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Introduction ■

In FY 2002-03, the state highway program accounted for nearly one-half of DOT's \$2.4 billion budget.

DOT plans, promotes, and provides financial support to road, air, water, and other transportation programs statewide. It is funded through the Transportation Fund, a segregated fund that receives revenue primarily from state, federal, and local sources and from bond proceeds. In addition to supporting the state highway program, DOT's FY 2002-03 budget of \$2.4 billion funded local transportation aids and capital assistance, operations, debt service, and other programs operated by DOT and other state agencies. However, the state highway program is DOT's largest, with a FY 2002-03 budget of \$1.2 billion.

The major highway program is one of five components of the state highway program.

The major highway program, which has been a focus of legislative attention and is the subject of our evaluation, is one of five components of the state highway program. The others are:

- the rehabilitation program, which funds resurfacing projects that maintain a smooth ride and protect the underlying base of state highways, as well as reconditioning projects that include both resurfacing and minor improvements, such as adding turn lanes at intersections, and reconstruction projects that involve rebuilding existing highways;
- the maintenance and traffic operations program, which funds repair work, traffic signals, pavement marking, and road signs;

- the southeast Wisconsin freeways program, which funds work that includes the Marquette Interchange; and
- administration.

Through the major highway program, DOT manages highway construction, reconstruction, and improvement projects that are specifically enumerated in statutes, cost at least \$5.0 million, and involve:

- constructing 2.5 miles or more of new highway;
- reconstructing or reconditioning an existing highway by relocating 2.5 miles or more or by adding one or more lanes of 5 miles or more; or
- improving 10 or more miles of an existing divided highway having two or more lanes in either direction to freeway standards, which restrict traffic access from intersecting roads.

Authorization of Major Highway Projects

Major highway projects must be authorized by the Legislature and the Governor before they are enumerated in statutes. To increase legislative influence in the selection of major highway projects, 1983 Wisconsin Act 27 created the Transportation Projects Commission to review DOT's proposals and recommend major projects for enumeration in statutes. The Transportation Projects Commission consists of:

- the Governor;
- five senators and five representatives who are appointed by the majority and minority parties;
- three members of the public who are appointed by the Governor; and
- DOT's Secretary, who is a nonvoting member.

Every two years, the Transportation Projects Commission may recommend major highway projects for enumeration.

Every two years, the Transportation Projects Commission may recommend major highway projects for enumeration. Statutes prohibit it from recommending projects unless there is sufficient funding to allow construction to begin within six years. This prohibition does not apply to the Legislature.

In June 2002, DOT indicated that funding would be available within the required six-year period for the Transportation Projects Commission to recommend some new projects for enumeration. The four new projects under consideration in 2002 were:

- USH 41 from State Trunk Highway (STH) 26 to Breezewood Lane in Winnebago County;
- USH 41 from County Trunk Highway (CTH) F to CTH M in Brown County;
- USH 18 from Prairie du Chien to STH 60 in Crawford County; and
- USH 14 from Viroqua to Westby in Vernon County.

In 2002, the Transportation Projects Commission did not recommend any major highway projects for enumeration.

However, when the Transportation Projects Commission met in December 2002 to make the final decision on its recommendations, it learned from DOT that because costs for previously enumerated projects had increased and future federal funding amounts were uncertain, funds were no longer available to enumerate any new projects. As a result, the Transportation Projects Commission did not recommend any projects for enumeration. However, in 2003 Wisconsin Act 33, the Legislature enumerated the four projects that had been under consideration.

Concerns have been raised about the availability of funds to complete all enumerated projects.

DOT's statement in December 2002 that cost increases had reduced the amount of funding available for additional projects prompted questions within the Legislature about the reasons for the cost increases and the accuracy of DOT's budgeting for individual projects. These questions joined long-standing concerns about the availability of funds to reconstruct the aging southeast Wisconsin freeway system and to complete other projects elsewhere in the state. In 2000, DOT had adopted a long-range highway plan, the State Highway Plan 2020, in which it proposed to spend \$20.4 billion over a 21-year period on state highways, but it expected revenues during this period to be \$5.2 billion less than that amount.

Concerns have also been raised about the extent to which bonds have been used to fund highway projects. The State has issued increasing amounts of transportation revenue bonds in recent years to help fund the major highway program. In addition, while general obligation bonds have been used in the past for other purposes, 2003 Wisconsin Act 33 provided that \$565.5 million in general obligation bonds will be issued for the first time to fund DOT's state highway rehabilitation and southeast Wisconsin freeways programs. These bonds will be repaid by the Transportation Fund during the 2003-05 biennium. While the bonds will allow DOT to complete projects, the resulting debt service will reduce the amount available to initiate projects in the future.

To address the Legislature's concerns, the Joint Legislative Audit Committee directed us to evaluate the process used to identify potential major highway projects and estimate their costs; factors that affect DOT's highway spending; DOT's revenue sources; and future financial demands on the Transportation Fund. In conducting this evaluation, we spoke with staff of DOT's central and district offices, as well as construction contractors, design engineers, environmental groups, and others interested in transportation issues. We also reviewed:

- DOT's most recent state highway plan and other project-planning documents;
- budget, expenditure, and revenue data from FY 1993-94 through FY 2002-03, as well as estimates for the 2003-05 biennium;
- DOT's policies and procedures;
- records of Transportation Projects Commission meetings held since 1990; and
- environmental and other documents associated with a sample of 22 major highway projects that were enumerated from 1987 through 1991.

In addition, we conducted a detailed analysis of the STH 57 (Green Bay to Dyckesville) project in order to better understand the process for identifying, selecting, and approving major highway projects. Although we obtained information about DOT's entire budget and all of its revenue sources, our analyses concentrated on the major highway program. We did not attempt to analyze funding or other issues related to DOT's other programs, such as aids for local roads or mass transit.

Appropriation Trends

Since FY 2001-02, \$699.2 million has been earmarked for transfer from the Transportation Fund to the General Fund.

In recent years, funding from the Transportation Fund was transferred to the General Fund to help address the State's budget deficit. 2001 Wisconsin Acts 16 and 109 transferred a total of \$11.5 million in FY 2001-02, and another \$12.4 million in FY 2002-03. 2003 Wisconsin Act 33 substantially increased this amount by requiring the transfer of \$400.0 million from the Transportation Fund for shared revenue payments to local governments, \$175.3 million for unspecified purposes, and \$100.0 million for K-12 equalization aids for local school districts.

In addition, we note the Transportation Fund supports several programs in other agencies. In FY 2002-03, \$25.8 million was transferred to other agencies, including \$16.6 million to the Department of Natural Resources to reflect state fuel tax revenue generated by boats, snowmobiles, and all-terrain vehicles, and \$9.2 million to other agencies.

As shown in Table 1, DOT's total appropriation increased 50.5 percent over a ten-year period to reach \$2.4 billion in FY 2002-03. The largest increase, 108.7 percent, was for debt service, while the state highway appropriation increased 69.5 percent. The local transportation aids program includes funding for local road maintenance, police, sewers, and sidewalks; transit systems; and transportation options for elderly and disabled individuals. The local transportation capital assistance program includes funding for local road and bridge construction, railroads, harbors, and airports. In constant dollars, based on the consumer price index used by DOT, the total appropriation increased 21.3 percent, and the state highway appropriation increased 36.6 percent.

Table 1

DOT Appropriations, by Program
(in millions)

Program	FY 1993-94	FY 2002-03	Percentage Change	Percentage Change in Constant Dollars
State Highway	\$ 685.5	\$1,162.2	69.5%	36.6%
Local Transportation Aids	346.4	519.6	50.0	20.9
Local Transportation Capital Assistance	284.7	309.3	8.6	(12.4)
Transportation Operations	160.5	226.7	41.2	13.8
Debt Service	50.7	105.8	108.7	68.2
Other ¹	52.1	54.0	(3.6)	(16.5)
Total	\$1,579.9	\$2,377.6	50.5	21.3

¹ Includes transfers to other state agencies and amounts for data processing and fleet services.

As shown in Table 2, DOT's total appropriation increase was second-highest among three large state programs.

Table 2

Comparison of Selected Budgets
(in millions)

	FY 1993-94	FY 2002-03	Percentage Change
Department of Corrections	\$ 326.1	\$ 975.7	199.2%
Department of Transportation	1,579.9	2,377.6	50.5
University of Wisconsin System	2,406.8	3,260.6	35.5

Since FY 1993-94, the major highway program's appropriation increased 54.1 percent.

Each of the state highway program's five components has its own appropriation, as shown in Table 3. The major highway program appropriation increased 54.1 percent from FY 1993-94 through FY 2002-03. During the same period, the increase was 55.2 percent for the rehabilitation program, 52.5 percent for administration, and 34.4 percent for the maintenance and traffic operations program. A separate appropriation for the southeast Wisconsin freeways program did not exist until FY 2001-02, when it was created as a way to provide and track funds for these large reconstruction projects.

Table 3

State Highway Program Appropriations
(in millions)

	FY 1993-94	FY 2002-03	Percentage Change	Percentage Change in Constant Dollars
Rehabilitation	\$379.6	\$ 589.2	55.2%	25.1%
Major Highway	156.8	241.6	54.1	24.2
Maintenance and Traffic Operations	131.4	176.6	34.4	8.3
Southeast Wisconsin Freeways	0.0 ¹	127.8	-	-
Administration	17.7	27.0	52.5	22.9
Total	\$685.5	\$1,162.2	69.5	36.6

¹ A separate appropriation was not created for this program until FY 2001-02.

In FY 2002-03, revenue bond proceeds funded 53.9 percent of the major highway program.

The major highway program's funding sources include proceeds from revenue bonds, federal funds, and segregated state funds, as shown in Table 4. In FY 2002-03, proceeds from revenue bonds provided 53.9 percent of the program's annual funding.

Table 4

Funding Sources for the Major Highway Program
(in millions)

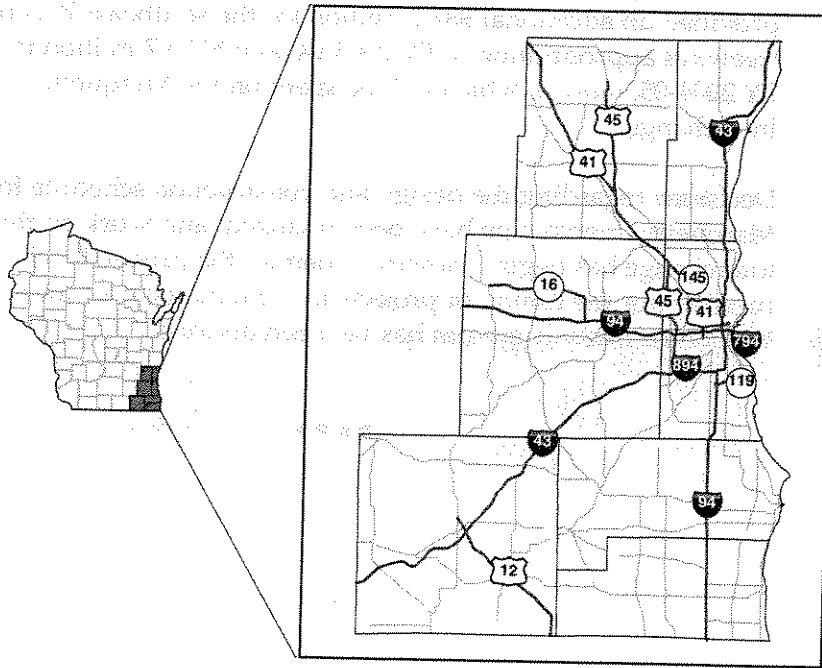
Fiscal Year	Revenue Bond Proceeds	Federal Funds	Segregated State Funds	Total
1993-94	\$106.1	\$ 42.0	\$ 8.7	\$156.8
1994-95	97.1	57.7	6.4	161.2
1995-96	108.6	50.6	6.4	165.6
1996-97	110.6	40.9	10.5	162.0
1997-98	110.5	64.4	20.5	195.4
1998-99	110.6	55.6	41.2	207.4
1999-2000	119.7	57.3	42.5	219.5
2000-01	119.9	60.9	42.2	223.0
2001-02	127.1	57.9	46.9	231.9
2002-03	130.2	57.9	53.5	241.6
2003-04	136.2	103.5	0.0	239.7
2004-05	136.8	79.0	23.2	239.0

Southeast Wisconsin Freeway System

As the Legislature considers the funding requirements for the state highway program, a significant factor will be the cost of reconstructing the southeast Wisconsin freeway system. The system, which is shown in Figure 2, is made up of 270 miles of state highways in Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha counties. Construction of the system began in 1952 and continued throughout the following 30 years. On an average weekday in 2003, approximately one-third of all travel by southeast Wisconsin residents occurs on the system, and almost all vehicle traffic passing through this area of the state uses the system. However, the system is nearing the end of its service life and needs to be reconstructed.

Figure 2

Southeast Wisconsin Freeway System



In May 2003, the Southeast Wisconsin Regional Planning Commission recommended a \$6.2 billion plan to rebuild the southeast Wisconsin freeway system to modern design standards and construct 127 miles of new freeway lanes over the next 30 years. The largest component of the system's reconstruction is the Marquette Interchange, which was completed in 1968 to handle approximately 150,000 vehicles per day, but which now handles more than 300,000 vehicles per day. Design features such as left-hand ramps and closely spaced interchanges have contributed to accidents and traffic congestion, and many of the 152 bridges that make up the interchange are nearing the end of their structural lives and need to be replaced.

Reconstructing the Marquette Interchange is projected to cost \$810.0 million.

In July 2003, DOT issued its plan to reconstruct the Marquette Interchange from spring 2004 through fall 2008, at an expected cost of \$810.0 million. DOT plans to shift all left-hand entrance and exit ramps to the right side of the highway, adjust ramp spacing to improve traffic flow and safety, and build six traffic lanes in and out of the interchange. Two lanes of traffic in all directions will remain open throughout the project. With regular maintenance, the reconstructed interchange is expected to last for approximately 75 years.

2001 Wisconsin Act 16, the 2001-03 Biennial Budget Act, provided \$160.6 million to the separate southeast Wisconsin freeways appropriation to fund costs incurred for preliminary work on the Marquette Interchange. At the beginning of the 2003-05 biennium, DOT had spent \$22.9 million of these funds. 2003 Wisconsin Act 33 provided an additional \$87.2 million for the southeast Wisconsin freeways appropriation in FY 2003-04, and \$173.7 million in FY 2004-05, most of which will be spent on the Marquette Interchange.

Decisions regarding the design and construction schedule for the Marquette Interchange have been finalized, and work on the interchange has begun. However, neither the precise level of funding nor the timing of projects in the remainder of the southeast Wisconsin freeway system has yet been decided.



The southeast Wisconsin freeway system is a major transportation resource. It provides a high level of mobility and economic activity. The system is currently under construction and is expected to be completed by 2010. The system consists of several major routes, including the Marquette Interchange, the Milwaukee Expressway, and the Wisconsin Freeway. The system is a vital link between the major cities of the southeast and the rest of the state.

The DOT is currently reviewing the system and is expected to release a final report by 2005. The report will provide a detailed analysis of the system and will recommend a funding and construction schedule. The DOT is currently working with the legislature to secure the necessary funding for the system. The system is a vital link between the major cities of the southeast and the rest of the state.

Figure 1-1
Southeast Wisconsin Freeway System
Map showing the location of the Marquette Interchange and other major routes.

Major Highway Program ■

As noted, every two years DOT may recommend potential major highway projects to the Transportation Projects Commission, which may recommend these or other projects to the Legislature for enumeration. We found that because the cost of major highway projects increases after enumeration, sometimes significantly, the funding available to undertake future projects is reduced. In addition, DOT does not track the total cost of individual projects, which prevents a complete analysis of the program's finances.

In August 2002, DOT revised how it estimates major highway project costs. As a result, it increased its cost estimates for the 28 projects that were enumerated at the time by \$108.0 million, including \$70.0 million for changes to construction and other project-related contracts, \$29.1 million for engineering oversight of construction work, and \$8.9 million for increased project costs. DOT also anticipated that federal revenue would decline in future years. Therefore, it informed the Transportation Projects Commission in December 2002 that there was insufficient funding to enumerate any projects in 2003, and the Commission did not recommend any projects to the Legislature. This raised concerns about DOT's management of the major highway program.

Project Selection

DOT identifies a list of potential major highway projects by using highway condition criteria established in its state highway plan. To assess the condition of highways, DOT measures pavement and

bridge condition; traffic safety; and traffic congestion, which affects a driver's ability to enter and exit a highway, change lanes, and pass slower-moving vehicles. Before October 15 of every odd-numbered year, DOT reports potential projects to the Transportation Projects Commission, which may then conduct public hearings to obtain input from individuals and groups affected by the projects.

DOT ranks potential major highway projects based on five criteria.

Based on preliminary analyses of its data and on professional engineering judgment, DOT selects a limited number of candidate projects and provides them to the Transportation Projects Commission for its consideration. Chapter TRANS 210, Wis. Adm. Code, specifies that DOT is to evaluate and rank these candidate projects according to five weighted criteria, which are shown in Table 5, and to compile a composite score for each project. DOT recommends projects to the Commission based on their scores; available funds; and other factors, such as the equitable distribution of funds statewide and whether agreement exists on a project's concept. At this point, projects are conceptual and little, if any, design work has been completed.

Table 5
Criteria for Ranking Major Highway Project Candidates

Criteria	Weight	Consideration
Economic	40.0%	Evaluation of a project's ability to increase the competitiveness of existing businesses, attract new businesses, and improve connections among economic centers
Traffic Flow	20.0	Evaluation of a highway segment's existing and predicted traffic congestion and other related factors
Safety	20.0	Evaluation of the number and severity of crashes on a highway segment
Environmental	10.0	Evaluation of a project's environmental effects
Community Input	10.0	Evaluation of a project's community support or opposition and whether a project is consistent with local planning efforts

DOT forwards its final list of recommended projects to the Transportation Projects Commission by September 15 of each even-numbered year, and the Commission must then make its recommendations to the Legislature by December 15.

It takes 12 years, on average, from the enumeration of major highway projects to the completion of construction.

The Legislature and the Governor enumerate projects in the biennial budget. However, construction does not typically begin for several years after a project has been enumerated, because the design plans and environmental studies must first be completed. It will take more than 12 years, on average, from enumeration until the scheduled completion of construction for the 28 major highway projects that were underway in June 2003.

Because the number of enumerated projects exceeded available funding, the delay between enumeration and the start of construction grew to ten years or more by the mid-1990s. As a result, 1997 Wisconsin Act 27 prohibited the Transportation Projects Commission from recommending any projects unless funding would be available for construction to begin within six years. As noted, this provision does not apply to the Legislature.

Recent statutory changes are intended to increase the Transportation Projects Commission's influence over the enumeration process. For example, 1999 Wisconsin Act 9 specified that the Commission is to approve the initiation of environmental studies; previously, DOT had decided on its own whether to initiate environmental studies for potential projects. The change is significant because projects for which environmental studies are completed are typically enumerated. Now, draft versions of environmental studies are completed before the Commission can recommend projects for enumeration, which may result in the Commission having more information about projects' proposed scopes, designs, and costs. Appendix 1 summarizes the statutorily required approval process for major highway projects.

In September 2003, 32 major highway projects were being planned or were under construction.

In September 2003, 32 major highway projects were being planned or were under construction. This includes the 28 major highway projects that were underway in June 2003, as shown in Table 6, and the four projects enumerated in 2003 Wisconsin Act 33:

- USH 41 from STH 26 to Breezewood Lane in Winnebago County, with an estimated cost of \$282.8 million;
- USH 41 from CTH F to CTH M in Brown County, with an estimated cost of \$257.7 million;
- USH 18 from Prairie du Chien to STH 60 in Crawford County, with an estimated cost of \$36.7 million; and
- USH 14 from Viroqua to Westby in Vernon County, with an estimated cost of \$51.5 million.

Table 6

**Current Major Highway Projects
As of June 2003**

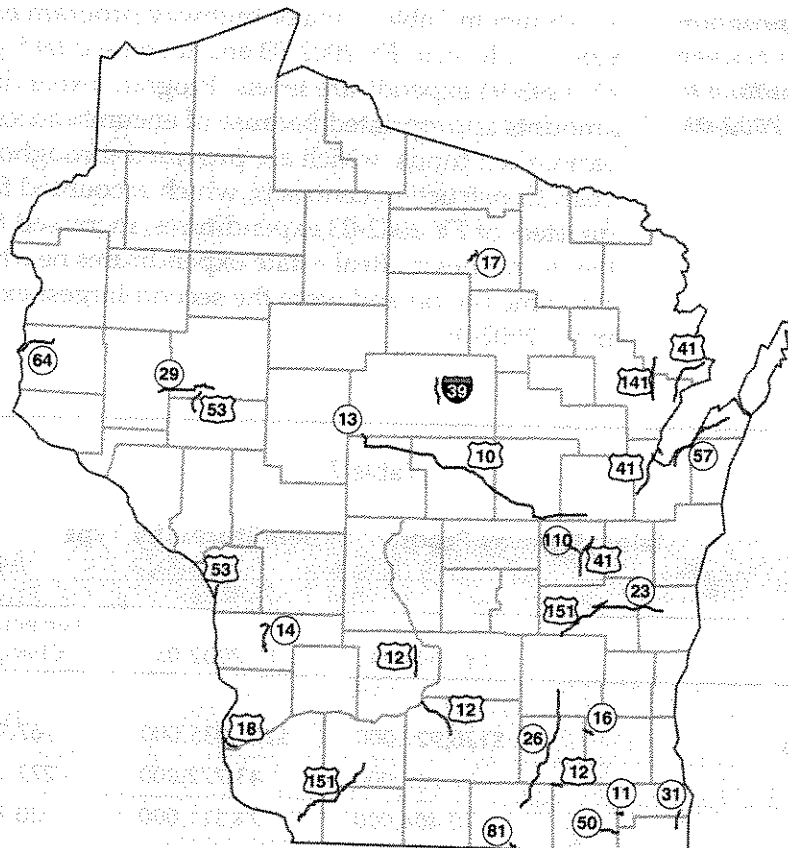
Hwy	Description	Recommended by		Enumerated	Construction		Estimated Cost ¹
		Department	Commission		Start	Finish	
151	Waupun-Fond du Lac	N	N	1989	2002	2007	\$ 115.8
10	Appleton-Marshfield	N	N	1989	2002	2013	388.7
29	Chippewa Falls Bypass	Y	Y	1991	2001	2006	164.0
12	Whitewater Bypass	Y	Y	1991	2002	2006	36.6
31	CTH S-STH 11	Y	Y	1991	2000	2004	57.7
50	USH 12 Slades Corners	N	Y	1991	2000	2003	22.6
57	Green Bay-Dyckesville	N	Y	1991	1999	2003	27.4
110	USH 41-STH 116	Y	Y	1991	2002	2005	41.9
41	Freeway Conversion	Y	Y	1991	1993	2004	84.6
81/213	Beloit Bypass	Y	Y	1993	2006	2006	5.7
12	Sauk City-Middleton	Y	Y	1993	2002	2006	129.8
13	Marshfield Boulevard	Y	Y	1993	2001	2003	49.5
64	Houlton-New Richmond	Y	Y	1993	2002	2006	116.5
151	Fond du Lac Bypass	Y	Y	1993	2003	2008	45.1
151	Belmont-Dodgeville	Y	Y	1995	2001	2004	87.6
16	Oconomowoc Bypass	Y	Y	1995	2003	2008	55.4
53	Eau Claire Bypass	Y	Y	1995	2002	2007	145.4
11	Burlington Bypass	Y	Y	1997	2006	2011	107.6
12	Lake Delton-Sauk City	Y	Y	1997	2007	2015	83.5
53	La Crosse Corridor	Y	Y	1997	2010	2012	88.0
57	Dyckesville-Sturgeon Bay	Y	Y	1997	2005	2008	79.4
141	STH 22-STH 64	Y	Y	1997	2004	2006	64.9
151	Dickeyville-Belmont	Y	Y	1997	2003	2006	93.6
23	STH 67-USH 41	N	N	1999	2009	2011	51.4
41	Oconto-Peshtigo	N	N	1999	2007	2009	147.9
17	STH 17 Relocation	Y	Y	2001	2003	2003	9.6
26	Janesville-Watertown	Y	Y	2001	2006	2015	212.9
39/51	Wausau Beltline	Y	Y	2001	2004	2012	220.0
Total							\$2,733.1

¹ FY 2002-03 dollars, in millions; includes estimates for design and construction engineering costs.

Figure 3 shows the location of the 32 major highway projects that were being planned or were under construction as of September 2003.

Figure 3

**Location of Major Highway Projects
As of September 2003**



The Legislature recently enumerated \$828.0 million in projects that had not been recommended by the Transportation Projects Commission.

Our 1996 evaluation of transportation programs and revenues (report 96-19) noted that some questioned the need for the Transportation Projects Commission because it typically did not change DOT's project recommendations. This trend has continued. As a result, some continue to assert that the Transportation Projects Commission has not fulfilled its role. While the Commission has been somewhat successful in limiting the number of projects enumerated, the Legislature enumerated two projects in 1999 and four projects in 2003 that the Commission had not recommended.

DOT had not anticipated these projects, which are expected to cost \$828.0 million, in its program schedule and budget. As a result, construction of these recently enumerated projects may not begin for eight to ten years, or the completion of previously enumerated projects will be delayed. In addition, DOT may not recommend additional projects to the Transportation Projects Commission for enumeration in 2004.

Program Expenditures

Major highway program expenditures totaled \$284.2 million in FY 2002-03.

As shown in Table 7, major highway program expenditures totaled \$284.2 million in FY 2002-03 and increased 69.5 percent from FY 1993-94 expenditure levels. Program expenditures differ from amounts appropriated because of encumbrances and federal earmarked funds, which are provided throughout the State's fiscal year. Construction contracts, which accounted for nearly three-quarters of FY 2002-03 expenditures, increased 67.9 percent in the ten years shown. Real estate expenditures nearly quadrupled during the same period and were the second-largest expenditure category in FY 2002-03.

Table 7

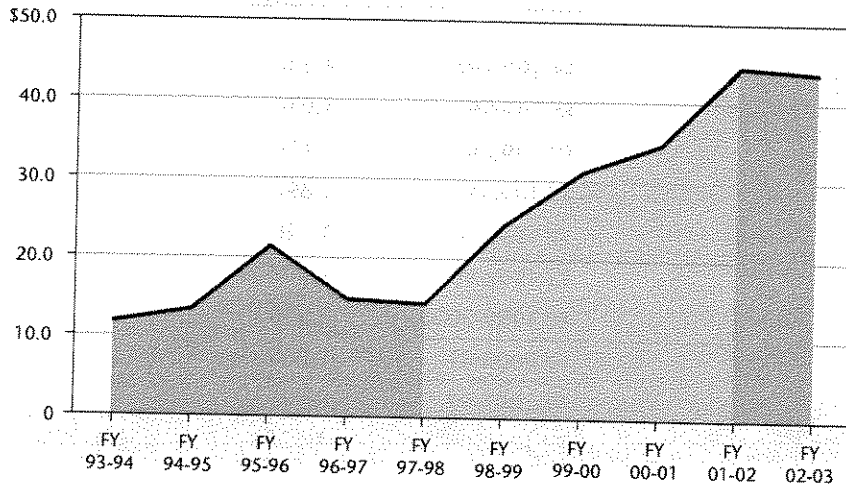
Major Highway Program Expenditures, by Type

	FY 1993-94	FY 2002-03	Percentage Change	Percentage Change in Constant Dollars
Construction Contracts	\$120,921,000	\$203,035,000	67.9%	35.3%
Real Estate	11,763,000	43,772,000	272.1	199.9
Engineering Services	20,404,000	24,511,000	20.1	(3.2)
Salaries and Fringe Benefits	8,981,000	10,242,000	14.0	(8.1)
Prorated Costs	3,871,000	1,303,000	(66.3)	(72.9)
Fleet Charges and Other Administration	599,000	598,000	(0.2)	(19.5)
Maintenance and Materials	700,000	475,000	(32.1)	(45.3)
Travel and Training	378,000	242,000	(36.0)	(48.4)
Total	\$167,617,000	\$284,178,000	69.5	36.6

Real estate expenditures have increased steadily.

Real estate can represent a significant portion of individual project costs. For example, the STH 12 (Sauk City to Middleton) project involved the purchase of 783.1 acres, at a cost of \$32.2 million, which was 24.8 percent of the project's estimated total cost. As shown in Figure 4, real estate expenditures for the major highway program increased steadily from FY 1997-98 until FY 2001-02.

Figure 4
Real Estate Expenditures for the Major Highway Program
(in millions)



To explain the increase in its real estate expenditures, DOT notes that land costs typically increase faster than the inflation rate overall, and there have been a number of projects in or near urban areas, where land is often costly. DOT has also indicated that because it takes up to 12 years for project development to be completed and construction funding to become available, developers and landowners have time to rezone land for commercial use, which often makes the land more valuable and increases DOT's purchase costs.

As shown in Table 8, the number of acres DOT has purchased for the state highway program varies considerably from year to year. Yet despite a significant increase in real estate expenditures since FY 1997-98, DOT's central office does not keep separate records of

the number of acres purchased for the major highway program or of real estate expenditures by individual project. DOT's existing data processing system would allow it to do so, and tracking real estate purchases would enable a more complete analysis of the costs of the major highway program.

Table 8

Acres of Real Estate Purchased by DOT for the State Highway Program

	Number of Acres
FY 1993-94	4,434
FY 1994-95	4,034
FY 1995-96	3,436
FY 1996-97	1,897
FY 1997-98	1,820
FY 1998-99	2,001
FY 1999-2000	2,990
FY 2000-01	2,868
FY 2001-02	3,995
FY 2002-03	1,527

Recommendation

We recommend the Department of Transportation track the number of acres and the cost of all real estate it purchases for each major highway project.

Project Cost Increases

After projects have been enumerated, DOT has considerable discretion in deciding how and when to construct them. Concerns have been raised about the cost increases that occur on some major highway projects after enumeration, which reduces the funding available to enumerate additional projects.

State highways can be built in a variety of ways, including as freeways or expressways. Project costs can increase significantly when DOT chooses to upgrade a highway from expressway to freeway standards. An expressway typically has at-grade intersections with other roads that have lower traffic volumes, and traffic signals or signs at these intersections regulate traffic flow. In contrast, a freeway uses overpasses and underpasses—which are known as grade separations—and interchanges to restrict access from intersecting roads. Highways are typically upgraded from expressway to freeway standards for safety and traffic flow reasons.

DOT may also change a project's design to accommodate preferences of individuals it affects, including state and local officials, advocacy groups, and concerned citizens. Design engineers indicated to us that the public comment process for project designs has increased significantly during the past decade because DOT has tried to be more responsive to local preferences. For example, the original concept for the STH 57 (Green Bay to Dyckesville) project included expressway-style at-grade intersections. However, in response to the preferences of local officials, the final design incorporated both an interchange and an overpass south of Dyckesville and within two miles of each other. Their cost is expected to be \$4.7 million; the total project cost is now estimated at \$27.4 million. Appendix 2 provides a time line for the project.

Tracking cost increases on projects is difficult because DOT can change a project's parameters. We noted a number of instances in which portions of one enumerated project had been combined with another. For example, the STH 57 (Green Bay to Dyckesville) project originally extended from the junction with STH 54 north of Green Bay through the village of Dyckesville. However, DOT subsequently separated the interchange at the junction of STH 57 and STH 54 from the original project, and it transferred the Dyckesville bypass to another major highway project. While it may have been prudent for DOT to construct the project in this manner, doing so makes it difficult to compare the actual project costs with the cost estimates that had been provided to the Transportation Projects Commission.

The estimated costs of seven current projects have increased by at least \$20.0 million each.

To help determine the reasons for the cost increases for major highway projects, we reviewed the seven current projects shown in Table 9. As of June 2003, cost estimates for each of these projects had increased by at least \$20.0 million. Increases ranged from 45.2 percent to 262.4 percent.

Table 9

Cost Increases for Selected Major Highway Projects
(in millions)

Hwy	Description	Original Estimated Cost ¹	Estimated Cost as of June 2003 ¹	Percentage Change	Percentage Change in Constant Dollars
12	Whitewater Bypass	\$ 10.1	\$ 36.6	262.4%	169.1%
110	USH 41-STH 116	15.7	41.9	166.9	97.6
29	Chippewa Falls Bypass	77.2	164.0	112.4	52.8
64	Houlton-New Richmond	55.3	116.5	110.7	65.2
12	Sauk City-Middleton	64.1	129.8	102.5	58.9
53	Eau Claire Bypass	99.3	145.4	46.4	21.2
39/51	Wausau Beltline	151.5	220.0	45.2	39.7

¹ Includes estimates for design and construction engineering costs.

Estimated costs more than tripled for one of the seven projects we reviewed. Four of the seven projects' estimated costs more than doubled, and estimated costs increased by nearly half for the remaining two. Specifically, we found:

- The cost estimate for the USH 12 (Whitewater bypass) project more than tripled from 1991, when it was enumerated, to June 2003, when it reached \$36.6 million. Although the project was originally planned as 5.3 miles of two-lane highway, DOT extended it to 6.3 miles and purchased enough land to upgrade the highway to four lanes in the future. These changes required the construction of more costly bridges and the purchase and relocation of more residential and commercial properties.
- The cost estimate for the STH 110 (USH 41 to STH 116) project increased from \$15.7 million when it was enumerated in 1991 to \$41.9 million in June 2003. Although the project was originally planned as a four-lane expressway, DOT subsequently built much of the project as a freeway, which required the construction of frontage roads and more costly bridges.

- The cost estimate for the STH 29 (Chippewa Falls bypass) project, which is made up of two separate projects enumerated in 1989 and 1991, increased from \$77.2 million at enumeration to \$164.0 million in June 2003. While the original design added two highway lanes next to the existing two-lane highway, the final design relocated six miles of the highway, which required the purchase of considerably more land and the construction of four new highway lanes. In addition, five miles more than originally planned were built as a freeway, which required an additional interchange and two overpasses. Finally, two existing interchanges were expanded, and two new interchanges were added to the project.

- The cost estimate for the expansion of the STH 64 (Houlton to New Richmond) project increased from \$55.3 million when it was enumerated in 1993 to \$116.5 million in June 2003. While DOT originally planned the project as a four-lane expressway, it later changed the plan and built most of the project as a freeway, which increased construction costs and required more costly bridges, two additional interchanges, and two additional overpasses.

- The cost estimate for the USH 12 (Sauk City to Middleton) project increased from \$64.1 million when it was enumerated in 1993 to \$129.8 million in June 2003. The increase is attributable to \$23.0 million in higher real estate costs that occurred because of project delays and the planned upgrade of a portion of the Middleton bypass from a 60- to a 70-miles-per-hour design speed.

- The cost estimate for the USH 53 (Eau Claire bypass) project increased from \$99.3 million when it was enumerated in 1995 to \$145.4 million in June 2003. The increase resulted from the expansion of an interchange to allow access to STH 93, which was not included in the original project plan.

■ The cost estimate for the Interstate 39/USH 51 (Wausau beltline) project increased from \$151.5 million when it was enumerated in 2001 to \$220.0 million in June 2003. Approximately \$30.0 million of the increase resulted from a decision by DOT to upgrade an interchange from a 45- to a 60-miles-per-hour design speed. As a result, five bridges were added to the project, and several other bridges were lengthened to accommodate this traffic speed.

DOT's initial project cost estimates have often been inaccurate.

DOT cited inaccurate initial cost estimates as an additional reason why the anticipated costs of some projects have increased considerably over time. Historically, DOT's initial cost estimates were incomplete because little or no design work had been completed when it provided the estimates to the Transportation Projects Commission.

DOT is attempting to improve its ability to estimate and control project costs. First, since 2001 it has tried to provide more accurate initial cost estimates to the Transportation Projects Commission by completing 30 percent of design work by the time a project's draft environmental study is finalized, although it is hesitant to commit significant resources to design a project that might not be enumerated. Second, late in 2001 it created the Major Projects Peer Review Committee, which includes central office and district staff, to review project designs and assess the need for various features and changes. Too little time has passed for the effects of these two changes on project costs to be assessed.

Value Engineering

To recommend changes that would result in cost savings, DOT commissioned a value engineering study in 2002. Value engineering identifies ways to minimize a project's costs without altering its purpose or lowering safety, quality, and environmental standards. The Federal Highway Administration requires DOT to complete such a study for each federally aided project in the national highway system that costs more than \$25.0 million.

In November 2002, a value engineering study identified \$382.0 million in potential savings on 21 major highway projects.

In August 2002, after it determined that the anticipated cost of major highway projects had increased by \$108.0 million, DOT hired an engineering firm with highway design experience to identify potential savings on 17 enumerated and 4 proposed major highway projects. The firm was paid \$247,000. Its November 2002 report identified \$382.0 million in savings that could be achieved while maintaining DOT's design guidelines and other programmatic requirements. For example, the firm recommended changes such as:

- constructing two lanes, as opposed to four, on highways where traffic volume was low enough to be handled by a two-lane highway, for savings of \$116.3 million;
- using asphalt, rather than concrete, for savings of \$45.4 million; and
- scaling back the size and design of interchanges, for savings of \$45.4 million.

The firm also recommended scaling back several projects to their originally planned scope at the time of enumeration, for \$22.3 million in savings. For example:

- The USH 10 (Marshfield to Stevens Point) project was enumerated as a four-lane expressway, but DOT had subsequently decided to build it as a freeway. Reverting to an expressway along one part of the project would save \$10.7 million.
- The STH 64 (Houlton to New Richmond) project was enumerated with an intersection at County Highway V, but DOT subsequently upgraded the intersection to an interchange. Reverting to the intersection would save \$3.3 million.

For a variety of reasons, DOT decided not to implement most of the cost-saving measures recommended by the firm. It decided that the firm's recommendations did not take into account updated traffic volume that warranted the construction of interchanges, traffic characteristics such as the need for truck lanes along steep inclines, or public opinion as expressed by local officials who wanted specific interchanges to be built. As of November 2003, DOT was continuing its analysis of how much of the \$382.0 million in savings measures that were proposed in the value engineering study it would implement.

Recommendation

We recommend the Department of Transportation report to the Joint Legislative Audit Committee by February 2, 2004, on the amount of savings it expects to achieve as a result of the November 2002 value engineering study, as well as the reasons why it does not plan to implement the study's other recommendations.

Improved Reporting

DOT's financial record-keeping system makes it difficult to analyze expenditures for individual major highway projects. While the central office produces a monthly report that includes per project expenditures for real estate, relocation of utilities, and construction, neither design nor construction engineering expenditures are reported on a per project basis, even though they can account for more than one-quarter of all project costs. Furthermore, some district staff stated that the project cost information they maintain differs from the amounts in the central office's reports.

Tracking changes to major highway project costs is also made difficult by DOT's practice of separating portions of projects and combining them with other projects. Because of this practice, it is unclear to individuals outside of DOT whether, for example, a decline in the latest cost estimate for a project resulted from cost savings, a reduction in the project's scope, or the transfer of some portion of the project into another project. In addition, DOT does not maintain expenditure information in a readily accessible format for projects or portions of projects that have been completed. For example, design costs are not maintained after design work has been completed, although construction of the project may not be completed for several years.

Financial reporting for the major highway program is inadequate.

In order for the Legislature, the Transportation Projects Commission, and others to know how much each major highway project costs, as well as the extent to which project costs increase, DOT must aggregate and report comprehensive project expenditures, and retain expenditure information after projects are completed. With such information, the Legislature and the Transportation Projects Commission will be in a better position to understand the major highway program's financial status and the feasibility of enumerating additional projects.

Recommendation

We recommend the Department of Transportation create a report to include all expenditures associated with each major highway project and provide it to the Transportation Projects Commission semiannually.



Environmental Issues ■

Environmental laws affect the construction of transportation projects.

State and federal environmental laws, especially those pertaining to air and water quality, affect highway construction practices and costs, as well as the environmental impact of individual projects. DOT does not track its environmental expenditures, but it estimates the state highway program, of which the major highway program is a part, spent \$29.1 million in FY 2001-02 for construction bids, consultant contracts, and staffing related to safeguarding the environment. Construction contractors believe their costs to comply with environmental regulations are significantly higher than DOT's estimates because their operations are also influenced by regulations that are not administered by DOT. Because neither DOT nor the contractors provided supporting documentation, the actual cost of compliance with state and federal environmental laws cannot be verified.

Environmental Impact Assessments

To avoid, minimize, and mitigate harmful effects to the environment, federal law requires DOT to complete an environmental impact statement before construction of most major highway projects. An environmental impact statement is a comprehensive, scientific study of a project's location, concept, and potential environmental effects on, for example, plants and wildlife, air and water quality, and neighborhoods. On smaller projects, DOT must conduct an environmental assessment to determine whether there could be a large environmental effect. If so, DOT must complete an environmental impact statement; if not, no further environmental documentation is needed.

Completing an environmental impact statement for most major highway projects takes from three to five years or longer. Because major highway projects can be controversial, the process is intended to be the forum in which conflicting views are presented and consensus is reached. It allows considerable public input and involves a number of state and federal agencies, including the Department of Natural Resources, the Federal Highway Administration, and the federal Environmental Protection Agency. During the process, various project designs and locations are considered, and DOT identifies a preferred alternative.

Traffic patterns or community interests may change considerably during the several years it takes to complete an environmental impact statement, and this may alter the preferred alternative for a project's design or location. For example, the preferred alternative selected in 1998 for the USH 10 (Stevens Point to Amherst Junction) project would have retained the highway's current location east of Stevens Point. Subsequently, local interests requested an interchange near an expanded business park, and changes in DOT's redesign of an existing interchange required additional land. As a result, the preferred alternative may be modified so that the highway will be moved two to three miles south of its current location. Such a move would likely result in the partial dismantling of a \$5.5 million interchange that was built on USH 10 in fall 2001, in anticipation of the highway remaining at its current location. However, the cost of these changes would be so significant that DOT believes the project would need to be submitted to the Transportation Projects Commission for re-approval before the modification would be implemented.

DOT estimates the average cost of an environmental impact statement is \$2.0 million.

DOT's record-keeping makes it difficult to determine the cost to complete an environmental impact statement. DOT estimates that the average cost is approximately \$2.0 million, but costs can be significantly higher. For example, DOT has indicated that the environmental impact statement for the USH 12 (Sauk City to Middleton) project, which was contentious, cost more than \$5.3 million. This amount does not include \$5.0 million allocated to Dane County for land planning and preservation, or \$753,300 for a 1991 study of the highway corridor required by the Legislature.

Enforcement of Environmental Laws

While most environmental laws have been in place for many years, regulations implementing those laws, and the way in which regulators interpret them, have evolved over time. Federal and state environmental laws affecting highway construction that have been in place for at least 30 years include the National Environmental

Policy Act of 1969; the Clean Air Act of 1970; the Safe Drinking Water Act of 1974; and the Wisconsin Environmental Policy Act of 1971, which is based on federal law. More recently, federal Executive Order 12898, which was signed in February 1994, has required that federally funded projects not disproportionately affect minority and low-income populations. Federal Executive Order 13274, which was signed in September 2002, is intended to streamline the environmental review process for nationally selected transportation projects.

Some regulations implementing environmental laws have changed in recent years.

Some regulations implementing environmental laws have changed over time. For example, in 2002, ch. TRANS 401, Wis. Adm. Code, was amended to incorporate more stringent standards for erosion control and to improve the quality of stormwater runoff from transportation projects. Since January 2003, DOT has been required to reduce the amount of suspended solids in runoff by 80 percent. By March 2008, it will also be required to implement stormwater management plans to control pollutants from all highways, bridges, and other transportation facilities in municipalities that require such plans. DOT estimates that these requirements will increase its annual construction bid costs by \$4.4 million to \$6.5 million.

Changes in regulatory practices have also occurred. For example:

- Chapter NR 429, Wis. Adm. Code, authorizes DOT to burn brush when clearing a right-of-way, but the Department of Natural Resources is increasingly requesting that all brush be chipped. DOT often allows contractors to burn brush in less-populated areas, but it typically requires them to chip and haul the brush away for disposal when projects are located in more populated areas. For the USH 12 (Sauk City to Middleton) project, DOT required contractors to chip most brush.
- Placing a culvert in a stream or small river and building the highway on top of it typically costs less than constructing a bridge. However, the Department of Natural Resources is increasingly requiring that bridges, not culverts, be built in order to minimize environmental effects. For example, on the USH 10 (Amherst Junction to Waupaca) project, DOT replaced two large culverts with four bridges where the highway crosses the Tomorrow River. DOT estimated that constructing the bridges increased project costs by approximately \$875,000.

When DOT district staff negotiate with the Department of Natural Resources to establish the extent and type of mitigation activities needed to compensate for the negative environmental effects of some highway projects, DOT staff sometimes agree to not only mitigate but also enhance affected areas. For example, policy manuals used by both departments state that when streams are relocated as a result of highway projects, the condition of the relocated stream may be improved so that fish are better able to reproduce. Such improvements may include constructing a meandering stream or lining the streambed with rocks.

Although some regulatory changes require additional efforts and costs, others have provided DOT with increased flexibility to comply with environmental laws. For example:

- 1995 Wisconsin Act 296 altered the State Endangered Species Act to allow DOT to remove some endangered and threatened animals and plants from project sites. Before this change, DOT was required to avoid areas with such species.
- Beginning in 1996, the Federal Highway Administration and the State Historic Preservation Office allowed DOT to screen some highway project sites for the presence of artifacts. Surveying all sites had previously been the standard practice. Screening involves searching archaeological archives to evaluate the likelihood that artifacts are located at a site. A more extensive on-site survey is completed only if the archival search indicates artifacts may be present. DOT estimates that an archival search costs \$45 to \$200, while an on-site survey costs \$3,000 to \$20,000.
- DOT used to survey for artifacts at areas called borrow sites, from which contractors take soil and other materials for use in highway projects, although federal law did not require the surveys. Since 1997, DOT completes an on-site survey only when an archival search indicates the possible presence of artifacts. DOT estimates that this change saves it \$150,000 to \$200,000 annually.

Environmental Expenditures

DOT does not adequately track its environmental expenditures.

DOT incurs environmental expenditures for construction bid items provided by contractors, consultant contracts, and activities performed by its own staff, and it pays the State Historical Society and the Department of Natural Resources for their environmental work. The extent of these expenditures is a longstanding concern of legislators, contractors, and others. In 1997, we recommended that DOT monitor its environmental expenditures. During our current evaluation, we found that DOT has done little to monitor its environmental expenditures, either in total or on a per project basis.

Environmental expenditures can vary significantly among projects. For example, in projects we reviewed, archeological expenditures ranged from \$45 for a data base search to an estimated \$750,000 for on-site research on the STH 57 (Dyckesville to Sturgeon Bay) project, where a significant Native American archaeological site was discovered. In addition, some projects involve unique challenges. For example, the STH 57 (Green Bay to Dyckesville) project required special erosion control measures to prevent contaminated water from seeping into deep fissures in the bedrock and the underlying drinking water. DOT used sandbags and other measures, which it estimates cost approximately \$337,000, to ensure no construction runoff entered the fissures.

In FY 1999-2000, DOT created accounting codes to track environmental work completed by consultants, who perform tasks such as conducting archeological surveys, identifying historic buildings, and determining whether endangered species are present at project sites. However, these codes reflect only the estimated cost of the work completed by the consultant, not the actual cost. DOT also tracks the expenditures incurred by its own staff, who review and prepare environmental documents, but it does not retain expenditure information after projects have been completed.

DOT estimated its environmental expenditures were \$29.1 million in FY 2001-02.

At our request, DOT convened a group of staff involved with environmental regulation and construction oversight to estimate DOT's construction expenditures for environmental activities. The group estimated the percentage of each itemized bid expenditure that had resulted from complying with environmental laws. DOT estimated that its environmental expenditures for all state highway projects, as well as some local projects, were \$29.1 million in FY 2001-02. As shown in Table 10, these expenditures include construction bid items, consultant contracts, DOT staff time, and payments to the Department of Natural Resources and the State Historical Society for work performed by those agencies.

Table 10

**Department of Transportation's Estimated Environmental Expenditures, by Type
FY 2001-02**

Type	Environmental Expenditures
Construction Bid Items	\$19,334,000
Consultant Contracts	6,164,000
DOT Staff Time	1,219,000
Department of Transportation Payments to:	
State Historical Society	1,748,000
Department of Natural Resources	607,000
Total	\$29,072,000

DOT funds 12.0 FTE liaison staff positions at the Department of Natural Resources.

Construction bid item expenditures for environmental activities represented 2.9 percent of all construction bid item expenditures in the state highway program, while consultant contract expenditures for environmental activities represented 5.3 percent of all consultant contract expenditures in the state highway program. DOT's payments to the Department of Natural Resources were for liaison staff to identify and address environmental issues in transportation projects. In FY 2001-02, the payment included \$575,000 to fund 12.0 FTE liaison staff positions: 7.0 limited-term positions, 4.0 full-time positions, and 1.0 contract employee position. DOT also paid the Department of Natural Resources \$32,000 for a statewide study to determine the location of freshwater mussels. The study's results will be used to determine how to mitigate the effects of transportation projects on mussels. DOT paid the State Historical Society \$1.7 million, primarily for archeological investigations related to highway projects.

DOT also provided estimates of the amounts that it spent on each type of environmental activity, as shown in Table 11.

Table 11

**Department of Transportation's Estimated Environmental
Expenditures, by Activity
FY 2001-02**

Activity	Amount
Construction Bid Items, Consultants, and DOT Staff:	
Stormwater Management and Erosion Control	\$17,510,000
Hazardous Materials	3,838,000
Environmental Documentation	2,513,000
Archaeology	914,000
Wetlands	783,000
Air Quality	703,000
Historical Resources	248,000
Endangered Species	138,000
Sound Quality	70,000
Department of Transportation Payments to:	
State Historical Society	1,748,000
Department of Natural Resources	607,000
Total	\$29,072,000

In FY 2001-02, DOT paid 101 consultants an estimated \$6.2 million for their environmental services. Table 12 shows the ten consultants paid the most for such services. As noted, the amounts are estimated because DOT does not track the actual cost of the environmental work performed by consultants.

Table 12

Ten Consultants DOT Paid the Most for Environmental Services
 FY 2001-02

Consultant	Amount
Earth Tech	\$ 641,000
HNTB	577,000
Marquette University	559,000
RMT	555,000
Short Elliott Hendrickson	349,000
Teng & Associates	342,000
BT Squared	254,000
Strand Associates	242,000
EMCS Design Group	235,000
CH2M Hill	225,000
All Other Consultants	2,185,000
Total	\$6,164,000

**Contractors believe
 DOT's environmental
 expenditure estimates
 exclude many costs.**

We asked construction contractors from five industries—bridge building, asphalt, concrete, earth moving, and aggregate production—to review DOT's FY 2001-02 environmental expenditure information and estimate the percentage of expenditures in each construction bid item that they believe was attributable to the cost of complying with environmental laws. All of the contractors with whom we spoke believed that DOT's information excluded a significant amount of the compliance-related costs that they incur. For example, while DOT indicated that none of the \$80.8 million it paid for asphalt-related work was attributable to the costs of compliance, contractors estimated that compliance with environmental regulations accounts for up to 10 percent of their asphalt-related costs. Similarly, contractors estimated that 10 percent of the cost of producing aggregate is attributable to costs associated with compliance with environmental regulations. The contractors provided other examples of costs not included in DOT's estimates, including:

- \$300,000 to \$450,000 for one firm to install equipment to reduce an asphalt plant's emissions;

- \$200,000 to build three stormwater retention ponds, which allowed one company to obtain a stormwater management permit that was necessary to expand a building for producing asphalt;
- \$50,000 or more annually for insurance to protect one firm from liabilities related to the cleanup and disposal of soil contaminated by hazardous materials; and
- \$12,000 to \$15,000 annually to train one firm's staff about environmental laws.

Many of the examples provided by contractors pertained to regulatory requirements that do not apply to DOT. For example, s. 295.16, Wis. Stats., exempts DOT from ch. NR 135, Wis. Adm. Code, which was created in September 2000 and pertains to nonmetallic mining. However, commercial suppliers of gravel, sand, and other materials used in transportation projects are not exempt from this code, which stipulates how the materials are to be mined, how the environment is to be protected during mining operations, and how the site is to be restored after operations are complete. Contractors stated that their costs also increase as a result of a number of other activities that they must perform, including:

- cleaning their construction vehicles in confined areas in order to collect the water and washed-off soil and prevent adverse environmental effects;
- limiting bridge work in order to minimize disturbances of fish during spawning cycles; and
- using specialized equipment to prevent debris and bridge construction materials from entering the underlying water, as well as removing a bridge in sections, instead of demolishing an entire bridge at once and letting it fall into the water.

Because neither DOT nor the contractors provided supporting documentation, estimates of their environmental expenditures are not verifiable. The absence of accurate expenditure information makes it difficult to assess overall trends or the effects of environmental laws on transportation projects. Given the considerable amount of expenditures that DOT estimates it incurs and the difference between the estimates provided by DOT and the contractors, we continue to recommend that DOT monitor its environmental expenditures. We note that cooperation with contractors will be necessary to collect this expenditure information.

Recommendation

We recommend the Department of Transportation track its overall and per project environmental expenditures, including those incurred by its own staff, consultants, and construction contractors, and report its plan for doing so to the Joint Legislative Audit Committee by June 1, 2004.

DOT's environmental impact statements failed to include all project cost information.

Project Alternatives

When we reviewed the environmental impact statements for 18 major highway projects, we found that DOT appropriately considered a range of alternatives, as is required. However, the cost estimates were not calculated in a standardized or comprehensive way, making it difficult to track changes to a project's overall cost or to compare costs among projects.

DOT's policies do not specify which types of costs are to be included in the project alternatives that are presented in the environmental documents. Construction costs were included in the environmental documents for all 18 major highway projects we reviewed. However:

- administrative costs were not identified for 17 projects;
- engineering, contingency, and home and business relocation costs were each not identified for 16 projects;
- future highway maintenance costs were not identified for 15 projects;
- right-of-way costs were not identified for 13 projects; and
- real estate costs were not identified for 10 projects.

It is difficult to track changes in a project's cost over time if environmental documents do not include comprehensive costs. When documents contain only construction costs, for example, some individuals may believe that all costs have been represented when, in fact, additional costs associated with real estate purchases, engineering, and other activities will be incurred. In addition, members of the Transportation Projects Commission find it difficult to compare the costs of various projects if the cost estimates are not comprehensive.

Recommendation

We recommend the Department of Transportation develop policies specifying that all project costs should be included in the project cost estimates that are presented in the environmental documents it prepares.

■ ■ ■ ■

Revenue Sources
 State Revenue Sources
 Federal Funding
 Bond Proceeds

Financing Transportation Projects ■

We analyzed all of DOT's revenue sources, not just those that support the major highway program. DOT is funded by federal, state, and local revenue; proceeds from bonds; and a small amount of program revenue. Transportation revenue bonds, which are repaid with vehicle registration fee revenue, have long been used as a funding source for the major highway program. However, DOT's main source of revenue is state fuel taxes.

Revenue Sources

Since FY 1993-94, transportation revenue has increased by 49.6 percent.

Table 13 shows all of DOT's revenue sources from FY 1993-94 through FY 2002-03. In the period shown, total transportation revenue increased 49.6 percent. State transportation revenue increased 44.8 percent; federal transportation revenue increased 92.6 percent; and bond proceeds decreased 17.4 percent.

Table 13

Transportation Revenue
(in millions)

Source	FY 1993-94	FY 2002-03	Percentage Change	Percentage Change in Constant Dollars
State Revenue				
Fuel Tax	\$ 634.6	\$ 902.5	42.2%	14.6%
Registration Fees	260.9	369.5	41.6	14.1
Other ¹	62.0	114.6	84.8	49.0
Subtotal	957.5	1,386.6	44.8	16.7
Federal Revenue	372.0	716.3	92.6	55.2
Bond Proceeds				
Revenue	107.8	136.1	26.3	1.8
General Obligation	61.5	3.8	(93.8)	(95.0)
Subtotal	169.3	139.9	(17.4)	(33.4)
Local Revenue	52.1	72.2	38.6	11.7
Program Revenue	0.3	4.9	1,533.3	1,216.4
Total	\$1,551.2	\$2,319.9	49.6	20.5

¹ Includes driver licensing fees; motor carrier registration and licensing fees; aviation fuel, aviation licensing, and airline property taxes; railroad property taxes; and salvage vehicle inspection, vehicle rental, limousine service, and hazardous materials fees.

State Revenue Sources

In the 2003-05 biennium, DOT expects to receive an additional \$268.2 million in state revenue.

In FY 2002-03, the state fuel tax and motor vehicle registration fees accounted for 91.7 percent of DOT's \$1.4 billion in state revenue, and 54.8 percent of its revenue from all sources. As of September 2003, DOT expected its state revenue to be \$1.5 billion in FY 2003-04 and again in FY 2004-05, largely because of increased revenue from the state fuel tax and vehicle registration fees. If actual state revenue matches these projections, DOT's state revenue in the 2003-05 biennium will exceed its 2001-03 state revenue by \$268.2 million, or 9.8 percent.

State Fuel Taxes

Wisconsin's gasoline tax is the highest in the nation, and DOT's largest revenue source.

The state gasoline tax rate is adjusted annually.

As noted, state fuel taxes are DOT's largest revenue source. As of April 2003, Wisconsin's per gallon state fuel tax was 31.5 cents for gasoline and diesel fuel, and 23.8 cents for liquefied petroleum. These amounts include a petroleum inspection fee of three cents per gallon that funds the Petroleum Environmental Cleanup Fund Award (PECFA) program. Currently, Wisconsin's state fuel tax is the highest in the nation.

To maintain the Transportation Fund's purchasing power, an indexing formula was introduced for the gasoline and diesel fuel tax rate in 1985. Annual adjustments to the tax rate are made each April 1, based on changes to the U.S. consumer price index. In addition, the Legislature enacted a permanent statutory one-cent increase in November 1997. Before April 1998, the fuel tax rate was also adjusted annually by a consumption factor, which decreased the tax rate by the amount that consumption increased during the prior year. The consumption factor was eliminated by the Legislature in April 1998 because increasing fuel consumption trends would have reduced tax revenues.

Table 14 shows the annual per gallon gasoline and diesel fuel tax rate from 1994 through 2003, excluding the three-cent inspection fee that funds PECFA.

Table 14
State Gasoline and Diesel Fuel Tax Rate¹
(cents per gallon)

	Tax Rate
April 1994	23.1¢
April 1995	23.4
April 1996	23.7
April 1997	23.8
Nov. 1997	24.8
April 1998	25.4
April 1999	25.8
April 2000	26.4
April 2001	27.3
April 2002	28.1
April 2003	28.5

¹ Excludes the 3.0¢ inspection fee that funds PECFA.

Revenue from the state fuel tax has increased steadily since FY 1993-94.

As shown in Table 15, state fuel tax revenue increased steadily after FY 1993-94, particularly after the consumption factor was eliminated and the Legislature increased the tax rate by one cent. As of September 2003, DOT estimated that state fuel tax revenue will be \$926.0 million in FY 2003-04 and \$984.2 million in FY 2004-05.

Table 15

State Fuel Tax Revenue
(in millions)

Fiscal Year	Amount	Percentage Change
1993-94	\$634.6	-
1994-95	651.2	2.6%
1995-96	672.5	3.3
1996-97	692.9	3.0
1997-98	740.2	6.8
1998-99	797.0	7.7
1999-2000	809.5	1.6
2000-01	827.5	2.2
2001-02	865.5	4.6
2002-03	902.5	4.3
2003-04 ¹	926.0	2.6
2004-05 ¹	984.2	6.3

¹ Estimated.

2003 Assembly Bill 242, which was introduced in April 2003, would end fuel tax indexing before the next scheduled adjustment in April 2004. According to a fiscal note prepared by DOT, if this legislation had been enacted before July 2003, fuel tax revenue in the 2003-05 biennium would have been reduced by an estimated \$61.3 million.

Concerns have been raised about the long-term ability of the fuel tax to provide a stable source of revenue for transportation projects. If increasing numbers of vehicles that operate on electricity or fuel cells are driven in the future, fuel tax revenues will decrease. However, in the short-term, the state fuel tax will likely remain the single largest source of revenue available to fund DOT's programs.

Motor Vehicle Registration Fees

Owners of passenger vehicles (cars, vans, and sport-utility vehicles) that are registered in Wisconsin pay a \$55 annual registration fee. Truck owners pay an annual fee based on vehicle weight, ranging from \$48.50 to \$1,970. In FY 2002-03, DOT's revenue from registration fees was \$369.5 million.

The 2003-05 Biennial Budget Act raised annual registration fees for passenger vehicles by \$10.

Registration fees have increased twice in recent years. In 1997, passenger vehicle registration fees increased from \$40 to \$45, and truck registration fees increased by amounts that varied with truck weight; in October 2003, the annual passenger vehicle registration fee increased from \$45 to \$55. The October 2003 increase was included in 2003 Wisconsin Act 33 and is expected to generate an additional \$25.6 million in FY 2003-04 and \$34.9 million in FY 2004-05.

In addition to vehicle registration fees, registration fee revenue includes title, title transfer, and associated fees, as well as counter and other transaction fees. 2003 Wisconsin Act 33 also increased both the vehicle title fee and the vehicle title transfer fee by \$10, to \$18.50 each. These increases are expected to generate an additional \$11.3 million in FY 2003-04 and \$15.0 million in FY 2004-05.

As of September 2003, DOT estimated that total registration revenue will be \$429.1 million in FY 2003-04 and \$448.5 million in FY 2004-05, as shown in Table 16. The 16.1 percent increase projected for FY 2003-04 is the largest since FY 1997-98, when registration fees were last increased. From FY 1993-94 through FY 2002-03, DOT's total registration fee revenue increased 41.6 percent.

Table 16

Total Registration Fee Revenue
(in millions)

Fiscal Year	Amount	Percentage Change
1993-94	\$260.9	—
1994-95	270.2	3.6%
1995-96	277.3	2.6
1996-97	279.9	0.9
1997-98	324.7	16.0
1998-99	341.3	5.1
1999-2000	361.8	6.0
2000-01	361.5	(0.1)
2001-02	376.1	4.0
2002-03	369.5	(1.8)
2003-04 ¹	429.1	16.1
2004-05 ¹	448.5	4.5

¹ Estimated.

Federal Funding

In FY 2002-03, federal funds accounted for almost one-third of DOT's total revenue.

In FY 2002-03, federal funds represented almost one-third of DOT's total revenue. Wisconsin receives most federal transportation funding through the Transportation Equity Act for the 21st Century (TEA-21), which was enacted in federal fiscal year 1997-98 and provides funding for highway, transit, and other programs. The federal government generates transportation revenue primarily from the federal motor fuel tax, which was 18.4 cents per gallon of gasoline and 24.4 cents per gallon of diesel fuel as of June 2003.

Table 17 shows Wisconsin's federal transportation revenue since FY 1993-94. There have been two significant increases in this funding: the 38.1 percent increase in FY 1997-98, as a result of the passage of TEA-21, and a 15.5 percent increase in FY 1999-2000. As of September 2003, DOT expected to receive \$1.4 billion during the 2003-05 biennium, which is a 3.3 percent decline from the amount received during the 2001-03 biennium. However, TEA-21 expired at the end of September 2003, and the structure of the pending legislation is not yet known. As a result, it is uncertain how much federal transportation revenue will actually be available.

Table 17

Federal Transportation Revenue
(in millions)

Fiscal Year	Amount	Percentage Change
1993-94	\$372.0	-
1994-95	380.3	2.2%
1995-96	371.5	(2.3)
1996-97	354.7	(4.5)
1997-98	489.9	38.1
1998-99	524.9	7.1
1999-2000	606.1	15.5
2000-01	640.7	5.7
2001-02	687.8	7.4
2002-03	716.3	4.1
2003-04 ¹	677.2	(5.5)
2004-05 ¹	680.0	0.4

¹ Estimated.

DOT receives earmarked federal funds that Congress provides for specific projects.

Throughout the fiscal year, DOT also receives earmarked federal funds that Congress provides for specific projects. For example, in federal fiscal year 2002-03, DOT received \$107.9 million in earmarked federal funds, including:

- \$6.0 million for the Marquette Interchange;
- \$6.0 million for Interstate 39/USH 51, the Wausau beltline;
- \$2.0 million for USH 10 from Stevens Point to Waupaca;
- \$2.0 million for STH 29 from Chippewa Falls to Interstate 94; and
- \$2.0 million for USH 53, the Eau Claire bypass.

These earmarked funds are not shown in Table 17, nor are they included in the State's appropriation schedule.

Bond Proceeds

Transportation revenue bonds have long been used as a funding source for the major highway program. Unlike general obligation bonds, which are backed by the full faith and credit of the State, revenue bonds are secured by registration fee revenue. The revenue is placed in a trust account from which debt service payments are made. Any revenue in excess of the amount needed for debt service is transferred to the Transportation Fund. In issuing revenue bonds, the State has pledged to the bondholders that registration fee revenue will be at least 2.25 times the annual amount of debt service payments; that is, for every \$1 in bond debt to be paid, at least \$2.25 in registration fees will be collected.

Bond debt service costs are increasing and totaled \$101.1 million in FY 2002-03.

The issuance of revenue bonds has allowed DOT to construct major highway projects without heavy reliance on other funding sources. However, the resulting debt service leaves fewer vehicle registration fee funds available for projects. As shown in Table 18, revenue bond debt service totaled \$101.1 million in FY 2002-03. The proportion of registration fee revenue required to cover debt service costs has been increasing and reached 27.4 percent in FY 2002-03.

Table 18

Revenue Bond Debt Service as a Percentage of Registration Fee Revenue (in millions)

Fiscal Year	Debt Service	Increased Debt Service	Registration Fee Revenue	Debt Service as a Percentage of Registration Fee Revenue
1993-94	\$ 41.2	-	\$260.9	15.8%
1994-95	51.2	\$10.0	270.2	18.9
1995-96	58.5	7.3	277.3	21.1
1996-97	68.5	10.0	279.9	24.5
1997-98	71.9	3.4	324.7	22.1
1998-99	80.9	9.0	341.3	23.7
1999-2000	84.2	3.3	361.8	23.3
2000-01	89.1	4.9	361.5	24.6
2001-02	87.9	(1.2)	376.1	23.4
2002-03	101.1	13.2	369.5	27.4
2003-04 ¹	127.2	26.1	429.1	29.6
2004-05 ¹	141.1	13.9	448.5	31.5

¹ Estimated.

2003 Wisconsin Act 33 broadened the revenue sources pledged to cover debt service requirements to include title transfer fees and various other registration and license fees, such as personalized license plate fees. As noted, title transfer fees increased by \$10 in October 2003.

Table 19 shows DOT's estimates of future revenue-to-debt ratios. These estimates assume \$171.7 million in revenue bonds will be issued in FY 2005-06, and then the amount of bonds issued will increase by 3.0 percent annually. As a result of the expansion of pledged revenue that began in FY 2003-04, the revenue-to-debt ratio is expected to remain above 2.25 through FY 2011-12, the last year for which DOT has completed its projections. However, the \$171.7 million assumed for FY 2005-06 is a 20.2 percent increase over FY 2004-05 funds and reflects the increased level of funding needed for already-enumerated major highway projects.

Table 19

Estimated Revenue-to-Debt Ratios for Transportation Revenue Bonds
(in millions)

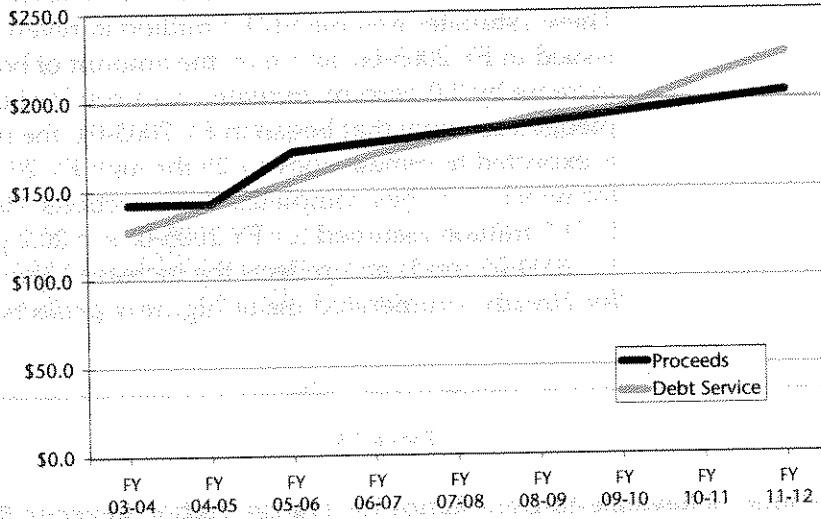
Fiscal Year	Pledged Revenue	Debt Service	Increased Debt Service	Revenue-to-Debt Ratio
2003-04	\$418.1	\$127.2	–	3.29
2004-05	441.1	141.1	\$13.9	3.13
2005-06	459.0	155.1	14.0	2.96
2006-07	464.7	169.9	14.8	2.74
2007-08	483.7	180.2	10.3	2.68
2008-09	490.3	190.6	10.4	2.57
2009-10	509.8	194.9	4.3	2.62
2010-11	517.2	211.3	16.4	2.45
2011-12	537.7	225.8	14.5	2.38

Debt service payments are projected to exceed bond proceeds from FY 2008-09 onward.

DOT estimates that annual debt service payments will exceed proceeds from the transportation revenue bonds from FY 2008-09 onward, as shown in Figure 5. In FY 2008-09, DOT will receive an estimated \$187.0 million in bond proceeds, while debt service costs will be \$190.6 million.

Figure 5

**Comparison of Revenue Bond Proceeds to Debt Service Payments
(in millions)**



For the first time, bonds will be issued to fund state highway rehabilitation projects.

The potential for annual debt service payments to exceed revenue bond proceeds raises several concerns. For example, some may argue that the State will no longer realize a benefit by relying on bonding for major highway projects because, in effect, the proceeds will be used to pay off earlier bonds. At the same time, debt service requirements will continue to grow, further reducing the amount of Transportation Fund revenue available for projects.

2003 Wisconsin Act 33 expanded the issuance of bonds that will be repaid by the Transportation Fund. The issuance of revenue bonds for the major highway program will increase only slightly. However, Act 33 provides that the rehabilitation and southeast Wisconsin freeways programs will be partially funded by \$565.5 million in general obligation bonds that the Transportation Fund will repay. DOT has indicated that these bonds will not be subject to the 2.25 revenue-to-debt ratio because they are backed by the State's full faith and credit. As shown in Table 20, total bonding amounts for the state highway program will increase from \$130.2 million in FY 2002-03 to \$406.0 million in FY 2003-04 and \$432.5 million in FY 2004-05. Debt service costs for the general obligation bonds issued during the 2003-05 biennium will total \$767.6 million from FY 2003-04 through FY 2024-25.

Table 20

State Highway Program Bonding Amounts
(in millions)

	FY 2002-03	FY 2003-04	FY 2004-05
Major Highway	\$130.2	\$136.2	\$136.8
Rehabilitation	0.0	253.9	230.0
Southeast Wisconsin Freeways	0.0	15.9	65.7
Total	\$130.2	\$406.0	\$432.5

2003 Wisconsin Act 64, which was enacted in October 2003, requires that the debt service on the \$565.5 million in general obligation bonds be paid from the Transportation Fund during the 2003-05 biennium. Beginning in FY 2005-06, the debt service will be paid from the General Fund. In that fiscal year and annually thereafter, DOT anticipates that debt service costs for these bonds will be \$69.2 million.

While the issuance of these general obligation bonds will help to fund reconstruction of the southeast Wisconsin freeway system and the rehabilitation program, the resulting debt service will reduce the amount of funds available to support future major highway program projects.

■ ■ ■ ■

Future Considerations ■

The Legislature will likely continue to face requests to increase transportation funding or expand other financial support for the state highway program. To help it respond to these funding requests, we:

- compared Wisconsin's transportation funding sources, spending, and highway conditions with other midwestern states'; and
- considered a \$5.2 billion funding shortfall projected in DOT's State Highway Plan 2020 in the context of current state highway planning and construction practices.

Comparisons with Other Midwestern States

Because states define and fund their highway programs differently, comparisons of state highway spending and highway conditions can have widely varying results. Our comparisons use the most recent data reported by the Federal Highway Administration, which are widely viewed as the best available. However, these data are from a 2001 report, and they are not always as precise as the actual expenditure and revenue information included elsewhere in this report. In most cases, we limited our comparisons to six midwestern states with climates similar to Wisconsin's because climate changes have a strong effect on highway construction costs and processes.

Spending

Wisconsin ranks in the middle of seven midwestern states on spending for major highway improvements and rehabilitation.

Based on data in the 2001 Federal Highway Administration report, Wisconsin ranks in the middle of seven midwestern states on spending for major improvements and rehabilitation of state highways. As shown in Table 21, Federal Highway Administration data show that Wisconsin spent:

- \$207 per licensed driver, which was fourth-highest among the midwestern states, and below the national average;
- \$142 per capita, which was third-highest among the midwestern states, and below the national average; and
- \$13,283 per million vehicle miles traveled, which was fourth-highest among the midwestern states, and below the national average.

Table 21

State Highway Expenditures, by Midwestern State and Nationally

State	Expenditures for Major Improvements and Rehabilitation ¹	Expenditures per Licensed Driver	Expenditures per Capita	Expenditures per Million Vehicle Miles Traveled
Illinois	\$1,673.2	\$214	\$135	\$16,239
Indiana	2,168.0	527	357	30,269
Iowa	604.6	306	207	20,143
Michigan	1,234.0	177	124	12,466
Minnesota	601.9	203	122	11,284
Ohio	1,403.5	181	124	13,167
Wisconsin	760.7	207	142	13,283
National Average	—	245	166	16,837

¹ In billions.

Source: Federal Highway Administration, Highway Statistics 2001