



**MAFC Draft Research Ideas – 2017-2018.**

The 11 draft project ideas listed below were generated in a MAFC state-to-state teleconference and after final prioritization will represent 2017-2018 research and development agenda for MAFC. Following the initial teleconference to generate the project ideas, a brief scope of work was developed for each project and sent to state technical contacts. State representatives then submitted comments on the projects followed by a teleconference to share the comments across the states and provide an opportunity for each state to rank and provide support for their priority projects. The rankings were then reviewed and approved by the MAASTO Planning Committee representatives. The table at the end of the document presents the state prioritizations for each of the 11 projects as balloted by the state technical representatives and Planning Committee members. The projects are ranked from 1 to 11 with 1 being the highest priority, and 11 representing the lowest priority. A summary of the ranking is provided below.

Quantifying the value of modal investments is the highest ranking project, OSOW harmonization is ranked second, freight data training is ranked third, number four is truck parking in urban areas, autonomous truck corridors is ranked fifth, regional freight brochure is ranked sixth, seventh is the TPIMS performance measures and warehouse, developing regional performance measures is ranked eight, the ninth rated project is the regional supply chain optimization, and two projects tied for the 10<sup>th</sup> ranked project; competitive grant best practices and regional assessment of shipping containers.

Project Title	Rank
Quantifying the Value of Multimodal Freight Investments	1
OSOW Harmonization	2
Freight Data Training	3
Truck Parking in Urban Areas	4
Autonomous Truck Corridors: Preparing for the Future	5
Create Regional Freight Facts Brochure	6
TPIMS Performance Metrics and Data Warehouse	7
Developing Regional Performance Measures	8
Regional Supply Chain Optimization Study	9
Competitive Grant Template	10
Regional Assessment of Shipping Container Access	10



The updated research ideas are presented below. After final input from the MAASTO Board of Directors, a more detailed scope of work, budget and timeline will be created for the highest priority projects. MAFC will then work with technical representatives to move forward with the projects.

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### **1) Truck Parking in Urban Areas**

Summary: Ranked 4

This project explores the potential to use vacant urban parcels and brownfields as truck parking areas. This project would expand the GIS methodology used in an earlier MAFC whitepaper, and apply it to a major metropolitan area in each MAFC member states. The ultimate goal of this project is the development of a pilot project in each MAFC state to identify and provide low cost urban truck parking that creates efficiency, reduce congestion and increases safety in last mile freight movement.

Deliverables:

- A literature review of urban truck parking issues, and a discussion of how urban spaces could alleviate some parking shortages.
- A review of local ordinances and time limits on truck parking in each of the urban areas.
- A GIS and parcel evaluation of potential truck parking availability in a selected urban area in each MAFC member state.
- Facilitate pilot project.



## **2) Autonomous Truck Corridors: Preparing for the Future**

Summary: Ranked 5

Some states have begun high definition mapping of select freight corridors to improve the data available for autonomous vehicles, in particular, autonomous trucks. This project would provide states with a review and guide for potential actions to accommodate autonomous vehicles, and to improve the level of safety associated with their operations.

Deliverables:

- Literature review of technology related to autonomous truck operations, and what mapping and communications technology is necessary for operations.
- Review/study of potential benefits of autonomous vehicles, potential benefits of preparing now.
- Review of MAFC and other state efforts to prepare for adoption of autonomous truck technology. Consideration of the technology on fixed corridors that provide multimodal links such as ports to warehousing or airports to warehousing.
- Review of changes to planning and project development processes to address this new technology.
- Assessment of cost to implement and maintain AVO systems.
- Assessment of obstacles to implementation.
- Recommendations / implementation actions for MAFC members to advance implementation and improve safety of autonomous vehicle operations.

## **3) Quantifying the Value of Multimodal Freight Investments**

Summary: Ranked 1

Quantifying the economic impact of infrastructure investments is key to understanding and communicating the value of multimodal investments. This project reviews current economic models to evaluate investments and then will develop an easy to use economic model that estimates the value of freight investments.

Deliverables:

- A list of the multimodal funding programs in use across the MAFC, the types of projects funded by these programs, and the cost of these projects.
- A literature review of current economic analysis tools.
- Develop usable economic analysis tool that provides an assessment of the value of multimodal investments, and can be used as a project prioritization tool. Project will consider matrix based solutions as well as spread sheet and economic modeling.



#### **4) OSOW Harmonization**

Summary: Ranked 2

OSOW freight makes up a very small portion of CMV traffic, but has significant economic value. Additionally, harmonization efforts for OSOW regulations and permitting have been underway for quite some time with slow progress due to required state legislative changes, state perspectives and real and perceived differences in state transportation needs and systems. MAFC will work with the MAASTO SCOHT, the MAASTO Motor Carrier Committee and the states to identify the current and past efforts in harmonization and then support the priority effort as determined and agreed upon by MAASTO.

Identified Deliverables:

- A comparison of each state's OSOW regulations.
- A review of past and current harmonization efforts in the MAASTO region.
- Research and facilitation support for the priority harmonization efforts for the MAASTO region.

#### **5) Competitive Grant Best Practices and Template**

Summary: Ranked 10

The FASTLANE program, TIGER and MARAD grant programs can benefit MAFC states but there is increased demand on staff to develop increasingly complex grant applications. With an estimated 8% success rate on FAST applications and each costing around \$25-30,000, states are hard pressed to justify the application. In order to improve the likelihood of grant awards and simplify the process, the MAFC will collect successful grant applications for these three programs and make a catalogue of applications available on the MAFC webpage. The applications will also be reviewed for best practices innovative approaches to support MAASTO state application efforts.

Deliverables:

- A collection of multimodal freight grant applications for TIGER, FASTLANE and MARAD competitive grant programs.
- A review of successful FASTLANE applications across nation, with summary of successful elements.
- Identification of best practices and innovative approaches in the applications.



## **6) Developing Regional Freight Performance Measures**

Summary: Ranked 8

Creating regional performance measures demonstrates the MAASTO commitment to understanding and operating a regional freight system. The assessment process will also help us better understand the operation of the system as a whole, and support identification of regionally-relevant projects.

Deliverables:

- Provide a review of best practices on freight performance measures and the related data collection and management.
- Identify and populate regional performance measures and link to state measures.
- Develop strategic approach to using state and regional measures to support multistate project level decision-making.

## **7) Freight Data Training**

Summary: Ranked 3

Most states currently use the USDOT provided Freight Analysis Framework data to estimate freight tonnages by mode along with freight movements. There is a need for most all freight planners to have some ability to access, use and understand this data as well as other available freight data. This project will explore existing training and publications on FAF, ATRI data, rail data, Waybill data, waterborne commerce statistics and private sector sources such as Transearch, and provide a literature review and synthesis of best practices, common uses, utility, accuracy and limitations of these data application. The project will also develop and present two, 1-hour workshops for MAFC members documenting the use and application of the data sources.

Deliverables:

- Literature and practice review of the data sources, training and common types of analysis.
- Freight data primer that provides an overview and links to the data sources or vendors.
- Two training sessions with support materials.
- Available for continued consultation as members explore the data and primer.



## **8) TPIMS Performance Metrics and Data Warehouse**

Summary: Ranked 7

As required by USDOT, MAFC will produce the required TPIMS performance metrics in the areas of safety, reliability and parking spot utilization and demand and submit to KSDOT. MAFC will also provide the overarching data warehouse to house the TPIMS parking data.

Deliverables:

- TPIMS USDOT required performance measures.
- Data warehouse, data storage and data access for TPIMS data.

## **9) Regional Assessment of Shipping Container Access**

Summary: Ranked 10

As states work to support increased multimodal operations, access to shipping containers is frequently cited as a limiting factor to the movement of freight across modes and for the introduction of containers to inland waterways and Great Lakes shipping. This project will review previous work on containerization efforts in shipping and provide an overview of successful efforts and the key components of those efforts. Based on the review, potential development and collaborative approaches are outlined that would increase container availability.

Deliverables:

- Literature and practice review of containerization efforts and collaborative strategies. Includes a review of domestic and international containers chains as well as a review of container chasis availability.
- A review of container ownership models and actions by port authorities and other public entities to provide access to containers.
- Concept of operations developed for most feasible approaches to developing container access and service.
- If appropriate, facilitation of regional network development to support a container pool.



### **10) Regional Supply Chain Optimization Study**

Summary: Ranked 9

To increase regional competitiveness of the MAASTO states, a commodity or good produced across, and impacting the entire region will be identified and a regional supply chain optimization study will be conducted for this commodity. Modeled after the Iowa propane optimization study, the goal of the study is to identify and prioritize transportation investment opportunities across this supply chain that will reduce costs for the region's manufactures and shippers. Further the regional approach will support identification of regionally significant projects that further align the economies of the region.

Deliverables:

- Identification of a regionally relevant cargo/commodity that is predominantly exported from the region.
- Analysis of multimodal network, a regional perspective on freight corridors and limitations to capacity for the selected cargo(s).
- Include private sector in corridor assessment and evaluation of priority projects.
- Develop simulation model to assess demand and capacity and potential future scenarios.
- Identification of alternative logistics routes, investments and changes to service and operations that support the identified cargo.
- Conduct feasibility and return on investment analysis of investments to create an economic prioritized list of investments to optimize the supply chain.

### **11) Create Regional Freight Facts Brochure, and Map and Detail Significant Freight Corridors and Facilities.**

Summary: Ranked 6

Similar to the 2013 MAFC Regional Freight Study, this effort would update the 2013 freight corridors and facilities and provide a current portrayal of the region's multimodal freight infrastructure. The effort would also draw from the nationally defined multimodal network and the state's efforts to identify critical rural and urban corridors. The project would also produce individual state and regional freight facts brochures that highlight the nature and scope of freight and freight movement, the economic importance of freight and logistics and how the multimodal system serves local business and industry as well as connects the state and region to the world.

Deliverables:

- Updated maps and details on regional multimodal freight systems, corridors and facilities including the loads and significance each corridor or facility.
- Freight Facts brochure for each state and the region that details the modes and corridors, economic importance, jobs, commodities, trading partners, scale and national ranking of the freight systems.



**State Rankings for MAFC Research Agenda. 2017-2018 work program. One is highest priority and eleven is lowest.**

Title/rank	IL	IN	IA	KS	KY	MI	MN	MO	OH	WI	Mean	Median	Mode
Truck Parking in Urban Areas /4	3	11	6	2	10	4	5	1	5	3	5	4.5	3
Autonomous Truck Corridors: Preparing for the Future/5	2	5	5	7	9	3	7	9	2	5	5.4	5	5
Quantifying the Value of Multimodal Freight Investments/1	5	1	1	1	1	5	2	3	1	1	2.1	1	1
OSOW Harmonization/2	6	2	2	8	4	2	4	2	3	2	3.5	2.5	2
Competitive Grant Template/10	9	10	11	9	6	10	3	6	9	10	8.3	9	9
Developing Regional Performance Measures/8	7	4	9	4	11	6	8	11	10	8	7.8	8	4
Freight Data Training/3	1	3	3	3	2	8	6	4	4	4	3.8	3.5	3
TPIMS Performance Metrics and Data Warehouse/7	10	8	7	11	7	9	1	7	7	6	7.3	7	7
Regional Assessment of Shipping Container Access/10	11	6	4	10	8	7	9	8	11	9	8.3	8.5	11
Regional Supply Chain Optimization Study/9	8	7	10	5	5	11	11	10	8	7	8.2	8	8
Create Regional Freight Facts Brochure/6	4	9	8	6	3	1	10	5	6	11	6.3	6	6





**Ordered State Rankings for MAFC Research Agenda.** 2017-2018 work program.

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