

Council on Future Mobility & Electrification

2022 REPORT



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Executive Summary

The futures of the automobility sector and of Michigan's economy are inextricably linked. But this does not mean Michigan's status as the global leader in the future of mobility is a foregone conclusion. Far From it, in fact. Being a global leader in anything requires constant improvement and a persistent desire. Michigan must continue to implement new public policies, invest in high-quality communities and infrastructure, deploy and test innovative mobility technologies, win more business attraction opportunities than our competition, and develop outstanding talent that will lead this sector into the next generation of mobility.

To navigate Michigan's path to continuously leading the world in advanced mobility and electrification through 2030 and beyond, the Office of Future Mobility and Electrification (OFME) published a comprehensive mobility strategy for state government. **The MI Future Mobility Plan** is a unified, cross-departmental approach designed to strengthen Michigan's economy and enhance the state's mobility leadership status.

The goals of the Plan are organized into three pillars:

- 1 Transition and grow our mobility industry and workforce
- 2 Provide safer, greener and more accessible transportation infrastructure
- 3 Lead the world in mobility and electrification policy and innovation



This report contains Council on Future Mobility and Electrification's 2022 list of recommendations regarding public policies and investments that further Michigan's advanced mobility and electrification leadership and align with the MI Future Mobility Plan, and include:

1

Transition and grow our mobility industry and workforce

- Invest in bus rapid transit and spend \$10 million to revive the state's mobility challenges to solve for employment and equity barriers
- Fund a public relations campaign to enhance MI's sustainability leadership
- Scale the Michigan EV Jobs Academy
- Create a global center of excellence for responsible artificial intelligence
- Fund a \$45 million bus electrification program
- Expand use of sinking funds to support electric school bus deployments
- Support Phase-2 of the MDOT work zone safety pilot program
- Design a clean fuels standard that works for Michigan

2

Provide safer, greener and more accessible transportation infrastructure

- Expand Michigan's Alternative Fuel Corridor opportunities for clean hydrogen and commission a study on hydrogen applications in commercial traffic
- Develop accessibility standards for EV chargers
- Create a state EV consumer incentive

3

Lead the world in mobility and electrification policy and innovation

- Invest \$30 million into UAS technology development
- Pass legislation to preserve Michigan's uniform, statewide automated vehicle policy
- Keep up the annual support for state mobility agencies' capacity
- Pass legislation to create a mobility research and development talent tax credit
- Continue advocating to federal policymakers on important connected vehicle issues

These recommendations were developed by the CFME members who represent the automobility industry, research universities, clean fuels advocates, and state government, as well as many additional stakeholders who were engaged through a series of workgroups. It is the CFME's sincere hope that the recommendations of this report be effectuated over this next year.

Foreword



As Michigan continues to excel in the automotive push forward into electrification, connectivity, autonomy, and shared, as a State, we will pursue each and every opportunity. The United States' target to achieve 50% electric vehicle sales by 2030 will require much more manufacturing, critical material supply, technology development and research, and infrastructure readiness. Workforce to drive the State forward is an essential element to this end.

There have been three key legislative actions that Michigan is primed to capitalize:

1 Infrastructure Investment and Jobs Act (IIJA)

Provides \$550 billion over 5 years as shown in the chart below.

BIL Supports Infrastructure Investment Across Key Asset Classes

Asset classes	Description	Estimated BIL Breakdown (\$B)
Roads, Highways & Bridges	20% increase to roads, highway and bridge funding to help close disrepair gap across the country and address state and local transportation needs	100
Passenger & Freight Rail	Funding for Amtrak modernization, Northeast Corridor, and intercity rail funding for capital investment, operations and maintenance, and program operations	66
Broadband	Largest broadband funding program under NTIA, focused on deployment of services to high cost and under served communities. Increase Federal cap on private activity bonds from \$15B to \$30B	64
Public Transit	Funding is focused on social and environmental sustainability, maintenance and innovation within public transportation projects and enhanced access and mobility for urban and rural communities.	34
Water	5x increase in drinking water and nearly 2x increase in clean water funding. Funding to address lead service line replacement and improve water quality	64
Clean Energy & Power	Largest investment in clean energy in US history, including \$8B focused on clean hydrogen and \$5B dedicated to strengthening national power grid against climate change	76
Infrastructure & Resiliency	Funds for investments in infrastructure across asset-classes to support community resilience and evacuation routes, reduce carbon emissions, reduce flood damage, and counter cyberattacks	48
Environmental Remediation	Funding for brownfield grant program; significant increase in funding for superfund remediation; funding to clean nation's most contaminated lands and abandoned coal mine sites	21
Airports, Ports & Waterways	Funding for airports (terminal development, multimodal transport, traffic control infrastructure) as well as port infrastructure modernization and waterways	41
Electric Vehicles	Includes first national investment in EV infrastructure, zero/low emission vehicle grants for buses and ferries, and funding for alternative fuel corridors,	18
Safety	Funds to prevent transportation-related fatalities/injuries and to improve rail and highway safety	17
Total		198 177 81 95 ~550

Michigan is well positioned to take advantage of several elements of this act especially related to EV charging stations, of which \$7.5 billion is allocated. Michigan submitted our plan for using these dollars to enable Michigan citizens to charge their EVs and eliminate “range anxiety”. Further, the monies allocated to Energy, Power and Electric Grid Reliability will be utilized to make the energy used by EVs more “green”, provide for micro grids and back-up systems, and allow more efficient usage of our energy during peak usage times.

Considering equity, the IJA's broadband dollars will be utilized to make sure each Michigander has an equal opportunity for education, job training and communication. Also, the monies for roads and bridges will allow us to continue to improve the quality of our roads and brings our bridges up to the levels needed to support the future of mobility.

2

Creating Helpful Incentives to Produce Semiconductors and Science (CHIPS) Act

Provides \$52.7 billion for American Semiconductor Research, \$39 billion in manufacturing incentives (\$2 billion for auto legacy chips), \$13.2 billion in R&D and workforce development, \$500 million for information technology (IT) development for cybersecurity.

Michigan Universities are leaders in research and are well enabled to tackle semiconductor research. The breakthroughs for tomorrow need to come from American institutions and the talent creating these solutions need to stay in American (and Michigan). We need to be sure that we have the right University staff to make compelling research proposals and our automotive community needs to be aligned to have the right partnerships for progress.

As a State, we can offer incentives to the excellent corporations already in Michigan to enable more R&D and manufacturing be done here. We can have sites readied in conjunction with our Universities to create Semiconductor Research Hubs to ensure Michigan is on the leading edge in this regard.

By creating these hubs and providing our staff and students research opportunities, Michigan stands to lead in create of new Semiconductor breakthroughs and manufacturing to support our automotive, mobility, and other industries here in Michigan.

3

Inflation Reduction Act (IRA)

This provides incentives for EV purchase (\$7,500/\$3,750) along with guidelines for household income, EV price, and North American/Free Trade content.

From a mobility perspective, one of the largest deterrents to EV purchase is the price gap to Internal Combustion Engines. Further, we know that countries that have created incentives programs are some of the most successful in terms of EV adoption.

For Michigan, we must consider localization of the battery components and manufacturing. This area will grow vastly considering the content requirements of this act. Beyond this, recycling of battering becomes paramount. When we consider the location and reserves of critical battery elements such as lithium, cobalt, nickel, and more, there isn't enough for our intended shift to EVs and this means recycling is critical to success.



Further, we need to have more research to make batteries more efficient and cheaper. This will help bring the EV price down to meet the criteria in this bill. Battery labs at universities will definitely help to find the solutions we need. Industry combined with academia can produce the needed breakthroughs and this act makes it critical to act fast. The content amount and ramp-ups are severe, so research is needed at a high level to reach these goals.

The above measures will help Michigan succeed in this shift to electrified, connected, and autonomous vehicles. Michigan is home to some of the brightest technical minds in the US. We have a great opportunity to utilize these dollars to produce and maintain the best workforce for the new era in mobility. With the slate of state policy recommendations from the Council on Future Mobility and Electrification Michigan will be well primed to capitalize on this opportunity.

Carla Bailo

Past President / CEO,
Center for Automotive
Research

Message from the Chairwoman



I began last year's report from the Michigan Council on Future Mobility and Electrification (CFME) with the Edsel Ford quote, "There are no crown princes at Ford." The sentiment of that statement is very much the metaphor for the mentality still needed by Michigan policymakers and business leaders today. Just because Michigan has been the global epicenter of the automobility sector does not mean we simply get to inherit that title in the future of electric, automated, shared and connected mobility.

To remain the worldwide leader Michigan must continue to reinvent public policies, invest in high-quality communities and infrastructure, continue deploying and testing mobility innovations, win more business attraction opportunities than our competition, and develop outstanding talent that will lead this sector into the next generation of mobility. This report contains the recommendations regarding public policies and investments seen as ripe to make right now to further the state's earning of its role as the leader of the future of mobility. The recommendations were developed by the CFME members who represent the automobility industry, research universities, clean fuels advocates, and state government, as well as many additional stakeholders who were engaged through a series of workgroups. The CFME believes implementing this slate of recommendations over the next year will help Michigan maintain its global leadership in mobility and electrification.

It has been an honor to serve as the Chairwoman and to share in the responsibility of continuing the strong public-private partnership that is the Michigan Council on Future Mobility and Electrification.

A handwritten signature in cursive script that reads "Susan R. Corbin".

Susan R. Corbin

Director, Michigan Department of
Labor and Economic Opportunity;
Chairwoman, Michigan Council on
Future Mobility and Electrification

Introduction

The futures of automobility and of Michigan's economy are inextricably linked.

According to the **Mobility Industry's Economic Contribution in Michigan report** by MICHauto, the state is still home to 26 automotive original equipment manufacturers (OEM) and 96 of the top 100 automotive suppliers. These employers provide jobs for 1.1 million Michiganders (20% of the state's total workforce), contribute \$304 billion annually to the state economy, and accounted for 12% of all vehicle production on the continent last year. Should the automobility sector experience a downfall for any reason it would be catastrophic for Michigan. Should the automobility sector seize a modern golden age, Michigan would enjoy an unprecedented period of economic superiority that generations would thrive on.

Likewise, given the share of the sector's workforce, research and testing, and corporate administration originating in Michigan, the prosperity of the state and its residents is a key influence on the productivity and prospects of OEMs and suppliers, and the development of new sector innovations. If the state fails to properly invest in competitive economic development and business attraction tools, in the piloting of real-world demonstrations for new mobility technologies, and in high-quality and reliable infrastructure, then the employers of the state will struggle with the repercussions. Additionally, the state must keep its talent pipeline healthy, and its workforce modernized while

maintaining vibrant communities that are safe, affordable and that offer appealing amenities in order to attract and retain the engineers, entrepreneurs, and laborers who are critical to the future of the industry.

The transitions from engines to batteries, pistons to cathodes, and gas pumps to EV chargers and H2 fueling stations must be viewed simultaneously as risks and growth opportunities for jobs and fair labor practices, for innovation, for more sustainable modes of transportation that are better for the environment, and for national security and decreasing dependence on foreign oil. Changes to propulsion and other technologies in cars and trucks are pushing new stresses on supply chains and demand a differently skilled workforce. Expanding production capacity for these new products mean consolidating production at facilities making older products, which will positively impact some Michigan communities and negatively impact others.

Electric vehicles are the precursor to more fully automated vehicles. Zero emission vehicles promise safer, greener mobility, but their demand for electrons represent growth opportunities in the energy sector and related grid demands not seen in generations. Connected vehicle technologies likewise will create new business models for telecommunications providers, while

also subjecting logistics and commuter travel to the physical and cyber threats of multiple infrastructure assets. Additional automobility sector developments may give way to more mobility as a service (MaaS) solutions, dynamically shifting norms regarding personal vehicle ownership.

Developing the systems and public policies by which the transportation, telecommunications and energy infrastructure networks will be protected and become more integrated will influence the emerging mega-sector's actors' approaches toward interoperability and new revenues. For the state, these integrations represent pathways to a more diverse economy and higher-waged, knowledge-based employment opportunities for residents. Working together between government and industry is paramount. Jointly developing answers to vital questions and creating solutions to mutual problems is the winning strategy to turning the mobility renaissance into greener pastures for all.

The Michigan Council on Future Mobility and Electrification (CFME) was created as just such a public-private alliance. An advisory body tasked with developing and recommending policies and actions that will help keep Michigan a global mobility leader, the CFME's recommendations are analogous to turn-by-turn directions of a copilot guiding the state through this mobility revolution. It is Michigan's platform for government-industry collaboration, deliberation, and triangulation of waypoints as we maneuver to the mobility sector's next era. The predecessor to the CFME, the Michigan Council on Future Mobility, had an original scope that included automated and connected vehicle technologies, intelligent transportation systems, and mobility innovation. When reconstituted under Executive Order 2020-02 the CFME's ambit was expanded to include electric and other low- and no-emission vehicles and related infrastructure, like hydrogen fuel cell electric vehicles, and to focus more on the automobility sector's issues in economic development, talent attraction, and workforce training policy domains.

Additionally, the Office of Future Mobility and Electrification (OFME) was established by Executive Directive 2020-01 at the same time the CFME had its mission expanded. The OFME was created to develop and coordinate the state's mobility and electrification goals, strategies, tactics, policies and programs across state government and between government and industry, academia, and communities. To effectuate this mission the OFME recognized the need for a comprehensive strategy for state government to guide the path to the future of mobility and electrification. The CFME supported this in its 2021 Report. The resulting MI Future Mobility Plan is a unified, cross-departmental approach designed to strengthen Michigan's economy and enhance the state's mobility leadership status through strategic investments, responsive policies, and dynamic programming to prepare for the future. It begins with the vision that it should help the state enable a stronger state economy through safer, more equitable and environmentally sound transportation for all Michigan residents. The goals of the Plan are organized into three pillars:

- 1 Transition and grow our mobility industry and workforce.
- 2 Provide safer, greener and more accessible transportation infrastructure.
- 3 Lead the world in mobility and electrification policy and innovation.

The MI Future Mobility Plan is now available online at the OFME's website.

With the initial state mobility and electrification strategy now complete, the OFME will work to implement and keep this guiding document up to date. The recommendations of this CFME report have been organized in accordance with the MI Future Mobility Plan's pillars.

Policy Recommendations

TRANSITION AND GROW OUR MOBILITY INDUSTRY AND WORKFORCE

Make Mobility More Equitable

Being a global mobility leader is more than having the greatest investment and jobs numbers. Those are certainly key metrics, but there are more human-centric evaluations to consider as well. Ensuring that new mobility technologies are used to improve the quality of life for those who need it the most is at the top of CFME's list when assessing policy recommendations. Making advanced mobility solutions more accessible and guiding their development towards solving real-world problems experienced in the daily lives of Michigan residents is critical to CFME's understanding of leadership in this sector.

The lack of mobility services and solutions are too often a barrier to employment and job training opportunities for too many Michiganders. It borders on embarrassing to think that people living in the worldwide epicenter of the automobility sector have systemic mobility problems. To support the enlargement of the state's automobility workforce and as a way of better leveraging the state's mobility leadership to support its residents, the CFME recommends the state increase investments in public transit to support more bus rapid transit (BRT) lines specifically providing access to jobs and education. A more robust public transit budget will help local transit agencies add more bus routes and employ more operators, making public transit



Ramping up Michigan's investment in BRT and other proven, practical modes of public transit is part of the MI Healthy Climate Plan's strategy for reducing the transportation sector's 28% share of our state's greenhouse gas emissions and achieving Governor Whitmer's commitment to 100% economy-wide carbon neutrality by 2050.

Liesl Clark | Director, Michigan Department of Environment, Great Lakes and Energy

more accessible and reliable. It demonstrates Michigan's commitment to improving equity in the transportation sector. It also shows the state isn't just a car-based society, that the state is serious about its mobility future is multi-modal, and that an individual can live here and get around easily and reasonably.

Additionally, development of new mobility technology has gained much attention in the media and in the public imagination. However, the true value of that development needs to be demonstrated in clear use cases representing situational needs if Michigan is to continue being a global mobility leader. Michigan gained great insight into previous technology developments with its former Michigan Mobility Challenge and received the attention of a wide range of inventors and entrepreneurs. But the state's Mobility Challenge evaporated in the wake of the COVID-19 pandemic. The CFME recommends reconstituting the state's Mobility Challenge initiative, with a greater equity focus, to allow Michigan to demonstrate its standing as the premier testing and demonstration center and mobility solution provider.

The OFME and MDOT can develop the specific challenge focuses, a proposed budget and details such as timing, scope and the involvement of clients or community partners. But an example of how a revived state Mobility Challenge could improve equity in the transportation sector a future challenge could be focused on transporting workers from disadvantaged communities to employment opportunities in the automobility

sector in ways that reduce individuals' commute times, reduce tardiness and absenteeism, or that provide personalized route plans that help provide access to healthcare appointments, grocery stores, continuing education providers, and banking services.

The policy would require a one-time budget investment of \$10 million to cover a few years of new Mobility Challenges and will be most successful with robust publicity. By comparison, the previous Michigan Mobility Challenge had a total budget of around \$8 million from 2016 to 2019.

Most critically, the revamped Mobility Challenge must set a clear goal, but allow flexibility and innovation to reach it. Next, an assessment of reasonable and anticipated costs for an adequate demonstration must be estimated. From this estimate will come parameters about the size and number of proposed participants. Finally, the process needs to be developed in compliance with state standards on advertisement, bidding, selection and evaluation. The metrics for the new Mobility Challenge will depend on the specific challenge which could take several forms. But most important would be the ability of the challenge winner's technology to solve a real-world mobility problem.

The State of Michigan has a good record of successful demonstrations such as the former Mobility Challenge. Funding another challenge would reaffirm Michigan's reputation as the state that tries greatly and supports innovation.



Fund a Public Relations Effort Enhancing the Sustainability Reputation of Industry

To support the attractive of the state's most valuable economic sector, the CFME suggests the state fund the development and implementation of a public relations campaign that seeks to address any misconceptions about Michigan being a great place to live, work, play, and the state's leadership in sustainability. The intent of this recommendation is to market Michigan as a great place to enjoy life and a career in automobility that is making the next generation of sustainable mobility.

High-tech talent is sorely needed to continue our momentum towards advanced mobility technology solutions. More and more that talent is being attracted to places and employment opportunities that offer ideal outdoor recreation and quality of life attractions, and – maybe even more importantly – careers that provide a way for the employee to play a role in positively impacting climate change. Questions about a corporation's sustainability plan

are among the most frequently asked by younger talent with high-tech related degrees.

The automobility sector is struggling to shed the industrial, metal-bending persona that it has had for the last century. This complicates the talent attraction efforts when the younger talent sought view the industry as one that is based on antiquated technologies and methods of operation, and as an industry that is not a part of the climate change solution. The marketing campaign would help unravel those complications by telling the truth about how Michigan automakers and their electric vehicles are a major part of tackling global climate change.

Given the intended benefits to the sector, the potential for the costs of running such a public relations campaign easily eclipsing tens of millions of dollars, it is expected that the state's appropriation be used to leverage matching investments from automobility sector actors, like members of the CFME.

Support Hydrogen Propulsion Technology

In the transportation sector, Michigan should support all zero-emission powertrains, including battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). It is difficult to predict technological advancements and the implications of these advancements. The most effective powertrain solutions for decarbonization may vary based on vehicle class and segment (urban, rural, marine, rail, etc), and by supporting hydrogen FCEVs like BEVs Michigan would develop expertise in both.

To approach parity between state policies support BEVs and FCEVs, the CFME first recommends that Michigan's Department of Transportation pursue additional hydrogen (H2) Alternative Fuel Corridor designation with FHWA for some of its major highways and routes. Having such designation would enable Michigan to pursue funding from Section 11401 of the BIL to support the buildout of a network hydrogen fueling stations in the state.

Given the freight analysis conducted by FHWA, CFME recommends designating the following highways:

- I-75 from the Ohio border to Detroit
- I-94
- I-96
- I-69

The second FCEV parity policy the CFME recommends is for Michigan to conduct a survey of the commercial goods movement through the state to understand the products and goods, weights, distances, starting points, ending points, logistics providers, and customers of the goods. This could begin with CFME taking a deeper dive into the state's Michigan Mobility 2045: A Transportation Plan for a Connected Future report. Doing so would (a) facilitate the placement and capacity of chargers for commercial BEVs and H2 fueling stations for commercial FCEVs, (b) determine the volumes of vehicles and (c) identify potential industry partners.



Toyota believes a diverse array of vehicles is the fastest way to achieve the ultimate goal of carbon neutrality. The application of zero-emission hydrogen fuel cell powertrains to medium and heavy-duty commercial road vehicles has great potential as an innovative fleet electrification solution. This year's hydrogen recommendations by the CFME should help further this opportunity and maintain Michigan as an electrification leader.

Derek Caveney | Senior Executive Engineer, Toyota



The third FCEV parity policy the CFME recommends is to engage with Ontario to understand cross-border goods movement in Ontario, Quebec, and Buffalo, and investigate the potential for H2 to support carbon reduction at maritime ports, and also collaborate on the placement of chargers for commercial BEVs and fueling stations for commercial FCEVs within Michigan and Ontario.

Develop ADA Standards for EV Chargers

The CFME believes it is an obligation upon the state of Michigan to develop a robust accessibility standard for EV charging stations through MI Department of Civil Rights (MDCR) with support from OFME, MDOT, the Michigan Public

Service Commission (MPSC), and the Michigan Department of Environment, Great Lakes and Energy (EGLE), along with others. Ensuring charging stations are accessible to all drivers is vital to being a global mobility leader and ensuring the benefits of electrified mobility are available to all residents and visitors.

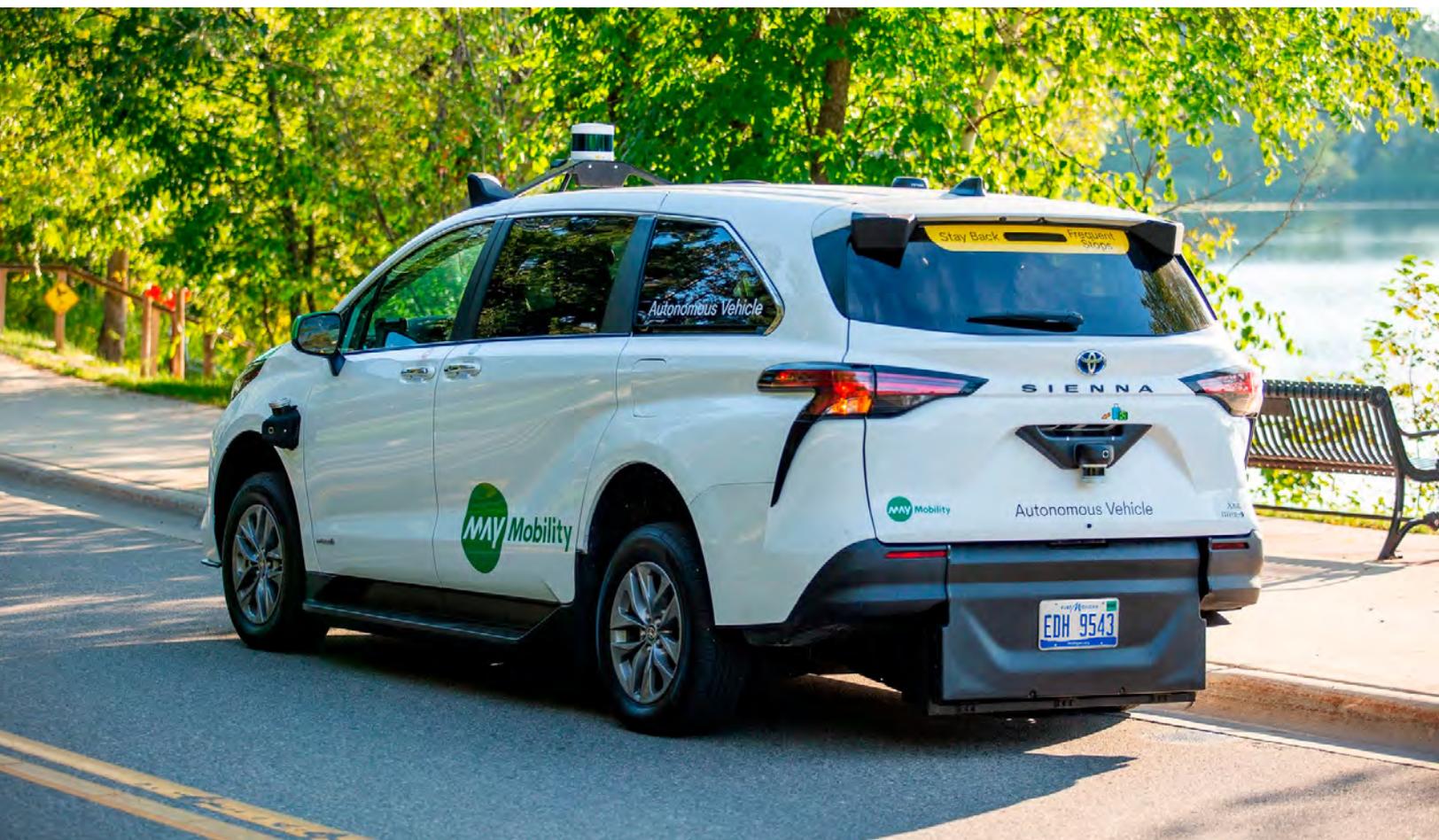
While state and federal laws may require EV charging stations to be accessible or compliant with the American with Disabilities Act, there currently is no national or state standard to comply with. The U.S. Access Board has issued Design Recommendations for Accessible Electric Vehicle Charging Stations on July 21, 2022, and the Federal Highway Administration has issued a Notice of

Proposed Rulemaking for the National Electric Vehicle Infrastructure program that could lead to new accessibility regulations for NEVI funded chargers. But a full set of enforceable accessibility standards could still be a long way off, and any standard produced could not go far enough or could lack appropriate enforcement mechanisms. Michigan should not wait for a full federal standard to be developed while we have resources ready to deploy chargers today. Instead, Michigan should lead in the development of these standards and include federal partners in our progress. This will guarantee that state investments in charging infrastructure are made efficiently and effectively as possible, and with the greatest possible benefit to all Michiganders while also ensuring any future federal standard is informed by Michigan's.

While deploying EV chargers, the state of Michigan is keenly interested in assuring the stations are accessible to all residents and visitors.

However, the relatively newness of EV charging infrastructure means that accessibility or American with Disabilities Act type of standards have yet to be developed. Michigan cannot wait until the federal government, or another state develops such a standard. Doing so would only slow down our initiatives to deploy chargers and support electrified mobility.

The MDCR assists state agencies with the development of accessibility standards that comply with federal regulations across a wide variety of subject matters. In this case, EV charging equipped parking spaces would be the subject of developing and adapting a new standard to. With the input of other state agencies involved in the deployment of EV chargers the MDCR should be able to develop an accessibility standard for the state of Michigan's charging network at no cost to the state.



LEAD THE WORLD IN MOBILITY AND ELECTRIFICATION POLICY AND INNOVATION

Take Advantage of the Potential in Uncrewed Aerial Systems

Being a mobility leader is not just about being the world's first in cars and trucks (though Michigan is first in cars and trucks). It is also about being committed to a multi-modal future and deploying advanced mobility and sustainability technologies in micro-mobility, subterranean and submarine mobility, agriculture, outdoor recreation, maritime and in the air. Michigan has already championed some of the most innovative uses of advanced aerial mobility solutions, including expedited small parcel delivery and using drones to improve healthcare services. In June 2022 with the partnership of Beaumont Hospital, an OFME grant to Airspace Link (a Michigan based company) led to Operation Miracle Mile, a real-world demonstration of drones transporting blood samples, lab results, and soft tissue more quickly and safely to improve

patient care. More use cases like Operation Miracle Mile are beneficial to our understanding of the technologies involved and the testing opportunities attract companies like Airspace Link to the state.

Currently, federal regulations require any uncrewed aircraft to operate within visual line of sight of the pilot – limiting the integration of these systems into a multimodal transportation system. However, as technology progresses and methodologies to provide an equivalent level of safety are established, the opportunity for sustained beyond visual line of sight (BVLOS) uncrewed aerial systems (UAS) operations is closer to a reality. To determine and quantify the need, MDOT has initiated a feasibility study with Airspace Link (a Michigan based company) to explore a wide range of economic, societal, and transportation-related impacts. The study is scheduled to be complete in late 2022.



The CFME urges the state to invest in infrastructure needed to support more UAS operations, such as communication links and command/control systems, to improve the odds of securing approval from federal regulators for BVLOS operations in Michigan.

In partnership with numerous other mobility initiatives, deployment of a BVLOS operational network would place Michigan amongst only a handful of other states and would be the first to implement this type of system outside of an FAA test site – highlighting that Michigan was the first to do this in a real-world environment. While the MDOT study will give a more precise basis for the funding request, preliminary analysis by CFME and partners suggests an investment as follows:

- \$30 million in capital investment for infrastructure deployment and related costs such as technology licenses and administrative expenses.
- Funding for promotion of awareness of BVLOS benefits.
- Administrative expenses for establishing a fee system on per trip assessments.

At least five other states have limited systems deployed currently under a “testing partnership” with FAA. Information gathered from these tests are available to guide the implementation of Michigan. Briefly, these states and their efforts are:

- **North Dakota:** \$50 million private sector investment in BVLOS infrastructure. Active work on regulations with FAA.
- **Ohio:** 35-mile long “Smart I33 Corridor” incorporating BVLOS into UAS traffic management solutions. Private sector and university involvement heading toward request for approval from FAA.
- **North Carolina:** Investment of \$5 million to begin initial BVLOS infrastructure and deployment of key goods.
- **Texas:** Actively investigating potential corridors in at least two regions perhaps with the private partners already in North Dakota.
- **Utah:** Commissioned a corridor study with movement of medical supplies the test case. Similarly to MDOT, the study will help the Utah DOT determine funding levels and opportunities.

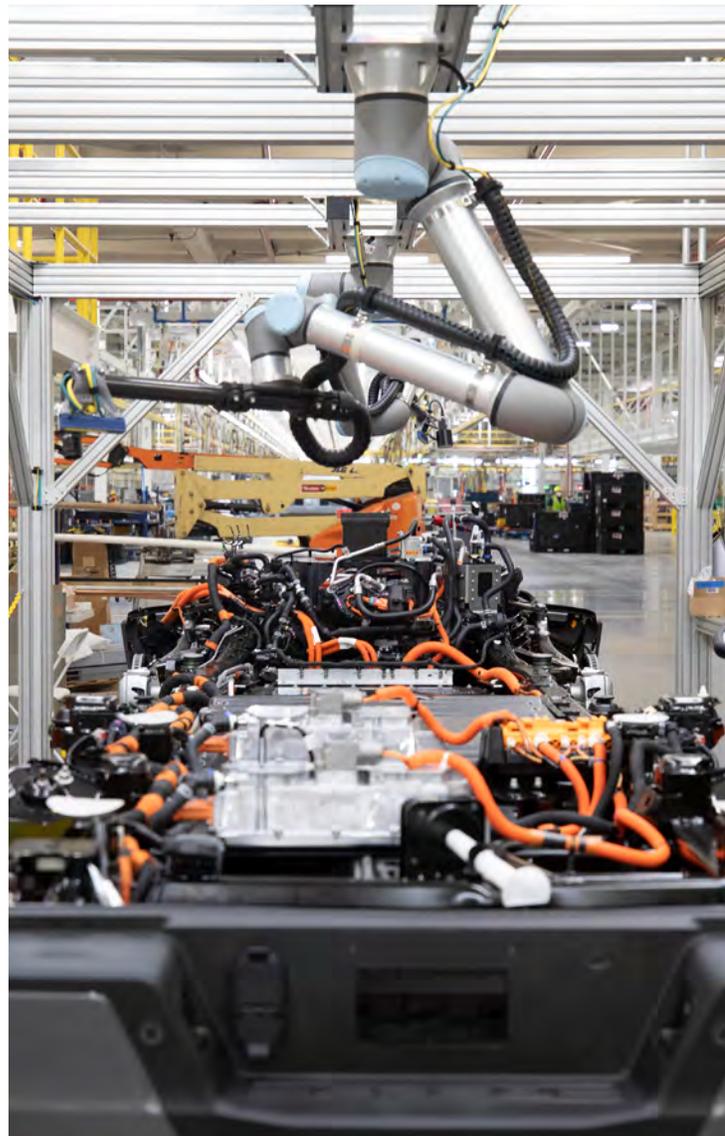
Michigan is currently behind other states without this policy recommendation, but this is a leapfrog moment for Michigan to stake out a leadership position.

Michigan Automobility Landscape Snapshot

While competition by other states and countries grows fiercer every day, Michigan continues to be a center for the future of mobility. More must be done to invest in skilled workforce, high-tech talent development and attraction, infrastructure readiness, and an attractive economic development environment. But since this Council's last report some major strides were made to keep Michigan's global mobility leadership intact.

The 2022 year has been chock-full of exciting news for Michigan automobility. In January, General Motors made a historic **\$7 billion investment** across two Michigan facilities to expand assembly operations and battery cell production. Then LG Energy Solution announced a **\$1.7 billion investment**, to add 1,200 new jobs and ramp up battery production in Holland, Michigan. Ford was next, announcing in June that it would put **\$2 billion** into assembly production and add 3,260 jobs in Wayne Co. In multi-modal news, Detroit-based drone software developer Airspace Link secured **\$23 million** in Series B funding. In August, Stellantis announced it would pay **\$83 million** to retool an engine plant in Dundee, Michigan. But Michigan wasn't the only winner, and other states welcomed major opportunities in 2022 too. A Stellantis and Samsung **\$2.5 billion** joint venture for lithium-ion battery production was made in Indiana. There was also Ford's **\$11.5 billion investment** in Tennessee and Kentucky, creating 11,000 jobs at the new Blue Oval City mega-manufacturing campus.

The slew of 2022 investments in electric vehicle production and advanced mobility are just the tip of the iceberg; more opportunities lay on the horizon. The push to develop a more robust and secure domestic supply chain for EVs, including precious mineral extraction and refining, will create an abundance of moments for the state to capitalize on. It was with these opportunities in mind that



Governor Whitmer **brokered a deal** with the state legislature to invest an additional \$846 million in the state's Strategic Outreach and Attraction Reserve (SOAR) Fund for economic development efforts. As part of this same deal another \$12.1 million was invested in talent development that will support the future of the future of mobility, including funding for advancing robotics programs and the **Michigan Achievement Scholarship**, which could help lower the cost of Michiganders attending public universities and colleges by up to \$5,500 per year. As a result of the economic development resources, Michigan was able to attract two more massive EV battery manufacturing investments on the same day in October. First, was a \$2.36 billion investment by battery maker Gotion, creating 2,350 jobs in Big Rapids. Second was a \$1.6 billion, 2,112 jobs battery production factory in Van Buren Township by Our Next Energy.

These deals are great news for Michigan's automobility sector, but the state must keep its foot on the accelerator. Failure to keep economic development tools sharp or build a better venture capital ecosystem, to make further investments in talent development and workforce training, or to investment in high-quality, attractive communities where high-tech talent wants to live, will mean more future opportunities will be lost to other states.

The transition to electric vehicles has created growing opportunities in charging station R&D and manufacturing. In June, Flo announced their **first American manufacturing facility** will open in October with plans to make 250,000 EV chargers in Auburn Hills. Also, **Rhombus Energy Solutions**, based in Dearborn, was acquired by BorgWarner, located in Auburn Hills.

Perhaps the most notable automobility news of the year was on the national landscape and came from the federal government's actions.

The **Infrastructure Investment and Jobs Act** (Bipartisan Infrastructure Law or IIJA, BIL) made an enormous federal investment in public transit, passenger rail, transportation system safety and reliability, broadband and connectivity, clean grid resiliency, and EV infrastructure and electric buses. In particular, the \$7.5 billion to create a national EV charging network was the booster needed to help make chargers accessible to all Americans and Michigan was excited to submit its plan for using the **state's \$110 million share** of those funds. Self-proclaimed "car guy" President Biden announced the **approval of the state's EV infrastructure plan** during his visit to the Detroit Auto Show in September. The Environmental Protection Agency's (EPA) **Clean School Bus Program** was another IIJA investment worth highlighting with as many as 71 Michigan school districts applying for \$104 million dollars from the program to purchase 290 electric school buses and 15 propane school buses. Grant awards were decided by the EPA in October, and 25 Michigan school districts will receive over \$54 million to help transition 138 school buses to EV.

The IIJA was followed by the federal **Inflation Reduction Act** (IRA) which included key provisions to expand access to EVs and enhance the country's national security through a reduction in dependence on foreign oil. The IRA creates stable tax credits for alternative fuel refueling credits, incentives for fleets to electrify, passenger EV tax credits, and more. The national landscape changes also included the move by **California's Air Resources Board** to require all new cars, trucks and SUVs in the state to run on electricity or H2 by 2035. This new regulation will have broad impacts because the state represents 10 percent of the US vehicle market and because 15 other states have followed California's lead on previous clean-car standards.



Michigan benefited from federal investments by way of competitive grant awards too. The Detroit Regional Partnership (DRP) received a \$52.2 million **advanced mobility grant** from the U.S. EDA Build Back Better Regional Challenge (BBBRC). The grant will support six projects submitted under the Global Epicenter of Mobility (GEM) initiative. There are 5 co-recipients, including the DRP, OFME, the Southeast Michigan Community Alliance (SEMCA) in coordination with MichiganWorks!, TechTown, and the University of Michigan Economic Growth Institute. The grant will support the advancement of the state's mobility and electrification efforts while also building on Michigan's economic momentum.

The automobility sector was a feature of state government initiatives since the CFME's last report as well. The **Regional Electric Vehicle – Midwest** (REV Midwest) **compact** between the states of Illinois, Indiana, Michigan, Minnesota and Wisconsin was established to develop a new network of EV charging infrastructure across the five states. REV Midwest has been working diligently ever since to create a strategy for deploying a medium- and heavy-duty electric vehicle charging system.

State government announced a second **multi-state partnership** in 2022. The Lake Michigan EV Circuit Tour initiative was established to build the best new

road trip for EV drivers in America, installing EV charging opportunities across 1,100 miles of scenic roadway incorporating tourist attractions and pleasant beach towns. Michigan also announced a **partnership with Rivian** to install EV chargers at state parks, and a **first-of-its-kind joint effort** with the National Parks Service to deploy emerging mobility technology solutions to enhance the accessibility of national parks and shorelines.

Michigan and a number of Midwestern states also recently signed onto the Midwestern Hydrogen Coalition. This **multistate agreement** will provide competitive advantages for Michigan when it comes to innovation and further investment in the country's essential energy network, and provides a framework for the participating states to leverage each other's unique assets to develop a maturing hydrogen market ecosystem. One of Hydrogen's greatest potential applications in Michigan is for decarbonizing medium and heavy-duty transport. Close to 25% of all US/Canadian commercial traffic crosses over the Ambassador Bridge, which, if decarbonized with hydrogen, would represent a significant reduction in greenhouse gas emissions.

Meanwhile, the Michigan Public Service Commission (MPSC) **approved Consumers Energy's** and **DTE Electric's applications** for special economic development rates to attract



high-volume and energy intensive industrial customers to Michigan. The new rates will make Michigan a more competitive location for advanced manufacturing, including electric vehicle, electric battery storage, semiconductor/chip and other high-tech manufacturing. The MPSC also approved tariff changes and the creation of an accounting process through which **Upper Peninsula Power Co.** (UPPCO) and **Alpena Power Company** will allow for the acceleration of electric vehicle chargers and mark the first such utility vehicle electrification effort approved by the Commission in the Upper Peninsula. Today, utility offered electric vehicle pilot programs are accessible to almost 4.5 million utility customers in the state or approximately 92% of all ratepayers in Michigan.

A lot of great work has improved Michigan's EV-friendliness rating, but there's more left undone than what's been achieved. As more fleet owners make plans to lower fuel and maintenance costs and shift to more sustainable mobility options the demand for charging station installations will

grow rapidly. Michigan's market for EV charging would mature more quickly by having transparent access to important data about hosting capacity on the energy grid. This would lower costs and speed up the process to site ideal locations along the transportation system. Likewise, improved state support for fleet transition will help keep Michigan a global mobility leader and create more opportunities for future innovation.

Michigan was named the **top state for energy-sector job growth** in 2022, with more jobs in this sector being created every day with the advancement of electric vehicles. The state also invested \$130 million for a **new EV battery lab** at the University of Michigan, and created a nationally recognized **EV Jobs Academy**. These are great starts, but more is needed in order to fulfill the goals of leveraging the mobility revolution into a more knowledge-based, resilient state economy and being a global mobility leader in 2030 and beyond.



Closing

The Michigan Council on Future Mobility and Electrification recognizes that this report comes at a time that is rare in recent memory. The state and federal governments have focused their attention to future mobility issues and are responding to them with unprecedented funding. These times also demonstrate a period of vivid imagination and serious consideration of policy choices in electrification, new forms of mobility and new thinking by the public and thought leaders in these fields.

The council members, advisors, work group participants, informed presenters and many additional sources of insight and analysis have joined the ranks of these thought leaders, and offer with this report their recommendations for a vital mobility future. Their time, energy, vision and most of all concern for Michigan and her travelers, residents and future generations of workers represent an inestimable contribution to Michigan's legacy and mobility future. In this, these champions of Michigan hearken to predecessors, but also with a heightened emphasis on a more comprehensive mobility that includes more communities of all sorts and respects environmental and climate choices that will be part of future decisions. In this report, the council and its supporters are making a commitment to continue the best parts of our state heritage without the fallacy that history alone will

preserve Michigan's standing and past wisdom will suffice for new choices ahead. It's useful to recall an admonition by Henry Ford in this regard: "It is always too soon to quit."

Along with the policy recommendations, this report should also be considered an encouragement, if not caution, for policy makers to seize the opportunities in new mobility and electrification. Michigan is poised to continue its strong leadership in the industry which moves people and goods in every aspect of modern life. Michigan is inventing the future age, and this report is respectfully presented to the Governor, the Michigan House of Representatives and the Michigan Senate and above all the people of our state with a fervent hope for sound policy and a prosperous and comfortable future.

Appendix: Updates & Further Recommendations of the CFME 2021 Report

The CFME made a number of recommendations in its 2021 Report. Some have seen success and may be ready to scale. Some are still progressing towards completion or are awaiting action. Below are status updates on the implementation of the policies, programs or projects endorsed by the CFME last year, and the Council's recommendation for furtherance of those today. The CFME encourages readers interested in these recommendations to revisit the 2021 Report for a better understanding.

EV Jobs Academy

Recognizing the need to support reskilling of internal combustion engine (ICE) workforce to build EVs, the CFME recommended last year funding for the creation of an EV Jobs Academy. Through partnership between OFME and the Michigan Department of Labor and Economic Opportunity (LEO) a grant was made to the Workforce Intelligence Network, an employer-led collaborative of over 100 stakeholders, to develop and scale postsecondary credentialing programs for electrified vehicle and mobility-related occupational skills. This is **Michigan's EV Jobs Academy**. This effort will serve approximately 700 individuals, but more re-training is needed for Michigan to be the place for more electric vehicle investments. Which is why the CFME now recommends expanding the EV Jobs Academy through future state budget appropriations.

EV Consumer Incentives

In 2021, the CFME recommended modeling and implementing tested and proven incentive programs for electric vehicle supply equipment (EVSE), or EV charging infrastructure, and personal and fleet electric vehicles.





Electric mobility isn't just coming, it's already here.

Automotive OEMs see the future of their industry and have placed their bets on EVs and AV technology. Michigan communities must prepare and implement charging infrastructure to support millions of EVs within the next 10 years. With many EV models becoming available and the rapid growth of EV sales, setting foundational infrastructure up within the next three to five years is imperative now to prepare for the longer-term vision. Complementary policies and programs are needed to ensure that local governments across Michigan can harness the benefits from this influx of electric transportation options. Carefully crafted programs to reduce the cost of EV charging deployment will not only speed EV adoption, but also support equitable access to EVs.

Existing incentives for EV charging, including those offered by EGLE and investor-owned electric utilities, have proved highly successful. Now, the federal government's investment in EV infrastructure through the Bipartisan Infrastructure Law's National Electric Vehicle Infrastructure Program (NEVI) provides an additional opportunity for investing in public charging stations. However, funding for all of these programs is limited and

they alone will not meet the charging needs of all Michigan residents and businesses. Additionally, these one-time opportunities will not reach EV owners at their places of residence or other locations that are not publicly accessible (i.e. at-work or private lot charging and multi-unit dwellings). Michigan needs long-term, fully funded incentive programs to help scale the market efficiently and ensure that all Michiganders are benefiting from EV charging deployment.

Governor Whitmer proposed a consumer rebate program for the purchase of an EV in her 2021 State of the State address. The program would offer a \$2,000 rebate for the vehicle, and \$500 for at-home charging infrastructure. The federal government also recently expanded its EV consumer incentive program under the Inflation Reduction Act, providing low- and medium-income individuals a \$7,500 federal tax credit for new EV purchases and a \$4,000 credit towards used EVs. Some estimates are that the expanded federal EV tax credit will improve EV adoption rates by 8% or more by 2030, which is great but leaves room for more work to be done to attract consumers to drive electric.

This state rebate program proposal could be combined with the \$7,500 federal tax credit, meaning that Michigan consumers could save up to \$10,000 on the purchase of a new EV. This would entice more Michiganders to take advantage of the federal credit while it lasts and improve EV adoption even more in Michigan compared to states without their own incentive. The CFME strongly supports the establishment of a Michigan EV consumer incentive program and urges state policymakers to prioritize this effort. Likewise, the CFME also strongly recommends the passage of the EV-Friendliness program concept from the Governor's proposed **MI New Economy** to infuse \$40 million into a program to support the deployment of EV charging infrastructure at locations unreachable with existing resources, such as at commercial fleet owner's property and multiunit dwellings.

Mobility Wallet

The CFME recommended previously that the state pilot a Michigan Mobility Wallet – a centralized platform for financial transactions related to mobility services across all modes, both public and private. The Mobility Wallet will support greater, more equitable access to more mobility solutions by streamlining rider fees into one easy-to-use system. Through a \$25 million appropriation called the **Michigan Mobility Futures Initiative**, the OFME is partnering with the Michigan Department of Transportation's (MDOT) Office of Passenger Transportation to develop and test the Mobility Wallet. The results are intended to inform next steps in the development of this tool with hopes of eventually becoming a mechanism for implementing a Universal Basic Mobility policy and guaranteeing that no Michigander experiences a mobility barrier to employment, education, healthcare or other essential opportunities and services.

Transit and Bus Electrification Grant Pilot

The CFME recommended in last year's report that the state make a budget investment of \$45 million for a transit and school bus transition program. Grants from this program would support the purchase of equipment, feasibility and strategic planning, training modules for mechanics and operators, technical support, administrative support, and optional renewable energy system pilot projects. The rationales for affording such an initiative identified in the 2021 Report are still valid, and such a program would still be of great value for the state and its competitiveness for EV investments and jobs.

Expanding Sinking Fund Uses

In 2022, 71 Michigan school districts applied for approximately \$104 million dollars from the EPA's Clean Bus Program. If all grants were awarded 290 electric school buses would be on Michigan roads providing cleaner, healthier, more sustainable pupil transportation. The CFME suggested in 2021 that the state's policy regarding the eligible uses of sinking funds be expanded to include the procurement of EV school buses as a way to improve Michigan school district's competitiveness for such federal funding opportunities. The OFME worked with state legislators to introduce bills in both chambers to effectuate this policy. **Senate Bill 859** was introduced by CFME member State Senator Mallory McMorrow, and identical legislation, **House Bill 5721**, was introduced by State Representative Christine Morse. The CFME recommends the timely passage of either bill as demand for electric buses among Michigan school districts continues to grow.

Dynamic Construction Zone – Phase 2 Support

In the 2021 Report the CFME recommended the state pilot the near-real-time sharing of work zone safety data to test CAV operations in these segments of the transportation system that are of the most dangerous. Such a pilot was developed by MDOT and tested through 2022. Now the CFME recommends enhanced support for Phase 2 of MDOT's Dynamic Construction Zone pilot. This support would include additional state funding and likely more full-time employee authorization in the state budget to test further deployments of wearable technologies and begin understanding applications beyond state-maintained roads.

Work zone data touches three distinct issues: safety for the construction and maintenance workers; timely information and zone characteristics to enable greater automated vehicle development and more precise information on existence of zones and "workers present" for motorists and enforcement. Work zone data is a pressing issue and desire for developers seeking to bring more automation and driver assistance technology through development to deployment. With rapidly evolving mobility technology, the demand for precise, timely and updated work zone data is rising. Building a

strong program in such data would help solidify Michigan's stature as an essential location for research and development.

Increasing state support for the Dynamic Construction Zone pilot would enable tangible safety improvements while supporting Michigan's business case for research and development activities here. The problems addressed include worker safety and ultimately construction costs and timeliness. The development of a strong data program seems likely to attract researchers, developers and entrepreneurs who are ready to utilize such a resource to make automated movements more precise and able to respond to changing conditions. The data could also be used to communicate the presence and timing of construction activities to address motorist frustration at the perception of posted zones without visible activity. The result could be treating work zones generally with greater compliance with speed reduction.

Federal administrative approval may be necessary. Public awareness campaigns may be advisable if other policies such as decreasing distracted driving become part of a broader work zone policy.



At the Michigan Department of Transportation, everyone's safety is paramount. That goes for the motorists and the people putting themselves in harm's way to repair those roads. Thanks to our rich partnerships with contractors and private vendors, we are piloting new technologies we believe will bring new levels of protection to road users and road workers.

Paul Ajegba | Director, Michigan Department of Transportation

Advocating to Federal Policymakers on the Reallocation of the 5.9Ghz Spectrum and CV2X

Michigan and local road agencies have deployed hundreds of miles of connected vehicle technology and has gained valuable insights and partnerships into utilization of that technology. Further benefits seem possible, and especially in critical areas such as pedestrian safety. Unfortunately, the future of this road safety technology has been overshadowed by a decision of the Federal Communications Commission (FCC) to reallocate a portion of the wireless spectrum which had previously been used by vehicle safety applications. The Intelligent Transportation Society of America (ITSA) challenged the FCC decision. Unfortunately, the United States Court of Appeals for the District of Columbia Circuit dismissed the appeal and denied the petition for review. The 5.9Ghz spectrum will be reallocated away from protected use by intelligent transportation systems and Michigan's options for moving forward in the wake of this decision must be comprehensive.

Responding in a comprehensive manner means one of at least a few options. The first option is to advocate for reimbursement costs for expenses borne in converting previous installations with the new spectrum limitations. Participants in ITSA discussions on the issue have suggested precedent for such reimbursements. A second option could be to apply for waivers from the requirement to relocate operations in the restrictive area of spectrum with the awareness that such a waiver may be only temporary relief. A third option could be to advocate for additional federal funds if reimbursement is not otherwise provided. A fourth

option would be to encourage the FCC to consider opening additional spectrum to transportation safety purposes. In its statement of August 12, 2022 responding to the court decision, the ITSA reported that the FCC had told the court it would consider such action. By continuing to advocate to federal policymakers on the 5.9Ghz spectrum reallocation issue, Michigan furthers its case for substantial compensation should the spectrum ultimately be auctioned away to commercial users.

MDOT and other road agencies have been working with connected vehicle technology using dedicated short-range communication (DSRC) as well as the newer 5G technology. With the FCC reallocation of spectrum, the DSRC technology faces an unclear future. MDOT faces the challenge of revising the technology at all existing locations or losing the public safety benefit of the previous work. It also must consider new installations in light of the possibility of signal interference in the more restricted portion of the spectrum. Currently, the spectrum issue is a cost to the state budget in terms of expenses, but more importantly in the potential lost benefit in public safety.



Michigan is among the leading states in vehicle to infrastructure or connected vehicle activity.

An inadequate or contrary end to this issue would leave Michigan faced with costs of complying with the new spectrum limitations and could impair the deployment at new installations because of needing to salvage past investment costs where they have been threatened by the FCC action.

Cybersecurity Laws Analysis

As recommended in the CFME's 2021 Report the OFME and MDOT conducted an analysis of other states' cybersecurity policies in order to discern if any best practices could be adopted in Michigan to better promote the development of advanced mobility technologies. The analysis concluded that no other state's cyber laws would enhance Michigan's mobility ecosystem beyond the state's current slate of policies.

CAV Enabling Legislation

Last year the CFME recommended that state develop and implement policies supporting the world's first deployment of a connected and automated vehicle (CAV) corridor. In August 2022, the state did just that with the passage of **Public Act 179** of 2022. This groundbreaking legislation introduced by CFME member State Senator Ken Horn established a first-of-its-kind authority for a state department of transportation to designate CAV laneways, implement limited access CAV road user charges, and contract with private sector CAV laneway systems providers for the development, operation, and management of the CAV road. This innovative state policy is **celebrated by industry** and CFME as an enormous win for Michigan and the advancement of smart infrastructure technologies.



CAVNUE

The legislation permits the CFME to commission a study on the jobs impacts of CAV laneways which would produce valuable insights into the future of automated vehicles.

Update AV Law Taxonomy & Retain the State's Uniform AV Policy

The CFME's 2021 report included a recommendation that the legislature update the taxonomy of the Michigan Vehicle Code (Public Act 332 of 2016) to (1) adopt terms which have become commonly accepted or industry standards since the Michigan laws on AVs were enacted in 2016, and (2) remove or extend the December 31, 2022 sunset to Michigan's statewide AV policy that would jeopardizes the state's status the premier state for advanced mobility testing and innovation. Two bills have been introduced to effectuate this policy, **one by CFME member State Senator Ken Horn**, and the CFME strongly advises passage of this legislation before the end of the year. The CFME also advises the passage of future legislation to modernize the AV taxonomy used in state statutes.

Global Center for Excellence: Batteries and AI

In the 2021 Report the CFME recommended the state use some of its ample American Rescue Plan resources to fund the creation of two Global Centers for Excellence, one focused on EVs and batteries and one focused on responsible artificial intelligence (AI). In its most recent budget the state did direct a crucial appropriation of **\$130 million for the creation of an electric vehicle center** at the University of Michigan. The CFME applauds this action and encourages the state to make a similar strategic investment in the research of AI technology and development of AI related degree holders.

R&D Tax Credit

In last year's report the CFME noted as it does in this year's report that rapid technological changes occurring in the mobility sector represent both an opportunity and a threat for Michigan. To maintain the state's industry dominance, it is paramount that cutting edge research occurs in Michigan. Providing incentives for firms to conduct this research and to build the talent needed to be a world leader will help ensure that Michigan maintains its dominant position. By providing a research and development (R&D) tax credit, Michigan can increase the return on investment that firms realize from these activities. This provides an incentive for new firms to locate here and for existing firms to expand these R&D efforts.

Legislation that would effectuate this policy was introduced by State Representative Matt Hall. While **House Bill 5601** goes beyond the automobility sector with its scope to also include life sciences as part of its three-pronged focus, it would also impact semiconductor manufacturing and automated vehicle technologies. The CFME still sees tremendous value in such an incentive and recommends the passage of this legislation or one that is more tailored to the automotive industry. Recognizing that there may be unanticipated tax expenditures for the state as a result of a blanket R&D tax incentives, the CFME would alternatively suggest a narrowly targeted R&D tax incentive that focused on the costs of high-cost R&D talent as a policy that could both support innovation and the attraction of high-tech talent.

Design a clean fuels standard that works for Michigan

The CFME continues to recommend that, in conjunction with establishing an EV consumer incentive, the state develop a clean fuels policy that reduces the carbon intensity of transportation fuels used in Michigan. Such a policy would deliver on emissions reductions while incentivizing investment in and greater use of low- and zero-carbon fuel alternatives, including electricity as a transportation fuel. In designing a clean fuels standard for Michigan, the state should consider how to improve upon existing approaches and maximize the benefits of the program, including policies to increase EV sales and regulatory provisions that reinvest the proceeds of certain credit sales under the policy to support a point-of-purchase EV rebate for Michiganders, or other measure. The broad outlines of a clean fuels policy would likely be established through legislation, with certain design and implementation details developed and clarified through regulatory action to establish program rules.

A clean fuels policy can be an effective tool for reducing transportation emissions while driving economic growth and accelerating vehicle electrification.

If Michigan acts now, it could also serve as a blueprint for other state programs across the Midwest or Great Lakes region, cementing Michigan's role as a mobility leader.

Clean fuels policies reduce transportation sector emissions while also marshaling additional private capital investment in EV charging infrastructure. (Because clean fuels policies support a portfolio of cleaner fuels, they also support jobs and innovation across several industries.) Just as importantly, with appropriate program design, revenues generated by the sale of credits under the program can be used to support EV purchase rebates that catalyze the EV market's growth.

Several states competing with Michigan for the title of global mobility leader already operate clean fuels programs or are nearing legislative passage. California and Oregon have established clean fuels programs. Washington passed legislation to establish a program in 2021 and regulatory development will begin this year. Minnesota and New York actively debated legislation in 2021 with strong and broad stakeholder coalitions in support. With bold and assertive action, Michigan could still become the first Midwestern state and first state outside of the West Coast to establish a clean fuels policy.

Michigan should learn from the experiences of states with already established programs. Charting a path reflective of the state's unique context, including its vibrant EV industry, could make Michigan a leader in maximizing the benefits of a clean fuels policy for transportation electrification. Creating more direct pathways for EV makers to earn and claim the credits their vehicles generate under these programs would be one possible reform, as well as more efficient administration of a potential EV rebate program, and clear program guidance to ensure that the full range of passenger EVs are eligible to benefit.

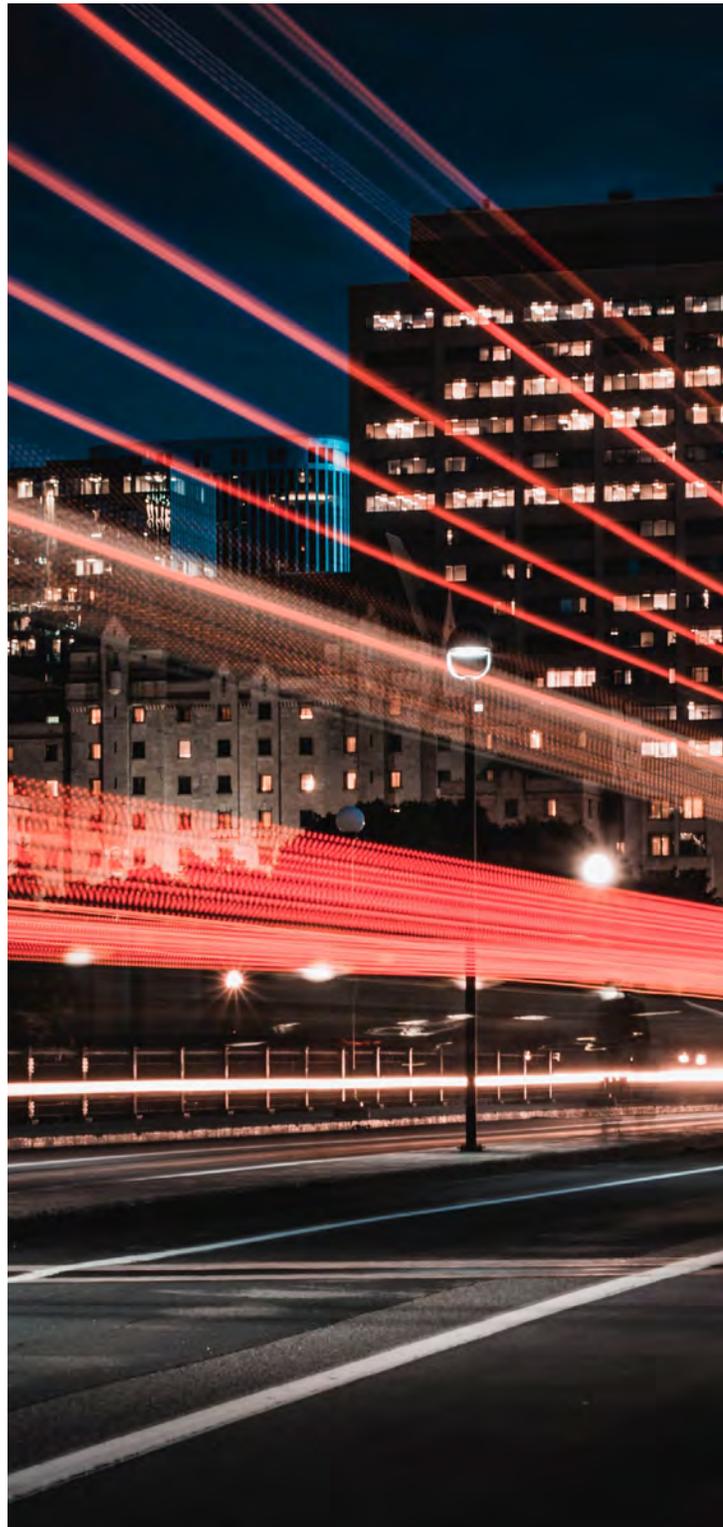
Federal Advocacy MUTCD Revisions

The CFME had recommended that the state advise federal policy makers on revisions to the Manual on Uniform Traffic Control Devices and on the advancement of a Federal Commuter Credit. Through work conducted by OFME, MDOT and others within state government the Council's positions on these matters have been noted, though more effort could be made to make the Michigan perspective more common across other states and influential in Washington D.C.

Improve Mobility Agency Capacity

The CFME recommended increasing the budget and staff for state agencies and offices working on the future of mobility, electrification, and smart infrastructure. This was recommended to facilitate more rapid decision making, innovative thinking and processes, as well as enhance current mobility ecosystem development programs.

As a result, the OMFE received \$2 million of the \$4 million requested in the state's FY2022-23 budget to assist in reaching policy and economic growth goals. This is an excellent start and signal to industry that state government sees value in supporting an ongoing effort to codevelop the future of mobility. As Michigan's mobility sector continues to grow, the OFME will require increased funding to continue to reach its goals.



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