State of Utah

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DEPARTMENT OF TRANSPORTATION

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Deputy Director of Planning and Investment

May 17, 2019

Mr. Bryan Adams, P.E.
Region Two Director
Utah Department of Transportation
2010 South 2760 West
Salt Lake City, UT 84104

Subject: UDOT Project Number S-0085(9), SR-85, MVC; Cilma Drive, Salt Lake County, Utah (PIN 13149), *Environmental Impact Statement Re-evaluation*

Dear Mr. Adams:

A Final Environmental Impact Statement (Final EIS) and Section 4(f) Evaluation for the Mountain View Corridor (MVC), Salt Lake and Utah Counties, was completed and approved through the issuance of a Record of Decision (ROD) on November 17, 2008 from the Federal Highway Administration (FHWA). Recent MVC design changes in vicinity of Cilma Drive (approximately 3850 South) in Salt Lake County warrant a re-evaluation of the EIS and ROD.

This memorandum is intended to support a decision on whether a supplemental EIS is required, pursuant to applicable criteria in FHWA's NEPA regulations. The regulations in 23 CFR 771.130(a) provide that a supplemental EIS is required when "(1) Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or (2) New information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS." To support that determination, this memorandum summarizes the proposed refinement to the Refined Selected Alternative evaluated in January 2018; discusses changes in the affected environment; and considers whether any of the changes in the project and affected environment require a supplemental EIS. The appendices to this memorandum include the supporting technical documentation.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by UDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding (MOU) dated January 17, 2017 and executed by FHWA and UDOT. Therefore, this Re-evaluation is being processed in accordance with this agreement, and UDOT is the agency responsible for approving the Re-evaluation. Under the assignment MOU, UDOT is responsible for conducting any additional environmental review (including Re-Evaluations) that may be required for projects that were approved by FHWA prior to execution of the assignment MOU.

Background and Need for Re-evaluation

The EIS/Section 4(f) Evaluation and ROD evaluated the environmental impacts of improving regional mobility on the west side of the Salt Lake Valley in Salt Lake County and in northern Utah County. UDOT also conducted a re-evaluation of environmental impacts (January 3, 2018) for the MVC segment from 4100 South to SR-201 and refers to these changes as the Refined Selected Alternative. During the EIS process, the MVC was designed to a

concept level. Comprehensive engineering and detailed studies were not conducted as part of the EIS process. Changes resulted in modification of the EIS Selected Alternative alignment to become the 2018 Refined Selected Alternative. Based on additional project refinements for upcoming construction, coordination with UDOT, and feedback from utilities and other stakeholders, the 2018 Refined Selected Alternative alignment was modified to become the Refined Selected Alternative - Final Construction Design (FCD). Modifications reflect cost saving initiatives, adaptations to utility constraints, and safety considerations.

Table 1 describes the elements of the three construction phases proposed in the 2018 Refined Selected Alternative for this segment and compares them with the Refined Selected Alternative FCD being evaluated in this Re-evaluation. The Phase 1 activities described in the 2018 Refined Selected Alternative include construction of arterials with two lanes in each direction, at-grade crossings, and purchasing all right-of-way needed for future phases of MVC. Phase 2 generally includes the construction of grade-separated crossings of MVC at cross-streets, modifications to the SR-201 interchange, and addition of auxiliary lanes to accommodate merging between new interchanges. Phase 3 includes all proposed travel lanes, interchanges, intersection improvements, local road improvements, and trail improvements. This Re-evaluation focuses on changes at and around the MVC at Cilma Lane in Phases 1 and 3.

Table 1. Summary of Roadway changes in the Re-evaluation by Phase

	EIS Selected Alternative	2018 Refined Selected Alternative (January 3, 2018)	Refined Selected Alternative - Final Construction Design (FCD)
Phase 1	• Arterial with two lanes each direction • At-grade intersections	• Arterial with two lanes each direction; the arterial is either the ramps at the interchange locations or the outside lanes in areas between interchanges. • At-grade intersections at 3500 South and California Avenue and grade-separated interchanges at 2700 South and State Route (SR-201).	• Cilma Drive cross street treatment – Raising Cilma Drive and Lowering outer 2 general purpose lanes of mainline MVC and associated ramps
Phase 2	• Convert intersections to interchanges (arterial to freeway)	• Convert intersections to interchanges by grade-separating and converting the signalized intersections at California Avenue, 2700 South, 3500 South, and 4100 South. The conversion of intersections to interchanges where only the ramps are constructed in Phase 1 will include constructing two freeway lanes in the median (in each direction). • Modify the interchange at SR-201 by adding directional ramps. • Add auxiliary lanes to accommodate merging and weaving movements between the newly constructed freeway interchanges.	• No changes to Phase 2
Phase	• Add additional freeway lane	• Add additional freeway lanes to the	• Final north and south bound

3	(three lanes each direction) to the median • Final configuration is an eight-lane freeway south of SR-201 and a six-lane freeway north of SR-201.	median (two lanes in each direction between 4100 South and SR-201 and one lane in each direction north of SR-201) • Final configuration is an eight-lane freeway between 4100 South and SR-201 and a six-lane freeway north of SR-201.	lanes and grade separations at Cilma Drive - Lowering middle of mainline MVC and constructing grade separations at cross street.

For design and construction purposes, the project has been divided into several segments based upon funding availability. Currently, UDOT proposes to construct the MVC between 4100 South and 900 South, including the connection to SR-201, in Salt Lake County for a length of approximately 4 miles. Cilma Drive falls within this segment. This Re-evaluation analyzes the impacts of the Final Construction Design resulting from the final design modifications that have occurred in the project area in the vicinity of Cilma Drive and that could have an effect on the project or alter its previously identified impacts. Exhibit 1 in Appendix A illustrates the location of Cilma Drive and proposed actions within the segment. Exhibits 2 through 4 in Appendix A illustrate the changes in the Refined Selected Alternative FCD and areas of new impact in the vicinity of Cilma Drive for this Re-evaluation.

Re-evaluation Analysis

Following is a summary of the main components of the EIS and any changes associated with each component due to final design modifications and the Re-evaluation of previously known and newly identified environmental resources in the project area.

Purpose and Need

As stated in the EIS, the purpose of the MVC Project is to improve regional mobility by reducing roadway congestion and by supporting increased transit availability, supporting local growth objectives, increasing roadway safety, and supporting increased bicycle and pedestrian options. The proposed revisions included with the Final Construction Design do not change the original project concept or project purpose; therefore, the purpose of and need for the project remain valid.

Independent Utility

No additional transportation improvements are necessary for the proposed project to function as intended. The project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Changes from 2018 Refined Selected Alternative Incorporated with the Refined Selected Alternative FCD

The elements of the Refined Selected Alternative FCD for the segment of the MVC in Salt Lake County between 4100 South and SR-201 in the vicinity of Cilma Drive are listed below. Where the elements of the Refined Selected Alternative FCD are different than the 2018 Refined Selected Alternative, these elements are described in more detail. Detailed Exhibits illustrating changes from the 2018 Refined Selected Alternative to the Refined Selected Alternative FCD are provided in Appendix A.

- **MVC and Cilma Drive cross street treatment**

The Refined Selected Alternative FCD includes reconfiguration of the Cilma Drive cross street treatment to reduce the amount of embankment over Kern River gas lines (Appendix A, Exhibit 2) crossing under MVC north of Cilma Drive. This new treatment reduces the risk of gas line settling, the amount of borrow required for the project, and maintenance costs by decreasing the square footage of retaining walls. The 2018 Refined Selected

Alternative identified MVC and Cilma Drive as a grade separated crossing in which the cross street (Cilma Drive) would be placed under MVC. The proposed action as part of this re-evaluation includes Cilma Drive going over the MVC. Cilma Drive would be raised 15 feet and MVC depressed 10 feet (Exhibit 2). Modifications to the Cilma Drive cross street treatment will result in additional changes to this project area and construction phasing as described below.

- **Touchdown widening associated with Cilma Drive cross street treatment**

The Refined Selected Alternative FCD includes reconfiguring the Cilma Drive cross street and requires touchdown points to extend farther west (toward 5875 West) and east (toward Masters Drive) than what was shown in the 2018 Refined Selected Alternative (Appendix A, Exhibit 1). MVC and Cilma Drive profiles, and consequently the touchdown points of Cilma Drive, are dependent on clearance above two Kern River 36" gas lines (Appendix A, Exhibit 2). The gas lines will not be affected by this cross street treatment (Appendix A, Exhibit 2). The extension of Cilma Drive to the west will raise the roadway grade. Reconstruction at this location will require rebuilding the driveway of the home at 5856 Cilma Drive to maintain drainage. The extension of Cilma Drive to the east with require tying in to existing curb and sidewalks. All work associated with Cilma Drive touchdowns will occur in the Cilma Drive right-of-way and within the existing roadway to the back of the sidewalk.

- **Noise barriers associated with Cilma Drive cross street treatment**

The Refined Selected Alternative FCD includes reconfiguring the Cilma Drive cross street and requires a re-evaluation of noise abatement on the east and west sides of MVC between 4100 South and 3500 South. This proposed action includes potential modifications to noise barrier dimensions while maintaining mitigation measures outlined in Section 2.6.6 (p. 31) of the ROD. An updated Noise Impact Assessment (Appendix B) using Phase 1 and Phase 3 (final build out) was prepared to assess impacts to predetermined receptors and determine noise barrier heights and lengths to provide noise reduction equal to or better than the values identified in the ROD. There will be no change in horizontal offset of noise barriers although heights and lengths could change. Balloting of noise abatement measures with property owners and residents has not occurred during the final design process as of the date of this re-evaluation.

- **Shared Use Pathway Access / Parking**

The Refined Selected Alternative FCD includes reconfiguring the Cilma Drive cross street and requires relocation of the Shared Use Path (SUP) trailhead parking lot. Trailhead parking will be relocated to the south side of Cilma Drive, in the vicinity of Masters Drive and east of the Rocky Mountain Power transmission line (Appendix A, Exhibit 3). The previous location of the Shared Use Path parking lot north of Cilma Drive (evaluated as part of the Refined Selected Alternative) included crossing Cilma Drive and MVC to access the SUP. Relocating the trailhead parking will result in only one crossing of MVC to access the SUP. While the shape of the trailhead parking lot will change, use of dual aisle configuration could result in an overall decrease in paved area with no reduction in the number of parking stalls. This will accommodate the same number of vehicles as originally planned. No new drainage or water quality issues are identified.

- **Maintenance of Traffic**

The Refined Selected Alternative FCD includes reconfiguring the Cilma Drive cross street treatment and requires maintenance of east-west traffic during construction of Cilma Drive (raised) and MVC (depressed). Maintenance of Traffic (MOT) includes construction of a temporary road. The road extends south from Masters Drive, continues along the east side of the Rocky Mountain Power easement, crosses under the Rocky Mountain Power transmission lines, and connects to 5875 West south of 3920 South (Appendix A, Exhibit 4). Most of the proposed MOT will occur within the analyzed project area and does not require acquisition of additional permanent right-of-way. However other portions of the MOT occur on a UDOT owned and MVC ROW parcel that had not been previously cleared. In March 2019 the study team conducted environmental clearance activities

in compliance with Part 3.7 of UDOT Spec 01355 “Environmental Clearance by the Contractor.”

Environmental Consequences Analysis

UDOT Environmental Services evaluated the expected impacts to the natural and built environment from the Final Construction Design against the analysis in the Final EIS and information in the ROD. This analysis included conducting an additional inventory of environmental resources in an area not previously surveyed. UDOT Environmental Services considered all expected impacts of the Final Construction Design from all three phases of the MVC project between 4100 South and 900 South. As part of the re-evaluation process, UDOT reviewed the original biological resources, waters of the U.S., and cultural resources, and Section 4(f) analyses as well as a new resource inventory in the location of the proposed MOT that was not surveyed during the EIS process or subsequent re-evaluations. A more-detailed evaluation of the resource impacts that have changed is provided in the Environmental Analysis section of this Re-evaluation.

Pedestrian and Bicyclist Issues

The Final Construction Design has enhanced the MVC shared-use path trail parking lot at Cilma Drive. Relocation of the parking lot is considered a beneficial impact since it makes the facility safer and more functional for SUP users. The Refined Selected Alternative FCD would have additional trail benefits compared to the Final EIS Selected Alternative and 2018 Refined Selected Alternative.

Noise

The Noise Impact Assessment for this Re-evaluation evaluates Phases 1 and 3 of the Refined Selected Alternative FCD. The design changes that would most affect noise levels are those associated with lowering MVC and raising Cilma Drive. A copy of the Noise Impact Assessment is attached as Appendix B.

For this new assessment, the same methods described in the Final EIS were used to assess traffic noise impacts. The traffic noise levels were modeled using the FHWA Traffic Noise Model, version 2.5. Noise impacts, based on UDOT’s June 15, 2017, Noise Abatement Policy, are defined as those are equal to or greater than the UDOT noise-abatement criteria (NAC), which is 66 dBA (decibels on the A-weighted scale) or higher for residential land uses or a substantial increase defined as a 10-dBA increase over existing noise levels. The results of the modeling are described below.

Under the proposed action identified in Phase 1 of the Refined Selected Alternative FCD, noise levels would increase by approximately 4 to 21 dB between 4100 South and 3500 South compared to existing conditions. The Phase 1 analysis showed that 45 of 56 receptors would have noise impacts from the Refined Selected Alternative FCD under Phase 1 conditions. Six barriers to abate noise were modeled and analyzed using the current UDOT Noise Abatement Policy (June 15, 2017) to determine whether mitigation is appropriate. Two noise barriers (Barriers 2 and 3) are considered feasible and reasonable according to UDOT’s Noise Abatement Policy in Phase 1 and are recommended for balloting. The final determination regarding each barrier would take place after balloting.

Under the proposed action identified in Phase 3 of the Refined Selected Alternative FCD, noise levels would increase by approximately 10 to 22 dB between 4100 South and 3500 South compared to existing conditions. The Phase 3 analysis showed that all 56 first-row receptors would have noise impacts from the Refined Selected Alternative FCD under Phase 3 conditions. Six barriers to abate noise were modeled and analyzed using the current UDOT Noise Abatement Policy (June 15, 2017) to determine whether mitigation is appropriate. No noise barriers are considered feasible and reasonable according to UDOT’s Noise Abatement Policy in Phase 3 and therefore none are recommended for balloting.

For a more detailed discussion of the noise impacts from Phases 1 and 3 of the Refined Selected Alternative FCD and potential mitigation see the Noise Impact Assessment in Appendix B.

Historic, Archaeological, and Paleontological Resources

As part of the re-evaluation process, UDOT Environmental Services conducted a review of existing cultural resource inventories and assessed a supplemental cultural resource inventory performed in 2019 on a MVC ROW parcel left out of previous inventories. The intensive cultural survey conducted by Certus in 2019 identified a single cultural resource in the Area of Potential Effect. This resource is a remnant of an unlined open ditch that appears to be a lateral and part of the broader irrigation network fed by the Utah & Lake Canal. Certus documented this ditch as an isolated feature. A cultural resources report was prepared and submitted to the Utah State Historic Preservation Officer (SHPO) during the National Historic Preservation Act (NHPA) Section 106 consultation process. The Utah SHPO concurred with the Determination of Eligibility and Finding of Effect. A copy of the Determination of Eligibility and Finding of Effect can be found in Appendix C.

The Final Construction Design (i.e., reconfiguration of the Cilma Drive cross street treatment) raises the roadway grade which results in drainage modifications that affect the driveway of the home at 5856 Cilma Drive. Final construction designs include improvements to the driveway so that there are no negative impacts from drainage to the home at 5856 Cilma Drive. This home was built in 1977 and in accordance with UDOT guidelines meets the time lag cutoff date of 1974 (45-year age criterion) to designate a structure as historic. Findings from a historic structures survey on the west side of MVC that includes this property are compiled by Certus Environmental Solutions in a March 2016 report.

The Final Construction Design would not have significantly different impacts to cultural resources beyond those analyzed in the Final EIS for the EIS Selected Alternative or Refine Selected Alternative Re-evaluation.

Construction

The Final Construction Design necessitates a MOT during construction of Cilma Drive and MVC to maintain east-west traffic. The contractor will comply with vehicle, pedestrian, bicyclist, and business mitigation as described in the ROD.

Table 2 summarizes the changes to the environmental impacts. No substantial changes would occur to the natural or built environment as a result of the Final Construction Design that would significantly affect the quality of the human and natural environment. The impacts of these changes are not individually or cumulatively significant or significantly different from those described in the 2008 Final EIS and ROD.

Table 2. Summary of Re-evaluation Analysis

Environmental Resource	Changed?		Comments
	Yes	No	
Land Use		X	No changes identified.
Farmland		X	No changes identified.
Community Impacts		X	No changes identified.
Environmental Justice		X	No changes identified.
Transportation		X	No changes identified.
Economics		X	No changes identified.
Joint Development		X	No changes identified.

Environmental Resource	Changed? Yes	Changed? No	Comments
Pedestrian and Bicyclist Issues	X		Shared use path (SUP) access has been enhanced by placing the trailhead parking lot on the south side of Cilma Drive, west of the Masters Drive intersection. The new SUP parking location requires crossing only MVC to access the shared use path. The previous location on the north side of Cilma Drive required crossing both Cilma Drive and MVC. In addition to location, the shape of the SUP parking lot changes. Using dual aisle configuration there may be an overall decrease in paved area but no reduction in the number of parking stalls. This will accommodate the same number of vehicles as originally planned.
Air Quality		X	No changes identified.
Noise	X		Depressing MVC and raising Cilma Drive required a new Noise Impact Assessment. Based on the Final Construction Design, 45 of 56 receptors would be impacted by noise from Phase 1 of the proposed action (that is, noise levels with the project would be 66 dBA or higher or would be 10 dBA over existing noise levels). Phase 3 would result in all 56 receptors being impacted by noise. Two noise barriers are being proposed to mitigate noise from Phase 1 of the proposed action. See Appendix B for details.
Water Quality		X	No changes identified.
Ecosystems		X	No changes identified.
Floodplains		X	No changes identified.
Historic, Archaeological, and Paleontological Resources	X		Reconfiguring the Cilma Drive / MVC cross street treatment results in an extension of the Cilma Drive landing on the east and west sides of MVC. The extension of Cilma Drive to the west raises the roadway grade which requires rebuilding the driveway of the home at 5856 Cilma Drive. This home was built in 1977 and is not historic as per UDOT guidelines that use 1974 as the time lag cut-off date (45-year age criterion) to designate a structure as historic. No other changes are identified that would affect historic, archaeological, or paleontological resources.
Hazardous Waste		X	No changes identified.
Visual Resources		X	No changes identified.
Energy		X	No changes identified.
Construction Impacts	X		The Final Construction Design includes reconfiguration of the cross street treatment at Cilma Drive. The new treatment raises Cilma Drive 15 feet and depresses MVC 10 feet in order to avoid potential impacts to two 36” gas lines and reduce maintenance costs of retaining walls. The Reconfiguring the Cilma Drive / MVC cross street treatment results in the need for a temporary maintenance of traffic (MOT) route. Under the previous design, traffic would continue on Cilma Drive during MVC construction. Due to the reconfiguration neither Cilma Drive nor MVC will convey traffic during construction. The MOT route continues south from Masters Drive, runs along the east side of the RMP easement, crosses under the RMP transmission lines, and connects to 5875 West south of 3920 South. The MOT is within the ROW but required surveys for cultural and natural resources in compliance with Part 3.7 of UDOT Spec 01355 “Environmental Clearance by the Contractor” since the location was not inventoried during previous assessments. See Exhibit 1.
Indirect Effects		X	No changes identified.
Cumulative Impacts		X	No changes identified.
Permits, Reviews, and Approvals		X	No changes identified.
Section 4(f) Resources		X	No changes identified.
Sequencing		X	No changes identified.

Public Involvement Efforts for the Re-evaluation

The public involvement team through their activities and ongoing task force meetings has met with local government staff, agencies, the public, and other stakeholders to address issues and concerns identified during the design process.

Conclusion

The Final EIS and Section 4(f) Evaluation for the MVC has been reevaluated as required by the FHWA regulations in 23 CFR 771, FHWA Technical Advisory T6640.8A, and the National Environmental Policy Act.

UDOT has evaluated the impacts to the natural and built environment from the Refined Selected Alternative Final Construction Design. Overall, the Refined Selected Alternative FCD would have fewer impacts to the environment than those analyzed in the Refined Selected Alternative. No substantial changes would occur to the natural or built environment as a result of the Refined Selected Alternative FCD that would significantly affect the quality of the human and natural environment. Most of the impacts of these changes are less than those previously disclosed in the MVC Final EIS for the 2008 ROD's Selected Alternative and therefore are not individually or cumulatively significant or significantly different from those described in the 2008 Final EIS and ROD.

Per 23 CFR 771.130(a), an EIS shall be supplemented whenever (1) changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS or (2) new information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS. UDOT has determined that preparing a supplemental EIS is not necessary since the changes to the proposed action, new information, or new circumstances described in this Re-evaluation do not result in significant environmental impacts that were not evaluated in the EIS.

UDOT Environmental Services requests concurrence that the Re-evaluation has demonstrated that the MVC ROD remains valid and that the proposed resources, impacts, and methodology documented in this environmental Re-evaluation are valid in accordance with 23 CFR 771.129.

Sincerely,

Brandon D. Weston
UDOT Environmental Services Director

Enclosures

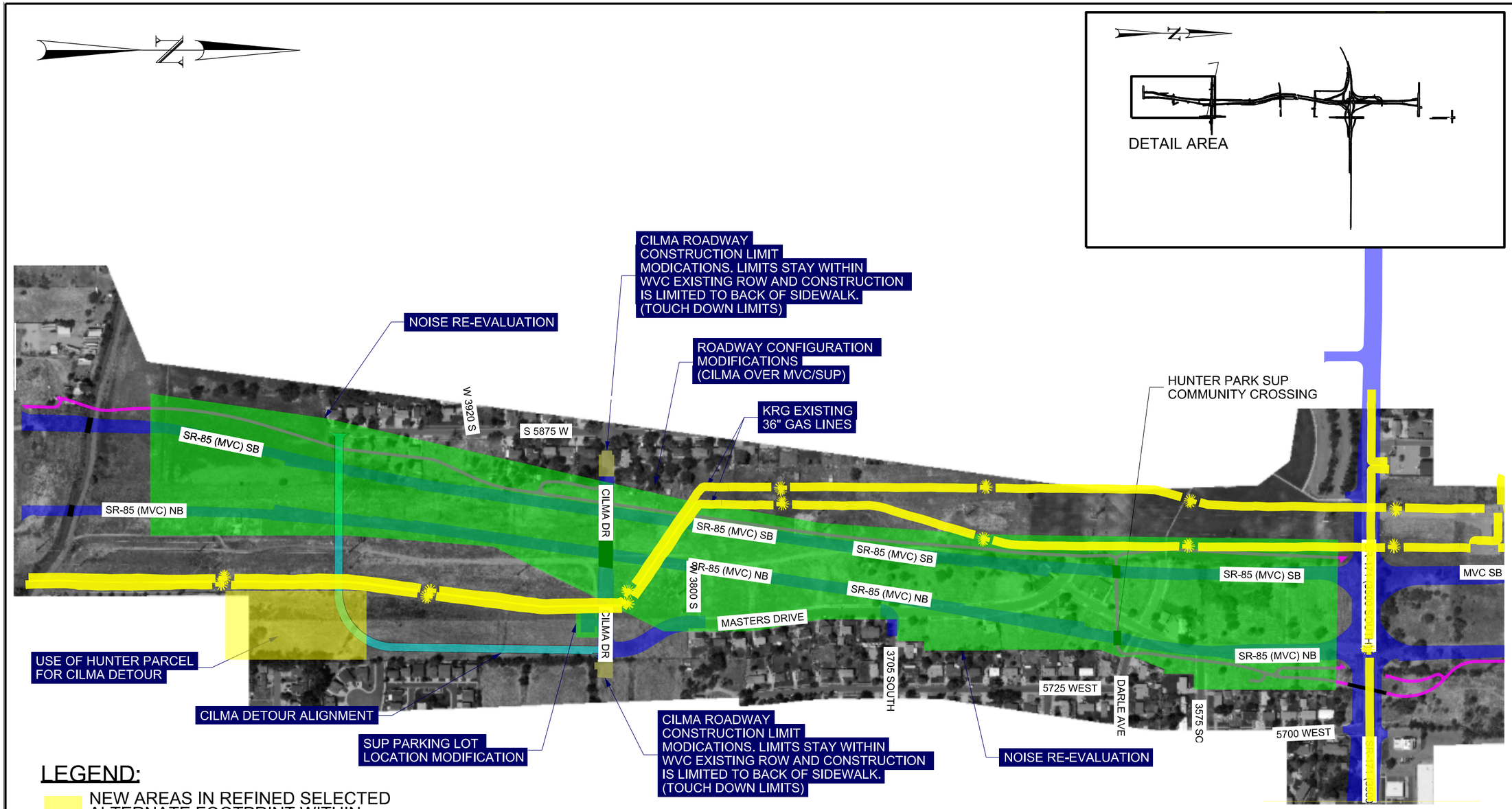
EIS Re-evaluation Approval
UDOT Project Number S-0085(9), SR-85, MVC; Cilma Drive Design Changes, Salt Lake County, Utah (PIN 13149).

Bryan Adams, P.E.
Region Two Director
Utah Department of Transportation

May 20, 2019
Date

APPENDIX A – Exhibits 1-4

Exhibit 1. Cilma Drive Proposed Actions



LEGEND:

- NEW AREAS IN REFINED SELECTED ALTERNATE FOOTPRINT WITHIN EXISTING ROW LIMITS
- NOISE STUDY LIMITS FOR RE-EVALUATION
- PLANNED ROADWAY
- PLANNED STRUCTURE
- PLANNED TRAIL/SIDEWALK

RE-EVALUATION ELEMENTS

REVISIONS

NO.	DATE	APPROVED BY	REMARKS

DRAWN BY | QC CHECKED BY | DATE

UTAH DEPARTMENT OF TRANSPORTATION
MOUNTAIN VIEW CORRIDOR CONSTRUCTORS

APPROVED

NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER

PROJECT	SR-85, MVC; 4100 SOUTH TO SR-201
PROJECT NUMBER	S-0085(9) PIN 13149
	CILMA REFINED SELECTED ALTERNATE FOOTPRINT

SHEET NO.

$$files$$

$$date$$

Exhibit 2. Cilma Drive Cross Street Treatment

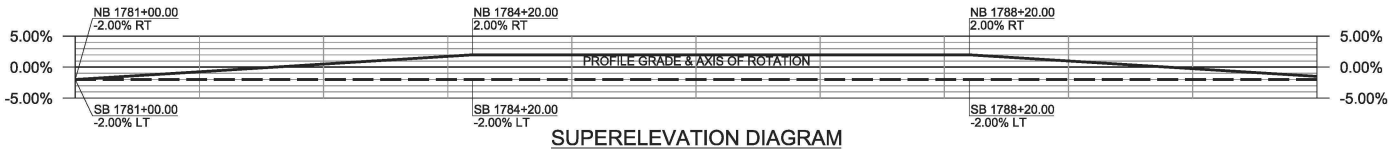
PROJECT	SR-85, MVC; 4100 SOUTH TO SR-201				UTAH DEPARTMENT OF TRANSPORTATION MOUNTAIN VIEW CORRIDOR CONSTRUCTORS				SHEET NO. RD-04
PROJECT NUMBER	S-0085(9)	PIN	13149		APPROVED	DRAWN BY	MNB	REVISIONS	
ROADWAY (SR-85 MVC)					NOT FOR CONSTRUCTION	QC	CAM	NO.	DATE	APPROVED BY	REMARKS
					PROFESSIONAL ENGINEER	CHECKED BY	CAM	A	27FEB19	NMP	30% - FULL CIVIL WORKS
					DATE						

LEGEND:

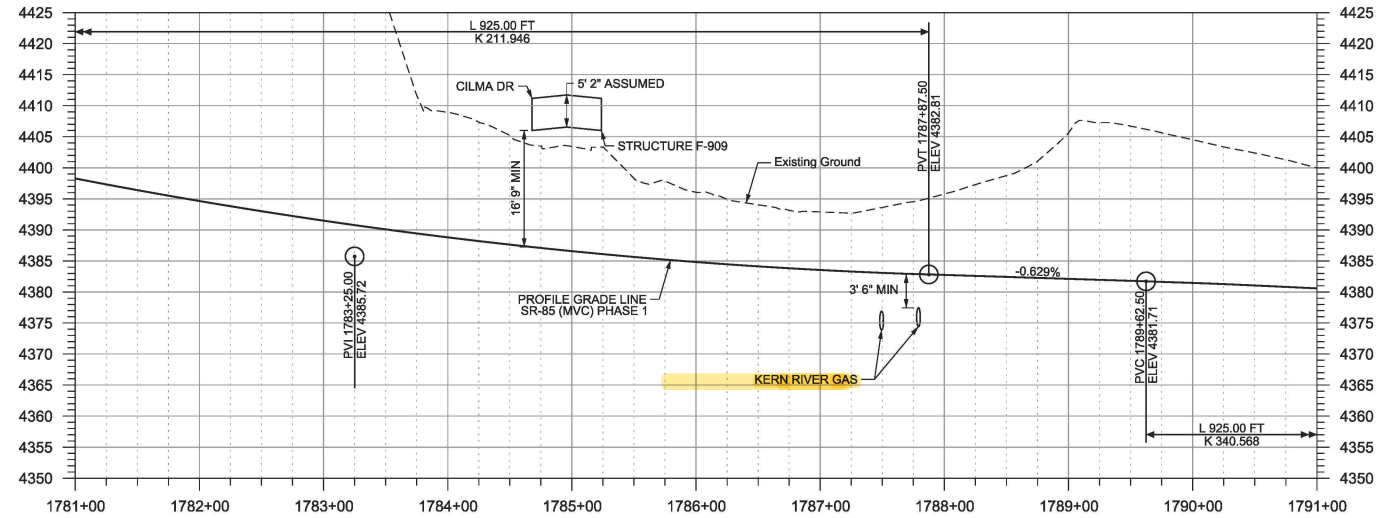
ROADWAY AND GRADING INFORMATION PROVIDED ON SEPARATE SHEETS

NOTE:
1. SEE HORIZONTAL CONTROL SHEETS FOR HORIZONTAL ALIGNMENT DATA.

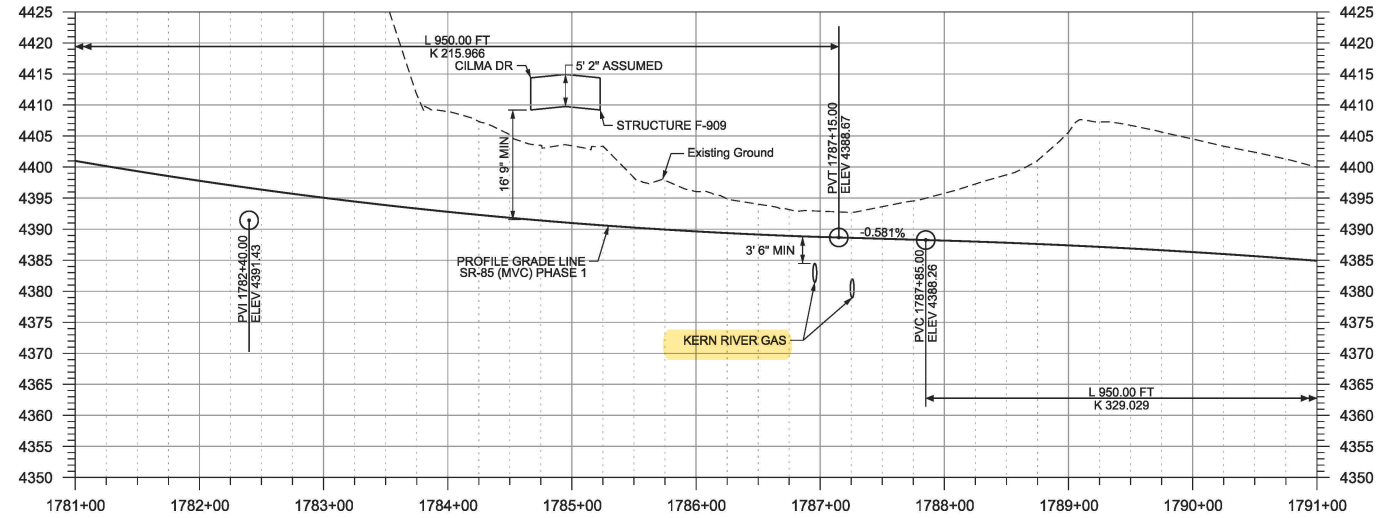
22-FEB-2019 DGN File: pw://vanwa0ipwint01.parsons.com/ut/sh.State/Documents/MVC41085 SR201/28-Design/28-South Segments/CAD/Roadway/Sheets/13149_S_RD_MVC_04.dgn



SUPERELEVATION DIAGRAM



SB MOUNTAIN VIEW CORRIDOR



NB MOUNTAIN VIEW CORRIDOR

REVISIONS

NO.	DATE	APPROVED BY	REMARKS
A	27FEB19	NMP	30% - FULL CIVIL WORKS

UTAH DEPARTMENT OF TRANSPORTATION
MOUNTAIN VIEW CORRIDOR CONSTRUCTORS

DRAWN BY KSW
QC CHECKED BY CAM

APPROVED
NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEER
DATE

PROJECT: SR-85, MVC; 4100 SOUTH TO SR-201
PROJECT NUMBER: S-0085(9) PIN 13149
ROADWAY PROFILE (SR-85 MVC)

SHEET NO. RP-04

Exhibit 3. Shared Use Pathway Access / Parking

LEGEND:

NOT FOR CONSTRUCTION

N

SR-85 (MVC) SB

SR-85 (MOUNTAIN VIEW CORRIDOR)

SR-85 (MVC) NB

1005+82.00
BEGIN CONSTRUCTION
S-0085(9)

N 421767.240
E 493511.474

504+08.10
BEGIN CONSTRUCTION

N 422147.938
E 494160.364

1014+40.00
END CONSTRUCTION
S-0085(9)

N 421760.978
E 494369.423

1006+00 1007+00 1008+00 1009+00 1010+00 1011+00 1012+00 1013+00 1014+00

503+00 502+00 501+00 504+00

SAWCUT

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35.00

MASTERS DR

MASTERS DR 500+00.00=
CILMA DRIVE 1013+31.25
N 421763.050
E 494260.704

CILMA DR

RETAINING WALL R-862E

CAST-IN-PLACE CONCRETE CONSTANT SLOPE HALF BARRIER - 42 INCH

CONCRETE CURB AND GUTTER TYPE B1

CONCRETE CURB AND GUTTER TYPE B1

STRUCTURE F-909

RETAINING WALL R-862A

RETAINING WALL R-862G

SUP PARKING LOT

NOTES:

1. SEE HORIZONTAL CONTROL SHEETS FOR HORIZONTAL ALIGNMENT DATA.

2. ITEMS SHOWN IN GREY ARE FOR INFORMATION ONLY AND ARE NOT RELEASED FOR CONSTRUCTION.

REVISIONS

NO.	DATE	APPROVED BY	REMARKS
A	27FEB19	NMP	100% - MASTERS DR MOT

DRAWN BY MNB
QC CHECKED BY CAM
DATE

UTAH DEPARTMENT OF TRANSPORTATION
MOUNTAIN VIEW CORRIDOR CONSTRUCTORS

APPROVED
NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEER

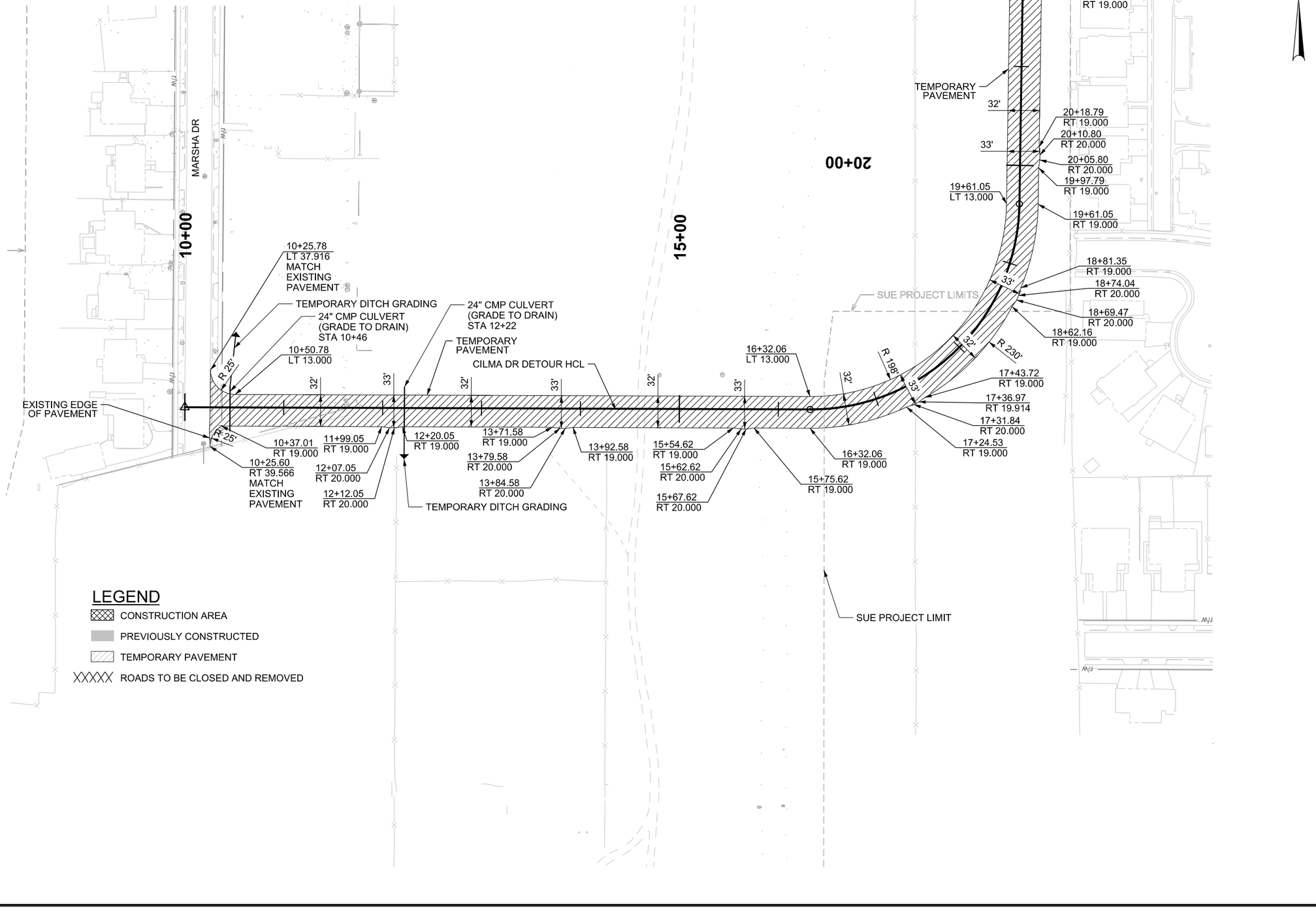
PROJECT: SR-85, MVC; 4100 SOUTH TO SR-201
PIN: 13149
PROJECT NUMBER: S-0085(9)
ROADWAY (CILMA DR)

SHEET NO. CL-RD-01

DGN File:pw://WVWABPWNTB1pw-ccms.com/Utah State/Documents/WVC410885 SR201/2B-Design/2B-South Segment/CAD/MOT/Sheets/13141_S_MOT_RD_Cline_01.dgn

12-MAR-2019

Exhibit 4. Maintenance of Traffic



REVISIONS

NO.	DATE	APPROVED BY	REMARKS
0	03/11/19	EOA	RFC – EARLY CNST. ACCESS

UTAH DEPARTMENT OF TRANSPORTATION
MOUNTAIN VIEW CORRIDOR CONSTRUCTORS

APPROVED

PROFESSIONAL ENGINEER

DRAWN BY EOA
CHECKED BY DCL
QC

3/12/2019
DATE

PROJECT: SR-85, MVC; 4100 SOUTH TO SR-201
PIN 13149
PROJECT NUMBER S-0085(9)
CILMA DR - TEMPORARY PAVING

SHEET NO. MT-01-15

12-MAR-2019
DGN File:p:\HANYAB\PWINTO\operations.com\Utah State\Documents\NVC41805 SR201\20-Design\00-Corridor Wide\CAD\MOT\Exhibits\Cilma Profile KRG\13149_S_MT_01_CILMA DR TEMP PAVING_01.dgn

APPENDIX B – Noise Impact Assessment

PARSONS

Noise Impact Assessment for Re-evaluation, Mountain View Corridor in Salt Lake County between 4100 South and 3500 South

Mountain View Corridor Project

Salt Lake and Utah Counties, Utah

April 2019

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1 Introduction

The purpose of this Noise Impact Assessment (NIA) is to re-evaluate the potential change in noise impacts and mitigation, as documented in the Mountain View Corridor (MVC) Final Environmental Impact Statement (Final EIS) and Record of Decision (ROD), compared to the final design proposed for between 4100 South and 3500 South in Salt Lake County using the latest Utah Department of Transportation (UDOT) Noise Abatement Policy (June 15, 2017).

1.1 Final Design Changes

The MVC Final EIS evaluated the environmental impacts of the MVC between Interstate 80 in Salt Lake County and Interstate 15 in Utah County (about 44 miles). UDOT is currently preparing a Re-evaluation for the segment of the MVC in Salt Lake County between 4100 South and 3500 South (about 1 mile).

The final design changes included with this segment are described in detail in the Re-evaluation. For the noise analysis, the relevant final design changes include the following:

- Phase 1: Constructing the outside freeway lanes and/or on and off ramps for the MVC between 4100 South and 3500 South. The MVC Final EIS assumed the full build-out of the MVC in the Final EIS noise analysis.
- Phase 3: Constructing the freeway lanes and/or on and off ramps for the MVC between 4100 South and 3500 South. The MVC Final EIS assumed the full build-out of the MVC in the Final EIS noise analysis.

The project corridor north of 3500 South is not expected to change and the assessment from the previous March 2018 NIA re-evaluation is to be used.

1.2 Methodology

The noise analysis included first-row receptors within about 500 feet from the nearest travel lane, all of which are residential (Activity Category B) with the exception of a receptor located in Hunter Park that is representative of an active sports area (Activity Category C). Modeling was performed using the FHWA Traffic Noise Model, version 2.5, and was based on the latest design files and digital terrain models provided by the project team. Roadways and noise barriers were modeled in 100-foot and 25-foot segments, respectively.

The Re-evaluation analyzed two separate phases (Phases 1 and 3) for the Refined Selected Alternative FCD. The inputs for these two phases are described below. For a description of the Refined Selected Alternative FCD, see Table 1 of the Environmental Impact Statement Re-evaluation for Salt Lake County from 4100 South to 3500 South.

1.2.1 Phase 1 Lanes and Traffic Volumes

The Phase 1 noise evaluation included only the Refined Selected Alternative FCD, which proposes to construct only the outside freeway lanes and/or on and off ramps. Traffic volumes were based on a level of service (LOS) of LOS C volume using free-flow speeds as specified by UDOT's Noise Abatement Policy (UDOT 08A2-1, June 15, 2017).

Phase 1 traffic volumes are presented in Table 1. All front-row homes were included as receptors in the revised models with elevations generated from Light Detection and Ranging (LIDAR) scans of the Wasatch Front in the project area. Receptor elevations are generally accurate within about 1.5 feet with this technology.

Table 1. Traffic Volumes for Phase 1

Element	Lanes	VPHPL (Auto)	VPHPL (Heavy Trucks*)	VPHPL (Total)	Speed (mph)
3500 South	4	552	48	600	45
4100 South	4	552	48	600	45

mph = miles per hour; VPHPL = vehicles per hour per lane
* 8% heavy trucks assumed

1.2.2 Phase 3 Traffic Volumes

The Phase 3 noise evaluation included the full MVC freeway. The Phase 3 analysis has the same number of lanes that were evaluated in the MVC Final EIS for the EIS Selected Alternative. As discussed above, traffic volumes were based on LOS C volumes using free-flow speeds.

Phase 3 traffic volumes are presented in Table 2. The same receptors were included in the Phase 3 modeling as were used in Phase 1.

Table 2. Traffic Volumes for Phase 3

Element	Lanes	VPHPL (Auto)	VPHPL (Heavy Trucks*)	VPHPL (Total)	Speed (mph)
Mainline	8	1,500	130	1,630	65
Ramps	4	552	48	600	45
3500 South	4	552	48	600	45
4100 South	4	552	48	600	45

mph = miles per hour; VPHPL = vehicles per hour per lane
* 8% heavy trucks assumed

2 Changes in Noise Impacts

2.1 MVC Final EIS Noise Impacts

For the EIS Selected Alternative, the Final EIS disclosed that noise would increase by 1 to 14 dB (decibels on the A-weighted scale) at residences near the MVC between 4100 South and 900 South compared to existing conditions. A total of 113 residences would be impacted by noise (see Section 13.5.3.2, 5800 West Freeway Alternative, of the MVC Final EIS). Under both noise policies (2008 and 2017), the noise-abatement criterion (NAC) for residences, schools, and recreation areas is 66 dBA.

2.2 Updated Design Noise Impacts for the Refined Selected Alternative FCD

The proposed design changes included with the Refined Selected Alternative FCD are described in the RFP document.

Per the June 15, 2017, UDOT Noise Abatement Policy, a noise impact occurs when the future worst-case noise level is equal to or greater than the NAC or the future worst-case noise level is greater than or equal to an increase of 10 dB over existing noise levels.

The existing noise levels used are the monitored noise values from the MVC Final EIS. The MVC Final EIS Monitoring Locations 16 and 17 are the locations that are representative of the areas with noise impacts from the Refined Selected Alternative FCD.

- Monitoring Location #16 was at 5725 West 3705 South and is representative of receptors 95 through 122. The measured noise level at this location was 49 dBA.
- Monitoring Location #17 was at 5920 West 3710 South and is representative of receptors 57 through 94. The measured noise level at this location was 54 dBA.

Updated or additional monitoring was not performed because the MVC is a new roadway project and there has not been any substantial new roadway development or land use development in this area since the Final EIS that would substantially change the existing noise conditions that were monitored for the MVC Final EIS.

In addition to these changes, the Re-evaluation analyzed two separate phases (Phases 1 and 3) for the Refined Selected Alternative FCD. The impact analyses for these two phases are presented in the following two sections.

2.2.1 Phase 1 Noise Analysis Results

The Phase 1 noise evaluation included only the Refined Selected Alternative FCD, which proposes to construct only the outside freeway lanes and/or on and off ramps.

Figures 1 and 2 in Appendix A show the proposed design of Phase 1 for this segment of the MVC, with each receptor identified by number with the current design files. Table 3 provides existing conditions, future conditions with the Refined Selected Alternative FCD, and impacts.

Table 3. Phase 1 Noise Analysis Results

Receptor	Land Use Category	NAC	Existing (dBA)	Phase 1 Refined Selected Alternative FCD (dBA)	Increase (dB)	Impacted?	Phase 1 Barrier Number
66	C	66	54	67	13	Yes	Barrier 2
67	B	66	54	58	4	No	Barrier 3A
68	B	66	54	59	5	No	Barrier 3A
69	B	66	54	59	5	No	Barrier 3A
70	B	66	54	60	6	No	Barrier 3A
71	B	66	54	60	6	No	Barrier 3A
72	B	66	54	61	7	No	Barrier 3A
73	B	66	54	61	7	No	Barrier 3A
74	B	66	54	62	8	No	Barrier 3A
75	B	66	54	63	9	No	Barrier 3A
76	B	66	54	63	9	No	Barrier 3A
77	B	66	54	64	10	Yes	Barrier 3A
78	B	66	54	65	11	Yes	Barrier 3A
79	B	66	54	66	12	Yes	Barrier 3A
80	B	66	54	66	12	Yes	Barrier 3A
81	B	66	54	68	14	Yes	Barrier 6
82	B	66	54	69	15	Yes	Barrier 6
83	B	66	54	69	15	Yes	Barrier 6
84	B	66	54	70	16	Yes	Barrier 6
85	B	66	54	71	17	Yes	Barrier 6
86	B	66	54	64	10	Yes	Barrier 6
87	B	66	54	63	9	No	Barrier 6
88	B	66	54	65	11	Yes	Barrier 6
89	B	66	54	65	11	Yes	Barrier 6
90	B	66	54	65	11	Yes	Barrier 6
91	B	66	54	65	11	Yes	Barrier 6
92	B	66	54	66	12	Yes	Barrier 6
93	B	66	54	66	12	Yes	Barrier 6
94	B	66	54	67	13	Yes	Barrier 6
103	B	66	49	65	16	Yes	Barrier 3
104	B	66	49	64	15	Yes	Barrier 3

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Table 3. Phase 1 Noise Analysis Results

Receptor	Land Use Category	NAC	Existing (dBA)	Phase 1 Refined Selected Alternative FCD (dBA)	Increase (dB)	Impacted?	Phase 1 Barrier Number
105	B	66	49	63	14	Yes	Barrier 3
106	B	66	49	63	14	Yes	Barrier 3
107	B	66	49	63	14	Yes	Barrier 3
108	B	66	49	62	13	Yes	Barrier 3
109	B	66	49	62	13	Yes	Barrier 3
110	B	66	49	62	13	Yes	Barrier 3
111	B	66	49	62	13	Yes	Barrier 3
112	B	66	49	61	12	Yes	Barrier 3
113	B	66	49	62	13	Yes	Barrier 3
114	B	66	49	63	14	Yes	Barrier 3
115	B	66	49	63	14	Yes	Barrier 3
116	B	66	49	63	14	Yes	Barrier 3
117	B	66	49	62	13	Yes	Barrier 3
118	B	66	49	62	13	Yes	Barrier 3
119	B	66	49	62	13	Yes	Barrier 3
120	B	66	49	62	13	Yes	Barrier 3
121	B	66	49	62	13	Yes	Barrier 3
122	B	66	49	62	13	Yes	Barrier 3
95	B	66	49	70	21	Yes	Bar4&5
96	B	66	49	67	19	Yes	Bar4&5
97	B	66	49	66	17	Yes	Bar4&5
98	B	66	49	65	17	Yes	Bar4&5
99	B	66	49	64	16	Yes	Bar4&5
100	B	66	49	64	16	Yes	Bar4&5
101	B	66	49	64	17	Yes	Bar4&5
102	B	66	49	65	16	Yes	Bar4&5

As shown in Table 3 above, under the Phase 1 conditions, noise levels would increase by about 4 to 21 dB with the Refined Selected Alternative FCD between 4100 South and 3500 South compared to existing conditions.

The Phase 1 analysis showed that 45 of 57 first-row receptors would have noise impacts from the Refined Selected Alternative FCD under Phase 1 conditions.

The mitigation analysis for the Phase 1 impacted receptors is discussed in Section 3.2.2, Application of Phase 1 and Phase 3 Noise Mitigation Results, of this technical memorandum.

2.2.2 Phase 3 Noise Analysis Results

The Phase 3 noise evaluation included the full MVC freeway. The Phase 3 analysis has the same number of lanes that were evaluated in the MVC Final EIS for the EIS Selected Alternative.

Figures 5 through 8 in Appendix A show the proposed design of Phase 3 for this segment of the MVC, with each receptor identified by the same number as shown in Table 3 above. Table 4 shows the existing noise level, the future noise level with the Phase 3 full build-out conditions, and impacts.

Table 4. Phase 3 Noise Analysis Results

Receptor	Land Use Category	NAC	Existing (dBA)	Phase 3 Refined Selected Alternative FCD (dBA)	Increase (dB)	Impacted?	Phase 3 Barrier Number
66	C	66	54	71	17	Yes	Barrier 2
67	B	66	54	64	10	Yes	Barrier 3A
68	B	66	54	65	11	Yes	Barrier 3A
69	B	66	54	65	11	Yes	Barrier 3A
70	B	66	54	65	11	Yes	Barrier 3A
71	B	66	54	65	11	Yes	Barrier 3A
72	B	66	54	65	11	Yes	Barrier 3A
73	B	66	54	66	12	Yes	Barrier 3A
74	B	66	54	67	13	Yes	Barrier 3A
75	B	66	54	70	16	Yes	Barrier 3A
76	B	66	54	70	16	Yes	Barrier 3A
77	B	66	54	71	17	Yes	Barrier 3A
78	B	66	54	72	18	Yes	Barrier 3A
79	B	66	54	72	18	Yes	Barrier 3A
80	B	66	54	73	19	Yes	Barrier 3A
81	B	66	54	74	20	Yes	Barrier 3A
82	B	66	54	75	21	Yes	Barrier 3A
83	B	66	54	75	21	Yes	Barrier 3A
84	B	66	54	75	21	Yes	Barrier 3A
85	B	66	54	76	22	Yes	Barrier 3A
86	B	66	54	71	17	Yes	Barrier 3A
87	B	66	54	71	17	Yes	Barrier 3A
88	B	66	54	72	18	Yes	Barrier 3A
89	B	66	54	72	18	Yes	Barrier 3A
90	B	66	54	72	18	Yes	Barrier 3A
91	B	66	54	72	18	Yes	Barrier 3A
92	B	66	54	73	19	Yes	Barrier 3A
93	B	66	54	73	19	Yes	Barrier 3A
94	B	66	54	73	19	Yes	Barrier 3A

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Table 4. Phase 3 Noise Analysis Results

Receptor	Land Use Category	NAC	Existing (dBA)	Phase 3 Refined Selected Alternative FCD (dBA)	Increase (dB)	Impacted?	Phase 3 Barrier Number
103	B	66	49	65	16	Yes	Barrier 3
104	B	66	49	65	16	Yes	Barrier 3
105	B	66	49	65	16	Yes	Barrier 3
106	B	66	49	65	16	Yes	Barrier 3
107	B	66	49	65	16	Yes	Barrier 3
108	B	66	49	66	17	Yes	Barrier 3
109	B	66	49	67	18	Yes	Barrier 3
110	B	66	49	67	18	Yes	Barrier 3
111	B	66	49	67	18	Yes	Barrier 3
112	B	66	49	67	18	Yes	Barrier 3
113	B	66	49	67	18	Yes	Barrier 3
114	B	66	49	65	16	Yes	Barrier 3
115	B	66	49	67	18	Yes	Barrier 3
116	B	66	49	68	19	Yes	Barrier 3
117	B	66	49	68	19	Yes	Barrier 3
118	B	66	49	68	19	Yes	Barrier 3
119	B	66	49	68	19	Yes	Barrier 3
120	B	66	49	69	20	Yes	Barrier 3
121	B	66	49	69	20	Yes	Barrier 3
122	B	66	49	69	20	Yes	Barrier 3
95	B	66	49	73	21	Yes	Bar4&5
96	B	66	49	71	19	Yes	Bar4&5
97	B	66	49	71	17	Yes	Bar4&5
98	B	66	49	71	17	Yes	Bar4&5
99	B	66	49	70	16	Yes	Bar4&5
100	B	66	49	70	16	Yes	Bar4&5
101	B	66	49	70	17	Yes	Bar4&5
102	B	66	49	69	17	Yes	Bar4&5

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As shown in Table 4 above, under the Phase 3 conditions, noise levels would increase by about 10 to 22 dB with the Refined Selected Alternative FCD between 4100 South and 3500 South compared to existing conditions.

The Phase 3 analysis showed that all 57 first-row receptors would have noise impacts from the Refined Selected Alternative FCD under Phase 3 conditions.

The Phase 3 analysis showed that the Refined Selected Alternative FCD would have similar noise impacts as the EIS Selected Alternative when using the full build-out scenario for the MVC.

The mitigation analysis for the Phase 3 impacted receptors is discussed in Section 3.2.2, Application of Phase 1 and Phase 3 Noise Mitigation Results, of this technical memorandum.

3 Noise Abatement

3.1 MVC Noise Abatement Measures for the EIS Selected Alternative

As described in Section 3.2.2, Noise Abatement Measures for the Salt Lake County Alternatives, of the MVC Re-evaluation NIA, the 2018 NIA noise analysis identified the following two noise barriers for the EIS Selected Alternative between 4100 South and 3500 South that were considered feasible and reasonable using the UDOT Noise Abatement Policy that was current at the time of the Final EIS (Table 5).

Table 5. MVC Re-evaluation NIA Reasonable and Feasible Noise Barriers

Location	North Terminus	South Terminus	Length	Height
East side of MVC	Darle Ave.	Bills Dr.	1,653 feet	13 to 10 feet
West side of MVC	3500 South	3640 South	1,025 feet	15 feet

3.2 Noise Abatement Analysis and Results for the Refined Selected Alternative FCD

3.2.1 Noise Abatement Methodology

Per UDOT's current Noise Abatement Policy (June 15, 2017), the overall goal of noise abatement is to obtain substantial noise reductions, which might or might not result in noise levels below NAC levels. The two relevant criteria to consider when identifying and evaluating noise-abatement measures for mitigation are feasibility and reasonableness. Noise abatement will be provided only if it is determined by UDOT to be **both** feasible and reasonable.

Feasibility. UDOT's Noise Abatement Policy defines "feasible" using three factors: engineering considerations, safety on non-urban roadways, and acoustic feasibility. The feasibility factors must collectively be achieved for a noise-abatement measure to be considered "feasible." Failure to meet these factors will result in the noise-abatement measure being deemed not feasible and therefore not included in the proposed project. It is important to note that, even if all feasibility factors are achieved, noise abatement must still meet all reasonableness factors in order to be included in the project.

1. *Engineering Considerations* – Engineering considerations such as safety, presence of cross streets, sight distance, access to adjacent properties, wall height, topography, drainage, utilities, maintenance access, and maintenance of the abatement measure must be taken into account as part of establishing feasibility.
2. *Safety on Urban Non-access-controlled Roadways* – To 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.
3. *Acoustic Feasibility* – This is defined as achieving at least a 5-dB highway traffic noise reduction for at least 50% of front-row receptors.

Reasonableness. The reasonableness factors listed below must collectively be achieved for a noise-abatement measure to be considered "reasonable." Failure to achieve any of these factors will result in the noise-abatement measure being deemed not reasonable and therefore not included in the proposed project.

1. *Noise-Abatement Design Goal* – UDOT defines the minimum noise reduction (design goal) from proposed abatement measures to be 7 dB or greater for at least 35% of front-row receptors. In accordance with 23 Code of Federal Regulations (CFR) 772, no abatement measure shall be deemed reasonable if the noise-abatement design goal cannot be achieved.
2. *Cost-Effectiveness* – Noise-abatement costs are based on a fixed unit cost of $20 per square foot, multiplied by the height and length of the wall, in addition to the cost of any other item associated with the abatement measure that is critical to safety. The cost-effectiveness of abatement is determined by analyzing the cost of a wall that would provide a noise reduction of 5 dB or more for a benefited receptor. A reasonable cost is considered to be a maximum of $30,000 per benefited receptor (Activity Category B) and $360 per lineal foot for Activity Categories A, C, D, or E. If the anticipated cost of the noise-abatement measure is less than the allowable cost, then the abatement is deemed reasonable.
3. *Viewpoints of Property Owners and Residents* – Viewpoints of property owners and residents (non-owners) must be solicited to determine whether noise abatement is desired pursuant to Section C.2.c of UDOT's Noise Abatement Policy (June 15, 2017).

The noise analysis conducted for the Re-evaluation analyzed whether the noise barriers would be feasible and whether they would meet the reasonable noise-abatement design goal and cost-effectiveness criterion. If a noise barrier was determined to be both feasible and it met the reasonable noise-abatement design goal and cost-effectiveness criterion, it is recommended for balloting by property owners and residents.

3.2.2 Application of Phase 1 and Phase 3 Noise Mitigation Results

As described in Section 2.2, Updated Design Noise Impacts for the Refined Selected Alternative FCD, the noise analysis for the Re-evaluation included two separate phases. The Phase 1 noise impact analysis included only the outside freeway lanes (two lanes in each direction, northbound and southbound) and/or on and off ramps proposed as part of the Refined Selected Alternative FCD. The Phase 3 noise impact analysis included the full MVC freeway (four lanes in each direction) proposed as part of the Refined Selected Alternative FCD. The Phase 3 noise impact analysis for the Refined Selected Alternative FCD has the same number of lanes that were evaluated in the MVC Final EIS for the EIS Selected Alternative.

The following bullets summarize the approach that was used for the results of the Phase 1 and Phase 3 noise-abatement evaluations:

- If a noise barrier qualifies according to both the Phase 1 and Phase 3 analyses, UDOT would construct the Phase 3 barrier during Phase 1 of the project so that UDOT would not have to reconstruct the noise barrier during Phase 3.
- If a noise barrier qualifies according to the Phase 1 analysis but does not qualify according to the Phase 3 analysis, UDOT would construct the Phase 1 noise barrier during Phase 1 of the project.
- If a noise barrier does not qualify according to the Phase 1 analysis but does qualify according to the Phase 3 analysis, UDOT would construct the Phase 3 noise barrier during Phase 3 of the project.
- If a noise barrier does not qualify according to either the Phase 1 or Phase 3 analyses, no noise barrier would be constructed.

Phase 1 Noise Mitigation Results

The Phase 1 noise impacts for the Refined Selected Alternative FCD are shown above in Table 3, Phase 1 Noise Analysis Results.

Noise mitigation was evaluated and determined not to be reasonable for impacted receptors 72 to 81, 82 to 94 and 95 to 102.

- Receptors 72 to 81 are single family residences that have back yards facing MVC. The properties are between 150 and 250 feet from the proposed service road. A barrier along the service road was analyzed but would not meet UDOT's reasonableness noise design goal and is not recommended.
- Receptors 82 to 94 are single family residences that have back yards facing MVC. The properties are between 150 and 250 feet from the proposed service road. A barrier along the service road was analyzed but would not meet UDOT's reasonableness noise design goal and is not recommended.
- Receptors 95 to 102 are single family residences that have back yards facing MVC. The properties are approximately 160 feet from the proposed service road. A barrier along the service road was analyzed but would not meet UDOT's feasibleness requirements and is not recommended.

The Phase 1 noise-abatement analysis for the Refined Selected Alternative FCD evaluated the noise barriers listed in Table 6. The Feasible and Reasonable barriers are shown in Figures 1 and 2 in Appendix A.

Table 6. Phase 1 Reasonable and Feasible Noise Barriers for the Refined Selected Alternative FCD

Barrier Number	Location	North or West Terminus	South or East Terminus	Length (feet)	Height (feet)	Feasible and Reasonable?
2	West side of MVC (Hunter Park)	3500 South	3640 South	1,050	12	Yes
3	East side of MVC	Pedestrian over-pass at Darle Ave.	Bills Dr.	1,730	13 to 10	Yes
3a	West side of MVC	Valley Pointe Dr.	Cilma Dr.	1,125	18	No
4	South side of 3500 South	Just west of 5700 West	5700 West	110	18	No
5	South side of 3500 South	3500 South	3575 South	675	18	No
6	West side of MVC	Cilma Dr.	About 3965 South	1,040	18	No

Detailed information regarding the feasible and reasonable analyses for each of these noise barriers is included in Appendix B of this technical memorandum.

As shown in Table 6 above, two noise barriers would be considered feasible and reasonable according to UDOT's Noise Abatement Policy (June 15, 2017) in Phase 1. Phase 1 Barriers 2 and 3 would provide feasible and reasonable mitigation for noise impacts created by Phase 1 of the MVC and are recommended for balloting.

Phase 3 Noise Mitigation Results

The Phase 3 noise impacts for the Refined Selected Alternative FCD are shown above in Table 4, Phase 3 Noise Analysis Results.

The Phase 3 noise-abatement analysis for the Refined Selected Alternative FCD evaluated the noise barriers listed in Table 7. The Refined Selected Alternative FCD and receptors are shown in Figures 3 and 4 in Appendix A.

Table 7. Phase 3 Reasonable and Feasible Noise Barriers for the Refined Selected Alternative FCD

Barrier Number	Location	North Terminus	South Terminus	Length (feet)	Height (feet)	Feasible and Reasonable?
2	West side of MVC (Hunter Park)	3500 South	3640 South	1,100	18	No
3	East side of MVC	Pedestrian over-pass at Darle Ave.	Bills Dr.	1,800	18	No
3a	West side of MVC	Valley Pointe Dr.	Cilma Dr.	1,125	18	No
4	South side of 3500 South	Just west of 5700 West	5700 West	110	18	No
5	South side of 3500 South	3500 South	3575 South	675	18	No
6	West side of MVC	Cilma Dr.	About 3965 South	1,040	18	No

Detailed information regarding the feasible and reasonable analyses for each of these noise barriers is included in Appendix C.

As shown in Table 7 above, no barrier would be considered feasible and reasonable according to UDOT's Noise Abatement Policy (June 15, 2017) in Phase 3.

3.3 Summary of Refined Selected Alternative FCD Noise Barriers Recommended for Balloting

In Phase 1, two noise barriers are considered feasible and reasonable according to UDOT's Noise Abatement Policy (June 15, 2017). Phase 1 Barrier 2 and Phase 1 Barrier 3 are recommended for balloting.

In Phase 3, no noise barrier is considered feasible and reasonable according to UDOT's Noise Abatement Policy (June 15, 2017).

4 Conclusion

The following noise barriers are considered feasible and reasonable and are recommended for balloting using the noise balloting measures in Section C.2.(c) of UDOT's Noise Abatement Policy:

- Phase 1 Barrier 2
- Phase 1 Barrier 3

Per the MVC methodology described in Section 3.2, Noise Abatement Analysis and Results for the Refined Selected Alternative FCD, Phase 1 Barrier 2 and Phase 1 Barrier 3 would be constructed during Phase 1 of the project if they meet the balloting approval criteria.

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Appendix A. Noise Barrier and Receptor Locations

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Figure 1. Phase 1 Barriers (1 of 2)

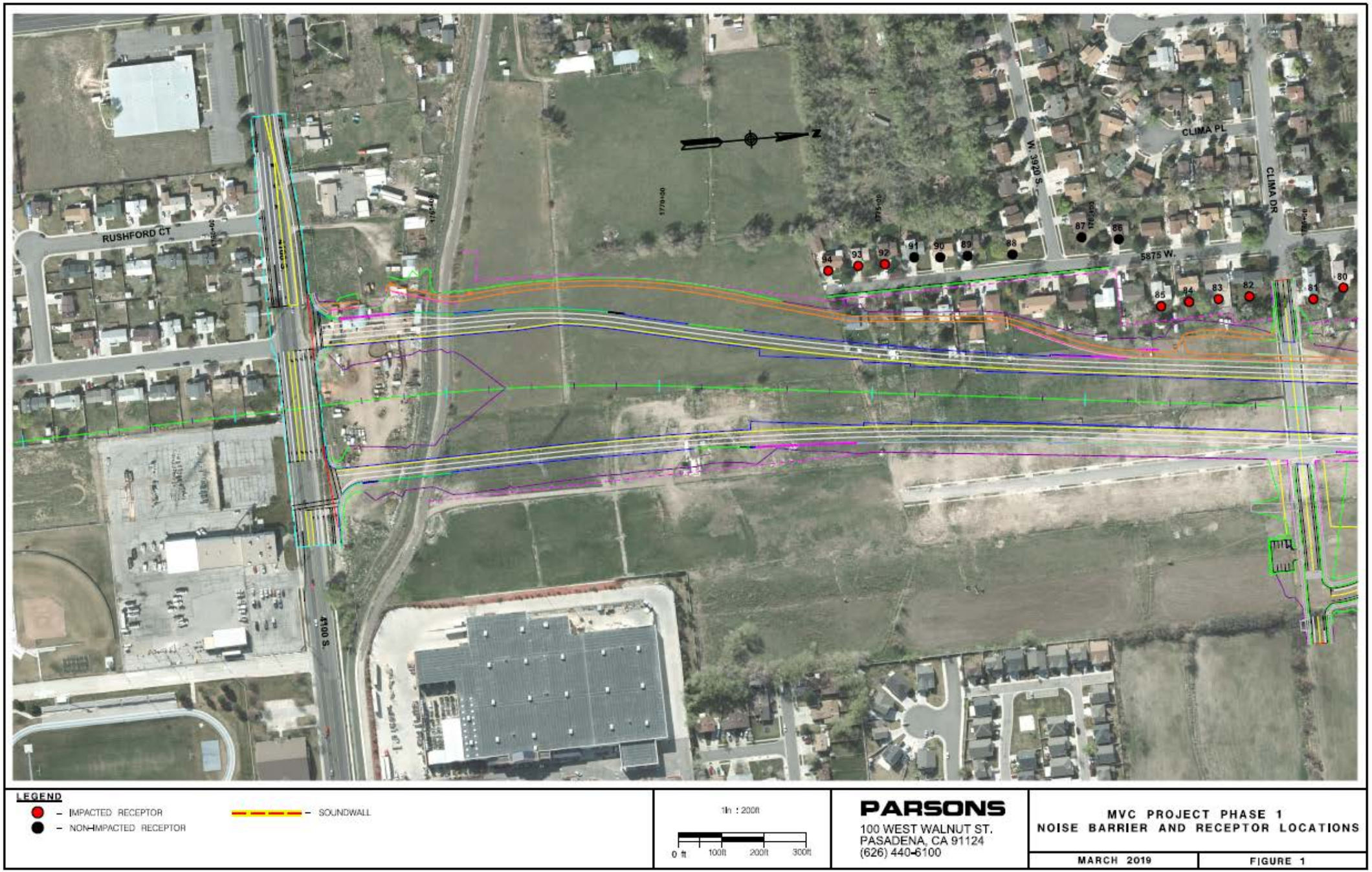


Figure 2. Phase 1 Barriers (2 of 2)

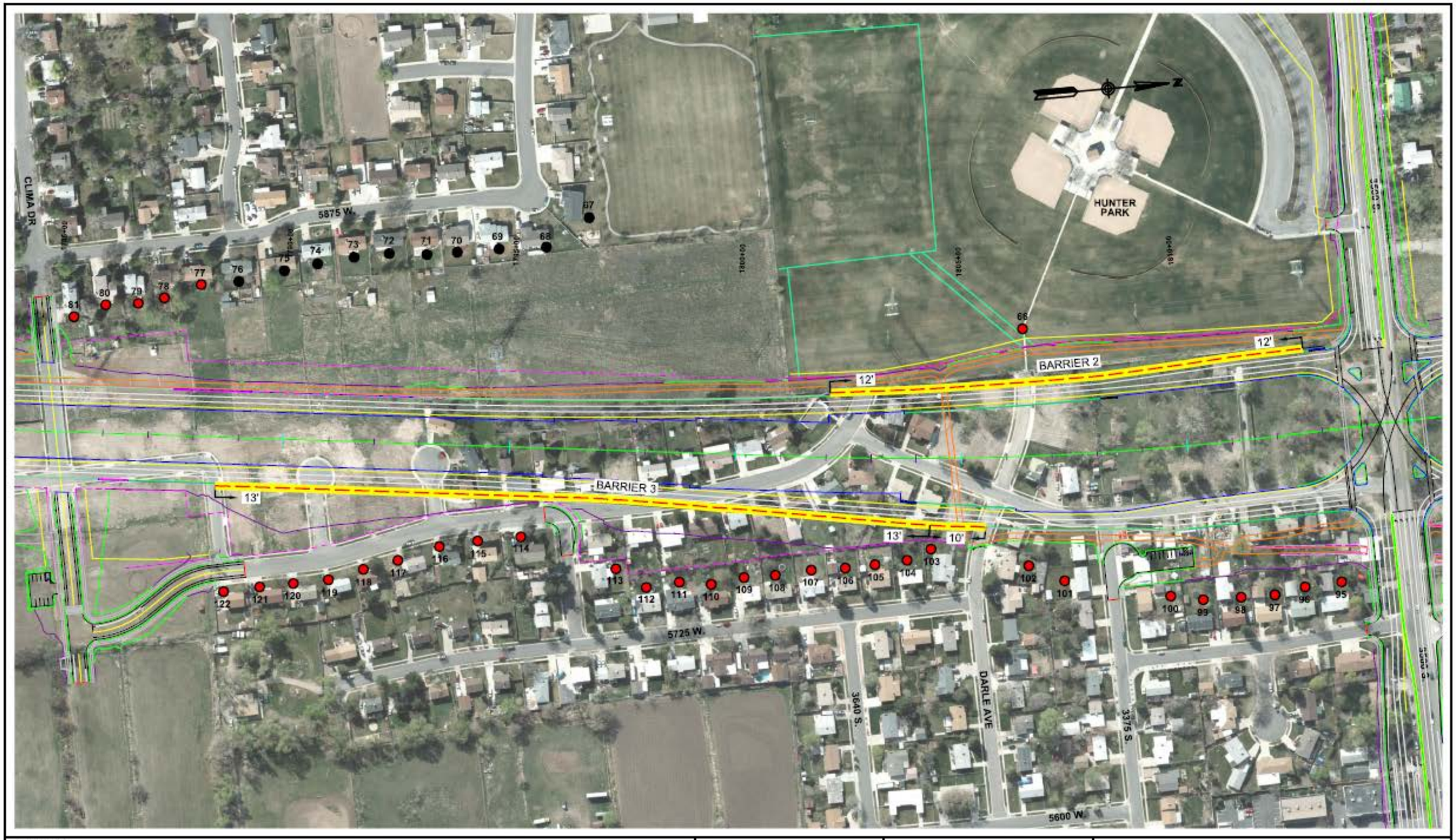


Figure 3. Phase 3 Barriers (1 of 2)

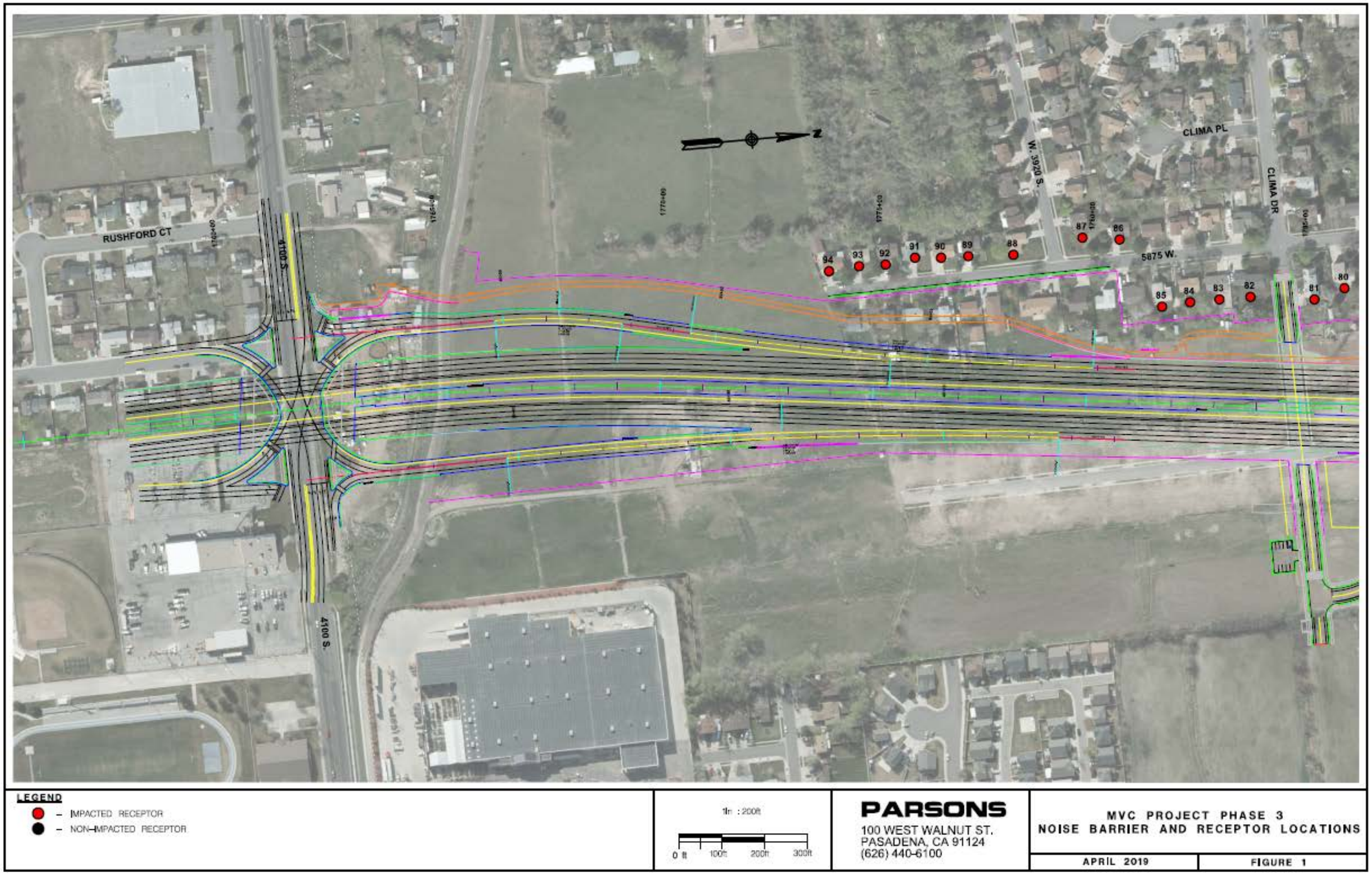
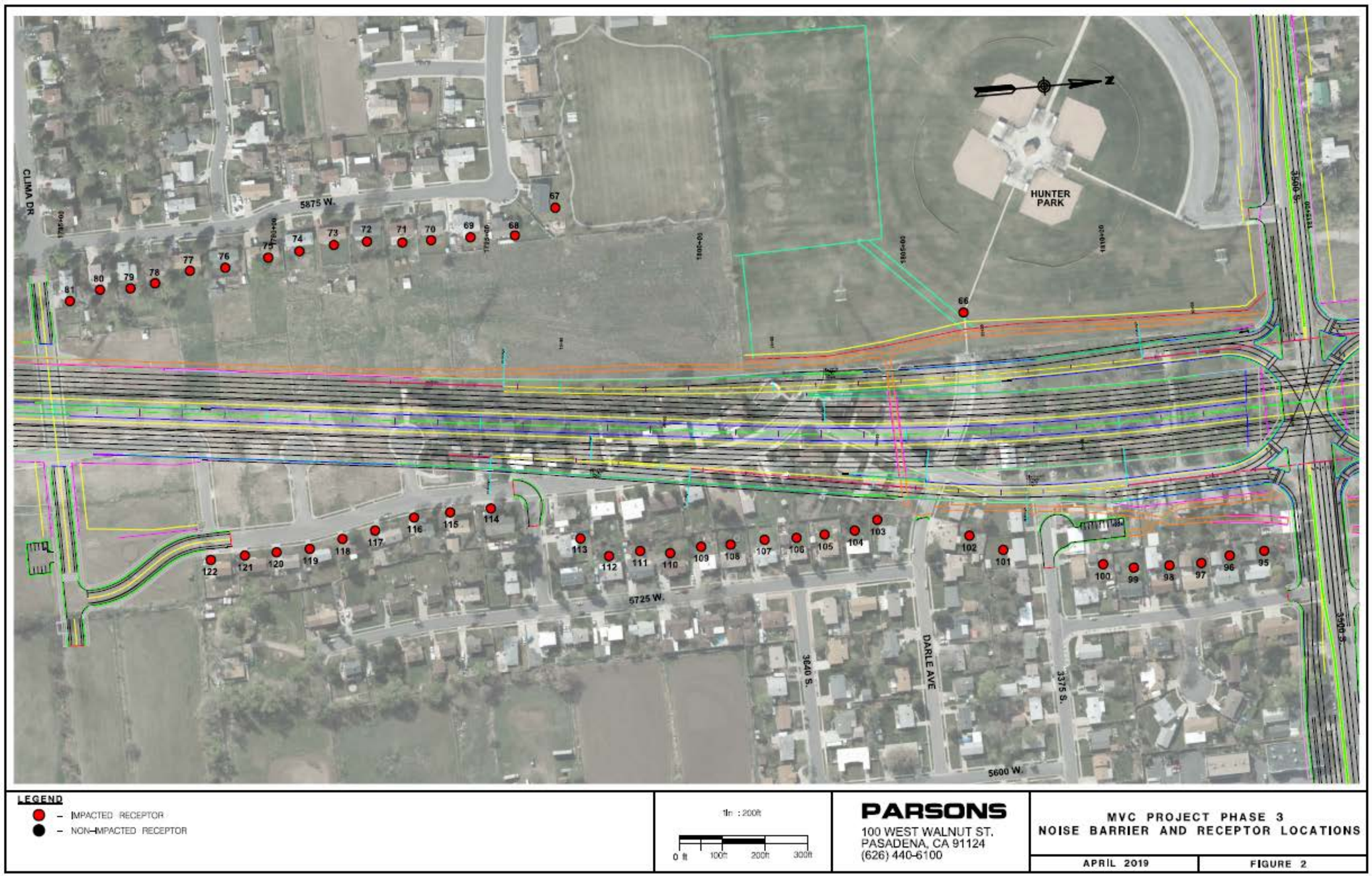


Figure 4. Phase 3 Barriers (2 of 2)



Appendix B. Phase 1 Noise Barrier Analysis Tables

Mitigation for Phase 1

As shown in Table 3, Phase 1 Noise Analysis Results, in Phase 1, 45 of 56 receptors would be impacted. The six barriers described below were evaluated to mitigate for the Phase 1 noise impacts. The two recommended barriers are illustrated in Figures 1 and 2 in Appendix A

Barrier 2 (Figure 2)

Barrier 2 is intended to mitigate impacts to receptor 66, representative of Hunter Park, an Activity Category C land use. A 15-foot-high barrier adjacent to southbound MVC traffic would achieve 5-dB and 7-dB noise reductions at Receptor 66.

Table B-1 summarizes the noise reduction for receptor 66 in Hunter Park.

Table B-1. Phase 1 Barrier 2 Noise Barrier Mitigation

Receptor	Phase 1 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 1 Refined Selected Alternative FCD with 15-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
66	67	59	7	Yes	Yes

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **Yes** (1/1 = 100%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 35% of the front-row receptors have a 7 dB reduction? **Yes** (1/1 = 100%)
2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Yes – barrier cost is less than allowable cost.**
   a. Barrier cost = $252,000 (1,050 feet × 12 feet × $20/square foot)
   b. Allowable cost = $438,372 (1,188 feet × $360/linear foot for Category C land uses)

Recommendation

Phase 1 Barrier 2 is considered acoustically feasible and meets the design goal and cost-effectiveness tests under Phase 1.
Phase 1 Barrier 2 is recommended for balloting.

Barrier 3 (Figure 3)

Barrier 3 is intended to mitigate impacts to receptors 103 through 122. A barrier located on the east side of the MVC was modeled between 8 feet and 18 feet high from the pedestrian overpass at Darle Avenue south to Bills Drive. To meet UDOT's noise-abatement criteria, this barrier would have to be located on the MVC structure crossing Darle Avenue.

Barrier 3 at a height of 13 feet would be acoustically feasible (80% of receptors would achieve a 5-dB or greater noise reduction) and would meet the design goal (40% of receptors would achieve a 7-dB or greater noise reduction). Barrier 3 would be 10 feet high on the pedestrian overpass structure at Darle Avenue to meet the Engineering Considerations requirements listed in Section C.1.a of UDOT's Noise Abatement Policy (June 15, 2017).

Barrier 3 would be feasible and would meet the design goal under Phase 1.

Table B-2 summarizes the noise reduction for receptors 103 through 122.

Table B-2. Phase 1 Barrier 3 Noise Barrier Mitigation

Receptor	Phase 1 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 1 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
103	65	58	7	Yes	Yes
104	64	57	7	Yes	Yes
105	63	57	6	Yes	No
106	63	56	7	Yes	Yes
107	63	56	7	Yes	Yes
108	62	56	6	Yes	No
109	62	56	6	Yes	No
110	62	56	6	Yes	No
111	62	56	6	Yes	No
112	61	55	6	Yes	No
113	62	55	7	Yes	Yes
114	63	56	7	Yes	Yes
115	63	56	7	Yes	Yes
116	63	56	7	Yes	Yes
117	62	57	5	Yes	No
118	62	57	5	Yes	No
119	62	58	4	No	No
120	62	59	3	No	No
121	62	60	2	No	No
122	62	60	2	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **Yes** (16/20 = 80%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 35% of the front-row receptors have a 7 dB reduction? **Yes** (8/20 = 40%)
2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Yes – barrier cost is less than allowable cost.**
   a. Barrier cost = $442,480

      $24,400 (122 feet × 10 feet [on overcrossing structure] × $20/square foot)

      $418,080 (1,608 feet × 13 feet × $20/square foot)

   b. Allowable cost = $480,000 (16 benefitted receptors × $30,000/benefitted receptor for Category B land uses)

Recommendation

Phase 1 Barrier 3 is considered acoustically feasible and meets the design goal and cost-effectiveness tests under Phase 1.
Phase 1 Barrier 3 is recommended for balloting.

Barrier 3a

Barrier 3a is intended to mitigate impacts to receptors 77 through 81. As shown in Figure 1, receptors 67 to 76 would not be impacted under Phase 1 of the project but were included in the evaluation. A barrier located on the west side of the MVC was modeled between 8 feet and 18 feet high Valley Pointe Drive to Cilma Drive.

Barrier 3a at a height of 18 feet would be acoustically feasible (53% of first-row receptors would achieve a 5-dB or greater noise benefit). But, would not meet (6% of receptors would achieve a 7-dB or greater noise reduction) the design goal at 18 feet.

Table B-3 summarizes the noise reduction for receptors 67 through 81.

Table B-3. Phase 1 Barrier 3 Noise Barrier Mitigation

Receptor	Phase 1 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 1 Refined Selected Alternative FCD with 10- to 13-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
67	58	57	1	No	No
68	59	57	2	No	No
69	59	56	3	No	No
70	60	56	4	No	No
71	60	56	4	No	No
72	61	55	6	Yes	No
73	61	55	6	Yes	No
74	62	56	6	Yes	No
75	63	56	7	Yes	Yes
76	63	57	6	Yes	No

77	64	58	6	Yes	No
78	65	60	5	Yes	No
79	66	61	5	Yes	No
80	66	63	3	No	No
81	68	66	2	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **yes** (8/15 = 53.3%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 35% of the front-row receptors have a 7 dB reduction? **No** (1/15 = 6.7%)
2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Not applicable – barrier does not meet the design goal at 18 feet.**

Recommendation

Phase 1 Barrier 3a is acoustically feasible but does not meet the reasonable design goal.
Phase 1 Barrier 3a is not recommended for balloting.

Barriers 4 and 5

Barriers 4 and 5 are intended to mitigate impacts to receptors 95 through 102. To accommodate pedestrian trails and a pedestrian crossing over 3500 South, two separate barriers were modeled, which would result in a substantial gap between the west end of Barrier 4 and the north end of Barrier 5. Gaps between noise barriers reduce their overall effectiveness.

Barriers 4 and 5 were modeled between 8 feet and 18 feet high. At a barrier height of 18 feet, neither barrier met the feasibility or design goal requirements of UDOT's noise-abatement policy.

Table B-4 summarizes the noise reduction for receptors 95 through 102.

Table B-4. Phase 1 Barrier 4 and 5 Noise Barrier Mitigation

Receptor	Phase 1 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 1 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
95	70	67	3	No	No
96	67	64	3	No	No
97	66	62	4	No	No
98	65	61	4	No	No
99	64	60	4	No	No
100	64	59	5	Yes	No
101	64	60	4	No	No
102	65	63	2	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **No** (1/8 = 12.5%)

Reasonable Design Goal and Cost-Effectiveness Tests

3. Design goal – Would 35% of the front-row receptors have a 7 dB reduction? **No** (0/8 = 0%)
4. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Not applicable – barriers do not meet feasibility or design goals.**

Recommendation

Phase 1 Barriers 4 and 5 are not acoustically feasible and do not meet the design goal. Phase 1 Barrier 4 and Phase 1 Barrier 5 are not recommended for balloting.

Barrier 6

Barrier 6 is intended to mitigate impacts to receptors 82 through 94. As shown in Figure 1, receptor 87 would not be impacted under Phase 1 of the project but were included in the evaluation.

Barrier 6 at a height of 18 feet would not be acoustically feasible (38% of first-row receptors would achieve a 5-dB or greater noise benefit). No receptor meets the 7-dB design goal at 18 feet.

Table B-5 summarizes the noise reduction for receptors 82 through 94 with an 18 foot barrier.

Table B-5. Phase 1 Barrier 6 Noise Barrier Mitigation

Receptor	Phase 1 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 1 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
82	69	66	3	No	No
83	69	66	3	No	No
84	70	66	4	No	No
85	71	67	4	No	No
86	64	60	4	No	No
87	63	59	4	No	No
88	65	60	5	Yes	No
89	65	60	5	Yes	No
90	65	60	5	Yes	No
91	65	60	5	Yes	No
92	66	61	5	Yes	No
93	66	62	4	No	No
94	67	64	3	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **No** (5/13 = 38%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 235% of the front-row receptors have a 7 dB reduction? **No** (0/13 = 0%) – **design goal is not met at a barrier height of 18 feet**

2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost?
   Not applicable – barriers do not meet design goal at 18 feet.

Recommendation

Phase 1 Barrier 6 is not acoustically feasible.
Phase 1 Barrier 6 is not recommended for balloting.

Phase 1 Summary

Barriers 2 and 3 would provide feasible and reasonable mitigation for noise impacts caused by Phase 1 of the MVC and are recommended for balloting.

Appendix C. Phase 3 Noise Barrier Analysis Tables

Mitigation for Phase 3

As shown in Table 4, Phase 3 Noise Analysis Results, in Phase 3, all 56 receptors would be impacted as a result of substantially increased traffic volumes on the MVC mainline. The six barriers described below were evaluated to mitigate for the Phase 3 noise impacts.

Barrier 2

Barrier 2 is intended to mitigate impacts to receptor 66, representative of Hunter Park, an Activity Category C land use. A 16-foot-high barrier adjacent to southbound MVC traffic would be acoustically feasible at receptor 66 but would not meet the design goal of a 7-dB noise reduction.

An 18-foot-high barrier would achieve a 5 dB-noise reduction but does not meet the 7-dB reasonable design goal of UDOT's noise-abatement policy.

Table C-1 summarizes the noise reduction for receptors 66 through 184.

Table C-1. Phase 3 Barrier 2 Noise Barrier Mitigation

Receptor	Phase 3 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 3 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
66	71	66	5	Yes	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **Yes** (1/1 = 100%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 235% of the front-row receptors have a 7 dB reduction? **No** (0/1 =0%)
2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Not applicable – barrier does not meet design goal at 18 feet.**

Recommendation

Phase 3 Barrier 2 is considered acoustically feasible but does not meet the reasonable design goal.
Phase 3 Barrier 2 is not recommended for balloting.

Barrier 3

Barrier 3 is intended to mitigate impacts to receptors 103 through 122. A barrier located on the east side of the MVC was modeled between 8 feet and 18 feet high from the pedestrian overpass at Darle Avenue to Bills Drive. To meet UDOT's noise-abatement criteria, this barrier would have to be located on the MVC structure crossing Darle Avenue.

Barrier 3 at a height of 18 feet would be acoustically feasible (55% of front-row receptors would achieve a 5-dB or greater reduction due to the barrier) but would not meet the 7-dB design goal at any receptor due to the substantially greater traffic volumes on the MVC mainline under Phase 3 and the roadway design that elevates the MVC mainline at higher elevations than was the case under Phase 1.

Phase 3 Barrier 3 would not meet the 35% design goal at a barrier height of 18 feet (0/20 = 0%).

Table C-2 summarizes the noise reduction for receptors 103 through 122.

Table C-2. Phase 3 Barrier 3 Noise Barrier Mitigation

Receptor	Phase 3 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 3 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
103	65	60	5	Yes	No
104	65	61	4	No	No
105	65	61	4	No	No
106	65	61	4	No	No
107	65	61	4	No	No
108	66	61	5	Yes	No
109	67	61	6	Yes	No
110	67	61	6	Yes	No
111	67	61	6	Yes	No
112	67	61	6	Yes	No
113	67	61	6	Yes	No
114	65	61	4	No	No
115	67	61	6	Yes	No
116	68	62	6	Yes	No
117	68	62	6	Yes	No
118	68	63	5	Yes	No
119	68	64	4	No	No
120	69	65	4	No	No
121	69	67	2	No	No
122	69	68	1	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **Yes** (11/20 = 55%)

Reasonable Design Goal and Cost-Effectiveness Tests

2. Design goal – Would 35% of the front-row receptors have a 7 dB reduction? **No** (0/20 = 0%) – **barrier does not meet design goal at 18 feet.**
3. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Not applicable – barrier does not meet reasonable design goal.**

Recommendation

Phase 3 Barrier 3 is considered acoustically feasible but does not meet the reasonable design goal.
Phase 3 Barrier 2 is not recommended for balloting.

Barrier 3a

Barrier 3a is intended to mitigate impacts to receptors 67 through 81. A barrier located on the west side of the MVC was modeled between 8 feet and 18 feet high Valley Pointe Drive to Cilma Drive.

Barrier 3a at a height of 18 feet would not be acoustically feasible (40% of first-row receptors would achieve a 5-dB or greater noise benefit). It would also not meet (6% of receptors would achieve a 7-dB or greater noise reduction) the design goal at 18 feet.

Table B-3 summarizes the noise reduction for receptors 67 through 81.

Table C-3. Phase 1 Barrier 3 Noise Barrier Mitigation

Receptor	Phase 1 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 1 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
67	64	63	1	No	No
68	65	63	2	No	No
69	65	62	3	No	No
70	65	62	3	No	No
71	65	62	3	No	No
72	65	62	3	No	No
73	66	62	4	No	No
74	67	62	5	Yes	No
75	70	63	7	Yes	Yes
76	70	64	6	Yes	No
77	71	65	6	Yes	No
78	72	66	6	Yes	No
79	72	67	5	Yes	No
80	73	69	4	No	No
81	74	72	2	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **No** (6/15 = 40%)

Reasonable Design Goal and Cost-Effectiveness Tests

5. Design goal – Would 35% of the front-row receptors have a 7 dB reduction? **No** (1/15 = 6.7%)
6. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Not applicable – barrier does not meet the design goal at 18 feet.**

Recommendation

Phase 1 Barrier 3a is acoustically feasible but does not meet the reasonable design goal.
Phase 1 Barrier 3a is not recommended for balloting.

Barriers 4 and 5

Barriers 4 and 5 are intended to mitigate impacts to receptors 95 through 102. To accommodate pedestrian trails and crossings over 3500 South, two separate barriers were modeled, which would result in a gap between the west end of Barrier 4 and the north end of Barrier 5. The gap in the noise barriers is needed to accommodate pedestrian crossings and facilities. As described for this barrier in Phase 1, gaps between noise barriers reduce their overall effectiveness.

Barriers 4 and 5 were modeled between 8 feet and 18 feet high. At a barrier height of 18 feet neither barrier would be acoustically feasible.

Table C-4 summarizes the noise reduction for receptors 95 through 102.

Table C-4. Phase 3 Barrier 4 and 5 Noise Barrier Mitigation

Receptor	Phase 3 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 3 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
95	73	71	2	No	No
96	71	70	1	No	No
97	71	70	1	No	No
98	71	69	2	No	No
99	70	68	2	No	No
100	70	67	3	No	No
101	70	63	7	Yes	Yes
102	69	62	7	Yes	Yes

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **No** (2/8 = 25%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 235% of the front-row receptors have a 7 dB reduction? **No** (2/8 = 0%)
2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost? **Not applicable – barriers do not meet feasibility or reasonable design goals at 18 feet.**

Recommendation

Phase 3 Barrier 4 and Phase 3 Barrier 5 are not acoustically feasible and do not meet the reasonable design goal.
Phase 3 Barrier 4 and Phase 3 Barrier 5 are not recommended for balloting.

Barrier 6

Barrier 6 is intended to mitigate impacts to receptors 82 through 94.

Barrier 6 would be acoustically feasible at a height of 18 feet (61% of receptors would achieve a 5-dB or greater noise benefit due to the barrier) but would not meet the reasonable design goal (no receptor would receive a 7-dB or greater noise benefit due to the barrier).

The reasonable design goal is not met at a barrier height of 18 feet.

Table C-6 summarizes the noise reduction for receptors 82 through 94.

Table C-5. Phase 3 Barrier 6 Noise Barrier Mitigation

Receptor	Phase 3 Refined Selected Alternative FCD with No Barrier (dBA)	Phase 3 Refined Selected Alternative FCD with 18-foot Barrier (dBA)	Reduction (dB)	≥5 dB Reduction?	≥7 dB Reduction?
82	68	66	2	No	No
83	69	65	4	No	No
84	69	64	5	Yes	No
85	69	63	6	Yes	No
86	67	62	5	Yes	No
87	66	61	5	Yes	No
88	67	61	6	Yes	No
89	67	62	5	Yes	No
90	67	62	5	Yes	No
91	68	63	5	Yes	No
92	68	63	5	No	No
93	68	65	3	No	No
94	68	66	2	No	No

Feasible Acoustic Test

1. Would >50% of the front-row receptors have a 5 dB reduction? **Yes** (8/13 = 62%)

Reasonable Design Goal and Cost-Effectiveness Tests

1. Design goal – Would 235% of the front-row receptors have a 7 dB reduction?
   No (0/13 = 0%) – **barrier does not meet design goal at 18 feet**.
2. Cost-effectiveness – Is the barrier cost less than or equal to the allowable cost?
   Not applicable – barrier does not meet reasonable design goal.

Recommendation

Phase 3 Barrier 6 is considered acoustically feasible but does not meet the reasonable design goal.
Phase 3 Barrier 6 is not recommended for balloting.

Phase 3 Summary

There are no barriers that would provide feasible and reasonable mitigation for noise impacts caused by Phase 3 of the MVC and none are recommended for balloting.

APPENDIX C – DOE / FOE

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

CARLOS M. BRACERAS, P.E.
Executive Director

JASON E. DAVIS, P.E.
Deputy Director of Engineering and Operations

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

May 2, 2019

Mr. Chris Merritt
Senior Historic Preservation Specialist
Utah Division of State History
300 Rio Grande
Salt Lake City, UT 84101-1182

RE: UDOT Project No. S-0085(9), MVC; 4100 South to SR-201, Salt Lake County, Utah (PIN 13149).
EIS Re-evaluation Addendum Determination of Eligibility and Finding of No Historic Properties Affected

Dear Mr. Merritt

The Utah Department of Transportation (UDOT) is preparing to undertake the subject federal-aid project. In accordance with Parts 3.1.1 and 3.2 of the *Memorandum of Understanding Between the Federal Highway Administration and the Utah Department of Transportation Concerning State of Utah's Participation in the Surface Transportation Project Delivery Program Pursuant to 23 USC §327* (executed January 17, 2017), the UDOT assumes responsibility, assigned by the Federal Highway Administration (FHWA), for ensuring compliance with Section 106 of the NHPA and with Section 4(f) of the DOT Act of 1966, as amended. Also in accordance with the *Third Amended Programmatic Agreement among the FHWA, the Utah State Historic Preservation Officer, the Advisory Council on Historic Preservation, the USACE Sacramento District, and the UDOT Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Utah* (executed August 23, 2017), Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 300101 et seq.), and U.C.A.9-8-404, the UDOT has taken into account the effects of this undertaking on historic properties, and is affording the Utah State Historic Preservation Officer (SHPO) an opportunity to comment on the undertaking. Additionally, this submission is in compliance with Section 4(f) of the Department of Transportation Act of 1966, 23 U.S.C. § 138 (as amended) and 49 U.S.C. § 303 (as amended).

PROJECT DESCRIPTION

The Utah Department of Transportation (UDOT), in conjunction with the Federal Highway Administration (FHWA) proposes to construct a new roadway along the proposed Mountain View Corridor (MVC) alignment in Salt Lake County, Utah. Evaluation of effects to cultural resources was conducted in conjunction with an EIS which was finalized in 2007 (UDSH Case No. 03-976) and found the project to result in Adverse Effects. However, as design has progressed, additional improvements are located in areas not previously surveyed for cultural resources and therefore a re-evaluation of the EIS is necessary. This document reports the findings of additional cultural resources inventory and evaluation of effect of the project at these additional areas.

Currently, UDOT proposes to construct the MVC between 4100 South and 900 South, including the connection to SR-201, in Salt Lake County for a length of approximately 4 miles. This re-evaluation falls within a portion of this segment. As a whole, the present re-evaluation analyzes the impacts of the Final Construction Design that have occurred in the project area in the vicinity of Cilma Drive which could have an effect on the project or alter its previously identified impacts.

Implementation of the current design for the Mountain View Corridor (MVC) in Salt Lake County would require use of lands not previously evaluated as part of environmental studies associated with the project. Specifically, the area would be subject to ground disturbance up to several feet deep in association with relocation of an existing waterline and development of a temporary traffic detour during construction of the main MVC roadway.

The additional area of potential affects (APE) has been defined as a rectangular parcel of approximately 3 acres located north of 4100 South and west of 5600 West. The APE has been surveyed for archaeology by Sheri Ellis of Certus Environmental Solutions, under State Antiquities Project Number U19HY0075, and the results are reported in *A Cultural Resource Assessment for the Mountain View Corridor Hunter Waterline Relocation and Temporary Traffic Detour, Salt Lake County, Utah, March 22, 2019* (see enclosed report). An intensive level pedestrian survey was conducted using 15 meter transects to identify archaeological resources. No architectural survey was conducted.

The survey has resulted in the identification of one isolated ditch segment which does not contain enough information to determine its irrigation network of origin. As such, no archaeological sites have been identified within the surveyed parcel.

CONSULTATION EFFORTS

While Native American consultation has occurred for this project as a whole, consultation letters were not submitted for the re-evaluation of this portion of the project. This is because the APE is within an urban setting with previous surface ground disturbance from road construction and has very low potential for cultural resources. Tribes which were previously contacted with regard to this project include the Confederated Tribes of the Goshute Reservation, the Northwestern Band of the Shoshone Nation, the Paiute Tribe of Utah, the Shoshone-Bannock Tribes, the Skull Valley Band of Goshute Indians, and the Uintah and Ouray Ute Indian Tribe. No concerns about this area were expressed during consultation.

SUMMARY

To summarize, the project as a whole will continue to result in a finding of Adverse Effect and Section 4(f) Greater than de minimis; however, the additional parcels investigated for this re-evaluation will result in a finding of **No Historic Properties Affected**. Therefore, the Finding of Effect for the proposed UDOT Project No S-0085(9), MVC; 4100 South to SR-201, Salt Lake County, Utah, remains **Adverse Effect.**

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by UDOT pursuant to 23 *USC §327* and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

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

Sincerely,

Liz Robinson

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

Elizabeth Giraud

Elizabeth Giraud, AICP
Architectural Historian
UDOT Environmental Services

Enclosures

cc: Joe Kammerer, Project Manager
Tyler Allen, Environmental Manager

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts

Utah Division of State History

Don Hartley
Director
State Historic Preservation Officer

May 3, 2019

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

RE: PIN 13149_ MVC 4100 South to SR-201 Addendum_S-0085(9)

For future correspondence, please reference Case No. 19-1035

Dear Ms Robinson,

The Utah State Historic Preservation Office received your request for our comment on the above-referenced undertaking on May 02, 2019.

We concur with your determinations of eligibility and effect for this undertaking.

This letter serves as our comment on the determinations you have made within the consultation process specified in §36CFR800.4. If you have questions, please contact me at 801-245-7263 or by email at cmerritt@utah.gov.

Sincerely,

Christopher W. Merritt, Ph.D.
Deputy State Historic Preservation Officer