



Every Day Counts





EDC Pillars

Going Greener

Shortening
Project
Delivery

Accelerating
Deployment
Technology
and
Innovation





EDC Initiatives

Shortening Project Delivery



Accelerate the Deployment of Technology and Innovation

- Design-build
- Construction Manager/General Contractor
- Planning and Environmental Linkages
- Legal Sufficiency Enhancements
- Expanding Programmatic Agreements
- In Lieu Fees and Mitigation Banking
- Clarifying the Scope of Preliminary Design
- Flexibilities in Right of Way
- Flexibilities in Utilities
- Enhanced Technical Assistance on EIS
- Safety Edge
- Warm Mix Asphalt
- Adaptive Single Control
- Prefabricated Bridge Elements and Systems
- Geosynthetic Reinforced Soil Integrated Bridge



Opportunities for Implementation

- Reduced disruption to traffic
- Reduced exposure to construction activities
- I/D clauses drive contractor acceptance
- Reduced initial & life cycle costs
- Improved image of bridge engineering & DOT
- Improved quality & durability



Opportunity!

“The EDC program has paved the way to allow bridge practitioners the opportunity to ***advance PBES and other innovations into the mainstream of the bridge industry.***”





Prefabricated Bridge Elements & Systems (PBES)

- Built:
 - Offsite, or
 - Adjacent to alignment
- Include features that reduce:
 - Onsite construction time
 - Mobility impact time





Benefits

- Safer:
 - Public
 - Contractor Personnel
- Improve Quality:
 - Off the Critical Path
 - Controlled Environment
- Build in an accelerated manner more efficiently





Challenges – current/future

- Aging Infrastructure
- Increased Traffic Volume
- Increased Work Zones

Congestion Costs

- 4 billion hours/year
- 3 billion gallons/year
- \$80 billion/year





Paradigm Shift

PBES becomes the ***standard*** method of bridge construction, and the use of conventional construction methods - such as on-site CIP operations, are used in a limited manner.



Elements vs. Systems



Elements 

Systems 



timeliness may be an issue.



Deck Elements

Examples:

- Full-depth precast deck panels
- FRP deck panels
- Steel grid decks
- Aluminum deck panels





Beam Elements

Deck Beam Elements:

- Modular beams with decks
- Adjacent deck bulb-tee beams
- Adjacent double tee beams
- Adjacent box beams
- Adjacent slab beams





Beam Elements

Full-Width Beam Elements:

- Truss span without deck
- Arch span without deck
- Precast segmental





Pier Elements





Abutment & Wall Elements

Examples:

- Precast backwalls, wingwalls, footings
- Sheet piling – steel or precast
- Precast full-height wall panels
- MSE walls





Miscellaneous Elements

Examples:

- Precast approach slabs
- Prefab parapets
- Closure pours
- Overlays





Prefabricated Systems

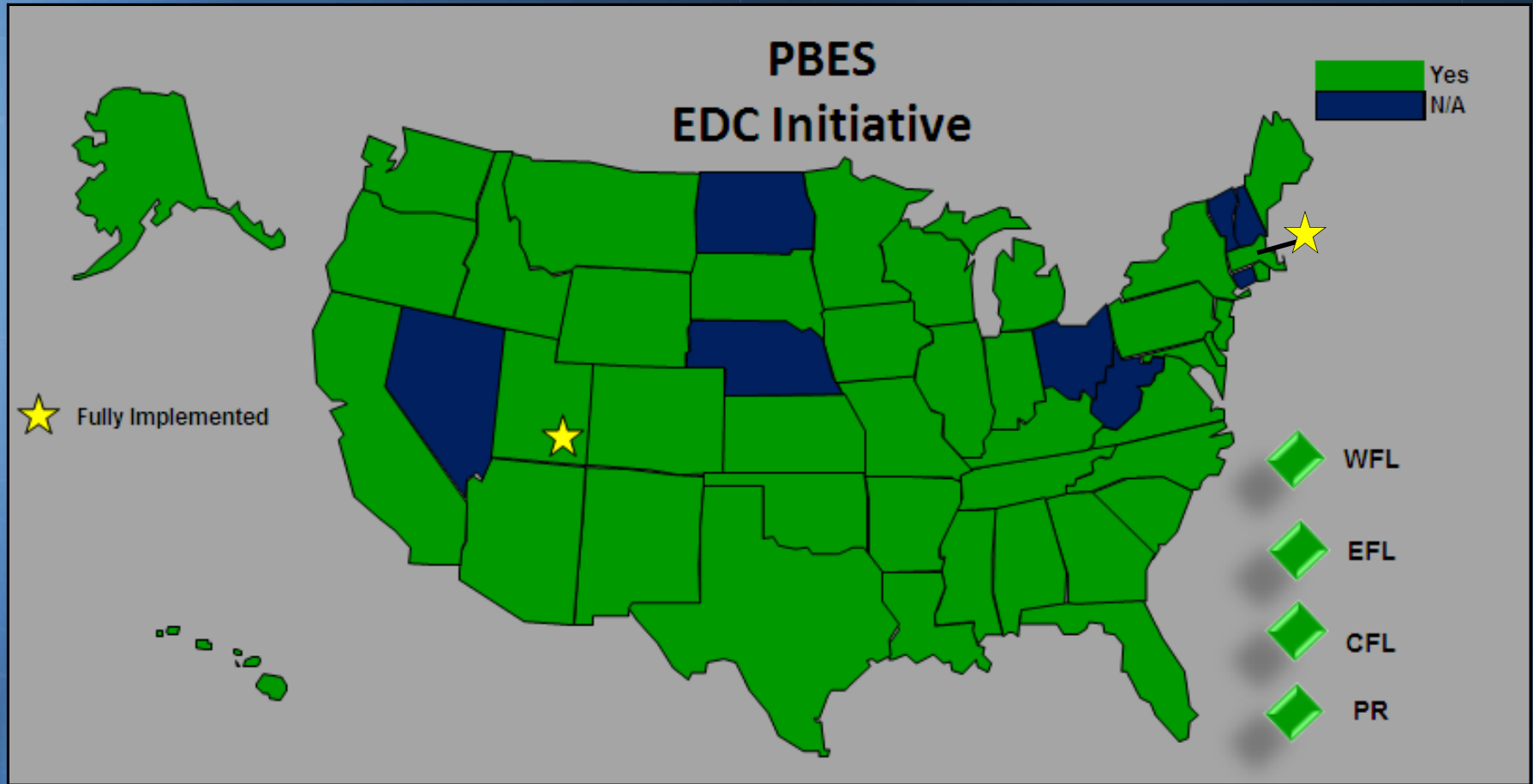
Systems: rolled, launched, slid, etc.

- Superstructure
- Superstructure/pier
- Total bridge





Implementing PBES





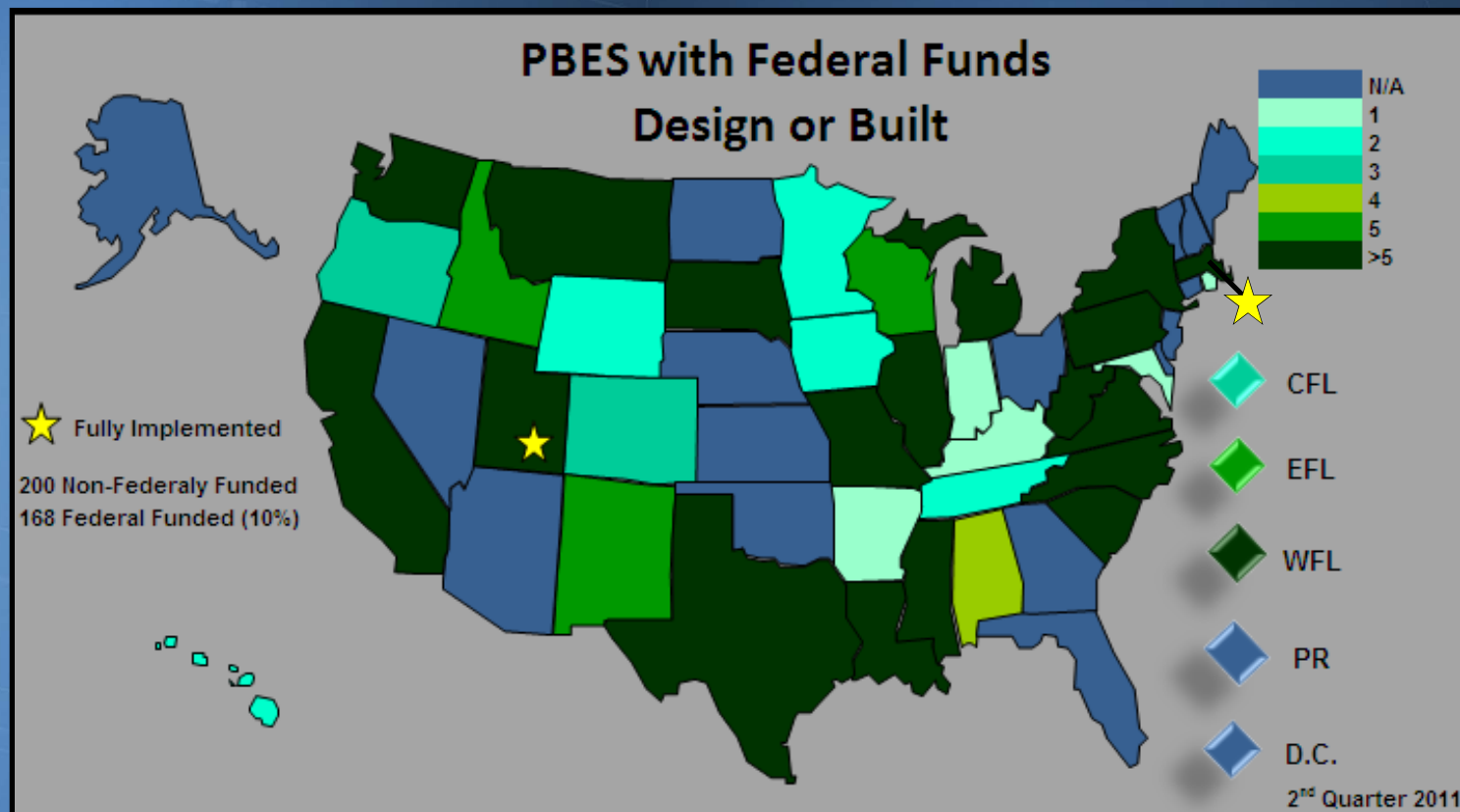
PBES 2012 Goals

- **100 cumulative bridges** have been designed and/or constructed rapidly using PBES
- **25 percent** of bridge projects authorized using Federal-aid have at least one major prefabricated bridge element
- PBES **decision making framework** in the design process and **20 projects in 3 years**



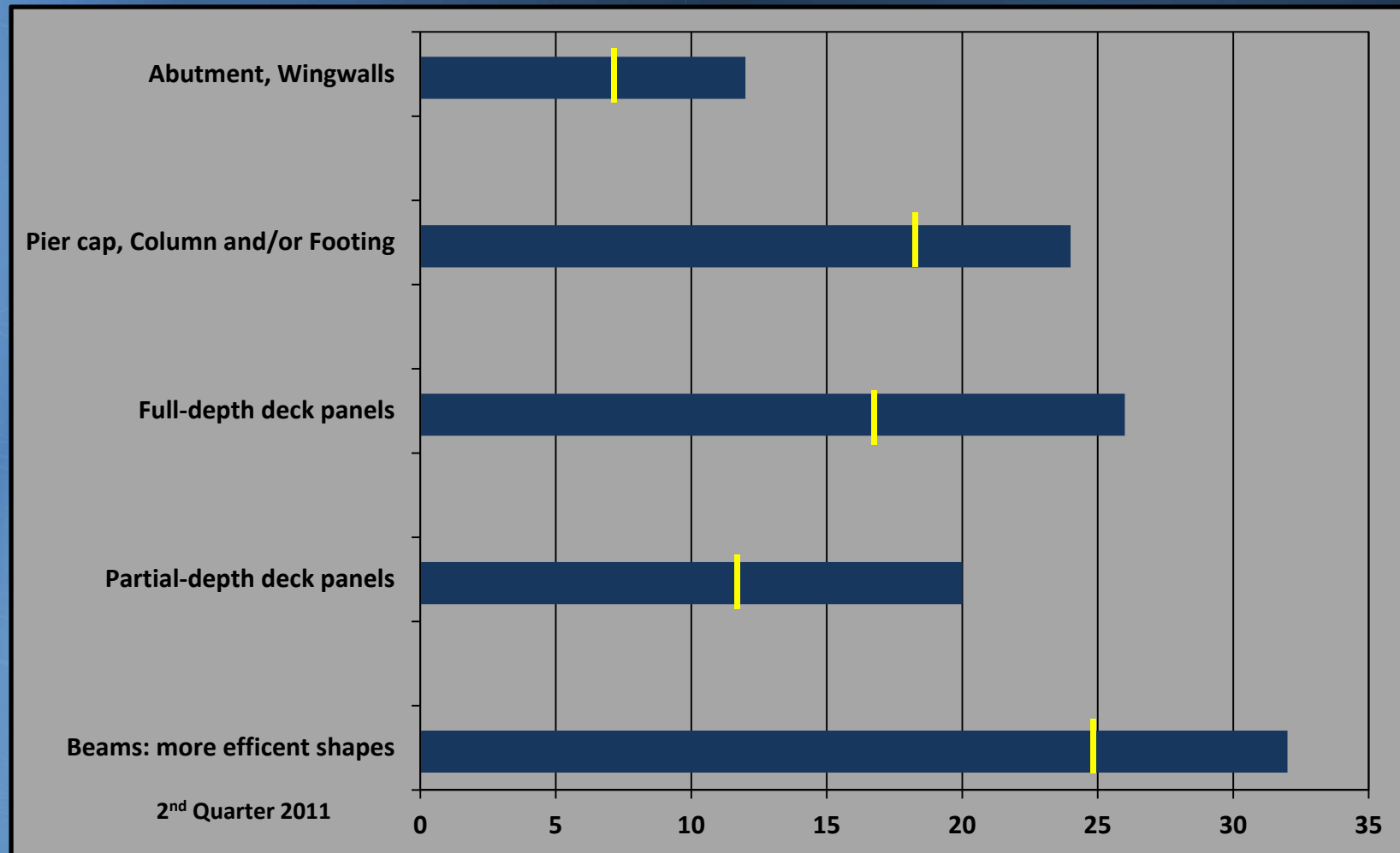
EDC Goals

	1 st	2 nd
Authorized Projects	1,200	1,600
PBES	143	200
PBES w/ Fed Aid	132	168





What they are selecting





PBES Tools - website

U.S. Department of Transportation
Federal Highway Administration

Search FHWA

Bridges [FHWA > Bridge > Accelerated Bridge Construction](#)

Accelerated Bridge Construction

Project Planning

Geotechnical Solutions

Foundations and Wall Elements

Rapid Embankment Construction

Structural Solutions

Prefabricated Elements & Systems

Structural Placement Methods

Email Notification

Enter your E-mail

Submit

Events

FHWA ABC Annual conference
Minneapolis, MN
Later part of 2012

[View Event Calendar](#)

ABC Technical Contacts

Decision Making Framework
Benjamin Beerman
(404) 562-3930
benjamin.beerman@dot.gov

Innovative Contracting

What is ABC?

ABC is a paradigm shift in the project planning and procurement approach where the need to minimize mobility impacts which occur due to onsite construction activities are elevated to a higher priority.

Intrinsic benefits of the ABC approach include improvements in:

- Safety

www.fhwa.dot.gov/bridge/abc/



Publications

Accelerated Bridge Construction
Experience in Design and Erection of Prefabricated Bridge Elements and Systems
Final Manual
Publication No. FHWA-XX-XX-XXX

List of Revisions:

U.S. Department of Transportation
Federal Highway Administration

Priority, Market Ready Technologies and Innovations

HIGHWAYS FOR LIFE
Accelerating Innovation for the American Driving Experience

Accelerated Bridge Construction
Experience in Design, Fabrication and Erection of Prefabricated Bridge Elements and Systems
Final Manual
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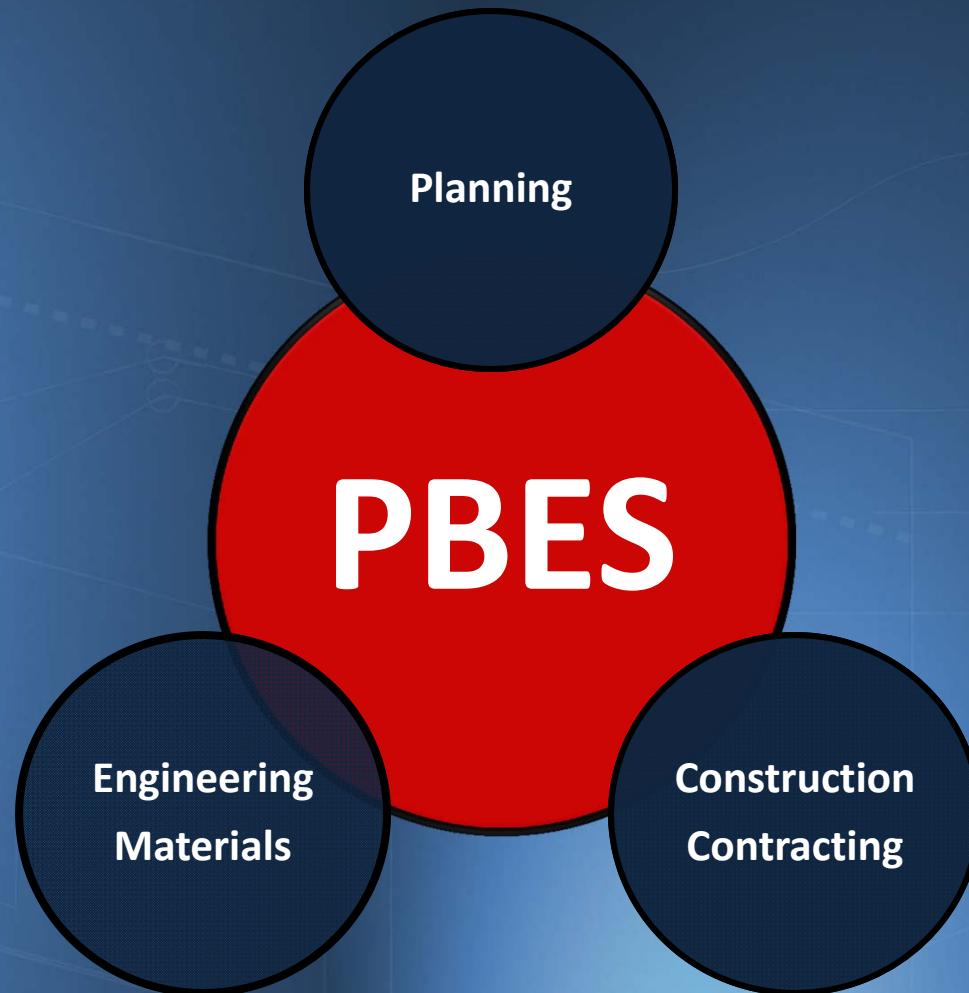
Priority, Market Ready Technologies and Innovations

HIGHWAYS FOR LIFE
Accelerating Innovation for the American Driving Experience

Manual on Use of Modular Transporters to Move and Replace Bridges
June 2007



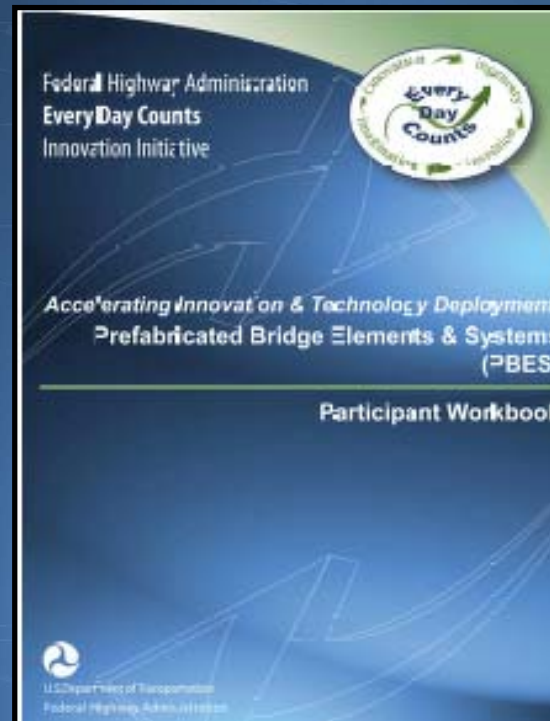
Publications - future





Webinar Training - Industry

- > Webinars
- > Intro PBES for ABC
- > ABC: the Keys to Success from an Owners Perspective
- > FHWA PBES Decision-Making Framework
- > Costs
- > ABC/PBES Specifications, Contract Drawings and Details
- > PBES Connections
- > Concrete
- > Steel
- > Composites
- > LWC
- > Construction
- > Multi-State ABC Decision Tool
- > Closeout





Webinar Training - NHI

4/2011

UHPC

HIGHWAYS FOR LIFE

Accelerating Innovation for the American Driving Experience.

5/2011

Decision Making

8/2011

PC Bent System for Seismic

10/2011

MassDOT Fast 14

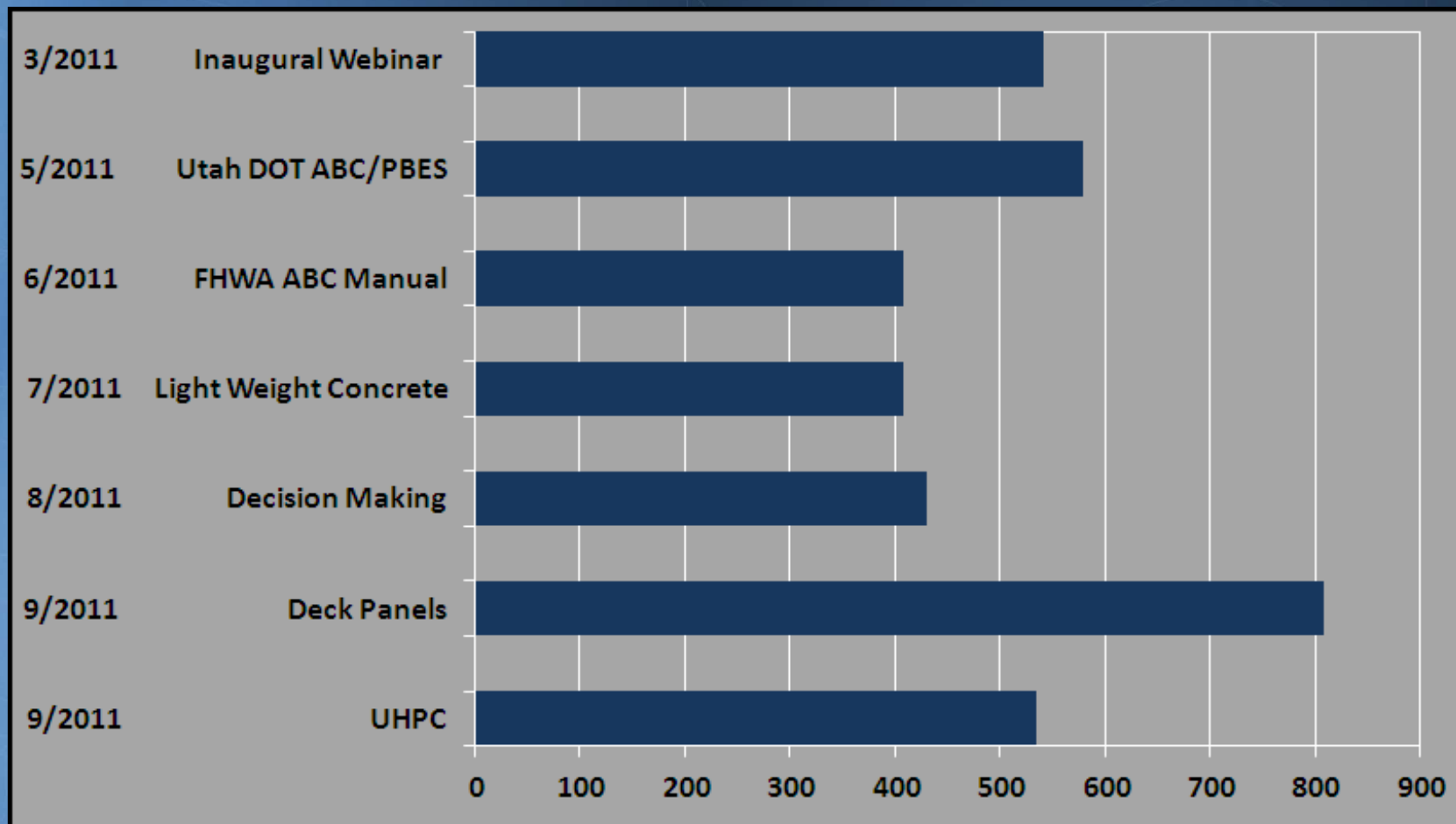




Webinar Training - FIU

FIU

Accelerated Bridge Construction (ABC) Center
FLORIDA INTERNATIONAL UNIVERSITY





Webinar Training - FIU

FIU

Accelerated Bridge Construction (ABC) Center
FLORIDA INTERNATIONAL UNIVERSITY

Part 2

Application of SHRP2 Tools Developed in Case Studies

Thursday, February 16, 2012

1:00 to 2:00 p.m.

<http://www.abc.fiu.edu/>



PBES Deployment Team

5/2011

Illinois – PBES/ABC

5/2011

Missouri – Deck Panels

6/2011

Illinois – I-57 over SR I13

11/2011


Idaho – Deck Panels

11/2011

Nevada – NEON Project

01/2012

Hawaii – Substructure

 Illinois Department of Transportation						
Estimate of Time Required						
				Route	F.A.I. 57	
				Section	[X1-6-2]HBK-2,HB-1,2,(1X-1)R-1	
				County	WILLIAMSON	
				Project	Dual I-57 Bridges	
Item	Unit (Check One) <input checked="" type="checkbox"/> English <input type="checkbox"/> Metric	Quantity	Rate Per Day	Days	Days Not Affecting Time	Total Days Required
GRANULAR EMBANKMENT, SPEC	CU YD	305.00	100.00	3.00	3.00	0
REMOVAL OF EXISTING STRUCT	EACH	1.00	0.03	33.00		33.00
CONCRETE STRUCTURES	CU YD	1,250.00	15.00	83.00	40.00	43.00
CONCRETE SUPERSTRUCTURE	CU YD	2,230.00	20.00	112.00	60.00	52.00
BRIDGE DECK GROOVING	SQ YD	6,532.00	500.00	13.00	10.00	3.00
F & E STRUCTURAL STEEL	L SUM	1.00	0.02	50.00	25.00	25.00
STUD SHEAR CONNECTORS	EACH	19,800.00	1,500.00	13.00	10.00	3.00
REINF BARS, EPOXY COATED	POUND	740,200.00	8,000.00	93.00	45.00	48.00
SLOPE WALL 4 INCH	SQ YD	1,660.00	50.00	33.00	20.00	13.00
DRIVING PILES	FOOT	4,900.00	500.00	10.00		10.00
TEST PILE STEEL HP12x53	EACH	4.00	1.00	4.00		4.00





Project Showcases

3/2011

Utah DOT – Sam White



7/2011

Mass DOT – Fast14



10/2011

Iowa DOT – Kegs Creek

[http://www.trb.org/StrategicHighwayResearchProgram2S/HRP2/Pages/Video-One Design-10,000 Bridges 536.aspx](http://www.trb.org/StrategicHighwayResearchProgram2S/HRP2/Pages/Video-One%20Design-10,000%20Bridges%20536.aspx)



01/2012

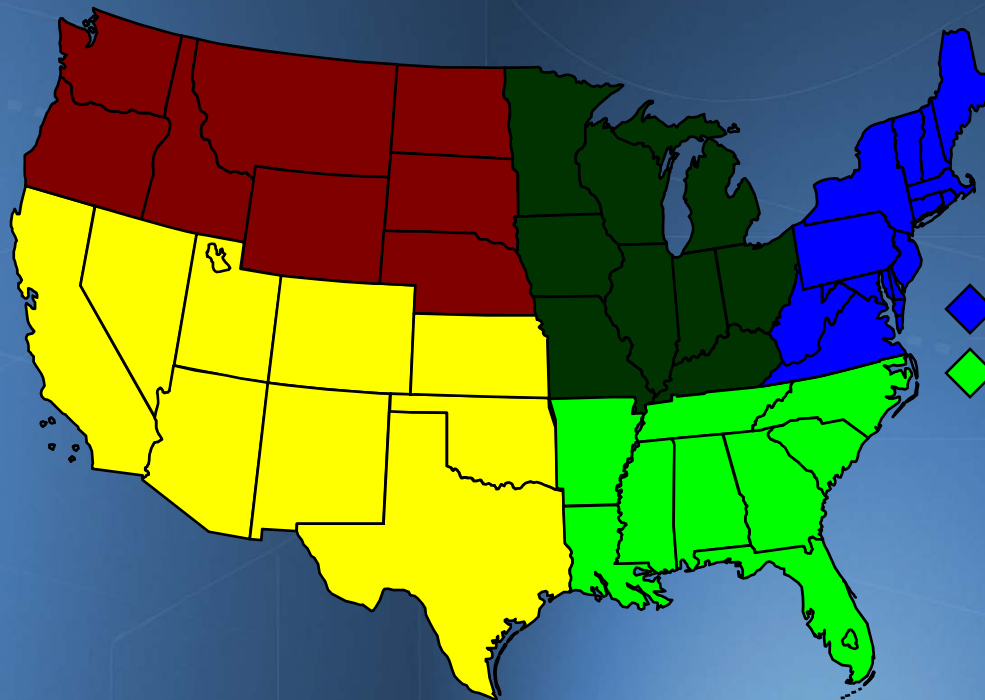
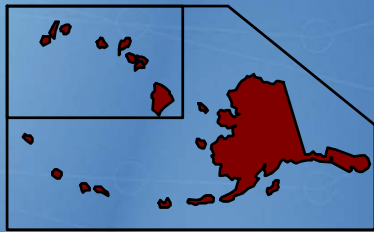
Nevada DOT – Slide In





PBES/ABC Regional Exchanges

DRAFT



◆ DC
◆ PR

■ N.E. Region

■ S.W. Region

■ S.E. Region

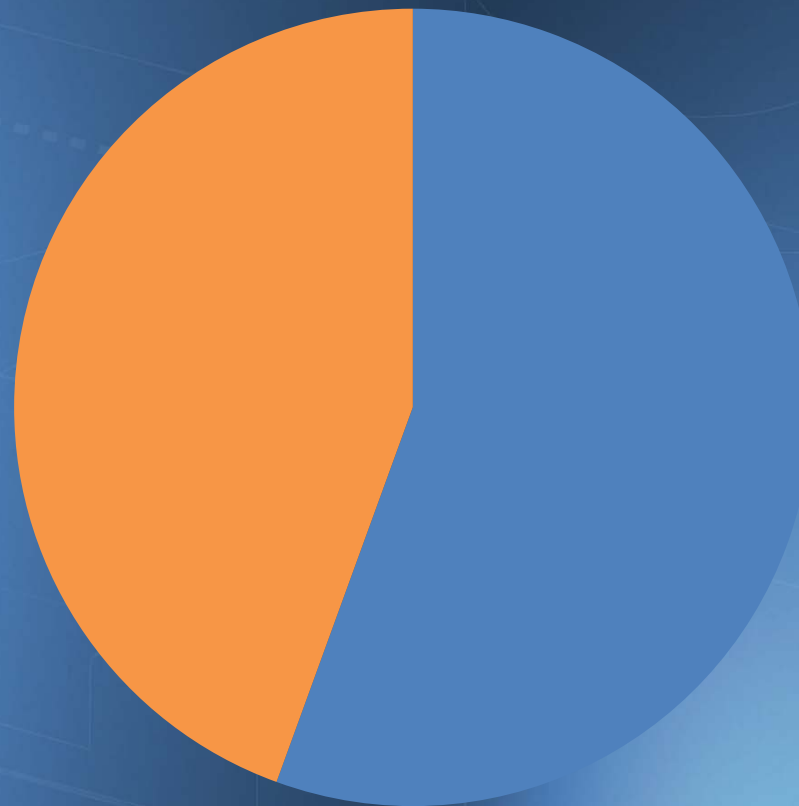
■ M.N. Region

■ N.W. Region



PBES Implementation

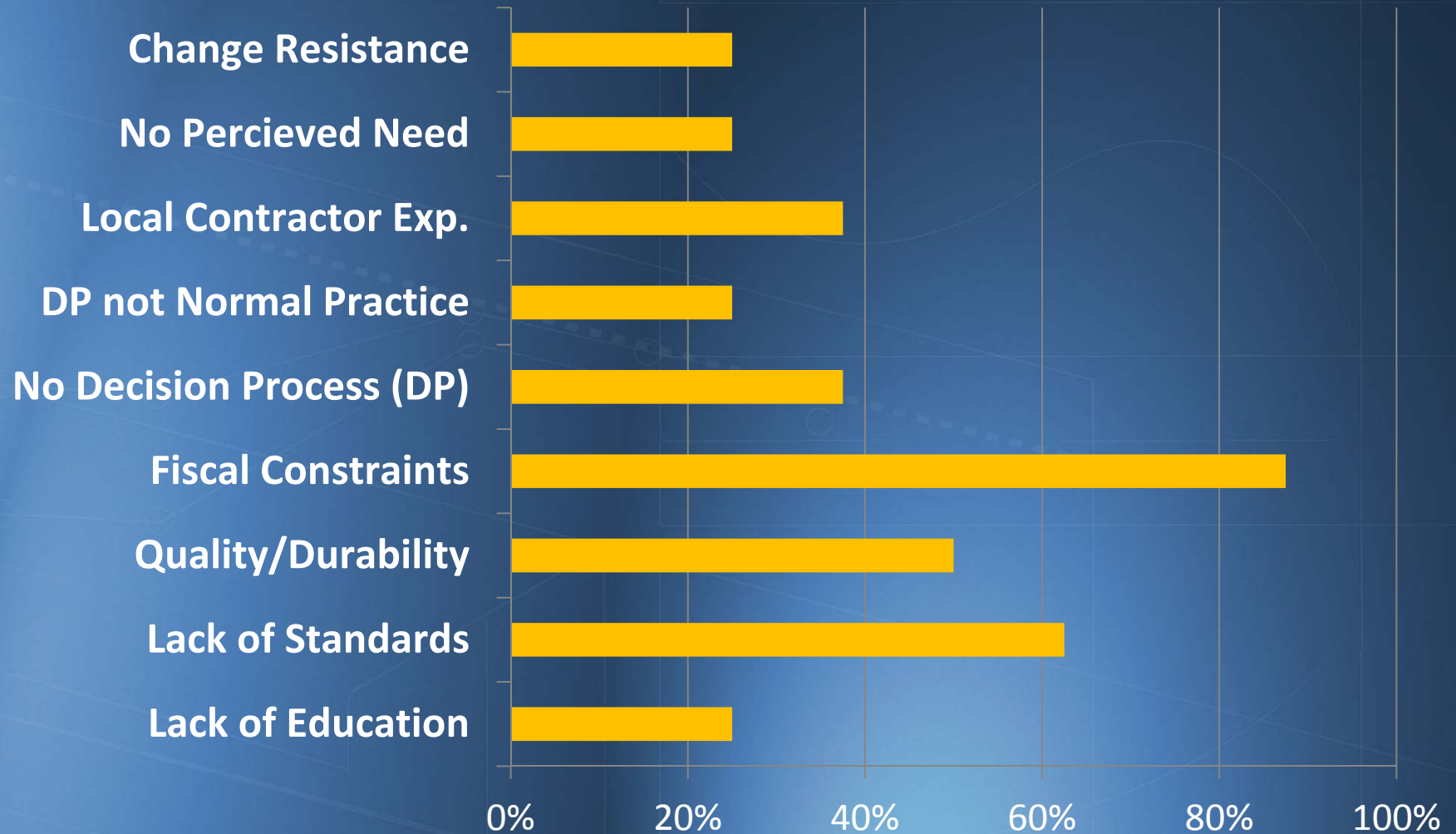
ABC/PBES Policy or Initiative Underway



■ Yes
■ No



Barriers to Implementation

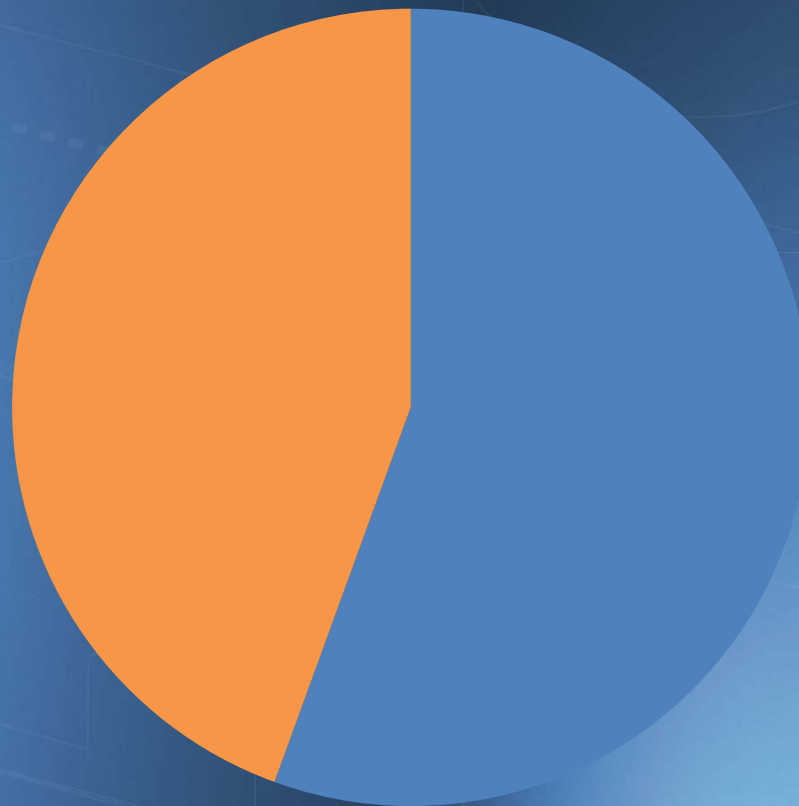


•Seismic & Damage During Move also cited



PBES as Normal Business

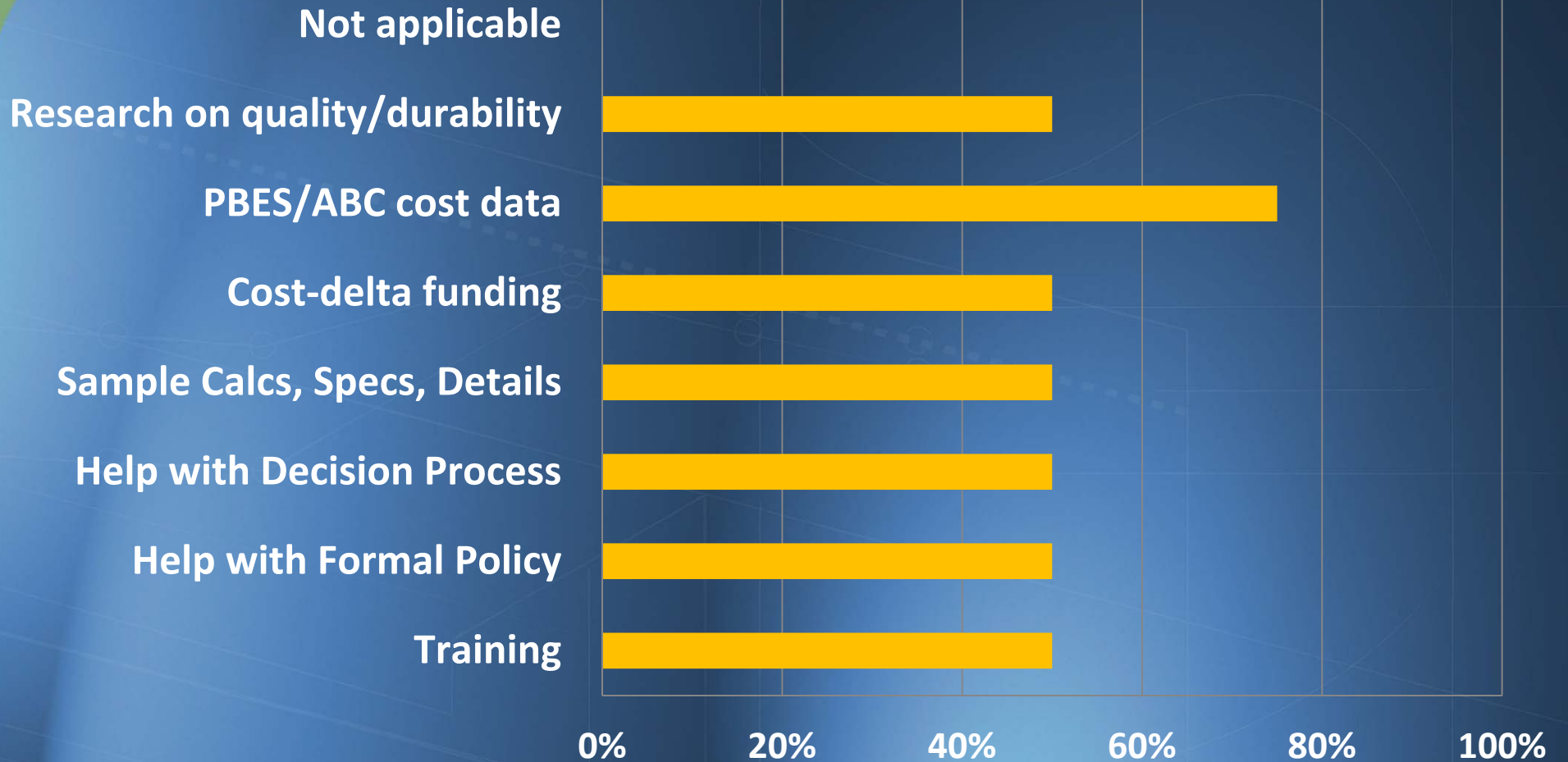
ABC/PBES Part of Normal Practices



■ Yes
■ No



Barriers to Normal Business



Slide 35

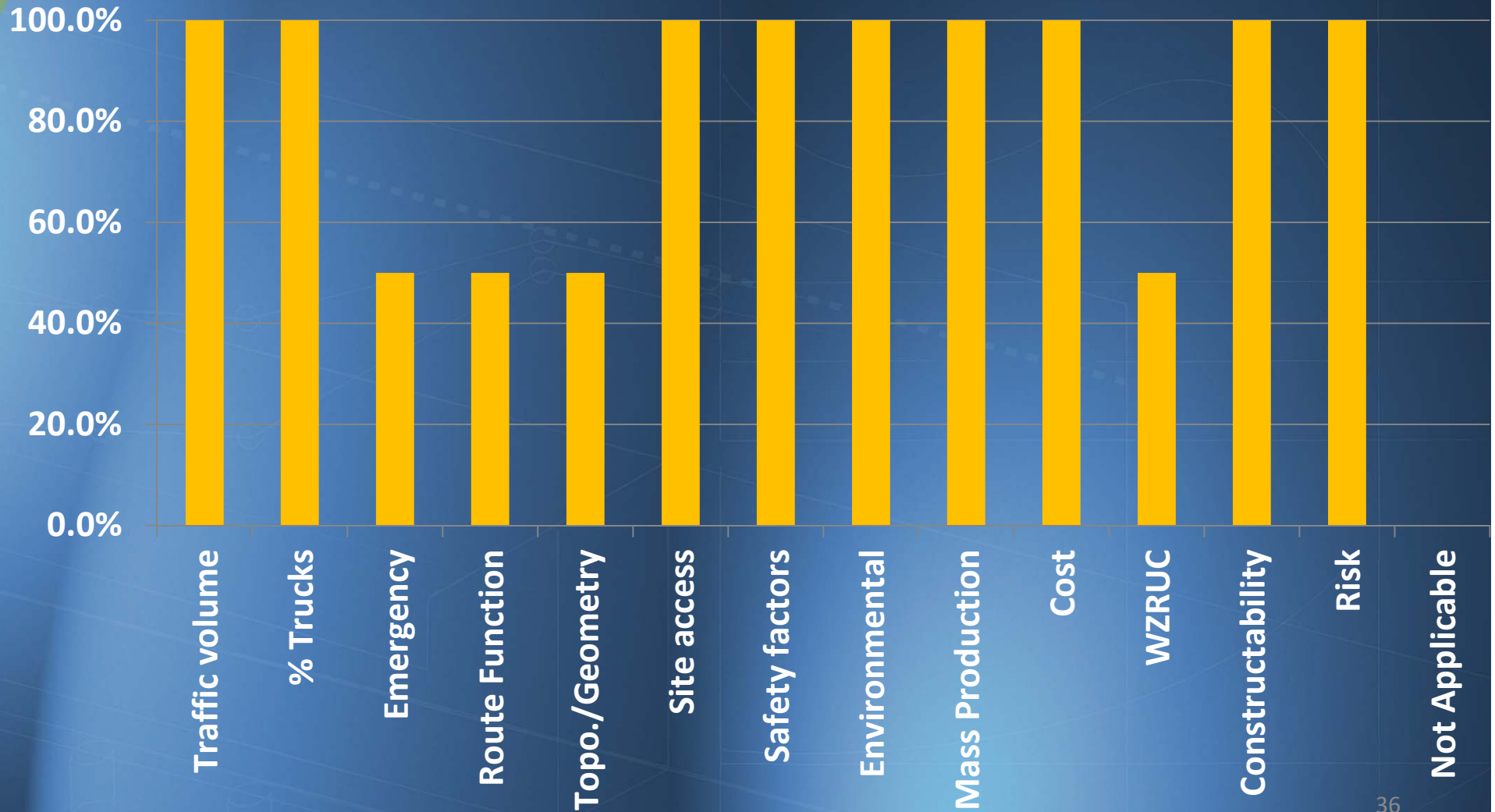
THC1

Go back to 1 through 13 and see if TX responses change slides

Timothy H. Cupples, PE, DBIA, 2/4/2012

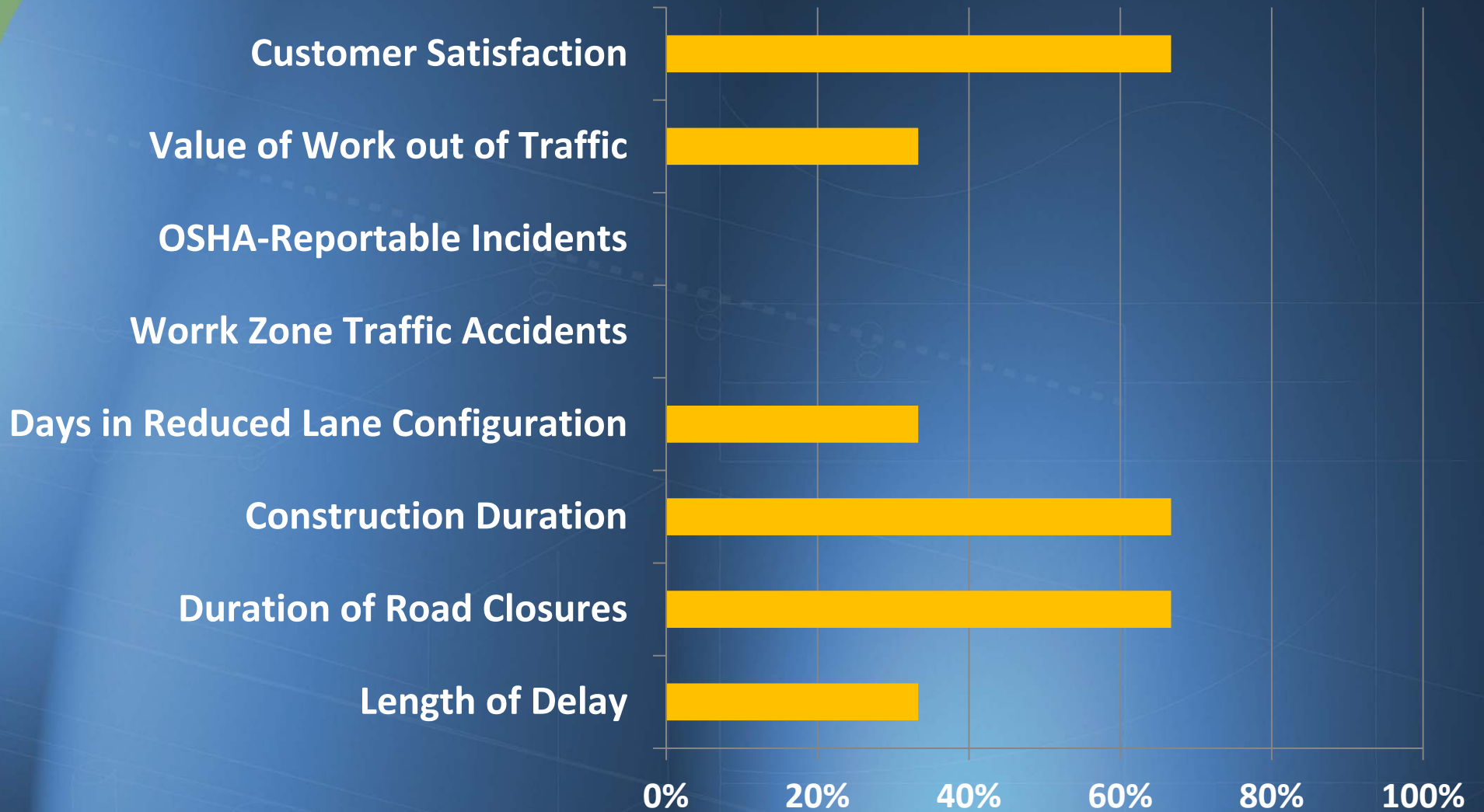


Selection Factors



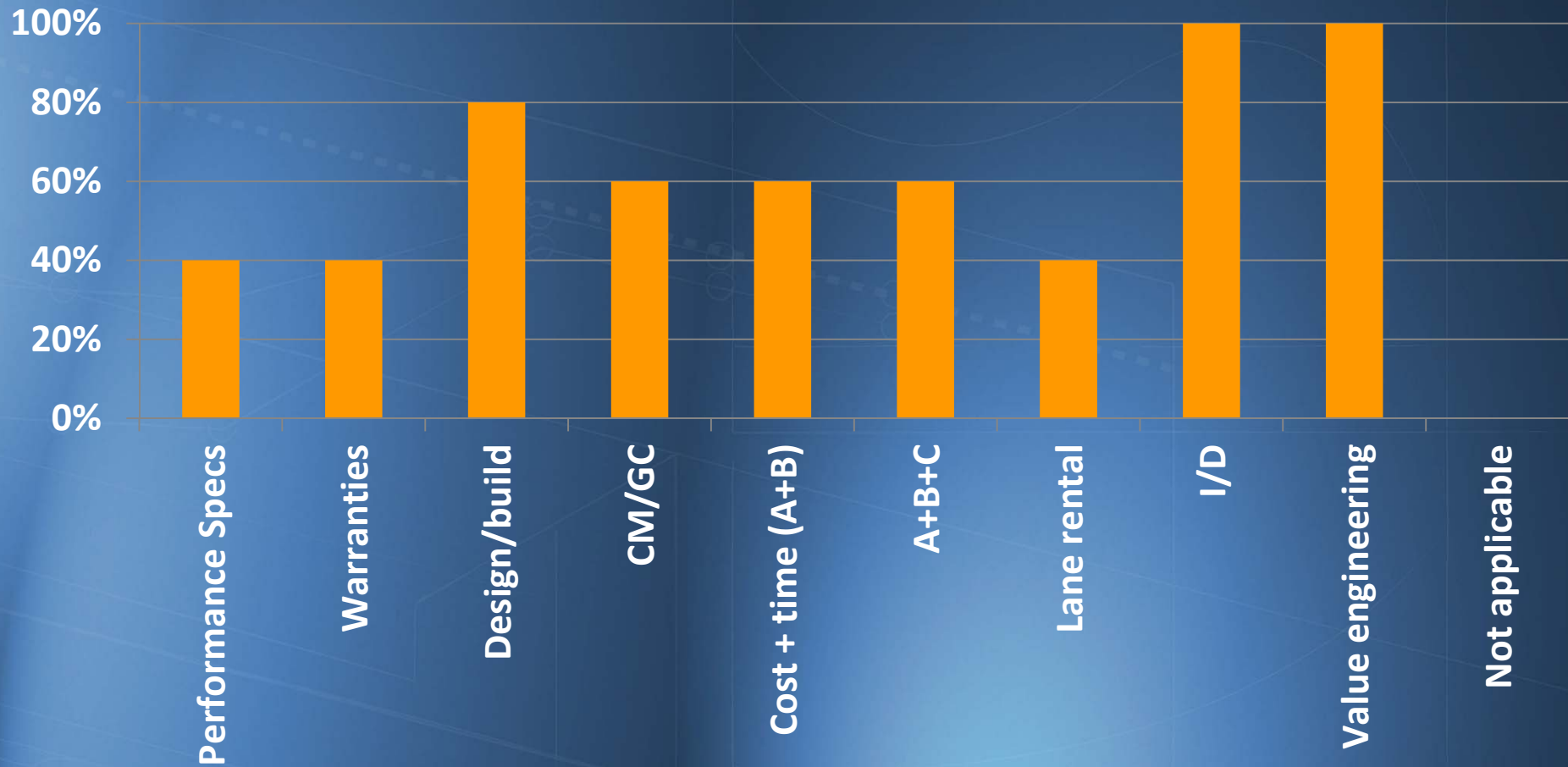


Performance Measures



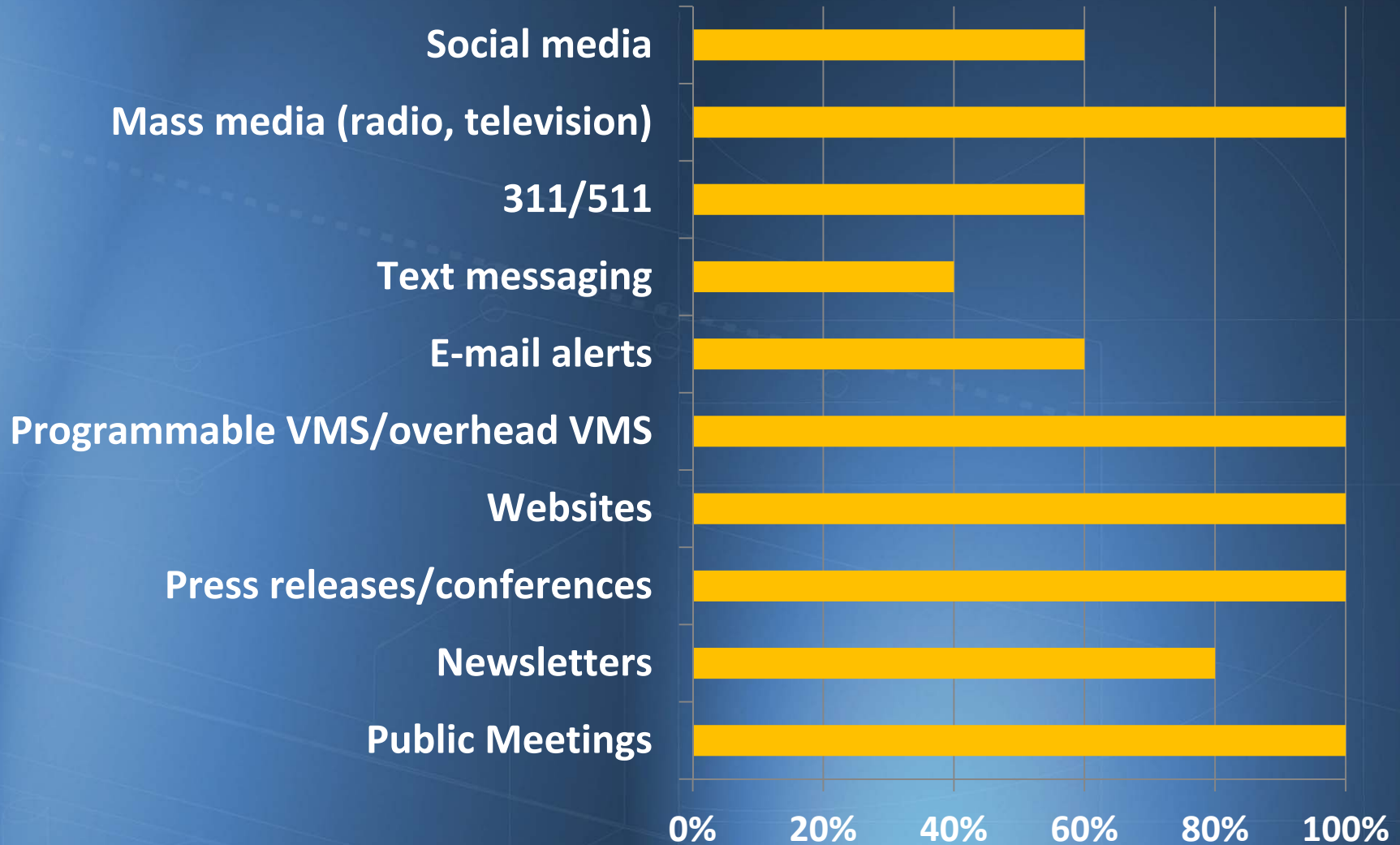


Innovative Contracting





Public Relations





National ABC Project Exchange

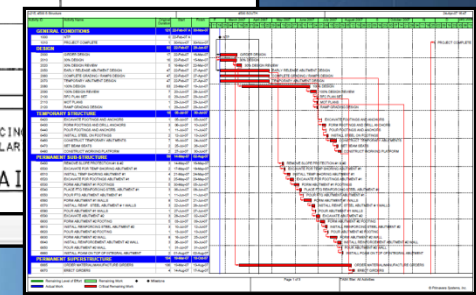
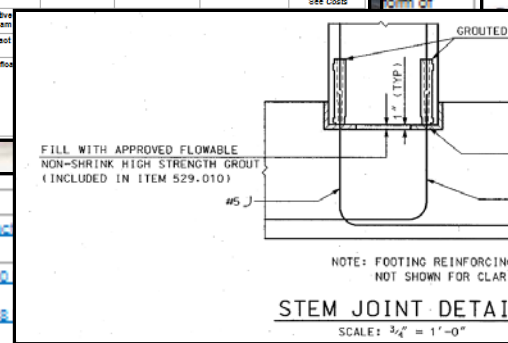
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UT-2007-4500 South

Download More Actions

<input type="checkbox"/>	Title
<input type="checkbox"/>	2-Contract Plans
<input type="checkbox"/>	5-Construction S
<input type="checkbox"/>	3-Specifications
<input type="checkbox"/>	1-Photos
<input type="checkbox"/>	4-Bid Tabs
<input type="checkbox"/>	0-110829 ABC

Performance Materials	• Self-consolidating HPC in precast abutments																																																	
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Project Planning	Decision-Making Tools	Site Procurement	Project Delivery	Contracting																																														
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Specifications	Complete Set:	SP 520	doc																																															
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Submit Projects to...

Mary Lou Ralls, P.E.

ralls-newman@sbcglobal.net

(512) 422.9080



How Can Local Force Contribute to PBES

- Buy-in from top leadership
- Allow for contractor alternates
- I/D clauses specific to what is important
- Program of projects



Questions?

Contacts

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