BANGERTER
4700 SOUTH

APPENDIX



Appendix

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- Bangerter at 4700 South Over Option Map
- Bangerter at 4700 South Under Option Map

B: Traffic and Design

- Bangerter Highway & 4700 South Existing and 2050 No Build Traffic Analysis
- Bangerter Highway & 4700 South Future Build Conditions Traffic Analysis
- Bangerter Highway at 4700 South Alternatives Memo

C: Public Involvement

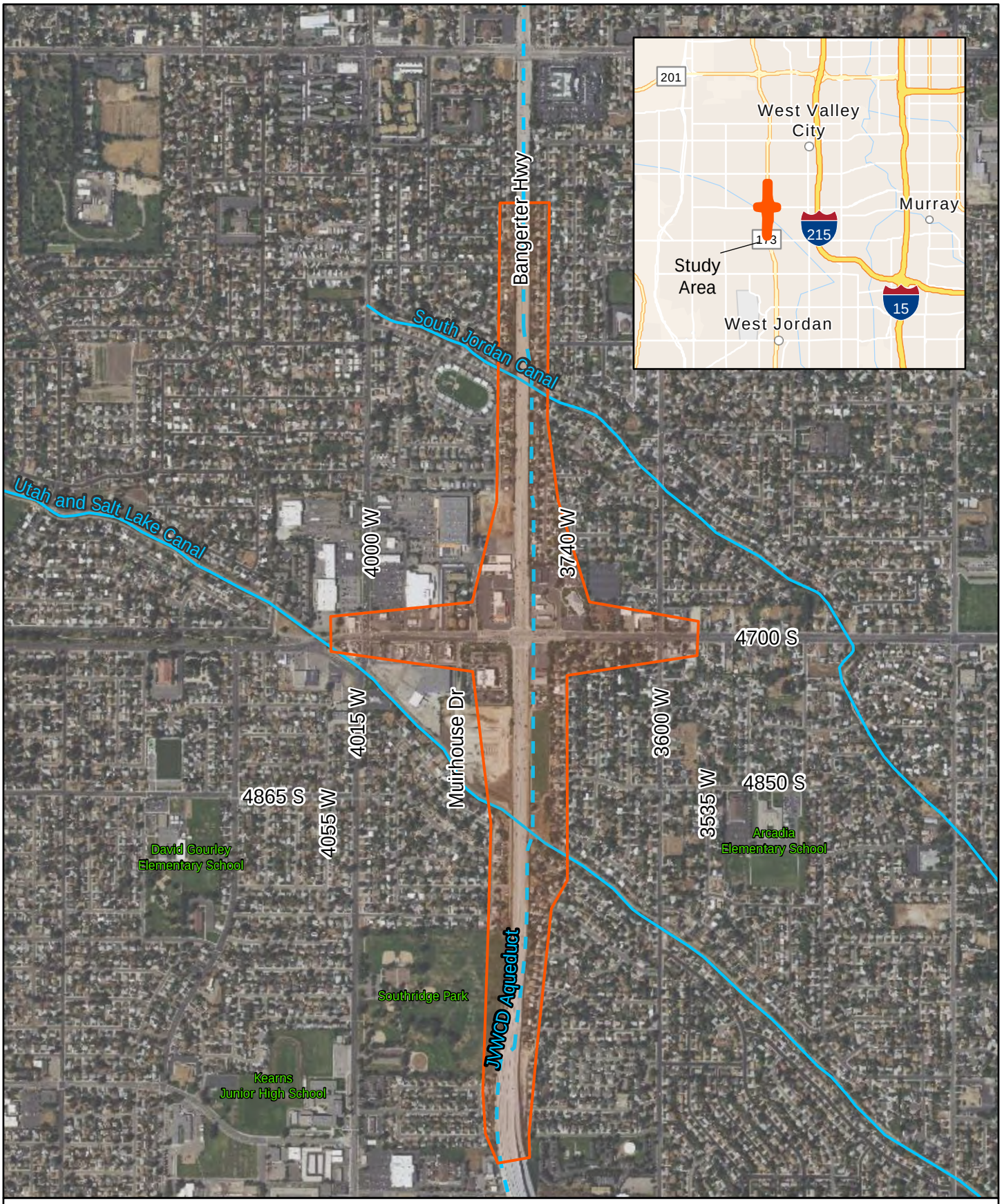
- Bangerter Highway at 4700 South Public Scoping Report
- Bangerter Highway at 4700 South Public Hearing Report

D: Environmental Resources

- Bangerter Highway at 4700 South Property Impacts
- Determination of Eligibility and Finding of Adverse Effect with Native American consultation letters and SHPO concurrence
- Memorandum of Agreement between the Utah Department of Transportation and the Utah State Historic Preservation Officer
- Utah Geological Survey Letter
- UDOT Threatened and Endangered Species and Wildlife Concurrence Memo
- Environmental Review of Water Resources and Wetlands, Noxious Weeds, and Visual Aesthetics
- Noise Report
- Hazardous Materials Memo
- Air Quality Summary

Appendix A: Project Figures

Study Area Map



Bangerter Highway at 4700 South
Interchange Improvements
Project No.: S-0154(92)0
PIN: 18808

Study Area

1"= 1,200'

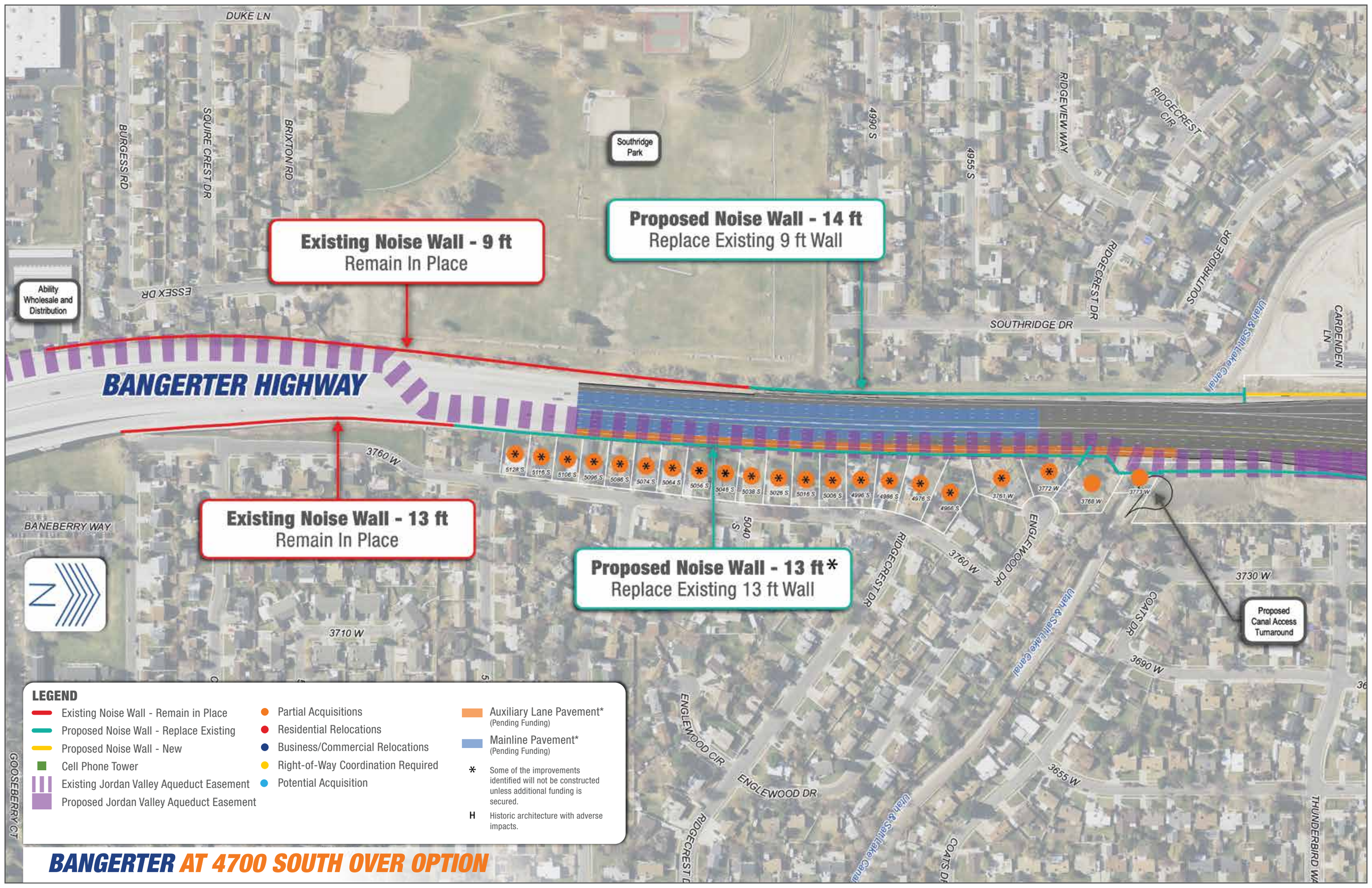
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Feet

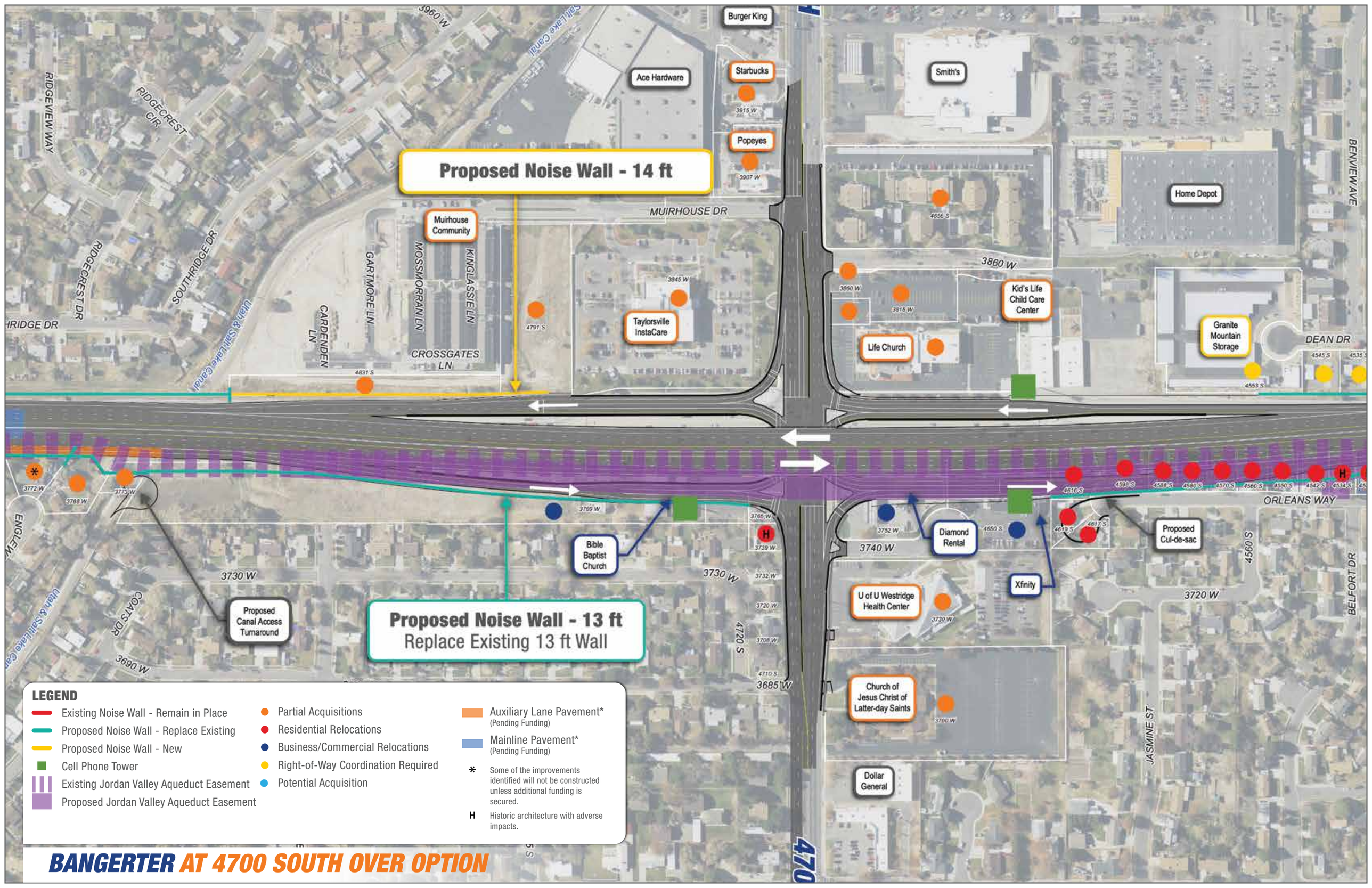
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Appendix A: Project Figures

Bangerter at 4700 South Over Option Map


DUKE LN
BURGESS RD
SQUIRE CREST DR
BRIXTON RD
Southridge Park
4990 S
4955 S
RIDGEVIEW WAY
RIDGECREST CIR
RIDGECREST DR
SOUTHRIDGE DR
Utah & Salt Lake Canal
CARDENDEN LN
Ability Wholesale and Distribution
ESSEX DR
Existing Noise Wall - 9 ft
Remain In Place
Proposed Noise Wall - 14 ft
Replace Existing 9 ft Wall
BANGERTER HIGHWAY
3760 W
5128 S
5116 S
5106 S
5096 S
5086 S
5074 S
5064 S
5056 S
5048 S
5038 S
5026 S
5016 S
5006 S
4996 S
4986 S
4976 S
4966 S
3761 W
3772 W
3768 W
3773 W
BANEBERRY WAY
Existing Noise Wall - 13 ft
Remain In Place
Proposed Noise Wall - 13 ft*
Replace Existing 13 ft Wall
5040 S
3710 W
3730 W
Proposed Canal Access Turnaround
3690 W
ENGLEWOOD DR
ENGLEWOOD CIR
3655 W
THUNDERBIRD WAY
GOOSEBERRY CT
LEGEND
Existing Noise Wall - Remain in Place
Proposed Noise Wall - Replace Existing
Proposed Noise Wall - New
Cell Phone Tower
Existing Jordan Valley Aqueduct Easement
Proposed Jordan Valley Aqueduct Easement
Partial Acquisitions
Residential Relocations
Business/Commercial Relocations
Right-of-Way Coordination Required
Potential Acquisition
Auxiliary Lane Pavement* (Pending Funding)
Mainline Pavement* (Pending Funding)
* Some of the improvements identified will not be constructed unless additional funding is secured.
H Historic architecture with adverse impacts.
BANGERTER AT 4700 SOUTH OVER OPTION



BANGERTER AT 4700 SOUTH OVER OPTION

Proposed Noise Wall - 13 ft
Replace Existing 13 ft Wall

Existing Noise Wall - 13 ft
Remain In Place

Existing Noise Wall - 15 ft
Remain In Place

Proposed Noise Wall - 15 ft
Replace Existing 15 ft Wall

Proposed Cul-de-sac

Proposed Storm Detention Basin

Proposed Canal Access Turnaround

Home Depot

Granite Mountain Storage

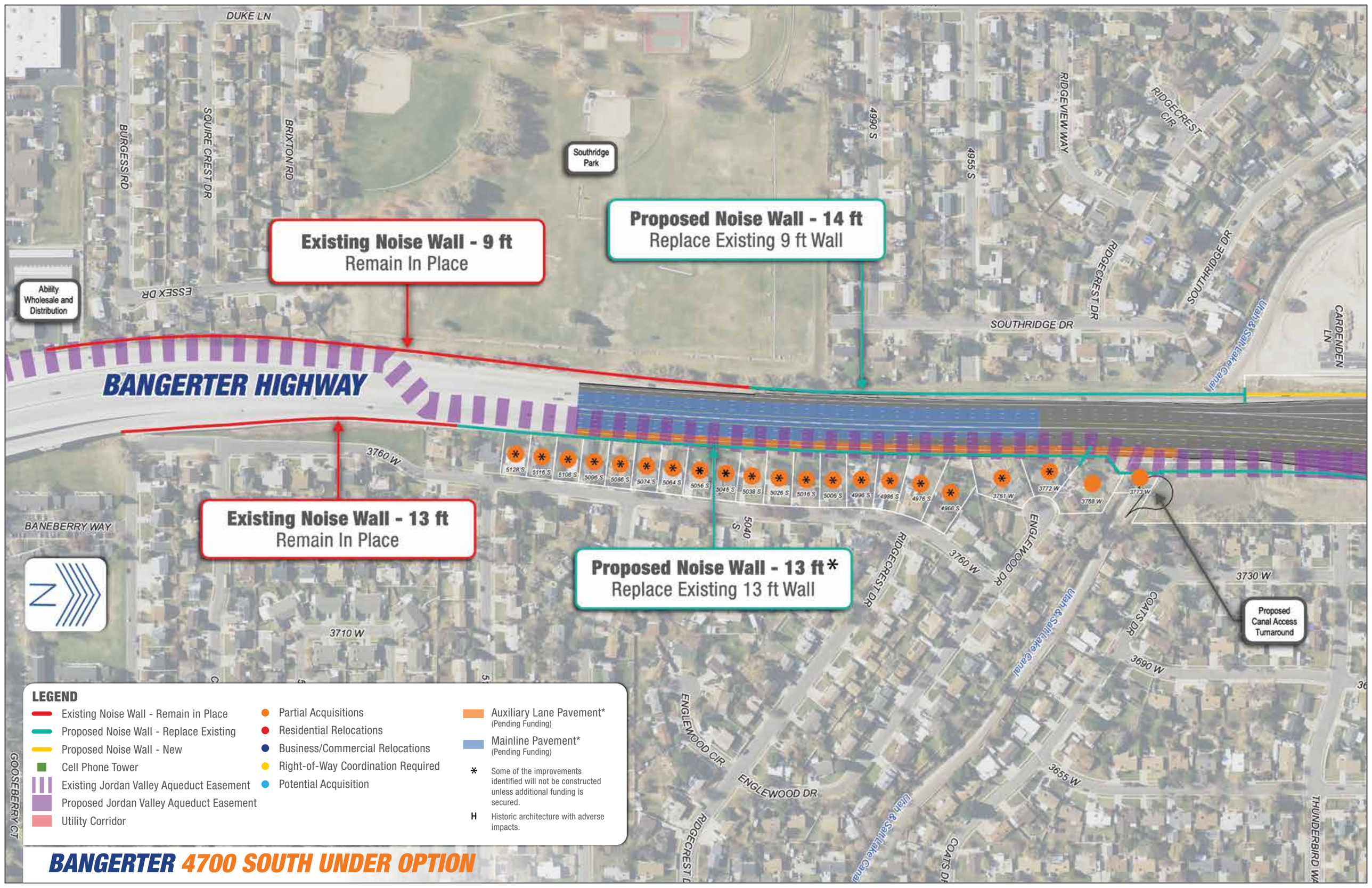
LEGEND

- Existing Noise Wall - Remain in Place
- Proposed Noise Wall - Replace Existing
- Proposed Noise Wall - New
- Cell Phone Tower
- Existing Jordan Valley Aqueduct Easement
- Proposed Jordan Valley Aqueduct Easement
- Partial Acquisitions
- Residential Relocations
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- Right-of-Way Coordination Required
- Potential Acquisition
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BANGERTER AT 4700 SOUTH OVER OPTION

Appendix A: Project Figures

Bangerter at 4700 South Under Option Map


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Partial Acquisitions
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Right-of-Way Coordination Required
Potential Acquisition
Auxiliary Lane Pavement* (Pending Funding)
Mainline Pavement* (Pending Funding)
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BANGERTER 4700 SOUTH UNDER OPTION

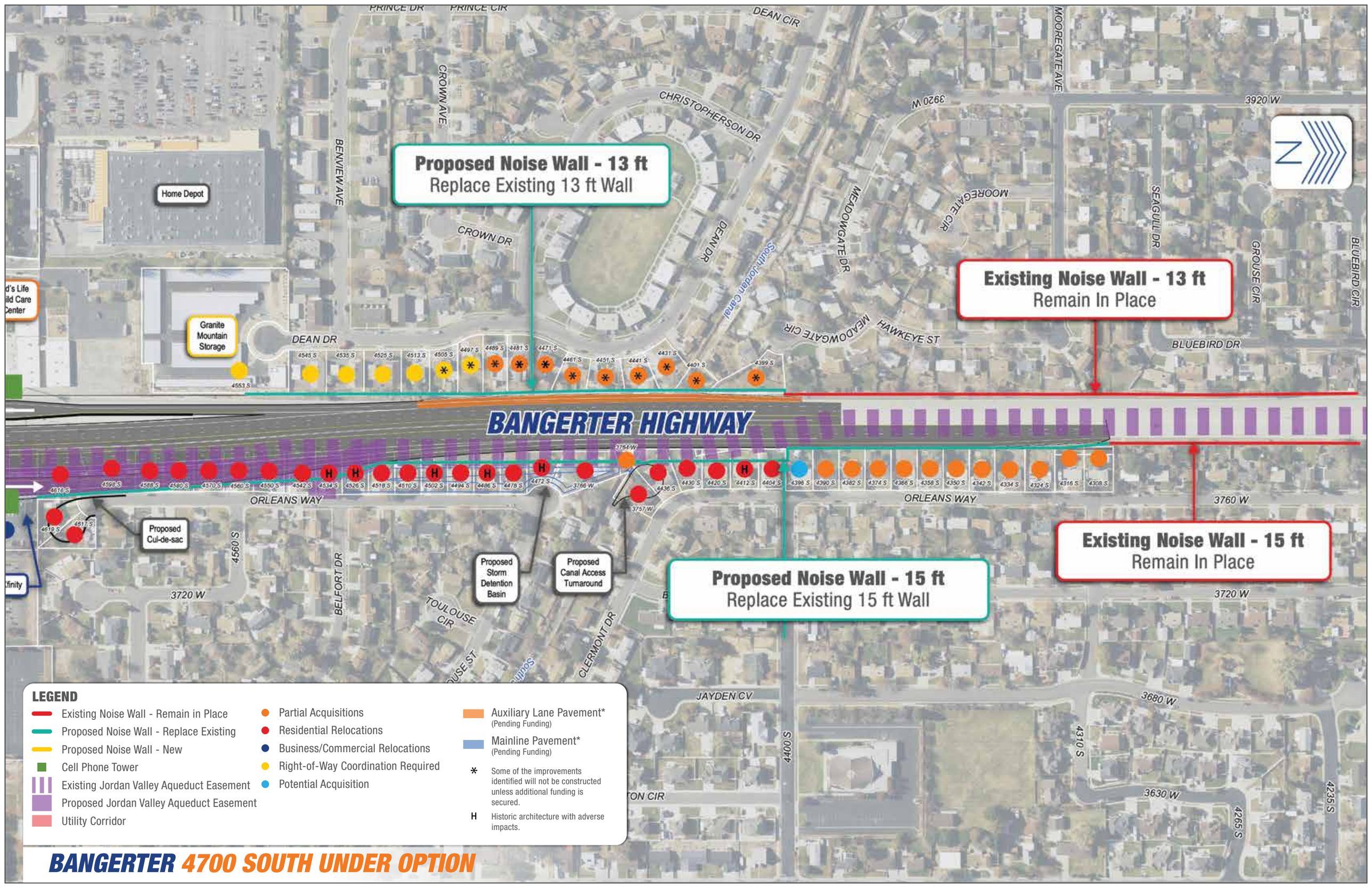
Proposed Noise Wall - 17 ft

Proposed Noise Wall - 13 ft
Replace Existing 13 ft Wall

LEGEND

- Existing Noise Wall - Remain in Place
- Proposed Noise Wall - Replace Existing
- Proposed Noise Wall - New
- Cell Phone Tower
- Existing Jordan Valley Aqueduct Easement
- Proposed Jordan Valley Aqueduct Easement
- Utility Corridor
- Partial Acquisitions
- Residential Relocations
- Business/Commercial Relocations
- Right-of-Way Coordination Required
- Potential Acquisition
- Auxiliary Lane Pavement* (Pending Funding)
- Mainline Pavement* (Pending Funding)
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BANGERTER 4700 SOUTH UNDER OPTION



BANGERTER 4700 SOUTH UNDER OPTION

Appendix B: Traffic and Design

Bangerter Highway & 4700 South Existing and
2050 No Build Traffic Analysis

MEMORANDUM

To: UDOT Region Two & Environmental

From: Avenue Consultants

Date: December 14, 2021

Subject: Bangerter Highway & 4700 South Existing and 2050 No Build Traffic Analysis

The Utah Department of Transportation (UDOT) is performing an environmental study for a potential new interchange on Bangerter Highway at the existing 4700 South at-grade intersection. This memorandum summarizes the traffic evaluation for existing and future (2050) no build conditions within the study area. For this analysis, the study area consists of the Bangerter Highway corridor from 4100 South to 5400 South and the 4700 South corridor from 4000 West to 3600 West, as illustrated in **Figure 1**.

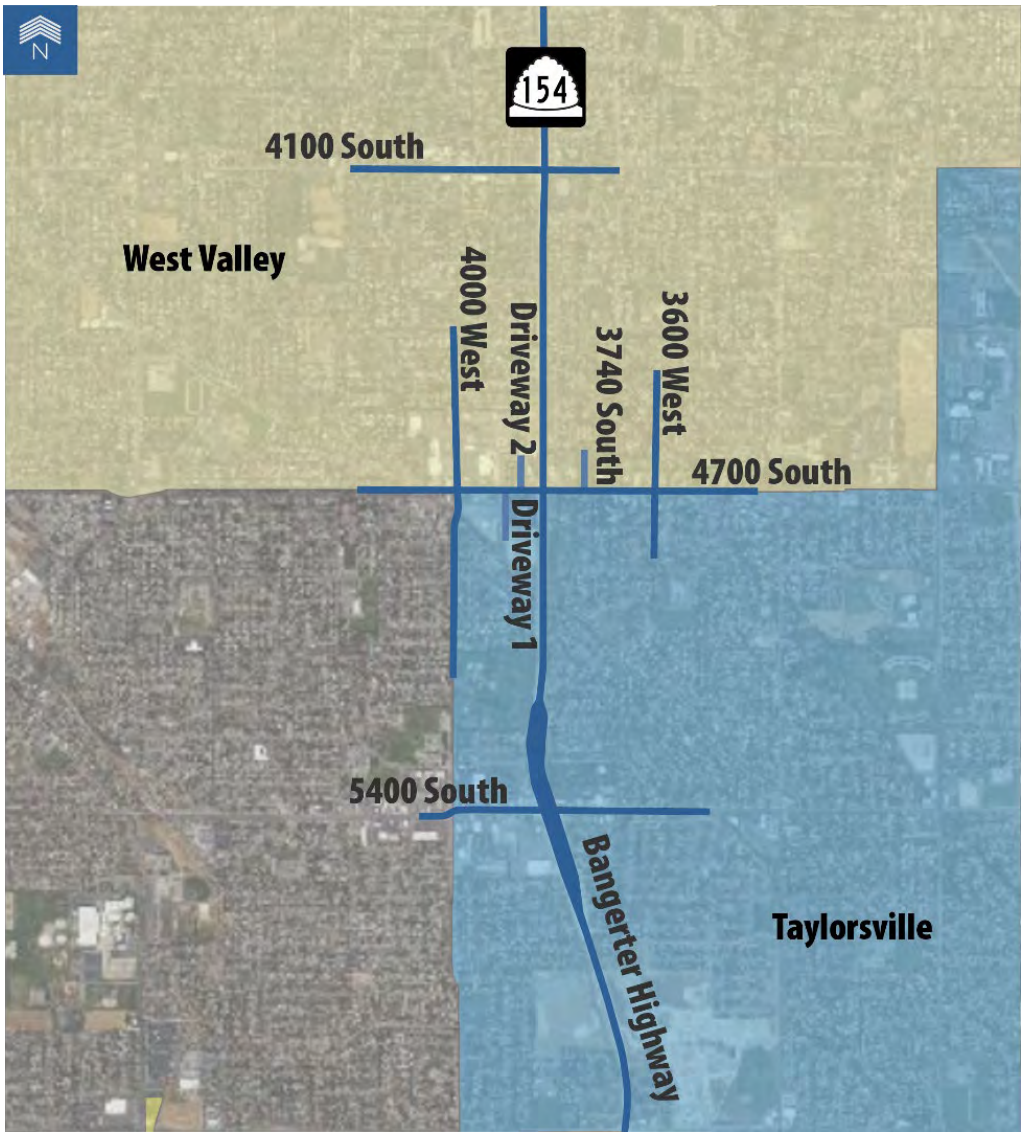


Figure 1. Bangerter Highway & 4700 South Traffic Analysis Study Area

1 ANALYSIS METHODOLOGY

The analysis described in this memorandum utilized project traffic data, Vissim traffic operations software and the Wasatch Front Regional Council (WFRC) / Mountainland Associated of Governments (MAG) travel demand model for year 2050 traffic forecasts. This section describes how each of these tools were used for this study.

1.1 Travel Demand Modeling

The WFRC/MAG travel demand model (TDM) was the primary tool used to predict future travel and traffic volumes within the study area. WFRC and MAG are the Metropolitan Planning Organizations (MPOs) for the Wasatch Front and are responsible for coordinating transportation planning in the region. WFRC is responsible for Salt Lake County and prepares the Regional Transportation Plan (RTP) every four years, which is the plan for the development of the future transportation system. The most recent plan is the 2019-2050 RTP, which includes a list of projects that are planned to meet future transportation needs over a 30+ year horizon.

The travel demand model has two primary inputs: land use data and transportation system data. The land use data consists of residential and employment data for the entire region. This data is prepared in geographic blocks called Traffic Analysis Zones (TAZs). The travel model inputs are prepared for a base year, which in this case was 2019, and for a future year, which in this case was 2050. A base year of 2019 was used because both travel model socioeconomic inputs and published traffic volume data are available for that year. In travel modeling, the base year always lags the current year by a few years because of the need to have land use input and calibration data.

To prepare the model for use, several TAZs were split in the study area and added corresponding roads to improve the resolution of the model in the area and to reflect local travel patterns more accurately. A figure showing the TAZ splits in the study area can be found in Appendix A: Traffic Analysis Zones.

Version 8.3.1 of the TDM was used for this study. To validate the model for the study area, base year model volumes were compared to published traffic volumes. Free flow speeds on some roadways in the study area were adjusted to bring the model volumes closer to the observed volumes. The most common measure for model validation purposes is the Percent Root Means Square Error (RMSE). RMSE is a measure of the accuracy of traffic assignment that measures the average error between the observed and modeled traffic volumes on roadway links with traffic counts. For model validation, traffic counts from UDOT's Traffic on Utah Highways were utilized. These counts provide Annual Average Daily Traffic (AADT) on state highways and federal aid roads. These AADTs were used to estimate Average Weekday Daily Traffic (AWDT) traffic for comparison to the travel model output using statewide traffic factors provided to UDOT. **Table 1** summarizes the RMSE for Bangerter Highway and cross streets from I-15 to I-80. Overall, 89 roadway segments were evaluated and the TAZ splits along with speed adjustments reduce the RMSE on these corridors compared to the base model.

Table 1: Bangerter Highway and Cross Streets - Percent Root Means Square Error

Vehicles per Day	# of Links	2019 WFRC Base Model	2019 Revised Model
0-9,999	16	176%	125%
10,000-19,999	7	23%	16%
20,000-29,999	16	35%	36%
30,000-49,999	28	33%	25%
50,000-59,999	8	16%	14%
60,000+	14	23%	17%
Area Wide	**89**	**32%**	**25%**

In consultation with region's cities, WFRC and MAG prepare future land use projections. These projections are used by the MPOs to develop the Regional Transportation Plan (RTP), which is the plan for the development of the future transportation system. The RTP includes a list of projects that are planned to meet future transportation needs over a 30+ year horizon.

1.2 Traffic Operations Analysis

The Vissim software was selected for this study because it allows for the evaluation of freeways, closely spaced intersections, and the interaction between the two facilities. Vissim allows for driving behaviors to be modified, can collect travel time data for user-specified segments and can measure queue lengths at study intersections, which collectively are used to calibrate the model to observed conditions.

Existing traffic signal timing data were obtained from the UDOT Traffic Operations Center and used in modeling signalized intersections in Vissim. The intersections within the study area were modeled according to existing geometry and speeds. The study area was modeled as a network; however, the analysis was completed for each intersection independently.

1.2.1 Traffic Volumes / Data Collection

Turning movement counts were collected on Wednesday, April 21, 2021 for the AM (7:00-9:00) and PM (4:00-6:00) peak periods at the study intersections, as shown in **Figure 2**. To account for reduced volumes due to the Covid-19 pandemic, two different approaches were utilized. The first was to simply compare the 2021 traffic intersection counts to pre-pandemic counts at that same location. Generally, the volume for each turning movement were compared between the available counts and the large volume was selected for use. The second approach was used at locations for which previous intersection counts were unavailable. In these cases, volume adjustment factors were developed using current and historic traffic volume data obtained from UDOT's Automated Traffic Signal Performance Measures (ATSPM) system. These data showed that the 2021 count volumes were approximately 12% lower than pre-pandemic volumes for the AM peak hour and 5% lower for the PM peak hour. Thus, the 2021 count volumes were increased by 12% and 5% for the AM and PM peak hours, respectively.

The adjusted turning movement traffic volumes were balanced throughout the study area so that the volume exiting one intersection was the same as the volume arriving at the next intersection to create the existing AM and PM peak hour volumes to be used for the traffic analysis. A figure showing the existing intersection traffic volumes can be found in Appendix B: Peak Hour Traffic Volumes.



Figure 2. Intersection Turning Movement Count Locations

The future AM and PM peak hour volumes were developed for year 2050 using principles described in the National Highway Cooperative Research Program (NCHRP) Report 255 document. The forecast peak period intersection volumes were developed from the existing peak hour traffic volumes and data from the WFRC/MAG travel demand model. The travel model was run for the base year (2019) and for the future year (2050) and the difference between these models was used to estimate the traffic growth, which was applied to the existing traffic volumes. The future volumes were then balanced to ensure the correct number of inbound and outbound vehicles on each leg of the intersection. Included in Appendix B: Peak Hour Traffic Volumes are figures presenting the resulting 2050 No Build traffic volumes used for the traffic analysis.

1.2.2 Measures of Effectiveness

The operational analysis is based upon Vissim output correlated to the *Highway Capacity Manual (HCM) 6th Edition* methodologies, which describes how transportation system performance can be measured and ranked by level of service (LOS). LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst.

The primary measure of effectiveness for this study was intersection performance. For intersections LOS is based on average vehicle delay measured in seconds per vehicle. Delay and LOS are determined for each turning movement, approach, and the overall intersection. For signalized intersections, the overall intersection LOS is most commonly reported, while for unsignalized intersections, LOS is most commonly reported based for the approach with the highest delay. **Table 2** provides details regarding LOS criteria thresholds for signalized and unsignalized intersections.

Table 2. Intersection Level of Service Criteria

Level of Service	Traffic Conditions	Average Delay (seconds/vehicle)	
		Unsignalized	Signalized
A	Free Flow Operations / Insignificant Delay	0 ≤ 10	0 ≤ 10
B	Smooth Operations / Short Delays	>10.0 and ≤ 15.0	> 10 and ≤ 20
C	Stable Operations / Acceptable Delays	>15.0 and ≤ 25.0	> 20 and ≤ 35
D	Approaching Unstable Operations / Tolerable Delays	>25.0 and ≤ 35.0	> 35 and ≤ 55
E	Unstable Operations / Significant Delays Begin	>35.0 and ≤ 50.0	> 55 and ≤ 80
F	Very Poor Operations / Excessive Delays Occur	> 50.0	> 80
Source: Highway Capacity Manual 6th Edition, *Transportation Research Board National Research Council, Washington D.C*			

Another important measure of effectiveness is 95th percentile queue length for each turning movement and is the vehicle queue distance that will only be exceeded five percent of the time during the analysis period and helps identify issues such as queuing between intersections and queues that exceed their turning movement storage.

1.2.3 Model Calibration

Vissim model calibration focused on matching observed queues, travel times, and vehicle behavior to observed conditions. The objective of the model calibration was to obtain the best match possible between model results and the field data. The traffic model calibration focused on matching traffic volumes, observed queues, and vehicle behavior to existing travel patterns within the study area. During the Vissim calibration, model outputs were compared against field data to determine if the model output reflected observed traffic conditions and driving behaviors were adjusted as necessary to replicate existing travel times, delays, and queues.

It was determined through the calibration effort that the Vissim parameters for additive and multiplicative part of safety distance needed to be increased to replicate existing queues and travel times along Bangerter Highway. Look ahead distance, priority rules and conflict areas were also used to help mimic existing driver behavior between intersections and driveways to prevent unrealistic gridlocked conditions in the model.

2 EXISTING AND 2050 NO BUILD ANALYSIS RESULTS

The analysis results presented in this section include intersection delay, intersection LOS, and 95th percentile queue lengths. For each Vissim analysis (e.g., Existing Conditions, 2050 No Build), the model was run enough times to produce statistically significant results (10 times with a GEH statistic of less than 5) and the results averaged.

2.1 Existing Conditions

The estimated existing delay and LOS for the study intersections, including the interchanges and adjacent arterial intersections are shown in **Table 3**, while **Figure 3** shows similar information. During the AM and PM peak hours, the study intersections operate at LOS D or better, except for 4700 South and Bangerter Highway, which is at LOS E during the AM peak hour; however, there are individual movements at LOS E and F.

Table 3. Existing Intersection Level of Service / Delay Results

Location	AM Peak Hour		PM Peak Hour	
	Worst Approach[2]	AM LOS / Delay[1]	Worst Approach[2]	PM LOS / Delay[1]
4100 South & Bangerter Highway	-	D / 44	-	D / 38
4700 South & Bangerter Highway	-	E / 67	-	D / 54
5400 South & Bangerter Highway	-	B / 25	-	C / 44
4700 South & 4000 West	-	C / 22	-	C / 32
4700 South & Muirhouse Drive	-	A / 7	-	B / 11
4700 South & 3860 West	SB	A / 8	SB	A / 8
4700 South & 3740 West	SB	A / 9	SB	C / 23
4700 South & 3600 West	-	B / 14	-	B / 19

1. Average delay reported in seconds/vehicle
2. Worst approach delay is reported for unsignalized intersections
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound

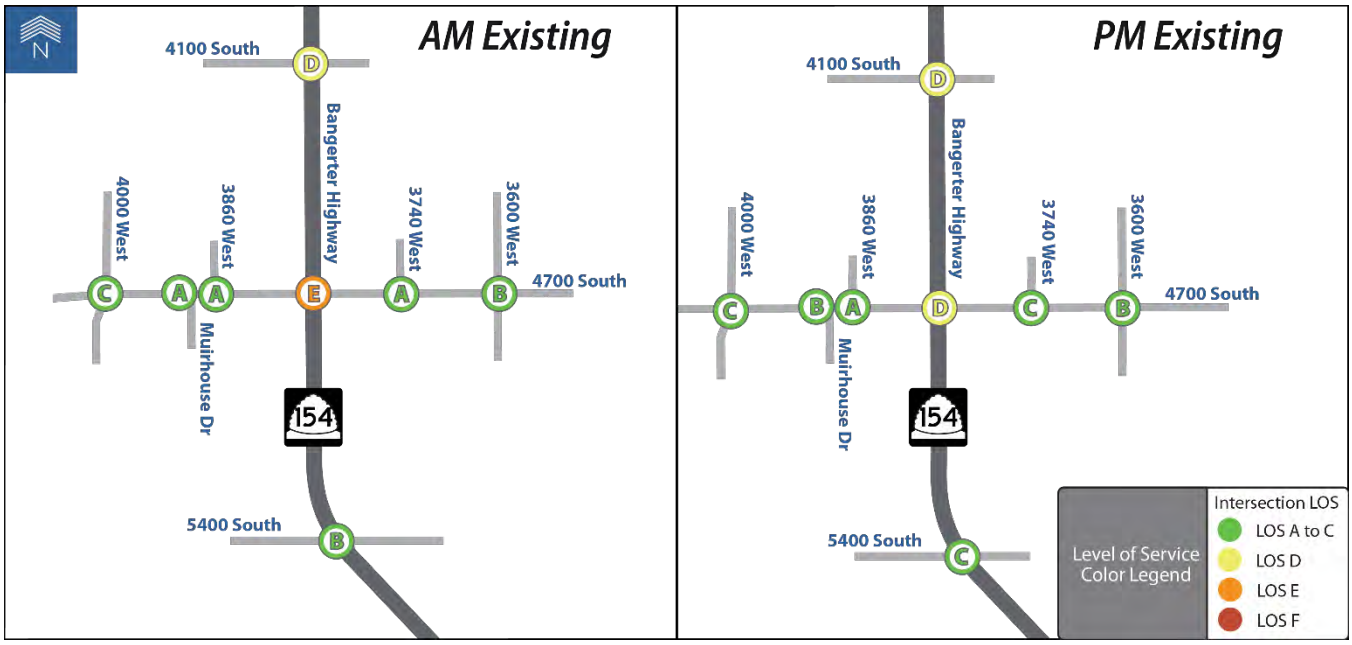


Figure 3. Existing AM and PM Peak Hour Intersection LOS

Individual intersection turning movements of LOS E or F at Bangerter Highway and 4700 South are summarized in **Table 4**. For the AM peak hour, there are nine movements at LOS E or F and during the PM peak hour there are seven. These poorly performing movements include all the left turns during both the AM and PM peak hours. Additionally, during the AM peak hours these problematic movements include the northbound and eastbound through movements, along with three of the right turns. Additional poorly performing movements for the PM

peak hour include the eastbound throughs and the eastbound and westbound rights. Details of the existing delay and LOS for each intersection turning movement is summarized in Appendix C: Existing Intersection Movement Level of Service.

Table 4. Existing 4700 South & Bangerter Hwy Movements at LOS E/F

AM Peak Hour		PM Peak Hour	
Movement	**LOS / Delay[1]**	**Movement**	**LOS / Delay[1]**
Northbound Left	F / 90	Northbound Left	E / 79
Northbound Through	E / 74	Southbound Left	F / 104
Northbound Right	E / 65	Eastbound Left	F / 140
Southbound Left	E / 67	Eastbound Through	E / 64
Eastbound Left	F / 135	Eastbound Right	F / 90
Eastbound Through	E / 62	Westbound Left	F / 144
Eastbound Right	F / 96	Westbound Right	E / 72
Westbound Left	F / 140		
Westbound Right	E / 76		

1. Average delay reported in seconds/vehicle

Estimated 95th percentile queue lengths are presented in **Table 5** for the Bangerter Highway and 4700 South intersection. During the AM peak there are northbound queues on Bangerter Highway of over 3,000 feet and in the PM peak there are southbound queues of nearly 1,500 feet.

Table 5. Existing 95th Percentile Queue Lengths

Intersection	Approach	AM Existing (feet)	PM Existing (feet)
4700 South & Bangerter Highway	Northbound	3,125	425
4700 South & Bangerter Highway	Southbound	300	1,425
4700 South & Bangerter Highway	Eastbound	500	375
4700 South & Bangerter Highway	Westbound	400	625

2.2 2050 No Build Conditions

For the 2050 No Build evaluation, the traffic analysis focused on the 4700 South intersections. The 2050 analysis assumes that all projects in the WFRC RTP will be built, except for the 4700 South and Bangerter Highway interchange, which is the subject of this study. As previously stated, the future 2050 volumes were forecast using the TDM. Planned transportation projects near the study area are shown in Appendix D: Planned Transportation Projects and include:

- Mountain View Corridor as a freeway *(RTP Project R-S-101)*
- Bangerter Highway as a freeway except for 4700 South
- 4700 South widening to a 5-lane cross-section west of 4000 West *(RTP Project R-S-29)*
- 4700 South widening to a 7-lane cross-section east of 4000 West *(RTP Project R-S-30)*

As presented in **Table 6**, by 2050 the intersection of 4700 South and Bangerter Highway is anticipated to operate at LOS F in both the AM and PM peak hours if no changes are made to the intersection. The adjacent 4700 South intersections at 4000 West and Muirhouse Drive are also expected to fail during the AM and PM

peak hours under 2050 no build conditions, while 3600 West is expected to fail during the PM peak hour. Intersection LOS for the AM and PM peak hours for the intersections on 4700 South are shown in **Figure 4**.

Table 6. 2050 No Build Intersection Delay and Level of Service Results

Location	AM Peak Hour		PM Peak Hour	
	Worst Approach[2]	LOS / Delay[1]	Worst Approach[2]	LOS / Delay[1]
4700 South & Bangerter Highway	-	F / 143	-	F / 112
4700 South & 4000 West	-	F / >180	-	F / 177
4700 South & Muirhouse Drive	-	F / 178	-	F / 123
4700 South & 3860 West	SB	A / 7	SB	E / 40
4700 South & 3740 West	SB	F / 135	SB	F / 132
4700 South & 3600 West	-	B / 17	-	F / >180

1. Average delay reported in seconds/vehicle
2. Approach with the worst delay is reported for unsignalized intersections

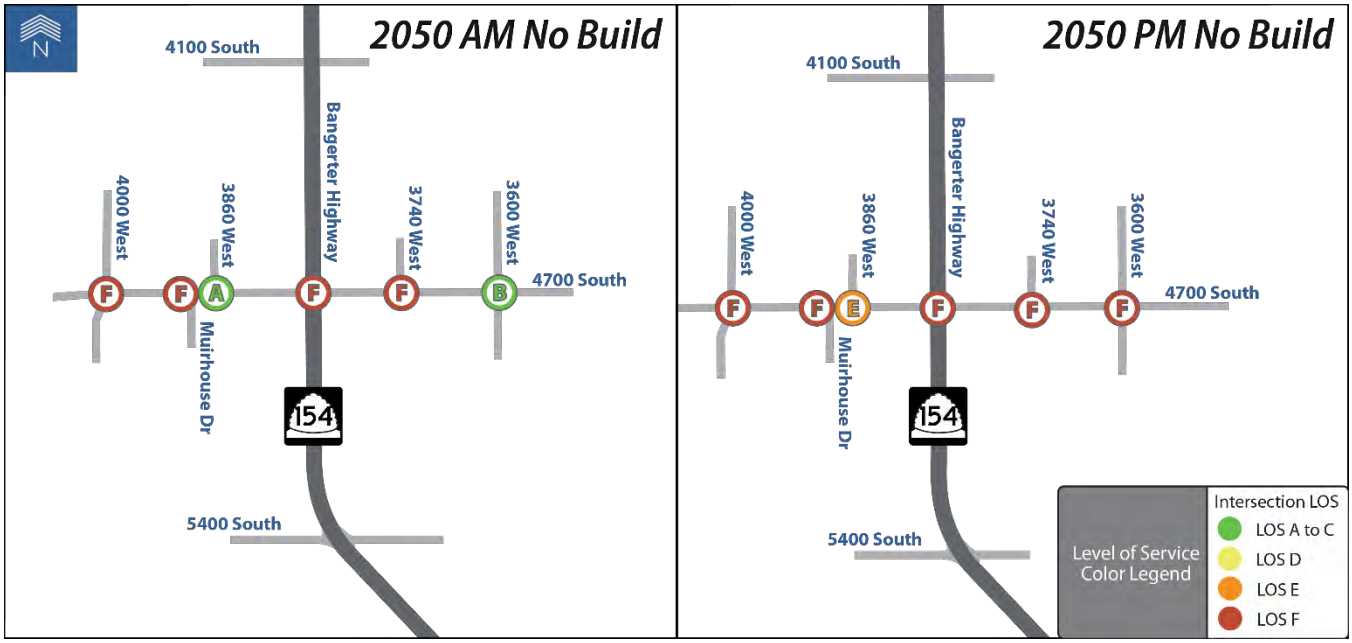


Figure 4. 2050 No Build AM and PM Peak Hour Intersection LOS

Movements for Bangerter Highway and 4700 South at LOS E or F under 2050 no build conditions are summarized in **Table 7**. For the AM and PM peak hours, ten of the twelve turning movements are expected to operate at LOS E or F. Six of those movements for both peak hours are projected to have delays of over two minutes per vehicle. The 2050 No Build movement LOS for each intersection is summarized in Appendix E: 2050 No Build Intersection Movement Level of Service.

Table 7. 2050 No Build 4700 South & Bangerter Movements LOS at E/F

AM Peak Hour		PM Peak Hour	
Movement	**LOS / Delay[1]**	**Movement**	**LOS / Delay[1]**
Northbound Left	F / >180	Northbound Left	F / 81
Northbound Through	F / >180	Southbound Left	F / 180
Northbound Right	F / >180	Southbound Through	F / >180
Southbound Left	E / 73	Southbound Right	F / 163
Eastbound Left	F / 177	Eastbound Left	F / 141
Eastbound Through	E / 76	Eastbound Through	F / 91
Eastbound Right	F / >180	Eastbound Right	F / >180
Westbound Left	F / 130	Westbound Left	F / 149
Westbound Through	E / 56	Westbound Through	E / 64
Westbound Right	F / 112	Westbound Right	F / 104

1. Average delay reported in seconds/vehicle

The 95th percentile queue lengths presented in **Table 8** are of the approaches with the longest queue lengths from the 2050 No Build analysis. The largest differences between the existing and 2050 No Build conditions occur at the 4700 South intersections at 4000 West, Bangerter Highway, and 3600 West. Each of these intersections have approaches where the queues increase by over 2,000 feet. The northbound approach queue on Bangerter increases by 2,225 feet to 5,350 feet during the AM peak and the southbound approach increases by 3,925 feet to 5,350 feet for the PM peak period, ***which results in queues extending through the upstream adjacent interchanges at 5400 South and the proposed interchange at 4100 South***. With increased traffic demand and queue lengths, traffic operations are expected to severely deteriorate within the study area.

Table 8. Existing and 2050 No Build Analysis 95th Percentile Queue Results

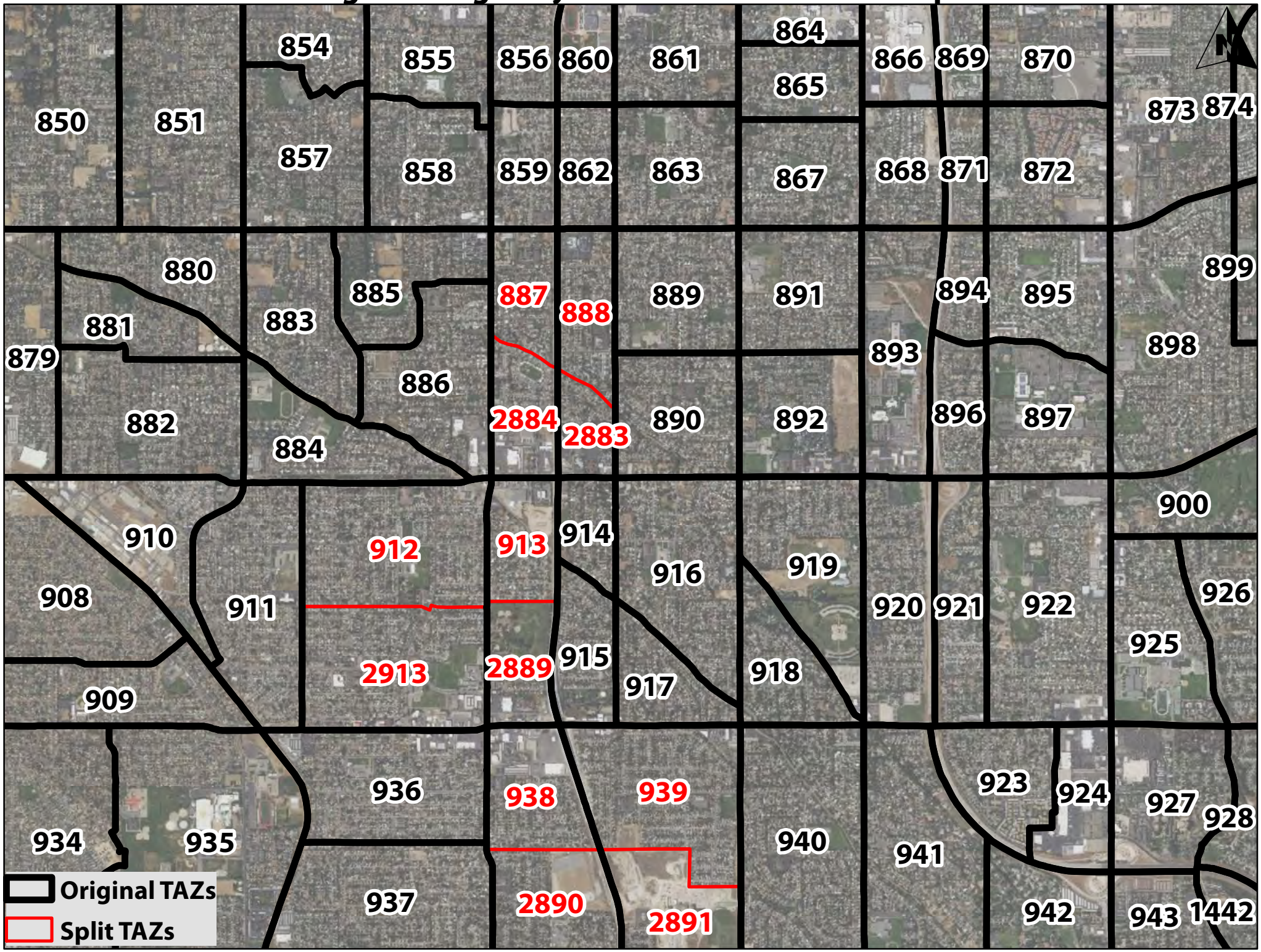
Intersection	Approach	AM Peak Hour			PM Peak Hour		
		Existing (feet)	2050 No Build (feet)	Change (feet)	Existing (feet)	2050 No Build (feet)	Change (feet)
4700 South & Bangerter Highway	Northbound	3,125	5,350	2,225	425	1,375	950
4700 South & Bangerter Highway	Southbound	300	475	125	1,425	5,350	3,925
4700 South & Bangerter Highway	Eastbound	500	525	25	375	500	125
4700 South & Bangerter Highway	Westbound	400	1,200	800	625	1,225	600
4700 South & 4000 West	Eastbound	325	2,725	2,400	325	2,725	2,400
4700 South & 3600 West	Westbound	200	275	75	475	3,875	3,400

3 CONCLUSION

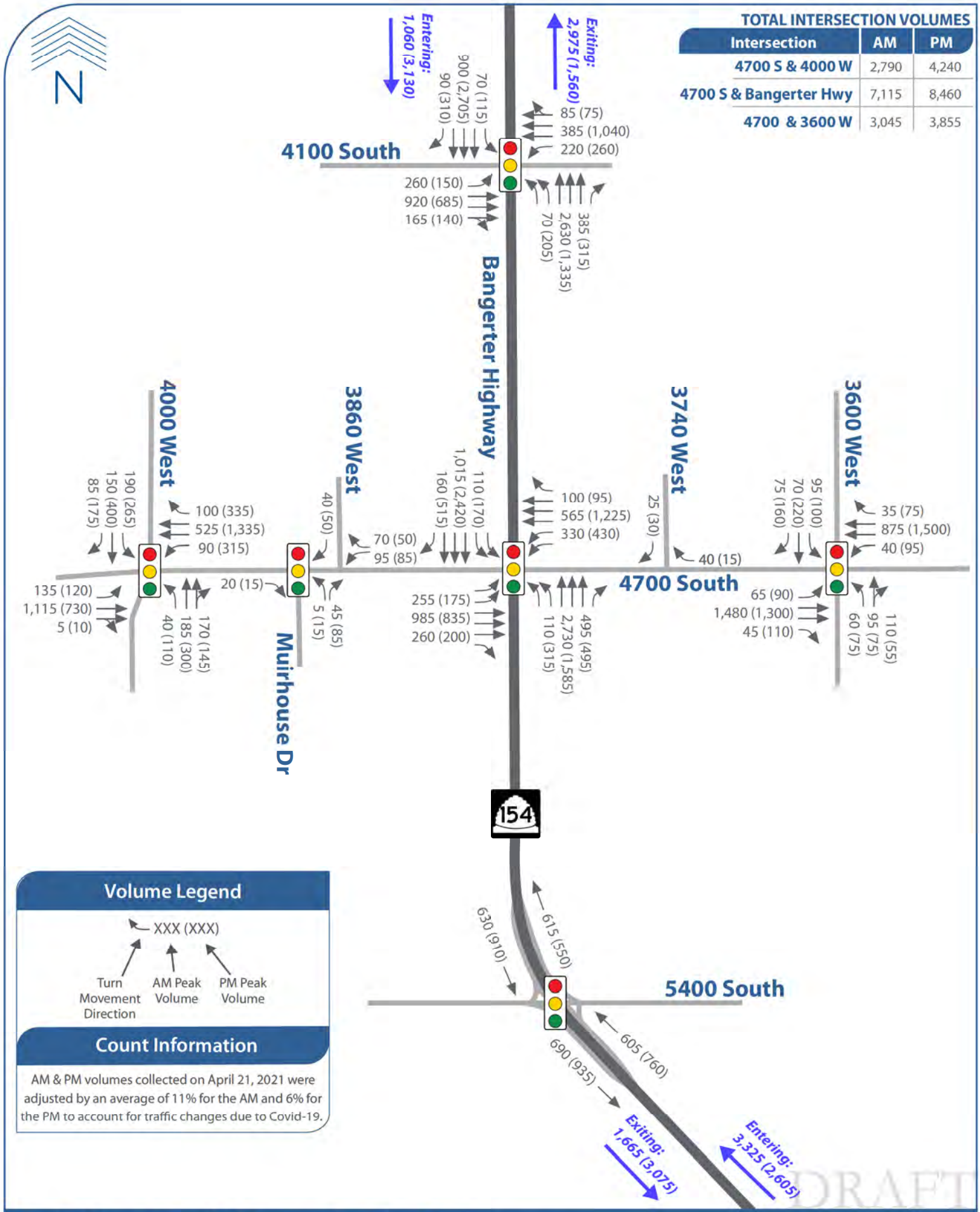
The analysis shows that there are existing movements at 4700 South and Bangerter Highway that operate at LOS E and F. With no intersection modifications, delays at that intersection are anticipated to generally triple by 2050 even with assumed additional lanes on 4700 South, such that 10 of the 12 turning movements are expected to operate at LOS E or F under 2050 No Build conditions. Extensive queuing from the Bangerter intersection would extend through adjacent intersections on 4700 South causing them to fail as well.

APPENDIX A: TRAFFIC ANALYSIS ZONES

Bangerter Highway & 4700 South Area TAZ Splits

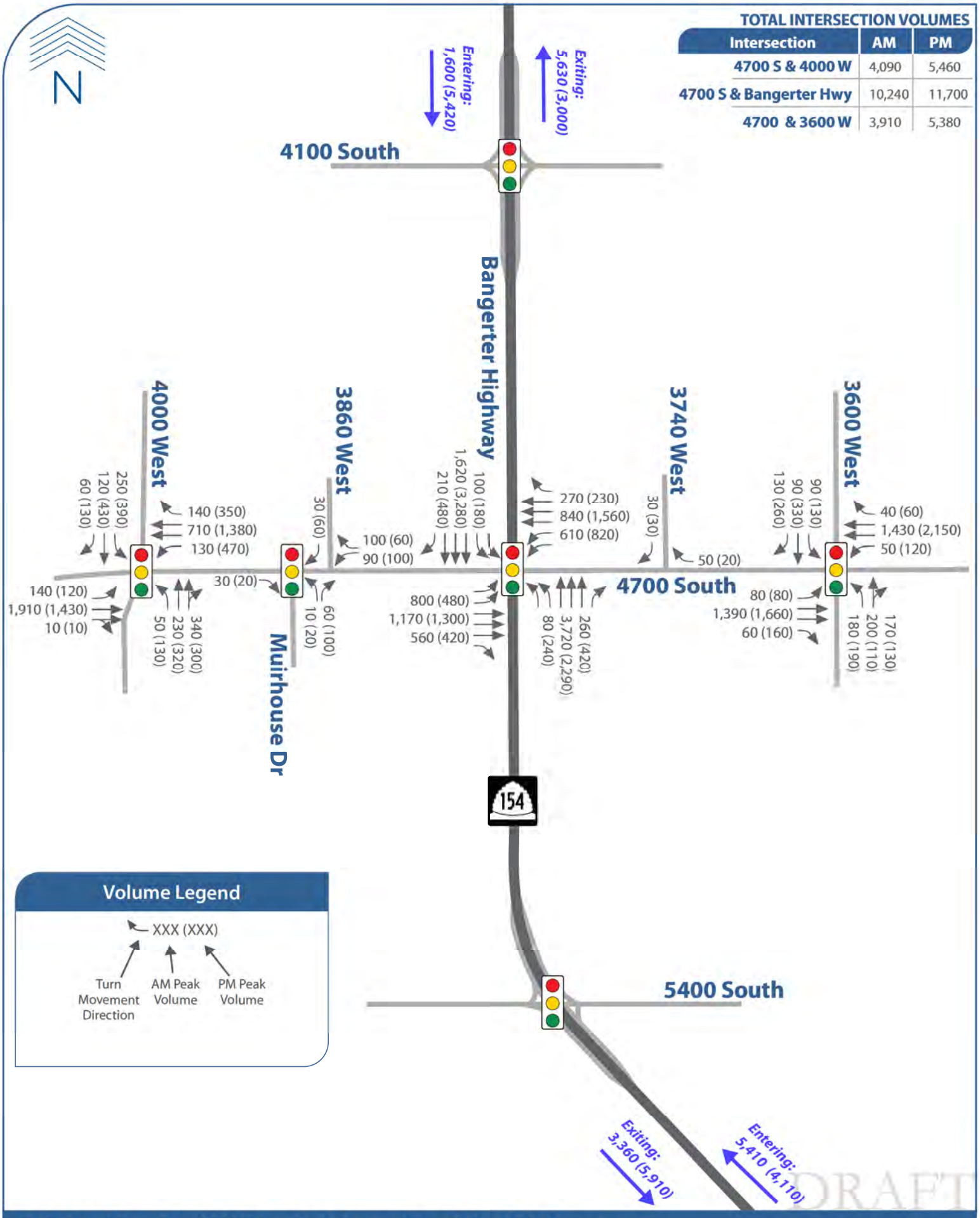


APPENDIX B: PEAK HOUR TRAFFIC VOLUMES



Existing Peak Hour Traffic Volumes

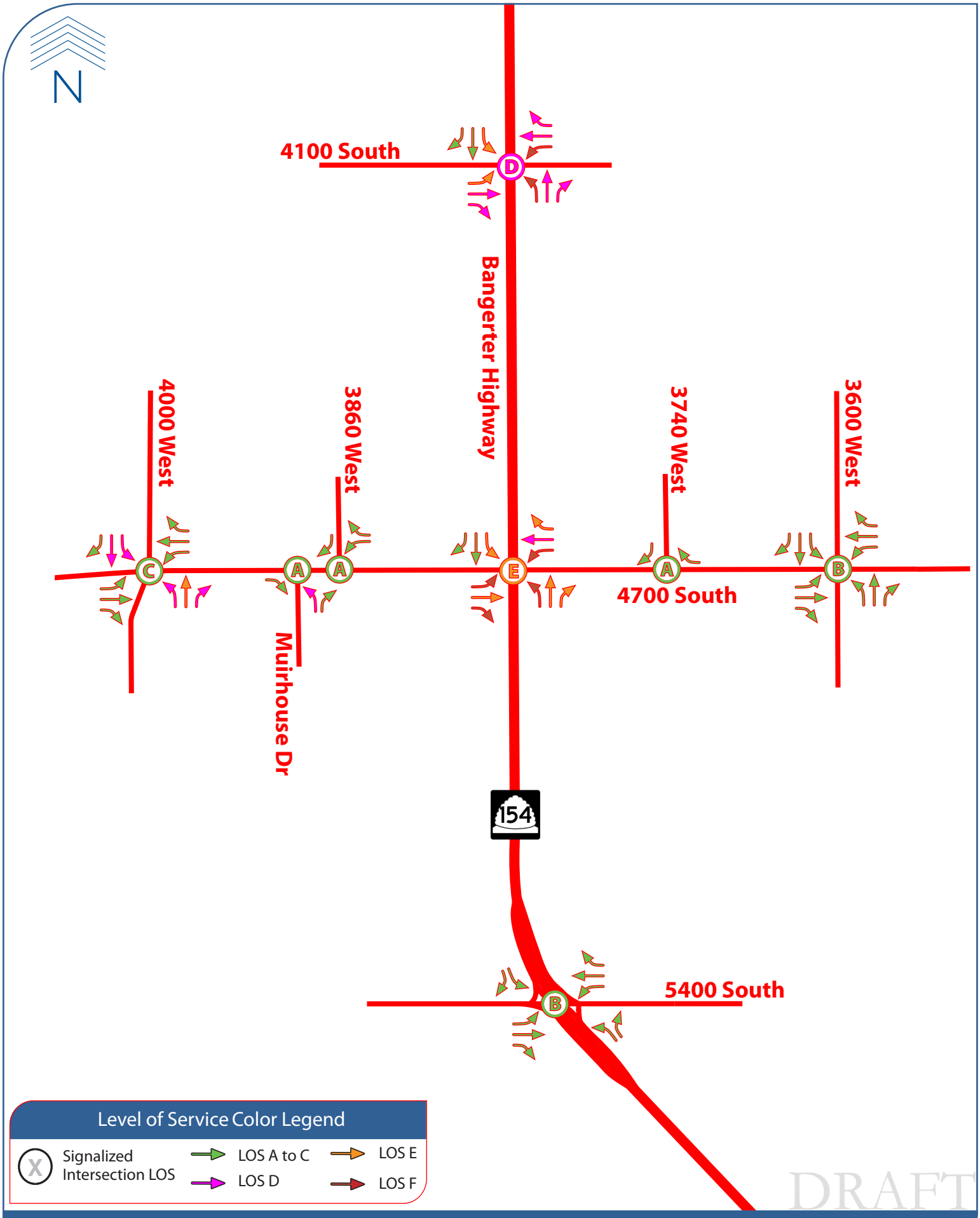
4700 South & Bangerter Highway Environmental Study



2050 No Build Peak Hour Traffic Volumes

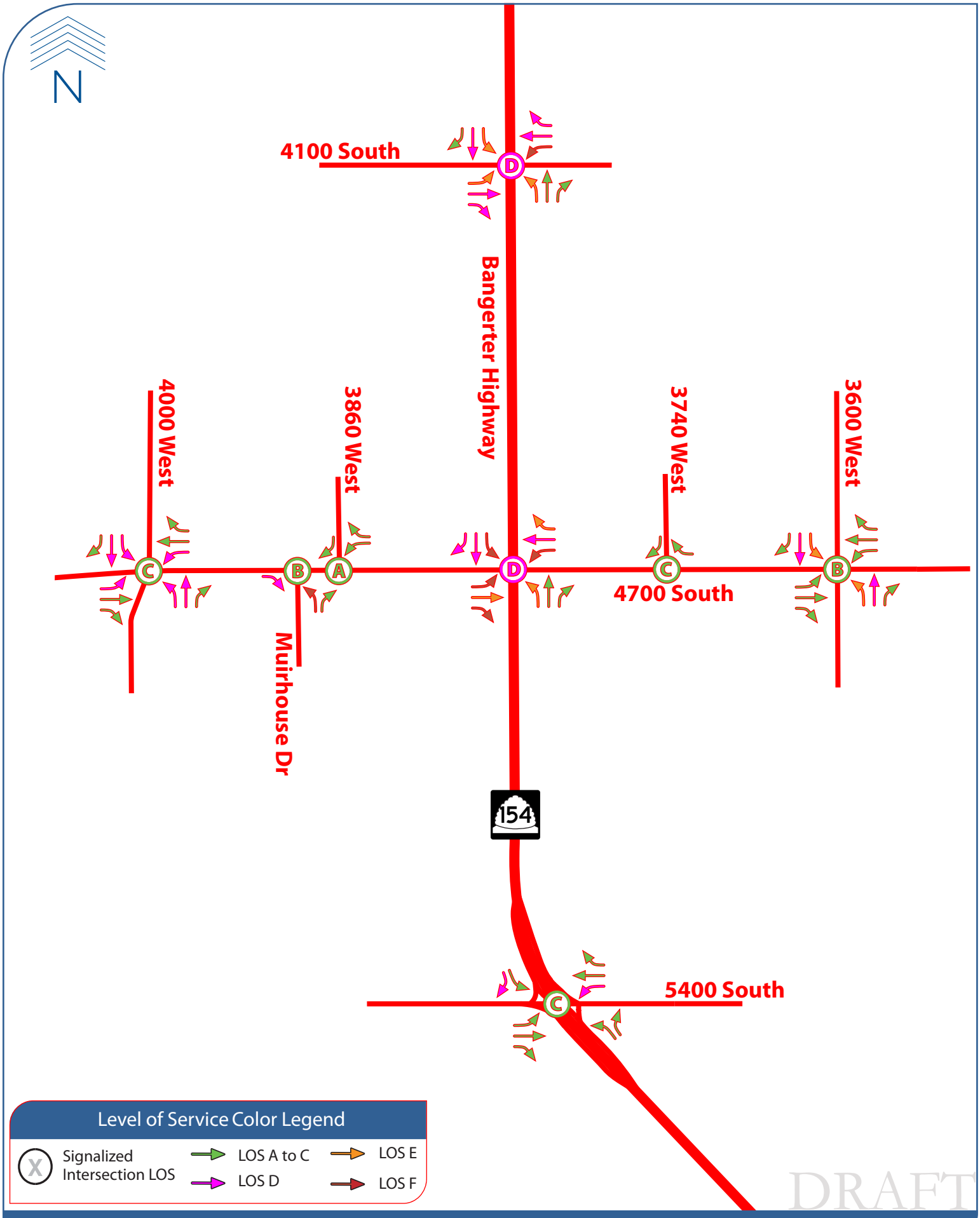
4700 South & Bangerter Highway Environmental Study

APPENDIX C: EXISTING LEVEL OF SERVICE RESULTS



Existing AM Peak Hour Level of Service

4700 South & Bangerter Highway Environmental Study



Existing PM Peak Hour Level of Service

4700 South & Bangerter Highway Environmental Study

Bangerter 12: 4700 South

AM Exisitng

LOS Category: Signalized

1: 4100 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	75	107%	25	75	99	F
NBT	2,630	2,624	100%	475	1,425	44	D
NBR	385	376	98%	50	250	54	D
NB	**3,085**	**3,075**	**100%**			**47**	D
SBL	70	68	97%	25	100	65	E
SBT	900	911	101%	50	225	23	C
SBR	90	88	98%	0	50	13	B
SB	**1,060**	**1,067**	**101%**			**25**	C
EBL	260	254	98%	100	325	76	E
EBT	920	916	100%	100	350	41	D
EBR	165	166	101%	100	350	52	D
EB	**1,345**	**1,336**	**99%**			**49**	D
WBL	220	225	102%	0	50	87	F
WBT	385	385	100%	50	175	38	D
WBR	85	89	105%	50	175	39	D
WB	**690**	**699**	**101%**			**54**	D
Total	**6,180**	**6,177**	**100%**			**44**	D

Node Letter: A VISSIM ID: 41

LOS Category: Signalized

2: 4700 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	110	107	97%	25	75	90	F
NBT	2,730	2,738	100%	550	3,125	74	E
NBR	495	477	96%	150	1,575	65	E
NB	**3,335**	**3,322**	**100%**			**73**	E
SBL	110	109	99%	25	75	67	E
SBT	1,015	1,031	102%	25	300	23	C
SBR	160	164	103%	0	75	6	A
SB	**1,285**	**1,304**	**101%**			**25**	C
EBL	255	255	100%	75	300	135	F
EBT	985	999	101%	100	500	62	E
EBR	260	257	99%	125	475	96	F
EB	**1,500**	**1,511**	**101%**			**80**	E
WBL	330	335	102%	125	400	140	F
WBT	565	579	102%	25	250	50	D
WBR	100	102	102%	25	150	76	E
WB	**995**	**1,016**	**102%**			**82**	F
Total	**7,115**	**7,153**	**101%**			**67**	E

Node Letter: B VISSIM ID: 47

PM Existing

LOS Category: Signalized

1: 4100 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	205	204	100%	50	125	76	E
NBT	1,335	1,356	102%	25	275	12	B
NBR	315	313	99%	0	150	15	B
NB	**1,855**	**1,873**	**101%**			**20**	B
SBL	115	116	101%	50	200	75	E
SBT	2,705	2,717	100%	350	1,325	40	D
SBR	310	301	97%	0	125	31	C
SB	**3,130**	**3,134**	**100%**			**40**	D
EBL	150	147	98%	50	225	68	E
EBT	685	680	99%	75	275	39	D
EBR	140	140	100%	75	275	45	D
EB	**975**	**967**	**99%**			**45**	D
WBL	260	258	99%	0	150	93	F
WBT	1,040	1,028	99%	100	350	42	D
WBR	75	75	100%	100	350	45	D
WB	**1,375**	**1,361**	**99%**			**52**	D
Total	**7,335**	**7,335**	**100%**			**38**	D

Node Letter: A VISSIM ID: 41

LOS Category: Signalized

2: 4700 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	315	315	100%	50	175	79	E
NBT	1,585	1,607	101%	50	425	25	C
NBR	495	496	100%	25	250	13	B
NB	**2,395**	**2,418**	**101%**			**30**	C
SBL	170	168	99%	25	125	104	F
SBT	2,420	2,414	100%	250	1,425	55	D
SBR	515	522	101%	100	1,200	49	D
SB	**3,105**	**3,104**	**100%**			**57**	E
EBL	175	170	97%	50	175	140	F
EBT	835	840	101%	50	375	64	E
EBR	200	196	98%	75	275	90	F
EB	**1,210**	**1,206**	**100%**			**79**	E
WBL	430	432	100%	150	550	144	F
WBT	1,225	1,256	103%	50	625	38	D
WBR	95	95	100%	25	125	72	E
WB	**1,750**	**1,783**	**102%**			**66**	E
Total	**8,460**	**8,511**	**101%**			**54**	D

Node Letter: B VISSIM ID: 47

Bangerter 12: 4700 South

AM Exisitng

LOS Category: Signalized

3: 5400 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	125	119	95%	25	75	36	D
NBR	480	485	101%	25	100	15	B
NB	**605**	**604**	**100%**			**19**	**B**
SBL	290	289	100%	25	175	37	D
SBR	340	343	101%	50	300	23	C
SB	**630**	**632**	**100%**			**30**	**C**
EBL	510	506	99%	75	225	39	D
EBT	1,880	1,901	101%	125	650	25	C
EBR	445	440	99%	0	0	5	A
EB	**2,835**	**2,847**	**100%**			**25**	**C**
WBL	245	246	100%	25	150	41	D
WBT	635	654	103%	25	200	21	C
WBR	105	106	101%	0	175	15	B
WB	**985**	**1,006**	**102%**			**25**	**C**
Total	**5,055**	**5,089**	**101%**			**25**	**C**

Node Letter: C VISSIM ID: 54

LOS Category: Signalized

4: 4700 S & 4000 W

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	40	40	100%	0	75	48	D
NBT	185	186	101%	75	300	68	E
NBR	170	168	99%	75	300	40	D
NB	**395**	**394**	**100%**			**54**	**D**
SBL	190	189	99%	50	250	46	D
SBT	150	154	103%	25	175	39	D
SBR	85	80	94%	25	175	7	A
SB	**425**	**423**	**100%**			**36**	**D**
EBL	135	137	101%	0	100	17	B
EBT	1,115	1,125	101%	50	325	14	B
EBR	5	5	100%	50	325	10	A
EB	**1,255**	**1,267**	**101%**			**14**	**B**
WBL	95	96	101%	25	125	25	C
WBT	545	564	103%	25	225	11	B
WBR	105	102	97%	0	75	5	A
WB	**745**	**762**	**102%**			**12**	**B**
Total	**2,820**	**2,846**	**101%**			**22**	**C**

Node Letter: D VISSIM ID: 40

PM Existing

LOS Category: Signalized

3: 5400 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	385	385	100%	50	175	38	D
NBR	350	344	98%	0	50	7	A
NB	**735**	**729**	**99%**			**23**	**C**
SBL	195	200	103%	25	125	47	D
SBR	715	712	100%	400	1,150	75	E
SB	**910**	**912**	**100%**			**69**	**E**
EBL	285	284	100%	50	150	42	D
EBT	1,020	1,014	99%	75	275	30	C
EBR	305	303	99%	0	0	1	A
EB	**1,610**	**1,601**	**99%**			**27**	**C**
WBL	585	592	101%	150	1,075	58	E
WBT	2,095	2,113	101%	425	1,350	49	D
WBR	265	269	102%	175	1,250	47	D
WB	**2,945**	**2,974**	**101%**			**51**	**D**
Total	**6,200**	**6,216**	**100%**			**44**	**D**

Node Letter: C VISSIM ID: 54

LOS Category: Signalized

4: 4700 S & 4000 W

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	110	114	104%	25	125	45	D
NBT	300	298	99%	75	325	50	D
NBR	145	138	95%	75	325	32	C
NB	**555**	**550**	**99%**			**44**	**D**
SBL	265	266	100%	75	300	44	D
SBT	400	410	103%	125	450	48	D
SBR	175	170	97%	125	475	16	B
SB	**840**	**846**	**101%**			**40**	**D**
EBL	120	117	98%	25	150	53	D
EBT	730	732	100%	75	325	30	C
EBR	10	11	110%	75	325	22	C
EB	**860**	**860**	**100%**			**33**	**C**
WBL	315	322	102%	75	325	40	D
WBT	1,335	1,357	102%	125	825	24	C
WBR	335	340	101%	0	125	13	B
WB	**1,985**	**2,019**	**102%**			**25**	**C**
Total	**4,240**	**4,275**	**101%**			**32**	**C**

Node Letter: D VISSIM ID: 40

Bangerter 12: 4700 South

AM Exisitng

LOS Category: Signalized

5: 4700 S & 3880 W						Delay / LOS
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500
NBL	5	5	100%	0	25	44 D
NBR	40	46	**115%**	0	50	9 A
NB	**45**	**51**	**113%**			**12 B**
EBT	1,460	1,466	100%	25	300	6 A
EBR	15	15	100%	25	325	3 A
EB	**1,475**	**1,481**	**100%**			**6 A**
WBL	75	73	97%	0	100	29 C
WB	**75**	**73**	**97%**			**29 C**
Total	**1,595**	**1,605**	**101%**			**7 A**

Node Letter: E VISSIM ID: 3880

LOS Category: Unsignalized

6: 4700 S & 3860 W						Delay / LOS
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500
SBR	40	43	108%	0	25	7 A
SB	**40**	**43**	**108%**			**8 A**
WBR	60	63	105%	0	0	1 A
WB	**60**	**63**	**105%**			**1 A**
Total	**100**	**106**	**106%**			**4 A**

Node Letter: E VISSIM ID: 3860

LOS Category: Unsignalized

7: 4700 S & 3740 W						Delay / LOS
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500
SBR	25	24	96%	0	50	9 A
SB	**25**	**24**	**96%**			**9 A**
WBR	40	39	98%	0	0	1 A
WB	**40**	**39**	**98%**			**1 A**
Total	**65**	**63**	**97%**			**4 A**

Node Letter: F VISSIM ID: 3740

PM Existing

LOS Category: Signalized

5: 4700 S & 3880 W						Delay / LOS
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500
NBL	15	15	100%	0	50	81 F
NBR	85	84	99%	0	75	9 A
NB	**100**	**99**	**99%**			**20 B**
EBT	1,125	1,119	99%	25	275	7 A
EBR	15	16	107%	25	300	7 A
EB	**1,140**	**1,135**	**100%**			**7 A**
WBL	85	84	99%	25	150	53 D
WB	**85**	**84**	**99%**			**53 D**
Total	**1,325**	**1,318**	**99%**			**11 B**

Node Letter: E VISSIM ID: 3880

LOS Category: Unsignalized

6: 4700 S & 3860 W						Delay / LOS
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500
SBR	50	48	96%	0	50	8 A
SB	**50**	**48**	**96%**			**8 A**
WBR	50	50	100%	0	75	1 A
WB	**50**	**50**	**100%**			**1 A**
Total	**100**	**98**	**98%**			**5 A**

Node Letter: E VISSIM ID: 3860

LOS Category: Unsignalized

7: 4700 S & 3740 W						Delay / LOS
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500
SBR	30	29	97%	0	75	23 C
SB	**30**	**29**	**97%**			**23 C**
WBR	15	15	100%	0	0	3 A
WB	**15**	**15**	**100%**			**4 A**
Total	**45**	**44**	**98%**			**16 C**

Node Letter: F VISSIM ID: 3740

AM Exisitng

LOS Category: Signalized

8: 4700 S & 3600 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	60	59	98%	0	100	27	C
NBT	95	94	99%	25	150	28	C
NBR	110	110	100%	25	175	19	B
NB	**265**	**263**	**99%**			**24**	**C**
SBL	95	94	99%	25	100	29	C
SBT	70	71	101%	0	75	25	C
SBR	75	74	99%	0	50	7	A
SB	**240**	**239**	**100%**			**21**	**C**
EBL	65	66	102%	0	50	19	B
EBT	1,480	1,477	100%	50	625	13	B
EBR	45	44	98%	0	25	11	B
EB	**1,590**	**1,587**	**100%**			**14**	**B**
WBL	40	39	98%	0	50	25	C
WBT	875	902	103%	25	200	9	A
WBR	35	34	97%	0	25	3	A
WB	**950**	**975**	**103%**			**10**	**A**
Total	**3,045**	**3,064**	**101%**			**14**	**B**

Node Letter: G VISSIM ID: 36

PM Existing

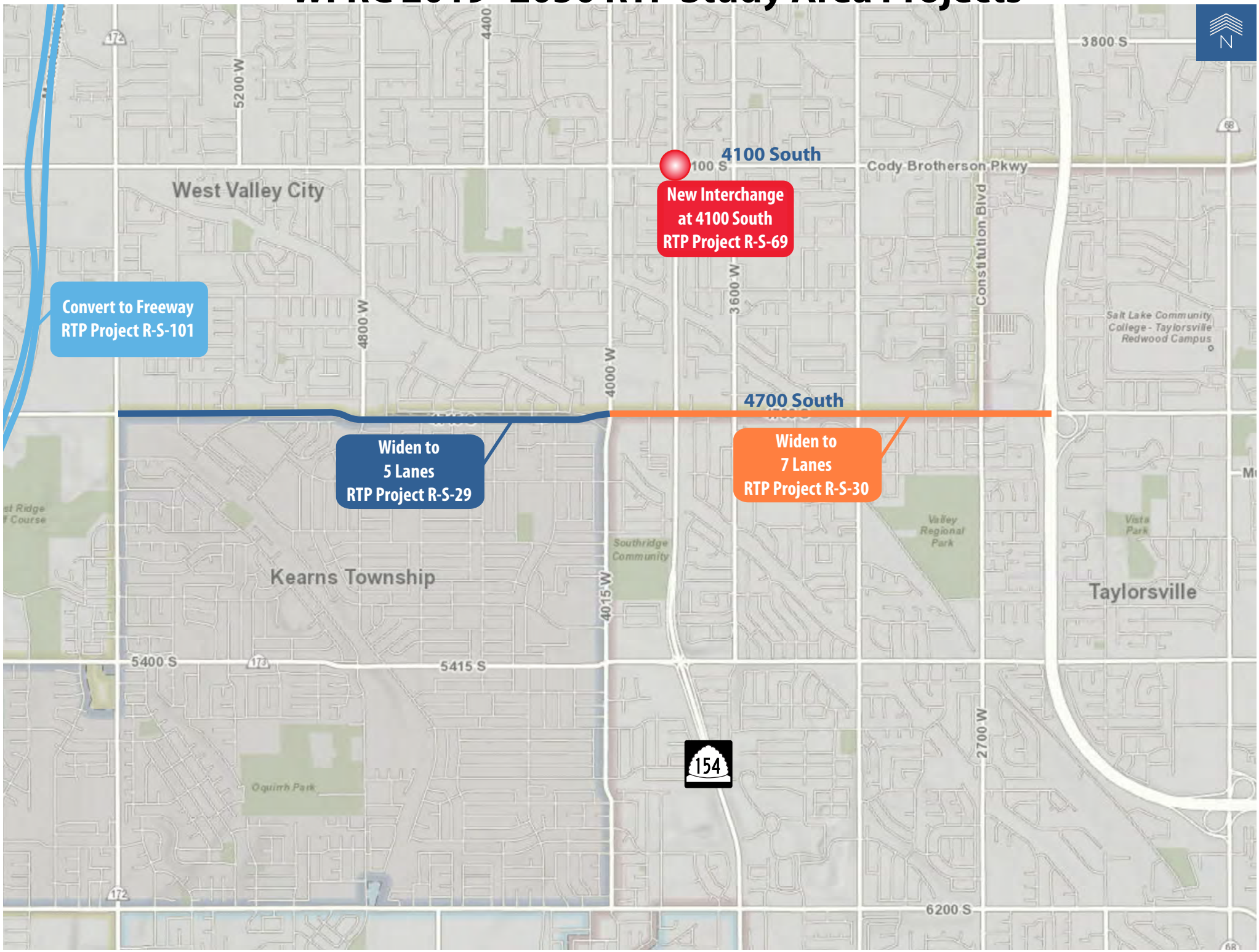
LOS Category: Signalized

8: 4700 S & 3600 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	75	76	101%	50	125	68	E
NBT	75	77	103%	25	175	53	D
NBR	55	56	102%	50	200	32	C
NB	**205**	**209**	**102%**			**53**	**D**
SBL	100	102	102%	25	150	58	E
SBT	220	222	101%	75	300	54	D
SBR	160	165	103%	0	100	14	B
SB	**480**	**489**	**102%**			**42**	**D**
EBL	90	90	100%	0	75	31	C
EBT	1,300	1,305	100%	50	300	14	B
EBR	110	108	98%	0	50	9	A
EB	**1,500**	**1,503**	**100%**			**15**	**B**
WBL	95	93	98%	0	75	22	C
WBT	1,500	1,526	102%	75	475	12	B
WBR	75	79	105%	0	50	6	A
WB	**1,670**	**1,698**	**102%**			**13**	**B**
Total	**3,855**	**3,899**	**101%**			**19**	**B**

Node Letter: G VISSIM ID: 36

APPENDIX D: WRFC 2050 RTP STUDY AREA PROJECTS

WFRC 2019 -2050 RTP Study Area Projects



APPENDIX E: 2050 NO BUILD LEVEL OF SERVICE RESULTS

Bangerter 12: 4700 South

VISSIM Volume, Queue, and Delay Results

2050 AM NoBuild

LOS Category: Signalized

1: 4700 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	80	55	69%	0	50	180	F
NBT	3,720	2,572	69%	2,475	5,350	173	F
NBR	260	177	68%	0	75	148	F
NB	**4,060**	**2,804**	**69%**			**172**	**F**
SBL	100	100	100%	25	75	73	E
SBT	1,620	1,632	101%	50	475	38	D
SBR	210	208	99%	0	75	9	A
SB	**1,930**	**1,940**	**101%**			**36**	**D**
EBL	800	476	60%	425	525	175	F
EBT	1,170	681	58%	125	500	73	E
EBR	560	296	53%	450	525	206	F
EB	**2,530**	**1,453**	**57%**			**134**	**F**
WBL	610	616	101%	425	1,075	131	F
WBT	840	859	102%	125	1,075	56	E
WBR	270	263	97%	400	1,075	113	F
WB	**1,720**	**1,738**	**101%**			**91**	**F**
Total	**10,240**	**7,935**	**77%**			**114**	**F**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	50	38	76%	25	75	309	F
NBT	230	171	74%	2,100	5,300	372	F
NBR	340	240	71%	2,100	5,300	362	F
NB	**620**	**449**	**72%**			**361**	**F**
SBL	250	203	81%	925	2,300	482	F
SBT	120	114	95%	25	150	74	E
SBR	60	54	90%	25	175	41	D
SB	**430**	**371**	**86%**			**293**	**F**
EBL	140	77	55%	0	75	347	F
EBT	1,910	994	52%	2,600	2,725	407	F
EBR	10	6	60%	2,600	2,725	393	F
EB	**2,060**	**1,077**	**52%**			**402**	**F**
WBL	130	130	100%	50	225	51	D
WBT	710	697	98%	125	425	48	D
WBR	140	132	94%	0	125	12	B
WB	**980**	**959**	**98%**			**43**	**D**
Total	**4,090**	**2,856**	**70%**			**261**	**F**

Node Letter: D VISSIM ID: 40

2050 PM NoBuild

LOS Category: Signalized

1: 4700 S & Bangerter

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	240	235	98%	25	125	78	E
NBT	2,290	2,306	101%	175	1,200	47	D
NBR	420	420	100%	50	225	33	C
NB	**2,950**	**2,961**	**100%**			**48**	**D**
SBL	180	128	71%	25	75	174	F
SBT	3,280	2,429	74%	2,500	5,350	172	F
SBR	480	363	76%	975	5,325	151	F
SB	**3,940**	**2,920**	**74%**			**170**	**F**
EBL	480	376	78%	200	500	142	F
EBT	1,300	1,018	78%	175	500	90	F
EBR	420	306	73%	400	525	190	F
EB	**2,200**	**1,700**	**77%**			**119**	**F**
WBL	820	626	76%	1,000	1,200	149	F
WBT	1,560	1,231	79%	500	1,200	62	E
WBR	230	177	77%	475	1,200	102	F
WB	**2,610**	**2,034**	**78%**			**92**	**F**
Total	**11,700**	**9,615**	**82%**			**107**	**F**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W

Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	110	98	89%	250	2,100	194	F
NBT	310	276	89%	1,275	4,675	207	F
NBR	300	262	87%	1,275	4,675	190	F
NB	**720**	**636**	**88%**			**198**	**F**
SBL	380	216	57%	3,400	5,225	683	F
SBT	410	276	67%	75	400	139	F
SBR	130	83	64%	75	400	119	F
SB	**920**	**575**	**63%**			**340**	**F**
EBL	120	103	86%	25	125	219	F
EBT	1,440	1,189	83%	1,925	2,725	246	F
EBR	10	8	80%	1,925	2,725	230	F
EB	**1,570**	**1,300**	**83%**			**244**	**F**
WBL	480	380	79%	450	1,275	125	F
WBT	1,370	1,099	80%	325	1,225	62	E
WBR	350	279	80%	25	200	29	C
WB	**2,200**	**1,758**	**80%**			**71**	**E**
Total	**5,410**	**4,269**	**79%**			**179**	**F**

Node Letter: D VISSIM ID: 40

Bangerter 12: 4700 South

2050 AM NoBuild

LOS Category: Signalized

3: 4700 S & 3880 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	8	80%	0	25	78	E
NBR	60	60	100%	25	125	68	E
NB	**70**	**68**	**97%**			**69**	**E**
EBT	2,470	1,411	57%	775	850	191	F
EBR	30	13	43%	775	875	251	F
EB	**2,500**	**1,424**	**57%**			**191**	**F**
WBL	90	87	97%	25	150	39	D
WB	**90**	**87**	**97%**			**39**	**D**
Total	**2,660**	**1,579**	**59%**			**178**	**F**

Node Letter: E VISSIM ID: 3880

LOS Category: Unsignalized

4: 4700 S & 3860 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
SBR	30	28	93%	0	25	8	A
SB	**30**	**28**	**93%**			**7**	**A**
WBR	100	104	104%	0	100	2	A
WB	**100**	**104**	**104%**			**2**	**A**
Total	**130**	**132**	**102%**			**3**	**A**

Node Letter: E VISSIM ID: 3860

LOS Category: Unsignalized

5: 4700 S & 3740 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
SBR	30	28	93%	25	100	75	F
SB	**30**	**28**	**93%**			**74**	**F**
WBR	50	45	90%	225	850	81	F
WB	**50**	**45**	**90%**			**81**	**F**
Total	**80**	**73**	**91%**			**78**	**F**

Node Letter: F VISSIM ID: 3740

2050 PM NoBuild

LOS Category: Signalized

3: 4700 S & 3880 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	20	20	100%	0	75	78	E
NBR	100	98	98%	25	175	67	E
NB	**120**	**118**	**98%**			**68**	**E**
EBT	2,100	1,602	76%	600	850	134	F
EBR	20	14	70%	625	875	160	F
EB	**2,120**	**1,616**	**76%**			**134**	**F**
WBL	100	81	81%	25	125	48	D
WB	**100**	**81**	**81%**			**48**	**D**
Total	**2,340**	**1,815**	**78%**			**126**	**F**

Node Letter: E VISSIM ID: 3880

LOS Category: Unsignalized

4: 4700 S & 3860 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
SBR	60	60	100%	0	125	36	E
SB	**60**	**60**	**100%**			**36**	**E**
WBR	60	49	82%	25	400	4	A
WB	**60**	**49**	**82%**			**4**	**A**
Total	**120**	**109**	**91%**			**21**	**C**

Node Letter: E VISSIM ID: 3860

LOS Category: Unsignalized

5: 4700 S & 3740 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
SBR	30	28	93%	50	200	240	F
SB	**30**	**28**	**93%**			**243**	**F**
WBR	20	15	75%	475	975	125	F
WB	**20**	**15**	**75%**			**126**	**F**
Total	**50**	**43**	**86%**			**202**	**F**

Node Letter: F VISSIM ID: 3740

2050 AM NoBuild

LOS Category: Signalized

6: 4700 S & 3600 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	180	181	101%	25	175	29	C
NBT	200	206	103%	50	325	29	C
NBR	170	169	99%	50	325	21	C
NB	**550**	**556**	**101%**			**27**	**C**
SBL	90	86	96%	0	100	29	C
SBT	90	88	98%	0	100	24	C
SBR	130	133	102%	0	75	17	B
SB	**310**	**307**	**99%**			**23**	**C**
EBL	80	47	**59%**	0	75	32	C
EBT	1,390	881	**63%**	25	300	13	B
EBR	60	39	**65%**	25	300	13	B
EB	**1,530**	**967**	**63%**			**14**	**B**
WBL	50	50	100%	0	75	18	B
WBT	1,430	1,465	102%	50	300	15	B
WBR	40	42	105%	50	300	13	B
WB	**1,520**	**1,557**	**102%**			**15**	**B**
Total	**3,910**	**3,387**	**87%**			**17**	**B**

Node Letter: G VISSIM ID: 36

2050 PM NoBuild

LOS Category: Signalized

6: 4700 S & 3600 W						Delay / LOS	
Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	200	201	101%	125	575	87	F
NBT	110	113	103%	50	225	37	D
NBR	120	118	98%	50	225	26	C
NB	**430**	**432**	**100%**			**57**	**E**
SBL	130	98	**75%**	25	175	263	F
SBT	320	237	**74%**	2,725	5,250	323	F
SBR	260	194	**75%**	3,150	5,250	463	F
SB	**710**	**529**	**75%**			**363**	**F**
EBL	80	68	**85%**	25	125	99	F
EBT	1,660	1,367	**82%**	75	450	22	C
EBR	160	132	**83%**	75	450	24	C
EB	**1,900**	**1,567**	**82%**			**25**	**C**
WBL	120	87	**73%**	25	150	236	F
WBT	2,140	1,631	**76%**	2,825	3,875	316	F
WBR	60	47	**78%**	2,825	3,875	294	F
WB	**2,320**	**1,765**	**76%**			**311**	**F**
Total	**5,360**	**4,293**	**80%**			**188**	**F**

Node Letter: G VISSIM ID: 36

Appendix B: Traffic and Design

Bangerter Highway & 4700 South

Future Build Conditions Traffic Analysis

MEMORANDUM

To: UDOT Region Two & Environmental

From: Avenue Consultants

Date: December 14, 2021

Subject: Bangerter Highway & 4700 South Future Build Conditions Traffic Analysis

The Utah Department of Transportation (UDOT) is performing an environmental study for a potential new interchange on Bangerter Highway at the existing 4700 South at-grade intersection. This memorandum summarizes the traffic evaluation for future build conditions within the study area. For this analysis, the study area consists of the Bangerter Highway corridor from 4100 South to 5400 South and the 4700 South corridor from 4000 West to 3600 West, as illustrated in **Figure 1**.

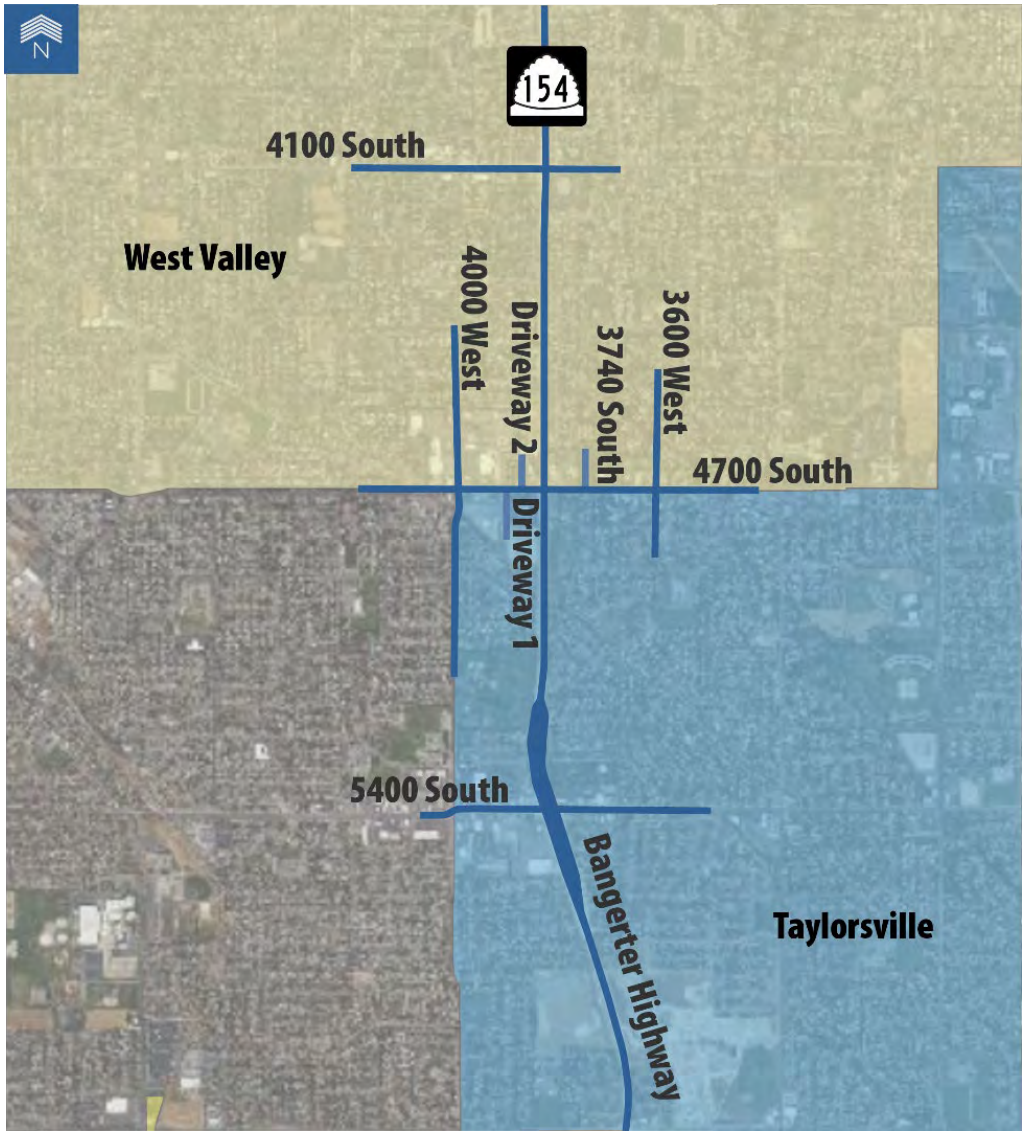


Figure 1: Bangerter Highway & 4700 South Traffic Analysis Study Area

1 ANALYSIS METHODOLOGY

The analysis described in this memorandum utilized project traffic data, Vissim traffic operations software and the Wasatch Front Regional Council (WFRC) / Mountainland Associated of Governments (MAG) travel demand model for year 2050 traffic forecasts. This section describes how each of these tools were used for this study.

1.1 Travel Demand Modeling

The WFRC/MAG travel demand model (TDM) was the primary tool used to predict future travel and traffic volumes within the study area. WFRC and MAG are the Metropolitan Planning Organizations (MPOs) for the Wasatch Front and are responsible for coordinating transportation planning in the region. WFRC is responsible for Salt Lake County and prepares the Regional Transportation Plan (RTP) every four years, which is the plan for the development of the future transportation system. The most recent plan is the 2019-2050 RTP, which includes a list of projects that are planned to meet future transportation needs over a 30+ year horizon.

The travel demand model has two primary inputs: land use data and transportation system data. The land use data consists of residential and employment data for the entire region. This data is prepared in geographic blocks called Traffic Analysis Zones (TAZs). The travel model inputs are prepared for a base year, which in this case was 2019, and for a future year, which in this case was 2050. A base year of 2019 was used because both travel model socioeconomic inputs and published traffic volume data are available for that year. In travel modeling, the base year always lags the current year by a few years because of the need to have land use input and calibration data.

Additional details on how the travel model was used for this project can be found in the **Bangerter Highway & 4700 South Existing and 2050 No Build Traffic Analysis** memo.

1.2 Traffic Operations Analysis

The Vissim software was selected for this study because it allows for the evaluation of freeways, closely spaced intersections, and the interaction between the two facilities. Vissim allows for driving behaviors to be modified, can collect travel time data for user-specified segments and can measure queue lengths at study intersections, which collectively are used to calibrate the model to observed conditions.

The intersections within the study area were modeled according to assumed future intersection and roadway geometry based on the RTP and the various build alternatives. The study area was modeled as a network; however, the analysis was completed for each intersection independently.

1.2.1 Traffic Volumes

The future AM and PM peak hour volumes were developed using principles described in the National Highway Cooperative Research Program (NCHRP) Report 255 document. The forecast peak period intersection volumes were developed from the existing peak hour traffic volumes and data from the WFRC/MAG travel demand model. The travel model was run for the base year (2019) and for the future years. The difference between the base year and future year models was used to estimate the traffic growth for each intersection leg, which was then applied to the existing intersection leg volumes. The future individual movement volumes were then balanced to ensure the correct number of inbound and outbound vehicles on each leg of the intersection. Included in **Appendix A** are figures presenting the resulting 2050 Build traffic volumes used for the traffic analysis. Details on existing and 2050 no build traffic volumes can be found in the **Bangerter Highway & 4700 South Existing and 2050 No Build Traffic Analysis** memo.

1.2.2 Measures of Effectiveness

The operational analysis is based upon Vissim output correlated to the *Highway Capacity Manual (HCM) 6th Edition* methodologies, which describes how transportation system performance can be measured and ranked by level of service (LOS). LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst.

The primary measure of effectiveness for this study was intersection performance. For intersections, LOS is based on average vehicle delay measured in seconds per vehicle. Delay and LOS are determined for each turning movement, approach, and the overall intersection. For signalized intersections, the overall intersection LOS is most commonly reported, while for unsignalized intersections, LOS is most commonly reported based for the approach with the highest delay. **Table 1** provides details regarding LOS criteria thresholds for signalized intersections.

Table 1. Intersection Level of Service Criteria

Level of Service	Traffic Conditions	Average Delay (seconds/vehicle)
A	Free Flow Operations / Insignificant Delay	0 ≤ 10
B	Smooth Operations / Short Delays	> 10 and ≤ 20
C	Stable Operations / Acceptable Delays	> 20 and ≤ 35
D	Approaching Unstable Operations / Tolerable Delays	> 35 and ≤ 55
E	Unstable Operations / Significant Delays Begin	> 55 and ≤ 80
F	Very Poor Operations / Excessive Delays Occur	> 80

Source: Highway Capacity Manual 6th Edition*, TRB National Research Council, Washington D.C*

Another important measure of effectiveness is 95th percentile queue length for each turning movement and is the vehicle queue distance that will only be exceeded five percent of the time during the analysis period and helps identify issues such as queuing between intersections and queues that exceed their turning movement storage.

2 2050 BUILD ALTERNATIVES ANALYSIS

Two interchange alternatives were analyzed for the intersection of Bangerter Highway and 4700 South: a Tight Diamond Interchange and a Single Point Urban Interchange (SPUI). Each alternative was analyzed for 2050 traffic conditions. Both interchange alternatives assumed consistent lane configurations, including three through lanes on 4700 South, dual left turn lanes for all left turns, two lanes for the northbound and southbound right turns from Bangerter Highway, and single lane free-rights from 4700 South onto Bangerter Highway.

2.1 Interchange Alternatives Analysis

The analysis results presented in this section include intersection delay and LOS and 95th percentile queue lengths. For the 2050 Build analysis, the 2050 No Build analysis results were used as a baseline against which to compare the build alternatives. In addition to the Bangerter Highway interchange, the analysis also considered nearby signalized intersections on 4700 South. **Table 2** presents the intersection level of service and delay in seconds per vehicle for the AM and PM peak hours of the 2050 No Build and Build alternatives. Detailed analysis results showing the intersection performance by movement can be found in **Appendix B**.

Table 2. 2050 No Build and Build Intersection Delay and Level of Service

Location	2050 AM Peak Hour			2050 PM Peak Hour		
	No Build[1]	Tight Diamond[1]	SPUI[1]	No Build[1]	Tight Diamond[1]	SPUI[1]
4700 South & 4000 West	F / >180	C / 23	B / 19	F / 179	D / 55	D / 46
4700 South & 3880 West	F / 179	A / 7	A / 9	F / 126	A / 9	B / 11
4700 South & Bangerter Hwy	F / 143	D /36	B / 19	F / 107	D / 47	C / 25
4700 South & 3600 West	B / 17	B / 15	A / 10	F / >180	D / 42	C / 22

1. Average delay reported in seconds/vehicle

Comparing the delay per vehicle shows significant difference between alternatives. Although both the alternatives show improvement compared to 2050 No Build, SPUI alternative performs better than the Tight Diamond alternative with the diamond at LOS D and the SPUI at LOS B and C. Additionally, the tight diamond interchange has three left turn movements at LOS E or F in both the 2050 AM and PM peak hours. The SPUI doesn't have any movements at LOS E or F. The nearby intersections also perform substantially better than the 2050 No Build scenario.

The 95th percentile queue lengths presented in **Table 4** are of the longest estimated 2050 queue for each intersection approach at 4700 South and Bangerter Highway for the No Build, Tight Diamond, and SPUI alternatives. Both alternatives generally reduce the 95th percentile queues associated with the No Build, although in a couple of cases the tight diamond queue is longer than those in the No Build alternative. In particular, the northbound queue on Bangerter Highway is expected to decrease by over 5,000 feet.

Comparing the 95th percentile queues between the build alternatives show shorter queues for SPUI alternative for three of the four approaches in both the AM and PM peak hours. Most notably, the northbound queues are projected to be over 2,000 feet shorter in the 2050 PM peak hour, which is a substantial difference.

Table 3. 2050 Interchange Alternatives 95th Percentile Queue Lengths (feet)

Intersection	Approach	2050 AM Peak Hour Queue			2050 PM Peak Hour Queue		
		No Build	Tight Diamond	SPUI	No Build	Tight Diamond	SPUI
4700 South & Bangerter Hwy	Northbound	5,350	150	200	1,200	2,450	250
4700 South & Bangerter Hwy	Southbound	475	125	75	5,350	325	375
4700 South & Bangerter Hwy	Eastbound	500	300	275	500	550	300
4700 South & Bangerter Hwy	Westbound	800	650	225	1,200	525	350

Based on the traffic analysis results, the study team selected the SPUI as the preferred alternative to be advanced for further evaluation.

2.2 Alternative Refinement

After the selection of the SPUI as the preferred alternative, the design team began preparing conceptual interchange designs for different options to minimize impacts. This section describes additional traffic analyses that were performed in support of the development of the concept design, including items such as the required number of lanes and turn pocket storage lengths to accommodate the anticipated 2050 demand.

2.2.1 SPUI Options Analysis

Two SPUI concept options were developed with varying levels of impact to surrounding properties and the Jordan Valley Water Conservancy District aqueduct. Due to potential impacts, the two options had slightly different geometric and traffic control assumptions. The two options are as follows:

1. **Hybrid Option** – The hybrid option avoids impacts to the aqueduct by keeping the interchange on the west side of it. To minimize impacts to the church on the northwest quadrant of the interchange, this option has the southbound right turn movement as a free-right. This enables the right turn to have only one lane but requires a receiving lane on 4700 South. Therefore, 4700 South has two through lanes in the eastbound and westbound directions across Bangerter Highway to provide receiving lane for the free-right without further impacting the church. This concept also has dual left turn lanes and single lane free-rights for the eastbound and westbound approaches, single left turn lanes for the northbound and southbound approaches, and dual right turn lanes for the northbound approach.
2. **East Option** – The east option relocates the aqueduct and pushes the interchange east to avoid impacts on the west side. In this option, the eastbound and westbound approaches would have three through lanes, dual left turn lanes and single free-right lanes. The northbound and southbound approaches would have single left turn lanes and dual right turn lanes.

Table 4 compares the performance of the two 4700 South SPUI options. Both operate at LOS C with the same overall intersection delay. There are minor differences in the delay for specific movements. The movement with the largest delay difference is the southbound right where in the PM peak hour the East Shift has 23 seconds more delay per vehicle. The second largest difference is also in the PM peak hour for the eastbound through movement which has 14 more seconds of delay in the Hybrid option. These differences seem reasonable because the southbound right is a free movement in the Hybrid so it should have less delay. Likewise, the eastbound through only has two lanes in the hybrid compared to three lanes for the East Shift, so it should have more delay. No other movements have more than six seconds of delay difference. More detailed analysis results can be found in **Appendix C**.

Table 4. Bangerter Highway & 4700 South SPUI Options 2050 LOS & Delay (seconds/vehicle)

Scenario		Northbound		Southbound		Eastbound			Westbound			Total
		Left	Right	Left	Right	Left	Thru	Right	Left	Thru	Right	
AM	Hybrid	D / 46	B / 11	D / 44	A / 1	D / 48	C / 23	A / 2	C / 27	B / 15	A / 0	C / 21
	East	D / 46	B / 15	D / 45	A / 7	D / 43	B / 20	A / 3	C / 27	B / 16	A / 0	C / 21
PM	Hybrid	D / 48	A / 8	D / 49	A / 7	D / 51	D / 46	A / 2	D / 44	C / 24	A / 1	C / 28
	East	D / 48	B / 13	D / 52	C / 30	D / 46	C / 32	A / 3	D / 39	C / 22	A / 0	C / 28

The 2050 AM and PM peak hour 95th percentile queue lengths by movement for both options are shown in **Table 5**. The queues are generally very similar between options with the largest differences on the eastbound and westbound through movements where the Hybrid option has two lanes and the East Shift three lanes. None of the 95th percentile queues extend into upstream intersections.

Table 5. Bangerter Highway & 4700 South SPUI Options 95th Percentile Queue Lengths (feet)

Scenario		Northbound		Southbound		Eastbound			Westbound		
		Left	Right	Left	Right	Left	Thru	Right	Left	Thru	Right
AM	Hybrid	200	225	200	0	350	425	0	200	200	0
	East	200	225	200	75	250	225	0	225	125	0
PM	Hybrid	375	125	475	450	200	525	0	325	1,125	0
	East	375	275	475	475	200	325	0	300	375	0

The study team ultimately chose to go with the East Shift option. The concept design for that option is depicted in Figure 3.

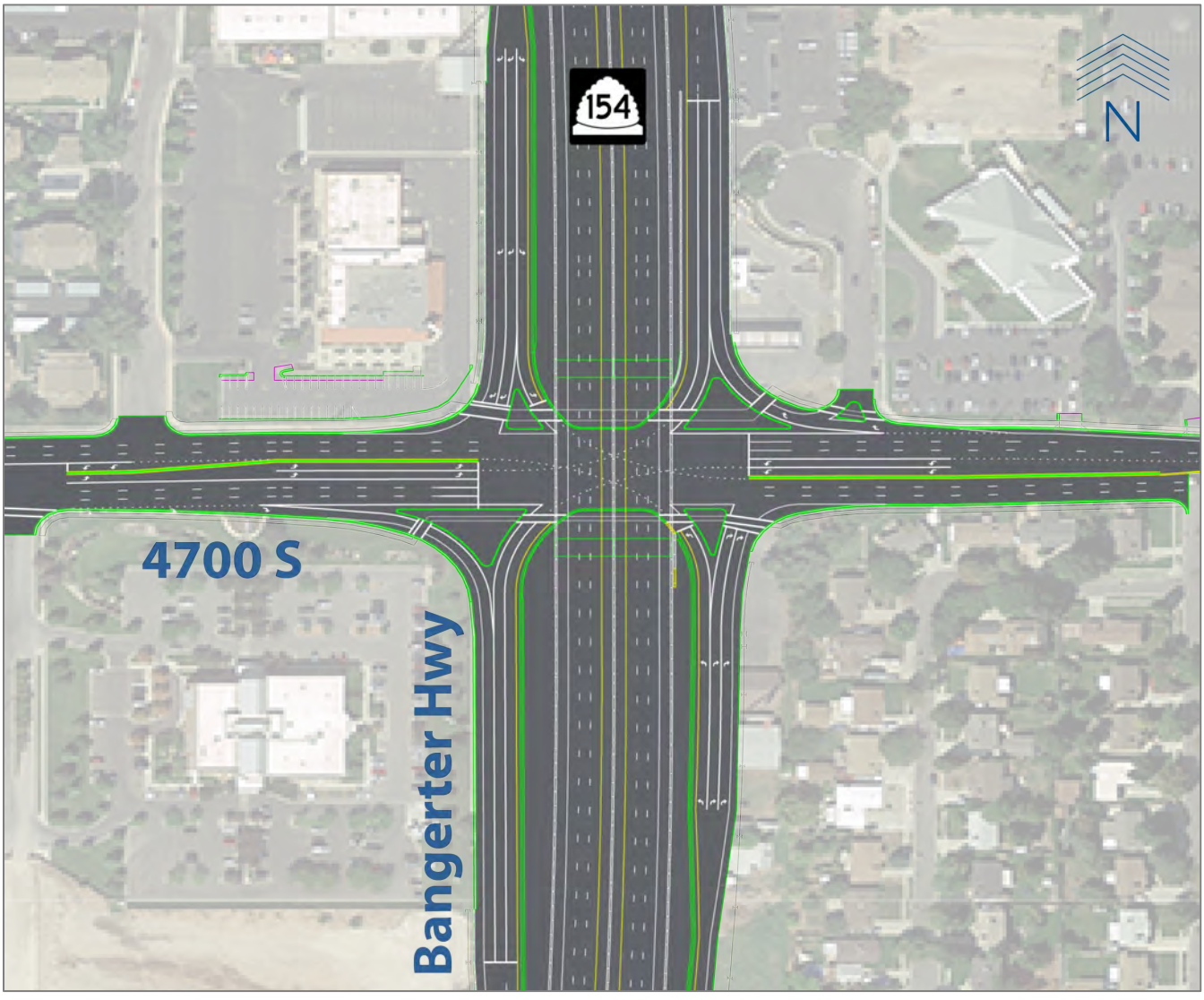


Figure 2: East Shift SPUI Option Concept Design

The recommended left and right turn storage lengths for the SPUI East Shift option are shown in **Table 6**.

Table 6. Recommended Storage Lengths

Approach	Movement	Storage (feet)
Northbound	Left	400
	Right	250
Southbound	Left	500
	Right	300
Eastbound	Left	350
	Right	250
Westbound	WB Left	350
	Right	200

3 FREEWAY RAMP ANALYSIS

Separate analyses were performed to determine the appropriate gap acceptance lengths for the freeway on-ramps and the required ramp meter storage to meet 2050 traffic demands.

3.1 On-Ramp Gap Acceptance Length

An analysis was performed for the 4700 South on-ramps to determine what the gap acceptance lengths should be for both 2030 and 2050 conditions. Gap acceptance is used in the design of parallel entrance ramps and refers the distance that the on-ramp lane is carried after joining the mainline and before the lane is merged into the mainline via a taper. Essentially, it is the length for a vehicle entering the freeway to complete the merge maneuver with mainline traffic. Guidance for determination of gap acceptance length is provided in the UDOT *Roadway Design Manual* on drawing DM 10.1, Entrance Ramp Geometrics. Note C states that, "for a single lane parallel entrance ramp use a gap acceptance length of 1,200 feet if combined ramp and mainline acceptance lane volume is projected to exceed 2,400 passenger cars per hour during the peak hour. Use a 500-foot length otherwise."

Peak hour volumes for 2030 and 2050 conditions were developed for the 4700 South on-ramp and The Bangerter Highway mainline just upstream of the on-ramp. It was assumed that there would be an even distribution of traffic among mainline lanes on Bangerter Highway. Thus, the mainline acceptance lane volume was one-third of the mainline volume, since the RTP shows Bangerter Highway as a three-lane freeway. The on-ramp volume and the mainline acceptance lane volume were added together and then converted from vehicles to passenger cars by using principles described in Chapter 12 of the *Highway Capacity Manual, 6th Edition*. The resulting number was compared to the 2,400 passenger cars threshold used to determine whether the acceptance lane length should be 500 or 1,200 feet. **Table 7** shows the resulting combined ramp and mainline acceptance lane volume (in passenger car) and the gap associated acceptance length for each on-ramp. It shows that 1,200 feet is required for both 2030 and 2050 for both the northbound and southbound on-ramps.

Table 7. 4700 South Gap Acceptance Lengths

Year & Time Period	Southbound		Northbound	
	Acceptance Lane Volume (pc/hr)	Acceptance Lane Length (feet)	Acceptance Lane Volume (pc/hr)	Acceptance Lane Length (feet)
2030 AM	1,597	1,200	3,062	1,200
2030 PM	2,826		1,922	
2050 AM	1,794	1,200	2,969	1,200
2050 PM	2,691		1,956	

3.2 Ramp Meter Storage

Ramp meter storage requirements were obtained from information prepared as part of the Managed Motorways Study. Storage requirements are based on peak hour volumes with the larger of the AM and PM peak hours being used. **Table 8** shows the recommended ramp meter storage lengths for the 4700 South on-ramps.

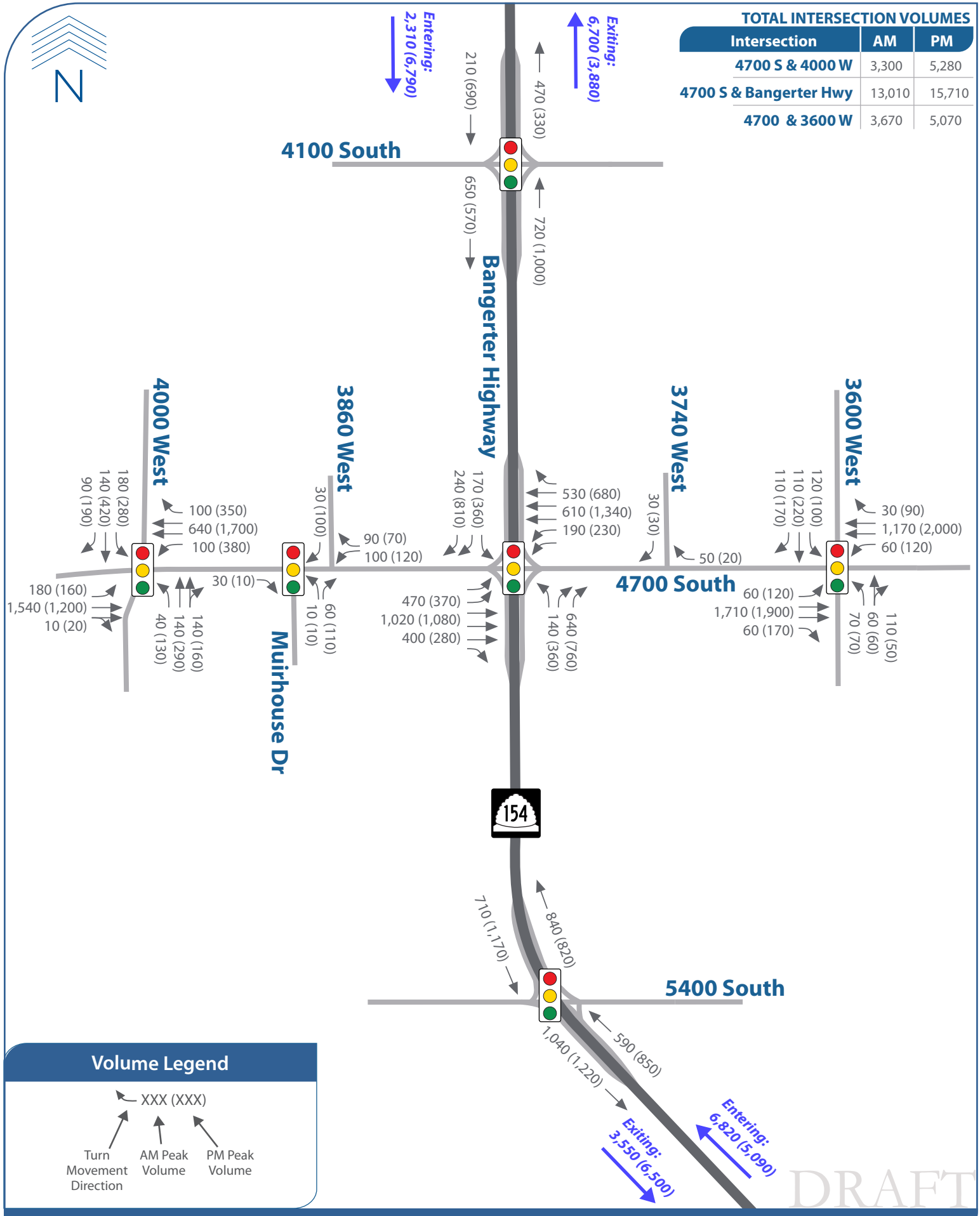
Table 8. 4700 South Ramp Meter Storage Requirements

On-Ramp	2050 Peak Hour Volume (veh /hr)		Total Storage Required (lane-feet)	Storage per Lane (feet)	
	AM	PM		3 Lanes	4 Lanes
Northbound	**660**	600	1,230	400	300
Southbound	930	**960**	1,780	600	450

4 CONCLUSION

The traffic analysis shows that a grade-separated interchange will be required to meet the 2050 traffic demands at the intersection of Bangerter Highway & 4700 South. A SPUI was selected as the preferred interchange alternative due to better traffic performance than a tight diamond interchange. Two SPUI options were evaluated with slightly different lane configurations, each of which perform acceptably and similarly. The East Shift option was selected for non-traffic related reasons related to risk and property impacts.

Appendix A. 4700 South Study Area Traffic Volumes



TOTAL INTERSECTION VOLUMES

Intersection	AM	PM
4700 S & 4000 W	3,300	5,280
4700 S & Bangerter Hwy	13,010	15,710
4700 & 3600 W	3,670	5,070

Volume Legend

XXX (XXX)

Turn Movement Direction | AM Peak Volume | PM Peak Volume

2050 Build Peak Hour Traffic Volumes

4700 South & Bangerter Highway Environmental Study

Appendix B. Interchange Alternatives Analysis Vissim Node Results

2050 AM NoBuild

LOS Category: Signalized

1: 4700 S & Bangerter						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	80	54	68%	25	50	304	F
NBT	3,720	2,590	70%	2,400	5,350	255	F
NBR	260	179	69%	0	100	224	F
NB	**4,060**	**2,823**	**70%**			**254**	**F**
SBL	100	101	101%	25	75	73	E
SBT	1,620	1,632	101%	50	475	37	D
SBR	210	208	99%	0	75	9	A
SB	**1,930**	**1,941**	**101%**			**36**	**D**
EBL	800	475	59%	425	500	177	F
EBT	1,170	682	58%	125	500	76	E
EBR	560	299	53%	450	500	203	F
EB	**2,530**	**1,456**	**58%**			**135**	**F**
WBL	610	612	100%	275	800	128	F
WBT	840	858	102%	75	550	57	E
WBR	270	265	98%	250	800	111	F
WB	**1,720**	**1,735**	**101%**			**90**	**F**
Total	**10,240**	**7,955**	**78%**			**143**	**F**

Node Letter: B VISSIM ID: 47

2050 AM Diamond

LOS Category: Signalized

1: 4700 S & Bangerter						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	140	136	97%	25	100	62	E
NBR	640	650	102%	25	150	16	B
NB	**780**	**786**	**101%**			**24**	**C**
SBL	170	168	99%	25	125	74	E
SBR	240	235	98%	0	50	7	A
SB	**410**	**403**	**98%**			**35**	**C**
EBL	470	478	102%	25	300	49	D
EBT	1,020	1,038	102%	0	75	29	C
EBR	400	399	100%	0	0	4	A
EB	**1,890**	**1,915**	**101%**			**29**	**C**
WBL	530	538	102%	200	650	100	F
WBT	610	636	104%	0	25	32	C
WBR	190	193	102%	0	0	1	A
WB	**1,330**	**1,367**	**103%**			**54**	**D**
Total	**4,410**	**4,471**	**101%**			**36**	**D**

Node Letter: B VISSIM ID: 47

2050 AM SPUI

LOS Category: Signalized

1: 4700 S & Bangerter						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	140	138	99%	25	100	46	D
NBR	640	644	101%	25	200	14	B
NB	**780**	**782**	**100%**			**20**	**B**
SBL	170	170	100%	25	25	16	B
SBR	240	235	98%	0	75	7	A
SB	**410**	**405**	**99%**			**11**	**B**
EBL	470	470	100%	75	275	44	D
EBT	1,020	1,015	100%	50	200	17	B
EBR	400	397	99%	0	0	3	A
EB	**1,890**	**1,882**	**100%**			**21**	**C**
WBL	530	544	103%	50	225	27	C
WBT	610	632	104%	25	125	14	B
WBR	190	194	102%	0	0	0	A
WB	**1,330**	**1,370**	**103%**			**17**	**B**
Total	**4,410**	**4,439**	**101%**			**19**	**B**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	50	38	76%	0	50	342	F
NBT	230	170	74%	2,550	5,325	416	F
NBR	340	241	71%	2,575	5,325	402	F
NB	**620**	**449**	**72%**			**402**	**F**
SBL	250	197	79%	725	1,900	534	F
SBT	120	112	93%	25	125	82	F
SBR	60	52	87%	25	150	50	D
SB	**430**	**361**	**84%**			**324**	**F**
EBL	140	77	55%	0	50	352	F
EBT	1,910	995	52%	2,600	2,725	408	F
EBR	10	5	50%	2,600	2,725	390	F
EB	**2,060**	**1,077**	**52%**			**404**	**F**
WBL	130	131	101%	50	200	55	D
WBT	710	700	99%	100	425	51	D
WBR	140	132	94%	0	100	12	B
WB	**980**	**963**	**98%**			**46**	**D**
Total	**4,090**	**2,850**	**70%**			**273**	**F**

Node Letter: D VISSIM ID: 40

LOS Category: Signalized

2: 4700 S & 4000 W						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	40	41	103%	0	75	51	D
NBT	140	142	101%	25	150	54	D
NBR	140	138	99%	25	150	23	C
NB	**320**	**321**	**100%**			**40**	**D**
SBL	180	181	101%	50	250	47	D
SBT	140	145	104%	25	175	41	D
SBR	90	86	96%	25	175	7	A
SB	**410**	**412**	**100%**			**36**	**D**
EBL	180	184	102%	0	125	22	C
EBT	1,540	1,534	100%	250	2,650	20	B
EBR	10	9	90%	250	2,650	19	B
EB	**1,730**	**1,727**	**100%**			**21**	**C**
WBL	100	104	104%	25	150	42	D
WBT	640	639	100%	25	200	12	B
WBR	100	99	99%	0	50	4	A
WB	**840**	**842**	**100%**			**15**	**B**
Total	**3,300**	**3,302**	**100%**			**23**	**C**

Node Letter: D VISSIM ID: 40

LOS Category: Signalized

2: 4700 S & 4000 W						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	40	41	103%	0	75	40	D
NBT	140	142	101%	25	125	44	D
NBR	140	138	99%	25	125	14	B
NB	**320**	**321**	**100%**			**30**	**C**
SBL	180	181	101%	50	250	46	D
SBT	140	144	103%	25	150	36	D
SBR	90	86	96%	25	175	7	A
SB	**410**	**411**	**100%**			**34**	**C**
EBL	180	186	103%	0	100	16	B
EBT	1,540	1,538	100%	75	550	15	B
EBR	10	9	90%	75	550	16	B
EB	**1,730**	**1,733**	**100%**			**15**	**B**
WBL	100	91	91%	25	125	38	D
WBT	640	645	101%	25	225	15	B
WBR	100	99	99%	0	50	4	A
WB	**840**	**835**	**99%**			**16**	**B**
Total	**3,300**	**3,300**	**100%**			**19**	**B**

Node Letter: D VISSIM ID: 40

2050 AM NoBuild

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg	95th	Analysis Period Delay	LOS
				900-4500		900-4500	
NBL	10	8	80%	0	25	78	E
NBR	60	60	100%	25	125	61	E
NB	**70**	**68**	**97%**			**64**	**E**
EBT	2,470	1,410	57%	775	850	193	F
EBR	30	13	43%	775	875	238	F
EB	**2,500**	**1,423**	**57%**			**193**	**F**
WBL	90	87	97%	25	150	39	D
WB	**90**	**87**	**97%**			**40**	**D**
Total	**2,660**	**1,578**	**59%**			**179**	**F**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg	95th	Analysis Period Delay	LOS
				900-4500		900-4500	
NBL	180	181	101%	25	200	30	C
NBT	200	207	104%	50	325	30	C
NBR	170	170	100%	75	350	22	C
NB	**550**	**558**	**101%**			**28**	**C**
SBL	90	86	96%	0	100	29	C
SBT	90	88	98%	0	100	24	C
SBR	130	133	102%	0	100	13	B
SB	**310**	**307**	**99%**			**21**	**C**
EBL	80	48	60%	0	50	31	C
EBT	1,390	880	63%	25	300	13	B
EBR	60	38	63%	25	300	12	B
EB	**1,530**	**966**	**63%**			**14**	**B**
WBL	50	50	100%	0	75	17	B
WBT	1,430	1,463	102%	50	250	14	B
WBR	40	42	105%	50	250	11	B
WB	**1,520**	**1,555**	**102%**			**14**	**B**
Total	**3,910**	**3,386**	**87%**			**17**	**B**

Node Letter: G VISSIM ID: 36

2050 AM Diamond

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg	95th	Analysis Period Delay	LOS
				900-4500		900-4500	
NBL	10	9	90%	0	50	74	E
NBR	60	60	100%	0	50	9	A
NB	**70**	**69**	**99%**			**17**	**B**
EBT	1,830	1,834	100%	0	125	4	A
EBR	30	29	97%	0	150	4	A
EB	**1,860**	**1,863**	**100%**			**4**	**A**
WBL	100	104	104%	25	175	48	D
WB	**100**	**104**	**104%**			**48**	**D**
Total	**2,030**	**2,036**	**100%**			**7**	**A**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg	95th	Analysis Period Delay	LOS
				900-4500		900-4500	
NBL	70	69	99%	25	100	32	C
NBT	60	60	100%	25	125	27	C
NBR	110	114	104%	25	150	18	B
NB	**240**	**243**	**101%**			**24**	**C**
SBL	120	120	100%	25	125	32	C
SBT	110	112	102%	25	100	29	C
SBR	110	111	101%	0	75	10	A
SB	**340**	**343**	**101%**			**24**	**C**
EBL	60	58	97%	0	50	23	C
EBT	1,710	1,722	101%	75	575	15	B
EBR	60	61	102%	0	25	9	A
EB	**1,830**	**1,841**	**101%**			**15**	**B**
WBL	60	59	98%	0	75	34	C
WBT	1,170	1,199	102%	25	275	10	A
WBR	30	29	97%	0	25	3	A
WB	**1,260**	**1,287**	**102%**			**11**	**B**
Total	**3,670**	**3,714**	**101%**			**15**	**B**

Node Letter: G VISSIM ID: 36

2050 AM SPUI

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg	95th	Analysis Period Delay	LOS
				900-4500		900-4500	
NBL	10	9	90%	0	25	60	E
NBR	60	60	100%	0	50	10	A
NB	**70**	**69**	**99%**			**16**	**B**
EBT	1,830	1,825	100%	25	250	7	A
EBR	30	29	97%	25	250	5	A
EB	**1,860**	**1,854**	**100%**			**7**	**A**
WBL	100	104	104%	25	125	46	D
WB	**100**	**104**	**104%**			**45**	**D**
Total	**2,030**	**2,027**	**100%**			**9**	**A**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg	95th	Analysis Period Delay	LOS
				900-4500		900-4500	
NBL	70	68	97%	25	100	45	D
NBT	60	59	98%	25	175	40	D
NBR	110	113	103%	25	175	22	C
NB	**240**	**240**	**100%**			**33**	**C**
SBL	120	116	97%	25	125	43	D
SBT	110	110	100%	25	125	41	D
SBR	110	111	101%	0	75	8	A
SB	**340**	**337**	**99%**			**31**	**C**
EBL	60	59	98%	0	50	18	B
EBT	1,710	1,732	101%	25	250	5	A
EB	**1,770**	**1,791**	**101%**			**5**	**A**
WBL	60	60	100%	0	75	34	C
WBT	1,170	1,204	103%	25	225	7	A
WBR	30	29	97%	25	225	5	A
WB	**1,260**	**1,293**	**103%**			**8**	**A**
Total	**3,610**	**3,661**	**101%**			**10**	**A**

Node Letter: G VISSIM ID: 36

2050 PM NoBuild

LOS Category: Signalized

1: 4700 S & Bangerter						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	240	235	98%	25	125	78	E
NBT	2,290	2,306	101%	175	1,200	47	D
NBR	420	420	100%	50	225	33	C
NB	**2,950**	**2,961**	**100%**			**48**	D
SBL	180	128	**71%**	25	75	174	F
SBT	3,280	2,429	**74%**	2,500	5,350	172	F
SBR	480	363	**76%**	975	5,325	151	F
SB	**3,940**	**2,920**	**74%**			**170**	F
EBL	480	376	**78%**	200	500	142	F
EBT	1,300	1,018	**78%**	175	500	90	F
EBR	420	306	**73%**	400	525	190	F
EB	**2,200**	**1,700**	**77%**			**119**	F
WBL	820	626	**76%**	1,000	1,200	149	F
WBT	1,560	1,231	**79%**	500	1,200	62	E
WBR	230	177	**77%**	475	1,200	102	F
WB	**2,610**	**2,034**	**78%**			**92**	F
Total	**11,700**	**9,615**	**82%**			**107**	F

Node Letter: B VISSIM ID: 47

2050 PM Diamond

LOS Category: Signalized

1: 4700 S & Bangerter						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	360	359	100%	350	2,450	171	F
NBR	760	739	97%	25	200	33	C
NB	**1,120**	**1,098**	**98%**			**78**	E
SBL	360	360	100%	125	325	96	F
SBR	810	804	99%	50	225	17	B
SB	**1,170**	**1,164**	**99%**			**42**	D
EBL	370	367	99%	100	550	88	F
EBT	1,080	1,097	102%	0	75	51	D
EBR	280	273	98%	0	0	4	A
EB	**1,730**	**1,737**	**100%**			**51**	D
WBL	680	681	100%	25	325	35	D
WBT	1,340	1,343	100%	75	525	33	C
WBR	230	232	100%	0	0	1	A
WB	**2,250**	**2,256**	**100%**			**30**	C
Total	**6,270**	**6,254**	**100%**			**47**	D

Node Letter: B VISSIM ID: 47

2050 PM SPUI

LOS Category: Signalized

1: 4700 S & Bangerter						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	360	358	99%	50	250	48	D
NBR	760	735	97%	25	175	13	B
NB	**1,120**	**1,093**	**98%**			**25**	C
SBL	360	358	99%	25	25	14	B
SBR	810	797	98%	100	375	32	C
SB	**1,170**	**1,155**	**99%**			**27**	C
EBL	370	355	96%	50	200	46	D
EBT	1,080	1,067	99%	75	300	29	C
EBR	280	270	96%	0	0	3	A
EB	**1,730**	**1,692**	**98%**			**28**	C
WBL	680	696	102%	100	350	40	D
WBT	1,340	1,372	102%	50	325	18	B
WBR	230	232	101%	0	0	0	A
WB	**2,250**	**2,300**	**102%**			**23**	C
Total	**6,270**	**6,240**	**100%**			**25**	C

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	110	98	**89%**	250	2,100	194	F
NBT	310	276	**89%**	1,275	4,675	207	F
NBR	300	262	**87%**	1,275	4,675	190	F
NB	**720**	**636**	**88%**			**198**	F
SBL	380	216	**57%**	3,400	5,225	683	F
SBT	410	276	**67%**	75	400	139	F
SBR	130	83	**64%**	75	400	119	F
SB	**920**	**575**	**63%**			**340**	F
EBL	120	103	**86%**	25	125	219	F
EBT	1,440	1,189	**83%**	1,925	2,725	246	F
EBR	10	8	**80%**	1,925	2,725	230	F
EB	**1,570**	**1,300**	**83%**			**244**	F
WBL	480	380	**79%**	450	1,275	125	F
WBT	1,370	1,099	**80%**	325	1,225	62	E
WBR	350	279	**80%**	25	200	29	C
WB	**2,200**	**1,758**	**80%**			**71**	E
Total	**5,410**	**4,269**	**79%**			**179**	F

Node Letter: D VISSIM ID: 40

LOS Category: Signalized

2: 4700 S & 4000 W						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	120	121	101%	75	225	91	F
NBT	270	269	100%	75	375	63	E
NBR	160	154	96%	75	375	42	D
NB	**550**	**544**	**99%**			**63**	E
SBL	270	271	100%	125	400	65	E
SBT	400	412	103%	175	575	64	E
SBR	180	175	97%	175	575	21	C
SB	**850**	**858**	**101%**			**56**	E
EBL	160	157	98%	225	2,225	136	F
EBT	1,200	1,199	100%	375	2,450	44	D
EBR	20	18	90%	375	2,450	41	D
EB	**1,380**	**1,374**	**100%**			**55**	D
WBL	380	380	100%	525	1,325	89	F
WBT	1,700	1,674	98%	525	1,300	50	D
WBR	350	339	97%	25	200	29	C
WB	**2,430**	**2,393**	**98%**			**54**	D
Total	**5,210**	**5,169**	**99%**			**55**	D

Node Letter: D VISSIM ID: 40

LOS Category: Signalized

2: 4700 S & 4000 W						Delay / LOS	
		Volume		Queue (ft) Avg / 95th		Analysis Period	
Mvmt	Demand	Served	% Served	900-4500		900-4500	
NBL	120	131	109%	50	225	75	E
NBT	270	288	107%	75	375	59	E
NBR	160	154	96%	75	375	35	C
NB	**550**	**573**	**104%**			**57**	E
SBL	270	278	103%	125	500	77	E
SBT	400	434	109%	300	1,125	88	F
SBR	180	184	102%	300	1,125	21	C
SB	**850**	**896**	**105%**			**71**	E
EBL	160	162	101%	75	300	92	F
EBT	1,200	1,186	99%	200	725	40	D
EBR	20	20	100%	200	750	41	D
EB	**1,380**	**1,368**	**99%**			**47**	D
WBL	380	346	91%	225	1,125	64	E
WBT	1,700	1,742	102%	300	1,275	32	C
WBR	350	349	100%	0	100	7	A
WB	**2,430**	**2,437**	**100%**			**33**	C
Total	**5,210**	**5,274**	**101%**			**46**	D

Node Letter: D VISSIM ID: 40

2050 PM NoBuild

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	20	20	100%	0	75	78	E
NBR	100	98	98%	25	175	67	E
NB	**120**	**118**	**98%**			**68**	**E**
EBT	2,100	1,602	**76%**	600	850	134	F
EBR	20	14	**70%**	625	875	160	F
EB	**2,120**	**1,616**	**76%**			**134**	**F**
WBL	100	81	**81%**	25	125	48	D
WB	**100**	**81**	**81%**			**48**	**D**
Total	**2,340**	**1,815**	**78%**			**126**	**F**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	200	201	101%	125	575	87	F
NBT	110	113	103%	50	225	37	D
NBR	120	118	98%	50	225	26	C
NB	**430**	**432**	**100%**			**57**	**E**
SBL	130	98	**75%**	25	175	263	F
SBT	320	237	**74%**	2,725	5,250	323	F
SBR	260	194	**75%**	3,150	5,250	463	F
SB	**710**	**529**	**75%**			**363**	**F**
EBL	80	68	**85%**	25	125	99	F
EBT	1,660	1,367	**82%**	75	450	22	C
EBR	160	132	**83%**	75	450	24	C
EB	**1,900**	**1,567**	**82%**			**25**	**C**
WBL	120	87	**73%**	25	150	236	F
WBT	2,140	1,631	**76%**	2,825	3,875	316	F
WBR	60	47	**78%**	2,825	3,875	294	F
WB	**2,320**	**1,765**	**76%**			**311**	**F**
Total	**5,360**	**4,293**	**80%**			**188**	**F**

Node Letter: G VISSIM ID: 36

2050 PM Diamond

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	11	110%	0	75	58	E
NBR	110	108	98%	0	125	12	B
NB	**120**	**119**	**99%**			**16**	**B**
EBT	1,620	1,601	99%	0	125	4	A
EBR	10	10	100%	0	125	4	A
EB	**1,630**	**1,611**	**99%**			**4**	**A**
WBL	120	125	104%	50	175	67	E
WB	**120**	**125**	**104%**			**67**	**E**
Total	**1,870**	**1,855**	**99%**			**9**	**A**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	70	100%	25	100	38	D
NBT	60	61	102%	0	100	32	C
NBR	40	41	103%	25	125	19	B
NB	**170**	**172**	**101%**			**31**	**C**
SBL	90	91	101%	25	100	34	C
SBT	210	212	101%	25	200	33	C
SBR	170	176	104%	25	150	24	C
SB	**470**	**479**	**102%**			**30**	**C**
EBL	130	133	102%	25	175	58	E
EBT	1,900	1,878	99%	150	700	21	C
EBR	170	164	96%	0	75	14	B
EB	**2,200**	**2,175**	**99%**			**23**	**C**
WBL	110	101	92%	25	150	77	E
WBT	1,990	1,994	100%	1,025	3,100	63	E
WBR	80	80	100%	0	50	52	D
WB	**2,180**	**2,175**	**100%**			**63**	**E**
Total	**5,020**	**5,001**	**100%**			**42**	**D**

Node Letter: G VISSIM ID: 36

2050 PM SPUI

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	12	**120%**	0	75	67	E
NBR	110	108	98%	0	125	13	B
NB	**120**	**120**	**100%**			**18**	**B**
EBT	1,620	1,598	99%	25	200	6	A
EBR	10	8	**80%**	25	225	5	A
EB	**1,630**	**1,606**	**99%**			**6**	**A**
WBL	120	125	104%	50	175	66	E
WB	**120**	**125**	**104%**			**66**	**E**
Total	**1,870**	**1,851**	**99%**			**11**	**B**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	69	99%	25	125	58	E
NBT	60	60	100%	25	125	45	D
NBR	40	50	**125%**	25	125	22	C
NB	**170**	**179**	**105%**			**44**	**D**
SBL	90	100	**111%**	25	125	50	D
SBT	210	219	104%	50	250	48	D
SBR	170	177	104%	25	175	21	C
SB	**470**	**496**	**106%**			**39**	**D**
EBL	130	120	92%	25	150	44	D
EBT	1,900	1,906	100%	125	525	22	C
EB	**2,030**	**2,026**	**100%**			**23**	**C**
WBL	110	114	104%	25	125	36	D
WBT	1,990	2,040	103%	75	475	14	B
WBR	80	92	**115%**	75	475	12	B
WB	**2,180**	**2,246**	**103%**			**15**	**B**
Total	**4,850**	**4,947**	**102%**			**22**	**C**

Node Letter: G VISSIM ID: 36

Appendix C. SPUI Options Analysis Vissim Node Results

2050 AM SPUI - Hybrid

LOS Category: Signalized

1: 4700 S & Bangerter — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	140	136	97%	25	200	46	D
NBR	640	647	101%	25	225	11	B
NB	**780**	**783**	**100%**			**17**	**B**
SBL	170	170	100%	50	200	44	D
SBR	240	235	98%	0	0	1	A
SB	**410**	**405**	**99%**			**19**	**B**
EBL	470	472	100%	75	350	48	D
EBT	1,020	1,022	100%	75	425	23	C
EBR	400	396	99%	0	0	2	A
EB	**1,890**	**1,890**	**100%**			**25**	**C**
WBL	530	544	103%	50	200	27	C
WBT	610	632	104%	25	200	15	B
WBR	190	194	102%	0	0	0	A
WB	**1,330**	**1,370**	**103%**			**18**	**B**
Total	**4,410**	**4,448**	**101%**			**21**	**C**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	40	41	103%	0	75	40	D
NBT	140	142	101%	25	125	43	D
NBR	140	138	99%	25	125	14	B
NB	**320**	**321**	**100%**			**30**	**C**
SBL	180	181	101%	50	250	45	D
SBT	140	144	103%	25	150	36	D
SBR	90	86	96%	25	175	7	A
SB	**410**	**411**	**100%**			**34**	**C**
EBL	180	186	103%	0	100	16	B
EBT	1,540	1,538	100%	75	525	15	B
EBR	10	9	90%	75	550	15	B
EB	**1,730**	**1,733**	**100%**			**15**	**B**
WBL	100	91	91%	25	125	37	D
WBT	640	644	101%	25	225	15	B
WBR	100	99	99%	0	50	4	A
WB	**840**	**834**	**99%**			**16**	**B**
Total	**3,300**	**3,299**	**100%**			**19**	**B**

Node Letter: D VISSIM ID: 40

2050 AM SPUI - East Shift

LOS Category: Signalized

1: 4700 S & Bangerter — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	140	136	97%	25	200	46	D
NBR	640	644	101%	25	225	15	B
NB	**780**	**780**	**100%**			**20**	**B**
SBL	170	169	99%	50	200	45	D
SBR	240	235	98%	0	75	7	A
SB	**410**	**404**	**99%**			**23**	**C**
EBL	470	470	100%	75	250	43	D
EBT	1,020	1,017	100%	50	225	20	B
EBR	400	397	99%	0	0	3	A
EB	**1,890**	**1,884**	**100%**			**22**	**C**
WBL	530	544	103%	50	225	27	C
WBT	610	632	104%	25	125	16	B
WBR	190	194	102%	0	0	0	A
WB	**1,330**	**1,370**	**103%**			**18**	**B**
Total	**4,410**	**4,438**	**101%**			**21**	**C**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	40	41	103%	0	75	40	D
NBT	140	142	101%	25	125	43	D
NBR	140	138	99%	25	125	14	B
NB	**320**	**321**	**100%**			**30**	**C**
SBL	180	181	101%	50	250	46	D
SBT	140	144	103%	25	150	36	D
SBR	90	86	96%	25	175	7	A
SB	**410**	**411**	**100%**			**34**	**C**
EBL	180	186	103%	0	100	16	B
EBT	1,540	1,539	100%	75	550	15	B
EBR	10	9	90%	75	550	15	B
EB	**1,730**	**1,734**	**100%**			**15**	**B**
WBL	100	91	91%	25	125	37	D
WBT	640	645	101%	25	225	15	B
WBR	100	99	99%	0	50	4	A
WB	**840**	**835**	**99%**			**16**	**B**
Total	**3,300**	**3,301**	**100%**			**19**	**B**

Node Letter: D VISSIM ID: 40

2050 PM SPUI - Hybrid

LOS Category: Signalized

1: 4700 S & Bangerter — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	360	359	100%	100	375	48	D
NBR	760	736	97%	25	125	8	A
NB	**1,120**	**1,095**	**98%**			**21**	**C**
SBL	360	361	100%	100	475	49	D
SBR	810	802	99%	25	450	7	A
SB	**1,170**	**1,163**	**99%**			**20**	**B**
EBL	370	355	96%	75	200	51	D
EBT	1,080	1,058	98%	175	525	46	D
EBR	280	271	97%	0	0	2	A
EB	**1,730**	**1,684**	**97%**			**40**	**D**
WBL	680	701	103%	125	325	44	D
WBT	1,340	1,366	102%	275	1,125	24	C
WBR	230	231	100%	0	0	1	A
WB	**2,250**	**2,298**	**102%**			**28**	**C**
Total	**6,270**	**6,240**	**100%**			**28**	**C**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	120	131	109%	50	225	79	E
NBT	270	288	107%	75	375	59	E
NBR	160	154	96%	75	375	34	C
NB	**550**	**573**	**104%**			**57**	**E**
SBL	270	277	103%	175	750	86	F
SBT	400	433	108%	300	1,175	91	F
SBR	180	184	102%	300	1,175	20	B
SB	**850**	**894**	**105%**			**75**	**E**
EBL	160	162	101%	75	275	88	F
EBT	1,200	1,185	99%	225	900	47	D
EBR	20	20	100%	225	900	44	D
EB	**1,380**	**1,367**	**99%**			**52**	**D**
WBL	380	344	91%	225	1,250	62	E
WBT	1,700	1,737	102%	325	1,275	33	C
WBR	350	348	99%	0	125	8	A
WB	**2,430**	**2,429**	**100%**			**34**	**C**
Total	**5,210**	**5,263**	**101%**			**48**	**D**

Node Letter: D VISSIM ID: 40

2050 PM SPUI - East Shift

LOS Category: Signalized

1: 4700 S & Bangerter — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	360	358	99%	100	375	48	D
NBR	760	736	97%	25	275	13	B
NB	**1,120**	**1,094**	**98%**			**25**	**C**
SBL	360	362	101%	125	475	52	D
SBR	810	795	98%	100	475	30	C
SB	**1,170**	**1,157**	**99%**			**37**	**D**
EBL	370	356	96%	50	200	46	D
EBT	1,080	1,065	99%	75	325	32	C
EBR	280	270	96%	0	0	3	A
EB	**1,730**	**1,691**	**98%**			**30**	**C**
WBL	680	699	103%	100	300	39	D
WBT	1,340	1,371	102%	75	375	22	C
WBR	230	232	101%	0	0	0	A
WB	**2,250**	**2,302**	**102%**			**25**	**C**
Total	**6,270**	**6,244**	**100%**			**28**	**C**

Node Letter: B VISSIM ID: 47

LOS Category: Signalized

2: 4700 S & 4000 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	120	131	109%	50	225	78	E
NBT	270	288	107%	75	375	58	E
NBR	160	154	96%	75	375	34	C
NB	**550**	**573**	**104%**			**56**	**E**
SBL	270	278	103%	125	475	76	E
SBT	400	434	109%	300	1,175	89	F
SBR	180	184	102%	300	1,175	21	C
SB	**850**	**896**	**105%**			**71**	**E**
EBL	160	161	101%	75	300	90	F
EBT	1,200	1,186	99%	200	725	40	D
EBR	20	20	100%	200	725	39	D
EB	**1,380**	**1,367**	**99%**			**46**	**D**
WBL	380	346	91%	200	1,200	61	E
WBT	1,700	1,738	102%	275	1,275	31	C
WBR	350	347	99%	0	125	7	A
WB	**2,430**	**2,431**	**100%**			**32**	**C**
Total	**5,210**	**5,267**	**101%**			**45**	**D**

Node Letter: D VISSIM ID: 40

2050 AM SPUI - Hybrid

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	9	90%	0	25	60	E
NBR	60	60	100%	0	75	9	A
NB	**70**	**69**	**99%**			**16**	**B**
EBT	1,830	1,823	100%	25	175	5	A
EBR	30	30	100%	25	200	4	A
EB	**1,860**	**1,853**	**100%**			**5**	**A**
WBL	100	104	104%	25	150	45	D
WB	**100**	**104**	**104%**			**45**	**D**
Total	**2,030**	**2,026**	**100%**			**8**	**A**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	68	97%	25	100	45	D
NBT	60	59	98%	25	175	40	D
NBR	110	113	103%	25	175	21	C
NB	**240**	**240**	**100%**			**32**	**C**
SBL	120	116	97%	25	125	43	D
SBT	110	110	100%	25	125	41	D
SBR	110	111	101%	0	75	7	A
SB	**340**	**337**	**99%**			**30**	**C**
EBL	60	59	98%	0	50	19	B
EBT	1,710	1,734	101%	25	175	4	A
EBR	60	60	100%	25	200	4	A
EB	**1,830**	**1,853**	**101%**			**5**	**A**
WBL	60	60	100%	0	75	32	C
WBT	1,170	1,204	103%	25	225	7	A
WBR	30	29	97%	25	225	4	A
WB	**1,260**	**1,293**	**103%**			**8**	**A**
Total	**3,670**	**3,723**	**101%**			**10**	**A**

Node Letter: G VISSIM ID: 36

2050 AM SPUI - East Shift

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	9	90%	0	25	60	E
NBR	60	60	100%	0	75	10	A
NB	**70**	**69**	**99%**			**16**	**B**
EBT	1,830	1,826	100%	25	250	7	A
EBR	30	29	97%	25	275	5	A
EB	**1,860**	**1,855**	**100%**			**7**	**A**
WBL	100	104	104%	25	125	46	D
WB	**100**	**104**	**104%**			**46**	**D**
Total	**2,030**	**2,028**	**100%**			**9**	**A**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	68	97%	25	100	45	D
NBT	60	59	98%	25	175	40	D
NBR	110	113	103%	25	175	21	C
NB	**240**	**240**	**100%**			**33**	**C**
SBL	120	116	97%	25	125	43	D
SBT	110	110	100%	25	125	41	D
SBR	110	111	101%	0	75	8	A
SB	**340**	**337**	**99%**			**31**	**C**
EBL	60	59	98%	0	50	18	B
EBT	1,710	1,733	101%	25	250	5	A
EBR	60	61	102%	25	250	4	A
EB	**1,830**	**1,853**	**101%**			**5**	**A**
WBL	60	60	100%	0	75	33	C
WBT	1,170	1,204	103%	25	225	7	A
WBR	30	29	97%	25	225	4	A
WB	**1,260**	**1,293**	**103%**			**8**	**A**
Total	**3,670**	**3,723**	**101%**			**10**	**A**

Node Letter: G VISSIM ID: 36

2050 PM SPUI - Hybrid

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	12	120%	0	75	68	E
NBR	110	108	98%	0	150	14	B
NB	**120**	**120**	**100%**			**19**	**B**
EBT	1,620	1,591	98%	75	650	14	B
EBR	10	8	80%	75	675	12	B
EB	**1,630**	**1,599**	**98%**			**14**	**B**
WBL	120	125	104%	50	175	70	E
WB	**120**	**125**	**104%**			**70**	**E**
Total	**1,870**	**1,844**	**99%**			**18**	**B**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	69	99%	25	125	58	E
NBT	60	60	100%	25	125	45	D
NBR	40	50	125%	25	125	22	C
NB	**170**	**179**	**105%**			**44**	**D**
SBL	90	100	111%	25	125	50	D
SBT	210	219	104%	50	250	48	D
SBR	170	178	105%	25	150	18	B
SB	**470**	**497**	**106%**			**38**	**D**
EBL	130	119	92%	25	125	48	D
EBT	1,900	1,905	100%	100	550	20	B
EBR	170	167	98%	100	550	20	B
EB	**2,200**	**2,191**	**100%**			**22**	**C**
WBL	110	114	104%	25	100	35	C
WBT	1,990	2,040	103%	100	575	16	B
WBR	80	91	114%	100	575	10	A
WB	**2,180**	**2,245**	**103%**			**17**	**B**
Total	**5,020**	**5,112**	**102%**			**22**	**C**

Node Letter: G VISSIM ID: 36

2050 PM SPUI - East Shift

LOS Category: Signalized

3: 4700 S & 3880 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	10	12	120%	0	75	67	E
NBR	110	108	98%	0	125	13	B
NB	**120**	**120**	**100%**			**18**	**B**
EBT	1,620	1,598	99%	25	200	6	A
EBR	10	8	80%	25	200	5	A
EB	**1,630**	**1,606**	**99%**			**6**	**A**
WBL	120	125	104%	50	175	68	E
WB	**120**	**125**	**104%**			**68**	**E**
Total	**1,870**	**1,851**	**99%**			**11**	**B**

Node Letter: E VISSIM ID: 3880

LOS Category: Signalized

4: 4700 S & 3600 W — Delay / LOS

Mvmt	Demand	Volume Served	% Served	Queue (ft) Avg / 95th 900-4500		Analysis Period 900-4500	
NBL	70	69	99%	25	125	58	E
NBT	60	60	100%	25	125	45	D
NBR	40	50	125%	25	125	22	C
NB	**170**	**179**	**105%**			**43**	**D**
SBL	90	100	111%	25	125	50	D
SBT	210	219	104%	50	250	48	D
SBR	170	177	104%	25	175	22	C
SB	**470**	**496**	**106%**			**39**	**D**
EBL	130	121	93%	25	150	47	D
EBT	1,900	1,911	101%	125	575	21	C
EBR	170	168	99%	125	575	22	C
EB	**2,200**	**2,200**	**100%**			**23**	**C**
WBL	110	114	104%	25	125	36	D
WBT	1,990	2,040	103%	75	475	14	B
WBR	80	92	115%	75	475	12	B
WB	**2,180**	**2,246**	**103%**			**15**	**B**
Total	**5,020**	**5,121**	**102%**			**21**	**C**

Node Letter: G VISSIM ID: 36

Appendix B: Traffic and Design

Bangerter Highway at 4700 South Alternatives Memo

BANGERTER
4700 SOUTH

ALTERNATIVES MEMO

BANGERTER HIGHWAY AT 4700 SOUTH

FEBRUARY 2022

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Figure 3: West Shift Horizontal Alignment Alternative 8

Alternatives

INTRODUCTION

The Utah Department of Transportation (UDOT) is conducting a State Environmental Study (SES) to analyze improvements at the Bangerter Highway (State Route 154) and 4700 South intersection in West Valley City and Taylorsville, Utah. The Wasatch Front Regional Council's 2019–2050 Regional Transportation Plan (RTP) includes projects to convert Bangerter Highway into a freeway system by replacing the at-grade intersections with grade-separated interchanges.

Currently, the Bangerter Highway and 4700 South intersection experiences congestion operating at Level of Service (LOS) E (average of 67 seconds of delay per vehicle) during the AM peak hour and LOS D (average of 54 seconds of delay per vehicle) during the PM peak hour.

Level of service is a measure of the operating conditions on a road or at an intersection. Level of service is represented by a letter "grade" ranging from A (free-flowing traffic and little delay) to F (extremely congested, stop-and-go traffic and excessive delay). For roads such as Bangerter Highway, UDOT considers LOS A through D to be acceptable operating conditions and LOS E and F to be unacceptable operating conditions.

If no operational improvements are made at this intersection, traffic modeling indicates that by 2050 the intersection is projected to operate at LOS F during the AM peak and PM peak hours (average of 143 seconds and 112 seconds of delay per vehicle, respectively). Extensive queuing on Bangerter Highway and 4700 South intersection is also projected to extend through adjacent intersections on 4700 South (4000 West, Muirhouse Drive, 3740 West, and 3600 West) causing them to fail.

The needs for the current project (converting the Bangerter Highway and 4700 South intersection to a grade-separated interchange) are:

- Current failing condition (LOS E) during the AM peak hour at the Bangerter Highway and 4700 South intersection
- Future failing conditions (LOS F) during AM and PM peak hours at the Bangerter Highway and 4700 South intersection
- Future congestion throughout the local street network due to long queues of vehicles stopped at the Bangerter Highway and 4700 South intersection

The purpose of the project is to alleviate congestion and improve the operations at the Bangerter Highway and 4700 South intersection and to support regional network mobility and operations by:

- Reducing current and future delay at the Bangerter Highway and 4700 South intersection (metric: LOS at the intersection)
- Reducing future congestion throughout the local street network (metric: LOS at local intersections)
- Improving traffic operations and mobility on Bangerter Highway at the 4700 South intersection (metric: vehicle queue lengths on mainline Bangerter Highway)

ALTERNATIVES DEVELOPMENT AND SCREENING

As part of this project, UDOT developed and screened a range of alternatives. Two screenings were conducted: a purpose and need screening and a key environmental impacts screening. The purpose of this memo is to describe that process and how UDOT arrived at the alternative selected to be evaluated in the SES.

A range of alternatives for the Bangerter Highway and 4700 South intersection were developed and evaluated. In this location, certain corridor constraints limited what options were feasible.

CORRIDOR CONSTRAINTS

RESIDENTIAL PROPERTIES surround the Bangerter Highway and 4700 South intersection.

COMMERCIAL PROPERTIES are located northeast and northwest of the Bangerter Highway and 4700 South intersection.

INTERMOUNTAIN HEALTHCARE TAYLORSVILLE CLINIC is located southwest of the Bangerter Highway and 4700 South intersection.

CHURCH PROPERTIES are located northwest and southeast of the Bangerter Highway and 4700 South intersection.

KEY PUBLIC UTILITIES include the Jordan Valley Aqueduct (a 72-inch to 78-inch diameter pipeline) and 50-foot easement that is in, and parallel to, the northbound Bangerter Highway travel lanes; the Kearns Chesterfield Drain that is in the southbound Bangerter Highway travel lanes and under 4700 South west of Bangerter Highway; and three cellphone towers located northeast, northwest, and southeast of the Bangerter Highway and 4700 South intersection.

INTERCHANGE OPTIONS VERSUS NO BUILD

INTERCHANGE TYPE

UDOT evaluated two interchange types for the Bangerter Highway and 4700 South intersection: a Tight Diamond Interchange and a Single Point Urban Interchange (SPUI). Both interchange types assumed consistent lane configurations, including three through lanes in each direction on 4700 South, dual left-turn lanes for all left-turns, two lanes for the northbound and southbound right-turns from Bangerter Highway, and single lane free-rights from 4700 South onto Bangerter Highway.

NO BUILD

Under the No Build, it is assumed that the Bangerter Highway and 4700 South intersection would remain at-grade and that all other projects proposed in the Wasatch Front Regional Council (WFRC) 2019–2050 Regional Transportation Plan (RTP) would be built. Proposed RTP projects near the study area include:

- Mountain View Corridor as a freeway (RTP Project R-S-101)
- Bangerter Highway as a freeway except for 4700 South
- 4700 South widening to a 5-lane cross-section west of 4000 West (RTP Project R-S-29)
- 4700 South widening to a 7-lane cross-section east of 4000 West (RTP Project R-S-30)

PURPOSE AND NEED SCREENING

The Purpose and Need screening evaluated the ability of each interchange type to meet the Purpose and Need, as described in the Introduction. This evaluation included three measures of effectiveness, which are listed in Table 1.

Table 1. Purpose and Need Screening: Interchange and No Build

Need	Measure of Effectiveness	2050 Interchange		2050 No Build
		SPUI	Tight Diamond	At-grade Intersection
Current failing conditions (LOS E) during the AM peak hour at the Bangerter Highway and 4700 South intersection	Provides LOS D or better at the Bangerter Highway and 4700 South intersection	Yes LOS B, AM Peak LOS C, PM Peak	Yes LOS D, AM Peak LOS D, PM Peak	No LOS F, AM Peak LOS F PM Peak
Future failing conditions (LOS F) during AM and PM peak hours at the Bangerter Highway and 4700 South intersection				
Future congestion throughout the local street network due to long queues of vehicles stopped at the Bangerter Highway and 4700 South intersection	Reduces future congestion throughout the local street network	Yes	Yes	No
		Advanced	**Eliminated**	**Eliminated**
References: *Bangerter Highway & 4700 South Existing and 2050 No Build Traffic Analysis*; *Bangerter Highway & 4700 South Future Build Conditions Traffic Analysis*				

Both the Tight Diamond and SPUI show improvement compared to the 2050 No Build. However, the SPUI was selected over the Tight Diamond because it is projected to better alleviate congestion and improve the operations at the Bangerter Highway and 4700 South intersection and also supports regional network mobility and operations by:

- Providing a better 2050 LOS at the Bangerter Highway and 4700 South intersection
- Reducing future congestion throughout the local street network by providing a better LOS at two of three local intersections in both the AM and PM peak hours (see Table 2)

Table 2: Local Street Network LOS

Intersection	2050 AM Peak (LOS / Delay in seconds)		2050 PM Peak (LOS / Delay in seconds)	
	SPUI	Tight Diamond	SPUI	Tight Diamond
4700 South and 4000 West	LOS B / 19	LOS C / 23	LOS D / 46	LOS D / 55
4700 South and 3880 West	LOS A / 9	LOS A / 7	LOS B / 11	LOS A / 9
4700 South and 3600 West	LOS A / 10	LOS B / 15	LOS C / 22	LOS D / 42
References: *Bangerter Highway & 4700 South Future Build Conditions Traffic Analysis*				

HORIZONTAL ALIGNMENT ALTERNATIVES

UDOT evaluated three different horizontal alignment alternatives for the SPUI:

1. **East Shift:** Shift the Bangerter Highway alignment to the east.
2. **Hybrid Shift**: Center the Bangerter Highway alignment between the East Shift alignment and West Shift alignment
3. **West Shift:** Shift the Bangerter Highway alignment to the west.

KEY ENVIRONMENTAL IMPACTS SCREENING

The Key Environmental Impacts Screening evaluated the horizontal alignment alternatives based on their expected impacts to surrounding residential and commercial properties and key public utility features (see Table 3).

Table 3. Key Environmental Impacts Screening: Horizontal Alignment Alternatives

Resource	Horizontal Alignment Alternative		
	East Shift (Figure 1)	Hybrid Shift (Figure 2)	West Shift (Figure 3)
Residential Acquisitions	28	28	31
Business/Commercial Acquisitions	3	3	3
Total Right-of-way Acquisition (Full and Partial)	17.42 ac. from 91 parcels	18.99 ac. from 103 parcels	10.00 ac. from 67 parcels
Jordan Valley Aqueduct (Impact [Yes/No])	Yes	Yes	No
Kearns Chesterfield Drain (Impact [Yes/No])	No	Yes	Yes
Northwest Cell Tower (Relocation [Yes/No])	No	No	Yes
Northeast Cell Tower (Relocation [Yes/No])	Yes	Yes	No
Southeast Cell Tower (Relocation [Yes/No])	Yes	Yes	No
Results	**Advanced**	**Eliminated**	**Eliminated**

The horizontal alignment alternatives combined any potential relocations and partial acquisitions into total number of parcels impacted. This is due to the level of detail conducted at this stage of the alternative's development process.

In addition to the Key Environmental Impact evaluation, the horizontal alignment alternatives were also evaluated on design exceptions, constructability, and maintenance of traffic. These details are discussed in the paragraphs below.

West Shift Elimination

All horizontal alignment alternatives would require three full business acquisitions. However, only the West Shift would require the full acquisition and relocation of the Intermountain Healthcare (IHC) facility, Life Church, Granite Mountain Storage complex, and 35 residential properties. The West Shift impacts were considered more impactful to the community than the other two alternatives as it would decrease access to available health services and a community gathering place, and it displaced the most residences. Therefore, the West Shift alternative was eliminated.

Hybrid and East Shift Comparison

Comparing the Hybrid and East Shift alternative property impacts indicate the same three commercial facilities (Bible Baptist Church, Diamond Rental, and Riverton Music) would be fully acquired and relocated. However, the Hybrid Shift would result in more total right-of-way (ROW) acquisition acres than the East Shift, particularly at the IHC facility and the Life Church.

Vehicle access and circulation around the Life Church building was also an important element evaluated when comparing property impacts. The Hybrid and East Shift successfully accommodate vehicle access and circulation. However, the Hybrid Shift would require design exceptions for reduced roadside shoulder widths and snow storage areas along the southbound exit ramp; the East Shift complies with current standards.

When comparing utility impacts, the Hybrid Shift would: 1) relocate the Kearns Chesterfield Drain; and 2) require costly retrofit joint sealing and lightweight fill material for the Jordan Valley Aqueduct. By contrast, the East Shift would require relocating the Jordan Valley Aqueduct and protect the Kearns Chesterfield Drain in place.

The Hybrid and East Shift were also evaluated on constructability. Findings indicate the Hybrid Shift would be more expensive and complicated to construct because the west side of Bangerter Highway provides limited property to implement maintenance of traffic measures, whereas the East Shift would have access to property made available after the relocation of the Jordan Valley Aqueduct.

The East Shift alternative was selected as the preferred SPUI horizontal alignment because it minimized impacts to commercial and residential properties, it does not require design exceptions, and it would have fewer constructability issues.

East Shift

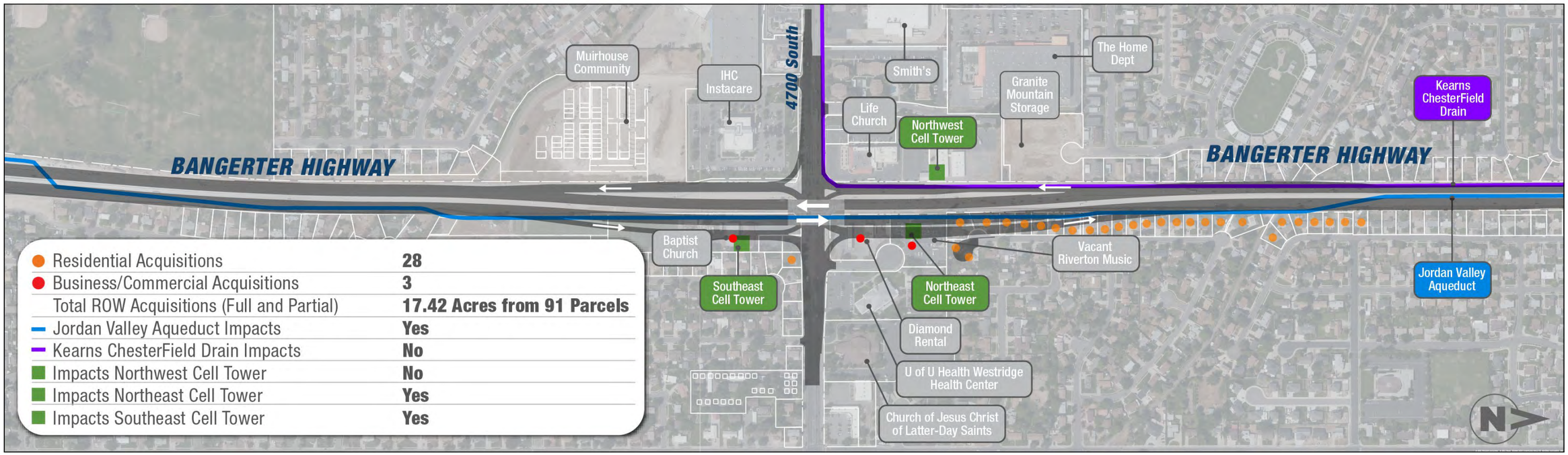


Figure 1: East Shifting Horizontal Alignment Alternative

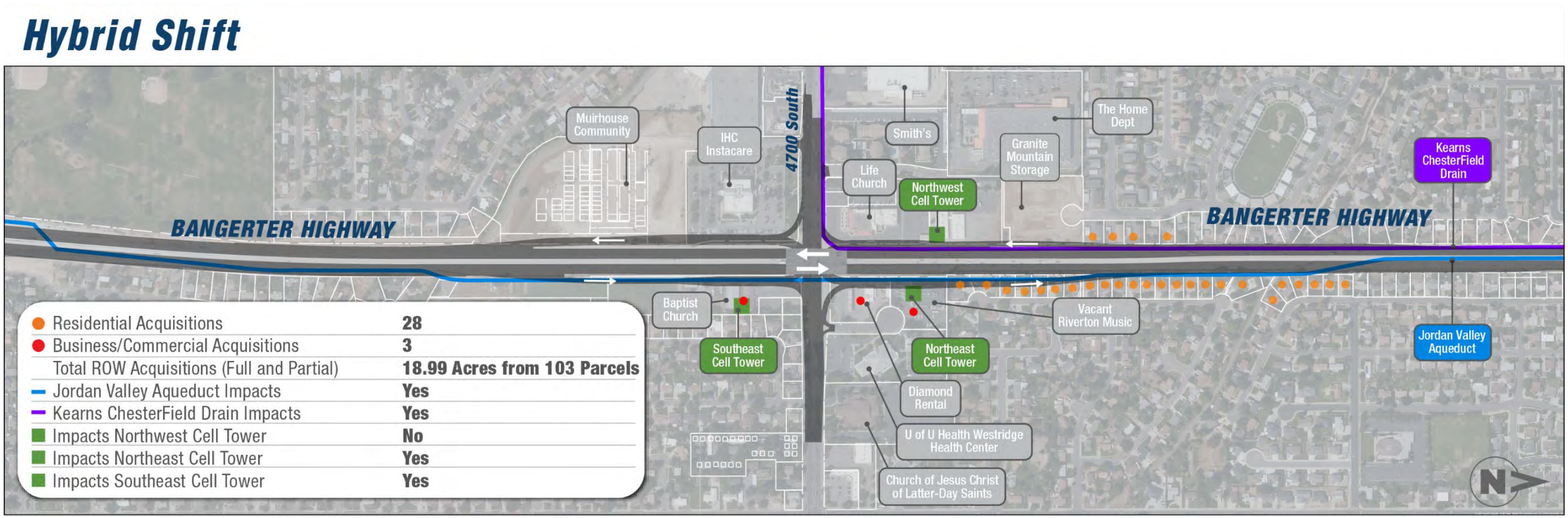


Figure 2: Hybrid Shifting Horizontal Alignment Alternative

West Shift

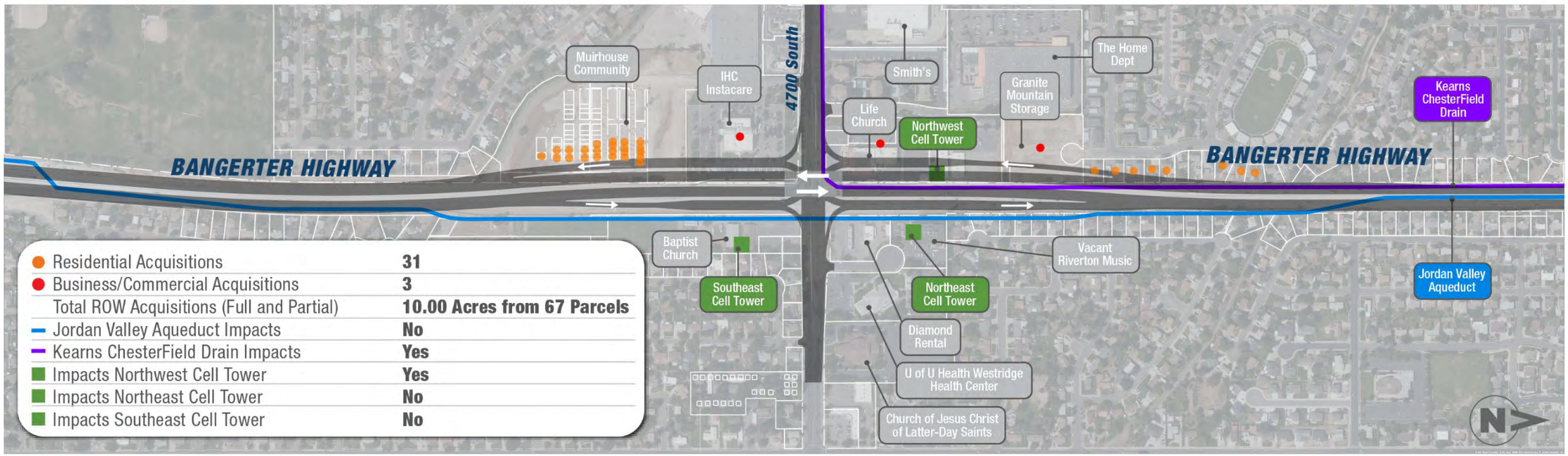


Figure 3: West Shift Horizontal Alignment Alternative

VERTICAL ALIGNMENT OPTIONS

UDOT evaluated two vertical alignment options:

1. **Over:** Bangerter Highway over 4700 South with 4700 South at the existing grade
2. **Under:** Bangerter Highway under 4700 South with 4700 South at the existing grade

UDOT coordinated these vertical alignment options with West Valley City and Taylorsville in the decision-making process.

KEY ENVIRONMENTAL IMPACTS SCREENING

Table 4 summarizes the Key Environmental Impacts evaluated for the vertical alignment options.

Table 4. Key Environmental Impacts Screening: Vertical Alignment Options

Resource	Vertical Alignment	
	Bangerter Highway Over 4700 South	Bangerter Highway Under 4700 South
Residential Acquisitions	28	
Business/Commercial Acquisitions	3	
Total Right-of-way Acquisition (Full and Partial)	17.42 ac. from 91 parcels	
Jordan Valley Aqueduct (Impact [Yes/No])	Yes	Yes. This alignment requires the aqueduct to be located farther east to be clear of the soil nail zone.
Kearns Chesterfield Drain (Impact [Yes/No])	No	
Northwest Cell Tower (Relocation [Yes/No])	No	
Northeast Cell Tower (Relocation [Yes/No])	Yes	
Southeast Cell Tower (Relocation [Yes/No])	Yes	
Additional Utilities Impacts	No	Yes. This alignment requires additional utility easements west of Bangerter Highway. It would also require re-routing utilities around the lowered portion of Bangerter Highway.

Resource	Vertical Alignment	
	Bangerter Highway Over 4700 South	**Bangerter Highway Under 4700 South**
Noise Impacts	Noise levels would range from 40 dBA to 78 dBA compared to 36 dBA and 69 dBA for the existing conditions. 420 receptors would be impacted by the Bangerter Highway Over Alternative.	Noise levels would range from 38 dBA to 78 dBA compared to 36 dBA and 69 dBA for the existing conditions. 321 receptors would be impacted by the Bangerter Highway Under Alternative.
Estimated Cost	$157,700 million*	$175,500 million*
Results	**Carried Forward**	**Carried Forward**

**Updated February 2022*

The key environmental impacts summarized in Table 4 for both the under and over options are similar except for the noise impacts. The most notable differences between the two options are impacts to the Jordan Valley Aqueduct, re-routing other utilities, and estimated cost.

This decision will continue to be coordinated with West Valley City and Taylorsville and a final decision will be made at a future date. Once a decision is made, UDOT will communicate this decision using various outreach channels.

SUMMARY

The alternative selected to advance is the SPUI East Shift with both vertical alignment options being carried forward for consideration.

Appendix C: Public Involvement

Bangerter Highway at 4700 South Public Scoping Report

BANGERTER HIGHWAY AT 4700 SOUTH

PUBLIC SCOPING REPORT

PIN:	**18808**
Project Number:	**S-0154(92)0**
Prepared For:	**Utah Department of Transportation**
Prepared By:	**Avenue Consultants**
Date:	**August 18, 2021**

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PROJECT OVERVIEW

The Utah Department of Transportation (UDOT) has initiated State Environmental Studies (SESs) for the following intersections along Bangerter Highway:

- 2700 West
- 13400 South
- 9800 South
- 4700 South
- 4100 South
- 3500 South to S.R. 201
- California Avenue

Bangerter Highway is a major north-south corridor in the state of Utah, and with continued growth in the area, the amount of traffic on Bangerter Highway is expected to increase. This projected increase in traffic will also increase delays on Bangerter Highway by up to four times longer than the current conditions. UDOT is proposing to replace at-grade, signalized intersections along the corridor with grade-separated interchanges, which will allow one street to pass over or under the other. This separation will move Bangerter Highway and cross-street traffic more efficiently and will eliminate points of conflict along this busy highway.

The purpose of this study is to identify the best solution to address the needs along Bangerter Highway, evaluate the impacts of the proposed improvements to the natural and built environments, and provide opportunities for public input.

PUBLIC SCOPING MEETING

Meeting Overview

An online public scoping meeting and an in-person public scoping meeting (open house format) were held to educate and inform the public about the SES process and gather input regarding the study.

When/Where

Online Presentation and Q&A

When: Tuesday, July 20, 2021, 6 – 7 p.m.

Where: Zoom Webinar – visit the study website for information on how to join the online meeting: udot.utah.gov/Bangerter4700South

In-Person Open House

When: Wednesday, July 21, 2021, 6 – 7:30 p.m.

Where: Kennedy Junior High School

4495 South 4800 West

West Valley City, UT 84120

Advertisements

The project team (consisting of UDOT Staff and consultant firms) developed and executed a comprehensive outreach plan to invite adjacent property owners, residents, and general public to attend the public scoping meetings, including:

- Legal notice published in major newspapers according to UDOT's Environmental MOI. The legal notice was published on July 2, 2021, and July 9, 2021, in the Deseret News and July 4, 2021, and July 11, 2021, in the Salt Lake Tribune .
- Mailed postcard sent on July 6, 2021, to properties surrounding the study area.
- Advertisements on Taylorsville City, West Valley City, and Kearns Metro Township (Greater Salt Lake Municipal Service District) existing social media and websites.
- Email updates to the existing Bangerter Highway email database on July 13, 2021, and July 15, 2021.
- Project website update on July 1, 2021.

Copies of meeting advertisements are available in Appendix A.

Attendance

There were 40 attendees at the online public meeting based on analytics from the Zoom platform. The in-person public meeting had 50 attendees who provided their information on the sign-in sheets at the meeting. A list of attendees for the online meeting and copies of the sign-in sheets from the in-person meeting are available in Appendix B.

Information Presented

Online Presentation and Q&A

The project team gave a presentation at the start of the online public meeting, which included information about the environmental study process, existing and future traffic conditions, the environmental study area, the environmental study schedule, possible interchange design solutions, and project contact information. After the presentation, attendees had the opportunity to ask questions via the Zoom chat feature, with project team members providing responses to all questions submitted during the meeting.

The day after the online meeting (July 21, 2021) the presentation was posted on the project website, along with a video recording of the meeting allowing those who were not able to attend to have access to the project information. The presentation was available online in both English and Spanish to meet the language needs of the community.

A copy of the online presentation is provided in Appendix C (Spanish version is not included).

In-Person Open House

The same project information presented during the online public meeting was also presented at the public open house utilizing display boards , which included information about the environmental study process, existing and future traffic conditions, the environmental study area, the environmental study

schedule, possible interchange design solutions, and project contact information. Scroll plots were displayed to facilitate public discussion that showed an aerial view of the existing 4700 South and Bangerter intersection along with the study area. Representatives from the project team were available to answer questions and provide additional information, as needed. A comment form was provided for attendees to leave written comments to be included as part of the formal comment period. Materials presented at the meeting are provided in Appendix C.

AGENCY SCOPING

Comments were solicited from agencies and/or public organizations that could be impacted by the intersection improvements . Letters were mailed to 15 agencies on June 11, 2021 to solicit input. One comment was received via email from the Utah Transit Authority (UTA). A list of agencies and/or public organizations mailed, a sample of the agency scoping letters, and the UTA comment are included in Appendix D.

PUBLIC COMMENTS

A formal public comment period was held from July 2, 2021 through August 4, 2021. Members of the public were encouraged to leave comments via postal mail and email. A comment form was also available at the in-person public meeting. A total of ten comments were received (four via comment forms at the in-person public meeting, five email comments, and two comment received via postal mail). Common themes from public comments (and associated number of comments received for each topic) included:

- Longer merge lanes. (1)
- Noise wall on south & east of Bangerter (1)
- Prefer SPUI interchange. (1)
- Traffic improvements at 3845 W 4700 S (IHC) (1)
- Construction impact to irrigation water season (1)
- Access at Westridge Health Center during/after construction (1)
- Ability to make future modifications to 4700 South (1)
- General in favor of project (2)
- Religious protections for churches (1)

The verbatim public comments, and associated responses, are provided in Appendix E.

Appendix A: Advertisements

Legal Notice Proof of Publication (Deseret News)

PO BOX 271693
SALT LAKE CITY UTAH 84127
FED. TAX I.D.# 87-0128317
801-204-6910

DeseretNews

PROOF OF PUBLICATION

CUSTOMER'S COPY

CUSTOMER NAME AND ADDRESS
Avenue Consultants Inc.
Avenue Consultants Inc.
6605 S Redwood Rd Suite 200
Salt Lake City, UT 84123

ACCOUNT NUMBER
54294

ACCOUNT NAME
Avenue Consultants Inc.

TELEPHONE
801-716-2466

ORDER #
DN0012676

CUSTOMER REFERENCE NUMBER
18808_4700 S. Legal Notice

CAPTION
NOTICE OF PUBLIC MEETING On Proposed Improvements for the Bangerter Highway (S.R. 154) and 4700 South Intersection in Salt Lake County, UT; UDOT Project No.

TOTAL COST
$289.48

NOTICE OF PUBLIC MEETING
On Proposed Improvements for the
Bangerter Highway (S.R. 154) and 4700 South Intersection
in Salt Lake County, UT;
UDOT Project No. S-0154(92)0

As part of the State Environmental Study, the Utah Department of Transportation (UDOT) advises all interested persons or groups that two Public Meeting opportunities, in both an online and in-person format, will be held for the proposed improvements at the Bangerter Highway and 4700 South intersection in Salt Lake County, UT.

The proposed project includes constructing a grade-separated interchange at the intersection of Bangerter Highway and 4700 South.

Online Public Meeting
When: Tuesday, July 20, 2021, from 6 - 7 p.m.
Where: Visit udot.utah.gov/bangerter4700south for instructions on how to join the online meeting

In-person Public Meeting
When: Wednesday, July 21, 2021, from 6 - 7:30 p.m.
Where: Kennedy Jr. High School, 4495 South 4800 West, West Valley City, UT 84120

Members of the public are invited to attend the Public Meetings and are encouraged to provide comments for consideration as the study progresses. Information to be presented at the meetings will include the study goals, the State Environmental Study process, and schedule. Specific alternatives or concepts are not available at this point in the study and will not be presented at the meetings.

The meeting materials will be available on the study website starting on July 20, 2021, at udot.utah.gov/bangerter4700south. Written comments should be sent to:

Bangerter Environmental c/o Avenue Consultants
6605 South Redwood Rd., Suite 200
Taylorsville, UT 84123

Comments may also be submitted via email at bangerter@utah.gov. Comments need to be submitted by Aug. 4, 2021, to be included in the official transcripts of the Public Meetings. Comments provided to the study team will be reviewed and considered by UDOT as the study develops. All comments received will be documented in the project record. The study team will contact you if they need additional information or clarification.

If you have questions about the Public Meetings, please contact a study representative at 888-766-ROAD (7623) or bangerter@utah.gov, or visit udot.utah.gov/bangerter4700south.

In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) or language translation services during this meeting should notify the study team five days in advance at 888-766-ROAD (7623) or bangerter@utah.gov. Para información en español, llame al 888-766-ROAD (7623).
DN0012676

AFFIDAVIT OF PUBLICATION

AS THE DESERET NEWS, INC. LEGAL BOOKER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF LEGAL NOTICE FOR AVENUE CONSULTANTS INC. WAS PUBLISHED BY DESERET NEWS, INC., WEEKLY NEWSPAPER PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH. NOTICE IS ALSO POSTED ON UTAHLEGALS.COM ON THE SAME DAY AS THE FIRST NEWSPAPER PUBLICATION DATE AND REMAINS ON UTAHLEGALS.COM INDEFINITELY. COMPLIES WITH UTAH DIGITAL SIGNATURE ACT UTAH CODE 46-2-101; 46-3-104.

PUBLISHED ON 07/02/2021, 07/09/2021

DATE 08/03/2021

SIGNATURE

STATE OF UTAH
COUNTY OF Salt Lake

SUBSCRIBED AND SWORN TO BEFORE ME ON THIS 3rd DAY OF AUGUST IN THE YEAR 2021

BY Loraine Gudmundson

LENEA TAPUSOA
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 712892
COMM. EXP. 07-06-2024

NOTARY PUBLIC SIGNATURE

Legal Notice Proof of Publication (Salt Lake Tribune)

90 S 400 W STE 700
SALT LAKE CITY, UT 84101-1431

The Salt Lake Tribune

PROOF OF PUBLICATION CUSTOMER'S COPY

CUSTOMER NAME AND ADDRESS
AVENUE CONSULTANTS, INC.
TESS A. KATWYK
6605 S REDWOOD RD STE 200
Salt Lake City, UT 84123

ACCOUNT NUMBER
4748

ACCOUNT NAME
AVENUE CONSULTANTS, INC.

TELEPHONE
801-716-2466

ORDER #
SLT0012903

CUSTOMER REFERENCE NUMBER

CAPTION
NOTICE OF PUBLIC MEETING On Proposed Improvements for the Bangerter Highway (S.R. 154) and 4700 South Intersection in Salt Lake County, UT; UDOT Project No.

TOTAL COST
$394.40

NOTICE OF PUBLIC MEETING
On Proposed Improvements for the
Bangerter Highway (S.R. 154) and 4700 South Intersection
in Salt Lake County, UT;
UDOT Project No. S-0154(92)0

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When: Wednesday, July 21, 2021, from 6 - 7:30 p.m.
Where: Kennedy Jr. High School, 4495 South 4800 West, West Valley City, UT 84120

Members of the public are invited to attend the Public Meetings and are encouraged to provide comments for consideration as the study progresses. Information to be presented at the meetings will include the study goals, the State Environmental Study process, and schedule. Specific alternatives or concepts are not available at this point in the study and will not be presented at the meetings.

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Bangerter Environmental c/o Avenue Consultants
6605 South Redwood Rd., Suite 200
Taylorsville, UT 84123

Comments may also be submitted via email at bangerter@utah.gov. Comments need to be submitted by Aug. 4, 2021, to be included in the official transcripts of the Public Meetings. Comments provided to the study team will be reviewed and considered by UDOT as the study develops. All comments received will be documented in the project record. The study team will contact you if they need additional information or clarification.

If you have questions about the Public Meetings, please contact a study representative at 888-766-ROAD (7623) or bangerter@utah.gov, or visit udot.utah.gov/bangerter4700south.

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SLT0012903

AFFIDAVIT OF PUBLICATION

AS THE SALT LAKE TRIBUNE, INC. LEGAL BOOKER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF NOTICE OF PUBLIC MEETING On Proposed Improvements for the Bangerter Highway (S.R. 154) and 4700 South Intersection in Salt Lake County, UT; UDOT Project No. FOR AVENUE CONSULTANTS, INC. WAS PUBLISHED BY THE SALT LAKE TRIBUNE, INC., WEEKLY NEWSPAPER PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH. NOTICE IS ALSO POSTED ON UTAHLEGALS.COM ON THE SAME DAY AS THE FIRST NEWSPAPER PUBLICATION DATE AND REMAINS ON UTAHLEGALS.COM INDEFINITELY. COMPLIES WITH UTAH DIGITAL SIGNATURE ACT UTAH CODE 46-2-101; 46-3-104.

PUBLISHED ON 07/04/2021, 07/11/2021

DATE 07/15/2021

SIGNATURE Jordyn Gallegos

STATE OF UTAH
COUNTY OF SALT LAKE

SUBSCRIBED AND SWORN TO BEFORE ME ON THIS 15th DAY OF JULY IN THE YEAR 2021

BY Jordyn Gallegos

MAKAYLA THEE
Notary Public, State of Utah
Commission # 718815
My Commission Expires
June 15, 2025

NOTARY PUBLIC SIGNATURE

Mailed Postcard

BANGERTER
4700 SOUTH

YOU'RE INVITED! ENVIRONMENTAL STUDY PUBLIC MEETING OPPORTUNITIES
¡ESTÁS INVITADO! OPORTUNIDADES DE REUNIÓN PÚBLICA DE ESTUDIO AMBIENTAL

The Utah Department of Transportation (UDOT) has started a State Environmental Study (SES) to evaluate a potential freeway-style interchange at **Bangerter Highway and 4700 South** to reduce congestion and improve safety. The **study is scheduled for completion in early 2022,** with **construction anticipated in 2023.** UDOT is hosting two public meetings to gather feedback about overall transportation needs and environmental issues.

*El Departamento de Transporte de Utah (UDOT) ha iniciado un Estudio Ambiental Estatal (SES) para evaluar un posible intercambio en **Bangerter Highway y 4700 South** para reducir la congestión y mejorar la seguridad. **El estudio está programado para completarse a principios de 2022,** y **la construcción esta anticipada para 2023.** UDOT está organizando dos reuniones públicas para escuchar comentarios sobre las necesidades generales de transporte y los problemas ambientales.*

ONLINE PRESENTATION AND Q&A
/ PRESENTACIÓN EN LÍNEA

When/*Cuándo:* **Tuesday, July 20, 2021, 6 – 7 p.m.**
/ Martes 20 de julio de 2021 6 a 7 p.m.

Where/*Dónde:* **Zoom Webinar** */ Web via Zoom*
Visit the study website for information on how to join the online meeting:
udot.utah.gov/Bangerter4700South
Visite el sitio web del estudio para obtener información sobre cómo unirse a la reunión en línea:
udot.utah.gov/bangerter4700south

IN-PERSON OPEN HOUSE
/ REUNION EN PERSONA

When/*Cuándo:* **Wednesday, July 21, 2021, 6 – 7:30 p.m.**
/ Miércoles 21 de julio de 2021 6 a 7:30 p.m.

Where/*Dónde:* **Kennedy Junior High School**
4495 South 4800 West
West Valley City, UT 84120

Hotline/*Teléfono:* 888-766-ROAD (7623) | **Email**/*Correo electrónico:* bangerter@utah.gov | **Website**/*Sitio web:* udot.utah.gov/Bangerter4700South

A UDOT PROJECT

The same information will be available at both meetings. Materials can be viewed on the project website and feedback can be sent via email or mail.

La misma información estará disponible en ambas reuniones. Los materiales se pueden ver en el sitio web del proyecto y los comentarios se pueden enviar por correo electrónico o correo postal.



Kennedy Junior High School
4495 S. 4800 W.
West Valley City, UT 84120

Kennedy Junior High School meets the Americans with Disabilities Act (ADA) accessibility standards. Contact the study team if you need special accommodations.

Kennedy Junior High School cumple con los estándares de accesibilidad de la Ley de Estadounidenses con Discapacidades (ADA). Comuníquese con el equipo del estudio si necesita adaptaciones especiales.

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Taylorsville, UT 84123

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Taylorsville City Calendar

Bangerter Meeting
Online Presentation and Q&A
Date: 07/20/2021 6:00 p.m. - 7:00 p.m.

Add to my Calendar

The Utah Department of Transportation (UDOT) has started a State Environmental Study (SES) to **evaluate a potential freeway-style interchange at Bangerter Highway and 4700 South** to reduce congestion and improve safety. The study is scheduled for completion in early 2022, with construction anticipated in 2023. **UDOT is hosting two public meetings to gather feedback** about overall transportation needs and environmental issues.

ONLINE PRESENTATION AND Q&A

Tuesday, July 20, from 6 to 7 p.m. via Zoom Webinar

IN-PERSON OPEN HOUSE

Wednesday, July 21, from 6 to 7:30 p.m.

Kennedy Junior High School (4495 S. 4800 West, West Valley City)

Visit udot.utah.gov/bangerter4700south for information on how to join the online meeting. The same information will be available at both meetings. Materials can be viewed on the project website and feedback can be sent via email or mail.

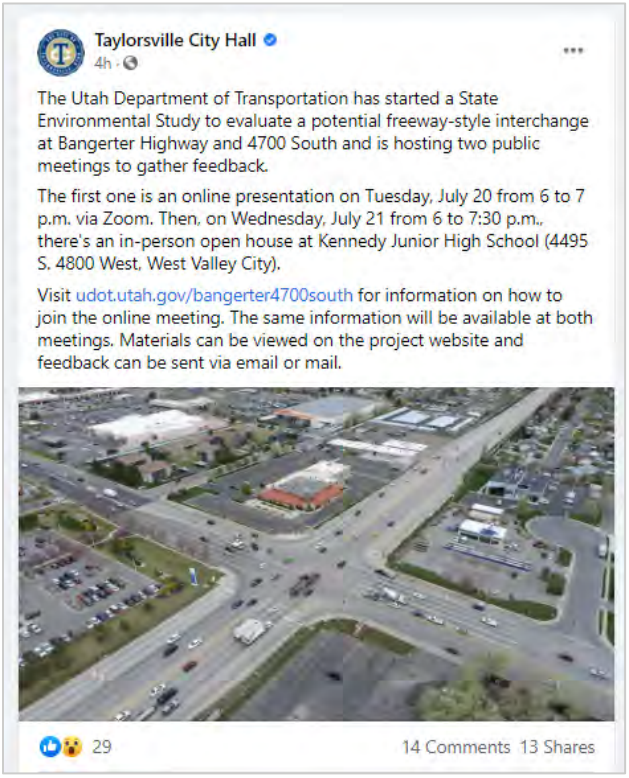
Return to full list >>



Taylorsville City @TvilleUT · 4h

UDOT is evaluating a freeway-style interchange at Bangerter Highway and 4700 South. Share your input at two public meetings on July 20, from 6-7 p.m. (online) and July 21, from 6-7:30 p.m. at Kennedy Jr. High. Visit udot.utah.gov/bangerter4700s... for details.

1



Taylorsville City Hall
4h ·

The Utah Department of Transportation has started a State Environmental Study to evaluate a potential freeway-style interchange at Bangerter Highway and 4700 South and is hosting two public meetings to gather feedback.

The first one is an online presentation on Tuesday, July 20 from 6 to 7 p.m. via Zoom. Then, on Wednesday, July 21 from 6 to 7:30 p.m., there's an in-person open house at Kennedy Junior High School (4495 S. 4800 West, West Valley City).

Visit udot.utah.gov/bangerter4700south for information on how to join the online meeting. The same information will be available at both meetings. Materials can be viewed on the project website and feedback can be sent via email or mail.

29 14 Comments 13 Shares



Taylorsville City Hall
July 16 at 8:31 AM ·

A reminder that the meetings on the potential freeway-style interchange at Bangerter Highway and 4700 South are set for next week. UDOT is hosting the two public meetings to gather input on the State Environmental Study. Visit udot.utah.gov/bangerter4700south for information on how to join the online meeting.

ONLINE PRESENTATION AND Q&A
Tuesday, July 20, from 6 to 7 p.m. via Zoom Webinar

IN-PERSON OPEN HOUSE
Wednesday, July 21, from 6 to 7:30 p.m.
Kennedy Junior High School (4495 S. 4800 West, West Valley City)

6 2 Shares

Like Comment Share

West Valley City Government
23h ·

The Utah Department of Transportation (UDOT) has started a State Environmental Study (SES) to evaluate a potential freeway-style interchange at Bangerter Highway and 4700 South to reduce congestion and improve safety. The study is scheduled for completion in early 2022, with construction anticipated in 2023. UDOT is hosting two public meetings to gather feedback about overall transportation needs and environmental issues.

ONLINE PRESENTATION AND Q&A
Tuesday, July 20, 2021, from 6 - 7 p.m. via Zoom Webinar

IN-PERSON OPEN HOUSE
Wednesday, July 21, 2021, from 6 - 7:30 p.m.

Kennedy Junior High School (4495 South 4800 West, West Valley City, UT 84120)

Visit udot.utah.gov/bangerter4700south for information on how to join the online meeting. The same information will be available at both meetings. Materials can be viewed on the project website and feedback can be sent via email or mail.

BANGERTER 4700 SOUTH

Greater Salt Lake Municipal Services District
July 16 at 3:17 PM ·

UDOT is hosting two public meetings for the State Environmental Study to evaluate a potential freeway-style interchange at Bangerter Highway and 4700 South. Visit udot.utah.gov/bangerter4700south for information on how to join the online meeting.

ONLINE PRESENTATION AND Q&A

Tuesday, July 20, 2021, from 6 - 7 p.m. via Zoom Webinar

IN-PERSON OPEN HOUSE

Wednesday, July 21, 2021, from 6 - 7:30 p.m.

Kennedy Junior High School (4495 South 4800 West, West Valley City, UT 84120)



Like Comment Share



BANGERTER & 4700 SO: UDOT TO HOST TWO PUBLIC MEETINGS IN JULY

BANGERTER 4700 SOUTH

The Utah Department of Transportation (UDOT) has started a State Environmental Study (SES) to **evaluate a potential freeway-style interchange at Bangerter Highway and 4700 South** to reduce congestion and improve safety. The study is scheduled for completion in early 2022, with construction anticipated in 2023. **UDOT is hosting two public meetings to gather feedback** about overall transportation needs and environmental issues.

ONLINE PRESENTATION AND Q&A
Tuesday, July 20, 2021, from 6 - 7 p.m. via Zoom Webinar

IN-PERSON OPEN HOUSE
Wednesday, July 21, 2021, from 6 - 7:30 p.m.
Kennedy Junior High School (4495 South 4800 West, West Valley City, UT 84120)

Visit **udot.utah.gov/bangerter4700south** for information on how to join the online meeting. The same information will be available at both meetings. Materials can be viewed on the project website and feedback can be sent via email or mail.

Email Updates

View this email in your browser

BANGERTER

You're invited! Environmental Study Public Meeting Opportunities

The Utah Department of Transportation (UDOT) has recently started State Environmental Studies (SES) to evaluate potential free-way style interchanges at Bangerter Highway and 13400 South, 9800 South, and 4700 South. In order to reduce congestion and improve safety. These three studies are scheduled for completion in early 2022, with construction slated for 2023*.

The study team is hosting two initial public meetings (one online and one in-person, per location) to gather feedback about overall transportation needs and environmental issues that should be considered during these studies. Input received will help the team develop and refine the preferred design concept that will be available for comment later in the environmental study process.

*Environmental studies are process-driven, meaning this schedule is approximate and subject to change.

13400 SOUTH AND BANGERTER HIGHWAY

- **Online Presentation and Q & A**
  - Tuesday, July 13, 2021 | 6-7 p.m.
  - Register for the Zoom Webinar at udot.utah.gov/bangerter13400south
- **In-person Open House**
  - Wednesday, July 14, 2021 | 6-7:30 p.m.
  - South Hills Middle School (13508 S. 4000 W., Riverton, UT 84065)

4700 SOUTH AND BANGERTER HIGHWAY

- **Online Presentation and Q & A**
  - Tuesday, July 20, 2021 | 6-7 p.m.
  - Register for the Zoom Webinar at udot.utah.gov/bangerter4700south
- **In-person Open House**
  - Thursday, July 21, 2021 | 6-7:30 p.m.
  - John F. Kennedy Jr. High School (4495 S. 4800 W. West Valley City, UT 84120)

9800 SOUTH AND BANGERTER HIGHWAY

- **Online Presentation and Q & A**
  - Wednesday, July 28, 2021 | 6-7 p.m.
  - Register for the Zoom Webinar at udot.utah.gov/bangerter9800south
- **In-person Open House**
  - Thursday, July 29, 2021 | 6-7:30 p.m.
  - Elk Ridge Middle School (3659 W. 9800 S., South Jordan, UT 84095)

The same information and materials will be available at both meetings. If you cannot participate in either opportunity, materials can be reviewed on the project website and feedback can be sent via email or postage. If you need special accommodations during these meetings, please contact the study team in advance.

For further project information:
Hotline: (888) 766-7628
Email: bangerter@utah.gov
Web: udot.utah.gov/bangerter13400south

Know before you go. Check UDOT Traffic before hitting the road.

View this email in your browser

BANGERTER 4700 SOUTH

You're invited! Environmental Study Public Meeting Opportunities

The Utah Department of Transportation (UDOT) has recently started a State Environmental Study (SES) to evaluate a potential freeway-style interchange at **Bangerter Highway and 4700 South** in order to reduce congestion and improve safety. **The study is scheduled for completion in early 2022, with construction slated for 2023*.**

The study team is hosting two initial public meetings to gather feedback about overall transportation needs and environmental issues that should be considered during the study. Input received will help the team develop and refine the preferred design concept that will be available for comment later in the SES process. For more information and to stay informed about study progress and future public engagement opportunities, visit the study website and sign up for email updates.

Online Presentation and Q&A

When: Tuesday, July 20, 2021
6-7 p.m.

Where: Zoom Webinar
Visit udot.utah.gov/bangerter4700south to pre-register for the event.

In-person Open House

When: Wednesday, July 21, 2021
6-7:30 p.m.

Where: **Kennedy Junior High School**
4495 S 4800 W
West Valley, UT 84120



The same information and materials will be available at both meetings. If you cannot participate in either opportunity, materials can be reviewed on the project website and feedback can be sent via email or postage.

**Environmental studies are process-driven, meaning this schedule is approximate and subject to change.*

Contáctenos si necesita esta información en español.

For further project information:
Hotline: (888) 766-7628
Email: bangerter@utah.gov
Web: udot.utah.gov/bangerter4700South

Know before you go. Check UDOT Traffic before hitting the road.

Know before you go. Check UDOT Traffic before hitting the road.

Project Website



Appendix B: Attendance

Online Public Meeting Attendance List

Name (Public Usernames as they appeared in Zoom)
Alaina Lake
Alisha Butterfield
Byron Bleazard
Cem Lyman
Christy Lofgran
Chuck Filmore
Claire Sparrow
Coby Wilson (West Valley City)
Comley Willmore
Corey Tenney
Corinna McAllister
Dan Chesnut
Dave Randall
Elle Sandusky
Fox 13 News
Frank Jaco
Gary Gibson
Gracia Roemer
Grant Farnsworth (UDOT Region 2)
Jane Wolf
Jared Elwood
Jason Delmar
Joe Biden
Johnathan Figueroa
Kenan Karalic
Kenan Karalic
Lars Nordfelt
Lee Davidson
Maria Kiguthi
Michael Higginson
Michael Spot
Micheal McMillan
Nancy McMillan
Rich Wooten
Royce Gibson
Scott Harmon
Stephanie Tomlin
TE Loveridge
Terry Jensen
Tyne Vanderbilt

In-Person Open House Sign-in Sheets

SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Tommy Dan	Life Church	[redacted]	[redacted]	[redacted]
Jim Vesock				
Ed Nieuwland				
Bev Taylor				
Robert Terry				
Angie Hendrickson				
Kelly Hendrickson				
Dennis Wolfley				
Byron & Jean Blazzard				
Pat Blaine				

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign In sheet will become part of the public record for this project.

In-Person Open House Sign-in Sheets (continued)

SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Ruben & Millie Holgate		[redacted]		
Emily & Nate Delong				
Conley & Jolayne Willmore				
Bill Kinz	Owner Granite Mtn - Storage			
Dan Johnson	WVC			
Randy L Gallegos	WVC			
Anissa Barbieri	Taylorsville			
Glen McMillan	xfinity			
Rex McMillan	xfinity			

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign In sheet will become part of the public record for this project.

In-Person Open House Sign-in Sheets (continued)

SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Kenneth Gerlits	Resident	[redacted]		
Angela Anderson	Resident			
Larry Wood	Resident			
Ava Cole	Resident			
Robert Cole	Resident			
Natina Pitcher	Resident			
Mike Higginson	Resident			
TED BARBEE	Resident			
Craig Lindberg	Resident			
Troy Herrick	Resident			

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign In sheet will become part of the public record for this project.

In-Person Open House Sign-in Sheets (continued)

SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Rich Wooten	Pastor - Life Church Utah	[redacted]		
Claise Sparrow				
Jennie Williams	home owners			
Chad & Tina Dalpiaz	home owners			
CHRIS WOLFLEY	HOME OWNER			
Ken Bryant	Home Owner			
Gracia Roemer	Resident			
Ethan Lyman				
Cem Lyman	Business Owner			
Josh Warneke	Pastor			

This information will onlly be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign in sheet will become part of the public record for this project.

In-Person Open House Sign-in Sheets (continued)

SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
Kim Blatnick		[redacted]		[redacted]	
Alan Dearden					
Steve McMillan					
Caryn Johnson					
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign In sheet will become part of the public record for this project.

In-Person Open House Sign-in Sheets (continued)

SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
MATT WILDAUER	SELF	[redacted]	[redacted]	[redacted]	
Ben Scholes	Self				
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign In sheet will become part of the public record for this project.

Appendix C: Meeting Materials

Public Meeting Presentation / Display Boards

BANGERTER

WELCOME

ONLINE PUBLIC MEETING

Bangerter | 4700 South State Environmental Study (SES)

The meeting will begin shortly after 6 p.m. to allow participants time to join the Zoom webinar. Please visit the study website at **udot.utah.gov/bangerter4700south** to access supporting materials for today's presentation.

To submit questions, click the Q&A button on your screen. Our study team will be monitoring the questions and will answer as many as possible following the presentation.

Please note, this event is being recorded and will be available for viewing at **udot.utah.gov/bangerter4700south**.

A UDOT PROJECT

Q&A

BANGERTER

1. TO SUBMIT A QUESTION

Click on the Q&A button at the bottom of the screen

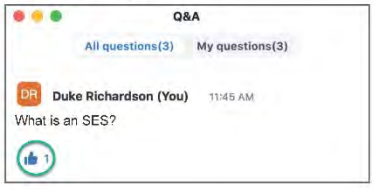


Type question in the Q&A Window



2. TO LIKE OR UPVOTE A QUESTION

Click on the "thumbs-up- button underneath questions



This helps us to know how many people have the same question



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Public Meeting Presentation / Display Boards (continued)

PRESENTERS

BANGERTER



Brian Allen, P.E.
UDOT Project Manager



Tyler Allen
UDOT Environmental Manager

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MEETING PURPOSE

BANGERTER

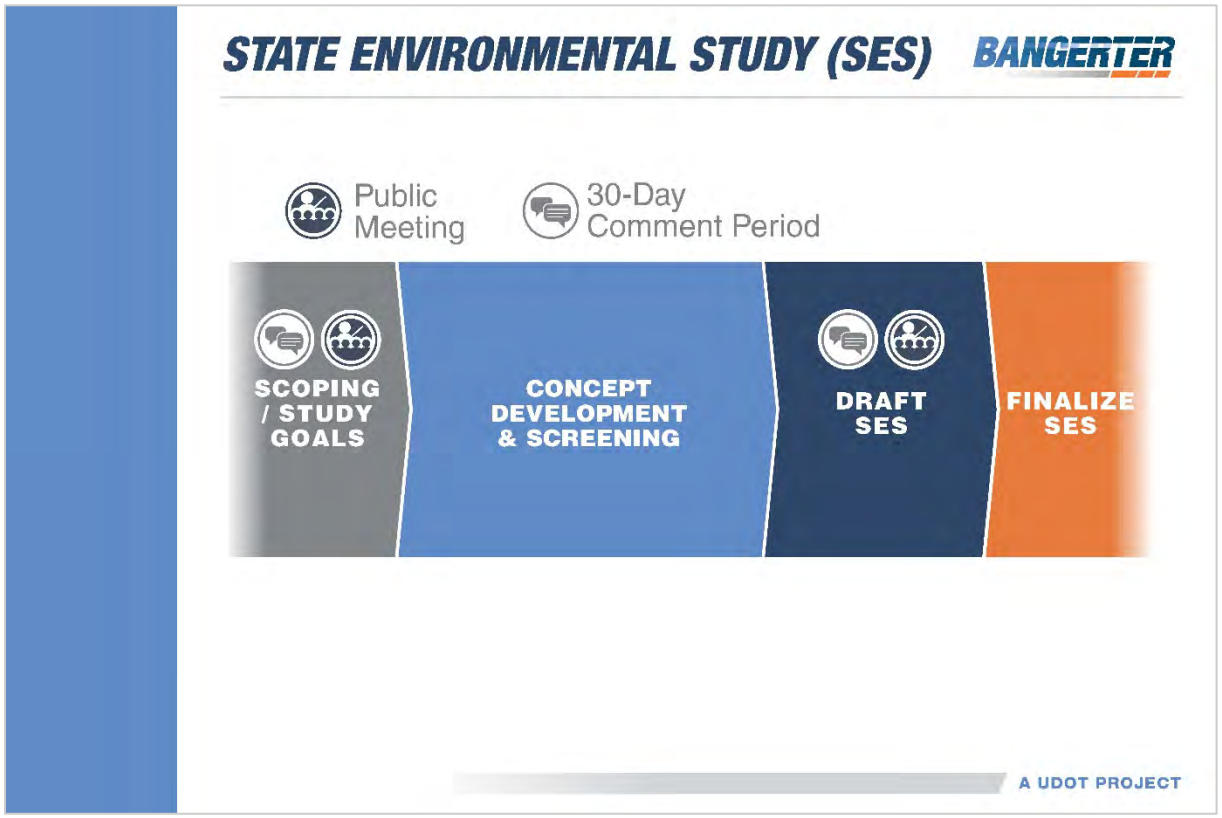
The study team is hosting two initial public meetings, one in-person and one online, to gather feedback about overall transportation needs and environmental issues that should be considered during the study.

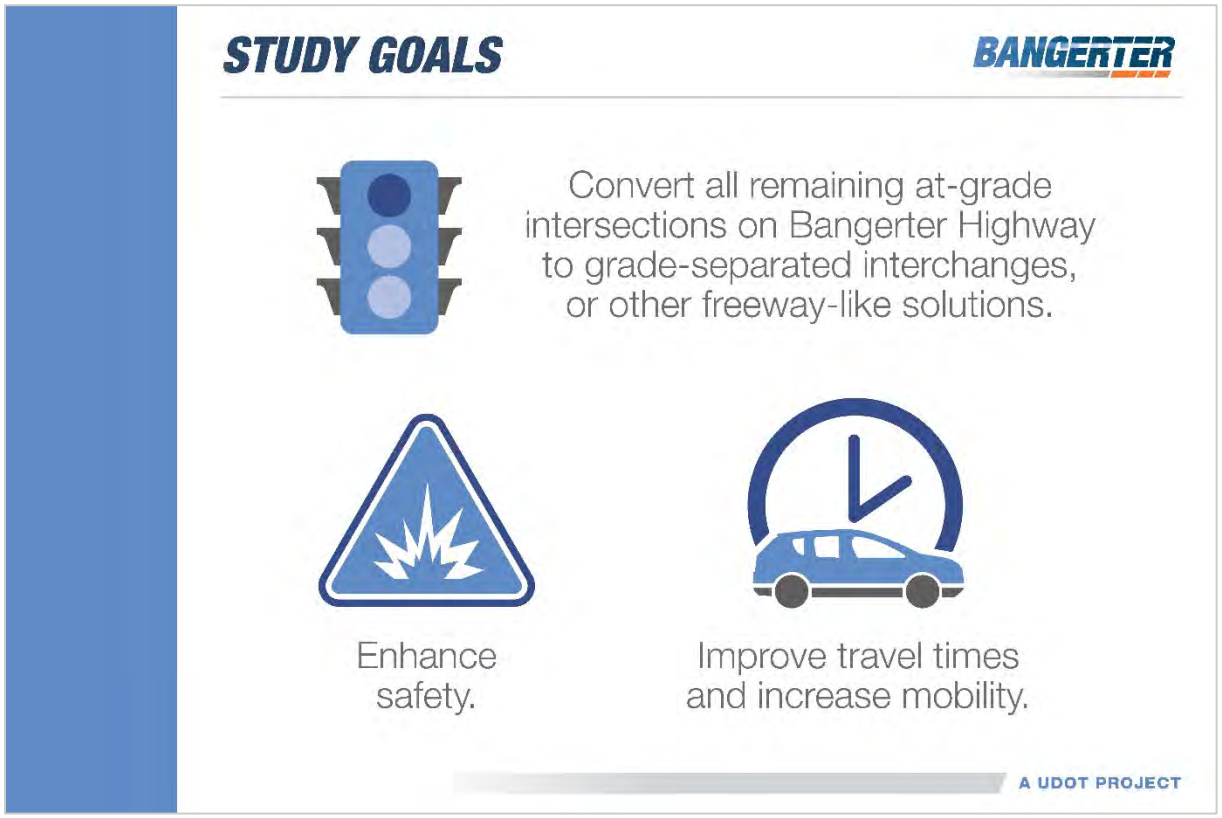
Input received during these meetings will help the team develop and refine the preferred design concept that will be available for comment later in the SES process.



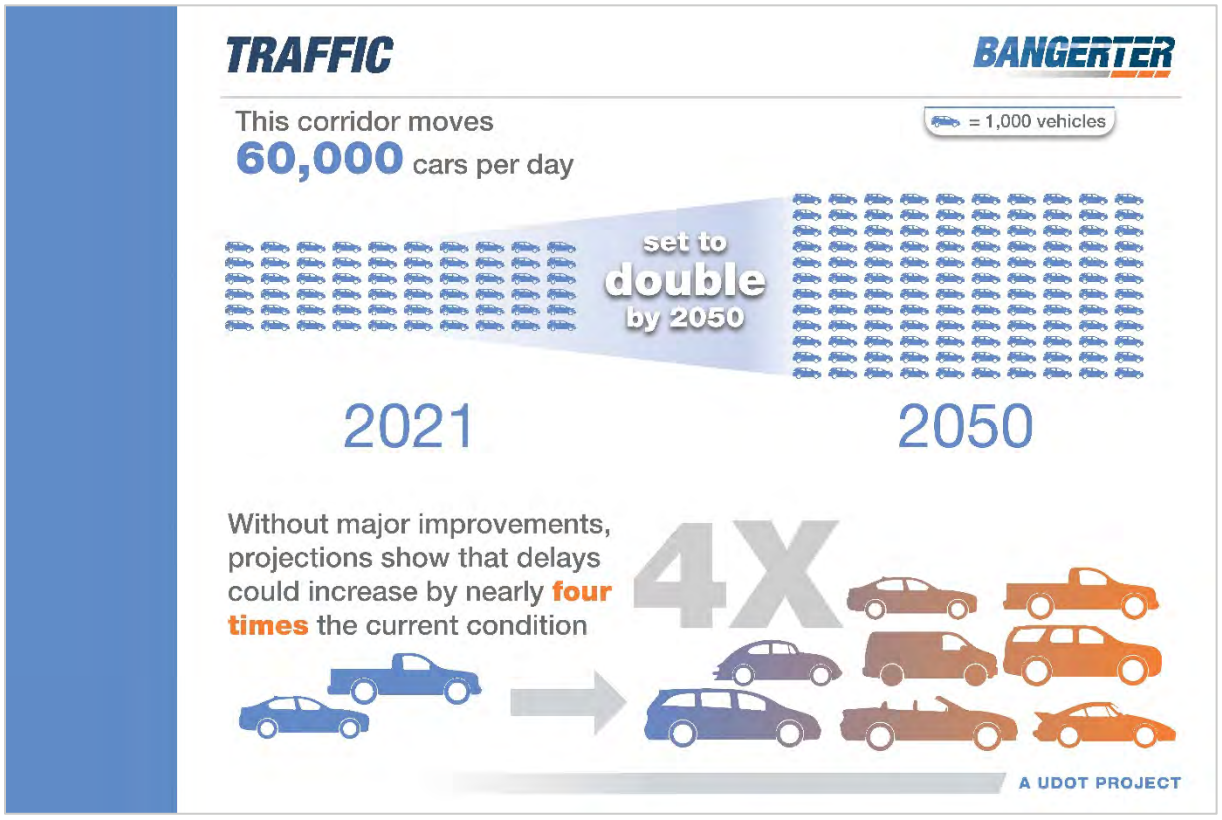
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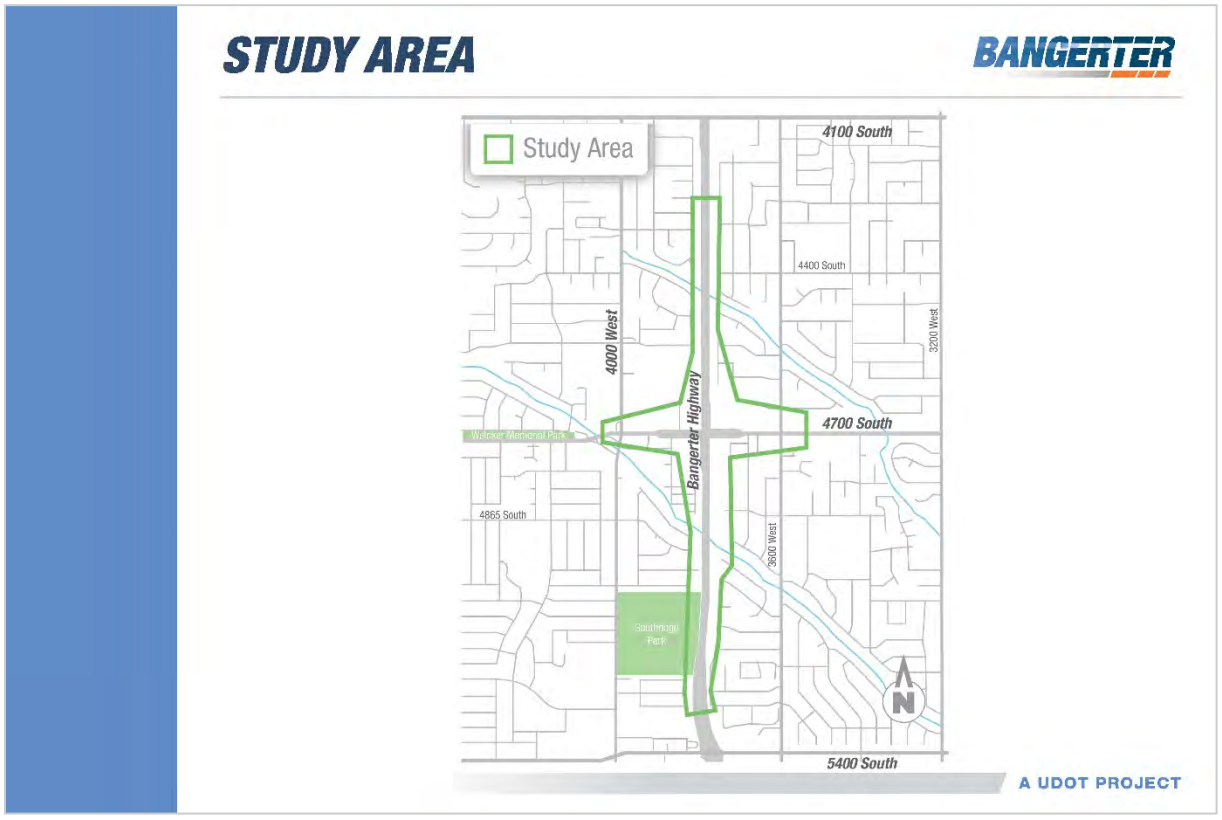
Public Meeting Presentation / Display Boards (continued)





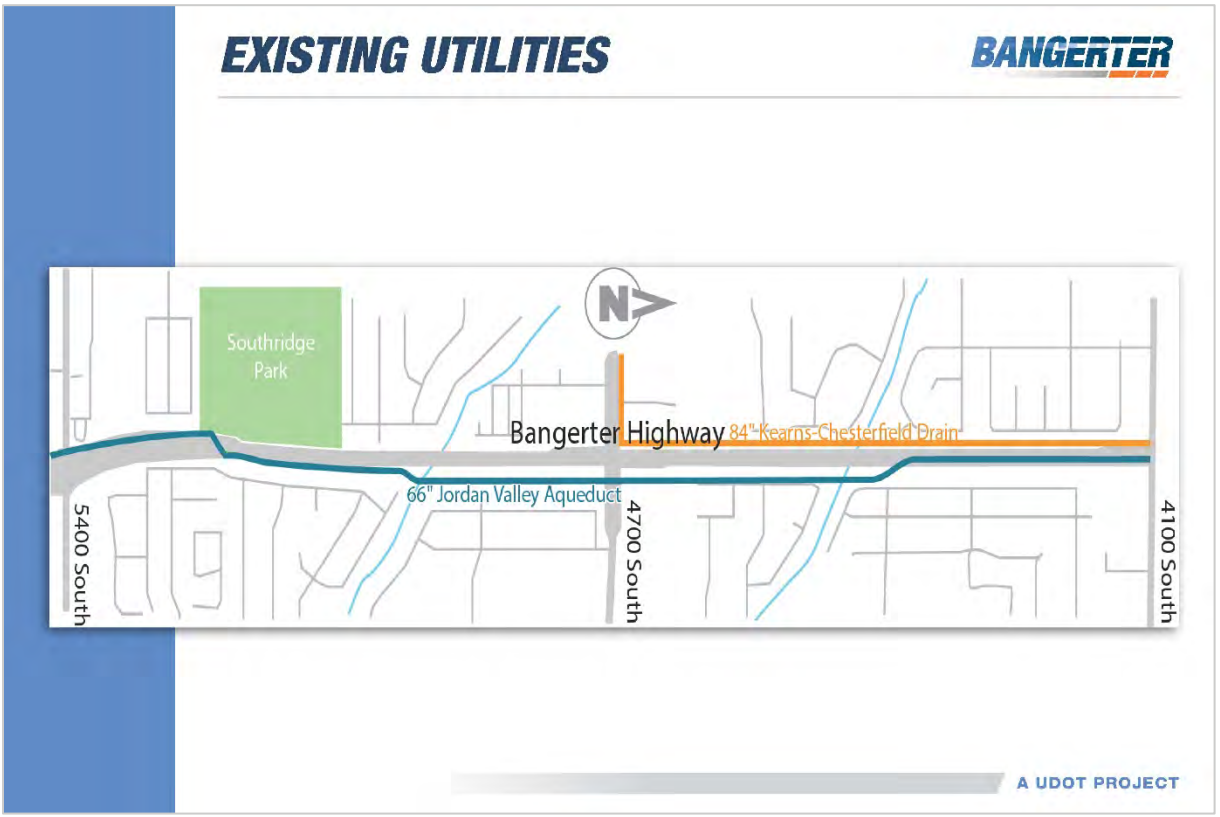
Public Meeting Presentation / Display Boards (continued)





Public Meeting Presentation / Display Boards (continued)





Public Meeting Presentation / Display Boards (continued)

POSSIBLE SOLUTIONS

BANGERTER

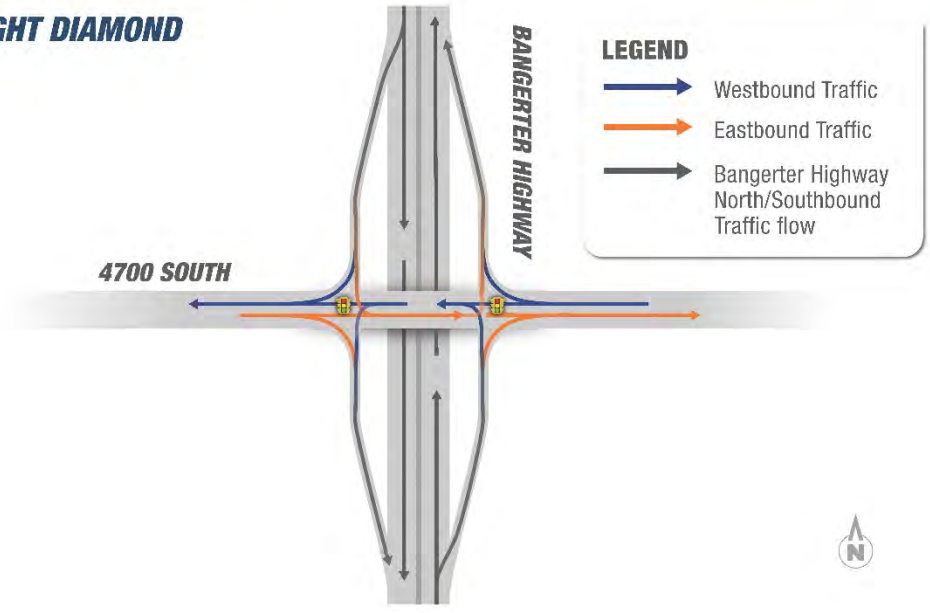
- Tight Diamond Interchange
- Single-Point Urban Interchange (SPUI)
- Over / Under
- No Action

A UDOT PROJECT

POSSIBLE SOLUTIONS

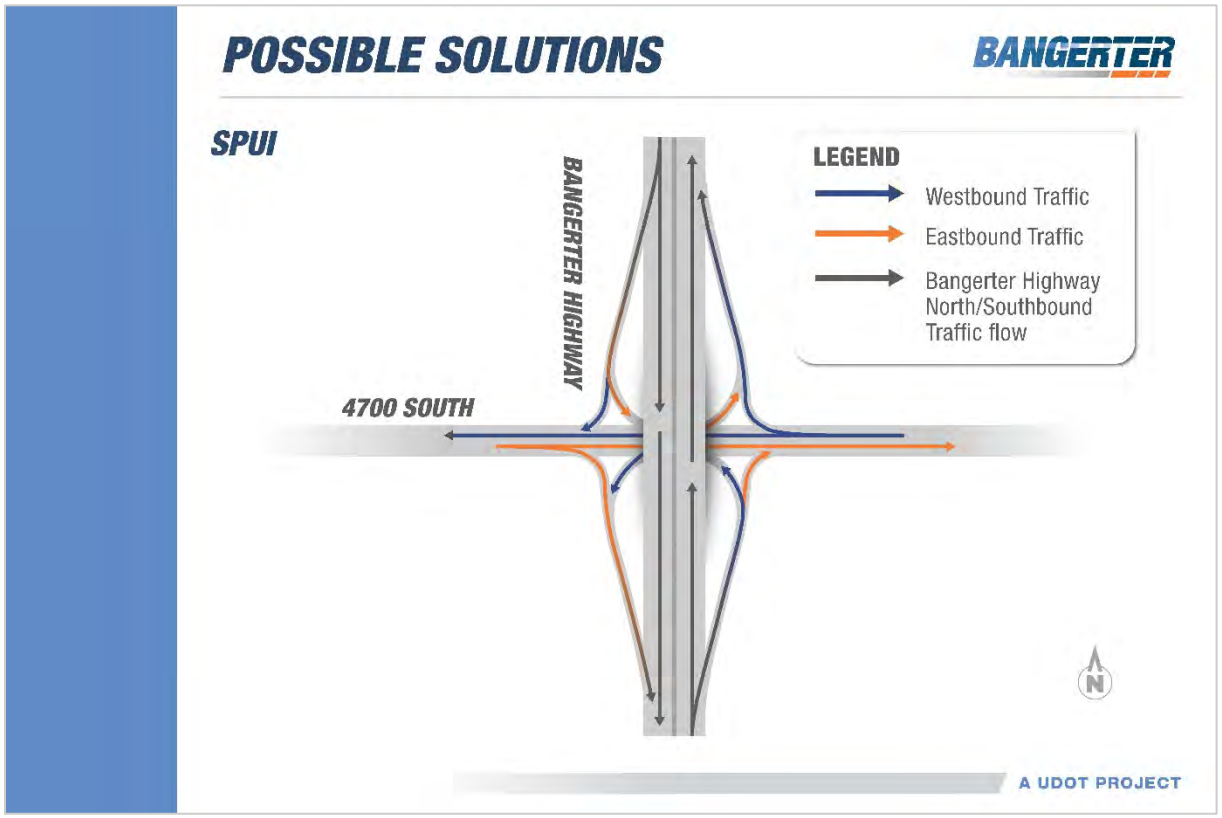
BANGERTER

TIGHT DIAMOND



A UDOT PROJECT

Public Meeting Presentation / Display Boards (continued)





Public Meeting Presentation / Display Boards (continued)

PUBLIC COMMUNICATION AND COMMENT CHANNELS

BANGERTER

30-day Comment Period ends August 4, 2021

Hotline: 888-766-ROAD (7623)

Email: bangerter@utah.gov

Website: udot.utah.gov/bangerter4700south

Mail: Bangerter Environmental c/o Avenue
6605 S. Redwood Rd., Suite 200
Taylorsville, UT 84123

A UDOT PROJECT

Q&A

BANGERTER

Panelists


Brian Allen, P.E. | UDOT Project Manager (PM)


Tyler Allen | UDOT Environmental Manager


Derek Lahusen, P.E. | 4700 South Design Lead


Justin Peterson | 4700 South Environmental Lead


Ivan Hooper, P.E. | 4700 South Traffic Lead

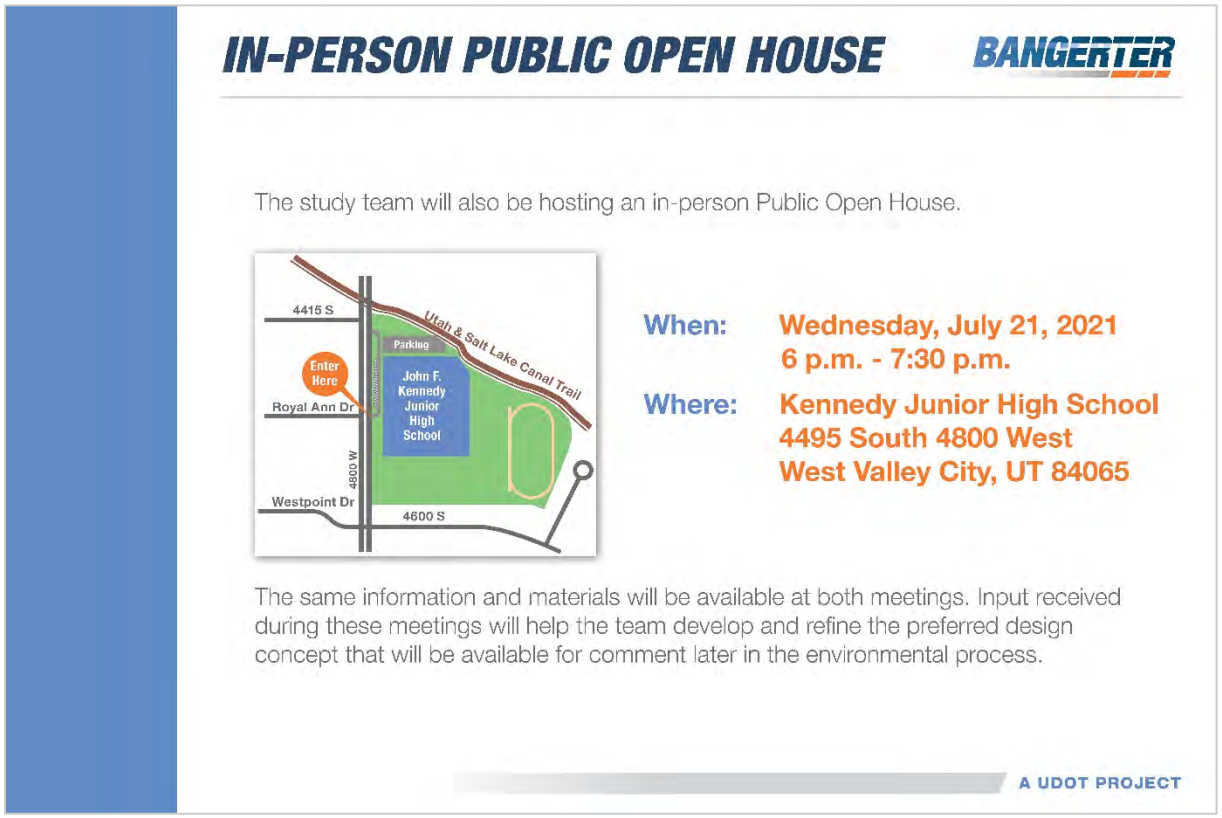
Moderators


Laura Ingersoll | 4700 South Public Involvement

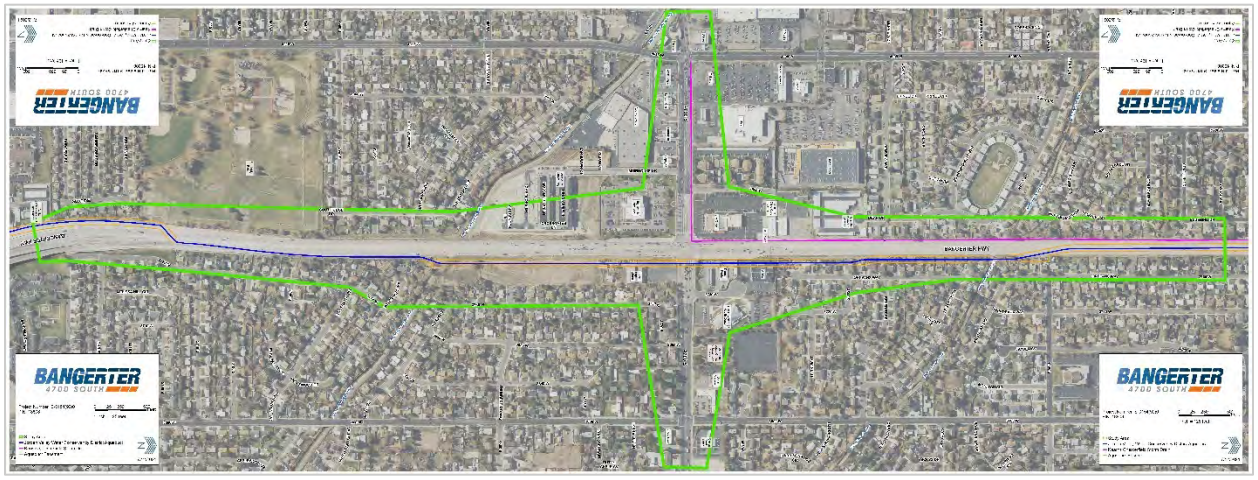

Tiffany Carlson | 4700 South Public Involvement

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Public Meeting Presentation / Display Boards (continued)



In-person Public Meeting Scroll Plot



Comment Form

COMMENT FORM

BANGERTER 4700 SOUTH

CONTACT INFORMATION AND DEMOGRAPHICS

Name: _____ Organization: _____

Address: _____ City: _____

Phone Number: _____ State: _____ ZIP: _____

Email: _____

COMMENTS

Please provide input or concerns regarding the proposed interchange.

_____

_____

_____

_____

_____

_____

_____

_____

Please provide any other information or comments you feel would be helpful to the study team.

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your input. Please email comments to udot.utah.gov/bangerter4700south or fold, secure, and stamp this form and mail it to the address on the back. Please postmark the form on or before **AUGUST 4, 2021**.

Comments provided to the study team will be reviewed and considered by UDOT. All comments received will be documented in the study record. The study team will contact you if they need additional information or clarification.

UDOT's responses to comments made during the formal Environmental Study comment period will be included in the Final Environmental Study.

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Appendix D: Agency Comments

Agencies Receiving Scoping Letters

Name	Organization	Role
Scott Baird	Salt Lake County	Public Works
Jenny Wilson	Salt Lake County	Mayor
Michele Guy	Jordan Valley Water Conservancy District	
Sindy Smith	Resource Development Coordinating Committee	Coordinator
Wayne Bennion	Wasatch Front Regional Council	Director of Short-Range Planning and Programming
Nikki Navio	Wasatch Front Regional Council	Transportation Planner
Christopher Hansen	State Historic Preservation Office	Deputy SHPO
Buffie Chournos	Utah Transit Authority	Environmental Compliance Administrator
Ben White	City of Taylorsville	City Engineer
Kristie Overson	City of Taylorsville	Mayor
Russ Willardson	West Valley City	Public Works Director
Ron Bigelow	West Valley City	Mayor
Dave Gatti	Granite School District	Transportation Director
Steve Hogan	Granite School District	Planning and Boundary Manager
Don Adams	Granite School District	Assistant Administrator

Sample Agency Scoping Letter

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

TERIANNE S. NEWELL, P.E.
Deputy Director of Planning and Investment

LISA J. WILSON, P.E.
Deputy Director of Engineering and Operations

11 June 2021

Mr. Scott Baird
Public Works
Salt Lake County

Subject:
Bangerter Highway Environmental Study
Intersection at 4700 South
UDOT Project No. S-0154(92)0; PIN No. 18808
Salt Lake County, Utah
Initiation of Scoping

Mr. Baird,

The Utah Department of Transportation (UDOT) will be initiating State Environmental Studies (SESs) for the following intersections along Bangerter Highway:

- 2700 West
- 13400 South
- 9800 South
- 4700 South
- 4100 South
- 3500 South to S.R. 201
- California Avenue

Bangerter Highway is a major north-south corridor in the state of Utah, and with continued growth in the area, the amount of traffic on Bangerter Highway is expected to increase. This projected increase in traffic will also increase delays on Bangerter Highway by up to four times longer than the current conditions. UDOT is proposing to replace at-grade, signalized intersections along the corridor with grade-separated interchanges, which will allow one street to pass over the other. This separation will move Bangerter Highway and cross-street traffic more efficiently and will eliminate points of conflict along this busy highway.

Environmental Services • Telephone (801) 965-4129 • Facsimile (801) 965-4551 • www.udot.utah.gov
Calvin Rampton Complex • 4501 South 2700 West • Mailing Address: P.O. Box 148450 • Salt Lake City, Utah 84114-8450

Sample Agency Scoping Letter (continued)

The type of intersection improvements at Bangerter Highway and 4700 South could include (but are not limited to):

- Single-Point Urban Interchange (SPUI)
- Diamond interchange

The purpose of this study is to identify the best solution to address the needs along Bangerter Highway, evaluate the impacts of the proposed improvements to the natural and built environments, and provide opportunities for public input.

At this time, we request your assistance in identifying concerns your organization may have related to resources within its jurisdiction. A Public Open House is anticipated summer 2021 to gather input, but the study team is available to meet upon request prior to that time. If you would like to schedule a meeting to discuss the proposed project(s), please contact Katie Kourianos at KatieK@horrocks.com.

We appreciate your participation and interest in this study.

Sincerely,

Tyler Allen
UDOT Environmental Manager

Enclosure: Study area map
CC: Brian Allen, UDOT
Naomi Kisen, UDOT
Ryan Pitts, Horrocks

Environmental Services • Telephone (801) 965-4129 • Facsimile (801) 965-4551 • www.udot.utah.gov
Calvin Rampton Complex • 4501 South 2700 West • Mailing Address: P.O. Box 148450 • Salt Lake City, Utah 84114-8450

Sample Agency Scoping Letter (continued)



Comment from Utah Transit Authority (UTA)

From: Hu, Autumn (NEPA Project Administrator) <AHu@rideuta.com>
Sent: Thursday, June 24, 2021 2:20 PM
To: Katie Kourianos <katiek@horrocks.com>
Cc: 'bangerter@utah.gov' <bangerter@utah.gov>; Brian Allen <brianja@utah.gov>; Brian Atkinson <BrianA@horrocks.com>; Ryan Pitts <RyanP@horrocks.com>
Subject: RE: Bangerter Highway Environmental Studies

Hi Katie,

UTA would like to request a meeting to better understand this project and impacts to our bus service. Below are preliminary comments. Please follow-up with me and I can help coordinate a meeting.

We currently use just a short stretch of Bangerter Highway on route 509, from 1820 S to 2400 S, which includes the S.R. 201 interchange. In the 5-Year Service Plan route 236 is proposed to use Bangerter Highway between 2100 S and the Airport, but there is no set implementation time for this route. It's likely that we would need to do some long-term detours for these routes when construction occurs.

In addition, we do have bus stops near Bangerter Highway on 4700 S, 4100 S, and 3500 S., which might need to be closed or relocated depending on the right-of-way situation. The center lane on 3500 South also ends just east of Bangerter Highway, and would need to be updated if the lane configuration, etc. changes on 3500 South due to the Bangerter construction.

Regards,
Autumn

UTA

Autumn Hu, P.E.
NEPA Project Administrator
Utah Transit Authority
801.741.8858 (Office)
385.419.9189 (Mobile)
ahu@rideuta.com

Appendix E: Public Comments

Comment Summary

Method	Name	Date	Comment
Meeting	Beverly M. Taylor	7/20/2021	It's about as good as possible. I'm already concerned about 4100 S & Bangerter.
Meeting	Nate DeYoung	7/20/2021	The merge lane from 5400 S onto Bangerter coming north bound needs to be longer with the drivers coming down the hill on Bangerter going over the speed limit (speeding). There's not enough time to get over onto Bangerter with it already being a freeway with drivers speeding, so with this you need to look into this and fix the merge lanes with more time for the safety of merging onto Bangerter. And do this with 4700 S. and all other merge lanes on Bangerter.
Meeting	Riley Willmore	7/20/2021	Please put a sound wall on the South/East side of 4700 South. Our home.
Meeting	Robert Coh	7/20/2021	I vote for the SPUI Interchange.
Email	Paul Hiskey	7/20/2021	We definitely need changes made at 4700 south and Bangerter to improve the traffic flow north south on the west side. The improvements that have already been made to the Bangerter have been well worth it!!! I say “full steam ahead” !!
Email	Danylle Utley	7/22/2021	I just finished watching the online presentation Q&A. Thank you for posting the recording on the website, it was informative , and I really appreciate being able to “attend” on demand. I’ve waited my whole entire life to see this come to fruition, it’s exciting to see it start to become a reality and not a pipe dream. Will the study include a discussion/proposal to improve the traffic flow at the interchange at 3845 W 4700 S, Taylorsville, UT 84129. It’s like the city planners duplicated the cluster of nonsense by having three lights within 0.3 miles of each other and didn’t learn from the 4700 South I-215 interchange and 2700 West. Maybe the IHC clinic can have their own on ramp southbound on Bangerter Highway to help get ambulances from the clinic to the hospital emergency rooms faster.

Email	7/22/2021	Ron Andersen	My wife and I missed the meeting because of an emergency. My neighborhood to the north of the LDS stake house on 4700 South irrigates from the Utah & Salt Lake canal and our irrigation pipe runs immediately west of Bangerter highway until it reaches 4700 South, then angles diagonally northeast across the intersection (southwest to northeast) to the northside of 4700 South. There will still be construction underneath that could interfere with the irrigation from mid-April to the end of September. Is the problem being considered?
Email	8/3/2021	Josh Doney, BSN, RN Nursing Supervisor Westridge Health Center	To whom it may concern, I work at the Westridge Health Center for University of Utah Health. While I am excited about the changes to Bangerter, I am also worried for the impact it could have on our clinic. We are currently located at 3730 w 4700 s, and I am worried about issues to access for our clinic during the construction work and after it is completed. We love being able to serve and provide care for this community and we would like to continue to do so. I understand that this is still in the early stages, but I would just like you to keep us in mind as the plans are being made. We will be following the updates closely.
Postal mail	8/4/21	Royce Gibson	During the recent public meeting it was noted that Bangerter and its interchanges are being upgraded for expected traffic loads in 2050. I realize that 4700 South will be modified for short distances to the east and west of Bangerter. Given that east/west congestion has been increasing and will continue to increase as more development occurs on the west bench will the modifications to 4700 S allow for future upgrades as its is redesigned to accommodate expected 2050 traffic?
Email/ Postal mail	8/4/21	Life Church	*Excerpt from letter (full text below)* : Our firm represents the Life Church Assemblies of God ("Church"), the owner of the property at 3818 West 4700 South, Salt Lake City - property that will be affected by the proposed expansion of Bangerter Highway and 4700 South.

Public Comments

COMMENT FORM

BANGERTER 4700 SOUTH

CONTACT INFORMATION AND DEMOGRAPHICS

Name: Beverly M. Taylor Organization: —

Address: [redacted] City: [redacted]

Phone Number: [redacted] State: [redacted] ZIP: [redacted]

Email: [redacted]

COMMENTS

Please provide input or concerns regarding the proposed interchange.

It's about as good as possible.

Please provide any other information or comments you feel would be helpful to the study team.

I'm already concerned about 4100 S. & Bangerter.

Thank you for your input. Please email comments to **bangerter@utah.gov** or fold, secure, and stamp this form and mail it to the address on the back. Please postmark the form on or before **Aug. 4, 2021.**

Comments provided to the study team will be reviewed and considered by UDOT. All comments received will be documented in the study record. The study team will contact you if they need additional information or clarification.

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Public Comments (continued)

COMMENT FORM

BANGERTER 4700 SOUTH

CONTACT INFORMATION AND DEMOGRAPHICS

Name: Nate DeYoung Organization:

Address: [redacted] City: [redacted]

Phone Number: [redacted] State: [redacted] ZIP: [redacted]

Email: [redacted]

COMMENTS

Please provide input or concerns regarding the proposed interchange.

The merge lane from 5400S. onto Bangerter coming North bound needs to be longer with the drivers coming down the hill on bangerter going over the speed limit (speeding). There not enough time to get over onto Bangerter with it already being a freeway with drivers speeding. So with this you need to look into this and fix the merge lanes with more time for the safety of merging onto Bangerter. And do this with 4700S. and all other merge lanes on Bangeter,

Please provide any other information or comments you feel would be helpful to the study team.

Thank you for your input. Please email comments to **bangerter@utah.gov** or fold, secure, and stamp this form and mail it to the address on the back. Please postmark the form on or before **Aug. 4, 2021.**

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Public Comments (continued)

COMMENT FORM

BANGERTER 4700 SOUTH

CONTACT INFORMATION AND DEMOGRAPHICS

Name: Riley Willmore Organization:

Address: [redacted] City: [redacted]

Phone Number: [redacted] State: [redacted] ZIP: [redacted]

Email:

COMMENTS

Please provide input or concerns regarding the proposed interchange.

Please put a sound wall on the South/East side of 4700 South. Our Home

Please provide any other information or comments you feel would be helpful to the study team.

Thank you for your input. Please email comments to **bangerter@utah.gov** or fold, secure, and stamp this form and mail it to the address on the back. Please postmark the form on or before **Aug. 4, 2021.**

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Public Comments (continued)

COMMENT FORM

BANGERTER 4700 SOUTH

CONTACT INFORMATION AND DEMOGRAPHICS

Name: Robert Cole Organization: _____

Address: [redacted] City: [redacted]

Phone Number: [redacted] State: [redacted] ZIP: [redacted]

Email: [redacted]

COMMENTS

Please provide input or concerns regarding the proposed interchange.

I Vote for the SPUI Interchange

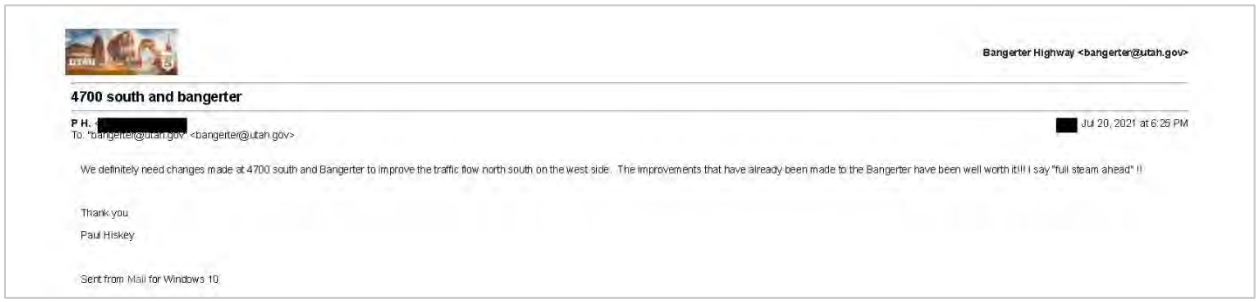
Please provide any other information or comments you feel would be helpful to the study team.

Thank you for your input. Please email comments to **bangerter@utah.gov** or fold, secure, and stamp this form and mail it to the address on the back. Please postmark the form on or before **Aug. 4, 2021.**

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Public Comments (continued)



Bangerter Highway <bangerter@utah.gov>

4700 south and bangerter

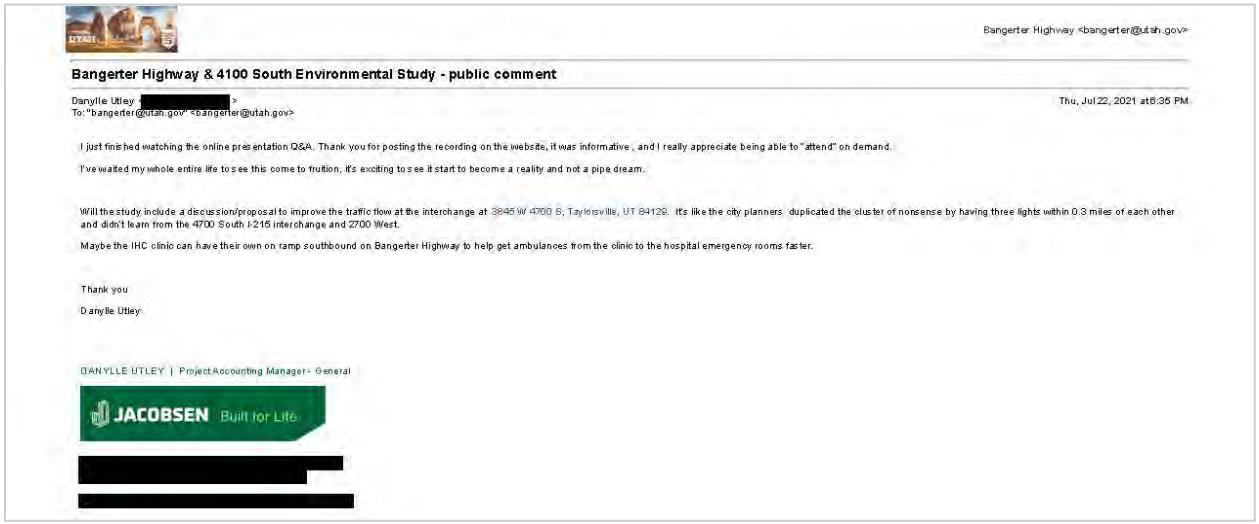
P H. [redacted] Jul 20, 2021 at 6:25 PM
To: "bangerter@utah.gov" <bangerter@utah.gov>

We definitely need changes made at 4700 south and Bangerter to improve the traffic flow north south on the west side. The improvements that have already been made to the Bangerter have been well worth it!!! I say "full steam ahead" !!

Thank you

Paul Hiskey

Sent from Mail for Windows 10



Bangerter Highway <bangerter@utah.gov>

Bangerter Highway & 4100 South Environmental Study - public comment

Danylle Utley <[redacted]> Thu, Jul 22, 2021 at 8:35 PM
To: "bangerter@utah.gov" <bangerter@utah.gov>

I just finished watching the online presentation Q&A. Thank you for posting the recording on the website, it was informative , and I really appreciate being able to "attend" on demand.

I've waited my whole entire life to see this come to fruition, it's exciting to see it start to become a reality and not a pipe dream.

Will the study include a discussion/proposal to improve the traffic flow at the interchange at 3845 W 4700 S, Taylorsville, UT 84129. It's like the city planners duplicated the cluster of nonsense by having three lights within 0.3 miles of each other and didn't learn from the 4700 South I-215 interchange and 2700 West.

Maybe the IHC clinic can have their own on ramp southbound on Bangerter Highway to help get ambulances from the clinic to the hospital emergency rooms faster.

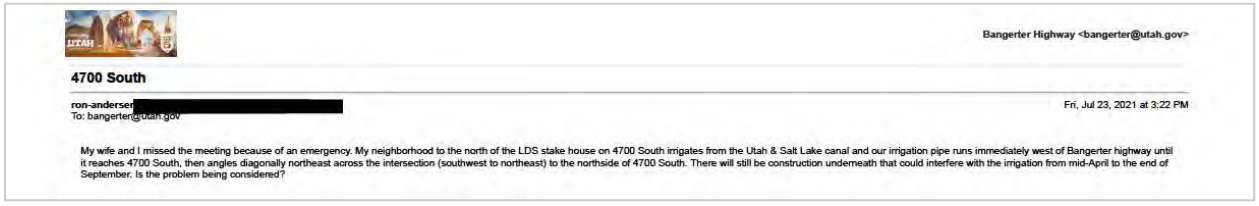
Thank you

Danylle Utley

DANYLLE UTLEY | Project Accounting Manager - General

JACOBSEN Built for Life

[redacted]

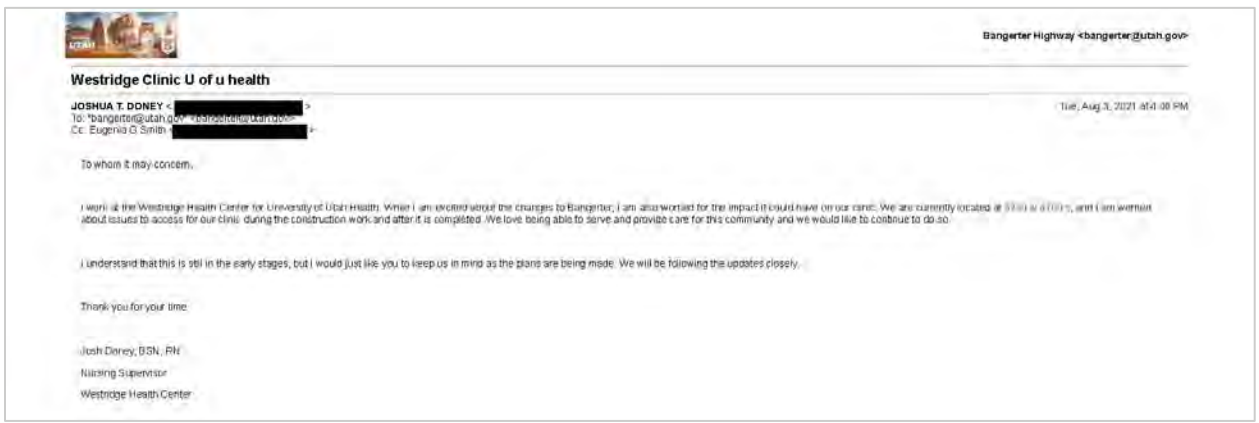


Bangerter Highway <bangerter@utah.gov>

4700 South

ron-anderse[redacted] Fri, Jul 23, 2021 at 3:22 PM
To: bangerter@utah.gov

My wife and I missed the meeting because of an emergency. My neighborhood to the north of the LDS stake house on 4700 South irrigates from the Utah & Salt Lake canal and our irrigation pipe runs immediately west of Bangerter highway until it reaches 4700 South, then angles diagonally northeast across the intersection (southwest to northeast) to the northside of 4700 South. There will still be construction underneath that could interfere with the irrigation from mid-April to the end of September. Is the problem being considered?



Bangerter Highway <bangerter@utah.gov>

Westridge Clinic U of u health

JOSHUA T. DONEY <[redacted]> Tue, Aug 3, 2021 at 4:08 PM
To: "bangerter@utah.gov" <bangerter@utah.gov>
Cc: Eugenia G Smith <[redacted]>

To whom it may concern,

I work at the Westridge Health Center for University of Utah Health. While I am excited about the changes to Bangerter, I am also worried for the impact it could have on our clinic. We are currently located at [redacted], and I am worried about issues to access for our clinic during the construction work and after it is completed. We love being able to serve and provide care for this community and we would like to continue to do so.

I understand that this is still in the early stages, but I would just like you to keep us in mind as the plans are being made. We will be following the updates closely.

Thank you for your time

Josh Doney, BSN, RN

Nursing Supervisor

Westridge Health Center

Public Comments (continued)

COMMENT FORM

BANGERTER 4700 SOUTH

CONTACT INFORMATION AND DEMOGRAPHICS

Name: Royce Gibson Organization:

Address: [redacted]

Phone Nu

Email:

COMMENTS

Please provide input or concerns regarding the proposed interchange.

During the recent public meeting it was noted that Bangerter and its interchanges are being upgraded for expected traffic loads in 2050. I realize that 4700 South will be modified for short distances to the east and west of Bangerter. Given that East/West congestion has been increasing and will continue to increase as more development occurs on the west bench will the modifications to 4700 S allow for future upgrades as it is redesigned to accomodate expected 2050 traffic?

Please provide any other information or comments you feel would be helpful to the study team.

Thank you for your input. Please email comments to udot.utah.gov/bangerter4700south or fold, secure, and stamp this form and mail it to the address on the back. Please postmark the form on or before **AUGUST 4, 2021**.

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Public Comments (continued)

MAUCK & BAKER, LLC

RICHARD C. BAKER
SOO YEON LEE
JOHN W. MAUCK

WHITMAN H. BRISKY
OF COUNSEL

ONE NORTH LASALLE STREET, SUITE 600
CHICAGO, ILLINOIS 60602

WWW.MAUCKBAKER.COM
TEL: 312.726.1243 FAX: 866.619.8661

TERRY S. LU
ANDREW S. WILLIS

Writer's Direct Line:
(312) 853-8709
jmauck@mauckbaker.com

August 4, 2021

Executive Director Carlos Braceras
Utah Department of Transportation
4501 South 2700 West
P.O. Box 141265
Salt Lake City, UT 84114

Bangerter Environmental
c/o Avenue Consultants
S. Redwood Road, Suite 200
Taylorsville, UT 84123

RE: BANGERTER & 4700 SOUTH OVERPASS PROJECT

Executive Director Braceras,

Our firm represents the Life Church Assemblies of God ("Church"), the owner of the property at 3818 West 4700 South, Salt Lake City – property that will be affected by the proposed expansion of Bangerter Highway and 4700 South. Mauck & Baker, LLC has a concentration in representing religious institutions and has extensive experience in land use issues under the Religious Land Use and Institutionalized Person Act ("RLUIPA"). This brief is intended to raise awareness of the heightened protections for religious institutions under Federal law as the Utah Department of Transportation ("Department") considers the highway expansion.



Life Church at 3818 West 4700 South

1

I. Background of Life Church's Use at 3818 West 4700 South



Ariel View of Bangerter Highway and 4700 South

The Church has owned the property at 3818 West 4700 South since 1971. The Church is located at the northwest corner of the intersection of Bangerter Highway and 4700 South. The auditorium has a capacity of 526 people and has an estimated 250 on-site parking spots. Prior to the Covid-19 pandemic, the church had a weekly attendance of 1300-1400 people over three Sunday services. As explained in the Church's statement attached as Exhibit A, the Church serves the community in numerous ways—many of which will be negatively impacted under the proposed expansion at Bangerter Highway and 4700 South.

It should be first noted that the Department has not been forthcoming in disclosing how the planned expansion will affect the Church's property. Pastor John Heckathorn has attempted to contact the Department on numerous occasions since 2012 with little fruition. The Department's plans regarding the Church's property have been ambiguous at best. The Church has also learned that other local property owners have not been kept in the dark regarding the construction plans—the owner of the cell phone tower located on the Church's property received detailed surveys and blueprints as to how its property interest will be affected. This lack of notice, particularly with the Department's unequal treatment towards other affected property owners, opens up potential Equal Protection and Due Process concerns under the 14th Amendment to the Constitution of the United States.

The only concrete plans that the Church has been able to obtain is a "Memo of Conversation between MWA and UDOT" dated December 5, 2012. Exhibit B. The memo depicts the Department's plan to build an overpass at the intersection located at

4700 South and Bangerter. Approximately 50 of the Church's 250 parking spots will be eliminated. The Church has also learned that the plan may have been modified to take portions of its building for the highway expansion.

The Church has already experienced a negative impact due to the loss of its property to the State for previous road expansions. As outlined below, this new proposal will have an even greater negative impact to the Church's finances, weekly attendance, functionality of its property, and its ability to perform its religious exercise.

Impact on the Church's Parking and Facilities

First, the proposed highway expansion will interfere with the Church's facilities and its abilities to carry out its ministries. Approximately 50 of the Church's 250 parking spaces will be affected or eliminated including three handicap spots. Furthermore, the proposal will affect and may even eliminate the Church's Restricted Vehicle Access to the east and south sides of the main parking lot which would, in turn, greatly affect access to the main building. Restricting vehicle flow will create significant hardships for the Church's congregation coming for religious worship.

The proposal will restrict foot traffic to the east and south entrances of the main facility. The proposal additionally poses a risk to children attending the Church's pre-school and nursery, located on the east side of the property given its proximity to the proposed overpass. The Church also faces a potential loss of classrooms, the executive board meeting space, and the staff meeting space.

The Student Life Center—where teenagers gather for worship, Biblical instruction, and relationship-building—would also lose valuable space. Without the Life Center, the Church's ability to provide tangible benefits to the community will be greatly impacted. The Church may also lose use of its outbuilding which contains a workshop, wood-working area, storage, and a repository for vehicles, a forklift, scissor lift, lawn maintenance equipment, and snow removal and abatement implements.

Impact on the Church's Visibility

One of the Church's valuable assets is the visibility of its building from public roads. The building's visibility directly impacts the Church's ability to attract new members and share the Gospel of Jesus Christ.[1] The proposed overpass will limit visibility of the Church and its many attractive features from Bangerter Highway and 4700 South. One potential solution to this issue is that instead of building an overpass, the Department can construct an underpass for Bangerter Highway so as to not to interfere with the Church's visibility from the public roads.



View of Church from Bangerter Highway

Impact on the Church's Finances

While the pressing nature of this brief prevents us from calculating a comprehensive estimate, the Church faces steep financial loss under the Department's proposal. The Church has an annual budget of $2.5 million. Approximately 50 of the Church's 250 parking spaces will be affected or eliminated. The loss of a fifth of the Church's on-site parking spaces of financial impact may cause a $375,000 loss of annual revenue due to the loss of attendance.

This is because the lack of parking will likely cause many regular attendees who tithe to the Church to seek another place of worship. Studies have shown that a lack of parking and room within the facilities discourages newcomers from attending a church

[1] "[V]isual barriers and unclear points of entry often cause anxiety with new visitors…For a place of worship that aspires to be a part of the community and feel inviting, barriers like these can cause potential new members to pass by." Adam Hopkins, *Can People See In? Why Visibility Matters for Places of Worship, Progressive AE*, June 26, 2017 https://www.progressiveae.com/why-visibility-matters-for-places-of-worship/.

service.[2] As outlined below, it is our opinion that the Department's plan significantly infringes on the Church's right to free exercise of religion in violation of Federal law.

II. RLUIPA's Substantial Burden Provision

The Church's right to use its own property for religious exercise receives heightened protection under the Religious Land Use and Institutionalized Persons Act ("RLUIPA"). *Cutter v. Wilkinson*, 544 U.S. 709, 714-15 (2005). RLUIPA was enacted by Congress in 2000 to combat the widespread municipal practice of using "individualized and discretionary processes to exclude churches . . . ." *Midrash Sephardi v. Village of Surfside*, 366 F.3d 1214, 1236-37 (11th Cir. 2004); 42 U.S.C 2000cc.

The RLUIPA "Substantial Burden" provision, 42 U.S.C. 2000cc, is relevant to this present situation. The provision states:

> (a) (1) No government shall impose or implement a land use regulation in a manner that imposes a substantial burden on the religious exercise of a person, including a religious assembly or institution, unless the government demonstrates that imposition of the burden on that person, assembly, or institution—
>
> (A) is in furtherance of a compelling governmental interest; and
>
> (B) is the least restrictive means of furthering that compelling governmental interest.

Thus, according to RLUIPA, if a religious institution can show that a land use regulation substantially burdens its religious exercise, the land use authority must show that the regulation furthers a "compelling government interest" and is the "least restrictive means" to furthering that interest. This test is called "strict scrutiny" and is the most difficult test for a government to overcome in constitutional law. Strict scrutiny generally leads to the government regulation being struck down.

---

[2] "When your main worship service reaches 80 percent of comfortable capacity (measured at 30 to 36 inches per person), you may be pretty certain that you are discouraging frequent attendance by current members and presenting a 'no vacancy' sign to newcomers…" Alice Mann, *Raising the Roof: The Pastoral-to-Program Size Transition* (Bethesda, Md.: Alban Institute, 2001), 20.

RLUIPA does not explicitly define "substantial burden," nor has the Tenth Circuit for the United States Court of Appeals developed its own test to determine how to apply this provision. However, past Tenth Circuit precedent has referenced the Seventh Circuit's definition of "substantial burden." *See Grace United Methodist Church v. City of Cheyenne*, 451 F.3d 643, 663 (10th Cir.2006). The Seventh Circuit has explained that the question is whether the government's conduct "seriously violates" the individual or institution's religious exercise. *See Immanuel Baptist Church v. City of Chicago*, 473 F. Supp. 3d 813, 817 (N.D. Ill. 2020) *quoting Schlemm v. Wall*, 784 F.3d 362, 364 (7th Cir. 2015); Note, RLUIPA explicitly defines religious exercise as "The use, building, or conversion of real property" for an entity "that uses or intends to use the property..." 42 U.S.C.A. § 2000cc-2(a).

There are numerous factors that contribute to a substantial burden on religious exercise: whether the land regulation imposes undue delay, uncertainty, and expense on a religious institution; whether the land use regulation was imposed after the religious institution purchased the property; the availability of alternative solutions for the religious institutions; whether the relevant land use regulation targets religion; whether the land use regulation is "arbitrary and capricious." *See Livingston Christian Sch. v. Genoa Charter Twp.*, 858 F.3d 996, 998 (6th Cir. 2017); *World Outreach Conference Ctr. v. City of Chicago*, 949 F. Supp. 2d 836, 849 (N.D. Ill. 2013); *Saints Constantine & Helen Greek Orthodox Church v. City of New Berlin,* 396 F.3d 895, 899–901 (7th Cir. 2005).

As outlined in the Background section of this brief and Exhibit A, the Church's use of its own facility would be severely hindered by the decrease in the number of parking spots and the functionality of its facility, in addition to the steep financial impact to the Church. The Department's proposed plan may, therefore, impose a substantial burden on the Church's religious exercise.

III. The Proposal Does Not Use the Least Restrictive Means Under Strict Scrutiny

RLUIPA requires that when a land use regulation imposes a substantial burden on religious exercise, the governing authority must show that its actions survive strict scrutiny. In order for the Department's proposal to survive strict scrutiny, the Department would need to show that 1) there is a compelling government interest for its action, and 2) the government's actions are "narrowly tailored"/use "the least restrictive means" to serve that compelling interest. *Burson v. Freeman*, 504 U.S. 191, 199 (1992).

Presuming, though not conceding, that the Department may have compelling interests in expanding the highway for public safety and transit reasons, the Department must still use the least restrictive means in interfering with the Church's religious conduct. Yet, there are a plethora of less restrictive avenues the Department can take to avoid restricting the Church's religious exercise.

The most straightforward solution is for the proposed expansion at Bangerter Highway and 4700 South to be moved to the east to the extent that it does not need to acquire the Church's parking spots along its eastern boundary with Bangerter Highway. Another solution is that the Department construct an underpass for Bangerter Highway and 4700 South as opposed to an overpass so as to not interfere with the Church's visibility from the public roads. Finally, the State can enable the Church to acquire a different property suitable to its use—either by eminent domain or by compensation. Two alternative properties that may suit the Church's needs include 3330 S 5600th W, West Valley, UT 84120 (formerly a Kmart) and 3706 9800 S, South Jordan, UT 84095 (formerly a Walmart). Finally the Department can create a tiered or underground parking lot for the Church to replace the lost parking spaces due to the highway expansion.

While these alternatives may increase costs for the Department, it should be noted that higher costs are not a justification for ruling out alternative solutions that protect

religious exercise. As the Supreme Court of the United States held, "We do not doubt that cost may be an important factor in the least-restrictive-means analysis, but both RFRA and its sister statute, RLUIPA, may in some circumstances require the Government to expend additional funds to accommodate citizens' religious beliefs. Cf. § 2000cc–3(c) (RLUIPA: '[T]his chapter may require a government to incur expenses in its own operations to avoid imposing a substantial burden on religious exercise.')." *Burwell v. Hobby Lobby Stores, Inc*., 573 U.S. 682, 730, 134 S. Ct. 2751, 2781, 189 L. Ed. 2d 675 (2014).

IV. RLUIPA and Eminent Domain

RLUIPA's scope encompasses a government's use of the eminent domain power—the taking of land for public use. The term "land use regulation" is defined in RLUIPA as "a zoning or landmarking law, or the application of such a law, *that limits or restricts a claimant's use or development of land*…." 42 U.S.C. § 2000cc5(5) (emphasis added). The Department's use of eminent domain in expanding Bangerter Highway would completely limit and restrict a Church's use of land. Thus, RLUIPA applies.

Furthermore, Federal courts have held that eminent domain proceedings may fall within the scope of RLUIPA. One such case out of the Central District of California is *Cottonwood Christian Center v. Cypress Redevelopment Agency,* 218 F. Supp. 2d 1203 (C.D. Cal. 2002). The court explicitly rejected the government's argument that eminent domain is not a "land use regulation" under RLUIPA, and instead emphasized how "the Redevelopment Agency's authority to exercise eminent domain to contravene blight…is based on a zoning system developed by the City." *Id.* at 1222 n.9. Another court noted that *Cottonwood* "stands for the proposition that all exercises of eminent domain authority are subject to RLUIPA." *St. John's United Church of Christ v. City of Chicago*, 401 F. Supp. 2d 887, 899-900 (N.D. Ill. 2005). Thus, RLUIPA can apply to the Department's use of eminent domain to acquire the Church's property. And even if the RLUIPA were held not to apply to an eminent domain action, the First Amendment would still apply as discussed in the next section.

V. The Free Exercise Clause of the First Amendment

In addition to RLUIPA, the proposed highway expansion infringes on the Church's hybrid rights of free exercise, freedom of assembly, freedom of association, and freedom of speech under the First Amendment to the U.S. Constitution. *See Church of the Lukumi Babalu Aye, Inc. v. Town of Hialeah*, 508 U.S. 520 (1993).

As with RLUIPA, the First Amendment requires that the Department's actions be considered under Strict Scrutiny. This is because the Department's power to determine whether or not to acquire the Church's property permits its officials to make "individualized assessments," within the meaning of *Employment Div. v. Smith*, 494 U.S. 872, 884 (1990) and *Church of Lukumi Babalu Aye v. Town of Hialeah*, 508 U.S. 520, 537 (1993). Furthermore, the Supreme Court has held that "when a zoning law infringes upon a protected liberty, it must be narrowly drawn and must further a sufficiently substantial government interest." *Schad v. Borough of Mount Ephraim*, 452 U.S. 61, 67-74 (1981). Thus, as with RLUIPA, under the First Amendment, the Department's actions must use the least restrictive means to avoid infringing on the Church's religious exercise.

As discussed in the previous section, there are a number of other ways to allow the highway expansion to move forward without infringing on the Church's religious exercise. The proposal therefore violates the Free Exercise Clause of the First Amendment to the United States Constitution as incorporated and applied to the states through the Fourteenth Amendment.

VI. Compensation for the Proposed Taking

The Fifth Amendment to the U.S. Constitution says "nor shall private property be taken for public use, without just compensation." Furthermore, Utah courts have made clear that a decrease in value of the remaining property must also be compensated to the land owner.

The Utah Supreme Court in *Utah Department of Transportation v. Admiral Beverage Corp*. stated that the State must compensate the property owner for "diminution in market value of remainder property, including loss of property's visibility from elevated highway." 275 P.3d 208 (2011). The Dept. of Transportation had condemned real property owned by Admiral Beverage Corporation to improve and elevate an interstate highway. Admiral was entitled to compensation from the State for the taking of its property, and claimed that it was entitled to further compensation for loss of market value caused by the loss of view and visibility of the remaining property. The Utah Supreme Court ruled that real property owners are entitled to compensation for the loss of value to the remaining property.

Thus, if the State takes a portion of the Church's property, compensation of property value taken will not only consist of the lost square footage As mentioned in the Background Section, the visibility of the Church's current location is ideal for attracting members and carrying out its religious exercise. The overpass will cause a diminution in market value to the Church's remainder property. The property will also suffer further loss of value due to the vehicle flow and parking obstacles for the Church's attendees. Thus, the Church should receive more compensation than would simply be owed for the loss of square footage.

Conclusion

As noted above, there are four possible solutions to the proposed infringement on the Church's religious exercise:

1. The proposed expansion at Bangerter Highway and 4700 South can be moved to the east to the extent that it does not need acquire the Church's parking spots along its eastern boundary with Bangerter Highway;

2. The Department constructs an underpass for Bangerter Highway and 4700 South as opposed to an overpass so as to not to interfere with the Church's visibility from the public roads.

3. The State of Utah acquires another property suitable to the Church's needs such as the properties at 3330 S 5600th W, West Valley, UT 84120 (formerly a Kmart) or 3706 9800 S, South Jordan, UT 84095 (formerly a Walmart); or in the alternative, pay the Church enough compensation to purchase a suitable alternative property.

4. The Department can create tiered or underground parking spaces for the Church to substitute for the lost parking spaces due to the highway expansion.

Finally, it should be noted if civil rights (e.g. the Church's right to use its own property for worship) are improperly denied, U.S. Code § 1988 requires that the citizens' attorney's fees be compensated by the government entity.

We hope that this summation of the law regarding religious land use rights will be helpful to the Department in considering the Church's solutions to restricting its religious exercise. The Church looks forward to many more years of continued involvement in the community. If there are any questions regarding the applications, I can be contacted at 312-853-8709 or jmauck@mauckbaker.com.

Very truly yours,

MAUCK & BAKER, LLC

/s/ John W. Mauck

John W. Mauck

EXHIBIT A

Bangerter & 4700 South Overpass Project

Objective: Life Church, formerly known as Kearns Assembly of God Church and more recently (until 2008), Valley Assembly of God Church, has been a beacon in the Salt Lake Valley since 1956 and at its current location, 3818 West 4700 South since 1971.

The Life Church campus location predates Bangerter Highway's construction by nearly two decades. Over the years, the Utah Department of Transportation (UDOT), has systematically annexed hundreds of square feet of prime real estate belonging to Life Church. While there has been minimal compensation, the enormous impact of UDOT development at various times over the years on the Life Church campus has been substantial and has not been equally compensatory.

With that and other thoughts in mind, the following document has been compiled in order to show the imminent negative impact on Life Church and our community at large.

Areas of Impact:

1. Life Church Facilities

    a. Parking — Potentially, approximately 50 stalls affected or eliminated; three handicap spots eliminated. With the loss of available parking…
        Concern — Potential inability to meet West Valley City seating requirements for building occupancy.
        Concern — Potential inability to meet West Valley City code requirements for available handicap parking stalls.
        Concern — Potential inability to appropriately meet the needs of the physically-impaired community.

    b. Eliminated or at the least, Restricted Vehicle Access to the East and South sides of the main parking lot and thus, the main building.
        Concern — Restricted vehicle traffic flow on the Campus, which will create a significant hardship for Life Church's congregation, as well as other guests and vendors who conduct business on the Life Church campus.

c. Restricted Foot Traffic Access to the East (2) and South (2) entrances of the main facility.

Concern — Restricted foot traffic flow on the Campus, which will create a significant hardship for Life Church's congregation, as well as other guests and vendors who conduct business on the Life Church campus.

d. Pre-school Children (aka, Toddler Nursery)

Concern — Given the fact that the location of one of Life Church's pre-school areas is on the East side of the main facility, and the fact that the overpass will be at a height of no less than thirty feet, which is significantly higher than the ground level of Life Church's main facility, the risk of potential harm to Life Church's pre-school population is concerning.

e. Conference Room

Concern — Loss of Executive Board Meeting space
Concern — Loss of Staff Meeting space
Concern — Loss of Classroom space

f. Limited Visibility/Line-of Sight Issues

Concern — With the construction of an overpass at Bangerter and 4700 South, this will greatly limit the visibility of the Life Church campus, and the main building, which houses the chapel, ministry offices, business office, classrooms, nurseries, media and studio facilities, kitchen, gymnasium, and cafe, in particular.

g. Campus Entrance and Egress

Concern — With the re-working of 4700 South just to the South of the Life Church Campus some years ago, Life Church experienced an immediate negative impact, which created a significant hardship for moving vehicle traffic into and out of the Life Church Campus.
Concern — Even greater restriction of vehicle and pedestrian traffic flow at the Life Church Campus.

h. Outbuilding

Concern — Loss of workshop, which contains, a paint booth, wood-working area, material and supply storage, and tool and equipment storage.
Concern — Loss of repository for vehicles, forklift, scissor lift, lawn maintenance equipment, snow removal vehicle and snow abatement implements.
Concern — Loss of general storage space and. Work area for day-to-day facility maintenance and other operations.
Concern — Loss of storage and work space for special events materials and equipment.

i. Life Center

The Life Center facility, located on the campus of Life Church, houses Life Community Center (see below), Synergy in Action (see below), Isaiah Calling, Alcoholics Anonymous, Al-Anon, Standing Together (see below), KidsLife Mid-week. This facility is critical to the operations of Life Church. Without this space, Life church's ability to provide tangible outreach to the community would be greatly impacted.

j. Student Life Center

The Student Life Center is where teenagers gather form worship, biblical instruction, and relationship-building. Without this space, there is no other available space for the above-mentioned activities to take place.

2. Meals-On-Wheels

Life Church, in partnership with Salt Lake County, has served as a Meals-On-Wheels distribution and delivery hub for nearly fifteen years. Life Church coordinates a team of local volunteers who provide meals to senior members of the West Valley City, Taylorsville, and Kearns communities.
Concern — Life Church's ability to receive and distribute meals to the needy and deserving in the community will be greatly hampered due in larger part to any loss of parking lot access, parking stalls, and the forfeiture of facility space.

3. Life Community Center

The Life Community Center (LCC), formerly known as the West Valley Community Center, is the community outreach arm of Life Church of the Assemblies of God. Since 2003, the LCC has had a formal and active presence in the neighborhoods of West Valley City, Kearns, Taylorsville and the surrounding areas. The mission of the LCC is to bring hope and empower the people of the Salt Lake Valley through life skills, education, and community support. All of our community programs are open to the general public and are a reflection of the vision of Life Church to engage in the intentional love of others and to be radically generous.

Since 2003, the LCC has has a positive impact in the lives of thousands living in our community. Our primary target area for our programming is West Valley City, Kearns and Taylorsvillle; but we have has visitors come to participate in our programs and events from Magna, West Jordan, South Jordan, Riverton, Herriman, Midvale, Murray, South Salt Lake, Salt Lake City, Tooele, North Salt Lake, and Bountiful. Our central location has been a key component to making our programs accessible to the general public.

The LCC has had a long history of working with and partnering with other agencies and organizations in our local community. Our current and former partnering agencies include: West Valley City - Weed and Seed grant, West Valley City Police Department, Community Education Partnership of West Valley City, Friends of the Children - Utah Chapter, The University of Utah College of Social Work Practicum Office, The Utah Criminal Justice Center, VITA, Aspire Apartments, Mountain View Apartments, Valley Jr. High, Silver Hills Elementary, Utah Partners for Health, Red Cross, Synergy in Action, Salt Lake City Mission, Utah Foster Care Foundation - West Valley Chapter, and Calvary Chapel Salt Lake.

Prior to 2018, Life Church engaged in community outreach efforts through the West Valley Community Center and other outreach programs. The outreach programs led directly by staff and volunteers include the following:

Project 180
Project 180 was a 12-week gang and crime reduction program than ran for five years in partnership with West Valley City, The Utah

Criminal Justice Center, Juvenile Justice System, and West Valley Police Department. During its operation, gang-affiliated youth were court ordered to the program to help them through the process of successfully leaving the gang they were involved with. On average, Project 180 helped 20 gang-involved juveniles per year.

Radical Youth Invasion (RYI)
RYI was a partner program with Granite School District schools, elementary - high school. The goal of RYI was to share a positive message through school assemblies and performances. The positive message emphasized a drug-free, gang-free, violence-free message and focused on positive peer groups and encouraged a good decision making process.

Alcoholics Anonymous
Alcoholics Anonymous is a 12-step addiction recovery group that meets on a weekly basis at the Life Community Center. The group has been meeting regularly since 2003 And has been a vital asset to individuals finding freedom from their addiction.

Al-Anon
Al-Anon was a 12-step support group for family members and loved ones of alcoholics. This group met on a weekly basis and averaged 13 people per week.

English as a Second Language (ESL)
ESL was facilitated as an 8-week beginning level language program. During its five year operation with the Weed and Seed grant, the program served on average 15 people per year.

Afterschool Programming
The Afterschool Program provided a fun and safe environment for children in our community who do not have access to afterschool programs at their school. On a yearly average, the afterschool program served 15 children and their families per year.

Celebrate Recovery
Celebrate Recovery is a 12-step addiction recovery program for individuals struggling with hurt, pain or addiction of any kind.

Red Cross Blood Drives
Blood drives were held twice a year, located in the Life Community Center building. The blood drives averaged 45-50 donors per event.

National Night Out Against Crime
National Night Out Agains Crime is an annual block-party event that brings the community together to strengthen community relationships and provide safety information to individuals and families.

VITA Tax Preparation Utah
Provides free tax return preparation in partnership with the IRS. West Valley Community Center and Life Church volunteers were trained as IRS-certified volunteers. VITA Tax was available to individuals with an income less than $35,000 and to families with a joint income less than $57,000.

Computer Classes
Participants of the computer class learned basic computer and internet literacy skills and Microsoft Office suite programs.

Mega Sports Camp
Through Mega Sports camp, children learned teamwork skills, grew their confidence, gained the skills to play basketball, soccer, and flag football, and made new friends and connections with others in the community.

Basketball Mentoring League
The Basketball League was a safe environment for youth ages 12 - 21 years. Youth were taught basketball skills and were mentored to learn teamwork skills and positive decision making skills.

In 2018, Life Church officially relaunched the outreach programs under the Life Community Center (LCC) with the desire to grow outreach efforts and have a larger impact on the surrounding community. The LCC and outreach programs specifically target individuals living in the nearby community who can be identified as being low-income, from an immigrant background, have currently or previously suffered from addiction, have experienced grief and loss, and are currently experiencing homelessness.

The current programs that are meeting and operating on a regular basis are as follows:

Food Share
Food Share provides free food on a weekly basis to families and individuals who are currently experiencing hunger due to a lack of income and/or homelessness. Since 2019, the Food Share has served 1,319 families, with an average of 2.5 children and 2 adults per family, equating to 5,935.5 individuals served.

Afterschool & Summer Kids Program
Since 2018 the Afterschool & Summer Kids program has served 37 children and their families. The program operates year-round to provide a safe environment for children whose schools do not provide afterschool programing. The Kids program is focused on strengthening literacy and language skills, and teaches valuable life skills such as interpersonal communication skills, arts, physical activity through enrichment activities.

Alcoholics Anonymous
Alcoholics Anonymous is a 12-step addiction recovery group that meets on a weekly basis at the Life Community Center. The group has been meeting regularly since 2003 And has been a vital asset to individuals finding freedom from their addiction.

Isaiah Calling Homeless Outreach
The Isaiah Calling Homeless Outreach program has been in operation since 2012 and has served over 6,000 individuals who are homeless in Salt Lake City. The program provides support to individuals who are unsheltered and are experiencing homelessness for the first time and individuals who are chronically homeless. Volunteers of the Isaiah Calling have provided services such as access to clean water, food, warm clothing, blankets, hygiene items, and PPE during the Covid-19 pandemic.

Grief Share
Grief Share is a support group for people who have experienced the death and loss of a loved one or family member. Grief Share provides psycho education about the grieving process and provides

peer support as an individual journeys through the grieving process. This program meets on a weekly basis and is available in-person and online.

Resource Center
The Resource Center launched in the spring of 2021 to help individuals who are struggling to navigate resources and systems within Salt Lake County. Services are provided by students of the University of Utah College of Social Work and by a Certified Social Worker. Services provided through the Resource Center include: access to housing, access to mental health and addiction support and treatment, access to clothing and other basic necessities, resume writing, and access to food.

Community Clean-Up Events
Since 2018, the Life Community Center has partnered with Aspire Apartments and Salt Lake County Recreation to clean nearby neighborhoods and parks. Volunteers and staff have cleaned Aspire Apartments, Park Central Apartments and surrounding neighborhood, Oquirrh Park, Lodestone Park to free the areas of dangerous garbage and to create a safe and welcoming environment for the community.

Community Outreach Events
The Life Community Center has hosted several community events such as Project Back to School, community Easter Egg Hunts, and Thanksgiving and Christmas Meals. Through these events, the Life Community Center has reached nearly 5,000 individuals. Through these events services such as free haircuts, vaccinations, vision screenings, free food, clothing, and free backpacks and school supplies have been provided.

Valley Jr. High, Granite School District
In 2020, the Life Community Center partnered with Valley Jr. High administration to provide school supplies to all 760 students, and survival kits for every member of the staff and faculty. In 2021 the LCC will be providing food and snacks and for all 33 classrooms to help feed students who arrive to school hungry. This partnership is

focused on meeting the direct needs of the students, families, staff and faculty of Valley Jr. High.

College of Social Work Practicum Site
The Life Community Center is a designated practicum site for the University of Utah College of Social Work. The LCC hosts students from all levels of learning at the College of Social Work, including the Bachelor of Social Work Program, Advanced Standing Program, and 2-year Masters of Social Work program. Practicums are an integral component to the students' learning process and a requirement for graduation and accrediting agencies. Since 2018, seven students have completed their practicums at the LCC. Students have gained competencies in micro, mezzo and macro Social Work practices and interventions, in addition to gaining skills in community based models and effective researched based interventions. Students have also completed projects to build their skill set in community based partnerships, organizational leadership, and ethics.

The Life Community Center has been a valuable asset to the surrounding communities, its families and neighbors. In 2022, the Life Community Center plans to launch an English as a Second Language course and plans to expand its efforts in its current programming. Programs are largely facilitated by volunteer efforts and are developed utilizing the Asset Based Community Development model.

4. KidsLife Childcare Center
   Established in 1979. Has served thousands of families over its forty-two year history. Continues to provide high-quality, low-cost childcare to the Salt Lake Valley. KidsLife Childcare Center serves children ages 2-12.

5. Standing Together
   Standing Together seeks to advance biblical unity among evangelical churches and pastors in Utah and spiritual transformation throughout our community and State. Standing Together's ministry offices are located on the campus of Life Church.

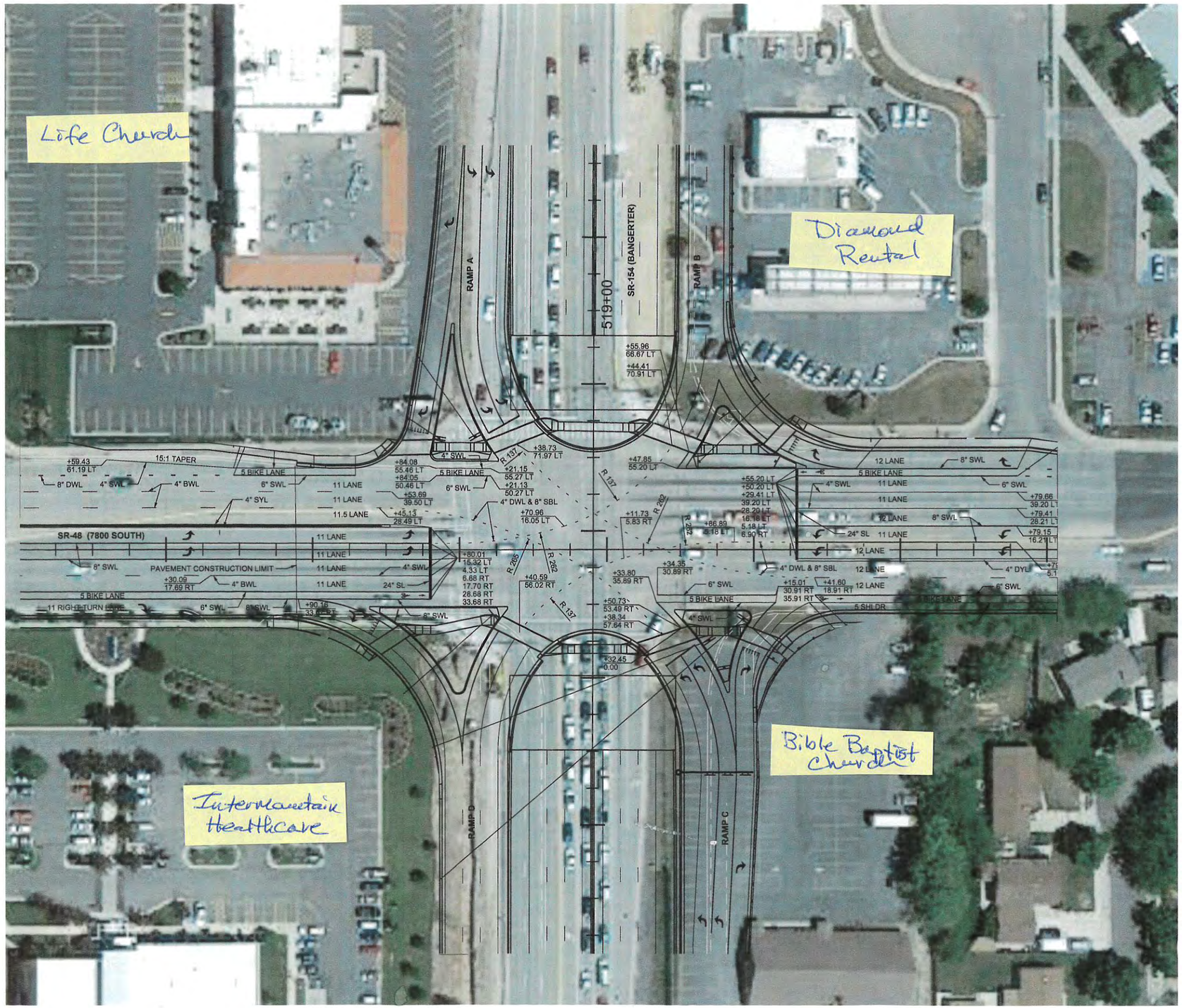
6. Synergy In Action Network

Synergy In Action Network (SIAN), is an organization that empowers churches, ministries and non-profits with training, resources and outreach solutions. SIAN is provided operational and storage space on the Life Church campus in the Life Center facility.

7. Utah Partners for Health

   Utah Partners for Health (UPH) provides compassionate, comprehensive, quality care to empower underserved individuals, families, and communities in a patient centered medical home. The Life Church campus serves as a staging ground for UPH operations. Their vehicles and equipment are stored on the Life Church campus.

EXHIBIT B



GRADE-SEPARATED INTERCHANGE OVERLAY

NOTE: ALL INTERSECTIONS ARE CREATED AS DESIGN/BUILD BY UDOT - THIS IS NOT A DEFINITIVE DESIGN STANDARD, ONLY A REPRESENTATION OF WHAT WAS INTSTALLED AT 7800 SOUTH AND BANGERTER

LIFE CHURCH - Grade-Separated Interchange	SALT LAKE CITY UT	AREA: N/A	SCALE: N/A	DATE: 12-18-2012	MOUNTAIN WEST ARCHITECTS

Wednesday, Dec. 5th, 2012

www.MountainWestArchitects.com
MOUNTAIN WEST ARCHITECTS

Memo of Conversation between MWA and UDOT

At 11:30 am MWA called UDOT and had a brief but helpful conversation with Tim Rose who is the Region 2 Deputy Director at Utah Department of Transportation. We introduced ourselves and explained the relationship between our client and the 4700s and Bangerter intersection, our desire for a long range master plan and the repercussions that a potential Grade-Separated Interchange or High Capacity Intersection would have on the property in question. Tim mentioned that intersection had been updated in recent months and should not require anything for the foreseeable future. Tim also mentioned that UDOT budget constraints at this time have put any plans for this type of upgrade on hold and that all of their focus currently is on the Mountain View Corridor to the West.

MWA next questioned Tim regarding the Long Term plans based on the EastWest Transportation Planning Study titled: Salt Lake County East-West Transportation Planning Study HB 108 completed in 2007 and amended March 1, 2008. This report identifies the intersection of 4700s and Bangerter to be upgraded to a Grade-Separated Interchange or High Capacity Intersection similar to what has been installed at 7800s and Bangerter. Tim responded that the current mindset of UDOT is that all Grade-Separated Interchanges planned in the future would occur well to the South of 4700S and that because of the recent upgrades no current plans are underway to the 4700S intersection.

Tim reiterated the lack of funds and Budget statewide currently but did caution me that nothing other than the Mountain View Corridor is being focused on. With that said, he did mention that plans have a way of changing and that as the decision makers in the state get together each year to discuss future projects and plans the focus could shift.

MWA pushed Tim a bit further with regard to long term master plans and asked if something were to happen and 4700s were to become a focus, what would happen to it with regards to a worst case scenario for our clients. Tim said that the worst case scenario would be that 4700s could get upgraded to the same design as the recently completed 7800s Grade-Separated Interchange. Tim again mentioned that this is highly unlikely but agreed to send us an electronic copy of the 7800s interchange foot print so that we can intelligently assist our client in long term master planning their site. Tim asked that we give him a couple of days to put this information together and to expect it no later than Monday the 10th of December, 2012.

Tim's contact info is as follows:

Tim Rose
Region 2 Deputy Director at
Utah Department of Transportation
801.975.4806

4590 Harrison Blvd. Suite 100 I Ogden, Utah 84403 I 801.388.6052

(2) UDOT Memo

3/24/10

Phone conversation w/ Michael Timothy

Funded for 2022
Earliest 2020 (pre-liminary work)

Considerations:
- aquafer on the eastside of Bangerter

North

Appendix C: Public Involvement

Bangerter Highway at 4700 South Public Hearing Report

BANGERTER HIGHWAY AT 4700 SOUTH

PUBLIC MEETING REPORT

Project Number: S-0154(92)0

PIN: 18808

Prepared For: Utah Department of Transportation

Prepared By: Avenue Consultants

Date: February 21, 2022

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Study Overview

The Utah Department of Transportation (UDOT) has initiated State Environmental Studies (SESs) for the following intersections along Bangerter Highway:

- 2700 West
- 13400 South
- 9800 South
- 4700 South
- 4100 South
- 3500 South to S.R. 201
- California Avenue

Bangerter Highway is a major north-south corridor in the state of Utah, and with continued growth in the area, the amount of traffic on Bangerter Highway is expected to increase. This projected increase in traffic will also increase delays on Bangerter Highway by up to four times longer than the current conditions. UDOT is proposing to replace at-grade, signalized intersections along the corridor with grade-separated interchanges, which will allow one street to pass over the other. This separation will move Bangerter Highway and cross-street traffic more efficiently and will eliminate points of conflict along this busy highway.

The purpose of this study is to identify the best solution to address the needs along Bangerter Highway, evaluate the impacts of the proposed improvements to the natural and built environments, and provide opportunities for public input. The following is a summary of the preparation and execution of Business and Neighborhood Meetings (in-person only) and the Public Hearing (both in-person and online options) regarding the Bangerter Highway and 4700 South intersection.

Meeting Summaries

BUSINESS AND NEIGHBORHOOD MEETINGS

MEETING OVERVIEW

In-person Business and Neighborhood Meetings were held to review the proposed improvements, communicate potential property impacts with property owners and businesses, and provide property owners and businesses with information related to the right-of-way process and anticipated schedule.

When/Where

Business Meetings
In-Person One-on-Ones

Business	When	Meeting Time	Where
Life Church	Friday, Jan. 7, 2022	9 to 10 a.m.	3818 West 4700 South Taylorsville, UT 84129
Intermountain Healthcare (IHC)	Tuesday, Jan. 11, 2022	9 to 10 a.m.	36 South State Street, 21st Floor Salt Lake City, UT 84111
Bible Baptist Church	Thursday, Jan. 13, 2022	11 a.m. to 12 p.m.	3769 West 4700 South Taylorsville, UT 84129
Diamond Rental	Thursday, Jan. 13, 2022	1:30 to 2:30 p.m.	3752 West 4700 South Taylorsville, UT 84129

Neighborhood Meeting
In-Person Open House

When: Thursday, Jan. 13, 2022
5:30 to 8 p.m.

Where: Kennedy Jr. High School
4495 South 4800 West
West Valley City, UT 84120

Two sessions were held, which allowed attendees to have smaller group discussions with study representatives.

ADVERTISEMENTS

*The invitations for the **Business and Neighborhood M**eetings were limited to those property owners with direct impacts and those who would* become *the "new front row**,**" the homes closest to Bangerter Highway, when future construction is complete. Outreach efforts to these properties included:*

- ***Dec. 27, 2021 –** 156 postcards were mailed to impacted property owners and renters.*
- ***Dec. 29, 2021 –** An invitation was hand-delivered to each property.*

- ***Jan. 11, 2022 –*** *A reminder invitation / COVID-19 Protocol Overview was hand-delivered to each property.*

- *The study website was updated with information about the Business and Neighborhood Meetings, but details were not provided for the general public.*

Copies of the Business and *Neighborhood Meeting advertisements are available in* ***Appendix A****.*

ATTENDANCE

- 47 stakeholders signed in for and attended the Neighborhood Meeting.

A list of Neighborhood Meeting attendees is available in ***Appendix B****.*

INFORMATION PRESENTED

The study team began the Business and Neighborhood Meetings with a presentation by Brian Allen, the UDOT Project Manager. This presentation highlighted information including the study goals, alternative selection process, and more. The slides were printed into boards, which were positioned around the room for accessibility.

Additionally, scroll plots were laid out in three different locations at the meeting. Three scroll plots that included preliminary design and impact information were displayed showing the west shift alternative for both the over and the under options.

The UDOT PM gave a presentation at the start of the Neighborhood Meeting that included information about the environmental study process, alternatives studied and associated impacts/costs, the preferred alternative(s), vertical alignment city coordination, Jordan Valley Aqueduct relocation, comment period details, comment channels, and contact information for the study team.

After the presentation, attendees had the opportunity to look at scroll plot maps showing the preferred alternative(s) and associated impacts, view all presentation materials as physical boards, and ask questions to members of the study team. Members of the UDOT right-of-way team were also available to explain the property acquisition process.

A copy of the information presented at the Business and Neighborhood Meetings is available in ***Appendix C****.*

PUBLIC HEARING

MEETING OVERVIEW

A Public Hearing was held, with both an in-person and online engagement opportunity, to review the proposed improvements and gather feedback.

When/Where

In-Person Open House **When:** Tuesday, Feb. 1, 2022
5:30 to 7:30 p.m.

Where: Kennedy Jr. High School
4495 South 4800 West
West Valley City, UT 84120

Online Presentation and Q&A

When: Wednesday, Feb. 2, 2022
6 to 7 p.m.

Where: Zoom webinar – A link to join the online meeting and registration instructions were available on the study website: udot.utah.gov/bangerter4700south

ADVERTISEMENTS

The project team (consisting of UDOT staff and consultant firms) developed and executed a comprehensive outreach plan to invite adjacent property owners, residents, and the general public to attend *the Public Hearing. The plan included:*

- **Jan. 14, 2022 –** 2,278 postcards were mailed to properties surrounding the study area.
- **Jan. 17, 2022** – An advertisement was posted on West Valley City, Taylorsville, and the Greater Salt Lake Municipal Services District (MSD) existing social media channels.
- **Jan. 19, 2022** – A press release was sent out with information about the three proposed Bangerter Highway interchanges.
- **Jan. 21, 2022 –** An email update to the environmental stakeholder list (115 subscribers) **was** sent.
- The project website was updated with the meeting information.
- A legal notice was published in major newspapers according to the UDOT Environmental Manual of Instruction (MOI) and Utah Administrative Code R930-2. The legal notice was published on Jan. 14, 2022, and Jan. 21, 2022, in the Deseret News and Jan. 16, 2022, Jan. 18, 2022, and Jan. 23, 2022, in the Salt Lake Tribune.

All advertisements included information in both English and Spanish.

Copies of the meeting advertisements are available in ***Appendix A****.*

ATTENDANCE

- 53 stakeholders signed in for and attended the in-person Public Hearing on Tuesday, Feb. 1.
- 20 stakeholders attended the online opportunity on Wednesday, Feb. 2.

A list of attendees for the online meeting and scanned copies of the sign-in sheets from the in-person meeting are available in ***Appendix B****.*

INFORMATION PRESENTED

The study team began the Public Meeting with a presentation by Brian Allen, the UDOT Project Manager. This presentation highlighted information including the study goals, alternative selection process, and more. The slides were printed into boards, which were positioned around the room for accessibility. The same information was presented at both Public Hearing opportunities. All materials were translated to Spanish and available upon request.

After the presentation, in-person attendees had the opportunity to look at scroll plot maps showing the preferred alternative(s) and associated impacts, view all presentation materials as physical boards, and ask questions to members of the project team. A physical copy of the Draft SES was available for attendees to review. Online attendees had the opportunity to participate in a live Q&A session with members of the project team and UDOT's Right of Way team.

*Materials presented at these meetings are available in **Appendix C**.*

INFORMATION AVAILABLE ON THE STUDY WEBSITE

The study team utilized a study website throughout the environmental process to provide a centralized place for the public to access study information. In preparation for the Public Hearing, the website was updated with meeting details and registration links for the online option.

Additionally, a copy of the Draft SES was published on the website at the start of the formal comment period. Copies of the impact maps, for both under and over options, were featured as well, along with copies of the presentation itself. After the online Public Hearing, a recording of the meeting was published to allow anyone who could not attend the opportunity to hear the information presented.

For 4700 South specifically, both an English and a Spanish version of the website were available.

PUBLIC COMMENTS

A formal public comment period was held from Jan. 17, 2022, through Feb. 15, 2022. Members of the public were encouraged to submit comments on the Draft SES via email, study website, or postal mail. A comment form was available at the in-person Public Hearing and on the study website for the general public's use. A court reporter was also available at the in-person Public Hearing to record verbal comments during the open mic portion of the meeting.

A total of 11 comments were received (4 email comments, 4 website comments, and 3 verbal comments at the Public Hearing).

Common themes from the public comments included:

- Concerns about fair home valuations (1).
- ADA accessibility for full acquisitions (1).
- Westridge Health Center access and construction impacts (1).
- Canal turnaround at 4435 South and construction impacts (2).

- Utah and Salt Lake Canal construction coordination (1).
- Construction impacts for “new front row” properties (1).
- Preference of an underpass vs. an overpass (1).
- Frustration with perceived lack of planning (1).
- Concerns about impacted property notification (2).

*The verbatim public comments and associated responses are provided in **Appendix D**.*

Appendix A Advertisements

Impacted Property Owner Postcard Invitation



BANGERTER
4700 SOUTH

JOIN US! NEIGHBORHOOD MEETING
¡ESTÁN INVITADOS! REUNIÓN DE RESIDENTES

The Utah Department of Transportation (UDOT) is completing the State Environmental Study (SES) at Bangerter Highway and 4700 South. **UDOT is hosting invitation-only neighborhood meetings to discuss potential impacts to directly affected residents and businesses.**

YOUR PROPERTY MAY BE IMPACTED BY THESE IMPROVEMENTS.

El Departamento de transportación de Utah (UDOT) está completando el Estudio Ambiental Estatal (SES) en Bangerter Highway y 4700 South. UDOT está organizando reuniones locales (solo por invitación) para hablar sobre los impactos potenciales a los residentes y negocios directamente afectados.

SU PROPIEDAD PUEDE VERSE AFECTADA POR ESTAS MEJORAS.

NEIGHBORHOOD MEETING
LA REUNIÓN LOCAL

When/*Cuándo:* **Thursday, Jan. 13, 2021, 5:30 – 6:30 p.m.**
Jueves 13 de Enero de 2022, de 5:30 a 6:30 p.m.

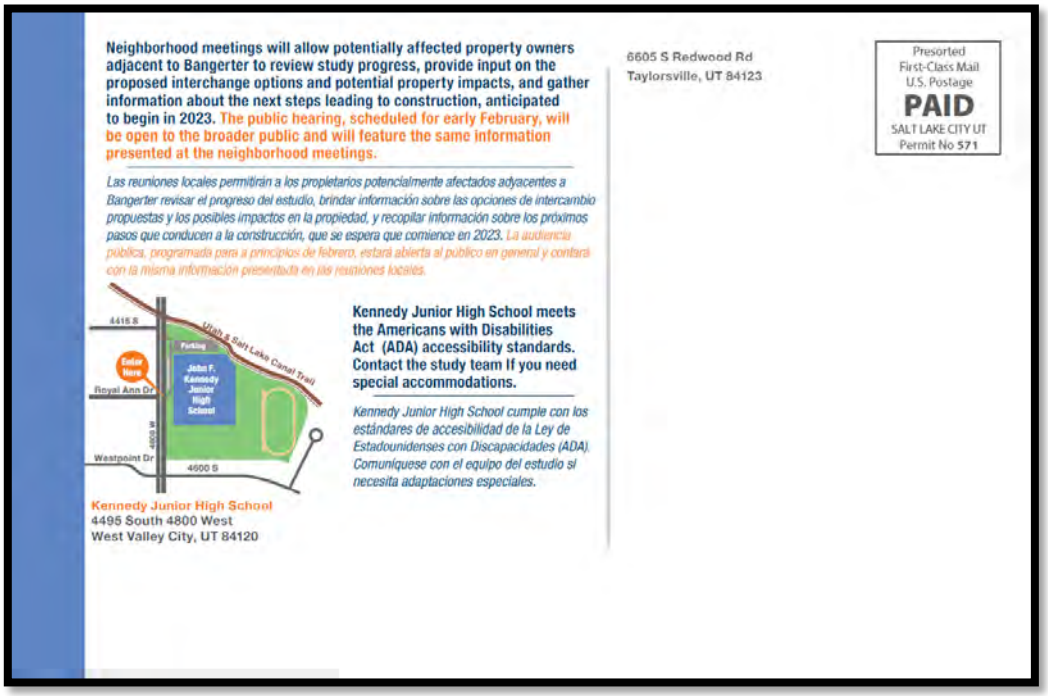
Where/*Dónde:* **Kennedy Junior High School**
4495 South 4800 West
West Valley City, UT 84120

THIS MEETING WILL START WITH A SHORT 10 MINUTE PRESENTATION FOLLOWED BY AN OPEN HOUSE FORMAT

Esta reunión comenzará con una breve presentación de 10 minutos seguida de jornada de puertas abiertas.

Hotline/*Teléfono:* 888-766-ROAD (7623) | **Email**/*Correo electrónico:* bangerter@utah.gov | **Website**/*Sitio web:* udot.utah.gov/Bangerter4700South

A UDOT PROJECT



Neighborhood meetings will allow potentially affected property owners adjacent to Bangerter to review study progress, provide input on the proposed interchange options and potential property impacts, and gather information about the next steps leading to construction, anticipated to begin in 2023. The public hearing, scheduled for early February, will be open to the broader public and will feature the same information presented at the neighborhood meetings.

Las reuniones locales permitirán a los propietarios potencialmente afectados adyacentes a Bangerter revisar el progreso del estudio, brindar información sobre las opciones de intercambio propuestas y los posibles impactos en la propiedad, y recopilar información sobre los próximos pasos que conducen a la construcción, que se espera que comience en 2023. La audiencia pública, programada para a principios de febrero, estará abierta al público en general y contará con la misma información presentada en las reuniones locales.

Kennedy Junior High School
4495 South 4800 West
West Valley City, UT 84120

Kennedy Junior High School meets the Americans with Disabilities Act (ADA) accessibility standards. Contact the study team if you need special accommodations.

Kennedy Junior High School cumple con los estándares de accesibilidad de la Ley de Estadounidenses con Discapacidades (ADA). Comuníquese con el equipo del estudio si necesita adaptaciones especiales.

6605 S Redwood Rd
Taylorsville, UT 84123

Presorted
First-Class Mail
U.S. Postage
PAID
SALT LAKE CITY UT
Permit No 571

BANGERTER
4700 SOUTH

JOIN US! FOR A NEIGHBORHOOD MEETING

The Utah Department of Transportation (UDOT) is completing the State Environmental Study (SES) at Bangerter Highway and 4700 South.
UDOT is hosting an invitation-only neighborhood meeting to discuss potential impacts to directly affected residents and businesses.

YOUR PROPERTY MAY BE IMPACTED BY THESE IMPROVEMENTS.

NEIGHBORHOOD MEETING

When Thursday, Jan. 13, 2021, 5:30 – 6:30 p.m.

Where Kennedy Junior High School
4495 South 4800 West
West Valley City, UT
84120



THIS MEETING WILL START WITH A SHORT 10 MINUTE PRESENTATION FOLLOWED BY AN OPEN HOUSE FORMAT

Neighborhood meetings will allow potentially affected property owners adjacent to Bangerter to review study progress, provide input on the proposed interchange options and potential property impacts, and gather information about the next steps leading to construction, anticipated to begin in 2023. The public hearing, scheduled for early February, will be open to the broader public and will feature the same information presented at the neighborhood meetings.

Kennedy Junior High School meets the Americans with Disabilities Act (ADA) accessibility standards. Contact the study team If you need special accommodations.

Hotline: 888-766-ROAD (7623)
Email: bangerter@utah.gov | **Website:** udot.utah.gov/Bangerter4700South

A UDOT PROJECT

BANGERTER
4700 SOUTH

¡ESTÁN INVITADOS! REUNIÓN DE RESIDENTES

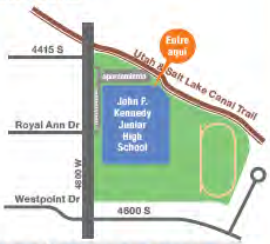
El Departamento de transportación de Utah (UDOT) está completando el Estudio Ambiental Estatal (SES) en Bangerter Highway y 4700 South.
UDOT está organizando reuniones locales (solo por invitación) para hablar sobre los impactos potenciales a los residentes y negocios directamente afectados.

SU PROPIEDAD PUEDE VERSE AFECTADA POR ESTAS MEJORAS.

LA REUNIÓN LOCAL

Cuándo Jueves 13 de Enero de 2022, de 5:30 a 6:30 p.m.

Dónde Kennedy Junior High School
4495 South 4800 West
West Valley City, UT
84120



ESTA REUNIÓN COMENZARÁ CON UNA BREVE PRESENTACIÓN DE 10 MINUTOS SEGUIDA DE JORNADA DE PUERTAS ABIERTAS.

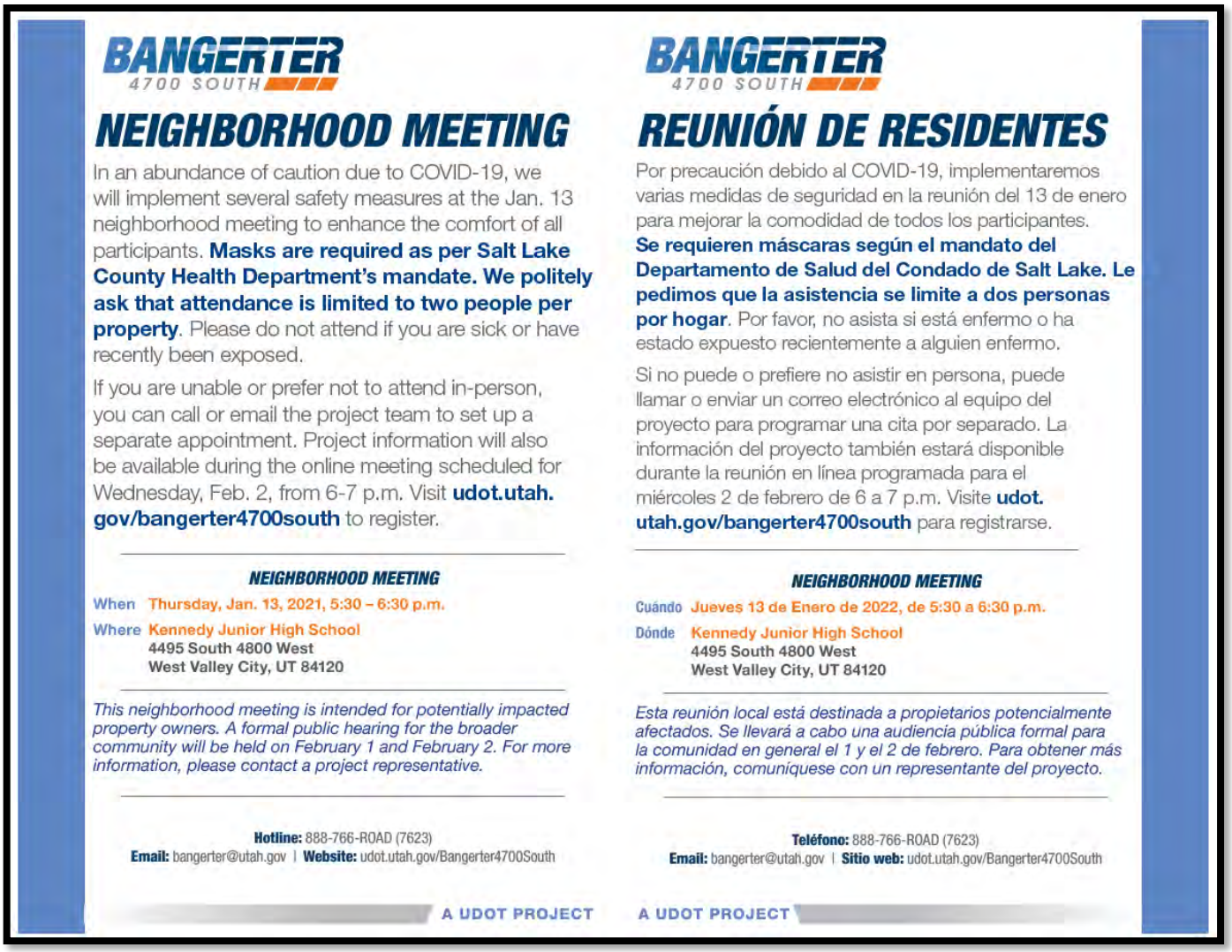
Las reuniones locales permitirán a los propietarios potencialmente afectados adyacentes a Bangerter revisar el progreso del estudio, brindar información sobre las opciones de intercambio propuestas y los posibles impactos en la propiedad, y recopilar información sobre los próximos pasos que conducen a la construcción, que se espera que comience en 2023. La audiencia pública, programada para a principios de febrero, estará abierta al público en general y contará con la misma información presentada en las reuniones locales.

Kennedy Junior High School cumple con los estándares de accesibilidad de la Ley de Estadounidenses con Discapacidades (ADA). Comuníquese con el equipo del estudio si necesita adaptaciones especiales.

Teléfono: 888-766-ROAD (7623)
Email: bangerter@utah.gov | **Sitio web:** udot.utah.gov/Bangerter4700South

A UDOT PROJECT

Reminder Invitation / COVID-19 Protocol Half-Page Flyer



BANGERTER 4700 SOUTH

NEIGHBORHOOD MEETING

In an abundance of caution due to COVID-19, we will implement several safety measures at the Jan. 13 neighborhood meeting to enhance the comfort of all participants. **Masks are required as per Salt Lake County Health Department's mandate. We politely ask that attendance is limited to two people per property**. Please do not attend if you are sick or have recently been exposed.

If you are unable or prefer not to attend in-person, you can call or email the project team to set up a separate appointment. Project information will also be available during the online meeting scheduled for Wednesday, Feb. 2, from 6-7 p.m. Visit **udot.utah.gov/bangerter4700south** to register.

NEIGHBORHOOD MEETING

When Thursday, Jan. 13, 2021, 5:30 – 6:30 p.m.

Where Kennedy Junior High School
4495 South 4800 West
West Valley City, UT 84120

This neighborhood meeting is intended for potentially impacted property owners. A formal public hearing for the broader community will be held on February 1 and February 2. For more information, please contact a project representative.

Hotline: 888-766-ROAD (7623)
Email: bangerter@utah.gov | **Website:** udot.utah.gov/Bangerter4700South

A UDOT PROJECT

BANGERTER 4700 SOUTH

REUNIÓN DE RESIDENTES

Por precaución debido al COVID-19, implementaremos varias medidas de seguridad en la reunión del 13 de enero para mejorar la comodidad de todos los participantes. **Se requieren máscaras según el mandato del Departamento de Salud del Condado de Salt Lake. Le pedimos que la asistencia se limite a dos personas por hogar**. Por favor, no asista si está enfermo o ha estado expuesto recientemente a alguien enfermo.

Si no puede o prefiere no asistir en persona, puede llamar o enviar un correo electrónico al equipo del proyecto para programar una cita por separado. La información del proyecto también estará disponible durante la reunión en línea programada para el miércoles 2 de febrero de 6 a 7 p.m. Visite **udot.utah.gov/bangerter4700south** para registrarse.

NEIGHBORHOOD MEETING

Cuándo Jueves 13 de Enero de 2022, de 5:30 a 6:30 p.m.

Dónde Kennedy Junior High School
4495 South 4800 West
West Valley City, UT 84120

Esta reunión local está destinada a propietarios potencialmente afectados. Se llevará a cabo una audiencia pública formal para la comunidad en general el 1 y el 2 de febrero. Para obtener más información, comuníquese con un representante del proyecto.

Teléfono: 888-766-ROAD (7623)
Email: bangerter@utah.gov | **Sitio web:** udot.utah.gov/Bangerter4700South

A UDOT PROJECT

Study Website Meeting Information



Upcoming Meetings

Neighborhood Meetings

Neighborhood meetings will be held in **mid-January 2022** to disclose impacts to the affected property owners adjacent to Bangerter and provide them an opportunity to review and discuss the next steps with the study team in a smaller setting. **Potentially impacted residents will receive an invitation via mail and a hand-delivered flyer.**

Public Hearing Advertisements

Legal Notice – Deseret News

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SALT LAKE CITY UTAH 84127
FED. TAX I.D.# 87-0128317
801-204-6910

DeseretNews

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Avenue Consultants Inc.
6605 S Redwood Rd Suite 200
Salt Lake City, UT 84123

ACCOUNT NUMBER
54294

ACCOUNT NAME
Avenue Consultants Inc.

TELEPHONE
801-716-2466

ORDER #
DN0014979

CUSTOMER REFERENCE NUMBER
18808_4700 S. Hearing Notice

CAPTION
NOTICE OF PUBLIC HEARING On Proposed Improvements for the Bangerter Highway (S.R. 154) and 4700 South Intersection in Salt Lake County, UT; UDOT Project No.

TOTAL COST
$345.36

NOTICE OF PUBLIC HEARING

On Proposed Improvements for the
Bangerter Highway (S.R. 154) and 4700 South Intersection
in Salt Lake County, UT
UDOT Project No. S0154(979)

As part of the State Environmental Study process, the Utah Department of Transportation (UDOT) advises all interested persons or groups that a Public Hearing will be held to present the proposed improvements at the Bangerter Highway and 4700 South Intersection in Salt Lake County, UT. The proposed project includes constructing a grade-separated Single Point Urban Interchange (SPUI) at the intersection of Bangerter Highway and 4700 South. Both an in-person and online engagement opportunity will be provided as part of this Public Hearing.

In-person
When: Tuesday, February 1, 2022, from 5:30 - 7:00 p.m.
Where: Kennedy Junior High, 4495 South 4200 West, West Valley City, UT 84120

Online
When: Wednesday, February 2, 2022, from 5 – 7 p.m.
Where: Visit udot.utah.gov/bangerter4700south for instructions on how to join the online meeting.

Masks are required at the in-person meeting as per Salt Lake County Health Department's mandate (in effect Jan. 8 – Feb. 7). To encourage social distancing, please limit attendance to two people per household.

Members of the public are invited to attend the Public Hearing and are encouraged to provide comments and feedback for consideration. Information to be presented at the meetings will include the draft State Environmental Study which identifies a Proposed Action, the process used to identify the Proposed Action, environmental resources considered and appropriate mitigation. The team will also present the project schedule and will be available to answer questions.

The draft State Environmental Study will be available at udot.utah.gov/bangerter4700south beginning Jan. 17, 2022. Other meeting materials will be available on the study website starting on Feb. 2, 2022, at udot.utah.gov/bangerter4700south. Written comments should be sent to:

Bangerter Environmental c/o Avenue Consultants
6605 S. Redwood Road
Taylorsville, UT 84123

Comments may also be submitted at the in-person public meeting, via email at bangerter@utah.gov, or by calling the project hotline. Comments need to be submitted by Feb. 15, 2022, to be included in the official transcript of the Public Hearing. Comments provided to the study team will be reviewed and considered by UDOT. All comments received will be documented in the project record. The study team will contact you if they need additional information or clarification.

If you have questions about the Public Hearing, please contact a study representative at 888-768-ROAD (7623) or bangerter@utah.gov, or visit udot.utah.gov/bangerter4700south.

In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) or language translation services during this meeting should notify the study team five days in advance at 888-768-ROAD (7623) or bangerter@utah.gov.

Para información en español, llame al 888-768-ROAD (7623).
DN0014979

AFFIDAVIT OF PUBLICATION

AS THE DESERET NEWS, INC. LEGAL BOOKER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF LEGAL NOTICE FOR AVENUE CONSULTANTS INC. WAS PUBLISHED BY DESERET NEWS, INC., WEEKLY NEWSPAPER PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH. NOTICE IS ALSO POSTED ON UTAHLEGALS.COM ON THE SAME DAY AS THE FIRST NEWSPAPER PUBLICATION DATE AND REMAINS ON UTAHLEGALS.COM INDEFINITELY. COMPLIES WITH UTAH DIGITAL SIGNATURE ACT UTAH CODE 46-2-101; 46-3-104.

PUBLISHED ON 01/14/2022, 01/21/2022

DATE 01/21/2022

SIGNATURE

STATE OF UTAH
COUNTY OF Salt Lake

SUBSCRIBED AND SWORN TO BEFORE ME ON THIS 21st DAY OF JANUARY IN THE YEAR 2022

BY Lorinne Gudmundson

LENEA TAPUSOA
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 712892
COMM. EXP. 07-06-2024

NOTARY PUBLIC SIGNATURE

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The Salt Lake Tribune

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TESSA KATWYK
6605 S REDWOOD RD STE 200
Salt Lake City, UT 84123

ACCOUNT NUMBER
4748

ACCOUNT NAME
AVENUE CONSULTANTS, INC.

TELEPHONE
801-716-2466

ORDER #
SLT0015302

CUSTOMER REFERENCE NUMBER
18808_4700 S. Hearing

CAPTION
NOTICE OF PUBLIC HEARING On Proposed Improvements for the Bangerter Highway (S.R. 154) and 4700 South Intersection in Salt Lake County, UT; UDOT Project No.

TOTAL COST
$447.20

NOTICE OF PUBLIC HEARING

On Proposed Improvements for the
Bangerter Highway (S.R. 154) and 4700 South Intersection
in Salt Lake County, UT
UDOT Project No. S-0154(920)

As part of the State Environmental Study process, the Utah Department of Transportation (UDOT) advises all interested persons or groups that a Public Hearing will be held to present the proposed improvements at the Bangerter Highway and 4700 South intersection in Salt Lake County, UT. The proposed project includes constructing a grade-separated Single Point Urban Interchange (SPUI) at the intersection of Bangerter Highway and 4700 South. Both an in-person and online engagement opportunity will be provided as part of the Public Hearing.

In-person
When: Tuesday, February 1, 2022, from 5:30 - 7:00 p.m.
Where: Kennedy Junior High, 4495 South 4800 West, West Valley City, UT 84120

Online
When: Wednesday, February 2, 2022, from 6 - 7 p.m.
Where: Visit udot.utah.gov/bangerter4700south for instructions on how to join the online meeting.

Masks are required at the in-person meeting as per Salt Lake County Health Department's mandate (in effect Jan. 8 – Feb. 7). To encourage social distancing, please limit attendance to two people per household.

Members of the public are invited to attend the Public Hearing and are encouraged to provide comments and feedback for consideration. Information to be presented at the meetings will include the draft State Environmental Study which identifies a Proposed Action, the process used to identify the Proposed Action, environmental resources considered and appropriate mitigation. The team will also present the project schedule and will be available to answer questions.

The draft State Environmental Study will be available at udot.utah.gov/bangerter4700south beginning Jan. 17, 2022. Other meeting materials will be available on the study website starting on Feb. 2, 2022, at udot.utah.gov/bangerter4700south. Written comments should be sent to:

Bangerter Environmental c/o Avenue Consultants
6605 S. Redwood Road
Taylorsville, UT 84123

Comments may also be submitted at the in-person public meeting, via email at bangerter@utah.gov, or by calling the project hotline. Comments need to be submitted by Feb. 15, 2022, to be included in the official transcripts of the Public Hearing. Comments provided to the study team will be reviewed and considered by UDOT. All comments received will be documented in the project record. The study team will contact you if they need additional information or clarification.

If you have questions about the Public Hearings, please contact a study representative at 888-766-ROAD (7623) or bangerter@utah.gov, or visit udot.utah.gov/bangerter4700south.

In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) or language translation services during this meeting should notify the study team five days in advance at 888-766-ROAD (7623) or bangerter@utah.gov.

Para información en español, llame al 888-766-ROAD (7623).
SLT0015302

AFFIDAVIT OF PUBLICATION

AS THE SALT LAKE TRIBUNE, INC. LEGAL BOOKER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF NOTICE OF PUBLIC HEARING On Proposed Improvements for the Bangerter Highway (S.R. 154) and 4700 South Intersection in Salt Lake County, UT; UDOT Project No. FOR AVENUE CONSULTANTS, INC. WAS PUBLISHED BY THE SALT LAKE TRIBUNE, INC., WEEKLY NEWSPAPER PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH. NOTICE IS ALSO POSTED ON UTAHLEGALS.COM ON THE SAME DAY AS THE FIRST NEWSPAPER PUBLICATION DATE AND REMAINS ON UTAHLEGALS.COM INDEFINITELY. COMPLIES WITH UTAH DIGITAL SIGNATURE ACT UTAH CODE 46-2-101; 46-3-104.

PUBLISHED ON 01/16/2022, 01/23/2022

DATE 01/26/2022 SIGNATURE Jordyn gallegos

STATE OF UTAH
COUNTY OF SALT LAKE

SUBSCRIBED AND SWORN TO BEFORE ME ON THIS 26th DAY OF JANUARY IN THE YEAR 2022

BY Jordyn Gallegos

MAKAYLA THEE
Notary Public, State of Utah
Commission #
My Commission Expires
June 15, 2022

NOTARY PUBLIC SIGNATURE

Public Postcard Invitation



BANGERTER 4700 SOUTH

YOU'RE INVITED!

STATE ENVIRONMENTAL STUDY PUBLIC HEARING

¡ESTÁS INVITADO! OPORTUNIDADES DE REUNIÓN PÚBLICA DE ESTUDIO AMBIENTAL

UDOT is completing a State Environmental Study (SES) to evaluate a potential freeway-style interchange at Bangerter Highway and 4700 South. The study is scheduled for completion in early 2022, with construction anticipated in 2023. The public is invited to attend a **Public Hearing to review proposed improvements** (both an in-person and online opportunity will be provided).

A public comment period will be open from **Jan. 17 through Feb. 15, 2022.** Written comments may be submitted at the in-person hearing or by mail or email.

UDOT está completando un Estudio Ambiental Estatal (EAE) para evaluar una posible intersección estilo autopista entre Bangerter Highway y 4700 South. El estudio está programado para completarse a principios de 2022 y la construcción se prevé para 2023. Se invita ***al público a asistir a una audiencia pública para revisar las propuestas mejoras*** *(se brindará una oportunidad en persona y en línea).*

Se abrirá un período de comentarios públicos desde ***el 17 de enero hasta el 15 de febrero de 2022.*** *Los comentarios por escrito pueden entregarse en persona durante la audencia publica o enviarse por correo postal o correo electrónico.*

IN-PERSON OPEN HOUSE / *REUNION EN PERSONA*

When/*Cuándo:* **Tuesday, Feb. 1, 2022, 5:30 – 7:30 p.m.**
— Presentation at 5:40 p.m.
— Open House at 5:50 p.m.

Martes, 1 de febrero de 2022, 5:30 a 7:30 p.m.
— Presentación a las 5:40 p.m.
— Casa Abierta a las 5:50 p.m.

Where/*Dónde:* **Kennedy Junior High School**
4495 South 4800 West
West Valley City, UT 84120

Masks are required. Please limit attendance to two people per household.
Se requieren máscaras. Por favor limite la asistencia a dos personas por hogar.

ONLINE PRESENTATION AND Q&A / *PRESENTACIÓN EN LÍNEA*

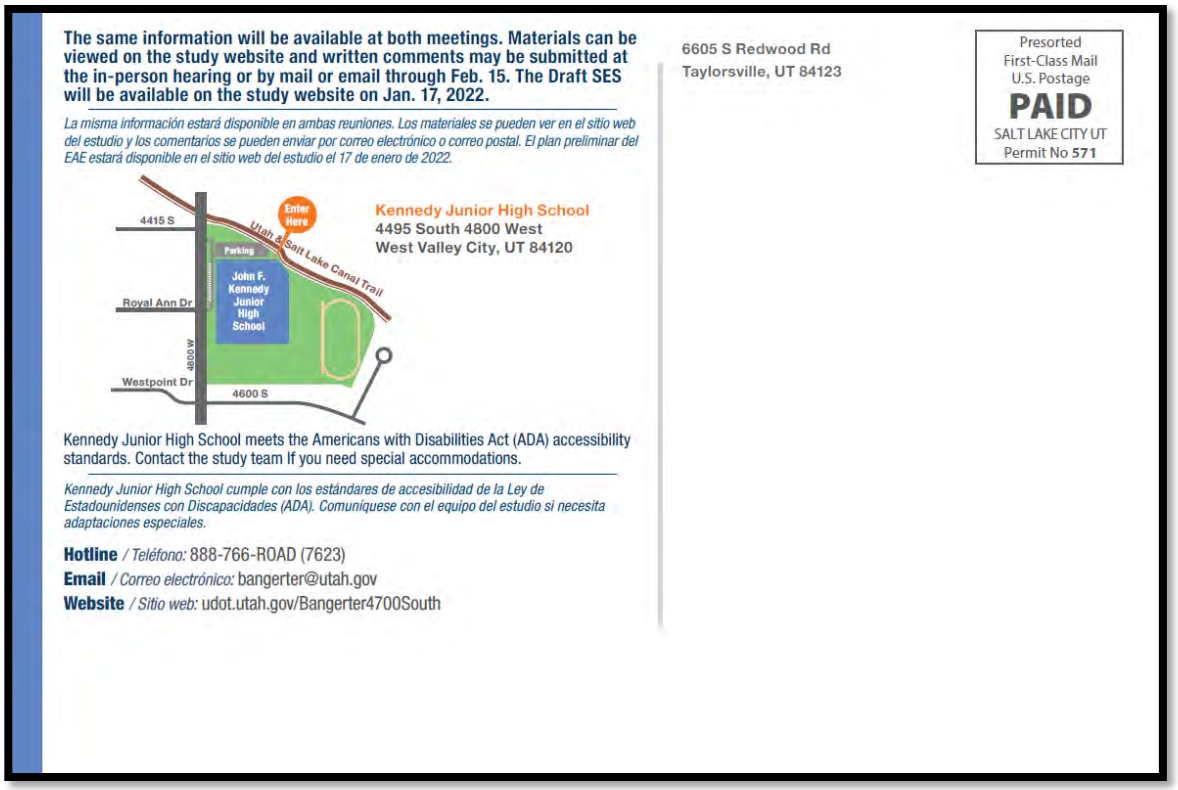
When/*Cuándo:* **Wednesday, February 2, 2022, 6 – 7 p.m.**

Miércoles 2 de febrero de 2022, 6 a 7 p.m

Where/*Dónde:* **Zoom Webinar** / *Web via Zoom*
Visit the study website for information on how to join the online meeting:
udot.utah.gov/Bangerter4700South

Visite el sitio web del estudio para obtener información sobre cómo unirse a la reunión en línea:
udot.utah.gov/bangerter4700south

A UDOT PROJECT



The same information will be available at both meetings. Materials can be viewed on the study website and written comments may be submitted at the in-person hearing or by mail or email through Feb. 15. The Draft SES will be available on the study website on Jan. 17, 2022.

La misma información estará disponible en ambas reuniones. Los materiales se pueden ver en el sitio web del estudio y los comentarios se pueden enviar por correo electrónico o correo postal. El plan preliminar del EAE estará disponible en el sitio web del estudio el 17 de enero de 2022.

Kennedy Junior High School
4495 South 4800 West
West Valley City, UT 84120

Kennedy Junior High School meets the Americans with Disabilities Act (ADA) accessibility standards. Contact the study team If you need special accommodations.

Kennedy Junior High School cumple con los estándares de accesibilidad de la Ley de Estadounidenses con Discapacidades (ADA). Comuníquese con el equipo del estudio si necesita adaptaciones especiales.

Hotline / *Teléfono:* 888-766-ROAD (7623)
Email / *Correo electrónico:* bangerter@utah.gov
Website / *Sitio web:* udot.utah.gov/Bangerter4700South

6605 S Redwood Rd
Taylorsville, UT 84123

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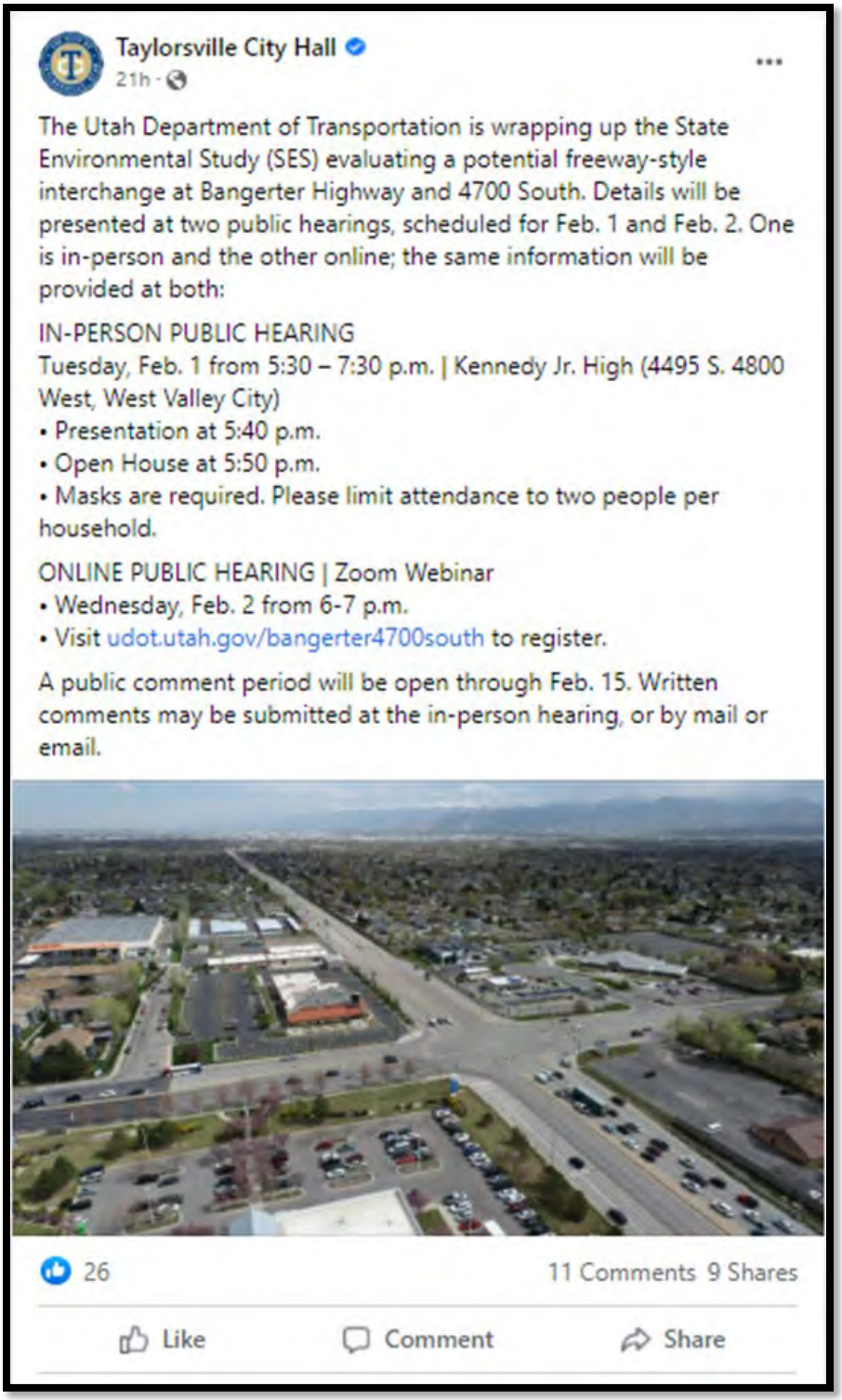


Twitter


West Valley City @WVCUT · Jan 17
You're Invited! UDOT is wrapping up a State Environmental Study at Bangerter Highway & 4700 South. Review proposed improvements at the upcoming Public Hearing on Feb. 1, 5:30-7:30 p.m. (in person) and Feb. 2, 6-7 p.m. (online). Visit udot.utah.gov/bangerter4700s... for details.
YOU'RE INVITED!
STATE ENVIRONMENTAL STUDY
ONLINE PRESENTATION AND Q&A
Hotline
Email
Website
2

Taylorsville City Social Media

Facebook



Twitter


Taylorsville City @TvilleUT · 21h
You're invited! UDOT is wrapping up a State Environmental Study at Bangerter Highway and 4700 South. Review proposed improvements at the upcoming Public Hearings on Feb. 1, 5:30-7:30 p.m. (in person) and Feb. 2, 6-7 p.m. (online). Visit udot.utah.gov/bangerter4700s... for details.
1
3

Greater Salt Lake Municipal Services District Social Media

Facebook



Media Release

UDOT Seeks Public Input on Three Proposed Bangerter Highway Interchanges

Proposed interchange designs available for public review and feedback through Feb. 15

SALT LAKE CITY (Jan. 18, 2022) - The Utah Department of Transportation (UDOT) has released draft environmental studies needed to convert three Bangerter Highway intersections into freeway-style interchanges at 13400 South in Riverton, 9800 South in South Jordan and 4700 South in Taylorsville/West Valley City. The public is encouraged to review the draft studies and provide formal comments on the proposed interchanges through Feb. 15. Comments can be submitted via mail, through email or at upcoming public hearings with meetings offered both in-person and online.

Public Hearings

13400 South
In-Person: Wednesday, Jan. 19, from 6-7:30 p.m. at South Hills Middle School, 13508 South 4000 West, Riverton
Online: Thursday, Jan. 20, from 6-7 p.m. via Zoom Webinar (udot.utah.gov/bangerter13400south)

9800 South
In-Person: Wednesday, Jan. 26, from 6-7:30 p.m. at Elk Ridge Middle School, 3659 West 9800 South, South Jordan
Online: Thursday, Jan. 27, from 6-7 p.m. via Zoom Webinar (udot.utah.gov/bangerter9800south)

4700 South
In-Person: Tuesday, Feb. 1, from 6-7:30 p.m. at Kennedy Jr. High, 4495 South 4800 West, West Valley City
Online: Wednesday, Feb. 2, from 6-7 p.m. via Zoom Webinar (udot.utah.gov/bangerter4700south)

Visit the study websites for more information about how to review the materials, participate in the hearings and submit comments.

The studies have been conducted to evaluate environmental impacts associated with the potential new interchanges to ensure impacts are minimized while still meeting the mobility needs of Bangerter Highway and the local cross-streets.

After the studies are finalized and a preferred interchange design is adopted in spring 2022, UDOT plans to move forward with design and construction at 13400 South, 9800 South and 4700 South, currently slated to begin as early as spring 2023. Additionally, environmental studies are underway and will be completed over the next year at the remaining at-grade Bangerter intersections, with plans to begin construction in 2028:

- 4100 South in West Valley City
- 3500 South to State Route 201 in West Valley City/Salt Lake City
- California Avenue in Salt Lake City
- 2700 West in Bluffdale/Riverton (not yet funded for construction)

"UDOT is prioritizing the completion of Bangerter Highway to improve safety and mobility along this critical corridor," said Brian Allen, UDOT Project Manager. "When the conversion to a freeway is complete and traffic can flow freely without stoplights, we expect to see a significant reduction in crashes and in time driving both north and south on Bangerter Highway and east and west on cross-streets. In fact, traffic projections show that when all is said and done, the time it takes to drive from I-15 in Draper to the Salt Lake International Airport via Bangerter will be reduced by up to 20 minutes," Allen said.

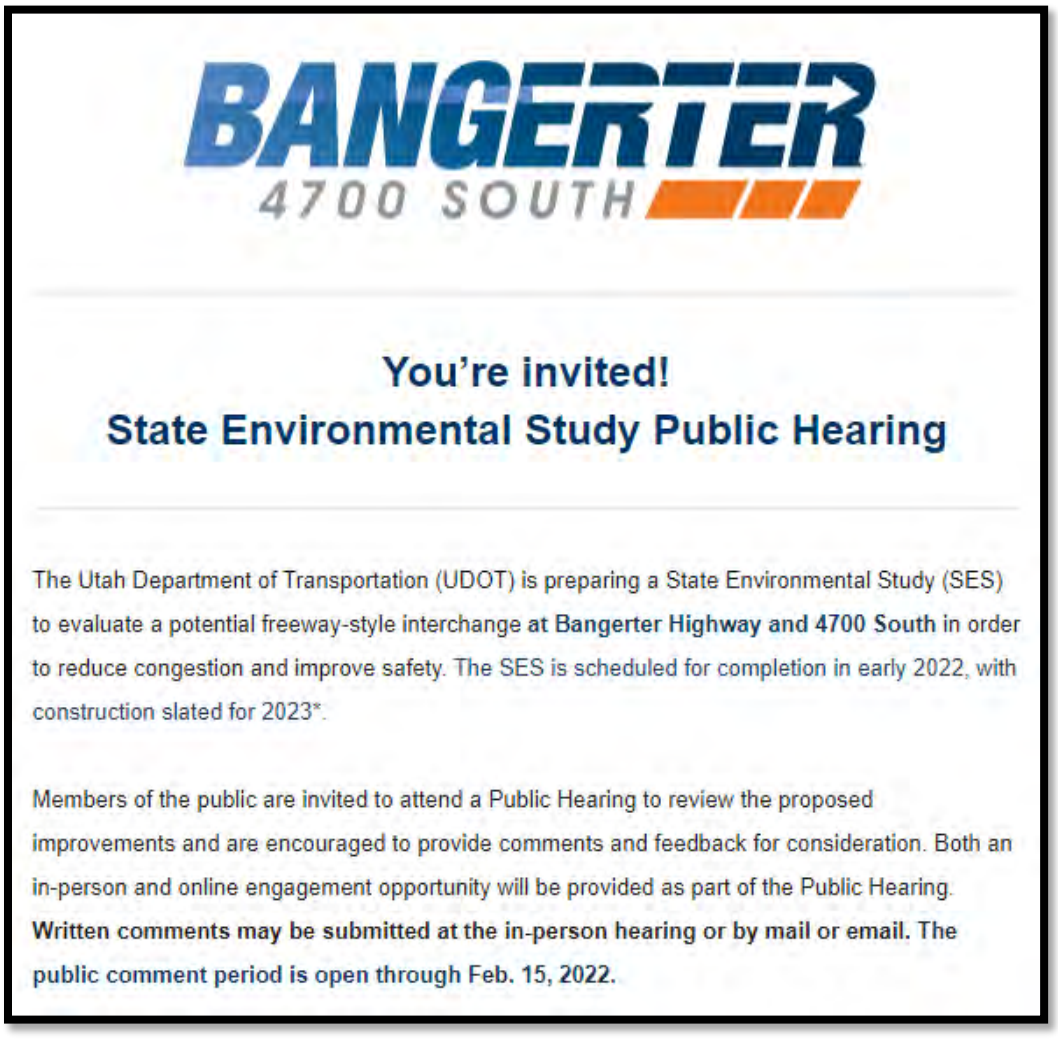
Visit udot.utah.gov/bangerter for more information and to sign up for updates.

-UDOT-

Media Contact:
John Gleason
UDOT Public Information Officer
jgleason@utah.gov
801-560-7740

Stakeholder Email Update

Link: https://mailchi.mp/fe2c247a6245/bangerter-13400-south-virtual-in-person-public-meeting-5675082



BANGERTER
4700 SOUTH

You're invited!
State Environmental Study Public Hearing

The Utah Department of Transportation (UDOT) is preparing a State Environmental Study (SES) to evaluate a potential freeway-style interchange **at Bangerter Highway and 4700 South** in order to reduce congestion and improve safety. The SES is scheduled for completion in early 2022, with construction slated for 2023*.

Members of the public are invited to attend a Public Hearing to review the proposed improvements and are encouraged to provide comments and feedback for consideration. Both an in-person and online engagement opportunity will be provided as part of the Public Hearing. **Written comments may be submitted at the in-person hearing or by mail or email. The public comment period is open through Feb. 15, 2022.**

IN-PERSON MEETING

When: Tuesday, Feb. 1, 2021
5:30 - 7:30 p.m.
Presentation at 5:40 p.m.
Open House at 5:50 p.m.

Where: **Kennedy Junior High School**
4495 South 4800 West
West Valley City, UT 84120

ONLINE MEETING

When: Wednesday, Feb. 2, 2021
6 - 7 p.m.

Where: **Zoom Webinar**
Visit the study website for information on how to join the online meeting, udot.utah.gov/bangerter4700south

In an abundance of caution due to COVID-19, we will implement several safety measures at the Jan. 19 in-person meeting to enhance the health and safety of all participants. ***Masks are required as per Salt Lake County Health Department's mandate. We politely ask that attendance is limited to two people per property.*** Please do not attend if you are sick or have recently been exposed.

The same information and materials will be available at both meetings. If you cannot participate in either opportunity, materials can be reviewed on the project website and feedback can be sent via email or postage. The draft SES is now available on the project website at udot.utah.gov/bangerter4700south.

**Environmental studies are process-driven, meaning this schedule is approximate and subject to change.*

Study Website Meeting Information

Upcoming Meetings - January 2022

The Utah Department of Transportation (UDOT) is nearing completion of their environmental study evaluating options for grade-separating the Bangerter Highway and 4700 South intersection in West Valley City and Taylorsville City.

As this study approaches completion, the team will be hosting meetings to inform the public about the study results and recommendations.

Public Hearing

The Public Hearing will be open to the broader public and will have both an in-person portion and an online portion. The same information will be presented at the neighborhood meetings and the Public Hearing. See details, below.

In-Person Public Hearing
Tuesday, Feb. 1, 2022
5:30 – 7:30 p.m.
Kennedy Jr. High School
4495 South 4800 West
West Valley City, UT 84120

Online Public Hearing
Wednesday, Feb. 2, 2022
6-7 p.m.
Zoom Webinar

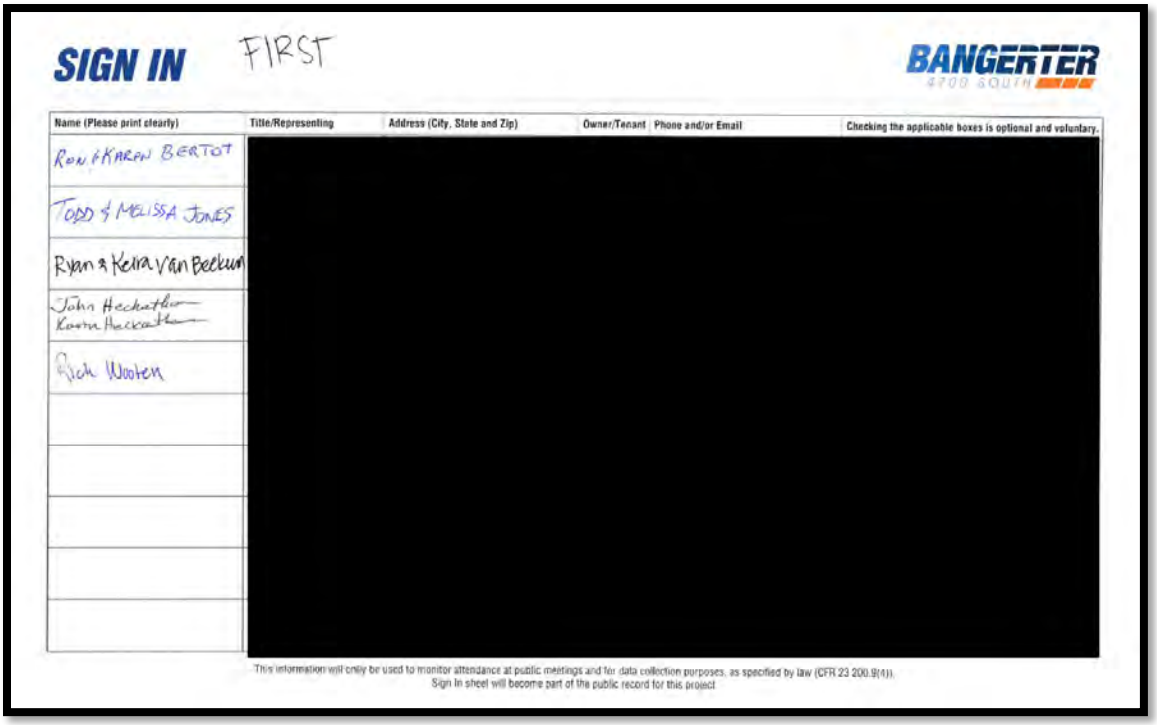
Register Here

Please note, both verbal and written comments can be submitted at the in-person portion of the Public Hearing. Comments received during the online portion of the Public Hearing will not be considered formal comments. Email comments or comment forms can also be submitted during the full comment period once the draft document has been released on Jan. 17.

View the full Study Schedule.

Appendix B Attendance

Neighborhood Meeting Sign-In Sheets

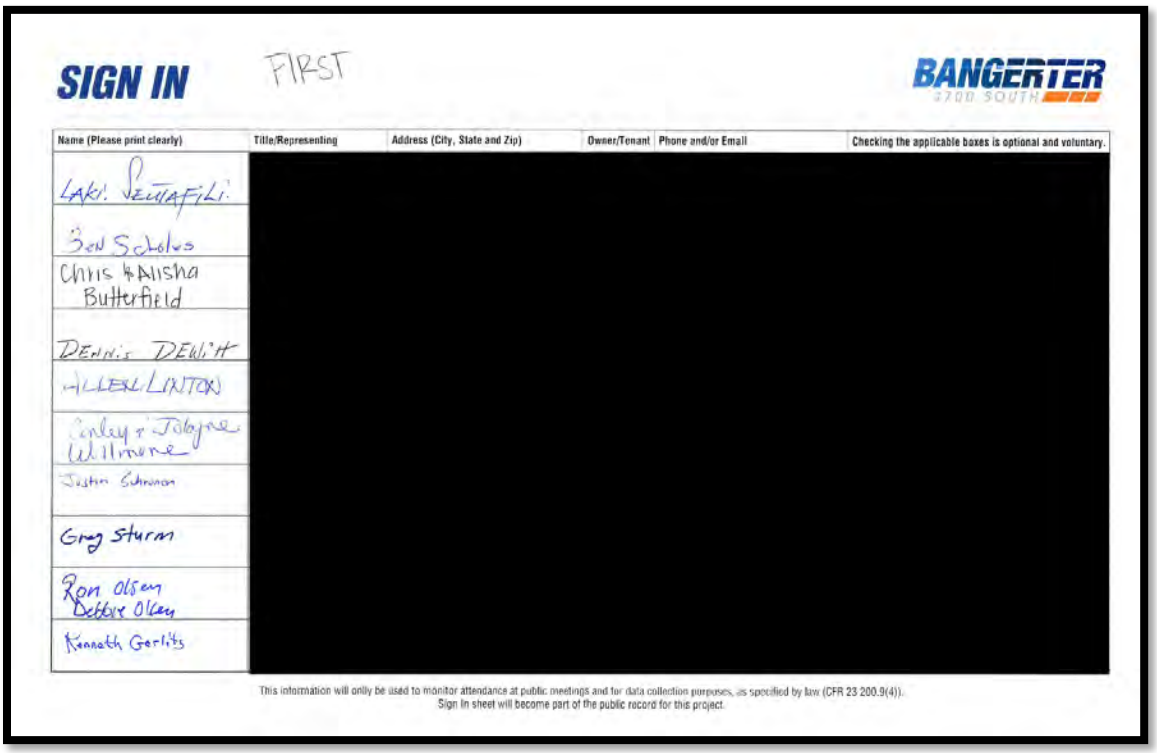


SIGN IN FIRST

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
RON & KAREN BERTOT	[redacted]				
TODD & MELISSA JONES					
Ryan & Kelra Van Beekum					
John Heckathorn Kasra Heckathorn					
Rich Wooten					

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign in sheet will become part of the public record for this project



SIGN IN FIRST

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
LAKI JELIAFILI	[redacted]				
Ben Scholes					
Chris & Alisha Butterfield					
DENNIS DEWITT					
ALLEN LINTON					
Cinley & Jolayne Williams					
Justin Stinson					
Greg Sturm					
Ron Olsen Debbie Olsen					
Kenneth Gorlitz					

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Neighborhood Meeting Sign-In Sheets

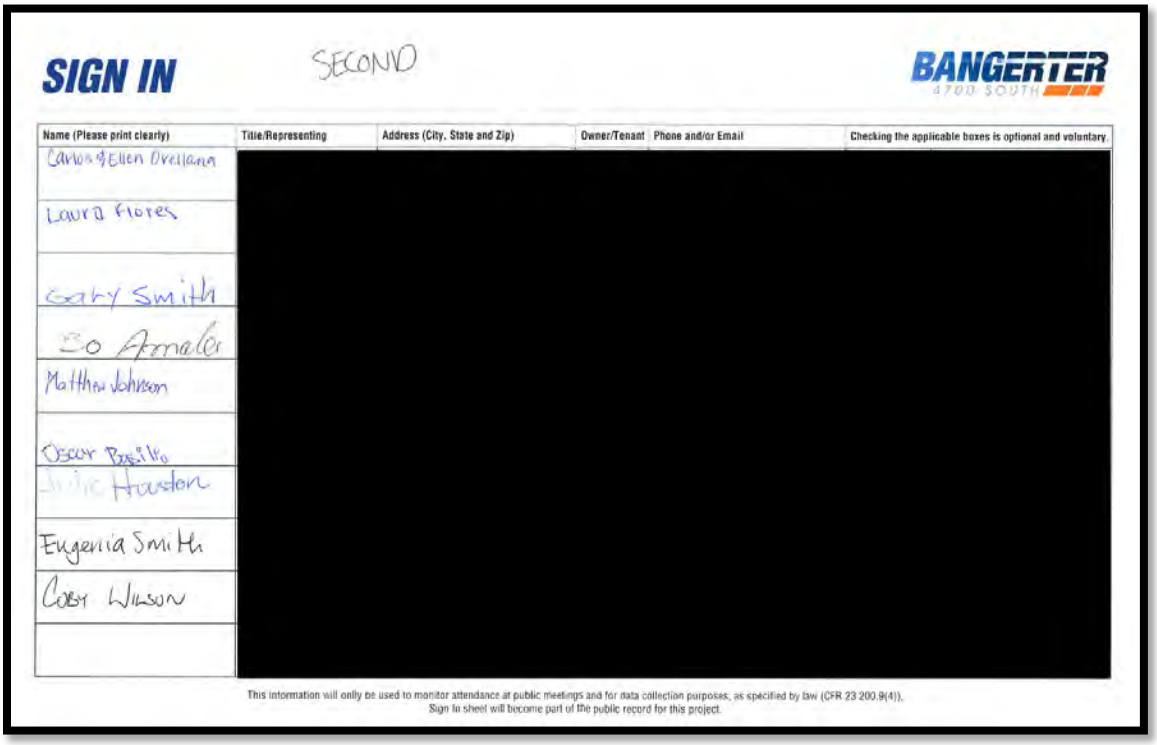


SIGN IN SECOND

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Rick McMillan	[redacted]				
Verna Petersen					
DENNIS Woolley					
Francisco Recendez					
Pam Evans					
Robin Thiele					
James Garcia					
Angela Anderson					
Chase Gallegos					

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Sign in sheet will become part of the public record for this project.

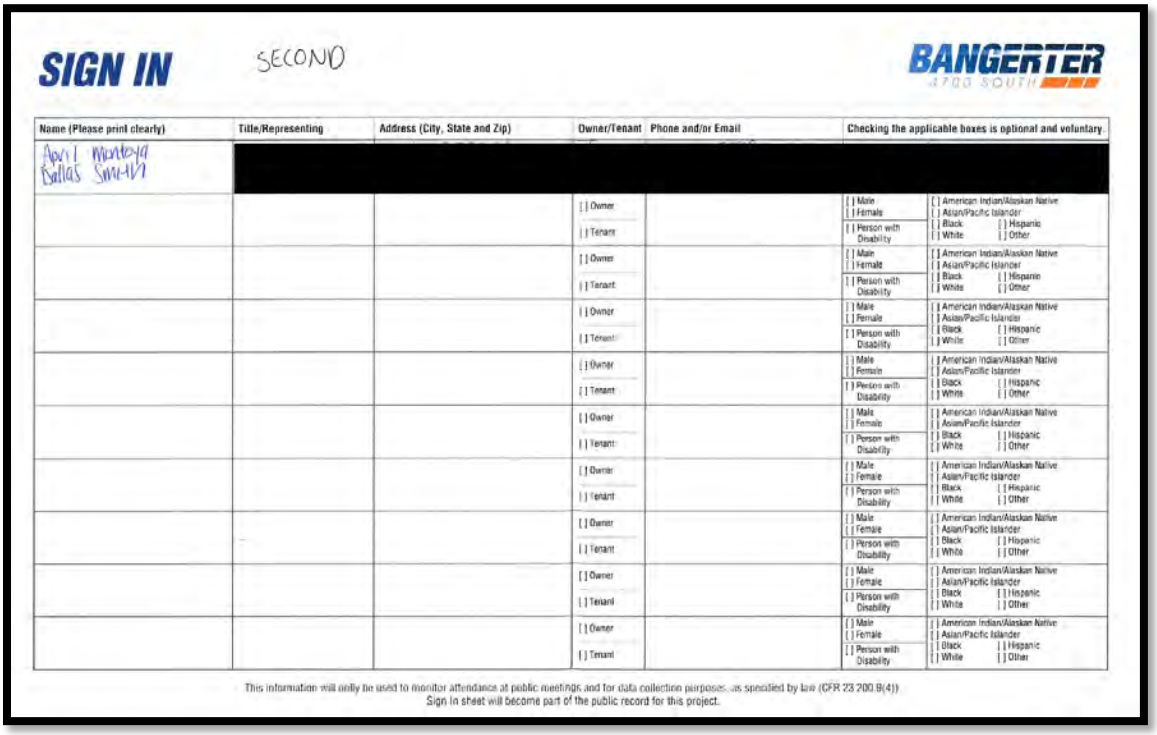


SIGN IN SECOND

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Carlos & Ellen Orellana	[redacted]				
Laura Flores					
Gary Smith					
Zo Arnaldo					
Matthew Johnson					
Oscar Padilla					
Julie Houston					
Eugenia Smith					
Cody Wilson					

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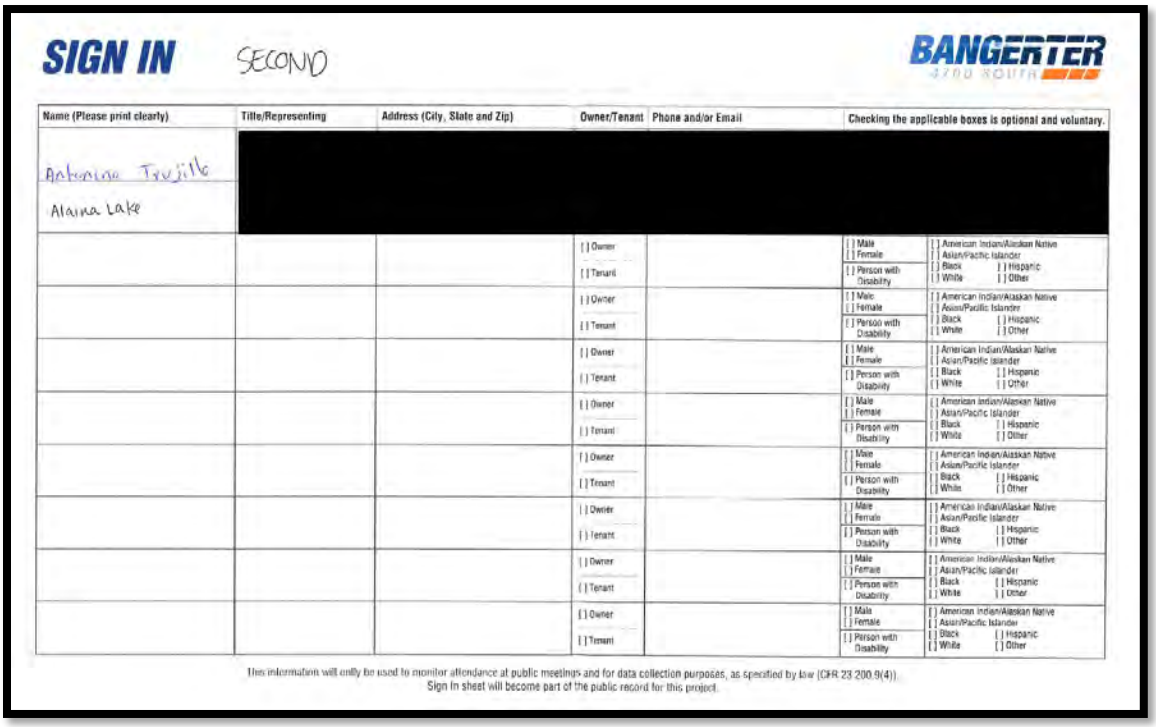


SIGN IN SECOND

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
April Montoya Dallas Smith	[redacted]					
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
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			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
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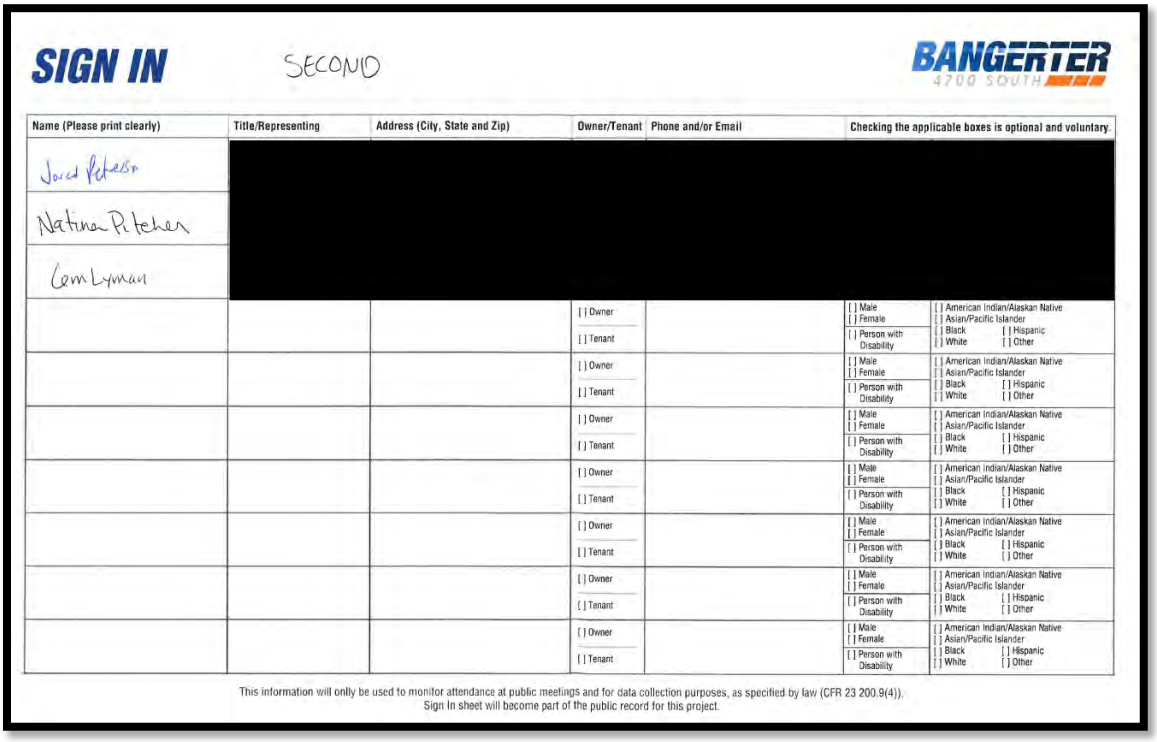


SIGN IN SECOND

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
Antonina Trujillo Alaina Lake	[redacted]					
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
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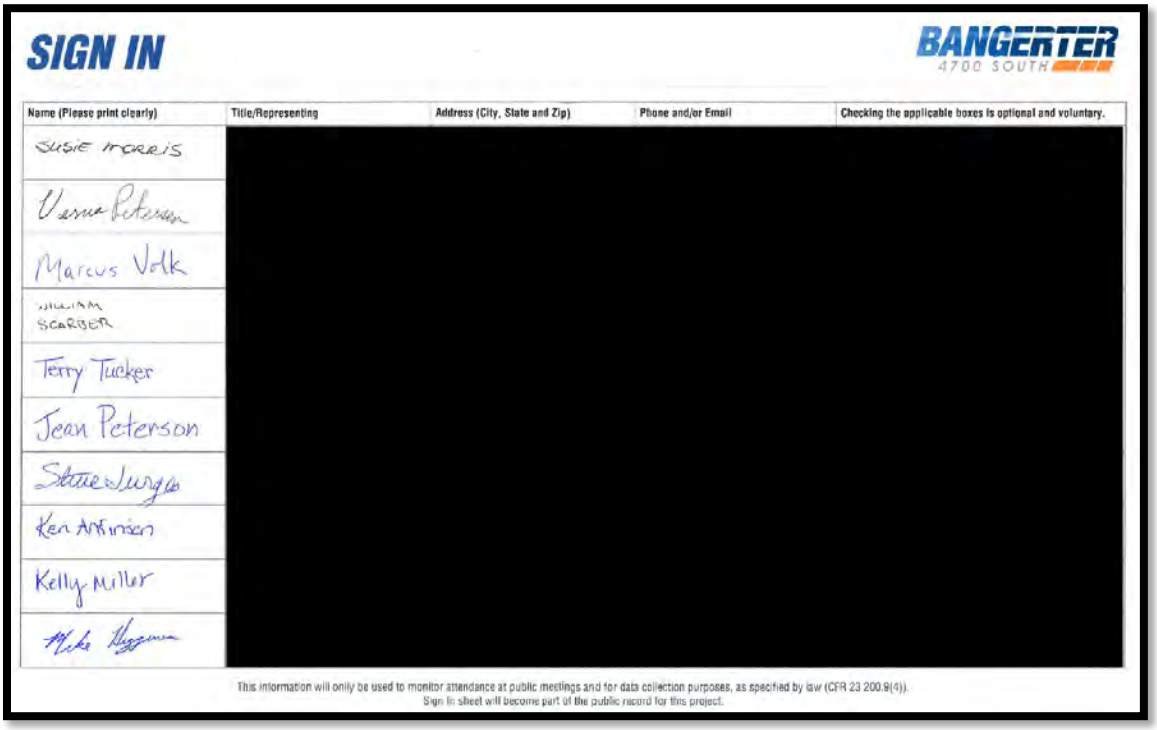


SIGN IN SECOND

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Owner/Tenant	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
Jared Peterson	[redacted]					
Natina Pitcher						
Cam Lyman						
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
			[ ] Owner [ ] Tenant		[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
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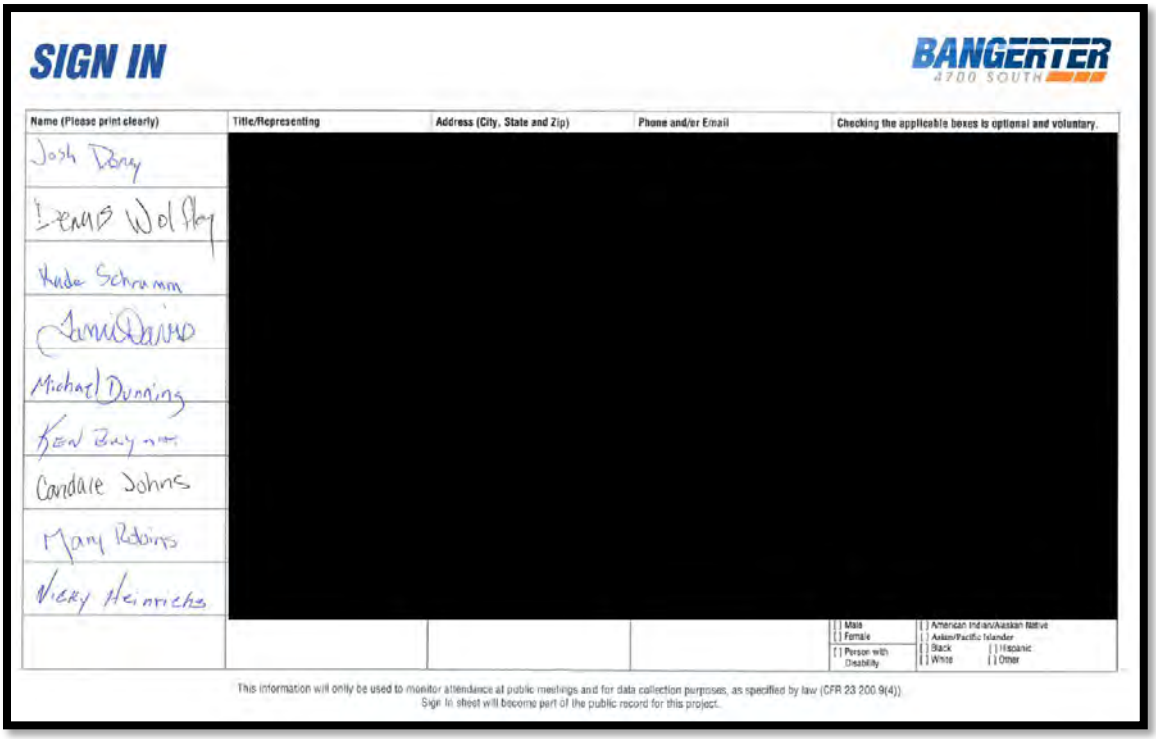


SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Susie Morris	[redacted]			
Verna Peterson				
Marcus Volk				
William Scarber				
Terry Tucker				
Jean Peterson				
Steve Wright				
Ken Atkinson				
Kelly Miller				
Mike Hyzzma				

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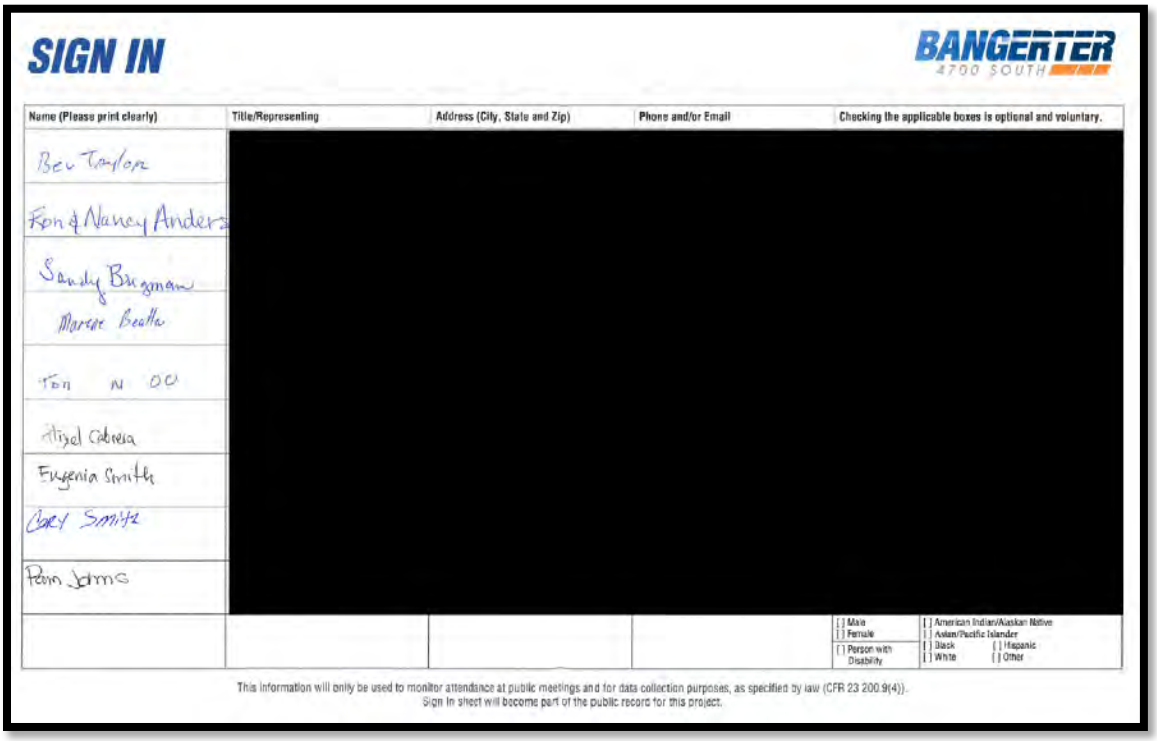
SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Josh Dorny	[redacted]			
Dennis Wolfley				
Linda Schramm				
Jamie Davis				
Michael Dunning				
Kent Bailey				
Candace Johns				
Mary Robins				
Vicky Heinrichs				
				[ ] Male [ ] Female [ ] Person with Disability; [ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
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In-Person Public Hearing Sign-In Sheets



SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Bev Taylor	[redacted]			
Ron & Nancy Anders				
Sandy Bingman				
Maree Beattie				
Tom N OO				
Hizel Cabrera				
Eugenia Smith				
Cory Smith				
Penn Johns				
				[ ] Male [ ] Female [ ] Person with Disability; [ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other

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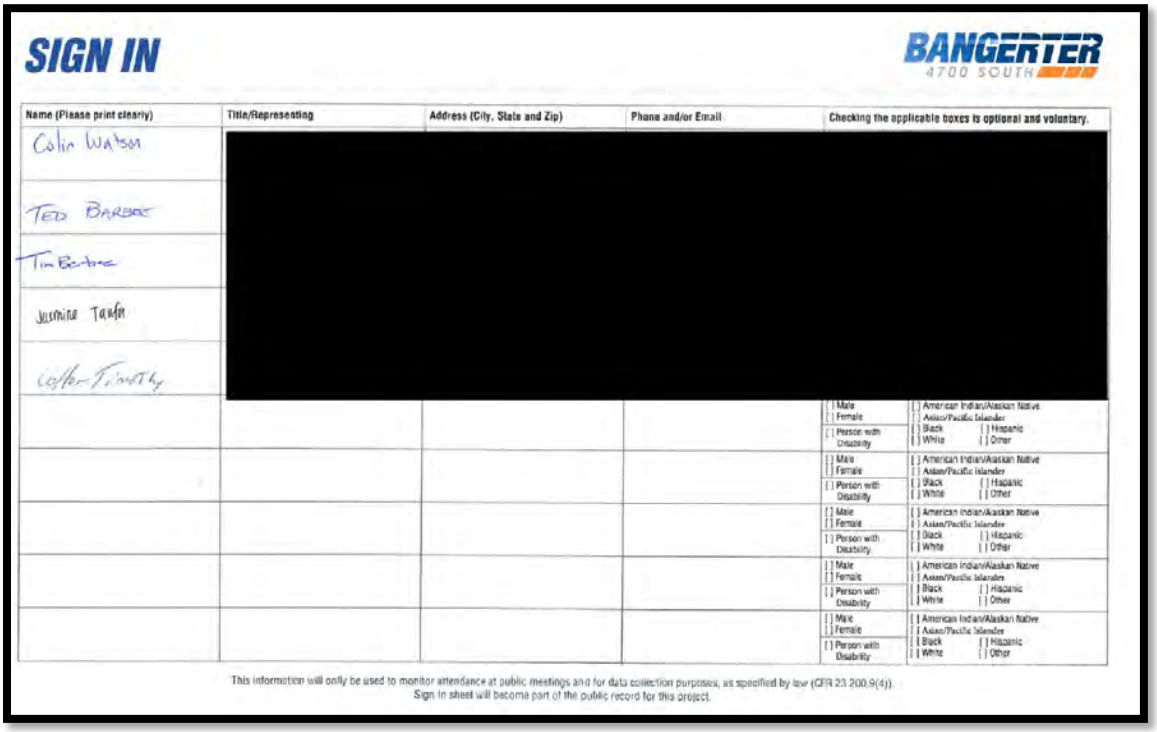


SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.
Deon Mortensen	[redacted]			
DAVE RINKER				
Karen Wacaster				
David Murdock				
Glen Williams				
Jesus Garcia				
Cindy Taylor				
Bo Arnold				
Allen Wall				
Lori Hunter				

This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23 200.9(4)).
Sign In sheet will become part of the public record for this project.

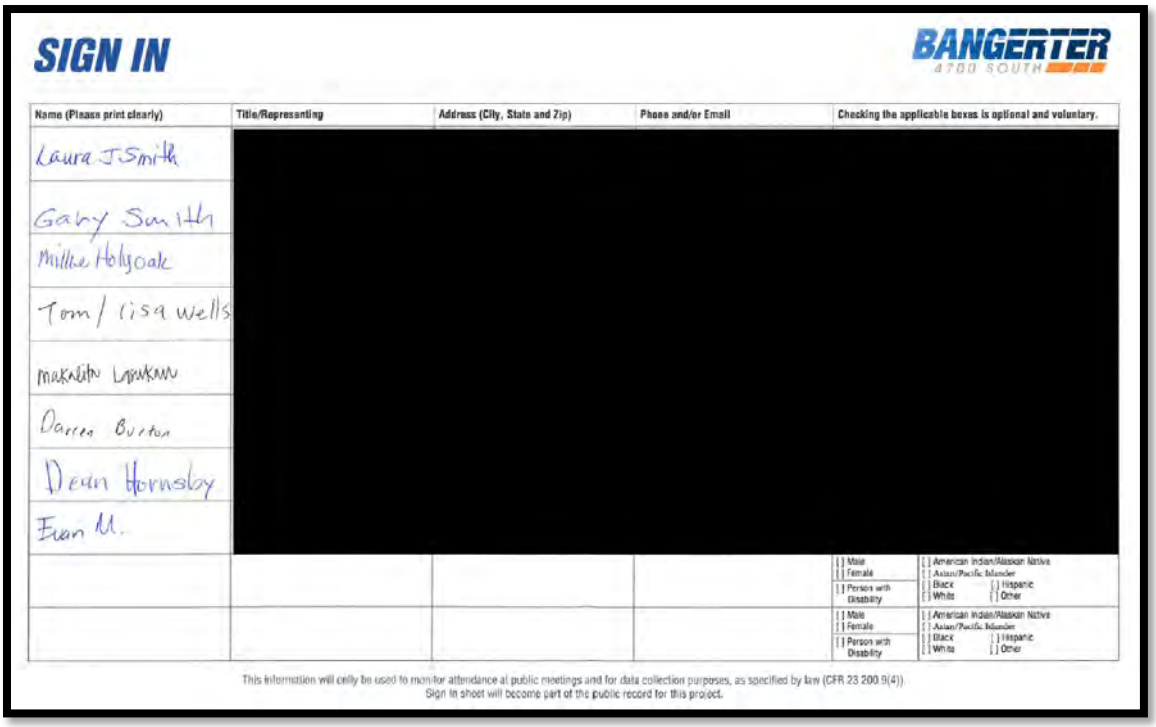


SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
Colin Watson	[redacted]				
Ted Barber					
Tim Barber					
Jasmine Taylor					
Coffer Timothy					
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other

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Sign in sheet will become part of the public record for this project.



SIGN IN

BANGERTER 4700 SOUTH

Name (Please print clearly)	Title/Representing	Address (City, State and Zip)	Phone and/or Email	Checking the applicable boxes is optional and voluntary.	
Laura J Smith	[redacted]				
Gary Smith					
Millie Holycak					
Tom / Lisa Wells					
Makaleth Lawman					
Darren Burton					
Dean Hornsby					
Evan M.					
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other
				[ ] Male [ ] Female [ ] Person with Disability	[ ] American Indian/Alaskan Native [ ] Asian/Pacific Islander [ ] Black [ ] Hispanic [ ] White [ ] Other

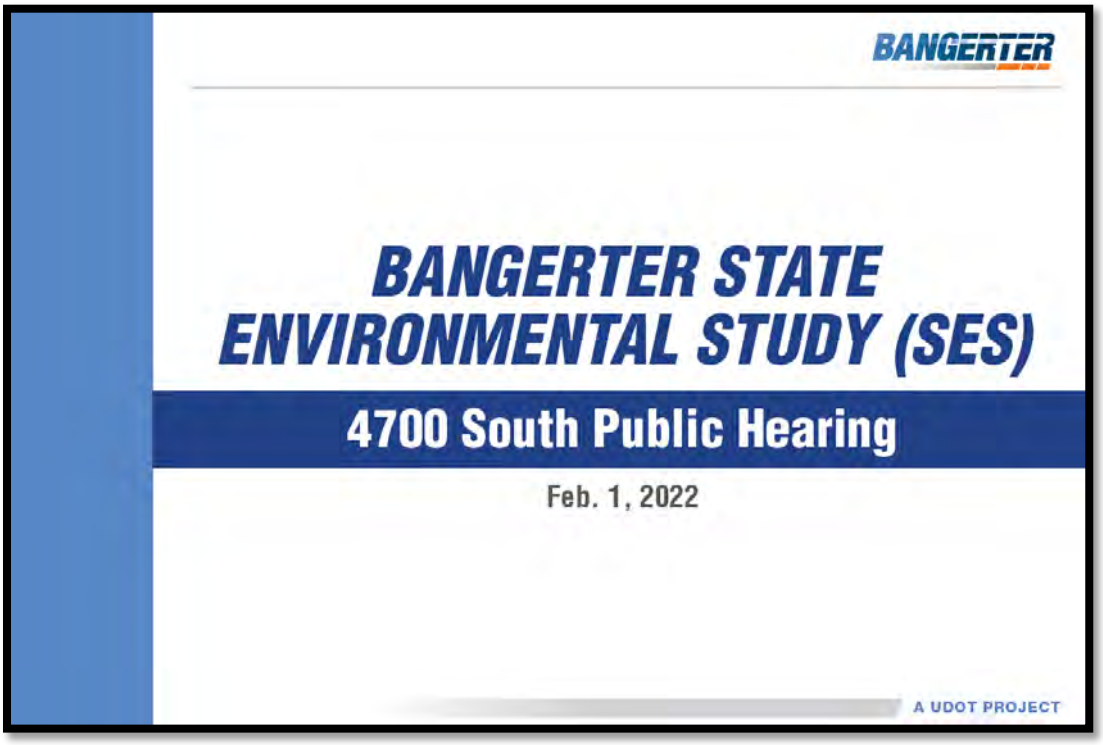
This information will only be used to monitor attendance at public meetings and for data collection purposes, as specified by law (CFR 23.200.9(4)).
Sign in sheet will become part of the public record for this project.

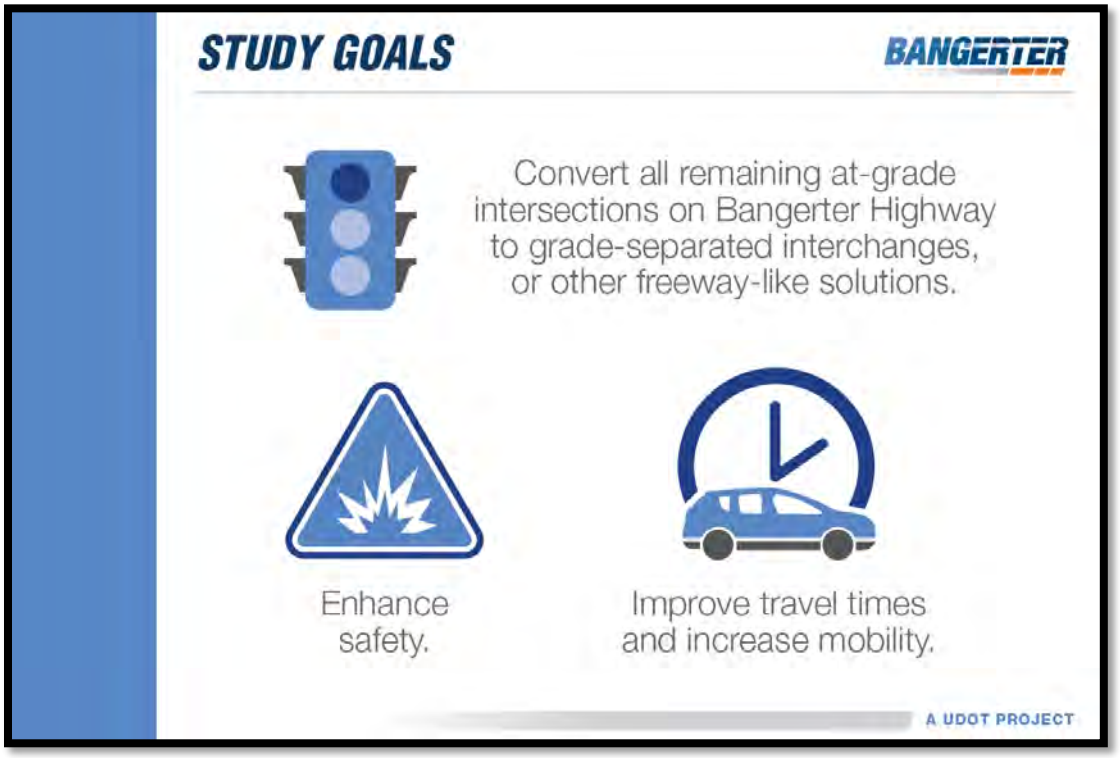
Online Public Hearing Attendee List

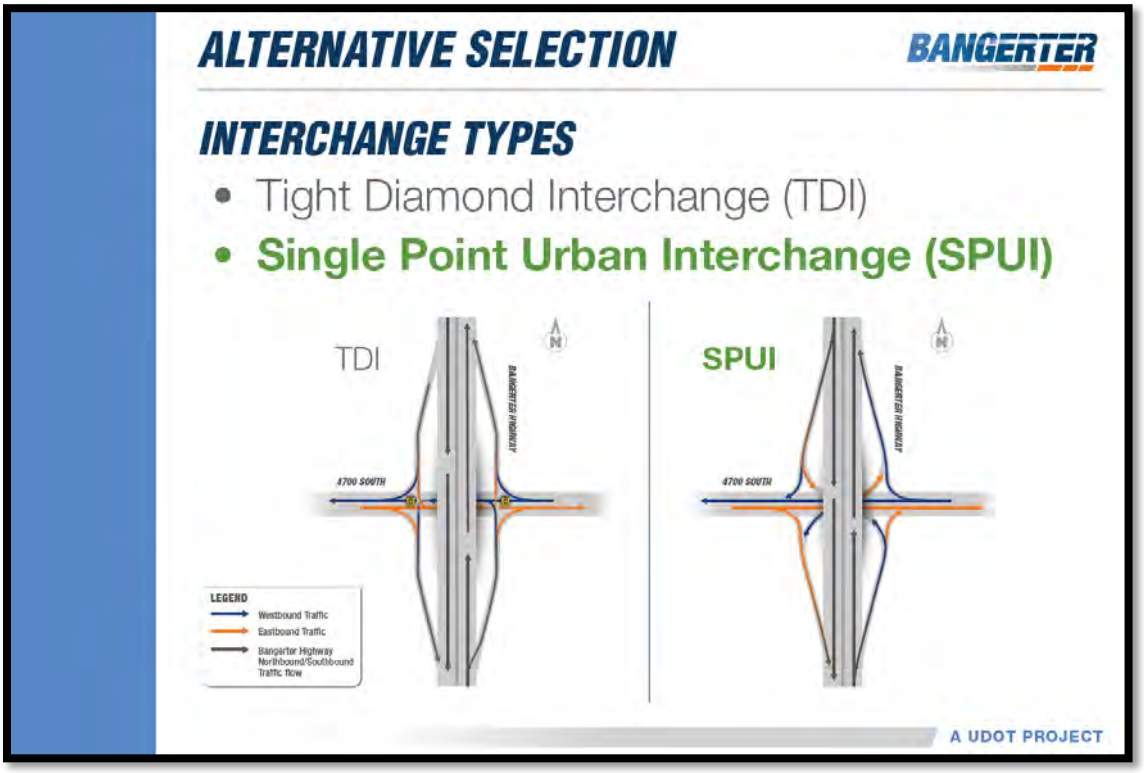
Bruce Hiller	Christy Lofgran
Lori Levinson	Maria Kiguthi
Kenan Karalic	Jennie
Coby Wilson	Tna McDonald
Silvia Ferrer	Tammy Tolbert
Justin Anderson	Jared Elwood
Jeffrey Smith	David Chase
Garve Walker	Mary Robins
Corina McAllister	Robert Lemke
Jean Bleazard	Benjamin Marchant
Total attendees: 20	

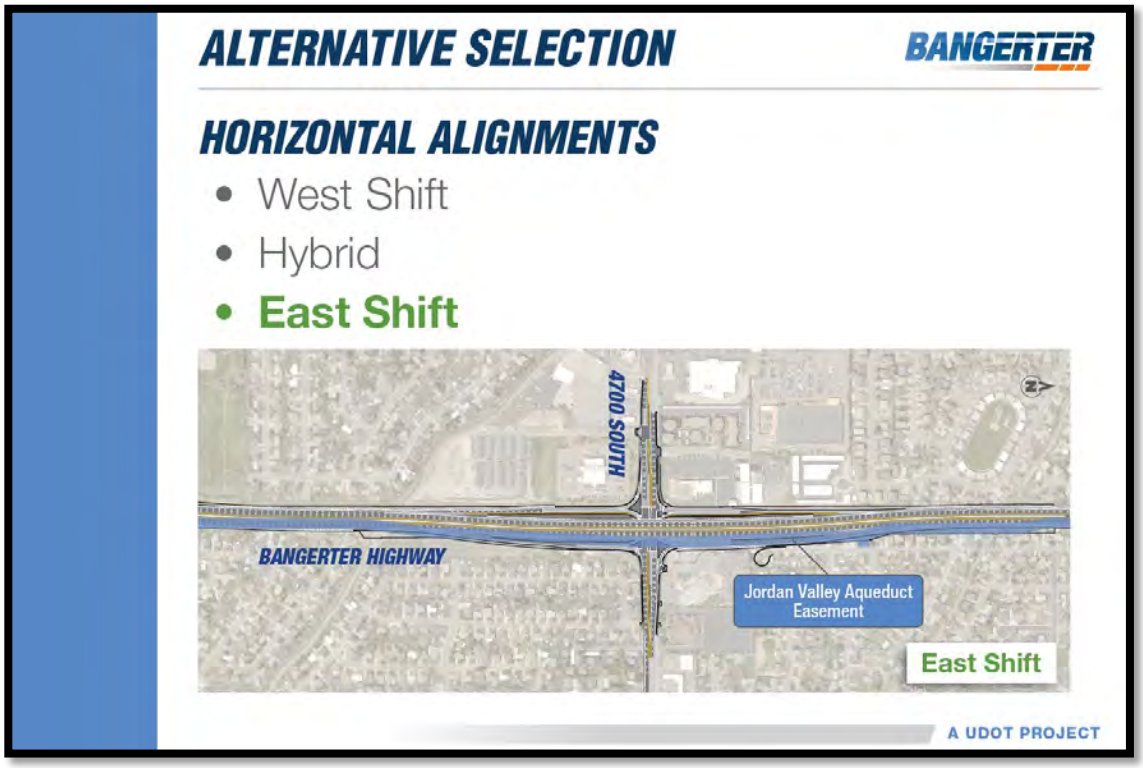
Appendix C Meeting Materials

Public Meeting Presentation






ALTERNATIVE SELECTION
BANGERTER
INTERCHANGE TYPES
• Tight Diamond Interchange (TDI)
• Single Point Urban Interchange (SPUI)
TDI
SPUI
4700 SOUTH
BANGERTER HIGHWAY
LEGEND
Westbound Traffic
Eastbound Traffic
Bangerter Highway Northbound/Southbound Traffic flow
A UDOT PROJECT


ALTERNATIVE SELECTION
BANGERTER
HORIZONTAL ALIGNMENTS
• West Shift
• Hybrid
• East Shift
4700 SOUTH
BANGERTER HIGHWAY
Jordan Valley Aqueduct Easement
East Shift
A UDOT PROJECT

BANGERTER UNDER

BANGERTER



Example: 11400 South in South Jordan

- Highest cost
- Additional cost to go under: $17.5 million (split 50/50 by UDOT and West Valley City/ Taylorsville)
- Significant utility impacts and relocations
- 91 impacted properties

A UDOT PROJECT

STUDY UPDATE

BANGERTER



This schedule is process-driven and subject to change.

A UDOT PROJECT

BANGERTER OVER

BANGERTER



Example: 7800 South in West Jordan

- Lowest cost
- No city contribution
- Fewer utility impacts
- 91 impacted properties

A UDOT PROJECT

VERTICAL ALIGNMENTS

BANGERTER

Bangerter Over



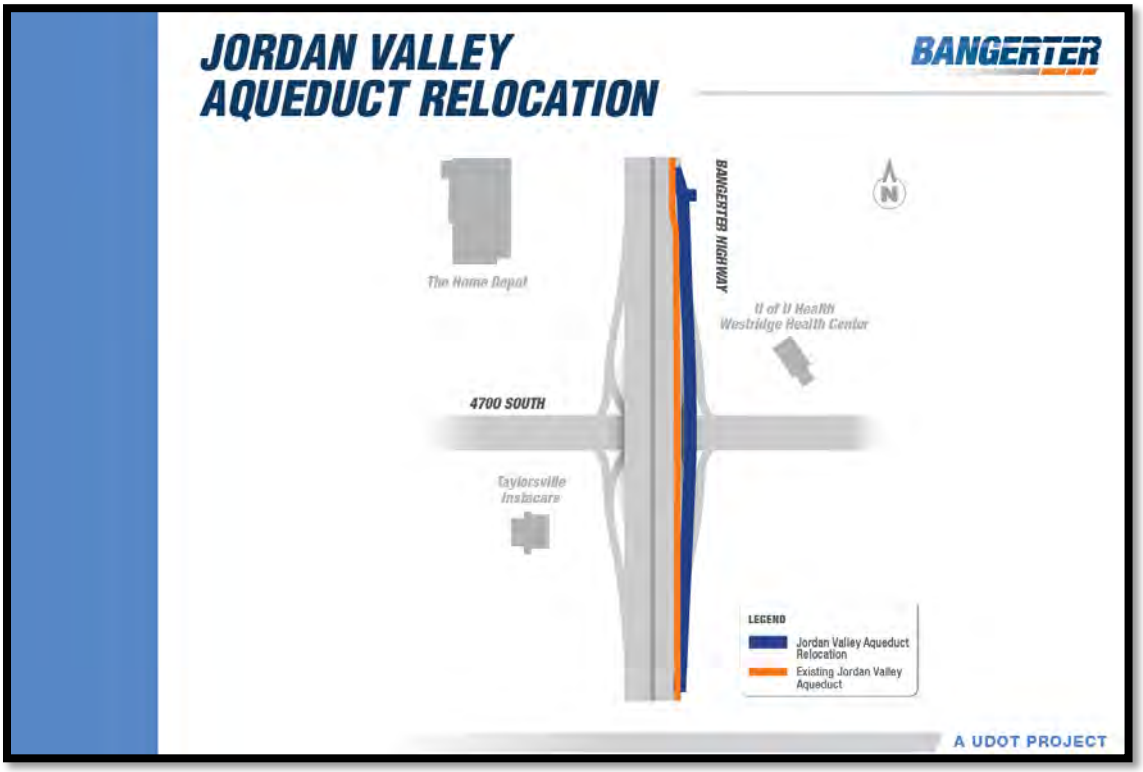
~$152 Million

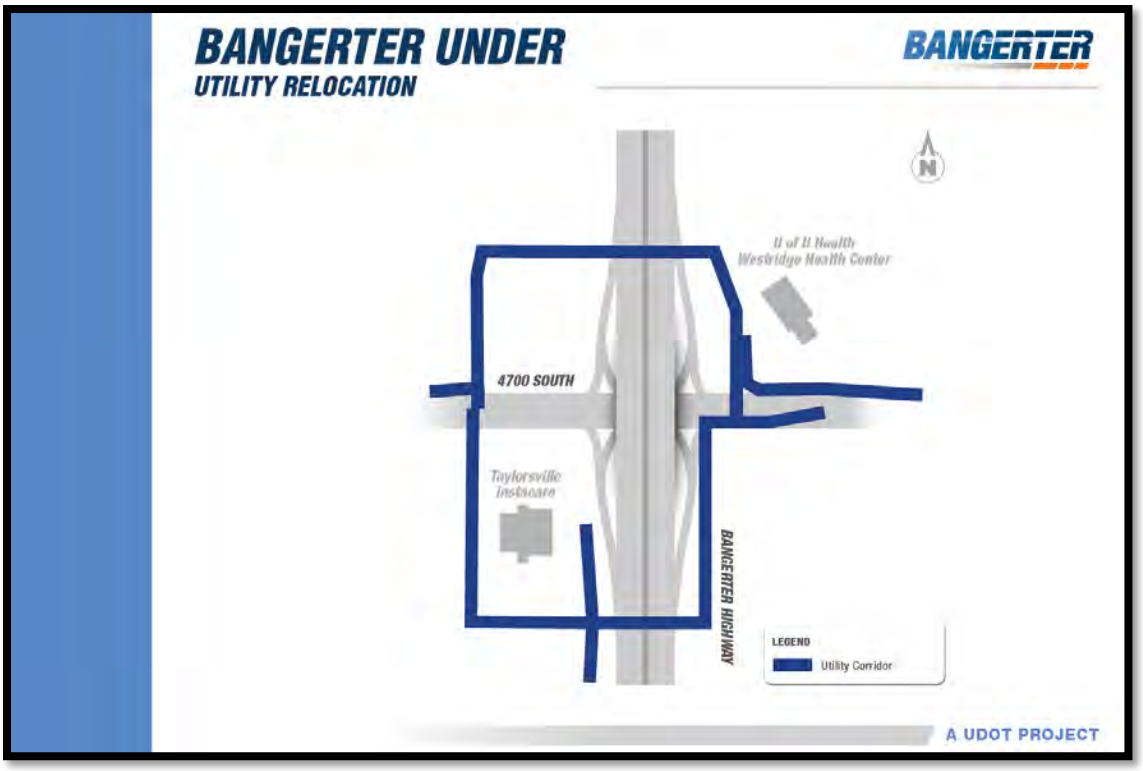
Bangerter Under



~$169.5 Million

A UDOT PROJECT


JORDAN VALLEY
AQUEDUCT RELOCATION
BANGERTER
The Home Depot
BANGERTER HIGHWAY
U of U Health
Westridge Health Center
4700 SOUTH
Taylorsville
Instacare
LEGEND
Jordan Valley Aqueduct
Relocation
Existing Jordan Valley
Aqueduct
A UDOT PROJECT


BANGERTER UNDER
UTILITY RELOCATION
BANGERTER
U of U Health
Westridge Health Center
4700 SOUTH
Taylorsville
Instacare
BANGERTER HIGHWAY
LEGEND
Utility Corridor
A UDOT PROJECT

AFFECTED ENVIRONMENT AND MITIGATION COMMITMENTS

BANGERTER

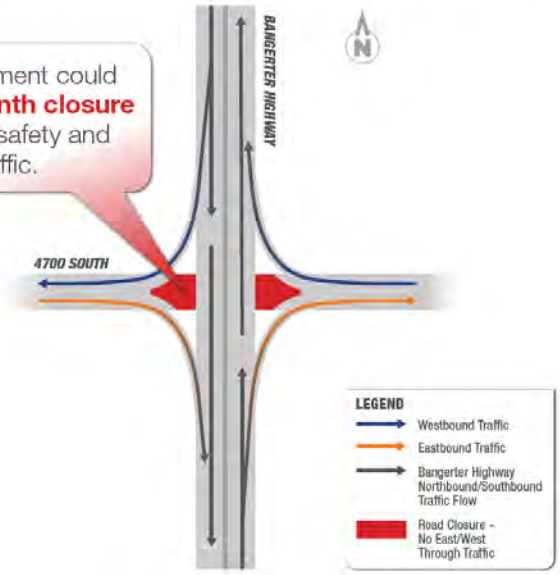
Proposed Action Impacts	Mitigation
Right of Way	
• ROW acquisition from **91 parcels** • Approximately **17.27 acres** of total property acquisition • Temporary construction easements and perpetual easements required	Property owners will be compensated according to the requirements of the Utah Relocation Assistance Act.
Cultural	
The Finding of Effect is Adverse Effect: • Adverse Effect for **7 eligible architectural properties*** • No Adverse Effect for **1 archaeological site** and **10 architectural properties** • Finding of No Historic Properties Affected for all remaining architectural properties and archaeological sites *These properties are eligible for the National Register of Historic Places (NRHP).	UDOT will document the following 7 buildings according to the Utah State Intensive Level Survey Standards (ILS) as required by SHPO: • 3739 West 4700 South • 4534 South Orleans Way • 4526 South Orleans Way • 4502 South Orleans Way • 4486 South Orleans Way • 4472 South Orleans Way • 4412 South Orleans Way
Wetlands and Water Resources	
• Less than 2,000 square feet of impacts (including the canal bank and surface water) to the South Jordan Canal.	• Complete work on the canal outside of the irrigation season. • Comply with the conditions outlined in Nationwide Permit 14 – Linear Transportation Projects for impacts to the Utah and Salt Lake Canal and the South Jordan Canal.

A UDOT PROJECT

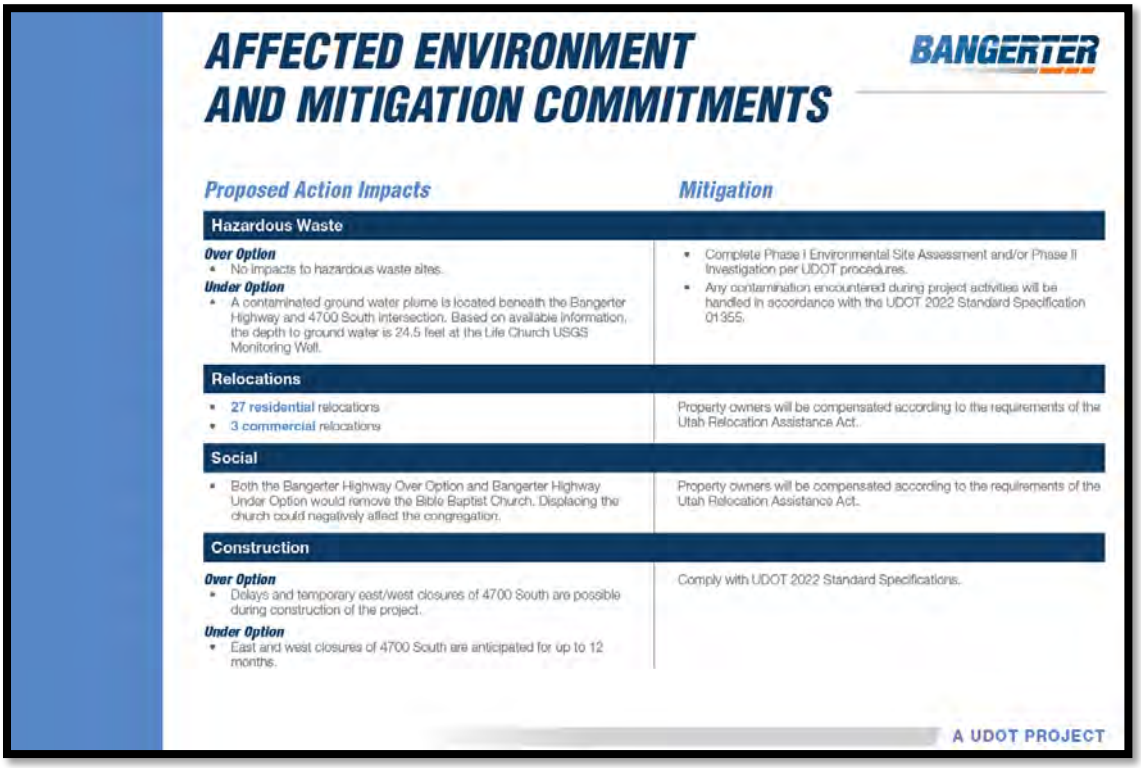
CROSS-STREET CLOSURE

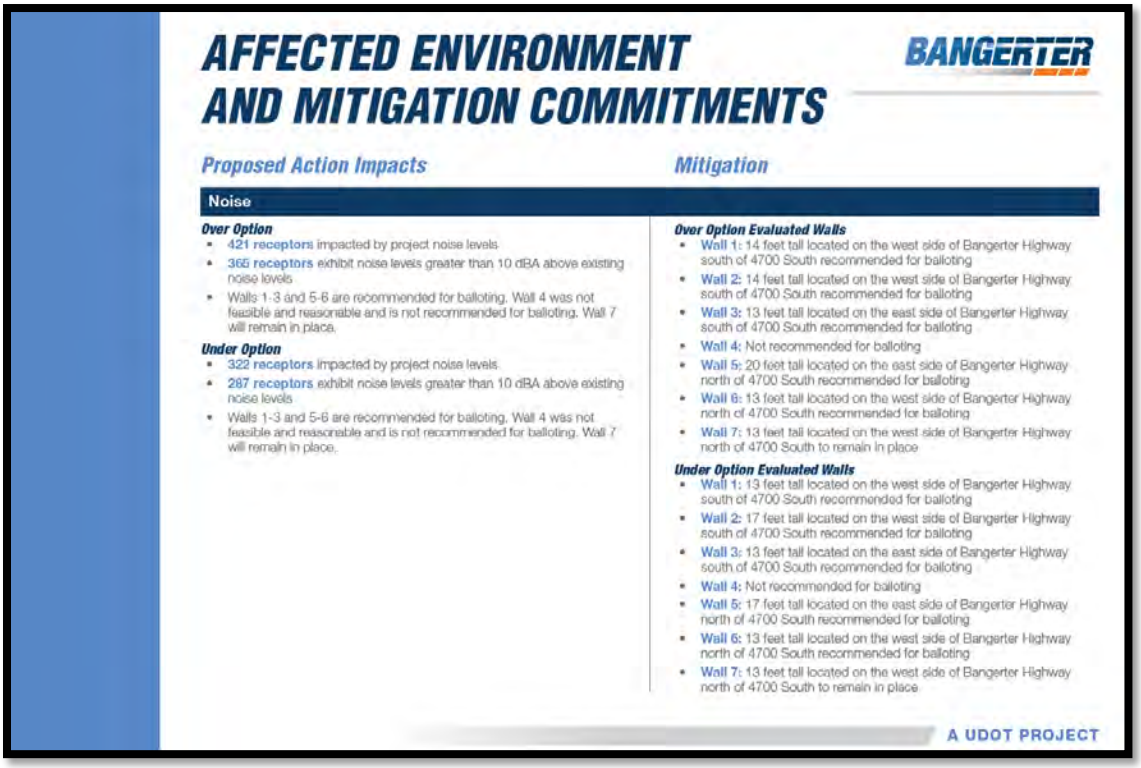
BANGERTER

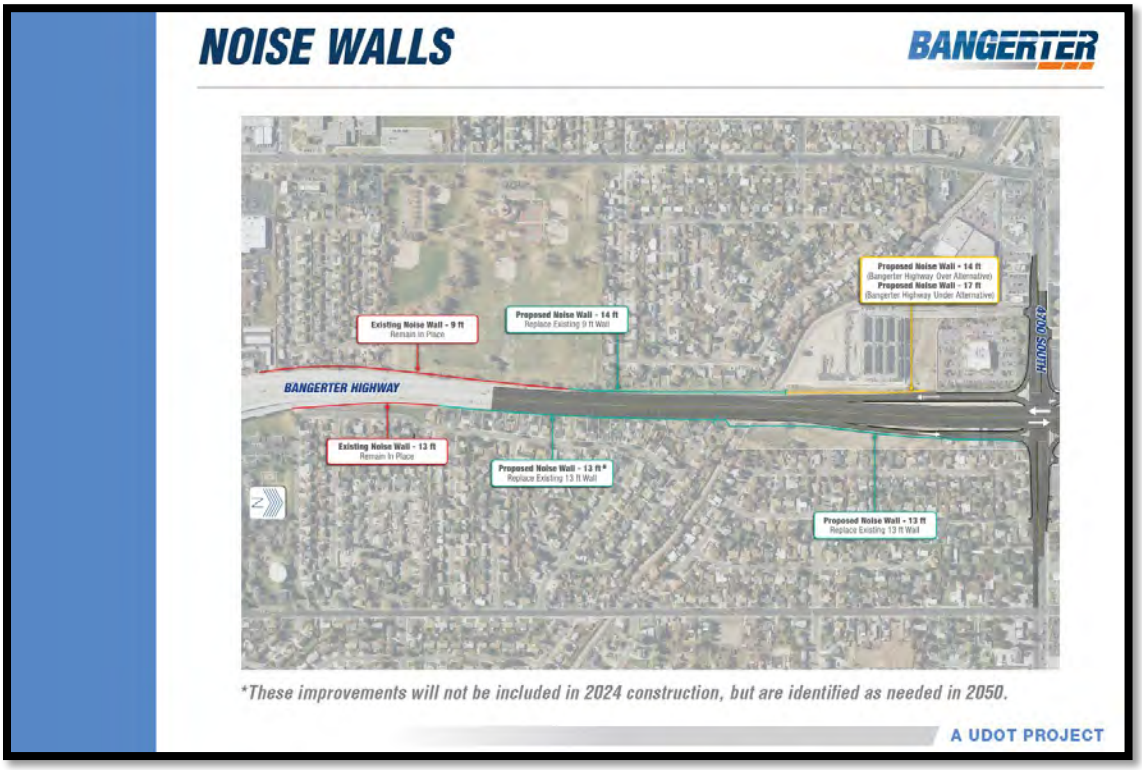
Each vertical alignment could require a **9-12 month closure** of 4700 South for safety and maintenance of traffic.

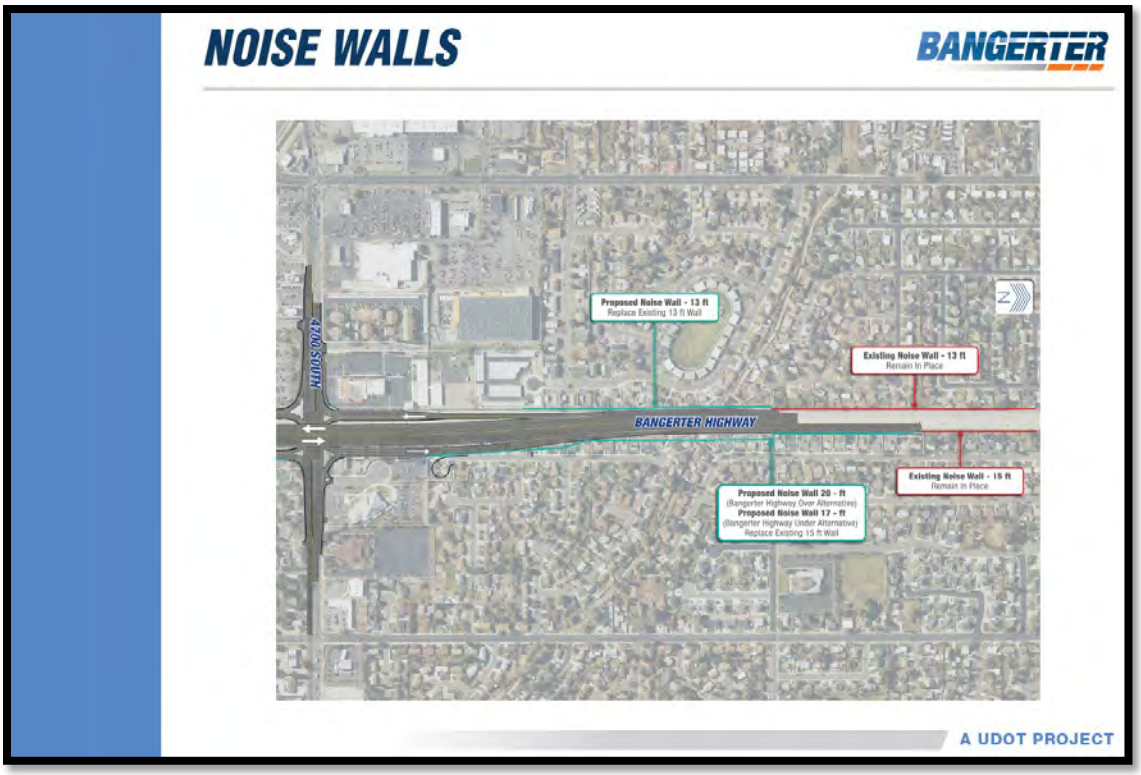


A UDOT PROJECT


AFFECTED ENVIRONMENT AND MITIGATION COMMITMENTS
BANGERTER
Proposed Action Impacts
Mitigation
Hazardous Waste
Over Option
No impacts to hazardous waste sites.
Under Option
A contaminated ground water plume is located beneath the Bangerter Highway and 4700 South intersection. Based on available information, the depth to ground water is 24.5 feet at the Life Church USGS Monitoring Well.
Complete Phase I Environmental Site Assessment and/or Phase II Investigation per UDOT procedures.
Any contamination encountered during project activities will be handled in accordance with the UDOT 2022 Standard Specification 01355.
Relocations
27 residential relocations
3 commercial relocations
Property owners will be compensated according to the requirements of the Utah Relocation Assistance Act.
Social
Both the Bangerter Highway Over Option and Bangerter Highway Under Option would remove the Bible Baptist Church. Displacing the church could negatively affect the congregation.
Property owners will be compensated according to the requirements of the Utah Relocation Assistance Act.
Construction
Over Option
Delays and temporary east/west closures of 4700 South are possible during construction of the project.
Under Option
East and west closures of 4700 South are anticipated for up to 12 months.
Comply with UDOT 2022 Standard Specifications.
A UDOT PROJECT


AFFECTED ENVIRONMENT AND MITIGATION COMMITMENTS
BANGERTER
Proposed Action Impacts
Mitigation
Noise
Over Option
421 receptors impacted by project noise levels
365 receptors exhibit noise levels greater than 10 dBA above existing noise levels
Walls 1-3 and 5-6 are recommended for balloting. Wall 4 was not feasible and reasonable and is not recommended for balloting. Wall 7 will remain in place.
Under Option
322 receptors impacted by project noise levels
287 receptors exhibit noise levels greater than 10 dBA above existing noise levels
Walls 1-3 and 5-6 are recommended for balloting. Wall 4 was not feasible and reasonable and is not recommended for balloting. Wall 7 will remain in place.
Over Option Evaluated Walls
Wall 1: 14 feet tall located on the west side of Bangerter Highway south of 4700 South recommended for balloting
Wall 2: 14 feet tall located on the west side of Bangerter Highway south of 4700 South recommended for balloting
Wall 3: 13 feet tall located on the east side of Bangerter Highway south of 4700 South recommended for balloting
Wall 4: Not recommended for balloting
Wall 5: 20 feet tall located on the east side of Bangerter Highway north of 4700 South recommended for balloting
Wall 6: 13 feet tall located on the west side of Bangerter Highway north of 4700 South recommended for balloting
Wall 7: 13 feet tall located on the west side of Bangerter Highway north of 4700 South to remain in place
Under Option Evaluated Walls
Wall 1: 13 feet tall located on the west side of Bangerter Highway south of 4700 South recommended for balloting
Wall 2: 17 feet tall located on the west side of Bangerter Highway south of 4700 South recommended for balloting
Wall 3: 13 feet tall located on the east side of Bangerter Highway south of 4700 South recommended for balloting
Wall 4: Not recommended for balloting
Wall 5: 17 feet tall located on the east side of Bangerter Highway north of 4700 South recommended for balloting
Wall 6: 13 feet tall located on the west side of Bangerter Highway north of 4700 South recommended for balloting
Wall 7: 13 feet tall located on the west side of Bangerter Highway north of 4700 South to remain in place
A UDOT PROJECT


NOISE WALLS
BANGERTER
Proposed Noise Wall - 14 ft
(Bangerter Highway Over Alternative)
Proposed Noise Wall - 17 ft
(Bangerter Highway Under Alternative)
Existing Noise Wall - 9 ft
Remain in Place
Proposed Noise Wall - 14 ft
Replace Existing 9 ft Wall
4700 SOUTH
BANGERTER HIGHWAY
Existing Noise Wall - 13 ft
Remain in Place
Proposed Noise Wall - 13 ft*
Replace Existing 13 ft Wall
Proposed Noise Wall - 13 ft
Replace Existing 13 ft Wall
*These improvements will not be included in 2024 construction, but are identified as needed in 2050.
A UDOT PROJECT


NOISE WALLS
BANGERTER
Proposed Noise Wall - 13 ft
Replace Existing 13 ft Wall
4700 SOUTH
Existing Noise Wall - 13 ft
Remain in Place
BANGERTER HIGHWAY
Existing Noise Wall - 15 ft
Remain in Place
Proposed Noise Wall 20 - ft
(Bangerter Highway Over Alternative)
Proposed Noise Wall 17 - ft
(Bangerter Highway Under Alternative)
Replace Existing 15 ft Wall
A UDOT PROJECT

RIGHT-OF-WAY ACQUISITION PROCESS

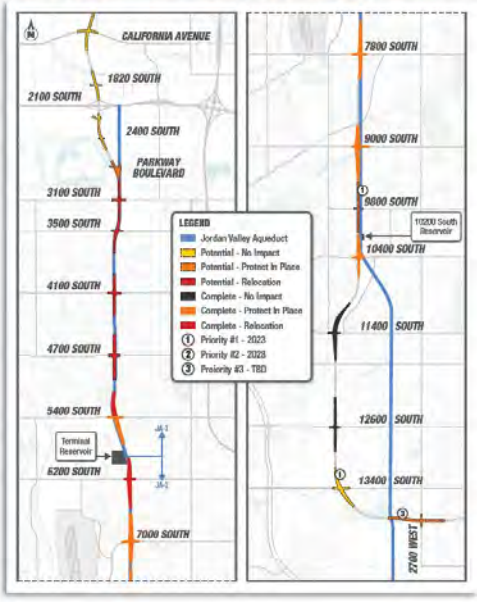
BANGERTER

1. **Identification** — The study team identifies what properties will be needed to construct the selected alternative.
2. **Contact** — Property owners will be contacted directly if their property is identified as a full or partial acquisition.
3. **Valuation** — Right-of-way (ROW) professionals will estimate the value of property.
4. **Acquisition** — ROW professionals will work closely with the property owner to acquire needed property at fair market value.

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BUREAU OF RECLAMATION PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

BANGERTER



Jordan Valley Aqueduct

- Review the PEA on the Reclamation **website**
- Send comments to Jared Baxter, NEPA Specialist at **jbaxter@usbr.gov**
- Comment period: **Jan. 30 - Feb. 28, 2022**

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HOW TO COMMENT

BANGERTER

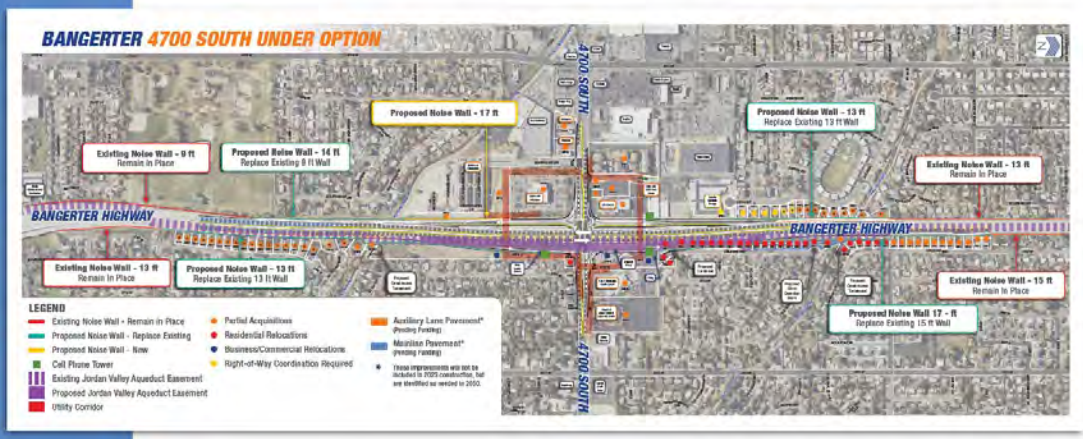
1. Visit the website: **udot.utah.gov/bangerter4700south**
2. Email study team at **bangerter@utah.gov**
3. **Mail a comment to:** Bangerter Environmental c/o Avenue 6605 South Redwood Road, Taylorsville, UT 84123

The formal comment period will be open between Jan. 17, 2022 and Feb. 15, 2022.

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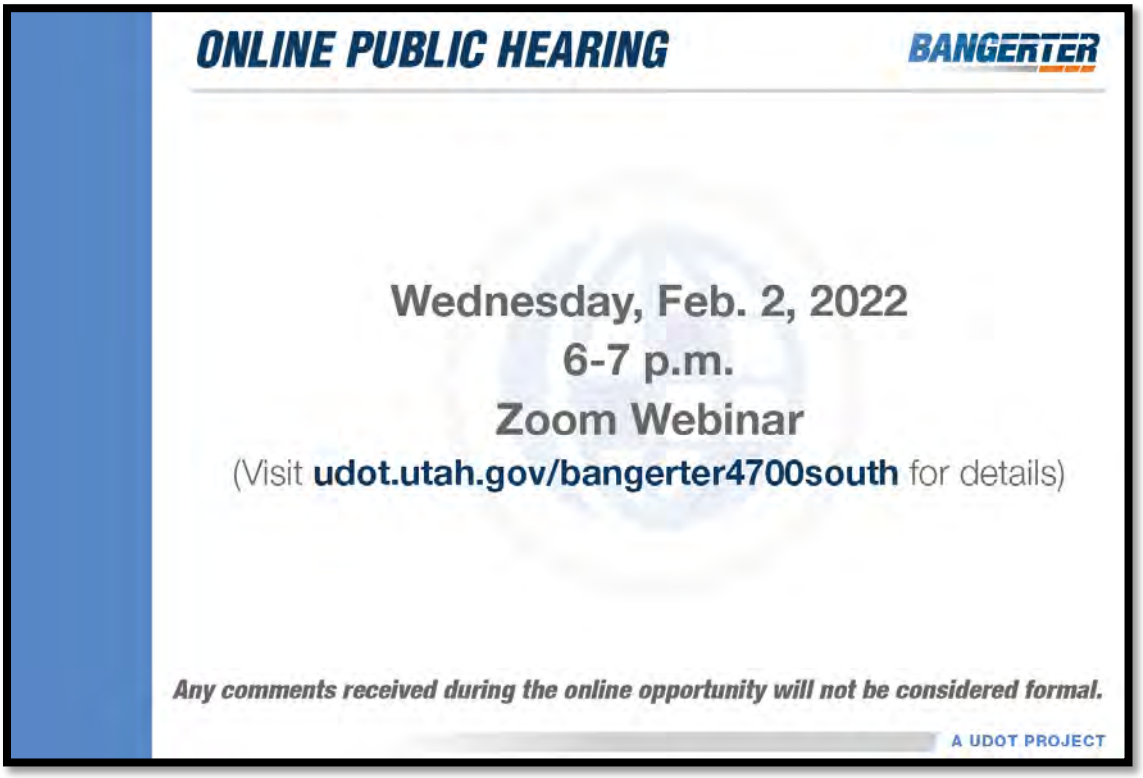
IMPACTED PROPERTY MAPS

BANGERTER



Visit **udot.utah.gov/bangerter4700south** to review the full design and associated impacts.

A UDOT PROJECT


ONLINE PUBLIC HEARING
BANGERTER
Wednesday, Feb. 2, 2022
6-7 p.m.
Zoom Webinar
(Visit udot.utah.gov/bangerter4700south for details)
Any comments received during the online opportunity will not be considered formal.
A UDOT PROJECT

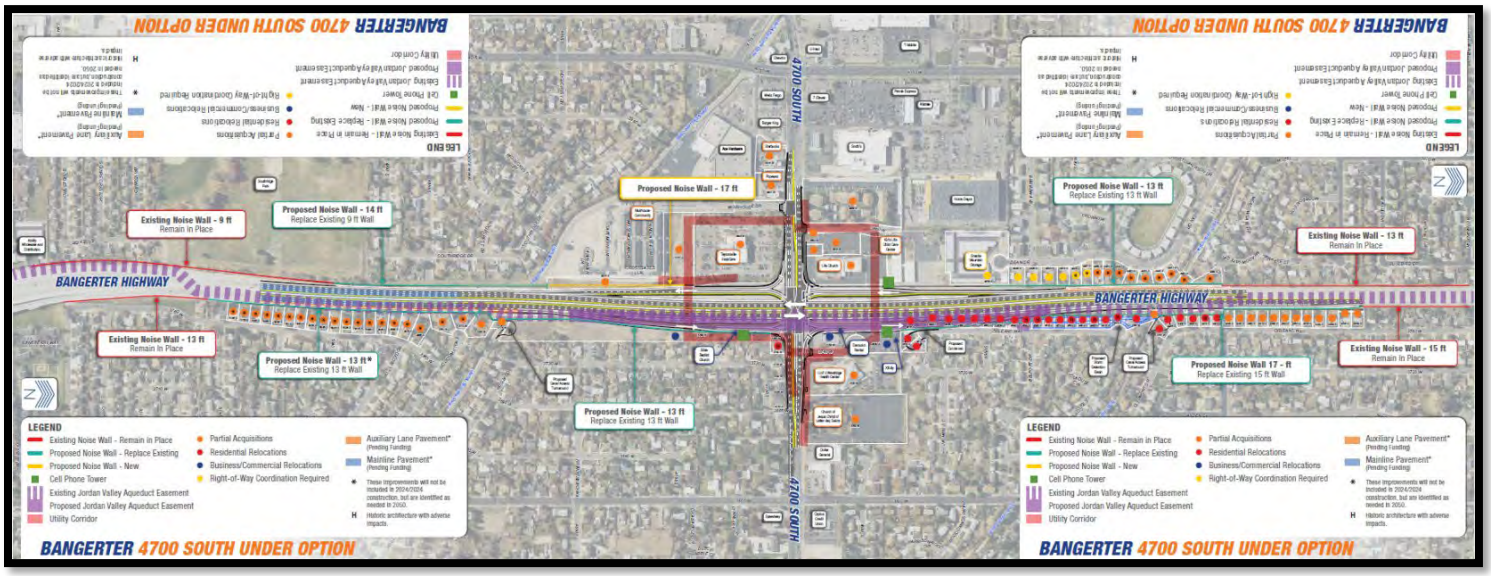

NEXT STEPS
BANGERTER
2022
2023
2024
2025
JAN-FEB 2022
MAR 2022
MAR 2022-2025
Release Draft SES
Neighborhood Meeting
Public Comment Period
In-Person Public Hearing
Online Public Hearing
Release Final SES
Contractor Procurement
Public Notification of Design Selection
Aqueduct Relocation Construction Scheduled to Begin
ROW Process
This schedule is process-driven and subject to change.
A UDOT PROJECT


CONTACT US
BANGERTER
Hotline: 888-766-ROAD (7623)
Email: bangerter@utah.gov
Website: udot.utah.gov/bangerter4700south
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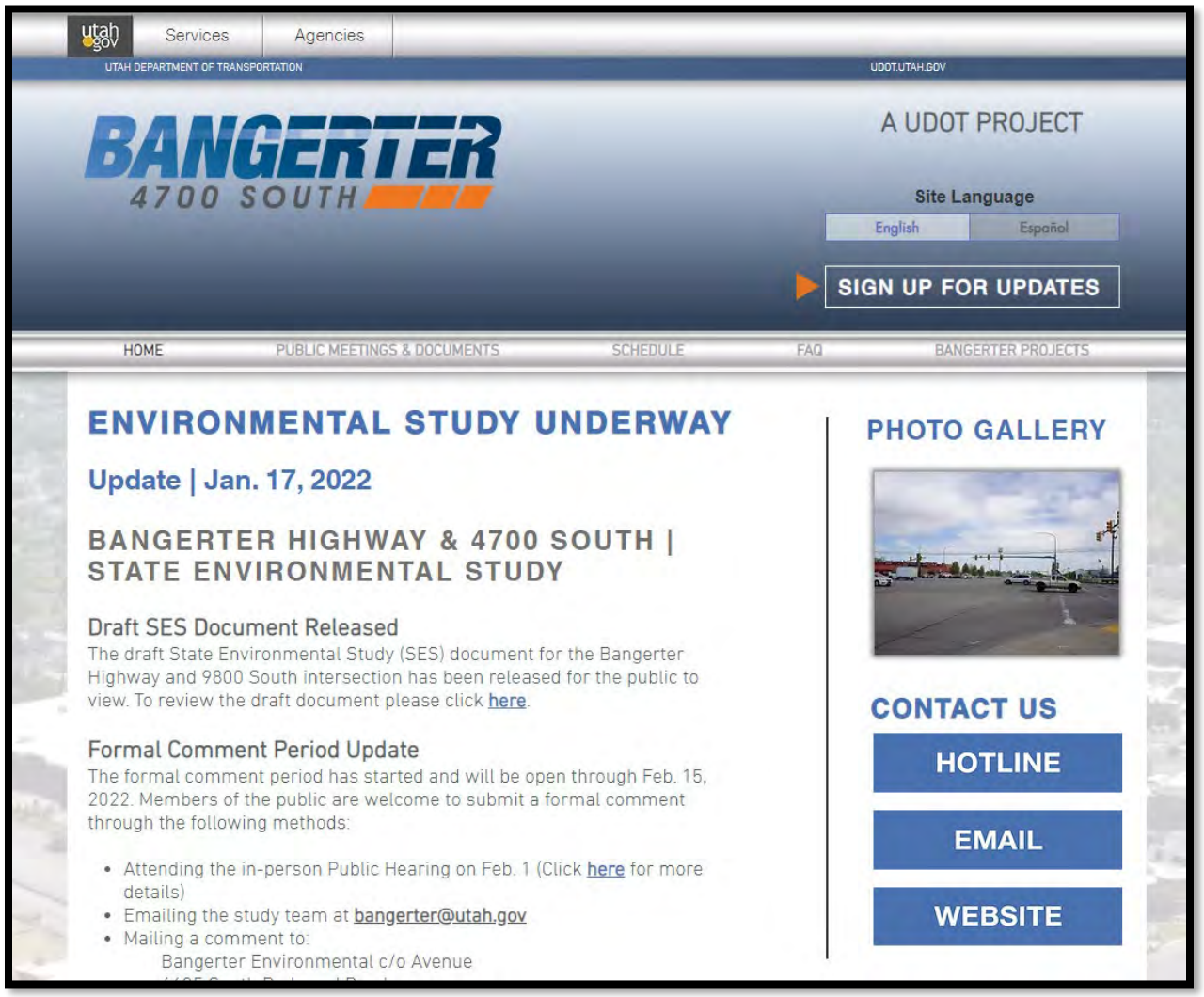
Scroll Plot Map (Over Option)



Scroll Plot Map (Under Option)



Study Website Information

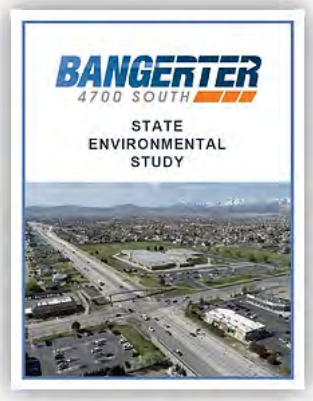


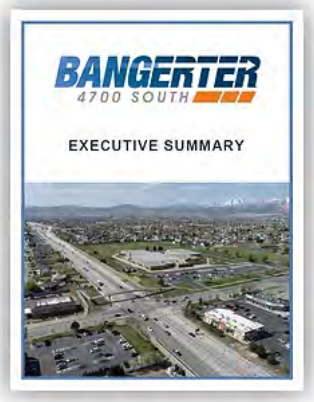
HOME PUBLIC MEETINGS & DOCUMENTS SCHEDULE FAQ BANGERTER PROJECTS

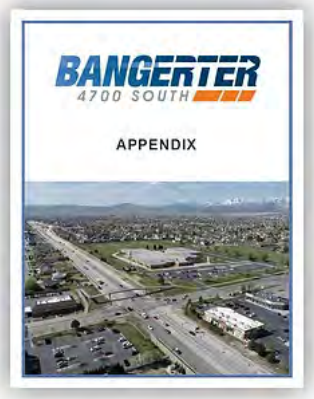
PUBLIC MEETINGS & DOCUMENTS

Draft SES Document

Click on the below images to review the draft SES document.







Property Impact Maps

Click on the below images to review the draft SES property impact maps.

Bangerter Over Option



Bangerter Under Option



Upcoming Meetings - January 2022

The Utah Department of Transportation (UDOT) is nearing completion of their environmental study evaluating options for grade-separating the Bangerter Highway and 4700 South intersection in West Valley City and Taylorsville City.

As this study approaches completion, the team will be hosting meetings to inform the public about the study results and recommendations.

Public Hearing

The Public Hearing will be open to the broader public and will have both an in-person portion and an online portion. The same information will be presented at the neighborhood meetings and the Public Hearing. See details, below.

In-Person Public Hearing
Tuesday, Feb. 1, 2022
5:30 – 7 p.m.
Kennedy Jr. High School
4495 South 4800 West
West Valley City, UT 84120

Online Public Hearing
Wednesday, Feb. 2, 2022
6-7 p.m.
Zoom Webinar

Register Here

Please note, both verbal and written comments can be submitted at the in-person portion of the Public Hearing. Comments received during the online portion of the Public Hearing will not be considered formal comments. Email comments or comment forms can also be submitted during the full comment period once the draft document has been released on Jan. 17.

View the full Study Schedule.

Past Meetings

Public Hearing

A Public Hearing was held on **February 1 (in-person)** and **February 2 (online)** to inform the public about study results and recommendations. They were open to the broader public to learn about the environmental study process, ask question and provide public comment about the study options.

Please note, comments received during the online portion of the Public Hearing will not be considered formal comments. Comments will be received through the comment period, January 17 - February 15, 2022.

The materials presented can be viewed below, including a recording of the virtual meeting and information on how to provide formal comments as part of the environmental process.

Meeting Recording

View a recording of the 4700 South Online Public Hearing.



Online Public Hearing Materials

Public Open House Presentation (February 2022)

Public Comment Form

UDOT Noise Analysis Information

UDOT Civil Rights / Title VI Non-Discrimination Information

Appendix D Public Comments

A formal public comment period was held from Jan. 17, 2022, through Feb. 15, 2022. Members of the public were encouraged to submit comments on the Draft SES via email, study website, or postal mail. A comment form was available at the in-person Public Hearing and on the study website for the general public's use. A court reporter was also available at the in-person Public Hearing to record verbal comments during the open mic portion of the meeting.

A total of 11 comments were received (4 email comments, 4 website comments, and 3 verbal comments at the Public Hearing).

Common themes from the public comments included:

- Concerns about fair home valuations (1).
- ADA accessibility for full acquisitions (1).
- Westridge Health Center access and construction impacts (1).
- Canal turnaround at 4435 South and construction impacts (2).
- Utah and Salt Lake Canal construction coordination (1).
- Construction impacts for "new front row" properties (1).
- Preference of an underpass vs. an overpass (1).
- Frustration with perceived lack of planning (1).
- Concerns about impacted property notification (2).

No.	Name (Comment Method)	Comment	Response
1.	Joe Oakey (Email Comment)	This is not a good thing, you are destroying our family as you are making a decision to destroy my house. We have lived here for 32 years. We built this house. My daughter is very upset she cannot show her son where she grew up. Where her friends grew up. You do not care about us, only about a church and Home depot who pays bigger taxes then our homes do. You offer us the lowest appraisal, some moving costs and maybe to 10,000 extra. This is nothing, you are screwing us. I have solar, my electric cost per month is $10 a month. I just in November put in a newly remolded Kitchen over 40,000 cost to me. Will I get this back, I am sure not because you give us lowest appraisal. We cannot attend your meeting as we sleep in the afternoon and work overnights. I do not trust you at all. I plan on getting an attorney if appraisals are unfair and do not account for my solar and house and kitchen remodel. Please reconsider and be fair with us and at least give us highest appraisal . I know you have to do this, but your not helping the families that are affected, you trying to take advantage of us. Thank you Joe Oakey	Property impacts are being coordinated closely with the UDOT Right-of-Way Division. Your comment has been shared with them. The project team is available to answer any questions you have about the right-of-way acquisition process, including providing information about appraisals. Please reach out to the project team and we will connect you directly with a UDOT Right-of-Way agent to discuss your specific concerns.

2.	Sasha Taylor (Email Comment)	To whom it may concern, I am writing on behalf of my mother-in-law LaRae Taylor regarding the acquisition of her property at (address redacted). This letter is to serve as the official comments stating the specific needs of LaRae and Cindy Taylor as the process of relocation begins. I will start with a brief history of the family home. LaRae and her husband Ronald Taylor built their first family home at 3766 Toulouse Street in 1975. They have 6 children and the youngest was 5 when they were finally able to build their dream home. As with any family, the children grew up, moved out and began families of their own. But Ron and LaRae built this home knowing they wanted to always have a place where the family, no matter how large it became, would have a place to gather for holidays and family events. Sadly, Ron passed away in 2009, but LaRae keeps the tradition alive. 24 grandchildren and 39 great grandchildren later, we gather as one big family for every holiday at "grandma's house". It is loud and crazy and wonderful. Cindy Taylor, a current resident of the home, is child number 5 of 6 in the Taylor clan. Cindy was born with Spina Bifida, a disability which has required many surgeries and a lifetime of medical care. As Cindy got older, her mobility became more limited. She is now 100% confined to a large electric wheelchair. Brent, one of the 4 sons, took on the task of slowly modifying the home to accommodate Cindy's growing limitations and the growing family. These accommodations include a wheelchair entrance to all areas of the home, a sidewalk around the entire perimeter of the home and out to the pool area, a heated year-round pool for physical therapy, a special ride-in shower, wide hallways and doorways, accessible kitchen and living area. Brent spent years modifying this home. The home has been completely modified to give LaRae the life she and Ron worked hard to build and Cindy the accommodations she needs to have a quality life with her disability. As Cindy and LaRae have become more dependent on the family for day to day	Property impacts are being coordinated closely with the UDOT Right-of-Way Division. Your comment has been shared with them. The project team is available to answer any questions you have about the right-of-way acquisition process, including providing information about ADA accommodations as part of the relocation process. Please reach out to the project team and we will connect you directly with a UDOT Right-of-Way agent to discuss your specific concerns.

No.	Name (Comment Method)	Comment	Response
		care, family members take turns staying with them in one of the two guest bedrooms of the home. The family members who come and do the larger chores are from Springville and Huntington, Utah. They will stay for several days to give time for yard care, housekeeping, shopping and laundry assistance. In 2018, Brent was diagnosed with cancer and after a year long fight, he passed away in October of 2019. Before he passed, Brent added the final touch to the family property; a waterslide into the pool for the new generation of Taylors. Every room is a reminder of how much hard work and love Ron, Brent, and the rest of the family put into this home. By design, LaRae and Ron and a lot of hard work by their children, have created a place where Cindy can carry on the legacy and have a home for herself and the family to gather. The news of the home being torn down is a devastating shock to the entire family. None of us can believe that all the hard work and memories will shortly be gone. LaRae is convinced, understandably so, that she will not survive the ordeal. At her age, it is not just physically moving that concerns her, but it's the insurmountable task of sorting through all the belongings amassed over 47 years. So, I am writing this official statement as a declaration that not only must the replacement of the physical house be done in a very specific manner to accommodate the needs of Cindy and LaRae's physical limitations, but the parts of the home that take care of the emotional well being of the family must be preserved as well. I can not stress this enough. Included below are photos of specific parts of the property that must be replicated in the new home. If you have any questions regarding these specifications, please feel free to contact me. Sincerely, Sasha Taylor	

3	Eugenia Smith (Email Comment)	To Whom It May Concern: We represent the Westridge Health Center of the University of Utah. We attended the Community Meeting on Jan 13th regarding the 4700 S. and Bangerter interchange project. We would like to present some items for your consideration. 1. We understand the that changes to 4700 S on the Northeast Side of the interchange will result in a Right-in and Right-out traffic flow from our clinic. We are concerned about the safety of our patients and staff as they drive to the clinic. We expect that many will make a U-turn when traveling East on 4700 S to go West bound to get to the clinic. We are concerned about the safety of frequent U-turns at the 3600 W and 4700 S. intersection. In addition, it would benefit our patients and staff to be able to efficiently get onto Eastbound 4700 S without going around the entire block. One possible solution would be to connect 3740 W to Orleans Way, allowing patients and staff to exit/enter the clinic through Orleans Way and avoid U-turns at the 4700 S / 3600W intersection. We would advocate for this solution, understanding that it would change traffic patterns through a residential area. 2. We look forward to working with the property acquisition team to fully understand how our property will be affected. We are keen to know how many parking stalls will be lost with the widening or 4700. 3. We are interested in understanding traffic flow during construction. We realize that access will be maintained to the clinic, and we want to make sure that emergency vehicles have adequate access.	1. The current proposed design will be refined during final design. UDOT will work closely with impacted property owners as the final design is refined to understand concerns related to access, parking stalls, and traffic flow during construction. 3740 West and Orleans Way are owned by West Valley City and any access modifications to these roads would be at their discretion. Your comment has been shared with West Valley City. 2 & 4. All property impacts and/or acquisitions are being coordinated closely with the UDOT Right-of-Way Division. Please reach out to the project team and we will connect you directly with a UDOT Right-of-Way agent to discuss your specific concerns. 3. Detour routes and/or temporary access closures will be coordinated closely between the project team, the construction contractor, and the impacted property owners to ensure adequate emergency vehicle access is provided. 5. The construction contractor will coordinate with all utility providers to minimize utility service interruptions. Although utility service would be maintained throughout most construction activities, utility service could be temporarily disrupted during construction. A communications plan will be implemented to inform the adjacent properties and public about construction activities, including advanced notification for any planned impact to utility services.

No.	Name (Comment Method)	Comment	Response
		4. We would like to consider purchasing the land directly to our West, once the project is complete. We may be able to utilize that for expanded services. 5. How will utilities be affected. We rely on power and water to safely care for patients and to preserve refrigerated and frozen medications. If the power will be shut off for a period of time we will need to make plans to prevent loss of critical supplies. If the construction make unintended or accidental loss of power more likely we need to know so that we can develop emergency plans, beyond our current processes. Sincerely, Eugenia Smith	
4	Tammy Tolbert (Website Comment)	I would like to know about the proposed canal turnaround approx 4435 south. I want to know if this will be a construction route, will there be a wall or fence around it? Could you make it like the one on 4617 s?	The design presented during the environmental phase is preliminary and has not identified specific construction route details at the proposed canal turnaround location. Items like a fence or a wall at this location will be evaluated and coordinate with the canal company as we work to refine the final design.

5	Mark Andersen (Public Hearing, Verbal Comment)	First of all, compliments on the presentation and the maps, the maps in particular. They made it able to see it really in large size. I'm the water master for the only weir that's going to be affected by this interchange; so that was my interest, where the water is going to be rerouted. It depends on whether it's over or under. So in my case, if you were going to leave it where it is, an overpass is the logical solution, logical choice. Other than that, I don't care a heck of a lot. The weir, the way it's on the map, is going to be the same. That will not change. There is a bridge overpass over the Utah Salt Lake Canal. That's the biggest canal in Salt Lake County. Bangerter crosses it right where they're making a move to the east; so if they move it over to the east side, it encroaches on the Bible Church and so on like that. Bible Church used to irrigate out of the same weir. So with UDOT owning the property, they're not going to farm, so probably stub that off. If I understand the map properly and the explanation, they're just going to extend the bridge, wouldn't have to do it too much. But if the road widens and moves to the east, they'll probably do bridge construction over there, but then they'll do that when the canal is not in use. We used to irrigate over in my subdivision as soon as two and a half months from now. Mid-April is about as early as they'll put water in the canal. It depends on the weather, how hot it is and so on. But by May generally there's water in the canal; so construction on that canal has got to be done before. But the fact that they've got to take some houses out and move the large culinary water canal over, you know, the big aqueduct too, I don't know when they would do that time-wise. When they do, it will interrupt that water flow to our subdivision; so it's just a matter of timing.	The design presented during the environmental phase is preliminary and does not show impacts to the Utah & Salt Lake Canal. Both the Bangerter Highway Over Option and Bangerter Highway Under Option would impact the east side of the South Jordan Canal box culvert as it would need to be extended to accommodate a wider roadway footprint. All construction activities will be coordinated with the canal company to minimize impacts to canal water users. Any change in design that has additional canal impacts will be coordinated with the applicable canal company.

No.	Name (Comment Method)	Comment	Response
		Of all the people here, I'm the only one that cares about the water. I not only have input, I know the history of it. Back in '47 it was a two-lane road. Anyway, if you need to ask me some questions, I'm open. That's fine.	
6	Dennis Wolfley (Public Hearing, Verbal Comment)	I would rather they not do this construction than do it the way they're doing it, because every time I come over here to one of these meetings, I don't get any answers. What I have to say seems to fall on deaf ears. I feel like I told the guy down there. "Are you familiar with the third monkey scenario?" I feel like the third monkey walking up the ramp to Noah's Ark and it's starting to rain. We're not getting treated as valued citizens at all. We're getting treated like a commodity. You know what? Your house is in our way, and we're going to buy you out. Mine isn't being bought out, but 30 feet away they're ripping down the house kitty-corner to me, and they somehow don't feel that directly impacts me with all the noise, the dust, the pollution, the vibration that's going to go on with all of the equipment. I just want to talk to somebody about it, and nobody here seems to have the answers. I think what frustrates me so much is they're forcing me to make a decision even though my house isn't being purchased, but they're making me make a decision about wanting to stay and live in West Valley City, which at the current time is leaning towards, no, I don't want to stay here. I don't want to deal with the pollution, the construction, three years of closing down an intersection that's a tenth a mile away from me to make me drive 5 miles around. It's a disruption.	UDOT cannot compensate for indirect impacts if there are no direct impacts to the property. However, the contractor will be required to comply with UDOT 2022 Standard Specifications to minimize construction impacts to adjacent properties, including noise, dust, pollution, and vibration. The contractor will develop a maintenance-of-traffic plan that defines measures to reduce construction impacts to traffic. A general requirement of this plan is that, to the extent reasonably practical, safe access to businesses and residences must be maintained and existing roads kept open to traffic. Even with the implementation of this plan, traffic impacts may occur including delays and temporary east/west closures of 4700 South during construction. A communications plan will be implemented to inform the public about construction activities and to reduce impacts. Information will include work hours, anticipated impacts, and alternate routes. Construction signs will be used to notify drivers about work activities and changes in traffic patterns.

No.	Name (Comment Method)	Comment	Response
7	William Scarber (Public Hearing, Verbal Comment)	My comment is related to the decision whether to make it an overpass or an underpass. My preference is an underpass. We have a lot of people who drive a lot of vehicles in the area, and the noise concerns, I think, are pretty big, and having the underpass would make it so it's a little quieter in our neighborhood.	Currently both vertical alignment options, Bangerter Highway Over 4700 South and Bangerter Highway Under 4700 South, are under-funded. The Under Option is approximately $17.8 million in additional cost compared to the Over Option. UDOT and West Valley City / Taylorsville would have to split the additional cost to go under, 50/50. While the exact timing is unknown, UDOT is working closely with state and city representatives to determine how much funding can be allocated to the project and we expect to have a better idea about how much additional funding is available as early as spring 2022, after the legislative session. The final decision will be made based on available funding.

No.	Name (Comment Method)	Comment	Response
8	Dennis Johnson (Email Comment)	To whom it may concern, My name is Dennis Johns, I live at (address redacted) in West Valley City. I am writing to you for a concern that my family and I have about the Bangerter highway expansion at 4700 south. My wife and I attended the last meeting at Kennedy Junior High. We were told that our home would be at the end of the construction and remain. After speaking with several of the team members some thoughts occurred to me, of what this might look like, and I feel that the transition from the construction to my home might be a sight for sore eyes. Trying to envision the huge wall almost at almost eighteen feet high to the side of my house, along with what will happen on the east side of the wall might make my home impossible to be resold, I realize that there are many design problems that have not been addressed yet, but we still feel like anything that is done here will make it look like an afterthought. In no way did we ever consider this to happen and are extremely surprised to think that you people believe it is okay to leave a huge mess so someone that has lived here for quite some time like over 20 years should be okay with it. With the aqueduct end in my next-door neighbors back yard there is almost no way we can see this working out for us. We would like to be considered in the design, and if it cannot be designed where it is pleasing to us and possibly someone else to purchase our home in the future, we would like you to consider our home to be on the chopping block as well. We look forward to some correspondence from you in the near future.	Property impacts are being coordinated closely with the UDOT Right-of-Way Division. Your comment has been shared with them. If you have additional questions or concerns regarding property acquisition, please reach out to the project team and we will connect you directly with a UDOT Right-of-Way agent.

No.	Name (Comment Method)	Comment	Response
9	Tammy Tolbert (Email Comment)	The canal turn around is that is proposed and plans to maintain where the demolished house were We live 2 house to the east from where the houses will be demolished and I would like ot know if you will put up a seperation wall so that the public cannot walk back through the canal. This is already a high traffic area for thief's and kids doing drugs. second question is will you maintain area where house will be demolished, will there be grass, rocks and will someone maintain it? I have great concern that the area will look very unpleasant and have homeless sleeping there. Thanks	The design presented during the environmental phase is preliminary and has not identified those specific details at the proposed canal turnaround location. Items like a wall or landscaping at this location will be evaluated and coordinated with the canal company as we work to refine the final design.
10	Jeff McCollin (Website)	could you make it any harder to comment? Are there plans on what to due w/the traffic that will surely pile up north of completed projects until those are completed todays udot has no foresight should have started in front of traffic jams ie 2100so instead of beyond them Every fool except those employed by UDOT knew this needed to be done when bungaler highwas originally built. Now todays udot is building behind the traffic jams insead of in front of themiuilt	Prior to improvements being made at the Bangerter Highway intersections north of 4700 South, they must first be evaluated for potential impacts to the built and natural environment through the State Environmental Study (SES) process. Results of these SES(s) would identify potential solutions to improve the intersections. SES prioritization for intersections north of 4700 South would be based on existing crash data and potential improvements to operational safety and congestion. Funding/construction for intersections north of 4700 South is currently anticipated for 2028.

No.	Name (Comment Method)	Comment	Response
11	Liz Guerrero (Website)	I am a property owner of a potential partial acquisition for a future study, based off of the Bangerter Hwy. at 4700 S. study. I do not see the reasoning for including and flagging parcels for potential future use (by 2050) in a study now. The potential partial acquisitions are not funded, studied, or planned but the parcels are flagged. Any current homeowner would need to disclose this information if they wanted to list their house. I personally feel that this will only negatively hurt the neighborhood and deter any future homeowners to the area. I did not find out about the project until an article came out in the Salt Lake Tribune regarding full acquisitions and those homeowners. I saw the documentation in the draft study that included the published notices, social media posts, and postcards that were mailed out. I never received any notice. I spoke with my immediate neighbors and they also never received any notice.	Roadway improvements are often segmented and constructed in multiple phases to allow UDOT to spread available funding around the state. However, when projects are being evaluated during the environmental phase, they must be looked at holistically to accurately evaluate potential impacts to the built and natural environment. If you have additional questions or concerns regarding property acquisition, please reach out to the project team and we will connect you directly with a UDOT Right-of-Way agent. Notices for the Business and Neighborhood Meeting meetings were posted on the project website, mailed, and hand delivered. Notices for the Public Hearing opportunities were published in accordance with UT Administrative Code R930-2 and the Environmental Manual of Instructions (MOI).

Verbal Comment Transcript

P R O C E E D I N G S

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MARK ANDERSEN: First of all, compliments on the presentation and the maps, the maps in particular. They made it able to see it really in large size. I'm the water master for the only weir that's going to be affected by this interchange; so that was my interest, where the water is going to be rerouted. It depends on whether it's over or under. So in my case, if you were going to leave it where it is, an overpass is the logical solution, logical choice. Other than that, I don't care a heck of a lot.

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Of all the people here, I'm the only one that cares about the water. I not only have input, I know the history of it. Back in '47 it was a two-lane road. Anyway, if you need to ask me some questions, I'm open. That's fine.

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DENNIS WOLFLEY: I would rather they not do this construction than do it the way they're doing it, because every time I come over here to one of

these meetings, I don't get any answers. What I have to say seems to fall on deaf ears. I feel like I told the guy down there. "Are you familiar with the third monkey scenario?" I feel like the third monkey walking up the ramp to Noah's Ark and it's starting to rain.

We're not getting treated as valued citizens at all. We're getting treated like a commodity. You know what? Your house is in our way, and we're going to buy you out. Mine isn't being bought out, but 30 feet away they're ripping down the house kitty-corner to me, and they somehow don't feel that directly impacts me with all the noise, the dust, the pollution, the vibration that's going to go on with all of the equipment. I just want to talk to somebody about it, and nobody here seems to have the answers.

I think what frustrates me so much is they're forcing me to make a decision even though my house isn't being purchased, but they're making me make a decision about wanting to stay and live in West Valley City, which at the current time is leaning towards, no, I don't want to stay here. I don't want to deal with the pollution, the construction, three years of closing down an

intersection that's a tenth a mile away from me to make me drive 5 miles around. It's a disruption.

WILLIAM SCARBER: My comment is related to the decision whether to make it an overpass or an underpass. My preference is an underpass. We have a lot of people who drive a lot of vehicles in the area, and the noise concerns, I think, are pretty big, and having the underpass would make it so it's a little quieter in our neighborhood.

Appendix D: Environmental Resources

Bangerter Highway at 4700 South

Property Impacts Table

Bangerter Highway at 4700 South
Property Impacts

Parcel Number	Bangerter Highway Over Option	Bangerter Highway Under Option
324	Partial Acquisition	Partial Acquisition
326	Partial Acquisition	Partial Acquisition
328	Partial Acquisition	Partial Acquisition
330	Partial Acquisition	Partial Acquisition
332	Partial Acquisition	Partial Acquisition
334	Partial Acquisition	Partial Acquisition
336	Partial Acquisition	Partial Acquisition
338	Partial Acquisition	Partial Acquisition
340	Partial Acquisition	Partial Acquisition
342	Partial Acquisition	Partial Acquisition
344	Partial Acquisition	Partial Acquisition
346	Partial Acquisition	Partial Acquisition
348	Partial Acquisition	Partial Acquisition
350	Partial Acquisition	Partial Acquisition
352	Partial Acquisition	Partial Acquisition
354	Partial Acquisition	Partial Acquisition
356	Partial Acquisition	Partial Acquisition
358	Partial Acquisition	Partial Acquisition
360	Partial Acquisition	Partial Acquisition
364	Partial Acquisition	Partial Acquisition
366	Partial Acquisition	Partial Acquisition
371	Partial Acquisition	Partial Acquisition
372	Full Acquisition	Full Acquisition
373	Full Acquisition	Full Acquisition
374	Full Acquisition	Full Acquisition
375	Partial Acquisition	Partial Acquisition
376	Full Acquisition	Full Acquisition
377	Partial Acquisition	Partial Acquisition
378	Full Acquisition	Full Acquisition
379	Full Acquisition	Full Acquisition
380	ROW Coordination Required	ROW Coordination Required
381	ROW Coordination Required	ROW Coordination Required
382	ROW Coordination Required	ROW Coordination Required
383	Partial Acquisition	Partial Acquisition

Parcel Number	Bangerter Highway Over Option	Bangerter Highway Under Option
384	ROW Coordination Required	ROW Coordination Required
385	Partial Acquisition	Partial Acquisition
388	Partial Acquisition	Partial Acquisition
390	Partial Acquisition	Partial Acquisition
391	Partial Acquisition	Partial Acquisition
392	Partial Acquisition	Partial Acquisition
393	Partial Acquisition	Partial Acquisition
394	Full Acquisition	Full Acquisition
395	Partial Acquisition	Partial Acquisition
396	Full Acquisition	Full Acquisition
397	Partial Acquisition	Partial Acquisition
398	Full Acquisition	Full Acquisition
398 A	Full Acquisition	Full Acquisition
398 B	Full Acquisition	Full Acquisition
400	Full Acquisition	Full Acquisition
402	Full Acquisition	Full Acquisition
403	ROW Coordination Required	ROW Coordination Required
404	Full Acquisition	Full Acquisition
405	Full Acquisition	Full Acquisition
406	Full Acquisition	Full Acquisition
407	Full Acquisition	Full Acquisition
408	Full Acquisition	Full Acquisition
409	ROW Coordination Required	ROW Coordination Required
410	Full Acquisition	Full Acquisition
411	Full Acquisition	Full Acquisition
412	Full Acquisition	Full Acquisition
413	ROW Coordination Required	ROW Coordination Required
414	Full Acquisition	Full Acquisition
415	ROW Coordination Required	ROW Coordination Required
416	Full Acquisition	Full Acquisition
417	ROW Coordination Required	ROW Coordination Required
418	Full Acquisition	Full Acquisition
419	ROW Coordination Required	ROW Coordination Required
420	Full Acquisition	Full Acquisition
421	ROW Coordination Required	ROW Coordination Required
422	Full Acquisition	Full Acquisition
423	Partial Acquisition	Partial Acquisition

Parcel Number	Bangerter Highway Over Option	Bangerter Highway Under Option
424	Full Acquisition	Full Acquisition
425	Partial Acquisition	Partial Acquisition
426	Full Acquisition	Full Acquisition
427	Partial Acquisition	Partial Acquisition
428	Full Acquisition	Full Acquisition
429	Partial Acquisition	Partial Acquisition
450	Full Acquisition	Full Acquisition
451	Partial Acquisition	Partial Acquisition
453	Partial Acquisition	Partial Acquisition
454	Full Acquisition	Full Acquisition
455	Partial Acquisition	Partial Acquisition
456	Full Acquisition	Full Acquisition
457	Partial Acquisition	Partial Acquisition
458	Full Acquisition	Full Acquisition
460	Partial Acquisition	Partial Acquisition
464	Full Acquisition	Full Acquisition
466	Full Acquisition	Full Acquisition
467	Partial Acquisition	Partial Acquisition
468	Full Acquisition	Full Acquisition
470	Partial Acquisition	Partial Acquisition
472	Potential Acquisition	Potential Acquisition
474	Partial Acquisition	Partial Acquisition
476	Partial Acquisition	Partial Acquisition
478	Partial Acquisition	Partial Acquisition
480	Partial Acquisition	Partial Acquisition
482	Partial Acquisition	Partial Acquisition
484	Partial Acquisition	Partial Acquisition
486	Partial Acquisition	Partial Acquisition
488	Partial Acquisition	Partial Acquisition
489	Partial Acquisition	Partial Acquisition
492	Partial Acquisition	Partial Acquisition

Appendix D: Environmental Resources

Determination of Eligibility and Finding of Adverse Effect
with Native American consultation letters
and SHPO concurrence

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

TERIANNE S. NEWELL, P.E.
Deputy Director of Planning and Investment

LISA J. WILSON, P.E.
Deputy Director of Engineering and Operations

December 20, 2021

Mr. Chris Hansen
Senior Historic Preservation Specialist
Utah Division of State History
3760 Highland Dr.
Millcreek, UT 84106

RE: UDOT Project No. S-0154(92)0; Bangerter Highway Environmental Document: 4700 South, Salt Lake County, PIN 18808
Determination of Eligibility and Finding of Adverse Effect.

Dear Mr. Hansen:

The Utah Department of Transportation (UDOT) is preparing to undertake the subject state-aid project. In accordance with the *Programmatic Agreement between the UDOT and the Utah State Historic Preservation Officer Regarding Implementation of U.C.A. 9-8-404 for State Funded Transportation Projects in Utah* (renewed January 22, 2018), the UDOT has taken into account the effects of this undertaking on historic properties and is affording the Utah State Historic Preservation Officer (SHPO) an opportunity to comment on the undertaking.

PROJECT DESCRIPTION

UDOT is proposing to construct a grade-separated Single Point Urban Interchange (SPUI) at the existing intersection of Bangerter Highway (SR-154) and 4700 South in Salt Lake County. The new interchange would allow for unimpeded traffic flow along Bangerter Highway and is projected to operate at LOS C during AM and PM peak hours (an average of 21 seconds and 28 seconds of delay per vehicle, respectively) into the year 2050.

The project study area is along SR-154 from milepost 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West. The proposed project would construct a grade-separated interchange with exit and entrance ramps from Bangerter Highway to 4700 south; reconfigure the existing 4700 South lane configuration to integrate with the interchange design; modify utilities, storm drain features, canal structures, and pedestrian facilities; and install new pavement, traffic signals, ATMS equipment, roadway signage, and a storm water detention basin. The project would also relocate a portion of the Jordan Valley Water Conservancy District (JVWCD) aqueduct, between the Utah and Salt Lake Canal and the South Jordan Canal, to accommodate encroachment from the interchange facilities. This project will require the acquisition of commercial and residential properties.

The area of potential affects (APE) has been defined as SR-154 from milepost 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West in Salt Lake County. The APE has been surveyed for archaeology by Horrocks Engineering, under State Antiquities Project Number U21HX0499, and the results are reported in *A Cultural Resource Inventory of Bangerter Highway at 4700 South, August 2021* (see enclosed report). An intensive level pedestrian survey was conducted using 15 meter transects to identify archaeological resources. A selective-reconnaissance level survey was conducted to record architectural properties, and the results are reported in *Selective Reconnaissance Level Survey, Bangerter Highway @ 4700 South, West Valley City and Taylorsville City, Salt Lake County, Utah, PIN 18808; Project Number: S-0154(84), May 2021* (see enclosed report).

The survey has resulted in the identification of 2 archaeological sites and 137 architectural properties. Of these, 1 archaeological site and 51 architectural properties are eligible to the National Register of Historic Places (NRHP). No known traditional cultural properties are located in the APE. The Determinations of Eligibility and Findings of Effects are provided in Table 1 for archaeological resources and in Table 2 for architectural properties.

ARCHAEOLOGICAL RESOURCES

Table 1. Determinations of Eligibility and Findings of Effect for Archaeological Resources

Site	Name or Description	NRHP Eligibility	Finding of Effect
42SL291	South Jordan Canal	Eligible (Criterion A)	No Adverse Effect
42SL295	Utah and Salt Lake Canal	Eligible (Criterion A)	No Historic Property Affected

Description of Effect to Site 42SL291: The proposed project will replace and slightly extend the box culvert where 42SL291 passes under Bangerter Highway on the east side. A total of 101 square feet of the site will be impacted by construction, and the culvert will be extended approximately 10feet. The remaining canal will remain an open channel. The project will affect a relatively small portion of the site which has already been impacted by road construction and residential development and will not substantially impact or alter any contributing elements of the site or any of the character-defining features for which it was determined eligible for the NRHP. Thus, the proposed project will result in a finding of No Adverse Effect for the property.

ARCHITECTURAL PROPERTIES

Table 2. Determinations of Eligibility and Findings of Effect for Architectural Properties

Address	Date	Style	NRHP Eligibility/ SHPO Rating	Finding of Effect
5160 South 3760 West	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5150 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
5140 South 3760 West	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5128 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5116 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5106 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 943 sq. ft.
5096 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5086 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 1,294 sq. ft.
5074 South 3760 West	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5064 South 3760 West	1974	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
5056 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5046 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 869 sq. ft.
5038 South 3760 West	1973	Ranch/ Rambler	Eligible/EC	No Adverse Effect Strip take: 706 sq. ft.

5026 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 510 sq. ft.
5016 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
5006 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4996 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4986 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4976 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4966 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4956 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
4946 South 3760 West	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
3751 West Englewood Drive	1973	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
3761 West Englewood Drive	1973	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
3772 West Englewood Drive	1976	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
3768 West Englewood Drive	1974	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 3,030 sq. ft.
3762 West Englewood Drive	1973	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
3752 West Englewood Drive	1976	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3740 West Englewood Drive	1974	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4999 South Southridge Drive	1963	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4991 South Southridge Drive	1963	Ranch/ Rambler	Eligible/ES	No Historic Properties Affected
4981 South Southridge Drive	1963	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4969 South Southridge Drive	1963	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
4953 South Southridge Drive	1963	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4947 South Southridge Drive	1963	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4933 South Southridge Drive	1973	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4925 South Southridge Drive	1963	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4915 South Southridge Drive	1963	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4905 South Southridge Drive	1963	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4897 South Southridge Drive	1969	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected

4891 South Southridge Drive	1969	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4887 South Southridge Drive	1969	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
3727 West Coats Drive	1964	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
3735 West Coats Drive	1974	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4896 South 3730 West	1973	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4888 South 3730 West	1974	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4880 South 3730 West	1974	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4870 South 3730 West	1974	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4862 South 3730 West	1974	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4854 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3744 West Thunderbird Way	1974	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4828 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4820 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4812 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4802 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4792 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4786 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4774 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4768 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4760 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4754 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4746 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4740 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4732 South 3730 West	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4724 South 3730 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3739 West 4700 South	1959	Ranch/ Rambler	Eligible/EC	Adverse Effect
3732 West 4720 South	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected

3720 West 4720 South	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
3708 West 4720 South	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4710 South 3685 West	1972	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3703 West 4720 South	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
3717 West 4720 South	1972	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4729 South 3685 West	1971	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4719 South 3685 West	1971	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4709 South 3685 West	1971	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3818 West 4700 South	1976	20th C. Commercial	Not Eligible/NC	No Historic Properties Affected
4690 South 4000 West	1962	20th C. Commercial	Not Eligible/NC	No Historic Properties Affected
4710 South 4000 West	1962	20th C. Commercial	Not Eligible/NC	No Historic Properties Affected
4542 South Orleans Way	1975	Ranch/ Rambler	Not Eligible/NC	No Historic Properties Affected
4534 South Orleans Way	1975	Split Entry (Gen.)	Eligible/EC	Adverse Effect
4526 South Orleans Way	1975	Split Entry (Gen.)	Eligible/EC	Adverse Effect
4518 South Orleans Way	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4510 South Orleans Way	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4502 South Orleans Way	1975	Split Entry (Gen.)	Eligible/EC	Adverse Effect
4494 South Orleans Way	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4486 South Orleans Way	1975	Split Entry (Gen.)	Eligible/EC	Adverse Effect
4478 South Orleans Way	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4472 South Orleans Way	1975	Split Entry (Gen.)	Eligible/EC	Adverse Effect
3766 West Toulouse Street	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
3762 West Toulouse Street	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
3737 West Belfort Drive	1975	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
3747 West Belfort Drive	1975	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
3738 West Belfort Drive	1963	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4521 South Orleans Way	1974	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected

4511 South Orleans Way	1975	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4501 South Orleans Way	1963	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4495 South Orleans Way	1975	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4425 South Christopherson Drive	1963	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3747 West Clermont Drive	1974	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3757 West Clermont Drive	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4436 South Orleans Way	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4430 South Orleans Way	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4420 South Orleans Way	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4412 South Orleans Way	1974	Split Entry (Gen.)	Eligible/EC	Adverse Effect
4404 South 3760 West	1974	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4396 South 3760 West	1972	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4390 South 3760 West	1974	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 1,339 sq. ft.
4382 South 3760 West	1973	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4374 South 3760 West	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4366 South 3760 West	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4358 South 3760 West	1973	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 1,314 sq. ft.
4350 South 3760 West	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4342 South 3760 West	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4334 South 3760 West	1971	Ranch/ Rambler	Eligible/EC	No Adverse Effect Strip take: 1,522 sq. ft.
4324 South 3760 West	1972	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4316 South 3760 West	1971	Split Entry (Gen.)	Eligible/EC	No Adverse Effect Strip take: 1,466 sq. ft
4308 South 3760 West	1971	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4300 South 3760 West	1971	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
4292 South 3760 West	1970	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected

4284 South 3760 West	1971	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4276 South 3760 West	1971	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
4268 South 3760 West	1971	Split Entry (Gen.)	Eligible/EC	No Historic Properties Affected
4405 South Meadowgate Circle	1969	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4399 South Meadowgate Circle	1969	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4391 South Meadowgate Circle	1971	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4383 South Meadowgate Circle	1968	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4375 South Meadowgate Circle	1968	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4387 South Hawkeye Street	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4377 South Hawkeye Street	1972	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4365 South Hawkeye Street	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4355 South Hawkeye Street	1971	Split Level (Gen.)	Eligible/EC	No Historic Properties Affected
4343 South Hawkeye Street	1972	Split Entry (Gen.)	Not Eligible/NC	No Historic Properties Affected
4335 South Hawkeye Street	1971	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4325 South Hawkeye Street	1972	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
3838 West Moregate Avenue	1971	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected
3817 West Seagull Drive	1976	Split Level (Gen.)	Not Eligible/NC	No Historic Properties Affected
4287 South Bluebird Drive	1976	Ranch/ Rambler	Eligible/EC	No Historic Properties Affected

Description of Effects: This proposed project requires right of way acquisitions of approximately 69,795 square feet in area from 17 properties eligible to the NRHP including 7 full parcel acquisitions. For 10 properties, the acquisitions and associated construction affect a relatively small portion of each property and will not substantially impact or alter any contributing elements of the properties or any of the character-defining features for which each were determined eligible for the NRHP. For 7 properties, the building will be removed as a result of construction. Thus, the proposed project will result in a finding of Adverse Effect.

CONSULTATION EFFORTS

Native American consultation was initiated through letters sent to the Eastern Shoshone Tribe of the Wind River Reservation, Shoshone-Bannock Tribes, Northwestern Band of Shoshone Nation, Uintah and Ouray Ute Tribes, and the Skull Valley Band of Goshute Indians (sent September 24, 2021). In addition, notification was also sent to those tribes with whom UDOT has Section 106 Programmatic Agreements: Cedar Band of Paiutes, Shivwits Band of Paiute Indian Tribe, and the Confederated Tribes of the Goshute Reservation (sent September 24, 2021). To date, none of the tribes have responded to these notifications.

SUMMARY

To summarize, the project will result in a finding of **Adverse Effect** for 7 architectural properties, **No Adverse Effect** for 1 archaeological site and 10 architectural properties, and a finding of **No Historic Properties Affected** for all remaining architectural properties and archaeological sites. Therefore, the Finding of Effect for the proposed UDOT Project No. S-0154(92)0; Bangerter Highway Environmental Document: 4700 South, Salt Lake County, Utah, is A**dverse Effect**.

Please review this document and, providing you agree with the findings contained herein, provide written concurrence. Should you have any questions or need additional information, please feel free to contact Liz Robinson at 801-910-2035 or lizrobinson@utah.gov; or Elizabeth Giraud at 801-965-4917 or egiraud@utah.gov.

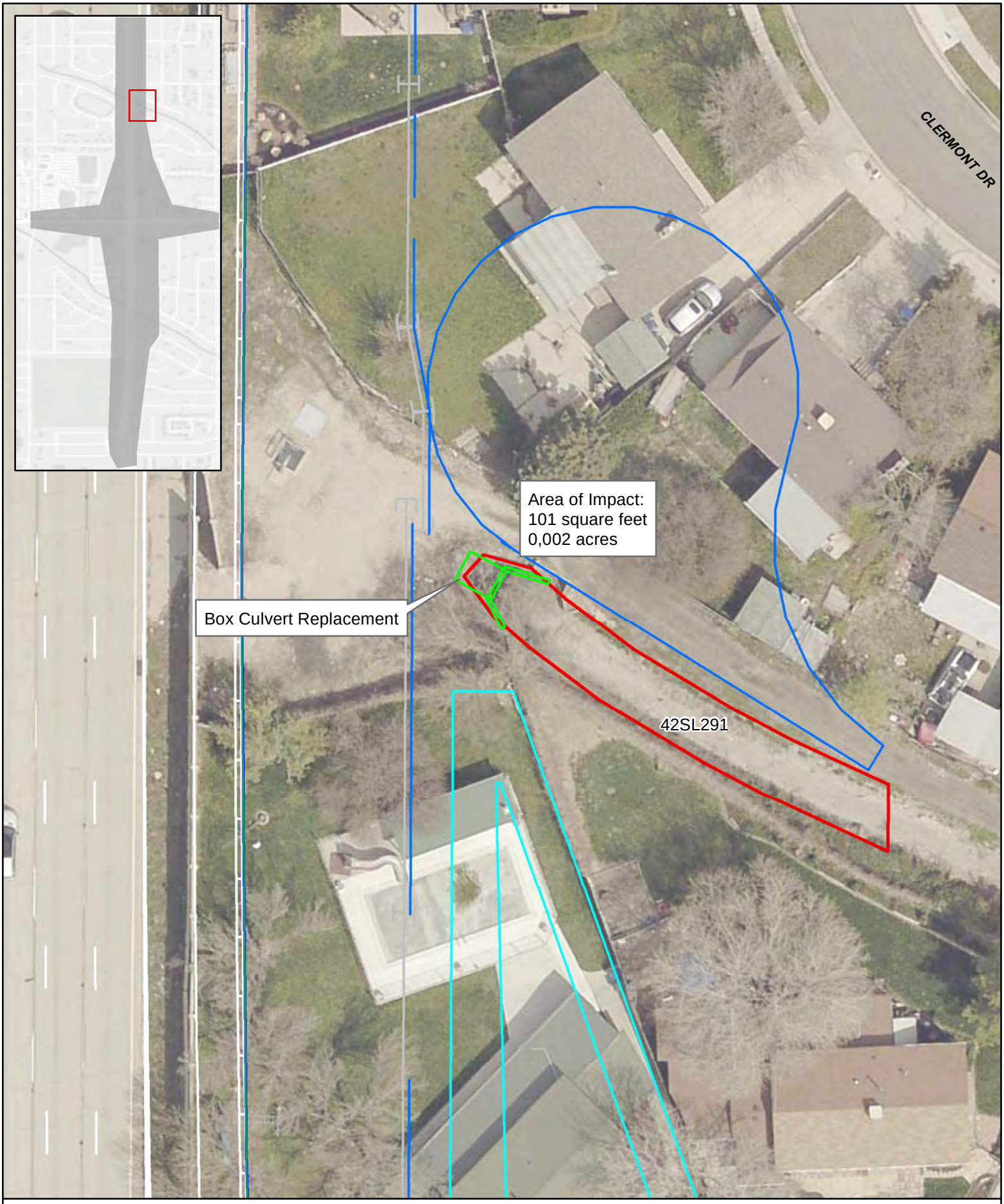
Sincerely,

Liz Robinson, M.A., RPA
Cultural Resources Program Manager
UDOT Environmental Services

Elizabeth Giraud, AICP
Architectural Historian
UDOT Environmental Services

Enclosures

cc: Brian Allen, Project Manager
Tyler Allen, Environmental Manager



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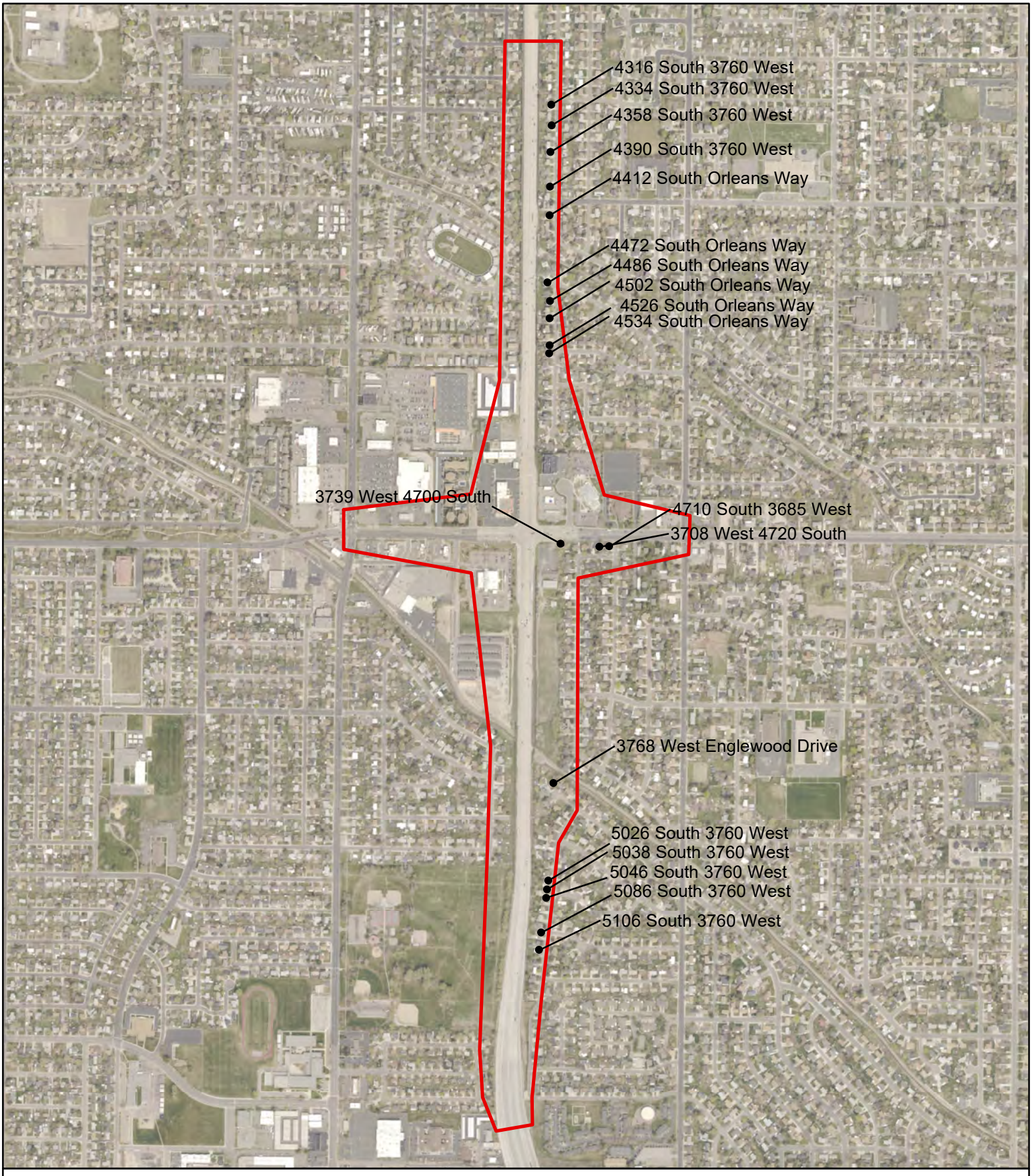
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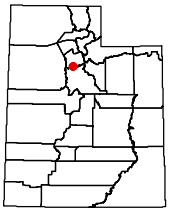
Site Boundary

18808: Bangerter Environmental - 4700 South

42SL291 Impacts

Map 1 of 1





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18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts Overview

● Eligible/Contributing Historic Property

Area of Potential Effects (APE)

Map 1 of 1



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Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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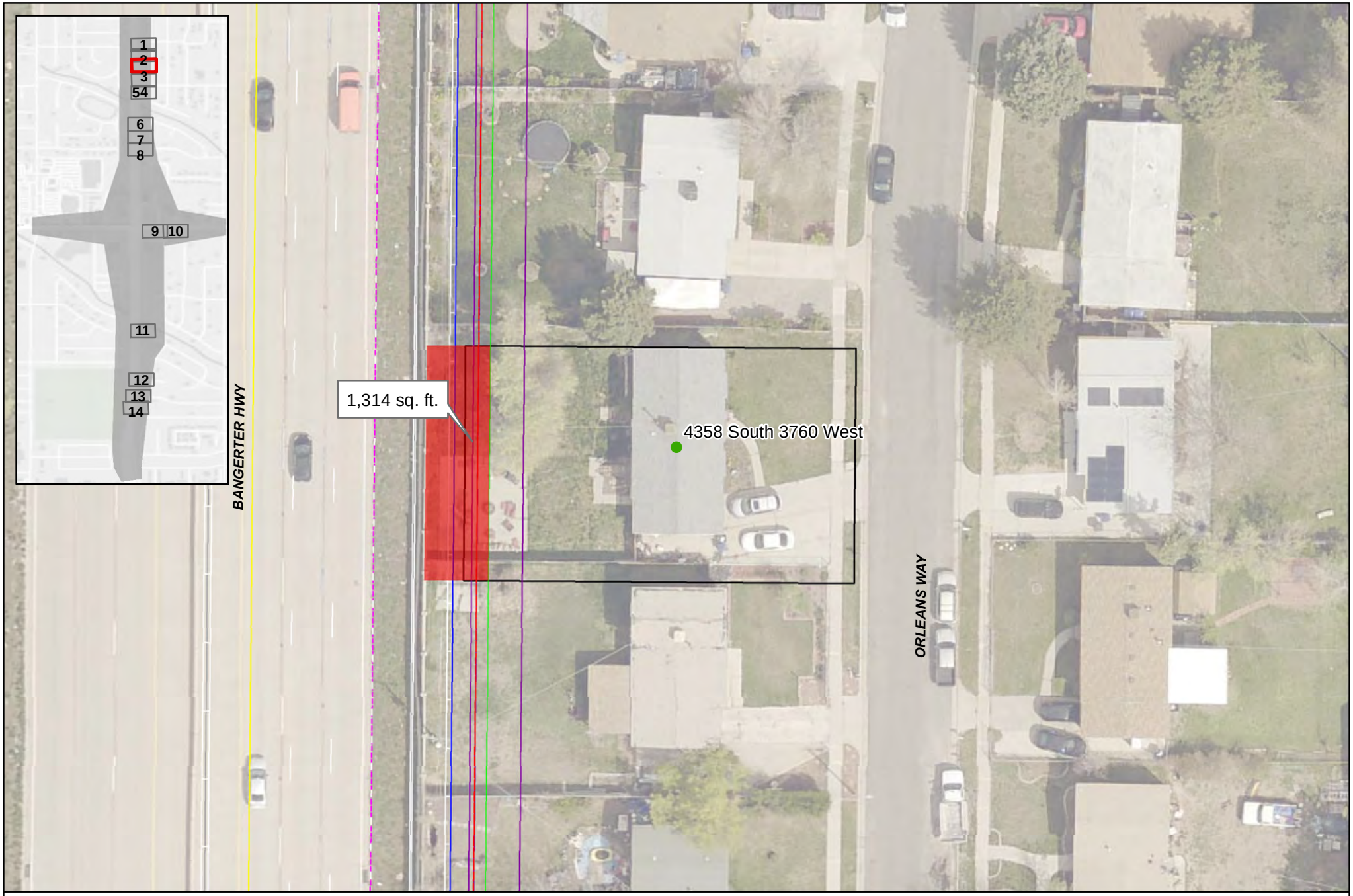
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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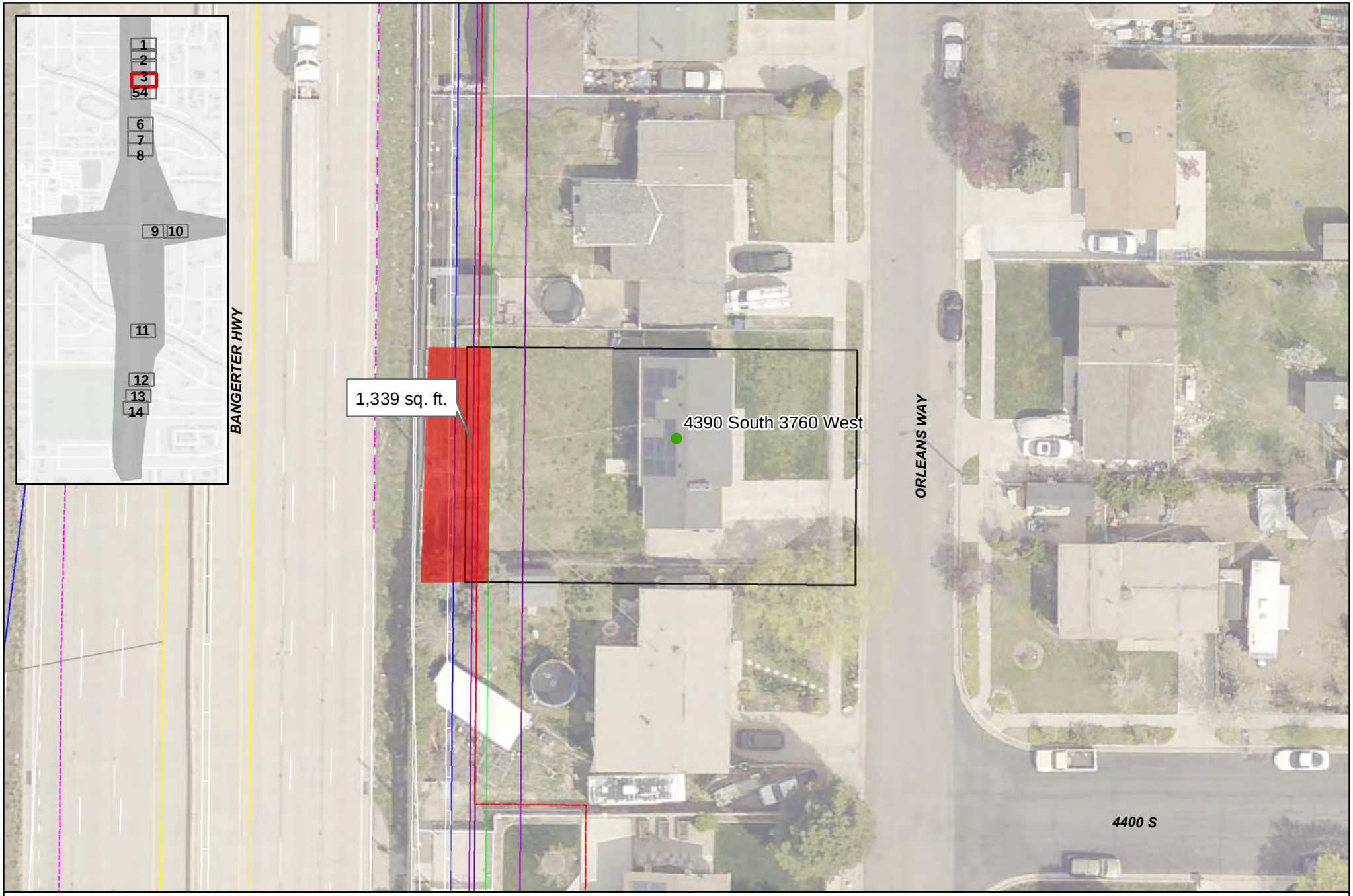
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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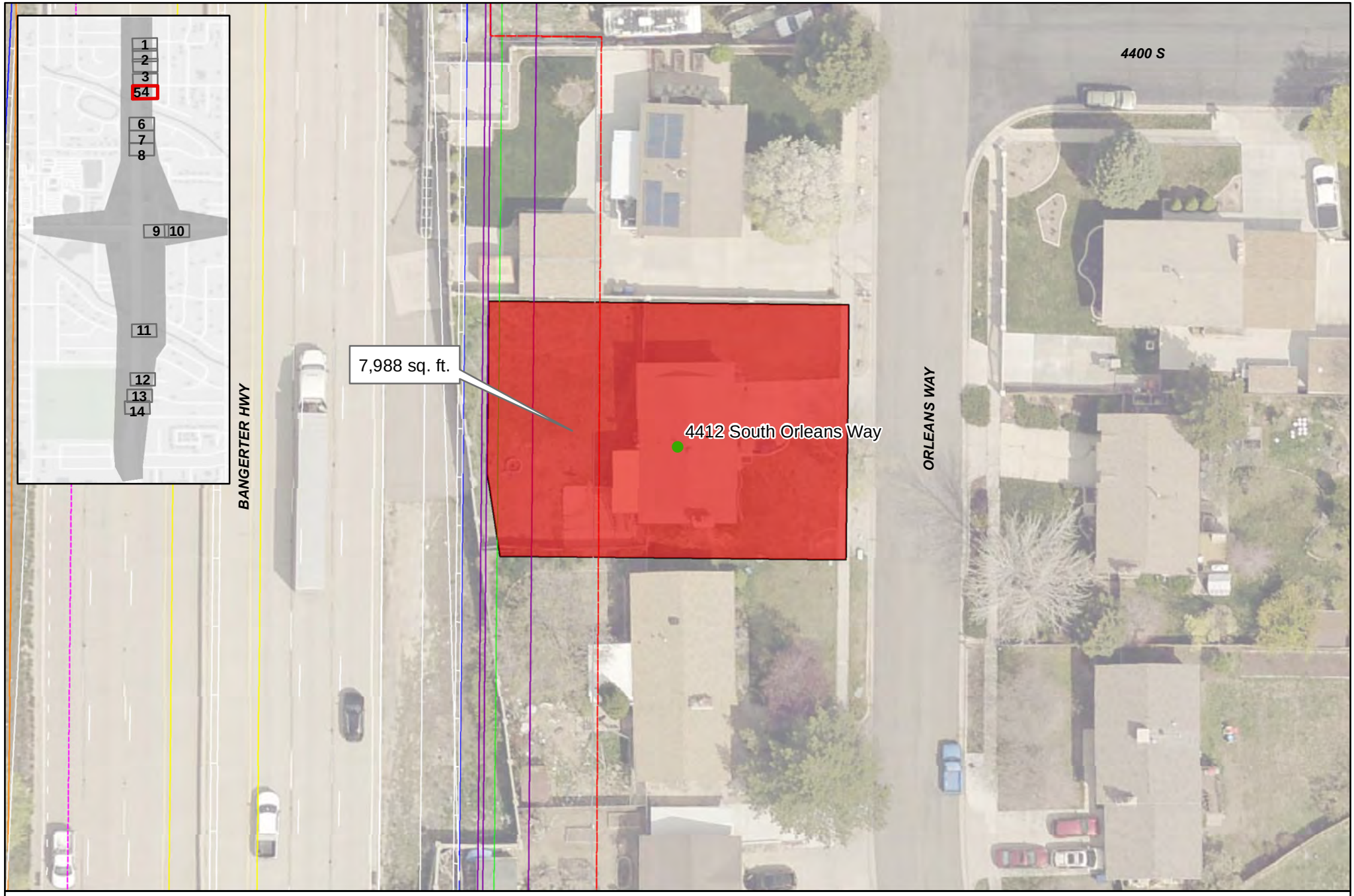
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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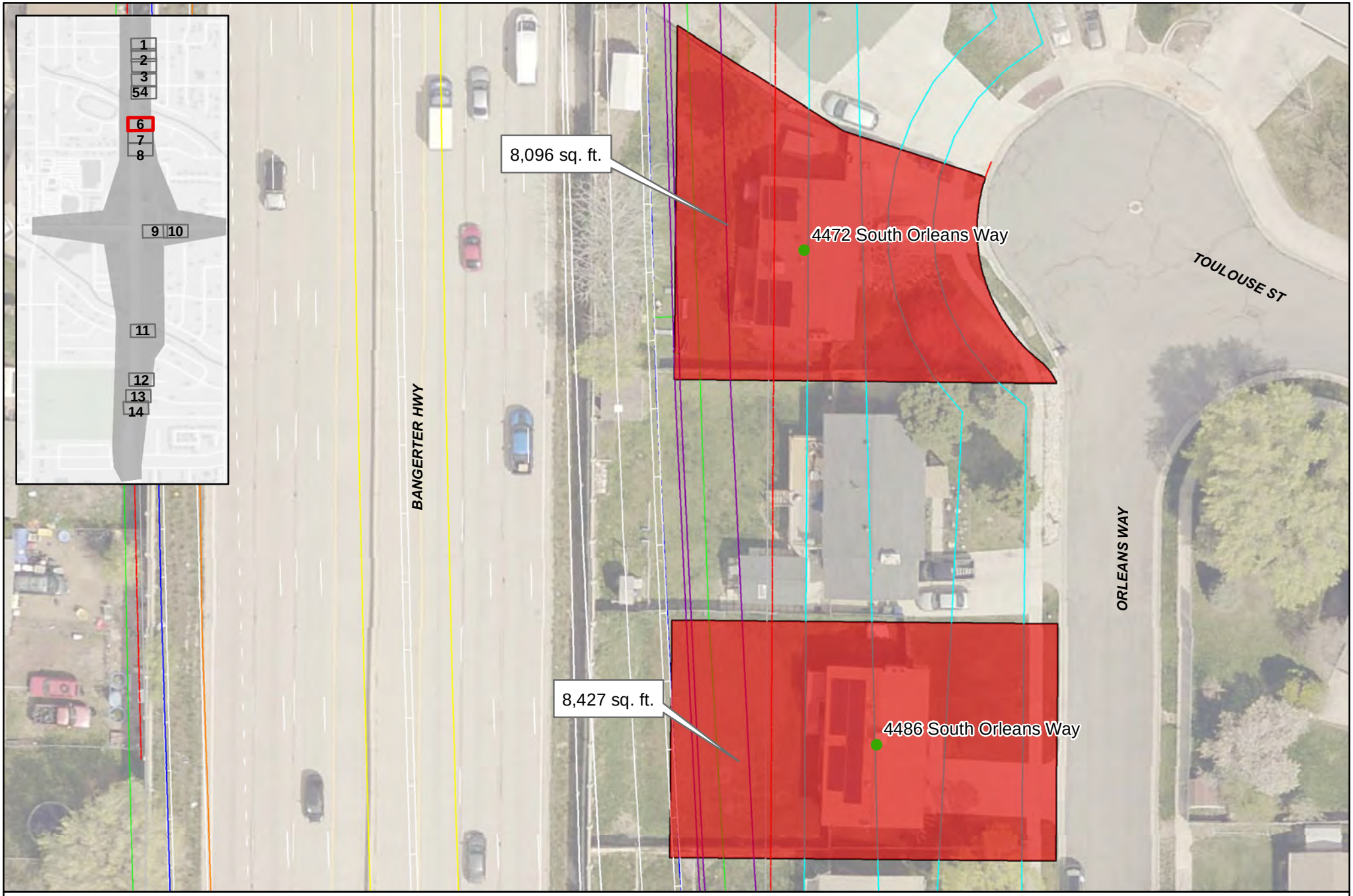
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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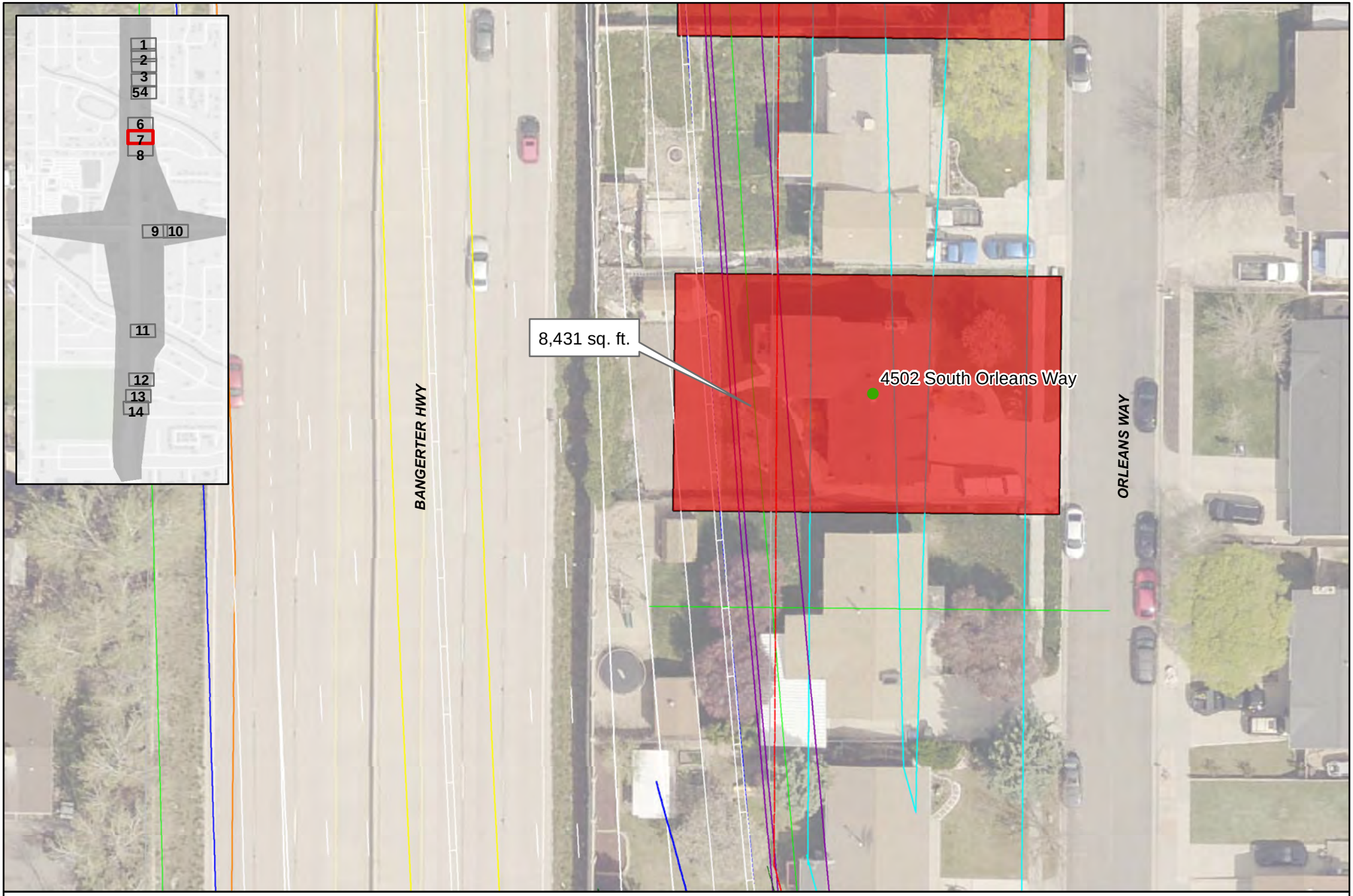
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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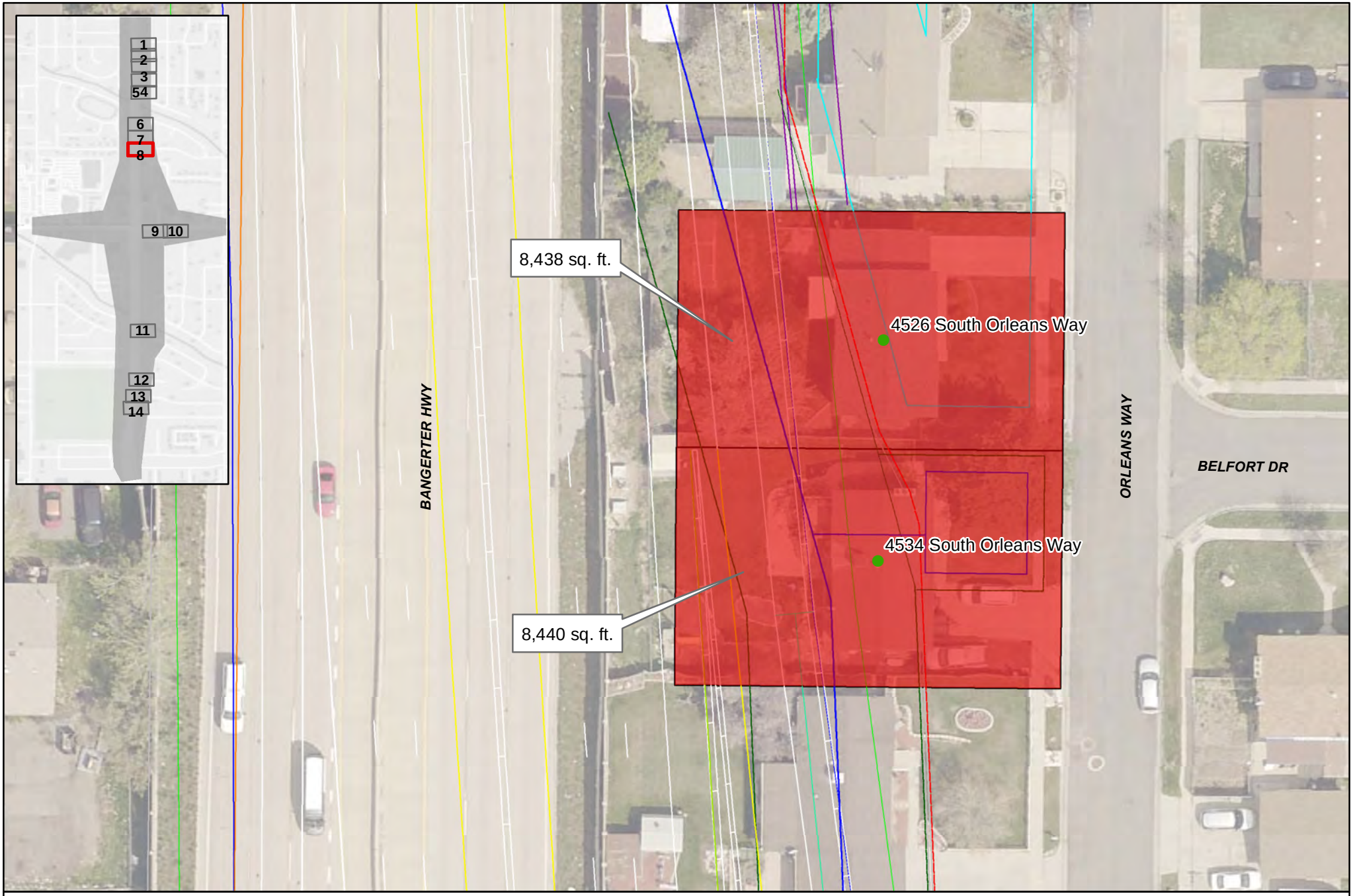
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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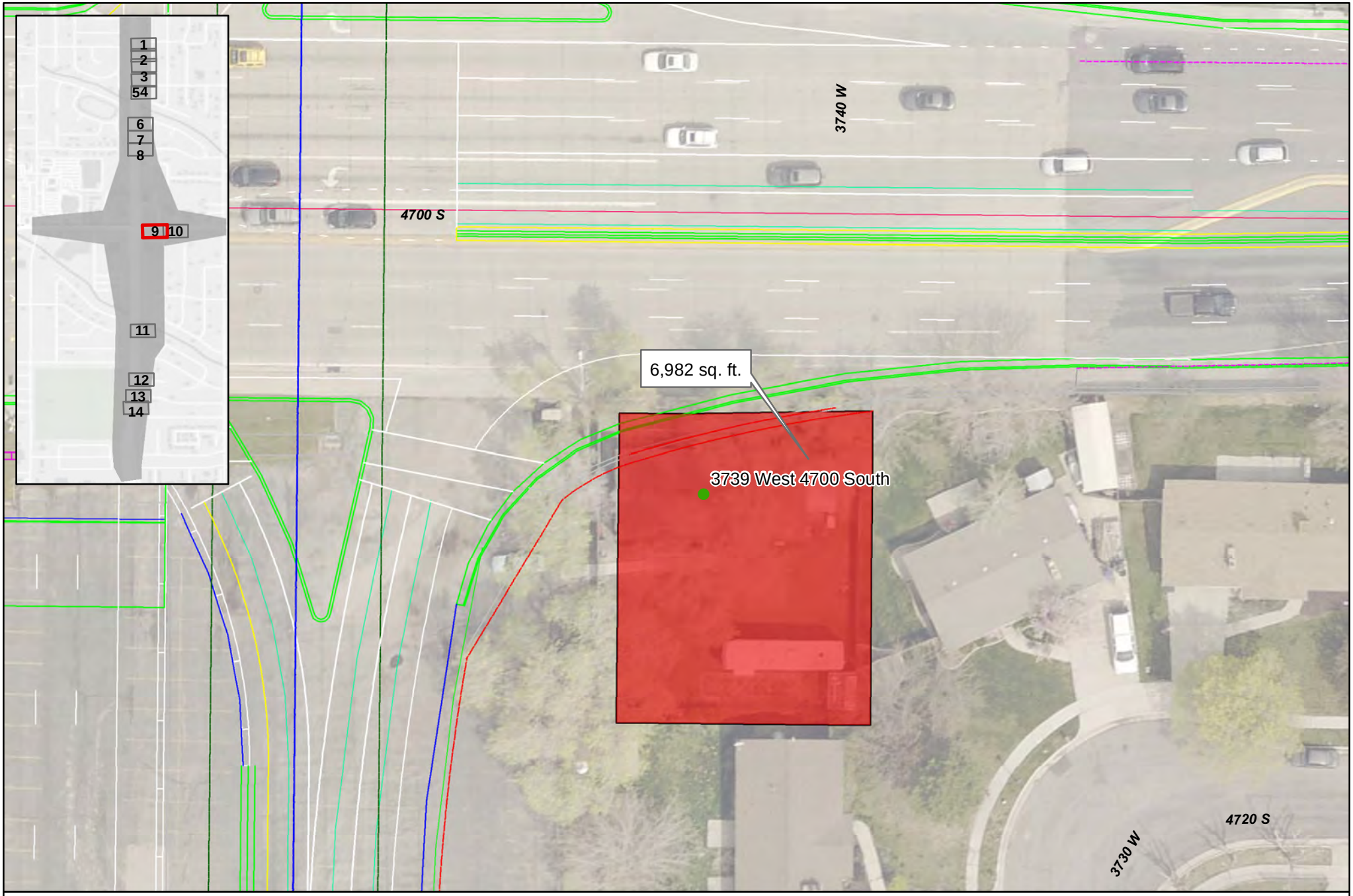
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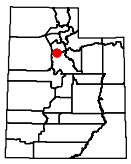
ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts





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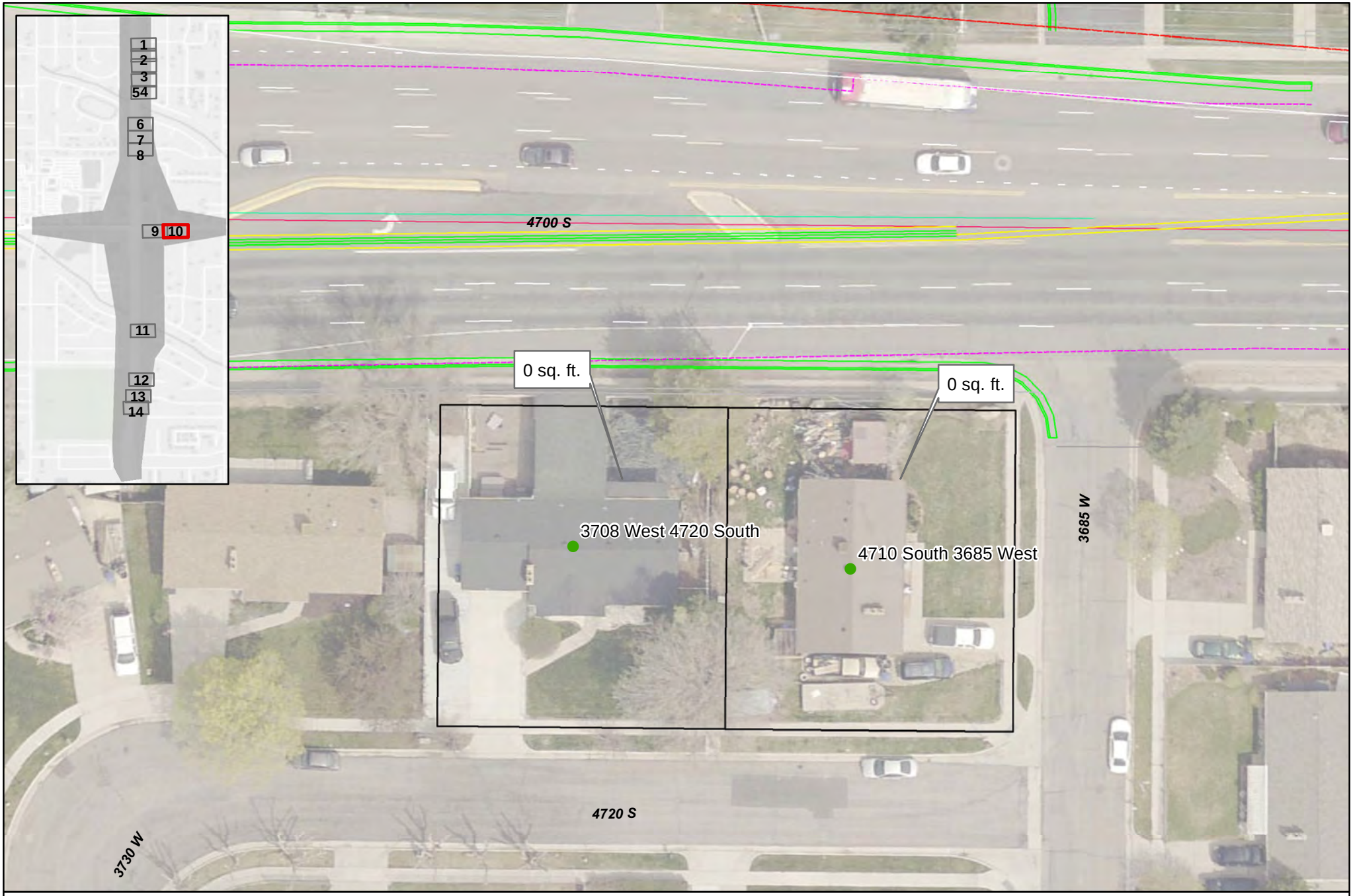
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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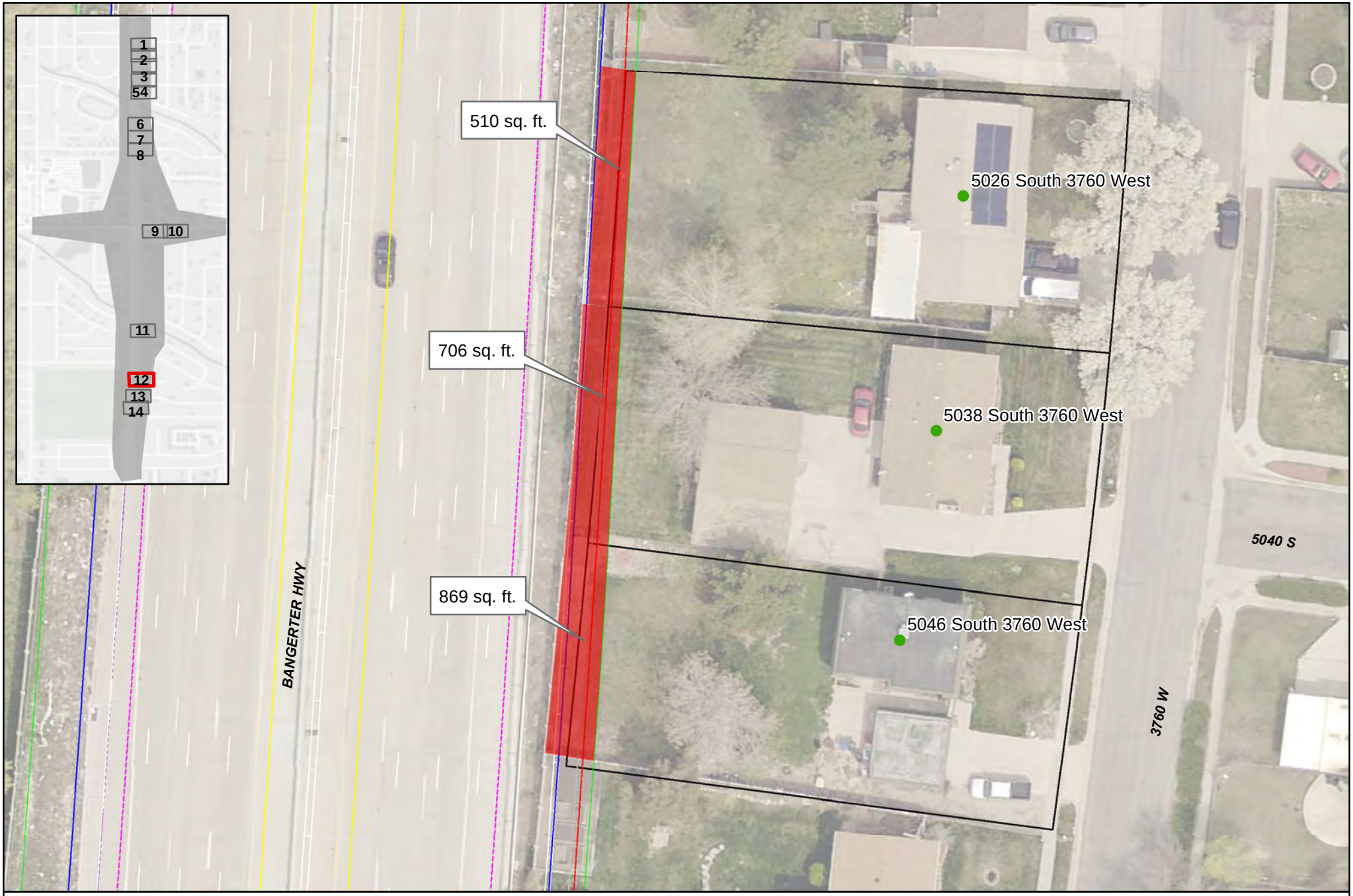
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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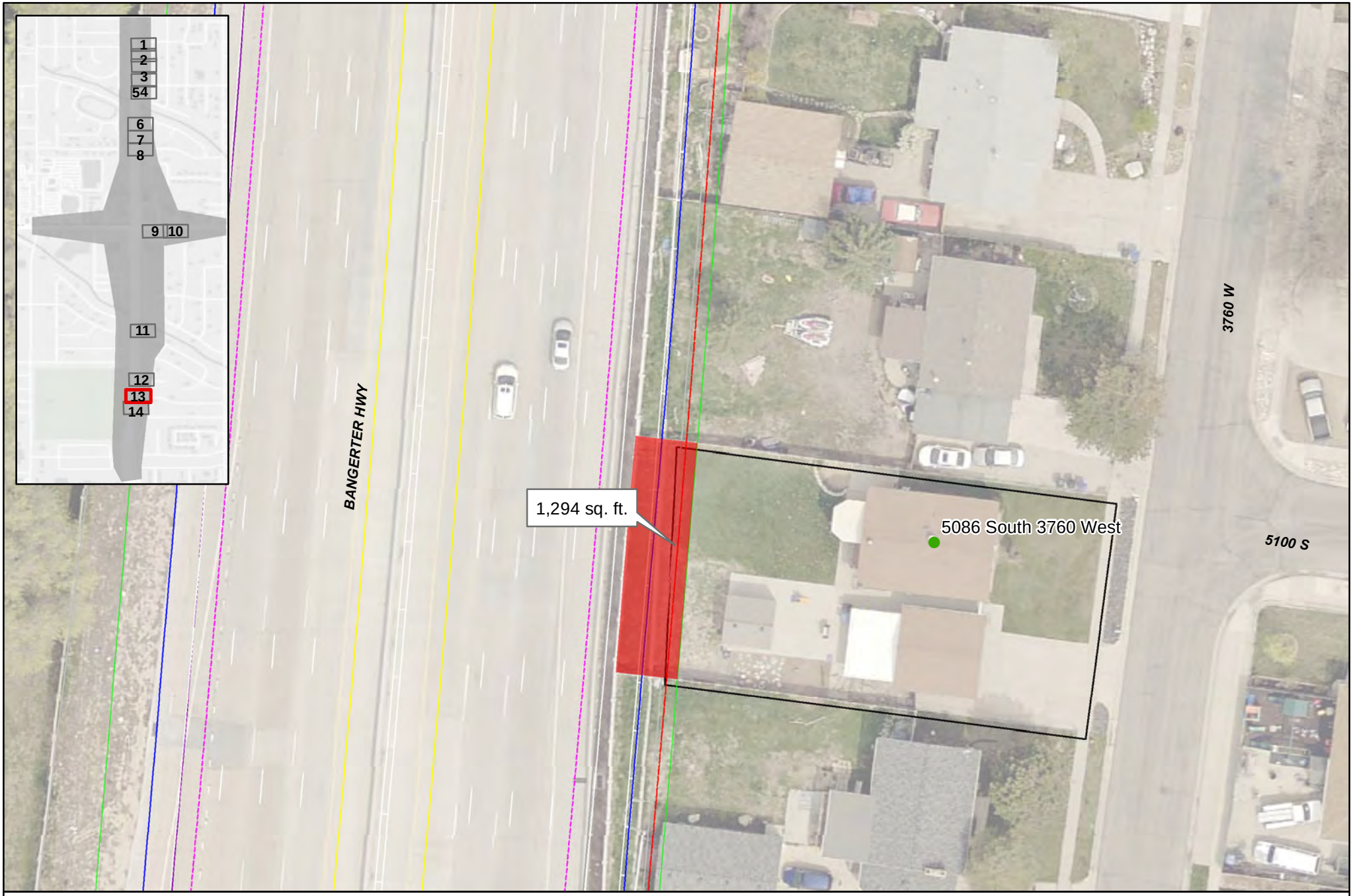
Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

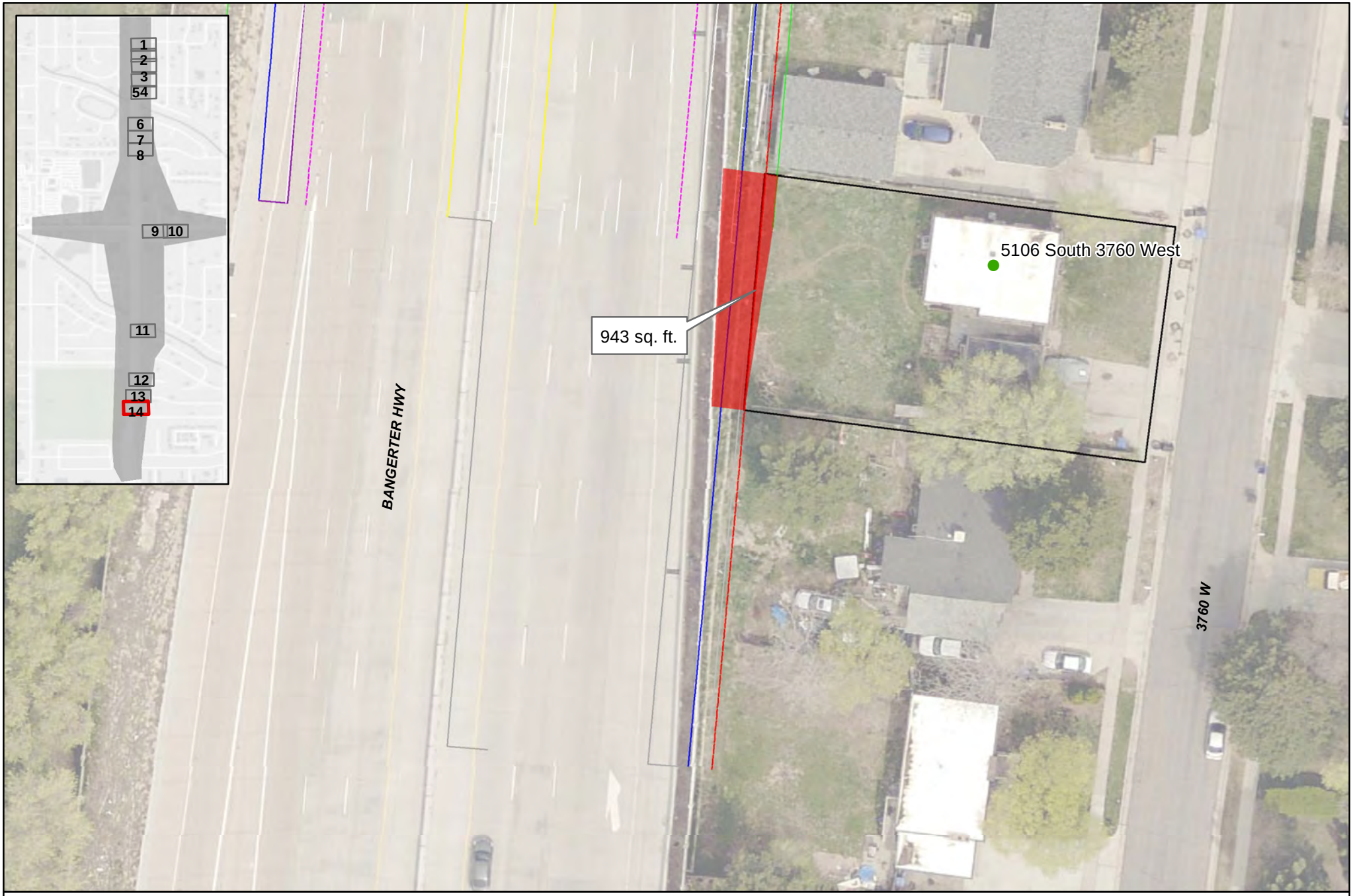
18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts



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Eligible/Contributing Historic Property

ROW Impact

Parcel Boundary

18808: Bangerter Environmental - 4700 South

Eligible Properties - ROW Impacts

Spencer J. Cox
Governor

Deidre M. Henderson
Lieutenant Governor

Jill Remington Love
Executive Director
Utah Department of Cultural and Community Engagement

Utah Division of State History

Jennifer Ortiz
Director

Christopher Merritt
State Historic Preservation Officer

January 3, 2022

Liz Robinson
Cultural Resources Program Manager
Utah Dept of Transportation (UDOT)
4501 Constitution Blvd
Salt Lake City, UT 84119

RE: PIN 18808_Bangerter SES 4700 South_ S-0154(92)0

For future correspondence, please reference Case No. 21-2685

Dear Ms. Robinson,

The Utah State Historic Preservation Office received your submission and request for our comment on the above-referenced project on December 21, 2021. Based on the information provided to our office, we concur with your determinations of eligibility and with a finding of Adverse Effect for the proposed undertaking. We look forward to further consulting to mitigate the loss of historic properties.

This information is provided to assist with state responsibilities as per UCA 9-8-404. If you have questions, please contact me at (801) 245-7239 or by email at clhansen@utah.gov.

Sincerely,

Christopher Hansen
Preservation Planner/Utah SHPO

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

TERIANNE S. NEWELL, P.E.
Deputy Director of Planning and Investment

LISA J. WILSON, P.E.
Deputy Director of Engineering and Operations

Tribal Notification Form

The Utah Department of Transportation (UDOT) is preparing to undertake the subject state-aid project. In accordance with the *Programmatic Agreement between the UDOT and the Utah State Historic Preservation Officer Regarding Implementation of U.C.A. 9-8-404 for State Funded Transportation Projects in Utah* (renewed January 22, 2018), the UDOT has taken into account the effects of this undertaking on historic properties and seeks consultation with Native American tribes on the undertaking.

UDOT Project: 18808; S-0154(92)0; Bangerter Highway Environmental Document: 4700 South, Salt Lake County.
Contact Name: Jonathan Dugmore Date: September 24, 2021
Address: 2010 South 2760 West, Salt Lake City, Utah 84104
Telephone: 385-414-2066 Email: jdugmore@utah.gov

Project Description:
UDOT is proposing to construct a grade-separated Single Point Urban Interchange (SPUI) at the existing intersection of Bangerter Highway (SR-154) and 4700 South in Salt Lake County. The new interchange would allow for unimpeded traffic flow along Bangerter Highway and is projected to operate at LOS C during AM and PM peak hours (an average of 21 seconds and 28 seconds of delay per vehicle, respectively) into the year 2050.

The project study area is along SR-154 from milepost 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West. The proposed project would construct a grade-separated interchange with exit and entrance ramps from Bangerter Highway to 4700 south; reconfigure the existing 4700 South lane configuration to integrate with the interchange design; modify utilities, storm drain features, canal structures, and pedestrian facilities; and install new pavement, traffic signals, ATMS equipment, roadway signage, and a storm water detention basin. The project would also relocate a portion of the Jordan Valley Water Conservancy District (JVWCD) aqueduct, between the Utah and Salt Lake Canal and the South Jordan Canal, to accommodate encroachment from the interchange facilities. This project will require the acquisition of commercial and residential properties.

Archaeological Potential (Prehistoric or Historic Sites):

- ☐ Known prehistoric sites in the project area
- ☒ Known historic sites in the project area
- ☐ Likely to find prehistoric sites in the project area
- ☐ Likely to find historic sites in the project area
- ☐ Unlikely to find prehistoric sites in the project area
- ☐ Unlikely to find historic sites in the project area
- ☐ No expected ground disturbance
- ☐ Other:

Additional Information/Comments: Two NRHP-eligible historic archaeological properties were identified during a field survey by archaeologists for Horrocks Engineers: 42SL291, the South Jordan Canal, and 42SL295, the Utah & Salt Lake Canal.

Tribal Information
«AddressBlock»

Copies to: «cc_1»
«cc_2»
«cc_3»
«cc_4»

Comments:

1. Do you wish to be a consulting party on this project? ☐Yes ☐No ☐Not Sure
2. If you do not wish to be a consulting party, do you wish to continue to be involved in the development of this project? ☐Yes ☐No ☐Not Sure
   Note: If your answer is "Not Sure," UDOT will continue to provide information.
3. Are you aware of any traditional religious or culturally important places in or near the project area? ☐Yes ☐No ☐Not Sure
4. If yes, can you share details about the place (e.g., location and other characteristics) and any concerns you may have? ☐Yes ☐No
5. Is this information sensitive? ☐Yes ☐No

Additional Comments:

Name of person completing this form, if different from above:
Signature: Date:

Identical copies of the Project Notification Form sent to the following recipients:

Original to:	CC to:	Email to:
Mr. John St. Clair, Chairman Eastern Shoshone Tribe of the Wind River Reservation P.O. Box 538/15 North Fork Rd Fort Washakie, WY 82514	Ms. Glenda Trosper, Director, Cultural Center Eastern Shoshone Tribe of the Wind River Reservation P.O. Box 538/15 North Fork Rd Fort Washakie, WY 82514 Mr. Joshua Mann, THPO Eastern Shoshone Tribe of the Wind River Reservation P.O. Box 538/15 North Fork Rd Fort Washakie, WY 82514	vhill@easternshoshone.org glendatrosper@washakie.net wferris@easternshoshone.org
Mr. Devon Boyer, Chairman Shoshone-Bannock Tribes of Fort Hall P.O. Box 306 Pima Drive Fort Hall, ID 83203	Ms. Carolyn Smith, Cultural Resource Director Shoshone-Bannock Tribes of Fort Hall P.O. Box 306 Pima Drive Fort Hall, ID 83203	csmith@shoshonebannocktribes.com
Mr. Dennis Alex, Chairman Northwestern Band of Shoshone Nation 2575 Commerce Way Ogden, UT 84401	Ms. Patty Timbimboo-Madsen, Cultural Specialist Northwestern Band of Shoshone Nation 2575 Commerce Way Ogden, UT 84401	banner02@gmail.com ptimbimboo@nwbshoshone.com
Mr. Luke Dunkin, Chairperson Ute Indian Tribe of the Uintah and Ouray Ute Indian Reservation P.O. Box 190 Fort Duchesne, UT 84026	Ms. Betsy Chapoose, Director, Cultural Rights and Protection Ute Indian Tribe of the Uintah and Ouray Ute Indian Reservation P.O. Box 190 Fort Duchesne, UT 84026	luked@utetribe.com betsyc@utetribe.com
Ms. Candace Bear, Chairwoman Skull Valley Band of Goshute Indians 407 Skull Valley Rd Skull Valley, UT 84029	None	candaceb@svgoshutes.com
Mr. Tom Delice, Band Chairman Cedar Band of Paiutes 600 North 100 East P.O. Box 235 Cedar City, UT 84721	Mr. Robert Pete, Cultural Resources Representative Cedar Band of Paiutes 601 North 100 East P.O. Box 235 Cedar City, UT 84721	robertpete58@yahoo.com
Ms. Hope Silvas, Band Chairwoman Shivwits Band of Paiute Indian Tribe of Utah 6060 West 3650 North Ivins, UT 84738	Ms. Carmen Clark, Cultural Resources Director Shivwits Band of Paiute Indian Tribe of Utah 6060 West 3650 North Ivins, UT 84738	carmenclark435@gmail.com
Mr. Rupert Steele, Chairman Confederated Tribes of the Goshute Reservation P.O. BOX 6104 195 Tribal Center Rd. Ibapah, UT 84034	Ms. Mary Pete-Freeman, Cultural Resources Coordinator Confederated Tribes of the Goshute Reservation P.O. BOX 6104 195 Tribal Center Rd. Ibapah, UT 84034	rupertsteele@yahoo.com mary.freeman@ctgr.us

Appendix D: Environmental Resources

Memorandum of Agreement
Between the Utah Department of Transportation
and the Utah State Historic Preservation Officer

MEMORANDUM OF AGREEMENT
BETWEEN
THE UTAH DEPARTMENT OF TRANSPORTATION
AND THE UTAH STATE HISTORIC PRESERVATION OFFICER

REGARDING

PROJECT #S-0154(92)0; Bangerter Highway Environmental Document: 4700 South
Salt Lake County, Utah

WHEREAS, the Utah Department of Transportation (UDOT) proposes to use state funds to undertake **PROJECT #S-0154(92)0; Bangerter Highway Environmental Document: 4700 South, Salt Lake County, Utah** which proposes to construct a grade-separated Single Point Urban Interchange (SPUI) at the existing intersection of Bangerter Highway (SR-154) and 4700 South ; and

WHEREAS, in accordance with the *Programmatic Agreement between the UDOT and the Utah State Historic Preservation Officer Regarding Implementation of U.C.A. 9-8-404 for State Funded Transportation Projects in Utah* (renewed January 22, 2018), the UDOT is taking into account the effects of **PROJECT #S-0154(92)0; Bangerter Highway Environmental Document: 4700 South, Salt Lake County, Utah,** on historic properties and has determined that this undertaking will have an adverse effect on 7 historic residential properties eligible for inclusion in the National Register of Historic Places, UDOT has consulted with the Utah State Historic Preservation Officer (SHPO) pursuant to U.C.A. 9-8-404 to resolve the adverse effects; and

WHEREAS, the UDOT has consulted with the Eastern Shoshone Tribe of the Wind River Reservation, Shoshone-Bannock Tribes, Northwestern Band of Shoshone Nation, Uintah and Ouray Ute Tribes, Skull Valley Band of Goshute Indians, Cedar Band of Paiutes, Shivwits Band of Paiute Indian Tribe, and the Confederated Tribes of the Goshute Reservation and the Tribes have been afforded an opportunity to review the project and have not responded with objections; and

NOW, THEREFORE, the UDOT and the Utah SHPO agree that upon UDOT's decision to proceed with the undertaking, UDOT shall ensure that the following stipulations are implemented in order to take into account the effects of the undertaking on historic properties, and the stipulations shall govern the undertaking and all of its parts until this MOA expires or is terminated.

STIPULATIONS

The UDOT shall ensure that the following measures are carried out:

I. MITIGATION OF HISTORIC BUILDINGS

UDOT shall be responsible for the documentation of the following buildings located within Salt Lake County, Utah:

3739 West 4700 South
4534 South Orleans Way
4526 South Orleans Way
4502 South Orleans Way
4486 South Orleans Way
4472 South Orleans Way
4412 South Orleans Way

The buildings will be documented according to the Utah State Intensive Level Survey Standards (iLS) as required by SHPO. Documentation will include a completed ILS Historic Site Forms, which will be based partly on title searches and obituary research, photographs of the exterior of the buildings, a sketch map of the property layout, aerial photograph maps indicating the location of the buildings, and a U.S. Geological Survey map (scale 1:24,000) indicating the location of the buildings.

II. REPORTING: The UDOT shall ensure that any/all reports on activities carried out pursuant to this agreement are provided to the SHPO, the signatories to this MOA, and upon request, to any other interested parties.

III. PERSONNEL QUALIFICATIONS: The UDOT shall ensure that all historic work carried out pursuant to this agreement is completed by or under the direct supervision of a person or persons meeting or exceeding the Secretary of the Interior's Historic Preservation Professional Qualification Standards for History (36 CFR 61 Appendix A).

IV. DURATION: This agreement will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, the UDOT may consult with the other signatories to reconsider the terms of the agreement and amend it in accordance with Stipulation VII below.

V. DISCOVERY: The following measures regarding inadvertent discoveries of historic properties, archaeological sites, and paleontological resources will be implemented:

A. UDOT Standard Specifications Section 01355, Part 3.8. Discovery of Historical, Archaeological or Paleontological Objects, Features, Sites, or Human Remains, will be enforced during this project. This specification stipulates procedures to be followed should any archaeological, historic, or paleontological resources be discovered during construction of the project. These procedures are as follows:
   1) Immediately suspend construction operations in the vicinity of the discovery if a suspected historic, archeological or paleontological item, feature, or site is encountered or if suspected human remains are encountered.
   2) Verbally notify the engineer of the nature and exact location of the findings.
   3) The Engineer contacts the UDOT region staff archaeologist, who will assess the nature of the discovery and determine the necessary course of action.
   4) Protect the discovered objects or features and provide written confirmation of the discovery to the Engineer within two calendar days.
   5) The Engineer keeps the Contractor informed concerning the status of the restriction: 1) the time necessary for the Department to handle the discovered item, feature, or site is variable, dependent on the nature and condition of the discovered item; and 2) the Engineer will provide written confirmation when work may resume in the area.

B. Should a discovery occur, the UDOT will consult with the SHPO toward developing and implementing an appropriate treatment plan prior to resuming construction.

VI. DISPUTE RESOLUTION: Should any party to this agreement object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, the UDOT shall consult with the objecting parties to resolve the objection. If the UDOT determines, within 30 days, that the objection(s) cannot be resolved, the UDOT will:

A. The UDOT may render a decision regarding the dispute. In reaching its decision, the UDOT will take into account all comments regarding the dispute from the parties to the MOA and prepare a written response to the signatories.
B. The UDOT's responsibilities to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged. The UDOT will notify all parties of its decision in writing before implementing that portion of the undertaking subject to dispute under this stipulation. The UDOT's decision will be final.

C. Further, at any time during implementation of the measures stipulated in this agreement should an objection to any such measure be raised by a member of the public, the UDOT shall take the objections into account and consult as needed with the objecting party or the SHPO to resolve the objection.

VII. AMENDMENTS AND NONCOMPLIANCE: If any signatory to this MOA, including any invited signatory, determines that its terms will not or cannot be carried out or that an amendment to its terms must be made, that party shall immediately consult with the other parties to develop an amendment to this MOA. The amendment will be effective on the date a copy signed by all of the original signatories is filed with the SHPO. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation VIII, below.

VIII. TERMINATION: If an MOA is not amended following the consultation set out in Stipulation VI and Stipulation VII, it may be terminated by any signatory or invited signatory. Within 30 days following termination, the UDOT shall notify the signatories if it will initiate consultation to execute an MOA with the signatories and proceed accordingly.

IX. EXECUTION: Execution of this Memorandum of Agreement by the UDOT and the Utah SHPO and the submission of documentation and filing of this Memorandum of Agreement with the Utah SHPO in accordance with U.C.A. 9-8-404 prior to UDOT's approval of this undertaking, and implementation of its terms, evidence that the UDOT has taken into account the effects of this undertaking on historic properties, and has afforded the State Historic Preservation Office an opportunity to comment on **PROJECT #S-0154(92)0; Bangerter Highway Environmental Document: 4700 South, Salt Lake County, Utah.**

SIGNATORIES:

UTAH DEPARTMENT OF TRANSPORTATION

01/13/2022

Robert Stewart, UDOT Region Director — Date

UTAH STATE HISTORIC PRESERVATION OFFICE

01/14/2022

Christopher Hansen, Utah Deputy SHPO — Date

Appendix D: Environmental Resources

Utah Geological Survey Letter

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Department of Natural Resources

BRIAN C. STEED
Executive Director

Utah Geological Survey
R. WILLIAM KEACH, II
State Geologist/Division Director

July 12, 2021

Haylie Ferguson
Horrocks Engineers
2162 West Grove Parkway, Suite 400
Pleasant Grove UT 84062

RE: Paleontological file search and recommendations for the UDOT Bangerter Highway (SR-154) at 4700 South Interchange Project, Salt Lake County, Utah
U.C.A. 79-3-508 (Paleontological) Compliance; Request for Confirmation of Literature Search according to the UDOT/UGS Memorandum of Understanding.

Dear Haylie:

I have conducted a paleontological file search for the Bangerter Highway at 4700 South Interchange Project in response to your request of July 9, 2021. This project qualifies for treatment under the UDOT/UGS executed Memorandum of Understanding.

There are no paleontological localities recorded in our files for this project area. Quaternary and Recent alluvial and lacustrine deposits that are exposed along this project right-of-way have a low potential for yielding significant fossil localities (PFYC 2). Unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources.

If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden

Martha Hayden
Paleontological Assistant

Appendix D: Environmental Resources

UDOT Threatened and Endangered Species and Wildlife Concurrence Memo

Memorandum

Environmental Services

DATE: July 22, 2021

TO: Matt Montgomery, Avenue Consultants

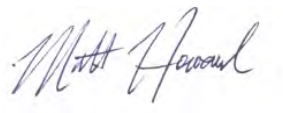
FROM: Matt Howard, Natural Resources Manager

SUBJECT: Bangerter Highway at 4700 S Interchange Improvements PIN 18808

Matt,

I have reviewed the Biological Review for the Bangerter Highway at 4700 South Interchange Improvements project concerning potential impacts to threatened and endangered species and concur with its findings. The proposed improvements would not negatively impact federally listed species due to the extensive development in the area and a lack of suitable habitat. The project would not result in direct or incidental take under the BGEPA and MBTA. I have evaluated the project for impacts to greater sage-grouse. The project does not take place within a SGMA, nor does it take place within mapped habitat for sage-grouse and would therefore have no impact on sage-grouse or its habitat.

Sincerely,



Matt Howard
Natural Resource Manager

MEMORANDUM

To: Matt Howard, UDOT Natural Resource Manager

From: Matt Montgomery, Avenue Consultants

Date: July 12, 2021

Subject: T&E and Wildlife Review: Bangerter Highway at 4700 South Interchange Improvements
Project No.: S-0154(92)0 PIN: 18808

The purpose of this memorandum is to 1) identify if federally listed species and/or designated critical habitat would be affected in the study area, 2) evaluate the effects, if any, on migratory birds and Utah sensitive species, and 3) request the Utah Department of Transportation's (UDOT) review of the findings herein.

1 PROJECT BACKGROUND

The Utah Department of Transportation (UDOT) is preparing a State Environmental Study (SES) to evaluate improvements to Bangerter Highway (SR-154) at 4700 South in West Valley City and Taylorsville, Utah. The project study area, in Salt Lake County, is along SR-154 from Milepost (MP) 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West (see attached Figure). This project is proposing to include a grade-separated intersection/crossing at 4700 South; utility and storm drainage modifications; and installation of new pavement, traffic signals, ATMS equipment, and roadway signage. This project will require right-of-way acquisition.

2 EVALUATION SOURCES

A desktop evaluation of the study area has been completed for federally listed species and designated critical habitat protected under the Endangered Species Act, migratory birds, and Utah sensitive species. Online databases utilized for this review included the U.S. Fish and Wildlife Information for Planning and Consultation (IPaC) system and the Utah Natural Heritage Program Online Species Search.

3 EVALUATION

3.1 Study Area Setting

The study area is located along SR-154 and 4700 South in West Valley City and Taylorsville, Utah. Surrounding land use includes residential and commercial developments. Vegetation of the area is consistent with development plantings (e.g. trees, turf, sod, etc.).

3.2 Threatened and Endangered Species

According to the attached IPaC report, one federally listed species has potential to occur in the study area. No critical habitats were identified in the study area (see Attachment A). An evaluation of the species' habitat requirements and its potential to occur in the study area is provided in Table 1.

Table 1: IPaC Species for Consideration in the Project Area

Species Name	Status	Habitat Requirements	Is Suitable Habitat Found in the Study Area?
June Sucker (*Chasmistes liorus*)	Threatened	It is endemic to Utah Lake, with the only known spawning habitat in the lower three miles of the Provo River (UDWR, 2021a).	No. The study area does not contain any part of Utah Lake or the Provo River.

3.3 Migratory Birds

The study area contains suitable nesting sites (trees and shrubs) that could support migratory birds. Additionally, the scope of this project may require tree and shrub removal to facilitate the installation of roadway improvements.

3.4 Utah Sensitive Species

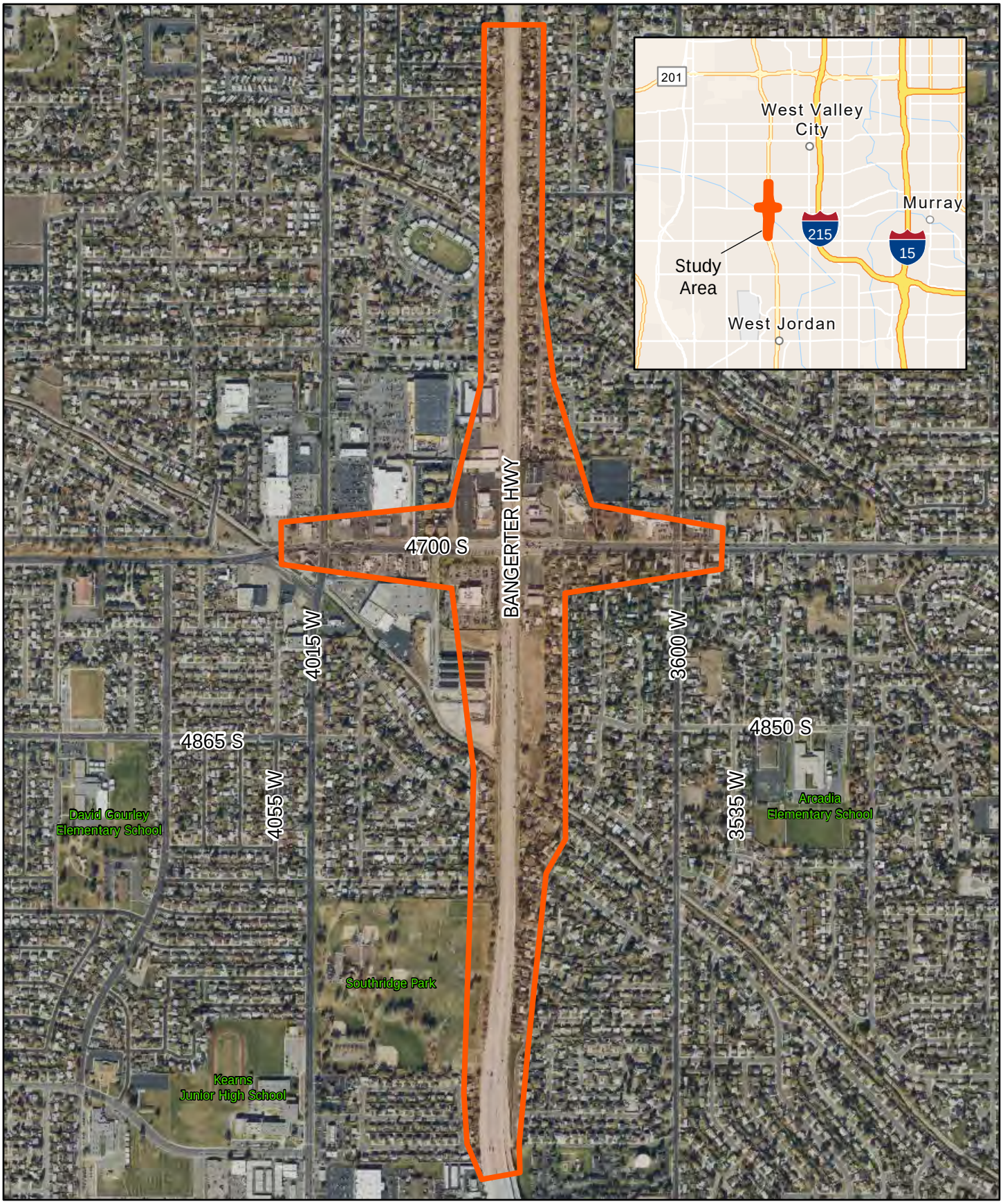
A *Utah Natural Heritage Program Online Species Search Report* (UDWR, 2021b) was generated to evaluate the documented occurrence of rare plant and animal species near the study area, including those specifically labeled as Utah's Species of Greatest Conservation Need (SGCN). Results of the report did not identify any Utah SGCN within a 0.5-mile radius of the study area. Additionally, due to the nature of the study area (e.g., consistent vehicle movement and noise, roadside shoulder mowing and herbicide treatment, etc.) it is unlikely that suitable habitat for Utah SGCN is present in the study area.

4 REFERENCES

[UDWR] Utah Department of Wildlife Resources. 2021a. June Sucker. https://dwrcdc.nr.utah.gov/rsgis2/Search/Display.asp?FlNm=chaslior. Accessed July 12, 2021.

[UDWR] Utah Department of Wildlife Resources. 2021b. Utah Natural Heritage Program Online Species Search Report Number: 12435

[USFWS] U.S Fish & Wildlife Service. 2021. IPaC Resource List. Generated July 9, 2021.



Bangerter Highway at 4700 South
Interchange Improvements
Project No.: S-0154(92)0
PIN: 18808

Study Area

1"= 1,000'

N

0 500 1,000 2,000
Feet

7/12/2021

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly a. ected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

Salt Lake County, Utah



Local office

Utah Ecological Services Field Office

(801) 975-3330
(801) 975-3331

2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603

http://www.fws.gov
http://www.fws.gov/utahfieldoffice/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Fishes

NAME	STATUS

June Sucker Chasmistes liorus — Threatened
Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/4133

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

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species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Green-tailed Towhee *Pipilo chlorurus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9444	Breeds May 1 to Aug 10
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

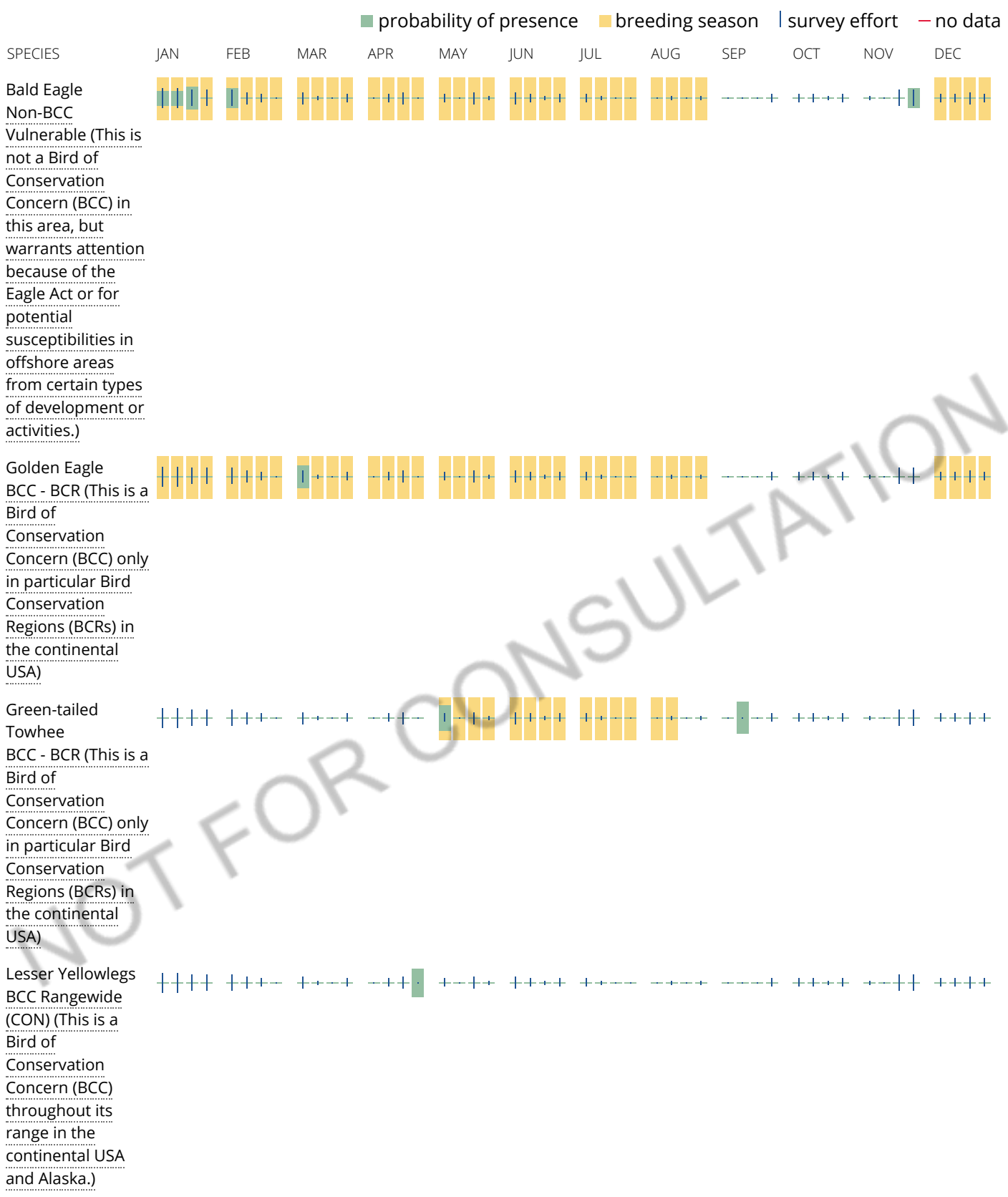
Survey E. ort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

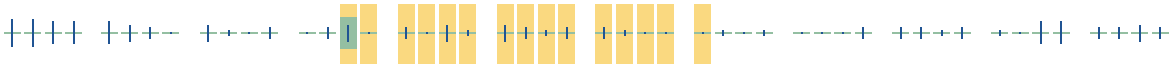
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my speci□ed location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my speci□ed location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

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What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

NOT FOR CONSULTATION

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Utah Division of Wildlife Resources
Utah Natural Heritage Program
1594 W. North Temple
PO Box 146301
Salt Lake City, UT 84116

Report Number: 12435
July 9, 2021

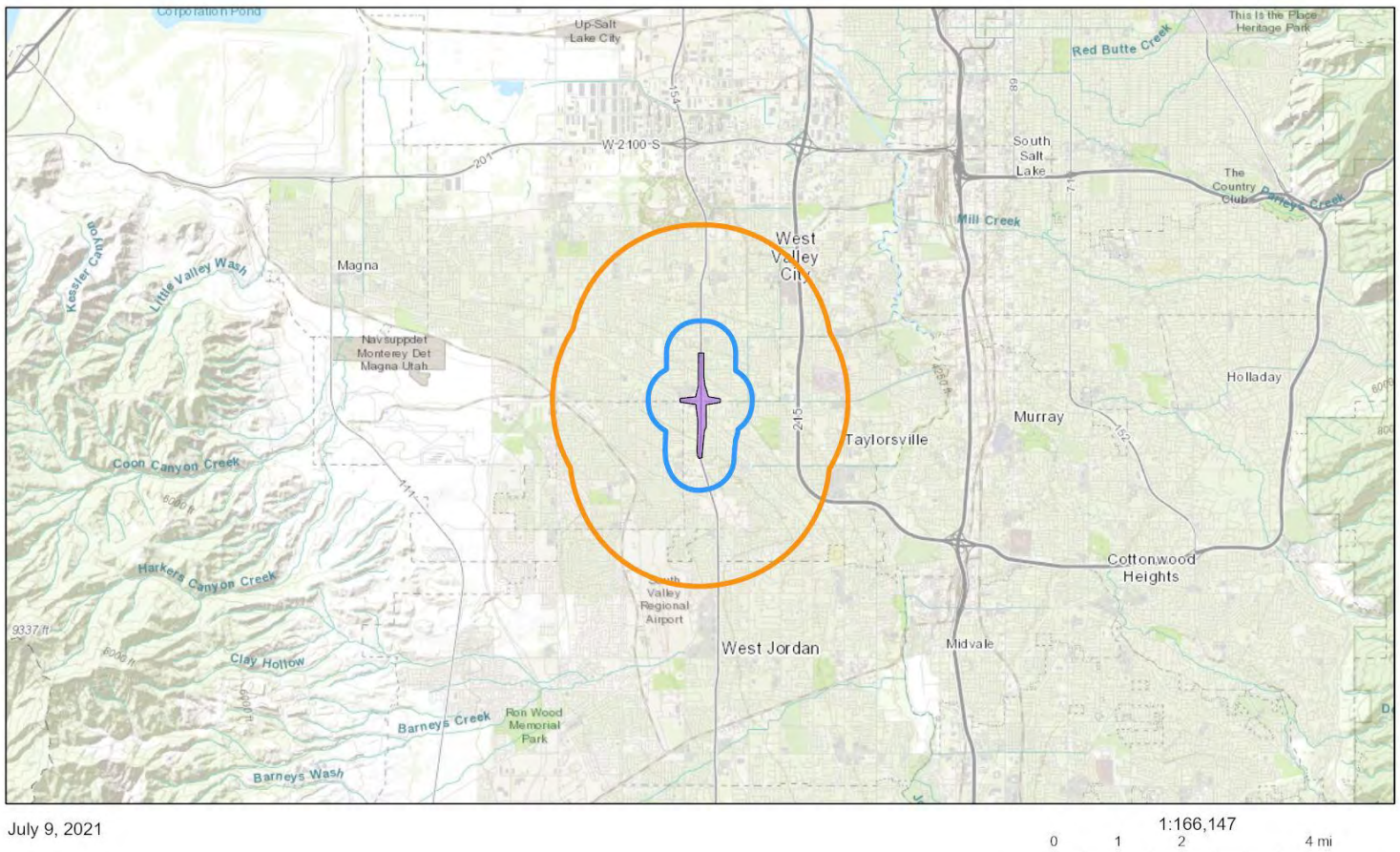
Utah Natural Heritage Program Online Species Search Report

Project Information

Project Name
Bangerter Highway and 4700 South

Project Description
Roadway improvements to Bangerter Highway at the 4700 South intersection

Location Description
West Valley City and Taylorsville, Utah



July 9, 2021

1:166,147
0 1 2 4 mi
0 1.75 3.5 7 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Animals within a ½ mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Plants within a ½ mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Animals within a 2 mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
Peregrine Falcon	Falco peregrinus	SGCN		2006
Burrowing Owl	Athene cunicularia	SGCN		2003
Northern Leopard Frog	Lithobates pipiens	SGCN		1979
Spotted Bat	Euderma maculatum	SGCN		1934
Sonoran Mountain Kingsnake	Lampropeltis pyromelana	SGCN		1914

Plants within a 2 mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Definitions

State Status

SGCN	Species of greatest conservation need listed in the Utah Wildlife Action Plan

U.S. Endangered Species Act

LE	A taxon that is listed by the U.S. Fish and Wildlife Service as "endangered" with the probability of worldwide extinction
LT	A taxon that is listed by the U.S. Fish and Wildlife Service as "threatened" with becoming endangered
LE;XN	An "endangered" taxon that is considered by the U.S. Fish and Wildlife Service to be "experimental and nonessential" in its designated use areas in Utah
C	A taxon for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threats to justify it being a "candidate" for listing as endangered or threatened
PT/PE	A taxon "proposed" to be listed as "endangered" or "threatened" by the U.S. Fish and Wildlife Service

Disclaimer

The information provided in this report is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, any given response is only appropriate for its respective request.

The UDWR provides no warranty, nor accepts any liability, occurring from any incorrect, incomplete, or misleading data, or from any incorrect, incomplete, or misleading use of these data.

The results are a query of species tracked by the Utah Natural Heritage Program, which includes all species listed under the U.S. Endangered Species Act and species on the Utah Wildlife Action Plan. Other significant wildlife values might also be present on the designated site. Please contact UDWR's regional habitat manager if you have any questions.

Contact the U.S. Fish and Wildlife Service at (801) 975-3330 for the purpose of consultation under the Endangered Species Act.

Please contact our office at (801) 538-4759 or habitat@utah.gov if you require further assistance.

Your project is located in the following UDWR region(s): Central region

---

Report generated for:
Matthew Montgomery
Avenue Consultants
6605 S Redwood Rd
Taylorsville, UT 84123
(801) 390-9780
mmontgomery@avenueconsultants.com

Appendix D: Environmental Resources

Environmental Review of Water Resources and
Wetlands, Noxious Weeds, and Visual Aesthetics

MEMORANDUM

Date: Monday, August 23, 2021

To: Craig Bown
Avenue Consultants

From: Dan Bolin
UDOT Landscape Architect

RE: **ENVIRONMENTAL REVIEW FOR WATER RESOURCES AND WETLANDS, NOXIOUS WEED, AND VISUAL AESTHETICS**

PROJECT DESCRIPTION AND SCOPE OF WORK

The Utah Department of Transportation (UDOT) is preparing a State Environmental Study (SES) to evaluate improvements to Bangerter Highway (SR-154) at 4700 South in West Valley City and Taylorsville, Utah. The project study area, in Salt Lake County, is along SR-154 from Milepost (MP) 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West (see attached Figure). This project is proposing to include a grade-separated intersection/crossing at 4700 South; utility and storm drainage modifications; and installation of new pavement, traffic signals, ATMS equipment, and roadway signage. This project will require right-of-way acquisition.

Water Resources and Wetlands:

Avenue Consultants evaluated the project for waters of the U.S. (WOTUS), including wetlands and streams regulated by US Army Corps of Engineers (Army Corps) and other waters under the jurisdiction of the State of Utah. To determine whether WOTUS are situated within or adjacent to the project limits, Avenue Consultants conducted a desktop analysis using aerial imagery, U.S. Fish and Wildlife Service NWI data, the U.S. Geological Survey National Hydrography Dataset, and the FEMA Flood Map Service Center. A site visit to the Utah and Salt Lake Canal and South Jordan Canal was conducted on August 16, 2021.

No potential wetland features having presence of hydrophytic vegetation and surface hydrology were identified in the study area. Two canals are in the study area. The Utah and Salt Lake Canal (crossing under Bangerter Highway at approximately 4895 South) and the South Jordan Canal (crossing under Bangerter Highway at approximately 4420 South). Both canals have the potential to be impacted as their box culverts will need to be extended. The maximum impact at each canal will not exceed 2000 square feet with a maximum cumulative impact of less than 1/10th acre. This potential impact is falls within the allowable impact to WOTUS under Nationwide Permit 14 Linear Transportation Projects with no preconstruction notification required to the U.S. Army Corps of Engineers. Impacts to these canals will occur outside of the irrigation season and no water will be present at that time.

Mitigation Commitments:

1. **Comply with the conditions outlined in Nationwide Permit 14 – Linear Transportation Projects for impacts to the Utah and Salt Lake Canal and the South Jordan Canal (UDOT and Awarded Contractor Responsible)**

Utah Pollutant Discharge Elimination System (UPDES):

This project will disturb more than one (1) acre of earth and is therefore required to obtain a SWPPP to comply with the Utah Pollutant Discharge Elimination System (UPDES) Utah Construction General Permit (UCGP).

Mitigation Commitments:

1. **Comply with UCGP, by preparing a SWPPP during design and advertisement; provide SWPPP to the project awarded contractor prior to Notice to Proceed. (UDOT Responsible)**

2. **Comply with UCGP, by finalizing the SWPPP prior to beginning earth disturbing activities; implementing and maintaining the project SWPPP throughout project construction. (Awarded Contractor Responsible)**

Federal Emergency Management Agency (FEMA) Floodplains:

This project does not occur within a FEMA Special Flood Hazard Area. No permitting is required.

Mitigation Commitments:

1. **None**

Noxious Weeds:

Noxious weed species, as defined by the Utah Noxious Weed Act (Utah Administrative Code, Rule R68-9), have not been identified growing within the project limits. However, the project includes earthwork which has the potential to introduce noxious weeds. To reduce the introduction and spread of noxious weeds, the project is required to properly clean earthmoving construction equipment before mobilizing onto the project.

Mitigation Commitments:

1. **Include UDOT Special Provision Section 02924S NOXIOUS WEED CONTROL in the contract documents to require that earthmoving construction equipment is to be properly cleaned before mobilizing onto the project site. (UDOT Responsible)**

2. **Comply with UDOT Special Provision Section 02924S NOXIOUS WEED CONTROL requirements by properly cleaning all earthmoving construction equipment before mobilizing onto the project site and avoiding unnecessary earth disturbances. (Awarded Contractor Responsible)**

Visual Aesthetics:

This proposed project has limited disturbance and will not have significant visual impacts to the surrounding areas.

Mitigation Commitments:

1. **Visual: Reclaim all disturbed areas per UDOT standard specifications. (Awarded Contractor Responsible)**

MEMORANDUM

To: Dan Bolin, UDOT Region 2 Landscape Architect

From: Matt Montgomery, Avenue Consultants

Date: August 18, 2021

Subject: Waters Review: Bangerter Highway at 4700 South Interchange Improvements
Project No.: S-0154 (92)0 PIN: 18808

The purpose of this memorandum is to 1) identify the presence of potential waters of the U.S., including wetlands, in the study area; 2) evaluate the effects, if any, on these resources; and 3) request UDOT's review of the findings herein.

1 PROJECT BACKGROUND

The Utah Department of Transportation (UDOT) is preparing a State Environmental Study (SES) to evaluate improvements to Bangerter Highway (SR-154) at 4700 South in West Valley City and Taylorsville, Utah. The project study area, in Salt Lake County, is along SR-154 from Milepost (MP) 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West (see attached Figure). This project is proposing to include a grade-separated intersection/crossing at 4700 South; utility and storm drainage modifications; and installation of new pavement, traffic signals, ATMS equipment, and roadway signage. This project will require right-of-way acquisition.

2 EVALUATION SOURCES

The study area has been reviewed for potential waters of the U.S. (WOUS), including wetlands. A desktop evaluation for water resource features was conducted using aerial imagery, U.S. Fish and Wildlife Service National Wetlands Inventory data, the U.S. Geological Survey National Hydrography Dataset, and the FEMA Flood Map Service Center. A wetland delineation was not conducted and a jurisdictional determination from the U.S. Army Corp of Engineers was not obtained. A site visit to the Utah and Salt Lake Canal and the South Jordan Canal was conducted on August 16, 2021.

3 EVALUATION

3.1 Study Area Setting

The study area is located along SR-154 and 4700 South in West Valley City and Taylorsville, Utah. Surrounding land use includes residential and commercial developments. Vegetation of the area is consistent with development plantings (e.g. trees, turf, sod, etc.).

3.2 Wetlands, Waters of the U.S., Other Water Resources

No stand-alone, potential wetland features (areas having an obvious presence of hydrophytic vegetation and surface hydrology) were identified in, or directly adjacent to, the study area.

Two canals are in the study area. The Utah and Salt Lake Canal crosses underneath Bangerter Highway at approximately 4895 South, and the South Jordan Canal crosses underneath Bangerter Highway at

approximately 4420 South. Plant communities identified at both canals were similar. Some of the vegetation observed included reed canary grass (*Phalaris arundinacea*), field bindweed (*Convolvulus* arvensis), Siberian elm (*Ulmus pumila*), puncturevine (*Tribulus terrestris*), showy milkweed (*Asclepias speciosa*), cheatgrass (*Bromus tectorum*), and prickly lettuce (*Lactuca serriola*) (see attached field pictures).

Both canals have potential to be impacted during project construction on the west side of Bangerter Highway as their respective box culverts would need to be extended to accommodate a wider roadway footprint. The maximum estimated impact area (including the canal bank and surface water) would be 2,000 square feet (0.045 acres) at the Utah and Salt Lake Canal and 1,800 square feet (0.041 acres) at the South Jordan Canal.

3.3 Stormwater

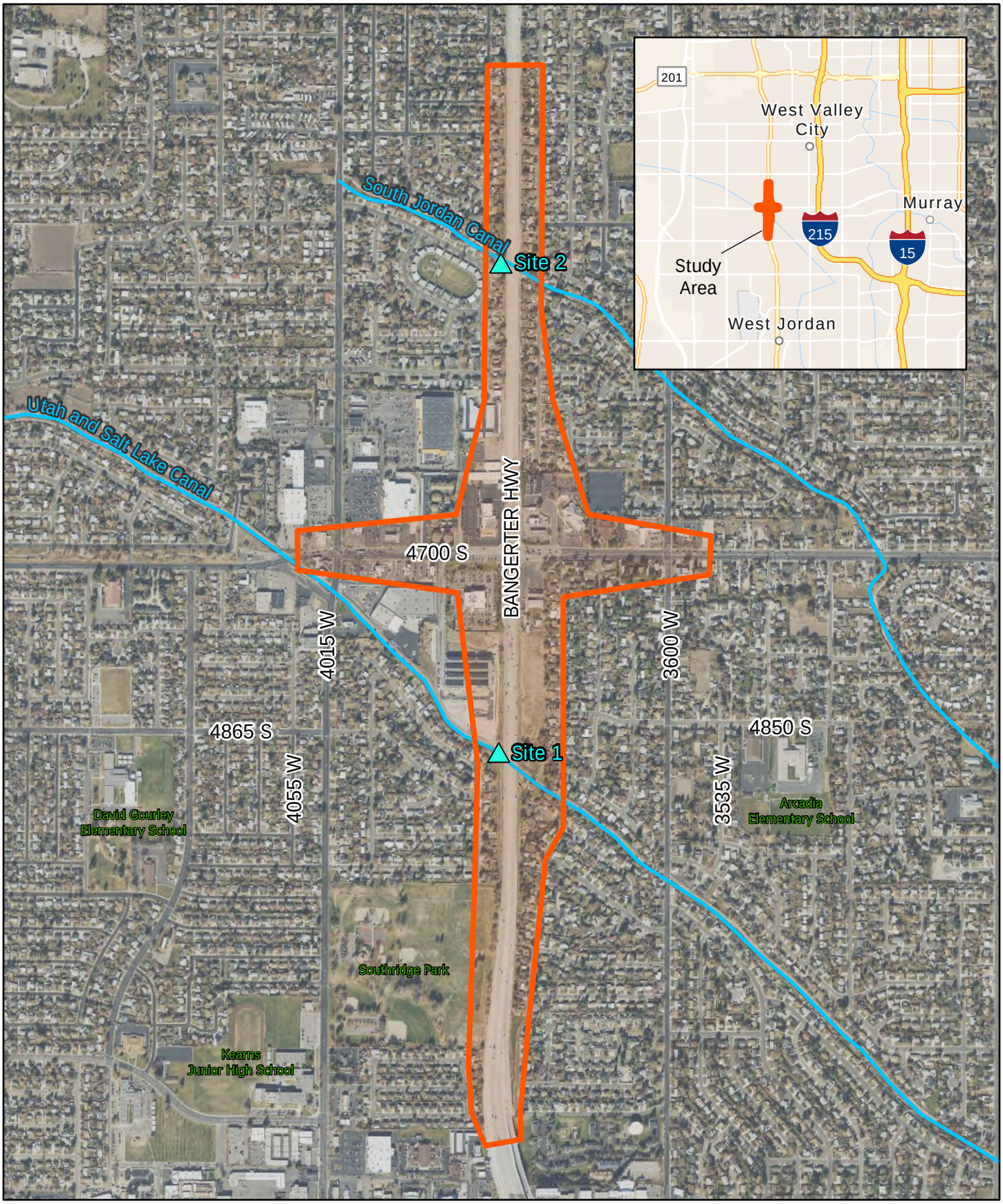
Construction of this project will disturb over one acre of natural ground surface.

3.4 Floodplains

The project is not located in a FEMA Special Flood Hazard Area.

3.5 Noxious Weeds

Two State of Utah designated weed species were identified in the study area, including field bindweed and puncturevine. Additionally, the project includes earthwork, which has the potential to introduce noxious weeds.



Bangerter Highway at 4700 South
Interchange Improvements
Project No.: S-0154(92)0
PIN: 18808

Study Area
Canal
Photo Point

N

0 500 1,000 2,000
Feet

8/18/2021

Field Pictures



Site 1 – Utah and Salt Lake Canal looking east
(toward Bangerter Highway)



Site 1 – Utah and Salt Lake Canal looking west
(away from Bangerter Highway)



Site 2 – South Jordan Canal looking east
(toward Bangerter Highway)



Site 2 – South Jordan Canal looking west
(away from Bangerter Highway)

Appendix D: Environmental Resources

Noise Report

BANGERTER HIGHWAY AT 4700 SOUTH INTERSECTION IMPROVEMENTS NOISE STUDY

PIN: 18808
PROJECT NUMBER: S-0154(92)0

PREPARED FOR:
The Utah Department of Transportation

PREPARED BY:
Avenue Consultants
February 2022

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ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

AASHTO	American Association of State Highway and Transportation Officials
CFR	Code of Federal Regulations
dBA	A-weighted decibel
FHWA	Federal Highway Administration
L_{eq}	equivalent steady-state noise level, which in a stated period of time would contain the same acoustical energy as the time-varying noise level during the same period
$L_{eq}(h)$	energy-average of the A-weighted noise levels occurring during a 1-hour period
LOS	Level of Service
Noise	unwanted sound
NAC	Noise Abatement Criteria
Receptor	A discrete or representative location of a noise sensitive area(s)
TNM	Traffic Noise Model
UDOT	Utah Department of Transportation

NOISE STUDY

1.0 INTRODUCTION

This Noise Analysis was prepared in accordance with the Utah Department of Transportation (UDOT) Noise Abatement Policy (UDOT 2020) and is consistent with 23 Code of Federal Regulations (CFR) 772 and Utah Administrative Code R930-3.

2.0 DESCRIPTION OF PROJECT

UDOT is proposing to construct a grade-separated Single Point Urban Interchange (SPUI) at the existing intersection of Bangerter Highway (SR-154) and 4700 South in Salt Lake County.

The project study area is along SR-154 from milepost 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West. The proposed project would shift the Bangerter Highway alignment to the east and construct a grade-separated interchange with exit and entrance ramps from Bangerter Highway to 4700 South; reconfigure the existing 4700 South lane configuration to integrate with the interchange design; install an auxiliary lane between the 4700 South entrance ramp and 5400 South exit; modify utilities, storm drain features, canal structures, and pedestrian facilities; and install new pavement, traffic signals, ATMS equipment, roadway signage, and a storm water detention basin. The project would also relocate a portion of the Jordan Valley Water Conservancy District (JVWCD) aqueduct, between the Utah and Salt Lake Canal and the South Jordan Canal, to accommodate encroachment from the interchange facilities.

The noise study area is the land adjacent to Bangerter Highway and 4700 South that could be affected by an increase in noise levels to a distance of approximately 600 feet (see Figure 1). This report includes the results of two options. One option crosses over 4700 South while the other crosses under 4700 South. Throughout this report, these options are called *Bangerter Highway Over Option* and *Bangerter Highway Under Option,* or *Over* and *Under*.

2.1 Applicability

The UDOT Noise Abatement Policy states that “noise abatement will be considered for all Type I projects where noise impacts are identified.” Type I projects are projects that include any of the following: the construction of a highway at a new location; the physical alteration of an existing highway that substantially alters its alignment; the addition of a through traffic lane; the addition of an auxiliary lane; the addition or relocation of interchange lanes or ramps; or the addition or substantial alteration of a weigh station, rest stop, ride share lot, or toll plaza. This project is considered a Type I project because of the horizontal and vertical changes proposed to Bangerter Highway and the addition of the interchange ramps.

3.0 ANALYSIS OF TRAFFIC NOISE IMPACTS

Traffic noise is measured in A-weighted sound levels in decibels (dBA), which most closely approximates the way the human ear hears sounds at different frequencies (see Figure 2). Since traffic noise varies over time, the sound levels for this noise analysis are expressed as “equivalent levels” or L_{eq}, representing the average sound level over a 1-hour period of time. Unless noted otherwise, all sound levels in this noise analysis are expressed in the hourly equivalent noise level.

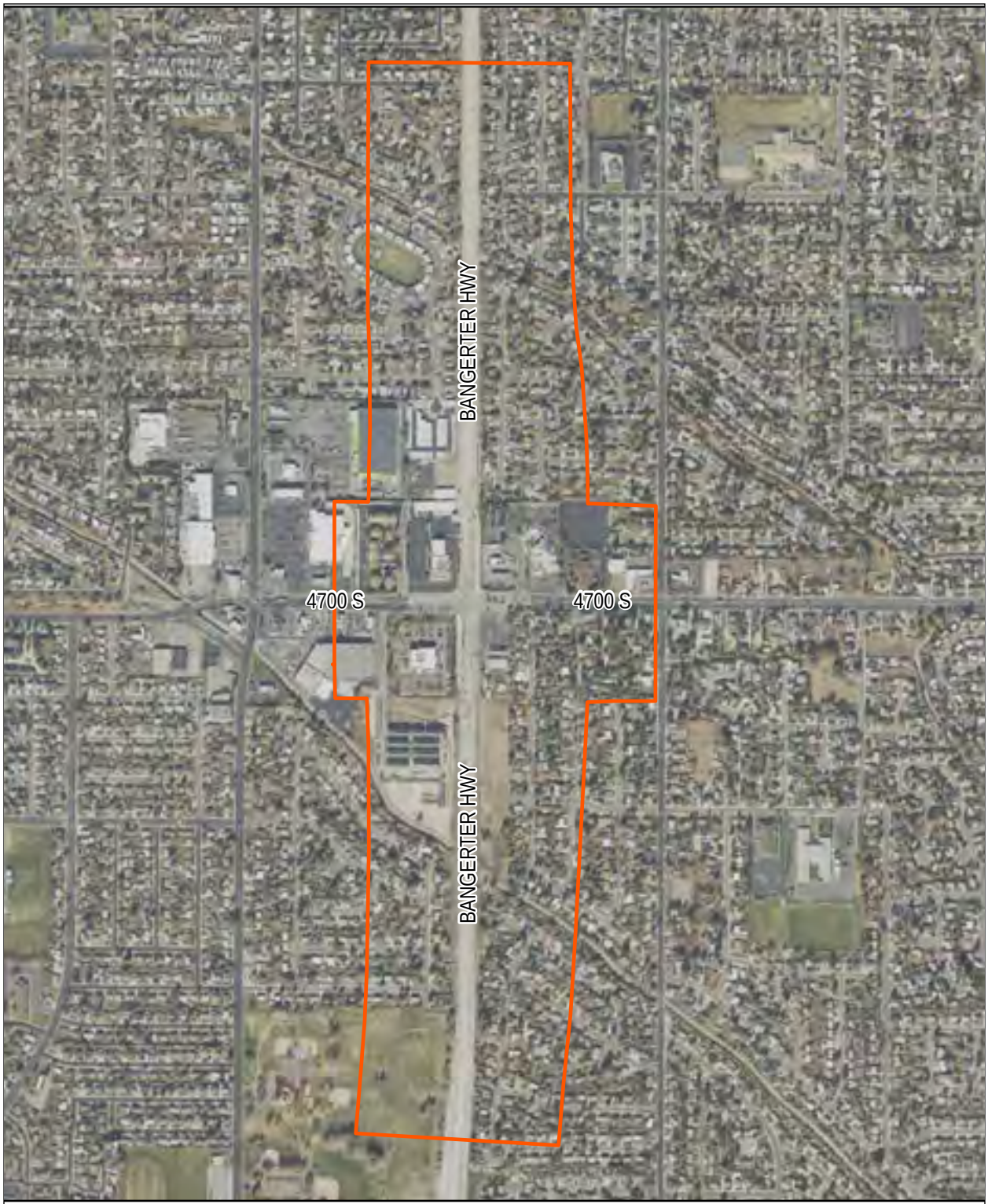


Figure 1: Study Area

3.1 Noise Abatement Criteria

The Federal Highway Administration (FHWA) has established Noise Abatement Criteria for several categories of land use activities (see Table 1). FHWA's noise criteria is based on sound levels that are considered to be an impact to nearby noise sensitive areas, also known as receptors. Primary consideration for noise abatement is to be given for exterior areas where frequent human use occurs.

UDOT has developed a Noise Abatement Policy for transportation projects, which conforms to FHWA noise abatement requirements outlined in 23 CFR §772.

UDOT's Noise Abatement Criteria is the noise decibel (dBA) value reflecting the approach criteria of 1 dBA below the Noise Abatement Criteria values listed in 23 CFR §772 for each land use category (see Table 1).

UDOT's Noise Abatement Policy states that a traffic noise impact occurs when either 1) the future worst case noise level is equal to or greater than the UDOT Noise Abatement Criteria for specified land use categories or 2) the future worst case noise level is greater than or equal to an increase of 10 dBA over the existing noise level.

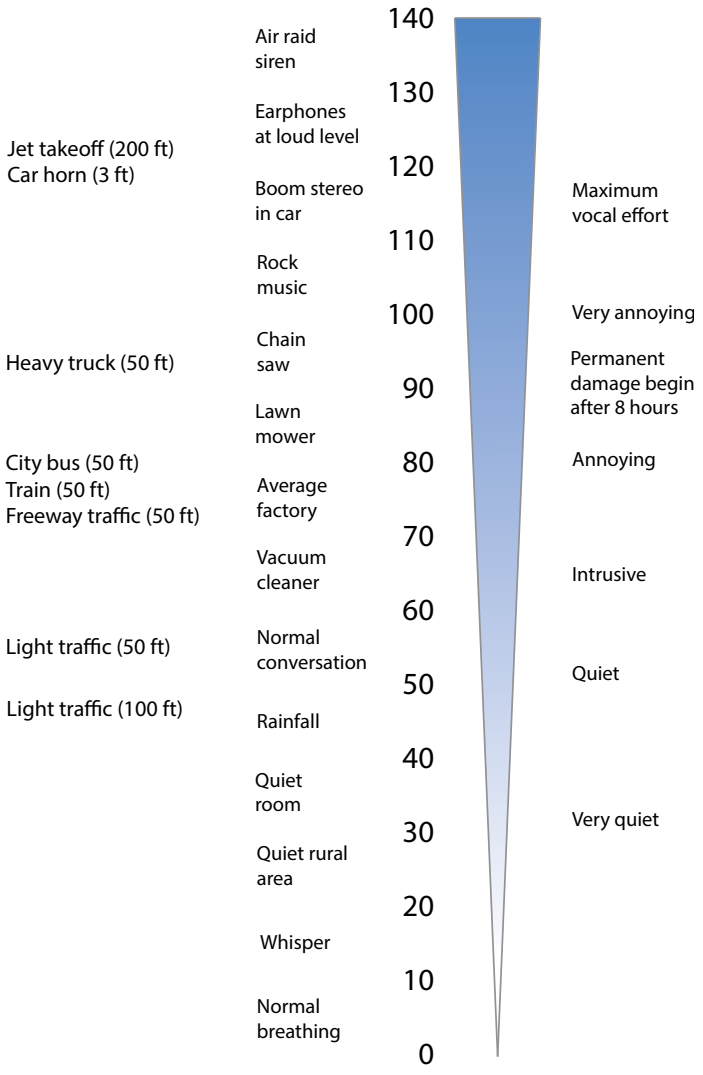


Figure 2: Sound Levels (in dBA) of Common Sounds (Compiled from Federal Transit Administration and Environmental Protection Agency Data)

Noise impact and abatement analyses are required within Land Use Activity Categories A, B, C, D, and E (see Table 1) only when development exists or has been permitted (formal building permit issued prior to the date the final environmental decision document is approved). Activity Categories F and G include lands that are not sensitive to traffic noise. There are no impact criteria for these land use types, and an analysis of noise impacts is not required.
For the purposes of this noise analysis, aerial photography and on-site visits were used to identify existing land uses and structure locations.

Table 1: Noise Abatement Criteria

Activity Category	FHWA Criteria $L_{eq}(h)$	UDOT Criteria $L_{eq}(h)$	Evaluation Location	Activity Description
A	57	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	66	Exterior	Residential.
C	67	66	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	---	Undeveloped lands that are not permitted.

Source: UDOT Noise Abatement Policy

3.2 Noise Sensitive Land Uses

Noise sensitive land uses within each of the Activity Categories within the study area can be seen in Table 2.

Table 2: Noise Sensitive Land Uses

Activity Category	Description of Location within Study Area
A	• None
B	• Residential locations within the study area
C	• Kid's Life Childcare Center (3818 W. 4700 S.) • Southridge Park (5051 S. 4015 W.)
D	• Bible Baptist Church (3769 W. 4700 S.) • Life Church (3818 W. 4700 S.) • Westridge Urgent Care (3730 W. 4700 S.) • The Church of Jesus Christ of Latter-day Saints (3676 W. 4700 S.) • Taylorsville InstaCare (3845 W. 4700 S.)
E	• None
F	• None
G	• Undeveloped land within the study area

The UDOT Noise Abatement Policy states that a noise impact analysis will not be required for Activity Categories F and G. However, for Activity Category G, an estimate of the distance to the approach criteria must be provided to local governments. See Section 6 of this noise study for additional information.

3.3 Existing Noise

The primary source of noise in the study area is automobile and truck traffic from Bangerter Highway, 4700 South, and other roadways in the area.

Existing noise levels were established via noise modeling for receptors located adjacent to, and approximately 600 feet from, Bangerter Highway and 4700 South. Existing traffic sound levels for receptors in this area were calculated with the FHWA Traffic Noise Model (TNM) 2.5 software using existing conditions (travel lane configurations and the posted speed limit).

On-site measurements were taken on July 13 and 22, 2021, with a Larson Davis LxT sound level meter for a duration of 20 minutes at the locations listed in Table 3 (see Appendix A for data sheets and noise measurement locations). Recorded measurements for locations M1–M4 were used to validate the noise model and to ensure it is representative of existing conditions. To be considered valid, the field noise measurements must be within 3 dBA of the model's predicted noise. The model validation results range between 0 to 2 dBA, therefore the noise model is considered valid (see Table 3).

Table 3: Field Noise Measurements

Map ID	Location	Field Noise Level (dBA)	TNM Output (dBA)	Difference
M1	Southridge Park; 5051 S. 4015 W.	63	63	0
M2	Residence; 3768 W. Englewood Dr.	61	59	2
M3	Residence; 4545 S. 3820 W.	57	57	0
M4	Residence; 4550 S. Orleans Way	55	54	1

Of the 789 receptors within the study area, 6 currently experience a noise level above the Noise Abatement Criteria (NAC) threshold (see Table 4, Table 5, and Existing Noise Levels maps in Appendix A).

3.4 Proposed Action Noise

Projected traffic noise levels for both options were calculated with TNM 2.5 software using build conditions (travel lane configurations and traffic volumes). To be consistent with the UDOT Noise Abatement Policy, level of service (LOS) C traffic volumes were used to determine the greatest hourly traffic noise conditions likely to occur on a regular basis.

Bangerter Highway Over Option

Overall, noise levels for the Bangerter Highway Over Option would range from 40 dBA to 78 dBA compared to 36 dBA and 69 dBA for the existing conditions (see the Build Noise Impacts maps in Appendix B).

Of the 789 receptors, 420 would be impacted, including 364 receptors exhibiting noise levels that are greater than 10 dBA above existing levels, 158 receptors exhibiting noise levels that exceed the NAC, and 102 receptors exhibiting both (see the Build Noise Impacts maps in Appendix B).

Bangerter Highway Under Option

Overall, noise levels for the Bangerter Highway Under Option would range from 38 dBA to 78 dBA compared to 36 dBA and 69 dBA for the existing conditions (see the Build Noise Impacts maps in Appendix B).

Of the 789 receptors, 321 would be impacted, including 286 receptors exhibiting noise levels that are greater than 10 dBA above existing levels, 109 receptors exhibiting noise levels that exceed the NAC, and 74 receptors exhibiting both (see the Build Noise Impacts maps in Appendix B).

3.5 Existing and Proposed Action Summary

Table 4 shows a summary of existing and build noise levels for the Bangerter Highway Over Option, and Table 5 shows a summary of existing and build noise levels for the Bangerter Highway Under Option. Refer to the maps in Appendix A and Appendix B for receptor locations. Note that the decreases from the existing to build condition shown in Table 5 occur because in the future Bangerter Highway crosses under 4700 South, which would shield receptor locations near the intersection.

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	Difference
NE001	51	36	No	40	No	No	4
NE002	51	39	No	42	No	No	3
NE003	66	56	No	60	No	No	4
NE004	66	55	No	60	No	No	5
NE005	66	55	No	59	No	No	4
NE006	66	54	No	60	No	No	6
NE007	66	51	No	58	No	No	7
NE008	66	48	No	54	No	No	6
NE009	66	47	No	53	No	No	6
NE012	66	57	No	64	No	No	7
NE013	66	56	No	63	No	No	7
NE015	66	52	No	60	No	No	8
NE016	66	52	No	59	No	No	7
NE017	66	51	No	59	No	No	8
NE019	66	56	No	63	No	No	7
NE020	66	55	No	64	No	No	9
NE021	66	52	No	61	No	No	9
NE023	66	55	No	63	No	No	8

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE024	66	52	No	62	Yes	No	10
NE025	66	52	No	61	No	No	9
NE027	66	54	No	63	No	No	9
NE028	66	52	No	62	Yes	No	10
NE030	66	53	No	63	Yes	No	10
NE031	66	52	No	62	Yes	No	10
NE032	66	51	No	61	Yes	No	10
NE033	66	48	No	57	No	No	9
NE034	66	48	No	57	No	No	9
NE036	66	50	No	60	Yes	No	10
NE037	66	47	No	57	Yes	No	10
NE038	66	47	No	57	Yes	No	10
NE040	66	53	No	65	Yes	No	12
NE041	66	50	No	60	Yes	No	10
NE042	66	49	No	60	Yes	No	11
NE043	66	47	No	60	Yes	No	13
NE045	66	48	No	60	Yes	No	12
NE046	66	47	No	60	Yes	No	13
NE047	66	46	No	58	Yes	No	12
NE048	66	46	No	58	Yes	No	12
NE049	66	46	No	57	Yes	No	11
NE050	66	52	No	67	Yes	Yes	15
NE053	66	52	No	68	Yes	Yes	16
NE055	66	49	No	62	Yes	No	13
NE056	66	49	No	61	Yes	No	12
NE057	66	48	No	60	Yes	No	12
NE058	66	46	No	58	Yes	No	12
NE059	66	45	No	57	Yes	No	12
NE060	66	46	No	57	Yes	No	11

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE062	66	52	No	68	Yes	Yes	16
NE063	66	49	No	61	Yes	No	12
NE064	66	48	No	60	Yes	No	12
NE065	66	45	No	56	Yes	No	11
NE067	66	52	No	67	Yes	Yes	15
NE068	66	45	No	56	Yes	No	11
NE070	66	52	No	67	Yes	Yes	15
NE071	66	49	No	62	Yes	No	13
NE072	66	48	No	61	Yes	No	13
NE073	66	45	No	58	Yes	No	13
NE074	66	45	No	57	Yes	No	12
NE077	66	51	No	65	Yes	No	14
NE080	66	52	No	69	Yes	Yes	17
NE081	66	49	No	63	Yes	No	14
NE082	66	48	No	61	Yes	No	13
NE083	66	47	No	59	Yes	No	12
NE084	66	45	No	58	Yes	No	13
NE085	66	45	No	57	Yes	No	12
NE086	66	45	No	56	Yes	No	11
NE087	66	45	No	57	Yes	No	12
NE089	66	51	No	65	Yes	No	14
NE090	66	49	No	63	Yes	No	14
NE091	66	48	No	61	Yes	No	13
NE092	66	47	No	59	Yes	No	12
NE093	66	46	No	58	Yes	No	12
NE094	66	45	No	58	Yes	No	13
NE095	66	45	No	57	Yes	No	12
NE096	66	45	No	56	Yes	No	11
NE097	66	45	No	56	Yes	No	11

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE099	66	48	No	61	Yes	No	13
NE100	66	45	No	57	Yes	No	12
NE101	66	45	No	56	Yes	No	11
NE103	66	50	No	64	Yes	No	14
NE105	66	51	No	65	Yes	No	14
NE106	66	46	No	59	Yes	No	13
NE107	66	45	No	58	Yes	No	13
NE108	66	45	No	56	Yes	No	11
NE110	66	50	No	65	Yes	No	15
NE111	66	47	No	60	Yes	No	13
NE112	66	45	No	59	Yes	No	14
NE113	66	45	No	53	No	No	8
NE115	66	50	No	65	Yes	No	15
NE116	66	47	No	60	Yes	No	13
NE117	66	45	No	59	Yes	No	14
NE119	66	50	No	63	Yes	No	13
NE120	66	47	No	60	Yes	No	13
NE121	66	45	No	58	Yes	No	13
NE122	66	45	No	55	Yes	No	10
NE123	66	56	No	75	Yes	Yes	19
NE124	66	50	No	63	Yes	No	13
NE125	66	46	No	59	Yes	No	13
NE126	66	45	No	57	Yes	No	12
NE127	66	45	No	54	No	No	9
NE128	66	57	No	76	Yes	Yes	19
NE129	66	50	No	63	Yes	No	13
NE130	66	46	No	59	Yes	No	13
NE131	66	45	No	56	Yes	No	11

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE132	66	45	No	54	No	No	9
NE133	66	57	No	78	Yes	Yes	21
NE134	66	50	No	63	Yes	No	13
NE135	66	55	No	71	Yes	Yes	16
NE136	66	50	No	63	Yes	No	13
NE137	66	46	No	59	Yes	No	13
NE138	66	45	No	56	Yes	No	11
NE139	66	45	No	53	No	No	8
NE140	66	56	No	72	Yes	Yes	16
NE141	66	50	No	63	Yes	No	13
NE142	66	46	No	58	Yes	No	12
NE143	66	45	No	56	Yes	No	11
NE144	66	45	No	53	No	No	8
NE145	66	57	No	78	Yes	Yes	21
NE146	66	50	No	63	Yes	No	13
NE147	66	46	No	59	Yes	No	13
NE148	66	45	No	56	Yes	No	11
NE149	66	45	No	53	No	No	8
NE150	66	56	No	74	Yes	Yes	18
NE151	66	51	No	63	Yes	No	12
NE152	66	46	No	59	Yes	No	13
NE153	66	45	No	55	Yes	No	10
NE154	66	45	No	53	No	No	8
NE155	66	56	No	76	Yes	Yes	20
NE156	66	50	No	63	Yes	No	13
NE157	66	46	No	59	Yes	No	13
NE158	66	45	No	56	Yes	No	11
NE159	66	45	No	53	No	No	8
NE160	66	56	No	77	Yes	Yes	21

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE161	66	50	No	64	Yes	No	14
NE162	66	46	No	59	Yes	No	13
NE163	66	45	No	55	Yes	No	10
NE164	66	45	No	54	No	No	9
NE165	66	56	No	74	Yes	Yes	18
NE166	66	50	No	63	Yes	No	13
NE167	66	47	No	60	Yes	No	13
NE168	66	45	No	56	Yes	No	11
NE169	66	56	No	73	Yes	Yes	17
NE170	66	55	No	71	Yes	Yes	16
NE171	66	50	No	63	Yes	No	13
NE172	66	46	No	59	Yes	No	13
NE173	66	45	No	56	Yes	No	11
NE174	66	45	No	52	No	No	7
NW001a	66	61	No	64	No	No	3
NW001b	66	61	No	65	No	No	4
NW001c	66	61	No	65	No	No	4
NW002a	66	61	No	65	No	No	4
NW002b	66	62	No	66	No	Yes	4
NW002c	66	62	No	66	No	Yes	4
NW003a	66	62	No	67	No	Yes	5
NW003b	66	63	No	67	No	Yes	4
NW003c	66	63	No	67	No	Yes	4
NW004a	66	65	No	69	No	Yes	4
NW004b	66	65	No	69	No	Yes	4
NW004c	66	66	Yes	70	No	Yes	4
NW005a	66	57	No	61	No	No	4
NW005b	66	57	No	61	No	No	4
NW005c	66	58	No	61	No	No	3

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria L_{eq}(h)	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW006a	66	57	No	61	No	No	4
NW006b	66	57	No	61	No	No	4
NW006c	66	57	No	62	No	No	5
NW007a	66	57	No	61	No	No	4
NW007b	66	57	No	62	No	No	5
NW007c	66	58	No	63	No	No	5
NW008a	66	62	No	65	No	No	3
NW008b	66	62	No	66	No	Yes	4
NW008c	66	63	No	67	No	Yes	4
NW009	51	45	No	42	No	No	-3
NW010a	66	52	No	55	No	No	3
NW010b	66	53	No	55	No	No	2
NW010c	66	53	No	56	No	No	3
NW011a	66	56	No	61	No	No	5
NW011b	66	56	No	61	No	No	5
NW011c	66	57	No	62	No	No	5
NW012a	66	51	No	54	No	No	3
NW012b	66	51	No	54	No	No	3
NW012c	66	52	No	55	No	No	3
NW013a	66	56	No	61	No	No	5
NW013b	66	56	No	62	No	No	6
NW013c	66	57	No	62	No	No	5
NW014a	66	58	No	61	No	No	3
NW014b	66	58	No	62	No	No	4
NW014c	66	58	No	63	No	No	5
NW015a	66	59	No	63	No	No	4
NW015b	66	60	No	64	No	No	4
NW015c	66	60	No	65	No	No	5
NW016a	66	49	No	52	No	No	3

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW016b	66	49	No	52	No	No	3
NW016c	66	50	No	54	No	No	4
NW017a	66	53	No	57	No	No	4
NW017b	66	53	No	58	No	No	5
NW017c	66	54	No	60	No	No	6
NW018a	66	53	No	58	No	No	5
NW018b	66	54	No	60	No	No	6
NW018c	66	55	No	61	No	No	6
NW019a	66	55	No	60	No	No	5
NW019b	66	55	No	62	No	No	7
NW019c	66	56	No	63	No	No	7
NW020a	66	46	No	50	No	No	4
NW020b	66	48	No	52	No	No	4
NW020c	66	49	No	53	No	No	4
NW021a	66	53	No	58	No	No	5
NW021b	66	54	No	59	No	No	5
NW021c	66	54	No	61	No	No	7
NW022	66	58	No	62	No	No	4
NW023a	66	52	No	57	No	No	5
NW023b	66	53	No	58	No	No	5
NW023c	66	53	No	59	No	No	6
NW024a	66	55	No	59	No	No	4
NW024b	66	55	No	60	No	No	5
NW024c	66	55	No	61	No	No	6
NW025a	66	48	No	52	No	No	4
NW025b	66	49	No	53	No	No	4
NW025c	66	50	No	55	No	No	5
NW026a	66	50	No	55	No	No	5
NW026b	66	51	No	56	No	No	5

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW026c	66	51	No	57	No	No	6
NW027a	66	51	No	55	No	No	4
NW027b	66	51	No	57	No	No	6
NW027c	66	52	No	58	No	No	6
NW028a	66	54	No	59	No	No	5
NW028b	66	55	No	60	No	No	5
NW028c	66	55	No	61	No	No	6
NW029a	66	56	No	60	No	No	4
NW029b	66	56	No	61	No	No	5
NW029c	66	56	No	62	No	No	6
NW030a	66	57	No	61	No	No	4
NW030b	66	57	No	62	No	No	5
NW030c	66	58	No	63	No	No	5
NW031a	66	51	No	57	No	No	6
NW031b	66	52	No	58	No	No	6
NW031c	66	53	No	59	No	No	6
NW032a	66	52	No	58	No	No	6
NW032b	66	53	No	59	No	No	6
NW032c	66	53	No	60	No	No	7
NW033a	66	53	No	58	No	No	5
NW033b	66	53	No	59	No	No	6
NW033c	66	54	No	60	No	No	6
NW034a	66	53	No	58	No	No	5
NW034b	66	53	No	60	No	No	7
NW034c	66	54	No	61	No	No	7
NW035	66	60	No	63	No	No	3
NW036	66	59	No	63	No	No	4
NW037	66	54	No	59	No	No	5
NW038	66	55	No	61	No	No	6

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW039	66	57	No	65	No	No	8
NW040	66	53	No	58	No	No	5
NW041	66	55	No	61	No	No	6
NW042	66	56	No	65	No	No	9
NW043	66	56	No	65	No	No	9
NW044	66	57	No	66	No	Yes	9
NW045	66	57	No	67	Yes	Yes	10
NW046	66	57	No	68	Yes	Yes	11
NW047	66	52	No	58	No	No	6
NW048	66	54	No	61	No	No	7
NW049	66	56	No	66	Yes	Yes	10
NW050	66	51	No	59	No	No	8
NW051	66	53	No	61	No	No	8
NW052	66	56	No	66	Yes	Yes	10
NW053	66	59	No	72	Yes	Yes	13
NW054	66	59	No	72	Yes	Yes	13
NW055	66	59	No	76	Yes	Yes	17
NW056	66	59	No	77	Yes	Yes	18
NW057	66	48	No	58	Yes	No	10
NW058	66	50	No	61	Yes	No	11
NW059	66	51	No	64	Yes	No	13
NW060	66	55	No	66	Yes	Yes	11
NW061	66	56	No	71	Yes	Yes	15
NW062	66	56	No	72	Yes	Yes	16
NW063	66	58	No	76	Yes	Yes	18
NW064	66	59	No	77	Yes	Yes	18
NW065	66	48	No	57	No	No	9
NW066	66	50	No	60	Yes	No	10
NW067	66	51	No	64	Yes	No	13

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW068	66	55	No	67	Yes	Yes	12
NW069	66	48	No	55	No	No	7
NW070	66	49	No	59	Yes	No	10
NW071	66	51	No	64	Yes	No	13
NW072	66	55	No	67	Yes	Yes	12
NW073	66	48	No	56	No	No	8
NW074	66	49	No	58	No	No	9
NW075	66	52	No	64	Yes	No	12
NW076	66	55	No	67	Yes	Yes	12
NW077	66	47	No	56	No	No	9
NW078	66	47	No	56	No	No	9
NW079	66	46	No	56	Yes	No	10
NW080	66	47	No	58	Yes	No	11
NW081	66	50	No	62	Yes	No	12
NW082	66	51	No	62	Yes	No	11
NW083	66	53	No	64	Yes	No	11
NW084	66	53	No	64	Yes	No	11
NW085	66	53	No	64	Yes	No	11
NW086	66	52	No	64	Yes	No	12
NW087	66	56	No	71	Yes	Yes	15
NW088	66	54	No	72	Yes	Yes	18
NW089	66	58	No	76	Yes	Yes	18
NW090	66	58	No	78	Yes	Yes	20
NW091	66	58	No	77	Yes	Yes	19
NW092	66	58	No	77	Yes	Yes	19
NW093	66	51	No	62	Yes	No	11
NW094	66	54	No	66	Yes	Yes	12
NW095	66	57	No	75	Yes	Yes	18
NW096	66	48	No	58	Yes	No	10

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW097	66	51	No	61	Yes	No	10
NW098	66	54	No	66	Yes	Yes	12
NW099	66	57	No	75	Yes	Yes	18
NW100	66	45	No	55	Yes	No	10
NW101	66	45	No	54	No	No	9
NW102	66	49	No	58	No	No	9
NW103	66	50	No	60	Yes	No	10
NW104	66	53	No	66	Yes	Yes	13
NW105	66	57	No	74	Yes	Yes	17
NW106	66	51	No	60	No	No	9
NW107	66	53	No	66	Yes	Yes	13
NW108	66	57	No	74	Yes	Yes	17
NW109	66	45	No	54	No	No	9
NW110	66	45	No	55	Yes	No	10
NW111	66	45	No	56	Yes	No	11
NW112	66	45	No	57	Yes	No	12
NW113	66	48	No	58	Yes	No	10
NW114	66	51	No	65	Yes	No	14
NW115	66	53	No	67	Yes	Yes	14
NW116	66	56	No	71	Yes	Yes	15
NW117	66	56	No	71	Yes	Yes	15
NW118	66	56	No	71	Yes	Yes	15
NW119	66	56	No	71	Yes	Yes	15
NW120	66	56	No	71	Yes	Yes	15
NW121	66	56	No	71	Yes	Yes	15
NW122	66	46	No	57	Yes	No	11
NW123	66	45	No	56	Yes	No	11
NW124	66	47	No	58	Yes	No	11
NW125	66	47	No	59	Yes	No	12

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW126	66	48	No	60	Yes	No	12
NW127	66	48	No	60	Yes	No	12
NW128	66	49	No	62	Yes	No	13
NW129	66	50	No	62	Yes	No	12
NW130	66	51	No	65	Yes	No	14
NW131	66	51	No	65	Yes	No	14
NW132	66	45	No	55	Yes	No	10
NW133	66	52	No	66	Yes	Yes	14
NW134	66	52	No	66	Yes	Yes	14
NW135	66	45	No	53	No	No	8
NW136	66	45	No	54	No	No	9
NW137	66	53	No	67	Yes	Yes	14
NW138	66	53	No	67	Yes	Yes	14
NW139	66	57	No	72	Yes	Yes	15
NW140	66	57	No	72	Yes	Yes	15
NW141	66	45	No	53	No	No	8
NW142	66	52	No	66	Yes	Yes	14
NW143	66	53	No	66	Yes	Yes	13
NW144	66	57	No	71	Yes	Yes	14
NW145	66	57	No	71	Yes	Yes	14
NW146	66	45	No	54	No	No	9
NW147	66	45	No	53	No	No	8
NW148	66	46	No	56	Yes	No	10
NW149	66	46	No	56	Yes	No	10
NW150	66	47	No	57	Yes	No	10
NW151	66	47	No	58	Yes	No	11
NW152	66	48	No	58	Yes	No	10
NW153	66	48	No	58	Yes	No	10
NW154	66	49	No	60	Yes	No	11

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW155	66	50	No	60	Yes	No	10
NW156	66	51	No	63	Yes	No	12
NW157	66	52	No	63	Yes	No	11
NW158	66	57	No	71	Yes	Yes	14
NW159	66	57	No	71	Yes	Yes	14
NW160	66	45	No	53	No	No	8
NW161	66	45	No	53	No	No	8
NW162	66	46	No	55	No	No	9
NW163	66	46	No	55	No	No	9
NW164	66	47	No	55	No	No	8
NW165	66	47	No	56	No	No	9
NW166	66	48	No	57	No	No	9
NW167	66	49	No	58	No	No	9
NW168	66	50	No	60	Yes	No	10
NW169	66	51	No	61	Yes	No	10
NW170	66	52	No	63	Yes	No	11
NW171	66	53	No	64	Yes	No	11
NW172	66	56	No	68	Yes	Yes	12
NW173	66	56	No	69	Yes	Yes	13
NW174	66	45	No	52	No	No	7
NW175	66	45	No	54	No	No	9
NW176	66	46	No	54	No	No	8
NW177	66	46	No	55	No	No	9
NW178	66	51	No	61	Yes	No	10
NW179	66	55	No	65	Yes	No	10
NW180	66	51	No	59	No	No	8
NW181	66	58	No	70	Yes	Yes	12
NW182	66	52	No	60	No	No	8
NW183	66	45	No	51	No	No	6

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW184	66	45	No	51	No	No	6
NW185	66	45	No	51	No	No	6
NW186	66	45	No	53	No	No	8
NW187	66	49	No	56	No	No	7
NW188	66	52	No	60	No	No	8
NW189	66	57	No	66	No	Yes	9
NW190	66	57	No	65	No	No	8
NW191	66	45	No	49	No	No	4
NW192	66	45	No	50	No	No	5
NW193	66	46	No	54	No	No	8
NW194	66	51	No	59	No	No	8
NW195	66	58	No	65	No	No	7
NW196	66	52	No	60	No	No	8
NW197	66	57	No	64	No	No	7
NW198	66	57	No	64	No	No	7
NW199	66	45	No	49	No	No	4
NW200	66	48	No	55	No	No	7
NW201	66	52	No	59	No	No	7
NW202	66	57	No	64	No	No	7
NW203	66	45	No	49	No	No	4
NW204	66	45	No	52	No	No	7
NW205	66	47	No	55	No	No	8
NW206	66	52	No	59	No	No	7
NW207	66	57	No	64	No	No	7
NW208	66	45	No	49	No	No	4
NW209	66	45	No	53	No	No	8
NW210	66	52	No	59	No	No	7
NW211	66	57	No	65	No	No	8
NW212	66	45	No	50	No	No	5

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW213	66	46	No	53	No	No	7
NW214	66	46	No	53	No	No	7
NW215	66	48	No	55	No	No	7
NW216	66	54	No	60	No	No	6
NW217	66	58	No	65	No	No	7
NW218	66	57	No	66	No	Yes	9
NW219	66	45	No	51	No	No	6
NW220	66	45	No	52	No	No	7
NW221	66	46	No	53	No	No	7
NW222	66	47	No	54	No	No	7
NW223	66	49	No	57	No	No	8
NW224	66	52	No	59	No	No	7
NW225	66	56	No	64	No	No	8
SE027	66	45	No	56	Yes	No	11
SE028	66	56	No	71	Yes	Yes	15
SE029	66	51	No	64	Yes	No	13
SE030	66	46	No	57	Yes	No	11
SE031	66	47	No	59	Yes	No	12
SE032	66	56	No	72	Yes	Yes	16
SE033	66	57	No	74	Yes	Yes	17
SE034	66	51	No	65	Yes	No	14
SE035	66	45	No	56	Yes	No	11
SE036	66	56	No	71	Yes	Yes	15
SE037	66	51	No	65	Yes	No	14
SE038	66	47	No	59	Yes	No	12
SE039	66	45	No	58	Yes	No	13
SE040	66	45	No	55	Yes	No	10
SE041	66	45	No	55	Yes	No	10
SE042	66	57	No	72	Yes	Yes	15

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE043	66	51	No	64	Yes	No	13
SE044	66	46	No	57	Yes	No	11
SE045	66	56	No	71	Yes	Yes	15
SE046	66	51	No	64	Yes	No	13
SE047	66	46	No	59	Yes	No	13
SE048	66	45	No	55	Yes	No	10
SE049	66	56	No	71	Yes	Yes	15
SE050	66	46	No	58	Yes	No	12
SE051	66	45	No	54	No	No	9
SE052	66	56	No	72	Yes	Yes	16
SE053	66	52	No	64	Yes	No	12
SE054	66	46	No	59	Yes	No	13
SE055	66	45	No	54	No	No	9
SE056	66	56	No	70	Yes	Yes	14
SE057	66	51	No	64	Yes	No	13
SE058	66	47	No	60	Yes	No	13
SE059	66	56	No	71	Yes	Yes	15
SE060	66	56	No	72	Yes	Yes	16
SE061	66	51	No	64	Yes	No	13
SE062	66	46	No	57	Yes	No	11
SE063	66	47	No	57	Yes	No	10
SE064	66	46	No	57	Yes	No	11
SE065	66	45	No	56	Yes	No	11
SE066	66	45	No	55	Yes	No	10
SE067	66	56	No	71	Yes	Yes	15
SE068	66	51	No	64	Yes	No	13
SE069	66	56	No	72	Yes	Yes	16
SE070	66	47	No	59	Yes	No	12
SE071	66	45	No	57	Yes	No	12

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE072	66	45	No	57	Yes	No	12
SE073	66	45	No	55	Yes	No	10
SE074	66	56	No	71	Yes	Yes	15
SE075	66	50	No	64	Yes	No	14
SE076	66	45	No	57	Yes	No	12
SE077	66	45	No	56	Yes	No	11
SE078	66	45	No	55	Yes	No	10
SE079	66	49	No	61	Yes	No	12
SE080	66	56	No	72	Yes	Yes	16
SE081	66	53	No	65	Yes	No	12
SE082	66	48	No	59	Yes	No	11
SE083	66	56	No	72	Yes	Yes	16
SE084	66	52	No	64	Yes	No	12
SE085	66	51	No	63	Yes	No	12
SE086	66	55	No	69	Yes	Yes	14
SE087	66	57	No	76	Yes	Yes	19
SE088	66	54	No	64	Yes	No	10
SE089	66	51	No	63	Yes	No	12
SE090	66	49	No	61	Yes	No	12
SE091	66	48	No	60	Yes	No	12
SE092	66	47	No	58	Yes	No	11
SE093	66	45	No	57	Yes	No	12
SE094	66	45	No	55	Yes	No	10
SE095	66	45	No	54	No	No	9
SE096	66	52	No	63	Yes	No	11
SE097	66	50	No	61	Yes	No	11
SE098	66	48	No	60	Yes	No	12
SE099	66	48	No	59	Yes	No	11
SE100	66	47	No	58	Yes	No	11

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE101	66	45	No	56	Yes	No	11
SE102	66	45	No	55	Yes	No	10
SE103	66	45	No	55	Yes	No	10
SE104	66	45	No	56	Yes	No	11
SE105	66	45	No	57	Yes	No	12
SE106	66	52	No	64	Yes	No	12
SE107	66	48	No	61	Yes	No	13
SE108	66	46	No	58	Yes	No	12
SE109	66	45	No	55	Yes	No	10
SE110	66	52	No	64	Yes	No	12
SE111	66	49	No	62	Yes	No	13
SE112	66	46	No	59	Yes	No	13
SE113	66	45	No	56	Yes	No	11
SE114	66	52	No	64	Yes	No	12
SE115	66	49	No	62	Yes	No	13
SE116	66	46	No	59	Yes	No	13
SE117	66	45	No	56	Yes	No	11
SE118	66	52	No	66	Yes	Yes	14
SE119	66	49	No	62	Yes	No	13
SE120	66	46	No	59	Yes	No	13
SE121	66	45	No	56	Yes	No	11
SE122	66	52	No	65	Yes	No	13
SE123	66	49	No	63	Yes	No	14
SE124	66	46	No	59	Yes	No	13
SE125	66	45	No	57	Yes	No	12
SE126	66	53	No	67	Yes	Yes	14
SE127	66	49	No	63	Yes	No	14
SE128	66	46	No	59	Yes	No	13
SE129	66	45	No	57	Yes	No	12

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE130	66	53	No	67	Yes	Yes	14
SE131	66	49	No	63	Yes	No	14
SE132	66	47	No	61	Yes	No	14
SE133	66	45	No	58	Yes	No	13
SE134	66	53	No	68	Yes	Yes	15
SE135	66	48	No	61	Yes	No	13
SE136	66	46	No	59	Yes	No	13
SE137	66	45	No	57	Yes	No	12
SE138	66	53	No	67	Yes	Yes	14
SE139	66	47	No	59	Yes	No	12
SE140	66	46	No	59	Yes	No	13
SE141	66	45	No	57	Yes	No	12
SE142	66	54	No	67	Yes	Yes	13
SE143	66	47	No	59	Yes	No	12
SE144	66	46	No	59	Yes	No	13
SE145	66	54	No	67	Yes	Yes	13
SE146	66	47	No	59	Yes	No	12
SE147	66	46	No	59	Yes	No	13
SE148	66	46	No	59	Yes	No	13
SE149	66	54	No	67	Yes	Yes	13
SE150	66	47	No	60	Yes	No	13
SE151	66	46	No	59	Yes	No	13
SE152	66	45	No	57	Yes	No	12
SE153	66	54	No	67	Yes	Yes	13
SE154	66	48	No	60	Yes	No	12
SE155	66	46	No	59	Yes	No	13
SE156	66	46	No	57	Yes	No	11
SE157	66	54	No	67	Yes	Yes	13
SE158	66	48	No	60	Yes	No	12

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE159	66	47	No	60	Yes	No	13
SE160	66	47	No	58	Yes	No	11
SE161	66	55	No	68	Yes	Yes	13
SE162	66	49	No	61	Yes	No	12
SE163	66	48	No	60	Yes	No	12
SE164	66	47	No	58	Yes	No	11
SE166	66	55	No	68	Yes	Yes	13
SE167	66	50	No	61	Yes	No	11
SE168	66	48	No	60	Yes	No	12
SE169	66	48	No	58	Yes	No	10
SE170	66	45	No	54	No	No	9
SE171	66	45	No	54	No	No	9
SE172	66	45	No	54	No	No	9
SE173	66	45	No	53	No	No	8
SE174	66	46	No	53	No	No	7
SE175	66	56	No	68	Yes	Yes	12
SE176	66	50	No	61	Yes	No	11
SE177	66	49	No	60	Yes	No	11
SE178	66	49	No	58	No	No	9
SE179	66	58	No	68	Yes	Yes	10
SE180	66	51	No	61	Yes	No	10
SE181	66	51	No	60	No	No	9
SE182	66	50	No	59	No	No	9
SE183	66	49	No	55	No	No	6
SE185	66	59	No	68	No	Yes	9
SE186	66	52	No	61	No	No	9
SE187	66	52	No	61	No	No	9
SE188	66	52	No	59	No	No	7
SE189	66	61	No	68	No	Yes	7

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE190	66	54	No	62	No	No	8
SE191	66	55	No	61	No	No	6
SE192	66	54	No	60	No	No	6
SE193	66	52	No	57	No	No	5
SE194	66	53	No	57	No	No	4
SE195	66	62	No	68	No	Yes	6
SE196	66	57	No	62	No	No	5
SE197	66	56	No	62	No	No	6
SE198	66	56	No	61	No	No	5
SE199	66	57	No	60	No	No	3
SE200	66	55	No	59	No	No	4
SE201	66	57	No	61	No	No	4
SE203	66	69	Yes	72	No	Yes	3
SE204	66	68	Yes	72	No	Yes	4
SE205	66	68	Yes	72	No	Yes	4
SE206	66	68	Yes	71	No	Yes	3
SE207	66	59	No	64	No	No	5
SE208	66	65	No	69	No	Yes	4
SE209	66	62	No	66	No	Yes	4
SE210	66	66	Yes	69	No	Yes	3
SW002	66	54	No	61	No	No	7
SW003	66	48	No	55	No	No	7
SW004	66	49	No	56	No	No	7
SW005	66	51	No	58	No	No	7
SW006	66	53	No	60	No	No	7
SW007	66	55	No	62	No	No	7
SW008	66	63	No	71	No	Yes	8
SW009	66	61	No	68	No	Yes	7
SW010	66	48	No	55	No	No	7

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW011	66	49	No	56	No	No	7
SW012	66	51	No	58	No	No	7
SW013	66	52	No	60	No	No	8
SW014	66	55	No	62	No	No	7
SW015	66	61	No	68	No	Yes	7
SW016	66	48	No	56	No	No	8
SW017	66	50	No	57	No	No	7
SW018	66	51	No	58	No	No	7
SW019	66	52	No	59	No	No	7
SW020	66	54	No	61	No	No	7
SW021	66	62	No	69	No	Yes	7
SW022	66	62	No	68	No	Yes	6
SW023	66	48	No	54	No	No	6
SW024	66	48	No	55	No	No	7
SW025	66	49	No	57	No	No	8
SW026	66	51	No	58	No	No	7
SW027	66	55	No	62	No	No	7
SW028	66	62	No	69	No	Yes	7
SW029	66	56	No	63	No	No	7
SW030	66	48	No	55	No	No	7
SW031	66	48	No	55	No	No	7
SW032	66	48	No	56	No	No	8
SW033	66	50	No	57	No	No	7
SW034	66	54	No	61	No	No	7
SW035	66	62	No	69	No	Yes	7
SW036	66	50	No	56	No	No	6
SW037	66	61	No	68	No	Yes	7
SW038	66	47	No	53	No	No	6
SW039	66	56	No	63	No	No	7

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW040	66	61	No	68	No	Yes	7
SW041	66	49	No	55	No	No	6
SW042	66	49	No	55	No	No	6
SW043	66	50	No	56	No	No	6
SW044	66	51	No	58	No	No	7
SW045	66	53	No	59	No	No	6
SW046	66	61	No	67	No	Yes	6
SW047	66	51	No	55	No	No	4
SW048	66	51	No	55	No	No	4
SW049	66	53	No	57	No	No	4
SW050	66	54	No	58	No	No	4
SW051	66	55	No	60	No	No	5
SW052	66	57	No	62	No	No	5
SW053	66	61	No	67	No	Yes	6
SW054	66	51	No	55	No	No	4
SW055	66	52	No	55	No	No	3
SW056	66	53	No	56	No	No	3
SW057	66	53	No	57	No	No	4
SW058	66	55	No	59	No	No	4
SW059	66	57	No	61	No	No	4
SW060	66	58	No	63	No	No	5
SW061	66	61	No	66	No	Yes	5
SW062	66	62	No	67	No	Yes	5
SW063	66	60	No	66	No	Yes	6
SW064	66	61	No	67	No	Yes	6
SW065	66	62	No	68	No	Yes	6
SW066	66	63	No	69	No	Yes	6
SW067	66	58	No	63	No	No	5
SW068	66	59	No	64	No	No	5

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW069	66	61	No	66	No	Yes	5
SW070	66	63	No	69	No	Yes	6
SW071	66	52	No	57	No	No	5
SW072	66	53	No	58	No	No	5
SW073	66	53	No	58	No	No	5
SW074	66	54	No	58	No	No	4
SW075	66	54	No	59	No	No	5
SW076	66	54	No	59	No	No	5
SW077	66	55	No	59	No	No	4
SW078	66	56	No	60	No	No	4
SW079	66	57	No	62	No	No	5
SW080	66	59	No	64	No	No	5
SW081	66	60	No	66	No	Yes	6
SW082	66	63	No	68	No	Yes	5
SW083	66	64	No	69	No	Yes	5
SW084	66	48	No	53	No	No	5
SW085	66	49	No	54	No	No	5
SW086	66	49	No	54	No	No	5
SW087	66	50	No	55	No	No	5
SW088	66	51	No	55	No	No	4
SW089	66	51	No	56	No	No	5
SW090	66	55	No	59	No	No	4
SW091	66	55	No	60	No	No	5
SW092	66	56	No	61	No	No	5
SW093	66	58	No	62	No	No	4
SW094	66	59	No	64	No	No	5
SW095	66	61	No	66	No	Yes	5
SW096	66	64	No	68	No	Yes	4
SW097	66	49	No	53	No	No	4

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW098	66	49	No	54	No	No	5
SW099	66	50	No	55	No	No	5
SW100	66	50	No	55	No	No	5
SW101	66	51	No	56	No	No	5
SW102	66	52	No	56	No	No	4
SW103	66	55	No	59	No	No	4
SW104	66	56	No	60	No	No	4
SW105	66	57	No	62	No	No	5
SW106	66	59	No	63	No	No	4
SW107	66	60	No	65	No	No	5
SW108	66	63	No	67	No	Yes	4
SW109	66	64	No	68	No	Yes	4
SW110	66	48	No	52	No	No	4
SW111	66	49	No	52	No	No	3
SW112	66	49	No	53	No	No	4
SW113	66	50	No	54	No	No	4
SW114	66	50	No	54	No	No	4
SW115	66	51	No	55	No	No	4
SW116	66	54	No	58	No	No	4
SW117	66	55	No	58	No	No	3
SW118	66	56	No	59	No	No	3
SW119	66	57	No	61	No	No	4
SW120	66	59	No	62	No	No	3
SW121	66	61	No	64	No	No	3
SW122	66	63	No	67	No	Yes	4
SW123	66	47	No	51	No	No	4
SW124	66	47	No	51	No	No	4
SW125	66	47	No	52	No	No	5
SW126	66	47	No	52	No	No	5

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW127	66	48	No	52	No	No	4
SW128	66	49	No	52	No	No	3
SW129	66	50	No	53	No	No	3
SW130	66	50	No	54	No	No	4
SW131	66	51	No	54	No	No	3
SW132	66	51	No	55	No	No	4
SW133	66	54	No	58	No	No	4
SW134	66	56	No	59	No	No	3
SW135	66	57	No	60	No	No	3
SW136	66	58	No	62	No	No	4
SW137	66	60	No	64	No	No	4
SW138	66	62	No	66	No	Yes	4
SW139	66	63	No	67	No	Yes	4
SW140	66	50	No	56	No	No	6
SW141	66	51	No	56	No	No	5
SW142	66	52	No	58	No	No	6
SW143	66	54	No	59	No	No	5
SW144	66	56	No	61	No	No	5
SW145	66	56	No	61	No	No	5
SW146	66	56	No	61	No	No	5
SW147	66	57	No	62	No	No	5
SW148	66	57	No	62	No	No	5
SW149	66	58	No	62	No	No	4
SW150	66	59	No	64	No	No	5
SW151	66	59	No	64	No	No	5
SW152	66	60	No	65	No	No	5
SW153	66	61	No	66	No	Yes	5
SW154	66	62	No	66	No	Yes	4
SW155	66	64	No	67	No	Yes	3

Table 4: Summary of Existing and Build Noise Levels for Bangerter Highway Over Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Over Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW156	66	65	No	68	No	Yes	3
SW157	66	48	No	53	No	No	5
SW158	66	49	No	54	No	No	5
SW159	66	52	No	57	No	No	5
SW160	66	53	No	58	No	No	5
SW161	66	51	No	56	No	No	5
SW162	66	53	No	58	No	No	5
SW163	66	54	No	60	No	No	6
SW164	66	55	No	60	No	No	5
SW165	66	49	No	54	No	No	5
SW166	66	51	No	56	No	No	5
SW167	66	53	No	58	No	No	5
SW168	66	54	No	59	No	No	5
SW169	66	55	No	61	No	No	6
SW170	66	55	No	61	No	No	6
SW171	66	56	No	61	No	No	5
SW172	66	56	No	62	No	No	6
SW173	51	41	No	42	No	No	1

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE001	51	36	No	38	No	No	2
NE002	51	39	No	42	No	No	3
NE003	66	56	No	59	No	No	3
NE004	66	55	No	58	No	No	3
NE005	66	55	No	57	No	No	2
NE006	66	54	No	57	No	No	3
NE007	66	51	No	54	No	No	3
NE008	66	48	No	51	No	No	3
NE009	66	47	No	50	No	No	3
NE012	66	57	No	59	No	No	2
NE013	66	56	No	57	No	No	1
NE015	66	52	No	55	No	No	3
NE016	66	52	No	54	No	No	2
NE017	66	51	No	53	No	No	2
NE019	66	56	No	59	No	No	3
NE020	66	55	No	59	No	No	4
NE021	66	52	No	55	No	No	3
NE023	66	55	No	60	No	No	5
NE024	66	52	No	58	No	No	6
NE025	66	52	No	56	No	No	4
NE027	66	54	No	60	No	No	6
NE028	66	52	No	58	No	No	6
NE030	66	53	No	60	No	No	7
NE031	66	52	No	59	No	No	7
NE032	66	51	No	57	No	No	6
NE033	66	48	No	53	No	No	5
NE034	66	48	No	53	No	No	5
NE036	66	50	No	56	No	No	6
NE037	66	47	No	54	No	No	7

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE038	66	47	No	54	No	No	7
NE040	66	53	No	63	Yes	No	10
NE041	66	50	No	56	No	No	6
NE042	66	49	No	58	No	No	9
NE043	66	47	No	58	Yes	No	11
NE045	66	48	No	58	Yes	No	10
NE046	66	47	No	58	Yes	No	11
NE047	66	46	No	57	Yes	No	11
NE048	66	46	No	56	Yes	No	10
NE049	66	46	No	55	No	No	9
NE050	66	52	No	66	Yes	Yes	14
NE053	66	52	No	67	Yes	Yes	15
NE055	66	49	No	61	Yes	No	12
NE056	66	49	No	60	Yes	No	11
NE057	66	48	No	59	Yes	No	11
NE058	66	46	No	57	Yes	No	11
NE059	66	45	No	56	Yes	No	11
NE060	66	46	No	55	No	No	9
NE062	66	52	No	67	Yes	Yes	15
NE063	66	49	No	60	Yes	No	11
NE064	66	48	No	59	Yes	No	11
NE065	66	45	No	55	Yes	No	10
NE067	66	52	No	66	Yes	Yes	14
NE068	66	45	No	56	Yes	No	11
NE070	66	52	No	66	Yes	Yes	14
NE071	66	49	No	61	Yes	No	12
NE072	66	48	No	61	Yes	No	13
NE073	66	45	No	57	Yes	No	12
NE074	66	45	No	56	Yes	No	11

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE077	66	51	No	64	Yes	No	13
NE080	66	52	No	68	Yes	Yes	16
NE081	66	49	No	63	Yes	No	14
NE082	66	48	No	60	Yes	No	12
NE083	66	47	No	59	Yes	No	12
NE084	66	45	No	58	Yes	No	13
NE085	66	45	No	57	Yes	No	12
NE086	66	45	No	56	Yes	No	11
NE087	66	45	No	56	Yes	No	11
NE089	66	51	No	64	Yes	No	13
NE090	66	49	No	62	Yes	No	13
NE091	66	48	No	61	Yes	No	13
NE092	66	47	No	59	Yes	No	12
NE093	66	46	No	58	Yes	No	12
NE094	66	45	No	57	Yes	No	12
NE095	66	45	No	57	Yes	No	12
NE096	66	45	No	56	Yes	No	11
NE097	66	45	No	55	Yes	No	10
NE099	66	48	No	60	Yes	No	12
NE100	66	45	No	57	Yes	No	12
NE101	66	45	No	56	Yes	No	11
NE103	66	50	No	63	Yes	No	13
NE105	66	51	No	64	Yes	No	13
NE106	66	46	No	59	Yes	No	13
NE107	66	45	No	58	Yes	No	13
NE108	66	45	No	56	Yes	No	11
NE110	66	50	No	64	Yes	No	14
NE111	66	47	No	60	Yes	No	13
NE112	66	45	No	59	Yes	No	14

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE113	66	45	No	53	No	No	8
NE115	66	50	No	64	Yes	No	14
NE116	66	47	No	60	Yes	No	13
NE117	66	45	No	59	Yes	No	14
NE119	66	50	No	63	Yes	No	13
NE120	66	47	No	60	Yes	No	13
NE121	66	45	No	58	Yes	No	13
NE122	66	45	No	55	Yes	No	10
NE123	66	56	No	75	Yes	Yes	19
NE124	66	50	No	63	Yes	No	13
NE125	66	46	No	59	Yes	No	13
NE126	66	45	No	57	Yes	No	12
NE127	66	45	No	54	No	No	9
NE128	66	57	No	76	Yes	Yes	19
NE129	66	50	No	63	Yes	No	13
NE130	66	46	No	59	Yes	No	13
NE131	66	45	No	56	Yes	No	11
NE132	66	45	No	54	No	No	9
NE133	66	57	No	78	Yes	Yes	21
NE134	66	50	No	63	Yes	No	13
NE135	66	55	No	71	Yes	Yes	16
NE136	66	50	No	63	Yes	No	13
NE137	66	46	No	59	Yes	No	13
NE138	66	45	No	56	Yes	No	11
NE139	66	45	No	53	No	No	8
NE140	66	56	No	72	Yes	Yes	16
NE141	66	50	No	63	Yes	No	13
NE142	66	46	No	58	Yes	No	12

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE143	66	45	No	56	Yes	No	11
NE144	66	45	No	53	No	No	8
NE145	66	57	No	78	Yes	Yes	21
NE146	66	50	No	63	Yes	No	13
NE147	66	46	No	58	Yes	No	12
NE148	66	45	No	55	Yes	No	10
NE149	66	45	No	53	No	No	8
NE150	66	56	No	74	Yes	Yes	18
NE151	66	51	No	62	Yes	No	11
NE152	66	46	No	59	Yes	No	13
NE153	66	45	No	55	Yes	No	10
NE154	66	45	No	53	No	No	8
NE155	66	56	No	75	Yes	Yes	19
NE156	66	50	No	63	Yes	No	13
NE157	66	46	No	59	Yes	No	13
NE158	66	45	No	56	Yes	No	11
NE159	66	45	No	53	No	No	8
NE160	66	56	No	76	Yes	Yes	20
NE161	66	50	No	63	Yes	No	13
NE162	66	46	No	59	Yes	No	13
NE163	66	45	No	55	Yes	No	10
NE164	66	45	No	54	No	No	9
NE165	66	56	No	74	Yes	Yes	18
NE166	66	50	No	63	Yes	No	13
NE167	66	47	No	60	Yes	No	13
NE168	66	45	No	56	Yes	No	11
NE169	66	56	No	73	Yes	Yes	17
NE170	66	55	No	71	Yes	Yes	16
NE171	66	50	No	63	Yes	No	13

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NE172	66	46	No	59	Yes	No	13
NE173	66	45	No	56	Yes	No	11
NE174	66	45	No	52	No	No	7
NW001a	66	61	No	64	No	No	3
NW001b	66	61	No	64	No	No	3
NW001c	66	61	No	65	No	No	4
NW002a	66	61	No	65	No	No	4
NW002b	66	62	No	65	No	No	3
NW002c	66	62	No	65	No	No	3
NW003a	66	62	No	67	No	Yes	5
NW003b	66	63	No	67	No	Yes	4
NW003c	66	63	No	67	No	Yes	4
NW004a	66	65	No	68	No	Yes	3
NW004b	66	65	No	68	No	Yes	3
NW004c	66	66	Yes	68	No	Yes	2
NW005a	66	57	No	60	No	No	3
NW005b	66	57	No	60	No	No	3
NW005c	66	58	No	61	No	No	3
NW006a	66	57	No	59	No	No	2
NW006b	66	57	No	59	No	No	2
NW006c	66	57	No	60	No	No	3
NW007a	66	57	No	60	No	No	3
NW007b	66	57	No	60	No	No	3
NW007c	66	58	No	61	No	No	3
NW008a	66	62	No	63	No	No	1
NW008b	66	62	No	64	No	No	2
NW008c	66	63	No	64	No	No	1
NW009	51	45	No	40	No	No	-5
NW010a	66	52	No	55	No	No	3

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW010b	66	53	No	55	No	No	2
NW010c	66	53	No	56	No	No	3
NW011a	66	56	No	56	No	No	0
NW011b	66	56	No	57	No	No	1
NW011c	66	57	No	57	No	No	0
NW012a	66	51	No	53	No	No	2
NW012b	66	51	No	54	No	No	3
NW012c	66	52	No	54	No	No	2
NW013a	66	56	No	56	No	No	0
NW013b	66	56	No	57	No	No	1
NW013c	66	57	No	57	No	No	0
NW014a	66	58	No	57	No	No	-1
NW014b	66	58	No	58	No	No	0
NW014c	66	58	No	59	No	No	1
NW015a	66	59	No	59	No	No	0
NW015b	66	60	No	60	No	No	0
NW015c	66	60	No	60	No	No	0
NW016a	66	49	No	51	No	No	2
NW016b	66	49	No	52	No	No	3
NW016c	66	50	No	53	No	No	3
NW017a	66	53	No	52	No	No	-1
NW017b	66	53	No	53	No	No	0
NW017c	66	54	No	54	No	No	0
NW018a	66	53	No	52	No	No	-1
NW018b	66	54	No	53	No	No	-1
NW018c	66	55	No	55	No	No	0
NW019a	66	55	No	53	No	No	-2
NW019b	66	55	No	55	No	No	0
NW019c	66	56	No	57	No	No	1

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW020a	66	46	No	49	No	No	3
NW020b	66	48	No	51	No	No	3
NW020c	66	49	No	52	No	No	3
NW021a	66	53	No	51	No	No	-2
NW021b	66	54	No	53	No	No	-1
NW021c	66	54	No	54	No	No	0
NW022	66	58	No	55	No	No	-3
NW023a	66	52	No	50	No	No	-2
NW023b	66	53	No	52	No	No	-1
NW023c	66	53	No	53	No	No	0
NW024a	66	55	No	51	No	No	-4
NW024b	66	55	No	53	No	No	-2
NW024c	66	55	No	54	No	No	-1
NW025a	66	48	No	47	No	No	-1
NW025b	66	49	No	48	No	No	-1
NW025c	66	50	No	50	No	No	0
NW026a	66	50	No	47	No	No	-3
NW026b	66	51	No	48	No	No	-3
NW026c	66	51	No	50	No	No	-1
NW027a	66	51	No	48	No	No	-3
NW027b	66	51	No	50	No	No	-1
NW027c	66	52	No	52	No	No	0
NW028a	66	54	No	51	No	No	-3
NW028b	66	55	No	53	No	No	-2
NW028c	66	55	No	54	No	No	-1
NW029a	66	56	No	52	No	No	-4
NW029b	66	56	No	55	No	No	-1
NW029c	66	56	No	56	No	No	0
NW030a	66	57	No	54	No	No	-3

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW030b	66	57	No	56	No	No	-1
NW030c	66	58	No	57	No	No	-1
NW031a	66	51	No	52	No	No	1
NW031b	66	52	No	53	No	No	1
NW031c	66	53	No	54	No	No	1
NW032a	66	52	No	53	No	No	1
NW032b	66	53	No	54	No	No	1
NW032c	66	53	No	55	No	No	2
NW033a	66	53	No	53	No	No	0
NW033b	66	53	No	54	No	No	1
NW033c	66	54	No	55	No	No	1
NW034a	66	53	No	54	No	No	1
NW034b	66	53	No	54	No	No	1
NW034c	66	54	No	56	No	No	2
NW035	66	60	No	56	No	No	-4
NW036	66	59	No	59	No	No	0
NW037	66	54	No	55	No	No	1
NW038	66	55	No	57	No	No	2
NW039	66	57	No	62	No	No	5
NW040	66	53	No	55	No	No	2
NW041	66	55	No	58	No	No	3
NW042	66	56	No	62	No	No	6
NW043	66	56	No	61	No	No	5
NW044	66	57	No	62	No	No	5
NW045	66	57	No	63	No	No	6
NW046	66	57	No	64	No	No	7
NW047	66	52	No	55	No	No	3
NW048	66	54	No	58	No	No	4
NW049	66	56	No	62	No	No	6

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW050	66	51	No	55	No	No	4
NW051	66	53	No	58	No	No	5
NW052	66	56	No	63	No	No	7
NW053	66	59	No	69	Yes	Yes	10
NW054	66	59	No	70	Yes	Yes	11
NW055	66	59	No	74	Yes	Yes	15
NW056	66	59	No	76	Yes	Yes	17
NW057	66	48	No	54	No	No	6
NW058	66	50	No	58	No	No	8
NW059	66	51	No	62	Yes	No	11
NW060	66	55	No	64	No	No	9
NW061	66	56	No	70	Yes	Yes	14
NW062	66	56	No	71	Yes	Yes	15
NW063	66	58	No	75	Yes	Yes	17
NW064	66	59	No	76	Yes	Yes	17
NW065	66	48	No	53	No	No	5
NW066	66	50	No	57	No	No	7
NW067	66	51	No	62	Yes	No	11
NW068	66	55	No	64	No	No	9
NW069	66	48	No	53	No	No	5
NW070	66	49	No	57	No	No	8
NW071	66	51	No	62	Yes	No	11
NW072	66	55	No	65	Yes	No	10
NW073	66	48	No	53	No	No	5
NW074	66	49	No	57	No	No	8
NW075	66	52	No	62	Yes	No	10
NW076	66	55	No	65	Yes	No	10
NW077	66	47	No	54	No	No	7
NW078	66	47	No	53	No	No	6

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW079	66	46	No	54	No	No	8
NW080	66	47	No	56	No	No	9
NW081	66	50	No	60	Yes	No	10
NW082	66	51	No	60	No	No	9
NW083	66	53	No	61	No	No	8
NW084	66	53	No	62	No	No	9
NW085	66	53	No	62	No	No	9
NW086	66	52	No	62	Yes	No	10
NW087	66	56	No	70	Yes	Yes	14
NW088	66	54	No	71	Yes	Yes	17
NW089	66	58	No	75	Yes	Yes	17
NW090	66	58	No	77	Yes	Yes	19
NW091	66	58	No	76	Yes	Yes	18
NW092	66	58	No	76	Yes	Yes	18
NW093	66	51	No	59	No	No	8
NW094	66	54	No	65	Yes	No	11
NW095	66	57	No	74	Yes	Yes	17
NW096	66	48	No	55	No	No	7
NW097	66	51	No	59	No	No	8
NW098	66	54	No	65	Yes	No	11
NW099	66	57	No	74	Yes	Yes	17
NW100	66	45	No	53	No	No	8
NW101	66	45	No	53	No	No	8
NW102	66	49	No	56	No	No	7
NW103	66	50	No	58	No	No	8
NW104	66	53	No	65	Yes	No	12
NW105	66	57	No	73	Yes	Yes	16
NW106	66	51	No	58	No	No	7
NW107	66	53	No	65	Yes	No	12

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW108	66	57	No	73	Yes	Yes	16
NW109	66	45	No	54	No	No	9
NW110	66	45	No	54	No	No	9
NW111	66	45	No	55	Yes	No	10
NW112	66	45	No	56	Yes	No	11
NW113	66	48	No	57	No	No	9
NW114	66	51	No	63	Yes	No	12
NW115	66	53	No	65	Yes	No	12
NW116	66	56	No	71	Yes	Yes	15
NW117	66	56	No	71	Yes	Yes	15
NW118	66	56	No	70	Yes	Yes	14
NW119	66	56	No	70	Yes	Yes	14
NW120	66	56	No	71	Yes	Yes	15
NW121	66	56	No	70	Yes	Yes	14
NW122	66	46	No	55	No	No	9
NW123	66	45	No	54	No	No	9
NW124	66	47	No	56	No	No	9
NW125	66	47	No	57	Yes	No	10
NW126	66	48	No	58	Yes	No	10
NW127	66	48	No	58	Yes	No	10
NW128	66	49	No	60	Yes	No	11
NW129	66	50	No	61	Yes	No	11
NW130	66	51	No	64	Yes	No	13
NW131	66	51	No	64	Yes	No	13
NW132	66	45	No	55	Yes	No	10
NW133	66	52	No	65	Yes	No	13
NW134	66	52	No	65	Yes	No	13
NW135	66	45	No	52	No	No	7
NW136	66	45	No	53	No	No	8

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW137	66	53	No	66	Yes	Yes	13
NW138	66	53	No	66	Yes	Yes	13
NW139	66	57	No	72	Yes	Yes	15
NW140	66	57	No	71	Yes	Yes	14
NW141	66	45	No	52	No	No	7
NW142	66	52	No	65	Yes	No	13
NW143	66	53	No	65	Yes	No	12
NW144	66	57	No	71	Yes	Yes	14
NW145	66	57	No	71	Yes	Yes	14
NW146	66	45	No	53	No	No	8
NW147	66	45	No	52	No	No	7
NW148	66	46	No	55	No	No	9
NW149	66	46	No	55	No	No	9
NW150	66	47	No	56	No	No	9
NW151	66	47	No	57	Yes	No	10
NW152	66	48	No	58	Yes	No	10
NW153	66	48	No	57	No	No	9
NW154	66	49	No	59	Yes	No	10
NW155	66	50	No	59	No	No	9
NW156	66	51	No	62	Yes	No	11
NW157	66	52	No	63	Yes	No	11
NW158	66	57	No	70	Yes	Yes	13
NW159	66	57	No	70	Yes	Yes	13
NW160	66	45	No	53	No	No	8
NW161	66	45	No	53	No	No	8
NW162	66	46	No	54	No	No	8
NW163	66	46	No	54	No	No	8
NW164	66	47	No	55	No	No	8
NW165	66	47	No	56	No	No	9

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW166	66	48	No	57	No	No	9
NW167	66	49	No	57	No	No	8
NW168	66	50	No	59	No	No	9
NW169	66	51	No	60	No	No	9
NW170	66	52	No	62	Yes	No	10
NW171	66	53	No	63	Yes	No	10
NW172	66	56	No	67	Yes	Yes	11
NW173	66	56	No	68	Yes	Yes	12
NW174	66	45	No	52	No	No	7
NW175	66	45	No	53	No	No	8
NW176	66	46	No	54	No	No	8
NW177	66	46	No	55	No	No	9
NW178	66	51	No	60	No	No	9
NW179	66	55	No	65	Yes	No	10
NW180	66	51	No	59	No	No	8
NW181	66	58	No	69	Yes	Yes	11
NW182	66	52	No	60	No	No	8
NW183	66	45	No	50	No	No	5
NW184	66	45	No	50	No	No	5
NW185	66	45	No	51	No	No	6
NW186	66	45	No	53	No	No	8
NW187	66	49	No	56	No	No	7
NW188	66	52	No	59	No	No	7
NW189	66	57	No	66	No	Yes	9
NW190	66	57	No	64	No	No	7
NW191	66	45	No	49	No	No	4
NW192	66	45	No	50	No	No	5
NW193	66	46	No	53	No	No	7
NW194	66	51	No	58	No	No	7

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW195	66	58	No	65	No	No	7
NW196	66	52	No	59	No	No	7
NW197	66	57	No	64	No	No	7
NW198	66	57	No	64	No	No	7
NW199	66	45	No	49	No	No	4
NW200	66	48	No	55	No	No	7
NW201	66	52	No	59	No	No	7
NW202	66	57	No	64	No	No	7
NW203	66	45	No	49	No	No	4
NW204	66	45	No	52	No	No	7
NW205	66	47	No	55	No	No	8
NW206	66	52	No	59	No	No	7
NW207	66	57	No	64	No	No	7
NW208	66	45	No	49	No	No	4
NW209	66	45	No	53	No	No	8
NW210	66	52	No	59	No	No	7
NW211	66	57	No	65	No	No	8
NW212	66	45	No	50	No	No	5
NW213	66	46	No	53	No	No	7
NW214	66	46	No	53	No	No	7
NW215	66	48	No	55	No	No	7
NW216	66	54	No	59	No	No	5
NW217	66	58	No	65	No	No	7
NW218	66	57	No	66	No	Yes	9
NW219	66	45	No	51	No	No	6
NW220	66	45	No	52	No	No	7
NW221	66	46	No	53	No	No	7
NW222	66	47	No	54	No	No	7
NW223	66	49	No	56	No	No	7

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
NW224	66	52	No	59	No	No	7
NW225	66	56	No	64	No	No	8
SE027	66	45	No	56	Yes	No	11
SE028	66	56	No	71	Yes	Yes	15
SE029	66	51	No	64	Yes	No	13
SE030	66	46	No	57	Yes	No	11
SE031	66	47	No	58	Yes	No	11
SE032	66	56	No	72	Yes	Yes	16
SE033	66	57	No	74	Yes	Yes	17
SE034	66	51	No	65	Yes	No	14
SE035	66	45	No	56	Yes	No	11
SE036	66	56	No	71	Yes	Yes	15
SE037	66	51	No	65	Yes	No	14
SE038	66	47	No	59	Yes	No	12
SE039	66	45	No	57	Yes	No	12
SE040	66	45	No	55	Yes	No	10
SE041	66	45	No	55	Yes	No	10
SE042	66	57	No	72	Yes	Yes	15
SE043	66	51	No	63	Yes	No	12
SE044	66	46	No	57	Yes	No	11
SE045	66	56	No	71	Yes	Yes	15
SE046	66	51	No	64	Yes	No	13
SE047	66	46	No	59	Yes	No	13
SE048	66	45	No	55	Yes	No	10
SE049	66	56	No	71	Yes	Yes	15
SE050	66	46	No	58	Yes	No	12
SE051	66	45	No	54	No	No	9
SE052	66	56	No	72	Yes	Yes	16
SE053	66	52	No	64	Yes	No	12

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE054	66	46	No	59	Yes	No	13
SE055	66	45	No	54	No	No	9
SE056	66	56	No	70	Yes	Yes	14
SE057	66	51	No	64	Yes	No	13
SE058	66	47	No	59	Yes	No	12
SE059	66	56	No	71	Yes	Yes	15
SE060	66	56	No	72	Yes	Yes	16
SE061	66	51	No	64	Yes	No	13
SE062	66	46	No	57	Yes	No	11
SE063	66	47	No	57	Yes	No	10
SE064	66	46	No	57	Yes	No	11
SE065	66	45	No	56	Yes	No	11
SE066	66	45	No	54	No	No	9
SE067	66	56	No	71	Yes	Yes	15
SE068	66	51	No	64	Yes	No	13
SE069	66	56	No	72	Yes	Yes	16
SE070	66	47	No	59	Yes	No	12
SE071	66	45	No	57	Yes	No	12
SE072	66	45	No	57	Yes	No	12
SE073	66	45	No	55	Yes	No	10
SE074	66	56	No	71	Yes	Yes	15
SE075	66	50	No	63	Yes	No	13
SE076	66	45	No	57	Yes	No	12
SE077	66	45	No	55	Yes	No	10
SE078	66	45	No	55	Yes	No	10
SE079	66	49	No	61	Yes	No	12
SE080	66	56	No	72	Yes	Yes	16
SE081	66	53	No	65	Yes	No	12
SE082	66	48	No	59	Yes	No	11

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE083	66	56	No	72	Yes	Yes	16
SE084	66	52	No	64	Yes	No	12
SE085	66	51	No	63	Yes	No	12
SE086	66	55	No	69	Yes	Yes	14
SE087	66	57	No	76	Yes	Yes	19
SE088	66	54	No	64	Yes	No	10
SE089	66	51	No	63	Yes	No	12
SE090	66	49	No	61	Yes	No	12
SE091	66	48	No	60	Yes	No	12
SE092	66	47	No	58	Yes	No	11
SE093	66	45	No	57	Yes	No	12
SE094	66	45	No	55	Yes	No	10
SE095	66	45	No	54	No	No	9
SE096	66	52	No	63	Yes	No	11
SE097	66	50	No	61	Yes	No	11
SE098	66	48	No	59	Yes	No	11
SE099	66	48	No	58	Yes	No	10
SE100	66	47	No	57	Yes	No	10
SE101	66	45	No	55	Yes	No	10
SE102	66	45	No	54	No	No	9
SE103	66	45	No	54	No	No	9
SE104	66	45	No	55	Yes	No	10
SE105	66	45	No	56	Yes	No	11
SE106	66	52	No	63	Yes	No	11
SE107	66	48	No	60	Yes	No	12
SE108	66	46	No	57	Yes	No	11
SE109	66	45	No	55	Yes	No	10
SE110	66	52	No	63	Yes	No	11
SE111	66	49	No	61	Yes	No	12

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE112	66	46	No	58	Yes	No	12
SE113	66	45	No	55	Yes	No	10
SE114	66	52	No	63	Yes	No	11
SE115	66	49	No	61	Yes	No	12
SE116	66	46	No	58	Yes	No	12
SE117	66	45	No	55	Yes	No	10
SE118	66	52	No	64	Yes	No	12
SE119	66	49	No	61	Yes	No	12
SE120	66	46	No	57	Yes	No	11
SE121	66	45	No	54	No	No	9
SE122	66	52	No	64	Yes	No	12
SE123	66	49	No	62	Yes	No	13
SE124	66	46	No	57	Yes	No	11
SE125	66	45	No	54	No	No	9
SE126	66	53	No	65	Yes	No	12
SE127	66	49	No	61	Yes	No	12
SE128	66	46	No	57	Yes	No	11
SE129	66	45	No	55	Yes	No	10
SE130	66	53	No	65	Yes	No	12
SE131	66	49	No	61	Yes	No	12
SE132	66	47	No	58	Yes	No	11
SE133	66	45	No	55	Yes	No	10
SE134	66	53	No	65	Yes	No	12
SE135	66	48	No	59	Yes	No	11
SE136	66	46	No	57	Yes	No	11
SE137	66	45	No	54	No	No	9
SE138	66	53	No	64	Yes	No	11
SE139	66	47	No	57	Yes	No	10
SE140	66	46	No	56	Yes	No	10

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE141	66	45	No	54	No	No	9
SE142	66	54	No	64	Yes	No	10
SE143	66	47	No	56	No	No	9
SE144	66	46	No	56	Yes	No	10
SE145	66	54	No	63	No	No	9
SE146	66	47	No	56	No	No	9
SE147	66	46	No	55	No	No	9
SE148	66	46	No	54	No	No	8
SE149	66	54	No	63	No	No	9
SE150	66	47	No	56	No	No	9
SE151	66	46	No	54	No	No	8
SE152	66	45	No	53	No	No	8
SE153	66	54	No	64	Yes	No	10
SE154	66	48	No	56	No	No	8
SE155	66	46	No	54	No	No	8
SE156	66	46	No	53	No	No	7
SE157	66	54	No	65	Yes	No	11
SE158	66	48	No	56	No	No	8
SE159	66	47	No	54	No	No	7
SE160	66	47	No	53	No	No	6
SE161	66	55	No	67	Yes	Yes	12
SE162	66	49	No	57	No	No	8
SE163	66	48	No	54	No	No	6
SE164	66	47	No	53	No	No	6
SE166	66	55	No	67	Yes	Yes	12
SE167	66	50	No	57	No	No	7
SE168	66	48	No	54	No	No	6
SE169	66	48	No	53	No	No	5
SE170	66	45	No	52	No	No	7

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE171	66	45	No	52	No	No	7
SE172	66	45	No	51	No	No	6
SE173	66	45	No	50	No	No	5
SE174	66	46	No	51	No	No	5
SE175	66	56	No	68	Yes	Yes	12
SE176	66	50	No	57	No	No	7
SE177	66	49	No	55	No	No	6
SE178	66	49	No	54	No	No	5
SE179	66	58	No	67	No	Yes	9
SE180	66	51	No	57	No	No	6
SE181	66	51	No	55	No	No	4
SE182	66	50	No	54	No	No	4
SE183	66	49	No	52	No	No	3
SE185	66	59	No	68	No	Yes	9
SE186	66	52	No	57	No	No	5
SE187	66	52	No	56	No	No	4
SE188	66	52	No	55	No	No	3
SE189	66	61	No	68	No	Yes	7
SE190	66	54	No	58	No	No	4
SE191	66	55	No	57	No	No	2
SE192	66	54	No	57	No	No	3
SE193	66	52	No	55	No	No	3
SE194	66	53	No	56	No	No	3
SE195	66	62	No	67	No	Yes	5
SE196	66	57	No	60	No	No	3
SE197	66	56	No	58	No	No	2
SE198	66	56	No	59	No	No	3
SE199	66	57	No	59	No	No	2
SE200	66	55	No	58	No	No	3

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SE201	66	57	No	60	No	No	3
SE203	66	69	Yes	72	No	Yes	3
SE204	66	68	Yes	71	No	Yes	3
SE205	66	68	Yes	71	No	Yes	3
SE206	66	68	Yes	71	No	Yes	3
SE207	66	59	No	62	No	No	3
SE208	66	65	No	69	No	Yes	4
SE209	66	62	No	65	No	No	3
SE210	66	66	Yes	69	No	Yes	3
SW002	66	54	No	61	No	No	7
SW003	66	48	No	55	No	No	7
SW004	66	49	No	56	No	No	7
SW005	66	51	No	57	No	No	6
SW006	66	53	No	60	No	No	7
SW007	66	55	No	62	No	No	7
SW008	66	63	No	71	No	Yes	8
SW009	66	61	No	68	No	Yes	7
SW010	66	48	No	55	No	No	7
SW011	66	49	No	56	No	No	7
SW012	66	51	No	58	No	No	7
SW013	66	52	No	59	No	No	7
SW014	66	55	No	62	No	No	7
SW015	66	61	No	68	No	Yes	7
SW016	66	48	No	55	No	No	7
SW017	66	50	No	57	No	No	7
SW018	66	51	No	58	No	No	7
SW019	66	52	No	59	No	No	7
SW020	66	54	No	61	No	No	7
SW021	66	62	No	69	No	Yes	7

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW022	66	62	No	68	No	Yes	6
SW023	66	48	No	54	No	No	6
SW024	66	48	No	55	No	No	7
SW025	66	49	No	57	No	No	8
SW026	66	51	No	58	No	No	7
SW027	66	55	No	62	No	No	7
SW028	66	62	No	69	No	Yes	7
SW029	66	56	No	62	No	No	6
SW030	66	48	No	55	No	No	7
SW031	66	48	No	55	No	No	7
SW032	66	48	No	56	No	No	8
SW033	66	50	No	57	No	No	7
SW034	66	54	No	61	No	No	7
SW035	66	62	No	69	No	Yes	7
SW036	66	50	No	56	No	No	6
SW037	66	61	No	68	No	Yes	7
SW038	66	47	No	53	No	No	6
SW039	66	56	No	62	No	No	6
SW040	66	61	No	68	No	Yes	7
SW041	66	49	No	54	No	No	5
SW042	66	49	No	55	No	No	6
SW043	66	50	No	56	No	No	6
SW044	66	51	No	57	No	No	6
SW045	66	53	No	58	No	No	5
SW046	66	61	No	67	No	Yes	6
SW047	66	51	No	54	No	No	3
SW048	66	51	No	55	No	No	4
SW049	66	53	No	56	No	No	3
SW050	66	54	No	58	No	No	4

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW051	66	55	No	59	No	No	4
SW052	66	57	No	61	No	No	4
SW053	66	61	No	66	No	Yes	5
SW054	66	51	No	54	No	No	3
SW055	66	52	No	55	No	No	3
SW056	66	53	No	56	No	No	3
SW057	66	53	No	56	No	No	3
SW058	66	55	No	58	No	No	3
SW059	66	57	No	60	No	No	3
SW060	66	58	No	62	No	No	4
SW061	66	61	No	64	No	No	3
SW062	66	62	No	66	No	Yes	4
SW063	66	60	No	64	No	No	4
SW064	66	61	No	65	No	No	4
SW065	66	62	No	67	No	Yes	5
SW066	66	63	No	68	No	Yes	5
SW067	66	58	No	60	No	No	2
SW068	66	59	No	61	No	No	2
SW069	66	61	No	63	No	No	2
SW070	66	63	No	66	No	Yes	3
SW071	66	52	No	56	No	No	4
SW072	66	53	No	56	No	No	3
SW073	66	53	No	57	No	No	4
SW074	66	54	No	57	No	No	3
SW075	66	54	No	57	No	No	3
SW076	66	54	No	58	No	No	4
SW077	66	55	No	58	No	No	3
SW078	66	56	No	59	No	No	3
SW079	66	57	No	60	No	No	3

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW080	66	59	No	61	No	No	2
SW081	66	60	No	63	No	No	3
SW082	66	63	No	66	No	Yes	3
SW083	66	64	No	67	No	Yes	3
SW084	66	48	No	50	No	No	2
SW085	66	49	No	50	No	No	1
SW086	66	49	No	50	No	No	1
SW087	66	50	No	51	No	No	1
SW088	66	51	No	51	No	No	0
SW089	66	51	No	52	No	No	1
SW090	66	55	No	55	No	No	0
SW091	66	55	No	55	No	No	0
SW092	66	56	No	56	No	No	0
SW093	66	58	No	57	No	No	-1
SW094	66	59	No	59	No	No	0
SW095	66	61	No	61	No	No	0
SW096	66	64	No	64	No	No	0
SW097	66	49	No	50	No	No	1
SW098	66	49	No	51	No	No	2
SW099	66	50	No	51	No	No	1
SW100	66	50	No	52	No	No	2
SW101	66	51	No	52	No	No	1
SW102	66	52	No	53	No	No	1
SW103	66	55	No	55	No	No	0
SW104	66	56	No	56	No	No	0
SW105	66	57	No	58	No	No	1
SW106	66	59	No	59	No	No	0
SW107	66	60	No	61	No	No	1
SW108	66	63	No	64	No	No	1

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW109	66	64	No	65	No	No	1
SW110	66	48	No	48	No	No	0
SW111	66	49	No	48	No	No	-1
SW112	66	49	No	49	No	No	0
SW113	66	50	No	50	No	No	0
SW114	66	50	No	50	No	No	0
SW115	66	51	No	51	No	No	0
SW116	66	54	No	53	No	No	-1
SW117	66	55	No	54	No	No	-1
SW118	66	56	No	55	No	No	-1
SW119	66	57	No	56	No	No	-1
SW120	66	59	No	58	No	No	-1
SW121	66	61	No	60	No	No	-1
SW122	66	63	No	63	No	No	0
SW123	66	47	No	48	No	No	1
SW124	66	47	No	49	No	No	2
SW125	66	47	No	49	No	No	2
SW126	66	47	No	49	No	No	2
SW127	66	48	No	48	No	No	0
SW128	66	49	No	49	No	No	0
SW129	66	50	No	49	No	No	-1
SW130	66	50	No	50	No	No	0
SW131	66	51	No	51	No	No	0
SW132	66	51	No	51	No	No	0
SW133	66	54	No	53	No	No	-1
SW134	66	56	No	55	No	No	-1
SW135	66	57	No	56	No	No	-1
SW136	66	58	No	57	No	No	-1
SW137	66	60	No	60	No	No	0

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW138	66	62	No	63	No	No	1
SW139	66	63	No	64	No	No	1
SW140	66	50	No	49	No	No	-1
SW141	66	51	No	50	No	No	-1
SW142	66	52	No	51	No	No	-1
SW143	66	54	No	53	No	No	-1
SW144	66	56	No	55	No	No	-1
SW145	66	56	No	55	No	No	-1
SW146	66	56	No	55	No	No	-1
SW147	66	57	No	55	No	No	-2
SW148	66	57	No	56	No	No	-1
SW149	66	58	No	56	No	No	-2
SW150	66	59	No	58	No	No	-1
SW151	66	59	No	58	No	No	-1
SW152	66	60	No	59	No	No	-1
SW153	66	61	No	60	No	No	-1
SW154	66	62	No	61	No	No	-1
SW155	66	64	No	62	No	No	-2
SW156	66	65	No	64	No	No	-1
SW157	66	48	No	47	No	No	-1
SW158	66	49	No	49	No	No	0
SW159	66	52	No	51	No	No	-1
SW160	66	53	No	52	No	No	-1
SW161	66	51	No	50	No	No	-1
SW162	66	53	No	52	No	No	-1
SW163	66	54	No	53	No	No	-1
SW164	66	55	No	54	No	No	-1
SW165	66	49	No	49	No	No	0
SW166	66	51	No	50	No	No	-1

Table 5: Summary of Existing and Build Noise Levels for Bangerter Highway Under Option

Map Label	UDOT Noise Abatement Criteria $L_{eq}(h)$	Existing Noise Levels (dBA)	Existing Exceeds NAC	Bangerter Highway Under Noise Level (dBA)	Project Impact		Difference
					≥ 10 dBA Increase From Existing Level	≥ UDOT Noise Abatement Criteria	
SW167	66	53	No	52	No	No	-1
SW168	66	54	No	53	No	No	-1
SW169	66	55	No	56	No	No	1
SW170	66	55	No	56	No	No	1
SW171	66	56	No	56	No	No	0
SW172	66	56	No	57	No	No	1
SW173	51	41	No	40	No	No	-1

4.0 NOISE ABATEMENT

According to the UDOT Noise Abatement Policy, specific conditions must be met before traffic noise abatement is implemented. Noise abatement must be considered feasible and reasonable. The factors considered when determining if abatement is feasible include:

- **Engineering Considerations:** Engineering considerations such as safety, presence of cross streets, sight distance, access to adjacent properties, wall height, topography, drainage, utilities, maintenance access, and maintenance of the abatement measure must be taken into account as part of establishing feasibility. Noise abatement measures are not intended to serve as privacy fences or safety barriers. Abatement measures installed on structures will not exceed 10-feet in height measured from the top of deck or roadway to the top of the noise wall. Noise walls will not be installed on structures that require retrofitting to accommodate the noise abatement measure. Noise abatement measures will be considered if the project meets the criteria established in this policy if structure replacement is included as part of the project. Abatement measures shall be consistent with general American Association of State Highway and Transportation Officials (AASHTO) design principles.
- **Safety on Urban Non-Access Controlled Roadways:** To avoid a damaged barrier from becoming a safety hazard, in the event of a failure, barrier height shall be no greater than the distance from the back-of-curb to the face of proposed barrier. Because the distance from the back-of-curb to the face of a proposed barrier varies, barrier heights which meet this safety requirement may also vary.
- **Acoustic Feasibility:** Noise abatement must be considered “acoustically feasible.” This is defined as achieving at least a 5 dBA highway traffic noise reduction for at least 50% of front-row receptors.

The factors considered when determining if mitigation is reasonable include:

- **Noise Abatement Design Goal:** Every reasonable effort should be made to obtain substantial noise reductions. UDOT defines the minimum noise reduction (design goal) from proposed abatement measures to be 7 dBA or greater for at least 35% of front-row receptors.
- **Cost Effectiveness:** The cost of noise abatement measures must be deemed reasonable in order to be included in the project. Noise abatement costs are based on a fixed unit cost of $20 per square foot, multiplied by the height and length of the wall, in addition to the cost of any other item associated with the abatement measure that is critical to safety. The fixed unit cost is based on the historical average cost of noise walls installed on UDOT projects and is reviewed at regular intervals, not to exceed five years. The cost effectiveness of abatement is determined by analyzing the cost of a wall that would provide a noise reduction of 5 dBA or more for a benefited receptor. A reasonable cost is considered to be a maximum of $30,000 per benefited receptor for Activity Category B and $360 per linear foot for Activity Categories A,C, D, or E. If the anticipated cost of the noise abatement measure is less than the allowable cost, then the abatement is deemed reasonable.

  The cost effectiveness calculation needs to take into account the cost of any items associated with the abatement measure that is critical to safety, such as snow storage and safety barriers. Therefore, the cost to construct items necessary for snow storage and safety barriers was taken into consideration as part of the cost effectiveness calculation.
- **Viewpoints of Property Owners and Residents:** As part of the final design phase, public balloting would take place if noise abatement measures appear to meet the criteria outlined in UDOT's Noise Abatement Policy.

4.1 Noise Barriers

For a noise barrier to be effective, it must be high enough and long enough to block the view of the noise source from the receptor's perspective. The FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* states that a good rule of thumb is that the noise barrier should extend four times as far in each direction as the distance from the receptor to the barrier. For instance, if the receptor is 50 feet from the proposed noise barrier, the barrier needs to extend at least 200 feet on either side of the receptor in order to shield the receptor from noise traveling past the ends of the barrier.

Openings in noise barriers for driveway and cross street access greatly reduce the effectiveness of noise barriers. Therefore, impacted receptors with direct access onto local streets do not qualify for noise barriers.

The anticipated cost of each wall was calculated by multiplying the wall area and the wall cost per square foot ($20). The allowable cost was calculated using two variables: 1) Activity Category B allowable cost and, 2) Activity Category C allowable cost. The Activity Category B allowable cost was calculated by multiplying the allowable cost per benefited receptor ($30,000) by the number of receptors benefited by the wall. The Activity Category C allowable cost was calculated by multiplying the length of the wall associated with Activity Category C land use by the allowable

cost for Activity Category C land ($360 per linear foot). These two variables, Activity Category B allowable cost and Activity Category C allowable cost, were combined to produce the allowable cost for each wall (see Appendix D for detailed wall analyses).

In an effort to provide an objective analysis of traffic noise reduction to impacted receptors, a variety of noise wall heights were considered. If multiple wall heights meet noise abatement requirements, the shortest wall height found to be both feasible and reasonable would be recommended for balloting. A total of seven noise walls were considered for this project. See the Noise Wall maps in Appendix C for benefited receptors associated with recommended noise walls. Benefited receptors associated with non-recommended noise walls are associated with the shortest wall height which is acoustically feasible and meets the noise abatement design goal but is not cost reasonable.

Although impacts occur at receptors NW002, NW003, NW004, and NW008, a wall at this location was not evaluated in detail because it is not long enough or tall enough to be effective. Sight distance requirements for driveways to the west and east limit the length of the wall to 46 feet (the distance between both of these driveways is approximately 210 feet). The distance from the back of the proposed curb to the face of the wall limits the height of the wall to approximately 6 feet, which is not tall enough to block views of the road from impacted second and third floor apartments. Similar constraints exist at SE209 and SE210, two receptors adjacent to the first driveway west of 3600 West; therefore, a wall at this location was not evaluated in detail.

4.2 Bangerter Highway Over Option Barrier Analysis

Wall 1

Wall 1 is an existing 9-foot tall wall on the west side of Bangerter Highway, extending approximately 1,366 feet north from 5040 South (approximate) (see Noise Wall maps 1 and 2 in Appendix C). The wall was evaluated to mitigate noise for 13 impacted receptors on the west side of Bangerter Highway from the Bangerter Highway Over Option (SW008, SW009, SW015, SW021, SW022, SW028, SW035, SW037, SW040, SW046, SW053, SW061, and SW062). As a result of the Bangerter Highway Over Option, noise impacts were identified behind the existing noise wall. This portion of the existing noise wall will not be removed as part of the Bangerter Highway Over Option. In accordance with FHWA guidance, the existing noise wall was evaluated to determine noise levels for the impacted receptors in a “no barrier” scenario. This “no barrier” scenario was then compared to the “with barrier” scenario to determine if the existing noise wall satisfied the requirements of UDOT Noise Abatement Policy for acoustic feasibility and the noise abatement design goal (see Appendix D for detailed barrier analysis). The results of this analysis are summarized in Table 6.

Table 6: Summary of Wall 1: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
9[4]	83	Yes	0	No	N/A	N/A	N/A	No
12	92	Yes	75	Yes	$360,240	$330,000	No	No
13	92	Yes	83	Yes	$387,560	$330,000	No	No
14	92	Yes	83	Yes	$414,880	$420,000	Yes	Yes
15	92	Yes	83	Yes	$442,200	$420,000	No	No
16	100	Yes	92	Yes	$469,520	$480,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 9 to 13 and 15 feet either do not meet the noise abatement design goal or are not cost reasonable. Walls 14 feet tall and 16 feet tall are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 1,366 feet long and 14 feet tall at this location is recommended for balloting.

Wall 2

Wall 2 would be located on the west side of Bangerter Highway, extending approximately 814 feet north from the Utah and Salt Lake Canal (see Noise Wall map 2 in Appendix C). The wall was evaluated to mitigate noise for 20 impacted receptors from the Bangerter Highway Over Option on the west side of Bangerter Highway (SW063-SW066, SW069, SW070, SW081-SW083, SW095, SW096, SW108, SW109, SW122, SW138, SW139, and SW153-SW156). As summarized in Table 7, walls ranging in height from 12 to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

Table 7: Summary of Wall 2: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
12	63	Yes	0	No	N/A	N/A	N/A	No
13	75	Yes	13	No	N/A	N/A	N/A	No
14	88	Yes	38	Yes	$277,480	$1,020,000	Yes	Yes
16	88	Yes	75	Yes	$310,040	$1,260,000	Yes	Yes
18	88	Yes	88	Yes	$342,600	$1,290,000	Yes	Yes
20	88	Yes	88	Yes	$375,160	$1,290,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost

Walls ranging in height from 12 to 13 feet do not meet the noise abatement design goal. Walls ranging in height from 14 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 814 feet long and 14 feet tall at this location is recommended for balloting.

Wall 3

Wall 3 would be located on the east side of Bangerter Highway, extending approximately 3,657 feet north from 5140 South (approximate) (see Noise Wall maps 1, 2, and 3 in Appendix C). The wall was evaluated to replace the existing 13-foot tall wall removed by this option. The wall was evaluated to mitigate noise for 147 impacted receptors from the Bangerter Highway Over Option on the east side of Bangerter Highway (SE027-SE050, SE052-SE054, SE056-SE094, SE096-SE177, SE179, SE180, SE185, SE189, and SE195). As summarized in Table 8, walls ranging in height from 13 (the height of the existing wall removed by the option) to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

Table 8: Summary of Wall 3: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
13[4]	88	Yes	51	Yes	$1,108,845	$2,370,000	Yes	Yes
14	93	Yes	62	Yes	$1,181,985	$2,700,000	Yes	Yes
16	100	Yes	85	Yes	$1,328,265	$2,940,000	Yes	Yes
18	100	Yes	85	Yes	$1,474,545	$2,940,000	Yes	Yes
20	100	Yes	90	Yes	$1,620,825	$3,210,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 13 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 3,657 feet long and 13 feet tall at this location is recommended for balloting.

Wall 4

Wall 4 would be located on the east side of Bangerter Highway and south side of 4700 South, extending approximately 432 feet from the proposed northbound off-ramp (see Noise Wall map 3 in Appendix C). The wall was evaluated to mitigate noise for 4 impacted receptors from the Bangerter Highway Over Option at the southeast corner of Bangerter Highway and 4700 South (SE203-SE206). As summarized in Table 9, a 7-foot tall was was evaluated (see Appendix D for detailed barrier analyses). The maximum height of the wall is limited by the distance from the back of the curb to the face of the wall, which is approximately 7 feet.

Table 9: Summary of Wall 4: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
7	75	Yes	0	No	N/A	N/A	N/A	No

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost

A 7-foot tall wall does not meet the noise abatement design goal; therefore, Wall 4 is not recommended for balloting.

Wall 5

Wall 5 would be located on the east side of Bangerter Highway, extending approximately 3,078 feet north from 4619 South (approximate) (see Noise Wall maps 3, 4, and 5 in Appendix C). The wall was evaluated to replace the existing 15-foot tall wall removed by this option. The wall was evaluated to mitigate noise for 114 impacted receptors on the east side of Bangerter Highway from the Bangerter Highway Over Option (NE024, NE028, NE030-NE032, NE036-NE038, NE040-NE043, NE045-NE050, NE053, NE055-NE060, NE062-NE065, NE067, NE068, NE070-NE074, NE077, NE080-NE087, NE089-NE097, NE099-NE101, NE103, NE105-NE108, NE110-NE112, NE115-NE117, NE119-NE126, NE128-NE131, NE133-NE138, NE140-NE143, NE145-NE148, NE150-NE153, NE155-NE158, NE160-NE163, NE165-NE169, and NE171-NE173). As summarized in Table 10, walls ranging in height from 15 (the height of the existing wall removed by this option) to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

The anticipated cost for this wall includes $1.8 million for the full acquisition and relocation of three residential properties. This acquisition cost is unique to Wall 5 because of the location of the Jordan Valley Water Conservancy District aqueduct, which prohibits walls or fences inside the easement. As a result, Wall 5 is located outside of the easement and within approximately 10 to 12 feet of these residences.

Table 10: Summary of Wall 5: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
15[4]	83	Yes	48	Yes	$2,888,460	$1,350,000	No	No
16	83	Yes	48	Yes	$2,950,020	$1,710,000	No	No
18	83	Yes	59	Yes	$3,073,140	$2,190,000	No	No
20	93	Yes	72	Yes	$3,196,260	$2,550,000	No	No

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 15 to 20 feet are accoustically feasible and meet the noise abatement goal; however, they are not cost reasonable. Although walls ranging in height from 15 to 20 feet are not considered feasible and reasonable, a 15-foot tall wall is recommended to be replaced "in-kind", consistent with the UDOT Noise Abatement Policy.

Wall 6

Wall 6 would be located on the west side of Bangerter Highway, extending approximately 1,444 feet north from 4560 South (approximate) (see Noise Wall map 4 in Appendix C). The wall was evaluated to replace the existing 13-foot tall wall removed by this option. The wall was evaluated to mitigate noise for 110 impacted receptors on the west side of Bangerter Highway from the Bangerter Highway Over Option (NW044-NW046, NW049, NW052-NW064, NW066-NW068, NW070-NW072, NW075, NW076, NW079-NW100, NW103-NW105, NW107, NW108, NW110-NW146, NW148-NW159, NW168-NW173, NW178, NW179, and NW181). As summarized in Table 11, walls ranging in height from 13 (the height of the existing wall removed by this option) to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

Table 11: Summary of Wall 6: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
13[4]	96	Yes	84	Yes	$489,890	$2,430,000	Yes	Yes
14	96	Yes	88	Yes	$518,770	$2,580,000	Yes	Yes
16	96	Yes	96	Yes	$576,530	$2,820,000	Yes	Yes
18	100	Yes	96	Yes	$634,290	$3,030,000	Yes	Yes
20	100	Yes	96	Yes	$692,050	$3,150,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 13 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 1,444 feet long and 13 feet tall at this location is recommended for balloting.

Wall 7

Wall 7 is an existing 13-foot tall wall on the west side of Bangerter Highway extending approximately 1,342 feet north from the point that the wall would be removed by this option (see Wall 6) at 4400 South (see Noise Wall maps 4 and 5 in Appendix C). The wall was evaluated to mitigate noise for 4 impacted receptors on the west side of Bangerter Highway from the Bangerter Highway Over Option (NW189, NW190, NW195, and NW218). As a result of the Bangerter Highway Over Option, noise impacts were identified behind the existing noise wall. This portion of the existing noise wall will not be removed as part of the Bangerter Highway Over Option. In accordance with FHWA guidance, the existing noise wall was evaluated to determine noise levels for the impacted receptors in a “no barrier” scenario. This “no barrier” scenario was then compared to the “with barrier” scenario to determine if the existing noise wall satisfied the requirements of UDOT Noise Abatement Policy for acoustic feasibility and the noise abatement design goal (see Appendix D for detailed barrier analysis).The results of this analysis are summarized in Table 12.

Table 12: Summary of Wall 7: Bangerter Highway Over Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
13[4]	79	Yes	79	Yes	N/A	N/A	N/A	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

The existing 13-foot tall wall is acoustically feasible and meets the noise abatement design goal. Consistent with FHWA guidance, the existing wall is recommended to remain in place.

4.3 Bangerter Highway Under Option Barrier Analysis

Wall 1

Wall 1 is an existing 9-foot tall wall on the west side of Bangerter Highway, extending approximately 1,366 feet north from 5040 South (approximate) (see Noise Wall maps 1 and 2 in Appendix C). The wall was evaluated to mitigate noise for 12 impacted receptors from the Bangerter Highway Under Option (SW008, SW009, SW015, SW021, SW022, SW028, SW035, SW037, SW040, SW046, SW053, and SW062). As a result of the Bangerter Highway Under Option, noise impacts were identified behind the existing noise wall. This portion of the existing noise wall will not be removed as part of the Bangerter Highway Under Option. In accordance with FHWA guidance, the existing noise wall was evaluated to determine noise levels for the impacted receptors in a “no barrier” scenario. This “no barrier” scenario was then compared to the “with barrier” scenario to determine if the existing noise wall satisfied the requirements of UDOT Noise Abatement Policy for acoustic feasibility and the noise abatement design goal (see Appendix D for detailed barrier analysis). The results of this analysis are summarized in Table 13.

Table 13: Summary of Wall 1: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
9[4]	92	Yes	0	No	N/A	N/A	N/A	No
12	100	Yes	92	Yes	$360,240	$360,000	No	No
13	100	Yes	92	Yes	$387,560	$420,000	Yes	Yes
14	100	Yes	92	Yes	$414,880	$510,000	Yes	Yes
16	100	Yes	92	Yes	$469,520	$570,000	Yes	Yes
18	100	Yes	92	Yes	$524,160	$660,000	Yes	Yes
20	100	Yes	100	Yes	$578,800	$810,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 9 to 12 feet either do not meet the noise abatement design goal or are not cost reasonable. Walls ranging in height from 13 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 1,366 feet long and 13 feet tall at this location is recommended for balloting.

Wall 2

Wall 2 would be located on the west side of Bangerter Highway, extending approximately 814 feet north from the Utah and Salt Lake Canal (see Noise Wall map 2 in Appendix C). The wall was evaluated to mitigate noise for 5 impacted receptors from the Bangerter Highway Under Option on the west side of Bangerter Highway (SW065, SW066, SW070, SW082, and SW083). As summarized in Table 14, walls ranging in height from 12 to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

Table 14: Summary of Wall 2: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
12	63	Yes	0	No	N/A	N/A	N/A	No
14	88	Yes	0	No	N/A	N/A	N/A	No
16	88	Yes	25	No	N/A	N/A	N/A	No
17	88	Yes	50	Yes	$326,320	$840,000	Yes	Yes
18	88	Yes	88	Yes	$342,600	$1,050,000	Yes	Yes
20	88	Yes	88	Yes	$375,160	$1,230,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost

Walls ranging in height from 12 to 16 feet do not meet the noise abatement design goal. Walls ranging in height from 17 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 814 feet long and 17 feet tall at this location is recommended for balloting.

Wall 3

Wall 3 would be located on the east side of Bangerter Highway, extending approximately 3,657 feet north from 5140 South (approximate) (see Noise Wall maps 1, 2, and 3 in Appendix C). The wall was evaluated to replace the existing 13-foot tall wall removed by this option. The wall was evaluated to mitigate noise for 116 impacted receptors from the Bangerter Highway Under Option on the east side of Bangerter Highway (SE027-SE050, SE052-SE054, SE056-SE094, SE096-SE177, SE179, SE180, SE185, SE189, and SE195). As summarized in Table 15, walls ranging in height from 13 (the height of the existing wall removed by the option) to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

Table 15: Summary of Wall 3: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
13[4]	85	Yes	64	Yes	$1,108,845	$2,850,000	Yes	Yes
14	90	Yes	64	Yes	$1,181,985	$3,000,000	Yes	Yes
16	100	Yes	64	Yes	$1,328,265	$3,090,000	Yes	Yes
18	100	Yes	72	Yes	$1,474,545	$3,330,000	Yes	Yes
20	100	Yes	77	Yes	$1,620,825	$3,540,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 13 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 3,657 feet long and 13 feet tall at this location is recommended for balloting.

Wall 4

Wall 4 would be located on the east side of Bangerter Highway and south side of 4700 South, extending approximately 432 feet north and east from 4720 South (approximate) (see Noise Wall map 3 in Appendix C). The wall was evaluated to mitigate noise for 4 impacted receptors from the Bangerter Highway Under Option at the southeast corner of Bangerter Highway and 4700 South (SE203-SE206). As summarized in Table 16, a 7-foot tall was was evaluated (see Appendix D for detailed barrier analyses). The maximum height of the wall is limited by the distance from the back of the curb to the face of the wall, which is approximately 7 feet.

Table 16: Summary of Wall 4: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
7	75	Yes	25	No	N/A	N/A	N/A	No

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost

A 7-foot tall wall does not meet the noise abatement design goal; therefore, Wall 4 is not recommended for balloting.

Wall 5

Wall 5 would be located on the east side of Bangerter Highway, extending approximately 3,078 feet north from 4619 South (approximate) (see Noise Wall maps 3, 4, and 5 in Appendix C). The wall would replace the existing 15-foot tall wall removed by this option. The wall was evaluated to mitigate noise for 102 impacted receptors on the east side of Bangerter Highway from the Bangerter Highway Under Option (NE040, NE043, NE045-NE048, NE050, NE053, NE055-NE059, NE062-NE065, NE067, NE068, NE070-NE074, NE077, NE080-NE087, NE089-NE101, NE103, NE105-108, NE110-NE112, NE115-NE117, NE119-NE126, NE128-NE131, NE133-NE138, NE140-NE143, NE145-NE148, NE150-NE153, NE155-NE158, NE160-NE163, NE165-NE169, and NE171-NE173). As summarized in Table 17, walls ranging in height from 15 (the height of the existing wall removed by the option) to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

The anticipated cost for this wall includes $1.8 million for the full acquisition and relocation of three residential properties. This acquisition cost is unique to Wall 5 because of the location of the Jordan Valley Water Conservancy District aqueduct, which prohibits walls or fences inside the easement. As a result, Wall 5 is located outside of the easement and within approximately 10 to 12 feet of these residences.

Table 17: Summary of Wall 5: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
15[4]	69	Yes	45	Yes	$2,888,460	$1,740,000	No	No
16	76	Yes	48	Yes	$2,950,020	$1,890,000	No	No
17	76	Yes	48	Yes	$3,011,580	$2,190,000	No	No
18	79	Yes	59	Yes	$3,073,140	$2,220,000	No	No
20	79	Yes	59	Yes	$3,196,260	$2,730,000	No	No

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 15 to 20 feet are accoustically feasible and meet the noise abatement goal; however, they are not cost reasonable. Although walls ranging in height from 15 to 20 feet are not considered feasible and reasonable, a 15-foot tall wall is recommended to be replaced “in-kind”, consistent with the UDOT Noise Abatement Policy.

Wall 6

Wall 6 would be located on the west side of Bangerter Highway, extending approximately 1,444 feet north from 4560 South (approximate) (see Noise Wall map 4 in Appendix C). The wall would replace the existing 13-foot tall wall removed by this option. The wall was evaluated to mitigate noise for 72 impacted receptors on the west side of Bangerter Highway from the Bangerter Highway Under Option (NW053-NW056, NW059, NW061-NW064, NW067, NW071, NW072, NW075, NW076, NW081, NW086-NW092, NW094, NW095, NW104, NW105, NW107, NW108, NW110-NW112, NW114-NW121, NW125-NW134, NW137-NW140, NW142-NW145, NW151, NW152, NW154, NW156-NW159, NW170-NW173, NW179, and NW181). As summarized in Table 18, walls ranging in height from 13 (the height of the existing wall removed by this option) to 20 feet were evaluated (see Appendix D for detailed barrier analyses).

Table 18: Summary of Wall 6: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
13[4]	96	Yes	76	Yes	$489,890	$2,400,000	Yes	Yes
14	96	Yes	84	Yes	$518,770	$2,580,000	Yes	Yes
16	100	Yes	88	Yes	$576,530	$3,030,000	Yes	Yes
18	100	Yes	92	Yes	$634,290	$3,120,000	Yes	Yes
20	100	Yes	96	Yes	$692,050	$3,150,000	Yes	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

Walls ranging in height from 13 to 20 feet are acoustically feasible, meet the noise abatement design goal, and are cost reasonable. Therefore, a wall 1,444 feet long and 13 feet tall at this location is recommended for balloting.

Wall 7

Wall 7 is an existing 13-foot tall wall on the west side of Bangerter Highway, extending approximately 1,342 feet north from the point that the wall would be removed by this option (see Wall 6) at 4400 South (see Noise Wall maps 4 and 5 in Appendix C). The wall was evaluated to mitigate noise for 4 impacted receptors on the west side of Bangerter Highway from the Bangerter Highway Under Option (NW189, NW190, NW195, and NW218). As a result of the Bangerter Highway Under Option, noise impacts were identified behind the existing noise wall. This portion of the existing noise wall will not be removed as part of the Bangerter Highway Under Option. In accordance with FHWA guidance, the existing noise wall was evaluated to determine noise levels for the impacted receptors in a "no barrier" scenario. This "no barrier" scenario was then compared to the "with barrier" scenario to determine if the existing noise wall satisfied the requirements of UDOT Noise Abatement Policy for acoustic feasibility and the noise abatement design goal (see Appendix D for detailed barrier analysis). The results of this analysis are summarized in Table 19.

Table 19: Summary of Wall 7: Bangerter Highway Under Option

Barrier Height	Feasible		Reasonable					Is Barrier Feasible & Reasonable?
	% front-row with 5 dBA reduction	Acoustically feasible? [1]	% front-row with 7 dBA reduction	Noise Abatement Design Goal? [2]	Anticipated Cost	Allowable Cost	Cost Effective? [3]	
13[4]	79	Yes	79	Yes	N/A	N/A	N/A	Yes

[1] 5 dBA reduction for at least 50% of front-row receptors
[2] 7 dBA for at least 35% of front-row receptors
[3] Anticipated cost is less than allowable cost
[4] Existing wall height

The existing 13-foot tall wall is acoustically feasible and meets the noise abatement design goal. Consistent with FHWA guidance, the existing wall is recommended to remain in place.

5.0 CONSTRUCTION IMPACTS

Construction noise impacts are considered temporary and will be minimized through adherence to UDOT Special Provision 01355M (Environmental Compliance) and Special Provision 0055 (Prosecution and Progress). Extended disruption of normal activities is not anticipated, since no receptors are expected to be exposed to construction noise for a long duration of time.

6.0 INFORMATION FOR LOCAL OFFICIALS

According to the UDOT Noise Abatement Policy, an estimated distance from the edge of pavement to where the worst hour L_{eq}(h) levels of 66 dBA and 71 dBA occur must be provided to local governments for land uses with Activity Category G.

The only undeveloped area is located on the west side of Bangerter Highway and south of the Taylorsville InstaCare. Projected traffic noise levels from the edge of pavement to a level of 66 dBA and 71 dBA are shown in Table 20 (see Undeveloped Land maps in Appendix E).

Table 20: 66 dBA and 71 dBA From Edge of Pavement

Option	66 dBA Distance (feet)	71 dBA Distance (feet)
Over	200	90
Under	100	30

7.0 CONCLUSION

Overall, noise levels for the Bangerter Highway Over Option would range from 40 dBA to 78 dBA compared to 36 dBA and 69 dBA for the existing conditions.

Overall, noise levels for the Bangerter Highway Under Option would range from 38 dBA to 78 dBA compared to 36 dBA and 69 dBA for the existing conditions.

Recommended noise walls within the study area that met the requirements of the UDOT Noise Abatement Policy are discussed below. The final decision to build a noise barrier will not be made until completion of the project design and refined utility and right-of-way costs are available. Reasonableness will be revisited using refined costs prior to balloting of benefited receptors. A barrier identified as recommended for balloting is a barrier that has been shown to be both feasible and reasonable. However, that finding is not a commitment to build a barrier.

7.1 Bangerter Highway Over Option Summary of Evaluated Walls

Table 21 summarizes the evaluated walls for the Bangerter Highway Over Option.

Table 21: Bangerter Highway Over Option Evaluated Walls

Wall	Length (feet)	Minimum Height (feet)	Determination
1	1,366	14	Recommended
2	814	14	Recommended
3	3,657	13	Recommended
4	-	-	Not Recommended
5	3,078	15	Replace “in-kind”
6	1,444	13	Recommended
7	1,342	13	Remain in place

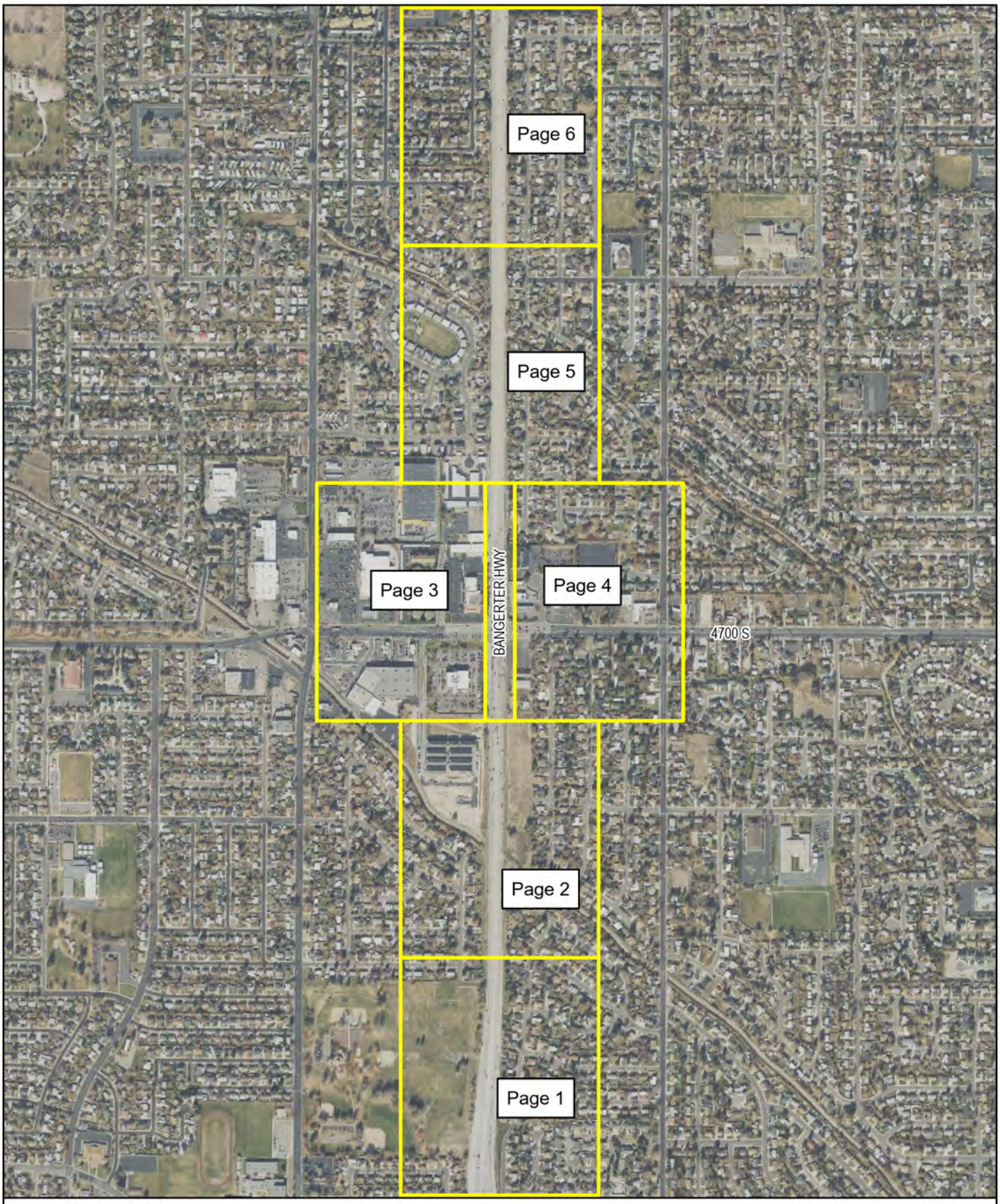
7.2 Bangerter Highway Under Option Summary of Evaluated Walls

Table 22 summarizes the evaluated walls for the Bangerter Highway Under Option.

Table 22: Bangerter Highway Under Option Evaluated Walls

Wall	Length (feet)	Minimum Height (feet)	Determination
1	1,366	13	Recommended
2	814	17	Recommended
3	3,657	13	Recommended
4	-	-	Not Recommended
5	3,078	15	Replace “in-kind”
6	1,444	13	Recommended
7	1,342	13	Remain in place

APPENDIX A: EXISTING NOISE LEVEL MAPS AND NOISE MEASUREMENT DATASHEETS



Noise Overview

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

0 250 500 1,000
Feet

N

1 inch equals 1,000 feet

10/25/2021



Existing Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Noise Measurement Site
Below NAC
Above NAC
Existing Noise Walls

0 50 100 200 Feet

1 inch equals 200 feet

11/4/2021



Existing Noise Impacts

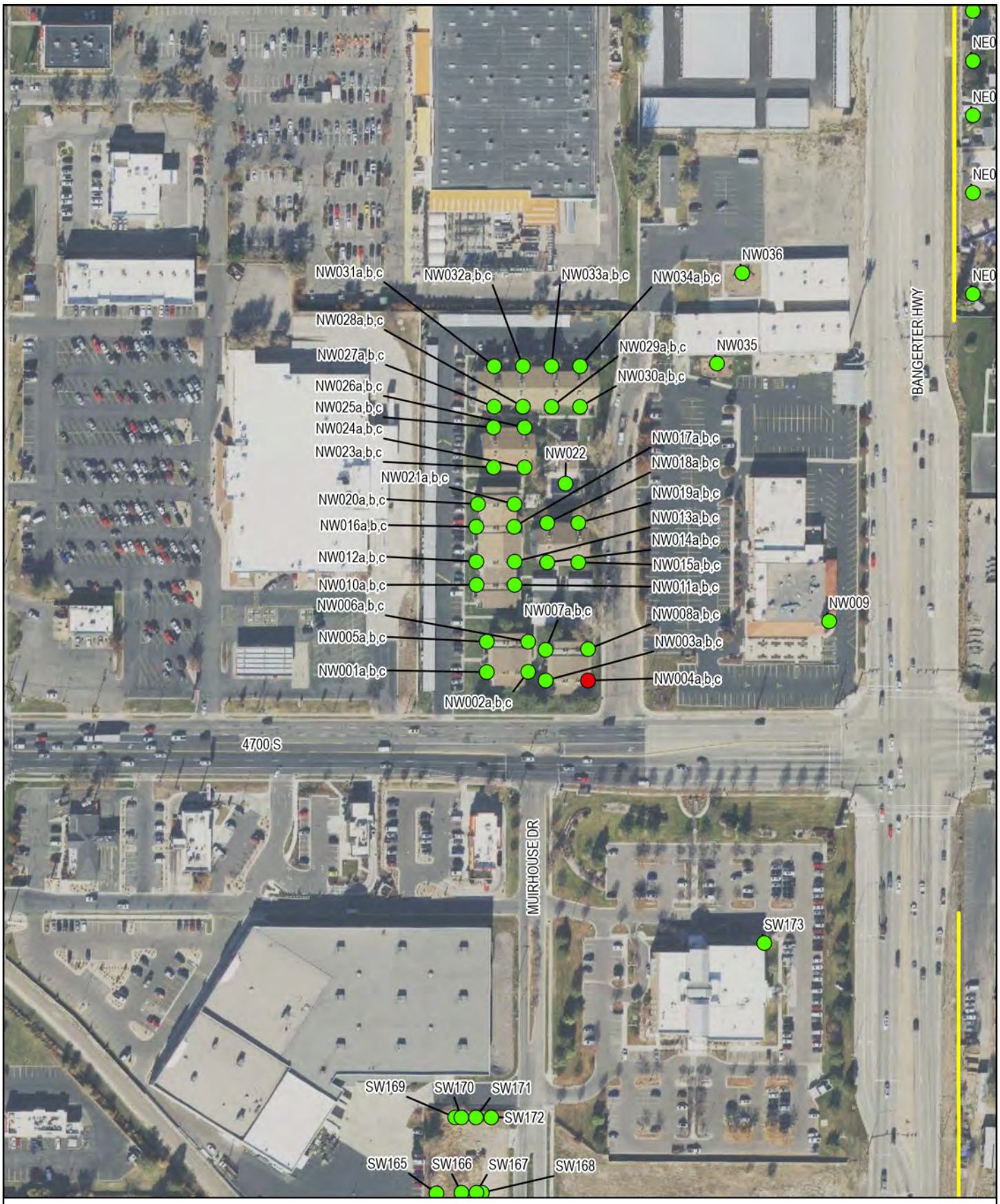
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Noise Measurement Site
Below NAC
Above NAC
Existing Noise Walls

0 50 100 200 Feet

1 inch equals 200 feet

11/4/2021



Existing Noise Impacts

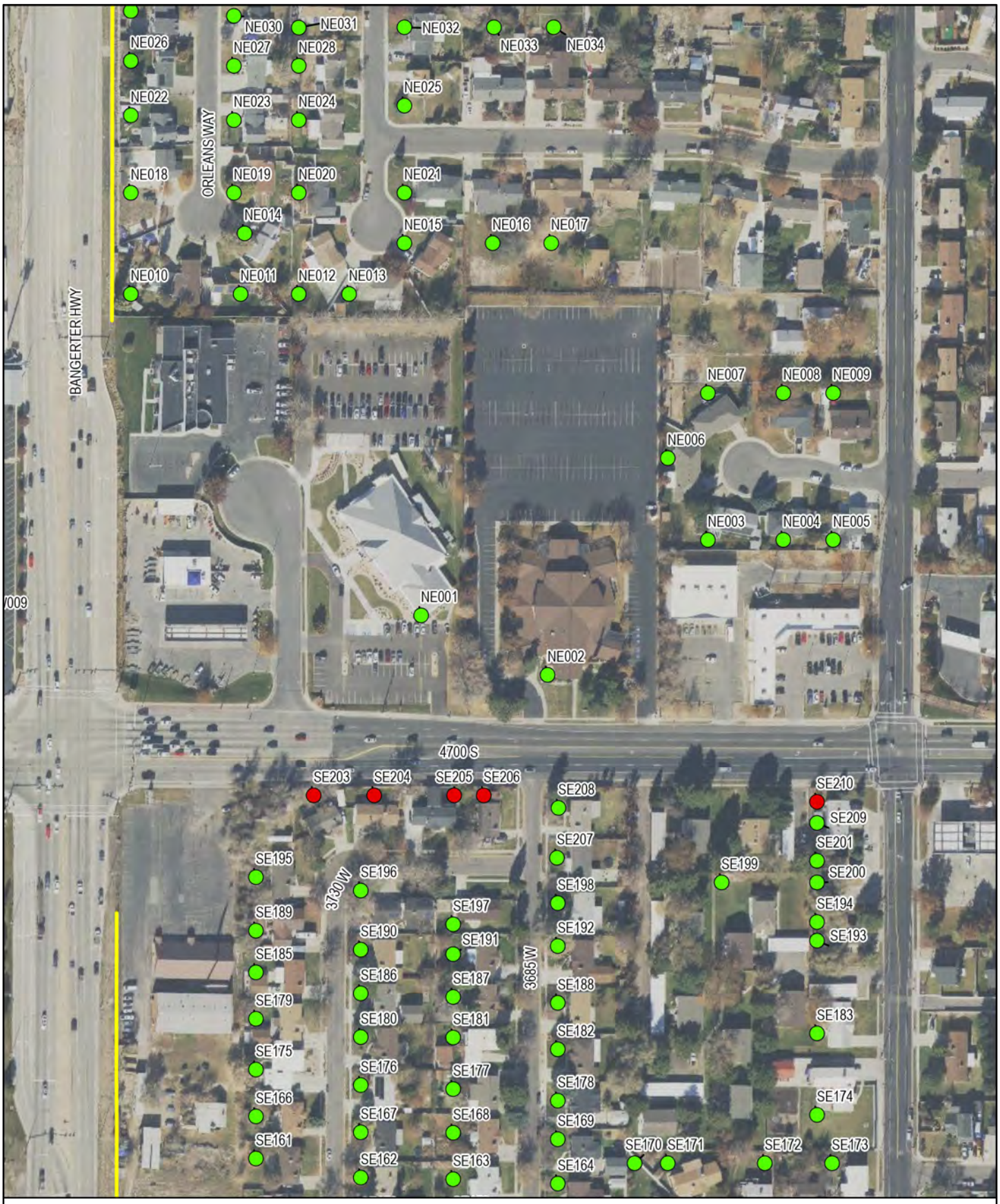
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Noise Measurement Site
Below NAC
Above NAC
Existing Noise Walls

0 50 100 200 Feet

1 inch equals 200 feet

11/4/2021



Existing Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Noise Measurement Site
Below NAC
Above NAC
Existing Noise Walls

0 50 100 200 Feet

1 inch equals 200 feet

11/4/2021



Existing Noise Impacts

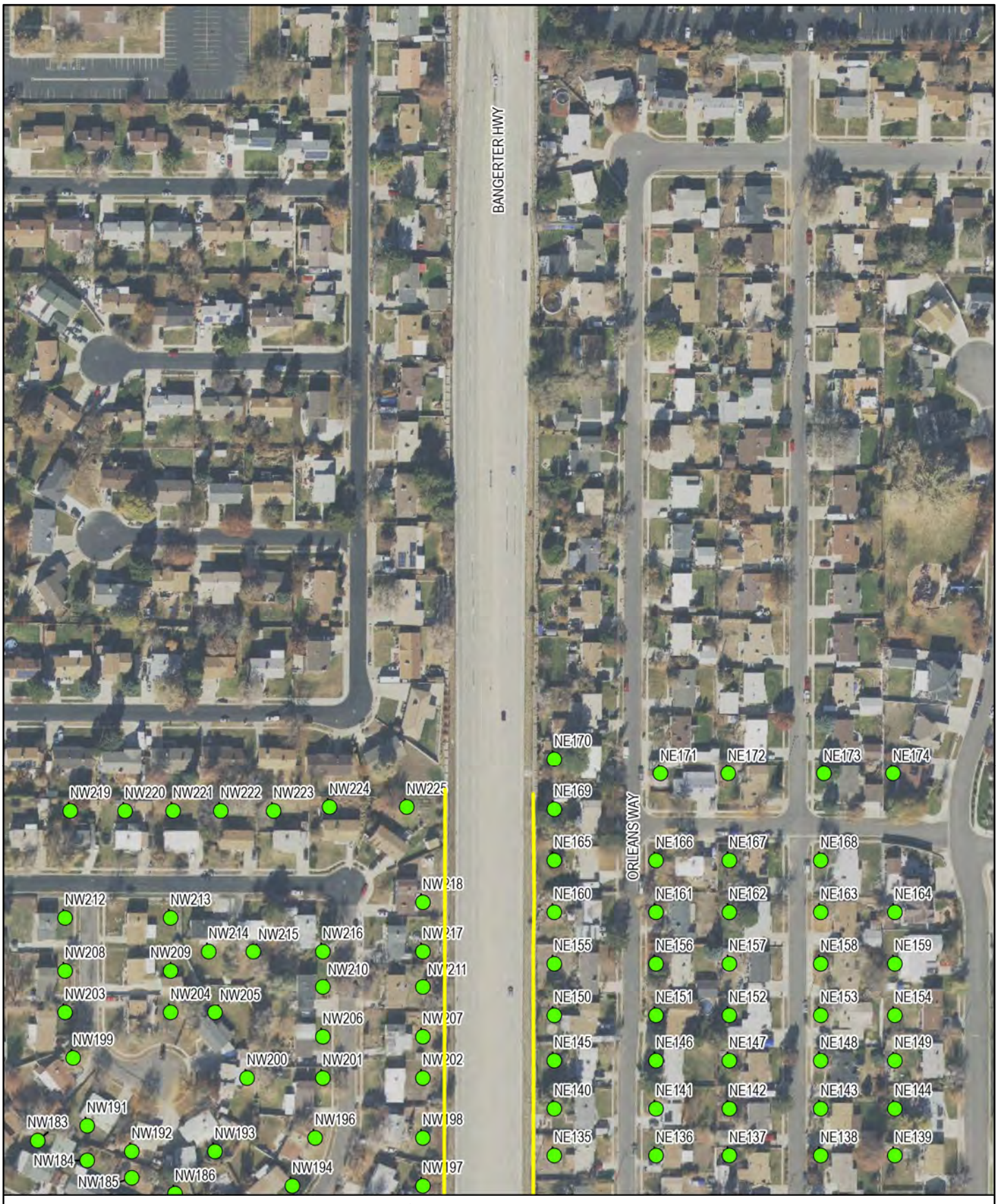
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Noise Measurement Site
Below NAC
Above NAC
Existing Noise Walls

0 50 100 200 Feet

1 inch equals 200 feet

11/4/2021



Existing Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Noise Measurement Site
Below NAC
Above NAC
Existing Noise Walls

0 50 100 200 Feet

1 inch equals 200 feet

N

11/4/2021

a

Field Noise Measurement Data Sheet

→ 22. 1:48 start

Project Name: BANGERTER HWY / 4700 S. Date: 7/13/21 Technician: MATT MONTGOMERY

Site Number: ML-1 Site Description: SOUTHRIDGE PARK

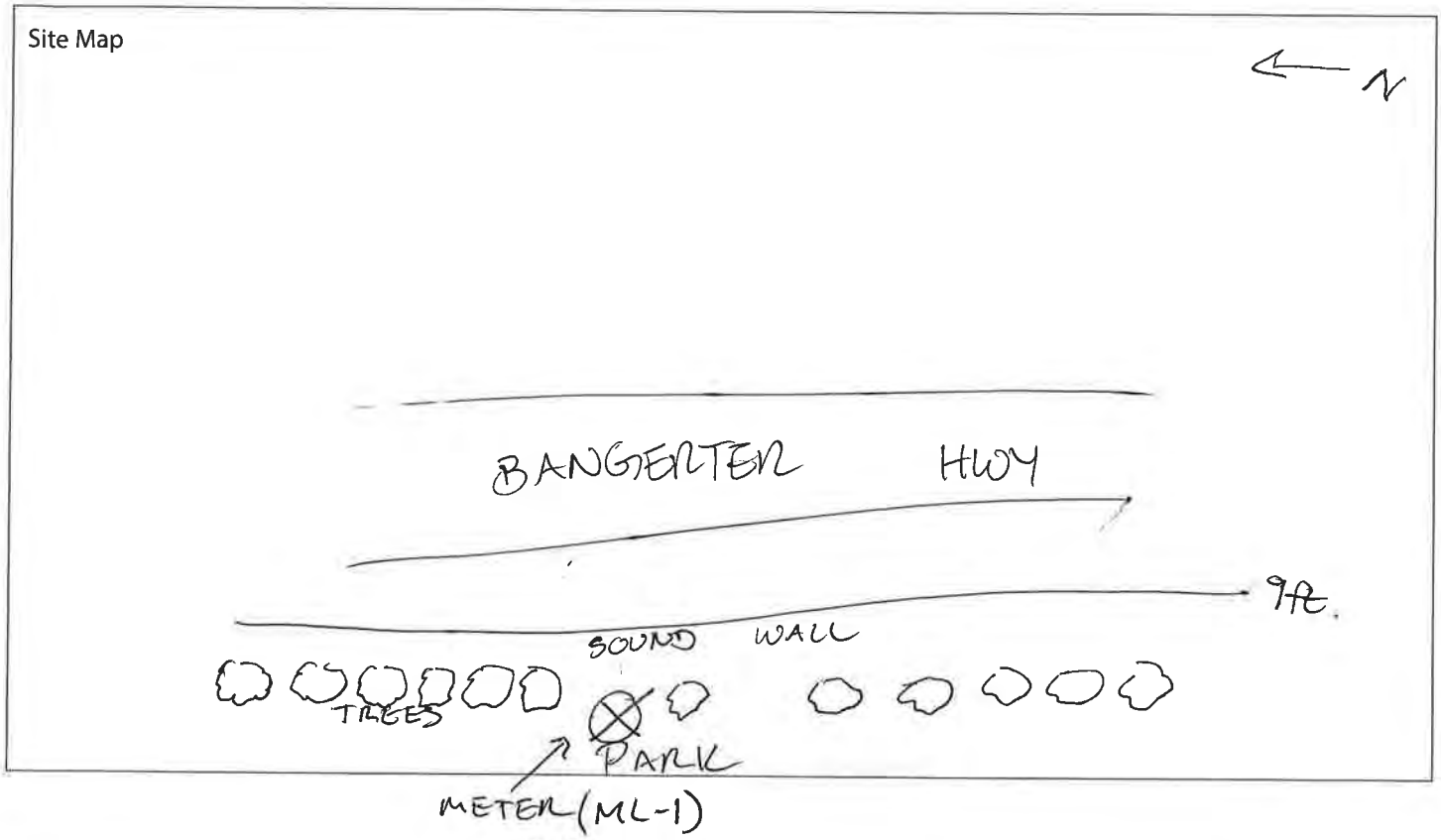
Cloud Cover: PARTLY CLOUDY Wind (MPH): 9 Wind Direction: N Temperature: 91 ≈

Meter Type: LARSEN DAVIS LXT1 Calibration (pre dBA): 93.87 Calibration (post dBA): 93.91

Event Number: .001 Start Time: 11:45 AM End Time: 12:05 PM Duration: 20 m

Results Leq (dBA): 63.0 Results Lmax (dBA): 74.2

Site Map



Background Noise/Unusual Events

Elapsed Time (min)	Comments	Elapsed Time (min)	Comments
1: 44	AIRPLANE OVERHEAD	11: 27	AIRPLANE OVERHEAD
2:		12: 35	AIRPLANE OVERHEAD
3:		13:	
4:		14: 27	AIRPLANE OVERHEAD
5: 07	VERY WINDY	15: 32	PAPER BLOWING
6:		16: 12	WIND GUST
7:		17: 41	AIRPLANE
8:		18: 30	WIND DIED DOWN
9:		19: 48	REGULAR TRAFFIC
10: 15	AIRPLANE OVERHEAD	20:	

Site 1: Looking East



Site 1: Looking North



Site 1: Looking South



Site 1: Looking West



Field Noise Measurement Data Sheet

Project Name: BANGERTER HWY/4700S. Date: 7/22/21 Technician: MATT MONTGOMERY

Site Number: ML-2 Site Description: WEST DRIVEWAY OF HOME

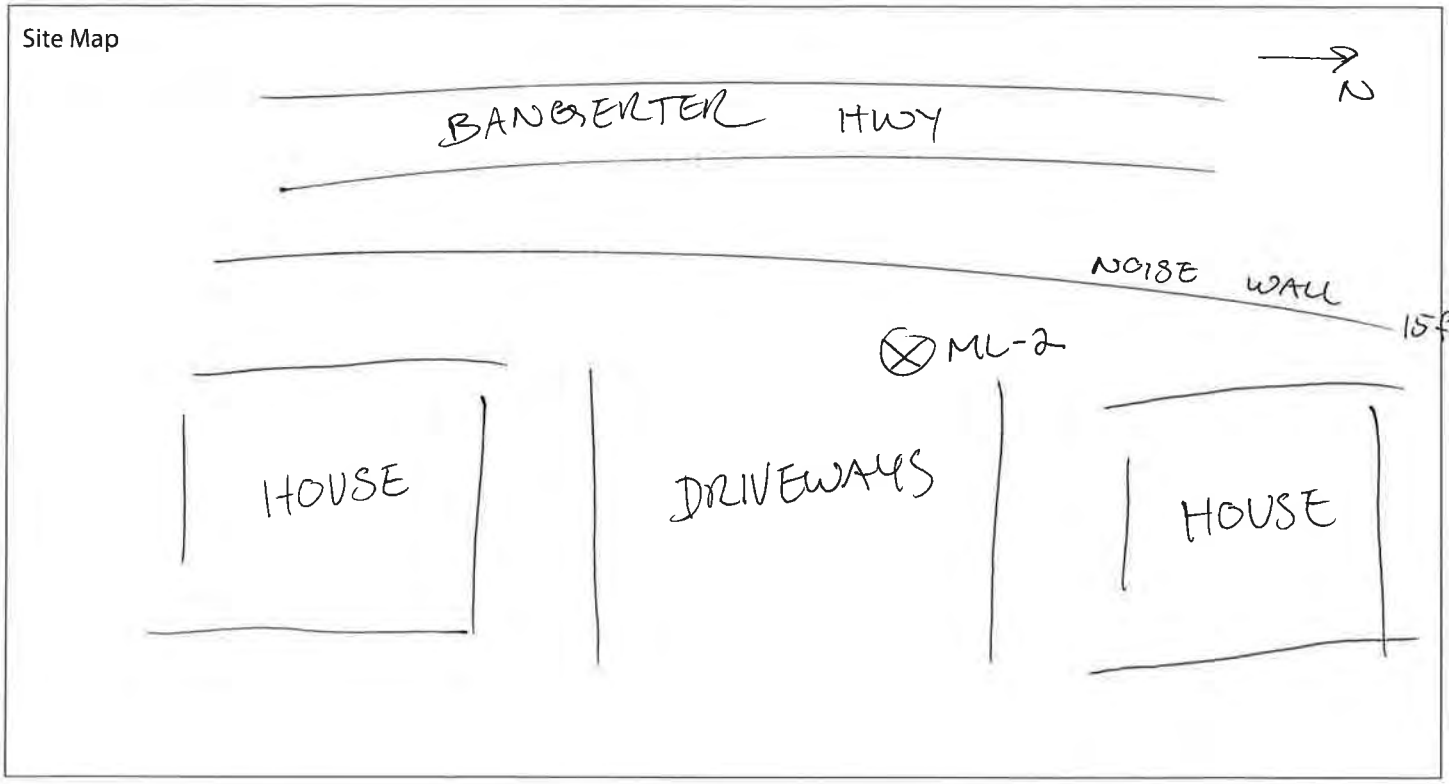
Cloud Cover: CLOUDY/PARTIAL Wind (MPH): 8 Wind Direction: N Temperature: 87°

Meter Type: LARSON DAVIS LXT1 Calibration (pre dBA): 93.88 Calibration (post dBA): 93.92

Event Number: 0005 Start Time: 10:25 AM End Time: 10:45AM Duration: 20 MINUTES

Results Leq (dBA): 61.3 Results Lmax (dBA): 76.2

Site Map



Background Noise/Unusual Events

Elapsed Time (min)	Comments	Elapsed Time (min)	Comments
0:15	AIRPLANE		
1:55	AIRPLANE		
3:37	AIRPLANE		
10:50	LARGE TRUCK		
11:55	AIRPLANE		
13:23	AIRPLANE		
15:04	AIRPLANE		
19:37	AIRPLANE		

Site 2: Looking East



Site 2: Looking North



Site 2: Looking South



Site 2: Looking West



Field Noise Measurement Data Sheet

Project Name: BANGERTER HWY / 4700 S. Date: 7/13/21 Technician: MATT MONTGOMERY

Site Number: ML-3 Site Description: PARKING AREA OF 4-PLEX

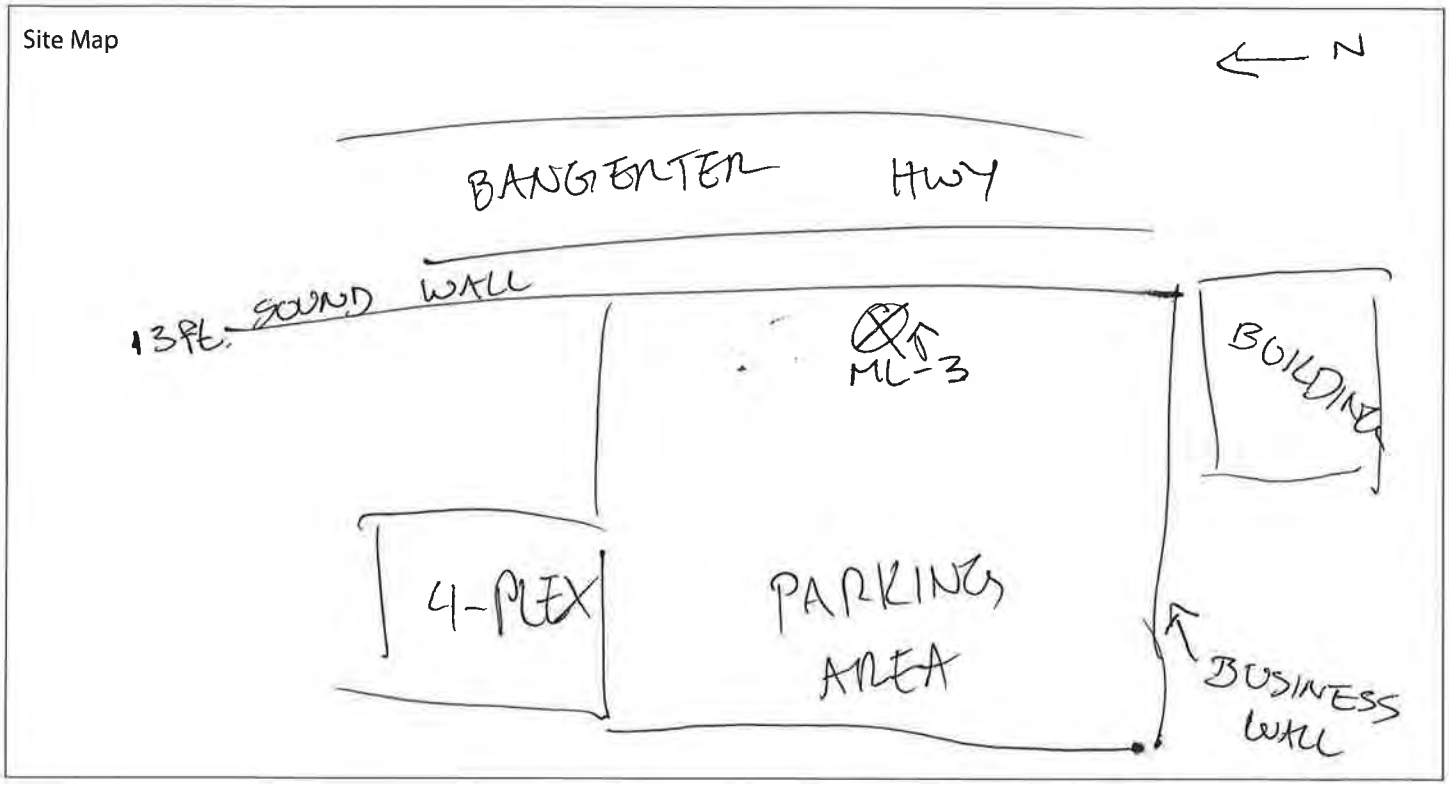
Cloud Cover: PARTIAL Wind (MPH): 8 Wind Direction: N Temperature: 93°

Meter Type: LARSON DAVIS LXT1 Calibration (pre dBA): 93.91 Calibration (post dBA): 93.98

Event Number: .002 Start Time: 12:59 PM End Time: 1:19 PM Duration: 20 m.

Results Leq (dBA): 66.6 Results Lmax (dBA): 66.8

Site Map



Background Noise/Unusual Events

Elapsed Time (min)	Comments	Elapsed Time (min)	Comments
1:		11:	
2:		12:	
3:		13: 00	MOTORCYLE START-UP
4: 00	AIRPLANE	14:	
5:		15:	
6:		16:	
7: 51	LOUD VEHICLE	17:	
8:		18:	
9: 00	AIRPLANE	19:	
10:		20:	

Site 3: Looking East



Site 3: Looking North



Site 3: Looking South



Site 3: Looking West



Field Noise Measurement Data Sheet

Project Name: BANGERTER HWY/4700S Date: 7/13/21 Technician: MATT MONTGOMERY

Site Number: ML-4 Site Description: FRONT YARD OF HOME

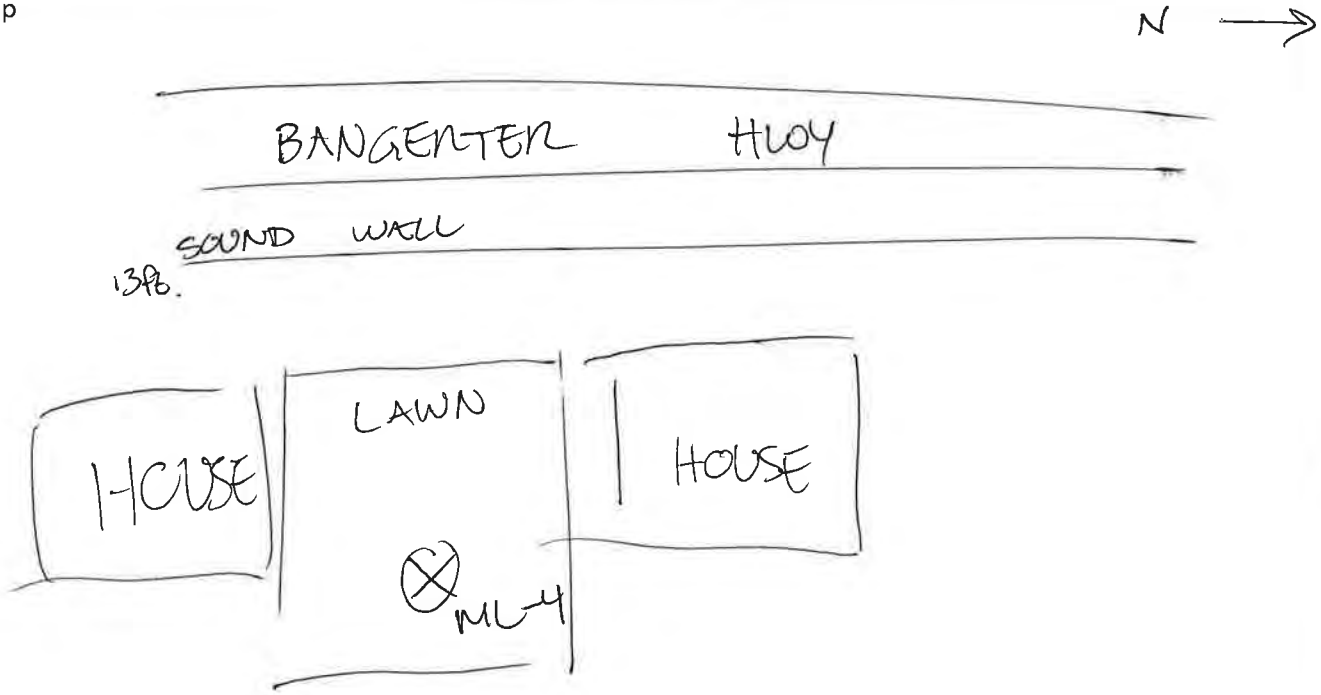
Cloud Cover: PARTIAL Wind (MPH): 12 Wind Direction: NW Temperature: 99°

Meter Type: LARSON DAVIS LXT1 Calibration (pre dBA): 93.97 Calibration (post dBA): 93.97

Event Number: .004 Start Time: 3:06 PM End Time: 3:26 PM Duration: 20m.

Results Leq (dBA): 55.4 Results Lmax (dBA): 64.9

Site Map



Background Noise/Unusual Events

Elapsed Time (min)	Comments	Elapsed Time (min)	Comments
1:		11:	
2: 46	WIND GUST	12:	
3:		13: 00	AIRPLANE
4:		14: 13:20	MOTORCYCLE START UP
5:		15: 26	AIRPLANE
6:		16: 15:46	CAR PASSING
7: 31	VEHICLE PASSING BY	17:	
8:		18:	
9:		19: 24	AIRPLANE
10:		20:	

Site 4: Looking East



Site 4: Looking North



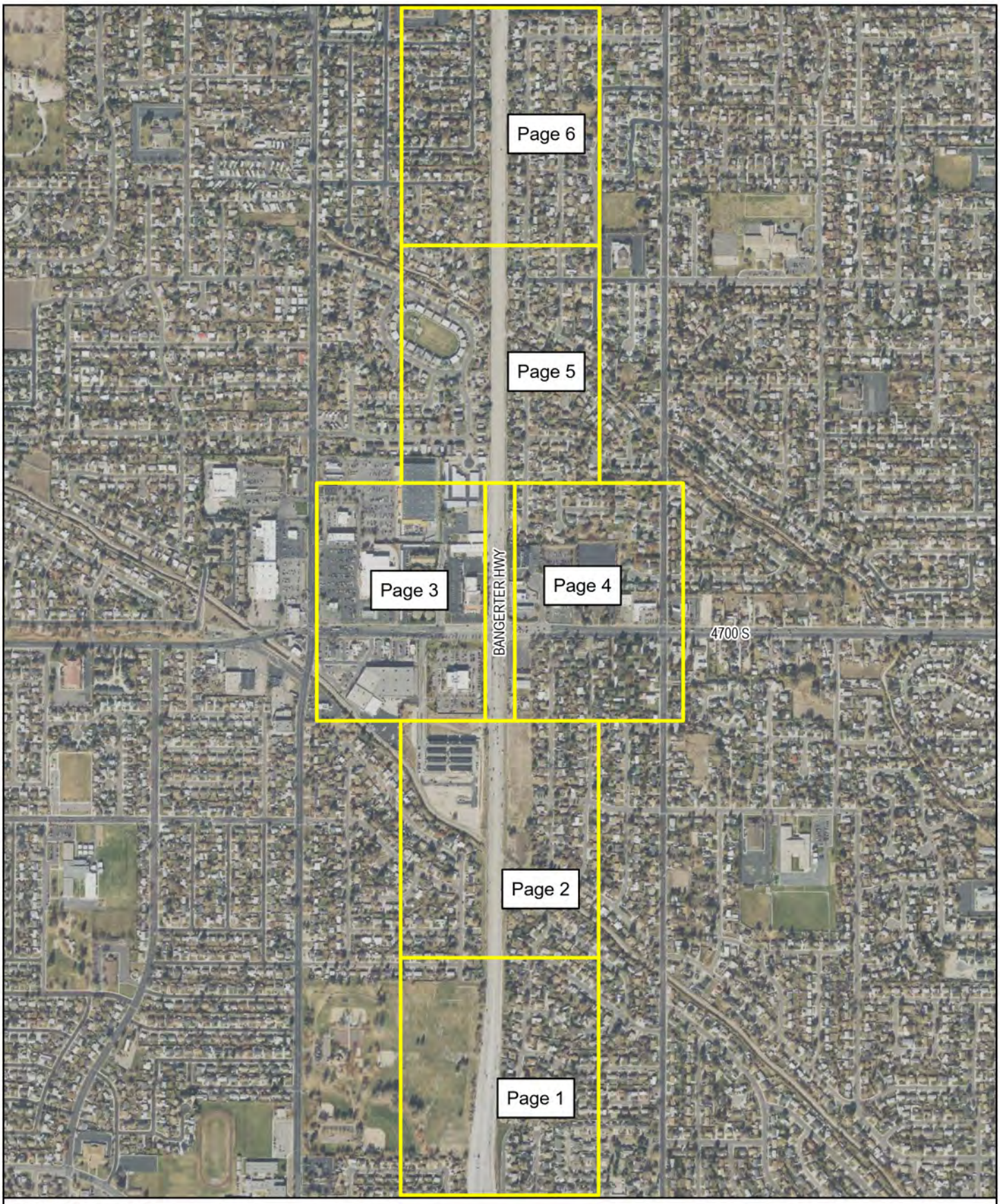
Site 4: Looking South



Site 4: Looking West



APPENDIX B: BUILD NOISE IMPACTS MAPS



Noise Overview

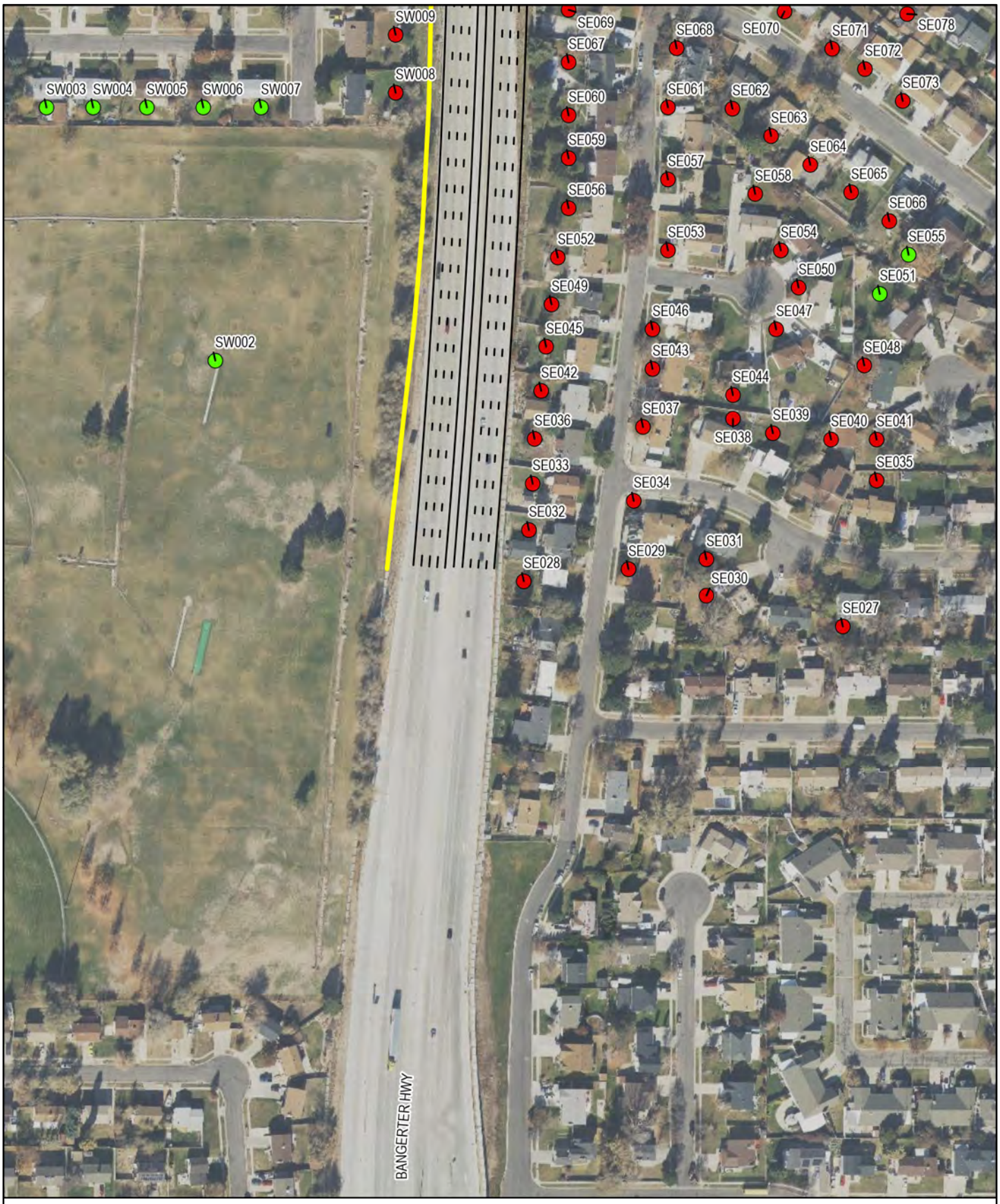
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

0 250 500 1,000
Feet

N

1 inch equals 1,000 feet

10/25/2021



Bangerter Highway Over Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

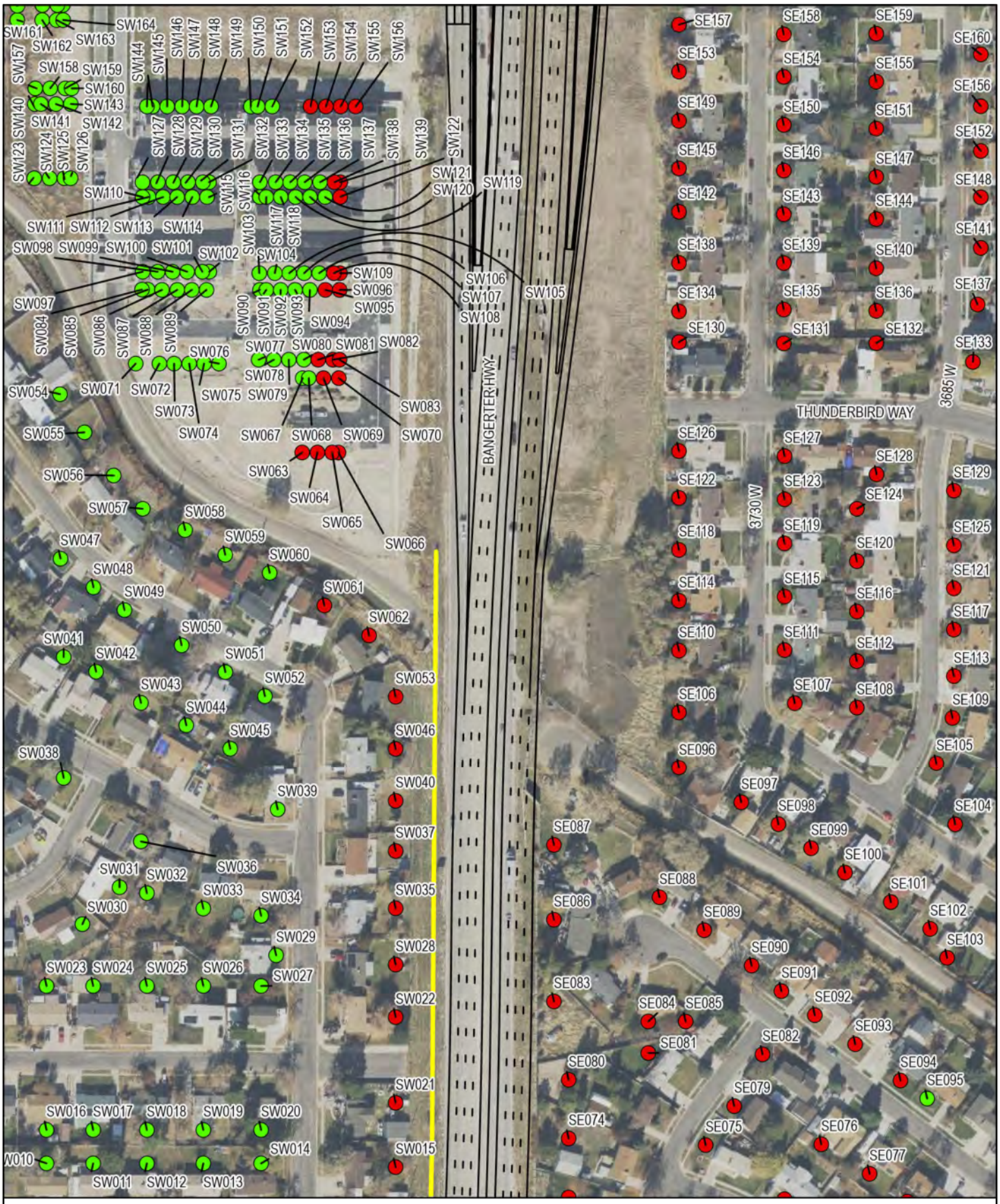
Not Impacted Receptor
Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Bangerter Highway Over Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

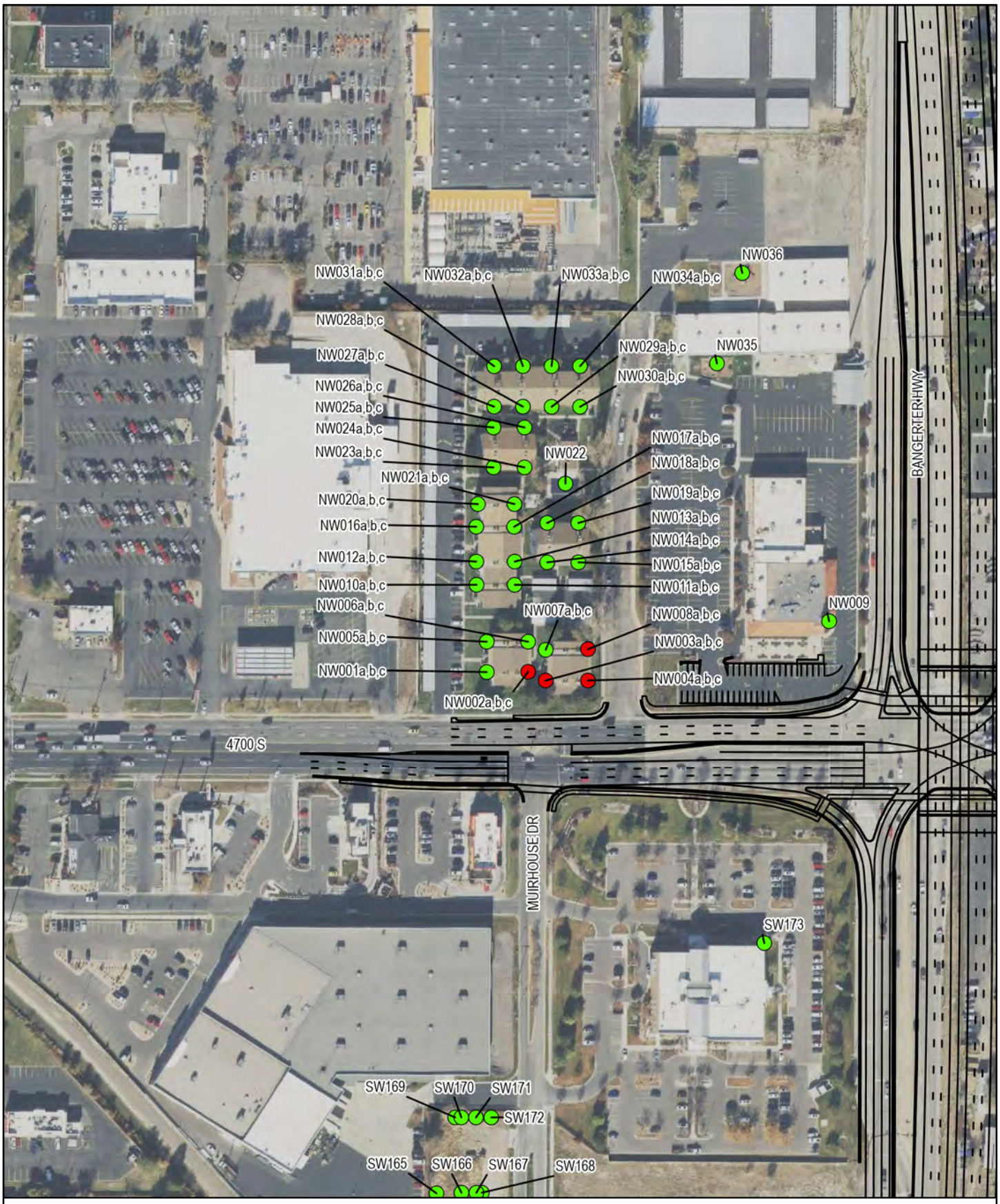
Not Impacted Receptor
Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

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N

2/10/2022



Bangerter Highway Over Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
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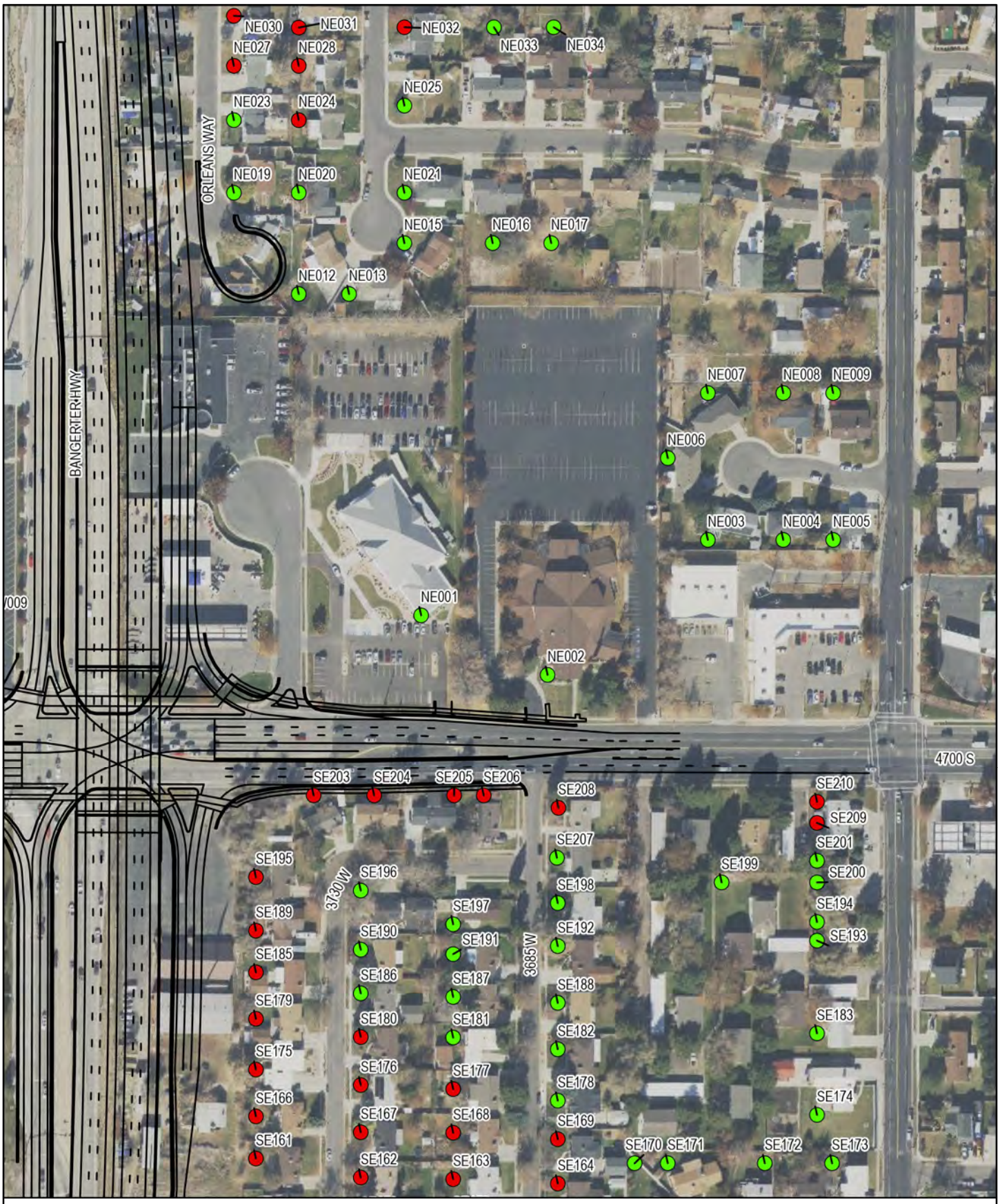
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Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

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N

2/10/2022



Bangerter Highway Over Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

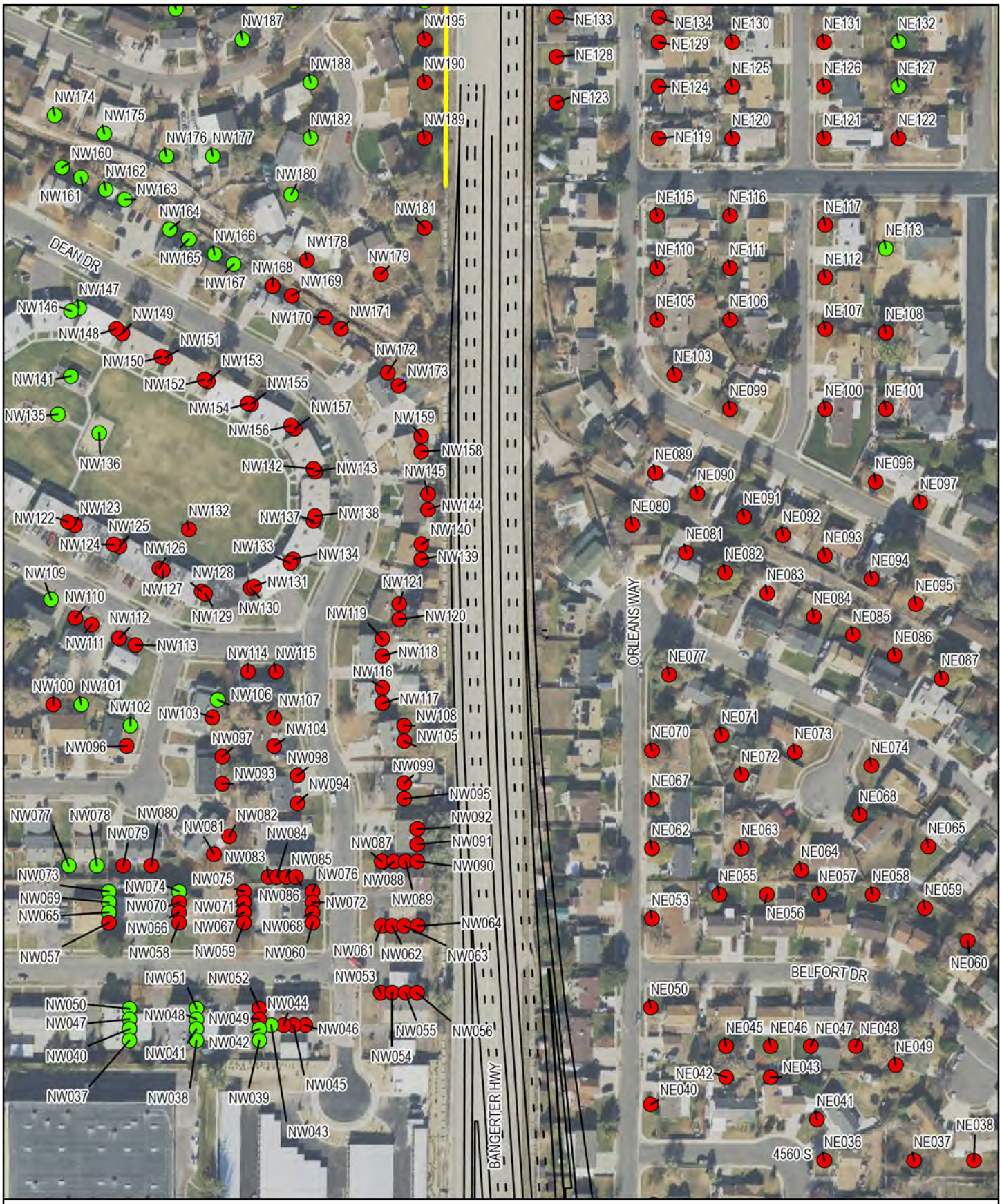
Not Impacted Receptor
Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Bangerter Highway Over Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

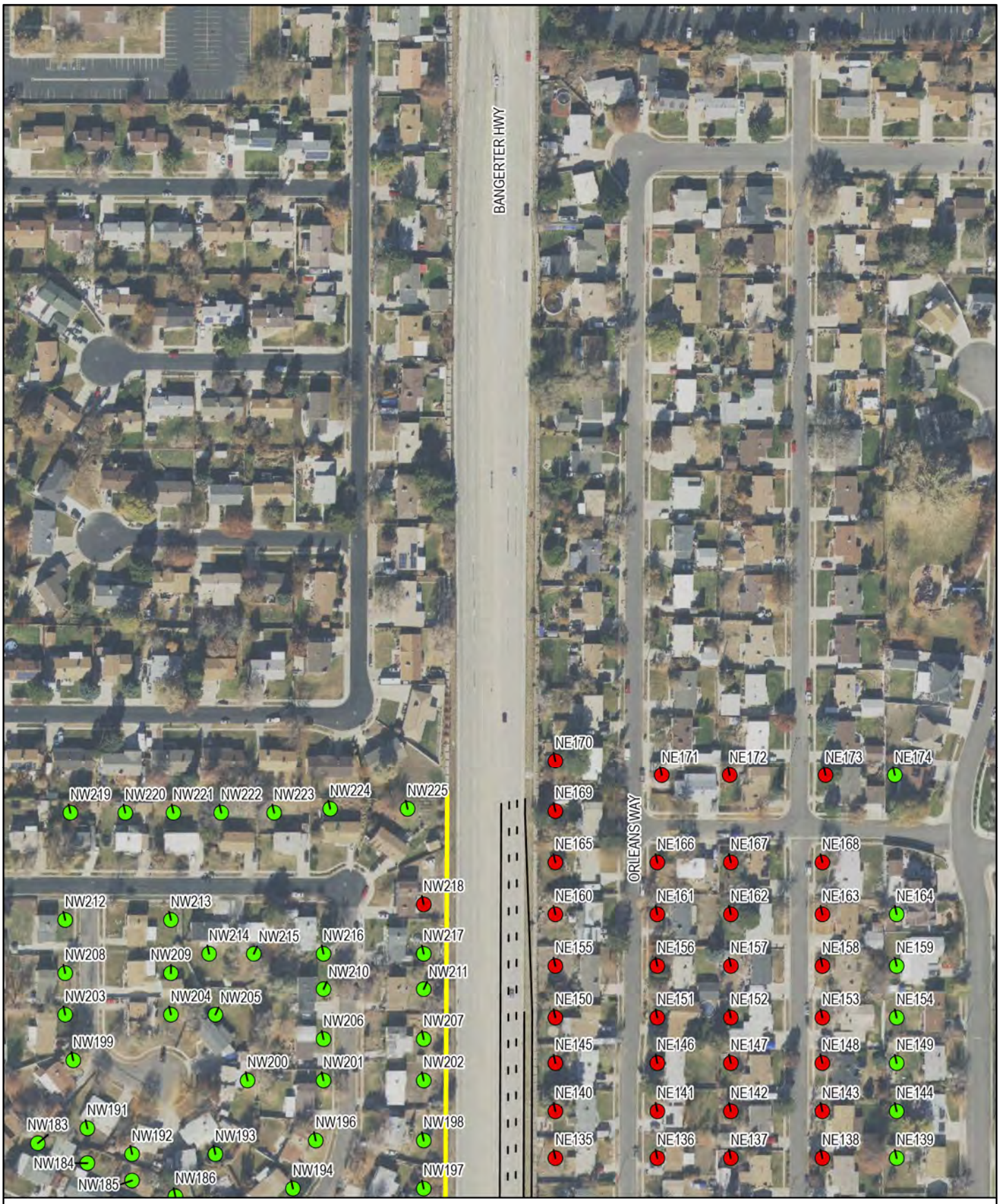
Not Impacted Receptor
Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Bangerter Highway Over Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

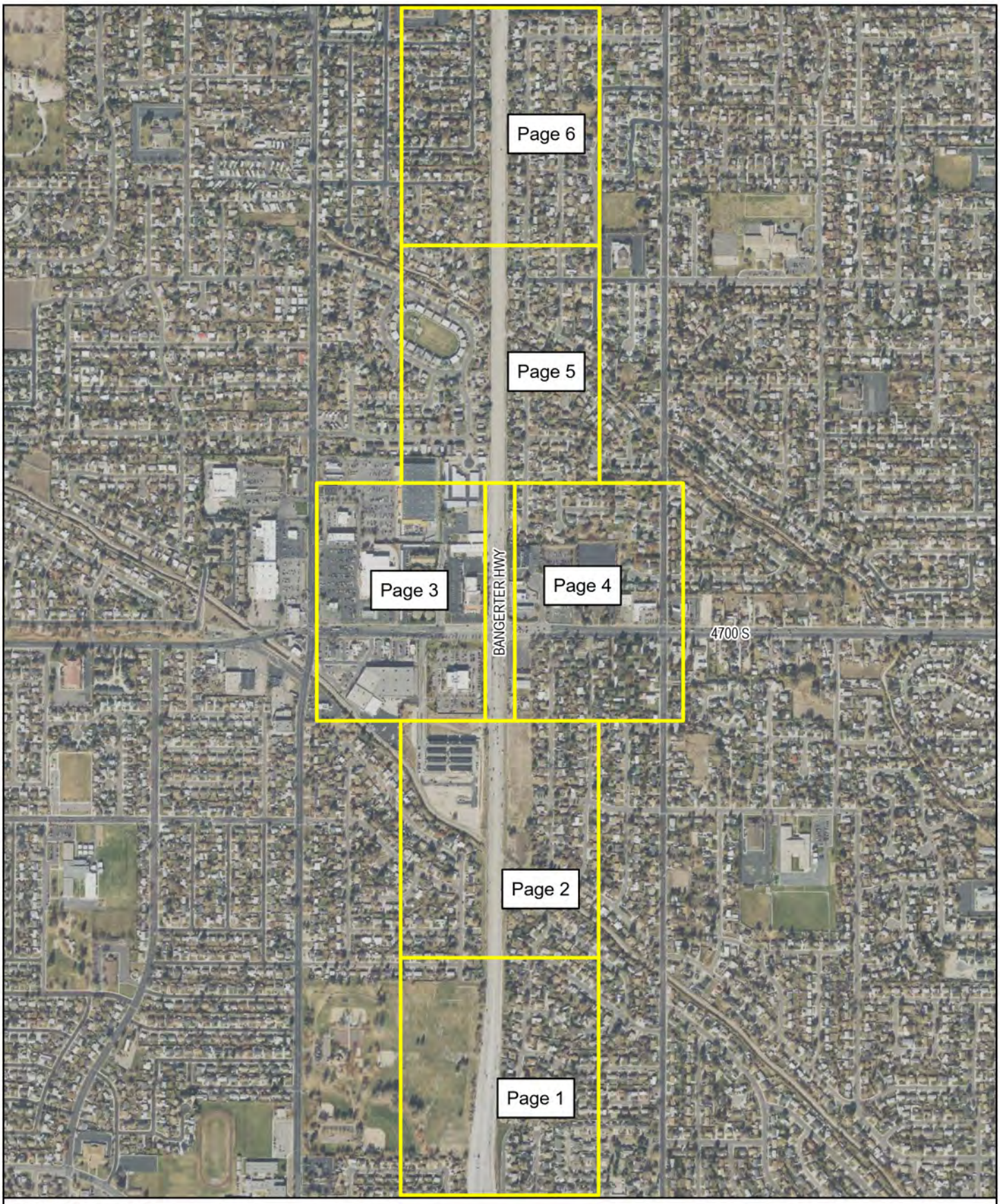
Not Impacted Receptor
Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Noise Overview

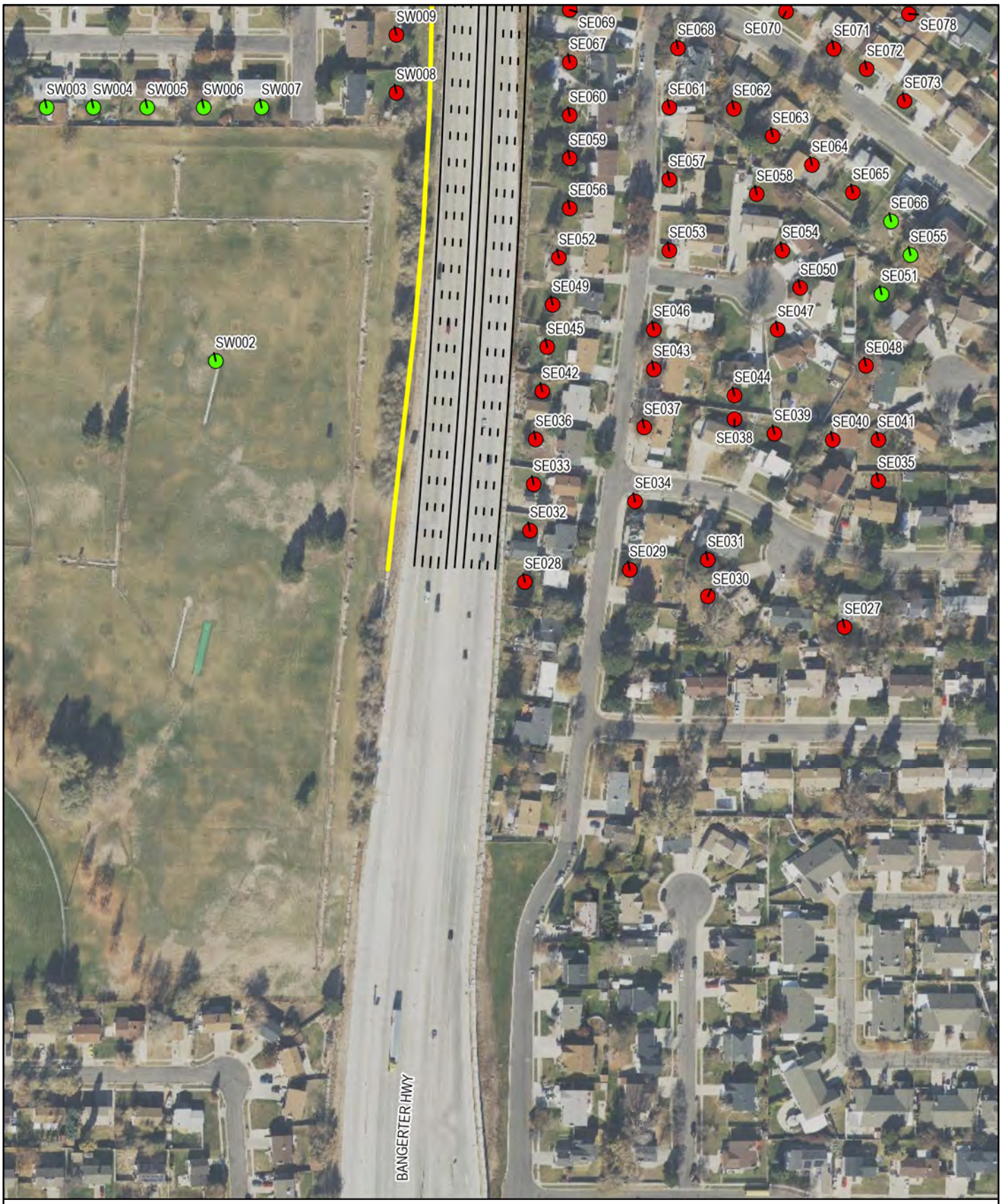
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

0 250 500 1,000
Feet

N

1 inch equals 1,000 feet

10/25/2021



Bangerter Highway Under Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

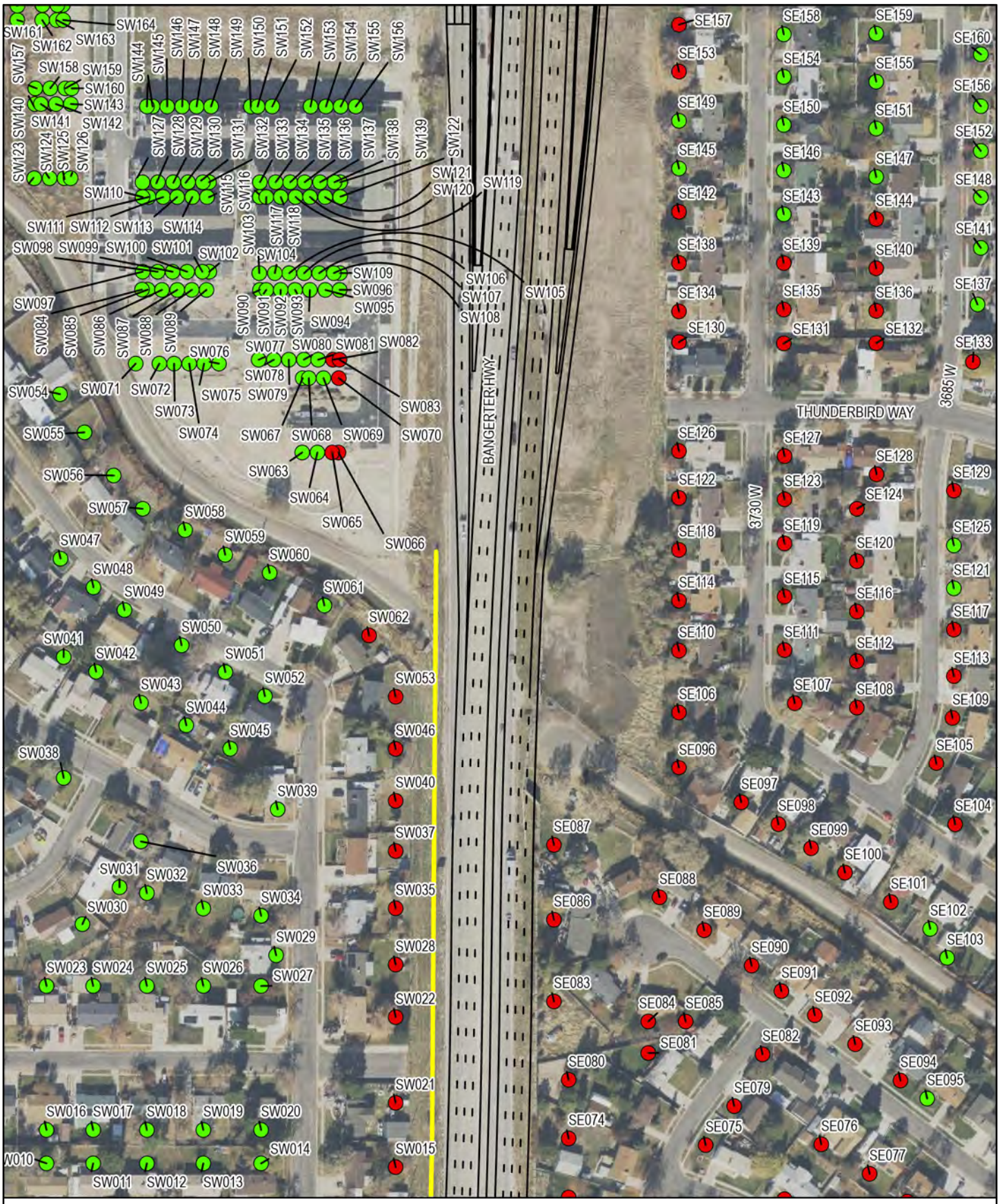
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Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Bangerter Highway Under Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

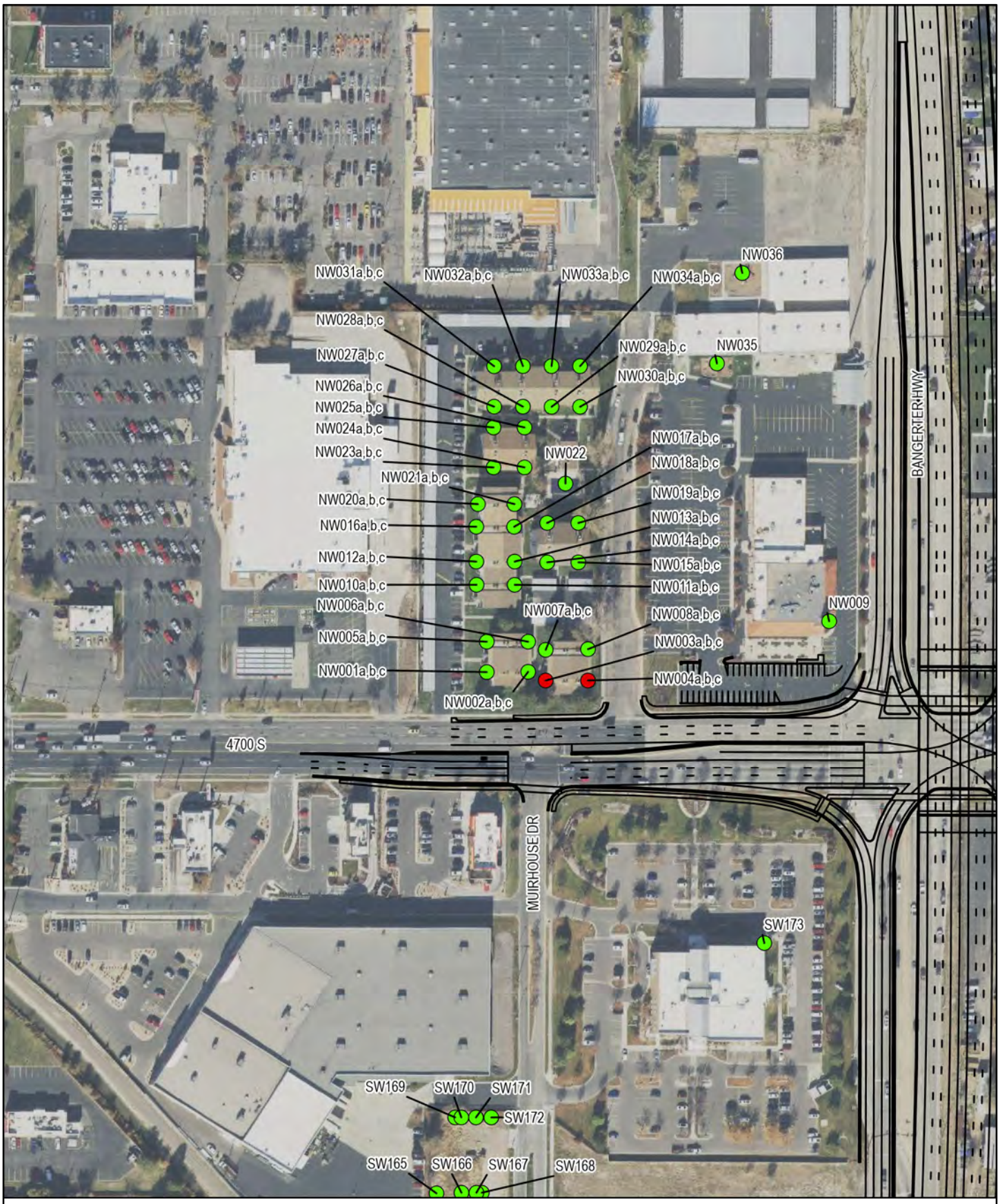
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Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

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N

2/10/2022



Bangerter Highway Under Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

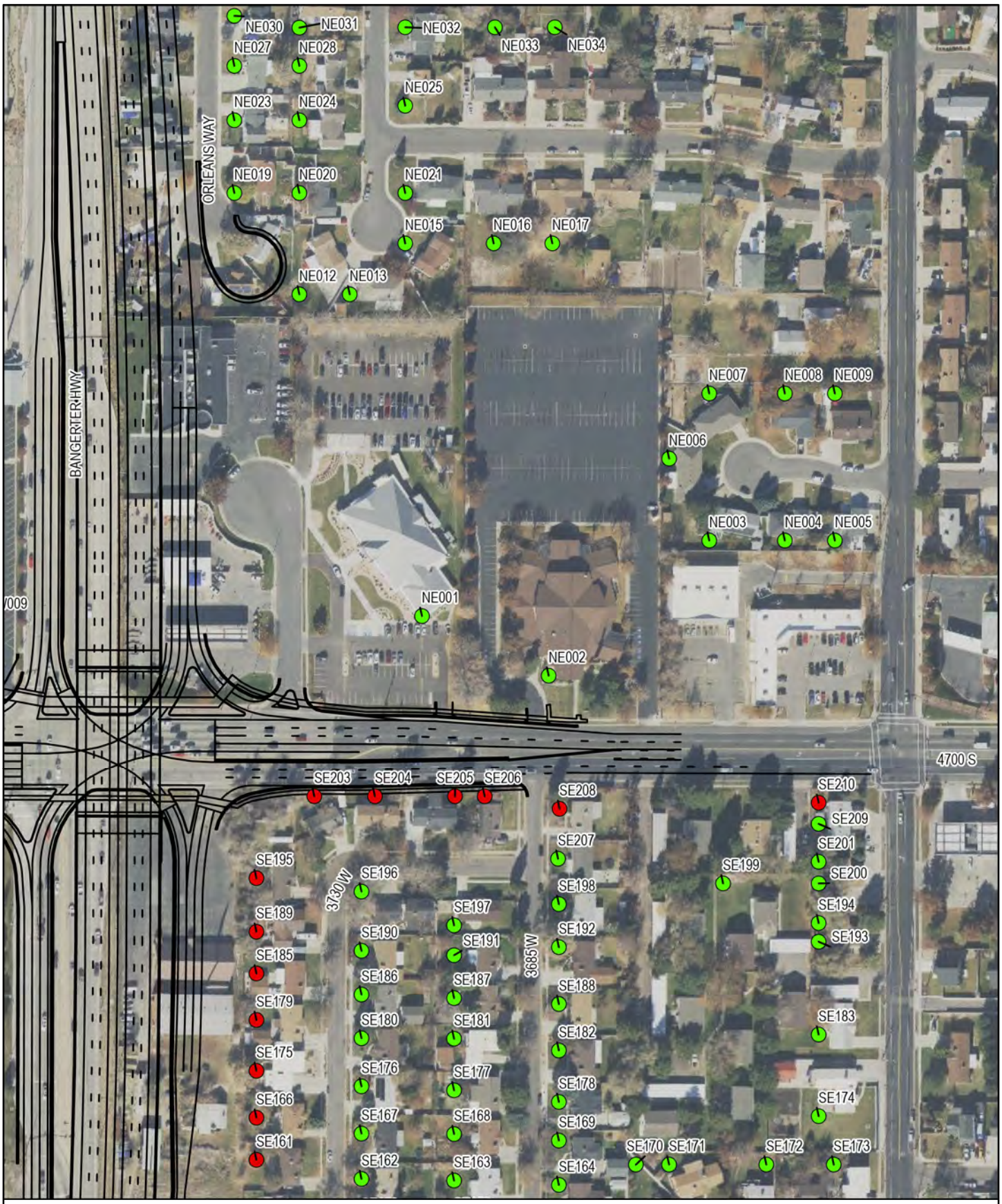
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Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Bangerter Highway Under Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

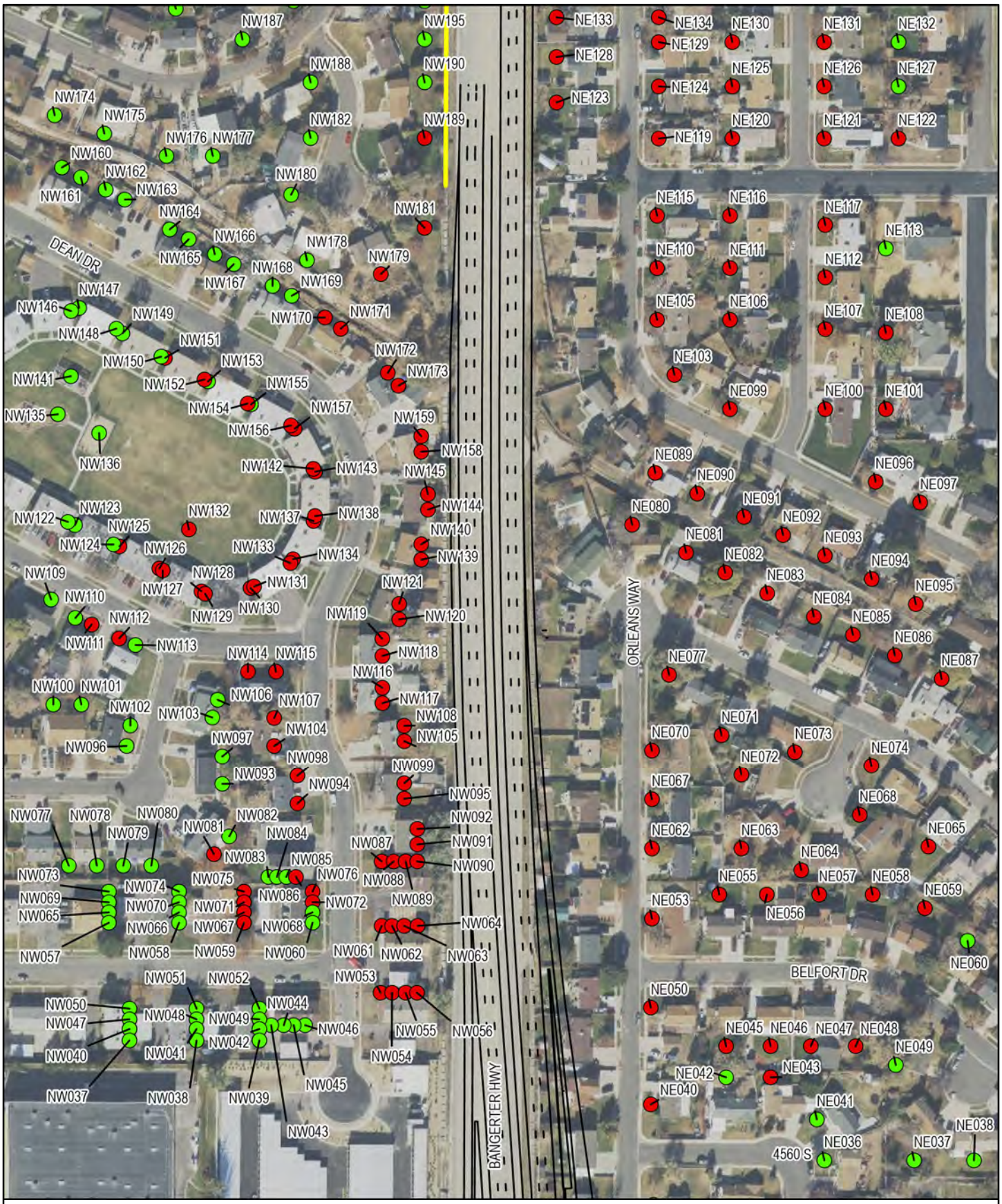
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Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022



Bangerter Highway Under Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
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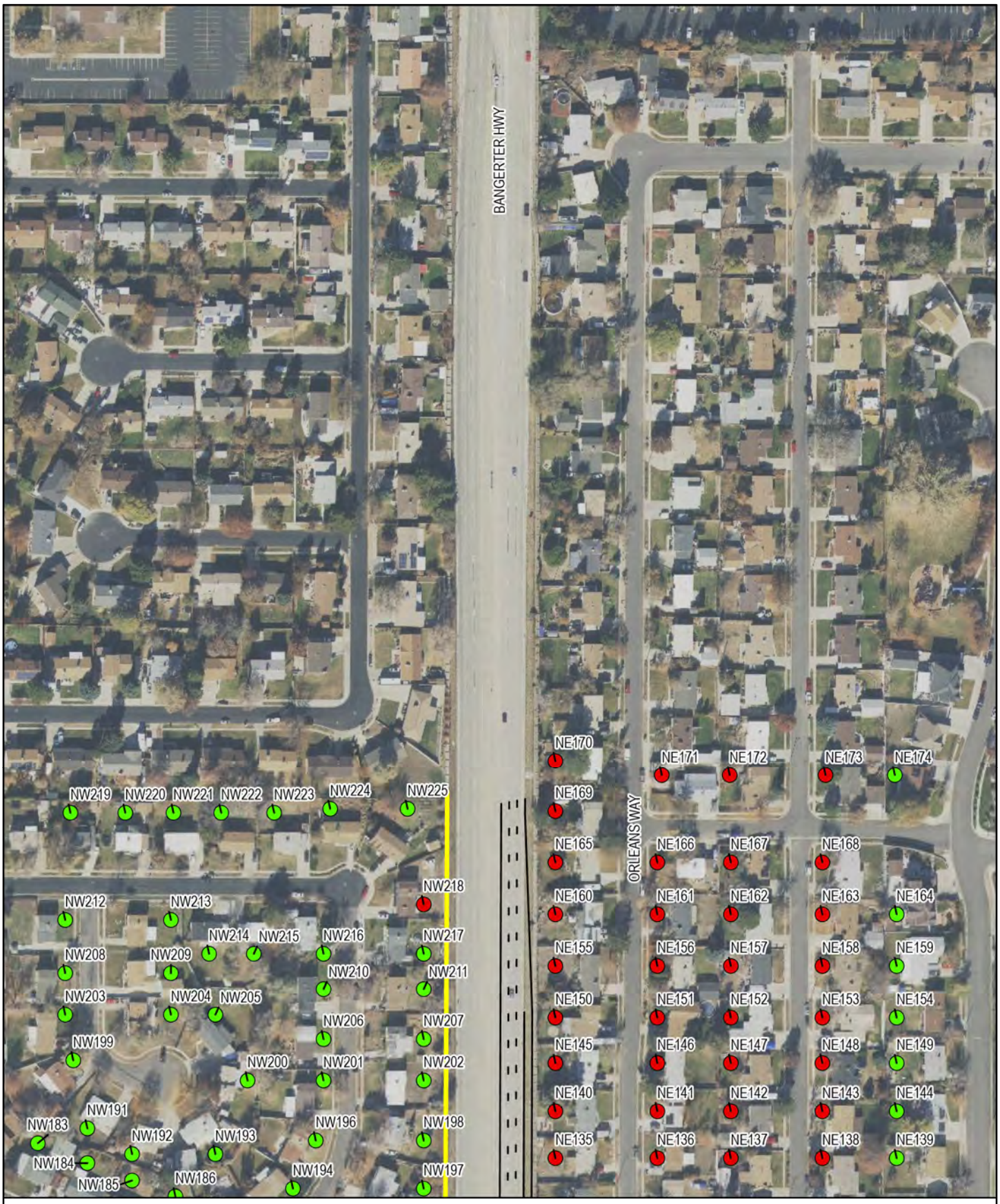
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Impacted Receptor
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Bangerter Highway Under Build Noise Impacts

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
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Not Impacted Receptor
Impacted Receptor
Proposed Project Design
Existing Noise Wall to Remain in Place

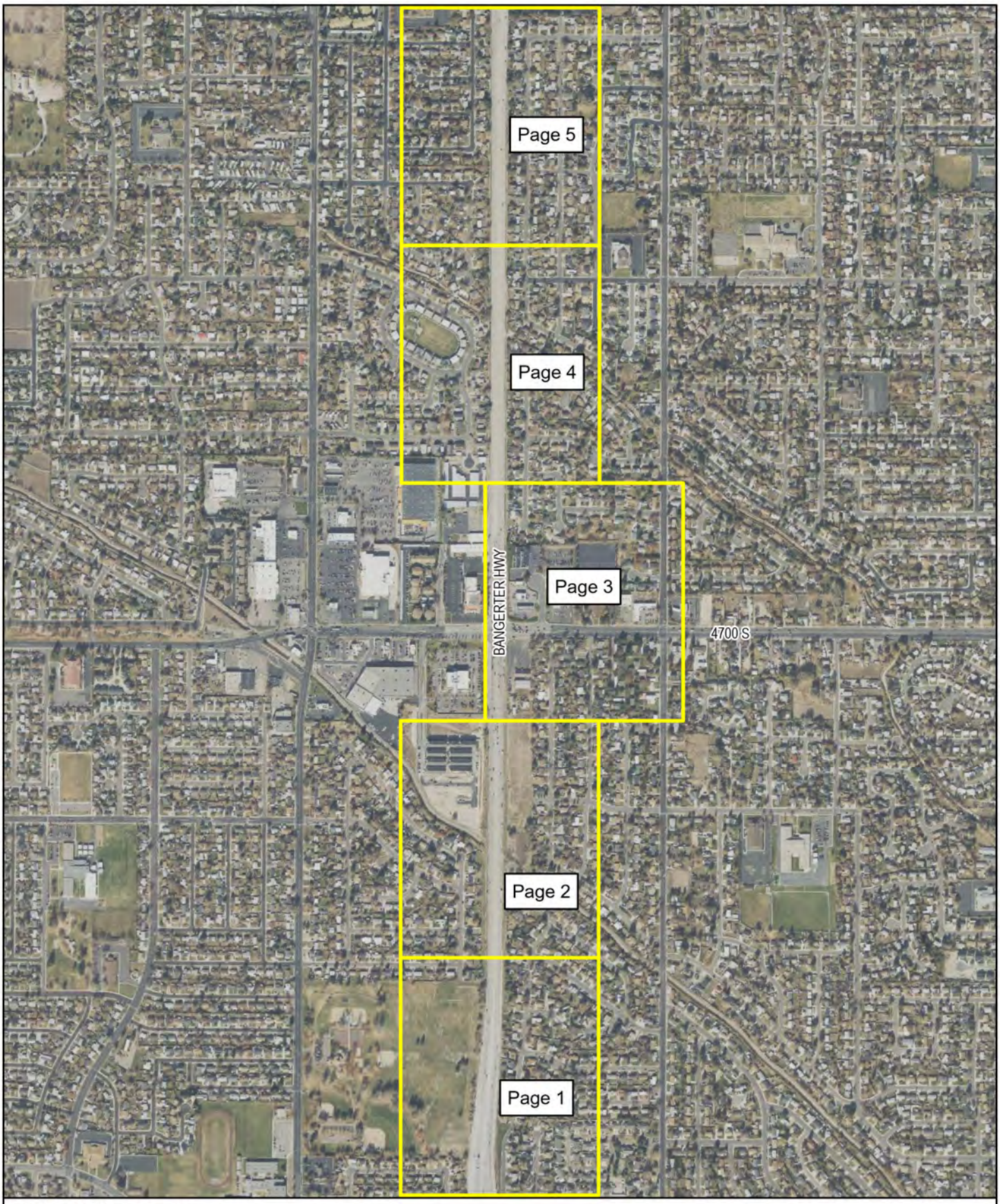
0 50 100 200 Feet

1 inch equals 200 feet

N

2/10/2022

APPENDIX C: NOISE WALL MAPS



Noise Walls Overview

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

0 250 500 1,000
Feet

N

1 inch equals 1,000 feet

10/25/2021



Bangerter Highway Over Build Noise Walls

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Feasible and Reasonable
Remain in Place
Replace In-kind
Not Recommended

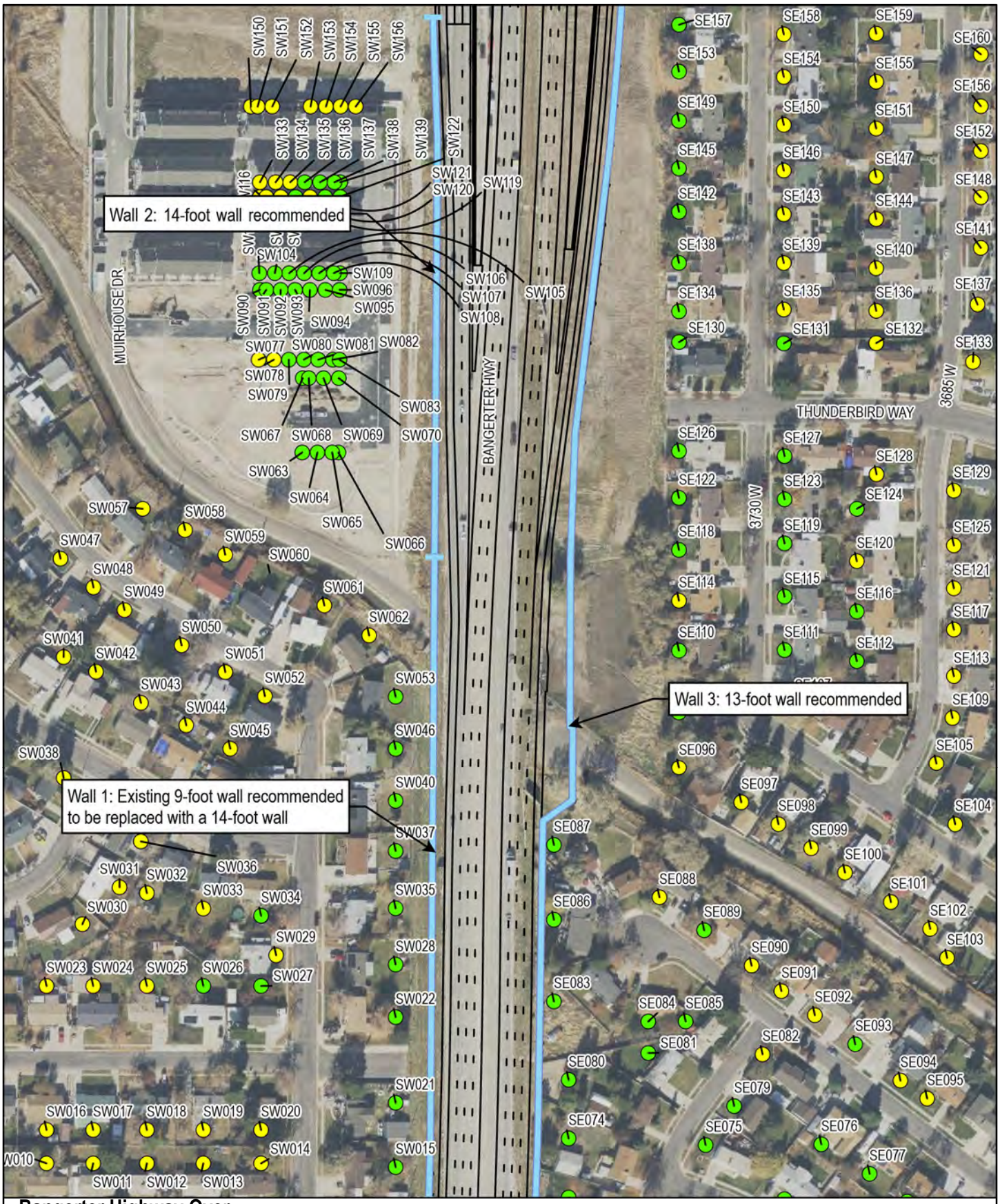
Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

N

1 inch equals 200 feet

2/10/2022



Bangerter Highway Over Build Noise Walls

Bangerter Highway Corridor Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

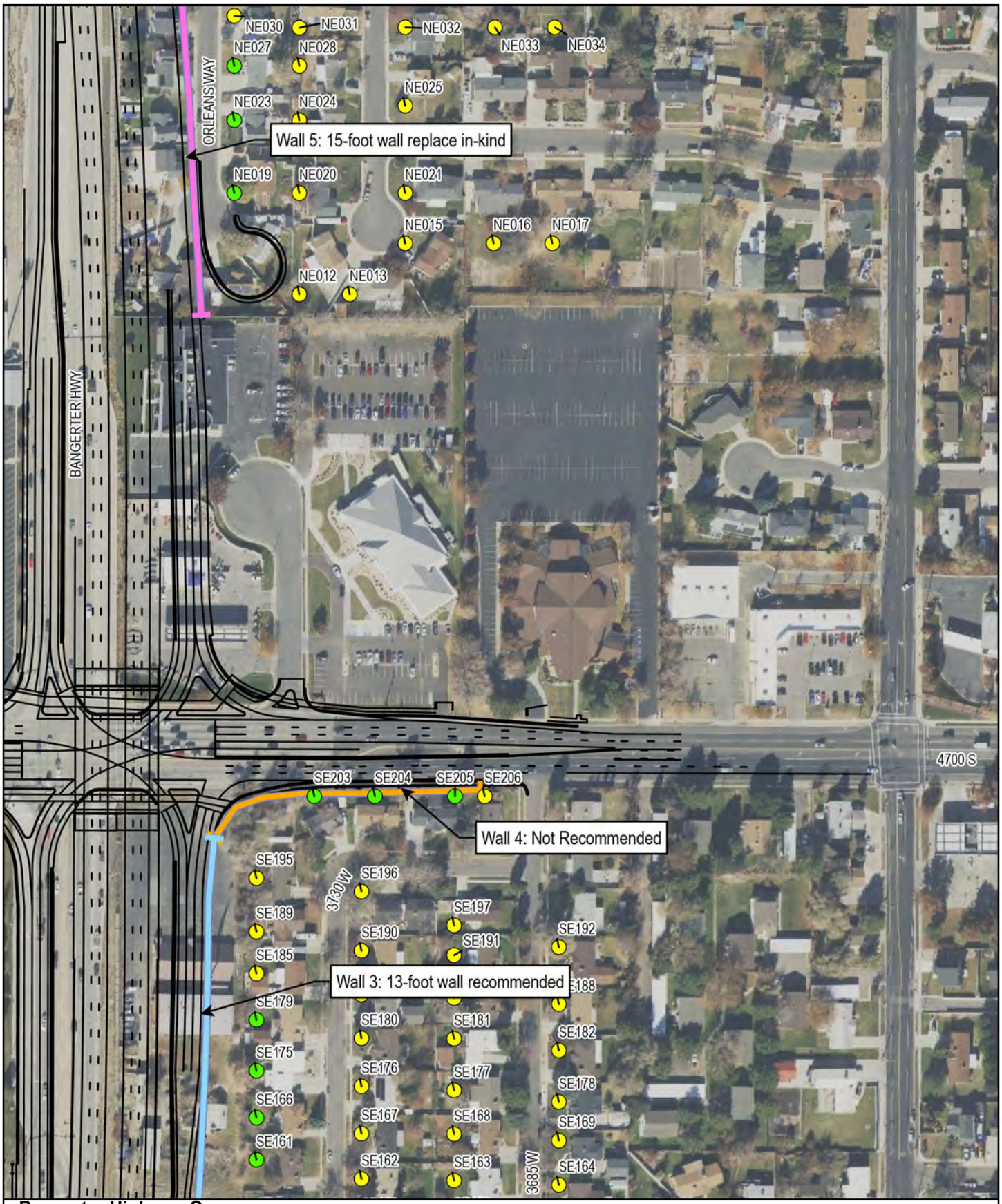
Feasible and Reasonable
Remain in Place
Replace In-kind
Not Recommended
Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

N

1 inch equals 200 feet

2/10/2022



Bangerter Highway Over Build Noise Walls

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Feasible and Reasonable
Remain in Place
Replace In-kind
Not Recommended

Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

N

1 inch equals 200 feet

2/10/2022



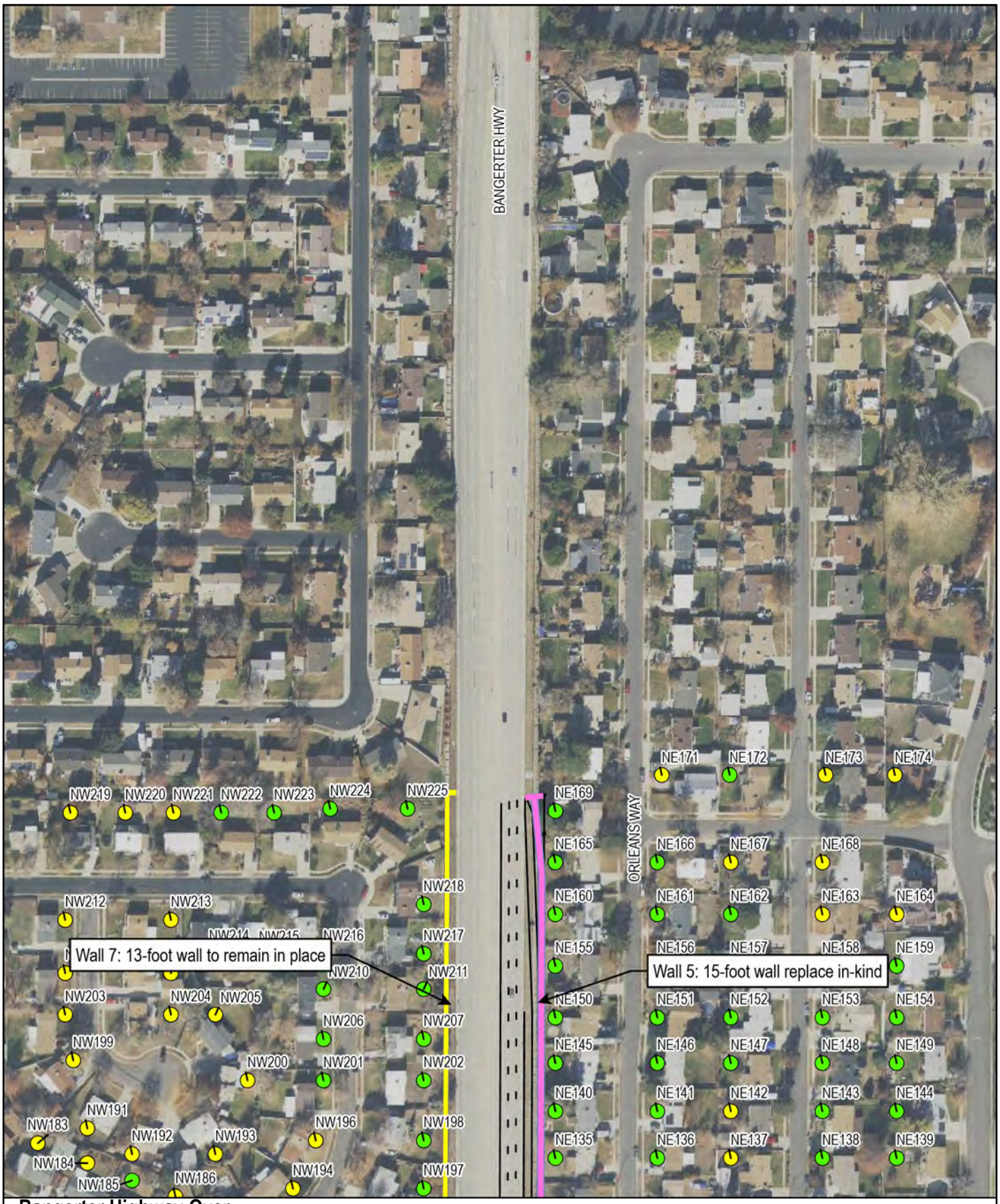
Bangerter Highway Over Build Noise Walls
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Feasible and Reasonable
Remain in Place
Replace In-kind
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Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

1 inch equals 200 feet

2/10/2022



Bangerter Highway Over Build Noise Walls

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
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Feasible and Reasonable
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Replace In-kind
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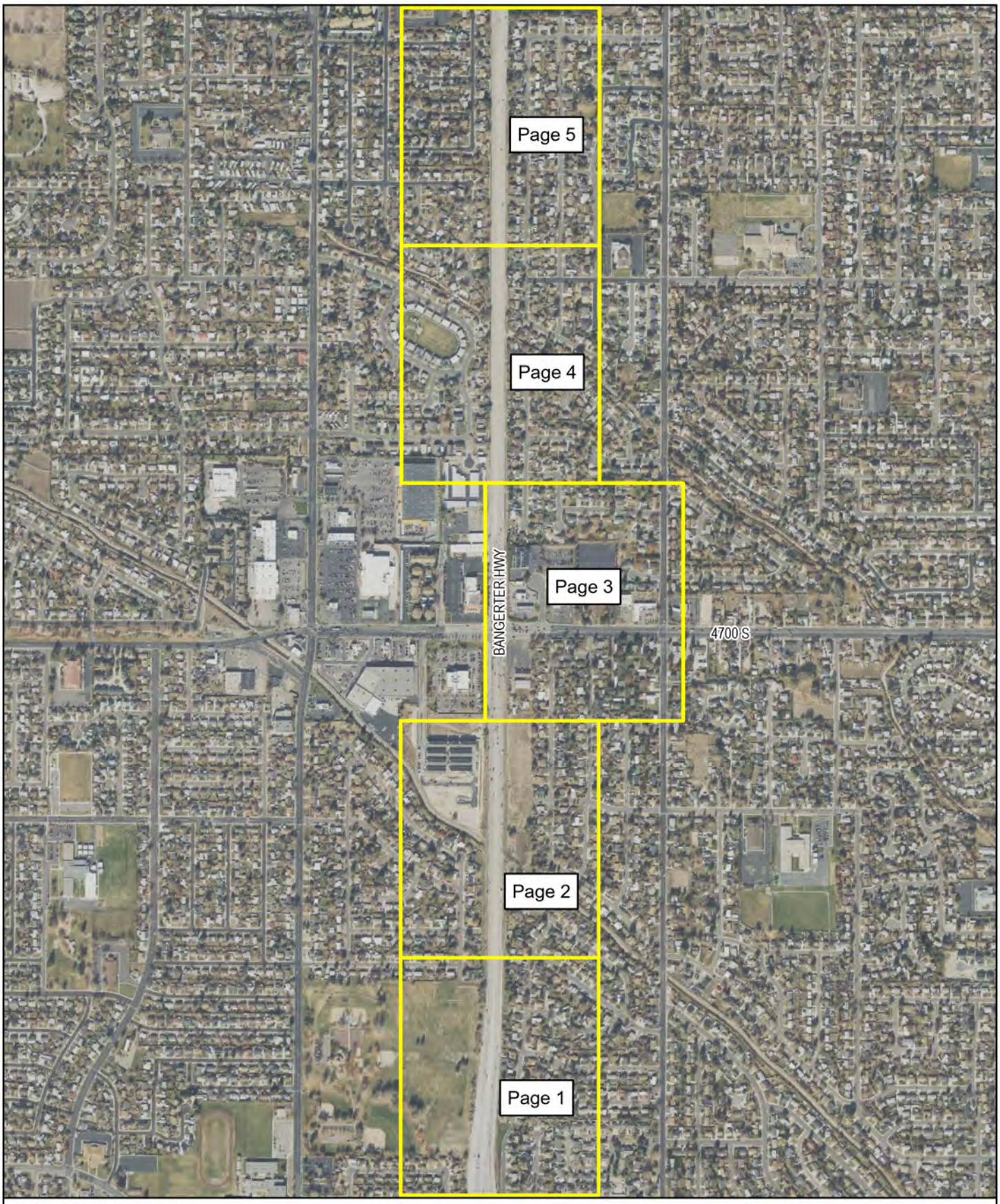
Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

N

1 inch equals 200 feet

2/10/2022



Noise Walls Overview

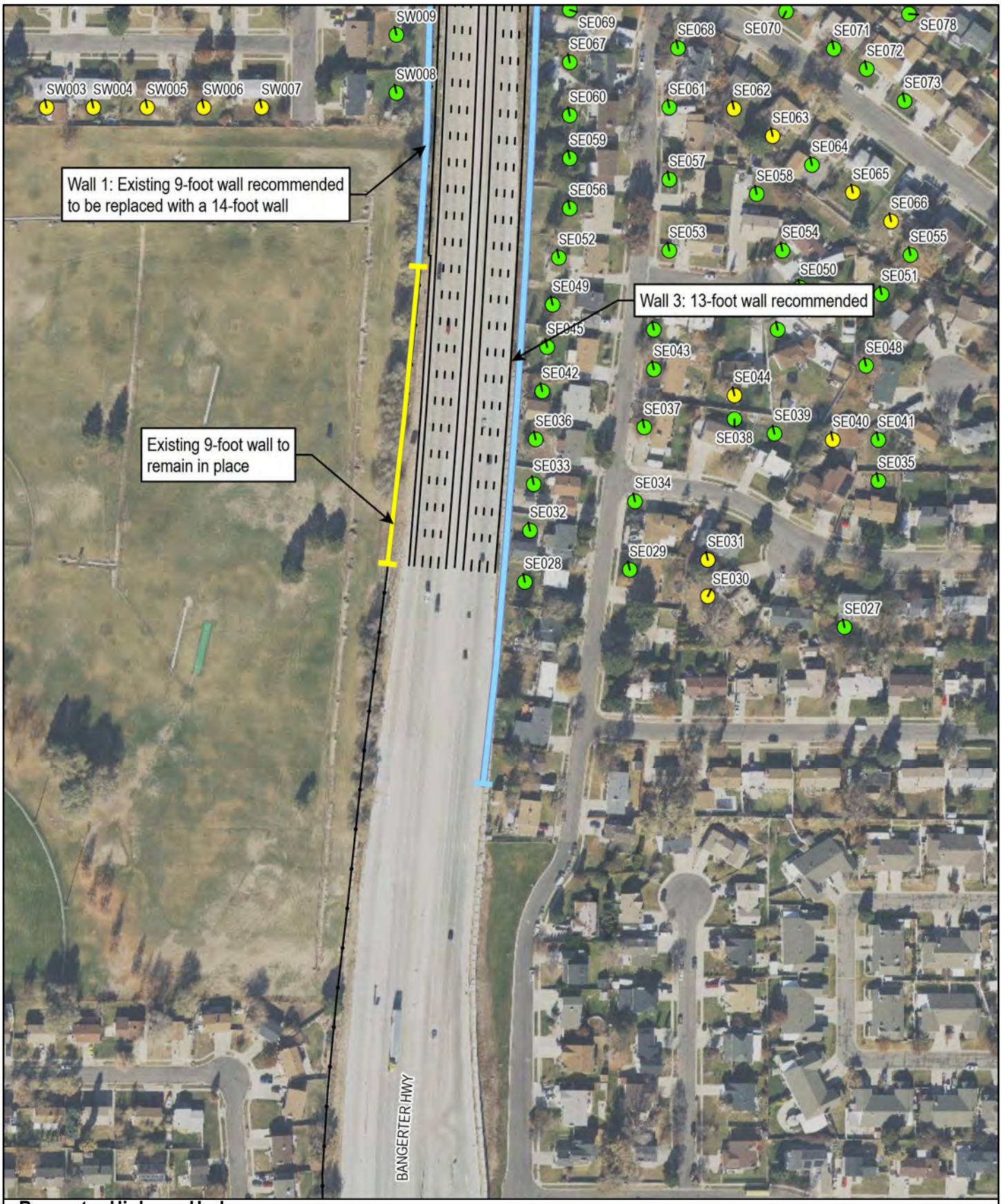
Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

0 250 500 1,000
Feet

N

1 inch equals 1,000 feet

10/25/2021



Bangerter Highway Under Build Noise Walls

Bangerter Highway Corridor Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Feasible and Reasonable
Remain in Place
Replace In-kind
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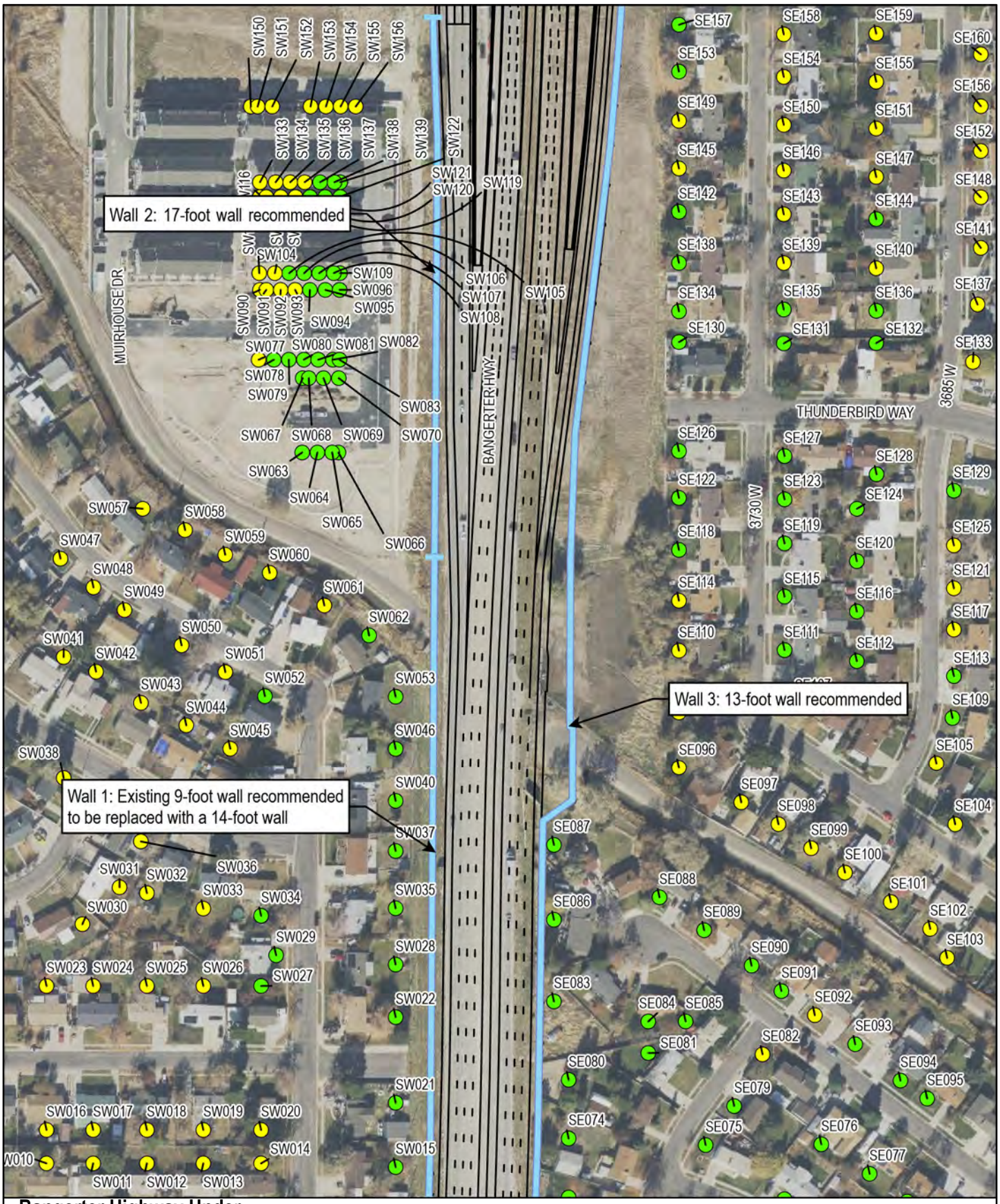
Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

N

1 inch equals 200 feet

2/10/2022



Bangerter Highway Under Build Noise Walls

Bangerter Highway Corridor Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

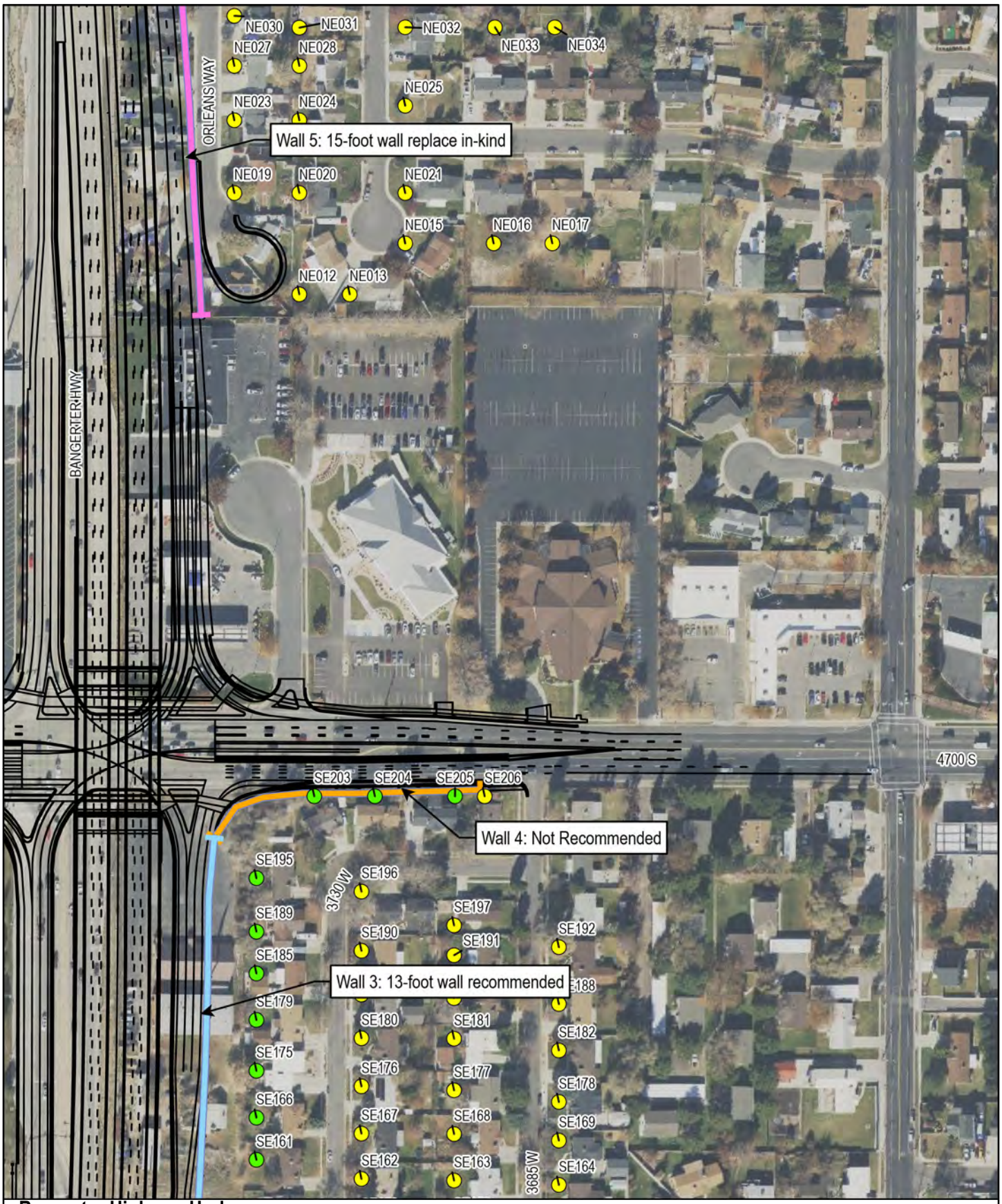
Feasible and Reasonable
Remain in Place
Replace In-kind
Not Recommended

Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

1 inch equals 200 feet

2/10/2022



Bangerter Highway Under Build Noise Walls

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
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Feasible and Reasonable
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Proposed Project Design
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0 50 100 200 Feet

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1 inch equals 200 feet

2/10/2022



Bangerter Highway Under Build Noise Walls

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
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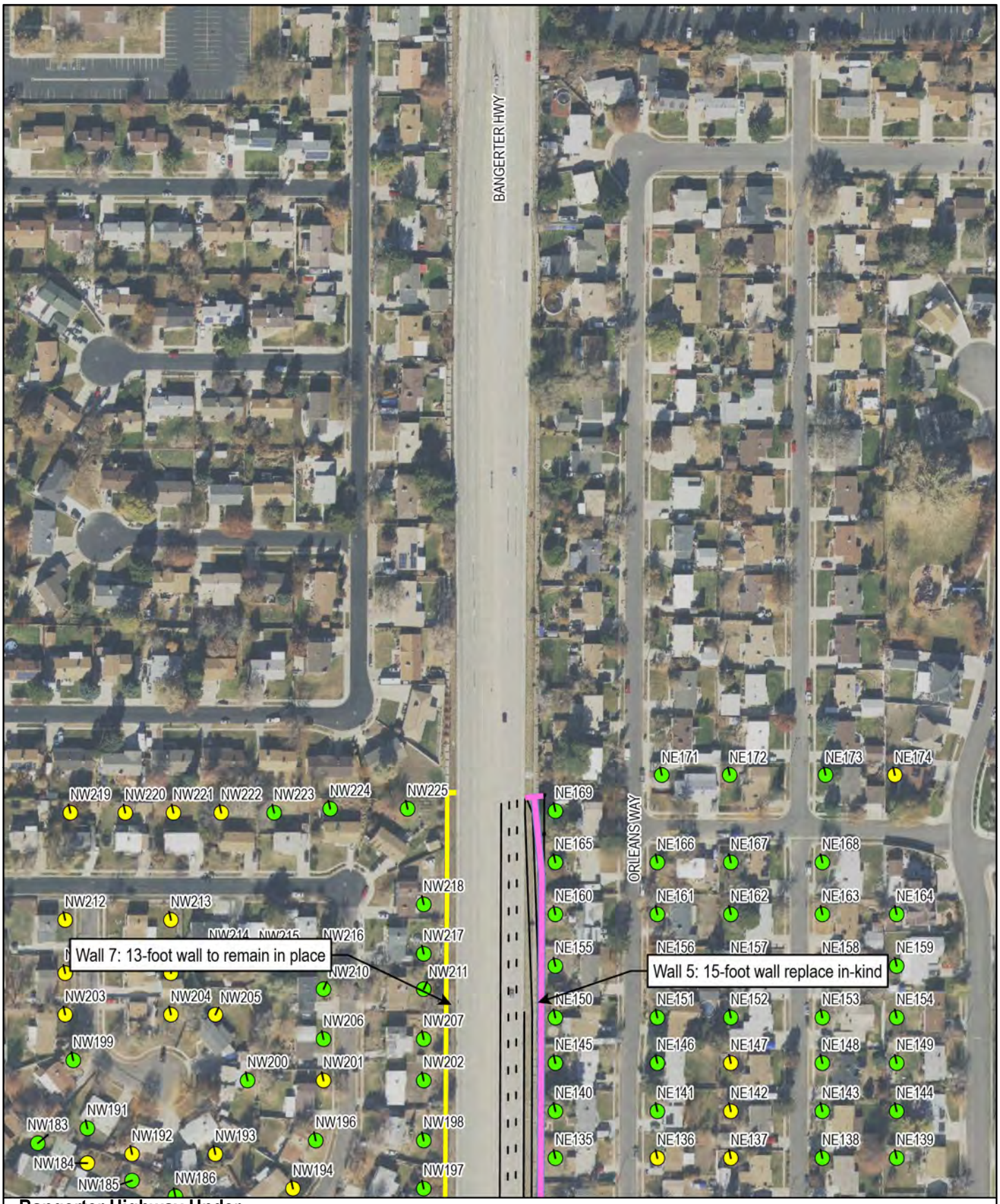
Feasible and Reasonable
Remain in Place
Replace In-kind
Not Recommended

Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

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2/10/2022



Bangerter Highway Under Build Noise Walls

Bangerter Highway Corridor
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Project Number: S-0154(92)0
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Remain in Place
Replace In-kind
Not Recommended

Proposed Project Design
Benefited Receptor
Not Benefited Receptor

0 50 100 200 Feet

N

1 inch equals 200 feet

2/10/2022

APPENDIX D: BARRIER ANALYSIS WORKSHEETS

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 1

NAC						Existing Wall (9 Feet)			16-Foot Wall			15-Foot Wall			14-Foot Wall			13-Foot Wall			12-Foot Wall		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SW003	No	1	B	48	58	58	0	0	57	1	0	57	1	0	57	1	0	57	1	0	58	0	0
SW004	No	1	B	49	60	59	1	0	58	2	0	58	2	0	58	2	0	58	2	0	59	1	0
SW005	No	1	B	51	61	60	1	0	59	2	0	59	2	0	59	2	0	59	2	0	60	1	0
SW006	No	1	B	53	63	62	1	0	61	2	0	61	2	0	61	2	0	61	2	0	62	1	0
SW007	No	1	B	55	66	64	2	0	63	3	0	63	3	0	63	3	0	63	3	0	64	2	0
SW008	Yes	1	B	63	77	71	6	1	66	11	1	66	11	1	67	10	1	68	9	1	68	9	1
SW009	Yes	1	B	61	74	68	6	1	64	10	1	65	9	1	65	9	1	66	8	1	66	8	1
SW010	No	1	B	48	57	56	1	0	54	3	0	54	3	0	54	3	0	55	2	0	55	2	0
SW011	No	1	B	49	58	57	1	0	55	3	0	55	3	0	55	3	0	56	2	0	56	2	0
SW012	No	1	B	51	59	58	1	0	56	3	0	56	3	0	56	3	0	57	2	0	57	2	0
SW013	No	1	B	52	61	60	1	0	58	3	0	58	3	0	58	3	0	59	2	0	60	1	0
SW014	No	1	B	55	64	63	1	0	60	4	0	60	4	0	61	3	0	61	3	0	62	2	0
SW015	Yes	1	B	61	73	68	5	1	64	9	1	65	8	1	65	8	1	65	8	1	66	7	1
SW016	No	1	B	48	56	55	1	0	53	3	0	53	3	0	54	2	0	54	2	0	55	1	0
SW017	No	1	B	50	58	57	1	0	54	4	0	55	3	0	55	3	0	55	3	0	56	2	0
SW018	No	1	B	51	58	58	0	0	55	3	0	56	2	0	56	2	0	56	2	0	57	1	0
SW019	No	1	B	52	60	59	1	0	57	3	0	57	3	0	57	3	0	58	2	0	58	2	0
SW020	No	1	B	54	63	62	1	0	60	3	0	61	2	0	61	2	0	61	2	0	62	1	0
SW021	Yes	1	B	62	75	69	6	1	65	10	1	65	10	1	65	10	1	66	9	1	67	8	1
SW022	Yes	1	B	62	74	68	6	1	64	10	1	64	10	1	65	9	1	66	8	1	66	8	1
SW023	No	1	B	48	56	55	1	0	53	3	0	53	3	0	53	3	0	53	3	0	54	2	0
SW024	No	1	B	48	57	55	2	0	53	4	0	53	4	0	54	3	0	54	3	0	55	2	0
SW025	No	1	B	49	58	57	1	0	54	4	0	54	4	0	55	3	0	55	3	0	56	2	0
SW026	No	1	B	51	61	58	3	0	56	5	1	56	5	1	56	5	1	57	4	0	57	4	0
SW027	No	1	B	55	65	62	3	0	60	5	1	60	5	1	60	5	1	61	4	0	61	4	0
SW028	Yes	1	B	62	74	69	5	1	64	10	1	65	9	1	65	9	1	66	8	1	66	8	1
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SW030	No	1	B	48	57	55	2	0	54	3	0	54	3	0	54	3	0	54	3	0	55	2	0
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SW032	No	1	B	48	58	56	2	0	54	4	0	54	4	0	54	4	0	54	4	0	55	3	0
SW033	No	1	B	50	60	58	2	0	56	4	0	56	4	0	56	4	0	57	3	0	57	3	0
SW034	No	1	B	54	64	62	2	0	59	5	1	59	5	1	59	5	1	60	4	0	60	4	0
SW035	Yes	1	B	62	74	69	5	1	64	10	1	65	9	1	65	9	1	66	8	1	67	7	1
SW036	No	1	B	50	59	57	2	0	55	4	0	55	4	0	55	4	0	55	4	0	56	3	0
SW037	Yes	1	B	61	73	68	5	1	64	9	1	64	9	1	65	8	1	66	7	1	66	7	1
SW038	No	1	B	47	55	54	1	0	52	3	0	52	3	0	52	3	0	53	2	0	53	2	0
SW039	No	1	B	56	65	63	2	0	60	5	1	61	4	0	61	4	0	61	4	0	62	3	0
SW040	Yes	1	B	61	73	68	5	1	64	9	1	65	8	1	65	8	1	65	8	1	66	7	1
SW041	No	1	B	49	56	55	1	0	54	2	0	54	2	0	54	2	0	54	2	0	55	1	0
SW042	No	1	B	49	57	55	2	0	54	3	0	54	3	0	54	3	0	54	3	0	55	2	0
SW043	No	1	B	50	58	56	2	0	54	4	0	54	4	0	55	3	0	55	3	0	55	3	0
SW044	No	1	B	51	60	58	2	0	56	4	0	56	4	0	56	4	0	56	4	0	57	3	0
SW045	No	1	B	53	61	59	2	0	58	3	0	58	3	0	58	3	0	58	3	0	58	3	0
SW046	Yes	1	B	61	72	67	5	1	64	8	1	65	7	1	65	7	1	65	7	1	66	6	1
SW047	No	1	B	51	56	55	1	0	54	2	0	54	2	0	54	2	0	54	2	0	54	2	0
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SW050	No	1	B	54	60	58	2	0	57	3	0	57	3	0	57	3	0	57	3	0	58	2	0
SW051	No	1	B	55	62	60	2	0	58	4	0	58	4	0	59	3	0	59	3	0	59	3	0
SW052	No	1	B	57	64	62	2	0	60	4	0	60	4	0	60	4	0	60	4	0	61	3	0
SW053	Yes	1	B	61	71	67	4	0	64	7	1	65	6	1	65	6	1	65	6	1	66	5	1
SW057	No	1	B	53	58	57	1	0	56	2	0	56	2	0	56	2	0	57	1	0	57	1	0
SW058	No	1	B	55	59	59	0	0	58	1	0	58	1	0	58	1	0	58	1	0	58	1	0
SW059	No	1	B	57	61	61	0	0	60	1	0	60	1	0	60	1	0	60	1	0	60	1	0
SW060	No	1	B	58	64	63	1	0	62	2	0	62	2	0	62	2	0	62	2	0	62	2	0
SW061	No	1	B	61	67	66	1	0	65	2	0	65	2	0	65	2	0	65	2	0	65	2	0
SW062	Yes	1	B	62	70	67	3	0	65	5	1	66	4	0	66	4	0	66	4	0	66	4	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 1

NAC		Existing Wall (9 Feet)	16-Foot Wall	15-Foot Wall	14-Foot Wall	13-Foot Wall	12-Foot Wall
	Inputs						
	Overall Wall Length (ft.) =	1366	1366	1366	1366	1366	1366
	Average Wall Height (ft.) =	9	16	15	14	13	12
	Wall Area (sq. ft.) =	12294	21856	20490	19124	17758	16392
	Safety Barrier (linear feet) =	405	405	405	405	405	405
	Front Row Properties =	12	12	12	12	12	12
	Acoustic Feasibility						
	Front-Row Properties with a 5 dBA Reduction =	10	12	11	11	11	11
	% of Front-Row Properties Reduced At Least 5 dBA =	83%	100%	92%	92%	92%	92%
	Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness	**Noise Reduction Design Goal**						
	Front Row Properties with 7 dBA Reduction =	0	11	10	10	10	9
	% of Front Row Reduced At Least 7 dBA =	0%	92%	83%	83%	83%	75%
	Meets Noise Reduction Goal =	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	Cost Effectiveness						
	Benefited (Category B w/ 5 dBA Reduction) =	10	16	14	14	11	11
	Wall Cost (wall area x 20) =	$245,880	$437,120	$409,800	$382,480	$355,160	$327,840
	Safety Barrier (linear ft. x 80) =	$32,400	$32,400	$32,400	$32,400	$32,400	$32,400
	Snow Storage (linear ft. of safety barrier x 25) =	N/A	N/A	N/A	N/A	N/A	N/A
	Total Wall Cost =	$278,280	$469,520	$442,200	$414,880	$387,560	$360,240
	Cost per Benefited Property (wall cost / benefited) =	$27,828	$29,345	$31,586	$29,634	$35,233	$32,749
	Allowable Cost (benefited x 30k) =	$300,000	$480,000	$420,000	$420,000	$330,000	$330,000
	Cost Reasonable =	**Yes**	**Yes**	**No**	**Yes**	**No**	**No**

Note: Snow storage is not applicable because the noise wall is not being relocated by the alternative.

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 2

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall			12-Foot Wall		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SW063	No	1	B	60	66	59	7	1	59	7	1	60	6	1	60	6	1	61	5	1	61	5	1
SW064	No	1	B	61	67	60	7	1	60	7	1	61	6	1	61	6	1	62	5	1	62	5	1
SW065	No	1	B	62	68	61	7	1	62	6	1	62	6	1	63	5	1	63	5	1	64	4	0
SW066	Yes	1	B	63	69	62	7	1	62	7	1	63	6	1	63	6	1	64	5	1	64	5	1
SW067	No	1	B	58	63	54	9	1	55	8	1	56	7	1	57	6	1	58	5	1	59	4	0
SW068	No	1	B	59	64	55	9	1	56	8	1	57	7	1	58	6	1	58	6	1	59	5	1
SW069	No	1	B	61	66	56	10	1	57	9	1	58	8	1	59	7	1	60	6	1	61	5	1
SW070	Yes	1	B	63	69	59	10	1	60	9	1	61	8	1	62	7	1	63	6	1	63	6	1
SW077	No	1	B	55	59	54	5	1	54	5	1	55	4	0	55	4	0	56	3	0	56	3	0
SW078	No	1	B	56	60	54	6	1	54	6	1	55	5	1	56	4	0	56	4	0	57	3	0
SW079	No	1	B	57	62	53	9	1	54	8	1	55	7	1	56	6	1	56	6	1	57	5	1
SW080	No	1	B	59	64	54	10	1	55	9	1	56	8	1	57	7	1	57	7	1	59	5	1
SW081	No	1	B	60	66	56	10	1	57	9	1	58	8	1	58	8	1	59	7	1	60	6	1
SW082	No	1	B	63	68	58	10	1	58	10	1	59	9	1	61	7	1	61	7	1	62	6	1
SW083	Yes	1	B	64	69	59	10	1	60	9	1	61	8	1	62	7	1	62	7	1	63	6	1
SW090	No	1	B	55	59	52	7	1	53	6	1	53	6	1	54	5	1	55	4	0	55	4	0
SW091	No	1	B	55	60	52	8	1	53	7	1	54	6	1	54	6	1	55	5	1	56	4	0
SW092	No	1	B	56	61	53	8	1	54	7	1	54	7	1	55	6	1	56	5	1	57	4	0
SW093	No	1	B	58	62	54	8	1	55	7	1	55	7	1	56	6	1	57	5	1	58	4	0
SW094	No	1	B	59	64	55	9	1	56	8	1	57	7	1	58	6	1	58	6	1	59	5	1
SW095	No	1	B	61	66	57	9	1	57	9	1	58	8	1	59	7	1	60	6	1	61	5	1
SW096	Yes	1	B	64	68	59	9	1	60	8	1	61	7	1	62	6	1	63	5	1	63	5	1
SW103	No	1	B	55	59	51	8	1	52	7	1	53	6	1	54	5	1	54	5	1	55	4	0
SW104	No	1	B	56	60	52	8	1	53	7	1	54	6	1	55	5	1	55	5	1	56	4	0
SW105	No	1	B	57	62	53	9	1	54	8	1	55	7	1	56	6	1	56	6	1	57	5	1
SW106	No	1	B	59	63	54	9	1	55	8	1	56	7	1	57	6	1	57	6	1	58	5	1
SW107	No	1	B	60	65	56	9	1	56	9	1	57	8	1	58	7	1	59	6	1	60	5	1
SW108	No	1	B	63	67	57	10	1	58	9	1	59	8	1	60	7	1	61	6	1	62	5	1
SW109	Yes	1	B	64	68	58	10	1	59	9	1	60	8	1	61	7	1	62	6	1	63	5	1
SW116	No	1	B	54	58	52	6	1	52	6	1	53	5	1	54	4	0	54	4	0	55	3	0
SW117	No	1	B	55	58	52	6	1	53	5	1	53	5	1	54	4	0	55	3	0	55	3	0
SW118	No	1	B	56	59	53	6	1	53	6	1	54	5	1	55	4	0	56	3	0	56	3	0
SW119	No	1	B	57	61	54	7	1	54	7	1	55	6	1	56	5	1	57	4	0	57	4	0
SW120	No	1	B	59	62	55	7	1	56	6	1	56	6	1	58	4	0	58	4	0	59	3	0
SW121	No	1	B	61	64	56	8	1	57	7	1	58	6	1	59	5	1	60	4	0	61	3	0
SW122	Yes	1	B	63	67	59	8	1	60	7	1	60	7	1	62	5	1	63	4	0	64	3	0
SW133	No	1	B	54	58	52	6	1	52	6	1	53	5	1	54	4	0	54	4	0	55	3	0
SW134	No	1	B	56	59	52	7	1	53	6	1	54	5	1	55	4	0	55	4	0	56	3	0
SW135	No	1	B	57	60	53	7	1	54	6	1	55	5	1	56	4	0	56	4	0	57	3	0
SW136	No	1	B	58	62	54	8	1	55	7	1	56	6	1	57	5	1	57	5	1	58	4	0
SW137	No	1	B	60	64	56	8	1	56	8	1	57	7	1	58	6	1	59	5	1	59	5	1
SW138	No	1	B	62	66	57	9	1	58	8	1	59	7	1	60	6	1	61	5	1	61	5	1
SW139	Yes	1	B	63	67	58	9	1	59	8	1	60	7	1	61	6	1	62	5	1	63	4	0
SW150	No	1	B	59	64	63	1	0	63	1	0	63	1	0	64	0	0	64	0	0	64	0	0
SW151	No	1	B	59	64	63	1	0	63	1	0	63	1	0	64	0	0	64	0	0	64	0	0
SW152	No	1	B	60	65	63	2	0	63	2	0	64	1	0	64	1	0	64	1	0	65	0	0
SW153	No	1	B	61	66	64	2	0	64	2	0	65	1	0	65	1	0	66	0	0	66	0	0
SW154	No	1	B	62	66	64	2	0	64	2	0	65	1	0	66	0	0	66	0	0	66	0	0
SW155	No	1	B	64	67	64	3	0	65	2	0	66	1	0	66	1	0	67	0	0	67	0	0
SW156	Yes	1	B	65	68	65	3	0	65	3	0	66	2	0	67	1	0	68	0	0	68	0	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 2

NAC	20-Foot Wall	18-Foot Wall	16-Foot Wall	14-Foot Wall	13-Foot Wall	12-Foot Wall
Inputs						
Overall Wall Length (ft.) =	814	814	814	814	814	814
Average Wall Height (ft.) =	20	18	16	14	13	12
Wall Area (sq. ft.) =	16280	14652	13024	11396	10582	9768
Safety Barrier (linear ft.) =	472	472	472	472	472	472
Front Row Properties =	8	8	8	8	8	8
Acoustic Feasibility						
Front-Row Properties with a 5 dBA Reduction =	7	7	7	7	6	5
% of Front-Row Properties Reduced At Least 5 dBA =	88%	88%	88%	88%	75%	63%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness — **Noise Reduction Design Goal**						
Front Row Properties with 7 dBA Reduction =	7	7	6	3	1	0
% of Front Row Reduced At Least 7 dBA =	88%	88%	75%	38%	13%	0%
Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**
Cost Effectiveness						
Benefited (Category B w/ 5 dBA Reduction) =	43	43	42	34	30	21
Wall Cost (wall area x 20) =	$325,600	$293,040	$260,480	$227,920	$211,640	$195,360
Safety Barrier (linear ft. x 80) =	$37,760	$37,760	$37,760	$37,760	$37,760	$37,760
Snow Storage (linear ft. of safety barrier x 25) =	$11,800	$11,800	$11,800	$11,800	$11,800	$11,800
Total Wall Cost =	$375,160	$342,600	$310,040	$277,480	$261,200	$244,920
Cost per Benefited Property (wall cost / benefited) =	$8,725	$7,967	$7,382	$8,161	$8,707	$11,663
Allowable Cost (benefited x 30k) =	$1,290,000	$1,290,000	$1,260,000	$1,020,000	$900,000	$630,000
Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 3

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE027	No	1	B	45	56	51	5	1	50	6	1	50	6	1	51	5	1	50	6	1
SE028	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	63	8	1	63	8	1
SE029	No	1	B	51	64	57	7	1	57	7	1	57	7	1	58	6	1	58	6	1
SE030	No	1	B	46	57	53	4	0	53	4	0	53	4	0	53	4	0	54	3	0
SE031	No	1	B	47	59	54	5	1	54	5	1	54	5	1	54	5	1	54	5	1
SE032	Yes	1	B	56	72	61	11	1	62	10	1	63	9	1	64	8	1	64	8	1
SE033	Yes	1	B	57	74	62	12	1	62	12	1	63	11	1	64	10	1	65	9	1
SE034	No	1	B	51	65	57	8	1	57	8	1	57	8	1	58	7	1	58	7	1
SE035	No	1	B	45	56	50	6	1	50	6	1	50	6	1	51	5	1	50	6	1
SE036	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE037	No	1	B	51	65	57	8	1	57	8	1	57	8	1	58	7	1	59	6	1
SE038	No	1	B	47	59	53	6	1	53	6	1	54	5	1	53	6	1	54	5	1
SE039	No	1	B	45	58	51	7	1	52	6	1	52	6	1	52	6	1	52	6	1
SE040	No	1	B	45	55	51	4	0	51	4	0	51	4	0	51	4	0	51	4	0
SE041	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE042	Yes	1	B	57	72	61	11	1	62	10	1	63	9	1	64	8	1	64	8	1
SE043	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE044	No	1	B	46	57	53	4	0	53	4	0	52	5	1	52	5	1	53	4	0
SE045	Yes	1	B	56	71	61	10	1	62	9	1	63	8	1	63	8	1	64	7	1
SE046	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE047	No	1	B	46	59	53	6	1	53	6	1	53	6	1	53	6	1	53	6	1
SE048	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE049	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE050	No	1	B	46	58	52	6	1	52	6	1	52	6	1	52	6	1	53	5	1
SE051	No	1	B	45	54	49	5	1	49	5	1	50	4	0	49	5	1	50	4	0
SE052	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	64	8	1
SE053	No	1	B	52	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
SE054	No	1	B	46	59	52	7	1	53	6	1	53	6	1	53	6	1	53	6	1
SE055	No	1	B	45	54	50	4	0	50	4	0	50	4	0	49	5	1	50	4	0
SE056	Yes	1	B	56	70	61	9	1	61	9	1	62	8	1	63	7	1	63	7	1
SE057	No	1	B	51	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
SE058	No	1	B	47	60	54	6	1	54	6	1	54	6	1	54	6	1	54	6	1
SE059	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE060	Yes	1	B	56	72	61	11	1	62	10	1	63	9	1	63	9	1	64	8	1
SE061	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE062	No	1	B	46	57	52	5	1	52	5	1	52	5	1	53	4	0	53	4	0
SE063	No	1	B	47	57	53	4	0	53	4	0	53	4	0	53	4	0	53	4	0
SE064	No	1	B	46	57	52	5	1	52	5	1	52	5	1	52	5	1	53	4	0
SE065	No	1	B	45	56	52	4	0	52	4	0	52	4	0	52	4	0	52	4	0
SE066	No	1	B	45	55	50	5	1	51	4	0	50	5	1	50	5	1	51	4	0
SE067	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE068	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE069	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	64	8	1
SE070	No	1	B	47	59	53	6	1	53	6	1	53	6	1	53	6	1	53	6	1
SE071	No	1	B	45	57	51	6	1	51	6	1	51	6	1	52	5	1	52	5	1
SE072	No	1	B	45	57	51	6	1	51	6	1	51	6	1	51	6	1	51	6	1
SE073	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE074	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE075	No	1	B	50	64	55	9	1	56	8	1	56	8	1	57	7	1	57	7	1
SE076	No	1	B	45	57	52	5	1	52	5	1	51	6	1	52	5	1	52	5	1
SE077	No	1	B	45	56	50	6	1	51	5	1	50	6	1	50	6	1	50	6	1
SE078	No	1	B	45	55	51	4	0	51	4	0	50	5	1	50	5	1	50	5	1
SE079	No	1	B	49	61	55	6	1	55	6	1	55	6	1	56	5	1	56	5	1
SE080	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	64	8	1
SE081	No	1	B	53	65	58	7	1	59	6	1	59	6	1	60	5	1	60	5	1
SE082	No	1	B	48	59	54	5	1	54	5	1	54	5	1	55	4	0	55	4	0
SE083	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	63	9	1
SE084	No	1	B	52	64	57	7	1	58	6	1	58	6	1	59	5	1	59	5	1
SE085	No	1	B	51	63	56	7	1	57	6	1	57	6	1	58	5	1	58	5	1
SE086	Yes	1	B	55	69	60	9	1	61	8	1	61	8	1	62	7	1	62	7	1
SE087	Yes	1	B	57	76	60	16	1	61	15	1	62	14	1	63	13	1	63	13	1
SE088	No	1	B	54	64	60	4	0	61	3	0	61	3	0	61	3	0	61	3	0
SE089	No	1	B	51	63	56	7	1	57	6	1	57	6	1	58	5	1	58	5	1
SE090	No	1	B	49	61	55	6	1	56	5	1	56	5	1	57	4	0	57	4	0
SE091	No	1	B	48	60	54	6	1	55	5	1	55	5	1	56	4	0	56	4	0
SE092	No	1	B	47	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
SE093	No	1	B	45	57	52	5	1	52	5	1	52	5	1	52	5	1	52	5	1

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 3

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE094	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	51	4	0
SE095	No	1	B	45	54	49	5	1	50	4	0	49	5	1	50	4	0	50	4	0
SE096	Yes	1	B	52	63	57	6	1	58	5	1	58	5	1	59	4	0	59	4	0
SE097	No	1	B	50	61	56	5	1	56	5	1	56	5	1	57	4	0	57	4	0
SE098	No	1	B	48	60	54	6	1	55	5	1	55	5	1	55	5	1	56	4	0
SE099	No	1	B	48	59	54	5	1	55	4	0	55	4	0	56	3	0	56	3	0
SE100	No	1	B	47	58	53	5	1	53	5	1	54	4	0	54	4	0	55	3	0
SE101	No	1	B	45	56	52	4	0	52	4	0	52	4	0	53	3	0	53	3	0
SE102	No	1	B	45	55	51	4	0	51	4	0	52	3	0	52	3	0	52	3	0
SE103	No	1	B	45	55	51	4	0	51	4	0	51	4	0	51	4	0	51	4	0
SE104	No	1	B	45	56	51	5	1	52	4	0	52	4	0	52	4	0	52	4	0
SE105	No	1	B	45	57	52	5	1	52	5	1	53	4	0	53	4	0	53	4	0
SE106	Yes	1	B	52	64	58	6	1	58	6	1	59	5	1	59	5	1	59	5	1
SE107	No	1	B	48	61	55	6	1	55	6	1	55	6	1	56	5	1	56	5	1
SE108	No	1	B	46	58	54	4	0	54	4	0	54	4	0	54	4	0	54	4	0
SE109	No	1	B	45	55	51	4	0	51	4	0	52	3	0	52	3	0	52	3	0
SE110	Yes	1	B	52	64	58	6	1	58	6	1	59	5	1	59	5	1	59	5	1
SE111	No	1	B	49	62	55	7	1	55	7	1	56	6	1	56	6	1	56	6	1
SE112	No	1	B	46	59	54	5	1	54	5	1	54	5	1	54	5	1	54	5	1
SE113	No	1	B	45	56	51	5	1	51	5	1	52	4	0	52	4	0	52	4	0
SE114	Yes	1	B	52	64	58	6	1	58	6	1	59	5	1	59	5	1	60	4	0
SE115	No	1	B	49	62	55	7	1	55	7	1	56	6	1	56	6	1	56	6	1
SE116	No	1	B	46	59	54	5	1	54	5	1	54	5	1	54	5	1	54	5	1
SE117	No	1	B	45	56	52	4	0	52	4	0	52	4	0	53	3	0	53	3	0
SE118	Yes	1	B	52	66	58	8	1	59	7	1	59	7	1	60	6	1	60	6	1
SE119	No	1	B	49	62	55	7	1	56	6	1	56	6	1	56	6	1	57	5	1
SE120	No	1	B	46	59	54	5	1	55	4	0	54	5	1	54	5	1	55	4	0
SE121	No	1	B	45	56	52	4	0	52	4	0	53	3	0	53	3	0	53	3	0
SE122	Yes	1	B	52	65	58	7	1	59	6	1	59	6	1	60	5	1	60	5	1
SE123	No	1	B	49	63	56	7	1	56	7	1	57	6	1	57	6	1	57	6	1
SE124	No	1	B	46	59	54	5	1	54	5	1	54	5	1	54	5	1	54	5	1
SE125	No	1	B	45	57	52	5	1	53	4	0	53	4	0	54	3	0	54	3	0
SE126	Yes	1	B	53	67	58	9	1	59	8	1	59	8	1	60	7	1	60	7	1
SE127	No	1	B	49	63	56	7	1	56	7	1	56	7	1	57	6	1	57	6	1
SE128	No	1	B	46	59	53	6	1	53	6	1	54	5	1	54	5	1	55	4	0
SE129	No	1	B	45	57	53	4	0	53	4	0	54	3	0	54	3	0	54	3	0
SE130	Yes	1	B	53	67	59	8	1	59	8	1	60	7	1	60	7	1	61	6	1
SE131	No	1	B	49	63	56	7	1	57	6	1	57	6	1	58	5	1	58	5	1
SE132	No	1	B	47	61	56	5	1	57	4	0	57	4	0	57	4	0	57	4	0
SE133	No	1	B	45	58	53	5	1	54	4	0	54	4	0	54	4	0	55	3	0
SE134	Yes	1	B	53	68	59	9	1	59	9	1	60	8	1	60	8	1	61	7	1
SE135	No	1	B	48	61	56	5	1	56	5	1	57	4	0	57	4	0	57	4	0
SE136	No	1	B	46	59	56	3	0	56	3	0	57	2	0	57	2	0	57	2	0
SE137	No	1	B	45	57	53	4	0	54	3	0	54	3	0	55	2	0	55	2	0
SE138	Yes	1	B	53	67	59	8	1	59	8	1	60	7	1	60	7	1	61	6	1
SE139	No	1	B	47	59	54	5	1	55	4	0	56	3	0	56	3	0	56	3	0
SE140	No	1	B	46	59	56	3	0	57	2	0	57	2	0	57	2	0	57	2	0
SE141	No	1	B	45	57	54	3	0	54	3	0	55	2	0	55	2	0	55	2	0
SE142	Yes	1	B	54	67	59	8	1	59	8	1	60	7	1	60	7	1	61	6	1
SE143	No	1	B	47	59	55	4	0	55	4	0	56	3	0	56	3	0	57	2	0
SE144	No	1	B	46	59	57	2	0	57	2	0	57	2	0	57	2	0	57	2	0
SE145	Yes	1	B	54	67	59	8	1	59	8	1	60	7	1	60	7	1	61	6	1
SE146	No	1	B	47	59	55	4	0	56	3	0	56	3	0	57	2	0	57	2	0
SE147	No	1	B	46	59	57	2	0	57	2	0	58	1	0	57	2	0	57	2	0
SE148	No	1	B	46	59	56	3	0	56	3	0	56	3	0	57	2	0	57	2	0
SE149	Yes	1	B	54	67	59	8	1	59	8	1	60	7	1	61	6	1	61	6	1
SE150	No	1	B	47	60	56	4	0	56	4	0	57	3	0	57	3	0	57	3	0
SE151	No	1	B	46	59	57	2	0	58	1	0	58	1	0	58	1	0	58	1	0
SE152	No	1	B	45	57	54	3	0	55	2	0	55	2	0	55	2	0	56	1	0
SE153	Yes	1	B	54	67	59	8	1	60	7	1	60	7	1	61	6	1	61	6	1
SE154	No	1	B	48	60	56	4	0	57	3	0	57	3	0	58	2	0	58	2	0
SE155	No	1	B	46	59	58	1	0	58	1	0	58	1	0	58	1	0	58	1	0
SE156	No	1	B	46	57	55	2	0	55	2	0	56	1	0	56	1	0	56	1	0
SE157	Yes	1	B	54	67	59	8	1	60	7	1	60	7	1	61	6	1	62	5	1
SE158	No	1	B	48	60	57	3	0	57	3	0	58	2	0	58	2	0	58	2	0
SE159	No	1	B	47	60	58	2	0	58	2	0	58	2	0	59	1	0	59	1	0
SE160	No	1	B	47	58	55	3	0	56	2	0	56	2	0	56	2	0	56	2	0

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Noise Wall 3

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE161	Yes	1	B	55	68	59	9	1	60	8	1	61	7	1	62	6	1	62	6	1
SE162	No	1	B	49	61	59	2	0	59	2	0	59	2	0	59	2	0	60	1	0
SE163	No	1	B	48	60	58	2	0	58	2	0	59	1	0	59	1	0	59	1	0
SE164	No	1	B	47	58	56	2	0	56	2	0	56	2	0	56	2	0	57	1	0
SE166	Yes	1	B	55	68	59	9	1	60	8	1	61	7	1	62	6	1	63	5	1
SE167	No	1	B	50	61	59	2	0	59	2	0	60	1	0	60	1	0	60	1	0
SE168	No	1	B	48	60	59	1	0	59	1	0	59	1	0	59	1	0	59	1	0
SE169	No	1	B	48	58	56	2	0	56	2	0	56	2	0	56	2	0	56	2	0
SE175	Yes	1	B	56	68	60	8	1	60	8	1	61	7	1	63	5	1	63	5	1
SE176	No	1	B	50	61	60	1	0	60	1	0	60	1	0	60	1	0	60	1	0
SE177	No	1	B	49	60	59	1	0	59	1	0	59	1	0	59	1	0	59	1	0
SE178	No	1	B	49	58	57	1	0	57	1	0	57	1	0	57	1	0	57	1	0
SE179	Yes	1	B	58	68	59	9	1	60	8	1	61	7	1	63	5	1	63	5	1
SE180	No	1	B	51	61	60	1	0	60	1	0	60	1	0	60	1	0	60	1	0
SE181	No	1	B	51	60	59	1	0	59	1	0	59	1	0	59	1	0	60	0	0
SE182	No	1	B	50	59	58	1	0	58	1	0	58	1	0	58	1	0	58	1	0
SE185	Yes	1	B	59	68	60	8	1	60	8	1	61	7	1	63	5	1	64	4	0
SE186	No	1	B	52	61	60	1	0	61	0	0	61	0	0	61	0	0	61	0	0
SE187	No	1	B	52	61	60	1	0	60	1	0	60	1	0	60	1	0	60	1	0
SE188	No	1	B	52	59	58	1	0	58	1	0	58	1	0	58	1	0	58	1	0
SE189	Yes	1	B	61	68	60	8	1	61	7	1	62	6	1	64	4	0	64	4	0
SE190	No	1	B	54	62	61	1	0	61	1	0	61	1	0	61	1	0	61	1	0
SE191	No	1	B	55	61	61	0	0	61	0	0	61	0	0	61	0	0	61	0	0
SE192	No	1	B	54	60	60	0	0	60	0	0	60	0	0	60	0	0	60	0	0
SE195	Yes	1	B	62	68	62	6	1	63	5	1	63	5	1	64	4	0	64	4	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Inputs					
Overall Wall Length (ft.) =	3657	3657	3657	3657	3657
Average Wall Height (ft.) =	20	18	16	14	13
Wall Area (sq. ft.) =	73140	65826	58512	51198	47541
Safety Barrier (linear ft.) =	1505	1505	1505	1505	1505
Front Row Properties =	40	40	40	40	40
Acoustic Feasibility					
Front-Row Properties with a 5 dBA Reduction =	40	40	40	37	35
% of Front-Row Properties Reduced At Least 5 dBA =	100%	100%	100%	93%	88%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness	**Noise Reduction Design Goal**				
Front Row Properties with 7 dBA Reduction =	35	34	33	24	20
% of Front Row Reduced At Least 7 dBA =	90%	85%	85%	62%	51%
Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Cost Effectiveness					
Benefited (Category B w/ 5 dBA Reduction) =	107	98	98	90	79
Wall Cost (wall area x 20) =	$1,462,800	$1,316,520	$1,170,240	$1,023,960	$950,820
Safety Barrier (linear ft. x 80) =	$120,400	$120,400	$120,400	$120,400	$120,400
Snow Storage (linear ft. of safety barrier x 25) =	$37,625	$37,625	$37,625	$37,625	$37,625
Total Wall Cost =	$1,620,825	$1,474,545	$1,328,265	$1,181,985	$1,108,845
Cost per Benefited Property (wall cost / benefited) =	$15,148	$15,046	$13,554	$13,133	$14,036
Allowable Cost (benefited x 30k) =	$3,210,000	$2,940,000	$2,940,000	$2,700,000	$2,370,000
Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

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Noise Wall 4

NAC						13-Foot Wall			12-Foot Wall			11-Foot Wall			10-Foot Wall			9-Foot Wall		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE189	Yes	1	B	61	68	68	0	0	68	0	0	68	0	0	68	0	0	68	0	0
SE190	No	1	B	54	62	61	1	0	61	1	0	61	1	0	61	1	0	61	1	0
SE191	No	1	B	55	61	61	0	0	61	0	0	61	0	0	61	0	0	61	0	0
SE195	Yes	1	B	62	68	65	3	0	66	2	0	66	2	0	66	2	0	66	2	0
SE196	No	1	B	57	62	61	1	0	61	1	0	61	1	0	61	1	0	61	1	0
SE197	No	1	B	56	62	61	1	0	61	1	0	61	1	0	61	1	0	61	1	0
SE203	Yes	1	B	69	72	62	10	1	62	10	1	62	10	1	63	9	1	63	9	1
SE204	Yes	1	B	68	72	62	10	1	62	10	1	62	10	1	64	8	1	64	8	1
SE205	Yes	1	B	68	72	63	9	1	63	9	1	64	8	1	65	7	1	65	7	1
SE206	Yes	1	B	68	71	70	1	0	70	1	0	70	1	0	70	1	0	70	1	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

		Inputs				
	Overall Wall Length (ft.) =	522	522	522	522	522
	Average Wall Height (ft.) =	13	12	11	10	9
	Wall Area (sq. ft.) =	6786	6264	5742	5220	4698
	Right-of-Way Acquisition Area (sq. ft.) =	565	565	565	565	565
	Safety Barrier (linear ft.) =	147	147	147	147	147
	Front Row Properties =	6	6	6	6	6
	Acoustic Feasibility					
	Front-Row Properties with a 5 dBA Reduction =	3	3	3	3	3
	% of Front-Row Properties Reduced At Least 5 dBA =	50%	50%	50%	50%	50%
	Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness	**Noise Reduction Design Goal**					
	Front Row Properties with 7 dBA Reduction =	3	3	3	3	3
	% of Front Row Reduced At Least 7 dBA =	50%	50%	50%	50%	50%
	Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	Cost Effectiveness					
	Benefited (Category B w/ 5 dBA Reduction) =	3	3	3	3	3
	Wall Cost (wall area x 20) =	$135,720	$125,280	$114,840	$104,400	$93,960
	Right-of-Way Acquisition (sq. ft. x 32) =	$18,080	$18,080	$18,080	$18,080	$18,080
	Safety Barrier (linear ft. x 80) =	$11,760	$11,760	$11,760	$11,760	$11,760
	Snow Storage (linear ft. of safety barrier x 25) =	$3,675	$3,675	$3,675	$3,675	$3,675
	Total Wall Cost =	$169,235	$158,795	$148,355	$137,915	$127,475
	Cost per Benefited Property (wall cost / benefited) =	$56,412	$52,932	$49,452	$45,972	$42,492
	Allowable Cost (benefited x 30k) =	$90,000	$90,000	$90,000	$90,000	$90,000
	Cost Reasonable =	**No**	**No**	**No**	**No**	**No**

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Noise Wall 5

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			15-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NE012	No	1	B	57	64	62	2	0	62	2	0	62	2	0	62	2	0
NE013	No	1	B	56	63	62	1	0	62	1	0	62	1	0	62	1	0
NE015	No	1	B	52	60	58	2	0	58	2	0	58	2	0	58	2	0
NE016	No	1	B	52	59	58	1	0	58	1	0	59	0	0	59	0	0
NE017	No	1	B	51	59	58	1	0	58	1	0	58	1	0	58	1	0
NE019	Yes	1	B	56	63	58	5	1	59	4	0	59	4	0	59	4	0
NE020	No	1	B	55	64	60	4	0	60	4	0	60	4	0	61	3	0
NE021	No	1	B	52	61	59	2	0	59	2	0	59	2	0	59	2	0
NE023	Yes	1	B	55	63	58	5	1	59	4	0	59	4	0	59	4	0
NE024	No	1	B	52	62	59	3	0	59	3	0	59	3	0	59	3	0
NE025	No	1	B	52	61	58	3	0	58	3	0	58	3	0	58	3	0
NE027	Yes	1	B	54	63	58	5	1	59	4	0	59	4	0	59	4	0
NE028	No	1	B	52	62	58	4	0	59	3	0	59	3	0	59	3	0
NE030	Yes	1	B	53	63	59	4	0	59	4	0	59	4	0	59	4	0
NE031	No	1	B	52	62	58	4	0	58	4	0	59	3	0	59	3	0
NE032	No	1	B	51	61	57	4	0	57	4	0	57	4	0	58	3	0
NE033	No	1	B	48	57	56	1	0	56	1	0	56	1	0	56	1	0
NE034	No	1	B	48	57	55	2	0	55	2	0	55	2	0	55	2	0
NE036	No	1	B	50	60	57	3	0	57	3	0	57	3	0	57	3	0
NE037	No	1	B	47	57	54	3	0	55	2	0	55	2	0	55	2	0
NE038	No	1	B	47	57	55	2	0	55	2	0	55	2	0	55	2	0
NE040	Yes	1	B	53	65	59	6	1	60	5	1	60	5	1	60	5	1
NE041	No	1	B	50	60	57	3	0	57	3	0	57	3	0	57	3	0
NE042	No	1	B	49	60	57	3	0	57	3	0	57	3	0	57	3	0
NE043	No	1	B	47	60	56	4	0	56	4	0	56	4	0	56	4	0
NE045	No	1	B	48	60	56	4	0	56	4	0	57	3	0	57	3	0
NE046	No	1	B	47	60	56	4	0	57	3	0	57	3	0	57	3	0
NE047	No	1	B	46	58	54	4	0	55	3	0	55	3	0	55	3	0
NE048	No	1	B	46	58	54	4	0	54	4	0	54	4	0	54	4	0
NE049	No	1	B	46	57	53	4	0	54	3	0	54	3	0	54	3	0
NE050	Yes	1	B	52	67	60	7	1	60	7	1	61	6	1	61	6	1
NE053	Yes	1	B	52	68	60	8	1	60	8	1	61	7	1	61	7	1
NE055	No	1	B	49	62	57	5	1	57	5	1	58	4	0	58	4	0
NE056	No	1	B	49	61	59	2	0	59	2	0	60	1	0	60	1	0
NE057	No	1	B	48	60	57	3	0	57	3	0	57	3	0	57	3	0
NE058	No	1	B	46	58	53	5	1	53	5	1	53	5	1	54	4	0
NE059	No	1	B	45	57	52	5	1	52	5	1	53	4	0	53	4	0
NE060	No	1	B	46	57	52	5	1	53	4	0	53	4	0	53	4	0
NE062	Yes	1	B	52	68	60	8	1	60	8	1	61	7	1	61	7	1
NE063	No	1	B	49	61	56	5	1	57	4	0	57	4	0	57	4	0
NE064	No	1	B	48	60	54	6	1	55	5	1	55	5	1	56	4	0
NE065	No	1	B	45	56	52	4	0	52	4	0	52	4	0	53	3	0
NE067	Yes	1	B	52	67	59	8	1	60	7	1	61	6	1	61	6	1
NE068	No	1	B	45	56	52	4	0	53	3	0	53	3	0	53	3	0
NE070	Yes	1	B	52	67	59	8	1	60	7	1	61	6	1	61	6	1
NE071	No	1	B	49	62	57	5	1	57	5	1	58	4	0	58	4	0
NE072	No	1	B	48	61	57	4	0	57	4	0	58	3	0	58	3	0
NE073	No	1	B	45	58	56	2	0	56	2	0	56	2	0	56	2	0
NE074	No	1	B	45	57	53	4	0	53	4	0	54	3	0	54	3	0
NE077	Yes	1	B	51	65	59	6	1	59	6	1	60	5	1	60	5	1
NE080	Yes	1	B	52	69	60	9	1	61	8	1	61	8	1	62	7	1
NE081	No	1	B	49	63	60	3	0	60	3	0	61	2	0	61	2	0
NE082	No	1	B	48	61	55	6	1	56	5	1	56	5	1	56	5	1
NE083	No	1	B	47	59	54	5	1	55	4	0	55	4	0	55	4	0
NE084	No	1	B	45	58	53	5	1	53	5	1	54	4	0	54	4	0
NE085	No	1	B	45	57	52	5	1	52	5	1	53	4	0	53	4	0
NE086	No	1	B	45	56	51	5	1	51	5	1	52	4	0	52	4	0
NE087	No	1	B	45	57	52	5	1	52	5	1	52	5	1	52	5	1
NE089	Yes	1	B	51	65	58	7	1	59	6	1	59	6	1	60	5	1
NE090	No	1	B	49	63	58	5	1	59	4	0	59	4	0	60	3	0
NE091	No	1	B	48	61	56	5	1	56	5	1	57	4	0	57	4	0
NE092	No	1	B	47	59	55	4	0	55	4	0	56	3	0	56	3	0
NE093	No	1	B	46	58	54	4	0	55	3	0	55	3	0	55	3	0
NE094	No	1	B	45	58	52	6	1	53	5	1	53	5	1	53	5	1
NE095	No	1	B	45	57	51	6	1	52	5	1	52	5	1	52	5	1
NE096	No	1	B	45	56	52	4	0	52	4	0	53	3	0	53	3	0
NE097	No	1	B	45	56	51	5	1	52	4	0	52	4	0	53	3	0

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
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Bangerter Highway Over Option

Noise Wall 5

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			15-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NE099	No	1	B	48	61	55	6	1	56	5	1	56	5	1	57	4	0
NE100	No	1	B	45	57	53	4	0	53	4	0	54	3	0	54	3	0
NE101	No	1	B	45	56	50	6	1	50	6	1	51	5	1	51	5	1
NE103	Yes	1	B	50	64	58	6	1	59	5	1	59	5	1	59	5	1
NE105	Yes	1	B	51	65	58	7	1	59	6	1	59	6	1	60	5	1
NE106	No	1	B	46	59	55	4	0	55	4	0	55	4	0	55	4	0
NE107	No	1	B	45	58	52	6	1	52	6	1	52	6	1	53	5	1
NE108	No	1	B	45	56	49	7	1	49	7	1	50	6	1	50	6	1
NE110	Yes	1	B	50	65	58	7	1	59	6	1	59	6	1	60	5	1
NE111	No	1	B	47	60	55	5	1	56	4	0	56	4	0	56	4	0
NE112	No	1	B	45	59	51	8	1	52	7	1	53	6	1	53	6	1
NE113	No	1	B	45	53	49	4	0	49	4	0	49	4	0	49	4	0
NE115	Yes	1	B	50	65	58	7	1	59	6	1	59	6	1	59	6	1
NE116	No	1	B	47	60	55	5	1	56	4	0	56	4	0	57	3	0
NE117	No	1	B	45	59	52	7	1	53	6	1	53	6	1	53	6	1
NE119	No	1	B	50	63	57	6	1	58	5	1	59	4	0	59	4	0
NE120	No	1	B	47	60	56	4	0	56	4	0	57	3	0	57	3	0
NE121	No	1	B	45	58	52	6	1	52	6	1	53	5	1	53	5	1
NE122	No	1	B	45	55	50	5	1	50	5	1	50	5	1	51	4	0
NE123	Yes	1	B	56	75	61	14	1	62	13	1	63	12	1	64	11	1
NE124	No	1	B	50	63	57	6	1	58	5	1	58	5	1	59	4	0
NE125	No	1	B	46	59	55	4	0	56	3	0	56	3	0	56	3	0
NE126	No	1	B	45	57	51	6	1	52	5	1	52	5	1	52	5	1
NE127	No	1	B	45	54	49	5	1	49	5	1	49	5	1	50	4	0
NE128	Yes	1	B	57	76	62	14	1	62	14	1	64	12	1	64	12	1
NE129	No	1	B	50	63	57	6	1	58	5	1	58	5	1	59	4	0
NE130	No	1	B	46	59	55	4	0	55	4	0	56	3	0	56	3	0
NE131	No	1	B	45	56	51	5	1	51	5	1	52	4	0	52	4	0
NE132	No	1	B	45	54	48	6	1	49	5	1	49	5	1	49	5	1
NE133	Yes	1	B	57	78	62	16	1	63	15	1	64	14	1	65	13	1
NE134	No	1	B	50	63	57	6	1	57	6	1	58	5	1	58	5	1
NE135	Yes	1	B	55	71	61	10	1	62	9	1	62	9	1	63	8	1
NE136	No	1	B	50	63	58	5	1	58	5	1	59	4	0	59	4	0
NE137	No	1	B	46	59	55	4	0	55	4	0	55	4	0	56	3	0
NE138	No	1	B	45	56	50	6	1	51	5	1	51	5	1	51	5	1
NE139	No	1	B	45	53	48	5	1	48	5	1	48	5	1	49	4	0
NE140	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1
NE141	No	1	B	50	63	57	6	1	57	6	1	58	5	1	58	5	1
NE142	No	1	B	46	58	55	3	0	55	3	0	55	3	0	56	2	0
NE143	No	1	B	45	56	50	6	1	51	5	1	51	5	1	51	5	1
NE144	No	1	B	45	53	48	5	1	48	5	1	48	5	1	49	4	0
NE145	Yes	1	B	57	78	62	16	1	62	16	1	64	14	1	64	14	1
NE146	No	1	B	50	63	57	6	1	57	6	1	58	5	1	58	5	1
NE147	No	1	B	46	59	54	5	1	54	5	1	55	4	0	55	4	0
NE148	No	1	B	45	56	50	6	1	50	6	1	51	5	1	51	5	1
NE149	No	1	B	45	53	48	5	1	48	5	1	49	4	0	49	4	0
NE150	Yes	1	B	56	74	61	13	1	62	12	1	63	11	1	63	11	1
NE151	No	1	B	51	63	57	6	1	57	6	1	58	5	1	58	5	1
NE152	No	1	B	46	59	54	5	1	54	5	1	55	4	0	55	4	0
NE153	No	1	B	45	55	50	5	1	50	5	1	51	4	0	51	4	0
NE154	No	1	B	45	53	48	5	1	48	5	1	48	5	1	49	4	0
NE155	Yes	1	B	56	76	61	15	1	62	14	1	63	13	1	64	12	1
NE156	No	1	B	50	63	57	6	1	58	5	1	58	5	1	58	5	1
NE157	No	1	B	46	59	54	5	1	54	5	1	55	4	0	55	4	0
NE158	No	1	B	45	56	51	5	1	51	5	1	51	5	1	52	4	0
NE159	No	1	B	45	53	48	5	1	49	4	0	49	4	0	49	4	0
NE160	Yes	1	B	56	77	61	16	1	62	15	1	63	14	1	64	13	1
NE161	No	1	B	50	64	59	5	1	59	5	1	59	5	1	60	4	0
NE162	No	1	B	46	59	53	6	1	54	5	1	54	5	1	54	5	1
NE163	No	1	B	45	55	51	4	0	51	4	0	51	4	0	51	4	0
NE164	No	1	B	45	54	50	4	0	50	4	0	50	4	0	50	4	0
NE165	Yes	1	B	56	74	61	13	1	61	13	1	62	12	1	63	11	1
NE166	No	1	B	50	63	58	5	1	58	5	1	59	4	0	59	4	0
NE167	No	1	B	47	60	56	4	0	56	4	0	56	4	0	57	3	0
NE168	No	1	B	45	56	52	4	0	52	4	0	52	4	0	52	4	0
NE169	Yes	1	B	56	73	61	12	1	62	11	1	62	11	1	63	10	1
NE171	No	1	B	50	63	59	4	0	59	4	0	60	3	0	60	3	0

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
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Bangerter Highway Over Option

Noise Wall 5

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			15-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NE172	No	1	B	46	59	54	5	1	55	4	0	55	4	0	55	4	0
NE173	No	1	B	45	56	53	3	0	53	3	0	53	3	0	53	3	0
NE174	No	1	B	45	52	49	3	0	49	3	0	50	2	0	50	2	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

	Inputs			
Overall Wall Length (ft.) =	3078	3078	3078	3078
Average Wall Height (ft.) =	20	18	16	15
Wall Area (sq. ft.) =	61560	55404	49248	46170
Full Acquisition (parcels) =	3	3	3	3
Safety Barrier (linear ft.) =	1572	1572	1572	1572
Front Row Properties =	29	29	29	29
Acoustic Feasibility				
Front-Row Properties with a 5 dBA Reduction =	27	24	24	24
% of Front-Row Properties Reduced At Least 5 dBA =	93%	83%	83%	83%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**
Noise Reduction Design Goal				
Front Row Properties with 7 dBA Reduction =	21	17	14	14
% of Front Row Reduced At Least 7 dBA =	72%	59%	48%	48%
Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**
Cost Effectiveness				
Benefited (Category B w/ 5 dBA Reduction) =	85	73	57	45
Wall Cost (wall area x 20) =	$1,231,200	$1,108,080	$984,960	$923,400
Full Acquisition (parcels x 600k) =	$1,800,000	$1,800,000	$1,800,000	$1,800,000
Safety Barrier (linear ft. x 80) =	$125,760	$125,760	$125,760	$125,760
Snow Storage (linear ft. of safety barrier x 25) =	$39,300	$39,300	$39,300	$39,300
Total Wall Cost =	$3,196,260	$3,073,140	$2,950,020	$2,888,460
Cost per Benefited Property (wall cost / benefited) =	$37,603	$42,098	$51,755	$64,188
Allowable Cost (benefited x 30k) =	$2,550,000	$2,190,000	$1,710,000	$1,350,000
Cost Reasonable =	**No**	**No**	**No**	**No**

Reasonableness

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
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Noise Wall 6

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW037	No	1	B	54	59	57	2	0	57	2	0	57	2	0	57	2	0	58	1	0
NW038	No	1	B	55	61	59	2	0	59	2	0	59	2	0	59	2	0	59	2	0
NW039	No	1	B	57	65	60	5	1	60	5	1	61	4	0	61	4	0	61	4	0
NW040	No	1	B	53	58	57	1	0	57	1	0	57	1	0	57	1	0	57	1	0
NW041	No	1	B	55	61	58	3	0	58	3	0	59	2	0	59	2	0	59	2	0
NW042	No	1	B	56	65	60	5	1	60	5	1	61	4	0	61	4	0	61	4	0
NW043	No	1	B	56	65	60	5	1	60	5	1	60	5	1	60	5	1	60	5	1
NW044	No	1	B	57	66	60	6	1	60	6	1	60	6	1	61	5	1	61	5	1
NW045	No	1	B	57	67	60	7	1	60	7	1	61	6	1	61	6	1	61	6	1
NW046	No	1	B	57	68	61	7	1	61	7	1	61	7	1	62	6	1	62	6	1
NW047	No	1	B	52	58	56	2	0	56	2	0	56	2	0	57	1	0	57	1	0
NW048	No	1	B	54	61	58	3	0	58	3	0	58	3	0	58	3	0	58	3	0
NW049	No	1	B	56	66	60	6	1	60	6	1	60	6	1	61	5	1	61	5	1
NW050	No	1	B	51	59	56	3	0	56	3	0	56	3	0	56	3	0	56	3	0
NW051	No	1	B	53	61	57	4	0	57	4	0	57	4	0	57	4	0	57	4	0
NW052	No	1	B	56	66	60	6	1	60	6	1	60	6	1	61	5	1	61	5	1
NW053	No	1	B	59	72	62	10	1	63	9	1	63	9	1	64	8	1	64	8	1
NW054	No	1	B	59	72	62	10	1	62	10	1	63	9	1	63	9	1	63	9	1
NW055	No	1	B	59	76	62	14	1	63	13	1	63	13	1	64	12	1	65	11	1
NW056	Yes	1	B	59	77	62	15	1	63	14	1	63	14	1	64	13	1	65	12	1
NW057	No	1	B	48	58	54	4	0	54	4	0	54	4	0	54	4	0	54	4	0
NW058	No	1	B	50	61	55	6	1	56	5	1	56	5	1	56	5	1	56	5	1
NW059	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
NW060	No	1	B	55	66	59	7	1	59	7	1	60	6	1	60	6	1	60	6	1
NW061	No	1	B	56	71	60	11	1	60	11	1	61	10	1	61	10	1	62	9	1
NW062	No	1	B	56	72	59	13	1	60	12	1	60	12	1	61	11	1	62	10	1
NW063	No	1	B	58	76	62	14	1	63	13	1	64	12	1	65	11	1	65	11	1
NW064	Yes	1	B	59	77	62	15	1	63	14	1	64	13	1	65	12	1	66	11	1
NW065	No	1	B	48	57	53	4	0	53	4	0	54	3	0	54	3	0	54	3	0
NW066	No	1	B	50	60	55	5	1	55	5	1	55	5	1	56	4	0	56	4	0
NW067	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
NW068	No	1	B	55	67	58	9	1	59	8	1	59	8	1	60	7	1	60	7	1
NW069	No	1	B	48	55	53	2	0	53	2	0	53	2	0	53	2	0	53	2	0
NW070	No	1	B	49	59	54	5	1	55	4	0	55	4	0	55	4	0	55	4	0
NW071	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
NW072	No	1	B	55	67	59	8	1	59	8	1	60	7	1	60	7	1	61	6	1
NW073	No	1	B	48	56	53	3	0	53	3	0	53	3	0	53	3	0	53	3	0
NW074	No	1	B	49	58	54	4	0	54	4	0	54	4	0	55	3	0	55	3	0
NW075	No	1	B	52	64	56	8	1	57	7	1	57	7	1	57	7	1	58	6	1
NW076	No	1	B	55	67	59	8	1	59	8	1	60	7	1	60	7	1	61	6	1
NW077	No	1	B	47	56	53	3	0	53	3	0	53	3	0	53	3	0	54	2	0
NW078	No	1	B	47	56	52	4	0	52	4	0	52	4	0	53	3	0	53	3	0
NW079	No	1	B	46	56	51	5	1	52	4	0	52	4	0	52	4	0	52	4	0
NW080	No	1	B	47	58	51	7	1	51	7	1	52	6	1	52	6	1	53	5	1
NW081	No	1	B	50	62	55	7	1	55	7	1	55	7	1	56	6	1	56	6	1
NW082	No	1	B	51	62	55	7	1	55	7	1	56	6	1	56	6	1	56	6	1
NW083	No	1	B	53	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
NW084	No	1	B	53	64	57	7	1	57	7	1	57	7	1	58	6	1	58	6	1
NW085	No	1	B	53	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
NW086	No	1	B	52	64	56	8	1	56	8	1	57	7	1	57	7	1	58	6	1
NW087	No	1	B	56	71	60	11	1	60	11	1	61	10	1	61	10	1	62	9	1
NW088	No	1	B	54	72	58	14	1	59	13	1	60	12	1	60	12	1	61	11	1
NW089	No	1	B	58	76	62	14	1	62	14	1	63	13	1	64	12	1	65	11	1
NW090	Yes	1	B	58	78	62	16	1	63	15	1	64	14	1	65	13	1	65	13	1
NW091	Yes	1	B	58	77	62	15	1	63	14	1	63	14	1	64	13	1	65	12	1
NW092	Yes	1	B	58	77	62	15	1	63	14	1	64	13	1	65	12	1	65	12	1
NW093	No	1	B	51	62	55	7	1	55	7	1	56	6	1	56	6	1	56	6	1
NW094	No	1	B	54	66	58	8	1	58	8	1	59	7	1	60	6	1	60	6	1
NW095	Yes	1	B	57	75	62	13	1	62	13	1	63	12	1	64	11	1	65	10	1
NW096	No	1	B	48	58	53	5	1	53	5	1	53	5	1	53	5	1	54	4	0
NW097	No	1	B	51	61	55	6	1	55	6	1	56	5	1	56	5	1	56	5	1
NW098	No	1	B	54	66	58	8	1	59	7	1	59	7	1	60	6	1	60	6	1
NW099	Yes	1	B	57	75	62	13	1	63	12	1	63	12	1	64	11	1	65	10	1
NW100	No	1	B	45	55	51	4	0	51	4	0	51	4	0	51	4	0	51	4	0
NW101	No	1	B	45	54	50	4	0	50	4	0	51	3	0	51	3	0	51	3	0
NW102	No	1	B	49	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
NW103	No	1	B	50	60	55	5	1	55	5	1	56	4	0	56	4	0	56	4	0

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PIN 18808
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Noise Wall 6

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW104	No	1	B	53	66	57	9	1	58	8	1	58	8	1	59	7	1	59	7	1
NW105	Yes	1	B	57	74	62	12	1	62	12	1	63	11	1	64	10	1	64	10	1
NW106	No	1	B	51	60	57	3	0	57	3	0	57	3	0	58	2	0	58	2	0
NW107	No	1	B	53	66	57	9	1	58	8	1	58	8	1	59	7	1	60	6	1
NW108	Yes	1	B	57	74	62	12	1	62	12	1	63	11	1	64	10	1	65	9	1
NW109	No	1	B	45	54	50	4	0	50	4	0	50	4	0	51	3	0	51	3	0
NW110	No	1	B	44	55	50	5	1	50	5	1	50	5	1	51	4	0	51	4	0
NW111	No	1	B	45	56	50	6	1	50	6	1	51	5	1	51	5	1	51	5	1
NW112	No	1	B	45	57	51	6	1	51	6	1	52	5	1	52	5	1	53	4	0
NW113	No	1	B	48	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
NW114	No	1	B	51	65	56	9	1	56	9	1	57	8	1	58	7	1	58	7	1
NW115	No	1	B	53	67	58	9	1	58	9	1	59	8	1	59	8	1	60	7	1
NW116	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	63	8	1	63	8	1
NW117	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	63	8	1	63	8	1
NW118	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	63	8	1	63	8	1
NW119	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	63	8	1	63	8	1
NW120	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
NW121	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
NW122	No	1	B	46	57	52	5	1	51	6	1	51	6	1	52	5	1	52	5	1
NW123	No	1	B	45	56	51	5	1	51	5	1	51	5	1	51	5	1	52	4	0
NW124	No	1	B	47	58	53	5	1	52	6	1	52	6	1	53	5	1	53	5	1
NW125	No	1	B	47	59	53	6	1	52	7	1	53	6	1	53	6	1	53	6	1
NW126	No	1	B	48	60	53	7	1	53	7	1	54	6	1	54	6	1	54	6	1
NW127	No	1	B	48	60	53	7	1	53	7	1	54	6	1	54	6	1	54	6	1
NW128	No	1	B	49	62	54	8	1	54	8	1	55	7	1	55	7	1	56	6	1
NW129	No	1	B	50	62	55	7	1	55	7	1	55	7	1	56	6	1	56	6	1
NW130	No	1	B	51	65	56	9	1	56	9	1	57	8	1	58	7	1	58	7	1
NW131	No	1	B	51	65	56	9	1	57	8	1	57	8	1	58	7	1	58	7	1
NW132	No	Park	C	45	55	50	5	Park	50	5	Park	50	5	Park	51	4	0	51	4	0
NW133	No	1	B	52	66	57	9	1	58	8	1	58	8	1	59	7	1	60	6	1
NW134	No	1	B	52	66	57	9	1	58	8	1	58	8	1	59	7	1	60	6	1
NW135	No	Park	C	43	53	49	4	0	49	4	0	49	4	0	49	4	0	49	4	0
NW136	No	Park	C	44	54	49	5	Park	49	5	Park	49	5	Park	50	4	0	50	4	0
NW137	No	1	B	53	67	58	9	1	58	9	1	59	8	1	60	7	1	60	7	1
NW138	No	1	B	53	67	58	9	1	58	9	1	59	8	1	60	7	1	60	7	1
NW139	Yes	1	B	57	72	61	11	1	62	10	1	63	9	1	64	8	1	64	8	1
NW140	Yes	1	B	57	72	61	11	1	62	10	1	63	9	1	64	8	1	64	8	1
NW141	No	Park	C	43	53	49	4	0	50	3	0	50	3	0	50	3	0	50	3	0
NW142	No	1	B	52	66	57	9	1	57	9	1	58	8	1	59	7	1	59	7	1
NW143	No	1	B	53	66	58	8	1	58	8	1	59	7	1	60	6	1	60	6	1
NW144	Yes	1	B	57	71	61	10	1	61	10	1	62	9	1	63	8	1	64	7	1
NW145	Yes	1	B	57	71	61	10	1	61	10	1	62	9	1	63	8	1	64	7	1
NW146	No	1	B	44	54	50	4	0	50	4	0	50	4	0	51	3	0	51	3	0
NW147	No	1	B	44	53	50	3	0	50	3	0	50	3	0	50	3	0	50	3	0
NW148	No	1	B	46	56	52	4	0	52	4	0	52	4	0	52	4	0	53	3	0
NW149	No	1	B	46	56	52	4	0	52	4	0	52	4	0	53	3	0	53	3	0
NW150	No	1	B	47	57	52	5	1	53	4	0	53	4	0	53	4	0	54	3	0
NW151	No	1	B	47	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
NW152	No	1	B	48	58	53	5	1	53	5	1	54	4	0	54	4	0	55	3	0
NW153	No	1	B	48	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
NW154	No	1	B	49	60	54	6	1	55	5	1	55	5	1	56	4	0	56	4	0
NW155	No	1	B	50	60	54	6	1	55	5	1	55	5	1	56	4	0	56	4	0
NW156	No	1	B	51	63	56	7	1	56	7	1	57	6	1	57	6	1	58	5	1
NW157	No	1	B	52	63	56	7	1	57	6	1	57	6	1	58	5	1	58	5	1
NW158	Yes	1	B	57	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
NW159	Yes	1	B	57	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
NW160	No	1	B	45	53	51	2	0	51	2	0	51	2	0	51	2	0	51	2	0
NW161	No	1	B	45	53	51	2	0	51	2	0	51	2	0	51	2	0	52	1	0
NW162	No	1	B	46	55	52	3	0	52	3	0	52	3	0	52	3	0	52	3	0
NW163	No	1	B	46	55	53	2	0	52	3	0	52	3	0	52	3	0	53	2	0
NW164	No	1	B	47	55	53	2	0	53	2	0	53	2	0	53	2	0	53	2	0
NW165	No	1	B	47	56	53	3	0	53	3	0	53	3	0	54	2	0	54	2	0
NW166	No	1	B	48	57	54	3	0	54	3	0	54	3	0	54	3	0	55	2	0
NW167	No	1	B	49	58	54	4	0	54	4	0	55	3	0	55	3	0	55	3	0
NW168	No	1	B	50	60	55	5	1	56	4	0	56	4	0	56	4	0	57	3	0
NW169	No	1	B	51	61	56	5	1	56	5	1	57	4	0	57	4	0	58	3	0
NW170	No	1	B	52	63	57	6	1	57	6	1	58	5	1	58	5	1	59	4	0

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Noise Wall 6

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW171	No	1	B	53	64	58	6	1	58	6	1	59	5	1	59	5	1	60	4	0
NW172	Yes	1	B	56	68	60	8	1	61	7	1	61	7	1	62	6	1	62	6	1
NW173	Yes	1	B	56	69	61	8	1	61	8	1	62	7	1	63	6	1	63	6	1
NW174	No	1	B	44	52	51	1	0	51	1	0	51	1	0	51	1	0	51	1	0
NW175	No	1	B	45	54	52	2	0	52	2	0	52	2	0	52	2	0	52	2	0
NW176	No	1	B	46	54	52	2	0	52	2	0	52	2	0	52	2	0	52	2	0
NW177	No	1	B	46	55	53	2	0	52	3	0	53	2	0	53	2	0	53	2	0
NW178	No	1	B	51	61	56	5	1	56	5	1	57	4	0	57	4	0	57	4	0
NW179	Yes	1	B	55	65	60	5	1	60	5	1	61	4	0	61	4	0	61	4	0
NW180	No	1	B	51	59	56	3	0	57	2	0	57	2	0	57	2	0	57	2	0
NW181	Yes	1	B	58	70	61	9	1	62	8	1	63	7	1	63	7	1	64	6	1

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

	Inputs				
	Overall Wall Length (ft.) =	1444	1444	1444	1444	1444
	Average Wall Height (ft.) =	20	18	16	14	13
	Wall Area (sq. ft.) =	28880	25992	23104	20216	18772
	Safety Barrier (linear ft.) =	1090	1090	1090	1090	1090
	Front Row Properties =	25	25	25	25	25
	Acoustic Feasibility					
	Front-Row Properties with a 5 dBA Reduction =	25	25	24	24	24
	% of Front-Row Properties Reduced At Least 5 dBA =	100%	100%	96%	96%	96%
	Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness	**Noise Reduction Design Goal**					
	Front Row Properties with 7 dBA Reduction =	24	24	24	24	21
	% of Front Row Reduced At Least 7 dBA =	96%	96%	96%	96%	84%
	Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	Cost Effectiveness					
	Benefited (Category B w/ 5 dBA Reduction) =	105	105	94	94	81
	Wall Cost (wall area x 20) =	$577,600	$519,840	$462,080	$404,320	$375,440
	Safety Barrier (linear ft. x 80) =	$87,200	$87,200	$87,200	$87,200	$87,200
	Snow Storage (linear ft. of safety barrier x 25) =	$27,250	$27,250	$27,250	$27,250	$27,250
	Total Wall Cost =	$692,050	$634,290	$576,530	$518,770	$489,890
	Cost per Benefited Property (wall cost / benefited) =	$6,591	$6,041	$6,133	$5,519	$6,048
	Allowable Cost (benefited x 30k) =	$3,150,000	$3,150,000	$2,820,000	$2,820,000	$2,430,000
	Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

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Noise Wall 7

NAC						Existing Wall (13 Feet)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW182	No	1	B	52	63	60	3	0
NW183	No	1	B	43	54	51	3	0
NW184	No	1	B	43	55	51	4	0
NW185	No	1	B	44	56	51	5	1
NW186	No	1	B	45	57	53	4	0
NW187	No	1	B	49	61	56	5	1
NW188	No	1	B	52	63	60	3	0
NW189	Yes	1	B	57	73	66	7	1
NW190	Yes	1	B	57	74	65	9	1
NW191	No	1	B	42	53	49	4	0
NW192	No	1	B	43	54	50	4	0
NW193	No	1	B	46	57	54	3	0
NW194	No	1	B	51	63	59	4	0
NW195	Yes	1	B	58	76	65	11	1
NW196	No	1	B	52	64	60	4	0
NW197	Yes	1	B	57	74	64	10	1
NW198	Yes	1	B	57	74	65	9	1
NW199	No	1	B	42	53	49	4	0
NW200	No	1	B	48	59	55	4	0
NW201	No	1	B	52	64	59	5	1
NW202	Yes	1	B	57	74	64	10	1
NW203	No	1	B	41	53	49	4	0
NW204	No	1	B	45	56	52	4	0
NW205	No	1	B	47	59	55	4	0
NW206	No	1	B	52	64	59	5	1
NW207	Yes	1	B	57	74	64	10	1
NW208	No	1	B	42	52	49	3	0
NW209	No	1	B	45	57	53	4	0
NW210	No	1	B	52	64	59	5	1
NW211	Yes	1	B	57	76	65	11	1
NW212	No	1	B	43	53	50	3	0
NW213	No	1	B	46	57	53	4	0
NW214	No	1	B	46	57	53	4	0
NW215	No	1	B	48	58	55	3	0
NW216	No	1	B	54	65	60	5	1
NW217	Yes	1	B	58	76	65	11	1
NW218	Yes	1	B	57	76	66	10	1
NW219	No	1	B	44	54	51	3	0
NW220	No	1	B	45	55	52	3	0
NW221	No	1	B	46	57	53	4	0
NW222	No	1	B	47	59	54	5	1
NW223	No	1	B	49	62	57	5	1
NW224	No	1	B	52	66	59	7	1
NW225	Yes	1	B	56	74	64	10	1

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Over Option

Noise Wall 7

NAC	Existing Wall (13 Feet)

		Inputs	
		Overall Wall Length (ft.) =	1342
		Average Wall Height (ft.) =	13
		Wall Area (sq. ft.) =	17446
		Safety Barrier (linear ft.) =	0
		Front Row Properties =	14
		Acoustic Feasibility	
		Front-Row Properties with a 5 dBA Reduction =	11
		% of Front-Row Properties Reduced At Least 5 dBA =	79%
		Acoustically Feasible =	**Yes**
Reasonableness		**Noise Reduction Design Goal**	
		Front Row Properties with 7 dBA Reduction =	11
		% of Front Row Reduced At Least 7 dBA =	79%
		Meets Noise Reduction Goal =	**Yes**
		Cost Effectiveness	
		Benefited (Category B w/ 5 dBA Reduction) =	20
		Wall Cost (wall area x 20) =	$348,920
		Safety Barrier (linear ft. x 80) =	$0
		Snow Storage (linear ft. of safety barrier x 25) =	$0
		Total Wall Cost =	$348,920
		Cost per Benefited Property (wall cost / benefited) =	$17,446
		Allowable Cost (benefited x 30k) =	$600,000
		Cost Reasonable =	**Yes**

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 1

NAC						Existing Wall (9 Feet)			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall			12-Foot Wall		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SW003	No	1	B	48	57	57	0	0	56	1	0	56	1	0	56	1	0	56	1	0	56	1	0
SW004	No	1	B	49	58	58	0	0	57	1	0	57	1	0	57	1	0	57	1	0	58	0	0
SW005	No	1	B	51	60	60	0	0	58	2	0	59	1	0	59	1	0	59	1	0	59	1	0
SW006	No	1	B	53	63	62	1	0	61	2	0	61	2	0	61	2	0	61	2	0	62	1	0
SW007	No	1	B	55	65	64	1	0	62	3	0	63	2	0	63	2	0	63	2	0	64	1	0
SW008	Yes	1	B	63	77	71	6	1	65	12	1	66	11	1	67	10	1	67	10	1	68	9	1
SW009	Yes	1	B	61	73	68	5	1	64	9	1	64	9	1	65	8	1	65	8	1	66	7	1
SW010	No	1	B	48	56	55	1	0	53	3	0	53	3	0	54	2	0	54	2	0	55	1	0
SW011	No	1	B	49	58	57	1	0	54	4	0	54	4	0	55	3	0	55	3	0	56	2	0
SW012	No	1	B	51	59	58	1	0	55	4	0	55	4	0	56	3	0	56	3	0	57	2	0
SW013	No	1	B	52	61	60	1	0	57	4	0	57	4	0	58	3	0	58	3	0	59	2	0
SW014	No	1	B	55	63	62	1	0	59	4	0	59	4	0	60	3	0	60	3	0	61	2	0
SW015	Yes	1	B	61	73	68	5	1	63	10	1	64	9	1	65	8	1	65	8	1	66	7	1
SW016	No	1	B	48	56	55	1	0	52	4	0	53	3	0	53	3	0	54	2	0	54	2	0
SW017	No	1	B	50	57	56	1	0	54	3	0	54	3	0	55	2	0	55	2	0	56	1	0
SW018	No	1	B	51	58	58	0	0	54	4	0	55	3	0	56	2	0	56	2	0	57	1	0
SW019	No	1	B	52	60	59	1	0	56	4	0	56	4	0	57	3	0	58	2	0	58	2	0
SW020	No	1	B	54	63	62	1	0	60	3	0	60	3	0	61	2	0	61	2	0	61	2	0
SW021	Yes	1	B	62	75	69	6	1	64	11	1	64	11	1	65	10	1	66	9	1	66	9	1
SW022	Yes	1	B	62	73	68	5	1	63	10	1	64	9	1	65	8	1	65	8	1	66	7	1
SW023	No	1	B	48	56	54	2	0	52	4	0	52	4	0	53	3	0	53	3	0	54	2	0
SW024	No	1	B	48	57	55	2	0	52	5	1	53	4	0	53	4	0	54	3	0	55	2	0
SW025	No	1	B	49	58	57	1	0	53	5	1	54	4	0	55	3	0	55	3	0	56	2	0
SW026	No	1	B	51	60	58	2	0	55	5	1	56	4	0	56	4	0	57	3	0	57	3	0
SW027	No	1	B	55	64	62	2	0	58	6	1	59	5	1	59	5	1	60	4	0	60	4	0
SW028	Yes	1	B	62	74	69	5	1	63	11	1	64	10	1	65	9	1	66	8	1	66	8	1
SW029	No	1	B	56	65	62	3	0	59	6	1	59	6	1	60	5	1	61	4	0	61	4	0
SW030	No	1	B	48	56	55	1	0	53	3	0	53	3	0	53	3	0	54	2	0	54	2	0
SW031	No	1	B	48	57	55	2	0	53	4	0	53	4	0	54	3	0	54	3	0	54	3	0
SW032	No	1	B	48	57	56	1	0	53	4	0	53	4	0	54	3	0	54	3	0	55	2	0
SW033	No	1	B	50	60	58	2	0	55	5	1	55	5	1	56	4	0	56	4	0	57	3	0
SW034	No	1	B	54	64	61	3	0	58	6	1	59	5	1	59	5	1	60	4	0	60	4	0
SW035	Yes	1	B	62	74	69	5	1	63	11	1	64	10	1	65	9	1	66	8	1	66	8	1
SW036	No	1	B	50	59	56	3	0	54	5	1	54	5	1	55	4	0	55	4	0	55	4	0
SW037	Yes	1	B	61	73	68	5	1	63	10	1	64	9	1	65	8	1	65	8	1	66	7	1
SW038	No	1	B	47	55	53	2	0	51	4	0	52	3	0	52	3	0	52	3	0	53	2	0
SW039	No	1	B	56	65	62	3	0	59	6	1	59	6	1	60	5	1	60	5	1	61	4	0
SW040	Yes	1	B	61	73	68	5	1	63	10	1	63	10	1	64	9	1	65	8	1	65	8	1
SW041	No	1	B	49	56	54	2	0	53	3	0	53	3	0	53	3	0	53	3	0	54	2	0
SW042	No	1	B	49	57	55	2	0	53	4	0	53	4	0	54	3	0	54	3	0	54	3	0
SW043	No	1	B	50	58	56	2	0	54	4	0	54	4	0	54	4	0	54	4	0	55	3	0
SW044	No	1	B	51	59	57	2	0	55	4	0	55	4	0	56	3	0	56	3	0	56	3	0
SW045	No	1	B	53	60	58	2	0	56	4	0	56	4	0	57	3	0	57	3	0	57	3	0
SW046	Yes	1	B	61	72	67	5	1	62	10	1	63	9	1	64	8	1	64	8	1	65	7	1
SW047	No	1	B	51	55	54	1	0	53	2	0	53	2	0	53	2	0	53	2	0	54	1	0
SW048	No	1	B	51	56	55	1	0	53	3	0	54	2	0	54	2	0	54	2	0	54	2	0
SW049	No	1	B	53	57	56	1	0	55	2	0	55	2	0	55	2	0	55	2	0	55	2	0
SW050	No	1	B	54	59	58	1	0	56	3	0	56	3	0	57	2	0	57	2	0	57	2	0
SW051	No	1	B	55	61	59	2	0	57	4	0	57	4	0	58	3	0	58	3	0	58	3	0
SW052	No	1	B	57	64	61	3	0	58	6	1	59	5	1	59	5	1	59	5	1	60	4	0
SW053	Yes	1	B	61	71	66	5	1	62	9	1	63	8	1	63	8	1	64	7	1	64	7	1
SW057	No	1	B	53	57	56	1	0	55	2	0	56	1	0	56	1	0	56	1	0	56	1	0
SW058	No	1	B	55	59	58	1	0	57	2	0	57	2	0	57	2	0	58	1	0	58	1	0
SW059	No	1	B	57	61	60	1	0	59	2	0	59	2	0	59	2	0	59	2	0	59	2	0
SW060	No	1	B	58	63	62	1	0	61	2	0	61	2	0	61	2	0	61	2	0	61	2	0
SW061	No	1	B	61	66	64	2	0	62	4	0	63	3	0	63	3	0	63	3	0	63	3	0
SW062	Yes	1	B	62	69	66	3	0	63	6	1	63	6	1	64	5	1	64	5	1	64	5	1

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 1

NAC	Existing Wall (9 Feet)	18-Foot Wall	16-Foot Wall	14-Foot Wall	13-Foot Wall	12-Foot Wall
Inputs						
Overall Wall Length (ft.) =	1366	1366	1366	1366	1366	1366
Average Wall Height (ft.) =	9	18	16	14	13	12
Wall Area (sq. ft.) =	12294	24588	21856	19124	17758	16392
Safety Barrier (linear feet) =	405	405	405	405	405	405
Front Row Properties =	12	12	12	12	12	12
Acoustic Feasibility						
Front-Row Properties with a 5 dBA Reduction =	11	12	12	12	12	12
% of Front-Row Properties Reduced At Least 5 dBA =	92%	100%	100%	100%	100%	100%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness — **Noise Reduction Design Goal**						
Front Row Properties with 7 dBA Reduction =	0	11	11	11	11	11
% of Front Row Reduced At Least 7 dBA =	0%	92%	92%	92%	92%	92%
Meets Noise Reduction Goal =	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Cost Effectiveness						
Benefited (Category B w/ 5 dBA Reduction) =	11	22	19	17	14	12
Wall Cost (wall area x 20) =	$245,880	$491,760	$437,120	$382,480	$355,160	$327,840
Safety Barrier (linear ft. x 80) =	$32,400	$32,400	$32,400	$32,400	$32,400	$32,400
Snow Storage (linear ft. of safety barrier x 25) =	N/A	N/A	N/A	N/A	N/A	N/A
Total Wall Cost =	$278,280	$524,160	$469,520	$414,880	$387,560	$360,240
Cost per Benefited Property (wall cost / benefited) =	$25,298	$23,825	$24,712	$24,405	$27,683	$30,020
Allowable Cost (benefited x 30k) =	$330,000	$660,000	$570,000	$510,000	$420,000	$360,000
Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**

Note: Snow storage is not applicable because the noise wall is not being relocated by the alternative.

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 2

NAC						20-Foot Wall			18-Foot Wall			17-Foot Wall			16-Foot Wall			14-Foot Wall			12-Foot Wall		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SW063	No	1	B	60	64	59	5	1	59	5	1	59	5	1	60	4	0	60	4	0	61	3	0
SW064	No	1	B	61	65	59	6	1	60	5	1	60	5	1	60	5	1	61	4	0	62	3	0
SW065	No	1	B	62	67	61	6	1	61	6	1	61	6	1	62	5	1	62	5	1	63	4	0
SW066	Yes	1	B	63	68	61	7	1	61	7	1	62	6	1	62	6	1	62	6	1	63	5	1
SW067	No	1	B	58	60	53	7	1	54	6	1	54	6	1	55	5	1	56	4	0	57	3	0
SW068	No	1	B	59	61	54	7	1	55	6	1	55	6	1	55	6	1	56	5	1	57	4	0
SW069	No	1	B	61	63	55	8	1	56	7	1	57	6	1	57	6	1	58	5	1	59	4	0
SW070	Yes	1	B	63	66	57	9	1	58	8	1	59	7	1	59	7	1	60	6	1	61	5	1
SW077	No	1	B	55	58	53	5	1	54	4	0	54	4	0	54	4	0	55	3	0	55	3	0
SW078	No	1	B	56	59	53	6	1	54	5	1	54	5	1	54	5	1	55	4	0	56	3	0
SW079	No	1	B	57	60	53	7	1	53	7	1	54	6	1	54	6	1	55	5	1	56	4	0
SW080	No	1	B	59	61	54	7	1	54	7	1	55	6	1	55	6	1	56	5	1	57	4	0
SW081	No	1	B	60	63	55	8	1	56	7	1	56	7	1	57	6	1	58	5	1	59	4	0
SW082	No	1	B	63	66	57	9	1	58	8	1	58	8	1	59	7	1	60	6	1	61	5	1
SW083	Yes	1	B	64	67	58	9	1	59	8	1	59	8	1	60	7	1	61	6	1	62	5	1
SW090	No	1	B	55	55	50	5	1	50	5	1	51	4	0	51	4	0	52	3	0	53	2	0
SW091	No	1	B	55	55	50	5	1	51	4	0	51	4	0	51	4	0	52	3	0	53	2	0
SW092	No	1	B	56	56	51	5	1	52	4	0	52	4	0	52	4	0	53	3	0	54	2	0
SW093	No	1	B	58	57	52	5	1	53	4	0	53	4	0	53	4	0	54	3	0	55	2	0
SW094	No	1	B	59	59	53	6	1	54	5	1	54	5	1	54	5	1	55	4	0	56	3	0
SW095	No	1	B	61	61	55	6	1	55	6	1	56	5	1	56	5	1	57	4	0	58	3	0
SW096	Yes	1	B	64	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1	60	4	0
SW103	No	1	B	55	55	50	5	1	51	4	0	51	4	0	51	4	0	52	3	0	53	2	0
SW104	No	1	B	56	56	51	5	1	51	5	1	52	4	0	52	4	0	53	3	0	54	2	0
SW105	No	1	B	57	58	52	6	1	52	6	1	53	5	1	53	5	1	54	4	0	55	3	0
SW106	No	1	B	59	59	53	6	1	54	5	1	54	5	1	54	5	1	55	4	0	56	3	0
SW107	No	1	B	60	61	54	7	1	55	6	1	55	6	1	56	5	1	57	4	0	58	3	0
SW108	No	1	B	63	64	56	8	1	57	7	1	57	7	1	58	6	1	59	5	1	60	4	0
SW109	Yes	1	B	64	65	57	8	1	58	7	1	58	7	1	59	6	1	60	5	1	61	4	0
SW116	No	1	B	54	53	49	4	0	49	4	0	49	4	0	50	3	0	50	3	0	51	2	0
SW117	No	1	B	55	54	49	5	1	49	5	1	50	4	0	50	4	0	50	4	0	51	3	0
SW118	No	1	B	56	55	50	5	1	50	5	1	51	4	0	51	4	0	51	4	0	52	3	0
SW119	No	1	B	57	56	51	5	1	51	5	1	52	4	0	52	4	0	52	4	0	53	3	0
SW120	No	1	B	59	58	52	6	1	52	6	1	53	5	1	53	5	1	54	4	0	54	4	0
SW121	No	1	B	61	60	53	7	1	54	6	1	54	6	1	55	5	1	55	5	1	56	4	0
SW122	Yes	1	B	63	63	56	7	1	56	7	1	57	6	1	57	6	1	57	6	1	58	5	1
SW133	No	1	B	54	53	49	4	0	49	4	0	50	3	0	50	3	0	51	2	0	51	2	0
SW134	No	1	B	56	55	50	5	1	50	5	1	51	4	0	51	4	0	51	4	0	52	3	0
SW135	No	1	B	57	56	51	5	1	51	5	1	52	4	0	52	4	0	53	3	0	53	3	0
SW136	No	1	B	58	57	52	5	1	53	4	0	53	4	0	53	4	0	54	3	0	55	2	0
SW137	No	1	B	60	60	53	7	1	54	6	1	54	6	1	55	5	1	55	5	1	56	4	0
SW138	No	1	B	62	63	55	8	1	56	7	1	56	7	1	57	6	1	57	6	1	58	5	1
SW139	Yes	1	B	63	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
SW150	No	1	B	59	58	56	2	0	57	1	0	57	1	0	57	1	0	56	2	0	57	1	0
SW151	No	1	B	59	58	57	1	0	57	1	0	57	1	0	57	1	0	56	2	0	57	1	0
SW152	No	1	B	60	59	57	2	0	57	2	0	57	2	0	57	2	0	57	2	0	57	2	0
SW153	No	1	B	61	60	58	2	0	58	2	0	58	2	0	58	2	0	58	2	0	59	1	0
SW154	No	1	B	62	61	59	2	0	59	2	0	59	2	0	59	2	0	59	2	0	60	1	0
SW155	No	1	B	64	62	59	3	0	59	3	0	60	2	0	60	2	0	59	3	0	61	1	0
SW156	Yes	1	B	65	64	60	4	0	60	4	0	61	3	0	61	3	0	61	3	0	62	2	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 2

NAC	20-Foot Wall	18-Foot Wall	17-Foot Wall	16-Foot Wall	14-Foot Wall	12-Foot Wall
Inputs						
Overall Wall Length (ft.) =	814	814	814	814	814	814
Average Wall Height (ft.) =	20	18	17	16	14	12
Wall Area (sq. ft.) =	16280	14652	13838	13024	11396	9768
Safety Barrier (linear ft.) =	472	472	472	472	472	472
Front Row Properties =	8	8	8	8	8	8
Acoustic Feasibility						
Front-Row Properties with a 5 dBA Reduction =	7	7	7	7	7	5
% of Front-Row Properties Reduced At Least 5 dBA =	88%	88%	88%	88%	88%	63%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness — **Noise Reduction Design Goal**						
Front Row Properties with 7 dBA Reduction =	7	7	4	2	0	0
% of Front Row Reduced At Least 7 dBA =	88%	88%	50%	25%	0%	0%
Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Cost Effectiveness						
Benefited (Category B w/ 5 dBA Reduction) =	41	35	28	27	18	7
Wall Cost (wall area x 20) =	$325,600	$293,040	$276,760	$260,480	$227,920	$195,360
Safety Barrier (linear ft. x 80) =	$37,760	$37,760	$37,760	$37,760	$37,760	$37,760
Snow Storage (linear ft. of safety barrier x 25) =	$11,800	$11,800	$11,800	$11,800	$11,800	$11,800
Total Wall Cost =	$375,160	$342,600	$326,320	$310,040	$277,480	$244,920
Cost per Benefited Property (wall cost / benefited) =	$9,150	$9,789	$11,654	$11,483	$15,416	$34,989
Allowable Cost (benefited x 30k) =	$1,230,000	$1,050,000	$840,000	$810,000	$540,000	$210,000
Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 3

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE027	No	1	B	45	56	50	6	1	50	6	1	50	6	1	51	5	1	50	6	1
SE028	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	63	8	1	63	8	1
SE029	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE030	No	1	B	46	57	53	4	0	53	4	0	53	4	0	53	4	0	53	4	0
SE031	No	1	B	47	58	53	5	1	54	4	0	54	4	0	54	4	0	54	4	0
SE032	Yes	1	B	56	72	61	11	1	62	10	1	63	9	1	63	9	1	64	8	1
SE033	Yes	1	B	57	74	61	13	1	62	12	1	63	11	1	64	10	1	65	9	1
SE034	No	1	B	51	65	57	8	1	57	8	1	57	8	1	58	7	1	58	7	1
SE035	No	1	B	45	56	50	6	1	50	6	1	50	6	1	50	6	1	50	6	1
SE036	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE037	No	1	B	51	65	57	8	1	57	8	1	57	8	1	58	7	1	58	7	1
SE038	No	1	B	47	59	53	6	1	53	6	1	54	5	1	53	6	1	53	6	1
SE039	No	1	B	45	57	51	6	1	52	5	1	52	5	1	52	5	1	52	5	1
SE040	No	1	B	45	55	51	4	0	51	4	0	51	4	0	50	5	1	51	4	0
SE041	No	1	B	45	55	50	5	1	50	5	1	50	5	1	49	6	1	49	6	1
SE042	Yes	1	B	57	72	61	11	1	62	10	1	63	9	1	63	9	1	64	8	1
SE043	No	1	B	51	63	56	7	1	57	6	1	57	6	1	58	5	1	58	5	1
SE044	No	1	B	46	57	53	4	0	53	4	0	52	5	1	52	5	1	53	4	0
SE045	Yes	1	B	56	71	61	10	1	62	9	1	63	8	1	63	8	1	64	7	1
SE046	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE047	No	1	B	46	59	53	6	1	53	6	1	53	6	1	53	6	1	53	6	1
SE048	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE049	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE050	No	1	B	46	58	52	6	1	52	6	1	52	6	1	52	6	1	53	5	1
SE051	No	1	B	45	54	49	5	1	49	5	1	50	4	0	49	5	1	49	5	1
SE052	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	64	8	1
SE053	No	1	B	52	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
SE054	No	1	B	46	59	52	7	1	53	6	1	52	7	1	53	6	1	53	6	1
SE055	No	1	B	45	54	50	4	0	50	4	0	50	4	0	49	5	1	49	5	1
SE056	Yes	1	B	56	70	61	9	1	61	9	1	62	8	1	63	7	1	63	7	1
SE057	No	1	B	51	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
SE058	No	1	B	47	59	53	6	1	54	5	1	53	6	1	54	5	1	54	5	1
SE059	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE060	Yes	1	B	56	72	61	11	1	62	10	1	63	9	1	63	9	1	64	8	1
SE061	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE062	No	1	B	46	57	52	5	1	52	5	1	52	5	1	52	5	1	53	4	0
SE063	No	1	B	47	57	53	4	0	53	4	0	52	5	1	53	4	0	53	4	0
SE064	No	1	B	46	57	52	5	1	52	5	1	52	5	1	52	5	1	52	5	1
SE065	No	1	B	45	56	52	4	0	52	4	0	52	4	0	52	4	0	52	4	0
SE066	No	1	B	45	54	50	4	0	50	4	0	50	4	0	50	4	0	50	4	0
SE067	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE068	No	1	B	51	64	56	8	1	57	7	1	57	7	1	58	6	1	58	6	1
SE069	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	64	8	1
SE070	No	1	B	47	59	52	7	1	53	6	1	53	6	1	53	6	1	53	6	1
SE071	No	1	B	45	57	51	6	1	51	6	1	51	6	1	51	6	1	52	5	1
SE072	No	1	B	45	57	50	7	1	51	6	1	50	7	1	51	6	1	51	6	1
SE073	No	1	B	45	55	49	6	1	50	5	1	49	6	1	50	5	1	50	5	1
SE074	Yes	1	B	56	71	61	10	1	62	9	1	62	9	1	63	8	1	64	7	1
SE075	No	1	B	50	63	55	8	1	56	7	1	56	7	1	57	6	1	57	6	1
SE076	No	1	B	45	57	51	6	1	52	5	1	51	6	1	51	6	1	52	5	1
SE077	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE078	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE079	No	1	B	49	61	54	7	1	54	7	1	55	6	1	55	6	1	56	5	1
SE080	Yes	1	B	56	72	61	11	1	62	10	1	63	9	1	63	9	1	64	8	1
SE081	No	1	B	53	65	58	7	1	58	7	1	59	6	1	59	6	1	60	5	1
SE082	No	1	B	48	59	54	5	1	54	5	1	54	5	1	55	4	0	55	4	0
SE083	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	63	9	1	63	9	1
SE084	No	1	B	52	64	57	7	1	58	6	1	58	6	1	59	5	1	59	5	1
SE085	No	1	B	51	63	56	7	1	57	6	1	57	6	1	58	5	1	58	5	1
SE086	Yes	1	B	55	69	60	9	1	61	8	1	61	8	1	62	7	1	62	7	1
SE087	Yes	1	B	57	76	60	16	1	61	15	1	62	14	1	63	13	1	63	13	1
SE088	No	1	B	54	64	57	7	1	58	6	1	58	6	1	58	6	1	58	6	1
SE089	No	1	B	51	63	56	7	1	56	7	1	57	6	1	57	6	1	58	5	1
SE090	No	1	B	49	61	55	6	1	55	6	1	55	6	1	56	5	1	56	5	1
SE091	No	1	B	48	60	54	6	1	54	6	1	55	5	1	55	5	1	55	5	1
SE092	No	1	B	47	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
SE093	No	1	B	45	57	51	6	1	52	5	1	51	6	1	52	5	1	52	5	1

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 3

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE094	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE095	No	1	B	45	54	49	5	1	49	5	1	49	5	1	49	5	1	49	5	1
SE096	Yes	1	B	52	63	57	6	1	57	6	1	58	5	1	58	5	1	59	4	0
SE097	No	1	B	50	61	55	6	1	56	5	1	56	5	1	57	4	0	57	4	0
SE098	No	1	B	48	59	54	5	1	54	5	1	55	4	0	55	4	0	55	4	0
SE099	No	1	B	48	58	53	5	1	54	4	0	54	4	0	55	3	0	55	3	0
SE100	No	1	B	47	57	52	5	1	52	5	1	53	4	0	53	4	0	53	4	0
SE101	No	1	B	45	55	51	4	0	51	4	0	51	4	0	52	3	0	52	3	0
SE102	No	1	B	45	54	50	4	0	50	4	0	51	3	0	51	3	0	51	3	0
SE103	No	1	B	45	54	50	4	0	50	4	0	50	4	0	50	4	0	50	4	0
SE104	No	1	B	45	55	50	5	1	51	4	0	51	4	0	51	4	0	51	4	0
SE105	No	1	B	45	56	51	5	1	51	5	1	51	5	1	52	4	0	52	4	0
SE106	Yes	1	B	52	63	57	6	1	58	5	1	58	5	1	59	4	0	59	4	0
SE107	No	1	B	48	60	54	6	1	54	6	1	54	6	1	55	5	1	55	5	1
SE108	No	1	B	46	57	52	5	1	52	5	1	53	4	0	52	5	1	52	5	1
SE109	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	50	5	1
SE110	Yes	1	B	52	63	57	6	1	58	5	1	58	5	1	59	4	0	59	4	0
SE111	No	1	B	49	61	54	7	1	54	7	1	55	6	1	55	6	1	55	6	1
SE112	No	1	B	46	58	53	5	1	53	5	1	53	5	1	53	5	1	53	5	1
SE113	No	1	B	45	55	49	6	1	50	5	1	50	5	1	50	5	1	50	5	1
SE114	Yes	1	B	52	63	57	6	1	58	5	1	58	5	1	59	4	0	59	4	0
SE115	No	1	B	49	61	54	7	1	54	7	1	55	6	1	55	6	1	55	6	1
SE116	No	1	B	46	58	53	5	1	53	5	1	52	6	1	52	6	1	52	6	1
SE117	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	51	4	0
SE118	Yes	1	B	52	64	58	6	1	58	6	1	58	6	1	59	5	1	59	5	1
SE119	No	1	B	49	61	54	7	1	54	7	1	55	6	1	55	6	1	55	6	1
SE120	No	1	B	46	57	52	5	1	52	5	1	52	5	1	52	5	1	52	5	1
SE121	No	1	B	45	54	49	5	1	50	4	0	50	4	0	50	4	0	50	4	0
SE122	Yes	1	B	52	64	57	7	1	58	6	1	58	6	1	59	5	1	59	5	1
SE123	No	1	B	49	62	54	8	1	55	7	1	55	7	1	55	7	1	56	6	1
SE124	No	1	B	46	57	52	5	1	52	5	1	52	5	1	52	5	1	52	5	1
SE125	No	1	B	45	54	50	4	0	50	4	0	50	4	0	50	4	0	50	4	0
SE126	Yes	1	B	53	65	58	7	1	58	7	1	59	6	1	59	6	1	59	6	1
SE127	No	1	B	49	61	54	7	1	54	7	1	55	6	1	55	6	1	56	5	1
SE128	No	1	B	46	57	52	5	1	52	5	1	52	5	1	52	5	1	52	5	1
SE129	No	1	B	45	55	50	5	1	50	5	1	51	4	0	51	4	0	50	5	1
SE130	Yes	1	B	53	65	58	7	1	58	7	1	59	6	1	59	6	1	59	6	1
SE131	No	1	B	49	61	54	7	1	54	7	1	55	6	1	55	6	1	55	6	1
SE132	No	1	B	47	58	53	5	1	53	5	1	53	5	1	53	5	1	53	5	1
SE133	No	1	B	45	55	50	5	1	50	5	1	51	4	0	51	4	0	51	4	0
SE134	Yes	1	B	53	65	58	7	1	58	7	1	59	6	1	59	6	1	59	6	1
SE135	No	1	B	48	59	53	6	1	53	6	1	54	5	1	54	5	1	54	5	1
SE136	No	1	B	46	57	52	5	1	53	4	0	53	4	0	52	5	1	52	5	1
SE137	No	1	B	45	54	49	5	1	50	4	0	50	4	0	50	4	0	50	4	0
SE138	Yes	1	B	53	64	58	6	1	58	6	1	58	6	1	59	5	1	59	5	1
SE139	No	1	B	47	57	51	6	1	51	6	1	52	5	1	52	5	1	52	5	1
SE140	No	1	B	46	56	52	4	0	53	3	0	52	4	0	52	4	0	52	4	0
SE141	No	1	B	45	54	49	5	1	50	4	0	50	4	0	50	4	0	50	4	0
SE142	Yes	1	B	54	64	58	6	1	58	6	1	58	6	1	59	5	1	59	5	1
SE143	No	1	B	47	56	51	5	1	51	5	1	52	4	0	52	4	0	52	4	0
SE144	No	1	B	46	56	52	4	0	52	4	0	52	4	0	51	5	1	51	5	1
SE145	Yes	1	B	54	63	58	5	1	58	5	1	58	5	1	59	4	0	59	4	0
SE146	No	1	B	47	56	51	5	1	51	5	1	52	4	0	52	4	0	52	4	0
SE147	No	1	B	46	55	52	3	0	52	3	0	52	3	0	51	4	0	51	4	0
SE148	No	1	B	46	54	50	4	0	50	4	0	50	4	0	50	4	0	50	4	0
SE149	Yes	1	B	54	63	57	6	1	58	5	1	58	5	1	58	5	1	59	4	0
SE150	No	1	B	47	56	51	5	1	51	5	1	52	4	0	52	4	0	52	4	0
SE151	No	1	B	46	54	53	1	0	52	2	0	52	2	0	51	3	0	52	2	0
SE152	No	1	B	45	53	49	4	0	50	3	0	50	3	0	50	3	0	50	3	0
SE153	Yes	1	B	54	64	57	7	1	58	6	1	58	6	1	58	6	1	59	5	1
SE154	No	1	B	48	56	51	5	1	52	4	0	52	4	0	52	4	0	52	4	0
SE155	No	1	B	46	54	52	2	0	52	2	0	51	3	0	51	3	0	51	3	0
SE156	No	1	B	46	53	49	4	0	50	3	0	50	3	0	50	3	0	50	3	0
SE157	Yes	1	B	54	65	57	8	1	58	7	1	58	7	1	58	7	1	58	7	1
SE158	No	1	B	48	56	52	4	0	52	4	0	52	4	0	52	4	0	53	3	0
SE159	No	1	B	47	54	52	2	0	52	2	0	52	2	0	51	3	0	51	3	0
SE160	No	1	B	47	53	50	3	0	50	3	0	50	3	0	50	3	0	50	3	0

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Noise Wall 3

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE161	Yes	1	B	55	67	57	10	1	58	9	1	58	9	1	58	9	1	59	8	1
SE162	No	1	B	49	57	53	4	0	52	5	1	53	4	0	53	4	0	53	4	0
SE163	No	1	B	48	54	53	1	0	52	2	0	52	2	0	51	3	0	51	3	0
SE164	No	1	B	47	53	50	3	0	50	3	0	50	3	0	50	3	0	50	3	0
SE166	Yes	1	B	55	67	58	9	1	58	9	1	58	9	1	58	9	1	59	8	1
SE167	No	1	B	50	57	54	3	0	53	4	0	53	4	0	53	4	0	53	4	0
SE168	No	1	B	48	54	53	1	0	53	1	0	52	2	0	52	2	0	52	2	0
SE169	No	1	B	48	53	51	2	0	51	2	0	51	2	0	51	2	0	51	2	0
SE175	Yes	1	B	56	68	58	10	1	58	10	1	58	10	1	59	9	1	59	9	1
SE176	No	1	B	50	57	54	3	0	53	4	0	53	4	0	54	3	0	54	3	0
SE177	No	1	B	49	55	53	2	0	53	2	0	53	2	0	52	3	0	52	3	0
SE178	No	1	B	49	54	52	2	0	52	2	0	52	2	0	52	2	0	51	3	0
SE179	Yes	1	B	58	67	58	9	1	58	9	1	59	8	1	59	8	1	59	8	1
SE180	No	1	B	51	57	54	3	0	54	3	0	54	3	0	54	3	0	54	3	0
SE181	No	1	B	51	55	54	1	0	54	1	0	53	2	0	53	2	0	53	2	0
SE182	No	1	B	50	54	53	1	0	53	1	0	53	1	0	53	1	0	53	1	0
SE185	Yes	1	B	59	68	59	9	1	59	9	1	59	9	1	59	9	1	59	9	1
SE186	No	1	B	52	57	55	2	0	55	2	0	55	2	0	55	2	0	55	2	0
SE187	No	1	B	52	56	55	1	0	55	1	0	55	1	0	55	1	0	55	1	0
SE188	No	1	B	52	55	54	1	0	54	1	0	54	1	0	54	1	0	54	1	0
SE189	Yes	1	B	61	68	59	9	1	59	9	1	60	8	1	60	8	1	60	8	1
SE190	No	1	B	54	58	57	1	0	56	2	0	56	2	0	56	2	0	57	1	0
SE191	No	1	B	55	57	57	0	0	57	0	0	56	1	0	56	1	0	56	1	0
SE192	No	1	B	54	57	56	1	0	56	1	0	56	1	0	56	1	0	56	1	0
SE195	Yes	1	B	62	67	61	6	1	62	5	1	62	5	1	62	5	1	62	5	1

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Inputs					
Overall Wall Length (ft.) =	3657	3657	3657	3657	3657
Average Wall Height (ft.) =	20	18	16	14	13
Wall Area (sq. ft.) =	73140	65826	58512	51198	47541
Safety Barrier (linear ft.) =	1505	1505	1505	1505	1505
Front Row Properties =	40	40	40	40	40
Acoustic Feasibility					
Front-Row Properties with a 5 dBA Reduction =	40	40	40	36	34
% of Front-Row Properties Reduced At Least 5 dBA =	100%	100%	100%	90%	85%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness	**Noise Reduction Design Goal**				
Front Row Properties with 7 dBA Reduction =	30	28	25	25	25
% of Front Row Reduced At Least 7 dBA =	77%	72%	64%	64%	64%
Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Cost Effectiveness					
Benefited (Category B w/ 5 dBA Reduction) =	118	111	103	100	95
Wall Cost (wall area x 20) =	$1,462,800	$1,316,520	$1,170,240	$1,023,960	$950,820
Safety Barrier (linear ft. x 80) =	$120,400	$120,400	$120,400	$120,400	$120,400
Snow Storage (linear ft. of safety barrier x 25) =	$37,625	$37,625	$37,625	$37,625	$37,625
Total Wall Cost =	$1,620,825	$1,474,545	$1,328,265	$1,181,985	$1,108,845
Cost per Benefited Property (wall cost / benefited) =	$13,736	$13,284	$12,896	$11,820	$11,672
Allowable Cost (benefited x 30k) =	$3,540,000	$3,330,000	$3,090,000	$3,000,000	$2,850,000
Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

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Noise Wall 4

NAC						13-Foot Wall			12-Foot Wall			11-Foot Wall			10-Foot Wall			9-Foot Wall		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
SE189	Yes	1	B	61	68	58	10	1	58	10	1	58	10	1	58	10	1	58	10	1
SE190	No	1	B	54	58	54	4	0	54	4	0	55	3	0	55	3	0	55	3	0
SE191	No	1	B	55	57	54	3	0	54	3	0	54	3	0	55	2	0	55	2	0
SE195	Yes	1	B	62	67	58	9	1	58	9	1	58	9	1	58	9	1	58	9	1
SE196	No	1	B	57	60	55	5	1	55	5	1	55	5	1	56	4	0	56	4	0
SE197	No	1	B	56	58	55	3	0	55	3	0	55	3	0	56	2	0	56	2	0
SE203	Yes	1	B	69	72	58	14	1	58	14	1	59	13	1	60	12	1	60	12	1
SE204	Yes	1	B	68	71	59	12	1	59	12	1	59	12	1	62	9	1	62	9	1
SE205	Yes	1	B	68	71	62	9	1	62	9	1	62	9	1	63	8	1	63	8	1
SE206	Yes	1	B	68	71	69	2	0	69	2	0	69	2	0	70	1	0	70	1	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Inputs					
Overall Wall Length (ft.) =	522	522	522	522	522
Average Wall Height (ft.) =	13	12	11	10	9
Wall Area (sq. ft.) =	6786	6264	5742	5220	4698
Right-of-Way Acquisition Area (sq. ft.) =	565	565	565	565	565
Safety Barrier (linear ft.) =	147	147	147	147	147
Front Row Properties =	6	6	6	6	6
Acoustic Feasibility					
Front-Row Properties with a 5 dBA Reduction =	5	5	5	5	5
% of Front-Row Properties Reduced At Least 5 dBA =	83%	83%	83%	83%	83%
Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness					
Noise Reduction Design Goal					
Front Row Properties with 7 dBA Reduction =	5	5	5	5	5
% of Front Row Reduced At Least 7 dBA =	83%	83%	83%	83%	83%
Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Cost Effectiveness					
Benefited (Category B w/ 5 dBA Reduction) =	6	6	6	5	5
Wall Cost (wall area x 20) =	$135,720	$125,280	$114,840	$104,400	$93,960
Right-of-Way Acquisition (sq. ft. x 32) =	$18,080	$18,080	$18,080	$18,080	$18,080
Safety Barrier (linear ft. x 80) =	$11,760	$11,760	$11,760	$11,760	$11,760
Snow Storage (linear ft. of safety barrier x 25) =	$3,675	$3,675	$3,675	$3,675	$3,675
Total Wall Cost =	$169,235	$158,795	$148,355	$137,915	$127,475
Cost per Benefited Property (wall cost / benefited) =	$28,206	$26,466	$24,726	$27,583	$25,495
Allowable Cost (benefited x 30k) =	$180,000	$180,000	$180,000	$150,000	$150,000
Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

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Noise Wall 5

NAC						20-Foot Wall			18-Foot Wall			17-Foot Wall			16-Foot Wall			15-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NE012	No	1	B	57	59	58	1	0	58	1	0	58	1	0	58	1	0	58	1	0
NE013	No	1	B	56	57	57	0	0	57	0	0	57	0	0	57	0	0	57	0	0
NE015	No	1	B	52	55	54	1	0	54	1	0	54	1	0	54	1	0	54	1	0
NE016	No	1	B	52	54	53	1	0	53	1	0	53	1	0	53	1	0	53	1	0
NE017	No	1	B	51	53	53	0	0	53	0	0	53	0	0	53	0	0	53	0	0
NE019	Yes	1	B	56	59	57	2	0	57	2	0	58	1	0	58	1	0	58	1	0
NE020	No	1	B	55	59	57	2	0	57	2	0	57	2	0	58	1	0	58	1	0
NE021	No	1	B	52	55	54	1	0	54	1	0	54	1	0	54	1	0	54	1	0
NE023	Yes	1	B	55	60	57	3	0	58	2	0	58	2	0	58	2	0	58	2	0
NE024	No	1	B	52	58	57	1	0	57	1	0	57	1	0	57	1	0	57	1	0
NE025	No	1	B	52	56	54	2	0	54	2	0	54	2	0	54	2	0	54	2	0
NE027	Yes	1	B	54	60	57	3	0	58	2	0	58	2	0	58	2	0	58	2	0
NE028	No	1	B	52	58	56	2	0	57	1	0	57	1	0	57	1	0	57	1	0
NE030	Yes	1	B	53	60	58	2	0	58	2	0	58	2	0	58	2	0	58	2	0
NE031	No	1	B	52	59	57	2	0	57	2	0	57	2	0	57	2	0	57	2	0
NE032	No	1	B	51	57	54	3	0	54	3	0	54	3	0	54	3	0	54	3	0
NE033	No	1	B	48	53	51	2	0	51	2	0	51	2	0	51	2	0	51	2	0
NE034	No	1	B	48	53	52	1	0	52	1	0	52	1	0	52	1	0	52	1	0
NE036	No	1	B	50	56	54	2	0	54	2	0	54	2	0	54	2	0	54	2	0
NE037	No	1	B	47	54	52	2	0	52	2	0	52	2	0	52	2	0	52	2	0
NE038	No	1	B	47	54	51	3	0	51	3	0	51	3	0	52	2	0	52	2	0
NE040	Yes	1	B	53	63	59	4	0	59	4	0	59	4	0	59	4	0	60	3	0
NE041	No	1	B	50	56	54	2	0	54	2	0	54	2	0	54	2	0	54	2	0
NE042	No	1	B	49	58	56	2	0	56	2	0	56	2	0	56	2	0	56	2	0
NE043	No	1	B	47	58	54	4	0	55	3	0	55	3	0	55	3	0	55	3	0
NE045	No	1	B	48	58	55	3	0	55	3	0	56	2	0	56	2	0	55	3	0
NE046	No	1	B	47	58	57	1	0	58	0	0	58	0	0	58	0	0	58	0	0
NE047	No	1	B	46	57	53	4	0	53	4	0	54	3	0	54	3	0	54	3	0
NE048	No	1	B	46	56	52	4	0	52	4	0	53	3	0	53	3	0	53	3	0
NE049	No	1	B	46	55	52	3	0	52	3	0	52	3	0	52	3	0	52	3	0
NE050	Yes	1	B	52	66	59	7	1	59	7	1	60	6	1	60	6	1	60	6	1
NE053	Yes	1	B	52	67	59	8	1	60	7	1	60	7	1	60	7	1	60	7	1
NE055	No	1	B	49	61	56	5	1	57	4	0	57	4	0	57	4	0	58	3	0
NE056	No	1	B	49	60	57	3	0	57	3	0	57	3	0	57	3	0	57	3	0
NE057	No	1	B	48	59	54	5	1	54	5	1	54	5	1	55	4	0	55	4	0
NE058	No	1	B	46	57	52	5	1	52	5	1	52	5	1	53	4	0	53	4	0
NE059	No	1	B	45	56	51	5	1	51	5	1	52	4	0	52	4	0	52	4	0
NE060	No	1	B	46	55	51	4	0	51	4	0	51	4	0	51	4	0	51	4	0
NE062	Yes	1	B	52	67	59	8	1	60	7	1	60	7	1	60	7	1	61	6	1
NE063	No	1	B	49	60	55	5	1	56	4	0	56	4	0	56	4	0	57	3	0
NE064	No	1	B	48	59	54	5	1	54	5	1	55	4	0	55	4	0	55	4	0
NE065	No	1	B	45	55	51	4	0	51	4	0	52	3	0	52	3	0	52	3	0
NE067	Yes	1	B	52	66	59	7	1	59	7	1	60	6	1	60	6	1	60	6	1
NE068	No	1	B	45	56	54	2	0	54	2	0	54	2	0	54	2	0	54	2	0
NE070	Yes	1	B	52	66	59	7	1	59	7	1	60	6	1	60	6	1	60	6	1
NE071	No	1	B	49	61	56	5	1	57	4	0	57	4	0	57	4	0	58	3	0
NE072	No	1	B	48	61	56	5	1	56	5	1	56	5	1	57	4	0	57	4	0
NE073	No	1	B	45	57	54	3	0	54	3	0	54	3	0	55	2	0	55	2	0
NE074	No	1	B	45	56	52	4	0	53	3	0	53	3	0	53	3	0	54	2	0
NE077	Yes	1	B	51	64	58	6	1	59	5	1	59	5	1	59	5	1	60	4	0
NE080	Yes	1	B	52	68	60	8	1	60	8	1	61	7	1	61	7	1	61	7	1
NE081	No	1	B	49	63	60	3	0	60	3	0	60	3	0	60	3	0	60	3	0
NE082	No	1	B	48	60	55	5	1	56	4	0	56	4	0	56	4	0	56	4	0
NE083	No	1	B	47	59	54	5	1	54	5	1	55	4	0	55	4	0	55	4	0
NE084	No	1	B	45	58	53	5	1	53	5	1	53	5	1	54	4	0	54	4	0
NE085	No	1	B	45	57	52	5	1	52	5	1	52	5	1	53	4	0	53	4	0
NE086	No	1	B	45	56	51	5	1	51	5	1	51	5	1	52	4	0	52	4	0
NE087	No	1	B	45	56	51	5	1	51	5	1	51	5	1	52	4	0	52	4	0
NE089	Yes	1	B	51	64	58	6	1	59	5	1	59	5	1	59	5	1	59	5	1
NE090	No	1	B	49	62	57	5	1	57	5	1	58	4	0	58	4	0	58	4	0
NE091	No	1	B	48	61	55	6	1	56	5	1	56	5	1	57	4	0	57	4	0
NE092	No	1	B	47	59	54	5	1	55	4	0	55	4	0	56	3	0	56	3	0
NE093	No	1	B	46	58	54	4	0	54	4	0	54	4	0	55	3	0	55	3	0
NE094	No	1	B	45	57	52	5	1	52	5	1	53	4	0	53	4	0	53	4	0
NE095	No	1	B	45	57	51	6	1	52	5	1	52	5	1	52	5	1	52	5	1
NE096	No	1	B	45	56	52	4	0	52	4	0	52	4	0	53	3	0	53	3	0
NE097	No	1	B	45	55	51	4	0	52	3	0	52	3	0	52	3	0	52	3	0

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Noise Wall 5

NAC						20-Foot Wall			18-Foot Wall			17-Foot Wall			16-Foot Wall			15-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NE099	No	1	B	48	60	55	5	1	56	4	0	56	4	0	56	4	0	57	3	0
NE100	No	1	B	45	57	53	4	0	53	4	0	54	3	0	54	3	0	54	3	0
NE101	No	1	B	45	56	50	6	1	50	6	1	51	5	1	51	5	1	51	5	1
NE103	Yes	1	B	50	63	58	5	1	58	5	1	59	4	0	59	4	0	59	4	0
NE105	Yes	1	B	51	64	58	6	1	59	5	1	59	5	1	59	5	1	60	4	0
NE106	No	1	B	46	59	55	4	0	55	4	0	55	4	0	55	4	0	55	4	0
NE107	No	1	B	45	58	51	7	1	52	6	1	52	6	1	52	6	1	53	5	1
NE108	No	1	B	45	56	49	7	1	49	7	1	49	7	1	49	7	1	50	6	1
NE110	Yes	1	B	50	64	58	6	1	59	5	1	59	5	1	59	5	1	59	5	1
NE111	No	1	B	47	60	55	5	1	56	4	0	56	4	0	56	4	0	56	4	0
NE112	No	1	B	45	59	51	8	1	52	7	1	52	7	1	52	7	1	53	6	1
NE113	No	1	B	45	53	48	5	1	48	5	1	48	5	1	49	4	0	49	4	0
NE115	Yes	1	B	50	64	58	6	1	58	6	1	59	5	1	59	5	1	59	5	1
NE116	No	1	B	47	60	55	5	1	56	4	0	56	4	0	56	4	0	56	4	0
NE117	No	1	B	45	59	52	7	1	52	7	1	52	7	1	53	6	1	53	6	1
NE119	No	1	B	50	63	57	6	1	58	5	1	58	5	1	58	5	1	59	4	0
NE120	No	1	B	47	60	55	5	1	56	4	0	56	4	0	56	4	0	57	3	0
NE121	No	1	B	45	58	52	6	1	52	6	1	52	6	1	53	5	1	53	5	1
NE122	No	1	B	45	55	49	6	1	50	5	1	50	5	1	50	5	1	50	5	1
NE123	Yes	1	B	56	75	61	14	1	62	13	1	63	12	1	63	12	1	64	11	1
NE124	No	1	B	50	63	57	6	1	58	5	1	58	5	1	58	5	1	59	4	0
NE125	No	1	B	46	59	55	4	0	56	3	0	56	3	0	56	3	0	56	3	0
NE126	No	1	B	45	57	51	6	1	52	5	1	52	5	1	52	5	1	52	5	1
NE127	No	1	B	45	54	48	6	1	49	5	1	49	5	1	49	5	1	49	5	1
NE128	Yes	1	B	57	76	62	14	1	62	14	1	63	13	1	64	12	1	64	12	1
NE129	No	1	B	50	63	57	6	1	57	6	1	58	5	1	58	5	1	58	5	1
NE130	No	1	B	46	59	55	4	0	56	3	0	56	3	0	56	3	0	56	3	0
NE131	No	1	B	45	56	51	5	1	51	5	1	51	5	1	51	5	1	52	4	0
NE132	No	1	B	45	54	48	6	1	48	6	1	48	6	1	49	5	1	49	5	1
NE133	Yes	1	B	57	78	62	16	1	63	15	1	63	15	1	64	14	1	65	13	1
NE134	No	1	B	50	63	57	6	1	57	6	1	58	5	1	58	5	1	58	5	1
NE135	Yes	1	B	55	71	61	10	1	62	9	1	62	9	1	62	9	1	62	9	1
NE136	No	1	B	50	63	58	5	1	58	5	1	59	4	0	59	4	0	59	4	0
NE137	No	1	B	46	59	54	5	1	55	4	0	55	4	0	55	4	0	55	4	0
NE138	No	1	B	45	56	50	6	1	51	5	1	51	5	1	51	5	1	51	5	1
NE139	No	1	B	45	53	47	6	1	48	5	1	48	5	1	48	5	1	48	5	1
NE140	Yes	1	B	56	72	61	11	1	62	10	1	62	10	1	62	10	1	63	9	1
NE141	No	1	B	50	63	57	6	1	57	6	1	58	5	1	58	5	1	58	5	1
NE142	No	1	B	46	58	54	4	0	55	3	0	55	3	0	55	3	0	55	3	0
NE143	No	1	B	45	56	50	6	1	51	5	1	50	6	1	51	5	1	51	5	1
NE144	No	1	B	45	53	47	6	1	48	5	1	47	6	1	48	5	1	48	5	1
NE145	Yes	1	B	57	78	62	16	1	62	16	1	63	15	1	64	14	1	64	14	1
NE146	No	1	B	50	63	57	6	1	57	6	1	57	6	1	58	5	1	58	5	1
NE147	No	1	B	46	58	53	5	1	54	4	0	54	4	0	54	4	0	54	4	0
NE148	No	1	B	45	55	49	6	1	50	5	1	50	5	1	50	5	1	50	5	1
NE149	No	1	B	45	53	47	6	1	48	5	1	47	6	1	48	5	1	48	5	1
NE150	Yes	1	B	56	74	61	13	1	62	12	1	62	12	1	63	11	1	63	11	1
NE151	No	1	B	51	62	57	5	1	57	5	1	57	5	1	58	4	0	58	4	0
NE152	No	1	B	46	59	53	6	1	54	5	1	54	5	1	54	5	1	54	5	1
NE153	No	1	B	45	55	49	6	1	50	5	1	50	5	1	50	5	1	50	5	1
NE154	No	1	B	45	53	47	6	1	48	5	1	47	6	1	47	6	1	48	5	1
NE155	Yes	1	B	56	75	61	14	1	62	13	1	62	13	1	63	12	1	64	11	1
NE156	No	1	B	50	63	57	6	1	58	5	1	58	5	1	58	5	1	58	5	1
NE157	No	1	B	46	59	53	6	1	54	5	1	54	5	1	54	5	1	54	5	1
NE158	No	1	B	45	56	49	7	1	51	5	1	50	6	1	50	6	1	50	6	1
NE159	No	1	B	45	53	47	6	1	48	5	1	47	6	1	47	6	1	48	5	1
NE160	Yes	1	B	56	76	62	14	1	62	14	1	62	14	1	63	13	1	64	12	1
NE161	No	1	B	50	63	56	7	1	58	5	1	57	6	1	58	5	1	58	5	1
NE162	No	1	B	46	59	53	6	1	53	6	1	53	6	1	54	5	1	54	5	1
NE163	No	1	B	45	55	49	6	1	51	4	0	50	5	1	50	5	1	50	5	1
NE164	No	1	B	45	54	48	6	1	50	4	0	48	6	1	48	6	1	48	6	1
NE165	Yes	1	B	56	74	61	13	1	61	13	1	62	12	1	62	12	1	63	11	1
NE166	No	1	B	50	63	56	7	1	58	5	1	57	6	1	57	6	1	58	5	1
NE167	No	1	B	47	60	54	6	1	56	4	0	55	5	1	55	5	1	55	5	1
NE168	No	1	B	45	56	50	6	1	52	4	0	50	6	1	50	6	1	51	5	1
NE169	Yes	1	B	56	73	61	12	1	61	12	1	62	11	1	62	11	1	63	10	1
NE171	No	1	B	50	63	56	7	1	59	4	0	57	6	1	57	6	1	57	6	1

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Noise Wall 5

NAC						20-Foot Wall			18-Foot Wall			17-Foot Wall			16-Foot Wall			15-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NE172	No	1	B	46	59	52	7	1	54	5	1	53	6	1	53	6	1	54	5	1
NE173	No	1	B	45	56	50	6	1	53	3	0	50	6	1	51	5	1	51	5	1
NE174	No	1	B	45	52	48	4	0	49	3	0	49	3	0	49	3	0	49	3	0

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
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Noise Wall 5

NAC			20-Foot Wall	18-Foot Wall	17-Foot Wall	16-Foot Wall	15-Foot Wall (Existing Height)
		Inputs					
		Overall Wall Length (ft.) =	3078	3078	3078	3078	3078
		Average Wall Height (ft.) =	20	18	17	16	15
		Wall Area (sq. ft.) =	61560	55404	52326	49248	46170
		Full Acquisition (parcels) =	3	3	3	3	3
		Safety Barrier (linear ft.) =	1572	1572	1572	1572	1572
		Front Row Properties =	29	29	29	29	29
		Acoustic Feasibility					
		Front-Row Properties with a 5 dBA Reduction =	23	23	22	22	20
		% of Front-Row Properties Reduced At Least 5 dBA =	79%	79%	76%	76%	69%
		Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness		**Noise Reduction Design Goal**					
		Front Row Properties with 7 dBA Reduction =	17	17	14	14	13
		% of Front Row Reduced At Least 7 dBA =	59%	59%	48%	48%	45%
		Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
		Cost Effectiveness					
		Benefited (Category B w/ 5 dBA Reduction) =	91	74	73	63	58
		Wall Cost (wall area x 20) =	$1,231,200	$1,108,080	$1,046,520	$984,960	$923,400
		Full Acquisition (parcels x 600k) =	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000
		Safety Barrier (linear ft. x 80) =	$125,760	$125,760	$125,760	$125,760	$125,760
		Snow Storage (linear ft. of safety barrier x 25) =	$39,300	$39,300	$39,300	$39,300	$39,300
		Total Wall Cost =	$3,196,260	$3,073,140	$3,011,580	$2,950,020	$2,888,460
		Cost per Benefited Property (wall cost / benefited) =	$35,124	$41,529	$41,255	$46,826	$49,801
		Allowable Cost (benefited x 30k) =	$2,730,000	$2,220,000	$2,190,000	$1,890,000	$1,740,000
		Cost Reasonable =	**No**	**No**	**No**	**No**	**No**

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
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Noise Wall 6

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW037	No	1	B	54	55	53	2	0	53	2	0	53	2	0	53	2	0	53	2	0
NW038	No	1	B	55	57	54	3	0	54	3	0	54	3	0	54	3	0	55	2	0
NW039	No	1	B	57	62	57	5	1	57	5	1	57	5	1	57	5	1	58	4	0
NW040	No	1	B	53	55	52	3	0	52	3	0	52	3	0	52	3	0	53	2	0
NW041	No	1	B	55	58	54	4	0	54	4	0	54	4	0	54	4	0	55	3	0
NW042	No	1	B	56	62	57	5	1	57	5	1	57	5	1	57	5	1	58	4	0
NW043	No	1	B	56	61	56	5	1	56	5	1	56	5	1	56	5	1	57	4	0
NW044	No	1	B	57	62	56	6	1	56	6	1	57	5	1	57	5	1	57	5	1
NW045	No	1	B	57	63	57	6	1	57	6	1	57	6	1	57	6	1	58	5	1
NW046	No	1	B	57	64	58	6	1	58	6	1	58	6	1	58	6	1	59	5	1
NW047	No	1	B	52	55	51	4	0	51	4	0	51	4	0	51	4	0	52	3	0
NW048	No	1	B	54	58	53	5	1	53	5	1	54	4	0	54	4	0	54	4	0
NW049	No	1	B	56	62	57	5	1	57	5	1	57	5	1	57	5	1	58	4	0
NW050	No	1	B	51	55	51	4	0	51	4	0	51	4	0	51	4	0	52	3	0
NW051	No	1	B	53	58	53	5	1	53	5	1	53	5	1	53	5	1	54	4	0
NW052	No	1	B	56	63	57	6	1	57	6	1	57	6	1	57	6	1	58	5	1
NW053	No	1	B	59	69	62	7	1	62	7	1	62	7	1	62	7	1	63	6	1
NW054	No	1	B	59	70	61	9	1	61	9	1	62	8	1	62	8	1	63	7	1
NW055	No	1	B	59	74	62	12	1	62	12	1	63	11	1	63	11	1	64	10	1
NW056	Yes	1	B	59	76	62	14	1	62	14	1	63	13	1	63	13	1	64	12	1
NW057	No	1	B	48	54	50	4	0	50	4	0	50	4	0	50	4	0	51	3	0
NW058	No	1	B	50	58	52	6	1	52	6	1	53	5	1	53	5	1	53	5	1
NW059	No	1	B	51	62	55	7	1	55	7	1	55	7	1	55	7	1	56	6	1
NW060	No	1	B	55	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
NW061	No	1	B	56	70	59	11	1	59	11	1	60	10	1	60	10	1	61	9	1
NW062	No	1	B	56	71	59	12	1	59	12	1	60	11	1	60	11	1	61	10	1
NW063	No	1	B	58	75	62	13	1	62	13	1	63	12	1	63	12	1	64	11	1
NW064	Yes	1	B	59	76	63	13	1	63	13	1	64	12	1	64	12	1	65	11	1
NW065	No	1	B	48	53	49	4	0	49	4	0	50	3	0	50	3	0	50	3	0
NW066	No	1	B	50	57	52	5	1	52	5	1	52	5	1	52	5	1	53	4	0
NW067	No	1	B	51	62	55	7	1	55	7	1	55	7	1	55	7	1	56	6	1
NW068	No	1	B	55	64	57	7	1	57	7	1	58	6	1	58	6	1	59	5	1
NW069	No	1	B	48	53	49	4	0	49	4	0	49	4	0	49	4	0	50	3	0
NW070	No	1	B	49	57	52	5	1	52	5	1	52	5	1	52	5	1	52	5	1
NW071	No	1	B	51	62	55	7	1	55	7	1	55	7	1	55	7	1	56	6	1
NW072	No	1	B	55	65	58	7	1	58	7	1	58	7	1	58	7	1	59	6	1
NW073	No	1	B	48	53	49	4	0	49	4	0	49	4	0	49	4	0	50	3	0
NW074	No	1	B	49	57	51	6	1	51	6	1	51	6	1	51	6	1	52	5	1
NW075	No	1	B	52	62	55	7	1	55	7	1	55	7	1	55	7	1	56	6	1
NW076	No	1	B	55	65	58	7	1	58	7	1	58	7	1	58	7	1	59	6	1
NW077	No	1	B	47	54	49	5	1	49	5	1	49	5	1	49	5	1	50	4	0
NW078	No	1	B	47	53	49	4	0	49	4	0	49	4	0	49	4	0	50	3	0
NW079	No	1	B	46	54	49	5	1	49	5	1	49	5	1	49	5	1	50	4	0
NW080	No	1	B	47	56	50	6	1	50	6	1	50	6	1	50	6	1	51	5	1
NW081	No	1	B	50	60	53	7	1	53	7	1	54	6	1	54	6	1	55	5	1
NW082	No	1	B	51	60	53	7	1	53	7	1	54	6	1	54	6	1	55	5	1
NW083	No	1	B	53	61	55	6	1	55	6	1	55	6	1	55	6	1	56	5	1
NW084	No	1	B	53	62	55	7	1	55	7	1	55	7	1	55	7	1	56	6	1
NW085	No	1	B	53	62	55	7	1	55	7	1	55	7	1	55	7	1	56	6	1
NW086	No	1	B	52	62	55	7	1	55	7	1	55	7	1	55	7	1	57	5	1
NW087	No	1	B	56	70	59	11	1	59	11	1	59	11	1	59	11	1	60	10	1
NW088	No	1	B	54	71	59	12	1	59	12	1	59	12	1	59	12	1	60	11	1
NW089	No	1	B	58	75	62	13	1	62	13	1	63	12	1	63	12	1	64	11	1
NW090	Yes	1	B	58	77	62	15	1	62	15	1	63	14	1	63	14	1	65	12	1
NW091	Yes	1	B	58	76	62	14	1	62	14	1	63	13	1	63	13	1	65	11	1
NW092	Yes	1	B	58	76	63	13	1	63	13	1	63	13	1	63	13	1	65	11	1
NW093	No	1	B	51	59	53	6	1	53	6	1	54	5	1	54	5	1	54	5	1
NW094	No	1	B	54	65	57	8	1	57	8	1	58	7	1	58	7	1	59	6	1
NW095	Yes	1	B	57	74	62	12	1	62	12	1	63	11	1	63	11	1	64	10	1
NW096	No	1	B	48	55	51	4	0	51	4	0	51	4	0	51	4	0	52	3	0
NW097	No	1	B	51	59	53	6	1	53	6	1	54	5	1	54	5	1	54	5	1
NW098	No	1	B	54	65	58	7	1	58	7	1	59	6	1	59	6	1	60	5	1
NW099	Yes	1	B	57	74	62	12	1	62	12	1	63	11	1	63	11	1	65	9	1
NW100	No	1	B	45	53	48	5	1	48	5	1	48	5	1	48	5	1	49	4	0
NW101	No	1	B	45	53	49	4	0	49	4	0	49	4	0	49	4	0	49	4	0
NW102	No	1	B	49	56	52	4	0	52	4	0	52	4	0	52	4	0	52	4	0
NW103	No	1	B	50	58	54	4	0	54	4	0	54	4	0	54	4	0	55	3	0

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 6

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW104	No	1	B	53	65	57	8	1	57	8	1	57	8	1	57	8	1	59	6	1
NW105	Yes	1	B	57	73	62	11	1	62	11	1	63	10	1	63	10	1	64	9	1
NW106	No	1	B	51	58	56	2	0	56	2	0	56	2	0	56	2	0	57	1	0
NW107	No	1	B	53	65	57	8	1	57	8	1	58	7	1	58	7	1	59	6	1
NW108	Yes	1	B	57	73	62	11	1	62	11	1	63	10	1	63	10	1	64	9	1
NW109	No	1	B	45	54	49	5	1	49	5	1	49	5	1	49	5	1	50	4	0
NW110	No	1	B	44	54	49	5	1	49	5	1	50	4	0	50	4	0	50	4	0
NW111	No	1	B	45	55	50	5	1	50	5	1	50	5	1	50	5	1	51	4	0
NW112	No	1	B	45	56	51	5	1	51	5	1	51	5	1	51	5	1	52	4	0
NW113	No	1	B	48	57	52	5	1	52	5	1	52	5	1	52	5	1	53	4	0
NW114	No	1	B	51	63	56	7	1	56	7	1	56	7	1	56	7	1	57	6	1
NW115	No	1	B	53	65	57	8	1	57	8	1	58	7	1	58	7	1	59	6	1
NW116	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	62	9	1	63	8	1
NW117	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	62	9	1	63	8	1
NW118	Yes	1	B	56	70	61	9	1	61	9	1	62	8	1	62	8	1	63	7	1
NW119	Yes	1	B	56	70	61	9	1	61	9	1	62	8	1	62	8	1	63	7	1
NW120	Yes	1	B	56	71	61	10	1	61	10	1	62	9	1	62	9	1	63	8	1
NW121	Yes	1	B	56	70	61	9	1	61	9	1	62	8	1	62	8	1	63	7	1
NW122	No	1	B	46	55	49	6	1	49	6	1	49	6	1	49	6	1	50	5	1
NW123	No	1	B	45	54	49	5	1	49	5	1	49	5	1	49	5	1	50	4	0
NW124	No	1	B	47	56	50	6	1	50	6	1	51	5	1	51	5	1	51	5	1
NW125	No	1	B	47	57	51	6	1	51	6	1	51	6	1	51	6	1	52	5	1
NW126	No	1	B	48	58	52	6	1	52	6	1	52	6	1	52	6	1	53	5	1
NW127	No	1	B	48	58	52	6	1	52	6	1	52	6	1	52	6	1	53	5	1
NW128	No	1	B	49	60	53	7	1	53	7	1	54	6	1	54	6	1	55	5	1
NW129	No	1	B	50	61	54	7	1	54	7	1	54	7	1	54	7	1	55	6	1
NW130	No	1	B	51	64	56	8	1	56	8	1	56	8	1	56	8	1	57	7	1
NW131	No	1	B	51	64	56	8	1	56	8	1	56	8	1	56	8	1	57	7	1
NW132	No	Park	C	45	55	49	6	Park	49	6	Park	50	5	Park	50	5	Park	51	4	0
NW133	No	1	B	52	65	57	8	1	57	8	1	58	7	1	58	7	1	59	6	1
NW134	No	1	B	52	65	57	8	1	57	8	1	58	7	1	58	7	1	59	6	1
NW135	No	Park	C	43	52	47	5	Park	47	5	Park	48	4	0	48	4	0	48	4	0
NW136	No	Park	C	44	53	48	5	Park	48	5	Park	48	5	Park	48	5	Park	49	4	0
NW137	No	1	B	53	66	58	8	1	58	8	1	58	8	1	58	8	1	59	7	1
NW138	No	1	B	53	66	58	8	1	58	8	1	58	8	1	58	8	1	60	6	1
NW139	Yes	1	B	57	72	62	10	1	62	10	1	63	9	1	63	9	1	64	8	1
NW140	Yes	1	B	57	71	62	9	1	62	9	1	63	8	1	63	8	1	64	7	1
NW141	No	Park	C	43	52	48	4	0	48	4	0	49	3	0	49	3	0	50	2	0
NW142	No	1	B	52	65	57	8	1	57	8	1	58	7	1	58	7	1	59	6	1
NW143	No	1	B	53	65	58	7	1	58	7	1	58	7	1	58	7	1	59	6	1
NW144	Yes	1	B	57	71	61	10	1	61	10	1	62	9	1	62	9	1	64	7	1
NW145	Yes	1	B	57	71	61	10	1	61	10	1	62	9	1	62	9	1	64	7	1
NW146	No	1	B	44	53	49	4	0	49	4	0	49	4	0	49	4	0	50	3	0
NW147	No	1	B	44	52	49	3	0	49	3	0	49	3	0	49	3	0	50	2	0
NW148	No	1	B	46	55	51	4	0	51	4	0	51	4	0	51	4	0	52	3	0
NW149	No	1	B	46	55	51	4	0	51	4	0	51	4	0	51	4	0	52	3	0
NW150	No	1	B	47	56	52	4	0	52	4	0	52	4	0	52	4	0	53	3	0
NW151	No	1	B	47	57	52	5	1	52	5	1	52	5	1	52	5	1	53	4	0
NW152	No	1	B	48	58	53	5	1	53	5	1	53	5	1	53	5	1	54	4	0
NW153	No	1	B	48	57	52	5	1	52	5	1	53	4	0	53	4	0	54	3	0
NW154	No	1	B	49	59	54	5	1	54	5	1	54	5	1	54	5	1	55	4	0
NW155	No	1	B	50	59	54	5	1	54	5	1	55	4	0	55	4	0	56	3	0
NW156	No	1	B	51	62	56	6	1	56	6	1	56	6	1	56	6	1	57	5	1
NW157	No	1	B	52	63	56	7	1	56	7	1	57	6	1	57	6	1	58	5	1
NW158	Yes	1	B	57	70	62	8	1	62	8	1	62	8	1	62	8	1	64	6	1
NW159	Yes	1	B	57	70	62	8	1	62	8	1	62	8	1	62	8	1	64	6	1
NW160	No	1	B	45	53	51	2	0	51	2	0	51	2	0	51	2	0	51	2	0
NW161	No	1	B	45	53	51	2	0	51	2	0	51	2	0	51	2	0	51	2	0
NW162	No	1	B	46	54	51	3	0	51	3	0	52	2	0	52	2	0	52	2	0
NW163	No	1	B	46	54	52	2	0	52	2	0	52	2	0	52	2	0	52	2	0
NW164	No	1	B	47	55	52	3	0	52	3	0	53	2	0	53	2	0	53	2	0
NW165	No	1	B	47	56	53	3	0	53	3	0	53	3	0	53	3	0	54	2	0
NW166	No	1	B	48	57	54	3	0	54	3	0	54	3	0	54	3	0	54	3	0
NW167	No	1	B	49	57	54	3	0	54	3	0	54	3	0	54	3	0	55	2	0
NW168	No	1	B	50	59	55	4	0	55	4	0	56	3	0	56	3	0	57	2	0
NW169	No	1	B	51	60	56	4	0	56	4	0	57	3	0	57	3	0	57	3	0
NW170	No	1	B	52	62	57	5	1	57	5	1	58	4	0	58	4	0	59	3	0

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 6

NAC						20-Foot Wall			18-Foot Wall			16-Foot Wall			14-Foot Wall			13-Foot Wall (Existing Height)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW171	No	1	B	53	63	58	5	1	58	5	1	59	4	0	59	4	0	59	4	0
NW172	Yes	1	B	56	67	61	6	1	61	6	1	61	6	1	61	6	1	62	5	1
NW173	Yes	1	B	56	68	61	7	1	61	7	1	62	6	1	62	6	1	63	5	1
NW175	No	1	B	45	53	51	2	0	51	2	0	51	2	0	51	2	0	52	1	0
NW176	No	1	B	46	54	52	2	0	52	2	0	52	2	0	52	2	0	52	2	0
NW177	No	1	B	46	55	52	3	0	52	3	0	52	3	0	52	3	0	53	2	0
NW178	No	1	B	51	60	56	4	0	56	4	0	57	3	0	57	3	0	57	3	0
NW179	Yes	1	B	55	65	60	5	1	60	5	1	60	5	1	60	5	1	61	4	0
NW180	No	1	B	51	59	56	3	0	56	3	0	57	2	0	57	2	0	57	2	0
NW181	Yes	1	B	58	69	62	7	1	62	7	1	62	7	1	62	7	1	64	5	1

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

	Inputs				
	Overall Wall Length (ft.) =	1444	1444	1444	1444	1444
	Average Wall Height (ft.) =	20	18	16	14	13
	Wall Area (sq. ft.) =	28880	25992	23104	20216	18772
	Safety Barrier (linear ft.) =	1090	1090	1090	1090	1090
	Front Row Properties =	25	25	25	25	25
	Acoustic Feasibility					
	Front-Row Properties with a 5 dBA Reduction =	25	25	25	25	24
	% of Front-Row Properties Reduced At Least 5 dBA =	100%	100%	100%	100%	96%
	Acoustically Feasible =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Reasonableness	**Noise Reduction Design Goal**					
	Front Row Properties with 7 dBA Reduction =	23	23	23	22	19
	% of Front Row Reduced At Least 7 dBA =	92%	92%	92%	88%	76%
	Meets Noise Reduction Goal =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	Cost Effectiveness					
	Benefited (Category B w/ 5 dBA Reduction) =	104	104	98	98	80
	Wall Cost (wall area x 20) =	$577,600	$519,840	$462,080	$404,320	$375,440
	Safety Barrier (linear ft. x 80) =	$87,200	$87,200	$87,200	$87,200	$87,200
	Snow Storage (linear ft. of safety barrier x 25) =	$27,250	$27,250	$27,250	$27,250	$27,250
	Total Wall Cost =	$692,050	$634,290	$576,530	$518,770	$489,890
	Cost per Benefited Property (wall cost / benefited) =	$6,654	$6,099	$5,883	$5,294	$6,124
	Allowable Cost (benefited x 30k) =	$3,120,000	$3,120,000	$2,940,000	$2,940,000	$2,400,000
	Cost Reasonable =	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 7

NAC						Existing Wall (13 Feet)		
Receptor	Front Row	Residences Represented	Land Use Category	Existing dB(A)	Future W/O Wall dB(A)	W/Wall dB(A)	Reduction dB(A)	Benefited Properties
NW182	No	1	B	52	63	58	5	1
NW183	No	1	B	43	54	49	5	1
NW184	No	1	B	43	54	50	4	0
NW185	No	1	B	44	56	51	5	1
NW186	No	1	B	45	57	52	5	1
NW187	No	1	B	49	60	56	4	0
NW188	No	1	B	52	63	58	5	1
NW189	Yes	1	B	57	73	65	8	1
NW190	Yes	1	B	57	73	64	9	1
NW191	No	1	B	42	53	48	5	1
NW192	No	1	B	43	54	50	4	0
NW193	No	1	B	46	57	53	4	0
NW194	No	1	B	51	62	58	4	0
NW195	Yes	1	B	58	75	65	10	1
NW196	No	1	B	52	64	59	5	1
NW197	Yes	1	B	57	74	64	10	1
NW198	Yes	1	B	57	74	64	10	1
NW199	No	1	B	42	53	48	5	1
NW200	No	1	B	48	59	54	5	1
NW201	No	1	B	52	63	59	4	0
NW202	Yes	1	B	57	74	64	10	1
NW203	No	1	B	41	52	48	4	0
NW204	No	1	B	45	56	52	4	0
NW205	No	1	B	47	59	55	4	0
NW206	No	1	B	52	64	59	5	1
NW207	Yes	1	B	57	74	64	10	1
NW208	No	1	B	42	52	49	3	0
NW209	No	1	B	45	57	53	4	0
NW210	No	1	B	52	64	59	5	1
NW211	Yes	1	B	57	75	65	10	1
NW212	No	1	B	43	53	49	4	0
NW213	No	1	B	46	56	53	3	0
NW214	No	1	B	46	57	52	5	1
NW215	No	1	B	48	58	54	4	0
NW216	No	1	B	54	64	59	5	1
NW217	Yes	1	B	58	76	65	11	1
NW218	Yes	1	B	57	75	66	9	1
NW219	No	1	B	44	54	51	3	0
NW220	No	1	B	45	55	51	4	0
NW221	No	1	B	46	56	53	3	0
NW222	No	1	B	47	58	54	4	0
NW223	No	1	B	49	61	56	5	1
NW224	No	1	B	52	65	59	6	1
NW225	Yes	1	B	56	72	64	8	1

= Impacted receptor
= 5 dBA reduction or better
= 7 dBA reduction or better

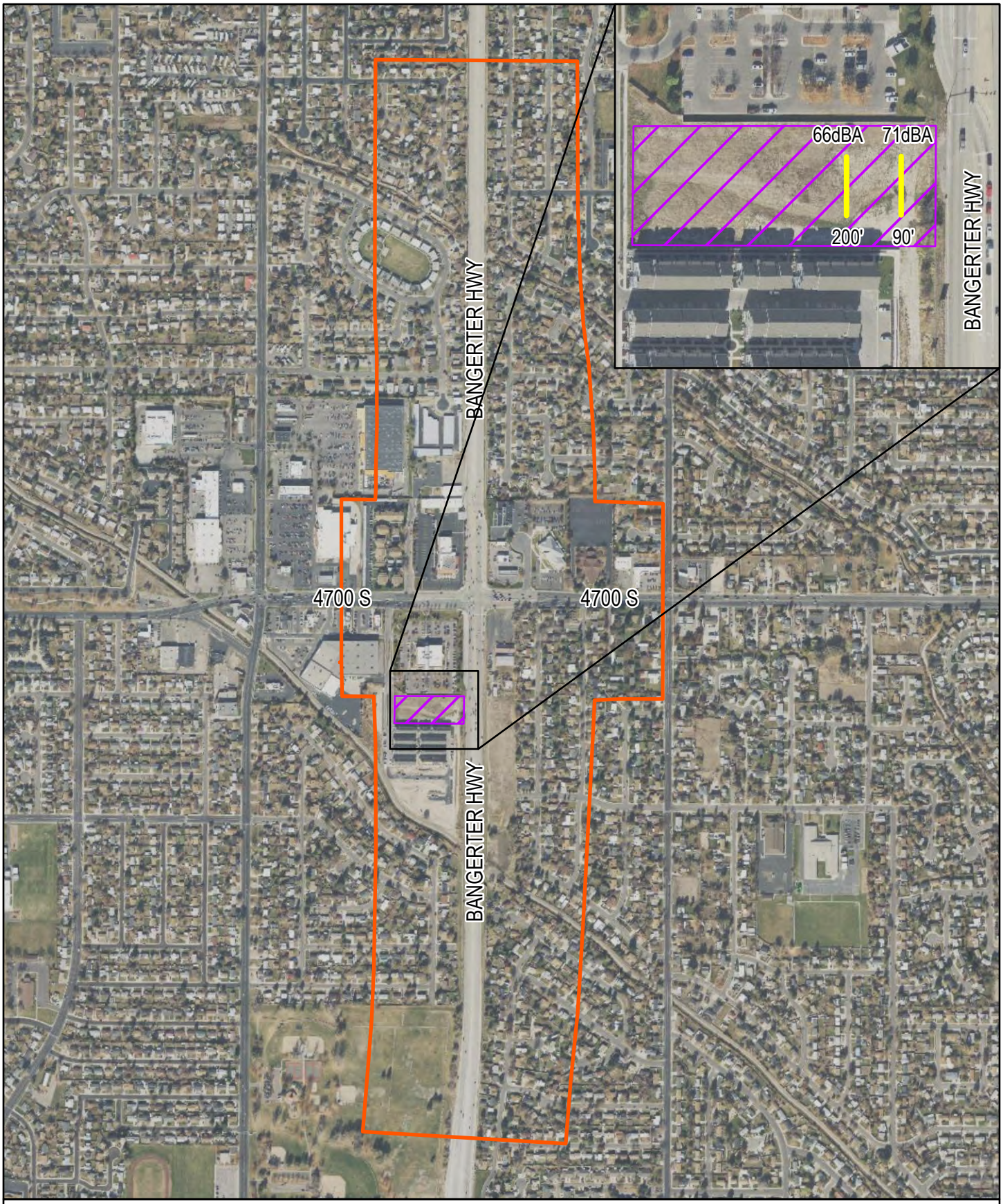
Bangerter Highway at 4700 South Intersection Improvements Noise Analysis
PIN 18808
Bangerter Highway Under Option

Noise Wall 7

NAC	Existing Wall (13 Feet)

		Inputs	
		Overall Wall Length (ft.) =	1342
		Average Wall Height (ft.) =	13
		Wall Area (sq. ft.) =	17446
		Safety Barrier (linear ft.) =	0
		Front Row Properties =	14
		Acoustic Feasibility	
		Front-Row Properties with a 5 dBA Reduction =	11
		% of Front-Row Properties Reduced At Least 5 dBA =	79%
		Acoustically Feasible =	**Yes**
Reasonableness		**Noise Reduction Design Goal**	
		Front Row Properties with 7 dBA Reduction =	11
		% of Front Row Reduced At Least 7 dBA =	79%
		Meets Noise Reduction Goal =	**Yes**
		Cost Effectiveness	
		Benefited (Category B w/ 5 dBA Reduction) =	26
		Wall Cost (wall area x 20) =	$348,920
		Safety Barrier (linear ft. x 80) =	$0
		Snow Storage (linear ft. of safety barrier x 25) =	$0
		Total Wall Cost =	$348,920
		Cost per Benefited Property (wall cost / benefited) =	$13,420
		Allowable Cost (benefited x 30k) =	$780,000
		Cost Reasonable =	**Yes**

APPENDIX E: NOISE LEVELS ON UNDEVELOPED LAND



Bangerter Highway Over Option Undeveloped Land

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

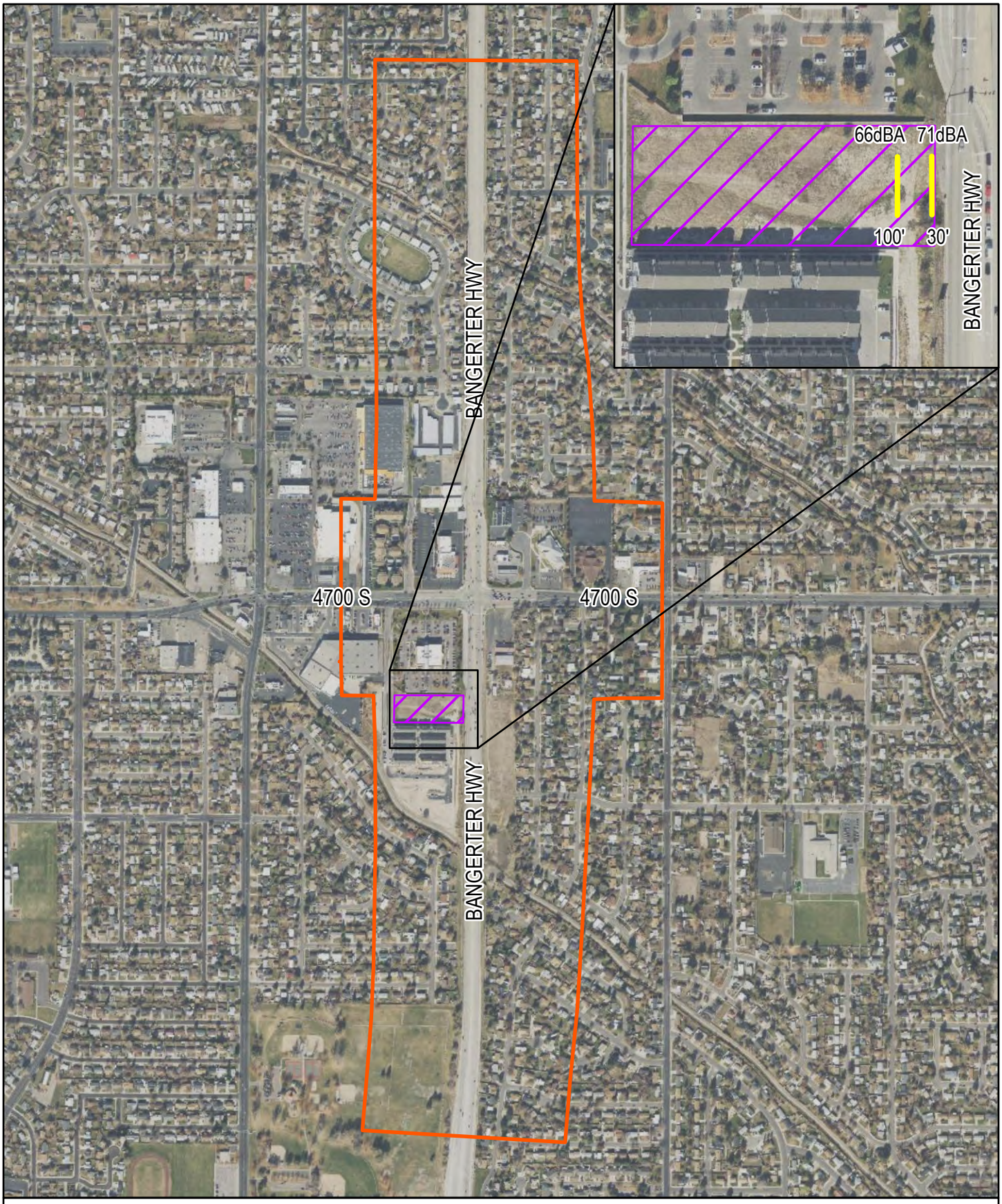
Undeveloped Land

0 225 450 900 Feet

N

1 inch equals 900 feet

12/29/2021



Bangerter Highway Under Option Undeveloped Land

Bangerter Highway Corridor
Environmental (4700 South)
Project Number: S-0154(92)0
PIN: 18808

Undeveloped Land

0 225 450 900 Feet

N

1 inch equals 900 feet

12/29/2021

Appendix D: Environmental Resources

Hazardous Materials Memo

MEMORANDUM

To: Project File

From: Matt Montgomery, Avenue Consultants

Date December 13, 2021

Subject: Hazardous Site Review: Bangerter Highway and 4700 South Interchange

Project No.: S-0154(92)0 | PIN: 18808

The purpose of this memorandum is to identify hazardous material sites in and around the Bangerter Highway and 4700 South study area.

1 PROJECT BACKGROUND

UDOT is proposing to construct a grade-separated Single Point Urban Interchange (SPUI) at the existing intersection of Bangerter Highway (SR-154) and 4700 South in West Valley City and Taylorsville, Utah. The new interchange would allow for traffic to move more freely along Bangerter Highway and is projected to operate at LOS C during 2050 AM and PM peak hours (an average of 21 seconds and 28 seconds of delay per vehicle, respectively).

The project study area is along Bangerter Highway from milepost 16.0 to 17.7, and on 4700 South between 3535 West and 4055 West (see Study Area Map in Appendix A). The proposed action would shift the Bangerter Highway alignment to the east and construct a grade-separated interchange with exit and entrance ramps from Bangerter Highway to 4700 South; reconfigure the existing 4700 South lane configuration to integrate with the interchange design; install an auxiliary lane between the 4700 South entrance ramp and 5400 South exit; modify utilities, storm drain features, canal structures, and pedestrian facilities; and install new pavement, traffic signals, ATMS equipment, roadway signage, and a storm water detention basin. The proposed action would also relocate a portion of the Jordan Valley Water Conservancy District (JVWCD) aqueduct, between the Utah and Salt Lake Canal and the South Jordan Canal, to accommodate encroachment from the interchange facilities. Additionally, access to the U of U Health Center parking lot from 4700 South would be limited to right-in/right-out turn movements.

There are two options for the grade-separated interchange:
Bangerter Highway Over Option: The vertical alignment option for 4700 South would stay at the existing grade, and Bangerter Highway would go over 4700 South above the existing grade.
Bangerter Highway Under Option: The vertical alignment option for 4700 South would be at the existing grade, and Bangerter Highway would go under 4700 South below the existing grade.

The decision regarding which alternative to construct will be made at a later date. Detailed information regarding the process to select an alternative and an over or under option is found in the *Bangerter Highway at 4700 South Alternatives Memo* in Appendix B. Once a decision is made, UDOT will communicate this decision using various outreach channels

2 HAZARDOUS MATERIALS

Hazardous materials include any solid, liquid, or gaseous materials that, if improperly managed or disposed of, may pose substantial hazards to human health and the environment. A material is considered hazardous if it exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, and toxicity.

3 EVALUATION SOURCES

Hazardous material sites were identified by reviewing records from the Utah Department of Environmental Quality (UDEQ) for the following programs: National Priorities list (NPL) sites; Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites; Toxic Release Inventory (TRI); Used Oil Facilities; Enforceable Written Assurances (EWAs), Brownfields, underground storage tanks (UST) and leaking underground storage tanks (LUST), and Environmental Incidents.

4 HAZARDOUS MATERIAL SITES EVALUATION

Hazardous material sites were reviewed for the potential to be affected by the proposed project based on standard radius distances as shown in Table 1.

Table 1: Description of Hazardous Materials Sites and Search Radius

Site Type	Search Radius	Description
NPL	1 mile	Sites containing listed chemicals under CERCLA and have been identified as priorities for cleanup.
CERCLIS	0.5 miles	Sites containing listed chemicals under CERCLA but have not been categorized as NPL sites.
TRI	0.5 miles	Sites such as manufacturing or mining facilities that manufacture or process listed chemicals.
Used Oil Facility	Study Area or Adjacent Property	Sites that store, transport, or recycle used oil.
EWA	0.5 miles	Sites where the property owner has come to an agreement with the UDEQ on obligations associated with hazardous materials or waste of the site.
Brownfield	0.5 miles	Former industrial areas.
UST	Study Area or Adjacent Property	Sites where USTs are currently being used or have been used to store petroleum products such as gasoline or diesel fuel.
LUST	0.5 miles	UST sites where a leak has been detected.
Environmental Incident	Study Area or Adjacent Property	Locations where a spill or other incident regarding hazardous materials has been reported.

No NPL sites occur within 1 mile of the study area. No TRI, EWA, Brownfield, or LUST sites occur within 0.5 miles of the study area. No Used Oil Facilities occur within or adjacent to the study area.

Three CERCLIS sites (specifically, polluted groundwater plumes) were identified in and within 0.5 miles of the study area. Additionally, eight UST sites and one Environmental Incident were identified in the study area. Location details for these facilities can be seen in Table 2 and the attached figure.

Table 2: Hazardous Material Sites in the Study Area and Search Radius

Name	Address	Site Type	UDEQ ID
4700 South and Bangerter Plume	4700 South Bangerter Highway	CERCLIS	UT0012950232
4000 South Peachwood Drive PCE Plume	4000 South 3400 West	CERCLIS	UTN000802711
5400 South 3600 West Plume	5400 South 3600 West	CERCLIS	UTN010161126
Valley West U-Haul Ctr.	4690 South 4000 West	UST	4001048
DBA Jacksons Food Stores #153	4710 South 4000 West	UST	4001168
7-ELEVEN 1852-26357	3990 West 4700 South	UST	4001021
(OLD) Sinclair Retail	3995 West 4700 South	UST	4001391
Smith's #137	4643 South 4000 West	UST	4002274
Blake's Chevron (currenlty Diamond Rental)	3752 West 4700 South	UST	4002215
Rainbo #46	3612 West 4700 South	UST	4001576
Speedway No. 9425 (Exxon)	3587 West 4700 South	UST	4001509
Salt Lake County Residential Dumping	5096 South 3760 West	Environmental Incident	12212

The Bangerter Highway Over Option and Bangerter Highway Under Option would construct the interchange structure and/or roadway facilities on a UST property at 3752 West 4700 South (currently Diamond Rental). However, impacts to this site are not anticipated because the UST was removed in 2006.

The Bangerter Highway Under Option would require excavation below the existing roadway surface to facilitate the structure and/or roadway facilities. This construction has potential to encounter the 4700 South and Bangerter Plume (a contaminated ground water plume) located beneath the Bangerter Highway and 4700 South intersection. Based on available information, the depth to ground water is 24.5 feet at the Life Church USGS Monitoring Well (UDEQ 2017). If the Bangerter Highway Under Option is selected, additional research and investigation may be needed to adequately inform the risk of encountering contaminated soil and groundwater.

No other direct impacts to the site listed above are anticipated. Any contamination encountered during project activities will be handled in accordance with the UDOT 2022 Standard Specification 01355.

5 REFERENCES

[UDEQ] Utah Department of Environmental Quality. 2017. Site Investigation Analytical Results Report 4700 South and Bangerter Plume. Salt Lake County, Utah UT0012950232.

Appendix D: Environmental Resources

Air Quality Summary

Air Quality Summary

Bangerter Highway at 4700 South Intersection Improvements

Project No. S-0154(92)0; PIN 18808

Lead Agency: Utah Department of Transportation

January 2022

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Abbreviations and Acronyms

CAAA	Clean Air Act Amendments
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
EPA	Environmental Protection Agency
LOS	Level of Service
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
O_3	ozone
Pb	lead
$PM_{2.5}$	particulate matter with a diameter of 2.5 micrometers or less
PM_{10}	particulate matter with a diameter of 10 micrometers or less
PPB	parts per billion
PPM	parts per million
RTP	Regional Transportation Plan
SIP	State Implementation Plan
SO_2	sulfur dioxide
WFRC	Wasatch Front Regional Council
UDOT	Utah Department of Transportation
$\mu g/m^3$	micrograms per cubic meter of air

1.0 Introduction

The Utah Department of Transportation (UDOT) is proposing to construct a grade-separated Single Point Urban Interchange (SPUI) at the existing intersection of SR-154 (Bangerter Highway) and 4700 South in Salt Lake County. The new interchange would allow for unimpeded traffic flow along Bangerter Highway and is projected to operate at Level of Service (LOS) C during AM and PM peak hours (an average of 21 seconds and 28 seconds of delay per vehicle, respectively) into the year 2050.

1.1 Project Study Area

The Proposed Action is located in West Valley City and Taylorsville, Utah. The study area is along Bangerter Highway from milepost 16.0 to 17.7 and on 4700 South between 3535 West and 4055 West.

1.2 Proposed Action

The proposed action would construct a grade-separated interchange with exit and entrance ramps from Bangerter Highway to 4700 south; reconfigure the existing 4700 South lane configuration to integrate with the interchange design; modify utilities, storm drain features, canal structures, and pedestrian facilities; replace a portion of substandard noise wall; and install new pavement, traffic signals, ATMS equipment, roadway signage, and a storm water detention basin. The project would also relocate a portion of the Jordan Valley Water Conservancy District (JVWCD) aqueduct, between the Utah and Salt Lake Canal and the South Jordan Canal, to accommodate encroachment from the interchange facilities. This project will require the acquisition of commercial and residential properties.

2.0 Purpose and Need

The purpose of the project is to alleviate congestion and improve the operations at the Bangerter Highway and 4700 South intersection and to support regional network mobility and operations. This intersection experiences congestion operating at Level of Service (LOS) E (average of 67 seconds of delay per vehicle) during the AM peak hour and LOS D (average of 54 seconds of delay per vehicle) during the PM peak hour.

If no operational improvements are made at this intersection, traffic modeling indicates that by 2050 the intersection is projected to operate at LOS F during the AM peak and PM peak hours (average of 143 seconds and 112 seconds of delay per vehicle, respectively). Extensive queuing on Bangerter Highway and 4700 South intersection is also projected to extend through adjacent intersections on 4700 South (4000 West, Muirhouse Drive, and 3600 West) causing them to fail and preventing them from serving all the anticipated traffic volume.

3.0 Attainment Status for the Project Area

3.1 Background on National Ambient Air Quality Standards

The Clean Air Act Amendments (CAAA) of 1990 (42 USC 7401 et seq.) established the National Ambient Air Quality Standards (NAAQS) for airborne pollutants. The current NAAQS for criteria pollutants are shown in Table 1.

Table 1. National Ambient Air Quality Standards (NAAQS) for Criteria Pollutants

Pollutant	Primary/ Secondary	Averaging Time	Level	Violation Determination
Carbon Monoxide (CO)	Primary	8-hours	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead (Pb)	Primary and Secondary	Rolling 3 month average	0.15 µg/m^3	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Primary/ Secondary	1-hour	53 ppb (0.053 ppm)	Annual mean
Ozone (O_3)	Primary and Secondary	8-hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter ($PM_{2.5}$)	Primary	1-year	12.0 µg/m^3	Annual mean, averaged over 3 years
	Secondary	1-year	15.0 µg/m^3	Annual mean, averaged over 3 years
	Primary and Secondary	24-hours	35 µg/m^3	98th percentile, averaged over 3 years
Particulate Matter (PM_{10})	Primary and Secondary	24-hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: Environmental Protection Agency - as of August 20, 2021 (https://www.epa.gov/criteria-air-pollutants/naaqs-table)

Note: Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb), and micrograms per cubic meter of air (µg/m3). Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

NAAQS are monitored by geographic area. When NAAQS levels are exceeded in a geographic area, the area is designated as a nonattainment area and the development of a State Implementation Plan (SIP) is required. The SIP sets allowable emissions levels to be met and identifies control strategies to meet the NAAQS for those specific criteria pollutants with exceedances. All regionally significant highway projects are required to be included in a transportation plan that conforms to the SIP.

An individual project is said to conform to the SIP if, both by itself and in combination with the other planned transportation projects, it would not result in any of the following conditions (see 42 USC Section 7506(c)):

- New violations of the NAAQS
- Increases in the frequency or severity of existing violations of the NAAQS
- Delays in attaining the NAAQS

3.2 Attainment Status of the Project Area

The proposed action is in Salt Lake County, Utah and is within the following nonattainment and/or maintenance areas:

- Salt Lake City, Utah $PM_{2.5}$ Nonattainment Area
- Salt Lake County, PM_{10} Maintenance Area
- Sulfur Dioxide (SO_2) Nonattainment Area
- Northern Wasatch Front Ozone (O_3) Nonattainment Area

Interchange improvements at Bangerter Highway and 4700 South are included in the Wasatch Front Regional Council (WFRC) 2019-2050 Regional Transportation Plan (RTP). The air quality conformity report published on June 17, 2019 found that the 2050 RTP conforms to state air quality goals and objectives. The proposed action is consistent with the description of the project provided in the RTP.

What are Attainment, Nonattainment, and Maintenance Areas?

An **attainment area** is an area that meets (or "attains") the NAAQS for a given air pollutant.

A **nonattainment area** is an area that does not meet the NAAQS for a given air pollutant.

A **maintenance area** is an area previously designated as a nonattainment area that has been redesignated to attainment status and is required to have a maintenance plan.

Improvements to mobility and a reduction in congestion are anticipated to occur as part of the proposed action, which is expected to result in decreased levels of criteria pollutants in the study area and surrounding areas.

The study area is in a nonattainment area for $PM_{2.5}$, SO_2, and O_3, and a maintenance area for PM_{10}. The Proposed Action would reduce congestion at and surrounding Bangerter Highway and 4700 South, and consequently result in decreased emissions of $PM_{2.5}$ and PM_{10} due to decreases in vehicle idling because it would allow for unimpeded traffic flow along Bangerter Highway. SO_2 is primarily produced by sources other than roadway vehicles; therefore, there is no reason to believe that the proposed action would affect concentrations of this pollutant in the project area. Vehicle exhaust, industrial emissions, and gasoline vapors are major contributors to the production of O_3. While meteorological conditions combined with changes in the regional land use and transportation patterns could affect O_3 on a regional level, the effects that could result from any one project alone are presumably minimal and uncertain. The Proposed Action is not predicted to cause a new exceedance of the NAAQS, worsen an existing exceedance, or cause delay in attaining NAAQS.

4.0 Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, the Environmental Protection Agency (EPA) also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., locomotives, construction equipment, and airplanes), and stationary sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. MSATs are compounds emitted from highway vehicles and non-road equipment.

Based on FHWA's analysis using MOVES2014a, diesel particulate matter (diesel PM) remains the dominant MSAT of concern for highway projects. For the No Build and Proposed Action, the amount of MSATs that are expected to be emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each option. The VMT estimated for each option should be equal given that the Proposed Action is not adding capacity. Although VMT is anticipated to increase by 2050 for both the No Build and Proposed Action, the increase for the Proposed Action would be offset somewhat by lower MSAT emission rates as a result of decreased travel times and increased speeds. According to EPA's MOVES2014 model, emissions of all of the priority MSATs decrease as speed increases. Additionally, on a regional basis the EPA's vehicle and fuel regulations, coupled with fleet turnover, would over time cause reductions that, in almost all cases, will result in region-wide MSAT levels that are lower than today.

5.0 Greenhouse Gas (GHG)

Greenhouse gases (GHG) trap heat and make the planet warmer. Human activities are responsible for almost all the increase in greenhouse gases in the atmosphere over the last 150 years. The largest source of GHG emissions from human activities in the United States is from burning fossil fuels for electricity, heat, and transportation. Carbon dioxide ($CO_{2)}$ released through the consumption of gasoline and diesel is the main GHG produced by vehicles. Consumption of gasoline and diesel is primarily related to VMT and it is often used to estimate GHG emissions. VMT is anticipated to increase by 2050. However, this increase would occur regardless of the proposed action being implemented or not.

6.0 Conclusions

The Proposed Action is identified as a Phase 1 project in WFRC's 2019–2050 RTP and is also identified in WFRC's conforming 2021–2026 TIP and therefore conforms to the SIP. For this reason, UDOT does not expect the Proposed Action to adversely affect local compliance with the NAAQS. Atmospheric CO_2 emissions are projected to increase in 2050 due to the greater number of vehicles and increased VMT in 2050. This increase would occur with or without the Proposed Action. The amounts of all other pollutants are projected to decrease in future years due to improved fuel and emissions standards.

7.0 References

Environmental Protection Agency (2021). NAAQS Table. Electronic document https://www.epa.gov/criteria-air-pollutants/naaqs-table, accessed September 6, 2021.

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