Testimony of Nigel Francis, State of Michigan Automotive Office

to Joint House and Senate Committee

January 15, 2014

Detroit, Michigan

Good afternoon Chairman Kowall, Chairman Foster and members of the Senate Economic Development and House Commerce committees. My name is Nigel Francis, senior automotive adviser to the State of Michigan and our Governor, and senior vice president Automotive Office Michigan Economic Development Corporation.

It is both an honor and a privilege to serve the State of Michigan and I would like to thank you for the opportunity to participate in today's joint legislative hearing and review, and to discuss with you the State of Michigan Automotive Sector Strategic Plan.

As you know, Governor Snyder created the automotive office on September 1, 2013, together with my own appointment with a mandate to act as the catalyst and focal point for our valued automotive industry within the State. The broad role of the automotive office is to promote the retention, strengthening and growth of our #1 industry, both now and for the long term.

SLIDE 2:

The vision of the automotive office is that we will leverage the strengths and assets of Michigan's automotive industry for sustained intellectual and manufacturing global leadership. Our vision is that

every significant entity in the global automotive industry has a strong presence in the State of Michigan.

Under a mandate from the Governor of the State of Michigan, our mission is to implement and execute a comprehensive strategic plan to drive Michigan's automotive industry forward to remain as the global center of the automotive industry and to foster sustainable growth within the industry in Michigan.

SLIDE 3:

Michigan is automotive! The automotive industry is our #1 industry and it directly supports in excess of 500,000 jobs and represents approaching 15% of our workforce, and 22% of the automotive workforce in the United States.

Michigan is home to 61 of the top 100 North American automotive suppliers, produces 23% of the vehicles in the nation (more than any other State) and we lead US powertrain production. Michigan has 12 automotive assembly plants and 35 automotive parts and component plants. 25% of all automotive patents come out of our State. We are the #1 State for automotive OEM assembly plants, #1 State for tool and die facilities, #1 State for component supplier plants and #1 State for automotive parts employment.

The automotive industry generated $2.8 Billion in 2010 to Michigan's Treasury and direct automotive jobs generate approximately $14.5 Billion in personal income annually in Michigan.

For every direct automotive job there are approximately 3 more jobs created supporting that direct automotive job in the supply chain and

the communities in which these businesses operate and the individual workers live.

Importantly, Michigan is the automotive hub with 370 R&D centers in the State and more than 70% of all US automotive R&D spending.

Michigan ranks #1 nationally in the concentration of engineers with 65,000 engineers, 70,000 R&D professionals and more than 181,000 skilled trade workers. Additionally, we have 650 automotive education programs offered at 91 institutions.

SLIDE 4:

As stated earlier, I was appointed by our Governor on September 1, 2013, and was hired as a senior vice president of the Michigan Economic Development Corporation on that date. Upon appointment, I formed a strategic plan development team consisting of five globally recognized centers of excellence with specific competencies related to the current status and future trends in the global automotive sector, and key staff members from within the Michigan Economic Development Corporation as shown on this slide. This team was tasked with the development of the strategic plan with a mandate to look forward to the year 2040. Individually and collectively the enterprises and their extended enterprises in this team ensured that we could think globally and yet act locally in this truly global and highly dynamic and competitive industry sector. The team was also self-regulating in respect to the maintenance within the team of true objectivity, balance and un-biased perspective.

SLIDE 5:

Three key dimensions to the strategic plan were identified, these being:

1. **To retain and grow our current automotive industry base**
2. **To strengthen Michigan as the center of the North American automotive market, and**
3. **To grow technologies, talents and infrastructure necessary for us to lead the global automotive market of the future.**

SLIDE 6:

It is clear from our work that now is the time for us to take assertive and coordinated action across the State within Government, Industry and Academia to secure our future leadership in the very industry that was created in its modern form here in Michigan.

The industry in Michigan has managed its way back to prosperity since the collapse in 2008 and 2009 and is now robust, profitable and growing. Recent tax and policy reforms by the Legislature and the Governor make the State an attractive environment for local and global automotive investment and operations.

The future will bring an increasing pace of global change and we should prepare and execute a comprehensive plan to embrace such change and simultaneously leverage the existing world class assets within the State in the automotive sector. An example of such would be to recognize the value and greatness of our current position as the lead State in the nation by far in respect of automotive R&D and advanced engineering activities, globally promote this fact and leverage this to ensure that future R&D facilities related to emerging

automotive technologies are located in Michigan, aligned with the strategy presented in the strategic plan.

SLIDE 7:

In our work we identified many industry drivers and trends which are shown here. Many of these are automotive specific but connect directly back to global mega-trends which are currently being researched by various economic and developmental bodies globally. Analysis of these drivers and trends has allowed us to formulate our automotive office strategic plan for the State out to the year 2040. In the following slides I will discuss some of these drivers and trends.

SLIDE 8:

Analysis of the demographic trends reveals challenges (and thus opportunities) for Michigan. Growth in driving age population creates vehicle demand but for an aging demographic group. Technologies that make personal mobility possible for an aging population will likely become important. Strong global population growth will occur in the developing markets, driving a large increase in new vehicle sales in those markets. Importantly, the US market for new vehicles will grow at a much slower and smaller rate and is predicted to cap out at around 18 million units per year. By 2040, millennials and post-millennials will make up the bulk of the US driving population.

It is important for us to recognize and plan for the fact that new vehicle market growth will predominantly take place outside of North America.

SLIDE 9:

The pace of urbanization in developing nations accelerates whereas urbanization in developed nations grows modestly. Urbanization is more significant in BRIC (Brazil, Russia, India and China). Outside of the US, increasing global urbanization will shift personal mobility choices toward smaller lower-emission vehicles and vehicle renting and leasing rather than ownership. These effects will have less impact within the US.

SLIDE 10:

Global production shifts to smaller vehicles but within the US vehicle production will be predominantly midsize and larger vehicles. US production will be focused on mid to large car (C/D segment) and globally the dominant segments will be small to mid-size car (B/C segment). There is an important opportunity for Michigan to become the global center of design and advanced engineering for future global small to mid-size car (B/C segment) yet we should recognize that the manufacturing and assembly for these vehicles will subsequently be done likely in BRIC markets where they are sold.

Importantly, the US market is predicted to remain among the most lucrative vehicle markets in the world based on the higher profit margins associated with larger vehicles. This fact will continue to drive automotive business into the US and it then becomes our challenge to capture that business within Michigan.

Without action, our vehicle development activities and manufacturing output will become globally less relevant year on year.

SLIDE 11:

Michigan has opportunities in connected and automated vehicle technologies. This is our most urgent and important technology area within which to take action. As you know, we have just passed an Automated Vehicle Test Bill in Michigan and this is an important step forward. We thank Senator Kowall, Representative Foster and other members of the Legislature for their leadership on this important issue. We also have existing great work in this area happening within many organizations in Michigan including at MDOT, UMTRI (University of Michigan Transportation Research Institute), and our in-State OEM's and their supply base which we can leverage. Via a combination of short term actions within Government, Industry and Academia, we must move to dominate this technological space on a global basis. This will involve alignment of resources, large scale investment activities, stimulating R&D and attraction of both emerging technology companies and the talent behind them to the State. We must also plan and then execute seamlessly across the State means of generating educational and training programs that will ensure we have the necessary talent in the State with the skill sets that will be in future demand in the correct numbers at the right time. This is a very large scale activity to be planned and managed through execution and will require significant funding behind it.

We should all be critically aware that we have keen competition for our automotive industry both internationally and within the US from other mid-west States, southern States and California. It is a prize that we should work hard to retain, strengthen and grow over the long term – if we do not we should be sure that others will be doing this.

SLIDE 12:

Michigan should lead the transformation from mild steel to light weight and multi-material vehicles and the associated technological and manufacturing infrastructure. Future vehicles will require aggressive use of advanced materials to meet regulatory mandates. Intensive work is required on materials technology, forming and joining technologies, processes and the education and training of the workforce to handle these technologies, materials and processes. This creates great opportunity for Michigan to align and focus the existing assets in the State and to develop and attract more world class assets in this arena. This has already started and can be seen in vehicles such as the new Chevrolet Corvette and the soon to be launched new Ford F150. Everything already stated regarding the need for funding to stimulate and execute is also relevant here. Importantly, these developments are not exclusively of benefit to the automotive industry and have wide ranging benefits across all industrial manufacturing sectors in Michigan.

SLIDE 13:

Future vehicle powertrains will be increasingly electrified and hybridized yet gasoline and diesel will power the majority of vehicles in the US in 2040. Michigan's opportunity lies in the area of advanced systems integration at both the system level and the full vehicle level. Again this demand for technological prowess will be driven by regulatory mandates. Everything stated previously regarding the need for talent attraction and development is also relevant here.

SLIDE 14:

Michigan should leverage its expertise to reinforce and systematically grow its existing leadership position related to automotive R&D and advanced engineering. Growth in this area should be aligned with the strategic technological areas identified in this strategic plan – connected and automated vehicle, lightweight and multi-material vehicle, advanced powertrain and propulsion systems and world class manufacturing and supply chain. Education and training in the areas of automation, robotics and systems integration should be increased and scaled across the State if we are to reap the benefits from these developing technologies as they inevitably grow within the automotive and other industries such as aerospace and consumer goods.

SLIDE 15:

Michigan should build on its current global leadership position in logistics and supply chain and continue to enhance its infrastructure for such as the materials, manufacturing and assembly of vehicles change with the change in vehicle make-up driven by all of the above factors. We should also be critically aware that physical infrastructure changes to roads, bridges and airports have very long lead times and are very capital intensive programs. The Michigan Economic Development Corporation, MDOT and MDARD continue to lead efforts with stakeholders to implement the States Logistics and Supply Chain Strategy with a focus on making Michigan businesses more competitive.

SLIDE 16:

This slide summarizes on one slide the implications of the above discussed drivers and trends for the automotive industry in Michigan.

SLIDE 17:

It is our strong opinion that success will be driven by key enablers and supported by the right strategic plan, stakeholders and processes.

The key enablers are shown here as Technology, Talent and Capital – each of these needs to be available at the right time in the right quantity. The State of Michigan has a critically important role to play in ensuring that both the correct capital resources are available at the right time and in supporting any legislative and policy initiatives that are required to empower the strategic plan. We envisage leveraging financial support from the State of Michigan to crystallize significant financial support that will be sought and expected from industry and the federal government. It will be important that all stakeholders come to the table together.

SLIDE 18:

A high level roadmap has been developed for enabling Michigan's future automotive industry. This roadmap will act as our compass going forward. The plan has been developed such that it has sufficient flexibility to evolve and adapt to both disruptions and new opportunities which are considered to be inevitable over the period to 2040. We will include funding requests for the initial phases of this effort in the Governor's budget recommendation and we will very much welcome the Legislature's consideration and support of that funding request.

SLIDE 19:

Technology and Talent will drive the need for access to capital. As stated previously, it will be necessary to systematically develop both key future technologies and the future talent base within the State. The fuel for change will be the capital to make this happen. We are already working closely within the Michigan Economic Development Corporation to focus the existing funding which we receive onto the strategic priorities identified here as far as the automotive industry within the State is concerned. This work is ongoing and the actionable items identified will become an important part of the operational plan currently under development.

SLIDE 20:

We have developed an automotive plan operational framework as shown on this slide. Without a doubt the most pressing item to action is the development of a global marketing and branding campaign for the automotive industry within the State of Michigan. Importantly, this has the strong support of industry and the many advocacy groups (such as MichAuto) for the industry within the State.

The development of the operational plan continues based upon the findings of the strategic plan and the ongoing and highly positive feedback from the industry and the economic development community within the State. We will provide more information regarding the operating plan as our work progresses.

SLIDE 21:

Meantime, we are already leveraging the existing tools and initiatives within the State to promote automotive growth. Our main efforts are

aligned with the Governor's priorities as reflected on his State dashboard. As is seen on this slide, we have highly successful Pure Michigan branded activities that are being leveraged within the automotive industry in the State, these being Pure Michigan Business Connect, Pure Michigan Talent Connect and Pure Michigan Capital Connect. Additionally, our Business Development & Community Revitalization Programs play an important and timely role in the current expansion of the automotive industry within the State.

SLIDE 22:

We anticipate a focus on continued economic gardening and the leveraging of our strengths in automotive. It will be important for us to increase the availability of capital in the private markets for technology stimulation and growth aligned with the technology strategy described in the strategic plan. Further, it will be important that we make strong and targeted attraction efforts for both new businesses and new talent to come into the State.

We anticipate increased success in obtaining federal funds for technological development via the creation of a "Grant Writing Factory" within the State with the sole purpose of bringing federal funds into the State to assist with the funding of the above stated technology and talent related activities.

SLIDE 23:

We must plan and execute a globally relevant marketing and publicity campaign as stated earlier and hope to leverage the great success of the Pure Michigan campaign into the automotive industry vertical.

We already have a successful site selector program which we should reinforce and grow. In addition to this, we have already started to proactively identify and target for direct business attraction businesses that we want to attract to the State of Michigan – we have started actively soliciting key automotive businesses to come to the State.

We have also re-vitalized our previous efforts related to the attraction of key international conferences and events into the State – these have critical importance for us, not only in terms of short term economic development, but they also allow us to showcase our State and our automotive industry both now and for the future and, via that, actively solicit technologies, talent and capital to strengthen and grow our #1 State industry upon the global stage.

I am delighted to report that we anticipate around a $360 Million immediate financial impact for the State of Michigan, including the City of Detroit, from the ongoing NAIAS show and that it is expected that approximately 750,000 potential car buyers will go through the show over the coming 10 days.

SLIDES 24, 25 & 26:

On the next three slides I am able to show details of three further upcoming international events that are to be here in Detroit that are highly aligned and supportive of the strategy discussed here. The SAE World Congress, which is the global stage for automotive engineering, the BIG M, which is a new event to focus on the manufacturing sector, and the Intelligent Transportation Systems conference, which is the global platform attended by parties interested in connected and

autonomous vehicles and their positive impact upon the infrastructure that they operate within.

SLIDE 27:

Success will come via large scale collaboration across industry, academia and government. There is already much great work being done in the State in the area of automotive economic development and I would like to acknowledge this here. We have thoughtful leadership for our State being provided by Business Leaders for Michigan and many professional services and consulting practices operating in our State, including Center for Automotive Research. Operational organizations such as the Detroit Regional Chamber, Ann Arbor SPARK, The Right Place, I-69 International Trade Corridor and other regional developers, Next Energy, Automation Alley, University Research Corridor and many more are working every day to develop the ecosystem of economic development around our automotive industry in close association with the Michigan Economic Development Corporation under both public and private funding. Indeed, in our outreach to-date into the automotive community within the State, we have placed a strong emphasis on working closely with our key local economic development partners and we are most grateful for their support and their embracing of this strategic plan.

In summary, we have a short term urgent and important need to market and brand our Michigan automotive industry on a globally relevant basis to assist with the retention, attraction and growth of our #1 industry. This is a major activity that will require appropriate funding likely of the same nature as already placed behind the

creation of the Pure Michigan brand. Concurrently we must begin to organize and direct our existing economic development activities and assets across the State to align them with the strategic plan. Simultaneously, we must address the technology, talent and capital needs identified by the strategic plan and recognize that these tasks must start now and that they are multi-year and even multi-decade activities that need to be initiated, sustained and scaled.

I would respectfully ask that:

- **Yourselves and your staff actively embrace and promote both our #1 industry and our strategic plan and the operating plan to follow**
- **Help myself and my office to execute this very large scale industrial program**
- **Remember that the automotive industry is a highly dynamic and highly competitive global industry and that we have to "think globally yet act locally" to ensure that the State of Michigan remains as the global center of this important industry**

The future of our #1 industry is as much in our hands as it is in the hands of the individual private companies that constitute the industry.

Thank you for your kind attention and I would be happy to answer any questions you may have.

State of Michigan
Automotive Strategic Plan Summary

Nigel Francis
State of Michigan, Automotive Office
January 2014

PURE MICHIGAN

Vision

"We will leverage the strengths and assets of Michigan's automotive industry for sustained intellectual and manufacturing global leadership. Our vision is that every significant entity in the global automotive industry has a strong presence in the State of Michigan"

Mission

A Mandate from the Governor of the State of Michigan

"To implement and execute a comprehensive strategic plan to drive Michigan's automotive industry forward to remain as the global center of the automotive industry and to foster sustainable growth within the industry in Michigan"

Michigan is Automotive!

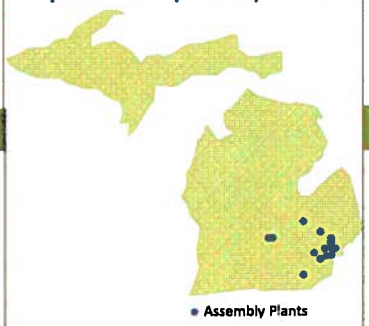
Jobs

- Auto supports **513,300** jobs in Michigan[1]
- **14.6%** of Michigan's workforce is employed in automotive[3]
- **22.1%** of all direct auto jobs in the United States are in Michigan[3]

Industry Presence

- Michigan is home to **61** of the top **100** North American automotive suppliers[4]
- Michigan produces **23%** of the vehicles in the nation, more than any other state[1]
- Michigan leads U.S powertrain production with **31%** of engine and **26%** of transmission output[1]

Michigan has 12 assembly plants & 35 automaker parts & component plants



Sources: 1) Center for Automotive Research, 2) U.S. Census Bureau, 3) U.S. Department of Labor, 4) Automotive News, 5) MEDC, 6) NSF

State Revenue

- The auto industry generates **$2.8 Billion** in direct taxes and fees to Michigan's Treasury in 2010[1]
- Direct automotive jobs generate **$14.5** Billion in personal income in Michigan[2]

Technology & Talent

- Michigan is the automotive R&D hub with **370** R&D centers and more than **70%** of all U.S. automotive R&D spending[6]
- Michigan ranks **#1** nationally in concentration of engineers, with **65,000** industrial, mechanical, and electrical engineers[3]
- Michigan has **650** automotive education programs offered at **91** institutions[1]

Strategic Plan Development Team
Global Vision "Think Globally, Act Locally"

CAR CENTER FOR AUTOMOTIVE RESEARCH — *Automotive Technology Expertise*

PURE MICHIGAN — *Plan Leadership*

Scenaria, A Member of the AVL Group — *Powertrain Expertise*

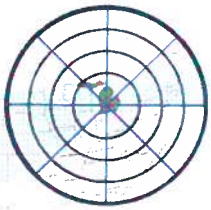
INTER|SECTION — *Future Vehicles/Design Expertise*

IHS — *Market and Demographics Expertise*

p3 group — *Manufacturing Expertise*

Three Key Dimensions to the Strategic Plan

Retain & grow ***Michigan's*** current automotive industry base



Strengthen Michigan as the center of the ***North American*** automotive market

Grow the technologies, talents and infrastructure necessary to lead the ***Global*** automotive market of the future

Current Situation & Opportunities for Michigan

Current Situation

- Michigan's automakers and suppliers have stabilized and **business is robust, profitable and growing**
- Increased globalization exposes automakers to economic instability and regulatory pressure meaning **Michigan must prepare now for continuing global changes**
- Current tax and policy reforms created an **attractive environment for local and global automotive investment in Michigan**

Opportunities for Michigan

- **The pace of global change will intensify,** driven by customers, markets, regulations, technology and new global OEM and supplier entrants
- **Michigan must focus and reinforce its automotive R&D** to attain sustained growth and global leadership in new key technology areas
- **Michigan requires a comprehensive strategy focusing locally, regionally and globally to remain the center of the automotive industry of the future**

Now is the time for relentless positive action!

Industry Drivers & Future Trends

Demographics & Vehicle Market

- *Rising urbanization*
- *Vehicle segment shifts*
- *Global platforms*

Vehicle Design

- *Smaller*
- *Lightweight*
- *Connected*
- *Personalized*
- *Environmentally-friendly*

Connected & Automated Vehicles

- *Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) technologies*
- *Increasing levels of automation*
- *ITS integration with connected vehicles*

Powertrain & Propulsion Technologies

- *Continuing drive for CO_2 reduction*
- *Harmonization of standards across global regions*

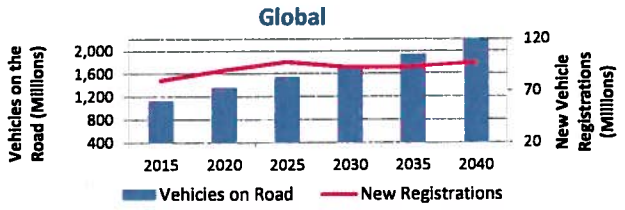
Material Technologies

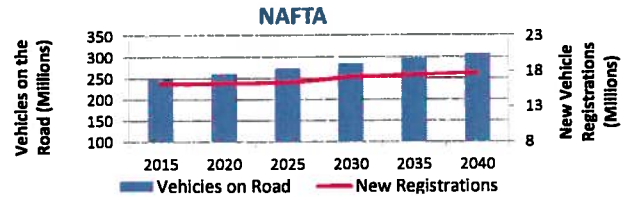
- *Light weight*
- *Advanced mixed materials*
- *New forming technologies*
- *New joining technologies*

Manufacturing and Supply Chain

- *Hyper-efficient*
- *Sustainable*
- *Modular manufacturing*
- *Logistics/supply chain management*

Demographic Trends Reveal Challenges for Michigan





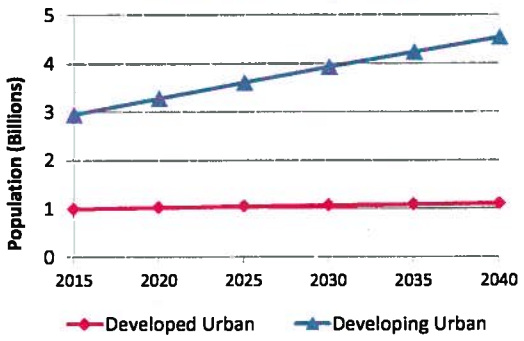
Growth in Driving Age Population Creates Demand:

- **Strong global growth driven by developing markets** (21% increase in annual global new vehicle registrations between 2015 and 2040; 96% growth number of in vehicles on the road in this period)
- **U.S. grows at a slower rate** (10% increase in U.S. new vehicle registrations between 2015 and 2040)
- U.S. registrations cap out at roughly 18 million units around 2030, as vehicle cost, traffic congestion and changing driver demographics slow overall growth
- **By 2040, Millennials and post-Millennials will make up the bulk of the U.S. driving population**

New vehicle market growth will predominately take place outside North America

Pace of Urbanization in Developing Nations Accelerates; Urbanization in Developed Nations Grows Modestly

Global Urbanization Trends



Source: United Nations

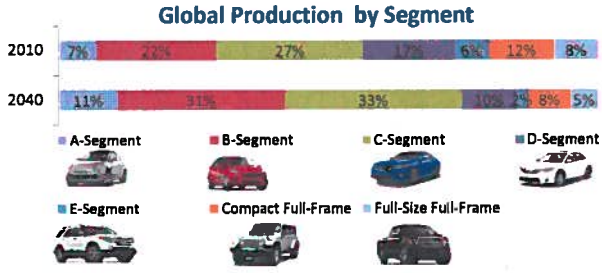
Urbanization is More Significant in BRIC

- Share of "urban" population in developing markets will grow from 49% to 60% between 2015 and 2040
- U.S. urbanization share is already high, and growth will be modest, increasing from 85% to 89% between 2015 and 2040
- **Increasing global urbanization will shift personal mobility choices toward:**
  - **Smaller, lower-emission vehicles**
  - **Subscription service rather than ownership**

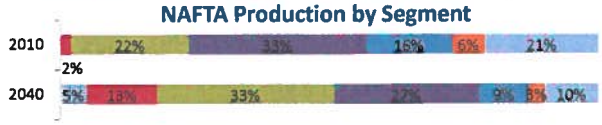
Growth in urbanization will predominately take place outside North America

Global Production Shifts to Smaller Vehicles, but NAFTA Continues to Produce Predominately Midsize & Larger Vehicles

Global Production by Segment



NAFTA Production by Segment



Forecasts Show a General Shift Toward Smaller Vehicle Segments

- More than half of Michigan's vehicle output will be based on global platforms by 2018
- Global production will be dominated by B/C segments while NAFTA focus remains in C/D segments
- **The United States will remain among the most lucrative vehicle markets in the world based on higher profit margins in larger vehicle segments**

Without action, Michigan's vehicle development and output will become less globally relevant

Michigan Has Opportunities in Connected & Automated Vehicle Technologies; Must Close Talent Gaps

Key Future Drivers

- The confluence of connected and automated vehicle technologies and personalization apps create opportunities
- New vehicle ownership and business models develop
- Intelligent Transportation Systems (ITS) will become prevalent in urban areas
- Non-automotive tech firms may become players in intelligent mobility
- Emergence of ADAS and V2V/V2I safety mandates

Strategies for Michigan

- Leverage Michigan's expertise and experience to attract federal and industry investment
- Support and lead NHTSA V2V mandate implementation
- Make Michigan the center for intelligent mobility-as-a-service business model
- Attract relevant electronics, software, and systems integration firms to locate in Michigan
- Support industry investment in collaboration, testing, and certification facilities
- Expand relevant educational and training programs

Michigan Must Lead the Transformation from Mild Steel to Lightweight, Multi-Material Vehicles & Infrastructure

Key Future Drivers

- Future vehicles will require aggressive use of advanced materials to meet regulations
- The demand for light weight materials will require greater industry resources and a focus on collaboration
- Advance light weight, mixed materials will require new forming and joining technologies, advanced simulation and engineering skills
- Michigan must transform its high-volume mild steel infrastructure

Strategies for Michigan

- Collaboration center for suppliers with linkages to automakers, material suppliers, tooling, fabricators, design and testing firms
- Leverage Michigan's expertise and experience to attract federal and industry investment
- Michigan must focus and leverage current assets including density of engineering talent and concentration of tooling facilities
- Critical talent needs in materials science, simulation and modeling, system engineering and integration, and skill trades

Future Powertrains Will Be Increasingly Electrified; Michigan's Opportunities Lie in Advanced Systems Integration

Key Future Drivers

- Regulatory trends will drive a doubling in fuel economy performance by 2040
- United States, Europe and China responsible for vast majority of GHG reduction
- Regulatory targets for the United States will lag Europe and China
- The strategies to meet regulatory targets will differ by region
- Developed markets will shift toward electrification and hybrid powertrains

Strategies for Michigan

- Provide advanced system integration from powertrain to vehicle to road
- Leverage Michigan's expertise and experience to attract federal and industry investment
- Focus on preparing future automotive engineers to meet a diverse set of talent and skills needs
- Critical talent needs in electrification and hybrid technology, advanced system integration and optimization, flexible control strategies, advanced analytics and simulation

Michigan Must Leverage Its Expertise to Implement a 'R&D, Advanced Engineering & Pilot Plant' Strategy

Key Future Drivers

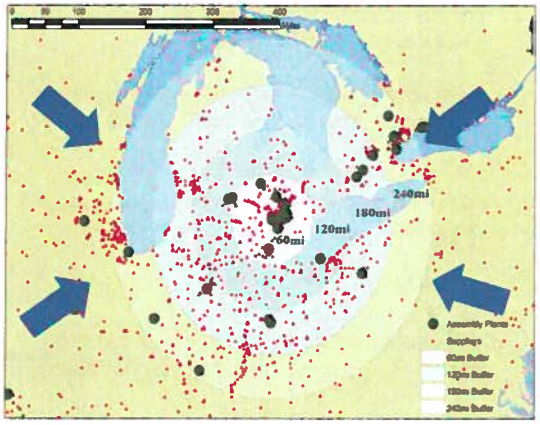
- Automakers will act as integrators, shifting greater responsibility for systems/subsystems to suppliers
- Automotive manufacturing will employ fewer, but more highly trained workers
- Global platforms will become dominant, with regional variation to meet market needs
- Greater focus on sustainability of product and manufacturing processes
- Automakers will continue to build in the markets where they sell

Strategies for Michigan

- High-tech processes refined in a Michigan R&D, advanced engineering and pilot plant environment before global deployment
- Prioritize manufacturing process R&D
- Retain and defend Michigan's current manufacturing base and strategically pursue growth opportunities
- Ability to scale advanced manufacturing processes to mass production
- Critical talent needs in automation, robotics, virtual-physical system integration and communication

Michigan Must Build on Existing Logistics & Supply Chain Assets to Support the State's Automotive Industry

Current Locations of Suppliers & Assembly Plants Serve as an Attractor & Accelerator for Investment



Source: Center for Automotive Research

Strategies for Michigan

- Establish the Great Lakes region as the integrated automotive supply chain epicenter of North America
- Integrate Michigan's Logistics and Supply Chain Strategic Plan with specific auto industry transportation and logistics requirements
- Attract public/private investment to improve freight movement and logistics services
- Leverage assets of the region to reduce cost, cycle time and risk for the auto industry
- Market free/foreign trade zones

Implications of Drivers & Trends for Michigan

Demographics & Vehicle Market

- *Adapt to shifting demographics, vehicle preferences and usage*
- *Adapt to growth drivers outside United States*

Powertrain & Propulsion Technologies

- *New R&D and manufacturing competences*
- *Transform manufacturing base and assets to support diversified powertrain portfolio*

Vehicle Design

- *Develop design capabilities for globally-relevant future vehicles*

Material Technologies

- *Requires new manufacturing, joining and supply chain competencies and scale*

Connected & Automated Vehicles

- *Must capture leadership position in connected and automated vehicles*
- *Develop and support legislation and attract federal investment*

Manufacturing and Supply Chain

- *Michigan should target 'R&D and pilot plant' strategy*
- *R&D and manufacturing increasingly shifts to the suppliers*

Success will be Driven by Key Enablers, Supported by the Right Strategic Plan, Stakeholders, Resources & Processes

State of Michigan Automotive Office

Technology "Globally Best in Class"	Talent "Attract and Retain the World-Class Talent"	Capital "The Right Capital at the Right Time"
❑ Connected and automated vehicles ❑ Advanced light-weighting and multi-material vehicles ❑ Advanced powertrain and propulsion systems ❑ Advanced manufacturing ❑ Integrated and connected supply chain ❑ R&D, advanced engineering and pilot plant	❑ Engineering and design ❑ Software and coding ❑ Systems integration ❑ Skilled trades including re-training ❑ Creation of "master technicians" ❑ Technology management excellence ❑ Manufacturing management excellence	❑ Federal funds ❑ State funds ❑ Government owned/contractor operated ❑ Industry investment ❑ Public-private partnerships ❑ Venture capital and private equity ❑ Foreign direct investment

State of Michigan Strategic Plan

Automotive Industry Stakeholders

High-Level Road Map for Enabling Michigan's Future Automotive Industry

Phase I	Phase II	Phase III	Phase IV
Coordinate & Communicate Vision	Build Virtual Foundation	Build Physical Foundation	Expand Virtual & Physical Foundation
❑ Rollout and align plan ❑ Market and communicate ❑ Form teams ❑ Organize assets ❑ Fund teams ❑ Retain, grow and attract firms/talent	❑ Align teams ❑ Secure major funding ❑ Direct assets ❑ Develop talent ❑ Retain, grow and attract firms/talent ❑ Support policy and legislation	❑ Focus accelerators and incubators ❑ Build collaborative Michigan automotive ecosystem ❑ Retain, grow and attract firms/talent ❑ Institutionalize strategy	❑ Evolve strategy ❑ Expand firm and talent retention, growth and attraction activities ❑ Extend industry collaboration ❑ Continuous improvement of plans

Strategic priorities will evolve and adapt to both disruptions and new opportunities

Technology & Talent Will Drive the Need for Access to Capital

Govt Investment	Technology	Talent
Short-Term	❑ Expand PMBC domestically and internationally ❑ Expand programs for specialty-technology suppliers ad align investments with strategy ❑ Fund Incubators & Accelerators strategically	❑ Align education programs with strategy ❑ Expand MAT2 ❑ Create scale via retention, attraction & education
Mid-Term	❑ PPP funding of collaborative infrastructure ❑ Competitive technology start-ups ❑ Loan programs for tooling etc.	❑ Fund more core discipline programs ❑ Create new programs similar to MAT2 for other vital areas and scale
Long-Term	❑ Fund gaps in technology investments not feasible by private sector ❑ Scale up support of industry assets	❑ Invest in STEM initiatives at all levels that keep talent pipeline full
OVERALL PRIORITIES	❑ **Drive increased and strategic federal funding resources to Michigan** ❑ **Foster public private partnerships** ❑ **Increase foreign direct investment**	❑ **Accelerate, support & focus private equity and VC investment in industry** ❑ **Invest in collaborative infrastructure** ❑ **Establish industry priority in state budget**

Automotive Operational Plan Framework

Strategic planning process has identified the following operational elements to be addressed:

- ❑ Marketing & Branding
- ❑ Strategic Convening
- ❑ Talent Development
- ❑ Collaboration Networks
- ❑ Capital Attraction
- ❑ Policy & Legislation Development

An Operational Plan based on the findings of the Strategic Plan is currently under development for release later this year.

Leverage Existing Tools/Initiatives To Promote Automotive Growth

The MEDC supports the Governor's initiatives and the economic outcomes targeted on his dashboard through a focus on:

- Entrepreneurship
- Access to Capital
- Business Growth
- Vibrant and Reinvigorated Communities
- Talent Enhancement
- Michigan's business and tourism image

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PURE MICHIGAN

Economic Gardening & Leveraging Our Automotive Strengths

- Nurturing environment for local entrepreneurs' growth
  - Building connections among and between businesses and other community assets such as higher education
- Focused and targeted attraction efforts to leverage our strengths
  - Targeted outreach to site selectors and industries that fit with Michigan's talent and business assets
- Access to capital for automotive concerns
  - Debt, Equity and Grants
- Talent programs to support automotive business growth
  - Governor's Economic Summit, Shifting Gears and Community Ventures

OP PLAN

PURE MICHIGAN

Targeted Automotive Business Attraction

- Using Pure Michigan assets and focused publicity and outreach to publicize Michigan's competitive business climate and strong talent
- Targeted site selector program and new business attraction
- Targeted attraction events and missions based on data and aligned with automotive strategy
  - International conferences and events
  - Industry clusters
  - Harmonization of automotive assets across Michigan

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Questions & Discussion

Success will come via large scale collaboration!

Thank You for Your Support!

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PURE MICHIGAN

- **A/B/C/D:** U.S. vehicle segments—A (subcompact), B (compact), C (midsize) and D (large)
- **Accelerator:** Facility with programs and services that assist small companies to increase the speed of bringing a product to market
- **ADAS:** Advanced Driver Assistance Systems or "active safety"
- **Automated Vehicle:** A vehicle with built-in or available technologies that can take over one or more activities on behalf of the driver
- **BRIC:** Brazil, Russia, India and China
- **CAR:** Center for Automotive Research, an Ann Arbor-based non-profit organization
- **CO2:** Carbon dioxide, a gas produced by vehicle exhaust
- **Connected Vehicle:** A vehicle that can wirelessly communicate with available data technologies (i.e. GPS, internet, cellular)
- **Disruptor:** A current or future scenario, such as a new technology or a generational buying shift, that could significantly challenge current assumptions and strategies
- **GHG:** greenhouse gases, which include CO2,
- **Incubator:** Facility with programs that assist start up technology companies to develop products and services
- **Intelligent Mobility:** An umbrella term used to encompass intelligent transportation systems, connected vehicle and automated vehicle technologies, and tools that help travelers make informed mobility choices
- **ITS:** Intelligent Transportation Systems
- **Keiretsu:** cooperative an integrated supply network common in Japanese automotive industry
- **Lightweight Material:** Non-traditional materials that have the ability to replace traditional materials in vehicle manufacturing (i.e. high-strength steel, aluminum, carbon fiber)
- **MAT2:** MEDC's Michigan Advanced Technician Training program
- **MDOT:** Michigan Department of Transportation
- **MEDC:** Michigan Economic Development Corporation
- **Millennials :** Generation born between early 1980s to early 2000s
- **NAFTA:** North American Free Trade Agreement or region comprised of Canada, Mexico and the United States
- **NGOs:** Non-governmental organizations
- **NHTSA:** National Highway Traffic Safety Administration
- **PHEV/HEV/EV:** Plug-in Hybrid Electric Vehicle/Hybrid Electric Vehicle/Electric Vehicle
- **Platform:** In the auto industry, an architecture that that can be used across several vehicle models with the aim of reducing costs and increasing efficiencies
- **STEM:** Science, Technology, Engineering and Math
- **STTF:** MEDC's Skilled Trades Training Fund
- **Tiers:** Suppliers of vehicle components directly to automakers or other suppliers
- **UMTRI:** University of Michigan Transportation Research Institute
- **USCAR:** United States Council for Automotive Research
- **V2V** (Vehicle-to-Vehicle); **V2I** (Vehicle-to-Infrastructure): A vehicle with built-in or available technologies that can "communicate" wirelessly with other vehicles or transportation infrastructure systems

GLOSSARY

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