORRIDOR. LOCAL AGENCIES WILL BE CALLED TOGETHER AS THIS STUDY BEGINS AND THEIR INPUT WILL BE REQUESTED.

* Highway safety is not mentioned within the goal statements and the OCRC feels that a statement which indicates that the "state of the art" safety features will be added to the freeway system. This includes incident management.

A STATEMENT REGARDING SAFETY WILL BE ADDED TO GOAL #4.

* Should look at the entire arterial system to determine how an entire demand management program could be developed whereby relief can be provided to the freeway system.

IT IS MDOT'S INTENT TO EXAMINE THE PORTION OF THE ARTERIAL SYSTEM THAT PROVIDES SUPPLEMENTARY SERVICE TO THE FREEWAY SYSTEM. THIS EVALUATION WILL TAKE PLACE DURING THE CORRIDOR STUDY PHASE OF EACH FREEWAY CORRIDOR STUDY. THE IVHS PROGRAM WILL ALSO EVALUATE HOW THE ARTERIAL SYSTEM CAN AND SHOULD BE UTILIZED AS PART OF THE INCIDENT MANAGEMENT PROGRAM.

* There should be a corridor level of service "D" adopted whereby a combination of freeway and surface arterial service level is maintained at "D".

AS EACH FREEWAY CORRIDOR IS EXAMINED, BOTH THE FREEWAY AND SURFACE ARTERIAL WILL BE EVALUATED AND A CORRIDOR LEVEL OF SERVICE CAN BE IDENTIFIED. HOWEVER, UNLESS SOME FREEWAY USERS ARE SOMEHOW ENTICED TO USE THE SURFACE ARTERIAL SYSTEM, THIS CORRIDOR LEVEL OF SERVICE IS SOMEWHAT MEANINGLESS.

* The OCRC has plans to improve Crooks Road both north and south of M-59 and thinks MDOT should not only study the need to improve M-59 from I-75 to Crooks Road but also extend that study past Crooks Road to the west.

THIS TYPE OF INPUT IS VERY HELPFUL MOOT WILL EXTEND THE CORRIDOR STUDY BEYOND CROOKS ROAD.

* Another interchange should be considered at I-75 and 15 Mile Road/Maple Road area. This would help relieve some the problems at the Rochester Road Interchange.

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BASED ON SIMILAR COMMENTS RECEIVED FROM THE OAKLAND COUNTY PLANNING DEPARTMENT, THIS PORTION OF 1-75 WILL BE PROPOSED FOR A CORRIDOR STUDY WHICH WILL INCLUDE THE LEVEL OF LOCAL ACCESS.

MACOMB COUNTY

Comments:

* Concerned that MDOT is not evaluating some of the surface street extensions of freeways; i.e. M-53 and M-59 in Macomb County.

FREEWAY EXTENSIONS ARE NOT BEING CONSIDERED WITHIN THE FREEWAY REHABILITATION STUDY. THE APPROPRIATE PLACE TO IDENTIFY AND GIVE PRIORITY TO NEW FREEWAY SEGMENTS IS WITHIN THE SEMCOG LONG RANGE PLAN UPDATE PROCESS.

Additions to the freeway system should also be considered in this study.

THE SEMCOG LONG RANGE PLANNING PROCESS IS THE APPROPRIATE FORUM WHERE NEW FREEWAY SERVICE SHOULD BE DISCUSSED.

* Macomb County would like to see "equity" in the development and spending programs within this study.

MDOT TRIES TO BASE EQUITY UPON ROADWAY NEED. IN THAT REGARD, IF THE REHABILITATION PROGRAM ADDRESSED THE PRIORITY NEEDS THEN EQUITY OCCURS.

 I-94 within the City of Detroit could have an improved level of service by closing some of the existing unimportant ramps.

THIS CONCEPT WILL NEED TO BE DISCUSSED DURING THE CORRIDOR STUDY PHASE. CERTAINLY THIS IS ONE OPTION WHICH MIGHT CAUSE A DIVERSION OF THE CURRENT FREEWAY TRAFFIC ONTO THE ARTERIAL SYSTEM.

 The improvements to the I-94 corridor should be extended past I-696, up to 13 Mile Road.

AS A RESULT OF FURTHER DETAILED REVIEW OF THAT PORTION OF THE FREEWAY SYSTEM, MDOT IS WILLING TO ADD THIS PORTION OF THE I-94 CORRIDOR INTO THE IMMEDIATE STUDY PHASE.

 M-53 from 27 Mile Road to 34 Mile Road is not shown as a freeway and yet MDOT is purchasing ROW for an eventual freeway.

AS INDICATED EARLIER, MDOT IS NOT EVALUATING THE EXTENSION OF THE FREEWAY SYSTEM, ONLY THE REHABILITATION.

 Maintenance issues and costs should be part of this study – especially pump houses.

MAINTENANCE IS PART OF THE REHABILITATION PROGRAM. THE CORRIDORS PROPOSED FOR INTERIM AND LONG RANGE STUDIES WILL RECEIVE FULL ATTENTION WITH REGARDS TO MAINTENANCE LEVELS TO EXTEND THE LIFE OF THE PAVEMENT.

* Concern over the composition of the I-94 Corridor Study and equity to the user living in Macomb County.

DETAILS REGARDING THE COMPOSITION AND PRIVILEGES OF THE CORRIDOR STUDY COMMITTEES COULD BE ISSUES DISCUSSED BY THE GDAFR POLICY COMMITTEE.

SMART

Comments:

- * 40 percent of the SMART ridership is outbound riders from the City of Detroit to the suburbs.
- * SMART is not part of the light rail effort; this has been D-Dot's pursuit.
- HOV lanes due to financial limitations, SMART buses probably would not utilize the HOV lane proposals.

A POLICY STATEMENT RELATIVE TO THIS ISSUE WOULD BE BENEFICIAL TO THE STUDY AND ITS DEVELOPMENT.

* SMART uses I-94 to the east to deadhead for their trips from downtown Detroit to the suburbs.

MICHIGAN FREEWAY REHABILITATION PROGRAM TRAVEL DEMAND AND LEVEL OF SERVICE SUMMARY OBSERVATIONS

Freeway System (including 1989-90 construction)

<u>Size</u>

- o 1891 miles; 20% of all trunkline; 1.6% of all Michigan roadways.
- 8460 lane miles

Travel

Currently:

20.3 billion annual vehicle miles of travel (AVMT);
 52% of trunkline; 27% of all Michigan travel

By -2010:

o 60% increase in AVMT to 32.5 billion

Level of Service

Currently:

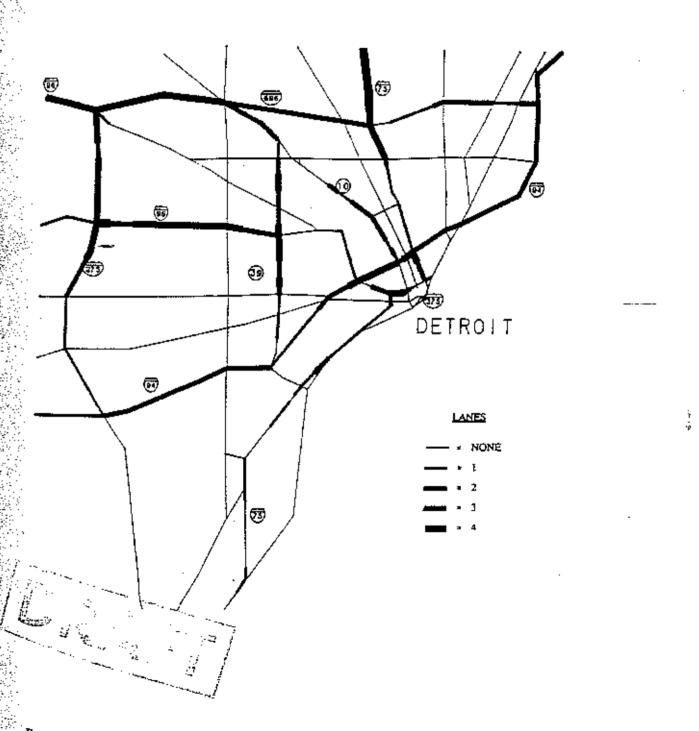
- o 168 miles operating at LOS E&F; 9% of all freeway miles
- o 5.6 billion AVMT on LOS E&F segments; 28% of all freeway travei
- 204 additional lane miles are necessary to resolve LOS E&F deficiencies

By 2010:

- o LOS E&F mileage increases to 445; 24% of freeway miles
- o LOS E&F AVMT tripples to 16.3 billion; 50% of all freeway travel
- 687 additional lane miles are necessary to resolve LOS E&F deficiencies

Prepared by: BTP, PPDD, Demand Estimation and Travel Impact Analysis Section (05-09-89)

MICHIGAN FREEWAY REHABILITATION PROGRAM ADDITIONAL LANES NEEDED IN EACH DIRECTION TO OPERATE AT LOS D IN THE YEAR 2010



Prepared by: BTP, PPDD, Demand Estimation and Travel Impact Analysis Section (05/02/89)

GREATER DETROIT FREEWAY REHABILITATION

STUDY ISSUES

Issue I: Economic Development

A. <u>Metropolitan Airport Access</u>

Metropolitan Airport has experienced tremendous growth with emergence of the hub operation of Northwest Airlines. The two I-94 Interchange improvements (Middle Belt and Merriman) under design by MDOT, the newly approved Vining/I-94 Interchange and the proposed South Access Road from Eureka/I-275 all require funding to provide the needed access.

B. <u>Detroit City Airport Access</u>

The City of Detroit has plans to expand this airport. It is expected that I-94 improvements will be needed, and that the City will present this need separately.

- Equitable distribution of available resources on the basis of population served.
- D. Identification of other criterion to be used in ranking process such as consistency with economic development plans of a community.
- E. The extensive freeway and thoroughfare system, the over availability of water and sewer service, flat topography, low land costs and other factors have resulted in a region of low population density with complementary centers and sub-centers. The metropolitan freeway plan should strive to minimize urban sprawl.

Issue II: Social/Environmental

A. Federal funds should be used to develop fixed rail systems on Woodward and on Gratiot. About 30% of Detroit's population does not have access to a car.

The goal should be to achieve a balanced mix of transportation choices that will reduce the percentage of the urban area devoted to transportation.

- B. Continuous service drives are useful for emergency access, and when freeway maintenance and rehabilitation is under way. This will also mitigate the impact of freeway-generated traffic filtering through neighborhoods.
- C. In most situations, a depressed freeway rightof-way is less damaging to adjoining development, because traffic noise is deflected upward, away from adjoining development. A carefully designed barrier wall and landscaping program might be acceptable in certain situations.
- D. Implementation of the Detroit metropolitan freeway plan over the next 20 years will require effective and efficient detours during construction and maintenance operations. Further, there should be a minimum disruption of major traffic nodes such as Tiger Stadium, Cobo Center, and Joe Louis Arena, and the Detroit City Airport.

Issue III: Pavement Deterioration

- A. As the Lodge Freeway (US-10) pavements were replaced, it will be necessary to replace the other older freeway pavements. Leading the list is the Davison Freeway in the City of Highland Park. Opened in 1942, it is thought to be the oldest freeway in the United States. Although funds for design of a new Davison are in hand, it is necessary to find construction funds. Following Davison are the other freeways which Wayne County has contract maintenance responsibilities. The recent resurfacing of many of these pavements will only buy additional time before replacement is necessary.
- B. Rehabilitation or reconstruction of bridge decks.
- C. Standard for designating freeway pavement deficient.

Issue IV: Capacity and Safety

- A. Standard for designating freeway segments capacity deficient.
- B. Standard for designating freeway safety deficient.
- C. Improvement of the interface or exchange of traffic of the freeway interchanges with the local road network.
- D. Improve ingress and egress including the merging areas.
- E. Improve other operational characteristics such as lighting, signals and median barriers.
- F. The additional number of lanes proposed to be added to the Detroit freeway system to reach Level of Service D in the year 2010 is unrealistic. Implementation of Level of Service D would require another massive round of property acquisition and residential and business dislocation. The end result would be permanent economic and social damage to Detroit, due to the loss of jobs and property and income tax revenue and neighborhood disruption.
- G. Where freeway capacity deficiencies exist, consideration should be given to the improvement of parallel surface routes or freeway transit lanes, rather than the construction of additional traffic lanes on the freeway. The City is interested in the use of freeways for transit or High Occupancy Vehicles (HOV's).
- H. We believe, that wherever possible and no countervailing circumstances exist, continuous service drives should be provided.

Access

- A. Increase the number of interchanges to reflect the dramatic changes in land uses -- from rural to urban freeway design.
- B. Ramp spacing and ramp geometrics should be reviewed, to determine where more ramps may be needed, excess ramps eliminated, or existing obsolete ramps redesigned.

Issue VI: Freeway Appearance

- A. The I-94 Freeway in its length from Metropolitan Airport into the City of Detroit establishes a perception or image of the City, the County, and the State for eastbound travellers, especially those inbound from the airport. This image, due to the present visual impact of the freeway, is very negative. Ford Motor Company has specifically drawn to our attention adverse comments of its visitors.
- B. Develop alternative sources of power for storm water pump houses or stations to reduce flooding.
- C. More State funding to increase the frequency of clean-up operations to deal with the accumulation of debris on a day-to-day basis.

Issue VII: Financial

- A. The Greater Detroit Area Freeway Policy Committee should address the need for new financial resources early in the planning process.
- B. Federal funds should be pursued to develop fixed rail systems on Woodward and on Gratiot. A significant share of Act 51 funds should also be available for transit improvements.
- C. A larger share of federal support (two-thirds surface with 90% freeway) should be available for those surface street improvements which help reduce freeway congestion.

Issue VIII: Plan Approval

- Adoption of overall goals and objectives.
- B. Criteria for designating freeway segments "deficient."

C. Plan Requirements for the City of Detroit

The City of Detroit is prepared to develop and will support a plan that has the following characteristics:

- The plan should recognize the need for a balanced transportation system that serves Detroit residents.
- The plan should not contribute to the loss of population and jobs by Detroit.
- 3. The plan should protect the economy and tax base of Detroit.
- The plan should include realistic funding priorities for freeway maintenance and rehabilitation, construction, and other transportation modes.
- The plan should include realistic funding priorities for freeway maintenance and rehabilitation, construction, and other transportation modes.

THE GREATER DETROIT METROPOLITAN FREEWAY PLAN ISSUES AFFECTING THE CITY OF DETROIT

Regional Development Considerations

The Detroit metropolitan area is an excellent example of an "urban sprawl" development pattern. The extensive freeway and thoroughfare system, the over availability of water and sewer service, flat topography, low land costs and other factors have resulted in a region of low population density with complementary centers and sub-centers. Most area residents rely on the automobile for their transportation needs. An overbuilt freeway system can exacerbate the situation by facilitating the development of outlying areas, making it easy for residents and businesses to abandon inplace infrastructure and facilities for a new location at the edge of the urbanized area. Massive public and private costs, both social and economic, are incurred to develop these areas to the detriment of established cities and suburbs. The metropolitan freeway plan should strive to minimize urban sprawl.

II. Local Development Considerations

The City of Detroit has a disproportionate share of Michigan's older freeways; at this point in time, these freeways require extensive maintenance and upgrading to

current standards. The additional number of lanes proposed to be added to the Detroit freeway system to reach Level of Service D in the year 2010 is unrealistic, as suggested in your report of July 25, 1989. The addition of three or four lanes to the Southfield and Ford Freeways in each direction would be comparable to adding a second parallel freeway in each Implementation of Level of Service D would require another massive round of property acquisition and residential and business dislocation. The end result would be permanent economic and social damage to Detroit, due to the loss of jobs and property and income tax revenue and neighborhood disruption. Further, Southfield Road traffic is, in large part, through movement, with neither origin or destination in the City of Detroit. The addition of 6 to 8 more freeway lanes within this corridor would be a great burden for Detroit to bear.

III. System Capacity Deficiencies

Where freeway capacity deficiencies exist, consideration should be given to the improvement of parallel surface routes or freeway transit lanes, rather than the construction of additional traffic lanes on the freeway.

For example, traffic corridor studies should be used to evaluate Ford Freeway improvements in relation to improvements of major surface streets such as Warren and Harper. In addition, a larger share of Federal support (two-thirds surface with 90% freeway) should be available for those surface street improvements which help reduce freeway congestion.

The City is interested in the use of freeways for transit or High Occupancy Vehicles (HOV's). However, it is current City policy that one end of all such transit routes be located within the Central Business District (CBD). Federal funds should be used to develop fixed rail systems on Woodward and on Gratiot. A significant share of Act 51 funds should also be available for transit improvements. About 30% of Detroit's population does not have access to a car. In addition, Detroit's elderly population is large and their reliance on transit is greater. The goal should be to achieve a balanced mix of transportation choices that will reduce the percentage of the urban area devoted to transportation.

New Technology

New systems to increase the capacity of freeways such as Surveillance Control and Driver Information (SCANDI)

must take into account the unique needs of Detroit residents. The use of SCANDI, when local traffic destined for the freeway is forced to back up onto surface streets is seen as improving flow for non-residents, at the expense of residents. The SCANDI system also can cause congestion and pollution from vehicles sitting at idle, waiting to merge. These are unacceptable factors that need to be considered in future use of SCANDI. The use of IVHS must take into account the ability of Detroit residents to purchase the special and probably costly vehicles, the percent of Detroit's population that owns a vehicle, and the replacement rate for vehicles.

V. <u>Design Considerations</u>

We believe that, wherever possible and no countervailing circumstances exist, continuous service drives drives should be provided. Continuous service drives are useful for emergency access, and when freeway maintenance and rehabilitation is under way. This will also mitigate the impact of freeway-generated traffic filtering through neighborhoods. Wherever possible, rolling grades such as those on the Southfield Freeway should be eliminated, because they generate more noise and pollution. Ramp spacing and ramp geometrics should

be raviewed, to determine where more ramps may be needed, excess ramps eliminated, or existing obsolete ramps redesigned. For example, the Lodge Freeway at Wyoming has 2 ramps in close proximity along a major curve in the roadway. Deficient design has also contributed to ramp/service drive congestion and accidents, which have devalued nearby residential property. The Brush-Beaubien and Lonyo off-ramps from I-94 are two examples of ramps in need of redesign and improvement. In addition, ramps that enter or exit on the left edge of the roadway should be eliminated; for this reason, the Ford-Lodge interchange is a particular concern.

VI. <u>Environmental Considerations</u>

The establishment or expansion of the right-of-way for a freeway has major impacts on the adjoining areas. Local circulation patterns are altered, additional noise and dust are created, and property values may increase or decrease, depending on the relationship to the freeway. These impacts must be carefully considered in freeway planning and design. In most situations, a depressed freeway right-of-way is less damaging to adjoining development, because traffic noise is deflected upward, away from adjoining development. The best local example of an at-grade freeway,

the Southfield, has a very poor relationship to adjoining development; attempts to protect the neighborhoods along the Southfield Freeway with barrier walls and landscaping have not been successful. A carefully designed barrier wall and landscaping program might be acceptable in certain situations. The development of plazas should also be considered as a means of resolving environmental problems along freeways.

VII. Traffic Management Considerations

Implementation of the Detroit metropolitan freeway plan over the next 20 years will require effective and efficient detours during construction and maintenance operations. Major activities should be scheduled to cause a minimum amount of traffic and neighborhood disruption and be timed such that other redevelopment projects are coordinated to minimize disruption.

Further, there should be minimum disruption to major traffic nodes such as Tiger Stadium, Cobo Center, and Joe Louis Arena, and the Detroit City Airport.

VIII. Financial Considerations

The City fully recognizes that Federal and State support for freeway improvements is diminishing steadily, and that its own ability to provide required

matching funds is limited. The Greater Detroit Area Freeway Policy Committee should address the need for new financial resources early in the planning process. The Committee must also establish funding priorities that achieve a balance between freeway maintenance and upgrading, the construction of new freeways, and transit improvements that are meaningful for the 30% of Detroit's population that does not have access to an automobile.

- IX. Plan Requirements for the City of Detroit

 The City of Detroit is prepared to develop and will support a plan that has the following characteristics:
 - The plan should recognize the need for a balanced transportation system that serves Detroit residents.
 - The plan should not contribute to the loss of population and jobs by Detroit.
 - The plan should protect the economy and tax base of Detroit.
 - The plan should minimize neighborhood disruption.
 - 5. The plan should include realistic funding priorities for freeway maintenance and rehabilitation, construction, and other transportation modes.

ECONOMIC DEVELOPMENT GROUP GREATER DETROIT

POLICIES

POLICY I

ENCOURAGE ECONOMIC DEVELOPMENT AND

BASIC INFRASTRUCTURE PLANNED WITHIN THE OFFICIALLY PRESENTLY SERVED BY BASIC INFRASTRUCTURE OR HAVE ADOPTED SEMCOG SEWER SERVICE AREA. FOCUS THESE INFRASTRUCTURE INVESTMENTS IN AREAS WHICH ARE EFFORTS ON AREAS CHARACTERIZED AS HAVING UNDERUTILIZED INFRASTRUCTURE.

POLICY II

ENCOURAGE EXISTING ECONOMIC BASE INDUSTRIES TO REMAIN AND REINVEST AT THEIR PRESENT LOCATIONS. 776

SUPPORT THE DEVELOPMENT OF REGIONAL

COMPLEMENT EACH OTHER AND PROVIDE FOR TRAVEL TO AND FROM WORK AND THE MOVEMENT OF GOODS. TRANSPORTATION AND ROAD SYSTEMS WHICH

300

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POLICY IV

ESSENTIAL ELEMENTS IN A BALANCED AND COMPETITIVE SUPPORT OUR URBAN AND SUBURBAN RESIDENTIAL NEIGHBORHOODS AND COMMUNITY FACILITIES AS REGIONAL ECONOMY.

POLICY V

AND RELATED TOWN CENTER LAND USES WHICH ENHANCE SUPPORT THE TYPE OF INFRASTRUCTURE INVESTMENTS IN LONG-TERM STABILITY AND DISCOURAGE URBAN SPRAWL. OUR RURAL AREAS THAT SUPPORT RURAL RESIDENTIAL

THE PROPERTY OF THE PROPERTY O

DESTINIES AND MANAGE THEIR GROWTH FOR THE BENEFIT GOVERNMENTS (SEMCOG) TO, LIKEWISE, ADDRESS THESE COMMUNITY LEADERS OF THE GREATER DETROIT REGION POLICY VI RECOGNIZE AND RESPECT THE RIGHTS OF LOCAL CITIES, OF THEIR RESIDENTS. THEREFORE, URGE THE MANY VILLAGES AND TOWNSHIPS TO DETERMINE THEIR ISSUES IN DETAIL THROUGH THEIR ESTABLISHED AND THE SOUTHEAST MICHIGAN COUNCIL OF PROCESSES.

POLICY VII

(WAYNE, OAKLAND AND MACOMB COUNTIES AND THE CITY THE GREATER DETROIT ECONOMIC DEVELOPMENT GROUP THESE POLICIES, AMONG THE ENTITIES PARTICIPATING IN THAT EQUITY BE ACHIEVED, IN THE IMPLEMENTATION OF OF DETROIT).

AGENDA ITEM II

SYSTEM CONDITION AND LEVEL OF SERVICE REPORT

Presentation By: James Brush - MDOT

Basically, I'd like to cover a couple of things. Number one is to bring you up-to-date as to where we are in the technical analyses completed so far. The second is to introduce maybe something that will help you to see the magnitude of the problem as it's defined and also to look at some directions that might help in developing strategies to resolve these problems.

There are approximately 1,900 miles of freeway in the state of Michigan and about 8,500 lane miles. The Greater Detroit Area has about 300 miles of that, but about 45% of the daily vehicle miles of travel occur in this area.

The first thing I'd like to do is bring you up-to-date on the analysis of bridges. There are approximately 700 structures in the Detroit area. Those are structures that carry the freeway system itself plus those that carry other roads, generally over the freeway. If we look at their condition, about 60% of the structures out there need work. Many need minor repair which we won't review any closer today. This includes such things as painting, railings, and overlays. But if we look at the ones that need major repair, widening, or replacement, there are approximately 140 of them in the Detroit area.

There's about 100 structures that need major work. If you look at the corridors that they fall in, it's really no surprise that these are the older corridors of the city. There are 20 structures that need widening. These generally are structures that are over top of the freeway system where the current cross-section cannot handle current traffic. Therefore, in the analysis, there is no tie between the demand that we're showing on the freeway system and the structures that carry the freeway traffic. That's an analysis we have to go through yet. And you'll notice the red ones here are the ones that need to be replaced. They're approximately 20 of those on or over the freeway system. As you can see, by 2010 if we were to not make any investments in bridges, that over half would need replacing and none will be in good condition.

Another major component of the transportation system is the current surface condition. The red lines here indicate where we have poor and very poor surface condition based on the Department's 1989 sufficiency ratings. If you couple these with the other elements of the transportation system you can start to identify corridors or areas that have major deficiencies.

Now I want to talk about level of service. This is really what the group is here to avoid (picture of congested freeway). These traffic levels exist in the Greater Detroit Area and I'm sure everyone here is very familiar with this kind of a situation. In a previous meeting Dick Esch came in and talked to you about where we were in the technical process and there were some handouts that indicated that currently there are about 150

miles of freeway in the Greater Detroit Area that operate at level of service "E" and "F" like this. That will increase to some where around 200 by the year 2010.

If you look at them geographically, here is where the current deficiencies occur. The yellow is level of service "E" and the red which is the level of service "F". Probably "F" is more reflective of what was in the previous slide. Basically stop and go. There are approximately 75 miles in the Greater Detroit Area that are operating at level of service "E" and 85 miles at "F."

If we look at what happens to that by the year 2010, we can see it increases significantly. The red becomes much more prevalent. And while there's only 60 additional miles of freeway that becomes deficient during that time period, the 150-some miles that currently exist get much worse.

Well one way out of this, of course is to build out. And what would it take to build out of it? In total, it would take 510 additional lane miles to resolve current deficiencies and twice that many by 2010. If we look at what roads need to have additional lanes, you can see here (in red) that there's about five miles of 1-75 that will need have four additional lanes in each direction. That's probably physically and practically impossible. There's about 16 miles that need to have three additional lanes in each direction, 50 miles where we need to have two additional lanes in each direction and about 90 miles where we need to have one additional lane in each direction.

By the year 2010, this is what it will look like. There are significant portions of the system, I-75, I-96 and a little bit on M-39 where we really need to have another eight lane freeway.

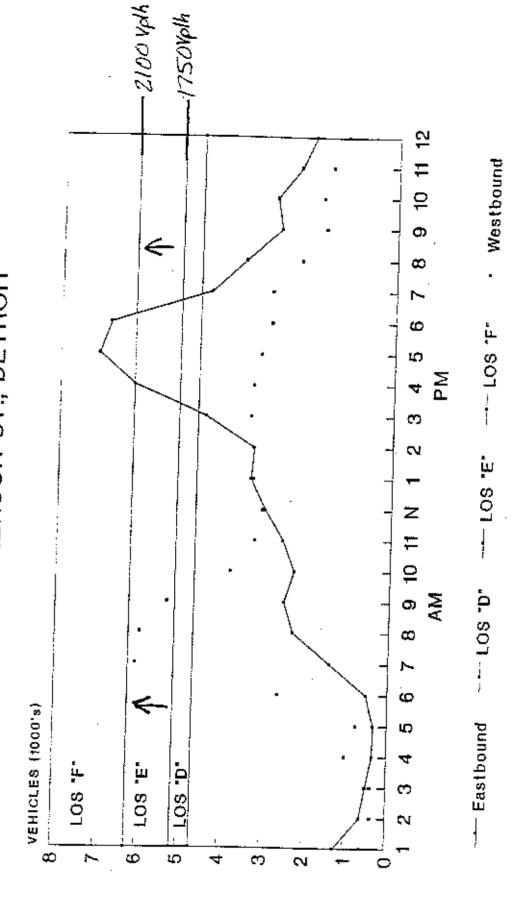
If we look back at the slides for bridges, surface, and added lanes, anything with red in all of them would obviously be the worst situation to have in the Greater Detroit Area and likely to be the highest priority to make investments.

What I want to do now is to examine a little closer the level of service situation. I have chosen a location on I-94 just east of downtown Detroit. It's a Permanent Traffic Recorder (PTR) location that traffic data is collected continuously throughout the year. I-94 carries about 120,000 ADT (Average Daily Traffic) at this location. It's projected in the future to increase somewhere close to a 150,000 ADT. If you look at the eastbound direction, you can see how traffic builds during the day and during the p.m. period. Notice where it crosses the threshold into level of service "E" (about 5,100 vehicles per hour). And really, we as a group, are here to try to figure out how to resolve these orange and purple peaks. The a.m. peak operates at level of service "E" about two and one-half hours. The p.m. peak operates in "E" and "F" somewhere between three and three and one-half hours. Another point I'd like to point out in here is the directional imbalance of the traffic during these particular periods. This corridor is one of the highest directional imbalance corridors in the Greater Detroit Area. It's where you have ingress and egress flows that are significantly different, but really what we're looking at is how do we resolve these two

particular peak periods. We talked very briefly about how you can build out of it. In fact in this case if we were to build an additional lane in each direction, we probably could handle the current traffic. But remember that's just current traffic. The future traffic in this case would drive it considerably higher than that.

At a previous meeting, there was some discussion about auto occupancy rates. Let's look at this particular problem (I-94), and see how we could, in fact, address it in terms of reducing vehicular demand through increasing occupancy rates. This slide illustrates that during the p.m. peak period, there's a rate of approximately 1.3 persons per vehicle. What rate would be necessary for the existing lanage to handle traffic at level of service "D?" The demand is 7,100 vehicles. And if we look at the occupancy rate it means there's about 11,500 person trips that want to go through that corridor during that particular peak hour. If we were to put all those people in the 5,100 vehicles (maximum level of service "D") you would have an occupancy rate of about 2.2 persons per vehicle. That's a significant increase over today's level. In fact, I don't know of any place throughout the country that has been able to achieve that. Another way to look at taking care of that additional demand, it would take a headway of approximately 1 minute of 53 passenger buses running on express lanes in that corridor.

WEEKDAY HOURLY TRAFFIC DISTRIBUTION 1-94 AT DICKERSON ST., DETROIT



Prepared by: DETIA (6/14/90) Source:81P.DMS (Wed.,3/21/90,PTR#9989)

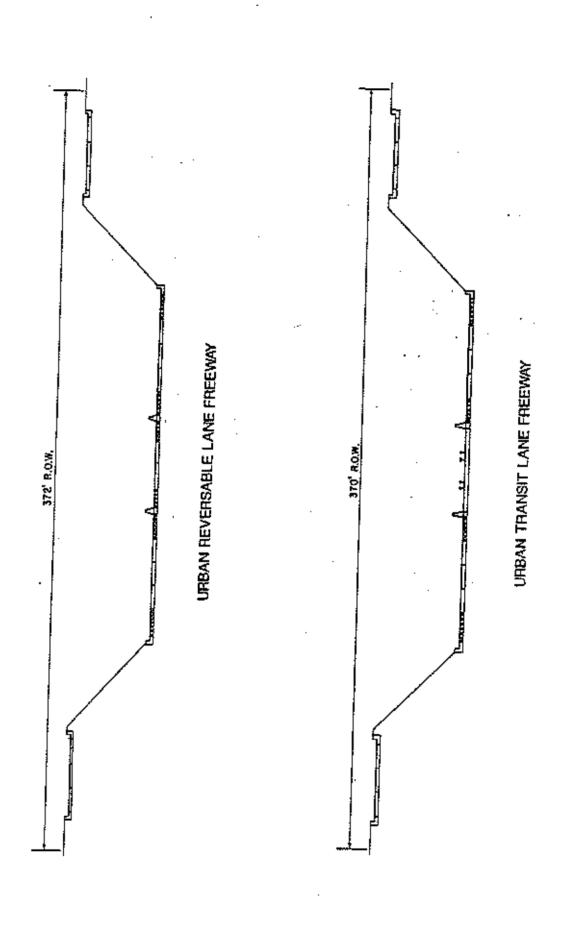


EXHIBIT F

THE PUBLIC TRANSPORTATION ROLE IN GREATER DETROIT FREEWAY CORRIDORS
Prepared June 27, 1990
by SENCOG Transportation Programs Staff

Overview |

The Greater Detroit Freeway Reconstruction Project is examining numerous options for relieving current and future traffic congestion on area freeways. In the process, this project seeks to enhance the mobility and quality of life of all residents in the region. Recommended improvements will seek to minimize unnecessary disruption of established neighborhoods and business districts. To achieve this end, this project not only will identify opportunities for widening existing facilities, but also other strategies which complement or serve as alternatives. Such actions include construction of freeway high occupancy vehicle lanes, improvements to parallel surface streets, moving or closing interchanges, as well as improved public transit and ridesharing.

This paper describes existing transit and ridesharing services operating on the tri-county freeway corridors listed in Table 1. 1 Transit services exist on or parallel to all but the following freeway segments:

- I-94. from Rawsonville Rd. to I-275 (Corridor #1):
- 2. M-14. from the West Wayne County line to I-275 (Corridor #5):
- I-95. from the Western Oakland County line to I-275 (Corridor #9):
- 4. I-96. from I-696/I-275 to M-14 (Corridor #10):
- 5. M-59. from Opdyke Rd. to Mound Rd. (Corridor #12): and
- I-275. from I-94 to M-14 (Corridor #20).

Opportunities for increasing the traffic congestion relief role of transit and ridesharing services are identified, including increasing the frequency and coverage of existing transit service, new express bus services, increased ridesharing efforts, and rail service.

Description and Assessment of Corridor Transit Services

All regional fixed route transit service in Wayne. Oakland, and Macomb Counties is provided by the Suburban Mobility Authority for Regional Transportation (SMART) and the Detroit Department of Transportation (D-DOT). SMART provides fixed route and demand responsive transit services between Wayne. Oakland, and Macomb counties, and intra-county services. Highly patronized services include routes connecting the City of Detroit with suburban tri-county locations along the Jefferson. Gratiot. Woodward, Michigan, and Fort Street corridors. SMART's 39 routes transported 8.4 million riders in FY1989 with 203 peak buses. D-DOT provides primary bus service to passengers traveling within the City

⁻inese corrigors were first presented at the owners, 1990 weeting or one Greater Detroit Area Freeway Policy Committee.

of Detroit and to 24 adjoining suburbs including Redford Township, Livonia. Southfield, Oak Park. Warren, and Harper Woods. D-BOT's 54 routes carried 71 million riders in FY1989 owith 477 peak buses. Basic fares are \$1.00 on both systems, with a \$0.10 charge for transfers between buses of either operator.

SMART and D-DOT both provide local and express bus service. Local bus service allows for maximum accessibility to nearby residences and businesses, with bus stops spaced as close as every two blocks. Express routes are operated from city or suburban residential locations to Downtown Detroit during peak commuting hours. These buses make local stops in outlying residential areas and then travel nonstop or with few stops to Downtown Detroit by freeway or major arterial streets. These routes emphasize high speed service to major employment centers. The nonstop or limited stop portion of express routes ranges from 3 to over 20 miles in length. Five express routes are operated, seven by SMART, and three by D-DOT. Four of SMART's express routes are "Park and Ride" expresses featuring widely spaced stops (two or more miles apart) and free parking near bus stops.

This paper focusses on those routes primarily operating on, or adjacent to, freeway corridors identified in Table 1. SMART and D-DOT services operate in 15 of the 21 identified freeway corridors. These services form eight groups of routes, listed in Table 2, and illustrated in Figures 1-8 These routes carry 81% of the SMART/D-DOT systems' peak period, peak direction passengers. Using peak hour, peak direction ridership counts conducted by both D-DOT and SMART in 1987, combined with rider surveys to ascertain auto availability, an estimate was made of the number of riders who might otherwise drive in the absence of corridor bus service. This estimate gives an indication of the congestion avoided by operating corridor bus service. These estimates of "freeway lane capacity" carried in the eight transit corridors are shown in Table 3. A profile of each corridor follows.

I-94 West Transit Corridor

This transit corridor is illustrated in Figure 1. The II bus routes provide direct or parallel service to I-94 between the Western Wayne County line and Woodward, covering all of freeway corridors 1, 2, and the western portion of corridor 3. The bus system consists of 5 D-DOT local, 5 SMART local, and 1 SMART express route. The SMART peak period express

Peak hour, peak direction counts were taken from SEMTA. 1986/1987 Update of Title VI Assessment for Capital and Operating Assistance. June 1987. This ridership was reduced by subtracting out those passengers who have no other transportation alternative, because they are too old, too young to drive, or do not have a car available. This data for SMART was taken from SEMTA Transit User Survey - 1987, June. 1987. The data for D-DOT was taken from SEMTA. Office of Marketing and Planning: Project 931 -- Analysis of Transit User Lnaracteristics and Travel Patterns. Dune 1902.

route *835 Ford Road Park and Ride* operates from Ford Rd./Canton Center to Wyoming, and then travels on I-94 from Myoming to I-96, then on I-96 from I-94 to Michigan, then on to Bowntown Detroit. Almost all of the D-DOT bus routes provide extensive crosstown service both east and west of Woodward. Carrying 590 peak hour, peak direction passengers who could otherwise drive, these routes carry the equivalent of 30% of a freeway lane (at 2.000 vehicles per hour).

SEMCOG's Public Transportation Plan designates commuter rail service between Ann Arbor, Dearborn, and Downtown Detroit as a corridor under study. A final recommendation will be made as part of SEMCOG's Year 2010 Transportation Plan, following completion of the Michigan Department of Transportation's (MDOT) Blueprint Project. The 2010 plan is scheduled for adoption in Spring, 1991.

I-94 East Transit Corridor

This transit corridor is illustrated in Figure 2. The 17 bus routes shown here provide direct or parallel service to I-94 between Woodward and the East Macomb County line, covering corridor #4 and the east portion of corridor #3. The bus route system includes 9 D-DOT local. 1 D-DOT express, 6 SMART local, and 1 SMART express routes. Many of the D-DOT local routes provide extensive crosstown service to points both east and west of Woodward. No service operates directly on I-94 east of Woodward. Due to the extremely heavy peak traffic conditions on I-94, local and express buses meet their schedules more rapidly and effectively by using surface streets.

Table 3 shows that this corridor is the most heavily traveled of the eight examined. It carries 1.224 passengers in the peak hour, peak direction who could otherwise drive. These routes carry the equivalent of over 60% of the capacity of a freeway lane. Its further development as a high volume transit corridor is endorsed by SEMCOG's 2005 Public Transportation Plan, which calls for developing light rail service on Gratiot from Downtown Detroit to I-696.

I-96 Transit Corridor

This transit corridor is illustrated in Figure 3. The 7 bus routes shown here provide direct or parallel service to I-96 between the I-696/I-275 interchange and the Fisher Freeway, covering freeway corridors 6-8. The bus routes include 5 D-DOT local routes and 2 SMART express routes operating directly on I-96 from Livonia to Downtown Detroit. The peak period express routes, the "810 Livonia" and "820 Farmington" Park and Ride services are among the highest speed, most frequent, and heavily patronized of SMART's peak hour services. Table 3 also shows that over 50% of corridor transit ridership is estimated to come from riders who could otherwise drive (812 passengers). This is the highest percentage of riders who could otherwise drive, among the 8 corridors examined, thus illustrating the appeal of further developing high speed, high quality changing services.

The 812 riders who are estimated as having an auto available represents 40% of the capacity of a freeway lane. This corridor exhibits the third highest level of transit ridership by those who could otherwise drive. While a rail line parallels I-96 for much of its length, it is also in active freight use.

I-696 Transit Corridor

This transit corridor is illustrated in Figure 4. Bus service parallel to I-696 (corridor #11) consists of 1 D-DOT local route and 5 SMART local routes. SMART's route 760 has been introduced since the statistics in Table 3 were compiled. No service operates directly on I-696. Due to the scattered distribution of residences and employment centers and long headways of each of these crosstown routes (30, 60 minutes and longer), an estimated 116 passengers are riders who could otherwise drive, under 6% of the capacity of a freeway lane.

Fisher Freeway Transit Corridor

This transit corridor is illustrated in Figure 5. It covers the same areas as freeway corridors I3-15. Bus service consists of 3 D-DOT local routes, 3 SMART local routes, and 1 SMART express route, a total of 7 routes. The peak period express *830 Downriver Park and Ride* operates on I-75 from Flat Rock to Downtown Detroit. With just over 600 peak hour passengers who could otherwise drive, bus service carries the equivalent of 30% of a freeway lane;

Woodward Transit Corridor

The 21 routes of the Woodward transit corridor are illustrated in Figure 6. These routes provide service parallel to, or directly on the Lodge and Chrysler Freeways, equivalent to freeway corridors 16 and 19. The routes include 11 B-DOT local routes. 3 D-DOT express routes. 5 SMART local routes, and 2 SMART express routes. SMART's express *851 West Bloomfield Park and Ride* operates on I-696 from Orchard Lake to Telegraph, and on the Lodge Freeway from Telegraph to Downtown Detroit. D-DOT's *78 Imperial Express* is the region's only all-day express route, operating from Livonia and Northville to Downtown Detroit on the Lodge from Wyoming inbound. D-DOT's *38 Plymouth* line also operates on the Lodge Freeway from Webb to Downtown Detroit.

This corridor carries 1.148 peak hour riders who could otherwise drive. just below that of the top ranked I-94 East corridor. This volume of passengers represents 57% of a typical freeway lane's capacity. Its further development as a high capacity corridor has been endorsed by SEMCOG's 2005 Public Transportation Plan. The Plan calls for light rail service on Woodward from Downtown Detroit to 11 Mile Road in Royal Dak. Railroad tracks closely parallel Woodward from 11 Mile to Pontiac, making future extensions possible.

Southfield OM-39) Transit Corridor

This transit corridor is illustrated in Figure 7, and corresponds to freeway corridor 18 in Table 1. Service is provided by 4 D-BOT local transit routes, the "60 Evergreen" line introduced since compilation of the Table 3 statistics. No service operates directly on M-39, however D-DOT's route "46 Southfield" operates along its service drive from Eight Mile to Fairlane. This transit corridor carries an estimated 225 peak riders who could otherwise drive, just over 11% of a typical freeway lane capacity.

Davison Transit Corridor

This transit corridor is illustrated in Figure 8. and corresponds to freeway corridor 21 in Table 1. Service is provided by 2 D-DOT local routes. D-DOT's "15 Chicago-Davison" route operates on the Davison Freeway service drive. Table 3 shows that this corridor exhibits the lightest volume of estimated riders who could otherwise drive (83 peak passengers, representing under 5% of freeway lane capacity).

Regional Ridesharing Assessment

Carpooling and vanpooling in the region also contribute to reducing freeway capacity demand from still higher levels. SEMCOG's RideShare program matches passengers with like origins, destinations, and work times to encourage carpooling. RideShare is also MDOT's local representative for the MichiVan vanpool leasing program. Combined with some of the major transit corridors discussed above, the various vanpool routes increase the efficiency of the existing freeway system and warrant further development.

The 52 existing vanpool routes were categorized into the eight transit corridors defined previously and summarized in Table 4. The I-96 corridor is the most heavily travelled, followed by I-94 West, and the Woodward corridor. The top two corridors reflect the success in forming vanpools from Ann Arbor and Western Wayne to Downtown Detroit and the New Center area. The existing I-96 bus service coupled with the high volume of vanpool trips result in the I-96 corridor almost carrying a half freeway lane of passengers. This makes the I-96 corridor approximate the I-94 East and Woodward corridors in importance as a high-occupancy vehicle corridor.

Table 5 shows automobile vehicle occupancy levels at selected freeway locations based on a 1985 SEMCOG survey. The AM vehicle occupancies are significantly lower, mostly under 1.15 persons per car, versus over 1.20 in the PM. Vehicle occupancies appear particularly low at AM locations within the City of Detroit. often also experiencing the worst congestion. Morning trips are primarily work trips: afternoon trips include other trip purposes as well. Putting this into perspective, an occupancy level of 1.15 persons per car means that 88.2% of automobiles on a freeway contain only one occupant, with just under 12% carrying two or more occupants, acquaing this proportion or single occupant automobiles can significantly extend peak freeway capacity.

Summary Assessment of Freeway Transit and Ridesharing Experience

This section described and assessed the contribution of current transit and ridesharing services in relieving freeway traffic congestion. Transit service is currently provided directly on, or adjacent to, 15 of the 21 freeway corridors being considered by the MDOT Freeway Reconstruction project. Combined transit and ridesharing services carry an estimated half a freeway lane equivalent of traffic on peak hour trips in three corridors:

- 1. I-94 East. from Woodward east to the Macomb County line:
- 2. Woodward (including the Lodge and Chrysler Freeways); and
- 3. I-96 corridor, from I-275 to Downtown Detroit.

SEMCOG's 2005 Public Transportation Plan endorses development of rail service in both the Woodward and I-94 East corridors, the two heaviest corridors. The next section putlines additional strategies to further enhance the potential for these transportation options to reduce the size of freeway expansion programs, particularly where right-of-way acquisition is expensive and socially disruptive.

Transit and Ridesharing Enhancement Alternatives

Having assessed the current contribution of transit and ridesharing services in Greater Detroit freeway corridors, this section reviews national experience as to the likely impacts of expanding such programs. These strategies, implemented singly, or in combination with freeway widening can help to alleviate long-term freeway congestion. The specific strategies examined include:

- I. Expanded carpooling and vanpooling programs:
- 2. Increased local bus service area coverage and route density;
- 3. Increased local bus service frequency:
- 4. Increased express bus transit service:
- Initiation of light rail service.

The review focusses on the ability of these strategies to attract former auto drivers, particularly those in single occupant automobiles.

Ridesharing Encouragement

Three types of vanpools are discussed in this paper: employer sponsored, third party and owner operated. While the first type of vanpool, employer sponsored, is self-explanatory, examples of the other types are discussed relow. Third that it is first type of Michigan because of the Michigan program sponsored by the State. Michigans are leased to

the driver, who then recruits riders and charges a fare. Owner-operated vanpools are similar to the third party arrangement, but the van is owned by the driver.

Vanpools are most successful when the one-way trip exceeds 15 miles and the pool's riders all work on fixed schedules with similar start and stop times. Vanpools also work best when the riders work for the same large employer, their home neighborhoods have inadequate transit service, their route to work is congested, or there are severe parking limitations at their place of employment.

National studies have been done to determine the effect of carpools and vanpools on the existing street network. These studies found that the majority of vanpoolers were previous carpoolers or transit riders. Between 25 percent and 50 percent of the vanpoolers previously drove alone. The table below estimates the net vehicle miles traveled (YMT) reduction for carpool and vanpool programs in an urban region of 1.153.000 employees. 4

	Carpool	<u>Vanpool</u>
Pool participation rate (new poolers only)	2.5%	0.5%
Average work trip length	16 mi.	25 mi.
Average occupancy	2.9	11
Net YMT reduction (area employment of 1,153,000)	446,600	211,400
Proportion of program VMT reduction	68%	32%

A discussion of the Detroit ridesharing program appears in a previous section.

Traveler Response to Transportation System Changes. Barton-Aschman Associates, Inc., U. S. Department of Transportation. July 1981.

⁴ Ibid

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Bus Routing/Coverage

Changes in local bus routing/coverage can take on several different forms.

- Introducing service where no service presently exists
- 2. Major system-wide extensions and addition of bus routes
- Extensions or additions to individual, primarily radial, bus routes to serve new development
- Initiation of special purpose routes which connect high unemployment areas with major suburban employment areas; and
- Restructuring system to rationalize service -- reduce circuity and the number of transfers, provide cross-town and express lines.

From national studies, some general conclusions about bus routing/coverage increases can be made. New bus routes take 1 - 3 years to reach full patronage potential. The new or modified bus routes must relate to the local travel patterns and all other elements of the transit system. Usually, the majority of riders will come from within 1 - 3 blocks of the route. New cross-town routes appear to attract mainly existing transit users.

Coverage in new areas is hard to predict because of its close ties to local development and travel patterns. Summary figures for predicting increases in ridership appear to show that for every 1% increase in additional bus mile of service, there will be a 0.6 - 0.9% increase in ridership. The greatest potential for ridership increases are in the suburbs and during off-peak times.

Unfortunately, the above factors indicate that bus routing/coverage changes will yield relatively small changes in VMT. Table 6 (in the appendix) shows statistics for systems in North America that have made comprehensive system expansions and indicates their service elasticity. (Service elasticity is the percentage change in ridership observed or expected in response to a I percent change in service, normally described in terms of bus miles operated.) Table 7 (in the appendix) shows the impacts of transit service expansion on traffic volumes.

Transit Scheduling/Frequency

This technique differs from the previously discussed bus routing/coverage technique in that it does not consider large system expansion. It does consist of making schedule changes to increase the level of service or "fine tuning" the schedule to make service more attractive. More specifically, this technique includes the following:

- 1. Increases in service frequency
- 2. Lengthening service hours
- Rescheduling departure times to better accommodate work shifts or make transfers easier, and
- Increasing service reliability -- decreasing passenger wait time or annoyance.

In some instances, this technique could involve very minor changes to area coverage or routing.

From national studies, it was generally found that 1 out of 2 new riders were previous auto drivers. Service elasticity for headway changes was found to be -0.5. Thus, for every 1% change in headway, a corresponding 0.5% increase in ridership could be realized.

Additionally, it was found that this technique worked better in areas where service was infrequent. It appears that upper to middle income individuals tend to be more sensitive to frequency changes rather fare changes. Lower income individuals in areas considered to have good service appear to be most sensitive to fare changes.

The table below shows changes in VMT for selected cities where a 25% areawide reduction in headways was modeled. 7 Unfortunately, the results were low when compared to other techniques.

	WEEKDAY AREAWIDE Transit Rides	PERCENTAGE CHANGE Auto VMT
Denver	+21.0%	-0.4%
Fort Worth	+21.6	-0.3
San Francisco	+18.3	-2.0

Table 8. in the appendix, shows the change in work trip mode share for various changes in headways and fares.

⁶ ibid

⁷ Ibid

Express Transit

Different techniques of express transit include operating:

- In separate roadways (HOV lanes discussed in a separate paper)
- 2. In mixed flow lanes with exclusive ramps or bypass lanes
- 3. In arterial mixed flow lanes
- 4. In HOV arterial lames

This technique is usually accompanied with increases in frequency and coverage. To be successful the corridor under consideration must be experiencing long person trips with significant demand at both ends. The service also requires a high volume of people with the same general origin and destination and usually operates in the peak period in the peak direction. The below table shows the shift in mode for two areas. 8

		PRIOR MODE	
	AUTO DRIVER	AUTO Passenger	TRANSIT
Seattle			
all express routes	. 19%	62	75%
park/ride express routes	54	11	35
local routes	7	5	88
Minneapolis			
express routes	38	10	52
local routes	34	17	49

⁸ Ibid

The table below shows examples of how much VMT can be reduced by use of this techniques. 9

	Low Impact	Mean of 7 cases	High <u>Impact</u>
Daily express bus trips Number of buses required Weekday auto VMT reduction Weekday express bus VMT Equivalent weekday VMT reduction	150 63 26.923 3.000 20.923	450 188 80.769 9.000 62.769	950 396 170.515 11.085 418.345
Percent reduction in: Work trip VMT to and from CBD Regional work trip VMT Total annual VMT	1.93% 0.29 0.10	5.93% 0.89 0.31	14.1% 2.11 0.74

Rail

Rail, whether heavy or light, has been debated in the Detroit for a number of years. In the present Public Transportation Element of the Year 2005 Long Range Transportation Plan, the Southeast Michigan Council of Governments proposes the construction of two light rail lines in southeast Michigan. One proposed line extends along Woodward Ave. from downtown Detroit to 11 Mile Rd. and the other extends along Gratiot from downtown Detroit to 11 Mile Rd. in Roseville. These two light rail lines were viewed as assisting in relieving existing and future traffic congestion along several Detroit area travel corridors by providing an alternative to automobile travel.

: 100E

Both heavy and light rail facilities have been instituted in several other metropolitan areas of the United States. The three rail facilities looked at this paper include:

- 1. Metrorail in Washington D.C.
- 2. the San Diego Trolley
- 3. BART in the San Francisco bay area

Metrorail (heavy rail) began operation in 1976. In 1981, when a before-and-after study was published, 31 of a planned 101 miles were open and approximately 260.000 riders were being served on a daily basis. Comparing transit ridership and traffic volumes before-and-after opening the following statistics were revealed and attributable to the rail service: 10

⁹ Ibid

and Robert E. Griffiths, September 1981.

- * daily bus ridership dropped 23.0%
- * daily auto-person trips dropped 8.3%
- * daily auto-driver trips dropped 7.6%
- * daily auto traffic dropped 5.0%

The following peak period statistics were reported:11

- * auto-person trips dropped 4.2%
- * auto-driver trips dropped 5.9%

The San Diego Trolley (light rail) began operation in 1981. The line is 15.9 miles length with daily ridership reaching approximately 16.000 persons in 1984. A 1984 evaluation study could not link any changes in the area's traffic volumes to the trolley operation. The following statistics were cited: 12

- * 30% of all trolley riders previously used a car.
- * 23.8% of the riders previously drove a car.
- * 6.0% of the riders previously were auto passengers.

BART. the 71-mile San Francisco Bay Area Rapid Transit System, began passenger service in 1972. In a 1979 evaluation study, daily ridership was stated as 140.000 passenger trips per day. BART's ridership and impacts fell short of predictions. Changes to regionwide traffic were minimal. In defense of the system's planners. BART was designed to avert future traffic congestion, not existing. The evaluation report states that it appears this was achieved. The following statistics were reported: 13

- * BART caries 2.4% of all areawide trips.
- * 31% of BART's trips were previously transit trips.
- * 39% of BART's trips were previously auto trips.

¹¹ Ibid

San Diego Trolley: The First Three Years, San Diego Association of Governments, November 1984.

^{2007&#}x27;s Time Years: Transportation and Travel Impacts, Alistain Sherret, April 1979.

In all three examples, the initiation of rail service was not intended to solely relieve congestion but to provide a means of increasing overall person trips in the area. While traffic volume decreases were minimal, the presence of rail service allowed individuals to make trips that previously they were not able to make. Also, the new rail service may have delayed the necessity of providing additional capacity to the area's freeways by providing an alternative. This was especially realized in the San Francisco area.

Potential Role of Transit and Ridesharing in Freeway Reconstruction

This paper examined both the current and potential future roles of Greater Detroit's public transit and ridesharing services. Current transit and ridesharing services operate in 15 of the tri-county's 21 freeway corridors under study. Combined transit and ridesharing services carry the equivalent of over a half lane of peak hour traffic volume in three corridors:

- I. I-94 East, from Woodward east to the Macomb County line;
- 2. Woodward (including the Lodge and Chrysler Freeways); and
- 3. I-96. from I-275/M-14 to Bowntown Detroit.

A wide variety of strategies can be implemented to further enhance the role of public transit and ridesharing programs in relieving long-term traffic congestion. Those strategies include increasing ridesharing promotion (particularly when combined with the development of high-occupancy vehicle lanes), increased local area bus route coverage and density, increased frequency of local bus service, expanded express transit service, and new light rail service. These strategies, individually, or in combination with freeway widening and interchange improvements constitute an effective freeway improvement program. SEMCOG's 2005 Transportation Plan is on record as endorsing development of light rail service in both the Woodward and I-94 East corridors.

This paper examined the ability of various transit improvements to reduce area-wide VMT and attract former auto drivers. The overriding goal of any of these strategies is to ultimately reduce the number of required lane-miles of new freeway construction. Local network traffic projections will be required to determine how much each transit and freeway improvement strategy will reduce congestion, and whether transit or high-occupancy vehicle lane implementation will reduce the required lane-miles of new freeway construction.

APPENDIX
TABLES AND FIGURES FOR
THE PUBLIC TRANSPORTATION ROLE IN GREATER DETROIT FREEWAY CORRIDORS

Table 1

GREATER DETROIT AREA FREEWAY REHABILITATION PROGRAM CAPACITY DEPICIENT CORRIDORS

Length (miles)	6.7	16.0	18.9	20.7	6.9	9.5	6.5	5.4	11.9	7.4	17.6	9.2	2.6	=	61	10.2	1.6.1	14.	14.9	12.2	9.1
Ī	Jci. 1-275	Jei, M-53/Detrolt WCL.	Jet. 1.696/W.P. Routher Fwy	Macomb E. Co. L	Jet. 1-96/f-275	Outer Drive/Lasher Inich	Davison Intche	Jet. I-75 Fisher Pwy	Ja. 1.275/1-696/W. P. Reuther Fwy	Jei. M-14/1-96	Jci. F.94	Mound Rd. Intchg.	Ict. M-85	Jet, 1.96 Jeffeles Fwy	Jet. I-375	Jet. 1-696/W. P. Reuther Fwy	J¢i. M·S9	Jei, M10/Nozitwesiern Fwy	Jet. 1.94/Ford Fwy	Jet. M-14/8-96/0-275	Jet, 1-75/Chrysler Fwy
<u>Arom</u>	Rawsonville Rd. Inich.Wayne W.Co.L.	fet. 1:275	fer, M-33/Detroit WCL	Jet. 1.695/W.P. Reuther Fwy	Wayne W. Co. L.	Jet. 1-275/M-14 ,	Outer Dr./Lasher Intchg.	Davison Intelig.	Oakland W, Co. L	Jci. E.696/W. P. Reuther Fwy	1 Jct. 1-96/1-275	Opdyke Rd. Intchg.	North Line Rd. Intchg.	Ambassador Bridge Intchg.	Jai. 1-96 Jeffeles Fwy	Jer. 1:375	Jet. 1-696/W. P. Reuther Fwy	Jet. 1-94/Detroit Industrial Expwy	Jet, 1.696/W. P. Reuther Fwy	Jet. 1-94/Detrait Industrial Expwy	Jei. M-10/Lodge Fwy 🐧
Route	1.94	1.94 Detroit/Industrial Expuy.	1.94 Ford Fwy.	1.94	M.14	1.96/Jeffries Fwy	1-96/Jeffrios Fuy	1.96/Jeffiles Fwy	1.96	1.96/1.275	1.696/W. P. Reuther Fwy	M-59	1.75	1.75/Fisher Fwy	1.75/Pisher Fwy	1.75/Chryster Fwy	1.75	M-39/Southfield Pay	M:19/Lodge Fwy	1.275	Davison Fwy
Corridor	-	7	-	4	s	v o		6 0	o.	Œ	=	12	5	=	22	2	5	. =	- 62	92	71

TABLE 2
SMART and DDOT Routes Serving Greater Detroit Freeway Corridors

	G154(1 G14 550) 1-1	belling at case, bellivit		
Freeway Grouping	Route <u>No.</u>	Description Name	Service Type	See <u>Figure</u>
		· · · · · · · · · · · · · · · · · · ·		
I-94 W I-94 W I-94 W	6 11 14	Buchanan Clairmount Crosstown	DDOT Local DDOT Local DDOT Local	1 1 1 1
I-94 ₩	20	Grand Belt	DDOT Local	
I-94 W	37	Michigan	DOOT Local	1
I-94 W	150	Taylor/Detroit	SMART Local	1
1-94 W	200	Michigan Avenue	SMART Local	1
1-94 W	240	Westland-Cherry Hill	SMART Local	1
1-94 W	250	Westland-Ford	SMART Local	1
I-94 W	260	Westland-Warren	SMART Local	
1-94 W	835	Ford Rd. Park & Ride	SMART Express	1
I-94 E I-94 E	6 7	Buchanan Cadillac-Harper	DDOT Local	22222222222222
I-94 È	11	Clairmount	BDOT Local	2
I-94 E	14	Crosstown	DDOT Local	ž
I-94 E	20	Grand Belt	DDOT Local	2
I-94 E	21	Gratiot	DDOT Local	ž
I-94 E	31	Mack	DDOT Local	5
I-94 E	49	Yernor	DDOT Local	2
1-94 E	50	Warren	DDOT Local	5
1-94 E 1-94 E	76	Hayes Express	DDOT Express	2
1-94 E	560-561	Gratiot	SMART Local	5
	580	Harper	SMART Local	2.
I-94 E I-94 E	610-615	Kercheval-Mack	SMART Local	٠ ءُ
		Schoenherr	SMART Local	2
I-94 E	530-535 620 - 625	Charlevoix	SMART Local	5
I-94 E		Jefferson	SMART Local	2
I-94 E	630		SMART Express	2
I-94 E	635	Jefferson Ltd.	JUNE : EXPLESS	_
I-96 I - 96	20 27	Grand River Joy Road	DBOT Local DBOT Local	3
I-96	38	Pl ymouth	DDOT Local	3
I-96	43	Schoolcraft	DDOT Local	
I-96	47	Tireman	DDOT Local	3 3 3
I-96	810	Livonia Park & Ride	SMART Express	3
I-96	820	Farmington Park & Ride	SMART Express	3
1-30	020	referrigeon refer a nice		_
1-696	17	Eight Mile	DDOT Local	4
I-696	470 -4 79	Serkì ey	SMART Local	4
I-696	480-488	Farmington Hills	SMART Local	4
1-696	710-715	Nine Mile	SMART Local	4
7,020	,-0	AMERICA TITLE		
1-696	760	Roseyille-Troy	SMART Local	4
1-020	, 55			·

TABLE 2
SMART and DDOT Routes Serving Greater Detroit Freeway Corridors

		_		
Freeway	Route '	Description	Service	See
Grouping	<u>No.</u>	<u>Name</u>	Type .	<u>Figure</u>
		· ·	•	
Fisher	3	Baker	DDOT Local	5
Fisher	19	Fort ·	DDOT Local	5
Fisher	28	Lafayette-Green	DDOT Local	5
	110	Jefferson/Biddle	SMART Local	55555555
Fisher	125-130	Fort St.	SMART Local	5
Fisher		Taylor/Detroit	SMART Local	5
Fisher	150	Downriver Park & Ride	SMART Express	Š
Fisher	830	DOMULIAGE SALK & KIGE	מיוטען בעטי בים	-
Woodward	.10	Chene	DDOT Local	# 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
Woodward	12	Conant	DDOT Local	6
Woodward	18	Fenkel 1	DDOT Local	5
Woodward	23	Hamilton	DDOT Local	6
Woodward	26	John R. North	DDOT Local	6
Woodward	29	Linwood	DDOT Local	6
Woodward	36	Qakl and	DDOT Local	5
Woodward	38	Plymouth	DDOT Express	6
Woodward	40	Russel]	DDOT Local	5
Woodward	44	Second	DDOT Local	6
Woodward	52	Woodrow Wilson	DDOT Local	6
Woodward	53	Woodward	DDOT Local	6
Woodward	72	Dexter Express	DDOT Express	6
Woodward	78	Imperial Express	DDOT Express	6
Woodward	410	Southfield-Detroit	SMART Local	6
• • • • • • • • • • • • • • • • • • • •	430	Clawson	SMART Local	6
Woodward	440-450 - 460	Woodward	SMART Local	6
Woodward	445-455	Woodward Limited	SMART Express	6
Woodward	470-479	Berkley	SMART Local	- 6
Woodward	495-498	John R	SMART Local	6
Woodward		W. Bloomfield Park & Ride	SMART Express	- 6
Woodward	851	W. BIDGITTEIG PEIK & KIGE	Jimir Lapi una	-
M-39	22	Greenfield	DDOT Local	7 7 7 7
M-39	41	Schaefer	DDOT Local	7
M-39	46	Southfield	DDOT Local	7
M-39	60	Evergreen	DDOT Local	7
		-		_
Davison	8	Caniff	DDOT Local	8
Davison	15	Chicago-Dayison	DDOT Local	8

Table 3
Peak Period. Peak Direction Transit Riders by Freeway Grouping
(Sorted by "Diverted" 1 Hour Ridership)

	o. of	Diverted I Hour Riders	Total 1 Hour Riders	% Diverted Riders	% Lane Capacity Saved
I-94 E	17	1.224	3,475	35.2	61.2
WOODWARD	21	1.148	3.580	32-1	57.4
Other Routes	25	941	3.048	30.9	47.1
I-96	7	812	1.617	50.2	40.6
FISHER	7	612	1.255	48.8	30.6
1-94 W	11	590	1,337	44.1	29.5
M-39	3	225	810	27.8	11.2
I-696	5	116	438	26.4	5.8
DAVISON	2	<u>83</u>	298	<u>27.8</u>	4.1
Corridor	97	5.750	15.857	36.3	N/A

Notes:

- "Diverted 1 Hour" riders are those who we estimate have a car available to make their trip but elected to use public transit. Their proportion of "Total 1 Hour Riders" is shown two columns to the right under "I Diverted Riders". This percentage is based on household availability percentages found in two reports:

 (a) SEMTA Transit User Survey - 1987. June. 1987 and (b) SEMTA. Office of Marketing and Planning: Project 931 -- Analysis of Transit User Characteristics and Travel Patterns. June 1982.
- In computing "% Lane Capacity Saved", it is assumed that a freeway lane carriés
 2000 vehicles per hour. The purpose of this column is to illustrate the degree to
 which corridor transit routes are removing traffic from a lane of freeway.
- 3. Peak hour, peak direction ridership data taken from SEMTA, 1986/1987 Update of Title VI Assessment for Capital and Operating Assistance. As a result, the count of routes and ridership do not include D-DOT's route #60-Evergreen* and SMART's route #760-Roseville/Troy*, implemented after this report was published.
- 4. Some routes may be counted twice, because they serve multiple corridors (i.e. I-94 W and I-94 E freeway groupings), but ridership is allocated to each corridor, so ridership is not doubled-counted.
- 5. "Other Routes" refers to all other routes not operating near one of the 21 freeway corridors examined in this project.

Table 7

Impacts of Transit Service Expansion on Traffic Volumes

Location	Annual VMT (millions)1	Annual Trip Length (miles)	Average Equivalent Vehicle Miles Reduced (thousands) ²	Equivalent Percent Reduction in VMT
Seattle, WA ³ Miami, FL ³ Portland, OR ³ San Diego, CA 3	7,153 5,917 4,299 6,929	3.5 3.5 2.5 3.0	4,440 13,987 5,646 5,517	0.06 0.24 0.13 0.08
Average for Larger Cities	6,075		7.397	0.13
Madison. WI ³ Eugene. GR ³ Raleigh. NC ³ Bakersfield. CA ³ Bay City. MI ⁴ Greenville. NC ⁴	1.224 628 1.156 709 367 96	2.5 2.0 2.0 2.5 1.5	1,546 1,361 -201 444 -339 -134	0.13 0.22 -0.02 0.06 -0.09 -0.14
Average for Smaller Cities	697		446	0.03

¹ Based on 1972 DOT National Transportation Study

Source: <u>Traveler Response to Transportation System Changes</u>, Barton-Aschman Associates, Inc., July 1981.

Mismi 15 yet 19

² Assuming one bus-mile = two equivalent passenger-car miles

Percentage increases in bus miles of service and ridership for these service expansions are provided in Table 6.

⁴ New transit system

EXHIBIT B



OFFICE MEMORANDUM-

ite:

February 15, 1991

TO:

The Highway Steering Committee

FROM:

G. Robert Adams, Interim Director

SUBJECT: Greater Detroit Area Freeway Rehabilitation Recommendation

The Department has worked cooperatively with the City of Detroit, Wayne, Oakland and Macomb Counties, the Detroit Department of Transportation, the Suburban Mobility Association for Regional Transportation (SMART) and the Southeast Michigan Council of Governments (SEMCOG) in developing the Goals and Actions for the Greater Detroit Area Freeway Rehabilitation (GDAFR) program.

The preliminary cost for rehabilitation improvements to the freeway system during the immediate time period (1991 - 1998) is estimated to be between \$1.4 and \$1.6 billion. This includes adding capacity to 46 lane-miles of freeway. Improvements consist of work along all eight freeway corridors, ranging from short-term maintenance to complete reconstruction. In addition, SEMCOG, through its Long Range Transportation Plan 'pdate process, will be establishing corridor priorities for intermediate and long-range iconstruction/capacity improvements. Draft study recommendations for the immediate period are scheduled for late spring, with the final plan released in late 1991.

The policy committee for the GDAFR program has chosen the I-94 Corridor, from Wyoming Avenue in Detroit to 13 Mile Road in Macomb County, as the corridor of highest priority. A combination of age, pavement/structure deterioration and traffic volumes are factors which make this corridor top priority. It merits MDOT'S attention now, rather than waiting for final recommendations for the entire greater Detroit area. Therefore, I am recommending that work begin immediately on the I-94 Corridor Study.

The study should include the following:

- 1. Development of study organization/participation process
- Determination of capacity/access needs
- 3. Feasibility of high-occupancy lanes and/or transit integration
- 4. Scheduling of construction segments within the corridor
- 5. Development of a strategy for maintaining mobility during construction

ruary 15, 1991

F. TWO

All possible consideration should be given to expediting this process to enable the majority of this facility to be rehabilitated and open to traffic by 1998.

The overall cost of reconstruction is roughly estimated at \$600 million for this 20-mile corridor, therefore, it is suggested that MDOT pursue I-4R discretionary funds to reconstruct this facility and that \$1.5 million be approved for the corridor study and preliminary engineering.

Interim Birector

Attachments

BTP/GII/DEG/wp cc: R. Kirkbirde W. Hartwig Minutes
February 22, 1991
Page two

X Greater Detroit Area Freeway Rehabilitation Recommendation

Lou Lambert reported that the policy committee for the Greater Detroit Area Freeway Rehabilitation program has chosen the I-94 corridor, from Wyoming Avenue in Detroit to 13 Mile Road in Macomb County, as the corridor of highest priority. Approval from the HSC was required to proceed with the preliminary engineering and corridor study.

Action:

The HSC approved \$1.5 million needed for the comidor study and preliminary engineering and scoping. The HSC requested the Bureau of Transportation Planning report back in three months to the HSC as to the progress made on the project.

Ambassador Bridge Welcome Center

Charles Jennett presented the HSC with the final schematic design for the Ambassador Bridge Welcome Center. Monty Norris reported the status of the right of way. The department has purchased all right of way with the exception of three parcels. Commodies Export property, a residential parcel, and the bridge property. The department has received requests from the locals to provide access to the welcome center from Bagley Road and to have input into the type of welcome center built, including what services would be provided. Due to the many requests from the locals and the costs involved, Larry Leatherwood proposed turning the project over to the locals.

Action:

The HSC directed staff to proceed with right of way acquisition for the residential parcel to the point of condemnation. Since it was the intent of the department to construct a traditional welcome center and the locals have requested a different approach, the HSC agreed not to proceed any further with the Ambassador Bridge Welcome Center. The HSC requested that a letter from Director Nowak to the Commission be prepared requesting to change the focus to the locals or privatization. Lou Lambert. Chuck Sweet, and Charles Jennett will prepare the letter with Bureau approval. The HSC stated the pedestrian bridge would proceed. The contract for design of the welcome center is to be closed out, the testing for contaminated soil is to be discontinued.

GREATER DETROIT FREEWAY REHABILITATION

STUDY ISSUES

Issue I: Economic Development

A. <u>Metropolitan Airport Access</u>

Metropolitan Airport has experienced tremendous growth with emergence of the hub operation of Northwest Airlines. The two I-94 Interchange improvements (Middle Belt and Merriman) under design by MDOT, the newly approved Vining/I-94 Interchange and the proposed South Access Road from Eureka/I-275 all require funding to provide the needed access.

B. <u>Detroit City Airport Access</u>

The City of Detroit has plans to expand this airport. It is expected that I-94 improvements will be needed, and that the City will present this need separately.

- Equitable distribution of available resources on the basis of population served.
- D. Identification of other criterion to be used in ranking process such as consistency with economic development plans of a community.
- the extensive freeway and thoroughfare system, the over availability of water and sewer service, flat topography, low land costs and other factors have resulted in a region of low population density with complementary centers and sub-centers. The metropolitan freeway plan should strive to minimize urban sprawl.

Issue II: (Social/Environmental

Federal funds should be used to develop fixed rail systems on Woodward and on Gratiot. About 30% of Detroit's population does not have access to a car.

The goal should be to achieve a balanced mix of transportation choices that will reduce the percentage of the urban area devoted to transportation.

Issue IV: Capacity and Safety

- A. Standard for designating freeway segments capacity deficient.
- B. Standard for designating freeway safety deficient.
- C. Improvement of the interface or exchange of traffic of the freeway interchanges with the local road network.
- D. Improve ingress and egress including the merging areas.
- E. Improve other operational characteristics such as lighting, signals and median barriers.
- The additional number of lanes proposed to be added to the Detroit freeway system to reach Level of Service D in the year 2010 is unrealistic. Implementation of Level of Service D would require another massive round of property acquisition and residential and business dislocation. The end result would be permanent economic and social damage to Detroit, due to the loss of jobs and property and income tax revenue and meighborhood disruption.
 - Where freeway capacity deficiencies exist, consideration should be given to the improvement of parallel surface routes or freeway transit lanes, rather than the construction of additional traffic lanes on the freeway. The City is interested in the use of freeways for transit or High Occupancy Vehicles (HOV's).
- H. We believe, that wherever possible and no countervailing circumstances exist, continuous service drives should be provided.

Issue V: Access

- A. Increase the number of interchanges to reflect the dramatic changes in land uses -- from rural to urban freeway design.
- B. Ramp spacing and ramp geometrics should be reviewed, to determine where more ramps may be needed. excess ramps eliminated, or existing obsolete ramps redesigned.

Issue VI:

Freeway Appearance



- The I-94 Freeway in its length from Metropolitan Airport into the City of Detroit establishes a perception or image of the City, the County, and the State for eastbound travellers, especially those inbound from the airport. This image, due to the present visual impact of the freeway, is very negative. Ford Motor Company has specifically drawn to our attention adverse comments of its visitors.
- Develop alternative sources of power for storm water pump houses or stations to reduce flooding.
- More State funding to increase the frequency of clean-up operations to deal with the accumulation of debris on a day-to-day basis.

Issue VII: Financial

- The Greater Detroit Area Freeway Policy Committee should address the need for new financial resources early in the planning process. 11
- Federal funds should be pursued to develop fixed В. rail systems on Woodward and on Gratiot. A significant share of Act 51 funds should also be available for transit improvements.
 - A larger share of federal support (two-thirds surface with 90% freeway) should be available for those surface street improvements which help reduce freeway congestion.

Issue VIII: Plan Approval

C.

- Α. Adoption of overall goals and objectives.
- Criteria for designating freeway segments "deficient."



THE GREATER DETROIT METROPOLITAN FREEWAY PLAN ISSUES AFFECTING THE CITY OF DETROIT

Regional Development Considerations

The Detroit metropolitan area is an excellent example of an "urban sprawl" development pattern. The extensive freeway and thoroughfare system, the over availability of water and sewer service, flat topography, low land costs and other factors have resulted in a region of low population density with complementary centers and sub-centers. Most area residents rely on the automobile for their transportation needs. An overbuilt freeway system can exacerbate the situation by facilitating the development of outlying areas. making it easy for residents and businesses to abandon inplace infrastructure and facilities for a new location at the edge of the urbanized area. Massive public and private costs, both social and economic, are incurred to develop these areas to the detriment of established cities and suburbs. The metropolitan freeway plan should strive to minimize urban spraul.

II. Local Development Considerations

current standards. The additional number of lanes proposed to be added to the Detroit freeway system to reach Level of Service D in the year 2010 is unrealistic, as suggested in your report of July 25, 1989. The addition of three or four lanes to the Southfield and Ford Freeways in each direction would be comparable to adding a second parallel freeway in each corridor. Implementation of Level of Service D would require another massive round of property acquisition and residential and business dislocation. The end result would be permanent economic and social damage to Detroit, due to the loss of jobs and property and income tax revenue and neighborhood disruption. Further, Southfield Road traffic is, in large part, through movement, with neither origin or destination in the City of Detroit. The addition of 6 to 8 more freeway lanes within this corridor would be a great burden for Detroit to bear.

III. System Capacity Deficiencies

where freeway capacity deficiencies exist, consideration should be given to the improvement of parallel surface routes or freeway transit lanes, rather than the construction of additional traffic lanes on the freeway.

/1

For example, traffic corridor studies should be used to evaluate Ford Freeway improvements in relation to improvements of major surface streets such as Warren and Harper. In addition, a larger share of Federal support (two-thirds surface with 90% freeway) should be available for those surface street improvements which help reduce freeway congestion.

The City is interested in the use of freeways for transit or Righ Occupancy Vehicles (HOV's). However, it is current City policy that one end of all such transit routes be located within the Central Business District (CBD). Federal funds should be used to develop fixed rail systems on Woodward and on Gratiot. A significant share of Act 51 funds should also be available for transit improvements. About 30% of Detroit's population does not have access to a car. In addition, Detroit's elderly population is large and their reliance on transit is greater. The goal should be to achieve a balanced mix of transportation choices that will reduce the percentage of the urban area devoted to transportation.

IV. <u>New Technology</u>

New systems to increase the capacity of freeways such as Surveillance Control and Driver Information (SCANDI)

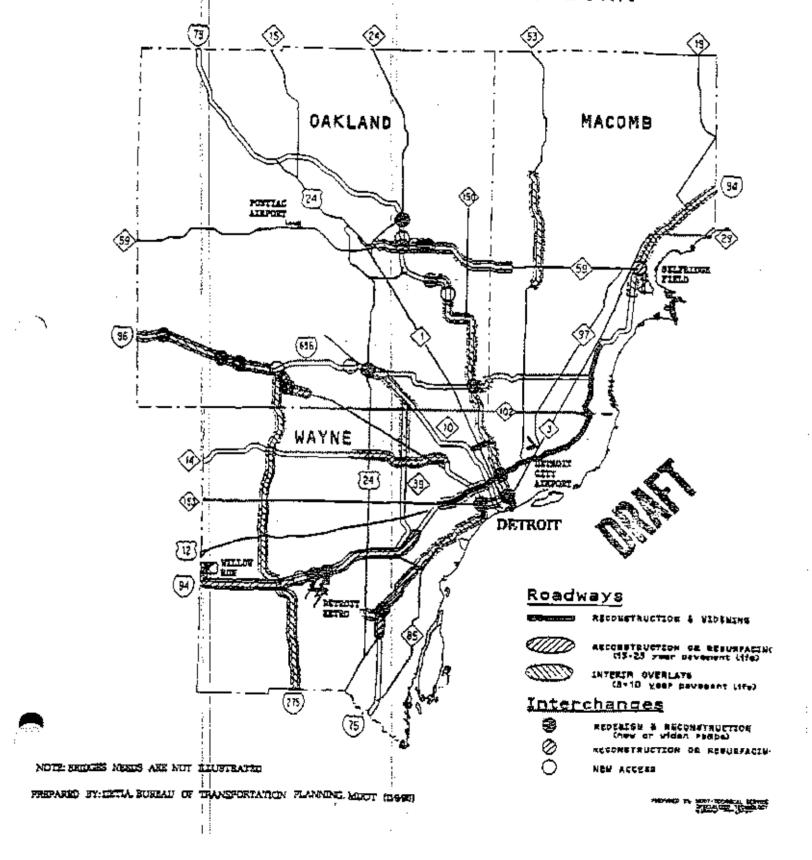
- TX. Plan Requirements for the City of Detroit

 The City of Detroit is prepared to develop and will support a plan that has the following characteristics:
 - The plan should recognize the need for a balanced transportation system that serves Detroit residents.
 - The plan should not contribute to the loss of population and jobs by Detroit.
 - The plan should protect the economy and tax base of Detroit.
 - 4: The plan should minimize neighborhood disruption.
 - The plan should include realistic funding priorities for freeway maintenance and rehabilitation, construction, and other transportation modes.

EXHIBIT C

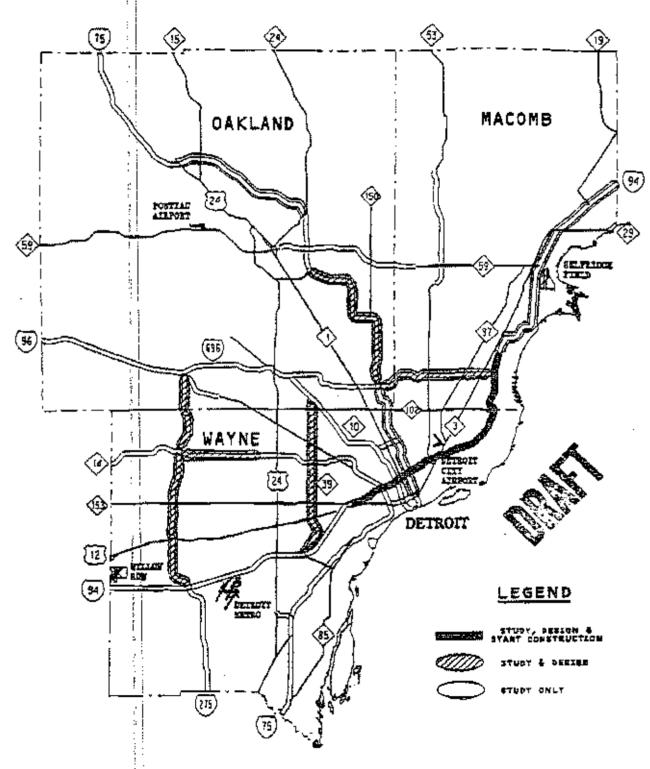
GREATER DETROIT AREA FREEWAY PROGRAM

IMMEDIATE PERIOD (THRU 1997) NEEDED CONSTRUCTION WORK



GREATER DETROIT AREA FREEWAY PROGRAM

IMMEDIATE PERIOD (THRU 1997) RECOMMENDED CORRIDOR STUDIES



FAX 2318824723

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Gheater Detroit area Freeway Rehabilitation program Summary de Immediate actions 1991 Trough 1997

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