

APPENDIX S AASHTO CONTROLLING DESIGN CRITERIA REPORT



THIS PAGE INTENTIONALLY LEFT BLANK



Project No. 010 PM 260 H7825 01L Federal No. I-10-E(210)S

TUCSON - BENSON HIGHWAY I-10, Jct I-19 to Kolb Road Rd and SR 210, Golf Links Road to I-10

Interstate 10

AASHTO CONTROLLING DESIGN CRITERIA REPORT

October 2019

Prepared for ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY ENGINEERING GROUP

Prepared by

JACOBS 101 North First Avenue Suite 2600 Phoenix, Arizona 85003

TABLE OF CONTENTS

Page
Title Sheet
Table of Contentsii
List of Existing Features Requiring Design Exceptions
Summary of Criteria (I-10 – EB/WB Level Terrain)
Attachment No. 1 – Vertical Curve Inventory EB
Attachment No. 1 – Vertical Curve Inventory WB
Attachment No. 2 – Horizontal Curve Inventory EB9
Attachment No. 2 - Horizontal Curve Inventory WB
Bridge Evaluation Request



List of Existing Features Requiring Design Exceptions

This project involves widening of I-10 adding travel and auxiliary lanes for the Eastbound and Westbound directions, reconstructing several traffic interchanges including bridges. Project improvements start at Milepost 260.8 and end at Milepost 272.3. State Route 210 will also be extended to I-10 with a new facility.

The following are existing design features requiring design exceptions based upon A Policy on Geometric Design of Highways and Streets 2004 and A Policy on Design Standards Interstate System, January 2005,

I-10 EB

No design features for Eastbound I-10 require design exceptions.

I-10 WB

No design features for Eastbound I-10 require design exceptions.

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA MAIN LINE SUMMARY (DIVIDED)(EASTBOUND)

PROJECT NUMBER:	010 PM 260 H7825 01 L	ROUTE:	1-10 E
PROJECT LOCATION:	6TH AVE TI - KOLB RD TI	BEGINNING MP:	260.78
HIGHWAY SECTION:	TUCSON - BENSON HIGHWAY	ENDING MP:	272.30
EUNCTIONAL CLASSIFICATION:	DUDAL INTEDSTATE		

FUNCTIONAL C	TION: LASSIFICATION:		TUCSON - BE RURAL INTE	ENSON HIGHW RSTATE	AY			ENDING MP:	272.30			
	MES AND FACTORS:				Latest	Design Year		.V				
Milepost Lin					2018 AADT	2040 AADT		Traffic Facto				
260,78	to	261.72	(Park Ave)		52,100	53,400		K = 9%, D =				
261.74	to	262.53	(Kino Ave)		44,500	60,500		K = 8%, D =				
262.53	to	263.82	(Country Clu		37,400	76,100		K = 9%, D =				
263.82	to	265.02	(Alvernon Wa	ay)	32,600	71,700		K = 9%, D =				
265,02	to	267.10	(Valencia Rd).	33,600	92,500		K = 9%, D =				
267.10	to	268.08	(Craycroft Ro	3):	34,600	88,900		K = 8%, D =	69%, T = 19	9%		
268.08	to	269.36	(Wilmot Rd)		34,500	96,800		K = 8%, D =	69%, T = 19	9%		
269.36	to	270.58	(Kolb Rd)		27,000	83,200		K = 9%, D =	57%, T= 17	%		
THE POS	TED SPEED LIMIT IS:	65 MPH		TERRAIN IS: L	EVEL	AVE	RAGE ELEVATION IS:	2680 FT				
LANE AND SHO	ULDER WIDTH:		EXISTING				AASUTO BEO	OMMENDED MIN	0847184			
			(FEET)				AASH TO REC	(FEET)	ALIM DIN			
	1 summers											
not asked	LANE WIDTH:		2-12					2-12				
	SHOULDER WIDTH:		4					4				
OUTSIDE	SHOULDER WIDTH:		10					10				
VERTICAL ALIG	NMENT AND STOPPI	NG SIGHT D	STANCE:									
			APPROACH	DEPARTURE	LENGTH OF	STOPPING SIG	HT DISTANCE	EXISTING	POSTED			
	MII EDOR		CDARE			EVICTING	DECUMPED	COEED				
VPI STATION	MILEPOST BEGIN	END	GRADE (%)	GRADE (%)	(FT)	(FT)	REQUIRED (FT)	SPEED (MPH)	SPEED (MPH)			
VPI STATION					(FT)							
		END	(%)		(FT)	(FT)						
	BEGIN	END PPING SIGH	(%)	(%)	(FT)	(FT)	(FT)	(MPH)	(MPH)	FXISTING	HORIZON	VTAL SSD
	BEGIN	END PPING SIGH SI	(%) T DISTANCE:	(%) ON	(FT) SE	(FT) EE ATTACHMENT #1 POSTED	(FT)	(MPH)	(MPH)	EXISTING GRADE		NTAL SSD
	BEGIN	END PPING SIGH	(%) T DISTANCE:	(%)	(FT)	(FT)	(FT)	(MPH)	(MPH)	EXISTING GRADE (%)		NTAL SSD REQUIREI (FT)

Page 1

* DESIGN EXCEPTION REQUIRED



Final Design Concept Report

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA MAIN LINE SUMMARY (DIVIDED) (CONTINUED)

EXISTING MAXIMUM GRADE IS: 2.7080% AASHTO MAXIMUM GRADE IS: 3%

CROSS SLOPE:

EXISTING CROSS SLOPE IS: 1.5%

AASHTO RANGE IS: 1.5 - 2.0%

VERTICAL CLEARANCE:

		PRECONSTRUCTION	POST CONSTRUCTION	MINIMUM ALLOWABLE
STRUCTURE	MILEPOST	CLEARANCE	CLEARANCE	CLEARANCE
6th Avenue TI UP (#2195)	260.99	16'- 11"	16' - 6"	16" - 0"
Kino Pkwy TI UP NB (#1162)	262.53	16" - 8"	16' - 6"	16" - 0"
Kino Pkwy TI UP SB (#1163)	262.53	17'- 10"	16' - 6"	16" - 0"
Kolb Road TI UP (#1823)	270.58	16' - 2"	17' - 0"	16" - 0"
Aviation Hwy UP Br (#9809)	NA.	17" - 0"	16' - 6"	16' - 0"
Kino Pkwy TI UP SB (#1163) Kolb Road TI UP (#1823)	262.53 270.58	17' - 10" 16' - 2"	16' - 6" 17' - 0"	16" - 0" 16" - 0"

STRUCTURES:

STRUCTURE	MILEPOST	EXISTING BRIDGE LENGTH	EXISTING BRIDGE WIDTH	RECOMMENDED BRIDGE WIDTH	BRIDGE BARRIER GEOMETRY ADEQUATE	BRIDGE BARRIER STRUCTURAL ADEQUATE	EXISTING STRUCTURE CAPACITY	RECOMMENDED STRUCTURE CAPACITY
oop Rd SPRR OP EBFR (#2196)	261.41	167'	40.0	37.5	Yes	Yes	HS 20+	HS 20
Veterans SPRR OP (#2197)	261.41	168'	125.8	115'	Yes	Yes	HS 20+	HS 20
Park Ave TI OP EB (#2162)	261.72	251	72.5	71.5'	Yes	Yes	HS 20+	HS 20
Ramp K3 Over Ajo Way (#2012)	262.38	176	26.0'	25.5'	Yes	Yes	HS 20+	HS 20
Ajo Way OP EB (#1107)	262.44	261	38.0	37.5	Yes	Yes	HS 20	HS 20
Diversion Chal Br EB (#1109)	262.82	90'	64.0"	59.5	Yes	No.*	HS 20+	HS 20
Country Club OP EB (#1111)	263.82	150'	38.0	37.5	Yes	Yes	HS 20+	HS 20
rvington Rd TI OP EB (#1217)	264.27	261'	42.0'	37.5'	Yes	Yes	HS 20	HS 20
Palo Verde TI OP EB (#1219)	264.37	195'	42.0"	37.5	Yes	Yes	HS 20+	HS 20
Alvernon Way OP EB (#2018)	265.02	215'	60.0	59.51	Yes	Yes	HS 20+	HS 20
Drexel Rd OP EB (#1223)	266.00	141	38.0	37.5	Yes	No *	HS 20+	HS 20
Valencia Rd OP EB (#1225)	267.10	182	42.0	37.5	Yes	No *	HS 20+	HS 20
Earp Wash Trib Br EB (#1044)	267.65	94'	48.8"	37.5	Yes	Yes	HS 13.3**	HS 20
Craycroft Rd TI OP EB (#0594)	268.08	177	38.0	37.5	Yes	Yes	HS 20+	HS 20
Wilmot Rd Ti OP EB (#0596)	269.36	177'	40.7	37.5	Yes	Yes	HS 20+	HS 20

* Design Exceptions are not required for bridge barriers. The Diversion Channel Bridge (#1109) will be widered replacing the bridge barriers. The Drexel Road Bridge (#1223) and the Valencia Road Bridge (#1225) will be removed are reconstructed.

** The EB Earp Wash Tributary Bridge will be replaced with a RCBC. A Design Exception will not be required.

Page 2

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA MAIN LINE SUMMARY (DIVIDED)(WESTBOUND)

	And the second section of the section of the second section of the section of the second section of the section of th		
PROJECT NUMBER:	010 PM 260 H7825 01 L	ROUTE:	1-10 WB
PROJECT LOCATION:	6TH AVE TI - KOLB RD TI	BEGINNING MP:	260.79
HIGHWAY SECTION:	TUCSON - BENSON HIGHWAY	ENDING MP:	272.30
FUNCTIONAL CLASSIFICATION:	PUPAL INTERSTATE		

Milepost Limits				Latest 2018 AADT	Design Year 2040 AADT	Traffic Factors:	
260.78	to	261.72	(Park Ave)	56,500	64,800	K = 9%, D = 51%, T = 19%	
261.74	to	262.53	(Kino Ave)	42,900	58,900	K = 8%, D = 51%, T = 19%	
262.53	to	263.82	(Country Club)	39,500	79,300	K = 9%, D = 57%, T = 14%	
263.82	to	265.02	(Alvernon Way)	34,400	72,900	K = 9%, D = 63%, T = 19%	
265.02	to	267.10	(Valencia Rd)	42,400	90,400	K = 9%, D = 66%, T = 15%	
267.10	to	268.08	(Craycroft Rd)	35,400	89,300	K = 8%, D = 69%, T = 19%	
268.08	to	269.36	(Wilmot Rd)	35,400	97,000	K = 8%, D = 69%, T = 19%	
269,36	to	270.58	(Kolb Rd)	28,600	82,700	K = 9%, D = 57%, T = 17%	
THE POSTED	SPEED LIMIT IS:	65 MPH	TERRAIN	IS: LEVEL	AVERAGE	ELEVATION IS: 2680 FT	
		65 MPH		IS: LEVEL	AVERAGE		
10000		65 MPH	EXISTING	IS: LEVEL	AVERAGE	AASHTO RECOMMENDED MINIMUM	
10000	DER WIDTH:	65 MPH	EXISTING (FEET)	IS: LEVEL	AVERAGE	AASHTO RECOMMENDED MINIMUM (FEET)	
ANE AND SHOUL	DER WIDTH:	65 MPH	EXISTING	IS: LEVEL	AVERAGE	AASHTO RECOMMENDED MINIMUM	
ANE AND SHOUL	DER WIDTH:	65 MPH	EXISTING (FEET)	IS: LEVEL	AVERAGE	AASHTO RECOMMENDED MINIMUM (FEET)	
ANE AND SHOUL (INSIDE SHOUTSIDE SH	DER WIDTH: LANE WIDTH: OULDER WIDTH:		EXISTING (FEET) 2-12 4	IS: LEVEL	AVERAGE	AASHTO RECOMMENDED MINIMUM (FEET) 2-12 4	
ANE AND SHOUL INSIDE SH OUTSIDE SH	DER WIDTH: LANE WIDTH: OULDER WIDTH:		EXISTING (FEET) 2-12 4		AVERAGE	AASHTO RECOMMENDED MINIMUM (FEET) 2-12 4 10	
ANE AND SHOUL INSIDE SH OUTSIDE SH	DER WIDTH: LANE WIDTH: OULDER WIDTH:	NG SIGHT	EXISTING (FEET) 2-12 4 10	URE LENGTH OF	STOPPING SIGHT DI	AASHTO RECOMMENDED MINIMUM (FEET) 2-12 4 10	

	SEE ATTACHMENT#1	
HORIZONTAL ALIGNMENT AND STOPPING SIGHT DISTANCE:		

		SUPERELEVATION			SUPERELEVATION METHOD 2 POSTED					EXISTING MAXII	MAXIMUM EXISTING		EXISTING HORI		IZONTAL SSD	
	MILEP	OST	RDG MAX	EXISTING	MUMINIM	SPEED	SPEED	DEGREE OF	DEGREE OF	HSO	GRADE	EXISTING	REQUIRED			
HPI STATION	BEGIN	END	(FT/FT)	(FT/FT)	(FT/FT)	(MPH)	(MPH)	CURVE	CURVE	(FT)	(%)	(FT)	(FT)			

	SEE ATTACHMEN

* DESIGN EXCEPTION REQUIRED

Page 3



SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA MAIN LINE SUMMARY (DIVIDED) (CONTINUED)

GRADES:

EXISTING MAXIMUM GRADE IS: 2.8990%
AASHTO MAXIMUM GRADE IS: 3%

CROSS SLOPE:

EXISTING CROSS SLOPE IS: 1.5%

AASHTO RANGE IS: 1.5 - 2.0%

VERTICAL CLEARANCE:				
		PRECONSTRUCTION	POST CONSTRUCTION	MINIMUM ALLOWABLE
STRUCTURE	MILEPOST	CLEARANCE	CLEARANCE	CLEARANCE
6th Avenue TI UP (#2195)	260.99	16'- 11"	16' - 6"	16' - 0"
Kino Pkwy TI UP NB (#1162)	262.53	16' - 8"	16' - 6"	16' - 0"
Kino Pkwy TI UP SB (#1163)	262.53	17' - 10"	16' - 6"	16' - 0"
Kolb Road TI UP (#1823)	270.58	16' - 2"	17' - 0"	16' - 0"

		EXISTING BRIDGE	EXISTING BRIDGE	RECOMMENDED BRIDGE	BRIDGE BARRIER GEOMETRY	BRIDGE BARRIER STRUCTURAL	EXISTING STRUCTURE	RECOMMENDED STRUCTURE
STRUCTURE	MILEPOST	LENGTH	WIDTH	WIDTH	ADEQUATE	ADEQUATE	CAPACITY	CAPACITY
rontage Rd SPRR OP WB (#2164)	261.41	167"	40.0	37.5'	Yes	Yes	HS 20+	HS 20
/eterans SPRR OP (#2197)	261.41	168	125.8	125.8	Yes	Yes	HS 20+	HS 20
Park Ave TI OP WB (#2163)	261.72	248'	72.0	71.5	Yes	Yes	HS 20+	HS 20
No Way OP WB (#1108)	262.44	261	38.0	37.5	Yes	Yes	HS 20	HS 20
Diversion Chnl Br WB (#1110)	262.82	90'	50.0	49.5	Yes	No*	HS 20+	HS 20
Country Club OP WB (#1112)	263.82	150"	38.0	37.5	Yes	Yes	HS 20+	HS 20
rvington Rd TI OP WB (#1218)	264.27	261	42.0	37.5	Yes	Yes	HS 20+	HS 20
Palo Verde TI OP WB (#1220)	264.37	195	42.0	37.5	Yes	Yes	HS 20+	HS 20
Avernon Way OP WB (#2019)	265.02	215	60.0	59.5	Yes	Yes	HS 20+	HS 20
Drexel Rd OP WB (#1224)	266.00	141"	38.01	37.5	Yes	No*	HS 20+	HS 20
/alencia Rd OP WB (#1226)	267.10	183'	42.0	37.5	Yes	No*	HS 20+	HS 20
Earp Wash Trib Br WB (#1045)	267.65	94"	48.8	37.5'	Yes	Yes	HS 13.3**	HS 20
Earp Wash Trib WB FR Br (#1052)	267.65	94"	24.0	25.5	Yes	Yes	HS 13.3**	HS 20
Craycroft Rd TI OP WB (#0595)	268.08	177'	40.7	37.5	Yes	Yes	HS 20+	HS 20
Wilmot Rd TI OP WB (#0597)	269.36	177	38.0	37.5	Yes	Yes	HS 20+	HS 20

Page 4

Final Design Concept Report

Page 5

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: I-10, I-19 to Kolb Road - EB

Project Number: 010 PM 260 H7825 01L Roadway Type: Divided Roadway (Uni-directional)

VPI	MILE	POST	TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SI	GHT DISTANCE	SPE	D
STATION	BEGIN	END	DIRECTION (1w, 1a or 2)	IN (%)	OUT (%)	LENGTH (ft)	TYPE	AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
26+00.	261.97	262.16	1w	-0.3000	0.8000	1000	Sag	+9999	647	+100	65
115+76.	262.99	263.18	1w	0.8000	1.0900	1000	Sag	+9999	635	+100	65
150+00.	263.64	263.83	1w	1.0900	0.8500	1000	Crest	4996	634	+100	65
183+50.	264.27	264.46	1w	0.8500	0.2950	1000	Crest	2444	640	+100	65
203+50.	264.65	264.84	1w	0.2950	1.0000	1000	Sag	+9999	640	+100	65
224+00.	265.04	265.23	1w	1.0000	0.5000	1000	Crest	2658	638	+100	65
246+00.	265.45	265.64	1w	0.5000	1.2000	1000	Sag	+9999	638	+100	65
275+00.	266.02	266.21	1w	1.2000	0.6300	1000	Crest	2393	637	+100	65
330+00	267.03	267.22	1w	0.6300	-1.0000	1000	Crest	1162	656	91	65
339+00.	267.22	267.38	1w	-1.0000	0.5400	800	Sag	+9999	656	+100	65
343+00	267.38	267.38	1w	0.5400	1.2440	0	GB	GB	GB	GB	65
345+50.	267.39	267.45	1w	1.2440	0.3710	300	Crest	1386	639	+100	65
359+50.	267.65	267.73	1w	0.3710	2.7080	400	Sag	1137	639	92	65
369+68.	267.93	268.08	1w	2.7080	0.5400	800	Crest	898	638	80	65
374+68.	268.08	268.12	1w	0.5400	-0.5000	200	Crest	1138	650	91	65
378+50	268.13	268.22	1w	-0.5000	-1.0080	500	Crest	2374	656	+100	65
385+00	268.22	268.37	1w	-1.0080	1.1010	800	Sag	2907	656	+100	65
399+00.	368.45	268.67	1w	1.1010	0.4960	1200	Crest	2383	638	+100	65
421+50.	268.93	269.04	1w	0.4960	2.3720	600	Sag	6054	638	+100	65
435+91.	269.18	269.34	1w	2.3720	0.5000	800	Crest	976	638	84	65
440+91.	269.34	269.37	1w	0.5000	-0.5000	200	Crest	1179	650	93	65
445+91.	269.37	269.53	1w	-0.5000	-1.7820	800	Crest	1242	666	94	65
453+00	269.53	269.64	1w	-1.7820	0.5400	600	Sag	1567	666	+100	65
488+00	270.17	270.32	1w	0.5400	1.0200	800	Sag	+9999	638	+100	65
518+00	270.76	270.87	1w	1.0200	0.7720	600	Crest	4651	635	+100	65

Traffic Direction

1w = One Way Traffic in Station direction

1a = One Way Traffic against Station direction

2 = Two Way Traffic

Grades are with respect to Station direction

Indicates design exception required.
 GB indicates grade break. Stopping Sight Distance and Speed not calculated.
 Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design

Guidelines formulas with adjustments for effective grade

adot/jcc v1.0 11/14/2019

^{*} Design Exceptions are not required for bridge barriers. The Diversion Channel Bridge (#110) will be widened replacing the bridge barriers with new bridge barriers. The Drexel Road Bridge (#1224) and the Valencia Road Bridge (#1226) will be removed and reconstructed with new bridge barriers.

** The WB Earp Wash Tributary Bridges will be replaced with an RCBC. Design Exceptions will not be required.



ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Page 6

Project Name: I-10, I-19 to Kolb Road - EB Project Number: 010 PM 260 H7825 01L Roadway Type: Divided Roadway (Uni-directional)

VPI	MILE	POST	TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SI	GHT DISTANCE	SPE	ED
STATION	BEGIN	END	DIRECTION (1w, 1a or 2)	IN (%)	OUT (%)	LENGTH (ft)	TYPE	AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
538+00	271.14	271.25	1w	0.7720	0.5750	600	Crest	5777	637	+100	65
556+00.	271.40	271.67	1w	0.5750	1.2000	1400	Sag	+9999	637	+100	65
571+00.	271.72	271.91	1w	1.2000	0.6800	1000	Crest	2575	636	+100	65
601+00.	272.27	272.50	1w	0.6800	1.6400	1200	Sag	+9999	636	+100	65
622+50.	272.64	272.95	1w	1.6400	0.6670	1600	Crest	1909	636	+100	65
655+00.	273.41	273.41	1w	0.6670	0.8450	0	GB	GB	GB	GB	65

Traffic Direction

1w = One Way Traffic in Station direction

1a = One Way Traffic against Station direction 2 = Two Way Traffic

Grades are with respect to Station direction.

* Indicates design exception required.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design

Guidelines formulas with adjustments for effective grade

adot/jcc v1.0 11/14/2019

Final Design Concept Report

Page 7

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: I-10, I-19 to Kolb Road - WB Project Number: 010 PM 260 H7825 01L Roadway Type: Divided Roadway (Uni-directional)

VPI	MILE	POST	TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SI	GHT DISTANCE	SPE	D
STATION	BEGIN	END	DIRECTION (1w, 1a or 2)	IN (%)	OUT (%)	LENGTH (ft)	TYPE	AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
644+00:	273.20	273.20	1a	-0.5530	-0.6670	-0	GB	GB	GB	GB	65
622+00.	272.94	272.63	1a	-0.6670	-1.6400	1600	Crest	1909	636	+100	65
601+00.	272.50	272.27	1a	-1.6400	-0.6800	1200	Sag	+9999	636	+100	65
571+00.	271.91	271.72	1a	-0.6800	-1.2000	1000	Crest	2575	636	+100	65
556+00.	271.67	271.40	1a	-1.2000	-0.5750	1400	Sag	+9999	637	+100	65
538+00.	271.25	271.25	1a	-0.5750	-0.7720	600	Crest	5777	637	+100	65
518+00.	270.87	270.76	1a	-0.7720	-1.0200	600	Crest	4651	635	+100	65
488+00	270.32	270.17	1a	-1.0200	-0.5400	800	Sag	+9999	638	+100	65
453+00.	269.64	269.53	1a	-0.5400	1.6280	600	Sag	2034	664	+100	65
445+24.	269.51	269.39	1a	1.6280	0.5000	800	Crest	1357	664	+100	65
440+24.	269.36	269.32	1a	0.5000	-0.5000	200	Crest	1179	650	93	65
435+25.	269.32	269.17	1a	-0.5000	-2.4870	800	Crest	943	638	82	65
421+50.	269.04	268.93	1a	-2.4870	-0.4960	600	Sag	3308	638	+100	65
399+00.	268.67	268.45	1a	-0.4960	-1.3090	1200	Crest	1927	638	+100	65
386+00.	268.35	268.28	1a	-1.3090	0.8450	400	Sag	1561	654	+100	65
379+02.	286.26	268.11	1a	0.8450	0.5000	800	Crest	3528	654	+100	65
374+02.	268.11	268.07	1a	0.5000	-0.5000	200	Crest	1179	650	93	65
369+02.	267.94	267.79	1a	-0.5000	-2.8990	800	Crest	850	638	77	65
359+50.	267.73	267.65	1a	-2.8990	-0.3710	400	Sag	907	639	80	65
347+00.	267.45	267.45	1a	-0.3710	-1.2440	0	GB	GB	GB	GB	65
343+00.	267.47	267.28	1a	-1.2440	0.5000	1000	Sag	+9999	650	+100	65
336+00.	267.34	267.15	1a	0.5000	-0.5900	1000	Crest	1490	650	+100	65
277+00	266.25	266.06	1a	-0.5900	-1.1500	1000	Crest	2427	637	+100	65
246+00	265.64	265.45	1a	-1.1500	-0.5000	1000	Sag	+9999	638	+100	65
224+00	265.23	265.04	1a	-0.5000	-1.0000	1000	Crest	2658	638	+100	65

Traffic Direction

1w = One Way Traffic in Station direction

1a = One Way Traffic against Station direction

2 = Two Way Traffic

Grades are with respect to Station direction.

Indicates design exception required.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design

Guidelines formulas with adjustments for effective grade.

adot/jcc v1.0 11/14/2019



Page 8

ATTACHMENT 1 - VERTICAL CURVE INVENTORY

Project Name: I-10, I-19 to Kolb Road - WB Project Number: 010 PM 260 H7825 01L Roadway Type: Divided Roadway (Uni-directional)

VPI	MILE	POST	TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SI	GHT DISTANCE	SPE	ED
STATION	BEGIN	END	DIRECTION (1w, 1a or 2)	IN (%)	OUT (%)	LENGTH (ft)	TYPE	AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
203+50	264.84	264.65	1a	-1.0000	-0.2950	1000	Sag	+9999	640	+100	65
183+50.	264.46	264.27	1a	-0.2950	-0.8500	1000	Crest	2444	640	+100	65
150+00.	263.83	263.64	1a	-0.8500	-1.0900	1000	Crest	4996	634	+100	65
114+76.	263.16	262.97	1a	-1.0900	-0.8000	1000	Sag	+9999	635	+100	65
62+00.	262.16	261.97	1a	-0.8000	0.3000	1000	Sag	+9999	647	+100	65
						1					
										3	
	10 -										

Traffic Direction

1w = One Way Traffic in Station direction

1a = One Way Traffic against Station direction

2 = Two Way Traffic

Grades are with respect to Station direction.

* Indicates design exception required. GB indicates grade break. Stopping Sight Distance and Speed not calculated. Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design

Guidelines formulas with adjustments for effective grade.

adot/jcc v1.0 11/14/2019

Attachment 2 - Horizontal Curve Inventory

Project Name: I-10, Jct. I-19 to Kolb Road TI Eastbound

Project No: 010 PM 260 H7825 01L

HPI Station	Mile	post	S	uperelevation (fi	/ft)	Degree	Of Curve	Speed (mph)	HSO	Grade	Horizonta	al SSD (ft)
(ft)	Begin	End	Existing	AASHTO Min	RDG Max	Existing	AASHTO Max	Method 2	Posted	(ft)	(%)	Existing	Require
309+68.28	260.13	260.22	0.060	0,055	0.06	2°-25'-00"	3°-27'	74	65	NA			
333+07.19	260.47	260.75	0.029	0.023	0.06	0°-45'-00"	3°-27'	95	65	NA			
353+35.90	261.03	261.11	0.029	0.024	0.06	0°-47'-00"	3°-27'	94	65	NA			
41+71.35	261.46	261.90	0.029	0.023	0.06	0°-45'-00"	3°-27'	95	65	NA			
269+26.55	265.56	266.41	*0.015	0.023	0.06	0°-45'-00"	3°-27'	91	65	NA	11		
328+16.79	267.09	267.42	*0.021	0.041	0.06	1°-30'-00"	3°-27'	78	65	NA			
						= 1							
										9			

Meaning Of Symbols:

* Requires a design exception
Note:

Note:

AASHTO Minimum superelevation derived from Method 5 to meet posted speed.

Roadway Engineering Guidelines (RDG) Maximum is based on elevation (See RDG Table 202.1A).

Input grade with respect to traffic for inside lane of curve; if both - & - grades within the curve, choose the negative grade; if all negative grades, onese the largest negative grade; if all negative grades, choose the smallest positive grade.

(See Help file under Help Topics/Approach Grade)

HSO - Horizontal Sightline Offset

Page 9



Attachment 2 - Horizontal Curve Inventory

Project Name: I-10, Jct. I-19 to Kolb Road TI Westbound

Project No: 010 PM 260 H7825 01L

HPI Station	Mile	post	Si	perelevation (f	t/ft)	Degree	Of Curve	Speed (mph)	HSO	Grade	Horizont	al SSD (ft)
(ft)	Begin	End	Existing	AASHTO Min	RDG Max	Existing	AASHTO Max	Method 2	Posted	(ft)	(%)	Existing	Require
309+96.22	260.14	260.22	0.060	0,055	0.06	2°-29'-00"	3°-27'	73	65	NA			
334+12.47	260.48	260.78	0.029	0.023	0.06	0°-45'-00"	3°-27'	95	65	NA			
352+09.97	261.00	261.08	0.029	0.023	0.06	0°-43'-00"	3°-27′	96	65	NA			
43+84.58	261.49	261.95	0.029	0.023	0.06	0°-45'-00"	3°-27'	95	65	NA			
269+60.50	265.57	266,42	*0,015	0.023	0.06	0°-45'-00"	3°-27'	91	65	NA			
336+86.97	267.09	267.42	*0.021	0.041	0.06	1°-30'-00"	3°-27'	78	65	NA			
		H								= 6			

Meaning Of Symbols:
Requires a design exception
Note:

Note:

AASHTO Minimum superclevation derived from Method 5 to meet posted speed.

Roadway Engineering Guidelines (RDG) Maximum is based on elevation (See RDG Table 202.1A).

Input grade with respect to traffic for inside iame of curve; if both - & +-grades within the curve, choose the negative grade; if all negative grades, choose the smallest positive grade; if all positive grades, choose the smallest positive grade.

(See Help file under Help Topics/Approach Grade)

HSO - Horizontal Sightline Offset

Page 10

BRIDGE EVALUATION REQUEST

Final Design Concept Report

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

PAGE 1 OF 9

DATE: 9/25/2019

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

FROM: BRAD OLBERT

JACOBS ENGINEERING

101 N 1ST AVE, SUITE 2600, PHX, A

SUBJEC BRIDGE EVALUATION REQUEST

Please evaluate the following structures per AASHTO guidelines:

ROUTE	MILEPOST	STR. NO.	BRIDGE	BRIDGE		BRIDGI	RAIL/B	ARRIER		A	C OVERLA	Y	VERT	TCAL.	BRIDGE	BRIDGE
NO.		AND NAME	LENGTH	ROADWAY WIDTH	TYPE	GEOM. OK.	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW	CLEAI (MINI	200 220	LOAD RATING	SUFFICIENCY RATING
N7*	NII	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	260,99	2195 6th Ave TI	209	82	Concrete Parapet	Yes	Yes	Yes	NA	0"	NA	NA	17.33	16,92	HS 20+	93.4
		UP	Comments:													
10	261,41	2164 Frontage Rd	167	40	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	15.07	15.07	HS 20+	F 95.5
		SPRR OP WB	Comments:													
10	261.41	2196 Loop Rd	167	40	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	14.74	14.74	HS 20+	F 78
		SPRR OP EBFR	Comments:	Replace east ab	utment joint	seal.										
10	261.41	2197 Veterans	168	125.8	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	14.82	14.82	HS 20+	88.9
Ш		SPRR OP	Comments:	Replace the tom	joint seals a	at the abutm	nents.Seal ti	ne deck.								
10	261.72	2162 Park Ave TI	251	72.5	Concrete Barrier	Yes	Yes	Yes	NA	0"	NA	NA	16.99	16.72	HS 20+	94.5
	OP EB	OP EB	Comments:	Seal the deck												

(Note: 1% numbers are NB) numbers and A numbers are Anzona Items Number for brode inventory

Evaluation Completed by: Masudur Rahman

e.

9/25/2019

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

PAGE 2 OF 9

DATE: 9/25/2019

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

FEDERAL REFERENCE NO: 010-E(210)S
HIGHWAY: INTERSTATE 10 EB & WB

TRACS NO: 010 PM 260 H7825 01L

LOCATION: TUCSON - BENSON HIGH

MP LIMITS: 280.00 TO: 272.00
PROJECT DESCRIPTION: DCR AND EA FOR I-10 & SR 210

FROM: BRAD OLBERT

JACOBS ENGINEERING

101 N 1ST AVE, SUITE 2600, PHX, A

SUBJEC BRIDGE EVALUATION REQUEST

ROUTE	MILEPOST	STR. NO.	BRIDGE	BRIDGE		BRIDGI	RAIL / B	ARRIER		A	C OVERLA	Y	VERT	TCAL	BRIDGE	BRIDGE
NO.		AND NAME	LENGTH	ROADWAY WIDTH	TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW	CLEAI (MINI	200 220	LOAD RATING	SUFFICIENC RATING
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMEM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	261.72	2163 Park Ave TI	248	72	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	19.66	19.35	HS 20+	92.9
16	1	OP WB	Comments:	Seal the deck												
10	262.38	2012 Ramp K3	176	26	Concrete Barrier	Yes	Yes	Yes	No	1"	NA	NA	18.71	17.09	HS 20+	96.4
-1	Over Ajo Way		Comments:	Patch approach	roadway po	hole at SE	corner of br	idge.								
10	262.44	1107 Ajo Way	261	38	Inne Beam Retrofit	Yes	Yes	Yes	No	1"	NA	NA	14.82	14.83	HS 20	S 62.8
		OP EB		Programmed for eservation proje			FY 2020 un	der project	F017301C, S	ubstandard barr	ier replacemen	t and AC overli	ay remove a	nd replace v	vas mentioned	1 under
10	262.44	1108 Ajo Way	261	38	Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.66	14.96	HS 20	S 63.2
		OP WB		Programmed for project F0212 for		girder for l	FY 2020 un	der project	F017301C, S	ubstandard barr	ier replacemen	t & AC overlay	remove and	replace was	mentioned	under pavemen
10	262,53	1162 Kino Pkwy	504	49	Concrete Parapet	Yes	Yes	Yes	No	1"	NA	NA	16.97	16.67	HS 17.8	F 89.4
	Ki	TIUPNB		Rehabilitate bridg					load w/o sho	wing any signific	cant distress. S	Substandard barr	ier replacen	nent & AC o	verlay remove	e and replace w

Evaluation Completed by Masudur Rahman Date: 9/25/2019

the numbers are NB) numbers and Anumbers are Anzona items Number for brode inventory



ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

PAGE 3 OF 9

DATE: 9/6/2019

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

FROM: BRAD OLBERT

JACOBS ENGINEERING
101 N 1ST AVE, SUITE 2600, PHX, AZ

SUBJEC BRIDGE EVALUATION REQUEST

Please evaluate the following structures per AASHTO quidelines

ROUTE	MILEPOST	STR. NO.	BRIDGE	BRIDGE		BRIDGI	ERAIL / B	ARRIER		A	C OVERLA	Y		ICAL	BRIDGE	BRIDGE
NO.	70	AND NAME	LENGTH	ROADWAY WIDTH	TYPE	GEOM. OK	STRUC OK	Railings OK	Transition: OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW	CLEAI (MINI		LOAD RATING	SUFFICIENC RATING
N7*	NII	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	262,53	1163 Kino Pkwy	461	38	Concrete Parapet	Yes	Yes	Yes	No	1"	NA	NA	17.84	18.00	HS 17.2	F 71.1
16		TIUPSB		tehabilitate bridg inder pavement					load w/o she	owing any signific	cant distress.S	ubstandard barr	er replacem	ent & AC ov	verlay remove	and replace was
10	262.82	1109 Diversion	90	64	Beam Retrofit	Yes	No	Yes	No	2"	2"	1"	NA	NA	HS 20+	94.1
H		Chnl Br EB	Comments: 8	Substandard bar	rier replacen	nent & AC o	overlay remo	ove and repl	ace was me	ntioned under p	avernent prese	ervation project F	0212 for FY	2022		
10	262.82	1110 Diversion	90	64	Beam Retrofit	Yes	No	Yes	No	2"	2"	1"	NA	NA	HS 20+	91.9
		Chnl Br WB	Comments:S	Substandard bar	rier replacen	nent & AC o	verlay remo	ove and repl	ace was me	entioned under p	pavement pres	ervation project	F0212 for F	Y2022		
10	263.82	1111 Country Club	150	38	Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.49	14.49	HS 20+	S 66.1
Ш		OP EB		Programmed for project F0212 f		l girder for F	FY 2020 un	ider project	F017301C. 8	Substandard barr	ier replacemer	it & AC overlay i	emove and	replace was	mentioned	under pavement
10	263.82	1112 Country Club	150	38	Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.89	14.89	HS 20+	92.8
	Country C OP WE	OP WB		Programmed for project F0212 f		girder for F	Y 2020 un	ider project	F017301C. 5	Substandard barr	ier replacemer	it & AC overlay	emove and	replace was	mentioned	under pavement

Evaluation Completed by: Masudur Rahman Date: 9/25/2019

Final Design Concept Report

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

PAGE 4 OF 9

DATE: 9/6/2019

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

MP LIMITS: 280.00 TO: 272.00
PROJECT DESCRIPTION: DCR AND EA FOR I-10 & SR 210

SUBJEC BRIDGE EVALUATION REQUEST

FROM: BRAD OLBERT

JACOBS ENGINEERING
101 N 1ST AVE, SUITE 2600, PHX, AZ

MILEPOST	STR. NO.	BRIDGE	BRIDGE		BRIDGI	RAIL/B	ARRIER		A	C OVERLA	Y	VERT	ICAL	BRIDGE	BRIDGE
71	AND NAME	LENGTH	ROADWAY WIDTH	TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW	10000		LOAD RATING	SUFFICIENC RATING
N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
264,27	1217 Irvington Rd	261	42	Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	16.28	16.08	HS 20	64.0
	TIOPEB				el girder for l	FY 2020 un	der project	F017301C, S	Substandard barri	er replacemer	nt & AC overlay r	emove and	replace was	mentioned	under pavemer
264.27	1218 Irvington Rd	261	42	Beam Retrofit	Yes	Yes	Yes	NA.	1"	NA	NA	16.16	16.30	HS 20+	81.4
7	TI OP WB				el girder for l	Y 2020 un	der project	F017301C. S	Substandard barri	er replacemer	nt & AC overlay r	emove and	replace was	mentioned	under pavement
264.37	1219 Palo Verde	195	42	Beam Retrofit	Yes	Yes	Yes	NA.	1"	NA	NA	14.63	14.67	HS 20+	S 44
	TIOPEB				el girder for l	FY 2020 un	der project	F017301C. S	Substandard barri	er replacemer	nt & AC overlay r	emove and	replace was	mentioned	under pavement
264.37	1220 Palo Verde	195	42	Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.88	15.00	HS 20+	81.4
	TI OP WB				el girder for l	Y 2020 un	der project	F017301C, S	Substandard barri	er replacemer	nt & AC overlay r	emove and	replace was	mentioned	under pavement
265.02	2018 Alvernon Wy	215	60	Concrete Barrier	Yes	Yes	Yes	No	1"	NA	NA	17.51	17.33	HS 20+	98.0
	Nii 264.27 264.27 264.37	AND NAME. N11 N8 & A209 264.27 1217 Irvington Rd TI OP EB 264.27 1218 Irvington Rd TI OP WB 264.37 1219 Palo Verde TI OP EB 264.37 1220 Palo Verde TI OP WB 265.02 2018	NAME NAME	NAME NAME NAME WIDTH	NAME NAME NAME WIDTH	AND NAME	AND NAME. NAME.	AND NAME NAME WIDTH NAME NAME	NAME	AND NAME WIDTH OK OK OK OK OK OK (EXISTEG) N8 & A209 N49 N51 A206A A206B A206C N36A N36B A201 264.27 1217 Invirigtion Rd TI OP EB Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barri preservation project F0212 for FY2022 264.27 1218 Invingtion Rd TI OP WB Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barri preservation project F0212 for FY2022 264.37 1219 Palo Verde TI OP EB Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barri preservation project F0212 for FY2022 264.37 1229 Palo Verde TI OP EB Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barri preservation project F0212 for FY2022 264.37 1220 Palo Verde TI OP WB Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barri preservation project F0212 for FY2022 265.02 2018 215 60 Concrete Yes Yes Yes No 1"	AND NAME WIDTH OK OK OK OK OK (EXISTING) N8 & A209 N49 N51 A206A A206B A206C N36A N36B A201 (MINTMUM) 264.27 1217 John Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement preservation project F0212 for FY2022 264.27 1218 John Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement preservation project F0212 for FY2022 264.37 1219 Palo Verde T1 OP EB 264.37 1229 Palo Verde T1 OP EB 264.37 1220 Palo Verde T1 OP EB 265.02 2018 215 60 Concrete Yes Yes Yes NA 1" NA 275 Yes Yes NA 1" NA 286 Yes Yes NA 1" NA 286 Yes Yes NA 1" NA 287 Yes Yes NA 1" NA 288 Yes Yes NA 1" NA 288 Yes NA 1" NA 286 Yes Yes NA 1" NA	NAME	AND NAME WIDTH OK OK OK OK OK (EXISTING) NEW (MINI MINIM) NS & A209 N49 N51 A206A A206B A206C N36A N36B A201 (MINIMUM) (MAXIMUM) NB EB	AND NAME	AND NAME NA

Evaluation Completed by: Masudur Rahman Date: 9/25/2019

we "forumbers are NB) numbers and A numbers are Advisors berns Number for broge inversory



Final Design Concept Report

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

PAGE 5 OF 9

9/25/2019

Date:

TO: Amin Aman BRIDGE GROUP

BRIDGE MANAGEMENT SECTION, MD 635E

TRACS NO: 010 PM 260 H7825 01L FEDERAL REFERENCE NO: 010-E(210)S HIGHWAY: INTERSTATE 10 EB & WB LOCATION:
 MP LIMITS:
 280.00
 TO:

 PROJECT DESCRIPTION:
 DCR AND EA FOR I-10 & SR 210

FROM: BRAD OLBERT

JACOBS ENGINEERING

101 N 1ST AVE, SUITE 2600, PHX, AZ

SUBJEC BRIDGE EVALUATION REQUEST

Manna	overhunto	the follow	wine otre	ofuron n	OF AACHTO	quidalinas

NO.	MILEPOST	STR. NO. AND NAME	BRIDGE	BRIDGE		BRIDGI	RAIL / B	ARRIER		A	C OVERLA	Y	VERT		BRIDGE	BRIDGE	
			LENGTH	ROADWAY WIDTH	TYPE A206A	GEOM. OK	STRUC OK	Railings OK	Transitions OK N36B	THICKNESS (EXISTING) A201		REPLACE / NEW	(MINIMUM)		LOAD RATING	SUFFICIENC RATING	
N7*	NII	N8 & A209	N49	N51		A206B	A206C	N36A				(MAXIMUM)	NB/EB	SB/WB	N66	SRB	
10	265.02	2019 Alvernon Wy	215	60	Concrete Barrier	Yes	Yes	Yes	No	1"	NA	NA	17.15	16.80	HS 20+	98.0	
		OP WB	Comments: AC overlay remove and replace was mentioned in pavement preservation project F0212														
10	265,80	5555 Julian Wash RCB 6 - 10'x10' 12' fill									0.00						
			Comments; (Comments; Culvert not at grade													
10	266.00	1223 Drexel Rd OP EB	141	38	Beam Retrofit	Yes	No	Yes	Yes	1"	NA	NA	14.56	14.45	HS 20+	92.5	
			Comments: Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212														
10	266,00	1224 Drexel Rd OP WB	141	38	Beam Retrofit	Yes	No	Yes	Yes	1,5	NA	NA	15.25	15.06	HS 20+	92.1	
			Comments: Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212														
10	267.10	1225 Valencia Rd	182	38	Beam Retrofit	Yes	No	Yes	Yes	1"	NA	NA	17.50	17.65	HS 20+	F 93	
		TIOPEB	Comments:	Substandard ba		ment & AC	overlay ren	nove and re	olace was m	entioned under	pavement pres	servation project	F0212				

Evaluation Completed by: Masudur Rahman

Evaluation Completed by Masudur Rahman

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

PAGE 6 OF 9

TO: Amin Aman BRIDGE GROUP

BRIDGE MANAGEMENT SECTION, MD 635E

TRACS NO: 010 PM 260 H7825 01L FEDERAL REFERENCE NO: 010-E(210)S HIGHWAY INTERSTATE 10 EB & W

MP LIMITS: 260.00 TO:
PROJECT DESCRIPTION: DCR AND EA FOR I-10 & SR 210

FROM: BRAD OLBERT

JACOBS ENGINEERING

101 N 1ST AVE, SUITE 2600, PHX, AZ

SUBJEC BRIDGE EVALUATION REQUEST

NO.	MILEPOST	STR. NO. AND NAME	BRIDGE	BRIDGE		BRIDGE	ERAIL/B	ARRIER		A	C OVERLA	Y		ICAL	BRIDGE	BRIDGE
			LENGTH N49	ROADWAY WIDTH	ТҮРЕ	GEOM. OK	STRUC OK	Railings OK	Transitions OK N36B	THICKNESS (EXISTING) A201		REPLACE / NEW	CLEARANCE (MINIMUM)		LOAD RATING	SUFFICIENC RATING
	N11	N8 & A209		N51	A206A	A206B	A206C	N36A				(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	267.10	1226 Valencia Rd	183	42	Beam Retrofit	Yes	No	Yes	Yes	1"	NA	NA	16.66	16.66	HS 20+	F 94
		TI OP WB	Comments: Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212													
10	267.65	1044 Earp Wash Trib Br EB	94	48.8	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	NA	NA	HS 13.3	80.9
			Comments: Deck réhab (PPC Overlay) done under F0063. The structure is currently carrying legal load w/o showing any significant distress													
10	267.65	1045 Earp Wash Trib Br WB	94	48.8	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	NA	NA	HS 13.3	80.9
			Comments: Deck rehab (PPC Overlay) done under F0063. The structure is currently carrying legal load w/o showing any significant distress													
10	267.65	1052 Earp Wash Trib WB FR Br	94	24	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	NA	NA	HS 13.3	85.8
4	1.1		Comments: Deck rehab (PPC Overlay) done. under F0063. The structure is currently carrying legal load w/o showing any significant distress													
10	267.65	6814 Earp Wash		1	-	int									Ha-I	
		RCB/EBFR 3-10x5-4' fill	Comments:	Culvert not at gr	ade											



PAGE 7 OF 9

DATE: 9/6/2019

ROADWAY ENGINEERING GROUP

ROADWAY PREDESIGN SECTION

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

TRACS NO: 010 PM 260 H7825 01L FEDERAL REFERENCE NO: 010-E(210)S
HIGHWAY: INTERSTATE 10 EB & WB LOCATION: TUCSON - BENSON H MP LIMITS: 260.00 PROJECT DESCRIPTION: DCR AND EA FOR I-10 & SR 210

FROM: BRAD OLBERT

JACOBS ENGINEERING
101 N 1ST AVE, SUITE 2600, PHX, AZ SUBJEC BRIDGE EVALUATION REQUEST

Please evaluate the following structures per AASHTO guidelines:

	MILEPOST	STR. NO. AND NAME	BRIDGE	BRIDGE		BRIDGI	CRAIL/B	ARRIER		A	C OVERLA	Y	VERT		BRIDGE	BRIDGE	
NO.	77		LENGTH	ROADWAY WIDTH	TYPE A206A	GEOM. OK	STRUC OK A206C	Railings T OK N36A	100000000000000000000000000000000000000	THICKNESS (EXISTING) A201		REPLACE / NEW	CLEARANCE (MINIMUM)		LOAD RATING	SUFFICIENCY RATING	
N7*	NII	N8 & A209	N49	N51		A206B						(MAXIMUM)	NB/EB	SB/WB	N66	SRB	
10	268.08	594 Craycroft TI	177	38	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	14.90	15.04	HS 20+	95.0	
		OP EB	Comments: New deck under H8774														
10	268.08	595 Craycroft TI OP WB	177	40,7	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	16.69	16.74	HS 20+	96.0	
			Comments:	New deck unde	r H8774												
10	269.36	596 Wilmot Rd TI OP EB	177	40.7	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	15.38	15.45	HS 20+	95.0	
			Comments: New deck under H8774														
10	269.36	597 Wilmot Rd TI OP WB	177	38	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	15.04	15.14	HS 20+	95.0	
			Comments: New deck under H8774														
10	270.58	1823 Kolb Road TI UP	279	76	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	16.13	16.68	HS 20+	78.6	
			Comments:	Replace missing	median cov	er plate at	west side of	north abutr	nent joint.								

Evaluation Completed by: Masudur Rahman

Date:

9/25/2019

Final Design Concept Report

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

PAGE 8 OF 9

TRACS NO: 010 PM 260 H7825.01L

DATE: 9/6/2019

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

FEDERAL REFERENCE NO: 010-E(210)S
HIGHWAY: NTERSTATE 10 EB & WB LOCATION: TUCSON - BENSO

PROJECT DESCRIPTION: DCR AND EA FOR I-10 & SR 210

MP LIMITS: 260.00

FROM: BRAD OLBERT

JACOBS ENGINEERING
101 N 1ST AVE, SUITE 2600, PHX, AZ SUBJEC BRIDGE EVALUATION REQUEST

ROUTE	MILEPOST	STR. NO. AND NAME N8 & A209	BRIDGE	BRIDGE		BRIDGI	ERAIL / B	ARRIER		A	C OVERLA	Y	VERTICAL.		BRIDGE	BRIDGE	
NO.	77		LENGTH N49	ROADWAY WIDTH	TYPE	GEOM. OK A206B	STRUC OK A206C	Railings OK N36A	Transitions OK N36B	THICKNESS (EXISTING) A201		REPLACE/ NEW		RANCE MUM)	LOAD RATING N66	SUFFICIENC RATING SRB	
N7*	N11			N51								(MAXIMUM)	NB/EB	SB/WB			
NA	NA	9800 Julian Wash		H	E			IH						1		1111	
	4	RCB 6-10x10-1' fill	Comments: Culvert not at grade														
NA	NA	9809 Aviation Hwy	86	76	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	17.16	17.16	HS 20+	F 95	
		UP Br	Comments:														
NA	NA	9811 Alvernon NB	145	100	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	16.30	16.30	HS 14.4	86.8	
U,		Fr OP	Comments: Seal the deck. The structure is currently carrying legal load w/o showing any significant distress.														
NA	NA	9813 UPRR SB Front Rd Br	417	92	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA.	NA	NA	HS 15.5	74.7	
	1		Comments: Seal the deck. The structure is currently carrying legal load w/o showing any significant distress.														
NA	NA NA	9814 Diversion Channel Br	65	76	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	NA	NA	HS 20+	98.4	
L			Comments:														

Evaluation Completed by: Masudur Rahman 9/25/2019

ROADWAY ENGINEERING GROUP ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

PAGE 9 OF 9

TO: Amin Aman BRIDGE GROUP BRIDGE MANAGEMENT SECTION, MD 635E

FROM: BRAD OLBERT

JACOBS ENGINEERING

101 N 1ST AVE, SUITE 2600, PHX, A

NEC BRIDGE EVALUATION REQUEST

ROUTE	MILEPOST	STR. NO.	N49	BRIDGE		BRIDG	E RAIL / E	ARRIER		A	C OVERLAY	(TICAL	BRIDGE	BRIDGE	
NO.	+ "	AND NAME		ROADWAY WIDTH N51	TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK N36B	(EXISTING) A201		REPLACE /NEW	CLEARANCE (MINIMUM)		LOAD RATING	SUFFICIENCY RATING	
N7*	N11	N8 & A209			A206A	A206B	A206C	N36A				(MAXIMUM)		SB/WB	N66	SRB	
NA T	NA	9815 Aviation Hwy	250	100	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	17.83	17.16	HS 20+	F 90.5	
		Ramp OP	Comments: Replace joint seals and repair spalls adjacent to guard angles. Seal the Deck														
						14											
			Comments:														
		3 7					6-1		14	- 4	0.0		[4]			3	
			Comments:														
			1.1	11.6		100			3 6) ===	Ç	he.		
Ш			Comments:														
					13	16.5			7.				10				
			Comments:			_	_								_		

Evaluation Completed by: Masudur Rahman

(Hoto *No numbers are NBI numbers are Anaposa terms Number for broke release).

_

e: 9/25/2019