STATE TRUNK HIGHWAY PROGRAM #43

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This paper describes Wisconsin's state trunk highway program. The first section provides an overview of the state trunk highway system and the role of the Department of Transportation (DOT). The second section describes how the state finances the improvement and maintenance of state trunk highways. The remaining six sections describe the programs administered by DOT to improve and maintain the state trunk highway system.

■ Overview

Jurisdiction over and responsibility for the construction, improvement and maintenance of highways is shared between the state and local units of government. Responsibility for particular types of road segments is divided among units of government based primarily on the roadway's function in the state's overall transportation network.

The state is responsible for state trunk highways, which are generally "arterial" roads. "Arterials" function as corridors for interstate or inter-area travel. Counties are generally responsible for "collector" roads, which serve short distance, intra-area traffic or provide connections between arterial roads and local roads. Municipalities are generally responsible for "local" roads, which provide property access and short distance, local mobility services. Examples of such roads include residential streets and town roads.

Jurisdictional responsibility (the level of government responsible for the road) and functional classification (arterial vs. collector vs. local) do not always coincide. For example, some "collectors" may be under state jurisdiction or "arterials" may be under county jurisdiction. These differences often arise from changing traffic patterns on particular road segments. Current DOT policy is to align jurisdictional responsibilities with functional classifications whenever possible.

TABLE 1: Road Miles by Jurisdiction

Jurisdiction	Miles	% of Total
State Highways	11,827	10.7%
County Highways	19,617	17.8
Town Roads	61,231	55.5
Municipal Streets	15,238	13.8
Other County Roads	878	0.8
Park & Forest Roads	1,499	1.4
Total	110,290	100.0%

Table 1 depicts the distribution of roads by current jurisdictional responsibility. Although state highways comprise only 11% of total road mileage, they carry 60% of the total traffic.

Department Duties and Structure

DOT directly supervises and funds the construction and improvement of the 11,827 mile state trunk highway (STH) system. This system includes 9,926 miles of rural and 1,361 miles of urban state trunk highways, 540 miles of connecting highways and 4,658 highway bridges. Connecting highways are state trunk highways that lie within the corporate limits of larger municipalities.

The Department's highway program activities are primarily conducted by the Division of Highways, which has 1,863 full-time equivalent positions. DOT also contracts with consultants for many activities that would otherwise require additional staff. An estimated $59 million will be spent in 1994-95 on consultants. This is equal to funding 715 full-time positions.

The Division of Highways provides statewide coordination of the planning, design, construction and maintenance of the state trunk highway system. The Division has eight district offices (Madison, Waukesha, Green Bay, Wisconsin Rapids, La Crosse, Eau Claire, Rhinelander and Superior) that monitor and supervise highway-related activities and provide decentralized management for other departmental programs, such as air, rail and mass transit. The Division includes six bureaus and offices:

Bureau of Program Management. Coordinates the Division's federal highway aid transactions, develops multi-year transportation programs, conducts highway data collection and coordinates the state highway maintenance program.

Bureau of Transportation Districts. Develops and recommends specific projects for inclusion in transportation programs.

Bureau of Highway Engineering. Develops standards for the design of highways and bridges; provides engineering support services; conducts real estate acquisitions; develops methods, specifications, standards and procedures for construction activities; and provides technical services related to soil and construction materials.

Office of Highway Management. Develops divisional annual and biennial budgeting; conducts policy analysis and review functions, including legislation and administrative rules; coordinates automation planning and management; and is responsible for division-level management and administration.

Office of Environmental Analysis. Conducts environmental analysis of highway projects and coordinates archeological studies.

Office of Disadvantaged Business Programs. Responsible for promoting minority contracts with the goal of increasing the number of major contracts that are awarded to minority firms.

Highway Planning Process

The Department's formalized highway programming process, titled the Six-Year Highway Improvement Program, provides documented information on what state highway and bridge projects are planned for completion in the next six years, by transportation district. The six-year improvement plan is updated biennially. The program, to be published in August, 1995, will address state highway and bridge projects from 1994 through 1999.

The six-year improvement program provides information on: (a) the project's location (by county, highway number and highway segment); (b) the project's mileage; (c) the project's estimated cost; (d) the anticipated year of project construction; (e) the "work type;" and (f) a brief description of the project. The "work type" designates whether the project addresses resurfacing, reconditioning, reconstruction, bridge replacement, bridge rehabilitation, is a major highway project or is miscellaneous work (such as noise barriers, safety improvements or jurisdictional transfers). The six-year improvement program is flexible, subject to modifications depending on future funding levels and engineering considerations. However, it does provide an indicator of what the state highway program would accomplish in a specified period of time, given the assumptions used in the planning process.

DOT has also developed a longer-range state highway plan. This plan, State Highway Plan 2020, establishes a framework through which DOT develops its immediate and long-range highway program. The state highway plan does not identify specific highway projects. Rather, it identifies state-wide system needs through the year 2020, reflecting enhanced economic development, improved mobility and highway safety factors, as well as the preservation of the present system. Specifically, the plan develops a new approach by viewing the state trunk highway system as consisting of three components: the Corridors 2020 network; urban corridors; and rural arterials and collectors. The level of improvement needs identified is used to develop program initiatives and budgetary requests. DOT policy is directed toward the achievement of the goals established by the plan.

In response to new requirements under the federal Intermodal Surface Transportation Efficiency Act (ISTEA), DOT developed a 25-year statewide multi-modal transportation plan called Translinks 21. This plan was developed in conjunction with local long-range plans throughout the state. The Translinks 21 plan recommends increasing resources in all areas of transportation, including state trunk highways.

The long range plans must consider all modes of transportation, as well as highways. In addition, environmental needs must be balanced with transportation needs. Transportation planning in ozone nonattainment areas must be coordinated with the development of state implementation plans, which designate how the state intends to control emissions of pollutants, as required under the federal Clean Air Act.

■ State Trunk Highway Program Finance

The state trunk highway improvement program includes several sources of funds. The 1993-95 state trunk highway program was financed with approximately 51% state funding, 34% federal funding, 15% from state revenue bond proceeds and the use of cash management balances and 0.3% local funding.

Table 2 shows the appropriations for the state trunk highway program in the 1993-95 biennium. The program consists of seven program components funded from four state segregated appropriations and corresponding federal and local appropriations. These state highway appropriations, and the programs they support, include: (a) the major highway development appropriations, which fund only the major highway development program; (b) the state highway rehabilitation appropriations, which fund the existing highway improvement (3R) program, state bridge improvement program and the interstate construction and rehabilitation program; (c) the highway maintenance, repair and traffic operations appropriations, which fund the highway maintenance program and highway traffic operations program; and (d) the administration and planning appropriations, which fund the operations of the state trunk highway program.

The 1993-95 biennial budget act created a provision that allows DOT to increase the use of bond proceeds in the major highway development program over the levels budgeted for the biennium. This increase may only be made to replace any decrease in the level of federal funding from the amounts budgeted. This provision was created in response to uncertainty in the level of federal highway aid for federal fiscal years 1994 and 1995 since actual aid levels were not known until after the state's biennial budget deliberations were completed. The level of federal highway aid was estimated as $351 million annually. Actual aid levels were $341.4 million in FFY 1994 and an estimated $339.1 million in FFY 1995. Table 2 reflects appropriations as adjusted for reestimated federal highway aid levels.

Through the state's program budgeting system, state, local and federal funds are specifically budgeted for individual program activities. For this reason, most state trunk highway program components have local and federal appropriations in addition to state appropriations. However, unlike state appropriations, local and federal appropriations are estimates of funding to be received and do not control the amount of monies that may be expended. DOT can expend all monies received from federal and local sources, not just the amounts specifically estimated by the Legislature in budgetary schedules.

TABLE 2: State Trunk Highway Programs - 1993-95 Biennium Appropriations (In Millions)

Appropriations	Cash Management & Revenue Bonding	Current Revenue Funding Sources			All Sources
		State	Federal	Local	
Major Highway Development	$202.7*	$15.1	$100.2*	$0.0	$318.0
State Highway Rehabilitation		397.5	369.6	4.0	771.1
Highway Maintenance, Repair and Traffic Operations		264.1	2.2	0.5	266.8
Administration and Planning	---	30.7	4.0	0.0	34.7
Total	$202.7	$707.4	$476.0	$4.5	$1,390.6

*Adjusted for reestimated federal highway aid levels.

State Funding

The segregated state transportation fund is the state funding source for the state trunk highway program. The transportation fund is a separate, nonlapsible trust fund administered by DOT. Revenue sources for the transportation fund include a motor fuel tax, motor vehicle fees, railroad taxes, aeronautical taxes and other fees and revenues.

TABLE 3: State Trunk Highway Programs - State Transportation Fund Appropriations

Biennium	State Segregated Appropriations	Change From Prior Biennium
1979-81	$240,256,000	---
1981-83	324,327,400	35.0%
1983-85	406,291,200	25.3
1985-87	404,140,500	- 0.5
1987-89	563,571,500	39.4
1989-91	622,130,700	10.4
1991-93	632,628,200	1.7
1993-95	707,424,600	11.8

As shown in Table 3, state funding generally increased throughout the 1980s and early 1990s. The total increase from 1979-81 to 1993-95 was 194%. These increases can primarily be attributed to a decision by the Legislature and Governor to fund the improvement level identified in the Department's State Highway Plan (with some exceptions). Other factors contributing to increased state expenditures have been: (a) an increase in the

number and magnitude of major highway projects constructed in each biennium, in response to the Corridors 2020 plan; and (b) budgeting for inflation in the highway program.

Revenue Bonding and Cash Management

Revenue bonding authority has, in recent biennia, been used as an ongoing state funding source for the highway program. Revenue bonds, as opposed to general obligation bonds, are repaid solely from a dedicated revenue source. In the case of transportation revenue bonds, the dedicated revenue source is the motor vehicle registration fee. To ensure the stability of the bonds for investors, bond repayment receives first priority on those revenues.

Revenue bond proceeds are used to fund the construction of major highway development projects and administrative facilities. The distribution of bonding authority between these uses is not limited by statute, but DOT's budget requests for increased authority have specified intended uses. Bonding authority is provided based on anticipated needs for the next four fiscal years. This funding strategy, in contrast to the standard biennial approval of state expenditures, is employed to reflect the high cost and long-term nature of the projects, which span multiple biennia. Although the approval of unissued revenue bond authority could be rescinded by a future legislative action, the early legislative approval of this form of expenditure authority for long-term construction projects is provided as a means of assuring the completion of a project once it is begun.

In the 1989-91 biennium, a cash management policy was enacted that allows the cash balance (appropriated transportation fund revenues not required to meet current year expenditures) of the transportation fund to be utilized in order to provide funding for major highway projects or administrative facilities. Previously, transportation fund revenues were unavailable for any purpose other than the obligation for which they were specifically appropriated. That amount remained as an appropriated balance of the transportation fund until expended, which could be over a period of years. The benefit of the cash balance initiative was a one-time reduction in debt service, since it allowed a delay in the issuance of bonds until the cash balance was expended to an acceptable level (there was a loss in interest earnings). The cash balance of the transportation fund was replenished when bonds were issued. Currently, the cash balance concept is still in effect although there are no ongoing savings. The cash balance is spent to an acceptable level to pay for projects and then is reimbursed with bond proceeds.

Local Funding

Local funds for the improvement of state trunk highways are provided principally to fund portions of a project that are a local priority. Local funds can include both monies from local governments and private businesses. In conjunction with DOT's improvement projects, local communities fund certain project components that are not eligible for state or federal funding.

These local initiatives may include sidewalks, curbs, gutters, special access traffic lanes for local traffic, lighting and other traffic control features. Local cost sharing is required by DOT for: (a) costs of items not directly associated with the transportation services provided by the highway project, such as parking lanes; (b) costs incurred at state and local road interchanges and intersections, with local units paying for the costs on the local jurisdictional road and sharing in the costs of the interchange bridges; (c) 25% of the cost of preliminary engineering for all improvements on connecting highways; and (d) a portion of costs for improvements on state trunk highways or connecting highways that provide a substantial, direct benefit to a community or its members.

Federal Funding

Federal funds are distributed based on multi-year federal surface transportation authorization acts. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 established federal transportation aid to the states for federal fiscal years (FFY) 1992 to 1997. The surface transportation title, Title I, of the act funds highway-related programs that are generally administered by the Federal Highway Administration (FHWA).

The programs in Title I were restructured by ISTEA. The federal-aid systems (primary, secondary and urban) were eliminated and replaced with the newly-created national highway system, surface transportation program (STP) and congestion mitigation and air quality (CMAQ) improvement program. The existing interstate maintenance and bridge programs were retained. In addition, the act departs from previous federal policy by giving states and local governments more flexibility, expanding the types of projects and activities that are eligible under the programs and requiring states to examine all modes of transportation.

Federal funds are apportioned in categories that give DOT the flexibility to shift these funds among various state programs, within the parameters of the federal act. Since federal appropriations in the state budget process are not controlling, DOT's flexibility in its use of federal funds is further enhanced. Federal funds are provided not only for improvements to state trunk highways, but also for improvements to certain roads under local jurisdiction.

Table 4 provides a history of total federal highway aid received by Wisconsin, including federal aid for state highways and local roads.

TABLE 4: Federal Highway Aid History (In Millions)

Year	Amount
1985	$226
1986	201
1987	197
1988	180
1989	217
1990	221
1991	238
1992	324
1993	305
1994	341
1995	339

■ Major Highway Development

The major highway development program provides for the development and construction of new or significantly altered highway projects. Major highway projects are defined as projects that have an estimated cost exceeding $5,000,000 in current dollars and consist of at least one of the following: (a) construction of a new highway of 2.5 miles or more in length; (b) relocation of 2.5 miles or more of existing roadway; (c) the addition of one or more lanes at least 5 miles in length; or (d) the improvement of 10 miles or more of an existing divided highway to freeway standards. Projects providing an approach to a bridge over a river that forms a boundary of the state are excluded from this definition. All major highway projects must be enumerated in the statutes prior to beginning construction.

Revenue bond proceeds and cash management will fund approximately 64% of major highway project construction in 1993-95, with the remaining 36% being funded with state and federal appropriations.

Major Highway Project Selection Process

The Transportation Projects Commission (TPC) has the responsibility to make recommendations to the Governor and the Legislature on which major highway projects should be constructed. The TPC includes the Governor, who acts as the chairperson, five senators, five representatives, three public members appointed by the Governor and the Secretary of Transportation (a nonvoting member). The process through which the TPC selects projects for construction involves several steps:

1. DOT selects projects for preliminary engineering and environmental study based on its analysis of congestion, safety and public interest as expressed by public hearings conducted by the TPC and through written correspondence.

2. DOT determines if projects should be a candidate for enumeration based on the results of the preliminary engineering and environmental study, public acceptance and cost effectiveness.

3. Projects that DOT determines are candidates for enumeration are presented to the TPC in the spring of even-numbered years. The TPC holds public hearings throughout the state on the candidate projects.

4. DOT must report to the TPC by September 15 of each even-numbered year its recommendation for projects to be enumerated in the next biennial budget. The project recommendations are based on the following weighted criteria: enhances Wisconsin's economy (40%); improves highway safety (20%); improves highway service (20%); minimizes undesirable impacts (10%); and serves community objectives (10%).

5. By December 15 of each even-numbered year, the TPC must submit its recommended list of projects to be enumerated to the Governor and Legislature. The TPC may or may not include the projects recommended by the DOT and may add additional projects. The TPC may designate an otherwise nonqualifying project if it receives a petition for such designation from a city or village for a project that is within its corporate limits and is estimated to cost $2,000,000 or more, provided that the project is not a freeway.

The process was modified to conduct preliminary environmental and engineering studies prior to enumeration beginning in 1992. Previously, the preliminary studies were conducted after the project had been enumerated.

The Governor has the option of adopting the TPC recommendations for enumeration and including them in the executive budget bill or making other recommendations. The Governor has generally included the TPC-recommended projects list without modification. The recommendations for enumeration of the TPC and the Governor are subsequently reviewed by the Legislature as part of the biennial budget process. The Legislature may accept or alter these recommendations. Most projects have been enumerated as originally proposed by the TPC, although there have been limited additions and deletions to the TPC's list.

Projects are generally enumerated six years before construction begins. For example, the projects enumerated in the 1993-95 budget are not likely to be completed until 1999 and beyond. As a result, the enumeration of additional projects primarily facilitates and directs DOT's long-range planning process.

Enumeration gives DOT the authority to build a project, but does not establish a statutory priority or timetable or require a specific design, nor does it require DOT to actually construct the project. Consequently, DOT has the authority to begin an enumerated project either before or after the date indicated in TPC or legislative discussions. Project timetables have been modified to reflect changes in project costs and increases in funding for the major highway program.

On December 13, 1994, the TPC recommended that the following projects be enumerated by the Governor and Legislature: (a) the Eau Claire Freeway project on USH 53; (b) the Belmont to Dodgeville project on USH 151; and (c) the Oconomowoc Bypass project on STH 16/67. All three projects had been recommended for enumeration by DOT.

Corridors 2020

DOT presented a proposal in 1988, called "Corridors 2020," to accelerate the major highway development program. The plan, as modified by the Translinks 21 planning process, proposes a 1,550 mile backbone system of multilaned divided highways and a 2,100 mile connector system of high quality highways (840 multilane miles and 1,260 two-laned miles). Currently, 1,194 miles of the backbone system and 357 miles of the multilaned connector system are complete.

Primary segments noted by the Corridors 2020 plan include: (a) STH 29 from I-94 west of Chippewa Falls to Green Bay; (b) USH 53 from Superior to Eau Claire; (c) USH 151 between the Fox Valley and the southwestern border of the state; (d) USH 141 and USH 41 from the Green Bay area to northeastern Wisconsin; and (e) STH 10 providing an east-west link serving the Fox Cities. In addition to improvements under the major highway development program, the existing highway improvement program would be increased to provide additional passing, climbing and turning lanes, community bypasses and improved signing on current two-lane highways.

The Corridors 2020 concept is to establish continuous, high capacity transportation corridors connecting all regions of the state. Previously, DOT's selection process for potential major highway projects gave priority to highway segments with the greatest need for improvement, which did not necessarily achieve this goal.

Table 5 lists the enumerated major highway projects that have not yet been constructed. The projects are ordered as they appear in the statutes and do not reflect funding or construction scheduling priorities. The construction schedule is based on the current funding level of $161 million per year.

TABLE 5: Enumerated Major Highway Projects Remaining to be Constructed ($ in Millions)

	State Trunk Highway	County	Scheduled Construction	Estimated Cost (1994 Dollars)
Projects Enumerated in 1987				
Lake Arterial Project	794	Milwaukee	1990-1998	$77.7
Projects Enumerated in 1989				
Fort Atkinson Bypass	26	Jefferson	1991-1995	16.7
Wisconsin Rapids to Plover	54	Wood & Portage	1992-1998	39.8
Trego to Solon Springs	53	Douglas & Washburn	1992-1998	44.3
Merrill to CTH S	51	Lincoln	1993-1996	21.2
Chippewa Falls Bypass	29	Chippewa	1996-2001	47.2
Verona Bypass	18/151	Dane	1992-1995	28.5
Burlington to STH 100	36	Racine, Waukesha & Milwaukee	1994-1997	18.6
Projects Enumerated in 1991				
Tomahawk Bypass	51	Lincoln	1998-1999	11.6
Whitewater Bypass	12	Jefferson & Walworth	1997-2000	9.3
STH 142 to STH 11	31	Racine & Kenosha	1995-1999	21.0
I-94 to River Falls	35	St. Croix	1994-1998	13.0
Appleton to Greenville	76	Outagamie	1995-1997	12.0
Lake Geneva to Slades Corners	50	Kenosha & Walworth	1996-1999	28.9
STH 54 to Dickeyville	57	Brown & Kewaunee	1996-2002	23.7
USH 41 to STH 116	110	Winnebago	1996-2000	16.8
Abrams to STH 22	141	Oconto	1996-2002	21.1
STH 145 to Abrams-Freeway Conversion	41	Oconto to Washington	1993-2001	149.2
Projects Enumerated in 1993				
Janesville Bypass	11	Rock	1998-2001	13.4
Sauk City to Madison	12	Dane	1997-2003	53.7
Marshfield Mobility Study	13	Study	1995-2001	29.2
Houlton to New Richmond	64	St. Croix	1997-2002	65.2
Fond du Lac Bypass	151	Fond du Lac	1998-2003	41.8
Random Lake to IH 43	57	Sheboygan	2000-2001	12.6
Enumerated Corridor 2020 Projects				
Beaver Dam to Fond du Lac	151	Dodge & Fond du Lac	1992-2003	68.6
Green Bay to I-94	29	Brown to Dunn	1992-2002	338.7
Appleton to Marshfield	10	Wood to Outagamie	1992-2005	119.9
Total				$1,343.7

■ Existing Highway Improvement Program -- The 3R Program

One of the principal goals of the state trunk highway program is the preservation and improvement of the existing state trunk highway system. DOT addresses this goal through the existing highway improvement program. This program includes all improvement projects undertaken on the state trunk highway and connecting highway systems, excluding the interstate system and major highway development projects. The existing highway improvement program funds a number of activities: (a) additions or deletions to the state trunk highway system through jurisdictional transfer agreements with local governments; (b) improvements to permanent weigh scale facilities; (c) construction of rest area projects; (d) the allocation of hazard elimination funds for safety improvement projects; and (e) three surface improvement activities (resurfacing, reconditioning and reconstruction).

It is the surface improvement activities that give this program its more common name, the "3R" program. These activities are described below.

1. **Resurfacing** means placing a new surface on existing pavement to provide a better all weather surface and a better riding surface, and to extend or renew the pavement life. It generally involves no improvement in capacity or geometrics (roadway characteristics such as road width and the number and severity of roadway curves and hills). Resurfacing may include some elimination or shielding of roadside obstacles, culvert replacements, installation of signals, marking signs and intersection improvements. Usually, no additional right-of-way acquisition is required, except possible minor acquisition for drainage and intersection improvements.

2. **Reconditioning** refers to work in addition to resurfacing. Minor reconditioning includes pavement widening and shoulder paving. Major reconditioning includes the improvement of an isolated grade, curve, intersection or sight distance problem to improve safety. Major reconditioning projects may require additional acquisition of land for right-of-way.

3. **Reconstruction** means the total rebuilding of an existing highway to improve maintainability, safety, geometrics and traffic service. It is accomplished basically on the existing road alignment. Major elements may include flattening of hills and grades, improvement of curves, widening of the roadbed and elimination or shielding of roadside obstacles. Normally, reconstruction would require additional acquisition of right-of-way.

Table 6 is a summary of the distribution of funding and miles among the surface improvement activities for 1994 and 1995. This does not include other activities funded under the existing highway improvement program.

TABLE 6: Surface Improvement Activities - 1994 and 1995 ($ in Millions)

Activity	Funding		Miles	
	Amount	% of Total	Number	% of Total
Resurfacing	$23.1	5.9%	117.7	15.0%
Minor Reconditioning	88.8	22.6	388.5	49.7
Major Reconditioning	86.9	22.2	147.8	18.9
Reconstruction	193.3	49.3	128.4	16.4
Total	$392.1	100.0%	782.4	100.0%

Over the years, the mix of resurfacing, reconditioning and reconstruction projects has varied. In the past, lower level improvements, such as resurfacing and minor reconditioning, were emphasized. More recently, the emphasis has shifted to higher levels of improvements, such as reconstruction and major reconditioning. This shift in emphasis began in the 1983-85 biennium and is continued in the 1993-95 biennium. The shift towards higher levels of improvements is intended to provide a gradual improvement in the overall quality of the state highway system.

The selection of specific projects is based on an evaluation process that incorporates variables such as surface pavement condition, the number and severity of hills and curves, accident numbers and rates, and traffic congestion. This process, which is also used in preparation of the six-year highway plan, allows DOT to identify existing conditions and improvement needs.

■ State Bridge Improvement Program

The state bridge improvement program provides funding for the replacement or rehabilitation of deficient bridges on the state trunk highway system, excluding interstate bridges. Currently, 862 of the 3,596 non-interstate bridges have structural or operational deficiencies, or both, and are eligible for replacement or rehabilitation based on federal standards. Bridge deficiencies may include: (a) structurally deficient bridges; (b) functionally obsolete bridges, characterized by narrow roadways, restricted clearances or poor alignment; and (c) bridges that have load capacity restrictions. To monitor bridge conditions and to assist in assessing deficiencies, DOT maintains a computer-based bridge appraisal system. This system is developed from annual bridge field inspections and central office appraisal of the inspection results.

Not all bridge improvement activities are conducted through the state bridge program. State bridge rehabilitations under $400,000 in cost, which typically involve new deck overlays or deck replacements, are currently carried out in conjunction with the "3R" program.

In addition to the normal bridge replacement activities, DOT maintains a listing of large deteriorating bridges that, due to their high replacement or rehabilitation cost, are not addressed through the regular programming process. High-cost bridges are bridges with a deck area greater than 40,000 square feet. High-cost bridges are treated separately to avoid reducing the efforts to improve lower-cost, deteriorating bridges. DOT has identified 29 high-cost bridges with severe deficiencies that are scheduled for improvement over a six-year period. Table 7 lists these bridges.

TABLE 7: High-Cost Bridges - 1996-2001 Six-Year Improvement Program ($ in Millions)

County	Highway	Bridge	Estimated Cost (1994 Dollars)	Scheduled Beginning Construction Date
Milwaukee	32	Milwaukee River Bridge	$7.7	1996
Milwaukee	18	State Street	4.9	1996
Rock	81	Rock River, Beloit	3.4	1996
Chippewa	29	River Street	0.4	1996
Lincoln	51	Center Avenue Bridge	2.6	1996
Eau Claire	10	Short Street, Eau Claire	2.1	1996
Marathon	52	Fall Bridge, Wausau	2.7	1996
St. Croix	64	Stillwater	36.1	1997
Crawford	61	Boscobel Bridge	3.4	1998
Outagamie	55	Fox River	2.2	1998
Columbia	51	Soo Line Underpass, Portage	3.2	1999
Brown	141	Main Street, Green Bay	18.4	1999
Columbia	113	Merrimac Bridge	6.0	2000
Jefferson	18	Rock River, Jefferson	3.4	2000
Portage	10	Clark Street, Stevens Point	2.5	2000
La Crosse	14	Cass Street, La Crosse	22.5	2000
Dane/Sauk	12	Wisconsin River, Sauk City	3.5	2001
Sauk	12	Baraboo River, Baraboo	2.6	2001
Pepin	10	Durand	2.8	2001
Outagamie	N	Fox River, Kimberly	4.6	2001
Milwaukee	32	RR Bridges, Kinnickinnic Ave.	5.0	2001
Shawano	29	Wolf River, Shawano	2.2	2001
Manitowoc	42	Twin River	1.7	2001
Door	Local	Michigan St., Sturgeon Bay	21.0	2002
Milwaukee	145	Park Freeway (eastbound)	7.0	2004
Milwaukee	32	Amtrak RR Bridge, 1st St.	24.0	2004
Marinette	41	Menominee River, Marinette	4.4	2005
Eau Claire	53	Eau Claire River	3.0	2005
Brown	32	Fox River, De Pere	10.0	2006

■ Interstate Construction and Rehabilitation

Wisconsin's portion of the National Interstate Highway System, which was primarily built during the 1950s and 1960s, includes 640 miles of highway and 1,368 bridges. The interstate construction and rehabilitation program uses federal aid, in conjunction with state matching funds, to address the reconstruction and maintenance needs of this aging system. Although federal funds require a 10% state match, a 15% state share is maintained due to items that do not qualify for federal funding. For example, work completed at the point where a state highway meets an interstate is ineligible for full federal funding.

There are three federal interstate programs (interstate construction, substitution and maintenance). Funding under the interstate construction and interstate substitution programs is based on an estimated cost to complete the system. Prior to 1990, Wisconsin had no remaining eligible costs and could not participate in these programs. However, in 1990, the Federal Highway Administration prepared a final estimate of all remaining costs. As a result of that process, Wisconsin regained eligibility to receive funding for a transitway project along Interstate 94 west of Milwaukee. The federal ISTEA of 1991 includes a provision that allows Wisconsin to substitute a highway, bus transit or light rail transit project, or a combination of projects, in Milwaukee and Waukesha Counties. To use this provision, the project must be in the preliminary engineering phase by December 18, 1995.

The interstate maintenance program finances rehabilitation, restoration and resurfacing projects on the interstate system. Funding for interstate maintenance is based on lane miles and vehicle miles travelled.

■ Maintenance Programs

Although federal funds are available for a variety of highway construction and improvement activities, state trunk highway maintenance is funded almost entirely from state revenues. In the 1993-95 biennium, funding for the highway maintenance, repair and traffic operations programs totals approximately 37% of state funds appropriated for the state trunk highway program.

Currently, the maintenance programs are divided into two program areas: (a) highway maintenance; and (b) highway traffic operations. Each is described below.

Highway Maintenance

The majority of state trunk highway maintenance activities are performed by county workforces under contract with the state. This work sharing agreement, which is a relatively unusual concept among the states, has been in existence for a number of years. Generally, the

counties perform the actual maintenance activities and DOT (primarily through the district offices) oversees their work and sets statewide maintenance policies.

Two areas of general maintenance are performed primarily by private contractors: (a) vegetation management, including plantings, inventory and the spraying of herbicides along roadsides; and (b) the maintenance of year-round rest areas by disabled citizens participating in sheltered workshops. Private contractors are also used, when considered appropriate by DOT, for maintenance activities that are site-specific or involve more than routine maintenance. Those types of projects are generally referred to as "special" maintenance.

Highway maintenance can be broken down into three program activities:

General Maintenance

These activities include the following, which involve the daily repair and upkeep of state trunk highways:

- mowing and weed control, brush and tree removal, trash pickup and recycling;
- maintenance of rest areas, tourist information centers, waysides, scenic overlooks and historical markers, including parking, picnic and toilet facility improvements;
- surface, base and shoulder repair;
- minor bridge repair;
- plantings and landscaping in rest areas and other areas;
- emergency repairs and accident cleanup;
- drainage, culvert landscaping, erosion control measures and guard fence repairs;
- lift bridge and ferry operation; and
- repair of damaged traffic signs.

Winter Maintenance

These activities involve the maintenance and upkeep of state trunk highways during the winter season. The principal activities performed under this program are snowplowing, drift control and application of de-icers. As with general maintenance activities, winter maintenance activities are performed almost entirely by county workforces under contract with the state.

Special Maintenance

These activities involve work that is generally site-specific and not a routine operating maintenance activity. This includes minor resurfacing projects and repairs that tend to fall in between routine maintenance and improvement. While a portion of this work is accomplished by county forces within the highway maintenance program, the majority of these projects are

performed by private contract in the "3R" program and are funded through the state highway rehabilitation appropriation.

Counties are reimbursed for state maintenance work based on three criteria: (a) county labor costs; (b) county machinery costs; and (c) materials supplied by the county. Counties are reimbursed for actual hours spent on state trunk highways as determined by time records. Reimbursements are based on each county's employe wage rates, rather than using a statewide average. Due to variable county labor contracts, some counties receive a higher hourly reimbursement rate than others.

County machinery cost reimbursements are determined on a more centralized basis through the execution of annual machinery cost contracts with each county. Each year, statewide reimbursement rates for individual pieces of machinery and equipment are determined based on past trends and projected future inflation rates. The annual machinery contracts, which contain nearly 150 separate reimbursement classes of machinery and equipment, also contain an adjustment clause to reflect higher shop labor costs for certain counties.

The use of county workforces, machinery and materials for the maintenance of state trunk highways constitutes only a portion of total county highway activities. The majority of county highway workforce efforts are spent on the maintenance and improvement of county and other local roadways.

Other maintenance program costs include contract costs and the cost of state-furnished materials. Contract costs are incurred through the utilization of private service or construction firms to do certain maintenance activities not performed by county workforces. State-furnished material costs include those items purchased by the state in bulk quantities and provided to the counties, such as de-icing agents.

Highway Traffic Operations

Unlike the highway maintenance program, the majority of work in the highway traffic operations program is conducted by DOT staff. This program funds the installation of traffic control and safety devices designed to enhance the orderly and efficient flow of vehicles on existing state trunk highways. Highway traffic operation functions include: (a) pavement marking activities, such as centerline and edge line painting, channelization lines, stop lines, curb and crosswalk lines, aerial bars, parking stalls, and symbols and word messages; (b) highway signing activities, including making most highway signs and a portion of their maintenance and replacement; (c) traffic signalization activities, which include traffic control signal installations, rumble strips, break-away sign supports and flashing beacons; and (d) highway lighting activities.

For some traffic operations purposes, DOT utilizes private contractors rather than its own staff. For example, the specific information sign program is conducted by a private contractor, including program administration, sign construction and sign maintenance.

■ Administration and Planning

The administration and planning appropriations fund the operations of the DOT's highway division. In particular, the salaries and related expenses of the Division's upper level administrators, clerical staff and planning and research positions are funded through this appropriation. This appropriation also funds all permanent property expenditures in the state trunk highway program.