

ENVIRONMENTAL STUDY

Project Name: **Reevaluation - Bangerter Highway @ 10400 South**

PIN: **14416**

Project No.: **S-0154(85)9**

Prepared By: **Kevin Kilpatrick, HDR**

For guidance in preparing this environmental study, refer to Chapter 4 of the UDOT Environmental Process Manual of Instruction:

<http://www.udot.utah.gov/go/environmental>

REQUIRED SIGNATURES

I have reviewed the information presented in this Environmental Study, and I hereby attest that the document is complete and the details of the document are correct.

Reviewer's Signature: Jerry Chaney Date: June 14, 2019

Reviewer (Printed): Jerry Chaney

Firm/UDOT Region: HDR Engineering, Inc.

STATE FUNDED PROJECTS

As a result of this Environmental Study, UDOT finds that this project will NOT cause significant environmental impacts.

Approved:



Digitally signed by Tyler Allen
Date: 2019.06.19 15:46:47 -06'00'

UDOT Environmental Services

Date: _____

1. Purpose of and Need for Action

The Utah Department of Transportation (UDOT) has initiated an environmental study to analyze the need for transportation improvements at the intersection of Bangerter Highway (State Route 154) and 10400 South (State Route 151) in South Jordan, Utah (see attached project location maps).

The PM peak period was determined to be the worst-case scenario and was used for the basis of the traffic analysis. Currently this intersection has an average delay of 58 seconds (level of service [LOS] E) in the peak period.

Traffic modeling conducted in 2018 shows that, in 2040, the intersection would have average delays of 307 seconds in the peak period (LOS F) if no improvements are made to the intersection. Additionally, this intersection has a high number of documented front-to-rear crashes due to sudden speed or lane changes associated with traffic congestion.

The purpose of the project is to increase safety and alleviate the future delay and congestion at the intersection of Bangerter Highway and 10400 South.

2. Description

Updated Scope: UDOT approved a State Environmental Study (SES) for improvements at the intersection of SR-154 (Bangerter Highway) and 10400 South on September 12, 2018. The original scope approved with the SES included a grade-separated interchange with Bangerter Highway going over 10400 South. Based on additional discussions and per South Jordan City officials' request, UDOT is now proposing the following improvements:

- Construct a grade-separated interchange with Bangerter Highway going under 10400 South.
- Drainage and utility design features have changed to accommodate Bangerter Highway going under 10400 South.
 - o Drainage from the project will utilize a new detention basin on the southwest side of the interchange and an existing UDOT owned detention basin located at 9600 South on the east side of Bangerter Highway. The existing detention basin at 9600 South may need to be modified to accommodate the additional stormwater but impacts would be limited to the footprint of the existing basin.
 - o One parcel adjacent to 10400 South and one parcel in the southeast quadrant may have new or additional minor impacts due

to the relocation of utilities and utility easements needed to accommodate Bangerter going under 10400 South.

- The reevaluation design would avoid partial impacts to two properties further east on 10400 South that would have been impacted by the original SES design.
- Overall, there would be the same total number of affected parcels (50). The reevaluation design would reduce the amount of partial acquisition (total of approximately 5.25 acres) by about 1.69 acres compared to the original SES design (total of approximately 6.94 acres). The number of relocations (11 residential, 3 potential residential, and 3 commercial) would be the same.
- All other elements previously evaluated from the original scope would remain the same.

Original Scope: UDOT proposes to construct a grade-separated Single-Point Urban Interchange (SPUI) at Bangerter Highway and 10400 South in Salt Lake County. The project area is along Bangerter Highway from approximately milepost 8.6 to milepost 10.4 and on 10400 South between 3880 West and River Heights Drive (about 3400 West).

Traffic modeling predicts that, in 2040, the grade-separated interchange would have average delays of 49 seconds (LOS D) in the peak period. It is important to note that the 2040 modeling also assumes that 10400 South is widened to a seven-lane facility by 2040 east of Bangerter Highway. The widening of 10400 South is not proposed as part of this project and would need to be completed as a future project.

The grade-separated interchange would allow uninterrupted north-south traffic on Bangerter Highway in this area and would improve east-west traffic on 10400 South by eliminating the north-south traffic movement through an at-grade intersection. In addition to reducing delay and congestion, the project would also decrease idling traffic and auto emissions and improve the safety of the intersection.

The project would include constructing a grade-separated interchange (Bangerter Highway over 10400 South), constructing associated exit and entrance ramps, and, if funding is available, construction of either northbound or southbound auxiliary lanes on Bangerter Highway from 9800 South to 10400 South and/or from 10400 South to 11400 South. Work would also include modifying utilities and storm drains and installing new pavement, traffic signals, ATMS equipment, lighting, striping, and signs. See the attached Project Figures for maps that show

the proposed project improvements. This project will require right-of-way acquisition.

3. Public Hearing/Opportunity for Public Hearing

YES This project could result in public controversy or substantial impacts to adjacent properties; or substantially changes roadway geometry.

NO There are significant social, economic, environmental, or other effects. If YES, a Categorical Exclusion is not applicable. Consult with UDOT Central Environmental Services.

YES UDOT has determined that a public hearing is in the public interest.

If the answer to ANY of the above questions is YES, a public hearing or opportunity for a public hearing is required (attach documentation identifying date and location of hearing, summary of comments, and responses to substantial comments, or include certification of opportunity for hearing).

The following types of public involvement have been provided:

YES Public hearing in accordance with state and federal procedures

NO Opportunity for public hearing

YES Open house

YES Other: Project-specific website, email, and hotline

YES Documentation is attached identifying the date and location of hearing, summary of comments, and responses to substantial comments; or the Certification of Opportunity for a Hearing is attached.

Comments: Stakeholder meetings and a public hearing were held in support of the original SES. Following completion of the original SES, UDOT reached an agreement with South Jordan City to construct an underpass of Bangerter Highway at 10400 South. For this reevaluation, a public hearing was held on May 22, 2019 and a 30 day comment period was provided from May 8, 2019 to June 7, 2019 in accordance with Utah Administrative Code R930-2. A summary of the public involvement effort and responses to comments are included as an attachment.

4. Right-of-Way

YES Acquisition of right-of-way is required.

NO The right-of-way required is significant because of its size, location, use, or relationship to remaining property and abutting properties. (If the right-of-way required is significant, the project does not qualify as a Categorical Exclusion.)

Comments: The reevaluation Proposed Action would require acquiring right-of-way from properties along Bangerter Highway to construct interchange ramps and, if funding is available, auxiliary lanes.

The approximate amount of partial right-of-way acquisition required with the reevaluation Proposed Action is approximately 5.25 acres, which would affect 50 parcels (including residential and commercial properties). The reevaluation Proposed Action would require full or potential full acquisition of approximately 5.81 acres. The full acquisition includes 3 commercial parcels and 11 residential parcels and potential full acquisition of an additional 3 residential parcels (see the attached Proposed Action figure).

The changes to right-of-way with the reevaluation Proposed Action were additional impacts to one parcel adjacent to 10400 South and one parcel in the southeast quadrant that may have new or additional minor impacts due to the relocation of utilities and utility easements needed to accommodate Bangerter going under 10400 South. The reevaluation Proposed Action would avoid partial impacts to two properties further east on 10400 South that would have been impacted by the original SES design. Overall, there would be the same total number of affected parcels (50). The reevaluation design would reduce the amount of partial acquisition (total of approximately 5.25 acres) by about 1.69 acres compared to the original SES design (total of approximately 6.94 acres). The number of relocations (11 residential, 3 potential residential, and 3 commercial) would be the same.

5. Cultural

According to the UDOT Region NHPA/NEPA Specialist and/or the Architectural Historian, the Finding of Effect for the project is one of the following:

YES No historic properties affected

NO No adverse effect

NO Adverse effect

Project documentation for determination of eligibility and finding of effect consists of one of the following and is attached:

YES Memo from UDOT Region NEPA/NHPA Specialist and/or Architectural Historian stating a finding of No Historic Properties Affected.

NO State Historic Preservation Officer (SHPO) concurrence with the Determinations of Eligibility and Finding of Effect AND memo from UDOT Region NEPA/NHPA Specialist and/or Architectural Historian stating a finding of No Adverse Effect or Adverse Effect.

YES Have letters for Native American consultation been sent? Attach letters.

NO Have letters for federal and state agencies, CLGs, historical societies, etc., been sent? If so, attach letters.

NO Do the impacts to historic properties require mitigation?

If YES, a signed Memorandum of Agreement (MOA) is attached.

Comments: Consultation letters were not submitted as part of the reevaluation. See attached memo from the UDOT Region NHPA/NEPA Specialist and Native American Consultation letters.

As part of the original SES Native American consultation was initiated through letters sent on June 7, 2018, to the Uintah and Ouray Ute Tribes, Shoshone-Bannock Tribes, Northwestern Band of Shoshone Nation, Eastern Shoshone Tribe of the Wind River Reservation, Cedar and Shivwits Bands of the Paiute Indian Tribe, Confederated Tribes of the Goshute Reservation, and the Skull Valley Band of the Goshute Indians. One response of "Not Sure" regarding the presence of any traditional religious or culturally important places in or near the project area was received from the Shivwits Band of the Paiute Indians. No other comments were received.

6. Paleontological

- NO** This project is one of the 16 types of projects listed in Stipulation III of the Memorandum of Understanding (MOU) with the Utah Geological Survey (UGS) that has no effect on paleontological resources and does not require notification to the UGS. If YES, a memo from the UDOT Region NEPA/NHPA Specialist is attached (can be included in cultural memo).

For all other projects, the UGS has been notified and has responded with the following (attach UGS letter and memo from the UDOT Region NEPA/NHPA Specialist):

- YES** There are no known paleontological localities in the area of potential effects, and the formations in the project area have a low potential for containing fossil remains (Class 1 or 2).
- NO** Fossil-bearing formations (Class 3–5) and/or known paleontological localities are present in the area of potential effects, but the UDOT Region NEPA/NHPA Specialist (or paleontologist) has determined that they will not be affected by the project.
- NO** Fossil-bearing formations (Class 3–5) and/or known paleontological localities are present in the area of potential effects and may be affected by construction activities. A survey and/or monitoring by a qualified paleontologist is required.
- Comments:** Through previous coordination with the UGS (see attached June 7, 2018, letter from the UGS) it was determined that the study area has low potential for yielding significant fossil localities. This determination is applied to the updated study area as it shares the same geological features as the original study area.

7. Federally Threatened, Endangered, or Candidate Species

For federally or state funded projects:

- YES** Project will have “**no effect**” on T&E species, or their critical habitats, protected under the Endangered Species Act. If YES, attach “no effect” memo or review/comments (in the case of local government projects) from UDOT’s Wildlife Biologist.
- NO** Project “**may affect, but is not likely to adversely affect**” T&E species, or their critical habitats, protected under the Endangered Species Act. If YES, attach BA and “concurrence” from the U.S. Fish and Wildlife Services (USFWS). List all mitigation/conservation measures.
- NO** Project “**may affect, and is likely to adversely affect**” threatened and endangered species, or their critical habitats, protected under the Endangered Species Act. If YES, attach Biological Assessment (BA) and USFWS Biological Opinion (BO). List all mitigation/conservation measures.
- NO** The USFWS has issued a “**jeopardy**” opinion regarding this project. If YES, attach BA and BO as above. This project cannot go forward without being reconsidered.

Comments: Clearance memo from UDOT’s Wildlife Biologist is attached.

8. Wildlife

- NO** Project has the potential to affect state-sensitive species, important wildlife habitat, big-game migration routes, habitat connectivity, migratory birds, and fish spawning habitat or fish passage.

Memo from UDOT Wildlife Biologist is attached.

Comments: Clearance memo from UDOT’s Wildlife Biologist is attached.

9. Invasive Species

If the project involves earthwork, grading, or landscaping, there is potential to introduce or spread invasive weed species.

- YES** Based upon location, this project has the potential to introduce or spread invasive species included on the noxious weed list of the State of Utah and the county noxious weed lists.

Comments: None

10. Noise

Projects that may affect noise levels to adjacent receptors include changes in roadway alignment, roadway widening, and the addition of traffic lanes.

YES This project has the potential to increase noise at adjacent receptors.

YES A noise study is attached.

Comments: An updated noise study was prepared for this reevaluation to account for any changes to noise from Bangerter Highway going under 10400 South. With the reevaluation design there would be minor differences to noise levels for receptors. Overall, the noise wall recommendations with the reevaluation were the same as the noise wall recommendations in the SES.

This project is considered a Type I project that requires a Noise Study due to the construction of a new interchange and supporting auxiliary lanes (if funding is available). Noise levels in the study area would generally increase as a result of the proposed construction of a grade-separated Single-Point Urban Interchange at 10400 South and Bangerter Highway, with an average increase of 3 dBA.

In accordance with the UDOT Noise Abatement Policy, noise walls have been recommended for construction within the project area and will require future balloting during the final design phase.

See the attached Noise Technical Report for more information.

11. Wetlands, Water Resources, Storm Water, and Floodplains

Wetlands and Water Resources

- NO** The project is a type that does not have the potential to affect or cross a Waters of the United States. If YES, no concurrence letter is needed.
- NO** Project affects Waters of the United States (e.g., wetlands, mudflats, lakes, or perennial or ephemeral streams). If NO, have a UDOT Landscape Architect provide a concurrence letter stating that they agree with the determination. In order to indicate “NO” on this question, answers to the following statements must also be “NO.”
 - NO** Project impacts perennial, intermittent, or ephemeral streams that have a riparian vegetation component. If YES, a Programmatic General Permit 40 (PGP40), also known as a Stream Alteration Permit, from the Utah Division of Water Rights will be required.
 - NO** Project exceeds the impact limitations for streams or washes identified in the PGP40. If YES, both a PGP40 and a separate Department of the Army permit will be required.
 - NO** Project impacts an ephemeral wash not captured under PGP40 that has an ordinary high water mark (OHWM) with a connected flow to a downstream Traditional Navigable Water, and the impact below the OHWM exceeds 1/10 of an acre per crossing. If YES, a Department of the Army permit will be required.
 - NO** Project impacts a perennial or intermittent stream below the OHWM less than 1/10 of an acre per crossing. If YES, notification to the U.S. Army Corps of Engineers will be required.
 - NO** Project impacts navigable waters of the United States (Lake Powell, Flaming Gorge Reservoir, Bear Lake, Green River – mouth to 20 miles above Green River Station, Colorado River – mouth of Castle Creek to Cataract Canyon – 4.5 miles below mouth of Green River) below the OHWM. If YES, a Section 10 Department of the Army permit will be required.
 - NO** Project impacts jurisdictional wetlands. If YES, a Department of Army Nationwide Permit (NWP) will be required for wetland impacts under the 1/2 acre threshold; a Letter of Permission (LOP) will be required for wetland impacts between 1/2 and 1 acre; an Individual Permit (IP) will be required for impacts greater than 1 acre.

NO Project impacts non-jurisdictional wetlands. If YES, wetland mitigation may still be required under the federal policy of “no net loss.” Consult UDOT Environmental Section.

Storm Water Runoff

YES Project disturbs 1 acre or more of ground surface.

If YES, a UPDES Storm Water Discharge Permit for Construction Activities is required from the Utah Division of Water Quality.

Floodplains

NO This project requires new construction or alteration of existing structures within the Federal Emergency Management Agency (FEMA)-designated 100-year floodplain.

If YES, a “development permit” is required from the local permit official.

Comments: Clearance memo from UDOT’s Landscape Architect is attached.

12. Hazardous Waste

NO Has a visual inspection of the project area found substances that may be hazardous to human health and/or the environment?

YES This project involves excavation beyond or below the existing roadway footprint.

If YES to either question 1 or 2, then site investigations and coordination with the Utah Department of Environmental Quality (DEQ) may be necessary.

Comments: A review of the Utah Department of Environmental Quality’s (UDEQ) Interactive Map (<http://enviro.deq.utah.gov>) and the U.S. Environmental Protection Agency’s (EPA) EnviroMapper (www.epa.gov/emefdata/em4ef.home) on June 7, 2018, identified the following facilities within or near the project area (see appendix for UDEQ and EPA review figures):

- Walmart at 3590 W. South Jordan Parkway – Hazardous waste and used oil facility and Resource Conservation and Recovery Act (RCRA) conditionally exempt small-quantity generator.

- Costco at 3571 W. South Jordan Parkway – Hazardous waste and used oil facility, Tier 2 facility, RCRA large-quantity generator, and underground storage tanks.
- AutoZone at 3735 W. South Jordan Parkway – Hazardous waste and used oil facility.
- 3622 W. South Jordan Parkway – Environmental incidents (spill of 5 gallons of pink oily material in 2014).
- Lucas Meadows at 10997 S. Lucas Lane – Terminated National Pollutant Discharge Elimination System permit. Permit was terminated in 2005.

The site at 3622 W. South Jordan Parkway would be affected by the Proposed Action. The Walmart, Costco, AutoZone, and Lucas Meadows sites would not be affected by the Proposed Action.

If hazardous materials are encountered during work, all work will stop in the area of contamination according to UDOT Standard Specification 01355, and the contractor will consult with UDOT and UDEQ to determine the appropriate remedial measures.

13. Prime, Unique, Statewide, or Locally Important Farmland

Projects in areas whose land use maps indicate no current or future farming activities would not usually affect farmlands.

N/A This project MAY affect prime, unique, statewide, or locally important farmlands.

N/A The Natural Resources Conservation Service letter and Form AD1006 are attached.

Comments: None

14. Air Quality

YES This project has the potential to increase particulate matter due to construction activities.

NO This project adds or alters roadway capacity or will result in increased traffic volumes at signalized intersections.

If YES, the Air Quality Supplement is attached.

Comments: None

15. Relocations

YES There may be relocations of residences or businesses as a result of this project.

Comments: There are no changes to relocations with this reevaluation. The Proposed Action would require the full acquisition of commercial properties and residential parcels (see attached Project Figures with Property Impacts).

16. Land Use/Urban Policy

NO This project may affect land use or urban policy.

Comments: None

17. Section 4(f) Properties

N/A Section 4(f) properties are impacted.

N/A An Individual Section 4(f) Evaluation AND written concurrence from UDOT Environmental Services on the Individual Section 4(f) determination is attached.

N/A A Programmatic Section 4(f) Evaluation AND written concurrence from UDOT Environmental Services on the Programmatic Section 4(f) determination is attached.

N/A The Section 4(f) property(ies) is (are) a historic property(ies), and the impact is considered *de minimis*.

N/A The SHPO has concurred in writing with UDOT's "no adverse effect" determination to historic properties and has been notified of the intent to make a *de minimis* finding. Attach letter to SHPO and *de minimis* agreement letter.

N/A The Section 4(f) property(ies) is (are) a park, recreational area, or wildlife or waterfowl refuge, and the impact is considered *de minimis*.

N/A The official(s) with jurisdiction has (have) concurred, in writing, that the project will "not adversely affect" the activities, features, and attributes

that qualify the resource for protection under Section 4(f) and has (have) been notified of the intent to make the *de minimis* impact finding. Letters are attached.

N/A The project sponsor has provided public notice and opportunity for public review and comment. Describe public involvement efforts in the comments below.

N/A Written concurrence from UDOT Environmental Services is attached.

Comments: None

18. Other Environmental Factors Considered

This project, except as noted and explained in attachments, will have no disproportionate, serious, or lasting effect on the following:

- NO** Visual
- NO** Social/Economic
- NO** Title VI and/or Environmental Justice
- NO** Natural Resources
- NO** Construction
- NO** Energy
- NO** Geology/Soils
- NO** Wild/Scenic Rivers
- NO** Ecology

19. Conclusion

NO This project may have substantial controversy or significant impacts.

MITIGATION COMMITMENTS

CONSTRUCTION		Responsible
Air Quality	Requirements in Standard Specification 01572, <i>Dust Control and Watering</i> , will be followed.	Contractor
Cultural	Requirements in UDOT Standard Specification 01355, Parts 3.7 and 3.8, will be followed.	Contractor
Hazardous Waste	Requirements in UDOT Standard Specification 01355, Part 3.1, will be followed.	Contractor
Invasive Species	Supplemental Specification 02924S, <i>Invasive Weed Control</i> , will be included in the contract documents. It describes the best management practices that will be incorporated.	Contractor
Noise	The contractor will be required to follow the UDOT 2017 <i>Special Provision</i> , Section 00555M, <i>Prosecution and Progress</i> . The contractor will be required to conform to this specification to reduce the impact of construction noise on the surrounding community.	Contractor
Water Quality	The project-awarded contractor must implement and maintain the project Storm Water Pollution Prevention Plan (SWPPP), in accordance with the Utah Pollutant Discharge Elimination System (UPDES) Permit No. UTRC00000, throughout the construction of the project.	Contractor
PRELIMINARY ENGINEERING		Responsible
Relocations	Property owners will be compensated according to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended.	UDOT Right of Way
Water Quality	An SWPPP is required to be completed by UDOT during design and advertisement and will be provided to the project-awarded contractor.	Designer
Noise	As part of the final design phase, noise wall balloting will be conducted consistent with the procedures in UDOT's Noise Abatement Policy.	UDOT Program Management

Environmental Commitments Signature Page

Project Name: Reevaluation - Bangerter Highway @ 10400 South

Project Number: S-0154(85)9

PIN: 14415(original 14416)

The purpose of this page is to ensure the environmental commitments that are made while following the environmental process are reasonable and feasible to those divisions they will affect. Frequently, as in maintenance preservation projects, UDOT Standard Specifications will provide the mitigation necessary for potential environmental impacts and only require review by the Environmental Manager. However, if special commitments exist that cannot be mitigated by current UDOT Specifications, then additional review is required from both the Project Manager and District Engineer (or Designee). This signature page is required to be included on all UDOT environmental documents regardless of type.



The environmental commitments in this document can be mitigated by following current UDOT specifications.

Required Signatures:

UDOT Environmental Manager:


Signature

Digitally signed by Tyler Allen
Date: 2019.06.19 15:46:14 -06'00'

Tyler Allen
Printed Name

6/19/2019
Date



The environmental commitments in this document require mitigation beyond what is provided by following current UDOT specifications. Special commitments are believed to be designable, financially feasible, constructible, and maintainable.

Required Review and Signatures:

UDOT Project Manager:

Signature

Printed Name

Date

District Engineer or Designee:

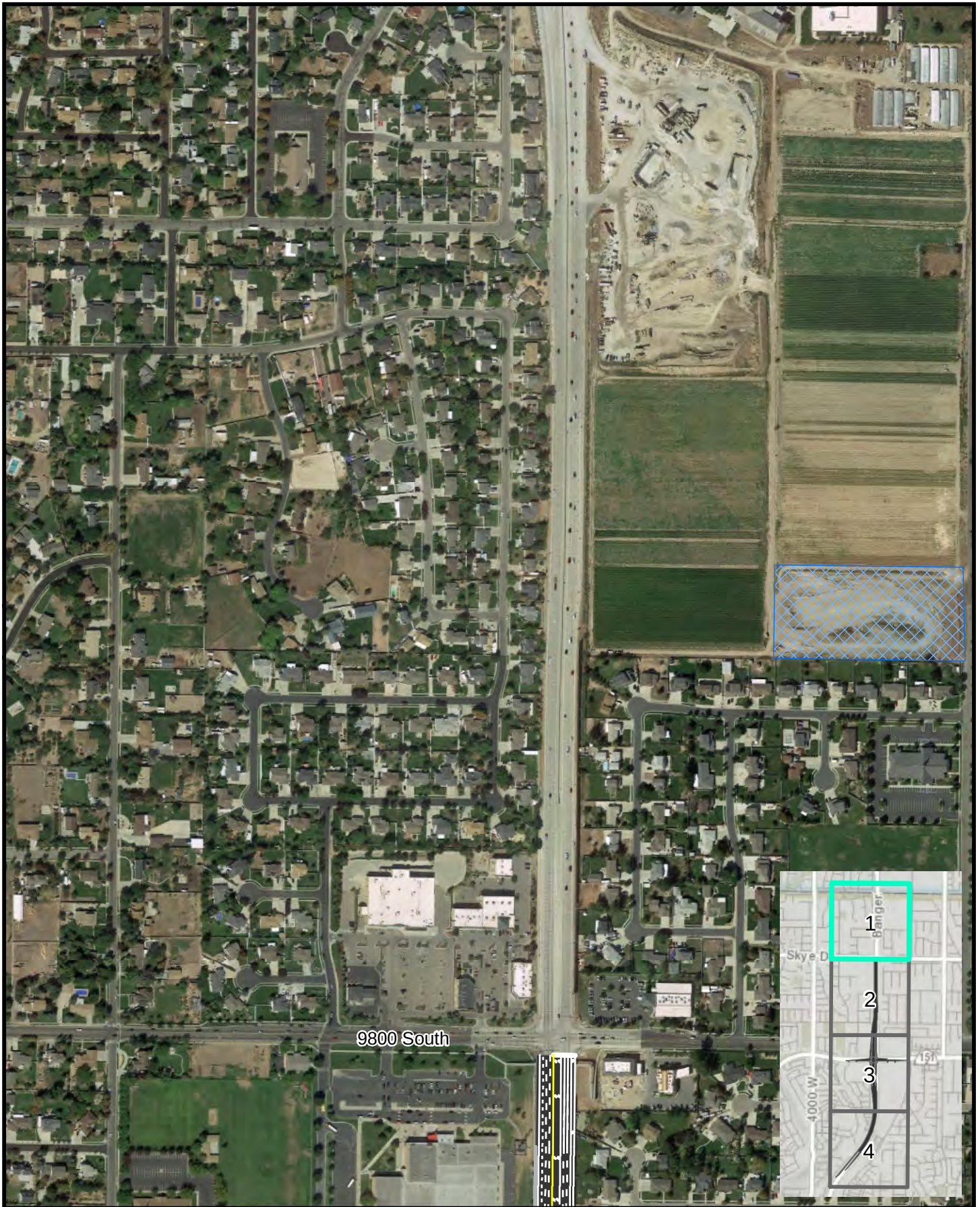
Signature

Printed Name

Date

Attachments

- Figures
 - Project Figures
 - Project Figures with Property Impacts
 - Environmental Study Area Figure
- Resource Clearances
 - Cultural Resources Clearance Memo
 - Water Resources Clearance Memo
 - Wildlife Resources Clearance Memo
 - UGS Clearance Memo
 - Hazardous Materials Information
- Noise Technical Report
- Public Involvement Summary and Comment Response Matrix



1 in = 447 ft

0 200 400 Feet

Barriers

Sidewalks

Existing Detention Basin

New Detention Basin

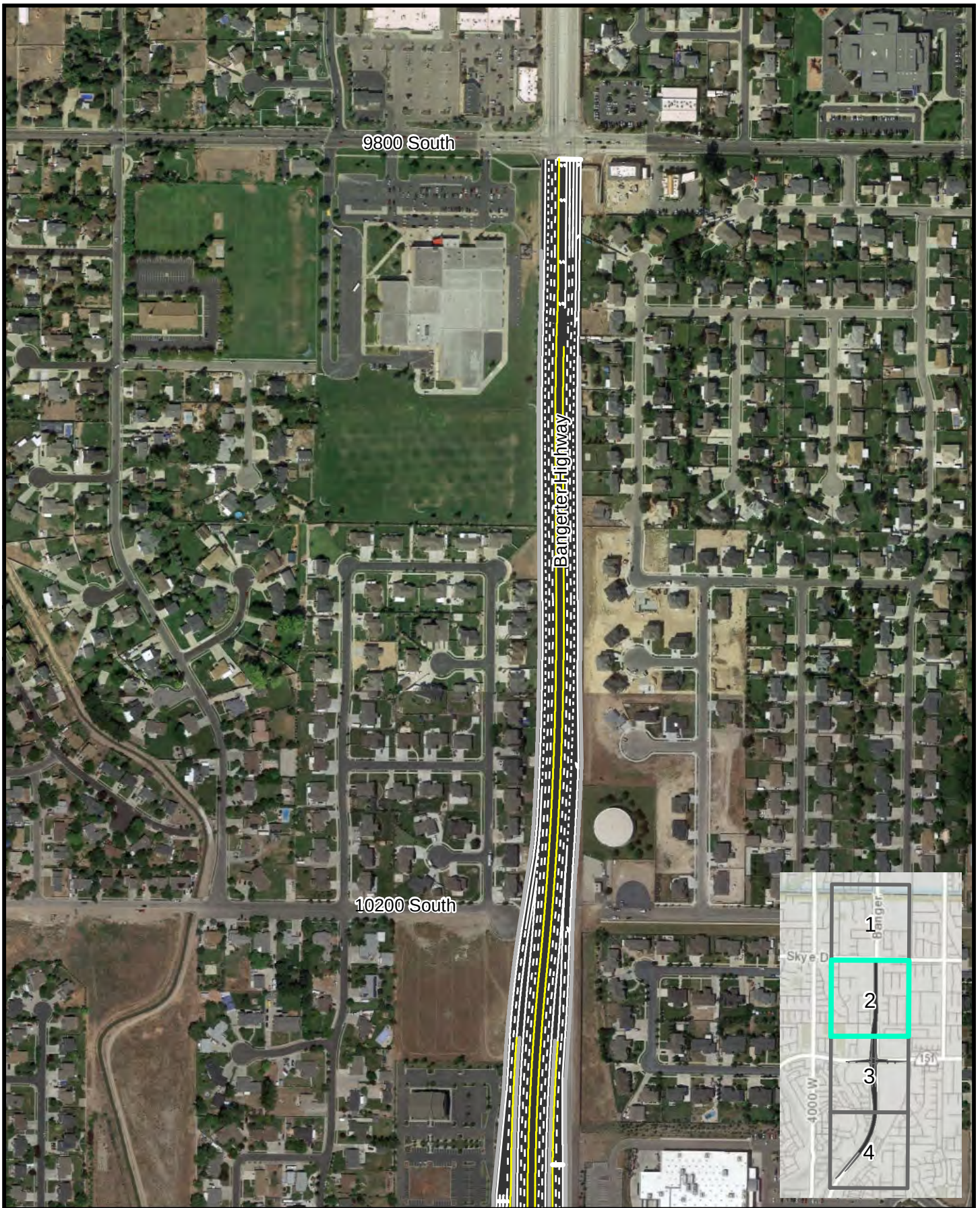
Bridges

Pavement

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Project Figures Figure 1 of 4



1 in = 447 ft

0 200 400
Feet

— Barriers

— Sidewalks

Existing Detention Basin

New Detention Basin

Bridges

Pavement

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Project Figures Figure 2 of 4



1 in = 447 ft

0 200 400 Feet

Barriers

Sidewalks

Existing Detention Basin

New Detention Basin

Bridges

Pavement

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Project Figures Figure 3 of 4



1 in = 447 ft

0 200 400 Feet

Barriers

Sidewalks

Existing Detention Basin

New Detention Basin

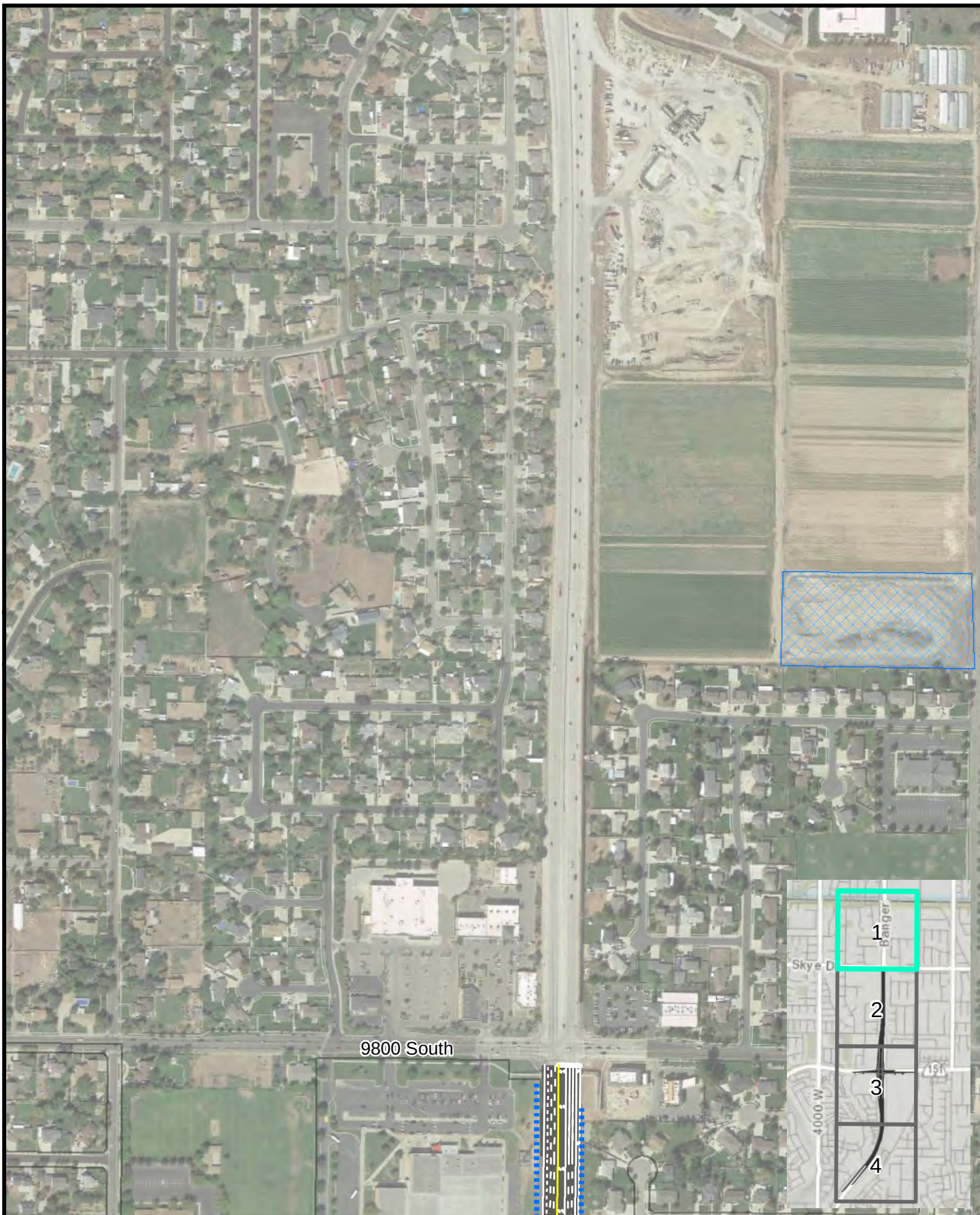
Bridges

Pavement

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Project Figures Figure 4 of 4



1 in = 447 ft

0 200 400 Feet



Existing Noise Wall

Proposed Noise Wall

Relocation

Potential Relocation

Partial Acquisition

Impacted Parcel



Potential Relocation

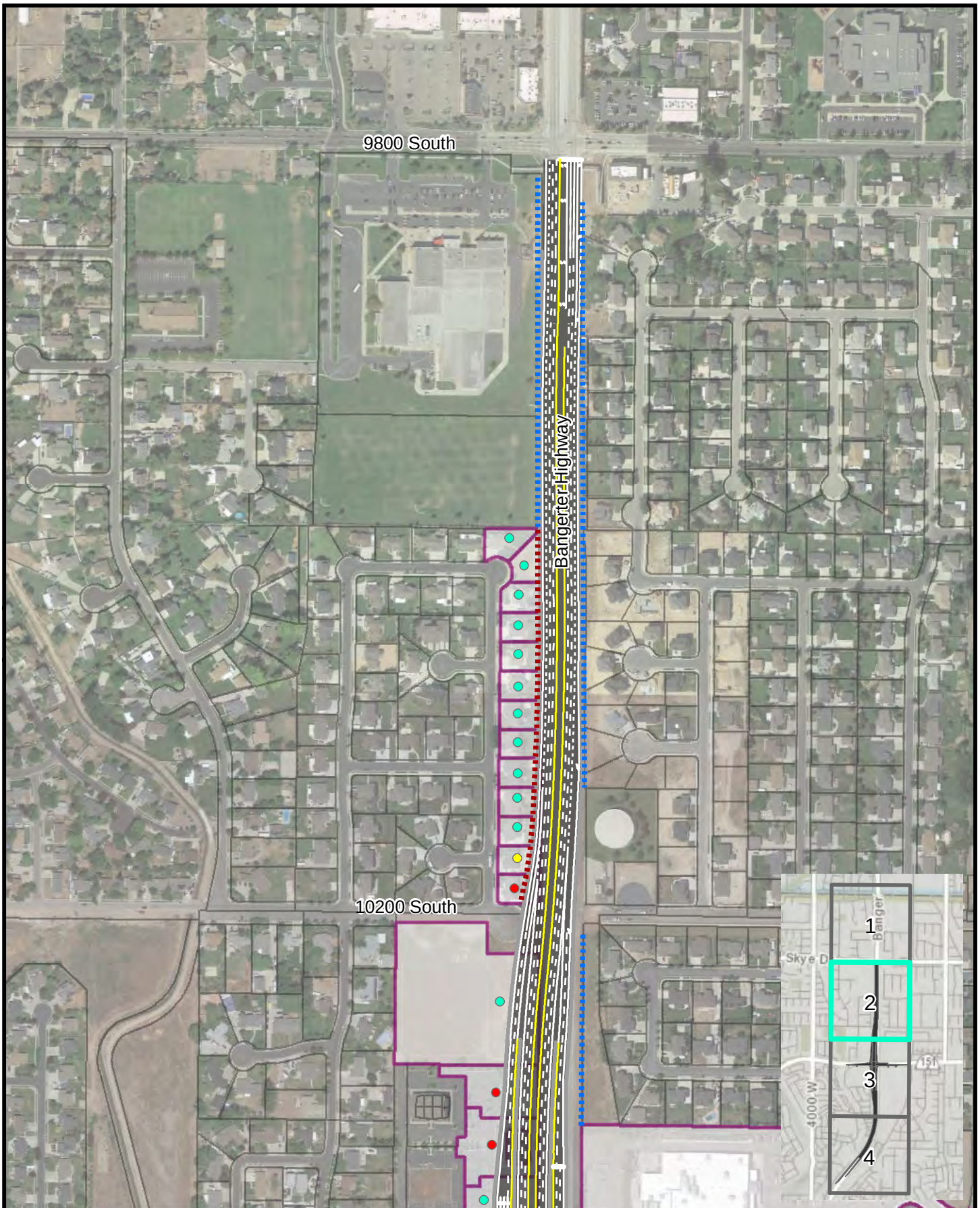
Partial Acquisition

Impacted Parcel

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Figure 1 of 4



1 in = 447 ft

0 200 400 Feet

Existing Noise Wall

Proposed Noise Wall

Relocation

Potential Relocation

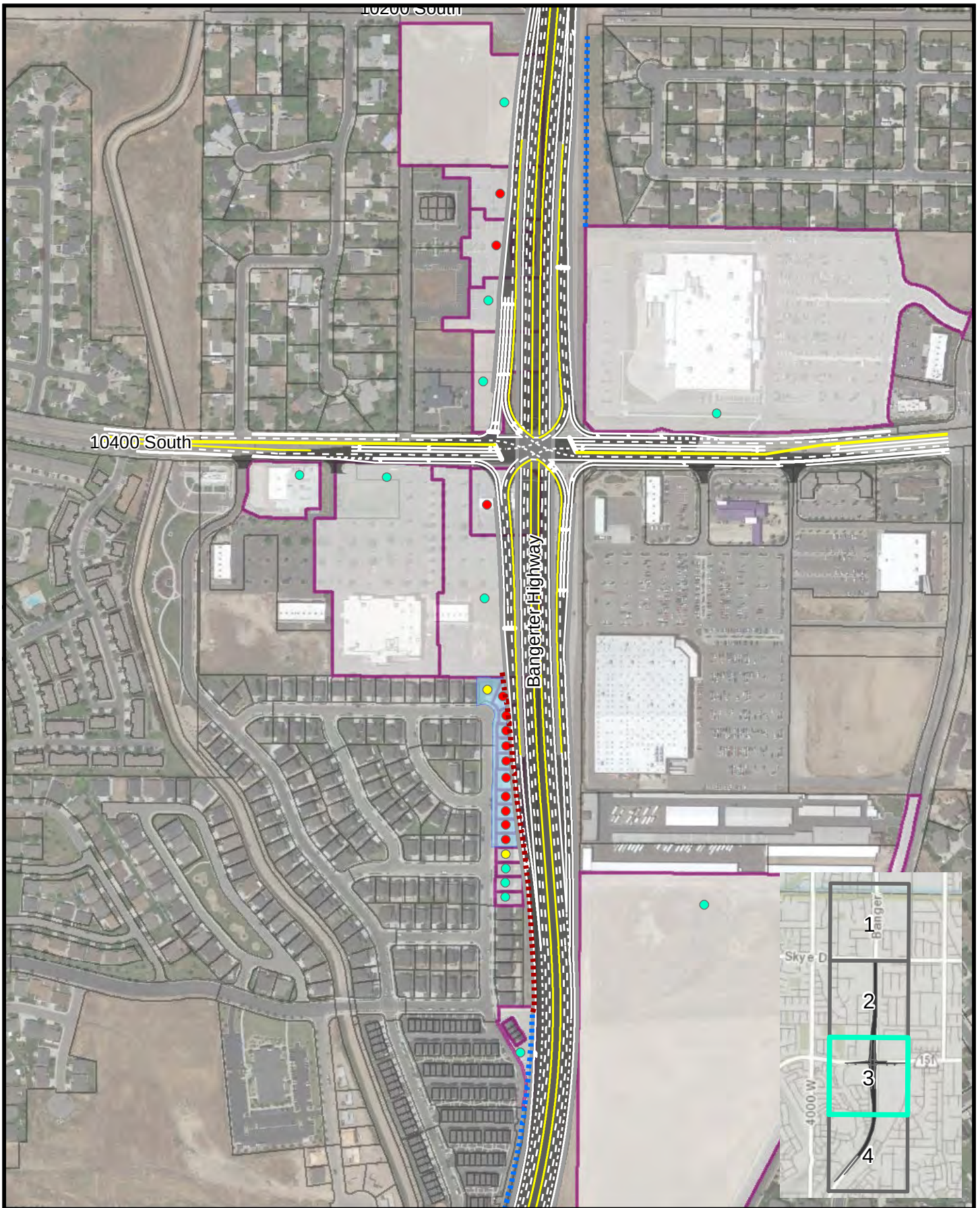
Partial Acquisition

Impacted Parcel

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Figure 2 of 4



1 in = 447 ft

0 200 400 Feet

Existing Noise Wall

Proposed Noise Wall

Relocation

Potential Relocation

Partial Acquisition

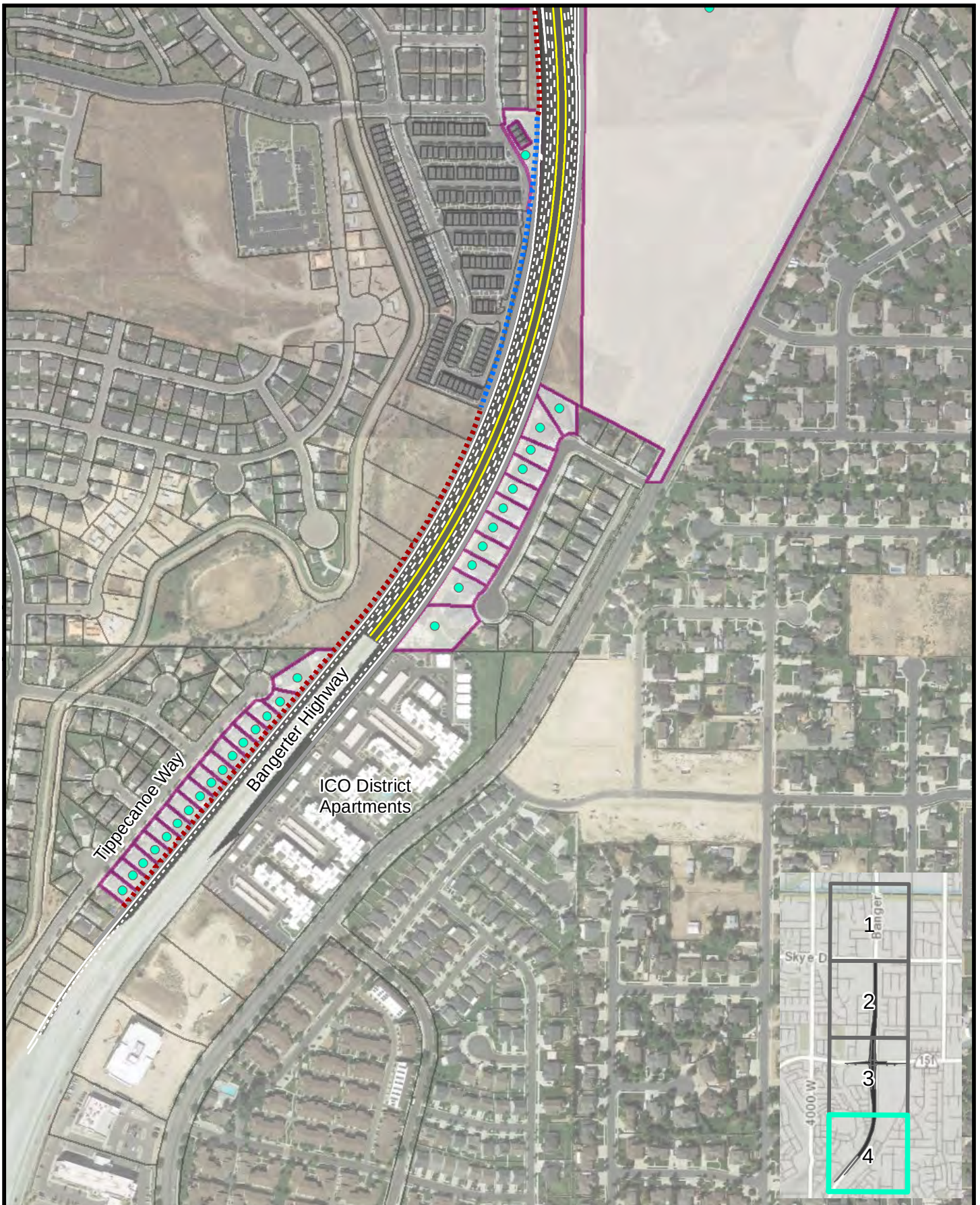
Impacted Parcel

Project Figures with Property Impacts

Bangerter Hwy at 10400 South

PIN 14416 Project No. S-0154(85)9

Figure 3 of 4



1 in = 447 ft

0 200 400 Feet

- Existing Noise Wall
- Proposed Noise Wall
- Relocation
- Potential Relocation
- Partial Acquisition
- Impacted Parcel

Project Figures with Property Impacts

Bangerter Hwy at 10400 South
 PIN 14416 Project No. S-0154(85)9
Figure 4 of 4



Kilpatrick, Kevin

To: Kilpatrick, Kevin
Subject: FW: Bangerter 10400 South Reevaluation - Cultural Clearance

From: Jon Dugmore [mailto:jdugmore@utah.gov]
Sent: Thursday, April 11, 2019 10:44 AM
To: Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com>
Cc: Tyler Allen (tylerallen@utah.gov) <tylerallen@utah.gov>
Subject: Re: Bangerter 10400 South Reevaluation - Cultural Clearance

Kevin,

If the detention basin already exists and we are not expanding it in any way, just working in the current footprint, we are fine with my original clearance. After this though, if we have additional changes in scope, I'll do a new memo with everything we've talked about previously just to have it in one place.

Thanks!

On Wed, Apr 10, 2019 at 4:18 PM Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com> wrote:

Jon,

We had one minor addition to the scope on the subject project that Tyler has asked me to send to you to confirm that there are not any cultural issues.

We are now proposing that the Bangerter 10400 South interchange project will also use and potentially modify an existing UDOT owned detention basin at 9600 South.

A copy of the revised figures are attached.

Below is the updated scope text for the SES.

Updated Scope: UDOT approved a State Environmental Study (SES) for improvements at the intersection of SR-154 (Bangerter Highway) and 10400 South on September 12, 2018. The original scope approved with the SES included a grade-separated interchange with Bangerter Highway going over 10400 South. Based on additional discussions and per South Jordan City officials' request, UDOT is now implementing a grade-separated interchange with Bangerter Highway going under 10400 South. Additionally, drainage and utility design features have also changed to accommodate Bangerter Highway going under 10400 South. Drainage from the project will utilize a new detention basin on the southwest side of the interchange and an existing UDOT owned detention basin located at 9600 South on the east side of Bangerter Highway. The existing

detention basin at 9600 South may need to be modified to accommodate the additional stormwater but impacts would be limited to the footprint of the existing basin. All other elements previously evaluated from the original scope would remain the same.

Please review the attached figures and text and let me know if this needs a new cultural clearance memo or if the previous clearance is still valid.

Thanks for your help,

Kevin Kilpatrick

D 801.743.7891 **M** 801.946.4010

hdrinc.com/follow-us

From: Jon Dugmore [mailto:jdugmore@utah.gov]
Sent: Monday, March 25, 2019 7:04 AM
To: Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com>
Cc: Tyler Allen (tylerallen@utah.gov) <tylerallen@utah.gov>
Subject: Re: Bangerter 10400 South Reevaluation - Cultural Clearance

Kevin,

As the area was previously cleared culturally, and this new change will not impact any of the previously identified cultural resources, my previous memo still applies.

Thanks!

On Fri, Mar 22, 2019 at 4:04 PM Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com> wrote:

Jon,

UDOT is doing a reevaluation for the Bangerter 10400 South interchange project (PIN 14416). The only change with the project is that Bangerter will now be going under 10400 South. The SES had assumed Bangerter would go over 10400 South.

There are no additions to the footprint cleared in the SES.

I've attached updated project figures and a copy of your clearance memo from last year.

If you think the previous clearance memo is still valid, please send me an email that I can put in the file. If not, please send an updated clearance memo.

Thanks for your help with this request,

Kevin Kilpatrick

Transportation NEPA Project Manager

HDR

2825 East Cottonwood Parkway, Suite 200
Salt Lake City, UT 84121-7077
D 801.743.7891 M 801.946.4010
kevin.kilpatrick@hdrinc.com

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--

Jonathan Dugmore, M.A.A., Archaeologist for Region 1 & 2

UDOT Environmental Services

2010 South 2760 West

Salt Lake City, UT 84104

385-414-2066

--

Jonathan Dugmore, M.A.A., Archaeologist for Region 1 & 2
UDOT Environmental Services
2010 South 2760 West
Salt Lake City, UT 84104
385-414-2066



Cultural and Paleo Clearance with Tier 1 Screening Form

Pursuant to the Programmatic Agreement between the UDOT and the Utah SHPO Regarding Implementation of U.C.A. 9-8-404 for State Funded Transportation Projects in Utah, UDOT has taken into account the effects of this undertaking on historic properties and has determined that the finding of effect is No Historic Properties Affected.

Pursuant to the Memorandum of Understanding between the UDOT and the Utah Geological Survey Concerning Agency Responsibilities Pursuant to U.C.A. 79-3-508, the UDOT has taken into account the effects of this undertaking on paleontological resources. If applicable, consultation letter from UGS is included in the environmental document.

PROJECT: PIN 14416—S-0154(85)9; Bangerter Highway @ 10400 South, Salt Lake County

DATE: July 9, 2018

PREPARER: Jonathan Dugmore, M.A.A.; Region 2 Archaeologist

CONTACT: 385-414-2066, jdugmore@utah.gov

PROJECT STIPULATIONS

- 1) Clearance is contingent upon the contractor adhering to the proposed scope of work and remaining within cleared areas. **Notify Region Environmental of any scope changes.**
- 2) *UDOT Standard Specification 01355 Part 3.7, Environmental Clearances by Contractor*
- 3) *UDOT Standard Specification 01355 Part 3.8, Discovery of Historical Archaeological, or Paleontological Objects, Features, Sites or Human Remains. Notify Region Environmental immediately of any discoveries during construction.*

PROJECT DESCRIPTION

UDOT proposes to construct a grade separated Single Point Urban Interchange (SPUI) at Bangerter Highway and 10400 South in Salt Lake County. The project area is along Bangerter Highway from approximately milepost 8.6 to 10.4, and on 10400 South between 3880 West and River Heights Drive (about 3400 West). The project would include construction of a grade-separated interchange (Bangerter Highway over 10400 South), associated exit/entrance ramps, and if funding is available, construction of auxiliary lanes on Bangerter Highway from 9800 South to 10400 South and/or from 10400 South to 11400 South. Work would also include utility and storm drain modifications; and installation of new pavement, traffic signals, ATMS equipment, lighting, striping, and signage.

SCREENING PROCESS

Screened undertakings have the potential to affect historic properties, but have been determined by UDOT to require no further review or consultation under the Agreements. Screening may include any the following tasks and should be appropriate to the complexity, scale, and location of the undertaking. Documentation of the screening will be included in the project files, quarterly report submitted to SHPO, and environmental document.

Antiquities Project Number: U18HX0253

Literature Review

- ☐ Class I literature search (date completed and by whom):
- ☒ Records review (i.e. UDSH, UDOT, BLM, etc.): Preservation Pro
- ☐ Project plans
- ☐ As-built project plans
- ☐ Aerial photographs: historic aerial photographs
- ☐ Historic Maps:
- ☒ Topographic Maps: GLO maps from BLM
- ☐ ROW/Ownership/Parcel Data:
- ☐ Other:

Description of search results: The search was confined to the project APE which consists of Bangerter Highway from approximately 11275 South to 9800 South in addition to 10400 South from approximately Harvest Pointe Drive to River Heights Drive. One historic NRHP-eligible site was identified within the APE – 42SL287, the Provo Reservoir Canal.

Field Review

- ☒ Pedestrian survey (Class III) (survey interval): 15 meter
- ☐ Field review other than Class III (reconnaissance, windshield, etc.):
- ☐ Other:
- ☐ None

Description of survey results (If no field survey was conducted, explain why not):

Survey for this project was conducted by Horrocks Engineering. Site 42SL287, the Provo Reservoir Canal, was updated during the survey. The potential for additional cultural resources in these areas is very low.

Supporting Documentation

Reports and/or forms generated from any cultural resource inventories shall be submitted quarterly to the Utah Division of State History (UDSH) for filing.

Title of report: *An Archaeological Inventory for the Bangerter Highway at 10400 South Project*

Consultation

- ☐ Utah SHPO (including APE consultation):
- ☐ Certified Local Government (CLG):
- ☒ Tribes: see below
- ☐ State/Federal Agencies:
- ☐ Knowledgeable Informants:
- ☐ Other:
- ☐ None:

Description of consultation efforts (If no consultation was done, explain why not):

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 June 7, 2018). 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 June 7, 2018). To date, only the Shivwits Band of Paiute Indians has responded to these notifications.

- ☐ Controversy based on historic preservation issues? If yes, consultation with SHPO and UDOT Central Environmental is required. Additional consultation with FHWA may be required.

Finding of Effect

The undertaking will result in the following finding of effect:

- ☐ No Historic Properties Affected: no cultural resources present
- ☐ No Historic Properties Affected: cultural resources present but none eligible
- ☒ No Historic Properties Affected: historic properties present, but are completely avoided by the undertaking and the potential for substantial indirect effects is very low

Description of impacts:

Site 42SL287, the Provo Reservoir Canal, was updated as a result of the survey. Construction will avoid the canal and will not impact the site in any way. Therefore, the UDOT has determined that this project will result in No Historic Properties Affected



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

SHANE M. MARSHALL, P.E.
Deputy Director of Engineering and Operations

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

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: PIN 14416; S-0154(85)9; Bangerter Highway @ 10400 South, Salt Lake County
Contact Name: Jonathan Dugmore Date: June 7, 2018
Address: 2010 South 2760 West, Salt Lake City, Utah 84104
Telephone: 385-414-2066 Email: jdugmore@utah.gov

Project Description:

UDOT proposes to construct a grade separated Single Point Urban Interchange (SPUI) at Bangerter Highway and 10400 South in Salt Lake County. The project area is along Bangerter Highway from approximately milepost 8.6 to 10.4, and on 10400 South between 3880 West and River Heights Drive (about 3400 West). The project would include construction of a grade-separated interchange (Bangerter Highway over 10400 South), associated exit/entrance ramps, and if funding is available, construction of auxiliary lanes on Bangerter Highway from 9800 South to 10400 South and/or from 10400 South to 11400 South. Work would also include utility and storm drain modifications; and installation of new pavement, traffic signals, ATMS equipment, lighting, striping, and signage.

Archaeological Potential (Prehistoric or Historic Sites):

- | | |
|---|--|
| ☐ Known prehistoric sites in the project area | ☒ Unlikely to find prehistoric sites in the project area |
| ☒ Known historic sites in the project area | ☐ Unlikely to find historic sites in the project area |
| ☐ Likely to find prehistoric sites in the project area | ☐ No expected ground disturbance |
| ☐ Likely to find historic sites in the project area | ☐ Other: |

Additional Information/Comments: A pedestrian survey was performed within the project area. One NRHP-eligible historic site, 42SL287 - the Provo Reservoir Canal, was identified within the area of potential effects (APE). Construction will avoid and will not impact the site.

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:



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

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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: PIN 14416; S-0154(85)9; Bangerter Highway @ 10400 South, Salt Lake County

Contact Name: Jonathan Dugmore

Date: June 7, 2018

Address: 2010 South 2760 West, Salt Lake City, Utah 84104

Telephone: 385-414-2066

Email: jdugmore@utah.gov

Project Description:

UDOT proposes to construct a grade separated Single Point Urban Interchange (SPUI) at Bangerter Highway and 10400 South in Salt Lake County. The project area is along Bangerter Highway from approximately milepost 8.6 to 10.4, and on 10400 South between 3880 West and River Heights Drive (about 3400 West). The project would include construction of a grade-separated interchange (Bangerter Highway over 10400 South), associated exit/entrance ramps, and if funding is available, construction of auxiliary lanes on Bangerter Highway from 9800 South to 10400 South and/or from 10400 South to 11400 South. Work would also include utility and storm drain modifications; and installation of new pavement, traffic signals, ATMS equipment, lighting, striping, and signage.

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: A pedestrian survey was performed within the project area. One NRHP-eligible historic site, 42SL287 - the Provo Reservoir Canal, was identified within the area of potential effects (APE). Construction will avoid and will not impact the site.

Tribal Information

Ms. Sabrina Redfoot
Shivwits Band of Paiute Indians
6060 West 3650 North
Ivins, UT 84738

Copies to: Mr. Patrick Charles, Chairman

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:

Sabrina Redfoot
Cultural Resources Director
Shovits Band of Paiutes

June 14, 2018

Identical copies of the Project Notification Form sent to the following recipients:

Original to:	CC to:
Mr. Darwin St. Clair Jr., 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
Mr. Blaine Edmo, Chair 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
Mr. Darren Parry, Chairman Northwestern Band of Shoshone Nation 707 North Main Street Brigham City, UT 84302	Ms. Patty Timbimboo-Madsen, Cultural Specialist Northwestern Band of Shoshone Nation 707 North Main Street Brigham City, UT 84302
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
Ms. Candace Bear, Chairwoman Skull Valley Band of Goshute Indians P.O. Box 448 Grantsville, UT 84029	None

Original to:	CC to:	Email to:
Mr. Mertin Bow, Band Chairman Cedar Band of Paiutes 4655 North Utah Trail Enoch, UT 84720	Ms. Vala Parashonts, Cultural Resources Representative Cedar Band of Paiutes 533 South 640 West Cedar City, UT 84721	lora.tom@ihs.gov (Lora Tom)
Mr. Patrick Charles, Band Chairman Shivwits Band of Paiute Indian Tribe of Utah 6060 West 3650 North Ivins, UT 84738	Ms. Sabrina Redfoot, Cultural Resources Director Shivwits Band of Paiute Indian Tribe of Utah 6060 West 3650 North Ivins, UT 84738	mohave_paiute@yahoo.com
Mr. Virgil Johnson, 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	virgilwjohanson@yahoo.com marypete@goshutetribe.com

MEMORANDUM

Date: Thursday, April 11, 2019

To: Tyler Allen
UDOT Region 2 Environmental Manager

From: Dan Bolin
UDOT Landscape Architect

RE: ENVIRONMENTAL REVIEW FOR WATER RESOURCES AND WETLANDS, NOXIOUS WEED, AND VISUAL AESTHETICS

PROJECT PURPOSE, DESCRIPTION AND SCOPE OF WORK

The Utah Department of Transportation (UDOT) proposes the above reference state-funded project to improve traffic volume and safety at the intersection of Bangerter Highway (SR-154) and 10400 South (SR-151). To accomplish the project purpose, UDOT will construct a grade separate, highway to highway interchange at the intersection. Work will include construction of highway structure, roadway widening on both Bangerter Highway and 10400 South, utility relocation, noise wall installation, traffic signal and lighting installation, improvements to signing and striping.

Recent design changes along the project have identified that SR-154 highway will pass underneath the 10400 South (SR-151) roadway. This modification to the interchange structure itself has no additional environmental resource area that will require analysis or will change the impacts to water resources. However, drainage and utility design features have also changed to accommodate Bangerter Highway going under 10400 South. Drainage from the project will utilize a new detention basin on the southwest side of the interchange and an existing UDOT owned detention basin located at 9600 South on the east side of Bangerter Highway. The existing detention basin at 9600 South may need to be modified to accommodate the additional stormwater but impacts would be limited to the footprint of the existing basin. All other elements previously evaluated from the original scope would remain the same.

The above referenced state-funded project has been reviewed, within the proposed project limits for the following categories of resources identified in the UDOT State Environmental Study. Environmental analysis and mapping has been completed by a consultant hired by UDOT, HDR (see attached). Based on a review of their resources analysis and findings, UDOT provides the following recommendations for the proposed project:

Water Resources and Wetlands:

Based on initial analysis of project activities and site visit completed by HDR, this proposed UDOT project will not impact Waters of the United States (WOTUS), including wetlands. The Welby-Jacobs canal is conveyed under 10400 South via a box culvert west of the Bangerter Highway intersection. This irrigation canal would be the only feature that could be a possible to a Water of the United States. The proposed project will not impact the canal or culvert. Work related to the design change at 10400 South and the related detention basin at 9600 South will not impact any water resources. No aquatic resource permitting is required.

Mitigation Commitments:

1. None

Utah Pollutant Discharge Elimination System (UPDES):

This project will disturb more than one (1) acre of earth and therefore is required to comply with the Utah Pollutant Discharge Elimination System (UPDES) Utah Construction General Permit (UCGP), by completing a Stormwater

Pollution Prevention Plan (SWPPP) and submitting a Notice of Intent (NOI) prior to beginning earth-disturbing activities.

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:

No FEMA Special Flood Hazard Areas are currently mapped within the project scope of work.

Mitigation Commitments:

None

Noxious Weeds:

Noxious weed species, as defined by the Utah Noxious Weed Act (Utah Administrative Code, Rule R68-9), have been identified growing within the project limits. 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 and to treat any noxious weeds within the project limits and schedule. (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, treating any existing noxious weeds before earth disturbing activities 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)**

Kilpatrick, Kevin

To: Kilpatrick, Kevin
Subject: FW: PIN 14416: Bangerter 10400 South Reevaluation - Wildlife Clearance

From: Matt Howard [mailto:matthoward@utah.gov]
Sent: Monday, June 17, 2019 11:29 AM
To: Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com>
Subject: Re: PIN 14416: Bangerter 10400 South Reevaluation - Wildlife Clearance

I've evaluated the changes to the project and have determined that since the footprint is the same as what was originally considered, the previous memo's conclusions still stand.

On Mon, Jun 10, 2019 at 9:13 AM Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com> wrote:

Matt,

I am following up on a previous request in the email chain below.

Can you please confirm that your previous clearance on the Bangerter 10400 South project (UDOT PIN 14416) is valid, or, if not, please provide an updated one?

Thanks for your help,

Kevin Kilpatrick

D 801.743.7891 **M** 801.946.4010

hdrinc.com/follow-us

From: Kilpatrick, Kevin
Sent: Wednesday, April 10, 2019 4:16 PM
To: 'Matt Howard' <matthoward@utah.gov>
Cc: Tyler Allen (tylerallen@utah.gov) <tylerallen@utah.gov>
Subject: RE: PIN 14416: Bangerter 10400 South Reevaluation - Wildlife Clearance

Matt,

We had one minor addition to the scope on the subject project that Tyler has asked me to send to you to confirm that there are not any wildlife or T&E issues.

We are now proposing that the Bangerter 10400 South interchange project will also use and potentially modify an existing UDOT owned detention basin at 9600 South.

A copy of the revised figures are attached.

Below is the updated scope text for the SES.

Updated Scope: UDOT approved a State Environmental Study (SES) for improvements at the intersection of SR-154 (Bangerter Highway) and 10400 South on September 12, 2018. The original scope approved with the SES included a grade-separated interchange with Bangerter Highway going over 10400 South. Based on additional discussions and per South Jordan City officials' request, UDOT is now implementing a grade-separated interchange with Bangerter Highway going under 10400 South. Additionally, drainage and utility design features have also changed to accommodate Bangerter Highway going under 10400 South. Drainage from the project will utilize a new detention basin on the southwest side of the interchange and an existing UDOT owned detention basin located at 9600 South on the east side of Bangerter Highway. The existing detention basin at 9600 South may need to be modified to accommodate the additional stormwater but impacts would be limited to the footprint of the existing basin. All other elements previously evaluated from the original scope would remain the same.

Please review the attached figures and text and let me know if this needs a new wildlife clearance memo or if the previous clearance is still valid.

Thanks for your help,

Kevin Kilpatrick

D 801.743.7891 **M** 801.946.4010

hdrinc.com/follow-us

From: Matt Howard [<mailto:matthoward@utah.gov>]
Sent: Monday, April 1, 2019 11:35 AM

To: Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com>

Subject: Re: PIN 14416: Bangerter 10400 South Reevaluation - Wildlife Clearance

I've reviewed the reevaluation for the Bangerter South 10400 South interchange project and find that the conclusions reached in my original memo still apply.

On Fri, Mar 22, 2019 at 4:03 PM Kilpatrick, Kevin <Kevin.Kilpatrick@hdrinc.com> wrote:

Matt,

UDOT is doing a reevaluation for the Bangerter 10400 South interchange project (PIN 14416). The only change with the project is that Bangerter will now be going under 10400 South. The SES had assumed Bangerter would go over 10400 South.

There are no additions to the footprint cleared in the SES.

I've attached updated project figures and a copy of your clearance memo from last year.

If you think the previous clearance memo is still valid, please send me an email that I can put in the file. If not, please send an updated clearance memo.

Thanks for your help with this request,

Kevin Kilpatrick

Transportation NEPA Project Manager

HDR

2825 East Cottonwood Parkway, Suite 200
Salt Lake City, UT 84121-7077
D 801.743.7891 M 801.946.4010
kevin.kilpatrick@hdrinc.com

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--

-Matt Howard

Natural Resource Manager

Utah Department of Transportation

Office: 801-965-4038

Cell: 435-255-1956

matthoward@utah.gov

--

-Matt Howard

Natural Resource Manager

Utah Department of Transportation

Office: 801-965-4038

Cell: 435-255-1956

matthoward@utah.gov



Memorandum

Environmental Services

DATE: June 21, 2018
TO: Kevin Kilpatrick, HDR
FROM: Matt Howard, Natural Resources Manager
SUBJECT: Bangerter Highway at 10400 South PIN 14416

Project Description

The Utah Department of Transportation (UDOT) proposes to use state funds to improve traffic volume and safety at the intersection of Bangerter Highway (SR-154) and 10400 South (SR-151). To accomplish the project propose, UDOT will construct a grade separate, highway to highway interchange at the intersection. Work will include construction of highway structure, roadway widening on both Bangerter Highway and 10400 South, utility relocation, noise wall installation, traffic signal and lighting installation, and improvements to signing and striping.

This assessment has been prepared to address potential for occurrence of and impacts to species or habitat listed under the Endangered Species Act (ESA), as well as birds protected by the Migratory Bird Treaty Act (MBTA), and the Bald and Golden Eagle Protection Act (BGEPA). Greater sage-grouse (*Centrocercus urophasianus*), which are protected by Governor's Executive Order EO/2015/002, are also addressed in this memo.

Project Setting

The project is located in Salt Lake County, in South Jordan, Utah. Recent (2016-2018) aerial images show land use in the vicinity of the project area consists mainly of residential and commercial development with some agriculture. Elevation in the vicinity of the project area is +/- 4,600 ft. amsl. Vegetation in the area includes developed landscaping and some open cropland. The project would extend beyond the existing roadway prism. The impacted areas are limited to residential neighborhoods, commercial developments, and undeveloped vacant parcels that are planned for commercial development.

Determinations

Threatened and Endangered Species

The U.S. Fish and Wildlife Service's Information, Planning and Consultation database was consulted for species considered to have potential to occur in the vicinity of the project area. In addition, Utah Natural Heritage Program records of occurrence were reviewed for documentation of species occurrences within the vicinity of the project. Other sources, including recent aerial imagery, USFWS Critical Habitat shapefiles, USGS, topographic data and surficial geology shapefiles from the State of Utah were used in the supporting analysis. Based on field results, it is UDOT's opinion that the project would have no negative impacts in regards to threatened and endangered species. Table 1 summarizes the findings.

Table 1.

Species	Designated Critical Habitat	Suitable Habitat	Previous Occurrences	Potential for Occurrence	Rationale
Canada lynx (<i>Lynx canadensis</i>)	None Present	None Present- No forested areas	No	None	No identified critical habitat in the state. Canada lynx is found in boreal forest habitat, which is not found within the project area.
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	None Present	None	No	None	Project will not affect riparian habitat
June Sucker	None Present	None	No; June sucker only occur in Utah Lake and Provo River	None	The project will not affect any aquatic habitat
Ute Ladies'-tresses	None Present	None	No	None ¹	Project will not affect riparian habitat

¹This project does not have a federal nexus; protections for plant species listed under the ESA would not apply

Migratory Birds, Bald and Golden Eagles

There are no known existing nests within one mile of the project area. The project does not propose to remove or alter potential nesting substrate or alter existing conditions for this area. Construction related impacts to the natural environment are anticipated to be temporary and nominal and the area is located where high noise has historically occurred throughout the nesting season. It is unlikely this project would result in direct or indirect take under the BGEPA. This project would not result in direct take under the MBTA and is unlikely to result in indirect take.

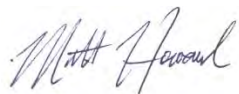
Greater Sage-grouse

A review of recent aerial imagery and Utah Sage-grouse Management Area boundaries shows that the project does not occur within a SGMA, nor does it include sage-grouse habitat. The project is not anticipated to negatively affect sage-grouse.

Summary

This assessment satisfies the UDOT's responsibilities under Section 9 of the ESA, the MBTA (50 CFR § 10.12), the BGEPA (16 USC § 668), and Governor's Executive Order EO/2015/002. If additional information or clarification is needed regarding this assessment, please contact me at mattrhoward@utah.gov.

Sincerely,



Matt Howard
Natural Resource Manager



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Utah Geological Survey

RICHARD G. ALLIS
State Geologist/Division Director

June 7, 2018

Kevin Kilpatrick
HDR Engineering, Inc.
2825 East Cottonwood Parkway, Suite 200
Salt Lake City UT 84121-7077

RE: Paleontological File Search and Recommendations for UDOT Project S-0154(85)9;
PIN 14416: Bangerter Highway at 10400 South, 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 Kevin:

I have conducted a paleontological file search for the Bangerter Highway at 10400 South Project in response to your request of June 7, 2016. This project qualifies for treatment under the UDOT/UGS executed Memorandum of Understanding.

There are no paleontological localities recorded in our files within or near 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.

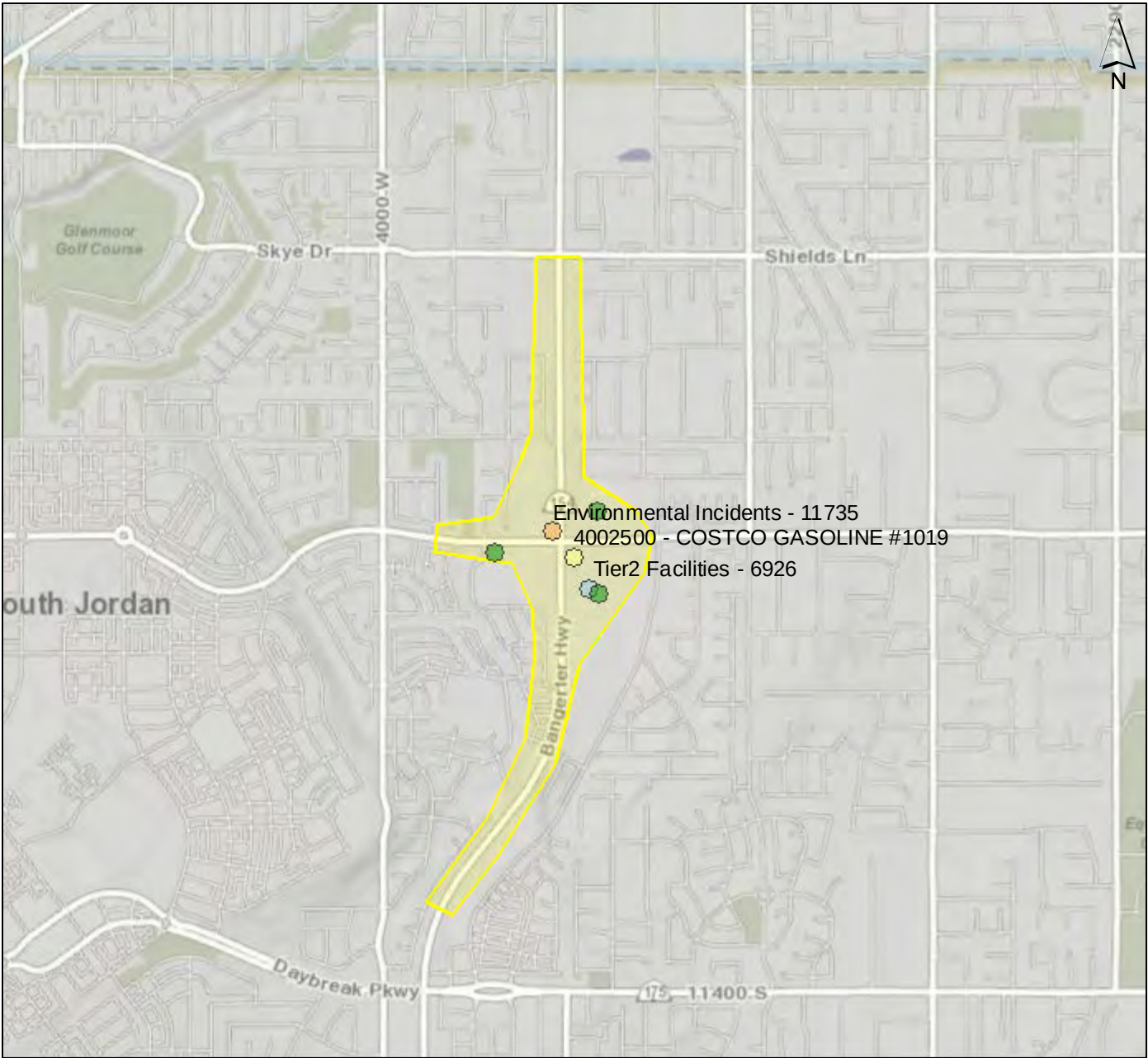
If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden
Paleontological Assistant



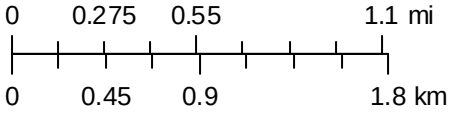
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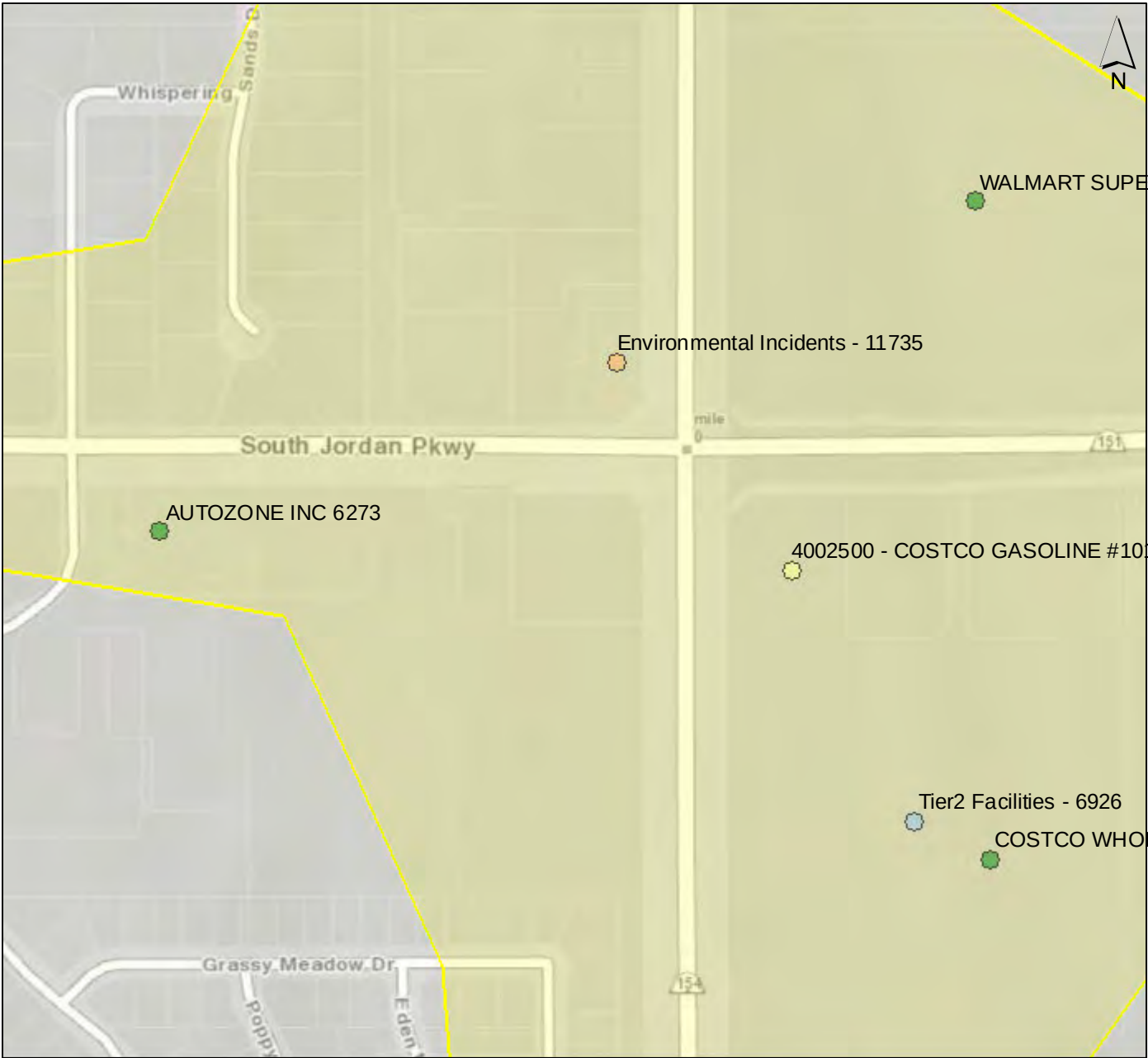
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- Underground Storage Tanks
- TIER2
- Environmental Incidents



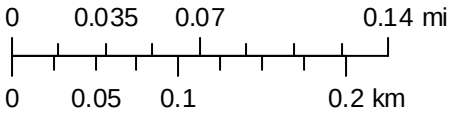
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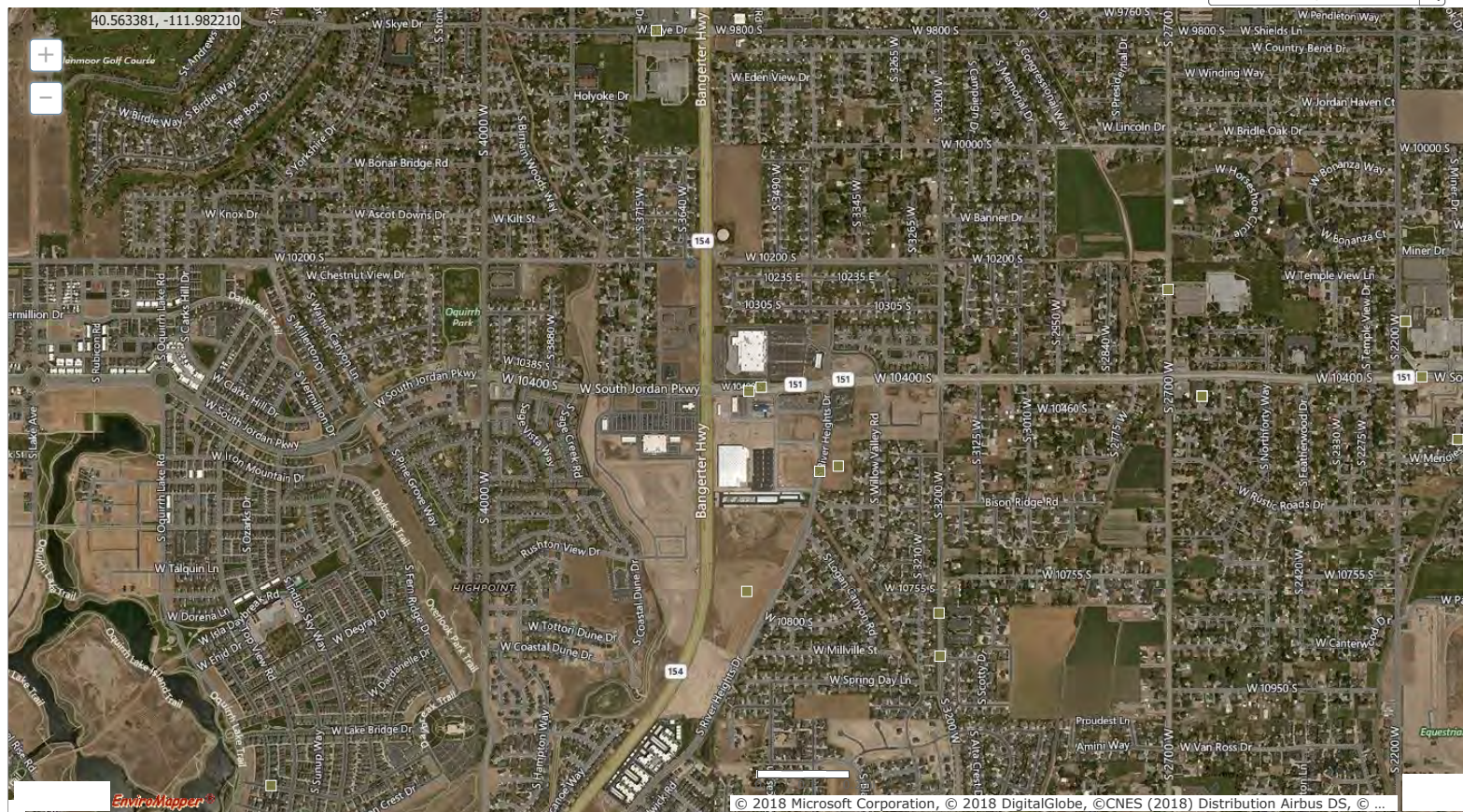
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Final Noise Technical Report

Bangerter Highway Under 10400 South

UDOT PIN 14416, UDOT Project Number
S-0154(85)9

South Jordan, Salt Lake County, Utah

June 10, 2019

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
dB	decibels
dBA	decibels on the A-weighted scale
FHWA	Federal Highway Administration
L _{eq}	equivalent sound level
LOS	level of service
ML	monitoring location
NA	not applicable
NAC	Noise Abatement Criteria
TNM	Traffic Noise Model
UDOT	Utah Department of Transportation

1 Introduction

The Utah Department of Transportation (UDOT) is preparing a State Environmental Study to evaluate improvements to Bangerter Highway at 10400 South in South Jordan, Utah. This report evaluates the traffic-generated noise impacts from the proposed improvements described in Section 2, Project Description, of this report. This noise analysis was prepared in accordance with UDOT's Noise Abatement Policy, last revised June 15, 2017, which is consistent with federal regulation 23 Code of Federal Regulations (CFR) 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, and Utah Administrative Code Rule R930-3, *Highway Noise Abatement*.

2 Project Description

Updated Scope: UDOT approved a State Environmental Study (SES) for improvements at the intersection of SR-154 (Bangerter Highway) and 10400 South on September 12, 2018. The original scope approved with the SES included a grade-separated interchange with Bangerter Highway going over 10400 South. Based on additional discussions and per South Jordan City officials' request, UDOT is now proposing a grade-separated interchange with Bangerter Highway going under 10400 South. Additionally, drainage and utility design features have also changed to accommodate Bangerter Highway going under 10400 South. The new drainage design features are all located within the previously cleared footprint. All other elements previously evaluated from the original scope would remain the same. As a result of this modification, a noise analysis was conducted to reanalyze traffic noise impacts and potential noise abatement with the modified interchange design.

Original Scope: UDOT is proposing to construct a grade-separated single-point urban interchange (SPUI) at the existing intersection of Bangerter Highway and 10400 South. The new interchange would allow unimpeded traffic flow on Bangerter Highway and is projected to operate at level of service (LOS) of LOS D in 2040. The project area is along Bangerter Highway from approximately milepost 8.6 to milepost 10.4 and on 10400 South between 3880 West and River Heights Drive (about 3400 West).

The Proposed Action includes constructing a grade-separated intersection (Bangerter Highway over 10400 South), associated entrance and exit ramps, and, if funding is available, either northbound and/or southbound auxiliary lanes from 9800 South to about 11200 South (where the auxiliary lanes would connect to the 11400 South interchange northbound on ramp and southbound off ramp).

The Proposed Action improvements on 10400 South include minor widening and restriping to accommodate the eastbound-to-southbound free-right on-ramp movement, the westbound-to-northbound free-right on-ramp movement, the northbound-to-eastbound extension of the right-turn-only lane, and the eastbound and westbound double left-turn lanes.

The Proposed Action would include modifying utilities and storm drains and installing new pavement, traffic signals, advanced traffic management system (ATMS) equipment, and roadway signs. The Proposed Action would also require acquiring right-of-way.

Applicability

The Proposed Action would alter the horizontal and vertical alignments of Bangerter Highway and would add on and off ramps at 10400 South. Therefore, this project is a Type 1 project that requires considering noise-abatement measures.

UDOT evaluated noise impacts using noise models and methodologies approved by the Federal Highway Administration (FHWA) and UDOT (*Noise Abatement*, UDOT 08A2-01, revised June 15, 2017). Noise impacts were identified and evaluated at residential and other locations (for example, schools and recreation sites) throughout the project study area using LOS C traffic volumes to represent the worst-case noise conditions while traffic is operating at uncongested, free-flow speeds of 65 miles per hour (mph) on Bangerter Highway, 45 mph on the on and off ramps, and 40 mph on 10400 South.

What is a Type 1 project?

According to UDOT's Noise Abatement Policy, a Type 1 project is a project that alters the horizontal or vertical alignment of a road or increases the number of through travel lanes.

3 Characteristics of Noise

Sound travels through the air as waves of minute air-pressure fluctuations caused by vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. As a result, the energy contained in a sound wave is spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.

Sound-level meters measure the actual pressure fluctuations caused by sound waves and record separate measurements for different sound frequency ranges. The decibel (dB) scale used to describe sound is a logarithmic scale that accounts for the large range of sound-pressure levels in the environment. Most sounds consist of a broad range of sound frequencies. Several frequency-weighting schemes have been used to develop composite decibel scales that approximate the way the human ear responds to sound levels. The A-weighted decibel (dBA) scale most closely approximates the way the human ear hears sounds and is the most widely used scale in assessing traffic-related noise impacts. Typical A-weighted noise levels for various types of sound sources are summarized in Table 1.

Varying noise levels are often described in terms of the equivalent noise level (L_{eq}). Equivalent noise levels are used to develop single-value descriptions of average noise exposure over stated periods of time (for example, 1 hour) and are generally based on A-weighted sound-level measurements.

The logarithmic nature of decibel scales is such that individual decibel ratings for different noise sources cannot be added directly to give the noise level for the combined noise source. For example, two noise sources that produce equal decibel ratings at a given location will produce a combined noise level that is 3 dBA greater than either

sound alone. When two noise sources differ by 10 dBA, the combined noise level will be 0.4 dBA greater than the louder source alone.

People generally perceive a 10-dBA increase in a noise source as a doubling of loudness. For example, a 70-dBA sound will be perceived by an average person as twice as loud as a 60-dBA sound. People generally cannot detect a 1-to-2-dBA increase in noise levels. Under ideal listening conditions, differences of 2 or 3 dBA can be detected by some people. A 5-dBA change would probably be perceived by most people under normal listening conditions.

When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line (for example, vehicle traffic on a highway), noise levels decrease by about 3 dBA for every doubling of distance away from the source.

Table 1. Weighted Noise Levels and Human Response

Sound Source	dBA ^a	Response Descriptor
Carrier deck jet operation	140	Limit of amplified speech
	130	Painfully loud
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	
Shout (0.5 foot) New York subway station	100	Very annoying
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in-flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	
Normal speech (15 feet)	50	Quiet
Living room, bedroom, library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Source: CEQ 1970

^a Typical A-weighted noise levels taken with a sound-level meter and expressed as decibels on the "A" scale. The "A" scale approximates the frequency response of the human ear.

Noise levels at different distances can also be affected by factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect,

or scatter sound waves can increase or decrease noise levels. Atmospheric conditions (wind speed and direction, humidity levels, and temperatures) can also affect the degree to which sound is attenuated over distance.

Reflections off topographical features or buildings can sometimes result in higher noise levels (lower sound-attenuation rates) than would normally be expected. Temperature inversions and wind conditions can also diffract and focus a sound wave to a location at considerable distance from the noise source. Focusing effects are usually noticeable only for very intense noise sources, such as blasting operations. As a result of these factors, the existing noise environment can be highly variable depending on the local conditions.

4 Regulatory Setting

The federal regulation that FHWA uses to assess noise impacts is 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. This regulation was most recently updated on July 13, 2010. Utah Administrative Code Rule R930-3, *Highway Noise Abatement*, and UDOT's Noise Abatement Policy 08A2-01, revised June 15, 2017, establish UDOT's noise impact and abatement policies and procedures, which are compliant with 23 CFR 772.

Noise-abatement criteria (NAC) are used to define the noise levels that are considered an impact (in hourly A-weighted sound-level decibels) for each land use activity category. 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 NAC for specified land use activity 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.

The UDOT NAC are summarized in Table 2. As defined by UDOT, a design-year noise level greater than or equal to the NAC is considered to exceed the NAC, and a 10-dBA increase over existing noise levels is considered to substantially exceed the NAC.

Table 2. UDOT's Noise-abatement Criteria

Activity Category	L _{eq} Noise Levels (dBA)	Description of Activity Category
A	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	66 (exterior)	Residential.
C	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	51 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting room, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	71 (exterior)	Hotels, motels, offices, restaurants/bars, and other undeveloped lands, properties, or activities not included in categories 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 2017

5 Affected Environment

The noise study area (see Figure 1) includes parts of South Jordan, Utah, within a 500-foot buffer on either side of the centerline of Bangerter Highway from approximately milepost 8.6 to milepost 10.4 and on 10400 South between 3880 West and River Heights Drive (about 3400 West).

The project corridor is a mix of undeveloped land, residential developments, and commercial properties. The predominant source of noise in the noise study area is automobile and truck traffic on the existing Bangerter Highway alignment.

5.1 Noise Monitoring

Existing noise levels in the noise study area were determined by taking short-term (15-minute) sound-level measurements at six locations throughout the noise study area with a Larson-Davis model 824 sound-level meter. Noise measurements were taken on May 23, 2018. Noise-measurement locations were selected to represent existing residential developments or other areas where people could be exposed to traffic noise for extended periods. Noise-monitoring locations (ML) are shown in Figure 1 below, and the associated measured noise levels are listed in Table 3.

Table 3. Measured Noise Levels in the Noise Study Area

Monitoring Location	Address	Activity Category and Noise Level (dBA L _{eq}) ^a	Measured Noise Level (dBA L _{eq} , rounded)
ML-1	West of Bangerter Highway near 10857 Big Meadow Drive	B (66)	69
ML-2	West of Bangerter Highway near 3658 Grassy Meadow Drive	B (66)	65
ML-3	West of Bangerter Highway near 10035 South 3640 West	B (66)	58
ML-4	East of Bangerter Highway near 10284 South 3570 West	B (66)	61
ML-5	North of 10400 South near 10397 Whispering Sands Drive	B (66)	66
ML-6	East of Bangerter Highway near ICO District Apartments	B (66)	56

^a For descriptions of the activity categories, see Table 2, UDOT's Noise-abatement Criteria, above.

Figure 1. Noise-monitoring Locations



Measured noise levels were used to characterize the existing noise environment and to validate FHWA's Traffic Noise Model (TNM). Validating the noise model ensures that the measured noise levels recorded in the field agree with the traffic volumes recorded during the measurement period. Measured noise levels that are within 3 dBA of the modeled noise are considered accurate for the purpose of validating the model (Table 4). As shown in the table, the measured noise levels were within 3 dBA of the modeled noise levels, so the TNM is considered valid.

Traffic volumes were counted at each of these monitoring locations and were used to determine vehicle mix (that is, the percentage of cars, medium trucks, and heavy trucks) during each measurement period as well as the directional flow of traffic on the roads.

Monitored noise levels in the noise study area ranged from 56 to 69 dBA depending on the proximity of the monitoring location to the roadway and other noise sources such as local traffic on the nearby arterial streets. As a comparison, typical noise levels range from 35 to 50 dBA in rural and agricultural areas, 50 to 65 dBA in suburban to urban areas, and 65 to 75 dBA in downtown urban areas.

Table 4. Model Validation

Monitoring Location	Address	Measured Noise Level (dBA)	Modeled Noise Level (dBA)	Difference (dBA)
ML-1	West of Bangerter Highway near 10857 Big Meadow Drive	68.5	68.4	-0.1
ML-2	West of Bangerter Highway near 3658 Grassy Meadow Drive	65.2	67.4	+2.2
ML-3	West of Bangerter Highway near 10035 South 3640 West	58.4	58.4	0.0
ML-4	East of Bangerter Highway near 10284 South 3570 West	61.1	61.2	+0.1
ML-5	North of 10400 South near 10397 Whispering Sands Drive	66.3	64.6	-1.7
ML-6	East of Bangerter Highway near ICO District Apartments	56.2	58.8	+2.6

5.2 Existing Noise Levels

The primary source of noise in the noise study area is automobile and truck traffic on Bangerter Highway and the nearby arterial streets. Existing traffic noise levels for each receptor in the noise study area were calculated with the TNM version 2.5 software using existing conditions (that is, the existing travel lane configurations and the posted speed limit of 60 mph). Existing noise levels were determined using the LOS C traffic volumes based on roadway capacity.

The noise model developed for the existing conditions scenario included 307 receptors (representing 527 individual dwelling units) throughout the noise study area.

Under existing conditions, 112 receptors exceeded the NAC (representing 112 individual dwelling units). The locations of those receptors exceeding the NAC are shown in Appendix A, Existing Noise Receptor Maps.

6 Expected Impacts with the Proposed Action

Revised Expected Impacts for the Reevaluation – Since the completion of the original document, UDOT has modified the design of the interchange to have Bangerter Highway go under 10400 South. The results presented in this section are the results for this modified design. Overall, the expected noise impacts of the modified design do not have substantial differences from the noise impacts of the original document that had assumed that Bangerter Highway would go over 10400 South.

Traffic-related noise impacts with the Proposed Action were estimated with TNM version 2.5 based on the proposed roadway design as shown in Appendix B, Build Scenario Noise Receptor Maps. The modeled roadway included the proposed improvements on Bangerter Highway and 10400 South (including ramps, auxiliary lanes, and restriping). Roadway links were modeled in 200-foot increments to provide a high degree of accuracy in the model output. Traffic volumes used in the model were based on LOS C volumes for Bangerter Highway and 10400 South as provided by the traffic consultant, with traffic on Bangerter Highway operating at 65 mph and traffic on 10400 South operating at 40 mph.

Overall, noise levels with the Proposed Action would range from 46 to 82 dBA compared to the existing conditions of 44 to 78 dBA.

With the Proposed Action, 174 of the 307 receptors would have traffic noise impacts (representing 174 dwelling units); that is, they would approach, exceed, or substantially exceed (≥ 10 -dBA increase over existing noise levels) the NAC as defined in Section 4, Regulatory Setting. The locations of those receptors exceeding the NAC are shown in Appendix B. Additionally, 15 receptors would be acquired as part of the Proposed Action's right-of-way requirements.

7 Summary

Table 5 summarizes the modeled existing and Proposed Action noise levels at the 307 receptors throughout the noise study area. For receptor locations, refer to the maps in Appendix A, Existing Noise Receptor Maps, and Appendix B, Build Scenario Noise Receptor Maps.

Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC $L_{eq}(h)$	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	$\geq$ UDOT NAC?
1	66	66	Yes	70	No	Yes
2	66	68	Yes	76	No	Yes
3	66	68	Yes	78	Yes	Yes
4	66	68	Yes	78	No	Yes
5	66	68	Yes	78	No	Yes
6	66	68	Yes	78	No	Yes
7	66	69	Yes	79	Yes	Yes
8	66	68	Yes	79	Yes	Yes
9	66	69	Yes	79	Yes	Yes
10	66	68	Yes	78	Yes	Yes
11	66	69	Yes	82	Yes	Yes
12	66	67	Yes	NA ^a	NA ^a	NA ^a
13	66	67	Yes	NA ^a	NA ^a	NA ^a
14	66	65	No	70	No	Yes
15	66	65	No	70	No	Yes
16	66	65	No	70	No	Yes
17	66	64	No	70	No	Yes
18	66	63	No	70	No	Yes
19	66	63	No	71	No	Yes
20	66	63	No	72	No	Yes
21	66	64	No	73	No	Yes
22	66	62	No	66	No	Yes
23	66	62	No	66	No	Yes
24	66	62	No	67	No	Yes
25	66	60	No	64	No	No
26	66	61	No	66	No	Yes
27	66	62	No	68	No	Yes
28	66	60	No	66	No	No
29	66	61	No	68	No	Yes
30	66	60	No	66	No	Yes
31	66	61	No	69	No	Yes
32	66	60	No	67	No	Yes
33	66	62	No	70	No	Yes
34	51	55	Yes	NA ^a	NA ^a	NA ^a
35	51	55	Yes	NA ^a	NA ^a	NA ^a
36	66	68	Yes	68	No	Yes

(continued on next page)

Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
37	66	69	Yes	69	No	Yes
38	66	68	Yes	67	No	Yes
39	66	69	Yes	69	No	Yes
40	66	65	No	63	No	No
41	66	63	No	62	No	No
42	66	63	No	63	No	No
43	66	63	No	62	No	No
44	66	62	No	61	No	No
45	66	61	No	60	No	No
46	66	64	No	64	No	No
47	66	62	No	62	No	No
48	66	61	No	60	No	No
49	66	59	No	59	No	No
50	66	70	Yes	NA ^a	NA ^a	NA ^a
51	66	71	Yes	NA ^a	NA ^a	NA ^a
52	66	69	Yes	NA ^a	NA ^a	NA ^a
53	66	70	Yes	NA ^a	NA ^a	NA ^a
54	66	70	Yes	NA ^a	NA ^a	NA ^a
55	66	71	Yes	NA ^a	NA ^a	NA ^a
56	66	70	Yes	NA ^a	NA ^a	NA ^a
57	66	70	Yes	NA ^a	NA ^a	NA ^a
58	66	70	Yes	NA ^a	NA ^a	NA ^a
59	66	70	Yes	NA ^a	NA ^a	NA ^a
60	66	69	Yes	NA ^a	NA ^a	NA ^a
61	66	70	Yes	80	Yes	Yes
62	66	71	Yes	80	No	Yes
63	66	71	Yes	79	No	Yes
64	66	70	Yes	76	No	Yes
65	66	71	Yes	74	No	Yes
66	66	70	Yes	74	No	Yes
67	66	70	Yes	73	No	Yes
68	66	71	Yes	72	No	Yes
69	66	71	Yes	72	No	Yes
70	66	71	Yes	73	No	Yes
71	66	67	Yes	77	No	Yes
72	66	66	No	73	No	Yes
73	66	65	No	71	No	Yes
74	66	64	No	69	No	Yes
75	66	62	No	68	No	Yes
76	66	61	No	66	No	Yes
77	66	67	Yes	74	No	Yes
78	66	66	Yes	74	No	Yes
79	66	67	Yes	74	No	Yes
80	66	65	No	72	No	Yes

(continued on next page)

Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
81	66	65	No	72	No	Yes
82	66	64	No	69	No	Yes
83	66	64	No	70	No	Yes
84	66	67	Yes	73	No	Yes
85	66	66	No	71	No	Yes
86	66	64	No	70	No	Yes
87	66	63	No	68	No	Yes
88	66	62	No	67	No	Yes
89	66	62	No	67	No	Yes
90	66	62	No	67	No	Yes
91	66	61	No	67	No	Yes
92	66	68	Yes	73	No	Yes
93	66	66	No	71	No	Yes
94	66	64	No	70	No	Yes
95	66	63	No	68	No	Yes
96	66	62	No	67	No	Yes
97	66	67	Yes	71	No	Yes
98	66	65	No	70	No	Yes
99	66	64	No	68	No	Yes
100	66	63	No	67	No	Yes
101	66	62	No	66	No	Yes
102	66	67	Yes	71	No	Yes
103	66	65	No	69	No	Yes
104	66	64	No	68	No	Yes
105	66	63	No	67	No	Yes
106	66	62	No	66	No	No
107	66	67	Yes	69	No	Yes
108	66	65	No	67	No	Yes
109	66	63	No	66	No	Yes
110	66	62	No	65	No	No
111	66	61	No	64	No	No
112	66	67	Yes	69	No	Yes
113	66	64	No	67	No	Yes
114	66	63	No	66	No	No
115	66	62	No	65	No	No
116	66	61	No	64	No	No
117	66	64	No	66	No	No
118	66	61	No	61	No	No
119	66	59	No	62	No	No
120	66	60	No	64	No	No
121	66	62	No	65	No	No
122	66	63	No	66	No	Yes
123	66	64	No	68	No	Yes
124	66	64	No	68	No	Yes

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Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
125	66	64	No	68	No	Yes
126	66	65	No	68	No	Yes
127	66	65	No	69	No	Yes
128	66	66	Yes	70	No	Yes
129	66	67	Yes	71	No	Yes
130	66	69	Yes	73	No	Yes
131	66	78	Yes	80	No	Yes
132	66	75	Yes	77	No	Yes
133	66	75	Yes	78	No	Yes
134	66	74	Yes	76	No	Yes
135	66	74	Yes	76	No	Yes
136	66	74	Yes	76	No	Yes
137	66	73	Yes	75	No	Yes
138	66	76	Yes	78	No	Yes
139	66	76	Yes	79	No	Yes
140	66	78	Yes	80	No	Yes
141	66	72	Yes	74	No	Yes
142	66	76	Yes	78	No	Yes
143	66	76	Yes	78	No	Yes
144	66	76	Yes	78	No	Yes
145	66	75	Yes	77	No	Yes
146	66	75	Yes	76	No	Yes
147	66	72	Yes	73	No	Yes
148	66	70	Yes	72	No	Yes
149	66	70	Yes	72	No	Yes
150	66	69	Yes	71	No	Yes
151	66	68	Yes	70	No	Yes
152	66	67	Yes	69	No	Yes
153	66	67	Yes	69	No	Yes
154	66	66	Yes	68	No	Yes
155	66	65	No	67	No	Yes
156	66	63	No	65	No	No
157	66	72	Yes	75	No	Yes
158	66	68	Yes	71	No	Yes
159	66	68	Yes	70	No	Yes
160	66	68	Yes	70	No	Yes
161	66	68	Yes	70	No	Yes
162	66	68	Yes	70	No	Yes
163	66	66	No	68	No	Yes
164	66	65	No	68	No	Yes
165	66	64	No	67	No	Yes
166	66	62	No	65	No	No
167	66	62	No	64	No	No
168	66	62	No	64	No	No

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Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
169	66	68	Yes	69	No	Yes
170	66	66	Yes	68	No	Yes
171	66	65	No	67	No	Yes
172	66	63	No	65	No	No
173	66	62	No	64	No	No
174	66	61	No	63	No	No
175	66	68	Yes	69	No	Yes
176	66	66	Yes	68	No	Yes
177	66	65	No	67	No	Yes
178	66	63	No	65	No	No
179	66	62	No	64	No	No
180	66	62	No	64	No	No
181	66	63	No	64	No	No
182	66	64	No	66	No	Yes
183	66	66	No	67	No	Yes
184	66	68	Yes	69	No	Yes
185	66	67	Yes	68	No	Yes
186	66	65	No	66	No	Yes
187	66	64	No	66	No	No
188	66	65	No	66	No	Yes
189	66	66	No	67	No	Yes
190	66	61	No	62	No	No
191	66	62	No	63	No	No
192	66	63	No	65	No	No
193	66	65	No	67	No	Yes
194	66	65	No	67	No	Yes
195	66	64	No	66	No	No
196	66	64	No	66	No	No
197	66	63	No	65	No	No
198	66	62	No	64	No	No
199	66	64	No	66	No	No
200	66	64	No	66	No	No
201	66	64	No	66	No	No
202	66	64	No	66	No	Yes
203	66	66	Yes	68	No	Yes
204	66	66	No	68	No	Yes
205	66	66	No	67	No	Yes
206	66	66	Yes	68	No	Yes
207	66	66	Yes	68	No	Yes
208	66	67	Yes	68	No	Yes
209	66	67	Yes	68	No	Yes
210	66	66	Yes	68	No	Yes
211	66	67	Yes	69	No	Yes
212	66	69	Yes	71	No	Yes

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Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
213	66	61	No	63	No	No
214	66	61	No	63	No	No
215	66	61	No	63	No	No
216	66	61	No	63	No	No
217	66	61	No	63	No	No
218	66	59	No	61	No	No
219	66	59	No	60	No	No
220	66	59	No	61	No	No
221	66	59	No	61	No	No
222	66	61	No	63	No	No
223	66	64	No	64	No	No
224	66	64	No	65	No	No
225	66	64	No	65	No	No
226	66	64	No	65	No	No
227	66	63	No	65	No	No
228	66	66	No	68	No	Yes
229	66	62	No	64	No	No
230	66	64	No	66	No	Yes
231	66	62	No	64	No	No
232	66	63	No	66	No	No
233	66	61	No	63	No	No
234	66	63	No	65	No	No
235	66	61	No	62	No	No
236	66	63	No	64	No	No
237	66	59	No	60	No	No
238	66	60	No	62	No	No
239	66	68	Yes	67	No	Yes
240	66	68	Yes	67	No	Yes
241	66	66	No	64	No	No
242	66	65	No	63	No	No
243	66	66	No	64	No	No
244	66	67	Yes	63	No	No
245	66	64	No	64	No	No
246	66	62	No	62	No	No
247	66	62	No	61	No	No
248	66	62	No	60	No	No
249	66	63	No	61	No	No
250	66	62	No	60	No	No
251	66	65	No	62	No	No
252	66	64	No	60	No	No
253	66	62	No	59	No	No
254	66	64	No	64	No	No
255	66	58	No	58	No	No
256	51	44	No	46	No	No

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Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
257	66	60	No	62	No	No
258	66	60	No	62	No	No
259	66	61	No	62	No	No
260	66	61	No	63	No	No
261	66	61	No	63	No	No
262	66	61	No	63	No	No
263	66	61	No	63	No	No
264	66	62	No	63	No	No
265	66	61	No	63	No	No
266	66	62	No	64	No	No
267	66	62	No	65	No	No
268	66	63	No	65	No	No
269	66	66	No	68	No	Yes
270	66	66	Yes	68	No	Yes
271	66	66	Yes	68	No	Yes
272	66	64	No	66	No	No
273	66	60	No	62	No	No
274	66	61	No	63	No	No
275	66	64	No	65	No	No
276	66	64	No	66	No	No
277	66	60	No	62	No	No
278	66	62	No	65	No	No
279	66	67	Yes	69	No	Yes
280	66	66	Yes	70	No	Yes
281	66	65	No	68	No	Yes
282	66	65	No	68	No	Yes
283	66	67	Yes	70	No	Yes
284	66	69	Yes	72	No	Yes
285	66	70	Yes	72	No	Yes
286	66	69	Yes	72	No	Yes
287	66	71	Yes	73	No	Yes
288	66	71	Yes	74	No	Yes
289	66	65	No	68	No	Yes
290	66	62	No	64	No	No
291	66	64	No	65	No	No
292	66	64	No	66	No	No
293	66	64	No	66	No	No
294	66	65	No	67	No	Yes
295	66	67	Yes	69	No	Yes
296	66	68	Yes	71	No	Yes
297	66	61	No	63	No	No
298	66	61	No	63	No	No
299	66	63	No	65	No	No

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Table 5. Modeled Existing and Future Noise Levels in the Noise Study Area

Receptor	UDOT NAC L _{eq} (h)	Existing		With Proposed Action		
		Existing Noise Levels (dBA)	Existing Impact?	Proposed Action Noise Levels (dBA)	≥ 10 dBA Increase over Existing Noise Level?	≥ UDOT NAC?
300	66	63	No	65	No	No
301	66	65	No	68	No	Yes
302	66	59	No	61	No	No
303	66	59	No	61	No	No
304	66	60	No	62	No	No
305	66	61	No	63	No	No
306	66	62	No	64	No	No
307	66	63	No	65	No	No

^a Not applicable. These receptors would be acquired as part of the Proposed Action.

8 Noise Abatement

This section discusses UDOT's methodology for evaluating noise-abatement mitigation measures for the traffic noise impacts identified in Section 6, Expected Impacts with the Proposed Action.

For a noise wall to be effective, it must be high enough and long enough to block the view of the noise source (that is, traffic on the roadway) from the receptor's line of sight. FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* (FHWA 2011) states that, as a general rule of thumb, the noise barrier should extend 4 times as far in each direction as the distance from the receptor to the barrier. For example, 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.

Noise walls for individual homes do not meet the cost-effectiveness criterion of UDOT's Noise Abatement Policy. Gaps in a noise wall cause "noise leaks," which reduce the effectiveness of the wall at homes near the gap. In addition, the effectiveness of noise walls decreases with increasing distance from the wall. For example, a residence that's 300 feet from a noise wall might experience noise levels that exceed the residential NAC. However, the noise wall might be ineffective in reducing noise levels by 7 dBA or more at that distance, and, therefore, a noise barrier might not be warranted according to UDOT's Noise Abatement Policy. The goal of noise abatement is to substantially reduce noise, which might or might not result in noise levels below the residential NAC.

The two primary criteria to consider when evaluating noise-abatement measures are feasibility and reasonableness. Noise abatement would be provided by UDOT only if UDOT determines that noise-abatement measures are *both* feasible and reasonable.

8.1 Feasibility and Reasonableness Factors

8.1.1 Feasibility Factors

The feasibility of noise-abatement measures deals primarily with construction and engineering considerations such as safety, location of cross streets, sight distance, and access to adjacent properties, among other considerations. Under UDOT's Noise Abatement Policy, a noise barrier must be considered "acoustically feasible" (that is, the barrier must reduce noise by at least 5 dBA for at least 50% of front-row receptors).

What are feasibility factors?

The feasibility of noise-abatement measures deals primarily with construction and engineering considerations.

If a noise-abatement measure is determined by UDOT to be acoustically feasible, then the abatement measure will be evaluated to determine whether its construction is reasonable. If a noise-abatement measure is determined by UDOT to be not feasible, it will not be considered any further.

8.1.2 Reasonableness Factors

Under UDOT's Noise Abatement Policy, reasonableness factors must be collectively achieved in order for a noise-abatement measure to be considered "reasonable." All three reasonableness factors described below must be met in order for a noise barrier to be considered reasonable.

What are reasonableness factors?

Reasonableness factors are the noise-abatement design goal, cost-effectiveness, and the viewpoints of property owners and residents.

- **Noise-abatement Design Goal.** Every reasonable effort should be made to achieve substantial reductions in noise. 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. No abatement measure will be considered reasonable if the noise-abatement design goal cannot be achieved.
- **Cost-effectiveness.** The cost of a noise-abatement measure must be considered reasonable in order for it to be included in a project. Noise-abatement costs are determined by multiplying a fixed unit cost per square foot by the height and length of the barrier.

For residential receptors, cost-effectiveness is based on the cost of the abatement measure (for example, a noise wall) divided by the number of benefited receptors (the total number of dwelling units at which noise is reduced by a minimum of 5 dBA as a result of the abatement measure).

Currently, the maximum cost used to determine the reasonableness of a noise-abatement measure is \$30,000 per benefiting residence (Activity Category B) based on a unit cost of \$20 per square foot of barrier, and \$360 per lineal foot for Activity Categories A, C, D, or E.

- **Viewpoints of Property Owners and Residents.** If a noise-abatement measure is both feasible and cost-effective, UDOT will also consider the viewpoints of property owners and residents to determine whether the noise-abatement measures are desired. Balloting will be conducted for those noise-abatement measures that both meet the noise-abatement design goal and are cost-effective consistent with the procedures described in UDOT's Noise Abatement Policy.

The noise walls considered for the Proposed Action are discussed below. UDOT evaluated noise walls for eight locations along Bangerter Highway where noise impacts would occur with the Proposed Action. Two noise walls, 10200 S NW Wall and Big Meadow Drive Wall, were found to be both feasible and reasonable.

8.1.3 Noise Wall Evaluations

In this section, the noise walls are described from north to south on the west side of Bangerter Highway, then from north to south on the east side of the highway.

9800 S SW Wall (Existing Noise Wall)

This existing noise wall is located in the southwest quadrant of the intersection of Bangerter Highway and 9800 South. The wall is about 1,200 feet long and extends from 9800 South to 10000 South. This existing noise wall is located on the east side of Elk Ridge Middle School and was installed by UDOT.

This wall would not need to be removed as part of the Proposed Action. However, the Proposed Action would require adding an auxiliary lane in both directions, resulting in noise impacts to receptors in this area.

As summarized in Table 6, UDOT evaluated replacing the existing wall with walls varying from 12 to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 6. Noise-abatement Analysis for 9800 S SW Wall (Existing)

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
12	0	No	NA	NA	NA	NA	NA	No
14	0	No	NA	NA	NA	NA	NA	No
16	0	No	NA	NA	NA	NA	NA	No
18	0	No	NA	NA	NA	NA	NA	No
20	0	No	NA	NA	NA	NA	NA	No

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Replacing the existing 9800 S SW Wall to increase its height is not acoustically feasible. Therefore, the wall would remain at its existing height of 10 feet.

10200 S NW Wall (Existing Noise Wall)

This existing noise wall is located on the northwest quadrant of the intersection of Bangerter Highway and 10200 South. The existing wall in this area was not installed by UDOT and was installed when the residential neighborhood was constructed.

The Proposed Action would require removing this wall to construct the new interchange and southbound auxiliary lane between 9800 South and 10400 South. The northern section of the 10200 S NW Wall would only need to be removed to accommodate the construction of the southbound auxiliary lane between 9800 South and 10400 South. If funding is not available for the auxiliary lane, the existing 10200 S NW Wall that is not affected by the interchange construction would remain in its current location. UDOT evaluated installing a new noise wall in a new location farther west where it would accommodate the Proposed Action's off ramps and auxiliary lanes. The evaluated noise wall extends from about 10200 South to a location where it connects to the existing 10-foot-high noise wall near 10000 South (called the 9800 S SW Wall in this report and evaluated in the previous section). This evaluated wall is about 1,282 feet long (see map 1 in Appendix C).

As summarized in Table 7, UDOT evaluated walls ranging from 10 to 14 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 7. Noise-abatement Analysis for Noise Barrier 10200 S NW Wall

Barrier Height	Feasibility		Reasonable					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
10	90	Yes	80	Yes	\$256,400	\$420,000	Yes	Yes
12	100	Yes	90	Yes	\$307,680	\$540,000	Yes	Yes
14	100	Yes	90	Yes	\$358,960	\$660,000	Yes	Yes

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Walls ranging from 10 to 14 feet high are considered both feasible and reasonable. A 10-foot-high wall for the 10200 S NW Wall is recommended for balloting because it's the shortest wall height found to be both feasible and reasonable.

The northern section of the 10200 S NW Wall would only need to be removed to accommodate the construction of the southbound auxiliary lane between 9800 South and 10400 South. If funding is not available for the auxiliary lane, this section of the existing 10200 S NW Wall that is not affected by the interchange construction would remain in its current location. Prior to construction and balloting, UDOT will re-evaluate the 10200 S NW Wall based on final design and whether funding is available for the auxiliary lanes.

Whispering Sands Drive Wall

This evaluated wall is located north of 10400 South and east of Whispering Sands Drive. There is no existing noise wall in this area.

The Proposed Action would include restriping on 10400 South to accommodate the turn lanes for the new interchange on Bangerter Highway. No new travel lanes would be included on 10400 South. However, the restriping would change the horizontal alignment of the travel lanes on 10400 South. The noise modeling indicated that there would be noise impacts to the receptors on the north side of 10400 South in this area. UDOT evaluated constructing a noise wall in this area.

As summarized in Table 8, UDOT evaluated walls ranging from 8 to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 8. Noise-abatement Analysis for Whispering Sands Drive Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
8	50	Yes	0	No	NA	NA	NA	No
10	50	Yes	50	Yes	\$100,000	\$120,000	Yes	Yes
12	75	Yes	75	Yes	\$120,000	\$120,000	No	No
14	75	Yes	75	Yes	\$140,000	\$120,000	No	No
16	75	Yes	75	Yes	\$160,000	\$120,000	No	No
18	75	Yes	75	Yes	\$180,000	\$120,000	No	No
20	75	Yes	75	Yes	\$200,000	\$120,000	No	No

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

A 10-foot-high wall is considered acoustically feasible. Section C. 1. b., *Safety on Urban Non-Access-Controlled Roadways*, of UDOT's Noise Abatement Policy states that, "[t]o avoid a damaged wall from becoming a safety hazard, in the event of a failure, wall height shall be no greater than the distance from the back of curb to the face of [the] proposed wall." The distance in this area from the back of curb to the existing intermittent brick wall with iron gates is about 8 feet (which consists of a 4-foot sidewalk and 4-foot park strip and curb). Therefore, the 10-foot-high wall would be considered a safety hazard and would not be considered feasible per the UDOT Noise Abatement Policy.

Because the 10-foot-high wall is not feasible, UDOT also modeled an 8-foot-high wall to see if it would be feasible and reasonable. As shown in Table 8, an 8-foot-high noise barrier would not meet the UDOT feasibility criteria.

Because no walls were both feasible and reasonable, no walls are recommended for balloting.

Big Meadow Drive North Wall (Existing Privacy Wall)

South of 10600 South is a residential neighborhood that would be affected by the Proposed Action. The neighborhood has an existing 6-foot-high privacy wall that was installed when the subdivision was built. The privacy wall was not installed by UDOT.

The Proposed Action would require removing the northern sections of this privacy wall to construct the new interchange. UDOT evaluated a noise wall in this area. The existing 6-foot-high privacy wall would remain for the seven properties located immediately north of Ruston View Drive on the east side of Big Meadow Drive. The evaluated wall extends from about Grassy Meadow Drive (about 10600 South) to Rushton View Drive (about 10825 South). This noise wall is about 1,161 feet long (see maps 2 and 3 in Appendix C).

As summarized in Table 9, UDOT evaluated noise walls ranging from 10 to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 9. Noise-abatement Analysis for Big Meadow North Drive Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
10	40	No	NA	NA	NA	NA	NA	No
12	70	Yes	40	Yes	\$278,640	\$1,110,000	Yes	Yes
14	80	Yes	60	Yes	\$325,080	\$1,260,000	Yes	Yes
16	80	Yes	70	Yes	\$371,520	\$1,320,000	Yes	Yes
18	90	Yes	80	Yes	\$417,960	\$1,530,000	Yes	Yes
20	90	Yes	80	Yes	\$464,400	\$1,560,000	Yes	Yes

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Walls ranging from 12 to 20 feet high are considered both feasible and reasonable. A 12-foot-high wall is recommended for balloting because it's the shortest wall height found to be both feasible and reasonable.

Big Meadow Drive South Wall (Existing Retaining and Privacy Wall)

Between Rushton Way and about 11000 South in the southwest quadrant is a residential townhome neighborhood that would be affected by the Proposed Action. The neighborhood has an existing 6-foot-high privacy wall on top of a retaining wall that was installed when the subdivision was built. The privacy wall and retaining wall were not installed by UDOT. The retaining wall varies in height. At the north end near Rushton Way and at the south end near 11000 South, the retaining wall is about 3 feet high. In between, the retaining wall increases in height and is over 10 feet high at its highest point.

Based on preliminary design (which includes the construction of the interchange and the auxiliary lanes), the Proposed Action could require removing and replacing the northern section of this privacy and retaining wall to construct the new interchange and auxiliary lanes. In order to minimize impacts to private property owners, UDOT would not impact private property in this area by replacing the existing 6-foot-high privacy wall and retaining wall with a noise wall of the same height. The modeling for this area assumed that the existing privacy and retaining wall would remain in its current location.

Impacts were not predicted in this area modeling the existing privacy and retaining wall. Because no noise impacts were predicted in this area, noise walls were not evaluated.

UDOT will make a final determination about the extent of project construction when final design is completed and UDOT knows whether funding is available for the auxiliary lane. During final design, UDOT will determine whether any of the existing 6-foot-high privacy wall and retaining wall would need to be removed and replaced. If any sections of the existing 6-foot-high privacy wall and retaining wall would need to be removed and replaced as part of the final design, UDOT would re-evaluate the Big Meadow Drive South Wall noise analysis to see if there would be noise impacts in this area and, if there are noise impacts, if a noise wall would be warranted.

Tippecanoe Wall (Existing Privacy Wall)

Between about 11000 South and 11100 South, two residential neighborhoods would be affected by construction of auxiliary lanes that are included with the Proposed Action if funding is available. The neighborhood on Tippecanoe Way has an existing 6-foot-high privacy wall that was installed when the subdivision was built. The privacy wall was not installed by UDOT. The northern section of this area near the homes on Coastal Dune Drive does not have an existing wall.

The Proposed Action would require removing the privacy wall for the Tippecanoe neighborhood to construct the auxiliary lanes. UDOT evaluated a noise wall in this area. The evaluated noise wall was extended south to join with the existing 12-foot-high Jordan Heights noise wall that was constructed by UDOT as part of the Bangerter 11400 South interchange project. The evaluated wall extends from about 11000 South at the south end of the Big Meadow South Noise Wall to Belfry Circle (about 11100 South). This noise wall is about 2,120 feet long (see maps 2 and 3 in Appendix C).

As summarized in Table 9, UDOT evaluated noise walls ranging from 10 to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 10. Noise-abatement Analysis for Tippecanoe Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
10	50	Yes	0	No	NA	NA	NA	No
12	71	Yes	42	Yes	\$508,800	\$540,000	Yes	Yes
14	96	Yes	63	Yes	\$593,600	\$960,000	Yes	Yes
16	96	Yes	79	Yes	\$678,400	\$1,260,000	Yes	Yes
18	96	Yes	79	Yes	\$763,200	\$1,260,000	Yes	Yes
20	100	Yes	96	Yes	\$848,000	\$1,530,000	Yes	Yes

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Walls ranging from 12 to 20 feet high are considered both feasible and reasonable. A 12-foot-high wall is recommended for balloting because it's the shortest wall height found to be both feasible and reasonable. The Tippecanoe Wall would be balloted and constructed only when funding is available to construct the auxiliary lanes between 10400 South and 11400 South.

Jordan Heights Wall (Existing Noise Wall)

This existing noise wall is located west of Bangerter Highway near Tippecanoe Way. The existing noise wall was installed by UDOT as part of the Bangerter 11400 South interchange project. The wall extends from about Belfry Circle (about 11100 South) to 4000 West. The wall is about 2,149 feet long and 12 feet high (see map 3 in Appendix C).

This wall would not need to be removed as part of the Proposed Action. However, the Proposed Action would add a southbound auxiliary lane that connects to the southbound off ramp to 11400 South, resulting in noise impacts to receptors in this area.

As summarized in Table 11, UDOT evaluated replacing the existing wall with walls varying from 14 to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 11. Noise-abatement Analysis for Jordan Heights Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
14	0	No	NA	NA	NA	NA	NA	No
16	0	No	NA	NA	NA	NA	NA	No
18	0	No	NA	NA	NA	NA	NA	No
20	0	No	NA	NA	NA	NA	NA	No

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Replacing the existing Jordan Heights Wall to increase its height is not considered acoustically feasible. Therefore, the existing 12-foot-high wall would remain in place.

9800 S SE Wall (Existing Noise Wall)

This existing noise wall is located on the southeast quadrant of the intersection of Bangerter Highway and 9800 South. The wall extends from 9800 South to Dry Ridge Cove (about 10150 South). The wall is about 2,019 feet long and 14 feet high (see map 1 in Appendix C). The northern section of this wall between 9800 South and about 10000 South was installed by UDOT. The southern section of this wall between 10000 South and Dry Ridge Cove (about 10150 South) was not installed by UDOT and was installed when the subdivision was constructed.

This wall would not need to be removed as part of the Proposed Action. However, the Proposed Action would add a northbound auxiliary lane that connects to the right-turn-only lane at the 9800 South intersection. The noise modeling indicated that there would be noise impacts to receptors in this area.

As summarized in Table 12, UDOT evaluated replacing the existing wall with walls varying from 16 to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 12. Noise-abatement Analysis for 9800 S SE Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
16	0	No	NA	NA	NA	NA	NA	No
18	0	No	NA	NA	NA	NA	NA	No
20	15	No	NA	NA	NA	NA	NA	No

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Replacing the existing 9800 S SE Wall to increase its height is not considered acoustically feasible. Therefore, the existing 14-foot-high wall would remain in place.

10200 S SE Wall (Existing Noise Wall)

This existing noise wall is located on the southeast quadrant of the intersection of Bangerter Highway and 10200 South. This privately installed wall was installed in about 2006 (about the same time as the subdivision was constructed). The wall extends from 10200 South to 10305 South. The wall is about 654 feet long and 10 feet high (see map 2 in Appendix C).

This wall would not need to be removed as part of the Proposed Action. However, the proposed interchange would result in noise impacts to receptors in this area.

As summarized in Table 13, UDOT evaluated replacing the existing wall with walls varying from 12 feet to 20 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 13. Noise-abatement Analysis for 10200 S SE Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
12	0	No	NA	NA	NA	NA	NA	No
14	0	No	NA	NA	NA	NA	NA	No
16	0	No	NA	NA	NA	NA	NA	No
18	0	No	NA	NA	NA	NA	NA	No
20	0	No	NA	NA	NA	NA	NA	No

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

Replacing the existing 10200 S SE Wall to increase its height is not considered acoustically feasible. Therefore, the existing 10-foot-high wall would remain in place.

Raphi Place Wall (Existing Privacy Wall)

There is no existing noise wall in this area. This existing privacy wall on the east side of Bangerter Highway might provide some noise protection to the receptors in this area. This privacy wall was not installed by UDOT and was installed when the subdivision was constructed. The privacy wall extends from Raphi Place to the existing 15-foot-high noise wall in front of the ICO District Apartments. The ICO District Apartments would not have noise impacts from the Proposed Action, so additional noise-abatement modeling was not evaluated for the ICO District Wall.

The privacy wall is about 1,535 feet long and 6 feet high (see map 3 in Appendix C). The 1,535 feet of the privacy wall includes a 1,053-foot section on the east side of Bangerter Highway and a 482-foot section on the north side of the subdivision. Because UDOT would construct noise barriers in the UDOT right-of-way only, the noise modeling only modeled increasing the height of the 1,053-foot section of wall on the east side of Bangerter Highway. The noise modeling assumed that the Raphi Place Wall would connect to the northern end of the existing 15-foot-high ICO District Wall (see map 3 in Appendix C).

This privacy wall would not need to be removed as part of the Proposed Action. However, the Proposed Action would add a northbound auxiliary lane starting at the north end of the 11400 South northbound on ramp, resulting in noise impacts to receptors in this area.

As summarized in Table 14, UDOT evaluated replacing the existing privacy wall with noise walls varying from 11 to 19 feet high (for detailed information, see Appendix D, Noise Wall Analysis).

Table 14. Noise-abatement Analysis for Raphi Place Wall

Barrier Height	Feasibility		Reasonableness					Is Barrier Feasible and Reasonable?
	% Front-row with 5-dBA Reduction	Acoustically Feasible? ^a	% Front-row with 7-dBA Reduction	Noise Abatement Design Goal? ^b	Anticipated Cost	Allowable Cost	Cost-effective? ^c	
11	0	No	NA	NA	NA	NA	NA	No
13	36	No	NA	NA	NA	NA	NA	No
15	45	No	NA	NA	NA	NA	NA	No
17	73	Yes	9	No	NA	NA	NA	No
19	91	Yes	36	Yes	\$400,140	\$330,000	No	No

^a 5-dBA reduction for at least 50% of front-row receptors.

^b 7-dBA reduction for at least 35% of front-row receptors.

^c Anticipated cost is less than allowable cost.

None of the noise wall heights evaluated for the Raphi Place Wall were found to be both feasible and reasonable. Therefore, a new noise wall at this location is not recommended for balloting, and the existing 6-foot-high privacy wall would remain in place.

9 Construction Noise

9.1 Construction Noise Activities

Table 15 shows the noise levels produced by various types of construction equipment. Properly maintained equipment will produce noise levels near the middle of the indicated ranges. The types of construction equipment used for this project will typically generate noise levels of 80 dBA to 90 dBA at a distance of 50 feet while the equipment is operating (EPA 1971; Gharabegian and others 1985; Toth 1979).

Construction equipment operations can vary from intermittent to fairly continuous with multiple pieces of equipment operating concurrently. Assuming that a bulldozer (85 dBA), backhoe (90 dBA), grader (90 dBA), and front-end loader (82 dBA) are operating concurrently in the same area, peak construction-period noise would generally be about 94 dBA at 50 feet from the construction site. Table 15 summarizes noise levels expected near an active construction site with the above equipment operating.

Table 15. Typical Noise Levels for Construction Equipment

Type of Equipment	Noise Level (dBA) at 50 feet
Bulldozer	85
Front loader	72 – 84
Jack hammer or rock drill	81 – 98
Crane with headache ball	75 – 87
Backhoe	72 – 93
Scraper and grader	80 – 93
Electrical generator	71 – 82
Concrete pump	81 – 83
Concrete vibrator	76
Concrete and dump trucks	83 – 90
Air compressor	74 – 87
Pile drivers (peaks)	95 – 106
Pneumatic tools	81 – 98
Roller (compactor)	73 – 75
Saws	73 – 82

Source: EPA 1971

Locations within about 1,900 feet of a construction site will experience occasional episodes of noise levels greater than 60 dBA. Areas within about 750 feet of a construction site will experience episodes of noise levels greater than 70 dBA. Such episodes of high noise levels associated with the proposed construction would not be continuous throughout the day and would generally be restricted to daytime hours.

Most construction activities associated with the Proposed Action would occur during daylight hours, which would minimize the number of noise impacts. Noise impacts could occur when construction directly adjacent to residential, park, or recreational areas is necessary.

9.2 Construction Noise Mitigation

To reduce temporary noise impacts associated with construction, contractors will comply with all state and local regulations relating to construction noise.

The contractor will be required to follow the UDOT 2017 *Special Provision*, Section 00555M, *Prosecution and Progress*. The contractor will be required to conform to these specifications to reduce the impact of construction noise on the surrounding community.

10 Information for Local Officials

Activity Categories F and G include lands that are not sensitive to traffic noise. There are no impact criteria for these land use types, so noise abatement is not required. However, for Activity Category G, an estimate of the distance to the approach criteria must be provided to local governments. This estimate will help local government officials promote compatibility between land development and the Proposed Action. South Jordan City is the local government with land use jurisdiction in the project study area.

Table 16 lists the distances from the edge of the roadway pavement to the locations where the worst-hour $L_{eq}(h)$ levels of 66 dBA and 71 dBA would occur.

Table 16. Contour Distance to Future Noise Levels

Roadway	Approximate Distance from Edge of Bangerter Highway Pavement to Noise-level Contour	
	66-dBA Noise-level Contour	71-dBA Noise-level Contour
Bangerter Highway	425 feet	230 feet

11 Conclusions

The Proposed Action would generally result in a 3-dBA noise level increase throughout the noise study area. Of the 307 receptors, 174 (representing 174 dwelling units) would be impacted by noise levels from the Proposed Action. Recommended noise walls within the study area that met the requirements of the UDOT Noise Abatement Policy are discussed below.

As part of the final design phase, UDOT will conduct balloting consistent with the procedures in UDOT's June 15, 2017 Noise Abatement Policy.

11.1 Summary of Recommended Noise Walls

11.1.1 10200 S NW Wall

The Proposed Action would require removing this existing noise wall to construct the new interchange. UDOT evaluated installing a new noise wall in a new location farther west where it would accommodate the Proposed Action's off ramps and auxiliary lanes. The recommended noise wall would extend from about 10200 South to a location where it connects to the existing 10-foot-high noise wall near 10000 South (called the 9800 S SW Wall in this report). This wall would be about 1,282 feet long and 10 feet high (see map 1 in Appendix C). The northern section of the 10200 S NW Wall would only need to be removed to accommodate the construction of the southbound auxiliary lane between 9800 South and 10400 South. If funding is not available for the auxiliary lane, this section of the existing 10200 S NW Wall would remain in its current location. Prior to construction and balloting, UDOT will re-evaluate the 10200 S NW Wall based on final design and whether there is funding available for the auxiliary lanes.

11.1.2 Big Meadow Drive North Wall

This new noise wall would replace the existing privacy wall in this area that would be removed to construct the new interchange. The recommended noise wall would extend from about Grassy Meadow Drive (about 10600 South) to Rushton View Drive (about 10825 South) where it would join with the existing Big Meadow Drive South retaining/privacy wall. This wall would be about 1,161 feet long and 12 feet high (see maps 2 and 3 in Appendix C).

11.1.3 Tippecanoe Wall

This new wall would replace the existing privacy wall in this area that would be removed to construct the new auxiliary lanes. The recommended noise wall would extend from about 11000 South to Belfry Circle (about 11100 South), where it would join with the existing Jordan Heights noise wall. This wall would be about 2,120 feet long and 12 feet high (see maps 2 and 3 in Appendix C).

11.2 Summary of Walls To Remain in Place

The following existing walls were evaluated to see whether replacing the existing wall with a higher wall would be feasible and reasonable. For all of these walls, UDOT determined that replacing the existing walls to increase their heights is not considered acoustically feasible. Therefore, these existing walls would remain at their existing height in their current location.

11.2.1 9800 S SW Wall

This existing noise wall is located in the southwest quadrant of the intersection of Bangerter Highway and 9800 South. The wall extends from 9800 South to 10000 South. This wall would not need to be removed as part of the Proposed Action. This wall is about 1,200 feet long and 10 feet high (see map 1 in Appendix C).

11.2.2 Big Meadow Drive South Wall

This existing wall is a 6-foot-high privacy wall on top of a retaining wall that was installed when the subdivision was built. The retaining wall varies in height. At the north end near Rushton View Drive and at the south end near 11000 South, the retaining wall is about 3 feet high. In between, the retaining wall increases in height and is over 10 feet high at its highest point. The wall is about 1,025 feet long (see maps 2 and 3 in Appendix C).

11.2.3 Jordan Heights Wall

This existing noise wall is located west of Bangerter Highway near Tippecanoe Way. The wall extends from about Belfry Circle (about 11100 South) to 4000 West. The wall is about 2,149 feet long and 12 feet high (see map 3 in Appendix C).

11.2.4 9800 S SE Wall

This existing noise wall is located on the southeast quadrant of the intersection of Bangerter Highway and 9800 South. The wall extends from 9800 South to Dry Ridge Cove (about 10150 South). The wall is about 2,019 feet long and 10 feet high (see map 1 in Appendix C).

11.2.5 10200 S SE Wall

This existing noise wall is located on the southeast quadrant of the intersection of Bangerter Highway and 10200 South. This privately installed wall was installed in about 2006 (about the same time as the subdivision was constructed). The wall extends from 10200 South to 10305 South. The wall is about 654 feet long and 10 feet high (see map 2 in Appendix C).

11.2.6 Raphi Place Wall

This existing privacy wall is located on the east side of Bangerter Highway and might provide some noise protection to the receptors in this area. The wall extends from Raphi Place to the existing 15-foot-high ICO District Wall noise wall in front of the ICO District Apartments. The privacy wall is about 1,535 feet long and 6 feet high (see map 3 in Appendix C).

11.2.7 ICO District Wall

The ICO District Apartments would not have noise impacts from the Proposed Action, so additional noise-abatement modeling was not evaluated for the 15-foot-high ICO District Wall, and it would remain in place.

12 References

[CEQ] Council on Environmental Quality

- 1970 Environmental Quality: The First Annual Report of the Council on Environmental Quality. U.S. Government Printing Office, Washington, DC.

[EPA] U.S. Environmental Protection Agency

- 1971 Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. NTID300.1. Prepared by Bolt, Beranek, & Newman, Boston, Mass. U.S. Government Printing Office, Washington, DC.

[FHWA] Federal Highway Administration

- 2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf. December.

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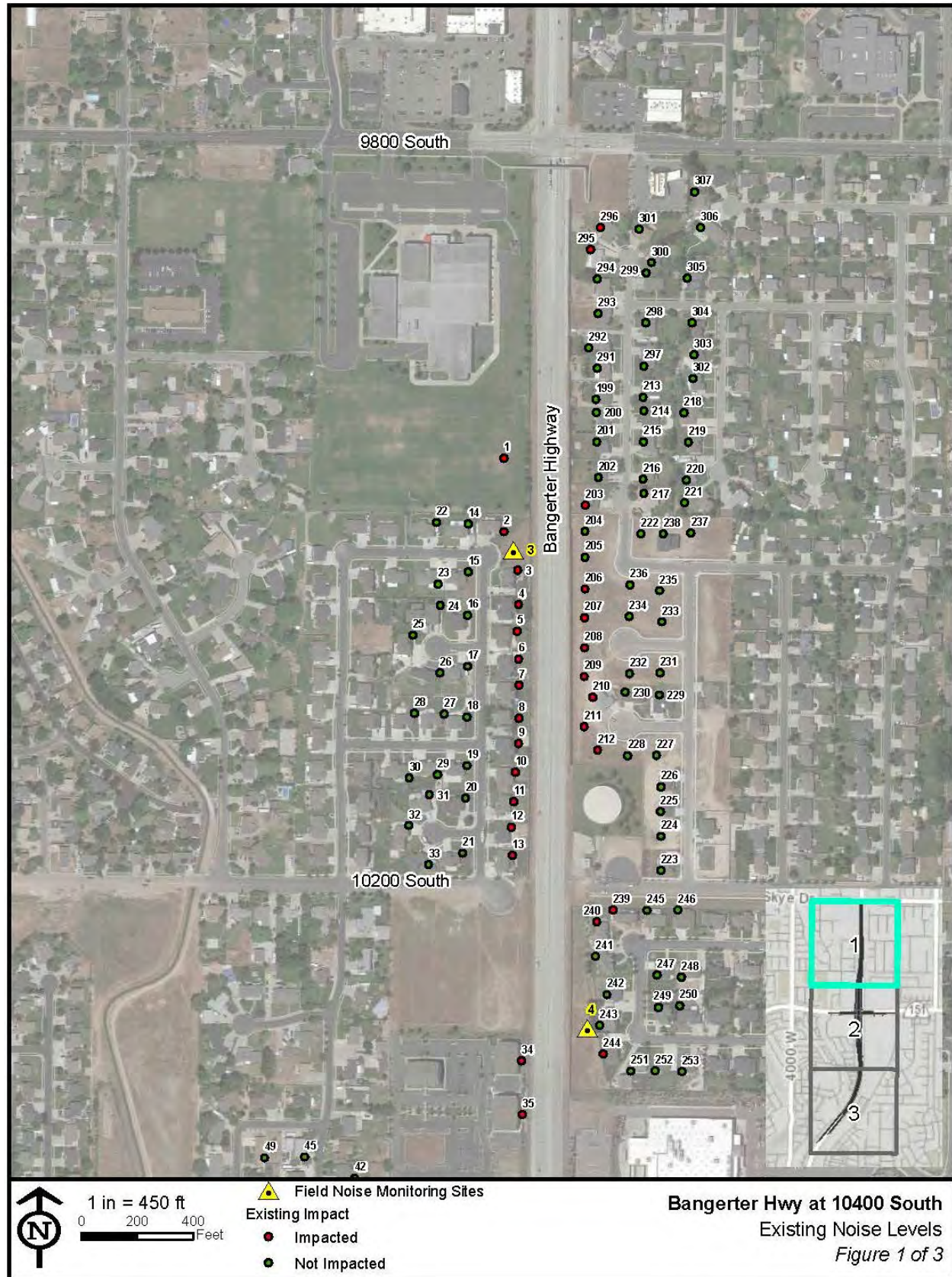
Toth, W.J.

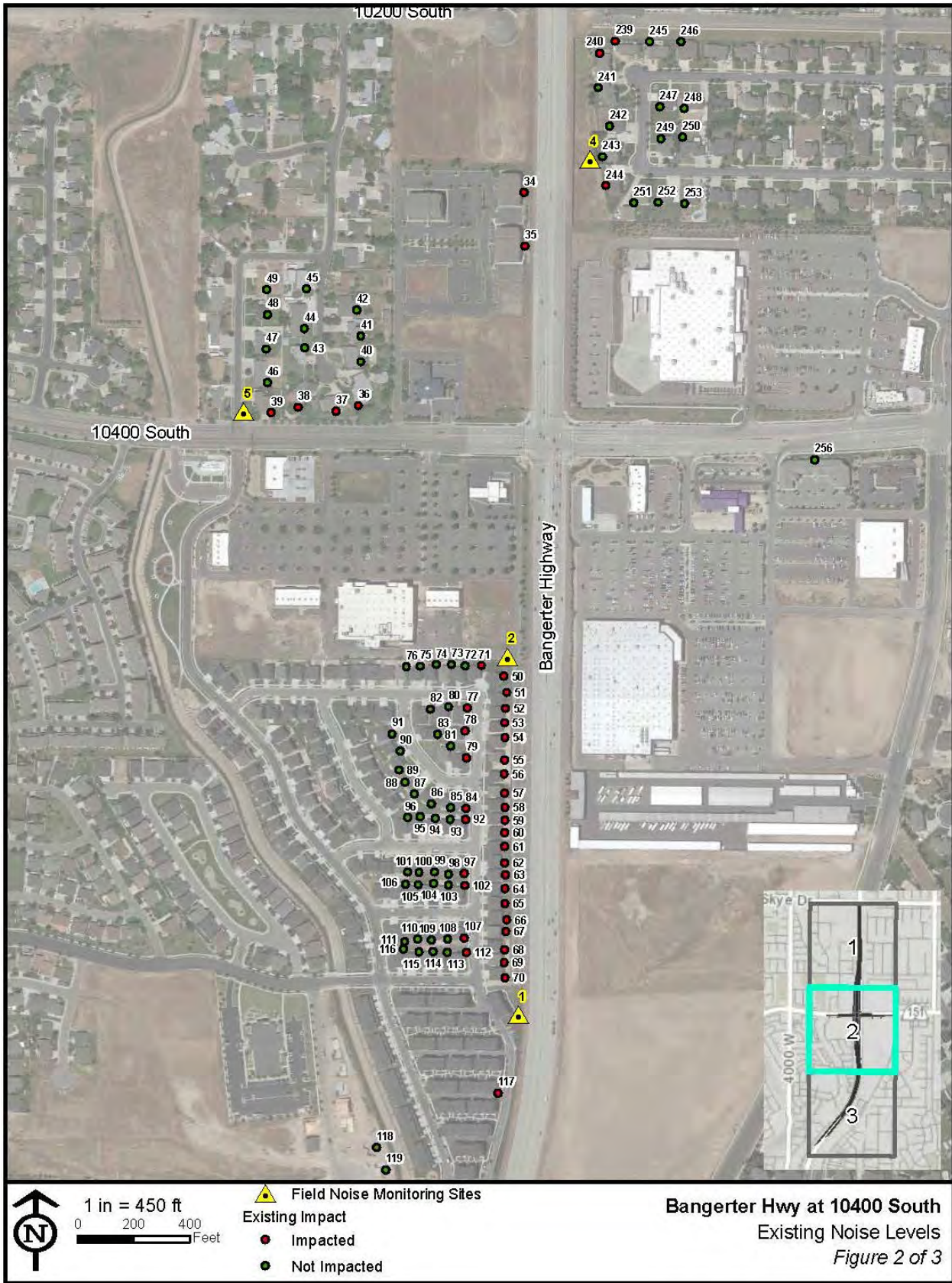
- 1979 Noise-Abatement Techniques for Construction Equipment. HS-803 293; DOT-TSC-NHTSA-79-45: PB-300 948. U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, DC.

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- 2017 Noise Abatement. UDOT 08A2-1. Effective November 6, 1987. Revised June 15, 2017. <https://www.udot.utah.gov/main/uconowner.gf?n=10496602977480171>.

Appendix A. Existing Noise Receptor Maps







TRAFFIC NOISE MONITORING LOG SHEET

Project Description: Bangerter 10400 South Data File: 19
Job Number: _____ Noise Source: traffic noise
Date: 5/23/2008 By: MSP

Equipment	Type	Serial #
Sound Level Meter	<u>LD 824</u>	<u>A2636</u>
Microphone	<u>LD 2541</u>	<u>7490</u>
Calibrator	<u>LD CAL 150</u>	<u>3370</u>

SLM SETTINGS (circle one) **FAST** SLOW

WEIGHTING (circle one) A Lin.

Location Description: ML-1

Location Diagram: see map • approximate 6' high wall here
160mph

Start Time: 7:53 AM PM Stop Time: 8:08 AM PM Duration: 15 min

Wind Speed: 29 mph Wind Direction: SSE

Temperature: 56°F Humidity: 72%

Calibration results before: 114.0 dBA and after 114.0 dBA

TNM
-0.1 68.4 Leq 68.5 dBA Lmin _____ dBA Lmax _____ dBA

Autos	Medium Trucks	Heavy Trucks	Buscs	Motorcycles
<u>481</u> (1,924)	<u>6</u> (24)	<u>10</u> (40)		<u>1</u> (4)
<u>383</u> (1,532)	<u>4</u> (16)	<u>8</u> (32)	<u>1</u> (4)	

N ←

S →

Traffic counts need to be directional

TRAFFIC NOISE MONITORING LOG SHEET

Project Description: Bangerter 10400 South Data File: 20
Job Number: _____ Noise Source: traffic noise
Date: 5/23/2018 By: MJP

Equipment	Type	Serial #
Sound Level Meter	LD824	A2636
Microphone	LD2541	7490
Calibrator	LD CAL 150	3370

SLM SETTINGS (circle one) FAST SLOW

WEIGHTING (circle one) A Lin.

Location Description: ML-2
360 mph

Location Diagram: see map * did this one outside the 6' wall
* slowing down for stoplight

Start Time: 8:11 AM PM Stop Time: 8:32 AM PM Duration: 15 min

Wind Speed: ~9 mph Wind Direction: SSE

Temperature: 56°F Humidity: 72%

Calibration results before: 114.0 dBA and after 114.0 dBA
+2.2 TNM 67.4 Leq 65.2 dBA Lmin _____ dBA Lmax _____ dBA

	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
N ←	477 (1908)	6 (24)	17 (68)	1 (4)	1 (4)
S →	474 (1896)		12 (48)		1 (4)

Traffic counts need to be directional

TRAFFIC NOISE MONITORING LOG SHEET

Project Description: Bangerter 10400 South Data File: traffic noise
Job Number: _____ Noise Source: 21
Date: 5/23/2018 By: MJP

Equipment	Type	Serial #
Sound Level Meter	LD 824	A2636
Microphone	LD 2541	7490
Calibrator	LD CAL 150	3370

SLM SETTINGS (circle one) **FAST** SLOW

WEIGHTING (circle one) A Lin.

Location Description: ML-3

Location Diagram: ~ 60 mph
see map
• ~ 10' high wall
• this lot is
• down in a depression
• 8:46 AM plane overflight

Start Time: 8:39 AM PM Stop Time: 8:54 AM PM Duration: 15 min

Wind Speed: ~ 9 mph Wind Direction: 55E

Temperature: 56°F Humidity: 72%

Calibration results before: 114.0 dBA and after 114.0 dBA

0.0 TNM
58.4 Leq 58.4 dBA Lmin _____ dBA Lmax _____ dBA

	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
<u>NE</u>	<u>483</u> (1932)	<u>8</u> (32)	<u>12</u> (48)		
<u>S</u>	<u>421</u> (1684)	<u>6</u> (24)	<u>10</u> (40)		

Traffic counts need to be directional

TRAFFIC NOISE MONITORING LOG SHEET

Project Description: Bangarter 10400 South Data File: 22
 Job Number: _____ Noise Source: traffic noise
 Date: 5/23/2018 By: MJP

Equipment	Type	Serial #
Sound Level Meter	LD824	A2636
Microphone	LD2541	7490
Calibrator	LD CAL 150	3370

SLM SETTINGS (circle one) **FAST** SLOW

WEIGHTING (circle one) A Lin.

Location Description: ML-4

Location Diagram: see map 260 mph x 9:21 AM plane overflight
x 10314 backyard
2 10' high noise wall

Start Time: 9:19 AM PM Stop Time: 9:34 AM PM Duration: 15 min

Wind Speed: 29 mph Wind Direction: 55E

Temperature: 60°F Humidity: 72%

Calibration results before: 114.0 dBA and after 114.0 dBA

x0.1 TNM
61.2 Leq 61.1 dBA Lmin _____ dBA Lmax _____ dBA

	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
↖	468 (1322)	3 (12)	13 (52)		1 (4)
N →	450 (1800)	7 (29)	15 (60)		1 (4)

Traffic counts need to be directional

TRAFFIC NOISE MONITORING LOG SHEET

Project Description: Bangerter 10400 South Data File: 23
Job Number: _____ Noise Source: traffic noise
Date: 5/23/2018 By: MJP

Equipment	Type	Serial #
Sound Level Meter	LD824	A2636
Microphone	LD2541	7490
Calibrator	LD CAL 150	3370

SLM SETTINGS (circle one) FAST SLOW

WEIGHTING (circle one) A Lin.

Location Description: M6-5

Location Diagram: x 10397 Whipping South Drive x 9:54 AM plane overflight
see map 25 ft light 240 mph

Start Time: 9:47 AM Stop Time: 10:02 AM Duration: 15 min.

Wind Speed: 29 mph Wind Direction: SSE

Temperature: 60°F Humidity: 72%

Calibration results before: 114.0 dBA and after 114.0 dBA

-1.7 TNM 64.6 Leq 66.3 dBA Lmin _____ dBA Lmax _____ dBA

South J. John Parkway

Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
<u>198</u> (792)		<u>2</u> (8)	<u>1</u> (4)	
<u>129</u> (516)	<u>2</u> (8)	<u>2</u> (8)		

Traffic counts need to be directional

TRAFFIC NOISE MONITORING LOG SHEET

Project Description: Bangerter 10400 South Data File: 24
Job Number: _____ Noise Source: traffic noise
Date: 5/23/2018 By: mjp

Equipment	Type	Serial #
Sound Level Meter	LD824	A2636
Microphone	LD2541	7490
Calibrator	LD CAL 150	3370

SLM SETTINGS (circle one) **FAST** SLOW

WEIGHTING (circle one) A Lin.

Location Description: ML-6
see map

Location Diagram: * dog park area
* behind ~10' north wall
* 6' privacy fence for homes
~60mph

Start Time: 10:15 AM PM Stop Time: 10:30 AM PM Duration: 15 min

Wind Speed: ~9 mph Wind Direction: SSE

Temperature: 64°F Humidity: 72%

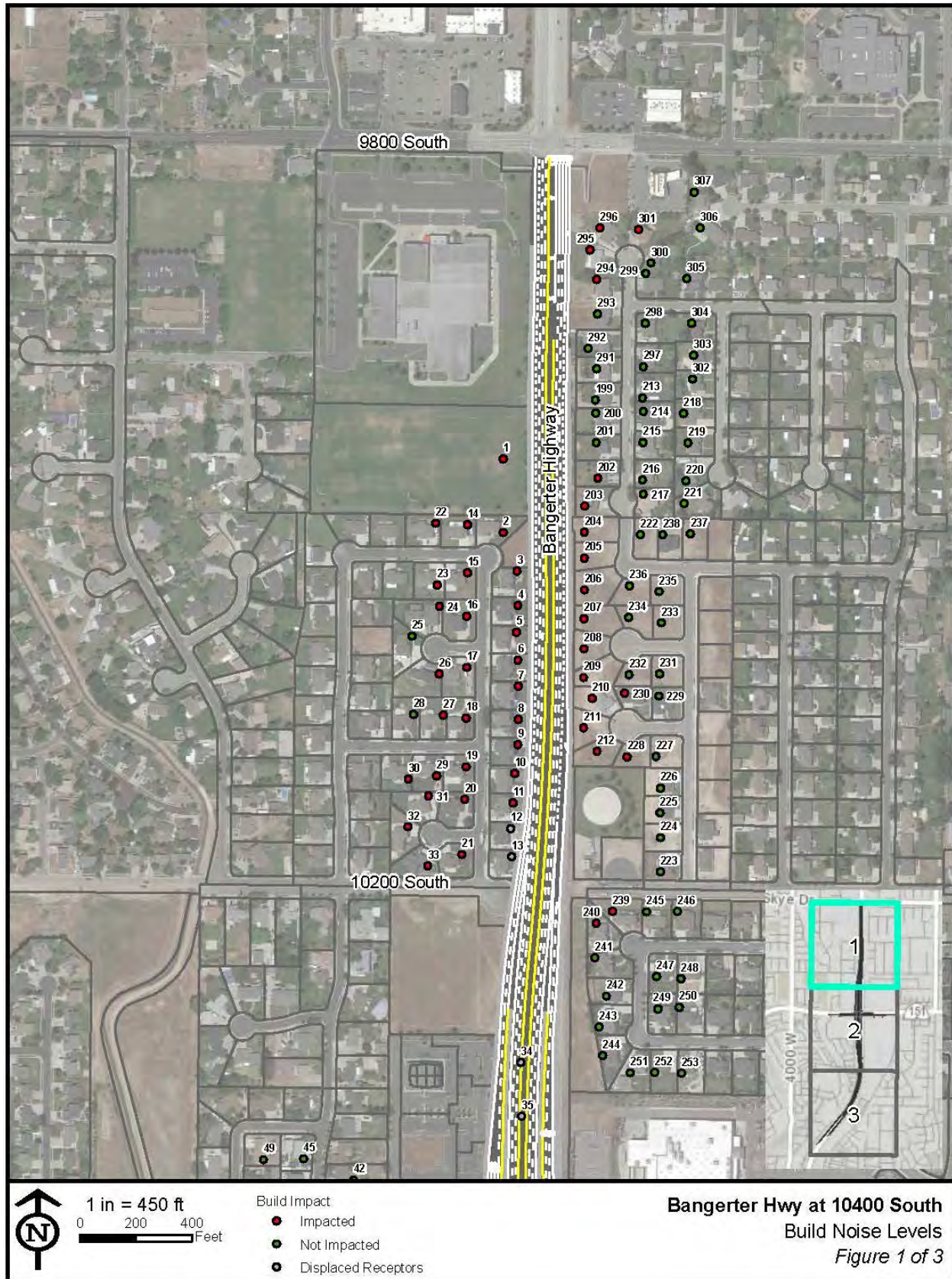
Calibration results before: 114.0 dBA and after 114.0 dBA

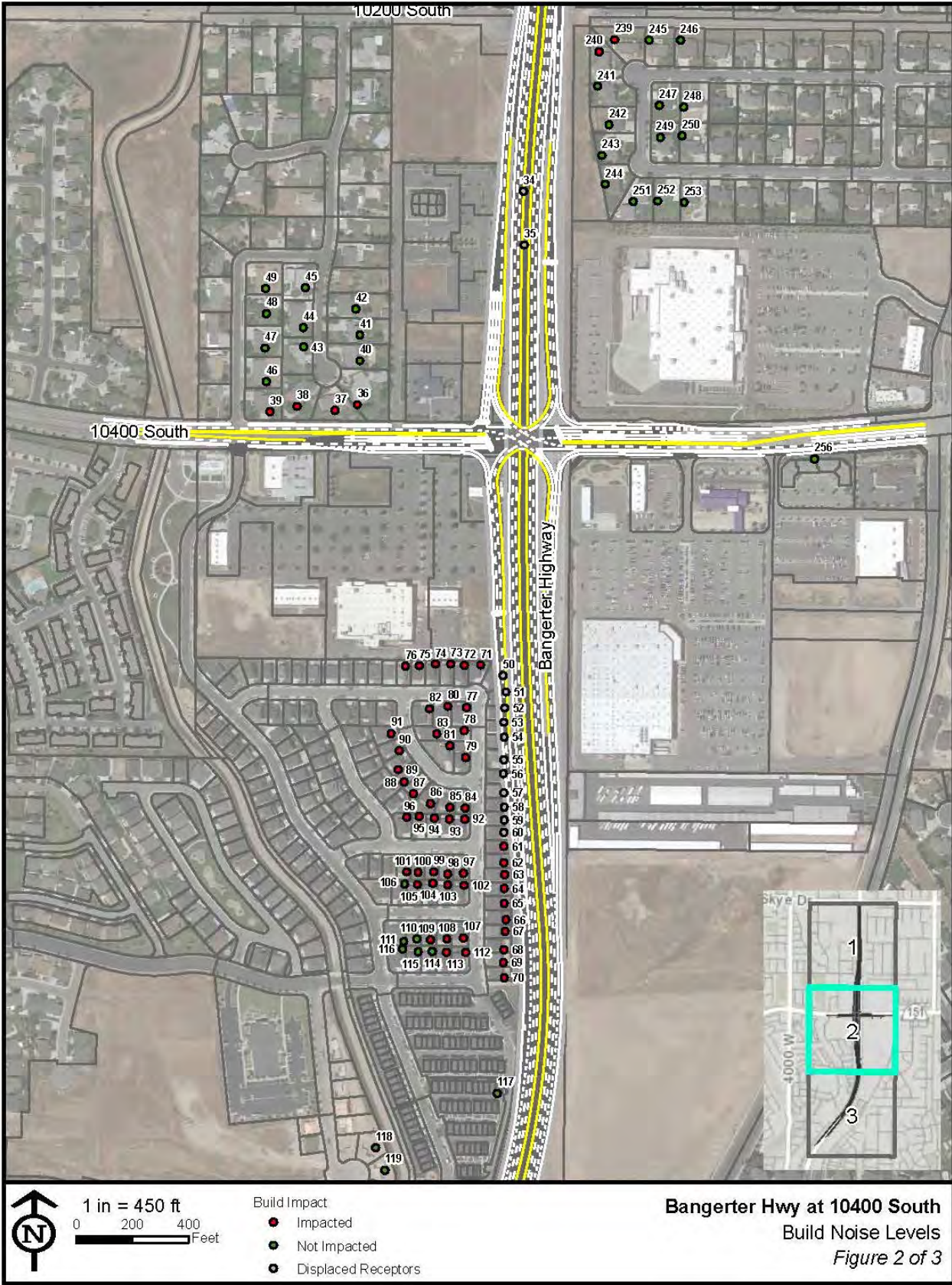
+2.6 INM
Leq 56.2 dBA Lmin _____ dBA Lmax _____ dBA

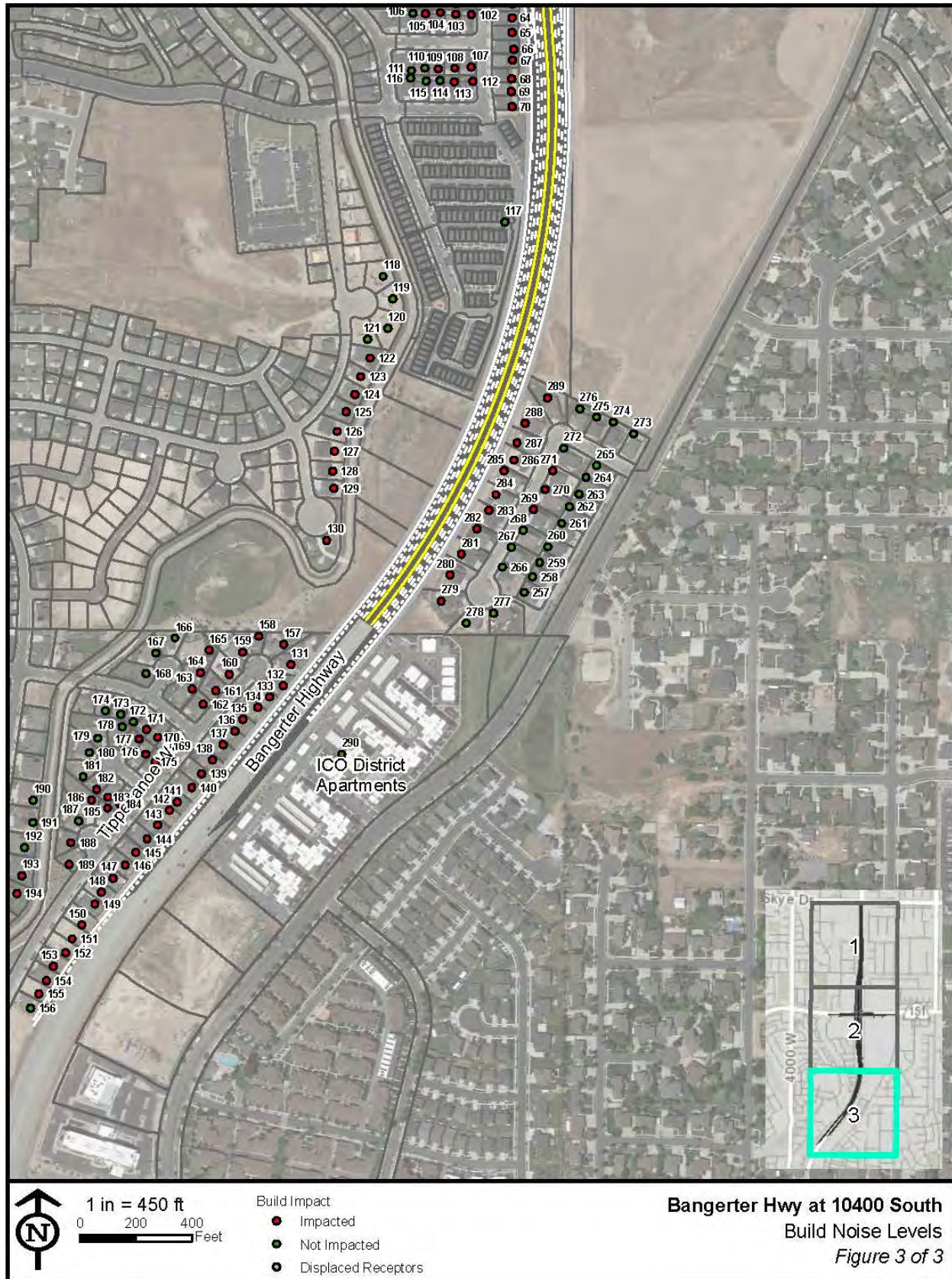
	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
S ←	222	9	3		
N →	267	3	3		

Traffic counts need to be directional

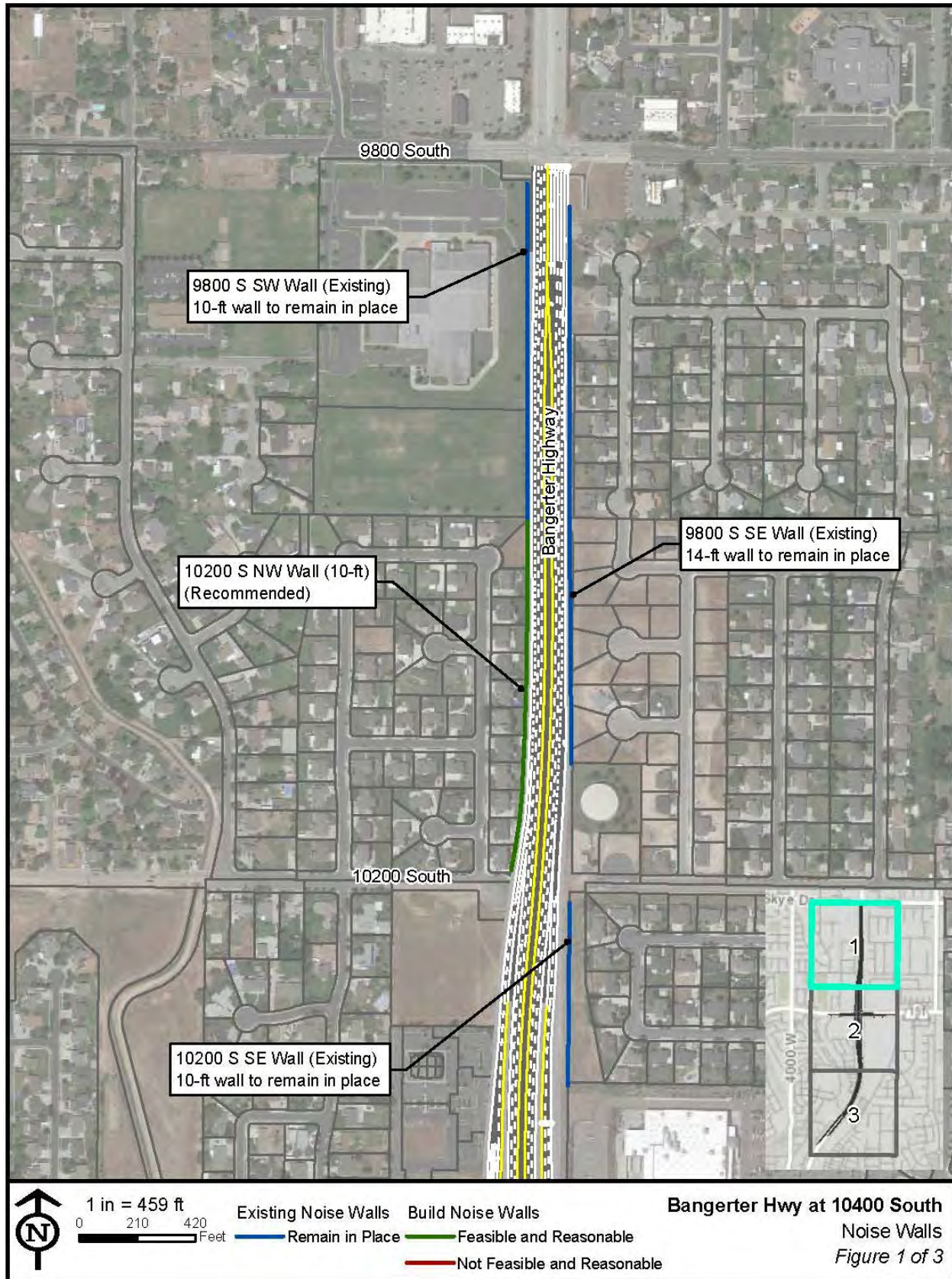
Appendix B. Build Scenario Noise Receptor Maps

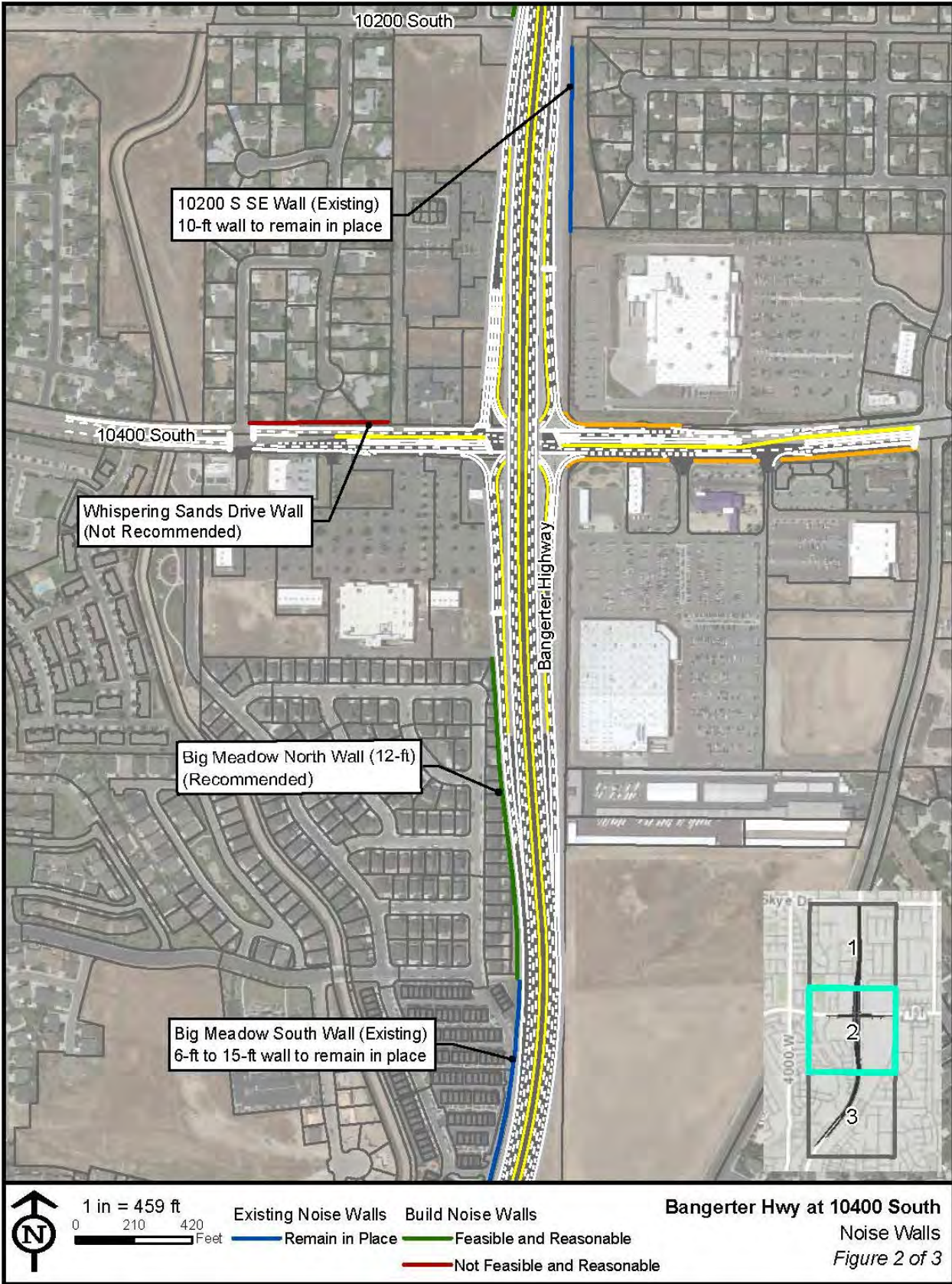


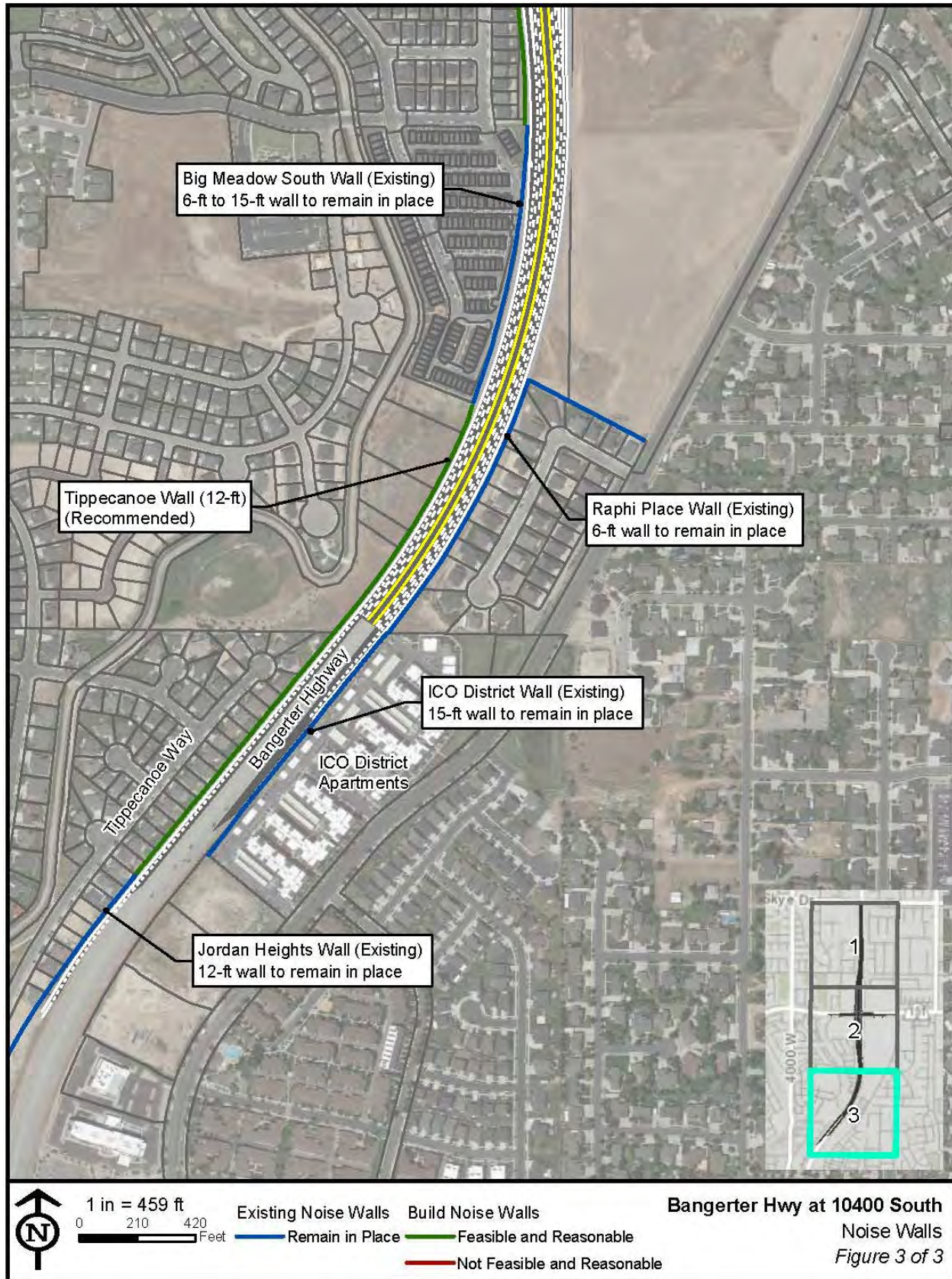




Appendix C. Build Scenario Noise Walls







Appendix D. Noise Wall Analysis

10200 S NW Wall

Wall Length:1282 ft

Wall Cost per sq ft:\$20

Cost of items critical to safety:

of First Row Receivers:10

Name	# of DU	Relocation	1st Row	# of 1st Row	Baseline Noise Level	10-ft Noise Level	10-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	12-ft Noise Level	12-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	14-ft Noise Level	14-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction
2	1		Yes	1	76.0	71.7	4.3	No	No	No	No	70.3	5.7	No	Yes	No	Yes	69.1	6.9	No	Yes	No	Yes
3	1		Yes	1	78.0	71.5	6.5	No	Yes	No	Yes	69.8	8.2	Yes	Yes	Yes	Yes	68.5	9.5	Yes	Yes	Yes	Yes
4	1		Yes	1	78.2	70.5	7.7	Yes	Yes	Yes	Yes	69.1	9.1	Yes	Yes	Yes	Yes	68.1	10.1	Yes	Yes	Yes	Yes
5	1		Yes	1	78.0	70.7	7.3	Yes	Yes	Yes	Yes	69.2	8.8	Yes	Yes	Yes	Yes	68.1	9.9	Yes	Yes	Yes	Yes
6	1		Yes	1	77.7	70.4	7.3	Yes	Yes	Yes	Yes	69.1	8.6	Yes	Yes	Yes	Yes	68	9.7	Yes	Yes	Yes	Yes
7	1		Yes	1	78.7	70.7	8.0	Yes	Yes	Yes	Yes	69.4	9.3	Yes	Yes	Yes	Yes	68.3	10.4	Yes	Yes	Yes	Yes
8	1		Yes	1	78.7	70.3	8.4	Yes	Yes	Yes	Yes	68.9	9.8	Yes	Yes	Yes	Yes	67.8	10.9	Yes	Yes	Yes	Yes
9	1		Yes	1	78.7	70.4	8.3	Yes	Yes	Yes	Yes	69.1	9.6	Yes	Yes	Yes	Yes	67.8	10.9	Yes	Yes	Yes	Yes
10	1		Yes	1	78.3	69.5	8.8	Yes	Yes	Yes	Yes	68.4	9.9	Yes	Yes	Yes	Yes	67.4	10.9	Yes	Yes	Yes	Yes
11	1		Yes	1	81.9	71.4	10.5	Yes	Yes	Yes	Yes	69.8	12.1	Yes	Yes	Yes	Yes	68.5	13.4	Yes	Yes	Yes	Yes
12	1	Yes		0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	1	Yes		0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14	1			0	69.9	67.5	2.4	No	No	No	No	66.8	3.1	No	No	No	No	66.2	3.7	No	No	No	No
15	1			0	69.9	67.1	2.8	No	No	No	No	66	3.9	No	No	No	No	65.1	4.8	No	No	No	No
16	1			0	70.0	66.9	3.1	No	No	No	No	65.5	4.5	No	No	No	No	64.6	5.4	No	Yes	No	No
17	1			0	69.6	65.9	3.7	No	No	No	No	64.7	4.9	No	No	No	No	63.9	5.7	No	Yes	No	No
18	1			0	70.0	65.3	4.7	No	No	No	No	64.4	5.6	No	Yes	No	No	63.6	6.4	No	Yes	No	No
19	1			0	71.4	65.1	6.3	No	Yes	No	No	64.4	7.0	Yes	Yes	No	No	63.8	7.6	Yes	Yes	No	No
20	1			0	72.4	65.2	7.2	Yes	Yes	No	No	64.7	7.7	Yes	Yes	No	No	64.2	8.2	Yes	Yes	No	No
21	1			0	73.3	67.7	5.6	No	Yes	No	No	67.5	5.8	No	Yes	No	No	67.4	5.9	No	Yes	No	No
22	1			0	66.0	64.6	1.4	No	No	No	No	64.1	1.9	No	No	No	No	63.7	2.3	No	No	No	No
23	1			0	66.3	64.3	2.0	No	No	No	No	63.4	2.9	No	No	No	No	62.7	3.6	No	No	No	No
24	1			0	66.5	64.3	2.2	No	No	No	No	63.3	3.2	No	No	No	No	62.6	3.9	No	No	No	No
25	1			0	64.4	62.1	2.3	No	No	No	No	61.3	3.1	No	No	No	No	60.8	3.6	No	No	No	No
26	1			0	66.4	63.3	3.1	No	No	No	No	62.4	4.0	No	No	No	No	61.9	4.5	No	No	No	No
27	1			0	67.8	63.5	4.3	No	No	No	No	62.7	5.1	No	Yes	No	No	62.1	5.7	No	Yes	No	No
28	1			0	65.8	61.8	4.0	No	No	No	No	61.2	4.6	No	No	No	No	60.8	5.0	No	Yes	No	No
29	1			0	68.4	62.9	5.5	No	Yes	No	No	62.4	6.0	No	Yes	No	No	62.1	6.3	No	Yes	No	No
30	1			0	66.2	61.7	4.5	No	No	No	No	61.3	4.9	No	No	No	No	61.1	5.1	No	Yes	No	No
31	1			0	68.6	63.0	5.6	No	Yes	No	No	62.6	6.0	No	Yes	No	No	62.3	6.3	No	Yes	No	No
32	1			0	67.4	62.6	4.8	No	No	No	No	62.4	5.0	No	Yes	No	No	62.3	5.1	No	Yes	No	No
33	1			0	69.5	65.1	4.4	No	No	No	No	65	4.5	No	No	No	No	64.9	4.6	No	No	No	No

Feasibility Factors:																							
# of First-Row 5 dBA Reduction:				9				10				10											
% of First-Row 5 dBA Reduction:				90%				100%								100%							
Acoustic Feasibility (5 dBA reduction for 50% of front-row):				Yes				Yes								Yes							
Reasonableness Factors:																							
# of First-Row Design Goal:				8				9				9											
% of First-Row Design Goal:				80%				90%								90%							
Noise Abatement Design Goal (7 dBA reduction for 35% of front-row):				Yes				Yes								Yes							
# of Benefited:				14				18				22											
Cost of Noise Wall (Length x Height x \$20/sq ft):				\$256,400				\$307,680				\$358,960											
Cost of any other items critical to safety:				0				0				0											
Anticipated Cost of Noise Abatement:				\$256,400				\$307,680				\$358,960											
Allowable Cost (\$30,000 per benefited receptor):				\$420,000				\$540,000				\$660,000											
Cost Effective (Anticipated Cost < Allowable Cost):				Yes				Yes				Yes											
Feasible and Reasonable:				Yes				Yes				Yes											

Big Meadow Drive North Wall

Wall Length: 1161 ft
Wall Cost per sq ft: \$20
Cost of items critical to safety:
of First Row Receivers: 10

Name	# of DU	Relocation	1st Row	# of 1st Row	Baseline Noise Level	10-Ft Noise Level	10-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	12-Ft Noise Level	12-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	14-Ft Noise Level	14-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	16-Ft Noise Level	16-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	18-Ft Noise Level	18-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	20-Ft Noise Level	20-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction				
50	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
51	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
52	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
54	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
56	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
57	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
58	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
60	1	Yes	Yes	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
61	1		Yes	1	80.1	69.4	10.7	Yes	Yes	Yes	Yes	67.8	12.3	Yes	Yes	Yes	Yes	66.3	13.8	Yes	Yes	Yes	Yes	65.5	14.6	Yes	Yes	Yes	Yes	64.4	15.7	Yes	Yes	Yes	Yes	63.5	16.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62	1		Yes	1	79.7	69.4	10.3	Yes	Yes	Yes	Yes	68.1	11.6	Yes	Yes	Yes	Yes	66.8	12.9	Yes	Yes	Yes	Yes	65.9	13.8	Yes	Yes	Yes	Yes	64.8	14.9	Yes	Yes	Yes	Yes	63.8	15.9	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63	1		Yes	1	79.3	69.3	10.0	Yes	Yes	Yes	Yes	68.0	11.3	Yes	Yes	Yes	Yes	66.8	12.5	Yes	Yes	Yes	Yes	65.8	13.5	Yes	Yes	Yes	Yes	65.0	14.3	Yes	Yes	Yes	Yes	64.0	15.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64	1		Yes	1	75.6	69.0	6.6	No	Yes	No	Yes	67.8	7.8	Yes	Yes	Yes	Yes	66.7	8.9	Yes	Yes	Yes	Yes	65.8	9.8	Yes	Yes	Yes	Yes	64.8	10.8	Yes	Yes	Yes	Yes	64.1	11.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	1		Yes	1	74.4	69.5	4.9	No	No	No	No	68.2	6.2	No	Yes	No	Yes	67.1	7.3	Yes	Yes	Yes	Yes	66.2	8.2	Yes	Yes	Yes	Yes	65.4	9.0	Yes	Yes	Yes	Yes	64.8	9.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
66	1		Yes	1	73.8	69.4	4.4	No	No	No	No	68.0	5.8	No	Yes	No	Yes	66.8	7.0	Yes	Yes	Yes	Yes	65.9	7.9	Yes	Yes	Yes	Yes	65.0	8.8	Yes	Yes	Yes	Yes	64.3	9.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
67	1		Yes	1	73.3	69.1	4.2	No	No	No	No	67.6	5.7	No	Yes	No	Yes	66.4	6.9	No	Yes	No	Yes	65.4	7.9	Yes	Yes	Yes	Yes	64.6	8.7	Yes	Yes	Yes	Yes	63.8	9.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
68	1		Yes	1	72.4	69.0	3.4	No	No	No	No	67.9	4.5	No	No	No	No	66.8	5.6	No	Yes	No	Yes	65.9	6.5	No	Yes	No	Yes	65.2	7.2	Yes	Yes	Yes	Yes	64.7	7.7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
69	1		Yes	1	72.0	69.9	2.1	No	No	No	No	68.7	3.3	No	No	No	No	67.8	4.2	No	No	No	No	67.1	4.9	No	No	No	No	66.6	5.4	No	Yes	No	Yes	66.2	5.8	No	Yes	No	Yes	No	Yes		
70	1		Yes	1	73.0	73.0	0.0	No	No	No	No	72.4	0.6	No	No	No	No	72.2	0.8	No	No	No	No	72.0	1.0	No	No	No	No	71.8	1.2	No	No	No	No	71.7	1.3	No	No	No	No	No	No	No	
71	1			0	76.9	70.9	6.0	No	Yes	No	No	70.7	6.2	No	Yes	No	No	70.5	6.4	No	Yes	No	No	70.4	6.5	No	Yes	No	No	70.3	6.6	No	Yes	No	No	70.2	6.7	No	Yes	No	No	No	No	No	
72	1			0	73.4	68.0	5.4	No	Yes	No	No	67.8	5.6	No	Yes	No	No	67.6	5.8	No	Yes	No	No	67.4	6.0	No	Yes	No	No	67.3	6.1	No	Yes	No	No	67.2	6.2	No	Yes	No	No	No	No	No	
73	1			0	71.3	66.5	4.8	No	No	No	No	66.2	5.1	No	Yes	No	No	66.0	5.3	No	Yes	No	No	65.9	5.4	No	Yes	No	No	65.7	5.6	No	Yes	No	No	65.6	5.7	No	Yes	No	No	No	No	No	
74	1			0	69.1	64.6	4.5	No	No	No	No	64.3	4.8	No	No	No	No	64.1	5.0	No	Yes	No	No	63.9	5.2	No	Yes	No	No	63.8	5.3	No	Yes	No	No	63.6	5.5	No	Yes	No	No	No	No	No	
75	1			0	67.5	63.2	4.3	No	No	No	No	62.9	4.6	No	No	No	No	62.7	4.8	No	No	No	No	62.5	5.0	No	Yes	No	No	62.4	5.1	No	Yes	No	No	62.2	5.3	No	Yes	No	No	No	No	No	
76	1			0	66.0	62.0	4.0	No	No	No	No	61.7	4.3	No	No	No	No	61.5	4.5	No	No	No	No	61.4	4.6	No	No	No	No	61.2	4.8	No	No	No	No	61.1	4.9	No	No	No	No	No	No	No	
77	1			0	74.4	66.3	8.1	Yes	Yes	No	No	65.6	8.8	Yes	Yes	No	No	65.0	9.4	Yes	Yes	No	No	64.5	9.9	Yes	Yes	No	No	64.1	10.3	Yes	Yes	No	No	63.8	10.6	Yes	Yes	No	No	No	No	No	
78	1			0	74.0	66.0	8.0	Yes	Yes	No	No	65.2	8.8	Yes	Yes	No	No	64.5	9.5	Yes	Yes	No	No	63.9	10.1	Yes	Yes	No	No	63.4	10.6	Yes	Yes	No	No	63.0	11.0	Yes	Yes	No	No	No	No	No	
79	1			0	74.1	66.4	7.7	Yes	Yes	No	No	65.3	8.8	Yes	Yes	No	No	64.6	9.5	Yes	Yes	No	No	63.9	10.2	Yes	Yes	No	No	63.3	10.8	Yes	Yes	No	No	62.9	11.2	Yes	Yes	No	No	No	No	No	
80	1			0	71.6	65.0	6.6	No	Yes	No	No	64.4	7.2	Yes	Yes	No	No	63.9	7.7	Yes	Yes	No	No	63.5	8.1	Yes	Yes	No	No	63.2	8.4	Yes	Yes	No	No	62.9	8.7	Yes	Yes	No	No	No	No	No	
81	1			0	71.7	65.1	6.6	No	Yes	No	No	64.1	7.6	Yes	Yes	No	No	63.5	8.2	Yes	Yes	No	No	63.0	8.7	Yes	Yes	No	No	62.6	9.1	Yes	Yes	No	No	62.2	9.5	Yes	Yes	No	No	No	No	No	
82	1			0	69.3	63.5	5.8	No	Yes	No	No	62.9	6.4	No	Yes	No	No	62.5	6.8	No	Yes	No	No	62.1	7.2	Yes	Yes	No	No	61.8	7.5	Yes	Yes	No	No	61.5	7.8	Yes	Yes	No	No	No	No	No	
83	1			0	70.2	64.2	6.0	No	Yes	No	No	63.3	6.9	No	Yes	No	No	62.8	7.4	Yes	Yes	No	No	62.3	7.9	Yes	Yes	No	No	61.9	8.3	Yes	Yes	No	No	61.6	8.6	Yes	Yes	No	No	No	No	No	
84	1			0	73.4	67.2	6.2	No	Yes	No	No	65.6	7.8	Yes	Yes	No	No	64.6	8.8	Yes	Yes	No	No	63.8	9.6	Yes	Yes	No	No	63.2	10.2	Yes	Yes	No	No	62.6	10.8	Yes	Yes	No	No	No	No	No	
85	1			0	71.4	65.9	5.5	No	Yes	No	No	64.4	7.0	Yes	Yes	No	No	63.6	7.8	Yes	Yes	No	No	62.9	8.5	Yes	Yes	No	No	62.3	9.1	Yes	Yes	No	No	61.9	9.5	Yes	Yes	No	No	No	No	No	
86	1			0	69.7	64.0	5.7	No	Yes	No	No	62.7	7.0	Yes	Yes	No	No	61.9	7.8	Yes	Yes	No	No	61.3	8.4	Yes	Yes	No	No	60.8	8.9	Yes	Yes	No	No	60.3	9.4	Yes	Yes	No	No	No	No	No	
87	1			0	68.1	62.9	5.2	No	Yes	No	No	61.7	6.4	No	Yes	No	No	61.0	7.1	Yes	Yes	No	No	60.4	7.7	Yes	Yes	No	No	60.0	8.1	Yes	Yes	No	No	59.6	8.5	Yes	Yes	No	No	No	No	No	
88	1			0	67.4	62.1	5.3	No	Yes	No	No	61.1	6.3	No	Yes	No	No	60.5	6.9	No	Yes	No	No	60.0	7.4	Yes	Yes	No	No	59.6	7.8	Yes	Yes	No	No	59.3	8.1	Yes	Yes	No	No	No	No	No	
89	1			0	67.0	61.8	5.2	No	Yes	No	No	60.9	6.1	No	Yes	No	No	60.3	6.7	No	Yes	No	No	59.8	7.2	Yes	Yes	No	No	59.5	7.5	Yes	Yes	No	No	59.1	7.9	Yes	Yes	No	No	No	No	No	
90	1			0	67.0	61.6	5.4	No	Yes	No	No	60.8	6.2	No	Yes	No	No	60.3	6.7	No	Yes	No	No	59.9	7.1	Yes	Yes	No	No	59.6	7.4	Yes	Yes	No	No	59.3	7.7	Yes	Yes	No	No	No	No	No	
91	1			0																																									

Tippecanoe Wall

Wall Length: 2120 ft
Wall Cost per sq ft: \$20
Cost of items critical to safety:
of First Row Receivers: 24

Name	# of DU	Relocation	1st Row	# of 1st Row	Baseline Noise Level	10-Ft Noise Level	10-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	12-Ft Noise Level	12-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	14-Ft Noise Level	14-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	16-Ft Noise Level	16-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	18-Ft Noise Level	18-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	20-Ft Noise Level	20-Ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction				
124	1		Yes	1	67.7	64.2	3.5	No	No	No	No	63.2	4.5	No	No	No	No	62.1	5.6	No	Yes	No	Yes	61.2	6.5	No	Yes	No	Yes	61.2	6.5	No	Yes	No	Yes	59.3	8.4	Yes	Yes	Yes	Yes	Yes	Yes		
125	1		Yes	1	68.0	64.4	3.6	No	No	No	No	63.4	4.6	No	No	No	No	62.2	5.8	No	Yes	No	Yes	61.2	6.8	No	Yes	No	Yes	61.2	6.8	No	Yes	No	Yes	59.3	8.7	Yes	Yes	Yes	Yes	Yes	Yes		
126	1		Yes	1	68.3	64.8	3.5	No	No	No	No	63.8	4.5	No	No	No	No	62.6	5.7	No	Yes	No	Yes	61.5	6.8	No	Yes	No	Yes	61.5	6.8	No	Yes	No	Yes	59.5	8.8	Yes	Yes	Yes	Yes	Yes	Yes		
127	1		Yes	1	69.0	65.6	3.4	No	No	No	No	64.5	4.5	No	No	No	No	63.2	5.8	No	Yes	No	Yes	62.0	7.0	Yes	Yes	Yes	Yes	62.0	7.0	Yes	Yes	Yes	Yes	59.9	9.1	Yes	Yes	Yes	Yes	Yes	Yes		
128	1		Yes	1	69.9	66.5	3.4	No	No	No	No	65.4	4.5	No	No	No	No	64.0	5.9	No	Yes	No	Yes	62.7	7.2	Yes	Yes	Yes	Yes	62.7	7.2	Yes	Yes	Yes	Yes	Yes	Yes	60.4	9.5	Yes	Yes	Yes	Yes	Yes	Yes
129	1		Yes	1	70.9	67.6	3.3	No	No	No	No	66.4	4.5	No	No	No	No	64.9	6.0	No	Yes	No	Yes	63.6	7.3	Yes	Yes	Yes	Yes	63.6	7.3	Yes	Yes	Yes	Yes	Yes	Yes	61.1	9.8	Yes	Yes	Yes	Yes	Yes	Yes
130	1		Yes	1	73.1	69.5	3.6	No	No	No	No	68.1	5.0	No	Yes	No	Yes	66.6	6.5	No	Yes	No	Yes	64.8	8.3	Yes	Yes	Yes	Yes	64.8	8.3	Yes	Yes	Yes	Yes	Yes	Yes	62.5	10.6	Yes	Yes	Yes	Yes	Yes	Yes
131	1		Yes	1	80.0	74.7	5.3	No	Yes	No	Yes	71.8	8.2	Yes	Yes	Yes	Yes	70.0	10.0	Yes	Yes	Yes	Yes	68.7	11.3	Yes	Yes	Yes	Yes	68.7	11.3	Yes	Yes	Yes	Yes	Yes	Yes	66.6	13.4	Yes	Yes	Yes	Yes	Yes	Yes
132	1		Yes	1	77.3	71.0	6.3	No	Yes	No	Yes	69.4	7.9	Yes	Yes	Yes	Yes	67.9	9.4	Yes	Yes	Yes	Yes	66.7	10.6	Yes	Yes	Yes	Yes	66.7	10.6	Yes	Yes	Yes	Yes	Yes	Yes	65.1	12.2	Yes	Yes	Yes	Yes	Yes	Yes
133	1		Yes	1	77.5	71.7	5.8	No	Yes	No	Yes	70.0	7.5	Yes	Yes	Yes	Yes	68.5	9.0	Yes	Yes	Yes	Yes	67.5	10.0	Yes	Yes	Yes	Yes	67.5	10.0	Yes	Yes	Yes	Yes	Yes	Yes	65.4	12.1	Yes	Yes	Yes	Yes	Yes	Yes
134	1		Yes	1	76.3	71.0	5.3	No	Yes	No	Yes	69.4	6.9	No	Yes	No	Yes	68.2	8.1	Yes	Yes	Yes	Yes	67.2	9.1	Yes	Yes	Yes	Yes	67.2	9.1	Yes	Yes	Yes	Yes	Yes	Yes	65.4	10.9	Yes	Yes	Yes	Yes	Yes	Yes
135	1		Yes	1	75.9	71.0	4.9	No	No	No	No	69.3	6.6	No	Yes	No	Yes	68.0	7.9	Yes	Yes	Yes	Yes	67.0	8.9	Yes	Yes	Yes	Yes	67.0	8.9	Yes	Yes	Yes	Yes	Yes	Yes	65.4	10.5	Yes	Yes	Yes	Yes	Yes	Yes
136	1		Yes	1	75.5	70.7	4.8	No	No	No	No	69.1	6.4	No	Yes	No	Yes	67.9	7.6	Yes	Yes	Yes	Yes	67.0	8.5	Yes	Yes	Yes	Yes	67.0	8.5	Yes	Yes	Yes	Yes	Yes	Yes	65.3	10.2	Yes	Yes	Yes	Yes	Yes	Yes
137	1		Yes	1	75.3	70.7	4.6	No	No	No	No	69.2	6.1	No	Yes	No	Yes	68.0	7.3	Yes	Yes	Yes	Yes	67.1	8.2	Yes	Yes	Yes	Yes	67.1	8.2	Yes	Yes	Yes	Yes	Yes	Yes	65.5	9.8	Yes	Yes	Yes	Yes	Yes	Yes
138	1		Yes	1	77.5	71.9	5.6	No	Yes	No	Yes	69.9	7.6	Yes	Yes	Yes	Yes	68.6	8.9	Yes	Yes	Yes	Yes	67.5	10.0	Yes	Yes	Yes	Yes	67.5	10.0	Yes	Yes	Yes	Yes	Yes	Yes	65.7	11.8	Yes	Yes	Yes	Yes	Yes	Yes
139	1		Yes	1	78.6	73.0	5.6	No	Yes	No	Yes	70.4	8.2	Yes	Yes	Yes	Yes	69.0	9.6	Yes	Yes	Yes	Yes	67.8	10.8	Yes	Yes	Yes	Yes	67.8	10.8	Yes	Yes	Yes	Yes	Yes	Yes	65.9	12.7	Yes	Yes	Yes	Yes	Yes	Yes
140	1		Yes	1	79.6	73.8	5.8	No	Yes	No	Yes	70.9	8.7	Yes	Yes	Yes	Yes	69.4	10.2	Yes	Yes	Yes	Yes	68.2	11.4	Yes	Yes	Yes	Yes	68.2	11.4	Yes	Yes	Yes	Yes	Yes	Yes	66.2	13.4	Yes	Yes	Yes	Yes	Yes	Yes
141	1		Yes	1	73.5	69.7	3.8	No	No	No	No	68.5	5.0	No	Yes	No	Yes	67.4	6.1	No	Yes	No	Yes	66.7	6.8	No	Yes	No	Yes	66.7	6.8	No	Yes	No	Yes	Yes	Yes	65.3	8.2	Yes	Yes	Yes	Yes	Yes	Yes
142	1		Yes	1	78.0	72.3	5.7	No	Yes	No	Yes	69.9	8.1	Yes	Yes	Yes	Yes	68.5	9.5	Yes	Yes	Yes	Yes	67.4	10.6	Yes	Yes	Yes	Yes	67.4	10.6	Yes	Yes	Yes	Yes	Yes	Yes	65.7	12.3	Yes	Yes	Yes	Yes	Yes	Yes
143	1		Yes	1	78.3	72.6	5.7	No	Yes	No	Yes	69.9	8.4	Yes	Yes	Yes	Yes	68.6	9.7	Yes	Yes	Yes	Yes	67.5	10.8	Yes	Yes	Yes	Yes	67.5	10.8	Yes	Yes	Yes	Yes	Yes	Yes	65.7	12.6	Yes	Yes	Yes	Yes	Yes	Yes
144	1		Yes	1	77.5	71.8	5.7	No	Yes	No	Yes	69.6	7.9	Yes	Yes	Yes	Yes	68.4	9.1	Yes	Yes	Yes	Yes	67.4	10.1	Yes	Yes	Yes	Yes	67.4	10.1	Yes	Yes	Yes	Yes	Yes	Yes	65.8	11.7	Yes	Yes	Yes	Yes	Yes	Yes
145	1		Yes	1	77.0	71.5	5.5	No	Yes	No	Yes	69.4	7.6	Yes	Yes	Yes	Yes	68.4	8.6	Yes	Yes	Yes	Yes	67.5	9.5	Yes	Yes	Yes	Yes	67.5	9.5	Yes	Yes	Yes	Yes	Yes	Yes	66.2	10.8	Yes	Yes	Yes	Yes	Yes	Yes
146	1		Yes	1	76.3	71.3	5.0	No	Yes	No	Yes	69.5	6.8	No	Yes	No	Yes	68.7	7.6	Yes	Yes	Yes	Yes	68.0	8.3	Yes	Yes	Yes	Yes	68.0	8.3	Yes	Yes	Yes	Yes	Yes	Yes	67.1	9.2	Yes	Yes	Yes	Yes	Yes	Yes
147	1		Yes	1	73.2	70.1	3.1	No	No	No	No	69.2	4.0	No	No	No	No	68.8	4.4	No	No	No	No	68.5	4.7	No	No	No	No	68.5	4.7	No	No	No	No	No	No	68.1	5.1	No	Yes	No	No	Yes	No
157	1			0	74.5	71.0	3.5	No	No	No	No	68.9	5.6	No	Yes	No	No	67.2	7.3	Yes	Yes	No	No	66.0	8.5	Yes	Yes	No	No	66.0	8.5	Yes	Yes	No	No	64.4	10.1	Yes	Yes	No	No	Yes	No	No	No
158	1			0	70.6	67.9	2.7	No	No	No	No	66.0	4.6	No	No	No	No	64.6	6.0	No	Yes	No	No	63.5	7.1	Yes	Yes	No	No	63.5	7.1	Yes	Yes	No	No	62.0	8.6	Yes	Yes	No	No	Yes	No	No	No
159	1			0	70.3	67.8	2.5	No	No	No	No	65.9	4.4	No	No	No	No	64.5	5.8	No	Yes	No	No	63.4	6.9	No	Yes	No	No	63.4	6.9	No	Yes	No	No	61.9	8.4	Yes	Yes	No	No	Yes	No	No	No
160	1			0	70.2	67.8	2.4	No	No	No	No	65.6	4.6	No	No	No	No	64.3	5.9	No	Yes	No	No	63.4	6.8	No	Yes	No	No	63.4	6.8	No	Yes	No	No	61.9	8.3	Yes	Yes	No	No	Yes	No	No	No
161	1			0	70.2	67.9	2.3	No	No	No	No	65.7	4.5	No	No	No	No	64.4	5.8	No	Yes	No	No	63.4	6.8	No	Yes	No	No	63.4	6.8	No	Yes	No	No	62.0	8.2	Yes	Yes	No	No	Yes	No	No	No
162	1			0	69.6	67.6	2.0	No	No	No	No	65.2	4.4	No	No	No	No	64.1	5.5	No	Yes	No	No	63.2	6.4	No	Yes	No	No	63.2	6.4	No	Yes	No	No	61.8	7.8	Yes	Yes	No	No	Yes	No	No	No
163	1			0	67.8	66.0	1.8	No	No	No	No	64.0	3.8	No	No	No	No	62.8	5.0	No	Yes	No	No	62.0	5.8	No	Yes	No	No	62.0	5.8	No	Yes	No	No	60.7	7.1	Yes	Yes	No	No	Yes	No	No	No
164	1			0	67.5	65.7	1.8	No	No	No	No	63.7	3.8	No	No	No	No	62.6	4.9	No	No	No	No	61.7	5.8	No	Yes	No	No	61.7	5.8	No	Yes	No	No	60.4	7.1	Yes	Yes	No	No	Yes	No	No	No
165	1			0	67.1	65.1	2.0	No	No	No	No	63.2	3.9	No	No	No	No	62.1	5.0	No	No	No	No	61.2	5.9	No	Yes	No	No	61.2	5.9	No	Yes	No	No	59.9	7.2	Yes	Yes	No	No	Yes	No	No	No
166	1			0	64.8	62.7	2.1	No	No	No	No	61.1	3.7	No	No	No	No	60.1	4.7	No	No	No	No	59.2	5.6	No	Yes	No	No	59.2	5.6	No	Yes	No	No	58.1	6.7	No	Yes	No	No	Yes	No	No	No
167	1			0	64.1	62.3	1.8	No	No	No	No	60.5	3.6	No	No	No	No	59.6	4.5	No	No	No	No	58.9	5.2	No	Yes	No	No	58.9	5.2	No	Yes	No	No	57.8	6.3	No	Yes	No	No	Yes	No	No	No
168	1			0	64.2	62.6	1.6	No	No	No	No	60.9	3.3	No	No	No	No	59.9	4.3	No	No	No	No	59.2	5.0	No	Yes	No	No	59.2	5.0	No	Yes	No	No	58.2	6.0	No	Yes	No	No	Yes	No	No	No
169	1			0	69.4	67.5	1.9	No	No	No	No	65.3	4.1	No	No	No	No	64.1	5.3	No	Yes	No	No	63.2	6.2	No	Yes	No	No	63.2	6.2	No	Yes	No	No	62.0	7.4	Yes	Yes	No	No	Yes	No	No	No
170	1			0	68.0	66.3	1.7	No	No	No	No	64.3	3.7	No	No	No	No	63.1	4.9	No	No	No	No	62.3	5.7	No	Yes	No	No	62.3	5.7	No	Yes	No	No	61.1	6.9	No	Yes	No	No	Yes	No	No	No
171	1			0	66.7	65.2	1.5	No	No	No	No	63.3	3.4	No	No	No	No	62.1	4.6	No	No	No	No	61.4	5.3	No	Yes	No	No	61.4	5.3	No	Yes	No	No	60.3	6.4	No	Yes	No	No	Yes	No	No	No
172	1			0	65.3	63.9	1.4	No	No	No	No	62.2	3.1	No	No	No	No	61.1	4.2	No	No	No	No	60.4	4.9	No	No	No																	

Jordan Heights Wall

Wall Length:2149 ft

Wall Cost per sq ft:\$20

Cost of items critical to safety:

of First Row Receivers:10

Name	# of DU	Relocation	1st Row	# of 1st Row	Baseline Noise Level	14-ft Noise Level	14-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	16-ft Noise Level	16-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	18-ft Noise Level	18-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	20-ft Noise Level	20-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction
147	1		Yes	1	73.2	74.0	-0.8	No	No	No	No	73.9	-0.7	No	No	No	No	73.8	-0.6	No	No	No	No	73.7	-0.5	No	No	No	No
148	1		Yes	1	71.9	71.3	0.6	No	No	No	No	70.8	1.1	No	No	No	No	70.5	1.4	No	No	No	No	70.3	1.6	No	No	No	No
149	1		Yes	1	71.6	70.7	0.9	No	No	No	No	70.0	1.6	No	No	No	No	69.5	2.1	No	No	No	No	69.1	2.5	No	No	No	No
150	1		Yes	1	70.5	69.2	1.3	No	No	No	No	68.1	2.4	No	No	No	No	67.3	3.2	No	No	No	No	66.7	3.8	No	No	No	No
151	1		Yes	1	69.6	68.2	1.4	No	No	No	No	67.2	2.4	No	No	No	No	66.3	3.3	No	No	No	No	65.3	4.3	No	No	No	No
152	1		Yes	1	68.5	67.0	1.5	No	No	No	No	66.0	2.5	No	No	No	No	64.9	3.6	No	No	No	No	63.9	4.6	No	No	No	No
153	1		Yes	1	68.5	66.9	1.6	No	No	No	No	66.0	2.5	No	No	No	No	64.9	3.6	No	No	No	No	64.0	4.5	No	No	No	No
154	1		Yes	1	67.7	66.3	1.4	No	No	No	No	64.9	2.8	No	No	No	No	63.9	3.8	No	No	No	No	63.1	4.6	No	No	No	No
155	1		Yes	1	66.8	65.4	1.4	No	No	No	No	64.4	2.4	No	No	No	No	63.2	3.6	No	No	No	No	62.2	4.6	No	No	No	No
156	1		Yes	1	65.0	63.5	1.5	No	No	No	No	62.4	2.6	No	No	No	No	61.4	3.6	No	No	No	No	60.6	4.4	No	No	No	No
193	1			0	66.7	65.1	1.6	No	No	No	No	64.4	2.3	No	No	No	No	64.0	2.7	No	No	No	No	63.7	3.0	No	No	No	No
194	1			0	66.7	65.1	1.6	No	No	No	No	64.3	2.4	No	No	No	No	63.8	2.9	No	No	No	No	63.5	3.2	No	No	No	No
195	1			0	65.7	64.0	1.7	No	No	No	No	63.2	2.5	No	No	No	No	62.7	3.0	No	No	No	No	62.3	3.4	No	No	No	No
196	1			0	65.7	64.1	1.6	No	No	No	No	63.1	2.6	No	No	No	No	62.6	3.1	No	No	No	No	62.1	3.6	No	No	No	No
197	1			0	64.6	63.0	1.6	No	No	No	No	62.3	2.3	No	No	No	No	61.7	2.9	No	No	No	No	61.3	3.3	No	No	No	No
198	1			0	63.8	62.2	1.6	No	No	No	No	61.4	2.4	No	No	No	No	60.9	2.9	No	No	No	No	60.5	3.3	No	No	No	No

Feasibility Factors:				
# of First-Row 5 dBA Reduction:	0	0	0	0
% of First-Row 5 dBA Reduction:	0.0%	0.0%	0.0%	0.0%
Acoustic Feasibility (5 dBA reduction for 50% of front-row):	No	No	No	No
Reasonableness Factors:				
# of First-Row Design Goal:	N/A	N/A	N/A	N/A
% of First-Row Design Goal:	N/A	N/A	N/A	N/A
Noise Abatement Design Goal (7 dBA reduction for 35% of front-row):	N/A	N/A	N/A	N/A
# of Benefited:	N/A	N/A	N/A	N/A
Cost of Noise Wall (Length x Height x \$20/sq ft):	N/A	N/A	N/A	N/A
Cost of any other items critical to safety:	N/A	N/A	N/A	N/A
Anticipated Cost of Noise Abatement:	N/A	N/A	N/A	N/A
Allowable Cost (\$30,000 per benefited receptor):	N/A	N/A	N/A	N/A
Cost Effective (Anticipated Cost < Allowable Cost):	N/A	N/A	N/A	N/A
Feasible and Reasonable:	No	No	No	No

Wall Length:	2019 ft
Wall Cost per sq ft:	\$20
Cost of items critical to safety:	
# of First Row Receivers:	20

Feasibility Factors:			
# of First-Row 5 dBA Reduction:	0	0	0
% of First-Row 5 dBA Reduction:	0.0%	0.0%	0.0%
Acoustic Feasibility (5 dBA reduction for 50% of front-row):	No	No	No
Reasonableness Factors:			
# of First-Row Design Goal:	N/A	N/A	N/A
% of First-Row Design Goal:	N/A	N/A	N/A
Noise Abatement Design Goal (7 dBA reduction for 35% of front-row):	N/A	N/A	N/A
# of Benefited:	N/A	N/A	N/A
Cost of Noise Wall (Length x Height x \$20/sq ft):	N/A	N/A	N/A
Cost of any other items critical to safety:	N/A	N/A	N/A
Anticipated Cost of Noise Abatement:	N/A	N/A	N/A
Allowable Cost (\$30,000 per benefited receptor):	N/A	N/A	N/A
Cost Effective (Anticipated Cost < Allowable Cost):	N/A	N/A	N/A
Feasible and Reasonable:	No	No	No

10200 South SE Wall

Wall Length:654 ft

Wall Cost per sq ft:\$20

Cost of items critical to safety:

of First Row Receivers:5

Name	# of DU	Relocation	1st Row	# of 1st Row	Baseline Noise Level	12-ft Noise Level	12-ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	14-ft Noise Level	14-ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	16-ft Noise Level	16-ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	18-ft Noise Level	18-ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction	20-ft Noise Level	20-ft Noise Reduction	Design Goal	Benefitted	1st Row Design Goal	1st Row 5 dBA Reduction
239	1			0	67.2	67.2	0.0	No	No	No	No	67.1	0.1	No	No	No	No	67.0	0.2	No	No	No	No	67.0	0.2	No	No	No	No	66.9	0.3	No	No	No	No
240	1		Yes	1	67.3	67.1	0.2	No	No	No	No	67.0	0.3	No	No	No	No	66.9	0.4	No	No	No	No	66.8	0.5	No	No	No	No	66.7	0.6	No	No	No	No
241	1		Yes	1	64.4	64.1	0.3	No	No	No	No	63.9	0.5	No	No	No	No	63.7	0.7	No	No	No	No	63.5	0.9	No	No	No	No	63.3	1.1	No	No	No	No
242	1		Yes	1	63.2	63.0	0.2	No	No	No	No	62.7	0.5	No	No	No	No	62.5	0.7	No	No	No	No	62.3	0.9	No	No	No	No	62.0	1.2	No	No	No	No
243	1		Yes	1	63.6	63.2	0.4	No	No	No	No	62.9	0.7	No	No	No	No	62.6	1.0	No	No	No	No	62.4	1.2	No	No	No	No	62.1	1.5	No	No	No	No
244	1		Yes	1	63.4	63.1	0.3	No	No	No	No	62.9	0.5	No	No	No	No	62.6	0.8	No	No	No	No	62.4	1.0	No	No	No	No	62.3	1.1	No	No	No	No
245	1			0	64.0	63.9	0.1	No	No	No	No	63.9	0.1	No	No	No	No	63.8	0.2	No	No	No	No	63.8	0.2	No	No	No	No	63.7	0.3	No	No	No	No
246	1			0	62.1	62.0	0.1	No	No	No	No	62.0	0.1	No	No	No	No	61.9	0.2	No	No	No	No	61.9	0.2	No	No	No	No	61.8	0.3	No	No	No	No
247	1			0	60.9	60.7	0.2	No	No	No	No	60.6	0.3	No	No	No	No	60.5	0.4	No	No	No	No	60.4	0.5	No	No	No	No	60.2	0.7	No	No	No	No
248	1			0	60.0	60.0	0.0	No	No	No	No	59.9	0.1	No	No	No	No	59.8	0.2	No	No	No	No	59.7	0.3	No	No	No	No	59.5	0.5	No	No	No	No
249	1			0	60.7	60.5	0.2	No	No	No	No	60.4	0.3	No	No	No	No	60.2	0.5	No	No	No	No	60.1	0.6	No	No	No	No	59.9	0.8	No	No	No	No
250	1			0	59.6	59.5	0.1	No	No	No	No	59.4	0.2	No	No	No	No	59.3	0.3	No	No	No	No	59.2	0.4	No	No	No	No	59.1	0.5	No	No	No	No
251	1			0	61.5	61.2	0.3	No	No	No	No	61.1	0.4	No	No	No	No	60.9	0.6	No	No	No	No	60.8	0.7	No	No	No	No	60.7	0.8	No	No	No	No
252	1			0	60.1	60.0	0.1	No	No	No	No	59.9	0.2	No	No	No	No	59.8	0.3	No	No	No	No	59.7	0.4	No	No	No	No	59.5	0.6	No	No	No	No
253	1			0	58.7	58.6	0.1	No	No	No	No	58.5	0.2	No	No	No	No	58.4	0.3	No	No	No	No	58.3	0.4	No	No	No	No	58.2	0.5	No	No	No	No

Feasibility Factors:					
# of First-Row 5 dBA Reduction:	0	0	0	0	0
% of First-Row 5 dBA Reduction:	0%	0%	0%	0%	0%
Acoustic Feasibility (5 dBA reduction for 50% of front-row):	No	No	No	No	No
Reasonableness Factors:					
# of First-Row Design Goal:	N/A	N/A	N/A	N/A	N/A
% of First-Row Design Goal:	N/A	N/A	N/A	N/A	N/A
Noise Abatement Design Goal (7 dBA reduction for 35% of front-row):	N/A	N/A	N/A	N/A	N/A
# of Benefited:	N/A	N/A	N/A	N/A	N/A
Cost of Noise Wall (Length x Height x \$20/sq ft):	N/A	N/A	N/A	N/A	N/A
Cost of any other items critical to safety:	N/A	N/A	N/A	N/A	N/A
Anticipated Cost of Noise Abatement:	N/A	N/A	N/A	N/A	N/A
Allowable Cost (\$30,000 per benefited receptor):	N/A	N/A	N/A	N/A	N/A
Cost Effective (Anticipated Cost < Allowable Cost):	N/A	N/A	N/A	N/A	N/A
Feasible and Reasonable:	No	No	No	No	No

Raphi Place Wall

Wall Length: 1053 ft
Wall Cost per sq ft: \$20
Cost of items critical to safety:
of First Row Receivers: 11

Name	# of DU	Relocation	1st Row	# of 1st Row	Baseline Noise Level	11-ft Noise Level	11-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	13-ft Noise Level	13-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	15-ft Noise Level	15-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	17-ft Noise Level	17-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction	19-ft Noise Level	19-ft Noise Reduction	Design Goal	Benefited	1st Row Design Goal	1st Row 5 dBA Reduction
257	1			0	61.8	60.0	1.8	No	No	No	No	59.1	2.7	No	No	No	No	58.6	3.2	No	No	No	No	58.2	3.6	No	No	No	No	57.9	3.9	No	No	No	No
258	1			0	62.0	60.2	1.8	No	No	No	No	59.3	2.7	No	No	No	No	58.8	3.2	No	No	No	No	58.5	3.5	No	No	No	No	58.1	3.9	No	No	No	No
259	1			0	62.2	60.5	1.7	No	No	No	No	59.6	2.6	No	No	No	No	59.1	3.1	No	No	No	No	58.7	3.5	No	No	No	No	58.4	3.8	No	No	No	No
260	1			0	62.6	60.9	1.7	No	No	No	No	59.9	2.7	No	No	No	No	59.5	3.1	No	No	No	No	59.1	3.5	No	No	No	No	58.8	3.8	No	No	No	No
261	1			0	62.8	61.3	1.5	No	No	No	No	60.3	2.5	No	No	No	No	59.9	2.9	No	No	No	No	59.6	3.2	No	No	No	No	59.3	3.5	No	No	No	No
262	1			0	63.1	61.6	1.5	No	No	No	No	60.7	2.4	No	No	No	No	60.3	2.8	No	No	No	No	60.0	3.1	No	No	No	No	59.7	3.4	No	No	No	No
263	1			0	62.9	61.5	1.4	No	No	No	No	60.7	2.2	No	No	No	No	60.4	2.5	No	No	No	No	60.1	2.8	No	No	No	No	59.9	3.0	No	No	No	No
264	1			0	63.1	61.9	1.2	No	No	No	No	61.1	2.0	No	No	No	No	60.8	2.3	No	No	No	No	60.6	2.5	No	No	No	No	60.3	2.8	No	No	No	No
265	1			0	62.9	61.8	1.1	No	No	No	No	61.2	1.7	No	No	No	No	60.9	2.0	No	No	No	No	60.7	2.2	No	No	No	No	60.5	2.4	No	No	No	No
266	1			0	64.0	61.6	2.4	No	No	No	No	60.9	3.1	No	No	No	No	60.4	3.6	No	No	No	No	59.9	4.1	No	No	No	No	59.5	4.5	No	No	No	No
267	1			0	64.6	62.0	2.6	No	No	No	No	61.3	3.3	No	No	No	No	60.8	3.8	No	No	No	No	60.2	4.4	No	No	No	No	59.8	4.8	No	No	No	No
268	1			0	65.3	62.9	2.4	No	No	No	No	61.9	3.4	No	No	No	No	61.3	4.0	No	No	No	No	60.8	4.5	No	No	No	No	60.3	5.0	No	Yes	No	No
269	1			0	67.6	65.6	2.0	No	No	No	No	64.4	3.2	No	No	No	No	63.9	3.7	No	No	No	No	63.5	4.1	No	No	No	No	63.1	4.5	No	No	No	No
270	1			0	68.2	66.3	1.9	No	No	No	No	65.4	2.8	No	No	No	No	65.0	3.2	No	No	No	No	64.7	3.5	No	No	No	No	64.4	3.8	No	No	No	No
271	1			0	68.1	66.6	1.5	No	No	No	No	65.9	2.2	No	No	No	No	65.5	2.6	No	No	No	No	65.3	2.8	No	No	No	No	65.1	3.0	No	No	No	No
272	1			0	65.8	64.1	1.7	No	No	No	No	63.5	2.3	No	No	No	No	63.2	2.6	No	No	No	No	62.9	2.9	No	No	No	No	62.7	3.1	No	No	No	No
273	1			0	61.5	61.2	0.3	No	No	No	No	60.8	0.7	No	No	No	No	60.5	1.0	No	No	No	No	60.4	1.1	No	No	No	No	60.3	1.2	No	No	No	No
274	1			0	62.6	63.0	-0.4	No	No	No	No	62.6	0.0	No	No	No	No	62.4	0.2	No	No	No	No	62.2	0.4	No	No	No	No	62.1	0.5	No	No	No	No
275	1			0	64.9	64.1	0.8	No	No	No	No	63.6	1.3	No	No	No	No	63.4	1.5	No	No	No	No	63.3	1.6	No	No	No	No	63.2	1.7	No	No	No	No
276	1			0	65.7	64.7	1.0	No	No	No	No	64.3	1.4	No	No	No	No	64.1	1.6	No	No	No	No	63.9	1.8	No	No	No	No	63.8	1.9	No	No	No	No
277	1			0	62.4	60.3	2.1	No	No	No	No	59.7	2.7	No	No	No	No	59.2	3.2	No	No	No	No	58.8	3.6	No	No	No	No	58.5	3.9	No	No	No	No
278	1			0	64.5	62.7	1.8	No	No	No	No	61.8	2.7	No	No	No	No	61.3	3.2	No	No	No	No	60.9	3.6	No	No	No	No	60.6	3.9	No	No	No	No
279	1		Yes	1	69.1	66.1	3.0	No	No	No	No	65.4	3.7	No	No	No	No	64.8	4.3	No	No	No	No	64.3	4.8	No	No	No	No	63.9	5.2	No	Yes	No	Yes
280	1		Yes	1	69.6	66.2	3.4	No	No	No	No	65.4	4.2	No	No	No	No	64.7	4.9	No	No	No	No	64.1	5.5	No	Yes	No	Yes	63.6	6.0	No	Yes	No	Yes
281	1		Yes	1	68.2	65.2	3.0	No	No	No	No	64.6	3.6	No	No	No	No	63.9	4.3	No	No	No	No	63.3	4.9	No	No	No	No	62.7	5.5	No	Yes	No	Yes
282	1		Yes	1	68.2	65.2	3.0	No	No	No	No	64.5	3.7	No	No	No	No	63.8	4.4	No	No	No	No	63.2	5.0	No	Yes	No	Yes	62.6	5.6	No	Yes	No	Yes
283	1		Yes	1	69.8	66.2	3.6	No	No	No	No	65.4	4.4	No	No	No	No	64.6	5.2	No	Yes	No	Yes	63.9	5.9	No	Yes	No	Yes	63.3	6.5	No	Yes	No	Yes
284	1		Yes	1	71.6	67.5	4.1	No	No	No	No	66.5	5.1	No	Yes	No	Yes	65.6	6.0	No	Yes	No	Yes	64.8	6.8	No	Yes	No	Yes	64.1	7.5	Yes	Yes	Yes	Yes
285	1		Yes	1	72.2	67.9	4.3	No	No	No	No	66.9	5.3	No	Yes	No	Yes	66.0	6.2	No	Yes	No	Yes	65.2	7.0	Yes	Yes	Yes	Yes	64.5	7.7	Yes	Yes	Yes	Yes
286	1		Yes	1	71.7	67.7	4.0	No	No	No	No	66.7	5.0	No	Yes	No	Yes	65.8	5.9	No	Yes	No	Yes	65.1	6.6	No	Yes	No	Yes	64.4	7.3	Yes	Yes	Yes	Yes
287	1		Yes	1	73.0	68.8	4.2	No	No	No	No	67.7	5.3	No	Yes	No	Yes	66.8	6.2	No	Yes	No	Yes	66.1	6.9	No	Yes	No	Yes	65.5	7.5	Yes	Yes	Yes	Yes
288	1		Yes	1	73.6	70.2	3.4	No	No	No	No	69.4	4.2	No	No	No	No	68.8	4.8	No	No	No	No	68.3	5.3	No	Yes	No	Yes	67.9	5.7	No	Yes	No	Yes
289	1		Yes	1	67.9	66.8	1.1	No	No	No	No	66.5	1.4	No	No	No	No	66.3	1.6	No	No	No	No	66.0	1.9	No	No	No	No	65.9	2.0	No	No	No	No

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Bangerter 10400 South State Environmental Study Reevaluation

Public Meeting

May 22, 2019

Following completion of the State Environmental Study (SES) for roadway improvements at Bangerter Highway and 10400 South, the Utah Department of Transportation (UDOT) continued to meet with South Jordan City to discuss an underpass rather than the environmentally approved overpass. These discussions led to a reevaluation of the original SES to construct an underpass of Bangerter Highway at 10400 South

UDOT hosted a public meeting to inform the public about the SES Reevaluation and discuss the potential impacts for an underpass. UDOT representatives and engineers were on hand to answer any stakeholder questions or concerns. Stakeholders were invited to leave comments during a formal 30-day comment period.

This is a summary of the public involvement efforts for the Bangerter 10400 South State Environmental Study Reevaluation Public Meeting and comment period. This document contains:

- Summary of the 10400 South SES Reevaluation Public Meeting
- Appendices for the 10400 South SES Reevaluation Public Meeting

Meeting type	UDOT held a public meeting to inform the public about the Bangerter 10400 South SES Reevaluation. The meeting was an open house and attendees were presented with information boards, scroll plots and a GIS map projection of the study area. UDOT representatives were on hand to answer questions throughout the meeting.
When/Where	The public meeting was held on Wednesday, May 22, 2019, from 5 – 7 p.m., at South Jordan Middle School, 10245 South 2700 West, South Jordan, UT 84095.
Notification	UDOT notified stakeholders of the public meeting through the following outreach methods: • Email to 10400 South Distribution List (198 recipients) • Social media posts by UDOT Region Two and South Jordan City • Legal notices placed in The Salt Lake Tribune and Deseret News through Utah Media Group on May 8 and May 15 <i>(See Appendix A for email; Appendix B for social media posts; Appendix C for legal notice.)</i>
Attendance	71 attendees signed in at the front desk. <i>(See Appendix D for sign-in sheets.)</i>
Meeting information	Stakeholders were presented the following information at the meeting: • Information boards on display • Three scroll plots of the study area <i>(See Appendix E for information boards.)</i>
Comments	Attendees were invited to provide comments through the following options: • Written comments at the public meeting (16) • Verbal comments through a court reporter on hand at the public meeting (0) • Email comments to bangerter@utah.gov (2) In all the project received 18 comments. <i>(See Appendix F for comments and responses.)</i>

Appendix A: Public Meeting Email Notification



Public Meeting | May 22, 2019

UDOT is conducting a State Environmental Study (SES) Reevaluation for an underpass of Bangerter Highway at 10400 South. A public meeting will be held on Wednesday, May 22, to discuss the updated SES.

The public is invited to attend the meeting to learn more about the planned underpass and potential impacts. Members of the project team will be present to talk over the updated SES and answer questions.

WHEN: Wednesday, May 22, 2019, 5 – 7 p.m

WHERE: South Jordan Middle School
10245 S 2700 West, South Jordan

[*Click here for additional details](#)

UDOT Region Two/Bangerter Three Interchanges | 2010 S. 2760 W., SLC, UT 84104

[Unsubscribe \(recipient's email\)](#)

Sent by bangerter@utah.gov in collaboration with

Appendix B: Public Meeting Social Media Notification



Tonight UDOT will host a public meeting to discuss the environmental study reevaluation for an underpass of Bangerter Highway at 10400 South. All are invited to attend to learn more about the project.

BANGERTER
10400 SOUTH
Public Hearing (Open House Format)

UDOT is conducting a State Environmental Study (SES) Reevaluation to evaluate the potential benefits and impacts for an underpass of Bangerter Highway at 10400 South.

You are invited to attend a public hearing to review the draft SES Reevaluation, and gather information on the next steps leading to construction, which is scheduled for spring 2020. A copy of the draft SES Reevaluation will be available on the study website. If you need special accommodations during the meeting, please contact the project team in advance.

When: Wednesday, May 22, 2019
5 - 7 p.m.

Where: South Jordan Middle School Gymnasium
10245 S 2700 W, South Jordan

Public comments will be accepted at the public meeting or can be submitted on the project website or by email through June 7, 2019.

Website: www.udot.utah.gov/bangerter10400south
Email: bangerter@utah.gov
Hotline: 888-766-ROAD (7623)

Schedule

- Spring 2018: Project Start Date / Construction Start
- June 2018: Public hearing announcement posted
- August 2018: Reevaluation announcement posted / Public hearing announcement posted
- Winter 2018: Project announcement posted / Public hearing announcement posted
- May 2019: Draft SES Reevaluation / Draft Reevaluation
- Summer 2019: Public hearing announcement posted / Public hearing announcement posted
- Spring 2020: Construction start

A UDOT PROJECT

24 15 Comments 14 Shares

South Jordan City Facebook Post



Tonight UDOT will host a public meeting to discuss the environmental study reevaluation for an underpass of Bangerter Highway at 10400 South. All are invited to attend to learn more about the project.

BANGERTER
10400 SOUTH
Public Hearing (Open House Format)

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- Summer 2019: Public hearing announcement posted / Public hearing announcement posted
- Spring 2020: Construction start

A UDOT PROJECT

7:52 AM - 22 May 2019

2 Likes

South Jordan City Twitter Post



UDOT is conducting a State Environmental Study Reevaluation to evaluate the potential benefits and impacts for an underpass of Bangerter and 10400 So. We will have a public hearing on Wednesday, May 22 from 5-7pm at the South Jordan Middle School Gymnasium @UtahDOT @SouthJordanUT

BANGERTER
10400 SOUTH
Public Hearing (Open House Format)

UDOT is conducting a State Environmental Study (SES) Reevaluation to evaluate the potential benefits and impacts for an underpass of Bangerter Highway at 10400 South.

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Public comments will be accepted at the public meeting or can be submitted on the project website or by email through June 7, 2019.

Website: www.udot.utah.gov/bangerter10400south
Email: bangerter@utah.gov
Hotline: 888-766-ROAD (7623)

Schedule

- Spring 2018: Project Start Date / Construction Start
- June 2018: Public hearing announcement posted
- August 2018: Reevaluation announcement posted / Public hearing announcement posted
- Winter 2018: Project announcement posted / Public hearing announcement posted
- May 2019: Draft SES Reevaluation / Draft Reevaluation
- Summer 2019: Public hearing announcement posted / Public hearing announcement posted
- Spring 2020: Construction start

A UDOT PROJECT

7:27 AM - 16 May 2019

4 Retweets 3 Likes

UDOT Region Two Facebook Post

Appendix C: Public Meeting Legal Notice

Ad Number 0001253362-01

Ad Type

Legal Liner

Ad Size 2 X 52 li

Color

WYSIWYG Content

NOTICE OF PUBLIC HEARING

On proposed improvements for Bangerter Highway and 10400 South intersection, South Jordan, Utah

PUBLIC NOTICE OF PUBLIC HEARING on proposed improvements at the intersection of Bangerter Highway (SR-154) and 10400 South, Salt Lake County, Utah. As part of the State Environmental Study (SES) Reevaluation, the Utah Department of Transportation (UDOT), herewith, advises all interested persons or groups that an official Public Hearing (open house format) will be held for this project. The proposed project includes constructing an underpass of Bangerter Highway at 10400 South in South Jordan, Utah.

An official Public Hearing will be held for this project on **Wednesday, May 22**, at the **South Jordan Middle School** (10245 South 2700 West) in South Jordan, Utah, from 5:00 p.m. to 7:00 p.m. Members of the public are invited to visit the Public Hearing at any time during this period and are encouraged to provide comments on the project.

Information to be presented at the hearing will include the purpose of the project and information gathered during the SES Reevaluation process. During the Public Hearing, verbal and/or written comments will be received from all interested persons or groups regarding the features of the proposed project or its social, economic and environmental effects. Comments may also be submitted via the project website at www.udot.utah.gov/bangerter10400south, the project hotline at 888-766-7623, via email to bangerter@utah.gov. Comments need to be submitted by Friday, June 7, 2019, in order to be included in the official transcript of the public hearing proceedings.

This Public Hearing will serve as the official Public Hearing for the State Environmental Study Reevaluation in accordance with the Utah Administrative Code R930-2.

To learn more, visit www.udot.utah.gov/bangerter10400south.

In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify the project team at the before mentioned number/address/email at least three days in advance of the meeting.

1253362

UPAXLP

Product

Placement

Position

Salt Lake Tribune

Legal Liner Notice

Public Meeting/Hear

Scheduled Date(s):

05/08/2019

utahlegals.com

utahlegals.com

utahlegals.com

Scheduled Date(s):

05/08/2019

Deseret News

Legal Liner Notice

Public Meeting/Hear

Scheduled Date(s):

05/08/2019

Deseret News

Legal Liner Notice

Public Meeting/Hear

Scheduled Date(s):

05/15/2019

utahlegals.com

utahlegals.com

utahlegals.com

Scheduled Date(s):

05/15/2019

Salt Lake Tribune

Legal Liner Notice

Public Meeting/Hear

Scheduled Date(s):

05/15/2019

5/3/2019

1:07:21PM

Appendix D: Public Meeting Sign-In Sheets

UTAH DEPARTMENT OF TRANSPORTATION SIGN-IN SHEET

The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
Chuck Newton				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Dean Pettit Peggy				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Bryce & Jayne Ann Osborne				☒ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Michael King				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Stephen Bryan				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Bro Osborne				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
SCOTT OSBORNE				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Don She Hon				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Rabyn She Hon				☐ 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.

UTAH DEPARTMENT OF TRANSPORTATION SIGN-IN SHEET

The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
MATT COLES				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Eve York + Brian + Zachary York				☐ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
DAVID + KRISTA ATKINSON				☒ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Cari + Gary Eubanks				☒ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Satt Hendrickson Amanda				☒ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Jimmie SMEATH				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Daryl Dwyer Marianne Dwyer				☒ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Richard Noyce				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Bruce Merrill				☒ Male ☐ Female	☐ 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.

UTAH DEPARTMENT OF TRANSPORTATION SIGN-IN SHEET

The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
Todd Mendenhall				☐ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Deans Mandy				☐ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Donna Leach				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☒ Other <i>Caucasian</i>
Angela Lindahl				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Sean Lesto				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Joe Anderson				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Samantha Nelson				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Brent Nelson				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Stephanie → Andy Spry				☐ 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.

UTAH DEPARTMENT OF TRANSPORTATION SIGN-IN SHEET

The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
CAMILLE FRANSON				☐ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Chris Coleman				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Ashford Gelbreath				☒ Male ☒ Female	☒ American Indian/Alaskan Native ☒ Asian/Pacific Islander ☒ Black ☒ Hispanic ☒ White ☒ Other
Kashif Buttar				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☒ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
KIT BATE				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Andra Mehm				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
R.D. Bishop				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
KEMEN				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☒ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
				☐ Male ☐ Female	☐ 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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UTAH DEPARTMENT OF TRANSPORTATION SIGN-IN SHEET

The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
Mohanraj Nagasamy				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☒ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
AYSE HANNON				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
LARRY & CAROL STANCLIFF				☐ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
ANGELA WHITNEY				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Dominique Martin				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☒ Black ☐ Hispanic ☐ White ☐ Other
Ulysses Garcia				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Rob Tudor				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Gene Ushinsky				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Cassie Wallace				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other

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UTAH DEPARTMENT OF TRANSPORTATION SIGN-IN SHEET

The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
Jeremy D. Davis				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Ross Whitney				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Paul Nauta				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Allison Terry				☐ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
David Carr				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Scott Hogan				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☐ White ☐ Other
Aaron Griffith				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Emerson Zamora				☒ Male ☐ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Margaret Bond				☐ Male ☒ Female	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other

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Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
Jason Briggs				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Ray & Tracy VanderVaart				☒ Male ☐ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
LAREN PHILLIPS				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Gaylene Rose				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
Jill Lark				☐ Male ☒ Female ☐ Person with Disability	☐ American Indian/Alaskan Native ☐ Asian/Pacific Islander ☐ Black ☐ Hispanic ☒ White ☐ Other
RANDY EVES				☒ 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.



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The Utah Department of Transportation monitors attendance to ensure non-discrimination. We appreciate you providing this information.

Name (Please print or write clearly)	Email address	Address (City, State and Zip)	Phone Number	OPTIONAL	
Jason McGuire				☒ Male	☐ American Indian/Alaskan Native
☐ Female				☐ Asian/Pacific Islander	
☐ Person with Disability				☐ Black ☐ Hispanic	
Donald Root				☒ Male	☐ American Indian/Alaskan Native
				☐ Female	☐ Asian/Pacific Islander
				☐ Person with Disability	☐ Black ☐ Hispanic
Tom Mertens				☒ Male	☐ American Indian/Alaskan Native
				☐ Female	☐ Asian/Pacific Islander
				☐ Person with Disability	☐ Black ☐ Hispanic
				☐ Male	☐ American Indian/Alaskan Native
				☐ Female	☐ Asian/Pacific Islander
				☐ Person with Disability	☐ Black ☐ Hispanic
				☐ Male	☐ American Indian/Alaskan Native
				☐ Female	☐ Asian/Pacific Islander
				☐ Person with Disability	☐ Black ☐ Hispanic
				☐ Male	☐ American Indian/Alaskan Native
				☐ Female	☐ Asian/Pacific Islander
				☐ Person with Disability	☐ Black ☐ Hispanic
				☐ Male	☐ American Indian/Alaskan Native
				☐ Female	☐ Asian/Pacific Islander
				☐ Person with Disability	☐ Black ☐ Hispanic

Appendix E: Public Meeting Information Boards

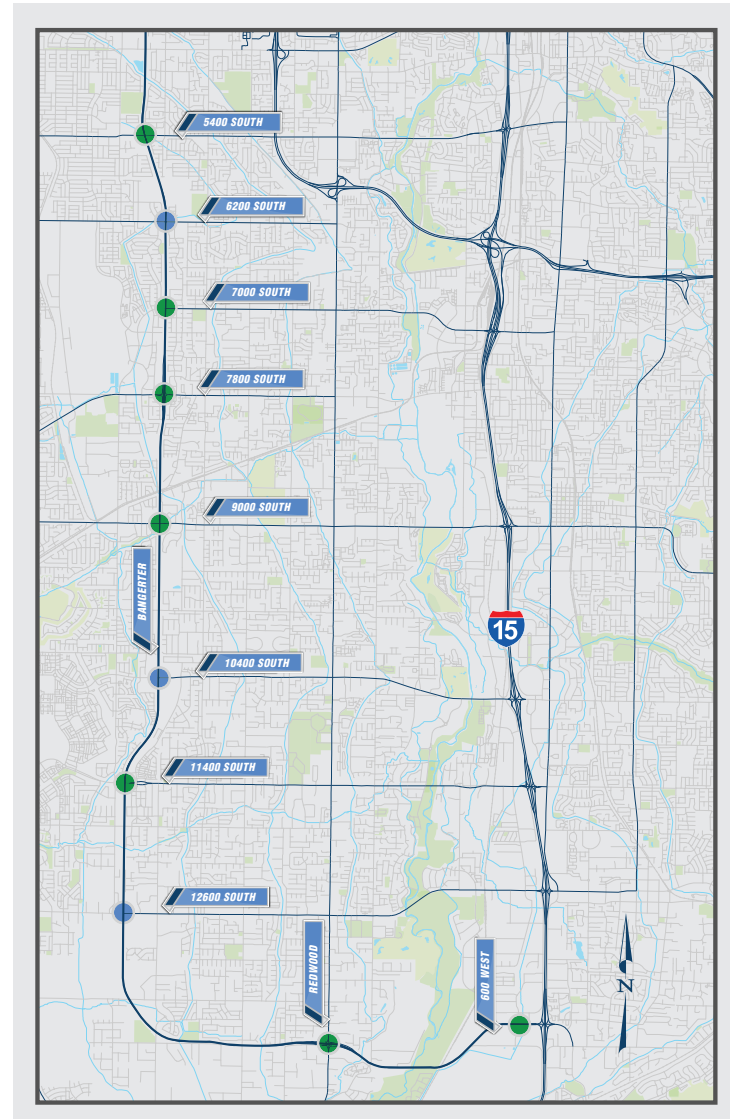
WELCOME

***Bangerter Highway and 10400 South
Public Hearing***

Conversion to Interchange

Other Bangarter intersections have been converted to interchanges:

- Completed
- Environmental Study



Why is a reevaluation needed?

- The original SES (completed in summer 2018) recommended and cleared an overpass of Bangerter Highway at 10400 South.
- UDOT is working with South Jordan City to instead construct an underpass, which requires a reevaluation of the original SES.

What to expect

- Same alignment as overpass
- Minor changes in property impacts due to drainage and utility relocations. No changes to relocations.
- A long-term closure of east-west traffic on 10400 South up to six months in duration
- No substantial differences in noise impacts or recommended noise walls.



Purpose and Need

How are Traffic Operations at an Intersection Measured?

Intersection Level-of-Service (LOS) is determined by the amount of extra time it takes (delay) to pass through an intersection as a result of starts and stops associated with traffic signals.

Intersection Level-of- Service

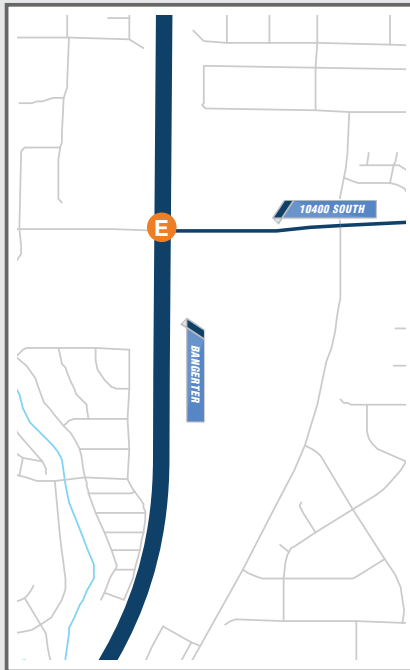


LOS F describes very congested driving conditions where the number of vehicles arriving at an intersection exceeds the capacity of the intersection. Most drivers have to wait for multiple green lights before they get through the intersection. Long queues of left turning vehicles stack out of the left turn pockets and block adjacent through lanes.

Purpose and Need

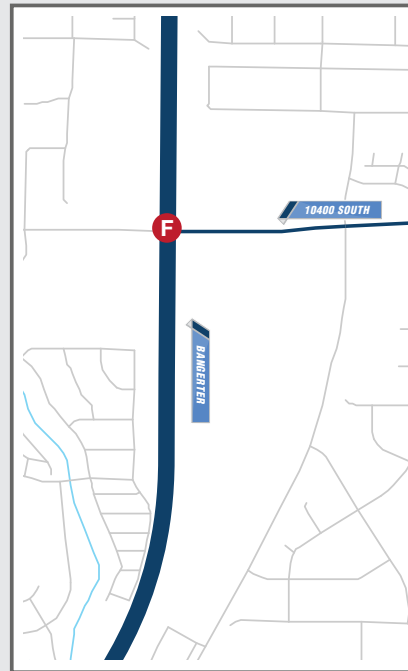
Existing Level-of-Service

The Bangerter Highway intersection at 10400 South is currently congested.



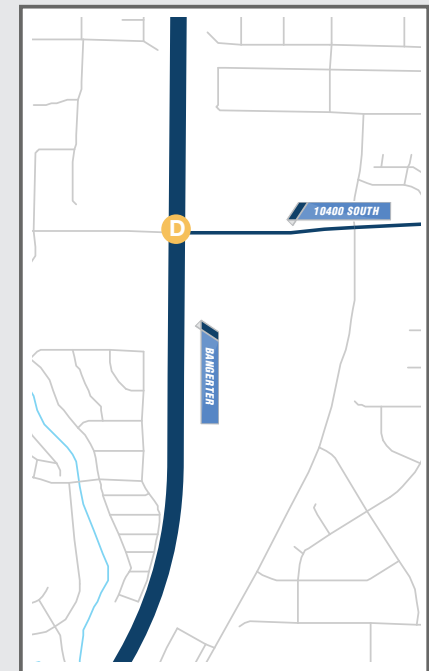
2040 No-Build Level-of-Service

By 2040, the congestion at the 10400 South/Bangerter Highway intersection will worsen.



2040 Build Level-of-Service

Grade-separating the intersection will reduce congestion and improve safety.



Right-of-Way Process



1. ***Identification*** – Design team will identify what property will be needed to construct the improvements.
2. ***Contact*** – Property owners will be contacted directly if their property is in the affected area.
3. ***Valuation*** – Right-of-way professionals will then estimate the value of property.
4. ***Acquisition*** – UDOT will work closely with the property owner to acquire needed property at fair market value.

Schedule & Environmental Process



Environmental Impacts and Mitigation

Resource	Impact	Mitigation
Right-of-Way/ Relocations	• Partial Acquisition: 5.25 acres, affecting 50 parcels • Full Acquisition: 5.81 acres, affecting 17 parcels • Relocations: 11 residential and 3 commercial properties • Potential Relocations: 3 residential parcels	• Property Owners will be compensated according to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended.
Cultural/ Paleontological	• No historic properties affected • Low potential for paleontological resources	• None
Threatened & Endangered Species/ Wildlife	• No impact	• None
Invasive Weeds	• Potential to introduce or spread invasive weeds	• Implement UDOT Standard Specifications, Invasive Weed Control
Noise	• 3 dBA noise level increase throughout the study area • 174 of 307 receptors impacted by proposed action noise levels	• Noise wall balloting consistent with the UDOT's Noise Abatement Policy • Replacement of existing and installation of new noise walls
Water Resources	• Over 1 acre of ground disturbance	• Implement UDOT Standard Specifications, Temporary Environmental Controls
Hazardous Waste	• No impact	• None
Statewide or Locally Important Farmlands	• No impact	• None
Air Quality	• Potential to increase particulates during construction	• Implement UDOT Standard Specifications, Dust Control
Land Use/Urban Policy	• No impact	• None
Land Use	• No impact	• No mitigation required

Right-of-Way

Noise

CONTACT US

Website: www.udot.utah.gov/bangerter10400south

Phone: 888-766-ROAD (7623)

Email: bangerter@utah.gov

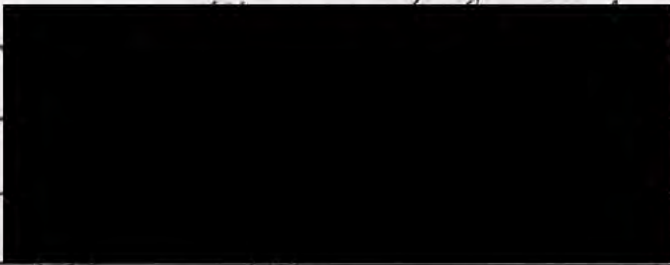
Provide Verbal Comments Here

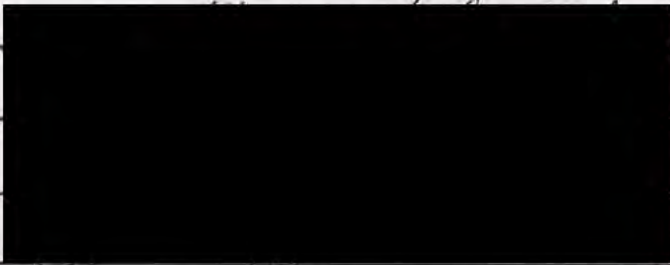
Provide Written Comments Here

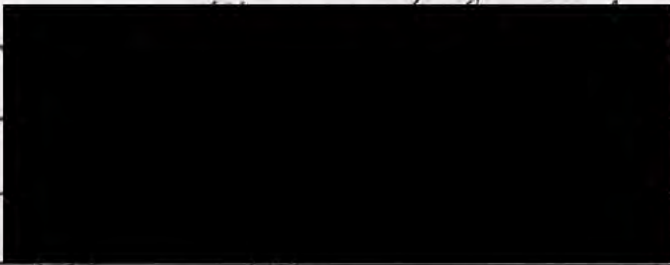
Appendix F: Public Meeting Comments and Responses

COMMENT FORM

Name: ANGIE WHITNEY

Address: 

Phone: 

Email: 

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

When 10400 is closed for approx 6 mo. traffic
will then be heavy on 11400 So. & 9800 South.

My concern is traffic by Elk Ridge Middle
school on 3659 W. 9800 So. and the

safety of the students + the impact of

traffic. School is ~~closed~~ out for summer break

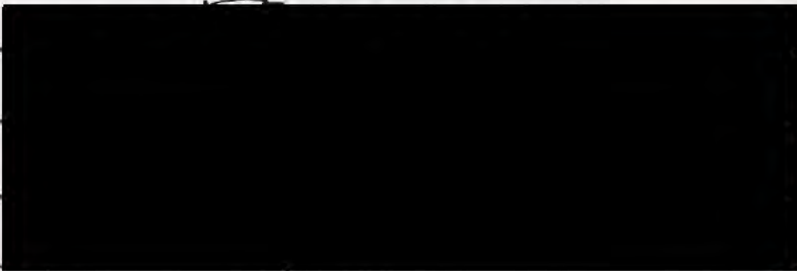
June - July & part of Aug could it be ~~done~~ during this

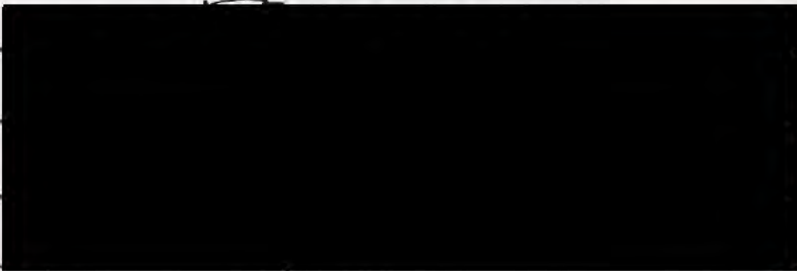
Do you have any other concerns related to the study? Time? i.e. or possibly

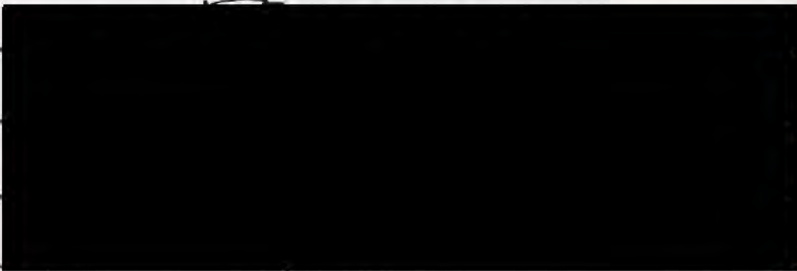
another option?

COMMENT FORM

Name: KRISTA ATKINSON

Address: 

Phone: 

Email: 

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

MY MAIN CONCERN IS THE INCREASED
TRAFFIC ON 9800 SOUTH WHEN 10400 IS
CLOSED FOR 10 MONTHS. THE SCHOOL
CHILDREN ALREADY HAVE TO FIGHT
THEIR WAY ACROSS THE STREET.
IMPATIENT DRIVERS ARE GOING TO
INCREASE SAFETY RISKS.

Do you have any other concerns related to the study?

WHEN WILL INFO ABOUT AN
INTERSECTION (OR NOT!) BE RELEASED
ABOUT 9800 SOUTH?

COMMENT FORM

Name: Don Shelton - South Jordan City Council.

Address:

Phone:

Email:

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

I am really concerned about an extended
closure of east/west traffic on
10400 S. I wish there could be a
way to keep that traffic flowing. Rush
hour is already a disaster at that
intersection.

Do you have any other concerns related to the study?

COMMENT FORM

Name: Keshif Buttar

Address:

Phone:

Email:

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

Under pass is the way to go. Good job by
UDOT & South Jordan City to come to an agreement
on this under pass. Can the empty area left
after taking out home turned into a park?
or at least a grassy area for the neighborhood
kids to play at. That will be really appreciated.

Do you have any other concerns related to the study?

COMMENT FORM

Name:

Scott Hendrickson

Address:

Phone:

Email:

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

- Very pleased the project has shifted to an underpass.
- concerned w/ what the plans are for the remainder land behind the Big Meadow Dr. North wall (believe S.J. city thoughts right now are for a grassed betterment)

Do you have any other concerns related to the study?

If I read the study right, I will be one of the Noise balloted houses. Please provide Nicole Tolley with my contact information so we can provide assistance with the noise balloting process.

COMMENT FORM

Name: Dean Pettit & Peggy Pettit

Address: [REDACTED]

Phone: [REDACTED]

Email: [REDACTED]

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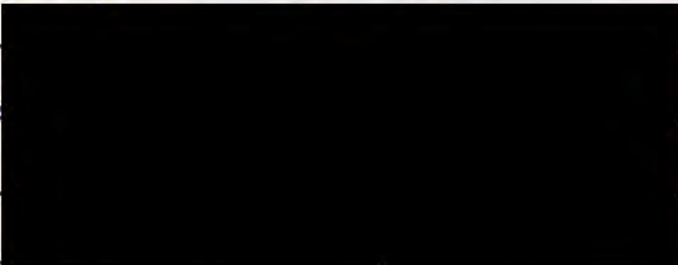
Please list any comments, concerns, and/or suggestions related to the proposed action.

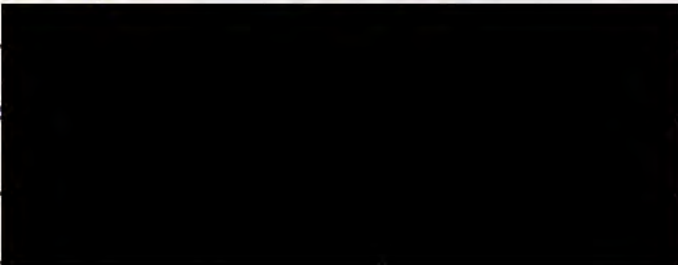
Flashing warning lights installed
at 98th south. with cars going over
65 mph there are going to be accidents
if nothing is done to warn cars.
we don't want anyone killed.

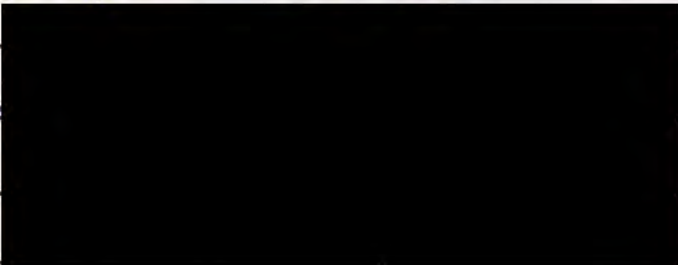
Do you have any other concerns related to the study?

COMMENT FORM

Name: Bryce Osborne

Address: 

Phone: 

Email: 

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Please list any comments, concerns, and/or suggestions related to the proposed action.

As of now, there are no plans to put a sound barrier wall
up just west of the water tower. There is a new development
there and the noise continues to be my concern. There are plans
for south Jordan to put a park on the south of the water
tower. The noise that would impact this park would be terrible.
We wouldn't be able to enjoy the park or the neighborhood.
Please consider adding a sound barrier to complete the wall.

Do you have any other concerns related to the study? Thank you,

Bryce Osborne

COMMENT FORM

Name: Wayne Ann Osborne

Address:

Phone:

Email:

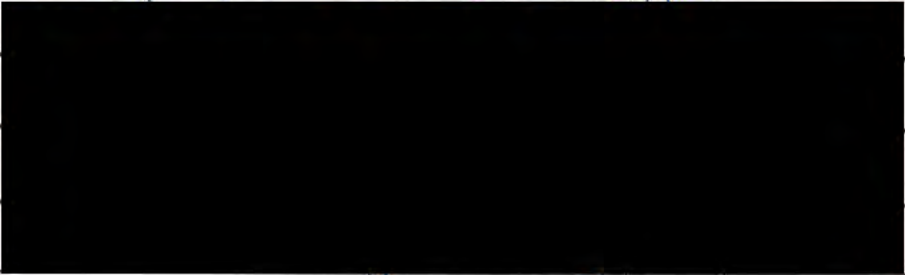
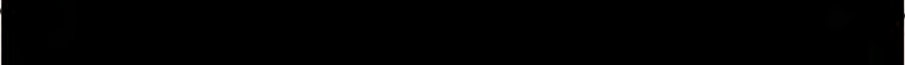
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Please list any comments, concerns, and/or suggestions related to the proposed action.

We were told when we purchased our home from
Fieldstone that a pocket park was planned on 10200 S.
by the Jordan Valley Water tank. I'm concerned for
the noise as well as the children's safety because
the sound wall was never finished. I'd love to
see the wall completed. Thank you!

Do you have any other concerns related to the study?

COMMENT FORM

Name: Daryl & Marianne Lwyer
Address: 
Phone: 
Email: 

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Please list any comments, concerns, and/or suggestions related to the proposed action.

Fine with the underpass proposal, but
frustrated that our city continues to allow
developers to build properties that the taxpayers
must purchase back later. To our city planners...
please stop letting developers develop properties
that you know ~~we~~ will need to be
relocated at taxpayer expense.

Do you have any other concerns related to the study?

COMMENT FORM

Name: Aaron Griffith

Address:

Phone:

Email:

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Please list any comments, concerns, and/or suggestions related to the proposed action.

- I Strongly Favor the under pass for the highway vs an over pass

- We are missing a golden opportunity if we fail to put an under pass/pass ~~thru~~ through at 10200 S. (like at 11800 S) When we add more connections we divide the traffic flow, not multiply

Do you have any other concerns related to the study?

COMMENT FORM

Name: Margaret Boud

Address:

Phone:

Email:

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Please list any comments, concerns, and/or suggestions related to the proposed action.

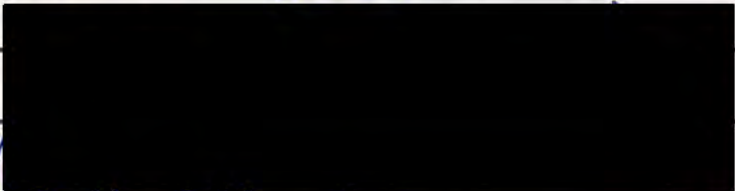
I appreciate you listening to the Residents and the City and making the intersection an underpass.

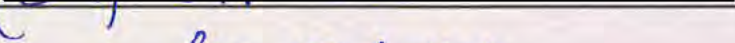
I am also very concerned about the intersection at 9000 South. Please consider not having on and off ramps there. With major intersections at 9000 S. and 10400 S. there really isn't a need. Both sides of Bangertre are almost all residential and for the safety of the students at both schools we shouldn't increase the traffic. Instead we should lessen it by diverting traffic to the other roads which can better accommodate.

It would also save a ton of money and fewer people would be displaced out of their homes.

COMMENT FORM

Name: JEREMY DEUS

Address: 

Phone: 

Email: CAN ME, COWARD

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Please list any comments, concerns, and/or suggestions related to the proposed action.

THIS IS RIDICULOUS. MY HOUSE IS STILL YELLOW, AND
NOT RED. THIS MAKES MY HOUSE UNSEMIABLE FOR
THE NEAR FUTURE, AND MAKES MY YARD UNUSABLE
FOR AT LEAST 18 MOS. (THANKS FOR THE 6' CHAIN-LINK FENCE)
AS A FATHER OF 3 CHILDREN, YOU HAVE DESTROYED THE
USE AND ENJOYMENT OF MY BACK YARD.

Do you have any other concerns related to the study?

IT'S GARBAGE. IT PROVIDES NO REASONABLE PROTECTIONS FOR
MY FAMILIES SAFETY. IT TAKES LAND FROM MY ALREADY
SMALL BACKYARD AND PUTS THE TRAFFIC RIGHT UP TO
MY PROPERTY LINE.

COMMENT FORM

Name: Samantha Nelson

Address:

Phone:

Email:

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

It's disappointing that the city, UDOT and the housing and commercial developers knew prior to the sell of property that these homes and businesses would be demolished. The aesthetic quality of our neighbor will decrease and as we've seen our area has been devalued in comparison with other areas.

Do you have any other concerns related to the study?

We are pleased that UDOT actually heard our collective voice and made an underpass. This was only due to our neighbors who spread the word about the meeting in June 2018.

UDOT, the developers should supplement the costs that our neighbors lost their homes i.e. that as residents of South Jordan

We should not see a tax increase to their oversight of selling homes that will be demolished

COMMENT FORM

Name: Chuck Newton

Address: 

Phone: 

Email: 

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

UDOT - thanks so very much for the reconsideration
of moving to an ~~under~~ underpass. South Jordan
has received many positive comments on the 114th
Underpass. By going to an underpass, this will
improve the environmental & aesthetic impact of
this interchange, and will be a greater benefit to
the community! Thank you for your efforts!!!

Do you have any other concerns related to the study?

Chuck Newton
former city council member

COMMENT FORM

Name: Tom Mertens

Address:

Phone:

Email:

Our team will periodically send updates and information about the study to the contact information provided above. If you do not wish to receive information, please check here. ☐

Please list any comments, concerns, and/or suggestions related to the proposed action.

I would request that UDOT and South Jordan
work with Jones Farm Developer to close
gap in Noise Wall on the east side of
BANGERTER from 10200 South to Water
Storage TANK.

Do you have any other concerns related to the study?

Bangerter Highway @ 10400 South – Reevaluation for Underpass
 UDOT PIN 14416; UDOT Project Number S-0154(85)9
 Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
1	Angie Whitney	When 10400 is closed for approx. 6 mo. Traffic will then be heavy on 11400 so. & 9800 south. My concern is traffic by Elk Ridge Middle School on 3659 W 9800 So. And the safety of the students & the impact of traffic. School is out for summer break June – July & part of Aug could it be done during this time? ...or possibly another option?	UDOT and the contractor will coordinate with South Jordan City to determine the timing and extent of closure on 10400 South during construction. When 10400 South is closed, there will be more traffic on 9800 South and 11400 South. However, having 10400 South closed for a temporary period of time during construction allows the contractor to make quicker progress in a safer manner for the traveling public. Safety is a top priority for UDOT and is considered as an integral part for any project. During construction, UDOT and crews will work directly with any affected property owners and the traveling public to address safety during construction activities.
2	Krista Atkinson	My main concern is the increased traffic on 9800 South when 10400 is closed for 6 months. The school children already have to fight their way across the street. Impatient drivers are going to increase safety risks. When will info about an intersection (or not!) be released about 9800 South?	Safety is a top priority for UDOT and is considered as an integral part for any project. During construction, UDOT and crews will work directly with any affected property owners and the traveling public to address safety during construction activities. UDOT has not started the environmental study process for the Bangerter Highway and 9800 South intersection and this project is currently unfunded. The environmental study will determine what types of improvements are needed at this intersection. This intersection is listed as a first priority Bangerter project. More information on future Bangerter projects is available at this website: https://www.bangerterprojects.com/schedule

Bangerter Highway @ 10400 South – Reevaluation for Underpass
 UDOT PIN 14416; UDOT Project Number S-0154(85)9
 Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
3	Don Shelton	I am really concerned about an extended closure of east/west traffic on 10400 s. I wish there could be a way to keep that traffic flowing. Rush hour is already a disaster at that intersection.	UDOT and the contractor will coordinate with South Jordan City to determine the timing and extent of closure on 10400 South during construction. When 10400 South is closed, there will be more traffic on 9800 South and 11400 South. However, having 10400 South closed for a temporary period of time during construction allows the contractor to make quicker progress in a safer manner for the traveling public. Safety is a top priority for UDOT and is considered as an integral part for any project. During construction, UDOT and crews will work directly with any affected property owners and the traveling public to address safety during construction activities.
4	Kashif Buttar	Underpass is the way to go. Good job by UDOT & South Jordan City to come to an agreement on this underpass. Can the empty area left after taking out home [sic] turned into a park? Or at least a grassy area for the neighborhood kids to play at. That will be really appreciated.	Thank you for the comment. UDOT is planning on installing a detention basin east of Big Meadow Drive in the southwest quadrant of the interchange. This detention facility will be landscaped and maintained by South Jordan City.
5	Scott Hendrickson	-Very pleased the project has shifted to an underpass. -Concerned of what the plans are for the remainder land behind the Big Meadow Dr. North wall (believe S.J. City thoughts right now are for a grassed betterment). If I read the study right, I will be one of the Noise balloted houses. Please provide Nicole Tolley with my contact information so we can provide assistance with the noise balloting process.	Thank you for the comment. UDOT is planning on installing a detention basin east of Big Meadow Drive in the southwest quadrant of the interchange. This detention facility will be landscaped and maintained by South Jordan City. Contact information for noise balloting has been updated as requested.
6	Dean Pettit & Peggy Pettit	Flashing warning lights installed at 98 th south. With cars going over 65 mph there are going to be accidents if nothing is done to warn cars. We don't want anyone killed.	Safety is a top priority for UDOT and is considered as an integral part for any project. During construction, UDOT and crews will work directly with any affected property owners and the traveling public to address safety during construction activities. UDOT will evaluate signals or signing options to warn cars of the traffic signal at 9800 South.

Bangerter Highway @ 10400 South – Reevaluation for Underpass
 UDOT PIN 14416; UDOT Project Number S-0154(85)9
 Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
7	Bryce Osborne	As of now, there are no plans to put a sound barrier wall up just west of the water tower. There is a new development there and the noise continues to be my concern. There are plans for South Jordan to put a park on the south of the water tower. The noise that would impact this park would be terrible. We wouldn't be able to enjoy the park or the neighborhood. Please consider adding sound barrier [sic] to completed the wall. Think you, Bryce Osborne	The noise analysis conducted for the UDOT interchange project at 10400 South did not identify noise impacts to the residential properties located east of the water tank. Pursuant to the UDOT Noise Abatement Policy, because these residential properties would not have a noise impact, noise walls were not evaluated in this area. UDOT is not aware of any plans for a park near the water tanks at 10200 South. For UDOT to consider this park in the noise analysis, it would need to be officially designated as a planned park on the South Jordan City or Salt Lake County parks or recreation plans.
8	Jayne Ann Osborne	We were told when we purchased our home from Fieldstone that a pocket park was planned on 10200 S. by the Jordan Valley Water tank. I'm concerned for the noise as well as the children's safety because the sound wall was never finished. I'd love to see the wall completed. Thank you!	UDOT is not aware of any plans for a park near the water tanks at 10200 South. For UDOT to consider this park in the noise analysis, it would need to be officially designated as a planned park on the South Jordan City or Salt Lake County parks or recreation plans. The noise analysis conducted for the UDOT interchange project at 10400 South did not identify noise impacts to the residential properties located east of the water tank. Pursuant to the UDOT Noise Abatement Policy, because these residential properties would not have a noise impact, noise walls were not evaluated in this area. Safety is a top priority for UDOT and is considered as an integral part for any project. During construction, UDOT and crews will work directly with any affected property owners and the traveling public to address safety during construction activities.

Bangerter Highway @ 10400 South – Reevaluation for Underpass
 UDOT PIN 14416; UDOT Project Number S-0154(85)9
 Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
9	Daryl & Marianne Dwyer	Fine with the underpass proposal, but frustrated that our city continues to allow developers to build properties that the taxpayers must purchase back later. To our city planners...please stop letting developers develop properties that you know will need to be relocated at taxpayer expense.	Thank you for the comment. UDOT does not control local land use planning. This is the responsibility of the Cities according to state constitutional law. In most circumstances, if a property owner is legally allowed to develop their property, the Cities or UDOT cannot stop the development from occurring unless (1) a municipal or state transportation facility has been planned, and the plans are detailed enough for the municipality or UDOT to know the right-of-way requirements, and (1) the municipality or UDOT has enough financial resources to compensate the property owners.
10	Aaron Griffith	-I strongly favor the under pass for the highway vs an over pass -We are missing a golden opportunity if we fail to put an under pass/pass through at 10200 S (like at 11800 S). When we add more connections we divide the traffic flow, not multiply.	Thank you for the comment and support for the project. There are not currently any plans to connect 10200 South across Bangerter Highway with either an underpass or overpass. Connections across Bangerter Highway will be provided at 9800 South and 10400 South. The proposed underpass of Bangerter Highway at 10400 South will improve traffic flow on 10400 South once it is completed.
11	Margaret Bond	I appreciate you listening to the residents and the city an making the intersection an underpass. I am also very concerned about the intersection at 9800 South. Please consider <u>not</u> having on and off ramps there. With major intersections at 9000 S and 10400 S there really isn't a need. Both sides of Bangerter are almost all residential and for the safety of the students at both schools we shouldn't increase the traffic. Instead we should lessen it by diverting traffic to the other roads which can better accommodate. It would also save a ton of money and fewer people would be displaced out of their homes.	Thank you for the comment and support for the project. UDOT has not started the environmental study process for the Bangerter Highway and 9800 South intersection and this project is currently unfunded. The environmental study will determine what types of improvements are needed at this intersection. This intersection is listed as a first priority Bangerter project. More information on future Bangerter projects is available at this website: https://www.bangerterprojects.com/schedule

Bangerter Highway @ 10400 South – Reevaluation for Underpass
 UDOT PIN 14416; UDOT Project Number S-0154(85)9
 Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
12	Jeremy Devs	This is ridiculous. My house is still yellow, and not red. This makes my house unsellable for the near future, and makes my yard unlivable for at least 18 mos. (Thanks for the 6’ chain link fence) As a father of 3 children, you have destroyed the use and enjoyment of my back yard. It’s garbage. It provides no reasonable protections for my families [sic] safety. It takes land from my already small backyard and puts the traffic right up to my property line.	If your home is identified as a full or partial acquisition, UDOT will work through the right-of-way acquisition process to provide just compensation in accordance with the Utah Relocation Assistance Act (Utah Code Annotated [UCA] Section 57-12-1 et seq.). Note that the property impacts shown in the SES include the impacts with auxiliary lanes on Bangerter Highway. The initial 10400 South interchange project will only build auxiliary lanes if funding is available. If the funding is not available for the auxiliary lanes, the property impacts may be less than what is shown in the SES. Safety is a top priority for UDOT and is considered as an integral part for any project. During construction, UDOT and crews will work directly with any affected property owners and the traveling public to address safety during construction activities.
13	Samantha Nelson	It’s disappointing that the city, UDOT and the housing and commercial developers knew prior to the sell [sic] of property that these homes and the businesses would be demolished. The aesthetic quality of our neighbor will decrease and as we’ve seen our area has been de-valued in comparison with other areas. We are pleased that UDOT actually heard our collective voice and made an underpass. This was only due to our neighbors who spread the word about the meeting in June 2018. UDOT & the developers should supplement the costs that our neighbors lost their homes & that as residents of South Jordan we should not see a tax increase to their oversight of selling homes that will be demolished.	UDOT does not control local land use planning. This is the responsibility of the Cities according to state constitutional law. In most circumstances, if a property owner is legally allowed to develop their property, the Cities or UDOT cannot stop the development from occurring unless (1) a municipal or state transportation facility has been planned, and the plans are detailed enough for the municipality or UDOT to know the right-of-way requirements, and (1) the municipality or UDOT has enough financial resources to compensate the property owners. There are no formulas that can quantify the effects of a transportation facility on property values, because each situation is different and property values are dependent on many variables. In general, an improved transportation network increases all property values in an area. However, as suggested by previous studies, residential properties adjacent to roadways could have lower property values or have a lower rate of appreciation than similar properties located farther from roadways, if all other variables are similar. Thank you for the comment and support for the project.

Bangerter Highway @ 10400 South – Reevaluation for Underpass

UDOT PIN 14416; UDOT Project Number S-0154(85)9

Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
14	Chuck Newton	UDOT – thanks so very much for the reconsideration of moving to an underpass. South Jordan has received many positive comments on the 114 th underpass. By going to an underpass, this will improve the environmental & asethic [sic] impact of this interchange and will be a greater benefit to the community! Thank you for your efforts!!! Chuck Newton Former city council member	Thank you for the comment and support for the project.
15	Tom Merterns	I would request that UDOT and South Jordan work with Jones Farm Developer. To close gap [sic] in noise wall on the east side of Bangerter from 10200 South to water storage tank.	The noise analysis conducted for the UDOT interchange project at 10400 South did not identify noise impacts to the residential properties located east of the water tank. Pursuant to the UDOT Noise Abatement Policy, because these residential properties would not have a noise impact, noise walls were not evaluated in this area.

Bangerter Highway @ 10400 South – Reevaluation for Underpass

UDOT PIN 14416; UDOT Project Number S-0154(85)9

Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
16	Heather Tardinco	Good afternoon, We represent a client who is concerned about the impacts of the construction/road closures in regards to their business. On the attached map, the blue circle is our client's location and, as we understand it, the red circle is the intersection that is being converted from traffic-signal controlled to an underpass. The red X's indicate the east/west route that will be closed for 6 months. The green arrows indicate the access points that will remain open during construction. At the public hearing, no one could answer how far east the closure will extend on 10400 South. We were told there will be more specific closure information as we get closer to the project start date. We are hoping that it doesn't affect River Heights Drive, as that will be their only remaining point of access. If the closure does extend beyond River Heights Drive, their customers would have to go south to 11400 S, and turn north onto River Heights Drive to access them. Have you made any further decisions on this? We'd like to ease our client's mind, if at all possible, so any information you have is appreciated.	UDOT does not know the exact limits of the road closures and construction on 10400 South. This will be determined after a contractor is hired. However, UDOT will maintain access to all commercial properties on 10400 South and River Heights Drive during construction. UDOT and the contractor will coordinate with South Jordan City and businesses on 10400 South to determine the timing and extent of closure on 10400 South during construction.

Bangerter Highway @ 10400 South – Reevaluation for Underpass
 UDOT PIN 14416; UDOT Project Number S-0154(85)9
 Responses to Comments During the Public Comment Period (5/8/2019 to 6/7/2019)

NUMBER	NAME	COMMENTS	RESPONSE
17	Margaret Boud	I appreciate you listening to the residents and the city and making the intersection an underpass. I am also very concerned about the intersection at 9800 South. Please consider not having on and off ramps there. With major intersections at 9000 S and 10400 S there really isn't a need. Both sides of Bangerter are almost all residential and for the safety of the students at both schools we shouldn't increase the traffic. Instead we should lessen it by diverting traffic to the other roads which can better accommodate. It would also save a ton of money and fewer people would be displaced out of their homes.	Thank you for the comment and support for the project. UDOT has not started the environmental study process for the Bangerter Highway and 9800 South intersection and this project is currently unfunded. The environmental study will determine what types of improvements are needed at this intersection. This intersection is listed as a first priority Bangerter project. More information on future Bangerter projects is available at this website: https://www.bangerterprojects.com/schedule
18	Jimmie Smeath	Good evening, I just attended the public hearing regarding the intersection project at 10400 S Bangerter and I have a couple questions: Do you know how far east the closure of 10400 S will extend? Will River Heights Drive still be accessible from 10400 South? Can I sign up for email updates as new information is released? Thank you!	UDOT does not know the exact limits of the road closures and construction on 10400 South. This will be determined after a contractor is hired. However, UDOT will maintain access to all commercial properties on 10400 South and River Heights Drive during construction. UDOT and the contractor will coordinate with South Jordan City and businesses on 10400 South to determine the timing and extent of closure on 10400 South during construction. Your contact information has been updated on the project email list as requested.