Transportation Systems Management and Operations (TSMO)
Launch Workshop
WEDNESDAY, April 13, 2016
9:00 AM- 3:30 PM
Gateway Hotel and Conference Center
2100 Green Hills Drive, Ames 50014

AGENDA

1. Welcome and Charge from the Management Team – Paul Trombino (15 minutes)

2. Workshop Overview and Executive Briefing Outcomes – Mitch Dillavou and Lee Wilkinson (20 minutes)

3. TSMO Program Planning as a Business Discipline – FHWA-Resource Center and Todd Szymkowski

    - TSMO Program Planning Background and what's being done at the National Level (15 minutes)
    - The Iowa TSMO Program Plan (30 minutes)

4. BREAK (15 minutes)

5. Why TSMO Matters in Iowa and How it fits – Scott Marler and Garrett Pedersen (20 minutes)

6. Orientation to the TSMO Culture – FHWA Resource Center and Pat Noyes (60 minutes)

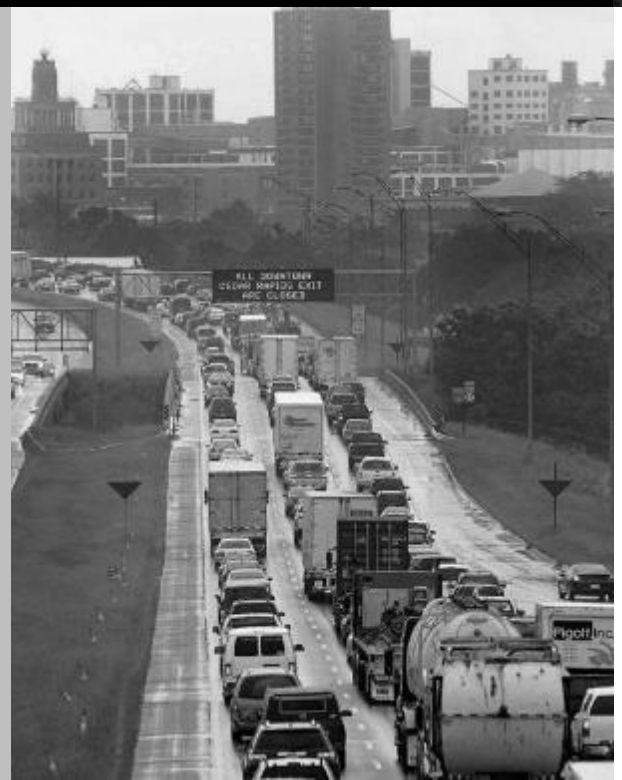
    - What Are Other States Doing?
    - Transportation Industry Challenges
    - What does it mean to you?

7. LUNCH

8. Service Layers Overview and Break-out Discussion (120 minutes: 15 min. overview, 45 min. breakout, 60 min. report)
    - Traffic Management Center
    - ITS and Communications
    - Traveler Information
    - Traffic Incident Management
    - Emergency Transportation Operations
    - Work Zone Management
    - Active Transp. and Demand Mgmnt.
    - Connected and Autonomous Vehicle

9. Summary of Outcomes and Next Steps (15 minutes)

Iowa DOT TSMO



TRANSPORATION SYSTEMS MANAGEMENT AND OPERATIONS (TSMO) PLAN IMPLEMENTATION

Launch Workshop
April 13, 2016

IOWA DOT
SMARTER | SIMPLER | CUSTOMER DRIVEN

Two-Part Workshop

1. Executive Briefing – March 24
   - Why TSMO, overview of the TSMO Program Plan, define corporate opportunities and priorities
2. TSMO Launch Workshop – April 13
   - Charge from the Management Team
   - The Iowa TSMO Program Plan Model
   - Why TSMO matters in Iowa
   - TSMO Culture
   - Service Layers and Operational Strategies

Workshop Purpose

- Engage Leadership
  - Demonstrate FHWA/DOT support and involvement
- Orient and educate the Iowa DOT Team on TSMO
  - Define what TSMO is and what it means to you
  - Knowledge transfer into and within Iowa DOT
  - Create strong organizational capabilities for TSMO
  - Provide tools for performance measurement and decision-making/support
  - Identify strategies for traffic management
- Initiate the Vision
  - Incorporate workshop outcomes into Iowa DOT corporate activities and functions

01 Welcome and Management Charge

02 Workshop Overview and Executive Briefing Overview

03 TSMO Program Planning as a Business Discipline

04 Break

05 Why TSMO Matters in Iowa and How it Fits

06 Orientation to the TSMO Culture

07 Lunch

08 Service Layers Overview and Break-out Discussion

09 Summary of Outcomes and Next Steps

Iowa DOT TSMO

01 Welcome and Management Charge

02

Workshop Overview and Executive Briefing Outcomes

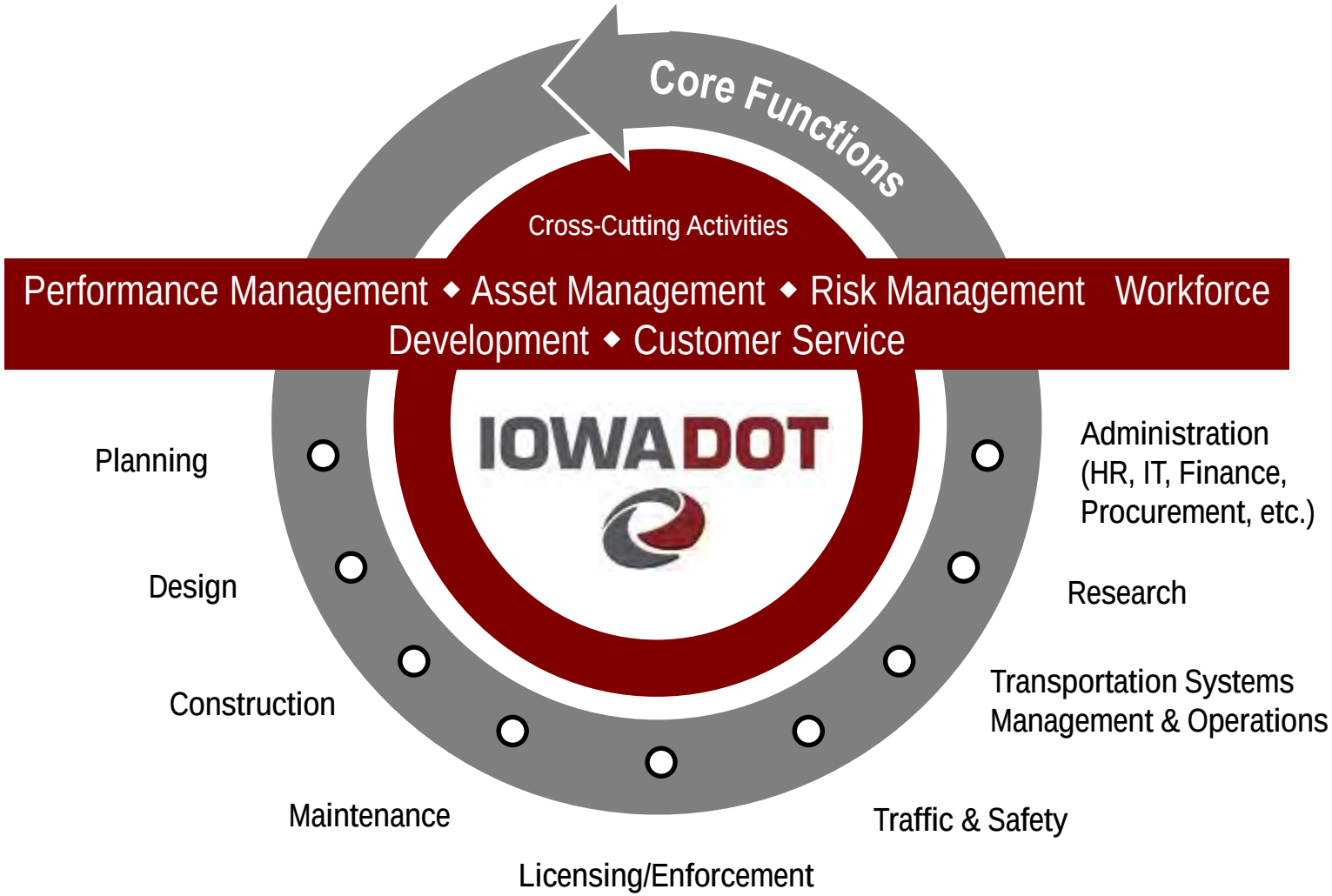
OPERATIONS DEFINED

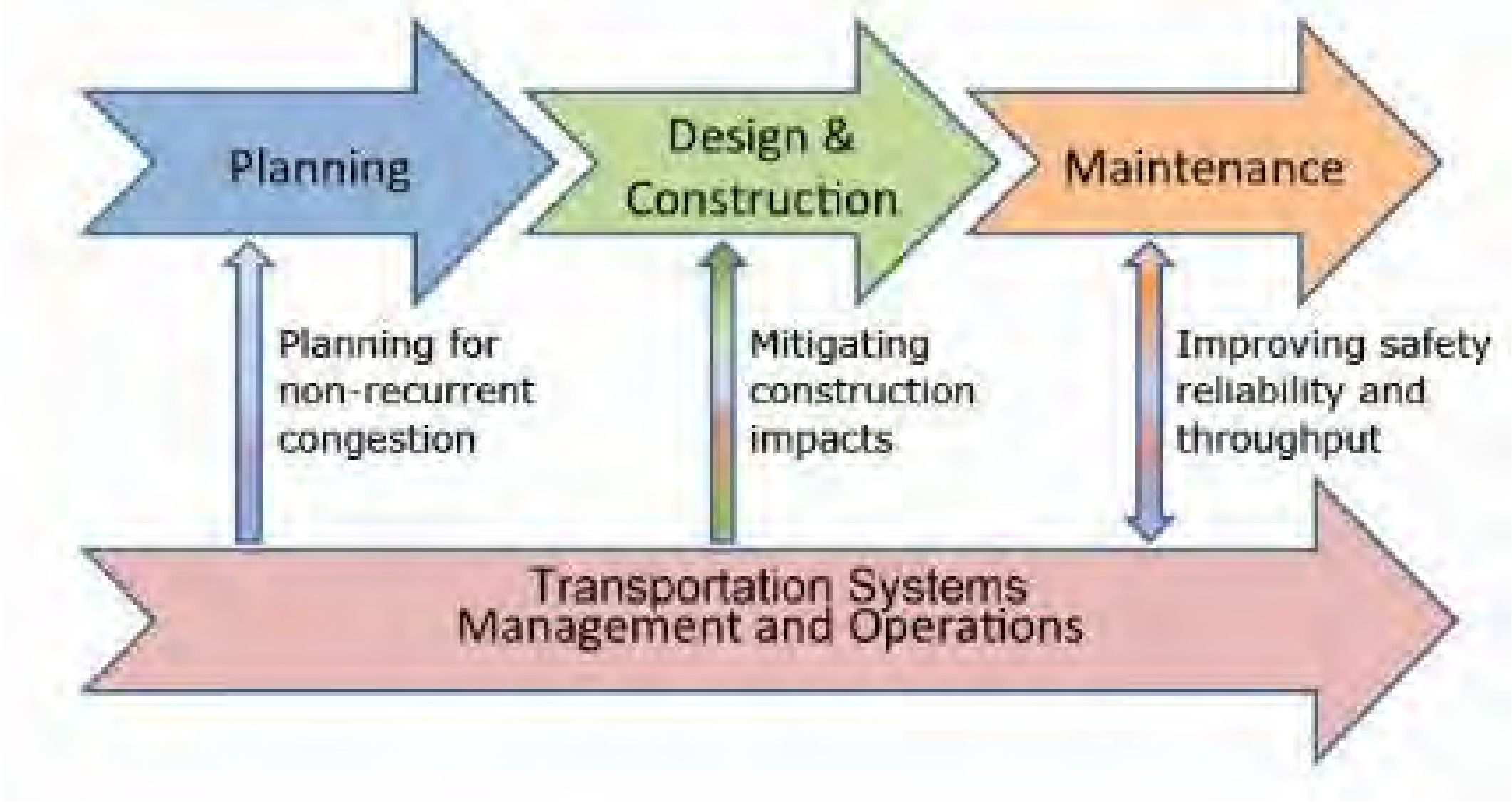
Optimizing the performance of the transportation system

HOW TO IMPROVE OPERATIONS

- Prioritize projects and operational strategies
- Deploy technology and strategies designed to:
  - Improve mobility
  - Enhance public safety
  - Reduce traveler delay
  - Improve information access
- Focus on performance
- Focus on customer service/outreach
- Invest strategically

Iowa DOT Core Functions




Planning
Design & Construction
Maintenance
Planning for non-recurrent congestion
Mitigating construction impacts
Improving safety reliability and throughput
Transportation Systems Management and Operations

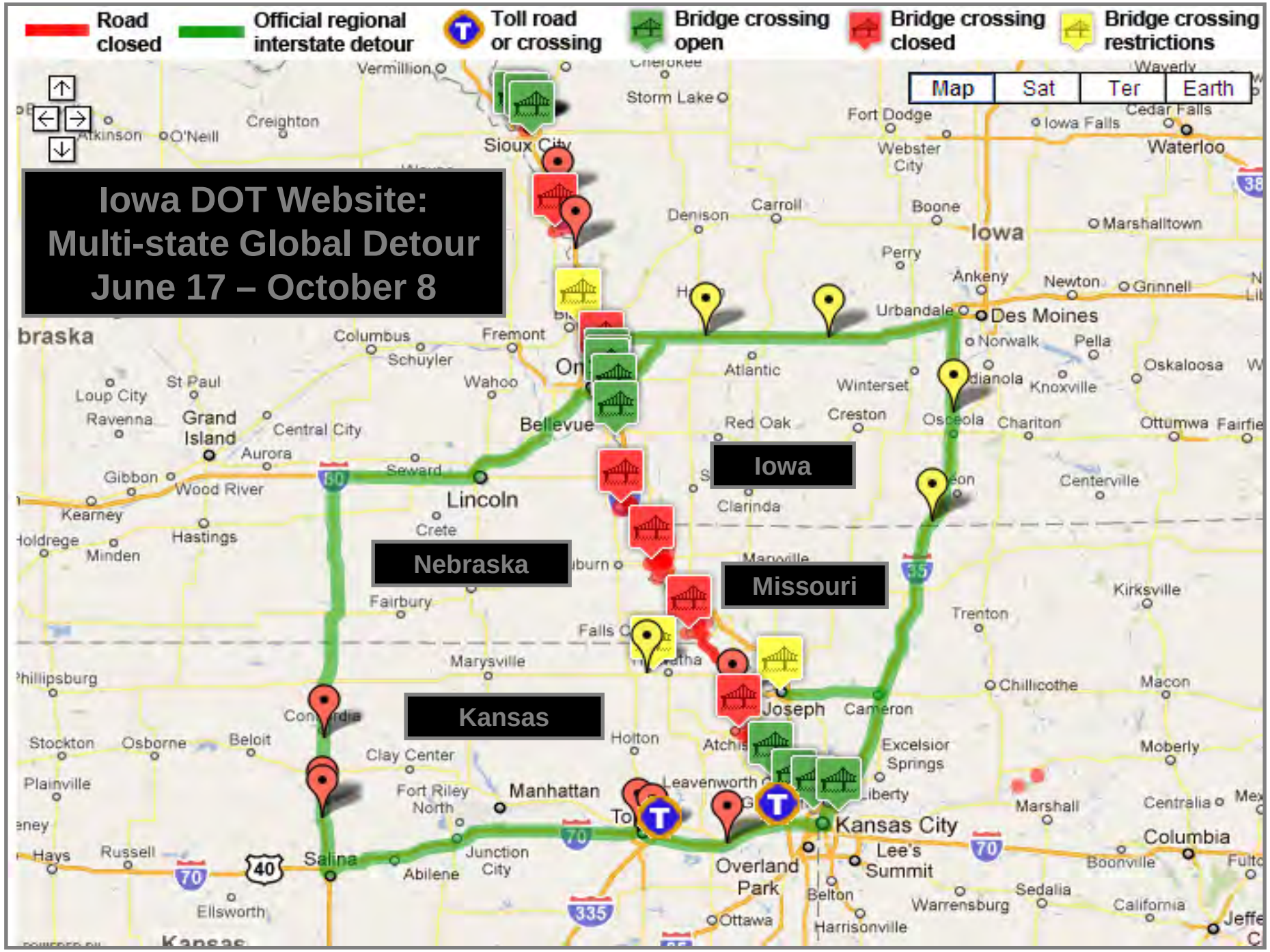
35

Iowa DOT TSMO

Iowa DOT TSMO

I-680 in Western Iowa

Receding water reveals damage


Road closed
Official regional interstate detour
Toll road or crossing
Bridge crossing open
Bridge crossing closed
Bridge crossing restrictions
Map
Sat
Ter
Earth
Iowa DOT Website:
Multi-state Global Detour
June 17 – October 8
Iowa
Nebraska
Missouri
Kansas
Sioux City
Omaha
Lincoln
Bellevue
Des Moines
Kansas City
Waterloo
Cedar Falls
Fort Dodge
Webster City
Boone
Marshalltown
Ankeny
Newton
Grinnell
Urbandale
Norwalk
Pella
Oskaloosa
Knoxville
Winterset
Atlantic
Creston
Red Oak
Osceola
Chariton
Ottumwa
Centerville
Clarinda
Denison
Carroll
Perry
Storm Lake
Vermillion
Creighton
Atkinson
O'Neill
Columbus
Schuyler
Fremont
Wahoo
Seward
Grand Island
Central City
Aurora
Hastings
Kearney
Gibbon
Wood River
Minden
Loup City
St Paul
Ravenna
Fairbury
Crete
Clay Center
Marysville
Phillipsburg
Stockton
Osborne
Beloit
Plainville
Hays
Russell
Ellsworth
Salina
Abilene
Junction City
Fort Riley North
Manhattan
Holton
Topeka
Leavenworth
Overland Park
Lee's Summit
Belton
Harrisonville
Ottawa
Warrensburg
Sedalia
Boonville
Columbia
Marshall
Centralia
Moberly
Macon
Chillicothe
Trenton
Kirksville
Excelsior Springs
Liberty
Cameron
Joseph
Atchison
Falls City
Marysville
Hays
Russell
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Salina
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Junction City
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Wood River
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Ravenna
Grand Island
Central City
Aurora
Columbus
Schuyler
Fremont
Wahoo
Seward
Lincoln
Bellevue
Omaha
Atlantic
Winterset
Creston
Red Oak
Osceola
Chariton
Ottumwa
Centerville
Clarinda
Denison
Carroll
Perry
Storm Lake
Vermillion
Creighton
Atkinson
O'Neill
Sioux City
Fort Dodge
Webster City
Boone
Marshalltown
Ankeny
Newton
Grinnell
Urbandale
Norwalk
Pella
Oskaloosa
Knoxville
Waterloo
Cedar Falls
Iowa Falls
Des Moines
Iowa
Nebraska
Missouri
Kansas
80
29
35
70
335
40
38


NARROW SHOULDER
NARROW SHOULDER
Tipton 11
Davenport 36
80
70
40

INGRAM BARGE CO

OVERSIZE LOAD

March 24 Executive Briefing Outcomes

- Integrate TSMO across several planning initiatives
- Staffing Capabilities
- TSMO Awareness Across Divisions
- Be More Visual
- Link TSMO activities to Capability Maturity Modeling
- Support Transportation Demand Management Activities
- More extensive Data Analysis for Oversize/Overweight Permit Transport Times
- TSMO impact on the Districts

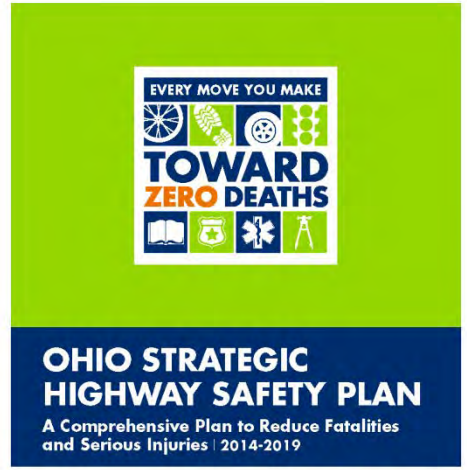
03 TSMO Program Planning as a Business Discipline

Iowa DOT TSMO

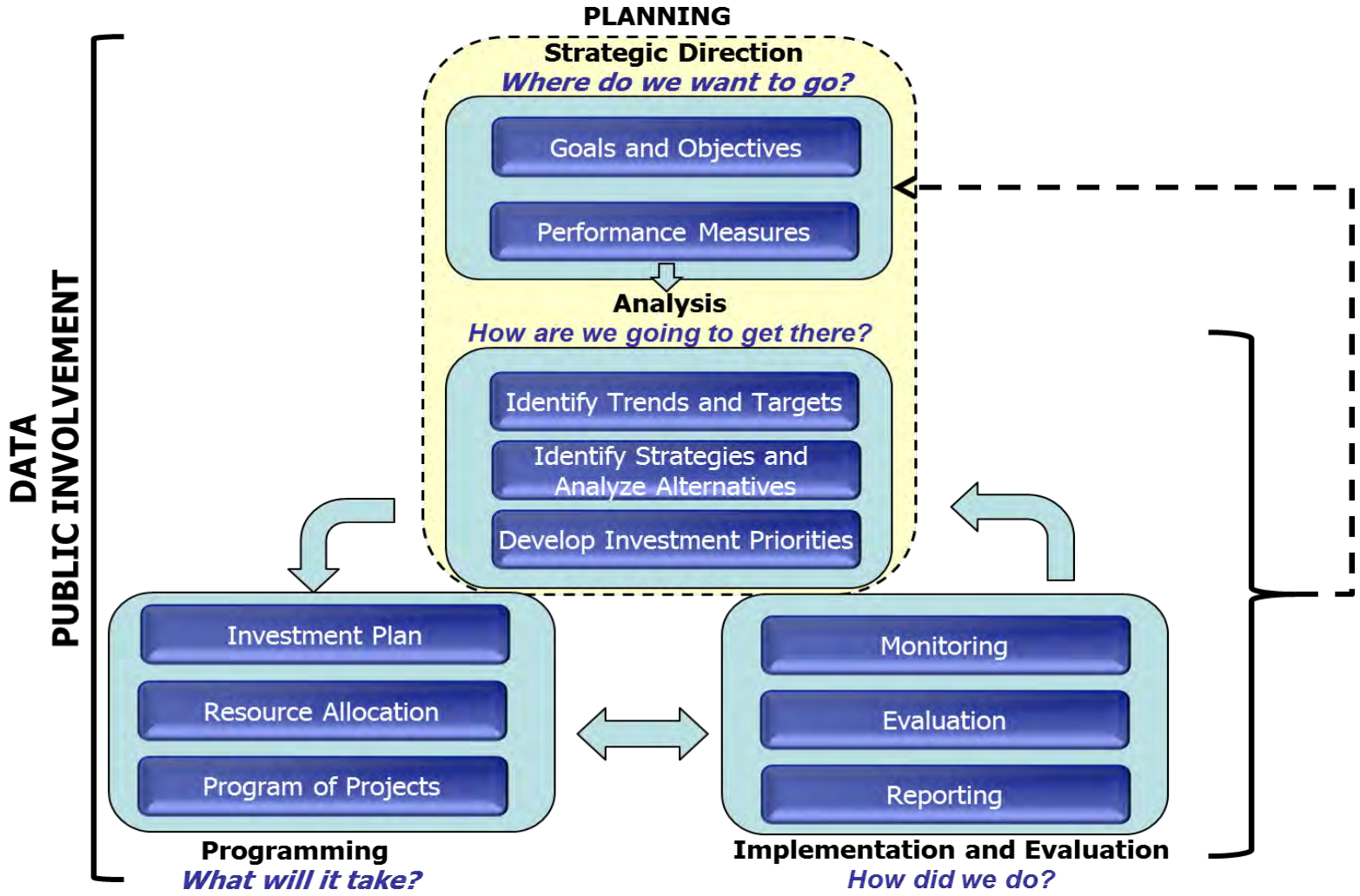
TSMO Program Planning Background and what's being done at the National Level

Origins of TSMO Program Planning

- Strategic Highway Safety Plans
- Congestion Management Plans
- ITS Deployment Plans
- Regional & Statewide ITS Architectures
- Regional Concepts of Transportation Ops
- Strategic TIM Programs
- AASHTO Guide to SOM
- …



Performance Based Planning & Programming



Impetus for TSMO Program Planning

1. Penetrating the Planning Process(es)
2. Institutionalizing Systems Engineering Principles
3. “Programmatizing” Operations & Transcending Champions
4. Accommodating Dynamic Public-Private Business Models
5. Recognizing Organizational Culture as the Challenge
6. “Systematizing” TSMO Organizational Development (…beyond CMM)

TSMO Program Planning Purpose

A. Define (or clarify) program mission, vision, goals, objectives, and performance measures

B. Describe, contextualize, & interconnect program components and subcomponents

C. Establish (or clarify) organizational roles, responsibilities, & strategic relationships (internal/external)

D. Recommend and prioritize actions to improve program components and commit resources

E. Inform and influence internal stakeholders, TSMO partners, policy-makers, and customers

F. Facilitate change management in refining the DOT's roles and responsibilities

Adapted from Table #4: NCHRP PROJECT Number 20-07/345

Some TSMO Program Planning Outputs

“Where are we today?”	Motivation
“Where do we want to be?”	Goals and Objectives
“How do we get there?”	Approach
“How do we measure and sustain progress?”	Feedback

Some TSMO Program Planning Outcomes

Business Environment

Institutional arrangements, memoranda of understanding (MOU), protocols, information sharing, etc.

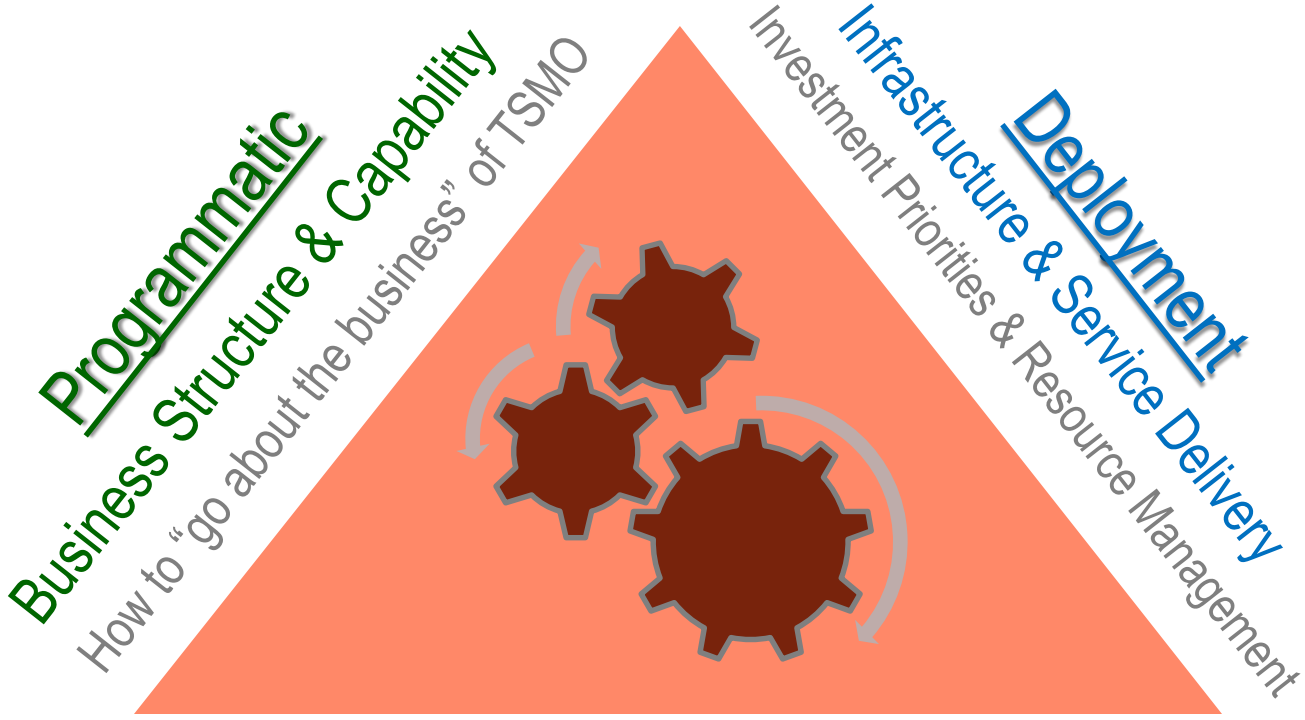
Resource Allocation

Sources and use of funding, staff, equipment, etc. to support and sustain TSMO capabilities

System Improvements

Investments for facilities, equipment, services, etc. needed to support and sustain TSMO functionality

TSMO Program Planning Core Elements



Related Initiatives & Critical Issues

- *Advancing TSM&O through Scenario Planning*
- *Planning for TSM&O within Corridors: Desk Reference*
- *TSMO Program Planning Primer*
- *Planning for Resilience through Operations (Synthesis)*

- Transportation Performance Management
- Transportation Asset Management Plan(ning)
- Connected Vehicle Deployment Planning
- State Freight Plan(ning)
- Strategic Highway Safety Plan(ning)

- Continuous Improvement & Lean Processes
- Innovation Initiatives & Programs
- TSMO Decision Support Systems

Key
A Fully Integrated Plan

Connects with

Regional/Statewide Architectures	Internal/ Department Plans	Processes/Programs Required by Law
	UPWP, HSIP, Asset Management Plan, Freight Plan, etc.	CMP, LRTP, Statewide Transportation Plan, TIP/STIP

Supports agency with advancing capabilities to plan, design, procure, implement, manage, maintain, and monitor TSMO strategies and approaches

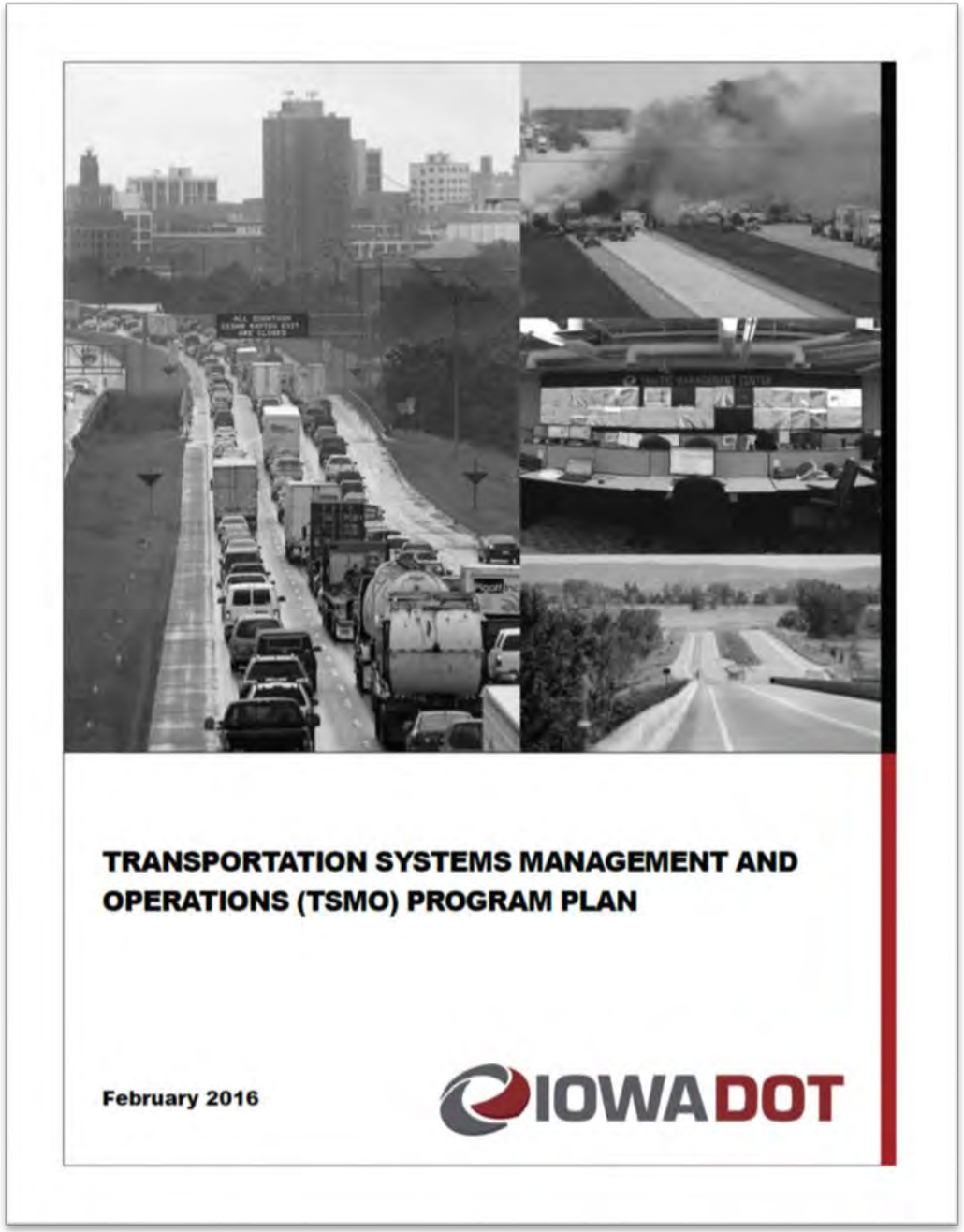
The Iowa TSMO Plan

Iowa DOT TSMO

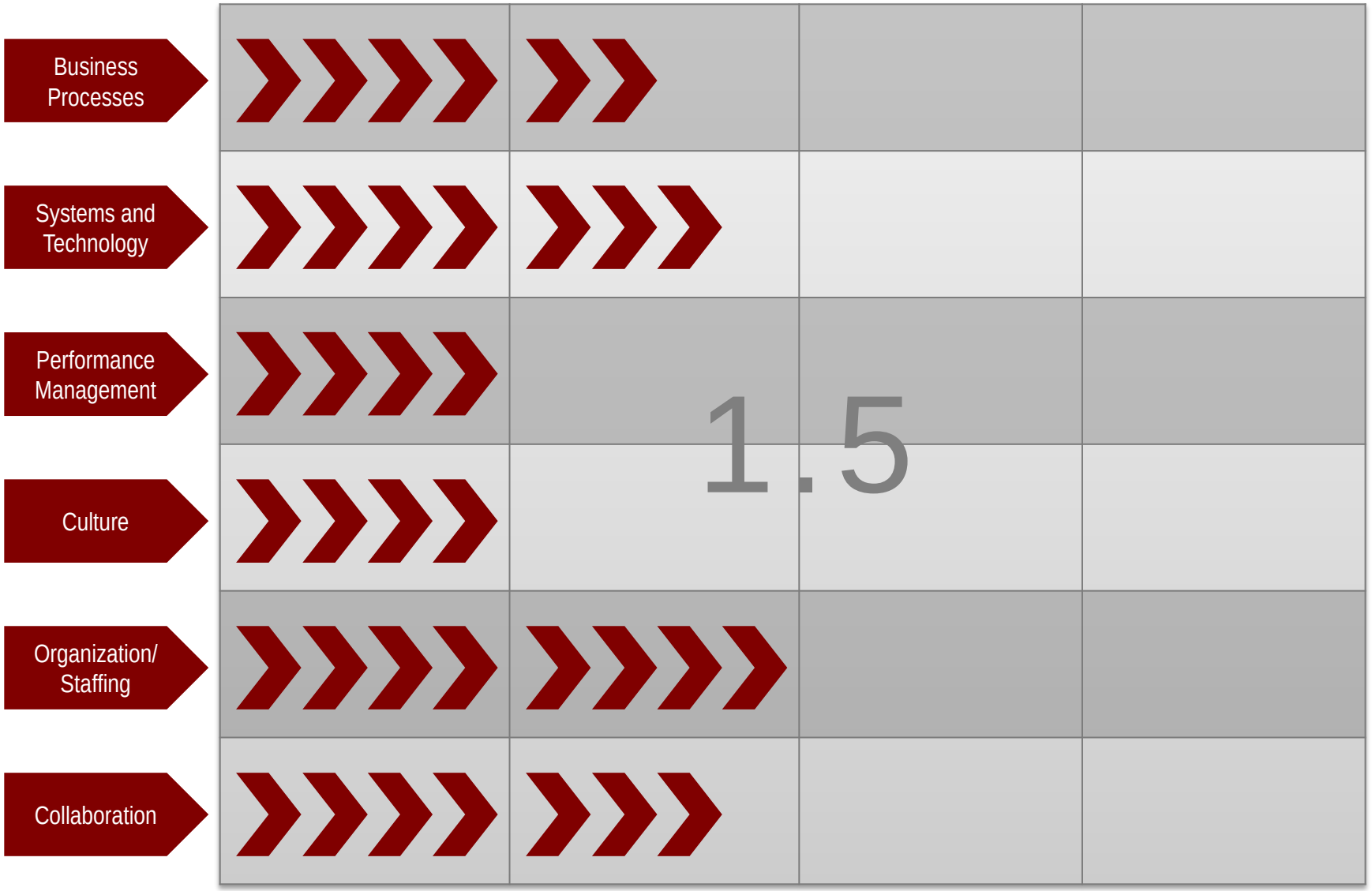
The Iowa TSMO Plan

aka “The Iowa Model”

A National Best Practice for TSMO Program Planning



TSMO Capability Maturity



Who did we meet with?

- 2 Capability Maturity Workshops
- 14 One-on-One internal Interviews
- 2 Internal TSMO Workshops

INTERNAL WORKSHOPS	
• Office of Traffic Operations • Office of Traffic and Safety • Office of Strategic Communications • Office of Maintenance • Office of Construction and Materials	• Office of Systems Planning • Organizational Improvement • Districts 1,2,3,4,5, and 6 • Office of Motor Vehicle Enforcement

Who did we meet with?

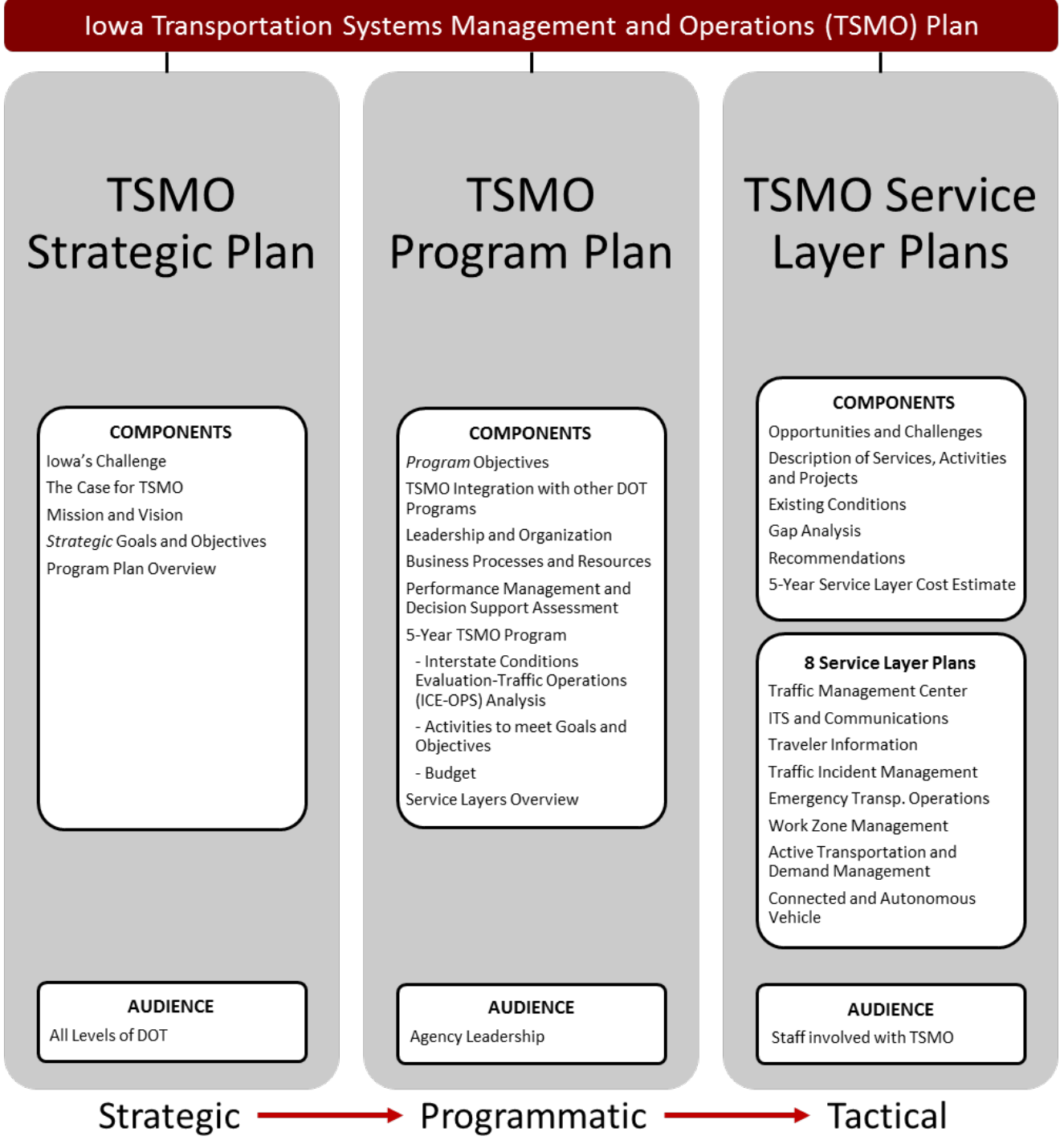
- 2 Operations-Focused Sustainability Workshops (INVEST)
- 1 External Partner and 1 External Stakeholder Focus Group

EXTERNAL FOCUS GROUPS	
• ABATE of Iowa • Associated General Contractors (AGC) of Iowa • Agribusiness Association of Iowa • Iowa Association of Business and Industry (ABI) • Petroleum Marketers & Convenience Stores of Iowa (PMCI) • Iowa Tourism Office, Iowa Economic Development Authority • International Traders of Iowa (ITI) • Des Moines West Side Chamber of Commerce	• Iowa Emergency Management Association • Corridor MPO – Cedar Rapids area • Iowa Chapter of the American Traffic Safety Services Association (ATSSA) • Iowa EMS Association • Iowa Northland Regional Council of Governments (INRCOG) – Waterloo/Cedar Falls MPO • City of Ames and Ames Area MPO • Des Moines Area Metropolitan Planning Organization (DMAMPO) • Highway 61 Coalition

Three Levels of the TSMO Plan

- TSMO Strategic Plan
  - The “What”
  - The “Why”
- TSMO Program Plan – The Details
  - The “What” for broad agency leadership, the structure for TSMO, the “Guide”
  - The “How”
- TSMO Service Layer Plans
  - The TSMO tools

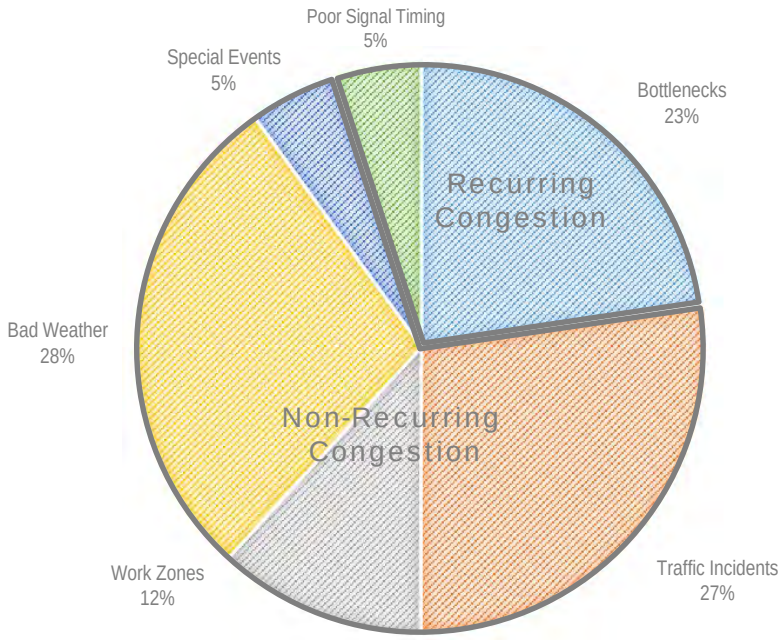
Three Levels of the TSMO Plan



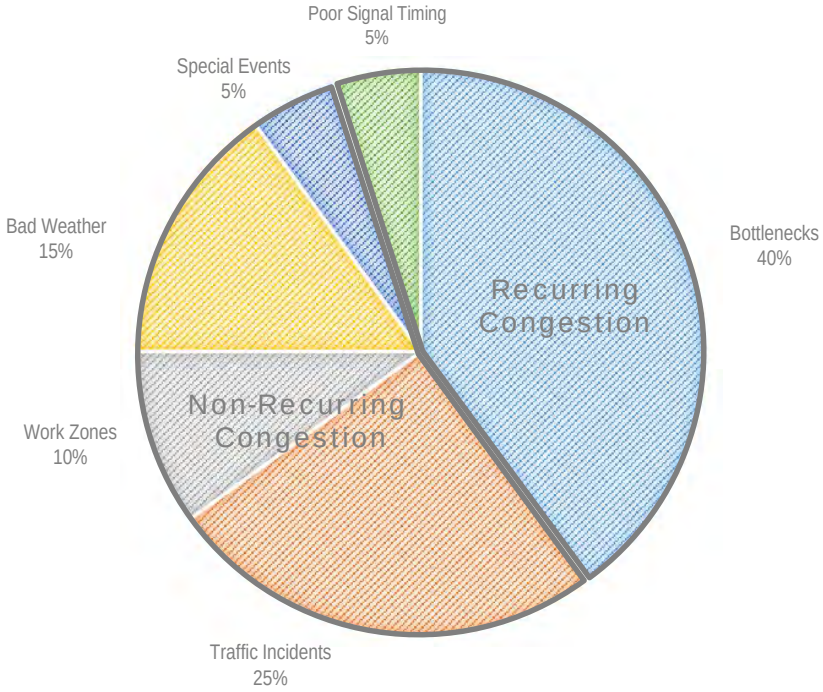
TSMO Strategic Plan Sections

- Iowa's Challenge
- The (Business) Case for TSMO
- TSMO Strategic Direction
- Program Plan Overview

Iowa's Challenge



Iowa Sources of Congestion
2013-2015



National Sources of Congestion
2005

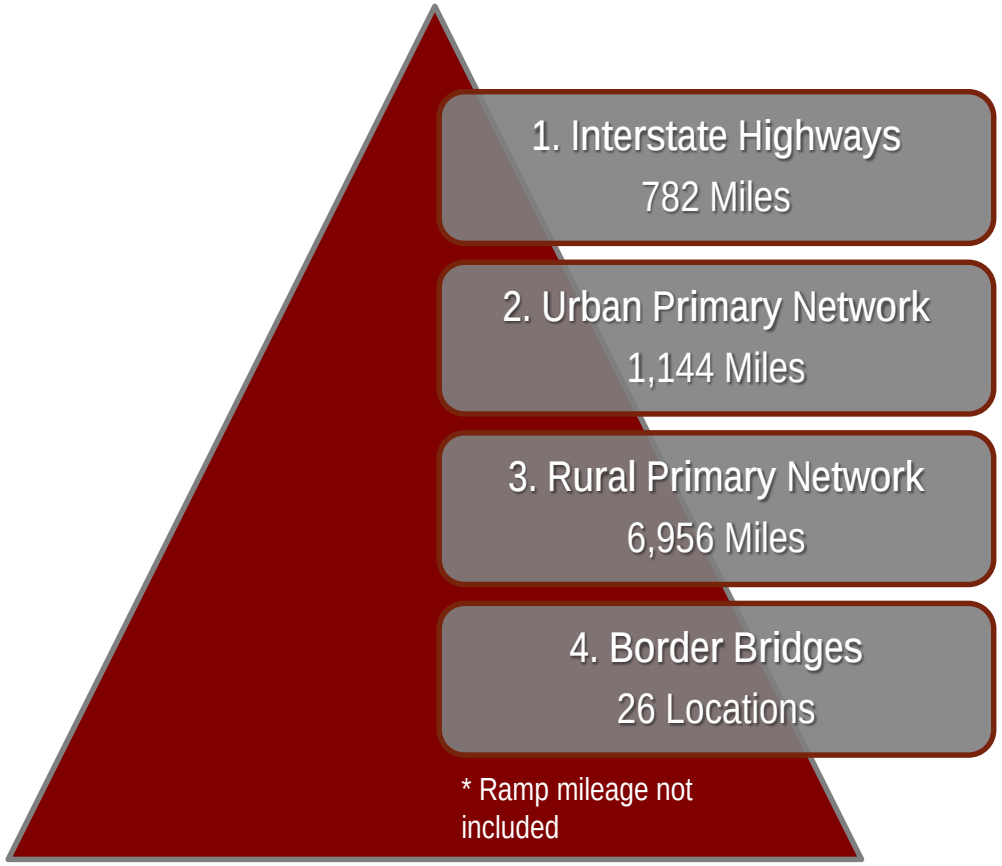
TSMO VISION

Iowa's transportation system is safe, efficient and reliable, supporting the state's environmental and economic health as a result of TSMO

TSMO MISSION

*To get you there safely and reliably by **proactively** managing the transportation system*

TSMO Roadway Facility Priorities



Source: Iowa DOT, Miles of Public Roads In Iowa by Surface Type, 2013.

TSMO Strategic Goals & Objectives

Strategic Goal		Strategic Objective
	*1. Safety*	Reduce crash frequency and severity
	*2. Reliability*	Improve transportation system reliability, increase system resiliency, and add highway capacity in critical corridors
	*3. Efficiency*	Minimize traffic delay and maximize transportation system efficiency to keep traffic moving
	*4. Convenience*	Provide ease of access and mobility choices to customers
	*5. Coordination*	Engage all DOT disciplines, and external agencies and jurisdictions to proactively manage and operate the transportation system
	*6. Integration*	Incorporate TSMO strategies throughout DOT's transportation planning, design, construction, maintenance, and operations activities

TSMO Program Plan Sections

Part 1 – Introduction

Part 2 – TSMO Program Introduction

Part 3 – Leadership and Organization

Part 4 – Business Processes and Resources

Part 5 – Performance Mgmnt. and Decision Support Assessment

Part 6 – TSMO 5-Year Program

Part 7 – Service Layers Overview

Leadership and Organization

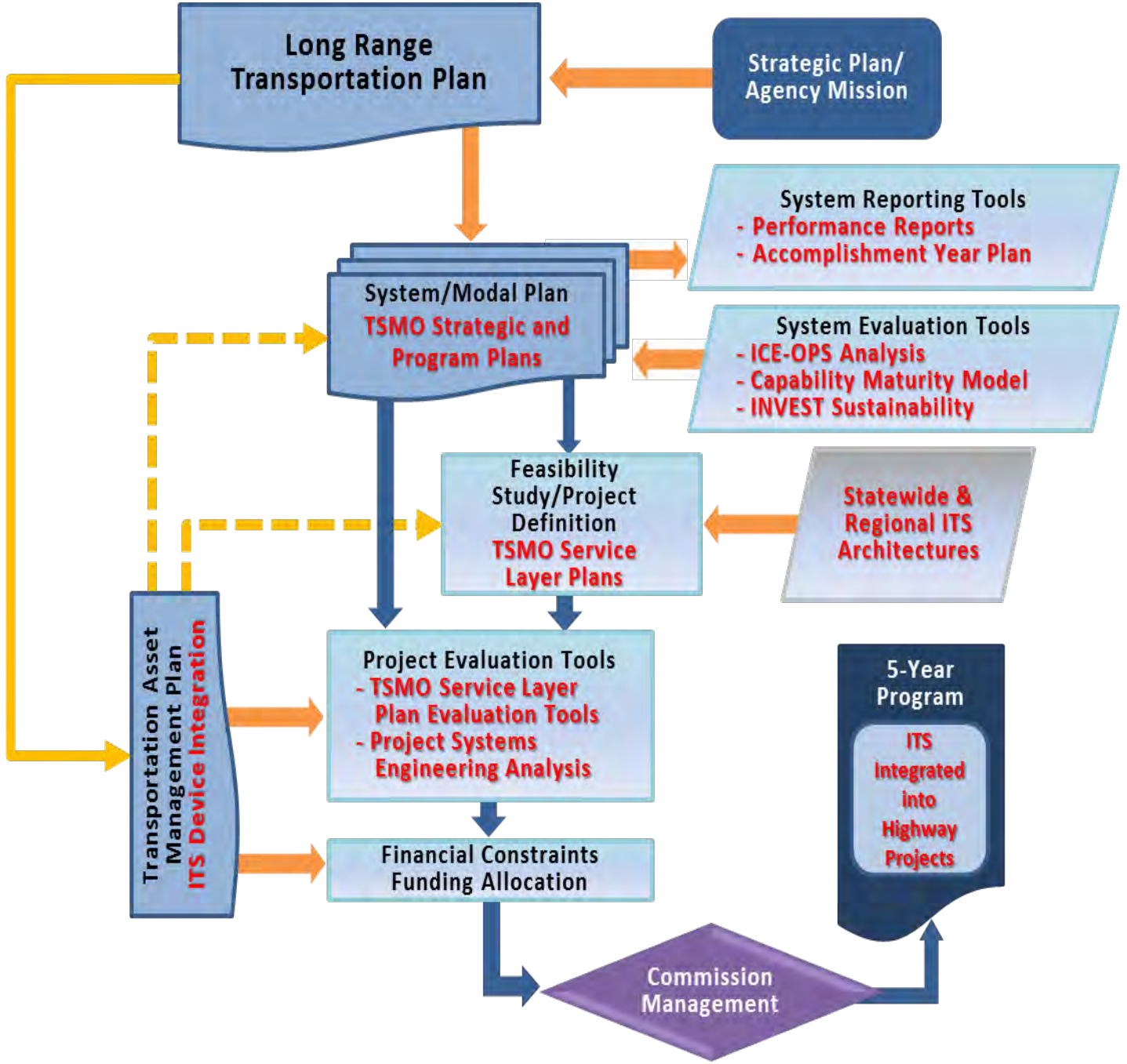
- *Best Practices from NCHRP Report 20-7/345, "Program Planning and Development for TSMO in State Departments of Transportation"*

- Department-wide integration of TSMO concepts and principles
- Development of an organizational unit(s) with lead responsibility for TSMO
- Relative responsibilities of headquarters and region/district offices
- Responsibilities for TSMO deployment planning
- Interaction with external stakeholders, expanding coordination and collaboration to enhance existing relationships and building new partnerships
- Reducing organizational dependence on champions and sponsors

Business Processes and Resources

- Staffing Expertise
- Budgeting, Accounting, Procurement and Contract Management
- Project Programming
- Systems Engineering
- Collaboration with External Partners
- Sustainability and Resiliency
- Communication, Marketing and Outreach
- Data Management
- Continuous Improvement (including Capability Maturity evaluation)
- Research and Development

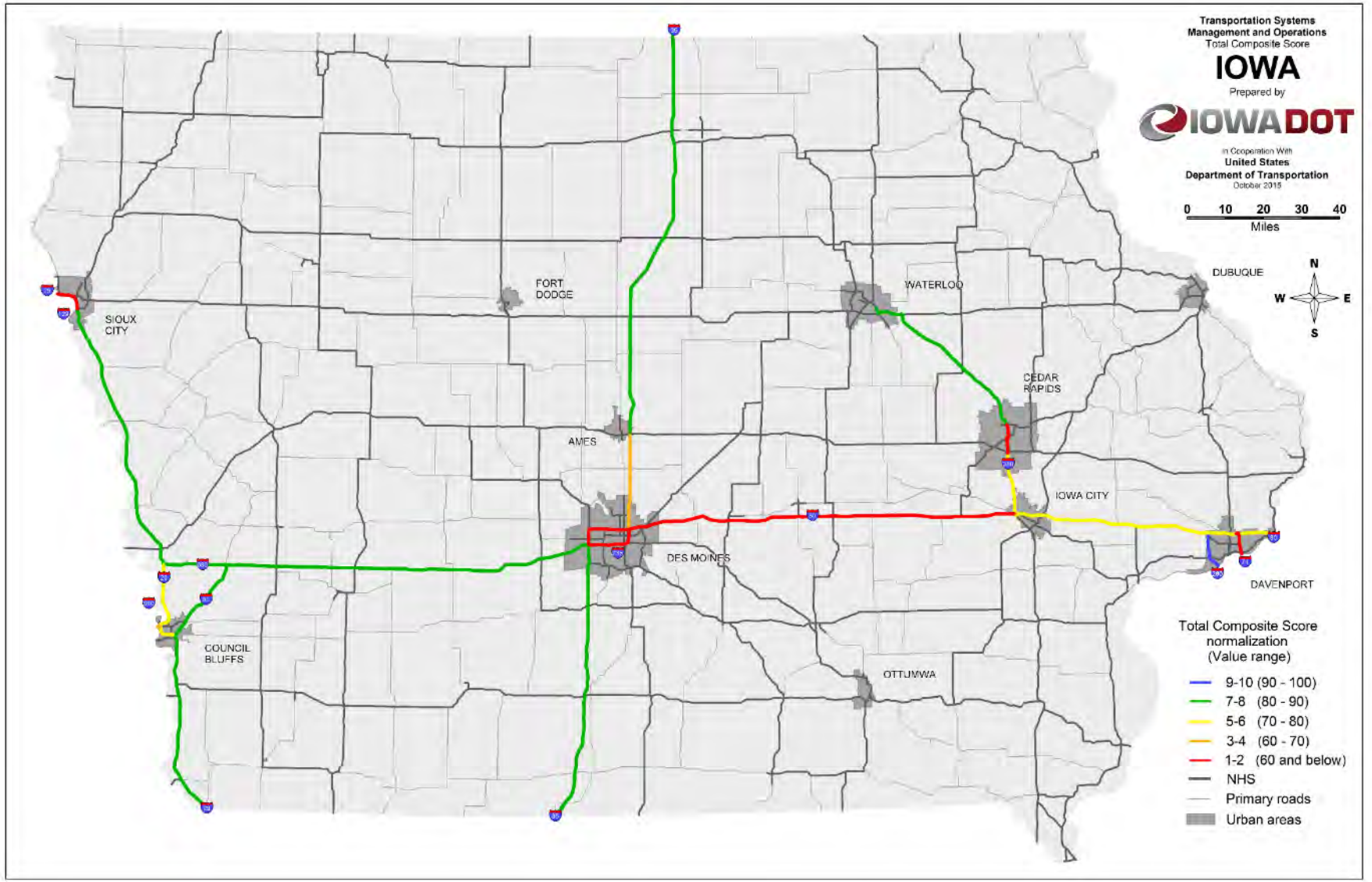
Business Process Example



TSMO Program Schedule

Plan Description	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
TSMO Strategic and Program Plans	■					■					■
Accomplishment Year Plan	■	■	■	■	■	■	■	■	■	■	■
5-Year Annual Budget Forecast w/ ICE-OPS	■	■	■	■	■	■	■	■	■	■	■
INVEST Sustainability Assessment					■					■	
CMM Self-Assessment					■					■	
SL1. Traffic Management Center			■		■			■			■
SL2. ITS and Communications		■			■			■			■
SL3. Traveler Information		■			■			■			■
SL4. Traffic Incident Management		■				■			■		
SL5. Emergency Transportation Operations			■			■			■		
SL6. Work Zone Management				■			■			■	
SL7. Active Transportation and Demand Management				■			■			■	
SL8. Connected and Autonomous Vehicle			■			■			■		

ICE-OPS Analysis



5-Year Program Activities, Policies and Procedures

TABLE 33. 5-YEAR PROGRAM ACTIVITIES, POLICIES AND PROCEDURES

Activities, Policies, and Procedures	FY16	FY17	FY18	FY19	FY20
LEADERSHIP AND ORGANIZATION (LOD)					
LOD1. Integrate TSMO principles more broadly into the Department's policies and procedures	■	■			
LOD2. Integrate TSMO into the Department's Strategic and Long Range Plans	■	■	■		
LOD3. Clearly articulate OTO's roles and responsibilities to internal and external audiences	■	■	■		
LOD4. Create appropriate management layers to provide 24/7 on-call mgmnt. access and to develop the next TSMO leaders of the organization			■		
LOD5. Rename Systems Operations Bureau to "Systems Management & Operations Bureau"	■				
LOD6. Designate TSMO responsibilities in each District to the Assistant District Engineers or similar level of District management	■	■			
LOD7. Designate at least one person in each District to serve as TSMO or Operations Engineer	■	■			
LOD8. Develop an internal forum/committee for District TSMO representatives to share successes and lessons learned			■		
LOD9. Engage Districts in planning and implementing the TSMO Program			■	■	■
LOD10. Elevate Districts to serve as leader for MDST meetings where appropriate, in concert with InTrans, Systems Planning, and Traffic & Safety			■		
LOD 11. Establish virtual TMC technologies in each District		■	■	■	
LOD 12. Develop system performance measurements in concert with each District		■			

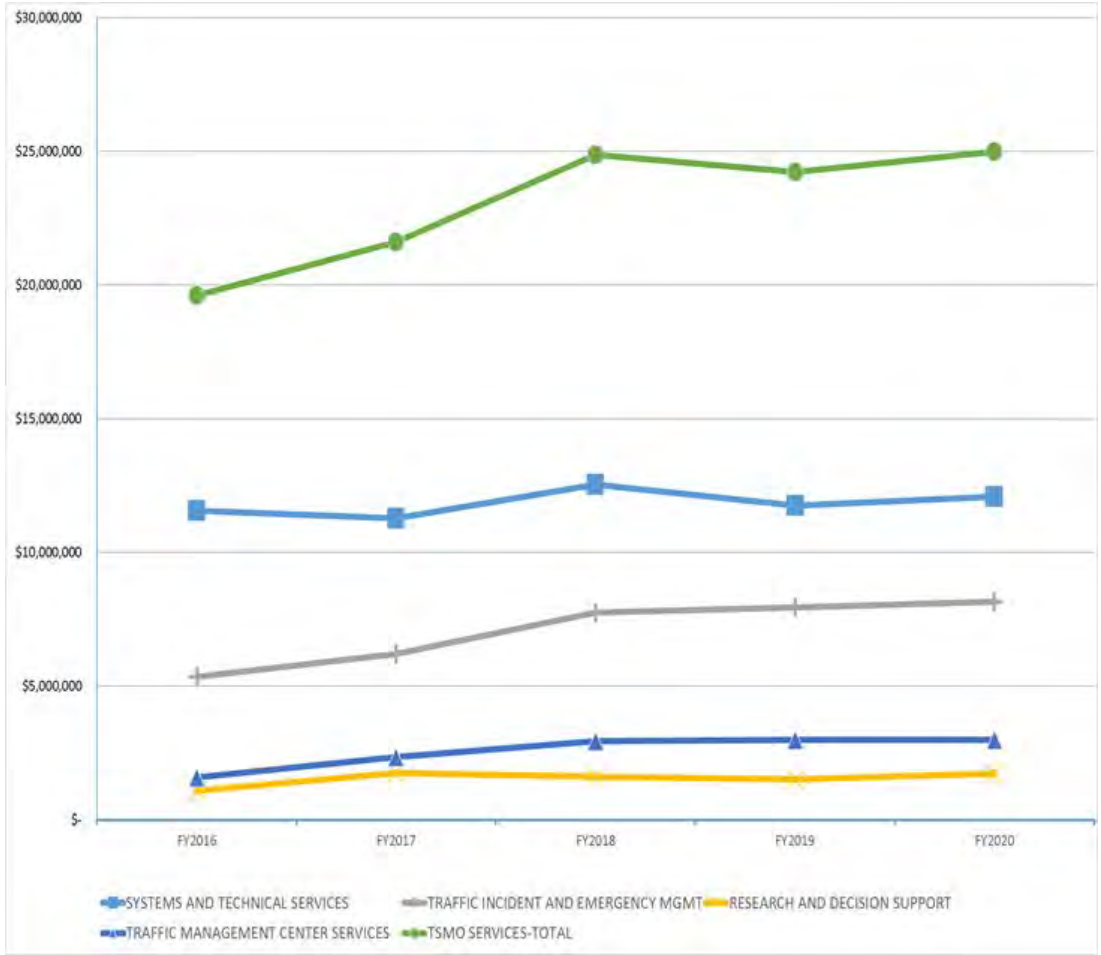
5-YEAR COST FORECAST

TSMO Services

- Systems and Tech. Services
- TIM/ETO
- Research and Decision Support
- TMC Services

Construction Projects

- ITS Project Design and Deployment
- Highway Improvement Projects



TSMO Capability Maturity

04 Break

www.iowadot.gov/tsmo

05 Why TSMO Matters in Iowa and How it Fits

Long Range Transportation Plan

Strategic Highway Safety Plan

Transportation Asset Management Plan

Statewide Transportation Improvement Program

Transportation Improvement Program

5-Year Program

Iowa DOT TSMO

Highway Performance Management System

MAP-21 Performance Metrics

Freight Management Plan

FHWA/DOT Stewardship & Oversight Agreement

Required by Federal Law?

Iowa DOT TSMO

Iowa DOT TSMO

Iowa DOT TSMO

BY THE NUMBERS

32,675

U.S. FATALITIES
IN 2014

FATALITIES IN IOWA IN 2015

320

AVG 1,400

INCIDENTS PER MONTH

AVG MINUTES
LANES BLOCKED

52

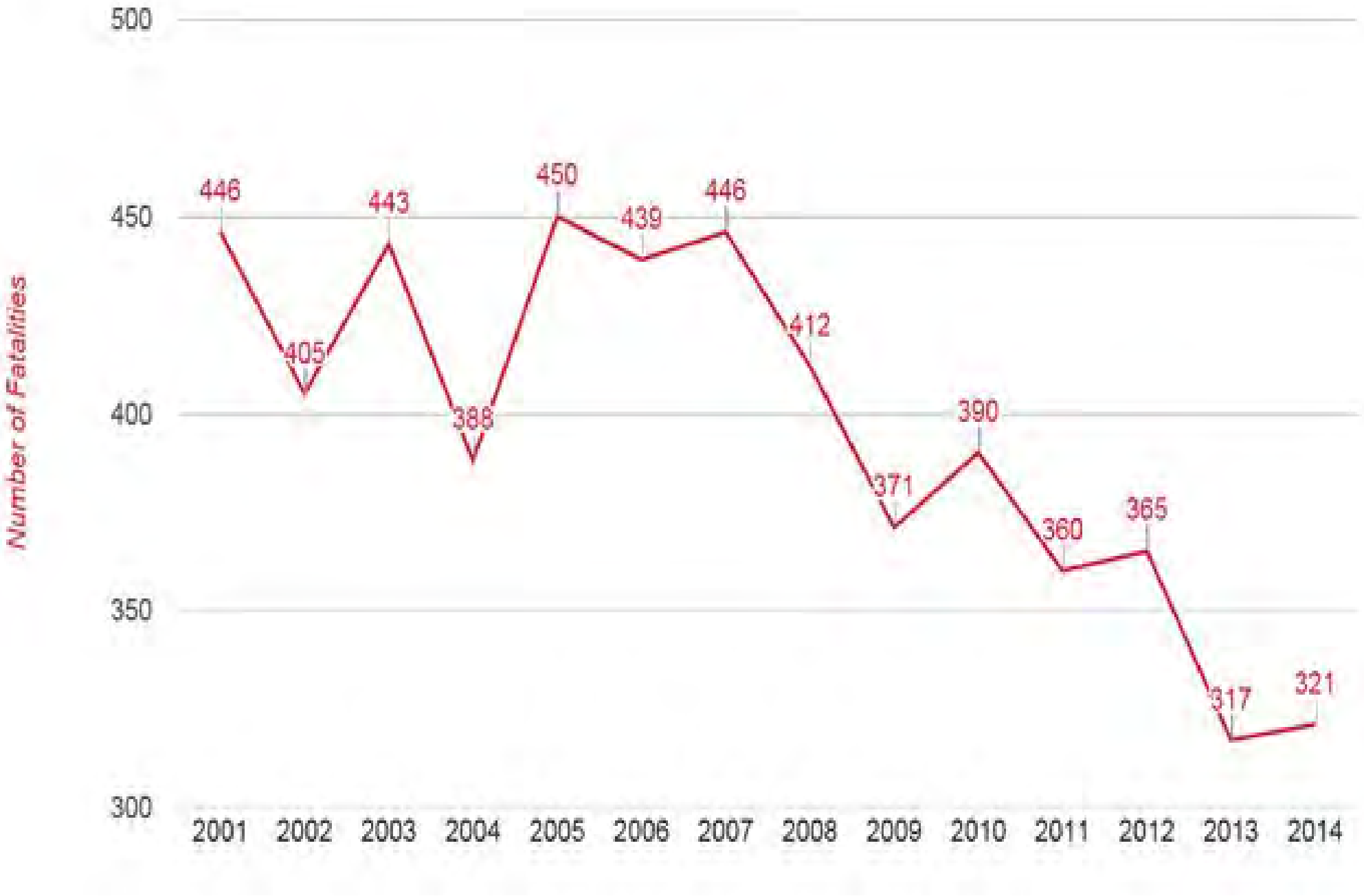
1:4

RATIO OF LANE BLOCKAGE DELAY

PER MINUTE LIKELIHOOD OF A

CRASH 2.8%

Iowa DOT TSMO


Number of Fatalities
500
450
400
350
300
446
405
443
388
450
439
446
412
371
390
360
365
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321
2001
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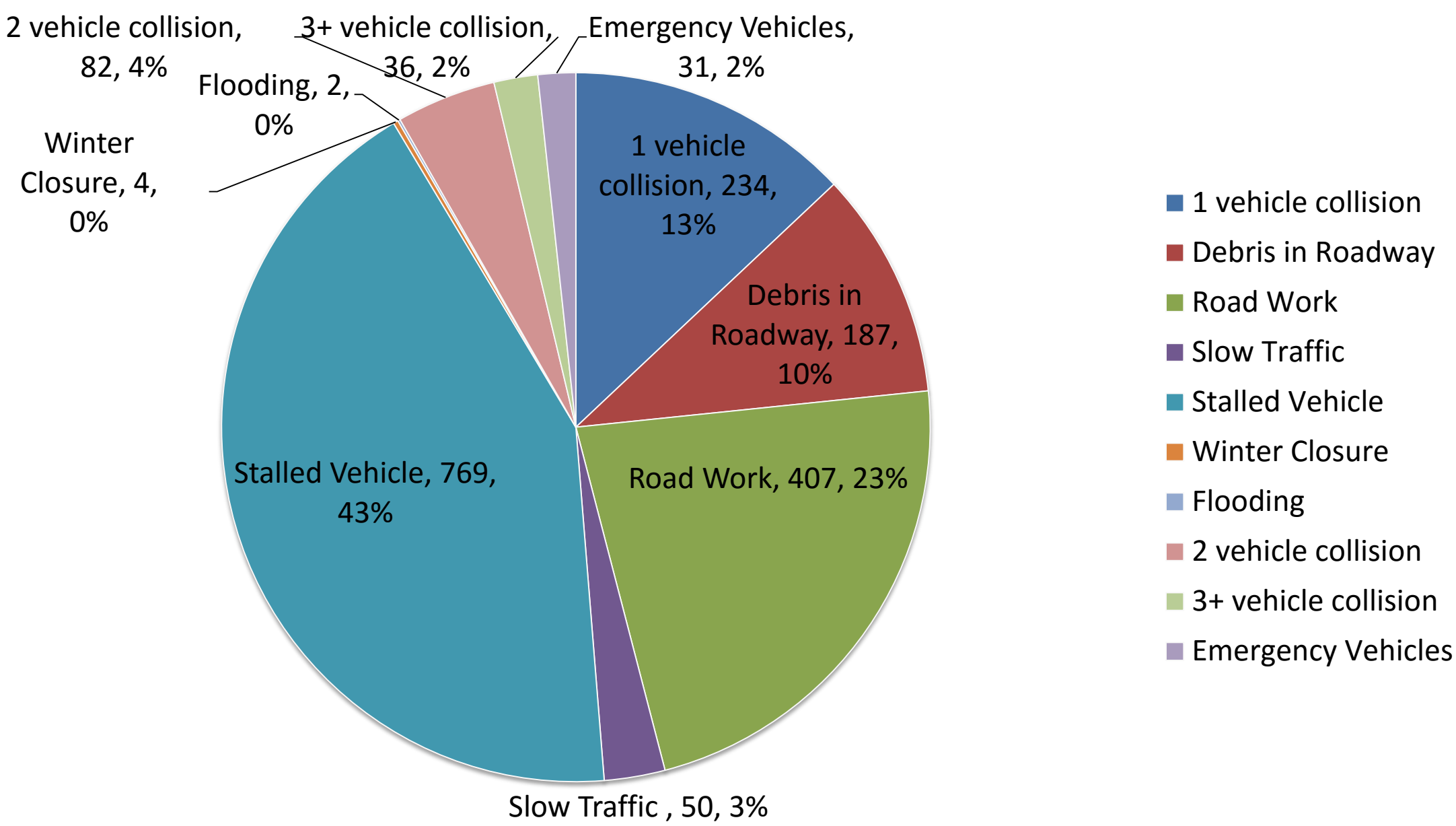
2014

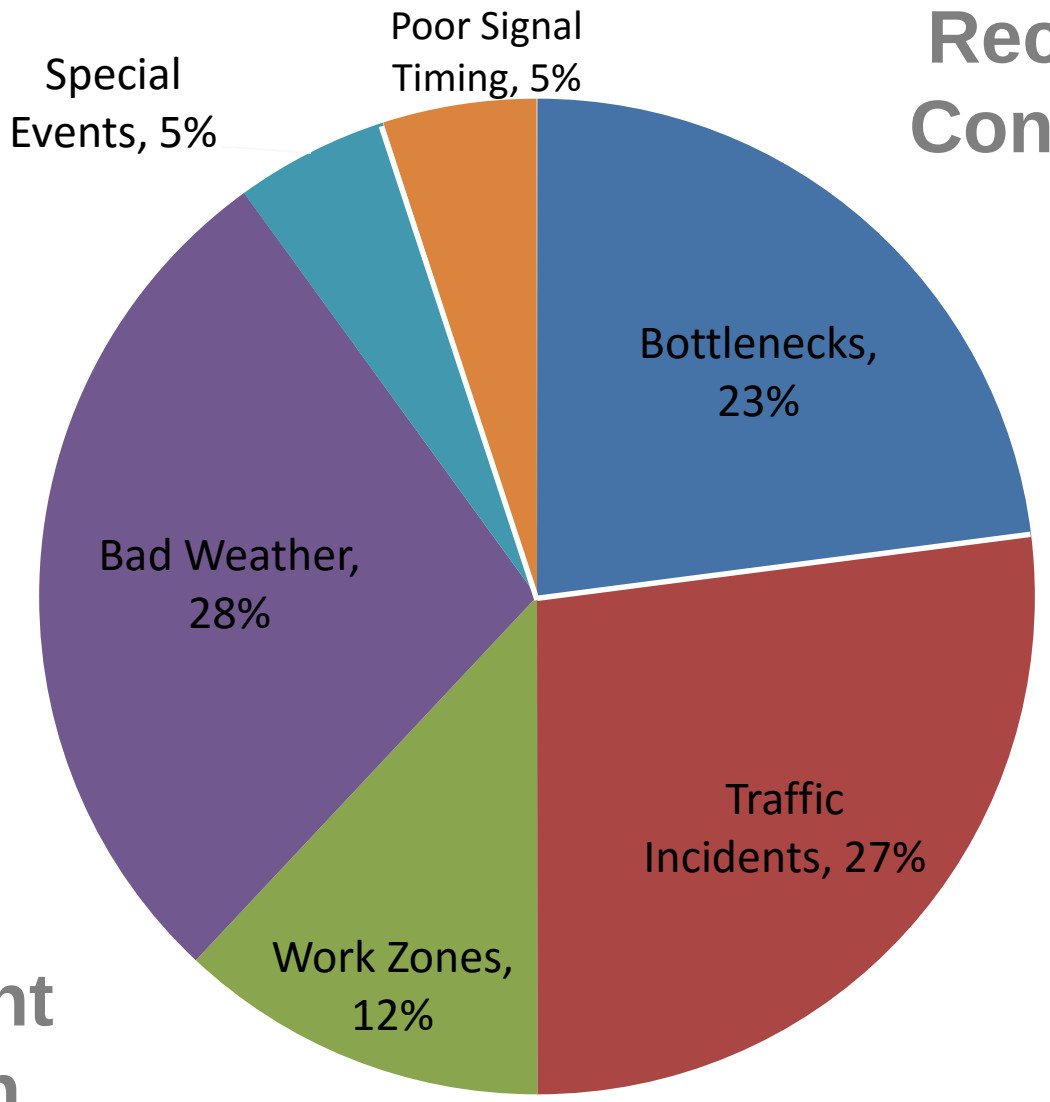

2 vehicle collision, 82, 4%
3+ vehicle collision, 36, 2%
Emergency Vehicles, 31, 2%
Flooding, 2, 0%
Winter Closure, 4, 0%
1 vehicle collision, 234, 13%
Debris in Roadway, 187, 10%
Road Work, 407, 23%
Slow Traffic , 50, 3%
Stalled Vehicle, 769, 43%
1 vehicle collision
Debris in Roadway
Road Work
Slow Traffic
Stalled Vehicle
Winter Closure
Flooding
2 vehicle collision
3+ vehicle collision
Emergency Vehicles

People are safer when we keep traffic moving

BY THE NUMBERS

$ 406 B VALUE OF GOODS MOVING THROUGH IOWA	GOODS SHIPPED BY TRUCK 89%	43% PROJECTED GROWTH IN TRUCK TONNAGE
$380 M LOST TIME AND	$536k IN DELAY COSTS ON 380 IN JULY 2015	AN ADDITIONAL

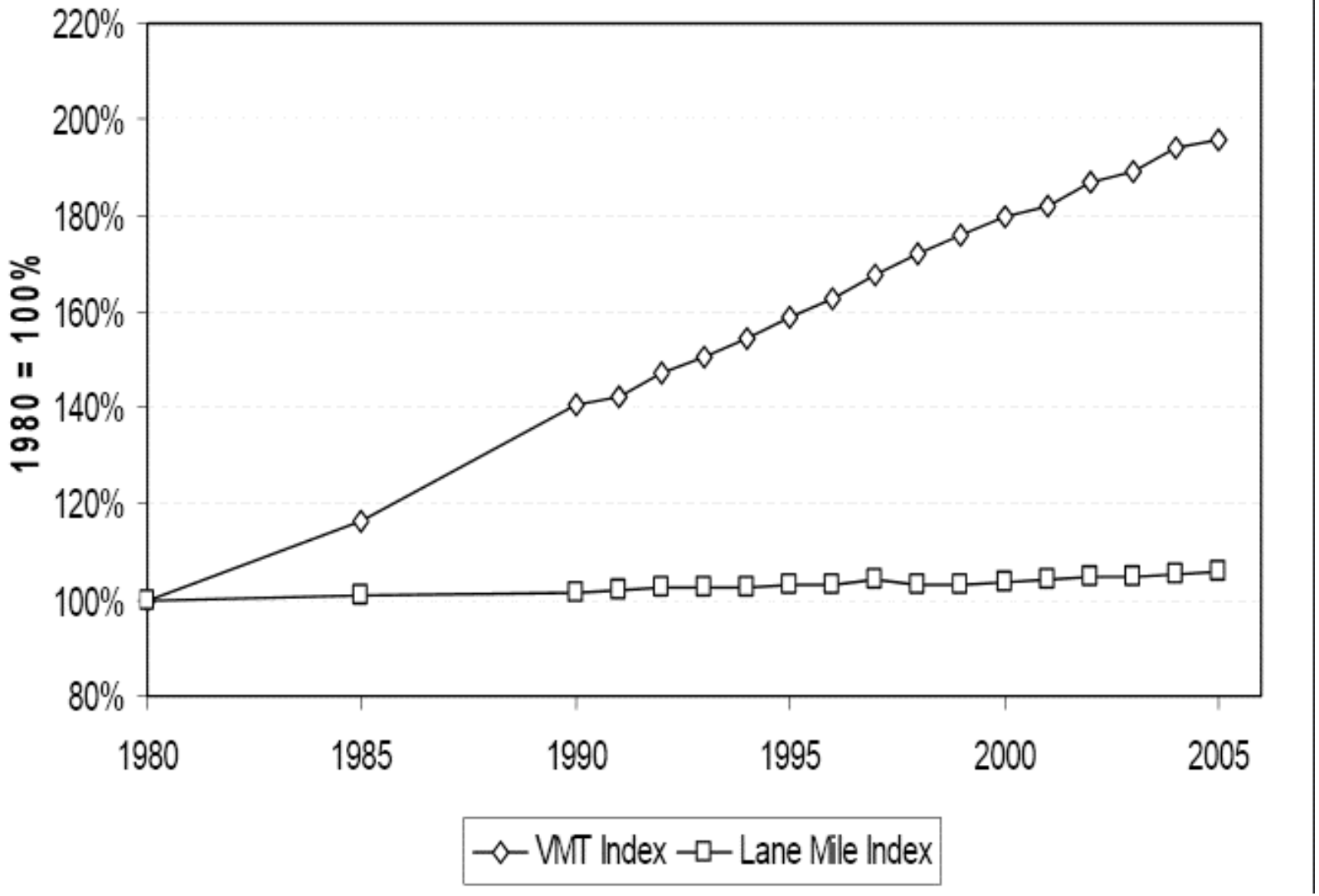
Iowa DOT TSMO



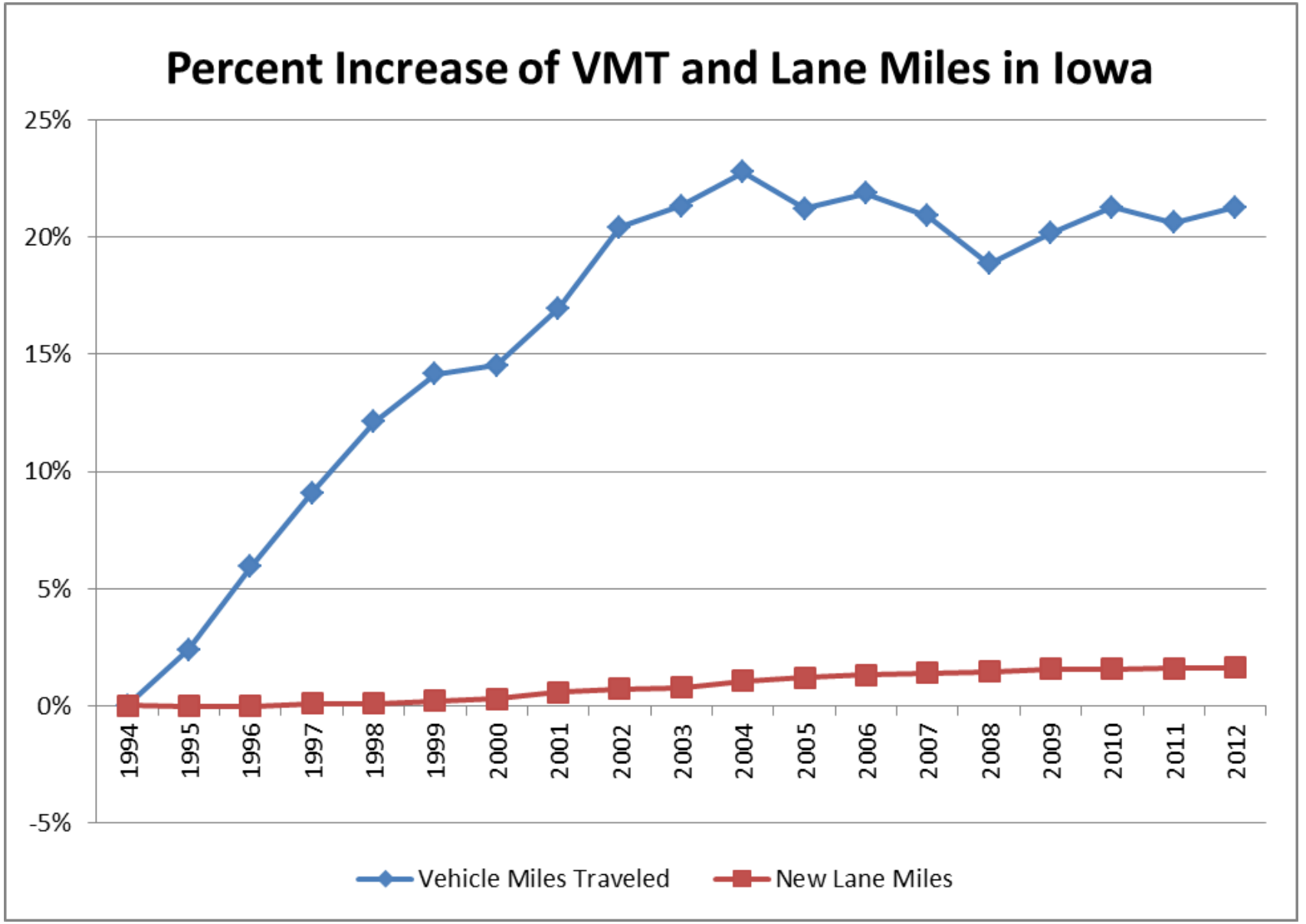
Recurrent Congestion

Non-recurrent Congestion

NATIONWIDE MOBILITY



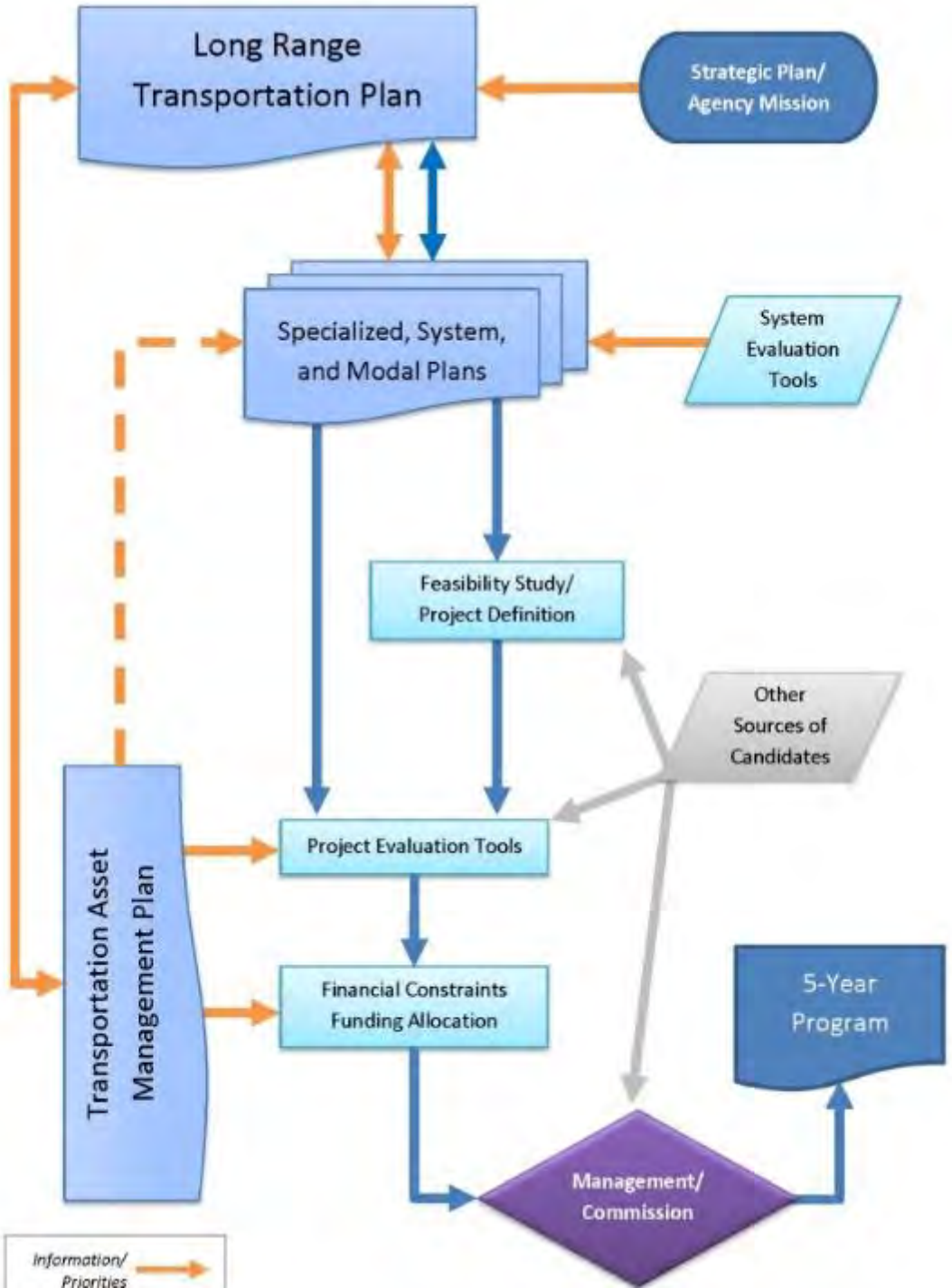
IOWA MOBILITY



The transportation system is more efficient when we keep traffic moving

TSMO Relationship to Planning

- New plans being developed (TSMO Plan, Interstate Corridor Plan, State Freight Plan, TAMP, etc.)
- Some required; all good practice
- Need to explore plan relationships
- Iterative/cyclical process
- More definition with next SLRTP update



ICE-OPS Development

- Need for screening tool to inform use of limited resources
- Systems Planning development of Infrastructure Condition Evaluation (ICE)
- Developed parallel tool with similar structure, but with operations focus
- Information summarized to 21 corridors defined in Interstate Corridor Plan (2013)

ICE-OPS Structure

- Uses nine operations-oriented criteria:
  - All bottleneck occurrences per mile (10%)
  - Freight bottleneck occurrences per mile (10%)
  - Traffic incident frequency per mile (15%)
  - Crash rate (15%)
  - Planning time index (10%)
  - Event center buffer index (5%)
  - Weather-sensitive corridor mileage (10%)
  - Average annual daily traffic (20%)
  - ICE rating (5%)

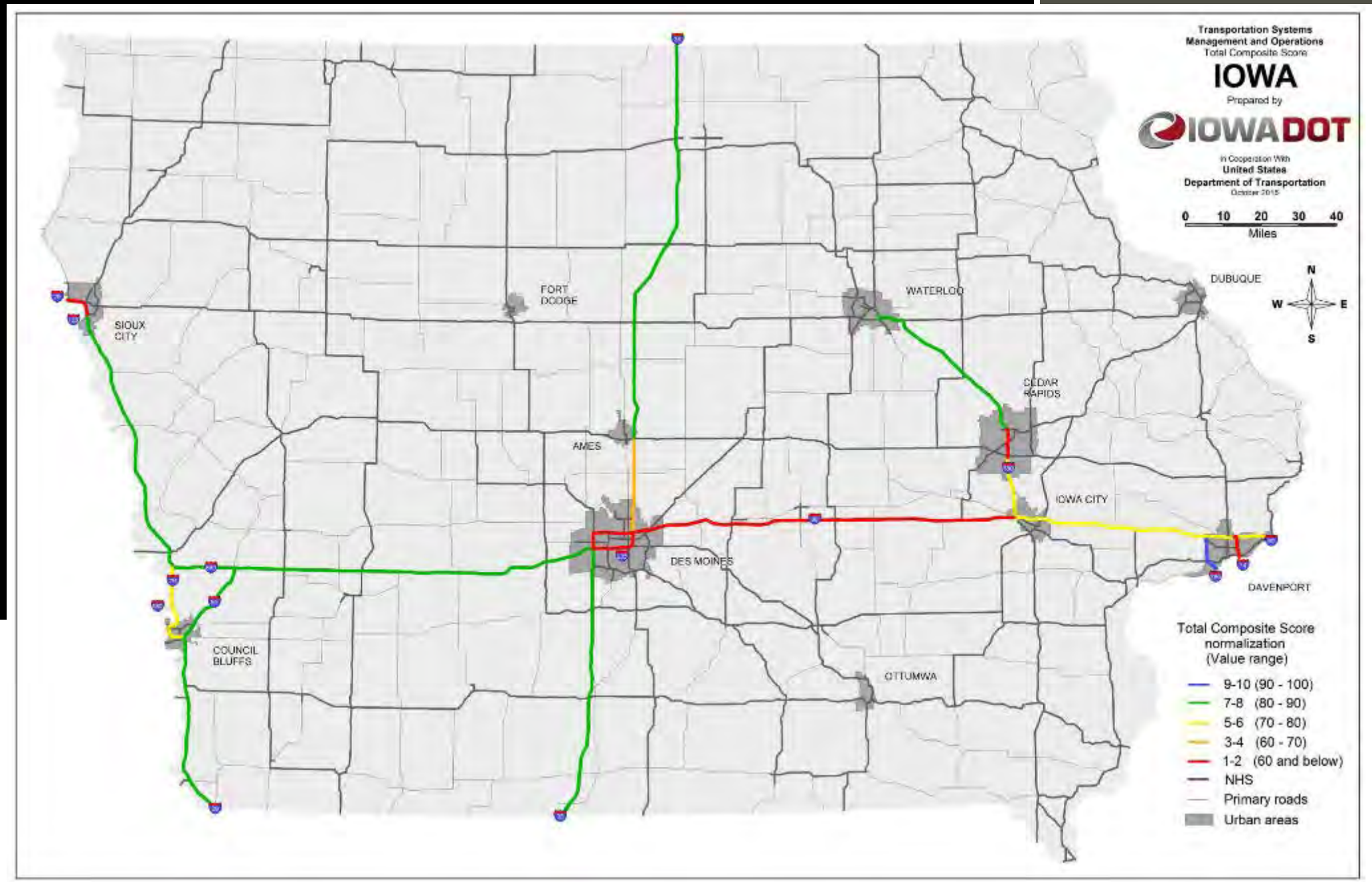
ICE-OPS Structure cont.

- Each criteria assigned a normalized value (1-10 scale) based on range of observed values
- Calculates composite score after applying weighting to each normalized value (max 100)
- Ranks interstate corridors from an operational perspective

TABLE 28. OVERALL ICE-OPS CORRIDOR RANKING

Corridor	Centerline miles	Composite Value	Rank
I-235 (full route)	13.2	31.0	1
I-35/80 (east junction of I-80/I-235 to west junction of I-80/I-235)	13.7	37.5	2
I-29 (junction of US 20 to South Dakota state line)	7.7	39.0	3
I-380 (junction of US 30 to junction of IA-100)*	7.9	58.5	4
I-80 (east junction of I-80/I-235 to junction of I-380)	100.5	59.5	5
I-74 (full route)	6.0	59.5	5
I-35 (east junction of I-80/I-235 to junction of US 30)	23.9	62.0	7
I-129 (full route)	0.9	63.0	8
I-480 (full route)	0.8	69.0	9
I-80 (junction of I-380 to Illinois state line)	68.1	72.0	10
I-380 (junction of I-80 to junction of US 30)	16.4	74.0	11
I-29 (east junction of I-29/I-80 to junction of I-680)	22.6	78.5	12
I-35 (junction of US 30 to junction of US 20)	30.9	83.5	13
I-380 (junction of IA 100 to Waterloo)	48.7	84.5	14
I-35 (junction of US 20 to Minnesota state line)	75.7	86.5	15
I-29 (Missouri state line to east junction of I-29/I-80)	48.2	86.5	15
I-80 (Nebraska state line to west junction of I-80/I-235)	118.4	88.5	17
I-29 (junction of I-680 to junction of US 20)	72.7	89.0	18
I-35 (Missouri state line to west junction of I-80/I-235)	72.4	89.5	19
I-680 (full route)	16.0	90.0	20
I-280 (full route)	9.8	92.5	21

Fewer Operational Issues <----------> More Operational Issues


Transportation Systems
Management and Operations
Total Composite Score
IOWA
Prepared by
IOWADOT
In Cooperation With
United States
Department of Transportation
October 2015
0 10 20 30 40
Miles
N
W E
S
SIOUX CITY
FORT DODGE
WATERLOO
DUBUQUE
CEDAR RAPIDS
AMES
IOWA CITY
DES MOINES
DAVENPORT
COUNCIL BLUFFS
OTTUMWA
Total Composite Score normalization (Value range)
9-10 (90 - 100)
7-8 (80 - 90)
5-6 (70 - 80)
3-4 (60 - 70)
1-2 (60 and below)
NHS
Primary roads
Urban areas

Iowa DOT TSMO

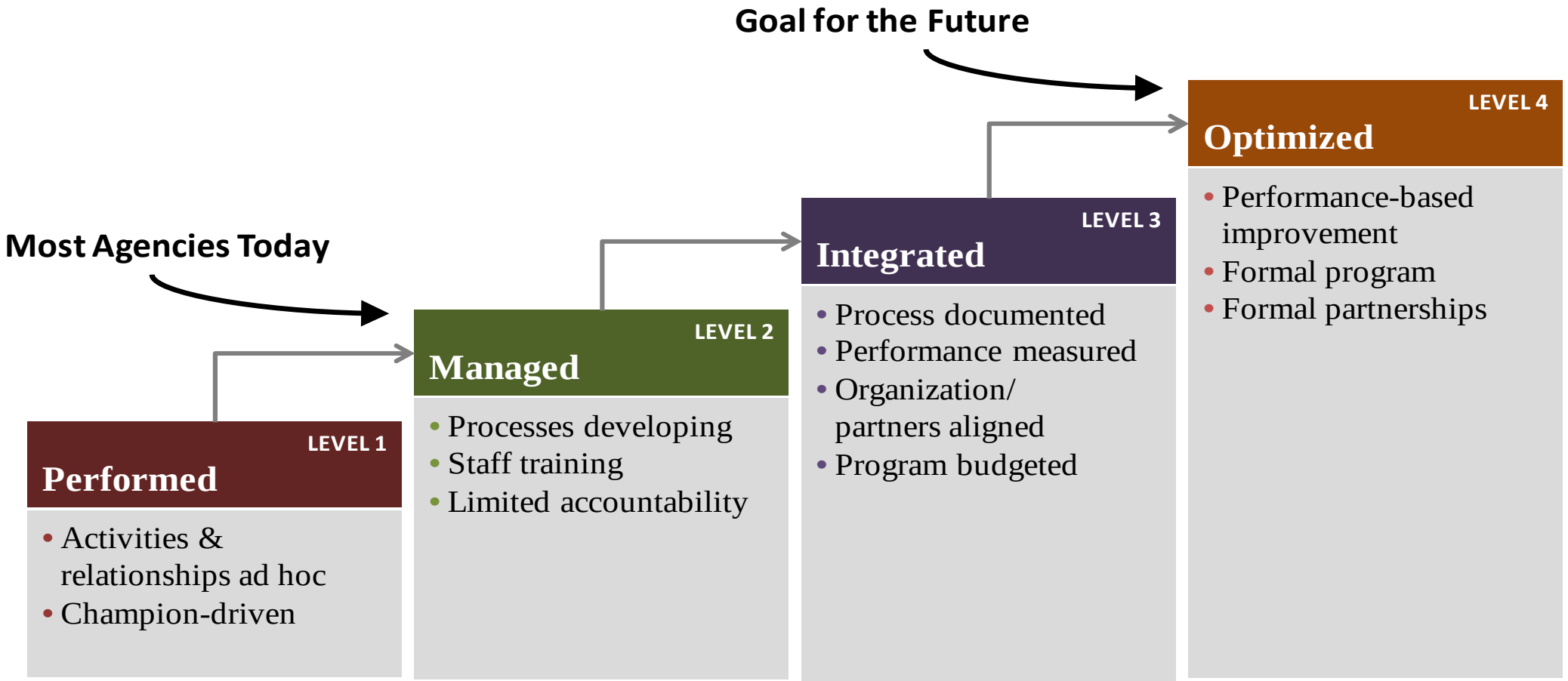
06 Orientation to the TSMO Culture

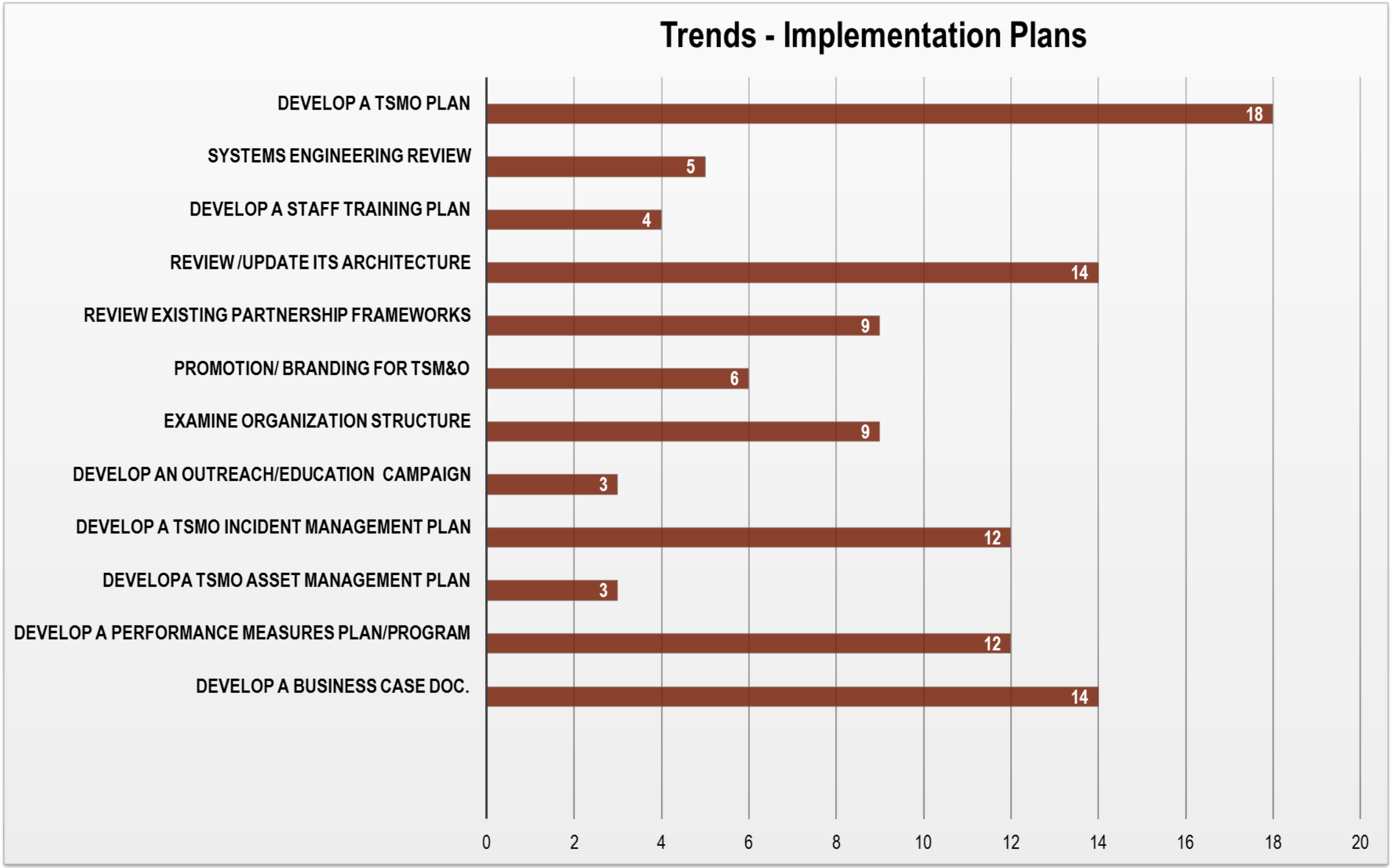
What Are Other States Doing?

Capability Maturity Model Elements

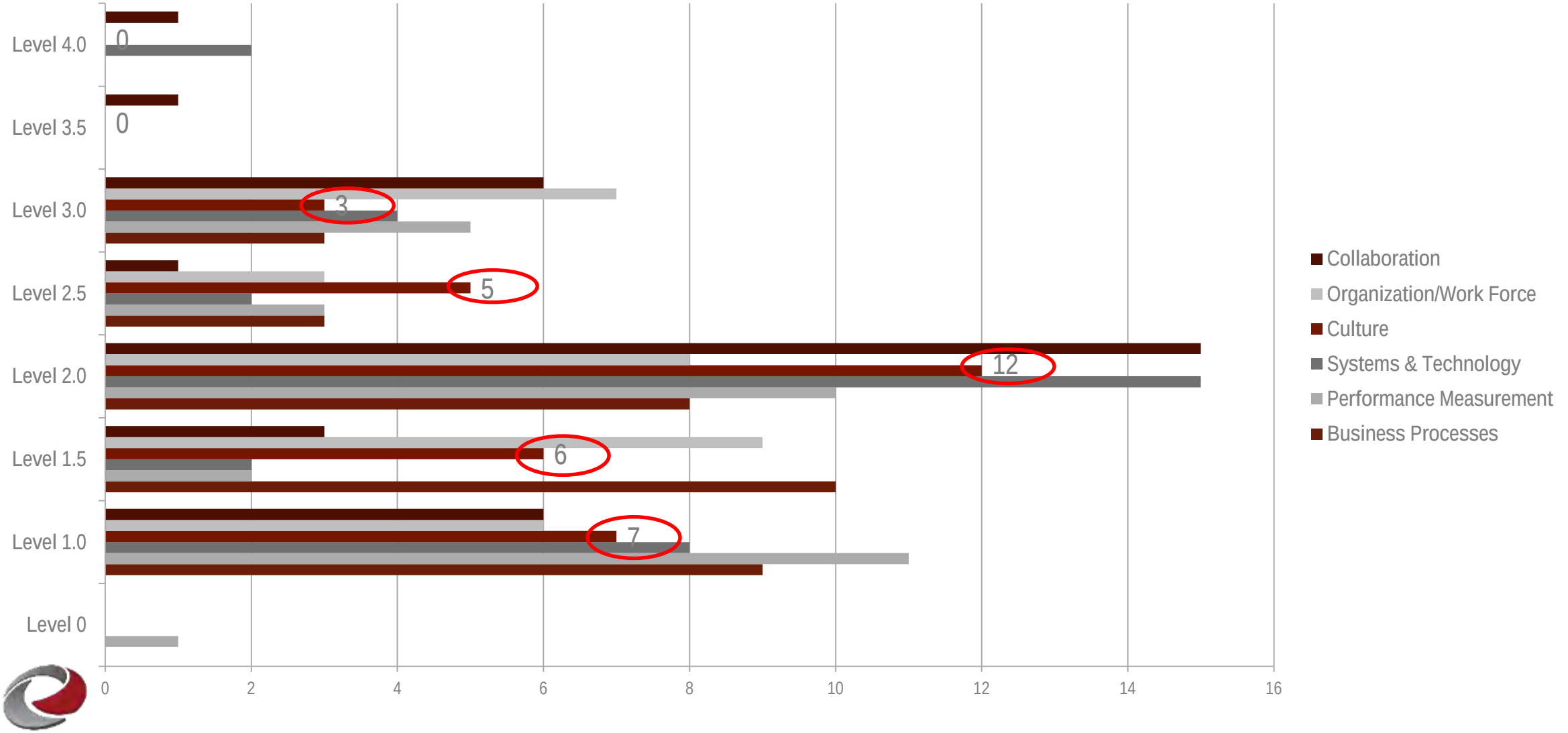
1. Business Processes
   - Planning, programming, budgeting, implementation
2. Systems & Technology
   - Systems engineering, standards and technology interoperability
3. Performance Measurement
   - Measures, data & analytics and utilization
4. Culture
   - Technical understanding, leadership, outreach, and program authority
5. Organization/Workforce
   - Organizational structure and workforce capability development
6. Collaboration
   - Partnerships among levels of government and with public safety agencies and private sector

Levels of Agency Capability Maturity

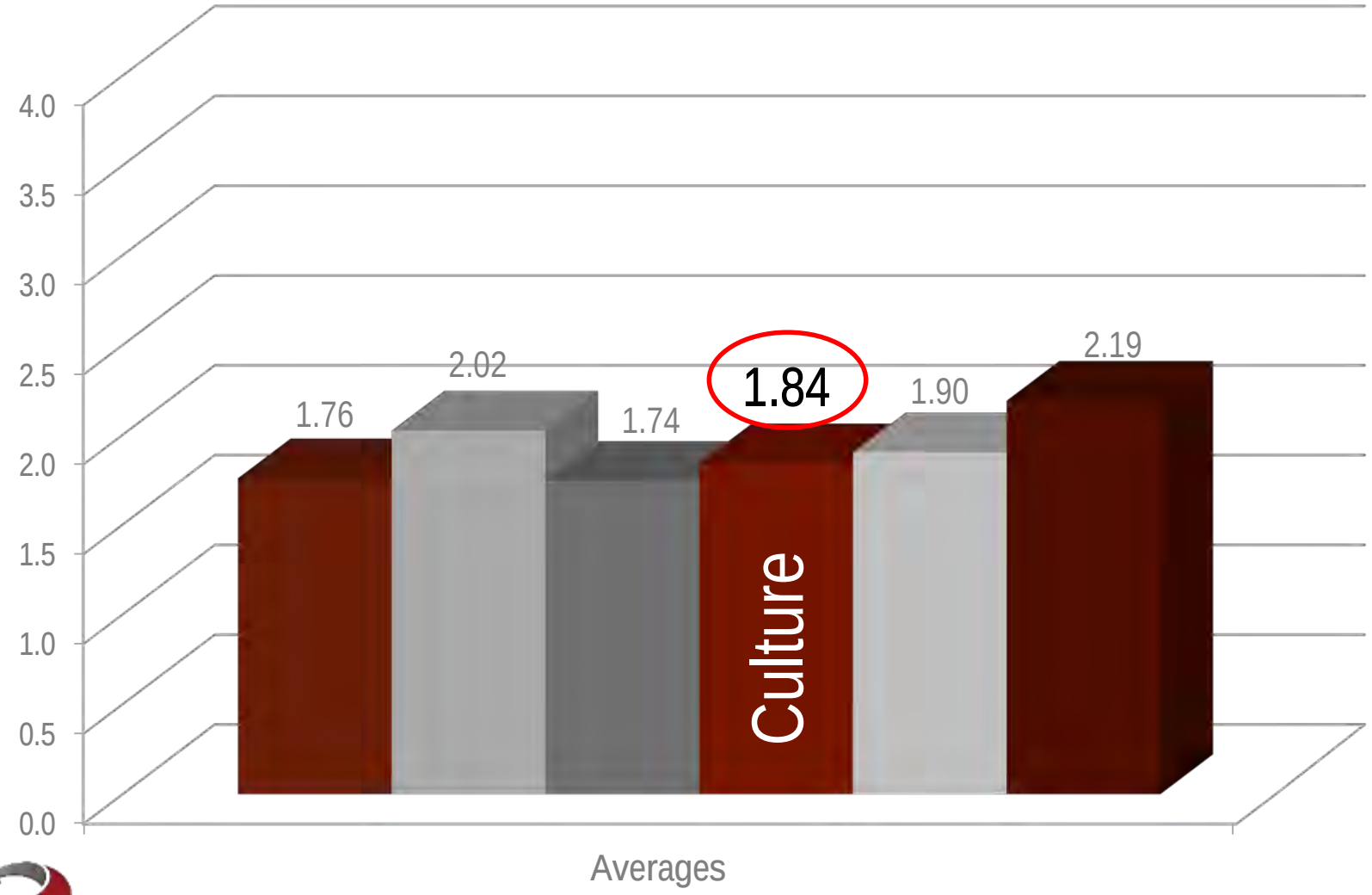



Trends - Implementation Plans
DEVELOP A TSMO PLAN
18
SYSTEMS ENGINEERING REVIEW
5
DEVELOP A STAFF TRAINING PLAN
4
REVIEW /UPDATE ITS ARCHITECTURE
14
REVIEW EXISTING PARTNERSHIP FRAMEWORKS
9
PROMOTION/ BRANDING FOR TSM&O
6
EXAMINE ORGANIZATION STRUCTURE
9
DEVELOP AN OUTREACH/EDUCATION CAMPAIGN
3
DEVELOP A TSMO INCIDENT MANAGEMENT PLAN
12
DEVELOPA TSMO ASSET MANAGEMENT PLAN
3
DEVELOP A PERFORMANCE MEASURES PLAN/PROGRAM
12
DEVELOP A BUSINESS CASE DOC.
14
0
2
4
6
8
10
12
14
16
18
20

CMM Score - Culture



Averages/Dimension - Culture



- Businesss Processes & Programming
- Systems & Technology
- Performance Measures
- Culture
- Organization & Staffing
- Collaboration

Implementation Plans Capability Improvement Actions - *Shifting the Culture*

- Develop TSM&O outreach/communications material
- Develop TSM&O business case to various audiences
- Institute TSM&O knowledge sharing (e.g., through identified experts and peer exchanges)
- Develop proactive relationship with public service agencies
- Develop executive policy/directives in support of TSM&O/ITS/total system management
- Establish TSM&O executive steering committee to set vision and strategic priorities
- Recruit and select TSM&O advocates beyond headquarters to facilitate education
- Identify team of TSM&O champions at senior management and division head levels.

Arizona's Approach - Culture

- Organize a communications campaign/strategy to educate staff about TSM&O, both internally at ADOT, and externally for partner
- Develop business case material in support of external outreach to decision-makers and the public
- Perform a TSM&O assessment of initiatives/efforts within each division
- Develop a statewide concept of operations for TSM&O.
- Expand the TIM for Responders effort to include any staff member who may be working on the ADOT right-of-way, even in permitted situations.

New Hampshire' Approach

- Develop and communicate the TSMO Story benefits internally – including leverage, payoffs, and cost-benefit compared to other investments
- Develop and institutionalize in-house training/courses for younger staff
- Brief elected officials and policymakers on the business case for TSMO
- Consider contact with external stakeholders regarding TSMO – especially tourism industry (year-round)
- Leverage products of major project specific outreach (I-93), augment updates of construction updates/progress with TSM&O strategies/activities
- Consider greater sharing of camera feeds with media, with credit to NHDOT as PR for program

Tennessee's Approach - Culture

- Increasing awareness among TDOT staff regarding what each division/department does within the organization.
- Use the TSM&O Committee to develop marketing resources that spread awareness of TSM&O among TDOT management, local/regional agencies, TPOs, and RPOs.
- Publish an annual/quarterly report describing recent TSM&O success stories and outcomes.

Ohio's Approach - Culture

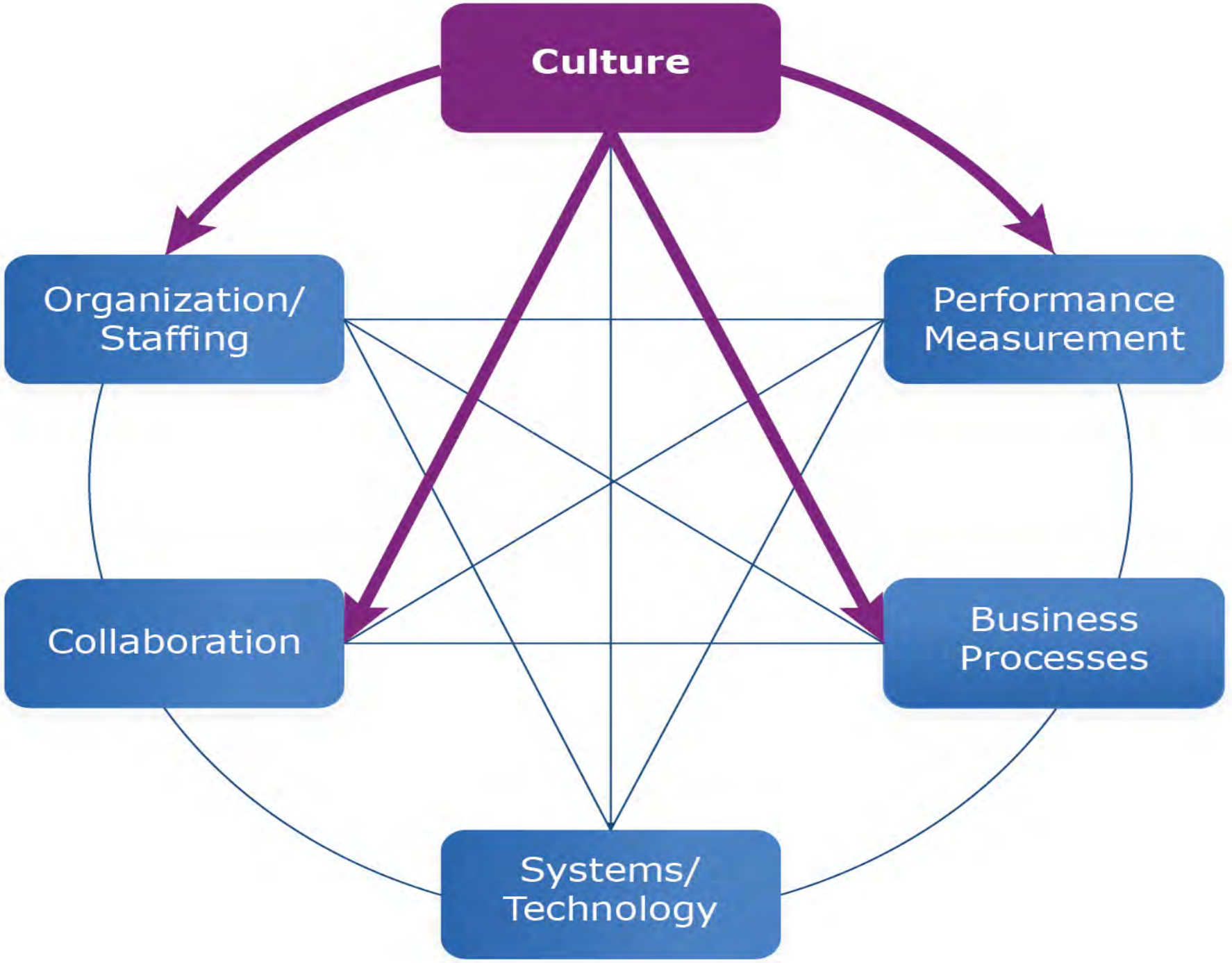
- Make the business case for operations and rationalize approach to defining and communicating its "value"
- Study peer state best practice for ITS/operations program branding (e.g. MD CHART)
- Revisit request to communication staff for improved branding of TMC/OHGO to better establish its recognition/use; if unsuccessful, identify alternative resource to establish branding

Peer Exchanges

- Sites Visited
  - Wisconsin
  - Minnesota
  - Oregon
  - Washington
  - Utah
  - Colorado
  - Pennsylvania
  - Maryland

- Sites Visited
  - Indiana DOT
  - City of John's Creek, GA
  - Utah DOT

Culture – Synergy with other Dimensions



Iowa DOT TSMO

Transportation Industry Challenges

Catalysts & Implications

Catalysts

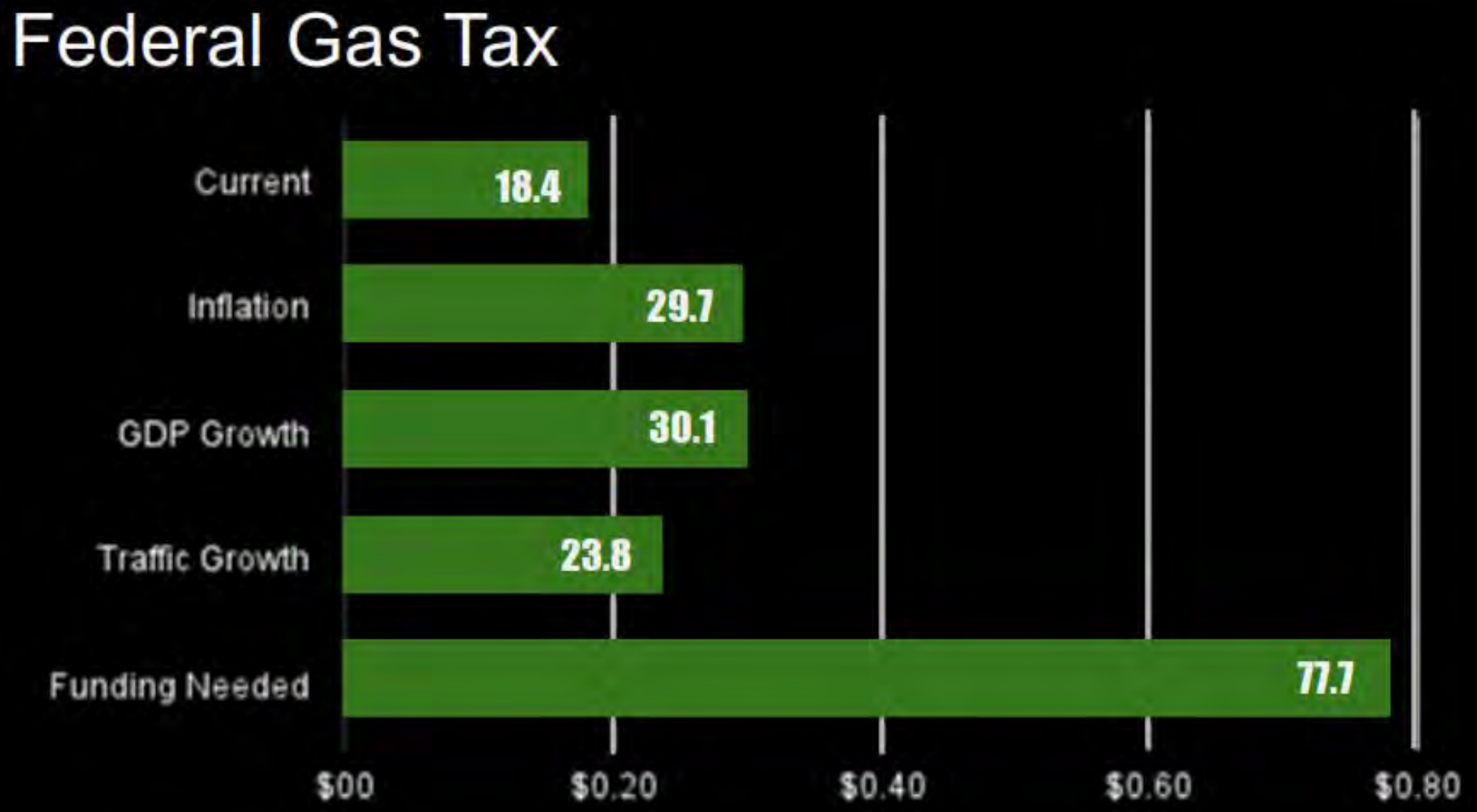
- Demographic Trends
- Technology
  - Vehicle
  - Infrastructure
  - Smart Community
- Freight
- Funding

Average Daily Long-Haul Traffic on the NHS: 2040

Notes: Long-haul freight trucks typically serve locations at least 50 miles apart, excluding trucks that are used in movements by multiple modes and mail. NHS mileage as of 2011, prior to MAP-21 system expansion.
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Analysis Framework*, version 3.4, 2013.

Funding “Need”

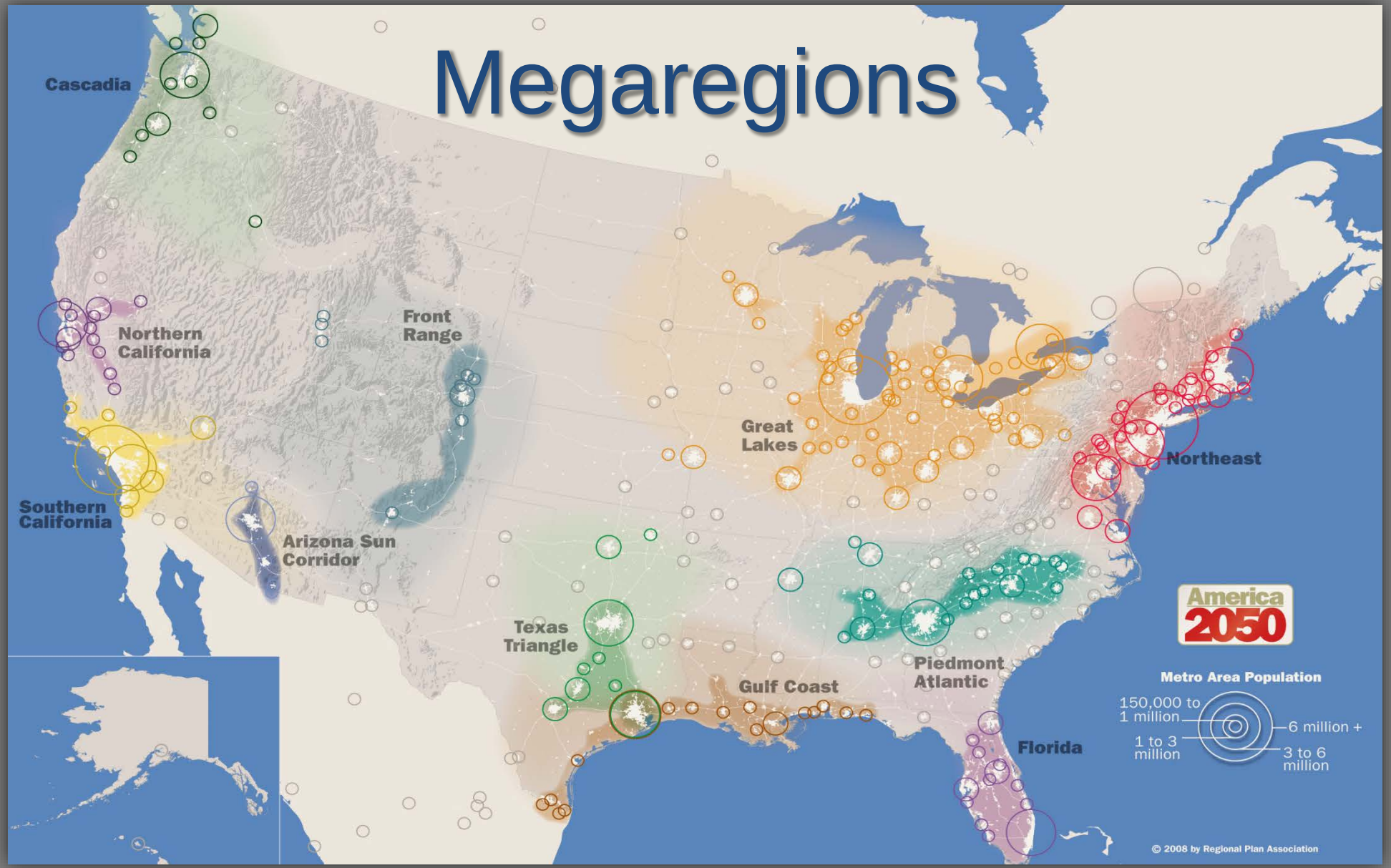
www.strongtowns.org



Implications

- Economic Infrastructure Fusion
- Decision Support Systems Emphasis
- Reliable (Resilient) Connectivity Objective
- Institutional Evolution
  - Public Agency Adaptation – Facilitative Collaborator
  - Government-University-Industry
  - Megaregional/Multi-state “Entity”

Megaregions



Iowa DOT TSMO

What does it mean to you?

THIS AFTERNOON: Break Out Groups

- *Group 1*: Traffic Management Center, ITS and Communications; Traveler Information – Facilitators: Todd Szymkowski, Bonnie Castillo and Daniel Grate

- *Group 2*: Traffic Incident Management; Emergency Transportation Operations; Work Zone Management – Facilitators: Eric Rensel, John Wilson and Paul LaFleur

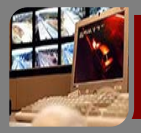
- *Group 3*: Active Transportation and Demand Management; Connected and Autonomous Vehicle – Facilitators: Pat Noyes, Mike Jackson and John Corbin

07 Lunch

Iowa DOT TSMO

08 Service Layers Overview and Break-out Discussion

TSMO Service Layers



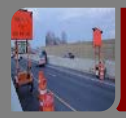
Traffic Management Center

ITS and Communications

Traveler Information

Traffic Incident Management

Emergency Transportation Operations

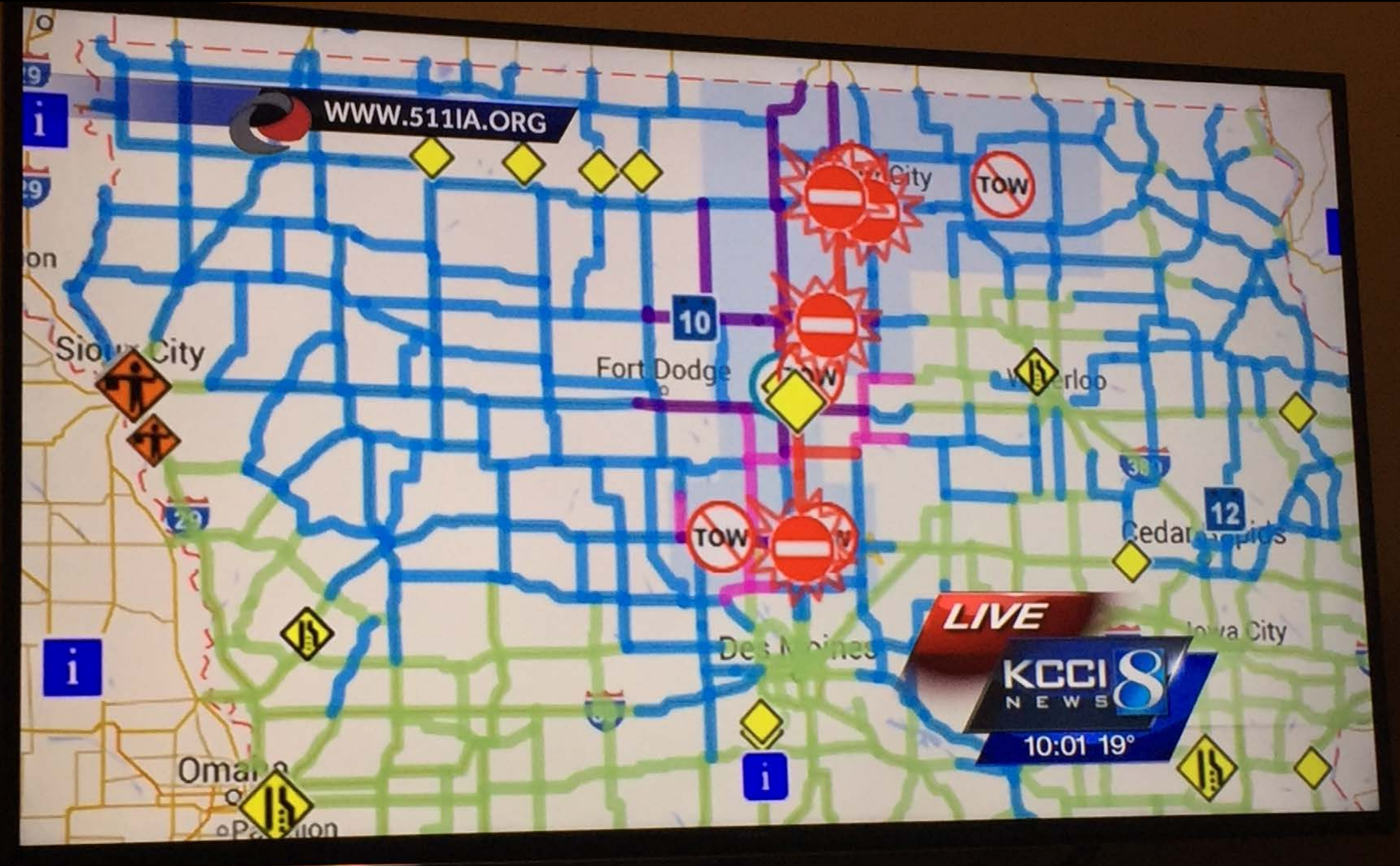


Work Zone Management

Active Transp. and Demand Management

Connected and Autonomous Vehicle


LFC
L8001
VXP
EMS
STATE TROOPER


WWW.511IA.ORG
TOW
10
Fort Dodge
TOW
12
LIVE
KCCI 8
NEWS
10:01 19°

KCRG
@KCRG

Following

.@iowadot reports partially & completely covered roads in eastern Iowa. Blowing snow is a factor this AM. #kcrgwx

RETWEET
1

5:35 AM - 8 Feb 2016


IOWADOT
ON THE PHONE
Jim Brown
WHO Radio/Total Traffic Network
13
WHO•HD
THE BOOK OF MORMON
SOUTH PARK
OSCEOLA
FORECAST
9 AM
41°
NOON
50°
4 PM
54°
37°
6:51

Service Layer	Definition
Traffic Management Center	The round-the-clock hub of traffic coordination and management activities throughout the state. The Traffic Management Center recently relocated from Ames to a newly remodeled facility in the Iowa Motor Vehicle Division Building in Ankeny.
ITS and Communications	Fixed and mobile traffic sensors, non-enforcement traffic cameras, dynamic message signs, highway advisory radio transmitters, and supporting communications infrastructure.
Traveler Information	Traveler information tools that communicate planned and prevailing traffic conditions, such as Iowa 511 and various social media.
Traffic Incident Management	The coordination of Iowa DOT and its partners' response to routine highway traffic incidents.
Emergency Transportation Operations	The coordination of Iowa DOT and its partners' response to large scale incidents (not necessarily highway related), such as flooding, tornadoes, epidemics, etc.
Work Zone Management	The planning and deployment of various strategies to maintain traffic flow and safety through highway work zones.
Active Transportation and Demand Management	Innovative strategies to maximize available capacity of roadways, such as ramp metering, variable speed limits, lane control signing, active signal control, and time-of-day shoulder use.
Connected and Autonomous Vehicle	While still an emerging technology, this service layer considers the challenges and opportunities of vehicle-to-vehicle and vehicle-to-infrastructure connectivity and autonomous vehicles to improve vehicle safety and efficiency.

Service Layer Plans Will Address

- ***Opportunities and Challenges*** – Includes a mapping of relevant Strategic Goals and Program Objectives. Develop Service Layer Objectives that support the Strategic Goals and Program Objectives.
- ***Description of Existing Services, Activities and Projects*** – Provides a detailed description of existing services, activities and completed deployment projects.
- ***Existing Conditions*** – An assessment of related existing conditions.
- ***Gap Analysis*** – Develop and apply analysis criteria to identify where services and other needs are unmet.

Service Layer Plans Will Address (cont.)

- ***Action Recommendations*** – Provides a list of actionable recommendations by Fiscal Year, categorized by Services, Policies and Procedures, ITS Deployment Projects and Highway Improvement Projects. The action recommendations are expected to be reflected upwards in future TSMO Program Plan updates.
- ***Performance Management*** – Develop specific measures for each Service Layer Objective and a process for evaluating and correcting actions to meet the objectives.
- ***5-Year Service Layer Cost Estimate*** – A detailed cost estimate by fiscal year that will be used to refine the TSMO Program Plan budget estimates.

Break Out Groups

- *Group 1*: Traffic Management Center; ITS and Communications; Traveler Information – Facilitators: Todd Szymkowski, Bonnie Castillo and Daniel Grate

- *Group 2*: Traffic Incident Management; Emergency Transportation Operations; Work Zone Management – Facilitators: Eric Rensel, John Wilson and Paul LaFleur

- *Group 3*: Active Transportation and Demand Management; Connected and Autonomous Vehicle – Facilitators: Pat Noyes, Mike Jackson and John Corbin

Break Out Discussion

Each group will consider the following for each of the 2 or 3 service layers assigned to the group:

- What do you see as the opportunities presented by this service layer?
- What do you see as the major challenges to be addressed in this service layer?
- How does the development of this service layer support what you do?
- What do you think should be considered as key indicators of success in this service layer?

Spend 15 minutes discussing the questions for each service layer (20 minutes each for group 3). Be prepared to report back to the whole group.

09

Summary of Outcomes and Next Steps

Next Steps & Wrap Up

- Expect Engagement via Service Layers, Annual Accomplishment Plan
- Starting 3 Service Layers
  - ITS and Communications
  - Traveler Information
  - Traffic Incident Management
- TSMO Roadshow by OTO
- Follow-up District TSMO Awareness Training
- 2nd Annual TIM Conference – May 16 at Scheman Building

www.iowadot.gov/tsmo