

CUSTOMER



SAFETY



PENNA

TURN  
PIKE

FINANCIAL



# LONG RANGE PLAN 2035

The Bridge to Zero Fatalities  
*Executive Summary*

INFRASTRUCTURE



MOBILITY



PARTNERSHIP



WORKFORCE



Long Range Planning

TIMELINE



**2003**

The PTC adopts its first Long Range Plan: *Choices for our Future*.

**2007**

The Pennsylvania General Assembly enacts **Act 44**, a year after the Transportation Funding and Reform Commission called for \$1.7 billion in new revenue annually for Pennsylvania transportation (not including the PTC).

**2010**

Annual PTC Act 44 payments drop to \$450 million, due to the Federal decision not to approve the application to toll Interstate 80.

**2013**

The General Assembly passes **Act 89**, which redirects funding to public transportation and reduces the Turnpike's annual obligation over 8 years.

**2014**

The PTC releases its updated 5-year Strategic Plan.

**2016**

The PTC releases its latest Long Range Plan, which recommends a \$520 million annual Capital Program with an even greater emphasis on safety.

**2022**

The PTC's annual Act 44 payments drop from \$450 million to \$50 million - a "partial sunset."

**2057**

The "full sunset" of Act 44 occurs - all annual Act 44 payments cease.

# What is the purpose of the LRP?

The mission of the Pennsylvania Turnpike Commission (PTC) is "to operate a safe, reliable, customer-valued toll road system that supports national mobility and commerce." The 2016 update of the Pennsylvania Turnpike Commission's Long Range Plan (LRP) is centered on evaluating the condition and capital needs of the PTC's Highway, Fleet Equipment, Facilities & Energy Management Operations (FEMO), and Technology programs as they relate to our mission, and the strategic drivers contained within our amended 2014 Strategic Plan.

The LRP is also updated primarily to examine the financial realities of the day and to answer several key questions:

- What is the extent of the PTC's capital needs?
- How large should the Capital Program be?
- What should each program's share within the Capital Program be?

The update of the LRP builds upon preceding plans. The 2003 plan - *Choices for our Future* - established a broad program direction consistent with and supportive of the PTC's overall Strategic Plan. It supported fare collection enhancements, which enabled a significant increase in capital improvements. A 2007 update included a financial analysis that provided the connection between project needs and available resources.



The LRP is more of a process than a plan *per se*. It is dynamic, guiding the development of the 10-year Capital Plan, operating budget, and long range planning in general for structures, roadways, interchanges/toll plazas, and tunnels.



## Updating the LRP

The PTC conducted several major tasks in updating this LRP:

- **Collecting Data** - Information on the Turnpike's existing baseline conditions and performance was drawn from the PTC's FY15 Strategic Performance Report.



- **Analyzing and Evaluating Capital Needs** - PTC planners coordinated with the four capital plan program managers in determining long-range needs across each of the four program areas. Current conditions and future needs (20 years) were identified for each capital element.

- **Updating and Integrating Strategic Plan Elements** - The LRP is organized around 7 goals and 21 objectives. The goals and objectives target the initiatives that each of the PTC's departments are responsible for implementing during short-, mid-, and long-term timeframes.

- **Analyzing and Evaluating Assets** - To ensure proper and responsible use of Turnpike funds, the PTC conducted a life cycle analysis of major capital elements to support an overall asset management and project prioritization approach to the long range planning and capital budgeting processes.

The PTC also evaluated its existing asset management information systems and the need for developing an Enterprise Asset Management System. Such a system would serve as a critical foundation to the measurement of performance and metric scorecard initiatives.

- **Analyzing PTC's Operating Budget** - The updated LRP includes a review and analysis of the PTC's three main categories of its Operating Budget: departmental expenses, employee benefits, and Pennsylvania State Police expenses. The PTC has maintained its Operating Budget growth at a rate of approximately 4 percent over the past five years.

- **Forecasting Revenue** - The LRP draws from forecasts from the PTC's Finance Department in determining the amount of revenue the PTC can reasonably expect to receive over the 20-year life of the LRP.



- **Engaging the Commissioners, Stakeholders, and the Public** - The PTC facilitated a series of stakeholder coordination meetings to obtain the insights and perspectives of its partners that may have a bearing on its Capital Plan and LRP. The PTC conducted a total of 10 stakeholder meetings across the state, and also facilitated a Commissioners workshop to gain perspectives of its executive leadership.

*The updated LRP - "The Bridge to Zero Fatalities" - is a significant step forward for the organization and will serve as a blueprint for capital asset investment decisions over the 10-year Capital Plan planning horizon and beyond.*

# Strategic Drivers

Strategic Drivers are forces that shape an organization's strategy in such a way that they determine success or failure. These seven Strategic Drivers serve as the basis for the PTC's goals and objectives, which are foundational to the PTC's various Business Plans.

Provide the safest possible environment for customers, employees, and business partners.



## CUSTOMER

Meet and exceed customer expectations while providing safe, convenient, reliable travel.



## FINANCIAL

Maintain a sound financial position.



## INFRASTRUCTURE

Manage new investments and preserve the life of existing assets



## MOBILITY

Achieve an accessible, reliable, and uninterrupted travel highway system.



## PARTNERSHIP

Enhance stakeholder and business relationships to ensure the PTC is a valued partner.



## WORKFORCE

Create a workplace environment that ensures all employees understand, respect, and encourage a commitment to the PTC's values.



## Trends & Issues

Trends and issues affecting long range planning for the Turnpike are organized around seven Strategic Drivers:

### SAFETY

- Distracted driving and work zone safety continue to be ongoing concerns for the PTC.
- The PTC's Traffic Engineering & Operations' (TE&O) traffic incident management (TIM) responder safety training is aiding motorists and clearing the turnpike of blockages and potential hazards. Related response metrics reports improve analysis and reporting to help prevent or reduce future incidents.

### CUSTOMER SERVICE

- The public's standards for services continues to grow in an increasingly service-oriented economy. In a drive toward digital business, customers have a growing expectation to know how their toll dollars are being spent, how the PTC is addressing safety, real time access to existing roadway conditions, and travel time.
- Communication methods with customers are increasing with the use of the PTC's website, as well as new technologies such as TRIP Talk and Waze as a means of disseminating traveler information to Turnpike customers. In June 2014, the PTC established Twitter accounts, primarily to post traffic alerts.

### FINANCIAL

- Revenue increased by 10.5 percent in FY16.
- At the end of FY16, the Turnpike was \$11 billion in debt. This figure is expected to exceed \$16 billion by FY22.

### PARTNERSHIP

- "Becoming a valued business partner" is part of the Commission's overall vision. This includes public-private partnerships, and with other entities, such as PennDOT and the state's MPOs.

### INFRASTRUCTURE

- Pavement Condition Ratings (PCR) and International Roughness Index (IRI) values have both been trending in a positive direction. Rutting and Skid Resistance conditions have been remaining steady.
- The PTC's rate of structurally deficient bridges has been improving.
- Service plaza conditions were rated as being in "Good" condition.
- Systemwide (Mainline/off system) deployment of ITS devices is underway.
- There is a growing need for fiber optic cable to improve the PTC's communications capacity.

### MOBILITY

- Tonnage of goods moving through Pennsylvania is expected to increase by over 63 percent through 2040.
- Total vehicle miles of travel (VMT) on the turnpike increased by 6.2 percent between 2009 and 2015. Traffic volumes are just now returning to levels experienced in 2008 during the last recession.
- In 2015, the PTC's Travel Time Index was rated as "Good."
- Coming advances in connected and autonomous vehicle technology will greatly impact capacity and operations and place new demands on both operations and technology.

### WORKFORCE

- The PTC faces various development and skill-building opportunities for its staff, particularly in areas related to GIS, asset management, and advanced analytics and decision support.

# Existing Conditions

The condition of the PTC’s existing assets has been summarized within the 2015 Condition Assessment Report, and as noted in the accompanying figure. Other trends and condition information are noted on the following page.

	GOOD		FAIR		POOR
	1	2	3	4	5
<b>Roadway (Overall)</b>	🍷				
Pavement	🍷				
Guide Rail			🍷		
Attenuators		🍷			
Concrete Median Barrier	🍷				
Drainage Infrastructure			🍷		
Stormwater BMPs	🍷				
Rock Cut Slopes	🍷				
Signs	🍷				
Pavement Markings	🍷				
<b>Structures (Overall)</b>	🍷				
Bridges/Culverts	🍷				
Sign Structures	🍷				
Retaining Walls/Noise Barrier	🍷				
High Mast Light Poles			🍷		
Tunnel/Portal Buildings	🍷				
<b>Facilities (Overall)</b>	🍷				
Service Plazas	🍷				
Maintenance Buildings			🍷		
Interchange Buildings	🍷				
Administrative Buildings	🍷				
District Fare Collection Buildings	🍷				
State Police Stations	🍷				
Stockpiles	🍷				
Communication Towers*					
<b>Technology (Overall)</b>		🍷			
Intelligent Transportation Systems		🍷			

\*Insufficient inspection data to provide overall rating

The PTC’s **Total Reconstruction** program began in 1999. The accompanying figure outlines the progress that has been made in reconstructing the original 470 miles of the turnpike on the Mainline and North-east Extension.

*In Miles*



^  
*currently under construction*

## Existing Conditions (cont'd.)

### INTERCHANGES

- The PTC began a staged implementation to a cashless, nonstop travel system in January 2016 with the opening of the first highway speed cashless tolling point on the mainline at the Delaware River Bridge. Performance to-date has exceeded expectations.
- Future targeted opportunities for conversions will involve: Beaver Valley Expressway, the northern end of the Northeast Extension, the Greensburg Bypass, and the Mon/Fayette Expressway.
- Assuming success on the targeted conversions, the remaining PTC system will be converted to cashless-in-place. Once cashless-in-place is systemwide, the transformation to highway speed overhead tolling can begin regionally.

### FACILITIES

- The widening of the turnpike to three lanes in each direction impacts the program on many levels, from building and shed relocation, to interchange relocation.

- Many of the PTC’s maintenance sheds are at or beyond their useful life. Many are too small to accommodate today’s larger truck sizes.

### FLEET

- The PTC maintains a fleet of equipment that consists of approximately 3,860 units, with an estimated value of \$128.6 million.
- The fleet consists of equipment ranging from tractors and mowers for summer operations to dump trucks for winter operations to attenuators and arrow boards for safety.
- Safety Service Patrol vehicles are also used year round for customer safety and incident response.
- The majority of the fleet is oriented toward winter operations.

### STRUCTURES

- Many of the PTC’s 866 structures are at or nearing the end of their anticipated life.
- The PTC’s bridge conditions still compare favorably against state and national rates, by network, by deck area (see table). The PTC will continue to strive to maintain its structurally deficient (SD) bridge rating, as it is comparable to the national rate for interstates.
- All PTC bridges currently designated as “SD” are either in design or construction for rehabilitation or replacement.

*SD Bridge Rates, by deck area, %*

Agency	NHS & Non-NHS	NHS	Non-NHS	Interstate
FHWA	7.1	6.0	8.7	*5.4
PTC	3.7	3.6	4.0	3.6
PennDOT	13.0	9.0	19.4	5.5

*\* estimated*

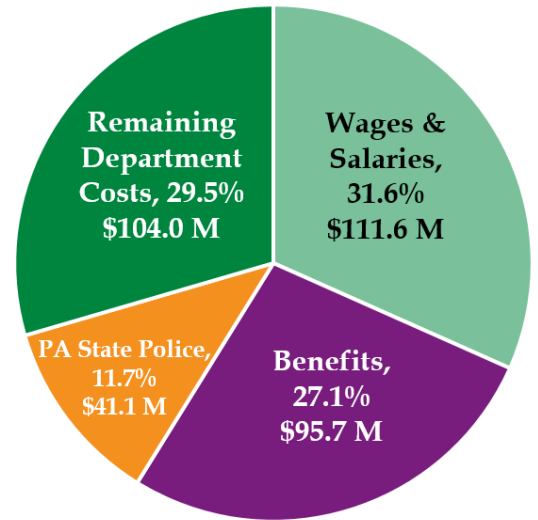
### TECHNOLOGY

- The PTC will soon have more devices connected to the internet than employees. The more devices the PTC has on the roadway (e.g., sensors, DMS, and cameras, etc.), the more changes will be needed in security frameworks and in improved communications infrastructure.
- The PTC’s communication bandwidth needs are continuing to increase.
- Installation of fiber along the roadway will address the bandwidth needs in the foreseeable future and replace the reliance on the microwave backbone.
- Implementing a wireless mesh overlay along the entire length of the system will support connectivity to ITS devices, public safety radio, and future connected vehicle and connected infrastructure needs.

# Financial Planning

The PTC's **Operating Budget** is an estimate of the expenses needed to maintain, support, and operate the roadway and facilities for the next fiscal year. For FY15, the PTC approved an Operating Budget of \$363.4 million.

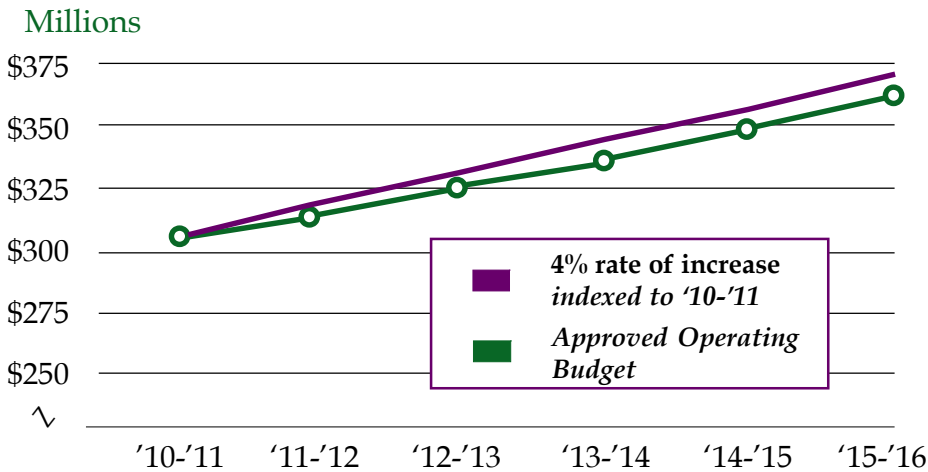
▶ The PTC's Operating Budget is composed of three major groupings, or areas of expenditure: departmental expenses (including wages and salaries), employee benefits/expenses, and Pennsylvania State Police expenses.



Significant portions of the PTC's operating budget are influenced by external factors. These external factors include the PTC's mandated contribution to the State Employees Retirement System (SERS), the PTC's contribution amount to the Pennsylvania State Police, and increased costs associated with third-party health benefits for PTC employees.

Operating costs are expected to drop over time with the implementation of Cashless Tolling.

PTC Operating Cost Trend Against 4% Rate



*The PTC has a financial planning goal of limiting the growth rate of its operating costs by 4% annually.*

*The PTC continues its efforts*

*to provide recurring savings and operating efficiencies*

*that control growth of its operating costs.*

## Financial Planning (cont'd.)

The PTC's long-term financial picture is marked by the following:

### FY15 Revenue Versus Expenditures

**Turnpike annual obligations exceed operation revenue.**

Revenue must go against a \$600 million capital plan and operating costs, as well as debt service and Act 44 payments.

*Other factors are also working against a more robust capital program...*

#### TOTAL EXPENDITURES

#### TOTAL REVENUES

\$1.9B		\$2.1B	
EXPENDITURES		REVENUES	
Operating Expense	\$350M	Total Operation Revenues	\$950M
Debt Service	\$430M		
Act 44 Payments	\$450M		
Capital Expenditures	\$640M	Bond Proceeds	\$1.2B
<b>TOTAL</b>	<b>\$1.9B</b>	<b>TOTAL</b>	<b>\$2.1B</b>

### Senior Bond Ratings for the Capital Plan

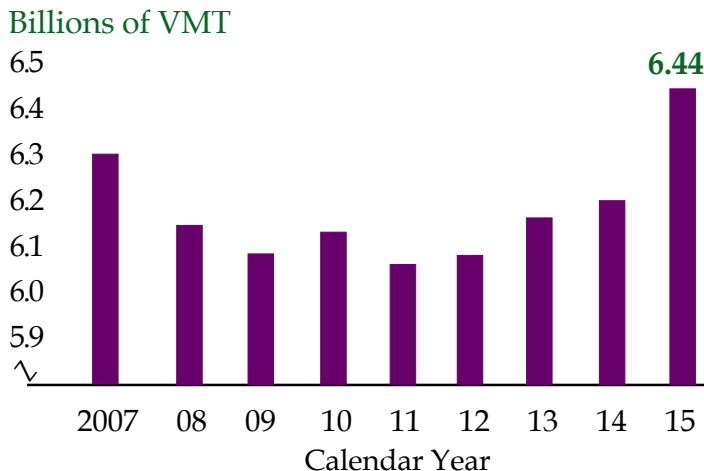
**All three major credit rating agencies have downgraded the PTC's bond ratings in recent years.**

This increases the cost of borrowing money over time. Senior bonds are used to fund the capital plan.

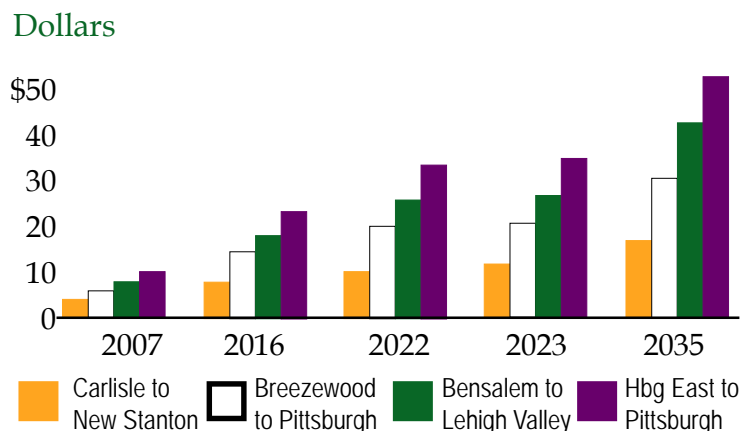
	Moody's	S&P	Fitch
1998-2007	Aa3	AA-	AA-
2008-2012	Aa3	A+ (2008)	A+ (2008)
2013-2016	A1 (2013)	A (2015)	A+

### Traffic and Revenue

Since the end of the Great Recession in 2009, total vehicle miles of travel on the Turnpike has increased by 6.2 percent, and today is at an all-time high of 6.4 billion, annually.



Toll increases alone will not close the gap in needed revenue...even with 6 percent annual increases. Chart shows changes in cost per trip for the four most common, long-distance trips on the system.

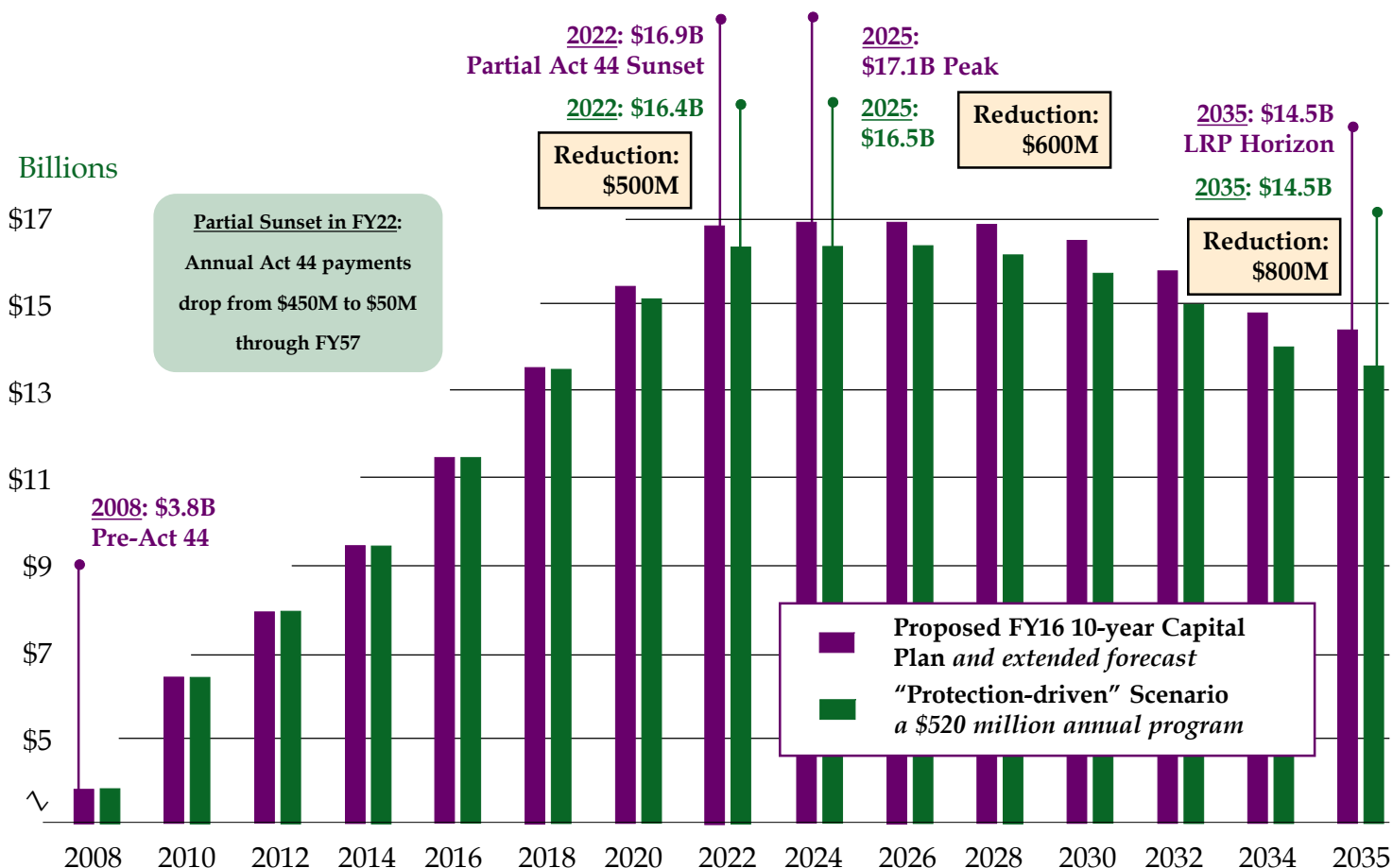


# Defining a Constrained Capital Program

PTC debt is currently (May 2016) \$11.4 billion, and growing at a rate of \$1 billion annually. By the partial sunset of Act 44 payments in FY22, outstanding debt is projected to be about \$16 billion under the Protection-driven capital program.

## Debt Outstanding

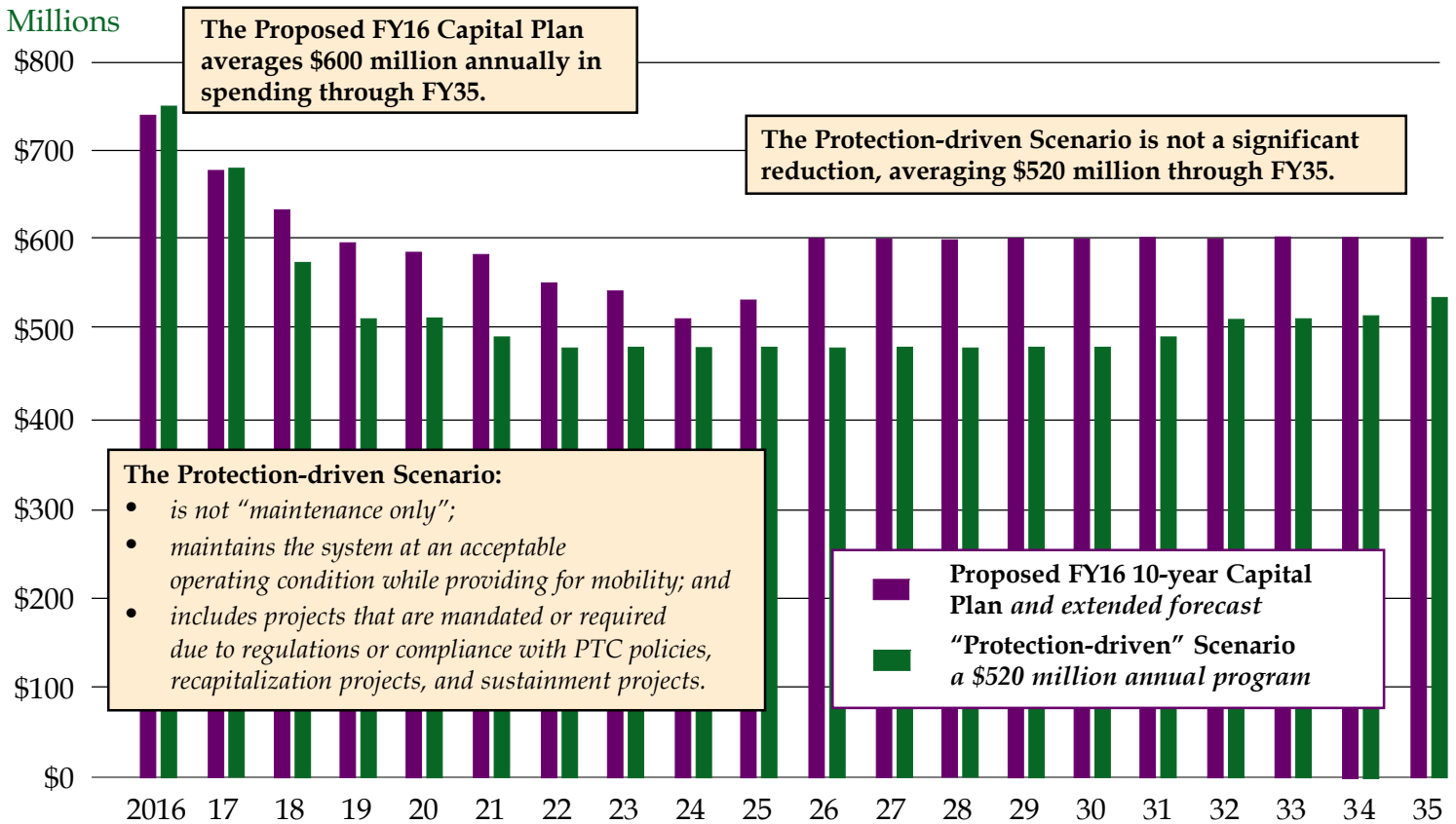
Comparing the FY16 Capital Plan (and forecast) against a Protection-driven or Constrained Scenario



*The PTC must balance its debt service with the condition of the system to maintain favorable bond ratings.*

## Defining a Constrained Capital Plan (cont'd.)

### The Protection-driven Scenario (PV)



### The Bottom Line

#### The impacts of a Protection-driven Scenario

- Rehabilitation of the Northeast Extension and Total Reconstruction of Mid-County to Bensalem would be deferred.
- Some traffic engineering and operations projects would be delayed.
- Bridge stock would remain at 4 percent structurally deficient.
- Does not include a bypass of the Allegheny Tunnel.
- Cashless Tolling-in-Place would continue with targeted opportunities.
- Funding would remain relatively unchanged for the Turnpike's Fleet and Technology Programs.
- The \$520 million Protection-driven Scenario is still funded at a higher level than the average Program over the previous decade (\$500 million, present value).

#### A \$520 million a year capital program

(the Protection-driven Scenario) would yield a cumulative spending reduction of \$1.56 billion (present value), or \$2.1 billion (year of expenditure) over 20 years.

## The Way Forward: LRP Recommendations

The Long Range Plan advances several recommendations:



**Maintain an emphasis on safety** - Safety should continue as the prevailing narrative in all of the PTC's programs for their employees, customers, and work zones. This includes elevating the safety culture at the PTC, preventing injuries, and reducing workers' compensation costs, as the PTC continues its aspirational journey on the Bridge to Zero Fatalities.



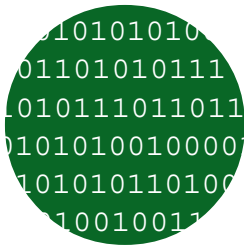
**Implement the Protection-driven Scenario** - From the analysis performed as part of the LRP update, the PTC will need to move toward a Capital Plan of more modest dimensions. An average annual program of \$520 million a year through the plan horizon year of 2035, maintaining the same program proportions, will ensure that the PTC will be able to manage its debt service while still being able to maintain its assets at an acceptable operating condition. With the adoption of the FY17 Capital Plan, the PTC has already moved in this direction to a Protection-driven program.



**Refine a Project Prioritization/Evaluation Process** - This Long Range Plan documents the prioritization process for the FEMO program, the Fleet program, the IT program and the categories within the Highway program. Each program has methods from which candidate projects are considered and evaluated. The refined process should define how projects are prioritized between programs, be shaped by the PTC's strategic drivers and use quantitative data where possible. The prioritization process would be created not to replace human judgment, but to serve as a planning tool that can inform PTC management of the relative merits of candidate projects before they are incorporated into short- and long-range planning and capital plans. In administering an annual program of \$520 million, it is critical that the PTC ensure that it is programming only the most effective projects from the four program areas.

*Implementation of plan recommendations is expected to improve safety and strengthen our financial position as we maintain our assets at an acceptable operating condition.*

## LRP Recommendations (cont'd.)



**Continue the Development of an Enterprise Data Repository** - This Long Range Plan developed the framework for an integrated, innovative Enterprise Asset Management System (EAMS). This new enterprise approach can improve asset utilization and performance, optimize capital cost needs, optimize asset-related operating costs, and improve the PTC's return on its capital investments. This system would also serve as a critical foundation to the PTC's performance measures and metrics scorecard initiatives. The PTC has purchased an asset management software platform and is moving forward with a sign inventory asset management system and a pavement asset management system.



**Continue to Monitor Technology Advances, including Connected and Autonomous Vehicles** - Advances in the development of technology is moving forward at a breathtaking pace and have the potential to impact all of the PTC's seven strategic drivers (Safety, Customer, Financial, Infrastructure, Mobility, Partnership, and Workforce). As an example, recent guidance from NHTSA and forthcoming legislation from the Pennsylvania General Assembly both point to a quickly evolving world of transportation where connected and autonomous vehicles will one day become the norm, as opposed to mere objects of speculation. As such, the PTC is making strides to adapt its roadway infrastructure for accommodating this changing technology (e.g., the P3 Fiber project). The PTC should remain abreast of ongoing developments of this technology.



**Maintain a commitment to planning and performance management -**

The Pennsylvania Turnpike is a dynamic organization. As the PTC evolves, it must do so with a commitment to how it plans and programs for the future. As such, the planning processes now in place give the PTC opportunities to take stock of its inventory of assets and approaches to delivering projects through its Strategic Plan, Strategic Performance Report (metrics), Long Range Plan, and Business Plans.



**FOR MORE INFORMATION**



Pennsylvania Turnpike Commission  
P.O. Box 67676  
Harrisburg, PA 17106-7676

[www.paturndpike.com](http://www.paturndpike.com)

November 2016