FRANKLIN COUNTY PUBLIC WORKS DEPARTMENT

ENGINEER'S REPORT ON THE ESTABLISHMENT OF A COUNTY ROAD FOR THE PURPOSE OF ACCESS TO THE JUNIPER DUNES WILDERNESS AREA IN FRANKLIN COUNTY, WASHINGTON

Pursuant to RCW 36.81.050 and RCW 36.81.080

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TABLE OF CONTENTS

INTRODUCTION

This is a revision of the report originally submitted to the Franklin County Board of Commissioners regarding the selection of an alternative route for a New Access to the Juniper Dunes Wilderness Area. The original report was presented in public hearing held during the regular meeting of the Board of County Commissioners on April 8, 2015.

Minor changes have been made to reflect the current status of the project. The main body of the report is largely unchanged; the reasoning behind the selection of Alternative Route 2 as stated in the original report still stands as presented on April 8, 2015.

OVERVIEW:

This report is regarding the alternative options for a route to be constructed as part of the Juniper Dunes access road project, designated as county road project (CRP) 602. This report is to be considered an official engineer's report, as required per RCW 36.81.050 for the establishment of a new road, and is to provide the information necessary for the county legislative authority to make a selection as to Franklin County's preferred alternative route, per Chapter 36.81 RCW.

This project is being completed as part of a partnership between the Federal Highway Administration, the federal Bureau of Land Management, and Franklin County. Per a memorandum of agreement signed by the parties (Res. 2014-149), the Federal Highway Administration is the lead agency on this project.

I. BACKGROUND:

Chapter 36.81 RCW sets forth the conditions by which the county legislative authority can declare and establish a new county road in the state of Washington. Included in this chapter are requirements for an engineer's report and a public hearing on said report (RCW 36.81.050 and RCW 36.81.080, respectively). In accordance with Chapter 36.81 RCW, this engineer's report has been drafted for use by the county legislative authority and the public with respect to the Juniper Dunes access road project.

Juniper Dunes is a region in eastern Franklin County, about ten miles northeast of Pasco, Washington. Managed by the Bureau of Land Management, Juniper Dunes is actually three distinct areas: the Juniper Dunes Wilderness Area, which is about 7,100 acres and permits no motorized or mechanized travel, including bicycles; the OHV "Open" Area, which is about 3,920 acres and is designated for off-highway vehicle (OHV) use; and the Area of Critical Environmental Concern (ACEC), which is about 8,620 acres and limits motorized travel to existing routes. Together, these account for about 19,600 acres of management and recreation land.

Juniper Dunes has been utilized for recreation since at least the 1960s. In 1971, the Bureau of Land Management (BLM) started acquiring land in the area to protect the ecosystem – which includes some of the largest sand dunes in the state of Washington and a distinct juniper forest – and to provide recreation opportunities to the public. The Washington State Wilderness Act (Public Law 98-339) designated about 7,100 acres of the area as the Juniper Dunes Wilderness in 1984, and in 1986, BLM adopted a Juniper Dunes Wilderness Management Plan. In this plan, it is recognized that the Juniper Dunes area lacked public access. Franklin County and BLM have worked since this time to provide such an access to the public. To date, no such public access has been procured.

Without a designated public access, many users of the Juniper Dunes area have resorted to using Peterson Road. Peterson Road is a private road running longitudinally along the western section lines of Sections 4 and 9 of Township 9N, Range 31E, and Section 33 of Township 10N, Range 31E. It is about 2.18 miles in length, lies roughly southwest of the Juniper Dunes area, and connects to Pasco-Kahlotus Road, a rural arterial route, at about MP 5.95. The road surface is unimproved and is of notably poor quality, suffering from extensive washboarding and erosion. Peterson Road is nonetheless the only means of ingress and egress for about 50 parcels. Between residents and users of the Juniper Dunes area, Franklin County recorded an average of 415 vehicles between two Saturdays in June during 2014. Per BLM data, June is generally a low-average month for overall traffic into Juniper Dunes. It is generally assumed that Peterson Road is the preferred means of ingress and egress for users of the Juniper Dunes area due to its proximity to the OHV area and its historic use as such an ingress and egress.

Between 2001 and 2007, there were several closures of access to the privately-held lands that are used to access the Juniper Dunes area, both at Peterson Road and north of it. Several attempts to alleviate the situation were met with failure, and a comprehensive solution did not arise. To that end, in 2011, Franklin County was the recipient of a grant from BLM for $716,500 to complete the first phase of a public access road to the Juniper Dunes area. At the time, an engineer's report was drafted by then-County Engineer Tim Fife, P.E. Mr. Fife's report proposed creating a public road where Peterson Road is currently situated and improving it to the standards of Franklin County. Peterson Road was assumed to be a logical choice due to its historic use. However, planning-level analysis revealed an existing irrigation line below the private roadway, the mitigation of which exceed the funds that had been allotted. Progress on the project halted.

In June 2013, Franklin County was awarded a Federal Land Access Program grant, administered through the Federal Highway Administration's Western Federal Lands Highway Division. This grant, combined with the BLM grant and a local match, provides the funding for the access road to the Juniper Dunes area. With this funding, a memorandum of agreement was signed by the parties (Franklin County Resolution 2014-149) that set up the arrangement for the partnership and declared the intent of the parties to take the steps necessary to complete the establishment of an access road to the Juniper Dunes area.

II. CURRENT PROJECT STATUS:

1. Administration

This project is being completed through a joint partnership with the federal Bureau of Land Management (BLM) and the Federal Highway Administration (FHWA), specifically the Western Federal Lands Highway Division (WFLHD). A resolution signed on March 26, 2014, entered into a memorandum of agreement with these parties to complete the Juniper Dunes access road project. The memorandum stated the contribution each party would make towards the final project. The lead agency for the project was named as FHWA, who was also listed as the design and construction lead for engineering. On March 27, 2015, Franklin County – after completing 30 percent plans for select alternative routes and having those plans reviewed by FHWA – officially requested to be named the lead for these roles. On July 22, 2015, FHWA sent confirmation via email that Franklin County will be the lead agency responsible for the design and construction of the project.

2. *Funding*

Funding for this project is set to come from the Federal Highway Administration's (FHWA's) Federal Land access Program (FLAP), a discretionary grant from the federal Bureau of Land Management (BLM), and a Franklin County match. The estimated project costs are between $3.8M and $4.3M, which includes planning, design, and construction. The BLM grant will cover $716,500, while the balance will be covered by FLAP funding and a 13.5 percent Franklin County match.

3. *Road Specifications*

The anticipated road specifications for the Juniper Dunes access road call for a 26-foot wide roadway (11-foot lanes, two-foot shoulders). The first mile of the road, regardless of alternative, is expected to be paved. The remainder will be gravel. The estimated length of the road is between 4.2 and 5.4 miles, depending on alternative.

4. *Purpose and Needs*

The current project expands the scope of the original Bureau of Land Management (BLM) grant. The purpose and need of the project vary depending on the agency, though the project is the cumulative whole of these parts. Collectively, the purpose and needs are listed below:

Purpose: The purpose of this project is to provide a legal public access road to the Juniper Dunes Wilderness Area and adjacent off-highway vehicle (OHV) area, starting at a public road and ending at a staging area in the Juniper Dunes OHV open area.

Needs:

1. Users currently access the wilderness and OHV areas by a private road (Peterson Road) that does not have an access easement.
2. The owners of the road have closed Peterson Road in the past, cutting off access to the wilderness and OHV areas to the public.
3. Peterson Road is not constructed or maintained by the County, and it does not meet the County's standards for safety and maintenance. Among the deficiencies of this road are:
    a. The intersection with Pasco-Kahlotus Road (MP 5.95 on the latter) occurs at an acute angle, which can increase crash frequency.
    b. There is inadequate area in the safety clear zone on the roadway, which can increase the incidence of accidents, property damage, and injury.
    c. Drainage for the roadway is substandard, which results in poor surface conditions, such as washboarding and potholing. These conditions can then lead to increased risk of accidents and increased risk of vehicle damage.
    d. The roadway is of inconsistent, and often inadequate, width, which makes passing difficult and can increase the risk of accidents.
4. There has been damage to properties along Peterson Road from parties utilizing said road.
5. The most accessible parking area for the OHV area is outside of the formalized boundary and is near private property. This location lends to the use of OHV in unauthorized areas. The proximity to private property has also had some impact to these properties.
6. The poor road conditions make it difficult for law enforcement and emergency medical services to access the area.

5. *Alternatives*

Given that the purpose and need of the project, along with the project scope, had been expanded, the agencies began looking at different options for the location of the proposed new access road. Each of the options considered was evaluated for how well it met the purpose and need requirements, as well as its technical, fiscal, and practical impacts. As this analysis wore on, certain alternatives were seen as preferable to others based on the above criteria. While none of these alternatives have been removed from the possibility pool, the parties have spent resources on those four options that appear most promising. Please see the map in the appendix for other routes that have been considered, but which are not among the four deemed most promising as alternatives. The four routes for which greater resources have been expended are discussed at length in the "Route Preference Selection" section.

6. *Preliminary Engineering*

As this project is utilizing federal funding, it is subject to the National Environmental Policy Act (NEPA), which includes the necessity of professional studies and a written environmental assessment (EA). To this end, a number of professional studies have been undertaken or compiled in order to meet the evidentiary requirements of the EA. Among these are a water resources survey (David Evans and Associates, 2014), wetlands survey (David Evans and Associates, 2014), wildlife species or signs survey (Bureau of Land Management, 2014), cultural and historical resource survey (Eastern Washington University, 2014; *et al.*), and tribal consultation (Federal Highway Administration, 2014). The findings of these, if any, are further discussed in the "Route Preference Selection" section.

On February 11, 2015, a draft EA was released for public comment. A public open house was held by the three project parties at the TRAC center on February 17, 2015. The 30-day public comment period ended on March 13, 2015.

III. ROUTE SELECTION

A public hearing was conducted on April 8, 2015 during the regular meeting the Franklin County Board of Commissioners to hear the Engineer's report on the alternatives for a new access road to the Juniper Dunes Wilderness Area, pursuant to RCW. At the conclusion of that hearing, the Board, in Resolution No. 2015-147, selected Alternative Route 2 as the preference of Franklin County for the Juniper Dunes Access Road Project. The Engineer, as directed by the Board of Commissioners, then forwarded the results and the aforementioned resolution to the Federal Highway Administration for their consideration.

On April 24, 2015, Federal Highway Administration (FHWA) issued a finding of no significant impact (FONSI) pursuant to a determination based on the final environmental assessment (EA), also issued on April 24, 2015. In the EA, FHWA selected Alternative Route 2 as the best alternative to meet the purpose and need for the project.

This section provides information, based on research and calculations of the Franklin County Public Works Department, the EA, and the aforementioned professional studies, that was used in determining a preference for the County. This section will focus on the four most promising alternatives that were under consideration. For the reasoning behind giving less attention to other alternatives, please see "Juniper Dunes Access Road, WA Franklin 2013(1), Environmental Assessment and Section 4(f) Evaluation," pp. 11-12, FHWA, 2014.

1. *Alternatives Overview*

The four routes that have shown the most promise, with respect to the purpose and needs outlined in previous sections, are as follows (please note that the labeling given to the routes is merely in order to differentiate them and does not entail preference on the part of any department or agency mentioned within this report):

Alternative 1A — Alternative 1A would utilize the existing private road called Peterson Road and would travel from the intersection of said private road and Pasco-Kahlotus Road north about 4.2 miles before turning east for about one mile, ending at the off-highway vehicle (OHV) staging area. The full road length would be about 5.2 miles.

Alternative 1B — Alternative 1B would utilize the existing private road called Peterson Road and would travel from the intersection of said private road and Pasco-Kahlotus Road north for about 3.2 miles before turning east for about one mile, then turning north for about one mile, ending at the OHV staging area. The full road length would be about 5.2 miles.

Alternative 1C — Alternative 1C would utilize the existing private road called Peterson Road and would travel from the intersection of said private road and Pasco-Kahlotus Road north for about 2.5 miles before turning roughly east and traveling down Smith Canyon for about one mile, along an existing OHV path, then turn and travel north for about 1.7 miles along a section line, ending at the OHV staging area. The full road length would be about 5.4 miles.

Alternative 2 — Alternative 2 would create a new road about one mile east of the private road called Peterson Road. It would begin at an intersection with Pasco-Kahlotus Road and would head north to the OHV staging area. While it may not, in practice, be entirely straight, the route would generally follow along with or parallel to the section line. The full road length would be about 4.2 miles.

Please see the map of these four routes in the appendix.

2. *Technical Considerations*

This section is the first of the subsections that will discuss the technical, fiscal, and environmental facets of the proposed project. It bears repeating that while the discussions focus on the four alternatives listed, these are not the sole options for selecting a preference. However, these are the four that have been deemed to have the greatest potential for meeting the purpose and needs of this project as assessed by these considerations.

Due to the location of the OHV staging area, it was determined that a preferable route for the new access road would originate from Pasco-Kahlotus Road, between the private Peterson Road and roughly Ice Harbor Road. The reason for this was that it would be most proximate to the staging area and would therefore require less land to be acquired by Franklin County. Other alternatives provided access from roads west of the wilderness area and east of SR-395, but these were deemed impractical due to the amount of expansion and reconstruction that would be required for the county roads east of SR-395. Furthermore, due to the historic use of

Peterson Road as an access point, retaining access near this location was deemed to be prudent. Originating a road further east/north on Pasco-Kahlotus Road was also deemed impractical due to the quantity of land that would be required, particularly federal land that is not managed for OHV use.

Four routes – those noted previously in this report – best adhered to this location criteria. Three of these used the private road known as Peterson Road; as they shared a similar origin, they were denoted as Alternatives 1A, 1B, and 1C. The final route began about one mile to the east of Peterson Road. While it would create an entirely new route, it was still proximate to the historic access and had the advantage of being more or less a straight route (no 90-degree turns are anticipated with this route). This route was given the designation of Alternative 2. It should be noted that while Alternative 2 would require the construction of an entirely new access and roadway from the standpoint of there being no existing trail at this time for it to follow, Peterson Road is in such poor condition that there is effectively no engineering and construction difference between the four alternatives.

All four routes are capable of supporting the proposed access road as specified, though varying amounts of fill may be required in order to provide the appropriate grading. Exact quantities are unavailable at this time, as the roadway will undergo optimization once a route is selected. Though the current routes are shown as generally following section lines, they will likely be shifted in order to minimize the impact to private property, instead taking right-of-way or easements, where available, from federal land. Please see the table below for a brief summary of proposed right-of-way acquisition.

	Total ROW Required (est. acres)	**Easements on Federal Land (est. acres)**	**Acquisition of Private Land (est. acres)**
Alternative 1A	51.41	27.00	24.41
Alternative 1B	63.65	39.34	24.31
Alternative 1C	48.15	24.07	24.08
Alternative 2	50.00	33.50	16.50

It should be noted that these are highly conservative estimates and assume greater takes from private parcels than is anticipated once optimization has occurred.

As can be seen, Alternative 2 combines a lower amount of right-of-way in general, due in large part to its relatively straight trajectory. Alternative 1B requires the most right-of-way, largely owing to a somewhat circuitous route required to reach the OHV staging area. This offsetting from the section line is necessitated in order to avoid existing features (please see the alternatives map in the appendix). Alternative 1A stands at slightly more, owing largely to its origin location being slightly to the west of the OHV staging area. Alternative 1C requires the least overall, though it requires substantially more than Alternative 2. Alternative 1C furthermore has the issues of being within an area of critical environmental concerns (as designated by the federal Bureau of Land Management), being along a 4(f) area (as determined by the Federal Highway Administration and based on the existing use of OHVs in the area), and being at the bottom of a low point (Smith Canyon). These technical concerns are generally held to outweigh any potential benefit gained by having fewer acres of right-of-way required.

In addition to the location and the right-of-way, existing features that may be impacted must be taken into consideration. Of the four alternatives listed above, all of them will have some impact

to farm circles. The number of farm circles impacted varies on the route and the optimization, but could be as few as five or as many as 11. In all cases, adjustments would be paid for as part of the right-of-way process. In addition to farm circles, all of the Alternative 1 routes (1A, 1B, and 1C) overlay an existing irrigation pipeline. While a search for definitive metrics on the pipe were unsuccessful, it is known that the pipe is at least 30 years old and 36 inches in diameter. Other records suggest that the pipe could be up to 42 inches in diameter. Without further information, the impacts, if any, to this pipe are unknown. However, in the event that the pipe need to be replaced or suffers terminal failure, it would require the removal of that portion of the proposed roadway.

3. Fiscal Considerations

Currently, estimates for the project are based on the 30-percent design plans. These plans have not been optimized with respect to earthwork cuts and fills, which are major contributors to the overall cost of the project. For example, about two-thirds of the overall estimate for Alternative 2 is in earthwork. Without optimization – utilizing what would otherwise be haul from cuts to remedy fills, and vice versa – the estimated cost of a project can be substantially higher than the actual cost. Therefore, while the costs listed below are based on the estimated quantities, it should be noted that these quantities are conservative and that the figures are listed principally for comparative purposes.

	Estimated Cost of Project
Alternative 1A	$3.9M
Alternative 1B	$4.3M
Alternative 1C	$4.1M
Alternative 2	$3.8M

The estimates provided in the table are project costs that include engineering and right-of-way procurement and mitigation. Right-of-way mitigation costs are all costs-to-cure. One item that is not included, however, is the irrigation transmission main that was described in the technical considerations section of this report. Due to the unknown variables regarding this pipe – such as diameter, depth, and condition – it is difficult to provide a hard estimate as to the cost of its mitigation. However, estimates based on an assumed pipe diameter of 36 inches indicate that costs-to-cure would be roughly $1 million per mile. Due to appurtenance costs, it is not believed that there would be significant economies of scale with this pipe mitigation; as such, this rate is assumed to be scalable. This cost would apply to Alternatives 1A, 1B, and 1C.

Without any consideration of the irrigation pipe, Alternatives 1A and 2 are similar. In the case of Alternative 2, this is largely due to the reduced length of the alternative. Alternative 1A, conversely, benefits from a reduction in needed roadway excavation, as it runs over more even terrain. Alternatives 1B and 1C require substantially more roadway excavation, due to the type of land they traverse.

4. *Environmental Considerations*

For a complete review of the environmental considerations for this project, it is recommended that the environmental assessment (EA) for this project be consulted. This document is referred to as "Juniper Dunes Access Road, WA Franklin 2013(1), Environmental Assessment and Section 4(f) Evaluation," was written by FHWA, and, as of March 12, 2015, could be found at the following web address:
http://www.wfl.fhwa.dot.gov/projects/wa/juniper-dunes/documents/Juniper-Dunes.pdf

IV. RECOMMENDATIONS:

Access to the Juniper Dunes Wilderness Area and adjacent off-highway vehicle (OHV) area is a major obstacle to full utilization of this recreational opportunity in Franklin County. In addition to limiting the utility of this site, a lack of public access has led to difficulties between parties utilizing private property to access the aforementioned areas and the landowners upon whose property they traverse. Past property damage has, at times, resulted in further reduction of access, up to and including closure of private property. In order to alleviate these issues and realize the benefits to be gained by the residents and the region, Franklin County has sought to find a way to provide a permanent public access to this area.

Based on the findings of this report, along with the information provided in the environmental assessment and the finding of no significant impact prepared by the Federal Highway Administration (FHWA), the County Engineer recommends that the Board of Franklin County Commissioners designate Alternative Route 2 to be established as a County Road as pursuant to RCW 36.81.010.

Alternative 2 provides the most direct route to the OHV staging area, which has been determined to be the endpoint for the new access road. This relatively linear trajectory not only reduces the complexity of the project design, but also simplifies right-of-way requirements, ensuring that any right-of-way procured is done so in relatively regular sliver takes. Additionally, as has been seen in the analysis provided by this report, Alternative 2 has the lowest impact to private right-of-way and is one of the less expensive alternatives, all other things taken as equal. With the inclusion of the irrigation main mitigation, it is soundly the most economically viable option.

While Alternatives 1A, 1B, and 1C all have various strengths to them, it is the opinion of the County Engineer that these do not provide enough counterweight to overcome their deficiencies. All three alternatives would need to mitigate for the irrigation main that is located in the private route called Peterson Road. Additional shared obstacles with these alternatives include the current use of the private road by farm traffic (which could pose a safety concern for an access road and might require mitigation by means of widening the planned road section), lack of direct ingress and egress (a result of the origin point being one mile to the west of the proposed end point), and higher right-of-way takes from private entities. Alternative 1B also suffers from uneven terrain, precipitating higher construction costs, while Alternative 1C runs through a portion of Smith Canyon, which lies in a low point, is in an area of critical environmental concern, and is a 4(f) area. For these reasons, none of the three aforementioned alternatives are viewed by the County Engineer as being preferable to the option provided by Alternative 2. That said, all are preferable to the options that were not given a more substantive review in this report. All of these are viewed as being dismissed due to their length, right-of-way requirements, impacts, mitigations, and so forth.

Finally, there are two other alternatives: no preference and no build. A no preference alternative would defer to the opinion of FHWA. However, on April 8, 2015, the Board, in accordance with RCW 36.81.070, held a public hearing of the County Engineer's report for the selection of alternative routes for access to the Juniper Dunes Wilderness Area. Upon the close of said hearing, the Board selected Alternative 2 as Franklin County's preferred route for the Juniper Dunes Access Road, as enshrined in Franklin County Resolution Number 2015-147, and directed the County Engineer to submit said decision to the FHWA. Therefore, a no preference alternative no longer remains a viable alternative.

A "no build" preference is also possible from a technical standpoint. Franklin County could elect to not construct the access road. However, this would be a breach of the memorandum of agreement signed by the FHWA, the federal Bureau of Land Management, and Franklin County. Doing so would have profound impacts, including a withdrawal of federal funding and resulting in Franklin County being responsible for repayment of all funds expended to date. It would also not achieve the goal of constructing an access road in this area. As such, this is deemed to be a highly undesirable outcome.

Once the Board of Franklin County Commissioners has made a final decision, this information will be transmitted to the FHWA by the County Engineer. If the Board should elect to establish the County road, the County Engineer and his staff shall proceed with the design of the County road and related facilities, acquire the necessary right-of-way, and prepare the necessary plans, specifications, and estimates for the construction of the County road.