Michigan Automated and Connected Vehicle Working Group Meeting Packet

July 29, 2013

1. **Agenda**
2. **Meeting Notes**
3. **Attendance List**
4. **Presentations**
5. **Breakout Sessions**

MICHIGAN AUTOMATED AND CONNECTED VEHICLE WORKING GROUP

Monday, July 29, 2013

Oakland County Executive Office Building
2100 Pontiac Lake Road
Waterford, Michigan 48328

MEETING AGENDA

9:00 AM Introductions, Richard Wallace, CAR

9:05 AM Welcome from Road Commission for Oakland County

9:15 AM Michigan Automated and Connected Vehicle Testing and Development Resources and Facilities Overview, Matt Smith, MDOT

9:30 AM Test Tracks and Related Resources, Kevin Kelly, Automotive Events

9:42 AM Overview of RobotTown Concept, Corey Clothier, RobotTown and TARDEC

9:54 AM Overview of Mobility Transformation Center Concept, Jim Sayer, UMTRI

10:06 AM Concept for a Connected Vehicle Collaborative, Luke Bonner, Ann Arbor SPARK

10:18 AM Update on the Fleet Automation Forum, Mohammad Poorsartep, University of Michigan-Dearborn

10:30 AM Michigan Automated Systems Collaborative, Vicky Rad, Macomb County Economic Development

10:42 AM Networking Break

11:00 AM Break-Out Groups: How do we foster coordination between Connected and Automated Vehicle testing and development facilities and resources in Michigan?

11:35 AM Report Outs

11:50 AM Next Steps

Noon: Adjourn

MICHIGAN AUTOMATED AND CONNECTED VEHICLE WORKING GROUP

The July 2013 meeting of the Michigan Automated and Connected Vehicle Working Group was hosted at the Oakland County Executive Office Building in Waterford, Michigan on July 29, 2013.

MEETING NOTES

Richard Wallace of the Center for Automotive Research (CAR) gave a brief welcome, and attendees briefly introduced themselves. Richard then handed the microphone to Gary Piotrowicz, Deputy Managing Director and County Highway Engineer of the Road Commission for Oakland County (RCOC). Gary welcomed the working group attendees to the Oakland County Executive Office Building. He discussed RCOC's relationship with the Oakland County government and noted that the county's transportation safety efforts have contributed to a fatality rate that is half the state and national averages.

Richard Wallace then reviewed a list of upcoming events related to automated and connected vehicle technology. Several attendees noted additional events and projects of interest. Scott McCormick, President of the Connected Vehicle Trade Association (CVTA), mentioned that the 4th Summit on the Future of the Connected Vehicle, which will take place on September 9th and 10th in Novi, Michigan, is open to the public this year with a registration fee of $600. Dan Krechmer of Cambridge Systematics discussed the Gateway Cities project, an initiative to create a connected, automated, and zero-emissions corridor. Jim Barbaresso, Vice President of Intelligent Transportation Systems at HNTB, gave a brief reminder about the 2014 ITS World Congress in Detroit, which will be held from September 7-11, 2014 at Cobo Center. Gary Piotrowicz mentioned that the Institute of Transportation Engineers is holding its Annual Meeting and Exhibit in Boston on August 4-7, 2013. August 5th is the connected vehicle session led by Shelley Row at 10:30 am and the CV ITE Committee meets at 1:30 pm.

Matt Smith ITS Program Manager at the Michigan Department of Transportation (MDOT) discussed the context for the meeting presentations and the working groups to follow. As gas tax revenues decline, increasingly limited funding is available to MDOT. The agency would like to support connected and automated vehicle initiatives, and it especially would like support initiatives that complement each other and cooperate, rather than compete with and work against each other. Matt noted that he would like the working group to help find ways to link the various initiatives and make Michigan a competitive location for connected and automated vehicle research, development, and deployment compared to other states and countries.

Matt was followed by Richard Wallace, who pinch-hit for Corey Clothier, and presented an overview of the RobotTown Concept. Richard noted that MDOT assisted with the business plan for RobotTown, and that the initiative had also received support from the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC). The goal of RobotTown is to be the "go-to" place for robotics work. The concept does not yet have a physical location, but could be located in a number of places. Once realized, RobotTown will include testbed and pilot capabilities, "makerspace," laboratory space, and educational components. It will have the ability to test, prototype, certify, host challenges, tech innovation, commercialization services, business development, and STEM education outreach.

The RobotTown presentation was followed by a presentation by Jim Sayer of the University of Michigan Transportation Research Institute (UMTRI) who presented the Michigan Mobility

Transformation Center (MTC) concept. The MTC will focus on the confluence of connected and automated vehicle technologies. It will require funding of $16 million over a four-year period, and if its work is successful, it could be renewed for another four-year period. The center will focus on mobility for individuals as well as supplies and equipment (i.e., freight). The MTC will include a test track that is outfitted with connected vehicle infrastructure and would be located adjacent to the Safety Pilot Model Deployment infrastructure, so connected vehicles could leave the track and immediately interact with other vehicles and infrastructure in Ann Arbor. The project has yet to be voted on by the University of Michigan regents, but if approved, it could break ground as early as the end of this year. The MTC would be a university facility, not be open to public use. This project could help produce new university spin-off businesses, and the University has nearby incubator space which could be used to assist startups and support economic development.

Jim Sayer was followed by Luke Bonner, Vice President of Business Development at Ann Arbor SPARK. Luke described a concept for a Connected Vehicle Collaborative that would redevelop the GM powertrain facility in Ypsilanti near the Willow Run Airport into a private-sector high-tech park. Users of the site would include automakers and the military, as well as tenants who do not have facilities of their own. The facility also would support testing of unmanned aerial vehicles (UAVs), and the adjacent Willow Run Airport is open to that component. Once the project is approved, it would take 12-18 months to demolish the plant, and another 12-18 months to build the track. The timeline would be condensed if the project used a green-field site, but the reuse of the powertrain facility offers greater economic development benefits and a better location near the University of Michigan, Detroit, and Willow Run Airport. If everything goes well, the site could open for operations by late 2015 or early 2016. The current owner of the GM factory is RACER, which has taken on responsibility for environmental issues at the site.

Jim was followed by Mohammad Poorsartep of the University of Michigan-Dearborn, who presented on the Fleet Automation Forum. The freight industry is facing several challenges, including a limited labor supply, unsafe and fatigued driving, tight truck capacity, and high fuel costs. While a fully-automated truck is not a realistic near-term solution, semi-automated vehicles could be useful in tackling some of the industry's challenges with features such as platooning and cooperative cruise control. Automakers and Tier-1 suppliers can join the Fleet Automation Forum to receive market research and intelligence on customer needs. Such information makes it easier to commercialize products that will meet practical needs and be in demand. The group has an annual conference, and subgroups meet weekly throughout the year. Contact Mohammad Poorsartep (mpoorsar@umd.umich.edu) if you are interested in joining.

The final presentation was made by Vicky Rad of Oakland County. Vicky presented on the Michigan Automated Systems Collaborative (MASC), which has been funded by the Michigan Economic Development Corporation (MEDC). MASC holds monthly advisory committee meetings. The vision is to make Michigan the national leader in robot technologies, and the group will promote various activities in Michigan related to automation technology. The web site for the group is not yet available, but it will be www.automatemichigan.org. Contact Vicky Rad (vicky.rad@macombgov.org) to join.

Following the presentations, Matt reiterated the main points from his earlier presentation to focus the conversation for the breakout sessions. The group took a short ten-minute break and broke off into four smaller groups for targeted conversations. Closing out the meeting, representatives from the four breakout session groups reported out highlights from the conversations. Notes from these sessions are located in the last section of this packet.

MICHIGAN AUTOMATED AND CONNECTED VEHICLE WORKING GROUP

ATTENDANCE LIST

First	Last	Organization	Email
John	Abraham	Iteris Inc.	jka@iteris.com
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Daniel	Bartz	Booz Allen Hamilton	daniel.j.bartz.ctr@mail.mil
Dick	Beaubien	Beaubien Engineering	rfbeaubienpe@gmail.com
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Michael	Blicher	Autotalks	mike.blicher@auto-talks.com
Luke	Bonner	Ann Arbor SPARK	Luke@annarborusa.org
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Phil	Callihan	NCMS	philc@ncms.org
Collin	Castle	MDOT	castlec@michigan.gov
Joshua	Cregger	CAR	jcregger@cargroup.org
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John	Maddox	UMTRI/TTI	maddoxjm@umich.edu
Scott	McCormick	CVTA	sjm@connectedvehicle.org
David	McNamara	MTS LLC	dmcnamara@autotechinsider.com
Ali	Mizan	Delphi	ali.mizan@delphi.com
Nate	Paul	Link Engineering	n.paul@linkeng.com
Gary	Piotrowicz	RCOC	gpiotrowicz@rcoc.org
Mohammad	Poorsartep	UM-Dearborn	mpoorsar@umd.umich.edu
Vicky	Rad	Macomb County	vicky.rad@macombgov.org
Heri	Rakouth	Delphi	heri.rakouth@delphi.com
Jim	Sayer	UMTRI	jimsayer@umich.edu

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Bill	Tansil	MDOT	tansilw@michigan.gov
Christopher	Thompson	Nokia	christopher.thompson@nokia.com
Steve	Underwood	UM-Dearborn	underw@umich.edu
Richard	Wallace	CAR	rwallace@cargroup.org
Hongwei	Zhang	WSU	hongwei@wayne.edu

MICHIGAN AUTOMATED AND CONNECTED VEHICLE WORKING GROUP PRESENTATIONS

Michigan Automated and Connected Vehicle Working Group

Oakland County Executive Office Building

Waterford, MI

July 29, 2013

Agenda for This Afternoon

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Working Group Mission

- Cooperatively pursue projects and other activities that are best accomplished through partnerships between multiple agencies, companies, universities, and other organizations and that ultimately advance Michigan's leadership position in automated and connected vehicle research, deployment, and operations.
  - Benefit our state and our industry (automotive and more)
  - Enhance safety and mobility in Michigan and beyond

Noteworthy News

- NTSB calls for deployment of connected vehicle technology
  - The National Transportation Safety Board (NTSB) issued a formal recommendation this week calling on the National Highway Traffic Safety Administration (NHTSA) to develop minimum performance standards for connected vehicle technology, and to require the technology to be installed on all newly manufactured highway vehicles. POLITICO has the story here.
  - The recommendation follows a recent letter from NTSB Chairman Deborah Hersman to the Federal Communications Commission (FCC) expressing concern that the FCC's proposed rulemaking for spectrum sharing in the 5.9 GHz band "may compromise this necessary spectrum allocation for collision avoidance systems, by increasing the potential for dangerous interference." The letter states "The NTSB believes that all newly manufactured automobiles and commercial motor vehicles should be equipped with these crucial lifesaving technologies and has made 'Mandate Motor Vehicle Collision Avoidance Technologies' a priority on our current Most Wanted List."
- 2013 Maneuver Center of Excellence (MCoE) Robotics Limited Demonstration now accepting applications
  - Deadline is August 12, http://www.tardec.info/roboticsrodeo/
  - Event will be held at Fort Benning, GA, Oct. 7-10, 2013

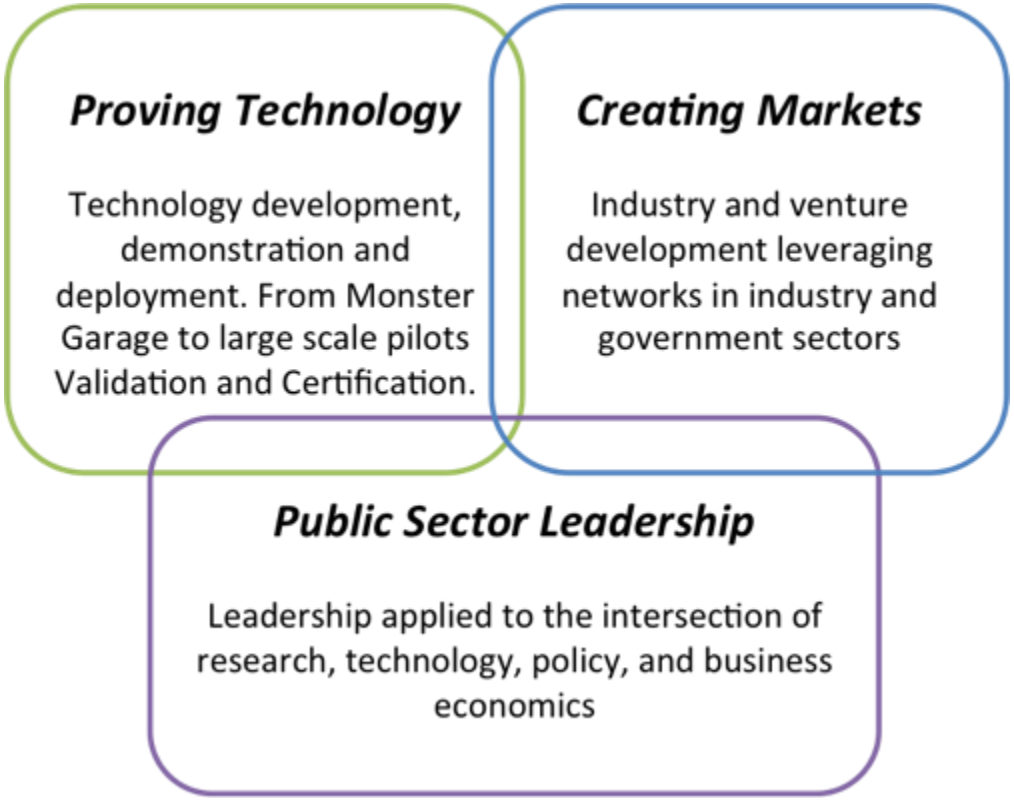
Upcoming Automated and Connected Vehicle Events

- CAR Management Briefing Seminars
  - August 5-8, 2013, Acme, MI
- 4th Summit on the Future of the Connected Vehicle
  - September 9-10, 2013, Novi, MI, www.connectedvehicle.org
- 2013 ITS World Congress
  - October 14-18, 2013, Tokyo, Japan, http://www.itsworldcongress.jp/
- Annual Meeting of the Transportation Research Board
  - January, 2014, Washington, D.C.
  - Paper submission deadline is August 1 (Thursday)
- 22nd Annual Intelligent Ground Vehicle Competition (IGVC)
  - Oakland University, June 6-9, 2014, http://www.igvc.org/
- 2014 ITS World Congress
  - September 7-11, 2014, Detroit, MI
  - Karl Klimek of Square One Education Network, and a regular participant in this group, needs volunteers to serve on the Youth Subcommittee

What is it?

- Tell ‘em Richard

VISION


Proving Technology
Technology development, demonstration and deployment. From Monster Garage to large scale pilots Validation and Certification.
Creating Markets
Industry and venture development leveraging networks in industry and government sectors
Public Sector Leadership
Leadership applied to the intersection of research, technology, policy, and business economics

MISSION

Creating and Proving Markets for Intelligent Vehicle Systems

"No one would go into this business without coming here first"

Proving:

- Reliability – safety is key, data is the enabler
- Effectiveness – better experience than current
- Cost Benefit – is there a business case and/or value proposition
- Consumer/End-User research will be critical (social science & business analytics)

Building:

- Maker Space – Robo-Monster Garage – Rapid Prototyping (w/ 3D Printing)
- Market and Regional Economy
- Sustainable Robotics Innovation Development Center

VISION CAPABILITIES

Test Beds & Pilots

RT offers the opportunity for developers to test, evaluate and CERTIFY their systems in highly controlled proving ground environments as well as lightly controlled real-world pilots.

RT will have comprehensive and inexpensive indoor and outdoor test facilities on-site and many local options leveraging Michigan's proving grounds .

Makerspace

Light industrial workshop with all the tools to create awesome. The maker/hacker space caters to the creative. It's a place where PVC meets circuit boards.

The space is high school metal shop meets robo-lab. Drill press, Sawzall, laser cutter, sheet metal brakes, welders and a couple 3D printers are just a few of the tools.

Inventors come to learn, collaborate and invent.

Labs

Labs are private and tidy maker spaces. RT will offer lab space to organizations and collaborations to develop robotic and intelligent transportation systems.

The labs provide a secure working space for companies that need access to the tools, experts and potential customers.

Education

Educate current and future developers, end users / consumers and policy makers to the effectiveness and commercial opportunities of ground robotics.

RT is made for students of all ages with world-class robo-curriculum and staff on loan from local strategic partners.

COLLABORATE * MAKE * TEST * SHOWCASE * COMMERCIALIZE

FUNCTIONS AND SERVICES

Testing

From lab to long term operational pilots using regional world-class resources

Certification

Working with policy makers, rule-makers and insurers to certify for public use

‘Monster Garage’ Environment

Collaborative rapid prototyping accessible to small and large businesses

Challenge Environment

RT will host a technology challenge framework to inspire (invention & investment) and reward

Tech Integration

Integration “clearing house” for national ITS/GVR activity

Tech Incubation and Hosting

A place to call home for small and relocating robotics and ITS companies

Commercialization Services

Strategic business planning to manage growth & increasing speed-to-market

Business Development

Validating strategy and business case for technology applications

Educational Outreach

Regional STEM efforts & hosting/support for undergraduate projects

CAPABILITIES [cont.]

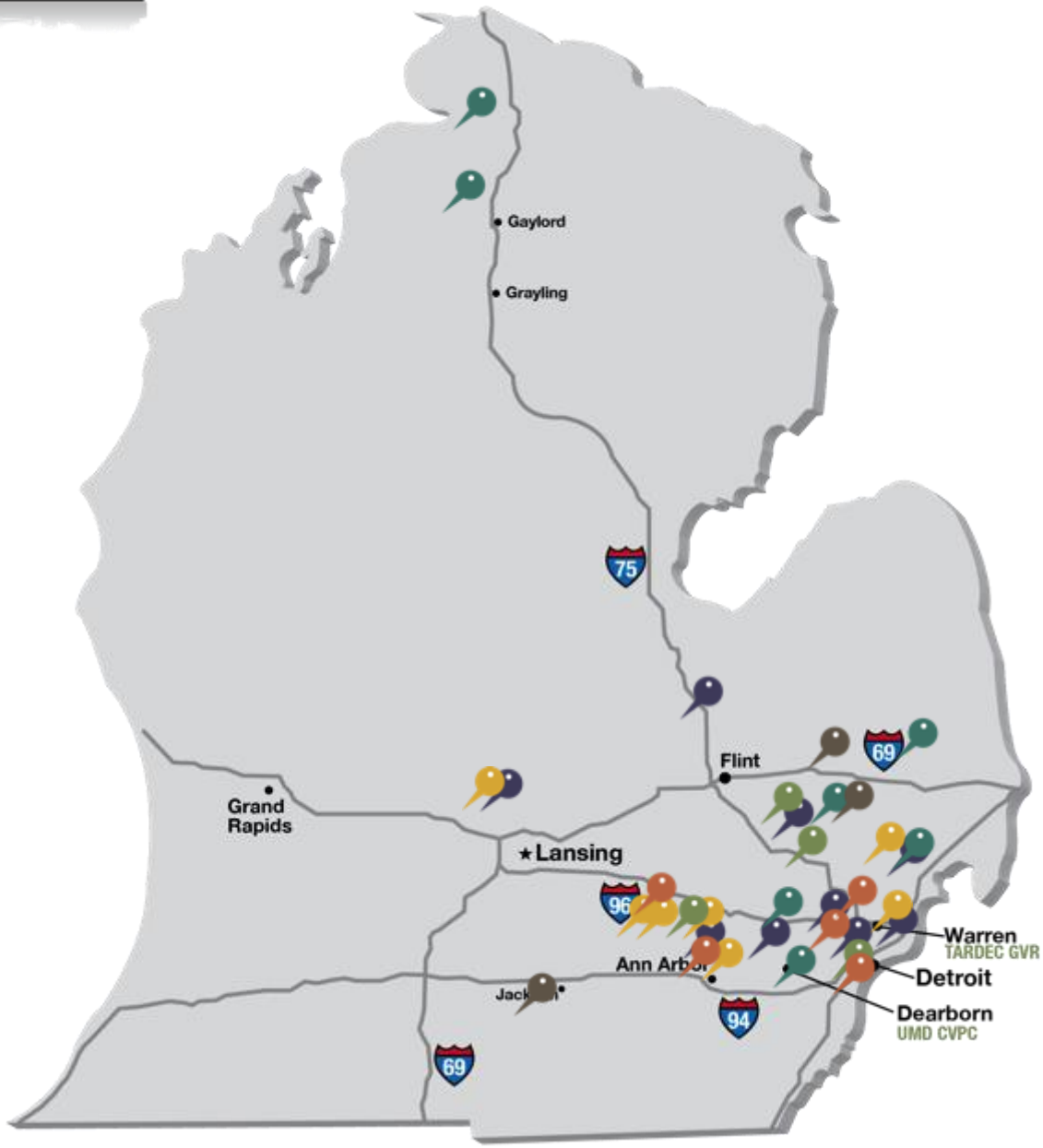
Power & Propulsion • Fuel cells • Advanced batteries • Heavy fuel engines • Hybrid propulsion	**Software, Modeling, and Simulation** • High-power workstations • Synthetic environments • FPGA development suite • Multiple M&S platforms
Comm & Data Link • Modems • Radios and digital data links • Video • Full RF test & measurement tools	**Precision Fabrication** • Metals, composites, plastics, wood • NC plasma cutter • CNC milling machine and lathe • 3D solid modeling • Rapid prototyping
Onboard Sensing and Computing • EO/IR, hyperspectral, SAR • CBRNE • FPGA and microcomputer integration • Mini flight data & telemetry suite	**Controls Development** • Integrated Ground Control Station • Full hardware-in-the-loop • Autonomous navigation • Sense & avoid technology • Drive test

VISION INPUT

- **Go BIG** with a dedicated facility
- Build bots to build **companies**
- Leverage what we have
- Go Guerrilla via **pilots**
- Inspire the national community can support

MI COLLABORATION

MI ASSETS AND COLLABORATION



UNIVERSITIES & COLLEGES with Robotics and ITS R & D

Kettering University
Michigan State University
Oakland University
Macomb Community College
Lawrence Technological University
Wayne State University
University of Detroit Mercy
University of Michigan - Dearborn
University of Michigan

STRATEGIC PLANNING & RESEARCH

UMTRI & SMART
Center for Automotive Research
NCMS (S. Ann Arbor)
MEDC (Lansing)
MDOT (Detroit)
AUVSI (Sterling Heights)
ITS Working Group (Ann Arbor)

MI ACCELERATOR NETWORK

Ann Arbor SPARK
Tech Town Detroit
Macomb/OU Incubator
Automation Alley

ITS TEST BEDS

Macomb/OU Incubator
DSRC Test Bed
UMD CVPC
I-69 ITS Test Bed
Grayling Robo-Testbed
CREST
Gaylord Robo-Airport

MAKER/HACKER SITES

Maker Works
Tech Shop Detroit
Omni Corp Detroit
3 Detroit
All Hands Active

PROVING GROUNDS

Michigan International Speedway
Michigan Proving Grounds
CREST

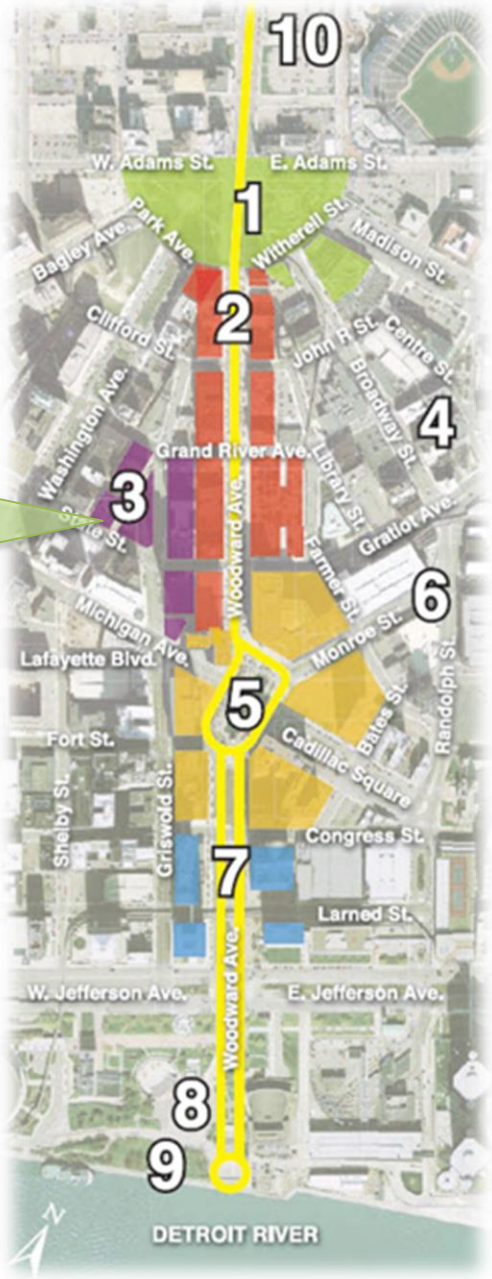
THE SITE: example

ALIGNED WITH STRATEGIC INITIATIVES

Location TBD

Webward

PLACE BASED STRATEGY



1ST THOUGHTS ON BUDGET

$5M From Collaborative Partners

- Represents the region's commitment ITS
- Cost share from federal and industry collaborators

$5M State/MEDC Grant JAN 14

- Emblematic of the State's commitment to technology
- Represents the ITS & Robotics complement to NextEnergy

Funds will be used for start-up phase (1st 3 years)

- $3M Capital Equipment
- $7M Operations (incl. personnel, services, lease, etc.)

VISION CUSTOMERS

Test Beds & Pilots

- US Army
- US Marines
- US Navy
- US Air Force
- NASA
- DOT
- DHS
- Veteran's Affairs
- Traditional DOD Contractors
- Non-Traditional DOD
- Start-ups
- National Robo-Firms
- International Robo-Firms
- Universities

Labs

- US Army
- US Air Force
- NASA
- DOT
- Traditional DOD Contractors
- Non-Traditional DOD
- Start-ups
- National Robo-Firms
- International Robo-Firms
- Universities

Makerspace

- Inventor Guy/Gal
- US Army
- US Air Force
- NASA
- Non-Traditional DOD
- Start-ups
- Small Robo-Firms
- National Robo-Firms
- International Robo-Firms
- Universities

Education

- K-12
- Universities
- Science/Technology Clubs
- Inventor Guy/Gal
- US Army
- Non-Traditional DOD
- Start-ups
- Small Robo-Firms
- National Robo-Firms
- International Robo-Firms
- Community Colleges
- M-TEC

COLLABORATE * MAKE * TEST * SHOWCASE * COMMERCIALIZE

INVESTORS & CUSTOMER DRIVERS

Federal Gov't:
Bring Jobs
Enable Mission (field robotic sys.) [research, validation, prototyping, collaboration, transition]

Regional Gov't:
Bring Jobs
Bring/Build Companies
Bring New Business to Region

Industry:
Enable Business – Make "them" money

- Product/Project Delivery (i.e. Testing, Certification, etc.)
- Product/Project Showcase (marketing to secure customers/investors)

Universities:
Enable Research
Enable Grants (collaboration, innovation…)

INVESTING STAKEHOLDERS

INDUSTRY

Cisco
SAIC
GDRS
BAE
Lockheed Martin
Soartech
Quantum Signal
Pratt & Miller
TORC
SWRI
AUVSI
NCMS
RTC

* Cash + Equipment, Building, Machinery, Personnel, Supplies, Software

FEDERAL LABS

US Army TARDEC
DOT RITA
DOT NHTSA
Air Force Research Lab
NASA
US Army LIA
Economic Dev. Admin
SPAWAR
USMC Warfighting Lab
DARPA
DHS – S&T

* Cash + Equipment, Machinery, Personnel, Supplies, Software

ACADEMIC

University of Michigan
UMTRI / SMART
UM Dearborn / CVPC
Michigan State
Wayne State University
Lawrence Tech
University of Detroit
Macomb Comm College
Oakland Comm College

* Equipment, Machinery

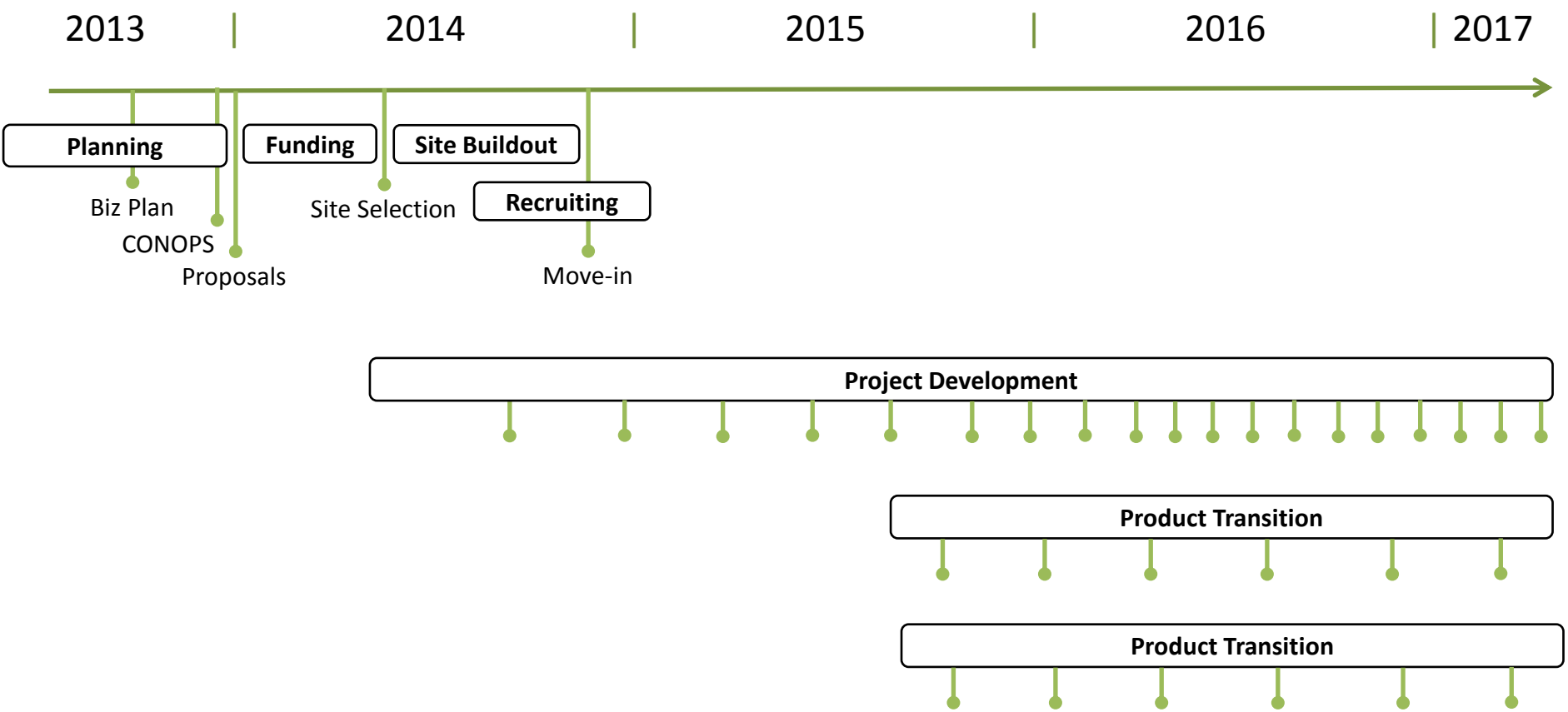
STATE & REGIONAL

MDOT
MEDC
Macomb Econ. Dev.
TechTown
Automation Alley
SPARK*
MI Defense Center
MI National Guard
ESD

* Cash, Building, Support (funds & partners)

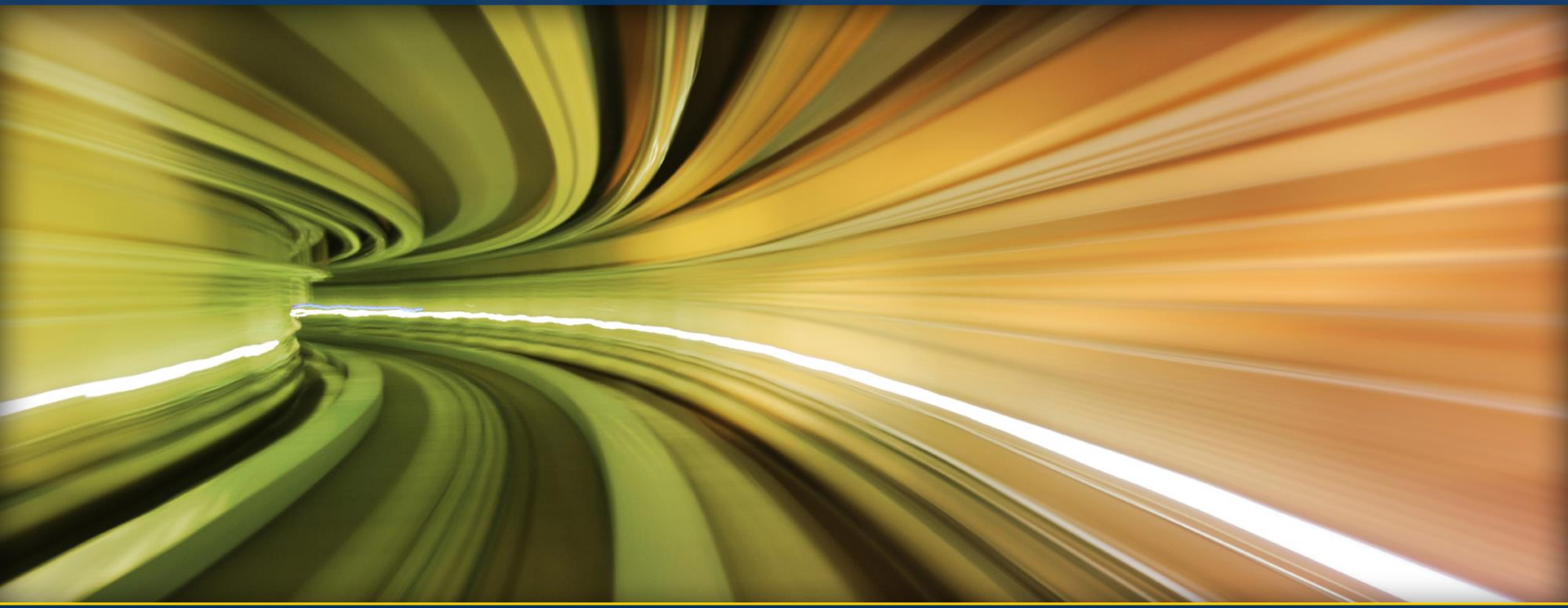
** Connections to grants and other funding sources (e.g. Kaufman, NEI, Kickstarter, Start Some Good, etc.)

ROUGH TIMING



UNIVERSITY OF MICHIGAN

MICHIGAN MOBILITY TRANSFORMATION CENTER



Michigan leading the convergence of connected and automated mobility systems

Peter F. Sweatman

Director, UMTRI
Director, MTC

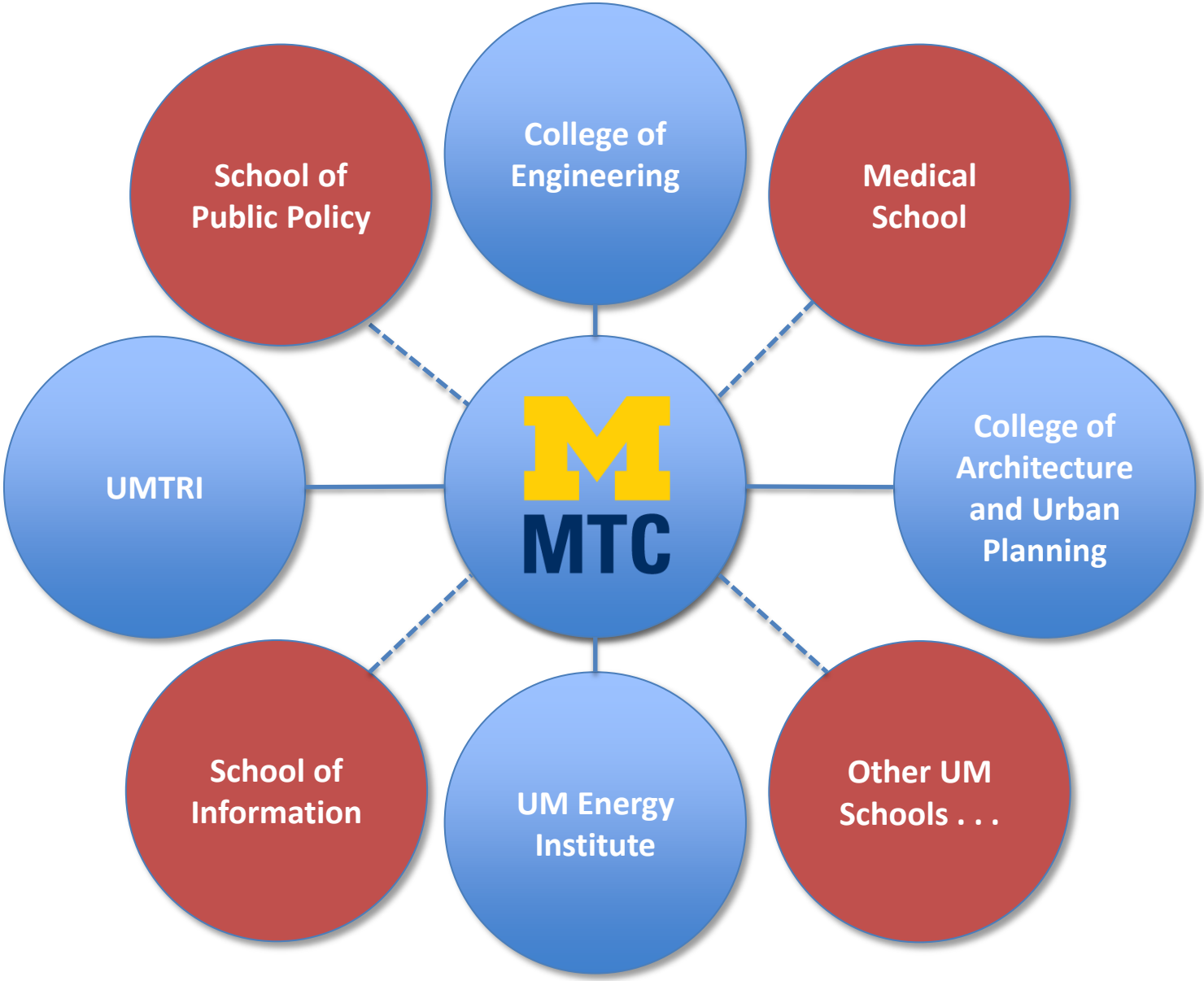
070213

THE UNIVERSITY OF MICHIGAN IS INVESTING IN MOBILITY

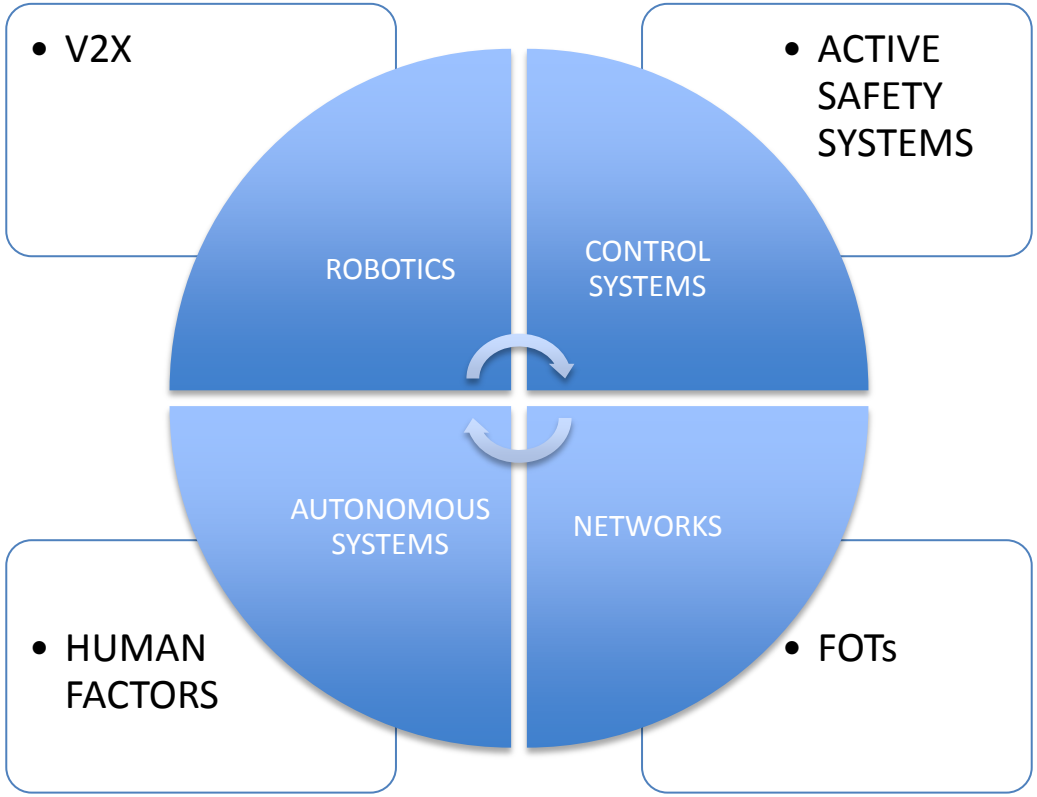
Our center is focused on mobility of people and freight

Our core is connected and automated transportation

UNIVERSITY PARTNERS

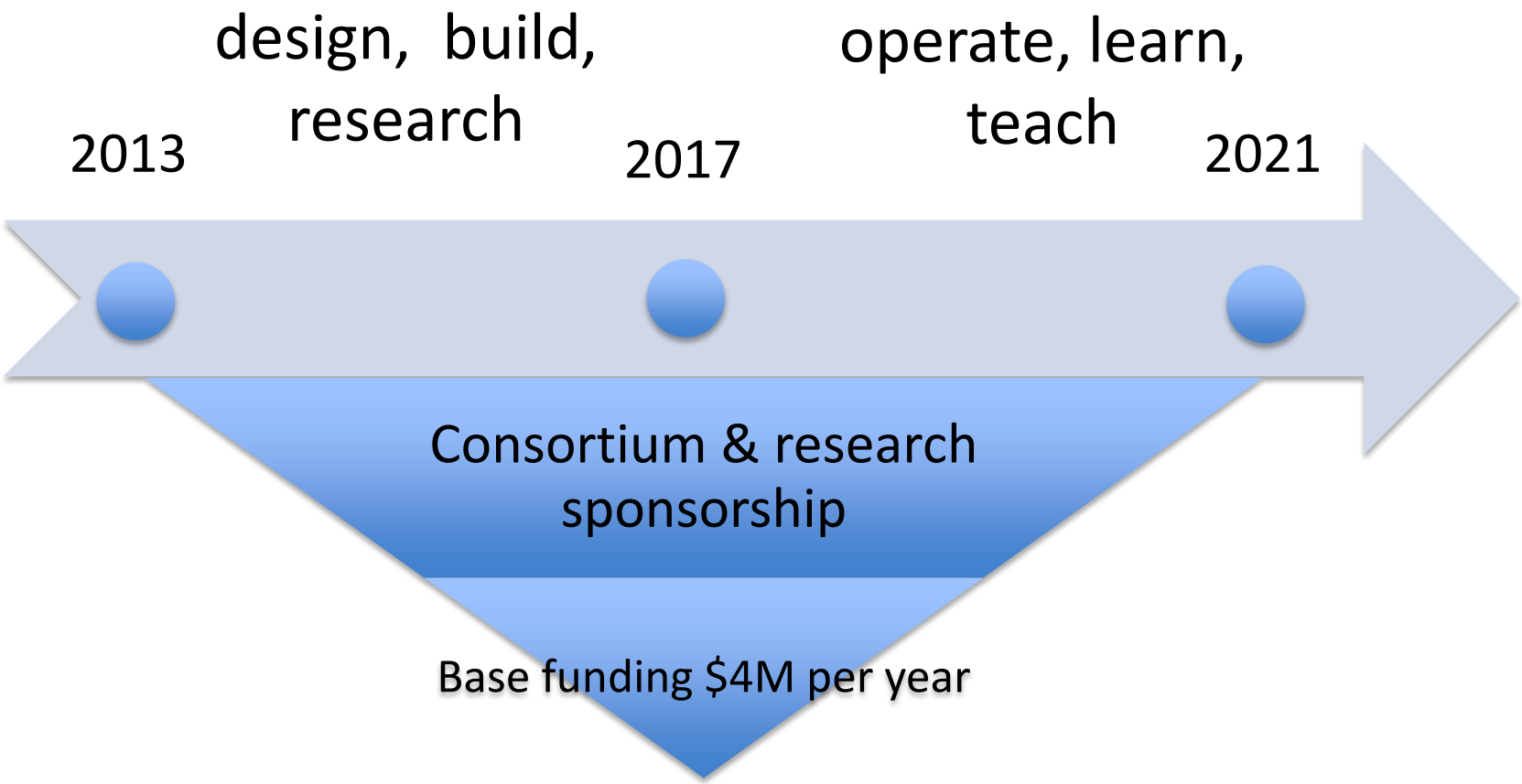


A TOP 10 ENGINEERING SCHOOL COLLABORATING WITH A LEADING TRANSPORTATION INSTITUTE

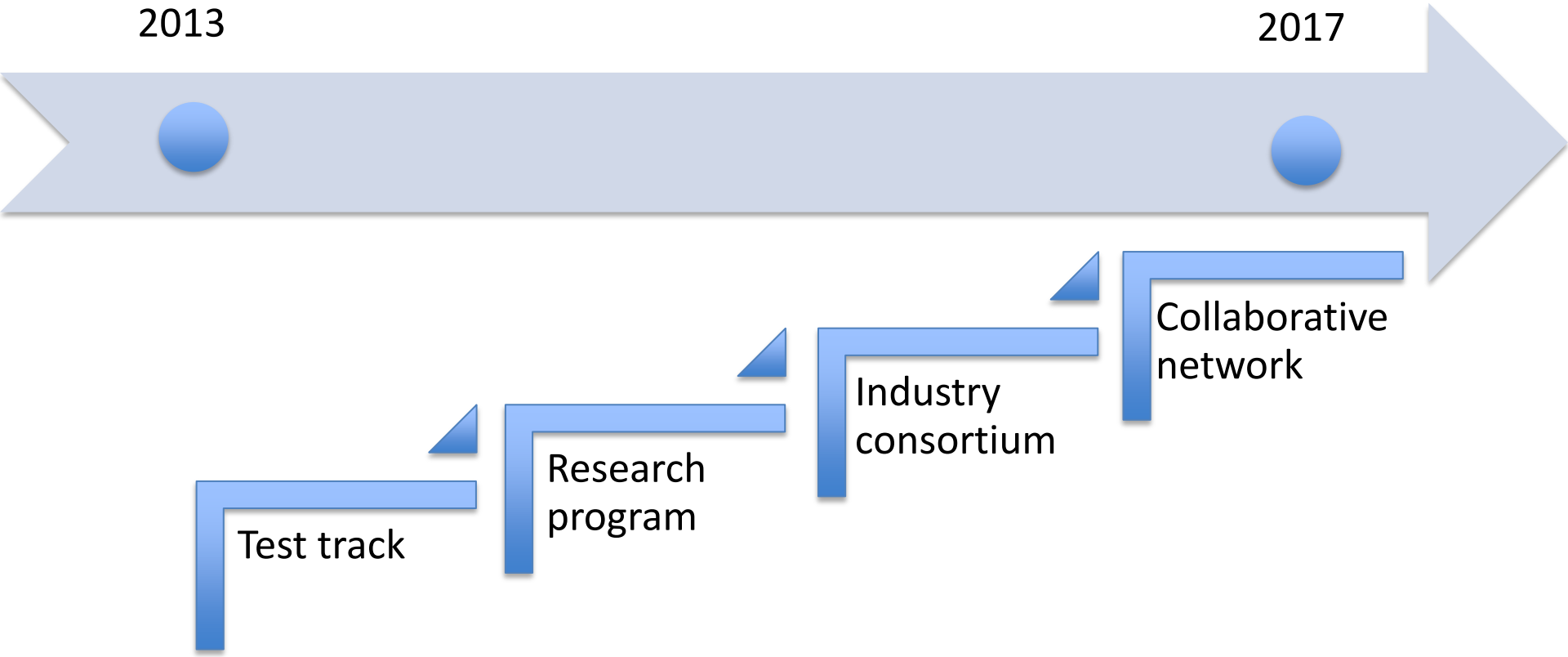


CoE + UMTRI

MTC Program


design, build, research
operate, learn, teach
2013
2017
2021
Consortium & research sponsorship
Base funding $4M per year

MTC 4-year pilot program



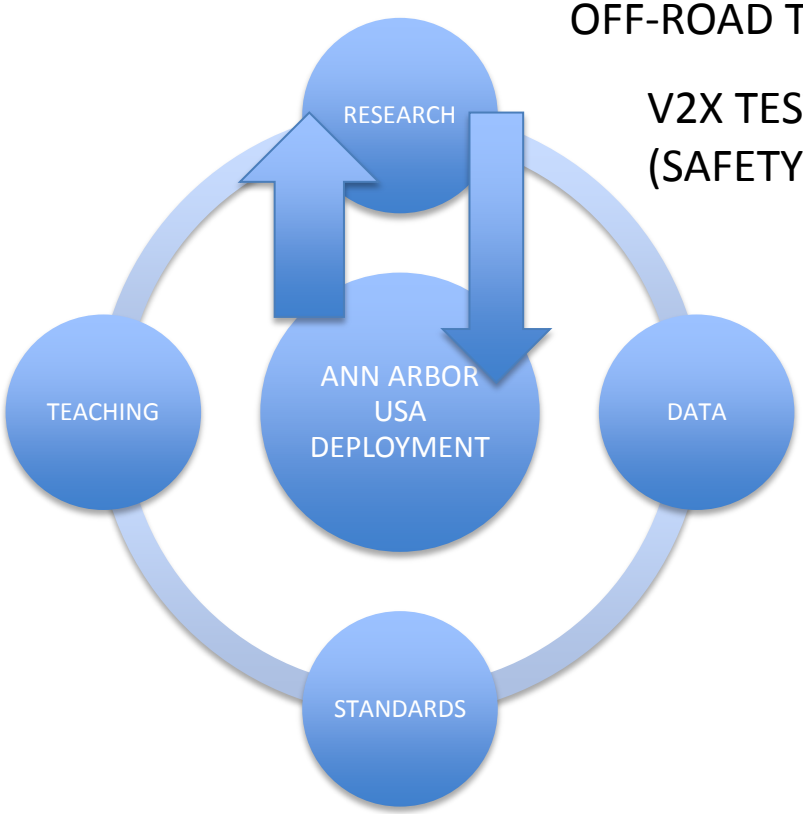
Research infrastructure
+
Deployment of 21st Century Mobility Operating System in Ann Arbor

We are starting with the research infrastructure

A KERNEL OF DEPLOYMENT

OFF-ROAD TEST TRACK

V2X TEST ENVIRONMENT
(SAFETY PILOT)



21ST CENTURY MOBILITY OPERATING SYSTEM

Our research infrastructure includes off-road and on-road test facilities

OFF-ROAD FACILITY FOR CONNECTED AND AUTOMATED VEHICLES

- Facilities consist of roadways, roadway features, roadside furniture, built environment features, and urban obstacles
  - 1000 ft. straightaway
  - roadway grid with intersections and sets of signals
  - traffic merges
  - roundabout and a parking area.

OFF-ROAD FACILITY FOR CONNECTED AND AUTOMATED VEHICLES

- All roadway elements will be created to current standards, although in truncated sections
- The maximum speed achievable will be 40 mph on the straightaway, and 30 mph on most roads
- The road network will be organized into closed loops, allowing a variety of “infinite” missions to be run without the need for U-turns or travel off-course

MOBILITY IS RIPE FOR TRANSFORMATION

Connected Vehicles

+

Automated Vehicles

+

Shared Vehicles

+

Specific Purpose Vehicles

+

Advanced Propulsion Systems

+

Operating System

ANN ARBOR SPARK
IGNITING INNOVATION

Global Symposium Connected Vehicles

Luke Bonner
Vice President

@nn arbor usa

Mission Statement

*"**SPARK** will advance the economy of the Ann Arbor Region by establishing the area as a desired place for business expansion and location...by identifying and meeting the needs of business at every stage, from those that are established to those working to successfully commercialize innovations."*

Collaboration in action at Menlo Innovations, a software company located in Ann Arbor

Community Success Factors

ANN ARBOR SPARK
IGNITING INNOVATION

Automotive

TOYOTA

faurecia

THAI SUMMIT OGIHARA

HYUNDAI KIA MOTORS

Software/IT

THOMSON REUTERS

TRUVEN HEALTH ANALYTICS

Google

BARRACUDA NETWORKS

Notable Headquarters

Domino's Pizza

Con-way FREIGHT

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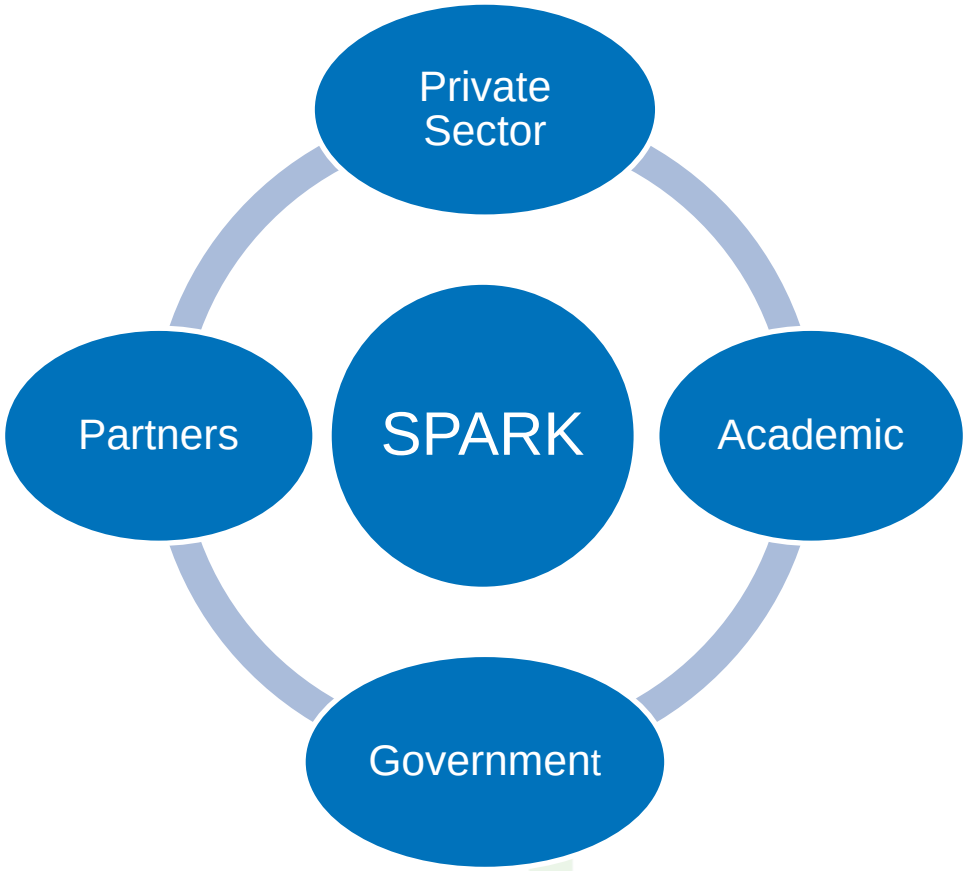
Enabled to Convene



Why Michigan? For Connected Vehicles

Talent ✓

Innovation ✓

SAFETYPILOT

Leadership ✓

Automotive ✓

ANN ARBOR SPARK
IGNITING INNOVATION

Bill Ford

In February 2012, Ford Executive Chairman called for new opportunities in a speech at a mobile electronic device conference in Barcelona, Spain. He said the *mobile device industry should join with automakers and governments to develop connected car technology* in order to solve looming congestion and safety problems around the world

(August 21st, 2012; CBS.com article "Can Cars Talk To Each Other?").

Is There An Opportunity???

Precautionary Testing

The Cars Actually Talk

Retain and Create Jobs

How Would It Come Together?

GM-RACER

Incentives

Location

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UNIVERSITY OF MICHIGAN-DEARBORN

Fleet Automation Forum

Mohammad Poorsartep

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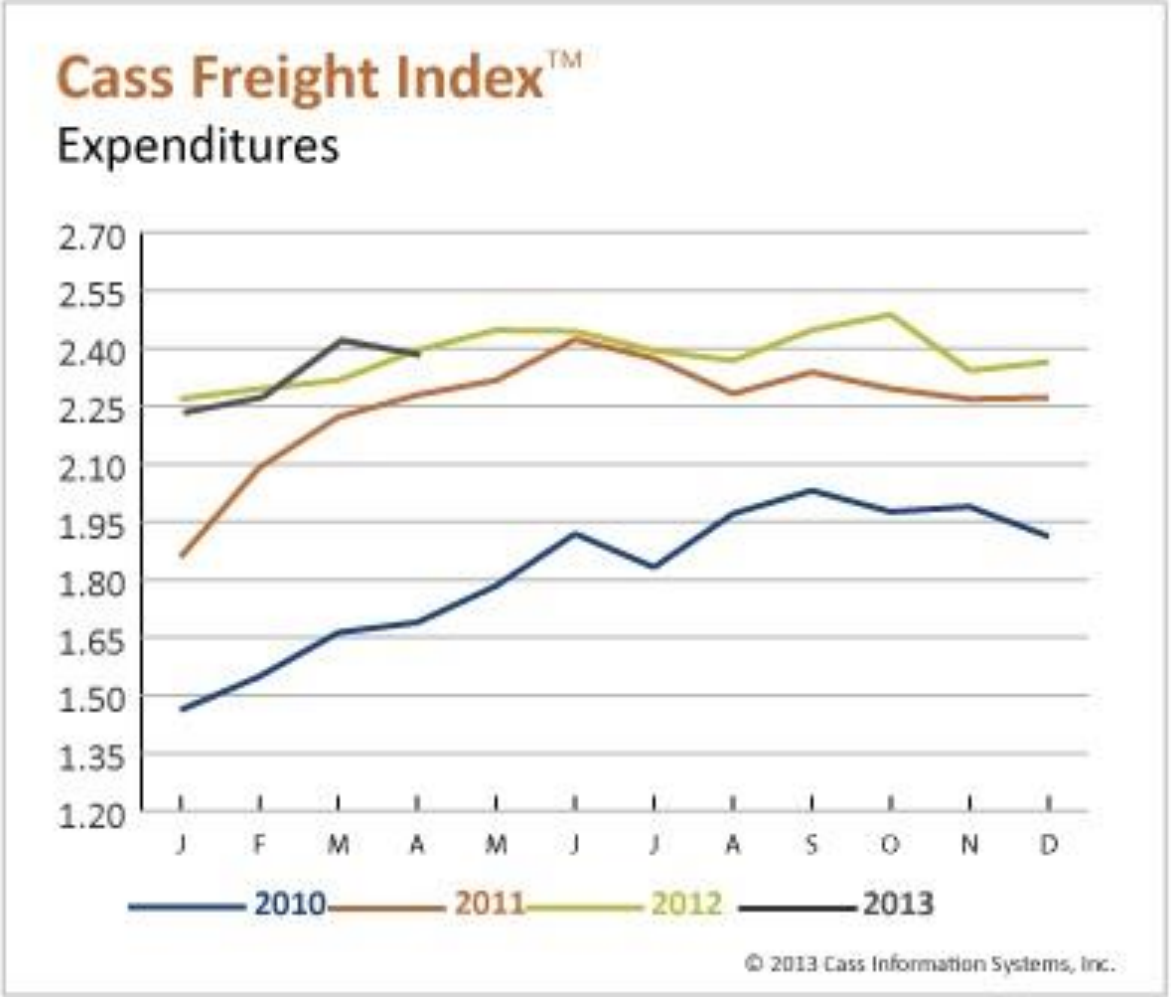
State of the Industry (Cost/Volume)

- Slow US economic growth is expected in 2013. Truck freight volumes should be flat.
- Motor carriers are closely watching their costs to remain profitable.
- Rates are expected to increase, due to higher operating costs, regulations, and decreased productivity.
- Cost of capital is still an issue for buying equipment as the term for payback is volatile
- Small carriers and non-asset based 3PLs are using leased equipment and not buying equipment when they can
- It is expected the rate environment to improve for fleets as capacity tightens in 2013, when more stringent hours-of-service rules go into effect.

State of the Industry (Cost/Volume)



Freight costs continue to increase – costs at the end of 2012 were 4% higher than at the end of 2011

State of the Industry (Drivers)

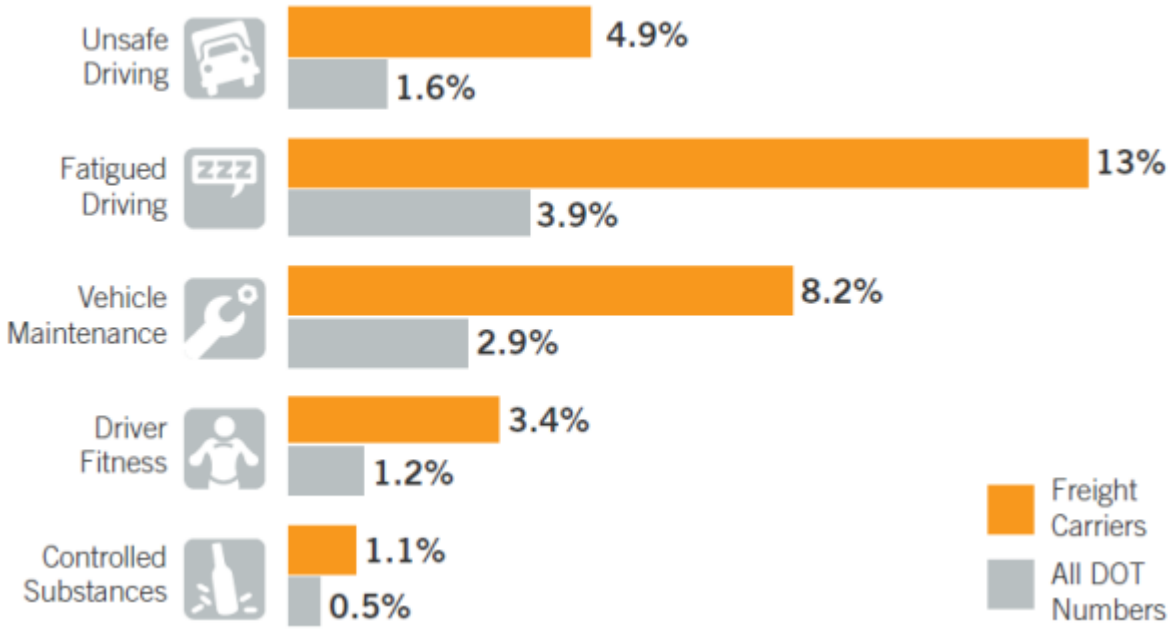
- Carriers are unwilling to add capacity when they can't find drivers to fill the seats, and **75% of the carriers surveyed are reporting unseated trucks**. Of the larger fleets, 60% have between 1-5% of the trucks unseated, while 36% of the smaller fleets report 6-10% of their trucks lack drivers.

- Driver recruiting & retention remain a big concern. **Shortages will continue**.

- Carriers' mergers & acquisitions will continue in 2013 as large carriers buy small companies **to add drivers and expand fleet size**.

- Nearly 3/4 of carriers acknowledged that CSA has made it more difficult to hire new drivers, due to the increased scrutiny that is now required. Small carriers have few but higher scores. Big carriers have more but lower scores.

State of the Industry (Drivers)

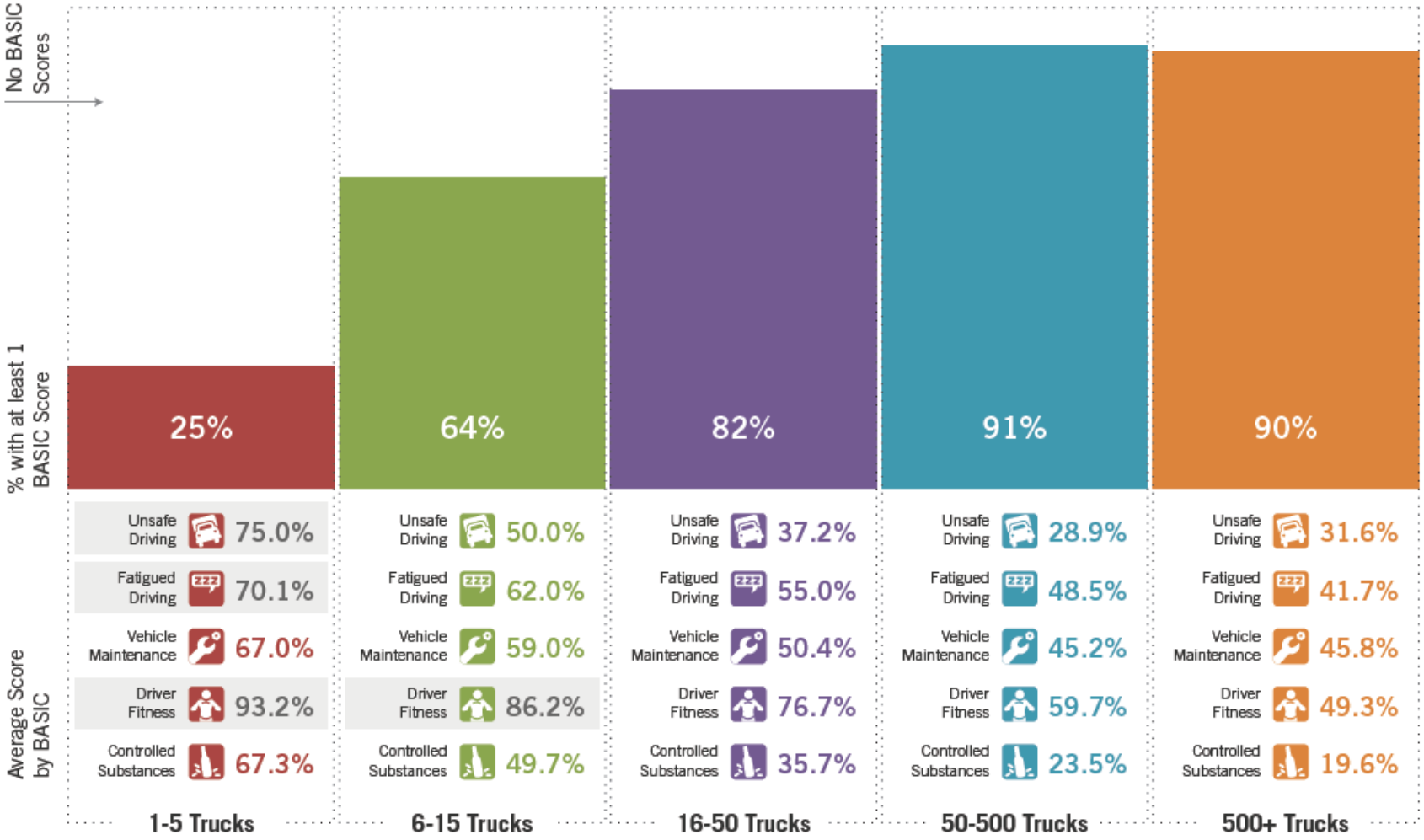


% with Alerts Among For-Hire, Interstate Carriers vs. All Fleets

Fatigued Driving, representing HOS violations, was the most common failing, with 13% of freight carriers receiving an alert in that category.

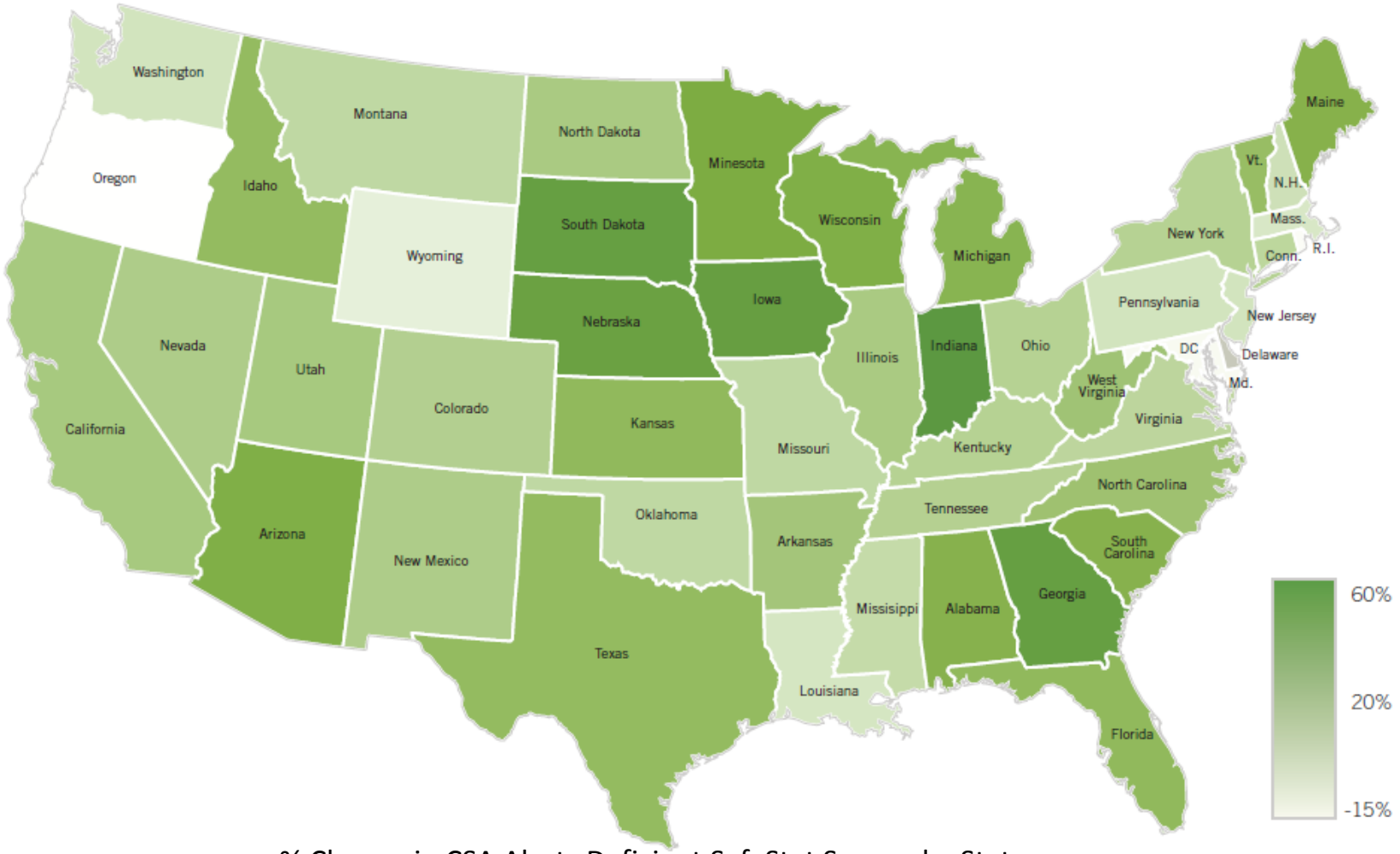
Source: TransCoreFreightSolutions.com

State of the Industry (CSA)



Source: TransCoreFreightSolutions.com

State of the Industry (CSA)



% Change in CSA Alerts Deficient SafeStat Scores, by State

Source: TransCoreFreightSolutions.com

CVPC

University of Michigan-Dearborn

To Summarize

- Hiring drivers remains a challenge
- “Unsafe” and “Fatigued” driving continue to be a problem
- Capacity will remain tight due to inefficiencies and economic uncertainties
- Fuel cost continues to increase

Truck Automation to the Rescue

Driverless (or self-driving) Truck?

Semi Automated Truck?

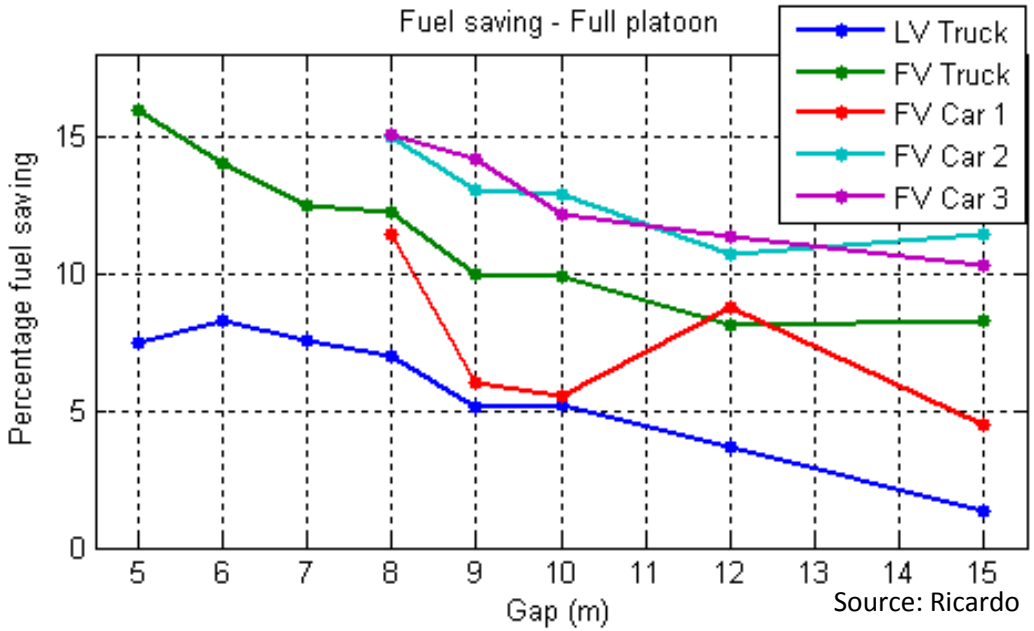
- Cooperative Adaptive Cruise Control
- Platooning

Truck Automation Projects

- KONVOI (EU)
- SARTRE (EU)
- UC Berkeley-PATH (USA)
- NEDO (Japan-ITS Energy)
- SCANIA Transport Lab(EU)
- AMAS (US Army)
- FHWA (US DOT – initiated)

New Energy and Industrial Technology Development Organization

Benefits



Source: Ricardo

Civilian Applications:

1- Safer trucks

2- Full efficiency

3- Higher roadway capacity

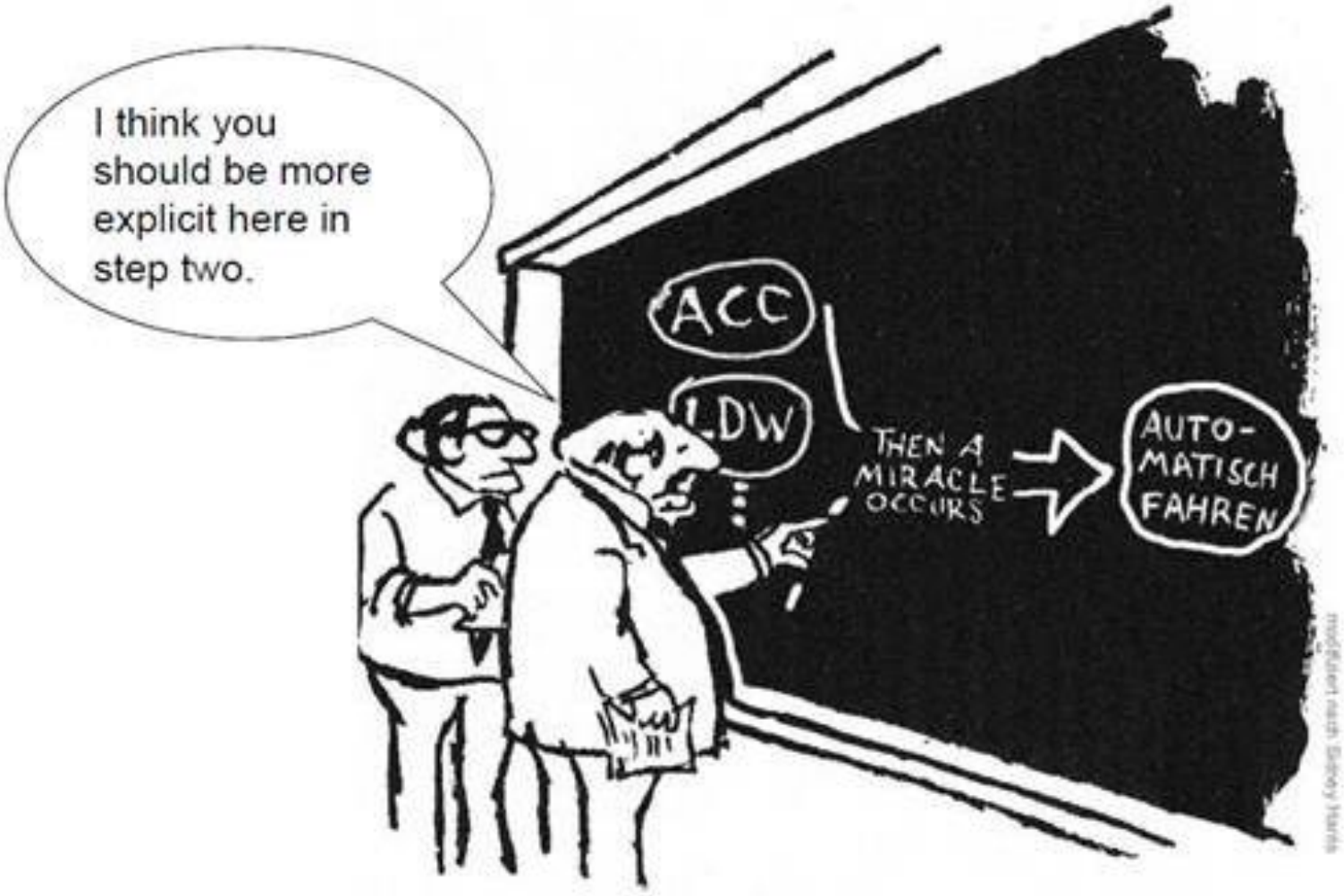
Military Applications:

1- Safer trucks/ decrease casualties

2- Increased operational efficiency ("up time")

3- Fuel efficiency

The Road Ahead!



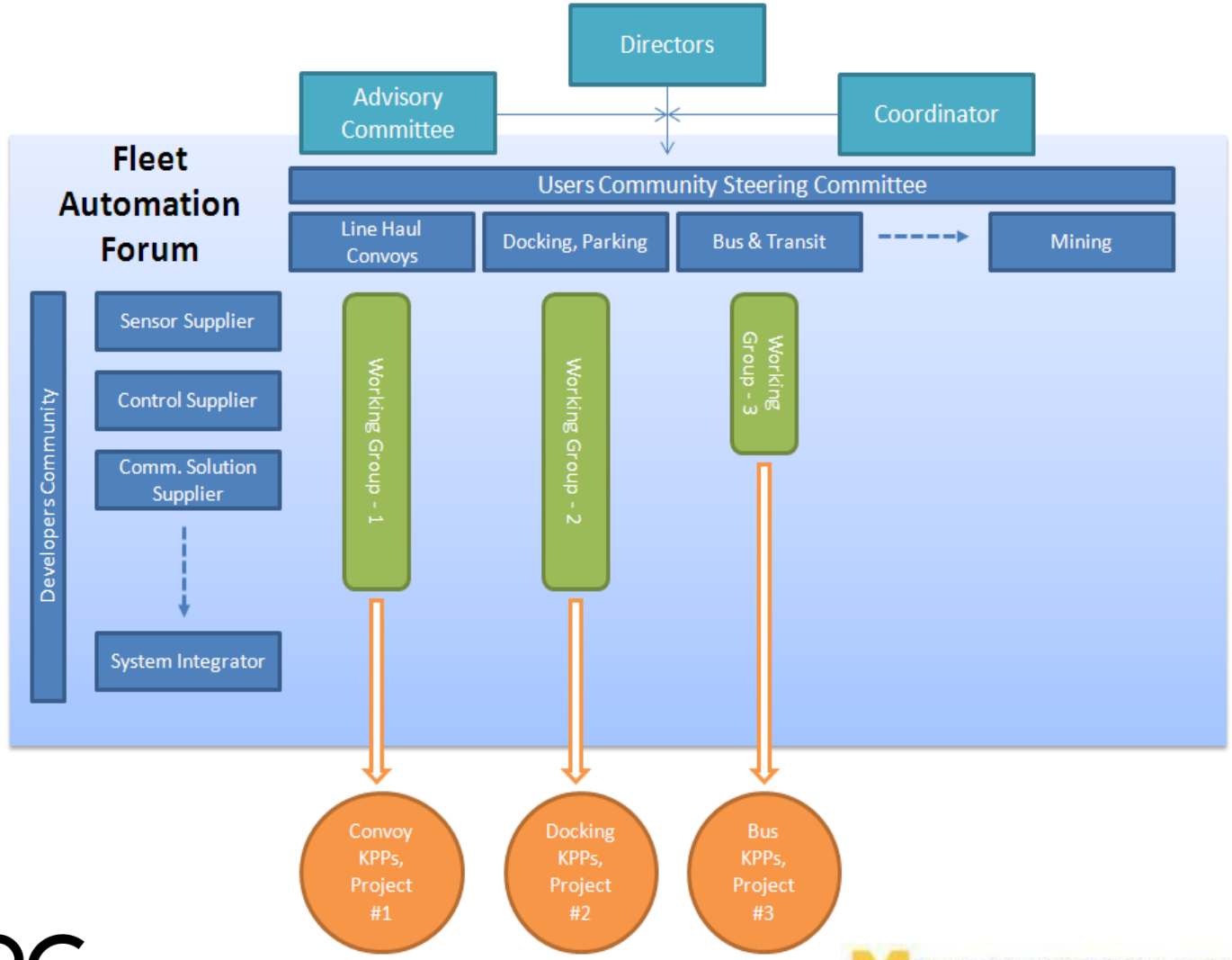
Fleet Automation Forum (FAF)

FAF's concept originated from US Army TARDEC

Proven model-HTUF (users attract developers)

A user-centric **collaborative** forum that actively engages important stakeholders from across multiple sectors to shape the automated fleet technologies market.

Structure



Thank you

Michigan Automated Systems Collaborative (MASC)

Background

- Funded effort by the Michigan Economic Development Corporation (MEDC)
- Facilitated by Macomb County Planning and Economic Development
- Advisory Committee meets monthly
- Seeking industry engagement
- Bring it all together

Vision

Vision:

To make Michigan a national leader in design, development, and manufacturing of automated systems and related robotic technologies.

Mission

Mission:

The Michigan Automated Systems Collaborative (MASC) is a strategic partnership consisting of industry, academia, trade associations, and government. Our mission is to promote, attract, and grow the robotic and automated system industries in the State of Michigan.

Goals and Objectives

- Help grow and attract the automated systems industry in Michigan
- Identify industry needs
- Collaborate on solutions and projects
- Seek opportunities
- Grow and retain talent in related fields of study
- Promote partnership and alignment to key stakeholders
- Establish and maintain Michigan's leadership in automated vehicle technology
- Be the central gateway for sharing opportunities, events, conferences, success stories, etc. in the State of Michigan

Action Items

Website coming soon:

www.AutomateMichigan.org

Contact information:

Vicky Rad

Vicky.rad@macombgov.org

(586) 469-5065

MICHIGAN AUTOMATED AND CONNECTED VEHICLE WORKING GROUP:

BREAKOUT SESSION REPORTS

Group 1

How can the state best encourage and foster coordination and collaboration between the various efforts underway to develop CAV testing and development resources in Michigan?

One-stop-shop

Know the resource for answering questions related to testing

- Website, person, or office
- Website to include all activities

Knowing that possible partnerships exist

How can the State of Michigan government (MDOT and beyond) support growth of the connected and automated vehicle industry in Michigan?

Non-Michigan perspective

Connected and automated vehicles are based on software development – provide coursework in simulation and modeling related to test scenarios that can be tested on a track

University curriculum

What should be the goals and objectives of state efforts to grow the CAV industry in Michigan?

- Economic development?
- Technological advances?
- Other?

Job development and talent retention

This includes advertising what is available in Michigan in regards to jobs

Could allow testing on existing Michigan roads

Promote Michigan's image

What criteria should be considered in decisions by the state to support individual projects?

Reward collaboration, universities focused on collaboration

How can disparate groups and projects best coordinate efforts outside state government-supported forums and programs?

Have other locations for holding meetings

Newsletters

Use another organization to support; other committees, SAE

Bring groups together similar to what we are doing with the Connected and Automated Vehicle Working Group

Group 2

How can the state best encourage and foster coordination and collaboration between the various efforts underway to develop CAV testing and development resources in Michigan?

- Private investment is needed to bring CAV technologies to commercial deployment. Investment of public funds into private development is tricky. It is difficult for state government agencies to intervene in the development of private businesses for political, organizational, and other reasons. Efforts to foster coordination can be interpreted as favoritism if coordinating projects are not successful. As such, state government should consider outsourcing coordination efforts to a third party.
- Useful to have liaisons to individual businesses to let potentially relocated businesses know what is available to them in MI.

How can the State of Michigan government (MDOT and beyond) support growth of the connected and automated vehicle industry in Michigan?

Funding a third party such as ITS Michigan to provide a coordinating role would be helpful.

Considering that ITS is a multimodal effort, MDOTR should make an effort to get agency-wide participation in a potential effort.

Need to promote local businesses as dynamic. Traditional automotive sector still seen as very slow moving: needed "corporate welfare," not amenable to change, protective of status quo, etc. By contrast, Silicon Valley and some other centers are viewed as drivers of change.

What should be the goals and objectives of state efforts to grow the CAV industry in Michigan?

- Economic development?
- Technological advances?
- Other?

Economic development. Promoting Michigan as a place for growing businesses to locate. Cooperative marketing efforts with industry.

What criteria should be considered in decisions by the state to support individual projects?

If public resources or preferences are available to private efforts, support of these efforts should consider the integration into a statewide plan (facilitated by a third party), and the willingness of the effort's advocates to effectively coordinate and cooperate with the broader group.

How can disparate groups and projects best coordinate efforts outside state government-supported forums and programs?

This would be difficult outside of a 3rd-party hosted forum.

Group 3

How can the state best encourage and foster coordination and collaboration between the various efforts underway to develop CAV testing and development resources in Michigan?

Funding

Allocated resources – point person such as a state coordinator/planner

- Knows what is going on
- Neutral entity, out there to help

We all get our information from different channels

- How to use marketing distribution channels to get message out
- In some ways, we are too clique-ish, too club-ish
- How do we expand and engage the public
- The state could help by…
- Really good public relations work
- Immersive marketing, demos, showcase

How can the State of Michigan government (MDOT and beyond) support growth of the connected and automated vehicle industry in Michigan?

Database for all programs, companies, university initiatives

Advertise existing investments, competitors (states) are artificially inflating their investments

Use legislators to push for additional investment; other states are using their legislatures to push for more investment through their state DOTs

Lobbying – should UMTRI, MDOT, etc., have more support in DC?

- Understand influencers, who needs to be influenced to move an idea forward (affinity map)
- Influencing legislators can lead to good press and public relations and vice versa
- Know what we want and then build a coalition around it
- Agenda; where is connected and automated vehicles on our lobby agenda
- Do we have one specific issue or initiative for funding? We can establish cooperation around this
- Find priorities, brief all decision-makers

Regional or state-based group to bring universities, OEMs, Tier-1 companies

- Could be in MEDC's purview, governor's office

Create a "Next Energy" for connected and automated vehicles

Proposals

- Better to know if RFP is coming in advance, or better yet, to influence the RFP itself
- Strategies to offer free help for RFPs, etc.

Messaging/Marketing

- Electronics/software education initiatives and improve Michigan's messaging issues when it comes to talent
- We do ourselves a disservice when it comes to messaging
- Need more coordination, possible state-level coordination
- Money as with the Pure Michigan campaign (also how to combine with Pure Michigan economic development efforts), how to build on Chrysler's "Made in Detroit" ad
- Don't put money before the horse though
- Need branding strategy
- Silicon Valley has traffic, high taxes, housing cost
- Testimonials
- Chicago balances family, intellectual, cultural
- Opportunities to come back to Michigan

Main Points

One voice, unified message and unified set of priorities

Person (or agency) to be the point-person

Better connected to DC

Money

- Marketing/Branding
- Collaboration efforts
- Technology incubation

Building human capital

- Bringing young professionals back after they gain experience in other states

Need an inventory of assets and investments related to connected and automated vehicles

Group 4

How can the state best encourage and foster coordination and collaboration between the various efforts underway to develop CAV testing and development resources in Michigan?

Some objectives

How do they fit?

U.S. DOT cooperative agreement

Format: testbeds, study, test, develop, certify, etc.

Bigger vision

Networking has its own value

How can the State of Michigan government (MDOT and beyond) support growth of the connected and automated vehicle industry in Michigan?

Messaging

By subject – specialization of facilities: 6-8 unique categories/subjects (e.g.. cyber security)

Connected technology test beds

Clearinghouse/networking/one-stop shopping

What should be the goals and objectives of state efforts to grow the CAV industry in Michigan?

- Economic development?
- Technological advances?
- Other?

Test network of vehicles

Focus on connected AND automated is a Michigan strength (versus automated without connectivity from the West Coast)

What criteria should be considered in decisions by the state to support individual projects?

How can disparate groups and projects best coordinate efforts outside state government-supported forums and programs?

OEM involvement – need automakers on board, in the loop

Freight

Asset inventory

Same page (consistent testing/proving/validation configuration)

Linkages

- CAMP
- AASHTO
- CCI for V2I – "Consortium of Connected Infrastructure"

Vision (plan, leadership)

Solve a real problem (e.g., LA traffic congestion, intermodal, freight, or border-crossing issues)