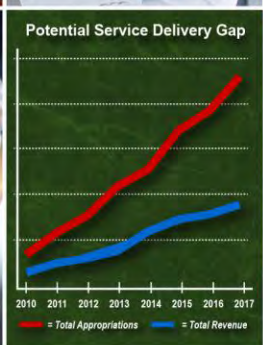


A p r i l 2 0 1 3

Infrastructure Investments Necessary for Economic Success

# *F a c i n g O u r* FUTURE



April 2013

## An Open Letter to the Residents of New Jersey:

For decades, New Jersey has failed to maintain and improve its infrastructure.

Year after year, administration after administration, New Jersey has deferred investment in its utilities systems, roads and bridges, public transportation and water supply systems – and those systems have decayed. The reasons are many: revenue shortfalls, the requirement to adopt a balanced budget, increased costs and/or reduced private investment. Those systems all require the increased investment critical to our long-term economic success. Sandy exposed and highlighted these existing problems. Today, we are forced to face our infrastructure deficiencies now, and to act with urgency.

This report addresses the needs and required investments in three areas – electric power, transportation and water systems. It provides a vision in each of the three areas, identifies needs and makes recommendations for solutions, funding requirements and potential revenue sources. The report provides a fact-based, analysis-driven opportunity to explore realistic ways through which New Jersey can fund necessary infrastructure investment and fuel economic success. *This report differs from other studies and reports on infrastructure; it isn't only about numbers – it is about how we as citizens collectively envision our future and how we need to rethink current priorities to ensure that future.*

This report takes into account the challenges and wide-ranging, long-term statewide rebuilding effort necessary to respond to Sandy, and builds upon a growing public awareness of the role that infrastructure plays in our daily lives. We emphasize the choices – priorities – that New Jersey must face, and recognize that New Jersey citizens must view infrastructure investments in totality rather than as discrete transactions. Finally, this report focuses on long-term investment beyond operational needs, and encourages a strengthened capital planning process for a competitive New Jersey.

As an independent, bipartisan effort started in 2010, *Facing Our Future* seeks to build understanding about New Jersey's problems and needs as well as the critical investments needed to service the public and to foster future economic growth. Led by a volunteer Leadership Group of nearly twenty former government executives and public servants, *Facing Our Future* seeks to present a clear and honest reality, without bias or external influence. We encourage you to read the report, consider the recommendations for infrastructure investment priorities and funding sources, and engage in the dialogue about how to rethink government for our state's long-term fiscal health in the 21st century.

In closing, New Jersey is our home, and New Jersey's infrastructure needs investment. Will we continue our insufficient investment in the systems that drive economic success?

Nancy Becker	Kathy Crotty	Michael Horn	Deborah T. Poritz
William Byrnes	Christopher Daggett	Feather O'Connor Houstoun	Ingrid Reed
Raphael J. Caprio	Robert Del Tufo	Robert Hughey	Robert L. Smartt
Michael Catania	John Farmer, Jr.	Jack Lettiere	Charles Venti
Sam Crane	Gwendolyn Harris	Marc Pfeiffer	

### ACKNOWLEDGEMENT

The Leadership Group thanks the Council of New Jersey Grantmakers (CNJG) and its President Nina Stack for their leadership and support in the formation of *Facing Our Future* and with the first two reports. The CNJG has made important contributions to the work of *Facing Our Future*.

## Table of Contents

Executive Summary .....	1
Section 1 - Why This Report? .....	5
Section 2 - Infrastructure and Economic Development.....	8
Section 3 - Electric Power .....	12
Section 4 - Transportation.....	20
Section 5 - Water Systems Infrastructure .....	32
Section 6 - What's Next? .....	40
APPENDIX 1: Facing Our Future - The Leadership Group .....	A1-1
APPENDIX 2: Facing Our Future - Data Collection and Analysis .....	A2-1
APPENDIX 3: Facing Our Future - Sources and Reference Materials .....	A3-1
APPENDIX 4: Facing Our Future - Transportation Trust Fund Financing.....	A4-1

## List of Tables

Table 1: Investments by Utility Companies (EDCs).....	16
Table 2: Transportation Construction Plan (2012-2021).....	26
Table 3: New Jersey's Wastewater Treatment Needs.....	37

## List of Figures

Figure 1: The Complexity of New Jersey's Future .....	6
Figure 2: Report Card: New Jersey's Infrastructure Needs .....	9
Figure 3: Results of Deferred Investment .....	9
Figure 4: Prioritized Investment Needs: Electric Power, Transportation and Water Systems Infrastructure .....	11
Figure 5: Electric Power Infrastructure Investment Considerations .....	15
Figure 6: Major New Jersey Transportation Organizations .....	23
Figure 7: Bending the Cost Curve .....	24
Figure 8: Examples of Rising Transportation Costs .....	24
Figure 9: Changing the Transportation Business Model .....	25
Figure 10: Transportation Infrastructure Investment Gap .....	28
Figure 11: National Gasoline Taxes .....	30
Figure 12: New Jersey's Annual Water Loss.....	33
Figure 13: New Jersey's National Ranking in Water Systems Infrastructure Needs .....	34
Figure 14: Examples of Green Infrastructure .....	35
Figure 15: Sandy's Impact: Water Systems Infrastructure Investment Considerations .....	36
Figure 16: New Jersey's 20-Year Needs in Drinking Water Infrastructure.....	37
Figure A4-1: Transportation Trust Fund Financing.....	A4-1

## Executive Summary

In this report, *Facing Our Future* concludes that New Jersey has failed to adequately maintain and invest in the infrastructure necessary to spur long-term economic competitiveness. Our once envied infrastructure – our legacy from past generations – decays from delayed repairs and deferred maintenance. This situation was the perfect storm before Sandy, and it remains even more fragile today as we recover and rebuild from October's destruction.

This April 2013 report, “Infrastructure Investments Necessary for Economic Success”, presents the long-term needs and required infrastructure investments in each of three areas: electric power, transportation and water systems. The report provides a fact-based, analysis-driven opportunity to understand and explore realistic ways in which New Jersey can spur economic development – and economic success – through infrastructure investments. More specifically, the report does the following:

- Recognizes the post-Sandy reality of the significant, wide-ranging and long-term impacts of the statewide rebuilding effort
- Acknowledges an expanded public understanding of the importance of infrastructure and what happens when it fails
- Reflects the continuing severe fiscal challenges throughout all levels of New Jersey government as identified in previous *Facing Our Future* reports
- Focuses on the infrastructure areas typically recognized as the most effective and meaningful to New Jersey's long-term economic success
- Presents the difficult choices that New Jersey must face, and recognizes the real priorities that must be established to support long-term success
- Features effective and meaningful recommendations to bring about economic success based on infrastructure investment
- Supports the practice of viewing infrastructure investment comprehensively rather than as discrete, disconnected areas, and emphasizes that investments must be consistent and prioritized in conjunction with long-range economic plans, such as New Jersey's State Development and Redevelopment Plan, and the strategic guidance and comprehensive objectives identified in similar planning documents
- Maintains the quality of analysis, nonpartisanship and focus established in previous *Facing Our Future* reports

The information presented in this report uses existing government, industry and independent reports, analyses, websites, other literature and articles. In addition, the report is informed by the years of experience and perspectives of the members of the volunteer Leadership Group of nearly twenty former government executives and public servants. The Leadership Group supplemented its work through workgroup discussions and briefings with individuals having current or past government, academic and/or industry experience. Throughout the process, all data collection and analysis efforts remained consistent with *Facing Our Future's* reputation for clarity, lack of bias and clear-eyed presentation of reality. (Detailed sources are referenced in

*Appendix 3: Sources and Reference Materials* and available at [www.facingourfuture.org](http://www.facingourfuture.org).) The result is a report that addresses prioritized, long-term infrastructure investment needs in New Jersey.

With or without new storms such as Sandy, New Jersey faces long-term, periodic breakdowns and degradation of its infrastructure. This report presents a vision for infrastructure needs within each of three prioritized areas and discusses those needs in the historical context of long-standing neglect and under-funding. The report also identifies funding ideas to support the investments, and provides recommendations for how to achieve the required funding for each area – what sources to consider, and how to generate funding to support investment.

Grouped by area of infrastructure investment, the recommendations are:

- **Electric Power:** To be truly effective, the Board of Public Utilities (BPU) must be engaged as a proactive player in the long-term planning for the electric power distribution system. Few elements of our critical infrastructure are more important, or have the potential for greater impact, than electric power. Visiting the issues only in rate cases or through the imposition of penalties is not the way to ensure New Jersey's economic success. A more robust, well-resourced and expert BPU and Rate Counsel would allow for more effective oversight of the state's public utilities. *Further information on this recommendation is in Section 3 of the report.*
- **Transportation:** *Facing Our Future* believes that the model used for the delivery of New Jersey's transportation services must be reconsidered for the 21st century. The public's post-Sandy appreciation for the value of transportation services presents an opportunity for New Jersey to look at the business of transportation, and to determine how we provide services at the lowest cost.

Given the ever-increasing cost of doing business, consideration should be given to business models for transportation services that provide a more conducive platform for cost-effective results, innovation and accountability. By way of example, New Jersey could consider the consolidation of the various transportation agencies into a utility-like Public Benefits Corporation regulated by an independent, appointed Board rather than through annual budget approval by elected officials. This new organizational approach can lead to cost effective planning and efficient provision of transportation services, and to the funding necessary to maintain and expand transportation services. Through such an organization and with an increased level of public confidence, transportation would be better positioned as a critical economic development tool.

New Jersey's future economic success depends upon the ability to fund investment in transportation infrastructure. For too long, and through administrations of both parties, the Transportation Trust Fund has been limited in its ability to fund capital investment in transportation. In order to increase funding for transportation, the Transportation Trust Fund must be renewed in FY 2017. Additionally, New Jersey needs to adopt more flexible, elastic sources of revenue that reflect increasing energy efficiencies and changing transportation habits. Short-term, an increase in the motor fuels tax should be considered; long-term, the tax needs to be eliminated as revenues through this source are



declining. We must consider alternative funding sources, such as a vehicle miles traveled (VMT) fee or extension of the sales tax to include motor fuels.

Lastly, New Jersey must commit to a comprehensive and updated look at transportation needs. Without such a review, New Jersey cannot plan for investment or for its future economic success. *Further information on all of these recommendations is in Section 4 of the report.*

- **Water Systems Infrastructure:** To enable a competitive New Jersey, there needs to be a strong and transparent water supply and distribution capital planning process – with oversight through which the New Jersey Water Supply Master Plan is updated and the water systems infrastructure capital planning process at all levels of government is strengthened. The report envisions a process that would, for example, enable joint land-use planning for shared municipal services in post-Sandy redevelopment.

New Jersey must upgrade its outmoded and inadequate water systems and reverse the annual loss of more than 20 percent of our state’s treated water supply because of leaking pipes. To accomplish this, the report recommends support for initiatives undertaken by private and public water companies through increased fees. Additionally, *Facing Our Future* recommends that New Jersey maintain and expand regulatory efforts to preserve and enhance water quality in order to avoid building expensive filtration and treatment systems down the line.

In a time of limited resources, both financial and environmental, New Jersey should obtain and increase funding for open space preservation to protect and preserve watershed lands to assure water supply and quality. In addition, New Jersey needs to create natural buffer areas to protect infrastructure and developed areas. Through stronger planning and increased coordination, our state can encourage the broader use of “green infrastructure” to help address both stormwater management and water quality issues. *Further information on all of these recommendations is in Section 5 of the report.*

### ***What’s next?***

The next steps for *Facing Our Future* include continuing public education and outreach, and initiating serious, open discussions driven by our common goal – economic success. As part of that outreach, *Facing Our Future* will support long-term capital planning and forecasting. We will update our website and Facebook page to bring new information, and continue the regular e-mail communication, ‘Options in Action’. In the coming months, look for *Facing Our Future* to advance discussion of new methods to preserve vital government services, share ways to maximize government efficiency and report on New Jersey’s progress in infrastructure investment and economic success.

### **The Problem**

New Jersey has failed to fund adequate investment and maintenance for the infrastructure necessary to spur economic growth – to create economic success. The primary drivers of our capability for economic competitiveness – power, transportation and water – are deteriorating. We continue to face growing gaps between revenues and the monies needed to fund expected public services. New Jersey already faced challenging times, and then Sandy hit our homes, our communities and our lives.

## Section 1 - Why This Report?

### *New Jersey's Future is our Future*

New Jersey has a proud tradition and history of leadership in innovation and success. What drives our future – and the future for our children – is the imperative for continued innovation and success. For many years and through many administrations, we have failed to invest in that future; we have failed to invest in the infrastructure necessary for New Jersey's 21st century economic success.

New Jersey changed forever on October 29, 2012. Throughout the state, we faced new realities and unimagined challenges. Our existing statewide infrastructure problems and already challenging fiscal environment did not disappear: rather they combined with an historic storm to become exponentially more complex and immediate. We could no longer take infrastructure for granted. 'Infrastructure' is what made the power available, the roadways passable and the water drinkable.

*As New Jerseyans, we each need to participate in a public discussion on priorities for our future. We need to prioritize our investments, and connect them to a long-range, consistent plan for economic success. We need to work with government and industry leaders to focus limited resources, and we need to support, and specifically to fund, investments that are essential to New Jersey's long-term economic growth.*

### *Why This Report?*

There are numerous existing studies and reports containing information to make informed judgments about needs in individual infrastructure areas; most of the studies and reports were funded or presented by specific interest groups or government agencies. These existing sources present specific information; however, no source comprehensively looks at the infrastructure investments essential for New Jersey's economic success. The purpose of this *Facing Our Future* report is to look across these investments and consider a balanced set of priorities linked to economic competitiveness and based on our challenges at all levels of government. This report is intended to spur discussion of the priorities needed to ensure economic growth in our state – and of how we can address and fund the investments necessary to support that growth.

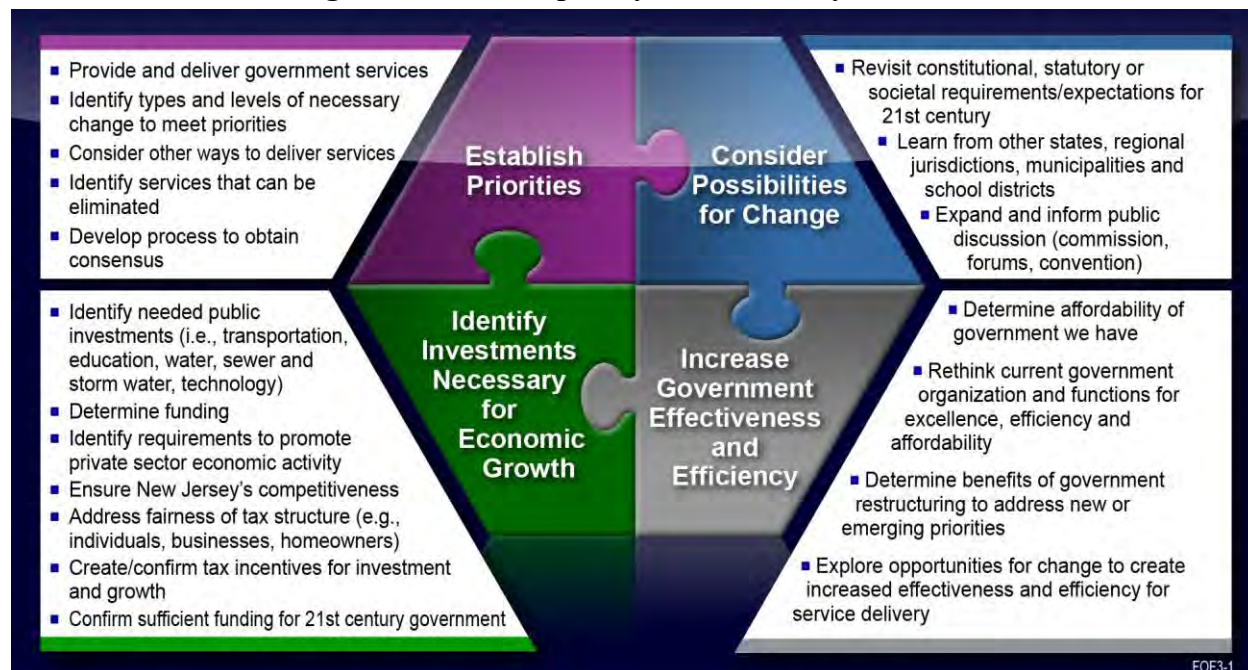
Initiated in July 2012, this *Facing Our Future* report does the following: (1) identifies the specific, long-term infrastructure investments, with funding sources, to support economic competitiveness in New Jersey, and (2) furthers discussion and communication about what New Jersey can do to 'rethink' government. The report provides an overall vision for infrastructure investments critical to long-term economic success and identifies specific funding mechanisms to support those investments. The focus is on long-term capital investment and planning, and not on operational needs. This report continues *Facing Our Future's* discussion about the complexity of New Jersey's future, a discussion started in 2010 and woven throughout two earlier reports:

- How do we establish priorities?
- What investments are necessary for economic growth?
- What are the possibilities for change?
- How do we increase government effectiveness and efficiency?



This report focuses on the piece of New Jersey's puzzle that addresses investments necessary for economic growth. However, it does not address – and leaves for future discussion – the belief that a comprehensive tax policy has to be a part of any discussion and of our future. Figure 1 presents *Facing Our Future's* vision of the basic elements of the complexity of New Jersey's future referenced throughout this and our previous reports.

**Figure 1: The Complexity of New Jersey's Future**



## How To Use This Report

This report presents a unified view of the three areas of infrastructure investment most critical for New Jersey's long-term economic success. Throughout, the report stresses that investments must be consistent and prioritized in conjunction with long-range economic plans.

Section 2 describes the connections across infrastructure, infrastructure investment and economic development – economic success. For convenience, the discussion for each investment area is presented as a unit within an entire section. In Sections 3, 4 and 5, *Facing Our Future* presents the results of our continued focus in the three areas of infrastructure investment most critical for long-term economic success: electric power, transportation and water systems infrastructure. Within each section, the report introduces the specific infrastructure area necessary for economic success, and identifies a vision to guide investments – a vision of what New Jersey must achieve, and why. The report summarizes the current condition of infrastructure investment in each area, and identifies where investment lags or what is necessary to bring New Jersey to 21st century competitiveness – the need. The report identifies specific funding mechanisms or options for the identified needs, and makes recommendations about what priorities must be addressed for the specific area of infrastructure investment. Finally – and throughout each section – the report focuses on long-term investment beyond operational needs, and encourages a strengthened capital planning process for a competitive New Jersey.

**AN IMPORTANT CAUTION**

**Update Tools Necessary for Strategic Guidance and Comprehensive Planning**

As New Jersey struggled through recent years and into 2013, our state was challenged further by the absence of comprehensive master plans to guide decisions. Neither the State Strategic Plan: New Jersey's State Development and Redevelopment Plan, nor the State Water Supply Master Plan – both long under review – have been available to provide direction. At this writing, both draft documents remain under review to incorporate lessons from Sandy.

Until formal update of these plans is complete, New Jersey's citizens are without valuable tools for strategic guidance and comprehensive planning. These tools are necessary – and must be used to inform decisions throughout state government and integrate with all of New Jersey's other levels of government.

## Section 2 - Infrastructure and Economic Development

### *This is the Story of a Home*

Whether a home is new or old, a starter house or one that has sheltered families across generations, a structure in move-in condition or one that ‘needs work’, every homeowner knows that there is more to home ownership than a monthly mortgage payment. There is often fresh paint or possibly new flooring before the movers arrive. As the years go by, there is a leaky roof – and it needs repair. First one window rattles, and then another. The siding or stucco cracks, and multiple weekends are devoted to maintenance. Eventually, the time arrives when the roof can no longer be patched, the windows must all be replaced – and the electric system cannot handle that newest large screen TV. Home ownership requires investment, and investments are improvements that create future value and long-term benefit.

New Jersey is our home, and New Jersey’s infrastructure needs investment. Previous generations planned for their

#### What is Economic Development?

Economic Development drives prosperity and innovation – New Jersey’s ability to be competitive regionally, nationally and globally. It focuses on retaining and growing jobs in our state and promotes a higher standard of living and economic health through:

- Processes that influence growth to enhance the economic well being in a community
- Policies undertaken by government to meet broad economic objectives (i.e., high employment, sustainable growth)
- Programs and policies directed at improving the business climate through specific efforts, business finance, marketing, neighborhood development, business retention and expansion, technology transfer, real estate development, etc.

future – our future. We owe our existing infrastructure to their decades of investment – making it a priority within their choice of

priorities. We have extensive transportation networks, and our communication systems reflect New Jersey’s history of innovation. The water we drink, the sewers that support our environment and the power that fuels our appliances and technology are legacies from the past. Regrettably, we have neglected – and possibly squandered – our inheritance.

Why?

For decades, we have made repairs only when urgent or deferred maintenance altogether. We have focused on the here and now. We have failed to develop a new approach that reflects 21st century needs, and we have missed the opportunity to set priorities for innovation and economic success. We have moved away from any consistent path or plan for economic development. It is now our turn, our obligation, to accept responsibility and set as a priority New Jersey’s infrastructure investments.

#### Investing in Infrastructure: An Example

Capital investments require planning. They are bigger and more costly than ongoing maintenance and repair, but the incentive is long-term benefit both for our own use and for that of future owners. As a homeowner, if the 20-year old hot water heater stops working early one cold morning, you have to replace it. If you’ve anticipated and planned over the years for its replacement, there is money budgeted and set-aside. Without that planning, you’ll need to have an alternate source for funds – or maybe your summer vacation is at risk. You want the vacation, but you need the hot water heater for everyday life – and to maintain resale value for the home. The hot water heater is part of the infrastructure of the home, and infrastructure is always there until it is not – similar to our electric power, transportation systems and water.

## Investments Necessary for Economic Success

In 2009, the American Society of Civil Engineers (ASCE) released an infrastructure investment report card, grading New Jersey on the level of its infrastructure investments. Figure 2 presents that 2009 grading, and shows New Jersey's overall grade as C- against the national grade of D.

**Figure 2: Report Card: New Jersey's Infrastructure Needs**

Report of the American Society of Civil Engineers – NJ Section	Grade	Risk
Wastewater	D	
Drinking Water	C	
Dams	C-	
Energy	C+	
Roads	D	
Bridges	D	
<b>Overall</b>	<b>C-</b>	

FOF3-9a

Although ASCE released a new national report card in March 2013 showing slight national improvement from a grade of D to D+, it did not update individual state performance grades. In summarizing ASCE's recent discussion of New Jersey's infrastructure needs, NJ Spotlight reported the infrastructure issues facing our state as 'particularly sobering'.

## New Jersey is Not Alone...

Across the United States, infrastructure investments declined for similar reasons: reduced availability of funding, shifting priorities and absence of long-term planning. However, our situation in New Jersey is complicated by the history of our under-investment, and by the avoidance of routine maintenance and deferral of preventive maintenance. The cost? When deferred investment is aggregated, the impact is widespread and expensive. Possibly the most important cost is the inability of infrastructure to support economic growth. Often, the results of deferred investment are unconnected to a super-sized or even extraordinary weather event. Figure 3 illustrates examples of the results of deferred investment.

## ...but Sandy Compounds Our Challenges

Whether it is a hurricane or a super storm, Sandy is a dividing line. Before Sandy, we had budget problems and deteriorating infrastructure – and wondered if New Jersey could be economically successful in the 21st century. We faced tough choices, and there were no 'immediate' solutions. After Sandy, inconceivable new challenges compounded these

**Figure 3: Results of Deferred Investment**



existing problems. New Jerseyans now had a first-hand appreciation of the daily relevance of infrastructure, and of what happens when deteriorated infrastructure fails or no longer exists: we cannot get to work, cannot live at home and we cannot travel to assist loved ones.

In the immediate hours after Sandy, our coastal communities received global attention. Locally, Sandy created shared personal experiences. Trains were unable to run, buses sat in yards, highways were blocked or destroyed, electric power was out, drinking water systems shut down, and raw sewage ran in the streets of at least one municipality. Throughout New Jersey, failed infrastructure resulted not only from Sandy, but also from the cumulative effect of long-deferred maintenance and the absence of long-term investment. This occurred across our state – not only in the shore and coastal communities, but also in Hoboken, Little Ferry, Carlstadt, Moonachie, Sayreville, Sussex County, Morris County, Union County, the Delaware Bay shore and others.

Our infrastructure has failed when communities lose power for hours or even days following cold, water or wind. Our infrastructure has failed when roads are pitted with potholes, and when road congestion causes another missed dinner, softball game or recital, or extra hours in transit. Our infrastructure has failed when sewage bubbles up into the streets after a hard rain.

*As written in our initial report (2011), “The storm is here and growing. The problems are broader and deeper, the tools to fix them less plentiful.” Since that statement, Sandy has added another cloud to New Jersey’s already darkening horizon.*

If there is a positive outcome from Sandy, it is the personal understanding of all New Jerseyans that we depend on our infrastructure. It connects us. Can we use this understanding, this connection, to establish infrastructure investment as a priority not just for the next storm but also for our economic future?

### ***Establishing Priorities***

In mid-2012, *Facing Our Future* identified six major areas of critical infrastructure investments: transportation, environment, energy, communication technology, data and IT needs – focusing on IT needs across all levels of NJ government – and higher education. The fiscal realities of New Jersey, and the impact of Sandy, directed that New Jersey’s collective economic resources focus only on the infrastructure investments most essential for economic success. Prior to *Facing Our Future*’s post-Sandy suspension of three of the areas of data collection, our preliminary analysis in those three areas identified the following:

- **Communication:** Due to years of private corporate investment and innovation, this is an area of strength for New Jersey. However, parts of this infrastructure failed during a storm of Sandy’s size – approximately 25 percent of all cell towers were out of service, making mobile phone communication difficult.
- **Data and IT Needs:** This is an area with great need yet little available information or reliable data for analysis. Government at all levels – especially local – needs major investment in technology modernization and reduction of technology deficiencies. Decreased staffing, graying of the workforce and increasing public expectation for technology-based services add to this underinvestment.



- **Higher Education:** Because of the recently passed \$750 million bond issue, funds are available to invest in this area. To maximize the investment and ensure effectiveness, however, New Jerseyans need to insist upon the integration of higher education spending with the State Strategic Plan: New Jersey's State Development and Redevelopment Plan (see below, "Update Tools Necessary for Strategic Guidance and Comprehensive Planning").

Additionally, there are numerous elements within New Jersey's environmental infrastructure. *Facing Our Future* focused on water systems infrastructure as the most critical link to economic success. While stormwater and wastewater management, air quality, and solid waste/recycling policies are included within this report because of their relationship to water and water systems, other areas of environmental infrastructure need future attention.

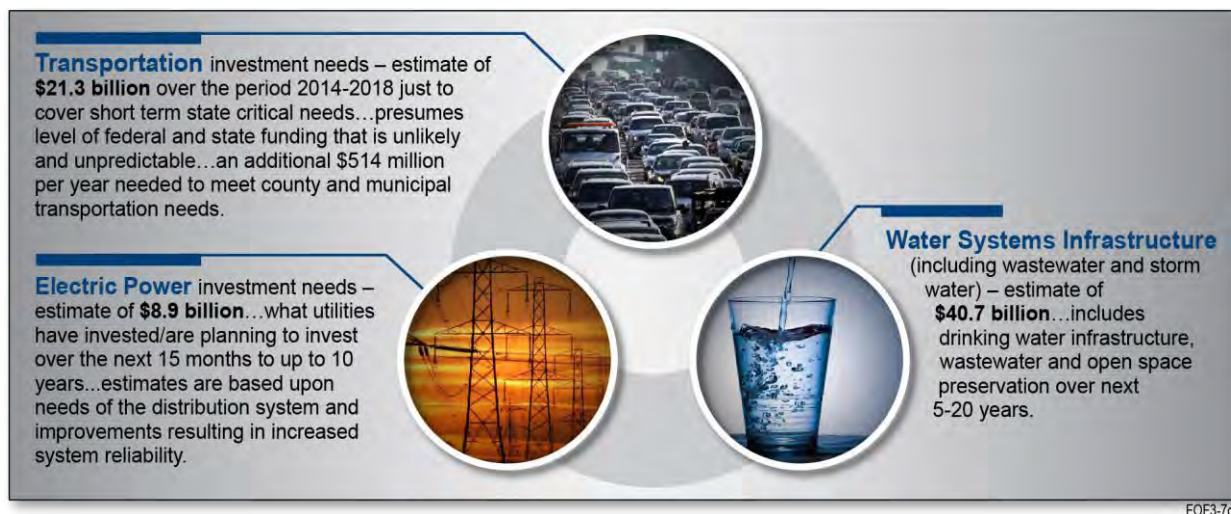
### ***Infrastructure Investments Necessary for Economic Success***

New Jersey's decades of delayed repair, deferred maintenance and ignored infrastructure investment in electric power, transportation and water systems infrastructure facilities place future generations at risk. Our failure to invest puts at risk the economic success of New Jersey. We need to face the future, and invest in the future, now.

Although the identified infrastructure needs presented in this report and the associated costs are staggering, the length of time needed for infrastructure investment is long – sometimes 10, 15, 20 years or more. Figure 4 presents a high-level summary of the minimum level of required funding to ensure our state's long-term economic competitiveness documented as follows:

- **Electric Power:** See Section 3, *Electric Power* (Table 1)
- **Transportation:** See Section 4, *Transportation* (Figure 10)
- **Water Systems Infrastructure:** See Section 5, *Water Systems Infrastructure* (Figure 16, Table 3 and section narrative re: Open Space)

**Figure 4: Prioritized Investment Needs: Electric Power, Transportation and Water Systems Infrastructure**





## Section 3 - Electric Power

An efficient and resilient economy – and its public infrastructure – requires electricity. Without electricity, virtually no aspect of modern life is possible. The consequences of power failures dramatize the costs associated with an electricity distribution system that doesn't meet public expectations. When the distribution system fails:

- Residential and commercial electric customers are without power for light, heat, refrigeration, business operations and, in some cases, the operation of water supply wells and life sustaining medical equipment
- Businesses close for significant periods of time resulting in reduced productivity and fiscal viability, damaging equipment and increasing costs
- Employees suffer loss of income, spoiled food and the cost of gasoline for emergency generators, all negatively impacting the family budget
- Basics of daily life are widely disrupted, including cell phone coverage, ATM service, food distribution and gasoline purchasing
- Police and fire personnel are deployed for extended periods at significant public expense and often at personal cost
- Public facilities, hospitals, water and wastewater treatment plants and community centers operate under emergency conditions, often without sufficient or reliable back-up power
- Public health may be compromised by the loss of potable water
- Public transit systems curtail service for long periods of time, causing major inconvenience to commuters and disruption of commerce
- Public and private property losses total in the tens of millions of dollars

### Understanding Key Electric Power Definitions

- **Generation** – the production of electricity; the production of electricity driven by market demand
- **Transmission** – the transport of electricity from the point of generation to distribution centers
- **Distribution** – the system of substations, poles and wires owned and operated by the electric distribution company (EDC) that provides electric service to residential and commercial consumers

## Understanding the Electric Power Industry

*Electric power is only one aspect of the broader infrastructure of 'power'. Facing Our Future focused on electric power for two reasons (1) energy resources can change globally and rapidly; as an example, witness the rapid change in availability and cost of natural gas; and (2) solar and wind power are currently limited across New Jersey. New Jersey's major electric distribution companies are investor owned and regulated by government at the federal and state levels. State government's role is limited to setting policies regarding distribution; enacting, strengthening, enforcing regulations, statutes, and orders that encourage investments, reliability, safety, and energy efficiency. Required infrastructure costs balance against return on investments – with ratepayers bearing the cost of any improvements/upgrades.*

The basic components of the electric power industry are generation, transmission and distribution. The generation and transmission of electric power is subject to limited state government control; there is no control at the local level of government. Further, state government has little opportunity to direct or initiate investments. Decisions regarding investments are made principally by the private sector, the independent power companies that operate primarily for the benefit of their shareholders. Federal law and the PJM Interconnection (PJM), a regional electricity market regulated by the Federal Energy Regulatory Commission, also influence decisions regarding investment in generation capacity and transmission.

The distribution of electric power and the reliability of the distribution system are regulated in New Jersey through the Board of Public Utilities (BPU) – a state government agency. The BPU's challenge is to balance several competing objectives:

- Provide a fair rate of return to the utility company investors to assure its financial viability
- Establish rates that are competitive and do not jeopardize economic growth
- Maintain a reliable distribution system that meets the needs and expectations of electric utility customers

A utility cannot increase its regulated rates (the charge to consumers for the use of utility services) until the BPU approves the change. The BPU must also approve requests by utilities to add or change programs or services. To obtain BPU approval, the utility must prove that a change is merited. The utility files an application with the BPU (referred to as a rate filing) to demonstrate that an increase or change is justified.

### What are PJM and BPU?

#### **PJM**

*PJM Interconnection is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia (the 'grid'), an area that includes more than 51 million people. PJM is responsible for long-term transmission planning and capacity resource coordination for the region. This means that PJM is responsible for managing the minute-to-minute supply/demand balance for electricity within the grid to assure reliability.*

#### **BPU**

*The Board of Public Utilities ("Board", or BPU) is the state agency with authority to oversee the regulated utilities, which in turn provide critical services such as natural gas, electricity, water, telecommunications and cable television. The law requires the BPU to ensure safe, adequate, and proper utility services at reasonable rates for customers in New Jersey. The BPU addresses issues of consumer protection, energy reform, deregulation of energy and telecommunications services and the restructuring of utility rates to encourage energy conservation and competitive pricing in the industry. The Board functions in a quasi-judicial capacity, and has responsibility for monitoring utility rates, quality of service and responding to consumer complaints. The BPU's budget derives from assessments on the regulated businesses.*

During this process, the BPU acts as a quasi-judicial body. It evaluates testimony from the utility as well as testimony provided by the Division of Rate Counsel, and balances many factors in making decisions. As an independent state agency, the Division of Rate Counsel represents the interests of consumers of the services provided by utilities (electricity, natural gas, water/sewer), and also telecommunications and cable TV, to ensure that consumers receive safe, adequate and proper utility service at affordable rates. Rate Counsel participates in every proceeding before the BPU in which utilities seek to alter their rates or services.

The supply of electricity and its distribution system must be sufficient, reliable and economical. Investment in electric power supply – and its distribution system – is vital to addressing the significant gap in our potential for economic growth. In viewing the overall electric power system (e.g., generation and transmission), the state’s major function is to regulate the electric distribution companies (EDCs) that provide electric power.

According to an analysis prepared by the Rutgers Center for Energy, Economic, and Environmental Policy (CEEPP) and included in the New Jersey Energy Master Plan, distribution is the smallest component of an electric bill – 9 percent for commercial and industrial customers and 20 percent for residential customers. Nonetheless, power failures rooted in the distribution system have significant public, private and societal cost. It is this aspect of the electric power system that has the most direct and immediate impact on all classes of consumers.

Other components of a typical electric bill include basic generation service, including transmission and state and federal policy costs. These state and federal policies, clean air requirements, conservation programs, alternative energy programs and societal benefits charges have an impact on electric rates. The *Facing Our Future* report – this report – focuses only on the need for distribution infrastructure investment and the state’s role in ensuring that those investments happen.

The 2011 New Jersey Energy Master Plan includes a complete discussion of New Jersey’s electric industry, including the PJM market and transmission system, the state of electric generation, the structure and dynamics of the energy market and the basic components of a typical electric bill.

### ***Vision for Electric Power Infrastructure***

Although interdependent, there are important, fundamental differences between government’s role in electric power infrastructure and its role in transportation and water systems infrastructure. For transportation and water infrastructure systems, the government’s role is to ensure that the systems are maintained and that capital investment is adequate.

#### **Understanding Power Failures**

*New Jersey is challenged by periodic failures in the generation and transmission systems that bring the power to the distribution system. Losses from power failures – whether in the distribution or generation systems – are not limited to those caused by extreme weather events. Consider the fallout from a power supply failure on the Northeast corridor of our railway system: the personal safety of thousands of commuters is jeopardized; traffic, commerce and daily life is disrupted. Service interruptions from equipment failures, intermittent voltage surges and/or blackouts or brownouts all affect the normal operation of a home or business.*

However, there is no direct public investment in the electric power system, even where resources are publically owned. Ratepayers fund electric power infrastructure, and ratepayers fund the power generation system – which the state does not regulate.

Looking forward, New Jerseyans must decide how we want to absorb the costs associated with power failures and the effort to mitigate or control/reduce them. One option is to ‘harden’ the system – to undertake related yet separate actions typically tied to effecting repair and replacement or improving reliability. Failure to invest, upgrade and harden our existing electric distribution system, or failure to explore ways to facilitate recovery, will likely mean that history will repeat itself. Alternatively, we can choose to invest in improvements to mitigate the impact of future power outages.

### ***Electric Power Investment Needs***

Central to achieving the BPU’s objectives is ensuring that the distribution system and the services that support that system remain in a state of good repair. This requires consistent maintenance and costly capital improvements to the system.

There are several national assessments of investment needs for the electric power industry. The Edison Electric Institute has estimated nationwide that the electric utility industry will need to make a total infrastructure investment of \$1.5 trillion to \$2 trillion by 2030. However, there are challenges to this estimate. Across a number of other studies and models, estimates ranged from \$697 billion to \$1.5 trillion. Figure 5 presents examples, gathered throughout our research and workgroup discussions, of the considerations used to make electric power infrastructure investments.

**Figure 5: Electric Power Infrastructure Investment Considerations**



A 2011 American Society of Civil Engineers (ASCE) report, “Failure to Act: The Economic Impact of Current Investment Trends in Electric Infrastructure”, estimates the cumulative need for nationwide investment in distribution alone to be \$219 billion by 2040. The ASCE report’s regional breakdown for all categories finds that needed investment in the Mid-Atlantic region is \$18.2 billion from 2011 to 2020, and \$130.3 billion from 2011 to 2040. The ASCE analysis

focuses on the cost of a failure to invest in needed infrastructure improvements, arguing that the cost of not investing actually exceeds the investments themselves.

Unfortunately, there is no precise estimate of the total investment needed for New Jersey in the comparable period. Unlike the other infrastructure areas presented in this report (see *Section 4: Transportation* and *Section 5: Water Systems Infrastructure*), there is no independent assessment by a state or public agency of the distribution infrastructure needs of electric utilities.

Consequently, no data is available to determine exactly how much capital investment would be needed by New Jersey's electric utilities over the next 10 to 20 years.

Currently, the BPU relies primarily on the electric distribution companies (EDCs) to assess their individual needs. Those assessments are presented to the BPU for approval and recovery of the costs. Ultimately, the utilities' ratepayers will bear the cost of those investments. Recently, New Jersey utilities (EDCs) have identified current and future short-term investments. Table 1 presents the recent past and future planned investments for New Jersey's utility companies.

**Table 1: Investments by Utility Companies (EDCs)**

<b>PSE&amp;G</b>	Completed \$700 million in accelerated electric and gas infrastructure projects; will invest another \$273 million for accelerated projects over the next 15 months
	Investing \$307 million in energy efficiency programs
	Placed 16 large-scale solar installations in service, including four solar farms and installed more than 116,000 solar units on utility poles
	Investing \$762 million to support solar energy development to bring 160 megawatts of solar energy
	Capital program calls for investing \$5.2 billion in 2011-2013, largely in its transmission and distribution systems; including \$2.9 billion for five major transmission projects
<b>JCP&amp;L</b>	Applied to BPU for \$3.9 billion in a 10 year plan for upgrades to system, including \$1.7 billion to raise, relocate or protect 40 switching stations or substations affected by the recent storms; called for increased spending to deploy smart-grid technologies (not smart meters) for more rapid response to power outages and to invest in systems that improve redundancy in the power grid to avert outages
	Cost estimates included: \$454 million – Deploy smart grid technologies to better monitor system operations and to more swiftly deploy repair teams \$215 million – Improve pole distribution systems \$200 million – Create redundancy in the system to reduce outages when damage occurs \$60 million – Move 20 miles of overhead electric distribution lines underground
	Expended \$191 million in capital expenditures in 2011; expended \$200 million in capital expenditures in 2012
	Expended \$800 million (combined) in Irene, October 2011 snowstorm and Sandy costs; applied to BPU for additional Sandy costs of approximately \$630 million
<b>Atlantic City Electric</b>	Expended \$1.2 billion in distribution system expenditures from 2003-2012
	Requested a rate increase in November 2012; rate case filed with BPU for capital costs (unrelated to Sandy)
<b>Other - 10 publicly owned electric utilities</b>	Planned investments for the 5-year period of 2013-2017 total \$1.311 billion as follows: Distribution – \$783 million Transmission – \$378 million Corporate Support, IT and Other – \$150 million
	Capital expenditures for next five years anticipated to be between \$45,000 and \$1.5 million annually for each of the publically owned electric utilities (not all are municipally owned)

Information in the above table is based upon news articles, BPU filings and annual reports available through mid-March 2013



Under the current system, determination of the level of infrastructure investment is the result of a ratemaking proceeding in which the EDCs submit a request to the BPU for approval of investments, which it determines, are necessary. The BPU essentially plays the role of referee, with the Rate Counsel representing the interests of the consumer. The role of the public agencies – BPU and Rate Counsel – is essentially reactive. Although the initial investment is made by the utility, ultimately the residential, industrial and commercial ratepayers bear the cost. The importance of these two agencies reaching a fair and balanced result cannot be underestimated. Therefore, investment in ensuring that the capacity of the BPU and Rate Counsel is sufficient to meet these challenges would be a logical part of any reasonable strategy for economic prosperity.

### ***Findings***

Our findings are based upon analysis of the data and a vision for electric power infrastructure – what New Jersey needs and why. Using that information, understanding the electric power industry and analyzing the electric power investment needs, this report finds:

- State government’s authority over EDCs is limited primarily to the distribution infrastructure; government has limited opportunity and responsibility for direct investment
- Decisions for future investments are made principally by the private sector – the independent power companies who operate primarily to benefit their shareholders, but subject to BPU oversight
- New Jersey’s geographic location constrains the transmission of electric power from the PJM grid; according to the New Jersey Energy Master Plan and CEEEP, the constraints can negatively impact economic growth
- New Jersey’s retail electricity rates are among the highest in the nation, potentially making New Jersey’s business climate less competitive than other states in the region
- Unreliable power distribution hampers long-term economic growth
- Ineffective public education, information and outreach efforts amplify the impact of a serious power outage
- The BPU is essential to balancing the interests of electric utility industry stakeholders, ensuring that customers – and not only shareholders – derive benefit from investment, and that investment is sufficient to support a competitive economy

*New Jersey’s retail electric rates – the costs charged to businesses – are among the most expensive in the nation. In order for New Jersey’s economy to grow, electric rates must be competitive with other rates within the region and preferably comparable to other places in the United States. Unreliable power distribution hampers long-term economic prospects and development. Utilities need to manage risk while increasing reliability. Reliability must be balanced against cost, and ratepayers need to determine whether they are willing to accept an increase in utility rates if that increase can be dedicated to improved reliability. To put it simply: what is the balance between reliability and rates?*



## ***Recommendations***

New Jersey's recent experience with natural emergencies demonstrates how fragile the electric power system is, and highlights the importance of a well-planned and well-maintained system. More than ever before, New Jersey citizens understand the consequences of an unreliable power grid and the need to invest in its improvement. The consequences of its failure are enormous.

*Is it time to reevaluate how the BPU and the Rate Counsel can best fulfill their missions? Is there a need to invest in the human capacity involved in making these decisions beyond the 'wires and poles'?*

Discussion among the utilities, the BPU, local governments and the public has focused on numerous potential remedies, including undergrounding (burying) power lines, hardening the infrastructure, creating greater redundancy, expanding vegetation management and inspection, and creating better communication between the public utilities and their customers. Each of these remedies contributes to reducing future adverse events and/or managing them more effectively. Determining exactly how to implement these remedies – the exact amount of investment required, how the costs will be apportioned, and balancing those determinations against the needs of both utility company investors and consumers – is the responsibility of the BPU in conjunction with the Rate Counsel. In making those determinations, the BPU Commissioners, the Rate Counsel and their staffs must evaluate complex economic, scientific, legal and policy options. There has been no discussion, however, as to whether these agencies have adequate resources to fulfill this responsibility.

To be truly effective, the BPU must engage as a proactive player with the private EDCs in the long-term planning of the electric power system. Few elements of our critical infrastructure are more important, or have the potential for greater impact, than electric power. Visiting the issues only in rate cases or through the imposition of penalties is not the way to ensure New Jersey's economic success and drive to remain competitive.

In recent years, most state agencies have seen significant downsizing. There are circumstances, however, in which such reductions are counterproductive. A more robust, well-resourced and expert BPU and Rate Counsel would allow for more effective oversight and planning of the state's public utilities.

*Facing Our Future* recommends the following:

- Redefine the mission of the BPU to be proactive in long-term planning of the electric power system. The New Jersey Energy Master Plan can and should be a document that both guides private investment and allows the BPU to articulate what needs to be done to insure the reliability of utility service
- Acknowledge and address the need for long-term stability among the executive leadership and the politically appointed membership of the BPU
- Require that appointees to the BPU include individuals with relevant government, scientific, legal or academic experience
- Restructure the compensation policy for professional BPU employees in order to attract and retain individuals with appropriate academic training and/or experience in public

policy, economics, law and related scientific fields. There are other public agencies that provide more competitive salaries and can serve as models for the BPU, including the School Development Authority, the Economic Development Authority and Casino Reinvestment Development Authority

- Adopt post-employment restrictions to prevent a brain drain of BPU employees to the benefit of the state's public utility companies or their legal advisors and consultants
- Require the BPU to develop specific performance standards for the EDCs for each sector of the distribution system, including the protection of critical infrastructure, emergency preparedness and operations, facilities design and operations, communication coordination, personnel performance and training and system restoration

## Section 4 - Transportation

New Jersey citizens and taxpayers face a major decision concerning the state's 21st century transportation infrastructure. One possible choice helps to ensure the well-being of our children and grandchildren. That choice also supports New Jersey's future environmental and commercial needs. If this is the decision, New Jersey citizens and taxpayers need determination coupled with creative and innovative thinking; they also must plan for – and make – the significant increase in infrastructure investment needed to make that decision a reality.

The other choice, one of complacency and inaction, is unacceptable. It means increasing congestion, expanding time spent in traffic, reducing time spent with family, multiplying the number of missed deliveries, and growing frustration. If we choose complacency, we can only expect a reduced economic prosperity, the loss of more New Jersey jobs, and a greatly diminished quality of life.

A positive choice for the future should provide us with goods and services readily available to everyone at affordable prices, and provide for efficient movement of New Jersey's agricultural products and manufactured goods to world markets. Every resident should have access to the state's wealth of recreational and cultural opportunities. New Jersey must push technological frontiers to make travel safer and more reliable for everyone, while reducing energy consumption, limiting negative environmental impacts and minimizing undesirable quality of life conditions.

### *Vision for Transportation Infrastructure*

A 21st century transportation infrastructure that ensures New Jersey's economic success begins with a common vision:

- **Attain a condition of good repair for all components of our transportation system:** The first priority for New Jersey's transportation network should be to preserve and repair its already in-place system of highways, transit and rail. For highways, deferring routine maintenance will no longer suffice where facilities have been in service 40 to 50 years. Pavement foundations must be rebuilt, and many bridges rehabilitated or replaced.

### An Example: Generations of Transportation Investment, Maintenance and Repair The Pulaski Skyway

*The Pulaski Skyway is scheduled for closure for up to two years. Although the long-term benefits of an improved Pulaski Skyway will be positive, the immediate and direct impact of this closure will be increased congestion, rerouted traffic onto local streets and increased driver costs in fuel and frustration. A principal cause of this multi-year closure is New Jersey's history of deferred investment and delayed maintenance and repair.*

*The New Jersey Department of Transportation and the Port Authority of New York and New Jersey are investing \$1 billion to grant a second life to the Pulaski Skyway, an 80-year-old bridge. Work is expected to start after the 2014 Super Bowl.*

*Built for \$20 million — roughly \$3.2 billion today — the 3 1/2-mile skyway has remained an important gateway to Manhattan via the Holland Tunnel. The highway contains multiple spans that cross local roads, railroad tracks and the New Jersey Turnpike, including two spans that run for 550 feet over the Hackensack and Passaic rivers.*

*Some \$90 million in patches have been made in the last seven years. Engineers considered scrapping the deficient, obsolete skyway, but determined that it would only exacerbate traffic problems — the roadway now carries 67,000 vehicles a day on Routes 1 and 9. When completed in 1932, it was called "the highway of the future" because it promised to do exactly what the interstates are supposed to do today — reduce travel time, especially for trucks.*

Many structures need modernization to support heavier truckloads, faster design speeds and traffic growth. As this reconstruction work gets underway, disruption must be minimized for the traveling public.

For transit, many bus and rail maintenance facilities will need updating. Stations, tracks and bus shelters will need refurbishing; bus fleets and rail will need replacing. Because of increased demand, the public transit system will need to be modernized and its capacity expanded.

- **Eliminate commuter and goods transport delays during peak travel periods:** Congestion is the most debilitating characteristic of a transportation system. Transportation delays reduce quality time with our families, add unnecessary cost for goods and services, pollute our environment, and increase the probability of accidents and fatalities. Regardless of transportation mode, congestion makes New Jersey less competitive globally and encourages inefficient land use through sprawl.

Congestion has perplexed engineers and planners for decades; New Jersey must address it now, and in a more holistic way to ensure an economically competitive future. We have been a national leader in a multimodal transport approach, in using buses, cars, rail, bike paths and other means of transportation. Due to increases in population, development patterns and new goods distribution demands, we have stretched and exceeded our current models. Congestion has also shown itself in other ways such as over-weight trucks, standing-room trains and buses, and abandoned or under-utilized freight rail lines.

Congestion can be addressed successfully if New Jersey embraces and aggressively applies demand management techniques that include transportation and land use planning, adaptive traffic signal systems, rapid bus transit and telecommuting. In addition, we must all work cooperatively to allow for rail transit and strategic highway expansion in commercial and residential growth areas.

- **Zero fatalities – a goal New Jersey can live with:** Zero fatalities may seem unattainable and unrealistic, but each of us already has that goal when it comes to our families and loved ones. A paramount duty of public officials is to provide for the safety and well-being of New Jersey's 'family' – its residents and visitors. Whether by car, train, bus or other means, transportation fatalities are preventable, not inevitable. They are the leading cause of death for children, for teens, and in fact for everyone between 3 and 33 years old.

Although most people tend to think of transportation safety in terms of automobiles, buses and trains, the vision must include reduction of pedestrian and bicycle fatalities.

*The Urban Land Institute report "Infrastructure 2007" described the following: "Mature economies with established but aging infrastructure networks face gargantuan bills for deferred maintenance on roads, water systems, dams, and electric grids. Retooling systems – building rail corridors and incorporating mass transit – will require huge additional capital outlays that many governments are not prepared to pay. Americans only start to recognize a potential crisis and continue to put off the day of reckoning. Caused by two decades of under-spending, 'a yawning budget gap' swallows initiatives to fund deferred maintenance."*

With increasing inner city gentrification, pedestrian and bicycle volumes are increasing and so are fatalities.

To reach the goal of zero fatalities for any means of transportation, we must alter the public's current perception that transportation fatalities are an inevitable reality. Instead, by making minor changes to our behaviors, our system will become safer for drivers, pedestrians, passengers and public transit users. We can prevent the deaths of thousands of people.

- **Implement the most effective business model to provide reliable transportation services at the lowest possible cost for our customers:** Transportation is a complex business. Like other business enterprises, the transportation business model must change and adapt to a changing environment and evolving customer demands. Complacency in addressing organization and business models is just as detrimental as complacency in meeting infrastructure and service deficiencies. Although New Jersey's transportation enterprise has evolved over the years, it essentially has remained unchanged for more than 30 years – since the incorporation of NJ Transit in 1983.

In the past, New Jersey has been a leader in transportation services. Nonetheless, New Jersey must recognize and address systemic problems in the state's long-term fiscal health; to accomplish this will require committed, multimodal planning, engineering and implementation. Additionally, it will require a consistent, integrated approach across all modes of transportation. New Jersey is not unique: the 'silo-effect' of the individual modes and agencies is widespread across the globe – one agency to handle rail, another to address train, another to address roadways – yet the 'silo-effect' creates unnecessary competition among them. The competition produces less than perfect solutions that favor an agency rather than the customer.

The transportation business model must also reflect and respond to the condition of its customers. New Jersey's families and businesses live with intense economic pressures; it is essential that we provide their transportation services with reliability, safety – and at the lowest possible cost. With this in mind, New Jersey's citizens should ask whether the current multi-agency, modal business model is the best structure to achieve the goals of the transportation vision – at the lowest cost. Perhaps it is time to treat our public transportation business like the public benefits corporation that is accountable for planning, financing and providing the roads and rail systems necessary to meet resident and business needs. This public benefits approach would require the corporation to justify not only its transportation project and service needs, but to justify its business model and funding requirements. The results: a more efficient transportation service delivery system and a better public appreciation of transportation as a service.

## Understanding New Jersey's Major Transportation Organizations

There are numerous departments, agencies and authorities integral to delivery of transportation services to New Jersey's citizens and travelers. Although each operates largely as a separate organization, collectively they deliver all transportation and transportation-related activity in New Jersey. As shown in Figure 6, they are:

**Figure 6: Major New Jersey Transportation Organizations**



- **New Jersey Department of Transportation (NJDOT):** Responsible for maintaining and operating New Jersey's highway and public road system, planning and developing transportation policy and assisting with rail, freight and intermodal transportation issues
- **NJ Transit:** The nation's third largest provider of bus, rail and light rail transit, linking major points in New Jersey, New York and Philadelphia
- **New Jersey Turnpike Authority:** Maintains the NJ Turnpike and the Garden State Parkway; the Turnpike is the 6th busiest toll road and is one of the most heavily traveled highways in the nation
- **South Jersey Transportation Authority (SJTA):** A quasi-private agency managing transportation-related services in six South Jersey counties, including the Atlantic City Expressway
- **New Jersey Motor Vehicle Commission (MVC):** Responsible for license, registration, title, driver testing, violation or other general motor vehicle issues
- **New Jersey Transportation Trust Fund Authority:** An independent state government agency financing the cost of planning, acquisition, engineering, construction, reconstruction, repair, resurfacing, and rehabilitation of the state's transportation system
- **Port Authority of New York & New Jersey:** A bi-state agency that builds, maintains and operates critical bridges, tunnels, terminals, ports and airports linking New York and New Jersey

To the public, perhaps the least well known of the above entities is the New Jersey Transportation Trust Fund Authority, created in 1984. The Transportation Trust Fund, the Authority's financing vehicle, issues sufficient bonds to fund NJDOT/NJ Transit capital program expenditures (infrastructure investments) previously requested and authorized by the New Jersey State Legislature. The level of bonding needed is based on the Authority's appropriation revenues and current debt schedule (see *Appendix 4: Transportation Trust Fund Financing*).



## Connecting Transportation with Customers ... and Transportation as a Business

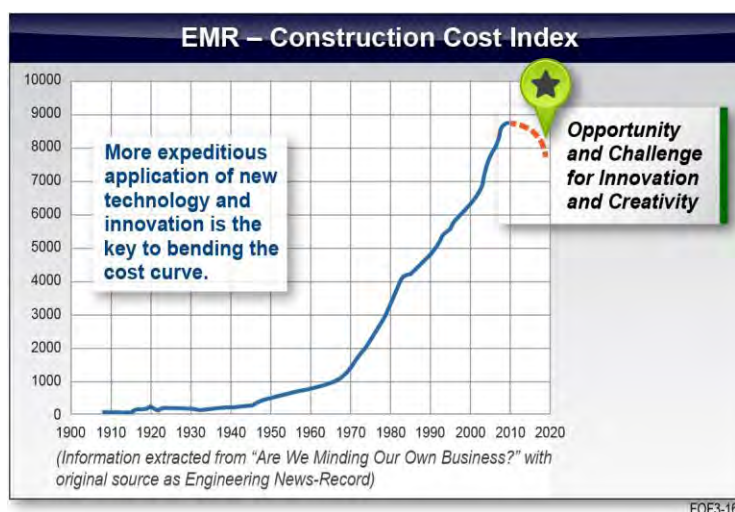
New Jersey has an opportunity to use the recent experiences of Sandy, flooded trains, closed roadways, extensive detours, and days of no bus, rail or car transit, to tap into how transportation affects our everyday lives and to understand its impact on economic success. In short, Sandy provides an opportunity to look forward; each personal experience provides an effective connection and window into understanding what is needed for a working transportation network.

*Although New Jersey's need for significant financial investment in its transportation network is towering, there is another, non-financial – need. Actually, it is an opportunity. We have the opportunity to rethink how we want to provide transportation services for a 21st century economy*

To start, we need to look objectively at the business of transportation, and determine how we can provide services at the lowest cost. Unfortunately, New Jersey hasn't looked comprehensively at the business of transportation since 1983 and the creation of NJ Transit. Every one of New Jersey's transportation-related agencies or authorities has challenges. Resources – both public money and physical materials – continue to be scarce. Can we look at the business of transportation and think of it as a commodity – a public utility like a public benefits corporation, regulated by an independent, appointed Board rather than annual budget approval by elected officials. Would this provide a more secure base from which transportation services could be provided to customers? Are there ways we can increase accountability – and responsibility – to customers? Are there ways we can be more efficient in staffing, purchasing, planning?

Figure 7 provides an illustration of the importance of applying technology and innovation to reducing costs. Figure 8 provides examples of the percentage increase in costs for basic transportation-related items. Figure 9 looks at how we can rethink and change the transportation business model to support New Jersey's economic growth. Together, they illustrate the importance of cost reduction – and the imperative for transportation technologies and innovation.

**Figure 7: Bending the Cost Curve**



**Figure 8: Examples of Rising Transportation Costs**

Did You Know...	
Item	Average Annual Increase (1990-2009)
Ton of asphalt	8.4%
Square yards of slurry seal	6.0%
Construction Cost Index (CCI)	4.5%
Consumers Price Index	3.2%

FOF3-17

**Figure 9: Changing the Transportation Business Model**



### ***Transportation Investment Needs in Plans and Reports***

There are two reports used by the New Jersey Department of Transportation (NJDOT) to determine statewide transportation infrastructure planning – and therefore, investment:

- **Statewide Investment Capital Investment Strategy (SCIS)** – Based on projected revenue levels but not based on actual need, the SCIS evaluates the budget required to bring the state’s transportation infrastructure into good repair
- **State Long Range Transportation Plan 2030 (LRP)** – Establishes a vision and policy framework, sets forth strategies, provides a structure for guiding investment and identifies financial resources. The LRP projects needs absent funding constraints

There are also several regional and specialty plans that guide NJDOT’s planning:

- Comprehensive Strategic Highway Safety Plan
- Comprehensive Statewide Freight Plan
- North Jersey Transportation Planning Authority (NJTPA) Regional Plan
- Delaware Valley Regional Planning Authority (DVRPA) Transportation Plan
- South Jersey Transportation Planning Organization (SJTPO)
- Capital Plan for NJ Transit (note: included in the SCIS)

Despite all these plans and reports, it has been 10 years since New Jersey last took a serious, comprehensive look at its transportation needs, that is, actual needs for future infrastructure investment without restriction to available funding. That plan was the 2003 Blue Ribbon Commission Report, and it estimated that more than \$4.6 billion was required from 2003 through 2013 to keep New Jersey

*In a 2010 report prepared by the New Jersey Association of Counties, overall county and local needs were estimated to be \$800 million annually. Historically, local and county allocations from the Transportation Trust Fund have averaged less than 15 percent of annual expenditures. In a time of restricted funding at the local and county level, the allocation for local aid must be reevaluated. County and local governments are responsible for more than 70 percent of the state’s bridges; more than 75 percent of the state’s lane miles and 55 percent of the vehicle miles travelled.*

economically competitive. Because of other priorities and decisions, New Jersey did not make all of that investment.

In the absence of a more recent, comprehensive report – an updated Blue Ribbon Commission Report – there have been numerous independent reports and studies, each estimating a different figure and level of required annual investment for New Jersey’s transportation infrastructure. The numbers have ranged from as ‘little’ as \$1 billion a year to \$2 billion. That number, however, is for new investment, not current operations, and assumes the continuation of existing funding levels from federal and state government sources. Because of the current environment of declining budgets, spending cuts and deficits contrasted with rising costs and increased service demand, the assumption is an unlikely one. Additionally, the range of possible investment does not reflect the county or municipal needs, a minimum \$514 million.

Like the importance of reliability in electric power, transportation infrastructure investment requires consistency to encourage economic competitiveness. Suppliers need to move goods on efficient roads and rails. Retailers need access for customers. Employers, and their employees, need access to roads and transportation networks that are safe, efficient and reliable. Without a serious and comprehensive review of transportation needs, New Jersey cannot plan for the necessary investment.

### ***Organizing Information for a Common Basis of Understanding***

Please see [Appendix 3: Sources and Reference Materials](#). More than fifty individual links that supported data collection and analysis are available online at [www.facingourfuture.org](http://www.facingourfuture.org). Unless noted, the information in the following subsection is extracted from the Summary Document prepared for *Facing Our Future* entitled “Infrastructure Issues and Needs in New Jersey”.

As presented in the Statewide Investment Capital Investment Strategy (SCIS), the annual investment target for all transportation infrastructures assumes flat funding and estimates a requirement for approximately \$3.3 billion annually through 2021. Table 2 presents the SCIS transportation construction plan for 2012 through 2021, and represents only the projects that can be funded – not the total number of projects that need infrastructure investment.

**Table 2: Transportation Construction Plan (2012-2021)**

Category	Desired Statewide Annual Investment Target \$ (millions)	10-year Total Need \$ (millions)
Road Assets	\$261.49	\$2,614.90
Congestion Relief	477.89	4,778.90
Bridge Assets	771.09	7710.90
Local System Support	406.16	4,061.60
Safety Management	127.19	1,271.90
Mass Transit Assets	1,066.94	10,669.40
Multimodal	45.2	452.00
Airport Assets and Aviation Support	17.7	177.00
Transportation Support Facilities	82.1	820.50
<b>TOTAL</b>	<b>\$3,255.71</b>	<b>\$32,557.10</b>

The second of the two reports used by NJDOT to determine statewide transportation infrastructure planning is the State Long Range Transportation Plan 2030 (LRP). Developed in 2008, the LRP projects transportation infrastructure investment needs for NJDOT and NJ Transit through 2030 are \$200 billion for maintenance, operations, renewal and replacement of assets. Of the \$200 billion, approximately \$80 billion is needed from 2012 to 2021 as follows:

- \$48 billion for road and highways
- \$32 billion for mass transit projects, including new buses and rail cars, maintenance, renewal of bus routes, rail lines, sidewalks and shelters

Note that a portion of this estimate includes the now cancelled major expansion of New Jersey's commuter rail line, the Access to the Region's Core (ARC) project. Therefore, the next iteration of the Long Range Plan may present somewhat lower estimates.

To provide a common basis of understanding, the *Facing Our Future* report uses the State Long Range Transportation Plan 2030 (LRP) number of \$80 billion as the basis of projecting a transportation infrastructure investment number. However, this number was developed in 2008 and, as mentioned, includes the now-cancelled ARC. *Facing Our Future's* supplemental research into needs during the period of October 2012 through March 2013 suggests that the long-range projections for New Jersey's transportation infrastructure are \$21.3 billion for the immediate period of 2014 through 2018. This number provides for the short-term, critical needs of NJDOT and NJ Transit and includes a shortfall of \$1.513 billion a year for short-term needs through 2018) because there are not enough funds to meet the actual transportation investment need. This projection is for state transportation needs only, and does not include an anticipated \$514 million for transportation infrastructure investment by local governments.

To complicate this picture further, NJDOT may have higher investment needs now. After many years of deferred improvements and maintenance – resulting from extended years of funding constraints – many projects have reached the critical point where they must be addressed. NJDOT is making improvements, but there is a significant gap between current work and the total amount required after years of deferred improvements.

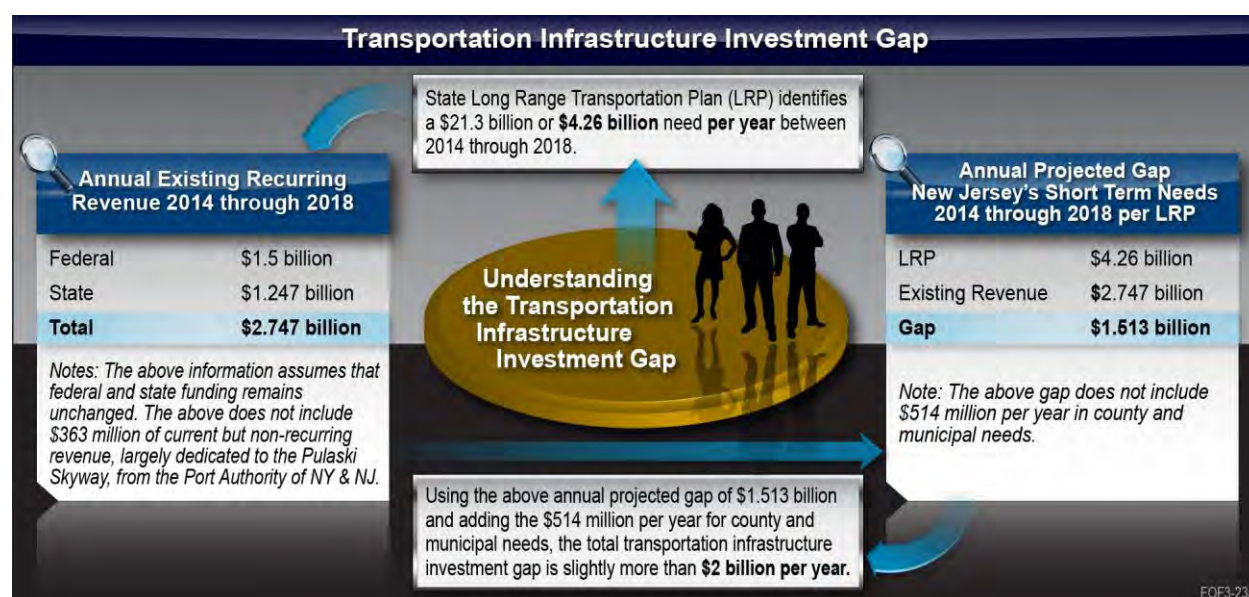
Lastly, NJ Transit's inventory of current needs and funding levels includes the cost of critical, short-term needs – such as the state of good repair requirements. However, the funding levels do not address monies for new initiatives. Thus, NJ Transit will be able to maintain its system in a state of good repair for the next five years, but has no funds to expand the system.



## Findings

The gap between what is needed to invest in New Jersey's transportation infrastructure – for an efficient, 21st century transportation network – and the amount we have been spending and continue to spend on the network is a minimum of \$1 billion to \$2 billion a year as shown in Figure 10.

**Figure 10: Transportation Infrastructure Investment Gap**



The transportation infrastructure investment gap grows with each passing year, each delayed project and each maintenance deferral. Remember that transportation infrastructure investment typically is viewed for the long-term – 20 years or more. New Jersey's need for significant financial investment in its transportation network is substantial, but also presents an opportunity to rethink how we want to provide transportation services for a 21st century economy.

No matter which of the myriad reports and plans reviewed for the Facing Our Future analysis, one fact remains: the level of investment needed for New Jersey's transportation infrastructure is significant. New Jersey cannot plan or effectively invest without a comprehensive – and updated – review of long-term transportation needs. Furthermore, transportation investments should be determined not just through individual department or agency plans, but must be coordinated with state and local governments – and reflect the state's long-term economic goals contained in an updated State Strategic Plan.

## Sources for Transportation Funding

As stated previously in this section on transportation infrastructure, all of the projections for New Jersey transportation infrastructure funding assume a long-term level of both federal and state funding that is unlikely and unpredictable. Therefore, New Jersey should explore both new ways of funding transportation and cost savings that result from innovations in the ways that New Jersey delivers transportation services to its customers.

While the majority of funding for transportation does not occur at the federal level, federal efforts and involvement are well known. The federal government provides New Jersey with approximately \$1.5 billion annually through a mix of formula grants, revolving loan programs, specific appropriations and competitive grants to further national infrastructure goals. The Highway Trust Fund, largely funded by the 18.4 cents per-gallon federal gas tax, will see a 21 percent decline in its revenue by 2040. Congress has transferred \$48 billion from the general fund to the Highway Trust Fund over the last four years to shore up its dwindling balances, a trend that could continue unless significant changes occur.

Another federal program, the American Recovery and Reimbursement Act of 2008 (ARRA), awarded federal funds to state and local transportation energy and environmental infrastructure projects. Although ARRA provided incremental help, it did not significantly reduce short term needs. ARRA funds were non-recurring.

It is reasonable to assume that the future will bring constraints on federal government spending. This would significantly and negatively harm states, especially New Jersey. The result would be that New Jersey' state and local governments would be forced to rely on their own funding to address infrastructure needs. New Jersey's long-term systemic fiscal problems make this scenario improbable.

Existing sources of funding need to be reviewed to reflect 21st century changes. New Jersey's Transportation Trust Fund is financed primarily by bonds (see *Appendix 4: Transportation Trust Fund Financing*). An additional source is a pay-as-you-go contribution from state government – largely driven by revenue generated from the gasoline tax. Motor vehicle fees and sales tax revenues dedicated to transportation generate additional revenue. During the five-year period of FY2012-2016, the Transportation Trust fund contribution to the total transportation capital construction program is estimated to be \$8 billion.

In May 2012, the NJ State Treasurer indicated that \$260 million in proposed pay-as-you-go contributions would be deferred for one year, rather additional bonding would be used for FY2013. Although the change had no impact on the total dollars allocated, future contributions from the Transportation Trust Fund will be constrained.

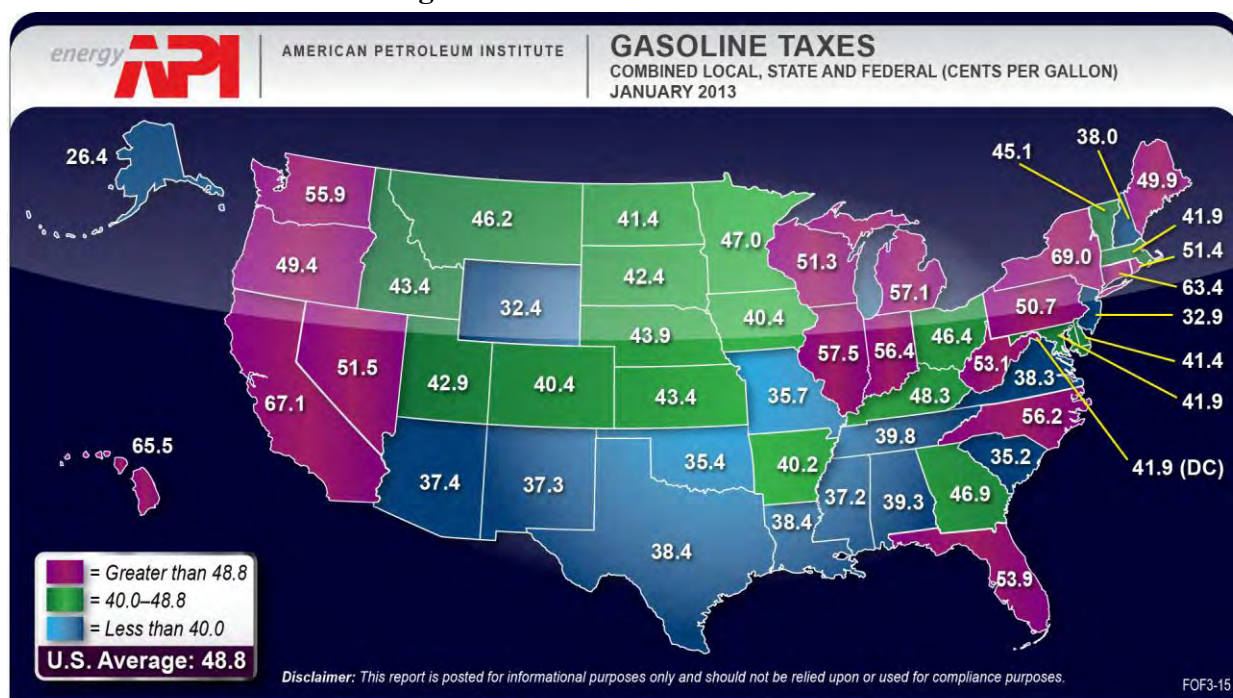
As another example of the need for reevaluation, *Facing Our Future's* review shows that current revenues appropriated to the Transportation Trust Fund cannot support a \$1.6 billion capital program. In considering the Transportation Trust Fund Authority's financials for this report, we found that the current funding level can only support a capital fund program of approximately \$1.25 billion – with the remainder coming from the Port Authority of NY & NJ. Additionally, it is unclear what size capital program can be supported by the Transportation Trust Fund. Because debt service of \$1.044 billion will remain at that level until 2024, using the current appropriations of \$1.095 billion, we find that it is likely that almost all revenues will go to pay debt. Appropriation resources, therefore, will require supplementation by interest earnings and bond premiums to achieve a satisfactory pay-as-you-go amount (currently generated largely by the gasoline tax).

The amount of gasoline tax generated relates to the number of miles driven. As fuel efficiency increases, the number of gallons sold decreases. As alternative ways of transportation develop –



and as lifestyles change – fewer miles are driven using gasoline. New Jersey currently has one of the lowest gasoline taxes in the nation and has the lowest gasoline tax in the northeast region. According to the American Petroleum Institute, New Jersey’s 14.5-cent per gallon gasoline tax is the third lowest in the country; it is nearly 16 cents lower than the national average, and far below our neighbors in New York and Pennsylvania as shown in Figure 11.

**Figure 11: National Gasoline Taxes**



Because of the inelasticity of the gasoline tax, at least two other states, Virginia and Oregon, have explored alternatives to their gasoline taxes. Virginia has considered elimination of its motor fuels tax and recently voted to apply its sales tax to motor fuels. Oregon is only one location piloting a vehicle miles travelled (VMT) fee. A vehicle miles traveled fee (VMT) would help address a fundamental challenge facing both state and federal gas taxes; as vehicles become more fuel-efficient, gas taxes generate less money for road construction and maintenance. Although a vehicle that gets 50 miles-per-gallon might be better for the environment than a less fuel-efficient model, it may be worse for transportation funding because it contributes just as much to congestion and roadway wear-and-tear as any other passenger vehicles but contributes substantially less revenue.

## Recommendations

Based upon the previous data and analysis concerning investment needs across all modes of transportation, and sources for funding, *Facing Our Future* recommends the following:

- Commit to a comprehensive and updated look at transportation needs. Without it, New Jersey cannot plan for investment. Transportation investments should be determined not just through individual plans, but should reflect a coordinated state and local government

approach along with long-term economic goals contained in an updated State Strategic Plan.

- Establish a public connection with transportation's customers about how infrastructure investments benefit them in their everyday lives. Unless and until there is a public connection with transportation's customers about how infrastructure investments will benefit them in their everyday lives, transportation fails to be truly relevant. Identify ways in which transportation can better connect with customers. It is time to look at transportation as a business, and determine how to provide services at the lowest cost.
- Consider viewing transportation as a public utility or a Public Benefits Corporation, treating transportation as a commodity or business service. In this way, transportation investments and services, and the financing needed to support them, could be regulated by an independent, appointed Board rather than through annual budget approval by elected officials. This new organizational approach can lead to cost effective planning and efficient provision of transportation services, and also to the funding necessary to maintain and expand transportation services. Through such an organization and with an increased level of public confidence, transportation would be better positioned as a critical economic development tool.
- Replenish funding for New Jersey's Transportation Trust Fund. Specifically:
  - Discontinue use of the Transportation Trust Fund to balance the State Budget. Over the five-year period (FY2012-2016) the Trust Fund contribution to the total transportation capital construction program is estimated to be \$8 billion.
  - Renew the Transportation Trust Fund in FY 2017 for at least \$8 billion over five years. This minimum amount implies that the NJDOT/NJT state funded-capital programs will remain unchanged (\$1.6 billion) for fifteen years (2006-2021). (NOTE: There is no specific expiration date for the current capital program that authorizes spending through FY 2016. The current statute limits the Commissioner of Transportation to requesting no more than \$1.6 billion annually.)
  - Raise the motor fuels tax. New Jersey has one of the lowest gasoline taxes in the country and the lowest gasoline tax in the northeast region. New Jersey's gasoline tax is the third lowest in the country and nearly 16 cents lower than the national average; New Jersey's gas tax has not been increased in 21 years. However, due to the inelasticity of the tax, it should only be considered as a short-term fix.
  - Explore and adopt more elastic sources of revenue. Revenues generated by the motor fuels tax are declining. Other jurisdictions, including Virginia (elimination of the motor fuels tax and replacement with a sales tax) and Oregon (implementation of vehicle miles traveled (VMT) fees) are exploring alternative sources of revenue.
- Anticipate and adapt to funding changes. All of the funding projections required for transportation infrastructure investment assume a level of both federal and state funding that is unlikely and unpredictable. Currently, New Jersey receives approximately \$1.5 billion annually in transportation funding from the federal government. A reduction in this traditional source of funding further imperils the ability of transportation to support future economic competitiveness.

## Section 5 - Water Systems Infrastructure

New Jersey must have continued access to a safe and plentiful supply of water. Responsible management of water and water supply addresses our most basic human needs. It follows that how New Jersey manages its water, especially its drinking water supply and wastewater infrastructure, will either facilitate or restrict both quality of life and future opportunities for economic growth.

New Jersey must make the investments necessary to ensure safe and adequate supplies of water for residential, commercial, industrial and recreational purposes. At a minimum, future economic growth and redevelopment require additional capacity to treat wastewater and stormwater. These investments will create opportunities for sustainable growth and help protect public health and the quality of life for all of New Jersey's residents and businesses.

Inertia would be catastrophic and create unacceptable water shortages, endanger public health and restrict economic growth. While no responsible society knowingly chooses this path, we will face the consequences of our inability to make the necessary investments at the right time. The choice is ours to make – whether gradually to reach the limits to growth and prosperity as our precious water supplies dwindle, or purposefully to act now to create the foundation for our future.

### *Vision for Water Systems Infrastructure*

To achieve a 21st century water systems infrastructure and to ensure New Jersey's economic success, we must:

- **Ensure a safe and adequate supply of public drinking water:** The most compelling duty of government is to provide for the basic needs of its citizens, and almost no need is more basic than access to safe and plentiful drinking water. Meeting this need requires a two-fold commitment: to safeguard our sources of water and to develop the facilities necessary to store and deliver safe drinking water.
- **Provide the water supplies and wastewater treatment capacity to foster economic growth:** Beyond providing public drinking water, we also must provide adequate supplies for agriculture, a wide variety of commercial and industrial activities, and recreation and tourism. It is hard to imagine any small business or corporation choosing to remain, much less expand, in New Jersey if an adequate supply of water is not assured. Nothing will stifle economic growth faster than any one or all of the following: a ban on new connections to a wastewater treatment facility; the prospect of inadequately treated sewage fouling our waterways; or poor stormwater management causing widespread

#### Understanding Water Systems Definitions

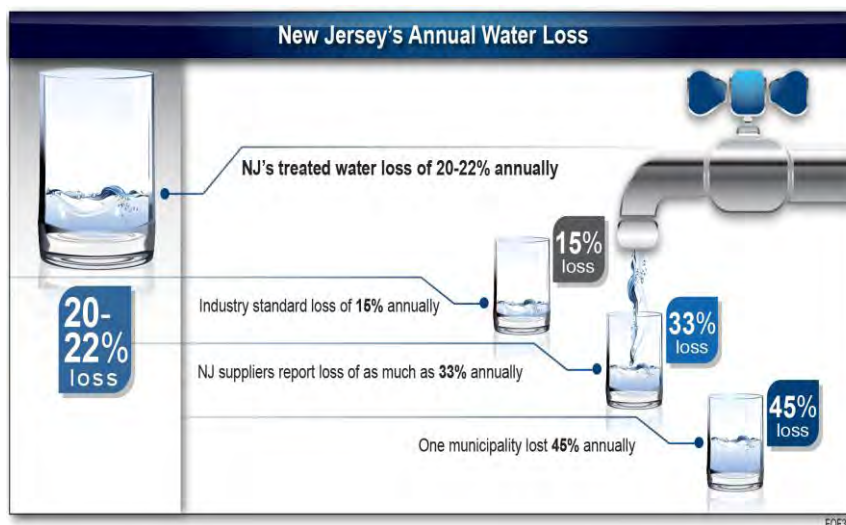
- **Water or Water Supply:** Water supplies used for public drinking water purposes
- **Stormwater:** Runoff from impervious surfaces and developed areas which flow into surface waters, often laden with nutrients, debris and other contaminants
- **Wastewater:** Water which has been used for residential, commercial or industrial purposes and is no longer appropriate as a source of public drinking water
- **Sewer or Sewer Treatment:** Infrastructure used to transport wastewater from its origin to a facility for treatment
- **Open Space:** Undeveloped areas which are used for recreation or conservation purposes

flooding damages. Nevertheless, these scenarios are exactly what we can expect when we defer meeting our water infrastructure needs.

- **Make the public and private investments today to avoid significantly higher costs tomorrow:**

As our infrastructure ages, the amount of water that is lost to leakage rises substantially – and New Jersey already loses a minimum of 20 to 22 percent of its treated water

**Figure 12: New Jersey's Annual Water Loss**



annually from leaking pipes. As shown in Figure 12, the industry standard is a loss of 15 percent, and New Jersey water suppliers report losses of as much as 33 percent. As recently as 2009, a state audit found that 45 percent of one municipality's drinking water could not be accounted for and was 'more comparable to that of cities in developing countries'. It is significantly less expensive to address the leakage rather than to build new water systems from scratch. Additionally, aging pipe infrastructure also leads to frequent water main ruptures. Although investments in water infrastructure can be costly, deferring investments makes the costs increase dramatically.

In addition, some investments can help avoid significant future costs. For example, New York City has embarked on an effort – and has spent more than a billion dollars – to preserve watershed lands in the Catskills through fee simple purchases and conservation easements to prevent the development and degradation of these lands. As a result, New York City can avoid as much as five-fold higher costs to build the water treatment plants that would be required to meet legal drinking water standards if those lands were to be developed.

That is exactly why *Facing Our Future* recommends continued investments in the preservation of watershed lands. While such purchases are only one aspect of overall open space and farmland preservation needs, we are recommending investments to protect our watersheds and avoid future costs.

For similar cost-avoidance reasons, we also recommend investments in water conservation. Programs to encourage water conservation on all levels are necessary to address New Jersey's water needs. Ensuring adequate supplies of water does not mean encouraging wasteful use of water; we simply can no longer afford the luxury of using our water resources unwisely or inefficiently.



## Water Systems Infrastructure Investment Needs

New Jersey has long been in the forefront of a handful of states in protecting water quality, developing reliable supplies of water, and ensuring adequate wastewater treatment capacity. We have enacted and implemented visionary laws and regulations to meet our water requirements but we cannot rest on our laurels lest our ability to meet basic human needs and foster economic

growth diminishes to the point of crisis. Potentially, New Jersey is already at that point. In its Clean Watersheds Needs Survey to Congress for 2008, the US Environmental Protection Agency identifies New Jersey's need for major water systems infrastructure investment in five areas; as shown in Figure 13, the need for stormwater management is the most urgent.

*The American Water Works Association, American Society of Civil Engineers, the US Environmental Protection Agency and numerous public advocacy watchdog groups have all identified New Jersey's aging infrastructure as an area for concern.*

**Figure 13: New Jersey's National Ranking in Water Systems Infrastructure Needs**

By the numbers, New Jersey's water and water-related infrastructure <b>needs</b> are ranked nationally as....	
<b>1st</b>	by a wide margin in Storm Water Management needs (\$15.6 billion)
<b>2nd</b>	in Combined Sewer Outflow Correction needs (\$9.3 billion)
<b>3rd</b>	in Decentralized Wastewater Treatment needs (\$2.2 billion)
<b>4th</b>	needs to repair and improve its Secondary Treatment and Advanced Treatment infrastructure (\$6.3 billion)
<b>4th</b>	in Nonpoint Source Pollution Control needs (\$1.8 billion)

FOF3-19a

Clearly, New Jersey must act now to invest in the significant backlog of water infrastructure needs before the lack of safe water and the inability to manage wastewater and stormwater preclude new economic opportunities.

Although *Facing Our Future* has focused on water systems infrastructure as the most critical component of water infrastructure investment for successful economic development, we also reviewed investments in open space preservation that serve to preserve water quality and quantity. Why are these areas important? What is the impact of Sandy upon New Jersey's water systems infrastructure?

New Jersey's loss of treated water from leaking pipes is typically not the result of historic weather events; it is the result of leakage from failing infrastructure and failure to repair and maintain that infrastructure. This loss costs money, and is reflected in every water bill. The loss affects our ability to ensure the reliability of water for home and commercial consumption. As a resource, water cannot be manufactured but can only be used, preserved or recycled. Nationally and globally, critical fresh water supplies are in alarming decline; in parts of the country and the world, fights over water supplies are beginning or are well underway. Through good planning and execution in the 1980s, New Jersey connected its water supply systems, thereby enabling the sharing of water in times of localized droughts. Nevertheless, there is a finite water supply, and it is imperative to use water wisely and conservatively. Therefore, reducing our water loss has a



direct impact not only on the cost of water, but also on our health, our quality of life and our economic future.

Open space preservation – another critical area of investment – preserves water quality and quantity. The natural areas around water reservoirs act as sponges to capture, hold and release rainwater to those reservoirs, and act as filters to help prepare the water for drinking. As a result, capital costs for filtration and treatment of drinking water are lowered. New Jersey’s ability to remain competitive and provide reliable water supplies requires the purchase of vulnerable properties that can maximize the natural protection of watersheds, and support stormwater management in developed areas.

New Jersey has a variety of water delivery systems that may benefit from a new approach to delivery. Across the state, there are more than 650 water utilities owned by private companies, municipal or other public authority systems, and small community water systems. Within that range of delivery organizations, there are 31 investor-owned water utilities serving approximately 40 percent of the state. Approximately half of the more than 600 community water systems are too small to fall under state regulations. In previous *Facing Our Future* reports, we noted New Jersey’s nearly 1,200 separate state and local governments, and recommended that New Jerseyans rethink the justification for each of the independent jurisdictions. Similarly, we ask whether we can reduce the number of delivery organizations, and specifically whether we can reduce the number of municipal, public authority and small community water systems? Alternatively, can we expand state regulation of small systems?

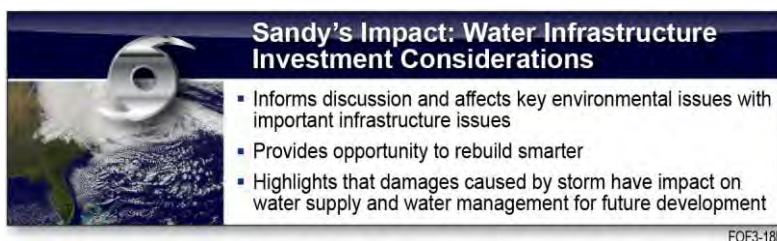
In addition to more traditional capital projects, New Jersey must remain vigilant through use of environmental regulatory mechanisms to preserve and enhance water quality, particularly in those areas of the state where we depend on surface waters (like the Highlands) or on groundwater (like the Pinelands) for current or future public water sources. There is an urgent need to broaden our “green infrastructure”, including a wide variety of relatively low cost and low-tech solutions on a small scale to help preserve water quality, better manage stormwater, and lessen both flooding and combined sewer overflows. As shown in Figure 14, these projects include installing rain gardens, green (vegetated) roofs and pervious pavements, planting native trees and shrubs, as well as larger wetlands, grasslands and reforestation or afforestation projects, all of which can reduce runoff, help prevent the spread of pollutants into drinking water supplies, and increase the recharge of groundwater aquifers. Serious consideration should be given to encouraging the broader use of these techniques by removing regulatory barriers, and providing loans, grants and tax incentives for their use. Green infrastructure projects can make a significant contribution to addressing our water infrastructure needs, while also helping to lower the need for traditional construction projects.

**Figure 14: Examples of Green Infrastructure**



Finally, a competitive New Jersey needs a strong and transparent capital planning process and oversight. There must be clear direction, and publicly available information about that direction. The information needs to be available to planners, businesses, potential investors and other development professionals. The New Jersey Water Supply Master Plan has been under review for more than two years. Although lessons from Sandy must be integrated into that review, New Jersey's long-term growth requires that a plan be updated without further delay. The plan must coordinate with other state or local strategic documents (i.e., the State Strategic Plan, a County Farmland Preservation Plan) and be a long-term guide rather than a document that changes with administrations. Effective planning coordinates across all levels of government and agencies including municipal governments and regional watershed management agencies. As with all other areas of infrastructure, reliability in water systems is needed for economic growth. As New Jersey rebuilds and looks for reliable guidance for these investment decisions, Figure 15 provides several post-Sandy considerations for water systems infrastructure investment.

**Figure 15: Sandy's Impact: Water Systems Infrastructure Investment Considerations**

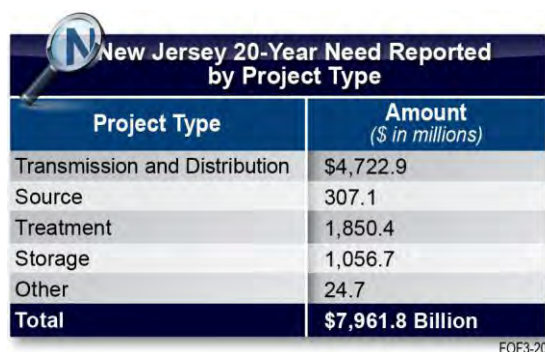


### ***Findings***

Please see [Appendix 3: Sources and Reference Materials](#). More than fifty individual links that supported data collection and analysis are available online at [www.facingourfuture.org](http://www.facingourfuture.org). Unless noted, the information in the following subsection is extracted from the Summary Document prepared for *Facing Our Future* entitled "Infrastructure Issues and Needs in New Jersey".

Using the most recent number available through data collection during *Facing Our Future's* workgroup process, at least \$36.6 billion and possibly as much as \$40 billion was needed in 2008 to fund New Jersey's water systems infrastructure needs. This number represents a 137 percent increase from the \$15.5 billion in needs documented previously in 2004, and includes \$4 billion to address needs associated with rainfall or snowmelt moving over and through the ground. This movement of rainfall or snowfall over and through the ground is known as nonpoint source control: as the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

The Environmental Protection Administration (EPA) estimated in 2008 that New Jersey required \$7.96 billion in capital investments over the next 20 years to install/upgrade/replace New Jersey's drinking water infrastructure. Failure to make these capital investments will only increase the rate of annual water loss from leaking pipes. New Jersey's overall 20-year need by project type is shown in Figure 16.

**Figure 16: New Jersey's 20-Year Needs in Drinking Water Infrastructure**


The figure is a table titled "New Jersey 20-Year Need Reported by Project Type". It features a magnifying glass icon over the letter 'N' in the title. The table has two columns: "Project Type" and "Amount (\$ in millions)". The data is as follows:

Project Type	Amount (\$ in millions)
Transmission and Distribution	\$4,722.9
Source	307.1
Treatment	1,850.4
Storage	1,056.7
Other	24.7
<b>Total</b>	<b>\$7,961.8 Billion</b>

FOF3-20

In that same report, the EPA estimated New Jersey's wastewater treatments needs to be \$16.8 billion, and its general stormwater management needs to be \$15.6 billion. Table 3 presents a combined summary breakdown of these needs for a combined total of more than \$32.5 billion.

**Table 3: New Jersey's Wastewater Treatment Needs**

Category	Need \$ (millions)
Wastewater treatment	\$6,299
Pipe repair and new pipes	2,308
Recycled water distribution	99
Combined sewer overflow correction	8,176
<b>Subtotal Wastewater Treatment Needs</b>	<b>\$16,882</b>
Conveyance infrastructure	\$483
Treatment systems	\$107
Green Infrastructure	\$14,928
General Stormwater Management	\$108
<b>Subtotal Stormwater Management Needs</b>	<b>\$15,626</b>
<b>TOTAL</b>	<b>\$32,508</b>

Finally, open space preservation requires at least \$250 million over the next five years for the protection of watershed lands, which also supports stormwater management needs. This level of investment is consistent with multiple sources including the 1997 Governor's Council on New Jersey Outdoors, more recent studies by the Keep It Green Coalition and other industry experts.

### ***Sources for Water Systems Infrastructure Funding***

In recent months, both before and after Sandy, there has been public and media discussion of expanding buy-outs of particularly vulnerable properties to minimize future damages and create natural buffer areas to protect infrastructure and developed areas. Where this approach is implemented, and where the open space expenditures are targeted against a comprehensive,

coordinated plan, buyouts can eliminate or reduce costs of having to filter or treat public water supplies. Investments in open space support economic growth.

Open Space preservation requires a minimum of \$250 million over the next five years through providing additional funding for the Green Acres Program, either by general obligation bonds or by a dedicated tax.

Through the New Jersey Environmental Infrastructure Trust, New Jersey's Department of Environmental Protection (DEP) can finance approximately \$300 million in project costs each year for any of the projects that are part of the Project Priority List by combining new money and loan repayments. Unfortunately, the estimated total cost of the 117 projects included on the Project Priority List for FY2013 is \$533.6 million, leaving a gap of \$233.6 million.

The US Environmental Protection Agency (EPA) makes \$300 million in federal funding available each year through the following programs administered by the New Jersey Environmental Infrastructure Trust:

- **Clean Water State Revolving Fund:** Provides low-interest loans for water quality protection projects to make improvements to wastewater treatment systems, control pollution from rain water runoff, and protect sensitive water bodies and estuaries
- **The Drinking Water State Revolving Fund:** Provides low-interest loans to finance improvements to drinking water systems, with particular focus on providing funds to small and disadvantaged communities and to programs that encourage pollution prevention as a tool for ensuring safe drinking water

### ***Recommendations***

Based upon the previous data and analysis concerning a vision for water systems infrastructure – what New Jersey needs and why, and analyzing water systems infrastructure needs and sources for funding, *Facing Our Future* recommends:

- Update the New Jersey Water Supply Master Plan. Post-Sandy review of that plan is understandable and important, but New Jersey's long-term growth needs a plan in place.
- Strengthen the water systems infrastructure capital planning process at the state, county and local levels of government. A strong and transparent capital planning process – with oversight – enables a competitive New Jersey. Implement revised stormwater management plans and wastewater plans as currently organized by the Department of Environmental Protection (DEP) and integrate the plans with county and municipal plans. Identify costs of implementation and sources of funding, including developers fees.
- Obtain and increase funding for open space preservation to protect and preserve watershed lands to assure water supply and quality. A minimum of \$250 million over the next five years is required for the protection of watershed lands.
- Maintain and expand regulatory efforts to preserve and enhance water quality in order to avoid a future need for building expensive filtration and treatment systems.
- Upgrade outmoded and inadequate water systems infrastructure through support for initiatives undertaken by private and public water companies through increased fees.

- Consider joint land-use planning as a shared municipal service for post-Sandy redevelopment; use this opportunity to rethink what is needed and what can be supported by public funds available for rebuilding.
- Expand buy-outs of flood-prone vulnerable properties to minimize future damages and create natural buffer areas to protect infrastructure and developed areas.
- Encourage the broader use of “green infrastructure”, including rain gardens, green roofs, pervious pavement, as well as a variety of restoration projects, to help address both stormwater management and water quality issues.



## Section 6 - What's Next?

How we prioritize and fund long-term infrastructure investment determines if New Jersey weathers past – and future – storms, and if we can create economic success for our children.

In addition to the systemic budget problems documented long before Sandy, New Jersey had another overwhelming challenge in its future: failure to invest in the infrastructure needed to move forward in innovation, in capability and toward economic success. If there is a positive outcome from Sandy, it is the personal understanding for all New Jerseyans about why we need roads to be safe, water to be clean and power to be available and reliable. To accomplish these things – to satisfy these priorities –we need to invest in our future.

In our report in 2011 and again in 2012, *Facing Our Future* stated that no level of New Jersey government can maintain the quality of life provided at current service levels. The most robust growth projections used in our earlier analyses ran through 2017, and they remain on track and growing. As before, we need to determine what services we value most at the state and local levels, how and by whom we want those services delivered and how we will pay for them.

Today, we face years of recovery from Sandy, an extraordinary event. But we also face a future without a comprehensive vision and the means to support long-term infrastructure investments necessary to secure our future economic success. If we rethink, and prioritize, responsibly, we can meet these challenges. If not, we face the continuation of our state's inability to compete and thrive. Will we continue the current slow degradation of services and fail to invest in what we require for our infrastructure, including electric power, transportation and water? Or, will we aggressively rethink our priorities and make choices that invest in future next generations?

*Facing Our Future* is an independent effort to build understanding about New Jersey's systemic fiscal problems, to stimulate informed public discussion about the impact of those problems on our state's future, and to trigger action to address the need for change. Through data-driven reports, education initiatives and outreach, we support critical discussion – public conversation – about our priorities as a community.

### The Solution: No Single Action

Neither of the first two *Facing Our Future* reports makes specific recommendations about taxes or revenues, and neither report addresses the fairness of our current tax structure for any individuals, businesses or homeowners. However, both reports – and this one in 2013 – state that no single action can provide a solution.

### IN THIS REPORT

In this report, *Facing Our Future* prioritizes the long-term, critical infrastructure investment areas that are vital to New Jersey's economic future. We identify the funding sources needed to support investment for economic growth. In addition, we try to further discussion and communication about what New Jersey can do to 'rethink' government for increased efficiency and effectiveness in the 21st century. We incorporate important realities: our long-term fiscal situation, continuing gaps in service delivery, and the aftermath of Sandy.

### WHAT REMAINS TO BE DONE

We've not addressed several important areas of infrastructure investment that are needed: higher education, communication and government technology. As before, the *Facing Our Future* Leadership Group still believes that a comprehensive tax policy discussion has to be a part of any discussion – and of our future.

### The Impact

The statewide experience of Hurricane – or Superstorm – Sandy has sharpened citizen understanding about infrastructure, and heightened knowledge about what happens when that infrastructure is unavailable. Without action, New Jersey faces a long-term, non-storm interruption of its infrastructure.

The information presented by *Facing Our Future* (see *Appendix 2: Data Collection and Analysis*) uses existing government, industry and independent reports, analyses, websites, other literature and articles. In addition, the report is informed by the years of experience and perspective of the members of the Leadership Group, and is supplemented through workgroup discussions and briefings with individuals having senior current or past government, academic and/or industry experience. The goal was to develop a unified document that provides a vision for infrastructure investment

in New Jersey, prioritizes long-term infrastructure needs, identifies specific funding needs, and recommends funding sources.

To face the 21st century both short- and long-term, New Jersey's citizens will need to engage in rigorous discussion. That process can inform decisions and help set priorities for investment. New Jersey's citizens and government leaders will need to set these priorities together, and the process will be difficult. It must be based on fiscal reality, comply with constitutional and statutory requirements, and support a common set of values and goals for the future. There must be coordinated plans in place that support long-term goals. The plans must adapt to changing realities, and they must be consistent across administrations and levels of government. Long-range vision and reliability are vital for economic success.

*What happens next?* Our work as *Facing Our Future*, private citizens sharing a public interest, will continue throughout the coming months. First, we will **work through other organizations to engage in an active outreach effort**. As before, our goal is to bring the *Facing Our Future* report to a wide range of citizens and public groups.

Second, we will **seek new and traditional media exposure** to get the message out through the use of social media, op-eds, news collaboratives, editorial boards, webinars and other traditional or new media outlets. We will update our website and Facebook page to bring new information to you, and will continue with the regular e-mail communication 'Options in Action'. We will work to advance discussion of new methods to preserve vital government services, and share ways to make services more efficient – and report on ways in which New Jersey funds prioritized infrastructure investment for future economic success.

Third, we will continue to look for ways to **spark serious, open discussion** driven by our shared value in New Jersey's future economic success. We encourage individuals, organizations and government leaders to brainstorm and consider options and priorities – new ways of doing things for the 21st century – leading us again to a thriving New Jersey.

Whether through *Facing Our Future* or another initiative or organization, we must identify the areas necessary for public investment and economic growth, and seek incentives for

### What Happens Next?

- Work through other organizations to engage in an active outreach effort
- Seek media exposure
- Spark serious, open discussion driven by links to economic success
- Remember that each of us is an essential part of the answer to "What's next?"

governmental effectiveness, efficiency and cooperation. In short, we must focus our collective efforts and redouble them to work together, using comprehensive, consistent and long-term plans that go beyond individual silos or spheres of interest.

Our conclusion is clear: the question of ‘what’s next?’ cannot be directed solely at one effort or one volunteer organization. The question of ‘what’s next?’ must be directed to every resident in New Jersey. Each of us is an essential part of the answer.

### **What Can I Do?**

The core questions critical to our future are clear, and every person can help promote discussion: what are our priorities; how can we create long-term economic success; what infrastructure investments do we need to make for our future; are we organized effectively and efficiently to execute those decisions within all levels of our government: state, county, municipal and school district; and how do we fund those decisions – our 21st century priorities?

Support clear, targeted infrastructure investments – and prioritize them according to updated, long-term plans. Encourage coordination of those plans across levels of government and public interests – break down the siloed approach to investments. Recognize that infrastructure must be funded and that such funding will require new sources. Consider different ideas that are in place elsewhere in New Jersey, or even at other levels of government or in other places. Ask how planning and implementation can be shared or coordinated across levels of government or across different jurisdictions. Continue dialogue and discuss a sensible course of action to address our long-standing, historic and future storms.

## APPENDIX 1: Facing Our Future - The Leadership Group

*Facing Our Future is led by a volunteer bipartisan – and nonpartisan – Leadership Group. The group demonstrates lifetimes of commitment to New Jersey through careers with deep and senior experience in diverse areas of this state and other jurisdictions – including government, law, politics, the foundation community, business and academe. Started in 2010, Facing Our Future builds understanding about New Jersey's systemic fiscal problems and the critical investments needed for future economic growth.*

LEADERSHIP GROUP		
MEMBER	CURRENT POSITION(S)	CAREER HIGHLIGHTS
<b>Nancy Becker</b>	Program Development Associate, Program on the Governor, Eagleton Institute of Politics, Rutgers University; Vice Chair of the Board, Capital Health Systems	President, Nancy Becker Associates 1976/2006; <a href="#">Vice Chair of the Board, NJ Turnpike Authority</a> 1994/2002
<b>William H. Byrnes</b>	Vice President of Grants, F.M. Kirby Foundation; Chairperson, Council of NJ Grantmakers	Program Officer, F.M. Kirby Foundation 2000/2010; previous positions with the Morris County Department of Human Services, Morristown Memorial Hospital, the March of Dimes and the Boys & Girls Club of Trenton
<b>Raphael J. (“Ray”) Caprio</b>	"University Professor" named by the Rutgers Board of Governors to work with the Edward J. Bloustein School of Planning and Public Policy at Rutgers – The State University of NJ	Vice President, Division of Continuing Studies at Rutgers, The State University of NJ; Executive Director, Center for Executive Leadership in Government at Rutgers and Professor of Public Administration; Department Chair (various departments) at Rutgers; Senior Associate Academic Dean at Rutgers' Newark College of Arts and Sciences (NCAS); Acting NCAS Dean, Associate Provost (Newark)
<b>Michael Catania</b>	President, Conservation Resources Inc.; Executive Director, Duke Farms Foundation	Executive Director, The Nature Conservancy of NJ 1991/2003; Visiting Professor, Rutgers – The State University of NJ 1990/1991; <a href="#">Deputy Commissioner, Department of Environmental Services (NJDEP)</a> 1986/1990; Director of Regulatory Services, NJDEP 1982/1986; Supervisor - Energy, Agriculture and Environment Team, Office of Legislative Services 1975/1982
<b>Sam Crane</b>	Principal, CraneConsulting LLC; Trustee, Council of NJ Grantmakers	Senior Vice President - External Affairs, Maher Terminals LLC 2000/2008; President, Regional Business Partnership 1994/2000; <a href="#">NJ State Treasurer</a> 1992/1994
<b>Kathy Crotty</b>	Retired; Visiting Associate, Eagleton Institute of Politics; Trustee, New Jersey Policy	<a href="#">Executive Director, NJ Senate Majority Office</a>



LEADERSHIP GROUP		
MEMBER	CURRENT POSITION(S)	CAREER HIGHLIGHTS
	Perspective	
<b>Christopher J. Daggett</b>	President and CEO, The Geraldine R. Dodge Foundation	<a href="#">Commissioner - NJ Department of Environmental Protection</a> 1988/1989; <a href="#">US Environmental Protection Agency, Regional Administrator, Region 2</a> 1984/1988; <a href="#">Cabinet Secretary to the Governor, NJ</a> 1983/1984; <a href="#">Deputy Chief of Staff to the Governor, NJ</a> 1982/1983
<b>Robert Del Tufo</b>	Of Counsel, Skadden, Arps, Slate, Meagher & Flom, LLP and Affiliates	<a href="#">Attorney General, NJ</a> 1990/1993; <a href="#">Commissioner, NJ State Commission of Investigation</a> 1981/1984; <a href="#">US Attorney for the District of NJ</a> 1977/1980; <a href="#">First Assistant Attorney General, NJ</a> 1974/1977; <a href="#">Director, Division of Criminal Justice</a> 1976/1977; <a href="#">Assistant Prosecutor, Morris County</a> 1962/1967; <a href="#">First Assistant Prosecutor</a> 1965/1967
<b>W. Cary Edwards</b>	Cary Edwards was a life-long New Jerseyan, and an important voice and participant in the early discussions that resulted in <i>Facing Our Future</i> . Cary served as <a href="#">Chairman, NJ State Commission of Investigation, Attorney General, NJ</a> (1986/1989), and as a <a href="#">Member of the NJ General Assembly</a> (1978/1982); we were saddened by his death on October 20, 2010.	
<b>John Farmer</b>	Dean, Rutgers School of Law - Newark	<a href="#">Attorney General, NJ</a> 1999/2002; <a href="#">Assistant Counsel, Deputy Chief Counsel, and Chief Counsel for the Office of the Governor</a> 1999; <a href="#">Senior Counsel and Team Leader for the National Commission on Terrorist Attacks Upon the United States</a> (commonly known as the 9/11 Commission); <a href="#">President - Board of Trustees of the New Jersey Institute for Social Justice</a> ; <a href="#">Member, New Jersey Governor's Ethics Advisory Board</a>
<b>Gwendolyn Harris</b>	Executive Director, The Senator Walter Rand Institute for Public Affairs at Rutgers-Camden	Founder, Newark Emergency Services of Families, Inc.; <a href="#">Director, Health and Human Services (City of Trenton)</a> ; <a href="#">Business Administrator and Chief of Staff (City of Trenton/Mayor Palmer)</a> ; <a href="#">Commissioner of Human Services for the State of NJ</a>
<b>Michael M. Horn</b>	Partner, McCarter & English Chairman of the Board, Federal Home Loan Bank of New York	<a href="#">Member, NJ State Assembly</a> 1972/1974; <a href="#">Commissioner of Banking, State of NJ</a> 1982/1984; <a href="#">NJ State Treasurer</a>
<b>Feather O'Connor Houstoun</b>	Senior Advisor, Wyncote Foundation  Member, Philadelphia School Reform Commission (SRC)	<a href="#">President, William Penn Foundation</a> 2005/2011; <a href="#">PA Secretary of Public Welfare</a> 1995/2002; <a href="#">CFO Southeastern PA Transportation Authority (SEPTA)</a> 1990/1995; <a href="#">NJ State Treasurer</a> 1986/1990

LEADERSHIP GROUP		
MEMBER	CURRENT POSITION(S)	CAREER HIGHLIGHTS
<b>Robert Hughey</b>	Principal, REHughey, LLC	Associate Vice President for Strategic Initiatives, New Jersey Institute of Technology; <a href="#">Chief - NJ Economic Recovery</a> 1993; <a href="#">Commissioner - NJ Department of Environmental Protection</a> 1982/1986; <a href="#">County Administrator, Atlantic County</a>
<b>Jack Lettiere</b>	Jack Lettiere Consulting, LLC	<a href="#">Commissioner, Department of Transportation</a> (2002/2006); <a href="#">Deputy Commissioner, Assistant Commissioner for Capital Investment</a> and other senior management positions within NJ Department of Transportation (2002/1974)
<b>Marc Pfeiffer</b>	Assistant Director, Bloustein Local Government Research Center	Deputy Director (retired), Division of Local Government Services, State of NJ; previous position(s) as municipal administrator
<b>Deborah T. Poritz</b>	Chair, Board of Trustees, Legal Services of NJ; Member, Board of Trustees, Fund for New Jersey; Vice Chair, Board of Trustees, Princeton Health Systems; Visiting Jurist Emerita-in-Residence at Rutgers Schools of Law Newark and Camden; Of Counsel, Drinker Biddle & Reath LLP	<a href="#">Chief Justice, NJ Supreme Court</a> 1996/2006; <a href="#">Attorney General, NJ</a> 1994/1996; <a href="#">Chief Counsel to the Governor</a> 1989
<b>Ingrid Reed</b>	Retired  Board Chair, <a href="http://www.njspotlight.com">www.njspotlight.com</a> ; Chair, Governor's Task Force on Local Government Ethics; founder and member of the Board, NJ Future; Former Chair, Capital City Redevelopment Corporation	<a href="#">New Jersey Project Director, Eagleton Institute of Politics, Rutgers University</a>
<b>Robert L. Smartt</b>	Retired  Visiting Associate, Eagleton Institute of Politics, Rutgers University	<a href="#">Deputy NJ State Treasurer</a> 2001/2007 and 1992/1994; <a href="#">Administrator, NJ Office of Telecommunications &amp; Information Systems</a> 1990/1992; <a href="#">Deputy Director, Assembly Majority Office</a> 1976/1983; senior management positions in planning, policy analysis and public affairs at the Port Authority of NY & NJ
<b>Charles Venti</b>	Executive Director, The Nicholson Foundation	Deputy Director, The Nicholson Foundation 2002/2010; <a href="#">Director, New Jersey Division of Youth and Family Services (DYFS)</a> 1998/2002; various positions at DYFS 1975/1998

## APPENDIX 2: Facing Our Future - Data Collection and Analysis

*The information presented in this report uses existing government, industry and independent reports, analyses, websites, other literature and articles. In addition, the report is informed by the years of experience and perspective of the members of the Leadership Group, and is supplemented through workgroup discussions and briefings with individuals having senior current or past government, academic and/or industry experience. Throughout the process, the Leadership Group for Facing Our Future directed that all data collection and analysis efforts were to be consistent with Facing Our Future's reputation for clarity, lack of bias and stark presentation of reality. The stated result was to present a unified approach to address long-term infrastructure investment needs in New Jersey.*

*Facing Our Future* retained two highly respected, separate individuals, both with deep New Jersey knowledge and experience, to serve as the focal points for data collection. Following his past research role in the two earlier *Facing Our Future* reports (January 2011 and February 2012), Richard F. Keevey gathered data and provided initial analysis through mid-September 2012 for the 2013 report's infrastructure investment areas of transportation, environment, higher education and energy. Beginning in October 2012, Loredana Cromarty provided on-going supplemental data collection in these same areas, and supported the workgroup discussions and briefings. In addition, Ms. Cromarty gathered data and provided analysis for the report's originally included areas of communication technology and information technology. (See *Appendix 3: Sources and Reference Materials* for the materials, documents and links gathered by Mr. Keevey or Ms. Cromarty.)

Beginning in August 2012 and continuing through February 2013, the Leadership Group met as a whole and through a half-dozen individual workgroups – subgroups of the Leadership Group, consisting of 3-5 Leadership Group members – to engage in more in-depth analysis and review of materials. Maryanne E. Preztunik, who also served as Project Coordinator for the overall *Facing Our Future* effort, facilitated discussions and data collection efforts.

When this report began in mid-2012, the Leadership Group reviewed six areas of critical infrastructure needs: transportation, environment, energy, communication technology, data and IT needs (focused on government needs across all levels of NJ government) and higher education. In late

---

**Richard F. Keevey** is “Distinguished Practitioner in Residence”, School of Public Affairs and Administration, Rutgers University - Newark. Two separate governors appointed Mr. Keevey as the State Budget Director and State Comptroller for New Jersey. In addition, he has held appointments by the President as the Chief Financial Officer (CFO) for the U.S. Department of Housing and Urban Development, and as the Deputy Under Secretary of Defense for Financial Management. Mr. Keevey was Practice Director for Andersen LLP and Unisys Corporation.

---

**Loredana Cromarty** is founder and principal of L&P Strategies. Ms. Cromarty brings more than two decades of experience in the public, private and nonprofit sectors; her experience includes eight years working as chief of staff and legislative director for a member of the New Jersey State Senate. Ms. Cromarty has served on the faculty of the Eagleton Institute's NEW Leadership program at Rutgers, The State University of New Jersey. Additionally, Ms. Cromarty is a visiting associate at Eagleton for the 2012-2013 academic year.

November of 2012 and post-Sandy, the Leadership Group decided to limit focus to the areas of electric power, transportation and water systems infrastructure. The reasons for this decision were several:

- Recognize the post-Sandy reality of the significant, wide-ranging and long-term impacts of the statewide rebuilding effort, combined with the continuing severe fiscal challenges throughout all levels of New Jersey government as identified in previous *Facing Our Future* reports
- Focus on the infrastructure areas typically recognized as the most effective and meaningful to New Jersey's long-term economic growth
- Emphasize the difficult choices that all of New Jersey must face, and that real priorities must be established to support long-term success
- Support the belief that successful infrastructure investment must be viewed in totality rather than as discrete, disconnected areas
- Feature effective and meaningful recommendations for long-term economic success
- Maintain the quality of analysis and focus established in previous *Facing Our Future* reports

### ***Report***

As data collection and analysis supports, there are numerous existing studies and reports containing information about needs in the infrastructure areas of electric power, transportation and water systems infrastructure. However, most of the studies and reports have been funded or presented by specific interest groups or governmental organizations, and most existing reports have presented siloed information. *Facing Our Future* recognizes that there has been no recent effort in New Jersey to look across the major areas of investment that drive economic success and that there has been no work to incorporate the systemic budget problems documented long before Sandy yet able incorporate post-Sandy imperatives. The *Facing Our Future* report, "Infrastructure Investments Necessary for Economic Success", considers a balanced set of investment priorities based on the projected challenges at all levels of government and need to drive economic success. The intent of the report is to spur discussion of what is needed for the 21st century to ensure economic growth and success in New Jersey, to identify specific recommendations for infrastructure investment and provide options for how to prioritize and consider funding those investments.

The materials used to develop this report are available online at <http://www.facingourfuture.org>.

### APPENDIX 3: Facing Our Future - Sources and Reference Materials

*Facing Our Future* retained two respected professionals with deep experience in policy, data collection and analysis (see *Appendix 2: Data Collection and Analysis*). Working with the Project Coordinator, they collectively provided support to the Leadership Group and to the Leadership Group's individual workgroups. Throughout the process, individual workgroups met with public and private sector resources to inform discussion and provide added perspective.

The documents prepared for/referenced by *Facing Our Future* and more than fifty individual links to materials that supported data collection and analysis are available online at [www.facingourfuture.org](http://www.facingourfuture.org) and organized as follows:

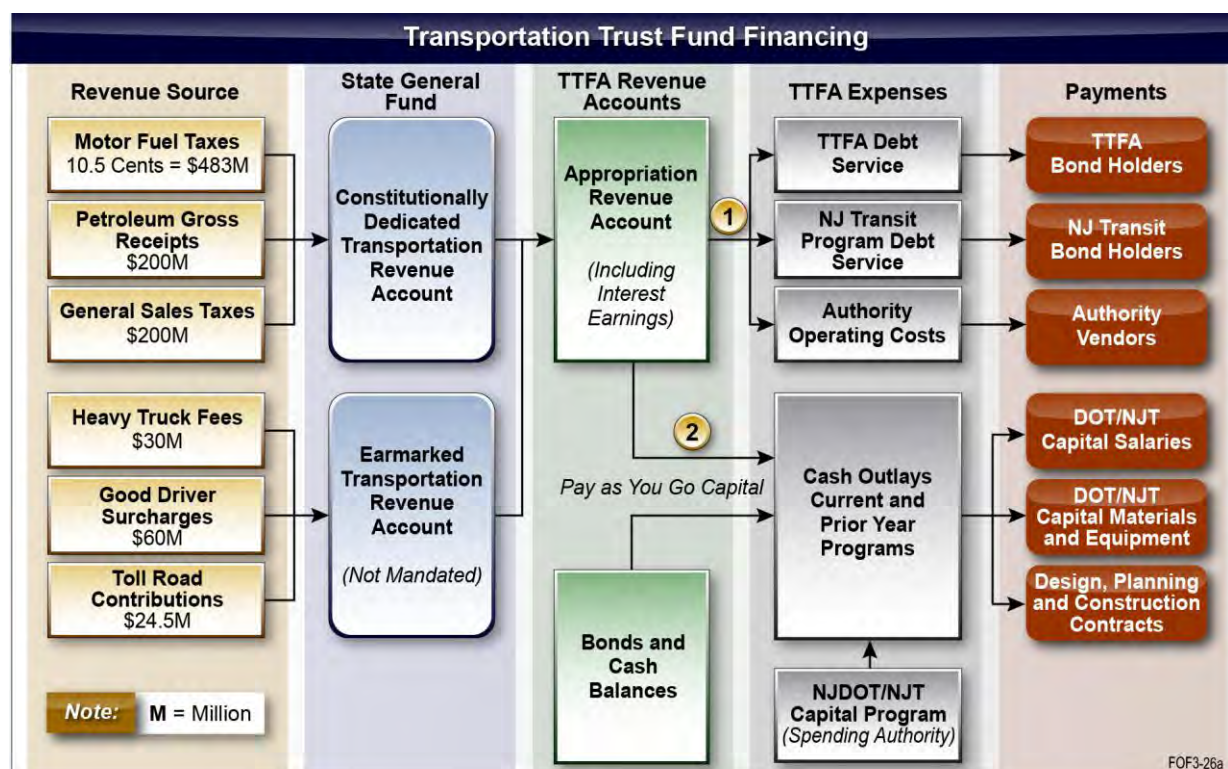
- Summary Documents (prepared for/referenced by *Facing Our Future* as part of the initial data collection effort for this report)
  - Report: “*Infrastructure Issues and Needs in New Jersey*” (Transportation, Wastewater and Drinking Water, Dams, Higher Education, Energy – Electric and Gas)
  - PowerPoint: “*Communications Technology and Information Technology in New Jersey*”
  - Policy Paper: “*Are We Minding Our Own Business?*”
- Individual Links to Adopted Reports, News Articles, Annual Reports, Plans and Other Relevant Materials (incorporated by *Facing Our Future* in the preparation of this report)
  - Multi-Topic: Statewide Policy Plans/Other Materials
  - Topic Specific: Electric Power
  - Topic Specific: Transportation
  - Topic Specific: Water Systems Infrastructure



## APPENDIX 4: Facing Our Future - Transportation Trust Fund Financing

Detailed information on the Transportation Trust Fund can be found at <http://www.state.nj.us/ttfa>. Following is an excerpt from that website, including a graphic presentation of Transportation Trust Fund Financing, presented below as Figure A4-1. The extracted information is useful in understanding the flow of funds within the Transportation Trust Fund and how it is financed.

**Figure A4-1: Transportation Trust Fund Financing**



"The flow of funds for the Transportation Trust Fund Authority (TTFA) begins with a series of revenue sources that have been dedicated by the State Constitution or by the Trust Fund statute for transportation system capital improvement purposes.

Constitutionally dedicated revenues include the Motor Fuels Tax, the Petroleum Products Gross Receipts Tax, and a portion of the General Sales Tax. Statutorily dedicated revenues include "Good Driver" vehicle registration surcharge fees, heavy truck registration fees, and contractual contributions by NJ Turnpike Authority and South Jersey Transportation Authority.

The State Constitution does not specifically direct the dedicated revenues to the Transportation Trust Fund Authority. Instead, the constitutional language directs the revenue be used only for the purpose of "paying or financing the cost of planning, acquisition, engineering, construction, reconstruction, repair and rehabilitation of the transportation system."

Unlike the constitutional dedication of revenues, the statutory dedication is not binding on the Legislature in any given year. The annual Appropriation Act has always been treated as having precedence over any other dedication language found in general statute. The Legislature can choose to appropriate all, part, or none of the statutorily dedicated revenues. In fact, the Legislature has chosen not to fully appropriate the statutory revenues on several occasions since the program's inception in 1985. Once the TTFA has received its appropriation revenue from the Legislature, it must first reserve whatever is necessary to pay current year debt service. In addition, NJ TRANSIT has incurred debt through the Economic Development Authority (EDA) for rail equipment purchases on the Hudson-Bergen Light Rail Line and the River Line. NJ TRANSIT funds the debt service on the EDA debt using its share of Transportation Trust Fund capital program appropriations each year. Although the NJ TRANSIT debt payments are not a debt service liability of the Transportation Trust Fund Authority, the Authority must ensure these payments are not reimbursed from Trust Fund Authority bond proceeds. Accordingly, the Trust Fund Authority must also reserve appropriation revenue to reimburse NJ TRANSIT for its EDA debt service payments.

Whatever appropriation revenue is left over after payment of TTFA and NJ TRANSIT debt service payments is available for transportation capital project payments. This amount, which is commonly referred to as the "pay-as-you-go" portion of the Transportation Trust Fund Program, may be supplemented with appropriated revenues from the State's toll road authorization as designated in the annual Appropriation Act."




# F a c i n g O u r FUTURE



Maryanne E. Preztunik  
Project Coordinator  
201-341-1813

[www.facingourfuture.org](http://www.facingourfuture.org)

email: [facingourfuture@cnjg.org](mailto:facingourfuture@cnjg.org)

 Facebook: Facing Our Future

*Funding for this phase of Facing Our Future, including the report "Infrastructure Investments Necessary for Economic Success" was provided by Conservation Resources Inc., Geraldine R. Dodge Foundation, New Jersey Manufacturers Insurance Company, Robert Wood Johnson Foundation®, The Fund for New Jersey, The Nicholson Foundation, and two separate private donors.*