The Transportation Revenue Estimator and Needs Determination System (TRENDS) Model

Developed by the Texas A&M Transportation Institute
and the
Texas Department of Transportation

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The TRENDS Model is designed to provide transportation planners, policy makers and the public with a tool to forecast revenues and expenses for the Texas Department of Transportation (TxDOT) for the period 2017 through 2050. The User, through interactive windows, can control a number of variables related to assumptions regarding statewide transportation needs, population growth rates, fuel efficiency, inflation rates, taxes, fees and other elements. The output is a set of tables and graphs showing a forecast of revenues, expenditures and fund balances for each year of the analysis period.

TRENDS will be updated on a monthly basis to include the latest cash forecasts and letting schedules from TxDOT. In addition, as updates regarding population forecasts, inflation rates, fuel efficiency, and other variables become available they will be incorporated into the model.

This paper will take the User through the model and its basic calculations by describing each section of variables. Then, there will be a brief description of the outputs available.

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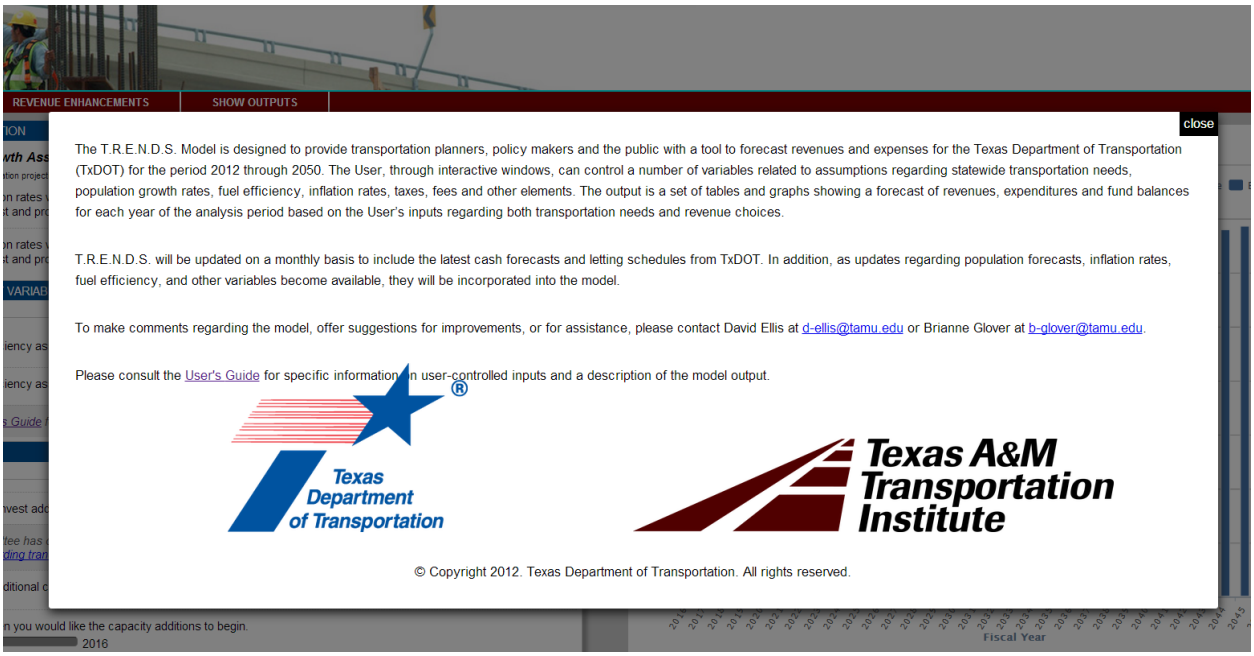
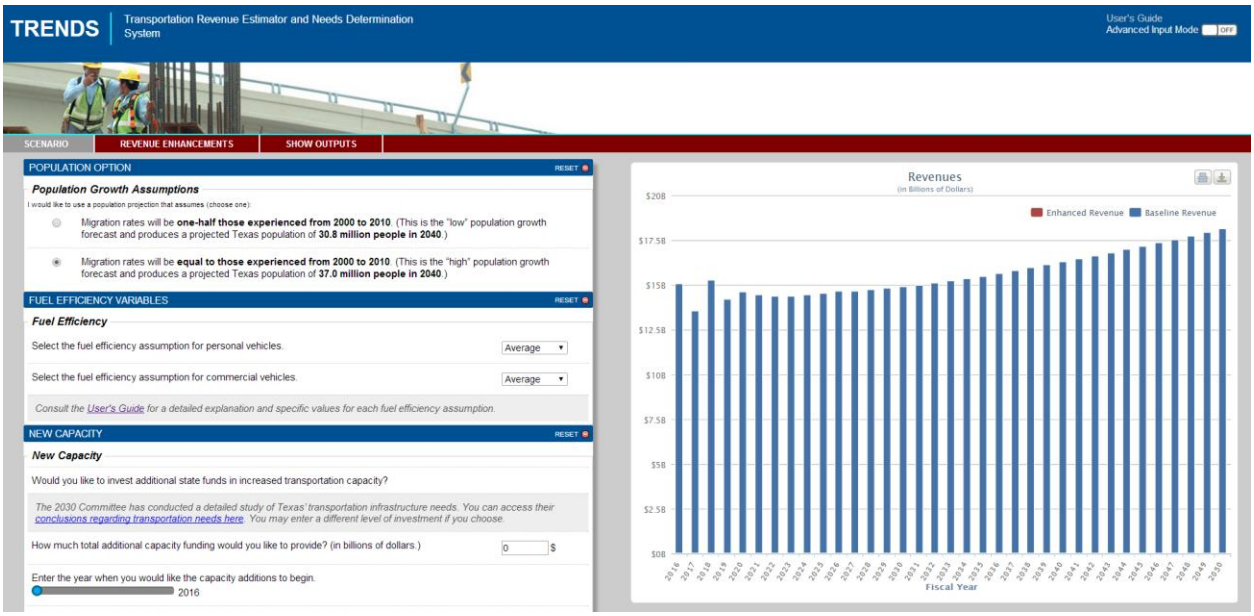
1. ACCESSING THE MODEL

The TRENDS model is available on the web at http://trends-tti.tamu.edu. An information screen will pop up with contact information. Close this screen to continue to the model.



The TRENDS model will take you through all of the parameters that must be considered in order to produce a revenue projection and associated outputs. Once you close the contact dialog box the following screen will appear:



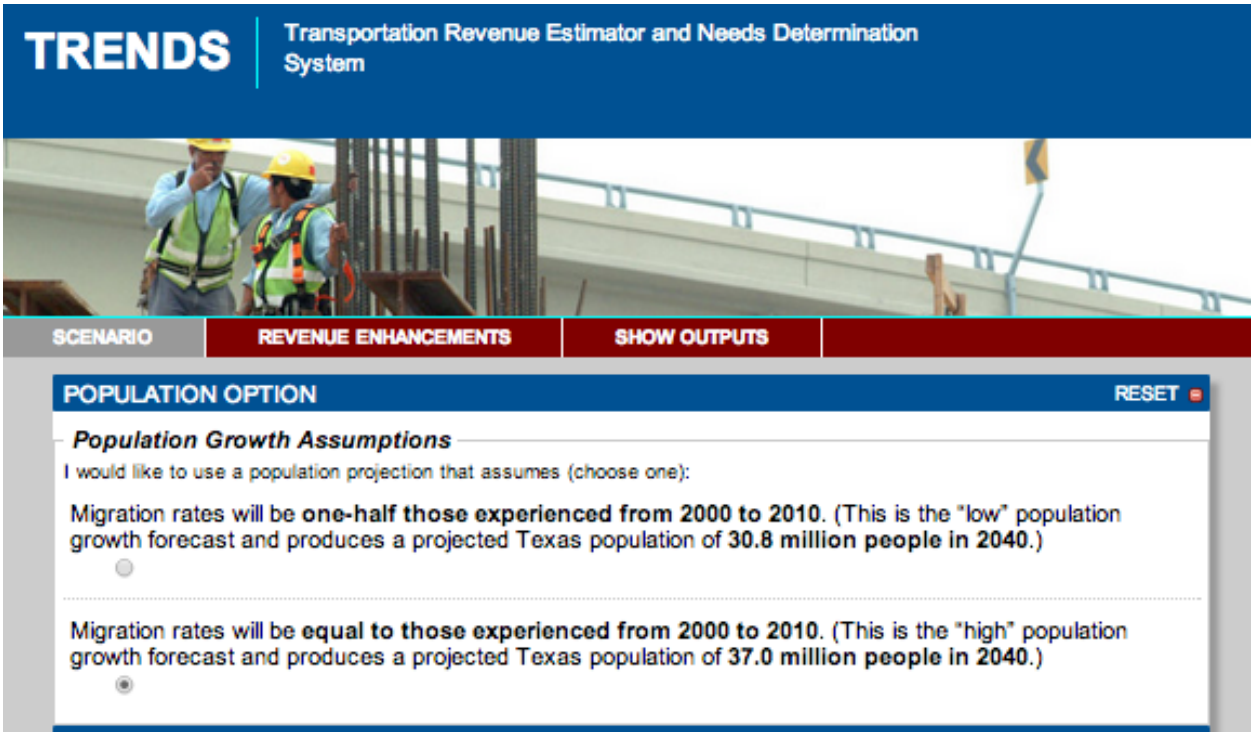
In the top right corner of your screen please select the input mode you would like to use. The Basic input mode has fewer user inputs, utilizing the default variables for the remaining inputs. The Advanced input mode allows you to keep the default variables or adjust them to create various scenarios.

2. TRENDS MODEL SCENARIO TAB

This chapter offers a step-by-step guide on how to interpret the questions asked in the Scenario tab of the TRENDS model. Each section in this User's Guide is ordered according to how each section appears in the TRENDS model.

2.1 Population Option

The TRENDS model presents two options for population projections from 2017 to 2050. The first option suggests that migration rates will be one-half of those experienced from 2000 to 2010. This migration rate assumption is based on the most recent projections provided by the Texas Demographic Center. This Center updates their projections every 2-3 years. The last update was conducted in 2014. This is the most conservation option, or the 'low' scenario. The other option assumes the migration rates will be equal to those experienced from 2000 to 2010. This is the scenario with the highest growth rate, which is selected by default. Click on the corresponding radio button that you wish to use. Please consult the appendix chapter of this User's Guide for a detailed explanation on how these population projections were generated.

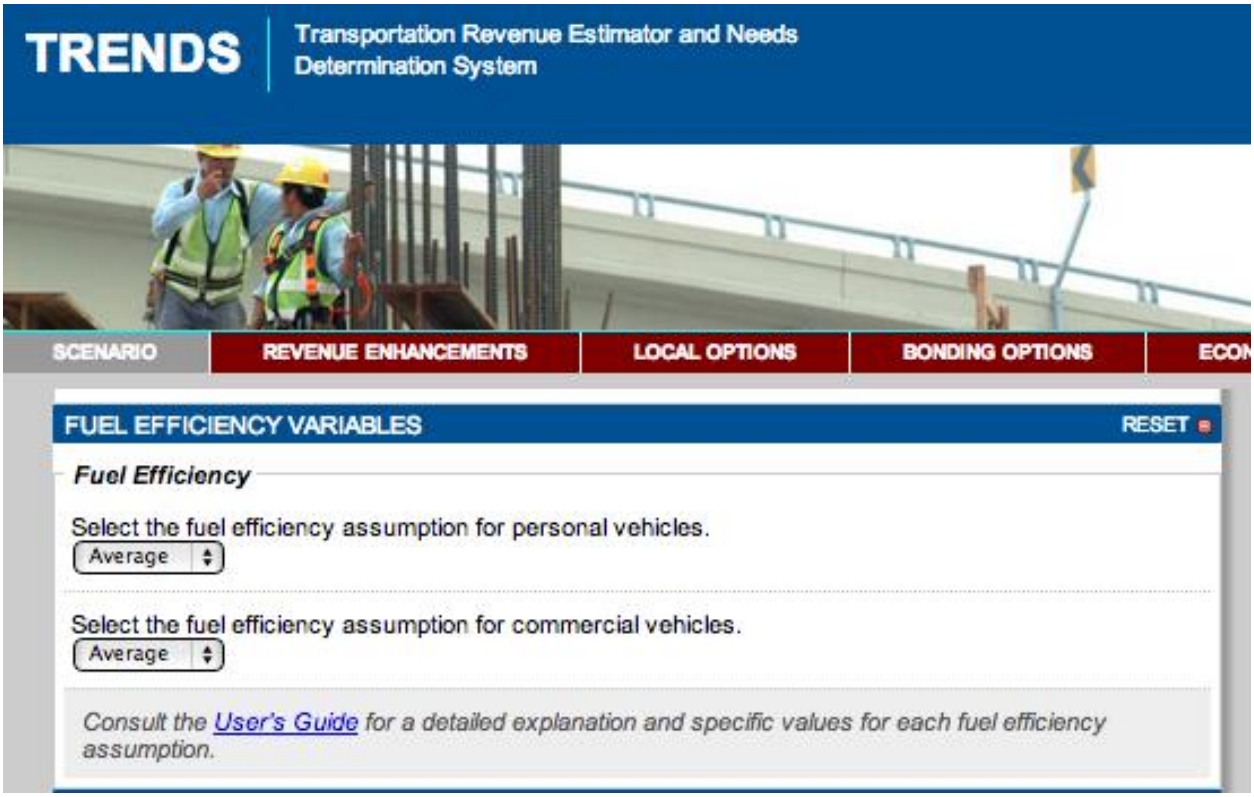


2.2 Fuel Efficiency Variables

Projections of fuel economy, along with projections of the future population, are key elements of projecting future revenues. The TRENDS Model is built on data provided by the Federal Highway Administration. Fuel efficiency growth is then adjusted based on assumptions developed by a 2006 analysis conducted by Cambridge Systematics. From this, researchers then accounted for the proportional contribution to total vehicle miles traveled of each vehicle type in Texas. Low, medium and high fuel efficiency scenarios were produced. The Low-Average scenario is also available and is an average of the low and medium scenarios. These alternative fuel efficiency scenarios are presented below. (See appendix for criteria used in this model to differentiate between personal and commercial vehicles).

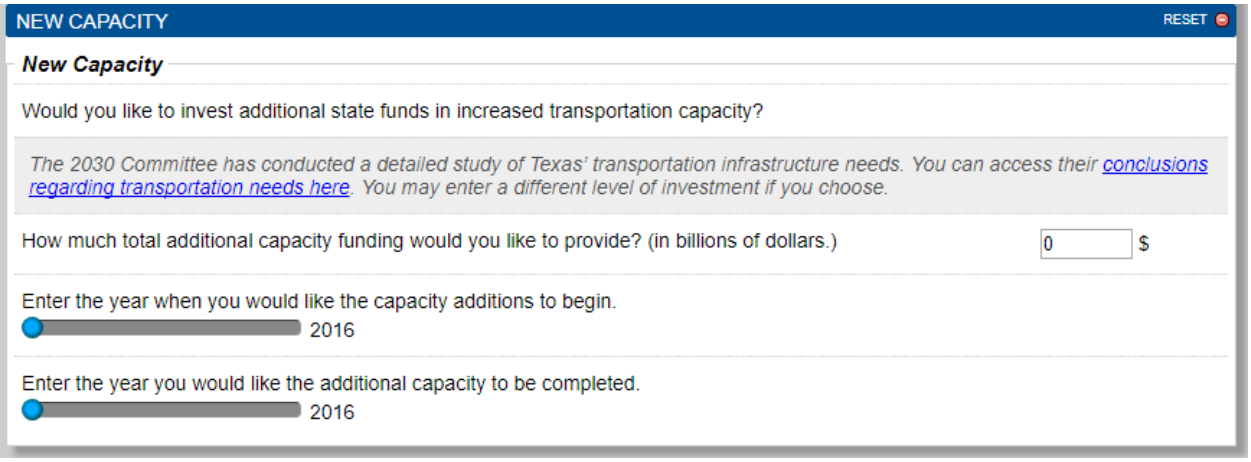
	Low MPG Scenario		Low-Mid Scenario		Average MPG Scenario		High MPG Scenario	
Year	Personal Vehicles	Commercial Vehicles	Personal Vehicles	Commercial Vehicles	Personal Vehicles	Commercial Vehicles	Personal Vehicles	Commercial Vehicles
2016	19.7	6.2	19.7	6.2	19.7	6.2	19.7	6.2
2017	19.0	5.9	19.5	6.1	20.0	6.3	21.0	6.6
2018	19.3	6.0	19.8	6.1	20.3	6.3	21.3	6.6
2019	19.7	6.0	20.2	6.2	20.7	6.3	21.7	6.7
2020	20.0	6.1	20.5	6.2	21.1	6.4	22.1	6.7
2021	20.4	6.1	20.9	6.3	21.5	6.4	22.6	6.7
2022	20.8	6.1	21.4	6.3	21.9	6.5	23.0	6.8
2023	21.3	6.2	21.8	6.4	22.4	6.5	23.5	6.8
2024	21.8	6.2	22.4	6.4	22.9	6.6	24.1	6.9
2025	22.3	6.3	22.9	6.4	23.5	6.6	24.7	6.9
2026	22.9	6.3	23.5	6.5	24.1	6.7	25.3	7.0
2027	23.4	6.4	24.1	6.5	24.7	6.7	25.9	7.0
2028	24.0	6.4	24.6	6.6	25.2	6.8	26.5	7.1
2029	24.5	6.5	25.2	6.6	25.8	6.8	27.1	7.1
2030	25.0	6.5	25.7	6.7	26.4	6.9	27.7	7.2
2031	25.5	6.6	26.2	6.8	26.9	6.9	28.2	7.3
2032	26.1	6.6	26.7	6.8	27.4	7.0	28.8	7.3
2033	26.6	6.7	27.3	6.9	28.0	7.1	29.3	7.4
2034	27.1	6.7	27.8	6.9	28.5	7.1	29.9	7.4
2035	27.6	6.8	28.3	7.0	29.0	7.1	30.5	7.5
2036	28.0	6.8	28.8	7.0	29.5	7.2	31.0	7.6
2037	28.5	6.9	29.2	7.1	30.0	7.3	31.5	7.6
2038	28.9	6.9	29.7	7.1	30.5	7.3	32.0	7.7
2039	29.4	7.0	30.1	7.2	30.9	7.4	32.5	7.7
2040	29.8	7.0	30.6	7.2	31.4	7.4	32.9	7.8
2041	30.4	7.1	31.2	7.3	32.0	7.5	33.6	7.8
2042	31.0	7.1	31.8	7.3	32.6	7.5	34.2	7.9
2043	31.6	7.2	32.4	7.4	33.2	7.6	34.9	7.9
2044	32.2	7.2	33.0	7.4	33.9	7.6	35.5	8.0
2045	32.8	7.3	33.6	7.5	34.5	7.7	36.2	8.1
2046	33.4	7.3	34.3	7.5	35.2	7.7	36.9	8.1
2047	34.1	7.4	35.0	7.6	35.9	7.8	37.7	8.2
2048	34.7	7.4	35.6	7.6	36.6	7.8	38.4	8.2
2049	35.4	7.5	36.3	7.7	37.3	7.9	39.1	8.3
2050	36.1	7.5	37.0	7.7	38.0	7.9	39.9	8.3

The TRENDS model allows the user to enter the assumption regarding fuel efficiency for both personal and commercial vehicles to be used in calculating the amount of fuel used and, in turn, the amount of fuel tax revenues derived from the fuel that is consumed. The fuel efficiency option is selected under the heading “Fuel Efficiency Variables”. There are four scenarios: Low, Low-Average, Average, and High. The default selection is the “Low-Average” scenario. (see below)



2.3 New Capacity

The first question you will be asked is: “Would you like to invest additional state funds in increased transportation capacity?” If you would like to increase funds for additional capacity enter the amount in billions. Additionally, please enter the year you would like the improvements to begin, and the year in which you would like the improvements to be completed. (see below)



2.4 Maintenance Variables (Advanced Input Mode Only)

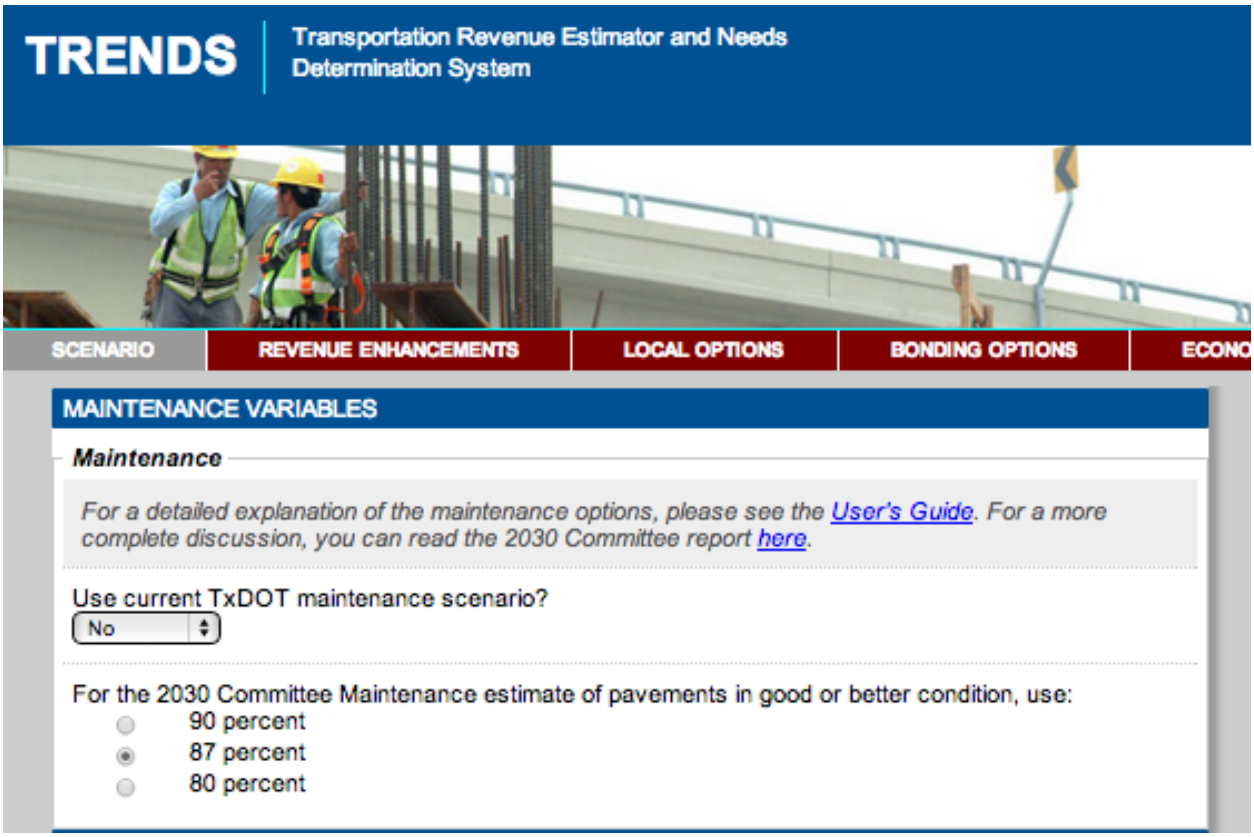
This section deals with the different funding scenarios outlined by the 2030 Committee report that could exist with estimated preventative maintenance and rehabilitative needs for the current road infrastructure maintained by TxDOT.

Each year, ride quality and pavement condition is measured to determine pavement scores on Texas roadways. Low levels of distress such as rutting, cracking and a good ride quality result in a high score. Pavement Condition Scores that are from 100 – 90 are categorized as 'Very Good'; 89 – 70 are 'Good'; 69 – 50 are 'Fair'; 49 – 35 are 'Poor' and 34 and below are 'Very Poor.' The percentage of roads in "Good" or better condition consists of the percentage of total pavement in Texas with a pavement condition score of 70 or above.[1]

This section first asks the user whether they want to use the current TxDOT maintenance scenario. By selecting "Yes," you are assuming that the existing 191 thousand on-system lane-miles will be funded using the current budgeted levels over the course of the analysis period. This level of funding results in an estimated 20 percent or less of pavements in "Good" or better condition by 2030.

Alternatively, by selecting "No," a new set of options appear. The TRENDS model then asks, "To the right are three alternative selections representing the percent of pavement in "Good" or better condition. Select one of the 2030 Committee pavement maintenance recommendations. The Committee estimated that in order to achieve 80 percent "Good" better roads in Texas by 2030, $64 billion will be required to treat 204 thousand miles of roadway (191 thousand existing miles plus additional lane-miles added). For 87 percent, the Committee predicted $73 billion would be required to treat 204 thousand miles of roadway. Finally, for 90 percent, $77 billion would be needed to treat 204 thousand miles of Texas roadway by 2030.[2] (see below) A detailed description of roadway maintenance projections can be found here.

[1] 2030 Committee. 2030 Committee Texas Transportation Needs Report. Austin. February 2009. (pp. 25-26)
[2] 2030 Committee. 2030 Committee Texas Transportation Needs Report. Austin. February 2009. (p. 18)

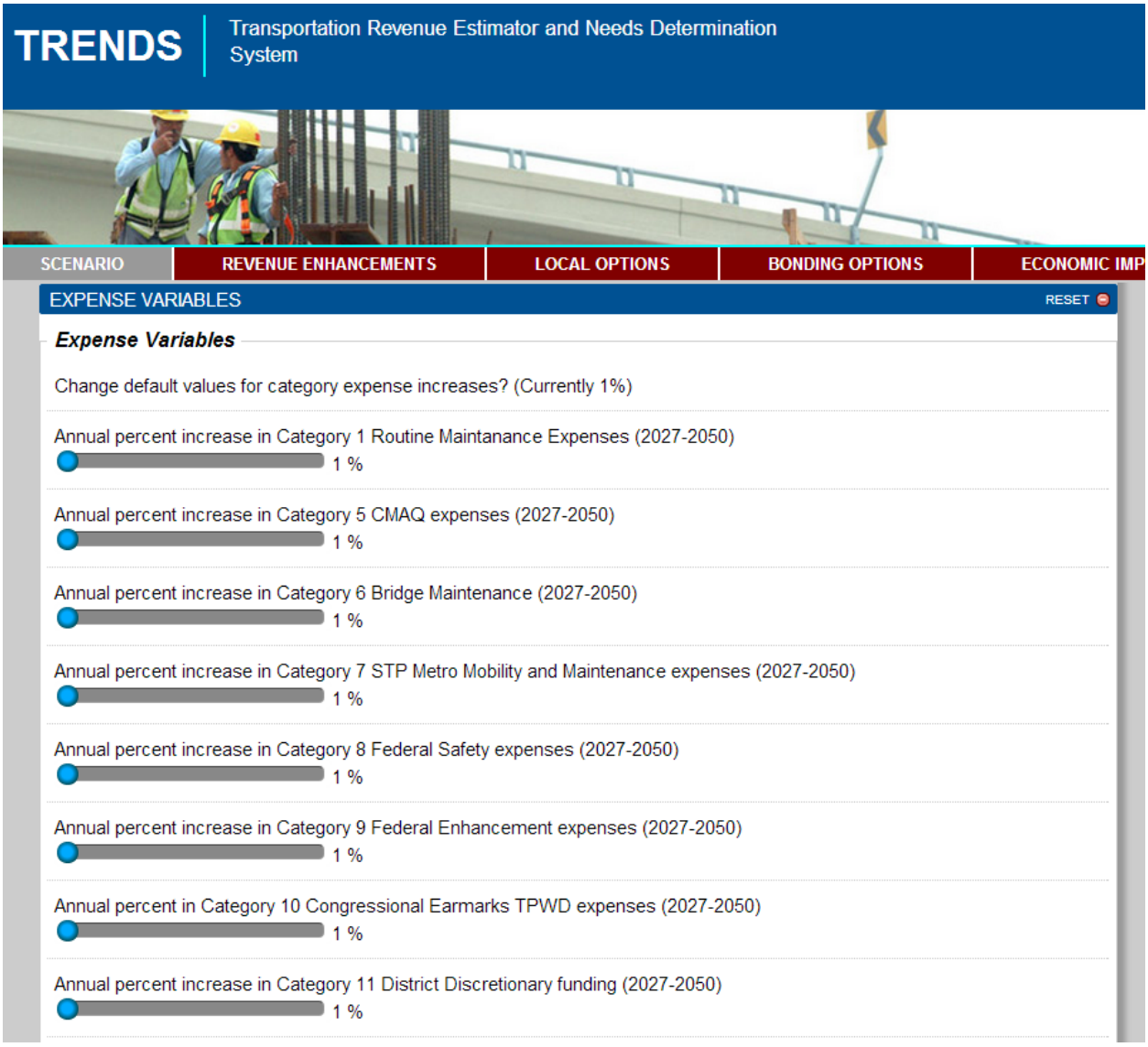


Note: The 2030 Committee recommended that in order to "preserve asset value" of the current transportation infrastructure in Texas, roads should be maintained at 90 percent "Good or Better" pavement condition.[3]

2.5 Expense Variables (Advanced Input Mode Only)

In this section, you have the option to use the current default value of 1 percent for category expense increases.

[3] 2030 Committee. 2030 Committee Texas Transportation Needs Report. Austin. February 2009. (p. 19)



The TRENDS model will ask you for the increases in expenses that you anticipate for select TxDOT expense categories. (For a detailed summary of each of these expense categories, click here and scroll to page 3)

First, the model will ask if you anticipate an annual increase in Category 1 Routine Maintenance expenses from 2027- 2050. Enter the percent increase in Category 1 expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in Category 5 CMAQ (Congestion Mitigation and Air Quality) expenses from 2027-2050. This category deals with federal funds directed toward addressing attainment of air quality standards within non-attainment areas. Enter the percent increase in Category 5 expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in Category 7 STP Metro Mobility and Maintenance expenses (2027-2050). This category addresses transportation needs by Metropolitan Planning Organizations in population regions with 200,000 or greater. These funds are allocated directly from the FHWA. Enter the percent increase in Category 7 expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in Category 8 Federal Safety expenses (2027-2050). This category deals with federal funds directed toward installation of railroad crossing guards and other safety improvement projects. Enter the percent increase in Category 8 expenses that you anticipate here.

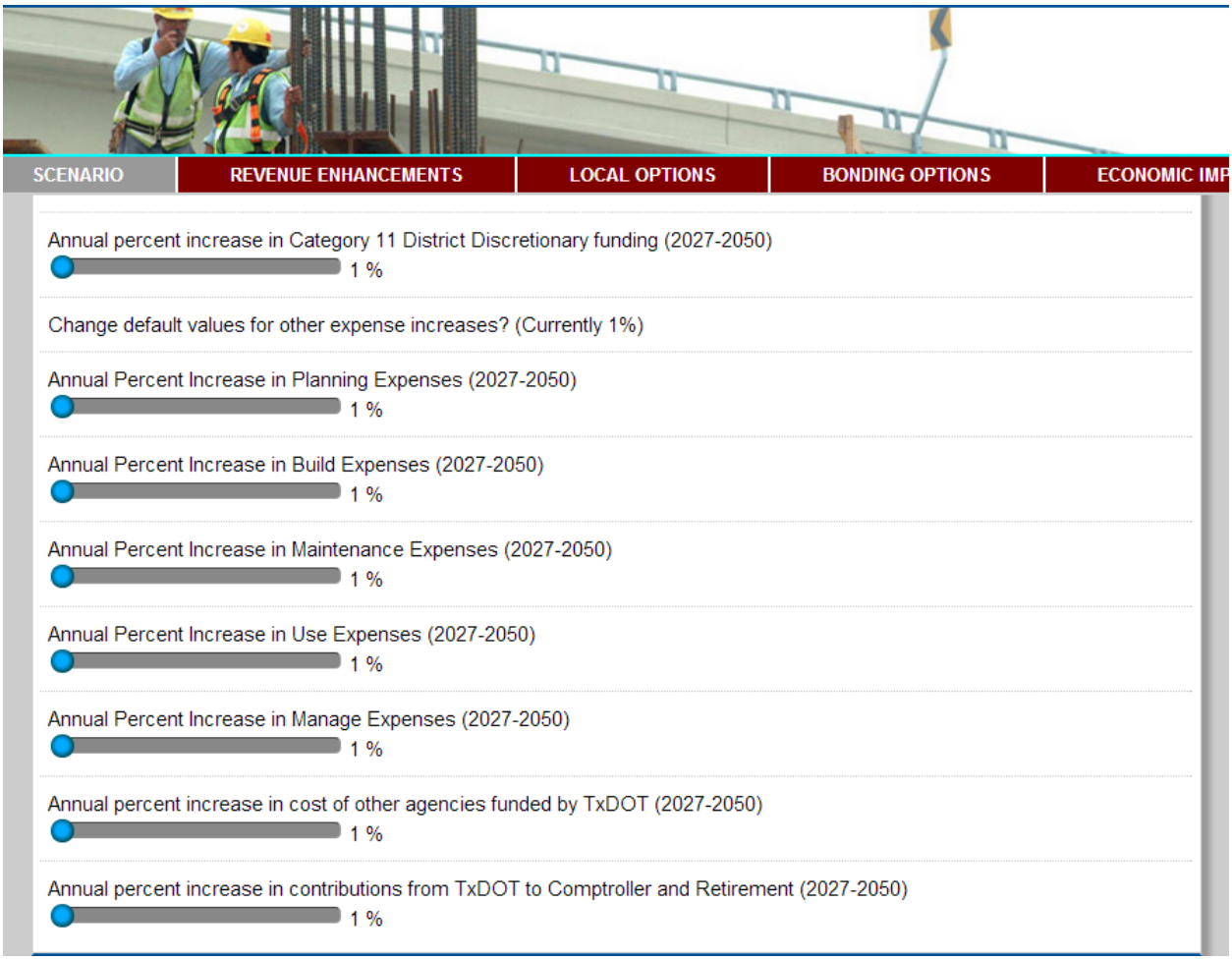
Next, the model will ask if you anticipate an annual increase in Category 9 Federal Enhancement expenses (2027-2050). This category deals with funding toward roadway rest areas and roadway enhancement projects. Enter the percent increase in Category 9 expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in Category 10 Congressional Earmarks TPWD expenses (2027-2050). This category deals with federal funds allocated toward enhancing state park roads, railroad grade crossing repairs, the Coordinated Border Infrastructure Program and Congressional High Priority Districts. Enter the percent increase in Category 10 expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in Category 11 District Discretionary funding (2027-2050). This category deals with transportation projects selected at the discretion of the TxDOT district. Enter the percent increase in Category 11 expenses that you anticipate here.[4]

The next question in this section will ask you for anticipated increases in other expenses. The current default number of one percent is calculated based on the normal projected increase in inflation and the normal increase for other goods and services from 2027-2050. If you anticipate expenses to increase at a rate other than one percent, slide the bar to the percentage you desire. (see below)

[4] Texas State Senate. Senate Finance Committee and Senate Transportation and Homeland Security Committee, *Allocations of State Transportation Resources Hearing*. Austin. March 1, 2006.



First, the model will ask if you anticipate an annual increase in planning expenses between 2027 and 2050. Planning expenses include research, engineering, and ROW. Enter the percent increase in these expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in build expenses. Enter the percent increase in these expenses that you anticipate here.

Next, the model will ask if you anticipate an annual increase in maintenance expenses between 2027 and 2050. Enter the percent increase that you anticipate here.

Next, the model will ask if you anticipate an annual increase in use expenses between 2027 and 2050. Enter the percent increase that you anticipate here.

Next, the model will ask if you anticipate an annual increase in management expenses between 2027 and 2050. Enter the percent increase that you anticipate here.

Next, the model will ask if you anticipate an annual increase in cost of other agencies funded by TxDOT between 2027 and 2050. Enter the percent increase that you anticipate here.

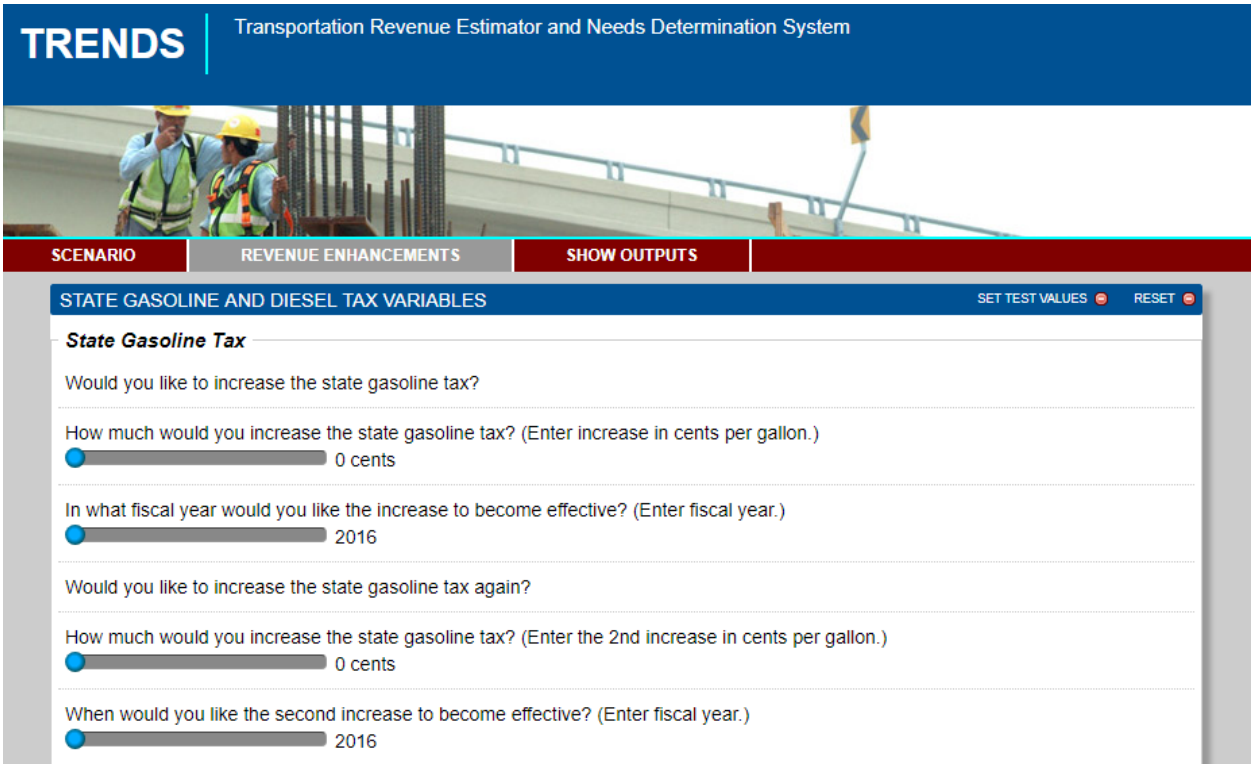
Finally, the model will ask if you anticipate an annual increase in contributions from TxDOT to Comptroller and Retirement between 2027 and 2050. Enter the percent increase that you anticipate here.

3. TRENDS MODEL REVENUE ENHANCEMENT TAB

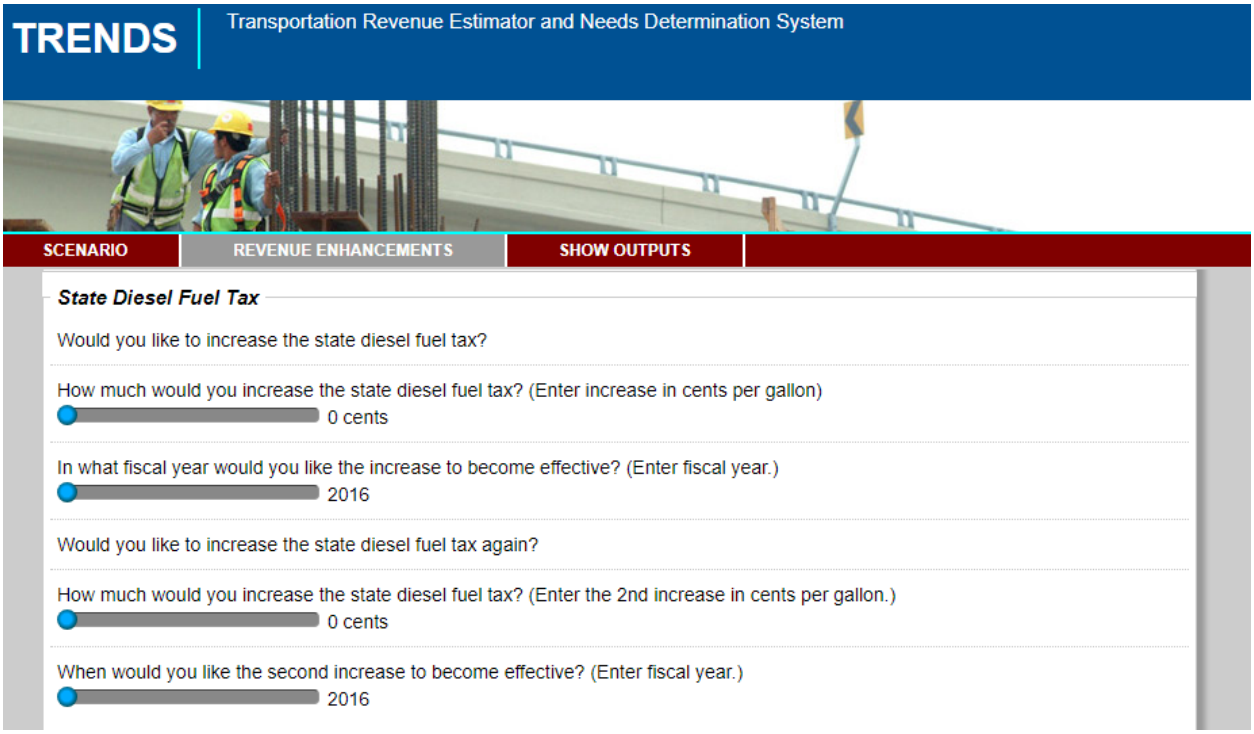
This chapter offers a step-by-step guide on how to interpret the questions asked in the Revenue Enhancement tab of the TRENDS model. Each section in this User's Guide is ordered according to how each section appears in the TRENDS model. As discussed earlier, clicking "On" the Advanced Input Mode in the upper right corner of your screen allows you to make changes regarding maintenance and expense variables by expense category.

3.1 State Gasoline and Diesel Tax Variables

The TRENDS Model will ask you a series of questions regarding tax rates. As you can see, the first question you will be asked relates to the state gasoline tax. The current state gasoline tax rate is 20 cents per gallon. If you would like to increase the gasoline tax rate enter the amount of increase by sliding the bar to the amount desired. Once you have entered this information, you will notice that TRENDS will ask if you would like to increase the gasoline tax again. (see below)



The next set of questions pertains to the state diesel fuel tax. This section of the model operates exactly like the gasoline tax section. (see below)

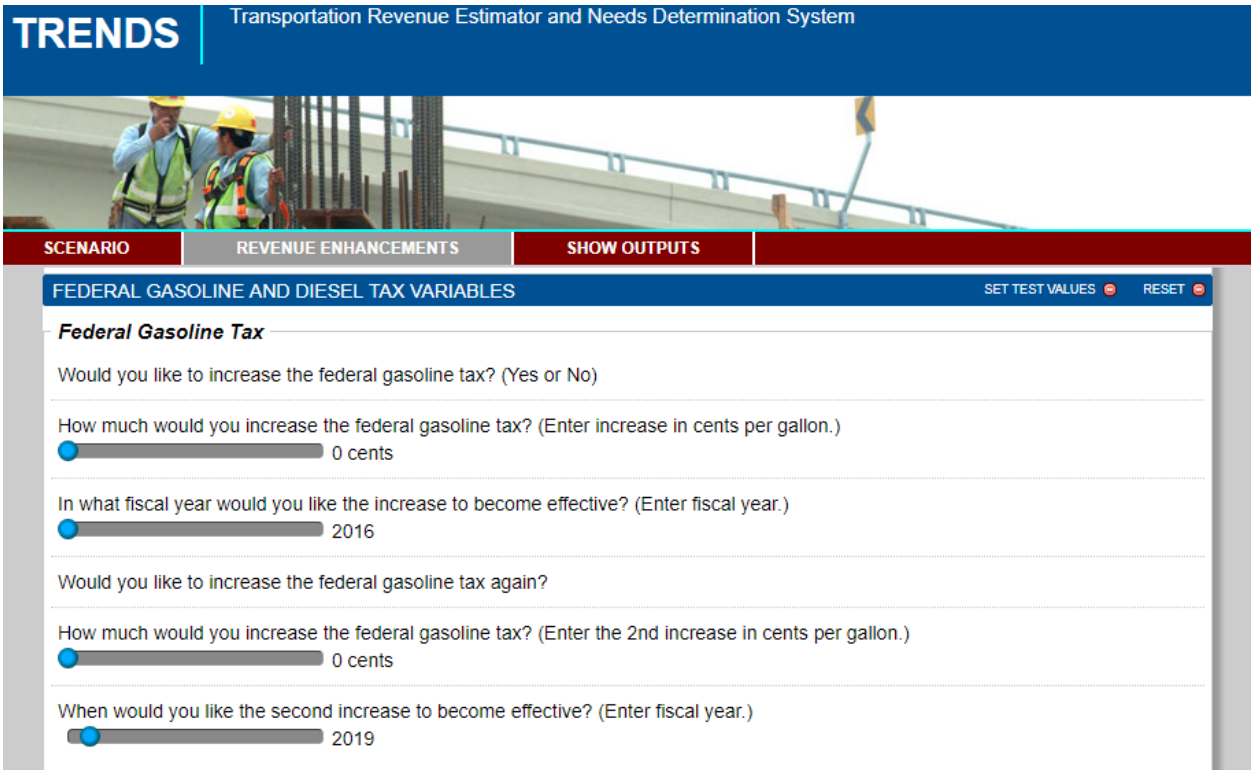


You are then asked to enter the amount of the increase in cents per gallon and the year in which you would like the increase to become effective.

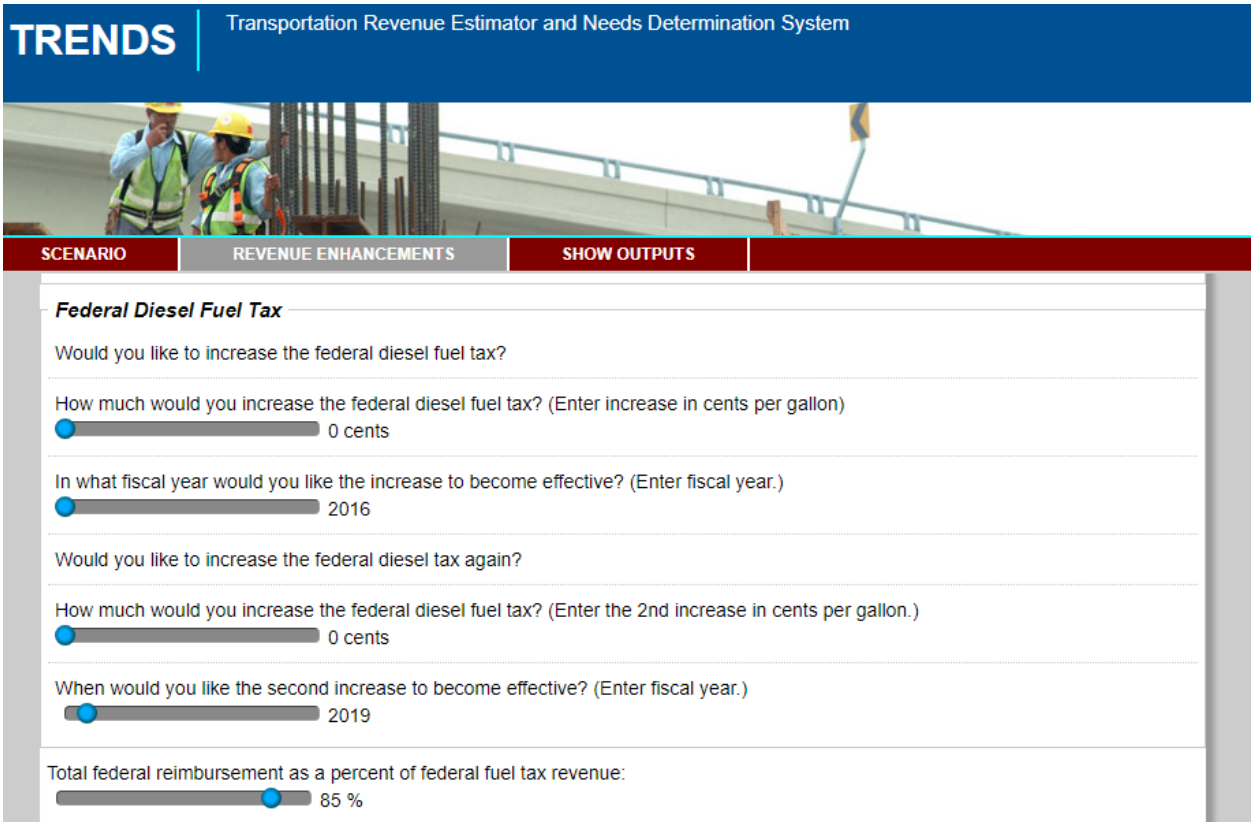
3.2 Federal Gasoline and Diesel Tax Variables

The TRENDS Model also allows you to assess the estimated impact of an increase in federal fuel taxes. This section of the model works identically to the state fuel tax section.

As you can see in the screen shot below, the first question you will be asked relates to the federal gasoline tax. The current federal gasoline tax rate is 18.4 cents per gallon. (see below)



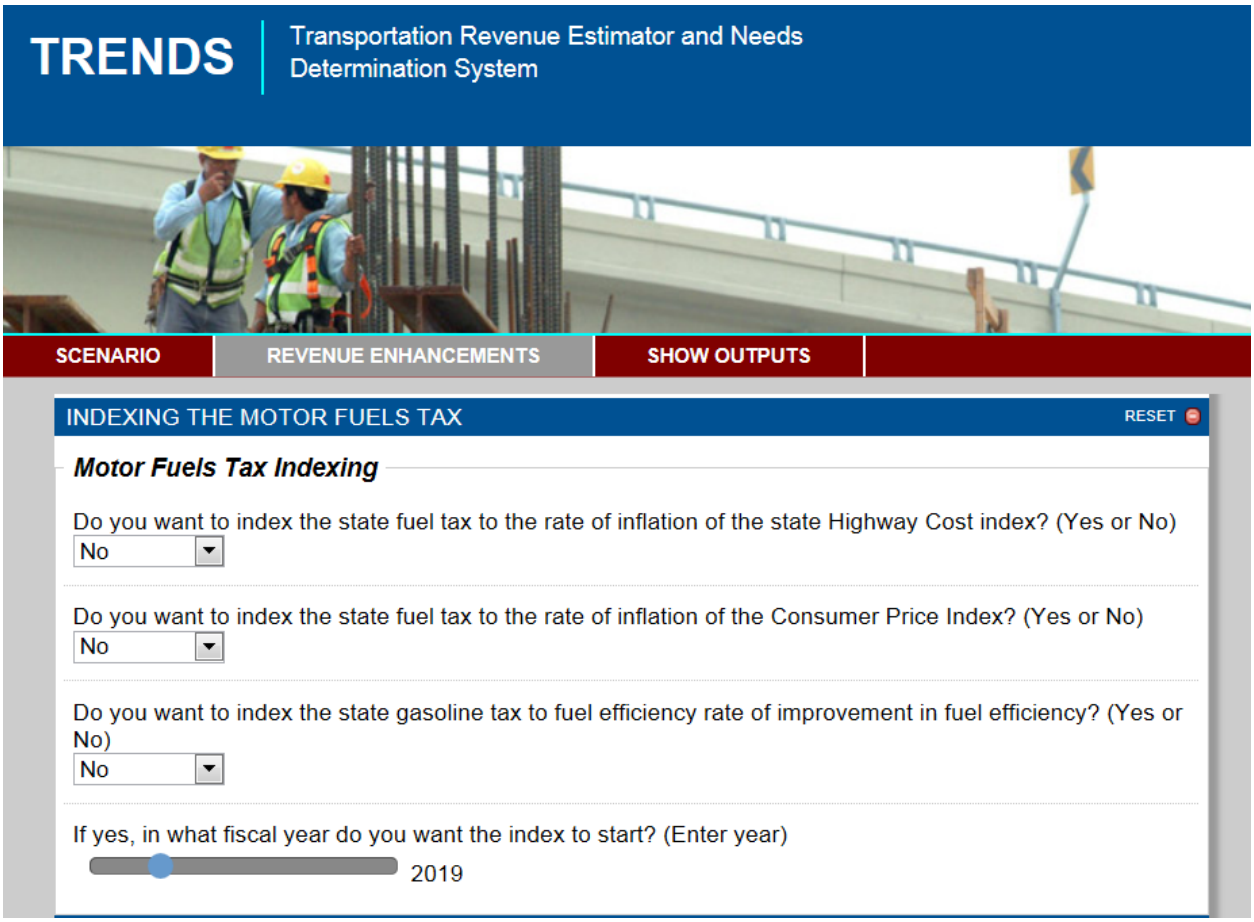
As with the state motor fuels taxes, you also have the option to increase the federal gasoline tax a second time. The same procedure is followed for the federal diesel fuel tax.



The last line of this section asks you to enter the "Total federal reimbursement as a percent of federal fuel tax revenue." This space allows you to enter the amount that will be reimbursed to you from total federal fuel tax revenue collected. The default answer is 85 percent.

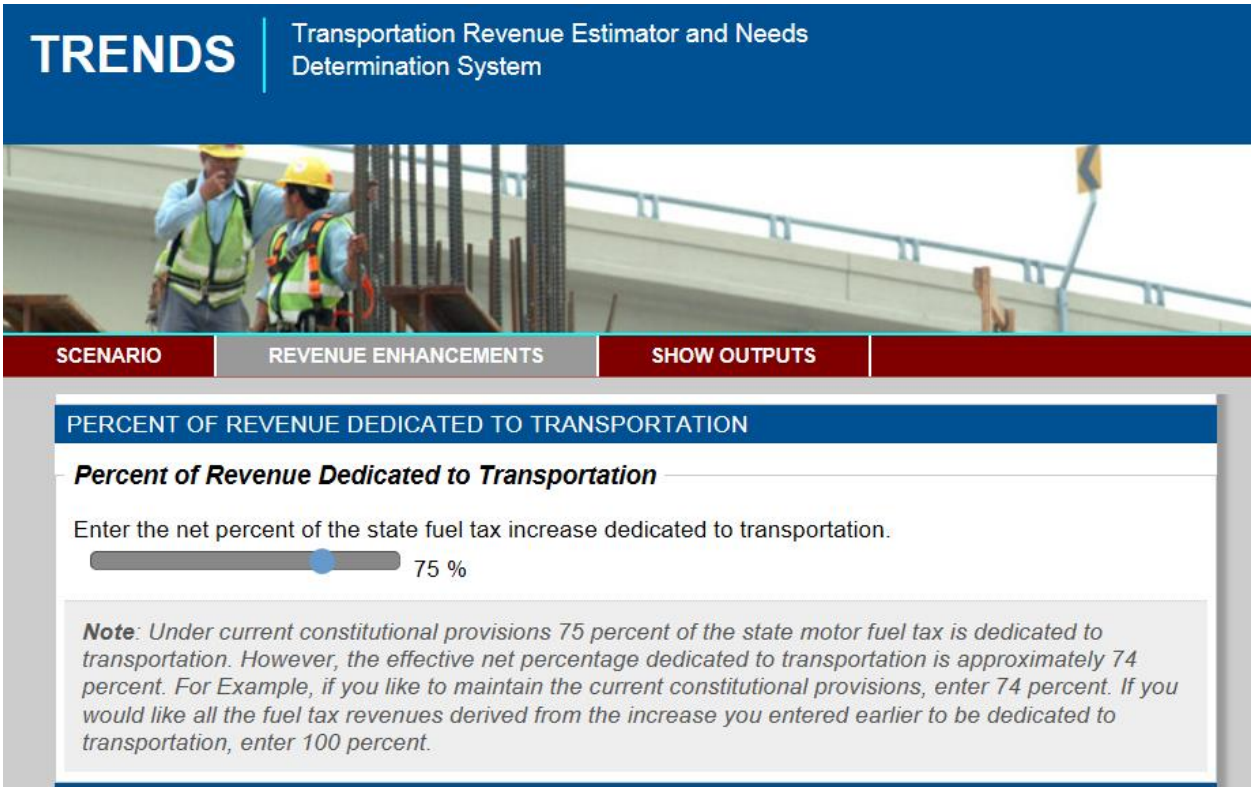
3.3 Indexing the Motor Fuels Tax

The next section of the TRENDS Model relates to the question of indexing the motor fuels tax. There are three options for indexing the state motor fuels tax: the tax can be indexed to the state Highway Cost Index, the Consumer Price Index, or the fuel efficiency rate of improvement. The default answer to all indexing options is "No". If you wish to index the state fuel tax, simple change the default answer to "Yes". (NOTE: Only one of the indexing options can be used. The model will not allow you to answer "Yes" to both options.) If you decide to index the state motor fuels tax, then enter the fiscal year in which you want indexing to begin. (see below)



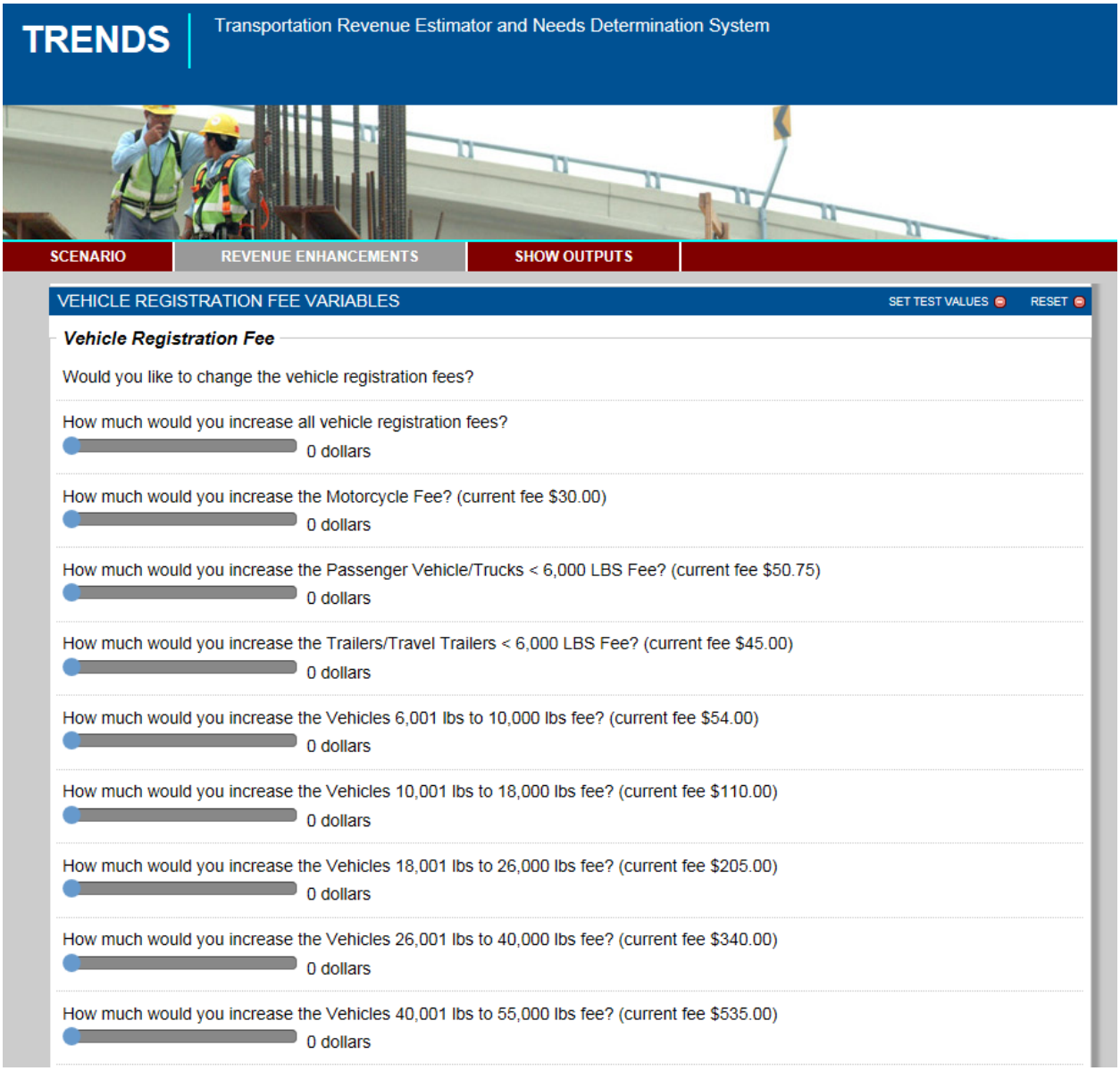
3.4 Percent Revenue Dedicated to Transportation

Under provisions of the Texas Constitution, three-quarters of state motor fuel taxes are dedicated to transportation with one-quarter dedicated to public education. Approximately one percent is retained by the Comptroller of Public Accounts. The TRENDS model provides you with the option to change the percentage allocation of the increase in state motor fuel taxes you have entered. (This entry DOES NOT change the distribution of the existing 20 cent per gallon fuel tax. It only changes the allocation of the INCREASE in state motor fuels taxes.) The default answer is 75 percent. (see below)



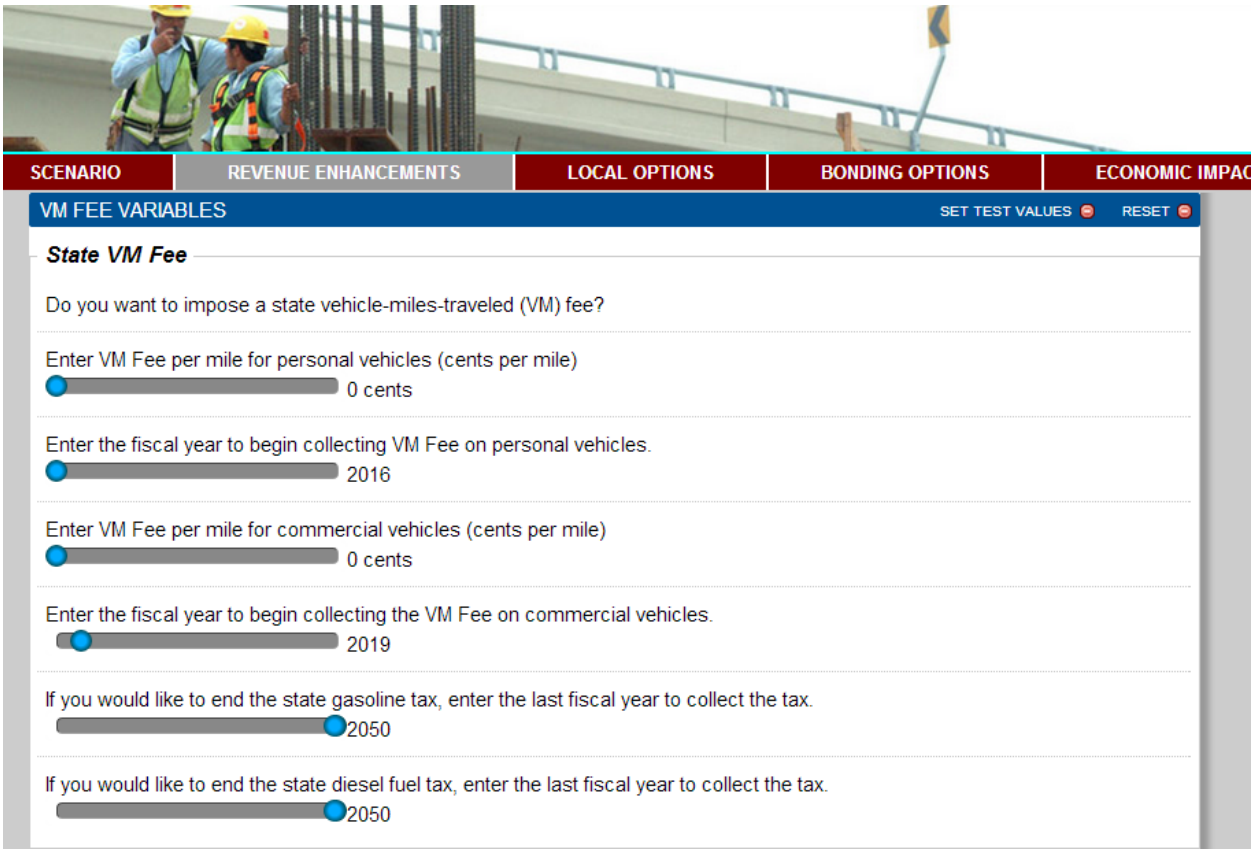
3.5 Vehicle Registration Fee Variables

The next set of questions relates to vehicle registration fees. First, the TRENDS Model asks if you would like to increase vehicle registration fees. You can enter the dollar amount of increase in vehicle registration fees and the fiscal year in which you want the increase to become effective. The model allows you to enter a different amount for each of the registration categories. As with the fuel tax options, you have ability to increase registration fees again and set the effective date of the second increase. (see below)



3.6 State Vehicle Miles (VM) Fee

The next section of the model relates to imposing a state vehicle miles traveled fee. You are asked to enter the rate (in cents per mile) of the VMT tax on personal vehicles as well as the rate (again, in cents per mile) of the VM fee on commercial vehicles. (See appendix for criteria used to differentiate between personal and commercial vehicles). Next, you are asked to enter the effective date of the fee. Finally, if you wish to stop collecting the state gasoline tax and/or the state diesel fuel tax you have that option by entering the last year in which the fuel tax will be collected. If you want to continue collecting the fuel tax in addition to the VMT tax, set the value to 2050. (see below)



3.7 Distribution of Funds from Revenue Enhancements (Advanced Mode Only)

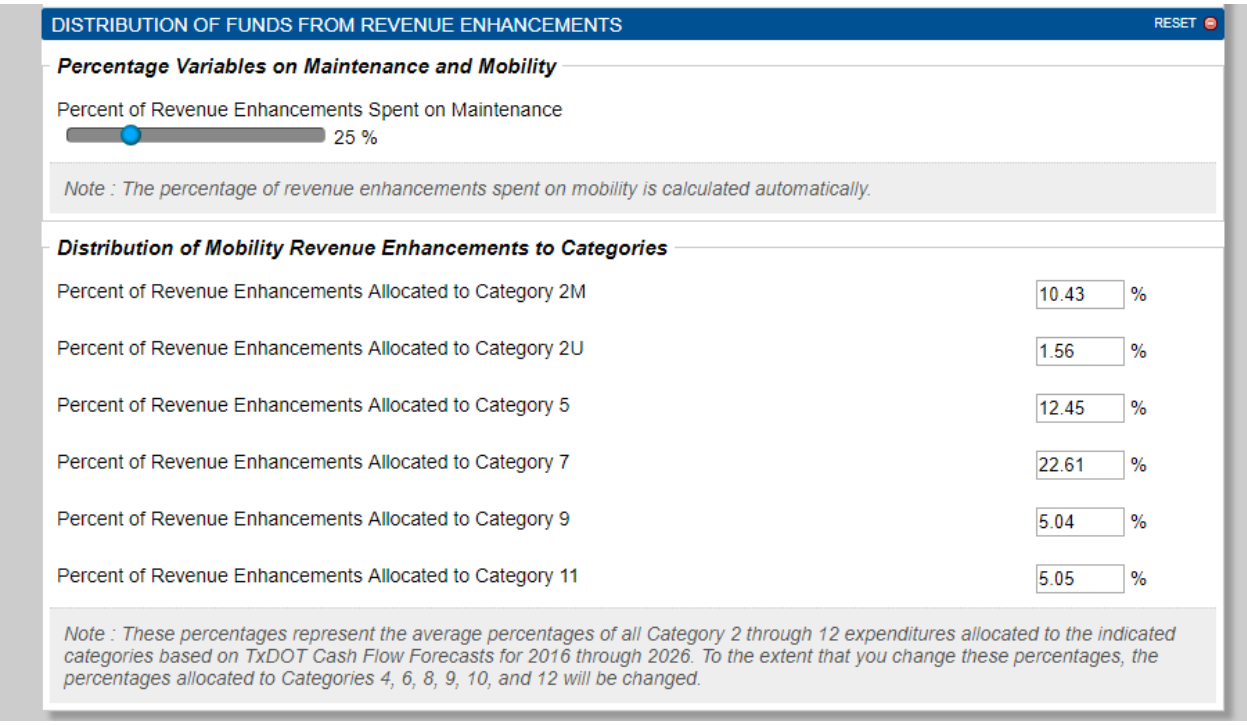
The next section relates to how revenue enhancements are distributed and used. Every ten years, the Texas Department of Transportation (TxDOT) and the Texas Transportation Commission develop the Unified Transportation Plan (UTP) to guide future transportation project selection. The Texas Transportation Commission (TTC) approves the UTP and authorizes those projects for development. Project development includes activities such as preliminary engineering work, environmental analysis, right of way acquisition, and design.

In order to develop this plan, the Texas Department of Transportation (TxDOT) creates a forecast based upon assumptions of revenues, expenditures, and fund balances. The UTP has two major components:

- **Mobility:** Funds for projects that add capacity to the states' transportation system

- **Preservation & Maintenance:** Maintenance and rehabilitation projects on existing highways.

Under the “Percentage Variables on Maintenance and Mobility” window, the TRENDS user can manipulate how much revenue enhancements will be spent on mobility and how much will be spent on maintenance. By default, the TRENDS model allocates 75 percent of revenue enhancements for mobility improvements and 25 percent toward maintenance. However, the user can allocate any amount of new revenue from 0 to 100 percent toward new construction. Enter the allocation distribution for revenue enhancements here. Note that the percentage distribution for the mobility and maintenance will automatically add up to 100 percent. (see below)



Next, the “Distribution of Mobility Revenue Enhancements Among Categories” window allows the TRENDS user to manipulate how revenue enhancements are distributed to each TxDOT funding category for mobility enhancements. Each default funding category distribution percentage is based on a 10-year historical cash flow average as outlined in the UTP. These percentages represent the average percentages of all Category 2 through 12 expenditures allocated to the indicated categories based on TxDOT Cash Flow Forecasts for 2017 through 2026. To the extent that you change these percentages, the percentages allocated to Categories 4, 6, 8, 10, and 12 will also be changed. Listed below are detailed descriptions for each fund category that the user can modify. See Appendix C for a detailed description for each TxDOT funding category as described in the 2014 UTP.

- **Category 2 Metropolitan Area (TMA) Corridor Projects:** These funds are intended to address the mobility needs for all major metropolitan areas (greater

than a population of 200,000) throughout the state. These funds are to be used to improve entire corridors of independent utility, whenever possible. Projects in this category must have the concurrence and support of the Metropolitan Planning Organization having jurisdiction within the area, Typically, TxDOT districts (with the support of their local MPOs) recommend projects to the Texas Transportation Commission for selection based on statewide funding targets. Transportation projects funded through this category must be along corridors approved by the MPO through the Metropolitan Transportation Plan process. Note that 87 percent of Category 2 funds are allocated to MPOs based on the following formula:

- 30 % — Total Vehicle Miles Traveled
- 17 % — Population
- 15 % — Congestion
- 10 % — On-system lane miles
- 14 % — Vehicle miles traveled (trucks)
- 7 % — Percent of population under federal poverty level
- 7 % — Total Incapacitating and fatal crashes

The TRENDS model provides default future revenue projections based on a 10-year historical average. For this category, the default funding distribution is 10.43 percent.

- **Category 2 Urban Area (non-TMA) Corridor Projects**: Category 2U is intended to address the mobility needs in all Metropolitan Planning Organization areas (greater than 50,000 and less than 200,000 population) throughout the state. Projects funded through this category must have the concurrence and support of local MPO having jurisdiction in the particular area. TxDOT districts, with concurrence and support of local MPOs, recommend projects to the Texas Transportation Commission for selection based on statewide funding targets. Projects must be located along corridors approved by the MPO through the Metropolitan Transportation Planning process. Note that 13 percent of Category 2 funds are allocated to MPOs based on the following formula:

  - 20 % — Total vehicle miles traveled (on and off system)
  - 25 % — Population
  - 15 % — Vehicle miles traveled (trucks)
  - 10 % — Congestion
  - 8 % — On-system lane miles
  - 10 % — Total incapacitating and fatal crashes
  - 4 % — Percent of population under federal poverty level
  - 8 % — Centerline miles (on-system)

  The TRENDS model provides default future revenue projections based on a 10-year historical average. For this category, average funding distribution is 1.56 percent.

- **Category 5 Congestion Mitigation and Air Quality (CMAQ):** This category is intended to address the attainment of a national ambient air quality standard in the non-attainment areas of the state. In Texas, non-attainment areas currently are Houston, Dallas/Fort Worth, Beaumont, and El Paso. Funds from this category are directed toward transportation projects that address congestion mitigation and air quality improvement within these non-attainment areas. CMAQ projects are selected by the Metropolitan Planning Organization in consultation with TxDOT and the Texas Commission on Environmental Quality. Each CMAQ project must be evaluated to quality improvement benefits. In addition, these funds cannot be used to add capacity for single occupancy vehicles. Before final letting, projects built with Category 5 funds must have final approval by the Environmental Protection Agency (EPA) and the Federal Highway Administration (FHWA) and must be developed in accordance with applicable federal or state environmental requirements. For this category, average fund allocation is 12.45 percent.

- **Category 7 STP Metro Mobility and Maintenance Expenses:** This category is to address transportation needs within the metropolitan area boundaries of Metropolitan Planning Organizations having urbanized areas with populations of 200,000 or greater. These funds are allocated directly from the FHWA. Projects funded by this category are selected by the Metropolitan Planning Organization in consultation with the districts. This program authority can be used on any roadway with a functional classification greater than a local road or rural minor collector. Each urbanized area with a population in excess of 200,000 receives an annual allocation to expend each year. Allocations are based on population and distributed to TxDOT districts. The program is managed as an allocation program, and eligible projects (selected by the Metropolitan Planning Organization) are developed by the districts on an as-needed basis. And allocated based on MPO population. The TRENDS model provides default future revenue projections based on a 10-year historical average. For this category, average fund allocation is 22.61 percent.

- **Category 9 Transportation Alternatives Program:** This category is administered by TxDOT and is used to fund certain transportation projects. These funds have greater flexibility and could be made eligible for the following: (1) construction of on- and off-road trail facilities for pedestrian and bicycle facilities, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic-calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990; (2) construction of infrastructure-related projects and systems that provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs; (3) conversion and use of abandoned railroad corridors for trails for pedestrian, bicyclists, or other non-motorized transportation users; (4) construction of infrastructure-related projects to improve the ability of students to walk and bicycle to school, including sidewalk improvements, traffic

calming and speed reduction improvements, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, secure bicycle parking facilities, and traffic diversion improvements in the vicinity of schools; projects that require the acquisition of real property through exercise of eminent domain or condemnation is not eligible for participation in the transportation alternatives program. For this category, average fund allocation is 5.05 percent.

- **Category 11 District Discretionary funding:** This category is used to address projects selected at the district' engineer's discretion. Most projects funded through this category should be on the state highway system. However, some projects are selected for construction off the state highway system on roadways with a functional classification greater than a local road or rural minor collector. Projects in this category must have the concurrence and support of the Metropolitan Planning Organization (MPO) having jurisdiction in the particular area. Each district will receive a minimum allocation of $2,500,000 and may not be used to offset over-runs on previously selected projects. The program is managed as allocation programs with eligible projects developed by the districts within their allocations. The District Discretionary Programs are usually one-year programs with the funds available for use within four years. The TRENDS model provides default future revenue projections based on a 10-year historical average. For this category, average fund allocation is 5.05 percent.

4. TRENDS MODEL LOCAL OPTIONS TAB (ADVANCED)

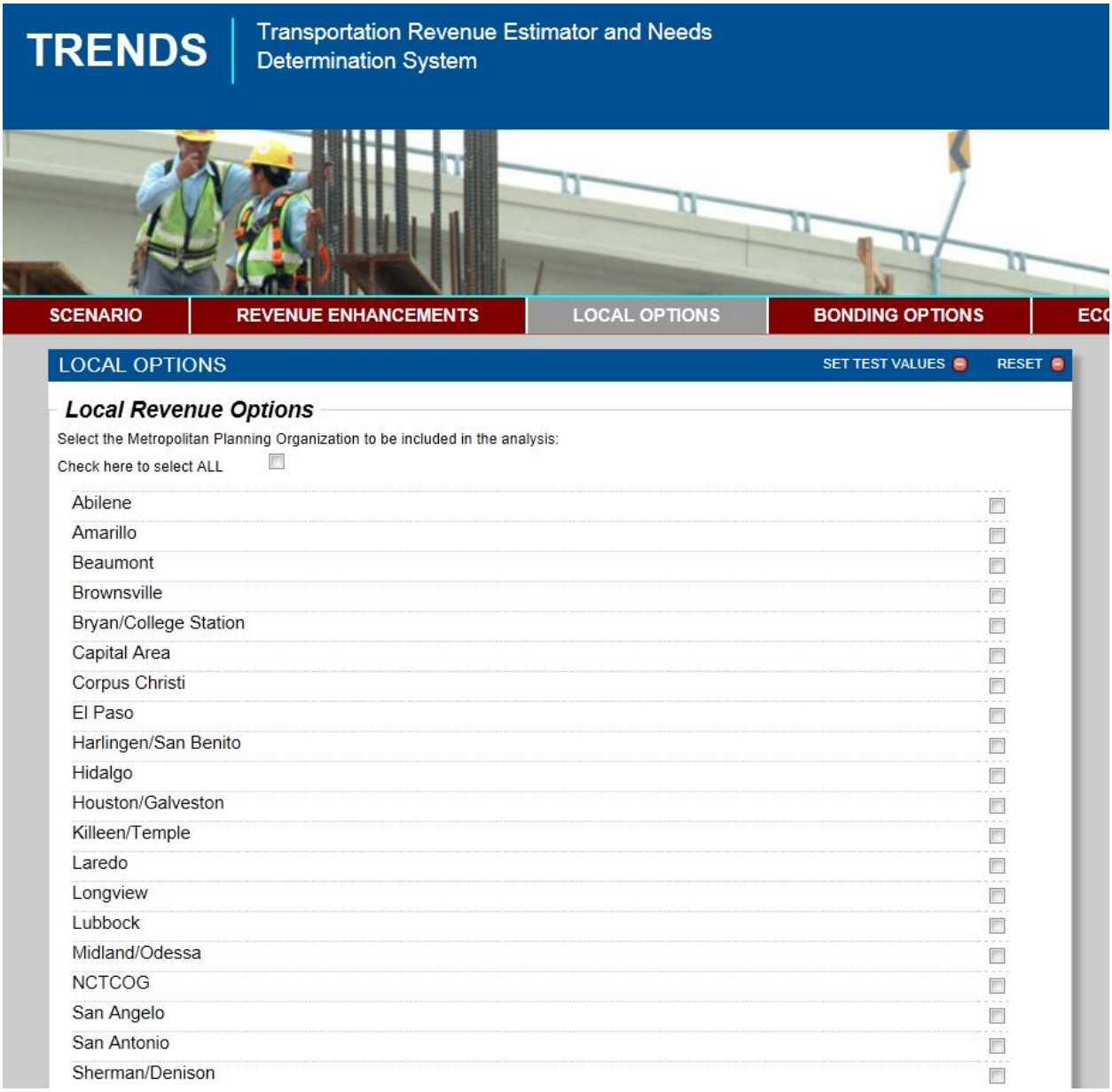
This chapter offers a step-by-step guide on how to interpret the questions asked in the Local Options tab of the TRENDS model. This tab is only visible in Advanced Input Mode. Each section in this User's Guide is ordered according to how each section appears in the TRENDS model.

4.1 Local Options

At present, local options for funding the transportation network are limited to revenue bonds (and tolls), general obligation bonds, a portion of vehicle registration fees, plus local sales and property taxes. This section of the model allows the user to assess the impact of local fuel taxes, a local VMT fee and local vehicle registration fees if such enabling legislation allowing their use were to be adopted by the Texas Legislature. For the purpose of assessing hypothetical scenarios, the level of analysis built into the model is the Metropolitan Planning Organization.

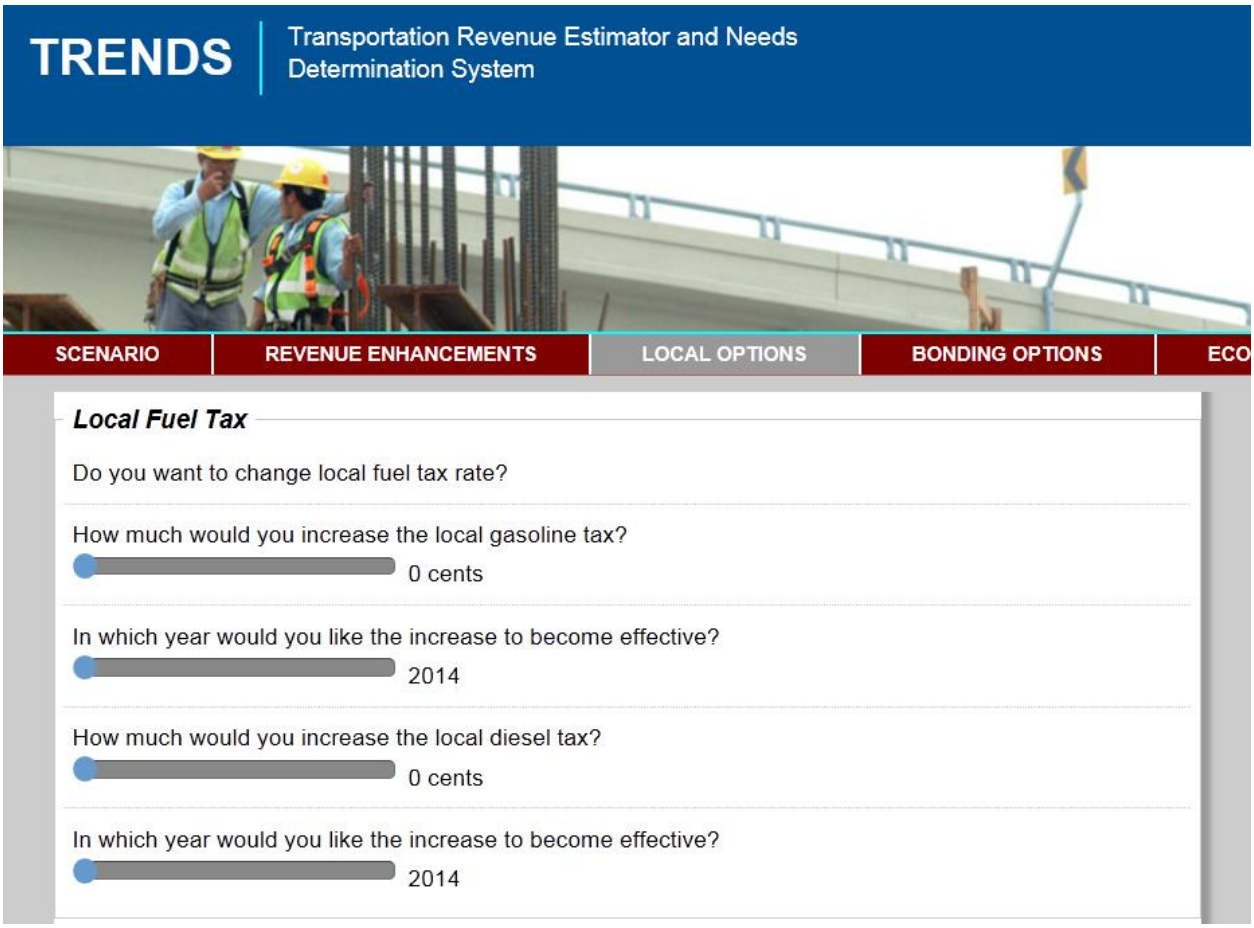
4.1-1 Local Revenue Options

This section allows you to select local revenue projections for Metropolitan Planning Organizations in Texas. This will allow you to view a statement of revenue for a specific MPO that you select as well as compare multiple MPO's in one statement. Click all the MPO's that you would like to include in the data output here. (see below)



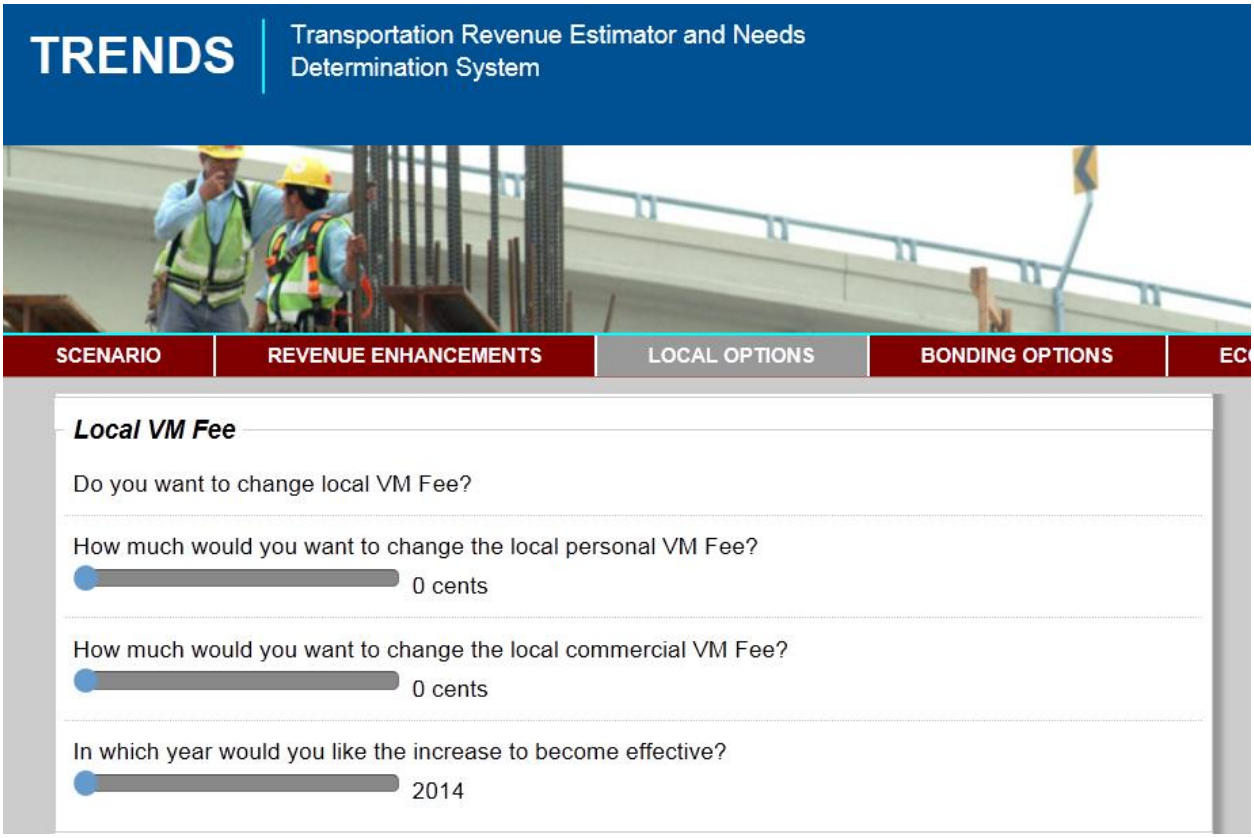
4.1-2 Local Fuel Tax

The next set of questions relates to local fuel taxes. First, the TRENDS Model asks if you would like to change the local fuel tax rate. The TRENDS model then asks, “How much would you increase the local gasoline tax?” The model requires you to enter the amount of cents per gallon you wish to increase the local gasoline tax. The model then asks, “In which year would you like the increase to become effective?” Enter the year in which you would like the tax increase to take effect. Follow the same process for the local diesel tax section. (see below)



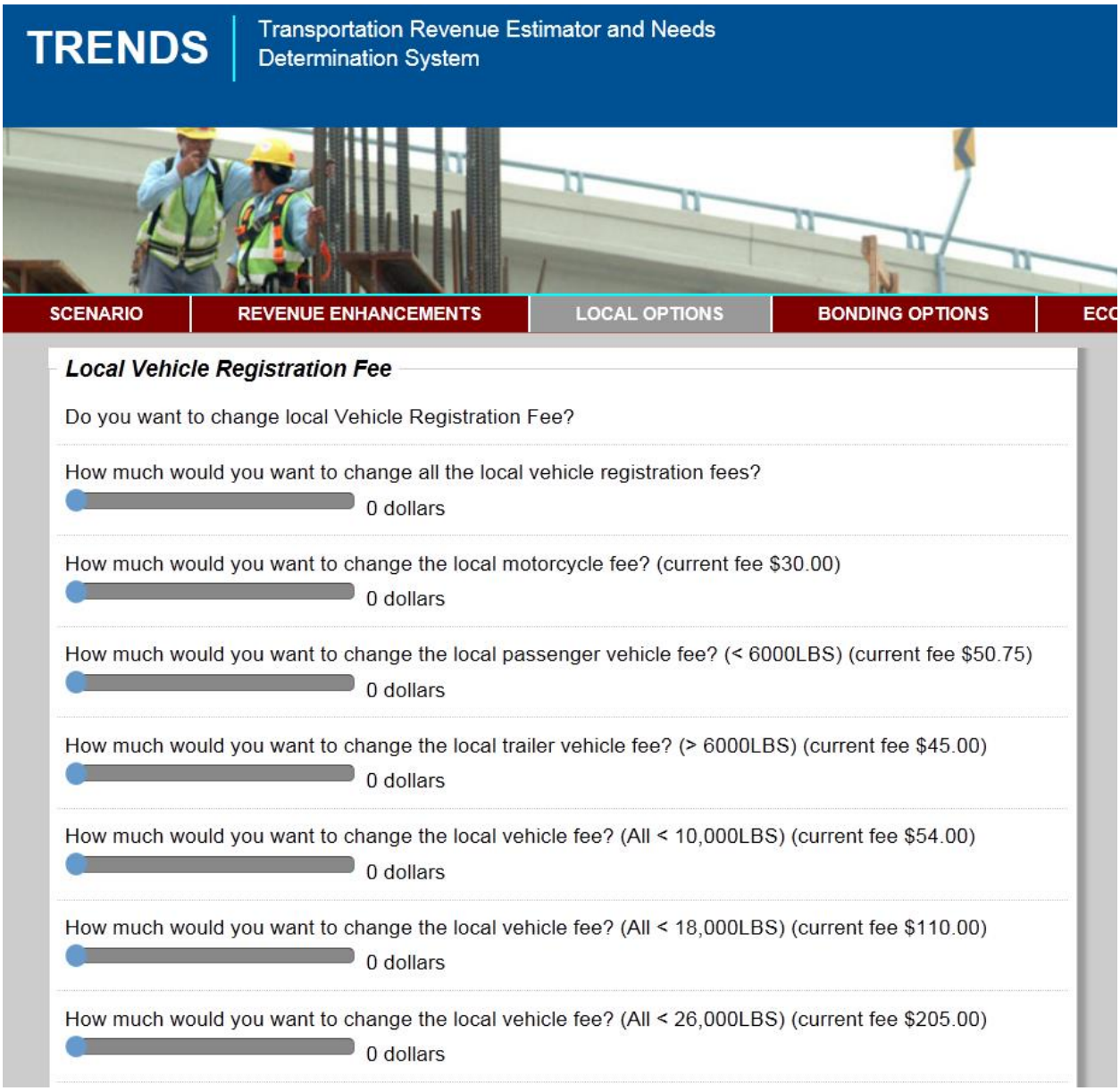
4.1-3 Local VM Fee

The next set of questions relates to local vehicle miles traveled (VM) fee. The TRENDS Model first asks if you would like to change the local VM fee. If so, the model then asks, "How much would you like to change the local personal VMT?" The model requires you to enter the amount of cents per gallon you wish to increase the local personal VMT tax. Next, the model allows you to enter a different rate for commercial vehicle miles. The model then asks, "In which year would you like the increase to become effective?" Enter the year in which you would like the tax increase to take effect. (see below)



4.1-4 Local Vehicle Registration Fee

The next set of questions relates to local vehicle registration fees. The TRENDS Model first asks if you would like to change the local vehicle registration Fee. The TRENDS model then asks, “How much would you like to change the local vehicle passenger fee for vehicles less than 6000 lbs.?” Enter a dollar amount. “How much do you want to change the local passenger vehicle fee for vehicles greater than 6000 lbs.?” Follow the same process for the local truck fee and local motorcycle fee questions that follow. The model then asks, “In which year would you like the increase to become effective?” Enter the year in which you would like the fee increases to take effect. (see below)



4.1-5 Local Fuel Efficiency

The next set of questions relates to local fuel efficiency. This might be useful if you feel that your locality has a higher or lower number of fuel efficient vehicles relative to other areas in Texas. The TRENDS Model first asks if you would like to change the local fuel efficiency. The model then asks you to select the fuel efficiency for local commercial vehicles. You are provided four options: low fuel efficiency, low-average fuel efficiency, average fuel efficiency, and high fuel efficiency. (You may consult the fuel efficiency discussion at the end of the User's Guide for a detailed description on fuel efficiency projections). Follow the same process for selecting the fuel efficiency assumption for local personal vehicles. (see below)

TRENDS | Transportation Revenue Estimator and Needs Determination System

SCENARIO | REVENUE ENHANCEMENTS | LOCAL OPTIONS | BONDING OPTIONS

Local Fuel Efficiency

Do you want to change local fuel efficiency?

Select the fuel efficiency assumption for local commercial vehicles.

Average

Select the fuel efficiency assumption for local personal vehicles.

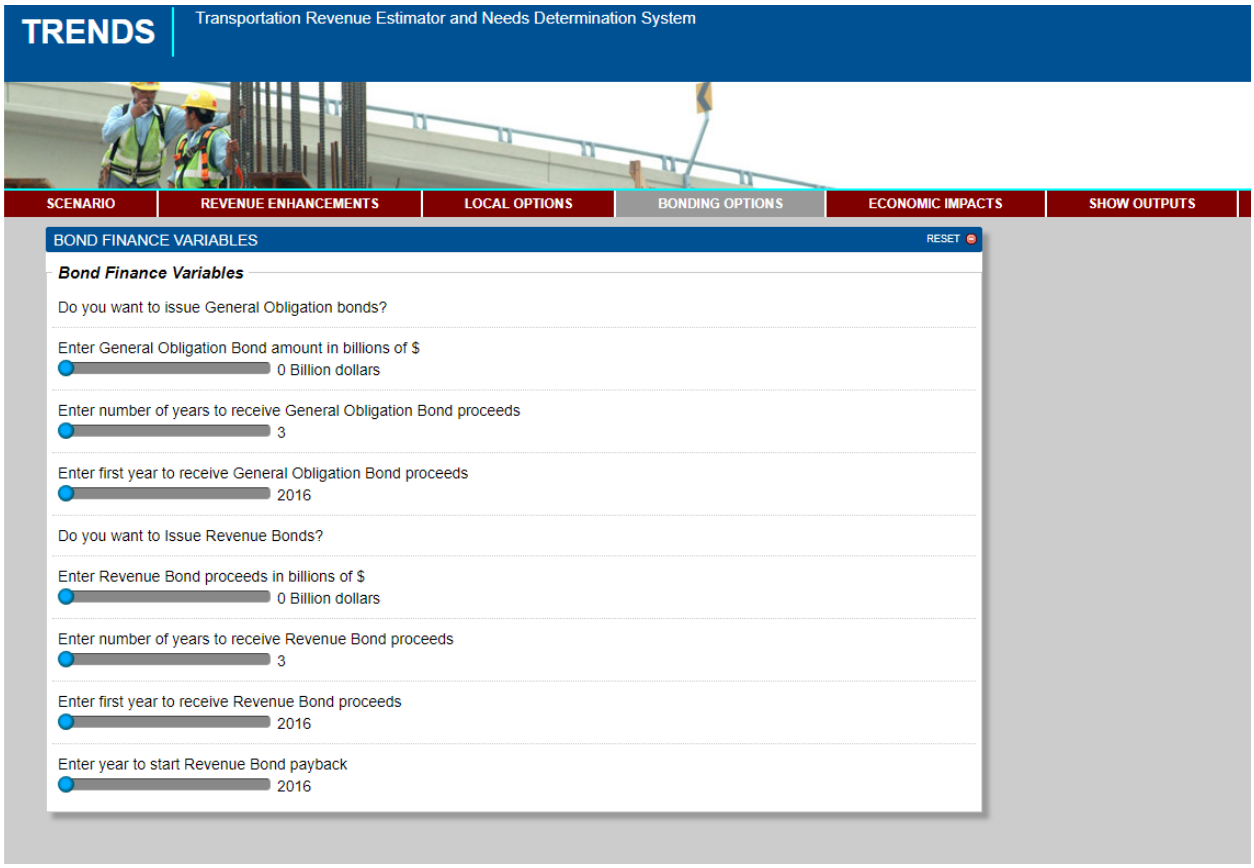
Average

5. TRENDS MODEL BONDING OPTIONS TAB (ADVANCED)

This chapter offers a step-by-step guide on how to interpret the questions asked in the Bonding Options tab of the TRENDS model. This tab is only visible in Advanced Input Mode. Each section in this User's Guide is ordered according to how each section appears in the TRENDS model.

5.1 Bond Finance Variables

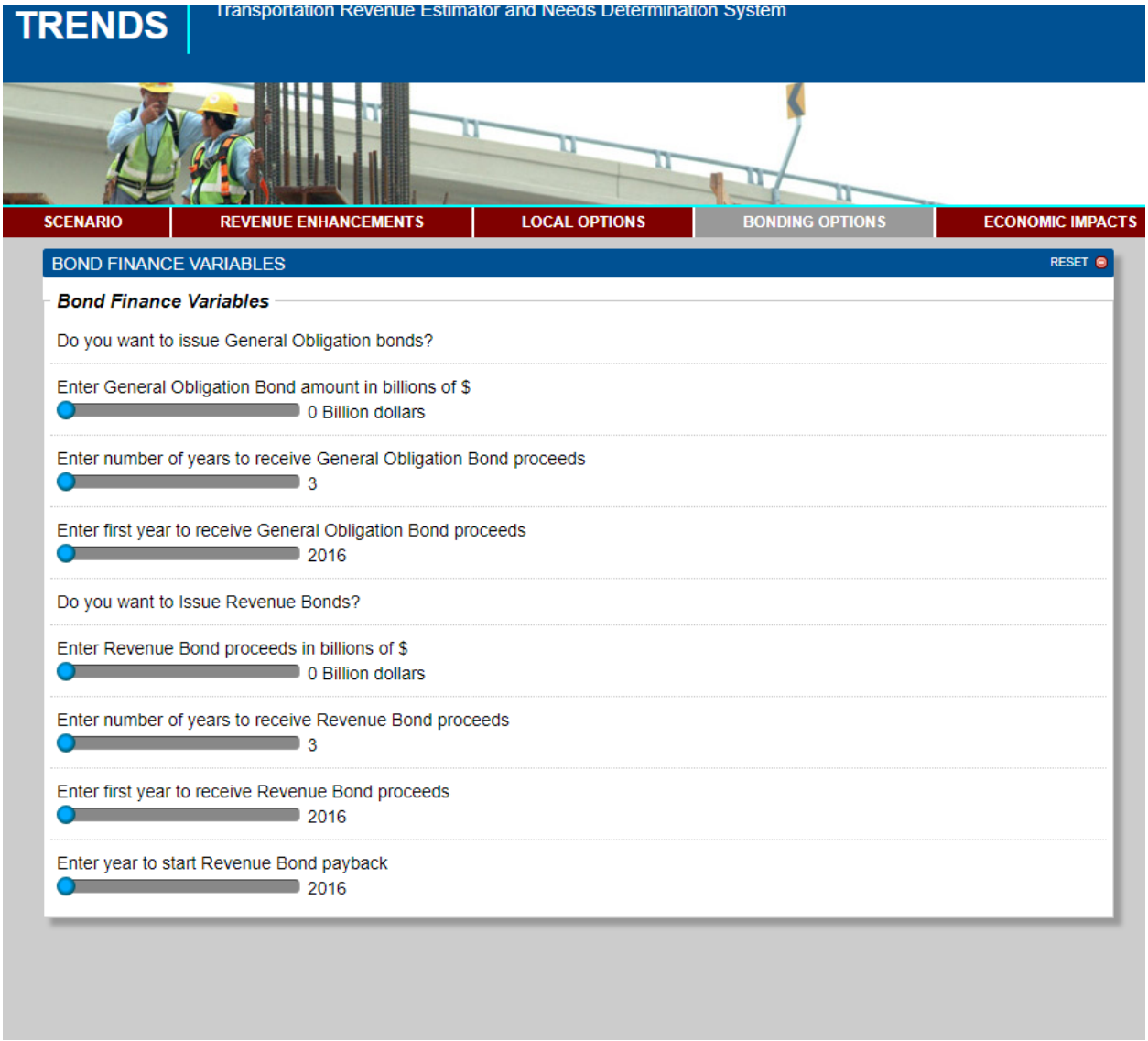
Next, the TRENDS model will then ask you the bond amount in billions of dollars you wish to issue. Next, the model will ask for the number of years in which you expect to receive GO proceeds. The smallest number of years you can enter for this question is 3. Finally, the TRENDS model will ask you for the first year in which you wish to receive GO proceeds. (see below)



The TRENDS model then will ask questions related to issuing revenue bonds. Revenue bonds can be issued by state transportation agencies to fund transportation-related projects. These bonds are short term and are secured by the state highway fund.

These bonds are intended to help address short-term cash flow shortfalls for TxDOT and to accelerate transportation project financing.[5]

Next, the TRENDS model will then ask you the revenue bond amount in billions of dollars you wish to issue. Next, the model will ask for the number of years in which you expect to receive proceeds. The smallest number of years you can enter in this space is 3. The TRENDS model will then ask you for the first year in which you wish to receive proceeds. Finally, you will be asked for the year in which you expect to begin paying back the revenue bonds. (see below)



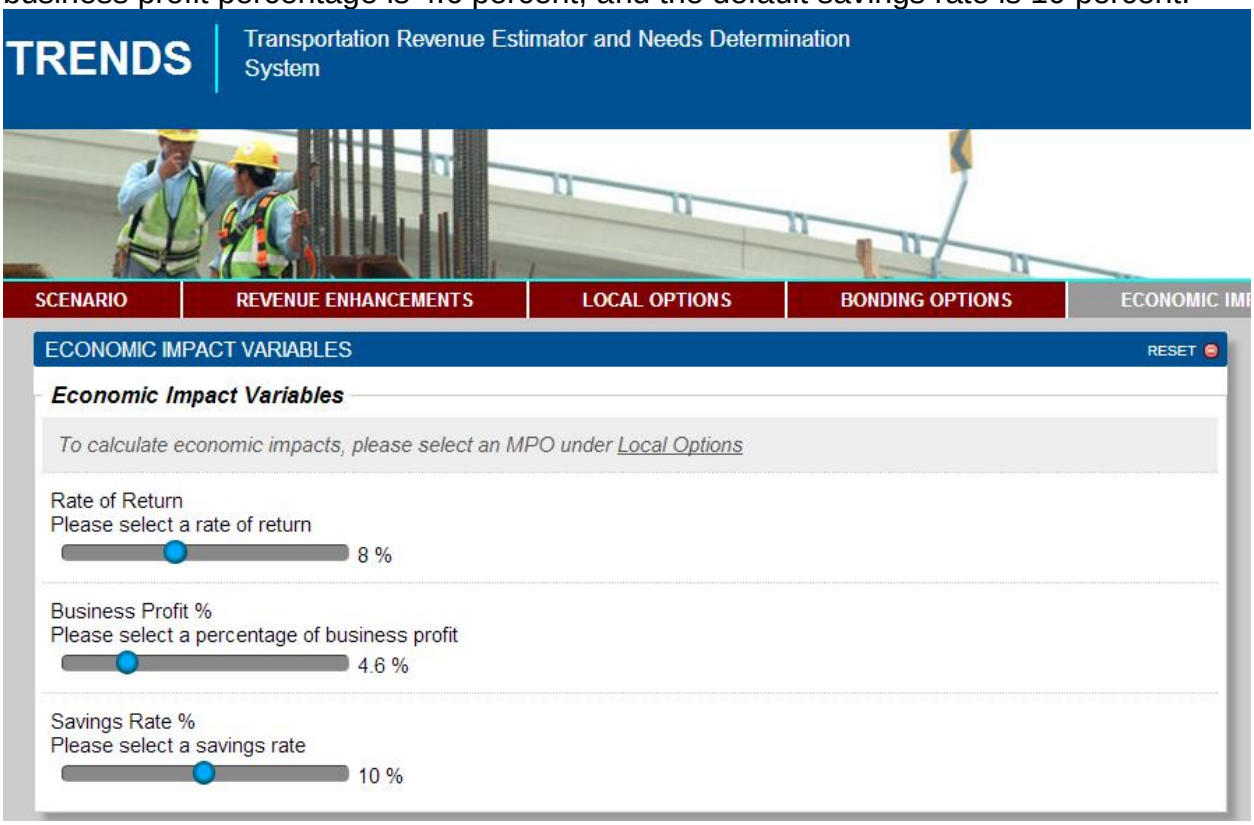
[5] House Research Organization. *Proposition 14: Allowing borrowing by the Texas Transportation Commission.* Austin. 2008. <http://www.hro.house.state.tx.us/focus/prop78-14.pdf>

6. TRENDS MODEL ECONOMIC IMPACTS TAB (ADVANCED)

This chapter offers a step-by-step guide on how to interpret the questions asked in the Economic Impacts tab of the TRENDS model. This tab is only visible in Advanced Input Mode. Each section in this User's Guide is ordered according to how each section appears in the TRENDS model. This module allows the user to see the economic impact the revenue scenario they have chosen has on a particular MPO. Even if you do not wish to include local option revenue in your scenario, please select a MPO on the Local Options tab to define the region in which to calculate the economic impacts.

6.1 Economic Impact Variables

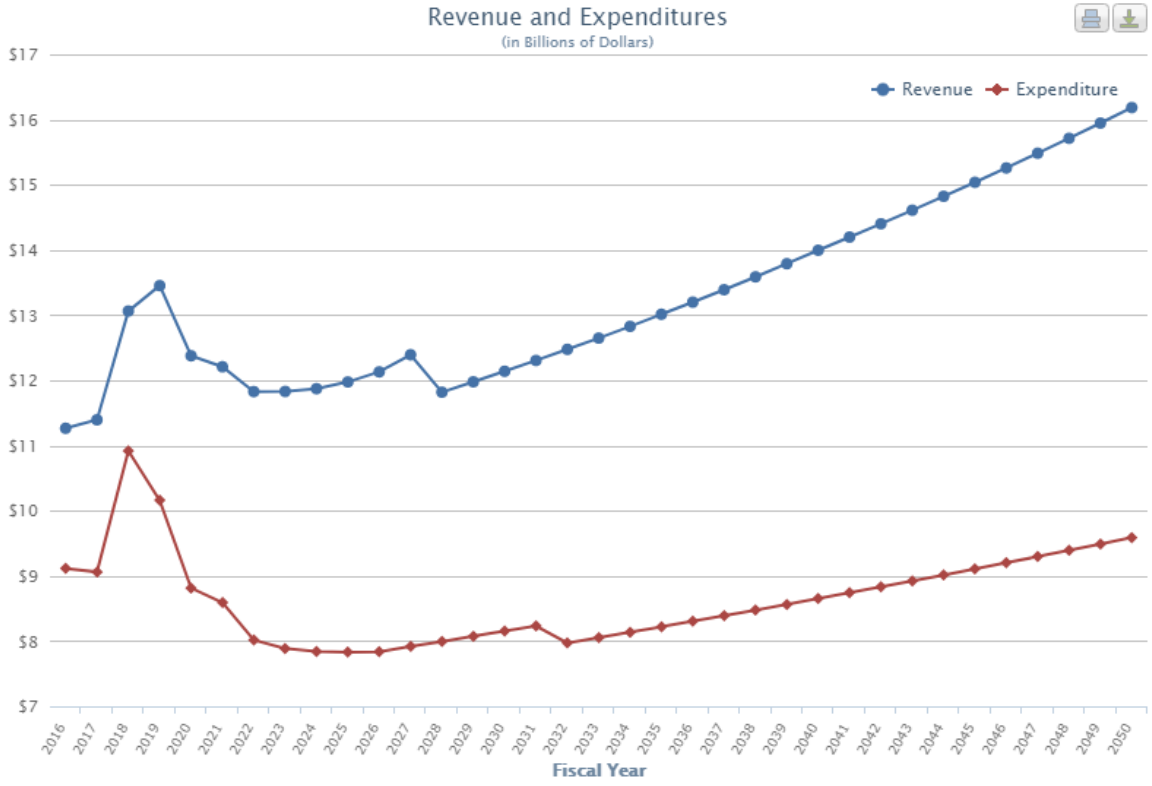
In this section, you can adjust the rate of return, the percentage of profit a business experiences, and the savings rate. The default rate of return is 8 percent, the default business profit percentage is 4.6 percent, and the default savings rate is 10 percent.



7. TRENDS MODEL OUTPUTS

This chapter offers a step-by-step guide on how to interpret the reports presented in the TRENDS model. Each section in this User's Guide is ordered according to how each section appears in the TRENDS model.

As you increase revenues or capacity expenditures the graph displayed on the right side of your screen will adjust to depict each change. Note: You can click the "Revenue/Expense Chart" at any time to see the baseline revenues in blue and expenses in red. (see below)



7.1 Output Reports

The following sections provide an explanation of each output report found under the Output tab in the TRENDS model.

7.1-1 Input Variables

This report lists the user variables selected. This is a recap of all the selections currently being used. You can download these input variables by clicking on the PDF icon in the upper right-hand corner of the chart.

Input Variables	
State Motor Fuel Tax Variables	
Current State Gasoline Tax Rate	0.2
If You Would Like to Increase the State Gasoline Tax, Enter the Amount of the Increase	0
Enter the Year the Gasoline Tax Increase Takes Effect	2016
If You Would Like to Increase the State Gasoline Tax Again, Enter the Amount of the Increase	0
Enter the Year the Second Gasoline Tax Increase Takes Effect	2016
Current State Diesel Tax Rate	0.2
If You Would Like to Increase the State Diesel Fuel Tax, Enter the Amount of the Increase	0
Year the Diesel Fuel Tax Increase Takes Effect	2016
If You Would Like to Increase the State Diesel Fuel Tax Again, Enter the Amount of the Increase	0
Enter the Year the Second Diesel Fuel Tax Increase Takes Effect	2016
Do You Want to Index the State Gasoline Tax to the Rate of Inflation in the Highway Cost Index	No
Do You Want to Index the State Gasoline Tax to the Rate of Inflation in the Consumer Price Index	No
Do you want to index the state gasoline tax to fuel efficiency rate of improvement in fuel efficiency Price Index	No
If Yes, What Year Do You Want the Index to Start	2019
Net Percent of State Fuel Tax Dedicated to Transportation	0.75
Net Percent of State Fuel Tax Increase Dedicated to Transportation	0.75
State VM Fee Variables	
Enter VM Fee Per Mile for Personal Vehicles (cents per mile)	0
Enter VM Fee Per Mile for Commercial Vehicles (cents per mile)	0
Enter year to begin collecting VM fee on Personal Vehicles	2016
Enter year to begin collecting VM fee on Commercial Vehicles	2016
If You Would Like to End the State Gasoline Tax, Enter the Last Year to Collect the Tax	2050
If You Would Like to End the State Diesel Fuel Tax, Enter Last Year to Collect State Diesel Fuel Tax	2050

7.1-2 Revenue/Expense Summary

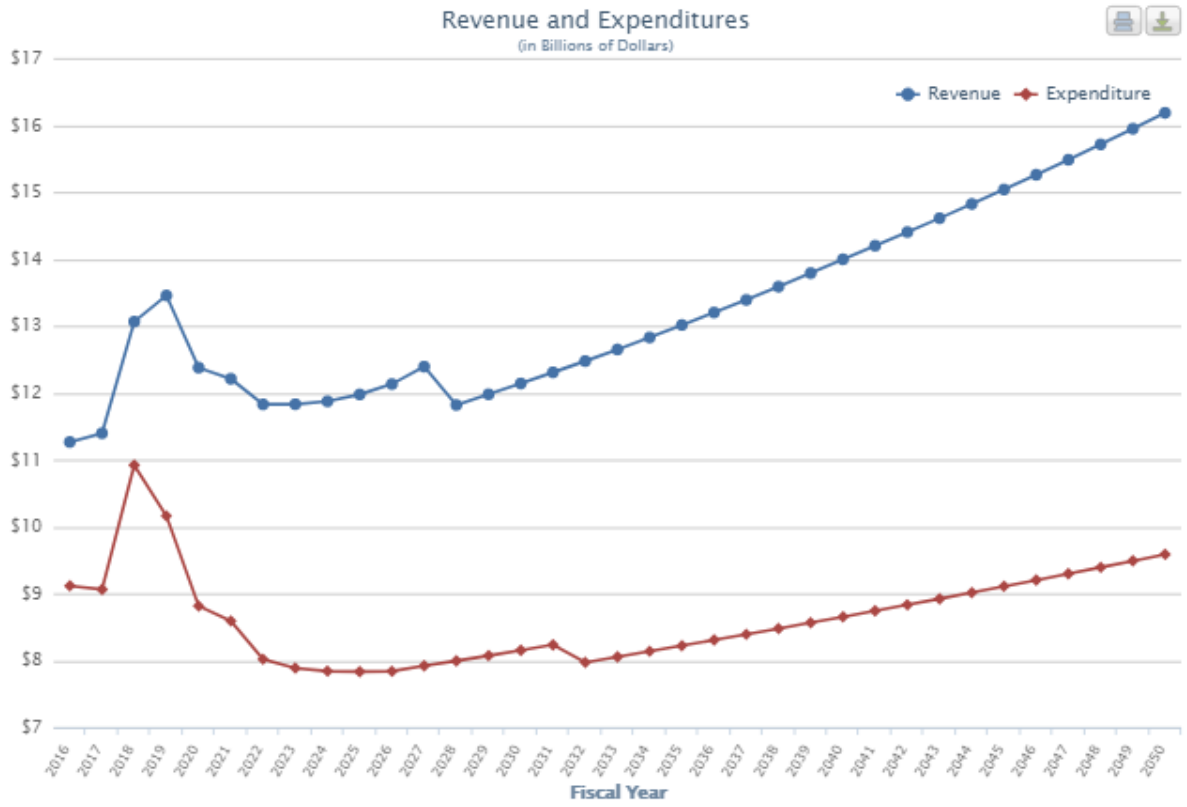
This view shows the Projected Revenue and Expenditures (in millions) from 2017 to 2050. Columns include the Fiscal Year, Total Revenues, Maintenance and Operating Expenditures, New Capacity Expenditures, Annual Balance of Funds, and Cumulative Balance.

PROJECTED REVENUE AND EXPENDITURES
(IN MILLIONS)

FISCAL YEAR	TOTAL REVENUES	MAINTENANCE AND OPERATING EXPENDITURES	NEW CAPACITY EXPENDITURES	ANNUAL BALANCE OF FUNDS	CUMULATIVE BALANCE
2012	$9,785	$9,000	$0	$785	$785
2013	$9,080	$8,683	$0	$397	$1,182
2014	$8,992	$8,523	$0	$469	$1,651
2015	$8,979	$7,658	$0	$1,321	$2,972
2016	$7,874	$7,227	$0	$647	$3,619
2017	$7,833	$7,299	$0	$534	$4,153
2018	$7,915	$7,471	$0	$444	$4,597
2019	$7,895	$7,599	$0	$296	$4,893
2020	$7,972	$7,729	$0	$243	$5,136
2021	$8,031	$7,781	$0	$250	$5,386
2022	$8,101	$7,761	$0	$340	$5,726
2023	$7,705	$7,446	$0	$259	$5,985
2024	$7,741	$7,487	$0	$254	$6,239
2025	$7,770	$7,518	$0	$252	$6,491
2026	$7,794	$7,587	$0	$207	$6,698
2027	$7,814	$7,655	$0	$159	$6,857
2028	$7,830	$7,726	$0	$104	$6,961
2029	$7,841	$7,800	$0	$41	$7,002
2030	$7,849	$7,873	$0	$-24	$6,978
2031	$7,893	$7,582	$0	$311	$7,289
2032	$7,945	$7,656	$0	$289	$7,578
2033	$8,007	$7,733	$0	$274	$7,852
2034	$8,077	$7,806	$0	$271	$8,123
2035	$8,154	$7,881	$0	$273	$8,396
2036	$8,229	$7,960	$0	$269	$8,665

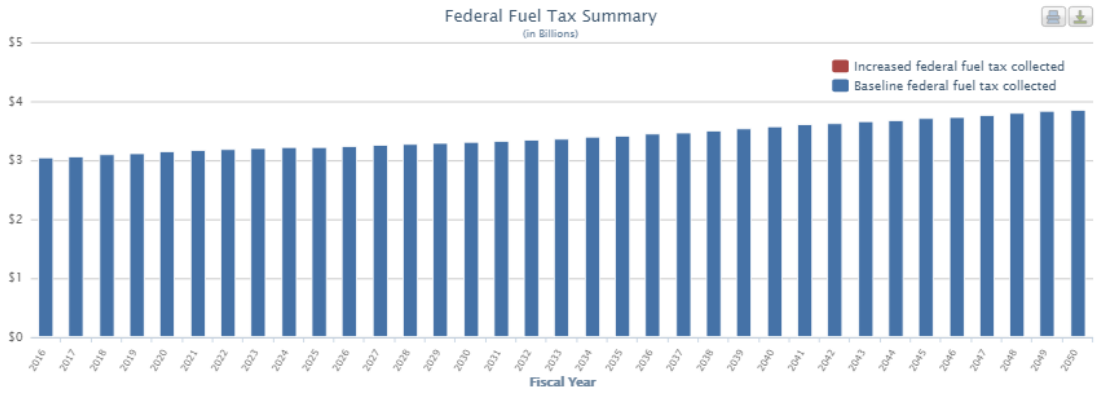
7.1-3 Revenue/Expense Chart

This graph plots the revenues in blue and the expenses in red over the analysis period.



7.1-4 Federal Fuel Tax Summary

This report shows a graph of the federal fuel revenue collected as well as a table of revenues and yearly estimated amounts reimbursed to the state.



FEDERAL FUEL TAX SUMMARY
(DOLLAR AMOUNTS IN THOUSANDS)

FISCAL YEAR	BASELINE FEDERAL FUEL TAX COLLECTED	INCREMENTAL INCREASE IN FEDERAL FUEL TAX COLLECTED	TOTAL FEDERAL FUEL TAX COLLECTED	TOTAL FEDERAL REIMBURSEMENT OF FUEL TAX REVENUE
2016	$3,043.8	$0.0	$3,043.8	$2,587.2
2017	$3,068.3	$0.0	$3,068.3	$2,608.1
2018	$3,093.1	$0.0	$3,093.1	$2,629.2
2019	$3,117.9	$0.0	$3,117.9	$2,650.2
2020	$3,141.5	$0.0	$3,141.5	$2,670.3
2021	$3,161.9	$0.0	$3,161.9	$2,687.6
2022	$3,181.0	$0.0	$3,181.0	$2,703.8
2023	$3,197.1	$0.0	$3,197.1	$2,717.5
2024	$3,210.8	$0.0	$3,210.8	$2,729.2
2025	$3,220.9	$0.0	$3,220.9	$2,737.8
2026	$3,233.1	$0.0	$3,233.1	$2,748.1
2027	$3,247.5	$0.0	$3,247.5	$2,760.4
2028	$3,264.5	$0.0	$3,264.5	$2,774.8
2029	$3,281.4	$0.0	$3,281.4	$2,789.2
2030	$3,299.1	$0.0	$3,299.1	$2,804.2
2031	$3,317.6	$0.0	$3,317.6	$2,820.0

7.1-5 Detail Summary

This view shows the Revenues and Expenses projected from 2017-2050. Revenue categories include State Revenues, Federal Reimbursements, and total revenues. Expense categories include the 12 expense categories as determined by TxDOT, costs for each of the five major TxDOT operations strategies, TxDOT financing functions, and costs for new capacity. Click the arrows next to the year to scroll through the individual years.

Detail Summary (in Millions)	
Revenues	
State Revenues	
Fuel Taxes	$2,521
Vehicle Registration Fees	$1,463
Vehicle Mile Traveled Tax	$0
Bond Proceeds	$1,424
Mobility Funds	$1
Mobility Funds - Taxes & Fees	$402
Economic Stimulus Funds	$42
Miscellaneous	$1,156
Prop 1 - Oil & Gas Severance Taxes	$1,135
Prop 7 - Sales & Use Taxes	$0
SUBTOTAL, STATE REVENUES	$8,143
Federal Reimbursements	
Fuel Tax	$5,221
Other	$181
SUBTOTAL, FEDERAL REIMBURSEMENTS	$5,403
TOTAL REVENUES	$13,546
Expenses	
Category 1 Preservation	$325
Category 1 Preservation Catch-up	$0
Category 1 Routine	$857
Category 2M TMA Corridor Projects	$215
Category 2U Non-TMA Corridor Projects	$32
Category 3 Non-Traditional Funding	$0

7.1-6 Summary to 2050

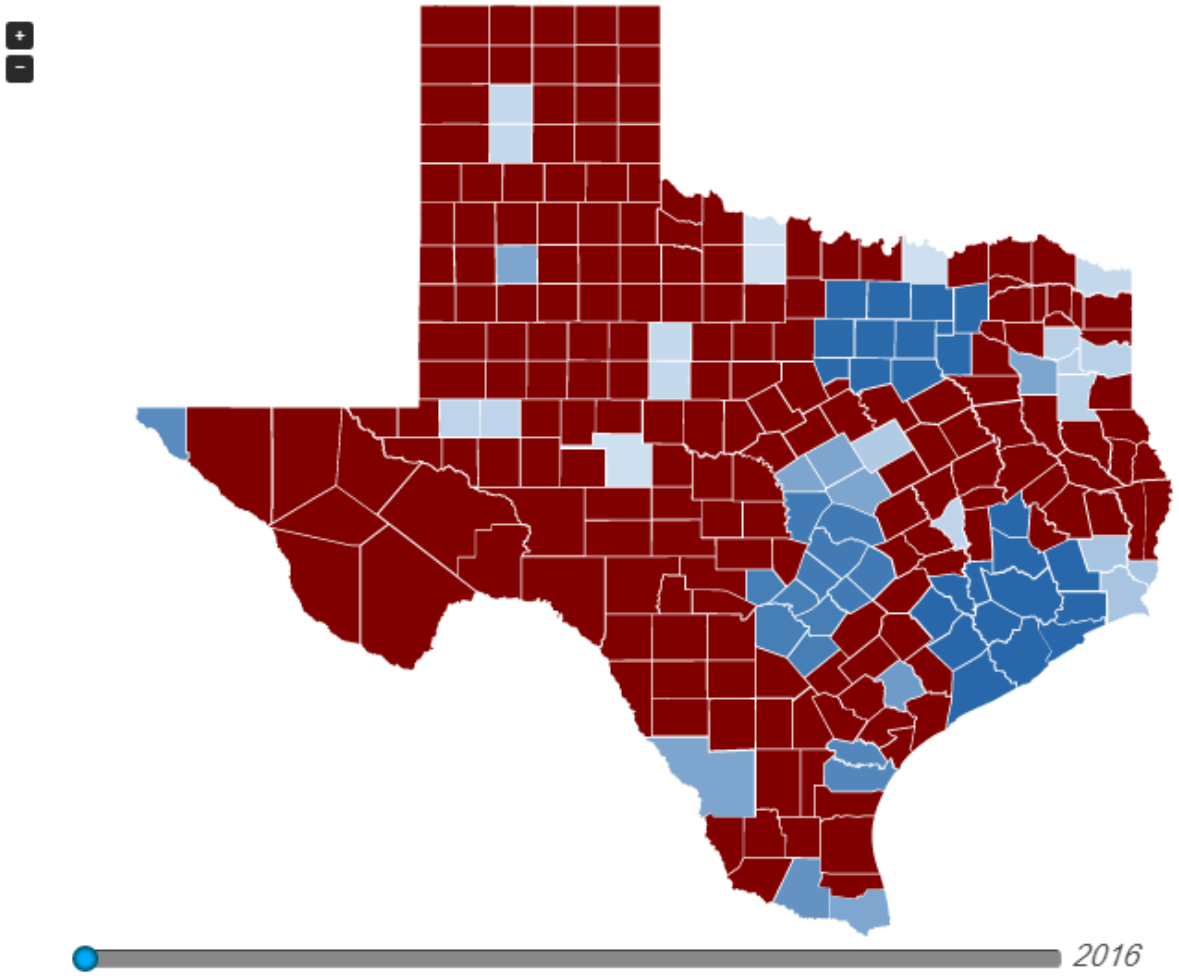
This view shows the Revenues and Expenses projected for the entire analysis period from 2017-2050. Revenue categories include State Revenues, Federal Reimbursements, and total revenues. Expense categories include the 12 expense categories as determined by TxDOT, costs for each of the five major TxDOT operations strategies, TxDOT financing functions, and costs for new capacity.

7.1-7 Category Distributions by MPO

There is a Total Category Distribution report that shows the distribution of the total category funds to each of the Metropolitan Planning Organizations. This tab shows funds available to each MPO by fiscal year. (If you would like to see distributions to each MPO by category, there are also reports showing Category 2M, Category 2U, Category 5, Category 7, Category 9, and Category 11 distributions.)

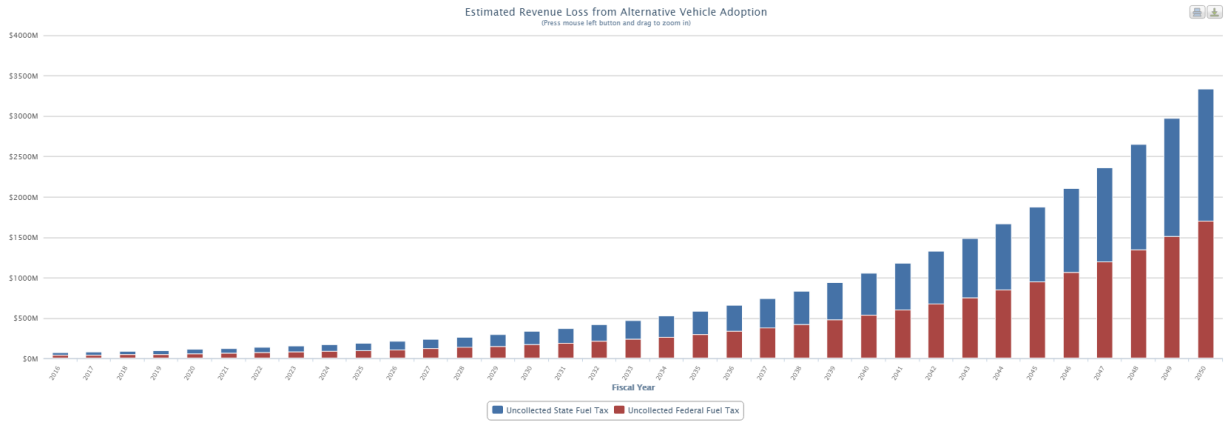
7.1-8 Category Distributions (Map)

The TRENDS Model also provides a map that shows estimated revenues. You can view the data by clicking on the MPO and changing the fiscal year using the slider at the bottom of the map.



7.1-9 Alternative Vehicle Report

This view allows you to see the estimated revenue loss due to the adoption of alternative vehicles. Alternative fuel vehicles pose a challenge to governments because these are vehicles that use roadways without paying any federal or state gas taxes. This table helps policymakers and the public better understand the uncollected federal and state fuel taxes due to greater adoption of these vehicles.



APPENDIX A – ESTIMATION OF POPULATION

This model employs two alternative population projection scenarios, titled the 0.5 and 1.0 scenario. The 1.0 scenario assumes that population migration rates are equal to those experienced in Texas from 2000 to 2010. The 0.5 Scenario assumes population migration rates one-half the rates experienced from 2000 to 2010. Under these alternative assumptions, the 1.0 Scenario produces the largest population, and the 0.5 Scenario produces the smallest future population. Alternative projections of future Texas population were secured from the Texas State Data Center website at the following web address: http://txsdc.utsa.edu/.

Details of the results of the alternative population forecasts are presented below.

Year	0.5 Scenario	1.0 Scenario
2016	20,851,820	28,288,353
2017	21,319,622	28,853,424
2018	21,690,325	29,430,667
2019	22,030,931	30,020,476
2020	22,394,023	30,622,577
2021	22,778,123	31,237,386
2022	23,359,580	31,865,379
2023	23,831,983	32,506,434
2024	24,309,039	33,160,660
2025	24,801,761	33,827,950
2026	25,145,561	34,507,769
2027	25,510,326	35,200,162
2028	25,878,508	35,904,421
2029	26,249,699	36,620,573
2030	26,623,655	37,349,108
2031	27,000,199	38,090,221
2032	27,379,214	38,843,345
2033	27,760,955	39,608,916
2034	28,145,356	40,388,025
2035	28,532,299	41,181,159
2036	28,921,650	41,988,905
2037	29,313,525	42,812,203
2038	29,708,082	43,651,567
2039	30,104,969	44,507,460
2040	30,504,098	45,380,640
2041	30,905,192	46,271,644
2042	31,307,784	47,180,511
2043	31,711,654	48,108,068
2044	32,116,191	49,055,653
2045	32,521,341	50,023,913
2046	32,927,245	51,013,591
2047	33,333,938	52,025,699
2048	33,740,489	53,061,180
2049	34,147,184	54,120,793
2050	34,554,547	55,205,312

APPENDIX B – COMMERCIAL & PERSONAL VEHICLES

This model employs the use of personal and commercial vehicle fuel efficiency averages when determining fuel efficiency factors as well as vehicle registration. The amount of revenue earned from commercial and personal vehicles is fairly easy to differentiate because 98 percent of commercial vehicles burn diesel fuel and 97 percent of personal vehicles burn gasoline.

According to the Texas Transportation Code Section 501.241, a commercial motor vehicle is defined as:

- A vehicle (or combination of vehicles) with a gross weight, registered weight, or gross weight rating exceeding 26,000 pounds, that is designed or used for transportation of cargo in furtherance of any commercial enterprise
- For-hire vehicle used to transport household goods, regardless of gross weight rating
- Vehicle, including a bus, designed or used to transport more than 15 passengers, including the driver
- Vehicle defined by 49 CFR §390.5, owned or controlled by someone domiciled in, or a citizen of, a country other than the United States
- Any other vehicle used in the transport of intrastate or interstate commercial goods

According to the Texas Transportation Code Section 501.241, a passenger motor vehicle is defined as:

- A passenger car used to transport persons and designed to accommodate 10 or fewer passengers, including the operator.
- A truck, including a pickup truck, panel delivery truck, or carryall truck, that has a manufacturer's rated carrying capacity of 2,000 pounds or less.
- A motor vehicle, other than a tractor, that is equipped with a rider's saddle and designed to have when propelled not more than three wheels on the ground.

There is also a fourth scenario available now. The “Average-Low” scenario is an average of the Low and Average scenarios.

	Low MPG Scenario		Low-Mid Scenario		Average MPG Scenario		High MPG Scenario	
Year	Personal Vehicles	Commercial Vehicles	Personal Vehicles	Commercial Vehicles	Personal Vehicles	Commercial Vehicles	Personal Vehicles	Commercial Vehicles
2016	19.7	6.2	19.7	6.2	19.7	6.2	19.7	6.2
2017	19.0	5.9	19.5	6.1	20.0	6.3	21.0	6.6
2018	19.3	6.0	19.8	6.1	20.3	6.3	21.3	6.6
2019	19.7	6.0	20.2	6.2	20.7	6.3	21.7	6.7
2020	20.0	6.1	20.5	6.2	21.1	6.4	22.1	6.7
2021	20.4	6.1	20.9	6.3	21.5	6.4	22.6	6.7
2022	20.8	6.1	21.4	6.3	21.9	6.5	23.0	6.8
2023	21.3	6.2	21.8	6.4	22.4	6.5	23.5	6.8
2024	21.8	6.2	22.4	6.4	22.9	6.6	24.1	6.9
2025	22.3	6.3	22.9	6.4	23.5	6.6	24.7	6.9
2026	22.9	6.3	23.5	6.5	24.1	6.7	25.3	7.0
2027	23.4	6.4	24.1	6.5	24.7	6.7	25.9	7.0
2028	24.0	6.4	24.6	6.6	25.2	6.8	26.5	7.1
2029	24.5	6.5	25.2	6.6	25.8	6.8	27.1	7.1
2030	25.0	6.5	25.7	6.7	26.4	6.9	27.7	7.2
2031	25.5	6.6	26.2	6.8	26.9	6.9	28.2	7.3
2032	26.1	6.6	26.7	6.8	27.4	7.0	28.8	7.3
2033	26.6	6.7	27.3	6.9	28.0	7.1	29.3	7.4
2034	27.1	6.7	27.8	6.9	28.5	7.1	29.9	7.4
2035	27.6	6.8	28.3	7.0	29.0	7.1	30.5	7.5
2036	28.0	6.8	28.8	7.0	29.5	7.2	31.0	7.6
2037	28.5	6.9	29.2	7.1	30.0	7.3	31.5	7.6
2038	28.9	6.9	29.7	7.1	30.5	7.3	32.0	7.7
2039	29.4	7.0	30.1	7.2	30.9	7.4	32.5	7.7
2040	29.8	7.0	30.6	7.2	31.4	7.4	32.9	7.8
2041	30.4	7.1	31.2	7.3	32.0	7.5	33.6	7.8
2042	31.0	7.1	31.8	7.3	32.6	7.5	34.2	7.9
2043	31.6	7.2	32.4	7.4	33.2	7.6	34.9	7.9
2044	32.2	7.2	33.0	7.4	33.9	7.6	35.5	8.0
2045	32.8	7.3	33.6	7.5	34.5	7.7	36.2	8.1
2046	33.4	7.3	34.3	7.5	35.2	7.7	36.9	8.1
2047	34.1	7.4	35.0	7.6	35.9	7.8	37.7	8.2
2048	34.7	7.4	35.6	7.6	36.6	7.8	38.4	8.2
2049	35.4	7.5	36.3	7.7	37.3	7.9	39.1	8.3
2050	36.1	7.5	37.0	7.7	38.0	7.9	39.9	8.3

APPENDIX C—TxDOT FUNDING CATEGORY DESCRIPTIONS

Provided below are summary descriptions for the 12 major Texas Department of Transportation (TxDOT) funding categories. More information for each category can be found on the state's unified transportation plan by clicking here.

- **Category 1 Preventative Maintenance and Rehabilitation:** Category 1 funds are directed for preventative maintenance and rehabilitation for the entire existing state highway system. Funds are allocated to TxDOT districts based on a funding formula presented below. TxDOT districts are then responsible for allocating these funds on a project-by-project basis. Funds for preventative maintenance are distributed based on the following formula:
    - 65% — On system lane miles
    - 33% — Pace Factor
    - 2% — Square footage of on-system bridge deck

  Rehabilitation funds may be used for rehabilitation of the state Interstate Highway System main lanes, frontage roads, structures, signs, pavement markings, striping, etc. These funds are distributed to TxDOT districts based on the following formula:
    - 32.5% — 3 Year average lane-miles of pavement distress scores less than 70% "Good or Better"
    - 20% — Vehicle miles traveled per lane mile (on-system)
    - 32.5% — Equivalent Single Axle Load Miles (on & off-system & interstate)
    - 15% Pace Factor

- **Category 2 Metropolitan Area (TMA) Corridor Projects:** Funds from this category address mobility needs for all metropolitan areas with a population greater than 200,000. These funds are to be used to improve entire corridors of independent utility, whenever possible. Projects in this category must have the concurrence and support of the Metropolitan Planning Organization having jurisdiction within the area. Typically, TxDOT districts (with the support of their local MPOs) recommend projects to the Texas Transportation Commission for selection based on statewide funding targets. Transportation projects funded through this category must be along corridors approved by the MPO through the Metropolitan Transportation Plan process. Each MPO receives funds from this category based on the following formula:

    - 30 % — Total Vehicle Miles Traveled
    - 17 % — Population
    - 15 % — Congestion
    - 10 % — On-system lane miles
    - 14 % — Vehicle miles traveled (trucks)
    - 7 % — Percent of population under federal poverty level
    - 7 % — Total Incapacitating and fatal crashes

- **Category 2 Urban Area (non-TMA) Corridor Projects**: Funds from Category 2 Urban Area address mobility needs within Metropolitan Planning Organization areas with a population greater than 50,000 but less than 200,000. Projects funded through this category must have the concurrence and support of local MPO having jurisdiction in the particular area. TxDOT districts, with concurrence and support of local MPOs, recommend projects to the Texas Transportation Commission for selection based on statewide funding targets. Projects must be located along corridors approved by the MPO through the Metropolitan Transportation Planning process. Category 2U funds are allocated to MPOs based on the following formula::

    - 20 % — Total vehicle miles traveled (on and off system)
    - 25 % — Population
    - 15 % — Vehicle miles traveled (trucks)
    - 10 % — Congestion
    - 8 % — On-system lane miles
    - 10 % — Total incapacitating and fatal crashes
    - 4 % — Percent of population under federal poverty level
    - 8 % — Centerline miles (on-system)

Category 3 Non-Traditionally Funded Transportation Projects: The funds from this category are intended to address the mobility needs all throughout the state. Transportation- related projects that qualify for funding from sources not traditionally part of the SHF including state bond financing under programs such as Proposition 12 (General Obligation Bonds), Proposition 14, TMF, pass-through financing, regional revenue and concession funds, and local participation funding.

Category 4 Statewide Connectivity Corridor Projects: This category funds mobility and added capacity projects on major state highway system corridors which provide statewide connectivity between urban areas and corridors. This highway network includes: 1) the Texas Trunk System, 2) National Highway System, and 3)connections from the port system to major ports on International Borders or Texas water ports. Projects are selected based on an engineering analysis of projects on three corridor types:

- Mobility Corridors: based on congestion
- Connectivity Corridors: two-lane roadways requiring upgrade to four-lane divided
- Strategic Corridors: strategic corridors to the state highway network, such as Ports-to-Plains

- **Category 5 Congestion Mitigation and Air Quality (CMAQ):** This category is intended to address the attainment of a national ambient air quality standard in the non-attainment areas of the state. In Texas, non-attainment areas currently

are Houston, Dallas/Fort Worth, Beaumont, and El Paso. This category funds transportation projects that address congestion mitigation and air quality improvement within these non-attainment areas. CMAQ projects are selected by the Metropolitan Planning Organization in consultation with TxDOT and the Texas Commission on Environmental Quality (TCEQ). Each CMAQ project must be evaluated to quality improvement benefits. These funds cannot be used to add capacity for single occupancy vehicles. Before final letting, projects built with Category 5 funds must have final approval by the Environmental Protection Agency (EPA) and the Federal Highway Administration (FHWA) and must be developed in accordance with applicable federal or state environmental requirements.

- **Category 6(a) Structures—Federal Highway Bridge Program (HBP):** HBP projects are selected based on a list of eligible bridges prioritized first by Deficiency Categorization and then by Sufficiency Ratings. Funds from the federal HBP go toward replacing or rehabilitating eligible bridges on and off the state highway system. A minimum of 15 percent of the HBP funding must go toward replacement and rehabilitation of off-system bridges. Projects are selected statewide based on a prioritizing listing developed by the TxDOT Bridge Division.

- **Category 6(b) Structures—Federal Railroad Grade Separation (RGS):** Funds from this category are directed toward eliminating at-grade railroad crossings through the construction of highway overpasses or railroad underpasses and rehabilitates the deficient railroad underpasses on the state highway system. Projects are selected statewide by the Bridge Division based on a Cost-benefit Index formula for at-grade railroad crossing elimination projects and a Prioritization Ranking for railroad underpass replacement or rehabilitation projects.

- **Category 7 Metro Mobility and Rehabilitation:** This category funds transportation needs within Metropolitan Planning Organizations with urbanized areas of 200,000 or greater. Funds are allocated directly from the Federal Highway Administration (FHWA) and program authority can be used on any roadway with a functional classification greater than a local road or rural minor collector. Eligible projects are selected by the Metropolitan Planning Organization and are developed by the districts on an as-needed basis. Funds are allocated based on population from the 2000 U.S. Census.

- **Category 8 Safety:**

    - Highway Safety Improvement Program: This category deals with safety-related projects, on and off the highway system. Projects are usually evaluated by using three years of crash data and ranked by a Safety Improvement Index. Projects are selected based on federally mandated safety indices.

- High Risk Rural Roads Sub Program: This category deals with safety-related operational improvements on high risk rural roads. High risk rural roads are roadways functionally classified as rural major or minor collectors or rural local roads with fatal and incapacitating injury crash rate above the statewide average for these functional classes of roadways; or likely to experience an increase in traffic volumes that leads to a crash rate in excess of the average statewide rate. This category deals with safety projects—both on and off the state highway system.
- Safe Routes to School: projects previously authorized remain in Category 8 and future projects will be managed under the TAP program in Category 9.
- Safety Bond Program: Allocations for the Safety Bond Program are allocated by the TxDOT Traffic Operations Division using the Safety Improvement Index (SII) and other roadway safety characteristics. These allocations are approved by the Texas Transportation Commission (TTC).
- Federal Railway-Highway Safety Program: This category deals with the installation of railroad warning devices at railroad crossings on and off the state highway system, selected from statewide inventory list by an index. Index components include: number of trains per day, train speed, average daily vehicle traffic, school buses per day, type of existing warning equipment, and train-involved crashes within the past five years. Funds from this category provide incentive payments to local governments for closing crossings, improving signal preemption and coordination of train control signals, and improving passive warning devices to comply with new federal guidelines.

- **Category 9 Transportation Alternatives Program:** Projects above and beyond what is normally expected for standard TxDOT roadway activities. Projects that are recommended by local government entities, reviewed and recommended by TxDOT, and selected by the Texas Transportation Commission (TTC) are funded through this category. During a program call administered by TxDOT, these funds may be awarded for any of the following categories:
  - Construction of on- and off-road trail facilities for pedestrian and bicycle facilities, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic-calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.
  - Construction of infrastructure-related projects and systems that provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.
  - Conversion and use of abandoned railroad corridors for trails for pedestrian, bicyclists, or other non-motorized transportation users.
  - Construction of infrastructure-related projects to improve the ability of students to walk and bicycle to school, including sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bicycle

crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, secure bicycle parking facilities, and traffic diversion improvements in the vicinity of schools.
    - A project that will require the acquisition of real property through exercise of eminent domain or condemnation is not eligible for participation in the TAP.

- **Category 10: Supplemental Transportation Projects**
    - TPWD: This program funds construction and rehabilitation of roadways in or near state parks, fish hatcheries, etc.
    - Green Ribbon Landscape Improvement Program: This program allows TxDOT to address new landscape development projects within districts that have air quality non-attainment or near non-attainment counties. Allocations from this category are based on one-half percent of the estimated letting capacity for the TxDOT districts which contain air quality non-attainment or near non-attainment counties.
    - Curb Ramp Program: Funds from this program are directed toward addressing construction or replacement of curb ramps at on-system intersections to make the intersections more accessible to pedestrians with disabilities. Projects for this category are selected based on the conditions at the curb ramp or the location of the intersection without ramps. TxDOT's design division is responsible for determining fund allocation.
    - Miscellaneous Landscape Incentive Awards Program: This category allows TxDOT to negotiate and execute joint landscape development projects bin nine locations in association with the Keep Texas Beautiful Governor's Community Achievement Awards Program. The funding distribution to the nine locations is based on the results of the annual Keep Texas Beautiful Awards Program.
    - Coordinated Border Infrastructure Program: Funds from this category are directed toward improving the safety movement of motor vehicles or across the land border between the U.S. and Mexico. Funds are allocated to districts based on the following formula:

        - 20% — Incoming commercial trucks
        - 30% — Incoming personal motor vehicles & buses
        - 25% — weight of incoming cargo by commercial trucks
        - 25% — Number of land border ports of entry
    - Supplemental Transportation Projects (Federal): Funds from this category are directed to federal projects such as Forest Highways, Indian Reservation highways, Federal Lands highways, ferry boat discretionary and Congressional high priority projects. Federal allocations are subject to commission approval for participation.
    - Railroad Rehabilitation and Improvement Projects: Funds from this category are directed toward the rehabilitation and improvement of railroad infrastructure to provide for improved operations, increased train

speeds, and efficiencies on state-owned or privately-owned railway lines. Funds are allocated by the TTC on a project-by-project basis.

- Railroad Grade Crossing and Re-planking Program: This category funds the replacement of rough railroad crossing surfaces on the state highway system. Project selection is based on the conditions of riding surface and cost per vehicle using the crossing. Projects are selected statewide based on the conditions of riding surface by TxDOT's Rail Division.
- Railroad Signal Maintenance Program: Funds from this category are directed toward contributions to each railroad company based on the number of state highway system crossings and type of automatic devices present at each crossing. Funds are distributed statewide by the TxDOT Rail Division.

- **Category 11 District Discretionary funding:** This category funds projects selected at the district' engineer's discretion. .While most projects funded through this category are on-system, some off-system roadways with a functional classification greater than a local road or rural minor collector are funded as well. Projects in this category must have the concurrence and support of the Metropolitan Planning Organization (MPO) having jurisdiction in the particular area. Each district will receive a minimum allocation of $2,500,000 and may not be used to offset over-runs on previously selected projects. The program is managed as allocation programs with eligible projects developed by the districts within their allocations. The District Discretionary Programs are usually one-year programs with the funds available for use within four years.

    - 70% — On-system vehicle miles traveled
    - 20% — On-system lane miles
    - 10% — Annual truck vehicle miles traveled,

- **Category 12 Strategic Priority:** The Texas Transportation Commission selects projects which generally promote economic opportunity, increase efficiency on military deployment routes or to retain military assets in response to the federal military base realignment and closure report. The commission approved pass-through financing projects in order to help local communities address their transportation needs. All projects are selected by the Texas Transportation Commission and selection is project specific.