CONNECT 202 PARTNERS

Arizona Department of Transportation

202 MA 054 H882701C

SR 202L (South Mountain Freeway)

I-10 (Maricopa Freeway) – I-10 (Papago Freeway)

Public Private Partnership (P3) Design-Build-Maintain Contract

Addendum 4 to Final Noise Report (Pecos Segment)

July 6, 2018

FLUOR GRANITE Ames Construction, Inc. PARSONS BRINCKERHOFF DBI SERVICES

EXECUTIVE SUMMARY

The *SR 202L (South Mountain Freeway) I-10 (Maricopa Freeway) – I-10 (Papago Freeway) Final Noise Report (Pecos Segment) Submittal No. 2* was completed on May 22, 2017. Subsequent to the approval of the Final Noise Report during final design, Connect 202 Partners (C202P) directed that a new traffic interchange (TI) at 32nd Street and SR 202L was proposed for design and construction. Noise sensitive receptors of single family homes are located on both sides of 32nd Street north of SR 202L. Noise barrier SWL-2135-R along the SR 202L mainline edge was recommended for these receptors in the area in the Final Noise Report.

As directed by C202P, additional noise monitoring was conducted and TNM model was updated due to this design change. The monitoring noise levels ranged from 47 to 52 dBA for four monitoring sites. The noise model was revised by adding horizontal and vertical alignments for the ramps at the proposed 32nd Street TI. The mainline horizontal and vertical alignment would remain the same in the area. Same traffic volumes and vehicle mix percentage were used as in the original analysis for the SR 202L mainline and traffic data were added for the 32nd Street TI ramps per C202P. Noise barrier SWL-2135-R was re-evaluated along the revised roadway edges based on the Arizona Department of Transportation (ADOT) Noise Abatement Policy (NAP), dated July 13, 2011. The revised noise barrier meets the "feasible" and "reasonable" criteria required by the ADOT NAP and therefore is recommended. The following table summarizes the recommended noise barrier due to the design change.

Recommended Barrier Summary (PECOS SEGMENT) – 32nd Street TI						
Noise Barrier	Barrier Height Range (ft)	Barrier Length (ft)	Area of Barrier (ft^2)	Total Barrier Cost[1]	Number of Benefited receptors	Cost-Per-Benefited-Receptor[2]
New Barrier SWL-2135-R (Sta 2087+82 to Sta 2181+41)	16 to 20	9,759	192,488	$6,737,100	222	$35,100

Note:
[1] Total cost of the noise barrier is based on the unit cost of $35/$55 per square foot for off/on structure placement of noise barriers.
[2] The cost-per-benefited receptor is calculated from total barrier cost from SWL-2135-R and SWL-2185-R.

The following Appendices are included in this Addendum 4.

Appendix A – Recommended Noise Barrier and Noise Receiver Locations at 32nd St TI
Appendix B – Noise Level Monitoring Results
Appendix C – Future Traffic Volumes and Vehicle Mix Percentage
Appendix D – Predicted Noise Levels
Appendix E – Recommended Barrier Dimensions and Coordinates
Appendix F – FHWA Traffic Noise Model (TNM) 2.5 Output Files

APPENDIX A

Recommended Noise Barrier and Noise Receiver Locations at 32nd St TI

ORIGINAL BARRIER DESIGN (SWL-2135-R)

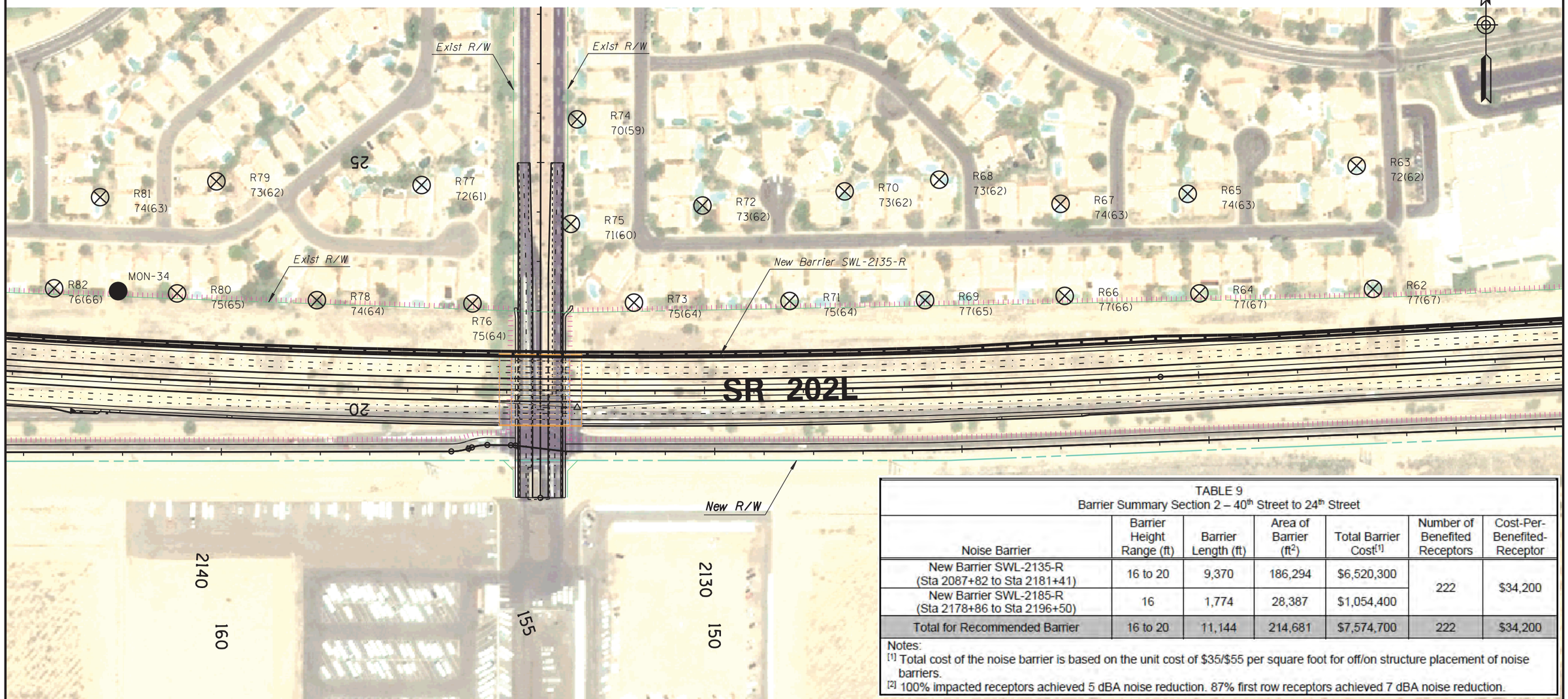

TABLE 9
Barrier Summary Section 2 – 40th Street to 24th Street

Noise Barrier	Barrier Height Range (ft)	Barrier Length (ft)	Area of Barrier (ft^2)	Total Barrier Cost[1]	Number of Benefited Receptors	Cost-Per-Benefited-Receptor
New Barrier SWL-2135-R (Sta 2087+82 to Sta 2181+41)	16 to 20	9,370	186,294	$6,520,300	222	$34,200
New Barrier SWL-2185-R (Sta 2178+86 to Sta 2196+50)	16	1,774	28,387	$1,054,400		
Total for Recommended Barrier	16 to 20	11,144	214,681	$7,574,700	222	$34,200

Notes:
[1] Total cost of the noise barrier is based on the unit cost of $35/$55 per square foot for off/on structure placement of noise barriers.
[2] 100% impacted receptors achieved 5 dBA noise reduction. 87% first row receptors achieved 7 dBA noise reduction.

SR 202L (SOUTH MOUNTAIN FREEWAY)
I–10 (MARICOPA FREEWAY) – I–10 (PAPAGO FREEWAY)

Recommended Noise Barrier (ORIGINAL)

⊗ **Modeled Receiver Noise Level (Mitigated Noise Level)**

● **Monitoring Receiver Monitored Noise Level**

100 0 100 200'
SCALE: 1" = 200'

The barrier locations and endpoints are for illustrative purposes only and are subject to adjustment during final design.

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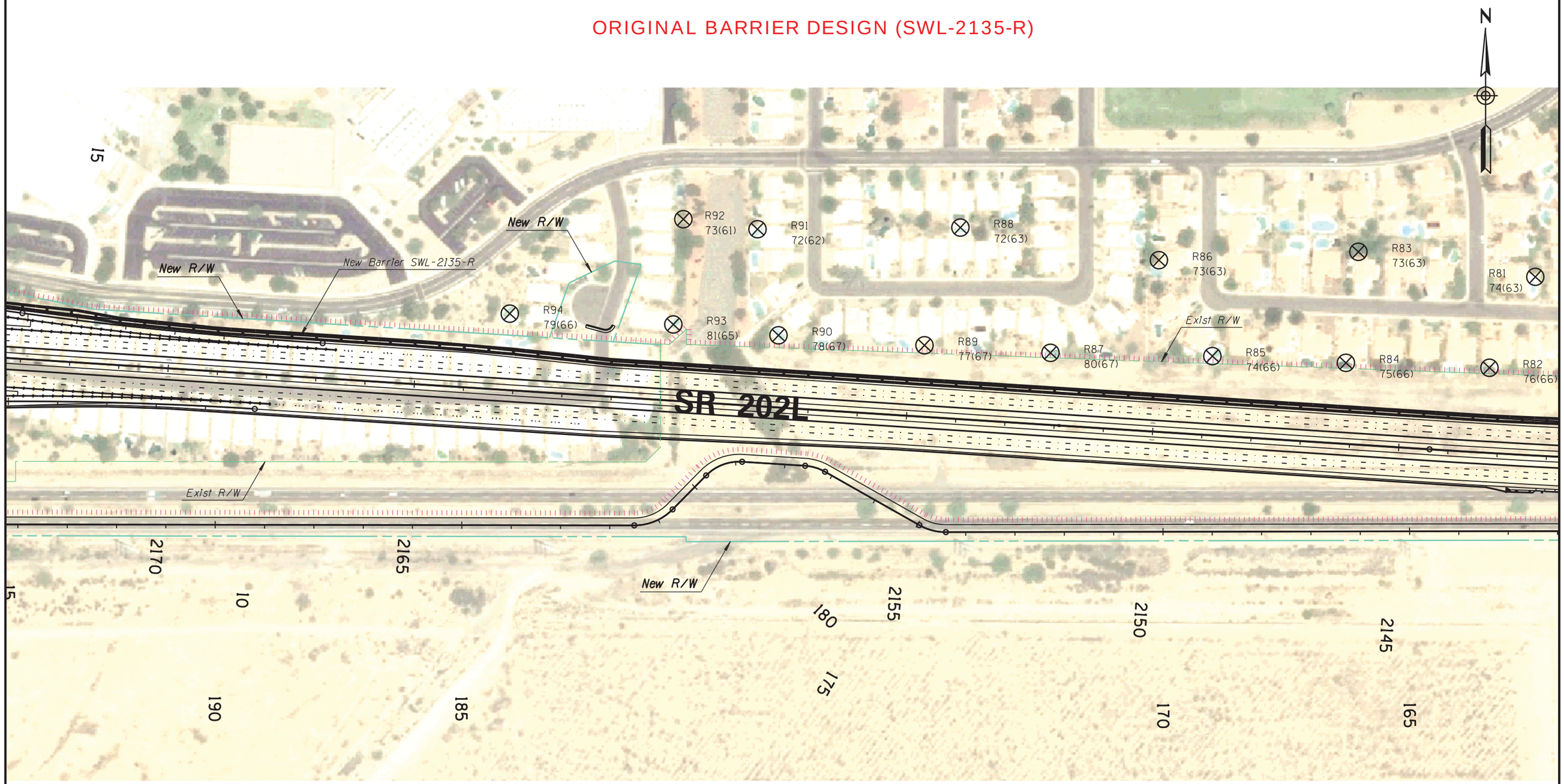
ORIGINAL BARRIER DESIGN (SWL-2135-R)



SR 202L (SOUTH MOUNTAIN FREEWAY)
I–10 (MARICOPA FREEWAY) – I–10 (PAPAGO FREEWAY)

Recommended Noise Barrier (ORIGINAL)

⊗ **Modeled Receiver Noise Level (Mitigated Noise Level)**

● **Monitoring Receiver Monitored Noise Level**

100 0 100 200'
SCALE: 1" = 200'

The barrier locations and endpoints are for illustrative purposes only and are subject to adjustment during final design.

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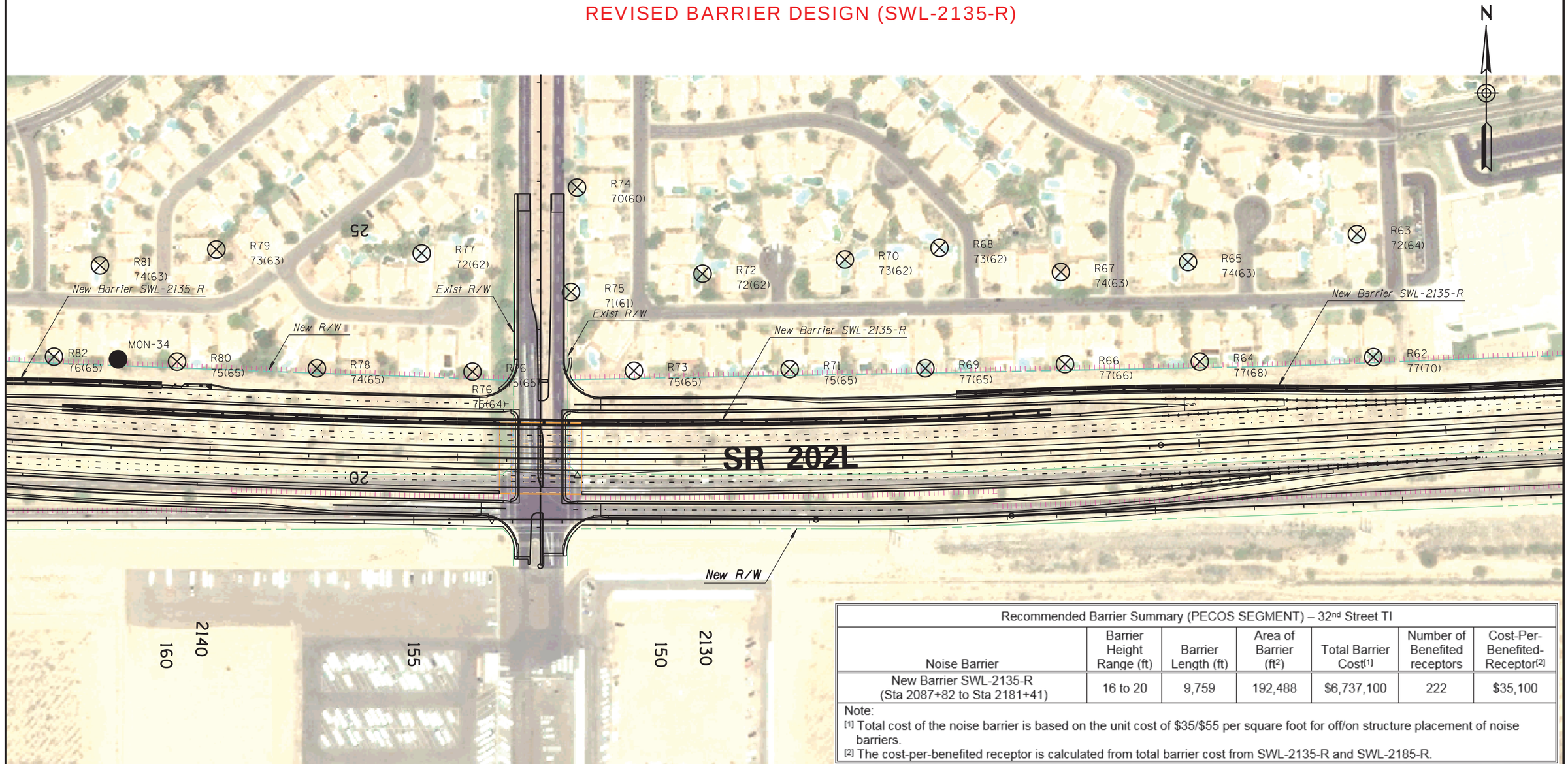
REVISED BARRIER DESIGN (SWL-2135-R)



Recommended Barrier Summary (PECOS SEGMENT) – 32nd Street TI						
Noise Barrier	Barrier Height Range (ft)	Barrier Length (ft)	Area of Barrier (ft^2)	Total Barrier Cost[1]	Number of Benefited receptors	Cost-Per-Benefited-Receptor[2]
New Barrier SWL-2135-R (Sta 2087+82 to Sta 2181+41)	16 to 20	9,759	192,488	$6,737,100	222	$35,100

Note:
[1] Total cost of the noise barrier is based on the unit cost of $35/$55 per square foot for off/on structure placement of noise barriers.
[2] The cost-per-benefited receptor is calculated from total barrier cost from SWL-2135-R and SWL-2185-R.

SR 202L (SOUTH MOUNTAIN FREEWAY)
I–10 (MARICOPA FREEWAY) – I–10 (PAPAGO FREEWAY)

32ND STREET TI

Recommended Noise Barrier (REVISED)

⊗ **Modeled Receiver Noise Level (Mitigated Noise Level)**

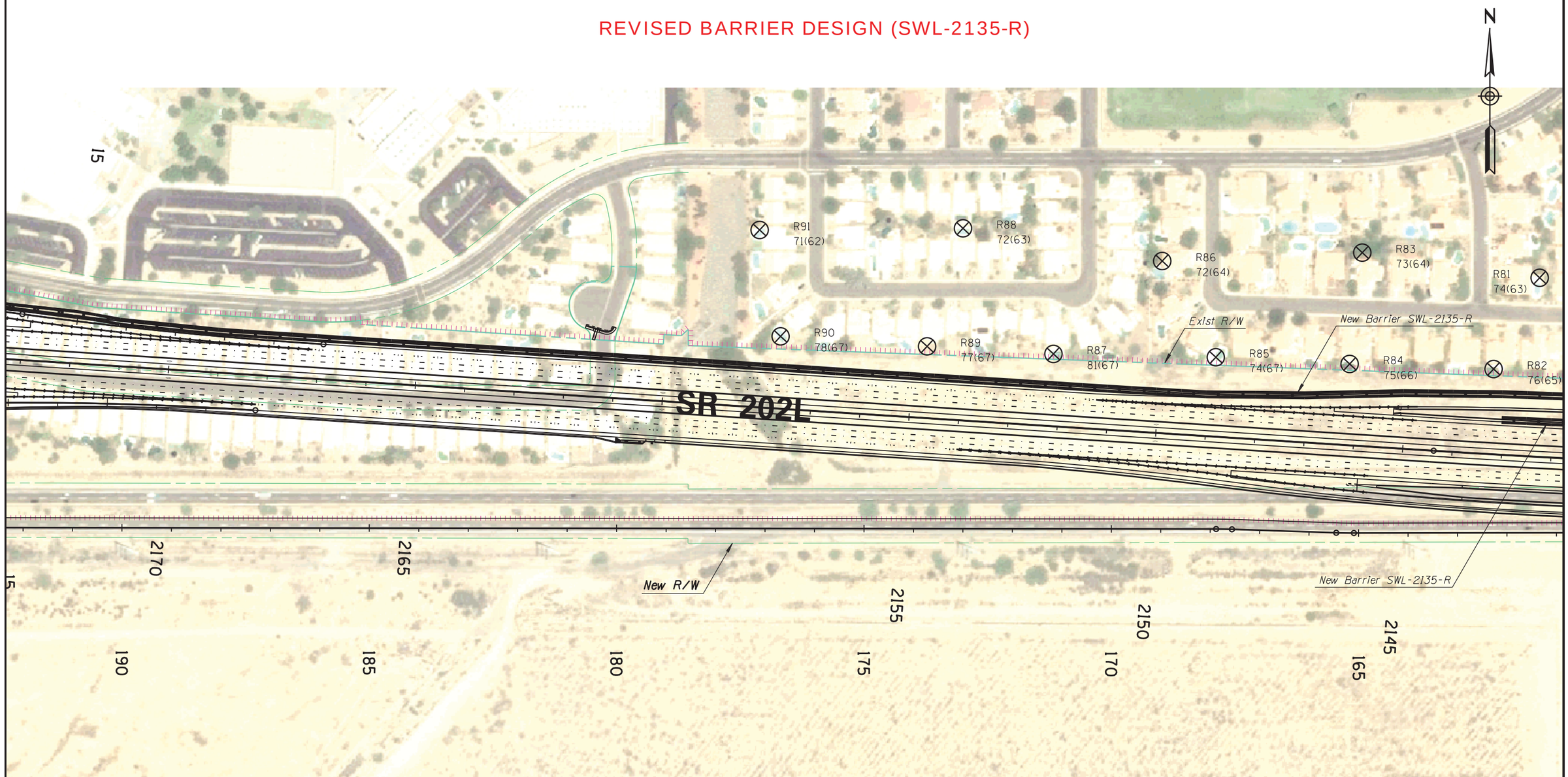
● **Monitoring Receiver Monitored Noise Level**

100 0 100 200'
SCALE: 1" = 200'

The barrier locations and endpoints are for illustrative purposes only and are subject to adjustment during final design.

A5

REVISED BARRIER DESIGN (SWL-2135-R)



SR 202L (SOUTH MOUNTAIN FREEWAY)
I–10 (MARICOPA FREEWAY) – I–10 (PAPAGO FREEWAY)

32ND STREET TI

Recommended Noise Barrier (REVISED)

⊗ Modeled Receiver
Noise Level (Mitigated Noise Level)

● Monitoring Receiver
Monitored Noise Level

100 0 100 200'
SCALE: 1" = 200'

The barrier locations and endpoints are for illustrative purposes only and are subject to adjustment during final design.

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APPENDIX B

Noise Level Monitoring Results

AZTEC
www.aztec.us
4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

ROADWAY TRAFFIC
NOISE LEVEL MEASUREMENT DATA SHEET

Project Number/Name: SR 202L (South Mountain Freeway) I-10 (Maricopa Freeway) – I-10 (Papago Freeway) **Date:** 6/21/2018

Site Number/Description: MON-01, (Lat/Long: 33.292171, -112.012983)

Side walk adjacent to residence at 17006 S 32nd Way

(Prepared by)/Crew: David Shu, Scott Solliday, Homaira Parveen

Temperature: 86 ºF **Relative Humidity:** 22 % **Wind & Direction:** 6.9 mph/East **Sky:** Clear

SLM Make/Model: LDL 824 **Calibration Make/Model:** LDL CA 200 @ 114 dB

Calibration: ☒

Posted Speed Limit (mph): 50

Observed Speed (mph): 50-55

Sample	Time		Sound Level, dBA			Traffic Count		
	Start	Duration	L_{MIN}	L_{EQ}	L_{MAX}	Auto	Med. Trk.	Hvy. Trk.
1	7:50 AM	10 mins	43.2	49.9	64.6	---	---	---
2	8:00 AM	10 mins	42.5	51.5	64.5	---	---	---
3	8:11 AM	10 mins	39.2	50.1	67.4	---	---	---

NOTES: Traffic count on Pecos Rd 8:30-9:00 AM: EB, 471 cars, 1 med truck, 3 heavy trucks WB, 280 cars, 1 med truck,1 heavy truck

4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

Figure 1. Looking north

Figure 2. Looking west

4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

ROADWAY TRAFFIC
NOISE LEVEL MEASUREMENT DATA SHEET

Project Number/Name: SR 202L (South Mountain Freeway) I-10 (Maricopa Freeway) – I-10 (Papago Freeway) **Date:** 6/21/2018

Site Number/Description: MON-02, (Lat/Long: 33.292086, -112.011803)

Side walk adjacent to residence at 3301 E Cedarwood Ln

(Prepared by)/Crew: David Shu, Scott Solliday, Homaira Parveen

Temperature: 83 ºF **Relative Humidity:** 26 % **Wind & Direction:** 8.1 mph/East **Sky:** Clear

SLM Make/Model: LDL 824 **Calibration Make/Model:** LDL CA 200 @ 114 dB

Calibration: ☒

Posted Speed Limit (mph): 50

Observed Speed (mph): 50-55

Sample	Time		Sound Level, dBA			Traffic Count		
	Start	Duration	L_{MIN}	L_{EQ}	L_{MAX}	Auto	Med. Trk.	Hvy. Trk.
1	7:15 AM	10 mins	40.9	50.2	68.5	---	---	---
2	7:26 AM	10 mins	40.9	51.0	63.1	---	---	---
3	7:37 PM	10 mins	41.3	54.0	72.4	---	---	---

NOTES:

4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

ROADWAY TRAFFIC
NOISE LEVEL MEASUREMENT DATA SHEET

Figure 1. Looking east

Figure 2. Looking south

AZTEC
www.aztec.us
4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

ROADWAY TRAFFIC
NOISE LEVEL MEASUREMENT DATA SHEET

Project Number/Name: SR 202L (South Mountain Freeway) I-10 (Maricopa Freeway) – I-10 (Papago Freeway) **Date:** 6/21/2018

Site Number/Description: MON-03, (Lat/Long: 33.292135, -112.015185)

Side walk adjacent to residence at 3140 E Redwood Ct

(Prepared by)/Crew: David Shu, Scott Solliday, Homaira Parveen

Temperature: 91 ºF **Relative Humidity:** 18 % **Wind & Direction:** 6.9 mph/East **Sky:** Clear

SLM Make/Model: LDL 824 **Calibration Make/Model:** LDL CA 200 @ 114 dB

Calibration: ☒

Posted Speed Limit (mph): 50

Observed Speed (mph): 50-55

Source: AZTEC (2018), City of Phoenix (2017)

Sample	Time		Sound Level, dBA			Traffic Count		
	Start	Duration	L_{MIN}	L_{EQ}	L_{MAX}	Auto	Med. Trk.	Hvy. Trk.
1	9:10 AM	10 mins	41.7	46.4	52.9	---	---	---
2	9:20 AM	10 mins	41.7	45.9	52.7	---	---	---
3	9:31 AM	10 mins	41.9	47.7	57.2	---	---	---

NOTES:

4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

Figure 1. Looking north

Figure 2. Looking east

AZTEC
www.aztec.us
4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

ROADWAY TRAFFIC
NOISE LEVEL MEASUREMENT DATA SHEET

Project Number/Name: SR 202L (South Mountain Freeway) I-10 (Maricopa Freeway) – I-10 (Papago Freeway) **Date:** 6/21/2018

Site Number/Description: MON-04, (Lat/Long: 33.292208, -112.016927)

Side walk adjacent to residence at 17013 S 30th Way

(Prepared by)/Crew: David Shu, Scott Solliday, Homaira Parveen

Temperature: 94 ºF **Relative Humidity:** 15 % **Wind & Direction:** Calm **Sky:** Clear

SLM Make/Model: LDL 824 **Calibration Make/Model:** LDL CA 200 @ 114 dB

Calibration: ☒

Posted Speed Limit (mph): 50

Observed Speed (mph): 50-55

Source: AZTEC (2018); City of Phoenix (2017)

Sample	Time		Sound Level, dBA			Traffic Count		
	Start	Duration	L_{MIN}	L_{EQ}	L_{MAX}	Auto	Med. Trk.	Hvy. Trk.
1	9:47 AM	10 mins	44.1	50.5	61.7	---	---	---
2	9:57 AM	10 mins	44.5	54.5	74.2	---	---	---
3	10:08 AM	10 mins	46.0	48.6	54.5	---	---	---

NOTES:

4561 E McDowell Road
Phoenix, AZ 85008
Tel: (602) 454-0402
Fax: (602) 458-7465

Figure 1. Looking north

Figure 2. Looking east

LARSON DAVIS
A PCB PIEZOTRONICS DIV.

Certificate of Calibration and Conformance

Certificate Number 2018-206841

Instrument Model 824, Serial Number A3505, was calibrated on 6 Jun 2018. The instrument meets factory specifications per Procedure D0001.8046, IEC 61672-1:2002 Class 1; IEC 60651-2001, 60804-2000 and ANSI S1.4-1983 Type 1 1/3, 1/1 Oct. Filters; S1.11-1986 Type 1C; IEC61260-am1-2001 Class 1 .

Instrument found to be in calibration as received: YES
Date Calibrated: 6 Jun 2018
Calibration due: 6 Jun 2020

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	LDSigGn/2209	0617 / 0104	12 Months	19 Dec 2018	2017-206126

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 24 ° Centigrade

Relative Humidity: 31 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"As received" data is the same as shipped data.
Tested with PRM902 S/N 5661

Signed:
Technician: Sean Childs

Provo Engineering and Manufacturing Center, 1681 West 820 North, Provo, Utah 84601
Toll Free: 888.258.3222 Telephone: 716.926.8243 Fax: 716.926.8215
ISO 9001-2008 Certified

LARSON DAVIS
A PCB PIEZOTRONICS DIV.

Certificate of Calibration and Conformance

Certificate Number 2018-206840

Instrument Model PRM902, Serial Number 5661, was calibrated on 6 Jun 2018. The instrument meets factory specifications per Procedure D0001.8126.

Instrument found to be in calibration as received: YES
Date Calibrated: 6 Jun 2018
Calibration due: 6 Jun 2020

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Agilent Technologies	34401A	MY41038589	12 Months	6 Sep 2018	2017009650
Larson Davis	LDSigGn/2209	0617 / 0104	12 Months	19 Dec 2018	2017-206126

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 24 ° Centigrade

Relative Humidity: 31 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"As received" data is the same as shipped data.

Signed:

Technician: Sean Childs

Provo Engineering and Manufacturing Center, 1681 West 820 North, Provo, Utah 84601
Toll Free: 888.258.3222 Telephone: 716.926.8243 Fax: 716.926.8215
ISO 9001-2008 Certified

~ Certificate of Calibration and Compliance ~

Microphone Model: 377B02 Serial Number: 305112 Manufacturer: PCB

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Reference Equipment

Manufacturer	Model #	Serial #	PCB Control #	Cal Date	Due Date
National Instruments	PCIe-6351	1896F08	CA1918	10/20/17	10/19/18
Larson Davis	PRM915	134	CA2114	11/30/17	11/30/18
Larson Davis	PRM902	5352	CA1247	4/12/18	4/12/19
Larson Davis	PRM916	130	CA1161	9/13/17	9/13/18
Larson Davis	CAL250	5109	CA1496	10/19/17	10/19/18
Larson Davis	2201	115	TA472	4/12/18	4/12/19
Bruel & Kjaer	4192	2954556	CA2323	9/15/17	9/14/18
Larson Davis	GPRM902	3999	CA1090	9/20/17	9/20/18
Newport	iTHX-SD/N	1080002	CA1511	2/9/18	2/8/19
Larson Davis	PRA951-4	222	LD026	12/19/17	12/19/18
Larson Davis	PRM915	147	CA2179	6/6/17	6/6/18
PCB	68510-02	N/A	CA2672	12/27/17	12/27/18
0	0	0	0	not required	not required
0	0	0	0	not required	not required
0	0	0	0	not required	not required

Frequency sweep performed with B&K UA0033 electrostatic actuator.

Condition of Unit

As Found: n/a

As Left: New Unit, In Tolerance

Notes

1. Calibration of reference equipment is traceable to one or more of the following National Labs; NIST, PTB or DFM.
2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
3. Calibration is performed in compliance with ISO 10012-1, ANSI/NCSL Z540.3 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
5. Open Circuit Sensitivity is measured using the insertion voltage method following procedure AT603-5.
6. Measurement uncertainty (95% confidence level with coverage factor of 2) for sensitivity is +/-0.20 dB.
7. Unit calibrated per ACS-20.

Technician: Leonard Lukasik Date: May 22, 2018

ilac-MRA ACCREDITED

CALIBRATION CERT #1862.01

PCB PIEZOTRONICS VIBRATION DIVISION

3425 Walden Avenue, Depew, New York, 14043

TEL: 888-684-0013 FAX: 716-685-3886 www.pcb.com

ID:CAL112-3609837065.218+0

Calibration Certificate

Certificate Number 2018005660

Customer:
Aztec Engineering
4561 East McDowell Road
Phoenix, AZ 85008, United States

Model Number	CAL200	***Procedure Number***	D0001.8386
Serial Number	5482	***Technician***	Scott Montgomery
Test Results	**Pass**	***Calibration Date***	6 Jun 2018
Initial Condition	Adjusted	***Calibration Due***	6 Jun 2020
		Temperature	23 °C ± 0.3 °C
Description	Larson Davis CAL200 Acoustic Calibrator	***Humidity***	35 %RH ± 3 %RH
		Static Pressure	101.2 kPa ± 1 kPa

Evaluation Method The data is aquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.
Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	09/06/2017	09/06/2018	001021
Larson Davis Model 2900 Real Time Analyzer	04/10/2018	04/10/2019	001051
Microphone Calibration System	03/07/2018	03/07/2019	005446
1/2" Preamplifier	10/05/2017	10/05/2018	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/08/2017	08/08/2018	006507
1/2 inch Microphone - RI - 200V	10/23/2017	10/23/2018	006511
Pressure Transducer	10/20/2017	10/20/2018	007204

Output Level

Nominal Level [dB]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
114	101.2	114.01	113.80	114.20	0.14	Pass
94	101.2	93.99	93.80	94.20	0.14	Pass

-- End of measurement results--

Frequency

Nominal Level [dB]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
114	101.2	1,000.04	990.00	1,010.00	0.20	Pass
94	101.2	1,000.04	990.00	1,010.00	0.20	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N)

Nominal Level [dB]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
114	101.2	0.54	0.00	2.00	0.25	Pass
94	101.2	0.55	0.00	2.00	0.25	Pass

-- End of measurement results--

Level Change Over Pressure

Tested at: 114 dB, 24 °C, 31 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
108.0	107.9	-0.02	-0.30	0.30	0.04 ‡	Pass
101.3	101.3	0.00	-0.30	0.30	0.04 ‡	Pass
92.0	92.0	0.03	-0.30	0.30	0.04 ‡	Pass
83.0	83.1	0.06	-0.30	0.30	0.04 ‡	Pass
74.0	74.0	0.10	-0.30	0.30	0.04 ‡	Pass
65.0	65.1	0.15	-0.30	0.30	0.04 ‡	Pass

-- End of measurement results--

Frequency Change Over Pressure

Tested at: 114 dB, 24 °C, 31 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
108.0	107.9	0.00	-10.00	10.00	0.20 ‡	Pass
101.3	101.3	0.00	-10.00	10.00	0.20 ‡	Pass
92.0	92.0	0.00	-10.00	10.00	0.20 ‡	Pass
83.0	83.1	0.00	-10.00	10.00	0.20 ‡	Pass
74.0	74.0	0.00	-10.00	10.00	0.20 ‡	Pass
65.0	65.1	0.00	-10.00	10.00	0.20 ‡	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N) Over Pressure

Tested at: 114 dB, 24 °C, 31 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
108.0	107.9	0.58	0.00	2.00	0.25 ‡	Pass
101.3	101.3	0.55	0.00	2.00	0.25 ‡	Pass
92.0	92.0	0.52	0.00	2.00	0.25 ‡	Pass
83.0	83.1	0.49	0.00	2.00	0.25 ‡	Pass
74.0	74.0	0.46	0.00	2.00	0.25 ‡	Pass
65.0	65.1	0.44	0.00	2.00	0.25 ‡	Pass

-- End of measurement results--

Signatory: Scott Montgomery

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ilac-MRA ACCREDITED Cert. #3622.01

LARSON DAVIS
A PCB PIEZOTRONICS DIV.

APPENDIX C

Future Traffic Volumes and Vehicle Mix Percentage

2040 MAG Projections - Peak HOUR and 24-hour
With and Without 32nd Street Traffic Interchange

Peak Hour Conversion Factors	Freeway and Ramp
AM - 3Hr (6am - 9am)	2.72
PM - 4Hr (2pm - 6pm)	3.74

N

	Build	No Build	
24 hr	52760	52312	1%
H	8506	8618	-1%
M	3307	3295	0%
AM	2921	2878	2%
H	475	475	0%
M	256	256	0%
PM	5314	5297	0%
H	571	573	0%
M	320	321	0%

	Build	No Build	
24 hr	1830	1761	4%
H	57	55	4%
M	60	59	2%
AM	49	53	-8%
H	0	0	0%
M	1	1	0%
PM	205	181	13%
H	5	4	19%
M	6	6	14%

	Build	No Build	
24 hr	7294	8443	-14%
H	43	50	-14%
M	122	148	-18%
AM	317	411	-23%
H	3	3	-13%
M	8	10	-19%
PM	673	700	-4%
H	3	3	0%
M	9	10	-8%

24th St

	Build	No Build	
24 hr	57944	58905	-2%
H	8492	8613	-1%
M	3366	3383	-1%
AM	3165	3210	-1%
H	478	478	0%
M	263	265	-1%
PM	5734	5811	-1%
H	569	571	0%
M	323	325	-1%

	Build	No Build
24 hr	2065	
H	43	
M	68	
AM	77	
H	1	
M	2	
PM	311	
H	8	
M	12	

32nd St

	Build	No Build
24 hr	5296	
H	24	
M	78	
AM	266	
H	1	
M	5	
PM	493	
H	2	
M	6	

SR 202L (3+HOV in each direction)

	Build	No Build	
24 hr	61175	58905	4%
H	8474	8613	-2%
M	3376	3383	0%
AM	3354	3210	4%
H	478	478	0%
M	266	265	0%
PM	5916	5811	2%
H	562	571	-2%
M	316	325	-3%

	Build	No Build	
24 hr	7363	7693	-4%
H	115	146	-21%
M	182	232	-22%
AM	284	286	-1%
H	7	8	-10%
M	13	15	-12%
PM	671	760	-12%
H	3	9	-62%
M	9	18	-51%

	Build	No Build	
24 hr	7885	8644	-9%
H	93	98	-5%
M	195	213	-8%
AM	446	465	-4%
H	6	6	0%
M	14	15	-8%
PM	696	794	-12%
H	5	6	-9%
M	14	15	-9%

40th St

	Build	No Build	
24 hr	61724	59857	3%
H	8450	8564	-1%
M	3391	3365	1%
AM	3495	3389	3%
H	476	476	0%
M	266	264	1%
PM	5964	5845	2%
H	564	568	-1%
M	321	322	0%

HOV	Build	No Build
24 hr	9454	9194
H	1242	1138
M	583	588
AM	139	114
H	0	0
M	0	0
PM	455	423
H	0	0
M	0	0

SR 202L (3+HOV in each direction)

	Build	No Build	
24 hr	49000	48316	1%
H	5135	5110	0%
M	3219	3208	0%
AM	4865	4841	1%
H	328	328	0%
M	301	301	0%
PM	3515	3481	1%
H	329	329	0%
M	277	277	0%

	Build	No Build	
24 hr	1592	1448	10%
H	49	39	26%
M	54	48	13%
AM	188	187	0%
H	5	5	0%
M	6	6	6%
PM	53	57	-8%
H	0	0	0%
M	1	1	0%

	Build	No Build	
24 hr	6833	7780	-12%
H	39	44	-11%
M	112	132	-15%
AM	577	590	-2%
H	2	2	0%
M	7	8	-10%
PM	440	513	-14%
H	3	3	-9%
M	9	10	-16%

	Build	No Build	
24 hr	53954	54572	-1%
H	5124	5115	0%
M	3274	3291	-1%
AM	5221	5243	0%
H	325	326	0%
M	303	303	0%
PM	3867	3928	-2%
H	331	332	0%
M	285	286	0%

	Build	No Build
24 hr	2044	
H	46	
M	73	
AM	258	
H	7	
M	10	
PM	174	
H	5	
M	8	

	Build	No Build
24 hr	5175	
H	24	
M	80	
AM	423	
H	1	
M	5	
PM	349	
H	1	
M	6	

	Build	No Build	
24 hr	57085	54572	5%
H	5102	5115	0%
M	3281	3291	0%
AM	5385	5243	3%
H	321	326	-2%
M	298	303	-2%
PM	4042	3928	3%
H	328	332	-1%
M	282	286	-1%

	Build	No Build	
24 hr	6747	7221	-7%
H	100	141	-29%
M	155	217	-29%
AM	577	702	-18%
H	3	9	-64%
M	8	16	-52%
PM	367	435	-16%
H	4	8	-55%
M	9	16	-45%

	Build	No Build	
24 hr	9275	10793	-14%
H	101	114	-11%
M	221	253	-13%
AM	590	751	-21%
H	6	6	-12%
M	14	16	-14%
PM	661	751	-12%
H	7	7	-11%
M	17	20	-11%

	Build	No Build	
24 hr	59631	58144	3%
H	5102	5088	0%
M	3347	3327	1%
AM	5410	5292	2%
H	322	323	0%
M	304	303	0%
PM	4333	4243	2%
H	331	331	0%
M	291	289	1%

HOV	Build	No Build
24 hr	9101	8803
H	646	661
M	613	608
AM	333	303
H	0	0
M	0	0
PM	292	253
H	0	0
M	0	0

APPENDIX D

Predicted Noise Levels

SOUTH MOUNTAIN TRANSPORTATION CORRIDOR IN MARICOPA COUNTY, ARIZONA
32ND STREET TI
ADOT PROJECT NO: 202L MA 054 H5764 01L

Noise Receiver		PREDICTED NOISE LEVELS, dBA (TNM 2.5 Model)					
		Original Model			Revised Model		
ID	Represented Receptors	Future Unmitigated	Future Mitigated	Insertion Loss	Future Unmitigated	Future Mitigated	Insertion Loss
R62	3	**77**	67	10	**77**	70	7
R63	3	**72**	62	10	**72**	64	8
R64	4	**77**	67	10	**77**	68	9
R65	2	**74**	63	11	**74**	63	11
R66	4	**77**	66	11	**77**	66	11
R67	3	**74**	62	12	**74**	63	11
R68	2	**73**	62	11	**73**	62	11
R69	4	**77**	65	12	**77**	65	12
R70	2	**73**	62	11	**73**	62	11
R71	5	**75**	64	11	**75**	65	10
R72	2	**73**	62	11	**72**	62	10
R73	3	**75**	64	11	**75**	65	10
R74	2	**70**	59	11	**70**	60	10
R75	2	**71**	60	11	**71**	61	10
R76	3	**75**	64	11	**75**	65	10
R77	6	**72**	61	11	**72**	62	10
R78	5	**74**	64	10	**74**	65	9
R79	3	**73**	62	11	**73**	63	10
R80	4	**75**	65	10	**75**	65	10
R81	2	**74**	63	11	**74**	63	11
R82	5	**76**	66	10	**76**	65	11
R83	6	**73**	63	10	**73**	64	9
R84	4	**75**	66	9	**75**	66	9
R85	2	**74**	66	8	**74**	67	7
R86	5	**73**	63	10	**72**	64	8
R87	4	**80**	67	13	**81**	67	14
R88	8	**72**	63	9	**72**	63	9
R89	5	**77**	67	10	**77**	67	10
R90	3	**78**	66	12	**78**	67	11
R91	5	**72**	62	10	**71**	62	9
First Row Average		**76.1**	**65.6**		**76.2**	**66.2**	

Notes:
Bold number denotes unmitigated noise level ≥ 64 dBA.
Grey shading denotes insertion loss (noise reduction) ≥ 5 dBA.

APPENDIX E

Recommended Barrier Dimensions and Coordinates

South Mountain Transportation Corridor
in Maricopa County, Arizona
Final Design, Segment A, 32nd ST TI
Barrier Name: Revised SWL-2135-R for 32nd St TI

Barrier Segment	Point No.	Stationing [1]	Easting (X) (ft)	Northing (Y) (ft)	Bottom Elevation (Z) (ft) [2]	Top Elevation (Z) (ft)	Segment Length (ft)	Segment Height (ft)
Barrier Segment on Mainline and 32nd TI Ramp B								
1	1	2087+82	674752.1	834042.4	1174.50	1190.50	81	16
	2	2088+62	674672.3	834030.9	1174.27	1190.27		
2	2	2088+62	674672.3	834030.9	1174.27	1192.27	56	18
	3	2089+12	674624.2	834001.4	1175.26	1193.26		
3	3	2089+12	674624.2	834001.4	1175.26	1193.26	177	18
	4	2090+87.51	674449.4	833972.8	1174.14	1192.14		
4	4	2090+87.51	674449.4	833972.8	1174.14	1194.14	200	20
	5	2092+86.71	674251.4	833944.6	1172.80	1192.80		
5	5	2092+86.71	674251.4	833944.6	1172.80	1192.80	200	20
	6	2094+85.93	674053.4	833916.2	1172.08	1192.08		
6	6	2094+85.93	674053.4	833916.2	1172.08	1192.08	200	20
	7	2096+85.67	673854.5	833895.0	1172.82	1192.82		
7	7	2096+85.67	673854.5	833895.0	1172.82	1192.82	200	20
	8	2098+85.68	673654.8	833883.9	1173.63	1193.63		
8	8	2098+85.68	673654.8	833883.9	1173.63	1193.63	200	20
	9	2100+85.66	673455.1	833873.4	1174.43	1194.43		
9	9	2100+85.66	673455.1	833873.4	1174.43	1194.43	200	20
	10	2102+85.63	673255.4	833862.9	1175.23	1195.23		
10	10	2102+85.63	673255.4	833862.9	1175.23	1195.23	200	20
	11	2104+85.71	673055.6	833852.4	1175.95	1195.95		
11	11	2104+85.71	673055.6	833852.4	1175.95	1195.95	200	20
	12	2106+85.71	672855.9	833842.4	1176.23	1196.23		
12	12	2106+85.71	672855.9	833842.4	1176.23	1196.23	200	20
	13	2108+85.71	672656.1	833831.9	1176.27	1196.27		
13	13	2108+85.71	672656.1	833831.9	1176.27	1196.27	200	20
	14	2110+85.71	672456.4	833821.4	1175.83	1195.83		
14	14	2110+85.71	672456.4	833821.4	1175.83	1195.83	200	20
	15	2112+85.71	672256.7	833810.9	1175.06	1195.06		
15	15	2112+85.71	672256.7	833810.9	1175.06	1195.06	200	20
	16	2114+85.70	672056.9	833802.2	1174.25	1194.25		
16	16	2114+85.70	672056.9	833802.2	1174.25	1194.25	200	20
	17	2116+85.53	671856.9	833799.9	1174.50	1194.50		
17	17	2116+85.53	671856.9	833799.9	1174.50	1194.50	200	20
	18	2118+85.14	671656.9	833801.9	1176.30	1196.30		
18	18	2118+85.14	671656.9	833801.9	1176.30	1196.30	200	20
	19	2120+84.93	671456.9	833801.4	1178.52	1198.52		
19	19	2120+84.93	671456.9	833801.4	1178.52	1198.52	200	20
	20	2122+86.06	671257.0	833796.3	1180.71	1200.71		
20	20	2122+86.06	671257.0	833796.3	1180.71	1198.71	200	18
	21	2124+87.25	671057.1	833788.9	1181.90	1199.90		

South Mountain Transportation Corridor
in Maricopa County, Arizona
Final Design, Segment A, 32nd ST TI
Barrier Name: Revised SWL-2135-R for 32nd St TI

Barrier Segment	Point No.	Stationing [1]	Easting (X) (ft)	Northing (Y) (ft)	Bottom Elevation (Z) (ft) [2]	Top Elevation (Z) (ft)	Segment Length (ft)	Segment Height (ft)
Barrier Segment on Mainline Bridge								
1	1	2122+96.56	671248.3	833753.2	1185.83	1203.83	200	18
	2	2124+97.31	671048.6	833741.2	1192.22	1210.22		
2	2	2124+97.31	671048.6	833741.2	1192.22	1212.22	200	20
	3	2126+98.01	670848.7	833735.9	1198.00	1218.00		
3	3	2126+98.01	670848.7	833735.9	1198.00	1218.00	200	20
	4	2128+98.76	670648.7	833732.6	1202.27	1222.27		
4	4	2128+98.76	670648.7	833732.6	1202.27	1222.27	200	20
	5	2130+99.48	670448.7	833731.2	1204.83	1224.83		
5	5	2130+99.48	670448.7	833731.2	1204.83	1224.83	200	20
	6	2133+00.21	670248.7	833731.8	1205.68	1225.68		
6	6	2133+00.21	670248.7	833731.8	1205.68	1225.68	200	20
	7	2135+00.85	670048.8	833734.4	1204.83	1224.83		
7	7	2135+00.85	670048.8	833734.4	1204.83	1224.83	200	20
	8	2137+01.62	669848.8	833738.9	1202.26	1222.26		
8	8	2137+01.62	669848.8	833738.9	1202.26	1222.26	200	20
	9	2139+02.35	669648.9	833745.4	1197.99	1217.99		
9	9	2139+02.35	669648.9	833745.4	1197.99	1217.99	200	20
	10	2141+03.04	669449.1	833753.8	1192.26	1212.26		
10	10	2141+03.04	669449.1	833753.8	1192.26	1210.26	200	18
	11	2143+03.72	669249.3	833762.3	1187.63	1205.63		
Barrier Segment on 32nd ST Ramp D and Mainline								
1	1	2141+03.37	669451.3	833807.3	1185.32	1203.32	200	18
	2	2143+04.58	669251.5	833814.5	1184.65	1202.65		
2	2	2143+04.58	669251.5	833814.5	1184.65	1204.65	200	20
	3	2145+05.09	669051.5	833816.5	1183.98	1203.98		
3	3	2145+05.09	669051.5	833816.5	1183.98	1203.98	200	20
	4	2147+04.36	668851.5	833812.2	1183.27	1203.27		
4	4	2147+04.36	668851.5	833812.2	1183.27	1203.27	200	20
	5	2149+04.06	668651.5	833814.1	1184.31	1204.31		
5	5	2149+04.06	668651.5	833814.1	1184.31	1204.31	200	20
	6	2151+04.06	668451.9	833825.7	1185.67	1205.67		
6	6	2151+04.06	668451.9	833825.7	1185.67	1205.67	200	20
	7	2153+04.06	668252.3	833838.5	1186.99	1206.99		
7	7	2153+04.06	668252.3	833838.5	1186.99	1206.99	200	20
	8	2155+04.06	668052.7	833851.3	1187.89	1207.89		
8	8	2155+04.06	668052.7	833851.3	1187.89	1207.89	200	20
	9	2157+04.06	667853.1	833864.1	1188.25	1208.25		
9	9	2157+04.06	667853.1	833864.1	1188.25	1208.25	200	20
	10	2159+04.06	667653.5	833877.0	1188.08	1208.08		
10	10	2159+04.06	667653.5	833877.0	1188.08	1208.08	200	20
	11	2161+04.06	667453.9	833889.8	1187.40	1207.40		

South Mountain Transportation Corridor
in Maricopa County, Arizona
Final Design, Segment A, 32nd ST TI
Barrier Name: Revised SWL-2135-R for 32nd St TI

Barrier Segment	Point No.	Stationing [1]	Easting (X) (ft)	Northing (Y) (ft)	Bottom Elevation (Z) (ft) [2]	Top Elevation (Z) (ft)	Segment Length (ft)	Segment Height (ft)
11	11	2161+04.06	667453.9	833889.8	1187.40	1207.40	200	20
	12	2163+04.06	667254.3	833902.6	1186.60	1206.60		
12	12	2163+04.06	667254.3	833902.6	1186.60	1206.60	200	20
	13	2165+04.06	667054.7	833914.9	1185.88	1205.88		
13	13	2165+04.06	667054.7	833914.9	1185.88	1205.88	200	20
	14	2167+03.97	666855.2	833927.7	1185.08	1205.08		
14	14	2167+03.97	666855.2	833927.7	1185.08	1205.08	200	20
	15	2169+04.00	666655.6	833940.9	1184.28	1204.28		
15	15	2169+04.00	666655.6	833940.9	1184.28	1204.28	200	20
	16	2171+03.88	666456.6	833961.0	1183.33	1203.33		
16	16	2171+03.88	666456.6	833961.0	1183.33	1203.33	88	20
	17	2171+91.11	666370.2	833976.6	1182.96	1202.96		
17	17	2171+91.11	666370.2	833976.6	1182.96	1202.96	200	20
	18	2173+90.86	666171.4	833997.9	1183.61	1203.61		
18	18	2173+90.86	666171.4	833997.9	1183.61	1203.61	200	20
	19	2175+90.38	665973.2	834024.8	1185.04	1205.04		
19	19	2175+90.38	665973.2	834024.8	1185.04	1205.04	200	20
	20	2177+89.54	665775.6	834055.5	1184.99	1204.99		
20	20	2177+89.54	665775.6	834055.5	1184.99	1204.99	200	20
	21	2179+86.63	665578.5	834089.6	1181.41	1201.41		
21	21	2179+86.63	665578.5	834089.6	1181.41	1199.41	158	18
	22	2181+41	665422.5	834112.6	1181.54	1199.54		

Notes:

[1] The noise barrier stationings are relative to the SR 202L centerline stationings.

[2] The noise barrier bottom elevations are based on proposed ground or 32nd TI ramp surface.

[3] The noise barrier coordinate points are for noise modeling purposes. Final designers need to refine the wall alignment to match other design features if needed.

[4] Barrier dimension changes are highlighted in grey compared to the original recommended barrier in the final noise report.

APPENDIX F

FHWA Traffic Noise Model (TNM) 2.5 Output Files

AZTEC 5 July 2018
David Shu TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: South Mountain Freeway
RUN: South Mountain Freeway, 32nd St TI

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
40St_RampA_FD	24.0	26+69.41	690	675,516.4	833,678.2	1,172.40				Average	
		26+00.00	688	675,585.7	833,681.2	1,172.60				Average	
		24+00.00	687	675,785.5	833,689.9	1,172.70				Average	
		22+00.00	686	675,985.3	833,698.6	1,175.80				Average	
		20+00.00	685	676,185.1	833,707.2	1,177.70				Average	
		18+00.00	684	676,385.0	833,715.2	1,178.10				Average	
		16+00.00	683	676,585.0	833,718.7	1,177.40				Average	
		14+00.00	682	676,784.9	833,717.1	1,176.80				Average	
		12+00.00	681	676,984.8	833,710.6	1,175.90				Average	
		10+00.00	680	677,184.5	833,699.1	1,175.20					
40St_RampB_FD	24.0	10+00.00	691	677,635.8	833,823.1	1,174.10				Average	
		12+00.00	692	677,435.8	833,820.7	1,172.80				Average	
		14+00.00	693	677,236.2	833,832.3	1,171.70				Average	
		16+00.00	694	677,037.9	833,857.8	1,172.50				Average	
		18+00.00	695	676,841.7	833,896.6	1,175.20				Average	
		20+00.00	696	676,646.3	833,939.2	1,178.90				Average	
		22+00.00	697	676,450.9	833,981.8	1,181.70				Average	
		24+00.00	698	676,255.5	834,024.4	1,182.30				Average	
		26+00.00	699	676,058.7	834,060.1	1,180.50				Average	
		28+00.00	700	675,860.0	834,081.9	1,176.70				Average	
		30+00.00	701	675,660.2	834,091.9	1,173.60				Average	
		31+42.54	702	675,517.8	834,098.0	1,171.60					
40St_RampC_FD	24.0	28+77.35	713	673,640.8	833,729.4	1,174.00				Average	
		28+00.00	712	673,718.1	833,733.1	1,173.60				Average	
		26+00.00	711	673,918.0	833,739.2	1,172.70				Average	
		24+00.00	710	674,117.9	833,740.3	1,172.40				Average	
		22+00.00	709	674,317.9	833,736.3	1,173.60				Average	

		20+00.00	708	674,517.8	833,728.8	1,175.80				Average	
		18+00.00	707	674,717.6	833,721.1	1,177.60				Average	
		16+00.00	706	674,917.5	833,713.4	1,177.70				Average	
		14+00.00	705	675,117.3	833,705.7	1,175.90				Average	
		12+00.00	704	675,317.2	833,697.9	1,172.50				Average	
		10+00.00	703	675,517.0	833,690.2	1,172.60					
40St_RampD_FD	12.0	10+00.00	714	675,517.8	834,110.0	1,171.80				Average	
		12+00.00	715	675,319.8	834,081.7	1,172.80				Average	
		14+00.00	716	675,121.9	834,053.3	1,174.60				Average	
		16+00.00	717	674,923.9	834,025.0	1,176.50				Average	
		18+00.00	718	674,725.9	833,996.7	1,176.30				Average	
		20+00.00	719	674,527.9	833,968.4	1,175.00				Average	
		22+00.00	720	674,329.9	833,940.1	1,173.60				Average	
		24+00.00	721	674,131.7	833,913.4	1,172.00				Average	
		26+00.00	722	673,932.8	833,892.2	1,172.20				Average	
		28+00.00	723	673,733.4	833,876.8	1,173.80				Average	
		28+67.26	724	673,666.3	833,873.0	1,173.80					
24th_RampA_FD	24.0	27+33.93	725	664,997.9	833,740.7	1,179.00				Average	
		26+00.00	727	665,131.6	833,747.9	1,179.90				Average	
		24+00.00	728	665,331.3	833,758.7	1,181.30				Average	
		22+00.00	729	665,531.0	833,769.4	1,182.70				Average	
		20+00.00	730	665,730.7	833,780.2	1,184.10				Average	
		18+00.00	731	665,930.5	833,790.5	1,184.80				Average	
		16+00.00	732	666,130.4	833,796.4	1,184.10				Average	
		14+00.00	733	666,330.4	833,796.9	1,180.80				Average	
		12+00.00	734	666,530.3	833,792.1	1,181.20				Average	
		10+00.00	735	666,730.0	833,782.0	1,181.70					
24th_RampB_FD	12.0	10+00.00	736	666,867.7	833,915.4	1,185.40				Average	
		12+00.00	737	666,668.2	833,930.6	1,184.50				Average	
		14+00.00	738	666,469.2	833,950.3	1,183.60				Average	
		16+00.00	739	666,270.7	833,974.7	1,183.30				Average	
		18+00.00	740	666,072.6	834,001.7	1,184.70				Average	
		20+00.00	741	665,874.4	834,028.7	1,185.50				Average	
		22+00.00	742	665,676.2	834,055.7	1,184.80				Average	
		24+00.00	743	665,478.0	834,082.5	1,183.50				Average	
		26+00.00	744	665,279.3	834,104.8	1,182.20				Average	
		28+00.00	745	665,079.9	834,120.9	1,180.90				Average	
		28+80.75	746	664,999.4	834,126.2	1,180.40					
24th_RampC_FD	24.0	28+65.83	757	662,853.6	833,727.4	1,189.20				Average	
		28+00.00	756	662,919.2	833,733.1	1,188.80				Average	

		26+00.00	755	663,118.7	833,747.4	1,187.30				Average	
		24+00.00	754	663,318.4	833,757.0	1,185.70				Average	
		22+00.00	753	663,518.4	833,762.0	1,184.10				Average	
		20+00.00	752	663,718.4	833,762.3	1,183.40				Average	
		18+00.00	751	663,918.3	833,759.6	1,182.60				Average	
		16+00.00	750	664,118.3	833,756.8	1,181.60				Average	
		14+00.00	749	664,318.3	833,754.0	1,180.60				Average	
		12+00.00	748	664,518.3	833,751.3	1,179.60				Average	
		10+00.00	747	664,718.3	833,748.5	1,178.60					
24th_RampD_FD	24.0	10+00.00	758	664,704.8	834,124.5	1,180.40				Average	
		12+00.00	759	664,506.4	834,099.3	1,181.20				Average	
		14+00.00	760	664,308.0	834,074.0	1,182.00				Average	
		16+00.00	761	664,109.8	834,046.9	1,182.80				Average	
		18+00.00	762	663,912.4	834,015.2	1,183.50				Average	
		20+00.00	763	663,715.6	833,979.6	1,183.90				Average	
		22+00.00	764	663,518.3	833,946.9	1,184.20				Average	
		24+00.00	765	663,320.3	833,918.8	1,185.70				Average	
		26+00.00	766	663,121.6	833,895.3	1,187.20				Average	
		27+30.88	768	662,991.4	833,882.5	1,188.20					
SR202MainlineWB_47ftoffset-1-2_F	40.0	2080+00.0	2684	675,541.6	833,943.6	1,198.20				Average	
		2084+00.0	155	675,140.3	833,926.5	1,194.10				Average	
		2088+00.0	156	674,740.9	833,905.5	1,183.80				Average	
		2092+00.0	157	674,341.4	833,884.5	1,175.20				Average	
		2096+00.0	158	673,942.0	833,863.4	1,173.40				Average	
		2100+00.0	159	673,542.5	833,842.4	1,175.00				Average	
		2104+00.0	160	673,143.1	833,821.4	1,176.60				Average	
		2108+00.0	161	672,743.6	833,800.4	1,177.30				Average	
		2112+00.0	162	672,344.2	833,779.4	1,176.40				Average	
		2116+00.0	163	671,944.7	833,758.4	1,175.20				Average	
		2120+00.0	164	671,545.3	833,737.4	1,179.40				Average	
		2124+00.0	165	671,146.4	833,719.0	1,190.10				Average	
		2128+00.0	166	670,747.5	833,708.3	1,201.10				Average	
		2132+00.0	167	670,348.5	833,705.6	1,206.20				Average	
		2134+00.0	2776	670,148.9	833,708.1	1,205.35					
SR202MainlineWB_23ftoffset-1-2_F	40.0	2080+00.0	2685	675,542.0	833,919.6	1,198.20				Average	
		2084+00.0	30	675,141.6	833,902.5	1,194.10				Average	
		2088+00.0	31	674,742.1	833,881.5	1,183.80				Average	
		2092+00.0	32	674,342.7	833,860.5	1,175.20				Average	
		2096+00.0	33	673,943.2	833,839.5	1,173.40				Average	
		2100+00.0	34	673,543.8	833,818.5	1,175.00				Average	

		2104+00.0	35	673,144.3	833,797.5	1,176.60				Average	
		2108+00.0	36	672,744.9	833,776.4	1,177.30				Average	
		2112+00.0	37	672,345.4	833,755.4	1,176.40				Average	
		2116+00.0	38	671,946.0	833,734.4	1,175.20				Average	
		2120+00.0	39	671,546.5	833,713.4	1,179.40				Average	
		2124+00.0	40	671,147.3	833,695.0	1,190.10				Average	
		2128+00.0	41	670,747.9	833,684.3	1,201.10				Average	
		2132+00.0	42	670,348.4	833,681.6	1,206.20				Average	
		2134+00.0	2775	670,148.6	833,684.1	1,205.35					
SR202MainlineEB_23ftoffset-1-2_FD	40.0	2080+00.0	2686	675,542.8	833,873.6	1,198.20				Average	
		2076+00.0	278	675,941.3	833,868.3	1,196.10				Average	
		2072+00.0	277	676,338.7	833,838.5	1,187.80				Average	
		2068+00.0	276	676,736.1	833,794.2	1,179.40				Average	
		2064+00.0	275	677,134.4	833,751.1	1,173.40				Average	
		2060+00.0	274	677,536.4	833,738.3	1,174.30					
SR202MainlineEB_47ftoffset-1-2_FD	40.0	2080+00.0	2687	675,543.2	833,849.6	1,198.20				Average	
		2076+00.0	403	675,940.2	833,844.3	1,196.10				Average	
		2072+00.0	402	676,336.1	833,814.6	1,187.80				Average	
		2068+00.0	401	676,733.4	833,770.3	1,179.40				Average	
		2064+00.0	400	677,132.4	833,727.2	1,173.40				Average	
		2060+00.0	399	677,536.9	833,714.3	1,174.30					
SR202MainlineWB_47ftoffset-1-2-2_FD	40.0	2188+00.0	2688	664,755.9	833,988.3	1,204.50				Average	
		2192+00.0	182	664,354.6	833,974.1	1,197.60				Average	
		2196+00.0	183	663,953.9	833,945.9	1,187.90				Average	
		2200+00.0	184	663,555.4	833,909.7	1,185.20				Average	
		2204+00.0	185	663,157.1	833,873.5	1,187.80				Average	
		2208+00.0	186	662,758.7	833,837.2	1,190.60					
SR202MainlineWB_23ftoffset-1-2-2_FD	40.0	2188+00.0	2689	664,756.4	833,964.3	1,204.50				Average	
		2192+00.0	57	664,355.8	833,950.1	1,197.60				Average	
		2196+00.0	58	663,956.0	833,922.0	1,187.90				Average	
		2200+00.0	59	663,557.6	833,885.8	1,185.20				Average	
		2204+00.0	60	663,159.3	833,849.6	1,187.80				Average	
		2208+00.0	61	662,760.9	833,813.3	1,190.60					
SR202MainlineEB_23ftoffset-1-2__FD	40.0	2188+00.0	2690	664,757.2	833,918.3	1,204.50				Average	
		2184+00.0	305	665,156.4	833,918.4	1,204.50				Average	
		2180+00.0	304	665,555.3	833,904.7	1,197.60				Average	
		2176+00.0	303	665,954.3	833,879.9	1,187.80				Average	
		2172+00.0	302	666,353.4	833,854.3	1,184.30				Average	
		2168+00.0	301	666,752.6	833,828.6	1,185.70				Average	
		2164+00.0	300	667,151.8	833,803.0	1,187.30				Average	

		2160+00.0	299	667,551.0	833,777.3	1,188.80				Average	
		2156+00.0	298	667,950.1	833,751.7	1,189.20				Average	
		2152+00.0	297	668,349.3	833,726.0	1,187.40				Average	
		2148+00.0	296	668,748.5	833,700.4	1,184.70				Average	
		2144+00.0	295	669,147.7	833,674.8	1,186.80				Average	
		2140+00.0	294	669,547.6	833,653.8	1,196.10				Average	
		2136+00.0	293	669,947.8	833,640.7	1,204.50				Average	
		2134+00.0	2774	670,148.1	833,638.1	1,205.35					
SR202MainlineEB_47ftoffset-1-2__FD	40.0	2188+00.0	2691	664,757.6	833,894.3	1,204.50				Average	
		2184+00.0	430	665,156.0	833,894.5	1,204.50				Average	
		2180+00.0	429	665,554.1	833,880.7	1,197.60				Average	
		2176+00.0	428	665,952.7	833,856.0	1,187.80				Average	
		2172+00.0	427	666,351.9	833,830.3	1,184.30				Average	
		2168+00.0	426	666,751.1	833,804.7	1,185.70				Average	
		2164+00.0	425	667,150.2	833,779.0	1,187.30				Average	
		2160+00.0	424	667,549.4	833,753.4	1,188.80				Average	
		2156+00.0	423	667,948.6	833,727.7	1,189.20				Average	
		2152+00.0	422	668,347.8	833,702.1	1,187.40				Average	
		2148+00.0	421	668,747.0	833,676.4	1,184.70				Average	
		2144+00.0	420	669,146.2	833,650.8	1,186.80				Average	
		2140+00.0	419	669,546.6	833,629.8	1,196.10				Average	
		2136+00.0	418	669,947.3	833,616.7	1,204.50				Average	
		2134+00.0	2773	670,147.8	833,614.1	1,205.35					
SR202MainlineWB_47ftoffset-1-2_FD	40.0	2060+00.0	2708	677,534.9	833,808.3	1,174.30				Average	
		2064+00.0	150	677,140.3	833,820.9	1,173.40				Average	
		2068+00.0	151	676,743.8	833,863.7	1,179.40				Average	
		2072+00.0	152	676,346.1	833,908.1	1,187.80				Average	
		2076+00.0	153	675,944.4	833,938.2	1,196.10				Average	
		2080+00.0	154	675,541.6	833,943.6	1,198.20					
SR202MainlineWB_23ftoffset-1-2_FD	40.0	2060+00.0	2709	677,535.4	833,784.3	1,174.30				Average	
		2064+00.0	25	677,138.2	833,796.9	1,173.40				Average	
		2068+00.0	26	676,741.2	833,839.9	1,179.40				Average	
		2072+00.0	27	676,343.5	833,884.2	1,187.80				Average	
		2076+00.0	28	675,943.3	833,914.3	1,196.10				Average	
		2080+00.0	29	675,542.0	833,919.6	1,198.20					
SR202MainlineEB_23ftoffset-1-2-2_FD	40.0	point2714	2714	662,765.1	833,767.5	1,190.60				Average	
		2204+00.0	310	663,163.4	833,803.8	1,187.80				Average	
		2200+00.0	309	663,561.8	833,840.0	1,185.20				Average	
		2196+00.0	308	663,960.1	833,876.2	1,187.90				Average	
		2192+00.0	307	664,358.3	833,904.2	1,197.60				Average	

		2188+00.0	306	664,757.2	833,918.3	1,204.50					
SR202MainlineEB_47ftoffset-1-2-2_FD	40.0	point2715	2715	662,767.2	833,743.6	1,190.60				Average	
		2204+00.0	435	663,165.6	833,779.9	1,187.80				Average	
		2200+00.0	434	663,564.0	833,816.1	1,185.20				Average	
		2196+00.0	433	663,962.2	833,852.3	1,187.90				Average	
		2192+00.0	432	664,359.5	833,880.2	1,197.60				Average	
		2188+00.0	431	664,757.6	833,894.3	1,204.50					
32St_RampA_FD	12.0	point2767	2767	670,216.6	833,556.4	1,181.70				Average	
		30+00.00	2727	670,304.6	833,556.1	1,180.80				Average	
		28+00.00	2726	670,504.6	833,555.2	1,179.30				Average	
		26+00.00	2725	670,704.6	833,554.4	1,179.80				Average	
		24+00.00	2724	670,904.6	833,554.4	1,180.00				Average	
		22+00.00	2723	671,104.5	833,558.9	1,179.50				Average	
		20+00.00	2722	671,304.3	833,568.7	1,178.40				Average	
		18+00.00	2721	671,503.7	833,583.8	1,177.00				Average	
		16+00.00	2720	671,702.7	833,604.0	1,175.60				Average	
		14+00.00	2719	671,901.3	833,627.2	1,174.40				Average	
		12+00.00	2718	672,100.5	833,645.7	1,174.60				Average	
		10+00.00	2717	672,300.0	833,658.9	1,175.40				Average	
		8+49.59	2716	672,450.2	833,666.8	1,176.00					
32St_RampB_FD	12.0	9+19.49	2729	672,393.3	833,806.0	1,175.80				Average	
		10+00.00	2730	672,312.9	833,801.8	1,175.50				Average	
		12+00.00	2731	672,113.1	833,793.6	1,174.70				Average	
		14+00.00	2732	671,913.2	833,790.1	1,174.40				Average	
		16+00.00	2733	671,713.2	833,791.2	1,175.70				Average	
		18+00.00	2734	671,513.2	833,792.0	1,177.90				Average	
		20+00.00	2735	671,313.2	833,788.2	1,180.10				Average	
		22+00.00	2736	671,113.3	833,780.8	1,181.70				Average	
		24+00.00	2737	670,913.4	833,774.8	1,181.80				Average	
		26+00.00	2738	670,713.5	833,770.8	1,181.00				Average	
		28+00.00	2739	670,513.5	833,768.7	1,180.30				Average	
		30+00.00	2740	670,313.5	833,768.7	1,181.50				Average	
		31+00.00	2770	670,216.7	833,769.4	1,182.50					
32St_RampC_FD-2	12.0	31+75.72	2754	668,046.9	833,697.4	1,188.20				Average	
		30+00.00	2753	668,222.2	833,685.3	1,187.40				Average	
		28+00.00	2752	668,421.4	833,667.5	1,186.00				Average	
		26+00.00	2751	668,620.1	833,645.0	1,184.50				Average	
		24+00.00	2750	668,818.6	833,621.0	1,183.20				Average	
		22+00.00	2749	669,017.7	833,601.3	1,182.90				Average	
		20+00.00	2748	669,217.1	833,586.1	1,183.60				Average	

		18+00.00	2747	669,416.8	833,575.4	1,183.60				Average	
		16+00.00	2746	669,616.7	833,569.2	1,182.60				Average	
		14+00.00	2745	669,816.6	833,565.0	1,181.60				Average	
		12+00.00	2744	670,016.6	833,560.7	1,180.70				Average	
		10+00.00	2769	670,213.4	833,557.5	1,181.70					
32St_RampD_FD	12.0	10+00.00	2772	670,212.3	833,768.3	1,182.50				Average	
		12+00.00	2757	670,016.7	833,772.3	1,183.50				Average	
		14+00.00	2758	669,816.8	833,777.2	1,184.80				Average	
		16+00.00	2759	669,616.9	833,784.1	1,185.40				Average	
		18+00.00	2760	669,417.1	833,792.9	1,185.30				Average	
		20+00.00	2761	669,217.2	833,799.2	1,184.50				Average	
		22+00.00	2762	669,017.2	833,800.3	1,183.90				Average	
		24+00.00	2763	668,817.2	833,800.2	1,183.70				Average	
		26+00.00	2764	668,617.3	833,805.3	1,184.80				Average	
		28+00.00	2765	668,417.6	833,815.8	1,186.20				Average	
		28+86.97	2766	668,330.8	833,821.4	1,186.80					
SR202MainlineWB_23ftoffset-1-2_F-2	40.0	2134+00.0	2777	670,148.6	833,684.1	1,205.35				Average	
		2136+00.0	43	669,948.9	833,686.7	1,204.50				Average	
		2140+00.0	44	669,549.6	833,699.7	1,196.10				Average	
		2144+00.0	45	669,150.6	833,720.7	1,186.80				Average	
		2148+00.0	46	668,751.4	833,746.3	1,184.70				Average	
		2152+00.0	47	668,352.3	833,771.9	1,187.40				Average	
		2156+00.0	48	667,953.1	833,797.6	1,189.20				Average	
		2160+00.0	49	667,553.9	833,823.2	1,188.80				Average	
		2164+00.0	50	667,154.7	833,848.9	1,187.30				Average	
		2168+00.0	51	666,755.6	833,874.5	1,185.70				Average	
		2172+00.0	52	666,356.4	833,900.2	1,184.30				Average	
		2176+00.0	53	665,957.2	833,925.8	1,187.80				Average	
		2180+00.0	54	665,557.7	833,950.6	1,197.60				Average	
		2184+00.0	55	665,157.2	833,964.4	1,204.50				Average	
		2188+00.0	56	664,756.4	833,964.3	1,204.50					
SR202MainlineWB_47ftoffset-1-2_F-2	40.0	2134+00.0	2778	670,148.9	833,708.1	1,205.35				Average	
		2136+00.0	168	669,949.4	833,710.7	1,204.50				Average	
		2140+00.0	169	669,550.6	833,723.7	1,196.10				Average	
		2144+00.0	170	669,152.1	833,744.6	1,186.80				Average	
		2148+00.0	171	668,753.0	833,770.2	1,184.70				Average	
		2152+00.0	172	668,353.8	833,795.9	1,187.40				Average	
		2156+00.0	173	667,954.6	833,821.5	1,189.20				Average	
		2160+00.0	174	667,555.5	833,847.2	1,188.80				Average	
		2164+00.0	175	667,156.3	833,872.8	1,187.30				Average	

		2168+00.0	176	666,757.1	833,898.5	1,185.70				Average	
		2172+00.0	177	666,357.9	833,924.1	1,184.30				Average	
		2176+00.0	178	665,958.7	833,949.8	1,187.80				Average	
		2180+00.0	179	665,558.9	833,974.6	1,197.60				Average	
		2184+00.0	180	665,157.6	833,988.4	1,204.50				Average	
		2188+00.0	181	664,755.9	833,988.3	1,204.50					
SR202MainlineEB_47ftoffset-1-2__FD-2	40.0	2134+00.0	2779	670,147.8	833,614.1	1,205.35				Average	
		2132+00.0	417	670,348.2	833,611.6	1,206.20				Average	
		2128+00.0	416	670,749.1	833,614.3	1,201.10				Average	
		2124+00.0	415	671,149.9	833,625.0	1,190.10				Average	
		2120+00.0	414	671,550.2	833,643.5	1,179.40				Average	
		2116+00.0	413	671,949.7	833,664.5	1,175.20				Average	
		2112+00.0	412	672,349.1	833,685.5	1,176.40				Average	
		2108+00.0	411	672,748.5	833,706.5	1,177.30				Average	
		2104+00.0	410	673,148.0	833,727.6	1,176.60				Average	
		2100+00.0	409	673,547.4	833,748.6	1,175.00				Average	
		2096+00.0	408	673,946.9	833,769.6	1,173.40				Average	
		2092+00.0	407	674,346.3	833,790.6	1,175.20				Average	
		2088+00.0	406	674,745.8	833,811.6	1,183.80				Average	
		2084+00.0	405	675,145.2	833,832.6	1,194.10				Average	
		2080+00.0	404	675,543.2	833,849.6	1,198.20					
SR202MainlineEB_23ftoffset-1-2__FD-2	40.0	2134+00.0	2780	670,148.1	833,638.1	1,205.35				Average	
		2132+00.0	292	670,348.3	833,635.6	1,206.20				Average	
		2128+00.0	291	670,748.7	833,638.3	1,201.10				Average	
		2124+00.0	290	671,149.0	833,649.0	1,190.10				Average	
		2120+00.0	289	671,548.9	833,667.5	1,179.40				Average	
		2116+00.0	288	671,948.4	833,688.5	1,175.20				Average	
		2112+00.0	287	672,347.8	833,709.5	1,176.40				Average	
		2108+00.0	286	672,747.3	833,730.5	1,177.30				Average	
		2104+00.0	285	673,146.7	833,751.5	1,176.60				Average	
		2100+00.0	284	673,546.2	833,772.5	1,175.00				Average	
		2096+00.0	283	673,945.6	833,793.5	1,173.40				Average	
		2092+00.0	282	674,345.1	833,814.6	1,175.20				Average	
		2088+00.0	281	674,744.5	833,835.6	1,183.80				Average	
		2084+00.0	280	675,144.0	833,856.6	1,194.10				Average	
		2080+00.0	279	675,542.8	833,873.6	1,198.20					

AZTEC 5 July 2018
David Shu TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Percentages
PROJECT/CONTRACT: South Mountain Freeway
RUN: South Mountain Freeway, 32nd St TI

Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
40St_RampA_FD	26+69.41	690	652	85	45	5	45	10	45	0	0	0	0
	26+00.00	688	652	85	45	5	45	10	45	0	0	0	0
	24+00.00	687	652	85	45	5	45	10	45	0	0	0	0
	22+00.00	686	652	85	45	5	45	10	45	0	0	0	0
	20+00.00	685	652	85	45	5	45	10	45	0	0	0	0
	18+00.00	684	652	85	45	5	45	10	45	0	0	0	0
	16+00.00	683	652	85	45	5	45	10	45	0	0	0	0
	14+00.00	682	652	85	45	5	45	10	45	0	0	0	0
	12+00.00	681	652	85	45	5	45	10	45	0	0	0	0
	10+00.00	680											
40St_RampB_FD	10+00.00	691	870	85	45	5	45	10	45	0	0	0	0
	12+00.00	692	870	85	45	5	45	10	45	0	0	0	0
	14+00.00	693	870	85	45	5	45	10	45	0	0	0	0
	16+00.00	694	870	85	45	5	45	10	45	0	0	0	0
	18+00.00	695	870	85	45	5	45	10	45	0	0	0	0
	20+00.00	696	870	85	45	5	45	10	45	0	0	0	0
	22+00.00	697	870	85	45	5	45	10	45	0	0	0	0
	24+00.00	698	870	85	45	5	45	10	45	0	0	0	0
	26+00.00	699	870	85	45	5	45	10	45	0	0	0	0
	28+00.00	700	870	85	45	5	45	10	45	0	0	0	0
	30+00.00	701	870	85	45	5	45	10	45	0	0	0	0
	31+42.54	702											
40St_RampC_FD	28+77.35	713	461	85	45	5	45	10	45	0	0	0	0
	28+00.00	712	461	85	45	5	45	10	45	0	0	0	0
	26+00.00	711	461	85	45	5	45	10	45	0	0	0	0

	24+00.00	710	461	85	45	5	45	10	45	0	0	0	0
	22+00.00	709	461	85	45	5	45	10	45	0	0	0	0
	20+00.00	708	461	85	45	5	45	10	45	0	0	0	0
	18+00.00	707	461	85	45	5	45	10	45	0	0	0	0
	16+00.00	706	461	85	45	5	45	10	45	0	0	0	0
	14+00.00	705	461	85	45	5	45	10	45	0	0	0	0
	12+00.00	704	461	85	45	5	45	10	45	0	0	0	0
	10+00.00	703											
40St_RampD_FD	10+00.00	714	901	85	45	5	45	10	45	0	0	0	0
	12+00.00	715	901	85	45	5	45	10	45	0	0	0	0
	14+00.00	716	901	85	45	5	45	10	45	0	0	0	0
	16+00.00	717	901	85	45	5	45	10	45	0	0	0	0
	18+00.00	718	901	85	45	5	45	10	45	0	0	0	0
	20+00.00	719	901	85	45	5	45	10	45	0	0	0	0
	22+00.00	720	901	85	45	5	45	10	45	0	0	0	0
	24+00.00	721	901	85	45	5	45	10	45	0	0	0	0
	26+00.00	722	901	85	45	5	45	10	45	0	0	0	0
	28+00.00	723	901	85	45	5	45	10	45	0	0	0	0
	28+67.26	724											
24th_RampA_FD	27+33.93	725	652	85	45	5	45	10	45	0	0	0	0
	26+00.00	727	652	85	45	5	45	10	45	0	0	0	0
	24+00.00	728	652	85	45	5	45	10	45	0	0	0	0
	22+00.00	729	652	85	45	5	45	10	45	0	0	0	0
	20+00.00	730	652	85	45	5	45	10	45	0	0	0	0
	18+00.00	731	652	85	45	5	45	10	45	0	0	0	0
	16+00.00	732	652	85	45	5	45	10	45	0	0	0	0
	14+00.00	733	652	85	45	5	45	10	45	0	0	0	0
	12+00.00	734	652	85	45	5	45	10	45	0	0	0	0
	10+00.00	735											
24th_RampB_FD	10+00.00	736	853	85	45	5	45	10	45	0	0	0	0
	12+00.00	737	853	85	45	5	45	10	45	0	0	0	0
	14+00.00	738	853	85	45	5	45	10	45	0	0	0	0
	16+00.00	739	853	85	45	5	45	10	45	0	0	0	0
	18+00.00	740	853	85	45	5	45	10	45	0	0	0	0
	20+00.00	741	853	85	45	5	45	10	45	0	0	0	0
	22+00.00	742	853	85	45	5	45	10	45	0	0	0	0
	24+00.00	743	853	85	45	5	45	10	45	0	0	0	0

	26+00.00	744	853	85	45	5	45	10	45	0	0	0	0
	28+00.00	745	853	85	45	5	45	10	45	0	0	0	0
	28+80.75	746											
24th_RampC_FD	28+65.83	757	203	85	45	5	45	10	45	0	0	0	0
	28+00.00	756	203	85	45	5	45	10	45	0	0	0	0
	26+00.00	755	203	85	45	5	45	10	45	0	0	0	0
	24+00.00	754	203	85	45	5	45	10	45	0	0	0	0
	22+00.00	753	203	85	45	5	45	10	45	0	0	0	0
	20+00.00	752	203	85	45	5	45	10	45	0	0	0	0
	18+00.00	751	203	85	45	5	45	10	45	0	0	0	0
	16+00.00	750	203	85	45	5	45	10	45	0	0	0	0
	14+00.00	749	203	85	45	5	45	10	45	0	0	0	0
	12+00.00	748	203	85	45	5	45	10	45	0	0	0	0
	10+00.00	747											
24th_RampD_FD	10+00.00	758	290	85	45	5	45	10	45	0	0	0	0
	12+00.00	759	290	85	45	5	45	10	45	0	0	0	0
	14+00.00	760	290	85	45	5	45	10	45	0	0	0	0
	16+00.00	761	290	85	45	5	45	10	45	0	0	0	0
	18+00.00	762	290	85	45	5	45	10	45	0	0	0	0
	20+00.00	763	290	85	45	5	45	10	45	0	0	0	0
	22+00.00	764	290	85	45	5	45	10	45	0	0	0	0
	24+00.00	765	290	85	45	5	45	10	45	0	0	0	0
	26+00.00	766	290	85	45	5	45	10	45	0	0	0	0
	27+30.88	768											
SR202MainlineWB_47ftoffset-1-2_F	2080+00.00	2684	3200	85	70	5	70	10	70	0	0	0	0
	2084+00.00	155	3200	85	70	5	70	10	70	0	0	0	0
	2088+00.00	156	3200	85	70	5	70	10	70	0	0	0	0
	2092+00.00	157	3200	85	70	5	70	10	70	0	0	0	0
	2096+00.00	158	3200	85	70	5	70	10	70	0	0	0	0
	2100+00.00	159	3200	85	70	5	70	10	70	0	0	0	0
	2104+00.00	160	3200	85	70	5	70	10	70	0	0	0	0
	2108+00.00	161	3200	85	70	5	70	10	70	0	0	0	0
	2112+00.00	162	3200	85	70	5	70	10	70	0	0	0	0
	2116+00.00	163	3200	85	70	5	70	10	70	0	0	0	0
	2120+00.00	164	3200	85	70	5	70	10	70	0	0	0	0
	2124+00.00	165	3200	85	70	5	70	10	70	0	0	0	0
	2128+00.00	166	3200	85	70	5	70	10	70	0	0	0	0

	2132+00.00	167	3200	85	70	5	70	10	70	0	0	0	0
	2134+00.00	2776											
SR202MainlineWB_23ftoffset-1-2_F	2080+00.00	2685	3200	85	70	5	70	10	70	0	0	0	0
	2084+00.00	30	3200	85	70	5	70	10	70	0	0	0	0
	2088+00.00	31	3200	85	70	5	70	10	70	0	0	0	0
	2092+00.00	32	3200	85	70	5	70	10	70	0	0	0	0
	2096+00.00	33	3200	85	70	5	70	10	70	0	0	0	0
	2100+00.00	34	3200	85	70	5	70	10	70	0	0	0	0
	2104+00.00	35	3200	85	70	5	70	10	70	0	0	0	0
	2108+00.00	36	3200	85	70	5	70	10	70	0	0	0	0
	2112+00.00	37	3200	85	70	5	70	10	70	0	0	0	0
	2116+00.00	38	3200	85	70	5	70	10	70	0	0	0	0
	2120+00.00	39	3200	85	70	5	70	10	70	0	0	0	0
	2124+00.00	40	3200	85	70	5	70	10	70	0	0	0	0
	2128+00.00	41	3200	85	70	5	70	10	70	0	0	0	0
	2132+00.00	42	3200	85	70	5	70	10	70	0	0	0	0
	2134+00.00	2775											
SR202MainlineEB_23ftoffset-1-2_FD	2080+00.00	2686	3004	85	70	5	70	10	70	0	0	0	0
	2076+00.00	278	3004	85	70	5	70	10	70	0	0	0	0
	2072+00.00	277	3004	85	70	5	70	10	70	0	0	0	0
	2068+00.00	276	3004	85	70	5	70	10	70	0	0	0	0
	2064+00.00	275	3004	85	70	5	70	10	70	0	0	0	0
	2060+00.00	274											
SR202MainlineEB_47ftoffset-1-2_FD	2080+00.00	2687	3004	85	70	5	70	10	70	0	0	0	0
	2076+00.00	403	3004	85	70	5	70	10	70	0	0	0	0
	2072+00.00	402	3004	85	70	5	70	10	70	0	0	0	0
	2068+00.00	401	3004	85	70	5	70	10	70	0	0	0	0
	2064+00.00	400	3004	85	70	5	70	10	70	0	0	0	0
	2060+00.00	399											
SR202MainlineWB_47ftoffset-1-2-2_FD	2188+00.00	2688	3200	85	70	5	70	10	70	0	0	0	0
	2192+00.00	182	3200	85	70	5	70	10	70	0	0	0	0
	2196+00.00	183	3200	85	70	5	70	10	70	0	0	0	0
	2200+00.00	184	3200	85	70	5	70	10	70	0	0	0	0
	2204+00.00	185	3200	85	70	5	70	10	70	0	0	0	0
	2208+00.00	186											
SR202MainlineWB_23ftoffset-1-2-2_FD	2188+00.00	2689	3200	85	70	5	70	10	70	0	0	0	0
	2192+00.00	57	3200	85	70	5	70	10	70	0	0	0	0

	2196+00.00	58	3200	85	70	5	70	10	70	0	0	0	0
	2200+00.00	59	3200	85	70	5	70	10	70	0	0	0	0
	2204+00.00	60	3200	85	70	5	70	10	70	0	0	0	0
	2208+00.00	61											
SR202MainlineEB_23ftoffset-1-2__FD	2188+00.00	2690	2908	85	70	5	70	10	70	0	0	0	0
	2184+00.00	305	2908	85	70	5	70	10	70	0	0	0	0
	2180+00.00	304	2908	85	70	5	70	10	70	0	0	0	0
	2176+00.00	303	2908	85	70	5	70	10	70	0	0	0	0
	2172+00.00	302	2908	85	70	5	70	10	70	0	0	0	0
	2168+00.00	301	2908	85	70	5	70	10	70	0	0	0	0
	2164+00.00	300	2908	85	70	5	70	10	70	0	0	0	0
	2160+00.00	299	2908	85	70	5	70	10	70	0	0	0	0
	2156+00.00	298	2908	85	70	5	70	10	70	0	0	0	0
	2152+00.00	297	2908	85	70	5	70	10	70	0	0	0	0
	2148+00.00	296	2908	85	70	5	70	10	70	0	0	0	0
	2144+00.00	295	2908	85	70	5	70	10	70	0	0	0	0
	2140+00.00	294	2908	85	70	5	70	10	70	0	0	0	0
	2136+00.00	293	2908	85	70	5	70	10	70	0	0	0	0
	2134+00.00	2774											
SR202MainlineEB_47ftoffset-1-2__FD	2188+00.00	2691	2908	85	70	5	70	10	70	0	0	0	0
	2184+00.00	430	2908	85	70	5	70	10	70	0	0	0	0
	2180+00.00	429	2908	85	70	5	70	10	70	0	0	0	0
	2176+00.00	428	2908	85	70	5	70	10	70	0	0	0	0
	2172+00.00	427	2908	85	70	5	70	10	70	0	0	0	0
	2168+00.00	426	2908	85	70	5	70	10	70	0	0	0	0
	2164+00.00	425	2908	85	70	5	70	10	70	0	0	0	0
	2160+00.00	424	2908	85	70	5	70	10	70	0	0	0	0
	2156+00.00	423	2908	85	70	5	70	10	70	0	0	0	0
	2152+00.00	422	2908	85	70	5	70	10	70	0	0	0	0
	2148+00.00	421	2908	85	70	5	70	10	70	0	0	0	0
	2144+00.00	420	2908	85	70	5	70	10	70	0	0	0	0
	2140+00.00	419	2908	85	70	5	70	10	70	0	0	0	0
	2136+00.00	418	2908	85	70	5	70	10	70	0	0	0	0
	2134+00.00	2773											
SR202MainlineWB_47ftoffset-1-2_FD	2060+00.00	2708	3200	85	70	5	70	10	70	0	0	0	0
	2064+00.00	150	3200	85	70	5	70	10	70	0	0	0	0
	2068+00.00	151	3200	85	70	5	70	10	70	0	0	0	0

	2072+00.00	152	3200	85	70	5	70	10	70	0	0	0	0
	2076+00.00	153	3200	85	70	5	70	10	70	0	0	0	0
	2080+00.00	154											
SR202MainlineWB_23ftoffset-1-2_FD	2060+00.00	2709	3200	85	70	5	70	10	70	0	0	0	0
	2064+00.00	25	3200	85	70	5	70	10	70	0	0	0	0
	2068+00.00	26	3200	85	70	5	70	10	70	0	0	0	0
	2072+00.00	27	3200	85	70	5	70	10	70	0	0	0	0
	2076+00.00	28	3200	85	70	5	70	10	70	0	0	0	0
	2080+00.00	29											
SR202MainlineEB_23ftoffset-1-2-2_FD	point2714	2714	2684	85	70	5	70	10	70	0	0	0	0
	2204+00.00	310	2684	85	70	5	70	10	70	0	0	0	0
	2200+00.00	309	2684	85	70	5	70	10	70	0	0	0	0
	2196+00.00	308	2684	85	70	5	70	10	70	0	0	0	0
	2192+00.00	307	2684	85	70	5	70	10	70	0	0	0	0
	2188+00.00	306											
SR202MainlineEB_47ftoffset-1-2-2_FD	point2715	2715	2684	85	70	5	70	10	70	0	0	0	0
	2204+00.00	435	2684	85	70	5	70	10	70	0	0	0	0
	2200+00.00	434	2684	85	70	5	70	10	70	0	0	0	0
	2196+00.00	433	2684	85	70	5	70	10	70	0	0	0	0
	2192+00.00	432	2684	85	70	5	70	10	70	0	0	0	0
	2188+00.00	431											
32St_RampA_FD	point2767	2767	349	98	45	2	45	0	0	0	0	0	0
	30+00.00	2727	349	98	45	2	45	0	0	0	0	0	0
	28+00.00	2726	349	98	45	2	45	0	0	0	0	0	0
	26+00.00	2725	349	98	45	2	45	0	0	0	0	0	0
	24+00.00	2724	349	98	45	2	45	0	0	0	0	0	0
	22+00.00	2723	349	98	45	2	45	0	0	0	0	0	0
	20+00.00	2722	349	98	45	2	45	0	0	0	0	0	0
	18+00.00	2721	349	98	45	2	45	0	0	0	0	0	0
	16+00.00	2720	349	98	45	2	45	0	0	0	0	0	0
	14+00.00	2719	349	98	45	2	45	0	0	0	0	0	0
	12+00.00	2718	349	98	45	2	45	0	0	0	0	0	0
	10+00.00	2717	349	98	45	2	45	0	0	0	0	0	0
	8+49.59	2716											
32St_RampB_FD	9+19.49	2729	493	98	45	2	45	0	0	0	0	0	0
	10+00.00	2730	493	98	45	2	45	0	0	0	0	0	0
	12+00.00	2731	493	98	45	2	45	0	0	0	0	0	0

	14+00.00	2732	493	98	45	2	45	0	0	0	0	0	0
	16+00.00	2733	493	98	45	2	45	0	0	0	0	0	0
	18+00.00	2734	493	98	45	2	45	0	0	0	0	0	0
	20+00.00	2735	493	98	45	2	45	0	0	0	0	0	0
	22+00.00	2736	493	98	45	2	45	0	0	0	0	0	0
	24+00.00	2737	493	98	45	2	45	0	0	0	0	0	0
	26+00.00	2738	493	98	45	2	45	0	0	0	0	0	0
	28+00.00	2739	493	98	45	2	45	0	0	0	0	0	0
	30+00.00	2740	493	98	45	2	45	0	0	0	0	0	0
	31+00.00	2770											
32St_RampC_FD-2	31+75.72	2754	174	93	45	4	45	3	45	0	0	0	0
	30+00.00	2753	174	93	45	4	45	3	45	0	0	0	0
	28+00.00	2752	174	93	45	4	45	3	45	0	0	0	0
	26+00.00	2751	174	93	45	4	45	3	45	0	0	0	0
	24+00.00	2750	174	93	45	4	45	3	45	0	0	0	0
	22+00.00	2749	174	93	45	4	45	3	45	0	0	0	0
	20+00.00	2748	174	93	45	4	45	3	45	0	0	0	0
	18+00.00	2747	174	93	45	4	45	3	45	0	0	0	0
	16+00.00	2746	174	93	45	4	45	3	45	0	0	0	0
	14+00.00	2745	174	93	45	4	45	3	45	0	0	0	0
	12+00.00	2744	174	93	45	4	45	3	45	0	0	0	0
	10+00.00	2769											
32St_RampD_FD	10+00.00	2772	311	93	45	4	45	3	45	0	0	0	0
	12+00.00	2757	311	93	45	4	45	3	45	0	0	0	0
	14+00.00	2758	311	93	45	4	45	3	45	0	0	0	0
	16+00.00	2759	311	93	45	4	45	3	45	0	0	0	0
	18+00.00	2760	311	93	45	4	45	3	45	0	0	0	0
	20+00.00	2761	311	93	45	4	45	3	45	0	0	0	0
	22+00.00	2762	311	93	45	4	45	3	45	0	0	0	0
	24+00.00	2763	311	93	45	4	45	3	45	0	0	0	0
	26+00.00	2764	311	93	45	4	45	3	45	0	0	0	0
	28+00.00	2765	311	93	45	4	45	3	45	0	0	0	0
	28+86.97	2766											
SR202MainlineWB_23ftoffset-1-2_F-2	2134+00.00	2777	3200	85	70	5	70	10	70	0	0	0	0
	2136+00.00	43	3200	85	70	5	70	10	70	0	0	0	0
	2140+00.00	44	3200	85	70	5	70	10	70	0	0	0	0
	2144+00.00	45	3200	85	70	5	70	10	70	0	0	0	0

	2148+00.00	46	3200	85	70	5	70	10	70	0	0	0	0
	2152+00.00	47	3200	85	70	5	70	10	70	0	0	0	0
	2156+00.00	48	3200	85	70	5	70	10	70	0	0	0	0
	2160+00.00	49	3200	85	70	5	70	10	70	0	0	0	0
	2164+00.00	50	3200	85	70	5	70	10	70	0	0	0	0
	2168+00.00	51	3200	85	70	5	70	10	70	0	0	0	0
	2172+00.00	52	3200	85	70	5	70	10	70	0	0	0	0
	2176+00.00	53	3200	85	70	5	70	10	70	0	0	0	0
	2180+00.00	54	3200	85	70	5	70	10	70	0	0	0	0
	2184+00.00	55	3200	85	70	5	70	10	70	0	0	0	0
	2188+00.00	56											
SR202MainlineWB_47ftoffset-1-2_F-2	2134+00.00	2778	3200	85	70	5	70	10	70	0	0	0	0
	2136+00.00	168	3200	85	70	5	70	10	70	0	0	0	0
	2140+00.00	169	3200	85	70	5	70	10	70	0	0	0	0
	2144+00.00	170	3200	85	70	5	70	10	70	0	0	0	0
	2148+00.00	171	3200	85	70	5	70	10	70	0	0	0	0
	2152+00.00	172	3200	85	70	5	70	10	70	0	0	0	0
	2156+00.00	173	3200	85	70	5	70	10	70	0	0	0	0
	2160+00.00	174	3200	85	70	5	70	10	70	0	0	0	0
	2164+00.00	175	3200	85	70	5	70	10	70	0	0	0	0
	2168+00.00	176	3200	85	70	5	70	10	70	0	0	0	0
	2172+00.00	177	3200	85	70	5	70	10	70	0	0	0	0
	2176+00.00	178	3200	85	70	5	70	10	70	0	0	0	0
	2180+00.00	179	3200	85	70	5	70	10	70	0	0	0	0
	2184+00.00	180	3200	85	70	5	70	10	70	0	0	0	0
	2188+00.00	181											
SR202MainlineEB_47ftoffset-1-2__FD-2	2134+00.00	2779	2908	85	70	5	70	10	70	0	0	0	0
	2132+00.00	417	2908	85	70	5	70	10	70	0	0	0	0
	2128+00.00	416	2908	85	70	5	70	10	70	0	0	0	0
	2124+00.00	415	2908	85	70	5	70	10	70	0	0	0	0
	2120+00.00	414	2908	85	70	5	70	10	70	0	0	0	0
	2116+00.00	413	2908	85	70	5	70	10	70	0	0	0	0
	2112+00.00	412	2908	85	70	5	70	10	70	0	0	0	0
	2108+00.00	411	2908	85	70	5	70	10	70	0	0	0	0
	2104+00.00	410	2908	85	70	5	70	10	70	0	0	0	0
	2100+00.00	409	2908	85	70	5	70	10	70	0	0	0	0
	2096+00.00	408	2908	85	70	5	70	10	70	0	0	0	0

	2092+00.00	407	2908	85	70	5	70	10	70	0	0	0	0
	2088+00.00	406	2908	85	70	5	70	10	70	0	0	0	0
	2084+00.00	405	2908	85	70	5	70	10	70	0	0	0	0
	2080+00.00	404											
SR202MainlineEB_23ftoffset-1-2__FD-2	2134+00.00	2780	2908	85	70	5	70	10	70	0	0	0	0
	2132+00.00	292	2908	85	70	5	70	10	70	0	0	0	0
	2128+00.00	291	2908	85	70	5	70	10	70	0	0	0	0
	2124+00.00	290	2908	85	70	5	70	10	70	0	0	0	0
	2120+00.00	289	2908	85	70	5	70	10	70	0	0	0	0
	2116+00.00	288	2908	85	70	5	70	10	70	0	0	0	0
	2112+00.00	287	2908	85	70	5	70	10	70	0	0	0	0
	2108+00.00	286	2908	85	70	5	70	10	70	0	0	0	0
	2104+00.00	285	2908	85	70	5	70	10	70	0	0	0	0
	2100+00.00	284	2908	85	70	5	70	10	70	0	0	0	0
	2096+00.00	283	2908	85	70	5	70	10	70	0	0	0	0
	2092+00.00	282	2908	85	70	5	70	10	70	0	0	0	0
	2088+00.00	281	2908	85	70	5	70	10	70	0	0	0	0
	2084+00.00	280	2908	85	70	5	70	10	70	0	0	0	0
	2080+00.00	279											

AZTEC 5 July 2018
David Shu TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: South Mountain Freeway
RUN: South Mountain Freeway, 32nd St TI

Barrier Name	Type	Height Min	Height Max	If Wall $ per Unit Area	If Berm $ per Unit Vol.	Top Width	Run:Rise	Add'tnl $ per Unit Length	Points Name	No.	Coordinates (bottom) X	Y	Z	Height at Point	Segment Seg Ht Increment	Perturbs #Up	Perturbs #Dn	On Struct?	Important Reflections?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier7	W	0.00	99.99	0.00				0.00	point42	42	675,433.9	834,772.5	1,179.92	6.00	0.00	0	0		
									point43	43	675,234.8	834,754.2	1,180.42	6.00	0.00	0	0		
									point44	44	675,039.1	834,712.7	1,180.42	6.00	0.00	0	0		
									point45	45	674,849.5	834,649.1	1,179.86	6.00	0.00	0	0		
									point46	46	674,668.6	834,563.8	1,179.54	6.00	0.00	0	0		
									point47	47	674,496.9	834,461.2	1,178.94	6.00	0.00	0	0		
									point48	48	674,326.7	834,356.2	1,178.48	6.00	0.00	0	0		
									point49	49	674,156.5	834,251.2	1,178.28	6.00	0.00	0	0		
									point50	50	673,986.2	834,146.3	1,177.56	6.00	0.00	0	0		
									point51	51	673,808.8	834,054.0	1,176.94	6.00	0.00	0	0		
									point52	52	673,622.1	833,982.2	1,175.79	6.00	0.00	0	0		
									point53	53	673,428.6	833,931.8	1,174.96	6.00	0.00	0	0		
									point54	54	673,230.5	833,904.4	1,174.92	6.00	0.00	0	0		
									point55	55	672,826.6	833,886.6	1,174.01	6.00	0.00	0	0		
									point56	56	672,843.5	834,085.9	1,175.40	6.00	0.00	0	0		
									point57	57	672,878.1	834,282.9	1,176.06	6.00	0.00	0	0		
									point58	58	672,906.5	834,390.7	1,176.60	6.00					
Barrier8	W	0.00	99.99	0.00				0.00	point59	59	671,943.1	833,963.4	1,177.64	6.00	0.00	0	0		
									point60	60	671,949.4	833,852.6	1,177.24	6.00	0.00	0	0		
									point61	61	671,749.7	833,843.7	1,177.71	6.00	0.00	0	0		
									point62	62	671,549.8	833,838.7	1,178.92	6.00	0.00	0	0		
									point63	63	671,349.8	833,834.7	1,179.98	6.00	0.00	0	0		
									point64	64	671,149.9	833,830.8	1,180.75	6.00	0.00	0	0		
									point65	65	670,949.9	833,827.1	1,180.88	6.00	0.00	0	0		
									point66	66	670,749.9	833,823.5	1,181.25	6.00	0.00	0	0		
									point67	67	670,550.0	833,819.9	1,181.47	6.00	0.00	0	0		
									point68	68	670,350.0	833,816.1	1,182.45	6.00	0.00	0	0		
									point69	69	670,275.6	833,815.5	1,181.92	6.00	0.00	0	0		
									point70	70	670,273.9	834,020.7	1,182.99	6.00	0.00	0	0		
									point71	71	670,275.4	834,236.1	1,184.71	6.00					
Barrier9	W	0.00	99.99	0.00				0.00	point72	72	671,914.6	834,024.4	1,177.44	6.00	0.00	0	0		
									point73	73	671,908.4	834,131.6	1,178.57	6.00					
Barrier10	W	0.00	99.99	0.00				0.00	point74	74	670,110.8	834,107.1	1,185.08	6.00	0.00	0	0		
									point75	75	670,109.6	833,821.5	1,182.84	6.00	0.00	0	0		
									point76	76	669,909.8	833,828.6	1,183.40	6.00	0.00	0	0		
									point77	77	669,709.9	833,835.7	1,184.30	6.00	0.00	0	0		
									point78	78	669,510.0	833,842.9	1,184.51	6.00	0.00	0	0		

									point79	79	669,310.1	833,850.0	1,184.31	6.00	0.00	0	0		
									point80	80	669,110.3	833,857.1	1,184.95	6.00	0.00	0	0		
									point81	81	668,910.4	833,864.2	1,185.81	6.00	0.00	0	0		
									point82	82	668,710.5	833,871.3	1,186.72	6.00	0.00	0	0		
									point83	83	668,510.7	833,878.4	1,189.51	6.00	0.00	0	0		
									point84	84	668,310.8	833,885.6	1,188.91	6.00	0.00	0	0		
									point85	85	668,110.9	833,892.7	1,188.64	6.00	0.00	0	0		
									point86	86	667,911.0	833,899.8	1,188.34	6.00	0.00	0	0		
									point87	87	667,769.3	833,904.8	1,188.39	6.00	0.00	0	0		
									point88	88	667,732.7	833,978.5	1,188.81	6.00	0.00	0	0		
									point89	89	667,732.5	834,261.3	1,189.80	6.00					
Barrier11	W	0.00	99.99	0.00				0.00	point90	90	667,604.9	834,252.6	1,190.29	6.00	0.00	0	0		
									point91	91	667,604.7	833,943.5	1,183.95	6.00	0.00	0	0		
									point92	92	667,591.5	833,931.3	1,183.85	6.00	0.00	0	0		
									point93	93	667,461.1	833,939.7	1,184.17	6.00					
Barrier11-2-2	W	0.00	99.99	0.00				0.00	point100	100	667,398.3	833,943.7	1,184.05	6.00	0.00	0	0		
									point96	96	667,226.1	833,954.6	1,183.73	6.00	0.00	0	0		
									point97	97	667,229.2	833,999.5	1,184.21	6.00	0.00	0	0		
									point98	98	667,278.7	834,086.6	1,184.82	6.00					
Barrier14	W	0.00	99.99	0.00				0.00	point101	101	666,138.0	834,514.4	1,178.68	6.00	0.00	0	0		
									point102	102	666,027.7	834,336.0	1,178.95	6.00	0.00	0	0		
									point103	103	665,924.3	834,168.8	1,178.46	6.00	0.00	0	0		
									point104	104	665,822.4	834,212.3	1,178.78	6.00	0.00	0	0		
									point105	105	665,815.3	834,245.3	1,178.18	6.00					
Barrier14-2-2	W	0.00	99.99	0.00				0.00	point123	123	665,746.7	834,279.1	1,178.02	6.00	0.00	0	0		
									point108	108	665,665.7	834,410.3	1,179.04	6.00	0.00	0	0		
									point109	109	665,626.5	834,596.5	1,179.52	6.00					
Barrier14-2-2-2-2	W	0.00	99.99	0.00				0.00	point125	125	665,540.3	834,178.3	1,177.58	6.00	0.00	0	0		
									point111	111	665,663.9	834,154.8	1,177.40	6.00	0.00	0	0		
									point112	112	665,655.2	834,266.5	1,178.26	6.00	0.00	0	0		
									point113	113	665,587.5	834,376.2	1,178.35	6.00	0.00	0	0		
									point114	114	665,550.9	834,495.4	1,179.58	6.00					
Barrier14-2-2-2-2-2-2	W	0.00	99.99	0.00				0.00	point127	127	665,414.7	834,237.3	1,178.23	6.00	0.00	0	0		
									point116	116	665,410.8	834,350.3	1,178.61	6.00	0.00	0	0		
									point117	117	665,248.9	834,361.7	1,180.60	6.00	0.00	0	0		
									point118	118	665,099.4	834,389.4	1,180.73	6.00	0.00	0	0		
									point119	119	665,041.6	834,411.2	1,181.36	6.00	0.00	0	0		
									point120	120	664,915.8	834,408.3	1,187.84	6.00	0.00	0	0		
									point121	121	664,927.5	834,289.7	1,181.68	6.00					
Barrier21	W	0.00	99.99	0.00				0.00	point128	128	664,915.8	834,408.3	1,187.84	6.00	0.00	0	0		
									point129	129	664,911.1	834,581.5	1,193.89	6.00	0.00	0	0		
									point130	130	664,902.2	834,655.2	1,195.11	6.00					
Barrier22	W	0.00	99.99	0.00				0.00	point131	131	664,747.0	834,209.7	1,175.37	6.00	0.00	0	0		
									point132	132	664,618.3	834,214.4	1,173.25	6.00	0.00	0	0		
									point133	133	664,421.3	834,179.6	1,177.47	6.00	0.00	0	0		
									point134	134	664,224.4	834,144.8	1,180.49	6.00	0.00	0	0		
									point135	135	664,027.0	834,112.5	1,182.10	6.00	0.00	0	0		
									point136	136	663,829.5	834,081.2	1,184.42	6.00	0.00	0	0		
									point137	137	663,631.9	834,049.9	1,185.35	6.00	0.00	0	0		
									point138	138	663,434.4	834,018.6	1,186.31	6.00	0.00	0	0		

									point139	139	663,236.9	833,987.2	1,184.71	6.00	0.00	0	0		
									point140	140	663,069.8	833,960.8	1,182.28	6.00	0.00	0	0		
									point141	141	663,054.0	834,033.2	1,185.44	6.00					
New Barrier 2 (SWL-2080-R)_FD	W	0.00	99.99	0.00				0.00	2068+47.04	683	676,699.7	833,892.3	1,180.06	14.00	2.00	2	0		
									point1029	1029	676,590.1	833,908.3	1,182.31	14.00	2.00	2	0		
									2070+68.44	684	676,480.5	833,924.3	1,184.55	14.00	2.00	2	0		
									2072+50	1028	676,299.2	833,941.9	1,189.61	14.00	2.00	2	0		
									2072+66.97	685	676,281.8	833,944.7	1,189.51	14.00	2.00	2	0		
									2074+64.66	686	676,082.1	833,956.0	1,193.92	14.00	2.00	2	0		
									2076+62.41	687	675,882.4	833,965.9	1,196.81	14.00	2.00	2	0		
									2078+60.26	688	675,682.4	833,969.8	1,198.18	14.00	2.00	2	0		
									2080+58.07	689	675,482.4	833,967.5	1,198.00	14.00	2.00	2	0		
									2082+56.17	690	675,282.6	833,959.3	1,196.28	14.00	2.00	2	0		
									2084+56.14	691	675,082.9	833,948.8	1,192.98	14.00	2.00	2	0		
									2086+56.12	692	674,883.2	833,938.3	1,188.11	14.00	2.00	2	0		
									2087+80	1026	674,760.3	833,932.8	1,183.10	14.00	2.00	2	0		
									2088+49.69	693	674,689.9	833,928.1	1,182.40	14.00	2.00	2	0		
									2090+49.66	694	674,490.3	833,915.8	1,177.67	14.00	2.00	2	0		
									point1027	1027	674,390.4	833,910.6	1,176.16	14.00	2.00	2	0		
									2092+49.73	695	674,290.5	833,905.3	1,174.64	14.00					
New Barrier 5 (SWL-2185-R)_FD	W	0.00	99.99	0.00				0.00	2172+85.74	746	666,273.6	833,949.1	1,183.81	16.00	2.00	2	0		
									2174+85.71	747	666,074.3	833,965.9	1,185.64	16.00	2.00	2	0		
									2176+87.51	748	665,873.4	833,986.3	1,187.76	16.00	2.00	2	0		
									2178+86.87	749	665,674.2	833,998.1	1,192.95	16.00	2.00	2	0		
									2180+85.51	750	665,474.3	834,004.0	1,198.93	16.00	2.00	2	0		
									2182+84.29	751	665,274.4	834,011.2	1,202.47	16.00	2.00	2	0		
									2184+83.07	752	665,074.4	834,014.9	1,204.31	16.00	2.00	2	0		
									2186+81.82	753	664,874.4	834,015.1	1,204.46	16.00	2.00	2	0		
									2188+80.50	754	664,674.5	834,011.8	1,202.92	16.00	2.00	2	0		
									2190+79.26	755	664,474.6	834,005.1	1,199.68	16.00	2.00	2	0		
									2192+78.07	756	664,274.8	833,994.9	1,194.75	16.00	2.00	2	0		
									2194+76.77	757	664,075.3	833,981.4	1,189.53	16.00	2.00	2	0		
									2196+50	1039	663,901.5	833,969.6	1,186.39	16.00	2.00	2	0		
									2196+75.77	758	663,876.2	833,962.5	1,186.41	16.00	2.00	2	0		
									2198+75.79	759	663,677.0	833,944.4	1,184.81	16.00	2.00	2	0		
									2200+47.86	760	663,506.0	833,924.8	1,184.72	16.00					
Barrier6-2	W	0.00	99.99	0.00				0.00	point1025	1025	677,487.1	833,999.6	1,171.52	6.00	0.00	0	0		
									point33	33	677,289.5	834,030.9	1,171.56	6.00	0.00	0	0		
									point34	34	677,092.5	834,065.1	1,172.43	6.00	0.00	0	0		
									point35	35	676,894.8	834,095.3	1,172.72	6.00	0.00	0	0		
									point36	36	676,696.2	834,119.1	1,172.99	6.00	0.00	0	0		
									point37	37	676,497.1	834,137.8	1,173.40	6.00	0.00	0	0		
									point38	38	676,297.5	834,150.7	1,173.64	6.00	0.00	0	0		
									point39	39	676,097.6	834,158.2	1,175.58	6.00	0.00	0	0		
									point40	40	676,086.7	834,158.3	1,174.04	6.00	0.00	0	0		
									point41	41	676,088.1	834,350.2	1,176.23	6.00					
New Barrier 4 (SWL-2135-R)_FD_1	W	0.00	99.99	0.00				0.00	2087+82	1033	674,752.1	834,042.4	1,174.50	16.00	2.00	2	0		
									2088+62	1034	674,672.3	834,030.9	1,174.27	16.00	2.00	2	0		
									2089+12	1035	674,624.2	834,001.4	1,175.26	16.00					
New Barrier 4 (SWL-2135-R)_FD_2	W	0.00	99.99	0.00				0.00	2120+85.50	1040	671,458.3	833,763.5	1,179.97	14.00	2.00	3	0		

									2122+96.56	714	671,248.3	833,753.2	1,185.83	14.00	2.00	3	0		
									2124+97.31	715	671,048.6	833,741.2	1,192.22	14.00	2.00	3	0		
									2126+98.01	716	670,848.7	833,735.9	1,198.00	14.00	2.00	3	0		
									2128+98.76	717	670,648.7	833,732.6	1,202.27	14.00	2.00	3	0		
									2130+99.48	718	670,448.7	833,731.2	1,204.83	14.00	2.00	3	0		
									2133+00.21	719	670,248.7	833,731.8	1,205.68	14.00	2.00	3	0		
									2135+00.85	720	670,048.8	833,734.4	1,204.83	14.00	2.00	3	0		
									2137+01.62	721	669,848.8	833,738.9	1,202.26	14.00	2.00	3	0		
									2139+02.35	722	669,648.9	833,745.4	1,197.99	14.00	2.00	3	0		
									2141+03.04	723	669,449.1	833,753.8	1,192.26	14.00	2.00	3	0		
									2143+03.72	724	669,249.3	833,762.3	1,187.63	14.00	2.00	3	0		
									2145+04.17	725	669,049.7	833,774.7	1,184.82	14.00					
New Barrier 4 (SWL-2135-R)_FD_3	W	0.00	99.99	0.00				0.00	2137+00.86	1042	669,851.0	833,792.2	1,184.63	14.00	2.00	3	0		
									2139+02.12	1043	669,651.1	833,798.7	1,185.33	14.00	2.00	3	0		
									2141+03.37	1044	669,451.3	833,807.3	1,185.32	14.00	2.00	3	0		
									2143+04.58	1045	669,251.5	833,814.5	1,184.65	14.00	2.00	3	0		
									2145+05.09	1046	669,051.5	833,816.5	1,183.98	14.00	2.00	3	0		
									2147+04.36	1047	668,851.5	833,812.2	1,183.27	14.00	2.00	3	0		
									2149+04.06	1048	668,651.5	833,814.1	1,184.31	14.00	2.00	3	0		
									2151+04.06	1049	668,451.9	833,825.7	1,185.67	14.00	2.00	3	0		
									2153+04.06	1050	668,252.3	833,838.5	1,186.99	14.00	2.00	3	0		
									2155+04.06	1051	668,052.7	833,851.3	1,187.89	14.00	2.00	3	0		
									2157+04.06	1052	667,853.1	833,864.1	1,188.25	14.00	2.00	3	0		
									2159+04.06	1053	667,653.5	833,877.0	1,188.08	14.00	2.00	3	0		
									2161+04.06	1054	667,453.9	833,889.8	1,187.40	14.00	2.00	3	0		
									2163+04.06	1055	667,254.3	833,902.6	1,186.60	14.00	2.00	3	0		
									point1057	1057	667,054.7	833,914.9	1,185.88	14.00	2.00	3	0		
									2167+03.97	736	666,855.2	833,927.7	1,185.08	14.00	2.00	3	0		
									2169+04.00	737	666,655.6	833,940.9	1,184.28	14.00	2.00	3	0		
									2171+03.88	738	666,456.6	833,961.0	1,183.33	14.00	2.00	3	0		
									2171+91.11	739	666,370.2	833,976.6	1,182.96	14.00	2.00	3	0		
									2173+90.86	740	666,171.4	833,997.9	1,183.61	14.00	2.00	3	0		
									2175+90.38	741	665,973.2	834,024.8	1,185.04	14.00	2.00	3	0		
									2177+89.54	742	665,775.6	834,055.5	1,184.99	14.00	2.00	3	0		
									2179+86.63	743	665,578.5	834,089.6	1,181.41	14.00	2.00	3	0		
									2181+41	1038	665,422.5	834,112.6	1,181.54	14.00	2.00	3	0		
									2181+82.21	744	665,381.2	834,122.5	1,180.32	14.00	2.00	3	0		
									2183+78.45	745	665,182.1	834,141.8	1,179.03	14.00					
New Barrier 4 (SWL-2135-R)_FD_1	W	0.00	99.99	0.00				0.00	2089+12	1036	674,624.2	834,001.4	1,175.26	14.00	2.00	3	0		
									2090+87.51	698	674,449.4	833,972.8	1,174.14	14.00	2.00	3	0		
									2092+86.71	699	674,251.4	833,944.6	1,172.80	14.00	2.00	3	0		
									2094+85.93	700	674,053.4	833,916.2	1,172.08	14.00	2.00	3	0		
									2096+85.67	701	673,854.5	833,895.0	1,172.82	14.00	2.00	3	0		
									2098+85.68	702	673,654.8	833,883.9	1,173.63	14.00	2.00	3	0		
									2100+85.66	703	673,455.1	833,873.4	1,174.43	14.00	2.00	3	0		
									2102+85.63	704	673,255.4	833,862.9	1,175.23	14.00	2.00	3	0		
									2104+85.71	1058	673,055.6	833,852.4	1,175.95	14.00	2.00	3	0		
									2106+85.71	1059	672,855.9	833,842.4	1,176.23	14.00	2.00	3	0		
									2108+85.71	1060	672,656.1	833,831.9	1,176.27	14.00	2.00	3	0		
									2110+85.71	1061	672,456.4	833,821.4	1,175.83	14.00	2.00	3	0		

									2112+85.71	1062	672,256.7	833,810.9	1,175.06	14.00	2.00	3	0		
									2114+85.70	1063	672,056.9	833,802.2	1,174.25	14.00	2.00	3	0		
									2116+85.53	1064	671,856.9	833,799.9	1,174.50	14.00	2.00	3	0		
									2118+85.14	1065	671,656.9	833,801.9	1,176.30	14.00	2.00	3	0		
									2120+84.93	1066	671,456.9	833,801.4	1,178.52	14.00	2.00	3	0		
									2122+86.06	1067	671,257.0	833,796.3	1,180.71	14.00	2.00	3	0		
									2124+87.25	1068	671,057.1	833,788.9	1,181.90	14.00	2.00	3	0		
									2126+88.45	1069	670,857.2	833,783.5	1,181.61	14.00	2.00	3	0		
									2128+89.60	1070	670,657.2	833,785.2	1,180.81	14.00					

AZTEC 5 July 2018
David Shu TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: South Mountain Freeway
RUN: South Mountain Freeway, 32nd St TI

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R45	45	1	675,212.9	834,763.1	1,181.19	5.00	0.00	64	15.0	5.0	Y
R46	46	1	674,918.5	834,686.9	1,180.52	5.00	0.00	64	15.0	5.0	Y
R47	47	1	674,648.8	834,575.0	1,180.21	5.00	0.00	64	15.0	5.0	Y
R48	48	1	674,487.3	834,684.9	1,180.97	5.00	0.00	64	15.0	5.0	Y
R49	49	1	674,409.0	834,424.7	1,179.45	5.00	0.00	64	15.0	5.0	Y
R50	50	1	674,266.9	834,558.2	1,180.01	5.00	0.00	64	15.0	5.0	Y
R51	51	1	674,198.8	834,292.9	1,179.29	5.00	0.00	64	15.0	5.0	Y
R52	52	1	674,010.7	834,390.8	1,179.20	5.00	0.00	64	15.0	5.0	Y
R53	53	1	673,916.9	834,132.5	1,178.38	5.00	0.00	64	15.0	5.0	Y
R54	54	1	673,756.9	834,272.6	1,178.48	5.00	0.00	64	15.0	5.0	Y
R55	55	1	673,557.2	834,148.9	1,177.36	5.00	0.00	64	15.0	5.0	Y
R56	56	1	673,329.4	834,091.9	1,176.91	5.00	0.00	64	15.0	5.0	Y
R57	57	1	673,048.0	834,079.5	1,176.65	5.00	0.00	64	15.0	5.0	Y
R58	57	1	672,905.1	834,344.6	1,177.70	5.00	0.00	64	15.0	5.0	Y
R59	58	1	672,866.5	834,138.6	1,176.65	5.00	0.00	64	15.0	5.0	Y
R60	59	1	672,847.1	833,943.1	1,176.60	5.00	0.00	64	15.0	5.0	Y
R61	60	1	672,348.6	833,924.0	1,176.85	5.00	0.00	64	15.0	5.0	Y
R62	61	1	671,900.2	833,864.4	1,177.91	5.00	0.00	64	15.0	5.0	Y
R63	62	1	671,867.1	834,113.3	1,178.99	5.00	0.00	64	15.0	5.0	Y
R64	63	1	671,549.2	833,855.2	1,179.17	5.00	0.00	64	15.0	5.0	Y
R65	64	1	671,525.6	834,056.7	1,180.03	5.00	0.00	64	15.0	5.0	Y
R66	65	1	671,276.9	833,850.1	1,180.77	5.00	0.00	64	15.0	5.0	Y
R67	66	1	671,268.4	834,036.4	1,180.62	5.00	0.00	64	15.0	5.0	Y
R68	67	1	671,023.1	834,085.4	1,181.23	5.00	0.00	64	15.0	5.0	Y

R69	68	1	670,994.4	833,841.6	1,181.54	5.00	0.00	64	15.0	5.0	Y
R70	69	1	670,831.9	834,061.8	1,182.57	5.00	0.00	64	15.0	5.0	Y
R71	70	1	670,720.3	833,839.9	1,181.99	5.00	0.00	64	15.0	5.0	Y
R72	71	1	670,544.3	834,033.0	1,183.24	5.00	0.00	64	15.0	5.0	Y
R73	72	1	670,405.6	833,836.6	1,183.40	5.00	0.00	64	15.0	5.0	Y
R74	73	1	670,290.6	834,207.4	1,184.42	5.00	0.00	64	15.0	5.0	Y
R75	74	1	670,278.1	833,995.9	1,182.52	5.00	0.00	64	15.0	5.0	Y
R76	75	1	670,079.1	833,834.9	1,183.46	5.00	0.00	64	15.0	5.0	Y
R77	76	1	669,976.3	834,074.4	1,183.69	5.00	0.00	64	15.0	5.0	Y
R78	77	1	669,764.4	833,841.6	1,183.83	5.00	0.00	64	15.0	5.0	Y
R79	78	1	669,561.4	834,082.1	1,186.11	5.00	0.00	64	15.0	5.0	Y
R80	79	1	669,481.9	833,855.2	1,184.25	5.00	0.00	64	15.0	5.0	Y
R81	80	1	669,326.2	834,049.9	1,185.87	5.00	0.00	64	15.0	5.0	Y
R82	81	1	669,233.2	833,865.4	1,184.60	5.00	0.00	64	15.0	5.0	Y
R83	82	1	668,967.6	834,100.7	1,186.38	5.00	0.00	64	15.0	5.0	Y
R84	83	1	668,942.2	833,875.5	1,185.81	5.00	0.00	64	15.0	5.0	Y
R85	84	1	668,671.5	833,889.1	1,187.13	5.00	0.00	64	15.0	5.0	Y
R86	85	1	668,563.2	834,083.8	1,188.93	5.00	0.00	64	15.0	5.0	Y
R87	86	1	668,343.2	833,895.8	1,190.70	5.00	0.00	64	15.0	5.0	Y
R88	87	1	668,160.6	834,149.8	1,190.15	5.00	0.00	64	15.0	5.0	Y
R89	88	1	668,087.8	833,911.1	1,189.30	5.00	0.00	64	15.0	5.0	Y
R90	89	1	667,791.8	833,931.4	1,189.40	5.00	0.00	64	15.0	5.0	Y
R91	90	1	667,749.4	834,146.4	1,189.47	5.00	0.00	64	15.0	5.0	Y
R92	91	1	667,598.9	834,166.8	1,186.85	5.00	0.00	64	15.0	5.0	Y
R93	92	1	667,578.6	833,953.4	1,185.22	5.00	0.00	64	15.0	5.0	Y
R94	93	1	667,247.0	833,975.4	1,184.58	5.00	0.00	64	15.0	5.0	Y
R95	94	1	666,043.4	834,388.6	1,179.44	5.00	0.00	64	15.0	5.0	Y
R96	95	1	665,917.8	834,190.2	1,178.89	5.00	0.00	64	15.0	5.0	Y
R97	96	1	665,688.6	834,405.5	1,179.67	5.00	0.00	64	15.0	5.0	Y
R98	97	1	665,634.5	834,227.8	1,178.88	5.00	0.00	64	15.0	5.0	Y
R99	98	1	665,392.4	834,336.5	1,178.77	5.00	0.00	64	15.0	5.0	Y
R100	99	1	665,317.8	834,615.1	1,180.75	5.00	0.00	64	15.0	5.0	Y
R101	100	1	665,181.9	834,357.8	1,180.08	5.00	0.00	64	15.0	5.0	Y
R102	101	1	664,969.6	834,623.1	1,184.36	5.00	0.00	64	15.0	5.0	Y
R103	102	1	664,964.4	834,401.3	1,181.30	5.00	0.00	64	15.0	5.0	Y
MON-02	579	1	672,999.4	834,000.5	1,176.20	5.00	0.00	64	15.0	5.0	Y
MON-34	581	1	669,362.6	833,859.9	1,184.49	5.00	0.00	64	15.0	5.0	Y

MON-03	583	1	665,860.9	833,759.2	1,176.35	5.00	0.00	64	15.0	5.0	Y