SHRP2

STRATEGIC HIGHWAY RESEARCH PROGRAM

Accelerating solutions for highway safety, renewal, reliability, and capacity

Regional Operations Forum

How to Organize for Operations

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TRANSPORTATION RESEARCH BOARD

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"Organization"

What are we talking about?

- ***Internally*** for effective conduct of TSM&O mission
  - *On the Org Chart*
    - ✓Functions, roles and reporting
  - *Not on the Org chart*
    - ✓Responsibilities, authority and accountability
    - ✓Dotted line relationships
- ***External*** relationships formalized for effective collaboration

What Needs to be “Organized?”

Vertical :

- Span of control = align responsibility with authority
- Hierarchy – manager in position to make trade-offs regarding performance
  - Too low = no control of technical functions
  - Too high = no knowledge of technical functions
- Decentralization: HQ vs. districts roles -- need for “matrix reporting”
- Is TSMO truly a “program”?

What Needs to be “Organized?”

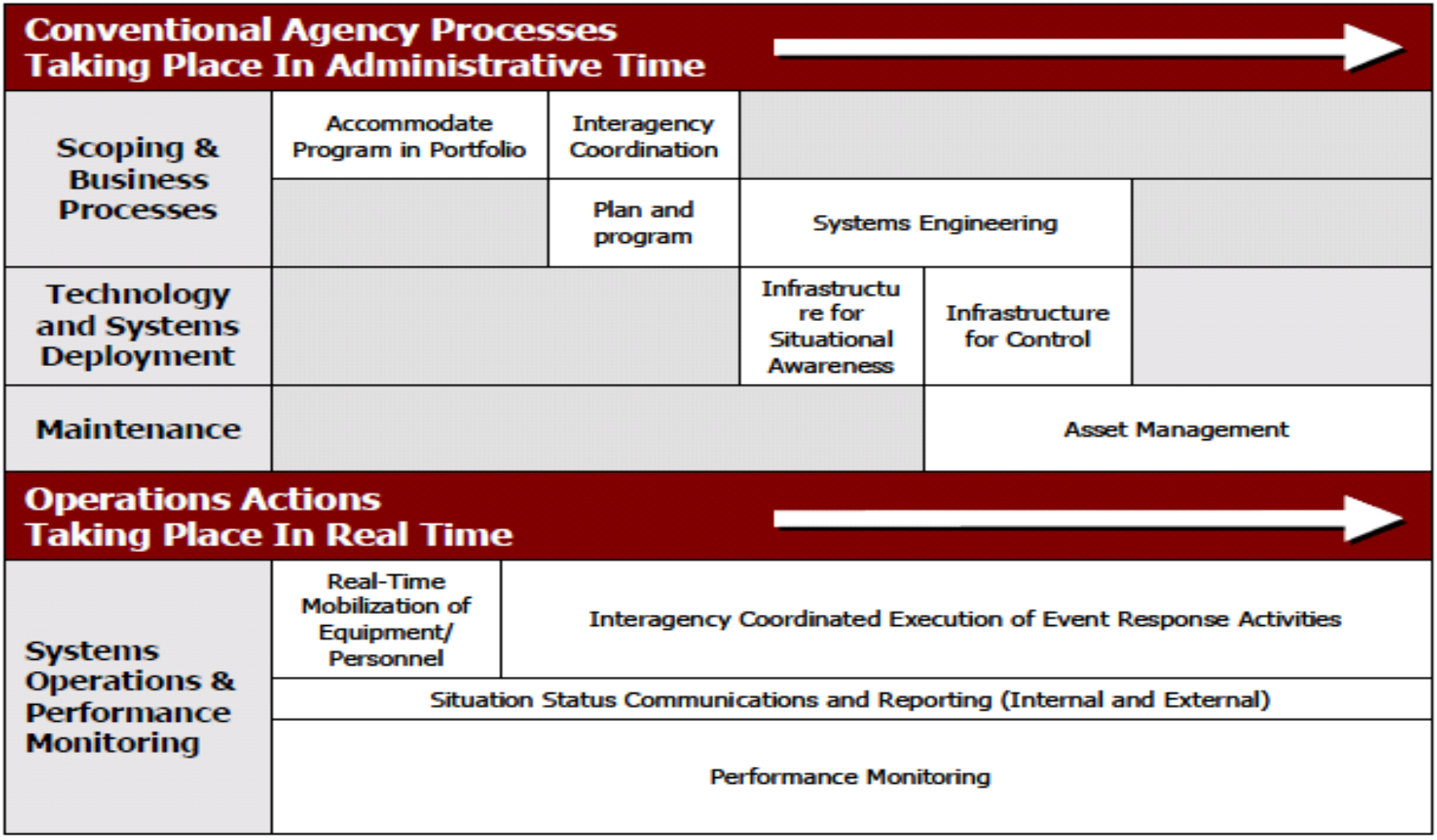
Horizontal:

- Relating engineering to field operations
- Relationship/leverage over support functions (planning, maintenance)
- Ways to coordinate key business process functions
- Real-time procedures and protocols
- Authority for external coordination

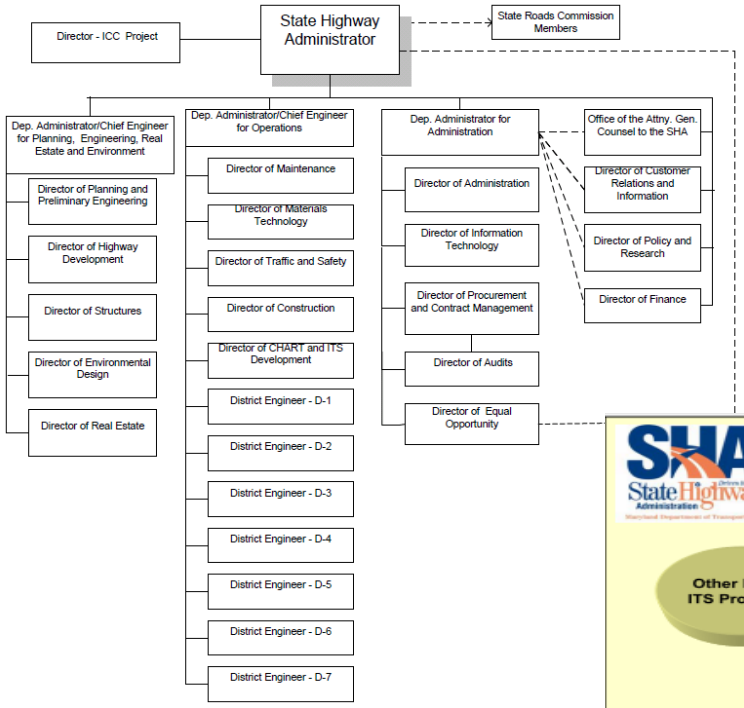
Internal Organization Structure

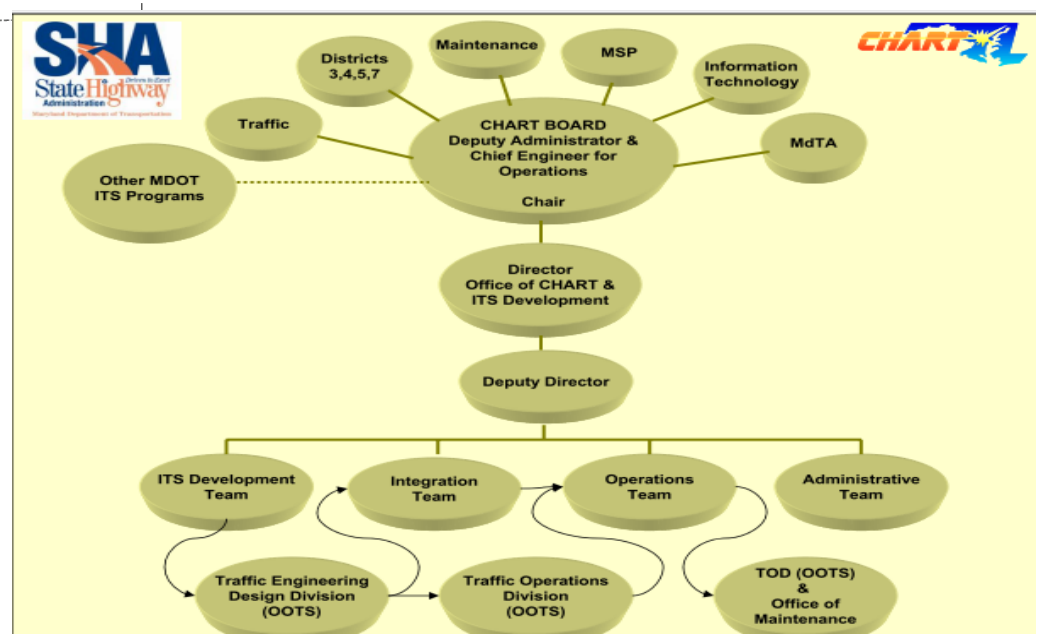
- What are the typical characteristics of any organization's structure?
- Why is it important to have organizational structure?
- What about TSM&O might make it different from other organizational structures?

Balancing “Office” and “Real-time”

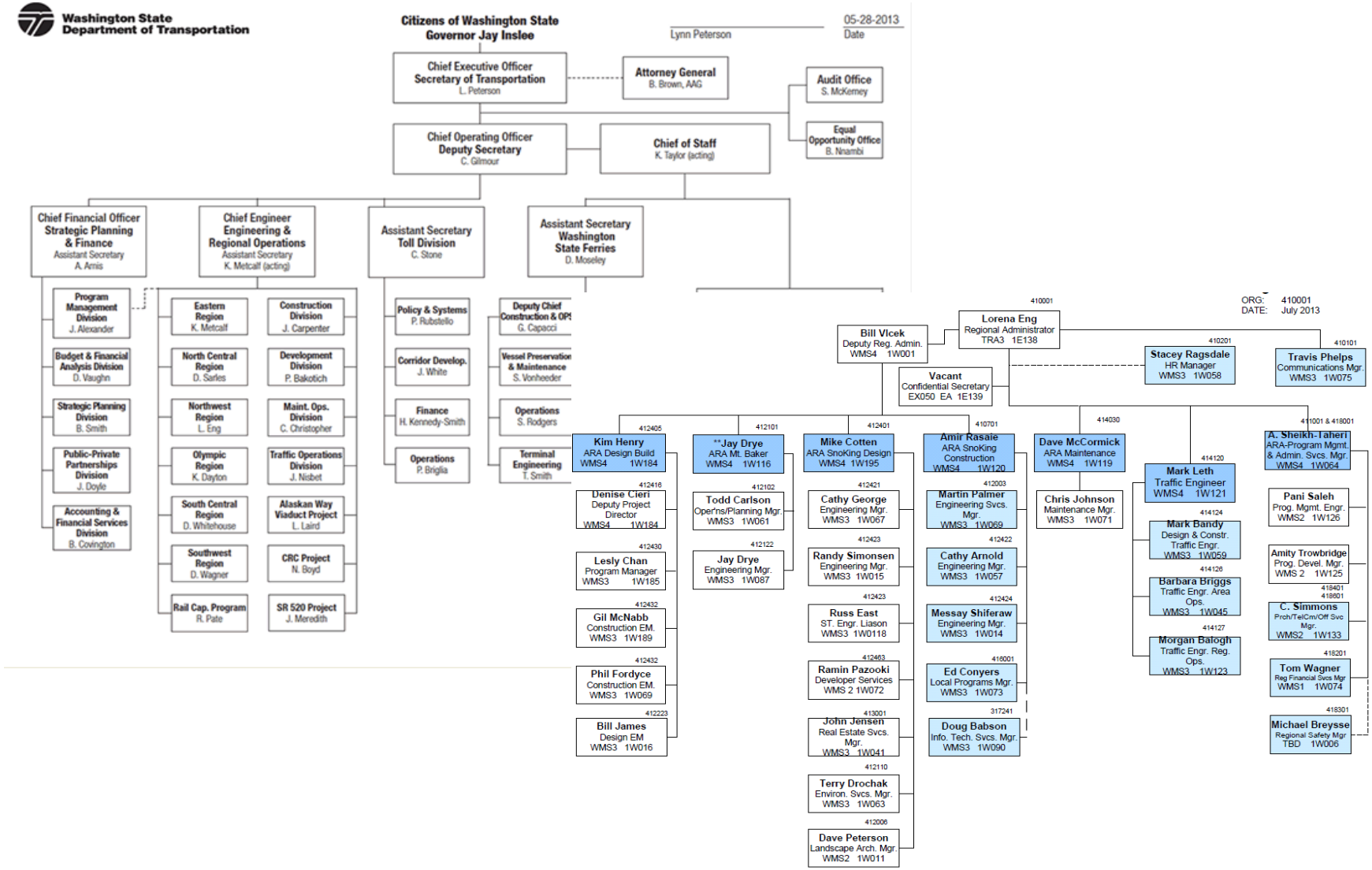


Two extremely different org charts (first)





Two extremely different org charts (second)



Pros & Cons

Both states are considered to have good TSM&O programs.

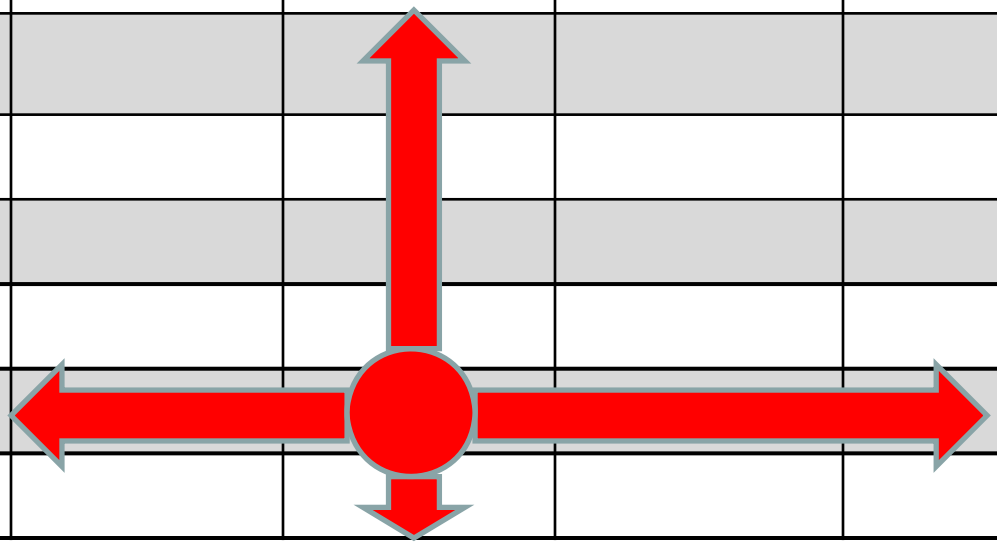
- What are the strengths and weaknesses of each organization?
- What would be best suited to your situation?

Working Within the Legacy Context

Feature	Legacy Organization	TSM&O
Mission & Alignment	*Conventional CE culture/missions*	*New, competes with legacy*
Performance Accountability	*On time, budget, standards*	*System performance in customer terms*
Focus	*Project schedule in months*	*Real-time response*
Core Competencies	*Defined via tradition, training,*	*Not well- defined, limited schooling*
Unit Organization	*By stages in project*	*By requirements of ConOps*
Responsibility/ Authority	*Clear*	*Often forced into legacy silos; champion – dependent*
Partnerships	*Contracted -- based on State standards*	*Collaboration among independent entities*

Organization as integral to all agency key capabilities

CAPABILITY LEVELS FOR IMPROVING TSM&O EFFECTIVENESS				
DIMENSIONS	**Level 1 Performed**	**Level 2 Managed**	**Level 3 Integrated**	**Level 4 Optimizing**
Business Processes				
Systems & Technology				
Performance				
Culture				
Organization/Workforce				
Collaboration				



Getting to the Next Level

Level of capability criteria for organization and staffing			
Level 1 Performed	**Level 2 Managed**	**Level 3 Integrated**	**Level 4 Optimizing**
TSM&O added on to units within existing structure and staffing, dependent on technical champions	TSM&O-specific organizational concept developed within/among units -- with core capacity needs identified; collaboration takes place	TSM&O managers have clear responsibility/accountability; job specs, certification and training for core positions	TSM&O org at equivalent level with other agency services and staff professionalized

Question: How do the other five dimensions affect (or are affected by) organization?

- Business Processes
- Systems & Technology
- Performance
- Culture
- Collaboration

Staffing Considerations

- Position specifications (KSAs) and grade levels for key technical capabilities

- Acquiring the needed capabilities (engineering vs. operations:
  - On the job training (who does it?)
  - Outsourcing (if staff slots limited)
  - Stealing (from other DOTs, consultants?)

- Recruitment and Retention (external competition)
  - Grade Levels – are they attractive?
  - Conditions of employment? ($$ & career opportunities)
  - Training and co-training provided by ……?

Outsourcing: Threat or Opportunity?

What functions could be outsourced?

- Engineering & planning (ConOps, architecture, ITS systems design)
- TMC staffing
- Traffic data and analysis/modeling
- ITS device/communications/systems maintenance
- Safety Service Patrol
- Construction inspection

- How can you best manage performance?
- What core capacities ***must*** be in-house?
- What are you doing and why?

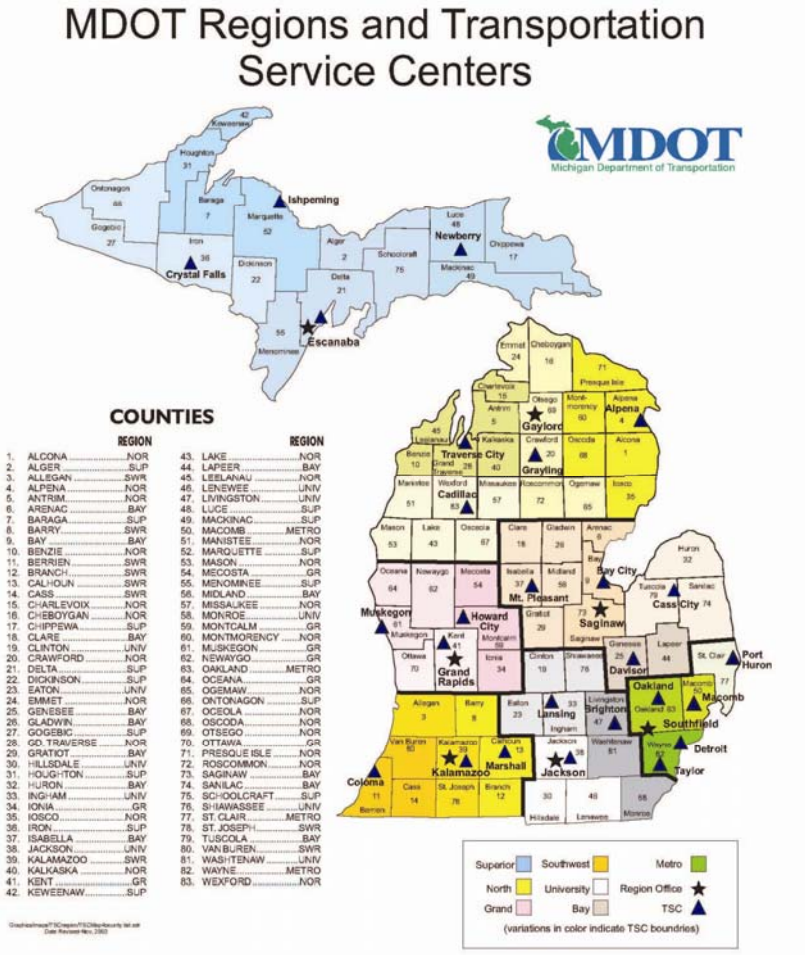
Michigan's Experience

3 Organizational Levels:

- Central Office
  - Alignment, Program Control
- Regions
  - Support, Program Management
- Transportation Service Centers
  - Day to Day Business, Customer Focus

Before TSM&O, Each Level Organized by:

- Development
  - Design, Real Estate, Permits
- Delivery
  - Traffic, Maintenance, Construction



Michigan's Experience

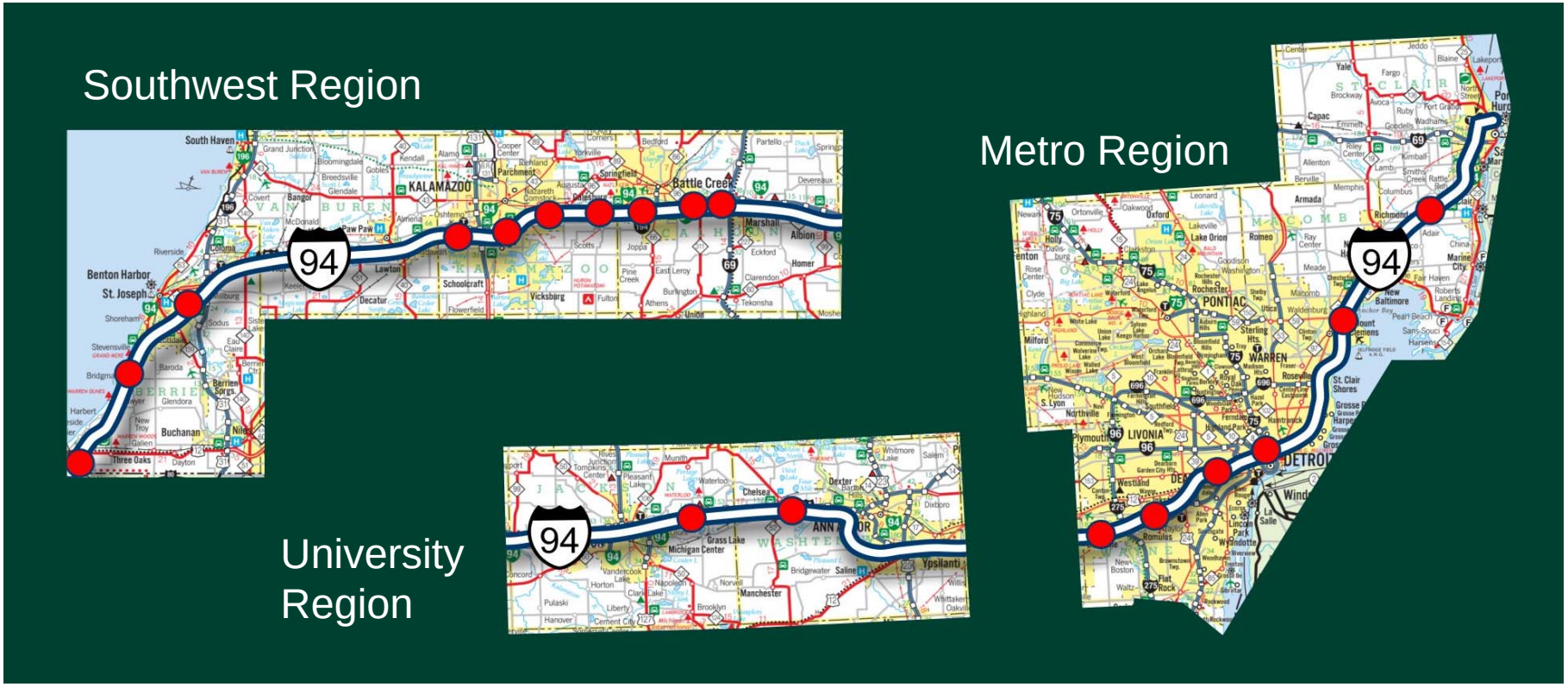
- Strategic Plan Driver
  - 2008 Strategic Plan included an objective to *"Develop and implement a plan to improve our understanding and ability to operate an integrated transportation system."*
  - Provided executive support.
  - Impetus for assigning team and resources to investigate alternatives.
  - Set the stage for implementing a more robust TSM&O Organization Structure during reinvention in 2011.

Michigan's Experience

- Today, with a greater TSM&O Focus
  - Still three level structure
  - Central Office: Development, Construction and Operations
  - Regions: Development, Construction & Operations
  - TSCs: Projects/Construction & Operations
- Urban area Traffic Operations Centers report to Regions
- Growth accelerated by corridor approach

I-94 Corridor Operations Partnership

In 2010: 19 Projects with Three Regions' Focus



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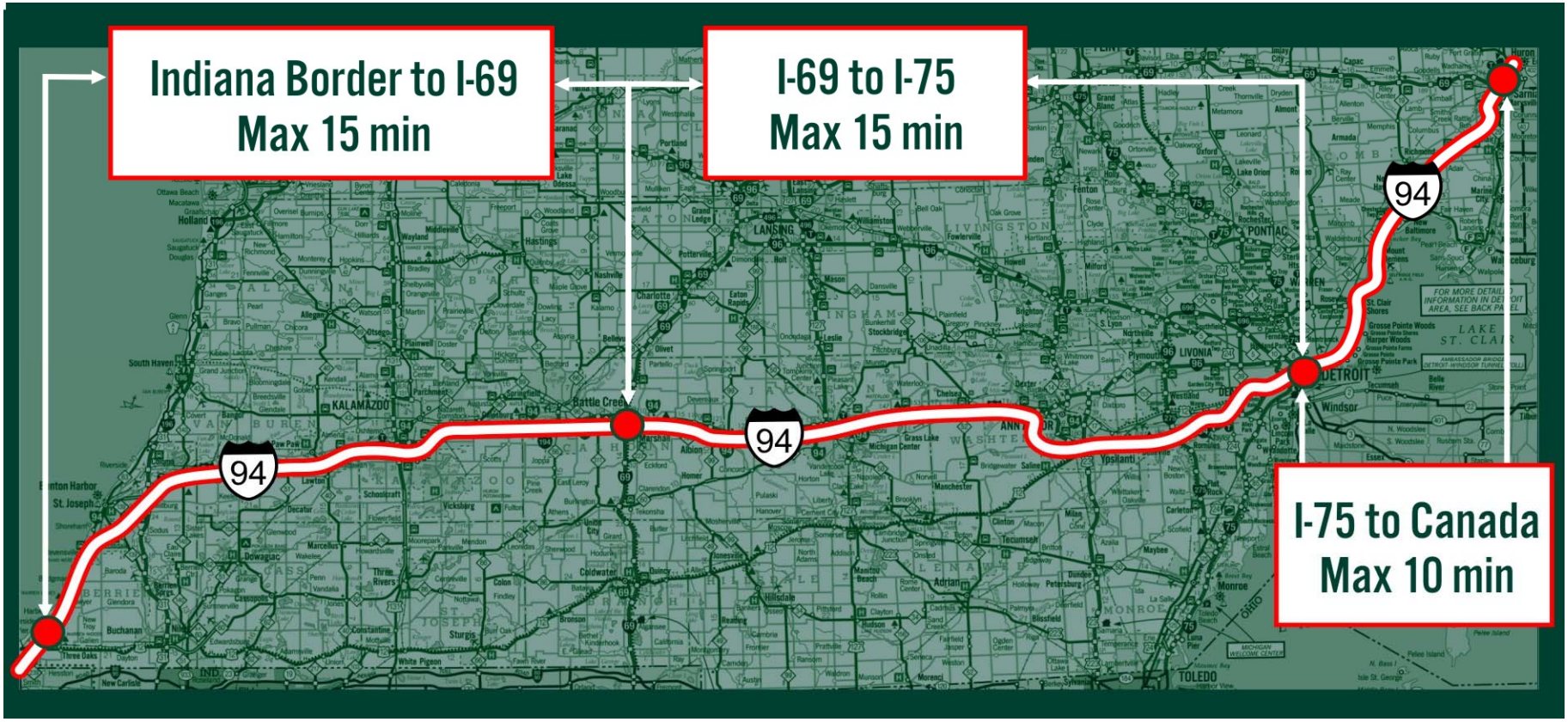
Michigan's Experience

- I-94 Corridor Operations Partnership
  - Mission: *Improve traffic operations and system reliability along the I-94 corridor statewide*
  - Goals:
    - *Improve work zone standards, implementation, and coordination.*
    - *Improve work zone operations and manage delays.*
    - *Improve customer communication.*
  - 4 cross-functional, cross-organizational teams

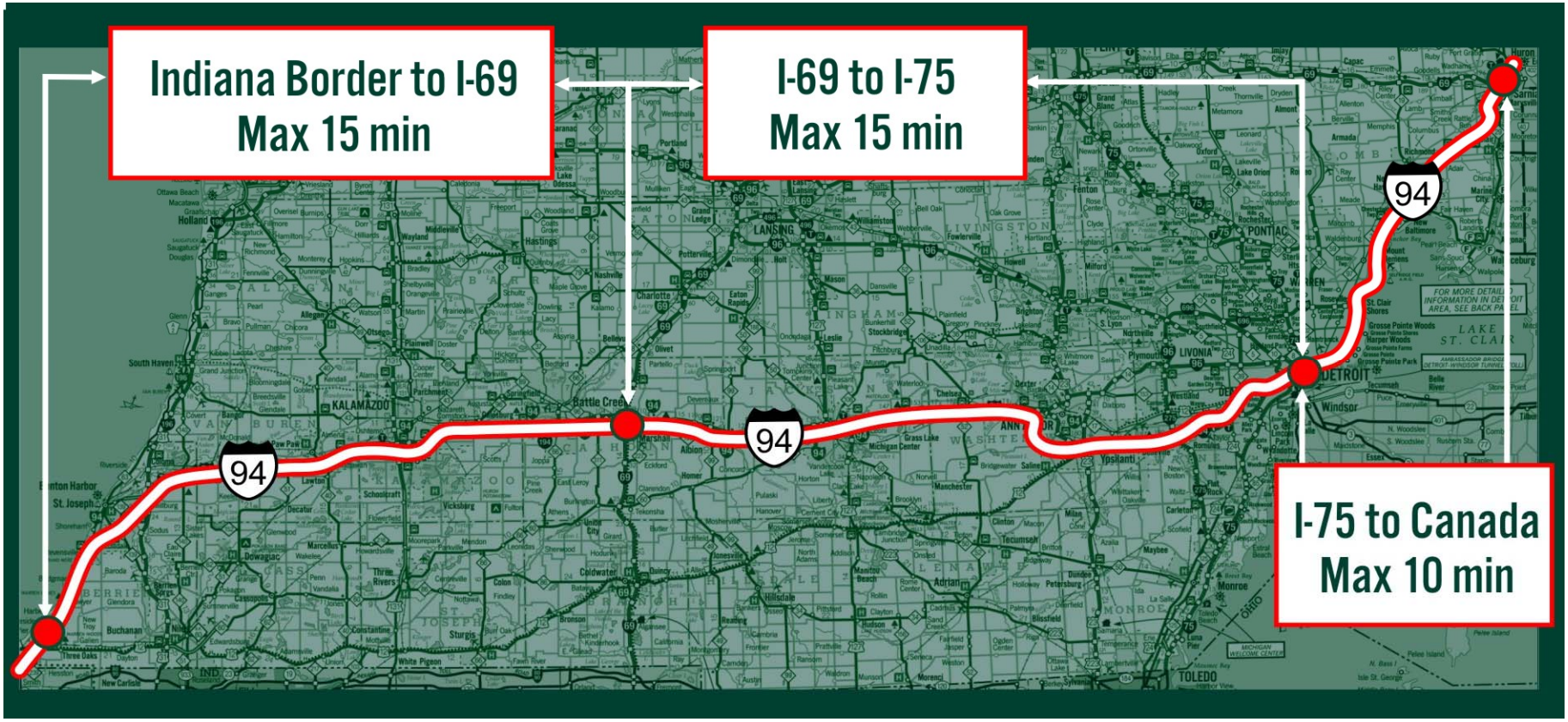
I-94 Corridor Performance Target

Maximum 40 minutes TTD
Measured by three segments, split at key nodes



I-94 2011 Predicted Performance

Indiana Border to I-69 Max 15 min	I-69 to I-75 Max 15 min	I-75 to Canada Max 10 min
3 Projects	8 Projects	4 Projects
15.5 Miles of WZ	32.8 Miles of WZ	17.3 Miles of WZ
3.3 minutes TTD in Peak	13.0 minutes TTD in Peak	36.9 minutes TTD
6.9 min TTD in Off-Peak	14.1 min TTD in Off-Peak	21.5 min TTD in Off-Peak



Caltrans District 12 Corridor Approach

- How do you define your “corridors”?
  - Length, width, parallel routes, intersecting routes?
  - Multi-jurisdiction?
  - Multi-mode?
- How will your organization structure align with your partners’ structures?
- How will you ensure consistent customer experience from corridor to corridor?
  - Performance measures?
  - Organizational accountability?

Main points – Take Away

TSM&O has unique organizational requirements (vs. legacy)

- Includes functions not easily accommodated in legacy organizations.
- No one "best" organization given differences in size/number of regions in state; scale of program
- Commitment to real time customer service from leadership and other units
- Management recognition of special staffing needs – technical, managerial and collaborative
- Goes beyond the org chart – policies, procedures, protocols, guides.

Criteria for effective organizations

- Link between responsibility and authority for key functions
- All units in agency need to understand/support real time functions
- Reporting with accountability to monitor effectiveness
- Organizational "systems" support organizational structure

External Organizational Structure

Level of capability criteria for collaboration			
Level 1 Performed	**Level 2 Managed**	**Level 3 Integrated**	**Level 4 Optimizing**
Relationship are on an informal, infrequent, and personal basis	Regular collaboration at a regional level.	Collaborative interagency adjustment of roles/responsibilities by formal interagency agreements.	High level of operations coordination institutionalized among key players – public and private.

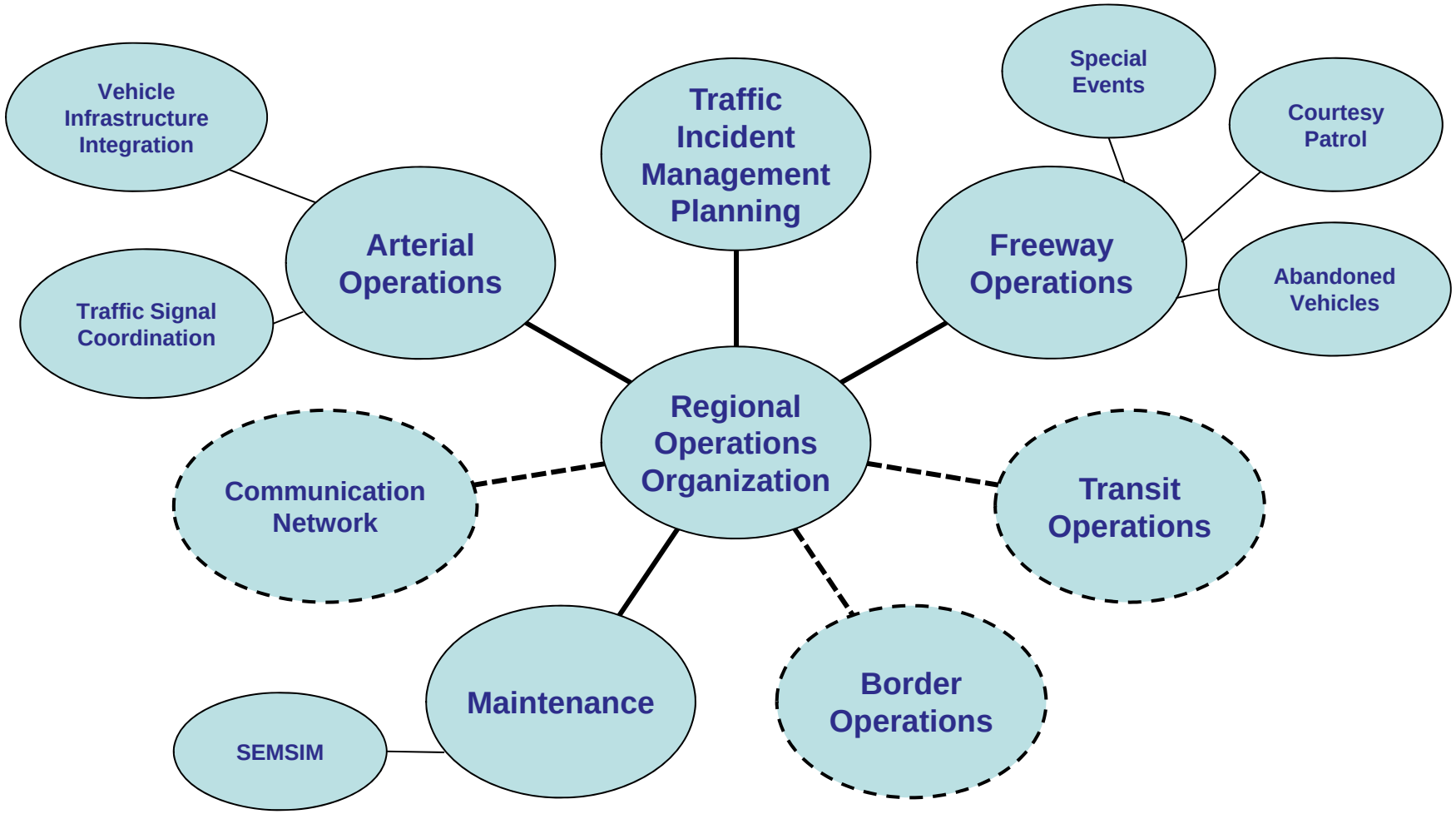
External Organization Structure

- With whom do you need to collaborate?
- How do you get them to the table?
- How do you formalize the relationship?
- How do your internal organization structures align with your partner's structures?

Michigan's Experience

- Incident Management Coordination Committee
  - Leverage champions across agencies
- Cross-agency TIM Training
- Regional Concept of Transportation Operations
  - Built on principles of communication, coordination, cooperation, and commitment.
  - Intensive stakeholder engagement, led by MPO
  - Focus areas for collaboration:
    - Agreeing on priority corridors.
    - Retiming traffic signals regularly.
    - Clearing incidents quickly, safely.
    - Disseminating & sharing operations information.

Proposed Operations Network



Resources

- SHRP2 L06: Institutional Architecture to Improve Systems Operations and Management
- SHRP2 L31: CEO/Executive Level Presentation on TSMO and accompanying guide book
- AASHTO Systems Operations and Management Guidance on-line tool: www.aashtosomguidance.org
- Creating an Effective Program to Advance Transportation System Management and Operations Primer (FHWA-HOP-12-003)