

Annual Report

mississippi department of transportation



fy2007

Our Mission

The Mississippi Department of Transportation is responsible for providing a safe intermodal transportation network that is planned, designed, constructed and maintained in an effective, cost-efficient and environmentally-sensitive manner.



DEPARTMENT OF TRANSPORTATION

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Dear Taxpayer:

Every day the people of MDOT bring their energy, innovation, and unsurpassed dedication to transforming available funds into the best possible transportation system for Mississippi.

Fiscal Year 2007 was a year of extraordinary achievement and renewal, both for MDOT and the state as a whole. The opening of the Bay of St. Louis Bridge in May, and the work culminating in the November opening of the Biloxi Bay Bridge, created memories of a lifetime for the thousands of people who participated in the projects and attended the ribbon-tying ceremonies. The ceremonies were joyous, poignant, and hopeful, symbolizing the renewal of the Gulf Coast since Hurricane Katrina. They reminded us how much we depend on transportation links for our daily routines and our future dreams.

That spirit of renewal extends beyond the Gulf Coast to MDOT's initiatives across the state. In FY 2007 MDOT upheld its mission and made balanced progress toward all its goals. We are pleased to share highlights of our achievements with you in this report.

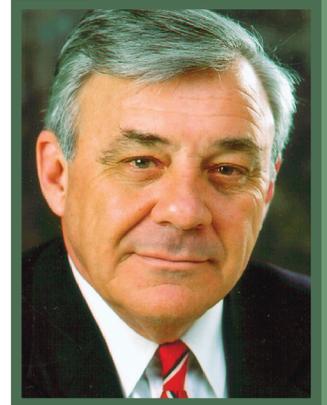
Sincerely,

Larry L. "Butch" Brown

the mdot team

Larry L. "Butch" Brown

MDOT Executive Director —Brown is a longtime businessman and the former mayor of Natchez, Mississippi. He is a graduate of the University of Southern Mississippi with degrees in management and marketing, and served in the school's department of marketing and management as an instructor for seven years. Mr. Brown is a member of the Executive Committee of the Transportation Research Board. He serves on the Board of Directors of the Southern Association of State Highway and Transportation Officials (SASHTO) and the American Association of State Highway and Transportation Officials (AASHTO), where he also serves as Chairman of the AASHTO Standing Committee on Ports and Waterways. Other appointments include Co-Chairman of the Latin American Freight/Transportation Scan, Chairman of the Mississippi Transportation Institute, the Advisory Board of the Mississippi State University School of Engineering, and Ex-Officio Board Member of Mississippi Mainstreet. In 2001, he was chosen to serve on the Advisory Board of the National Trust for Historic Preservation, and in 2003, on the Advisory Board of the Mississippi World Trade Center. He has also served on the Executive Board of Directors of the Mississippi Business Finance Corporation, the White House Conference on Small Business, the U.S. Department of Commerce Industry Sector Advisory Committee on Trade Policy, and as former Chairman of the Mississippi-Louisiana Bridge Authority, responsible for funding construction of the Natchez/Mississippi River Bridge.



Harry Lee James

James is an honors graduate of Mississippi State University where, in 1976, he earned a bachelor of science degree in civil engineering. Upon graduation, James worked in the private construction industry and later for a consulting engineering firm before joining the MDOT team as a bridge designer in 1982. Today James is a registered Professional Engineer and has served as MDOT's state bridge engineer since 1999. He was named Chief Engineer/Deputy Executive Director in 2003.



Brenda Znachko

Znachko is a graduate of the University of Florida School of Law - Graduate Tax Program, University of Mississippi Law Center and the University of Southern Mississippi, where she received a Bachelors Degree in Political Science. Upon graduation, Znachko worked for private law firms before joining MDOT as a Special Assistant Attorney General in 2002. Today Znachko is a commissioned officer in the U.S. Naval Reserves, a Louisiana Board Certified Tax Attorney and a bar member in Mississippi, Louisiana and Florida. She was promoted to Deputy Executive Director/ Administration in July of 2004. In 2006, she received the AASHTO President's Award for Administration for her work on MDOT's Finance Team.



the mdot team

Willie Huff

MDOT Executive Director —Huff is a graduate of East Texas State University at Texarkana, where he earned a bachelor of science degree in Criminal Justice and a master's degree in Interdisciplinary Studies, with concentration in management. He has served as a deputy sheriff, a city police officer, and for 10 years as commander of a bi-state narcotics unit consisting of investigators from four agencies in two states. From 1993 to 2002 Huff was Chief of Police for the City of Natchez, Mississippi. He has served as MDOT Director of Law Enforcement since June 2002.



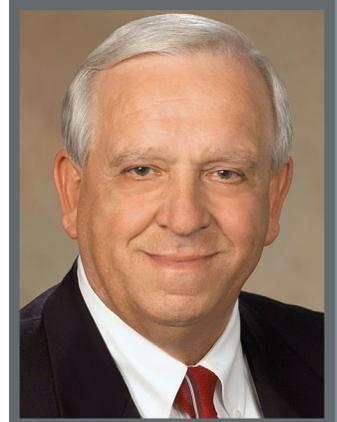
Steven Edwards

Edwards is a graduate of Mississippi State University where, in 1992, he earned a bachelor of science degree in civil engineering. Upon graduation, Edwards joined MDOT as a project engineer for the Carthage, Mississippi, Project Office, where he worked until 1998. Today Edwards is a registered Professional Engineer and Professional Land Surveyor. He served as MDOT's Rails Division Engineer from 1998 to 2007. He was promoted to Director, Office of Intermodal Planning, in 2007.



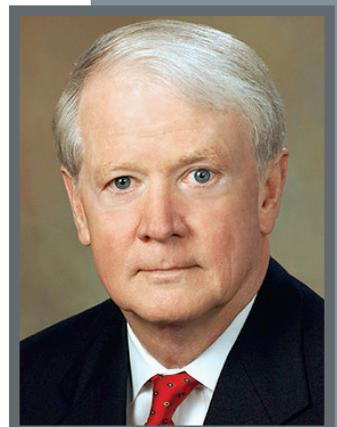
Bill Minor

Northern District Transportation Commissioner —Before being elected transportation commissioner in 2003, Minor served in the Mississippi Senate for 20 years. He was both vice chairman and chairman of the Senate Highway Committee and helped orchestrate the passage of the 1987 Four-lane Highway Program. He also chaired the committees on Finance and Public Utilities. Minor and his brother established Minor Brothers Plumbing which has grown into a chain of successful hardware stores in North Mississippi.



Dick Hall

Central District Transportation Commissioner —Hall served six terms as a member of the Mississippi Legislature – three in the House and three in the Senate. He chaired the Environment Committee in both the House and Senate and the Senate Committee on Public Health and Welfare. Most recently, he chaired the Senate Appropriations Committee. He was the first recipient of the Hugh L. White Free Enterprise Award. Commissioner Hall owns a company which represents manufacturers and also has commercial real estate holdings.



Wayne Brown

Southern District Transportation Commissioner, chairman —In 1966, Brown cofounded Batson and Brown Consulting/Surveyors Engineers, and in 1967, TAB Map Company. He has served as county engineer in George, Green and Jackson counties. He served as president of the Mississippi Association of Professional Land Surveyors, the president of the Mississippi State Board of Registration for Engineers and Land Surveyors, president of the Mississippi Consulting Engineers Council, and is an American Consulting Engineer Council fellow.



the commission

the department

as of June 30, 2007

Transportation Commission

Bill Minor - Northern District Commissioner
Dick Hall - Central District Commissioner
Wayne Brown - Southern District Commissioner
Amy Hornback - Secretary to the Commission

Administration

Larry L. "Butch" Brown - Executive Director
Harry Lee James - Deputy Executive Director/
Chief Engineer
Brenda Znachko - Deputy Executive Director/
Administration
Ray Balentine - Director, Office of Intermodal
Planning (Retired, June 30, 2007)
Steven Edwards - Director, Office of Intermodal
Planning (as of July 1, 2007)
Willie Huff - Director, Office of Enforcement
J. Brooks Miller - State Aid Engineer
Richard Sheffield - Assistant Chief Engineer,
Operations
Melinda McGrath - Assistant Chief Engineer,
Field Operations
David Foster - Assistant Chief Engineer,
Preconstruction
John M. Simpson - Chief Information Officer

District Engineers

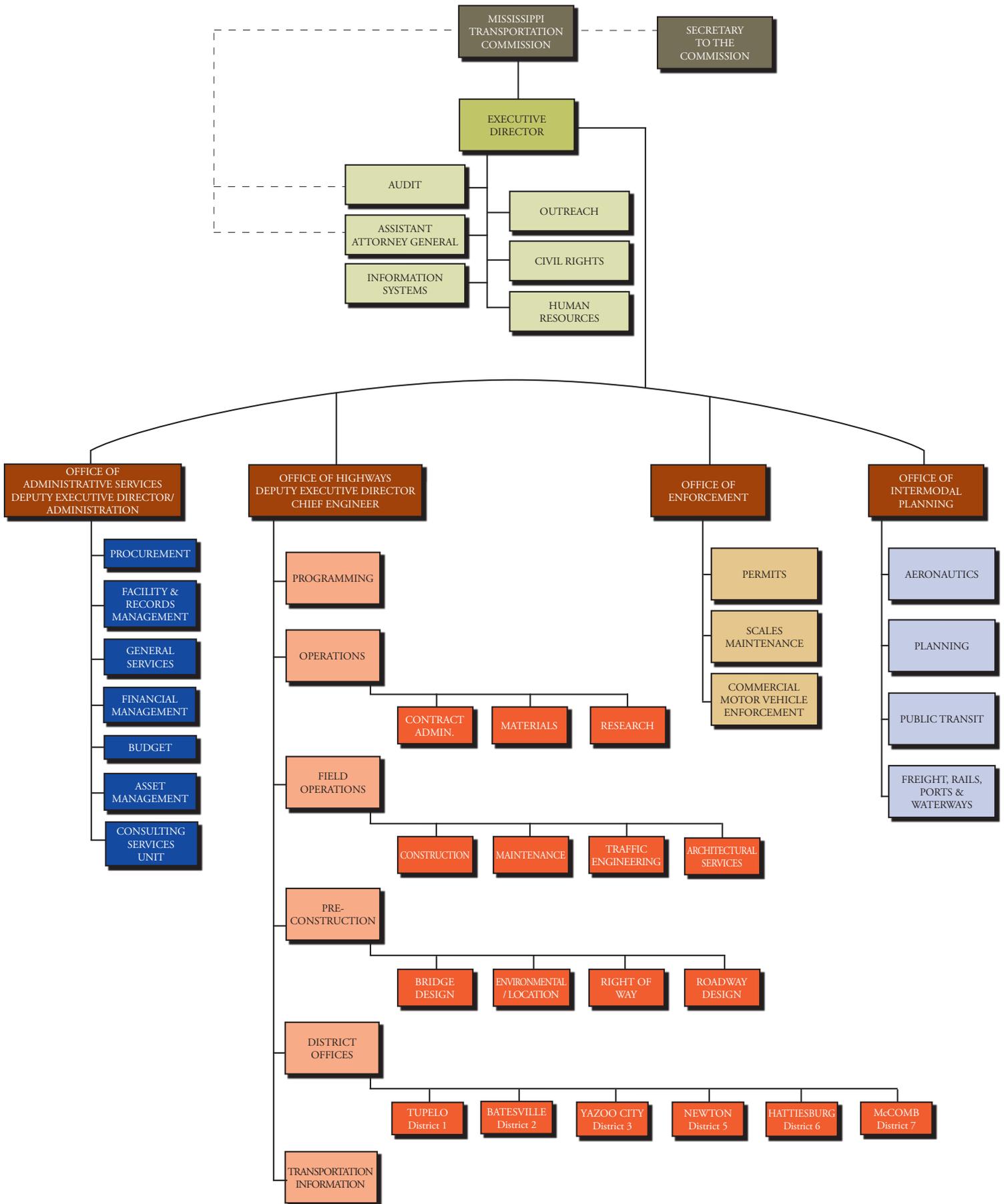
Bill Jamieson, Tupelo, MS
James Q. Dickerson III, Batesville, MS
(Retired, June 30, 2007)
Richard Allen, Batesville, MS (as of July 1, 2007)
Kevin Magee, Yazoo City, MS
William R. May, Newton, MS
Richard Lee, Hattiesburg, MS (Retired,
June 30, 2007)
Steven Twedt, Hattiesburg, MS (as of July 1, 2007)
Darrell Broome, McComb, MS

Division Directors

Wes Dean - State Traffic Engineer
Claiborne Barnwell - Environmental Engineer
James Williams - State Materials Engineer
Lisa Hancock - Procurement Director
Charles R. Carr - Public Transit Manager
Jeff Pierce - State Planning Engineer
Randy Battey - Research Engineer
Mary McDonald - Human Resources Director
Carolyn Bell - Director of Civil Rights
Dianne Gavin - Audit Director
John D. Vance - State Maintenance
Engineer
Elton Jay - Aeronautics Director (Retired, June 30, 2007)
Tommy Booth - Aeronautics Director (as of July 1, 2007)
B.B. House - Contract Administration
Engineer
Roy Tipton - Assistant Attorney General
Mitch Carr - Bridge Engineer
Dan Smith - Right-of-Way Administrator
Brad Lewis - State Construction Engineer
Jackie Duckworth - Programming Manager
Roy Patrick - Asset Management Director (Retired,
June 30, 2007)
Julie Ethridge - Asset Management Director (as of
July 1, 2007)
Mark Valentine - Financial Management
Director
Keith Purvis - Roadway Design Engineer
Jimmy Davis - Budget Director (Retired, June 30, 2007)
Byron Flood - Budget Director (as of July 1, 2007)
Ruthann Vercher - Facility & Records
Management Director
Henry Morgan - General Services Director
Wayne Parrish - Freight, Rails, Ports, & Waterways
Danada McMurtry - Outreach Director

organization

as of June 30, 2007



MDOT by the numbers

Fiscal Year (FY) 2007



- 67 miles of new highway constructed
- 1 interchange added (I-55/Nissan South)
- 146 miles of highway resurfaced
- 809 lane miles of highway sealed
- 5,139 miles of unpaved shoulder re-shaped
- 3,826 miles of pavement striping applied
- 1,200 miles of pavement friction-tested
- 285,647 acres of right-of-way mowed by MDOT staff and contractors
- 13,632 cubic yards of litter picked up by MDOT maintenance personnel and contractors
- \$120,262,975 invested in maintenance of Mississippi's highway system

- 14 new contracts let for replacement of structurally deficient bridges
- 4 new contracts let for construction of new bridges on new alignments
- 4 new contracts let for widening or rehabilitating bridges
- 6 new contracts let to repair existing bridges damaged by over-height vehicle collisions
- 6,793,410 tractor-trailers weighed to manage wear-and-tear on Mississippi highways
- 162,519 oversize/overweight load permits issued
- \$10,749,102.93 generated through oversize/overweight load permit fees and \$3,048,681.26 through weight penalties
- 110 drug arrests of commercial vehicle drivers by MDOT Law Enforcement

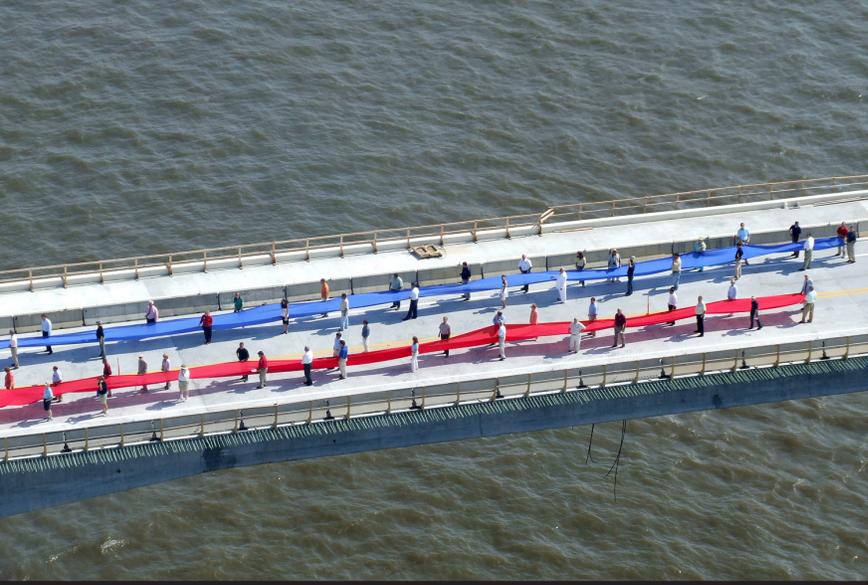




- 10,964 assets (vehicles and equipment), valued at \$90,970,295.71, properly accounted for according to state audit requirements
- 479 assets (vehicles and equipment) sold, generating \$1,048,211.26 for new equipment purchases—a 21.33% return on MDOT's original investment
- \$407 million in highway projects accelerated through MDOT's innovative financing program, Highway Enhancement through Local Partnerships (H.E.L.P.)
- 34 new woman- and minority-owned small businesses certified by MDOT under the federal Disadvantaged Business Enterprise (DBE) program
- 148 DBE firms recertified to do business with MDOT
- 12% of MDOT's federal funds spent with DBE consultants and contractors, exceeding the goal of 10%
- 10 Professional Engineer certifications earned (209 total MDOT registered Professional Engineers, 52 registered Engineering Interns, and 10 registered Professional Surveyors)
- 5 national certifications in purchasing earned (Certified Professional Public Buyer)
- 87 state certifications earned (Administrative Support Certification Program, Basic Supervisory Course, Certificate in Supervisory Management, and Certified Public Manager Program)
- 54 graduates of the L.E.A.D. 18-month leadership training program

- 191 participants in the PEAK Program management styles class
- 162 participants in the HORIZON Program leadership styles class
- 130 participants in Partnering Leadership sessions
- 7 scholarships totaling \$10,000 (funded by the Southeastern Association of State Highway and Transportation Officials) awarded to students attending community colleges in Mississippi
- 61 driving under the influence and safety belt usage simulator demonstrations held at schools, reaching 8,000 students
- 6,952 bags of litter removed from highways by 1,877 MDOT volunteers
- 28,851 students reached with anti-litter programs in 121 schools
- 788 teachers representing 447 schools trained in TRAC and RIDES transportation education modules for students in kindergarten through 8th grade





"...the bridge openings were celebrated with "ribbon-tyings" rather than ribbon-cuttings to symbolize the connections they restore."



MDOT's most notable achievement during FY 2007 was the restoration of mobility along the Gulf Coast through two major bridge replacements. The opening of two lanes of the Bay of St. Louis Bridge in May and of the Biloxi Bay Bridge in November represented tremendous engineering achievements. They were design-build projects—Mississippi's first—making it possible to complete them substantially faster than traditional methods would have allowed.

Perhaps more importantly, reconnecting Henderson Point with Bay St. Louis and Ocean Springs with Biloxi represented important turning points for Gulf Coast communities in their recovery and renewal following Hurricane Katrina. In fact, the bridge openings were celebrated with “ribbon-tyings” rather than ribbon-cuttings to symbolize the connections they restore.

The bridges are wider and higher than the structures they replaced, and will serve the coast well into a thriving future. The Bay of St. Louis Bridge is 85 feet high and 1.7 miles long and will carry four lanes of traffic. The Biloxi Bay Bridge is 95 feet high and 1.4 miles long, with six traffic lanes. Each bridge includes a pedestrian and bicycle lane with bronze plaques along the railing showcasing the work of local artists.



Substantial work was also required on U.S. Highway 90, parts of which had been destroyed by the storm. MDOT made emergency repairs as needed and segments of the highway were reconstructed. Work to rebuild the highway is ongoing, and includes replacement of curbs, repairs to drainage systems and sidewalks, resurfacing, and installation of state-of-the-art traffic signal systems with mast arm signal poles.

MDOT also facilitated the planting of 3,000 native trees and shrubs along the devastated corridor, including eight 20-inch diameter Live Oaks transplanted from other construction sites in the region.



gulf coast renewal



Nationwide, and certainly in Mississippi, there are always more worthy transportation projects than funding to execute them. Further, because transportation infrastructure is so influential in shaping the development of our communities and our way of life, many considerations must be balanced before a new transportation project is launched.

In light of this complex environment, state departments of transportation undertake long-range planning efforts to articulate the state's vision for transportation and how it aims to achieve that vision. The vision is further described through goals that outline the DOT's top priorities.

MDOT, through a collaborative planning process, has established seven goals that guide its many initiatives and projects:

- Improve accessibility and mobility for Mississippi's people, commerce, and industry.
- Ensure high standards of safety in the transportation system.
- Maintain and preserve Mississippi's transportation system.
- Ensure that system development is sensitive to human and natural environment concerns.
- Provide a transportation system that encourages and supports Mississippi's economic development.
- Create effective transportation partnerships and cooperation that enhance awareness of the needs and benefits of an intermodal system.
- Provide a sound financial basis for the transportation system.

In FY 2007, MDOT made substantial progress toward each of these goals. Most of our initiatives, in fact, advance several goals. The following sections offer insight from MDOT leaders on what each goal means for MDOT and for the people of Mississippi. We also share a handful of noteworthy achievements relating to each goal.

By aligning our efforts statewide with a carefully developed set of goals, MDOT ensures that it produces the tangible, balanced results that reflect the values and vision of Mississippians.



Accessibility & Mobility



**Improve accessibility and mobility for
Mississippi's people, commerce, and industry.**

**CO
RO
RI**



Many people associate improved "accessibility" and "mobility" with better accommodation for disabled individuals. While that is important, mobility and accessibility have a much broader meaning with respect to the statewide transportation system. Steven Edwards, Director of Intermodal Planning, explains.



Q: How does MDOT define accessibility and mobility?

SE: Accessibility is a measure of how easily customers can reach the transportation mode that best suits their need. For example, how long does it take me to get to an interstate from home? Or how far a walk is it from my job to the nearest bus stop?

Mobility is a measure of how efficiently and effectively a transportation network accommodates the movements of customers. For example, reducing highway congestion would improve mobility. MDOT's goal of enhancing accessibility and mobility is about making it easier for people and goods to get where they need to go.

Q: What are some of the most significant challenges to improving accessibility and mobility?

SE: All the modes—highways, water, and rail—are strained, in Mississippi and nationwide. Highways are congested, and mobility would be improved if more freight were moved by rail rather than truck. However, Mississippi's rail lines are also at capacity. Our waterways could handle more traffic, but years of underinvestment in water transportation infrastructure limits capacity there, too. Whatever the mode, expanding capacity is not always possible due to the tremendous expense of infrastructure, as well as environmental and other costs. There are no easy answers and many considerations must be balanced.



Q: What are some of the ways in which MDOT's planning and programming processes address those challenges?

SE: We examine the transportation system from a statewide perspective, looking at all modes. We also consider the distinct needs of people and goods and projected traffic volumes of both as we develop the long-range transportation plan. Individual projects, which together form a construction program, are identified and prioritized based on their alignment with MDOT's goals and where our finite funding will do the most good to improve mobility and accessibility.

Although Mississippi faces significant challenges, MDOT is actually a leader nationally in many aspects of accessibility and mobility. MDOT's 1987 Four-Lane Highway Program, which evolved into today's Vision 21, was aimed at improving accessibility to the highway system such that every Mississippian would be no more than 30 minutes or 30 miles from a four-lane highway. Further, our Intermodal Connector program provides dedicated funds for improving connections between modes, such as the highway connections to rail or water port facilities. Such projects eliminate bottlenecks and improve the flow of freight, resulting in broad mobility benefits.

Q: What in your view are some of Mississippi's most promising opportunities for enhancing accessibility and mobility?

SE: In FY 2007 MDOT launched a statewide goods movement and trade study to develop intermodal freight planning tools and a commodity flow model for the entire state. The data collected and the tools developed will enable us to better characterize and forecast what type of freight moves through the state by route and mode. Ultimately the model will enable us to determine what the return would be on specific infrastructure improvements. For example, if we put money into improving a rail line or dredging a river, what return can the state expect? We will be able to more precisely evaluate transportation investments based on how they will improve accessibility, mobility, and economic development.



MDOT Leads Coordination of Public Transportation Services



From city bus services transporting commuters to assisted living facilities transporting elderly residents to medical appointments, public transportation needs and services are traditionally analyzed and provided at the local level by many different organizations. By improving regional communication and coordination among all entities with a stake in public transportation, services can be improved and limited resources can be stretched further.

That is the aim of the Statewide Coordination Initiative implemented by MDOT. Although MDOT does not provide public transportation services, it supports local providers and encourages regional coordination aligned with statewide mobility goals. The Statewide

Coordination Initiative—a first-of-its-kind effort in Mississippi—included regional assessments of public transportation needs and services. Extensive statewide outreach encouraged the active involvement of hundreds of local elected officials, health care providers, employers, social service agencies, disability and aging advocacy groups, and riders of public transportation in a comprehensive and collaborative planning process.

The Statewide Coordination Initiative produced a comprehensive statewide coordinated human services public transportation plan, a series of regional working coordination plans, and cooperative agreements that have improved access to public and specialized transportation services while containing costs. The initiative also helped develop a comprehensive strategic approach to state-level and local resource allocation decisions.

I-10 and I-69 Designated as Corridors of the Future

The U.S. Department of Transportation named six interstate routes—including I-10 and I-69 through Mississippi—as Corridors of the Future. The new federal initiative will help fund innovative national and regional approaches to reducing congestion and improving freight transportation along the nation's busiest multi-state corridors.

Following a year-long competition, the routes were selected from among 38 applications received from public and private entities. Proposals were evaluated for their potential to use public and private resources to reduce traffic congestion. Concepts that may be implemented in various locations in the six corridors include building new highways, widening existing highways, building truck-only lanes and bypasses, and integrating real-time traffic technology such as lane management that can adjust highway capacity as demand changes.

Initial funding will be provided on a corridor basis, with \$8.6 million designated for improvements along the I-10 corridor from California to Florida and \$800,000 designated for the I-69 corridor from Texas to Michigan. The USDOT is finalizing agreements that will detail the commitments of the federal, state, and local governments involved, as well as the role of the private sector. The agreements will outline how the partners will handle the financing, planning, design, construction, and maintenance of the corridors.

Also selected as Corridors of the Future were I-95, I-70, I-15, and I-5. The selected corridors carry 22.7 percent of the nation's daily interstate traffic.



Mississippi's First Continuous Flow Intersection Underway

The congested intersection of US 61 and US 84 (Junkin Drive) in Adams County will soon be transformed to handle more vehicles more efficiently, improving mobility in the area. The intersection is being reconstructed as a Continuous Flow Intersection (CFI). A CFI is able to handle more traffic than a traditional intersection because left turn lanes are reconfigured so they do not require a separate "protected left," or turn arrow, phase of the traffic signal. This will be Mississippi's first such intersection.

MDOT studied CFIs implemented in other states and consulted with the original developer of the CFI concept. A CFI was an ideal solution for this particular intersection because it increases the volume of traffic that can be handled without requiring significant additional right-of-way, thus reducing costs and possible negative impacts to the surrounding community.

Construction began in November 2007. Public outreach is helping ensure that motorists make a smooth transition to the new traffic patterns during and after construction.

Jackson Mobility Study Develops Advanced Planning Tools

The Jackson Mobility Study, underway in FY 2007, will provide a comprehensive assessment of constraints to the mobility of people and goods in the Jackson metropolitan area. By forecasting transportation demand through 2030 and identifying existing and future issues such as bottlenecks, inconvenient connections between transportation facilities, and gaps in public transportation services, the study will help identify and prioritize a program of transportation improvements. The study is also examining transportation's role in supporting economic development and in shaping land use—what type of development goes where.

A core component of the study is the enhancement of the Jackson area transportation model. Updated data is being collected on demographics, roadway characteristics, freight movement, and other factors. The model—a specialized computer program that analyzes the many variables of the transportation system's development and performance—will assist planners in evaluating potential projects to enhance mobility, safety, and economic development.

The model has recently been improved to better incorporate goods movement and intermodal transportation. In fact, the project includes in-depth freight analysis using modeling tools as well as the input of freight stakeholders such as trucking organizations, railroad companies, and local industry.

Public involvement has been emphasized throughout the study. Five public meetings have been held in different locations in the Jackson metropolitan area. Study leaders have also met with the mayor and board of supervisors of each municipality in the study area. The meetings produced a list of priority corridors for the movement of people and goods through and within the Jackson metropolitan area. Participants also generated ideas for infrastructure improvements

and service enhancements to improve mobility along those corridors.

The Jackson Mobility Study is expected to be complete in late Fall 2008.

... "the study will help identify and prioritize a program of transportation improvements."





STACK Improvements Ease Traffic Flow

With the continued population growth of the Jackson metropolitan area, getting into and out of the city on area highways had become a daily challenge for commuters. A series of highway improvements to the area known as “the STACK,” begun in 1992 and scheduled for completion in 2008, has already improved mobility and enhanced safety.

Reconstruction of the I-20/U.S. Highway 49 interchange with its new flyover bridge makes it possible for motorists traveling U.S. 49 to access I-20 West or I-55 North without having to merge into traffic. The addition of lanes to U.S. Highway 49 South, to frontage roads on U.S. Highway 49, and to I-55 and I-20 has relieved a bottleneck situation. To minimize impacts to the 129,000 vehicles traveling through the STACK area daily, much of the construction work was done at night and during weekend hours.

Completion of Phase III of the project, slated for 2008, will ensure efficient access into the city of Jackson and invite additional economic development into the downtown area.

New Division Emphasizes Importance of Freight Mobility

In June 2007 MDOT consolidated its Ports and Waterways Division and Rails Division into a new Freight, Rails, Ports, and Waterways Division, directed by Wayne Parrish under the Office of Intermodal Planning. Formally incorporating Freight into the name of the division indicates the increased emphasis on goods movement in the transportation planning process and freight’s importance in Mississippi and nationwide. The new organization also further encourages an intermodal approach to planning and project development.

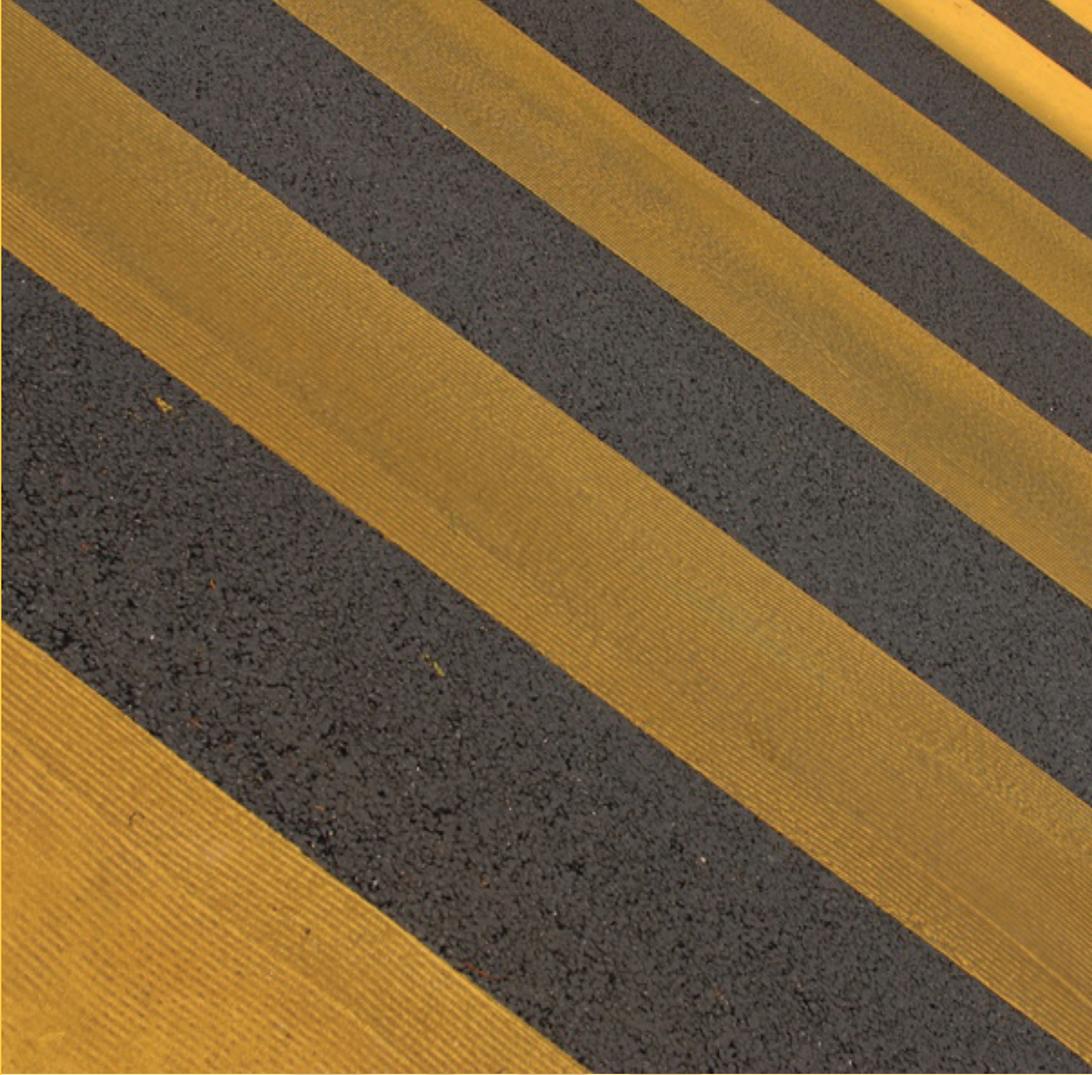
*Enhancing mobility is the core service of a transportation agency, and every **MDOT** project improves transportation connections in some way. Below are a few FY 2007 construction projects that specifically support accessibility and mobility:*

- Widening US 61 from State Route 3 to five miles south of the Issaquena County line, including bridge number 126.5: This project replaces a narrow bridge constructed in 1950, providing wider lanes and many new design features to make travel easier.
- Highway widening on I-55 from Old Agency Road to State Route 463: Adding two lanes to this stretch of interstate will help relieve pressure at a major congestion point along I-55 between Ridgeland and Madison.
- Paving State Route 67 from I-110 to the Cowan-Lorraine Extension (Three Rivers Road): This contract will complete State Route 67 from I-10 to US 49.
- Construction of State Route 30 between State Route 145 and State Route 30 East, with a connection to State Route 364: This new highway segment will provide a bypass of the downtown section of Booneville.
- Paving US 84 from the Lawrence County line to Prentiss and from just west of the Lawrence/Jefferson Davis County line to the Lawrence/Jefferson Davis County line: This paving project will complete the last Phase II segment of the 1987 Four-Lane Program on US 84.
- Paving US 84 Collins Bypass from 1.9 miles west of US 49 to 0.5 miles east of US of US 49: This paving project will close the final gap for uninterrupted travel on the 200-mile stretch of US 84 from US 61 in Natchez to US 45 in Waynesboro.



Safety

Good



**Ensure high standards of safety
in the transportation system.**



Safety is of the utmost importance to MDOT and the FHWA. In fact, the acronym for the federal transportation authorization legislation is SAFETEA-LU — which according to James Williams, MDOT's State Materials Engineer, isn't merely a coincidence. Here he discusses the role of advanced materials in enhancing motorist safety on Mississippi highways.

Q: Certainly safety depends on many factors, such as roadway geometry, weather, driver attention, vehicle condition, and so on. To what extent can innovative highway materials reduce the number of crashes and fatalities?

JW: MDOT is involved with ongoing research in new pavement types that may help reduce driver error, such as the open-graded friction course (OGFC) we are currently testing on I-55 in Copiah County. OGFC is a porous hot mix asphalt surface layer that allows water to drain from the surface of the roadway. When water is removed from the tire/pavement interface, spray from vehicle tires is reduced. This dramatically increases visibility for the driver. "Wet friction" is also improved, meaning the road is less slippery. Drivers should be able to make better decisions because they can see more clearly, and they can also maneuver and stop better to avoid collisions.

Q: How does your division stay abreast of the latest advances in materials?

JW: MDOT's Materials Division is very involved in the AASHTO [American Association of State Highway and Transportation Officials] Subcommittee on Materials, through which we are continually looking at new materials and new specifications. AASHTO also provides us with a nationwide network of peers with whom to exchange ideas and experiences. The Materials Division also works closely with the Research Division to develop and test new materials.



Q: What is involved in implementing a new material on Mississippi highway projects?

JW: Before a new material can be used in Mississippi, MDOT must develop a new specification—detailed instructions on the composition, installation, and performance of that material. Many materials already have accepted national specifications that we use as a guideline. Often we modify these specifications to achieve the same results with locally-available materials. Doing so makes them much more cost effective to use on a large scale.

For example, many states have developed specifications for OGFC, but we developed our own specification to utilize the type of gravel available in Mississippi. After development of a new specification, we seek FHWA approval for use on federally funded projects.

Q: Looking ahead, what do you see as some of the most promising opportunities for the transportation industry in terms of materials?

JW: The use of recycled materials will continue to increase—out of environmental responsibility and out of necessity. The world's sources of raw materials are dwindling. Determining how to re-use construction materials cost effectively while upholding the highest standards of quality and safety will be our greatest challenge in the coming years.

Airport Safety Inspections Continue

Each year, MDOT inspects Mississippi's 72 public use airports to assure that their facilities are in good condition and safe for the flying public. If any deficiencies are noted during an inspection, the airport owner is notified so that the issue can be properly corrected. Problems identified might be as minor as a light out on the runway, or they might be more costly deficiencies such as deteriorating runway pavement.

MDOT assists airports with planning and applying for grant money for capital improvements. MDOT has a funding program to make sure that financial concerns do not impede work on making airport repairs. The Federal Aviation Administration funds 95 percent of the improvement. MDOT funds half the local share of the project—2.5 percent of the total project cost—to help accelerate airport improvement projects.



Mississippi Strategic Highway Safety Plan Updated



As required under the current federal transportation legislation, SAFETEA-LU, Mississippi has updated its Strategic Highway Safety Plan. Volume 1 was released in January 2007. The Strategic Highway Safety Plan is intended to help prioritize and coordinate safety initiatives so that funding available through the federal Highway Safety Improvement Program can produce the greatest results.

MDOT led a collaborative plan development process to coordinate the efforts and resources of state and local agencies and other organizations. Participants included:

- Attorney General's Office
- Governor's Office of Highway Safety
- Mississippi Office of State Aid Road Construction
- Mississippi Departments of Public Safety, Health, and Mental Health
- Federal Highway Administration
- AAA Ambulance Service
- Mississippi American Academy of Pediatricians
- Central Mississippi Planning and Development District
- County sheriff and city police departments
- County and city roadway departments
- Mississippi State University
- Mississippi Center for Technology Transfer
- Mississippi Trucking Association
- Mississippi Road Builders Association
- Mississippi Safe Kids
- American Traffic Safety Services Association

Mississippi's highway safety goal, as articulated in the report, is to reduce the number of traffic fatalities from the current number of nearly 900 per year to fewer than 700 per year by 2011.

Mississippi's strategies for improving safety span enforcement, engineering, and education. They supplement, rather than replace, existing safety programs and activities. They include:

- Increasing enforcement and prosecution of impaired drivers.
- Improving infrastructure to keep vehicles in their lane and to create "forgiving" roadsides.
- Educating drivers, especially at an early age, about the dangers of drinking and driving, aggressive driving, and not wearing a seat belt.
- Improving the medical care for persons injured in crashes by improving EMS response times, especially in rural areas, and improving data systems to insure proper care.

Volume 2 of the report, expected to be completed by early 2008, will contain detailed analysis and cost estimates for the plan's strategies. It is anticipated that the plan will be updated every three to five years.

MDOT Tests Porous Pavement

As part of an overlay project on I-55 in Copiah County, a test section of four lane miles of Open Graded Friction Course (OGFC) asphalt was laid. This porous hot mix asphalt, which is applied as a one-inch-thick surface layer over a conventional asphalt intermediate course, allows water to drain away from the surface of the roadway and out to the shoulders and drainage ditches. With standing water removed from the road surface, the roadway is less slippery and the risk of hydroplaning is greatly reduced. The pavement also makes it easier for drivers to see pavement markings and other vehicles when it is raining, because spray from other cars is reduced.

OGFC pavements improve safety and they can also reduce tire noise. Today's OGFC pavements offer significantly improved performance compared to the permeable pavements first introduced in the U.S. in the 1970s and 1980s.

The pavement being tested on I-55 was constructed by a local contractor following newly-developed MDOT specifications using locally available materials. MDOT's Materials Division and Research Division are evaluating the test section to determine the long-term durability and performance of the pavement and its viability for large-scale use.

Improving Nighttime Visibility of Highway Stripes

MDOT's Research Division Continues to test various high performance wet reflective pavement markings under a three-year program launched in 2005. The material is a pavement marking tape with specially designed optics that provide better "retroreflectivity" (nighttime visibility) performance under both wet and dry conditions.

The experimental markings were placed in four locations across the state as approved by FHWA:

- MS 304 from US 61 to I-55 and Spur (MS 713)
 - Desoto and Tunica Counties
- US 49 from US 98 South to Black Creek
 - Forrest County
- Interchange at US 61 and Liberty Road
 - Adams County
- I-55 from Pearl Street to I-220
 - Hinds and Madison Counties

If the study proves that these products are successful, it will enable the use of improved pavement markings on federally-funded projects.



Fewer Rail Crossings, Fewer Collisions

MDOT continued its work in FY 2007 to close or protect railroad crossings statewide. By Summer 2008 there will be only two unprotected crossings in the entire KCS corridor from Louisiana to Alabama. Unprotected crossings are those without automatically activated signals or gates that lower to prevent motorists from crossing the tracks when a train is approaching. They are known as “crossbuck” crossings in reference to the traditional X-shaped railroad crossing sign.

A decade ago Mississippi averaged 200 vehicle/train collisions a year. Such collisions are almost always fatal. MDOT spearheaded a Rail Crossing Safety Task Force to cooperatively address this issue, advance rail safety legislation, secure funding, and ultimately reduce the number

of potential points of conflict between trains and motor vehicles. Partners include county and municipal associations, railroad companies, and Public Safety officials. The efforts of the Task Force have produced significant improvements—the number of collisions is now less than one-third the level it was a decade ago.

Busy rail crossings have been protected, either with signals and gates or by grade separating tracks and roadways. Many of the crossings with very low volumes of traffic, such as back roads or driveways, have been closed to motor vehicles with traffic rerouted in a safer configuration.

Already, the annual number of collisions has dropped to less than 60. MDOT is committed to further reducing that number through continued enhancement of rail safety.



Safety Simulators Get Attention of Young Drivers

In FY 2007 MDOT conducted 61 safe driving programs reaching 8,000 students. The lessons were driven home by MDOT’s “Rollover Rover” and “SIDNE” simulators. Rollover Rover is a truck cab created to show spectators what happens to passengers not wearing seatbelts when a car flips over. SIDNE is a go-cart driven by audience members that simulates the effects of impairment on driving skills.

Teachers and parents note that the demonstrations are very effective in promoting seatbelt usage and discouraging drunk driving.



“The Rollover Simulator you brought to our eighth graders at Jones Middle School and to the Driver’s Ed classes at Laurel High School was so impressive. [We have] NEVER had anything that made such an impression on the high school students. Hats off to MDOT for allowing us to have such an exemplary program in our schools.”

Nearly all MDOT's projects enhance safety in some way. Below are a few FY 2007 construction projects with a safety emphasis:

- **Pavement rehabilitation on I-50/I-20 between Meridian and the Alabama state line:** This project will eliminate severe rutting along this stretch of interstate and provide for safer and smoother travel.
- **Roundabouts on State Route 6 at Lamar Street in Oxford:** Roundabouts, or traffic circles, were constructed to enable motorists to more safely and quickly negotiate this intersection.
- **Shoulder repaving on I-10 from Diamondhead to the Harrison County Line and I-10 from the Hancock County line to Wolf River:** The highway shoulders along these stretches of I-10 had deteriorated. The reconstructed shoulders will be safer for disabled vehicles or other highway incidents.
- **Guardrail installation statewide:** There were numerous guardrail projects let to contract in FY 2007 which will improve safety for vehicles that accidentally leave the roadway.
- **Cable rail system on I-55:** The addition of this rail system will eliminate crossover accidents along this section of I-55 in Yalobusha and Panola counties.



Maintenance & Preservation

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Maintain and preserve Mississippi's
transportation system.





Preserving what we have is the most fundamental aspect of overseeing the state's transportation infrastructure. Well-maintained facilities last longer and perform better. Deputy Executive Director and Chief Engineer Harry Lee James, P.E., P.S., offers his thoughts on why maintenance is such a pressing issue.

Q: If our roads and bridges are well built, why is maintenance an ongoing concern?

HLJ: The infrastructure to support all transportation modes handles punishing loads day after day and is remarkably resilient. And yet, these facilities do have life spans. Although they are made of steel, concrete, and asphalt, in many ways they are like the human body.

Consider bridges. They are conceived in the mind of the engineer and over many months or years of preparation are “born,” each as an individual, dynamic structure. The new bridge is perfect—at least in the eyes of the engineer—just as a baby seems perfect to its parents. And just as that baby steadily ages, so do bridges. If reasonable care is exercised, a bridge’s life expectancy can be maximized. The biennial inspections we conduct on bridges parallel the annual physicals that people typically undergo. When something is spotted along the way that may have an adverse effect or diminish the life expectancy of the bridge, measures are taken to slow down that deterioration.

Our work isn’t finished when a project is constructed and open to traffic. Regular inspection and preventative maintenance of our transportation infrastructure throughout its life span ensures that Mississippi taxpayers get the most value from their investment.

The challenge Mississippi shares with all other states is that we have a tremendous amount of infrastructure and much of it is nearing the end of its normal life expectancy. Properly maintaining and rehabilitating that infrastructure costs more and more, limiting our ability to undertake new projects within current funding levels.



Q: What other types of maintenance is MDOT responsible for?

HLJ: Mowing right-of-way along state-maintained highways is a herculean task when you consider that MDOT is responsible for 14,300 miles of highway in Mississippi. Before our maintenance crews can mow, they need to remove litter from the right-of-way to avoid damaging equipment. Filling cracks and sealing the surface of roadways extends their life and helps delay the need for expensive reconstruction. Unpaved highway shoulders need to be reshaped. Highway signs need to be maintained and replaced as they wear out, and facilities such as rest areas need to be kept in good repair.

Q: Is all maintenance activity fairly routine?

HLJ: Much of it is, but MDOT needs to be flexible to solve problems as they arise. Emergencies, from a highway accident to a hurricane, can require immediate action by maintenance crews to keep our highways open and help ensure the safety of the traveling public. Innovative engineering can be required to solve other types of maintenance issues, such as the unstable soils that led to the landslide along US 61 near Vicksburg. The landslide is actually believed to have begun tens of thousands of years ago, but was stabilized through an award-winning MDOT project.

Q: How does putting a priority on maintenance support MDOT's other goals?

HLJ: There are direct correlations between MDOT's ability to keep its transportation infrastructure in good repair and its ability to fulfill its mission. Safety is of course at the top of the list. Well-maintained facilities are also able to handle more traffic more smoothly, which enhances mobility. Maintenance helps stretch transportation dollars, which supports financial goals. Activities such as litter clean-up help address environmental concerns, and are areas in which public awareness and partnerships are particularly effective. Further, when our transportation facilities are well maintained, aesthetics are improved, making Mississippi a more inviting place and supporting economic development.

Hazlehurst Rest Area Renovated

Renovations and site improvements were completed in FY 2007 at the northbound and southbound rest areas on I-55 seven miles south of Hazlehurst. The rest areas are now well-maintained, inviting stops for travelers, with expanded picnic facilities. They also accommodate more tractor-trailers and travel-trailers. Twenty-four-hour security enhances their appeal to motorists.

"In FY 2007, MDOT invested \$120.3 million in maintenance projects to preserve more than 14,300 miles of highway."



Ensuring Pavement Longevity



MDOT is responsible for maintaining 14,300 miles of highway in Mississippi. When highways are constructed or reconstructed, it is essential that the pavement holds up to normal use as expected. Contractors follow strict specifications in the materials and methods they use for paving highways. In some cases, MDOT enters into a “warranty” agreement with the contractor. That means the contractor guarantees that the pavement will meet certain standards for longevity and performance over a designated time period, or the contractor will repair or replace it.

MDOT let its first pavement performance warranty project in 2000 and typically lets three or four warranty contracts a year. Because contractors must bid higher to cover their financial risk under such an agreement, warranty pavement contracts are used selectively.

MDOT’s Research Division measures pavement distresses on highway segments under warranty. In FY 2007, the Research Division measured pavement performance on nine projects; one required remedial action by the contractor at no expense to MDOT.

MDOT Stabilizes Ancient Landslide

Sliding soils that experts believe started to move tens or even hundreds of thousands of years ago were stabilized through an award-winning project led by MDOT.

In 2004, an encroaching landslide threatened US 61 at Signal Hill in Vicksburg. Evidence of landslide activity, believed to date back to the Pleistocene epoch, was first observed at Signal Hill in the 1970s. Construction of an earthen berm in 1978 slowed the rate of movement considerably, and ongoing monitoring ensured the safety of the highway. But by 2004 the rate of movement increased significantly. MDOT closed the southbound lanes of US 61 and initiated an in-depth investigation into the landslide.

The highway’s limited right-of-way and local topography precluded the use of common slide stabilization techniques. Instead, the Geotechnical Branch of MDOT’s Materials Division, working closely with a geotechnical engineering consultant, developed a “permanent ground anchor/buried anchor block system” to cost-effectively stabilize the landslide.

The system allowed design and construction to be completed in a relatively short timeframe so that traffic could be restored as soon as possible. The technique did not require time-consuming and costly acquisition of additional right-of-way, it avoided nearby high pressure gas lines, and it was the most economical method of improving safety.

The landslide was stabilized in November 2006 and the southbound lanes of US 61 were subsequently repaved. Traffic patterns have now been restored, and because the ground anchors are below the surface, there is no visible evidence of the stabilization system. The unique maintenance project, which also contributes significantly to mobility and safety, won the 2007 Grand Conceptor Award of the Mississippi Chapter of the American Council of Engineering Companies.

MDOT Updates Weigh Station for Improved Efficiency

MDOT reconstructed the weigh station on I-55 at Osyka, just north of the Louisiana state line, replacing a scale house and equipment originally constructed in 1966.

More than 300,000 trucks enter Mississippi on that route each year, and the new scale system will enable MDOT law enforcement to weigh more trucks more quickly. An expanded building enables more services to be handled at that location, such as overweight/oversized truck permits.

An efficient system of preventing overloaded trucks from entering Mississippi's highway system helps minimize the damage caused by excess weight, reducing future maintenance costs.



Bridge Maintenance Prioritized

MDOT continues to prioritize bridge rehabilitation and replacement projects statewide in order to fund and complete the most urgent projects first. MDOT's bridge engineers developed a "Significance Index Model"—an algorithm that weighs various factors that contribute to the urgency of bridge rehabilitation or replacement.

Safety is the primary concern for Mississippi's 5,500 state-maintained bridges, but additional factors must be considered. The algorithm takes into account the volume of traffic and how far that traffic would have to be detoured if the bridge deteriorated to the point of closure. Bridges with more traffic also deteriorate more rapidly, so traffic volume is weighted along with a measure of the bridge's structural condition.

MDOT next weighs the calculations against other more subjective factors not reflected by the formula, such as anticipated growth areas, corridor improvement initiatives, and environmental issues that could delay a construction start. The result is a realistic, technically-based and strategically-weighted prioritization of bridge projects statewide.

This approach, combined with a precise construction cost model to realistically estimate bridge replacement costs, enables MDOT to maximize the benefit of limited Federal-Aid Funds appropriated for the Highway Bridge Replacement and Rehabilitation Program.



"MDOT continues to prioritize bridge rehabilitation and replacement projects statewide"

Environmental Stewardship

Goal 1



Ensure that system development is sensitive to human and natural environment concerns.



*Mississippi's transportation system must be respectful of our natural and man-made environments. This cannot be an afterthought—stewardship of the environment must shape transportation facilities from planning through design, construction, and ongoing maintenance. The environmental considerations that are balanced throughout project development span many disciplines. Environmental Division Director **Claiborne Barnwell** explains the scope of MDOT's environmental stewardship.*

Q: What considerations does the term “environmental stewardship” encompass in relation to transportation projects?

CB: “Environment” is an exceedingly broad term referring to all the surroundings of a transportation project or corridor. It includes natural resources such as air, water, open space, wooded areas, wetlands, and wildlife habitats. It also refers to cultural and historic treasures such as antebellum homes or sacred Native American sites. We must also consider present-day people and communities, fairly distributing the benefits and burdens of transportation infrastructure—a principle known as Environmental Justice.

Q: How does MDOT address all these environmental considerations?

CB: Through all phases of project development we find ways to “avoid, minimize, and mitigate.” That means we first try to avoid negatively affecting environmental resources—perhaps by shifting the alignment of a highway during conceptual design to avoid a wetland. If it isn’t feasible to completely avoid impacts, we look for opportunities to minimize those impacts—perhaps changing the type of interchange so that it consumes less land while still handling traffic effectively. Mitigation means offsetting environmental impacts. If a transportation project results in the unavoidable consumption of 10 acres of wetlands, for example, we might purchase and arrange for the protection of 10 or more acres of wetland in another location.

To ensure that MDOT and its consultants and contractors uphold project-specific environmental commitments, we establish “Environmental Commitment to Excellence” sheets that are prominent in project documents throughout the process. We work with state and federal environmental agencies and follow the federally-mandated processes established under the National Environmental Policy Act (NEPA).

Q: **How closely does MDOT work with environmental agencies?**

CB: We have developed strong partnerships with state and federal resource agencies such as the U.S. Forest Service; the Environmental Protection Agency; the U.S. Fish and Wildlife Service; the Mississippi Department of Environmental Quality; the Mississippi Department of Wildlife, Fisheries & Parks; and the Mississippi Department of Archives & History. We realized that to be more effective and efficient in our work, we needed to understand the mission of each of these agencies and their specific concerns, and how to best meet their requirements. In fact, we formally convene representatives from these agencies in Resource Partnering Meetings. The spirit of partnership and communication greatly facilitates development of balanced, timely, logical solutions.

Resource Agency Partnering Meeting Strengthens Communication



MDOT’s Environmental Division recently hosted its third Resource Agency Partnering Meeting. The 70 participants represented federal and state agencies and American Indian tribes that have jurisdiction, oversight, or a vested interest in MDOT’s environmental studies and programs.

The three-day workshop at Percy Quin State Park provided participants with an opportunity to present and discuss their agency’s mission statement, concerns, and priorities on a host of subjects dealing with the natural and human environments. The workshop encouraged communication and collaboration among agencies to make interactions on environmental issues more efficient and effective in advancing each entity’s mission.

MDOT Expands Wetland and Stream Mitigation

The Environmental Division has continued to expand MDOT's wetland and stream mitigation programs to include holdings in each of the watersheds of the state. The programs, developed in partnership with federal, state, and conservation organizations, fund the preservation or restoration of habitats to offset those lost through development of transportation projects. Investing in large-scale, consolidated projects that mitigate for multiple transportation improvements ensures that the mitigation is provided at a sufficient scale to achieve long-term conservation results.



Currently, a more than 200-acre addition to the Strawberry Plains Sanctuary near Holly Springs is being developed in partnership with the National Audubon Society. The land will provide valuable wetland mitigation for the Coldwater River Basin. MDOT further expanded mitigation holdings in the Coastal Basin through the purchase of 455 pine savannah wetland credits from The Nature Conservancy's Old Fort Bayou Wetland Bank. Other significant activities include the continued development of wetland and stream banking credits in the Buttahatchie River (Monroe County) and the Red Creek (Jackson County) properties purchased last year.

MDOT's investments satisfy its obligations under the federal Clean Water Act and Endangered Species Act—helping to avoid future project delays while protecting some of Mississippi's most sensitive habitats.

Pocahontas Rest Area Preserves 1,000-Year-Old Structure

MDOT worked closely with Native American Tribal elders in the design and development of the rest area and welcome center in the median of U.S. Highway 49 in Pocahontas. Although the property was a highway rest stop many years ago, the grounds also feature a "mound"—a sacred Native American site constructed between 1000 and 1300 A.D. The earthen mound is a rectangular platform approximately 175 feet wide and 22 feet high. Atop the mound are remains of a mud-plastered log post building believed to have been a ceremonial temple or the residence of a chief. Surrounding the mound are remains of a Native American village.

MDOT adapted the layout and design features of the new welcome center, as well as the rest area's walking paths, in keeping with reverence to the mound. Signs along marked walkways explain its historical and cultural significance and how to respect and protect the area.

MDOT's sensitivity to Native American concerns and heritage resulted in a project that satisfies Tribal elders while meeting the needs of modern travelers and local residents. The rest area is on schedule to open in Spring 2008, with Native American Indians expected to be on hand to offer a blessing of the new facility.

"MDOT's sensitivity to Native American concerns and heritage resulted in a project that satisfies Tribal elders while meeting the needs of modern travelers and local residents."



Maintenance Division Implements Proactive Environmental Procedures

In March 2007 MDOT formalized a Standard Operating Procedure (SOP) adopting environmental best practices at maintenance area headquarters statewide to emphasize the importance that MDOT places on being good stewards of Mississippi's environment. In addition to the detailed SOP, MDOT developed an "Environmental Field Guide" as a reference and training tool for field personnel.

MDOT teams with an environmental consulting firm to conduct annual inspections of MDOT's nearly 90 maintenance facilities to ensure that MDOT personnel are kept abreast of the latest environmental issues. The environmental consultant also provides training to maintenance personnel on how to properly safeguard the environment in their daily work activities. The program has been well-received by MDOT maintenance staff, District personnel, MDOT Administration and other state environmental agencies.

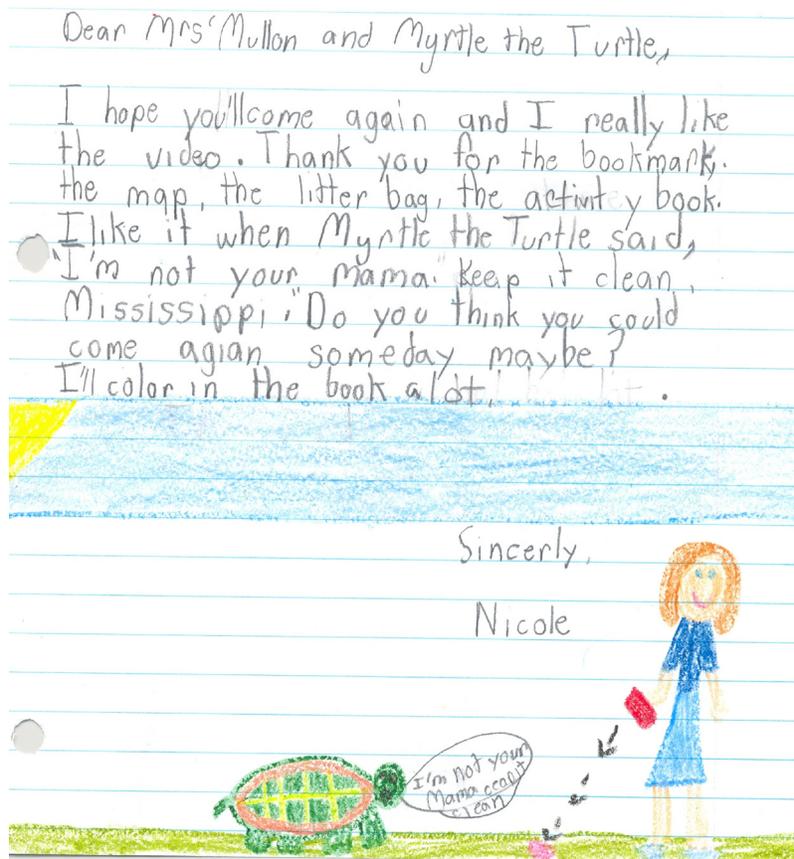
MDOT Battles Litter

In FY 2007 MDOT continued its multifaceted efforts to reduce litter along state-maintained highways. More than 2,100 MDOT employees volunteered to participate in "trash bash" litter cleanup events throughout the state, in partnership with Keep Mississippi Beautiful. In all, they removed nearly 7,000 bags of litter from the rights-of-way of state-maintained highways.

MDOT's state and district anti-litter coordinators conducted programs in 124 elementary schools, reaching more than 28,800 students. The programs feature popular anti-litter spokeswoman Myrtle the Turtle. In FY 2007 two television commercials, "Litterbug Boy" and "Hot Mama," reinforced the anti-litter message.

The national Keep America Beautiful organization returned to the Gulf Coast in March to continue its Hurricane Katrina Restoration initiative launched at last year's Great American Cleanup kickoff event in Biloxi.

Also in FY 2007 one of MDOT's L.E.A.D. leadership training groups revitalized the "Trash Splash" program. Trash Splash is a community clean-up effort to convey to the public the need to reduce stormwater pollution and litter in our streams and rivers. Trash Splash sponsors included FHWA, the Mississippi Department of Environmental Quality, the Mississippi Department of Wildlife and Fisheries and Parks, the U.S. Forest Service, and the U.S. Fish and Wildlife Service. Areas cleaned up included the Black Creek in Brooklyn, Mississippi, and Lefleur's Bluff. There, volunteers rescued four different species of fresh water mussels from a blackwater slough. They also spotted a baby ringed sawback map turtle—a federally-listed threatened species.



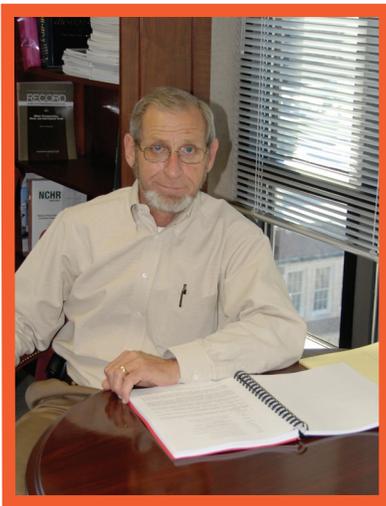
Economic Development



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**Provide a transportation system
that encourages and supports
Mississippi's economic development.**

*Our economy, locally and globally, hinges on transportation. Raw materials, finished goods, workers, and customers must all be able to reach their destinations efficiently to keep the wheels of commerce rolling. Mississippi's location, at the crossroads of major interstates, rail corridors, and waterways, makes the state's ability to efficiently handle freight particularly critical in its continued economic development. **Wayne Parrish**, Director of MDOT's newly established Division of Freight, Rails, Ports, and Waterways, discusses the future of freight in Mississippi.*



Q: What are some of Mississippi's strengths in terms of goods movement?

WP: Mississippi has a strong multimodal transportation system that is attractive to industry, such as the two car manufacturers that recently developed facilities in Mississippi. We have a good highway system: Through the 1987 Four-Lane Program and now Vision 21 we have added about 1,200 miles of four-lane highway in the past two decades. Mississippi also has five Class I railroads. And we are the only state—other than Hawaii—that can be entirely circumnavigated by water.

In fact, MDOT is recognized by other state departments of transportation as being one of the national leaders in multimodal transportation planning and development.

Q: What is Mississippi's role in international goods movement?

WP: Mississippi has been and continues to be a leader on the issue of freight, both domestic and international. In 2001, MDOT, leading a coalition of 14 states, completed the Latin American Trade and Transportation Study (LATTs). Our aim was to examine the potential impacts of the growing Latin American trade on transportation infrastructure in the southeastern U.S. The study showed the importance of freight and made it clear that we had a looming problem. Our infrastructure would not be able to keep up with demand—and the study only considered the Latin American component of international trade. Because of that study, the FHWA developed a freight office, and freight has been more formally incorporated into transportation planning at the federal and state levels. The LATTs led the way to other pooled fund studies, and was the impetus for FHWA's development of the national Freight Analytic Framework.

In terms of the international goods Mississippi handles, our role is changing and expanding, most notably at our water ports. Latin American trade is burgeoning as forecasted. Further, congestion at West Coast

ports is inducing many vessels to unload at East Coast and Gulf Coast ports, bringing more goods through Mississippi's water ports and our connecting rail and highway networks.

Q: How fast is truck traffic growing?

WP: Truck traffic is growing exponentially throughout the U.S. In Mississippi, the volume of truck traffic is doubling every decade. Already, half of all vehicles that enter Mississippi on I-20 from Alabama are heavy trucks. In FY 2007 MDOT issued twice as many oversize and overweight truck permits as it did the previous year. Remember it's not only the number of trucks that affects congestion. A tractor-trailer requires up to three times as much space on the highway as a car, so an increase in trucks consumes highway capacity much faster than a comparable increase in passenger vehicles.

This tremendous growth is expected to continue, or even accelerate, along with sustained growth in freight transported by rail and water.

Q: What are some of the ways in which we might deal with this increase in freight?

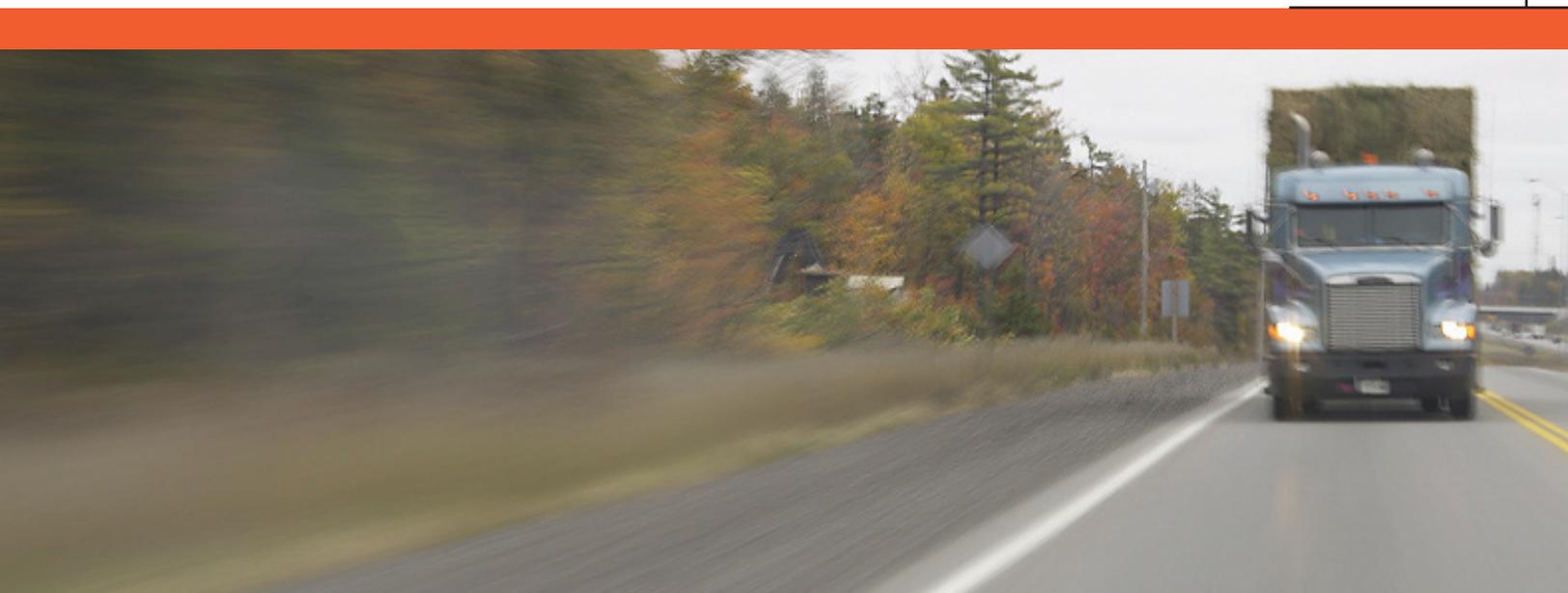
WP: Many areas of the U.S. are looking at adding truck-only lanes to existing highways, or incorporating rail lines into highway corridors. MDOT Executive Director Butch Brown advocates stronger state and federal transportation agency support of U.S. Army Corps of Engineers improvements to inland waterways. To help us better plan for and handle freight, we need tools that help us analyze freight-related connectivity between the modes and the movement of specific commodities

throughout the state. The Mississippi Goods Movement and Trade Study is a major step forward in providing those tools.

Q: What goods movement trends do you expect in the coming decades?

WP: It is projected that by 2012, 60 percent of the world's non-bulk goods will move in shipping containers, like those we see on ships or trains. I expect that much of that container freight will be transported by barge. In Europe, where there is no room for any more trucks on the highways, the inland waterways are loaded with barges carrying shipping containers. We have a few successful container-on-barge operations in the U.S. that are competing on equal footing with truck and rail.

The second trend I expect we will see along the Gulf Coast is an increase in intracoastal or "short sea" shipping, also frequently seen in Europe. Shipbuilders are developing vessels that will carry up to 18,000 containers. If a vessel that size pulls up to the port at Long Beach or Seattle or New York, it will take a very long time to unload and the volume of freight will overwhelm rail and highway facilities. Intracoastal shipping, on the other hand, essentially makes that enormous ship an offshore distribution center. Large vessels stay out in deep water and offload their freight to ships that can handle 200 to 300 containers. Those "feeder ships" deliver the containers to various smaller ports. So the big ship might go to Mobile and the feeder ships might run to Pascagoula and Gulfport or other small ports yet to be developed. The idea is to take advantage of the economies of scale of large ocean vessels while finding ways to accommodate that freight on land.



New Interchange is a Fitting “Gateway” to Natchez

A new interchange in Natchez, at US 61 and Liberty Road, draws motorists into the heart of the city, setting the stage for continued economic development. It efficiently handles growing traffic in the area and improves safety and highway access, but it is not merely a transportation improvement. The aesthetic bridge, lighting, and other details provide a fitting link between the antebellum city and the 444-mile Natchez Trace, an ancient trail across the Southeast now enjoyed as a scenic parkway.

The project features an “architecturally significant” two-span bridge that carries six lanes of traffic and replaces an older, narrow bridge. A new half cloverleaf interchange at US 61 and improved ramps further enhance traffic flow, as does the widening of Liberty Road to six lanes. Decorative lighting and extensive landscaping along Liberty Road and US 61 enhance aesthetics and help blend the new interchange with the historic character of Natchez.

The project is known as the “Gateway to Natchez” and is expected to encourage tourism and business development in the area.



Statewide Goods Movement Analyzed

Economic development and transportation are interwoven, especially with regard to freight. In launching the Mississippi Goods Movement and Trade Study in FY 2007, MDOT aims to examine and better accommodate the growing volume of freight on the statewide transportation system.

Previously, MDOT's highway travel demand forecasting model had a strong truck component, but that was the extent to which goods movement could be formally incorporated into the transportation planning process. The Mississippi Goods Movement and Trade Study will yield a commodity flow model that will more precisely characterize the raw materials and finished goods whose origin or destination is in Mississippi, what freight is being transported through Mississippi, and what routes and modes each type of freight uses. The model will enable long-range projections to help identify looming freight bottlenecks and other constraints so that transportation improvements can most effectively support the movement of goods through the state.

The commodity flow model will be particularly valuable in improving the connectivity between modes so that, for example, shipping containers can move easily from trains or barges to trucks and on toward their final destinations. Further, having reliable data on exactly how specific commodities move through Mississippi introduces opportunities to enhance economic development while managing transportation demand. For example, if the model reveals that the components to make a certain type of product are flowing through Tupelo, that might be a logical location in which to develop a new plant to assemble that product and create new jobs.

Today's transportation modeling tools formally factor in economic development. The Mississippi Goods Movement and Trade Study will enable MDOT to evaluate a transportation project not only in terms of mobility and safety, but also with regard to how many short-term and long-term jobs it may create over the coming years.

Greenville Bridge Soars over the Mississippi



Motorists and marine traffic watched the landmark Greenville Bridge continue to take shape in FY 2007. The main span is complete, with two concrete towers soaring 425 feet above the Mississippi River, anchored by four fans of steel cables. In FY 2007 foundations were completed for both the Mississippi and Arkansas approaches. Although the soft soils near the river can create foundation complications, the project suffered no delays due to foundation issues. By the end of June 2007, the Mississippi approach was 80 percent complete and the Arkansas approach was 45 percent complete. Work is on schedule for overall completion in April 2008, when the bridge will carry US 82 over the Mississippi River and demolition of the 1940 Greenville Bridge will begin.

The Greenville Bridge supports economic development in the Mississippi Delta in several ways. Design and construction of the \$321 million bridge has employed hundreds of workers in a multi-year, career-defining project. Materials for the bridge—purchased from Mississippi sources to the extent feasible—have also had a tremendous positive economic impact.

The alignment and design of the bridge will also enhance economic development. The old bridge is so narrow—just two 12-foot-wide lanes

and no shoulders—that it has to be closed when large farm equipment or other wide loads need to cross. Disabled vehicles cannot pull out of the travel lanes, choking the flow of traffic. The new bridge will carry four 12-foot-wide lanes of traffic with 12-foot-wide outside shoulders and 8-foot-wide inside shoulders, accommodating a greater volume of traffic more safely and conveniently. The new bridge will also reduce economic risk for goods traveling by barge. The old bridge, located at a bend in the river, is the most frequently hit bridge on the Mississippi River. The new bridge is located 2,800 feet downstream across a straighter stretch of river, greatly reducing the risk of barge collisions.

In addition to the bridge's capacity being a selling point for new development in the Greenville area, its dramatic signature design—and distinction as the fourth longest cable-stayed span in North America—demonstrates Mississippi's pride, technical leadership, and willingness to invest in infrastructure for a strong future.

Yazoo River Bridge Feeds Port of Vicksburg

MDOT is replacing the Redwood Bridge carrying US 61 over the Yazoo River in Warren County with a wider, modern structure that will support economic development in the Vicksburg and Yazoo City region of Mississippi. Traffic to and from the Port of Vicksburg travels on US 61, but the narrow 1940s-era steel truss bridge cannot accommodate large equipment. Oversized loads must go 100 miles out of their way because of the limits of the old bridge.

The new bridge will accommodate wider and heavier loads, removing what has been an impediment to area industries such as logging. The bridge was 48 percent complete by the end of FY 2007 and is slated for completion in late 2009.



Awareness, Education & Cooperative Processes

**Create effective transportation
partnerships and cooperation that
enhance awareness of the needs and
benefits of an intermodal system**

2011



Transportation affects nearly every aspect of our lives. In that way it is much like electricity—our way of life hinges upon it, and yet we don't think about it until it is interrupted. Outreach Division Director Danada F. McMurtry explains why Mississippi does need to think about transportation, and MDOT's role in building awareness.



Q: Why is it important to educate the general public on the needs and benefits of Mississippi's transportation system?

DM: Ultimately, it improves the transportation system and MDOT's ability to serve its customers, the traveling public. Development of transportation infrastructure is a government service—MDOT works for Mississippi taxpayers. But although most people depend on the transportation system every day, they are unfamiliar with the complexities of planning, designing, constructing, and maintaining that system. The general public and their elected leaders need at least a basic familiarity with the many considerations that must be balanced when developing a highway, bridge, or other transportation facility, and the processes through which such infrastructure is planned and delivered. It allows them to become meaningfully involved in shaping individual projects and in longer-range planning and prioritization, and helps them understand where their tax money goes and why transportation funding is essential.

Q: Why is much of MDOT's outreach geared toward children?

DM: For initiatives such as combating litter along Mississippi's highways, reaching children at a young age helps form good habits that carry through into adulthood. Also, MDOT views its outreach and education activities as an investment in the future workforce and the future of Mississippi. We not only communicate why our transportation system matters, we introduce students to career opportunities in the transportation profession. Sparking their interest while they are in middle school or younger enables students to prepare for satisfying and family-sustaining careers, and helps ensure that MDOT has a pool of qualified candidates for future positions.

Q: Why are partnerships important?

DM: The synergy created by meaningful partnerships, whether they be with other government agencies, school districts, professional organizations, or other entities, produces better results with fewer resources. In many cases our goals may be closely related—such as MDOT's need for qualified employees and the Department of Education's aim of more closely aligning educators and employers. By working together, everyone wins.



Hands-On Introduction to Transportation for High School Students

MDOT, through the FHWA, conducted a Summer Transportation Institute program aimed at exposing high-achieving students to technical aspects of the transportation industry. The program provides meaningful educational enrichment to students entering the 10th, 11th, and 12th grades, and encourages students to pursue careers in transportation. Nineteen students participated in the three-week program, which was hosted by Mississippi State University.

FHWA developed the original pilot Summer Transportation Institute in 1993 in partnership with South Carolina University and the South Carolina Department of Transportation. MDOT has been involved in the program since 1995. Sponsors for the 2007 Mississippi Summer Transportation Institute included Ergon (a developer of asphalt and other paving materials), Intergraph Corporation (a Geographic Information Systems provider), and the Mississippi Road Builders Association.

The curriculum spanned many different aspects of transportation engineering, including traffic management, water transportation, concrete materials, bridges and structures design, surveying, pavement systems, and Geographical Information Systems. Lessons were delivered through classroom instruction, field trips, and hands on experiences. Students enjoyed field trips to the Port of Vicksburg, an Ergon research and testing facility, the Nissan plant, the MDOT Sign Shop, Columbus Air Force Base, the Columbus Lock and Dam, and the Raspet Flight Research Lab.

According to the students, "Everything we did was interesting." Another participant commented, "I will most likely be an engineer and MSTI has helped me with that choice."



"I will most likely be an engineer and MSTI has helped me with that choice."



MDOT Expands Educational Outreach

Students throughout Mississippi are enhancing their applied math and science skills and are better prepared for technical careers as a result of MDOT's ongoing innovation in transportation education for students from kindergarten through high school. In FY 2007, a new program was introduced and a record number of Mississippi students were engaged in hands-on learning.

Educational outreach is linked to MDOT's continued ability to execute its mission: MDOT must have a pool of highly qualified candidates for future job openings. Several years ago MDOT saw the opportunity to interest students in transportation careers at an early age and help develop their technical skills, thus investing in the future workforce. MDOT partnered with educators to implement a transportation education program developed by the American Association of State Highway and Transportation Officials (AASHTO). In the process, the program, known as TRAC (TRANSPORTATION and Civil Engineering), would strengthen students' math and science skills, benefiting them no matter what career they eventually pursue.

MDOT introduced AASHTO's TRAC (TRANSPORTATION and Civil Engineering) program to Mississippi schools in 1997, with three schools participating. The next year, 15 pilot programs were established in middle schools and high schools, with participating schools receiving computers, training, and materials for eight TRAC modules. AASHTO staff conducted the teacher training and MDOT provided engineers to assist in the classrooms. The program was well received in high schools and generated particular enthusiasm at the middle school level. That prompted MDOT to focus the next round of program expansion on seventh- and eighth-grade students.

TRAC was aligned with the state framework for Career Discovery, which is taught to every seventh grade student in Mississippi, and Computer Discovery, an eighth grade program. By 2005, the Mississippi Department of Education had adopted TRAC into the statewide Career Discovery curriculum. MDOT is providing TRAC training and four TRAC modules to every Career Discovery and Computer Discovery teacher in Mississippi. MDOT conducted 10 teacher trainings in 2007 with 252 teachers trained to date. TRAC has been implemented at 237 schools statewide, reaching approximately 38,000 students.

As AASHTO's TRAC program became a key resource at the middle school level, elementary schools requested a similar program to enhance their math and science curriculum and introduce students to engineering and transportation careers. MDOT developed its own hands-on transportation education program geared toward students in kindergarten through sixth grade, working with curriculum writers at the University of Mississippi. The program, known as RIDES (Roadways In Developing Elementary Students), was introduced to nine elementary schools during Summer 2004 by university professors who had helped develop the program. In 2005, certified elementary and middle school teachers became the primary trainers. During that summer, 149 teachers from across the state attended the two-day training. They each received two large trunks of resource materials and a curriculum that was aligned with state and national standards in math and science. The program was updated in 2006 to include seventh and eighth grade standards. Overall, 536 teachers have been trained in RIDES, which is in place at 210 schools statewide.

RIDES became very successful and the waiting list of teachers applying for training and materials grew rapidly. MDOT explored partnerships to fund the expansion of the program into additional schools. MDOT secured a grant from the Appalachian Regional Commission to fund RIDES training and trunks for 96 teachers from the distressed counties in the Appalachian Region. MDOT provided 13 sets of trunks for teachers in the coastal areas affected by Hurricane Katrina. RIDES teacher training is ongoing.

MDOT developed another key RIDES partnership with the Mississippi Department of Mental Health's Region 8



Work Activities Center. Clients of the center assemble and deliver the RIDES trunks, which are filled with lesson and activity materials. This partnership is an economical solution to the labor-intensive process of producing the trunks, and provides Region 8 clients with an opportunity to practice work-related skills, such as sorting, counting, assembling, and working as a team. In FY 2007, more than



200 trunks were assembled by Region 8 clients.

MDOT is expanding transportation education to yet another level through its partnership with the Redesigning Education for the 21st Century Workforce in Mississippi Initiative, spearheaded by the Mississippi Superintendent of Education. During Summer 2007, selected math and science teachers from 15 pilot school districts in Mississippi shadowed MDOT engineers in the field. Based on the skills used by MDOT engineers on the job, the teachers, in partnership with the Research

and Curriculum Unit at Mississippi State, developed Engineering and Transportation units for a new ninth grade curriculum named CARS (Career Awareness: Roadway to Success). CARS will be piloted in May 2008 and is expected to be available to schools by Fall 2008. The hands-on curriculum of applied science and math encourages transportation-related problem-solving. Students complete activities such as calculating the rate of traffic growth in a community, legal truck weights, the volume and cost of materials required for construction of a bridge, the relative costs of transporting a load by truck vs. barge, and using surveying, remote sensing, and mapping to analyze and develop transportation facilities. The activities will be accompanied by videos of MDOT engineers on the job, demonstrating work in areas such as paving, surveying, airport layout plans and flight plans, and MDOT's laboratories. CARS activities are tied to national standards in math and science.

MDOT has received numerous awards for its transportation education programs and partnerships, including the Governor's Award for Partners in Education and the American Road and Transportation Builders PRIDE Award. In 2007 a team of students from Tupelo Middle School, advised by an MDOT engineer, won first place in the national TRAC design-build bridge competition, sponsored by AASHTO. Another Mississippi team, also from Tupelo, won third place honors.

Research-Needs Workshop Draws Wide Participation

In December 2006, MDOT's Research Division hosted a "Research Needs Workshop" to identify potential research topics that would provide the greatest benefit for transportation stakeholders in Mississippi.

The workshop drew more than 120 participants from MDOT, FHWA, private industry, and academia. Participants were divided into groups according to their expertise and assigned one of six broad topics:

- Traffic, Safety, and Intelligent Transportation Systems
- Structures and Hydraulics
- Maintenance
- Materials and Geotechnical
- Construction
- Intermodal Planning

Each group identified and prioritized potential research topics pertaining to that category; in all more than 180 research topics were identified. Ideas varied widely, spanning such topics as controlling speeding in work zones, developing strategies to incorporate "smart" structure technology into bridges, pavement preservation, recycled construction materials, wet-reflective pavement markings, and alternatives to the fuel tax.

The process supported collaboration among entities with transportation interests and helped ensure that MDOT's investment in research projects are focused on Mississippi's greatest needs.

Finance

**Provide a sound financial basis
for the transportation system.**



COLLOR

*Historically, departments of transportation and the highway departments that preceded them have been engineering organizations. The role of the DOT is changing as we meet the challenges of funding and financing an increasingly complex transportation system amid increasingly strained budgets. MDOT Deputy Executive Director and Chief Financial Officer **Brenda V. Znachko, J.D., LL.M.**, discusses MDOT's goal of providing a sound financial basis for the state transportation system.*



Q: What are some of the most significant financial challenges that a DOT must address?

BZ: Ensuring that MDOT actually receives the funds that have been dedicated by law to transportation is vital to MDOT's financial stability and ability to meet its obligations. In 2005, the Mississippi Legislature diverted funds from MDOT to the General Fund. The money went to other important needs. However, transportation needs, which are also critical, cannot be met without stable funding. Major construction projects take three to four years to complete, and we work from a program that looks out over 10 to 20 years. Projects are let in anticipation of receiving dedicated funds—so it is essential that those funds do come to MDOT as planned.

Q: What are some of the ways in which MDOT works to ensure the stability of that state funding?

BZ: MDOT's senior executives work closely with the Mississippi Legislature and its transportation committees to foster communication and partnership in meeting Mississippi's transportation needs. MDOT's

various outreach initiatives also help educate the general citizenry and their elected leaders on the vital role transportation plays in everyday life and the future of Mississippi. Transportation underpins every other initiative—economic development, education, health care, and so on. Stable transportation funding sources are essential.

Q: Along with stability, how do you provide for the flexibility to meet challenges and seize opportunities that cannot be precisely planned?

BZ: Having a full financial “tool box” enables MDOT to be strategic in how and when it funds projects, ultimately producing faster, better results. In addition to predictable funding from traditional sources, we need long-term and short-term financing to meet seasonal cash flow and longer-term capital needs. It is also important to be able to accelerate certain projects—perhaps an interchange that will serve a new manufacturing facility that will bring jobs to an area.

MDOT also needs the flexibility to pursue new revenue sources and project delivery mechanisms such as toll facilities and

public-private partnerships. Many of these tools require statutory authority. MDOT's executives have worked with the Mississippi Legislature to develop and authorize new mechanisms such as these that help us meet statewide transportation needs more efficiently.

Q: How does MDOT earn the trust of taxpayers and legislators and the confidence of banks and other investors?

BZ: MDOT works closely with the State Auditor's Office and Legislature to ensure we have appropriate internal controls and accounting procedures. In fact, many of our practices, such as accountability for fixed assets and cell phones, have been recognized as models for other agencies. MDOT has also continued to make a major investment in our financial management and accounting system.

Such practices are also critical when securing short-term or long-term financing or establishing public-private partnerships. Potential investors examine the leadership of an entity, its stability, its funding, and the management of those funds. MDOT's executives ensure that MDOT's finances and assets are properly managed, and educate rating agencies, investment banks, and private sector investors on the integrity and stability of the organization.

Truly, though, MDOT's accountability and stewardship of our resources for the benefit of Mississippians is an agency-wide effort.

Updated Procedures and Practice Enhance Emergency Preparedness

As part of our ongoing emergency operations, MDOT participated in the two-day statewide hurricane exercise of responding to the fictitious Hurricane Zora. The divisions within the Office of Administrative Services have made extensive preparations for future emergencies. Under the direction of MDOT's Emergency Operations Coordinator, the department has built up an inventory of supplies for use during an emergency, such as water and fuel. MDOT has also created procedures for accounting for the distribution of these supplies and enhanced our ability to account for costs associated with emergencies. These measures are expected to simplify and expedite the reimbursement process in the event of future emergencies.



H.E.L.P. Program Accelerates Projects

MDOT has accelerated \$407 million in highway projects through its innovative financing program entitled Highway Enhancement through Local Partnerships (H.E.L.P.). By leveraging available funding, these projects will be completed and will provide mobility and economic development benefits years before they could otherwise be launched.

Through the H.E.L.P. program, authorized by state statute, MDOT enters into cooperative agreements with cities or counties to accelerate planned Federal-Aid eligible interstate highway projects in their area. The city or county where the project is located issues bonds to finance the much-needed highway improvements. MDOT repays the debt, most of which is reimbursed by the FHWA.

MDOT has entered into six H.E.L.P. cooperative agreements, most recently for I-269 in North Mississippi. The 28.6-mile stretch of new four-lane highway will extend from I-55 in DeSoto County through Marshall County to Tennessee, bypassing Memphis. I-269 is part

"...these projects will be completed and provide mobility and economic development benefits years before they could otherwise be launched."

of the new I-69 corridor that will ultimately link Mexico and Canada through Mississippi.

The initial issuance of \$83 million in H.E.L.P. bonds and future issuances in 2009 and 2011 will make it feasible to design and construct the \$490 million project in approximately eight years—nine years sooner than otherwise possible. The project will provide much needed capacity for a rapidly growing area in North Mississippi.

Other scheduled highway projects accelerated through H.E.L.P. are a paving project on State Route 304 in Tunica County (\$45 million in bonds), State Route 601/Canal Road in Harrison County (\$102 million in bonds), the I-59 S-curve in the City of Laurel (\$32 million in bonds), and the split diamond interchange in Madison County (\$145 million in bonds).

H.E.L.P. bonds continue to attract positive attention in financial markets. Recently MDOT received a rating upgrade of AA- from Standard and Poor's (S&P) and a rating of A1 from Moody's.

New Tools: Toll Roads and Public-Private Partnerships

With the passage of Senate Bill 2375 (codified as MS Code of 1972, 65-43-1 through 39), signed into law in April 2007, MDOT received statutory authority to finance, construct, operate, and maintain new toll roads and/or bridges or to contract with private companies for financing, constructing, operating, and maintaining new toll facilities in the state. This enabling legislation provides MDOT access to an innovative funding mechanism that can be used to advance the state's transportation initiatives and further assist in mitigating highway congestion.



Commercial Paper Program Improves Cash Flow

MDOT's \$100 million Commercial Paper Program provides cash flow to keep MDOT's robust construction program advancing full speed during the busy summer construction season, even though federal funding schedules and state tax collections do not always correspond to seasonal variations in MDOT's obligations. Short-term financing through the Commercial Paper Program allows MDOT to keep less cash on hand and thus fully utilize its revenue for projects.

MDOT Hosts the Southern Transportation Finance Conference

In June 2007 MDOT hosted the Southern Transportation Finance Conference in Biloxi. The annual conference is affiliated with the Southeastern Association of State Highway and Transportation Officials (SASHTO).

The conference drew participants from SASHTO's 13 member states as well as leaders in transportation finance and accounting nationwide. Sessions explored best practices in areas of interest to financial officers of transportation agencies, including bond financing, toll facilities, public-private partnerships, accounting, and auditing. Participants were particularly interested in learning from MDOT's experience in the financial aspects of emergency preparation and response and how to work effectively with FHWA and the Federal Emergency Management Agency during and after a crisis.



"Participants were particularly interested in learning from MDOT's experience in the financial aspects of emergency preparation."



Financing Equipment Purchases for the Best Value

MDOT uses several methods for purchasing equipment in addition to the equipment budget established in the annual Appropriations Bill. By having several methods available for purchasing equipment, MDOT is able to use the taxpayer's dollar most efficiently.

MDOT retains the proceeds from the sale of used equipment and from insurance reimbursements in an "equipment revolving fund." In accordance with state law, these proceeds are used only for the purchase of new equipment. MDOT also utilizes the state's Master Lease Purchase program, which is regulated by the Department of Finance and Administration. The Master Lease Purchase program is comparable to a term loan, and enables MDOT to purchase high-cost equipment without depleting the annual equipment budget. Finally, MDOT utilizes a "buyback" program through which a vendor guarantees to buy back equipment at an established minimum amount at the end of a three-, four-, or five-year term. MDOT selects a vendor based on the lowest annual cost to own the item, rather than low bid alone. At the end of the buyback term, MDOT has the option to sell the equipment at auction, as long as the proceeds exceed the guaranteed buyback amount. This program is ideal for equipment with a high resale value.

MDOT analyzes the yearly cost of operating equipment purchased by each of these available methods to determine the method that will provide the best value.



"By having several methods available for purchasing equipment, MDOT is able to use the taxpayer's dollar most efficiently."

MDOT Earns Mississippi Certified Purchasing Agency Status

In FY 2007, five employees of MDOT's Procurement Division became Certified Professional Public Buyers, the national certification in purchasing. The requirements for certification encompass work experience and passing a national test. The certification of these five employees enabled MDOT to be approved as a Mississippi Certified Purchasing Office as of September 5, 2006. MDOT is one of the few state agencies in Mississippi to become certified, which enables MDOT to use cooperative contracts with other states or organized buying groups. The certification also allows MDOT to use the Request for Proposal process without justification to and prior approval from the Mississippi Department of Finance and Administration, allowing for more efficient operations.

Equipment Management System Facilitates Comprehensive Monitoring

The passage of Senate Bill 2398 during the 2006 legislative session resulted in the creation of the Bureau of Fleet Management (Fleet Management) within the Office of Purchasing, Travel, and Fleet Management of Mississippi's Department of Finance and Administration. The Bureau exists "for the purposes of coordinating and promoting efficiency and economy in the purchase, lease, rental, acquisition, use, maintenance, and disposal of vehicles by state agencies." Among its many functions, Fleet Management was charged with encouraging the use of fuel efficient or hybrid vehicles appropriate for the state agency's intended purpose, and, when feasible, the use of alternative fuels. For the past few years, MDOT has been one of the lead agencies in complying with federal alternative fuel vehicle requirements.

Fleet Management was also required to implement software to monitor the size, use, maintenance, and disposal of the state's fleet of vehicles. MDOT is working with Fleet Management to create an interface between MDOT's existing Financial Management System and the new Fleet Management System. The two agencies are working closely to ensure that information currently maintained within MDOT's Financial Management System meets these requirements, including the cleanup

of existing data to match Fleet Management's format.

MDOT's Asset Management, General Services, Financial Management, and Information Systems divisions have teamed to implement an Equipment Management System (EMS) that will go a step further than the Fleet Management System. EMS will monitor all equipment—not only vehicles—from purchase through maintenance and repairs to disposal. EMS will enable MDOT to schedule periodic maintenance such as oil changes and will prompt users of the equipment in advance of needed maintenance. It will enable MDOT to report repairs completed under warranty or as problems occur, thus enabling the evaluation of makes/models/manufacturers for future purchases and the compilation of better data on the actual cost of the equipment or vehicles.

The ability to track periodic maintenance will also document compliance with any maintenance requirements of equipment purchased through the "buyback" method. Historical records of vehicles and equipment will be maintained electronically, reducing the need to store folders and files of paper. EMS will be accessible to all divisions and districts within MDOT, thus information will be readily available for equipment that is shared or transferred within the agency.

"MDOT has been one of the lead agencies in complying with federal alternative fuel vehicle requirements."



MDOT employees are encouraged to continually find improved ways of working to enhance efficiency, accuracy, and information-sharing. Numerous such initiatives were underway in FY 2007. A few are highlighted below.

Streamlined Process for Hiring Right-of-Way Agents

At any given time MDOT typically employs approximately 60 staff right-of-way agents and 30 contract employees. The positions can be difficult to fill because most are entry-level and require a great deal of travel. In the past, because the formal hiring processes for state government can take many weeks from initial posting to hiring, many candidates who expressed interest in right-of-way jobs had already found other employment by the time the Right-of-Way Division could offer the individual a position.

MDOT's Right-of-Way Division and Human Resources Division worked with the State Personnel Board to accelerate and streamline the hiring process. The Personnel Board granted MDOT an exemption from certain hiring formalities, enabling Right-of-Way to recruit qualified candidates directly.

The improvement in the hiring process has enabled Right-of-Way to work more efficiently, quickly hire qualified candidates for immediate job openings, and spend less time on the hiring process and more on training new employees.



Faster, Safer Data Collection

Surveying has been a vital part of road building for hundreds of years. The technology has advanced significantly, particularly with the development of Global Positioning Systems (GPS). Using mobile GPS-based digital data collection offers promising efficiencies over techniques used by traditional surveying crews, but making the technology practical for real-world situations can be a challenge. MDOT is at the forefront of this research, and has recently received a patent for a data collection device it developed.

RTK (Real-Time Kinematic) GPS survey equipment can be mounted on a vehicle for relatively fast, mobile collection of data on the alignment and elevation of a roadway. However, for accurate data the survey pole must be held perfectly plumb (straight up and down) and not bounce as it travels down the highway. MDOT's team developed a unit that is mounted on a cart and towed behind a four-wheeler. The first prototype uses a seismograph chip to detect when it is not plumb and correct itself. The team is working to develop a second prototype using a gyroscope to keep the pole plumb. The pole will be suspended from a mounting bracket and laser and sonar beams will measure the distance to the ground. The RTK GPS unit will thus be better insulated from bumps in the road and will be able to gather more precise data.

When GPS data can be collected from a mobile unit at a sufficient degree of accuracy, the gains in efficiency are tremendous. A stretch of highway that would take a four-man survey crew five days to survey, gathering data on the centerline and one edge of pavement, can be done with one surveyor and the mobile device in 6.5 hours, gathering data on the centerline and both edges of pavement. The need for road closures and traffic control crews is also greatly reduced.

MDOT's Legal Division applied for the patent on the device, which is in regular use in District 5 and is being introduced to other districts.



Working with renewed efficiency

Smoothly Sharing and Managing Data

MDOT's Transportation Information Division works closely with many different units within the Department to develop software tools to enhance efficiency. Initiatives underway in FY 2007 included:

- Developing a Geographic Information System (GIS) in coordination with the Information Systems Division (IS) to enable MDOT planners, engineers, and maintenance personnel to link asset information with location details and overlay mapped transportation data onto resource, utility, and land use map layers.
- Extending the TerraShare Image Management tool in coordination with IS to all MDOT locations allowing immediate access to all Mississippi Digital Earth Model (MDEM), National Agricultural Imagery Program (NAIP), and project-specific orthophotographic (having characteristics of a photograph and a map) imagery.
- Assisting the Planning Division in the creation of a Multilevel Linear Referencing System (MLRS) capable of hosting multiple Linear Referencing Models (LRMs) and maintaining temporal (historical) states for use in traffic, pavement and safety analysis and location of assets.
Developing an application for the Materials Division to locate, record, and track all soil borings and to aid in the laboratory testing and reporting of soil samples.
- Completing migration of all GIS data to the Oracle 10g database platform, enabling enhanced analysis and superior operational stability.

- Developing several lightweight web applications to assist Planning with daily work loads, Highway Performance Monitoring (HPMS) reporting and National Environmental Policy Act (NEPA) processes.
- Developing an application in conjunction with the Statewide Surveyor to aid the District Surveyors in mapping established project control data.
- Collaborating with the Mississippi Department of Archives and History and the Mississippi Automated Resource Information System (MARIS) for the creation and maintenance of a complete GIS system for the mapping of archeological sites, which ultimately streamlines MDOT's environmental processes and aids other state and federal resource agencies.



awards

Special honors and recognition validate the Mississippi Department of Transportation's commitment to excellence. In 2007 MDOT and its employees received national and international awards both in the field of transportation and for service to the citizens of Mississippi. Among those awards are:

Danada McMurtry, Outreach Division Director, was awarded the 2007 PIARC Prize for Communication by the World Road Association. The World Road Association, based in Paris, is an international organization established in 1909 to exchange knowledge and ideas related to transportation. The PIARC Prize for Communication was created to encourage innovation and showcase professional expertise in communication for the global transportation industry. McMurtry's winning entry, a handbook entitled, *Passing the Baton: Communication Techniques for Developing Tomorrow's Workforce*, competed against the work of industry leaders throughout the United States as well as the World Road Association's other 108 member countries. According to McMurtry, "Ensuring that our workforce possesses the expertise to carry out the agency's mission today and into the future is a challenge shared by transportation entities worldwide."

The prize included airfare and other travel expenses to Paris for the 2007 World Road Congress, where Danada McMurtry received the award.

Elton Jay, Aeronautics Division Director until his retirement in June 2007, was recognized by the Federal Aviation Administration's Southern Region with its highest honor, the Kitty Hawk Award. The award recognizes FAA and industry professionals who have made significant contributions to aviation in the southeast. According to Doug Murphy, FAA Southern Regional Administrator, "Elton Jay is one of the most respected professionals in the aviation community."

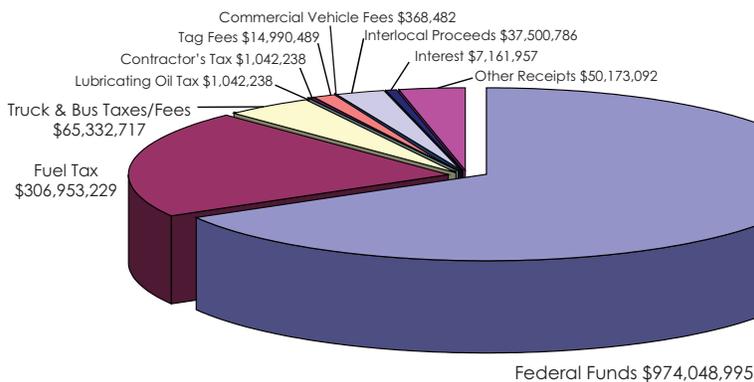
In addition, the Mississippi Airports Association named its endowment scholarship, awarded to students pursuing aviation studies at Delta State University, the Elton E. Jay Scholarship. Jay was also honored by the Mississippi Airports Association with a lifetime membership.



financial management and budget

Statement of Receipts and Disbursements for the Fiscal Year Ended June 30, 2007

Cash Balance as of July 1, 2006 \$44,398,544



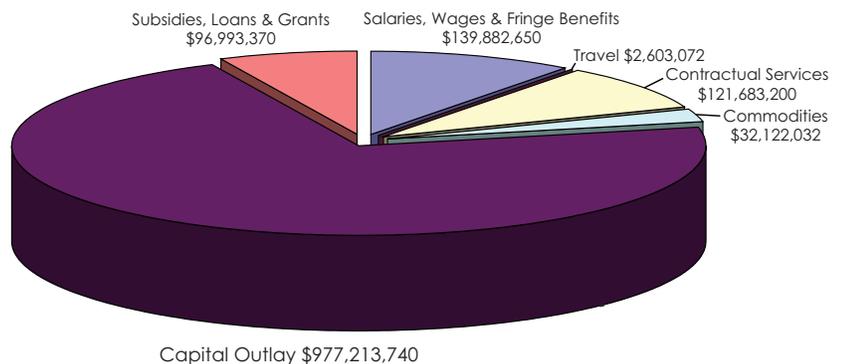
Receipts:

Federal Funds*	\$974,048,995
Fuel Tax	306,953,229
Truck & Bus Taxes/Fees	65,332,717
Lubricating Oil Tax	1,042,238
Contractor's Tax	3,584,295
Tag Fees	14,990,489
Commercial Vehicle Fees	368,482
Interlocal Proceeds	37,500,786
Interest	7,161,957
Other Receipts	<u>50,173,092</u>
Total Receipts	\$1,461,156,280

Funds Available for Fiscal Year 2007 \$1,505,554,824

Disbursements:

Salaries, Wages & Fringe Benefits	\$139,882,650
Travel	2,603,072
Contractual Services	121,683,200
Commodities	32,122,032
Capital Outlay:	
Equipment	13,194,740
Other than Equipment	964,019,000
Subsidies, Loans & Grants	<u>96,993,370</u>
Repayment of Commercial Paper	<u>85,000,000</u>
Total Disbursements***	\$1,455,498,064



Cash Balance as of June 30, 2007 \$50,056,760

*Federal funds include \$388,101,603 of FHWA Hurricane Katrina Emergency Relief (ER) Funds.

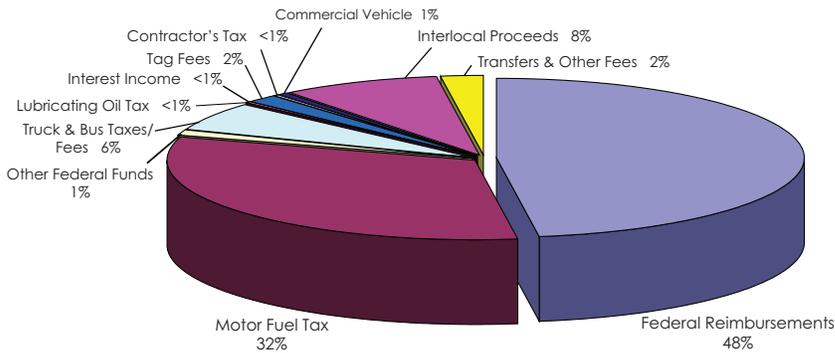
**The \$85,000,000 Commercial Paper is not included as part of fiscal year 2007 expenditures.

***FY 2007 Disbursements include \$419,069,126 in Hurricane Katrina-related expenditures.

Budgeted Revenues and Expenditures for the Fiscal Year Ending June 30, 2008

Cash Balance July 1, 2007

\$50,056,760



REVENUES:

Federal Reimbursement	450,000,000
Motor Fuel Tax	300,000,000
Other Federal Funds	10,000,000
Truck and Bus Taxes/Fees	54,000,000
Lubricating Oil Tax	1,000,000
Interest Income	2,000,000
Tag Fees	15,000,000
Contractor's Tax	4,000,000
Commercial Vehicle Fees	5,000,000
Interlocal Proceeds	77,000,000
Transfers & Other Fees	22,000,000

BUDGETED REVENUES* \$940,000,000

TOTAL AVAILABLE \$990,056,760

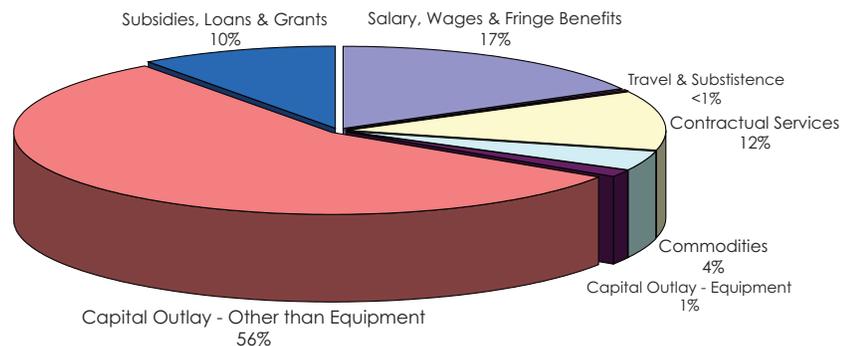
EXPENDITURES (by object):

Salaries, Wages & Fringe Benefits	\$159,013,280
Travel and Subsistence	2,949,359
Contractual Services	112,365,930
Commodities	34,924,013
Capital Outlay - Equipment	13,500,000
Capital Outlay - Other than Equipment	527,599,588
Subsidies, Loans, and Grants	94,832,800

BUDGETED EXPENDITURES* \$950,357,592

Estimated Cash Balance June 30, 2008 \$39,699,168

TOTAL ACCOUNTED FOR \$990,056,760



*Budgeted revenues and expenditures do not include \$295,000,000 of anticipated FHWA Hurricane Katrina Emergency Relief Funds. The addition of these funds brings the total to \$1.2 billion.

revenue, expenditures, and finance

Revenue Sources

MDOT is funded through appropriations by the U.S. Congress and the Mississippi Legislature. Congress provides funding through the Federal Highway Administration, the Federal Transit Administration, the Federal Railroad Administration, and the Federal Aviation Administration. For FY 2007, MDOT received \$974 million in federal funds.

State Revenue Sources

The Mississippi Legislature provides state funding through motor fuel taxes and other fees. Mississippi has a fuel tax of 18.4 cents per gallon. Under the Mississippi statutes, MDOT receives approximately 70 percent of total fuel taxes. MDOT received 73 percent of that amount in FY 2007: \$307 million. The statutes allocate millions of dollars to non-road construction entities such as Wildlife and Fisheries and Marine Resources. By statute, the remainder goes to cities and counties for road projects, the State Aid Road fund for county bridge replacements, and the bond sinking fund.

MDOT is also funded through receipts derived from other dedicated state taxes such as truck and bus fees, which include the truck and bus privilege tax, weight and size permits, and trip permits; a contractor's tax of 3.5 percent assessed on certain highway construction contracts; a \$5 per vehicle tag registration fee; a lubricating oil tax; and interest income.

Federal Revenue Sources

Federal highway construction assistance is paid to all states through the Federal-Aid Highway Program. Funding is derived from revenues collected by the U.S. Treasury from certain federal taxes on fuel, tire sales, and other items, which are deposited into the Federal Highway Trust Fund.

Distribution of assistance from the Highway Trust Fund is subject to periodic authorization and annual appropriation by Congress. Since such assistance was established by the Federal-Aid Highway Act of 1956, the program has been reauthorized many times in various forms at generally increasing funding levels. Actual payments to states have continued without interruption since 1956. Certain Federal-Aid Highway Program features are explained below:

- **The Federal Highway Trust Fund:** The Highway Trust Fund is a dedicated federal fund with revenues held in trust for reimbursement of expenditures by the states for costs of eligible transportation projects, including highway projects.
- **Authorization:** Authorization is the process by which Congress authorizes the expenditure of federal revenues on federal programs. For the Federal-Aid Highway Program, authorization historically has been, and continues to be, provided on a multi-year basis. This, together with the availability of Highway Trust Fund revenues and future Highway Trust Fund collections, provides states more certainty in planning long-term highway projects.
- **Apportionment:** For each federal fiscal year, the Federal Highway Administration (FHWA) apportions the authorized funding among the



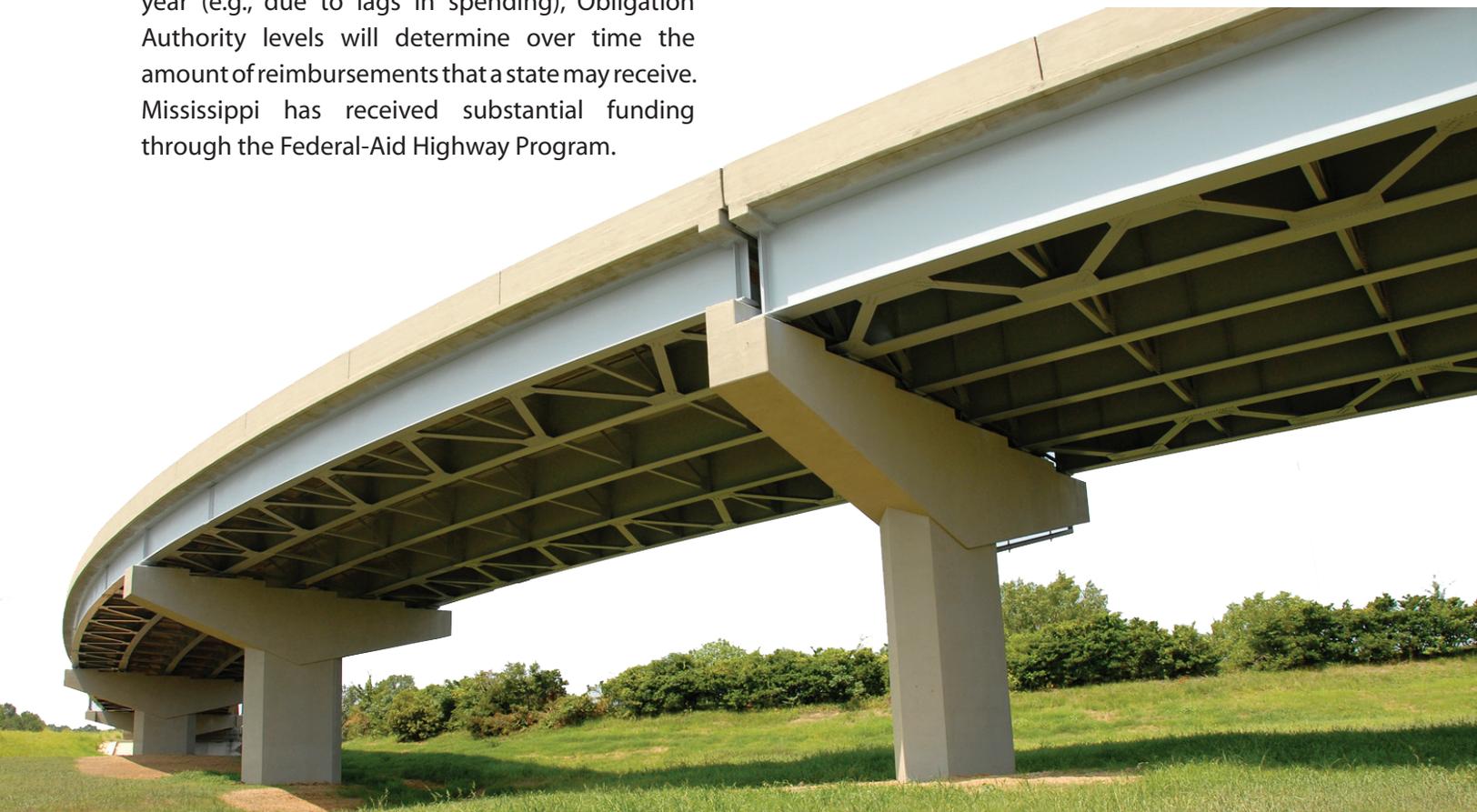
states according to formulas that are established in authorizing statutes. The distribution of federal funds that do not have a statutory formula is called "allocation" rather than "apportionment."

- **Obligation Authority:** "Obligation" is the commitment of the federal government to pay, through reimbursements to a state, its share of the eligible expenditures on an approved project. The amount of such federal revenues that a state can obligate in a given federal fiscal year is called its "Obligation Authority."
- **Role of Obligation Authority:** The culmination of the federal authorization and appropriation process for the Federal-Aid Highway Program is the provision of Obligation Authority to a state. Obligation Authority, which is apportioned to states on an annual basis, sets the upper limit on the federal government's commitment to pay, through reimbursements, its share of eligible expenditures on approved projects. Current year Obligation Authority plus prior years' Obligation Authority obligated but not yet expended determines the maximum amount of federal highway assistance that a state may receive under the Federal-Aid Highway Program. Although annual Obligation Authority is not a direct representation of the amount of reimbursements a state will receive under the Federal-Aid Highway Program in a given year (e.g., due to lags in spending), Obligation Authority levels will determine over time the amount of reimbursements that a state may receive. Mississippi has received substantial funding through the Federal-Aid Highway Program.

- **Use of Obligation Authority:** Mississippi has consistently utilized its entire total Obligation Authority. MDOT reasonably expects to continue to utilize its entire total Obligation Authority.

Future Utilization of Federal Highway Assistance:

- Under the Federal-Aid Highway Program, as projects are approved by the FHWA, the aggregate dollar amount of each state contract relating to that project is obligated against the remaining annual amount of Obligation Authority still available to that state. The state then pays the amounts owed under each contract as the work progresses and receives reimbursement from the federal government for the federal share of the total costs. The aggregate amount of reimbursements received by a state in any year is not necessarily equal to the state's apportionment for that year. Many projects and contracts extend over several years. The aggregate amount made available to a state in any one year, if fully obligated, may be received as reimbursement over a longer period of time relating to the actual period of construction. MDOT expects that, as a result of its extensive statewide road and bridge program, it will have sufficient federally-eligible project expenditures to be able to utilize all program assistance that may be made available to Mississippi.



Revenue Received

MDOT's total revenue for FY2007 was \$1.461 billion. State motor fuel taxes and federal funds provided 87.6 percent of the department's funding for FY2007. MDOT received \$307 million in funds from state motor fuel taxes during this reporting period. As stated above, the state motor fuel tax is a primary funding source for the department. Revenue from other state taxes for FY 2007 included the following:

- Truck/Bus Tax Fees \$65.3 million
- Contractor's Tax \$3.6 million
- Lubricating Oil Tax \$1.0 million
- Railroad Mileage Tax \$0.2 million
- Tag Fees \$15.0 million

FHWA Emergency Relief Funds: In the aftermath of Hurricane Katrina, which made landfall in Mississippi on August 29, 2005, MDOT was appropriated \$1.013 billion in FHWA Emergency Relief funds to rebuild infrastructure along the Gulf Coast and remove debris from roadways throughout the state. Final approval of this Emergency Relief appropriation was received on January 20, 2006. While awaiting final approval of the Emergency Relief fund appropriation, MDOT used \$105 million of regular obligation authority to fund Emergency Relief projects. In FY 2007, MDOT received \$388 million as reimbursements from FHWA on Emergency Relief projects. We estimate that MDOT will receive \$295 million in reimbursements on Emergency Relief projects in FY 2008 and receive the remaining \$70 million in FY 2009.

Budgeted Expenditures

MDOT's budgetary expenditures for FY2007 totaled \$1.370.5 billion. As shown below, the large majority of the department's expenditures were focused in the Construction Program (dollar amounts are in millions):

Maintenance Program	\$120.3	8.8%
Construction Program	\$1,139.6	83.2%
Administration Program	\$27.6	2.0%
Equipment & Buildings	\$21.4	1.6%
Debt Service Program	\$29.5	2.1%
Enforcement Program	\$12.8	0.9%
Aeronautics, Rails, and Transit Programs	\$19.3	1.4%
TOTALS	\$1,370.5	100%



Bonded Debt

State statutes provided authority for the issuance of \$200 million in bonds for the Four-Lane Highway Program and \$325 million in bonds for the Gaming Roads Program. The State Bond Commission has issued bonds for these programs as follows:

- 1987 Four-Lane Highway Program
 - June 1999: \$200 million in 10-year revenue bonds
- Gaming Roads Program
 - July 1998: \$125 million in 20-year general obligation bonds
 - October 2000: \$100 million in one-year general obligation notes
 - October 2002: The State Bond Commission issued \$200 million in general obligation bonds to retire the outstanding \$100 million in general obligation notes and to provide \$100 million for new Gaming Roads Program construction.
- Under the H.E.L.P. statute, MDOT through the Mississippi Development Bank and local partners has issued:
 - January 2005: \$45 million in special obligation bonds for the paving portion of State Route 304 for Tunica County.
 - October 2005: \$102 million for Harrison County State Route 601/Canal Road and \$32 million for the City of Laurel I-59 "S" Curve.
 - October 2006: \$145 million for the Madison County I-55 interchange, connectors and frontage roads.
 - October 2007: \$83 million for I-269 in Marshall and DeSoto Counties.

FY 2008 Projected Revenues & Expenditures

MDOT's budgeted expenditures (as appropriated by the Mississippi Legislature) for FY 2008 are \$950 million, while estimated receipts are \$940 million.



District I

- U.S. 78 from Tennessee to Alabama (future I-22) – Developing plans.
- U.S. 45 from Noxubee County Line to U.S. 82 – Three condemnations; letting in 2010.
- SR 6 between SR 342 and SR 145 – Archeological investigation underway.
- U.S. 45 - Booneville Bypass – Let in February 2007; 2% complete.
- MS 791 to SeverCorr Steel – Let in January 2007; 16% complete.

District II

- MS 304 from US 61 to I-55 and MS 713 Spur (Desoto and Tunica Counties) – \$53.8 Million; APAC-TN. This project has been completed and is open to traffic.
- I-269 (the section east of I-55 through Desoto and Marshall Counties to the Tennessee state line around Collierville, Tennessee) is in the early phases of design and preliminary plans should be developed by the end of the year.
- I-55 from Church Road to Tennessee state line – APAC-TN; 95% complete.
- I-55 at State Route 4 Interchange – This project has been completed and is open to traffic.
- US 78 from Tennessee to Alabama (future I-22) – Project for concrete pavement repair; let in March 2005; 95% complete. There will be future projects to perform miscellaneous upgrades to US 78. After the miscellaneous upgrades, this route will become the new I-22 corridor.
- I-55 from MS 302 (Goodman Road) to MS 304 (I-69 Interchange) – Two projects for upgrades, reconstruction, and widening are in the early phases of development.

District III

- U.S. 61 Bridge Replacement over the Yazoo River near Redwood – Let in July 2006; 47% complete
- Mississippi approach to Greenville Bridge - Let in February 2005; 86% complete.
- Arkansas approach to Greenville Bridge - Let in November 2005; 66% complete.

District V

- Clinton/Raymond Road – Let in July 2004 to Key Construction; 84% complete.
- The Stack Phase III – Let in November 2002; 93% complete.

District VI

- SR 605 from I-10 to SR 67 – \$16M; Warren Paving. This project has been completed and is open to traffic.
- SR 67 from SR 605 to U.S. 49 – \$18.9M – Huey Stockstill Inc.; 73% complete.
- I-59 Laurel “S” Curve – Tanner Construction Co.; 64% complete.
- SR 601 Canal Road Connector – Purchasing right-of-way.
- SR 590 from U.S. 11 to SR 29 – Scheduled for a June 2009 letting.
- US 90 Bay St. Louis Bridge Replacement – \$267M; Granite Archer Western; 85% complete.
- US 90 Biloxi Bay Bridge Replacement – \$339M; GC Constructors; 72% complete.
- US 90 Henderson Point to Lewis Ave. – \$28.8M; Warren Paving; let in September 2007.
- US 90 Lewis Ave. to Debuy’s Rd. – \$26.8M; Superior Asphalt; let in July 2007.
- US 90 Debuy’s Rd. to Rodenburg Ave. – \$17M; Superior Asphalt; let in July 2007.

District VII

- US 90 Rodenburg Ave. to Biloxi Bay – \$ 19.8M; Lane Construction Comp.; let in August 2007.
- Liberty Road Interchange in Natchez (Adams County) – Let in June 2005 to Tanner Constr. Co.; 89% complete.
- US 84 from Lincoln County Line to Old SR 27 – Let to W.E. Blaine & Sons. This project has been completed and is open to traffic.
- US 84 from Monticello Bypass to Jefferson County Line – Let to W.E. Blaine & Sons; 77% complete.
- US 84 from Prentiss Bypass to Covington County Line – Let to Tanner Construction Co. This project has been completed and is open to traffic.
- US 84 Prentiss Bypass – Let to W.E. Blaine & Sons; 7% complete.
- US 84 paving the Collins Bypass – Let to Tanner Construction Co.; 7% complete.

For a report on automobile operating costs, maintenance & construction expenditures, and contracts awarded during fiscal year 2007, please visit MDOT's website at www.goMDOT.com/news/.

You may also request a printed copy by writing to: Outreach Division, Post Office Box 1850, Jackson, MS 39215

