

UTAH DEPARTMENT OF TRANSPORTATION

Region 2

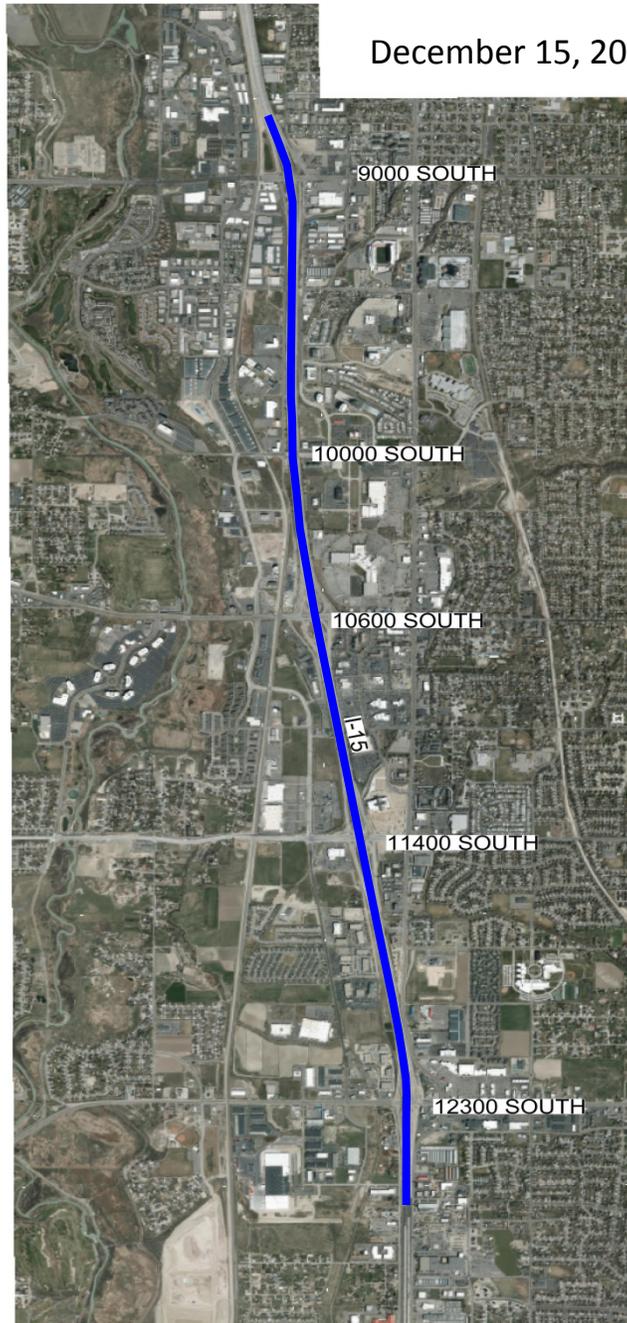
CONCEPT REPORT

For

I-15 Southbound General Purpose Lane;

9000 S. to 12300 S.

December 15, 2015



CONCEPT REPORT

Table of Contents

Table of Contents
General Information
Executive Summary
Preliminary Roadway Design (Activity # 54C)
Pavement Design (Activity # 58C/76C)
Region Traffic and Safety Recommendations (Activity # 64C)
Bridge Inventory & Recommendation Report (Activity # 62C)
Environmental Concept (Activity # 52C)
Right of Way Concept (Activity # 56C)
Utility Inventory (Activity # 68C)
ITS Recommendations (Activity # 66C)
Public Involvement Plan (Activity # 60C)
Design Exception Summary
Appendix
Concept Estimate
Plan Sheets
Typical Sections

CONCEPT REPORT SUMMARY

SECTION 1: General Information

Project Name:	I-15 Southbound General Purpose Lane; 9000 South to 12300 South		
Project Manager:	Lisa Zundel	County:	Salt Lake
Pin Number:	10020	Begin Mile Post:	290.78
Project Number:	F-R299(198)	End Mile Post:	295.67
Route Number:	15	Design Year:	2016
Functional Classification:	Interstate	Design Speed:	70 mph

Project Estimate and Timeline:

Planning Estimate:		Proposed Construction FY:	
Total Project Cost (Current Year):	\$26,191,000	Estimated Construction Duration:	
Construction Year Estimate (2017):	\$26,978,000	Recommended Commission Approved Amount:	

Signature Block:

Project Manager	Date	Region Preconstruction Engineer	Date
Region STIP Workshop Chair	Date	Region Director	Date
Prepared By	Date		

CONCEPT REPORT SUMMARY

2 of 5

Project Summary:

The I-15 Southbound General Purpose Lane; 9000 South to 12300 South project adds a general purpose lane on southbound (SB) I-15 from 9000 South to 12300 South.

Describe the Purpose/Need for this Project:

The purpose of the I-15 Southbound General Purpose Lane; 9000 South to 12300 South is to address current traffic operations and safety conditions and future traffic needs by:

- Reducing congestion in weave zones for vehicles entering and exiting the freeway between the 9000 South and 12300 South interchanges.
- Increasing freeway capacity.

The project would address the following needs:

- Current and future congestion on the SB I-15 corridor.
- Corridor and regional PM travel delays.

Major Project Risks:

Potential utility conflicts from construction of retaining walls along the corridor.

Coordination and approval with Federal Agencies

CONCEPT REPORT SUMMARY

SECTION 2: Design Information (Executive Summary)

Roadway / Pavement Summary (Activities 54C, 58C, 76C)	Estimated Construction Cost:	\$7,734,000
<p>A SB general purpose lane will be added from 9000 South to 12300 South. The project will consist of pavement widening, striping, cast-in-place barrier construction to address clear zone requirements, re-construction of ramp gore areas, and construction of retaining walls where needed to avoid right-of-way impacts.</p> <p>No major drainage issues were identified for this project. The project will require some re-grading of roadside ditches, reconstruction of portions of the existing storm drain system and integration with the existing drainage system.</p> <p>The preliminary pavement section consists of 13" Portland Cement Concrete Pavement, 4" open graded base course, 6" untreated base course, and 15" granular borrow. This pavement section is consistent with the existing I-15 pavement section.</p>		

Traffic and Safety Summary (Activity 64C)	Estimated Construction Cost:	\$1,842,000
<p>Traffic analysis is still under evaluation as part of the Wasatch Front Central Corridor Study.</p>		

Structures Summary (Activity 62C)	Estimated Construction Cost:	\$5,548,000
<p>One bridge to be widened – bridge over 10000 South, structure #F 646S (MP 294.37)</p> <p>Retaining walls will be constructed where needed to avoid right-of-way impacts associated with the roadway widening.</p>		

CONCEPT REPORT SUMMARY

4 of 5

Environmental Summary (Activity 52C)	Estimated Mitigation Cost:	\$0.00
<p>Potential environmental concerns:</p> <ul style="list-style-type: none">• No right-of-way acquisition required, although impacts to signs and other structures or utilities should be evaluated.• Type I project requiring a noise impacts analysis, although area consists mainly of commercial properties with no residential areas.• Potential for wetlands alongside roadway (likely to be non-jurisdictional and of low quality and functionality)• Potential for discovery of hazardous waste, updated review of federal and state database recommended.• Project is compatible with land use in the area.• Temporary construction impacts to traffic mobility and thereby, to social and economic conditions in the vicinity; no disproportionately high and adverse impacts on environmental justice populations anticipated.• No impacts anticipated to farmlands, floodplains, wild and scenic rivers, cultural resources, threatened and endangered species, wildlife, visual and aesthetic resources and pedestrian/bicycle routes.• Best management practices needed to address air and water quality issues during construction (e.g. fugitive dust, erosion and sediment control, pollution control, invasive species)		

Right of Way Summary (Activity 56C)	Estimated Property Cost:	\$0.00
<p>No right-of-way conflicts expected.</p>		

Utility and Railroad Summary (Activity 68C)	Estimated Relocation Cost:	\$250,000
<p>Possible utility impacts:</p> <ul style="list-style-type: none">• 24" RCP siphon just south of 11400 South that crosses I-15, SB on-ramp and NB off-ramp at approximate MP 292.34. The siphon will need to be surveyed in order to assess possible impacts.• 36" RCP siphon just south of 11400 South that crosses I-15 at approximate MP 292.15. The siphon will need to be surveyed in order to assess possible impacts. <p>Other utility information:</p> <ul style="list-style-type: none">• Assumed utilities are from previous projects.• Establish a contingent sum for further utility investigation and possible relocation.		

CONCEPT REPORT SUMMARY

5 of 5

ITS Summary (Activity 66C)	Estimated Construction Cost:	\$22,200
<p>Possible ITS Impacts:</p> <ul style="list-style-type: none">• Relocate miscellaneous ATMS near 10000 south <p>It is anticipated that there will be other ITS impacts as a result of the project; however, further evaluation is necessary to determine the extent of those impacts.</p>		

Public Involvement Summary (Activity 60C)	Estimated Cost:	\$50,000
<p>Public involvement will require coordination with local municipalities and local media regarding project construction schedule and related traffic impacts.</p>		

Design Exceptions, Deviations, Waivers Summary:
<p>Design Exceptions</p> <ul style="list-style-type: none">• Lane width – 11 foot outside lane over the 9000 South bridge, under the 10600 South bridge, and over the 12300 South bridge to avoid structure widening.• Shoulder width – no shoulder with 1 foot shy distance to bridge parapet over the 9000 South bridge, under the 10600 South bridge, over the 11400 South bridge, and over the 12300 South bridge. <p>Design Waivers</p> <ul style="list-style-type: none">• None <p>Standards Deviations</p> <ul style="list-style-type: none">• None

PROJECT # F-R299(198) PROJECT NAME: Wasatch Front Central Corridor Study
Cost Estimate - Concept Level

Prepared By: **HDR** Date 12/16/2015

Proposed Project Scope: **.-15 Southbound General Purpose Lane Addition; 9000 S. to 12300 S.**

Approximate Route Reference Mile Post (BEGIN) =	290.780	(END) =	295.670
Project Length =	4.890	miles	25,819 ft
Current FY Year (July-June) =	2016		
Assumed Construction FY Year =	2017		
Construction Items Inflation Factor =	1.03	1 yrs for inflation	
Assumed Yearly Inflation for Engineering Services (PE and CE) (%/yr) =	3.0%		
Assumed Yearly Inflation for Right of Way (%/yr) =	3.0%		
Items not Estimated (% of Construction) =	30.0%		
Preliminary Engineering (% of Construction + Incentives) =	10.0%		
Construction Engineering (% of Construction + Incentives) =	10.0%		

Construction Items	Cost	Remarks
Public Information Services	\$50,000	
Roadway and Drainage	\$7,733,858	
Traffic and Safety	\$1,842,469	
Structures	\$5,548,000	
Environmental Mitigation	\$0	
ITS	\$22,200	
	Subtotal	\$15,196,527
	Items not Estimated (30%)	\$4,558,958
	Construction Subtotal	\$19,755,485
P.E. Cost	P.E. Subtotal	\$1,995,549 10%
C.E. Cost	C.E. Subtotal	\$1,995,549 10%
Right of Way	Right of Way Subtotal	\$0
Utilities	Utilities Subtotal	\$250,000
Incentives	Incentives Subtotal	\$200,000
Miscellaneous	Miscellaneous Subtotal	\$0

Cost Estimate (ePM screen 505)	2016	2017
P.E.	\$1,996,000	\$2,056,000
Right of Way	\$0	\$0
Utilities	\$250,000	\$258,000
Construction	\$19,755,000	\$20,348,000
C.E.	\$1,996,000	\$2,056,000
Incentives	\$200,000	\$206,000
Aesthetics	1.00% \$198,000	\$204,000
Change Order Contingency	9.00% \$1,796,000	\$1,850,000
UDOT Oversight	\$0	\$0
Miscellaneous	\$0	\$0
TOTAL	\$26,191,000	\$26,978,000

PROPOSED COMMISSION REQUEST	TOTAL	\$26,191,000	TOTAL	\$26,978,000
------------------------------------	--------------	---------------------	--------------	---------------------

Roadway and Drainage

PROJECT # F-R299(198) PROJECT NAME: Wasatch Front Central Corridor Study

Item #	Item	Quantity	Units	Price	Cost	Remarks
Roadway						
012850010	Mobilization	1	Lump	\$1,200,000.00	\$1,200,000.00	Usually 7-10% of construction
015540005	Traffic Control	1	Lump	\$295,000.00	\$295,000.00	Usually 3-5% of construction
01557001*	Maintenance of Traffic	1	Lump	\$190,000.00	\$190,000.00	Usually 1% of construction
017210010	Survey	1	Lump	\$30,000.00	\$30,000.00	
015720020	Dust Control and Watering	1,645	1000 gal	\$15.00	\$24,675.00	
020560015	Granular Borrow (Plan Quantity)	24,570	cu yd	\$23.00	\$565,110.00	
022210015	Remove Bridge	980	sq ft	\$200.00	\$192,000.00	
023160020	Roadway Excavation (Plan Quantity)	42,700	cu yd	\$10.00	\$427,000.00	26500 for Road, 16200 for Retaining Walls
027210020	Untreated Base Course (Plan Quantity)	12,016	cu yd	\$28.00	\$336,448.00	
	Portland Cement Concrete Pavement 13 inch Thick	41,665	sq yd	\$65.00	\$2,708,225.00	
	Open Graded Base Course	4,630	cu yd	\$30.00	\$138,900.00	
Roadway Subtotal					\$6,155,358	
Drainage						
026101388	24 Inch Irrigation/Storm Drain, Class C, smooth	20,500	ft	\$65.00	\$1,332,500.00	
026330130	Concrete Drainage Structure 5 ft to 7 ft deep - CB 9	82	Each	\$3,000.00	\$246,000.00	
Drainage Subtotal					\$1,578,500	
PI						
013150010	Public Information Services	1	Lump	\$50,000.00	\$50,000	Usually 0.25% of construction

Traffic, Safety & ITS

PROJECT # F-R299(198) PROJECT NAME: Wasatch Front Central Corridor Study

Item #	Item	Quantity	Units	Price	Cost	Remarks
Traffic						
	Pavement Marking Paint (Epoxy)	1,577	gal	\$30.00	\$47,310.00	
028430010	Crash Cushion Type B	3	Each	\$18,000.00	\$54,000.00	
028430030	Crash Cushion Type F	6	Each	\$8,500.00	\$51,000.00	
028440030	Cast-in-Place Concrete Constant Slope Barrier - 42 Inch	25,200	ft	\$60.00	\$1,512,000.00	
028440190	Cast-In-Place Concrete Constant Slope Barrier - 42 Inch Retaining Barrier	1,200	ft	\$90.00	\$108,000.00	
28910290	Relocate Sign Greater Than or Equal to 20 Square Feet	24	Each	\$1,000.00	\$24,000.00	
	Pavement Grinding	131,884	ft	\$0.35	\$46,159.40	
Traffic and Safety Subtotal					\$1,842,469	
ITS						
135530040	2D Conduit	120	ft	\$60.00	\$7,200.00	
	Relocate Miscellaneous ATMS	1	Lump	\$15,000.00	\$15,000.00	ATMS south of 10000 S. Bridge
ITS Subtotal					\$22,200	

Structures

PROJECT # F-R299(198) PROJECT NAME: Wasatch Front Central Corridor Study

Item #	Item	Quantity	Units	Price	Cost	Remarks
Bridges						
	Bridge Widening	3,215	sq ft	\$350.00	\$1,125,250.00	
Walls						
	Retaining Wall (Between 90th & 100th)	9,200	sq ft	\$85.00	\$782,000.00	Assumed LxH (wall area)
	Retaining Wall (At 10000 S. Bridge Widening)	16,950	sq ft	\$85.00	\$1,440,750.00	Assumed LxH (wall area)
	Retaining Wall (South of 11400 South)	22,000	sq ft	\$85.00	\$1,870,000.00	Assumed LxH (wall area)
Sign Structures						
	Modify Overhead Sign Structure	2	Lump	\$15,000.00	\$30,000.00	
	Overhead Sign Foundation	2	Lump	\$20,000.00	\$40,000.00	
	Cantilever Sign Foundation	5	Lump	\$20,000.00	\$100,000.00	
	Modify Cantilever Sign Structure	5	Lump	\$10,000.00	\$50,000.00	
	Modify ATMS Structure	1	Lump	\$50,000.00	\$50,000.00	New structure at 11400 south
Geotech						
	Geotech Report	1	Lump	\$20,000.00	\$20,000.00	
	Drilling	1	Lump	\$40,000.00	\$40,000.00	
Structures Subtotal					\$5,548,000	

Utilities, Right of Way, and Incentives

PROJECT # F-R299(198) PROJECT NAME: Wasatch Front Central Corridor Study

Item #	Item	Quantity	Units	Price	Cost	Remarks
Utilities						
	Utility Contingency	1	Lump	\$250,000.00	\$250,000.00	
Utilities Subtotal					\$250,000	
Right-of-way						
Right-of-Way Subtotal					\$0	
Incentives						
00000601*	Pavement Smoothness Incentive	1	Lump	\$100,000.00	\$100,000.00	
00000606*	Early Completion - Time	1	Lump	\$100,000.00	\$100,000.00	
Incentives Subtotal					\$200,000	



LEGEND

	NEW PAVEMENT
	NEW BRIDGE DECK

 NEW CONCRETE BARRIER

DESIGN EXCEPTIONS

	LANE WIDTH
	SHOULDER WIDTH

NOTES:

Wasatch Front Central Corridor Study
 I-15 SOUTHBOUND GENERAL PURPOSE LANE; 9000 S. TO 12300 S.
 PROJECT # F-R299(198)
 PLAN SHEET

SHEET NO.
1



LEGEND

- NEW PAVEMENT
- NEW BRIDGE DECK

DESIGN EXCEPTIONS

- NEW CONCRETE BARRIER

DESIGN EXCEPTIONS

- LANE WIDTH
- SHOULDER WIDTH

NOTES:

Wasatch Front Central Corridor Study
 I-15 SOUTHBOUND GENERAL PURPOSE LANE; 9000 S. TO 12300 S.
 PROJECT # F-R299(198)
 PLAN SHEET

SHEET NO.
2



LEGEND

- NEW PAVEMENT
- NEW BRIDGE DECK

NEW CONCRETE BARRIER

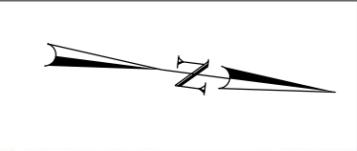
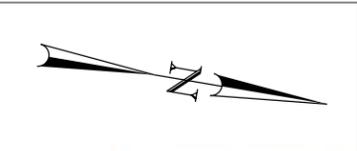
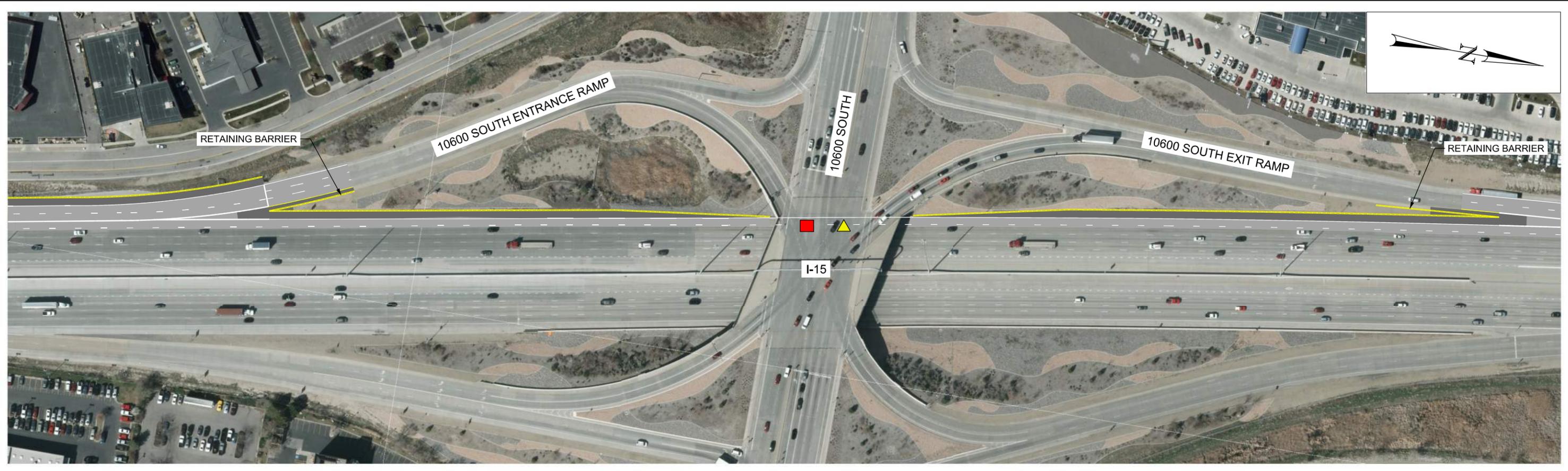
DESIGN EXCEPTIONS

- LANE WIDTH
- SHOULDER WIDTH

NOTES:

Wasatch Front Central Corridor Study
 I-15 SOUTHBOUND GENERAL PURPOSE LANE; 9000 S. TO 12300 S.
 PROJECT # F-R299(198)
 PLAN SHEET

SHEET NO.
3



LEGEND
 NEW PAVEMENT
 NEW BRIDGE DECK

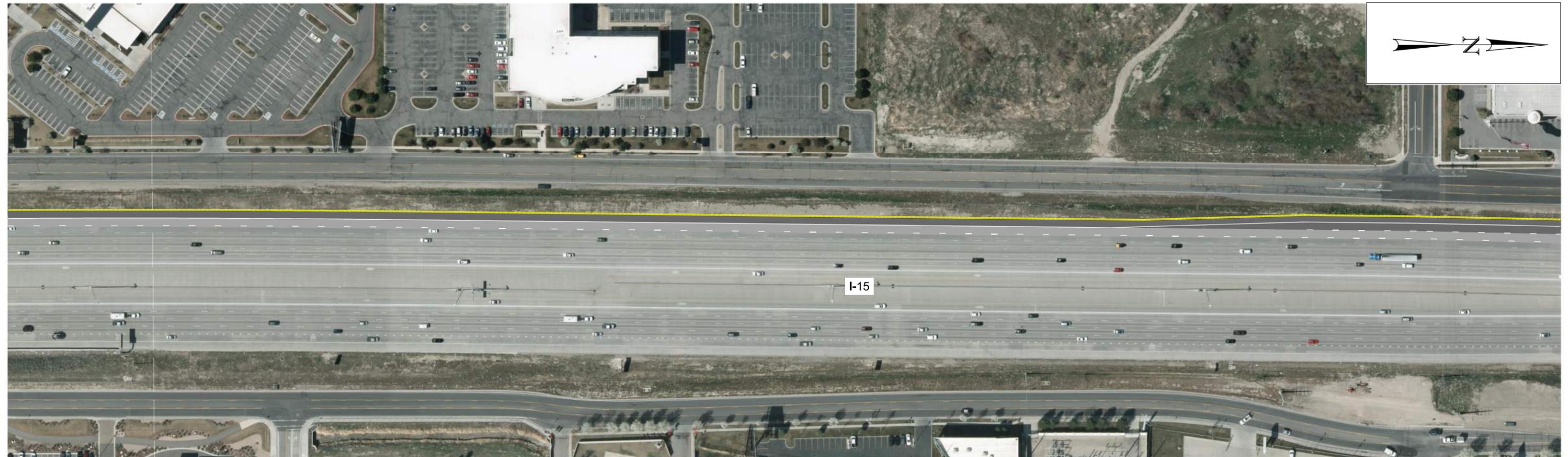
DESIGN EXCEPTIONS
 NEW CONCRETE BARRIER

DESIGN EXCEPTIONS
 LANE WIDTH
 SHOULDER WIDTH

NOTES:

Wasatch Front Central Corridor Study
 I-15 SOUTHBOUND GENERAL PURPOSE LANE; 9000 S. TO 12300 S.
 PROJECT # F-R299(198)
 PLAN SHEET

SHEET NO.
4



LEGEND

NEW PAVEMENT

NEW BRIDGE DECK

NEW CONCRETE BARRIER

DESIGN EXCEPTIONS

LANE WIDTH

SHOULDER WIDTH

NOTES:

Wasatch Front Central Corridor Study
 I-15 SOUTHBOUND GENERAL PURPOSE LANE; 9000 S. TO 12300 S.
 PROJECT # F-R299(198)
 PLAN SHEET

SHEET NO.
 5



LEGEND

NEW PAVEMENT

NEW BRIDGE DECK

NEW CONCRETE BARRIER

DESIGN EXCEPTIONS

LANE WIDTH

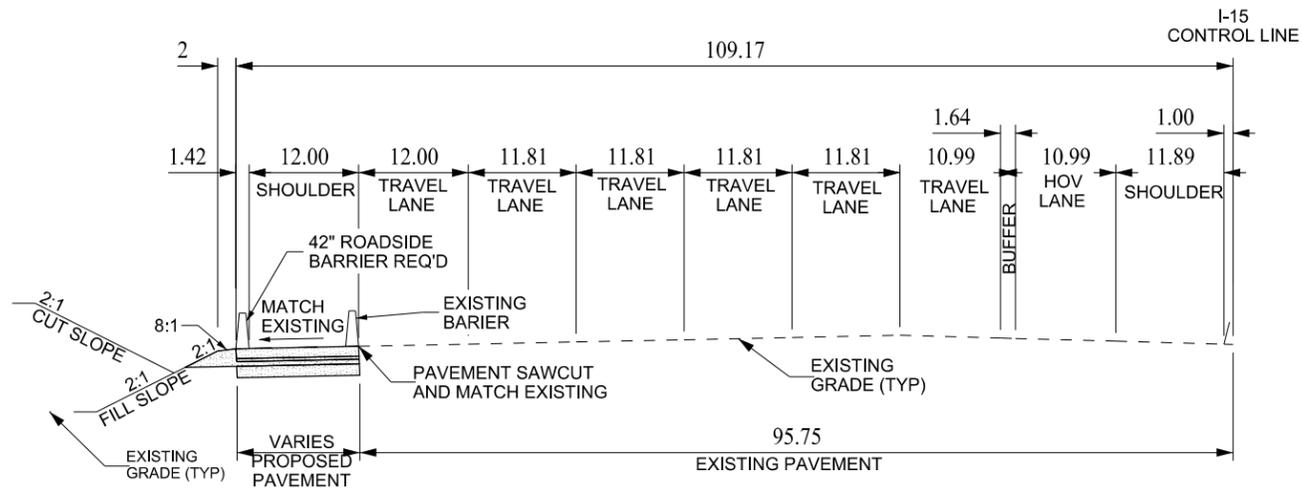
SHOULDER WIDTH

NOTES:

Wasatch Front Central Corridor Study
 I-15 SOUTHBOUND GENERAL PURPOSE LANE; 9000 S. TO 12300 S.
 PROJECT # F-R299(198)
 PLAN SHEET

SHEET NO.
6

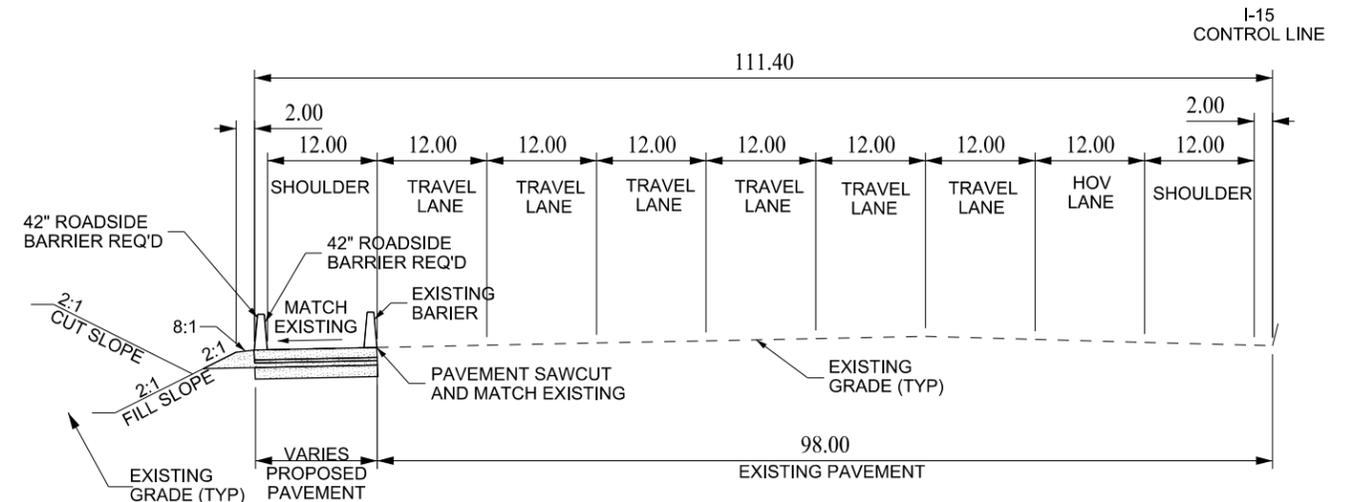
TYPICAL SECTION NO 01



I-15 TYPICAL SECTION

9000 S. TO 10600 S.
DESIGN SPEED 70 MPH

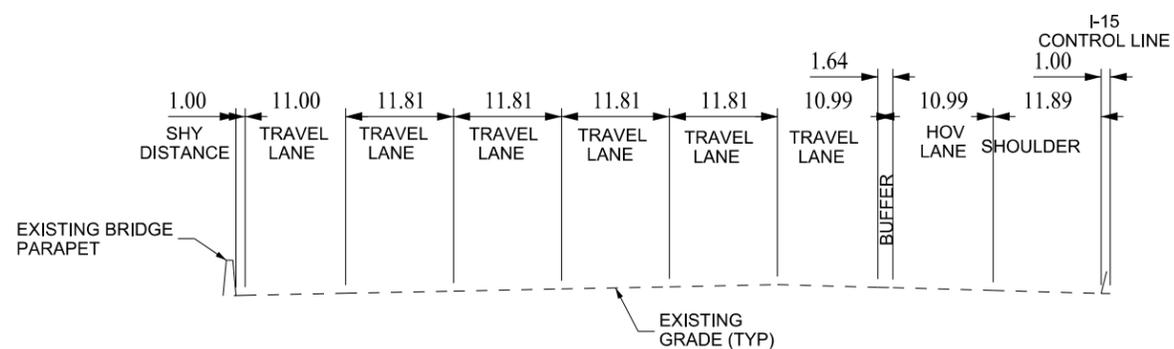
TYPICAL SECTION NO 02



I-15 TYPICAL SECTION

10600 S. TO 12300 S.
DESIGN SPEED 70 MPH

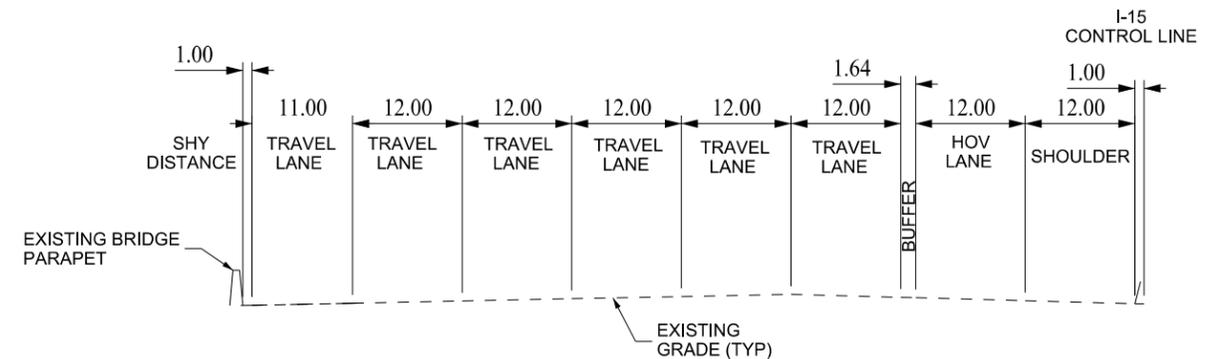
TYPICAL SECTION NO 03



I-15 TYPICAL SECTION

DESIGN SPEED 70 MPH

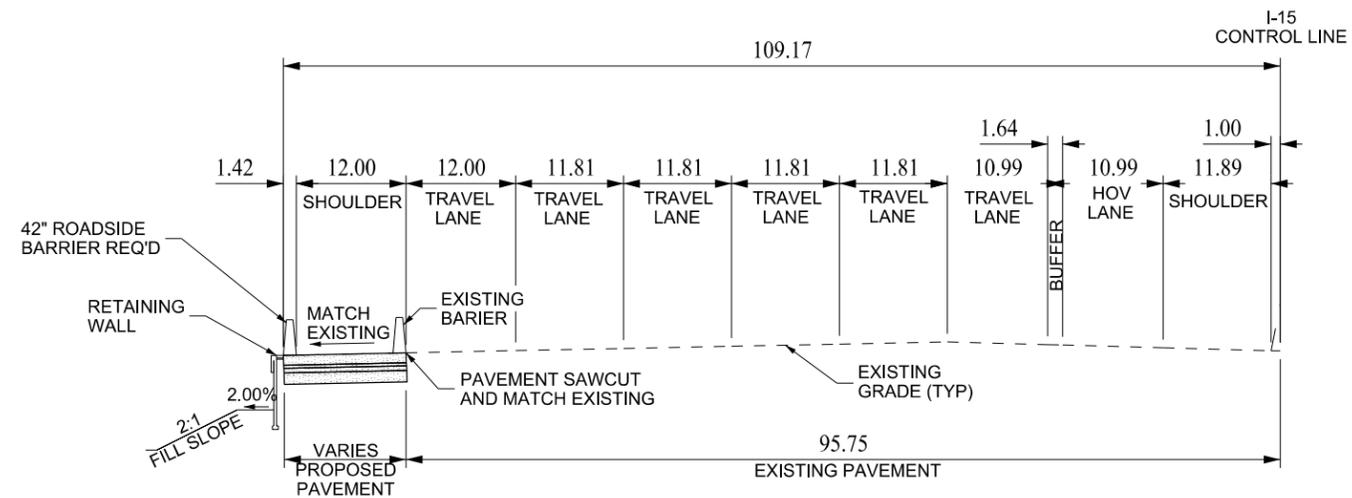
TYPICAL SECTION NO 04



I-15 TYPICAL SECTION

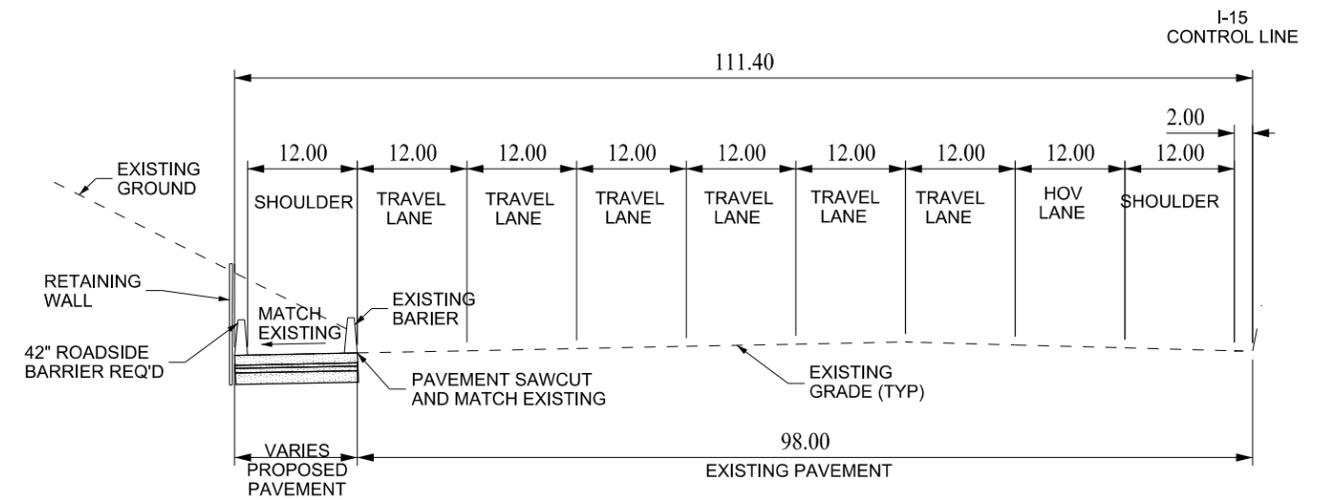
DESIGN SPEED 70 MPH

TYPICAL SECTION NO 05



I-15 TYPICAL SECTION
9000 S. TO 10600 S.
DESIGN SPEED 70 MPH

TYPICAL SECTION NO 06



I-15 TYPICAL SECTION
9000 S. TO 10600 S.
DESIGN SPEED 70 MPH