



I-15/US-20 Connector  
**Planning and Environmental Linkages (PEL) Study Report**

# **Appendix I.**

## **PEL Level 3 2045 Updated Alternatives Operational Analysis Technical Memo**



**YOUR Safety** •••▶ **YOUR Mobility** •••▶ **YOUR Economic Opportunity**

Appendix I



# Memo

Date: Monday, March 02, 2020

Project: KN 20065 – I-15/US-20 Connector

To: Ryan Day, ITD District 6

From: Cameron Waite, PE, PTOE

Subject: PEL Level 3 2045 Updated Alternatives Operational Analysis Technical Memo

## Introduction

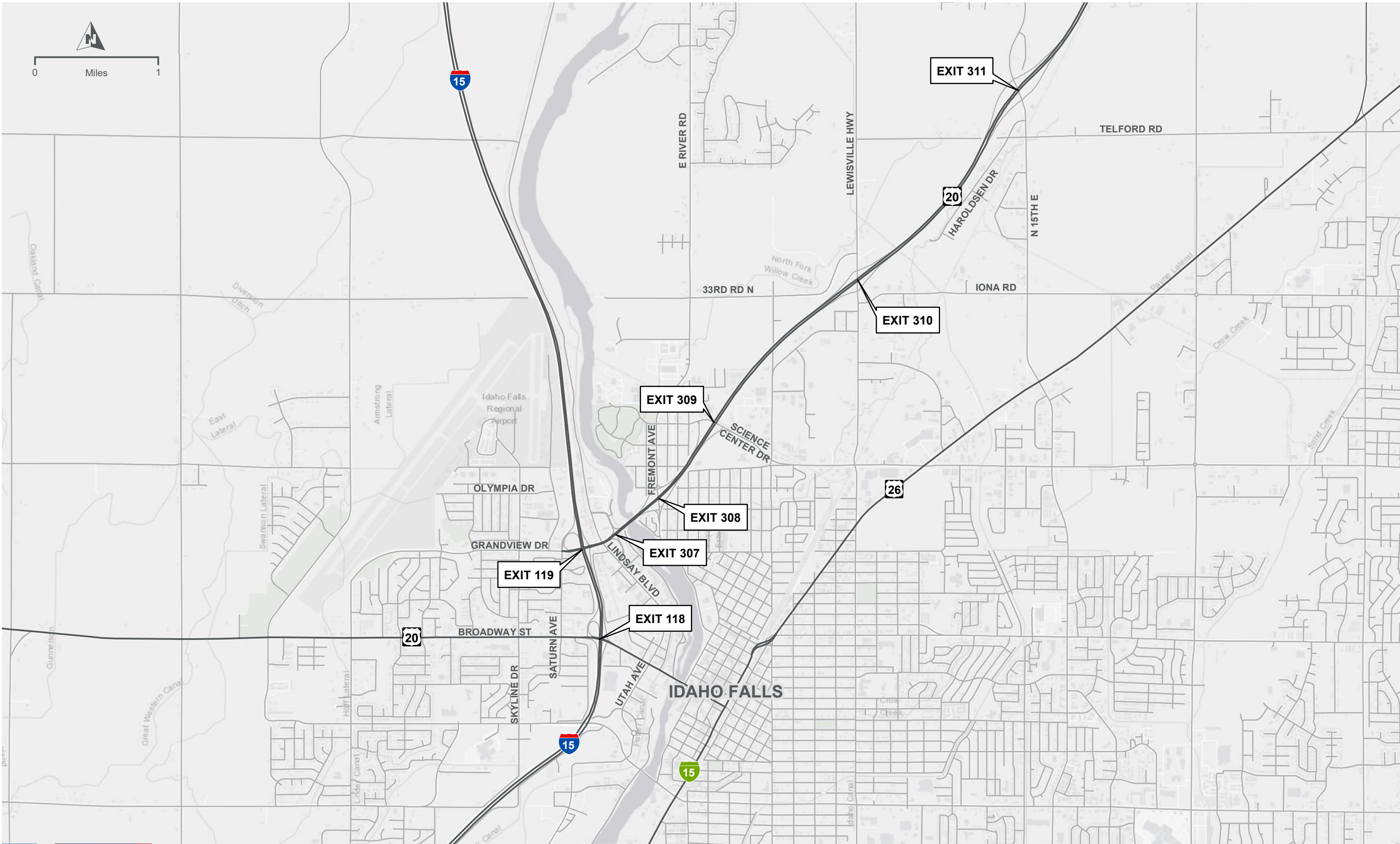
The Idaho Transportation Department (ITD) District 6 is developing the Interstate 15 (I-15) and United States Highway 20 (US-20) Connector project (Project No. A020(065), Key No. 20065). HDR and Horrocks are the consulting team developing this planning and environmental linkages (PEL) study for ITD, who along with the Bonneville Metropolitan Planning Organization (BMPO) and member agencies in the BMPO have identified the need to improve the I-15/US-20 connection and adjacent interchanges. This memo summarizes the conceptual operational analysis for the updated I-15/US-20 Connector PEL Level 3 alternatives. These alternatives were developed through the Level 1 and Level 2 screening and public engagement processes, but then were further updated and refined since the last operational analysis through a cost risk assessment and value engineering (CRAVE) study facilitated by HDR.

The purpose of this operational analysis was to model each updated alternative, including the No-Build alternative, with planning year 2045 travel demand forecasts and identify operational measurements and capacity as well as estimated travel times for each. This analysis was completed at a high level and some individual intersection, interchange, and/or ramp models may be refined in future phases of the project to give more refined or different results. This conceptual analysis allows a comparison between the Level 3 Alternatives, including the No-Build Alternative. **Figure 1** presents the project vicinity.

## Alternatives Development & Descriptions

The PEL includes three levels of screening for alternatives to develop a recommended list of alternatives to advance into a National Environmental Policy Act (NEPA) document, once funding allows. A screening level reviews each alternative against the screening criteria questions developed with the purpose and need and project goals considerations. The Level 3 Alternatives described below have been developed through the first two screening levels and the CRAVE study. Baseline concept alternatives that were moved forward from the Level 2 screening were reviewed and the CRAVE team generated 81 ideas for the project. The ideas were then evaluated and developed into three new refined alternatives: C3, E3, and H2. Details of the alternative development can be found in the summary documents for each level of screening, the CRAVE study, and public engagement activities.





**I-15/US-20 CONNECTOR**  
**VICINITY MAP**  
FIGURE 1



The conceptual interchange configurations for each alternative are typically assumed to be traditional diamond or split diamond unless a specific configuration is required. This allows for simplicity of modeling and comparing results between alternatives. The ultimate interchange configuration may be modified and refined in future analyses. All on and off ramps are assumed to be one lane at the merge/diverge points except for direct ramps from I-15 to US-20, which are assumed to have two lanes.

### **No-Build Alternative**

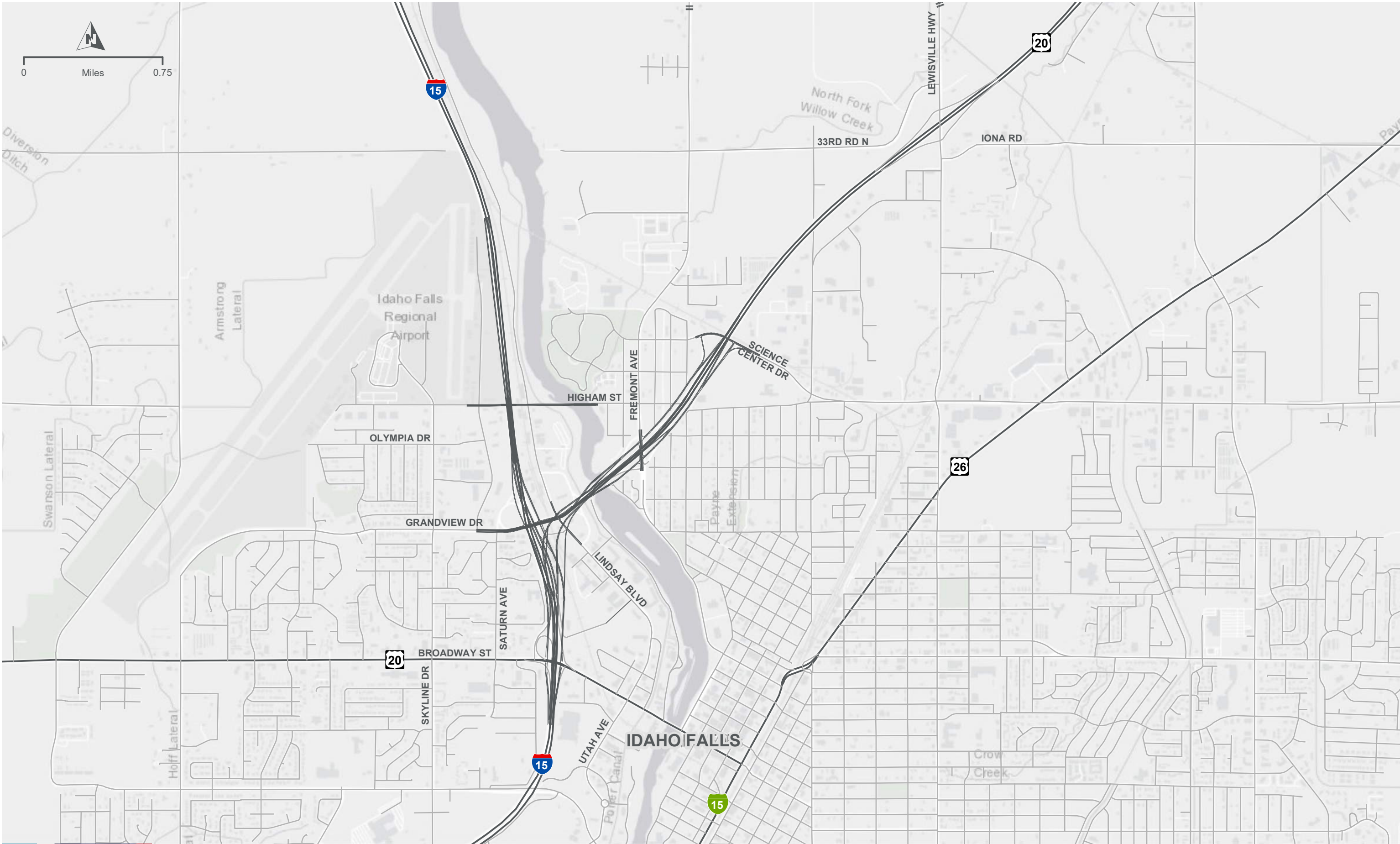
This alternative assumed the 2045 travel demand forecast volumes travel on the existing transportation network with no changes to the I-15 or US-20 access or interchange configurations while including the following locally programmed improvement projects:

- Widen the Old Butte Road to Pancheri Drive connection to 5 lanes
- Widen 600 feet of 5<sup>th</sup> West to University Blvd. to 5 lanes
- Widen Hitt Road from Sunnyside Road to 49<sup>th</sup> South to 5 lanes
- Widen 65<sup>th</sup> South from Yellowstone Highway to Hitt Road to 5 lanes
- Widen Holmes Avenue from Sunnyside Road to 65<sup>th</sup> South to 5 lanes
- Widen 1<sup>st</sup> Street from Ammon Rd to 45<sup>th</sup> East to 5 lanes
- Widen St. Leon Road from Lincoln Road to US-20 to 5 lanes
- Widen 25<sup>th</sup> East from Lincoln Road to US-26 to 5 lanes

### **Alternative C3**

This alternative reduces weaving concerns between I-15 Exits 118 and 119 by separating regional traffic not exiting in Idaho Falls by providing direct ramp connections from I-15 north of Exit 118 to US-20 west of Exit 309. The direct ramps go over one railroad crossing and Lindsay Blvd. before tying into the realigned US-20 west of the Snake River. Numerous slip ramps and collector/distributor roads connect I-15 Exits 118 and 119 and allow vehicles to access Grandview Dr., Lindsay Blvd., Fremont Ave. and Science Center Blvd. Exit 307 is removed from accessing US-20. A new Snake River crossing is added north of US-20 from Lindsay Blvd. to Higham Street for local street connectivity to Fremont Ave. and access to US-20 at Exit 308. Portions of Broadway St., Grandview Drive, US-20, and Fremont Ave. are rebuilt to install the proposed improvements. Broadway St. is widened from five to seven lanes between the Exit 118 northbound ramp intersection and Utah Ave. A conceptual layout is presented in **Figure 2**.





CONCEPTUAL LAYOUT

ALTERNATIVE C3

FIGURE 2



### Alternative E3

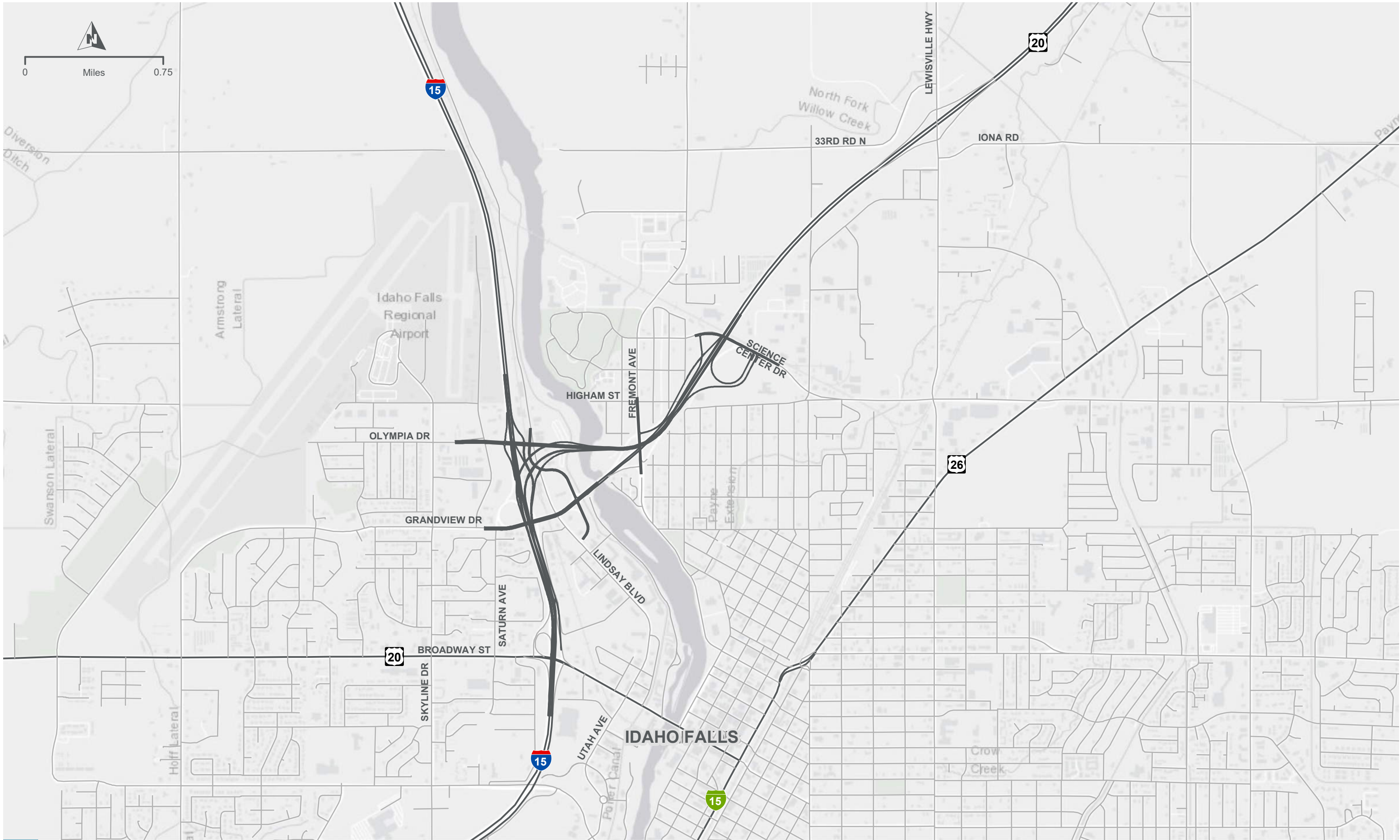
This alternative reduces weaving concerns between I-15 Exits 118 and 119 by separating regional traffic not exiting in Idaho Falls by providing direct ramp connections from I-15 north of Exit 118 to a new US-20 alignment in line with the existing Olympia St. This realignment goes over Fremont Ave. and then matches into the existing US-20 alignment just to the east. The direct ramps go over Grandview Dr., one railroad crossing, Lindsay Blvd., US-20, and the Snake River before merging into the US-20 alignment west of Fremont Ave.

Exit 118 on I-15 largely remains the same, except for the northbound on ramp which is realigned into a direct ramp connecting to US-20 and new northbound I-15 collector distributor road to the new Olympia Street interchange and northbound I-15. The existing Exit 119 is totally removed from I-15 and no access is provided from Grandview Dr. The new north ramp from Exit 118 connects to the new diamond interchange at the realigned US-20 and Olympia St. interchange. Exit 307 has been removed and rebuilt into an at-grade, signalized intersection between Grandview Dr. and Lindsay Blvd. Exit 308 is also rebuilt as an at-grade, T-intersection on the old US-20 alignment, where Grandview Dr. is terminated upon intersecting Fremont Ave. Two new ramps are provided along US-20 for the Exit 309 interchange to provide full access. The new eastbound loop on-ramp connects to Science Center Blvd. east of US-20, and the westbound off-ramp diverges from US-20 south of Science Center Blvd. and connects to Fremont Ave. Portions of Broadway St., Grandview Drive, US-20, Lindsay Blvd., Fremont Ave. and Science Center Blvd. are rebuilt to install the proposed improvements. Broadway St. is widened from five to seven lanes between the Exit 118 northbound ramp intersection and Utah Ave. A conceptual layout is presented in **Figure 3**.

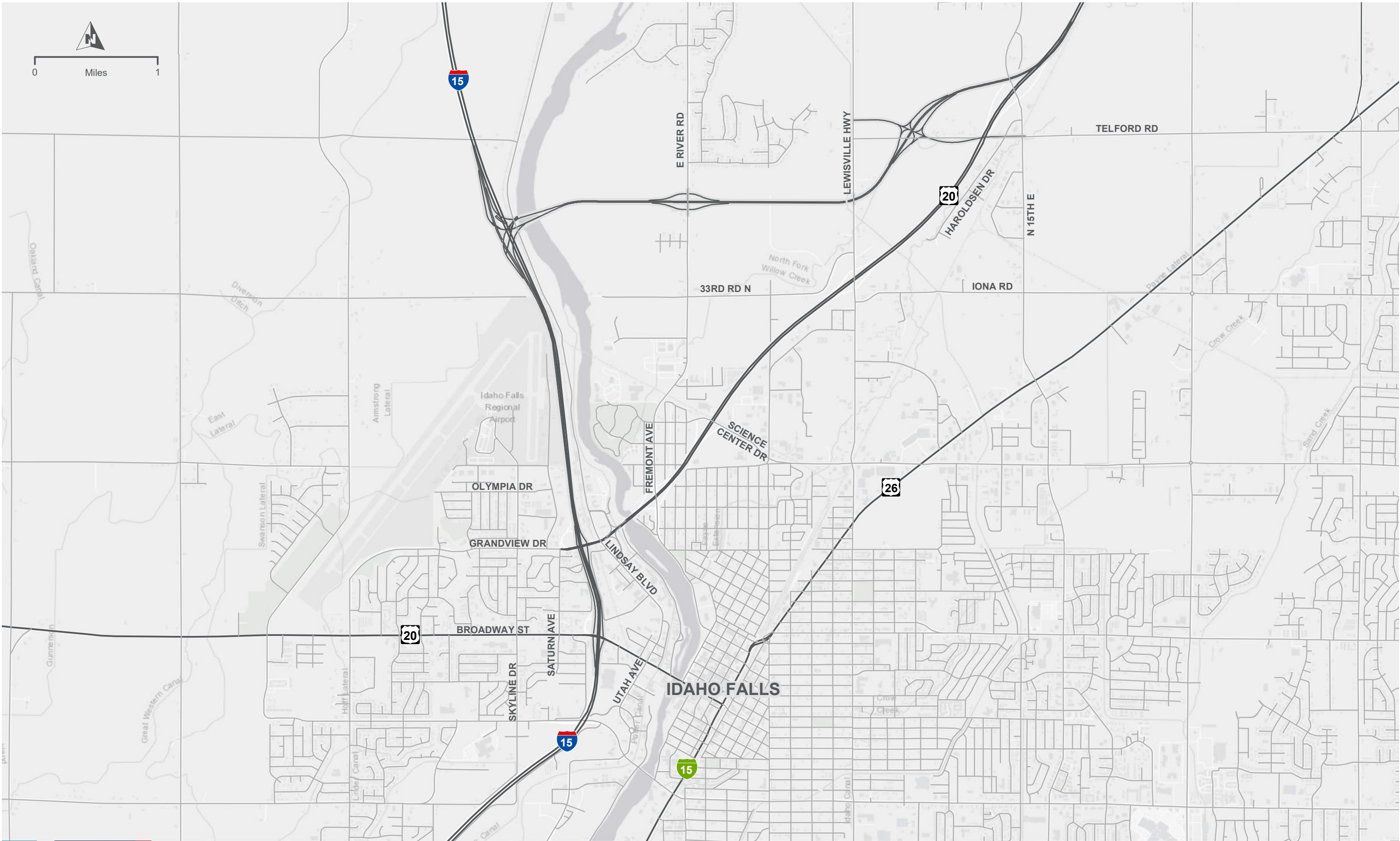
### Alternative H2

This alternative realigns US-20 from east of Exit 311, relocating that interchange to the west, and moving US-20 to the north and parallel to 33<sup>rd</sup> North before crossing the Snake River and accessing I-15 at a system interchange with direct ramps for movements between the freeways. I-15 is realigned north of the airport to allow the system interchange to be installed on the west side of the Snake River so only two US-20 bridges are needed over the river. The Exit 311 interchange is rebuilt as a SPUI along the new alignment at Telford Road and N 15<sup>th</sup> East St. becomes an overpass over the highway. Telford Road is extended and realigned to connect through the new interchange to the Lewisville Highway. The realigned US-20 goes over Lewisville Highway and connects with River Road with a new diamond interchange to access River Road. Exits 118 and 119 on I-15 are rebuilt as a split diamond interchange and Exit 307 on the old US-20 is maintained for access. The split diamond interchange is a potential option to address concerns with the existing interchanges, and was assumed for the operational analysis performed with the 2045 Alternative H travel demand forecasts. The old US-20 alignment becomes a local road with at grade intersections with Fremont Ave., Science Center Dr., Lewisville Road, and Telford Road. Broadway St. is widened from five to seven lanes between the Exit 118 northbound ramp intersection and Utah Ave. A conceptual layout is presented in **Figure 4**.





CONCEPTUAL LAYOUT  
ALTERNATIVE E3  
FIGURE 3



CONCEPTUAL LAYOUT

ALTERNATIVE H2

FIGURE 4



## Planning Year

The planning year of 2045 was agreed upon through discussions with the Technical Leadership and Project Management Teams for this project. The Team members discussed the planning year with the Environmental Resources Team, which includes representatives from ITD District 6, Headquarters, FHWA, BMPO, and the City of Idaho Falls. The purpose of this planning year is to provide a large enough design window of opportunity for the PEL process and the proposed phased approach to developing improvements.

## Forecast Travel Demand Volumes

The team has coordinated with BMPO to obtain a copy of their TransCAD travel demand model, which includes the estimated land uses for the years 2014, 2025, and 2040. Socioeconomic data for other years (e.g. 2017 and 2045) was obtained by straight line interpolation/extrapolation of the data included with the model.

The 2045 No-Build and updated Level 3 Alternatives travel demand volumes were developed using modified versions of the TransCAD model with minimal changes to the transportation network for the No-Build and specific network modifications as described for each Level 3 Alternative. The forecast travel demand models created for this study are specific for these analyses and investigations and are not official BMPO models and should not be used for any other purpose.

## 2045 Alternatives Operational Analysis

The concept of level of service (LOS) was developed to correlate numerical traffic operational data to subjective descriptions of traffic performance. LOS is defined as the system of six designated ranges, from “A” (best) to “F” (worst), used to evaluate performance. The ITD *Roadway Design Manual* (August 2013) Section 335.06 identifies recommended minimum LOS for various roadway classifications, rural or urban settings, and terrain. I-15 and US-20 through the project area fall into the urban/suburban freeway category and are recommended to meet a LOS C threshold. The manual explains that in some cases, the cost of construction for recommended LOS may be prohibitive and lower LOS is acceptable for economic reasons. LOS D was used as the acceptable threshold for operations for the future operational and capacity analysis for comparing how the proposed alternatives will operate.

VISSIM software was used to model and analyze project area highways, roadways, interchanges, and intersections under forecast conditions. HCM 6 analysis methods were used to estimate LOS for the intersection and merge/diverge locations. As the alternatives were analyzed the existing lane configuration and intersection control of local streets were maintained unless specifically modified by the alternative improvements.

### Intersection Analysis

**Table 1** presents the *Highway Capacity Manual* (HCM) 6<sup>th</sup> Edition LOS thresholds at stop-controlled and signal controlled intersections. For this concept level analysis, the overall intersection LOS and delay are reported for each intersection modeled.

**Table 1. LOS Thresholds for Motor Vehicles at Intersections**

LOS	Stop-controlled Intersection Control Delay (s/veh)	Signal-controlled Intersection Control Delay (s/veh)
A	≤ 10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

## Merge and Diverge Analysis

Freeway congestion usually occurs at freeway merge, diverge, and weaving segments that have the potential to develop bottlenecks, which is evident in existing operations of the I-15 and US-20 system. Average density of traffic flow in passenger cars per mile per lane (pc/mi/ln) in the merge/diverge area is the criteria that defines LOS for ramp operations. **Table 2** presents the HCM 6 LOS thresholds for ramp merge and diverge area. The ramp LOS and estimated density are reported for each ramp merge, diverge, and weaving segment for each alternative.

**Table 2. LOS Thresholds for Motor Vehicles at Ramp Merge, Diverge, & Weaving Locations**

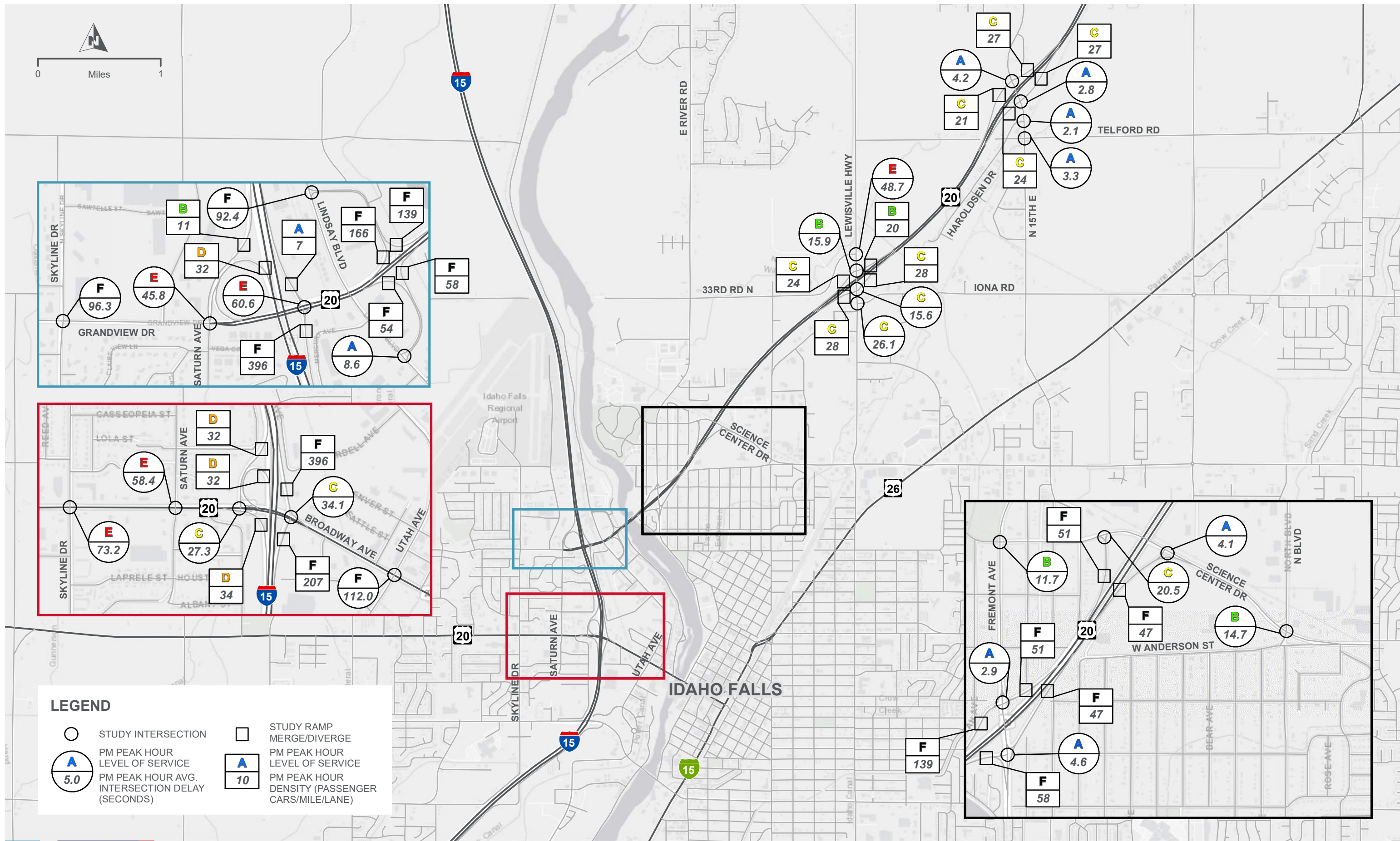
LOS	Density (pc/mi/ln)	Description
A	≤ 10	Unrestricted operations
B	> 10-20	Merging and diverging maneuvers are noticeable to driver
C	> 20-28	Influence are speeds begin to decline
D	> 28-35	Influence area turbulence becomes intrusive
E	> 35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp and freeway queues form

## Results

### NO-BUILD ALTERNATIVE

Intersection and ramp merge/diverge operational analysis results for the 2045 No-Build Alternative are presented in **Figure 5**. During the forecast p.m. peak hour 16 out the 24 intersections analyzed are estimated to operate at an overall intersection average LOS D or better. The intersections of Broadway St. with Skyline Dr. and Saturn Ave., Grandview Dr. with the Saturn Ave./Exit 119 southbound ramp and Exit 119 northbound ramp, and Lewisville Road with 33<sup>rd</sup> North are estimated to operate at LOS E overall.







The intersections of Broadway St. with Utah Ave., Grandview Dr. with Skyline Dr., and Lindsay Blvd. with the Exit 307 westbound ramp are all estimated to operate at LOS F overall. Significant queues are estimated to build along Broadway St., Grandview Dr., US-20, and the I-15 off ramps to Exits 118 and 119 from these poor performing intersections that will impact adjacent intersection and roadway capacity and access.

Following HCM 6 standards, several merge and diverge segments on I-15 and US-20 are estimated to operate at LOS F. At Exit 118, the northbound off ramp and on ramp both fail with significant densities of queued vehicles. The Exit 119 northbound off ramp also fails with more demand than the intersection at Grandview Dr./US-20 can handle, so the queue spills back onto I-15 and the Exit 118 northbound on ramp. This also impacts the Exit 118 northbound off ramp as do the significant queues at the Broadway St. and Utah Ave. intersection, which back up to the Exit 118 northbound ramp terminal intersection and keep vehicles from being able to turn right from the off ramp to Broadway St. All of the US-20 Exits 307, 308, and 309 on and off ramps are estimated to operate at LOS F. These ramp merges and diverges fail due to significant back up queues on US-20 from the Exit 119 intersections, inadequate weaving distances, and short acceleration lengths.

The I-15 Exit 118 southbound on and off ramps and Exit 119 southbound on ramps are estimated to operate at LOS D. The Exit 119 northbound on ramp is estimated to operate at LOS A, and the southbound off ramp estimated to operate at LOS B. The US-20 Exits 310 and 311 on and off ramps are all estimated to operate at LOS C, except for the Exit 310 westbound off ramp, which is estimated to operate at LOS B.

The travel time for drivers traveling on I-15 northbound through the No-Build system is estimated to be 11.2 minutes while southbound drivers are estimated to travel for 4.4 minutes to cover the same distance. Estimated travel time for drivers traveling from I-15 south of Exit 118 to US-20 east of Exit 311 is 15.2 minutes while the time for drivers traveling the same distance from US-20 to I-15 is estimated to be 6.9 minutes.

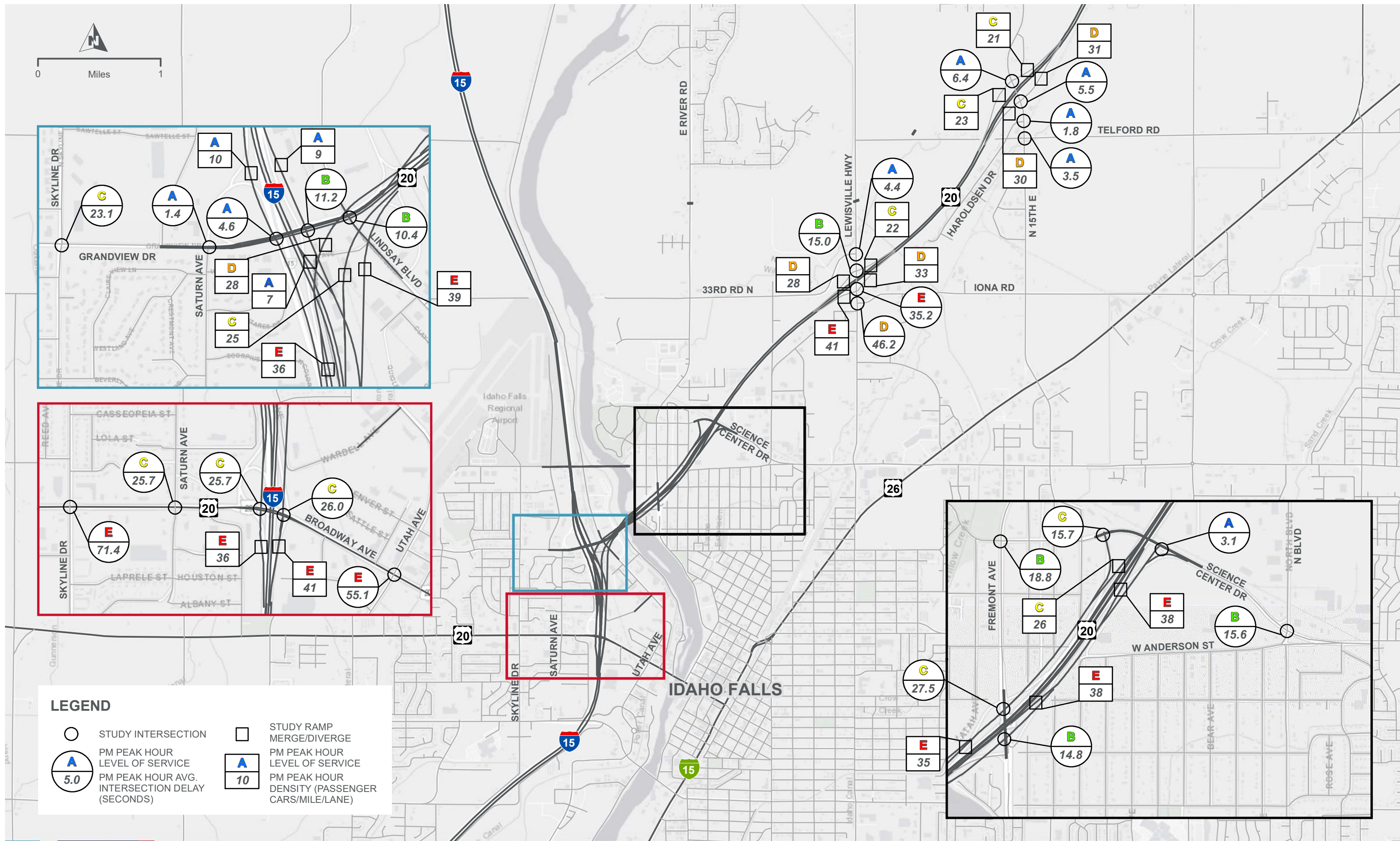
The total estimated vehicle-miles travelled (VMT) during the peak hour in the 2045 No-Build system is 38,552 miles with vehicle-hours traveled (VHT) at 1,751 hours.

The total vehicles estimated to be able to cross the Snake River under the No-Build Alternative p.m. peak hour conditions is 2,427 eastbound and 2,687 westbound for a total of 5,114. The only available crossing point in the analyzed system is the existing US-20 Bridge, commonly known as the Johns Hole Bridge.

### ALTERNATIVE C3

Intersection and ramp merge/diverge operational analysis results for the 2045 Alternative C3 are presented in **Figure 6**. During the forecast p.m. peak hour 21 out the 24 intersections analyzed are estimated to operate at an overall intersection average LOS D or better, and all but four intersections are estimated to operate similarly to or better than in the No-Build Alternative. Broadway St. with Skyline Dr. and Utah Ave., and the Exit 310 EB ramp terminal are the only intersections estimated to operate worse than LOS D at LOS E overall.







The intersection of Grandview Dr. with Skyline Dr. has much less delay than the No-Build alternative (23.1 seconds versus 96.3 seconds) while operating at LOS C. The intersection of Fremont Avenue and the I-15 southbound direct on ramp/Exit 309 off ramp operates worse because this intersection serves significant traffic accessing I-15 from westbound US-20. The intersection of Lewisville Road and the Exit 311 eastbound ramp operates worse in Alternative C3 because the upstream bottleneck at Exit 119 is removed and more vehicles are able to reach this intersection.

The majority of Alternative C3 merge and diverge segments on I-15 and US-20 are estimated to operate at LOS D or better. The improved ramps at I-15 Exits 118 and 119 operate better than in the No-Build Alternative, US-20 Exit 307 is removed, and Exit 308 is modified. The Alternative C3 improvements allow more eastbound US-20 traffic to reach the interchanges east of the Snake River crossing and the Exit 308 on ramps to eastbound and westbound US-20, the Exit 309 eastbound off and westbound onramps, and the Exit 310 eastbound off ramp are all estimated to operate at LOS E. This is caused by the increase in traffic reaching and using these interchanges which cannot reach them in the No-Build Alternative due to upstream bottlenecks. The direct ramp from I-15 northbound to US-20 eastbound is estimated to operate at LOS E for both the off ramp from I-15 and the on ramp to US-20.

The new direct ramps from Exit 118 to US-20 are estimated to operate at LOS E. The LOS E for the direct ramp connections to I-15 is due to the high volumes entering and exiting I-15 combined with the Exit 118 southern ramp volumes, increasing the volumes using the direct ramps above any other alternative.

The travel time for drivers traveling on I-15 northbound through the Alternative C system is estimated to be 4.4 minutes while southbound drivers are estimated to travel for 4.2 minutes to cover the same distance. The southbound drivers will see a small decrease from the No-Build Alternative and the northbound vehicles travel time is estimated to be reduced by 61%.

Estimated travel time for drivers traveling from I-15 south of Exit 118 to US-20 east of Exit 311 is 5.1 minutes while the time for drivers traveling the same distance from US-20 to I-15 is estimated to be 5.3 minutes. These are reductions of 66% and 22% from the No-Build Alternative, respectively.

The total estimated VMT during the peak hour in the 2045 Alternative C system is 45,268 miles with a total VHT of 1,328 hours. This equates to a 17% increase in VMT and a 24% decrease in VHT over the No-Build Alternative.

The total vehicles estimated to be able to cross the Snake River under Alternative C p.m. peak hour conditions is 3,611 eastbound and 3,307 westbound for a total of 6,918, which is a 35% increase over the No-Build Alternative. The available Snake River crossing points in the analyzed system includes the Johns Hole Bridge, the direct ramp bridges, and the proposed bridge to connect Lindsay Blvd. and Higham St.



### ALTERNATIVE E3

Intersection and ramp merge/diverge operational analysis results for the 2045 Alternative E3 are presented in **Figure 7**. During the forecast p.m. peak hour 19 out of the 24 intersections analyzed are estimated to operate at an overall intersection average LOS D or better. The intersections of Broadway St. with Skyline Dr., Lewisville Road with the Exit 310 EB ramp terminal, and Lewisville Road with Iona Road are estimated to operate at LOS F, LOS E, and LOS E, respectively, performing significantly worse compared to the No-Build Alternative. The Lewisville Road intersections operate more poorly due to more vehicle volume being able to get downstream on US-20 EB. The at-grade signalized intersections of Lindsay Blvd. and Fremont Ave. with the old US-20 alignment operate adequately at LOS A and LOS B, respectively, although the latter is worse than the ramp terminal intersection LOS at the interchange under No-Build Conditions. Intersections that are predicted to see significant improvements with the alternative are Broadway St. with Saturn Ave. and Utah Ave., Grandview Dr. with Skyline Dr. and the Exit 119 ramp terminals, and Lewisville Road and 33<sup>rd</sup> North.

The new intersections on the new US-20/Olympia St. alignment at the north end of the split diamond interchange are estimated to operate well, both at LOS A.

Most of the Alternative E3 merge and diverge segments on I-15 and US-20 are estimated to operate at LOS D or better. The modified configuration of the I-15 exits removes Exit 119 and includes ramps north of Exit 118 to I-15 that directly tie into realigned US-20, west of Fremont Ave. The northbound direct ramp between I-15 and US-20 is estimated to operate at LOS C, and southbound direct ramp at LOS E in the p.m. peak hour. The westbound US-20 weave from the Exit 309 on ramp to the off ramp to southbound I-15 operates at LOS F. The eastbound US-20 off ramp to Exit 310 operates at LOS F because more traffic is able to get downstream on US-20 than in the No-Build alternative.

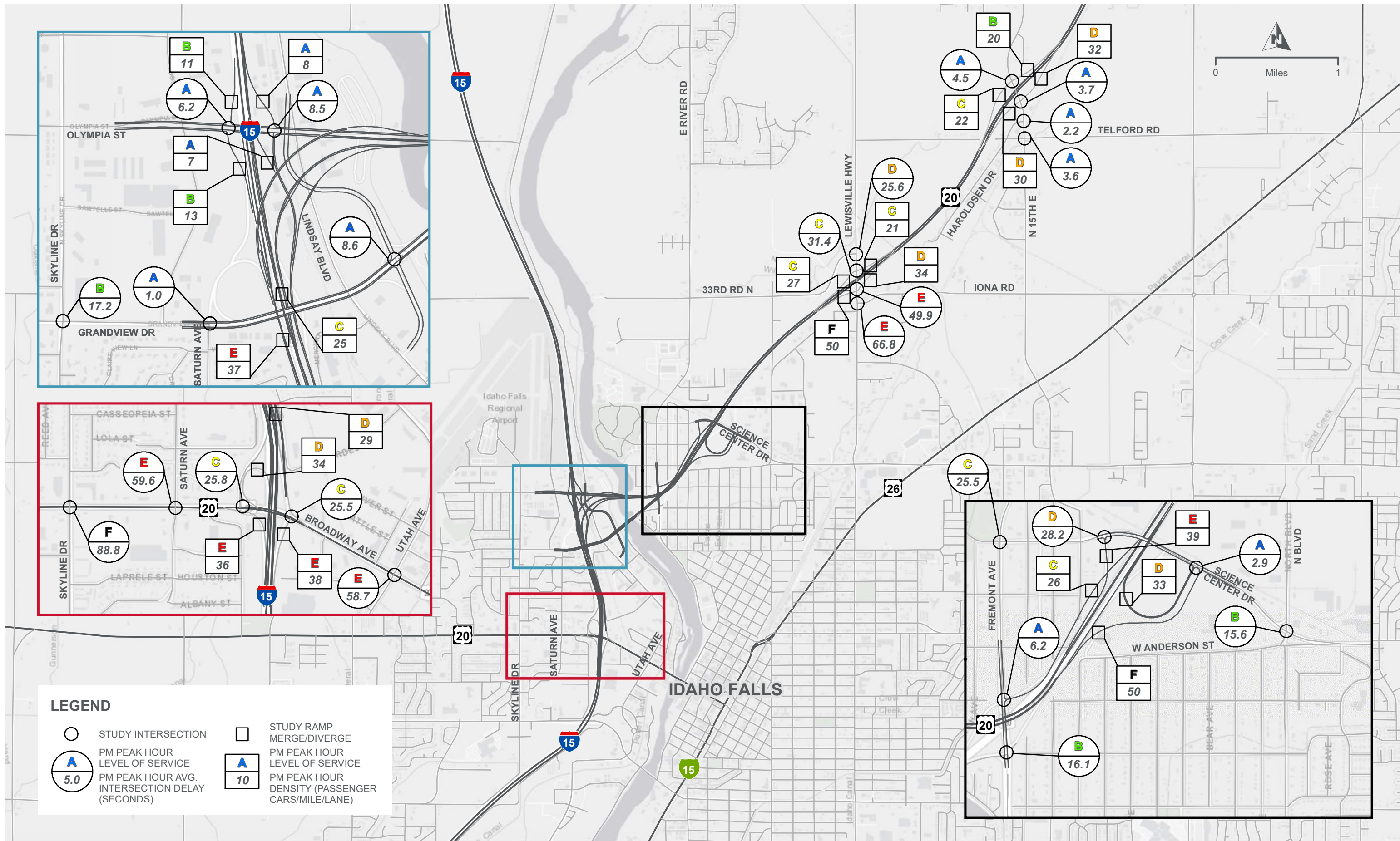
The travel time for drivers traveling on I-15 northbound and southbound through the Alternative E3 system is estimated to be 4.4 minutes in each direction. The southbound drivers will see no improvement from the No-Build Alternative, but the northbound vehicle travel time is estimated to be reduced by 61%.

Estimated travel time for drivers traveling from I-15 south of Exit 118 to US-20 east of Exit 311 is 5.4 minutes while the time for drivers traveling the same distance from US-20 to I-15 is estimated to be 5.3 minutes. These are reductions of 65% and 22% from the No-Build Alternative, respectively.

The total estimated VMT during the peak hour in the 2045 Alternative E3 system is 44,273 miles with a total VHT of 1,376 hours. This equates to a 15% increase in VMT and a 21% decrease in VHT over the No-Build Alternative.

The total vehicles estimated to be able to cross the Snake River under Alternative E3 p.m. peak hour conditions is 3,813 eastbound and 3,129 westbound for a total of 6,942, which is a 36% increase over the No-Build Alternative. The available Snake River crossing points in the analyzed system include the existing Johns Hole Bridge, the realigned US-20 Bridge, which the direct ramps tie into.





## ALTERNATIVE H2

Intersection and ramp merge/diverge operational analysis results for the 2045 Alternative H2 are presented in **Figure 8**. During the forecast p.m. peak hour 23 out of the 24 intersections analyzed are estimated to operate at an overall intersection average LOS D or better, and all but the Exit 118 ramp terminal intersections are estimated to operate similarly to or better than in the No-Build Alternative. There are no intersections estimated to operate at LOS F with this alternative. The intersection of Broadway St. with Skyline Dr. is estimated to operate at LOS E overall. This alternative shifts demand away from the Lewisville Highway interchange and the intersections along this road operate well.

Most of the Alternative H2 merge and diverge segments on I-15 and US-20 are estimated to operate at LOS D or better. The ramps serving the split diamond configuration of the I-15 118 and 119 exits operate well with reduced demand due to the realigned US-20 mainline and better spacing between on and off ramps. The Exit 307 interchange is assumed to remain and the ramps are estimated to operate at LOS E and F. While this is better than the No-Build Alternative, similar issues with queue backups and the close spacing of the ramps to the split diamond intersections with Grandview Dr. exist with this alternative causing congestion and queue backups through the Exit 307 ramps. The direct ramps between I-15 and US-20 are estimated to operate adequately in the p.m. peak hour.

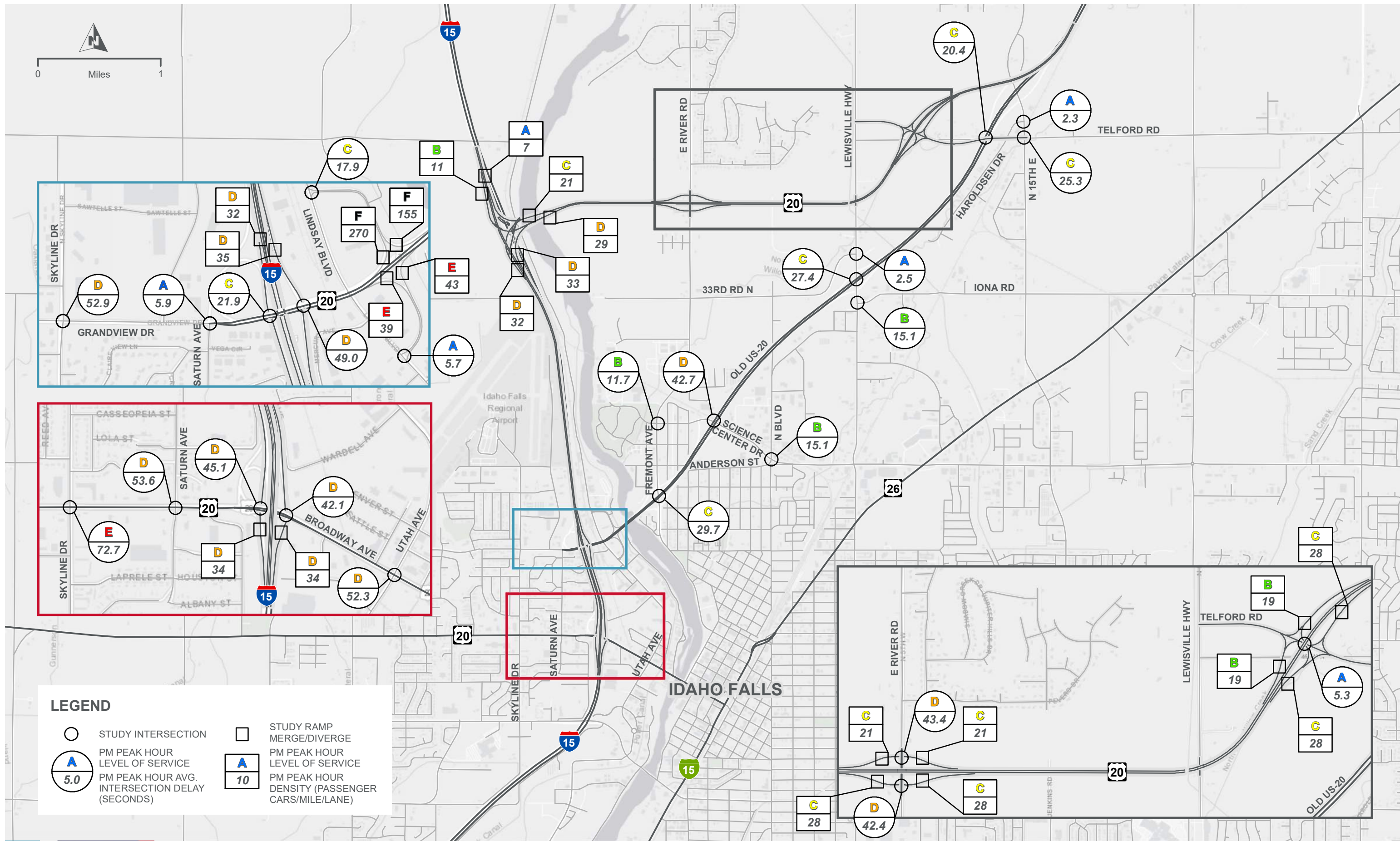
The travel time for drivers traveling on I-15 northbound and southbound through the Alternative H2 system is estimated to be 4.4 minutes in each direction. The southbound drivers will see no improvement from the No-Build Alternative but the northbound vehicles travel time is estimated to be reduced by 61%.

Estimated travel time for drivers traveling from I-15 south of Exit 118 to US-20 east of Exit 311 is 6.7 minutes while the time for drivers traveling the same distance from US-20 to I-15 is estimated to be 6.4 minutes. These are reductions of 56% and 7% from the No-Build Alternative, respectively. Drivers traveling through the Alternatives H2 network from I-15 to US-20 travel a farther distance than in the previous alternatives.

The total estimated VMT during the peak hour in the 2045 Alternative H2 system is 49,357 miles with a total VHT of 1,614 hours. This equates to a 28% increase in VMT and an 8% decrease in VHT over the No-Build Alternative. These measures of effectiveness are higher than previous alternatives because the I-15 to US-20 trips travel a farther distance than the previous alternatives.

The total vehicles estimated to be able to cross the Snake River under Alternative H2 p.m. peak hour conditions is 3,566 eastbound and 3,072 westbound for a total of 6,638, which is a 30% increase over the No-Build Alternative. The available Snake River crossing points in the analyzed system includes the Johns Hole Bridge and the realigned US-20 bridges.







## Conclusions

This analysis was completed at a high level and some individual intersections, interchanges, and/or ramp models may be refined in future phases of the project to give more refined or different results. This conceptual analysis allows a comparison between the updated Level 3 Alternatives, including the No-Build Alternative, in the following tables. This comparison will be used to identify improvements that can be included with each alternative and evaluate which should be carried forward into a NEPA analysis.

**Table 3** summarizes the estimated travel times for each alternative in minutes, **Table 4** summarizes the total VMT and VHT for each alternative, and **Table 5** summarizes the total vehicles estimated to cross the Snake River with each alternative. Each table also estimates the change in the measurement from No-Build for each alternative.

**Table 3. Estimated Travel Times for Each Alternative (Minutes)**

Route	No-Build	Alt. C3	% Change	Alt. E3	% Change	Alt. H2	% Change
I-15 NB Through	11.2	4.4	-61%	4.4	-61%	4.4	-61%
I-15 SB Through	4.4	4.2	-5%	4.4	0%	4.4	0%
I-15 NB to US-20 EB	15.2	5.1	-66%	5.4	-65%	6.7	-56%
US-20 WB to I-15 SB	6.9	5.3	-22%	5.3	-22%	6.4	-7%

**Table 4. Estimated VMT and VHT**

Measure	No-Build	Alt. C3	% Change	Alt. E3	% Change	Alt. H2	% Change
VMT	38,552	45,268	17%	44,273	15%	49,357	28%
VHT	1,751	1,328	-24%	1,376	-21%	1,614	-8%

**Table 5. Total Vehicles Crossing the Snake River**

Route	No-Build	Alt. C3	% Change	Alt. E3	% Change	Alt. H2	% Change
Eastbound	2,427	3,611	49%	3,813	57%	3,566	47%
Westbound	2,687	3,307	23%	3,129	16%	3,072	14%
Total	5,114	6,917	35%	6,942	36%	6,638	30%



The tables below summarize the results of the operational analysis for each alternative and allow a comparison of the measurements. LOS is reported in each table along with a color code with **LOS A = BLUE**, **LOS B = GREEN**, **LOS C = YELLOW**, **LOS D = ORANGE**, **LOS E = RED**, and **LOS F = BLACK**. **Table 6** presents the results of the analysis for the intersections included in each alternative. **Table 7** presents the results of the analysis for the merge and diverge ramps included in each alternative.

**Table 6. Intersection Analysis Results**

Intersection	No-Build		Alt. C3		Alt. E3		Alt. H2	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Broadway St - US-20 / Skyline Dr	73.2	E	71.4	E	88.8	F	72.7	E
Broadway St - US-20 / Saturn Ave	58.4	E	25.7	C	59.6	E	53.6	D
Broadway St - US-20 / Exit 118 SB Ramp	27.3	C	25.7	C	25.8	C	45.1	D
Broadway St - US-20 / Exit 118 NB Ramp	34.1	C	26.0	C	25.5	C	42.1	D
Broadway St / Utah Ave	112.0	F	55.1	E	58.7	E	52.3	D
Grandview Dr / Skyline Dr	96.3	F	23.1	C	17.2	B	52.9	D
Grandview Dr / Saturn Ave	NA	NA	1.4	A	1.0	A	5.9	A
Grandview Dr / Exit 119 SB Ramp	45.8	E	4.6	A	NA	NA	21.9	C
Grandview Dr / Exit 119 NB Ramp	60.6	E	11.2	B	NA	NA	49.0	D
Lindsay Blvd / Exit 307 WB Ramp	92.4	F	NA	NA	NA	NA	17.9	C
Lindsay Blvd / Exit 307 EB Ramp	8.6	A	NA	NA	NA	NA	5.7	A
Grandview Dr / Lindsay Blvd	NA	NA	10.4	B	8.6	A	NA	NA
Fremont Ave / Exit 308 WB Ramp	2.9	A	NA	NA	NA	NA	NA	NA
Fremont Ave / Exit 308 EB Ramp	4.6	A	NA	NA	NA	NA	NA	NA
Fremont Ave / Exit 309 WB Ramp	NA	NA	27.5	C	6.2	A	NA	NA
Fremont Ave / Grandview Dr	NA	NA	14.8	B	16.1	B	29.7	C
Science Center Dr / Fremont Ave	11.7	B	18.8	B	25.5	C	11.7	B
Science Center Dr / Exit 309 WB Ramp	20.5	C	15.7	C	28.2	D	42.7	D
Science Center Dr / Exit 309 EB Ramp	4.1	A	3.1	A	2.9	A		
Science Center Dr / North Blvd	14.7	B	15.6	B	15.6	B	15.1	B
Lewisville Rd / 33rd North	48.7	E	4.4	A	25.6	D	2.5	A
Lewisville Rd / Exit 310 WB Ramp	15.9	B	15.0	B	31.4	C	27.4	C
Lewisville Rd / Exit 310 EB Ramp	15.6	C	35.2	E	49.9	E		
Lewisville Rd / Iona Road	26.1	C	46.2	D	66.8	E	13.5	B
N 15th E / Exit 311 WB Ramp	4.2	A	6.4	A	4.5	A	NA	NA
N 15th E / Exit 311 EB Ramp	2.8	A	5.5	A	3.7	A	NA	NA
N 15th E / Haroldsen Dr	2.1	A	1.8	A	2.2	A	2.3	A
N 15th E / Telford Rd	3.3	A	3.5	A	3.6	A	25.3	C
Olympia St / I-15 SB Ramp	NA	NA	NA	NA	6.2	A	NA	NA
Olympia St / I-15 NB Ramp	NA	NA	NA	NA	8.5	A	NA	NA
Telford Rd / US-20	NA	NA	NA	NA	NA	NA	5.3	A
Telford Rd / Grandview Dr	NA	NA	NA	NA	NA	NA	20.4	C
E River Rd / US-20 WB	NA	NA	NA	NA	NA	NA	43.4	D
E River Rd / US-20 EB	NA	NA	NA	NA	NA	NA	42.4	D

**Table 7. Merge/Diverge Analysis Results**

Ramp	No-Build		Alt. C3		Alt. E3		Alt. H2	
	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Exit 118 NB Off Ramp	207	F	41	E	38	E	34	D
Exit 118 EB Broadway St SB On Ramp	34	D	36	E	36	E	34	D
Exit 118 WB Broadway St SB On Ramp	32	D			34	D		
Exit 118 NB On Ramp	396	F	39	E	NA	NA	NA	NA
Exit 119 NB Off Ramp			NA	NA	NA	NA	NA	NA
Exit 118 SB Off Ramp	32	D	36	E	NA	NA	NA	NA
Exit 119 SB On Ramp			NA	NA	NA	NA	NA	NA
Exit 119 NB On Ramp	7	A	9	A	NA	NA	35	D
Exit 119 SB Off Ramp	11	B	10	A	NA	NA	32	D
Exit 307 EB Off Ramp	54	F	NA	NA	NA	NA	39	E
Exit 307 WB On Ramp	166	F	NA	NA	NA	NA	270	F
Exit 307 EB On Ramp	58	F	NA	NA	NA	NA	43	E
Exit 308 EB Off Ramp			NA	NA	NA	NA	NA	NA
Exit 307 WB Off Ramp	139	F	NA	NA	NA	NA	155	F
Exit 308 WB On Ramp			35	E	NA	NA	NA	NA
Exit 308 EB On Ramp	47	F	38	E	NA	NA	NA	NA
Exit 309 EB Off Ramp			38	E	50	F	NA	NA
Exit 308 WB Off Ramp	51	F	26	C	26	C	NA	NA
Exit 309 WB On Ramp			NA	NA	39	E	NA	NA
Exit 309 EB On Ramp	NA	NA	NA	NA	33	D	NA	NA
Exit 310 EB Off Ramp	28	C	41	E	50	F	NA	NA
Exit 310 WB On Ramp	24	C	28	D	27	C	NA	NA
Exit 310 EB On Ramp	28	C	33	D	34	D	NA	NA
Exit 310 WB Off Ramp	20	B	22	C	21	C	NA	NA
Exit 311 WB On Ramp	21	C	23	C	22	C	NA	NA
Exit 311 EB Off Ramp	25	C	30	D	30	D	NA	NA
Exit 311 EB On Ramp	27	C	31	D	32	D	NA	NA
Exit 311 WB Off Ramp	27	C	21	C	20	B	NA	NA
Direct Ramp NB I-15 Off Ramp	NA	NA	25	C	25	C	33	D
Direct Ramp SB I-15 On Ramp	NA	NA	28	D	37	E	32	D
Direct Ramp NB I-15 On Ramp	NA	NA	7	A	7	A	7	A
Direct Ramp SB I-15 Off Ramp	NA	NA	NA	NA	NA	NA	11	B
Direct Ramp EB US-20 On Ramp	NA	NA	39	E	NA	NA	29	D
Direct Ramp WB US-20 Off Ramp	NA	NA	NA	NA	NA	NA	21	C
Olympia St SB I-15 On Ramp	NA	NA	NA	NA	13	B	NA	NA
Olympia St SB I-15 Off Ramp	NA	NA	NA	NA	11	B	NA	NA
Olympia St NB I-15 On Ramp	NA	NA	NA	NA	8	A	NA	NA
Olympia St NB I-15 Off Ramp	NA	NA	NA	NA	29	D	NA	NA
E River Rd EB US 20 Off Ramp	NA	NA	NA	NA	NA	NA	28	C
E River Rd WB US 20 On Ramp	NA	NA	NA	NA	NA	NA	21	C
E River Rd WB US 20 Off Ramp	NA	NA	NA	NA	NA	NA	21	C
E River Rd EB US 20 On Ramp	NA	NA	NA	NA	NA	NA	28	C
Telford Rd EB US 20 Off Ramp	NA	NA	NA	NA	NA	NA	28	C
Telford Rd WB US 20 On Ramp	NA	NA	NA	NA	NA	NA	19	B
Telford Rd EB US 20 On Ramp	NA	NA	NA	NA	NA	NA	28	C
Telford Rd WB US 20 Off Ramp	NA	NA	NA	NA	NA	NA	19	B



I-15/US-20 Connector  
Planning and Environmental Linkages (PEL) Study Report

## Appendix J. I-15/US-20 Safety and Mobility Improvements Study – Environmental Scan



YOUR Safety ••• YOUR Mobility ••• YOUR Economic Opportunity

Appendix J



# Technical Memorandum

Prepared For:	Idaho Transportation Department
Prepared By:	HDR
Project:	I-15/US-20 Safety and Mobility Improvements Study – Environmental Scan
Date:	April 11, 2018 rev May 29, 2018

## BACKGROUND

The document is intended to provide a high level overview of the environmental documentation collected for use in the Planning and Environmental Linkages (PEL) study of the I-15/US-20 corridors in Idaho Falls.

The Idaho Transportation Department (ITD), the Bonneville Metropolitan Planning Organization (BMPO), and member agencies in the BMPO have identified the need to improve the I-15/US-20 connection and adjacent interchanges. Exits 118 and 119 on I-15, and the exits for Lindsay Boulevard, Riverside Drive, and Science Center Drive on US-20, are all nearing the end of their service life. With the current volume of traffic, this area has become a bottleneck to the state system and a safety concern. Additionally, the BMPO is considering a study for a High Capacity Roadway (HCR) in the vicinity of I-15/US-20. Specific portions of the HCR, including a north leg that would be between 97th North and 65th North streets and a west leg that would be between 35th West and 65th West streets will be included in the travel demand modeling and public outreach.

The reader is referred to the IPlan Team Story Map, located at <http://iplan.maps.arcgis.com/apps/MapSeries/index.html?appid=c8dac0c590d2474bb545793110de0e43> for maps of the project study area and visual representations of environmental concerns in the project area.

ITD intends to complete a PEL study to develop and evaluate a range of possible alternatives, identify a narrowed list of Recommended Alternatives and develop a capital improvement plan to phase the work over multiple years. ITD can then complete a National Environmental Policy Act (NEPA) process for one or more packages of improvements and secure environmental clearance to construct improvements, allocate funding and complete the design and plan, specification, and estimate (PS&E) documents for construction.

### General Project Schedule

This project will be scoped over several phases due its depth and complexity and based on the success of each phases.

Phase A - This phase includes work tasks required for an initial project startup. The purpose will be to gather corridor information, identify environmental and resource concerns, develop a public involvement plan, develop travel demand forecasts, identify existing and forecast No-Build operational and capacity level of service, develop the purpose and need and pre-study



activities for the environmental process. This environmental scan technical memorandum is being prepared under Phase A of the project.

Phase B – Phase B is intended to include development and documentation of the PEL Report. During Phase B, certain packages of improvements may be identified as early action items and spin off to be completed as standalone NEPA projects.

Future phases will include NEPA documentation and environmental clearance, material phase 1 report, value engineering study, and the capital improvement plan, development of preliminary to PS&E designs for prioritized projects on the capital improvement plan and value engineering studies.

### **Environmental Scoping Meeting**

ITD held an environmental scoping meeting on January 16, 2018, with several agencies including:

- Federal Highway Administration (FHWA)
- City of Idaho Falls
- Bonneville County
- BMPO
- Idaho Department of Fish and Game (IDFG)
- Idaho Department of Environmental Quality (IDEQ)
- Idaho State Historic Preservation Office (SHPO)

Several other agencies were invited but unable to attend. ITD will continue to coordinate with all agencies with an interest in the project.

The scoping meeting discussion included level of effort and expectations for establishing baseline conditions for the purpose of the Planning and Environmental Linkages (PEL) study. This scan document incorporates comments and feedback received from attendees of the scoping meeting.

## **PURPOSE**

This environmental scan has been prepared to support project scoping and identify potential environmental issues of concern as the team progresses into alternative development. Generally, the study area consisted of a 500-foot buffer around the corridor and interchanges, as shown in the Story Map. Some resource information, such as census data, was not truncated at the 500-foot buffer mark, as this type of data refers to a specific delineated area or group and should be reviewed as a whole.

The environmental scan includes the following topics:

- Operational Considerations
- Cultural Resources
- Section 4(f) Properties
- Biological Resources



- Wetlands and water resources
- Hazardous materials
- Noise
- Air Quality
- Environmental justice and neighborhood services
- Visual/Aesthetics
- General Land Use
- Land Form and Soils
- Recreation
- Cumulative Impacts
- Other Resources

The scan consisted of desktop-level reviews of the above-listed resources. Data from these reviews are summarized in the following paragraphs. It is important to note that the purpose of the scan is to identify potential environmental issues for consideration as the project moves forward into alternative development, NEPA compliance, and design stages. No field surveys, assessments, or official agency coordination has been conducted. Each topic summarized below includes a description of the scope of research conducted.

## OPERATIONAL CONSIDERATIONS

### Scope

Operational considerations include those items that are generally associated with the operation of the transportation system, but not considered environmental resources in a traditional sense. These items will still require review as the project progresses and include transportation, bicycle/pedestrian, freight, right-of-way, stormwater/water quality, utilities, energy, and access/access control.

### Transportation, Bicycle/Pedestrian, and Freight

ITD is currently conducting an analysis of vehicle, bicycle and pedestrian crashes, and a travel demand and operations analysis of the I-15/US-20 Corridor. Existing bicycle/pedestrian facilities will be reviewed. ITD will coordinate with the public, local stakeholders, and applicable agencies to develop a level of data appropriate for the PEL. Traffic analyses will be summarized in the PEL.

### Right-of-Way

Right-of-way survey is currently underway for the project. ITD will evaluate acquisitions at a basic level for the PEL. A parcel map will be developed, and once alternatives are developed, a general summary of acquisitions needed (full properties vs. partial, business properties vs. residential). Full right-of-way evaluations will be conducted at a later design stage of the project.

### Stormwater/Water Quality

Once alternatives are developed, ITD will evaluate what type of stormwater treatment facilities may be required. Possible facility locations would be identified. Potential implications with the





Eastern Snake River floodplain and aquifer will be considered for infiltration-type stormwater control. Full stormwater design will occur at a later design stage of the project.

### **Utilities**

The project team is currently researching utility presence in the project study area. Feedback received during the environmental scoping meeting indicated that the Idaho National Laboratory (north of U.S. 20) receives a large amount of power input. Feedback also advised that Idaho Falls Power has a FERC license along the Snake River through the project area that may require consideration during alternative development.

### **Energy**

BMPO has indicated that there may be some bus transit service expansions in the future, potentially impacting the overall energy usage of the transportation system. No rail transit is planned for the area at this time. Since energy usage is not considered a resource that will influence alternative screening, no further research will be done for the PEL.

### **Access/Access Control**

Access control will be considered as a part of future project design stages, but is not expected to influence alternative screening. No further research on access control for individual parcels will be done for the PEL.

## **Cultural Resources**

### **Scope**

The scope of work for the cultural resources portion of the environmental scan included the following:

- A search for historic properties in the project area (those listed in or eligible for listing in the National Register of Historic Places (NRHP)).
- A records review conducted at the Idaho SHPO.
- A review of assessors records to assess the general age of neighborhoods in the project area.

Additional data may be collected for the PEL study, including local files, landmark files, and locally designated places. This task does not meet the requirements of a Section 106 evaluation. No field surveys were conducted.

The attendees of the environmental scoping meeting discussed how far back research should go in establishing potential historic resources. Generally, the rule of thumb is 45 years from the construction year (2023), which would be 1978. This allows 5 years of contingency in case of project delays. However, with potential construction phasing for the project, it will be important to consider what the last year of construction may be.

### **Summary of Findings**

Based on the project team's knowledge of the study area, the following cultural resources are present in the area. The project corridor crosses several linear features that may be considered historic but have not yet been recorded, including the Porter Canal, the abandoned City Canal,

the Idaho Canal, and the Union Pacific Railroad. The Porter Canal parallels the western bank of the Snake River, crosses the project extent under US-20 near the Lindsay/US-20 interchange. The abandoned City Canal crosses the project extent under the Science Center/US-20 interchange, but no remaining evidence of the canal is present on aerial photographs of this interchange. The Idaho Canal crosses the project area under US-20 east of the Lewisville/US-20 interchange. The Union Pacific Railroad runs parallel to I-15 between the Broadway and US-20 interchanges. Two US Highways, US-20 and US-26 (North Yellowstone Parkway), are also located in or close to the project corridor. Project actions on I-15 are exempt from Section 106 consultation.

Finally, a structure known as Keefer's cabin is located on Keefer's Island in the Snake River downstream of US-20. The island is not officially listed in the NRHP nor has it been previously recorded as an IHSI historic site, but Bonneville County records indicate the island and Mr. Keefer may have historic importance in the establishment of bridge crossings in the area.

### **Cultural Resources File Search Results**

The NRHP database was researched for Idaho Falls, Idaho (NPS 2017). No sites were listed in the database within or adjacent to the project area.

The project team submitted a file search request to the Idaho State Historical Society and received previously recorded report and site information (SHPO Record Search Key Number 20351). The project team also reviewed historic topographic maps from the US Geological Survey and historic aerial photographs of the project area.

### **PREVIOUS REPORTS**

A total of 57 cultural resources surveys have been previously completed within 0.5 miles of the linear project area. Of these, 37 have been submitted by ITD and with the focus on I-15, US-20, and surrounding roads and materials sources.

### **PREVIOUSLY RECORDED SITES**

The file search returned information on previously recorded archaeological, historic, and linear sites, as well as historic districts.

#### **Archaeological Sites**

Four archaeological sites have been previously recorded within 0.5 miles of the linear project area. They include a prehistoric site with a burial, an historic bridge abutment and piers, an earthen irrigation canal, and a concrete box. Three of the four sites are located along the Snake River near but not immediately adjacent to the corridor.

#### **Historic Sites**

A total of 40 architectural resources have been previously recorded within 0.5 miles of the linear project area. These are primarily historic buildings, although they also include bridges, a ferry, farmsteads, and other buildings. Most of these properties are located in Idaho Falls, but ten are located in or adjacent to the project area (see table below).



Historic Sites Located within Project APE	ISHI Number	Eligibility
Log Building at 1021 South Pioneer Road	19-18246	Ineligible
Red Baron Hangar at 2381 Foote Drive	19-18043	NR Listed
Stevens Farm at 5061 South Leon Road	19-18153	Ineligible
Old Hitt Farm at 5061 South Leon Road	19-18154	Ineligible
Haroldsen House at 5778 South Leon Road	19-18155	Eligible
Temple View Elementary School at 1500 Scorpius Drive	19-18253	Ineligible
John's Hole IC Bridge (US-20 over I-15)	19-18271	Ineligible
John's Hole Bridge (US-20 over the Snake River)	19-18272	Ineligible
Jefferson Avenue House at 1249 Jefferson Avenue	19-18128	Ineligible
Payne Road Bridge (Payne Road (W. 81 <sup>st</sup> North) over I-15	19-18297	Ineligible

### Linear Sites

A total of 10 linear sites have been previously recorded within 0.5 miles of the project area. Seven are canals, one is US-20, and two are railroads. Of these, eight cross the project area (see table below).

Linear Sites Located within Project APE
19-18170 Idaho Canal; Eligible 12/14/2017
19-18182 Anderson Canal; Eligible 7/19/2012
19-18241 Sage Canal; Ineligible 1/12/2010
19-18299 Idaho Falls Canal; Ineligible 5/6/2016
19-18315 Great Western Canal; Eligible 5/4/2017
19-18251 U.S. Highway 20; Eligible 7/29/2015
19-18172 Union Pacific Railroad; Eligible 10/21/2017
19-18174 Eastern Idaho Railroad (UPRR); Eligible 9/13/2013

### Historic Districts

One historic district listed in the National Register of Historic Places is located within 0.5 miles of the project area. This is the Red Baron Hangar (Idaho Falls Airport Historic District) at 2381 Foote Drive in Idaho Falls. Several other historic districts occurring in the City of Idaho Falls are outside of the project area and can be viewed on the Story Map.

## SECTION 4(F) PROPERTIES

### Scope

The scope of work for the Section 4(f) properties portion of the environmental scan included the following:

- A search for Section 4(f) properties (i.e., parks, public recreation facilities, wildlife refuges) using readily available online mapping services (Google Earth 2017).
- Historic resources that may qualify as a Section 4(f) property are summarized in the previous section.



Eligible Cultural Resources Located within Project APE	ISHI Number	Eligibility
Red Baron Hangar at 2381 Foote Drive	19-18043	NR Listed
Haroldsen House at 5778 South Leon Road	19-18155	Eligible
Idaho Canal	19-18170	Eligible
Union Pacific Railroad	19-18172	Eligible
Eastern Idaho Railroad (UPRR)	19-18174	Eligible
Anderson Canal	19-18182	Eligible
U.S. Highway 20	19-18251	Eligible
Great Western Canal	19-18315	Eligible
10BV52 (Prehistoric Site)	N/A	Undetermined

### Summary of Findings

Section 4(f) of the Department of Transportation Act of 1966 protects publicly-owned parks, recreational areas, wildlife and waterfowl refuges, and historic sites. In addition to historic resources discussed previously, the following community parks occur near or adjacent to the project corridor (listed from south to northeast) and would be eligible for Section 4(f) protection. Refer to the Story Map for park locations. No wildlife refuges, wild and scenic rivers, or national recreation areas occur in the area.

- Antares Park
- Reinhart Park
- Sportsman's Public Park and Marina
- Idaho Falls Greenbelt Trail
- John's Hole Forebay Park
- Russ Freeman Park
- Civitan Park
- Melaleuca Field

Antares Park is adjacent to the western edge of I-15 at the US-20 interchange. The Idaho Falls Greenbelt Trail runs parallel to the Snake River and crosses under US-20. The John's Hole Forebay Park and Sportsman's Public Park and Marina are located on the west bank of the Snake River south of and adjacent to US-20.

The next nearest park is Russ Freeman Park, approximately 0.30 mile north of US-20. Civitan Park is 0.3 mile south of US-20, next to the Snake River; Reinhart Park is 0.60 mile west of I-15; and Melaleuca Field and Highland Park are 0.50 mile southeast of US-20.

The project team will initiate tribal outreach in spring 2018 to determine the level of interest in the project and/or the potential for areas of historic importance to the Native Americans in the project area.



The PEL study will include an assessment of impact to the level of predicting whether a future Section 4(f) evaluation may be a *di minimis* finding, a programmatic evaluation, or may require a full individual evaluation.

## SECTION 6(f) LAND AND WATER CONSERVATION FUND LANDS

### Scope

Section 6(f) of the Land and Water Conservation Fund Act applies to properties purchased with these funds. The scope of the Section 6(f) review for this scan included consulting with Kathy Muir who represents the Idaho Department of Parks and Recreation to identify potential Section 6(f) properties within the 500-foot buffer of the project corridor.

### Summary of Findings

Section 6(f) consultation was conducted with the Idaho Department of Parks and Wildlife on May 2-3, 2018 by email. Based on the review of the project area conducted by Kathy Muir, one parcel eligible for Section 6(f) designation was located within the bounds of the project. This property was identified as L& WC #16-00223 - the Johns Hole Forebay Development. It is located adjacent to US-20 at the intersection of Taylor Street and the River Parkway, bordered by the Snake River to the east, and Porter Canal to the west. Additional information related to the 6(f) query is provided in Appendix A. As alternatives are further developed, potential impacts to Section 6(f) properties will be reviewed.

## BIOLOGICAL RESOURCES

### Scope

The scope of work for assessment of biological resources in the area included the following:

- Obtaining an official species list from the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) service.
- Reviewing the trust resources report for the project area from USFWS for information regarding migratory birds and other species of concern in the area.

### Summary of Findings

The threatened and endangered species review included the USFWS official species list issued for the project by IPaC on October 24, 2017 (USFWS 2017a; Consultation Code: 01EIFW00-2018-SLI-0064). The list included one threatened species and no endangered species under the Endangered Species Act that may occur or may be affected by the project (Table 3). No species under the jurisdiction of National Oceanic and Atmospheric Administration (NOAA) Fisheries were listed as threatened or endangered within the project area.

**Table 1. Species Listed in Project Official Species List (Consultation Code: 01EIFW00-2018-SLI-0064, October 24, 2017)**

Species Name	Scientific Name	Federal Status
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Threatened

The yellow-billed cuckoo currently nests almost exclusively in low to moderate elevation riparian woodlands that cover 50 acres or more within arid to semiarid landscape (USFWS 2013). The species uses wooded riparian habitat with dense cover, including woodlands with low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes (USFWS 2017b). According to the Federal Register species listing, the majority of sightings in Idaho are in the Snake River corridor in southeast Idaho, and they are more likely to occur in sites surrounded by upland natural vegetation than in habitat adjacent to agricultural lands.

In the project area, the Snake River corridor south of US-20 is highly urbanized; it is possible the yellow-billed cuckoo could be a migrant through the area; but nesting habitat is not present. Feedback received during the environmental scoping meeting indicated that the yellow-billed cuckoo is reliant on larger (greater than 8 acres) cottonwood galleries upstream of the project area.

The Migratory Bird Treaty Act (MBTA) protects migratory birds, including their nests. The IPaC resource list for the project area identifies several migratory birds that may occur in the project area (USFWS 2017c). With the urbanized nature of the area, it is unlikely nesting and breeding habitat for these birds would be disturbed as a result of project construction noise. However, if shrubs and/or trees require removal during construction, care should be taken to protect potential migratory bird habitat and/or existing nest sites. Ground nesters may also be possible in riparian and agricultural areas. Per the USFWS migratory bird national standard conservation measures for vegetation removal (USFWS 2016), vegetation removal, trimming, and grading of vegetated areas should be scheduled outside of the peak bird breeding season to the maximum extent practicable. In addition, structures that would be impacted by construction would include surveys for birds and bats.

Feedback received during the environmental scoping meeting also indicated that the Snake River through the project area is a valuable fishery though but this stretch through Idaho Falls is not the most valued area.

Readily available noxious weed data will be reviewed for the PEL study. Bonneville County has a weed department and they will be contacted to determine what information they can provide for the study area.

## WETLANDS AND WATER RESOURCES

### Scope

The scope of work for the wetlands portion of the environmental scan included the following:

- A desktop survey of available mapping and photographs to identify areas where there is potential for wetlands.
- A review of the National Wetland Inventory (NWI), as maintained by the USFWS.
- A review of NRCS soil data to identify hydric soils in the area.

This task did not include formal wetland delineations per Army Corps of Engineers guidelines.

## Summary of Findings

### WETLANDS

The NWI shows riverine wetlands associated with the Snake River, north and south forks of Willow Creek, Porter Canal, and Idaho Canal (see Story Map for NWI boundaries). Several small freshwater emergent wetlands on the south side of US-20 between the Science Center and Lewisville interchanges, one of which is adjacent to the freeway just west of the eastbound off-ramp for Lewisville. A freshwater pond is mapped adjacent to the eastbound on-ramp at the Lewisville interchange (NWI 2017). Field verification of these NWI mapped wetlands to confirm the presence of the wetlands should be conducted during concept design.

NRCS soil data for the project area indicated the presence of eight types of soils (see Table 2). None of these soil types have hydric status per the NRCS web soil survey (NRCS 2017b).

Feedback received during the environmental scoping meeting indicated that consideration should be given for structures in the study area that, if replaced, may provide an opportunity to remove piers and other obstructions from the waterway. The project team should document alternatives analysis that involves these opportunities so that consideration of avoidance measures or improvements to waterways can be included in future permitting.

### WATER QUALITY

In the 2014 Final Integrated Report, the Snake River and the forks of Willow Creek through the project area are listed as Category 3: Unassessed (IDEQ 2014). No beneficial uses or impairments are listed or known at this time. The 2016 Integrated Report is currently in progress, and may provide an updated assessment of the surface waters in the study area.

Attendees of the environmental scoping meeting advised that Idaho Falls is covered by a Municipal Separate Storm Sewer System (MS4) permit. The conditions of this permit and data it contains will be evaluated for relevance to the project for the PEL study.

### FLOODPLAIN AND FLOODWAY

The Snake River through the project area is mapped as a Zone A 1-percent Annual Chance Flood Hazard. No flood elevations or floodway are mapped through the Snake River corridor in the project area (FIRM 1982). A floodway is mapped in the Snake River corridor north of West 145 North, which is approximately 8 miles north of the study area. Attendees of the environmental scoping meeting indicated that Idaho Falls Power has a HEC-RAS model of the Snake River through the project area and a map of the 1997 flood, which is widely thought to be the 100-year flood.

### SOLE SOURCE AQUIFER

The project area is located over the Eastern Snake River Plain Sole Source Aquifer (EPA 2008). Environmental Protection Agency (EPA) review of the proposed project will likely be required. Generally, these reviews are concerned with depths of excavations, particularly structural piles or injection wells that may create a conduit for hazardous materials to get in to the aquifer. IDEQ in Idaho Falls has an abundant source of information on the aquifer and encouraged the project team during the environmental scoping meeting to review it if beneficial.



## NAVIGABLE WATERS

The Snake River is listed by the Idaho State Department of Lands as navigable by title and right-of-way under State jurisdiction (IDL 2017). Crossings will likely require permitting with the Idaho State Department of Lands.

## HAZARDOUS MATERIALS

### Scope

The scope of work for the hazardous materials portion of the environmental scan included the following:

- A desktop survey of available maps and photographs of the project area noting properties where there is potential for hazardous materials use, storage, and/or releases.
- A web-based search of mapped properties in the project area based on databases maintained by the Idaho Department of Environmental Quality (IDEQ) and EPA.

### Summary of Findings

The desktop aerial and street-level photograph review (Google Earth 2017) revealed the following observations:

- Union Pacific Railroad facilities are located east of and adjacent to I-15 and the railroad crosses under the I-15/US-20 interchange.
- One fueling station is located adjacent to the project corridor – KJ's Travel Center southeast of the Lewisville/US-20 interchange.
- Three auto repair businesses are located adjacent to the project corridor.
- The Argonne National Laboratory is located adjacent to the project corridor at the Science Center Dr./US-20 Interchange.
- The majority of the area on the north side of US-20 is used for agriculture, with noticeably more commercial use visible beginning on the 2010 aerial imagery.
- The majority of the I-15 project corridor has been surrounded by commercial use since at least the 1992 aerial imagery.

Based on EPA database review, the project area contains no National Priority List sites or Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLA) sites. Eight Resource Conservation and Recovery Act (RCRA) sites are located adjacent to the project corridor along US-20. No sites within the project corridor have been reported subject to corrective action. Two other EPA-listed facilities in and near the project area are permitted for air emissions and would not be expected to impact ground-disturbing activities associated with project construction (EPA 2017).

IDEQ database information indicates there are eleven underground storage tank (UST) sites adjacent to the project corridor, including one leaking UST at Golden West Irrigation south of US-20 which has been designated a status of "closed" (IDEQ 2017).

Available GIS data for hazardous materials sites has been added to the Story Map. Attendees of the environmental scoping meeting emphasized the benefit of a windshield survey in addition





to database research to assess properties that could have a history of hazardous materials use but are not listed. The group also indicated that Freeman Park is a former landfill.

The need for Phase 1 environmental site assessments will depend, in part, on the preferred alternative selected. The USTs adjacent to the project corridor may impact on road widening activities along US-20. Additionally, the RCRA facilities and USTs near the I-15/US-20 interchange may be impacted by the addition of a new High Capacity Road (HCR) in the area.

Feedback received at the environmental scoping meeting suggested that the PEL consider a ranking of severity in screening for hazardous materials, such as:

- The property is expected to have little or no history of hazardous material use
- The property has been observed to have had potential historic hazardous material use but is not listed in any database
- The property is listed in a hazardous materials database, but no violations have been noted.
- The property is listed in a hazardous materials database, violations are noted and/or contamination is known to be present.

## NOISE

### Scope

The assessment for noise in this environmental scan included:

- A review of the current ITD noise guidelines to ascertain the potential for noise modeling requirements for the selected alternative.
- A review of city ordinances for specific construction timing requirements to reduce nuisance noise conditions.

### Summary of Findings

According to the current ITD noise guidelines (ITD 2011), a Type I project is a proposed federal-aid highway project or one that requires FHWA-approval and involves one of the following:

- The construction of a highway in a new location
- The physical alteration of an existing highway where there is substantial change in the horizontal or vertical alignment.
- The addition of a through-traffic lane (including restriping existing pavement for the purpose of adding a through-traffic lane or auxiliary lane)
- The addition of an auxiliary lane (except as a turn lane)
- The addition or relocation of interchange lanes or ramps
- The addition of a weigh station, rest stop, ride-share lot, or toll plaza

Type I projects require a traffic noise analysis, and depending upon the outcome of the analysis, may be required to provide noise mitigation (i.e. noise wall). The project is proposing a possible HCR in the vicinity of I-15/US-20, or it may substantially change through-traffic lanes and intersections. As such, a traffic noise analysis will likely be required.



ITD policy states that retail, office, and other commercial or industrial enterprises and their associated parking areas are typically noise tolerant and are typically located adjacent to roadways in part because of their high visibility to passing traffic. These uses/activities often do not desire noise abatement measures. However, the project could require noise abatement measures, particularly in the residential areas near the I-15/US-20 interchange, north and south of US-20, and if chosen, surrounding a new HCR system.

Idaho Falls city code defaults to Federal Highway Administration (FHWA) Title 23 of the Code of Federal Regulations, Part 772 for construction noise and does not specify restrictions on construction timing due to noise, however noise restriction are imposed by Bonneville County and these restrictions limit work in the Right-of-Way between the hours of 10 p.m. and 7:00 a.m. The PEL study will include a review of potential noise receptors in the study area and field work to establish baseline noise levels in the area. Michele Fikel, Senior Environmental Planner at ITD HQ, asked to be involved in this preliminary study.

## AIR QUALITY

### Scope

IDEQ mapping of administrative boundaries for areas with sensitive air quality was reviewed.

### Summary of Findings

The study area is not located in an area of concern, nor in a wilderness area of exceptional air quality in need or protection. Therefore, air quality analysis will not be performed at this phase.

Feedback received at the environmental scoping meeting indicated that long-term air quality monitoring stations exist in the study area, and that moving them would be a concern. Review of the IDEQ 2017 Ambient Air Quality Monitoring Network Plan found that a site is located at Hickory and Sycamore streets, at latitude 43.464700, longitude -112.046450. This site is east of the I-15/Sunnyside interchange and approximately 1.5 miles from the southern extent of the study area. The objective of this monitoring station is to determine the air quality index for the Idaho Falls metropolitan statistical area. According to the report, the station was put in place in 2015.

## ENVIRONMENTAL JUSTICE AND NEIGHBORHOOD SERVICES

### Scope

The scope for identifying potential environmental justice and neighborhood services issues for the project included the following:

- Review of census data for the project area to identify potential disadvantaged populations.
- Review of land use in the area to identify potential for disproportionate impacts to disadvantaged populations.
- Review of neighborhood services in the area that may be impacted by the project.

Attendees of the environmental scoping meeting also indicated that the City of Idaho Falls may have socioeconomic data that would help the project. The project team will request to review this data for the PEL study.

## Summary of Findings

### ENVIRONMENTAL JUSTICE AND DISADVANTAGED POPULATIONS

Census data were reviewed for the project area. The project footprint is located within Bonneville County, Idaho. Demographics are summarized in **Table 4**.

**Table 2. Summary of Project Area Demographics**

Demographic Indicator	Year(s)	City of Idaho Falls <sup>1,2</sup>	Bonneville County <sup>1</sup>	State of Idaho <sup>1</sup>
Population, estimate	2016	60,211	112,232	1,683,140
Population	2010	56,813	104,234	1,567,582
White alone, percent	2016	89.0%	94.8%	93.3%
	2010	89.3%	92.6%	91.4%
Black or African American alone, percent	2016	0.4%	0.7%	0.8%
	2010	0.7%	0.9%	1.0%
American Indian and Alaska Native alone, percent	2016	0.6%	1.3%	1.8%
	2010	1.0%	1.5%	2.3%
Asian alone, percent	2016	1.1%	1.0%	1.5%
	2010	1.0%	1.3%	1.9%
Native Hawaiian and other Pacific Islander alone, percent	2016	0.0%	0.2%	0.2%
	2010	0.1%	0.2%	0.3%
Two or more races, percent	2016	2.3%	2.1%	2.4%
	2010	2.3%	2.1%	2.5%
Hispanic or Latino, percent	2016	13.4%	12.8%	12.3%
	2010	12.9%	11.4%	11.2%
White alone, not Hispanic or Latino, percent	2016	82.6%	83.5%	82.4%
	2010	83.1%	85.3%	84.0%
Persons below poverty level, percent	2012 – 2016	15.2%	12.7%	15.2%

Based on the data in **Table 4**, it appears that the City of Idaho Falls and Bonneville County have populations of minorities similar to the rest of the state of Idaho. Bonneville County has a percentage of those below the poverty level slightly less than the State of Idaho (US Census Bureau 2017).

<sup>1</sup> <https://www.census.gov/quickfacts/fact/table/ID.bonnevillecountyidaho/PST045216>

<sup>2</sup> [https://factfinder.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml)

Census data was also downloaded into the Story Map in geographic information system (GIS) format. Some census block data in this format suggested that the neighborhood west of and adjacent to I-15 at the Broadway interchange and the neighborhood southeast of the US-20 interchange at Fremont Avenue have higher rates of poverty than the remainder of the study area. GIS data also indicates that these same neighborhoods have the highest recipient rate of food stamps in the study area. Land use records also indicate scattered use of mobile homes in these neighborhoods, as well as in the area north of and adjacent to the US-20/Fremont interchange. These areas will need to be considered during scoping and alternative development to avoid disproportionate impacts to disadvantaged populations.

#### **PUBLIC TRANSIT SERVICES**

The Targhee Regional Public Transportation Authority has four bus transit routes in Idaho Falls. The Blue Route (Transit Center to/from Aquatic Center) occurs in and around the project corridor at the Broadway/I-15 interchange (TRPTA 2017). There are no bus stops within the 500-foot buffer of the project corridor; however, several bus stops occur near or adjacent to the corridor. Access to public transit for the neighboring businesses and residential areas will require coordination during construction.

#### **SCHOOLS AND NEIGHBORHOOD AMENITIES**

The project corridor falls within the Idaho Falls School District 91 Zone 8 bus zone (IFSD 2017). School bus stops can be flexible depending on need. School bus stops are expected to occur throughout the residential areas adjacent to the project corridor.

Churches, schools, and parks are among the neighborhood amenities in the project corridor (see Story Map). The Church of Jesus Christ of Latter Day Saints has two churches adjacent to the project corridor, one is west of I-15 on Mountain View Lane and one is south of US-20 on West Anderson Street. A Jehovah's Witness Kingdom Hall is adjacent to the project corridor on the north side of US-20 at the intersection of Jefferson Avenue and Science Center Drive. Two elementary schools are adjacent to the project corridor. Temple View Elementary School is west of I-15 on Scorpius Avenue and A.H. Bush Elementary School is south of US-20 on West Anderson Street.

No emergency service facilities were found within the corridor, but are expected to use the river crossings and interchanges within the corridor. The nearest fire station to the project corridor is on Shoup Avenue, approximately one mile east of I-15. The nearest hospital to the project corridor is Eastern Idaho Regional Medical Center approximately 4.5 miles south east of I-15. The nearest police station is 0.5 mile north of the I-15/US-20 interchange. The Idaho Falls Regional Airport is approximately 0.80 mile from the existing I-15/US-20 interchange.

Access for school buses, neighborhood amenities, and emergency services will require coordination during construction.

## VISUAL/AESTHETICS

### Scope

A general assessment of visual and aesthetic issues will be conducted for the PEL study. The project team will work with the City of Idaho Falls and Bonneville County to review whether requirements for lighting, etc., would apply to the project components.

## GENERAL LAND USE

### Scope

Land use information was gathered using readily available online mapping services (i.e., Google Earth 2017).

### Summary of Findings

Land use in the areas directly adjacent to the existing project corridor includes the following wide range of activities: commercial, light industrial, residential, hotels, restaurants, retail, schools, community parks, recreation/greenbelt, churches, agricultural, and rail. In addition, the Idaho Falls Regional Airport is approximately 4,000 feet from the existing I-15/US-20 interchange. **Table 1** summarizes land use in the project area.

**Table 3. Summary of Land Use in the Project Area**

Road Segment	Side	Land Uses Adjacent
I-15	West	<ul style="list-style-type: none"> <li>Commercial (retail, gas station)</li> <li>Church</li> <li>School</li> <li>Hotel</li> <li>Recreation (community park)</li> <li>Residential</li> </ul>
	East	<ul style="list-style-type: none"> <li>Commercial (retail, restaurant)</li> <li>Hotel</li> <li>Light industrial</li> </ul>
US-20	North	<ul style="list-style-type: none"> <li>Light industrial</li> <li>Agricultural</li> <li>Recreation (greenbelt)</li> <li>Residential</li> <li>Commercial (retail)</li> <li>Rail</li> </ul>
	South	<ul style="list-style-type: none"> <li>Commercial (retail, gas station, automobile sales, restaurants)</li> <li>Agricultural</li> <li>Church</li> <li>Recreation (community park, greenbelt)</li> <li>rail</li> </ul>
Interchange		Land Uses Adjacent
Broadway/I-15		<ul style="list-style-type: none"> <li>Hotel</li> <li>Commercial (restaurant)</li> <li>Light industrial</li> </ul>
Grandview (US-20)/I-15		<ul style="list-style-type: none"> <li>Rail</li> <li>Residential</li> <li>Commercial (gas station, retail)</li> </ul>
Lindsay/US-20		<ul style="list-style-type: none"> <li>Recreation (community park, greenbelt)</li> </ul>

	<ul style="list-style-type: none"> <li>Commercial (retail, restaurant)</li> </ul>
Riverside/US-20	<ul style="list-style-type: none"> <li>Residential</li> </ul>
Science Center/US-20	<ul style="list-style-type: none"> <li>Light industrial</li> <li>Church</li> <li>School</li> </ul>
Lewisville/US-20	<ul style="list-style-type: none"> <li>Light industrial</li> <li>Commercial (retail)</li> <li>Residential</li> <li>Agricultural</li> </ul>

In addition, the project team was encouraged during the environmental scoping meeting to consider the Idaho Falls Regional Airport clear zone. There may also be restrictions on surface stormwater facilities that attract birds. Public involvement and the PEL study will include coordination with airport and FAA officials on the project.

## Land Form and Soils

### Scope

The scope of work for land form and soils in the environmental scan included a search of the Natural Resources Conservation Service (NRCS) Web Soil Survey for prime farmland, geologic fault lines, and soil types within the study area.

### Summary of Findings

NRCS has mapped much of the US-20 corridor northeast of the Riverside interchange as Prime Farmland if Irrigated. Some of the area is currently used for agricultural purposes. The area surrounding the I-15/US-20 interchange is classified as Prime Farmland If Drained; however this area is developed and no agricultural use is occurring (NRCS 2017a).

The Idaho State University geologic map of Bonneville County shows no geologic fault lines in the project area. Much of the project area is classified as quaternary alluvial deposits and quaternary surficial cover from the Snake River Plain (Idaho State 2002).

Table 2 lists the soil map units and farmland ratings for the soils mapped by the NRCS within the extent of the project area (NRCS 2017a). The Story Map illustrates the boundaries of the soil units within the area.

**Table 4. Summary of Soils and Farmland Classifications in the Study Area**

Map unit symbol	Map unit name	Farmland Classification
6	Bannock loam	Prime farmland if irrigated
21	Paesl silty clay loam	Prime farmland if irrigated
22	Pancheri silt loam, 0 to 2 percent slopes	Prime farmland if irrigated and reclaimed of excess salts and sodium
23	Pancheri silt loam, 2 to 4 percent slopes	Prime farmland if irrigated and reclaimed of excess salts and sodium
24	Pancheri silt loam, 4 to 8 percent slopes	Not prime farmland
28	Paul silty clay loam	Prime farmland if irrigated



33	Polatis-Rick outcrop complex, 2 to 25 percent slopes	Not prime farmland
47	Stan sandy loam	Prime farmland if irrigated
55	Water	Not applicable

## RECREATION

### Scope

For the PEL study, the project team will determine the presence and priority of recreation facilities in the project area. A bicycle/pedestrian analysis as mentioned previously will also be conducted.

## CUMULATIVE IMPACTS

### Scope

The project team will review past, present, and reasonably foreseeable future projects, both public and private, that may cause a potential for cumulative impacts when added with this project. Some suggestions received during the environmental scoping meeting include:

- Review airport master plan
- Review BMPO planning documents
- Review City of Idaho Falls comprehensive plan

## OTHER RESOURCES

Feedback received at the environmental scoping meeting stressed the importance of compliance with the American with Disabilities Act and that consideration for this should be documented in the PEL and future NEPA documentation.

## CONCLUSIONS

The following findings were made as a result of this environmental scan:

- Operational Considerations
  - ITD will coordinate with the public, local stakeholders, and applicable agencies to develop a level of data appropriate for alternatives development and screening and this information will be presented in the PEL study.
- Cultural Resources
  - No sites within the project area are listed on the NRHP.
  - A total of 57 cultural resources surveys have been previously completed within 0.5 miles of the linear project area. Of these, 37 have been submitted by ITD and with the focus on I-15, US-20, and surrounding roads and materials sources.
  - Sites that have not been recorded but may be considered historic include canals, the railroad, and Keefer's cabin on Keefer Island in the Snake River.
- Section 4(f) Properties
  - The Snake River greenbelt, John's Hole Forebay Park, and Antares Park are located within the 500-foot buffer of the existing project corridor. Several other parks are located near or adjacent to the corridor.
  - Section 4(f) may apply if a historic property is identified that would be impacted.



- The PEL study will include an assessment of impact to the level of predicting whether a future Section 4(f) evaluation may be a *di minimis* finding or may require a full individual evaluation.
- Section 6(f) Land and Water Conservation Fund Lands
- One potentially eligible Section 6(f) property, John's Hole Forebay Park, was identified within the 500-foot buffer of the existing project corridor. Section 6(f) will be applicable if these lands are impacted during the project. Biological Resources
  - The yellow-billed cuckoo is a federally threatened species that may occur as a pass-through migrant in the project corridor in the riparian habitat adjacent to the Snake River.
  - The project corridor does not contain any federally listed critical habitat.
  - Several migratory bird species may occur in the project corridor.
  - The Snake River is a valuable fishery through the project area.
- Wetlands and Water Resources
  - NWI-mapped riverine wetlands associated with the Snake River, north and south forks of Willow Creek, Porter Canal, and Idaho Canal cross the project corridor. In addition, several NWI-mapped small freshwater emergent wetlands are located on the south side of US-20 between the Science Center and Lewisville interchanges.
  - The project corridor crosses the Snake River, which is listed as navigable water by the State of Idaho and is a water of the U.S. under the jurisdiction of the Army Corps of Engineers.
  - The project overlies the Eastern Snake River Plain sole source aquifer.
  - The City of Idaho Falls is covered by an MS4 permit.
- Hazardous Materials
  - Several USTs adjacent to the project corridor may be affected by potential roadway widening. A more in-depth hazardous materials assessment may be advisable depending on the preferred alternative selected.
- Noise
  - If travel lanes or an HCR are added for the project, a noise study will likely be required.
- Air Quality
  - The local air quality monitoring station is greater than 1.5 miles from the study area and is unlikely to be impacted by the project.
- Environmental Justice and Neighborhood Services
  - Low-income populations have been identified in the project area.
  - Transit services in the form of a bus route occur around the project corridor, and bus stops are located adjacent to and near the corridor.
  - School bus stops are located in residential areas adjacent to the project.
  - Emergency services will require coordination during project design and construction as they use river crossings and interchanges within the project corridor.
- Visual/Aesthetics

- The project team will coordinate with the City of Idaho Falls to determine potential visual/aesthetic requirements that would affect the project.
- General Land Use
  - The project corridor falls in areas with multiple land uses, including residential, commercial, industrial, agricultural, and recreation.
  - The project team will coordinate with the airport staff and FAA regarding potential project impacts to the airport clear zone.
- Land Form and Soils
  - Prime farmland if irrigated is mapped north of the project corridor on US-20.
  - No faults are mapped in the project area.
- Recreation
  - The project team will determine the presence and priority of recreation facilities in the project area.
- Cumulative Impacts
  - The project team will review various community planning documents for foreseeable future projects.

### **Future Studies or Permits**

If the project receives federal funding, the following environmental studies and/or permits may be required:

- NEPA documentation
- Archaeological and Historic Survey Report for Section 106 compliance
- A Section 4(f) finding (if historic or recreational resources may be impacted)
- A formal wetland delineation and Section 404 permitting
- A sole source aquifer assessment
- Hazardous materials assessment at a level appropriate to the project proposed
- Noise study per FHWA and ITD guidelines
- Socioeconomic impact analysis
- Prime farmland conversion assessment



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## Appendix K. Aquatic Resources and Ute Ladies'-tresses Surveys Memoranda





## I-15/US20 Safety and Mobility Study (KN20065)

### Aquatic Resource Delineation and Preliminary Impact Assessment Memorandum

**To:** Ryan Day, Project Manager  
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Rigby, ID 83442

**From:** Mike McConnell, Environmental Coordinator  
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Idaho Falls, ID 83402

**Date:** January 16, 2020

## 1. Introduction

On October 8<sup>th</sup> and 9<sup>th</sup>, 2019 a Horrocks Engineers wetland scientist conducted an abbreviated field investigation to verify the spatial and categorical status of aquatic resources including wetlands and other waters listed in the National Wetlands Inventory (USFWS 2019) and National Hydrography Dataset (USGS 2019) that fall within the delineation study area for the Interstate 15/US Highway 20 Corridor Study, hereafter referred to as the Project. Additionally, potentially jurisdictional aquatic resources identified by the wetland scientist during field investigation that were not previously documented in the aforementioned databases were mapped and are presented in the following document.

## 2. Purpose and Need

### Purpose

The purpose of the abbreviated field investigation for aquatic resources is to inform phase three of an ongoing alternative screening process aimed at selecting the least environmentally damaging practicable alternative for the proposed Project.

### Need

The alternative screening process must follow Section 404(b)1 of the Clean Water Act to be approved by the United States Army Corps of Engineers (USACE), a lead federal agency overseeing the Project. Identification of all aquatic resources suspected to be jurisdictional Waters of the United States (WoUS) is necessary for determining and documenting potential impacts resulting from each alternative to inform the Section 404(b)1 analysis.

## 3. Existing Conditions

The Project is located in and directly north of Idaho Falls, Bonneville County, Idaho (Figure 1). The Project delineation study area totals approximately 2,000 acres and includes areas on both the east and west sides of the Snake River. Existing land use consists of urban, commercial, mixed residential, rural and agricultural uses. The center of the Project area is at 43.505071° W and -112.052752° N in Section 13, Township 02N, Range 37E.

### Vegetation

Vegetation in the study area consists of a diverse mix of species common to East Idaho in the rural/agricultural/urban interface. The scope of this delineation focused on riparian areas associated with the Snake River and adjacent irrigation features such as ditches and canals. See Appendix A - Table 1 for a summary of all species observed in the delineation study area including scientific name, common name and wetland indicator status as documented in the Arid West 2016 Regional Wetland Plant List (Lichvar, et. al. 2016).

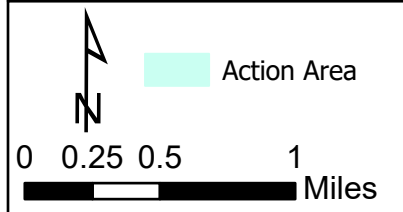
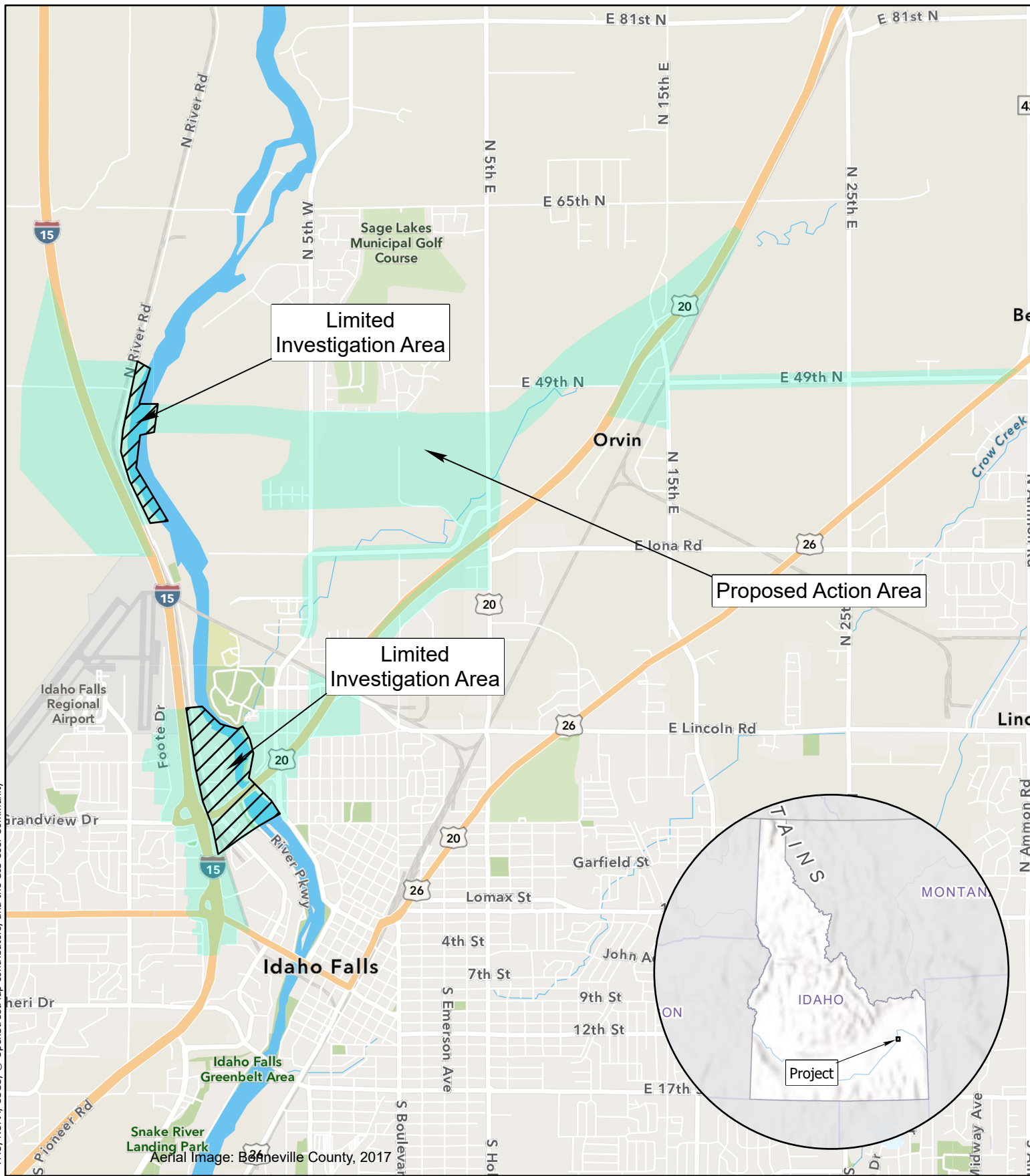
### Soils

A query was completed in the Natural Resource Conservation Service (NRCS) Web Soil Survey online tool (NRCS 2019a) to identify soils occurring within the Project area. A list of hydric soils, or soils that have physical qualities that lend to the development of hydric or wetland soil conditions is provided for each county in Idaho from the NRCS (NRCS 2019b). Only one listed hydric soil "*Aquic Cryoborolls-Typic Cryaquolls complex, flooded*" occurs within the Project area. See Appendix A - Table 2 for a list of soils underlying the Project area.

## Hydrology

The Project area is situated in three separate sub-watersheds including the Town of Shelly (Hydrologic Unit Code (HUC) 170402060301), Lower Willow Creek (HUC 170402050407) and Birch Creek (HUC 170402010503). All sub-watersheds are situated in the Upper Snake River Sub-basin (HUC 17040201). The Snake River, a major hydrologic feature within the Project area is categorized as an Upper Perennial System with an unconsolidated bottom which is permanently flooded and is notated as R3UBH under the Cowardin Classification of Wetlands and Deepwater Habitats (Cowardin, et. al. 1979). Other waters in the Project area worth noting are the multitude of agriculture-related irrigation facilities that occur throughout the Project area. It is anticipated that the Project would span all irrigation features and would have no effect on those waters. Therefore, unless irrigation features occur directly adjacent to the Snake River, those facilities were not subject to investigation under this task and are not included in this memorandum.





**I-15/US-20 Safety Mobility Improvement Study  
Key 20065  
Aquatic Resources Delineation Screening  
Vicinity Map**



## 4. Methods

Prior to initiating field investigations, secondary data (existing data) were gathered to document the presence of aquatic resources, including wetlands and potentially jurisdictional Waters of the United States (WoUS) in the Project study area. The National Hydrography Dataset and National Wetlands Inventory datasets were clipped to the Project study area to capture all aquatic resources documented in those datasets which occur in the Project study area. Those features were then loaded into the data collection tablet and visited in the field by a qualified wetland scientist to verify the status of each aquatic feature and determine if the boundaries shown in the dataset are accurate in the field. While each feature was undergoing field verification, all other previously undocumented potentially jurisdictional wetlands and WoUS were mapped using a Juniper CT-8 Rugged tablet running Collector software integrated with a sub-meter accurate Trimble R1 GNSS global positioning system. A conservative boundary was collected around each feature and basic attributes of the feature including photographs, classification, status, receiving waters, etc. were recorded.

The purpose of this exercise was not to conduct a full delineation based on USACE protocol methodology but rather, the wetland scientist used his best professional judgement backed by evidence observed in limited soil sample pits, characteristics of hydrophytic vegetation communities, and visual indicators of hydrology to identify areas that would likely be classified as wetlands or WoUS. These suspect wetlands and WoUS were mapped and will provide essential information for use in the upcoming alternatives analysis process.

## 5. Results

### Previously Documented Aquatic Resources

The secondary data analysis shows no previously documented wetlands to occur in the Project area. However, the Project would cross three large aquatic features identified in secondary data. These features were investigated and are accurately depicted in the secondary dataset. Table 1 summarizes each documented aquatic feature in the Project study area. See Appendix B – Maps and Figures for documented suspect wetlands and WoUS.

*Table 1 Previously Documented Aquatic Features*

Feature Name	Feature Type	Classification*	Location		Area	
			Latitude	Longitude	Acres	Linear Feet
Armstrong Lateral	Irrigation Feature	R4SBK	43.528474	-112.060123	--	2,430
Porter Canal	Irrigation Feature	R4SBK	43.507280	-112.052525	--	4,224
Snake River	Perennial Stream	R3UBH	43.506656	-112.050178	--	8,870
* Based on The Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et. al. 1979)						

## Aquatic Resources Identified and Mapped in the Project Area

Features not previously documented in the secondary data were identified and mapped in the field. Table 2 summarizes each suspect wetland and WoUS mapped during the field verification effort.

Table 2 Suspect Wetlands and WoUS

Feature Name	Feature Type	Classification*	Location		Area	
			Latitude	Longitude	Acres	Linear Feet
Drain Ditch	Irrigation Feature	R4SBK	43.534814	-112.063431	--	3,380
East Bank Wetland	Suspect Wetland	PEM/PSS/PFO	43.506438	-112.049428	0.51	--
Overflow Return	Irrigation Feature	R4SBK	43.511966	-112.055342		223
Park Wetland	Suspect Wetland	PEM/PSS	43.504549	-112.049666	0.04	--
Porter Canal Wetland	Suspect Wetland	PEM/PFO	43.507285	-112.052525	2	--
Seep	Suspect Wetland	PEM	43.510119	-112.052656	<0.01	--
Wetland 1	Suspect Wetland	PSS	43.509646	-112.051747	0.37	--
Wetland 2	Suspect Wetland	PSS/PFO	43.51112	-112.053124	0.36	--
Wetland 3	Suspect Wetland	PSS/PFO	43.511757	-112.053894	0.17	--
Wetland 4	Suspect Wetland	PSS/PFO	43.511975	-112.055111	0.55	--
Wetland 5	Suspect Wetland	PSS	43.506061	-112.050492	0.08	--
Wetland 6	Suspect Wetland	PSS	43.510774	-112.050594	1.54	--
Wetland 7	Suspect Wetland	PSS	43.536748	-112.060847	0.75	--
Wetland 8	Suspect Wetland	PEM	43.528474	-112.060123	0.33	--
Wetland 9	Suspect Wetland	PSS/PFO	43.532964	-112.063302	3	--
Wetland 10	Suspect Wetland	PEM/PFO	43.534732	-112.063543	2.9	--
* Based on The Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et. al. 1979)						

## 6. Preliminary Impact Assessment

A preliminary impact assessment was conducted in GIS to compare a rough order of magnitude of impacts to aquatic resources resulting from each alternative being advanced (Alternatives C, E1, E2, and H). Each alternative alignment centerline was buffered in GIS 100' to each side of the alignment creating a potential impact polygon or footprint for that alternative. The estimated area of wetland impact for each alternative, in acres, is where the project footprint area overlaps a wetland area (shown in Table 3). Specific avoidance and minimization measures would be included in the final project design that would significantly reduce the degree of potential effects. Therefore, the areas of impact summarized in Table 3 should only be used to conceptualize potential impacts for comparison of alternatives. Appendix B depicts all alternatives, the impact buffer and the area of potential impact for each mapped aquatic resource. Each sheet in Appendix B includes a table of potential impacts. A note to the reader, the impacts reported in the Appendix B sheet tables summarize impacts shown on each sheet and in some cases, these impacts are reported more than once (i.e. sheet 5 and sheet 6 both show impacts from Alternative H on wetlands 7, 9, and 10). Table 3, below shows the total area of potential impacts to aquatic resources by alternative and should be used as the basis for comparison of alternatives.

Table 3 Potential Impacts to Aquatic Resources

Feature Name	Alternative C	Alternative E1	Alternative E2	Alternative H
<b>Wetlands (acres)</b>				
Wetland 1	0	0.05	0.07	0
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.32
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	1.4
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
<b>TOTAL</b>	<b>0.67</b>	<b>0.9</b>	<b>1.18</b>	<b>1.92</b>
<b>Riverine Features* (linear feet)</b>				
Armstrong Lateral	200	200	200	200
Porter Canal	200	200	200	200
Snake River	200	200	200	200
<b>TOTAL</b>	<b>600</b>	<b>600</b>	<b>600</b>	<b>600</b>
* Alternatives generally cross riverine features perpendicularly and therefore, potential impacts are assumed to only be the linear distance within the buffered centerline (200ft.)				

## 7. Summary

On October 8<sup>th</sup> and 9<sup>th</sup>, 2019 a Horrocks Engineers wetland scientist investigated three previously documented aquatic resources within the Project study area to determine the spatial and categorical status of each feature (Table 1). All three features were found to be accurately represented in the secondary data. During the field verification, 16 other aquatic features including suspected wetlands and potentially jurisdictional WoUS were identified and mapped in the field (Table 2). These features did not undergo protocol delineations. Rather, each feature was identified and mapped according to field indicators of wetland boundaries and the best professional judgement of an experienced wetland scientist. A GIS analysis was performed to identify potential impacts resulting from Project Alternatives being carried forward. Alternatives C, E1, E2, and H could impact up to 0.67, 0.9, 1.18, and 1.92 acres of wetlands, respectively and 200 linear feet of each delineated riverine feature. However, design features to avoid and minimize impacts to aquatic features including wetlands and riverine features would likely reduce these impacts significantly. This memorandum serves as a tool to inform the ongoing alternative screening process for the Project and is not intended to be used to inform a jurisdictional determination by the USACE.

## 8. References

- Cowardin, L.M., V. Carter, F.C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 131pp.
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- United States Department of Agriculture, Natural Resource Conservation Service (NRCS). 2019a. Web Soil Survey, National Cooperative Soil Survey. Available online at: <https://websoilsurvey.sc.egov.usda.gov>. Accessed October 1, 2019.
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- United States Geological Survey (USGS). 2019. National Hydrography Dataset. Available at: <https://www.arcgis.com/home/webmap/viewer.html?webmap>. Accessed: October 1, 2019.

## Appendix A – Vegetation and Soils

Table 1 Plant Species Observed in the Delineation Study Area

<b>Scientific Name</b>	<b>Common Name</b>	<b>Indicator Status*</b>
<i>Acer negundo</i>	Ash-leaf Maple	FACW
<i>Agropyron cristatum</i>	Crested Wheatgrass	UPL
<i>Artemisia tridentata tridentata</i>	Big Basin Sage	UPL
<i>Bromus inermis</i>	Smooth Brome	FACU
<i>Bromus tectorum</i>	Cheatgrass	UPL
<i>Carduus nutans</i>	Musk thistle	FACU
<i>Carex lasiocarpa</i>	Wooly-fruit sedge	OBL
<i>Chenopodium album</i>	Lambs Quarters	FACU
<i>Cirsium arvense</i>	Canada thistle	FACU
<i>Clematis ligusticifolia</i>	Deciduous Traveler's-Joy	FAC
<i>Cornus sericea</i>	Red-Osier Dogwood	FACW
<i>Cynoglossum officinale</i>	Hounds Tongue	FACU
<i>Dactylis glomerata</i>	Orchardgrass	FACU
<i>Elaeagnus angustifolia</i>	Russian Olive	FAC
<i>Equisetum arevense</i>	Field Horsetail	FAC
<i>Ericameria nauseosa</i>	Rubber Rabbit Brush	UPL
<i>Fraxinus pennsylvanica</i>	Green Ash	FACW
<i>Galium aparine</i>	Sticky Willy	FACU
<i>Juniperus occidentalis</i>	Western Juniper	FACU
<i>Lactuca seriola</i>	Prickly lettuce	FACU
<i>Medicago sativa</i>	Alfalfa	UPL
<i>Phalaris arundinacea</i>	Reed Canarygrass	FACW
<i>Picea engelmannii</i>	Engleman's Spruce	FACW
<i>Picea pungens</i>	Blue Spruce	FAC
<i>Populus angustifolia</i>	Narrow-leaf Cottonwood	FAC
<i>Rhus trilobata</i>	Skunk-leaf sumac	FAC
<i>Ribes aureum</i>	Golden Current	FAC
<i>Rosa woodsii</i>	Woods Rose	FACU
<i>Rumex crispus</i>	Curly Dock	FAC
<i>Salix amygdaloides</i>	Peach-leaf Willow	FACW
<i>Salix exigua</i>	Sandbar Willow	FACW
<i>Salix lutea</i>	Yellow Willow	OBL
<i>Salix nigra</i>	Black Willow	OBL
<i>Tanacetum vulgare</i>	Common Tansey	FACU
<i>Typha latifolia</i>	Broadleaf Cattail	OBL
<i>Ulmus parvifolia</i>	Chinese Elm	UPL
* As defined in the National Wetland Plant List: 2016 wetland ratings (Lichvar et. al. 2016)		

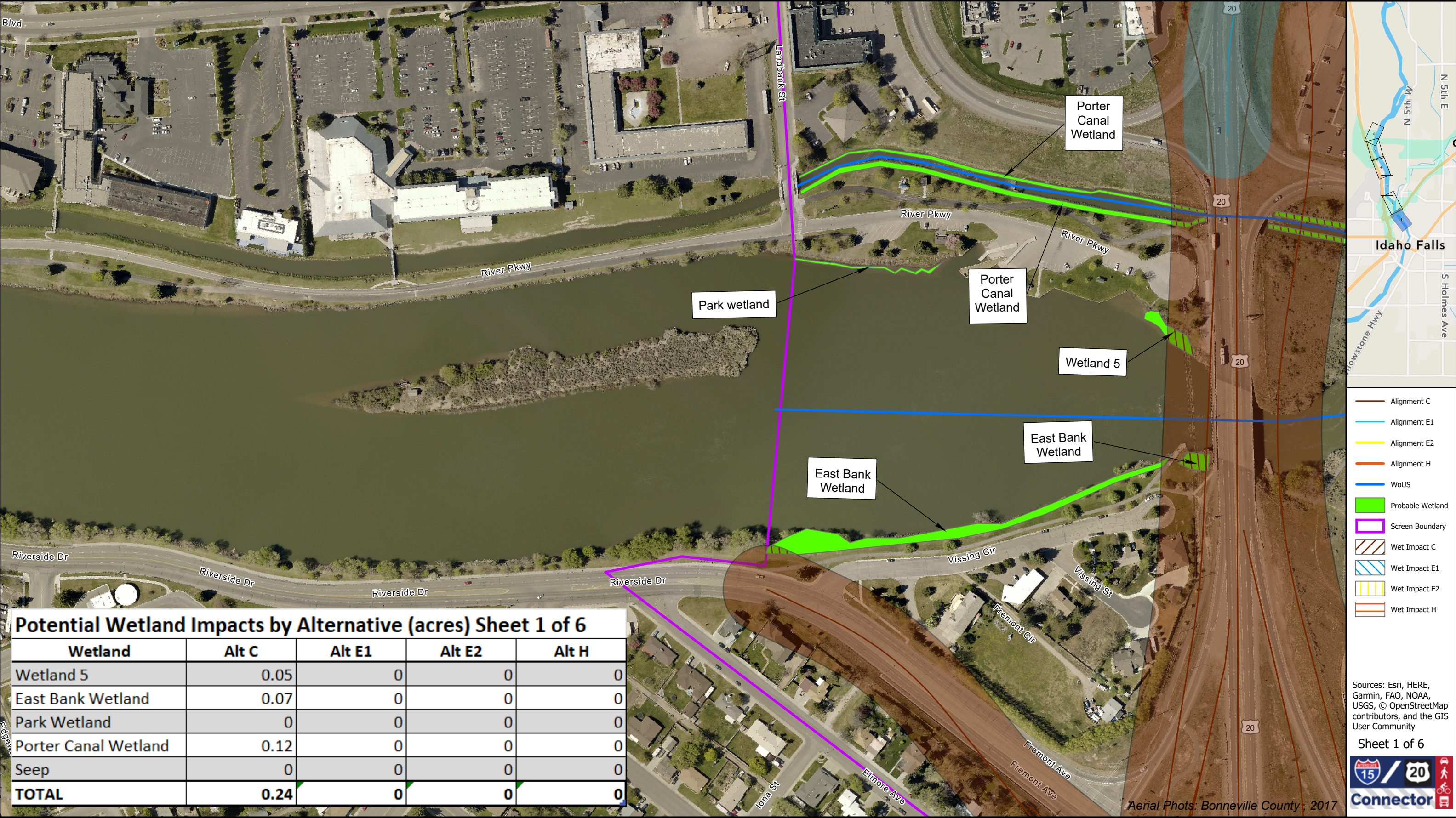
Table 2 Soils in the Delineation Study Area

Map Unit Symbol	Map Unit Name*
2	Ammon silt loam, 2 to 4 percent slopes
3	Aquic Cryoborolls-Typic Cryaquolls complex, flooded*
6	Bannock loam
7	Bock loam
10	Harston fine sandy loam
11	Heiseton fine sandy loam, drained
20	Packham gravelly loam
21	Paesl silty clay loam
22	Pancheri silt loam, 0 to 2 percent slopes
23	Pancheri silt loam, 2 to 4 percent slopes
24	Pancheri silt loam, 4 to 8 percent slopes
25	Pancheri silt loam, 8 to 15 percent slopes
27	Paul sandy loam
28	Paul silty clay loam
32	Pits
33	Polatis-Rock outcrop complex, 2 to 25 percent slopes
47	Stan sandy loam
53	Wolverine sand, 0 to 20 percent slopes
54	Xeric Torrifluvents, channeled
* Listed Hydric (NRCS 2019b)	

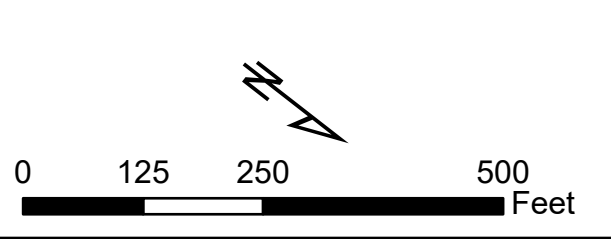


## Appendix B – Maps and Figures





Potential Wetland Impacts by Alternative (acres) Sheet 1 of 6				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 5	0.05	0	0	0
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.12	0	0	0
Seep	0	0	0	0
TOTAL	0.24	0	0	0

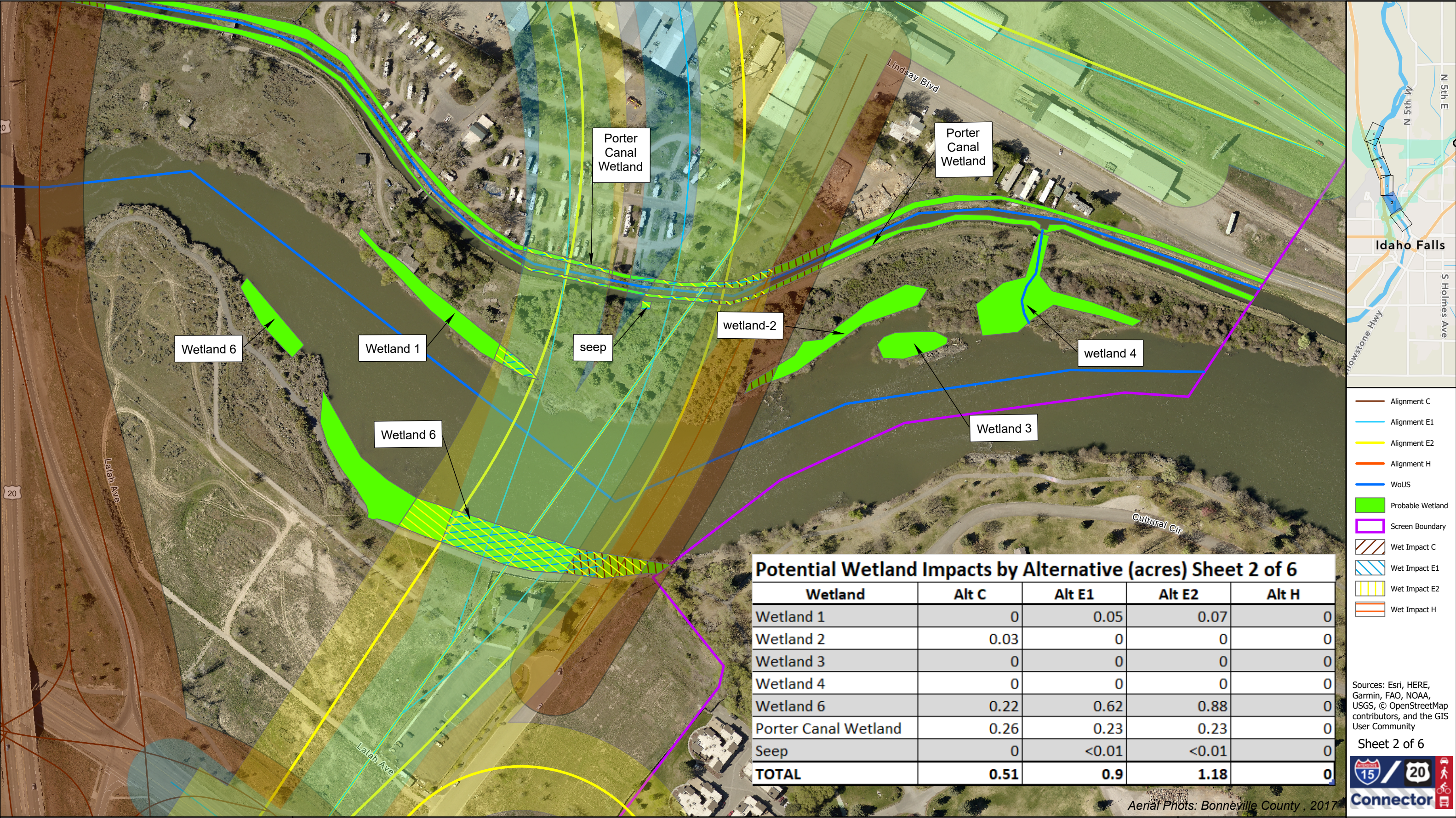


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Key 20065  
Aquatic Resources Delineation Screening

Potential Wetland Impacts by Alternative (acres) TOTALS				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0	0
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.33
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	1.4
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.67	0.9	1.18	1.92







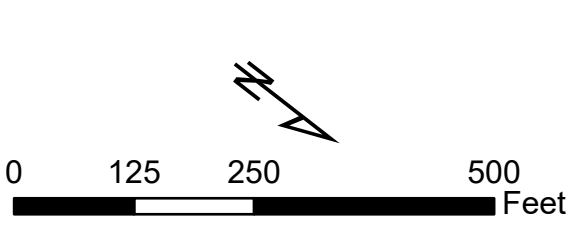
Potential Wetland Impacts by Alternative (acres) Sheet 2 of 6				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0.07	0
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 6	0.22	0.62	0.88	0
Porter Canal Wetland	0.26	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.51	0.9	1.18	0

- Alignment C
- Alignment E1
- Alignment E2
- Alignment H
- WoUS
- Probable Wetland
- Screen Boundary
- Wet Impact C
- Wet Impact E1
- Wet Impact E2
- Wet Impact H

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Sheet 2 of 6

Aerial Photos: Bonneville County , 2017



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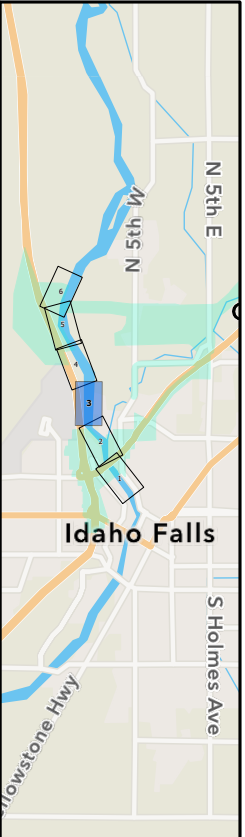
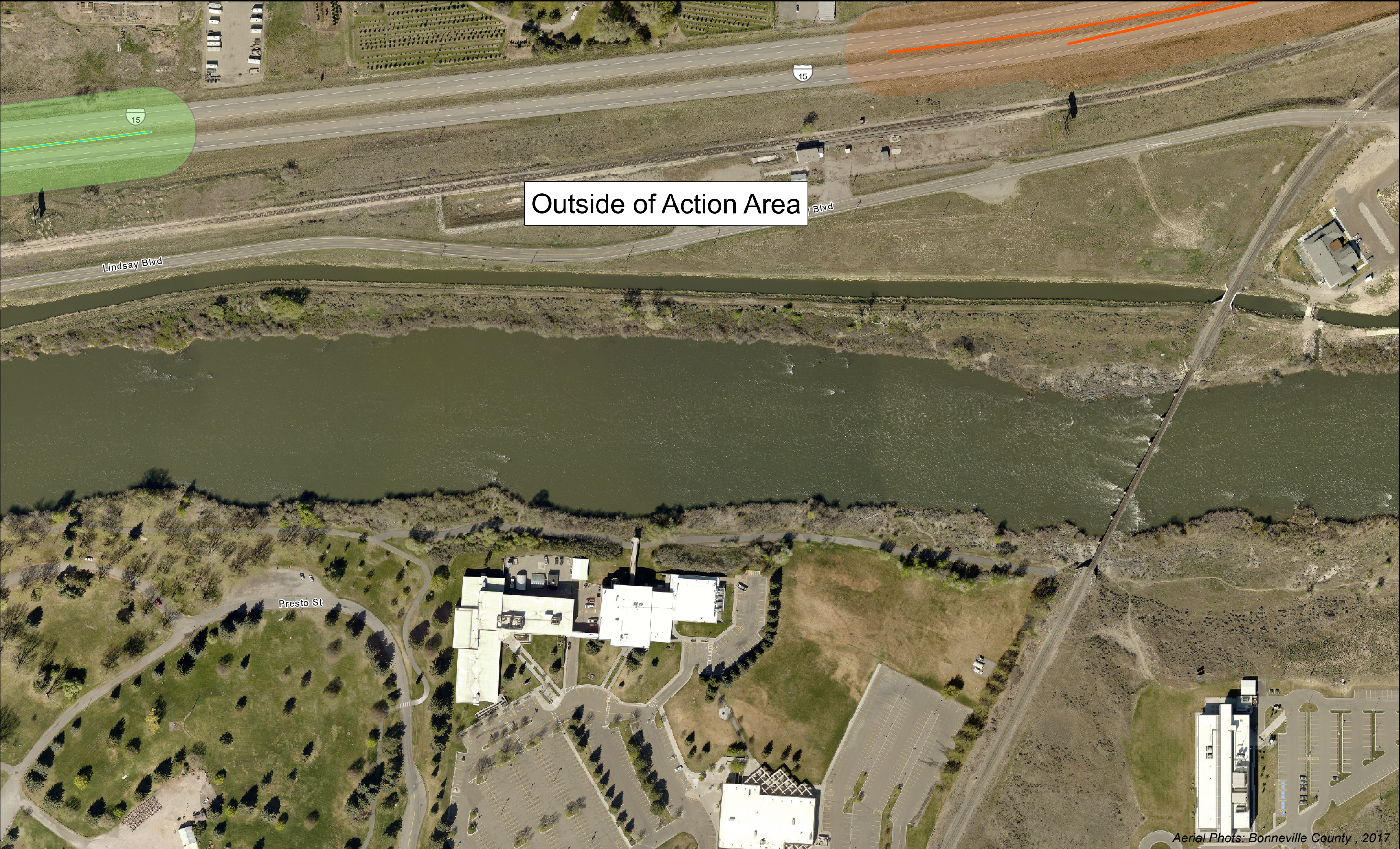
Key 20065

Aquatic Resources Delineation Screening

Potential Wetland Impacts by Alternative (acres) TOTALS				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0.07	0
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.33
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	1.4
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.67	0.9	1.18	1.92

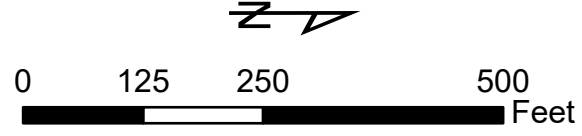






- Alignment C
- Alignment E1
- Alignment E2
- Alignment H
- WoUS
- Probable Wetland
- Screen Boundary
- Wet Impact C
- Wet Impact E1
- Wet Impact E2
- Wet Impact H

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



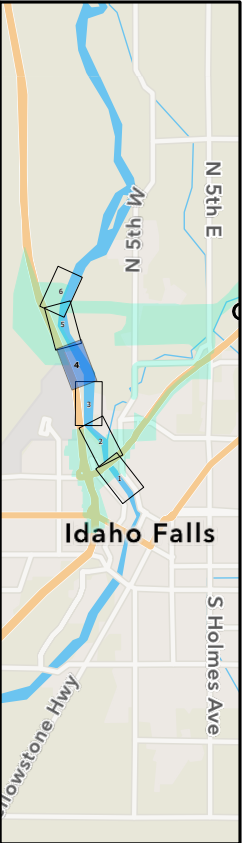
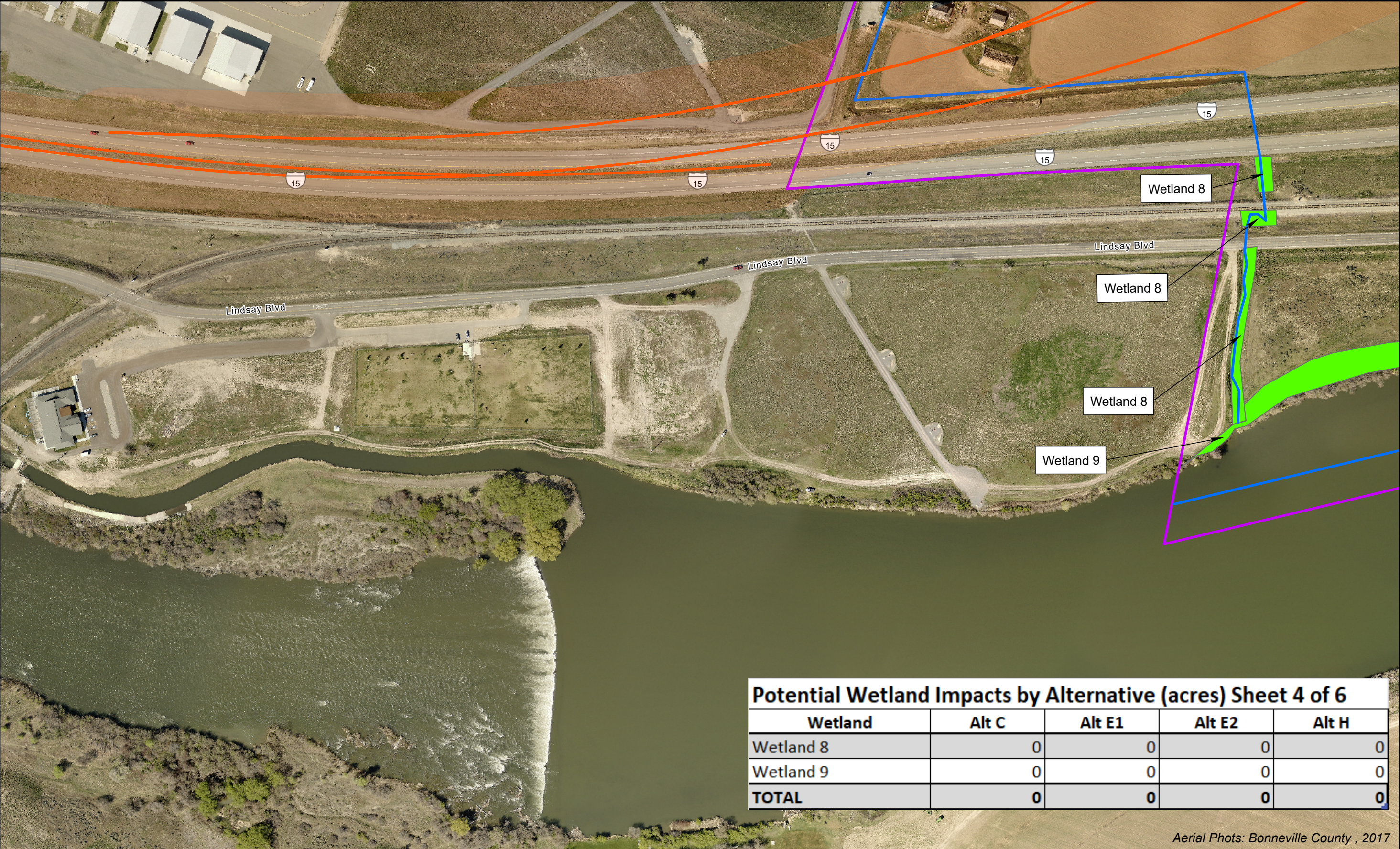
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## Key 20065

### Aquatic Resources Delineation Screening

Potential Wetland Impacts by Alternative (acres) TOTALS				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0.07	0
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.32
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	1.4
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.67	0.9	1.18	1.92





- Alignment C
- Alignment E1
- Alignment E2
- Alignment H
- WoUS
- Probable Wetland
- Screen Boundary
- Wet Impact C
- Wet Impact E1
- Wet Impact E2
- Wet Impact H

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Sheet 4 of 6



Potential Wetland Impacts by Alternative (acres) Sheet 4 of 6

Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0
TOTAL	0	0	0	0

Aerial Photos: Bonneville County , 2017



0 125 250 500 Feet

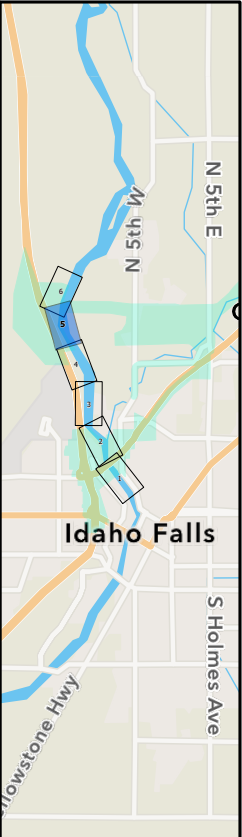
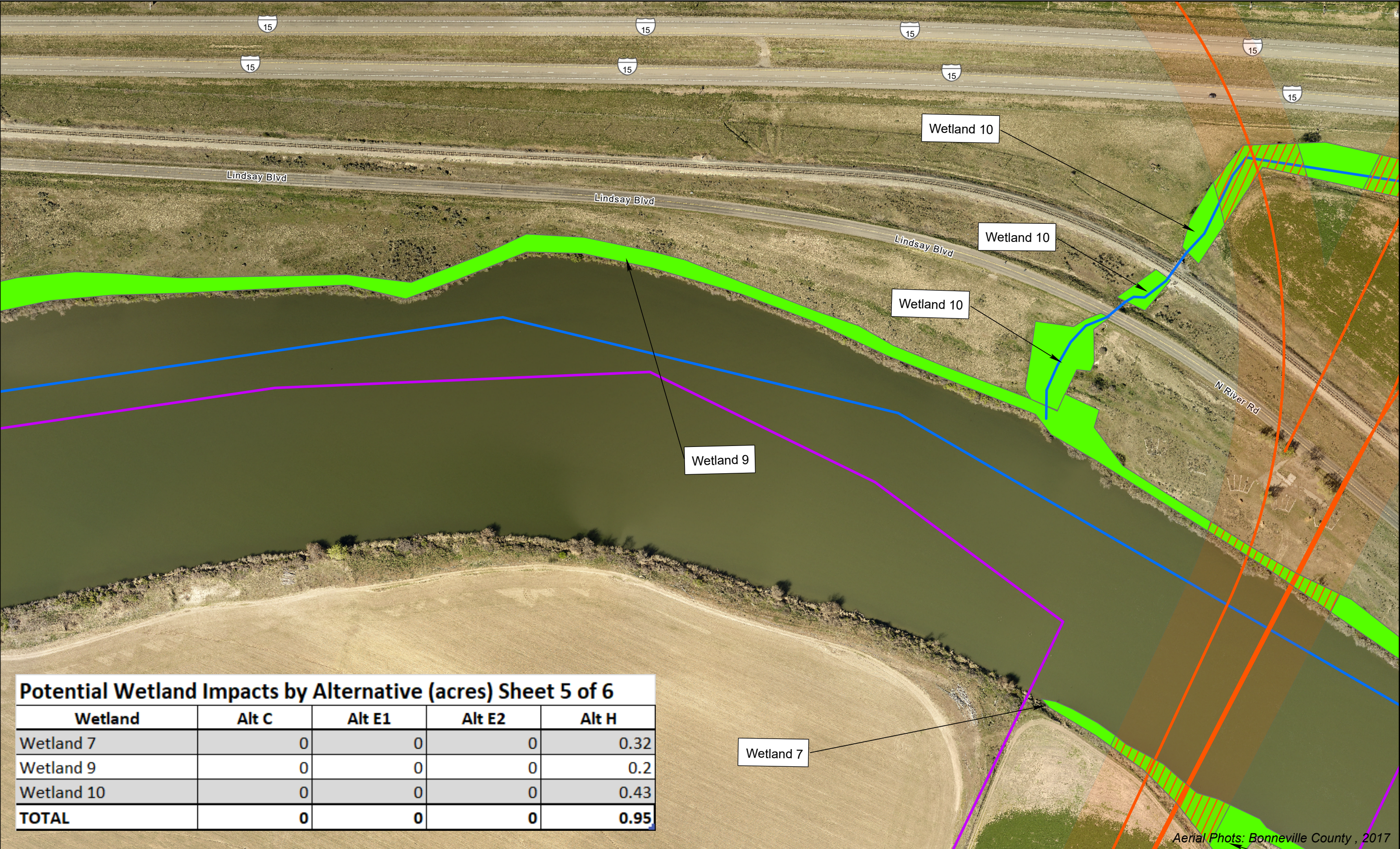
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Aquatic Resources Delineation Screening

Potential Wetland Impacts by Alternative (acres) TOTALS				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0	0
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.33
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	1.4
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.67	0.9	1.18	1.92



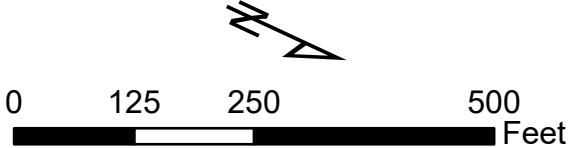


- Alignment C
- Alignment E1
- Alignment E2
- Alignment H
- WoUS
- Probable Wetland
- Screen Boundary
- Wet Impact C
- Wet Impact E1
- Wet Impact E2
- Wet Impact H

Potential Wetland Impacts by Alternative (acres) Sheet 5 of 6

Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 7	0	0	0	0.32
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	0.43
TOTAL	0	0	0	0.95

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



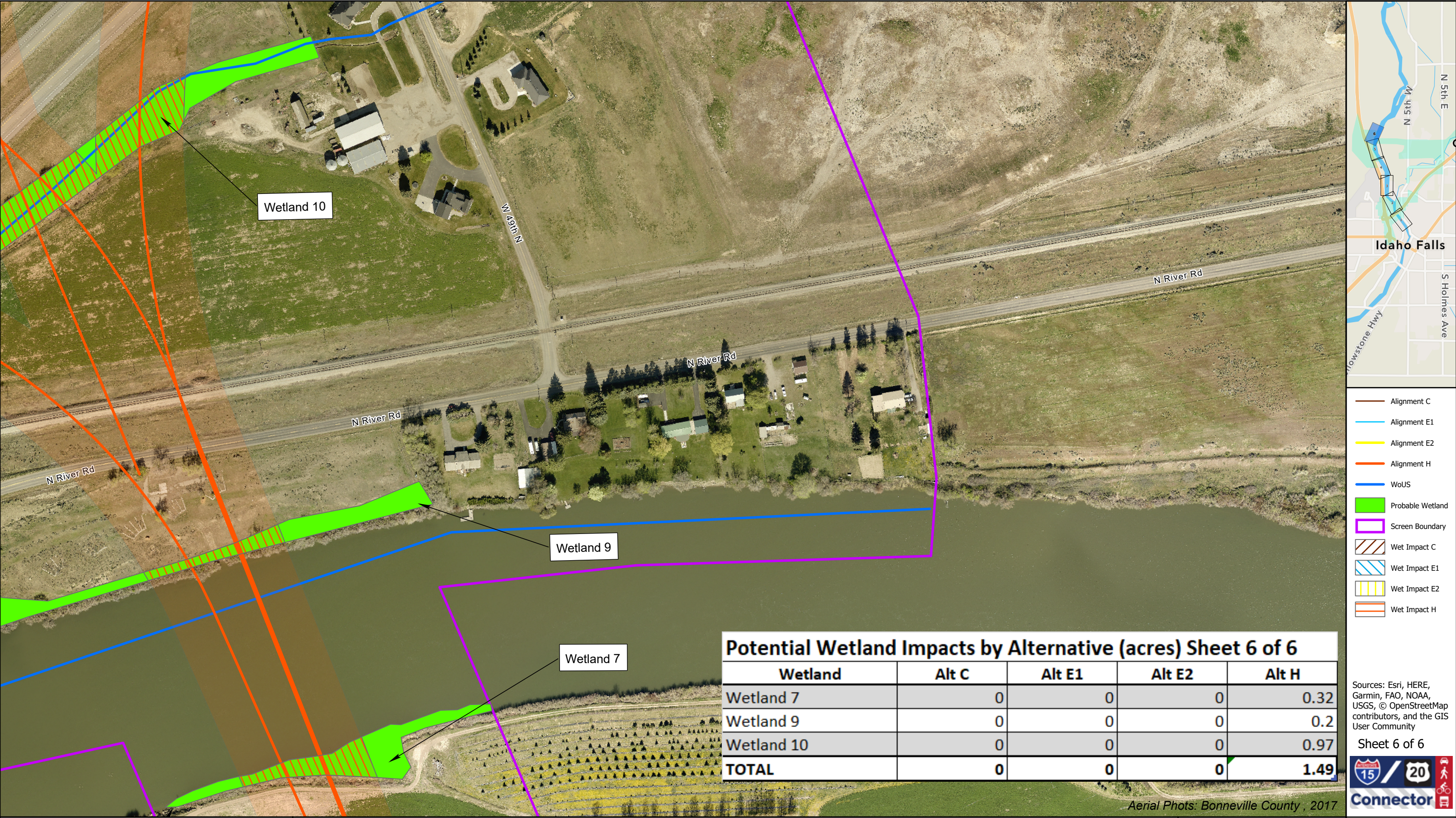
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Potential Wetland Impacts by Alternative (acres) TOTALS

Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0	0.07
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.32
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	1.4
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.67	0.9	1.18	1.92







Potential Wetland Impacts by Alternative (acres) Sheet 6 of 6				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 7	0	0	0	0.32
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	0.97
TOTAL	0	0	0	1.49

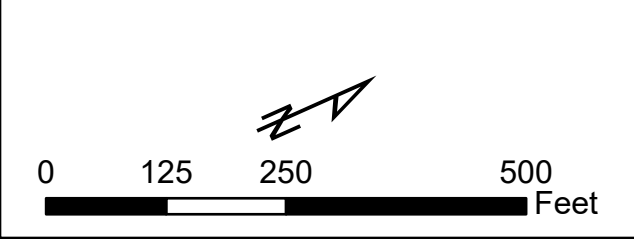
- Alignment C
- Alignment E1
- Alignment E2
- Alignment H
- WoUS
- Probable Wetland
- Screen Boundary
- Wet Impact C
- Wet Impact E1
- Wet Impact E2
- Wet Impact H

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Sheet 6 of 6



Connector



I-15/US-20 Safety Mobility Improvement Study

Key 20065

Aquatic Resources Delineation Screening

Aerial Photos: Bonneville County , 2017

Potential Wetland Impacts by Alternative (acres) TOTALS				
Wetland	Alt C	Alt E1	Alt E2	Alt H
Wetland 1	0	0.05	0	0.07
Wetland 2	0.03	0	0	0
Wetland 3	0	0	0	0
Wetland 4	0	0	0	0
Wetland 5	0.05	0	0	0
Wetland 6	0.22	0.62	0.88	0
Wetland 7	0	0	0	0.32
Wetland 8	0	0	0	0
Wetland 9	0	0	0	0.2
Wetland 10	0	0	0	0.97
East Bank Wetland	0.07	0	0	0
Park Wetland	0	0	0	0
Porter Canal Wetland	0.3	0.23	0.23	0
Seep	0	<0.01	<0.01	0
TOTAL	0.67	0.9	1.18	1.92





## Memorandum

---

**To:** Ryan Day, Project Manager  
Idaho Transportation Department, District 6  
206 North Yellowstone  
PO Box 97  
Rigby, ID 83442

**From:** Mike McConnell  
Horrocks Engineers – Environmental Coordinator  
901 Pier View Dr., Ste. 205  
Idaho Falls, ID 83402  
mike.mcconnell@horrock.com  
208-577-1642

**Subject:** **KN20065 I-15/US20 Safety and Mobility Study - Survey for Ute Ladies'-tresses**  
**(*Spiranthes diluvialis*)**

---

In accordance with the qualification requirements outlined in the U.S. Fish and Wildlife Service (USFWS) November 23, 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)*, on August 21<sup>st</sup>, 2019 a Horrocks botanist met with representatives of the Idaho Department of Fish and Game to visit the Warm Springs Bottom Element Occurrence population of the Endangered Species Act-listed threatened *Spiranthes diluvialis*. Numerous individuals were observed in full phenotypic maturity and characteristics of occupied suitable habitat were noted.

The same day, the Horrocks botanists investigated areas along the Snake River that would potentially be affected by the I15-US20 Project and which potentially support suitable habitat for the species. A single location at 43.51011171N, 112.05183279W was determined marginally suitable and consisted of a backwater eddie where high water had deposited approximately 12-24 inches of sand over bedrock. The site was mostly vegetated by red-top bent grass (*Agrostis alba*) with the periphery being dominated by sandbar willow (*Salix exigua*). The area of marginally suitable habitat was thoroughly investigated utilizing the focused intuitive survey method resulting in no individuals being found.

On August 21<sup>st</sup> 2020, the Warm Springs Bottom population was revisited to determine phenology prior to revisiting the previously investigated site. Numerous individuals were found to be in full phenotypic maturity. The botanist then revisited the marginally suitable habitat within the I15/US20 project area and observed markedly dryer conditions than in 2019, further discrediting the site as being suitable habitat. The site was investigated again resulting in no individuals being found.

Based on this two-year survey effort, the I-15/US20 project would likely result in **No Effect** to *Spiranthes diluvialis*.



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