

Overview of Financial Forecast

The core of *Resilience 2050* is a list of planned federally funded major capital expansion projects. However, only some of the projects submitted for inclusion can be included because *Resilience 2050* is not a wish list of projects. Federal law requires that it must be financially constrained by the amount of revenue anticipated to be available to the region within the timeframe of the plan. This means that the anticipated costs of transportation projects and programs in *Resilience 2050* cannot exceed anticipated revenues.

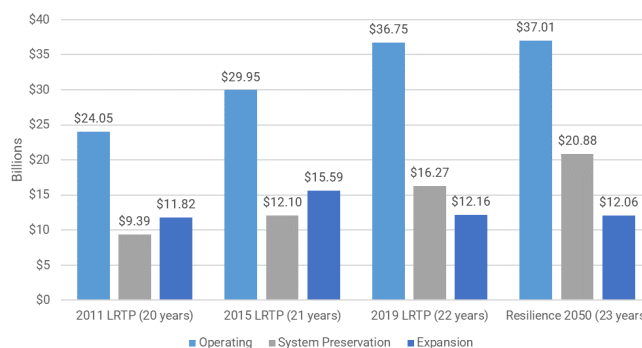
The financial forecast extends from 2028 through 2050, the planning horizon for *Resilience 2050*. The financial forecast covers three main categories of spending. These include expenditures for operating and preserving the transportation system through 2050. The remaining funds will be available to fund major capital expansion projects such as new or expanded transit service or roadway capacity.

MDOT provides the financial forecast for state and federal revenues. MDOT uses historical and economic data to forecast total statewide revenues as well as anticipated needs for operating and system preservation. The amount available for major capital expansion is determined by what is left over from total statewide revenues after accounting for anticipated needs for system operations and system preservation. The financial forecast for the Baltimore region is based

on the Baltimore region's historical share of statewide transportation expenditures.

The financial forecast for the Baltimore region includes a total of \$69.952 billion in state and federal revenue for operating, system preservation and expansion from 2028 to 2050. Individual totals for operating, system preservation and expansion are \$37.007 billion, \$20.883 billion and \$12.062 billion, respectively.

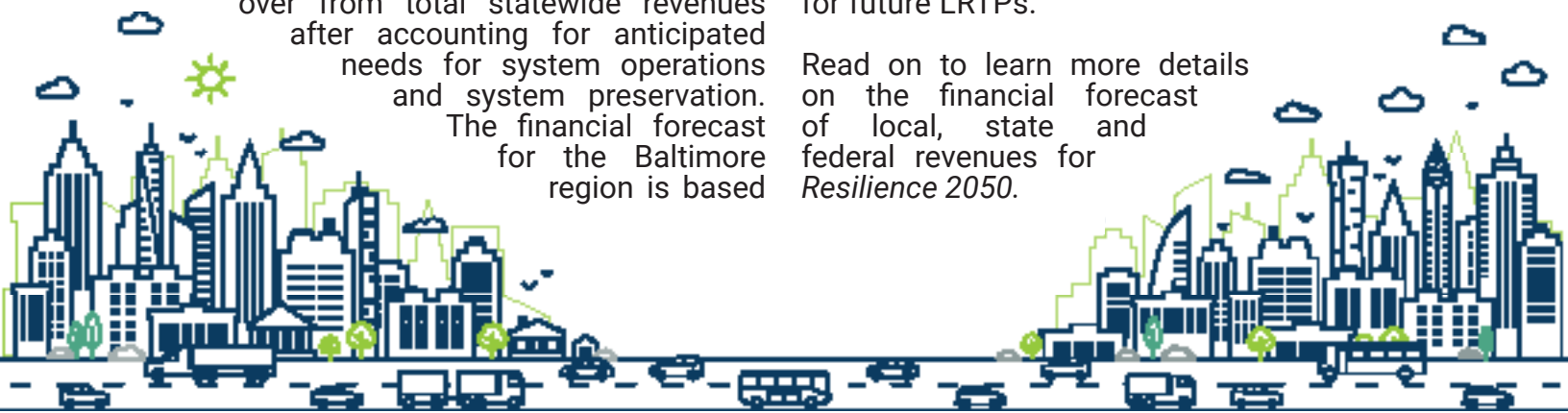
Baltimore Region State and Federal Financial Forecast Comparison: Funds by Category



Not all funding in the financial forecast is available for candidate projects. Candidate projects are primarily large-scale expansion projects that compete for the \$12.062 billion in state and federal expansion funds available in the timeframe.

While the Maryland Department of Transportation provides state and federal funding forecasts for the L RTP, federal regulations require a financial plan to identify "all necessary financial resources from public and private sources that are reasonably expected to be available," which includes forecasting of local sources of revenue. In 2022, the BRTB worked with a consultant and local jurisdiction staff to develop a local funding projection tool for use in *Resilience 2050*. This local funding tool can also be adapted to generate local funding forecasts for future L RTPs.

Read on to learn more details on the financial forecast of local, state and federal revenues for *Resilience 2050*.



Financial Forecast

Introduction

The core of *Resilience 2050* is a list of planned federally funded major capital expansion projects. But which projects are included in *Resilience 2050*? And why can't all projects submitted be included?

The [Project Scoring White Paper](#) addresses the first question, and this paper addresses the second.

In short, only some projects can be included because *Resilience 2050* is not a wish list of projects. Federal law requires that it must be financially constrained by the amount of revenue anticipated to be available to the region within the timeframe of the plan and may only include projects which are afforded by this revenue.

This means that the anticipated costs of transportation projects and programs in *Resilience 2050* cannot exceed anticipated revenues.

Each metropolitan transportation plan must include a financial plan. This financial plan demonstrates consistency between (1) revenues reasonably expected to be available and (2) the estimated costs of implementing proposed transportation

system improvements. This consistency is referred to as "fiscal constraint." To satisfy this requirement, the BRTB worked with the Maryland Department of Transportation and local members to forecast the amount of federal, state and local revenues the region anticipates will be available.

The financial forecast extends from 2028 through 2050. The planning horizon for *Resilience 2050* begins immediately after the final year for the short-range Transportation Improvement Program (TIP). The TIP includes all projects anticipated to use federal funds over the next four fiscal years. The BRTB will consider the 2024-2027 TIP in conjunction with *Resilience 2050*. As a result, the planning horizon for *Resilience 2050* begins in 2028 and covers the 20+ years from 2028 through 2050.

The financial forecast includes anticipated revenues and costs associated with operating and maintaining the transportation system through 2050. The remaining funds will be available to fund major capital expansion projects such as new or expanded transit service or roadway capacity. This white paper discusses these forecasts and the methodology used to produce them in more detail.



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Revenue Categories

The financial forecast covers three main categories of spending. These include expenditures for operating the transportation system, preserving the transportation system, and major capital expenditures for expanding the transportation system. These definitions differ slightly for transit and roadway projects:

- System Operations
 - » Roadways: Covers the salaries and wages of personnel who maintain and operate roadway systems and vehicles.
 - » Transit: Covers routine maintenance, employee wages, spare parts and consumables. Note that while routine maintenance is considered a function of system operations, maintenance activities may be paid for with federal capital funds.
- System Preservation
 - » Roadways: Covers capital costs for routine asset management and maintenance activities. These activities include

repaving roadways, repairing bridges, clearing snow and ice and maintaining roadside lighting, guardrails and signs.

- » Transit: Covers planning, design, acquisition/construction and major asset rehabilitation activities necessary to keep the existing transit system in a State of Good Repair.
- Major Capital Expansion: Examples include major new or expanded transit service and new or widened roadways

State and Federal Forecast

MDOT provides the financial forecast for state and federal revenues. MDOT begins by calculating total program revenues for operating and capital. Program expenditures rely on projecting historical state and federal revenues forward based on historical annual average growth rates. In the most recent forecast, 2028 to 2050 projections of state funds use an historical annual average growth rate of 5.0%. Federal fund projections are based on an average growth rate of 3.0% for roadway and 2.33% for transit program funds.

MDOT then calculates anticipated needs for operating and system preservation for the period extending from 2028 to 2050. Operating budget projections for 2022 to 2027 are drawn from the FY 2022-2027 financial plan of the Transportation Trust Fund (TTF).

Transportation Trust Fund (TTF)

The TTF was created in 1971 to establish a dedicated fund to support the Maryland Department of Transportation. Revenue sources for the TTF include motor fuel taxes, vehicle excise (titling) taxes, motor vehicle fees (registrations, licenses and other fees), a portion of the State's tax on corporate income, a portion of the State's sales and use taxes on short-term vehicle rentals, operating revenues and bond proceeds.

Projections for operating expenditures from 2028 to 2050 were derived by inflating the previous year with an estimate for the percentage change in the Consumer Price Index for All Urban Consumers (CPI-U) plus 2%. The CPI-U is a generally accepted measure of inflation. The projected annual change in index figure is based on information from two econometric forecasting firms. Two percent is added to this index to account for the additional operating costs associated with new capital expansions.

System preservation budget projections for 2022 to 2027 were drawn from the final [FY 2022-2027 MDOT Consolidated Transportation Program](#). Projections for system preservation expenditures from 2028 through 2050 assumed an annual average growth rate of 2.5%.

Expenditures for major capital expansion were derived by subtracting both operating and system preservation expenditures from the total program expenditures for each year. In other words, the amount for major capital expansion is determined by what is left over from total revenues after accounting for

anticipated needs for system operations and system preservation.

Figure 1 (on page 4) depicts anticipated statewide revenue forecasts for operating, system preservation and expansion from 2028 to 2050.

The statewide forecasts in Figure 1 form the basis of forecasts for the Baltimore region, which includes Anne Arundel, Baltimore, Carroll, Harford and Howard Counties, along with Baltimore City and a portion of Queen Anne's County. Figure 2 (on page 5) contains details on the calculation of the expansion forecast for the Baltimore region. Figure 3 (on page 6) details the full state and federal financial forecast for operating, system preservation, and expansion for the Baltimore region.

Figure 2 contains details on the calculation of expansion funds for the Baltimore region. This calculation starts with statewide expansion funds, the first column of Figure 2. Note that this column is identical to the expansion column of Figure 1. MDOT spends expansion funds on both surface and non-surface transportation. Surface transportation includes roadway and transit expenditures, while non-surface includes expenditures on ports, aviation and the Motor Vehicle Administration. *Resilience 2050* includes roadway and transit projects, and thus is only concerned with the portion of funds dedicated to surface transportation.

MDOT analyzed historical expenditure data to produce an estimate of the percentage of Maryland expansion associated with surface transportation from 2028 to 2050. For this financial forecast, MDOT estimated that approximately 84.9% of statewide expansion funds from 1981 to 2021 were spent on surface expansion. In



Figure 2, this percentage was multiplied by statewide expansion funds (column 1) to reach the statewide surface percentage (column 2). Statewide private funds are listed in column 3. Statewide private funds were added to the statewide surface percentage to yield total statewide surface expansion funds (column 4). MDOT then used historical expenditure data to

derive the Baltimore region's share of statewide surface expansion funds from 1981 to 2021 (36.1%). Baltimore region expansion funds (column 5) were calculated by multiplying total statewide surface expansion funds by 36.1%. This yields a total of \$12.062 billion available for expansion projects in the Baltimore region from 2028 to 2050.

Figure 1 - MDOT Statewide Operating, System Preservation and Expansion Revenue Forecast: 2028-2050 (Millions of Dollars)

Year	OPERATING	SYSTEM PRESERVATION	OPERATING AND SYSTEM PRESERVATION	EXPANSION	STATEWIDE TOTAL
2028	\$2,734	\$1,637	\$4,371	\$701	\$5,072
2029	\$2,849	\$1,715	\$4,564	\$735	\$5,299
2030	\$2,968	\$1,799	\$4,767	\$771	\$5,538
2031	\$3,091	\$1,890	\$4,981	\$810	\$5,791
2032	\$3,217	\$1,985	\$5,202	\$851	\$6,053
2033	\$3,350	\$2,084	\$5,434	\$893	\$6,327
2034	\$3,488	\$2,188	\$5,676	\$938	\$6,614
2035	\$3,633	\$2,297	\$5,930	\$985	\$6,915
2036	\$3,787	\$2,357	\$6,144	\$1,087	\$7,231
2037	\$3,946	\$2,416	\$6,362	\$1,200	\$7,562
2038	\$4,112	\$2,476	\$6,588	\$1,320	\$7,908
2039	\$4,286	\$2,538	\$6,824	\$1,446	\$8,270
2040	\$4,467	\$2,601	\$7,068	\$1,581	\$8,649
2041	\$4,656	\$2,666	\$7,322	\$1,725	\$9,047
2042	\$4,853	\$2,733	\$7,586	\$1,877	\$9,463
2043	\$5,060	\$2,801	\$7,861	\$2,039	\$9,900
2044	\$5,275	\$2,871	\$8,146	\$2,212	\$10,358
2045	\$5,500	\$2,943	\$8,443	\$2,392	\$10,835
2046	\$5,735	\$3,017	\$8,752	\$2,585	\$11,337
2047	\$5,981	\$3,092	\$9,073	\$2,789	\$11,862
2048	\$6,238	\$3,169	\$9,407	\$3,006	\$12,413
2049	\$6,504	\$3,249	\$9,753	\$3,237	\$12,990
2050	\$6,783	\$3,330	\$10,113	\$3,483	\$13,596
Total 2028-2050	\$102,513	\$57,854	\$160,367	\$38,663	\$199,030

Figure 2 - Baltimore Region Expansion Forecast: 2028-2050 (Millions of Dollars)

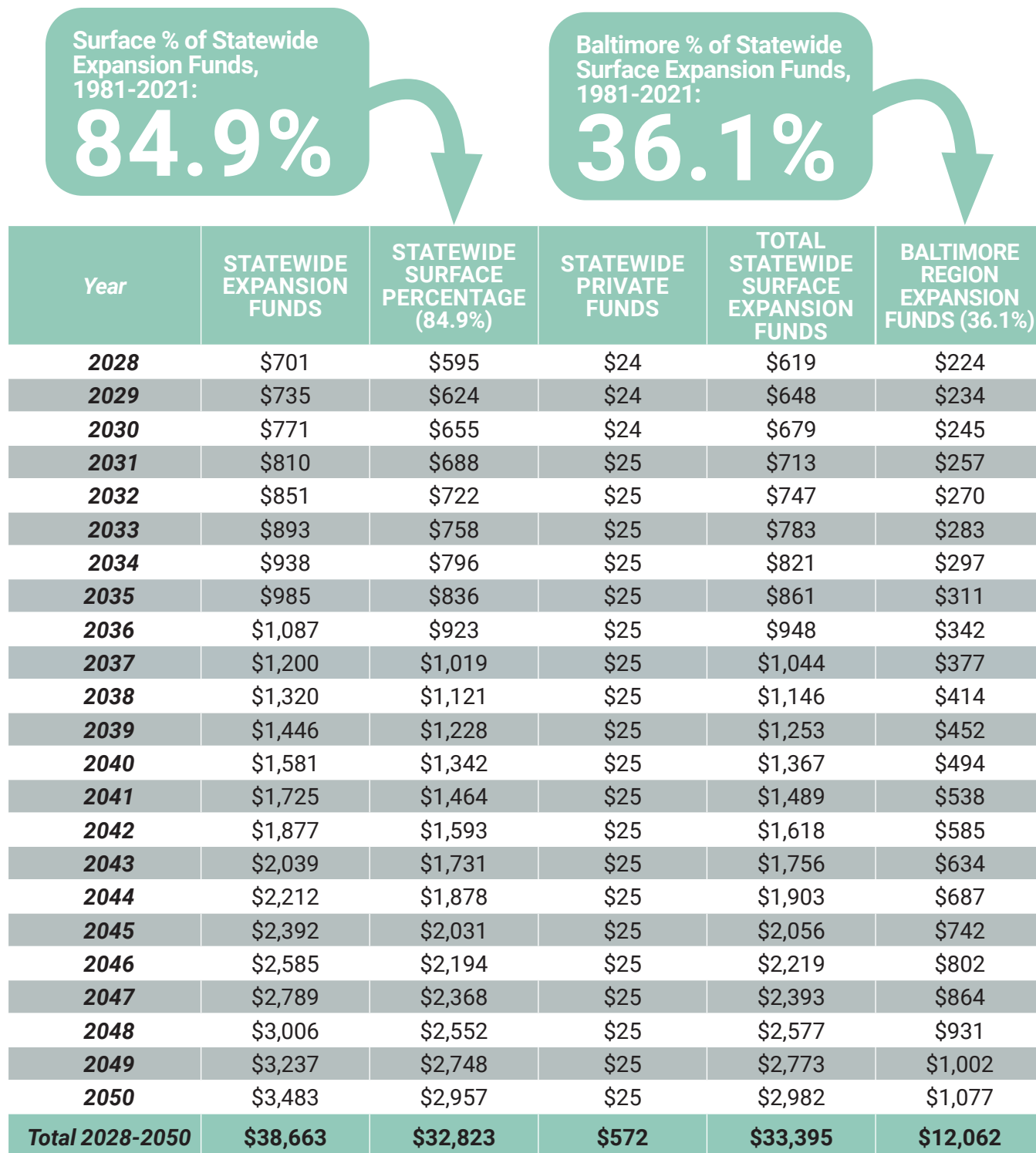


Figure 3 - Baltimore Region State and Federal Operating, System Preservation and Expansion Revenue Forecast: 2028-2050 (Millions of Dollars)

Year	OPERATING	SYSTEM PRESERVATION	EXPANSION	TOTALS
2028	\$987	\$591	\$224	\$1,802
2029	\$1,028	\$619	\$234	\$1,881
2030	\$1,071	\$649	\$245	\$1,965
2031	\$1,116	\$682	\$257	\$2,055
2032	\$1,161	\$717	\$270	\$2,148
2033	\$1,209	\$752	\$283	\$2,244
2034	\$1,259	\$790	\$297	\$2,346
2035	\$1,312	\$829	\$311	\$2,452
2036	\$1,367	\$851	\$342	\$2,560
2037	\$1,425	\$872	\$377	\$2,674
2038	\$1,484	\$894	\$414	\$2,792
2039	\$1,547	\$916	\$452	\$2,915
2040	\$1,613	\$939	\$494	\$3,046
2041	\$1,681	\$962	\$538	\$3,181
2042	\$1,752	\$987	\$585	\$3,324
2043	\$1,827	\$1,011	\$634	\$3,472
2044	\$1,904	\$1,036	\$687	\$3,627
2045	\$1,986	\$1,062	\$742	\$3,790
2046	\$2,070	\$1,089	\$802	\$3,961
2047	\$2,159	\$1,116	\$864	\$4,139
2048	\$2,252	\$1,144	\$931	\$4,327
2049	\$2,348	\$1,173	\$1,002	\$4,523
2050	\$2,449	\$1,202	\$1,077	\$4,728
Total 2028-2050	\$37,007	\$20,883	\$12,062	\$69,952

Figure 2 details the calculation of expansion funds for the Baltimore region. Figure 3 completes the picture of the state and federal financial forecast for the Baltimore region by adding Baltimore region forecasts for operating and system preservation categories. These are calculated by multiplying the statewide totals for operating and system preservation from Figure 1 by 36.1%.

The financial forecast includes a total of \$69.952 billion in state and federal revenue available for operating, system preservation and expansion in the Baltimore region from 2028 to 2050. Individual totals for operating, system preservation and expansion are \$37.007 billion, \$20.883 billion and \$12.062 billion, respectively. Figures 4 and 5 provide a comparison of the financial forecast for *Resilience 2050* to

Figure 4 - Baltimore Region State and Federal Financial Forecast Comparison: Funds by Category

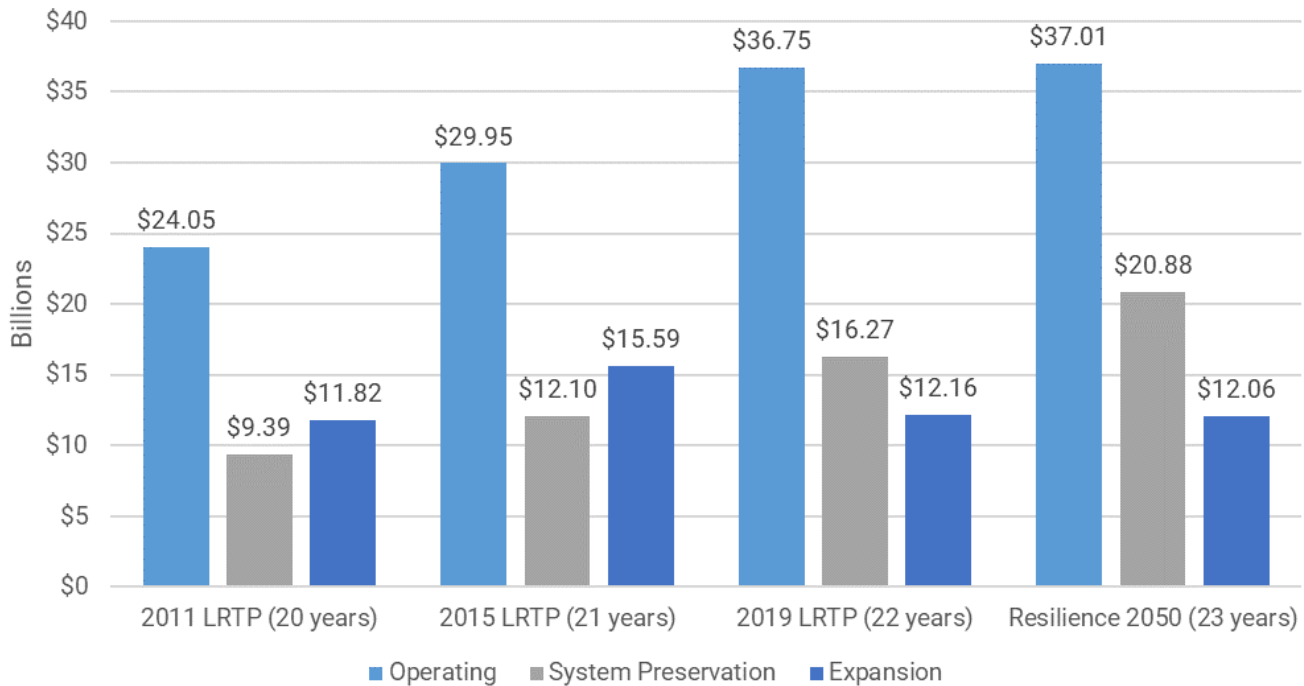
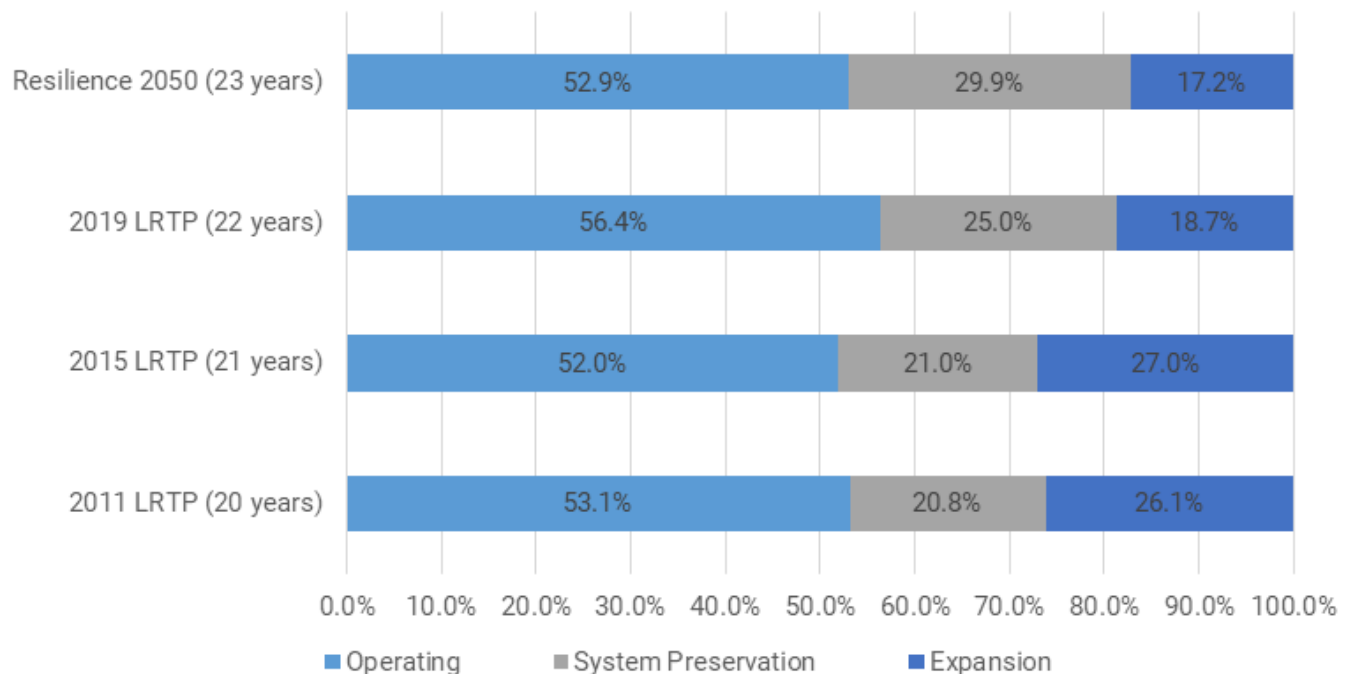


Figure 5 - Baltimore Region LRTP State and Federal Financial Forecast Comparison: Share of Funds by Category



those for the three previous BRTB long-range transportation plans (LRTPs).

Figure 4 (on page 7) shows that total funding has increased from one LRTP to the next. However, it is important to note that each subsequent LRTP after 2011 included one additional year in its planning horizon. Funding within categories has also increased from one LRTP to the next. The lone exception is the decrease in major capital expansion funding from the 2015 LRTP to the 2019 LRTP and *Resilience 2050*. There was also a large jump in system preservation funding from the 2019 LRTP to *Resilience 2050*.

Economic circumstances at the time of each forecast influence the amount available. In addition, part of the reason for these shifts is a change in methodology at MDOT. Prior financial forecasts were based on a different categorization of major capital projects. Candidate projects for the LRTP were previously “major capital” projects, which could include large-scale projects that didn’t expand roadway or transit capacity. Examples include major overhauls of transit vehicles or large roadway reconstruction or interchange projects that don’t add lanes. Starting with the *Resilience 2050* financial forecast, the major capital category is now considered to be exclusively expansion. This means that projects that MDOT had previously categorized as major capital that don’t include additional capacity are now categorized as system preservation. This results in an increase in system preservation funds in the financial forecast (and an associated decrease in expansion funds).

Figure 5 (on page 7) compares the share of funds by category for *Resilience 2050* and the three prior LRTPs. Operating revenues comprise the majority of the financial forecast, with the share remaining relatively consistent from one LRTP to the next. The share dedicated to system

preservation has gradually increased while the share dedicated to expansion has decreased. This shows the increasing demands associated with maintaining the Baltimore region’s transportation system in a state of good repair.



Local Financial Forecast

While the Maryland Department of Transportation provides state and federal funding forecasts for the LRTP, federal regulations require a financial plan to identify “all necessary financial resources from public and private sources that are reasonably expected to be available,” which includes forecasting of local sources of revenue. In 2022, the BRTB worked with a consultant and local jurisdiction staff to develop a local funding projection tool for use in *Resilience 2050*. This local funding tool can also be adapted to generate local funding forecasts for future LRTPs.

The local financial forecast was based on baseline funding information for FY 2022. Baseline funding information was gathered through the review of relevant local funding documentation for each jurisdiction and interviews held with relevant representatives of each jurisdiction. Local funds come from a variety of sources including Highway User Revenues, general funds, bonds and other sources such as usage fees. Highway User Revenue funds come from a portion of the gasoline tax.

Funding sources were allocated to either operating or capital sources based on the review of local documents and staff interviews. Capital was further divided into system preservation and expansion categories to mimic the state and federal financial forecast. Baseline funds for operating and capital were projected forward by source (HUR, general funds, bonds, etc.) using growth rates estimated from interviews with budget staff and reasonable economic principles.

Figure 6 - Baltimore Region Local Operating, System Preservation and Expansion Revenue Forecast: 2028-2050 (Millions of Dollars)

Time Period	OPERATING	SYSTEM PRESERVATION	EXPANSION	TOTAL
2028-2032	\$2,829	\$1,223	\$185	\$4,237
2033-2037	\$3,193	\$1,304	\$199	\$4,696
2038-2042	\$3,614	\$1,397	\$215	\$5,226
2043-2047	\$4,104	\$1,506	\$233	\$5,843
2048-2050	\$2,731	\$963	\$150	\$3,844
Total 2028-2050	\$16,471	\$6,393	\$982	\$23,846

Figure 6 contains a summary of local revenues projected to be available to the Baltimore region from 2028 to 2050. These totals were calculated by summing the individual county-by-county values for operating, system preservation, and expansion for each time period listed.

This is the first year using this method for developing a region wide local financial forecast for the LRTP.

Future LRTPs will continue to refine and include a local financial forecast to provide a clearer picture of the resources available for transportation in the Baltimore region.



available to build those projects. The BRTB has completed project scoring and has worked with MDOT MTA and MDOT SHA to estimate costs for all candidate projects submitted for inclusion in *Resilience 2050*. The financial forecast is the last piece required to develop the Preferred Alternative.

Not all funding in the financial forecast is available for candidate projects. Candidate projects are primarily large-scale expansion projects that compete for the \$12.062 billion in state and federal expansion funds available from 2028 to 2050. The BRTB and its committees are reviewing a draft Preferred Alternative in the hopes of finalizing the Preferred Alternative in early 2023.

Next Steps

The list of projects included in *Resilience 2050*, known as the Preferred Alternative, relies on prioritizing projects through project scoring, estimating how much those projects will cost, and knowing how much money is

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