



21ST CENTURY INFRASTRUCTURE COMMISSION EXECUTIVE SUMMARY

Prepared for
Governor Rick Snyder

The 21st Century Infrastructure Commission's research is composed of two major works: a full report and this shorter executive summary, which is intended to highlight the most important elements of the full report. Both were published on Wednesday, November 30, 2016.

IMPROVING OUR INFRASTRUCTURE AND STRENGTHENING OUR ECONOMY

• Enhancing Our Quality of Life •

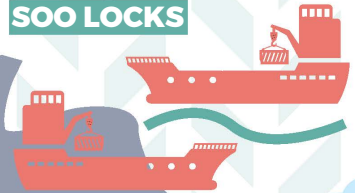
CONNECTED TRAILS



MODERNIZED AND DEPENDABLE ELECTRIC GRID



RELIABILITY OF SOO LOCKS



IMPROVED CONNECTIVITY



HEALTHY AND CLEAN LAKES, STREAMS, AND RIVERS



STRUCTURALLY SOUND BRIDGES



SAFE AND HEALTHY COMMUNITIES



ALTERNATIVE ENERGY SOURCES



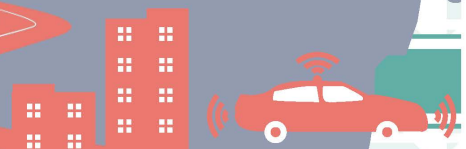
SAFE AND CLEAN WATER



MORE AND BETTER-PAYING JOBS FOR MICHIGANDERS



SAFER ROADS AND EMERGING TECHNOLOGIES



VISION STATEMENT:

Michigan will lead the nation in creating 21st Century infrastructure systems that will include innovative technology, sustainable funding solutions, sound economic principles, and a collaborative and integrated asset management and investment approach that will enhance Michiganders' quality of life and build strong communities for the future.

Where is Michigan Today?

For more than half a century, we have not fully addressed the challenges facing our infrastructure systems. As a result, the problems we face today threaten our day-to-day quality of life.

**NEARLY
HALF-A-MILLION**
HOUSEHOLDS WITHOUT
ADVANCED BROADBAND



MANY OF MICHIGAN'S
1,390 COMMUNITY WATER
SYSTEMS WERE BUILT
50 TO 100
YEARS AGO



SINCE 2008, AN AVERAGE OF
5.7 BILLION GALLONS
OF UNTREATED SEWAGE
FLOWED INTO MICHIGAN'S
WATERWAYS ANNUALLY.



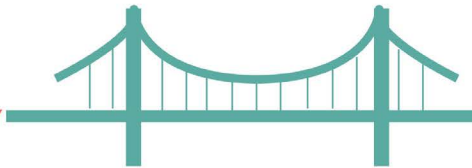
25%
OF BEACHES
EXPERIENCED CLOSURE
IN 2015



A SIX-MONTH
SHUTDOWN OF THE
SOO LOCKS
WOULD RESULT IN
11 MILLION
JOBS LOST
NATIONWIDE



1,200
MICHIGAN
BRIDGES ARE
STRUCTURALLY
DEFICIENT



39%
OF ROADS
ARE IN
POOR
CONDITION



What does a 21st Century Michigan look like?

Economic prosperity: The state's infrastructure system serves as the platform for the economic success of the state, including its communities, businesses, and residents. Our infrastructure systems must be built for a 21st century Michigan to fully meet the state's current needs and expectations. Modern infrastructure is essential to support the economic prosperity of our state.

A healthy environment: The state's infrastructure system is interconnected with the health of our people, environment, and communities. Investments in transportation, communications, energy, and water networks and technologies support a Pure Michigan that, in many ways, defines the character of our state.

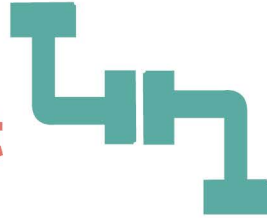
Reliable, high-quality service: The state's infrastructure system provides its users with reliable, high-quality services to support vibrant communities and business operations. Our transportation systems move people and cargo effectively and efficiently, our energy systems provide affordable and reliable electricity and natural gas to homes and businesses, our communications systems enable Michiganders to stay connected in a global world, and our water management systems protect and enhance public and environmental health.

Value for investment: The state's infrastructure system is supported through investments that help ensure we get the most value from limited financial resources. Through coordinated asset management across our infrastructure systems, we can make strategic and optimal decisions about infrastructure repair and replacement to ensure greater value for our investments.

Integrated, Strategic, Sustainable, and Smart Infrastructure Solutions

To maintain Michigan's status as a global leader as we move through the 21st Century, we must look at infrastructure in an integrated and holistic way, find sustainable funding solutions, and prepare for emerging technologies.

Asset Management

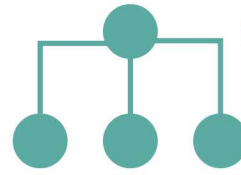


Pilot a regional infrastructure asset management process and secure database system across infrastructure types.

Build, deploy, operationalize, and maintain an asset management process and database system statewide.

Support stakeholders, state, regional, and local agencies with collection of data and implementation of asset management practices.

Establish performance metrics and ensure transparency of data to the public on condition of assets.



Coordinated Planning

Create the Michigan Infrastructure Council, a statewide body to coordinate infrastructure-related goals.

Deploy and maintain the statewide asset management database, and measure performance improvements across the state.

Establish a long-term, statewide 21st century infrastructure strategy to address infrastructure asset condition, needs, and priorities.

Design, oversee, and coordinate incentives, funding, and financing opportunities.

Sustainable Funding



Equip policymakers with accurate and consistent information and data on the condition of infrastructure assets to ensure the development of sustainable funding models.

Guide investments for planning and management of infrastructure.

Halt the continuing deterioration of infrastructure assets and allow Michigan to take advantage of 21st century technology that will provide improvements to service and safety with a goal of leveling annual investments to long-term predictable amounts.



Emerging Technologies

Stay at the forefront of research, education, coordination, and implementation of innovative technologies that impact infrastructure planning and delivery.

Enhance the quality of life in Michigan by creating infrastructure systems that optimize technologies to improve efficiency and increase residents' safety, security, health, mobility, and communication.

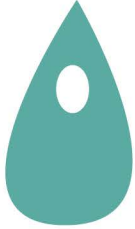
Remain a global leader in emerging intelligent vehicle technology, including connected, autonomous, and automated technologies.

21st Century Recommendations Snapshot

Our residents deserve reliable, safe, efficient, and cost-effective infrastructure - a 21st century infrastructure system that creates a foundation for the future.

RECOMMENDATIONS

WATER



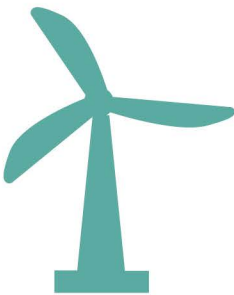
- **Ensuring Public and Environmental Health:** Invest in replacement of aging water, sewer, and stormwater infrastructure.
- **Water Asset Management:** Perform regular assessments and maintenance of Michigan's drinking water, sewer, stormwater, and dam infrastructure systems.
- **21st Century Water Infrastructure:** Design and build water systems using the best available technologies.
- **Fiscally Sustainable Pricing Models:** Adopt policies that require self-sufficient and transparent budgets for water, sewer, and stormwater facilities.
- **Green Infrastructure:** Develop integrated and sustainable approaches to manage the quantity and quality of stormwater.
- **Onsite Well and Septic Systems:** Revise regulations to provide safe, affordable drinking water and wastewater disposal.

TRANSPORTATION



- **Roads/Bridges:** Invest in roads and bridges to ensure they are in good or fair condition and our roads, bridges, and culverts are designed to protect public health and safety and strengthen our economy. Our road conditions and intelligent vehicle technology helps achieve our goal of zero deaths on our roads.
- **Transit, Passenger, and Freight Rail:** Meet the needs of both urban and rural communities by providing a robust transit network.
- **Marine Freight:** Construct a new Soo lock to eliminate the potential for long-term loss of 11 million jobs nationally and a \$1.1 trillion hit to the U.S. economy.
- **Aviation:** Complete an assessment of aviation needs across Michigan to ensure our system of airports properly supports Michigan's future needs.
- **Future is Now:** Maintain our status as a global leader in intelligent vehicle technology and other emerging technologies.
- **Value for Money:** Reexamine existing funding mechanisms and the potential for new funding options to build strong, healthy communities for residents and businesses.

ENERGY



- **Resource Adequacy:** Ensure adequate capacity resources are available so that Michigan residents and businesses never experience a massive outage.
- **Cleaner Energy Sources:** Meet 30 percent of our electric energy needs from the cleanest sources, such as energy efficiency, renewables, and natural gas.
- **Electric Reliability:** Reduce the frequency and duration of electric outages to ensure that customers do not experience significant disruptions in their service.
- **Natural Gas Safety:** Accelerate plans to replace at-risk natural gas distribution pipes to guarantee Michigan's natural gas distribution system is safe and reliable.
- **Information Security:** Enable our state's leaders and appropriate agencies to effectively communicate with infrastructure asset owners about physical and cyber security to more effectively plan for and communicate about potential threats.
- **Business Attraction and Economic Development:** Expand opportunities for new businesses and energy-intensive industries to choose Michigan by ensuring access to tailored energy services and competitive energy prices.

COMMUNICATIONS



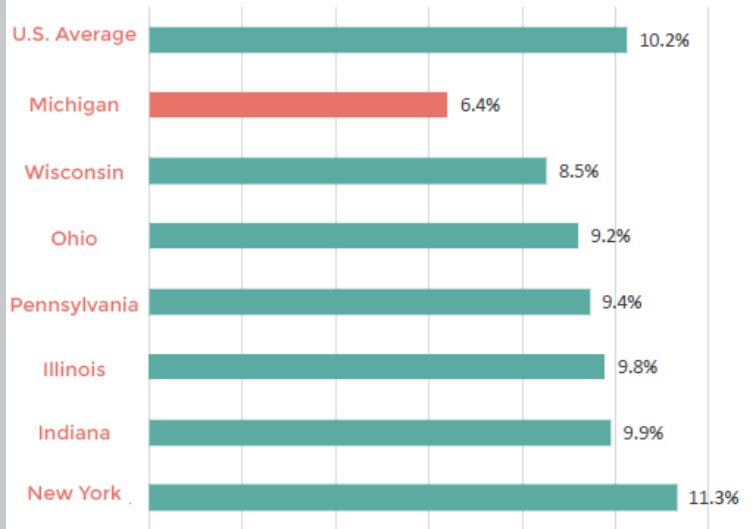
- **Making Michigan a Smarter State:** Lead in the development, deployment, and adoption of new technologies and the creation of smart environments and communities.
- **Improving Broadband Access and Adoption:** Make Michigan a top-five state for broadband access and adoption.
- **Establish the Michigan Consortium on Advanced Networks:** Develop and execute a roadmap to enact a digital transformation of Michigan.
- **Securing Michigan's Digital Infrastructure:** Find innovative ways to defend critical information, coordinate access and identity management, and embrace new and emerging technologies.

Investing in Our Future

Michigan's infrastructure investment gap exceeds \$60 billion over the next 20 years with an annual investment gap of approximately \$4 billion. Relative to neighboring states and the U.S. average, Michigan underinvests in capital infrastructure spending at the state and local levels (Deloitte 2016). Addressing this substantial gap will require a combination of local, state, federal, private, and user-fee investments, as well as financing strategies to meet long-term needs.

Investment Gaps and Potential Sources of Funding				
	Transportation	Water	Communications	Energy
Forecasted Annual Investment Gaps	\$2.7 billion	\$1 billion	\$70 million	N/A Largely private utility investment
Forecasted Investment Gaps Over the Next 20 Years	\$40 billion	\$19 billion*	\$600 million	N/A
Potential Sources of Funding	<ul style="list-style-type: none"> Federal funding Mileage-based user fee Gas tax increase Registration fee increase Local revenue options expansion Public and private partnerships 	<ul style="list-style-type: none"> Water rates aligned with investment needs Water infrastructure user fees 	<ul style="list-style-type: none"> Private investment Federal funding Provider rights-of-way fee increases Subscriber surcharges 	<ul style="list-style-type: none"> Private investment Continual improvements and updates in the state and federal decision-making processes
	<ul style="list-style-type: none"> Dedicated sales tax for infrastructure Dedicated statewide property tax 			

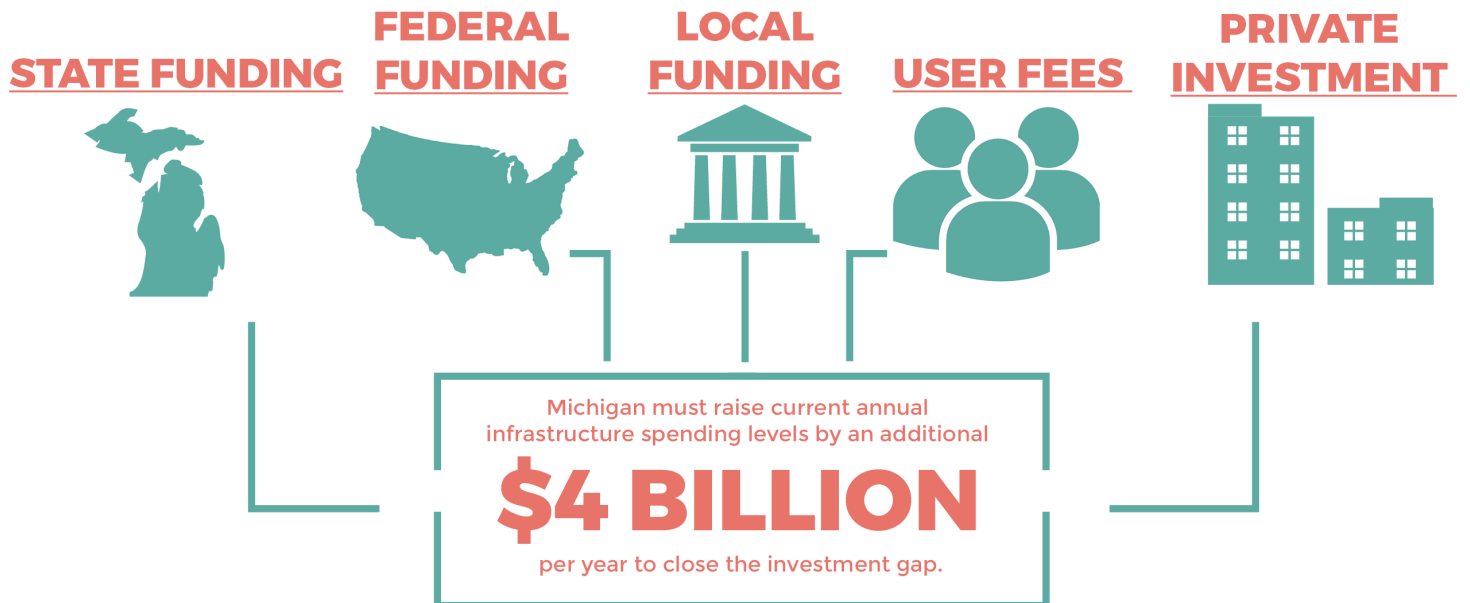
State and Local Capital Spending (% of Total Expenditure) Annual Average 2010 - 2014



Source: U.S. Census Bureau

* This figure includes an estimated \$800 million annual gap in water and sewer infrastructure needs. This is considered a conservative estimate using the best information available. As condition assessments are completed, this estimate is expected to increase.

INVESTING IN SYSTEMS FOR TODAY AND TOMORROW



• INVESTMENTS OVER 20 YEARS

Call to Action

As called for in Governor Rick Snyder's 2016-5 Executive Order, this report outlines **ambitious goals for the state of Michigan for the next 30 to 50 years**. With implementation of these recommendations, Michigan will lead the nation in creating an integrated and holistic infrastructure planning, management, investment, and delivery system that Michigan's residents have confidence in. This system will prioritize public health and safety and solidify Michigan's status as a global leader as we move forward into the 21st century.

Michigan's ability to achieve the 21st Century Infrastructure Commission's vision depends on policymakers taking action today and prioritizing infrastructure as the foundation of strong communities and **increased quality of life for our future**. Sound and modern infrastructure is vital to the health and well-being of the people of Michigan and will help support our growing economy.

Today, infrastructure is siloed in our state. There are 619 separate road agencies, 79 transit agencies, 1,390 drinking water systems, 1,080 wastewater systems, 116 electric utilities, 10 natural gas utilities, and 43 broadband providers. Coordinated infrastructure planning and management is a necessary foundation to a successful future system. **Michigan must implement an integrated asset management database system, create a council to oversee long-term coordination and strategy, invest in our infrastructure systems in a sustainable way, and remain committed to embracing emerging technologies**. Achieving these overarching goals, in addition to the sector-specific recommendations put forth in this report, will ensure reliable, safe, efficient, and cost-effective systems.

Our residents deserve reliable, safe, efficient and cost-effective infrastructure—a 21st century infrastructure system that creates a foundation for the future.

As a first step, the state must identify a strategic way to better manage our infrastructure in order to make informed decisions. Chapter 3 calls for the state to implement an effective statewide asset management system—one that collects reliable data and information across all types of infrastructure. A statewide coordinated infrastructure system would make Michigan a national leader in infrastructure management. To initiate this game-changing endeavor, the Commission urges the Office of the Governor to establish a regional infrastructure pilot in early 2017 to begin operationalizing a statewide asset management database. By 2018, the Michigan Legislature should establish the Michigan Infrastructure Council, an entity that can leverage the lessons learned in the regional pilot and help to coordinate and unify infrastructure efforts across the state in the decades to come. **The database and council will help the state, regions, local governments, and utilities make informed, strategic decisions and smart investments, save taxpayer dollars, create opportunities for coordinated infrastructure projects, and ensure a 21st Century infrastructure system.**

Michigan residents deserve reliable, safe, efficient, and cost-effective infrastructure—a 21st Century infrastructure system that creates a foundation for the future. **This report is the first step in an entirely new approach to planning, managing, and delivering infrastructure in the state of Michigan.** By outlining the challenges and opportunities facing Michigan's infrastructure system and identifying key recommendations for action, the Commission aimed to give policymakers and the general public the information and vision needed to begin implementation. We must agree to modernize and invest in our infrastructure systems, recognizing that investments today will create jobs and economic opportunity, attract and retain businesses, and save taxpayer dollars. The Commission looks forward to working together to build this vision as Michigan looks to the 21st Century and beyond.