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State Trunk Highway Program

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Prepared by

Peter Mosher

Wisconsin Legislative Fiscal Bureau
One East Main, Suite 301
Madison, WI 53703
http://legis.wisconsin.gov/lfb

State Trunk Highway Program

The Department of Transportation's (DOT) state trunk highway program is responsible for the construction, improvement, and maintenance of the state's 11,213-mile trunk highway system and for improvement on 537 miles of connecting highways under local jurisdiction. This paper provides an overview of the structure and scope of the program, describes its administration within DOT, details the main program components, and describes the program's financing.

Overview

The responsibility for roads and highways is divided between local governments and the state. The state generally has jurisdiction over arterial roads, which function as corridors for interstate and inter-regional travel. This network is called the state trunk highway system, which includes highways marked as state trunk highways (STH), U.S. highways (USH), and the interstate highway system. Generally, counties are responsible for collector roads, which serve short distance, intra-regional traffic or provide connections between arterial roads and local roads. Municipalities (including towns) are responsible for local roads, such as residential streets and town roads, which provide property access and short distance, local mobility services. Certain municipalities also have arterial streets under their jurisdiction that are marked as state highways, which are designated as connecting highways.

Jurisdiction does not always follow this functional classification. For instance, a county road can begin to function as an arterial highway if traffic patterns change. However, current DOT policy is to align jurisdictional responsibilities with functional classifications whenever possible.

Table 1 depicts the distribution of centerline miles of roads by current jurisdictional responsibility for 2022. Although state trunk highways and connecting highways together comprise only 10.2% of total road mileage, they carry 55.9% of the total traffic volume. Of the 11,213 miles of state trunk highways (excluding connecting highways), 85.4% are outside municipal limits and 14.6% are within incorporated areas.

Table 1: Centerline Road Miles by Jurisdiction

Jurisdiction	Miles	% of Total [1]
State Trunk Highways [2]	11,213	9.7%
Connecting Highways	537	0.5
County Trunk Highways	19,717	17.1
Town Roads	61,471	53.2
Municipal Streets [3]	20,973	18.1
Other Roads [4]	1,771	1.5
Total	115,682	100.0%

[1] Percent total does not add due to rounding.
[2] This system includes 879 miles of interstate highway.
[3] Excludes connecting highways.
[4] Includes park and forest roads and county roads not on the county trunk highway system.

In 2021, the state experienced an estimated 65.0 billion vehicle miles of travel (VMT) on this system. In the 10 years before the COVID-19 pandemic, statewide VMT had increased by an average annual growth rate of 1.3%: from 58.2 billion in 2009 to an all-time high of 66.3 billion in 2019. In 2020, following the onset of the pandemic, VMT declined to 57.6 billion. In 2021, however, VMT rebounded to nearly reach its pre-pandemic level.

Structure of the Program and Its Organization within the Department

The state highway program is often subdivided into two main components: (a) the state highway improvement program (which includes the state highway rehabilitation; major highway development; southeast Wisconsin freeway megaprojects; the major interstate bridge improvement program; and the high-cost bridge program); and (b) state highway maintenance activities (which includes routine maintenance and traffic operations-related activities). State highway improvement projects tend to be major, capital-intensive construction projects that require significant planning and time to complete, whereas maintenance activities are generally frequent, of a shorter duration, and do not involve major construction. This paper provides an overview of these state highway program components, as well as information regarding the funding mechanisms and use of funds within these programs over time.

The administration of the state highway program is shared between the Department of Transportation's Division of Transportation System Development and its Division of Transportation Investment Management. The Division of Transportation System Development is responsible for establishing standards for construction and for the execution of the actual design and construction of projects, while the Division of Transportation Investment Management is responsible for statewide planning and the financial management of the program. [Both divisions also have responsibilities related to the state's administration of non-state-highway (local road, rail, harbor, aeronautics, and other multimodal) transportation projects.]

While the Division of Transportation Investment Management is housed in the Department's central office in Madison, the Division of Transportation System Development has staff in both the central office and in regional offices in different locations throughout the state. For the purposes of administering the highway program (as well as other DOT programs), the state is divided into five regions. This five-region system replaced a previous, eight-district system in 2005, although the Department maintains administrative offices in all of the former district headquarters cities (Eau Claire, Green Bay, La Crosse, Madison, Rhinelander, Superior, Waukesha, and Wisconsin Rapids).

The five regions and the counties in each region are shown below.

- **North Central Region:** Adams, Florence, Forest, Green Lake, Iron, Langlade, Lincoln, Marathon, Marquette, Menominee, Oneida, Portage, Price, Shawano, Vilas, Waupaca, Waushara, and Wood

- **Northeast Region:** Brown, Calumet, Door, Fond du Lac, Kewaunee, Manitowoc, Marinette, Oconto, Outagamie, Sheboygan, and Winnebago

- **Northwest Region:** Ashland, Barron, Bayfield, Buffalo, Burnett, Chippewa, Clark, Douglas, Dunn, Eau Claire, Jackson, Pepin, Pierce, Polk, Rusk, Sawyer, St. Croix, Taylor, Trempealeau, and Washburn

- **Southeast Region:** Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha

- **Southwest Region:** Columbia, Crawford, Dane, Dodge, Grant, Green, Iowa, Jefferson, Juneau, La Crosse, Lafayette, Monroe, Richland, Rock, Sauk, and Vernon

State Highway Improvement Program Development

The Department's development process for the state highway improvement program can be

divided into four stages: planning, programming, design, and construction.

Planning

Planning involves both the identification of long-term transportation needs and goals and the monitoring of conditions, such as pavement condition, traffic patterns, and safety. Within the Department, the planning function is shared between the Division of Transportation Investment Management and the regional offices.

In order to be eligible for federal transportation aid, the state must have a long-range transportation plan covering a period of at least 20 years that outlines the state's broad policy goals for transportation and that establishes performance goals for the highway system. In developing a transportation plan, DOT must consider a range of planning factors, which are listed in federal law. For instance, the plan must aim to promote economic vitality, safety, system preservation, transportation system security, and the accessibility and mobility of people and freight. It must also seek to protect the environment and promote energy efficiency and the connectivity between different transportation modes. In addition to the requirements that are included in federal transportation law, the federal Clean Air Act requires DOT's transportation plan to be coordinated with the state's air quality implementation plan, developed by the Department of Natural Resources, which designates how the state intends to control emissions of pollutants in ozone nonattainment areas.

In addition, as a condition of using federal transportation aid, DOT must consult with the state's metropolitan planning organizations (MPOs) in developing the statewide plan. Federal law requires each metropolitan area with a population greater than 50,000 to have a designated MPO representing local governments. Each MPO develops a metropolitan transportation plan in consultation with local governments in the region.

DOT's current, long-range transportation plan, entitled "Connect 2050", addresses all transportation modes, including state highways. The report establishes eight policy goals and 35 related objectives designed to guide future decisions. Those objectives are organized around the following eight goals: (a) pursue sustainable long-term transportation funding; (b) focus on partnerships; (c) pursue continuous improvement and expand data-driven decision-making processes; (d) increase options, connections, and mobility for people and goods; (e) maximize technology benefits; (f) maximize transportation safety; (g) maximize transportation system resiliency and reliability; and (h) balance transportation needs with those of the natural environment, socioeconomic, historic, and cultural resources. The plan includes several objectives that relate to the state trunk highway system, including objectives for using cost-effective techniques to maximize transportation investments, ensuring the transportation system can adapt to changes such as connected and automated vehicles and use of alternative fuels, and progressing towards the goal of zero traffic fatalities in Wisconsin.

In addition to the long-range transportation plan, federal regulations also require the state to develop a transportation asset management plan (TAMP), which summarizes DOT's strategy for the ensuing 10 years to keep the state's portion of the National Highway System safe, efficient and in a state of good repair. The TAMP outlines strategies for the cost-effective investment of Department resources into transportation assets such as roads and bridges, based on analysis of road and bridge condition data and projections of funding availability. While the strategies contained in the plan apply to all DOT programs, the plan specifically pertains to the state's portion of the National Highway System.

In addition, as part of its previous long-range transportation plan (Connections 2030), DOT identified the Corridors 2030 highway system. First designated as Corridors 2020 in 1988 and

updated as part of Connections 2030 in 2009, Corridors 2030 is a state designation of critical highways statewide. These highways encompass approximately 3,930 centerline miles of federal and state highways that link all Wisconsin communities with populations greater than 5,000. DOT classifies these roads as vital to mobility and economic development in the state. The Corridors 2030 system is divided into two route types: the backbone system and the connector system.

The backbone system includes approximately 1,590 miles of multilane interstate, US, and state highways that connect the major regions and economic centers of the state, as well as to the national highway system outside of Wisconsin. Primary routes include: I-39, I-41, I-43, I-90, and I-94; USH 10, USH 14 from I-43 to I-90, USH 41, USH 45 between USH 10 and USH 41, USH 51, USH 53, and USH 151; and STH 29. The connector system consists of approximately 2,340 miles of highway linking significant economic and tourism centers to the backbone system. Most of this system consists of two-lane highways.

Programming

The programming stage involves selecting and scheduling improvement projects based on available funding and policy priorities. In developing this schedule, decisions must be made on which projects should be given highest priority, relying, in part, on the adopted long-range transportation plan, which outlines the broad policy goals of the highway program. In addition, DOT hosts public meetings where DOT regional staff describe potential projects, including their goals and the need for the projects. At these meetings, citizens who live in the areas affected by the project are able to ask questions of DOT staff.

The task of programming projects is either done by staff in the transportation regions or by DOT central office staff, depending upon the type of project. Major highway development projects, large or costly bridge projects, and rehabilitation of multi-lane highways outside of DOT's Southeast Region are programmed by the central office, while other rehabilitation projects are programmed by the regional transportation offices. The portion of the rehabilitation budget that is reserved for the more routine highway and bridge projects is allocated to the regions based on an estimate of the total rehabilitation needs within each region. Regional offices develop project schedules based on the amount allocated to the region. Although there is some central oversight of this process, the regions are given considerable discretion in choosing which projects to put into the schedule.

Since the number of major highway development projects and larger highway and bridge rehabilitation projects may vary considerably from year to year within a given region, these projects are scheduled by the central office. As a result, regions are not forced to exhaust their allocations on large projects and thereby neglect routine rehabilitation needs.

The DOT central office, in consultation with the regional offices, compiles program schedules for the following six years for the highway improvements programs into a comprehensive, six-year program. The six-year program, which is updated periodically based on changes in funding and in the plans for individual projects, provides a listing of all anticipated projects that indicates the type of project, the location, estimated cost, and scheduled construction date. The first two years of the six-year program are based on funding levels provided by the most recent biennial budget. The other years are generally based on this funding level, although the schedule for projects in the later years is more likely to change, since funding levels may be changed in subsequent biennial budgets.

In addition to this six-year program, federal regulations require the state to develop a statewide transportation improvement program (STIP) each year. The STIP contains a four-year prioritized

listing of highway and transit projects, including both capital and non-capital projects that are federally funded or considered regionally significant.

Design

The design process typically begins several years in advance of actual construction. For major highway projects, the design stage may take eight to 10 years, beginning with concept development. Simple resurfacing projects may take one to two years. In part, the length of the design process is dictated by the amount of data that must be collected to complete required environmental reviews and to create the detailed plans for construction. Furthermore, because highway construction affects private landowners as well as the driving public, the Department uses an extensive public involvement process to receive and respond to multiple concerns regarding proposed projects. In addition, the highway engineers must have detailed information on such things as the quality and type of soil, the physical terrain, and drainage patterns in order to put together the design proposal, which is eventually used to put the project up for bidding.

In addition to the design work that is directly related to the construction of the highway, there are numerous other preconstruction activities that lengthen the process. For instance, the Department frequently must purchase land for the construction of a new highway or the expansion of an existing highway. This requires negotiation with affected landowners.

For many highway projects the design stage includes environmental studies and mitigation. If an initial environmental assessment on a project determines that the impacts of the project on the environment could be significant, federal and state laws require the Department to prepare (or to contract for the preparation of) an environmental impact statement. Because projects can harm or destroy wetlands or other sensitive wildlife habitat, the anticipated consequences of a project must be reported in advance of that project's construction. In response to these expected impacts, the Department must plan to restore or create wetlands to replace those destroyed by the highway project. With regard to project alternatives, environmental impact statements must also forecast impacts on certain social and economic groups, residential and commercial development, and historically or archaeologically significant sites. When possible, the Department must also respond to these impacts. At the end of this process, these impact statements and the mitigation plans must be formally approved by the federal government, which can increase the amount of time required to complete the design phase.

Funding for the design process is provided within the appropriations for the corresponding programs. Typically, the cost of highway project design is approximately 5% to 15% of the cost of construction. The design function is carried out by a combination of DOT staff (both in the Division of Transportation Investment Management and the regional offices) and private firms.

For the state highway rehabilitation and major highway development components of the highway improvement program, DOT is required to maintain an inventory of completed highway project designs with estimated construction costs equal to or greater than 30% of the annual funding provided for each program. This requirement can enable the Department to quickly increase construction activity in response to a sudden increase in funding, such as was provided by the federal Infrastructure Investment and Jobs Act in 2021-22.

Construction

The construction stage involves the preparation of projects for bidding and the oversight of the construction work done by contractors. The preparation of bids is done within DOT's central office, while the management of project construction is done by staff in the regional transportation offices.

Projects are put up for bidding every month, generally on the second Tuesday. Although project bidding is spread throughout the year, the busiest months are in the winter and early spring, which allows the largest projects to begin early in the construction season.

The preparation of a project for bidding starts when a design is completed by regional office personnel or an engineering consultant. DOT central office staff reviews the completed project design to ensure that all of its elements are consistent with state standards and then, from the design, develops a project proposal. The proposal contains estimates of the amount and type of work needed to complete the project. For instance, the proposal may provide an estimate of the amount of excavation or crushed rock needed, typically expressed in cubic meters or cubic yards.

Once the proposals have been completed, the project is advertised, which occurs about five weeks in advance of the bidding date. Contractors interested in a making a bid on a project request a copy of the proposal from the Department. The bids are submitted on a cost-per-unit basis. That is, contractors estimate how much it would cost them to deliver one unit of every item in the proposal. Once the bids are received, the unit prices are multiplied by the estimated quantities and then totaled to arrive at the final bid price. If there are no irregularities in the submitted bids, the firm with the lowest bid receives the contract.

Once construction begins, a project manager monitors the work done by the contractor. Project managers may be DOT staff from the regional office or engineering consultants hired by the Department. Project oversight typically involves the monitoring of construction materials and techniques for quality and may involve making minor modifications to the design of the project to account for unanticipated contingencies. For some projects, the extent of DOT monitoring may be limited because the contracts contain warranty provisions that require the contractor to repair any defects that appear within a specified number of years after the completion of the construction.

Project Schedules and Cost Estimates

The Department is required to periodically provide a public schedule and cost estimate for state highway improvement projects. Cost estimates cited reflect the Department's most recent, public estimate.

DOT bases state highway project cost and completion estimates on calculations of material and labor quantities, assessments of project risks (such as design or staging complexity), and construction market trends (such as inflation or deflation). Other factors during the planning, programming, design, and construction processes may also affect the schedules, costs, and completion of state highway projects. These factors include: (a) discovery of previously unknown project characteristics (such as unexpected environmental conditions); (b) the level of program funding provided over time; (c) changes in an administration's or the Legislature's highway program or project priorities; (d) changing federal laws or priorities; (e) departmental decisions to increase or decrease project scope; and (f) litigation related to a project.

State Highway Rehabilitation Program

The 2021-23 budget provided a total of $2,068.1 million ($1,118.0 million in state funds and $950.1 million in federal funds) for the state highway rehabilitation program in the biennium. Subsequently, the program was provided an additional $123.6 million in 2021-22 in federal funding appropriations to fund program levels authorized under the federal Infrastructure Investment and Jobs Act (IIJA). [See later discussion on IIJA in the "Federal Funding" subsection].

DOT distributes funding in the state highway rehabilitation program between three subprograms: (1) existing highway improvement; (2) backbone rehabilitation; and (3) state bridges. The purpose of each of these subprograms is to preserve and to make limited improvements on the state highway system. In addition, the program provides funding for preventative maintenance activities on certain bridges and pavements. [See more detail on maintenance programs in the "State Highway Maintenance Activities" section.]

Existing Highway Improvement and Backbone Rehabilitation

The existing highway and backbone rehabilitation components of the rehabilitation program are responsible for highway surface improvement projects. The existing highway component is responsible for projects on state highways that are not Corridors 2030 backbone routes. These projects are programmed by regions using funds set aside for each regional office by the central office from within the program. Backbone highways, including interstate highways, are typically more expensive to rehabilitate, so these projects are programmed by the central office, in consultation with the regional offices. However, rehabilitation of southeast Wisconsin freeways has generally been managed by the Department's southeast region. Between 2001 and 2011, all southeast freeway projects were done under the southeast Wisconsin freeway rehabilitation program, separate from the state highway rehabilitation program. With the creation of the southeast Wisconsin freeway megaprojects program in the 2011-13 budget act, the more routine southeast freeway projects, such as interstate resurfacing, again became the responsibility of the state highway rehabilitation program.

Highway rehabilitation projects can generally be divided into three main types: resurfacing, reconditioning (further classified as major or minor), and reconstruction. These types of rehabilitation projects are described below.

Resurfacing means placing a new surface on existing pavement to provide a better-riding, all-weather surface, and to extend or renew the life of the pavement. It generally does not involve improvement in traffic 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, the acquisition of additional right-of-way is not required, except possibly minor acquisition for drainage and intersection improvements.

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 the acquisition of additional land for right-of-way.

Reconstruction means the total rebuilding of an existing highway to improve maintainability, safety, geometrics, and traffic service. 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.

DOT also uses a special classification of reconstruction called pavement replacement. This type of project, like all reconstruction projects, involves the complete rebuilding of the roadway pavement and base. However, pavement replacement generally does not involve changes in the road alignment and does not require additional right-of-way. This type of project is done where an existing pavement and base have deteriorated to the point of needing replacement, but where the road was originally built to high standards, and

thus does not need geometric improvements. This is commonly the case on rural interstate highways.

The selection of specific projects is based on an evaluation of 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 program, allows DOT to identify existing conditions and improvement needs.

In addition to these main highway rehabilitation types, the existing highway and backbone rehabilitation components of the rehabilitation program fund a number of other activities, including: (a) preventative pavement maintenance work that is less extensive than full resurfacing, but more extensive than the pavement repair normally done in the maintenance component of the highway program; (b) additions or deletions to the state trunk highway system through jurisdictional transfer agreements with local governments; (c) improvements to permanent weigh scale facilities; (d) construction projects at rest areas; (e) hazard elimination safety projects; (f) noise barriers; and (g) wetland mitigation projects.

State Highway Bridges

State highway bridge improvement projects are funded under different programs, depending upon their location and scope. The state bridges component of the state highway rehabilitation program is responsible for bridge projects that are not on backbone highways (which are funded from the backbone rehabilitation component) and are not classified as a major interstate highway bridge or a high-cost bridge project under the statutory definitions for those programs.

Within the bridge program component, bridges are divided between routine projects and "large" bridge projects (distinct from the high-cost bridge and major interstate bridge programs described in the subsequent sections). Most bridge projects fall into the first category, which are programmed by regional offices using regional allocation funds. DOT allocates funds to the regions for both the bridge and existing highway rehabilitation components of the rehabilitation program, but these sources are combined, so regions can program any mix of bridge and highway projects.

Large bridge rehabilitation projects are programmed by the central office in order to avoid reducing the efforts by the regional offices to improve lower-cost, deteriorating bridges. Large bridges in the state highway rehabilitation program are bridges with a deck area greater than 40,000 square feet. Table 2 lists the large bridge rehabilitation projects that DOT anticipates begging to construct between 2022 and 2030 from the state highway rehabilitation program.

In 2022, DOT announced that it would apply for $100 million in federal grant funding alongside the Iowa Department of Transportation for the replacement of the Mississippi River Bridge near De

Table 2: Large Bridge Rehabilitation Projects Scheduled Between 2022 and 2030 ($ in Millions)

County	Highway	Bridge	Completion Year	Remaining/Total Cost (2022 Dollars)
Crawford*	STH 82	Mississippi River Bridge, De Soto	2027	$67.3
Brown	STH 54	Mason Street Bridge, Green Bay (Rehabilitation)	2027	7.4
Winnebago	Jackson St.	Fox River Bridge, Oshkosh	2029	40.9
Brown	STH 54	Mason Street Bridge, Green Bay (Reconstruction)	2032	80.0

*This bridge spans the Mississippi River into Allamakee County, Iowa. Total costs of this project are estimated at $134.5 million. Half of the costs are to be paid by the Iowa Department of Transportation, which is the lead agency for this project.

Soto, which is jointly owned and maintained by the two states. The total cost of this project is estimated to be $134.5 million, with Wisconsin responsible for $67.3 million of the cost.

In previous years, the Department had also programmed the state highway 130 bridge over the Wisconsin River outside Lone Rock in Richland County as a large bridge project, to be completed by 2026. However, more recently the Department has chosen to fund this as a state highway rehabilitation project under the newly-created design-build program (see later section on the design-build program for further details).

To monitor bridge conditions and to assist in assessing deficiencies, DOT maintains a bridge appraisal system. This system is developed from bridge field inspections and central office appraisal of the inspection results. 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.

Major Highway Development

In 2021-23, a total of $565.6 million ($50.2 million in state funds, $149.0 million in transportation revenue bonds, $20.8 million of which was in existing transportation revenue bond proceeds, and $366.4 million in federal funds) was provided for the major highway development program.

The major highway development program provides for the development and construction of new or significantly altered highway projects. A major highway project is defined as any project (with certain exclusions, described below) that either: (1) has a total cost in excess of $123,700,000 (in 2022 dollars); or (2) has a total cost in excess of $49,500,000 (in 2022 dollars) and expands capacity in at least one of the following ways: (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) addition of one or more lanes at least five miles in length; or (d) improvement of 10 miles or more of an existing divided highway to freeway standards. The cost thresholds are annually indexed to the cost of construction inflation.

Projects that meet either of these definitions are, nevertheless, excluded from the definition of a major highway project if: (1) the project meets the definition of a southeast Wisconsin freeway megaproject; (2) the project involves an approach to a bridge over a river that forms a boundary of the state; or (3) the project meets the statutory definition of a high-cost bridge project or of a major interstate (across state lines) bridge project. The criteria for southeast Wisconsin freeway megaprojects and projects in the two bridge programs are described in separate sections later in this paper.

Major Highway Project Selection Process

The process for selecting projects for the major highway development program involves the Legislature to a greater extent than other highway projects, although this process differs for different types of major highway projects. In order to assist in this process, the Transportation Projects Commission (TPC) was created to review proposals for major projects and make recommendations to the Governor and Legislature as to which ones should be enumerated. 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).

A project that meets the capacity expansion threshold in the major highway project definition must be individually enumerated in the statutes before the Department can proceed with construction, although some engineering and design work

may be performed prior to enumeration. Although enumeration is accomplished through an enactment of legislation, a statutory provision prohibits the enumeration of a project unless the TPC has recommended the project for approval.

A project that does not meet the major highway project capacity expansion thresholds, but is considered a major highway project because it exceeds the $123.7 million cost threshold does not need to be individually enumerated in the statutes. Instead, DOT may proceed with construction on this type of project once the TPC has approved the project, upon request of the Department. In addition, TPC approval is required before DOT can start an environmental impact statement (EIS) or environmental assessment (EA) on a project.

The TPC may also designate an otherwise nonqualifying state highway 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 million or more, provided that the project is not a freeway. No projects have been approved by the TPC under this provision.

The Department is required to assist the TPC in the performance of its duties. Under 2017 Act 247, whenever DOT produces a project cost estimate in assisting the TPC, it must include all costs associated with that project, including the costs before enumeration, design engineering and construction engineering costs, the costs of environmental studies, and costs of the project that are paid by another program of the Department. Such estimates must also include the expected date of completion and an estimate of the effects of construction cost inflation and unexpected costs on the cost of the project.

The Department is also required to publish a biannual report that updates the estimated cost and schedule of each enumerated project, as well an explanation of any changes to these measures. The Department is specifically required to provide copies of this report to: (a) the TPC; (b) the Joint Committee on Finance; (c) the Joint Legislative Audit Committee; and (d) the standing committees of the Legislature with jurisdiction over transportation matters.

The statutes set the procedure for the review and recommendation of capacity expansion projects by the TPC, as follows:

1. By October 15 of odd-numbered years, DOT presents a list of potential capacity expansion projects to the TPC that are considered to be good candidates for proceeding with an EIS or EA, and a list of projects for which an EIS or EA is complete or nearly complete that may be considered at a later date for recommendation for enumeration.

2. By March 15 of the following year (even-numbered year), DOT makes a recommendation to the TPC as to which projects should be allowed to proceed to the EIS or EA stage.

3. By April 15 of even-numbered years, the TPC approves a list of projects that may proceed to the EIS or EA stage. Because of the time needed to complete an environmental study, the projects approved for a study at this stage will be considered for enumeration in future biennial cycles.

4. By September 15 of even-numbered years, DOT submits to the TPC a recommendation of projects to be enumerated. The environmental study must be completed and approved by the Federal Highway Administration prior to recommendation. In some cycles, the TPC has held public hearings on a list of potential projects prior to the submission of the Department's recommendations, although this is not required by statute.

5. By December 15 of even-numbered years, the TPC submits its recommended list of projects to be enumerated to the Governor and Legislature. The TPC may or may not include the projects recommended by DOT and may add additional

projects. Typically, the Governor has included such projects in the biennial budget submission during the following legislative session.

In developing a list of recommended projects, DOT assigns a score to each project using a system outlined in an administrative rule. The system assigns each project a score between zero and 100 for each of five criteria. Each of these scores is multiplied by a weighting factor to determine a final score. The criteria and their weights are, as follows: (a) enhances Wisconsin's economy (40%); (b) improves highway safety (20%); (c) improves traffic flow (20%); (d) minimizes undesirable environmental impacts (10%); and (e) serves community objectives (10%). According to the administrative rule, a project must be worse than the average highway of the same type in terms of either traffic congestion or highway safety to be recommended to the TPC.

There are two statutory restrictions on the TPC's recommendations for capacity expansion projects. First, the TPC is prohibited from recommending a project for enumeration unless the project, along with all other enumerated projects, can be started within six years following the project's enumeration, assuming a constant, real-dollar program size throughout the period. [The Commission, however, may recommend a project that could not otherwise be started within the six-year time period if it also recommends a funding proposal for the major highway development program that would allow the project to be started in six years.] Second, the TPC is prohibited from recommending a project for enumeration unless a final EIS or EA has been approved by the Federal Highway Administration (FHWA). This requirement is intended to ensure that potential projects can be completed within a reasonable time of enumeration and that the TPC has reasonably complete information on the cost and impacts of the project.

Major Highway Project Schedule

After not meeting since December, 2014, the TPC resumed holding regular meetings in 2019. At the December, 2020, meeting, following the recommendation of the Department, the TPC approved two projects for construction as high-cost projects in the major highway development program based on the recommendation of the Department: (a) replacing the existing I-39/90/94 bridges over the Wisconsin River in Columbia County; and (b) reconstructing 18.6 miles of USH 51 from I-39/90 in Stoughton to USH 12/18 in McFarland in Dane County. These two projects did not require enumeration to begin construction because they were approved as high-cost projects that do not meet the statutory capacity expansion thresholds. Both projects are currently in the design phase, with Department estimating that construction could begin in 2024. The TPC also met in December 2021 and December 2022, but did not approve any additional projects in either meeting.

Two major highway development projects were also enumerated under the 2019-21 budget after being previously approved by the TPC: (a) a 14.3-mile project on I-43 between Silver Spring Drive and STH 60 in Milwaukee and Ozaukee counties; and (b) a 23-mile project on I-41 in Outagamie and Brown Counties between STH 96 in the Town of Grand Chute and CTH F in the Town of Lawrence.

Table 3 shows the list of enumerated or TPC-approved highway projects that have not yet been completed. The final two columns show the total cost of each project and the remaining estimated cost beyond the 2021-23 biennium. As of August, 2022, the remaining cost to complete all ongoing enumerated or approved major highway projects was $1,977.6 million. Of this total, $1,640.7 million in estimated costs remained in years beyond the 2021-23 biennium. However, this amount does not include the La Crosse Corridor project in La Crosse County. Although this project was enumerated in 1997, the project study process was

Table 3: Enumerated/Approved Major Highway Development Projects Remaining to be Constructed ($ in Millions)

	Highway	County	Nominal Cost[1]	Inflation-Adjusted Cost[1]	Remaining Costs Beyond 2022-23[1]
Enumerated in 1997					
La Crosse Corridor [2]	53	La Crosse	TBD	TBD	TBD
Enumerated in 1999					
STH 67 to USH 41	23	Sheboygan & Fond du Lac	$173.4	$173.4	$0.0
Enumerated in 2011					
STH 76 to New London	15	Outagamie	137.9	139.5	35.5
Illinois State Line to USH 12/18	39/90	Dane & Rock	1,170.0	1,170.0	1.5
Enumerated in 2014					
I-41/94 to 43rd Avenue [3]	50	Kenosha	119.1	119.1	0.0
Enumerated in 2019					
Silver Spring Drive to STH 60	43	Milwaukee & Ozaukee	531.3	535.8	106.0
STH 96 to Brown CTH F	41	Outagamie & Brown	1,099.5	1,216.5	1,146.7
Approved in 2020					
Wisconsin River Bridges [3]	39/90/94	Columbia	149.8	156.1	148.4
I-39/90 to USH 12/18 [3]	51	Dane	192.4	214.3	202.6
Total			$3,573.4	$3,724.7	$1,640.7

[1] Cost estimates are from DOT's August, 2022 TPC report, with inflation-adjusted costs reflecting year of expenditure.
[2] This project was enumerated in 1997, but a preferred alternative was not selected and the project study process was restarted in 2021. Estimated costs will be known once the preferred alternative is selected.
[3] These projects meet the cost threshold for a major highway project, but not the capacity expansion threshold.

restarted in 2021 with a modified approach compared to the earlier study and preferred alternative. The project is currently in the environmental study phase, and a project schedule has not yet been finalized. The Department anticipates completing the La Crosse Corridor study in the mid-2020s, and completing construction in the mid-to late-2020s.

As shown in Table 3, the largest known amount of remaining project costs in the major highway development program are associated with the I-41 project in Outagamie and Brown counties. The project has an estimated total cost of $1,216.5 million, with an estimated remaining cost of $1,146.7 million beyond the 2021-23 biennium. The project will make improvements to 23 miles of I-41 between Appleton and De Pere. The Department indicates that this four-lane corridor of interstate experiences high congestion and crash rates, and contains pavement and bridges with design deficiencies that are nearing the end of their useful life. In addition to expanding this portion of interstate from four to six lanes, the Department's preferred alternative for the project would also reconstruct or improve nine existing interchanges, add auxiliary entrance and exit lanes along portions of the roadway, and construct a new interchange on Southbridge Road in De Pere. DOT reports that the project is currently in the design phase, with construction expected to begin in 2024, and the mainline expected to be opened to traffic in the fall of 2029.

Also listed in Table 3 is the reconstruction of the I-39/90/94 bridges over the Wisconsin River in Columbia County. DOT received a grant of $80.0 million from the federal Infrastructure for

Rebuilding America (INFRA) program in federal fiscal year 2022 to assist with the costs of this project, which is currently estimated to cost $156.1 million. The bridges carry six lanes of divided interstate that connect the interstate system between major cities including Chicago, Minneapolis, and Milwaukee, and serve as an important freight, travel, and tourism corridor. This project will replace the existing bridges, which are reaching the end of their useful life, with two new bridge spans, as well as replacing two overcrossing bridges for nearby county roads (CTH U and CTH V). DOT will begin construction of the project in 2024, with the mainline projected to open to traffic in the fall of 2028.

Southeast Wisconsin Freeway Megaprojects

Since the 2001-03 biennium, most capacity expansion and rehabilitation projects on the southeast Wisconsin freeway system (freeways in Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, or Waukesha counties) have been funded separately from the major highway development and state highway rehabilitation programs. Between 2001 and 2011, all southeast freeway highway improvement projects were the responsibility of the southeast Wisconsin freeway rehabilitation program. With the enactment of 2011 Act 32, the 2011-13 budget, the southeast Wisconsin freeway rehabilitation program was replaced with the southeast Wisconsin freeway megaprojects program. A southeast Wisconsin freeway megaproject is defined as an improvement project with an estimated cost exceeding $828,300,000, in 2022 dollars (indexed annually to the cost of construction inflation). Any rehabilitation or capacity expansion project on those freeways with a cost below that threshold is the responsibility of the state highway rehabilitation or major highway development programs, as applicable.

Any southeast Wisconsin freeway megaproject must be enumerated in the statutes prior to the start of construction. Unlike major highway development projects, southeast Wisconsin freeway expansion projects do not have to be reviewed and recommended for enumeration by the Transportation Projects Commission. The I-94 North-South, the Zoo Interchange, and the I-94 East-West corridor projects, discussed later in this section, have been enumerated. The Marquette Interchange project in downtown Milwaukee was enumerated under the previously existing southeast Wisconsin freeway rehabilitation program.

A total of $82.0 million was provided for southeast Wisconsin freeway megaprojects in the 2021-23 biennium. This amount was comprised of $12.0 million in state funds, $40.0 million in transportation fund-supported, general obligation bonds, and $30.0 million of federal funds. This funding was made available to reinitiate work on the I-94 East-West corridor project, which is likely the next southeast Wisconsin freeway megaproject to be constructed. The remainder of this section describes each of the four southeast Wisconsin freeway projects that have been enumerated in statute.

Marquette Interchange Project. The first southeast Wisconsin freeway reconstruction project begun since the initial creation of a separate program for the rehabilitation of these freeways was the reconstruction of the Marquette Interchange in the City of Milwaukee, at the intersections of I-43, I-94, and I-794 near downtown. Construction on the project began in 2004 and the reconstructed interchange was fully opened to traffic in 2008. The final cost of the project was $784 million.

I-94 North-South Freeway Project. With the completion of the Marquette Interchange project, the Department began work on the reconstruction of I-94 between the Mitchell Interchange in Milwaukee County and the Illinois state line, known as the I-94 North-South freeway. The project involves the complete reconstruction of the

roadway and interchanges, as well as capacity expansion by adding a fourth lane in each direction. Construction began in 2009, and was initially scheduled for completion in 2016. However, in 2011, the project was delayed due to a shift in focus and funding toward the reconstruction of the Zoo Interchange in Milwaukee County.

During 2017-19 biennial budget deliberations, the I-94 North-South project again became a priority, in large part, due to the planned Foxconn development project in Racine County, which is adjacent to the central segment of the project corridor. As a result, $487.4 million was allocated to this project in 2017-19, including $252.4 million in general fund-supported, general obligation bonds provided under 2017 Act 58 (the Foxconn legislation) and a $160 million federal INFRA grant. The mainline on I-94 was re-opened to traffic in May, 2020. DOT estimates that the project will be completed in 2022-23 for a total cost of $1,585.1 million.

Zoo Interchange Project. From 2011-13 through 2015-17, funding in the southeast Wisconsin freeway megaprojects program was primarily used for the reconstruction of the Zoo Inter-change at the junction of I-94, I-894, and USH 45 in western Milwaukee County. The Department indicates this is the busiest interchange in Wisconsin. Funding provided during this period allowed for the completion of the bulk of the project (nearly $1.2 billion), with the exception of some minor elements of the central core of the interchange and the north leg of the project (on I-41 from Swan Boulevard to Burleigh Street).

A provision of 2017 Act 59 prohibited DOT from funding any work on the project's north leg in the 2017-19 biennium, the final major component remaining on the project. Therefore, construction on the north leg of the project did not proceed until the 2019-21 biennium. DOT estimates that the total cost of the project will be $1,539.4 million, including outstanding costs of $137.9 million. All interstate mainline within the project boundaries is now open to traffic, and the Department anticipates that construction on the north leg will be completed in the fall of 2023.

I-94 East-West Freeway Project. The I-94 East-West corridor portion of the I-94 freeway is another major component of the southeast Wisconsin freeway system. This project would reconstruct a 3.5 mile, six-lane stretch of I-94 between 70th Street and 16th Street in Milwaukee County. Related local road and interchange construction would also be completed as a part of the project, including reconstruction of the stadium interchange near American Family Field.

DOT originally began study of the project in 2012, and obtained a federal record of decision for the project in September, 2016. The Department requested enumeration of the I-94 East-West corridor project in both the 2015-17 and 2017-19 biennial budgets. However, the project was not enumerated or funded in either biennium. Consequently, the Department requested that FHWA rescind the project's record of decision in the fall of 2017.

In July 2020, DOT requested the reinstatement of the federal record of decision in order to resume the project. Subsequently, the project was enumerated in the 2021-23 budget and appropriated $82.0 million through a combination of segregated funds, federal funds, and bonding authority. In November, 2022, DOT and the Federal Highway Administration selected a preferred alternative for the project that would expand the highway to eight lanes. DOT also published an updated cost estimate for the project in 2022 of $1.28 billion. The Department anticipates securing federal re-approval for the project in the fall of 2023, with construction beginning in 2025.

Design-Build Program

Under the 2019-21 budget, a pilot program was

established for design-build projects, defined as a project for which design, engineering, construction, and related services are procured through a single contract. This practice differs from the Department's traditional process in which each phase of the project is contracted separately. 2019 Act 18 subsequently required the Department to maintain an inventory of at least five highway projects that could be awarded as design-build projects. More recently, the 2021-23 budget provided an authorization of $20.0 million in transportation fund-supported, general obligation bonds for projects utilizing the design-build method in the state highway rehabilitation, major highway development, and southeast Wisconsin freeway megaprojects programs. In 2022, the Department announced the program's first two projects, to begin construction in 2022 or 2023: (a) reconstruction of a culvert and overpassing roadway on state highway 125 in Appleton for an estimated cost of $2.0-$3.0 million; and (b) replacement of the state highway 130 bridge over the Wisconsin River outside Lone Rock in Richland County, estimated to cost $30.0-$35.0 million. Funding for these projects could include the provided design-build program bonds, in addition to state and federal funds.

Major Interstate Bridge and High-Cost Bridge Programs

The major interstate bridge program involves the construction or reconstruction of a bridge on the state trunk highway system crossing a river that forms the boundary of the state, for which the state's share of costs is estimated to exceed $100 million. The St. Croix Crossing project, which replaced the Stillwater Bridge connecting Stillwater, Minnesota, with Houlton, Wisconsin, is the only project that has been completed under the program. The project was completed in 2017 for a total cost of $693.6 million, of which Wisconsin's share was $305.0 million.

The Department indicates that the next major interstate bridge project is likely to be the John A. Blatnick Bridge, which carries I-535 and USH 53 over Saint Louis Bay, a tributary of Lake Superior between Superior, Wisconsin and Duluth, Minnesota. DOT estimates the total cost of the project to be $1.8 billion. In August, 2022, DOT issued a combined statement with the Minnesota Department of Transportation announcing that the states had applied for $889.5 million in grant funding for the project from the federal bridge investment program. The bridge is jointly owned and managed by the two states, although the Minnesota Department of Transportation serves as the lead agency for the project. DOT anticipates that construction of the new bridge could begin as early as 2026.

A separate program exists for high-cost bridges, defined as a bridge on the state trunk highway system with an estimated cost exceeding $150.0 million that is not a major interstate bridge or part of a southeast Wisconsin freeway megaproject. Construction work on a bridge (including approaches) that qualifies as a high-cost bridge may not be funded from other highway improvement programs.

The only project to be completed under the high-cost bridge program is the reconstruction of the Hoan Bridge and appoaches to the east bank of the Milwaukee River on I-794 in Milwaukee County. The project was initiated in the 2011-13 biennium, when DOT was authorized to use funds from the major highway development, state highway rehabilitation, or southeast Wisconsin freeway megaprojects programs during that biennium only for preliminary costs associated with the project. The 2015-17 budget also provided $16.8 million in transportation fund-supported general obligation bonds for the project, which was completed in late 2015 for a total cost of $242.8 million. The Department indicates that the next project to be funded under the program will likely be the Lake Interchange, a section of I-794 in Milwaukee spanning between the north end of the Hoan Bridge and the east bank of the Milwaukee River.

State Highway Maintenance Activities

The final component of the state trunk highway program is the state highway maintenance activities component. As opposed to constructing new or replacement infrastructure, state highway maintenance activities are intended to return the existing highway system to a renewed condition. The state funds a variety of activities related to the upkeep of state highways and highway right-of-way through contracts with counties and private contractors, as well as with DOT staff. The activities performed under the program generally require less extensive planning and design than other state highway program components.

Types of Maintenance Functions

The Department divides state highway maintenance activities into three categories: routine maintenance, corrective maintenance, and preventative maintenance. These categories were established in August, 2013, as part of a set of maintenance operating guidelines for DOT, county highway departments, and private contractors.

Routine Maintenance Activities. Routine maintenance activities are frequent, of limited scope, and carried out on a day-to-day basis. In addition to the work performed by counties, there is also a limited range of centrally administered, routine maintenance activities carried out by state staff or private contractors. Routine maintenance may include the following:

- winter maintenance, such as snowplowing, drift control, and application of de-icers;
- 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;
- plantings and landscaping in rest areas and other areas;
- minor surface and base repair;
- shoulder grading and repair;
- minor bridge repair;
- debris and accident cleanup;
- drainage, culvert landscaping, erosion control measures, and guard fence repairs;
- lift bridge and ferry maintenance and operation; and
- repair of damaged traffic signs.

Most routine maintenance activities are performed by county workforces under contract with the state, except in instances where sufficient county resources are not available. One notable exception is rest area and wayside maintenance, where people with disabilities provide the day-to-day maintenance and DOT contracts with local community rehabilitation programs to coordinate their employment.

Corrective Maintenance Activities. Corrective maintenance is performed to fix urgent, time-sensitive problems caused by unforeseen conditions, and is frequently safety-related. Typical projects include culvert repair and road washouts as a result of weather and age-related damage.

Both private contractors and counties provide corrective maintenance on the state trunk highway system. DOT contracts with counties for these maintenance types when: (a) the maintenance project is small (less than $100,000); (b) a contractor is unavailable; or (c) the project is an emergency requiring a timely response. Otherwise, a private contractor is more typically employed. When private contractors are used, counties often provide interim support for highway safety reasons until a

private contractor has been secured to complete these repairs. For instance, a county work crew might close a section of highway until a private contractor takes over the repair work.

Preventative Maintenance Activities. Preventative maintenance activities encompass more substantial repairs than routine maintenance, and are planned and programmed in advance of project implementation. The primary goal of preventative maintenance is extending pavement or bridge life. Examples of preventative maintenance include concrete joint repair, resurfacing, and diamond grinding.

Only pavement and bridge activities categorized as preventative maintenance are typically eligible for federal highway aid reimbursement and therefore are performed by private contractors. [Projects using federal highway aid are subject to federal requirements for competitive bidding.] This funding is typically provided from the federal appropriation for state highway rehabilitation. State matching funds are also sometimes provided, as dictated by federal rules and DOT's budgetary needs in a given year.

County Contracts

Because counties provide the majority of state highway maintenance activities, further detail regarding their contractual relationship with DOT follows. 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, with the exception of deicing salt. [The Department attempts to reduce materials costs through large-scale purchases of deicing salt, which it then provides to the counties for use on state highways.] DOT typically uses an actual cost reimbursement method, which is based on equipment rates averaged over a period of five years, and each county's employee wage rates. Due to individual county labor contracts, hourly wage reimbursement rates vary between counties.

DOT and the county or municipality may agree to a payment method and terms other than the actual cost reimbursement method described above, including payment according to a negotiated contract price for maintenance services. Under this provision, DOT has been working with counties in certain instances on performance and regionally-based approaches to highway maintenance contracts.

In order to exercise control over the amount of routine maintenance work done on state highways, the contract that DOT enters into with the counties establishes an annual maintenance budget for each county. County budgets are established based on each county's highway maintenance-related characteristics, such as number of lane miles, pavement types and conditions, and traffic volume. Once established, counties are expected to stay within their budget and may be directed to curtail certain maintenance activities late in the year, if expenditures earlier in the year were higher than expected. DOT works cooperatively with county highway departments to determine an appropriate level of state work sufficient to retain the manpower and equipment needed for winter maintenance.

State Highway Maintenance-Specific Program Funding

For the purpose of providing specific funding for state highway maintenance activities, the Legislature has established three program subcomponents, each with its own set of appropriations, including (a) routine maintenance; (b) highway system management and operations; and (c) intelligent transportation systems and traffic control signals. These subcomponents are described in this section.

Routine Maintenance. Most maintenance activities, whether in the routine, corrective, or preventative categories are generally funded from the routine maintenance appropriation; although in some instances, maintenance costs are funded

from the highway system management and operations appropriation. The 2021-23 biennial budget provided $376.7 million in the biennium to the routine maintenance subcomponent to fund these activities.

Because winter maintenance costs are highly dependent upon the weather conditions, which are difficult to predict in advance, the Department budgets for winter based on the average of the past five seasons' costs. Whenever necessary, the Department directs counties to respond to weather conditions and related transportation needs, even if that means exceeding the amount budgeted for winter maintenance. Consequently, during years in which weather conditions are more severe than average, winter costs may exceed the amount budgeted. If the amount of the excess cost is minor, the Department makes adjustments to spring maintenance activities to stay within the fiscal year budget. Nonetheless, occasionally the costs are significantly higher, making such adjustments impractical without negatively affecting roadway maintenance.

Highway System Management and Operations. The highway system management and operations appropriation funds non-routine traffic operations and system management activities, including bridge maintenance. Highway traffic operation functions include: (a) pavement marking activities, such as centerline or painting crosswalk lines; (b) the installation, replacement, or maintenance of highway signs; (c) traffic control signals; and (d) highway lighting. Also included under the highway system management and operations program is the state traffic operations center support, bridge maintenance and operation, roadside facilities operations, program staff costs, and purchase of deicing salt used for winter maintenance. Although winter maintenance is categorized as routine, the material cost of the deicing salt is paid from the highway system management and operations appropriation. The 2021-23 biennial budget provided $201.7 million in the biennium to the highway system management and operations subcomponent to fund these activities, including $2.3 million in federal funds.

Intelligent Transportation Systems and Traffic Control Signals. A separate appropriation provides support for traffic signal and intelligent transportation system installation, replacement, and rehabilitation. The statutes define an intelligent transportation system as a specialized computer system or other electronic, information processing, communication, or technical system, including roadway detector loops, closed circuit television, permanent variable message signs, or ramp meters, which is used to improve the efficiency or safety of a surface transportation system. Stand-alone installation of these devices or systems may only be funded through this appropriation or the highway system management and operations appropriation. The program is funded at $9,775,700 annually for the 2021-23 biennium.

State Trunk Highway Program Finance

The state trunk highway program is funded through several sources. Traditionally, funding for the highway programs has been provided with "cash" funds from the state transportation fund, federal highway aid, revenue bonds, and general obligation bonds.

State Funding

The segregated state transportation fund is the state's "cash" funding source for the state trunk highway program. The transportation fund is a separate, non-lapsable trust fund, which is required by the state's constitution and administered by DOT. The primary revenue sources for the transportation fund include motor fuel taxes and fees, motor vehicle and driver's license fees, rail-

road taxes, aeronautical taxes and fees, and transfers from the general fund and the petroleum inspection fund to the transportation fund.

Table 4 shows total state transportation fund revenues appropriated for the state highway program, including state highway maintenance and program administration, for the past 10 biennia. Adjustments have been made to the budgeted amounts to reflect various post-budget supplements and lapses.

Transportation fund appropriations fell sharply in 2003-05 when transportation fund revenues were used to balance the general fund budget. The use of transportation fund revenues for the general fund also affected appropriations for highway programs in following biennia, although the reductions were not as severe. General obligation bonds were used to partially replace state transportation fund appropriations in those biennia. [For additional information on transportation revenues and expenditures, see the Legislative Fiscal Bureau's informational paper entitled, "Transportation Finance."]

Bonding

Revenue bonding authority has been used as an ongoing state funding source for the highway program since the early 1980s. 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 and related vehicle fees. To ensure the stability of the bonds for investors, bond repayment receives first priority on those revenues.

Table 4: State Trunk Highway Programs - State Transportation Fund Appropriations ($ in Millions)

Biennium	State Segregated Appropriations	Change From Prior Biennium
2003-05	$457.3	
2005-07	828.5	81.2%
2007-09	1,244.0	50.2
2009-11	1,260.1	1.3
2011-13	1,389.8	10.3
2013-15	1,604.4	15.4
2015-17	1,358.1	-15.4
2017-19	1,467.5	8.1
2019-21	1,784.5	21.6
2021-23	1,807.1	1.3

Revenue bond proceeds traditionally have been used to fund the construction of major highway development projects and administrative facilities, although in the 2021-23 biennium all $128.3 million of new revenue bond proceeds appropriated by the budget were authorized for use on major highway development projects (The 2021-23 budget also authorized the Department to use $20.8 million in existing revenue bond authority proceeds to fund administrative facility projects). Bonding authority is typically provided with each biennial budget act. Generally, enough bonding is authorized for anticipated use during the biennium, plus an additional amount to allow projects begun in that biennium to be completed in subsequent years in the event that additional funds or bonds are not provided in a timely fashion for those years.

Transportation fund-supported, general obligation bonds are also a funding source for state highway programs. The 2021-23 budget authorized $60.0 million for these bonds in the biennium: $40.0 million for southeast Wisconsin freeway megaprojects, and $20.0 million to fund a pilot program for state highway improvement program projects utilizing the design-build construction method.

From the 2003-05 biennium through the 2017-19 biennium, the state highway programs have also been funded with general fund-supported, general obligation bonds. General fund-supported bonds initially were provided to replace transportation fund revenues that have been used as part of a strategy to balance the state's general fund budget. In later biennia, general fund-supported bonds were provided even though those budgets

Table 5: State Trunk Highway Programs - Bond Financing ($ in Millions)

Biennium	Revenue Bonds	General Obligation Bonds: General Fund-Supported	General Obligation Bonds: Transportation Fund-Supported	Total
2003-05	$273.0	$565.5	$0.0	$838.5
2005-07	297.6	250.0	213.1	760.7
2007-09	400.1	50.0	90.2	540.3
2009-11	301.4	204.7	585.3	1,091.4
2011-13	314.4	115.4	282.2	712.0
2013-15	404.6	200.0	307.0	911.6
2015-17	163.4[2]	175.0	467.0	805.4
2017-19	114.8	252.4[1]	0.0	367.2
2019-21	142.3[2]	0.0	112.0	254.3
2021-23	128.3[2]	0.0	60.0	188.3

[1] These bonds were authorized under 2017 Act 58 (the Foxconn legislation) and may only be used for the I-94 North-South freeway Project.

[2] Excludes bond proceeds from previously authorized revenue bonds that were allocated to the major highway development program, of the following amounts: (a) $5.6 million in 2015-17; (b) $30.9 million in 2019-21; and (c) $20.8 million in 2021-23.

did not transfer transportation fund revenues to the general fund.

Table 5 shows the bond authorizations in the state highway program for each of the last 10 bienniа, by bond type. The amounts reflect the biennium in which the bonds were authorized, however, bonding authority may not all be used in the biennium in which it is authorized. As an example, although authorized in the 2009-11 biennium, the bonds for the major interstate bridge program were first used in the 2013-15 biennium.

Federal Funding

Federal funds are distributed based on multi-year federal surface transportation authorization acts. Table 6 shows the basic amount of federal formula-based highway aid since 2013. These figures exclude redistribution funds, which are allocated in August or September of each year, discretionary grants, sequestration amounts, congressional earmarks for specific projects, except for earmarks that are a congressionally-directed allocation of the state's formula aid, and other supplemental appropriations for transportation purposes.

Table 6: Federal Formula-Based Highway Aid History ($ in Millions)

Federal Fiscal Year	Amount	Percent Change
2013	$683.5	
2014	677.0	-1.0%
2015	672.7	-0.6
2016	712.6	5.9
2017	707.1	-0.8
2018	715.5	1.2
2019	721.2	0.8
2020	739.6	2.6
2021	721.7	-2.4
2022	910.9	26.2

Federal formula-based highway aid increased in 2022 due to the passage of the IIJA, the new federal surface transportation authorization act, also known as the Bipartisan Infrastructure Law. The IIJA authorizes increased highway funding levels over its five-year lifespan (from federal fiscal years 2022-26). In most instances, annual federal appropriation bills must also be enacted to fund these authorizations.

Federal highway funds are spent both in the state highway program and in other DOT local assistance programs, such as: (a) the local transportation facility improvement assistance program, which funds rehabilitation projects on principal streets and highways under local jurisdiction; (b) the local bridge improvement assistance program; (c) the congestion mitigation and air quality improvement program; (d) the transportation alternatives program(e) the railroad crossing improvement program; (f) the carbon reduction program; and (g) the promoting resilient operations for transformative, efficient, and cost-saving transportation (PROTECT) program.

In DOT's appropriation structure, federal appropriations are estimates of funding to be received and do not control the amount that may be spent. DOT can spend all funds received from federal sources, not just the amounts specifically estimated by the Legislature in budgetary schedules.

DOT is required, however, to submit a plan for making adjustments to its appropriations to the Joint Committee on Finance for the Committee's approval if the amount of federal aid received in a given year differs by more than 5% from the amount estimated. The last such adjustment plan was submitted to the Committee in April, 2022. This plan, as modified under a s. 13.10 action by the Committee, appropriated an estimated $283.0 million in additional federal formula and non-formula highway aid associated with IIJA authorizations to the following DOT programs in 2021-22: (a) $123.6 million to the state highway rehabilitation program; (b) $83.9 million to the local transportation facilities program; (c) $60.7 million to the local bridge improvement program; (d) $10.5 million to the transportation alternatives program; and (e) $4.3 million to the congestion mitigation and air quality improvement program, which was limited to funding only eligible right-of-way improvement projects that reduce congestion or improve traffic flow, and for eligible traffic signaling improvements.

In March, 2021, the Joint Finance Committee also approved a DOT federal plan that primarily increased DOT's federal state highway rehabilitation program appropriations while making corresponding decreases in state highway rehabilitation segregated fund appropriations, using additional funding authorized in the annual federal appropriations Act. This action was requested by DOT to offset a projected deficit in the transportation fund for 2020-21 caused by the COVID-19 pandemic.

In addition, 2017 Act 368 requires that when DOT expends any federal funding on major highway development projects, southeast Wisconsin freeway megaprojects, or projects in the state highway rehabilitation program with a total cost of less than $10.0 million, at least 70% of the aggregate, federally eligible project components must be funded using federal moneys in each fiscal year. If DOT determines that it cannot meet this requirement, or that it could make a more effective or efficient use of federal moneys, the Department may submit an alternative funding plan to the Joint Committee on Finance under a passive review process. In August, 2020, the Department submitted an alternate funding plan for the north leg of the Zoo Interchange project in the southeast Wisconsin freeway megaprojects program because DOT determined that based on the remaining project costs and authorized federal funding for the program, a maximum of 46.0% of remaining project costs could be covered by federal funding. This alternate funding plan passed under the Joint Committee on Finance's passive review process.

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. 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. other examples of costs not covered by the state include: (a) the cost 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 road and sharing in the costs of the interchange bridges; (c) 25% of the cost of preliminary engineering costs for improvements on connecting highways; and (d) a portion of the costs for improvements on state trunk or connecting highways, that provide a substantial, direct benefit to a community.

Funding Level

Table 7 shows the funding, by source, for the principal components of the state highway program receiving funding in the 2021-23 biennium. Table 8 shows total funding for each component of the highway program for the past 10 biennia. Since local funding is not used for programming purposes and the actual amounts used are not reflected in budget appropriations, this funding source is not included in the tables.

Table 7: State Trunk Highway Programs -- 2021-23 Biennium Funding ($ in Millions)

Program	General Obligation Bonds	Revenue Bonds	Current Revenue Funding Sources: State	Current Revenue Funding Sources: Federal	All Sources
Major Highway Development	$0.0	$149.0[1]	$50.2	$366.4	$565.6
State Highway Rehabilitation	0.0	0.0	1,118.0	1,073.6	2,191.6
Southeast Wisconsin Freeway Megaprojects	40.0	0.0	12.0	30.0	82.0
Design-Build Projects[2]	20.0	0.0	0.0	0.0	20.0
Routine Maintenance and Traffic Operations[3]	0.0	0.0	600.3	2.3	602.6
Administration and Planning	0.0	0.0	26.5	7.5	34.0
Total	$60.0	$149.0	$1,807.0	$1,479.8	$3,495.8

[1]Includes $20.8 million in previously authorized, existing revenue bond proceeds.
[2]$20.0 million in transportation fund-supported, general obligation bonding authority was provided for design-build projects under the 2021-23 budget.
[3]The state amount for routine maintenance and traffic operations includes $4.8 million in a separate appropriation for the operating costs of state-owned lift bridges.

Table 8: State Trunk Highway Program Funding History -- All Funds ($ in Millions)

Biennium	Major Highway Development	State Highway Rehabilitation	Major Interstate and High-Cost Bridge Programs	Southeast Wisconsin Freeway Projects	Design-Build Projects [1]	Highway Maintenance/ Traffic Operations [2]	Administration and Planning	Total
2003-05	$482.6	$1,082.9	---	$262.9	---	$348.7	$51.5	$2,228.6
2005-07	565.6	1,202.8	---	473.3	---	370.8	42.1	2,654.6
2007-09[3]	695.9	1,560.8	---	494.2	---	436.3	42.5	3,229.7
2009-11[3]	713.6	1,545.8	$229.6	643.0	---	451.2	38.7	3,621.9
2011-13	743.6	1,607.6	---	420.0	---	447.4	36.1	3,254.7
2013-15	728.4	1,640.3	226.0	517.0	---	528.1	35.9	3,675.7
2015-17	641.1	1,698.0	36.8	414.6	---	539.8	36.6	3,366.9
2017-19	563.7	1,626.2	8.0	535.6	---	599.9	36.6	3,370.0
2019-21	564.2	1,937.8	17.0	226.4	---	600.7	36.9	3,383.0
2021-23	565.6	2,191.6	---	82.0	$20.0	602.6	34.0	3,495.8

[1] $20.0 million in transportation fund-supported, general obligation bonding authority was provided for design-build projects under the 2021-23 budget.
[2] Includes funding for state lift bridge operation since 2005-07. Also includes the highway system management and operations, routine maintenance, and intelligent transportation systems and traffic control signals appropriations (created in 2013 Act 20).
[3] Amounts shown in 2007-09 and 2009-11 include federal economic stimulus funds ($275.0 million in 2007-09 and $43.6 million in 2009-11).