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

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
PROJECT LOCATION: 6TH AVE TI - KOLB RD TI
HIGHWAY SECTION: TUCSON - BENSON HIGHWAY
FUNCTIONAL CLASSIFICATION: RURAL INTERSTATE
ROUTE: I-10 EB
BEGINNING MP: 260.79
ENDING MP: 272.30

TRAFFIC VOLUMES AND FACTORS:

Milepost Limits				Latest 2018 AADT	Design Year 2040 AADT	Traffic Factors:
260.78	to	261.72	(Park Ave)	52,100	53,400	K = 9%, D = 51%, T = 19%
261.74	to	262.53	(Kino Ave)	44,500	60,500	K = 8%, D = 51%, T = 19%
262.53	to	263.82	(Country Club)	37,400	76,100	K = 9%, D = 57%, T = 14%
263.82	to	265.02	(Alvernon Way)	32,600	71,700	K = 9%, D = 63%, T = 19%
265.02	to	267.10	(Valencia Rd)	33,600	92,500	K = 9%, D = 66%, T = 15%
267.10	to	268.08	(Craycroft Rd)	34,600	88,900	K = 8%, D = 69%, T = 19%
268.08	to	269.36	(Wilmot Rd)	34,500	96,800	K = 8%, D = 69%, T = 19%
269.36	to	270.58	(Kolb Rd)	27,000	83,200	K = 9%, D = 57%, T = 17%

THE POSTED SPEED LIMIT IS: 65 MPH TERRAIN IS: LEVEL AVERAGE ELEVATION IS: 2660 FT

LANE AND SHOULDER WIDTH:

	EXISTING (FEET)	AASHTO RECOMMENDED MINIMUM (FEET)
LANE WIDTH:	2-12	2-12
INSIDE SHOULDER WIDTH:	4	4
OUTSIDE SHOULDER WIDTH:	10	10

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE:

VPI STATION	MILEPOST BEGIN	MILEPOST END	APPROACH GRADE (%)	DEPARTURE GRADE (%)	LENGTH OF CURVE (FT)	STOPPING SIGHT DISTANCE EXISTING (FT)	STOPPING SIGHT DISTANCE REQUIRED (FT)	EXISTING SPEED (MPH)	POSTED SPEED (MPH)
SEE ATTACHMENT #1									

HORIZONTAL ALIGNMENT AND STOPPING SIGHT DISTANCE:

HPI STATION	MILEPOST BEGIN	MILEPOST END	SUPERELEVATION RDG MAX (FT/FT)	SUPERELEVATION EXISTING (FT/FT)	SUPERELEVATION MINIMUM (FT/FT)	METHOD 2 SPEED (MPH)	POSTED SPEED (MPH)	EXISTING DEGREE OF CURVE	MAXIMUM DEGREE OF CURVE	EXISTING HSO (FT)	EXISTING GRADE (%)	HORIZONTAL SSD EXISTING (FT)	HORIZONTAL SSD REQUIRED (FT)
SEE ATTACHMENT #2													

REMARKS:
* DESIGN EXCEPTION REQUIRED

Page 1

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

GRADES:

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:

STRUCTURE	MILEPOST	PRECONSTRUCTION CLEARANCE	POST CONSTRUCTION CLEARANCE	MINIMUM ALLOWABLE CLEARANCE
8th 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)	270.56	16' - 2"	17' - 0"	16' - 0"
Aviation Hwy UP Br (#9809)	NA	17' - 0"	16' - 6"	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
Loop Rd SPRR OP EBFR (#2186)	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	178'	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 Chnl Br EB (#1109)	262.62	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
Irvington Rd TI OP EB (#1217)	264.27	281'	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'	59.5'	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'	46.8'	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 (#0598)	269.36	177'	40.7	37.5'	Yes	Yes	HS 20+	HS 20

REMARKS:

* Design Exceptions are not required for bridge barriers. The Diversion Channel Bridge (#1109) will be widened 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.

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

PROJECT NUMBER: 010 PM 260 H7825 01 L
PROJECT LOCATION: 6TH AVE TI - KOLB RD TI
HIGHWAY SECTION: TUCSON - BENSON HIGHWAY
FUNCTIONAL CLASSIFICATION: RURAL INTERSTATE

ROUTE: I-10 WB
BEGINNING MP: 260.79
ENDING MP: 272.30

TRAFFIC VOLUMES AND FACTORS:

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 = 68%, 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: 2880 FT

LANE AND SHOULDER WIDTH:

	EXISTING (FEET)	AASHTO RECOMMENDED MINIMUM (FEET)
LANE WIDTH:	2-12	2-12
INSIDE SHOULDER WIDTH:	4	4
OUTSIDE SHOULDER WIDTH:	10	10

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE:

VPI STATION	MILEPOST BEGIN	MILEPOST END	APPROACH GRADE (%)	DEPARTURE GRADE (%)	LENGTH OF CURVE (FT)	STOPPING SIGHT DISTANCE EXISTING (FT)	STOPPING SIGHT DISTANCE REQUIRED (FT)	EXISTING SPEED (MPH)	POSTED SPEED (MPH)
SEE ATTACHMENT #1									

HORIZONTAL ALIGNMENT AND STOPPING SIGHT DISTANCE:

HPI STATION	MILEPOST BEGIN	MILEPOST END	SUPERELEVATION RDG MAX (FT/FT)	SUPERELEVATION EXISTING (FT/FT)	SUPERELEVATION MINIMUM (FT/FT)	METHOD 2 SPEED (MPH)	POSTED SPEED (MPH)	EXISTING DEGREE OF CURVE	MAXIMUM DEGREE OF CURVE	EXISTING HSO (FT)	EXISTING GRADE (%)	HORIZONTAL SSD EXISTING (FT)	HORIZONTAL SSD REQUIRED (FT)
SEE ATTACHMENT #2													

REMARKS:

* DESIGN EXCEPTION REQUIRED

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:

STRUCTURE	MILEPOST	PRECONSTRUCTION CLEARANCE	POST CONSTRUCTION CLEARANCE	MINIMUM ALLOWABLE CLEARANCE
8th Avenue TI UP (#2195)	260.98	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"

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
Frontage Rd SPRR OP WB (#2164)	261.41	167'	40.0'	37.5'	Yes	Yes	HS 20+	HS 20
Veterans 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
Ajo 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
Irvington 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
Alvernon 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'	38.0'	37.5'	Yes	No*	HS 20+	HS 20
Valencia 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

REMARKS:

* Design Exceptions are not required for bridge barriers. The Diversion Channel Bridge (#1110) 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

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

VPI STATION	MILEPOST BEGIN	MILEPOST END	TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE AVAILABLE (ft)	STOPPING SIGHT DISTANCE AASHTO MINIMUM (ft)	SPEED AVAILABLE (mph)	SPEED 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

Notes:

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.
Calculations are based on AASHTO 2001 and ADOT 2004 Roadway Design Guidelines formulas with adjustments for effective grade.
GB indicates grade break. Stopping Sight Distance and Speed not calculated.

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 STATION	MILEPOST		TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SIGHT DISTANCE		SPEED	
	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

Notes:

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.

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 STATION	MILEPOST		TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SIGHT DISTANCE		SPEED	
	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	2858	638	+100	65

Notes:

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.

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 STATION	MILEPOST		TRAFFIC	GRADE	GRADE	CURVE	CURVE	STOPPING SIGHT DISTANCE		SPEED	
	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

Notes:

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.

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 (ft)	Milepost		Superelevation (ft/ft)			Degree Of Curve		Speed (mph)		HSO (ft)	Grade (%)	Horizontal SSD (ft)	
	Begin	End	Existing	AASHTO Min	RDG Max	Existing	AASHTO Max	Method 2	Posted			Existing	Required
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			
328+16.79	267.09	267.42	*0.021	0.041	0.06	1°-30'-00"	3°-27'	78	65	NA			

Meaning Of Symbols:
* Requires a design exception

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, choose the largest negative grade; if all positive grades, choose the smallest positive grade. (See Help file under Help Topics/Approach Grade)
HSO = Horizontal Sightline Offset

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	Milepost		Superelevation (ft/ft)			Degree Of Curve		Speed (mph)		HSO	Grade	Horizontal SSD (ft)	
(ft)	Begin	End	Existing	AASHTO Min	RDG Max	Existing	AASHTO Max	Method 2	Posted	(ft)	(%)	Existing	Required
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			

Meaning Of Symbols:
* Requires a design exception
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, choose the largest negative grade; if all positive grades, choose the smallest positive grade.
(See Help file under Help Topics/Approach Grade)
HSO = Horizontal Sightline Offset

BRIDGE EVALUATION REQUEST

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE 1 OF 9

DATE: 9/25/2019

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

FEDERAL REFERENCE NO: 010-E(210)S TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	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 UP	209	82	Concrete Parapet	Yes	Yes	Yes	NA	0"	NA	NA	17.33	16.92	HS 20+	93.4
			Comments:													
10	261.41	2164 Frontage Rd SPRR OP WB	167	40	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	15.07	15.07	HS 20+	F 95.5
			Comments:													
10	261.41	2196 Loop Rd SPRR OP EBFR	167	40	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	14.74	14.74	HS 20+	F 78
			Comments: Replace east abutment joint seal.													
10	261.41	2197 Veterans SPRR OP	168	125.8	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	14.82	14.82	HS 20+	88.9
			Comments: Replace the torn joint seals at the abutments.Seal the deck.													
10	261.72	2162 Park Ave TI OP EB	251	72.5	Concrete Barrier	Yes	Yes	Yes	NA	0"	NA	NA	16.99	16.72	HS 20+	94.5
			Comments: Seal the deck													

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

Note: N numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

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 TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	261.72	2163 Park Ave TI OP WB	248	72	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	19.66	19.35	HS 20+	92.9
			Comments : Seal the deck													
10	262.38	2012 Ramp K3 Over Ajo Way	176	26	Concrete Barrier	Yes	Yes	Yes	No	1"	NA	NA	18.71	17.09	HS 20+	96.4
			Comments: Patch approach roadway pothole at SE corner of bridge.													
10	262.44	1107 Ajo Way OP EB	261	38	Thrie Beam Retrofit	Yes	Yes	Yes	No	1"	NA	NA	14.82	14.83	HS 20	S 62.8
			Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement and AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022													
10	262.44	1108 Ajo Way OP WB	261	38	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.66	14.98	HS 20	S 63.2
			Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022													
10	262.53	1162 Kino Pkwy TI UP NB	504	49	Concrete Parapet	Yes	Yes	Yes	No	1"	NA	NA	16.97	16.67	HS 17.8	F 89.4
			Comments:Rehabilitate bridge deck.The structure is currently carrying legal load w/o showing any significant distress. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022													

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

Note: N numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S — TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	262.53	1163 Kino Pkwy TI UP SB	461	38	Concrete Parapet	Yes	Yes	Yes	No	1"	NA	NA	17.84	18.00	HS 17.2	F 71.1
		Comments:Rehabilitate bridge deck.The structure is currently carrying legal load w/o showing any significant distress.Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	262.82	1109 Diversion Chnl Br EB	90	64	Thrie Beam Retrofit	Yes	No	Yes	No	2"	2"	1"	NA	NA	HS 20+	94.1
		Comments:Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	262.82	1110 Diversion Chnl Br WB	90	64	Thrie Beam Retrofit	Yes	No	Yes	No	2"	2"	1"	NA	NA	HS 20+	91.9
		Comments:Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	263.82	1111 Country Club OP EB	150	38	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.49	14.49	HS 20+	S 66.1
		Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	263.82	1112 Country Club OP WB	150	38	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.89	14.89	HS 20+	92.8
		Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														

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

Note: *N numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S — TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	264.27	1217 Irvington Rd TI OP EB	261	42	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	16.28	16.08	HS 20	64.0
		Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	264.27	1218 Irvington Rd TI OP WB	261	42	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	16.16	16.30	HS 20+	81.4
		Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	264.37	1219 Palo Verde TI OP EB	195	42	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.63	14.67	HS 20+	S 44
		Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	264.37	1220 Palo Verde TI OP WB	195	42	Thrie Beam Retrofit	Yes	Yes	Yes	NA	1"	NA	NA	14.88	15.00	HS 20+	81.4
		Comments: Programmed for Repair steel girder for FY 2020 under project F017301C. Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212 for FY2022														
10	265.02	2018 Alvernon Wy OP EB	215	60	Concrete Barrier	Yes	Yes	Yes	No	1"	NA	NA	17.51	17.33	HS 20+	98.0
		Comments: AC overlay remove and replace was mentioned in pavement preservation project F0212														

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

Note: *N numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE 5 OF 9

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S — TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	265.02	2019 Alvernon Wy OP WB	215	60	Concrete Barrier	Yes	Yes	Yes	No	1"	NA	NA	17.15	16.80	HS 20+	98.0
		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														
		Comments: Culvert not at grade														
10	266.00	1223 Drexel Rd OP EB	141	38	Thrie 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	Thrie Beam Retrofit	Yes	No	Yes	Yes	1"	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 TI OP EB	182	38	Thrie Beam Retrofit	Yes	No	Yes	Yes	1"	NA	NA	17.50	17.65	HS 20+	F 93
		Comments: Substandard barrier replacement & AC overlay remove and replace was mentioned under pavement preservation project F0212														

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

Note: All numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE 6 OF 9

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S — TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	267.10	1226 Valencia Rd TI OP WB	183	42	Thrie Beam Retrofit	Yes	No	Yes	Yes	1"	NA	NA	16.66	16.66	HS 20+	F 94
		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 rehab (PPC Overlay) done under F0083. 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 F0083. 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
		Comments: Deck rehab (PPC Overlay) done under F0083. The structure is currently carrying legal load w/o showing any significant distress														
10	267.65	6814 Earp Wash RCB/EBFR 3-10x5-4' fill														
		Comments: Culvert not at grade														

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

Note: All numbers are NBI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S — TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
10	268.08	594 Craycroft TI OP EB	177	38	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	14.90	15.04	HS 20+	95.0
		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 under 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 cover plate at west side of north abutment joint.														

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

Note: N numbers are HEI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S — TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
NA	NA	9800 Julian Wash RCB 6-10x10-1' fill														
		Comments: Culvert not at grade														
NA	NA	9809 Aviation Hwy UP Br	86	76	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	17.16	17.16	HS 20+	F 95
		Comments:														
NA	NA	9811 Alvernon NB Fr OP	145	100	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	16.30	16.30	HS 14.4	86.8
		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
		Comments: Seal the deck. The structure is currently carrying legal load w/o showing any significant distress.														
NA	NA	9814 Diversion Channel Br	65	76	Concrete Barrier	Yes	Yes	Yes	No	0"	NA	NA	NA	NA	HS 20+	98.4
		Comments:														

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

Note: N numbers are HEI numbers and A numbers are Arizona Items Number for bridge inventory

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE 9 OF 9

DATE: 9/6/2019

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

FEDERAL REFERENCE NO: 010-E(210)S TRACS NO: 010 PM 260 H7825 01L
HIGHWAY: INTERSTATE 10 EB & WB
LOCATION: TUCSON - BENSON HIGHWAY
MP LIMITS: 260.00 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, AZ

SUBJEC **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER					AC OVERLAY			VERTICAL CLEARANCE (MINIMUM)		BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
					TYPE	GEOM. OK	STRUC OK	Railings OK	Transitions OK	THICKNESS (EXISTING)	REMOVE	REPLACE / NEW				
N7*	N11	N8 & A209	N49	N51	A206A	A206B	A206C	N36A	N36B	A201	(MINIMUM)	(MAXIMUM)	NB/EB	SB/WB	N66	SRB
NA	NA	9815 Aviation Hwy Ramp OP	250	100	Concrete Barrier	Yes	Yes	Yes	Yes	0"	NA	NA	17.83	17.16	HS 20+	F 90.5
			Comments: Replace joint seals and repair spalls adjacent to guard angles.Seal the Deck													
			Comments:													
			Comments:													
			Comments:													
			Comments:													

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

Note: N numbers are NBI guidelines and A numbers are Arizona items Number for bridge inventory