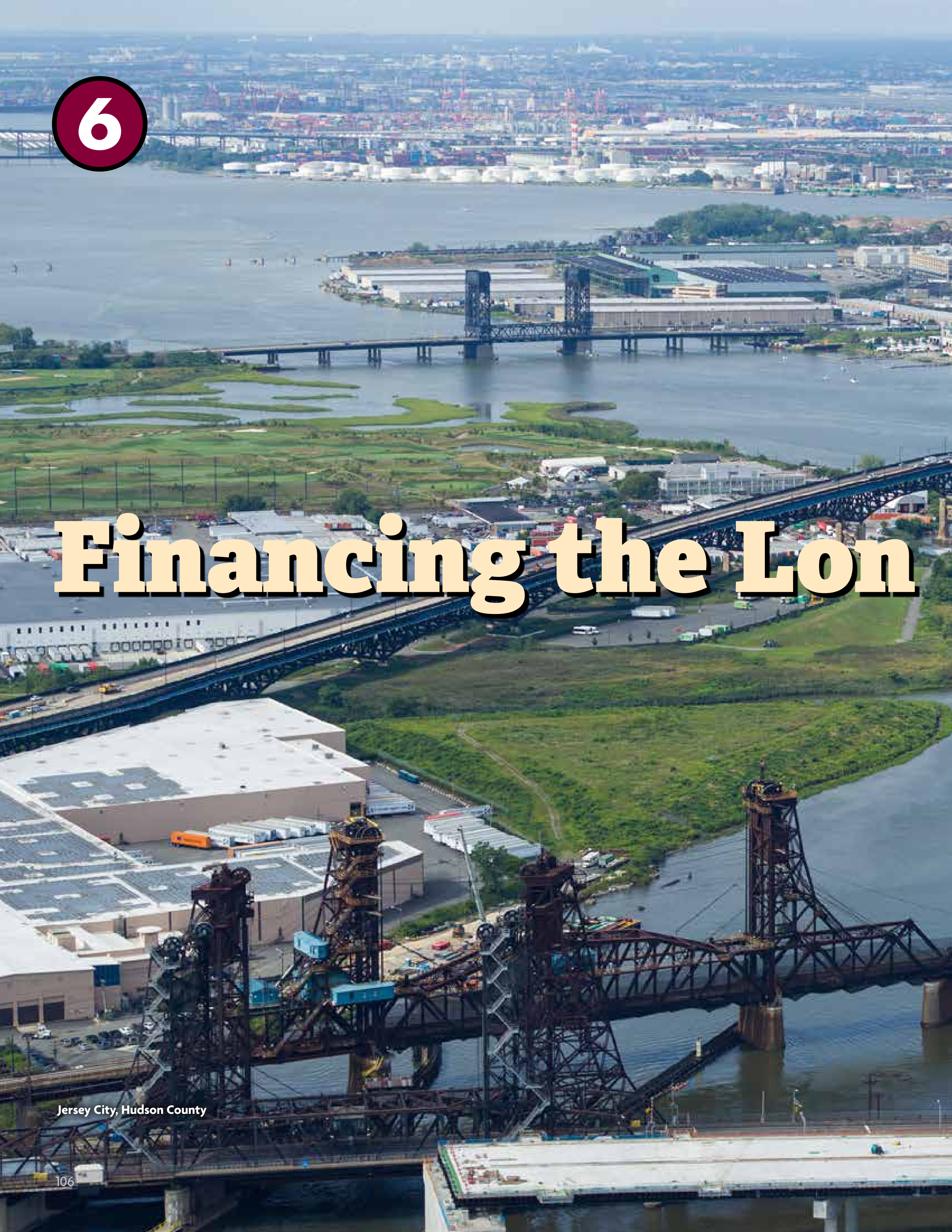

6

Financing the Lon

Jersey City, Hudson County

g-Range Plan

Plan 2045 describes the substantial transportation infrastructure needs facing the NJTPA region and identifies a comprehensive range of highway, transit, freight, pedestrian, bicycle and other multimodal improvement projects and programs to address those needs. This chapter provides a financial plan for implementing these projects and programs. ● Plan 2045's financial assumptions and identified improvements were developed in part through an analysis of two sets of possible future scenarios, as discussed in Chapter 4. One set of exploratory scenarios considered emerging trends and potential game changers in demographics, economics, the environment, behavior, and technology to inform an update to the Regional Capital Investment Strategy (RCIS), which identifies priorities for allocating resources across modes and among categories of projects and programs, including system preservation, management and targeted expansion. A second set applied the RCIS and identified the affects of three funding levels—Plan 2045 Scenario, Limited Funding Scenario and Aspirational Funding Scenario. ● The Plan 2045 Scenario relies upon reasonably anticipated funding over the life of the plan, and the level of investment is consistent with historical trends in federal and state transportation funding. The funding levels in the Plan 2045 Scenario fall between annual increases less than projected inflation (the Limited Funding Scenario) and substantially greater funding that could be used for a larger set of

Wanaque Reservoir, Passaic County

projects (the Aspirational Funding Scenario).

This chapter explains the assumptions and strategies, and projected revenues and expenditures within the Plan 2045 Scenario, which serve as the financial element underpinning this plan. Under this scenario, the plan primarily targets achieving and maintaining a state of good repair for North Jersey's vast multimodal transportation network. It includes select capacity and operational improvements to accommodate future growth and anticipates use of new technologies that improve system efficiency. The Plan 2045 Scenario was developed following the guidance of the NJTPA Board of Trustees, in collaboration with planning partners, and in keeping with the transportation priorities of the Together North Jersey plan. It identifies traditional and non-traditional revenue sources to implement a program of infrastructure improvements to keep freight and people moving. It also calls for streamlining project delivery.

This chapter also includes discussion of the Limited and Aspirational funding scenarios as potential alternative financial futures for the region.

Regional Outlook

Historic and current economic trends play a large role in estimating the revenues available for transportation through 2045. This financial plan takes a conservative approach when forecasting the latter years of the planning horizon by basing revenue growth on projected inflation and within the historical average annual revenue growth rate, with additional funds for anticipated critical projects. The approach reflects historical growth trends and reasonable future expectations for key revenue sources, including state and federal gas excise tax revenues, which are historically the major source of revenue for transportation infrastructure.

Existing fuel taxes do not keep pace with increasing transportation needs. In addition, as vehicles become more fuel efficient, they consume less gasoline, reducing revenues from fuel taxes. These factors combined will necessitate, over time, either an increase in the tax rate against those sources, the identification of new revenues, or both. Potential alternative revenue sources are provided at the end of this chapter.

New Jersey derives economic strength from its position as a focal point for international trade and domestic goods movement, its appeal to corporate and financial services sectors tied to the larger New York-New Jersey-Connecticut metropolitan region, and its tourism sector. New Jersey's beaches are a major contributor to the tourism sector. A robust regional transportation network, many high quality colleges and universities, and access to abundant and diverse lifestyle amenities such as parks and open space, cultural and entertainment venues, and retail and restaurant districts support New Jersey's economic strength, despite tax and cost of living challenges. These factors should continue to contribute to sustained revenue growth that can support the investment needs in this plan.

As discussed in Chapter 3, projections for population and employment in Plan 2045 point to increases in travel demand on all aspects of the transportation network. The NJTPA forecasts that total non-agricultural employment in North Jersey will increase by about 0.4 percent annually, or about 14,000 jobs per year, while population growth will average about 0.5 percent annually, adding about one million residents by 2045.

Technological advances such as Intelligent Transportation Systems (ITS) and autonomous vehicles will make the system more efficient and able to accommodate some increased demand. However, the region will still need to address potentially greater congestion, wear to roads and bridges, inadequate transit capacity, and other challenges. These increasing needs provide the context for the scenarios discussed in this chapter—that is, any level of future funding will have to address a steadily growing agenda of needed investments.

Long-term economic projections are particularly important in preparing the financial plan because of federal requirements that the plan be based on year of expenditure dollars (YOE $). This means future expenditures and revenues must be adjusted to reflect the impact of inflation. As measured by Rutgers University's R/ECON forecasts, the annual rate of consumer inflation for New Jersey is expected to be 2.5 percent over the life of Plan 2045.

Although the financial plan is largely informed by economic and demographic projections, there are many factors that could impact funding levels and transportation investment needs. The exploratory scenarios discussed in Chapter 4 considered emerging trends and potential game changers in demographics, the economy, climate, location and travel decisions, and technology to inform the RCIS that is incorporated into this financial element. However, the timing and nature of changes over a 28-year forecast period is highly uncertain. Monitoring these changes over time will inform future long range regional transportation plans.

Revenue Challenges and Opportunities

Federal and state motor fuel taxes are the primary revenue sources for the region's transportation investment. Federal motor fuel taxes, along with other taxes and federal general fund contributions, are deposited into the Highway Trust Fund (HTF) and the Mass Transit Account (MTA). North Jersey receives a portion of these funds pursuant to the federal surface transportation program currently authorized by the FAST Act, which was adopted in 2015 and runs through 2020.

While the five-year FAST Act provided predictable federal transportation funding for the first time in many years, the federal program still faces significant revenue challenges. Motor fuel tax collections have not kept up with the program's needs. Among the reasons: the federal gasoline tax has not been raised since 1997; and motor fuel consumption continues to fall due to more fuel efficient vehicles, the use of alternative fuels and less driving associated with changing lifestyles and an older population, as described in Chapter 3. In recent years, Congress

Newton, Sussex County

has used appropriations from the general fund and selected non-transportation revenue sources to cover the federal funding gap.

State transportation funding also principally relies on motor fuel taxes, along with the petroleum products gross receipts tax, a portion of the sales tax, and contributions from the New Jersey Turnpike Authority, all of which are deposited into the New Jersey Transportation Trust Fund (TTF). State legislation enacted in 2016 raised the motor fuels tax and petroleum products gross receipts tax from a combined 14.5 cents per gallon to 37.1 cents per gallon. This represents a significant funding increase that helps the state and the NJTPA region to put resources towards much-needed investments to address the backlog of needs over the next eight years. In addition, by voter approval, all motor fuels tax revenues are now constitutionally dedicated for transportation purposes. Tolls from the Port Authority of New York & New Jersey's interstate crossings as well as the Garden State Parkway and New Jersey Turnpike support these critical regional facilities, which do not typically receive state or federal transportation funding for improvements.

The period to 2045 will include multiple reauthorizations for federal and state transportation funds. It is anticipated that federal and state elected officials will continue to support funding for the vast majority of the region's transportation needs given the long-term history of support for these projects and programs. It is also likely that, over the long run, project delivery methods and revenue sources will evolve to include more public-private partnerships. There will be less reliance on fossil fuel based revenues, and other creative ways will be instituted to meet critical transportation needs.

Cranford, Union County

Revenue Assumptions and Projections

The state's FY 2018 Transportation Capital Program (TCP) allocates $29.5 billion in state and federal funding to the NJTPA region over ten years. The region receives about $1.4 billion in additional funds from various sources to support its portion of NJ TRANSIT operating costs.

The NJTPA has worked closely with NJDOT, NJ TRANSIT, the Port Authority of New York & New Jersey, the New Jersey Turnpike Authority, and other partner agencies to assess the long-term funding and expenditure needs for the region and to determine the appropriate assumptions about future transportation funding.

As part of the financial planning process, the three revenue scenarios mentioned above were developed to examine impacts of various potential capital funding levels.

The impact of these scenarios on various initiatives—such as trans-Hudson rail improvements and reducing the backlog of road and bridge needs—is addressed in the expenditures section later in the chapter. The results of scenario analysis, including both computer modeling and qualitative assessment to estimate regional impacts, were addressed in Chapter 4.

Common Funding Assumptions

The revenue forecast covers the period from FY 2018 through FY 2045. For the FY 2018—FY 2027 period all three scenarios incorporate the funding assumptions from the TCP. The combination of state and federal funding in the TCP averages $2.9 billion annually over the 10 year period, and includes funding for initial work to replace the Portal North Bridge. However, on top of the TCP, there is additional funding in the Plan and Aspirational scenarios to continue work on the Portal North Bridge and initial funding for advancement of a new Hudson River rail tunnel.

Driscoll Bridge, Middlesex County

In addition, all three scenarios include the near-term completion of certain Superstorm Sandy recovery projects.

Beginning with FY 2028, revenues and expenditures differ for each scenario based on assumed revenue growth rates and special large-scale investments. Allocations are in accordance with the RCIS for all three scenarios, excluding special large-scale investments.

The forecast utilizes three different time periods to illustrate changes throughout the duration of the 2045 plan. The time periods are:

- Near-Term (FY 2018-FY 2021)
- Mid-Term (FY 2022-FY 2027)
- Long-Term (FY 2028-FY 2045)

The near- and mid-term elements of the capital funding projections are largely based on NJDOT and NJ TRANSIT revenue assumptions for the NJTPA region. Federal and state funds will continue to provide most of the resources for the region's transportation needs. A small portion of funding is made up of other funding sources, including programmed contributions from the Port Authority, New Jersey Turnpike Authority and Metro-North, which provides funding support for shared commuter rail services with NJ TRANSIT. To meet projected revenue increases over the long term in each of the three scenarios, as stated previously, the federal and state governments will need to address the declining funding power and actual revenue stream from per-gallon fuel taxes and replace or supplement them with new and sustainable revenue sources.

Plan 2045 Scenario Capital Funding Assumptions

The average annual funding increases in the Plan 2045 Scenario are intended to be substantial but reasonable, fulfilling critical regional requirements while remaining politically feasible. In this scenario, state and federal funding levels are based on the FY 2018-FY F2027 TCP, and funding increases at an average rate of 2.5 percent annually between FY 2028 and FY 2045 (Table 6-1), with funding for large projects layered on top of this base. This annual rate is consistent with the long-term inflation forecast for New Jersey over the Plan 2045 period, taking into account population and employment growth. Additional funding above the base is assumed to come from sources identified in the Portal North Bridge Core Capacity Financial Plan in the short- and medium term, as well as significant Federal Transit Administration

Capital Investment Grant funding of $100 million per year beginning in FY 2028, which grows with inflation. This level of Capital Investment Grant funding is matched with an equivalent amount of state or non-federal funds. Including additional federal, state and other funding anticipated for replacement of the Portal North Bridge, construction of a new Hudson Tunnel (for commuter and regional rail) and rehabilitation of the existing Hudson Tunnel, the total capital funding available under the Plan 2045 Scenario (for the period FY 2018 to FY 2045) is YOE $112.8 billion (Table 6-2). To summarize, the revenue assumptions underlying the Plan 2045 Scenario are as follows:

- Near- to mid- term revenues are based on the FY 2018-FY 2027 NJDOT and NJ TRANSIT 10-year capital plans. These plans are based on average annual federal funding level of $1.1 billion-$1.5 billion, and average annual state funding level of $1.5 billion through FY 2027. Funding for Sandy recovery projects, Portal North Bridge and a new Hudson Tunnel is layered on top of this base.

Table 6-1:
Summary of Capital Funding Assumptions
Base Average Annual Revenue Growth Rates FY 2028—FY 2045*

Plan 2045	2.5%
Limited funding scenarios	2.0%
Aspirational funding scenarios	3.5%
Deflation Factor	2.5%

*In addition to the base average annual revenue growth rate noted above, the Plan 2045 Scenario includes $100 million in CIG funding with an equivalent match from non-federal sources that grows by 2.5% annually and funding for Sandy recover projects, Portal North Bridge and Hudson Tunnels. The Aspirational Funding Scenario also includes $150 million CIG funding and equivalent non-federal match beginning in 2028 that grows by 3.5% annually and funding for Sandy recovery projects, Portal North Bridge, Hudson Tunnels and the full Gateway Program. Deflation factor is used to convert year of expenditure revenues and costs to base year dollars.

Table 6-2:
Summary of Capital Funding Assumptions
Total Revenues (millions, year of expenditure dollars)

Year-of-Expenditure Dollars	*Plan 2045*	Limited	Aspirational
Federal	56,142	43,983	67,434
State	55,698	49,357	73,762
Other	950	930	993
Total	**112,790**	**94,270**	**142,189**
Increase (or decrease) over *Plan 2045* Scenario		**(16.42%)**	**26.07%**

*Other includes Port Authority of New York and New Jersey, New Jersey Turnpike Authority and Metro-North contributions

- Long term (FY 2028-FY 2045) baseline federal and state funds combined increase annually by 2.5 percent. Funding for a new Hudson Tunnel are layered on top of this base.
- $100 million Capital Investment Grant funding and non-federal match starting in FY 2028, which grow by 2.5 percent per year.

Limited Funding Scenario Capital Funding Assumptions

The Limited Funding Scenario assumes state and federal funding levels consistent with the FY 2018-2027 TCP. Beginning in FY 2028, state and federal funds grow annually at an assumed rate of 2.0 percent (Table 6-1). This rate falls below the forecasted rate of long-term inflation and approximates the inflation rate observed during the 2005-2015 period, which included historically low rates during and after the Great Recession, followed by a period of economic recovery. No Capital Investment Grant (CIG) funding is assumed in the long term for this scenario.

As discussed in the expenditures section below, this constrained funding in the near- and mid-term will be sufficient to support a maintenance-oriented mix of projects and programs. However, funding will fall short in meeting the demands of regional growth, particularly in funding potential transit system expansion.

Total capital funding over the Plan 2045 period (FY 2018-FY 2045) in the Limited Funding Scenario is estimated to be $94.3 billion, which is 16.4 percent less than the Plan 2045 level (Table 6-2). To summarize, the revenue assumptions underlying the Limited Scenario are as follows:

- Near- to mid- term revenues are based on the FY 2018-FY 2027 NJDOT and NJ TRANSIT 10-year capital plans and completion of Sandy recovery projects.
- Long term (FY 2028-FY 2045) baseline federal and state funds combined increase annually by 2.0 percent.
- No CIG funding is assumed in the long term.

Morristown, Morris County

Aspirational Funding Scenario Capital Funding Assumptions

The Aspirational Funding Scenario assumes the same funding level as the Plan 2045 Scenario for the FY 2018-FY 2027 period, and a substantial increase starting in FY 2028 with a 3.5 percent annual rate of revenue growth for the base funding amount (Table 6-1). Although higher than in the previous two scenarios, this rate is nonetheless a reasonably conservative figure, in between the pure inflation rate of 2.5 percent and the historical transportation revenue (including federal and state funding sources) growth rate of 4.5 percent observed between 1998 and 2015. Layered on top of this base, the NJTPA region receives $150 million per year in federal CIG funding beginning in FY 2028, which grows by 3.5 percent annually. This level of CIG funding is matched with an equivalent amount of state funds also growing by 3.5 percent annually. Additional federal, state and/or other non-federal funding is also received over the course of the Aspirational Scenario time period for completion of Sandy recovery projects, the Portal North Bridge replacement, a new Hudson Tunnel, rehabilitation of the existing Hudson Tunnel, and the full Gateway Program, which calls for a series of improvements between Newark Penn Station and Penn Station New York (see Trans-Hudson Travel p. 58). The total capital funding available under the Aspirational Funding Scenario is $142.2 billion, which is 26.1 percent greater than the Plan 2045 Scenario funding level (Table 6-2). The cost of the full Gateway Program is subject to refinement, which may impact this total.

Achieving this substantial increase is not unprecedented. Legislation underwriting the interstate highway system and the creation of state and federal transportation trust funds occurred during periods of economic expansion when elected officials and the public recognized the importance of providing adequate and stable funding sources for transportation. Future economic expansion could reasonably underwrite a new era of state and federal commitments to transportation investment at the level of the Aspirational Funding Scenario. To summarize, the revenue assumptions underlying the Aspirational Funding Scenario are as follows:

- Near- to mid- term revenues are based on the FY 2018-FY 2027 NJDOT and NJ TRANSIT 10-year capital plans. These plans are based on average annual federal funding level of $1.1 billion

to $1.5 billion, and average annual state funding level of $1.5 billion through FY 2027. Funding for completion of Sandy recovery projects, Portal North Bridge and a new Hudson Tunnel are layered on top of this base.
- Long term (FY 2028-FY 2045) baseline federal and state funds combined increase annually by 3.5 percent. Funding for a new Hudson Tunnel, and the full Gateway Program are layered on top of this base.
- $150 million CIG funding and non-federal match starting in FY 2028, which grow by 3.5 percent per year.

New Jersey Operating Funding Assumptions

While capital funding is critical for the repair and upgrade of the existing transportation network and targeted capacity increases, NJDOT and NJ TRANSIT also require and receive appropriations from the state general fund for ongoing operations.

State general fund appropriations cover NJDOT's direct maintenance and operations expenses, including snow removal, pothole filling, maintenance of roadside lighting, vegetation, inspections, technical studies and general and administrative services. The FY 2018 appropriation is $43.8 million. If adjusted at 2.5 percent annually to keep pace with inflation, the appropriation for NJDOT's annual operating expenses would total $85 million by 2045. Actual appropriations have declined in recent years due to ongoing constraints on the state budget. For example, the NJDOT appropriation for operations in FY 2008 was $88.7 million. Continued reductions in funds to cover operating expenses over time could affect NJDOT's ability to monitor and maintain the roadway and bridge network and lead to higher capital costs, longer-term capital costs, or both.

NJ TRANSIT is the nation's largest public transit system by service area, creating substantial needs for operating funds. NJ TRANSIT pursues a variety of initiatives to maximize system-generated revenue and reduce expenses to allow it to provide cost-effective service while keeping the transit system in a state-of-good-repair.

NJ TRANSIT's FY 2018 operating budget projects an expenditure of about $2.2 billion to provide public transit services on the current system (Table 6-3). The NJTPA region accounts for approximately 80 percent of these costs, or almost $1.8 billion. Approximately 51 percent of NJ TRANSIT's operating budget is supported by passenger fares and other system-generated revenues (such as parking fees and advertising payments). The balance is supported by various state and federal funding sources. State sources include the general fund, capital-to-operating transfer, the New Jersey Turnpike Authority, the State Clean Energy Fund, and others.

It is projected that annual operation costs will more than double and reach over $4.3 billion by 2045. This projection is based on operating funding requirements for existing services and anticipated future funding required to support growth in those services to accommodate future demands. These projections include allowances for inflation, and growth in service to accommodate a moderate rate of growth in ridership demand and limited initiation of new services beyond the current system. The Plan 2045 Scenario does not account for additional operating costs associated with increases in trans-Hudson capacity and rail service that will be enabled by completion of the full Gateway Program under the Aspirational Funding Scenario. In order to fund the projected increase under the Plan 2045 Scenario, NJ TRANSIT will continue to place emphasis on future partnerships and efficiencies to control expenses.

Use of capital funding for operations must also be

**Table 6-3:
NJ TRANSIT Operating Budget Projections
(millions, year of expenditure dollars)**

Expenses	FY 2018 Proposed Budget	FY 2045 Budget Projection*
Proposed Budget	1,346.5	2,318.3
Budget Projection*	317.7	572.9
Services Other Than Personnel	142.9	301.0
Purchased Transportation	243.6	594.3
Insurance & Claims	33.2	301.0
Tolls, Taxes & Other Operating Expenses	133.9	594.3
Total	**2,217.8**	**4,306.3**

*The budget projection provides for growth in labor and services expenses at a rate averaging approximately 3 percent per year over the life of the long range plan. Costs for energy is expected to grow at approximately 2 to 3 percent per year, as are costs for purchased transportation. Other expenses, such as utilities, claims and insurance are expected to grow at approximately 2 to 3 percent. Overall, total expenses are expected to grow at approximately 2.6 percent per year on average.

Sixth Avenue bridge, Hawthorne, Passaic County

addressed. As of FY 2018, a total of $460.8 million in state and federal capital funding is used each year to support NJ TRANSIT operations, principally involving major repair and rehabilitation projects for bus and rail vehicles. Over the long term, this plan calls for the adoption of state policies and funding mechanisms that would allow this practice to be phased out, with the diverted capital funding redirected to other needs.

Expenditures and Investments

The state and federal funding that NJTPA projects to be available under the Plan 2045 Scenario will provide the means to implement the transportation investments identified in this plan to enhance mobility, economic development, quality of life and resiliency. Expenditures under the Limited Scenario will fall short of addressing the region's needs. Under the Aspirational Funding Scenario, the region could invest in an expanded agenda of projects to address critical multi-modal capacity constraints. This section summarizes the investment levels for each scenario.

Decisions about how most funding will be allocated among investments are guided by the RCIS (Chapter 4), with the exception of special large-scale investments such as the Portal North Bridge and Hudson Tunnel that are layered over base funding amounts. In addition, this plan takes into account state investment priorities and strategies, which are well aligned with the RCIS.

For all scenarios, cost-effective use of funds will depend on continuing efforts to streamline project delivery from the planning stage to construction, including reducing unnecessary regulatory delays and exploring new approaches to project implementation, such as design-build and design-build-operate-maintain contracts. In addition, effective use of the latest technologies (including advanced materials) will maximize the benefits achieved. Over the life of the plan, new technologies, if applied effectively, may contribute to increased efficiencies and cost reduction.

Plan 2045 Capital Expenditures

The Plan 2045 Scenario is intended as a realistic approach for guiding future transportation investments. To match revenues, total Plan 2045 expenditures are projected to be YOE $112.8 billion (shown in total in Table 6-4 and on an average annual basis in Table 6-5). While most investments are focused on maintaining the existing transportation network in a state of good repair, the Plan 2045 Scenario includes

Table 6-4:
Plan 2045 Scenario, Total Sources and Uses (millions, year of expenditure dollars)

REVENUES	NEAR TERM (FY 2018-FY 2021)	MID TERM (FY 2022-FY 2027)	LONG TERM (FY 2028-FY 2045)	TOTAL
All Federal	8,427	12,436	35,279	**56,142**
All State	7,159	10,646	37,894	**55,698**
Other*	376	161	413	**950**
TOTAL	**15,962**	**23,243**	**73,585**	**112,790**

EXPENDITURES (RCIS CATEGORIES)	NEAR TERM (FY 2018-FY 2021)	MID TERM (FY 2022-FY 2027)	LONG TERM (FY 2028-FY 2045)	TOTAL
Bridges	1,843	3,803	13,377	**19,024**
Road Preservation	2,165	3,751	15,713	**21,628**
Road Enhancement	443	438	752	**1,632**
Road Expansion	230	197	614	**1,041**
Transit Preservation	4,944	6,402	24,671	**36,017**
Transit Enhancement	372	520	2,057	**2,949**
Transit Expansion	4,132	5,664	6,551	**16,346**
Dedicated Freight	469	617	2,815	**3,900**
Direct ITS	389	568	2,199	**3,155**
TDM	184	298	1,187	**1,668**
Direct Safety	513	652	2,465	**3,630**
Direct Bike/Ped	279	335	1,184	**1,799**
TOTAL	**15,962**	**23,243**	**73,585**	**112,790**

*Other includes Port Authority of New York and New Jersey, New Jersey Turnpike Authority and Metro-North contributions. Overhead expenses are proportionally allocated across Uses.

Table 6-5:
Plan 2045 Average Annual Revenues (millions of year of expenditure dollars)

REVENUES	NEAR TERM (2014-2017)	MID TERM (2018-2023)	LONG TERM (2024-2040)
All Federal	2,107	2,073	1,960
All State	1,790	1,774	2,105
Other*	94	27	23
TOTAL	**3,990**	**3,874**	**4,088**

*Other includes Port Authority of New York and New Jersey, New Jersey Turnpike Authority and Metro-North contributions.

funding to implement selected upgrades and improvements to enhance system capacity, performance and resiliency. It includes the implementation of projects and programs included in the Project Index over the near-, mid- and long-term.

In addition, to replacement of the Portal North Bridge and a new Hudson River tunnel, the Plan 2045 Scenario includes a number of future rail projects in the region that are now undergoing planning and environmental analysis and may be candidates for federal funding. A few initial operating segments, if found to be justified and feasible through detailed study, could

Table 6-6:
Limited Funding Scenario, Total Sources and Uses (millions, year of expenditure dollars)

REVENUES	NEAR TERM (FY 2018-FY 2021)	MID TERM (FY 2022-FY 2027)	LONG TERM (FY 2028-FY 2045)	TOTAL
All Federal	5,716	8,427	29,840	**43,983**
All State	6,103	9,316	33,938	**49,357**
Other*	376	161	393	**930**
TOTAL	**12,195**	**17,905**	**64,170**	**94,270**

EXPENDITURES (RCIS CATEGORIES)	NEAR TERM (FY 2018-FY 2021)	MID TERM (FY 2022-FY 2027)	LONG TERM (FY 2028-FY 2045)	TOTAL
Bridges	1,843	3,803	12,438	**18,085**
Road Preservation	2,165	3,751	14,288	**20,203**
Road Enhancement	443	438	715	**1,596**
Road Expansion	230	197	584	**1,011**
Transit Preservation	4,944	6,402	23,483	**34,828**
Transit Enhancement	372	520	1,958	**2,850**
Transit Expansion	365	326	1,331	**2,022**
Dedicated Freight	469	617	2,679	**3,764**
Direct ITS	389	568	2,093	**3,049**
TDM	184	298	1,129	**1,611**
Direct Safety	513	652	2,346	**3,511**
Direct Bike/Ped	279	335	1,127	**1,742**
TOTAL	**12,195**	**17,905**	**64,170**	**94,270**

*Other includes Port Authority of New York and New Jersey, New Jersey Turnpike Authority and Metro-North contributions. Overhead expenses are proportionally allocated across Uses.

be accomplished under the level of funding assumed for the Plan 2045 Scenario, namely through CIG funding of $100 million per year with matching state funds or other non-federal funds starting in FY 2028 and growing annually with inflation. However, most rail expansion projects cannot proceed until additional rail capacity is created through the Gateway Program.

Additionally, under this scenario, highway pavement and bridges are maintained at a state of good repair, and there is investment in modest capacity enhancements on the highway network as well as increases in system efficiency through technological advances.

Limited Funding Scenario Capital Expenditures

The Limited Funding Scenario assumes long-term revenue growth that falls below the forecasted rate of long-term inflation. Expenditures for FY 2018-2027 reflect the near- and mid-term projects and programs in the FY 2018-2027 TCP. Long term project and program expenditures are assumed to increase by 2 percent annually after FY 2027.

As a result, the Limited Funding Scenario supports total investments equal to YOE $94.3 billion (Table 6-6). This scenario provides sufficient funding to support a maintenance-oriented mix of projects and programs, but also reflects no new bus or fixed guideway transit services, or highway capacity improvements other than those already programmed. As a result, under this scenario, the region will be less prepared to meet the demands on the transportation system of a growing population and economy.

Table 6.4:
Aspirational Funding Scenario, Total Sources and Uses (millions, year of expenditure dollars)

REVENUES	NEAR TERM (FY 2018-FY 2021)	MID TERM (FY 2022-FY 2027)	LONG TERM (FY 2028-FY 2045)	TOTAL
All Federal	8,427	12,436	46,570	**67,434**
All State	7,159	10,646	55,958	**73,762**
Other*	376	161	456	**993**
TOTAL	**15,962**	**23,243**	**102,984**	**142,189**

EXPENDITURES (RCIS CATEGORIES)	NEAR TERM (FY 2018-FY 2021)	MID TERM (FY 2022-FY 2027)	LONG TERM (FY 2028-FY 2045)	TOTAL
Bridges	1,843	3,803	14,782	**20,429**
Road Preservation	2,165	3,751	17,364	**23,279**
Road Enhancement	443	438	830	**1,711**
Road Expansion	230	197	678	**1,105**
Transit Preservation	4,944	6,402	27,264	**38,609**
Transit Enhancement	372	520	2,273	**3,165**
Transit Expansion	4,132	5,664	28,910	38,705
Dedicated Freight	469	617	3,110	4,196
Direct ITS	389	568	2,430	3,386
TDM	184	298	1,311	1,793
Direct Safety	513	652	2,723	3,889
Direct Bike/Ped	279	335	1,308	1,923
TOTAL	**15,962**	**23,243**	**102,984**	**142,189**

*Other includes Port Authority of New York and New Jersey, New Jersey Turnpike Authority and Metro-North contributions. Overhead expenses are proportionally allocated across Uses.

Aspirational Scenario Capital Expenditures

The Aspirational Funding Scenario sets a more aggressive yet feasible goal for the region. It identifies transportation investments that could potentially be made if significant new funding were realized. Capital expenditures total YOE $142.2 billion. This scenario includes all of the investments assumed in the Plan 2045 Scenario, as well as greater expenditures on projects and programs across all categories. Notably, $38.7 billion in transit expansion (Table 6-7) supports the Gateway Program, creating needed trans-Hudson passenger rail capacity, as well as additional new mass transit services that are under study in New Jersey, and in part a new Port Authority Bus Terminal (PABT). Transit expansion is funded by various federal funding sources as well as with CIG and matching state funds or other non-federal funds. Under this scenario, the region is better prepared to meet the transportation demands of the future.

Other Funding for Transportation

The state and federal investments discussed in this chapter are supplemented by additional investments by other transportation agencies—principally, the Port Authority of New York & New Jersey, New Jersey Turnpike Authority and Delaware River Joint Toll Bridge Commission. Their investments will continue over the life of this plan. Key projects planned by the authorities are included in the Project Index. The jurisdiction of these authorities is as follows:

Port Authority of NY & NJ

Key facilities operated by the Port Authority within the NJTPA region include Newark Liberty International Airport, Teterboro Airport, the PATH rail system, the port complex in Newark and Elizabeth and major New York-New Jersey crossings—the Outerbridge Crossing, Goethals Bridge, Bayonne Bridge, Holland Tunnel, Lincoln Tunnel and George Washington Bridge. The agency has built passenger ferry facilities, maintains roadways within its facilities, provides on dock and cross-harbor rail freight service, and contributes to other key infrastructure elements that access its facilities and aid the movement of goods and people throughout the region. Port Authority facilities and financial resources are not included within the definition of the federally supported surface transportation system used to establish the fiscally constrained Regional Transportation Plan.

The Port Authority's 2017-2026 $32.2 billion capital plan features investments spread over a broad portfolio of assets and facilities with the goal of keeping them efficient, safe, secure and reliable. In addition to investing in its own assets, the Port Authority's capital plan allocates up to $2.7 billion in debt service support for the Gateway Program. Major projects include essential state-of-good-repair investments at the George Washington Bridge, the Lincoln Tunnel Helix Replacement Program, Port Wharf and Berth Replacement Program, the PABT Interim Improvement Program and further development of the PABT Replacement Program, PATH Rail Extension to Newark Liberty Rail Link Station and PATH Car Fleet Expansion and Sandy recovery and resiliency investments. The Port Authority's 10-year plan notes that the agency may seek to leverage its capital investments to secure additional discretionary federal funding and financing assistance and public-private partnership financing for major projects that enhance the region's surface transportation capacity.

New Jersey Turnpike Authority

The Turnpike Authority operates and maintains both the New Jersey Turnpike and the Garden State Parkway. The Turnpike is 146 miles long (56 miles in the NJTPA region) and includes 27 interchanges, nearly 500 bridges and 12 service areas. The Garden State Parkway is 173 miles long (121 miles within the NJTPA region) and includes 90 interchanges, approximately 300 entrance and exit ramps and nearly 500 bridges. The Turnpike Authority's funding comes from toll revenues, which it uses to meet operations and maintenance expenses, finance capital needs, and to contribute to the TTF. The Turnpike Authority's $7 billion 2009-2018 capital improvement program focused on widening the Turnpike between Interchanges 6 and 9, which was completed in 2014. On-going investments include bridge, road, facility and interchange improvements. The authority raised tolls in 2008 and 2012 to finance its 10 year capital program. In addition, it provides approximately $22 million per year to the TTF, plus additional funds for feeder road maintenance (approximately $4.5 million in CY 2018, approximately $3.5 million in CY 2019, and approximately $2.5 million annually starting in CY 2020) and an additional funds per prior and existing state transportation funding agreements (approximately $166.5 million in CY 2018, approximately $129 million in CY 2019 and 2020, and approximately $64.5 million in 2021).

Amtrak

Amtrak owns the Northeast Corridor and provides intercity passenger rail service that includes regional and high-speed Acela trains connecting North Jersey with Philadelphia, Wilmington, Baltimore

North Branch, Somerset County

and Washington, D.C. to the south; New York City, Providence and Boston to the north and other metropolitan areas throughout the nation. Amtrak, in concert with NJ TRANSIT, is progressing the planning and development of the Gateway Program. This includes a new Portal Bridge, an additional Hudson River rail tunnel, an expansion of Penn Station New York, new rail storage capacity in New Jersey, the Bergen Loop at Secaucus and other improvements. The Moynihan Station Project is not part of the Gateway Program and is advancing separately.

Delaware River Joint Toll Bridge Commission

This commission maintains and operates seven toll bridges and 13 non-tolled bridges over the Delaware River spread out along 139 miles between Bucks County, Pennsylvania and the New York State line. All DRJTBC toll bridges are in the NJTPA region except for the Trenton-Morrisville Bridge. The commission is also responsible for the repair and maintenance of the first seven miles of I-78 in Warren County. The commission relies on its toll revenues to fund operations, maintenance and capital needs. Capital projects are focused on bridge repair, replacement and rehabilitation.

Potential Revenue Sources

As discussed above, existing dedicated state revenue sources for transportation will not keep pace with the cost of increasing transportation needs, even though increased efficiencies in project delivery may be attained through greater use of public/private partnerships and other techniques. Over time, either an increase in the gas tax, the identification of new revenue sources, or both will be needed. A number of potential revenue sources are listed below as a menu of options, absent consideration of political feasibility. Hypothetical unit amounts are presented along with annual revenue to the NJTPA region, assuming that 70 percent of statewide revenue is allocated to the region as is historically the case.

- ***Gas Tax***—Every one cent increase in the New Jersey gas tax generates an additional $38 million in revenue annually.
- ***Motor Vehicle Fees***—Motor vehicle fees include registration fees, fees related to transfer of ownership, registration documentation reproduction, and registration transfers due to changes in weight classes. Discounted fees are available for those eligible for SSI, the lifeline program and the Pharmaceutical Assistance to the Aged and Disabled program (aged 65 or older or with a disability). A five percent increase on motor vehicle fees yields $23 million annually.
- ***Highway Express Lanes with Tolls***—Creation of new express lanes on existing highways, or adding tolls to existing express lanes, may generate new revenue depending upon how it is instituted. Express lanes with tolls are adjacent to and easily accessible from free general purpose highway lanes. Willing users pay a toll to avoid traffic congestion. Tolls can be collected with a cashless electronic system. Dynamic pricing can be easily added to mitigate traffic congestion and increase revenues. Electronic tolling infrastructure can also support incident management. Potential revenue generation varies greatly due to a number of factors. One national study of highway express lanes with tolls found that annual net revenue generation was as high as $1.9 million per mile. A small minority of jurisdictions operated at a net operating loss of up to $50,000 per mile.
- ***Vehicle Miles Traveled (VMT) Tax***—A VMT tax would be a charge on vehicles registered in New Jersey based on the number of miles driven. A one-tenth of a cent tax per mile traveled yields an estimated $52 million per year, excluding heavy trucks and tractor trailers due to data limitations. Inclusion of tractor trailers would result in a higher revenue yield.
- ***Carbon Tax***—A carbon tax is a levy based on the amount of carbon dioxide produced by the vehicle. There are numerous ways of assessing a carbon tax. One way is to apply a VMT tax that has a rate adjustment based on the vehicle's fuel efficiency. Revenue yield may be similar to the VMT tax, with lesser allocation of tax burden to more fuel efficient vehicles.
- ***NJ Transit Fares***—A NJ TRANSIT fare increase would generate additional revenue and most likely result in a ridership decrease.
- ***Advertising / Sponsorship Fees***—NJ TRANSIT generated $17 million in FY 2016 through advertising sales on NJ TRANSIT facilities. There may be

Elizabeth, Union County

potential to generate additional revenues through expansion of advertising on NJ TRANSIT facilities.

- ***Value Capture***—Value capture is a means to capture some of the increased value of new development directly related to adjacent or nearby publicly funded transportation infrastructure investments. Value capture reallocates or creates revenue that can be used to fund transportation investment. There are numerous mechanisms for value capture, including special assessments, developer impact fees, and creation of a Revenue Allocation District (RAD) that sets aside a portion of the normal property tax revenue that is collected on the marginal increase in value of the land or property that is attributable to proximity to the transit investment. Using the average effective municipal tax rate for the NJTPA region of 2.49 percent, $249,000 is generated annually for every ten million dollars' worth of increased property value within a RAD.
- ***Tax on Demand-Based Transportation Services***—Demand-based transportation refers to the flexible free market delivery of transportation services that are coordinated by technology and can dynamically adapt to demand. Such transportation services can be provided by a collection of independent drivers using personal vehicles (e.g. Uber, Lyft) or a single corporation providing shuttle bus services (e.g. Bridj) that dynamically and efficiently determine routes based on passengers' pickup and drop-off locations. Based on an estimate of current Uber charges in New Jersey (which is the current dominant service), a 10 percent tax would yield $15 million per year. Should demand-based transportation services continue to grow, so would revenues.
- ***Tax on E-commerce or Package Delivery***—A tax on e-commerce would be an additional sales tax on the value of purchases made via the internet. A package delivery tax would be levied based on the delivery of packages to homes and offices regardless of the value of the purchase. A one percent sales tax on e-commerce purchases yields $97 million per year. Revenues from a package delivery tax were not calculated. Should e-commerce and package delivery grow over time, so would revenues.
- ***Business Tax***—A one percent surcharge on taxes already collected from New Jersey corporations and unincorporated businesses will yield $30 million per year.