



Agenda
City Council Workshop Meeting
Tuesday, June 27, 2017
City Hall Council Chamber | 505 Swift Boulevard

City Council Workshop - 6:00 p.m. (City Hall Council Chamber)

Agenda Items:

1. Comprehensive Plan Update (30 minutes)
 - Kerwin Jensen, Community Development Director
2. Rachel Road Alignment Study (30 minutes)
 - Pete Rogalsky, Public Works Director
3. Review of 2018 Budget Process and Comprehensive Annual Financial Report (CAFR) Review (15 minutes)
 - Cathleen Koch, Administrative Services Director
4. Developing a Compensation Philosophy with Springsted, Incorporated for the Unaffiliated Employee Classification and Compensation Study (45 minutes)
 - Jon Amundson, Assistant City Manager

Adjournment

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COUNCIL WORKSHOP COVERSHEET

Council Date: 06/27/2017

Department: Community & Development Services

Key Element: Key I - Financial Stability & Operational Effectiveness

Subject:

Comprehensive Plan Update (30 minutes)

Summary:

The purpose of this update is to review the current status and the steps forward as staff works to complete the 10 year Comprehensive Plan update.

The City's consultants will be in attendance and will seek guidance and input from the Council relative to key areas of the comprehensive plan that have generated a high level of citizen interest.

Attachments:



COUNCIL WORKSHOP COVERSHEET

Council Date: 06/27/2017

Department: Public Works

Key Element:

Subject:

Rachel Road Alignment Study (30 minutes)

Summary:

The purpose of this workshop session is to:

1. Present the consultant's report summarizing their work on the Rachel Road Alignment Study; and
2. Solicit feedback from Council prior to the consultant finalizing their report and delivering their recommendation to the City Council.

The Study was authorized by the City in June, 2016 to conduct a community-based evaluation of the need and alignment for the segment of Rachel Road between the Hayden Homes Development and Leslie Road. This segment of Rachel Road will cross the Amon Creek Nature Preserve. The lead consultant will be on hand to describe the study process and the consensus recommendation coming out of it.

Attachments:

- I. Rachel Road Alignment Study - Draft Report

City of Richland, Washington

Rachel Road Alignment Study

DRAFT Summary Report July 2017



**THE
LANGDON
GROUP**
a J-U-B Company



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APPENDICES

- A. Public Involvement Plan
- B. Wildlife Report
- C. Open House #1 Display Boards
- D. Open House #2 Display Boards and Presentation Slides
- E. Newsletters
- F. News Releases
- G. Engineers Opinion of Probable Cost
- H. Safety Analysis

Project Contact:

Bryant Kuechle, The Langdon Group Senior Project Manager (208-739-3048, bk@langdongroupinc.com)

DRAFT

Executive Summary

The Langdon Group (TLG), a subsidiary of J-U-B ENGINEERS, was selected by the City of Richland in June 2016 through a competitive process to lead the Rachel Road Alignment Study. Public involvement featured a situational assessment of stakeholders, management and facilitation of three Community Advisory Committee (CAC) meetings, organization and facilitation of two public meetings at key project milestones and presentation of the CAC-supported preferred alternative to the Richland Parks and Recreation Commission and Richland City Council in June and July 2017. Additional public involvement tasks included the creation of a public involvement plan (**APPENDIX A**); project branding, messaging and materials; and ongoing stakeholder coordination and communication.

Supporting the public involvement efforts, J-U-B conducted an alternatives analysis of the potential alignments, including creation of evaluation criteria, potential street-design elements, alternative alignment development and alternative evaluation. J-U-B also created a wildlife report and identified potential enhancements and mitigation measures to the Amon Creek Natural Preserve (ACNP) for consideration in future projects phases.

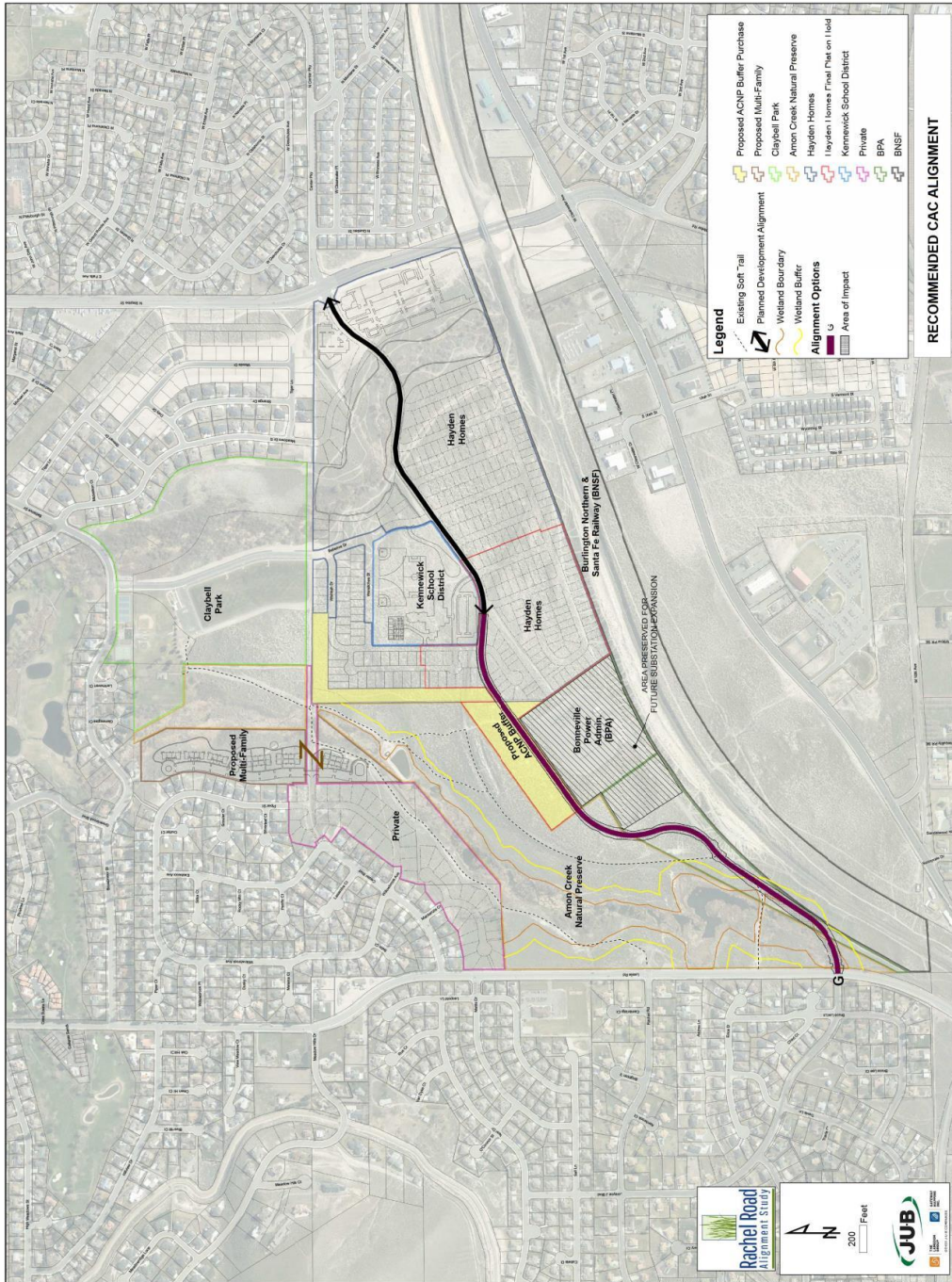
This project involves a history of controversy surrounding the potential connection of two roadways with a heightened level of interest from area conservation and neighborhood organizations. TLG's collaborative process helped answer the question: How does the community maintain and potentially enhance the natural benefits of a nature preserve while providing roadway connectivity and sufficient emergency access to a new school and surrounding neighborhoods?

The CAC alternative ranking process and unscientific results from comments received through the Dec. 5, 2016 and April 12, 2017 public open houses supported what became referred to as Alternative G (see Figure 1 below). Alternative G aligns at Leslie Road with Lorraine J Boulevard; extends east across the southern tip of the ACNP onto Bonneville Power Administration (BPA) property, hugging the eastern edge of the ACNP into the ACNP buffer; joining the planned development alignment of Rachel Road at the southwest corner of the Kennewick School District property.

BPA confirmed their willingness to work with the City through the needed right-of-way acquisition process on June 1, 2017. The CAC unanimously backed the recommendation of Alternative G. BPA elected to not weigh in on a preference.

TLG presented the project to City Council on June 27 and formally recommended Alternative G on July 18. The Richland Parks and Recreation Commission supported Alternative G at their July 13 meeting. For consideration and discussion in future project phases, TLG communicated to council the popular public position that the roadway should be rural, narrow, include a separated bike/pedestrian path and low speeds. The Wildlife Report (**APPENDIX B**) features a section on potential enhancement and mitigation measures also for discussion in a future project phase.

Figure 1. Preferred Alignment “G”



Situational Assessment

The Situational Assessment conducted with stakeholders in September 2016, was designed to identify concerns, perceptions and issues that may be lingering below the surface, identify alignment preferences, identify additional key stakeholders, determine what outreach techniques have been effective in the past, establish how individuals and groups want to be involved and communicated with, and draw out concerns up-front and early. Assessment meetings were also used to help educate stakeholders on the project's purpose and schedule.

With the City, the Consultant developed a preliminary list of key stakeholders beginning with those identified in the Request For Qualifications (RFQ) and covering representation from government, organized citizen groups, public/resident interests, emergency services, utilities, schools and property owners. Cooperatively developed key messages and conversation guide helped steer the stakeholder discussions. TLG contacted stakeholders as a neutral third party and met in-person, one-on-one, on their turf whenever possible. Some conversations occurred over the phone. This early engagement, before alternatives have been conceptualized, promotes genuine interest in a collaborative process from the City, particularly for organized citizen groups, agency partners and neighboring residents. Through the assessment process, the Consultant was able to identify key individuals for inclusion on the Community Advisory Committee.

Stakeholders

Conversations occurred with representatives from the following:

1. Bonneville Power Administration
2. Lower Columbia Audubon Society
3. Tapteal Greenway
4. Kennewick School District
5. Kennewick Irrigation District
6. Willowbrook Home Owners Association
7. Richland Police Department
8. Richland Fire Department
9. Richland Energy Services
10. Hayden Homes
11. The Heights at Meadow Springs Home Owners Association
12. El Rancho Reata Community Alliance
13. Meadows East Home Owners Association
14. Meadows South Home Owners Association
15. Meadows Springs Back Nine resident

Summary

The assessment revealed nearly unanimous interest in using the existing BPA access road as the western terminus for the new connection. This interest was particularly emphasized by area residents and proponents for the ACNP and received no negative

comments by any parties, only support. BPA indicated that this road is on an existing easement and does not become their ownership until the second power line crossing east from Leslie Road, close to the substation. Any use of this road west of that power line crossing is not on their property. BPA would install a new gate at that junction. BPA is interested in keeping their property whole for future expansion needs and would prefer any roadway alignment stays outside of their ownership.

Although comments were made that the extension is not needed, all stakeholders were generally amenable to considering alternatives that do not extend Rachel Road directly east over the “heart” of the preserve. Stakeholders expressed concern that an extension at Rachel Road would affect the natural and recreation value of the preserve through negative visual, sound and shade impacts as well as more severe impacts during construction.

Multiple stakeholders identified the opportunity to provide car/school bus parking and signage in the area of the current BPA access road if this alignment is determined the preferred. The creation of a wider crossing than the current culvert under the BPA access road is also seen as a potential enhancement with this alternative.

The preserve area is defined differently by multiple parties. It is the recommendation of TLG not to enter into the discussion of defining the preserve as part of this project, rather to acknowledge that it exists and has natural and aesthetic value.

The following comments were made by individuals and required consideration moving forward:

- When determining alternatives, it was suggested to not only look at the crossing points but determine where people are trying to get to and where they are coming from. This will help determine how best to connect the region.
- Be cognizant of potential wildfire dangers in the area that the road will impact. The fire department will need access to the open space.
- The new elementary school schedule is ahead of this project. The site was selected because of the planned extension of Rachel Road and will include a majority of students west of Leslie Road. Construction bids will open in late February/early March 2017. The school is anticipated to open in fall 2018. Access points for the new school’s design are on the south border of the property.
- Hayden Homes has completed final design of Rachel Road from Steptoe Street to the Kennewick School District (KSD) property. Preliminary design is completed west of the KSD property, pending the location of the extension.
- Traffic studies for the Dwayne Smith Apartment Complex produced unreliable numbers.
- Consider the future of the water in the preserve in the alternative selection. If it is possible that the water will not be there this may impact the crossing location.
- Look at stormwater impacts and retention in the alternative selection.
- Connecting arterials, particularly in the area of schools, decreases response time for police and fire and is seen as a positive.
- New roadway needs enough shoulder for emergency vehicles to pass.
- Consider child safety in all decisions.

- Coordination needs to occur in alternative selection with Richland Energy Services to account for planned electrical and fiber expansion in the region. Additionally, coordination needs to occur at the design phase with Charter Communications, Frontier Internet and Cascade Natural Gas to accommodate any future expansion plans. Alternatives should accommodate utility expansion plans with shared utilities within roadway ROW and any potential crossing of the ACNP.

The open house format where the community can attend at their leisure near the project area was supported as the preferred method of public outreach. It was commented that Richland residents respond well to utility bill announcements. This is a preferred method of open house notification. Recommended issues to address in public communication and open houses include:

- Maintain transparency throughout the process and demonstrate an open mind to all possibilities.
- Clearly show where development is occurring and already planned, both residential and the new elementary school.
- Share plans for the new elementary school and its transportation needs considering where students will be traveling from.
- Define the type of road (arterial, collector, etc.), what it could look like, its potential features and recommended speed.
- Anticipate questions and concerns over the mitigation that occurred with the sewer line running adjacent to the preserve. There are negative perceptions about this impact.
- Confusion exists over why a KSD school is in Richland. It is not understood by all that school district boundaries do not align with City boundaries. Overlaying school district and City boundaries will help the public understand.
- Fire and police will set up their own stations at the open house to discuss safety.
- Present how extensions will impacts existing road, particularly Steptoe Street and Leslie Road.

Community Advisory Committee

The CAC was a representative working group that met three times during the project (Oct. 11, 2016; Dec. 6, 2016; Feb. 7, 2017) at key milestones. The CAC demonstrates the commitment of the community and its partners to keep open lines of communication. TLG worked with the City to determine group membership and to define group roles and responsibilities. The RFQ stakeholder list and the situational assessment helped identify representatives for each of the relevant interests. This forum allowed representatives to serve as a conduit to their constituents and provide equal voice to each interest, removing the opportunity for more vocal and organized interests to dominate the space.



At the conclusion of the CAC process, after the second Public Open House, Bryant worked with each member of the CAC individually to reach consensus on a recommendation of Alternative G to Richland City Council.

CAC Membership

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Meadow Springs Second Nine Home Owners Association
- Richland Fire Department
- Richland Police Department
- Richland Parks and Recreation Commission
- Tapteal Greenway
- Willowbrook Home Owners Association
- Willowbrook Heights Home Owners Association

Project team and resource representatives that also attended CAC meetings:

- Bryant Kuechle, The Langdon Group
- Spencer Montgomery, J-U-B ENGINEERS
- Vince Barthels, J-U-B ENGINEERS
- Kelly Hill, Richland Energy Services
- Jeff Peters, Richland Public Works
- Catherine Reed, Washington Department of Ecology

CAC Meeting #1 (Oct. 11, 2016)

At the CAC kickoff, the group developed the following goals and goal statement:

1. Listen to each other and work together as a team.
2. Address all community interests and perspectives.
3. Share our ideas and perspectives in a comfortable space.
4. Evaluate and consider the benefits for all community members.
5. Understand and embrace the values, interests and concerns of all members.
6. Maintain consistency in our messages with the public.
7. Look to the City and State Department of Ecology as valuable resources.
8. Receive and use public input.
9. Reach consensus on a decision that meets the needs and interests of all parties.

Goal Statement: Reach consensus, a publicly led decision that benefits the community, by considering the environmentally sensitive aspects of the Amon Creek Natural Preserve (ACNP) including impacts to water quality and the requirements of City Parks and Recreation; the growth needs of the Bonneville Power Administration Substation; the need for safe and efficient transportation to and from the new elementary school and the future growth of the utility corridor.

The group drew all potential alignments for further exploration on a large aerial image of the project area and identified the following draft alternative selection criteria for feedback at the first open house:

- Functionality
- Mobility
- Safety (consider student travel from west of Leslie)
- Mitigation opportunities
- Impact to species and habitat
- Cost (cut/fill and structures)
- Context sensitivity (aesthetic impact)
- Ease of implementation (construction schedule and political/administrative interest/requirements)
- Public acceptance
- Public access/education opportunity to ACNP
- Opportunity for enhancement to ACNP
- Property/neighborhood impacts

CAC Meeting #2 (Dec. 6, 2016)

The second CAC meeting occurred the day after the first open house. CAC members were given the opportunity to discuss issues raised during the open house and input gathered from open house comment forms received to-date. The CAC also discussed and provided feedback on the draft Wildlife Report (**APPENDIX B**). During the meeting the CAC made the following consensus decisions:

- Since there was no specific support for alignments B, D and F, the CAC discussed and unanimously agreed to eliminate these alignments for future consideration in the criteria evaluation process.
- CAC agreed to keep all criteria for evaluation, in some cases combining two criteria into one. CAC members received a spreadsheet to compare and weight criteria using the pairwise comparison system.

CAC Meeting #3 (Feb. 7, 2017)

The third CAC meeting centered on review of the ranking that resulted from the alternative evaluation process and the associated weights assigned to each criterion. The group redefined and recalculated some criteria. Most heavily impacted was “Wetlands and Habitat” which now gave 8 of 10 points to fragmentation (instead of 5) and 2 to on-the-ground impacts. Mitigation/Enhancement was also simplified to give credit to those alignments that could remove the existing BPA access road. Through this process, Alternative G ranked the highest by a narrow margin. Bryant worked with each member of the CAC following the meeting to reach consensus that the process was fair, inclusive and collaborative, and should be shared at the second public open house for community feedback.

Public Open Houses

Two public open houses were held at key project milestones:

- Dec. 5, 2016 at the Reata Springs Baptist Church (121 people signed-in; 40 comments received)
- April 12, 2017 at Desert Hills Middle School (46 people signed-in; 32 comments received)



Notification and advertisement was provided in the form of direct mailers; e-newsletters; utility bill inserts; media coverage; web and social media.

Open House #1 (Dec. 5, 2016)

The first open house provided the public an opportunity to learn about the project, comment on the draft wildlife report, meet the CAC, review preliminary alignments developed by the CAC and weigh in through a sticker exercise on the importance of the draft criteria (displays boards in **APPENDIX C**). Draft criteria shared at the open house was refined from the list developed at CAC Meeting #1 in coordination with the CAC via email prior to the open house. The following is a non-scientific summary of the input gathered:

Evaluation Criteria scoring:

1. Extent of Impacts to Wetlands and Habitat (235)
2. Property/Neighborhood Impacts (56)
3. Bicycle and Pedestrian Accommodations (47)
4. Traffic Safety (41)
5. Opportunities for Enhancement/Mitigation (28)
6. Mobility – Connectivity for Vehicle Traffic (26)
7. Emergency Response Access (8)
8. Cost (6)
9. Ease of Implementation (3)

Alignment preferences (extrapolated from comments – not scientific): A (+6/-3); B/C (+3/-6); C (+3); D/E (+2/-3); D -1; E +8; F/G (+7/-2); F (+1); G (+19).

General comments/themes:

Preserve the preserve (15), recommended mitigation:

- Increase hiking access (2)
- No viewing stations or paved trails – keep trails soft (4)
- Support for viewing platform
- Preserve “Walking Path” (BPA Road) (2)

- ACNP parking with kiosks (3)
- NO ACNP parking – use Claybell Park
- Bridge is better than culvert (2)
- Native plants/increased diversity
- Wildlife crossing overpass (1) or underpass (1)
- No weed spraying
- Fishing ponds at north end
- Mitigate for loss of carbon absorbing plants

Design feature considerations:

- Keep speeds low (25-30 mph) (5)
- Include ADA bike and pedestrian accommodations (2)
- Include signal or roundabout for school crossing safety and traffic control (6)
- Parallel roadway with separated bike/pedestrian path to the north (7)
- Consider safe routes to school
- Include traffic calming: speed humps, curves (2)
- Include sidewalks
- Rural road
- Prevent increased traffic on Rachel
- Minimize lighting near ACNP (5)
- Barrier/fencing to reduce litter in the preserve

Alignment selection considerations:

- Support for the road to address growth and traffic (3)
- Tie into intersection, no T intersection (3)
- D/E concern over sight distance at corner
- B/C would create traffic problems as cut through Leslie Road
- If C, use conspan crossing for minimal disturbance

Open House #2 (April 12, 2017)

The second open house provided the public an opportunity to weigh in on the results of the alternative evaluation scoring results. A scheduled presentation and Q&A provided interested members of the community the opportunity to learn about how the criteria was defined, weighted and scored (display boards and presentation slides in **APPENDIX D**).

Alignment preferences (extrapolated from comments – not scientific): A (-1); C (+5/-2); E (+2; 2nd choice +1); G (+17; 2nd choice +4); No Build (+3)

Comments:

Leslie Road school crossing:

- E and G will encourage kids to jaywalk and cut across preserve.
- C with a large bridge will provide safe crossing location and allow wildlife to pass beneath.

- Signal at Lorayne J if G

Environmental concerns:

- Impact during construction
- Road runoff into ACNP
- Limit signage in ACNP

Mitigation/Enhancements:

- Purchase adjacent property and expand ACNP (4)
- Restore disturbed areas, including old BPA access road to a trail (4)
- Replace BPA Access Road gate with large rocks to prevent vehicle passage
- Trailhead kiosk (2)
- Mulch/gravel trail surface
- ACNP parking area: Rachel Road stubout, BPA road (3) and at Lorayne J all suggested
- No further damage to ACNP for parking, use new school parking lot
- Use shrubbery to screen road
- Loop path around ACNP
- Benches at ACNP access points

Design features recommendations:

- If C, expand span of bridge to keep ACNP contiguous beneath (3)
- If G, span the area with a low-level bridge that enhances the aesthetics.
- Rural or narrow road (5)
- Road that accommodates bike lanes and sidewalks
- Separated bike/pedestrian path (5)
- Curb and gutter
- Maintain low speed limit of 25-30 mph (4)
- If G, add curb/gutter sidewalk to Lorayne J west of Leslie to create a clear walking route and encourage safe routes to school
- No lights
- Include low-level lights (5)
- Landscaping along sidewalks

Other Methods of Outreach

Bryant Kuechle, Project Manager, served as the primary point of contact, fielding questions and sharing information with the public throughout the life of the projects. Those interactions were recorded and cataloged in a database. Outside of personal contact, mass public outreach and involvement took many forms over the course of the project. The following lists those methods:

- Four information sheet newsletters (**APPENDIX E**) were emailed to a distribution list developed through key stakeholder interviews, open house sign-in sheets, and contact information provided through the project webpage. In total, 178 unique emails were included in the distribution. Information sheet newsletters were published on the following milestones:
 - o Project kickoff (Aug. 2016)
 - o Prior to Open House #1 (Nov. 2016)
 - o Prior to Open House #2 (March 2017)
 - o After recommendation to City Council (July 2017)
- News Releases (**APPENDIX F**) were distributed to local media contacts at the following milestones:
 - o Website launch and Open House #1 date announcement (Oct. 14, 2016)
 - o Prior to Open House #1 (Nov. 1, 2016)
 - o Prior to Open House #2 (March 20, 2017)
 - o Following City Council Recommendation (July 2017)
- Utility bill inserts and City social media posts prior to each open house
- Project webpage on the City website updated throughout the project with the ability for the public to sign-up for electronic updates
- Meetings occurred with the following groups:
 - o Tapteal Greenway
 - o Willowbrook HOA
 - o Willowbrook Heights HOA
 - o El Rancho Reata Community Alliance
 - o Richland Parks and Recreation Commission
 - o Richland City Council

Alternatives Analysis

Alternative Alignments

At the first CAC meeting, members discussed potential alignments for Rachel Road from Leslie Road on the west, across the ACNP to connect with Steptoe Street on the east. It was discussed that it would be good to consider connecting opposite each roadway that creates an existing “T” intersection on the west side of Leslie Road, including Reata Road. Other alignments discussed that should be considered included the existing BPA alignment, as well as a shortest route alignment just south of the Willowbrook subdivision, each of which would create another “T” intersection on the east side of Leslie Road. Discussion also included the use of the existing abandoned railroad bed as a variation, instead of hugging the BPA property after crossing the ACNP.

It should also be mentioned that the No-Build Alternative was also discussed as an option that would be evaluated against all others. In fact, the Kennewick School District pointed out that the new school would open and be functioning for a period of time essentially under the “No-Build” scenario without a new roadway connection. Those traveling to the new school from west of Leslie Road would either need to go north to Broadmoor Street and then south on Bellerive Drive. Alternatively travelers could go south on Leslie Road across the railroad track to Clearwater Avenue and then north to Steptoe Street, then west on Rachel Road to the school. The Kennewick School District has an agreement with Hayden Homes that that Rachel Road will be extended west from Steptoe Street to the school prior to it opening in the fall of 2018.

The project team examined the alignments for fatal flaws and determined that connecting with Reata Road would encroach on the Burlington Northern Santa Fe Railroad property, and would also have topographical challenges that would prevent creating an intersection that would meet standards, thus this alignment was eliminated. The resulting seven alignments that were taken to the first public open house are shown in Figure 2. The alignments are labeled A – G, with four connection points to Leslie Road on the west and all ending at the same point on the east near the southwest corner of the proposed new elementary school.

After the first open house, the CAC met to discuss the comments received regarding the various alignments. Since there was no public support for using the old abandoned rail bed, and the community enjoys using it as a soft trail, it was unanimously decided to eliminate those three alternatives, B, D and F.

Subsequently, the project team also visited with the City, more closely examined design standards and refined the remaining alternatives slightly to respond to the interest of moving the roadway as far from the central part of the ACNP as possible. The resulting alignments that were used for evaluation purposes are shown in Figure 3.

Evaluation Criteria

At the first CAC meeting, the consultant team lead a discussion regarding several criteria that could be used to evaluate the various alternative alignments (and shown earlier in the CAC Meeting #1 section above). As a result of the discussion, some of the criterion were combined prior to taking the nine potential criteria shown below to the public open house for feedback.

Figure 2. CAC Preliminary Alignment Identification

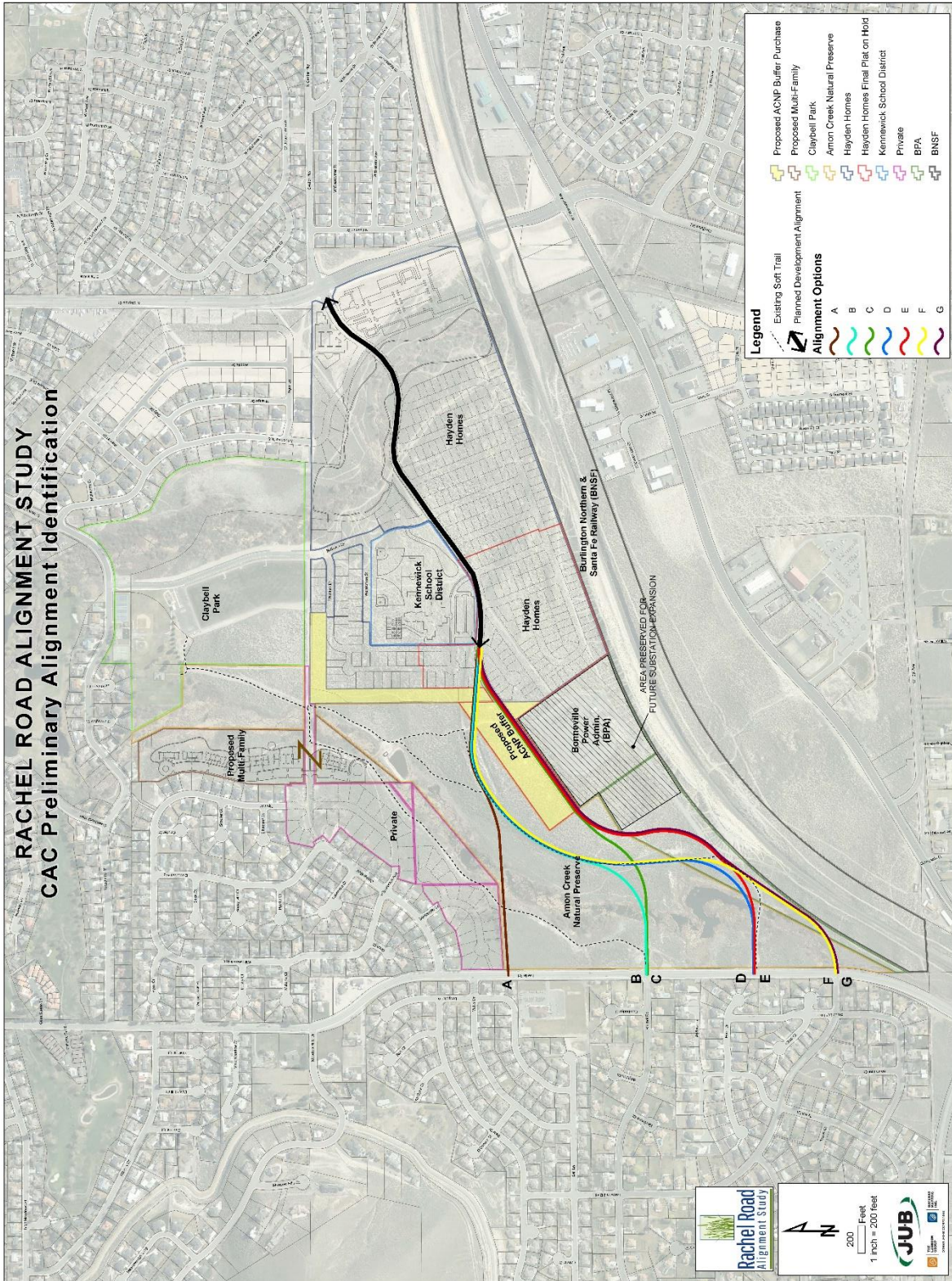
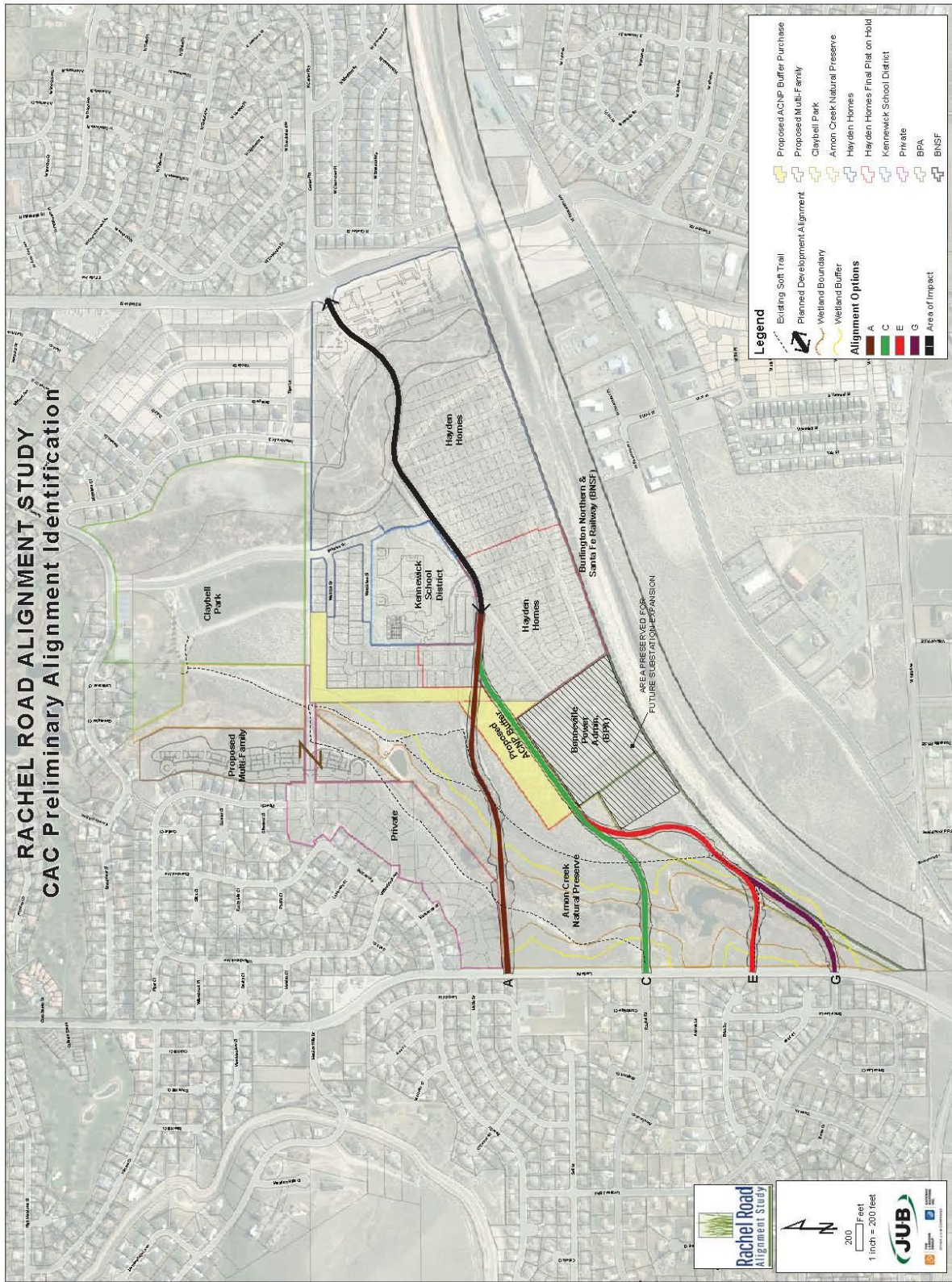


Figure 3. Alignments Evaluated



At the second CAC meeting, the group discussed the evaluation criteria again. Some members felt that all of the criteria should be kept, but most CAC members felt more strongly about some criteria than they did about other criteria, thus it was recognized that each criterion does not have the same value. After the meeting a weighting exercise, called Pair-Wise Comparison, was performed by each CAC member to represent their agency or association. The exercise asks the participant to consider each criterion against all others individually in turn, filling out a table that indicates which of the two criteria are more important to them and whether it is a major medium or minor preference. The consultant team consolidated all responses into a single weight for each criterion, shown below.

Table 1. Evaluation Criteria and Assigned Weight

Criterion	CAC Weight
Bicycle/Pedestrian Accommodations	6
Cost	4
Ease of Implementation	2
Emergency Response Access	8
Extent of Impact to Wetlands and Habitat	10
Mobility - Connectivity for Vehicle Traffic	6
Opportunities for Environmental Enhancement/Mitigation	7
Property/Neighborhood Impacts	8
Traffic Safety	8

Alternatives Evaluation and Scoring

The TLG/JUB team prepared an evaluation for each criterion assessing the four alternative alignments for Rachel Road along with the No-Build alternative for comparative purposes. The details and results were reviewed with the CAC with some modifications based on CAC input to improve clarity, consistency and represent the values of the group. The results of the evaluation are discussed below.

Bicycle/Pedestrian Accommodations

There were multiple factors that were considered when determining the advantages and disadvantages of the various alignments with respect to bicycle and pedestrian accommodations. Around elementary schools a high percentage of walking trips are made by children to and from school. The walking zone for elementary schools, where bus service is not provided is one mile. Those routes, which are more direct with respect to having a shorter distance to Leslie Road, will result in both a shorter walk distance for those living closer to Leslie Road, but will also be able to penetrate the neighborhood further and therefore service more households. Five points were given to Alignment A, which reaches the maximum

number of homes within one mile (potentially reducing automobile trips), and the other alignments were given a percentage of five points based on the number of homes within the one-mile walk distance.

If an alignment provided opportunities to connect with existing pathways on the east or west of the wetlands then points were also given. In the case of Alternative A, it was determined that the existing pathways could be reasonably accommodated under a bridge.

Student safety and the directness of route to school for homes within the walk distance was also considered, taking into account the number of homes that would have diminished safety if students were to take the most direct route to school (meaning they would cross Leslie Road at an uncontrolled location). Similarly, the likelihood of casual trail impacts for some alignments could occur under some alignments more so than others. Essentially children in the walk area could be tempted to cause impacts to the ACNP by walking through the brush and creating new trails. Bicycle and Pedestrian Accommodation scores are shown in Table 2.

Table 2. Bicycle/Pedestrian Accommodations

Criterion	Alternative				
	No-Build*	A	C	E	G
		Near Mattis Drive	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
Percent of homes within 1 mile of school (5 pts)	0	5.0	3.7	1.3	1.6
Connection to existing path on west	1	1	1	1	1
Connection to existing path on east	1			1	1
Student crossing of Leslie Road	1	1	0.5	0.75	0.75
Student crossing of Rachel Road	1	1	1	1	1
Potential casual trail impacts	1	1	0.5	0.75	0.75
TOTAL SCORE	5.0	9.0	6.7	5.8	6.1

Cost

Planning-level costs to estimate an order of magnitude cost for comparative purposes of the alternatives were prepared. The Engineers Opinion of Probable Cost for construction is included in **Appendix G**. A summary of costs used for this analysis is included in Table 3, which also includes cost for additional school buses that might be needed as well as off-site mitigation. Thus, the No-Build alternative also has costs associated with it in the form of additional buses as well as a traffic signal at Broadmoor Street/Leslie Road and potential turn lanes at Leslie Road/Gage Boulevard intersection.

There are many ways to assign scores for this particular criterion. The most reasonable approach was to give the alignment with the lowest cost the best score and each other alignment a percentage of the points based on the ratio of costs. In other words, if an alternative cost twice as much as the lowest cost alternative then it received half the possible points.

Table 3. Summary of Cost and Scoring

Criteria Inputs	Alternative				
	No-Build	A	C	E	G
		Near Mattis	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
Order of Magnitude Cost for Comparison (in Millions)	\$ 2.0	\$ 5.3	\$ 4.8	\$ 5.6	\$ 5.5
Score	10.0	3.8	4.2	3.6	3.6

Score assigned based on Lowest Cost/Alternative cost * 10.

Ease of Implementation

This particular criterion is somewhat challenging to assign scores. For the purposes of this analysis it was assumed that a low score for any criteria would cause challenges to implement for one reason or another, be it property impacts, obtaining funding, environmental issues or public opposition. For those alignments that scored extremely poorly in any given criterion, points were subtracted from the possible 10 points, as shown in Table 4.

Table 4. Ease of Implementation Scoring

Criterion Inputs	Alternative				
	No-Build*	A	C	E	G
		Near Mattis Drive	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
BPA Impacts				-1	-1
Bike/Ped. Accommodations	-1.25				
Cost					
Emergency Response	-1.5				
Extent of Impacts to Wetlands and Habitat		-2.75			
Mobility - Connectivity for Vehicle Traffic	-0.5				
Opportunities for Env. Enhancement/Mitigation					
Property/Neighborhood Impacts	-1.5				
Traffic Safety					
Wetlands Mitigation		-2		-2	-2
General Public Opposition	-2	-4	-4		
TOTAL SCORE	3.25	1.25	6.00	7.00	7.00

Subtract 1 point for impacts to BPA.

Subtract 1/2 point for each score <=5 for any given criteria for CAC members who weighted the criteria 9 or 10.

Subtract 1/4 point for each score <=5 for any given criteria for CAC members who weighted the criteria 7 or 8.

Emergency Response

Emergency response is an important community issue. Being able to respond quickly to fires and medical 911 calls is critical. The Richland Fire Department participated in CAC activities and provided input on emergency response issues. It was noted to the CAC that they respond quite frequently to schools. Having a network of roadways with multiple entry points to larger neighborhood gives emergency response options and is considered a valuable attribute. Travel times to the new school from the fire station on Gage Boulevard west of Keene Road were calculated based on various routes and are shown in Table 5 with the resulting scoring. Quicker response times received more points.

Those alternatives which give multiple options for accessing the neighborhood were given additional points, as were those routes which would take substantial traffic off of the shortest route to the school from the fire station. To be clear, under the No-Build alternative the traffic volumes on Broadmoor Street will be significantly higher because of fewer access points to the school and the surrounding neighborhood. This means that the No-Build alternative will have additional traffic that will hinder emergency response, and will also have fewer options in the event of an accident that closes one of the accesses. Similarly, not only will any of the build alternatives significantly reduce traffic volumes on Broadmoor Street, which is the shortest emergency response route, they also provide an alternate route for emergency responders.

Table 5. Emergency Response Scoring

Criterion	Alternative				
	No-Build*	A	C	E	G
		Near Mattis Drive	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
Travel time from nearest fire station to new school	3:51	3:43	4:02	4:32	4:50
Travel time score (1)	4	5	4	4	4
Adds alternative routes for response		1	1	1	1
Takes significant traffic off shortest route			1	1	1
TOTAL SCORE	4.0	6.0	6.0	6.0	6.0

(1) Subtract 1 point from 8 for each 15 seconds more than 3:00 travel time for shortest route. (Note: Shortest route for Alt C, E and G is Leslie to Broadmoor.)

Extent of Impacts to Wetlands and Habitat

There are two key aspects to the impacts that are attributed to a new roadway through the ACNP and are shown below in Table 6:

1. Actual on-the-ground disturbance as a result of the construction of a new roadway. This would include direct impact to the wetlands, the indirect impact to wetlands that could be caused by a shadow from a bridge, the wetland buffer which is an area within 100 feet of the wetland, and the natural habitat lands that make up the remainder of the ACNP.

2. The placement of development, in this case a roadway, through the interior of the ACNP would bisect the ecosystem that has been established. For the purposes of this evaluation, this impact is called fragmentation.

Significant discussions with the CAC surrounded these issues and how to best represent the impacts associated with a road going through the ACNP, whether it was through the middle versus along the edge, and how much the wetland was directly impacted, etc. It was determined that of the 10 points available under this criterion that eight of them should be assigned to the fragmentation issue and the remaining two assigned to the on-the-ground disturbance. For fragmentation purposes, it was felt that a roadway pushed as far from the center of the ACNP as possible would keep as much of the ACNP and its associated ecosystem intact as possible. The worst-case scenario from this perspective would be to put the new roadway directly in the middle, with 50 percent of the ACNP on either side, which would get no points. The best-case scenario would be to go around the ACNP as does the No-Build scenario. As such, the No-Build alternative received all 8 points since it would have no fragmentation issues, and each other alignment was given points for the amount of the ACNP kept contiguous.

Regarding the on-the-ground impacts, the square footage of impacts to the wetland, indirect impacts to wetlands from a potential bridge shadow, wetland buffer and habitat impacts were calculated for each alignment. These numbers were weighted by their importance to the ecosystem and scored as shown in Table 6.

Table 6. Summary of Extent of Impacts to Wetlands and Habitat Scoring

Criteria Inputs	Alternative				
	No-Build	A	C	E	G
		Near Mattis	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
Percent of ACNP Contiguous	100%	70%	67%	88%	96%
Fragmentation Score ¹ (8 points)	8	3.2	2.7	6.2	7.3
Impacts Measure ²	0	241,620	72,000	53,250	23,787
Wetland/Habitat Impacts Score ³ (2 points)	2	0.0	1.4	1.6	1.8
TOTAL SCORE	10	3.2	4.1	7.8	9.1

Notes:

1 - Score calculated based on percentage of ACNP greater than 50%.

2 - Impacts Measure includes square footage of on the ground impacts, with wetlands weighted *10, indirect wetlands impacts (shadow effect) *5, wetlands buffer *4, habitat *1, with credits for wetland restoration of BPA Road if applicable.

3 - Score calculated based on percentage of maximum Impacts Measure.

Mobility

There were two aspects of Mobility that were considered for this evaluation, travel time and transportation network connectivity. Certainly a variety of origin and destination pairs could be selected to determine which routes provide superior travel times. For the purposes of this analysis, three locations were selected along roadways that penetrate the neighborhood to the west of Leslie Road to the new school. Travel times are shown in Table 7, with the fastest combined travel time getting five points and other alignments a portion of the available points.

It is worth noting that the long-range travel forecast shows significant increases in traffic on Reata Road, which will be a major access route to the Badger South development. Due to the nature of the southwest to northeast orientation of several of the alignments, much of this traffic would benefit from any of the alignments for trips headed to the Columbia Center Mall area, or to businesses on Gage Boulevard.

In addition to having a hierarchy of roadways that make up a transportation network, it is important to have a grid system, with arterial and collector roadways running both north/south and east/west. In many communities there are natural and man-made barriers that prevent the completion of a fully functioning grid. These barriers include rivers, canals, topographical features such as hills and canyons, freeways, airports, railroads or even large developments such as military installations. Often bridges or other means to cross these features are constructed to complete a grid system, especially when nearby roadway reach their capacity. For this particular study a few of these features are evident that inhibit the grid network's ability to function optimally, such as the railroad with its limited crossings, and the ACNP, as well as topographical features to the west. For the purposes of this study and transportation connectivity, with respect to maximizing the usefulness of the roadway to more users, the more east/west the proposed roadway is was felt to be a benefit. Scores were assigned accordingly.

Table 7. Summary of Mobility/Connectivity Scoring

Criteria Inputs	Alternative				
	No-Build	A	C	E	G
		Near Mattis	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
Travel Time - Reata Rd/Bermuda Rd to School	7:21	4:40	4:32	4:36	4:33
Travel Time - Rachel Rd/Lorayne J Rd to School	4:43	2:03	1:55	2:26	2:44
Travel Time - Lorayne J Blvd/Bear Dr	4:31	1:56	2:13	2:44	3:03
Total Travel Time 3 Locations Combined	16:35	8:39	8:40	9:26	10:20
Percent of Fastest for Combined Locations	192%	100%	100%	113%	119%
Travel Time Score	0	5	5	4	4
Transportation Network Connectivity	1	5	4	3	2
TOTAL SCORE	1	10	9	7	6

Scoring for Travel Time: subtract 1 point from 5 for each 10% increase in travel time over the lowest travel time.

Opportunities for Environmental Enhancement and Mitigation

Significant discussion with the CAC surrounded the topics of environmental enhancement and mitigation. It was noted that many of the things that could be considered enhancements to the ACNP or mitigation of impacts caused by the new roadway could be incorporated into the design of any of the alternatives and thus would not be a differentiator, causing the scoring of this criterion to be somewhat challenging. It was also felt that the scoring for mitigation should not overcome the reduction in points associated with impacts in another criterion. In other words, it did not seem fair to have an alignment get more points in mitigation than it lost for impacts and, therefore, score better in these two categories combined than the No-Build. For example, if the No-Build received all the possible points in the Extent of Impacts criterion because it had no impacts, it would have nothing to mitigate and therefore get zero points for mitigation. Other alignments should only be able to make up a portion of the points lost in the Extent of Impacts category through mitigation.

The discussion above notwithstanding, there were two major elements of mitigation that were discussed, those being the restoration of the existing BPA road to wetlands, and the ability of a bridge to span a portion of the wetlands in order to facilitate wildlife passage beneath, and to connect the northern and southern portions of the ACNP caused by fragmentation. The ability of a bridge to provide safe wildlife passage through calculation of an openness ratio is discussed in the Wildlife Report (**APPENDIX B**). The results of the discussion were that the CAC felt a bridge would not significantly overcome the fragmentation issue and decided to award two points, a portion of the total mitigation points, to those alternatives that could restore the BPA road to wetlands.

Property and Neighborhood Impacts

There were three components to the scoring for property and neighborhood impacts. These included 1) impacts to BPA land as a percentage of the total impacts, possible three points; 2) the avoidance of neighborhood impacts of additional traffic on Broadmoor Street, meaning the No-Build alternative will add significant traffic to Broadmoor Street, which has residential street driveways all along the segment west of Bellerive Drive, a roadway which was not intended to carry such traffic volumes, and 3) the decreased value of the ANCP to the neighborhood, which was considered a detriment for those alignments that significantly bisect the ACNP.

Table 8. Summary of Property and Neighborhood Impacts Scoring

Criteria Inputs	Alternative				
	No-Build	A	C	E	G
		Near Mattis	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
BPA Property Impacts Score	3	3	3	2.4	2.3
Avoids neighborhood Impacts to Broadmoor Street	0	5	5	5	5
Minimizes Decreased Value of Preserve to Neighborhood	2	0	0	2	2
TOTAL SCORE	5	8	8	9.4	9.3

Traffic Safety

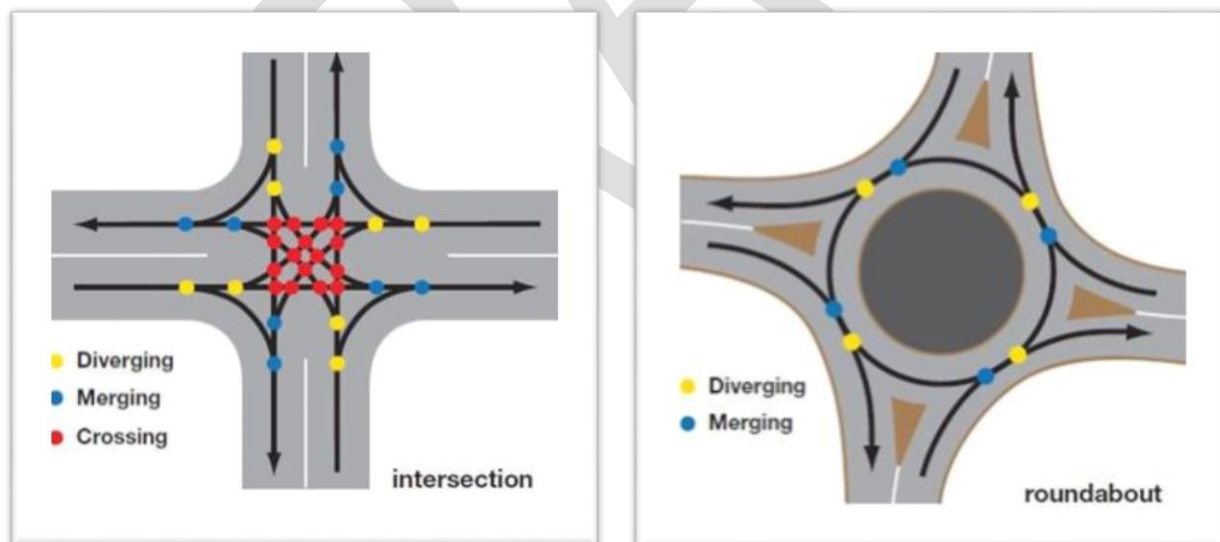
For the purposes of comparing the relative safety merits or potential safety issues of each of the alternatives against each other and against the No-Build scenario, it was felt that a comparison of the types of conflict points and traffic volumes involved in those conflicts would provide the needed comparison. The comparison accounts for the fact that some conflict types are more likely to produce crashes, some conflicts are more likely to lead to greater severity of crashes resulting in injury or fatality, and some involve more vehicles than others.

The first step was to identify all of the potential types of conflicts at the various intersections. There are three types of conflicts:

- 1) Diverging – When one vehicle turns right or left from the through lane of traffic it must slow to make such movement creating friction with nearby traffic.
- 2) Merging – Merges occur when a vehicle from one street joins with traffic from another street. Adequate gaps in traffic must be recognized by the driver in order to enter safely.
- 3) Crossing movements – There are two basic types of crossing movements, one where a vehicle on one street crosses another street, and another where a vehicle from one street turns left in front of opposing traffic on the same street.

The various types of conflicts at traditional intersections and at roundabouts are shown in Figure 3.

Figure 3. Intersection vs. Roundabout Conflict Points



For this study, a Crash Severity Factor was developed for each conflict, accounting for the likelihood and potential outcome of a crash that might occur based on that type of conflict. The factor also accounted for the speed of the facility as well as the intersection control type. For example, a crash involving two high-speed vehicles crossing on perpendicular paths is much more likely to result in a severe injury than a crash involving slower speed turning vehicles that are merging. Similarly, conflicts at signalized versus

unsignalized intersections would have different likelihood and potentially different magnitude of injuries. At unsignalized intersections drivers must select their own gaps in traffic, however at intersections with traffic signals the gaps are created by the signal to allow safe crossing maneuvers. Details on the crash severity factors used for this analysis are included in **APPENDIX H**.

Each conflict at every study intersection for all alternatives was evaluated to identify the number of vehicles crossing the path of other vehicles or merging with other vehicles. The conflicting volumes were multiplied with the product then being multiplied by the corresponding Crash Severity Factor to arrive at a conflict value for each conflict. All conflicts were summed for all movements at all intersections to arrive at a total conflict value for each alternative. The detailed safety analysis is included in **APPENDIX H**. The total conflict value and scores for each alternative are shown in Table 9.

Other considerations for the traffic safety scoring included sight distance issues, proximity of intersections and left turn storage issues as shown in Table 9.

Table 9. Summary of Safety Analysis Scoring

Intersection	Alternative				
	No-Build	A	C	E	G
		Near Mattis	Opposite Rachel Road	BPA Access Road	Opposite Lorayne J Blvd
Safety Conflicts (1)					
Safety Conflicts					
Leslie/Broadmoor	6,259,125	1,952,500	1,952,500	1,952,500	1,952,500
Leslie/Alt A		3,311,800			
Leslie/Rachel/Alt C			5,470,825		
Leslie/Alt E				3,266,575	
Leslie/Alt G					4,327,300
Leslie/Rachel (existing)	1,549,850	1,549,850		2,217,900	1,089,800
TOTAL Conflict Value	7,808,975	6,814,150	7,423,325	7,436,975	7,369,600
Percent of Lowest Total Conflict Value	115%	100%	109%	109%	108%
Conflict Score (2) (5 possible points)	2	5	4	4	4
Other Safety Factors					
Sight-Distance Issues		-1			-2
Proximity of Intersections		-1			
Left-Turn Storage Issues		-1			
Other Safety Factors Score (5 possible points)	5	2	5	5	3
TOTAL SCORE	7	7	9	9	7

Notes

(1) Safety Conflict calculated as the product of total conflicting movements multiplied by a severity factor for each conflict. (2) Subtract 1 point for every 5% more conflicts than the lowest Alternative.

Consolidated Scoring Summary for All Alternatives

The scores for the nine criteria for each of the four alternatives plus the No-Build alternative were multiplied by the relative weighting as determined by the CAC and discussed above. The results are shown in Table 10. Alternative G, the southernmost alternative had the highest overall score at 384 points, but alternative E was only slightly lower at 378, with alternative C at 362 points. Alternative A was only slightly better than the No-Build scenario at 332 and 311 points respectively.

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Table 10. Consolidated Scoring Summary

Criterion	Criteria Weight	Alternative									
		No-Build		A		C		E		G	
				Near Mattis		Opposite Rachel Road		BPA Access Road		Opposite Lorayne J Blvd	
		Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.
Bicycle/Pedestrian Accommodations	6	5.0	30.0	9.0	54.0	6.7	40.2	5.8	34.8	6.1	36.8
Cost	4	10.0	40.0	3.8	15.2	4.2	16.8	3.6	14.2	3.6	14.5
Ease of Implementation	2	3.3	6.5	1.3	2.5	6.0	12.0	7.0	14.0	7.0	14.0
Emergency Response Access	8	4.0	32.0	6.0	48.0	6.0	48.0	6.0	48.0	6.0	48.0
Extent of Impact to Wetlands and Habitat	10	10.0	100.0	3.2	32.0	4.1	40.8	7.8	77.5	9.1	90.9
Mobility - Connectivity for Vehicle Traffic	6	1.0	6.0	10.0	60.0	9.0	54.0	7.0	42.0	6.0	36.0
Opportunities for Env. Enhancement/Mitigation (restore BPA road to wetland)	7	0.0	0.0	0.0	0.0	2.0	14.0	0.0	0.0	2.0	14.0
Property/Neighborhood Impacts	8	5	40.0	8.0	64.0	8.0	64.0	9.4	75.4	9.3	74.0
Traffic Safety	8	7.0	56.0	7.0	56.0	9.0	72.0	9.0	72.0	7.0	56.0
TOTAL SCORE	100%	45.3	311	48.2	332	55.0	362	55.5	378	56.1	384
ALTERNATIVE RANK			5		4		3		2		1

The following observations of the overall scoring were made:

- The results of the scoring in many instances is intuitive and yet interestingly the top three alignments score very close together overall by scoring well in different categories for different reasons.
- The overall raw scores are even closer than the weighted score, indicating that the weighting of the criteria was a valuable exercise in order to represent the interest of the community and balance the multiple interests evaluated by the criteria.

- The No-Build scored a perfect 10 on two of the nine criteria, but scored a five or lower on six of the other seven criteria.
- No alignment scored better than nine in more than two of the criteria.

The results of the scoring were presented to the public at the second open house. Input and feedback were provided and reviewed by the CAC as well. Subsequently, although the scoring of the alternatives is very close together for the top three alternatives, the CAC endorsed Alternative G as the preferred alignment. BPA abstained from indicating a preference. This alignment balances the competing needs and desires of the community including:

- Alternative G provides an important roadway connection to serve a growing community that is expanding into yet undeveloped land within the City.
- Alternative G helps to complete a grid network of roadways that serves the community that will help to meet emergency response objectives.
- Alternative G will provide improved access to a new school that will improve safety and reduce travel times.
- Alternative G will preserve the majority of the BPA property to meet their expansion needs.
- Alternative G minimizes the impacts to the ACNP by passing avoiding the central portion and traversing the extremities, thus minimizes the fragmentation of the ACNP.
- Alternative G provides an opportunity to restore the existing BPA road to wetlands, or alternatively to maintain the BPA road for enhancement purposes for community access to the ACNP.
- Alternative G preserves opportunities for enhancement to the ACNP.

Street Design Elements

Context Sensitive Solutions

The Rachel Road Alignment Study was commissioned because the City of Richland understood that the ACNP is an important asset that is valued by the community. The City has long had in its plans to construct an east/west collector roadway south of Gage Boulevard when it was appropriate to do so. Consistent with these plans, when the City entered into an agreement with multiple entities to create the ACNP the agreement included the provision of a future roadway. Recognizing the community value of the ACNP the City is interested in creating a roadway that blends with the surrounding features as much as possible featuring context sensitive design.

The Federal Highway Administration defines Context-Sensitive Solutions as:

“A collaborative interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.”

Certainly the City of Richland has standards for different types of roadways based upon its functional classification. In the case of Rachel Road, the City has expressed a willingness to build something somewhat different than the normal standard, if it would be of value in a context-sensitive solution to the community. Things that could be considered that were discussed as part of this study are discussed below.

Project Design Considerations

Rachel Road has been identified as a Collector Arterial roadway in the City Transportation Plan. The standard for such a roadway is to have a width of 36' with sidewalks on both sides. Community input was requested on whether Rachel Road should have curb, gutter and sidewalks on both sides, or whether a separated pathway with roadside ditches for a rural roadway section would be more appropriate. This would let travelers know that this area is somewhat different and that they might expect animals or wildlife to cross the roadway.

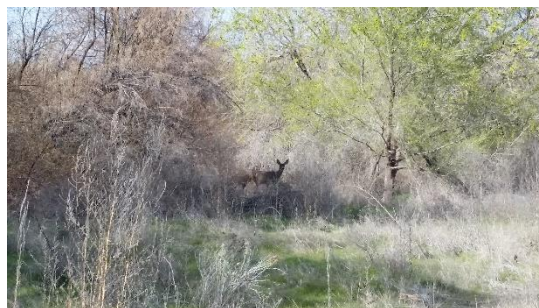
Similarly, lighting was discussed and whether standard overhead lighting and or pedestrian lighting should be used or if some modifications should be made.

The community was also asked if access enhancements to natural amenities would be of value. These features could include paving of the soft trails, informational kiosks, overlooks to the wetlands, etc. Additional parking to provide access to the ACNP was also discussed.

Feedback received from the CAC and the groups they represented, as well as the public favored the following features: Low speeds, 25 – 30 MPH; low-impact lighting, a rural roadway section without a two-way left turn lane to minimize the roadway width since no turns will take place through the ACNP, a multi-use pathway on the north side instead of sidewalks and bicycle lanes. The existing soft trails are preferred to keep with the natural setting. Additional parking provided at the new school will be a benefit, with the potential of retaining the existing parking on Leslie Road.

Wildlife Report Summary

The Wildlife Report (**APPENDIX B**) was developed pursuant to Richland Municipal Code (Title 22.10) and details the listed sensitive species and current habitat conditions that fall within the defined project study area, which is the ACNP. The report aims to evaluate plant communities and wildlife functions and values contained within the study area. The report also outlines Best Management Practices (BMPs) and potential mitigation



measures that could be implemented to offset any encroachments from roadway development activities implemented in this area. It should be noted that the proposed trail enhancement renderings and vegetation re-plantings outlined in the report are preliminary conceptual designs; final designs have not been performed. The vegetation planting suggestions presented are intended for general habitat functionality only. Prior to final design, J-U-B suggests that the impacts of the recommendations outlined in the report be analyzed by a licensed professional engineer with regard to bank stability and slope protection. Should the engineering analysis show that changes to the proposed recommendations are required, such changes should be analyzed for habitat functionality by the project biologist.



Rachel Road

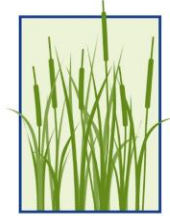
Alignment Study



**THE
LANGDON
GROUP**
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J-U-B ENGINEERS, INC.



Rachel Road
Alignment Study

APPENDIX A

Rachel Road Alignment Study Public Involvement Plan

Introduction

The public information and education process is characterized by communication with stakeholders that is early, continuous, meaningful, and inclusive throughout the life of the project. The Public Involvement Plan is a “living document” that will be used for quality assurance by the project team.

These public involvement efforts will provide public awareness, education and involvement, and reflect good stewardship from the City. It will help foster transparency and open communication at the public, project, program, policy and political levels. Feedback from the public will help select a supported, preferred alternative that meets multiple stakeholder interests.

Public Information Goals

Activities are designed to inform, educate and solicit input from project area stakeholders regarding the Rachel Road Alignment Study. In addition to public education efforts, The Langdon Group (TLG) will facilitate stakeholder communication with the project team to ensure questions and concerns are addressed in a timely manner, and that information is shared and understood at the public, project, program, policy and political levels.

Tasks

1.0 Situational Assessment

The Situational Assessment will help identify concerns, perceptions and issues that may be lingering below the surface, identify alignment preferences, identify additional key stakeholders, determine what outreach techniques have been effective in the past, establish how individuals and groups want to be involved and communicated with, and draw out concerns up-front and early. At this time, TLG can also help educate stakeholders on the project’s purpose and schedule. Preventing unforeseen events from emerging later in the project prevents scope creep and keeps projects on schedule and within budget.

With the city, TLG will develop a preliminary list of internal and external key stakeholders beginning with those identified in the RFQ and covering representation from government, organized citizen groups, public/resident interests, emergency services, utilities, schools and property owners. Cooperatively developed key messages and conversation guide will provide side boards and help steer the discussion. TLG will contact stakeholders as a neutral third party and meet in-person, one-on-one, on their turf wherever possible and discuss over the phone if necessary. This early engagement, before alternatives have been conceptualized promotes genuine interest in a collaborative process from the City, particularly for organized citizen groups, agency partners and neighboring residents.

TLG will produce a summary report based on the results, including any recommended adjustments to the public involvement plan based on more in-depth understanding of stakeholder interests.

Time for this task includes:

- Review of background data

- Development of interview questions
- Logistics/coordination
- Finalizing stakeholder list
- Conducting interviews
- Reporting of interviews

Deliverables

- Summary of previous background studies and data
- Up to 14 interviews
- Conversation guide
- Summary report and recommendations for CAC membership

2.0 Message/Materials

Developing a project message agreed upon by the project team provides a base message for all subsequent print and online material and defines a common position for the project team. This will serve as preliminary text with modification as the project progresses. As of 8/3/16, the project base message is as follows:

The Amon Basin Preserve is a publicly owned natural open space of shrub steppe and wetland habitat, home to multiple plants and animal species, including black-tailed jack rabbit, beaver, deer and a variety of birds.

Adjacent privately owned land, east of the preserve, is the future site of family housing and a new elementary school, to help serve the rapidly growing region.

The City of Richland is faced with the question: How does the community maintain and potentially enhance the natural benefits of the preserve while providing roadway connectivity and sufficient emergency access to the new school and surrounding neighborhoods?

This is a question the city cannot answer alone and looks to the public to help identify potential solutions. The hope is, through a collaborative public process, a preferred solution will be identified that meets the needs and interests of all interested parties.

Background

The City of Richland's Comprehensive Land Use Plan identifies the extension of Rachel Road as a needed improvement to support connectivity between Steptoe Street and Leslie Road for the Clearwater Creek development, currently under construction east of the Amon Basin preserve and as an important link in the overall transportation system of the region.

The Amon Basin Preserve became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting

neighborhoods to the east and west. The WSDOT and EFSEC investments satisfied obligations for environmental mitigation related to other projects.

With private construction underway, the City is now faced with the challenge of addressing a number of factors:

- *Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.*
- *Mitigate any potential impacts to the Amon Basin Preserve while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it*
- *Provide necessary emergency services access to a future school and homes*
- *Minimize increased traffic to existing neighborhood streets*

How do we get there?

The goal of this project is to collaboratively develop opportunities to maintain or enhance the positive aspects of the region, determine potential transportation alternatives and ultimately identify a holistic solution that addresses all interests and parties.

The City of Richland has hired a neutral facilitator, The Langdon Group (TLG), to help guide this independent process. TLG specializes in bringing all interested parties to the table and helping them see the world through a collective lens. TLG will work with the community to:

- *ensure every voice has an opportunity to participate and shape the study outcome;*
- *facilitate open, constructive and respectful dialogue;*
- *create meaningful opportunities for public involvement;*
- *maintain transparent communication through the life of the project and;*
- *produce community-led recommendations.*

Stay Involved

Public involvement will take many forms and provide all members of the public an opportunity to engage with the project team and help shape the decision making process. The first step was a situational assessment, which allowed TLG, through one-on-one and group conversations, to better understand the different interests, perspective and opinions.

From the assessment process a Citizens Advisory Committee (CAC) will form and meet multiple times throughout the project at key milestones. The CAC will be a representative group of interested parties. The public should feel that their interests are represented by a member of the CAC.

Through open houses, interest-group workshops, traditional media outlets, electronic and print newsletters and a designated webpage on www.ci.richland.wa.us, every member of the public will have multiple opportunities to provide input and stay informed.

The project team's goal is to identify a preferred alternative for the roadway, environmental mitigation and enhancements in Spring 2017 for approval by Richland City Council.

Questions?

Please contact the TLG Project Manager, Bryant Kuechle, with any questions or concerns at 208-739-3048 or bk@langdongroupinc.com. Please provide your address and/or email if you would like to receive regular project updates including notifications of public involvement opportunities.

Project messaging will be imported into branded materials at key milestones in the form of newsletter, electronic newsletters, news releases, city website and social media updates:

- Milestone 1: Project information, open house #1 information, website information
- Milestone 2: Project update, open house #2 information
- Milestone 3: Project update, announcement of preferred alternatives

Deliverables

- Three project mailings
- Email template, with project branding, for three electronic distributions
- Project news release(s)
- Talking points for interviews and meetings
- Performance as project spokesperson for media inquiries

3.0 Community Advisory Committee

A representative working group that will meet at key milestones during the project demonstrates the commitment of the community and its partners to keep open lines of communication. The project team works with the City to determine group membership and to define group roles and responsibilities. The RFQ's stakeholder list and the situational assessment will help identify representatives for each of the relevant interests. This forum will allow representatives to serve as a conduit to their constituents and provide equal voice to each interest, removing the opportunity for more vocal and organized interests to dominate the space. As a trained facilitator in collaborative processes, Bryant Kuechle will ensure each participant has an equal voice, provide opportunities for stakeholders to understand the other members' perspectives, identify common interests and zones of agreement, and maintain a mutually respectful environment.

Committee members will kick off the project with a partnering meeting to identify ground rules, goals, and areas of concern. During the partnering meeting we will get group members on the ground, to see the project area and gain a deeper understanding of the project, its challenges and the different stakeholder interests. Subsequent meetings will include review/discussion of the preliminary range of alternatives; refinement through the alternative rating system; consensus-building and adoption of a preferred alternative. Alternative features will include mitigation features for access and preservation of the Amon Basin Preserve. Presentations from the J-U-B team biologist and waterway access improvement renderings from the landscape architect will provide additional context to the alternative selection discussion. Specifically, TLG recommends the following schedule:

- CAC 1
 - Project introduction and background
 - Identify goals and objectives

- Identify areas of concern
- Partnering agreement and ground rules
- Field Tour
- Preliminary alignment development exercise
- Alternative Evaluation Matrix: Criteria Development
- Wildlife report findings and mitigation alternatives
- CAC 2
 - Review Public Comments from Open House
 - Alternative Refinement
 - Draft alternatives review
- CAC 3
 - Preferred Alternatives selection
 - Habitat mitigation alternative selection

Time for this task includes:

- Content creation for displays, mailers, handouts, website, other project information materials
- Scheduling, logistics and planning for CAC meetings
- Summary reporting for meetings
- Attendance and facilitation at CAC meetings for 3 CONSULTANT team members at 2 meetings and 2 CONSULTANT team members at the other meeting
- AGENCY coordination

Deliverables

- Design/develop/draft/print meeting displays and collateral (printing CONSULTANT direct expense)
- Refreshments (CONSULTANT direct expense)
- Meetings notes

4.0 Public Open Houses

TLG will plan, facilitate and manage one public open house to provide the general public an opportunity to provide input at the draft alternative stage and discuss issues, concerns and potential recommendations.

TLG will coordinate logistics, news releases, advertisement and/or legal notice for the meeting and prepare all open house materials and displays. TLG will prepare staff talking points; support project team in media activities, including researching information, events, preparing material for the open house. A summary of citizen comments will be developed and submitted to the City.

TLG will plan and facilitate a second public open house at the end of the project to present the preferred alternative to the public. This meeting may contain some level of remaining decision space concerning landscape architecture alternatives and Amon Basin Preserve access and features.

Meetings will have open access with information stations pertaining to specific aspects of the project each managed by a TLG trained facilitator. This format will allow participants to attend at their leisure and distribute in the meeting space, preventing opportunities for grand-standing and promoting one-on-one interactions with the project team. In the center of the room will be large plots of the project area, with markers and stickers to provide participants the opportunity to identify areas of concerns, preference and draw their own alternatives for consideration.

At all general public events, members of the CAC will be encouraged to attend and participate. Often, CAC members develop buy-in for the process and serve a valuable role in public meetings as pier project advocates.

Information presented and goals for each set of public open house are:

- Open House #1: Project information and history, issues identified; CAC membership; Alternative evaluation criteria; Alternatives review and input; Wildlife report overview; next steps
- Open House #2: Project update and status; CAC progress; Alternatives Analysis; Wildlife report review and input; Next steps

Time for this task includes:

- Graphic design and development
- Content creation for displays, renderings, mailers, handouts, website, other project information materials
- Scheduling, logistics and planning for public meetings
- Summary reporting for meetings
- Attendance and facilitation at public meeting for 5 CONSULTANT team members
- Layout, revisions and QC/QA of all meeting materials and promotional materials
- AGENCY coordination

Direct expenses for this task may include:

- Refreshments
- Meeting materials
- Printing

Deliverables

- Design/develop/draft/print meeting displays, advertisements and project information materials(printing CONSULTANT direct expense)
- Refreshments (CONSULTANT direct expense)
- Event information for AGENCY project web page and social media
- Open house summary report

5.0 Stakeholder Coordination

TLG will maintain communication with stakeholders to provide consistency of communication flow by responding to stakeholder inquiries and maintaining communication through personal visits, phone and/or email. In addition, TLG will maintain a database of stakeholders and communicate updates to contacts and project participants to track concerns, issues and interactions.

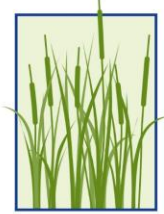
For organized citizen groups (Tapteal Greenway, School Boards, City Parks Commission, City Planning Commission, Home Owners Associations) TLG will coordinate and present at regularly scheduled meetings. Presentations will be timed strategically to occur during the assessment phase and prior to each Public Open House.

Deliverables

- Public point-of-contact availability via phone and email
- Attendance and presentations at up to 6 existing interest group meetings as warranted
- Stakeholder contact reports, as requested

6.0 Project Summary Report

At the conclusion of the project, TLG will compile and distribute a post-project report that includes an overview of public information/public involvement activities from the beginning to end of the project.



Rachel Road
Alignment Study

APPENDIX B

Wildlife Report for the Rachel Road Alignment Study in Richland, Benton County, Washington



Dated February 3, 2017

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Preface

The attached Wildlife Report was developed pursuant to Richland Municipal Code (Title 22.10) and details the listed sensitive species and current habitat conditions that fall within the defined project study area, which is the Amon Creek Natural Preserve (ACNP). This report aims to evaluate plant communities and wildlife functions and values contained within the study area. This report also outlines Best Management Practices (BMPs) and potential mitigation measures that could be implemented to offset any encroachments from roadway development activities implemented in this area. It should be noted that the proposed trail enhancement renderings and vegetation re-plantings outlined in the report are preliminary conceptual designs; final designs have not been performed by J-U-B ENGINEERS, Inc. The vegetation planting suggestions presented herein are intended for general habitat functionality only. Prior to final design, J-U-B ENGINEERS, Inc. suggests that the impacts of the recommendations outlined in this report be analyzed by a licensed professional engineer with regard to bank stability and slope protection. Should the engineering analysis show that changes to the proposed recommendations are required, such changes should be analyzed for habitat functionality by the project biologist.

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APPENDICES

Appendix A - Maps, Diagrams, and Supporting Information

1. Vicinity Map
2. Project Action Area Exhibit
3. Environmental Awareness, Appreciation and Education Components
4. Planting Details

Appendix B - Listed Species and Habitat Supporting Information

1. Soil Survey Map + description
2. Wetland Assessment Memo
3. USFWS IPaC Species List (dated 2-3-17)
4. WDFW PHS Data (dated 7-28-2016)
5. DNR Forest Practice Water Typing Map (dated 8-25-16)

Appendix C - Photo Inventory

Appendix D - Record of Consultation with the Agencies

1. E-mail correspondence with DOE Wetland Specialist, Cathy Reed (date 8-31-2016)

Wildlife Report for the Rachel Road Alignment Study in Richland, Washington

Introduction

Richland's rapidly expanding economy has prompted a new development east of the Amon Creek Natural Preserve (ACNP). The ACNP is a natural preserve that encompasses approximately 66 acres and is home to various animals and plant life, and is frequented by neighbors and visitors for bird watching, walking, and enjoying the outdoors. The preservation of these characteristics and uses were the objectives developed by the four-member association of agencies that acquired the ACNP as a publicly-owned preserve. Prior to 2007 the land was privately owned. Prior to the 2007 acquisition, the City's Comprehensive Land Use Plan called for residential development of the property, subject to applicable laws and codes, including the City's sensitive areas code in Title 22 of the Richland Municipal Code. The ACNP is located in Richland, Washington near the southern City Limits, and is situated within Section 1, Township 8N, Range 28E (see Vicinity Map, Appendix A). Planned development near the ACNP is advancing in accordance with the City's Comprehensive Plan, including single family and multi-family residential developments. The Clearwater Creek subdivision, approved for development in 2014, is located immediately east of the ACNP and includes hundreds of homes and a new elementary school.

This wildlife report was developed in concert with the Rachel Road Alignment Study, which is evaluating options to provide vehicle access through the ACNP with a connection to Leslie Road (located immediately west of the ACNP). Planning objectives attributed to the proposed roadway are tied to regional connectivity, emergency responder access, and distribution of traffic. From a regional transportation perspective, the proposed roadway would provide alternative vehicle trip distribution (i.e. reducing reliance on Steptoe Street, Leslie Road, Gage Blvd, and Clearwater Avenue), aid in maintaining neighborhood character by reducing loading on neighborhood local streets for cross-town trips, provide non-motorized (bike and pedestrian) connectivity at an appropriate scale, and improving emergency response ability.

It is important to note that when the property that would become the ACNP was secured in 2007, an *Agreement Regarding Future Use of Real Property* was signed by representatives from the Energy Facility Site Evaluation Council, the State of Washington (through the Washington Department of Transportation), the Tapteal Greenway Association, and the City of Richland. These four agencies supported and participated in the property acquisition. The two state agencies satisfied environmental mitigation obligations through the purchase and dedication of the land as a nature preserve. The City and Tapteal Greenway advanced their local values of environmental stewardship through the partnership. The *Agreement Regarding Future Use of Real Property* documents the parties' understanding that the land is to be maintained as natural open space and not developed for residential or commercial purposes. The agreement also states, in acknowledgement of the City's Comprehensive Plan for nearby property, that, "subject to all applicable federal, state, and local regulations, including environmental reviews and permits, and when required to meet the public needs, the City shall have the right to

construct a public access road across Amon Creek and the Amon Creek property (i.e. the ACNP) consistent with the Regional Transportation Plan for the Tri-Cities Metropolitan Area and the Benton-Franklin-Walla Walla RTPO prepared by the Benton-Franklin Council of Governments Transportation Staff in November 2006.” This wildlife report evaluates the potential impacts of the proposed public access road through the ACNP.

There are no direct routes for emergency vehicle access to the new development from Leslie Road (i.e. from west of the ACNP). To maintain public safety for individuals living, working, and attending school in the newly developed area, it is critical that emergency vehicles have quick and direct access. The nearest Fire Station from the ACNP is Richland Fire Station 72, located approximately 1.5 miles northwest, and the nearest City police station is the Richland Police Department, located approximately 6.5 miles northwest. To reach the proposed developments and school via the most direct route, First Responders from these emergency service locations would take Leslie Road south to the anticipated intersection with Rachel Road, and then travel east on the anticipated new roadway (see **Figure 1**).

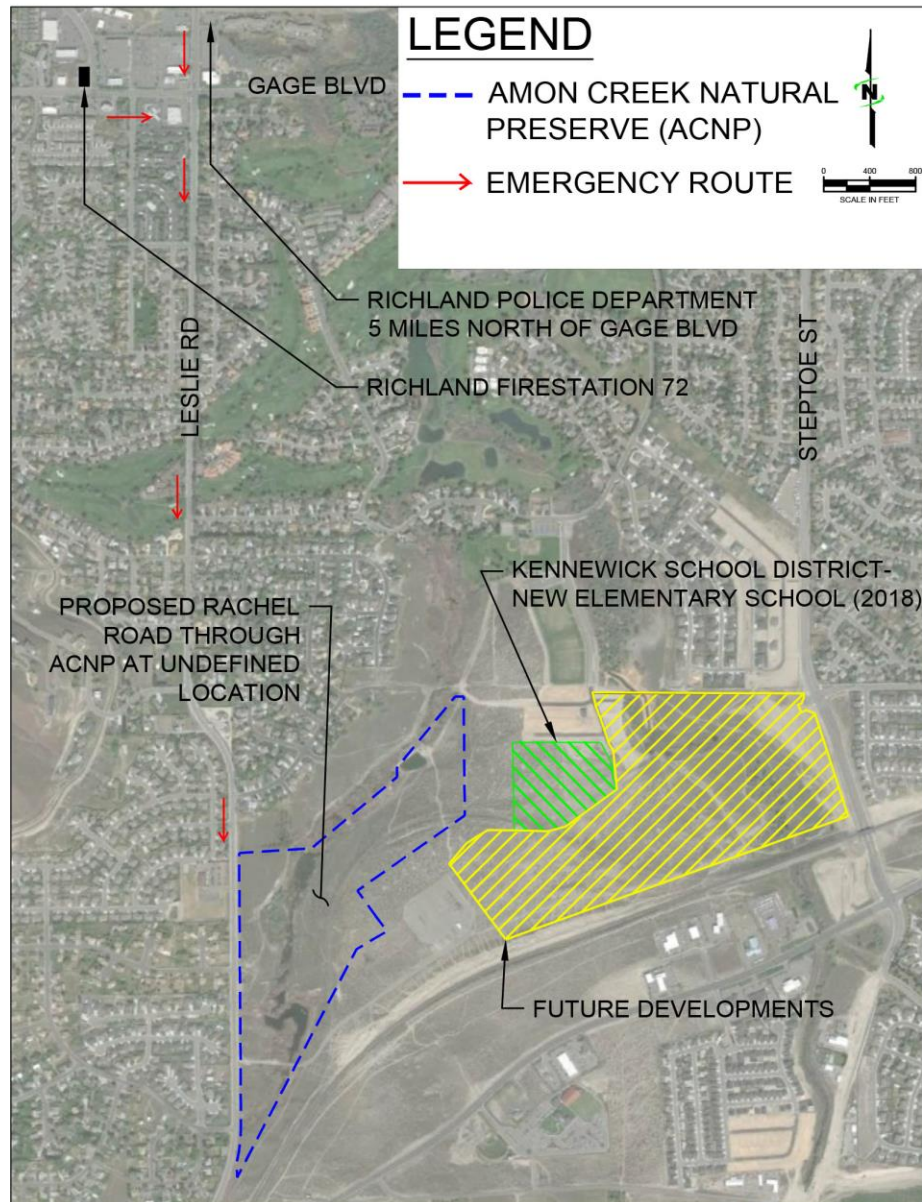


Figure 1: *This exhibit shows the location of the nearest fire station and police department to the ACNP, and illustrates Leslie Road as a primary north-south oriented arterial roadway.*

This comprehensive report was completed to:

- Document the listed sensitive species and current habitat conditions within the ACNP;
- Evaluate plant communities and wildlife functions and values contained within the ACNP; and,
- Outline Best Management Practices (BMPs) and mitigation measures that could be implemented to offset any encroachments stemming from a new roadway corridor.

All evaluation and recommendations contained within this wildlife report were developed pursuant to Richland Municipal Code (Title 22.10).

The format of this report enables all of the applicable regulatory agencies [i.e. U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Washington Department of Fish & Wildlife, Washington State Department of Ecology, Washington Department of Natural Resources (DNR) and the City of Richland] and other project stakeholders the ability to review one document. The following elements are presented in this report:

- Anticipated construction activities;
- Current habitat conditions that fall within the ACNP;
- Listed sensitive species and habitats (biological assessment); and,
- A cumulative effects assessment.

In summary, this wildlife report details the environmental permitting baseline information required for regulatory agencies and project stakeholders to make informed decisions about the anticipated new roadway, as well as recommends BMPs and mitigation measures that should maintain the existing ecological value and functions within the ACNP at the conclusion of the proposed action. The data included in this report may be valuable to a future environmental review process, but this report has not been prepared to satisfy environmental review processes that will apply to any selected road alignment.

Description of the Anticipated Roadway

The Rachel Road Alignment Study was commissioned to evaluate potential road alignment alternatives, in addition to the No-Build alternative, all of which would fall within the project study area (~66 acres) evaluated by this report. All of the proposed Rachel Road Alignment alternatives would construct a single roadway to provide regional connectivity through the ACNP, and to connect a new housing and school development east of the ACNP with Leslie Road. A culvert or bridge would be constructed to span a portion of the identified wetland contained within the central portion of the ACNP.

Based on City standards, the proposed roadway with sidewalks would be an estimated 44 feet wide, with two 11-foot wide travel lanes (eastbound/westbound), 6-foot wide shoulders and 5-foot wide curb/sidewalk features. However, the width and overall design of the proposed roadway cross section is subject to change during design as a result of the Rachel Road Alignment Study to minimize impacts on the ACNP to provide a context sensitive solution. Areas of the ACNP immediately adjacent to the roadway would be the only areas affected by construction activities. All other areas of the ACNP would be left untouched unless mitigation or enhancement elements are included in the final scope of improvements associated with the road.

The roadway project concept is being developed with careful consideration to the potential environmental impacts on the ACNP while balancing the access needs of the people living, working, and attending school in the area. The alignments will be developed by a stakeholder group representing a variety of interests. The stakeholder group intends to provide a recommendation to the City Council that addresses the transportation system needs with special attention paid to the environmental values present in the ACNP. The recommended set

of improvements may, in addition to a preferred road alignment, include BMPs and additional mitigation measures to be implemented to protect and maintain the existing habitat and overall vegetative community value within the project study area.

Project Footprint and Defined Action Area

The project footprint and defined action area can be tied to either short-term construction related effects, or long-term operational effects. For the purposes of this report, the short-term construction related effects (as described in the first subsection below) have been determined to be furthest reaching and have been used to define the project footprint and defined action area. Long-term operational effects have also been evaluated in this section (in the second subsection below) to address the extents of potential long-term impacts after construction is completed.

Short-term Construction Effects

The enclosed Project Action Area Exhibit (**Appendix A**, item # 2) outlines the extents of both the “project study area” and the “action area” (see Project Action Area Exhibit, **Appendix A**). For the purposes of this report, the project study area (~66 acres) is defined as the entire ACNP because the precise location of the new roadway crossing has not yet been identified. The project’s action area includes all areas to be affected directly or indirectly by the project action. Therefore, the defined project action area includes the project study area and all areas surrounding the project footprint where construction activities could affect the environment, directly, indirectly, or through interrelated or interdependent actions. The project action area was defined by determining the area in which project-related impacts may occur. The temporary construction-related noise impacts have been determined to be the farthest reaching project effects. The project’s action area is defined as: the limits of physical disturbance (including onsite staging areas) plus a horizontal buffer equal to the extents of terrestrial noise impacts.

The most prevalent construction noise source is equipment powered by internal combustion engines (usually diesel). Noise from equipment likely to be used on this project (vibratory pile driver, impact pile hammer for proofing, diesel powered loaders, graders, dozers, excavators, backhoes, cranes, vibrators, hand power tools, etc.) will reach approximately 101 peak decibels (dBA) when measured from a distance of 15 meters (50’) (WSDOT 2015). To reduce the impact of construction noise, most construction activities will be confined to the period least disturbing to adjacent and nearby residents, between 7:00 a.m. and 7:00 p.m. on weekdays. Mitigation of potential project construction noise impacts shall incorporate low-cost, easy-to-implement measures into project plans and specifications (e.g. equipment muffler requirements and work-hour limits).

Because the project area currently receives consistent noise from city (urban) traffic and some heavy truck traffic along Leslie Road (immediately to the west), W Clearwater Avenue (immediately to the south), and to a lesser extent from N Steptoe Road (to the east), the ambient or background noise for the entire defined project action area is keyed into the truck/city traffic, which correlates to a background sound of approximately at 86 dBA (WSDOT

2015). In addition, an active railroad also parallels Clearwater Avenue toward the southern (or southeast) portion of the ACNP. To define the horizontal extent of the project-related temporary construction noise effects, Table 1 (an attenuation table) was developed. This table shows the anticipated temporary construction noise levels would dissipate to background or ambient sound levels at a distance of 1,600 feet from the project limits of physical disturbance.

Table 1: Noise Attenuation Table

Distance from Roadway (feet)	Construction Noise (-7.5 dBA)*	Background sound - Traffic Noise (-4.5 dBA)*
50	101	86
100	93.5	81.5
200	86	77
400	78.5	72.5
800	71	68
1600	63.5	63.5

Note: (*) = The project action area is characterized as having “soft site” conditions.

Based on this information, the defined project action area has been determined to be the project study area plus a 1,600-foot radius. Thus, the defined project action area is estimated to be approximately 650 acres (see Project Action Area Exhibit, Appendix A). The defined project action area will be used in the analyses of ESA-listed and State sensitive species and habitats that warranted consideration and are discussed later in this wildlife report.

Long-term Operational Effects

Potential operational effects of the proposed roadway have been classified into four categories: noise, stormwater runoff, habitat fragmentation and light. Noise impacts would be tied to vehicular traffic; stormwater runoff impacts and fragmentation effects would be tied to new impervious surfaces/roadway prism; and, light impacts would be correlated to the anticipated street lighting system.

Noise Effects

The operation of a new east-west oriented collector roadway is anticipated to generate some operational noise impacts. The noise sources may originate from engines of the motor vehicles, the interaction of the vehicle’s wheels and the road, and other automobile related noises (e.g., backfiring mufflers). The intensity of noise produced from a new roadway would depend on the quality of road finish, alignment of the roadway, speed limit of the roadway, future traffic volumes, and vehicle types that will use the new roadway. Irregularities in the roadway (i.e., surface distresses, manhole covers) and/or heavier vehicles are expected to produce more frequent and higher noise intensities than smoother roadways and/or smaller vehicles. Higher speed traffic is expected to generate more noise than lower speed traffic.

Operational noise effects from the proposed roadway would consist of a line source of noise along the chosen roadway alignment. Because of the existing ambient noise levels associated with surrounding arterial roadways (i.e. Leslie Road to the west and Steptoe Street to the east)

and the Burlington Northern Santa Fe railway to the south, noise from the proposed roadway would not be expected to cause a significant increase in ambient noise levels, except in the immediate vicinity of the new roadway. As described in the subsection above, the peak existing noise levels of the surrounding arterials is approximately 86 dBA. The portion of the study area furthest away from the nearby arterials (i.e. portion of the study area with the lowest ambient noise levels) is the northeastern portion of the study area, which is approximately 2,000 feet east of Leslie Road. At 2,000 feet away from Leslie Road, the existing ambient traffic noise would equate to approximately 62 dBA. Because the proposed roadway would be classified as a collector (opposed to an arterial), and traffic volumes and speeds would be lower than on Leslie Road, noise associated with the proposed roadway would not be expected to be significantly higher than 62 dBA. Furthermore, the majority of the proposed roadway alignment would be closer to Leslie Road than 2,000 feet (particularly if the chosen alignment crosses the southern half of the project study area), so the ambient noise level for the majority of the proposed roadway alignment would be higher than 62 dBA. From an operational standpoint, noise impacts associated with a new roadway alignment through the ACNP are discountable.

Stormwater Run-off Effects

Impervious surfaces stemming from a new roadway are anticipated to generate some stormwater runoff. Urban stormwater runoff is known to carry a variety of pollutants which could negatively impact the ACNP wetlands. Stormwater management facilities, specific treatments and BMPs can be implemented to minimize concerns centered on potential stormwater runoff impacts. The stormwater design and management of a new roadway corridor shall be consistent with the guidance provided in the Stormwater Management Manual for Eastern Washington. In addition, any stormwater runoff that is designed to discharge into Amon Creek would need to be approved by both the Kennewick Irrigation District (KID) and the U.S. Bureau of Reclamation (USBR) [S. Defoe, Personal Communication, 11-21-16].

Habitat Fragmentation

The Rachel Road project is anticipated to include the construction of an east-west oriented collector roadway that traverses the ACNP. Although the alignment and design have not been finalized, the anticipated roadway prism would result in fragmentation effects with regard to the wetland and shrub steppe habitats present within the ACNP. Habitat fragmentation linked to roadways and traffic is attributed to decreases in animal abundance (Fahrig and Rytwinski 2009).

Light Effects

The Rachel Road project is anticipated to include the construction of an east-west oriented collector roadway that connects to Leslie Road. Although the alignment and design have not been finalized, it is assumed that street lights would be installed along the roadway and be in operation during the nighttime for the purpose of improving safety and visibility of the roadway to drivers and possible pedestrian traffic.

Based on the City Standards for a collector roadway, street lighting would require a 30-foot luminaire mounting height, 110 maximum LED wattage, and 360-foot staggered pole spacing

(i.e. a light pole every 170 feet on alternating sides) (City of Richland 2015). A 1-mile roadway would require a total of approximately 32 light poles. Photocell sensors would turn the lights on and off based on the detected amount of ambient light.

According to the City Standards, the distribution of light would be controlled to illuminate only the road and minimize light exposure on the non-roadway surfaces. The roadway would be illuminated with 0.4 and 0.6 foot-candles during average operation, which is comparable to the brightness observed before dawn or after dusk (Engineering Toolbox 2016).

A possible design alternative to reduce the light exposure on the area may be to increase the spacing of the lights nearest the wetland crossing or control the intensity of output from the light fixtures. Future improvements to the City's lighting and power infrastructure may allow for the remote access and control of the light's operation and intensity.

Habitat/Ecological Assessment

This assessment documents the current habitat within the project action area, which in turn could be used to generate the recommended BMPs and mitigation measures. Specific recommendations are discussed later in the Planned Best Management Practices and the Mitigation Approach sections of this report. The information provided in this section has been gathered through a recent site visit, as well as reviewing past environmental documentation that has been completed for the area to document baseline conditions. The specific environmental documentation that has been reviewed is listed below:

- Beer Falls Development Biological Resources Report (PBS Engineering and Environmental 2013);
- Proposed Beer Falls Development Geologic Hazards Assessment (PBS Engineering and Environmental 2013);
- Geotechnical Site Investigation/Geologic Hazards Assessment & Critical Areas Report for the Clearwater Creek Residential Development (GN Northern 2013);
- Duane Smith Wetland Delineation (B&A 2014);
- Geologic Hazards Assessment & Critical Areas Report for the Proposed Smith Multifamily Project (GN Northern 2014);
- Preliminary Wetland Delineation for the Willowbrook 2 Property (Shannon and Wilson 2002);
- Badger Canyon Groundwater Investigation for the Kennewick Irrigation District (CH2MHILL 1983);
- Changes in Groundwater Levels and Groundwater Budgets, from Predevelopment to 1986, in parts of the Pasco Basin, Washington (United States Geological Survey and WA Department of Ecology 1996);
- Natural Streamflow Estimates for Watersheds in the Lower Yakima River (Smith et al. 2005);
- Suitability of West Fork Amon Wasteway for Salmonids (Child and Courter 2015);

- Badger Coulee Recapture of Artificially Stored Project Water Report (RH2 Engineering, Inc. 2015);
- Yakima River Basin Integrated Water Resource Management Plan Final Programmatic Environmental Impact Statement (U.S. Bureau of Reclamation and Washington Department of Ecology 2012);
- Integration of Macro invertebrate and Chemical Indices to Assess Water Quality of an Irrigation Wasteway (Early 2001);
- Report of Examination in the Matter of Application Number 22738 for Permit to Appropriate Public Waters (Department of Ecology 1975);
- An Evaluation of Coho Salmon Spawning Habitat in Amon Creek: Benton County, Washington. Master's Thesis (Blair 2005); and,
- Water Quality Assessment of Amon Wasteway Using Aquatic Macro Invertebrate and Chemical Indices Master's Thesis (Littleton 2010).

Amon Creek drains to Amon Wasteway, which is a federal irrigation facility that is subject to the USBR Directive and Standards ENV 06-01. KID owns and operates this facility. Amon Creek, that flows through the ACNP, is mostly (99%) derived from irrigation return waters (Smith et al. 2005; S. Defoe, Personal Communication, 11-21-16). KID retains the water rights to surface waters associated with Amon Creek. Some estimates prepared by KID illustrate potential seepage reductions in the realm of 60% related to the surface waters within Amon Creek. Future conditions correlated to the wetland habitat conditions with the ACNP are subject to change based on the fact that KID is currently lining several canal that provide seepage waters to Amon Creek (S. Defoe, Personal Communication, 11-21-16).

A field review of the site was conducted on August 3, 2016, by Vincent Barthels (Biologist, J-U-B ENGINEERS, Inc.) in order to document the dominant plant communities and general habitat present. Photos were taken to document pertinent locations within the project action area (see Project Action Area Exhibit, Appendix A for photo locations; and, the photos contained in the Photo Inventory, Appendix C).

The Natural Resources Conservation Service's Web Soil Survey was referenced to document the dominant mapped soil types in the project action area (<http://websoilsurvey.nrcs.usda.gov>). Generally, the soils mapped in the project action area are a combination of fine sands and loams that are moderately permeable and moderately susceptible to erosion. Specifically, nine soil types were identified and mapped within the ACNP, with Hezel loamy fine sand (2-15% slopes) accounting for 45% of the mapped area (see Soil Map, Appendix B). The project action area falls within the elevation range of 490 to 550 feet above sea level (NAVD88). The existing land use in the project action area and surrounding area includes residential, natural open space, and agricultural. Burlington Northern Santa Fe Railroad (BNSF) tracks exist along the southeastern boarder of the project action area. The central portion of the ACNP contains an established wetland feature.

A Wetland Assessment was conducted on August 3, 2016 to characterize this wetland area using the most current Department of Ecology (DOE) Wetland Rating System for Eastern Washington

(Hruby 2014). The memo that summarizes the findings of the assessment is attached (see Wetland Assessment Memo, Appendix B). Based on scored wetland functions, the single identified wetland feature was rated to be a Category II Depressional Wetland and was estimated to span approximately 23 acres (~35% of the ACNP). Richland Municipal Code (RMC) 22.10.110 specifies required wetland buffer widths for wetlands situated within the City Limits of Richland. In accordance with RMC, Category II wetlands associated with high-impact land uses require a 100-foot buffer.

Plant communities within the project action area consist of assorted herbaceous plants and various types of shrubs and trees. The following table illustrates the vegetative assemblages that were encountered within the project vicinity. Table 2 is not intended to be an exhaustive list of plants known to be present in the project vicinity. The Photo Inventory (located within Appendix C) illustrates some of the dominant plant communities within the project footprint.

Table 2: Dominant plant species encountered within the project vicinity

Common Name	Scientific Name
Alder (Sitka or Mountain)	<i>Alnus</i> sp.
Alfalfa	<i>Medicago sativa</i>
American elm	<i>Ulmus americana</i>
American licorice	<i>Glycyrrhiza lepidota</i>
Bedstraw	<i>Galium</i> sp.
Big sagebrush	<i>Artemisia tridentata</i>
Black hawthorn	<i>Crataegus douglasii</i>
Black locust	<i>Robinia pseudoacacia</i>
Blue wild rye	<i>Elymus glaucus</i>
Bulbous bluegrass	<i>Poa bulbosa</i>
Canada thistle	<i>Cirsium arvense</i>
Carey's balsamroot	<i>Balsamorhiza careyana</i>
Cattail	<i>Typha latifolia</i>
Cereal rye	<i>Secale cereale</i>
Cheat grass	<i>Bromus tectorum</i>
Cluster lily	<i>Brodiaea coronaria</i>
Common mallow	<i>Malva neglecta</i>
Common mullein	<i>Verbascum thapsus</i>
Common plantain	<i>Plantago major</i>
Cottonwood	<i>Populus fremontii</i>
Coyote willow	<i>Salix exigua</i>

Common Name	Scientific Name
Crested wheat grass	<i>Agropyron cristatum</i>
Curly dock	<i>Rumex crispus</i>
Desert parsley	<i>Lomatium bicolor</i>
Eurasian rose	<i>Helleborus</i> sp.
Fiddleneck	<i>Amsinckia menziesii</i>
Flixweed	<i>Descurainia sophia</i>
Foxtail barley	<i>Hordeum jubatum</i>
Green rabbit-brush	<i>Chrysothamnus viscidiflorus</i>
Hardstem bulrush	<i>Schoenoplectus acutus</i>
Hedge bindweed	<i>Calystegia sepium</i>
Hillside milk-vetch	<i>Astragalus collinus</i>
Indian plum	<i>Oemleria cerasiformis</i>
Indian ricegrass	<i>Achnatherum hymenoides</i>
Kochia	<i>Bassia scoparia</i>
Munro's globemallow	<i>Sphaeralcea munroana</i>
Narrowleaf willow	<i>Salix exigua</i>
Narrow-leaved collomia	<i>Collomia linearis</i>
Needle and thread grass	<i>Stipa comata</i>
Nightshade	<i>Solanum dulcamara</i>
Nodding microseris	<i>Microseris nutans</i>
Northern catalpa	<i>Catalpa speciosa</i>
Pepperweed	<i>Lepidium perfoliatum</i>
Poison hemlock	<i>Conium maculatum</i>
Prickly lettuce	<i>Lactuca serriola</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quaking aspen	<i>Populus tremuloides</i>
Rabbit brush	<i>Ericameria nauseosa</i>
Red-osier dogwood	<i>Cornus sericea</i>
Redstem filaree	<i>Erodium cicutarium</i>
Reed canarygrass	<i>Phalaris arundinacea</i>
Russian olive	<i>Elaeagnus angustifolia</i>
Russian thistle	<i>Salsola tragus</i>

Common Name	Scientific Name
Sandbar willow	<i>Salix sessilifolia</i>
Sandberg bluegrass	<i>Poa secunda</i>
Scouler willow	<i>Salix scouleriana</i>
Silver maple	<i>Acer saccharinum</i>
Silverberry	<i>Elaeagnus commutata</i>
Smartweed	<i>Polygonum pennsylvanica</i>
Spearleaf agoseris	<i>Agoseris retrorsa</i>
Spiny hopsage	<i>Grayia spinosa</i>
Spotted ladythumb	<i>Polygonum persicaria</i>
Squirreltail	<i>Elymus elymoides</i>
Stinging nettles	<i>Urtica dioica</i>
Tansy mustard	<i>Descurainia pinnata</i>
Toadflax	<i>Comandra umbellata</i>
Veiny dock	<i>Rumex venosus</i>
Water birch	<i>Betula occidentalis</i>
Watercress	<i>Nasturtium officinale</i>
Western yarrow	<i>Achillea millefolium</i>
White poplar	<i>Populus alba</i>
Willow-herb	<i>Epilobium</i> sp. (<i>ciliatum</i>)
Wood's rose	<i>Rosa woodsii</i>
Yellow alyssum	<i>Alyssum saxatilis</i>

The Tapteal Greenway (TG) is a volunteer organization dedicated to the preservation of natural habitat along the lower 35-miles of the Yakima River, and is a project stakeholder in the creation of the ACNP. As part of their conservation and educational efforts, the group maintains a Facebook page where pictures and trail camera footage of animals within the ACNP are uploaded regularly (<https://www.facebook.com/TaptealGreenway>). Browsing the images and videos posted between March 1, 2016 and September 28, 2016 reveals 33 species of mammals, birds, reptiles and amphibians; these species are identified within Table 3. Table 3 is not intended to be an exhaustive list of wildlife that are documented to occur within the ACNP.

Table 3: Summary of Species Identified from TG's Photographs and Video.

Common Name	Scientific Name	State Status*
American bullfrog	<i>Rana catesbeiana</i>	N/A
American coot	<i>Fulica americana</i>	N/A
Beaver	<i>Castor canadensis</i>	N/A
Belted kingfisher	<i>Megaceryle alcyon</i>	N/A
Black-crowned night heron	<i>Nycticorax nycticorax</i>	State Monitored**
Black-tailed jackrabbit	<i>Lepus californicus</i>	Candidate
California quail	<i>Callipepla californica</i>	N/A
Canada goose	<i>Branta canadensis</i>	N/A
Cinnamon teal	<i>Anas cyanoptera</i>	N/A
Cottontail rabbit	<i>Sylvilagus floridanus</i>	N/A
Coyote	<i>Canis latrans</i>	N/A
Gadwall	<i>Anas strepera</i>	N/A
Great blue heron	<i>Ardea herodias</i>	State Monitored**
Greater yellowlegs	<i>Tringa melanoleuca</i>	N/A
Gopher snake	<i>Pituophis catenifer</i>	N/A
Killdeer	<i>Charadrius vociferus</i>	N/A
Mallard	<i>Anas platyrhynchos</i>	N/A
Mink	<i>Mustela vison</i>	N/A
Muskrat	<i>Ondatra zibethicus</i>	N/A
Northern flicker	<i>Colaptes auratus</i>	N/A
Northern harrier	<i>Circus cyaneus</i>	N/A
Pied-billed grebe	<i>Podilymbus podiceps</i>	N/A
Raccoon	<i>Procyon lotor</i>	N/A
Red-tailed hawk	<i>Buteo jamaicensis</i>	N/A
Red-winged blackbird	<i>Agelaius phoeniceus</i>	N/A
Ring-necked duck	<i>Aythya collaris</i>	N/A
Ring-necked pheasant	<i>Phasianus colchicus</i>	N/A
Sharp-shinned hawk	<i>Accipiter striatus</i>	N/A
Side-blotched lizard	<i>Uta stansburiana</i>	N/A
Swainson's hawk	<i>Buteo swainsoni</i>	State Monitored**
Virginia rail	<i>Rallus limicola</i>	N/A
White-tailed deer	<i>Odocoileus virginianus</i>	N/A
Wood duck	<i>Aix sponsa</i>	N/A
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	N/A

*Based on information on the Washington Department of Fish and Wildlife's (WDFW's) Priority Habitat and Species (PHS) webpage (<http://wdfw.wa.gov/conservation/phs/>) accessed on 9-29-16.

**From the WDFW's PHS webpage: "State Monitored species are not considered Species of Concern, but are monitored for status and distribution. They are managed by the Department, as needed, to prevent them from becoming endangered, threatened, or sensitive."

It should be noted that the TG's photographs of the Swainson's hawk indicate that the species has nested within the ACNP. In order to reduce or eliminate project-related impacts to the nesting birds, agency standard BMPs for the protection of raptors would be applied (see the Planned Best Management Practices section).

Additional species occurrences within the project area was gathered through referencing the Cornell University eBird website for the Amon Creek - Willowbrook Section (<http://ebird.org>). The Cornell eBird website listed a total of 93 species of birds that have been documented in the project area (see Table 4). Please note that an X under the count column of Table 4 indicates that the species was observed but numbers were not recorded.

Table 4: Summary of Species Identified from Cornell University eBird website.

Species Name	Count	Date
Mallard	2	29 May 2016
Cinnamon teal	2	29 May 2016
California quail	1	29 May 2016
Pied-billed grebe	1	29 May 2016
Double-crested cormorant	1	29 May 2016
Killdeer	1	29 May 2016
Mourning dove	4	29 May 2016
Belted kingfisher	1	29 May 2016
Common raven	1	29 May 2016
American robin	1	29 May 2016
European starling	X	29 May 2016
Black-headed grosbeak	1	29 May 2016
Red-winged blackbird	14	29 May 2016
Yellow-headed blackbird	8	29 May 2016
Bullock's oriole	2	29 May 2016
American goldfinch	1	29 May 2016
Green-winged teal	2	28 May 2016
Ring-necked pheasant	2	28 May 2016
American white pelican	1	28 May 2016
Northern harrier	1	28 May 2016
Swainson's hawk	2	28 May 2016
Virginia rail	2	28 May 2016
Ring-billed gull	1	28 May 2016
Eurasian collared-dove	3	28 May 2016
Western kingbird	2	28 May 2016
Black-billed magpie	2	28 May 2016
Northern rough-winged swallow	1	28 May 2016
Tree swallow	5	28 May 2016
Bank swallow	8	28 May 2016
Barn swallow	3	28 May 2016
Cliff swallow	5	28 May 2016
Marsh wren	2	28 May 2016
Bewick's wren	1	28 May 2016
Chipping sparrow	1	28 May 2016
Song sparrow	5	28 May 2016

Species Name	Count	Date
Western tanager	1	28 May 2016
Lazuli bunting	7	28 May 2016
Brown-headed cowbird	10	28 May 2016
House finch	6	28 May 2016
Wood duck	4	27 Mar 2016
Ring-necked duck	6	27 Mar 2016
Bufflehead	2	27 Mar 2016
Common goldeneye	1	27 Mar 2016
Great blue heron	1	27 Mar 2016
Black-crowned night-heron	1	27 Mar 2016
Sharp-shinned hawk	1	27 Mar 2016
Cooper's hawk	1	27 Mar 2016
Red-tailed hawk	1	27 Mar 2016
American coot	8	27 Mar 2016
Long-billed curlew	2	27 Mar 2016
Wilson's snipe	4	27 Mar 2016
Northern flicker	4	27 Mar 2016
American crow	2	27 Mar 2016
Yellow-rumped warbler	8	27 Mar 2016
White-crowned sparrow	16	27 Mar 2016
Snow goose	40	13 Mar 2016
Canada goose	3	13 Mar 2016
Gadwall	2	13 Mar 2016
Hooded merganser	2	13 Mar 2016
Greater yellowlegs	1	13 Mar 2016
American kestrel	2	13 Mar 2016
Northern shrike	1	13 Mar 2016
Golden-crowned sparrow	2	13 Mar 2016
Lincoln's sparrow	1	13 Mar 2016
Spotted towhee	2	13 Mar 2016
Ruby-crowned kinglet	1	12 Mar 2016
Downy woodpecker	1	12 Mar 2016
Western meadowlark	1	12 Mar 2016
Cackling/Canada goose	5	6 Feb 2016
Rock pigeon	1	6 Feb 2016
Dark-eyed junco	1	6 Feb 2016
Northern shoveler	3	16 Feb 2015
Common merganser	1	11 Feb 2015
Merlin	1	11 Feb 2015
gull sp.	1	31 Jan 2015
Black-capped chickadee	1	31 Jan 2015
Pacific wren	2	31 Jan 2015
Varied thrush	1	31 Jan 2015
Cedar waxwing	41	31 Jan 2015
Blue-winged teal	2	19 Jul 2014
Greater scaup	1	19 Jul 2014
Great horned owl	1	19 Jul 2014

Species Name	Count	Date
Common nighthawk	1	19 Jul 2014
Eastern kingbird	2	19 Jul 2014
Violet-green swallow	3	19 Jul 2014
Gray catbird	1	19 Jul 2014
Osprey	2	13 Jul 2014
duck sp.	6	11 Jul 2014
California gull	1	11 Jul 2014
Say's phoebe	1	11 Jul 2014
Lark sparrow	8	11 Jul 2014
Vesper sparrow	1	11 Jul 2014
Lesser scaup	2	24 May 2014
Cackling goose	1	2 Jan 2010
Brewer's blackbird	X	30 Dec 2006
House sparrow	X	30 Dec 2006

The site visit coupled with the aforementioned referenced materials collectively illustrate that the ACNP provides high quality and viable wildlife habitat. Some non-native woody vegetation (e.g. black locust or Russian olive) recruitment is evident as well as some annual weedy species [e.g. kochia, Russian thistle, Canada thistle]. Annual weedy species occupy less than 20% of the overall ground cover within the ACNP. Overall, the ecological habitat character of the ACNP is in good shape. The native bunch grass community diversity and cover percentage could be improved. Reducing the dominant percentage of cheat grass within the ACNP, by encouraging the establishment of native grasses and forbs, would improve the ecological value of the shrub-steppe habitat within the ACNP.

Endangered Species Act (ESA) Listed Species

Overview

Similar to a biological assessment, this section of the wildlife report describes the threatened or endangered species that may occur within the defined project action area.

ESA Consultation

In order to identify species of concern associated with the proposed project action, a species list was obtained from the USFWS Information for Planning and Conservation (IPaC) system (dated February 3, 2017). According to the IPaC report, three species that are listed as “Endangered” or “Threatened” have the potential to exist within the project action area (see Appendix B, Item #3). The IPaC report did not identify any critical habitat within the ACNP. The species list summarized in Table 5 was derived from the IPaC report.

Table 5 Summary of ESA Listed Species for the Project Action Area

Common Name	Scientific Name	ESA Status
Bull trout	<i>Salvelinus confluentus</i>	Threatened
Gray wolf	<i>Canis lupus</i>	Endangered
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened

Effect Determinations for ESA Listed Species

The following subsections include species and habitat descriptions, information regarding current use of the project action area, and effect determinations for the federally listed species that warrant consideration for the proposed project.

Bull Trout

Bull trout are native chars and part of the salmonid family. They have grayish to dark green sides with white to pinkish spots. The fish is recognized by the white margins on its pectoral, ventral, and anal fins (Eddy and Underhill 1978). The dorsal fin lacks the spots that cover the back and sides of the body. Adults range from eight inches to more than two feet in length. Bull trout that live in streams rarely exceed four pounds (USFWS 1998). Bull trout reach sexual maturity between four and seven years of age and are known to live as long as 12 years. They spawn in the fall in streams with cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes (USFWS 1998). Bull trout eggs require a long incubation period, hatching in late winter or early spring. Some may live near areas where they were hatched; however, others migrate from streams to lakes or reservoirs a few weeks after emerging from the gravel. Bull trout habitat consists mainly of oligotrophic lakes and deep pools of pristine cold fluvial habitats in mountainous regions, mainly 45 to 55 degrees Fahrenheit (USFWS 1998).

Compared to ideal bull trout habitat (described above), the waters within the project action area are highly disturbed and warm. Thus, bull trout would not be expected to be found in any of the waters within the project action area. In addition, the Meadow Springs Golf Course has a fish barrier at the outlet of one of the constructed ponds within the Amon Creek drainage-way (S. Defoe, Personal Communication, 11-21-16). Based on lack of appropriate habitat, a “no effect” determination is warranted for bull trout.

Gray Wolf

Wolves have evolved to avoid people due to many centuries of wolf hunting (Maas 1997). The gray wolf requires vast forests and mountain foothills for hunting, usually far from humans (Maas 1997). They show little preference for specific habitats as long as there is food available. Wolves generally travel in packs of up to 25 animals. The dominant male (the alpha male) and dominant female (the alpha female) make all the decisions for the group, including when and where they hunt (Maas 1997). A single territory for a pack can range between 100 to 600 square miles. On a single hunt they may travel over 50 miles in pursuit of food.

The defined project area is entirely surrounded by developed, populated areas, which is not considered suitable habitat for the gray wolf. The nearest confirmed gray wolf pack is the Tucannon Pack, which known to exist approximately 60 miles to the east of the project action area (WDFW 2017). Due to the lack of suitable habitat and the human presence in and around the project action area, a “no effect” determination is warranted for the gray wolf.

Yellow-billed Cuckoo

The yellow-billed cuckoo, as the name suggests, has a yellow lower mandible (Alsop 2001). It has rufous wings which contrast against the gray-brown wing coverts and upperparts, and white underparts (Alsop 2001). Large white spots can be noted on its long black undertail (Alsop 2001).

The yellow-billed cuckoo is also known as the raincrow because its call heralds the coming of summer rains. It is a neotropical migrant which winters in South America (NatureServe 2006). Breeding often coincides with the appearance of massive numbers of cicadas, caterpillars, or other large insects (NatureServe 2006; Ehrlich et al. 1992). Its incubation/nestling period is the shortest of any known bird because it is one of the last neotropical migrants to arrive in North America and chicks have very little rearing time before embarking on their transcontinental migration (NatureServe 2006). In the West, this cuckoo will nest in dense stands of tall cottonwood and willow riparian woodlands (NatureServe 2006; Harrison 1979). Their nesting home range may include 25 acres (10 hectares) or more of riparian woodland habitat (NatureServe 2006; Biosystems Analysis 1989).

Suitable yellow-billed cuckoo habitat conditions, such as thick or dense riparian forested woodlands of cottonwoods or willows trees, are lacking within the project action area. Yellow-billed cuckoo presence is extremely unlikely based on habitat considerations; therefore, a “no effect” determination is warranted for yellow-billed cuckoo.

WDFW Priority Habitat and Species (PHS)

A review of the PHS database generated a critical species and habitats list specific to the defined action area (see Appendix B, item #4). The list identified seven species or habitats that warrant PHS considerations. These considerations were derived from habitat conditions coupled with potential species occurrence in the project vicinity. The sensitive species list that resulted from consultation with WDFW web based PHS Program is summarized in Table 6. Note: while the PHS report generated for the project site did not include documented occurrences of the black-tailed jackrabbit, this species was observed during the site visit on August 3, 2016. The black-tailed jackrabbit is a priority species (i.e. state listed “candidate” species), and is therefore included in this evaluation.

Table 6: WDFW Listed Priority Habitat and Species

Common Name	Scientific Name	ESA Status	State Status
Black-tailed jackrabbit	<i>Lepus californicus</i>	N/A	Candidate
Burrowing owl	<i>Athene cunicularia</i>	N/A	Candidate
Coho	<i>Oncorhynchus kisutch</i>	Threatened	N/A
Ferruginous hawk	<i>Buteo regalis</i>	N/A	Threatened
Freshwater forested/shrub wetland habitat	N/A	N/A	N/A
Shrub-steppe habitat	N/A	N/A	N/A
Spring chinook	<i>Oncorhynchus tshawytscha</i>	Threatened	N/A
Townsend's ground squirrel	<i>Urocitellus townsendii</i>	N/A	Candidate

Analysis of Effects (PHS Listed Species and Habitats)

The following subsections address the potential project impacts on PHS listed species and/or habitats. Where appropriate, for each species and habitat, potential impacts are evaluated on two timescales: short-term, localized impacts related to construction activities, and long-term impacts related to the presence and operation of the roadway.

Black-tailed Jackrabbit

The black-tailed jackrabbit is the most common jackrabbit in the western United States (Flinders and Chapman 2003). Typically, the species is found in desert areas, open plains, and upland foothills (NPS 2013). In Washington State, the species is closely associated with the shrub-steppe habitat of the Columbia Basin (WDFW 2012). Black-tailed jackrabbits are nocturnal and solitary (Flinders and Chapman 2003). During daylight hours, black-tailed jackrabbit spend most of their time in resting sites in taller vegetation (Lechleitner 1958; Flinders and Chapman 2003).

Black-tailed jackrabbit are known to cross roads readily with ease (Best 1996). The proposed road would not represent a barrier to jackrabbit movement or be characterized as a long-term impact. However, during construction, some taller sage brush is expected to be cleared and the black-tailed jackrabbit may experience avoidance behavior due to increased noise levels. The planned development of nearby parcels will significantly reduce the amount of shrub steppe habitat in the defined action area. In comparison, a new roadway corridor would also reduce the footprint of this habitat, but to a much smaller degree. Thus, a finding of “may affect, but is not likely to adversely affect” is warranted for the black-tailed jackrabbit.

Burrowing Owl

Burrowing owls are found in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals (Johnsgard 1986). They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. They can be found at elevations ranging from 200 feet below sea level to 9,000 feet above sea level. These owls can be found along the fringes of airports and golf courses, and in vacant urban lots. Burrowing owls tend to be opportunistic feeders. Large arthropods, mainly beetles and grasshoppers, comprise a large portion of their diet. Small mammals, especially mice, rats, gophers, and ground squirrels are also important food items. The burrowing owl hovers while hunting, similar to an American kestrel (*Falco sparverius*), and after catching its prey it returns to a perch. Burrowing owls are primarily crepuscular (active at dusk and dawn), but will hunt throughout a 24-hour period.

Burrowing owls nest in burrows in the ground, often in old ground squirrel burrows or badger dens. They can dig their own burrows, but prefer deserted excavations of other animals; they are also known to use artificial burrows. Their nesting season begins in late March or April. Six to 11 eggs are laid; the average number of eggs is seven to nine. Incubation lasts 28-30 days and is performed by only the female. The male performs the care of the young, while still in the nest. At 14 days of age, the young may be seen roosting at the entrance to the burrow, waiting for the adults to return with food. The young leave the nest at about 44 days and begin chasing living insects when 49-56 days old.

Prior to any construction activities, the entire project action area would be evaluated for evidence of burrowing owl nesting sites. If a nesting site is discovered, then the site would be immediately marked for protection and the WDFW management recommendations would be consulted (WDFW 2004). Whether or not burrowing owls nest within the project action area, the species likely uses the area to hunt for prey.

While the presence of a new roadway is unlikely to measurably affect burrowing owl use of the ACNP, during periods of active construction, burrowing owls may avoid hunting in the immediate area simply because construction activities may induce avoidance behavior in the owl's prey. In addition, the planned development of nearby parcels will significantly reduce the amount of shrub steppe habitat in the defined action area. In comparison, a new roadway corridor would also reduce the footprint of this habitat, but to a much smaller degree. The proposed project action "may affect, but is not likely to adversely affect" the burrowing owl.

Coho and Spring Chinook

According to the DNR Forest Practices Activity Map (Appendix B, Item #5), Amon Creek is classified as Stream Type U, meaning it is not known whether it is a fish-bearing waterway. However, it is highly unlikely that coho and spring chinook would occur within Amon Creek, as the creek's water is warm and slow compared to suitable water conditions for salmonids. Moreover, to reach Amon Creek, coho and spring chinook would have to travel more than four river miles to reach the ACNP from the nearest waterway containing suitable salmonid habitat: the confluence of the Yakima River and the Columbia River. This movement seems highly unlikely given the lack of suitable salmonid habitat in the ACNP. Thus, the proposed project would have "no effect" on coho and spring chinook salmon.

Ferruginous Hawk

The ferruginous hawk is North America's largest buteo, or soaring hawk. This species is named for its rust-colored back, upper wings, and legs. Uncultivated land is a major component of ferruginous hawk habitat (Olendorff 1993). The breeding season takes place between March 15 and August 15 (Suter and Jones 1981). Ferruginous hawks are obligate grassland or desert-shrub nesters (Woffinden and Murphy 1977). In Washington, ferruginous hawks nest on rock outcrops, steep low cliffs, ledges on hills, in some canyons, in isolated trees, and on power line towers or other artificial structures. Ferruginous hawks are sensitive to disturbance. Pairs may abandon nests even when mildly disturbed during the most sensitive period, nest building or incubation (1 March through 31 May). The diet of ferruginous hawks consists primarily of small- to medium-size mammals (e.g. ground squirrels and prairie dogs) and, to a lesser extent, snakes, birds, and insects (Olendorff 1993).

There are no appropriate ferruginous hawk nesting sites within the project action area. However, it is possible that the species utilizes the ACNP for hunting small mammals. While the proposed road and bridge or culvert construction may induce short-term avoidance behavior on ferruginous hawk prey species, and thus result in ferruginous hawks avoiding the area, there are no anticipated long-term impacts to the species. Thus, because of the potential short-term impacts to prey species without any anticipated long-term impacts, the proposed project "may affect, but is not likely to adversely affect" the ferruginous hawk.

Freshwater Forested/Shrub Wetlands and Amon Creek Wetlands

Wetland areas (approximately 23 acres) contained within the project study area have been identified through the Wetland Assessment conducted on August 3, 2016 (see attached Wetland Assessment Memo, Appendix B).

Stormwater runoff is a design component that could potentially have negative effects on the identified wetland areas contained within the project study area. The main potential for impacting wetlands through stormwater management would be linked to whether or not stormwater would be allowed to discharge to Amon Creek at any location. The potential and/or magnitude of potential stormwater impacts would depend on the overall stormwater management design.

A new crossing over Amon Creek and the identified depressional wetland would cast a “shadow effect,” whereby established vegetation in the immediate footprint of the new crossing would receive less direct sunlight. These changes would likely result in correlated shifts in the type and amount of vegetation growing in the wetland area under and adjacent to the new crossing structure. The extent of the “shadow effect” would be dependent on the overall width and height of the new crossing structure.

Depending on the overall design of the proposed road and wetland crossing (i.e. bridge or culvert), some level of wetland and/or buffer impacts are anticipated to occur. Consistent with “mitigation sequencing,” impacts to the identified wetland should be first avoided to the furthest extent practical through the roadway/crossing design, then minimized through implementation of effective design modifications and BMPs (as described in the Best Management Practices section of this report), and finally mitigated (if needed) as described in the Mitigation Approach section of this report. Based on potential impacts to the wetland centered on stormwater management, the shadowing effect and encroachment from the proposed roadway/crossing footprint, the proposed roadway is likely to negatively affect the functions and values of the wetland identified in the ACNP.

Shrub-Steppe Habitat

Pristine shrub-steppe habitat generally correlates to an environment with a healthy vegetative layer of perennial bunch grasses and a conspicuous but discontinuous layer of shrubs, such as sagebrush, rabbit brush and bitterbrush, and which lacks a significant percentage of invasive plant species, such as cheat grass, kochia, crested wheat grass, and Russian thistle (tumbleweed). The shrub-steppe habitat within the ACNP does contain a discontinuous layer of shrubs (two varieties each of sagebrush and rabbit brush), but lacks an established understory of dominant perennial native bunch grasses. The herbaceous layer within the shrub-steppe component of the ACNP is dominated by cheat grass, kochia, prickly lettuce and Russian thistle.

Shrub steppe habitat generally occurs landward of the identified wetland areas within the ACNP and is the habitat type associated with the wetland buffer in the project area. This habitat type occupies approximately 50% (or 33 acres) of the area within the ACNP. Some impacts to the established shrub-steppe habitat and the wetland buffer would be unavoidable from the construction of the proposed road corridor. However, these impacts would be limited to areas

within the project footprint. Shrub-steppe habitat outside of the project footprint would be unaffected by the construction of the new roadway alignment.

Due to the physical loss of shrub-steppe habitat correlated to the construction of the new roadway corridor, the proposed project will negatively affect the existing shrub-steppe habitat within the footprint of the new roadway and crossing alignment. However, a primary objective of the proposed project would be to facilitate more directed access for visitors (discussed below), and thus the overall and long-term impacts to the local shrub-steppe habitat are anticipated to be reduced compared to the long-term impacts associated with the ACNP's existing casual access design.

Townsend's Ground Squirrel

Townsend's ground squirrels require habitat that includes shrub-steppe, native grasslands, pastures, orchards, vineyards, highway margins, vacant city lots, and the banks of canals (WDFW 2011). They are found only in Washington in the Columbia Basin west of the Columbia River in Klickitat, Benton, Yakima, and Kittitas counties, with one additional colony known in Franklin County (WDFW 2011). The habitat within the project action area is suitable for Townsend's ground squirrel. Short-term avoidance behavior associated with periods of active road construction are possible, but no long-term impacts linked to the presence of the roadway are anticipated. Thus, a determination of "may affect, but not likely to adversely affect" is warranted for the species.

Summary of Analyses of Effects (ESA & PHS Listed Species and Habitats)

Based on habitat considerations, the anticipated project will not have any effects on the three ESA listed species identified in the IPaC report. However, the construction activities associated with the proposed project may yield short-term impacts on black-tailed jackrabbit, burrowing owl, ferruginous hawk, and Townsend's ground squirrel. Short-term impacts are also possible for freshwater forested/shrub wetland habitats within the ACNP. Clearing of some existing shrub-steppe habitat will be required within the proposed roadway footprint. Thereby, approximately 0.5 acres of shrub steppe habitat is expected to be permanently removed. Long-term impacts to State-listed species or habitats related to the presence and operation of the road are not anticipated for any of the species described in this wildlife report. Table 7 summarizes the effect determinations for the species and habitat evaluated in this report.

Table 7: Summary of effect determinations for ESA- and PHS-listed species and habitats.

Common Name	Scientific Name	Effect Determination
Black-tailed jackrabbit	<i>Lepus californicus</i>	May Affect, but Not Likely to Adversely Affect
Bull trout	<i>Salvelinus confluentus</i>	No Effect
Burrowing owl	<i>Athene cunicularia</i>	May Affect, but Not Likely to Adversely Affect

Common Name	Scientific Name	Effect Determination
Coho	<i>Oncorhynchus kisutch</i>	No Effect
Ferruginous hawk	<i>Buteo regalis</i>	May Affect, but Not Likely to Adversely Affect
Freshwater forested/shrub wetland habitat	N/A	Likely to Adversely Affect
Gray wolf	<i>Canis lupus</i>	No Effect
Shrub-steppe habitat (including wetland buffer zones)	N/A	Likely to Adversely Affect
Spring chinook	<i>Oncorhynchus tshawytscha</i>	No Effect
Townsend's ground squirrel	<i>Urocitellus townsendii</i>	May Affect, but Not Likely to Adversely Affect
Amon Creek wetlands	N/A	May Affect, but Not Likely to Adversely Affect
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	No Effect

Planned Best Management Practices

BMPs would be in place to minimize short-term construction impacts and long-term impacts of the presence and operation of the new roadway. Planned BMPs presented herein are intended to restore vegetative structure; minimize erosion and effects to sensitive species and habitats; increase the public's appreciation for the natural area and reduce impacts to vegetation resulting from existing casual access; and, minimize potential long term impacts from the bridge or culvert structure over sensitive habitats and the identified wetland. BMPs are mandatory and would become part of the project action. The prescribed BMPs include, but are not limited to, the following:

Design Phase BMPs

1. During the bridge or culvert design phase, engineers shall take into consideration the degree to which the structure allows unimpeded movement of terrestrial animals beneath the crossing. In 1975, Reed et al. studied a number of highway underpasses and developed a term called the "openness ratio" (OR). The $OR = ((\text{underpass width}) \times (\text{underpass height})) / (\text{underpass length})$. Today, OR is widely used when designing wildlife underpasses and new bridges and culverts. A large OR is beneficial in that it reduces (or eliminates) the likelihood that a crossing represents a barrier to animal movement. To minimize the anticipated impacts to wetland buffers, the preferred alternative will utilize the shortest wetland crossing that is practicable. Measuring the

width of the wetland at three narrow points (i.e. potential bridge or culvert locations) produces an average crossing width of approximately 45 feet. It is important to note that in the calculation of the OR, 44 feet is considered the “underpass length” (i.e. the distance an animal would have to travel under the structure to come out the other side). The “underpass width” would be considered to be equal to 45 feet (the approximate wetland width) if a single span bridge is selected as the preferred crossing. If a culvert is used for the crossing, the “underpass width” would be equal to the pipe inside diameter. The height of the crossing for calculation of the OR would be measured from the ordinary high water mark of the Amon wetland to the bottom of the crossing structure (i.e. bottom of girder for bridge, or top of inside of pipe for culvert) to properly account for the unimpeded movement of terrestrial mammals.

The largest mammal species that would likely utilize the bridge/culvert for daily movement is the coyote (*Canis latrans*). Using the established OR minimum of 0.40 for coyote, the minimum cross sectional area below the crossing would need to be at least 17.6 square feet (CDOT 2007; Cavallaro et al. 2005). The minimum cross sectional area translates to a single span bridge with a minimum height of only 0.4 feet, or a culvert with a diameter of approximately 6 feet (depending on the height of the ordinary high water mark). While coyote are well known for “belly crawling” under fence wires as low as 6-inches off the ground, they would not belly crawl under a 44-foot wide bridge underpass. Instead, the minimum underpass height that should be considered for a bridge design is 3-feet which represents the recommended minimum underpass height for medium-size mammals (i.e. badger, coyote, fox, rabbit, raccoon, skunk). Inputting a height of three feet for a single span bridge in the OR calculation, produces an OR of 3.07, which is far greater than the minimum OR recommended for large mammals, such as deer (CDOT 2007; Cavallaro et al. 2005).

It should be noted that the ACNP contains an existing Bonneville Power Administration (BPA) access roadway with an existing wetland crossing structure. The adjacent photo (taken on October 11, 2016) illustrates the BPA wetland crossing structure, which is a pre-cast concrete box culvert. This 4’ tall by 10’ wide box culvert only contains approximately 6 inches of free board at the time of the photo; and, this structure is believed to impound water during earlier portions of the growing season when the water table is higher. With regard to achieving an adequate OR, this water conveyance structure is a candidate for removal and replacement. In addition, there are two smaller culverts, located at the north end of the ACNP (north of the KID structure), that are also candidates for removal and replacement.



Pre-Construction Phase and Construction Phase Short-Term BMPs

1. The TG's Facebook page photographs indicate that the Swainson's hawk has recently nested within the ACNP. After typically spending the winter in Argentina, Swainson's hawk are documented to return to nest in the Richland area beginning in early April, and chicks will have fledged by the end of July (J. Fedora, Personal Communication, 9-29-16). In order to reduce or minimize the likelihood of project-related noise impacts to a Swainson's hawk nest within the ACNP, the following measures would be implemented and incorporated into the project designs and construction specifications:
 - If any construction activities are planned to take place during the Swainson's hawk nesting season (April 1 through July 30), then immediately prior to April 1st, the ACNP would be surveyed by the Project Biologist to identify any potentially active Swainson's hawk nests. If an active nest is observed within the ACNP, an appropriate spatial buffer around the nest site would be established working in consultation with WDFW biologists. The spatial buffer typically represents a circular area where no project-related activities would be permitted during the aforementioned nesting season.
2. All construction activities should be completed during daylight hours, between the hours of 7:00 A.M and 7:00 P.M. on weekdays.
3. All excavation would occur only within staked limits of the new roadway alignment.
4. The Contractor would have emergency spill equipment onsite at all times and would have a Spill Prevention Plan approved and in place prior to any construction activities. Dump trucks, pickups and other general construction equipment would be fueled offsite at a commercial facility.
5. Temporary erosion and sediment controls (TESCs) (i.e. silt fences, silt curtains, and straw wattles) would be implemented according to the final construction designs. TESCOs would generally be in place landward of the wetland boundary.
6. During any concrete pouring for the bridge or culvert abutments, an impermeable barrier must be installed at the bottom of the slope nearest to the wetland to protect against the possibility of a concrete spill allowing wet concrete or concrete by-products into the wetland.
7. The project would include regular onsite observation of work and TESCOs. Any deficiencies in TESCOs would be addressed immediately.
8. Hydro-seeding would be implemented to provide specific vegetative recruitment opportunities and provide erosion control protection to newly disturbed areas. Disturbed areas within the project footprint would be re-seeded with native seed mix as well as with native forbs to provide nectar for local pollinators.
9. Native re-plantings would be installed to offset any unavoidable woody vegetation impacts within the wetland buffer areas. The replacement ratio for woody vegetation would be a minimum of 2 to 1 for native trees and shrubs, and 1 to 1 for non-native trees and shrubs, and would involve using 1-gallon nursery stock of large plantings.

10. Improved trails and overlooks with environmental awareness and education components would be constructed (see Appendix A, Item #3). With these improvements, use of the ACNP would shift from casual access, which can damage habitat resources, to more directed access. Such directed use can have a net-positive effect on habitat quality over the long-term (McKinstry et al. 2006).

Post-Construction Long-Term BMPs

1. All replacement planting areas should receive temporary irrigation that would be in place until the new plantings are established. Temporary irrigation (likely drip irrigation fed by public water supply) should be installed for a time period of no less than 3 years to allow the roots of the new re-plantings to adequately establish.
2. Aggressive control of invasive and noxious weeds in disturbed areas would be required as part of this project. Noxious weeds within the site would be identified and minimized using an appropriate herbicide treatment or by hand pulling coupled with the proper disposal of the noxious weeds. Herbicide would be utilized per the manufacturer's specifications to control noxious weeds. If herbicide is to be used within 100 feet of the identified wetlands, Aquamaster™ or similar suitable product would be employed per the manufacturer's specifications. Native perennial bunches grasses should be introduced to areas treated to minimize invasive and noxious weeds. Hand broadcasting seed or hydro-seeding rates should be dispersed at rates between 45 to 60 pounds per acre.
3. Minimization of cheat grass establishment and recruitment would be a component of this project. Identified areas would be treated in the fall using an appropriate herbicide treatment. After allowing seven to ten days to pass, a native perennial bunch grass seed mix (dispersal rate between 45 to 60 pounds per acre) can be applied after the cheat grass has been treated.
4. Environmental awareness, appreciation, and education would be enhanced through interpretive kiosks and signage. The current "casual access" which tends to negatively impact sensitive areas in the ACNP would be shifted to more "directed access" through the use of improved trails.

Mitigation Approach

Mitigation Ratio

Because the ACNP is itself a mitigation site, the Washington Department of Ecology (DOE) requires that the standard mitigation ratio be doubled (C. Reed, Personal Communication, 8-31-16). Mitigation measures to offset the anticipated impacts to wetland buffers could include additional native re-plantings within the ACNP.

Planting Details

To mitigate for anticipated impacts to the shrub-steppe habitat as a result of the construction of the bridge or culvert and associated approaches, a combination of native woody re-plantings

should be implemented. The enclosed planting details sheet illustrates and describes the recommended planting techniques (see Appendix A, Item #4). To protect new plantings from wildlife browsing, exclusionary panels should be established around the new plantings. Some of the species that could be used in the re-plantings measures are listed in Table 8. All of these species have been documented to occur in the project vicinity.

Table 8: Native woody plant species that could be used in mitigation re-planting efforts.

Common Name	Scientific Name
Black hawthorn	<i>Crataegus douglasii</i>
Coyote willow	<i>Salix exigua</i>
Rabbit brush	<i>Ericameria nauseosa</i>
Red-osier dogwood	<i>Cornus sericea</i>
Big sagebrush	<i>Artemisia tridentata</i>
Wood's rose	<i>Rosa woodsii</i>

There are several general areas within the ACNP where native re-plantings could be installed, which include:

- Casual access trails and unused access roads that could be reclaimed through restoration and re-plantings efforts;
- Unused parking areas;
- Disturbed areas along the new roadway alignment; and,
- Other areas that are disturbed during construction of the new roadway and bridge or culvert (such as equipment staging areas).

Environmental Awareness, Appreciation and Education

Environmental awareness, appreciation and education components (such as the interpretive sign, shown right) should have a net-positive impact on the ecological function of the habitat within the ACNP. Shifting the way people use the ACNP, from casual access to more directed access, with improved trails, signage and informational kiosks is anticipated to increase people's appreciation of the ACNP and reduce the amount of off-trail impact to the ACNP (see Appendix A, Item #3). Interpretive signage should also make the public aware of the contributions of irrigation facilities to the wetland features within the ACNP.



With regard to increasing environmental educational opportunities at the ACNP, the following bulleted items represent potential enhancement (mitigation) measures that could be implemented:

- Assuming a new parking area is designated for the ACNP, an ADA compliant paved trail segment could stem from a new parking area to a new overlook. The overlook should include interpretive signing. Beyond the overlook and at the end of the paved trail segment, a soft trail (i.e. gravel, dirt or bark) could continue to provide connectivity into the ACNP.
- The existing interpretive signing located at the southwest corner of the ACNP could be relocated to the north end of the ACNP, to be situated along the northern entrance trail.
- A small shed (8' by 12' footprint) could be placed near the eastern ACNP property line to house hand tools (e.g. shovels and metal rakes), grass seed and educational elements (e.g. dip nets, bird houses or plant/bird identification manuals).
- Assuming that stake-holders of the ACNP would like to continue to promote the establishment of native vegetative assemblages (and the reduction of invasive or weedy species), the installation of a dedicated water source [consisting of a City of Richland water meter and one hydrant (hose bib)] could be installed along the eastern central portion of the ACNP.
- Assuming the stake-holders of the ACNP would like to continue to learn more about the fluctuating water table within the ACNP, the installation of a staff gauge and/or a shallow ground monitoring well (2-inch with a depth of 20 feet) could be installed in central portions of the ACNP to aid in the gathering and recording of this information.

The above mentioned potential mitigation measures represent “onsite” enhancement and restoration elements. In a meeting with the TG’s Board of Directors, a mitigation preference of securing additional land near the ACNP via a conservation easement or by deed restriction was mentioned as a possible mitigation solution (K. Sowers, Personal Communication, 1-19-17). The purchase and preservation of additional offsite land could be secured by project proponents as another potential form of mitigation. Any and all mitigation measures shall follow the required mitigation sequencing process, that dedicates that project actions shall first try to avoid impacts, secondly minimize impacts, and then mitigate for project related impacts.

Cumulative Effects

“Cumulative effects” refers to future State, private and non-Federal activities that are reasonably certain to occur within the defined study area (i.e. the ACNP). While the proposed project would include a new east-west oriented roadway, the project would reduce the need for additional connector roads in the area that might otherwise be proposed. No future development would occur within the ACNP as a result of the proposed roadway construction.

Conclusion

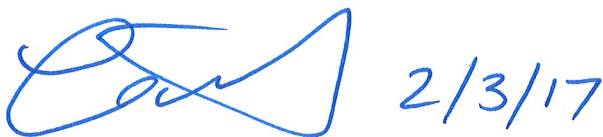
A new roadway corridor for improved regional connectivity and direct emergency access is expected to be constructed within the ACNP. Depending on the eventual alignment of the road and wetland crossing (bridge or culvert), some impacts to wetland and/or buffer areas are anticipated. Prescribed avoidance methods, BMPs and mitigation measures outlined within this wildlife report should offset the temporary construction and operational impacts of the roadway; and, maintain the ecological functions and values of the noted critical areas post-construction.

Habitat considerations, coupled with an unlikely occurrence of listed species within the defined action areas, yielded a “no effect” determination for bull trout, coho, gray wolf, spring chinook, and yellow-billed cuckoo. Based on short-term, construction-related impacts, the black-tailed jackrabbit, burrowing owl, ferruginous hawk and Townsend’s ground squirrel warrant a “may affect, but not likely to adversely affect” determination. However, despite the potential for short-term impacts related to active construction, the presence of the road is not anticipated to have any long-term impacts to these species; and moreover, the project design should maintain the overall habitat quality within the project area. Direct and adverse impacts to woody shrub-steppe vegetation, wetlands and associated wetland buffer areas, would be offset by the prescribed BMPs (including native re-plantings and the establishment of native bunch grass communities) and recommended mitigation measures centered on environmental education and awareness.

It is important to note that if the BMPs and mitigation approaches described in this report are implemented properly, the movement and migration of animals in the ACNP would not be compromised.

Lastly, it should be noted that the final authority to approve this wildlife report, and the findings herein, rests with the appropriate regulatory agencies.

Respectfully submitted by:



Vincent J. Barthels, Biologist
J-U-B ENGINEERS, Inc.

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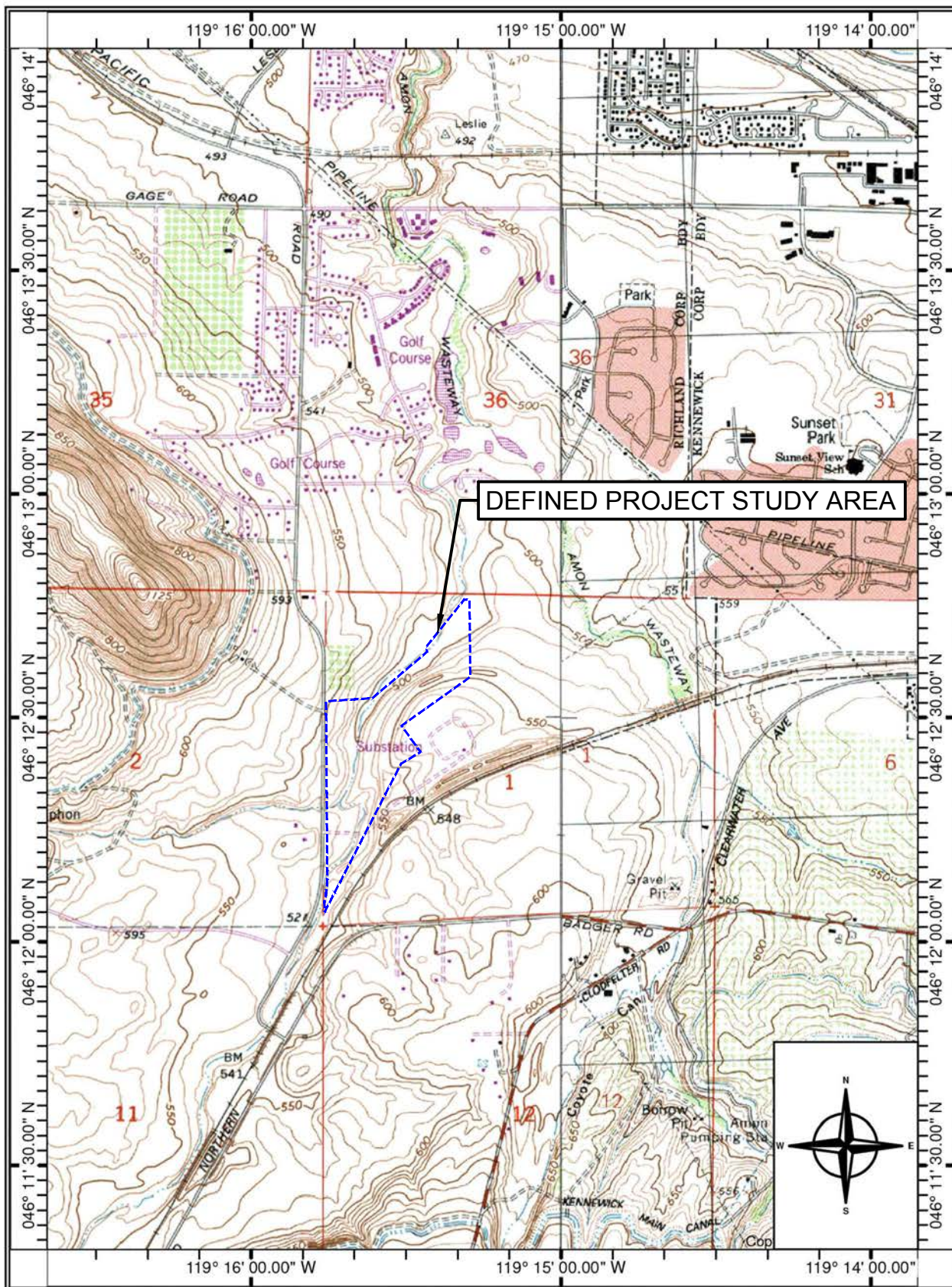
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Appendix A

Maps, Diagrams, and Supporting Information



HORIZONTAL DATUM: NAD27

MAP: BADGER MT



0 1000 2000 3000 4000
FEET
1 inch = 2,000 ft.
CONTOUR INTERVAL: 10 Feet

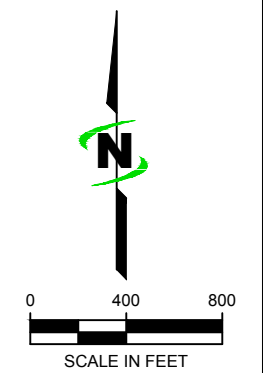
VICINITY MAP

NOTE: THE DEFINED PROJECT ACTION AREA WAS ESTABLISHED BASED ON THE GENERAL ASSUMPTION THAT AN EAST-WEST ORIENTED PUBLIC ARTERIAL ROADWAY WOULD TRAVERSE THE DEFINED PROJECT STUDY AREA. THIS ROADWAY CORRIDOR WOULD CONTAIN A BRIDGE FEATURE TO SPAN THE IDENTIFIED WETLANDS CONTAINED WITH THE DEFINED STUDY AREA. MOREOVER, IT IS ANTICIPATED THAT THIS PAVED PUBLIC ROADWAY WOULD BE CONSTRUCTED TO BE 44 FEET WIDE, CONSISTING OF TWO 12 FOOT TRAVEL LANES WITH 5 FOOT SHOULDERS AND 5 FOOT SIDEWALKS.



LEGEND

- PROJECT STUDY AREA (≈66 ACRES)
- DEFINED PROJECT ACTION AREA (1,600 FOOT RADIUS SURROUNDING THE PROJECT STUDY AREA, ENCOMPASSING A TOTAL OF 650 ACRES).
- #1 PHOTO POINT

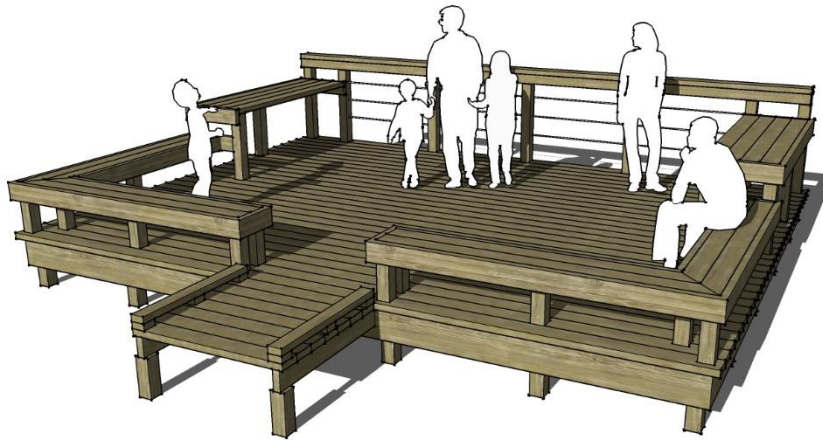


AERIAL IMAGERY PROVIDED BY GOOGLE EARTH ON 7-20-2016

RACHEL ROAD ALIGNMENT STUDY CITY OF RICHLAND PROJECT ACTION AREA EXHIBIT

Environmental Awareness and Education Components

Mystic Springs Observation Deck



Mystic Springs is a 30-acre open space area adjacent to the Jordan River in the city of South Jordan, Utah. The site has multiple natural springs feeding into it and a variety of wildlife in wetland, transitional, and upland habitats. A significant item developed for this natural area is a wildlife observation or viewing deck. Two such structures are incorporated into the site to allow ADA access at key locations where patrons can unobtrusively watch from close range the wildlife that lives there.

This same observation deck can successfully incorporate into the Amon Basin Preserve. The vegetation and topography are such that they can easily accommodate the installation of this type of structure to provide ample opportunity to view the activity of the Basin's native and migrating animal residents. It can provide a great viewing platform for birders and nature lovers, as well as resting spots for other trail users.

Mystic Springs Interpretive Sign 1



This simple interpretive sign originally developed for the Mystic Springs Wetland Educational Area can effectively be adapted for use in the Amon Basin Preserve. The materials are natural weathering steel and one-half inch plastic laminate signage. They can be located conveniently along the trails that surround the Basin, helping patrons to better understand the history, geology, hydrology, vegetation and animal life of this unique place. They are simple to manufacture, easy to install, and can be very effective in communicating useful information to area users.

Bruneau Signage Concept Boards

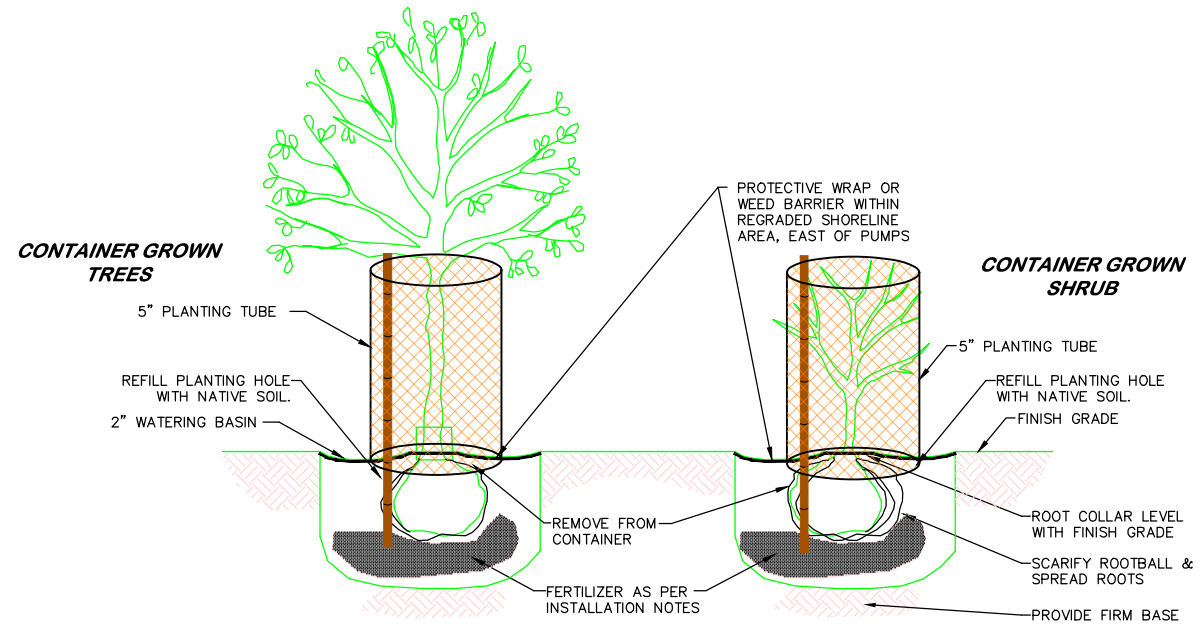


BRUNEAU OVERLOOK- SIGNAGE CONCEPT A



Bruneau Overlook required the development of specific interpretive signage materials that identified the significance of this scenic river overlook. This was a high-profile project for the Bureau of Land Management (BLM), and the ability to provide site information using forms and materials that fit with the site was important. It also had to minimize the amount of maintenance required to keep the signage looking crisp and clean.

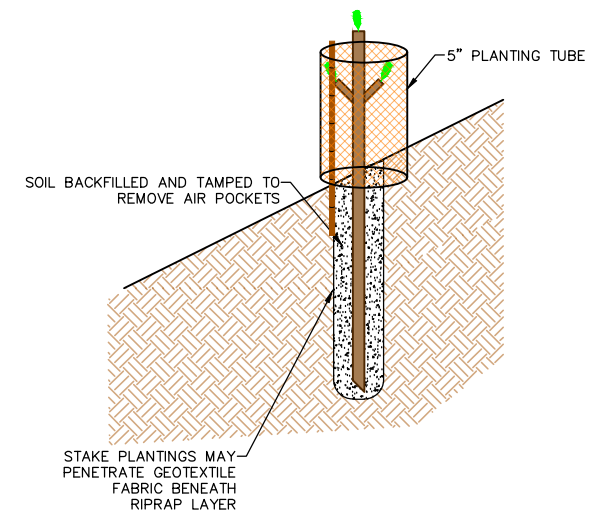
With Amon Basin a similar approach could be used. Context-sensitive materials, along with appropriate forms and shapes and colors will be helpful in maintaining the existing character of the site, at the same time providing interesting and educational information to visitors. Helping the people who come to Amon Basin Preserve appreciate its unique and distinctive character is important in boosting their sense of connection to it, and increasing their support for thoughtful and sensitive development around it.



PLANTING DETAIL
NOT TO SCALE

INSTALLATION NOTES:

1. ALL PLANTING AND SITE PREPARATION OPERATIONS SHALL BE CONDUCTED ACCORDING TO AMERICAN NURSERYMAN'S ASSOCIATION GUIDELINES.
2. ALL PLANT MATERIALS SHALL BE NATIVE TO THE BENTON COUNTY AREA. PLANT MATERIAL SHALL BE FROM NATIVE STOCK, NO CULTIVARS OR HORTICULTURAL VARIETIES WILL BE ALLOWED.
3. ALL PLANT MATERIAL SCHEDULED FOR INSTALLATION WILL BE IDENTIFIED IN THE PLANT SCHEDULE FOR THIS PROJECT. PROPOSALS FOR SUBSTITUTIONS REQUIRE THE APPROVAL OF THE PROJECT BIOLOGIST.
4. THE REQUIREMENTS OF ALL NURSERY GROWN PLANT MATERIALS ARE IDENTIFIED IN THE PLANT SCHEDULE. ALL PLANTS SHALL BE GROWN IN CONTAINERS. ONLY SOUND, HEALTHY, VIGOROUS PLANTS, FREE OF DEFECTS, DISEASE, AND ALL FORMS OF INFESTATIONS WILL BE ACCEPTED.
5. DIG, PACK, TRANSPORT, AND HANDLE ALL PLANTS WITH CARE TO ENSURE PROTECTION FROM INJURY. STORE PLANTS IN THE MANNER NECESSARY TO ACCOMMODATE THEIR HORTICULTURAL REQUIREMENTS. HEEL-IN PLANTS IF NECESSARY TO KEEP THEM FROM DRYING OUT.
6. SHRUBS AND TREES SHALL BE KEPT SATURATED AND SHADED UNTIL THE ACTUAL TIME OF INSTALLATION. DO NOT ALLOW PLANTINGS TO DRY OUT OR SIT IN THE SUN PRIOR TO OR DURING INSTALLATION. IMMEDIATELY SATURATE SHRUBS AND TREES AFTER PLANTING TO AVOID CAPILLARY STRESS.
7. A PROTECTIVE WRAP OR WEED BARRIER SHALL BE PLACED IN A 3 FT RADIUS AT THE SHRUB/TREE TRUNK.
8. INSTALL TRANSPLANTER TYPE FERTILIZER, SUCH AS OSMOCOTE SLOW RELEASE FERTILIZER (16-16-16 ANALYSIS) OR EQUAL, TO SHRUB AND TREE PITS. APPLICATION RATE SHALL BE AS SPECIFIED BY THE MANUFACTURER. FERTILIZER WILL BE ALLOWED IN PLANTING PITS ONLY.
9. 5" VEXAR OR PLANTING TUBES WOULD BE INSTALLED AT THE BASE OF SHRUBS/TREES ALONG WITH BAMBOO STAKES FOR STABILITY.



NATIVE STAKE PLANTINGS
PLANTING DETAIL
NOT TO SCALE

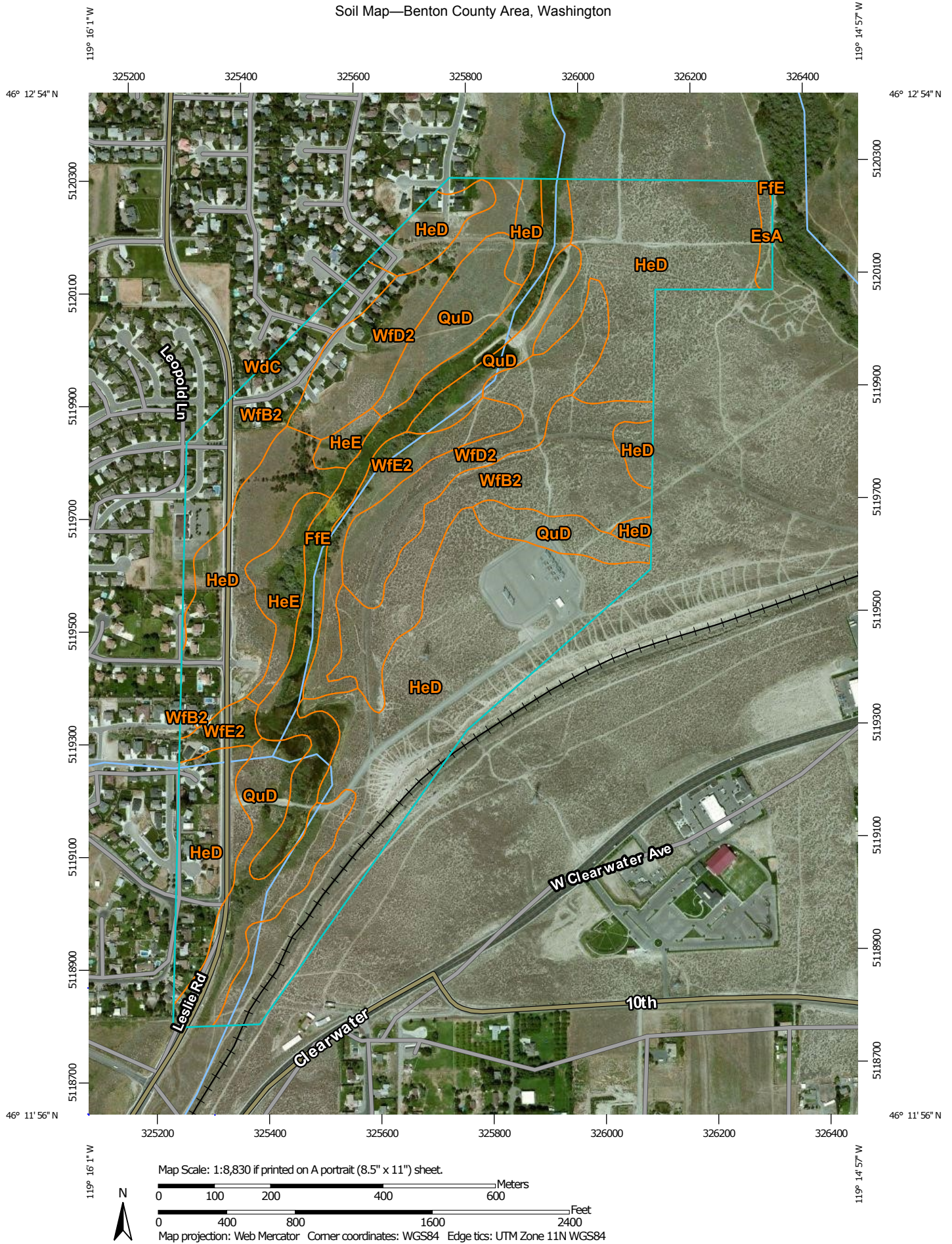
INSTALLATION NOTES:

1. LARGE DIAMETER CUTTINGS OR STAKES SHOULD BE AT LEAST 1/2" IN DIAMETER. WILLOW STAKE PLANTINGS SHOULD BE 4-5 FEET IN LENGTH AND SHALL BE BURIED AT LEAST 3 FEET SO THAT THE ROOTS CAN REACH THE WATER TABLE.
2. TERMINAL BUD ON EACH CUTTING SHALL BE REMOVED.
3. CUTTING SHALL HAVE 3/4 OF TOTAL LENGTH PLANTED BELOW GROUND. 4 TO 6 BUDS SHALL BE UNDERGROUND AND 2 TO 3 BUDS ABOVE GROUND ON EACH CUTTING. BASE OF CUTTING SHALL EXTEND AT LEAST 3 FEET BELOW THE GROUND SURFACE.
4. SOIL SHALL BE TAMPED AROUND EACH CUTTING TO ENSURE NO AIR POCKETS REMAIN AROUND CUTTING.
5. CUTTINGS OR STAKES SHALL BE SOAKED AT LEAST 24 HOURS, BUT NOT MORE THAN 7 DAYS, PRIOR TO PLANTING.
6. A PROBE OR STINGER SHALL BE USED TO CREATE AN OPENING LARGE ENOUGH TO ENSURE THE BASE OF THE CUTTING ENTERS A DEPTH OF AT LEAST 3 FEET.
7. 5" VEXAR OR PLANTING TUBES WOULD BE INSTALLED AT THE BASE OF STAKE PLANTINGS ALONG WITH BAMBOO STAKES FOR STABILITY.

Appendix B

Listed Species and Habitat Supporting Information

Soil Map—Benton County Area, Washington



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

7/28/2016
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 11, Sep 14, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 6, 2010—Oct 17, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Benton County Area, Washington (WA605)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EsA	Esquatzel fine sandy loam, 0 to 2 percent slopes	1.1	0.5%
FfE	Finley stony fine sandy loam, 0 to 30 percent slopes	15.9	7.3%
HeD	Hezel loamy fine sand, 2 to 15 percent slopes	97.7	45.1%
HeE	Hezel loamy fine sand, 0 to 30 percent slopes	6.6	3.0%
QuD	Quincy loamy sand, 2 to 15 percent slopes	28.2	13.0%
WdC	Warden silt loam, 5 to 8 percent slopes	0.0	0.0%
WfB2	Warden very fine sandy loam, 2 to 8 percent slopes, eroded	32.3	14.9%
WfD2	Warden very fine sandy loam, 8 to 15 percent slopes, eroded	25.1	11.6%
WfE2	Warden very fine sandy loam, 15 to 30 percent slopes, eroded	9.9	4.6%
Totals for Area of Interest		216.8	100.0%

MEMORANDUM

DATE: August 10, 2016
TO: Pete Rogalsky, Public Works Director (City of Richland) and Catherine Reed, Wetland Specialist/PWS (Department of Ecology)
COPY: Geoff Gray, Biologist (WSDOT)
FROM: Vince Barthels, Biologist (J-U-B ENGINEERS, Inc.) *VJB 8-10-16*
SUBJECT: Wetland Assessment of the Amon Creek Natural Preserve located within Section 1, Township 8 North, Range 28 East, City of Richland, Benton County, Washington.

The Amon Creek Natural Preserve encompasses approximately 66 acres within the City limits of Richland and contains a depressional wetland that is estimated to span a total of 23 acres. This memo documents the recent efforts to assess and rate the wetland unit contained within the Amon Creek Natural Preserve.

On August 3, 2016, I systematically walked around the Amon Creek Natural Preserve and rated the wetland unit consistent with the most current Eastern Washington Wetland Rating System (Hruby 2014). Hardstem bulrush (*Scirpus acutus*), coyote willow (*Salix exigua*) and Russian olive (*Elaeagnus angustifolia*) were the most prevalent vegetation assemblages encountered throughout the wetland unit. The photo below illustrates the central portion of the depressional wetland unit and captures the aforementioned dominant vegetative community present.



Based on functions, the wetland unit scored a total of 19 points and was rated to be a Category II Wetland (see attached Wetland Rating Forms and supporting Wetland Assessment Exhibit). None of the “Special Characteristics” contained within the rating system (i.e. Part 2) were found to be applicable to this wetland unit. The fact that this wetland unit is contained within a Natural Preserve does not qualify this area by definition as a “Wetland of High Conservation Value (Hruby 2014).” Generally speaking, “Wetlands of High Conservation Value” contain documented sensitive or rare plant species and are inventoried on the Department of Natural Resources database.

Richland Municipal Code (RMC) 22.10.110 specifies required wetland buffer widths for wetlands situated within the City limits of Richland. In accordance with RMC, Category II wetlands associated with high impact land uses require a 100-foot buffer; whereas, low impact land uses require a 50-foot buffer.

This wetland assessment has been completed to document the approximate size, type and category of wetland area contained within the Amon Creek Natural Preserve. Please do not hesitate to contact me with any questions or concerns regarding this wetland assessment. I can be reached at (509) 458-3727 or via email at ybarthels@jub.com. It should be noted that the final authority with regard to the wetland determination rests with the appropriate regulatory agencies.

Attachments

- Wetland Rating Forms and supporting Wetland Assessment Exhibit

Reference Cited

Hruby, T. (2014). Washington State Wetland Rating System for Eastern Washington: 2014 Update. (Publication #14-06-030). Olympia, WA: Washington Department of Ecology.

Wetland name or number Amon Creek Natural Preserve (ACNP)

RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Amon Creek Date of site visit: 8-3-16
Rated by Vincent Barthels (J-V-B) Trained by Ecology? ☒ Yes ___ No Date of training May 2013
HGM Class used for rating Depressional Wetland has multiple HGM classes? ___ Y ☒ N

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map Google Earth

Figure 1 = Wetland Assessment Exhibit

OVERALL WETLAND CATEGORY II (based on functions ☒ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

- ___ Category I – Total score = 22-27
☒ Category II – Total score = 19-21
___ Category III – Total score = 16-18
___ Category IV – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	H <u>M</u> L	H <u>M</u> L	H <u>M</u> L	
Landscape Potential	H <u>M</u> L	H <u>M</u> L	H <u>M</u> L	
Value	<u>H</u> M L	H M <u>L</u>	<u>H</u> M L	TOTAL
Score Based on Ratings	<u>7</u>	<u>5</u>	<u>7</u>	<u>19</u>

Score for each
function based
on three
ratings
(order of ratings
is not
important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
	Circle the appropriate category
Vernal Pools	II III
Alkali	I
Wetland of High Conservation Value	I
Bog and Calcareous Fens	I
Old Growth or Mature Forest – slow growing	I
Aspen Forest	I
Old Growth or Mature Forest – fast growing	II
Floodplain forest	II
None of the above	<u>X</u>

 1
8/8/16

Wetland name or number ACNP

DEPRESSIONAL WETLANDS		Points (only 1 score per box)
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u>		
Wetland has no surface water outlet	points = 5	
Wetland has an intermittently flowing outlet	points = 3	
Wetland has a highly constricted permanently flowing outlet	points = 3	3
Wetland has a permanently flowing, unconstricted, surface outlet	points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions of soils)</u>	YES = 3 NO = 0	0
D 1.3. <u>Characteristics of persistent vegetation</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for $> \frac{2}{3}$ of area	points = 5	
Wetland has persistent, ungrazed, vegetation from $\frac{1}{3}$ to $\frac{2}{3}$ of area	points = 3	
Wetland has persistent, ungrazed vegetation from $\frac{1}{10}$ to $< \frac{1}{3}$ of area	points = 1	5
Wetland has persistent, ungrazed vegetation $< \frac{1}{10}$ of area	points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u>		
<i>This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.</i>		
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland	points = 3	
Area seasonally ponded is $\frac{1}{4}$ - $\frac{1}{2}$ total area of wetland	points = 1	1
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	9

Rating of Site Potential If score is: 12- 16 = H X 6- 11 = M 0- 5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is $> 10\%$ of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source _____	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	1
<u>Amon Creek discharges to the mouth of the Yakima River (2.5 miles north)</u>		
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the drainage or basin in which the wetland is found)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	4

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number ACNP

DEPRESSIONAL WETLANDS		Points (only 1 score per box)
Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion.		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	points = 8	4
Wetland has an intermittently flowing outlet	points = 4	
Wetland has a highly constricted permanently flowing outlet	points = 4	
Wetland has a permanently flowing unconstricted surface outlet (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")	points = 0	
D 4.2. <u>Depth of storage during wet periods</u> : Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).		
Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding	points = 8	4
Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding	points = 6	
The wetland is a headwater wetland	points = 4	
Seasonal ponding: 1 ft - < 2 ft	points = 4	
Seasonal ponding: 6 in - < 1 ft	points = 2	
Seasonal ponding: < 6 in or wetland has only saturated soils	points = 0	
Total for D 4	Add the points in the boxes above	8

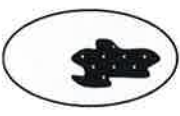
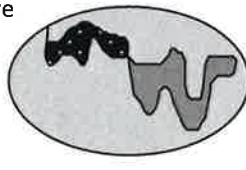
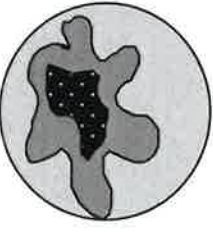
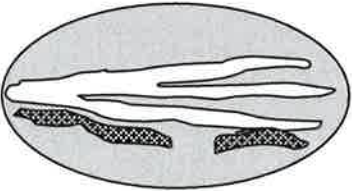
Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The wetland is in a landscape that has flooding problems.</u>		
Choose the description that best matches conditions around the wetland being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND		
Flooding occurs in sub-basin that is immediately down-gradient of wetland	points = 2	0
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.		
Explain why <u>KID irrigation uses; presence of the intake pond near the north (down-gradient) portion of the wetland unit.</u>		points = 0
There are no problems with flooding downstream of the wetland		points = 0
D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan?		Yes = 2 No = 0
Total for D 6	Add the points in the boxes above	0

Rating of Value If score is: 2-4 = H 1 = M X 0 = L Record the rating on the first page

These questions apply to wetlands of all HGM classes.		(only 1 score per box)
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat		
H 1.0. Does the wetland have the potential to provide habitat for many species?		
H 1.1. Structure of the plant community: Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is $\geq \frac{1}{4}$ ac or $\geq 10\%$ of the wetland if wetland is < 2.5 ac. ☐ Aquatic bed ☐ Emergent plants 0-12 in (0-30 cm) high are the highest layer and have $> 30\%$ cover ☒ Emergent plants >12-40 in (>30-100 cm) high are the highest layer with $>30\%$ cover ☒ Emergent plants > 40 in (> 100 cm) high are the highest layer with $>30\%$ cover ☒ Scrub-shrub (areas where shrubs have $>30\%$ cover) ☐ Forested (areas where trees have $>30\%$ cover) 4 or more checks: points = 3 <u>3 checks: points = 2</u> 2 checks: points = 1 1 check: points = 0		2
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 <u>No = 0</u>		0
H 1.3. <u>Surface water</u> H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least $\frac{1}{4}$ ac OR 10% of its area during the March to early June OR in August to the end of September? Answer YES for Lake Fringe wetlands. <u>Yes = 3 points & go to H 1.4</u> No = go to H 1.3.2 H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least $\frac{1}{4}$ ac or 10% of its area? Answer yes only if H 1.3.1 is No. Yes = 3 No = 0		3
H 1.4. <u>Richness of plant species</u> Count the number of plant species in the wetland that cover at least 10 ft^2. Different patches of the same species can be combined to meet the size threshold. You do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk) # of species <u>(29)</u> Scoring <u>> 9 species: points = 2</u> 4-9 species: points = 1 < 4 species: points = 0 <i>hardstem bulrush, smartweed, cottonwood, cattails, willow, red-osier dogwood, curly dock, white poplar, watergrass, flirweed, southwistle, scouring rush and golden rod.</i>		2
H 1.5. <u>Interspersion of habitats</u> Decide from the diagrams below whether interspersions among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or <u>three classes and open water</u>, the rating is always high.  None = 0 points  Low = 1 point  Moderate = 2 points All three diagrams in this row are <u>High = 3 points</u>    Riparian braided channels with 2 classes	Figure 1	3

Wetland name or number ACNP

H 1.6. Special habitat features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points.</i>		
☒ Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. ☒ Cattails or bulrushes are present within the wetland. ☒ Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ☐ Emergent or shrub vegetation in areas that are permanently inundated/ponded. ☒ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ☐ Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)		4
Total for H 1	Add the points in the boxes above	14

Rating of Site Potential If score is: 15-18 = H X 7-14 = M 0-6 = L Record the rating on the first page

H 2.0. Does the landscape have the potential to support habitat functions of the site?		
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: <i>Calculate: % undisturbed habitat</i> <u>20%</u> + [(% moderate and low intensity land uses)/2] <u>5%</u> = <u>25%</u> > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1km Polygon points = 2 10-19% of 1km Polygon points = 1 <10% of 1km Polygon points = 0		2
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. <i>Calculate: % undisturbed habitat</i> <u>25</u> + [(% moderate and low intensity land uses)/2] <u>7.5%</u> = <u>32.5%</u> Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of Polygon points = 0		2
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use points = (- 2) Does not meet criterion above points = 0		-2
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs Yes = 3 No = 0		0
Total for H 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 4-9 = H X 1-3 = M < 1 = L Record the rating on the first page

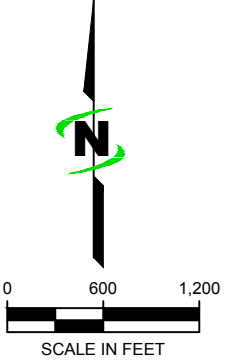
H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose the highest score that applies to the wetland being rated <i>Site meets ANY of the following criteria:</i> points = 2 ☒ It has 3 or more priority habitats within 100 m (see Appendix B) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) ☐ It is mapped as a location for an individual WDFW species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100 m (see Appendix B) points = 1 Site does not meet any of the criteria above points = 0		2

Rating of Value If score is: X 2 = H 1 = M 0 = L Record the rating on the first page



LEGEND

-  PROJECT STUDY AREA (≈66 ACRES)
-  DEFINED WETLAND UNIT (≈23 ACRES
CONTAINED WITHIN SECTION 1, TOWNSHIP 8
NORTH, RANGE 28 EAST, BENTON COUNTY,
WASHINGTON)
-  1 KM POLYGON AROUND THE WETLAND UNIT



AERIAL IMAGERY PROVIDED BY GOOGLE EARTH ON 7-20-2016

RACHEL ROAD ALIGNMENT STUDY
CITY OF RICHLAND
WETLAND ASSESSMENT EXHIBIT



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Washington Fish and Wildlife Office
510 DESMOND DRIVE SE, SUITE 102
LACEY, WA 98503
PHONE: (360)753-9440 FAX: (360)753-9405
URL: www.fws.gov/wafwo/

Consultation Code: 01EWF00-2017-SLI-0027

February 03, 2017

Event Code: 01EWF00-2017-E-00542

Project Name: Rachel Road Alignment Study

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website:

<http://wdfw.wa.gov/mapping/phs/> or at our office website:

http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at <http://www.fws.gov/pacific/eagle/for> information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: <http://www.nmfs.noaa.gov/pr/laws/mmpa/>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:

National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Rachel Road Alignment Study

Official Species List

Provided by:

Washington Fish and Wildlife Office
510 DESMOND DRIVE SE, SUITE 102
LACEY, WA 98503
(360) 753-9440
<http://www.fws.gov/wafwo/>

Consultation Code: 01EWF00-2017-SLI-0027

Event Code: 01EWF00-2017-E-00542

Project Type: TRANSPORTATION

Project Name: Rachel Road Alignment Study

Project Description: Rachel Road Alignment Study

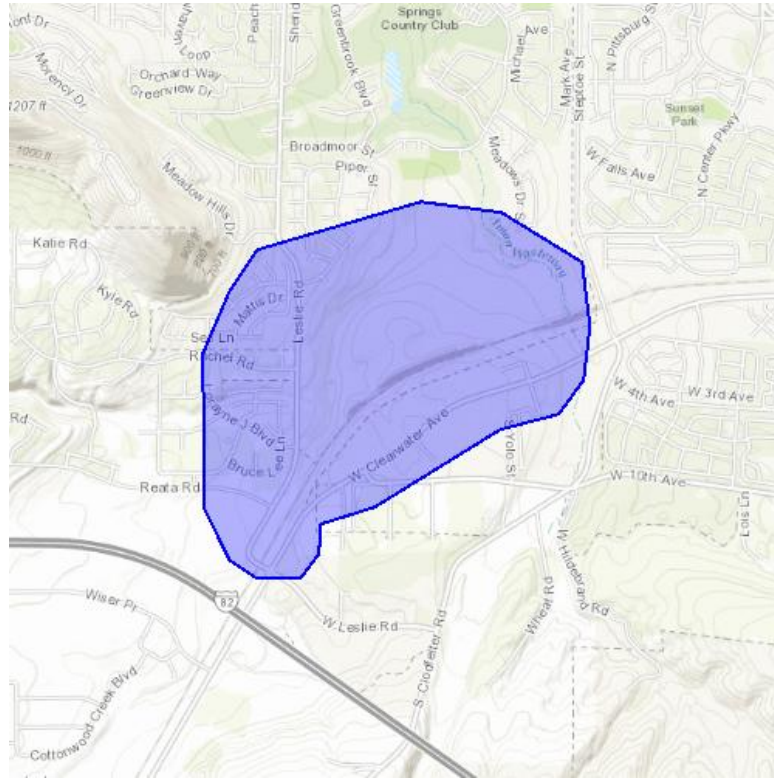
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Rachel Road Alignment Study

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-119.27066802978516 46.20686392144151, -119.26877975463867 46.209833826318544, -119.26680564880371 46.2119126641887, -119.25521850585938 46.21422899084459, -119.24955368041994 46.21369446259514, -119.24388885498047 46.211318718540376, -119.24337387084961 46.208170699370605, -119.24380302429199 46.20555711242443, -119.24551963806151 46.20389385598612, -119.2496395111084 46.20312161266488, -119.25856590270995 46.19937904895259, -119.26234245300293 46.19854733350661, -119.2624282836914 46.197062096039886, -119.26380157470702 46.195873877161986, -119.26680564880371 46.195873877161986, -119.26877975463867 46.19676504372912, -119.27058219909667 46.199260233231094, -119.27066802978516 46.20686392144151)))

Project Counties: Benton, WA



United States Department of Interior
Fish and Wildlife Service

Project name: Rachel Road Alignment Study

Endangered Species Act Species List

There are a total of 3 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Yellow-Billed Cuckoo (<i>Coccyzus americanus</i>) Population: Western U.S. DPS	Threatened	Proposed	
Fishes			
Bull Trout (<i>Salvelinus confluentus</i>) Population: U.S.A., conterminous, lower 48 states	Threatened	Final designated	
Mammals			
Gray wolf (<i>Canis lupus</i>) Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.	Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: Rachel Road Alignment Study

Critical habitats that lie within your project area

There are no critical habitats within your project area.



WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPublic
REPORT DATE: 07/28/2016 11.47

Query ID: P160728114735

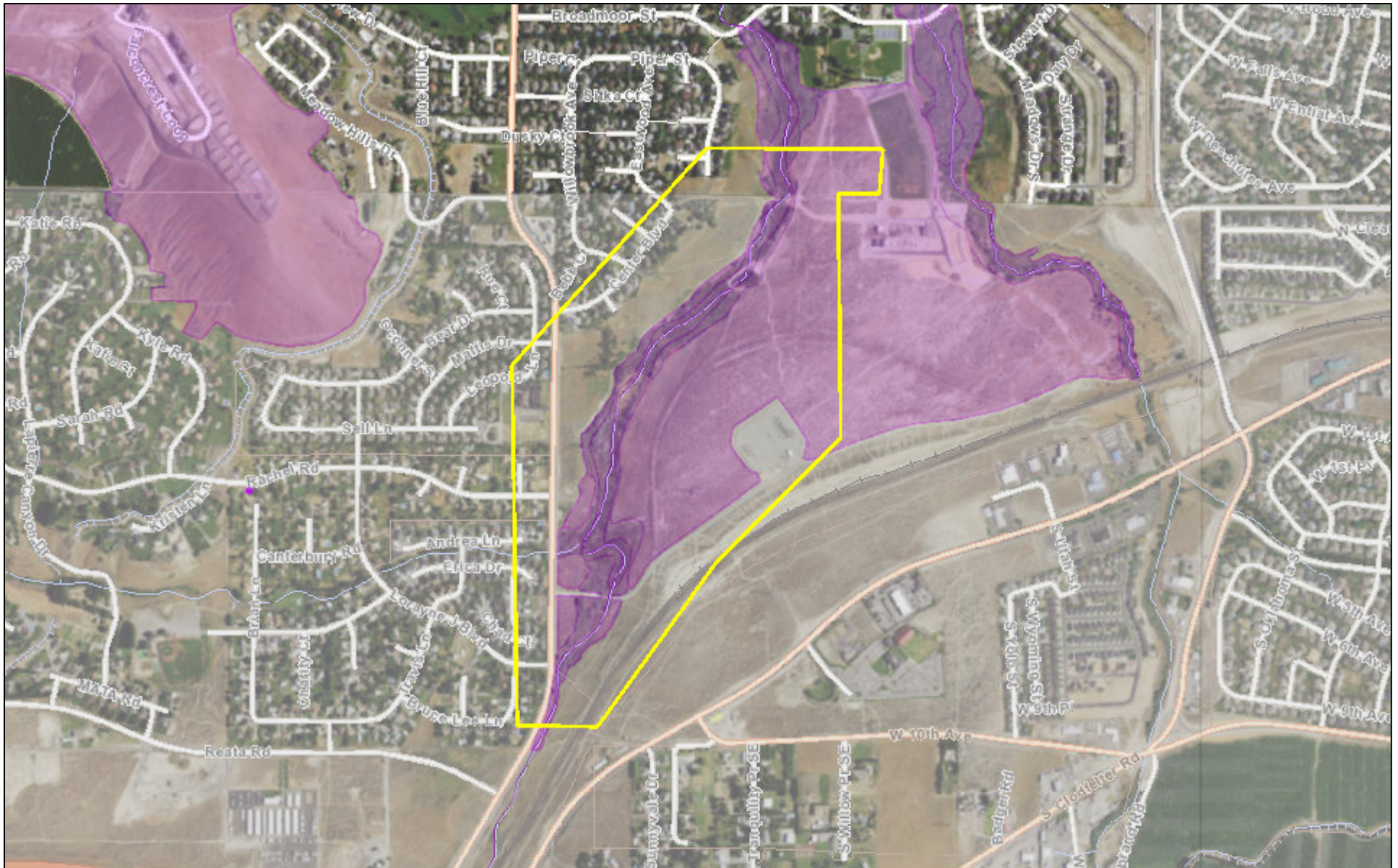
Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Burrowing owl <i>Athene cunicularia</i>	AMON CREEK DRAINAGE PHSREGION 913609	Foraging Area Regularly occurring http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Candidate PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Coho <i>Oncorhynchus kisutch</i>	SWIFD 2351	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Ferruginous hawk <i>Buteo regalis</i>	WS_OccurPoint 56311 June 26, 2011	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk <i>Buteo regalis</i>	WS_OccurPoint 56312 April 05, 2010	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk <i>Buteo regalis</i>	WS_OccurPoint 56313 April 05, 2010	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk <i>Buteo regalis</i>	WS_OccurPoint 56315 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk <i>Buteo regalis</i>	WS_OccurPoint 56316 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Ferruginous hawk Buteo regalis	WS_OccurPoint 56317 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56318 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56319 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56320 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56321 May 09, 2013	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56596 April 13, 2006	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56597 April 05, 2010	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56600 April 05, 2010	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Ferruginous hawk Buteo regalis	WS_OccurPoint 56601 April 16, 2002	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Ferruginous hawk Buteo regalis	WS_OccurPoint 56682 March 11, 2012	Breeding Area Nest http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter)	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Shrub-steppe	AMON BASIN PHSREGION 920207	Terrestrial Habitat N/A N/A	1/4 mile (Quarter)	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Spring Chinook Oncorhynchus tshawytscha	SWIFD 2350	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Townsend's Ground Squirrel Urocitellus townsendii	WS_OccurPolygon 3772 April 22, 2005	Regular Concentration Colony N/A	GPS	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Polygons
Townsend's Ground Squirrel Urocitellus townsendii	WS_OccurPolygon 3773 April 22, 2005	Regular Concentration Colony N/A	GPS	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Polygons
Wetlands	AMON CREEK PHSREGION 913566	Aquatic Habitat N/A http://www.ecy.wa.	1/4 mile (Quarter)	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

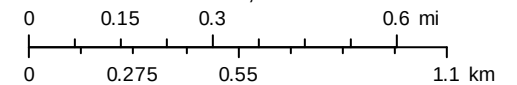
WDFW Test Map



July 28, 2016

- | | | |
|--|---|--|
| PHS Report Clip Area | AS MAPPED | TOWNSHIP |
| ● PT | SECTION | |
| — LN | QTR-TWP | |

1:19,842

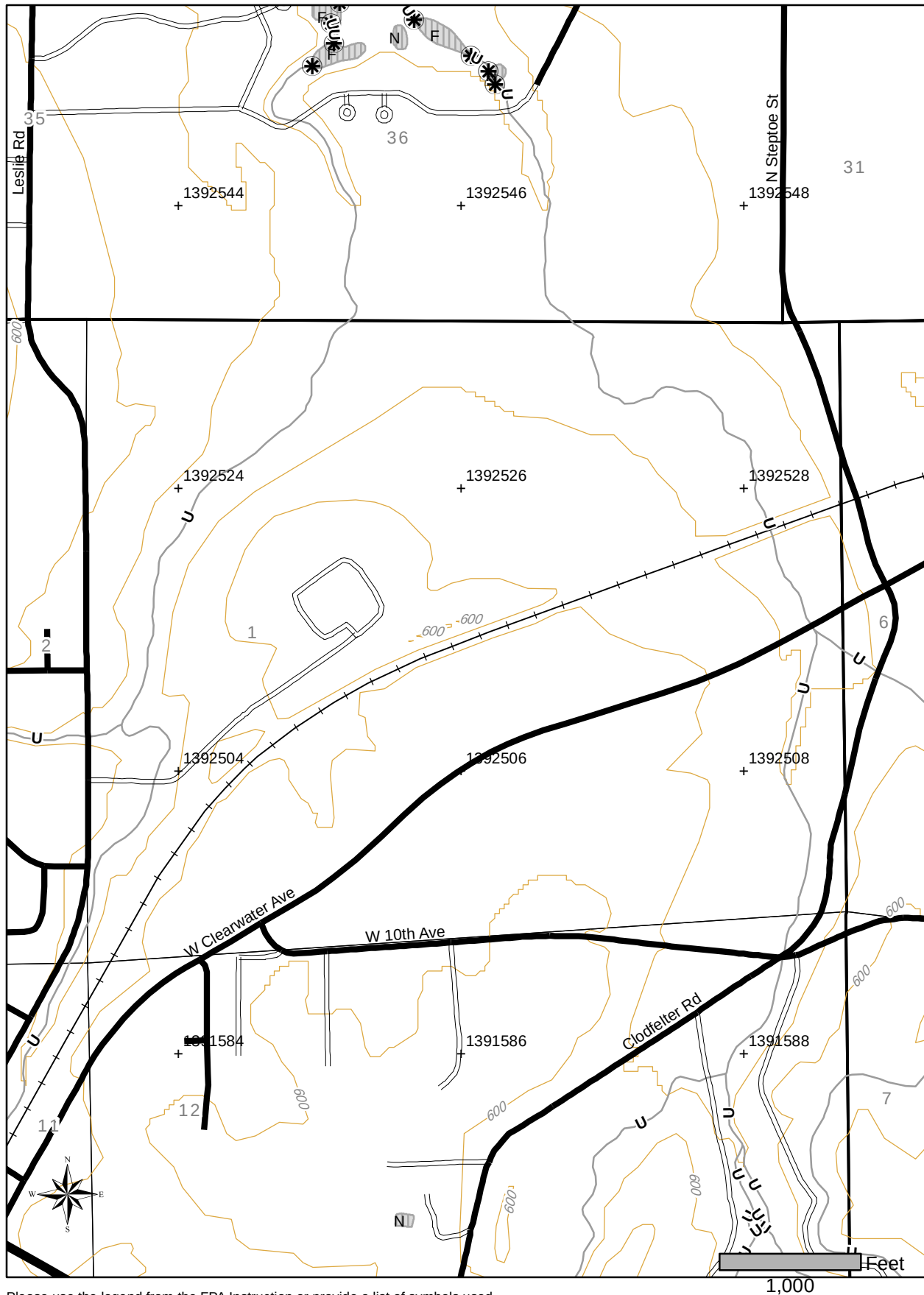


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 08 NORTH HALF 0, RANGE 28 EAST (W.M.) HALF 0, SECTION 1

Application #: _____

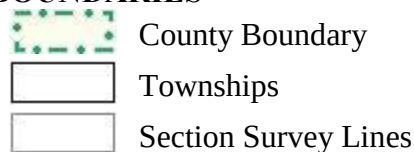


Please use the legend from the FPA Instruction or provide a list of symbols used.

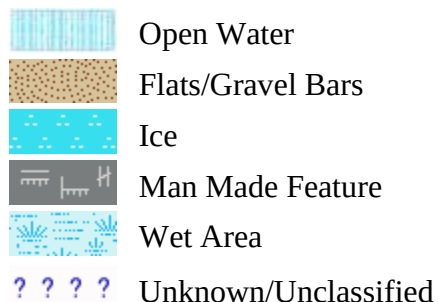
Date: 8/25/2016 Time: 11:48:47 AM
NAD 83
Contour Interval: 40 Feet

FPARS MAPS LEGEND

BOUNDARIES



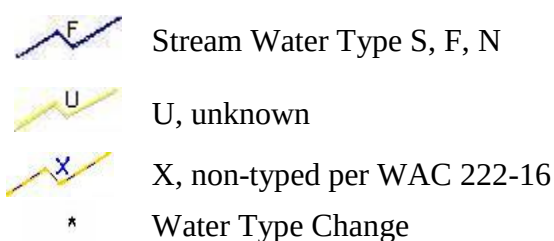
WATER BODIES



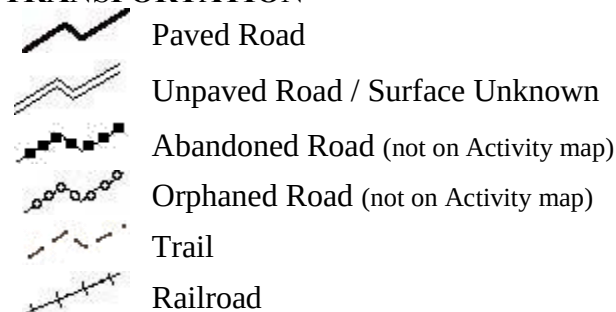
ELEVATION



STREAMS



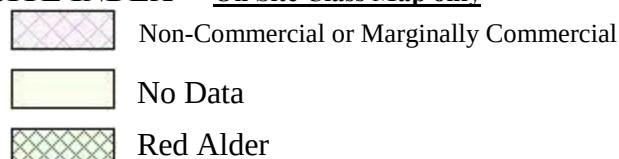
TRANSPORTATION



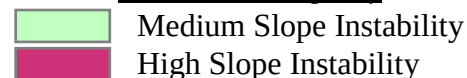
SITE CLASS – On Site Class Map only



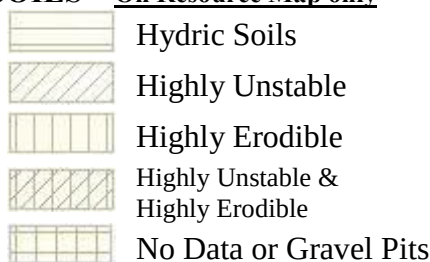
SITE INDEX – On Site Class Map only



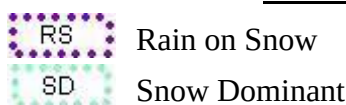
SLOPE– On Resource Map only



SOILS – On Resource Map only



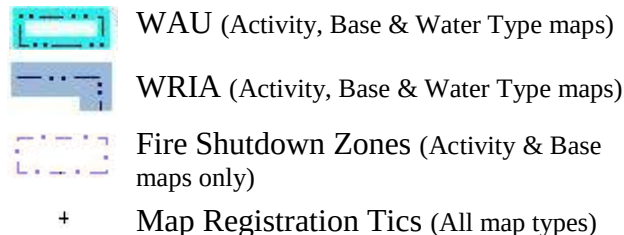
RAIN ON SNOW – On Resource Map only



WETLANDS – Resource & Water Type Maps only



OTHER



Notes to Applicant or other user:

See the FPA/N instructions for Activity Map standards.

Site indices are based on the WA-DNR State Soil Survey. If the site index does not exist or indicates red alder, noncommercial, or marginally commercial species, the following apply:

- If red alder is indicated and the whole RMZ width is within that site index, then use site class V. If red alder is indicated for only a portion of the RMZ width, or there is on-site evidence that the site has historically supported conifer, then use the site class for conifer in the most physiographically similar adjacent soil polygon.
- In Western Washington, if there is no site index information, use the site class for conifer in the most physiographically similar adjacent soil polygon.
- In Eastern Washington, if there is no site index information, assume site class III, unless site specific information indicates otherwise.
- If the soil polygon indicates noncommercial or marginally commercial, then use site class V.

See Forest Practices Rules WAC 222-16-010 for a more complete definition of site class.

Disclaimer: Features shown on Forest Practices Application Review System (FPARS) maps represent data stored in the Washington State Department of Natural Resources (DNR) Geographic Information Systems database. As some of the data sets rely on outside sources of information, the DNR cannot accept responsibility for errors or omissions, and therefore there are no warranties that accompany this material.

Appendix C

Photo Inventory

Photo Inventory

The following 6 photos were taken during a site visit conducted on August 3, 2016.



Photo 1: This photo, looking southwesterly, shows the largest area of open water within the mapped depressional wetland (see Appendix B: Wetland Assessment Memo). Wetland buffers are dominated by tall sagebrush and a rabbitbrush upland community.



Photo 2: This photo, looking southerly, shows the southern extent of the mapped wetland.



Photo 3: This photo, looking southwesterly, shows the irrigation storage pond, which is operated and maintained by the Kennewick Irrigation District.



Photo 4: This photo shows a storm drain within the Preserve. This drain outlets stormwater stemming from the residential developments immediately west of the Preserve.



Photo 5: This photo, looking northward, shows one of the existing gravel roads that runs alongside the mapped wetland. As part of the environmental awareness and education component, this road may be improved for walking and have informational signage interspersed along its length (see Appendix A, Item #4: Environmental Awareness and Educational Components).



Photo 6: This photo, looking northeasterly, shows an existing trail leading to the irrigation storage pond. This is one of the trails that may have environmental signage along it (see Appendix A, Item #4: Environmental Awareness and Educational Components).

Appendix D

E-mail correspondence with DOE representative, Cathy Reed

Vincent Barthels

From: Reed, Catherine D. (ECY) <CRAJ461@ECY.WA.GOV>
Sent: Wednesday, August 31, 2016 4:14 PM
To: Vincent Barthels
Subject: RE: Amon Creek Preserve Wetland Assessment for your review and concurrence request

I concur with the results of the rating, it is a category II using the current rating system. There were a few items that I had a question on or a point to make which will not change the end result of your rating: H1.6: Are there areas of cattails or rushes, etc. that do not ever dry up? My recollection was that Amon Creek always has water in it, but I don't know how far up the creek the water remains, especially in the winter.

I don't remember exactly what we were discussing in the field but I note that the scrub shrub box got checked in H. 1.1, which I agree with. The following is what Amy Yahnke said regarding our the question which started our discussion: "The thresholds apply to all of the vegetation classes in H1.1. The 30 percent cover applies to the minimum threshold area (¼ acre or 10%), not necessarily the entire wetland (depending on the size of the wetland). So if you have an area where scrub shrub occurs, that area is at least ¼ acre or 10% of the wetland, and the shrub cover is at least 30% in that area, it would count as a yes for presence of scrub shrub for this question."

H3.0 seems to capture the issue of this being a "special" local wetland – until our rating system guidance in the appendix changes, the wetland doesn't qualify for any special credit that would kick it up to a category I wetland.

With respect to documentation, you need to include all the maps that you made to assess the wetland area – my recollection is that your drafts had more maps – I didn't go back to dig those pieces up, but if you have more maps, include all the maps with your rating sheets and report.

Let me know if you have any questions. I will be on vacation starting tomorrow until the day after Labor Day. I hope you get some quality time off as well.

*Catherine Reed, PWS
Washington State Dept. of Ecology
1250 West Alder Street
Union Gap, WA 98903
(509) 575-2616
craj461@ecy.wa.gov*

Please note our new address.

From: Vincent Barthels [mailto:vbarthels@JUB.com]
Sent: Wednesday, August 10, 2016 4:11 PM
To: Reed, Catherine D. (ECY) <CRAJ461@ECY.WA.GOV>
Cc: grayg@wsdot.wa.gov
Subject: RE: Amon Creek Preserve Wetland Assessment for your review and concurrence request

Hi Cathy,
At your earliest convenience, please review and provide feedback on the attached wetland assessment memo. If you generally concur with the wetland rating and findings, please offer a brief email correspondence to the effect. If we could obtain your feedback by September 1st, that would be greatly appreciated.

Hi Geoff,

As an FYI - please see the attached wetland assessment memo.

Should either of you see anything that needs refinement or modification with regard to the wetland assessment memo, please bring it to my attention. Ultimately, this wetland assessment memo will become an appendix to the Wildlife Report that I am in the process of developing. Consistent with Title 22.10.170 of the Richland Municipal Code, the Wildlife Report will evaluate plant communities and wildlife functions and values on the site. I appreciate both of you looking at this wetland assessment memo. Please feel free to call anytime to discuss further.

Thanks, Vince

Vincent Barthels

Project Manager / Biologist

J-U-B ENGINEERS, Inc.

W. 422 Riverside, Suite 304, Spokane, WA 99201

e vbarthels@jub.com w www.jub.com

p 509 458 3727 c 509 951 9564 f 509 458 3762



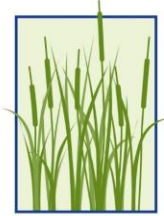
THE
LANDDON
GROUP



GATEWAY
MAPPING
INC.

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Rachel Road
Alignment Study

APPENDIX C

Rachel Road Alignment Study

PUBLIC OPEN HOUSE

4:00 - 7:00 p.m.

WELCOME



**THE
LANGDON
GROUP**
a J-U-B Company

How You Can Participate

The following information stations provide opportunity to learn about different aspects of the project and provide valuable input that will help guide the Community Advisory Committee.

- Talk to and ask questions of the project team members.
- Review the draft evaluation criteria and tell us what is most important to you.
- Review the draft alignment alternatives, then use a comment form to tell us your opinion.
- Submit your completed comment form before you leave.

Comments are always welcome, but we ask that you submit input tonight if possible, for consideration of the Community Advisory Committee.

Project Background

The City of Richland's Comprehensive Land Use Plan identifies the extension of Rachel Road, near the Amon Creek Natural Preserve (ACNP), as a needed improvement to support connectivity between west Kennewick and areas of Richland and Benton County west of Leslie Road.

The ACNP is a natural open space of shrub steppe and wetland habitat that became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west.

With private construction underway, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.
- Mitigate any potential impacts to the Amon Creek Natural Preserve while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.



Community Advisory Committee

The CAC will meet at key milestones this winter to help identify goals for the project, criteria for alternative selection, potential alignment alternatives, opportunities for enhancement and mitigation in the Amon Creek Natural Preserve and design features of a potential new connection. CAC membership consists of (listed alphabetically):

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Meadow Springs Second Nine Home Owners Association
- Richland Fire Department
- Richland Parks and Recreation Commission

- Richland Police Department
- Tapteal Greenway
- Willowbrook Home Owners Association

The Washington Department of Ecology, Richland Energy Services and Public Works are participating as resource advisors.



Community Advisory Committee

CAC Project Goals Statement:

Reach consensus through a publicly led decision that benefits the community by considering the environmentally sensitive aspects of the Amon Creek Natural Preserve (ACNP) including impacts to water quality and the requirements of City Parks and Recreation; the growth needs of the Bonneville Power Administration Substation; the need for safe and efficient transportation to and from the new elementary school and the future growth of the utility corridor.

CAC Goals for the CAC:

1. Listen to each other and work together as a team
2. Address all community interests and perspectives
3. Share our ideas and perspectives in a comfortable space
4. Evaluate and consider the benefits for all community members
5. Understand and embrace the values, interests and concerns of all members
6. Maintain consistency in our messages with the public
7. Look to the City and State Department of Ecology as valuable resources
8. Receive and use public input
9. Reach consensus on a decision that meets the needs and interests of all parties



Potential Evaluation Criteria Preferences

Use your five stickers to indicate which criteria you think are most important. You can spread them out as narrowly or widely as you would like.

Bicycle and Pedestrian Accommodations

Cost

Ease of Implementation

Emergency Response Access

Extent of Impacts to Wetlands and Habitat

Mobility - Connectivity for Vehicle Traffic

Opportunities for Enhancement/Mitigation

Property/Neighborhood Impacts

Traffic Safety

Potential Evaluation Criteria Definitions

Bicycle and Pedestrian Accommodations

- Connections to existing and planned bicycle paths
- Grades or hills along alignments that deter some cyclists
- Pedestrian access to the new Elementary School
- Ease of crossing streets for pedestrians

Cost

- Property, Engineering, Construction
- Off-site roadway improvements (e.g. Gage/Leslie intersection, Leslie/Broadmoor, etc.)
- Utility costs within corridor

Ease of Implementation

- Construction Schedule impacts on environment and sensitive habitat
- Administrative complexity/ permit requirements, etc.
- Public response

Emergency Response Access

Opportunities for Environmental Mitigation Potential

- Ability to reduce or eliminate the likelihood that the new roadway will represent a barrier to animal movement (through openness ratio $\frac{((\text{underpass width}) \times (\text{underpass height}))}{(\text{underpass length})}$).
- Other, depending on alignment, TBD

Property/Neighborhood Impacts

- Traffic volumes on neighborhood streets
- Other??

Extent of Impacts to Wetlands and Habitat

- Acres or sq. ft. of wetlands disturbed by the alignment
- Acres or sq. ft. of wetland buffers disturbed by the alignment
- Acres or sq. ft. of (non-wetlands) habitat disturbed by the project within the Amon Creek Natural Preserve
- Acres or sq. ft. of (non-wetlands) habitat disturbed by the project outside the Amon Creek Natural Preserve

Mobility - Connectivity for Vehicle Traffic

- Travel time comparison of the various alignments, including the No-Build Scenario
- Connectivity of the system
- Traffic delay reductions on nearby roadways such as Gage Blvd

Traffic Safety

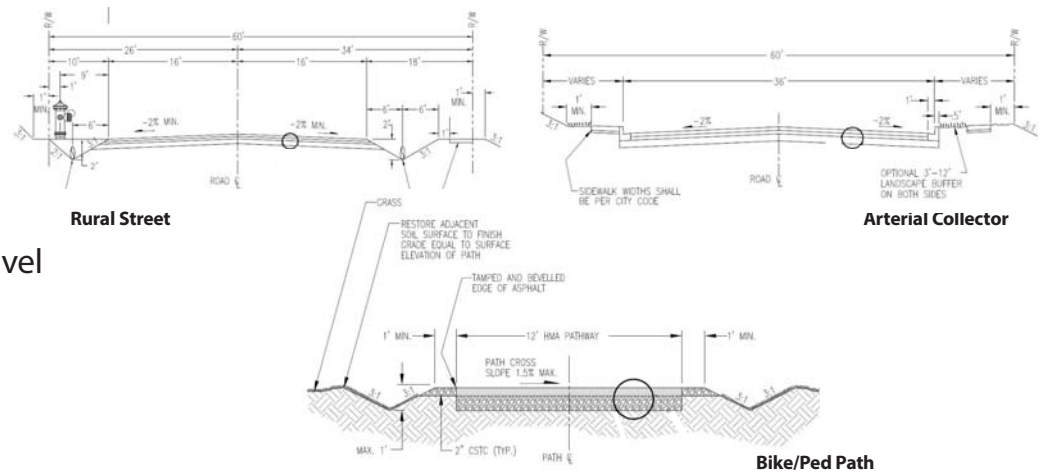
- Number and type of conflicts at key intersections. Some alignments that have multiple turns would have increased risk
- Sight distance restrictions due to intersections, driveways and the horizontal and vertical geometrics
- Grades causing vehicle speed differential

Context Sensitive Solutions

A collaborative approach that involves all stakeholders in providing a transportation facility that fits its setting. It leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure.

Some things to consider how this applies to Rachel Road:

- Roadway width and cross-section
- Adjacent pathway vs bike lanes and/or sidewalks
- Lighting – overhead and/or pedestrian
- Access/enhancements to natural amenities (e.g. paved vs gravel pathways, kiosks, overlooks, etc.)
- Bridge over wetlands vs culvert for water flow
- Parking to allow access to Amon Creek Natural Preserve



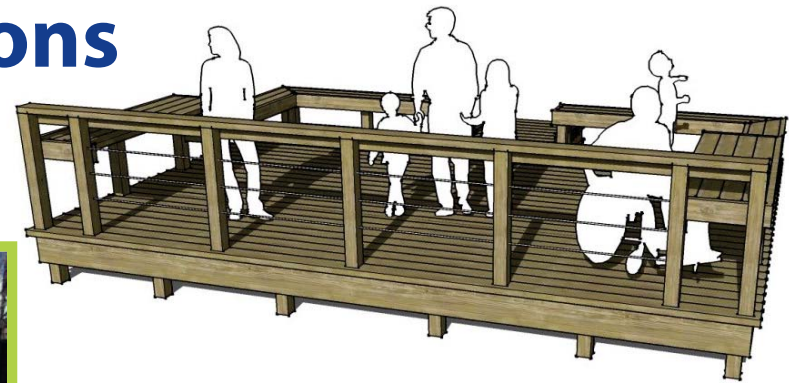
Project Design Considerations



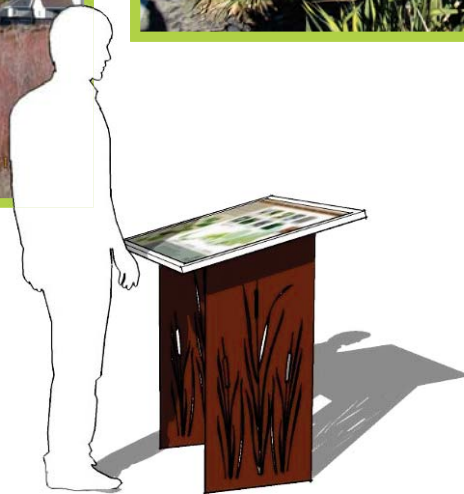
Parking



Pedestrian Lighting



Pathways



Schedule

September 2016

- Stakeholder Assessment

October 2016

- CAC Kickoff (10/11/16)

November 2016

- Draft Wildlife Report
- Draft Criteria
- Draft Alignment Alternatives

December 2016

- *Public Open House #1 (12/5/16)*
- CAC Meeting #2 (12/6/16)

Winter/Spring 2017

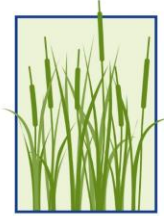
- Final Wildlife Report
- Criteria weighing
- CAC Meeting #3 (TBD)
- Public Open House #2 (TBD)
Community opportunity to provide input on:
 - CAC recommended alignment
 - Project design
 - Context sensitive features
- Present Recommendations to City Council (April/May)

Draft Wildlife Report

- Habitat/Ecological Assessment
- Discussion of ESA listed species; State sensitive species and known species
- Identified Category II Wetland and Shrub-steppe habitats
- Discussion of BMPs and potential mitigation approaches

Figure 1: This exhibit shows the location of the nearest fire station and police station to the ACNP, and illustrates Leslie Road as a primary north-south oriented arterial roadway.





Rachel Road
Alignment Study

APPENDIX D



Rachel Road
Alignment Study

Rachel Road Alignment Study **PUBLIC OPEN HOUSE**

5:30-8:30 p.m.

WELCOME



**THE
LANGDON
GROUP**
a J-U-B Company

How You Can Participate

The following information stations provide opportunity to learn about different aspects of the project and provide valuable input that will help guide the recommended alternative.

- Attend a presentation at **6 :00 or 7:30** to learn about the alternative evaluation process.
- Talk to and ask questions of the project team members.
- Review the Community Advisory Committee criteria ranking process and results.
- Use a comment form to tell us:
 - Your opinion about the alignment ranking.
 - Your preferred design features and environmental enhancement and/or mitigation measure.

*Please submit comments tonight if possible, or before the **April 26, 2017** deadline.*

Project Background

The City of Richland's Comprehensive Land Use Plan identifies the extension of Rachel Road, near the Amon Creek Natural Preserve (ACNP), as a needed improvement to support connectivity between west Kennewick and areas of Richland and Benton County west of Leslie Road.

The ACNP is a natural open space of shrub steppe and wetland habitat that became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west.

With private construction underway, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.
- Mitigate any potential impacts to the Amon Creek Natural Preserve while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.



Community Advisory Committee

The CAC met in October and December to identify goals for the project, criteria for alternative selection, potential alignment alternatives, opportunities for enhancement and mitigation in the Amon Creek Natural Preserve and design features of a potential new connection. The CAC assigned weight to each criteria and in February reviewed the preliminary results of the evaluation of alternatives, made adjustments and reached agreement that the process and the results it produced was fair, inclusive and collaborative.

CAC members represent the following groups (listed alphabetically):

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Meadow Springs Second Nine Home Owners Association
- Richland Fire Department
- Richland Parks and Recreation Commission
- Richland Police Department
- Tapteal Greenway
- Willowbrook Home Owners Association
- Willowbrook Heights Home Owners Association

The Washington Department of Ecology, Richland Energy Services and Public Works are participating as resource advisors.



Community Advisory Committee

CAC Project Goals Statement:

Reach consensus through a publicly led decision that benefits the community by considering the environmentally sensitive aspects of the Amon Creek Natural Preserve (ACNP) including impacts to water quality and the requirements of City Parks and Recreation; the growth needs of the Bonneville Power Administration Substation; the need for safe and efficient transportation to and from the new elementary school and the future growth of the utility corridor.

CAC Goals for the CAC:

1. Listen to each other and work together as a team
2. Address all community interests and perspectives
3. Share our ideas and perspectives in a comfortable space
4. Evaluate and consider the benefits for all community members
5. Understand and embrace the values, interests and concerns of all members
6. Maintain consistency in our messages with the public
7. Look to the City and State Department of Ecology as valuable resources
8. Receive and use public input
9. Reach consensus on a decision that meets the needs and interests of all parties

Alternative Evaluation Scoring Results

Criterion	Criteria Weight	Alternative									
		No-Build		A		C		E		G	
				Near Mattis		Opposite Rachel Road		BPA Access Road		Opposite Lorayne J	
		Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.
Bicycle/Pedestrian Accommodations	6	5.0	30.0	9.0	54.0	6.7	40.2	5.8	34.8	6.1	36.8
Cost	4	10.0	40.0	3.8	15.2	4.2	16.8	3.6	14.2	3.6	14.5
Ease of Implementation	2	3.3	6.5	1.3	2.5	6.0	12.0	7.0	14.0	7.0	14.0
Emergency Response Access	8	4.0	32.0	6.0	48.0	6.0	48.0	6.0	48.0	6.0	48.0
Extent of Impact to Wetlands and Habitat	10	10.0	100.0	3.2	32.0	4.1	40.8	7.8	77.5	9.1	90.9
Mobility - Connectivity for Vehicle Traffic	6	1.0	6.0	10.0	60.0	9.0	54.0	7.0	42.0	6.0	36.0
Opportunities for Env. Enhancement/Mitigation (restore BPA road to wetland)	7	0.0	0.0	0.0	0.0	2.0	14.0	0.0	0.0	2.0	14.0
Property/Neighborhood Impacts	8	5	40.0	8.0	64.0	8.0	64.0	9.4	75.4	9.3	74.0
Traffic Safety	8	7.0	56.0	7.0	56.0	9.0	72.0	9.0	72.0	7.0	56.0
TOTAL SCORE	100%	45.3	311	48.2	332	55.0	362	55.5	378	56.1	384

Evaluation Criteria Key Factors

Bicycle and Pedestrian Accommodations

- Connections to existing and planned bicycle paths
- Percent of homes within one mile of new school
- Pedestrian access to the new Elementary School
- Ease of crossing streets for pedestrians
- Potential casual trail impacts

Cost

- Property, Engineering, Construction
- Off-site roadway improvements (e.g. Gage/Leslie intersection, Leslie/Broadmoor, etc.)
- Additional school buses needed

Ease of Implementation

- Administrative complexity/ permit requirements, etc.
- Public response

Emergency Response Access

- Travel time for response to new school
- Addition of alternate route for response
- Removal of significant traffic from shortest route

Extent of Impacts to Wetlands and Habitat

- Acres or sq. ft. of ACNP impacted by fragmentation (percentage remaining contiguous)
- Acres or sq. ft. of wetlands, wetlands buffers and non-wetland habitat disturbed by the alignment (20%)

Mobility - Connectivity for Vehicle Traffic

- Travel time comparison of the various alignments, including the No-Build Scenario
- Connectivity of the system

Opportunities for Environmental Enhancement and Mitigation

- Potential restoration of BPA access road crossing

Property/Neighborhood Impacts

- Traffic volumes on neighborhood streets
- BPA property impact
- Decreased value of ACNP to neighborhood

Traffic Safety

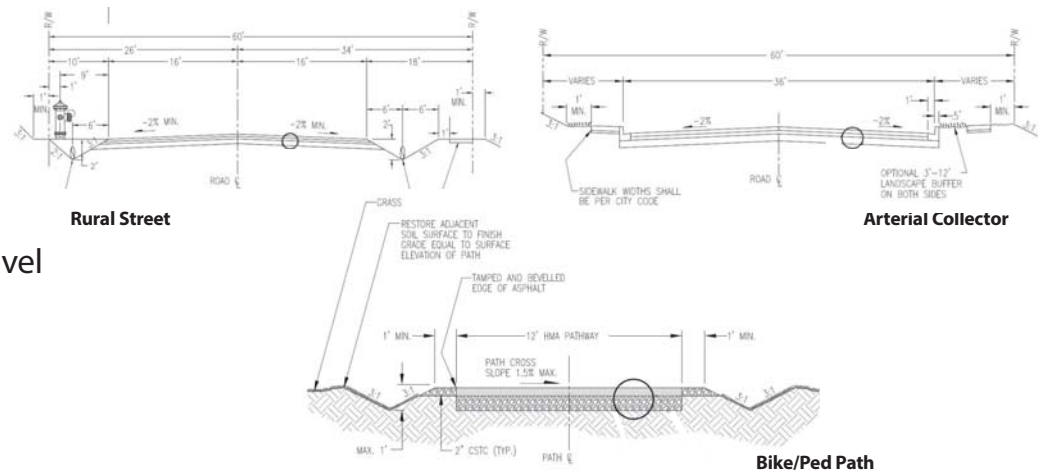
- Number and type of conflicts at key intersections. Some alignments that have multiple turns would have increased risk
- Sight distance restrictions due to intersections, driveways and the horizontal and vertical geometrics
- Proximity of intersections on Leslie Road

Context Sensitive Solutions

A collaborative approach that involves all stakeholders in providing a transportation facility that fits its setting. It leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure.

Some things to consider how this applies to Rachel Road:

- Roadway width and cross-section
- Adjacent pathway vs bike lanes and/or sidewalks
- Lighting – overhead and/or pedestrian
- Access/enhancements to natural amenities (e.g. paved vs gravel pathways, kiosks, overlooks, etc.)
- Bridge over wetlands vs culvert for water flow
- Parking to allow access to Amon Creek Natural Preserve



Project Design Considerations



Parking



Pedestrian Lighting

Non-scientific feedback from the Dec 5, 2016 Public Open House favored 25-30 mph speeds, low-impact lighting and a separated, multi-use paved pathway over sidewalks and bicycle lanes.



Pathways



Schedule

September 2016

- Stakeholder Assessment

October 2016

- CAC Kickoff (10/11/16)

November 2016

- Draft Wildlife Report
- Draft Criteria
- Draft Alignment Alternatives

December 2016

- Public Open House #1 (12/5/16)
- CAC Meeting #2 (12/6/16)

January 2017

- Final Wildlife Report
- Criteria weighting

February 2017

- CAC Meeting #3 (Feb. 7, 2017)

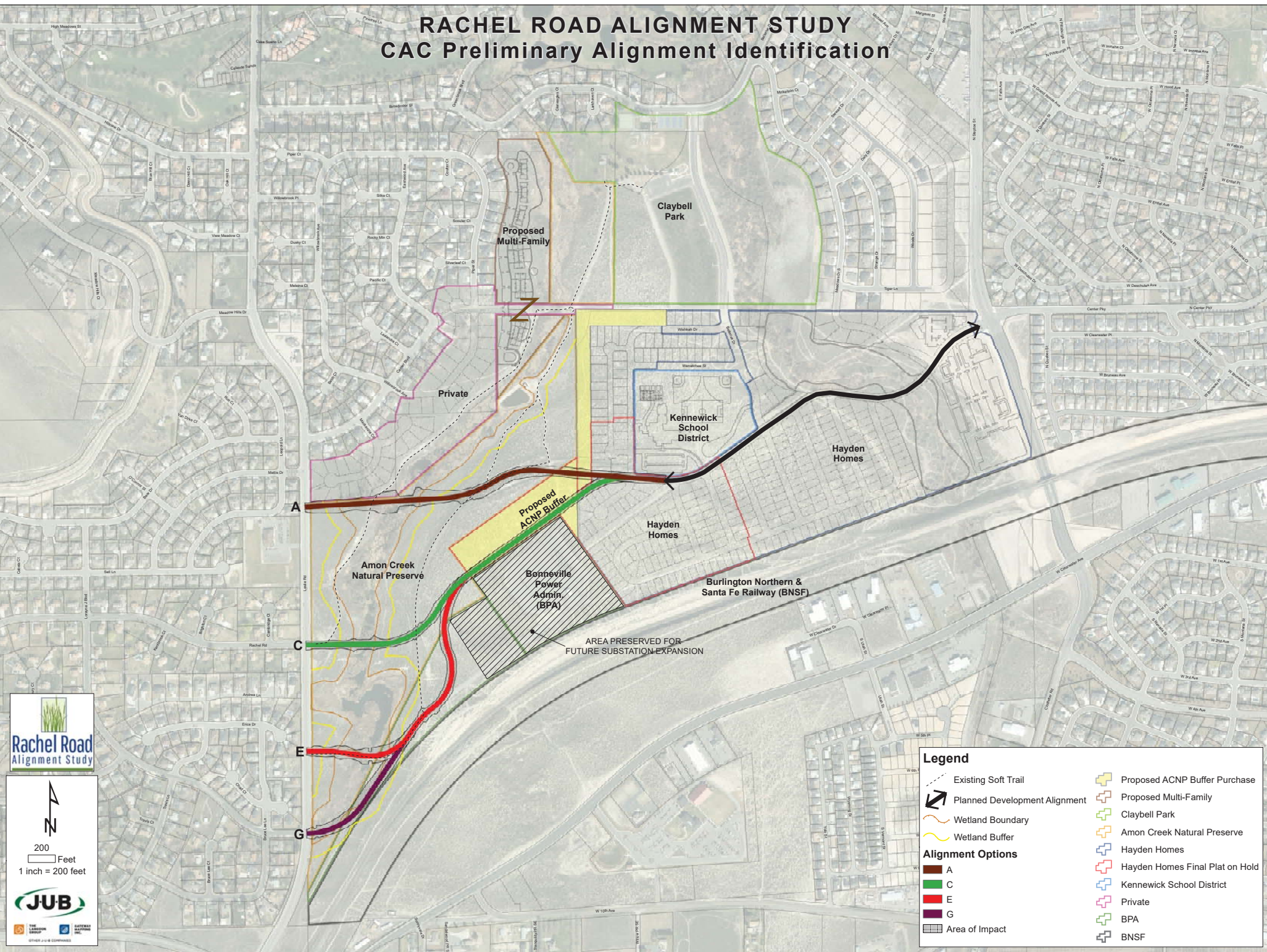
April 2017

- Public Open House #2 (April 12, 2017)
- Richland Parks and Recreation Commission (April 13, 2017)

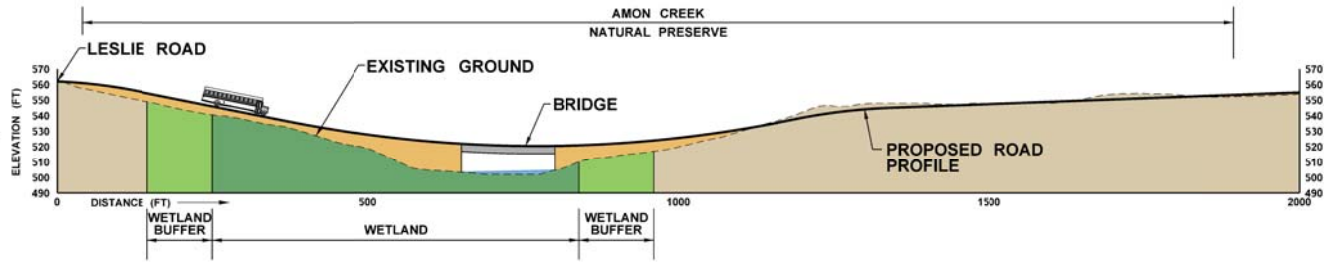
June 2017

- Present Recommendations to City Council (June 6, 2017)

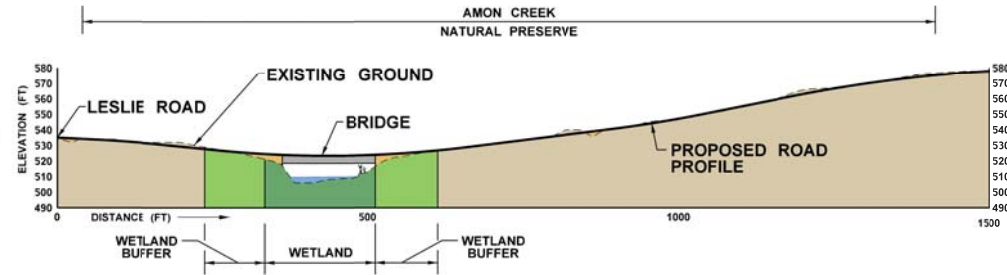
CAC Preliminary Alignment Identification



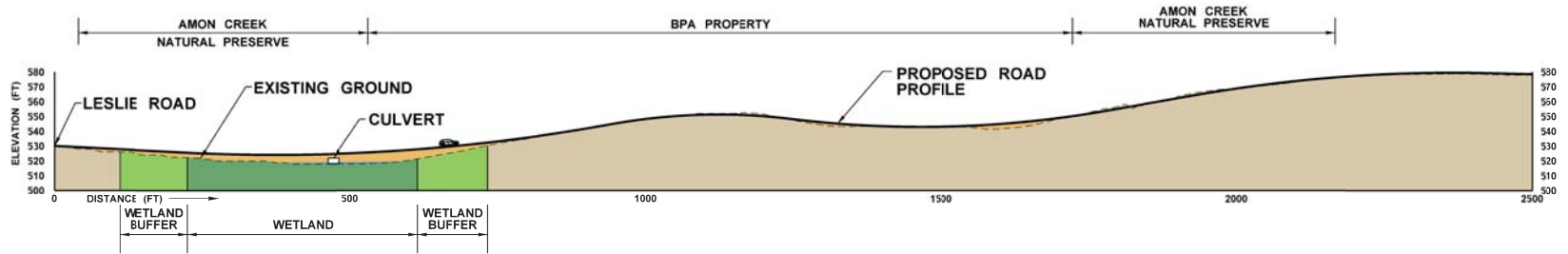
ALTERNATIVE A



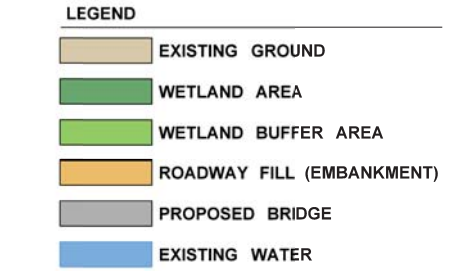
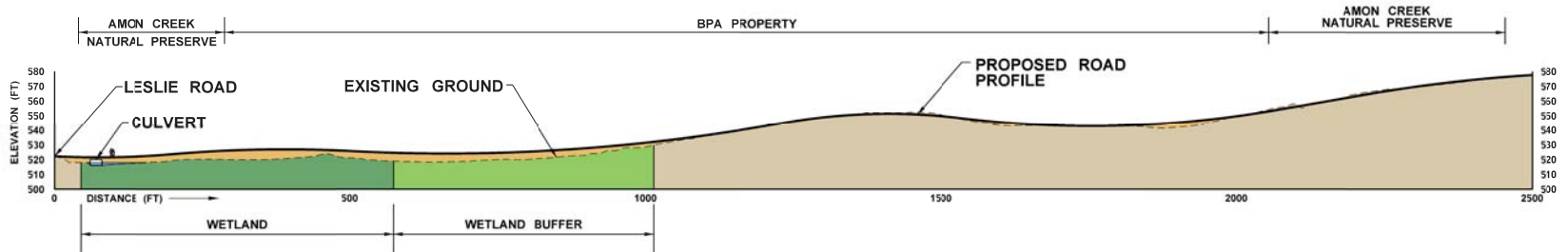
ALTERNATIVE C



ALTERNATIVE E



ALTERNATIVE G

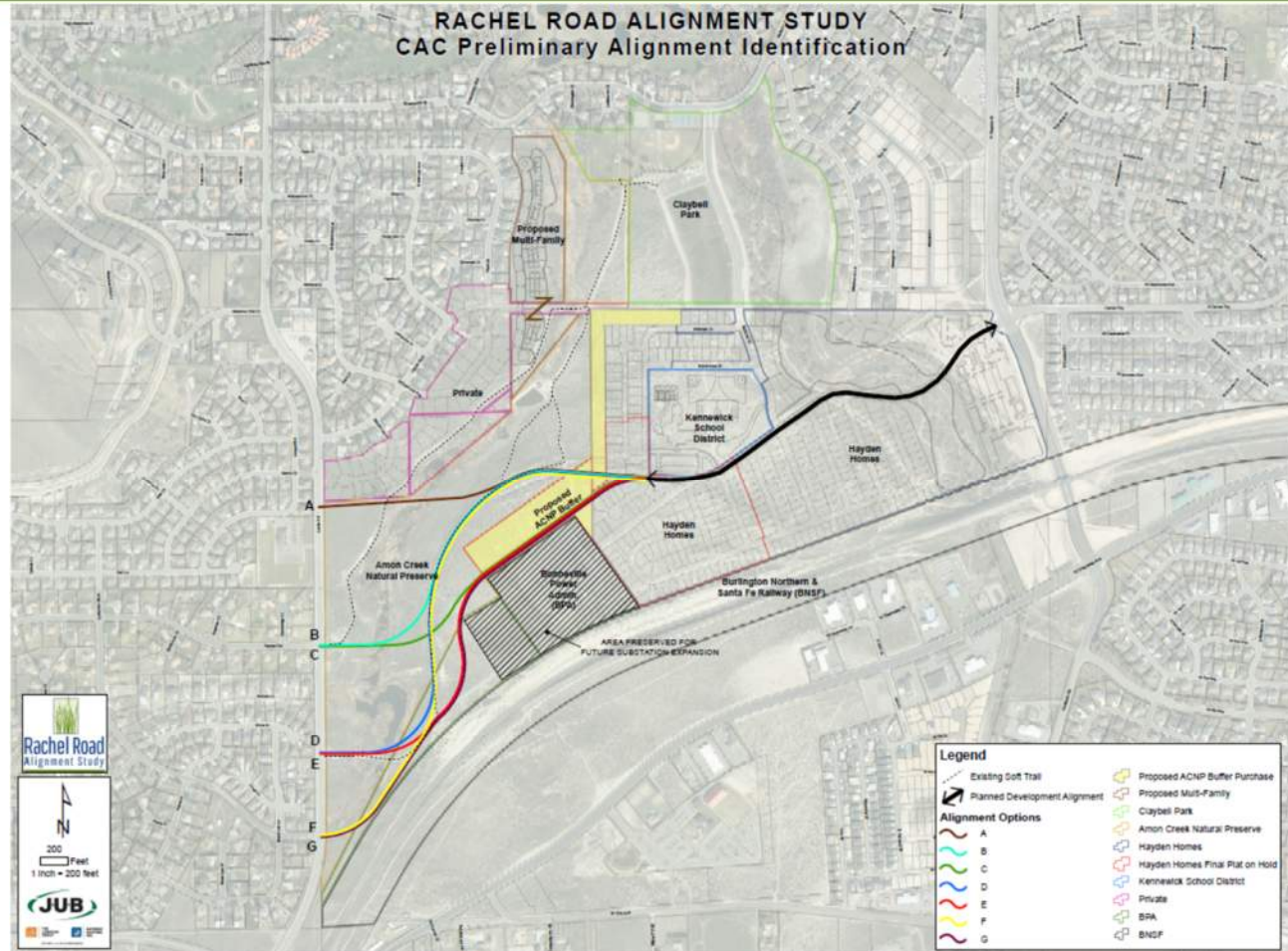


Overview of Presentation

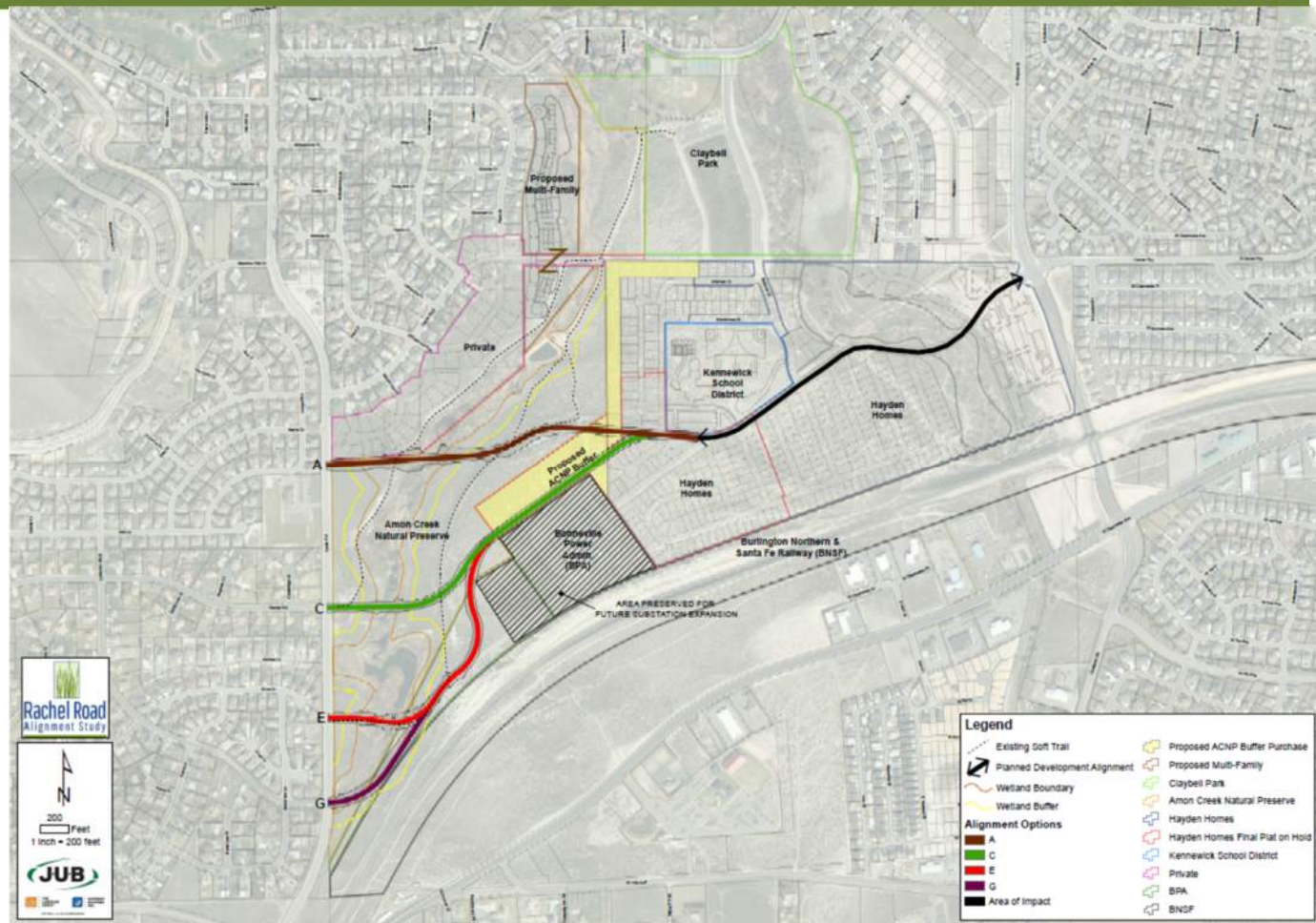
- Community Advisory Committee (CAC)
- Alignments presented at December 5 Open House
- Alignments Evaluated
- Criteria Used for Evaluation
- Weighting of Criteria
- Summary of Scoring Results
- Key Factors for each Criteria (9)
- How you can help
- Questions??



Alignments Presented at December Open House



Alignments Evaluated



Criteria Used for Evaluation

- Bicycle/Pedestrian Accommodations
- Cost
- Ease of Implementation
- Emergency Response
- Extent of Impacts to Wetlands and Habitat
- Mobility
- Opportunities for Environmental Enhancement and Mitigation
- Property and Neighborhood Impacts
- Traffic Safety

Weighting of Criteria

CRITERION	CAC Weight
• Bicycle/Pedestrian Accommodations	6
• Cost	4
• Ease of Implementation	2
• Emergency Response	8
• Extent of Impacts to Wetlands and Habitat	10
• Mobility	6
• Opportunities for Environmental Enhancement and Mitigation	7
• Property and Neighborhood Impacts	8
• Traffic Safety	8

Summary of Scoring Results

Criterion	Criteria Weight	Alternative											
		No-Build		A		C		E		G			
				Near Mattis		Opposite Rachel Road		BPA Access Road		Opposite Lorayne J			
		Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.
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TOTAL SCORE	100%	45.3	311	48.2	332	55.0	362	55.5	378	56.1	384		

Bicycle/Pedestrian Accommodations

- Percent of homes within 1 mile of new school (5 points)
- Connection to existing path on west
- Connection to existing path on east
- Student crossing of Leslie Road and Rachel Road
- Potential casual trail impacts

Cost

- Preliminary Engineering
- Construction
- Off-site improvements at other intersections
- Additional school buses needed

Ease of Implementation

- Assumed low scores for any criteria would cause challenges to implement

Emergency Response

- Travel time for emergency response to new school
- Adds alternative route for response
- Takes significant traffic off shortest route

Extent of Impacts to Wetlands and Habitat

- Fragmentation of Amon Creek Natural Preserve
(% remaining contiguous)
- Actual square footage of disturbance,
discounted by fragmentation factor



Mobility

- Travel time to new school
from 3 different points west of Leslie Road
- Transportation network connectivity

Enhancement and Mitigation

- Opportunity to remove existing BPA road from wetland

Property and Neighborhood Impacts

- Neighborhood impacts for additional traffic on Broadmoor St
- BPA property impacts
- Decreased value of Preserve to neighborhood

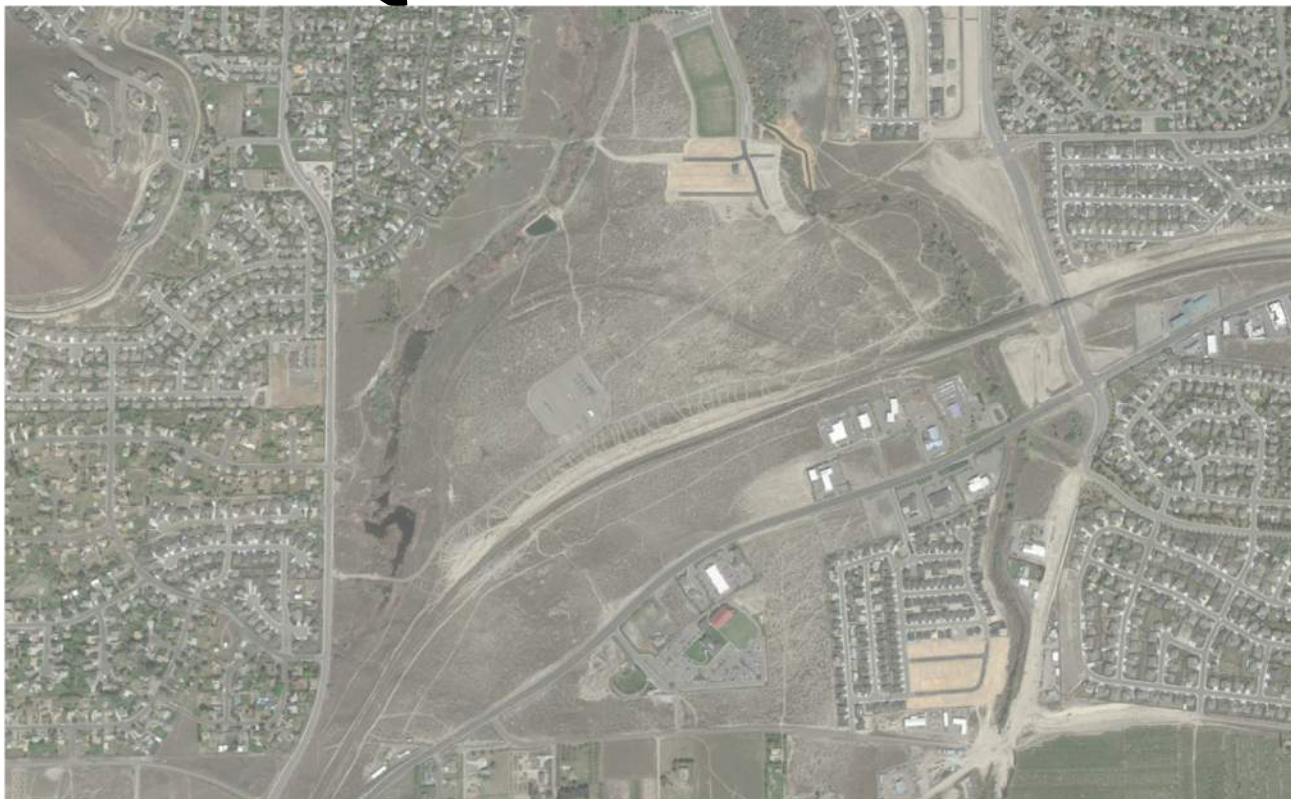
Traffic Safety

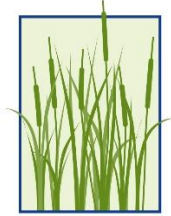
- Type and quantity of intersection conflicts
- Sight distance issues
- Proximity of Intersections
- Left turn storage issues

How you can help

- Review the CAC Ranking process and results
- Use a comment form to tell us:
 - ✓ Your opinion about the alignment ranking
 - ✓ Your preferred design features and environmental enhancement and/or mitigation measure

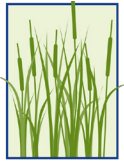
Questions??





Rachel Road
Alignment Study

APPENDIX E



Rachel Road Alignment Study

Tentative Schedule

September 2016

Stakeholder Assessment

October 2016

Community Advisory
Committee Kickoff

December 2016

Community Advisory
Committee Meeting #2

Public Open House #1

Winter/Spring 2017

Community Advisory
Committee Meeting #3

Public Open House #2

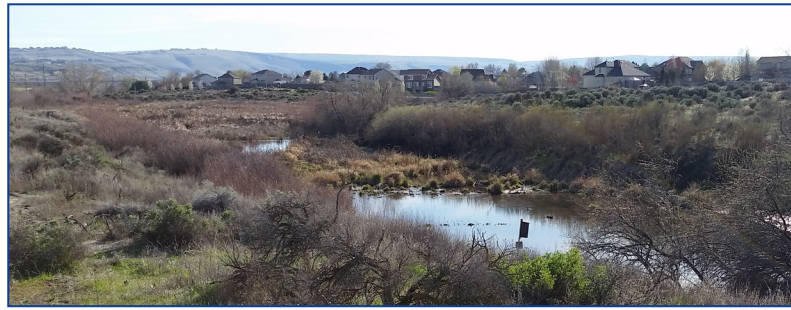
Present
Recommendations to
City Council

Questions?

www.ci.richland.wa.us/rachel

800.252.8929

bk@langdongroupinc.com



The Amon Creek Natural Preserve is a publicly owned natural open space of shrub steppe and wetland habitat, home to multiple plants and animal species, including black-tailed jack rabbit, beaver, deer and a variety of birds.

Adjacent privately owned land, east of the preserve, is the future site of family housing and a new elementary school, to help serve the rapidly growing region.

The City of Richland is faced with the question: How does the community maintain and potentially enhance the natural benefits of the preserve while providing roadway connectivity and sufficient emergency access to the new school and surrounding neighborhoods?

This is a question the city cannot answer alone and looks to the public to help identify potential solutions. The hope is, through a collaborative public process, a preferred solution will be identified that meets the needs and interests of all stakeholders.

Background

The City of Richland's Comprehensive Land Use Plan identifies the extension of Rachel Road as a needed improvement to support connectivity between Steptoe Street and Leslie Road as an important link in the regional transportation system and for the Clearwater Creek development, currently under construction east of the Amon Creek Natural Preserve.



The Amon Creek Natural Preserve became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west. The WSDOT and EFSEC investments satisfied obligations for environmental mitigation related to other projects.

Continued on reverse



With private construction underway, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.
- Mitigate any potential impacts to the Amon Creek Natural Preserve while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.

How do we get there?

The goal of this project is to collaboratively develop opportunities to maintain or enhance the positive aspects of the region, determine potential transportation alternatives and ultimately identify a holistic solution that addresses all interests and parties.

The City of Richland has hired a neutral facilitator, The Langdon Group (TLG), to help guide this independent process. TLG specializes in bringing all interested parties to the table and helping them see the world through a collective lens. TLG will work with the community to:

- ensure every voice has an opportunity to participate and shape the study outcome;
- facilitate open, constructive and respectful dialogue;
- create meaningful opportunities for public involvement;
- maintain transparent communication through the life of the project and;
- produce community-led recommendations.



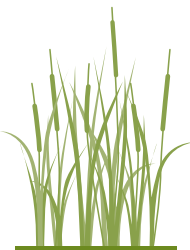
Stay Involved

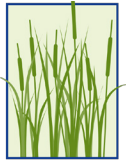
Public involvement will take many forms and provide all members of the public an opportunity to engage with the project team and help shape the decision making process. The first step is a situational assessment, which allows TLG, through one-on-one and group conversations, to better understand the different interests, perspective and opinions.

From the assessment process a Community Advisory Committee (CAC) will form and meet multiple times throughout the project at key milestones. The CAC will be a representative group of interested parties. The public should feel that their interests are represented by a member of the CAC.

Through open houses, interest-group workshops, traditional media outlets, electronic and print newsletters and a designated webpage on www.ci.richland.wa.us, every member of the public will have multiple opportunities to provide input and stay informed.

The project team's goal is to identify a preferred alternative for the roadway, environmental mitigation and enhancements in Spring 2017 for approval by Richland City Council.





Rachel Road Alignment Study

Schedule

September 2016

Stakeholder Assessment

October 2016

Community Advisory
Committee Kickoff

December 2016

Public Open House #1
Monday, Dec. 5 (4-7 pm)
Reata Springs Baptist Church
2881 Leslie Road, Richland

Community Advisory
Committee Meeting #2

Winter/Spring 2017

Community Advisory
Committee Meeting #3

Public Open House #2

Present Recommendations
to City Council

Questions?

www.ci.richland.wa.us/rachel

800.252.8929

bk@langdongroupinc.com



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December 5 Public Open House

The community will have their first opportunity to learn more about the Rachel Road Alignment Study and provide valuable input, at a **Monday, December 5** public open house. **The public is invited to stop by the Reata Springs Baptist Church, 2881 Leslie Road in Richland, anytime between 4 and 7 pm.**

Participation in the open house will help inform the future work of the Community Advisory Committee (CAC). The public will be asked to provide feedback on the CAC's draft alignment alternatives and the selection criteria that will be used to compare the alternatives.

The open house will also provide the public the opportunity to learn more about the corresponding wildlife report, potential roadway design elements, street functionality and growth planning in the region.

Your Community Advisory Committee

The CAC will meet at key milestones this winter to help identify goals for the project, criteria for alternative selection, potential alignment alternatives, opportunities for enhancement and mitigation in the Amon Creek Natural Preserve and design features of a potential new connection. CAC membership consists of (listed alphabetically):

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Meadow Springs Second Nine Home Owners Association
- Richland Fire Department
- Richland Parks and Recreation Commission
- Richland Police Department
- Tapteal Greenway
- Willowbrook Home Owners Association

The Washington Department of Ecology, Richland Energy Services and Public Works are participating as resource advisors.



Background

The City of Richland's Comprehensive Land Use Plan identifies the extension of Rachel Road, near the Amon Creek Natural Preserve (ACNP), as a needed improvement to support connectivity between west Kennewick and areas of Richland and Benton County west of Leslie Road.

The ACNP is a natural open space of shrub steppe and wetland habitat that became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west.



With private construction underway, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.
- Mitigate any potential impacts to the Amon Creek Natural Preserve while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.

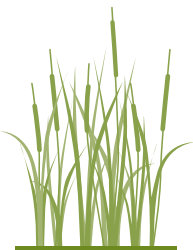
How do we get there?

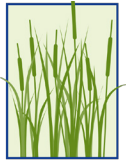
The goal of this project is to collaboratively develop opportunities to maintain or enhance the positive aspects of the region, determine potential transportation alternatives and ultimately identify a holistic solution that addresses all interests and parties.

There will be a second Public Open House scheduled in early 2017. To receive project updates via email, sign up for the City's E-notifications on the project webpage: www.ci.richland.wa.us/Rachel.

Project information will be posted on the webpage as it becomes available. After December 5, all open house information and the opportunity to provide comment will be available online for any members of the public that were unable to attend.

The project team's goal is to identify a preferred alternative for the roadway, environmental mitigation and enhancements in Spring 2017 for approval by Richland City Council.





Rachel Road Alignment Study



Schedule

September 2016

Stakeholder Assessment

October 2016

CAC Kickoff

December 2016

Public Open House #1
CAC Meeting #2

January 2017

Final Wildlife Report

February 2017

CAC Meeting #3

April 2017

Public Open House #2:
April 12, 2017 (5:30-8:30
PM), Desert Hills MS
Presentation to Parks and
Recreation Commission

May 2017

Present Recommendations
to City Council

Questions?

www.ci.richland.wa.us/rachel

800.252.8929

bk@langdongroupinc.com



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April 12 Public Open House

The Rachel Road Alignment Study Community Advisory Committee (CAC) alternative evaluation is complete. The public will have their first opportunity to review the process and results at a **Wednesday, April 12 Public Open House**.

The public is invited to stop by the **Desert Hills Middle School Cafeteria (1701 S Clodfelter Road, Kennewick)** anytime between **5:30 and 8:30 pm**. Members of the project team and the CAC will be available to answer questions and receive input about this important project.

For those community members interested in the criteria and scoring that steered the alternative evaluation process, there will be more detailed presentations beginning at 6 and 7:30 pm.

The open house will also provide the public an opportunity to comment on potential roadway design elements and ACNP enhancements for future implementation consideration.

Your Community Advisory Committee

The CAC met in October and December to identify goals for the project, criteria for alternative selection, potential alignment alternatives, opportunities for enhancement and mitigation in the Amon Creek Natural Preserve (ACNP) and design features of a potential new connection. The CAC assigned weight to each criteria and in February reviewed the results, made adjustments and reached agreement that the process and the results it produced was fair, inclusive and collaborative. CAC members represent the following groups (listed alphabetically):

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Meadow Springs Second Nine Home Owners Association
- Richland Fire Department
- Richland Parks and Recreation Commission
- Richland Police Department
- Tapteal Greenway
- Willowbrook Home Owners Association
- Willowbrook Heights Home Owners Association

The Washington Department of Ecology, Richland Energy Services and Public Works are participating as resource advisors.



Background

The City of Richland's Comprehensive Land Use Plan identifies the extension of Rachel Road, near the ACNP, as a needed improvement to support connectivity between west Kennewick and areas of Richland and Benton County west of Leslie Road.

The ACNP is a natural open space of shrub steppe and wetland habitat that became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west.

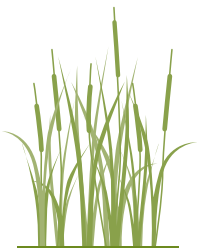


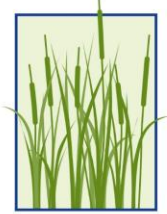
With private construction underway, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.
- Mitigate any potential impacts to the ACNP while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.



125 people signed-in and 40 comments were received at the Dec. 5, 2016 Public Open House.





Rachel Road
Alignment Study

APPENDIX F

NEWS RELEASE

FOR IMMEDIATE RELEASE

Oct. 14, 2016

CONTACT: Bryant Kuechle, The Langdon Group. 800-252-8929 or bk@langdongroupinc.com

Rachel Road study launches with committee, webpage and Dec. 5 Open House announcement

RICHLAND – The Rachel Road Alignment Study kicked off this week with the first meeting of the project Community Advisory Committee (CAC) on Tuesday and the launch of the project webpage, www.ci.richland.wa.us/rachel. The general public will have their first opportunity to participate in this project at a Public Open House, scheduled for December 5 (location to be determined).

CAC membership includes representatives from a range of interests and perspectives (listed below), charged with helping determine how to maintain and potentially enhance the natural benefits of the Amon Creek Natural Preserve (ACNP) while providing roadway connectivity and sufficient emergency access to a growing area of the community that includes a new Kennewick School District elementary school and numerous surrounding neighborhoods.

“Through a thorough stakeholder assessment process, we identified key organizations that represent the diversity of interests in this important project,” said The Langdon Group (TLG) Project Manager, Bryant Kuechle.

“Our goal in forming the CAC is to assemble a working group representing a diversity of community interests so that every member of the community feels confident that their interests are represented. CAC members will share information with their groups and bring the interests of their constituents to our study process.”

More information about the December 5 Public Open House will be provided in November. There will be a second Public Open House scheduled in early 2017. To receive project updates via email, sign up for the City’s E-notifications on the project webpage. Project information will be posted on the webpage as it becomes available.

TLG, a division of J-U-B ENGINEERS, was hired by the City of Richland to manage this independent study. In spring 2017, TLG will present the recommendations from the study to Richland City Council.

Background

The City of Richland’s Comprehensive Land Use Plan identifies the extension of Rachel Road as a needed improvement to support connectivity between west Kennewick and areas of Richland and Benton County west of Leslie Road.

The ACNP became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west. The WSDOT and EFSEC investments satisfied obligations for environmental mitigation related to other projects.

With private construction underway in the adjacent Clearwater Creek subdivision and planning for the new elementary school advancing, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.
- Mitigate any potential impacts to the ACNP while identifying opportunities to enhance the natural environment and the community’s opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.

The CAC will meet at key milestones this winter to help identify goals for the project, criteria for alternative selection, potential alignment alternatives, opportunities for enhancement and mitigation in the ACNP and design features of a potential new connection. Through public open houses, the community will have the opportunity to provide guidance to the CAC. CAC membership consists of (listed alphabetically):

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Richland Fire Department
- Richland Parks and Recreation Commission
- Richland Police Department
- Tapteal Greenway
- Willowbrook Home Owners Association

The Washington Department of Ecology, Richland Energy Services and Public Works are participating as resource advisors.

Question or comments can be directed to Kuechle at 800-252-8929 or bk@langdongroupinc.com.

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NEWS RELEASE

FOR IMMEDIATE RELEASE

Nov. 1, 2016

CONTACT: Bryant Kuechle, The Langdon Group. 800-252-8929 or bk@langdongroupinc.com

Public invited to participate in Rachel Road Alignment Study at Dec. 5, public open house

RICHLAND – The community will have their first opportunity to learn more about the Rachel Road Alignment Study and provide valuable input at a Monday, December 5 public open house. The public is invited to stop by the Reata Springs Baptist Church, 2881 Leslie Road in Richland, anytime between 4 and 7 pm.

“This open house is a critical step that will help inform the future work of the Community Advisory Committee (CAC),” said The Langdon Group (TLG) Project Manager, Bryant Kuechle. “The public will be asked to provide feedback on the CAC’s draft alignment alternatives and the selection criteria that will be used to compare the alternatives.”

The open house will also provide the public the opportunity to learn more about the corresponding wildlife report, potential roadway design elements, street functionality and growth planning in the region.

The Rachel Road Alignment Study officially kicked off October 11, with the launch of the project webpage, www.ci.richland.wa.us/rachel, and the first CAC meeting. CAC membership includes representatives from a range of interests and perspectives (listed below), charged with helping determine how to maintain and potentially enhance the natural benefits of the Amon Creek Natural Preserve (ACNP) while providing roadway connectivity and sufficient emergency access to a growing area of the community that includes a new Kennewick School District elementary school and numerous surrounding neighborhoods.

“Our goal in forming the CAC is to assemble a working group representing a diversity of community interests so that every member of the community feels confident that their interests are represented. CAC members will share information with their groups and bring the interests of their constituents to our study process,” said Kuechle.

There will be a second Public Open House scheduled in early 2017. To receive project updates via email, sign up for the City’s E-notifications on the project webpage. Project information will be posted on the webpage as it becomes available. After December 5, all open house information and the opportunity to provide comment will be available online for any members of the public that were unable to attend.

TLG, a division of J-U-B ENGINEERS, was hired by the City of Richland to manage this independent study. In spring 2017, TLG will present the recommendations from the study to Richland City Council.

Background

The City of Richland’s Comprehensive Land Use Plan identifies the extension of Rachel Road, near the Amon Creek Natural Preserve (ACNP), as a needed improvement to support connectivity between west Kennewick and areas of Richland and Benton County west of Leslie Road.

The ACNP is a natural open space of shrub steppe and wetland habitat that became publicly owned in 2007 when the City of Richland, Washington State Department of Transportation (WSDOT), Washington State Energy Facility Site Evaluation Council (EFSEC) and the Tapteal Greenway Association signed an agreement to acquire and maintain the property as natural open space, with the potential for a future roadway connecting neighborhoods to the east and west. The WSDOT and EFSEC investments satisfied obligations for environmental mitigation related to other projects.

With private construction underway and planning for the new elementary school advancing, the City is now faced with the challenge of addressing a number of factors:

- Provide planned multi-modal transportation connectivity for automobiles, bicycles, pedestrians, and transit in a growing area.

- Mitigate any potential impacts to the ACNP while identifying opportunities to enhance the natural environment and the community's opportunity to interact with it.
- Provide necessary emergency services access to a future school and homes.
- Minimize increased traffic to existing neighborhood streets.

The CAC will meet at key milestones this winter to help identify goals for the project, criteria for alternative selection, potential alignment alternatives, opportunities for enhancement and mitigation in the ACNP and design features of a potential new connection. Through public open houses, the community will have the opportunity to provide guidance to the CAC. CAC membership consists of (listed alphabetically):

- Bonneville Power Administration
- El Rancho Reata Community Alliance
- Hayden Homes
- Heights at Meadow Springs Home Owners Association
- Kennewick Irrigation District
- Kennewick School District
- Lower Columbia Basin Audubon Society
- Meadow Springs Second Nine Home Owners Association
- Richland Fire Department
- Richland Parks and Recreation Commission
- Richland Police Department
- Tapteal Greenway
- Willowbrook Home Owners Association

The Washington Department of Ecology, Richland Energy Services and Public Works are participating as resource advisors.

Question or comments can be directed to Kuechle at 800-252-8929 or bk@langdongroupinc.com.

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NEWS RELEASE

FOR IMMEDIATE RELEASE

March 20, 2017

CONTACT: Bryant Kuechle, The Langdon Group. 800-252-8929 or bk@langdongroupinc.com

Public invited to provide feedback on Rachel Road Alignment Study Alternatives Evaluation, April 12

RICHLAND – The Rachel Road Alignment Study Community Advisory Committee (CAC) alternative evaluation is complete. The public will have their first opportunity to review the process and results at a Wednesday, April 12 public open house.

The public is invited to stop by the Desert Hills Middle School Cafeteria (1701 S Clodfelter Road, Kennewick) anytime between 5:30 and 8:30 pm. Members of the project team and the CAC will be available to answer questions and receive input about this important project.

For those community members interested in the criteria and scoring that steered the alternative evaluation process, there will be more detailed presentations beginning at 6 and 7:30 pm.

“Feedback from this public meeting along with the results of the hard work of the CAC will inform our team’s recommendation to Richland City Council regarding the potential future roadway connection between Leslie Road and new development east of the Amon Creek Natural Preserve (ACNP),” said The Langdon Group (TLG) Project Manager, Bryant Kuechle.

The open house will also provide the public an opportunity to comment on potential roadway design elements and ACNP enhancements for future implementation consideration.

The Rachel Road Alignment Study officially kicked off October 11, 2016 with the launch of the project webpage, www.ci.richland.wa.us/rachel, and the first CAC meeting. CAC membership includes representatives from a range of interests and perspectives, charged with helping determine how to maintain and potentially enhance the natural benefits of the ACNP while providing roadway connectivity and sufficient emergency access to a growing area of the community that includes a new Kennewick School District elementary school and numerous surrounding neighborhoods.

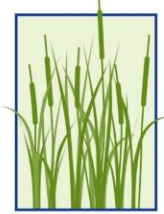
“Our goal in forming the CAC was to assemble a working group representing a diversity of community interests so that every member of the community feels confident that their interests are represented,” said Kuechle.

The CAC met again in December following the Dec. 5 Public Open House, to refine criteria and potential alignment alternatives. The CAC assigned weight to each criteria and in February reviewed the results, made adjustments and reached agreement to take these results to the public for comment.

TLG, a division of J-U-B ENGINEERS, was hired by the City of Richland to manage this independent study. In spring 2017, TLG will present the recommendations from the study to Richland City Council.

Question or comments can be directed to Kuechle at 800-252-8929 or bk@langdongroupinc.com. More information about the project including background, schedule and materials from the Dec. 5 Public Open House, are available at www.ci.richland.wa.us/rachel.

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Rachel Road
Alignment Study

APPENDIX G

COST ESTIMATE

Rachel Road Alignment Study
City of Richland

ALTERNATIVE A

Jan-31,2017

ITEM NO.	QUANT.	UNIT	STD. ITEM	ITEM	UNIT PRICE	AMOUNT
PREPARATION						
1	1.00	L.S.	0001	MOBILIZATION (@10%)		\$237,000.00
2	5.36	ACRE	0025	CLEARING AND GRUBBING	\$4,000.00	\$21,440.00
GRADING						
3	7,610.00	C.Y.	0310	ROADWAY EXCAVATION INCL. HAUL	\$7.00	\$53,270.00
4	24,770.00	C.Y.	0405	COMMON BORROW INCL. HAUL	\$10.00	\$247,700.00
5	26,980.00	C.Y.	0470	EMBANKMENT COMPACTION	\$1.50	\$40,470.00
DRAINAGE						
6	0.00	L.S.	3025	PRECAST REINF. CONC. BOX CULVERT 20' SPAN X 5' RISE	\$250,000.00	\$0.00
STORM SEWER						
7	1.00	L.S.		PROJECT SITE DRAINAGE SYSTEM	\$170,000.00	\$170,000.00
STRUCTURE						
8	4,800.00	S.F.		SUPERSTRUCTURE - RACHEL ROAD 100' BRIDGE OVER WETLAND	\$165.00	\$792,000.00
SURFACING						
9	4,300.00	TON	5100	CRUSHED SURFACING BASE COURSE	\$20.00	\$86,000.00
10	1,100.00	TON	5120	CRUSHED SURFACING TOP COURSE	\$22.00	\$24,200.00
HOT MIX ASPHALT						
11	2,400.00	TON	5767	HMA CL. 1/2 IN. PG 64-28	\$85.00	\$204,000.00
EROSION CONTROL AND ROADSIDE PLANTING						
12	1.00	L.S.	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	\$10,000.00	\$10,000.00
13	2.08	ACRE	6412	SEEDING AND FERTILIZING	\$2,500.00	\$5,200.00
14	5,400.00	L.F.	6635	HIGH VISIBILITY SILT FENCE	\$5.00	\$27,000.00
TRAFFIC						
15	5,400.00	L.F.	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	\$18.00	\$97,200.00
16	4.00	EACH	6760	BEAM GUARDRAIL TRANSITION SECTION TYPE 21	\$3,800.00	\$15,200.00
17	4.00	EACH	6719	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	\$3,200.00	\$12,800.00
18	10,800.00	L.F.	6806	PAINT LINE	\$2.50	\$27,000.00
19	1.00	L.S.	6890	PERMANENT SIGNING	\$5,000.00	\$5,000.00
20	1.00	L.S.	6904	ILLUMINATION SYSTEM	\$67,000.00	\$67,000.00
21	1.00	L.S.	6912	TRAFFIC SIGNAL SYSTEM - LESLIE ROAD	\$300,000.00	\$300,000.00
22	1.00	L.S.	6974	PROJECT TEMPORARY TRAFFIC CONTROL	\$10,000.00	\$10,000.00
OTHER ITEMS						
23	1.00	L.S.	7037	STRUCTURE SURVEYING	\$5,000.00	\$5,000.00
24	1.00	L.S.	7038	ROADWAY SURVEYING	\$30,000.00	\$30,000.00
25	3,000.00	S.Y.	7055	CEMENT CONC. SIDEWALK	\$35.00	\$105,000.00
26	8.00	EACH	7058	CEMENT CONC. CURB RAMP	\$1,500.00	\$12,000.00

CONSTRUCTION SUBTOTAL: \$2,604,480.00

CONTINGENCY (@ 20%) \$520,896.00

BASE CONSTRUCTION ITEM TOTAL \$3,125,376.00

CONSTRUCTION ENGINEERING (@ 15%) \$468,806.40

BASE TOTAL CONSTRUCTION COST \$3,594,182.40

PRELIMINARY ENGINEERING (@ 10%): \$359,418.24

RIGHT-OF-WAY (ASSUME \$1.10/SF): ft^2 \$0.00

TOTAL PROJECT COST: \$3,953,600.64

TOTAL PROJECT COST (ROUNDED): \$4,000,000.00

COST ESTIMATE

Rachel Road Alignment Study
City of Richland

ALTERNATIVE C

Jan-31,2017

ITEM NO.	QUANT.	UNIT	STD. ITEM	ITEM	UNIT PRICE	AMOUNT
PREPARATION						
1	1.00	L.S.	0001	MOBILIZATION (@10%)		\$217,000.00
2	4.55	ACRE	0025	CLEARING AND GRUBBING	\$4,000.00	\$18,200.00
GRADING						
3	5,730.00	C.Y.	0310	ROADWAY EXCAVATION INCL. HAUL	\$7.00	\$40,110.00
4	0.00	C.Y.	0405	COMMON BORROW INCL. HAUL	\$10.00	\$0.00
5	4,260.00	C.Y.	0470	EMBANKMENT COMPACTION	\$1.50	\$6,390.00
DRAINAGE						
6	0.00	L.S.	3025	PRECAST REINF. CONC. BOX CULVERT 20' SPAN X 5' RISE	\$250,000.00	\$0.00
STORM SEWER						
7	1.00	L.S.		PROJECT SITE DRAINAGE SYSTEM	\$190,000.00	\$190,000.00
STRUCTURE						
8	4,800.00	S.F.		SUPERSTRUCTURE - RACHEL ROAD 100' BRIDGE OVER WETLAND	\$165.00	\$792,000.00
SURFACING						
9	4,900.00	TON	5100	CRUSHED SURFACING BASE COURSE	\$20.00	\$98,000.00
10	1,200.00	TON	5120	CRUSHED SURFACING TOP COURSE	\$22.00	\$26,400.00
HOT MIX ASPHALT						
11	2,700.00	TON	5767	HMA CL. 1/2 IN. PG 64-28	\$85.00	\$229,500.00
EROSION CONTROL AND ROADSIDE PLANTING						
12	1.00	L.S.	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	\$10,000.00	\$10,000.00
13	0.81	ACRE	6412	SEEDING AND FERTILIZING	\$2,500.00	\$2,025.00
14	6,200.00	L.F.	6635	HIGH VISIBILITY SILT FENCE	\$5.00	\$31,000.00
TRAFFIC						
15	6,200.00	L.F.	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	\$18.00	\$111,600.00
16	4.00	EACH	6760	BEAM GUARDRAIL TRANSITION SECTION TYPE 21	\$3,800.00	\$15,200.00
17	4.00	EACH	6719	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	\$3,200.00	\$12,800.00
18	12,300.00	L.F.	6806	PAINT LINE	\$2.50	\$30,750.00
19	1.00	L.S.	6890	PERMANENT SIGNING	\$5,000.00	\$5,000.00
20	1.00	L.S.	6904	ILLUMINATION SYSTEM	\$77,000.00	\$77,000.00
21	1.00	L.S.	6912	TRAFFIC SIGNAL SYSTEM - LESLIE ROAD	\$300,000.00	\$300,000.00
22	1.00	L.S.	6974	PROJECT TEMPORARY TRAFFIC CONTROL	\$10,000.00	\$10,000.00
OTHER ITEMS						
23	1.00	L.S.	7037	STRUCTURE SURVEYING	\$5,000.00	\$5,000.00
24	1.00	L.S.	7038	ROADWAY SURVEYING	\$30,000.00	\$30,000.00
25	3,400.00	S.Y.	7055	CEMENT CONC. SIDEWALK	\$35.00	\$119,000.00
26	8.00	EACH	7058	CEMENT CONC. CURB RAMP	\$1,500.00	\$12,000.00

CONSTRUCTION SUBTOTAL: \$2,388,975.00

CONTINGENCY (@ 20%) \$477,795.00

BASE CONSTRUCTION ITEM TOTAL \$2,866,770.00

CONSTRUCTION ENGINEERING (@ 15%) \$430,015.50

BASE TOTAL CONSTRUCTION COST \$3,296,785.50

PRELIMINARY ENGINEERING (@ 10%): \$329,678.55

RIGHT-OF-WAY (ASSUME \$1.10/SF): ft^2 \$0.00

TOTAL PROJECT COST: \$3,626,464.05

TOTAL PROJECT COST (ROUNDED): \$3,600,000.00

COST ESTIMATE

Rachel Road Alignment Study
City of Richland

ALTERNATIVE E

Jan-31,2017

ITEM NO.	QUANT.	UNIT	STD. ITEM	ITEM	UNIT PRICE	AMOUNT
PREPARATION						
1	1.00	L.S.	0001	MOBILIZATION (@10%)		\$197,000.00
2	6.16	ACRE	0025	CLEARING AND GRUBBING	\$4,000.00	\$24,640.00
GRADING						
3	5,550.00	C.Y.	0310	ROADWAY EXCAVATION INCL. HAUL	\$7.00	\$38,850.00
4	8,510.00	C.Y.	0405	COMMON BORROW INCL. HAUL	\$10.00	\$85,100.00
5	11,720.00	C.Y.	0470	EMBANKMENT COMPACTION	\$1.50	\$17,580.00
DRAINAGE						
6	1.00	L.S.	3025	PRECAST REINF. CONC. BOX CULVERT 20' SPAN X 5' RISE	\$250,000.00	\$250,000.00
STORM SEWER						
7	1.00	L.S.		PROJECT SITE DRAINAGE SYSTEM	\$240,000.00	\$240,000.00
STRUCTURE						
8	0.00	S.F.		SUPERSTRUCTURE - RACHEL ROAD 100' BRIDGE OVER WETLAND	\$165.00	\$0.00
SURFACING						
9	6,100.00	TON	5100	CRUSHED SURFACING BASE COURSE	\$20.00	\$122,000.00
10	1,500.00	TON	5120	CRUSHED SURFACING TOP COURSE	\$22.00	\$33,000.00
HOT MIX ASPHALT						
11	3,400.00	TON	5767	HMA CL. 1/2 IN. PG 64-28	\$85.00	\$289,000.00
EROSION CONTROL AND ROADSIDE PLANTING						
12	1.00	L.S.	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	\$10,000.00	\$10,000.00
13	1.50	ACRE	6412	SEEDING AND FERTILIZING	\$2,500.00	\$3,750.00
14	7,700.00	L.F.	6635	HIGH VISIBILITY SILT FENCE	\$5.00	\$38,500.00
TRAFFIC						
15	7,700.00	L.F.	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	\$18.00	\$138,600.00
16	4.00	EACH	6760	BEAM GUARDRAIL TRANSITION SECTION TYPE 21	\$3,800.00	\$15,200.00
17	4.00	EACH	6719	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	\$3,200.00	\$12,800.00
18	15,300.00	L.F.	6806	PAINT LINE	\$2.50	\$38,250.00
19	1.00	L.S.	6890	PERMANENT SIGNING	\$5,000.00	\$5,000.00
20	1.00	L.S.	6904	ILLUMINATION SYSTEM	\$96,000.00	\$96,000.00
21	1.00	L.S.	6912	TRAFFIC SIGNAL SYSTEM - LESLIE ROAD	\$300,000.00	\$300,000.00
22	1.00	L.S.	6974	PROJECT TEMPORARY TRAFFIC CONTROL	\$10,000.00	\$10,000.00
OTHER ITEMS						
23	1.00	L.S.	7037	STRUCTURE SURVEYING	\$5,000.00	\$5,000.00
24	1.00	L.S.	7038	ROADWAY SURVEYING	\$30,000.00	\$30,000.00
25	4,300.00	S.Y.	7055	CEMENT CONC. SIDEWALK	\$35.00	\$150,500.00
26	8.00	EACH	7058	CEMENT CONC. CURB RAMP	\$1,500.00	\$12,000.00

CONSTRUCTION SUBTOTAL: \$2,162,770.00

CONTINGENCY (@ 20%) \$432,554.00

BASE CONSTRUCTION ITEM TOTAL \$2,595,324.00

CONSTRUCTION ENGINEERING (@ 15%) \$389,298.60

BASE TOTAL CONSTRUCTION COST \$2,984,622.60

PRELIMINARY ENGINEERING (@ 10%): \$298,462.26

RIGHT-OF-WAY (ASSUME \$1.10/SF): 190542 ft^2 \$210,000.00

TOTAL PROJECT COST: \$3,493,084.86

TOTAL PROJECT COST (ROUNDED): \$3,500,000.00

COST ESTIMATE

Rachel Road Alignment Study
City of Richland

ALTERNATIVE G

Jan-31,2017

ITEM NO.	QUANT.	UNIT	STD. ITEM	ITEM	UNIT PRICE	AMOUNT
PREPARATION						
1	1.00	L.S.	0001	MOBILIZATION (@10%)		\$210,000.00
2	6.75	ACRE	0025	CLEARING AND GRUBBING	\$4,000.00	\$27,000.00
GRADING						
3	5,350.00	C.Y.	0310	ROADWAY EXCAVATION INCL. HAUL	\$7.00	\$37,450.00
4	12,900.00	C.Y.	0405	COMMON BORROW INCL. HAUL	\$10.00	\$129,000.00
5	15,210.00	C.Y.	0470	EMBANKMENT COMPACTION	\$1.50	\$22,815.00
DRAINAGE						
6	1.00	L.S.	3025	PRECAST REINF. CONC. BOX CULVERT 20' SPAN X 5' RISE	\$250,000.00	\$250,000.00
STORM SEWER						
7	1.00	L.S.		PROJECT SITE DRAINAGE SYSTEM	\$260,000.00	\$260,000.00
STRUCTURE						
8	0.00	S.F.		SUPERSTRUCTURE - RACHEL ROAD 100' BRIDGE OVER WETLAND	\$165.00	\$0.00
SURFACING						
9	6,600.00	TON	5100	CRUSHED SURFACING BASE COURSE	\$20.00	\$132,000.00
10	1,600.00	TON	5120	CRUSHED SURFACING TOP COURSE	\$22.00	\$35,200.00
HOT MIX ASPHALT						
11	3,600.00	TON	5767	HMA CL. 1/2 IN. PG 64-28	\$85.00	\$306,000.00
EROSION CONTROL AND ROADSIDE PLANTING						
12	1.00	L.S.	6488	EROSION CONTROL AND WATER POLLUTION PREVENTION	\$10,000.00	\$10,000.00
13	1.74	ACRE	6412	SEEDING AND FERTILIZING	\$2,500.00	\$4,350.00
14	8,200.00	L.F.	6635	HIGH VISIBILITY SILT FENCE	\$5.00	\$41,000.00
TRAFFIC						
15	8,200.00	L.F.	6700	CEMENT CONC. TRAFFIC CURB AND GUTTER	\$18.00	\$147,600.00
16	4.00	EACH	6760	BEAM GUARDRAIL TRANSITION SECTION TYPE 21	\$3,800.00	\$15,200.00
17	4.00	EACH	6719	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	\$3,200.00	\$12,800.00
18	16,500.00	L.F.	6806	PAINT LINE	\$2.50	\$41,250.00
19	1.00	L.S.	6890	PERMANENT SIGNING	\$5,000.00	\$5,000.00
20	1.00	L.S.	6904	ILLUMINATION SYSTEM	\$103,000.00	\$103,000.00
21	1.00	L.S.	6912	TRAFFIC SIGNAL SYSTEM - LESLIE ROAD	\$300,000.00	\$300,000.00
22	1.00	L.S.	6974	PROJECT TEMPORARY TRAFFIC CONTROL	\$10,000.00	\$10,000.00
OTHER ITEMS						
23	1.00	L.S.	7037	STRUCTURE SURVEYING	\$5,000.00	\$5,000.00
24	1.00	L.S.	7038	ROADWAY SURVEYING	\$30,000.00	\$30,000.00
25	4,600.00	S.Y.	7055	CEMENT CONC. SIDEWALK	\$35.00	\$161,000.00
26	8.00	EACH	7058	CEMENT CONC. CURB RAMP	\$1,500.00	\$12,000.00

CONSTRUCTION SUBTOTAL: \$2,307,665.00

CONTINGENCY (@ 20%) \$461,533.00

BASE CONSTRUCTION ITEM TOTAL \$2,769,198.00

CONSTRUCTION ENGINEERING (@ 15%) \$415,379.70

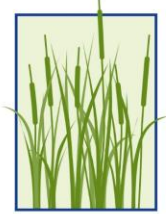
BASE TOTAL CONSTRUCTION COST \$3,184,577.70

PRELIMINARY ENGINEERING (@ 10%): \$318,457.77

RIGHT-OF-WAY (ASSUME \$1.10/SF): 190542 ft^2 \$210,000.00

TOTAL PROJECT COST: \$3,713,035.47

TOTAL PROJECT COST (ROUNDED): \$3,700,000.00



Rachel Road
Alignment Study

APPENDIX H

Document Path: \\Kwkfiles\public\Project\JUB\10-16-075 Rachel Road Alignment Study\GIS\FigX-ExistingPMPeakMap.mxd

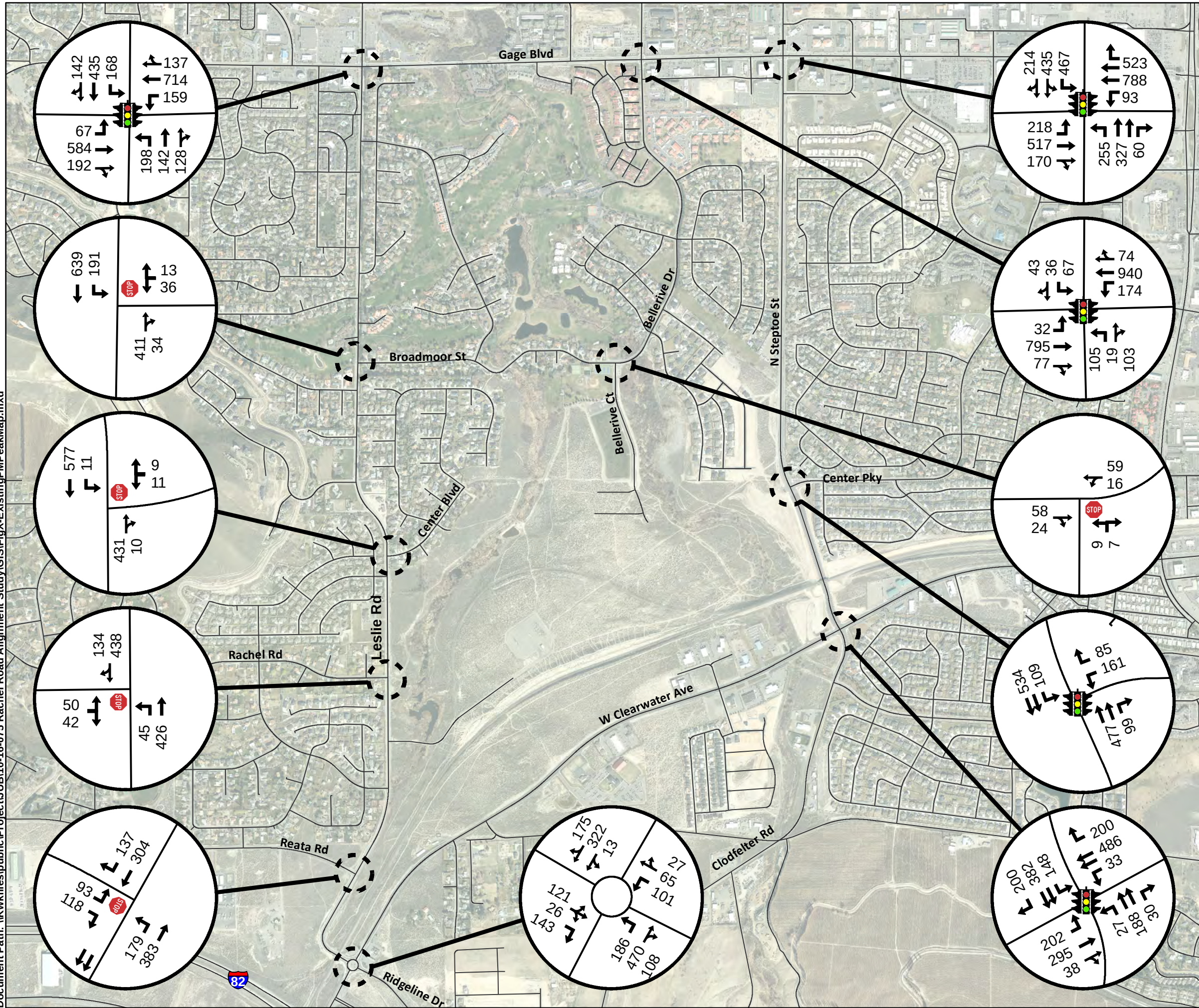


Figure A

Existing (2016) PM Peak

- Traffic Signal
- Stop Sign
- Lane Configuration
- 100 PM Peak Hour Traffic Volumes

NOTE

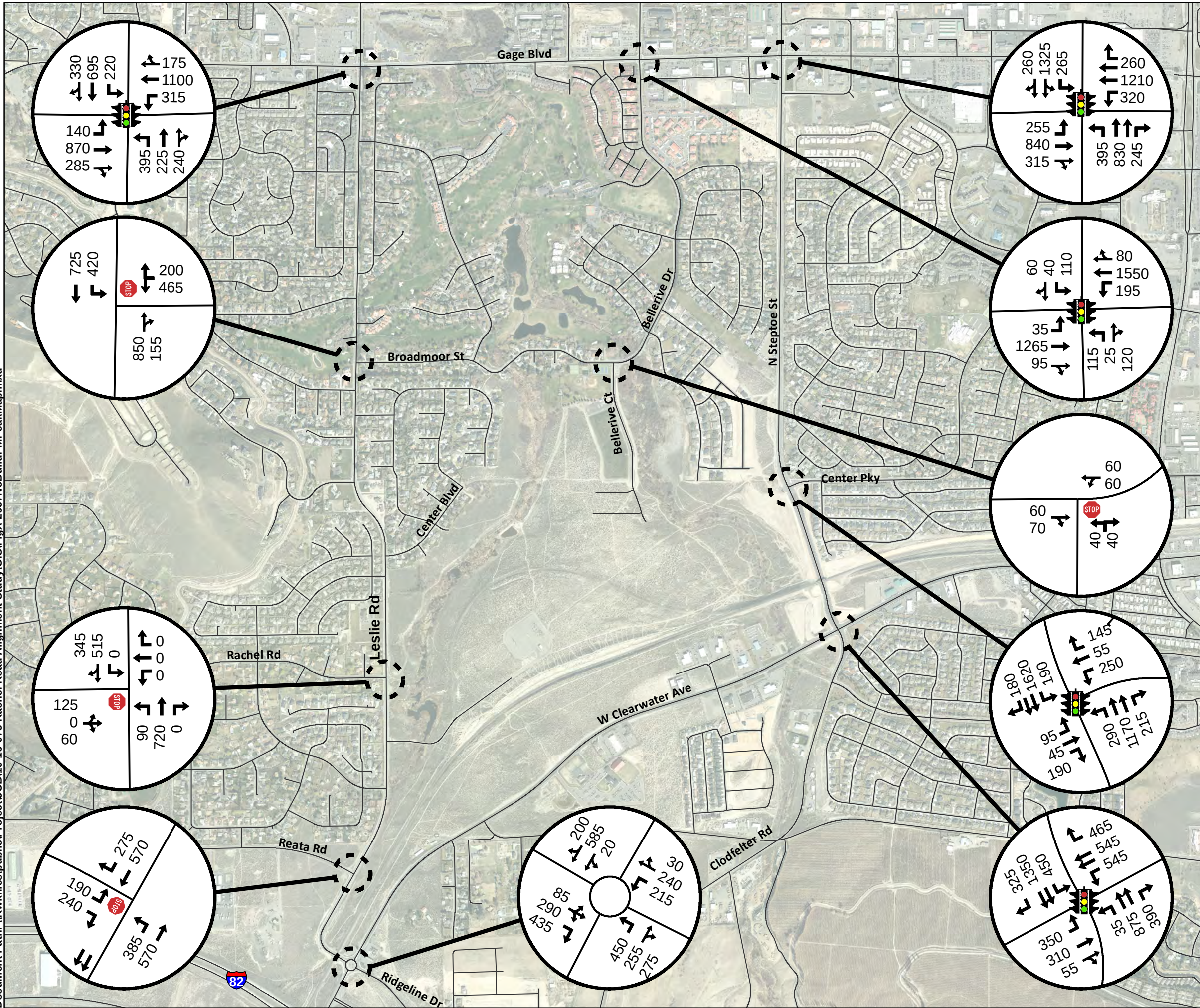
0 1,200 2,400 Feet



Date: Feb 7, 2017



Document Path: \\Kwfiles\public\Project\JUB\10-16-075 Rachel Road Alignment Study\GIS\FigX-2037NoBuildPMPeakMap.mxd



City of Richland
Rachel Road Alignment Study

Figure B

2037 No-Build PM Peak

Traffic Signal

Stop Sign

Lane Configuration

100 PM Peak Hour Traffic Volumes

NOTE

0 1,200 2,400 Feet

JUB ENGINEERS, INC.

Date: Feb 7, 2017

Document Path: \\Kwfiles\public\Project\JUB110-16-075 Rachel Road Alignment Study\GIS\FigC-2037BuildAltPMPeakMap.mxd

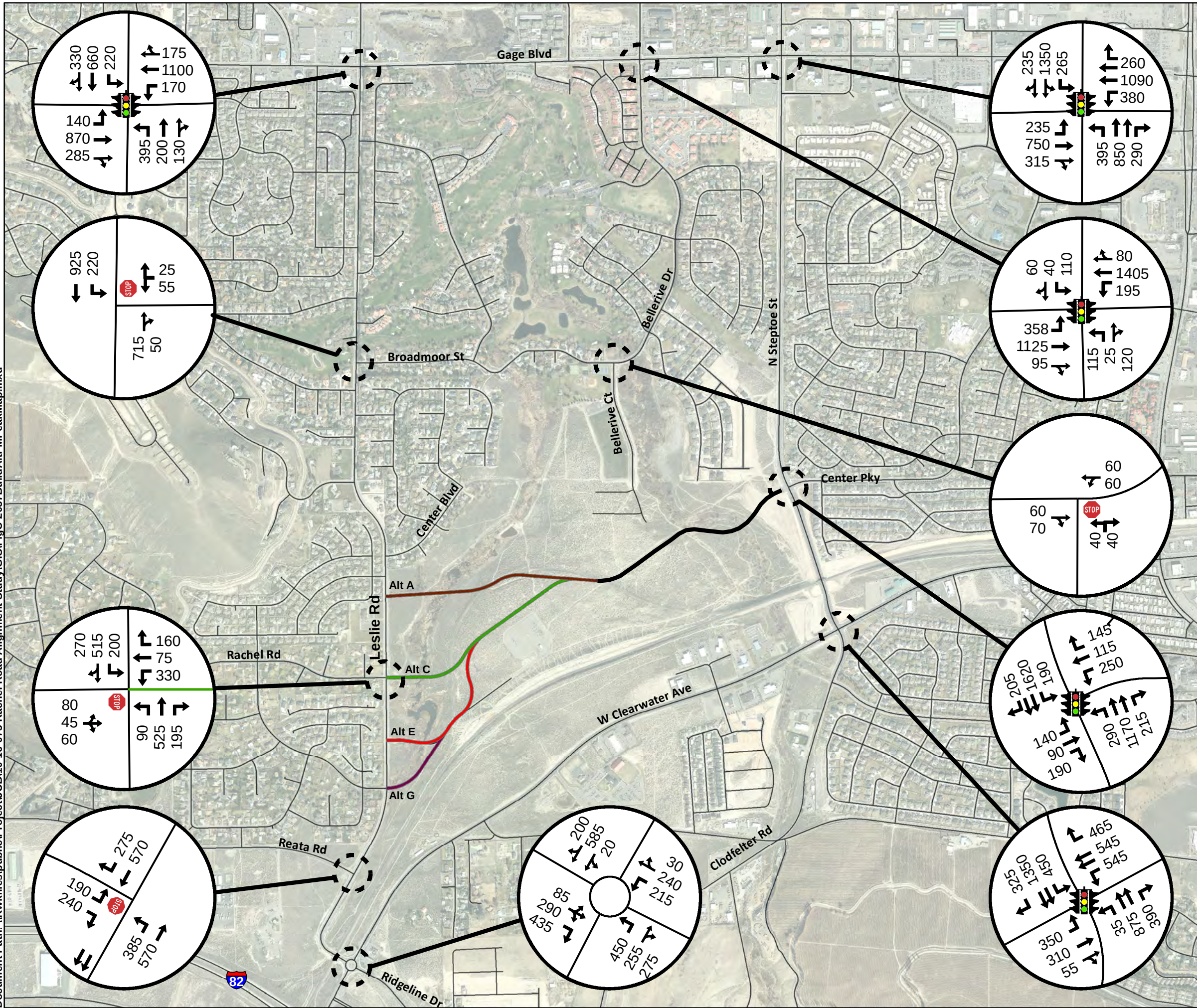


Figure C

2037 Build Alternatives PM Peak

- Traffic Signal
- Stop Sign
- Lane Configuration
- 100 PM Peak Hour Traffic Volumes

Alt A	Alt E	Alt G
 Rachel Rd 785 200 160 410 525 275 345 515 125 60 90 720	 Rachel Rd 270 715 80 105 575 245 165 850 235 335 615 195	 Rachel Rd 270 715 80 30 45 695 10 575 200 160 75 335 10 45 45 570 195

NOTE

0 1,200 2,400 Feet



Date: Feb 7, 2017

Crash Severity Factor

Unsignalized Intersection

Conflict	Number of Conflicts	Factor		
		50 MPH	40 MPH	30 MPH
"T" Crossing (Perpendicular) one high speed	4	10	8	--
Left turn crossing, one high speed	8	8	5	--
Both left turns	4	5	4	--
Merge	12	4	3	--

Traffic Signal

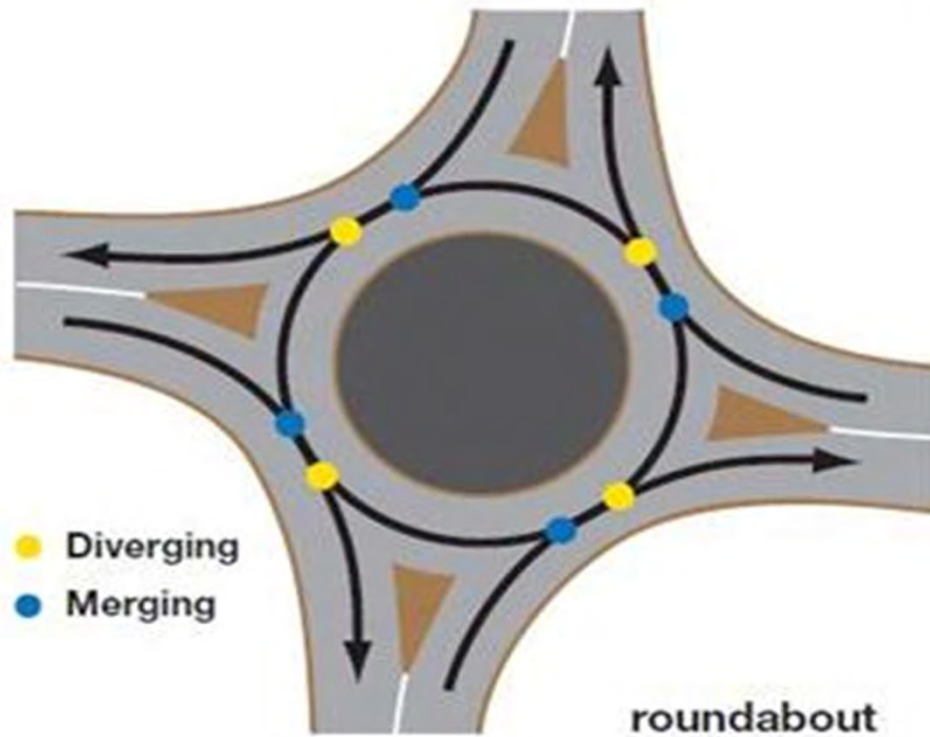
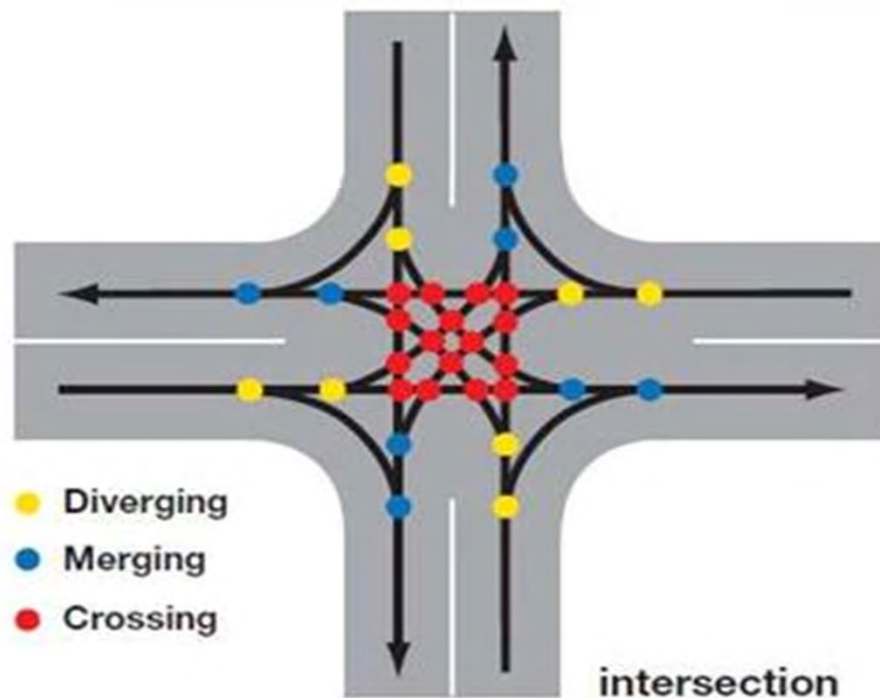
Conflict	Number of Conflicts	Factor		
		50 MPH	40 MPH	30 MPH
"T" Crossing (Perpendicular) one high speed	4	7	5	--
Left turn crossing, one high speed	8	5	4	--
Both left turns	4	4	3	--
Merge	12	3	2	--

Roundabout

Conflict	Number of Conflicts	Factor		
		40 MPH	30 MPH	20 MPH
"T" Crossing (Perpendicular) one high speed	4	--	--	--
Left turn crossing, one high speed	8	--	--	--
Both left turns	4	--	--	--
Merge	12	--	--	1

Possible Movements

Conflict Type	Movements	Conflict Type	Movements
left turn/cross	NBL/EBT	left turn/cross	EBL/SBT
left turn/cross	NBL/EBL	left turn/cross	EBL/SBL
left turn/merge	NBL/SBR	left turn/merge	EBL/WBR
left turn/cross	NBL/SBT	left turn/cross	EBL/WBT
left turn/merge	NBL/WBT	left turn/merge	EBL/NBT
left turn/cross	NBL/WBL	left turn/cross	EBL/NBL
cross	NBT/EBT	cross	EBT/SBT
left turn/merge	NBT/EBL	left turn/merge	EBT/SBL
left turn/cross	NBT/SBL	left turn/cross	EBT/WBL
right turn/merge	NBT/WBR	right turn/merge	EBT/NBR
cross	NBT/WBT	cross	EBT/NBT
left turn/cross	NBT/WBL	left turn/cross	EBT/NBL
right turn/merge	NBR/EBT	right turn/merge	EBR/SBT
right turn/merge	NBR/SBL	right turn/merge	EBR/WBL
left turn/cross	SBL/WBT	left turn/cross	WBL/NBT
left turn/cross	SBL/WBL	left turn/cross	WBL/NBL
left turn/merge	SBL/NBR	left turn/merge	WBL/EBR
cross	SBL/NBT	left turn/cross	WBL/EBT
left turn/merge	SBL/EBT	left turn/merge	WBL/SBT
left turn/cross	SBL/EBL	left turn/cross	WBL/SBL
cross	SBT/WBT	cross	WBT/NBT
left turn/merge	SBT/WBL	left turn/merge	WBT/NBL
cross	SBT/NBT	cross	WBT/EBL
right turn/merge	SBT/EBR	right turn/merge	WBT/SBR
cross	SBT/EBT	cross	WBT/SBT
left turn/cross	SBT/EBL	left turn/cross	WBT/SBL
right turn/merge	SBR/WBT	right turn/merge	WBR/NBT
right turn/merge	SBR/NBL	right turn/merge	WBR/EBL
Repeated Combinations			



Intersection vs. roundabout conflict points

Safety Analysis

No-Build

						Crash	
Movement 1	Movement 2	Type of Conflict	Traffic Volume 1	Traffic Volume 2	Volume Product	Severity Factor	Final Product
Intersection: Broadmoor Street/Leslie Road						40 MPH, Signalized	
NBL	EBT	left turn/cross			0	5	-
NBL	EBL	left turn/cross			0	4	-
NBL	SBR	left turn/merge			0	3	-
NBL	SBT	left turn/cross			0	5	-
NBL	WBT	left turn/merge			0	3	-
NBL	WBL	left turn/cross			0	4	-
NBT	EBT	cross			0	7	-
NBT	EBL	left turn/merge			0	3	-
NBT	SBL	left turn/cross	850	420	357000	5	1,785,000
NBT	WBR	right turn/merge	850	200	170000	3	510,000
NBT	WBT	cross			0	7	-
NBT	WBL	left turn/cross	850	465	395250	5	1,976,250
NBR	EBT	right turn/merge			0	3	-
NBR	SBL	right turn/merge	155	420	65100	3	195,300
SBL	WBT	left turn/cross			0	5	-
SBL	WBL	left turn/cross	420	465	195300	4	781,200
SBL	EBT	left turn/merge			0	3	-
SBL	EBL	left turn/cross			0	4	-
SBT	WBT	cross			0	7	-
SBT	WBL	left turn/merge	725	465	337125	3	1,011,375
SBT	EBR	right turn/merge			0	3	-
SBT	EBT	cross			0	7	-
SBT	EBL	left turn/cross			0	5	-
SBR	WBT	right turn/merge			0	3	-
EBL	WBR	left turn/merge			0	3	-
EBL	WBT	left turn/cross			0	5	-
EBT	WBL	left turn/cross			0	5	-
EBR	WBL	right turn/merge			0	3	-
						TOTAL	6,259,125

Intersection: Rachel Road/Leslie Road						40 MPH, Stop Controlled		
NBL	EBT	left turn/cross	90	0	0	8	-	
NBL	EBL	left turn/cross	90	125	11250	5	56,250	
NBL	SBR	left turn/merge	90	345	31050	4	124,200	
NBL	SBT	left turn/cross	90	515	46350	8	370,800	
NBL	WBT	left turn/merge	90	0	0	4	-	
NBL	WBL	left turn/cross	90	0	0	5	-	
NBT	EBT	cross	720	0	0	10	-	
NBT	EBL	left turn/merge	720	125	90000	4	360,000	
NBT	SBL	left turn/cross	720	0	0	8	-	
NBT	WBR	right turn/merge	720	0	0	4	-	
NBT	WBT	cross	720	0	0	10	-	
NBT	WBL	left turn/cross	720	0	0	8	-	
NBR	EBT	right turn/merge	0	0	0	4	-	
NBR	SBL	right turn/merge	0	0	0	4	-	
SBL	WBT	left turn/cross	0	0	0	8	-	
SBL	WBL	left turn/cross	0	0	0	5	-	
SBL	EBT	left turn/merge	0	0	0	4	-	
SBL	EBL	left turn/cross	0	125	0	5	-	
SBT	WBT	cross	515	0	0	10	-	
SBT	WBL	left turn/merge	515	0	0	4	-	
SBT	EBR	right turn/merge	515	60	30900	4	123,600	
SBT	EBT	cross	515	0	0	10	-	
SBT	EBL	left turn/cross	515	125	64375	8	515,000	
SBR	WBT	right turn/merge	345	0	0	4	-	
EBL	WBR	left turn/merge	125	0	0	4	-	
EBL	WBT	left turn/cross	125	0	0	8	-	
EBT	WBL	left turn/cross	0	0	0	8	-	
EBR	WBL	right turn/merge	60	0	0	4	-	
						TOTAL	1,549,850	
						TOTAL CONFLICT VALUE		7,808,975

Rachel Road Alignment Study

Safety Analysis

Alternative A Near Mattis Drive

					Crash		
Movement 1	Movement 2	Type of Conflict	Traffic Volume 1	Traffic Volume 2	Volume Product	Severity Factor	Final Product
Intersection: Broadmoor/Leslie					40 MPH, Stop Controlled		
NBL	EBT	left turn/cross			0	8	-
NBL	EBL	left turn/cross			0	5	-
NBL	SBR	left turn/merge			0	4	-
NBL	SBT	left turn/cross			0	8	-
NBL	WBT	left turn/merge			0	4	-
NBL	WBL	left turn/cross			0	5	-
NBT	EBT	cross			0	10	-
NBT	EBL	left turn/merge			0	4	-
NBT	SBL	left turn/cross	715	220	157300	8	1,258,400
NBT	WBR	right turn/merge	715	25	17875	4	71,500
NBT	WBT	cross			0	10	-
NBT	WBL	left turn/cross	715	55	39325	8	314,600
NBR	EBT	right turn/merge			0	4	-
NBR	SBL	right turn/merge	50	220	11000	4	44,000
SBL	WBT	left turn/cross			0	8	-
SBL	WBL	left turn/cross	220	55	12100	5	60,500
SBL	EBT	left turn/merge			0	4	-
SBL	EBL	left turn/cross			0	5	-
SBT	WBT	cross			0	10	-
SBT	WBL	left turn/merge	925	55	50875	4	203,500
SBT	EBR	right turn/merge			0	4	-
SBT	EBT	cross			0	10	-
SBT	EBL	left turn/cross			0	8	-
SBR	WBT	right turn/merge			0	4	-
EBL	WBR	left turn/merge			0	4	-
EBL	WBT	left turn/cross			0	8	-
EBT	WBL	left turn/cross			0	8	-
EBR	WBL	right turn/merge			0	4	-
						TOTAL	1,952,500
Intersection: Alternative A/Leslie Road					40 MPH, Signalized		
NBL	EBT	left turn/cross	0	0	0	5	-
NBL	EBL	left turn/cross	0	0	0	4	-
NBL	SBR	left turn/merge	0	0	0	3	-
NBL	SBT	left turn/cross	0	785	0	5	-
NBL	WBT	left turn/merge	0	0	0	3	-
NBL	WBL	left turn/cross	0	410	0	4	-
NBT	EBT	cross	525	0	0	7	-
NBT	EBL	left turn/merge	525	0	0	3	-
NBT	SBL	left turn/cross	525	200	105000	5	525,000
NBT	WBR	right turn/merge	525	160	84000	3	252,000
NBT	WBT	cross	525	0	0	7	-
NBT	WBL	left turn/cross	525	410	215250	5	1,076,250
NBR	EBT	right turn/merge	275	0	0	3	-
NBR	SBL	right turn/merge	275	200	55000	3	165,000
SBL	WBT	left turn/cross	200	0	0	5	-
SBL	WBL	left turn/cross	200	410	82000	4	328,000
SBL	EBT	left turn/merge	200	0	0	3	-
SBL	EBL	left turn/cross	200	0	0	4	-
SBT	WBT	cross	785	0	0	7	-
SBT	WBL	left turn/merge	785	410	321850	3	965,550
SBT	EBR	right turn/merge	785	0	0	3	-
SBT	EBT	cross	785	0	0	7	-
SBT	EBL	left turn/cross	785	0	0	5	-
SBR	WBT	right turn/merge	0	0	0	3	-
EBL	WBR	left turn/merge	0	160	0	3	-
EBL	WBT	left turn/cross	0	0	0	5	-
EBT	WBL	left turn/cross	0	410	0	5	-
EBR	WBL	right turn/merge	0	410	0	3	-
						TOTAL	3,311,800
Intersection: Existing Rachel Road/Leslie Road					40 MPH, Stop Controlled		
NBL	EBT	left turn/cross	90	0	0	8	-
NBL	EBL	left turn/cross	90	125	11250	5	56,250
NBL	SBR	left turn/merge	90	345	31050	4	124,200
NBL	SBT	left turn/cross	90	515	46350	8	370,800
NBL	WBT	left turn/merge	90	0	0	4	-
NBL	WBL	left turn/cross	90	0	0	5	-
NBT	EBT	cross	720	0	0	10	-
NBT	EBL	left turn/merge	720	125	90000	4	360,000
NBT	SBL	left turn/cross	720	0	0	8	-
NBT	WBR	right turn/merge	720	0	0	4	-
NBT	WBT	cross	720	0	0	10	-
NBT	WBL	left turn/cross	720	0	0	8	-
NBR	EBT	right turn/merge	0	0	0	4	-
NBR	SBL	right turn/merge	0	0	0	4	-
SBL	WBT	left turn/cross	0	0	0	8	-
SBL	WBL	left turn/cross	0	0	0	5	-
SBL	EBT	left turn/merge	0	0	0	4	-
SBL	EBL	left turn/cross	0	125	0	5	-
SBT	WBT	cross	515	0	0	10	-
SBT	WBL	left turn/merge	515	0	0	4	-
SBT	EBR	right turn/merge	515	60	30900	4	123,600
SBT	EBT	cross	515	0	0	10	-
SBT	EBL	left turn/cross	515	125	64375	8	515,000
SBR	WBT	right turn/merge	345	0	0	4	-
EBL	WBR	left turn/merge	125	0	0	4	-
EBL	WBT	left turn/cross	125	0	0	8	-
EBT	WBL	left turn/cross	0	0	0	8	-
EBR	WBL	right turn/merge	60	0	0	4	-
						TOTAL	1,549,850
			TOTAL CONFLICT VALUE				6,814,150

Alternative C

Existing Rachel Road

TOTAL CONFLICT VALUE	7,423,325
-----------------------------	-----------

Rachel Road Alignment Study

Safety Analysis

Alternative E

BPA Road

			Traffic	Traffic	Volume	Crash	
Movement 1	Movement 2	Type of Conflict	Volume 1	Volume 2	Product	Severity Factor	Final Product
Intersection: Broadmoor Street/Leslie Road					40 MPH, Stop Controlled		
NBL	EBT	left turn/cross			0	8	-
NBL	EBL	left turn/cross			0	5	-
NBL	SBR	left turn/merge			0	4	-
NBL	SBT	left turn/cross			0	8	-
NBL	WBT	left turn/merge			0	4	-
NBL	WBL	left turn/cross			0	5	-
NBT	EBT	cross			0	10	-
NBT	EBL	left turn/merge			0	4	-
NBT	SBL	left turn/cross	715	220	157300	8	1,258,400
NBT	WBR	right turn/merge	715	25	17875	4	71,500
NBT	WBT	cross			0	10	-
NBT	WBL	left turn/cross	715	55	39325	8	314,600
NBR	EBT	right turn/merge			0	4	-
NBR	SBL	right turn/merge	50	220	11000	4	44,000
SBL	WBT	left turn/cross			0	8	-
SBL	WBL	left turn/cross	220	55	12100	5	60,500
SBL	EBT	left turn/merge			0	4	-
SBL	EBL	left turn/cross			0	5	-
SBT	WBT	cross			0	10	-
SBT	WBL	left turn/merge	925	55	50875	4	203,500
SBT	EBR	right turn/merge			0	4	-
SBT	EBT	cross			0	10	-
SBT	EBL	left turn/cross			0	8	-
SBR	WBT	right turn/merge			0	4	-
EBL	WBR	left turn/merge			0	4	-
EBL	WBT	left turn/cross			0	8	-
EBT	WBL	left turn/cross			0	8	-
EBR	WBL	right turn/merge			0	4	-
						TOTAL	1,952,500
Intersection: Alt #/Leslie Road					35 MPH, Stop Controlled		
NBL	EBT	left turn/cross	0	0	0	5	-
NBL	EBL	left turn/cross	0	0	0	4	-
NBL	SBR	left turn/merge	0	0	0	3	-
NBL	SBT	left turn/cross	0	575	0	5	-
NBL	WBT	left turn/merge	0	0	0	3	-
NBL	WBL	left turn/cross	0	335	0	4	-
NBT	EBT	cross	615	0	0	7	-
NBT	EBL	left turn/merge	615	0	0	3	-
NBT	SBL	left turn/cross	615	245	150675	5	753,375
NBT	WBR	right turn/merge	615	235	144525	3	433,575
NBT	WBT	cross	615	0	0	7	-
NBT	WBL	left turn/cross	615	335	206025	5	1,030,125
NBR	EBT	right turn/merge	195	0	0	3	-
NBR	SBL	right turn/merge	195	245	47775	3	143,325
SBL	WBT	left turn/cross	245	0	0	5	-
SBL	WBL	left turn/cross	245	335	82075	4	328,300
SBL	EBT	left turn/merge	245	0	0	3	-
SBL	EBL	left turn/cross	245	0	0	4	-
SBT	WBT	cross	575	0	0	7	-
SBT	WBL	left turn/merge	575	335	192625	3	577,875
SBT	EBR	right turn/merge	575	0	0	3	-
SBT	EBT	cross	575	0	0	7	-
SBT	EBL	left turn/cross	575	0	0	5	-
SBR	WBT	right turn/merge	0	0	0	3	-
EBL	WBR	left turn/merge	0	235	0	3	-
EBL	WBT	left turn/cross	0	0	0	5	-
EBT	WBL	left turn/cross	0	335	0	5	-
EBR	WBL	right turn/merge	0	335	0	3	-
						TOTAL	3,266,575
Intersection: Rachel Road/Leslie Road					405 MPH, Stop Controlled		
NBL	EBT	left turn/cross	165	0	0	8	-
NBL	EBL	left turn/cross	165	80	13200	5	66,000
NBL	SBR	left turn/merge	165	270	44550	4	178,200
NBL	SBT	left turn/cross	165	715	117975	8	943,800
NBL	WBT	left turn/merge	165	0	0	4	-
NBL	WBL	left turn/cross	165	0	0	5	-
NBT	EBT	cross	850	0	0	10	-
NBT	EBL	left turn/merge	850	80	68000	4	272,000
NBT	SBL	left turn/cross	850	0	0	8	-
NBT	WBR	right turn/merge	850	0	0	4	-
NBT	WBT	cross	850	0	0	10	-
NBT	WBL	left turn/cross	850	0	0	8	-
NBR	EBT	right turn/merge	0	0	0	4	-
NBR	SBL	right turn/merge	0	0	0	4	-
SBL	WBT	left turn/cross	0	0	0	8	-
SBL	WBL	left turn/cross	0	0	0	5	-
SBL	EBT	left turn/merge	0	0	0	4	-
SBL	EBL	left turn/cross	0	80	0	5	-
SBT	WBT	cross	715	0	0	10	-
SBT	WBL	left turn/merge	715	0	0	4	-
SBT	EBR	right turn/merge	715	105	75075	4	300,300
SBT	EBT	cross	715	0	0	10	-
SBT	EBL	left turn/cross	715	80	57200	8	457,600
SBR	WBT	right turn/merge	270	0	0	4	-
EBL	WBR	left turn/merge	80	0	0	4	-
EBL	WBT	left turn/cross	80	0	0	8	-
EBT	WBL	left turn/cross	0	0	0	8	-
EBR	WBL	right turn/merge	105	0	0	4	-
						TOTAL	2,217,900
			TOTAL CONFLICT VALUE				7,436,975

Rachel Road Alignment Study Safety Analysis

Alternative G
Lorayne J Blvd

			Traffic	Traffic	Volume	Crash	
Movement 1	Movement 2	Type of Conflict	Volume 1	Volume 2	Product	Severity Factor	Final Product
Intersection: Broadmoor Street/Leslie Road					35 MPH, Stop Controlled		
NBL	EBT	left turn/cross			0	8	-
NBL	EBL	left turn/cross			0	5	-
NBL	SBR	left turn/merge			0	4	-
NBL	SBT	left turn/cross			0	8	-
NBL	WBT	left turn/merge			0	4	-
NBL	WBL	left turn/cross			0	5	-
NBT	EBT	cross			0	10	-
NBT	EBL	left turn/merge			0	4	-
NBT	SBL	left turn/cross	715	220	157300	8	1,258,400
NBT	WBR	right turn/merge	715	25	17875	4	71,500
NBT	WBT	cross			0	10	-
NBT	WBL	left turn/cross	715	55	39325	8	314,600
NBR	EBT	right turn/merge			0	4	-
NBR	SBL	right turn/merge	50	220	11000	4	44,000
SBL	WBT	left turn/cross			0	8	-
SBL	WBL	left turn/cross	220	55	12100	5	60,500
SBL	EBT	left turn/merge			0	4	-
SBL	EBL	left turn/cross			0	5	-
SBT	WBT	cross			0	10	-
SBT	WBL	left turn/merge	925	55	50875	4	203,500
SBT	EBR	right turn/merge			0	4	-
SBT	EBT	cross			0	10	-
SBT	EBL	left turn/cross			0	8	-
SBR	WBT	right turn/merge			0	4	-
EBL	WBR	left turn/merge			0	4	-
EBL	WBT	left turn/cross			0	8	-
EBT	WBL	left turn/cross			0	8	-
EBR	WBL	right turn/merge			0	4	-
						TOTAL	1,952,500
Intersection: Alt G/Leslie Road					40 MPH, Signalized		
NBL	EBT	left turn/cross	45	45	2025	5	10,125
NBL	EBL	left turn/cross	45	10	450	4	1,800
NBL	SBR	left turn/merge	45	10	450	3	1,350
NBL	SBT	left turn/cross	45	575	25875	5	129,375
NBL	WBT	left turn/merge	45	75	3375	3	10,125
NBL	WBL	left turn/cross	45	335	15075	4	60,300
NBT	EBT	cross	570	45	25650	7	179,550
NBT	EBL	left turn/merge	570	10	5700	3	17,100
NBT	SBL	left turn/cross	570	200	114000	5	570,000
NBT	WBR	right turn/merge	570	160	91200	3	273,600
NBT	WBT	cross	570	75	42750	7	299,250
NBT	WBL	left turn/cross	570	335	190950	5	954,750
NBR	EBT	right turn/merge	195	45	8775	3	26,325
NBR	SBL	right turn/merge	195	200	39000	3	117,000
SBL	WBT	left turn/cross	200	75	15000	5	75,000
SBL	WBL	left turn/cross	200	335	67000	4	268,000
SBL	EBT	left turn/merge	200	45	9000	3	27,000
SBL	EBL	left turn/cross	200	10	2000	4	8,000
SBT	WBT	cross	575	75	43125	7	301,875
SBT	WBL	left turn/merge	575	335	192625	3	577,875
SBT	EBR	right turn/merge	575	45	25875	3	77,625
SBT	EBT	cross	575	45	25875	7	181,125
SBT	EBL	left turn/cross	575	10	5750	5	28,750
SBR	WBT	right turn/merge	10	75	750	3	2,250
EBL	WBR	left turn/merge	10	160	1600	3	4,800
EBL	WBT	left turn/cross	10	75	750	5	3,750
EBT	WBL	left turn/cross	45	335	15075	5	75,375
EBR	WBL	right turn/merge	45	335	15075	3	45,225
						TOTAL	4,327,300
Intersection: Rachel Road/Leslie Road					40 MPH, Stop Controlled		
NBL	EBT	left turn/cross	45	0	0	8	-
NBL	EBL	left turn/cross	45	80	3600	5	18,000
NBL	SBR	left turn/merge	45	270	12150	4	48,600
NBL	SBT	left turn/cross	45	715	32175	8	257,400
NBL	WBT	left turn/merge	45	0	0	4	-
NBL	WBL	left turn/cross	45	0	0	5	-
NBT	EBT	cross	695	0	0	10	-
NBT	EBL	left turn/merge	695	80	55600	4	222,400
NBT	SBL	left turn/cross	695	0	0	8	-
NBT	WBR	right turn/merge	695	0	0	4	-
NBT	WBT	cross	695	0	0	10	-
NBT	WBL	left turn/cross	695	0	0	8	-
NBR	EBT	right turn/merge	0	0	0	4	-
NBR	SBL	right turn/merge	0	0	0	4	-
SBL	WBT	left turn/cross	0	0	0	8	-
SBL	WBL	left turn/cross	0	0	0	5	-
SBL	EBT	left turn/merge	0	0	0	4	-
SBL	EBL	left turn/cross	0	80	0	5	-
SBT	WBT	cross	715	0	0	10	-
SBT	WBL	left turn/merge	715	0	0	4	-
SBT	EBR	right turn/merge	715	30	21450	4	85,800
SBT	EBT	cross	715	0	0	10	-
SBT	EBL	left turn/cross	715	80	57200	8	457,600
SBR	WBT	right turn/merge	270	0	0	4	-
EBL	WBR	left turn/merge	80	0	0	4	-
EBL	WBT	left turn/cross	80	0	0	8	-
EBT	WBL	left turn/cross	0	0	0	8	-
EBR	WBL	right turn/merge	30	0	0	4	-
						TOTAL	1,089,800
			TOTAL CONFLICT VALUE				7,369,600



COUNCIL WORKSHOP COVERSHEET

Council Date: 06/27/2017

Department: Administrative Services

Key Element: Key I - Financial Stability & Operational Effectiveness

Subject:

Review of 2018 Budget Process and Comprehensive Annual Financial Report (CAFR) Review (15 minutes)

Summary:

In accordance with Washington State law (RCW 35.33.075), the final budget passed by Council must be a balanced budget. The 2018 budget process and timeline will be reviewed with Council.

The City, like all cities that follow Generally Accepted Accounting Principles (GAAP), must prepare a Comprehensive Annual Financial Report (CAFR) by the end of May each year for the prior fiscal/calendar year. The 2016 CAFR is currently in draft form because it is not considered complete until the State Auditors have conducted their audit of the City's financial statements and rendered an opinion that will be included with the CAFR. Staff will be present to provide an overview of the City's financial results for 2016.

No action is needed. This is just an informational item.

Attachments:



COUNCIL WORKSHOP COVERSHEET

Council Date: 06/27/2017

Department: Assistant City Manager

Key Element: Key I - Financial Stability & Operational Effectiveness

Subject:

Developing a Compensation Philosophy with Springsted, Incorporated for the Unaffiliated Employee Classification and Compensation Study (45 minutes)

Summary:

On May 2, 2017, the City Council adopted Resolution 80-17 authorizing the execution of a consultant agreement with Springsted, Incorporated for a classification and compensation study. One of the first steps in the process is the development of a compensation philosophy. The purpose of formalizing the City's compensation philosophy is to define Richland's competitive market (i.e. the organizations that will be used for comparison to Richland's non-represented pay ranges); establish a target level of competitiveness to that market (i.e. the City's desired competitive position); prioritize the goals and elements of total compensation (base salary, fringe benefits, variable compensation elements, etc.); and to guide the ongoing administration of the City's total compensation system.

A critical step in creating a compensation philosophy is to gather feedback from the City Council, to understand your collective perspective on total compensation. To that end, Springsted, Inc. will lead the City Council in a discussion that will help draft a total compensation statement to be presented to the City Council for approval during a later phase of the engagement.

Attachments: