Infrastructure and Regulation

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21st Century Infrastructure Commission

- Announced by the Governor at the state-of-the-state address in January 2016
  - Flint water crisis as backdrop
  - Established by executive order 2016-5
  - Convened in March 2016
  - Final recommendations delivered in November 2016
- Comprised of 27 appointed members
  - Infrastructure experts
  - Government representatives
  - Academic scholars
  - Business representatives
A 21st Century Michigan

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.
# State of the State’s Infrastructure

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.

| Percent of water, sewer and stormwater utilities have asset management plans | ![Map of Michigan](image1.png) |
| Percent of broadband accessibility | ![Map of Michigan](image2.png) |
| Percent of roads in good/fair condition | ![Map of Michigan](image3.png) |
| Number of structurally deficient bridges | ![Map of Michigan](image4.png) |
| Number of regions achieving full implementation of participation among public entities in planning and coordination. | ![Map of Michigan](image5.png) |
| Number of fatalities on Michigan roadways | ![Map of Michigan](image6.png) |
| Average number of power outages per customer | ![Map of Michigan](image7.png) |

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

**MANY OF MICHIGAN’S 1,350 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 500 LOCKS WOULD RESULT IN 11 MILLION JOBS LOST NATIONWIDE**

**1,200 MICHIGAN BRIDGES ARE STRUCTURALLY DEFICIENT**

**39% OF ROADS ARE IN POOR CONDITION**
How Michigan Compares

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

- U.S. Average: 10.2%
- Michigan: 0.4%
- Wisconsin: 8.5%
- Ohio: 9.2%
- Pennsylvania: 9.4%
- Illinois: 9.8%
- Indiana: 9.5%
- New York: 11.3%

Source: U.S. Census Bureau
Commission Recommendations

• More than 100 overarching and sector-specific recommendations, including
  - A regional infrastructure pilot
  - A state Infrastructure Council
  - Closing the infrastructure funding gap
• A bold approach and a call to action
# Multisector Recommendations

## 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.
Regional Asset Management Pilots

**KEY COMPONENTS OF ASSET MANAGEMENT**

- Developing goals and objectives, not just fixing the broken parts
- Collecting data to identify assets, their condition, remaining services life, and overall system condition
- Planning and programming, identifying a strategic plan for what parts of the system will be repaired, maintained, or replaced
- Fully funding at the level required to meet the goals and objectives of the plan
- Implementing, funding, and financing
- Monitoring and reporting goal progress and other results to the public and decision makers

**OUTCOMES**

- Improved security, safety, and public health for our communities
- Reduced overall costs for local communities and users
- Prolonged life of pipes, roads, and bridges, which reduces water main breaks, sinkholes, and potholes and travel delays or other economic impacts to the public
- Satisfied customer demands, service expectations, and regulatory requirements—focusing on sustainability
- Funding levels based on sound operational and financial planning
State Infrastructure Council

MICHIGAN INFRASTRUCTURE COUNCIL
- Members appointed by the Governor and Legislature
- Infrastructure technical experts
- Financial/procurement experts
- State agencies
- Regional entities

ASSET MANAGEMENT
- Set common standards for asset inventory
- Establish performance metrics
- Identify participation incentives and requirements
- Build upon regional pilot to develop and deploy statewide system

LONG-TERM STRATEGY
- Identify infrastructure needs and priorities
- Refresh every five years

FUNDING AND FINANCING
- Design, oversee, and coordinate incentives, funding, and financing opportunities
- Provide procurement and financing-related technical expertise

STATE AND LOCAL MANAGEMENT AGENCIES AND REGIONAL ENTITIES

CONSORTIUM ON ADVANCED NETWORKS (SEE RECOMMENDATION 4.2.1)

OTHER STAKEHOLDERS
Sector-specific Recommendations

**Recommendations**

**Water**
- In Skylight 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.
- Green infrastructure: Implement policies that require well-sufficient and transparent budgets for water, sewer, and stormwater facilities.
- Source Water and Septic Systems: Review 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 all urban and rural communities by providing a robust transit network.
- Marine Freight: Construct a new ice road to eliminate the potential for long-term loss of 11 million jobs nationally and a $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.
- Value for Money: Rationale 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.
- Clean Energy Sources: Meet 30% of our electric energy needs from the cleanest sources, such as wind and solar.
- 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 potential threats.
- Business Attractions and Economic Development: Expand opportunities for new businesses and energy-intensive industries by choosing 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 Cybersecurity Master Plan 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.
Closing the $4 Billion Annual Investment Gap

![Diagram showing investment gaps and potential sources of funding for different sectors such as Transportation, Water, Communications, and Energy. The table details the forecasted annual investment gaps and forecasted investment gaps over the next 20 years. Potential sources of funding include federal funding, state bonding, local bond issuance, and private investments.](image-url)

*This figure includes an estimated $600 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.*
Infrastructure Funding vs. Financing

- Funding comes from taxpayers (federal, state, local) or ratepayer (user) fees, charges
- Financing for capital projects comes from debt for the public and not-for-profit sectors or from a combination of debt and equity for the private sector (at a higher cost)
- Funding and financing options can be combined into different models

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Current State of Affairs

- Legislature has two funding bills before them
  - SB 944 (Nofs) raises the tipping fee from 36 cents/ton to $5/ton
    - Bring in $69 million year to fund contaminated site cleanup (brownfields) and fund recycling and waste issues
  - HB 5898 (Inman) creates a water infrastructure fee
    - Generates over $2 billion over 20 years
    - No more than $20 per household and $400 per business annually
    - 100% of the funds would go back to the community they were collected from and would pay for emergencies, water infrastructure grants and loans and asset management, and a water assistance grant program
Issues

• Enbridge’s Line 5
• Funding for water quality and water infrastructure
• Water quality
  - PFAS, other emerging threats
  - Flint Water Crisis
• Standards for acceptance exposure to contaminants- risk?
• Great Lakes protection
• Water use
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