

FACT SHEET – NEEDS BY MODE



LEGEND

These fact sheets highlight multimodal transportation needs within the 2050 LRTP. The information provides connections to LRTP goals, input from stakeholder outreach, opportunities, trends, and emerging needs to inform future investment decisions. Each 2-page profile includes short- and long-term forecasts captured in the companion WVDOT 2050 LRTP Needs Assessment Technical Report.

CONNECTIONS TO LRTP GOALS

E Economic Vitality & Freight Movement

C System Condition, Efficiency & Fiscal Sustainability

H Livable & Healthy Communities

M Multimodal Mobility, Reliability & Accessibility

S Safety & Security for All Users

Connecting investments by mode to the goals of the 2050 LRTP reinforces the importance of multimodal enhancements to improve the overall transportation network and meet broader statewide goals.

STAKEHOLDER INPUT

Stakeholder input provides key takeaways gathered from subject matter expert interviews, a stakeholder survey, and input from the 2050 LRTP Leadership Team and the Policy & Technical Team.



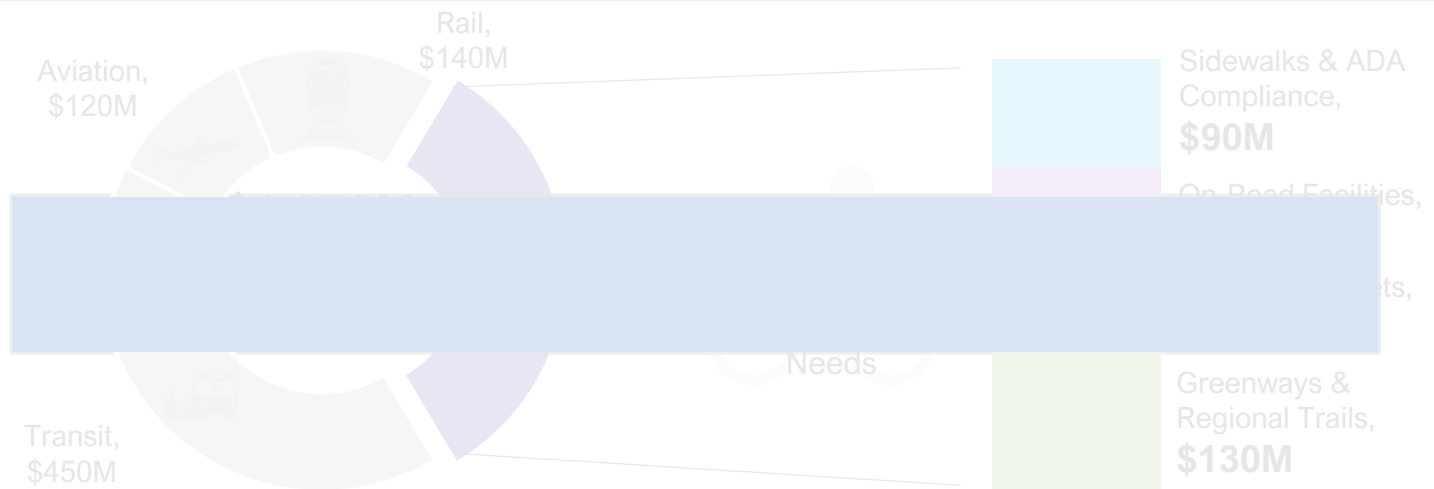
Multimodal needs were forecasted using a data driven and stakeholder informed approach shaped by a wide array of sources, tools and input. This section provides an overview of the methodologies and sources used to display all costs in current (2020) dollars.

FORECASTING METHOD

FACT SHEET – NEEDS BY MODE



LEGEND



OPPORTUNITIES

TRENDS AND EMERGING NEEDS

These sections highlight opportunities, trends and emerging needs identified in the 2050 L RTP State of the System and Trends, Drivers and Opportunities reports to support connecting West Virginia's extensive transportation system to changing economic, demographic, technology, and environmental factors.

SHORT-TERM AND LONG-TERM FORECASTS

The bottom section displays the monetary value associated with the short-term (2020-2030) and long-term (2030-2050) needs forecasts. In addition to dollar values, this section also highlights example recent plan goals, objectives, projects, and studies important to the context of assessing West Virginia's future multimodal transportation needs through 2050.

- Fully obligate Transportation Alternatives Allocation
- Complete Streets Initiatives along major urban transportation corridors
- Explore addition of designated signed bicycle routes
- Complete WV portions of the Great American Rail Trail
- Prioritize investments that focus on bicycle and pedestrian safety
- Continue to integrate and promote active transportation investments which support state health goals and healthy lifestyles

**Short-Term
(2020-2030)**

**Long-Term
(2030-2050)**

FACT SHEET – NEEDS BY MODE

ACTIVE TRANSPORTATION



CONNECTIONS TO LRTP GOALS

S

Safety & Security for All Users

H

Livable & Healthy Communities

M

Multimodal Mobility, Reliability & Accessibility

West Virginia's US and Cross-State Bicycle Routes and 5,000 miles of trails provide access to destinations to support tourism and quality of life goals. Signage and pavement markings along designated routes facilitate safe, statewide travel while local/regional investments in sidewalks, protected bicycle lanes, and rail-to-trail projects encourage healthy lifestyles and create multimodal connections.

STAKEHOLDER INPUT

Focus on implementing recommendations provided in the WV Bicycle Connectivity Plan

Complete Streets Advisory Board provides and facilitates communication, education and advice to WVDOT and localities

Majority of projects come from local governments, MPOs, and advocacy groups



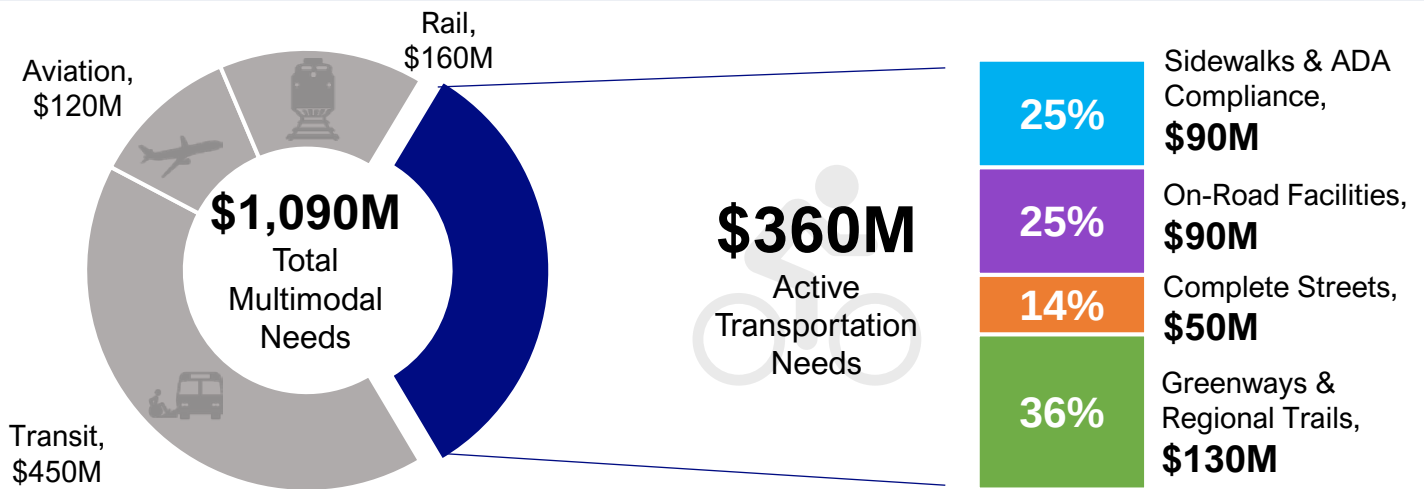
To forecast active transportation needs, projects were gathered from eight WV MPO long-range plans, the WV State Rail Plan, and four bicycle/pedestrian specific transportation plans. Projects were labeled as constrained or aspirational consistent with these various plans. All projects were then inflated/deflated to the year 2020 to display all costs in current-year dollars.

FORECASTING METHOD

Sources considered: Bike/Pedestrian Plans from [HEPMPO](#), Morgantown, [RIC](#), and [Westover-Granville](#); [West Virginia 2020 State Rail Plan](#); Current MPO Long-Range Plans from [BHJ MPC](#), [BOMTS](#), [FRMPO](#), [HEPMPO](#), [KYOVA](#), [MMMPO](#), [RIC](#), and [WWW IPC](#); [WV 2020 STIP](#)

FACT SHEET – NEEDS BY MODE

ACTIVE TRANSPORTATION



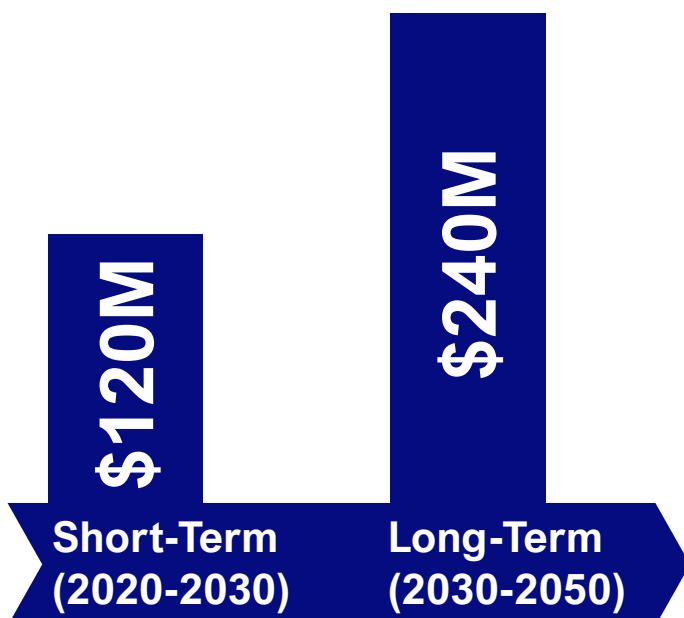
OPPORTUNITIES

An investment of \$1.5M in bike route signage and shared lane markings on 1,440 miles of state bicycle routes could enhance connectivity to recreational destinations and regional trails. These types of transportation investments have a direct impact on West Virginia's tourism economy.

TRENDS AND EMERGING NEEDS

National trends show increased demand for bicycle and walking options to remain economically competitive, attract major employers and provide a higher quality of life. Implementing a Complete Streets Policy, while maintaining the condition of statewide active transportation facilities, is an ongoing challenge.

SHORT-TERM AND LONG-TERM FORECASTS



- Fully obligate FHWA Transportation Alternatives funding allocations
- Implement Complete Streets initiatives along major urban transportation corridors
- Explore addition of designated signed bicycle routes
- Complete WV portions of the Great American Rail Trail
- Prioritize investments that focus on bicycle and pedestrian safety
- Continue to integrate and promote active transportation investments which support state health goals and healthy lifestyles

FACT SHEET – NEEDS BY MODE

TRANSIT



CONNECTIONS TO LRTP GOALS

S

**Safety & Security for
All Users**

H

**Livable & Healthy
Communities**

M

**Multimodal Mobility,
Reliability & Accessibility**

Urban, Rural and Intercity Transit systems support critical mobility needs in West Virginia. Over 7 million trips are supported by public transit annually (prior to 2020). Expanding and enhancing reliability of public transit services provides increased mobility for disadvantaged populations (such as the elderly and disabled) while simultaneously reducing congestion and improving air quality. Investments in transit-oriented development can enhance the economy and decrease vehicle dependency.

STAKEHOLDER INPUT

Increase coordination with MPOs and the Health Department to combat rural transit issues and funding solutions

WVDOH needs a formal planning process to document and address rural transit needs

There is a need for planning studies to identify future transit routes, headways, and transit services



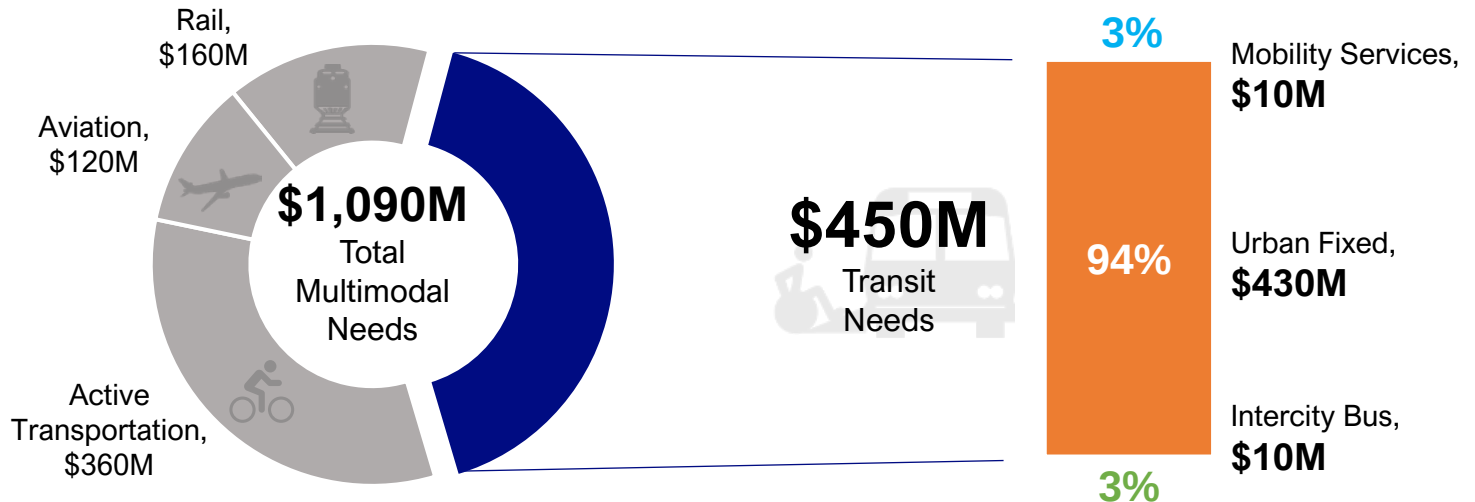
To forecast transit needs, projects were gathered from the eight WV MPO long-range plans. A Commuter Bus Service Analysis from the Eastern Panhandle Transit Authority was also summarized. All projects were then inflated/deflated to the year 2020 to display costs in current-year dollars.

FORECASTING METHOD

Sources considered: [EPTA Commuter Bus Service Analysis](#); Current MPO Long-Range Plans from [BHJ MPC](#), [BOMTS](#), [FRMPO](#), [HEPMPO](#), [KYOVA](#), [MMMPO](#), [RIC](#), and [WWW IPC](#)

FACT SHEET – NEEDS BY MODE

TRANSIT



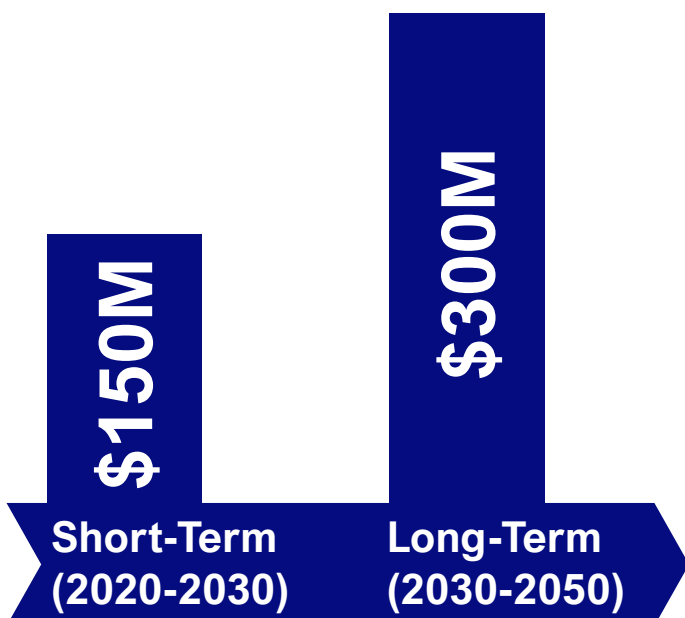
OPPORTUNITIES

There are opportunities statewide to expand transit service operations to provide for those who have limited mobility. Transit providers can also leverage funding from the VW environmental mitigation settlement to upgrade transit vehicles to utilize cleaner energies.

TRENDS AND EMERGING NEEDS

Funding constraints and long-distances between destinations such as health care, education and employment opportunities remain a challenge for rural transit. As new mobility options such as micro-transit and mobility-as-a-service become available, transit will have to compete with these other services for choice riders.

SHORT-TERM AND LONG-TERM FORECASTS



- Increase statewide public transit services from the currently served 37 counties to all 55 counties in West Virginia
- Enhance bus services supporting commute travel including construction of new park and ride lots
- Vehicle replacements and fleet expansions to include electric buses
- Operate more deviated (flexible) fixed route service in rural areas
- Improve bus stop amenities
- Ensure statewide transit assets remain in good working condition

FACT SHEET – NEEDS BY MODE

RAIL



CONNECTIONS TO LRTP GOALS

E Economic Vitality & Freight Movement

H Livable & Healthy Communities

M Multimodal Mobility, Reliability & Accessibility

Improving accessibility to intercity passenger rail stations throughout West Virginia remains a priority. This includes improving accessibility and ADA compliance at all passenger rail stations. In addition to passenger movement, collaboration with West Virginia's 12 freight railroads, logistics terminals, inland port facilities and local economic development organizations can enhance freight movement along the 2,000+ railroad miles and increase the economic vitality of the West Virginia.

STAKEHOLDER INPUT

Enhancing passenger rail services to create new opportunities for access to key destinations and jobs remains a priority goal

Stakeholder generally rated rail capacity needs low, but coordination between other states, especially Ohio was identified as a priority

Revitalizing Class I rail service through specific urban areas and bottlenecks was seen as a priority



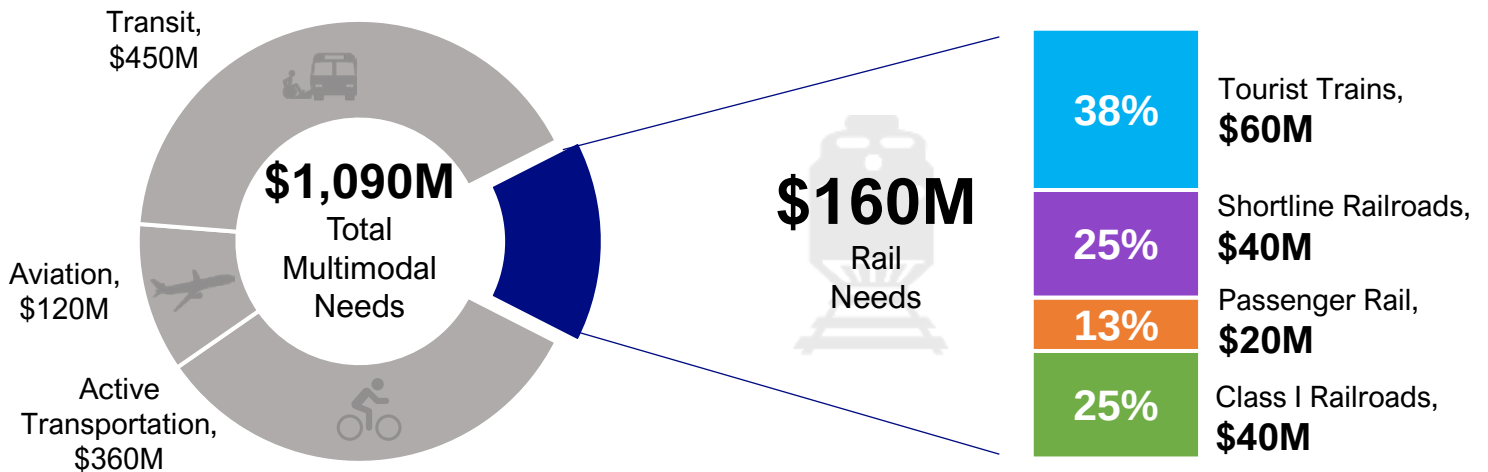
To forecast rail needs, projects were primarily gathered from the 2020 and 2013 versions of the WV State Rail Plan. To supplement this, rail-specific projects were identified from the 2018 State Freight Plan, the RIC MPO LRTP, and the final year of the 2020 WV STIP. All projects were then inflated/deflated to the year 2020 to display all costs in current-year dollars.

FORECASTING METHOD

Sources considered: [2020](#) and [2013](#) WV State Rail Plans, [2018 WV State Freight Plan](#), [RIC MPO 2017 LRTP](#), [MARC Cornerstone Plan](#), [WV 2020 STIP](#)

FACT SHEET – NEEDS BY MODE

RAIL



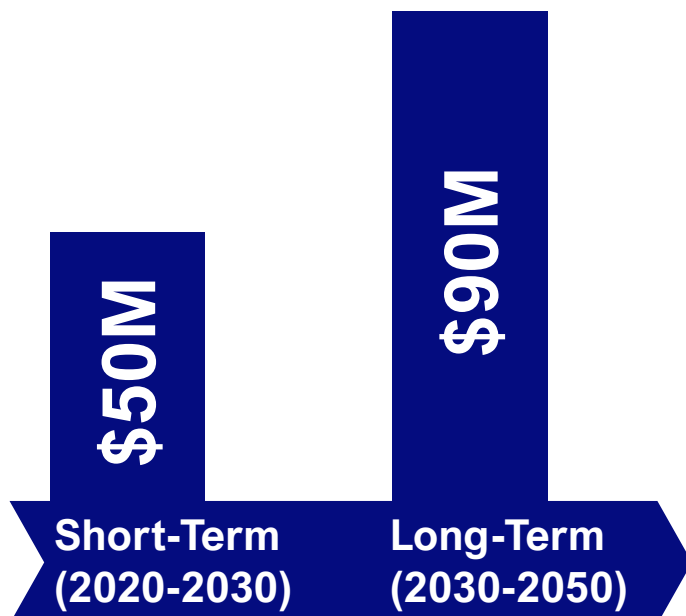
OPPORTUNITIES

Maintain quality of state rail network. Increase passenger ridership, availability, and accessibility to intercity rail stations throughout West Virginia. Continue to repurpose abandoned rail lines into recreational and historical tourism attractions which boost the state's economy.

TRENDS AND EMERGING NEEDS

West Virginia's rail network carries more than 164 million tons of freight. Due to the decline in coal demand, rail movement is projected to decrease through 2040. As coal movement decreases, it's essential to provide landside connections to rail terminals and industry hubs to foster business and industry growth.

SHORT-TERM AND LONG-TERM FORECASTS



- Improve the decision-making process and coordination to allocate rail project funds
- Provide a state funding program for rail improvements
- Conduct feasibility of extending WVCR trackage by 28 miles to Bergoo for additional tourist and overnight attractions
- Expansion of intercity passenger rail service and consider future regional service
- Evaluate and prioritize Grade Crossing improvements to improve safety
- Target industries to locate on high-performance rail corridors

FACT SHEET – NEEDS BY MODE

AVIATION



CONNECTIONS TO LRTP GOALS

E Economic Vitality & Freight Movement

M Multimodal Mobility, Reliability & Accessibility

S Safety & Security for All Users

West Virginia's 7 commercial service airports and 34 public use airports play a vital role in the State's economy, providing employment opportunities and essential services to local communities and businesses. As highlighted in the 2018 West Virginia State Freight Plan, the State has identified the need for expanding reasonably sized airports across the state to promote development. Investments such as terminal expansion improved access can increase freight and passenger volumes.

STAKEHOLDER INPUT

Multiple MPO representatives noted that aviation was the most important non-highway issue for their community's economic future

There is an emphasis on the need for smooth intermodal connections between highway/rail modes and airports to support freight movement

Historically, about 90% of airport projects are funded by the FAA Airport Improvement Program (AIP)



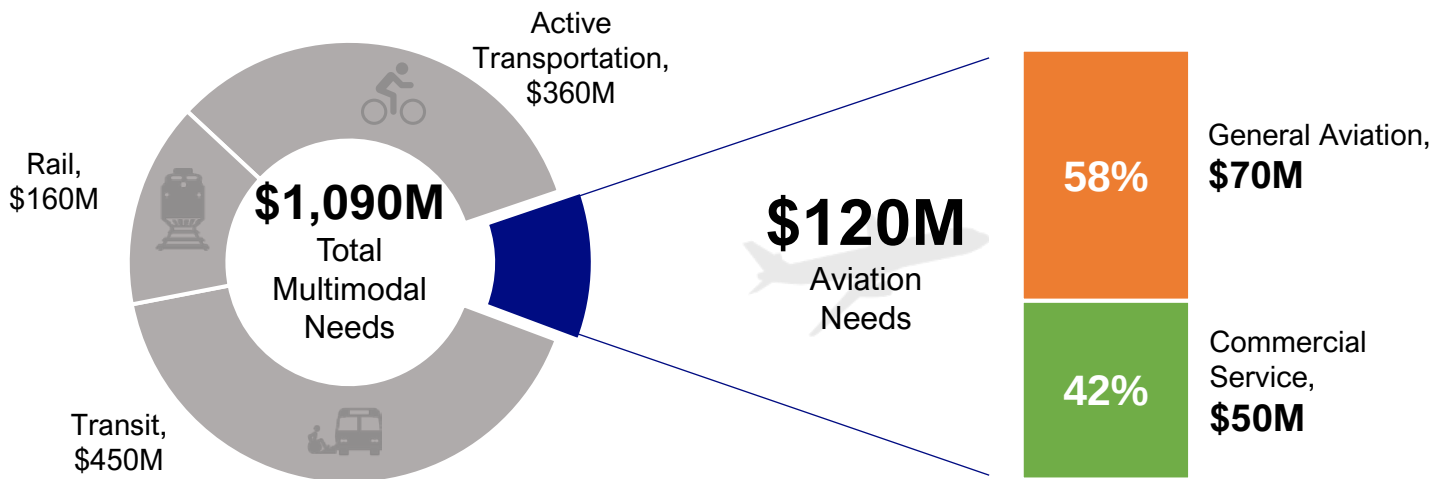
To forecast aviation needs, projects were primarily gathered from the FAA AIP Grants for West Virginia projects and the WVAC 2020 and 2019 Annual Reports. The 2018 WV State Freight Plan also provided one project associated an airport runway extension. All projects were then inflated/deflated to the year 2020 to display all costs in current-year dollars.

FORECASTING METHOD

Sources considered: [FAA AIP Grant Detail Reports](#) as of 9/24/2020, [WVAC 2020](#) and 2019 Annual Reports, and the [2018 WV State Freight Plan](#)

FACT SHEET – NEEDS BY MODE

AVIATION



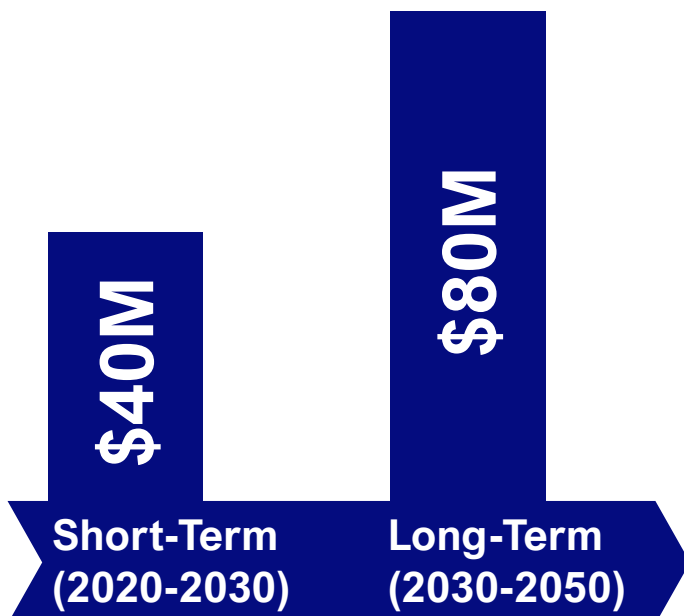
OPPORTUNITIES

Track and implement strategic, site specific opportunities to expand or modernize aviation and aeronautical infrastructure or partnerships through findings of the on-going West Virginia Aviation Economic Impact Study.

TRENDS AND EMERGING NEEDS

Beyond the short-term decline in demand due to COVID-19, West Virginia airports are expected to see annual increases in passenger and freight volumes. Unmet infrastructure needs could hinder the state's aviation industry from remaining competitive, including expanding unmanned aerial system (UAS) opportunities.

SHORT-TERM AND LONG-TERM FORECASTS



- Continue to support the six main goals and objectives identified in the 2019 West Virginia Department of Transportation's Aeronautics Commission Annual report
- Continue to implement construction projects to meet future passenger and freight demands such as the expansion of Yeager Airport
- Research opportunities and emerging technologies for repurposing airport infrastructure to service UAS and future urban air mobility

FACT SHEET – NEEDS BY MODE

HIGHWAY EXPANSION



CONNECTIONS TO LRTP GOALS

E Economic Vitality & Freight Movement

C System Condition, Efficiency & Fiscal Sustainability

M Multimodal Mobility, Reliability & Accessibility

Traffic congestion costs West Virginia motorists a total of \$225 million each year from lost time and wasted fuel. Roadway bottlenecks (capacity, geometry, or operational constraints) combined with deteriorating infrastructure can increase congestion and negatively impact the economy. By 2026, the State will need to add 142 miles of new lanes of the interstate system in order to relieve congestion (WV Section of the American Society of Civil Engineers Infrastructure Report Card).

STAKEHOLDER INPUT

West Virginia DOT employees rated highway expansion needs as critically high

Highway expansion was considered more important in urban areas compared to rural areas

Highway expansion was the second lowest rated transportation need in non-urban areas



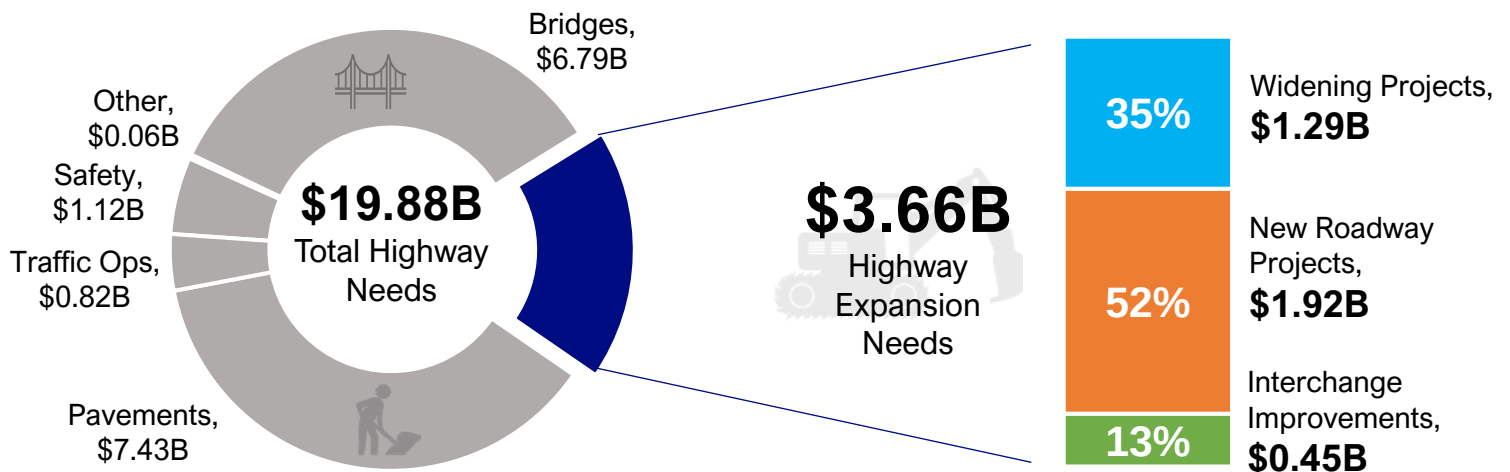
To forecast highway expansion needs, projects were gathered from the previous WV 2010 long-range transportation plan, the WV 2018 State Freight Plan, and the eight WV MPO long-range plans. MPO projects were classified as either constrained or aspirational consistent with each plan project lists, while DOT projects were considered constrained or aspirational based on guidance from DOH employees.

FORECASTING METHOD

Sources considered: West Virginia Multi-Modal LRTP (2010); West Virginia 2018 State Freight Plan, Current MPO Long-Range Plans from BHJ MPC, BOMTS, FRMPO, HEPMPO, KYOVA, MMMPO, RIC, and WWW IPC

FACT SHEET – NEEDS BY MODE

HIGHWAY EXPANSION



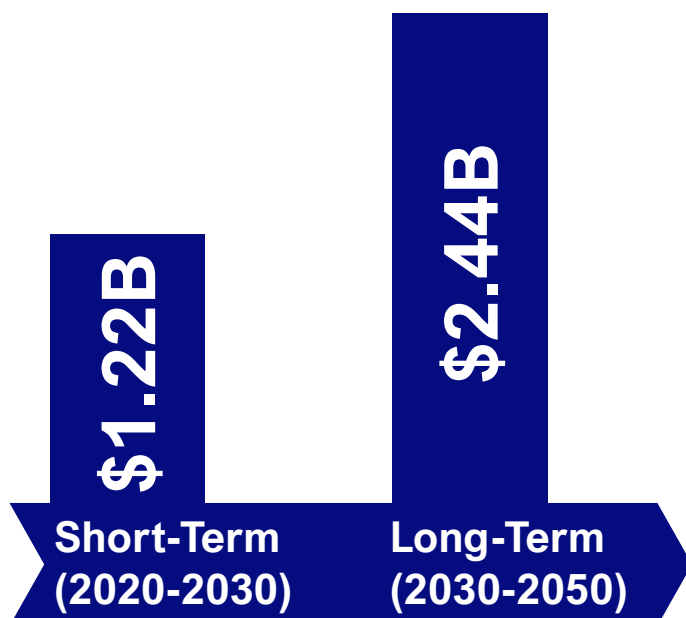
OPPORTUNITIES

New highway expansion improvements can support broader statewide goals such as providing improved connections to educational opportunities, existing and emerging industries, and health care. Enhance coordination between improvement projects and site selection needs.

TRENDS AND EMERGING NEEDS

The influx of population to urban areas, increasing tourism activities, and growing freight demand will continue to push the need for expansion of the highway system. Alternative routes and detours must also consider expansion needs to adequately respond to natural disasters and other events impacting throughput.

SHORT-TERM AND LONG-TERM FORECASTS



- Complete Corridor H of the Appalachian Development Highway System
- Extension of the New River Parkway, a two-lane scenic highway from Summers County to Mercer County
- Access improvements and widening projects along I-79 in Morgantown
- Major reconstruction of I-79 and US 250 interchange in Marion County
- US 522 4-lane reconstruction between the Virginia and Maryland state boundaries

FACT SHEET – NEEDS BY MODE

HIGHWAY OPERATIONS



CONNECTIONS TO LRTP GOALS

S

Safety & Security for All Users

C

System Condition, Efficiency & Fiscal Sustainability

E

Economic Vitality & Freight Movement

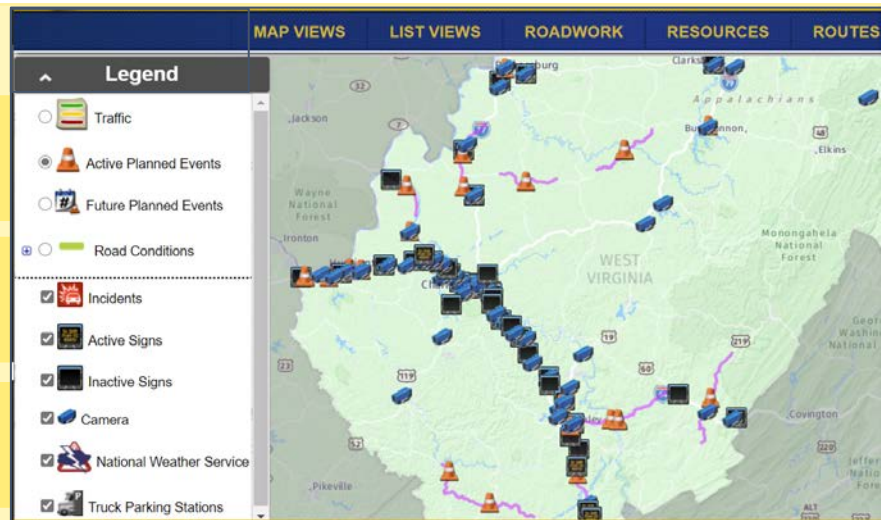
Highway operations include digital message signs, cameras, and other technology to help WVDOT identify and manage incidents. WVDOT spends \$1.8M per year maintaining these important systems. These network investments combined with localized needs (turn lanes, signal synchronization) are cost effective methods to optimize highway capacity, enhance safety and improve travel time reliability for commuters and statewide commerce.

STAKEHOLDER INPUT

Highway operations is seen as the third-most important need category

WVDOT and MPO employees agree about the importance of highway mobility and operations

Highway operations is considered more important on urban roads compared to rural roads



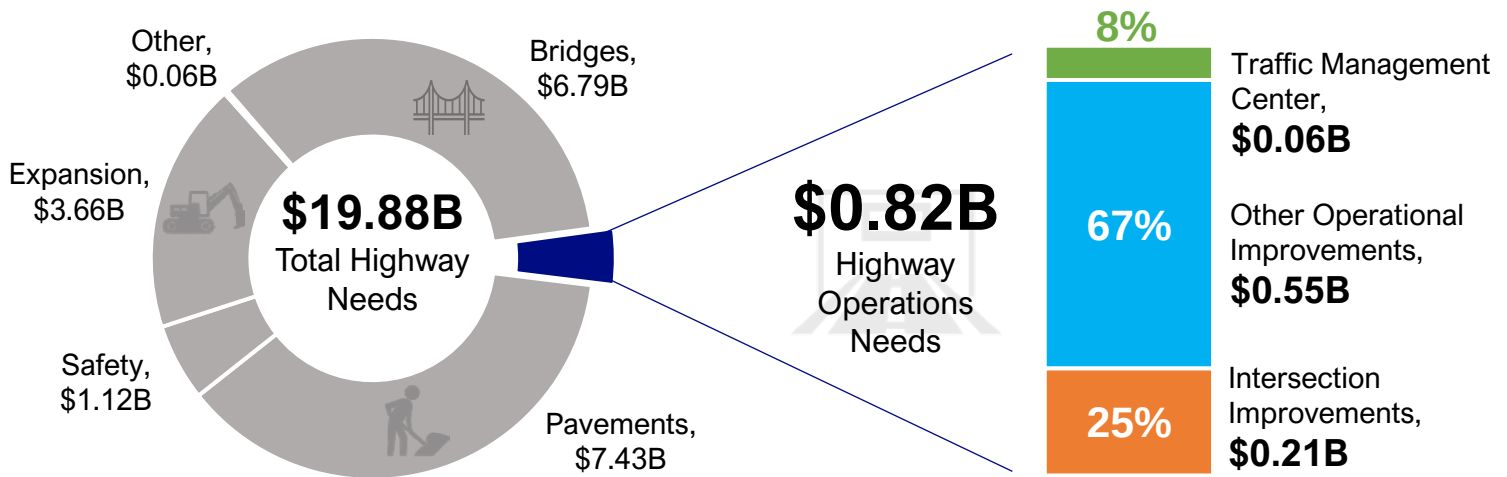
To forecast highway operations needs, projects were identified through WVDOT and WV MPO sources scoped to enhance traffic movement without adding major capacity (turn lanes, intersection redesigns, signal timing). These projects were combined with yearly estimates to maintain traffic management infrastructure and address installation of new infrastructure in the future.

FORECASTING METHOD

Sources considered: [West Virginia Multi-Modal LRTP \(2010\)](#); [West Virginia 2018 State Freight Plan](#), Current MPO Long-Range Plans from [BHJ MPC](#), [BOMTS](#), [FRMPO](#), [HEPMPO](#), [KYOVA](#), [MMMPO](#), [RIC](#), [WWW IPC](#), and WV Traffic Engineering Division

FACT SHEET – NEEDS BY MODE

HIGHWAY OPERATIONS



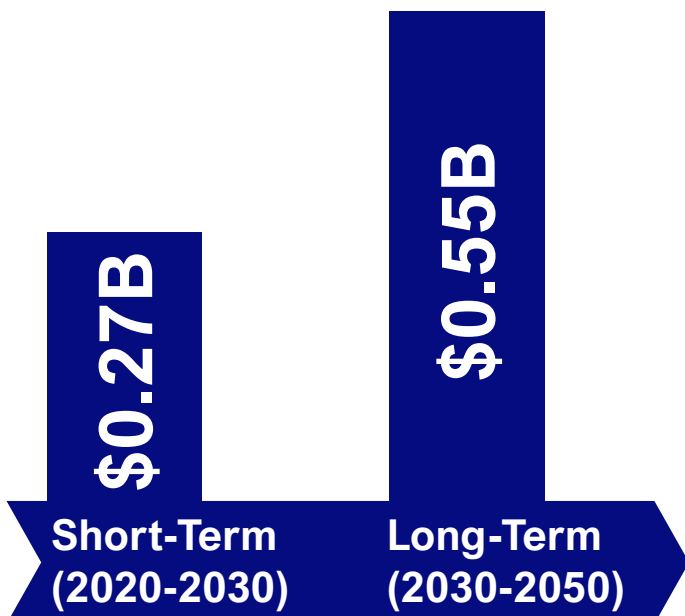
OPPORTUNITIES

Advance a Transportation System Maintenance and Operations (TSMO) Plan and leverage WVDOH's Statewide Traffic Control Device Maintenance Program to promote innovative project delivery.

TRENDS AND EMERGING NEEDS

Emerging technologies including automated and connected vehicles, alternative energy sources and intelligent transportation systems (ITS) will push the need for increased funding, research, and development to cultivate a "technology awareness" culture.

SHORT-TERM AND LONG-TERM FORECASTS



- Assess WVDOT roles and responsibilities related to the integration of technology and transportation. Establish available funding sources to implement these connections within multiple departments
- Complete and implement a TSMO Plan
- Continue funding the Traffic Management Center and Traffic Incident Management Program
- Employ new ITS technology to more efficiently manage intersections and maximize the capacity of roadways without adding new lanes

FACT SHEET – NEEDS BY MODE

HIGHWAY SAFETY



CONNECTIONS TO LRTP GOALS

S Safety & Security for All Users

H Livable & Healthy Communities

M Multimodal Mobility, Reliability & Accessibility

Ensuring safety and security for all transportation system users is a top priority in West Virginia. In 2019, the State had a total of 1,078 serious injuries and 279 fatalities. According to the USDOT, motor vehicle crashes contribute an estimated \$1.4 billion in annual economic cost in WV. By keeping safety at the forefront of transportation investment, operations, and management, the State can enhance overall network mobility and livability while reducing the number of traffic crashes.

STAKEHOLDER INPUT

In the short-term, reducing fatalities and serious injuries was the most important goal for WV MPOs and tied as the 2nd most important goal for WVDOT staff

Traffic record-keeping is a “soft” program that could call for more resources including opportunities to provide training to local police forces



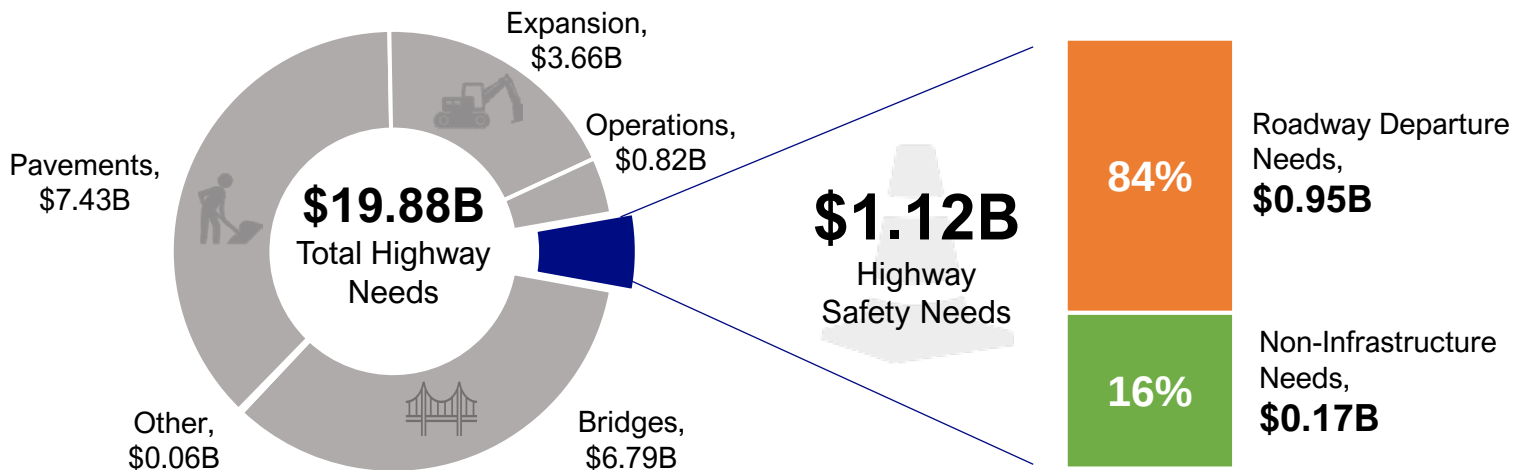
To forecast safety numbers, obligated funds were gathered from the previous seven years of the HSIP in the state (2013-2019). An average annual amount was determined and projected to 2050. The annual amounts were then adjusted to forecasted VMT amounts to reflect the relationship between total VMT and total crashes. This only includes projects where the primary purpose is safety-related.

FORECASTING METHOD

Sources considered: [West Virginia Highway Safety Plan \(HSP, 2021\)](#); [West Virginia Strategic Highway Safety Plan \(SHSP, 2017\)](#); and [West Virginia Highway Safety Improvement Program \(HSIP, 2013-2019\)](#)

FACT SHEET – NEEDS BY MODE

HIGHWAY SAFETY



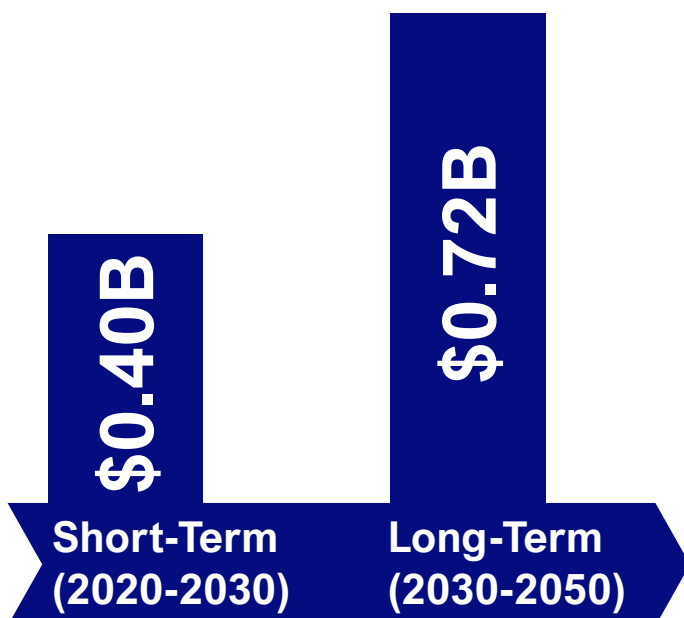
OPPORTUNITIES

Continue to pass Legislation that inhibits dangerous driving behavior (such as House Bill 4464 passed in 2020) and encourage WVDOH Divisions and Districts to regularly recommend safety improvement locations eligible for HSIP funding.

TRENDS AND EMERGING NEEDS

The SHSP, HSIP, and HSP have adopted a series of goals, strategies and performance targets to reach zero fatalities by 2030. Due to the State's mountainous terrain, roadway departure continues to be a top emphasis area requiring safe infrastructure and additional funding.

SHORT-TERM AND LONG-TERM FORECASTS



- Achieve 2050 LRTP Goal "Safety and Security for All Users"
- Decrease overall fatalities and serious injuries to reach Target Zero
- Continue to fund safety programs such as Click It or Ticket, Drive Sober or Get Pulled Over, and Alcohol/Drug Initiatives that promote safe driver behaviors
- Implement improvements and strategies focused on minimizing risk associated with roadway departures, aggressive driving and other SHSP emphasis areas
- Continue to improve collection and sharing of Highway Safety Data

FACT SHEET – NEEDS BY MODE

HIGHWAY PAVEMENT



CONNECTIONS TO LRTP GOALS

E

Economic Vitality & Freight Movement

C

System Condition, Efficiency & Fiscal Sustainability

S

Safety & Security for All Users

Over 25,000 lane miles of paved roadways serve as the backbone of truck freight movement and passenger vehicle travel across West Virginia. 88% of these facilities serve rural communities through mountainous terrain providing vital links to local industries and tourist destinations. According to the 2020 ASCE Infrastructure Report Card, unmet pavement needs will cost WV citizens \$758 M per year. Maintaining the condition of this critical asset in a state of good repair will support the economy and safety of users.

STAKEHOLDER INPUT

Maintaining pavement in a state of good repair was the most important need noted by stakeholders across both the statewide and local perspective

Some stakeholders noted that proper upkeep of pavement conditions would make smaller towns more attractive for residents and businesses



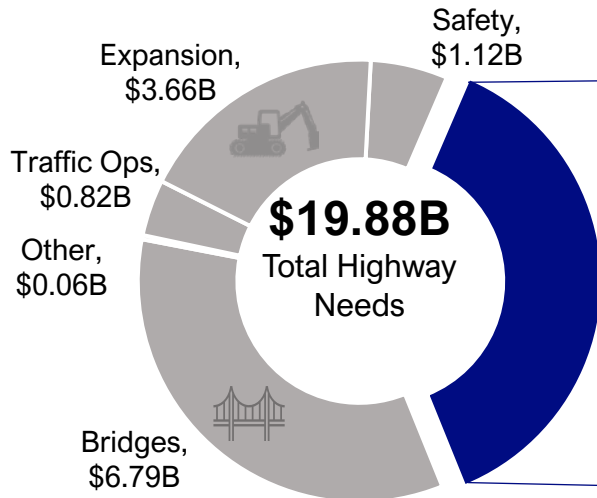
To forecast needs, anticipated available funds to maintain pavements were guided by the 2019 TAMP and 30-year revenue availability. WVDOH's pavement management software was used to evaluate future pavement conditions for NHS, non-NHS and Turnpike roadways and to quantify resulting investment under baseline and performance driven scenarios.

FORECASTING METHOD

Sources considered: [West Virginia Transportation Asset Management Plan \(TAMP, 2019\)](#), West Virginia Asset Management Systems (AMS).

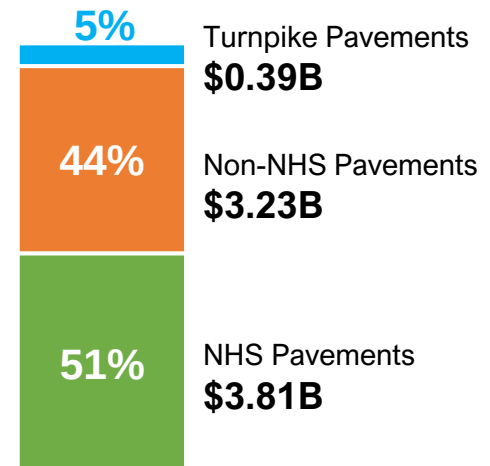
FACT SHEET – NEEDS BY MODE

HIGHWAY PAVEMENT



\$7.43B

Highway
Pavement
Needs



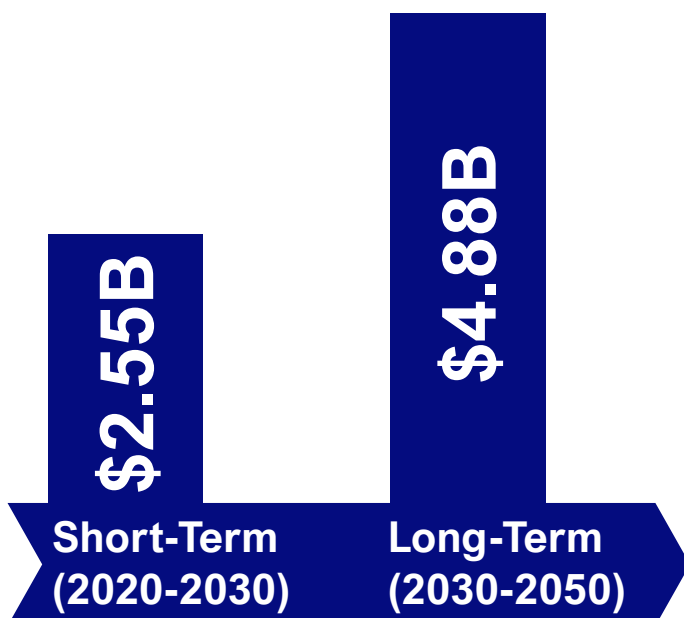
OPPORTUNITIES

Maintain historical investment levels in NHS pavements including the Turnpike to preserve conditions and avoid future degradation. Consider alternate funding mechanisms to improve and maintain Non-NHS paved network for local/regional commerce and tourism.

TRENDS AND EMERGING NEEDS

A reduction in coal extraction combined with stabilized oil and gas operations will reduce the wear on NHS roadways. This reduction will also result in reduced motor vehicle fuel tax collections, ultimately reducing revenues. Maintaining long-term pavement conditions requires adaptive funding and treatment methodologies.

SHORT-TERM AND LONG-TERM FORECASTS



- Maintain funding commitments on NHS pavements to comply with FHWA targets
- Implement alternative tax structure and funding initiatives to support needs
- Continue to invest in data collection methods and training to leverage program management
- Continue collaboration of WVDOH and Turnpike asset management personnel
- Improve analysis accuracy through validating and calibrating the pavement management system

FACT SHEET – NEEDS BY MODE

HIGHWAY BRIDGES



CONNECTIONS TO LRTP GOALS

E Economic Vitality & Freight Movement

C System Condition, Efficiency & Fiscal Sustainability

S Safety & Security for All Users

Over 7,200 state-maintained bridges carry passengers and freight connecting communities and industries across West Virginia. 30% of WV bridges are reaching the end of their service life, which will exacerbate a growing trend of bridges rated in poor condition. WVDOH's commitment to address aging bridges provides increased opportunity for timely, strategic decisions to extend the life of these critical assets and ensure efficient and safe movement.

STAKEHOLDER INPUT

Maintaining bridges in a state of good repair was the most important need noted by stakeholders across both the statewide and local perspective

Bridge condition was considered a more vital need for rural areas as opposed to urban areas



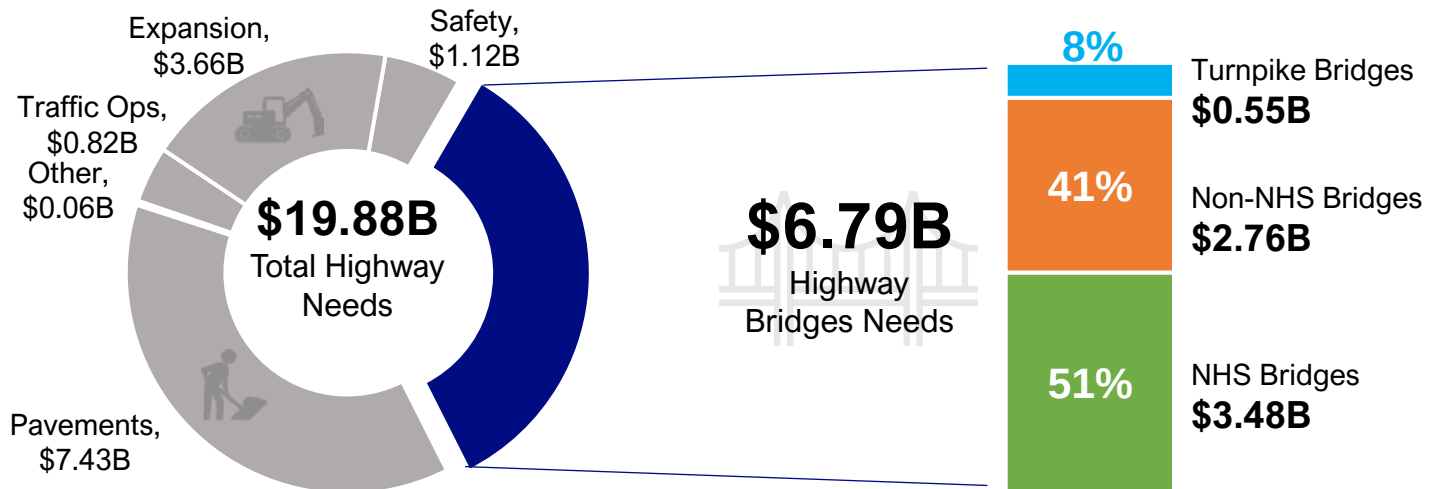
To forecast needs anticipated available funds to maintain bridges were guided by the 2019 TAMP and 30-year revenue availability. WVDOH's bridge management software was used to evaluate future bridge conditions for NHS, non-NHS and Turnpike roadways and to quantify resulting investment under baseline and performance driven scenarios.

FORECASTING METHOD

Sources considered: [West Virginia Transportation Asset Management Plan \(TAMP, 2019\)](#), West Virginia Asset Management Systems (AMS).

FACT SHEET – NEEDS BY MODE

HIGHWAY BRIDGES



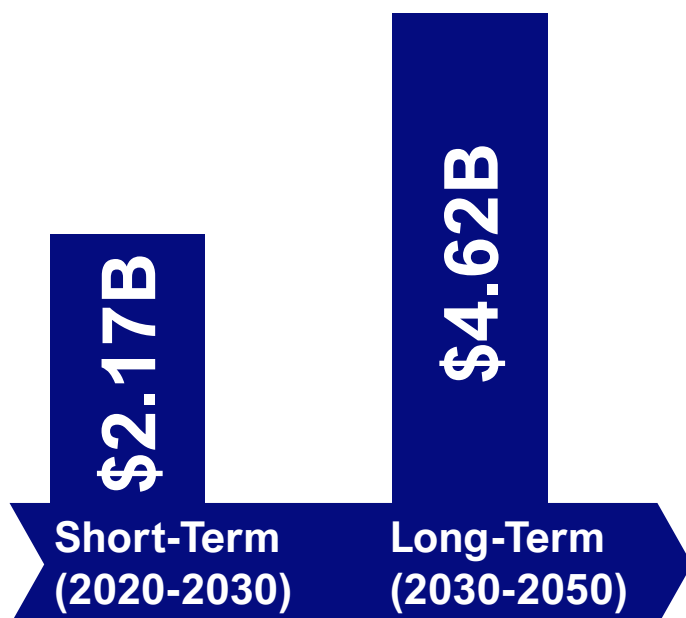
OPPORTUNITIES

Continued pursuit of Federal Grant and alternative funding mechanisms. Leverage WVDOH crews for maintenance and preservation treatments to mitigate deteriorating asset conditions. Coordination with construction and design partners to evaluate alternative delivery methods.

TRENDS AND EMERGING NEEDS

Bridge assets will experience the same reduction in use as pavements as well as the same challenges from projected revenue hurdles. Most of the NHS system bridges were constructed in the late 1970's and early 80's and as such are nearing the end of their expected life resulting in a "wave" of considerable investment need.

SHORT-TERM AND LONG-TERM FORECASTS



- Refine future needs as outcomes of additional investments realized
- Implement alternative tax structure and funding initiatives to support Non-NHS bridge investment needs
- Improve analysis accuracy via validating and calibrating the systems
- Continued integration of WVDOH and Turnpike asset management personnel will result in collaborative solutions
- Utilize best practices to reduce "% Poor" bridges to achieve FHWA targets