

FIVE-YEAR ROAD
AND BRIDGE PROGRAM
2003-2007

VOLUME V

AN
OVERVIEW
OF

STATEWIDE
ACCOMPLISHMENTS

2000 - 2002

Statewide Accomplishments and Benefits

The Michigan Department of Transportation (MDOT) is extremely proud that, since 2000, we have invested more than \$3.3 billion in our capital and maintenance road and bridge program. Since 2000, 93 percent of the road and bridge preservation program announced in the Five-Year Programs has been completed. This translates to approximately 1,100 miles of roadway improved, nearly 60 miles of passing relief lanes constructed, and approximately 850 bridges being upgraded.

Capital Preventive Maintenance

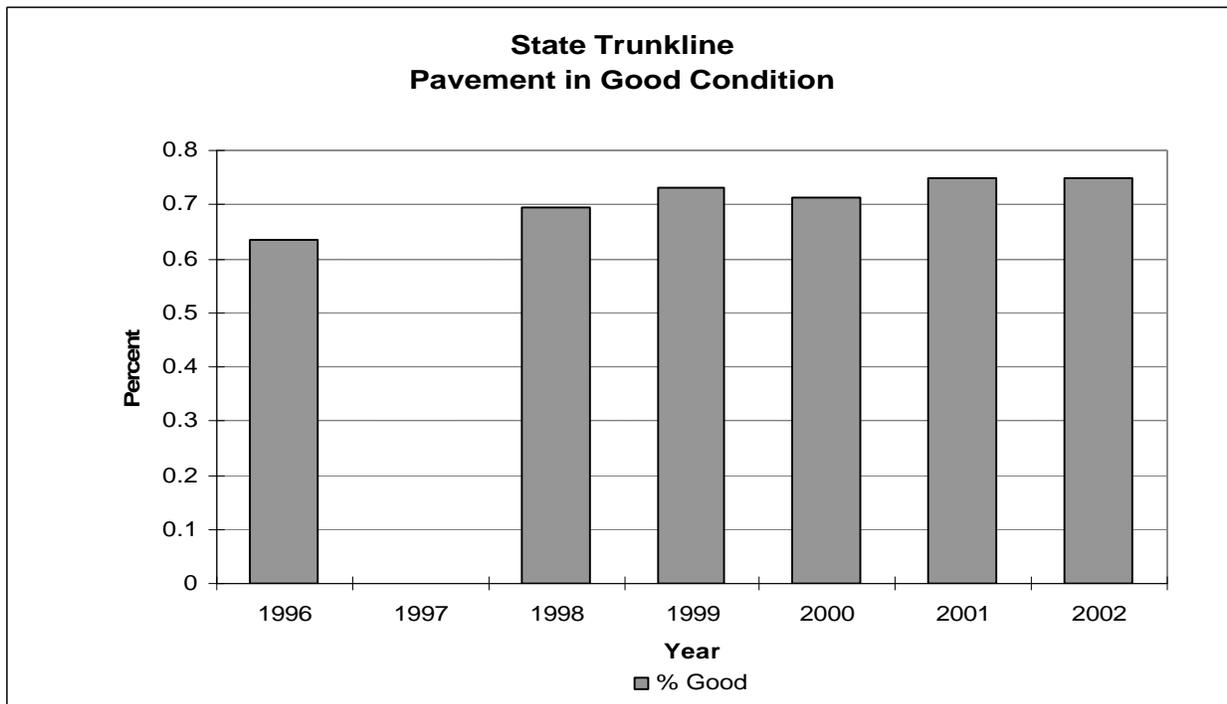
Our capital preventive maintenance (CPM) program treated an average of approximately 1,500 miles of highway annually since 2000, while investing approximately \$60 million per year. This program increased the life span of these pavements by up to 7 years. In addition to the CPM program, MDOT invested more than \$220 million in routine maintenance in each of the past three years. Routine maintenance activities include mowing, snow plowing, pothole filling, and other such activities.

Pavement Condition

Remaining Service Life (RSL) is a measure of current pavement condition and refers to the number of years a pavement has remaining before major repairs or reconstruction is needed. It is calculated by monitoring and measuring pavement deterioration using MDOT's Pavement Management System (PMS).

Because of the strategies we have employed for fixing our system, MDOT continues to make progress towards meeting the 2007 pavement condition goal that was established by the State Transportation Commission in 1998 of having roughly 90 percent of the state trunkline roads in "good" condition by 2007. The pavement condition of the department's roadways was improved from 64 percent "good" in 1996 to 75 percent "good" in 2002, as reflected in the following bar chart.

State Trunkline Pavement in Good Condition

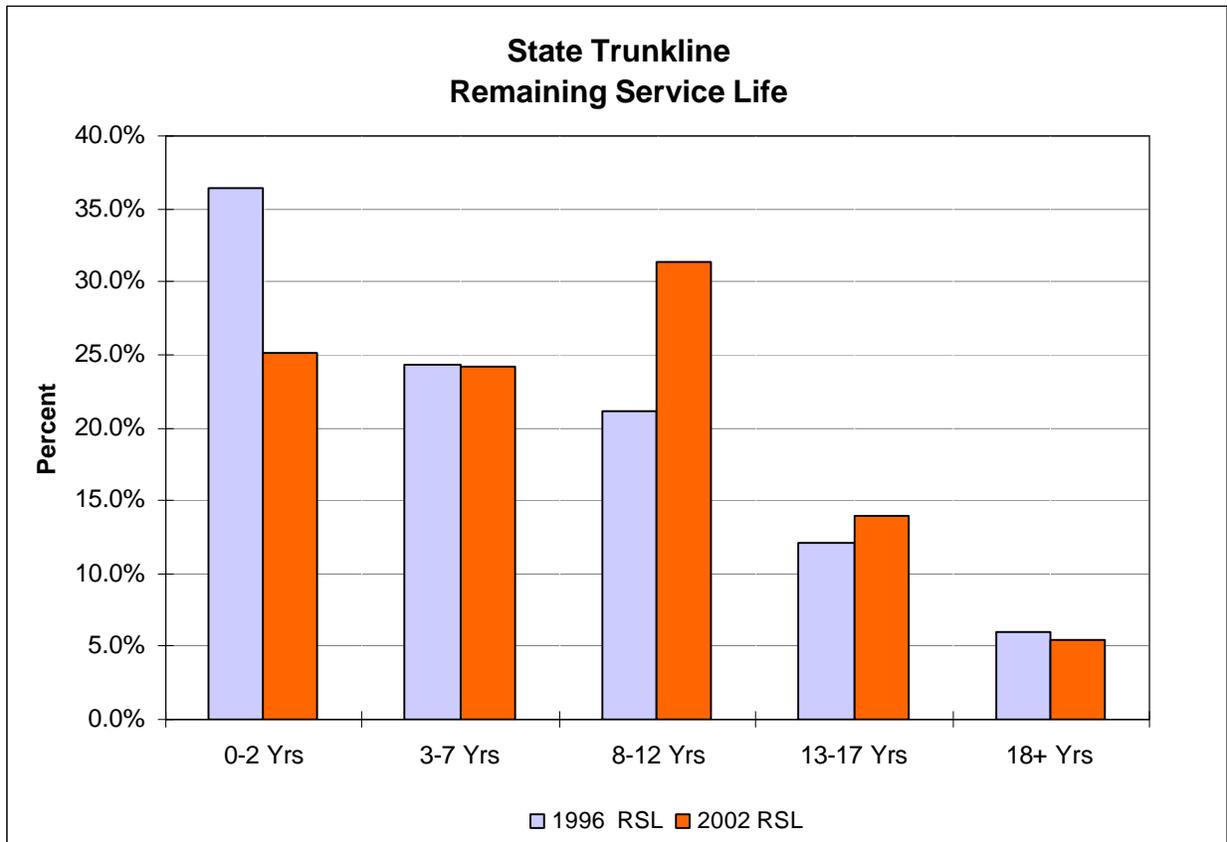


*RSL data was not calculated in 1997

1996 through 2002

Although we have over 3,000 more lane miles in good condition since 1996, the rate of progress has slowed in recent years. For this reason MDOT is implementing the *Preserve First* initiative, increasing the emphasis on preserving our transportation system rather than expanding it. *Preserve First* will help ensure continued progress and success in reaching the 2007 pavement condition goal.

Since 1996, the average remaining pavement life of the department's road network has increased by 26 percent, from 6.8 years to 8.6 years. The following bar chart reflects the change in distribution of pavement condition for MDOT's 27,000 lane-mile system.



1996 vs. 2002

Not only has MDOT reduced the number of poor pavement by over eleven percent, the Department is succeeding in improving the remaining service life of the state trunkline network.

Bridge Condition

We have just completed the third year in our five year transition to full implementation of the Strategic Investment Plan for Trunkline Bridges. In these early years of transition, MDOT has been successful in stabilizing the trunkline bridge network condition, and we are beginning to see improvement. In 2002, the number of bridges deteriorating from good/fair to poor decreased significantly. As part of the 2002 bridge program, we worked on 242 bridges, of which 51 bridges were preventative maintenance. Due to the long term benefits to the bridge network, we are placing more emphasis on preventative maintenance. We are timing bridge work to coincide with road preservation work, in an effort to reduce the number of times major bridge work is done in a given area.

Capacity Improvements

MDOT also continued construction on many New Road and Capacity Improvement projects that were announced in past Five Year Programs. Some high-profile projects include:

- **M-6, known as the Paul B. Henry Freeway (South Beltline) in Kent County**
- **US-131, Cadillac and Manton Bypasses**
- **I-75, M-57 to I-475, Genesee and Saginaw Counties**
- **US-31 Relocation in Berrien County**
- **M-5, Haggerty Connector**
- **M-45 (Lake Michigan Drive) in Ottawa County**
- **M-84 Kochville Road to Pierce Road, Saginaw County**
- **I-94, at Zeeb Road Interchange**

These projects, along with others were let prior to 2003. They will provide relief for traffic congestion, improved mobility and local access, and improved travel times.

Accomplishments in Other Program Categories:

I. Safety

Safety is a major priority in the design and implementation of all transportation projects. Part of the design process includes analyzing safety improvements for every project we implement. MDOT's comprehensive **Safety** program has implemented many efforts to improve driver safety in recent years. These efforts include:

A. Keeping Vehicles on the Roadway

Running off the roadway is one of the most severe types of crashes. One-third of all traffic fatalities involve this type of crash. In order to reduce injuries and fatalities due to vehicles leaving the road, several efforts have been targeted in the last five years and will continue in 2003:

1. Improved Driver Guidance

A comprehensive program has been implemented to improve driver guidance and visibility during hours of darkness through improved signing and pavement markings. We have been working with private industry to produce pavement markings with longer life expectancy and improve reflectivity, including in-pavement reflectors.

Also of benefit to motorists is the use of reflective backgrounds and legends on all new signs. To assure visibility at night, signs are replaced based on age. In the past five years, MDOT has reduced its replacement cycle from 19 years to approximately 15 years as a result of implementing new strategies.

FY 2002 Accomplishments include adding 140 million feet of pavement markings statewide and replacing special markings in approximately half of Michigan's counties. MDOT also upgraded signs on 458 miles of non-freeway facilities and 51 interchanges on the freeway system.

2. Warning for Motorists Who Leave the Roadway

Department analysis has indicated that "drift-off-the-roadway" crashes on Michigan freeways are a concern. The analysis revealed that 42% of the vehicles overturn. In addition, 20% of the "drift off the roadway" crashes on Michigan's freeways that occurred on roadways without rumble strips, resulted in severe injury or death to at least one crash victim. For comparison, only 3.6 percent of all Michigan crashes result in severe injury or death. These types of crashes can be minimized by rumble strip installation in the shoulders.

Data from several states show a 65 to 80 percent reduction in “drift off roadway” crashes with rumble strips in place. MDOT has adopted milled-in rumble strips as our standard. Using federal safety funds, three stand-alone rumble strip projects were constructed on 238 miles of freeway in 2002.

3. Minimizing the Consequences of Leaving the Road

In addition to strategies to keep vehicles from leaving the road, several efforts have been undertaken to minimize the consequences if a vehicle does leave the road.

The Guardrail Improvement Program has replaced or upgraded 350,000 feet of deteriorated, non- standard guardrail in 2002. Crash history has indicated more fatalities and serious injuries occur when impacting the ends of barrier systems. MDOT has placed more than 5,000 guard rail endings during the past five years to mitigate this type of impact.

A major emphasis has been directed towards reducing cross median crashes on freeways. In recent years, this program has funded barrier projects at four locations covering 44.8 miles of freeway medians. These projects have resulted in eliminating all cross median crashes where installed. The estimated crash reduction has prevented 18 fatalities and 45 serious injuries.

In addition to these accomplishments, a major study is being conducted by Michigan State University to assist the Department in identifying additional freeway segments needing median barriers.

B. Safety Improvement Road Construction Projects

Safety improvement projects are constructed in response to the analysis of traffic crashes. These projects typically involve improving safety at high crash intersections. The estimated crash reductions for projects constructed between 1998 and 2001 are:

Estimated Reduction in Number of Crashes	349
Estimated Reduction in Number of Minor Injuries	288
Estimated Reduction in Number of Severe Injuries and Fatalities	52

During 2002, twenty-nine safety improvement projects have been implemented in response to traffic crashes. In addition, \$820,000 was spent on minor safety improvements on the trunkline systems including minor intersection improvements, culvert extensions, brush clearing, passing lanes and object removal.

C. Signal Projects

Between 1998 and 2001, eleven new Intelligent Transportation System (ITS) related traffic signal corridors have been implemented turning 103 signals into coordinated systems. These systems are monitored and signal timing changes are made immediately by the central Traffic and Safety Office. Properly timed signals improve air quality, reduce congestion, smooth traffic flow, decrease aggressive driving, and decrease crash severity.

We have also partnered with AAA Michigan to incorporate additional highway safety signal improvements on four corridors in the metro Detroit area. Another 175 new signals have been installed and 714 signalized intersections have been modernized or had phasing installed.

During 2002, five new ITS related traffic signal corridor systems have been implemented connecting 161 signals into coordinated systems and 154 signalized intersections were modernized or had phasing installed statewide. MDOT also re-timed approximately 250 signals over the past year. Studies have shown properly timed traffic signal systems improve corridor travel time, reduce individual intersection delays by thirty-seven percent, and result in a nine percent fuel savings.

D. Work Zone Safety

MDOT has identified locations across the state where increased law enforcement in work zones may help keep motorists and workers safer during our construction season. The department will provide money to cover overtime costs of state and local police officers patrolling work zones. These added patrols along with the increased fines and penalties for traffic violations in work zones help protect not only the highway workers, but also the drivers within these work zones.

II. Transportation Economic Development Fund

The **Transportation Economic Development Fund (TEDF)**, in cooperation with the Michigan Economic Development Corporation (MEDC), awarded 10 projects during fiscal year 2002 totaling more than \$11.7 million in TEDF Category A money. These projects support the creation or retention of more than 5,521 jobs in targeted industries in Michigan. The companies served by these projects plan to or have invested nearly \$1.56 billion more in improving their current location or expanding to other locations. As a result, an average of \$133 of private money will be invested for every \$1 of state money.

The TEDF also provided \$56.5 million during FY2002, to local agencies to help relieve congestion (Category C) and build a secondary all-season commercial network (Categories D and F) to support the state trunkline system.

In addition, \$5 million was distributed to 47 counties in the state to assist in providing access to forest areas for the lumber industry (Category E).

III. Congestion Mitigation and Air Quality

The **Congestion Mitigation and Air Quality** (CMAQ) program has invested \$126 million in transportation projects in the attainment / maintenance areas of Detroit, Grand Rapids, and Muskegon since 2000. Major accomplishments of the CMAQ Program during 2002 include:

A massive effort utilizing information technology which combines safety, traffic flow improvements, equipment modernization, and air quality benefits is underway. Michigan has the largest and most advanced ITS system in the nation. The operations and maintenance services of the Michigan Intelligent Transportation System (MITS) Center in Southeast Michigan will continue to be funded under special provisions in federal law with CMAQ funds. Partnering with snow removal operations for winter months, as well as Oakland County Traffic Operations Center activities, also funded with CMAQ monies, improved the efficiency and scope of success of these projects. Expansion of these successful operations to West Michigan also began in 2002.

Expansion and continuation of operating assistance of the highly successful Southeast Michigan Courtesy Patrol continued in 2002. This program assists stranded motorists by removing vehicles from travel lanes, making minor repairs on disabled vehicles, arranging for tows, transporting drivers and passengers, and assisting with local emergency phone calls.

Innovative design in rideshare programs incorporated the use of web based software in Michigan Programs sponsored at the state level. The success of the pilots has generated interest in the use of this software in statewide applications.

About \$10 million was invested in new and improved transit services including replacement of bus vehicles with cleaner more efficient engines. Transit spending reached an unprecedented 100% project letting rate during 2002.

The year 2002 also brought the introduction of noon-hour trip reduction incentive programs and funding for non-motorized planning elements in the Grand Rapids and Muskegon maintenance areas. Such efforts provide the means to maximize the use of existing roadways, and assist in coping with traffic congestion by promoting voluntary alternatives to motorists which help alleviate traffic problems.

IV. Transportation Enhancement Program

During FY2002, MDOT's popular and competitive **Transportation Enhancement Program** awarded \$20.4 million of these special federal funds to

97 state and local projects designed to beautify the highway system, preserve history, expand nonmotorized recreation opportunities, and support economic progress.

Together with matching funds, the total value of these projects during FY2002 is approximately \$30 million. The projects include pedestrian/bicycle paths, landscaping, brick street restoration, storm water run-off mitigation, scenic lookouts, development of corridor management plans and a variety of other initiatives that go above and beyond traditional road work.

V. **Roadside and Aesthetics Program**

Accomplishments of MDOT's **Roadside and Aesthetics** Program during FY2002 include the completion of a new rest area building and sewage system improvement at the Jackson Rest Area, at the southbound end of US-127. This facility is located just north of Jackson and south of the Berry Road Exit.

Two new rest area buildings were begun at the Portland Rest Area I-96 WB, Ionia County and the Clarkston Rest Area, I-75 SB, Oakland County. The Portland Rest Area serves 769,000 visitors each year and is undergoing extensive remodeling and improvements that include a new building, expanded truck parking, new lighting and resurfacing of the parking area. These two facilities rank high in attendance figures and are located on interstate routes outside of major metropolitan areas. Building and site expansion is required to meet the expanding traffic demands on I-96 as well as make up for some of the traffic that used the Cascade Rest Area that was eliminated due to the construction of M-6. Improvement costs at both facilities average two million dollars and include improvements to the site, parking areas and ramps.

Property acquisitions at the east bound Howell Rest Area and in Washtenaw County along I-94 are underway. Existing rest areas at Novi and Ann Arbor will be demolished due to planned projects at adjacent interchanges. Parking lot expansion and a new building is planned at the Howell exit to accommodate the loss at Novi.

VI. **Environmental Issues**

In our attempt to better communicate with the public regarding **social, economic, and environmental issues**, an MDOT Cultural Resource Website was developed in order to 1) obtain right-of-way (ROW) access permit clearances for archaeological resources, and 2) provide public access to cultural resource management under MDOT stewardship (Archaeology, Historic Architecture, and Historic Bridges). MDOT has added a Tribal Affairs Coordinator to better communicate with Indian Tribal Governments regarding transportation issues.

MDOT is working in conjunction with the Michigan Department of Environmental Quality (MDEQ) to establish a storm water program to ensure adequate water drainage from the federal and state highway systems. The program is being done in two phases. During FY 2002, Phase I accomplishments included completion and submittal of a storm water management plan and an annual report for five major municipality permits. Phase II will focus on a statewide storm water permit and management plan for all seven MDOT regions during FY2003.

VII. Carpool Parking Lot Program

In 2002, funding for the **Carpool Parking Lot Program** increased dramatically in response to increased demand. Nearly 3,000 vehicles are parked in our 210 lots statewide on a daily basis saving over 49 million miles of travel or over \$2.4 million per year. During FY2002, eleven improve / expand carpool parking lot projects totaling \$425,000 in state funds were completed. Two new lots were constructed at the US-31/Russell Road exit north of Muskegon and at the I-75 / Grange Hall Road exit in Holly. In addition, three lots were expanded, one lot was paved at I-75/M-28 in Sault Ste Marie, one lot was resurfaced, two gravel lifts and two light installations round out the eleven projects statewide.

VIII. Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) is the use of technology to improve management of the road system. ITS has been used by MDOT for decades. We have been using Closed Circuit TV (CCTV) cameras, traffic sensors and dynamic message signs (DMS) since the mid 1960s, making Michigan the owner of one of the largest ITS infrastructures in the nation. In Detroit, this complex state-of-the-art telecommunications system is monitored by a traffic management center operated jointly with the Michigan State Police. Similarly, Grand Rapids has a telecommunications system and a control room jointly operated with the city police department. At a huge cost savings, a fiber optic conduit has already been buried under the new M-6 freeway during its construction for establishing a communication backbone.

In FY2002, MDOT continued to fund the operations and maintenance of the Michigan Intelligent Transportation System (MITS) Center in Detroit. The MITS operations include:

- The Courtesy Patrol Program (expanded from 7 to 30 vehicles)
- Ongoing equipment modernization and replacement components of the existing system

- Expansion of current system to serve Detroit Metro Airport (7 signs and 11 cameras)
- Control Room Operation

MDOT's Bureau of Transportation Planning completed several studies including a pre-deployment study reviewing the feasibility and cost to implement ITS in the Ann Arbor, Flint and Lansing urban areas. A study by the University of Michigan that measured the impact of ITS investment on the trucking and travel industries within Michigan, has also been completed.

IX. Asset Management

During the past year, the Department made significant progress in the area of **asset management**. The asset management concept provides a more holistic and systematic view of our road system, rather than analyzing individual parts of roads under state or local jurisdiction. By examining how the road functions, MDOT will be viewing the system in the same way as the driving public, allowing us to become more customer-oriented.

We have documented how MDOT uses asset management to provide the citizens of Michigan with a cost-effective, efficient transportation system. An asset management web site has been established on MDOT's web site which contains a published report explaining the department's process. MDOT entered into a pilot project with several county road commissions and cities to implement various aspects of asset management activities as recommended by the Act 51 Funding Committee.

In July 2002, Public Act 499 (legislation creating an Asset Management Council) was approved. A draft work program detailing the duties and activities of the Council was produced in December 2002. The council will provide a forum for discussing and reaching consensus on key issues in a spirit of cooperation rather than competition among all road agencies.

X. Access Management

During FY2002, several MDOT Regions reported many local communities were interested in incorporating access management principles and ordinances in the revised master plans for their areas. MDOT has published an Access Management Guidebook. The Guidebook promotes partnership arrangements between local units of government who have local land use planning authority, and transportation agencies who must manage traffic.

The guidebook provides guidance on driveway spacing, location, and design based on engineering principles which local units of government can adopt as part of corridor overlay plans and ordinances.

If local governments choose to form partnerships to adopt and implement the engineering principles described in the guidebook as part of their corridor plans and local ordinances, they will be able to better control access along an arterial in their jurisdiction and improve traffic flow and safety along the roadway. Local units of government that wish to establish access management along a free access state highway should contact the Transportation Service Center in their area.

XI. Environmental Justice

Applying Environmental Justice (EJ) principles across our programs ensures that the impacts of projects are not imposed inequitably on certain groups of citizens and that the transportation services provided are done so in an equitable manner to all the citizens of Michigan. This includes our commitment to ensure that groups which traditionally do not have a voice in some of these major decisions are given the opportunity to provide input prior to decisions being made.

As part of this process, MDOT considers demographic and other factors to assist in identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations.

There are three fundamental principles at the core of environmental justice.

- To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effect, including social and economic effect on minority populations and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial, reduction or significant delay in the receipt of benefits by minority and low-income populations.

Through careful planning and proactive involvement, MDOT guarantees the highest quality transportation services to all of Michigan's citizens, regardless of race or income.

During 2002, MDOT developed a draft document entitled Environmental Justice Interim Draft Guidance for Michigan Transportation Plans, Programs and Activities.

The document addresses the issue of EJ as it relates to transportation and transportation planning. Further documentation of the ways planning agencies are applying EJ principles in their planning processes will be discussed in FY2003 as many urban areas will begin updating their twenty-five year transportation long range plans.

XII. Public Involvement/Outreach

MDOT holds approximately twenty-five open house public information meetings and ten public hearings annually. These public meetings are generally related to projects requiring environmental assessments. MDOT also regularly participates in local public meetings to discuss MDOT projects and works closely with metropolitan planning organizations (MPOs) to develop our transportation plans and programs.

MDOT's Web site provides a wide variety of information including: construction project information, news releases, truck weight and transport permit information, links to doing business with MDOT including construction and service prequalification, over thirty-five on-line publications, and much more. Our Web site can be accessed via www.michigan.gov.

XIII. State Long Range Plan

In the Fall of 2002, MDOT adopted a new State Long Range Plan (SLRP). The 2000-2025 State Long Range Plan - "Mobility is Security" document is a policy document endorsed by the State Transportation Commission, which contains a series of goals and objectives with corresponding strategies. The eight principle goals of the SLRP include:

- Preservation of the Current System
- Improved Safety
- Ensuring Basic Mobility
- Strengthening the State's Economy
- Better Coordinated Transportation Services
- Improving Intermodal Connections
- Considering the Environment and Improving the Aesthetics of our transportation system
- Improved Land Use Coordination

MDOT is striving to preserve the high degree of mobility and security we currently enjoy. To accomplish our priorities, we must make wise investments to preserve our system and keep it functioning safely and effectively. Beginning in 2001, meetings were held across the state to receive citizen input into the process. Input from our state's local communities is especially vital during the project development process.

Projects listed in MDOT's Five Year Plan and the State Transportation Improvement Program strive to implement the goals and strategies set forth in the SLRP.

An executive summary, full plan and CD-ROM version of the plan were published in December 2002. For distribution information or questions regarding the goals and strategies of the SLRP, please visit the slrp website at www.michigan.gov/slrp

XIV. Intermodal Facilities

Planning activities have continued for the **Detroit Intermodal Freight Terminal** during the past year, including extensive interaction with the railroads, automotive manufacturers, agencies, and the general public. In FY 2002, a formal feasibility study was completed and preparation of an Environmental Impact Statement began for the terminal. The project will include acquisition of approximately 300-350 acres of property adjacent to a similar-sized existing railroad yard in southwestern Detroit and eastern Dearborn. The combined property will be sufficient to accommodate the development of intermodal freight terminals capable of handling the projected 1.5 - 2 million containers/trailers that will be generated by the Detroit market in 2025. The project will provide a more efficient transportation system for Michigan's freight movements and reduce truck traffic on our major freeway corridors. The Draft Environmental Impact Statement is expected to be completed in mid FY2003, with a final draft presentation in FY2004.

Also during FY 2002, the Michigan Legislature established a dedicated fund with an initial payment of approximately \$4.7 million to construct a new lock at Sault Ste. Marie. A "lock" is a moving mechanism or "water elevator" for ships carrying freight on Michigan's waterways. The lock allows ships to enter different waterways at the appropriate water level. The locks help connect the shipping industry to the state's rail and trucking industries through the transporting of commodities and goods throughout Michigan. For additional information on the **Soo Locks**, please visit the Army Corps of Engineers website at: <http://huron.lre.usace.army.mil/SOO/soohmpg.html>

xv. Awards and Recognition

MDOT continues to use its resources in an efficient and innovative manner as evidenced by the many **national and state awards** we have received. During FY2002, five outstanding teams from MDOT earned top national honors from the **American Association of Highway and Transportation Officials (AASHTO)**. The five winning teams and designations are listed below:

\$ **National Exemplary Partner Award:** The Construction Contract Bid Letting, Awards and Payment Team focused on making improvements to business processes that awards construction contracts in the most effective, accurate, and efficient manner to the lowest qualified bidder. The team's mission focused on making improvements that added value for customers and improved MDOT's overall organizational effectiveness and capabilities.

\$ **Exemplary Partner Award:** The I-496 Communications and Public Involvement Team's mission was to have stakeholders so well informed and involved that the actual construction activity would become a "non-event."

The reconstruction project through downtown Lansing enjoyed unprecedented political, media and community support for the I-496 project.

\$ **Pathfinder Award:** The Paving the Way Team delivered the 2002 construction guide earlier in the year than ever before, providing road project information to Michigan residents and visitors traveling through the state. The team reduced production time by thirty-three percent.

\$ **Trailblazer:** The Transportation Economic Development Fund (TEDF) Financial Tracking Project Implementation and Reconciliation Team was challenged to develop a management system for both financial and contractual investments for TEDF projects. The streamlined grant application process now allows for year-round submittals of projects, established a database for tracking financial and project status, and reduced the construction time frame from more than two years to less than six months.

\$ **Trailblazer:** The 2002 Leadership Conference Planning Team planned and executed a leadership conference for MDOT's leaders at all levels of the department. The conference received the highest rating of any conference since 1993.

Other noteworthy awards include:

- \$ MDOT's *FieldManager* program was selected by CIO magazine for the prestigious **Enterprise Value Award**. *FieldManager* is an innovative suite of software used for managing and tracking road and bridge construction projects. This software has streamlined the department's operations and saved Michigan taxpayers more than \$20 million annually in reduced hands-on time. In addition, during FY2002, MDOT and the Department of Information Technology announced that the **Center for Digital Government** has designated MDOT's *FieldManager* program as a "Best in Breed" in the Geographic Information System / Transportation Category.

- \$ A technical merit and innovation award from the **American Society of Landscape Architects** for the MDOT Aesthetic Opportunities and Scenic Heritage Route Designation Survey was awarded to the Department. The inventories developed by this survey form the basis of a planning study to develop long-term strategies relative to aesthetic considerations along the entire trunkline system and will allow consistent incorporation of aesthetic considerations statewide.

- A State of Michigan Quality Recognition System Award also was given to the Cultural Resource Team members for implementing improvements in the cultural resource review process.

- Numerous MDOT employees have received individual recognition through local, state, and national awards.