

Appendices

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Appendix A: Prestressed Concrete I-Beam Bridges in Grand Region

NBI No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Deck			Superstructure			Substructure				
						Rate	Condition	Le	Rate	Condition	Rate	Condition	Rate	Condition	Rate	Condition
4102300S070	Kent	1961	4	24		7	Le	6	MiSp,D,Le	6	LeRCH,GD,CrV	6	LeRCH,GD,CrV	6	R,Le-Cr,MIDI	
					7/2/1998	8	N/A	6	MiSp,DI	6	Le-CrH	6	Le-CrH	6	R,Le-Cr,MIDI	
					6/18/1996	8	N/A	8	N/A	7	Le-CrH	7	Le-CrH	7	N/A	
					7/27/1994	8	N/A	8	N/A	7	Le-CrH	7	Le-CrH	7	N/A	
					7/8/1992	8	N/A	8	N/A	7	Le-CrH	7	Le-CrH	7	N/A	
					11/16/1990	8	N/A	8	N/A	7	Le-CrH	7	Le-CrH	7	N/A	
					5/10/1988	8	N/A	8	N/A	7	Le-CrH	7	Le-CrH	7	N/A	
					6/6/1984	8	N/A	8	N/A	7	Le-CrH	7	Le-CrH	7	N/A	
7006300S020	Ottawa	1961	3		9/2/1998	8	N/A	8	N/A	7	N/A	7	N/A	7	N/A	
7006300S030	Ottawa	1961	3		9/2/1998	8	N/A	8	N/A	7	N/A	7	N/A	7	N/A	
7006300S094	Ottawa	1961	3		8/28/1998	6	N/A	8	N/A	6	N/A	6	N/A	6	N/A	
4102700S020	Kent	1963	3	27	8/1/1998	6	Le,Cr,Sc	6	Sc	7	MiCrV	6	MiCrV	6	Cr,Sp	
					6/3/1996	6	N/A	6	N/A	7	N/A	6	N/A	6	N/A	
					5/4/1994	6	Sp	6	Sp,ER,R-Cr	8	N/A	6	N/A	6	Sp,R,Le-Cr	
					5/21/1992	6	Sp	6	Sp,ER,R-Cr	8	N/A	6	N/A	6	Sp,R,Le-Cr	
					10/3/1990	6	Sp	6	Sp,ER,R-Cr	8	N/A	6	N/A	6	Sp,R,Le-Cr	
					5/17/1988	7	Sp	7	Sp,ER,R-Cr	8	N/A	6	N/A	6	Sp,R,Le-Cr	
					8/2/1984	7	Sp	8	N/A	8	N/A	6	N/A	6	Sp,R,Le-Cr	
4102700S030	Kent	1963	3	24	11/18/1999	8	N/A	8	N/A	8	N/A	8	N/A	8	N/A	
					8/1/1998	7	MiSp	6	Sc,R	8	GOOD	6	GOOD	6	Cr,Sp	
					6/3/1996	7	N/A	6	N/A	8	N/A	7	N/A	7	N/A	
					5/4/1994	7	Sp,SmHo	6	Cr,Sp,Imp	8	N/A	5	N/A	5	Sp,RE,Cr	
					5/21/1992	7	Sp,SmHo	6	Cr,Sp,Imp	8	N/A	5	N/A	5	Sp,RE,Cr	
					10/3/1990	7	Sp,SmHo	6	Cr,Sp,Imp	8	N/A	5	N/A	5	Sp,RE,Cr	
					5/17/1988	8	N/A	7	Imp	8	N/A	5	N/A	5	Sp,RE,Cr,Le	
					8/2/1984	8	N/A	7	Imp	8	N/A	5	N/A	5	Sp,RE,Cr,Le	
4102700S050	Kent	1963	3	48	10/10/2000	7	Sp,RE	7	Cr,Sp, end,Le-Cr	7	HCV	6	HCV	6	Cr,Sp,ER	
					10/15/1998	7	Sp	7	MiSp	8	GOOD	6	GOOD	6	Cr,Sp	
					6/3/1996	7	N/A	7	N/A	8	N/A	6	N/A	6	N/A	

NBI No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Superstructure			Substructure						
						Deck		Stringer	Abutment		Pier				
						Rate	Condition		Rate	Condition		Rate	Condition		
41027000S060	Kent	1963	3	36	10/10/2000	7	Sp	7	R-CrV_end	8	N/A	6	N/A	6	Sp,RE,R-Cr
						7	Sp	7	R-CrV_end	8	N/A	6	N/A	6	Sp,RE,R-Cr
						7	Sp	7	R-CrV_end	8	N/A	6	N/A	6	Sp,RE,R-Cr
						7	Sp	7	R-CrV_end	8	N/A	6	N/A	6	Sp,RE,R-Cr
						8	N/A	8	R-CrV_end	8	N/A	6	N/A	6	Sp,RE,R-Cr
						8	N/A	8	R-CrV_end	8	N/A	6	N/A	6	Sp,RE,R-Cr
						6	Mi-Le-Cr,Sp	6	R-Le-Cr,Cr,Sp_end	6	MiCrV,Sp,RE,DJ	6	Sp,RE,R-Cr		
						7	Mi-Le-Cr	6	Sp	7	MiCrV	5	Cr,Sp		
						7	N/A	8	N/A	7	N/A	6	N/A		
						7	N/A	8	N/A	7	N/A	6	Le-Cr,R,Sc		
41027000S240	Kent	1963	4	24	8/3/1998	8	GOOD	7	Sp_end	8	GOOD	7	GOOD	7	MiCr,Sp
						8	N/A	7	Sp,MiCr	8	N/A	7	N/A	7	Sp,MiCr,R
						8	N/A	7	Sp,Cr_end,SmCh	8	N/A	8	N/A	8	N/A
						8	N/A	7	Cr_end,Sp,SmCh_end	8	N/A	8	N/A	8	N/A
						8	N/A	7	N/A	8	N/A	8	N/A	8	N/A
						8	N/A	7	Cr_end	8	N/A	8	N/A	8	N/A
						7	Cr	6	MiCr,MiSp	7	MiCrV	7	MiCr,Sp		
						7	N/A	7	N/A	7	N/A	7	N/A		
						7	Lk,R	7	Ch,R	8	N/A	7	Cr		
						41027000S253	Kent	1963	3	27	8/3/1998	7	Cr	7	Cr,MiSp
7	N/A	7	N/A	8	N/A							8	N/A		
8	N/A	7	Ch	8	N/A							8	N/A		
8	N/A	8	N/A	8	N/A							8	N/A		
8	N/A	8	N/A	8	N/A							8	N/A		
8	N/A	8	N/A	8	N/A							8	N/A		
5	Le-MiCr,MaSp	6	MiSp	5	MiCrV,Sp,CrV							6	MiCr,MaSp,ER		
6	N/A	6	N/A	7	N/A							7	N/A		
6	Sp	7	CrV,Sp_end	8	N/A							7	Sp_end,Le,Cr_end		
41027000S254	Kent	1963	3	N/A	8/3/1998							7	Cr	7	Cr,MiSp
						5	Le-MiCr,MaSp	6	MiSp	5	MiCrV,Sp,CrV	6	MiCr,MaSp,ER		
41027000S010	Kent	1964	4	27	7/30/1998	6	N/A	6	N/A	7	N/A	7	N/A	7	N/A
						6	Sp	7	CrV,Sp_end	8	N/A	7	Sp_end,Le,Cr_end		
					5/21/1992	6	Sp	7	CrV,Sp_end	8	N/A	8	N/A	8	N/A

NBI No	County	Year Built	No. Spans	No. Cords	Date of Inspection	Superstructure			Substructure						
						Deck		Rate	Slab/Sp		Rate	Subment		Rate	Condition
						Rate	Condition		Rate	Condition		Rate	Condition		
41029000S130	Kent	1964	3	24	8/10/1998	6	Le-Cr	7	GOOD	7	MCrV	5	Cr,Sp		
						6	N/A	7	N/A	7	LiCrV	6	N/A		
						6	N/A	7	N/A	8	N/A	6	LeCr,Sp,LiCrH		
						7	N/A	7	N/A	8	N/A	7	LeCr,Sp		
						7	N/A	7	N/A	8	N/A	7	LeCr,Sp		
						8	N/A	7	N/A	8	N/A	7	LeCr,Sp		
						8	N/A	7	N/A	8	N/A	7	LeCr,Sp		
						8	N/A	7	CrV,Sp	8	N/A	7	Cr		
41029000S163	Kent	1964	3	24	8/6/1998	7	GOOD	6	Sp,Misc	7	Le-HCrV	6	Sp,Cr		
						7	N/A	6	N/A	7	L-HCrV	6	N/A		
41029000S164	Kent	1964	3	24	10/4/2000	6	MSp,R,Le	7	MCr,Sp, end,RE	7	CrV-2	6	Sp,Lk		
						6	Sp	7	MiSp	8	GOOD	6	Cr,Sp,ER		
						6	Sp	7	N/A	8	N/A	6	N/A		
						7	N/A	7	N/A	8	N/A	6	Le-Cr,Sp		
						7	N/A	7	N/A	8	N/A	6	Le-Cr,Sp		
						7	N/A	7	N/A	8	N/A	6	Le-Cr,Sp		
						7	N/A	7	N/A	8	N/A	6	Le-Cr,Sp		
						7	N/A	7	N/A	8	N/A	6	Le-Cr,Sp		
						7	Le	7	Total Repaired Area	7	CrV-2	6	R,LeCr		
						8	N/A	5	Sp,CrH, end, Ser	7	CrV	6	Le-Cr,R		
41029000S070	Kent	1965	3	12	8/12/1998	7	MiCr	7	GOOD	8	GOOD	6	Cr-2		
						7	N/A	7	N/A	8	N/A	7	N/A		
41132000S030	Kent	1969	3	18	8/10/2000	7	Sp	8	GOOD	7	HCrV-2	5	Loss of Section,STS		
						7	Loss of Section	8	GOOD	8	GOOD	5	MaSp,Cr		
						8	N/A	8	N/A	8	N/A	7	N/A		
						7	N/A	8	N/A	8	N/A	7	Le-Cr,Sp		
						7	N/A	8	N/A	8	N/A	8	Le-Cr,Sp		
						7	N/A	8	N/A	8	N/A	8	N/A		
						7	N/A	8	N/A	8	N/A	8	N/A		
						7	N/A	8	N/A	8	N/A	8	N/A		
						7	N/A	8	N/A	8	N/A	8	N/A		
						7	N/A	8	N/A	8	N/A	8	N/A		
41132000S040	Kent	1969	3	13	2/8/2000	9	N/A	9	N/A	7	Repaired	8	N/A		
						9	N/A	9	N/A	7	Repaired	8	N/A		

ABI No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Superstructure			Substructure		
						Deck		Stringer	Abutment		Pier
						Rate	Condition		Rate	Condition	
			8	4	8/13/1998	Le-Cr	GOOD	6	CrV,Sp	6	Sp-2,R
			8	4	6/26/1996	Le-Cr	N/A	6	CrV,Sp	6	N/A
			8	4	9/29/1994	Le-Cr	Le	6	CrV,Sp	7	Le-CrC
			8	5	10/9/1992	N/A	Le	6	CrV,Sp	7	Le-CrC
			8	5	12/18/1990	N/A	N/A	6	CrV,Sp	8	N/A
			8	5	7/27/1988	N/A	N/A	7	CrV,Sp	8	N/A
			8	6	9/4/1984	N/A	N/A	8	N/A	8	N/A
41029000S230	Kent	1972	3	24	8/12/1998	MILeCr	MISp	7	HCV	7	MICeSp
			7	7	12/11/1996	N/A	N/A	7	HCrV	7	N/A
			7	7	5/5/1994	N/A	Sp	8	N/A	8	N/A
			8	7	5/28/1992	N/A	Sp	8	N/A	8	N/A
			8	7	8/1/1990	N/A	N/A	8	N/A	8	N/A
			8	8	6/14/1988	N/A	N/A	8	N/A	8	N/A
			8	8	7/18/1984	N/A	N/A	8	N/A	8	N/A
41029000S250	Kent	1972	3	30	8/12/1998	MICr	MISp	8	GOOD	8	GOOD
			7	7	6/4/1996	N/A	N/A	8	N/A	8	N/A
			7	7	5/5/1994	N/A	Cr,Sp,Lk-Jt	8	N/A	8	N/A
			8	7	5/28/1992	N/A	N/A	8	N/A	8	N/A
			8	7	8/1/1990	N/A	N/A	8	N/A	8	N/A
			8	8	6/14/1988	N/A	N/A	8	N/A	8	N/A
			8	8	7/18/1984	N/A	N/A	8	N/A	8	N/A
61074000S020	Muskegon	1993	2	N/A	11/9/1999	Le-I,Di-Cr	N/A	7	HCr-2,Le-Cr	7	Le-HCrC
			8	8	9/9/1997	N/A	N/A	8	N/A	8	N/A

Appendix B: Prestressed Concrete I-Beam Bridges in North Region

NBI No.	County	Year Built	No. Spans	No. Chords	Date of Inspection	Superstructure			Substructure				
						Rate	Condition	Rate	Condition	Rate	Condition		
												Deck	Stringer
20015000S020	Crawford	1961	3	24	11/1/2000	7	N/A	7	Sp	7	HCrV,R	5	R,Sp,ER,Cr
		8/12/1999				6	We	7	Sp	7	HCrV,R	5	R,Sp,ER,Cr
		8/21/1997				8	We	7	Sp,R	7	HCrV,R	5	R,Sp,ER,Cr,Le
		7/31/1995				8	N/A	7	Sp	6	HCrV,R	6	R,LS,SmSp,Cr
		6/29/1993				8	N/A	7	Sp	6	HCrV	6	R,LS,SmSp,Cr,Lk
		4/4/1991				8	N/A	7	SmSp	7	HCrV	6	R,LS,SmSp,Cr
		7/11/1989				8	N/A	7	SmSp	7	HCrV	6	R,LS,Sp,HCr
		5/29/1987				8	N/A	7	SmSp	7	HCrV	6	R,LS,Sp,HCr
		6/10/1985				8	N/A	8	N/A	7	HCrV	7	R
		5/18/1983				8	N/A	8	N/A	8	HCrV	7	R
20015000S030	Crawford	1961	3	24	11/1/2000	6	SFDR	7	Sp,ER	7	Le,HCrV	6	R,R-Cr,ShCr
		8/12/1999				6	FDR,Dmp	7	Sp,ER	7	Le,HCrV	6	R,R-Cr,ShCr,Sp
		8/21/1997				7	FDR,Dmp	7	Sp_end,R	7	Le,HCrV	6	R,R-Cr,ShCr,Sp
		7/31/1995				7	N/A	7	Sp_end	6	HCrV	6	R,R-Cr,Sp
		6/29/1993				7	N/A	7	Sp_end	6	HCrV	6	R,R-Cr,Sp
		4/4/1991				8	N/A	7	Sp_end	7	HCrV	7	R,R-Cr
		6/2/1989				8	N/A	7	Sp_end	7	HCrV	7	R,R-Cr
		5/29/1987				8	N/A	7	Sp_end	7	HCrV	7	R
		6/10/1985				8	N/A	8	N/A	8	HCrV	6	R,LS,HCr
		5/18/1983				8	N/A	8	N/A	8	HCrV	7	R,LS,HCr
69013000S030	Ossego	1961	3	18	9/25/2000	5	Le-Cr,Sp,ER	7	Sp,ER	7	CrV	5	R-Cr,Sp,ER
		11/6/1996				7	Le-Cr,Cr	7	N/A	7	Le-CrV	5	R-Cr,Sp
		7/15/1994				7	Le-Cr,Cr	7	Cr	7	Le-CrV	6	R-Cr,Sp
		6/3/1992				7	Le-Cr,Cr	7	Cr	7	Le-CrV	6	R-Cr,Sp
		5/17/1990				6	Le-Cr,CrH,Sp,R	8	N/A	7	CrV	6	R-Cr,LSp
		8/17/1988				7	Le-Cr,CrH,Sp	8	N/A	7	CrV	6	R-Cr,LSp
		7/22/1986				7	L-Le-Cr,CrH	8	N/A	7	CrV	6	LSp,R
		9/26/1984				7	L-Le-Cr,CrH	8	N/A	7	CrV	6	LSp,R
69013000S040	Ossego	1961	3	18	9/25/2000	4	CrV,Le-Cr,Le-Cr,Sp,Rp,L,Sp,EL	6	Sp,Imp	7	Le-CrV	5	R-Cr,SmSp,R

NBI No.	County	Year Built	No. Span	No. Girder	Date of Inspection	Superstructure			Substructure			
						Deck		Stringer	Abutment		Pier	
						Rate	Condition		Rate	Condition	Rate	Condition
69013000S060	Osage	1961	3	15	9/25/2000	CrTr,Le-Cr,It-Sp	6	N/A	7	Le-CrV	5	R-Cr,SmSp
						N/A	6	R-Cr,P,Imp	7	Le-CrV	6	R-Cr,SmSp
						N/A	7	R-Cr,P,Imp	7	Le-CrV	6	R-Cr,SmSp
						N/A	7	Cr,Imp,P	6	Le-CrV	6	R-Cr,CrV
						N/A	7	Imp,P	6	Le-CrV	6	R-Cr,CrV
						N/A	6	Imp,Sp	7	CrV	6	R-Cr,CrV
						N/A	6	Imp,Sp,X	7	CrV	6	R-Cr,CrV
						Le-Cr,SuSp	7	MiSp	7	CrV	7	Sh-Le-Cr
						Le-Cr	6	HCr_end,P	7	Le-CrV	6	Cr
						Le-Cr	6	HCr_end,P,Imp	7	Le-CrV	6	Cr
69015000S070	Osage	1961	3	9/26/2000	Le-Cr	6	HCr_end,P,Imp	6	Le-CrV,R	6	P,Le-CrV,R-Lk,LeCr	
					Le-Cr	6	HCr_end,P,Imp	7	Le-CrV	6	P,Le-CrV,R-Lk,LeCr	
					Le-Cr	6	HCr_end,P,Imp	7	Le-CrV	6	P,Le-CrV,R-Lk,LeCr	
					Le-Cr	6	SmSp,P,HCr_end	7	CrV,Sp	7	HCr	
					Li-Le-Cr	6	SmSp,P,HCr_end	7	CrV,Sp	7	HCr	
					MiCr,(Le)	6	SmSp,P,HCr_end	7	CrV,Sp	7	HCr,Le-ShCrH	
					MiCr,(Le)	6	SmSp,P,HCr_end	7	CrV,Sp	7	HCr	
					Le-Cr,We	6	MiSp,ER_end	6	Le-CrV,R	6	P,Le-CrV,R-Lk,LeCr	
					Le-Cr,We	6	N/A	6	Le-CrV,R	6	P,Le-CrV,R-Lk,LeCr	
					Le-Cr,We	6	HCr_end,Imp?	7	Le-CrV	6	P,Le-CrV,R-Lk,LeCr	
16093000S010	Cheybeysan	1962	3	11/1/2000	Le-Cr	6	HCr_end,Imp?	7	Le-CrV	6	P,Le-CrV,R-Lk,LeCr	
					L-Le-Cr	7	HCr_end	7	CrV	6	Cr,Sp	
					L-Le-Cr	7	HCr_end	7	CrV	6	Cr,Sp	
					MiCr,(Le)	7	HCr_end,MiCh	7	CrV	6	R-Cr,CrH	
					MiCr,(Le)	7	HCr_end,MiCh	7	CrV	6	R-Cr,CrH	
					Le-Cr,HCr	7	Sp_end,Rp/ft	6	HCrV,CHH	7	HCr	
					Le-Cr,HCr,P	7	Sp_end	6	HCrV,CHH	7	HCr	
					Le-Cr,HCr,P	7	HCr_end	7	HCrV,CHH	7	HCr	
					Le-Cr,HCr,P	6	HCr_end	7	HCrV	7	HCr	
					Le-Cr,HCr,P	6	HCr_end	7	HCrV	7	HCr	
69013000S060	Osage	1961	3	9/13/1999	HCr,P	8	HCr_end	7	HCrV	7	HCr	
					HCr,P	8	HCr_end	7	HCrV	7	HCr	
					N/A	8	N/A	7	HCrV	7	HCr	
					N/A	8	N/A	7	HCrV	7	HCr	
					Dmp,Sp	6	N/A	8	HCrV	7	HCr	
					Dmp,Sp,P	7	N/A	8	HCrV	8	LCrTr,HCr	
					Dmp,Sp,P	7	N/A	8	HCrV	8	LCrTr,HCr	
					Dmp,Sp,P	7	N/A	8	HCrV	8	LCrTr,HCr	

NBI No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Superstructure			Substructure			
						Deck		Stringer	Abutment		Pier	
						Rate	Condition		Rate	Condition	Rate	Condition
16093000S020	Cheyboygan	1962	3	15	8/3/1982	6	Dmp,Sp,P,HCrTr	8	N/A	HCrV	8	LCrTr,HCr
					11/2/2000	7	HCr,end,Sp,ER	7	HCrV	HCrV	7	HCr,R-CrH
					9/13/1999	7	HCr,SGr	6	HCr,end,Sp,ER	HCrV	7	HCr,R-CrH
					9/17/1997	7	HCr,SGr	7	HCr,end,SmSSp	HCrV	7	HCr,R-CrH
					8/16/1995	7	HCr	7	HCr,end,SmSSp	HCrV	7	HCr,R-CrH
					7/12/1993	7	HCr	7	HCr,end,SmSSp	HCrV	7	HCr,R-CrH
					4/11/1991	7	HCr	7	HCr,end,SmSSp	HCrV	7	HCr,R-CrH
					5/25/1989	7	N/A	7	HCr,end,SmSSp	HCrV	7	HCr,R-CrH
					9/3/1987	7	N/A	8	HCr,end	HCrV	7	HCr,R-CrH
					5/7/1985	8	N/A	8	N/A	HCrV	7	R-CrH
					6/14/1983	8	N/A	8	N/A	HCrV	8	N/A
					8/3/1982	8	N/A	8	N/A	HCrV	8	N/A
69014000S040	Osage	1962	5	N/A	9/23/2000	7	Le-Cr	7	N/A	GV	6	Le-CrV,CrV
					11/6/1996	7	Le-Cr	7	N/A	N/A	7	Le-CrV,CrV
					7/14/1994	7	Le-Cr,SmSp	7	N/A	N/A	7	Le-CrV
					6/2/1992	7	Le-Cr,SmSp	7	N/A	Le-CrV	7	Le-CrV
					5/16/1990	7	Le-CrDi,SmSp	7	Sh-HCr_end	N/A	7	Le-Cr,CrV,HCr
					9/1/1988	7	Le-CrDi,SmSp	7	Sh-HCr_end	N/A	7	Le-Cr,CrV,HCr
					7/21/1986	7	Le-CrDi,SmSp	7	Sh-HCr_end	N/A	7	L-Le-CrV,HCr
					9/14/1984	7	Le-CrDi,SmSp	7	Sh-HCr_end	N/A	7	L-Le-CrV,HCr
83031000S010	Wexford	1966	3	18	8/24/2000	8	Sp	7	Imp,Ch	Le-CrV	6	ER
					11/4/1996	8	N/A	7	Imp,Ch	Le-CrV	7	Le-Cr,SmSp
					8/30/1994	8	N/A	7	Imp,Ch	Le-CrV	7	Le-Cr,SmSp
					6/2/1992	8	N/A	7	Imp,Ch	Le-CrV	7	Le-Cr,SmSp
					4/30/1990	8	N/A	7	Imp,Ch	Le-CrV	7	Le-Cr,SmSp
					8/9/1988	8	N/A	7	Imp,Ch	Le-CrV	7	Sh-Le-CrV
					7/17/1986	8	N/A	7	Imp,Ch	Le-CrV	7	Sh-Le-CrV
					9/20/1984	8	N/A	7	Imp,Ch	L-Le-CrV	8	N/A
83031000S059	Wexford	1966	3	18	8/24/2000	7	N/A	7	R-Cr_end,Sp	Le-HCrV	6	R-SmSp
					11/4/1996	8	N/A	8	N/A	Le-HCrV	7	Sc
					8/30/1994	8	N/A	7	N/A	Le-HCrV	7	Sc
					6/3/1992	8	N/A	7	N/A	Le-HCrV	7	Sc
					4/30/1990	8	N/A	7	N/A	Le-HCrV	7	Sc

NBI No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Superstructure				Substructure			
						Deck		Stringer		Abutment		Pier	
						Rate	Condition	Rate	Condition	Rate	Condition	Rate	Condition
		8/9/1988	8	N/A	N/A	8	N/A	N/A	7	HCrV	7	Sc	Sc
		7/17/1986	8	N/A	N/A	8	N/A	N/A	8	HCrV	7	Sc	Sc
		9/20/1984	8	N/A	N/A	8	N/A	N/A	8	HCrV	7	Sc	Sc
72014000S010	Rosemount	1967	4	N/A	12/1/2000	7	Le-Cr	6	MiCr, MiSp, end, Imp	7	Le-HCrV, Sp	6	N/A
		6/23/2000	7	Le-Cr	6	MiCr, MiSp, end, Imp	7	Le-HCrV, Sp	6	N/A	6	N/A	N/A
		7/7/1994	8	N/A	7/7/1994	7	P, S, S, S, Ch	7	Le-HCrV	7	Le-HCrV	7	LCr
		7/1/1992	8	N/A	7/1/1992	8	P, S, S, S, Ch	7	Le-HCrV	7	Le-HCrV	8	N/A
		4/18/1990	8	N/A	4/18/1990	8	Imp, Rp, Ch, HCr, end	7	HCrV	7	HCrV	7	R-Sp
		6/14/1988	8	N/A	6/14/1988	8	Imp, ER, Sp, HCr, end	7	HCrV	7	HCrV	7	R-Sp
		7/1/1986	8	N/A	7/1/1986	8	Imp, Ch, ER, HCr, end	8	HCrV	8	HCrV	8	N/A
		5/15/1984	8	N/A	5/15/1984	8	Imp, Ch, ER, HCr, end	8	HCrV	8	HCrV	8	N/A
72014000S020	Rosemount	1967	3	15	6/23/2000	8	N/A	6	MiImp	7	Le-HCrV	8	MiCr
		7/29/1996	8	DD	7/29/1996	8	Imp, Sp	7	Le-HCrV	8	Le-HCrV	8	R
		7/7/1994	8	N/A	7/7/1994	8	Imp	7	Le-HCrV	8	Le-HCrV	8	N/A
		7/2/1992	8	N/A	7/2/1992	8	Imp	7	Le-HCrV	8	Le-HCrV	8	N/A
		7/29/1991	5	Special Imp Inspection	7/29/1991	5		5		5		5	
		4/18/1990	8	N/A	4/18/1990	8	Imp, ER, Sk	6	MaLe-HCrV	8	MaLe-HCrV	8	N/A
		6/14/1988	8	N/A	6/14/1988	8	Imp, ER, Sk	7	Le-HCrV	8	Le-HCrV	8	N/A
		7/2/1986	8	N/A	7/2/1986	8	Imp, Sp, Sk	8	Le-HCrV	8	Le-HCrV	8	N/A
		5/23/1984	8	N/A	5/23/1984	8	Imp, Sp, Sk	8	Le-HCrV	8	Le-HCrV	8	N/A
72014000S030	Rosemount	1967	3	15	6/23/2000	8	N/A	8	N/A	7	Le-HCrV	7	MiCr
		7/29/1996	8	N/A	7/29/1996	8	Sp, Imp	7	Le-HCrV	7	Le-HCrV	7	R-CrV
		7/2/1992	8	N/A	7/2/1992	8	N/A	7	Le-HCrV	7	Le-HCrV	7	R-CrV
		4/18/1990	8	N/A	4/18/1990	8	MiCh	7	CrV	7	CrV	7	R-CrV
		6/14/1988	8	N/A	6/14/1988	8	MiCh	8	N/A	8	N/A	8	N/A
		7/2/1986	8	N/A	7/2/1986	8	MiCh	8	N/A	8	N/A	8	N/A
		5/23/1984	8	N/A	5/23/1984	8	MiCh	8	N/A	8	N/A	8	N/A
72014000S040	Rosemount	1967	3	15	12/1/2000	8	Imp, X, MaCr	7	Le-GN	7	Le-GN	7	CrV
		6/24/2000	8	N/A	6/24/2000	8	Imp, X, MaCr	7	Le-CrV	7	Le-CrV	7	CrV
		7/29/1996	8	Jt-Sp	7/29/1996	8	Imp, Ch	7	Le-CrV	7	Le-CrV	7	Le-Cr
		7/7/1994	8	Jt-Sp	7/7/1994	8	Imp, Ch	7	Le-CrV	7	Le-CrV	7	Le-Cr
		7/2/1992	8	Jt-Sp	7/2/1992	8	Imp, Ch	7	Le-CrV	7	Le-CrV	7	Le-Cr
		4/18/1990	8	N/A	4/18/1990	8	Imp, Sp	7	L-Le-CrV	8	L-Le-CrV	8	N/A

NBI No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Superstructure			Substructure				
						Deck		Stringer	Abutment		Pier		
						Rate	Condition		Rate	Condition	Rate	Condition	
720140005050	Rosemount	1967	3	15	6/15/1988	8	N/A	6	Imp, Sp	7	L-Le-CrV	8	N/A
						8	N/A	6	Imp, Ch	7	L-Le-CrV	8	N/A
						8	N/A	6	Imp, Ch	7	L-Le-CrV	8	N/A
						8	N/A	6	Cr_end, Sp, Imp	7	Le-HCrV	6	Sp, ER
						8	N/A	6	MI Sp, MI Cr_end, Imp	7	Le-HCrV	7	DI, Cr, Sp
						8	N/A	7	Imp, Ch	7	Le-HCrV	7	Cr
						8	N/A	7	Imp, Ch	7	Le-HCrV	7	Cr
						8	N/A	6	Imp, Sp	6	Le-HCrV	6	R-CrH
						8	N/A	8	MI Imp	7	HCrV	7	R-CrH
						8	N/A	8	N/A	8	HCrV	7	R-CrH
65041000S110	Ogemaw	1972	3	27	7/18/2000	7	N/A	4	Sp_end, ER	8	N/A	6	Sp, ER
						8	N/A	7	Sp, I, G Cr, Imp	8	Sh-HCrV	6	SmR, SmSp, Le-CrD
						8	N/A	7	SmSp	8	Sh-HCrV	6	SmR, SmSp, Le-CrD
						8	N/A	8	SmSp	8	Sh-HCrV	6	SmR, SmSp, Le-CrD
						8	N/A	7	wet_end	8	N/A	6	Sp, Le-Cr, R-Cr
						8	N/A	8	N/A	8	N/A	6	Sp, Le-Cr, R-Cr
						8	P	7	SmCh, Imp, Le-CrV	8	M-Cr	8	N/A
						8	P	7	SmCh, Imp, Le-CrV	8	N/A	8	N/A
						7	N/A	5	MI Se-Cr_end	6	M-Cr, Se	6	ER
						8	MI Sp, ER	7	R-CrV_end	7	We-M-Cr	7	CrV, Sp, ER
670160005090	Oceola	1984	1	7	1/4/2001	7	Le-Cr	8	N/A	7	HCrV, Le	No	
						7	Le-Cr	8	N/A	7	HCrV, Le	Perfs	
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		
						7	Le-Cr	8	N/A	7	HCrV, Le		

NBI No.	County	Year Built	No. Span	No. Girders	Date of Inspection	Superstructure			Substructure			
						Deck		Stringer	Abutment		Pier	
						Rate	Condition		Rate	Condition	Rate	Condition
6701600S100	Oxola	6/22/1989	7	Le-Lk-DCr	8	N/A	7	HCrV,Le				
		5/5/1987	7	Le-Lk-DCr	8	N/A	8	HCrV				
		1/4/2401	7	Le-Cr,Lk	8	N/A	7	Le-Cr,H,Le,Cr	No			
		4/30/1997	7	Le-Cr,Lk	8	N/A	7	Le-Cr,H,Le,Cr				
		6/1/1995	7	Le-Cr,HvLe	8	N/A	7	CrV,Le-CrH				
		9/9/1993	7	Le-Cr,HvLe	8	N/A	7	CrV,Le-CrH				
		6/25/1991	7	Le-Cr,HvLe	8	N/A	7	CrV,Le-CrH				
		6/22/1989	7	Lk-Le-LiCrD	8	N/A	8	CrV,Le-CrH				
6701700S050	Oxola	5/5/1987	7	Lk-Le-LiCrD	8	N/A	8	N/A				
		1/30/2401	7	Le-Cr,CH,Sc	7	SmSSp,Imp,LiHC	7	M,Cr	7	Le-HCr		
		6/3/1999	7	Le-Cr,Sc	7	SmSSp,Imp,LiHC	8	N/A	7	Le-HCr		
		5/27/1997	7	Le-Cr	7	SmSSp,Imp,LiHC	8	N/A	7	Le-HCr		
		5/23/1995	7	Le-Cr	7	SmSSp,Imp,LiHC	8	N/A	7	Le-HCr		
		9/22/1993	7	Le-Cr	7	SmSSp,Imp,LiHC	8	N/A	7	Le-HCr		
		6/25/1991	7	Le-Cr	7	SmSSp,Imp,LiHC	8	N/A	7	Le-HCr		
		6/5/1989	7	Li-Le-CrTr	7	SSp,Imp,LiHC	8	N/A	7	Li-Le-HCrV		
8303400S050	Mason	5/8/1987	7	Li-Le-CrTr	7	SSp,Imp,LiHC	8	N/A	8	Li-Le-HCrV		
		2/14/2401	7	Le-Cr	8	N/A	7	HCr	7	Le-HCr		
		7/23/1999	7	Le-Cr	8	N/A	8	HCr	7	Le-HCr		
		7/16/1997	7	Le-Cr	8	N/A	8	HCr	7	Le-HCr		
		6/20/1995	7	Le-Cr	8	N/A	8	N/A	7	Le-CrV		
		10/21/1993	7	Le-Cr	8	N/A	8	N/A	7	Le-CrV		
		6/3/1991	7	Le-Cr	8	N/A	8	N/A	7	Le-CrV		
		6/27/1989	7	Le-Cr	8	N/A	8	N/A	7	Le-CrV		
8303300S060	Wexford	9/18/1999	8	Cr,El,end	8	N/A	8	CrV	No			
		9/27/2000	7	BR,G,El	8	Cr	8	N/A	8	Cr		
		12/1/2000	8	Mc	8	N/A	8	N/A	8	N/A		
		12/1/2000	8	N/A	8	N/A	8	N/A	8	N/A		

Appendix C: Prestressed Concrete I-Beam Bridges in Bay Region

NBI No.	County	Year Built	No. Span	No. Girders	Date of Inspection	Superstructure			Substructure				
						Deck		Stringer	Abutment		Pier		
						Rate	Condition		Rate	Condition			
06111000S040	Arenac	1963	3	18	5/21/2000	8	NP	7	R	7	HCrV	6	Sp,CrV
					8/15/1995	8	N/A	7	N/A	7	HCrV-2	7	SSp,RCr_end
					4/21/1992	8	N/A	7	N/A	7	HCrV-2	7	SSp,RCr_end
					9/1/1987	8	N/A	8	N/A	8	HCrV-2	8	SSp,RCr_end
06111000S050	Arenac	1968	3	15	5/22/2000	7	Cr,S	6	CrD,CrV	7	HCrV	6	HCr,DI
					6/6/1996	7	P	7	SmCrHD,CrVR	7	CrV-2	7	N/A
					5/18/1994	7	P	8	Cr	7	CrV-2	7	N/A
					4/3/1992	7	P	8	N/A	7	CrV-2	7	N/A
					4/11/1990	7	P	8	N/A	7	CrV-2	7	N/A
06111000S060	Arenac	1968	3	15	5/23/2000	7	CrD	6	Cr,DI_end	7	HCrV	6	Cr,DI
					6/6/1996	7	CrD	7	HCr,CrV	7	HCrV	7	CrV,CrV
					5/18/1994	7	LSp	7	HCrR	7	HCrV	7	CrV(Flex)
					4/3/1992	7	LSp	7	HCrR	7	HCrV	7	CrV(Flex)
					4/11/1990	7	ShCrD	6	HCrR	7	HCrV	7	N/A
06111000S110	Arenac	1968	6	54	7/18/2000	7	Calc,Sp	4	Cr,H,CrV,Sp,R_end	7	HCrV,Le	4	Sp,Cr
					6/5/1997	8	Calc,Cr	5	Cr,H,CrV,Sp,R_end	7	HCrV,Le	5	Sp,LCr
					10/16/1996	8	Calc,Cr	5	Cr,H,CrV,Sp,R_end	7	HCrV,Le	5	Sp,LCr
					8/2/1995	8	Calc,Cr	5	Cr,H,CrV,Sp,R_end	7	HCrV,Le	5	Sp,LCr
					5/18/1994								
					6/28/1993	4	Calc,Cr	6	Cr,H,CrV,Sp,R_end	7	HCrV,Le	4	Sp,LCr
					3/30/1992	4	Calc,Cr	6	Cr,H,CrV,Sp,R_end	7	HCrV,Le	4	Sp
					3/28/1990	4	Tr,Cr,Sp,P,DI	6	Cr,H,CrV,Sp,R_end	7	HCrV	4	Sp,CrV,R,Le
					11/8/1989	4	Tr,Cr,Sp,P,DI	6	Cr,H,CrV,Sp,R_end	7	HCrV	4	Sp,CrV,R,Le
					3/18/1988	4	Tr,Cr,Sp,P,DI	6	Cr,H,CrV,Sp,R_end	7	HCrV	4	Sp,CrV,R,Le
					9/3/1987	4	Tr,Cr,Sp,P,DI	6	Cr,H,CrV,Sp,R_end	7	HCrV	4-5	Sp,CrV,R,Le
					1986	5	Tr,Cr,Sp,P,DI	6-7	Cr,H,CrV,R_end	8	HCrV	5	Sp,Cr,R,Le
					10/31/1984	6	Tr,Cr,Sp,P,DI	6-7	Cr,H,CrV,R_end	8	HCrV	6	Sp,Cr,R,Le
25042000S128	Genesee	1960	4	12	10/20/2000	5	Cr,DI	5	LkCrVR,Sp_end	7	CrV	5	Sp,Cr,DI
					9/3/1998	5	Cr,DI	5	LkCrVR,Sp_end	7	CrV	5	Sp,Cr,DI,Le

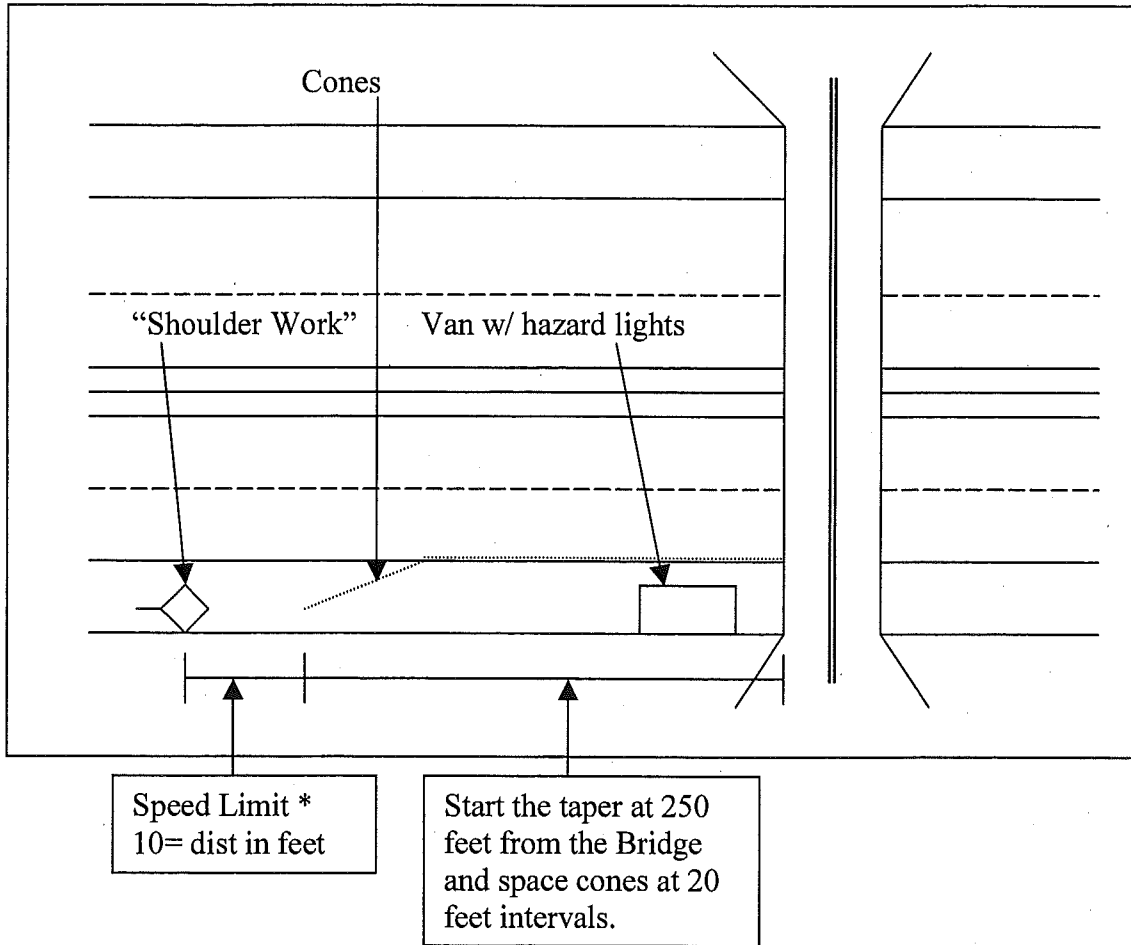
NB No.	County	Year Built	No. Span	No. Girders	Date of Inspection	Superstructure				Substructure			
						Deck		Stringer		Abutment		Pier	
						Rate	Condition	Rate	Condition	Rate	Condition	Rate	Condition
					11/26/1996	8	N/A	6	LkCrV,Sp_end	7	CrV	6	Sp,R,Cr,Le
					6/21/1994	8	N/A	6	LkCrV,Sp_end	7	CrV	6	Sp,R,Cr,Le
					7/14/1992	8	N/A	6	LkCrV,Sp_end	7	CrV	6	Sp,R,Cr,Le
25042000S080	Genesee	1968	5	24	8/28/2000	6	Cr	5	R,ER,SmSp,Cr_end	7	HCrV	6	GOOD
					9/11/1998	6	Cr	5	R,ER,SmSp_end	7	HCrV	6	GOOD
					11/26/1996	8	Cr	5	ShCrH,R,Le,CrV,Sp,ER	7	HCrV,Le	6	R,Cr,Le,Sp
					8/25/1994	8	N/A	5	ShCrH,R,Le,CrV,Sp,ER	7	HCrV,Le	7	R,Cr,Le,Sp
					6/30/1992	8	N/A	6	ShCrH,R,Le,CrV,Sp,ER	7	HCrV	7	R,Cr,Le
25042000S180	Genesee	1968	3	24	8/28/2000	6	Cr,Imp	5	Cr-MiSp_end	7	HCrV	6	Cr-GOOD
					9/24/1998	6	Cr,Imp	5	Cr-MiSp_end	7	HCrV	6	GOOD
					11/26/1996	8	Cr	6	Cr-ER,ShHCr,Col	7	HCrV	6	CrH,CrV
					8/25/1994	8	Cr	6	ShHCr,Col-Sp	7	HCrV	6	CrH,CrV
					6/30/1992	8	N/A	6	ShHCr,Col-Sp	7	HCrV	6	CrH,CrV
25042000S123	Genesee	1969	4	N/A	10/20/2000	6	MiCr	5	AcCo,Sp_end	7	CrV	7	Sp,SmCr
					9/3/1998	6	MiCr	5	CrV,R,Le,DI_end	7	CrV	7	Sp,SmCr
					11/26/1996	8	N/A	6	CrV,R,Le_end	7	CrV	7	Sp,SmCr
					6/21/1994	8	N/A	6	CrV,R,Le_end	7	CrV	7	Sp
					7/14/1992	8	N/A	6	CrV,R,Le_end	7	CrV	7	Sp
25042000S124	Genesee	1969	4	N/A	10/20/2000	6	MiCr	5	CrV,R,Le,Sp_end	7	CrV	5	Sp,Cr
					9/3/1998	6	MiCr	5	CrV,R,Le,Sp_end	7	CrV	5	Sp,Cr
					11/26/1996	8	SpJt	5	CrV,R,Le,Sp_end	7	CrV	6	SpC
					6/21/1994	8	N/A	6	CrV,R,Le_end	7	CrV	7	SpC
					7/14/1992	8	N/A	6	CrV,R,Le_end	7	CrV	7	SpC
25042000S127	Genesee	1969	4	20	10/20/2000	4	CrH,Le	4	AcCo,Sp,CrV_end	7	CrV	7	GOOD
					9/3/1998	4	CrH,Le	4	CrV,R,Le,Sp_end	7	CrV	7	GOOD
					11/26/1996	7	CrH,Le	5	CrV,R,Le,Sp_end	7	CrV	7	N/A
					6/21/1994	8	CrH	6	CrV,R,Le,Sp_end	7	CrV	8	N/A
					7/9/1992	8	CrH	6	CrV,R,Le,Sp_end	7	CrV	8	N/A
25084000S053	Genesee	1971	4	32	9/15/2000	6	Cr,SpJt,DI,Le	6	SrCr,CrH,V,Sp,Imp	5	HCrV,Sp,ER	5	CrH,DI
					9/17/1998	6	Cr,SpJt,DI,Le	6	SrCr,CrH,V,Sp,Imp	5	HCrV,Sp,ER	5	CrH,DI
					11/26/1996	8	N/A	6	CrV,Sp,ER,Imp	7	HCrV,Sp	7	Cr,Sp
					11/2/1994	8	N/A	6	CrV,Sp,ER	7	HCrV,Sp	8	N/A
					8/6/1992	8	N/A	6	CrV,Sp,ER	7	HCrV,Sp	8	N/A

NH No.	County	Year Built	No. Spans	No. Girders	Date of Inspection	Superstructure			Substructure				
						Deck		Stringer		Abutment		Pier	
						Rate	Condition	Rate	Condition	Rate	Condition	Rate	Condition
25084000S054	Genesee	1971	4	32	9/15/2000	8	Cr	5	CrV,DI,Rp	6	HCrV,Lk	5	Cr,Sp,DI
					9/17/1998	8	Cr	5	CrV,DI,Rp	6	HCrV,Lk	5	Cr,Sp,DI
					11/26/1996	8	N/A	6	Sp,CrV,Imp	7	HCrV	6	Cr,Sp
					11/2/1994	8	N/A	6	CrV,Sp	8	HCrV	6	Cr,Sp
					8/6/1992	8	N/A	6	CrV,Sp	8	HCrV	6	Cr,Sp
25132000S340	Genesee	1971	4	24	9/14/2000	6	Cr	5	Sp_end	6	Sp	5	Sp,MiCrV
					2/1/1999	6	Cr	5	Sp_end	6	Sp	5	Sp,MiCrV
					11/27/1996	8	Sp	6	SSp_end	6	HCrV,Le,Sp-ER	6	R,Cr,FlCr,Sp
					7/8/1994	7	Sp	7	SSp_end	8	HCrV,Le	7	R,Cr,FlCr,Sp
					6/16/1992	7	Sp	7	Sp_end	8	HCrV,Le	7	R,Cr,FlCr,Sp
25132000S380	Genesee	1971	3	42	9/18/2000	7	Cr,LkIt	6	Imp,Cr,Sp_end,R	7	GOOD	6	Ef
					2/3/1999	7	Cr,LkIt	6	Imp,Cr,Sp_end,R	7	GOOD	6	Ef
					7/24/1996	8	HCrV	8	N/A	7	MiCrV	6	Sp,R
					8/23/1994	8	HCrV	8	N/A	8	SmCr	7	N/A
					6/16/1992	8	HCrV	8	N/A	8	N/A	7	N/A
25132000S450	Genesee	1971	4	24	9/14/2000	6	Cr	5	MImp,Cr,Sp_end	4	MaSp	5	Sp,ER
					2/2/1999	6	Cr	5	MImp,Cr,Sp_end	4	MaSp	5	Sp,ER
					11/27/1996	7	CrV,Le,Sp	6	Cr,Sp_end	6	HCrV	5	R,Le,Sp,Cr
					7/8/1994	6	CrV,Le,Sp	8	Cr,Sp_end	7	HCrV,Sp	7	R,Le,Cr
					6/16/1992	6	CrV,Le,Sp	8	Cr,Sp_end	7	HCrV,Sp	7	R,Le,Cr
29011000S020	Grafton	1961	3	27	8/19/1999	6	LLe,Cr	6	SmCr_end	7	HCrV,CH,Sp,ER	6	Sp,ER,Cr,DI
					10/23/1997	6	LLe,Cr	6	N/A	7	CrV,Sp,Le,R	6	N/A
					9/29/1995	5	Le-Cr	7	N/A	7	SmSp,CrH	7	CrV
					9/1/1993	5	Le-Cr	8	N/A	7	SmSp	7	CrV
					7/16/1991	5	N/A	8	N/A	8	N/A	7	CrV
29011000S030	Grafton	1961	3	27	8/19/1999	6	Le-CrD	6	SmSp_end	7	HCr,CH,LSc,R	6	R,Le,Cr
					10/23/1997	6	Le-Cr	6	N/A	6	HCr,LSc,R	6	N/A
					9/29/1995	7	N/A	8	N/A	8	N/A	6	Le-Cr,MaCr
					9/1/1993	7	N/A	8	N/A	8	N/A	7	Le-Cr
					7/16/1991	7	Sp,P	8	N/A	8	N/A	7	Le-Cr

Appendix D: Checklist of Inspection Tools

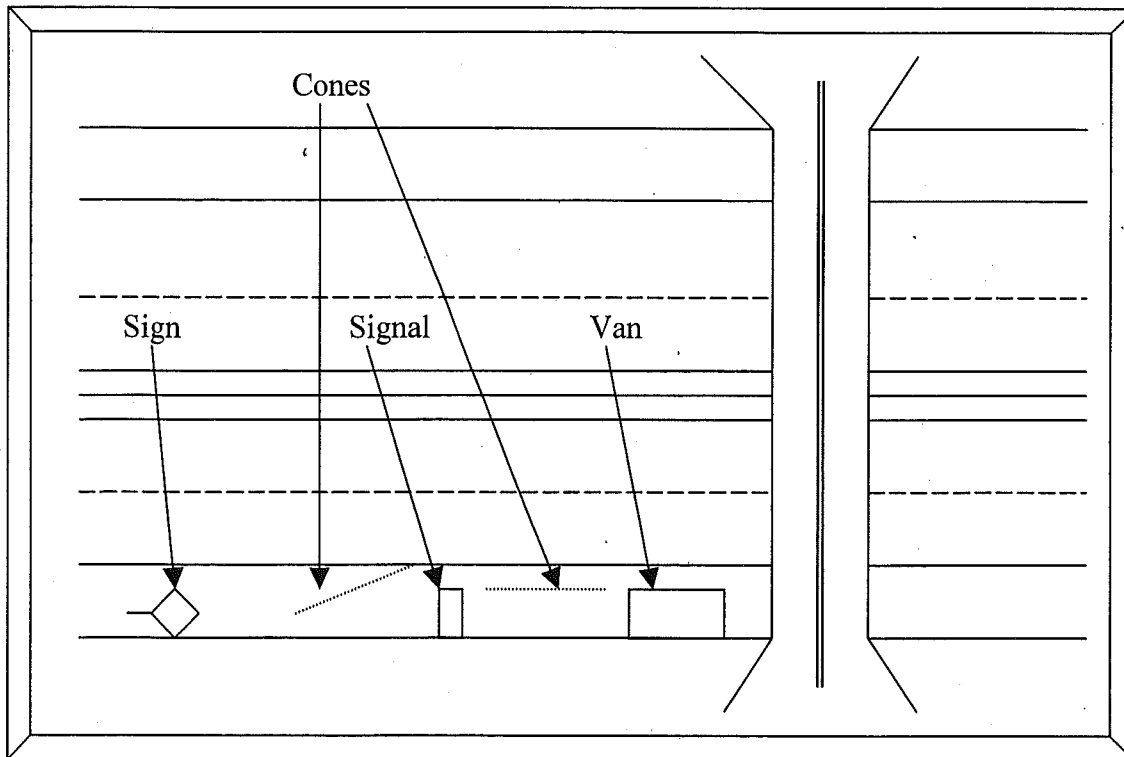
1. 1 Wisk broom
2. Wire brushes with Scrapers
3. 2 Flat bladed screwdriver
4. 1 Pocket knife
5. 2 Ice picks
6. 2 Hammers
7. 2 Tool belts with tool pouches
8. pairs of leather gloves
9. safety glasses
10. dusk masks
11. 2 large flashlights and 2 small flashlights
12. Extra batteries
13. 2 25' Pocket tape measures
14. 1 100' tape
15. 1 12" ruler
16. 1 Thermometer
17. 1 Tiltmeter
18. 1 Protractor
19. Clipboards
20. 144 piece box of chalk
21. pack of waterproof red crayons
22. 2 Lighted magnifying glasses
23. "C"-clamps
24. hard hats
25. reflective vests
26. 2 20' Ladders
27. 2 Safety Harnesses
28. 40 Orange Construction Cones
29. A Collapsible Construction Sign "Men at Work" or "Shoulder Work"
30. Flashing Arrow Signal (We will display the "line" to signal caution)
31. A small ruler that will read the thickness of a crack in thousandths of an inch or tenths of a millimeter

Appendix E: Traffic Control Plan for a Shoulder Closure



Appendix F: Traffic Control Equipment

1. Van (with working hazard lights)
2. Flashing Arrow Signal (We will display the "line" to signal caution)
3. 30-40 Orange Construction Cones (To provide shoulder closure and to establish a work zone)
4. A "Men at Work" or "Shoulder Work" collapsible construction sign
5. Cherry Picker (lift)
6. Shadow Vehicle (Crash Vehicle)
7. "Reduce Speed Limit"



Appendix G: Multi-State Survey Instrument

Appendix G-1. Survey Sent to State Departments of Transportation

MULTI-STATE SURVEY OF D.O.T. PRACTICES RELATED TO THE INSPECTION, ASSESSMENT, AND REHABILITATION OF PRESTRESSED CONCRETE I-BEAMS

CONTACT INFORMATION

1. Please tell us about yourself:

Name:
Title / Position:
Agency:
Telephone No.:
E-mail Address:

PRACTICES

2. What documents does your agency reference for the inspection or assessment of bridges?

FHWA Bridge Inspector's Training ManualYes / No
AASHTO Manual for Condition Evaluation of Bridges Yes / No
Other Document (name):
Other Document (name):
Other Document (name):
Other Document (name):
Contact Person / Phone No.
for Additional Information:

3. Does your agency follow supplemental inspection or assessment guidelines specifically for prestressed concrete bridge I-beams?

Document (name):
Document (name):
Contact Person / Phone No.
for Additional Information:

4. Besides visual inspection and hammer sounding of the surface, what techniques are your agency using to inspect and assess prestressed concrete bridge I-beams?

.....
.....
.....
.....

5. What documents does your agency reference for the rehabilitation of prestressed concrete bridge I-beam ends?

- NCHRP Reports..... Yes / No
- ACI Concrete Repair Manual Yes / No
- DOT Specifications..... Yes / No
- Consultant Recommendations Yes / No
- Other Document (name):
- Other Document (name):
- Other Document (name):
- Other Document (name):
- Contact Person / Phone No.
for Additional Information:

DATA MANAGEMENT

6. What application does your agency use to maintain bridge inspection structural/safety data?

- Transportation Management System (TMS)..... Yes / No
- Internal Application Yes / No
- Other Application (name):
- Contact Person / Phone No.
for Additional Information:

7. Does your state gather specific data on prestressed concrete bridge I-beam end conditions? (Other than in a comment field on a NBI form, end region observations not currently required to be documented by NBIS)

- Yes
- No
- If "Yes", Contact Person / Phone No.
for Additional Information:

REPORTS

8. Are you aware of any prestressed concrete bridge I-beam end rehabilitation or preventative maintenance projects in your state that have been documented in a report or are on-going?

- Yes (please list):
- No
- If "Yes", Contact Person / Phone No.
for Additional Information:

9. Do you object to our research team contacting you?

- Yes
- No

OTHER COMMENTS

10.....You are encouraged to clarify any of responses to this survey below or provide additional comments relating to prestressed concrete I-beam inspection, assessment, or rehabilitation.

.....
.....
.....
.....
.....
.....

Fax or e-mail completed surveys to:

Roger Till, P.E.
Engineer of Structural Research
MDOT Secondary Complex
8885 Ricks Road, Lansing, MI 48909
517/322-5682
fax: 517/322-5664
tillr@mdot.state.mi.us

For additional information and survey results, you may contact Dr. Ahlborn or Mr. Kasper at Michigan Technological University. Their contact information is listed below.

Tess Ahlborn, Ph.D., P.E.
Assistant Professor
Civil and Environmental Eng. Dept. - Michigan Technological University
1400 Townsend Drive, Houghton, MI 49931-1295
906/487-2625
fax: 906/487-1620
tess@mtu.edu

James M. Kasper, P.E.
Graduate Research Assistant
Civil and Environmental Eng. Dept. - Michigan Technological University
1400 Townsend Drive, Houghton, MI 49931-1295
906/487-1952
fax: 906/487-1620
jmkasper@mtu.edu

Appendix G-2. Cover Letter for Multi-state Survey Instrument

Date: June 21, 2001
To: MDOT List-serve
From: Roger Till, P.E., Engineer of Structural Research -MDOT
Copy: Michigan Technological University (Dr. Tess Ahlborn, Mr. James Kasper)
Wayne State University (Dr. Haluk Aktan, Dr. Anna Ovanesoova)

Subject: Practices Related to the Evaluation and Repair of Prestressed Concrete Bridge I-Beams with End Deterioration

The Michigan Department of Transportation (MDOT) is engaged in a research project with the Center for Structural Durability, a collaborative effort between Michigan Technological University and Wayne State University. This project involves development/refinement of an inspection procedure for existing prestressed concrete bridge I-beam ends and development of a repair technique for deteriorated ends. MDOT has recognized that beam end distresses may be detrimental to shear, flexure, and bearing capacity of prestressed concrete beams and aims to develop cost-effective solutions for these problems.

For this project, our work has been focused exclusively on prestressed concrete I-beams. Documentation of applicable projects or research performed in your state may have been identified in an on-going literature review. However, additional information is needed to identify the most effective current evaluation and repair practices for the end regions of prestressed concrete I-beams.

You may either indicate your responses directly in a reply e-mail to me or on a hardcopy. Hardcopy responses should be faxed to my attention at 517/322-5664. I anticipate this survey will take approximately 10 minutes to complete.

Please complete the following survey and return by July 16, 2001.

Thank you for taking time to complete the survey. Your input is valuable to MDOT, the research team, and eventually your agency. Additional information and survey results may be obtained through Dr. Ahlborn or Mr. Kasper at Michigan Technological University. Their contact information is listed below.

Best regards,

Roger Till, P.E.
Engineer of Structural Research -MDOT

Tess Ahlborn, Ph.D., P.E.
Assistant Professor
Civil and Environmental Eng. Dept. - Michigan Technological University

1400 Townsend Drive, Houghton, MI 49931-1295
906/487-2625
fax: 906/487-1620
tess@mtu.edu

James M. Kasper, P.E.
Graduate Research Assistant
Civil and Environmental Eng. Dept. - Michigan Technological University
1400 Townsend Drive, Houghton, MI 49931-1295
906/487-1952
fax: 906/487-1620
jmkasper@mtu.edu

Appendix H: Multi-State Survey Responses

Table H-1. Survey Response to Question No. 1

Question No. 1: Please tell us about yourself:

State	Date Response Received	First Name	Last Name	Title / Position	Agency	Telephone No.	E-mail Address
Alaska	June 28, 2001	Richard	Pratt	Chief Bridge Engineer	Alaska Department of Transportation	(907) 465-8890	richard_pratt@dot.state.ak.us
Arizona	June 27, 2001	Dan	Davis	No response	No response	No response	ddavis@dot.state.ak.us
Delaware	June 29, 2001	Muhammad	Chaudhri	Bridge Management Engineer	Delaware DOT	(320) 760-2299	mchaudhrie@ma.il.dot.state.de.us
Georgia	July 24, 2001	Paul	Liles, Jr.	State Bridge Engineer	Georgia DOT	(404) 656-5280	(404) 651-7076
Hawaii	July 24, 2001	Paul	Santo	Bridge Design Engineer	Hawaii Dept. Of Transportation	(808) 692-7611	paul_santo@exe.c.state.hi.us
Idaho	July 11, 2001	Matt	Farrar	State Bridge Engineer	Idaho Transportation Department	(208) 334-8538	mfarrar@itd.state.id.us
Illinois	July 9, 2001	Carl	Puzey	Bridge Investigations and Repair Plans Unit Chief	Illinois Department of Transportation	(217) 785-4511	puzeydc@nt.dot.state.il.us
Kansas	June 28, 2001	Donald	Whisler	Bridge Inspection Engineer	Kansas Department of Transportation	(785) 296-4448	whisler@ksdot.org
Michigan	August 13, 2001	Roger	Till	Engineer of Structural Research	Michigan DOT	(517) 322-5682	tillr@mdot.state.mi.us
Minnesota	June 29, 2001	Paul	Kivisto	Metro Region Bridge Engineer	Minnesota Department of Transportation	(651) 747-2130	paul.kivisto@dot.state.mn.us
Missouri	July 9, 2001	Jeffrey	Ger	Structural Development & Support Engineer	Missouri Department of Transportation	(573) 751-2920	gerj@mail.state.mo.us
New Jersey	August 14, 2001	Jose	Lopez	Project Engineer, Structural Engineering	New Jersey Department of Transportation	(609) 530-2457	jlopez@cpm.dot.state.nj.us
New Mexico	June 28, 2001	Zann	Jones	Design Squad Leader	New Mexico State Highway Department	(505) 827-5583	No response
New York	July 9, 2001	Matthew	Royce	Civil Engineer III	NYS DOT	(518) 457-4534	mroyce@gw.dot.state.ny.us
North Carolina	July 20, 2001	Don	Idol	Assistant State Bridge Inspection Engineer	NC DOT Bridge Maintenance	(919) 733-4362	didol@dot.state.nc.us
North Dakota	July 2, 2001	Tim	Schwagler	No response	NDDOT/Bridge	(701) 328-4421	tschwagl@state.nd.us

State	Date Response Received	First Name	Last Name	Title / Position	Agency	Telephone No.	E-mail Address
Ohio	July 25, 2001	John	Wackerly	Structure Maintenance Engineer	Ohio DOT	(614) 466-4050	No response
South Dakota	July 23, 2001	Tom	Gilsrud	Bridge Maintenance Engineer	South Dakota Department of Transportation	(605) 773-3285	tom.gilsrud@sta.te.sd.us
Texas	July 10, 2001	Randy	Cox	Field Operations Section Director	Texas Department of Transportation	(512) 416-2189	wrcocx@dot.state.tx.us
Washington	July 10, 2001	Yum Man	Tam	Bridge Preservation Supervisor	Washington State Department of Transportation, Bridge Preservation Office	(360) 570-2557	tamy@wsdot.wa.gov

Table H-2. Survey Response to Question No. 2

Question No. 2: What documents does your agency reference for the inspection or assessment of bridges?

State	FHWA Manual 90	AASHTO Manual	Other 1	Other 2	Other 3	Other 4	First Name	Last Name	Telephone No.
Alaska	Yes	Yes	No response	No response	No response	No response	Drew	Stellbach	(907) 465-6942
Arizona	No response	No response	No response	No response	No response	No response	No response	No response	No response
Delaware	Yes	Yes	No response	No response	No response	No response	Muhammad	Chaudhri	(302) 760-2299
Georgia	Yes	Yes	No response	No response	No response	No response	Bill	DuVall	(404) 635-8189
Hawaii	Yes	Yes	No response	No response	No response	No response	No response	No response	No response
Idaho	Yes	Yes	Idaho Bridge Inspection Coding Guide	No response	No response	No response	No response	No response	No response
Illinois	Yes	Yes	FHWA Recording and Coding Guide for the Structural Inventory and Appraisal of the Nation's Bridges	Illinois Highway Information System Structure Information and Procedure Manual	No response	No response	Steve	Negangard	(217) 782-8988
Kansas	Yes	Yes	Kansas Bridge Inspection Manual	Kansas Pontis Inspection Manual	No response	No response	No response	No response	No response
Michigan	Yes	Yes	MDOT PONTIS Bridge Inspection Manual	MDOT Bridge Analysis Guide	FHWA Inspection of Fracture Critical Bridge Members	FHWA Technical Advisory on Scour Inspection	Rick	Smith	(517) 322-5715
Minnesota	Yes	Yes	MnDOT Pontis Inspection Booklet	No response	No response	No response	No response	No response	No response
Missouri	Yes	No response	Internal Rating Guide	No response	No response	No response	No response	No response	No response
New Jersey	Yes	Yes	AASHTO Manual for Bridge Maintenance	ACI Guide for Making a	No response	No response	No response	No response	No response

State	FHWA Manual 90	AASHTO Manual	Other 1	Other 2	Other 3	Other 4	First Name	Last Name	Telephone No.
New Mexico	Yes	No response	Recording and Coding Guide For Structure Inventory and Appraisal of the Nation's Bridges	No response	No response	No response	No response	No response	No response
New York	Yes	No	New York State Bridge Inspection Manual	No response	No response	No response	Bill	Sabbag	(518) 457-5498
North Carolina	Yes	Yes	No response	No response			No response	No response	No response
North Dakota	Yes	No	No response	No response	No response	No response	No response	No response	No response
Ohio	Yes	No	No response	No response	No response	No response	John	Wackerly	(614) 466-4050
South Dakota	Yes	Yes	South Dakota Bridge System Code Manual	Pontis Bridge Core Element Field Guide	No response	No response	No response	No response	No response
Texas	Yes	Yes	Inspection of Fracture Critical Bridge Members	No response	No response	No response	Kieth	Ramsey	(512) 416-2250
Washington	Yes	Yes	Washington State Bridge Inspection Manual, Published by WSDOT	No response	No response	No response	Yum Man	Tam	(360) 570-2557

Table H-3. Survey Response to Question No. 3

Question No. 3: Does your agency follow supplemental inspection or assessment guidelines specifically for prestressed concrete bridge I-beams?

State	Other Document	Other Document	First Name	Last Name	Telephone No.
Alaska	No	No response	No response	No response	No response
Arizona	No response	No response	No response	No response	No response
Delaware	No	No response	Muhammad	Chaudhri	(302) 760-2299
Georgia	No	No response	Bill	DuVall	(404) 635-8189
Hawaii	No	No response	No response	No response	No response
Idaho	No response	No response	No response	No response	No response
Illinois	Illinois Highway Information System Structure Information and Procedure Manual	No response	Steve	Negangard	(217) 782-8988
Kansas	No	No response	No response	No response	We haven't had any problems yet. We are only concerned with any cracks found at this time.
Michigan	None	No response	No response	No response	No response
Minnesota	No	No response	No response	No response	No response
Missouri	No	No response	No response	No response	No response
New Jersey	No	No response	No response	No response	No response
New Mexico	No	No response	No response	No response	No response
New York	No	No response	No response	No response	No response
North Carolina	No	No response	No response	No response	No response
North Dakota	No	No response	No response	No response	No response
Ohio	No	No response	No response	No response	No response
South Dakota	No	No response	No response	No response	No response
Texas	N/A	No response	No response	No response	No response
Washington	WSDOT does not	No response	Yum Man	Tam	(360) 570-2557

Table H-4. Survey Response to Question No. 4

Question No. 4: Besides visual inspection and hammer sounding of the surface, what techniques are your agency using to inspect and assess prestressed concrete bridge I-beams?

State	Techniques
Alaska	None
Arizona	No response
Delaware	No other techniques
Georgia	None
Hawaii	None
Idaho	None
Illinois	None
Kansas	None
Michigan	None
Minnesota	No response
Missouri	None
New Jersey	None
New Mexico	None
New York	None
North Carolina	None
North Dakota	None
Ohio	2 bridges had gauges installed when they were precast
South Dakota	None
Texas	Impact echo, Demec
Washington	Fiber optic camera

Table H-5. Survey Response to Question No. 5

Question No. 5: What documents does your agency reference for the rehabilitation of prestressed concrete bridge I-beam ends?

State	NCHRP Reports	ACI/CRM	DOT Specs.	Consultant	Other 1	First Name	Last Name	Telephone No.
Alaska	No response	No response	No response	No response	None	No response	No response	No response
Arizona	No response	No response	No response	No response	No response	No response	No response	No response
Delaware	Yes	No response	No response	Yes	No response	Muhammad	Chaudhri	(302) 760-2299
Georgia	No	No	No	No	No response	Bill	DuVall	(404) 635-8189
Hawaii	No	No	Yes	Yes	No response	No response	No response	No response
Idaho	No response	No response	Yes	No response	No response	No response	No response	No response
Illinois	No	No	Yes	Yes	No response	Carl	Puzey	(217) 785-4511
Kansas	No response	No response	No response	No response	No response	No response	No response	No repairs have been required yet. First prestressed bridge was built in 1972.
Michigan	No	No	Yes	No	No response	Roger	Till	(517) 322-5682
Minnesota	No	No	Yes	No	No response	No response	No response	No response
Missouri	Not sure on this one	No response	No response	No response	No response	No response	No response	No response
New Jersey	No	No	Yes	Yes	No response	No response	No response	No response
New Mexico	No response	No response	Yes	No response	No response	No response	No response	No response
New York	No response	No response	No response	No response	No response	No response	No response	No response
North Carolina	No	No	No	No	No response	No response	No response	No response
North Dakota	No	No	Yes	No	No response	No response	No response	No response
Ohio	No response	No response	No response	No response	No response	No response	No response	We haven't repaired any yet.
South Dakota	Yes, NCHRP Report 280	No	No	No	No response	No response	No response	No response
Texas	Yes	Yes	Yes	No	ICRI Repair Guidelines	Brian	Merrill	(512) 416-2232
Washington	No	No	No	No	We never needed to repair girder ends	Yum Man	Tam	(360) 570-2557

Table H-6. Survey Response to Question No. 6

Question No. 6: What application does your agency use to maintain bridge inspection structural/safety data?

State	TMS Application	Internal Software	Other	First Name	Last Name	Telephone No.
Alaska	Yes	Yes	No response	Drew	Sielbach	(907) 465-6942
Arizona	No response	No response	No response	No response	No response	No response
Delaware	No response	No response	Pontis	No response	No response	No response
Georgia	No	Yes	No response	Bill	DuVall	(404) 635-8189
Hawaii	No	Yes	No response	No response	No response	No response
Idaho	Yes	No response	No response	No response	No response	No response
Illinois	No response	Yes	Illinois Structure Information System, Maintenance Management Information System	Steve	Negangard	(217) 782-8988
Kansas	No response	Yes	No response	No response	No response	No response
Michigan	Yes	Yes	No response	Bob	Kelly	(517) 322-1398
Minnesota	Yes	Yes	No response	No response	No response	No response
Missouri	Yes	No response	No response	David	Koenig	(573) 526-0556
New Jersey	Yes	No	No response	Martin	Tobin	(609) 530-2562
New Mexico	No response	Yes	No response	No response	No response	No response
New York	No	Yes	No response	Tom	Moon	(518) 485-8550
North Carolina	No response	Yes	No response	No response	No response	No response
North Dakota	Yes	No	No response	No response	No response	No response
Ohio	No response	No response	ODOT has a bridge Management systems that is mainframe based. It is mainly used to sort inventory data.	No response	No response	No response
South Dakota	No	No	Pontis (customized)	Todd	Thompson	(605) 773-3285
Texas	No	Yes	No response	Kieth	Ramsey	(512) 416-2250
Washington	No	No	Bridge Management System, Published by WSDOT	DeWayne	Wilson	(360) 705-7214

Table H-7. Survey Response to Question No. 7

Question No. 7: Does your state gather specific data on prestressed concrete bridge I-beam end conditions? (Other than in a comment field on a NBI form, end region observations not currently required to be documented by NBIS)?

State	Response	First Name	Last Name	Telephone No.
Alaska	No	No response	No response	No response
Arizona	No response	No response	No response	No response
Delaware	No	No response	No response	No response
Georgia	No	No response	No response	No response
Hawaii	No	No response	No response	No response
Idaho	No	No response	No response	No response
Illinois	No	No response	No response	No response
Kansas	No	No response	No response	No response
Michigan	No	No response	No response	No response
Minnesota	No	No response	No response	No response
Missouri	No	No response	No response	No response
New Jersey	No	No response	No response	No response
New Mexico	No	No response	No response	No response
New York	No	No response	No response	No response
North Carolina	No	No response	No response	No response
North Dakota	No	No response	No response	No response
Ohio	No	No response	No response	No response
South Dakota	No	No response	No response	No response
Texas	No	No response	No response	No response
Washington	No	No response	No response	No response

Table H-8. Survey Response to Question No. 8

Question No. 8: Are you aware of any prestressed concrete bridge I-beam end rehabilitation or preventative maintenance projects in your state that have been documented in a report or are on-going?

State	Response	First Name	Last Name	Telephone No.
Alaska	No	No response	No response	No response
Arizona	No response	No response	No response	No response
Delaware	No	No response	No response	No response
Georgia	No	No response	No response	No response
Hawaii	No	No response	No response	No response
Idaho	No response	No response	No response	No response
Illinois	Yes. Application of zinc sheeting/hydrogel system to beam ends for preventative maintenance (report available) - Note that after completion of the report, this system was not approved for use on IDOT projects. Beam end rehab. methods used include formed concrete repair and polymer modified portland cement mortar.	Mark	Gawedzinski	(217) 782-2799
Kansas	No	No response	No response	No response
Michigan	Yes. Research Reports R-1373 and R-1380	Roger	Till	(517) 322-5682
Minnesota	No	No response	No response	No response
Missouri	We have done the FRP repair to the damaged girder, but any projects dealing with any girder end problem are unknown to me.	No response	No response	No response
New Jersey	No	No response	No response	No response
New Mexico	No	No response	No response	No response
New York	No	No response	No response	No response
North Carolina	No	No response	No response	No response
North Dakota	No	No response	No response	No response
Ohio	No	No response	No response	No response
South Dakota	No	No response	No response	No response
Texas	No	No response	No response	No response
Washington	No	No response	No response	No response

Table H-9. Survey Response to Question No. 9

Question No. 9: Do you object to our research team contacting you?

State	Response
Alaska	No
Arizona	No response
Delaware	No
Georgia	No
Hawaii	No
Idaho	No
Illinois	No
Kansas	No
Michigan	No
Minnesota	No
Missouri	No
New Jersey	No
New Mexico	No
New York	No
North Carolina	No
North Dakota	No
Ohio	No
South Dakota	No
Texas	No
Washington	No

Table H-10. Survey Response to Question No. 10

Question No. 10: You are encouraged to clarify any of responses to this survey below or provide additional comments relating to prestressed concrete I-beam inspection, assessment, or rehabilitation.

State	Response
Alaska	Primarily use P/S decked bulb tee girders. Don't typically have special problems at girder ends.
Arizona	We don't have this problem
Delaware	No response
Georgia	The Georgia DOT has had very little or very few problems with damage to the PSC Beam Ends.
Hawaii	No response
Idaho	No response
Illinois	A construction project is currently under way on I-55 in Illinois to completely replace a bridge which has deteriorated beam ends. Some of the existing beams are being salvaged and will be load tested. We hope to gain some knowledge of the effect this deterioration has on the strength of the beams.
Kansas	Are others having problems with the ends of prestress I-beam? Are these problems mainly related to leaky expansion joints above? Most of our prestress I-beam structure are continuous with no expansion joints required.
Michigan	See attached email from Tom Tellier dated 8/01/01. Any ideas on possible use for these referenced I-beams?
Minnesota	No response
Missouri	Concrete I-girder structures have not been assigned for Snooper inspection in the past unless extensive girder end cracking was suspected or found on girder ends visible on annual routine inspection. At this time there have not been any major reaction to the cracking so any new cracking is documented and been any major reaction to the cracking so any new cracking is documented and noted on inspection reports. The number of structures erected with concrete I-girders can be determined and then compared to those with the girders cracked if needed.
New Jersey	No response
New Mexico	No response
New York	Number of bridge superstructures with prestressed concrete I-beams in New York State is relatively small. Vast majority of prestressed concrete bridge super-structures in New York State consists of adjacent or spread box beam systems
North Carolina	No response
North Dakota	No response
Ohio	Last March we put on a prestress seminar. This seminar is available on videotape.
South Dakota	No response
Texas	No response
Washington	In WSDOT bridge design practice: 1. At bridge ends - A concrete End Diaphragm, 1'-10" thick is constructed integrally at end of P.S. Girders to support an Approach Slab from the roadway to the bridge. 2. At Intermediate Pier for discontinuous spans - All Strands shall be cut to flush with the P.S. Girder Ends and painted with an approved Epoxy Resin. (Except for extended strands to be constructed for continuous spans or for (1) bridge End Diaphragms).

Appendix I: Bridge Categories by Design and Loading

Table I-1: Design Characteristics and Traffic Load on Inspected PC I-girder Bridges

Bridge NBI No. & Year Built	Girder type	No. of Spans	Deck	Diaphragm Location										Bearing pads, restraints		Loading				
				End Diaphragms (on Piers)				Intermediate Diaphragms				Abutments		ADT (under)	ADT (under)	ADT (under)	ADT (over)	ADTT (over)		
				End spans		Mid-spans		End spans		Mid-spans		Interior	Exterior						Interior	Exterior
				Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior									
41029S23 1972	I, III Skewed	3	Simply Supported	Backwall	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	1 row	No	ADTT (under)	ADT (over)	ADTT (over)	ADTT (over)
41029S163 1964	I, II, III Non-skewed	3	Simply Supported	Backwall	M*	L*	N*	J*, D* 1, 6, 5, 8, 3	Interior	Exterior	Interior	Exterior	Interior	Exterior	2 rows	1 row	ADTT (under)	ADT (over)	ADTT (over)	ADTT (over)
41029S164 1964	I, II, III Non-skewed	3	Simply Supported	Backwall	M*	L*	N*	J*, D* 1, 6, 5, 8, 3	Interior	Exterior	Interior	Exterior	Interior	Exterior	2 rows	1 row	ADTT (under)	ADT (over)	ADTT (over)	ADTT (over)
41027S060 1963	II, III Non-skewed	3	Simply Supported	Backwall	A*	A*	A*	J*, D* 1, 6, 5, 8, 3	Interior	Exterior	Interior	Exterior	Interior	Exterior	2 rows	1 row	ADTT (under)	ADT (over)	ADTT (over)	ADTT (over)
41025S070 1961	II, III Non-skewed	4	Simply Supported	Backwall	J*	A*	A*	J*, D* 1, 6, 5, 8, 3	Interior	Exterior	Interior	Exterior	Interior	Exterior	2 rows	1 row	ADTT (under)	ADT (over)	ADTT (over)	ADTT (over)

Bridge NBI No. & Year Built	Girder type	No. of Spans	Deck	Diaphragm Location												Bearing pads, restraints				Loading			
				Abutments		End Diaphragms (on Piers)				Intermediate Diaphragms				Abutments		Piers		ADT (under)	ADT (over)	ADT (under)	ADT (over)		
				Interior	Exterior	End spans		Mid-spans		End spans		Mid-spans		Interior	Exterior	Interior	Exterior	Free to move	Elastomeric	ADT (under)	ADT (over)	Elastomeric	Free to move
						Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior										
67016S090 1984	Wisco. 70", Non-skewed	1	Simply Supported	Interior	Exterior	Interior	Exterior	No	No	No	No	A*	A*	Free to move	Elastomeric	6900	3450	621	3450	518	518		
67016S100 1984	Wisco. 70", Non-skewed	1	Simply Supported	A, S abut				No	No	No	No	A*	A*	Free to move	Elastomeric	3450	3450	518	3450	518	518		
53034S050 1986	Wisco. 70", 28", Skewed	4	Simply Supported	Backwall	A* D* 4	D* 3,5	E*	A*	A*	A*	D*3	E*	E*	Free to move	Elastomeric	N/A*	N/A	N/A	N/A	N/A	N/A		
83033S060 1997	MT 1800, Skewed	1	Continuous	Backwall	No	No	No	No	No	No	No	Am*	Am*	Elastomeric	Elastomeric	N/A	N/A	N/A	N/A	N/A	N/A		
83033S050 1998	Wisco. 70", Skewed	2	Simply Supported	Backwall	Dm*	No	No	Am*	Am*	No	No	No	No	Elastomeric	Elastomeric	N/A	N/A	N/A	N/A	N/A	N/A		

Bridge NBI No. & Year Built	Girder type	No. of Spans	Deck	Diaphragm Location										Bearing pads, restraints				Loading			
				Abutments		End Diaphragms (on Piers)		Intermediate Diaphragms				Abutments		ADT (under)		ADT (under)		ADT (on)			
				End spans		Mid-spans		End spans		Mid-spans		End spans		Mid-spans		Piers		ADT (under)		ADT (on)	
				Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior
25042S124 1969	III, Skewed	4	Simply Supported	Backwall	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*		
					A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*
25042S123 1969	III, Skewed	4	Simply Supported	Backwall	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*		
					A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*
25042S128 1967	III, Skewed	4	Simply Supported	Backwall	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*		
					A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*
25042S127 1969	III, Skewed	4	Simply Supported	Backwall	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*		
					A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*
06111S11 1968	I, II, III, Skewed	6	Simply Supported	Backwall	B*	J*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*			
					I*	K*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	

Bridge NBI No. & Year Built	Girder type	No. of Spans	Deck	Diaphragm Location										Bearing pads, restraints			Loading						
				Abutments		End Diaphragms (on Piers)		Intermediate Diaphragms				Abutments		Piers	ADT (under)	ADT (over)	ADT (under)	ADT (over)	ADT (under)	ADT (over)			
				Interior	Exterior	Interior	Exterior	End spans		Mid-spans		End spans		Mid-spans		Interior	Exterior	Elastomeric, free to move	Elastomeric, free to move	Elastomeric, free to move	Elastomeric, free to move	Elastomeric, free to move	Elastomeric, free to move
								Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior								
25132S34 1971	I, II, III, Skewed	4	Simply Supported	Backwall	B*	J*	A*	A*	A*	No	I*	Elastomeric, free to move	Elastomeric, free to move	9842	492	9500	855						
29011S03 1961	I, II, Non-skewed	3	Simply Supported	B*, A*	B*	A*	B*	A*	A*	B*	A*	elastomeric	neoprene	820	57	7000	7000						
06111S04 1968	I, III, Non-skewed	3	Simply Supported	Backwall	B*	J*	A*	A*	A*	No	G*	Elastomeric, free to move	Elastomeric, free to move	3900	273	9500	950						
06111S05 1968	II, III, Skewed	3	Simply Supported	Backwall	B*	J*	A*	A*	A*	1 row G* K*	2 rows G*	Elastomeric, free to move	Elastomeric, free to move	8000	800	900	0						
06111S06 1968	II, III, Skewed	3	Simply Supported	Backwall	B*	J*	A*	A*	A*	1 row G* K*	2 rows G*	Elastomeric, free to move	Elastomeric, free to move	8000	800	900	0						

- i ADT (under) - Average daily traffic under a bridge
- ii ADTT (under) - Average daily truck traffic under a bridge
- iii ADT (on) - Average daily traffic on a bridge
- iv ADTT (on) - Average daily truck traffic on a bridge
- v N/A - Information is not available

* These letters represent the type of diaphragm found in Table I-2

Table I-2. Diaphragm Types

Diaphragm Types			
Type A	Type H	Type G	Type L
Type Am	Type I	Type J	Type M
Type B	Type D	Type E	Type N
Type C	Type Dm	Type K	

Appendix J: Suggested Preventive Maintenance (PM)/Repair Techniques for Distressed Prestressed Concrete I-Beam Ends

No.	Technique Description	PM	Repair
1.0	Structure Modification Methods		
1.1	Deck Modifications		✓
1.1.1	Joint Repair	✓	✓
1.1.2	New Joint	✓	✓
1.1.3	Overlay	✓	✓
1.1.4	New CLL Deck	✓	✓
1.2	Support Member Modification		✓
1.2.1	New Haunch		✓
1.2.2	New Bearings	✓	✓
1.3	Primary Framing Modification		✓
1.3.1	Supplemental Beam		✓
1.3.2	Full Beam Replacement		✓
	Partial Depth Beam Repair (See 5.0)	✓	✓
1.4	Secondary Framing Modification		✓
1.4.1	Replace Diaphragms		✓
2.0	Surface Insulating Methods		
2.1	Penetrating Sealers	✓	
2.1.1	Silane	✓	
2.1.2	Siloxane	✓	
2.1.3	Drying Oils	✓	
2.2	Surface Sealers	✓	
2.2.1	Acrylics	✓	
2.2.2	MMA	✓	
2.2.3	HMMA	✓	
2.3	Coatings	✓	
2.3.1	Bituminous Materials	✓	
2.3.2	Polyesters	✓	
2.3.3	Urethanes	✓	
2.3.4	Epoxies	✓	
2.3.5	Neoprene	✓	
2.3.6	Coal-Tar Epoxy	✓	
2.3.7	Mortars & Grouts	✓	
2.3.8	Sheet Rubber	✓	
2.3.9	Acrylics	✓	
2.3.10	MMA	✓	
2.3.11	HMMA	✓	
2.4	Crack Sealants	✓	
	Partial Depth Beam Repair (See 5.0)	✓	✓

No.	Technique Description	PM	Repair
3.0	Electron Control Methods		
3.1	Surface Applied Corrosion Inhibitors	✓	
3.1.1	Vapor Phase	✓	
3.1.2	Liquid Phase	✓	
3.1.3	Organic	✓	
3.1.4	Inorganic	✓	
3.2	Surface Applied Sacrificial Anodes	✓	
3.3	Internally applied Sacrificial Anodes	✓	✓
3.4	Impressed Current Cathodic Protection		✓
3.5	Partial Depth Beam Repair (See 5.0)		
4.0	Environment Modifying Methods		
4.1	Chloride Ion Extraction	✓	
4.2	Re-Alkalization	✓	
4.2.1	DC Current Impressed	✓	
4.2.2	Surface Applied Barriers	✓	
4.3	Partial Depth Beam Repair (See 5.0)	✓	✓
5.0	Partial Depth Beam Repair	✓	✓
5.1	Concrete Removal	✓	✓
5.1.1	Hydrodemolition	✓	✓
5.1.2	Breakers	✓	✓
5.1.3	Sawing	✓	✓
5.2	Concrete Surface Preparation	✓	✓
5.2.1	Compressed Air	✓	✓
5.2.2	High Pressure Water	✓	✓
5.2.3	Grit Blasting	✓	✓
5.2.4	Sand Blasting	✓	✓
5.2.5	Scabbling	✓	✓
5.2.6	Wire Brushing	✓	✓
5.2.7	Breakers	✓	✓
5.3	Reinforcement Surface Cleaning	✓	✓
5.3.1	High Pressure Water	✓	✓
5.3.2	Grit Blasting	✓	✓
5.3.3	Sand Blasting	✓	✓
5.3.4	Scabbling	✓	✓
5.3.5	Wire Brushing	✓	✓
5.4	Reinforcement Surface Preparation	✓	✓
5.4.1	Epoxies	✓	✓
5.4.2	Liquid Corrosion Inhibitors	✓	✓
5.4.3	Zinc-rich Paint	✓	✓
5.4.4	Concrete Mortar	✓	✓

No.	Technique Description	PM	Repair
5.5	Internal Strengthening	✓	✓
5.5.1	Weld-splice Bars	✓	✓
5.5.2	Mechanically Couple Bars	✓	✓
5.5.3	Lap Bars	✓	✓
5.5.4	Other Internal Reinforcement	✓	✓
5.6	Enhanced Durability (In addition to repair materials)	✓	✓
5.6.1	Cathodic Protection	✓	✓
5.6.2	Corrosion Inhibitors	✓	✓
5.7	Repair Materials	✓	✓
5.7.1	Binder	✓	✓
5.7.1.1	Portland Cement	✓	✓
5.7.1.2	Epoxy	✓	✓
5.7.1.3	Magnesium Portland Cement	✓	✓
5.7.2	Aggregate	✓	✓
5.7.2.1	Fine	✓	✓
5.7.2.2	Coarse	✓	✓
5.7.3	Fillers	✓	✓
5.7.3.1	Fly Ash	✓	✓
5.7.3.2	Silica Fume	✓	✓
5.7.4	Polymer Modifiers	✓	✓
5.7.4.1	SBR (latex)	✓	✓
5.7.4.2	Others	✓	✓
5.7.5	Fiber Reinforcement	✓	✓
5.7.5.1	Steel Strand	✓	✓
5.7.5.2	Fiberglass	✓	✓
5.7.6	Chemical Modifiers	✓	✓
5.8	Placement and Formwork	✓	✓
5.8.1	Cast-in-place	✓	✓
5.8.2	Form and Pump	✓	✓
5.8.3	Pre-placed Aggregate	✓	✓
5.8.4	Shotcrete	✓	✓
5.8.5	Hand Applied	✓	✓
5.9	Curing	✓	✓
5.9.1	Membrane	✓	✓
5.9.2	Moist	✓	✓