

I. Introduction: Factors Affecting the 2020 Recommended Highway Plan

The Kentucky Transportation Cabinet's (KYTC) mission is to provide a safe, efficient, environmentally sound, and fiscally responsible transportation system that delivers economic opportunity and enhances the quality of life in Kentucky. In developing Kentucky's *2020 Recommended Highway Plan*, KYTC addresses the backlog of pavement and bridge needs while pursuing highway improvement projects that provide enhanced roadway safety, improved regional access, and the potential for increased economic opportunity to each geographic region of Kentucky.

A. KYTC's Investment in Bridge, Pavement, and Guardrail Assets

KYTC is responsible for managing and maintaining over 27,500 miles of roadway and 14,349 bridges. Kentucky has the eighth-largest state road system and the seventh largest inventory of state-maintained bridges in the United States. Through the "Bridging Kentucky Program," KYTC recently let to construction 359 bridges with 110 of those bridges already completed and open to traffic. Using a rehab-first approach, KYTC evaluated deteriorating minor structures on state and local routes to prioritize needs and expedite projects with long-lasting benefits for the Commonwealth. KYTC employed a variety of contracting methods to efficiently deliver these projects. The 2020 Recommended Highway Plan contains \$80 million annually to continue efforts to address the backlog of deteriorated Kentucky bridges.

The 2020 Recommended Highway Plan proposes \$80 million annually in the biennium and \$125 million annually supplemented as necessary with the annual KYTC resurfacing program dollars, in the future years to address pavement needs across the Commonwealth. The pavement asset management program provides essential pavement preservation including asphalt resurfacing, repairs, and diamond grinding of concrete pavements. It also provides funding for rehabilitative treatments for severely deteriorated pavements requiring extensive rehab repairs. The focus on asset management and preservation has helped the KYTC sustain the existing conditions for the overall statewide pavements. This commitment supports the health, safety, and economic vitality of the state.

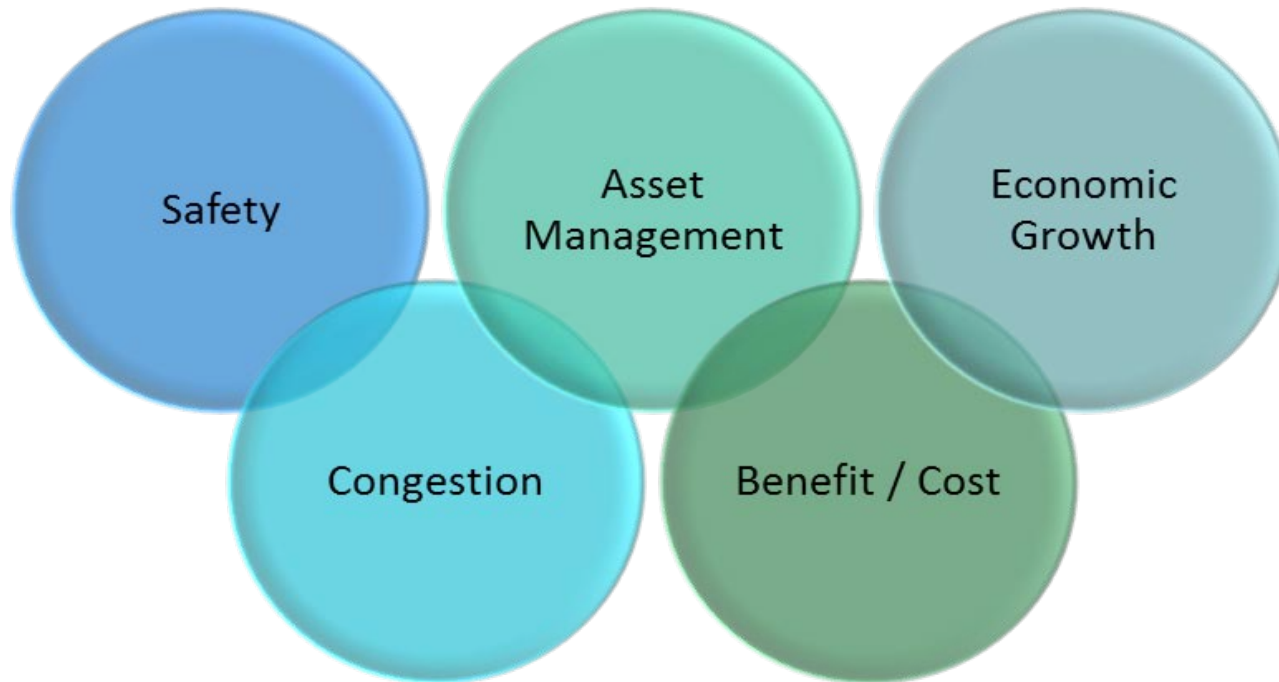
The current backlog of identified guardrail needs across the Commonwealth is 3400 miles, with an estimated cost of \$74 million. The 2020 Recommended Highway Plan includes an aggressive Guardrail Program to begin the process to address the backlog of guardrail installation projects. The 2020 Recommended Highway Plan allocates \$4 million annually (\$8 million per biennium) to the KYTC Guardrail Program to address over 400 guardrail projects having a combined total length of more than 100 miles of installation of new guardrail throughout the Commonwealth.

B. KYTC's Prioritization Methodology

To assist in the prioritization of highway needs, KYTC developed a prioritization tool entitled the Strategic Highway Investment Formula for Tomorrow (SHIFT). The SHIFT process is a data-driven, objective, and collaborative approach to developing a geographically sensitive, data-driven highway plan. SHIFT was developed by KYTC through collaborative interaction with KYTC's planning partners. As it evolves, SHIFT will continually seek to improve its processes, always working to ensure that it employs the most current and effective technical methodologies.

Potential KYTC Highway Plan projects (nominated by ADDs, MPOs, and Highway Districts) are scored by SHIFT on the basis of five metrics:

Formula Components



The SHIFT process evaluates potential project types including safety improvements, road widening, reconstruction, construction of new routes, and interchange improvements. Projects outside the SHIFT process include rural and secondary road and bridge projects, maintenance projects, and a variety of projects scheduled to use federally dedicated funds. Regional scoring and project selection is 70 percent data driven and 30 percent subjective, based on district and local priorities. KYTC districts coordinated with MPOs, ADDs, and state and local officials to ensure their priorities were considered.

Safety scores are primarily a result of crash history, but also by roadway characteristics. Congestion scores are based on vehicle hours of delay. The economic growth score considers accessibility and connectivity needs based on improvement type, county economic indicators, and average daily traffic. The benefit-cost ratio uses benefits derived from travel-time and crash reduction savings then divided by the project cost. The asset management component considers bridge and pavement needs within the project limits that could be addressed by the proposed project.

The SHIFT prioritization process acknowledges current highway funding shortfalls, and offers a reliable, balanced approach to project prioritization, selection, and scheduling to use the anticipated \$6.1 billion of state and federal funding. It is important to acknowledge that as the Cabinet continues to transition to an institutionalized data-driven process, other information is necessary to consider along with SHIFT scoring, to develop a recommended highway plan. These considerations include investments to-date and associated impacts to communities, fulfillment of previous commitments, and completion of significant corridors.

C. Environmental Update

Recent changes in 401 KAR 10:030 Anti-degradation Policy Implementation Methodology require that developing projects address protection of water resources. The regulation recognizes the General Assembly's authority for approval of projects in the highway plan. Projects are included in the highway plan only after a measured decision that the project enhances the quality of life, vitality of the Commonwealth and promotes the public good. The provisions of the amended regulation specify that inclusion of a project in the highway plan satisfies the requirements for conducting an anti-degradation socioeconomic benefit demonstration. Inclusion of a project is an indication of the General Assembly's conclusion that the reduction in water quality that may occur as a result of the project is acceptable given the socioeconomic benefits to be derived. Citizens who may be concerned about the potential of a project to affect water quality should provide information to their legislator for consideration when evaluating projects for inclusion in the highway plan.

II. Revenue Estimates and Assumptions

The *2020 Recommended Highway Plan* is based on a total revenue of \$6.1 billion, consisting of \$1.1 billion to address the backlog of pavement and bridge needs, \$0.9 billion in federally dedicated funds, and another \$0.5 billion for federal GARVEE debt service payments. Beyond these obligations, there is \$3.6 billion left for highway project funding through FY 2026. The Recommended Highway Plan consists of funding in the FY2020 – FY2022 Biennium for projects to address bridge and pavement needs, a new guardrail program, critical roadway safety improvements, Ferry Boats, and to provide required state and federal funding for committed US DOT's BUILD and INFRA Grant projects.

The yearly allocation of state and federal funding for bridge asset management is set at \$80 million, and the yearly allocation of state and federal funding for pavement asset management ranges from \$80 million each year of the 2020-FY 2022 Biennium to \$125 million per year from FY 2023 through FY 2026. The funding for bridge projects is listed in the Plan as "BR" funding, and the funding for the pavement projects is listed as "PM" funding.

FEDERAL AND STATE HIGHWAY FUNDING LEVELS AVAILABLE FOR OBLIGATION FROM 2021 THRU 2026
 (\$6.1 billion estimated by the Kentucky Transportation Cabinet)

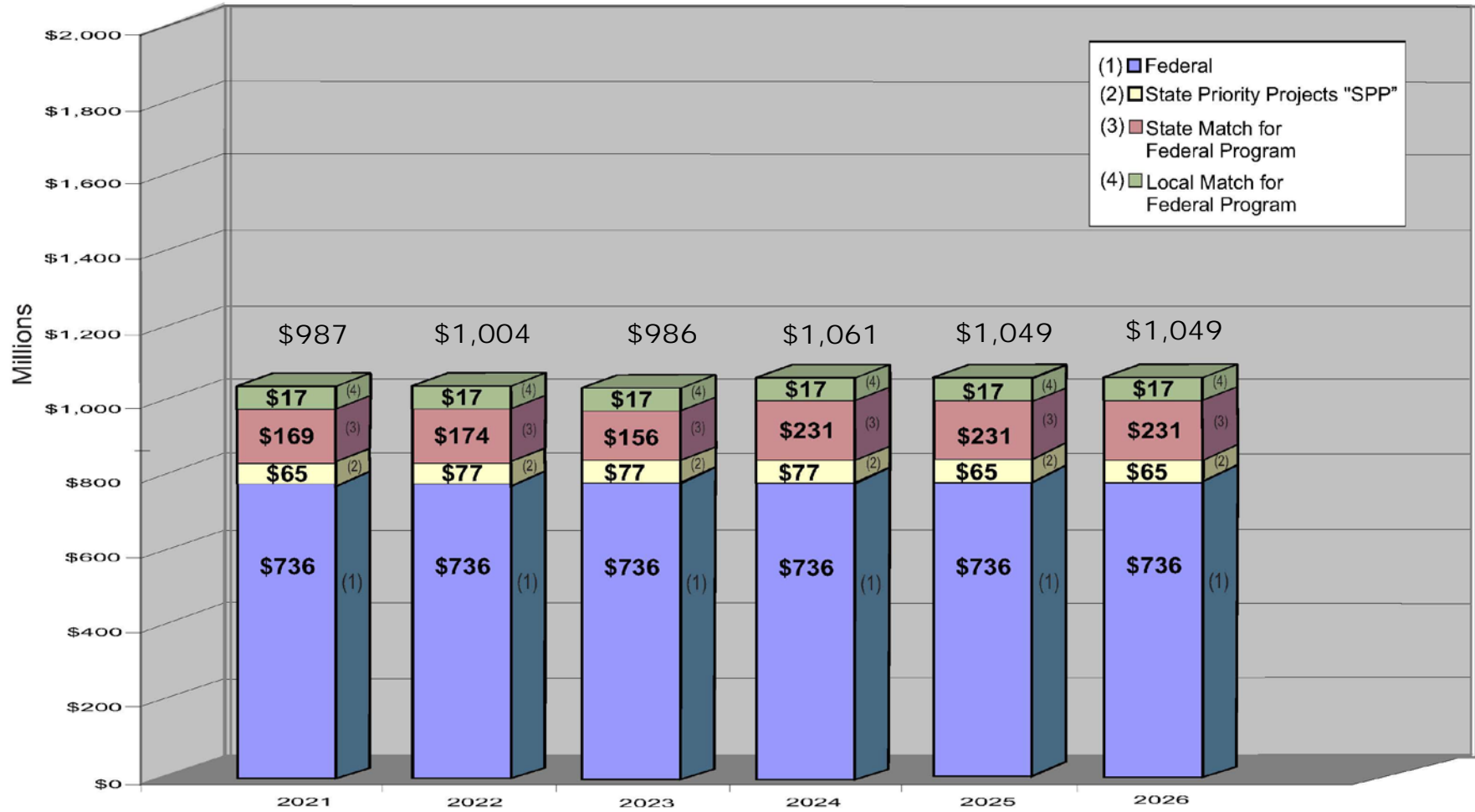


FIGURE 1

In preparing the 2020 Recommended Highway Plan, both federal and state revenue sources have been considered and the funding projections are based on the most reliable financial information available. The projected state and federal-aid highway funds made available to KYTC for major highway projects are displayed in **Figure 1**. Consistent with past trends and current forecasts, this edition of the *Recommended Highway Plan* is being developed on the basis of the most recent federal transportation authorization, the FAST Act, and state revenue estimates consistent with projections made by the Consensus Forecast Group (CFG). The CFG is a committee of specially designated experts whose revenue forecasts are used by the Executive Branch and the General Assembly to craft the biennial state budget.

It is important to note that the ability of the Cabinet to undertake major state-funded projects is a function of available road fund cash and the careful management of road fund expenses. The Cabinet is committed to maintaining cash to a “floor” of \$100 million. The cash management process (as described in “Section II, Part B) currently yields daily cash balances for internal use and provides information for monthly meetings where estimated future cash outlays can be updated and project funding decisions can be refreshed. As KYTC has gained experience with this process, our confidence has grown in both the methodology and the resulting cash flow decisions.

A. Federal Revenue Projections

The FY 2020 - 2026 federal revenue forecasts are based on expected allocations from the FAST Act through FY 2020 and straight-line projections for FY 2021 thru FY 2026. The straight-line projections for FY 2021 thru FY 2026 is an approved methodology by FHWA for years outside the current law. State-specific levels of federal-aid highway funding were broken down into individual program funding categories, as outlined by the FAST Act’s Federal Highway Trust Fund formulas for each year.

Figure 2 shows the anticipated federal fund target amounts used to fiscally balance the Plan. According to these estimates of category-by-category funding expectations, the anticipated total federal-aid dollars and matching funding available to fund projects scheduled in the Plan for FY 2020 through FY 2026 is expected to be about \$5.2 billion.

Kentucky’s federal highway program was largely matched with toll credits through mid-FY 2020. These credits were attributed to Kentucky by federal highway law in accordance with calculations that considered past levels of state fund investments (such as state-sponsored toll roads) in the federal highway system. Toll credits did not generate cash and were not be counted as real cash. They did, however, permit KYTC the flexibility to use 100% federal funding on federal-aid projects.

Beginning in FY 2020, KYTC exhausted its toll credits and was required to provide state matching funds for federal-aid highway funding each fiscal year. This will require KYTC to commit approximately \$343 million of state road funds in the biennium and approximately \$849 million in the out four years to access available federal highway dollars. This of state matching funds will be part of the overall project budget to cover federal project expenditures. Also, the required state matching funds will be included within the KYTC’s cash management process as described in “Section II, Part B”, thus spreading out the matching funds over the life of project expenditures.

Of particular concern on the federal program side is the application of “fiscal constraint” to the federal-aid highway element of the highway plan. The federal portion of the Plan is required by federal law to be fiscally balanced. Immediately upon completion of the state legislative process, KYTC begins preparing the new Statewide Transportation Improvement Program (STIP). The new STIP will incorporate the federal projects from the 2020 Highway Plan into the new STIP, which will be submitted to the Federal Highway Administration (FHWA) for approval. Fiscal

constraint for federal-aid highway funding is an important consideration for federal agencies, and the STIP is the document through which fiscal constraint is measured. Any state legislative efforts that result in over-programming of the federal element of the highway plan cannot be accommodated by the federal rules governing the STIP process. Failure to gain FHWA approval would result in the suspension of the annual federal-aid program and its approximate \$736 million annual budget to Kentucky.

FAST Act Federal Funding Category	PERCENT OF REQUIRED MATCHING FUNDS	FY-2021 COMBINED FEDERAL AND MATCHING FUNDS	FY-2022 COMBINED FEDERAL AND MATCHING FUNDS	FY-2023 COMBINED FEDERAL AND MATCHING FUNDS	FY-2024 COMBINED FEDERAL AND MATCHING FUNDS	FY-2025 COMBINED FEDERAL AND MATCHING FUNDS	FY-2026 COMBINED FEDERAL AND MATCHING FUNDS	2020-2026 COMBINED FEDERAL AND MATCHING FUNDS
Available Federal-Aid Highway Funding		736	736	736	736	736	736	
GARVEE BOND DEBT SERVICE PAYMENTS (NH) (Toll Credits Matching Funds)	Toll Credits	81	81	72	72	72	72	450.0
Federal Funding for Expenditures on Previous Funded Projects		100	100	100	0	0	0	300.0
Bridge Asset Management Program (BR)	20%	64	64	64	64	64	64	384.0
Preventive Pavement Management Program (PM)	20%	64	64	100	100	100	100	528.0
Surface Transportation Program Dedicated Funding (Requires 20 Percent Local Matching Funding)								
• STP-Henderson (SHN)(With 20% Local Matching Funds)	20%	0.8	0.8	0.8	0.8	0.8	0.8	4.5
• STP-Louisville (SLO)(With 20% Local Matching Funds)	20%	21.8	21.8	21.8	21.8	21.8	21.8	130.8
• STP-Lexington (SLX)(With 20% Local Matching Funds)	20%	7.6	7.6	7.6	7.6	7.6	7.6	45.6
• STP-Northern Kentucky (SNK)(With 20% Local Matching Funds)	20%	8.6	8.6	8.6	8.6	8.6	8.6	51.6
• STP-Huntington/Ashland (SAH)(With 20% Local Matching Funds)	20%	1.5	1.5	1.5	1.5	1.5	1.5	9.0
Combined Dedicated MPO Funding		40.3	40.3	40.3	40.3	40.3	40.3	241.5
Dedicated Federal-aid Highway Funding (Requires Matching Funding)								
• Highway Safety/High Risk Rural Road (SAF) (With 10% State Match)	10%	39.0	39.0	39.0	39.0	39.0	39.0	234.0
• Rail Protective Devices (RRP) (With 10% State Match)	10%	2.0	2.0	2.0	2.0	2.0	2.0	12.0
• Rail Separation (RRS) (With 10% State Match)	10%	2.0	2.0	2.0	2.0	2.0	2.0	12.0
• Transportation Enhancement (TE) (With 20% Local Match)	20%	10.0	10.0	10.0	10.0	10.0	10.0	60.0
• Congestion Mitigation (CMAQ)(With 20% Local Match)	20%	14.4	14.4	14.4	14.4	14.4	14.4	86.4
Federal SPR and Research Program (With 20% State Match)	20%	14.5	14.5	14.5	14.5	14.5	14.5	87.0
• Metropolitan Planning (With 20% Local Match)	20%	2.7	2.7	2.7	2.7	2.7	2.7	16.2
Combined Dedicated Statewide Federal Funding		84.6	84.6	84.6	84.6	84.6	84.6	507.6
Federal Funding for Recommended Highway Plan Projects		302.2	302.2	275.2	375.2	375.2	375.2	2,004.9
Summary of Anticipated Federal-Aid Highway Funding		\$736.0	\$736.0	\$736.0	\$736.0	\$736.0	\$736.0	4,416.0

NOTE:

- 1) Mandated GARVEE Bond Debt Service Payments of \$81 million in FY 2021; \$81 million in FY 2022; \$72 million in FY 2023; \$72 million in FY 2024; \$72 million in FY 2025; and \$72 million in FY 2026; having a combined total of \$531 Billion.
- 2) No projected allocations of future Congressional HPP or KYD earmark funding
- 3) No remaining "Toll Credits" available for required state match on new obligations during FY 2020 through FY 2026.
- 4) "Toll Credits" used as matching funds on GARVEE Bond Debt Service Payments and on expenditures of previously obligated federal funded projects.

FIGURE 2

B. State Project Funding Projections

A forecast of \$1.6 billion in state road fund cash is expected to be available to support new state-funded highway plan project obligations between 2021 and 2026. This amount is based on the projected state road fund revenue minus the non-federal state funded fixed costs and remaining expenditures of currently authorized projects not yet completed. The projected available state road fund cash is based upon a number of assumptions about project cost payouts, revenues accruing to the Road Fund, non-Six-Year Plan costs, state bond debt service payments, unexpected cost increases, and project change orders. Actual decisions about when to obligate state project dollars and how much state project work can be afforded at any point will be made by the Secretary of Transportation and based on monthly cash management evaluations received from KYTC's Authorization Review Team (ART).

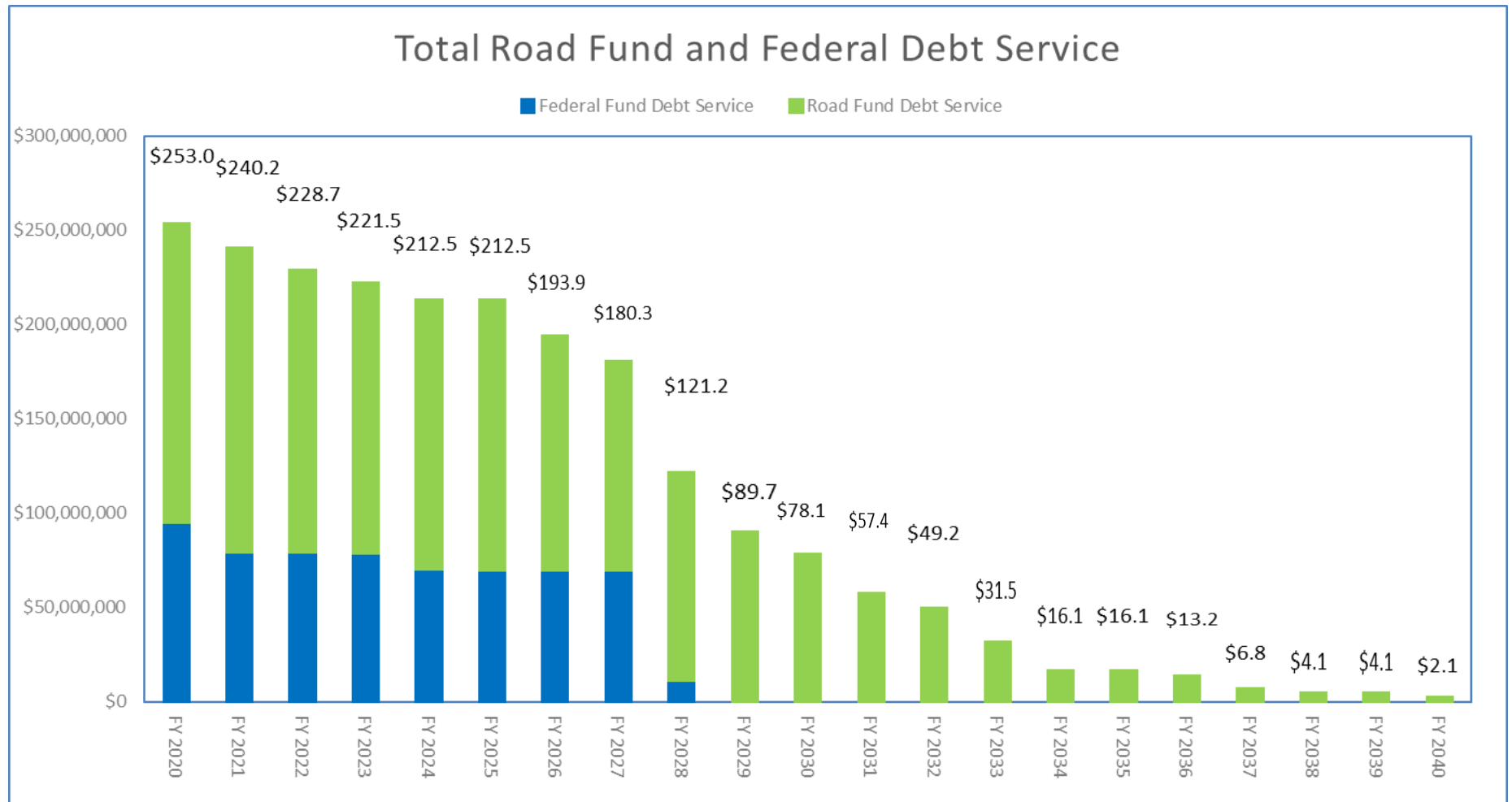
The ART consists of the Cabinet's Secretary, Deputy Secretary, the State Highway Engineer and deputies, and the KYTC Budget Director. These individuals work closely together to monitor the state funding cash balance, meeting monthly to carefully evaluate actual expenditures for the prior month and planned expenditures for upcoming months relative to future fiscal capacity calculated from ongoing project and program cost projections. Every planned, state-funded project funding decision undergoes a rigorous two-part assessment in which the following questions are asked: (1) Is the project ready to move forward from the project development standpoint? (2) Can KYTC afford to move the project forward considering the cash flow implications of doing so? Only a satisfactory response to both questions permits a project to move forward in the funding process.

The ART provides approval for authorization of state and federal funding for preconstruction phases of projects, for awards of construction phases, system preservation activities, and other highway program activities. The ART is taking the necessary steps to assess all planned program outlays and manage cash flow.

In summary, KYTC's current projection of state road fund revenues available for state project obligations for the six-year highway Plan "SPP" projects and state matching funds for the federal-aid highway funding program will be as follows:

2021	\$65 million
2022	\$77 million
2023	\$77 million
2024	\$77 million
2025	\$65 million
2026	<u>\$65 million</u>
Total	\$426 million

As shown in **Figure 3**, the current federal and road fund debt service totals approximately \$2.2 billion over the life of the bonds (2020 through 2040). This includes estimated road fund debt service for about \$62.5 million in authorized but unissued debt. Any significant additional bond authorizations could lead to potential bond rating downgrades.



Total Debt Service (principal and interest) totals approximately \$2.2 billion over the life of the Bonds.

*Includes estimated Road Fund debt service for about \$62.5 million in authorized but unissued debt.

FIGURE 3

C. KYTC Mega Projects

I-69 Ohio River Crossing Project

KYTC is working closely with Indiana to develop an approach to funding the new I-69 bridge over the Ohio River between Henderson and Evansville. The 2020 Recommended Highway Plan includes \$267 million to develop the project and begin construction of a portion of the project from the Henderson Bypass (KY 425) north to US 60. All of this portion of the project is located in Kentucky and construction is expected to begin in late Calendar Year 2022. While the development of the KY 425 to US 60 portion of the project is underway, KYTC will be working with the Indiana Department of Transportation (INDOT) to complete a financial plan for the remainder of the project from US 60 north to I-69 in Evansville. This \$1.1 billion section includes a new Ohio River Bridge and will likely use a combination of tolls, federal grants, and state monies to complete the I-69 Ohio River crossing. The current project estimate for the entire project is \$1.37 billion with KY's share of those costs being approximately \$914 million. Inflation, financing and interest will significantly increase these costs. The environmental process is scheduled for completion in the fall of 2020 making the project eligible for federal monies toward design, right of way activities and construction.

Mountain Parkway Widening

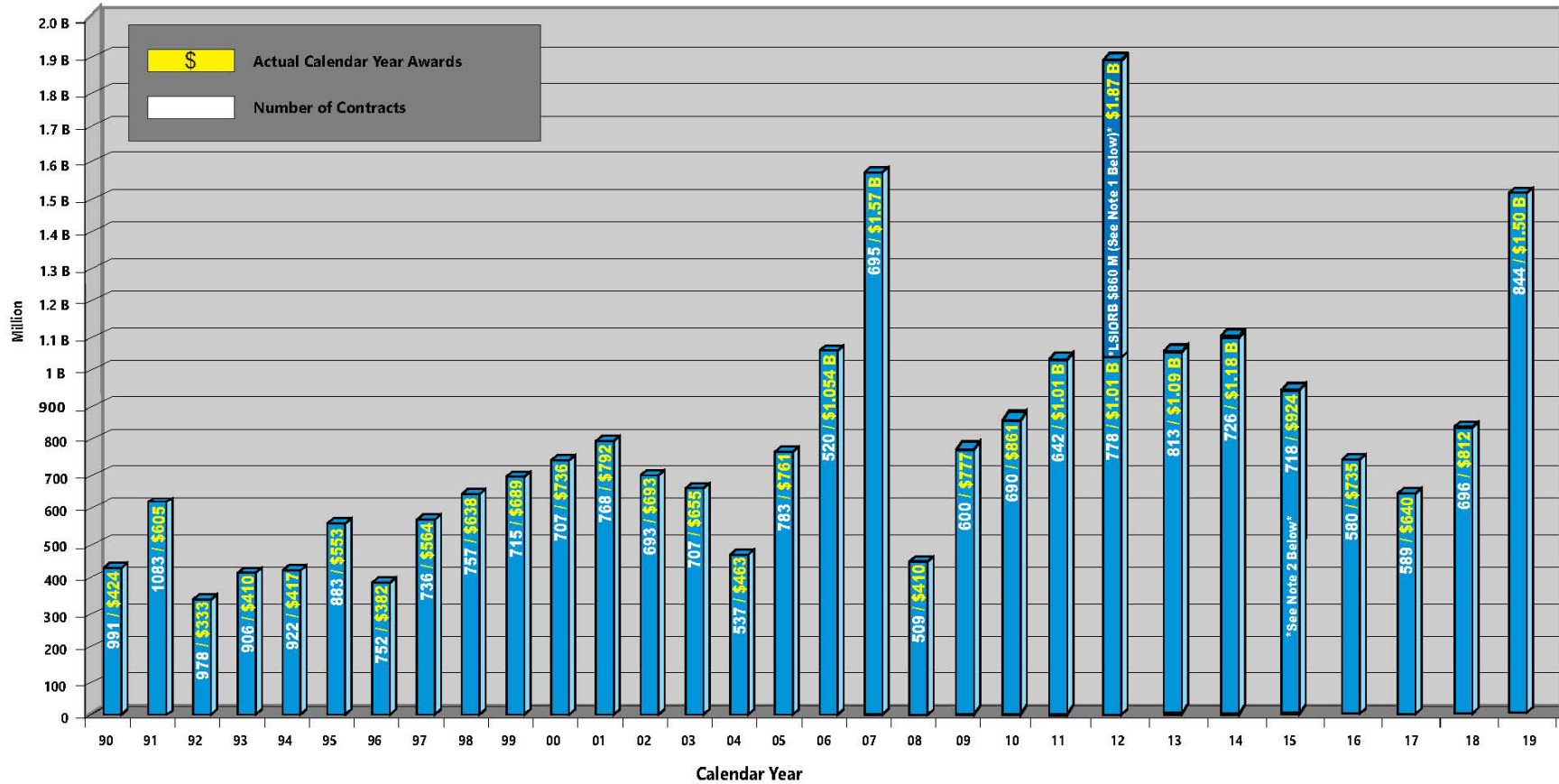
KYTC initiated work to 4-lane the Mountain Parkway from Campton through Salyersville in 2014. The first projects to be constructed were located west of and through the developed areas in Salyersville. In recent years, the widening work has extended westward to near the KY 205 Interchange, leaving a "gap section" from Campton to KY 205. The 2020 Recommended Highway Plan provides \$97.3 million to complete the "gap section" and another \$3.2 million to begin the design phase for extending the 4-lane Mountain Parkway eastward along existing KY 114 toward Prestonsburg.

Brent Spence Bridge Project

KYTC completed the Brent Spence Bridge Strategic Corridor Study in December 2017 which concluded that the Brent Spence Bridge Project and improvements to the I-275 interchange with I-71/I-75 are needed to relieve critical congestion along the corridor. Currently, the Plan does not include funding for any phases of the project. Kentucky's share of the estimated cost of the Brent Spence Bridge Project is estimated at \$1.3 billion in current year dollars. The Plan does include funding for painting the existing Brent Spence Bridge in FY 2021.

D. Historic Construction Awards

Historic Construction Awards (\$)



*Note 1*THE CALENDAR YEAR 2012 TOTALS INCLUDE THE AWARDED \$860 MILLION DESIGN-BUILD LOUISVILLE OHIO RIVER BRIDGE DOWNTOWN PROJECT****
 *Note 2*THE 718 PROJECTS AND \$924 MILLION OF CALENDAR YEAR 2015 TOTALS DO NOT INCLUDE \$36 MILLION OF PENDING AWARDS FOR 2 PROJECTS****

FIGURE 4