

MDOT's I-75 Freeway Corridor Project
in
Oakland County

Work Plan/Schedule/Organization

Work Plan

This section follows MDOT's Preconstruction Tasks List. It is consistent with FHWA's Advisory T6640.8A, the National Environmental Policy Act (NEPA) and all applicable laws, regulations and Presidential Executive Orders. This work will produce quality EIS/EPE documents that are "publish ready."

I-75 Corridor in Oakland County continues to be the focus of major growth of all sorts. Initially, residents moved to this area for relief from the pressures of city living. Commercial development naturally followed the consumers and, in the past two decades, major employers have located in Oakland County to provide easier transportation access both for employees as well as for business' shipments of products. The result has been increasing congestion and accompanying safety and cost issues for all categories of travelers.

According to the 2000 Census, Oakland County's population was 1,194,156 which is 10 percent above the 1990 population. This is even greater than the 7.1 percent growth in the 1980s. And, growth in northern Oakland County was 34.5 percent between 1990 and 2000. Growth is projected at almost 28 percent between 2000 and 2020.

Oakland County had the highest increase in population of any Michigan county in the 1990s; and, the 47th largest population increase of any county in the nation for the same period! And, by 2020 it is expected that Oakland County will have nearly 19 percent of Michigan's total employment and more than 29 percent of the state's total earnings. These development patterns will continue to put relentless pressure on the transportation system.

So, this work plan must focus on: (1) establishing an appropriate and sustainable purpose and need for the project; (2) developing an appropriate range of alternatives that satisfies the NEPA process including the no-action alternative; (3) coordinating the environmental and engineering efforts in a dynamic way; (4) involving the public in a meaningful way; (5) satisfying regulatory agencies; and, (6) ensuring that the process has been properly documented.

Task 211M - Meetings

The key to the success of this project is Communication! Communication! Communication! This means communicating with MDOT; with a project-related I75 Council established by MDOT; with key stakeholders affected by the project; and, just as important, communicating with the public at large. Accessibility to the project by the

public builds credibility. Therefore, the use of MDOT's Web site on which all project documentation is to be available is essential, as is e-mail, plus a telephone hotline to provide 24/7/365 entry to the project.

Assembling a good database in an efficient manner is key to getting a project started on solid footing. Aerial photography is one key data ingredient. Solid and recent information on land use, traffic, crashes, population, employment, parks, utilities, wetlands, historic properties and other environmental issues must be assembled early and in clear graphical form. Where needed, new information must be gathered efficiently to fill voids in the database.

Computer and GIS analyses must be state-of-the-art. Output must not be gibberish but easy-to-understand by both technical reviewers and the public. Likewise, knowing how to convert traffic/travel data to practical solutions requires good communication.

Another key ingredient of a successful project is creativity. Giving the public a "feel" for it through video simulation is an asset. A flyover simulation to demonstrate "before and after" conditions at the 12-Mile and proposed 14-Mile interchanges to be improved by creating Single-Point Urban Interchanges will be used in this project.

Someone once said: "all politics are local." So it is with good planning/engineering; all good transportation plans are "local." Today's planning process is designed to be shared with the public so that good analyses of creative solutions yield a plan the people can and will endorse.

The public/agency involvement effort will drive the project. A kickoff meeting with the MDOT Contract Administrator, Project Manager (Sue Datta), Environmental Coordinator (Lori Noblet), and Public Hearings Officer (Jose Lopez) will define the final work plan, schedule, and public involvement desired by MDOT. Joint discussion will lead to decisions on the structure of the I-75 Council that MDOT will form.

MDOT's Web site will be used to keep everyone posted on meetings and project progress. For each round of public meetings, media releases prepared by MDOT, and graphics and handouts prepared by the Consultant will convey information to the public to stimulate discussion and promote comments. A record of key events will be maintained, provided monthly to MDOT and submitted as a final deliverable at the project's conclusion.

Three rounds of public meetings are proposed prior to the public hearing, with one wrap-up meeting to follow the public hearing for a total of five rounds of public involvement. Each public involvement event will consist of a series of two meetings within 48 hours at

different times and locations in the project area. To the maximum extent possible, the “open-forum” meeting approach with display stations will be used. All public sessions will be attended by a minimum of three Consultant representatives. These public meetings will be preceded by meetings with MDOT.

One month into the study the project will be introduced to the public, the schedule and tasks will be presented, and input on potential alternatives will be sought. The second public meeting event will be held at the beginning of the fifth project month to present preliminary travel analysis results, including those of transit/HOV consideration. At the third round of meetings in month 11, the results of the SEE studies will be presented and the Preferred Alternative defined. In the project’s 16th month, the formal public hearing(s) on the DEIS will be held. A final round of public meetings will be held in the project’s 22nd month to present the Recommended Alternative Report.

Task 2120 - Prepare Traffic Analysis Report

An I-75 Corridor Feasibility Study, completed in November 2000, articulated the need for additional freeway capacity in Oakland County to provide safe and efficient traffic movement. The I-75 study showed that in the horizon year of 2025, the present roadway will operate at a level-of-service (LOS) E or worse during the afternoon peak hour for almost the entire length of I-75 from Eight Mile Road to M-24 and from Baldwin Road to Sashabaw Road. North of Sashabaw Road, the computer models indicated that I-75 will operate under capacity in the 2025 afternoon peak hour, but further analysis revealed that the traffic in the 30th highest hour will exceed capacity in 2025. This latter peaking is associated more with recreational than commuter travel. Given this traffic growth experience, it is expected that all of I-75 will be over capacity in 2025.

This EPE/EIS project will take the results of the earlier I-75 study for the section from 8-Mile Road to M59, examine its recommendations, re-evaluate them in more detail, perfect them and obtain the required approvals to move forward into the design phase. The analysis will re-examine the potential impact of transit and the use of high-occupancy vehicle facilities/services, both as long-term and short-term (maintenance of mobility during construction) solutions to regional travel.

The Traffic Analysis Report (TAR) will establish detailed traffic information for base year and future year options, including the No-Action Alternative, to determine design requirements and noise and air quality impacts. The design year will be 2025. Analysis will rely on SEMCOG’s models and supporting demographic information with which the Consultant is very familiar. The travel analysis will be sensitive to local development and the need to thoroughly evaluate transit as part of this effort. The Consultant will assemble all available traffic counts and transit data, including the regional transit

ridership survey information it is now collecting for SEMCOG, SMART, DDOT, the Ann Arbor Transit Authority, and others. The Consultant will also conduct new traffic counts, as needed, to provide accurate forecasts of travel.

The TAR will provide more detailed information than produced in the I75 Feasibility Study. It will include “micro” simulations. These techniques to be used include:

- Intersection performance: Highway Capacity Software (HCS 2000)
SIGNAL 97
RODEL
PASSER III

- Arterial performance: TRANSYT-7F
SYNCHRO
ART-PLAN
ART-TAB
CORSIM
NETSIM

- Freeway performance: FREQ
CORSIM
VISSIM

- Transit performance: TranPlan
Nested Logit Model
Viper Network Model

In addition to SYNCHRO/CORSIM, the Corradino team can apply VISSIM, a microscopic simulation model developed to analyze the full range of functionally classified roadways and transit operations (e.g., LRT, BRT, queue jumps, etc.). VISSIM can model integrated roadway networks found in a typical corridor as well as various modes consisting of general-purpose traffic, buses, HOV, light rail, heavy rail, trucks, pedestrians, and bicyclists. ITS components and strategies can also be modeled in VISSIM: variable message signs (VMS), ramp metering, incident diversion, adaptive signal control, transit signal priority, lane control signals, dynamic lane control signs, etc. Unique features of VISSIM include 3-D vehicle animation, interfaces with planning/forecast models, and assessment of access management strategies.

The information produced in the TAR will include transit ridership (daily and peak hour) by mode, Design Hour Roadway Traffic Volumes (DHV), Annual Average Daily Traffic (AADT), KIP axle loadings, and information suitable for analyses of traffic operations at

interchanges and critical intersections. Forecasts will be of sufficient detail to support air quality and noise analyses.

Transit/HOV Simulation/Evaluation

The I-75 EPE study will consider all transportation alternatives. The earlier I-75 Feasibility Study demonstrated that it is difficult for transit to obviate the need for the I-75 to be expanded by one lane in each direction in most sections because the travel demand in the corridor is so much greater than this solution can address. But, it is equally clear that the technical tools for evaluating transit proposals are not available in SEMCOG's current, operational travel demand model. Thus, earlier and future studies are subject to criticism because of the absence of detailed and specific analyses of bus rapid transit, light rail transit, commuter rail, and other possible public transportation modes.

SEMCOG is in the midst of developing an entirely new travel demand-forecasting model, using a software package called TransCAD. Typically, there is a time in excess of a year to develop a new model, validate it, and prepare it for release for use in "real" studies, such as the I-75 EPE/EIS. SEMCOG's new model will include a mode-choice model and should provide the tools needed for a comprehensive and detailed analysis of transit for the region. But, the transit model is dependent on the acquisition of new survey data. Corradino is conducting that regionwide data collection effort, which just began. Because of the time needed to develop and validate such a model after the data are available, it is not prudent to put the development of the new TransCAD mode choice model on the critical path for the I-75 EPE/EIS project.

There is an alternative. Corradino will implement a transit model to supplement SEMCOG's existing TranPlan model. It is important to note that the ability of TranPlan (when coupled with other tools) to forecast highway volumes and transit ridership is no less powerful than that of TransCAD. Moreover, software exists that would allow such a model to be implemented in a time frame suitable to support the I-75 EPE/EIS. Corradino has the expertise and experience needed to implement such a model. And, it will draw on that and other experiences in comparable regions to provide a reasonable test on the I-75 corridor situation. The approach follows.

A transit model will be inserted into SEMCOG's existing modeling process. The major steps that will be taken to implement the transit model are:

- Model Specification – The transit model will be added to TranPlan between the trip distribution and traffic assignment steps. The current model is a daily model with a set of factors that can be used to develop an afternoon peak hour trip

table. For this study, it is recommended that the mode-choice model be applied on a daily basis, and then separate transit and highway peaking factors will be applied to produce peak hour and daily highway and transit assignments. Additionally, the highway model will be able to display loadings by auto occupancy level.

Models would be developed for:

- home-based-work,
- home-based-non-work, and
- non-home-based trip purposes.

Modes would include:

- Auto drive-alone
- Auto 2 person
- Auto 3 or more person
- Walk-to-bus
- Drive-to-bus
- Walk-to-fixed-guideway (BRT, LRT, etc.)
- Drive-to-fixed-guideway (BRT, LRT, etc.)
- Walk-to-commuter rail
- Drive-to-commuter rail

- Choose an existing mode choice program – There are two choices here. The first is a FORTRAN-based nested logit model developed by Corradino for the Indianapolis Northeast Corridor Study. The second is a “generalized nested logit” model (GNL) developed by the Florida Department of Transportation. Both work with TranPlan. Corradino chooses the GNL because of its flexibility and extensive testing.
- Code the transit networks – The transit model will require a transit network to represent regional base and future transit services. Corradino proposes to use Viper software to code the network. Available transit data from SEMCOG, DDOT, SMART and AATA will be used to develop it. Coding the transit network would be the most labor-intensive effort in this modeling process.
- Borrow a set of mode-choice coefficients – The model needs a set of coefficients that estimates how transit ridership would change in response to changes in transit service levels, transit coverage, transit fares, and highway travel times. The usual method of estimating these coefficients is to develop them from a set of surveys, and this is how SEMCOG will develop them for its new TransCAD model. However, as noted earlier, all of the survey data have not been collected. Thus, Corradino proposes to borrow a set of constants from other similar urban areas, or use a reasonable set of “national average” coefficients. This is a common approach for areas without current surveys, and Corradino has employed this method with good success in other urban areas.

- Validate the model – The validation effort will compare model results with observed travel characteristics, including traffic counts, transit ridership, and transit fleet sizes. After this comparison is made, model parameters will be adjusted so that the model reasonably replicates existing transportation statistics. In this effort, the main focus of validation is expected to be the adjustment of the mode choice constants (not coefficients). Then adjustment allows the model to replicate observed transit ridership and auto occupancy levels. The use of the GNL simplifies this effort because it includes a “self-calibrating” feature that runs the model iteratively until specified target mode shares are reached.

After the transit model is validated, additional statistics will be developed to ensure that the model is able to reasonably replicate observed highway volumes (traffic counts). Adjustments to model parameters will be made as necessary as indicated by the validation effort.

- Test the alternatives – After validation is complete, transit alternatives will be tested.

The Consultant will work with MDOT, SEMCOG, SMART and other local agencies, and through the public meeting process to define alternatives. It is important to note these will include transit options of regional significance even though the EPE work is limited to the I-75 section from 8-Mile Road to M-59. This is necessary because transit, just like the highway system, is regional in its scope. The results of this analysis will provide information for the section of I-75 covered by the EPE work on: 1) how the needs and design of the I-75 roadway improvements would be affected by major transit initiatives; 2) the number of transit trips that would be carried by each alternative; and 3) estimates of the capital and operating costs of the alternatives.

The Consultant proposes to use a screening process for evaluating transit options. In the first-level screening, an extensive transit system would be developed and coded into the model. Transit would be given every reasonable advantage. For example, high-level fixed-guideway transit lines would be coded in the I-75 corridor. Express bus service will be coded in the corridor to feed, but not compete with the fixed-guideway transit lines. Local feeder bus service also would be added. For the initial run, none of the I-75 highway improvements would be coded (no action). Then, the model will be applied for the base and future years (SEMCOG has data and networks for 1995 and 2025). These runs will illustrate how transit could be expected to perform under optimum conditions. Generalized capital and operating cost estimates for the transit service will be developed.

Based on the results of the first-level screenings, the Consultant will develop up to three practical transit alternatives. These will include transit improvements that attract reasonable levels of ridership. Again, these will be tested with the no-action highway alternatives. The Consultant will adjust the alternatives based on the model results, which will include the level of ridership, the impact on the highway system (reduction of highway volumes at key locations), and systemwide statistics (VMT, VHT, averages speeds, and travel time savings).

Finally, the Consultant will identify the most promising transit alternative. This alternative will be tested in conjunction with the preferred highway alternative(s) for I-75. The final multimodal transportation alternative, which might include major transit projects, then will be identified as part of the EPE evaluation process. However, consistent with MDOT'S guidance of November 30, 2001, the highway solution for I-75 in the study area will be the addition of no more than one lane to a maximum of four through lanes in those sections only that are now less than four through lanes. This additional lane could be for general purposes, or for HOVs in the peaks, or for transit. But it will be for one purpose or the other.

Task 2160 - Prepare Scoping Document

Federal guidance states: "There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed scoping." (Council on Environmental Quality [CEQ] Regulation 40 CFR 1501.7.) So, this task will develop, in cooperation with MDOT, a Scoping Package as a basis for coordination with all appropriate federal, state, and local agencies that have regulatory or review authority, or otherwise have a stake in the outcome of the project. Scoping confirms the alternatives to be examined and identifies key issues by answering the following questions: 1) What is the purpose of and need for the project? 2) Have all affected parties been identified? 3) Are the proposals to address the need coherent? 4) Has the list of issues been identified, at least initially? In addressing these questions the connected and cumulative/secondary effects of the proposed action must be determined.

A formal scoping meeting will be conducted, with a Scoping "Packet" provided to all involved. It will include an explanation of scoping; the procedures to be used in the analysis/evaluation; a discussion of the purpose of and need for the project; and, the clearly stated position that "no decision has been made." Those to be involved in scoping will include relevant state and federal agencies; local government officials; affected parties, including the general public and the business community; and, emergency personnel such as police, fire and EMS. Based on the scoping process, all

input will be acknowledged in writing and it will be used to influence the overall EIS/EPE work.

An important part of the scoping packet is the "Purpose and Need" statement. The "purpose and need" will be both comprehensive and specific. It will explain why the proposed action is being pursued and define the alternatives being considered. It will include charts, tables and other illustrations to help avoid lengthy discussion and circular reasoning. It will guide development of the proposed action. It will aid in gaining agency concurrence at the earliest point in the NEPA process. The "purpose and need" statement will be refined in this EIS/EPE process. This most important section of the environmental document will then be incorporated into the EIS and, like all project documents, posted on the Web.

Task 2310 - Conduct Technical SEE Studies

Analysis of the social, economic and environmental effects of the alternatives is the scientific and technical underpinning of an environmental document. A number of separate reports will be produced toward this end by following state and federal laws, regulations and guidelines and by consulting with MDOT. These include: FHWA's Technical Advisory 6640.8A; Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations;" MDOT's Noise Policy; air quality conformity requirements; ASTM E1528-93 (covering hazardous material site assessments); prescribed wetland analysis techniques; and, work specifications for the survey of above-ground and archaeological resources.

The SEE studies will make extensive use of comparative tables and matrices to summarize clearly the differences among alternatives. Supporting methodologies used in reaching conclusions will be provided. Mitigation measures will be discussed in appropriate detail. Below is a summary discussion of the approach to each of the NEPA analysis categories in the order normally considered in an MDOT EIS.

It is important to note that while a number of the following issues will be limited to the I-75 section 8-Mile Road to M-59, others like travel issues, economic impacts and secondary/cumulative effects cannot be that narrowly limited, and will be analyzed from a broader perspective.

Traffic and Transportation - The proposed transportation improvement will have a substantial effect on travel patterns and land use. Level of service changes and travel time adjustments will be the subject of this analysis, together with improved safety. The Traffic Analysis Report will be summarized in the EIS. The effects of transit, Transportation System Management (TSM), and Intelligent Transportation System (ITS)

alternatives on travel demand, systemwide vehicle miles of travel, travel time and delay will be estimated and evaluated, compared to taking no action

and adding freeway capacity. Use of expanded freeway laneage by high-occupancy vehicles (HOVs) will be similarly evaluated.

The application of Intelligent Transportation Systems (ITS) technologies throughout the I-75 corridor may complement lane widenings to reduce 2025 congestion to acceptable levels. The I-75 Corridor Feasibility Study calls for the expansion of the SCATS (Sidney Coordinated Adaptive Traffic System) and its supporting Autoscope video-imaging system into the Dixie Highway and Walton and Woodward corridors. The communities along I-75 such as Clawson, Royal Oak, Madison Heights, Ferndale, and Hazel Park are candidates for SCATS.

Ramp metering has been examined at key interchanges along I-75 and this technology will be evaluated in more detail in combination with other improvements. Other ITS applications to be studied include expansion of the changeable dynamic message signs to all freeway-to-freeway approaches; creating a "hub and spoke" configuration of ITS control; and, implementation of in-vehicle telematics and wireless communications that could offer detour routes during congested periods.

The use of ITS technologies during the reconstruction of I-75 is also a key item to be examined in detail in the EPE work. A system utilizing queue-detection devices linked to portable changeable message boards is part of this concept. The queue-detection devices trigger preprogrammed messages that provide motorists with advance backup warnings, accident warnings, and alternative route information.

Relocation - The Conceptual Stage Relocation Report will be prepared by MDOT/Real Estate Division. The data to be developed in part, by the Consultant, will be sufficient to develop the displacements/relocation section of the EIS. All acquisition and relocation work will be consistent with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Analysis will be based on detailed aerial photography showing proposed right-of-way lines in relation to dwelling units and businesses. The analysis will differentiate between potential full versus partial relocations. The character and composition of the affected area will be examined using Census and other available socioeconomic data, field observations, and information brought forward by those affected.

Along I-75 the relocations are expected to be limited, particularly if I-75 can be cantilevered in the area between 9 Mile Road and I-696 to avoid in the community of

Hazel Park three vacant lots, five single-family dwellings, 24 apartments, a commercial establishment, and an Episcopal church. On the other hand, even with cantilevering, relocations in the area north of I-696 in Madison Heights may not be avoided. So, relocations there could include eight dwelling units and Our Savior Lutheran Church.

A number of communities could feel the effects of relocations as the Oakland County arterial road network is improved to cope with burgeoning development. Some communities have been reluctant to date to widen roads in their communities, fearing a loss of the “sense of place” that they identify with their communities. Principal among these is Bloomfield Hills. Other obstacles to roadway widening are historic resources, such as Oakland University faculty housing along Adams Road. These secondary relocation issues will also be addressed.

Social Impacts/Community Cohesion – This analysis will examine how the “footprint” of improvements could disrupt key segments of the community or important access patterns. Analysis will determine whether there are any deleterious impacts on school access, bus routes, emergency service access areas or coverage, and other forms of community interaction. The character and composition of each area’s population will be examined using Census and other available socioeconomic data. This will be a principal focus where pedestrian bridges link neighborhoods on either side of I-75 and where there are long stretches where no cross access exists. The I-696 interchange acts as a pedestrian barrier. And, the six- to eight-block sections of I-75 north and south of 11 Mile Road have no crossing. These areas are largely residential. So, a careful analysis will be conducted to determine how these crossings relate to community cohesion and whether such crossings should be kept in the same locations and whether any additional links would support community planning. In this same context it is noted that a bicycle group representing interests in the corridor has a position paper entitled “Cycling Mobility: I-75 Corridor, South Oakland County” (February 2000). It supports the examination of specific cross linkages and bicycle treatments at crossings as the preliminary design moves forward.

Environmental Justice in Minority and Low-income Populations - Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations” was written to protect low-income and minority and special needs populations from bearing an undue proportion of negative impacts from federally-funded projects. At issue is the continued siting of facilities, including transportation facilities, in low income, minority and special needs areas. The issue is complicated by the fact that some communities welcome various facilities as a means of job development and economic opportunity. And transportation facilities frequently have less site flexibility than prisons, sewage treatment facilities and similar major facilities. The new Census

data, and cooperation with SEMCOG, which is very attentive to this issue, will be part of this analysis.

Economic Impacts – If the resultant preferred alternative calls for increasing the capacity of I-75 and/or improving transit, there would be an influx of dollars to the corridor. Indirect and secondary effects resulting from changes in traffic flow will also be assessed (see next section), as will Tax-base effects on local governments. Sections of new right-of-way could be acquired affecting local tax bases.

Land Use, Urban Development, Farmland Impacts and Associated Secondary Development - The direct effects of the transportation facilities on land use will be measured as well as the added impacts of development supported by expanded transportation capacity, both highway and transit. The former translates into relocations and the number of acres of land taken by category. The proposed project's capacity, travel time, and any changes in access will have a direct effect on the extent and kind of development that will follow.

Noise - Corradino was the first firm to submit and have approved the noise analysis for an MDOT project using FHWA's Transportation Noise Model (TNM). This software will be used to determine which sensitive receptors will experience noise levels that approach or exceed established noise abatement criteria both along I-75 and supporting arterials. Where they do, the sites will be evaluated in terms of MDOT's Noise Policy to determine whether abatement is feasible and reasonable. If it is, TNM will be used to determine preliminary design of noise walls or berms.

To assist in this effort, noise simulation will be conducted and displayed at public meetings to create a clear understanding of the changes in expected traffic, resulting noise and the mitigation that may be appropriate. This will be done by determining the sound levels in typical houses along the affected roadways. Then, noise associated with various types of traffic will be simulated. These sounds can be demonstrated in meetings so the public gets a sense of noise inside and outside sample houses. This will help build an understanding of and credibility in the evaluation process and allow mitigation, where needed, to be focused on in a pragmatic way.

Air Quality - The region's status relative to National Ambient Air Quality Standards (NAAQS) will change if EPA's 8-hour ozone standard is implemented (based on conversations with EPA in Chicago and SEMCOG). If the 8-hour standard is imposed, the region will shift from "maintenance" to "non-attainment." The shift could affect the type of air quality conformity analysis that is performed for the EIS.

Conformity analysis will be performed in conjunction with SEMCOG, the agency responsible for clearing projects included in their Transportation Improvement Program (TIP) and Long-Range Plan. In addition to air quality conformity analysis, carbon monoxide (CO) impacts with respect to the NAAQS will be determined, using CAL3QHC for intersections and CALINE3 for free flow sections, together with emission factors from MOBILE5A. The effect of transit on this air quality forecast will be a key part of this analysis.

Secondary/Cumulative Effects - In the I-75 Feasibility Study a planning-level analysis was performed of a number of impact categories for arterial improvements included in the plan within a corridor defined by MDOT. Data generated in the I-75 Feasibility Study will be revisited in the EPE/EIS work. Issues to be examined include:

- Number of residential units possibly taken;
- Number of businesses possibly taken;
- Overall effect on aesthetics;
- Potential environmental justice effects;
- Number of residential units with increased noise exposure;
- Air quality effects;
- Number of “high crash” locations locations improved;
- Acres of parkland potentially affected;
- Cultural resource sites
- Acres of wetland affected; and,
- Right-of-way and construction costs.

Analysis of these issues will follow the general principles in “Considering Cumulative Effects” prepared by the Council on Environmental Quality, January 1997. That document presents CEQ’s principles related to scoping, description of the affected environment and the analysis of environmental consequences. These principles focus the analysis on the relationship to past and future actions (like the eventual expansion of I-75 to the north Oakland County line as defined in the Feasibility Study or improvements to other freeways that affect the corridor) on resources, ecosystems, and human communities in order to address their sustainability.

It is noted that the area to be covered in this CEQ analysis framework is to be determined in consultation with MDOT. But, it is not expected to be limited to the “slice” of Oakland County between 8 Mile Road and M59 by the very nature of the CEQ principles on cumulative effects.

Survey for Rare, Threatened, and Endangered Species – As the proposed project would be almost wholly located within existing MDOT right-of-way or developed urban

lands, the first step in this subtask would be to consult with MDOT staff biologists and then the Endangered Species Coordinator of the Wildlife Division of the Michigan Department of Environmental Quality (MDEQ) to determine the nature of field analysis required. The Michigan Natural Features Inventory (MNFI) will be consulted and the U.S. Fish and Wildlife Service will be coordinated with. Any survey work that is required will be performed by certified botanists and/or wildlife biologists through Tilton and Associates following the "Guidelines for Conducting Endangered and Threatened Species Surveys" issued by MDEQ. All survey work will be coordinated with the MDEQ Endangered Species Coordinator and MDOT to ensure that all work meets expectations.

Wetlands - Wetlands that may be directly affected by the proposed project are expected to be limited to the right-of-way of I-75. The Consultant will delineate all wetlands, determine their functions and values, and determine impacts and required mitigation. The Consultant will search for mitigation opportunities. Priority will be given to wetland restoration versus wetland creation. This effort will involve coordination with agencies such as the MDEQ, U.S. Fish and Wildlife and U.S. EPA. The opportunity for a walk-through of the area will be afforded these agencies. The Section 404 Concurrency process will be followed, at the discretion of FHWA. The Consultant will develop a draft Wetland Mitigation Plan for the DEIS and a Final Wetland Mitigation Plan for the FEIS, including special mitigation. The Final Plan will include a conceptual drawing of the site(s), cross-sections, and a written mitigation plan that addresses how the created site(s) serves to replace the functions and values of the wetlands affected by the project. The written plan will address appropriate state/local typical vegetation and seeding methods, replacement ratios and monitoring requirements, referring to MDOT's standard monitoring plan.

Water Quality, Hydrology and Floodplains - The primary purpose of an analysis of impacts on hydrology is to protect potable water sources (wells and aquifers), aquatic life, and recreational amenities. A second issue is the potential for a transportation improvement to be flooded or to cause flooding. Analysis will cover the economics of structure hydraulics as necessary. Any effects on the floodplain will be documented. Location hydraulic studies required by 23 CFR 650, Subpart A, will include a discussion of the following items commensurate with the level of risk for environmental impact for each alternative that encroaches on an existing floodplain: (1) flooding risks; (2) impacts on natural and beneficial floodplain values; (3) probable incompatible floodplain development (i.e., any development that is not consistent with the community's floodplain development plan); (4) measures to minimize floodplain impacts; and, (5) measures to preserve and restore natural and beneficial floodplain values. The size and location of existing and proposed drainage structures will be shown on the conceptual EPE drawings. Impacts will be reported in the environmental documentation sufficient to

satisfy Executive Order 11988, "Floodplain Management," and ensuing regulatory guidance. In particular, MDOT's form for economic assessments of structure hydraulics will be used to summarize information. A preliminary drainage plain will be prepared to ensure that the possible increased runoff from the project's increased impervious surface can be accommodated within the project footprint.

Parklands - The procedures of Section 4(f) of the Department of Transportation Act of 1966 and Section 6(f) of the Land and Water Conservation Fund Act of 1965 will be applied to assess direct and indirect effects on public recreation lands. Displacement of resources due to the destruction or alteration of sites will be identified as a direct impact. The potential alteration or isolation of recreational land with respect to its surrounding environment and its users will be assessed and the significance of impacts evaluated. Views of the "owner" of the land involved will be sought. Recreational land that could be affected, directly or indirectly, will be described and mapped. A detailed 4(f) analysis is required if the project will "use" (as defined by the courts) parklands or public recreation areas or cultural resources on, or eligible for, the National Register of Historic Places (see next section). If 4(f) land were to be used by the project, a 4(f) statement would be prepared and included in the environmental document.

Historic, Archaeological, and Cultural Resources - This analysis takes as its start point the I-75 Feasibility Study and a proposed definition of the project's Area of Potential Effect (APE). The proposed APE will be submitted to the SHPO with a detailed description of the project. The APE defines the area that will be surveyed for the project. This will be a key to further analysis and the level of effort for this subtask would vary widely depending on the extent of survey work required. Consulting parties will be identified as necessary. Public involvement for historic resources analysis purposes will be integrated into the project's overall public involvement program, in consultation with MDOT. Phase I historical and archaeological surveys will be performed. Phase II historical or archaeological work may be conducted as part of this study depending upon the results of the Phase I surveys, and the recommendations of the SHPO. But, Phase II archaeological or historic work will be performed only as authorized by MDOT. The Consultant will submit the required documentation to MDOT's Cultural Resources Specialist and work with her in coordination with the SHPO. If the analysis and evaluation demonstrates there are any adverse effects on *National Register* listed or eligible sites, a Section 4(f) Statement will be prepared.

Hazardous Waste/Materials - This work will investigate parcels of property for the presence of environmental contamination. The primary objective of the PCS is to determine whether further investigation with regard to hazardous materials is required. Work will be conducted by qualified Corradino personnel, consistent with MDOT's "Work

Specifications for Land Use Histories.” Results of the hazardous material investigations will be included in a separate technical report and summarized in the DEIS. Besides research of all applicable databases kept by EPA and MDNR, the I-75 alignment from 8-Mile Road to M-59 will be field checked to visually assess the presence of businesses or other functions/facilities that may potentially produce contamination problems. Checks will be made with the Oakland County Health Department and local fire departments for known leaks or locations of hazardous materials along I-75. Historic aerial photography will be used where possible in this effort to ensure that existing uses are not preceded by other uses involving hazardous substances.

Visual/Aesthetic Conditions - Visual effects of the project can affect the macro scale of the community, as well as the micro scale. The changes will be characterized in terms of view of the improvement and view from the improvement, i.e., the roadway. A key element of change will be the retaining walls in the south project area, any bridges (including those for pedestrians) that are reconstructed, and noise walls throughout the project area. Potential single-point interchanges at 12-Mile and 14-Mile Roads would be new visual elements in the study area as they involve special bridges. Visual imaging will be used at these locations as has been done at I-96 and Beck Road. The Consultant will follow the draft policy related to aesthetics (September 2000) promulgated by the Michigan Transportation Commission, and any updates to this document.

Energy – Guidance in FHWA Advisory 6640.8A will be followed in providing analysis of energy use.

Construction – Construction activities result primarily in short-term environmental impacts, although the long-term effects of resource consumption, disruption of substrata (groundwater or contamination), and economic losses are also possible. Short-term impacts include disruption of traffic, increased noise, localized degradation of air quality, vibration, reduced access to properties, and other less noticeable inconveniences. Maintenance of traffic will be an issue for the project and a maintenance of traffic plan will be developed that addresses construction phasing and potential detours. It will also address the effects on the adjacent arterial street network and the timeliness of planned improvements to that network. Maintenance of traffic will be a particular issue in the depressed section of I-75 where the roadway profile is likely to change.

Other Services – It is understood by the Consultant that there are several areas where major work efforts would occur only after approval: final wetland mitigation plans and specifications; additional Phase II cultural resource analysis; and, preliminary site investigations (PSIs) for hazardous materials. In each case, the Consultant is prepared to perform these additional activities. It is understood that MDOT reserves the right to

determine what course of action to take in the event any of these additional studies are triggered.

Task 2320 - Conduct EPE Aerial Photography and Mapping

Digital ortho aerial data will be acquired through Oakland County. No new aerial photography will be conducted. Additional ground survey work will be conducted around bridges, retaining walls and locations where noise walls are considered.

Task 2330 - Collect EPE Geotechnical Data

The Consultant will collect geotechnical data from MDOT, the new Commission for Oakland County, and other public sources. There are several key areas of improvement that will require new geotechnical data such as areas where retaining walls may have to be constructed in order to widen the freeway. Interchange improvements require site-specific geotechnical data for preliminary foundation-type estimates, slope and global stability analysis, peat/muck areas of ramp reconfigurations and roadway design studies. For this work, soil borings will be performed at a dozen locations in MDOT right-of-way. These include: borings at 100 feet at interchanges and borings at 80 feet for retaining walls with vane shear tests.

Task 2360 - Prepare DEIS

Corradino will use its extensive expertise to develop a defensible environmental document, based on the work in previous tasks. The DEIS will be concise and written in plain language. Potentially significant impacts will be the focus of the document. It will be analytic, not encyclopedic in that it will emphasize key issues. Detailed technical analyses will be included in separate reports and/or included as DEIS appendices, at MDOT'S discretion. They will be based on scientific accuracy. The DEIS will emphasize the comparison of alternatives, highlighting the impact differences among alternatives.

The Draft EIS will include the following sections: 1) the proposed action; 2) the purpose of and need for the proposed action; 3) alternatives to the proposed action; and, 4) environmental consequences of the proposed actions; 5) measures to mitigate impacts of the proposed action; and 6) the public and agency involvement process, which will be kept as a "diary" throughout the project. The DEIS will be prepared with a thorough QA/QC review so the document is clearly written and easy to understand.

Copies of the DEIS will be printed in sufficient quantity to meet distribution needs (i.e., 150 of DEIS and 200 of FEIS). The DEIS and supporting technical documentation will also be submitted as camera-ready originals and in electronic format, with mapping and engineering drawings compatible with the MDOT Intergraph system software consistent with English standards. The DEIS will be posted on MDOT's Web site.

Task 2380 – DEIS Public Availability/Public Hearing

This task allows the project to meet the legal requirements that a DEIS be made available to the public to allow all interested agencies and citizens the opportunity for review and comment on the project, thus ensuring that all views are heard and fully considered. Once approval by MDOT/FHWA of the DEIS is assured, the Consultant will submit a draft Notice of Availability to MDOT for transmittal to FHWA and then to EPA for publishing in the *Federal Register*. MDOT will prepare legal notices for publication in newspapers of general circulation.

With the availability of the DEIS, the Consultant will develop presentation materials for the public hearings which will include, at a minimum, a prepared videotape presentation, brochures, exhibits, and the like. The Consultant, in concert with MDOT, will set dates, times and locations for the public hearing(s). The Consultant will be responsible for distributing the DEIS with MDOT's approval for formal circulation.

The public hearings will be held in coordination with MDOT and in conformance with all its requirements. MDOT will develop a proactive media strategy and implement it in concert with the Consultant. The Consultant will be responsible for conducting the public hearing. The Consultant recommends two hearings at different locations, with each extending from late afternoon into the evening, perhaps 4 PM to 9 PM, to afford all persons the opportunity to attend. A certified transcript of each hearing event will be provided to MDOT and comments received during the public availability period will also be officially recorded. An extra-long comment period is recommended (two months after the public hearing).

Both the comments received at the public hearing and those received before and during the comment period will be put in a database. Some comments may be grouped and responded to by a single general response. Others will be unique and will require a specific response. The database will allow sorting of comments and will ensure a thorough job is done of recording and responding to all comments. The responses to comments will be prepared in Task 2530.

Task 2510 - Determine Recommended Alternative

This task will advance an alternative(s) to design or it will recommend taking no action. The Consultant will provide sufficient information to MDOT to make a final recommendation that will be documented in the draft Recommended Alternative (Preliminary Engineering) Report.

Establishing a viable alternative includes determining horizontal alignment, vertical alignment, grades, structure sizes and locations, structure approaches, roadway cross sections, vertical and horizontal clearances, staging traffic maintenance schemes, and

construction costs. Application of Intelligent Transportation Systems (ITS) and transit will also be examined at this point. Also to be included are relationships to utilities, right-of-way requirements, environmental impacts, and the project development phasing and timetable. Engineering at the interchanges at M-59 and Crooks/Long Lake performed by others is well advanced and will be incorporated into the recommended alternatives, if a construction alternative emerges from the EIS. This will involve coordinating with the completed engineering work, especially CADD files, so that the new work builds seamlessly on the work to date. This is expected to involve coordination of electronic files as well as meetings to coordinate engineering details where old and new work interface.

An important consideration here is adding the proposed fourth lane in each direction to I-75 would necessitate the replacement of 13 vehicular bridges between 8-Mile and 14-Mile Roads (excluding the bridge at 12-Mile Road) because the existing abutments would be in conflict with the proposed lanes, ramps and/or shoulders. Analysis to determine the preferred/recommended alternative will determine the new bridge layouts, estimate the proposed beam sizes, and provide cost estimates for replacing the bridges. Concrete beams will be assumed for all these bridges in order to determine the cost estimate and/or the amount the freeway has to be lowered, if the use of deeper beams dictated by the longer spans and the use of concrete beams instead of steel. The assumption of concrete beams at this stage is chosen because it would produce more durable structures with fewer future maintenance costs. It is assumed that the bridge layouts and beam type will be optimized in detail during the PE phase.

For this study phase, EPE will be performed for the 12-Mile Road and 14-Mile Road Interchanges. Currently, these are partial coverleaf interchanges. Single-point interchanges are proposed at both locations.

The Consultant will analyze the projected traffic movements and develop the proposed laneage for the interchanges using peak-hour traffic projections provided by the regional model and further referenced through the MICRO simulator using VISSIM software. The simulations will include the single-point interchange as well as local traffic signals on each side of the interchange in order to clearly examine corridor operations.

Based on the laneage requirements and the geometric design guides, the preliminary horizontal and vertical geometry will be developed for the 12-Mile Road and the 14-Mile Road interchanges. The impact of the preliminary alignments on right-of-way, drainage and maintenance of traffic will be evaluated for each interchange. Preliminary cost estimates for the interchanges will be developed based on the proposed interchange configuration.

In addition to developing the EPE geometry, structure studies will be prepared for the 12-Mile Road and 14-Mile Road interchanges. The condition and location of the existing structures will be evaluated and compared to the proposed structure requirements. Approximate locations for the proposed structures will be identified. Preliminary cost estimates will be developed based on the structure needs.

URS, which will be responsible for interchange design, will also develop video animation for the proposed improvements at the 12-Mile Road and 14-Mile Road interchanges. The detailed 3D animations will depict the proposed laneage and simulate the peak-hour traffic operations of each interchange under projected traffic conditions. The animations will clearly explain the operation of the single-point interchanges.

Another important part of determining the phasing of a preferred/recommended alternative is implementation. This can be done for both I-75 and supporting arterial projects. To establish priorities for construction staging, the relative performance of each project will be examined in five areas: (1) congestion (volume-to-capacity ratio) in the base year (1995); (2) congestion in the Existing-plus-Committed (E+C) network under 2025 conditions; (3) congestion in the Plan network under 2025 conditions; (4) the ability to handle future (2025) traffic; and, (5) the potential to improve safety. With the priorities established, maintenance of traffic concepts will be prepared for the staged construction segments.

Yet another key issue in defining the preferred/recommended alternative is the possible need for Access Justification Report particularly at proposed single-point interchanges. FHWA's Break in Access Policy will be used in this area. The need for an Access Justification Report will be determined through consultation with MDOT and FHWA. Such reports are being prepared by others for the M-59 and Crooks/Long Lake interchanges. All reports must be coordinated as each must deal with adjacent interchanges, so there is, by definition overlap and a need for consistency among studies.

A Recommended Alternative Report will be prepared that includes a description of the process that led to the conclusion and the supporting preliminary engineering. The report will include plan and profile sheets at half size (11x17 format) and include cost estimates on MDOT's project scoping checklist cost sheets. Representative typical sections and clear view areas will also be provided. Cost data will be consistent with MDOT estimating forms. Level of Service data will be clearly presented graphically. The report will also address project staging and maintenance of traffic.

All maps and plan sheets will be transmitted to the client on magnetic tape or discs. The files will be accompanied by reproducible mylars of the recommended alternative and an

index to all files. ASCII files of all ground coordinates and elevations used shall be provided on magnetic tape or disc. Design work will be submitted, after a thorough QA/QC review, in a format compatible with Intergraph system software, consistent with English standards.

Task 2530 - Prepare FEIS

Work will commence immediately following the public hearing and MDOT's approval to develop the FEIS. All necessary findings, agreements, or determinations, will be included. Additional coordination with the appropriate agencies will be completed sufficient to resolve any outstanding issues and to define final mitigation commitments. The Consultant will assist MDOT obtain resolutions of support for the FEIS recommendation from those public agencies it deems appropriate. Comments from the public hearing will be summarized and addressed along with agency comments. A thorough QA/QC review will be applied to the FEIS. A final public information meeting is planned at this time to inform the public of the recommended alternative.

Task 2550 – Obtain ROD

A draft Record of Decision (ROD) will be submitted with the draft FEIS for MDOT/FHWA review to facilitate the finalization of the project. The ROD documents the decision-making process. Its acceptance and signing allows the project to advance to design.

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Schedule

The project has been scheduled over 24 months. The delivery of milestone reports and the coordination of five rounds of public meetings will keep the project on track and provide an audit trail of progress and accomplishments. The use of MDOT's Web site to present information "instantaneously" to all interested parties will enhance the project's ability to gain credibility and make progress. The critical path of the project runs through the SEE Studies (Task 2310). It will be fed by the Traffic Analysis task (2120) wherein alternatives will be refined including the detailed evaluation of transit/HOV options. These two tasks will then feed the DEIS/Hearing/FEIS tasks leading to obtaining a Record of Decision and project completion.

With the project beginning in March 2002, it will be completed by the end of February 2004. The Traffic Analysis work (including transit/HOV) will be completed by the end of September 2002. SEE work will be finished by the end of January 2003. The DEIS will be ready for MDOT/FHWA review by February 2003. The public hearing on the DEIS is scheduled for the end of June 2003. The FEIS is expected to be available for public review by mid-October 2003 with the ROD achieved just after the year's end.

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