



DESIGN CONCEPT REPORT UPDATE  
SR 303L, Lake Pleasant Parkway to I-17  
ECS Contract # 2019-001, ADOT Project # M698701X

## **APPENDIX A**

### **SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA**

**APPENDIX A - SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA  
MAIN LINE SUMMARY (DIVIDED)**

<b>PROJECT NUMBER:</b>	M697801X	<b>ROUTE:</b>	SR 303L
<b>PROJECT LOCATION:</b>	SR 303L, Lake Pleasant Parkway to I-17 DCR Update (3 GPL's)	<b>BEGINNING MP:</b>	131.90
<b>HIGHWAY SECTION:</b>	SR 303L, Lake Pleasant Parkway to I-17	<b>ENDING MP:</b>	138.96
<b>FUNCTIONAL CLASSIFICATION:</b>	Urban Freeway		

**I. TRAFFIC VOLUMES AND FACTORS**

Milepost Limits	Latest	Design Year	Traffic Factors:			
	2019 AADT	2040 AADT	2019 Factors		2040 Factors	
Milepost 131.90 to 138.96	26,433	92,300	K % =	13	K % =	13
			D % =	70	D % =	70
			T % =	9.9	T % =	11

**II. DESIGN SPEED:**

<b>Posted Speed (SR 303L Mainline):</b> 65 mph	<b>AASHTO Design Speed:</b> 50 mph minimum	<b>Average Elevation Is:</b> 1520'	<b>Terrain is:</b> Level
<b>Design Speed (SR 303L Mainline):</b> 65 mph			
<b>New Posted Speed (Frontage Rd):</b> 45 mph	<b>AASHTO Design Speed:</b> 40 mph (urban collector)		
<b>Design Speed (Frontage Rd):</b> 45 mph			
<b>Posted Speed (67th Avenue Ramps):</b> 65 mph	<b>AASHTO Design Speed:</b> 35 mph (for 50 mph mainline) (mid-range)		
<b>Design Speed (67th Avenue Ramps):</b> 55 mph			
<b>Design Speed (51st Avenue Ramps):</b> 60 mph exit gore, 55 mph entrance gore, 50 mph ramp body, 35 mph at crossroad			
<b>Design Speed (43rd Avenue Ramps):</b> 60 mph exit gore, 55 mph entrance gore, 50 mph ramp body, 35 mph at crossroad			

**III. LANE AND SHOULDER WIDTHS**

	EXISTING (Feet)	AASHTO RECOMMENDED MINIMUM (Feet)
<b>LANE WIDTH (ALL):</b>	12'	12'
<b>INSIDE SHOULDER WIDTH (MAINLINE):</b>	12'	4' paved
<b>OUTSIDE SHOULDER WIDTH (MAINLINE):</b>	10'	10'
<b>INSIDE SHOULDER WIDTH (FRONTAGE RD):</b>	2'	*
<b>OUTSIDE SHOULDER WIDTH (FRONTAGE RD):</b>	4'	*
<b>2 LANES+SHOULDERS (FRONTAGE RD):</b>	30'	* 28' combined traveled way + shoulder for two lanes of traffic, vertical C&G
<b>INSIDE SHOULDER WIDTH (EXST 67th RAMPS):</b>	2'	**
<b>OUTSIDE SHOULDER WIDTH (EXST 67th RAMPS):</b>	2'	**
<b>2 LANES+SHOULDERS (EXST 67th RAMPS):</b>	28'	** 26' combined traveled way + shoulder for two lanes of traffic, sloping C&G
<b>INSIDE SHOULDER WIDTH (1 &amp; 2-LANE RAMPS):</b>	2'	2'
<b>OUTSIDE SHOULDER WIDTH (1-LANE RAMPS):</b>	8'	6'
<b>OUTSIDE SHOULDER WIDTH (METERED RAMPS):</b>	2'	**
<b>1 LANE+SHOULDERS (NEW RAMPS):</b>	22'	20'
<b>2 LANES+SHOULDERS (EXIT RAMPS):</b>	34'	34'
<b>2 LANES+SHOULDERS (METERED RAMPS):</b>	28'	** 26' combined traveled way + shoulder for two lanes of traffic, sloping C&G

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**IV. GRADES**

<b>Existing Maximum Grade (SR 303L mainline):</b>	2.7264%	<b>AASHTO Maximum Allowable Grade is:</b> 3% (for 65 mph posted speed)
<b>Existing Maximum Grade (Frontage Rd):</b>	2.4000%	<b>AASHTO Maximum Allowable Grade is:</b> 6% (for 45 mph posted speed)
<b>Existing Maximum Grade (Ramps):</b>	2.9770%	<b>AASHTO Maximum Allowable Grade is:</b> 5% (for >45 design mph)

**V. CROSS SLOPE**

<b>Normal Cross Slope (ALL):</b>	2.00%	<b>AASHTO Recommended Range is:</b> 1.5% to 2%
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**VI. VERTICAL CLEARANCE**

Structure	Milepost	Posted	AASHTO
		Clearance (ft)	Minimum Allowable Clearance (ft)
Lake Pleasant TI UP	131.74	17.67	16.00
Sonoran Desert Dr. TI OP NB	221.94	16.46	14.00
Sonoran Desert Dr. TI OP SB	221.94	15.89	14.00
Dove Valley TI UP	222.97	17.77	16.00

**VII. STRUCTURES**

Structure	Sta.	Milepost	Existing	Existing	Recommended	Bridge Barrier	Bridge Barrier	Existing	Recommended
			Bridge	Bridge	Bridge	Geometry	Structural	Inventory Rating	Inventory Rating
		MP	Length	Width	Width	Adequate	Adequate	(Ton)	Structural Capacity (Ton)
Lake Pleasant TI		131.74	325	134	134	1	1	44	36
CAP Siphon NB		132.73	444	70	70	1	1	36	36
CAP Siphon SB		132.73	444	82	82	1	1	36	36
New River NB		133.31	893	58	58	1	1	58	36
New River SB		133.31	890	58	58	1	1	58	36
Channel N1 NB		134.03	78	70	70	1	1	54	36
Channel N1 SB		134.03	78	77	77	1	1	54	36
Deadman Wash NB		135.18	394	70	70	1	1	39	36
Deadman Wash SB		135.18	393	70	70	1	1	39	36
Channel N3 NB		137.14	76	70	70	1	1	53	36
Channel N3 SB		137.14	76	73	73	1	1	53	36
RCBC #3		137.48	83	143	143	1	1	-	-
303L SB over Ramp EN		138.93	112	30	30	1	1	47	36
Sonoran Desert Dr. TI NB		221.94	201	106.9	107	1	1	52	36
Sonoran Desert Dr. TI SB		221.94	201	86	86	1	1	43	36
I-17 SB FR over Ramp EN		222.06	107	44.6	44	1	1	61	36
I-17 SB over Ramp EN		222.07	332	86	86	1	1	64	36
I-17 NB over Ramp EN		222.11	380	86	86	1	1	53	36
Dove Valley Rd SB on Ramp		222.80	355	32	32	1	1	42	36
Dove Valley TI UP		222.97	289	130	130	1	1	40	36

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**VIII. VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE:**

See Attachment No. 1

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**IX. HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE:**

See Attachment No. 2.

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**X. REMARKS:**

A Design Variance Request was approved by ADOT on May 10, 2022 for the F042401C project. The request included a Design Variance for the 51st Ave Ramp D superelevation, a Roadway Design Guidelines (RDG) Design Exception for the SB Frontage Road superelevation near the Sonoran Desert Drive intersection, two RDG Design Exceptions for the NB and SB Frontage Road shoulder widths, and three Design Deviations to document the areas within the project where superelevation rates exceed the calculated cross slope values. None of the design elements in the F042401C project violate AASHTO criteria.

This report is based on the existing geometry and current posted speed, except when existing geometry is modified by F042401D (currently at Stage V) in which case the new geometry is considered existing and the the ADOT RDG guidelines for design speed utilized for the analyzing the F02401D improvements.

The existing 67th Ave two-lane ramps are currently used by mainline traffic and will continue until the SR 303L mainline is constructed over the future 67th Avenue crossroad. This area where mainline traffic temporarily utilizes the existing 67th Ave ramps does not have the normal shoulder widths for mainline traffic but this existing temporary condition will remain until the mainline is constructed over the future 67th Ave and traffic moved to the ultimate location. The existing 67th Ave ramps widths meet the minimum requirement for two-lane ramps.

The existing 67th Ave ramps were analyzed using the posted speed of 65 mph, resulting in minor deficiencies for stopping sight distance as well as superelevation. The original design speed for the 67th Ave ramps was 55 mph according to the record drawings. ADOT approved posting this section of SR 303L at 65 mph on November 23, 2011.

The current posted speed of 65 mph on the 67th Ave ramps will remain until the mainline is constructed and traffic moved to the ultimate location at which time the ramps will no longer carry traffic. When the 67th Ave crossroad is designed and constructed, the existing ramps should be analyzed for the anticipated use and any deficiencies corrected prior to opening the ramps.

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**ATTACHMENT 1 - VERTICAL CURVE INVENTORY**

**Project Name:** SR 303L, Lake Pleasant Parkway to I-17 DCR Update (3 GPL's)  
**Project Number:** M698701X  
**Roadway Type:** Urban Freeway

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
SR 303L mainline											
NB 838+50 RD			1w	1.0000	-0.9780	2000	Crest	1477	655	+100	65
NB 860+50 RD			1w	-0.9780	1.6500	1000	Sag	1724	655	+100	65
NB 877+00 RD			1w	1.6500	-1.0300	1200	Crest	983	656	83	65
NB 1899+65 RD			1w	-1.0300	1.2600	1400	Sag	3339	656	+100	65
NB 1941+00 DCR			1w	1.2600	-1.6600	800	Crest	769	664	71	65
NB 1956+00 RD			1w	-1.6600	2.4400	1000	Sag	956	664	81	65
NB 1972+00 RD			1w	2.4400	-0.9700	1200	Crest	871	655	77	65
NB 1993+75 RD			1w	-0.9700	0.5000	1000	Sag	+9999	655	+100	65
NB 2028+37.13 RD			1w	0.5000	1.3160	1000	Sag	+9999	638	+100	65
NB 2033+00 PA			1w	0.9025	2.6555	800	Sag	300400	634	+100	65
NB 2042+00 PA			1w	2.6555	-1.9448	1000	Crest	685	668	66	65
NB 2056+50 PA			1w	-1.9448	1.8131	800	Sag	848	668	75	65
NB 2065+60 PA			1w	1.8132	-1.6576	800	Crest	705	664	67	65
NB 2075+94.91 RD			1w	-1.6600	0.6000	800	Sag	2165	664	+100	65
NB 2098+00 PA			1w	0.6200	2.4820	900	Sag	9267	637	+100	65
NB 2108+00 PA			1w	2.4820	-0.6475	1000	Crest	830	651	75	65
NB 2128+00 DCR			1w	-0.6475	0.5000	800	Sag	+9999	651	+100	65
SB 1838+50 RD			1a	1.0000	-0.9000	2000	Crest	1507	656	+100	65
SB 1861+23.57 RD			1a	-0.9000	1.6800	1000	Sag	1795	664	+100	65
SB 1877+00 RD			1a	1.6800	-1.0300	1200	Crest	978	664	82	65
SB 1899+65 RD			1a	-1.0300	1.2600	1400	Sag	3339	659	+100	65
SB 1941+73.46 DCR			1a	1.2600	-1.6600	800	Crest	769	659	71	65
SB 1956+00 RD			1a	-1.6600	2.4400	1000	Sag	956	674	80	65
SB 1972+00 RD			1a	2.4400	-0.9700	1200	Crest	871	674	76	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.

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**Project Name:** SR 303L, Lake Pleasant Parkway to I-17 DCR Update (3 GPL's)  
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**Roadway Type:** Urban Freeway

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
SB 1995+20.92 RD			1a	-0.9700	0.5000	1000	Sag	+9999	650	+100	65
SB 2031+00 RD			1a	0.5000	1.3160	1000	Sag	+9999	660	+100	65
SB 2032+50 PA			1a	0.7400	2.7264	800	Sag	4207	678	+100	65
SB 2042+00 PA			1a	2.7264	-1.9447	1000	Crest	680	678	65	65
SB 2057+00 PA			1a	-1.9447	1.7814	800	Sag	855	666	76	65
SB 2065+60 PA			1a	1.7814	-1.6624	800	Crest	708	666	67	65
SB 2075+00 RD			1a	-1.6600	0.6000	800	Sag	2165	651	+100	65
SB 2098+00 PA			1a	0.6333	2.4820	900	Sag	10455	675	+100	65
SB 2108+00 PA			1a	2.4820	-0.6475	800	Crest	743	675	69	65
SB 2128+00 DCR			1a	-0.6475	0.5000	800	Sag	+9999	650	+100	65
NB FR 11+84.62 PA			1w	-1.4709	0.6600	200	Sag	1085	368	87	45
NB FR 16+00 RD			1w	0.6000	2.4000	400	Sag	11200	356	+100	45
NB FR 20+50 RD			1w	2.4000	0.3016	400	Crest	714	358	69	45
NB FR 58+00 RD			1w	0.3016	-1.8100	800	Crest	911	370	78	45
NB FR 64+00 RD			1w	-1.8100	0.9967	400	Sag	720	370	68	45
NB FR 73+00 RD			1w	0.9967	0.7310	400	Crest	4261	355	+100	45
SB FR 212+50 PA			1a	-1.5221	1.9744	260	Sag	375	371	45	45
SB FR 220+50 PA			1a	1.9744	-0.5050	400	Crest	635	371	63	45
SB FR 29+00 RD			1a	-0.6118	0.6000	400	Sag	+9999	363	+100	45
SB FR 53+50 RD			1a	0.6000	-0.9909	600	Crest	978	363	83	45
SB FR 64+50 RD			1a	-0.9909	2.1467	400	Sag	596	372	61	45
SB FR 69+00 RD			1a	2.1467	-0.7302	500	Crest	625	372	62	45
67th Ramp A 19+00 RD			1a	0.9958	-2.3329	600	Crest	624 *	656	63	65
67th Ramp A 26+00 RD			1a	-2.3329	1.0781	400	Sag	531 *	657	57	65

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**Project Name:** SR 303L, Lake Pleasant Parkway to I-17 DCR Update (3 GPL's)  
**Project Number:** M698701X  
**Roadway Type:** Urban Freeway

VPI STATION	MILEPOST		TRAFFIC DIRECTION (1w, 1a or 2)	GRADE IN (%)	GRADE OUT (%)	CURVE LENGTH (ft)	CURVE TYPE	STOPPING SIGHT DISTANCE		SPEED	
	BEGIN	END						AVAILABLE (ft)	AASHTO MINIMUM (ft)	AVAILABLE (mph)	DESIGN (mph)
67th Ramp A-C Connector			1a	0.2437	-2.5550	500	Crest	636 *	647	64	65
67th Ramp C 15+00 RD			1a	-0.8942	1.4840	600	Sag	1454	662	+100	65
67th Ramp C 25+00 RD			1a	1.4840	1.4928	600	Sag	+9999	662	+100	65
67th Ramp B 23+50 RD			1w	0.9953	-2.1120	600	Crest	647 *	670	64	65
67th Ramp B 31+00 RD			1w	-2.1120	1.0648	350	Sag	530 *	670	56	65
67th Ramp B-D Connector			1w	-0.4328	-0.2469	0	GB	GB	GB	GB	65
67th Ramp D 15+00 RD			1w	-0.9029	0.9445	600	Sag	7744	655	+100	65
67th Ramp D 26+00 RD			1w	0.9445	2.0002	600	Sag	+9999	633	+100	65
51st Ramp A 107+52.61 PA			1a	0.9021	1.7367	400	Sag	+9999	507	+100	55
51st Ramp A 111+52.61 PA			1a	1.7367	-2.5123	400	Crest	454	436	51	50
51st Ramp A 116+10 PA			1a	-2.5123	1.5679	200	Sag	261	252	36	35
51st Ramp C 214+00 PA			1a	0.5195	2.2867	400	Sag	32177	440	+100	50
51st Ramp C 19+66.15 RD			1a	2.2067	-0.9957	600	Crest	637	589	63	60
51st Ramp B 111+00 PA			1w	1.0802	-0.9641	400	Crest	728	575	69	60
51st Ramp B 118+13.56 PA			1w	-0.9641	1.5783	200	Sag	573	249	60	35
51st Ramp D 99+50 PA			1w	-1.4320	0.8921	200	Sag	753	251	70	35
51st Ramp D 102+50 PA			1w	0.8921	-0.5958	400	Crest	925	428	80	50
51st Ramp D 112+00 PA			1w	-0.5958	1.1562	230	Sag	200740	428	+100	50
51st Ramp D 13+25 RD			1w	1.1099	2.9770	500	Sag	5694	416	+100	50
51st Ramp D 21+50 RD			1w	2.9770	-1.9994	625	Crest	521	510	56	55
43rd Ramp A 19+00 RD			1a	0.9958	-0.7567	600	Crest	916	501	79	55
43rd Ramp A 25+00 RD			1a	-0.7567	1.0634	400	Sag	8046	431	+100	50
43rd Ramp B 21+00 RD			1w	0.4965	-0.6817	600	Crest	1216	572	94	60
43rd Ramp B 27+00 RD			1w	-0.6817	0.9690	400	Sag	+9999	428	+100	50
43rd Ramp B 28+54.82 PA			1w	0.1290	1.4760	300	Sag	+9999	422	+100	50

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**ATTACHMENT 2 - HORIZONTAL ALIGNMENT**

**Project Name:** SR 303L, Lake Pleasant Parkway to I-17 DCR Update (3 GPL's)  
**Project Number:** M697801X  
**Roadway Type:** Urban Freeway

Note: Stationing is based on ADOT Project H715701C

**STOPPING SIGHT DISTANCE:**

Curve # or location	PI Station	SDs (ft) (Posted Speed)	Dc	Centerline Radius (ft)	M required (ft)	M standard (ft) (face of curb or barrier )	Extra width from M standard	Comment
SR 303L 101 RD	1785+21.39	645	0.5000	11459.16	4.6	18.0	0.0	OK
SR 303L 104 RD	1858+79.01	645	1.5000	3819.72	13.5	18.0	0.0	OK
SR 303L NB 122 RD	858+06.14	645	1.5000	3819.72	13.7	18.0	0.0	OK
SR 303L 107 RD	1896+98.61	645	1.0000	5729.58	9.2	18.0	0.0	OK
SR 303L 110 RD	1963+37.78	645	1.0000	5729.58	9.2	18.0	0.0	OK
SR 303L 113 RD	2054+93.62	645	1.0000	5729.58	9.2	18.0	0.0	OK
							0.0	
NB FR 702 RD	24+59.33	360	0.2500	22918.31	0.7	10.0	0.0	OK
NB FR 705 RD	45+26.52	360	0.5000	11459.16	1.4	10.0	0.0	OK
NB FR 708 RD	61+23.57	360	2.5000	2291.83	7.1	8.0	0.0	OK
NB FR 711 RD	69+81.17	360	3.0000	1909.86	8.5	10.0	0.0	OK
							0.0	
SB FR 522 PA	218+91.42	360	0.5833	9822.13	1.7	10.0	0.0	OK
SB FR 719 RD	45+15.28	360	0.5000	11459.16	1.4	10.0	0.0	OK
SB FR 722 RD	62+07.90	360	3.0000	1909.86	8.5	8.0	0.5	OK, no barrier
SB FR 725 RD	70+26.03	360	3.0000	1909.86	8.5	10.0	0.0	OK
							0.0	
67th Ave Ramp A RD	15+00.96	645	0.8332	6876.49	7.6	10.0	0.0	OK
67th Ave Ramp A RD	23+49.21	645	1.7500	3274.04	15.9	8.0	7.9	OK, no barrier
67th Ave Ramp B RD	12+71.90	645	0.7167	7994.76	6.5	8.0	0.0	OK
67th Ave Ramp C RD	20+93.80	645	1.7500	3274.04	15.9	8.0	7.9	OK, no barrier
67th Ave Ramp D RD	27+91.58	645	1.5000	3819.72	13.6	10.0	3.6	OK, existing barrier at bridge for two lanes, measures 707'
67th Ave Ramp B-D Connector	33+58.20	645	0.5000	11459.16	4.5	8.0	0.0	OK
67th Ave Ramp A-C Connector	28+56.75	645	1.0000	5729.58	9.1	8.0	1.1	OK, no barrier
51st Ave Ramp A PA	106+86.65	495	0.5833	9822.13	3.1	8.0	0.0	OK
51st Ave Ramp B PA	105+84.92	570	0.6667	8594.37	4.7	16.0	0.0	OK
51st Ave Ramp B PA	115+86.63	425	3.0000	1909.86	11.8	8.0	3.8	OK, no barrier
51st Ave Ramp C PA	205+73.31	425	1.4953	3831.72	5.9	11.0	0.0	OK
51st Ave Ramp C PA	222+41.48	570	1.0000	5729.58	7.1	18.0	0.0	OK
51st Ave Ramp D PA	110+03.91	425	1.3333	4297.18	5.3	8.0	0.0	OK
51st Ave Ramp D PA	117+62.85	425	2.0000	2864.79	7.9	8.0	0.0	OK
51st Ave Ramp D RD	26+20.85	495	0.5000	11459.16	2.7	10.0	0.0	OK
43rd Ave Ramp A RD	13+50.61	495	0.8333	6875.49	4.5	10.0	0.0	OK
43rd Ave Ramp B RD	13+13.77	570	0.7167	7994.76	5.1	18.0	0.0	OK



**SUPERELEVATION: Mainline**

Curve # or location	PI Station	Design Speed	Dc	Centerline Radius (ft)	Existing e (%)	e (%) method 5	f required	f allowed	Method 2 speed	Comment
SR 303L 101 NB RD	1785+21.39	65	0.5000	11459.16	-2.0	NC	0.045	0.11	> 80	OK
SR 303L 101 SB RD	1785+21.39	65	0.5000	11459.16	2.0	NC	0.005	0.11	> 80	OK
SR 303L 104 RD	1858+79.01	65	1.5000	3819.72	4.1	4.1	0.033	0.11	> 80	OK
SR 303L NB 122 RD	858+06.14	65	1.5000	3819.72	4.1	4.1	0.033	0.11	> 80	OK
SR 303L 107 RD	1896+98.61	65	1.0000	5729.58	3.0	3.0	0.019	0.11	> 80	OK
SR 303L 110 RD	1963+37.78	65	1.0000	5729.58	3.0	3.0	0.019	0.11	> 80	OK
SR 303L 113 RD	2054+93.62	65	1.0000	5729.58	3.0	3.0	0.019	0.11	> 80	OK

**SUPERELEVATION: Frontage Rd, Ramps**

Curve # or location	PI Station	Design Speed	Dc	Radius (ft)	Existing e (%)	e (%) method 5	f required	f allowed	Method 2 speed	Comment
NB FR 702 RD	24+59.33	45	0.2500	22918.31	2.0	NC	-0.014	0.15	> 80	OK
NB FR 705 RD	45+26.52	45	0.5000	11459.16	2.0	NC	-0.008	0.15	> 80	OK
NB FR 708 RD	61+23.57	45	2.5000	2291.83	4.0	3.5	0.019	0.15	> 65	Superelevation is for 50 mph design speed, interim condition.
NB FR 711 RD	69+81.17	45	3.0000	1909.86	3.9	3.9	0.032	0.15	> 65	OK
SB FR 522 PA	218+91.42	45	0.5833	9822.13	2.0	NC	-0.006	0.15	> 80	OK
SB FR 719 RD	45+15.28	45	0.5000	11459.16	2.0	NC	-0.008	0.15	> 80	OK
SB FR 722 RD	62+07.90	45	3.0000	1909.86	3.9	3.9	0.032	0.15	> 65	OK
SB FR 725 RD	70+26.03	45	3.0000	1909.86	2.9	3.9	0.042	0.15	> 60	near intersection, meet Low Speed Urban
67th Ave Ramp A RD	15+00.96	65	0.8332	6876.49	2.0	2.6	0.021	0.11	> 80	55 mph orig design speed
67th Ave Ramp A RD	23+49.21	65	1.7500	3274.04	3.6	4.6	0.050	0.11	> 75	55 mph orig design speed
67th Ave Ramp B RD	12+71.90	65	0.7167	7994.76	2.0	2.3	0.015	0.11	> 80	60 mph orig design speed
67th Ave Ramp C RD	20+93.80	65	1.7500	3274.04	3.6	4.6	0.050	0.11	> 75	55 mph orig design speed
67th Ave Ramp D RD	27+91.58	65	1.5000	3819.72	3.2	4.1	0.042	0.11	> 80	55 mph orig design speed
67th Ave Ramp B-D Connector	33+58.20	65	0.5000	11459.16	0.4	NC	0.021	0.11	> 80	flat cross slope for future TI
67th Ave Ramp A-C Connector	28+56.75	65	1.0000	5729.58	0.4	3.0	0.045	0.11	> 80	flat cross slope for future TI
51st Ave Ramp A PA	106+86.65	55	0.5833	9822.13	2.0	NC	0.001	0.13	> 80	OK
51st Ave Ramp B PA	105+84.92	60	0.6667	8594.37	2.0	2.0	0.008	0.12	> 80	OK
51st Ave Ramp B PA	115+86.63	50	3.0000	1909.86	4.4	4.4	0.043	0.14	> 65	OK
51st Ave Ramp C PA	205+73.31	50	1.4953	3831.72	2.8	2.8	0.015	0.14	> 75	OK
51st Ave Ramp C PA	222+41.48	50	1.0000	5729.58	2.3	2.0	0.006	0.14	> 80	Extend existing ramp at 2.3%. Original 55 mph design speed
51st Ave Ramp D PA	110+03.91	50	1.3333	4297.18	2.5	2.5	0.014	0.14	> 80	OK
51st Ave Ramp D PA	117+62.85	50	2.0000	2864.79	4.0	3.5	0.018	0.14	> 80	Existing compound curve 55 mph orig design speed
51st Ave Ramp D RD	26+20.85	55	0.5000	11459.16	-3.0	NC	0.048	0.13	> 80	Controlled by mainline super at gore. Gore transition area.
43rd Ave Ramp A RD	13+50.61	55	0.8333	6875.49	2.0	2.0	0.009	0.13	> 80	OK
43rd Ave Ramp B RD	13+13.77	60	0.7167	7994.76	2.0	2.0	0.010	0.12	> 80	OK