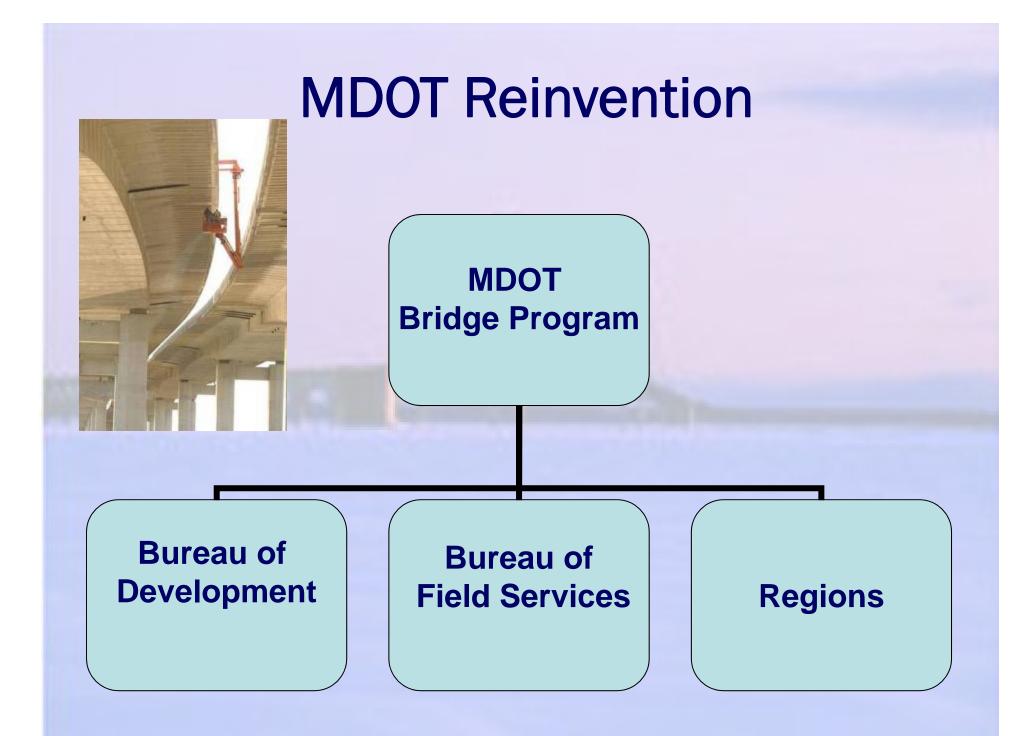
MDOT Update

Dave Juntunen, Bridge Development Engineer Matt Chynoweth, Engineer of Bridge Field Services Beckie Curtis, Bridge Management Engineer

Michigan Bridge Conference

Howel, March, 2012

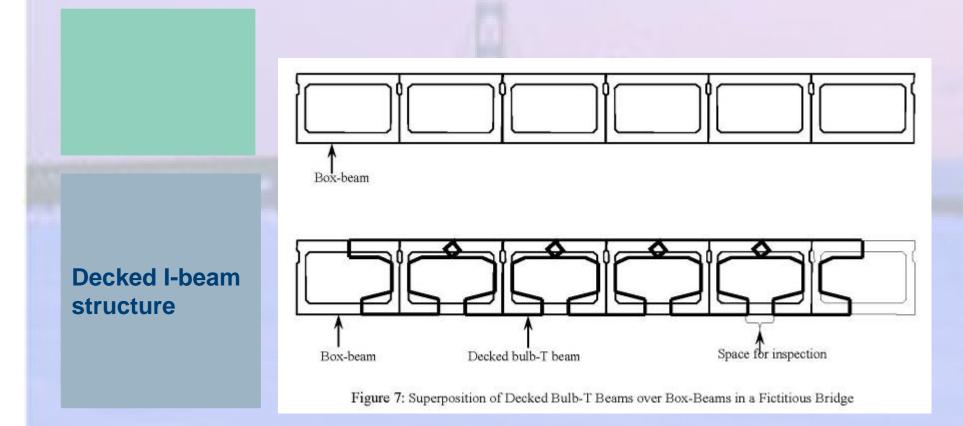


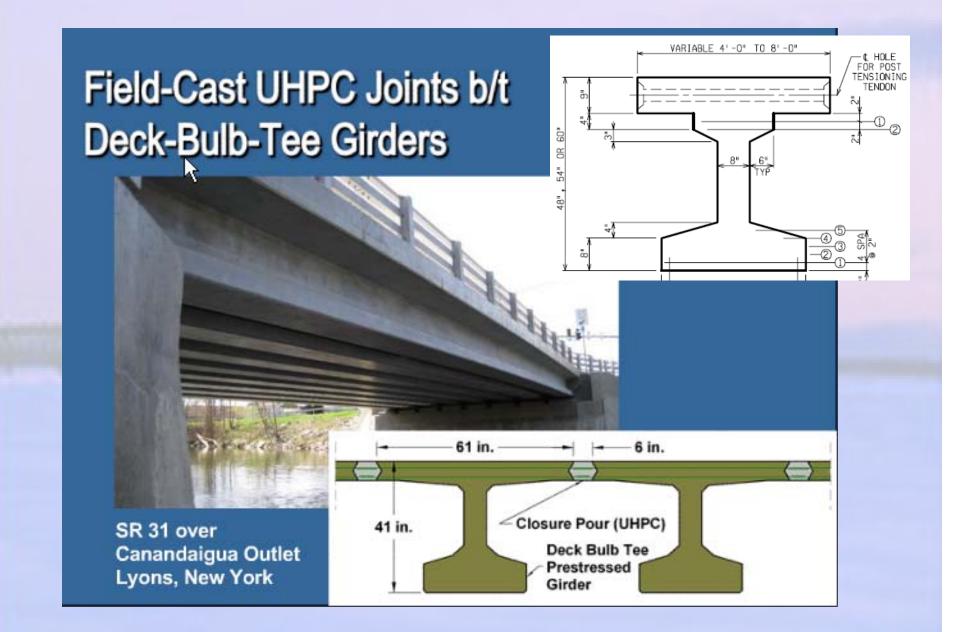


Bridge Development

Bridge Development Engineer Dave Juntunen

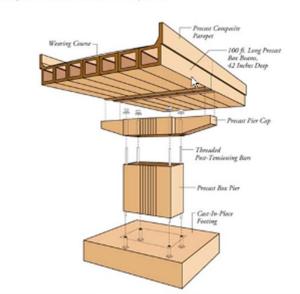
Bridge Design Steve Beck •Four Bridge Design Units Bridge Management Beckie Curtis •Bridge Management Systems •Bridge Load Rating •Special Structures MDOT/LTU Pool Fund Study Partners – Minnesota, Iowa, Oregon, Wisconsin, FHWA, LTU





Every Day Counts (EDC) and Accelerated Bridge Construction (ABC)

 Goal – By December 2012, 25% of bridges, constructed/reconstructe d with Federal Aid to incorporate at least one **Accelerated Bridge** Construction (ABC) or major precast component.

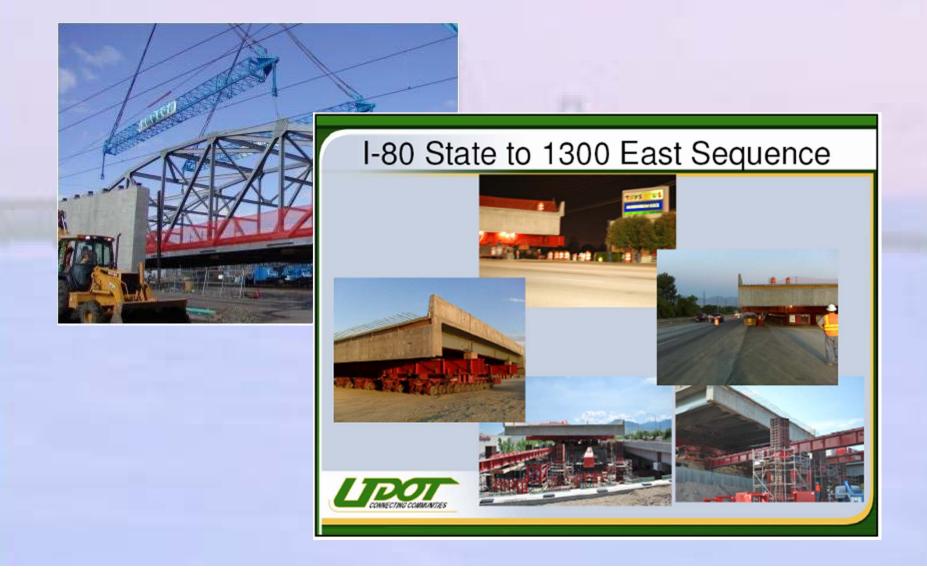


Baldorioty de Castro Avenue Overpasses

Recommended Activities

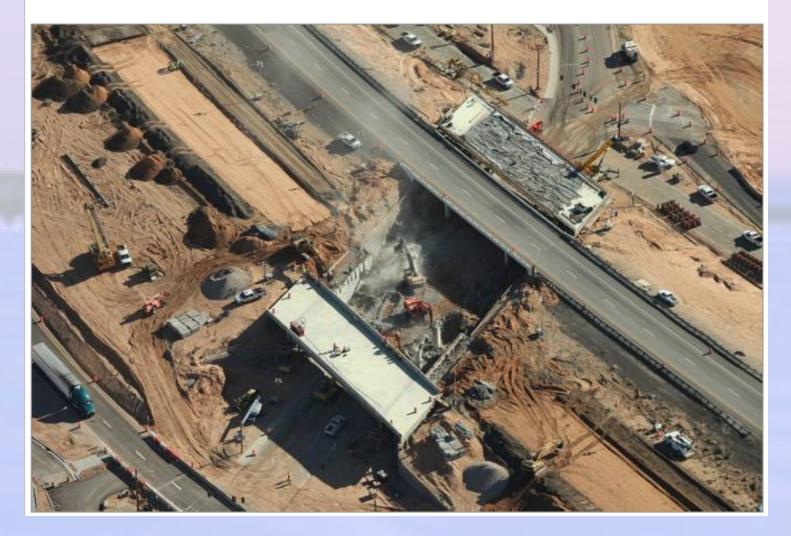
- Plan a program of projects instead of just completing one project. With a program of projects there is an opportunity to build momentum – a clear signal to the industry that the business model is changing.
- Get industry buy-in through the use of workshops and technical exchange conferences. Allow the contracting industry & materials suppliers enough time to become both comfortable and knowledgeable about using PBES.

Accelerated Bridge Construction



Engineering feat makes swapping out bridges on I-15 a snap

Slide method — 'kind of an art' — makes its Nevada debut in Mesquite



Bridge Management – Load Rating

- MDOT, partnering with CRAM and MML, and FHWA agreed upon action plan to achieve conditional compliance in Load Rating
 - Prioritization List
 - Bridge Advisories
 - MBIS Updates
 - Virtis Super Site License
 - MTU Center for Technology and Training Contract

Bridge Management – MBRS Network Dashboard

Michigan.gov Home			MERS	Home I Contact Mi	BRS Feedback Help			Sigr	n Out										
elcome Mdot Executive Users	MBRS	- Michiga	an Bridge Reportin	A DECK OF STREET, STREE	the second s	urisd	liction: Reg		1100 - 120	ide									
Reports	Jurisdia	tion	- Default	Cha	ange														
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» Critical Structures			tructures less than 2		4,000		tructures (<20		Ped, etc		1,303		Non-De			- Contractor			3,3
Good/Fair/Poor/Unrated			Structures (X)		123 Poor (4))					296	*	No Curr	rent SD	FO Ra	ating			
* Structures			Structures (P)			vay in	cluded in NB	1			225	NBI	Condit	ion - Go	bals Si	umman	,		F
Deficient Structures	<u>c</u>	ther Non-	Highway Structures	(V, Plaza)	27 Non N	IBI S	tructures (<20	, RR, F	Ped, etc	.)	71		Good/F						93.
" (SD/FO)	Add	itional Bri	dge Inventory Inforn	nation			cal (3 or less				95		Freew						93.
» Item 41 - Operational	E	osted Str	uctures		•		cluded in NB				70		Non-F	reeway	y.				92.
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				(S. C.)					Ped etc	1									1.
» Inspection Schedule			Under Construction	(S, G)					Ped, etc	.)	6		Non-F Applies			nway St	ructure	s > 20'	1.
Routine Inspections Due	S	cheduled		<u>(S, G)</u>					Ped, etc	.)		(*)				nway St	ructure	s > 20'	1.
17	Structu	cheduled	/Under Construction	(<u>S, G)</u>					Ped, etc	.)						nway St	ructure	_	
Routine Inspections Due	S	cheduled	/Under Construction	(<u>S, G)</u>					Ped, etc		6	-				nway St		_	
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» Routine Inspections Due in 3 Months	Structu	ure Inver	/Under Construction	(S, G) Facility Carried	98 Non N		tructures (<20	I, RR, F		Deck Botm	6 Super Str	Sub- Str	Applies	ONLY	to High		MI Oper.		Subr
 » Routine Inspections Due in 3 Months » Scour Critical Structures » Load Rating Needs 	Structo Docs Select	ure Inver	/Under Construction	Facility Carried	98 Non N	1BI S	tructures (<20	Item	Deck	Deck	6 Super	Sub-	Applies Culv.	ONLY	to High	Truck	MI	NBI	Subr
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Bridge Lists and Filtering

MBRS - Michigan Bridge Re	eporting System
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Jurisdiction: Bridge Operations - C and T

Structure Condition Summary

Jurisdiction	MDOT Statewide
Structure Inv	ventory Summary

Change

Count

5,801 4,396 1.083 123 172 27

8

2

62

384 98

Total No. of Structures
Highway (NBI) Structures greater than 20'
Highway Structures less than 20'
Rail Road Structures (X)
Pedestrian Structures (P)
Other Non-Highway Structures (V, Plaza)
Additional Bridge Inventory Information

Posted Structures Closed Structures Fracture Critical Structures Scour Critical Structures Scheduled/Under Construction (S, G)

	-	
	Good/Fair (5 or Greater)	5,407
	Highway included in NBI	4,104
	Mon NBI Structures (<20, RR, Ped, etc.)	1,303
- (Poor (4)	292
- 1	Highway included in NBI	221
_ /	Non NBI Structures (<20, RR, Ped, etc.)	71
	Serious/Critical (3 or less)	94
	Highway included in NBI	69
	Non NBI Structures (<20, RR, Ped, etc.)	25
	Unrated Structures	8
/	Highway included in NBI	2
	Non NBI Structures (<20, RR, Ped, etc.)	6

Count

SD/FO Summary	Count
<u>*Structurally Deficient</u>	231
*Functionally Obsolete	800
*Non-Deficient Structures	3,298
*No Current SD/FO Rating	67
NBI Condition - Goals Summary	Pct.
*Good/Fair (5 or Greater)	93.4%
Freeway	93.7%
Non-Freeway	92.7%
*Poor/Serious/Critical (4 or Less)	6.6%
Freeway	6.3%
Non-Freeway	7.3%
*Applies ONLY to Highway Structures > 20'	

Structu	ure Inver	ntory Summary	Filter Cri	iteria						-		_						
Docs		25132		structures on CS 2	513	2											ົ້ [Submit
Select	<u>Struct.</u> Nbr.▲	Bridge ID Fa	acility Carried			Insp. Date			Deck Botm Rtg	Super Str Rtg	Sub- Str Rtg	Culv. Rtg	Paint Rtg	Suff Rate	Truck Type	MI Oper. Rtg	NBI Rtg	SD FO
	2636	25125132000B010 I-4	4/	or Structures on C		08/30/2010	A	5		7	6	N	4	86	9	85	0	
	2637	25125132000B050 I-4	47 ₅ (Ent	er 25132, Click Sub	mit	, then click	Poor A	ADOVE)		7	7	N	8	96	9	140	0	
	2638	25125132000C010 I-4		GIBSON DRAIN	Y	07/29/2010				N	N	6	N	83	9	77	N	
	2639	25125132000C020 I-4		Specific Stucture S						N	N	7	N	63.6	9	77	2	FO
	2640	25125132000C030 I-4	47 <mark>5 (Ent</mark>	er 25132000 S01, Cl	ick	Submit)010				N	N	6	N	98	9	77	0	
	2641	25125132000P010 AV	VC N ST WALK							6	7	N	N		8	0		
	2642	25125132000P020 GI	EORGE ST PE	1-475	Y	07/15/2010	A	6	6	6	7	N	N		8	0		
	2643	25125132000P030 H/	ARVARD ST W	I-475	Y	07/29/2010	A	6	6	6	8	N	4		8	0		
	2644	25125132000P060 LI	NDSAY BLVD	I-475	Y	07/08/2010	А	7	7	7	7	N	5		8	0		
	2645	25125132000R010 I-4	475	CSX RR & NB SERV	Y	04/13/2010	A	5	4	7	7	N	5	87.1	9	100	2	FO
	2646	25125132000R027 G	TW RR SERV	I-475	Y	07/14/2010	А	6	6	7	7	N	4	91	9	93	2	FO
	2647	25125132000R030 I-4	475	CSX RR AND PIERS	Y	04/13/2010	A	6	7	6	7	N	7	91	9	144	0	
	2648	25125132000S010 I-4	475 SB	I-75 NB	Y	01/19/2011	А	6	5	6	7	N	8	87.6	9	86	2	FO 🔽
	xport Da	ta to EXCEL					<	< 1	> :	>I To	tal nun	nber of	pages:	1 E	nter Pa	ge #:		Goto

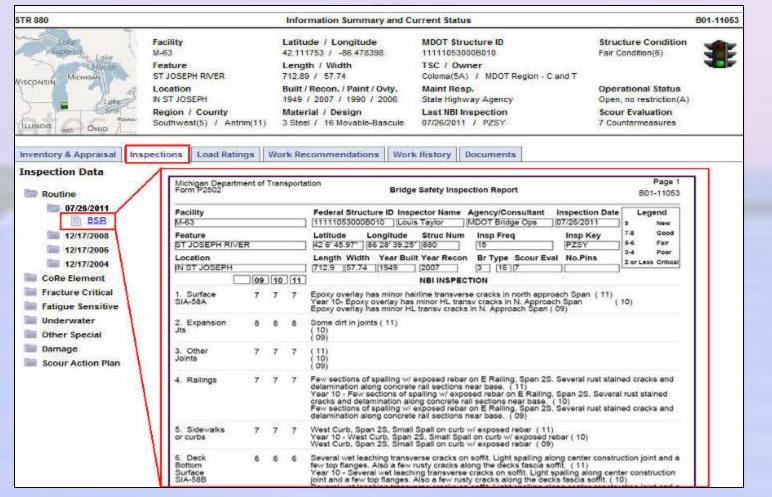
Bridge Management – MBRS Viewing/Printing Reports

Jurisdiction De	A https://wastest.mdot.state.mi.us/ - MDOT - MBIS - Print Reports (Web) - Windows Internet Explorer	
Structure Inventor		unt
Total No. of Structu	Department of Train Structure atting	32
Highway (ABI) S Highway Structu	Camor Transportation Comment	ganig(32 05 15
Rail Ro d Struc		43
Pedes ian Stru Other Non-High	Type Selection	Pct.
Additional Bridge I	For Bridge File For Bridge Site use	B%
Ported Structur	BSIR/CSIR Report BSIR/CSIR Report	D% 3%
Cosed Structur Fracture Critical	SIA Report SIA Report	2% 0%
Scour Critical S	CoRe Element/Work Recommendation	7%
Scheduled/Und	Report Report	
Structure Inventory		
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Select <u>Struct.</u> Nbr.▲		
<u>2636</u> 251 2637 251		
✓ <u>2037</u> 251.	Load Rating Assumption Load Rating Assumption	
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✓ <u>2642</u> 251		
2643 251	Submit	[
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2646 251		
	25132000R030 I-475 CSX RR AND PIERS Y 04/13/2010 A 6 7 6 7 N 7 91 9 144 25132000S010 I-475 SB I-75 NB Y 01/19/2011 A 6 5 6 7 N 8 87.6 9 86	0 2 F0 🔽
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Exporting Structure Lists and Data to Excel

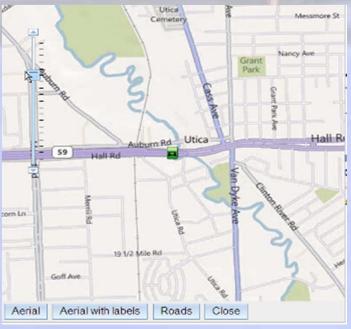
_		MBRS - Michig	an Bridge Repo	rting S	system				Jur	isdiction: Region - St	atewide				
lurisdie	ction M	DOT Region	Reg	ion : N	Metro 🔽 🤇	Change									
Structu	ire Inver	ntory Summary		Count	Structure Cond	lition Summary		Count SD/FO) Summary		Count				
Total	No. of St	tructures		1.483	Good/Fair (5	or Greater)		1.344 *Str	ucturally Defic	rient	66				
		NBI) Structures greate	er than 20'	1,185		cluded in NBI			nctionally Obse		358				
_		tructures less than 2		85		uctures (<20 RR P	Ped_etc.)		n-Deficient Str		743				
_		Structures (X)	_	72	Poor (4)			87 *No	Current SD/FC	0 Rating	18				
P	edestrian	Structures (P)		123		cluded in NDI			ondition Co	oals Summary	Pct.				
0	ther Non-	Highway Structures	(V, Plaza)	18	Non NBI Stru	uctures (<20, RR, P	Ped, etc.)	26	od/Eair (5 or G		94.6%				
Add	itional B	ridge Inventory Info	ormation	0						ndows Internet Explorer					
	osted Stru			6	and the second se							V (+) X			
_	losed Stri			-				ructureConditionDashboa	ru-Jsp				Soogle		
F	racture C	ritical Structures		File	Edit View Insert	Format Tools Da	ata Go To	Favorites Help							
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Bridge Dashboard



Mapping Functionality







Engineer of Bridge Field Services Matt Chynoweth

Bridge Construction

Corey Rogers Scott Hobner

Structural Section

Pete Jansson •Structural Fabrication •Experimental Studies

Structure Management

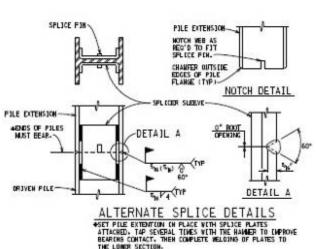
Eric Burns •Bridge Inspection •Bridge Maintenance •Statewide Bridge Crews

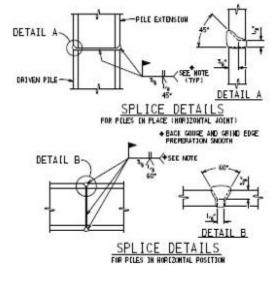
- Strategic goals:
 - Day to day operations of Bridge Field Services
 - Create and maintain alignment on all bridge field related issues
 - Support Region and TSC field offices on all aspects of bridge construction, maintenance & operations, inspection, testing

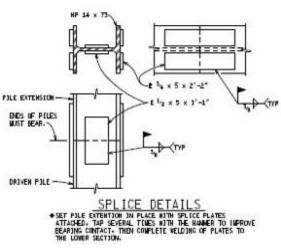
Recent Bridge Painting Issues

- DEQ visiting projects in Lansing and Davison TSC's
- Issued violations for the following items:
 - Gondolas and roll off boxes not properly labeled
 - Containers exposed to rain, pooled water on tarps
 - Materials not properly characterized
 - Inspection logs contained incorrect generator information
 - Personnel training records not on site
 - Contingency plans not on site
 - Hazardous waste (spent blast) was not properly contained

Welded Pile Splices





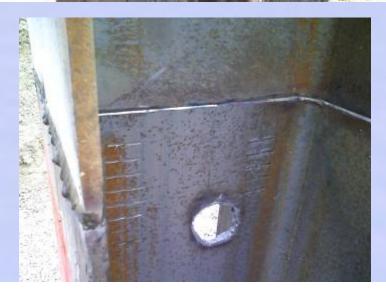




- Welded Pile Splices
 - current issues:







Welded Pile Splices

- Issues with quality on field full penetration butt welds, and fillet welds on pile splicers
- Shop structural welds have not been a problem
- Issues with visual acceptance vs. ultrasonic thickness (UT) testing of the welds
- Contractors have issues with UT test results and corrective action
- Improper joint preparation, not back gouging
- Improper storage and handling of electrodes
- Improper preheat and interpass temperatures

- Welded Pile Splices
 - Bridge Field Services staff working with MITA on solution, to include:
 - Field Weld Inspection Manual
 - Foundation Welding Special Provision, and 2012 Standard Specifications for Construction clean up
 - Weld procedure form
 - Contractor Weld QC Plan

- Sign Replacement Projects
 - MDOT Bridge Committee does not recommend core drilling into concrete beams to remove existing connection bolts and inserts
 - Draft special provision going through review:
 - Removal of bolt flush with the surface of the concrete
 - Coating of the exposed cut bolt with epoxy, or zinc rich primer

- Limiting vibration and settlement SP's
 - SP's used for part width and staged construction on bridges with spread footings, utility concerns, adjacent or historic property concerns.
 - Industry has issues with current SP's; too much risk on contractor
 - Working on revised SP's containing more guidance, and other stepped mitigation techniques considering the type of work, and extent of exceeding thresholds

Bridge Construction – BOHIM 2007-02

- Covers procedures and documentation
- Covers the forms needed
- Includes a Bridge Deck Construction Inspection checklist
 - Metal deck forms
 - Shear developers/reinforcement
 - Pour sequence
 - Concrete QA
 - Placing/finishing/texturing
- Needs to be updated Contact Corey Rogers as opposed to Eric Burns

- Post Construction Inspections on Bridge Projects
 - 23 CFR 650.315 states:

(c) For existing bridge modifications that alter previously recorded data and for new bridges, enter the SI&A data into the State or Federal agency inventory within **90 days** after the completion of the work for State or Federal agency bridges and within **180 days** after the completion of the work for all other bridges.

- Post Construction Inspections on Bridge Projects
 - Form 1120 Final Inspection/Acceptance and Certification Report

Of Transportation 1120 (11/11)			RTIFICAT					
1120(11/11)	a		TRIBUTION INS					FILE 108
FINAL INSPECTION/ ACCEPTANCE:	ORIGINAL – Cont Engineer, Financia Unit, Traffic & Safe	tract Service al Operation	s. COPIES – Al s – Project Acco	ssocial	e Region Engin When applica	ble: Lansl	ng Real Estat	e – Local Agency Program
PROJECT CERTIFICATION:	After Region Eng Financial Operatio							ation to: FHWA, action Project Engineer.
			ECTION/ACC	СРТА	NCE REPOR	т		
CONTROL SECTION/JOE			PROJECT NO.				L ITEM NO.	DATE
CONTRACTOR NAME					START DATE		ACTUAL	COMPLETION DATE
TYPE OF ACTION Final Ins	pection/Acceptance	Projec	t Certification		FHWA OVER MDOT OVER			
			INSPECTE	DBY	0			
NAME:							DATE	
SIGNATURE								
TYPE OF WORK (As per)	proposal)							
RECOMMENDATIONS/CO	ONCLUSIONS/REMA	RKS						
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Other (Specify)								
- ovici (opewny)	PROJECT CEF	TIFICATI	ON (FHWA ON	ersia	ht Projects o	n NHS O	nlv)	
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specifications, and that the								
have been completed. REGION ENGINEER/REP	RESENTATIVE (Sign	ature)					DATE	
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NOTED BY F.H.W.A.							DATE	

Bridge Construction Efforts

- MDOT Paint School
- MDOT Bridge Deck Construction Course
- MDOT/MITA Bridge Operations Committee
- Member of AASHTO Subcommittee on Bridges and Structures, Technical Committee T-4 – Bridge Construction
- Expand available training
- Provide field support on complex projects ,staging issues, deck pours, excessive haunches, large overhangs, field bolting and welding issues, etc.
- Let us know how we can help...

Thank You

Questions?



