APPENDIX B

NOISE

Appendix B

Noise Technical Report and Additional Information – Within the Study Area

Table B-1

Peak Traffic Hour Noise Levels at Representative Land Use Category B Noise-Sensitive Locations (Receivers)

Receiver ID	Reference Figure	FHWA Activity Category	Receiver Description	Location	No. of Dwelling Units (Structures) Represented	Peak Hour Noise Levels $L_{eq(h)}$ [1] (dBA)				
						Existing (2006)	Alternatives 1 and 2 (2030)		Alternative 3 (2030)	No Build (2030)
							Option 1	Option 2		
Western Portion– Sarival Avenue to Dysart Road										
R1	Figure B-1a Panel 1	B	Farmhouse	SW corner of Bullard Ave. and Butler Dr.	1	45	64	65	n/a	49
R2		B	Farmhouse	NE corner of 143rd Ave. and Butler Dr.	1	45	70	71	n/a	49
R3	Figure B-1b Panel 2	B	Single Family Home	NE corner of Northern Ave. and 134th Ave.	1	64	Removed	Removed	n/a	66
R4		B	Single Family Home		1	63	Removed	Removed	n/a	65
R5		B	Single Family Home		1	62	Removed	Removed	n/a	65
Central Portion – Dysart Road to 91st Avenue										
R6	Figure B-1c Panel 3	B	Single Family Home	N of Northern Ave. and E of 111th Ave.	5	54	63	64	n/a	61
R7		B	Single Family Home		3	60	69	70	n/a	61
R8		B	Single Family Home		3	62	72	72	n/a	63
R9		B	Ramada	N of Northern Ave. between 111th Ave. and 110th Ave.	1	64	76	77	n/a	67
R10		B	Single Family Home		4	56	68	68	n/a	59
R11		B	Single Family Home		4	56	68	69	n/a	59

Receiver ID	Reference Figure	FHWA Activity Category	Receiver Description	Location	No. of Dwelling Units (Structures) Represented	Peak Hour Noise Levels $L_{eq(h)}$ [1] (dBA)				
						Existing (2006)	Alternatives 1 and 2 (2030)		Alternative 3 (2030)	No Build (2030)
							Option 1	Option 2		
R12	Figure B-1c Panel 3	B	Single Family Home	N of Northern Ave. between 110th Ave. and 109th Ave.	4	55	67	68	n/a	58
R13		B	Single Family Home		4	56	67	69	n/a	59
R14		B	Single Family Home	N of Northern Ave. E of 109th Ave.	3	58	70	72	n/a	61
R15		B	Single Family Home		4	56	68	69	n/a	59
R16		B	Single Family Home		1	58	69	70	n/a	60
R17		B	Single Family Home		1	60	Removed	Removed	n/a	63
R18		B	Single Family Home	N of Northern between 111th and 110th Ave.	1	60	70	70	n/a	63
R19		B	Single Family Home		6	63	73	73	n/a	66
R20		B	Single Family Home		6	63	72	74	n/a	66
R21		B	Single Family Home		5	62	71	73	n/a	65
R22		B	Single Family Home	N of Northern Ave. between 110th Ave. and 109th Ave.	1	60	69	71	n/a	62
R23		B	Single Family Home	N of Northern Ave. E of 109th Ave.	1	62	70	72	n/a	64
R24		B	Condominium		2	62	70	72	n/a	64
R25		B	Condominium		2	62	70	72	n/a	65
R26	Figure B-1d Panel 4	B	Townhouse	N of Northern Ave. between 107th Ave. and 106th Ave.	2	63	70	69	n/a	63
R27		B	Townhouse		2	61	69	70	n/a	62
R28		B	Single Family Home		1	63	70	71	n/a	64

Receiver ID	Reference Figure	FHWA Activity Category	Receiver Description	Location	No. of Dwelling Units (Structures) Represented	Peak Hour Noise Levels $L_{eq(h)}$ [1] (dBA)				
						Existing (2006)	Alternatives 1 and 2 (2030)		Alternative 3 (2030)	No Build (2030)
							Option 1	Option 2		
R29	Figure B-1d Panel 4	B	Single Family Home	N of Northern Ave. between 106th Ave. and 103rd Ave.	5	63	71	72	n/a	64
R30		B	Single Family Home		5	63	72	72	n/a	64
R31		B	Single Family Home		4	62	69	70	n/a	63
R32		B	Single Family Home		4	62	67	69	n/a	64
R33		B	Single Family Home		5	63	65	67	n/a	64
R34		B	Single Family Home		3	64	66	67	n/a	66
R35	Figure B-1e Panel 5	B	Single Family Home	S of Northern Ave. between Loop 101 and Peoria Crossing	1	64	Removed	Removed	n/a	66
R36		B	Single Family Home		1	64	Removed	Removed	n/a	67
R81	Figure B-1f Panel 9	B	Mobile Home	SW corner of Glendale Ave. and 127th Ave.	6	63 [2]	n/a	n/a	64 [3]	65
R82		B	Mobile Home		6	63 [2]	n/a	n/a	64 [3]	65
R83		B	Church	SW corner of El Mirage Rd. and Glendale Ave.	1	*60*	n/a	n/a	n/a	*61*
R37	Figure B-1g Panel 6	B	Apartment	NW corner of Nothern Ave. and 89th Ave.	7	60	66	67	n/a	63
R38		B	Apartment		6	60	67	68	n/a	63
R39		B	Ramada	N of Northern Ave. between 89th Ave. and 87th Ave.	1	61	68	70	n/a	64
R40		B	Single Family Home		14	56	64	65	n/a	58
R41		B	Single Family Home		2	61	70	71	n/a	64

Receiver ID	Reference Figure	FHWA Activity Category	Receiver Description	Location	No. of Dwelling Units (Structures) Represented	Peak Hour Noise Levels $L_{eq(h)}$ [1] (dBA)				
						Existing (2006)	Alternatives 1 and 2 (2030)		Alternative 3 (2030)	No Build (2030)
							Option 1	Option 2		
R42	Figure B-1g Panel 6	B	Single Family Home	S of Northern Ave. between 89th Ave. and 87th Ave.	1	56	64	66	n/a	58
R43		B	Single Family Home		2	58	68	70	n/a	61
R44		B	Single Family Home		5	58	69	70	n/a	61
R45		B	Single Family Home		4	58	68	69	n/a	60
R46		B	Home/Business	SE corner of Nothern Ave. and 87th Ave.	1	63	73	74	n/a	65
R47		B	Home/Business		1	63	73	74	n/a	66
R48		B	Single Family Home	SW corner of Nothern Ave. and 85th Ave.	1	59	67	68	n/a	62
R49		B	Single Family Home		1	62	70	70	n/a	64
R50		B	Single Family Home	N of Northern Ave. E of 85th Ave.	2	58	66	67	n/a	61
R51		B	Single Family Home	S of Northern Ave. between 85th Ave. and 83rd Ave.	1	60	68	68	n/a	63
R52		B	Single Family Home		2	60	67	68	n/a	63
R53		B	Single Family Home		1	61	69	69	n/a	65
R54	Figure B-1h Panel 7	B	Home/Business	N of Northern Ave. between 83rd Ave. and 81st Ave.	1	60	Removed	Removed	n/a	64
R55		B	Single Family Home	S of Northern Ave. between 83rd Ave. and 81st Ave.	2	62	70	70	n/a	66
R56		B	Home/Business		1	62	70	71	n/a	66

Receiver ID	Reference Figure	FHWA Activity Category	Receiver Description	Location	No. of Dwelling Units (Structures) Represented	Peak Hour Noise Levels $L_{eq(h)}$ [1] (dBA)				
						Existing (2006)	Alternatives 1 and 2 (2030)		Alternative 3 (2030)	No Build (2030)
							Option 1	Option 2		
R57	Figure B-1h Panel 7	B	Single Family Home	S of Northern Ave. between 81st Ave. and 79th Ave.	1	61	70	70	n/a	65
R58		B	Church		1	62	70	71	n/a	66
R59		B	Mobile Home		1	61	70	71	n/a	65
R60		B	Mobile Home		1	68	Removed	Removed	n/a	72
R61		B	Single Family Home		1	62	73	73	n/a	66
R62		B	Single Family Home		1	63	Removed	Removed	n/a	67
R63		B	Home/Business		1	63	72	73	n/a	67
R64		B	Home/Business		1	63	72	73	n/a	67
R65		B	Single Family Home	S of Northern Ave E of 79th Ave. N of Northern W of 77th Ave.	1	63	73	73	n/a	67
R66		B	Single Family Home		2	63	Removed	Removed	n/a	67
R67		B	Single Family Home		2	62	Removed	Removed	n/a	67
R68		B	Single Family Home		1	60	70	70	n/a	64
R69		B	Single Family Home	S of Northern W of 77th Ave.	1	62	Removed	Removed	n/a	66
R70		B	Home/Business		1	62	72	72	n/a	66
R71	Figure B-1i Panel 8	B	Single Family Home	NW corner of Northern Ave. and 75th Ave	1	64	Removed	Removed	n/a	68
R72		B	Single Family Home		2	63	Removed	Removed	n/a	67
R73		B	Single Family Home		1	62	68	69	n/a	66
R74		B	Single Family Home		2	64	69	70	n/a	69
R75		B	Single Family Home		1	70	Removed	Removed	n/a	75

Receiver ID	Reference Figure	FHWA Activity Category	Receiver Description	Location	No. of Dwelling Units (Structures) Represented	Peak Hour Noise Levels $L_{eq(h)}$ [1] (dBA)				
						Existing (2006)	Alternatives 1 and 2 (2030)		Alternative 3 (2030)	No Build (2030)
							Option 1	Option 2		
R76	Figure B-1i Panel 8	B	Single Family Home	SW corner of Northern Ave. W and 75th Ave.	2	66	Removed	Removed	n/a	70
R77		B	Single Family Home		2	73	Removed	Removed	n/a	75
R78		B	Mobile Home		1	66	70	70	n/a	69
R79		B	Single Family Home		1	69	72	72	n/a	71
R80		B	School	S of Northern E of 71st Ave	1	57	66	66	n/a	61

NOTES: Bolded values indicate exceedance of the ADOT NAC.
Underlined values indicate substantial (15 dBA) noise increase.
[1] One hour equivalent sound level (dBA).
[2] Assumes similar traffic volumes as Northern Avenue in the central portion of the study area.
[3] Estimated future noise levels based on relative proximity of other receivers to alternatives 1 and 2 in the central portion of the study area.

WESTERN PORTION – NOISE MEASUREMENT LOCATION – ALTERNATIVES 1, 2, AND 3

Measurement location M3, shown in Figure B-1b, Panel 1, in the Western Segment of the study area, is located on County land near a farm house at the intersection of Bullard Avenue and Butler Drive, both dirt roads in this location. The meter was set up at the east edge of Bullard Avenue about 22 feet north of the approximate Butler Drive centerline. Measurements were taken at this location just before the noon hour. The average ambient noise level measured at this monitoring location was 45 dBA without jet landings at the nearby Luke Air Force Base and typical of the open desert and 67 dBA during jet landings. Although not near an existing major source of vehicle traffic, this location was chosen because it lies adjacent to the Preferred Alternative alignment at its western end and it is representative of other noise-sensitive land uses in the Western Segment.

CENTRAL PORTION – NOISE MEASUREMENT LOCATION – ALTERNATIVES 1 AND 2

Measurement location M2, shown in Figure B-1d, Panel 3, is on the northeast corner of 109th Avenue and Northern Avenue. The noise meter was set up approximately 108 feet north of the Northern Avenue westbound edge of pavement. Three measurements were taken at this location after the morning rush hour. The average ambient noise level measured at this measurement location was 56 A-weighted decibals (dBA) with free flowing traffic traveling at approximately 45 miles per hour.

Model calculations of existing peak traffic hour noise levels on Northern Avenue range between 54 dBA at R6, representing five single family homes at the northeast corner of Northern Avenue and 111th Avenue, and 64 dBA at several other receivers including R35, representing one single family home on the south side of Northern Avenue west of SR 101L. In general, higher noise levels are predicted to occur at locations that experience higher traffic volumes during the peak hour and that are not protected from traffic noise by an existing privacy wall or noise barrier. Receiver locations are shown in Figures B-1d, B-1e, and B-1f.

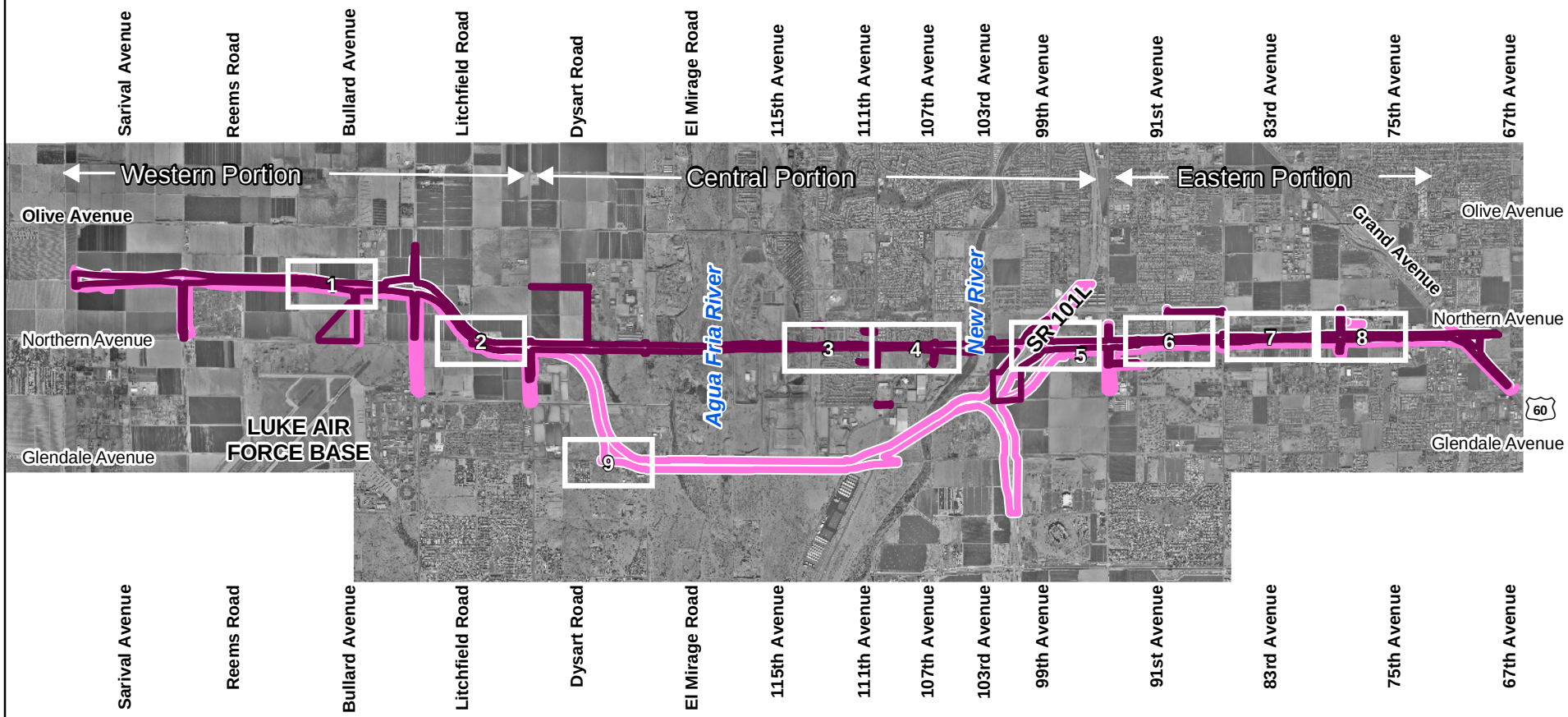
Estimates of existing peak traffic hour noise levels on Glendale Avenue range between 60 to 63 dBA at R81 – R83. These receivers represent 12 mobile homes located at the southwest corner of Glendale Avenue and 127th Avenue and a church located at the southwest corner of Glendale Avenue and El Mirage Road. Receiver locations are shown in Figure B-1j, Panel 9 for the central portion of Alternative 3. The estimation of future levels at R81 and R82 is based on their relative proximity to the central portion of Alternative 3 in comparison to the proximity of

similar receivers to central portion of alternatives 1 and 2. The comparison was necessary because the central portion of Alternative 3 has not been designed to the same level as the central portion of alternatives 1 and 2 at this point in the study.

EASTERN PORTION – NOISE MEASUREMENT LOCATION – ALTERNATIVES 1, 2, AND 3

Measurement location M1, shown in Figure B-1h, Panel 7, is located at the northwest corner of 79th Avenue and Northern Avenue. The noise meter was set up approximately 58 feet north of the existing Northern Avenue westbound edge of pavement. Three measurements were taken at this location during the morning rush hour. The average ambient noise level measured was 68 dBA with free flowing traffic traveling at approximately 45 mph, which is typical of roadside measurements for a facility at that operating speed.

Model calculations of existing peak traffic hour noise levels range between 56 dBA at R40, representing 14 single family homes located between 89th Avenue and 87th Avenue set back north of Northern Avenue approximately 250 feet in a residential subdivision, and 73 dBA at several other receivers including R77, representing two single family homes on the southwest corner of Northern Avenue and 75th Avenue. In general, higher noise levels are predicted to occur at locations that experience higher traffic volumes during the peak hour and that are not protected from traffic noise by an existing privacy wall or noise barrier. Receiver locations are shown in Figures B-1g, B-1h, and B-1i, Panels 6, 7, and 8 for alternatives 1, 2, and 3; and B-1j, Panel 9 for Alternative 3.



Legend

- Alternatives 1 and 2
- Alternative 3
- Map Panel Boundary

N

0 1 2
Miles

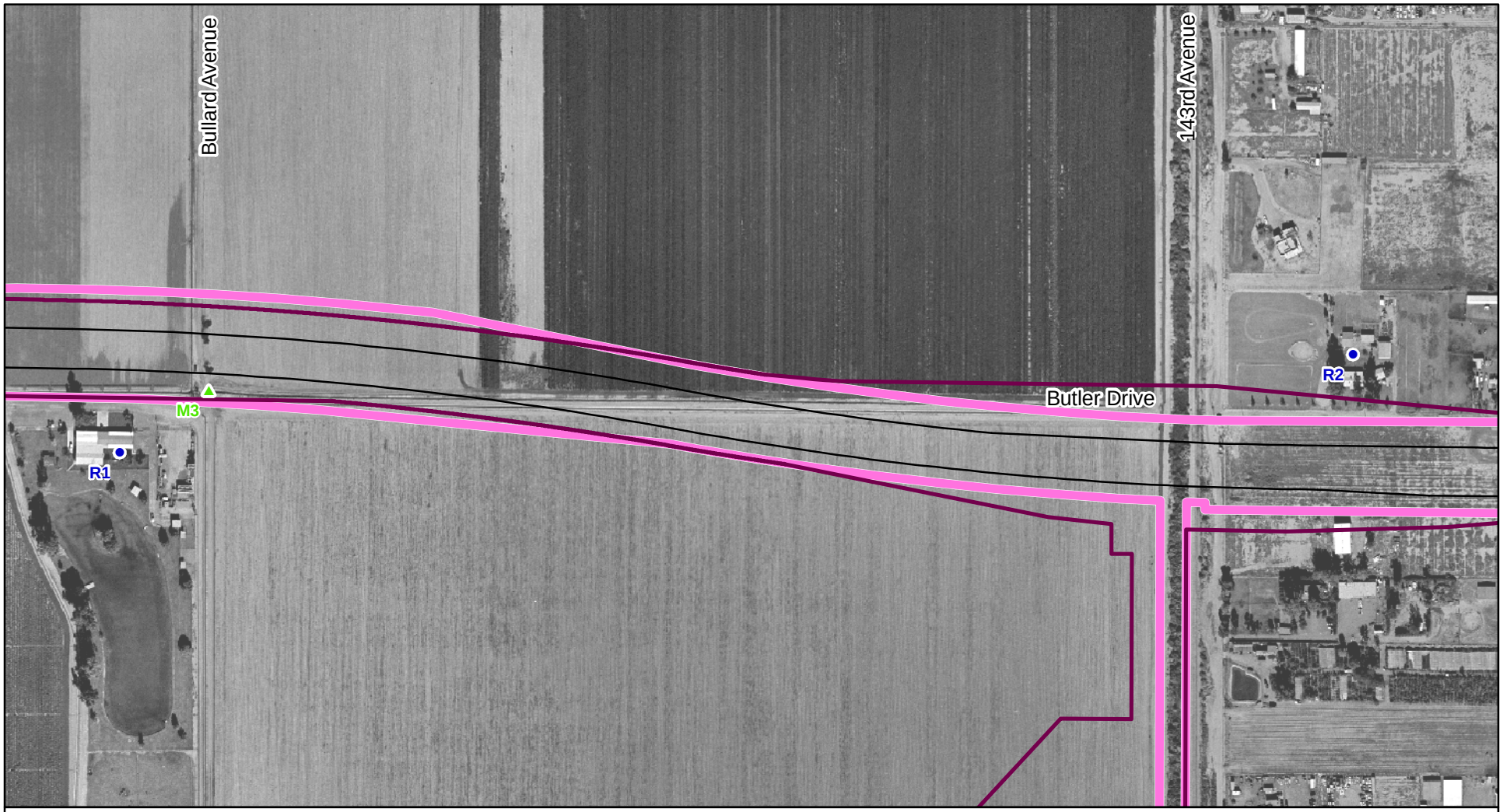
Source:
Alternatives - URS 2006-2008
Base - Maricopa County Department of Transportation 2006

Study Area: Panel Reference for Detailed Noise-Receiver Location Maps

Northern Parkway

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B - 1a

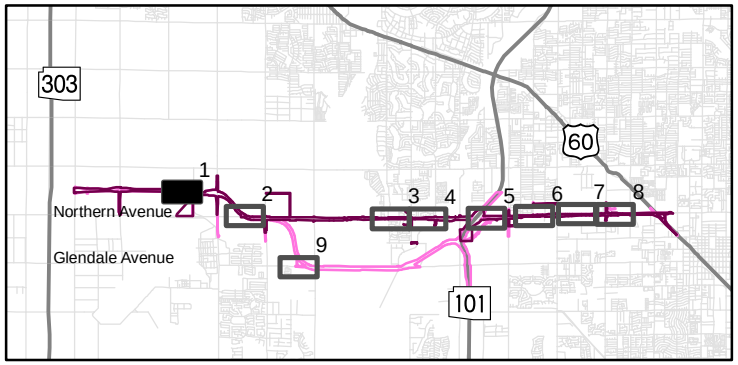


Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)



N

0 200 400
Feet

Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006

Noise Receiver Locations
Western Portion
Northern Parkway
Alternatives 1, 2, and 3

Panel 1

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1b

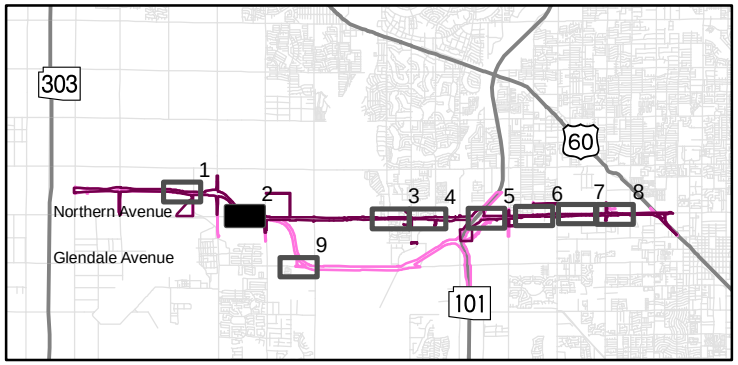
Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)

Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006



N

0 200 400
Feet

Noise Receiver Locations
Western Portion
Northern Parkway
Alternatives 1, 2, and 3

Panel 2

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1 c

Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- (B1) Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)

Source:
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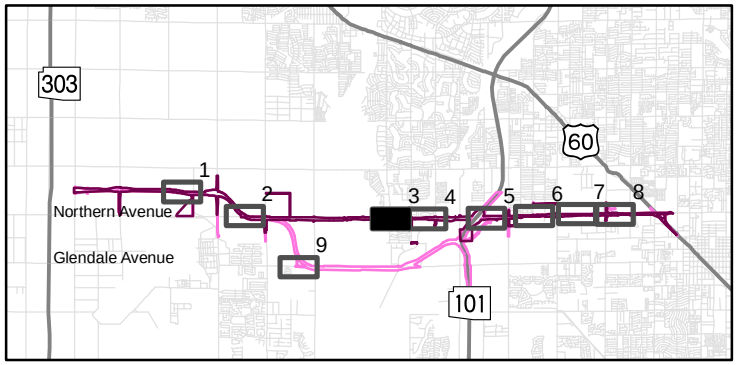
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006



N

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Feet

Noise Receiver Locations
Central Portion
Northern Parkway
Alternatives 1 and 2

Panel 3

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

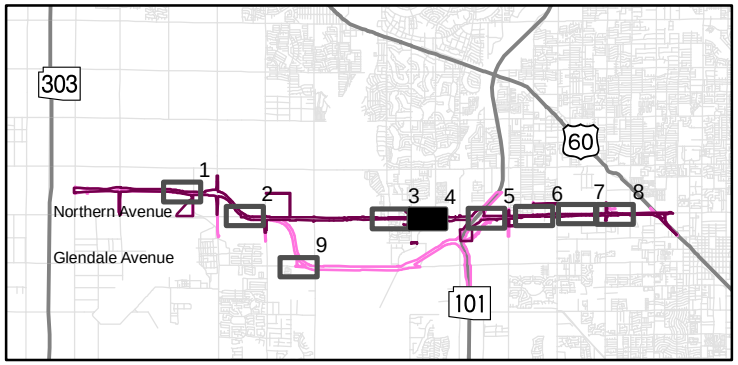
Figure B-1d

Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)



N

0 200 400
Feet

Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006

Noise Receiver Locations
Central Portion
Northern Parkway
Alternatives 1 and 2

Panel 4

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1 e

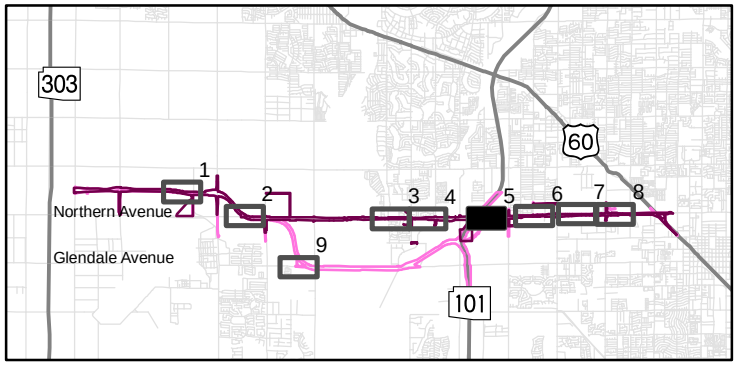
Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)

Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006



N

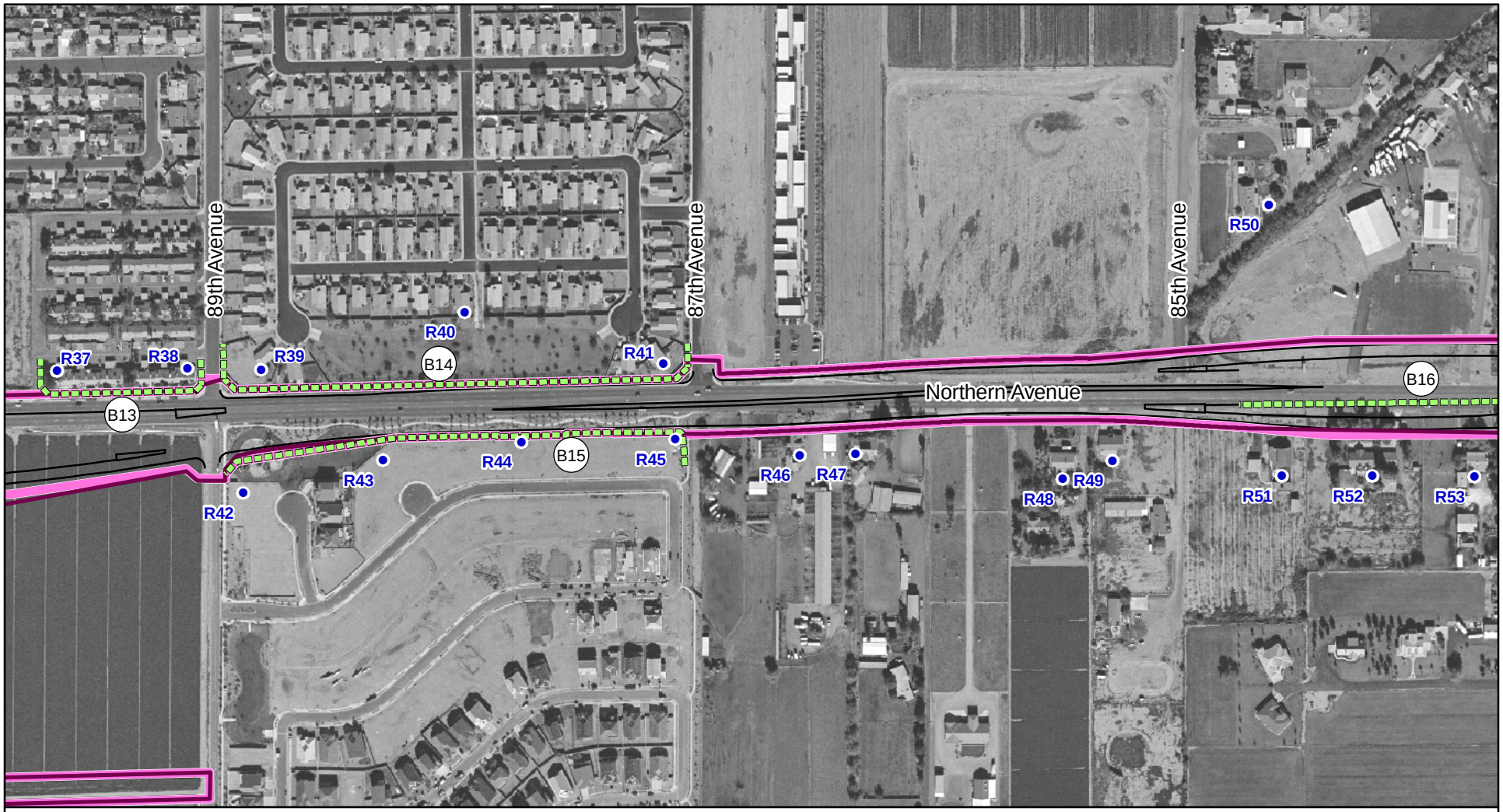
0 200 400
Feet

Noise Receiver Locations
Central Portion
Northern Parkway
Alternatives 1, 2, and 3

Panel 5

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1 f

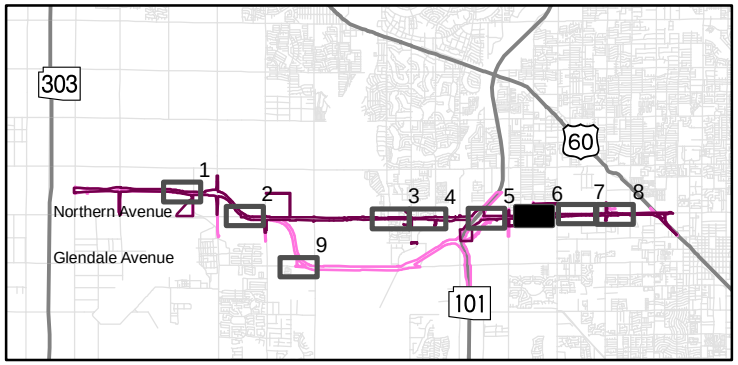


Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)



N

0 200 400
Feet

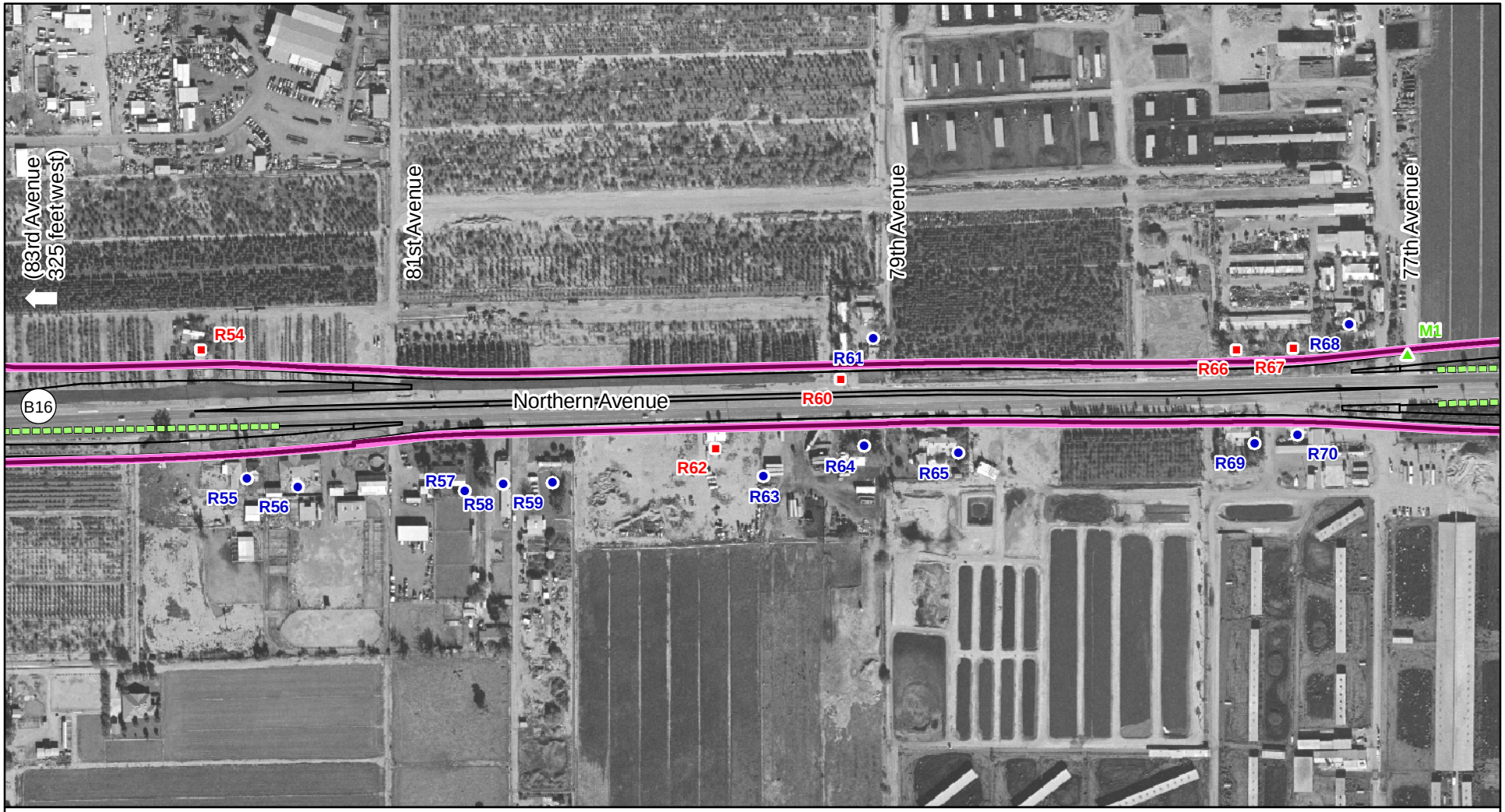
Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006

Noise Receiver Locations
Eastern Portion
Northern Parkway
Alternatives 1, 2, and 3

Panel 6

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1g



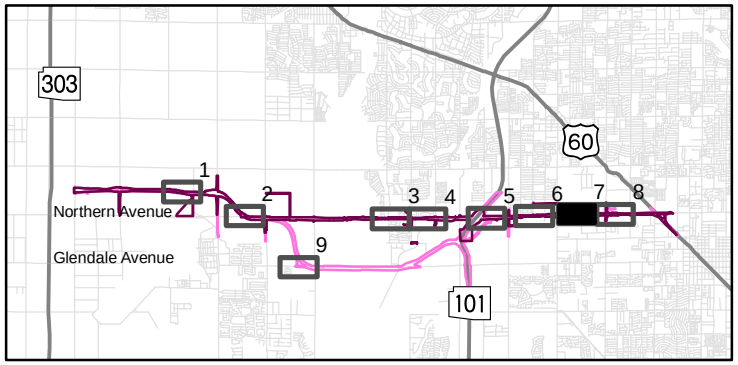
Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- (B1) Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)

Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006



N

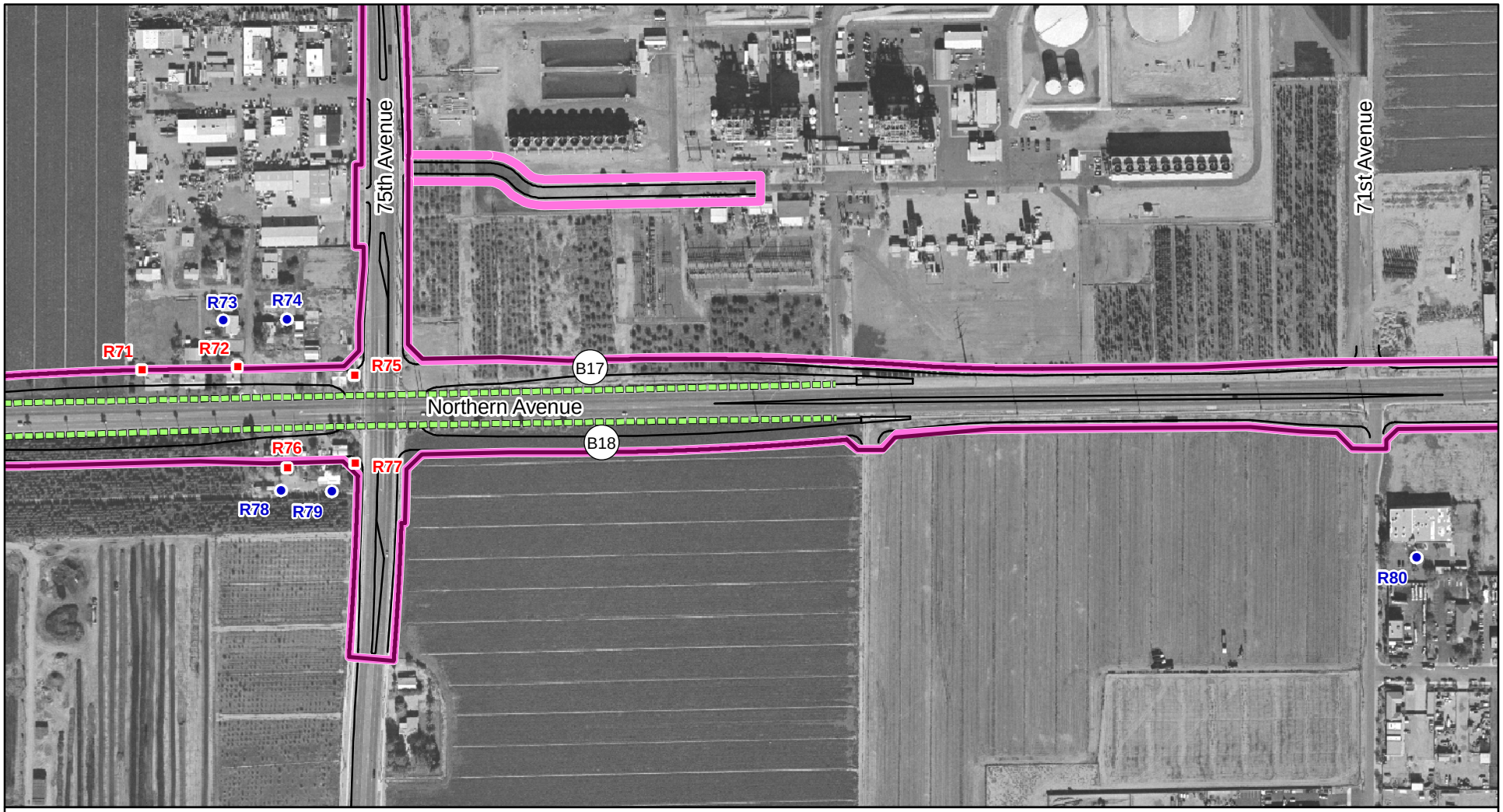
0 200 400
Feet

Noise Receiver Locations
Eastern Portion
Northern Parkway
Alternatives 1, 2, and 3

Panel 7

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1h



Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)

Source:
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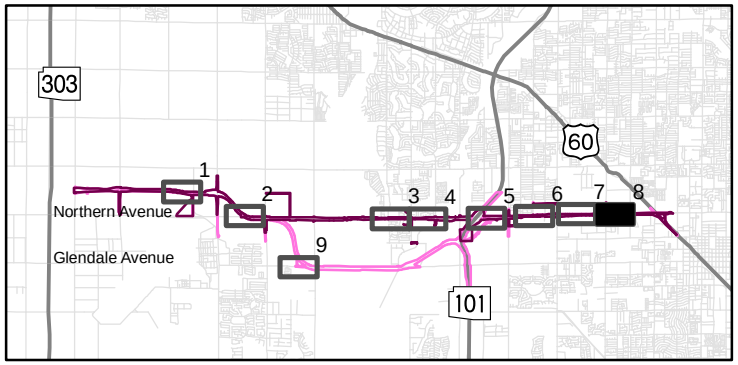
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006



N

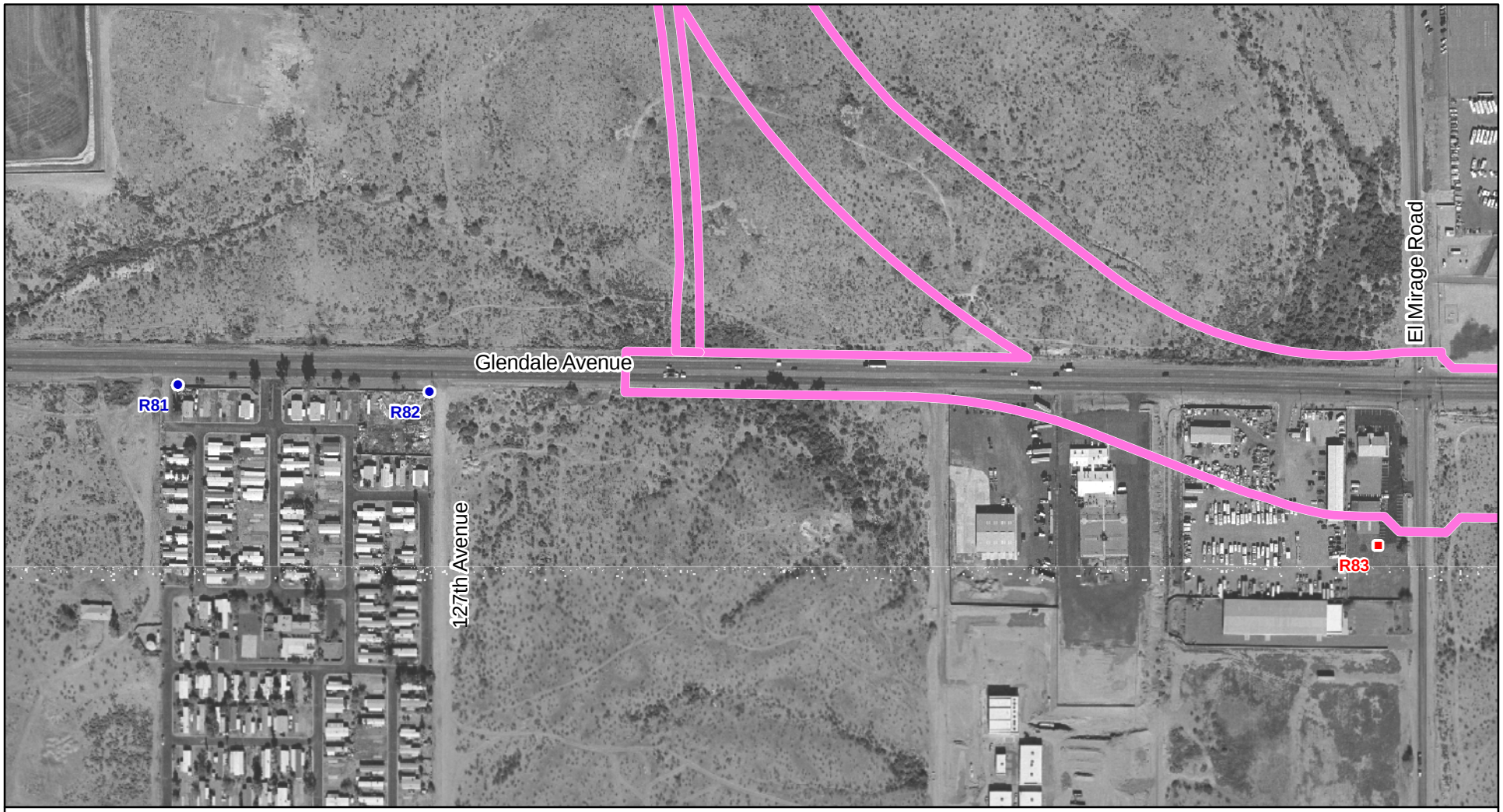
0 200 400
Feet

Noise Receiver Locations
Eastern Portion
Northern Parkway
Alternatives 1, 2, and 3

Panel 8

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1 i

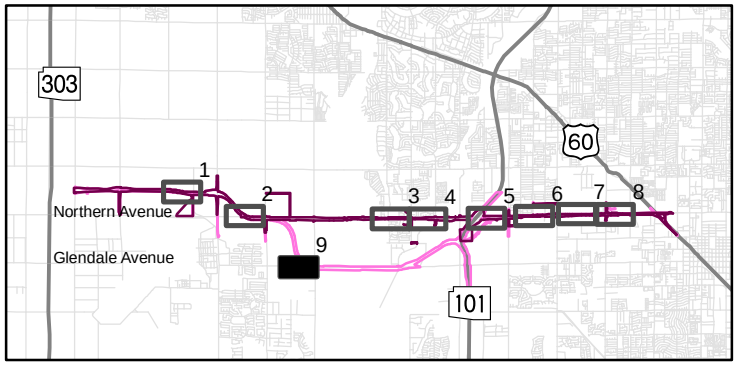


Legend

- Alternatives 1 and 2
- Alternative 3
- Curb Line or Edge of Pavement
- B1 Noise Study Area

Receiver Type

- Measurement
- Receiver
- Receiver (to be removed)



N

0 200 400
Feet

Source:
Receiver Data - NA Solutions 2006
Curb Line Data - NA Solutions 2006
Alternatives - URS 2006-2008
Noise Study Area Data - URS 2006
Imagery - Maricopa County Department of Transportation 2006

Noise Receiver Locations
Central Portion
Northern Parkway
Alternative 3

Panel 9

Federal Project No. STP-MMA-0(034)A
TRACS No. 0000 MA MMA SS593 01C

Figure B-1 j