Where Does the Project Begin and End?

The Federal Highway Administration (FHWA) and Washington State Department of Transportation (WSDOT) refer to the beginning and end points of a transportation project as the "termini" or the "project limits." Phase 3 and 6 of the US Highway 12 (US 12) corridor improvements serve as the western and eastern termini of the proposed project, respectively. The western terminus in the Wallula vicinity is at milepost (MP) 304.2 on the current highway. The eastern terminus in the Frenchtown vicinity is at MP 328.1.

What are Logical Termini?

The FHWA defines logical termini as (1) rational beginning and end points for a transportation project, and (2) rational beginning and end points for a review of environmental impacts.

The WSDOT and FHWA identify **logical termini** when evaluating a project's potential for generating environmental impacts in order to meaningfully evaluate alternatives and avoid committing to transportation improvements before they are fully evaluated.

How are Logical Termini determined?

Typically, the most common termini are points of major traffic generation, such as intersecting roadways. However, where the project improvement is not primarily related to traffic generators, such as is the case with Phases 7 and 8, the choice of beginning and end points should consider local topography, socioeconomics, and future travel demand in addition to traffic volumes.

Logical termini for this project were selected based on the need to correct traffic and safety issues. Traffic volumes and accident rates are similar throughout the Wallula to Frenchtown vicinity. Because this project will connect to existing four-lane sections of US 12 at both the western and eastern termini, it will eliminate safety concerns associated with merging and traffic pinch points commonly caused when a highway goes from a four-lane to a two-lane facility. Traffic volumes and accident rates all begin to decrease near the project's eastern terminus in the vicinity of Ireland Road and the Frenchtown Monument. The section on Traffic and Transportation in Chapter Three provides more detail on the traffic and safety issues along this stretch of US 12.

In addition to traffic and safety concerns, WSDOT considered topographic issues when selecting the project's termini. The local topography in the Frenchtown area is generally flat, which makes it an ideal location to tie back into the existing US 12 facility. Other

areas east or west of this location have problematic terrain and topographic conditions that increase cost or create an imbalance with other constraints such as land-use and environmental impacts.

These termini allow WSDOT to meet the purpose and need of the project, and at nearly 24 miles long, the project is sufficiently large enough to address environmental matters on a broad scope. This allows WSDOT to design a project that has **independent utility**.

What is Independent Utility?

A project with independent utility is a project that is fully functional on its own without the construction of any other segments.

What Alternatives Were Considered for This Project?

The project design team identified four preliminary alternatives for consideration in this Environmental Assessment (EA). They include the following:

- Alternative 1: The No Build Alternative
- Alternative 2: Widen the Existing US 12
- Alternative 3: Wallula to Frenchtown Vicinity (North Alignment)
- Alternative 4: Wallula to Frenchtown Vicinity (Middle Alignment)

Alternative 1: The No Build Alternative

No major construction activities would occur under the **No Build Alternative**. US 12 would remain in its present location. The current highway would continue to be maintained to WSDOT standards.

What is the No Build Alternative?

The National Environmental Policy Act requires that each EA include a "No Action" alternative, which for most highway construction projects is called the "No Build" alternative. This alternative establishes the baseline for comparing negative and positive effects of all other alternatives on social, economic, and environmental resources.

Alternative 2: Widen the Existing US 12

Widening US 12 to four lanes in its current location would require constructing two additional lanes adjacent to the existing roadway. The portion from Phase 3 south to the Walla Walla River at MP 307.4 would be similar to the previously constructed four-lane highway in Phases 1, 2, and 3.

The portion between MP 307.4 near Wallula Junction and MP 314 (**Exhibit 4**) would have a narrow median with physical barriers separating the eastbound lanes from the westbound lanes. Much of the existing highway would need to be completely reconstructed to meet FHWA and WSDOT design standards, rather than simply adding extra roadway to the current one.

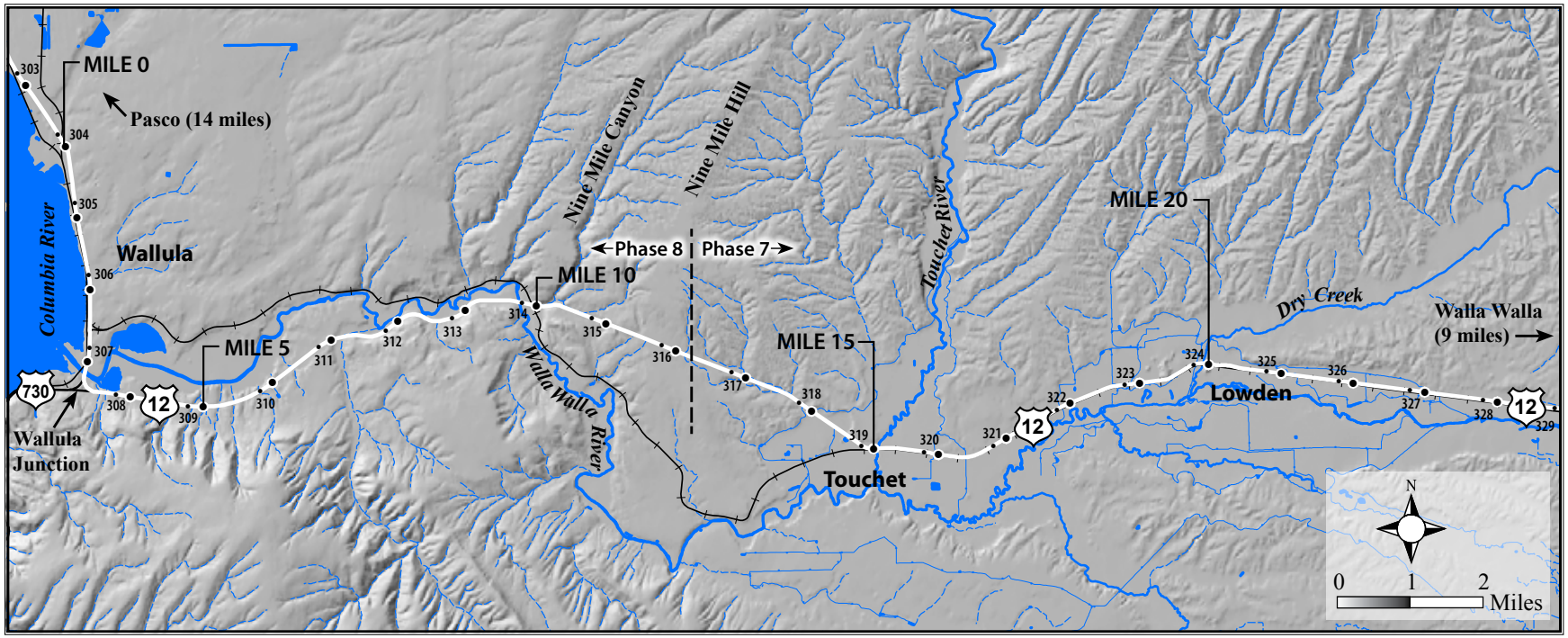


Exhibit 4. Map showing Alternative 2: Widen the Existing US 12.

On the east side of Nine Mile Hill, new lanes would be added south of the current highway to avoid challenging topography to the north and water wells that extend deep into basalt bedrock. East of MP 319 near Touchet, new lanes would be added north of the current highway because there is a railroad to the south. In the Frenchtown vicinity, new lanes would replace the Phase 6 tie-in between the old and new highways.

This alternative requires replacing current bridges and adding new ones across the Walla Walla River (at two locations), Touchet River, and Dry Creek. It also necessitates building frontage roads for those residents that currently access US 12 directly, thus widening the project footprint and further displacing businesses and residences in Touchet and Lowden.

Alternative 3: Wallula to Frenchtown Vicinity (North Alignment)

As shown in **Exhibit 5**, this alternative would construct a new roadway north of the current US 12 from Wallula (MP 304.2) to the Frenchtown vicinity (MP 328.1). For one and one-half miles on the east side of Nine Mile Hill, the current highway would become

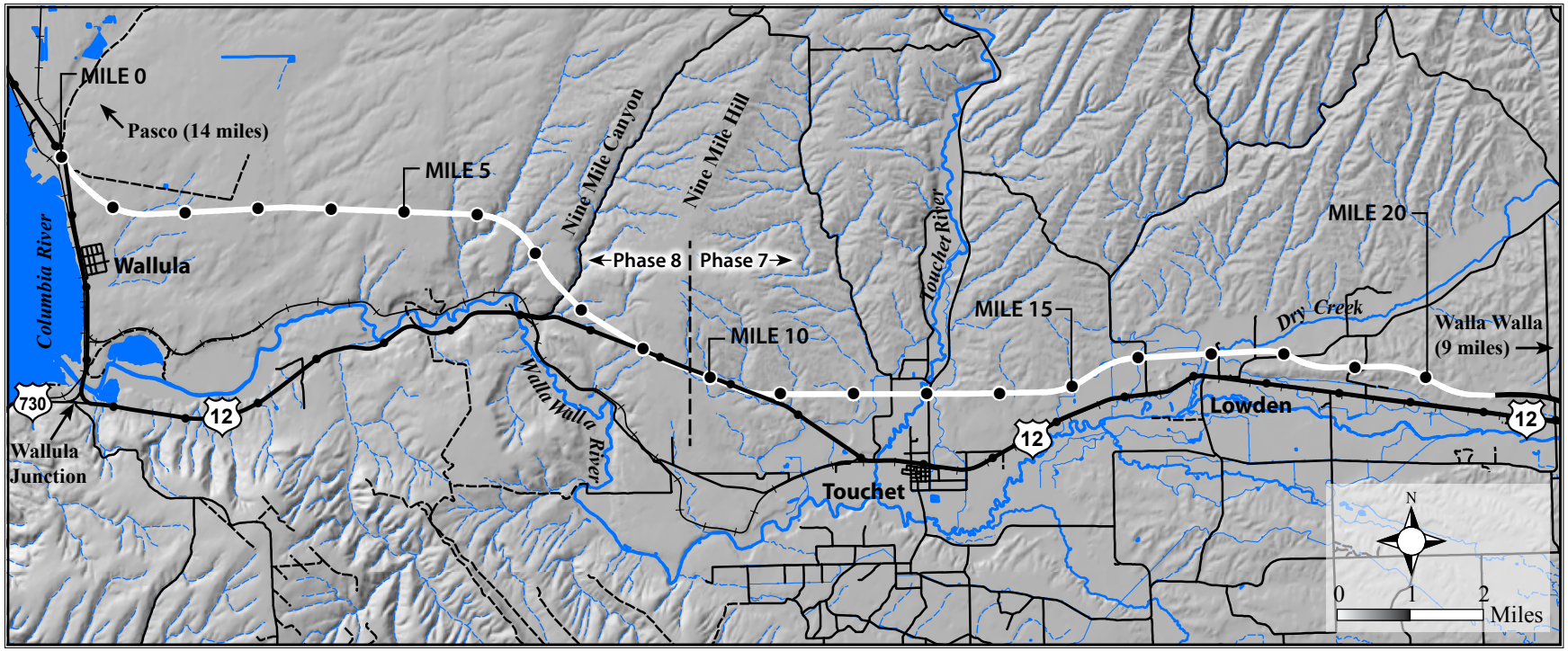


Exhibit 5. Map showing Alternative 3: Wallula to Frenchtown Vicinity (North Alignment).

the westbound lanes and new eastbound lanes would be constructed to the south. The median would be at least 60 feet wide between the eastbound and westbound lanes for the entire length of the new highway.

Alternative 4: Wallula to Frenchtown Vicinity (Middle Alignment).

This alternative is similar to Alternative 3, but constructs a new highway farther south in the western portion of Phase 8 (**Exhibit 6**). It shifts the alignment to the southern portion of irrigated agricultural land associated with corporate farms. This alternative then swings north before crossing several canyons.

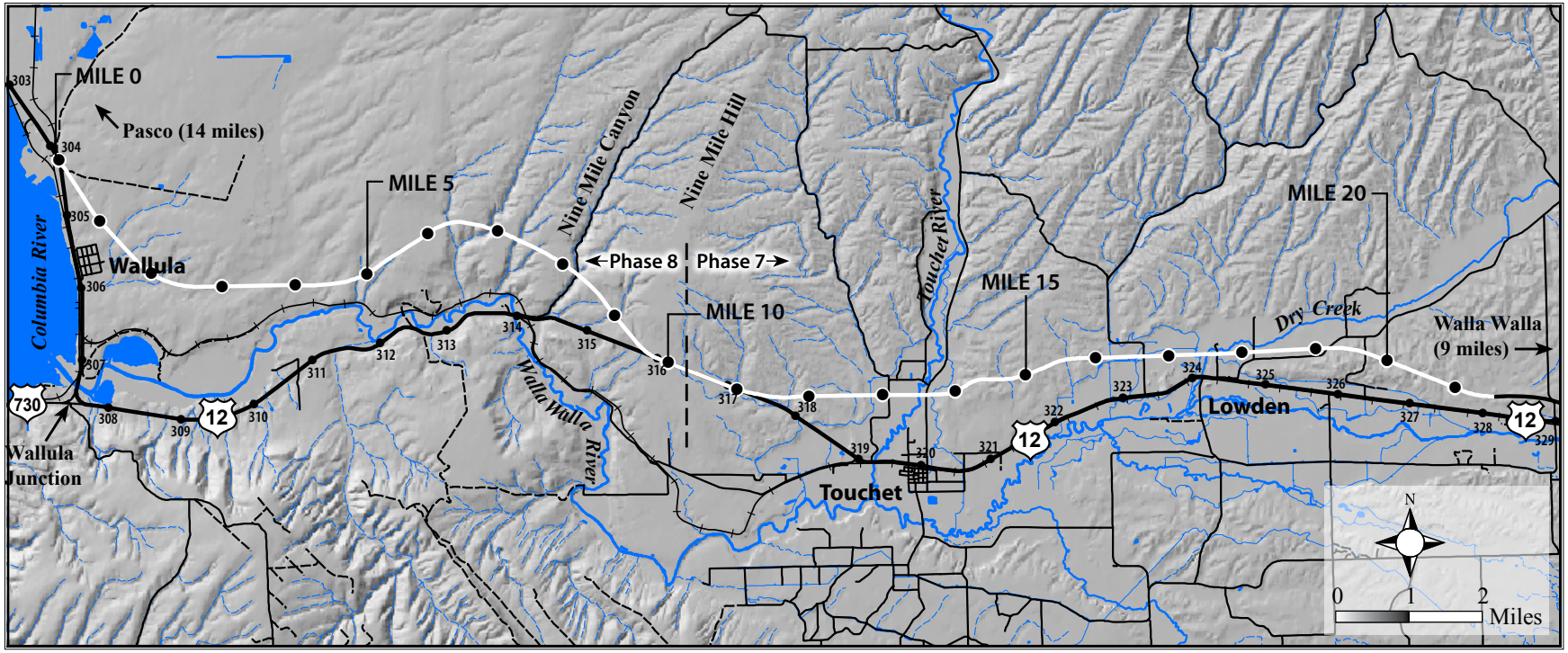
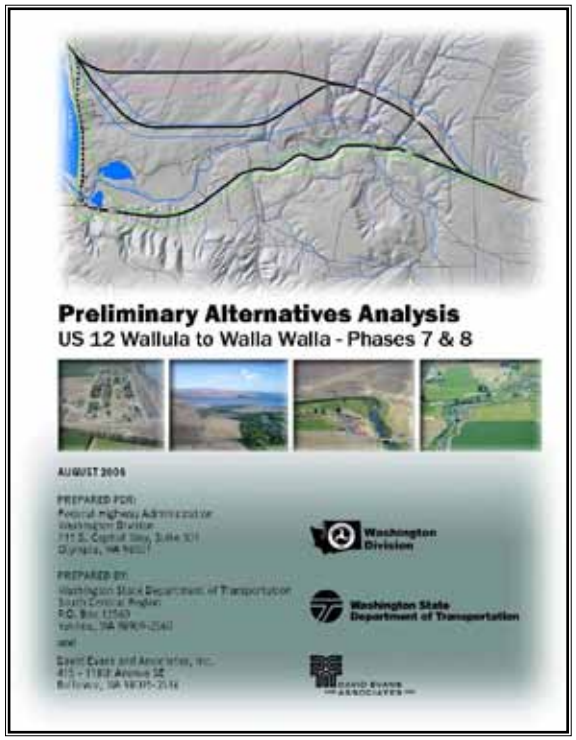


Exhibit 6. Map showing Alternative 4: Wallula to Frenchtown Vicinity (Middle Alignment).

What Criteria Were Used for Assessing the Preliminary Alternatives?

WSDOT completed a Preliminary Alternatives Analysis for Phases 7 and 8 in 2006 (WSDOT 2006b). Alternatives 2, 3, and 4 all satisfied the purpose and need for the project. The No Build Alternative was not analyzed because it is required later in the National Environmental Policy Act (NEPA) process as the baseline for the subsequent determination of environmental impacts.



Social and economic criteria that were used in the preliminary analysis included:

- archaeological, cultural, and historic resources
- noise
- real estate and businesses, including farms
- land use
- public parks, recreation, and wildlife refuges
- hazardous materials and environmental contamination
- estimated cost

Environmental criteria that were considered in the preliminary analysis included:

- federal and state threatened and endangered species
- water quality of rivers and streams
- wildlife habitat
- floodplains and floodways
- wetlands and open water
- geology and soils
- complexity of environmental permitting and potential mitigation requirements

Several engineering considerations were also evaluated:

- number and severity of accidents
- road curves (gentle versus sharp), median width, and sight distance
- vertical grade (percent slope)
- earthwork quantities (cubic yards of excavation and embankment)
- potential to construct in segments as funding becomes available
- traffic control requirements during construction
- number, length, and complexity of bridges
- total length of four-lane highway

Exhibit 7 compares the four alternatives for Phases 7 and 8. As previously discussed, the No Build Alternative is required by NEPA as a baseline for evaluating the other alternatives. Results for Alternatives 2, 3, and 4 are based on the Preliminary Alternatives Analyses conducted in 2006. Although estimated costs have increased since then, the relative comparisons remain valid.

Replacing the current US 12 bridge (center) and adding another one would require substantial in-water work near the mouth of the Walla Walla River, as well as right-of-way from Madame Dorion Memorial Park (upper left).

Madame Dorion of the Iowa tribe was the second woman to come west on an overland route. Her husband Pierre was an experienced guide that earlier traveled with the Lewis and Clark expedition.

Which Alternatives Were Eliminated from Further Study and Why?

In the Preliminary Alternatives Analysis, WSDOT recommended to FHWA that the alternative to widen existing US 12 (Alternative 2) not be retained for further development and subsequent analysis through NEPA and the State Environmental Policy Act (SEPA). Alternative 2 would have substantial negative impacts to natural resources and to parks. These impacts are avoidable as they do not occur in either Alternative 3 or 4. Therefore, Alternative 2 is not considered the least environmentally damaging practicable alternative.

The two crossings of the Walla Walla River in Phase 8 and associated in-water work to replace and add bridges raised concern over federally listed fish under the Endangered

Species Act (ESA). Impaired conditions in the river contributed to the need for a water quality implementation plan for the entire watershed, which includes most of the county.

Exhibit 7. Matrix comparing the four alternatives considered for US 12 Phases 7 and 8.

	Preliminary Alternatives Comparison			
Potential Effects	**Alternative 1** **No Build**	**Alternative 2** **Widen Existing Highway**	**Alternative 3** **Wallula to Frenchtown Vicinity** **(North Alignment)**	**Alternative 4** **Wallula to Frenchtown Vicinity** **(Middle Alignment)**
Residential Displacements	Baseline	25 single family residences	1 single family residence	2 single family residences
Businesses	Baseline	5 business displacements Avoids bisecting large corporate farms Avoids state school lands	No business displacements Bisects large corporate farms Crosses state school lands	No business displacements Avoids bisecting large corporate farms Crosses state school lands
Estimated Costs	Baseline	$304 million to $663 million	$296 million to $633 million	$306 million to $656 million
Regulated Floodplains	Baseline	5 FEMA 100-year floodplains crossed 1 designated floodway crossed	2 FEMA 100-year floodplains crossed 1 designated floodway crossed	2 FEMA 100-year floodplains crossed 1 designated floodway crossed
Wetlands and Streams	Baseline	1.5 to 4.4 acres of wetland impact 1.9 to 2.1 acres of open water crossed 3 river crossings, 1 creek crossing	0.0 to 0.2 acres of wetland impact 0.1 to 0.2 acres of open water crossed 1 river crossing, 1 creek crossing	0.0 to 0.2 acres of wetland impact 0.1 to 0.2 acres of open water crossed 1 river crossing, 1 creek crossing
Wildlife Habitat	Baseline	105 acres of shrub-steppe (Phase 8) 118 acres of grassland (Phase 8) Mostly agricultural land in Phase 7 Wider roadway for wildlife to cross	76 acres of shrub-steppe (Phase 8) 90 acres of grassland (Phase 8) Mostly agricultural land in Phase 7 New wide roadway for wildlife to cross	78 acres of shrub-steppe (Phase 8) 96 acres of grassland (Phase 8) Mostly agricultural land in Phase 7 New wide roadway for wildlife to cross
Parks and Wildlife Refuges	Baseline	15 to 29 acres Wallula HMU* (McNary) 0.8 to 1.9 acres Madame Dorion Park	No effects	No effects
Known Cultural Resources	Baseline	No known archaeological sites 6 historic features to evaluate 4 areas of importance to tribes	No known archaeological sites 1 historic feature to evaluate 1 area of importance to tribes	No known archaeological sites 1 historic feature to evaluate 1 area of importance to tribes
Noise	Baseline	30+ potential sensitive receptors	1 potential sensitive receptor	4 potential sensitive receptors

* Habitat Management Unit
Source: *Preliminary Alternatives Analysis (August 2006)*

This alignment crosses three regulated 100-year floodplains in Phase 8 that are avoided by the other alternatives. It was estimated to affect between 1 and 5 acres of jurisdictional wetlands near Wallula and the mouth of the river, which would require substantial mitigation.

Two of the four publicly owned parks and recreation areas near the current highway would be affected if the existing US 12 alignment is widened. Preliminary calculations estimated that 15 to 29 acres of right-of-way may need to be acquired from the Wallula Habitat Management Unit (HMU) that is managed as part of the McNary National Wildlife Refuge. Approximately 1 to 2 acres of right-of-way would be needed from Madame Dorion Memorial Park. These resources are protected under **Section 4(f)** of the U.S. Department of Transportation Act.

What is Section 4(f)?

Section 4(f) of the U.S. Department of Transportation Act of 1966 applies to projects that directly or indirectly affect publicly owned parks, recreation areas, wildlife or waterfowl refuges, or historic sites.

In the Phase 7 portion of the project area, WSDOT determined that widening the current US 12 is not desirable for both environmental and engineering reasons. Most notable was the displacement of approximately 25 residences and 5 business in the communities of Touchet and Lowden.

This is an aerial photograph of Touchet and the current US 12.

Widening the current highway through Touchet and adding frontage roads would severely impact homes and businesses.

The Preliminary Alternatives Analysis also concluded that Alternative 4, Wallula to Frenchtown Vicinity (Middle Alignment) alternative should not be carried forward for further analysis. It offered few advantages over the Wallula to Frenchtown Vicinity (North Alignment) alternative; yet is longer and thus more costly, with a greater area of ground disturbance. This alternative also runs just east of the community of Wallula and just north of the Wallula HMU, so the public and agencies would be concerned about the proximity and isolating effects of the new highway.

In conclusion, WSDOT considered, but rejected from further evaluation, Alternatives 2 and 4. Alternative 2 was rejected because it would have higher impacts to parks, rivers, and floodplains, and would require more relocations of residences and businesses. Alternative 4 was rejected because it is a longer route that would require greater ground disturbance at a higher cost.

Alternative 4 would run east of Wallula (photo faces east) resulting in highways near two sides of this community if the current US 12 (foreground) becomes an extension of US 730 that connects to the new four-lane highway.

Which Alternatives Were Selected for Further Study and Why?

Of the four preliminary alternatives that were evaluated, WSDOT identified and advanced two alternatives for further study.

- Alternative 1: The No Build Alternative
- Alternative 3: Wallula to Frenchtown Vicinity (North Alignment)

What Would Happen If Nothing Were Built?

No major construction activities would occur under the No Build Alternative. Therefore, substandard roadway conditions would persist, as would the need for increasing traffic capacity and mobility. Thus the No Build Alternative would not resolve the safety, capacity, or mobility issues associated with this section of US 12, which are the purpose and need for the project. As previously mentioned, NEPA requires that the No Build Alternative be analyzed as a baseline for evaluating other alternatives.

What Is the Preferred Alternative?

Working with federal and state agencies, tribal and county governments, and the public, WSDOT has identified Alternative 3—constructing a four-lane highway from Wallula to Frenchtown vicinity on the north alignment—as the **Preferred Alternative**. This alternative satisfies the project's purpose and need at the lowest cost, while generating the fewest negative overall effects to social, economic, and environmental resources.

What is the Preferred Alternative?

The Preferred Alternative is the alternative identified from a comprehensive evaluation of all alternatives.

The Preferred Alternative that is discussed and analyzed in Chapter Three has been further developed and defined since the Preliminary Alternatives Analysis. These refinements resulted from a combination of data gathering and input from agencies and the public, such as:

- aerial photogrammetry that produced 10-foot topographic contours
- discussions with individual landowners about conditions on their properties
- meetings with Interagency Project Team (IPT) representatives about social, economic, and natural resource issues
- public open houses
- a Value Engineering study by WSDOT (2008c)
- discussions with emergency response officials
- discussions with county engineers about connections between the new highway and local roads

Exhibit 8 shows the Preferred Alternative that has evolved as WSDOT learned more about specific conditions along the alignment. Following are a few examples of the refinements.

- The conceptual design includes cut and fill lines for a more accurate estimate of the project footprint; right-of-way needs; and social, economic, and natural resource impacts.

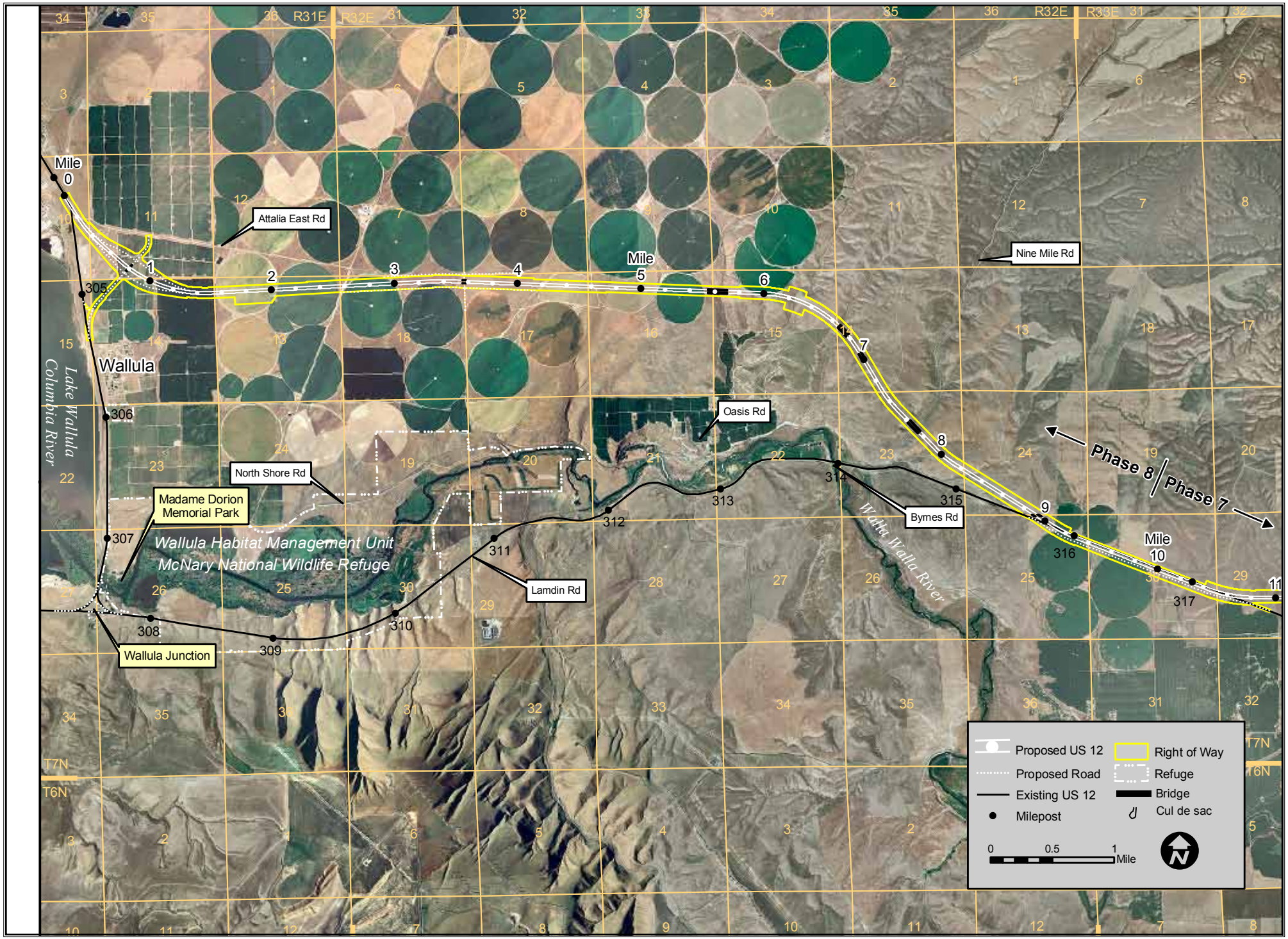


Exhibit 8. Two-page map of the Preferred Alignment.

R33E
R34E
T7N
T6N
Ash Hollow Rd
Touchet North Rd
Touchet River
Woodward Canyon Rd
Buckley Rd
Marshall St
Dry Creek
Lower Dry Creek Rd
Nibler Rd
Phase 7
Cummins Rd
Mile 15
Mile 20
Frenchtown Vicinity
Lowden
Touchet
Walla Walla River
Pine Creek
Optional Phase 7 Interim Tie-in
Remove Phase 6 Interim Tie-in
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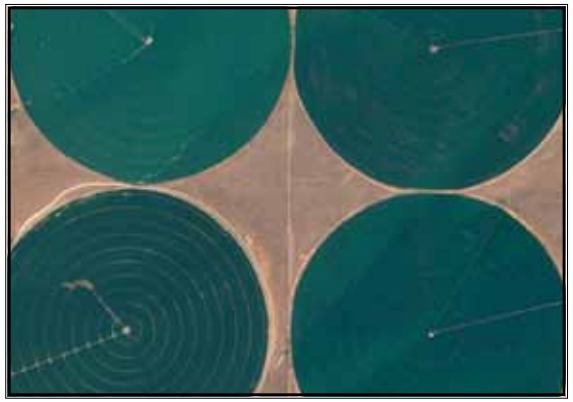
- The alignment in the western part of Phase 8 is shifted slightly south between miles 1 and 3 to avoid very large water pipes buried on the section line.
- The profile of the new highway is lowered between miles 5 and 8 to shorten the bridges crossing the canyons in Phase 8 both in height and length.
- The alignment near Woodward Canyon Road in Phase 7 is shifted north to follow a natural break in the topography that separates cropland from pasture.
- An intersection on Buckley Road serves as the local road connection east of Lowden instead of Lower Dry Creek Road, which the new highway now would cross over on bridges. This change avoided a substantial realignment of Lower Dry Creek Road that will be required if it serves as the intersection.
- The median between the new eastbound and westbound lanes is reduced in width from 100 feet to 60 feet except at the intersections. This change reduces the overall footprint of the new highway while retaining the extra space for large vehicles to safely enter, exit, or cross the four-lane highway.

The Preferred Alternative runs southeast from the new bridges that were constructed in Phase 3 over the railroad tracks near the Boise pulp and paper mill. Within the first mile is a full interchange that provides access to the mill, other businesses, local farms, and the community of Wallula. It also serves as a connection to US Highway 730 (US 730), which will be extended north from Wallula Junction on the current US 12 roadway.

This alternative includes several connections to local roads (**Exhibit 9**). The one near Wallula is a full interchange. The other connections are intersections that will become interchanges when warranted by future traffic volumes. Some local roads would end as cul-de-sacs instead of connecting to the four-lane highway. The current intersection at Wallula Junction would be reconfigured.

Exhibit 8 also shows where bridges are located. Separate bridges would be constructed for eastbound versus westbound roadways at each location.

In this aerial view eastward from Mile 1 toward Mile 3, the new interchange connecting US 12 to US 730 would be in the tree plantation just left of the rectangular green field. Attalia East Road is in the left portion of the photograph.



Center-pivot irrigation is prevalent in the western part of Phase 8. Remnant shrub-steppe wildlife habitat occurs between many of the fields.

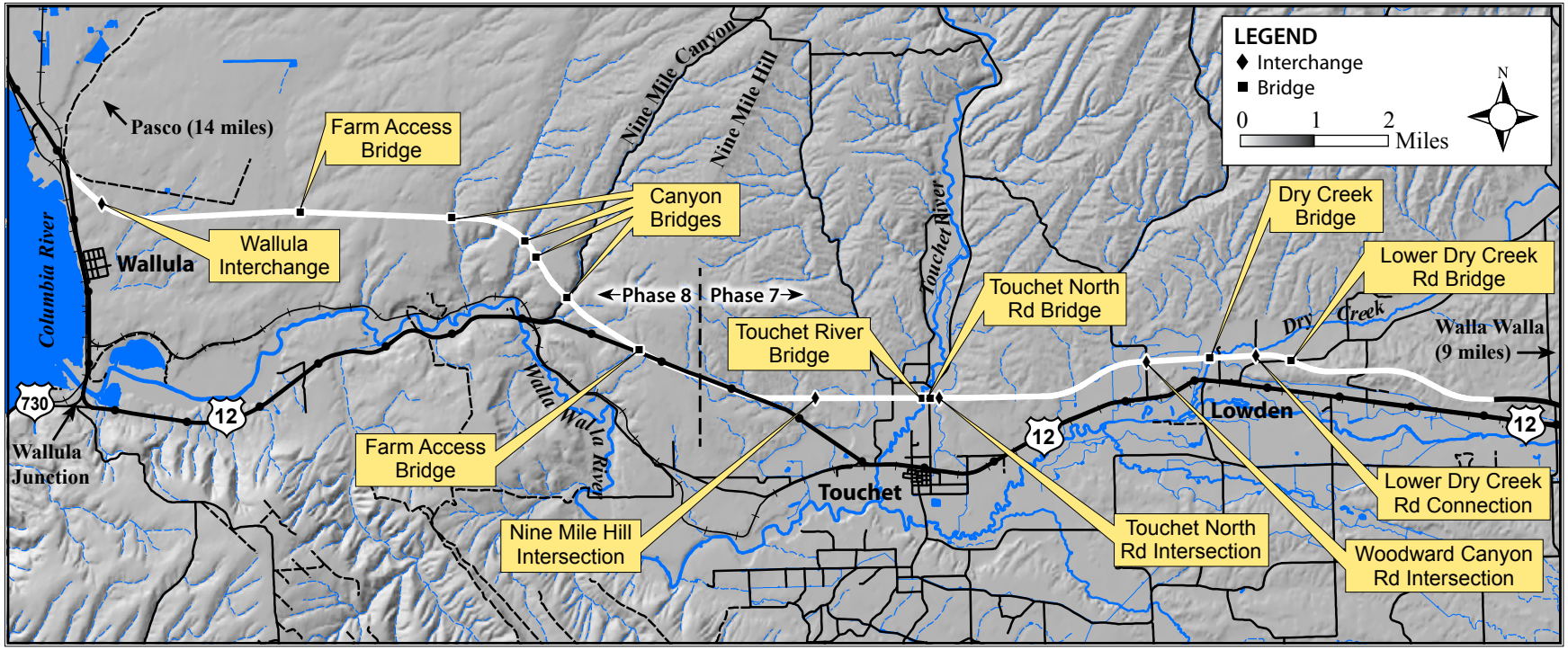


Exhibit 9. Map showing road connections and bridges on Alternative 3: Wallula to Frenchtown Vicinity (North Alignment).

A frontage road is required on Nine Mile Hill so that local traffic on the current two-lane road, which would become a county road, can proceed past the new highway without getting on it. Another frontage road runs east from Touchet North Road. The current US 12 north of Wallula Junction would be designated as an extension of US 730 to the new interchange near Wallula.

The alignment runs eastward from the new Wallula Interchange through irrigated agricultural fields to Mile 6. Crop circles in this segment can be seen on the aerial photograph used for (**Exhibit 10**). This segment includes additional right-of-way near Mile 2 to accommodate a future Washington State Patrol weigh station for eastbound freight traffic. Near Mile 3.6 is a short bridge that allows farm equipment to move under the new highway.

The Preferred Alternative next crosses several canyons and heavily grazed rangeland on Nine Mile Ranch between Mile 5.5 and Mile 9 (**Exhibit 11**). Most of these canyons are crossed on bridges, but wildlife specialists on the IPT concurred that crossing on fill was okay for the canyon near Mile 6.3 because of the nearby wildlife fencing around Oasis Orchard and Vineyard.

From Mile 9 through Mile 10.6 on the east side of Nine Mile Hill, the current US 12 roadway becomes the westbound lanes of the four-lane highway. New eastbound lanes are located to the south of the current highway. South of the new eastbound lanes is a frontage road that allows local traffic to bypass the four-lane highway. Irrigated fields and a vineyard are adjacent to the highway in most of this segment.

At Mile 11.5 is an at-grade intersection connecting the new and old roadways (**Exhibit 12**). Fallow ground in the Conservation Reserve Program is crossed between Mile 10.6 and Mile 12. The four-lane highway then crosses predominately irrigated agricultural land for the remaining 10 miles before merging into Phase 6 (**Exhibit 13**).

The Preferred Alternative crosses several canyons north of the Oasis Vineyard and Orchard, and then runs southeast to the lower left of this aerial photograph looking west. The northeast corner of the vineyard (arrow) is near Mile 6.6.

The new alignment joins current US 12 on Nine Mile Hill, near the cell tower (arrow) in the upper portion of this view to the west. The current highway between the crop circles would become the westbound lanes of the four-lane highway.

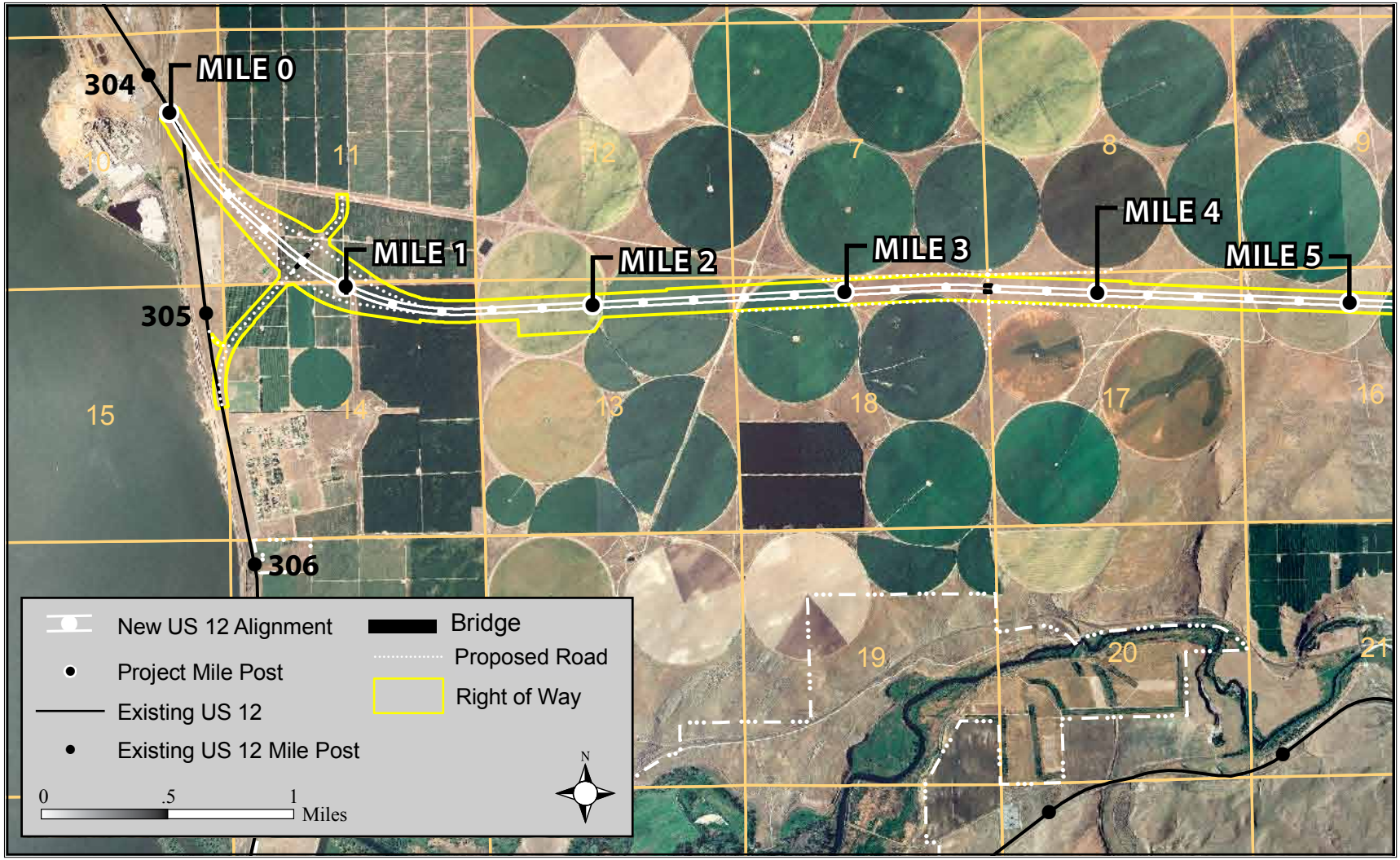


Exhibit 10. Map showing the first six miles of the Preferred Alternative.

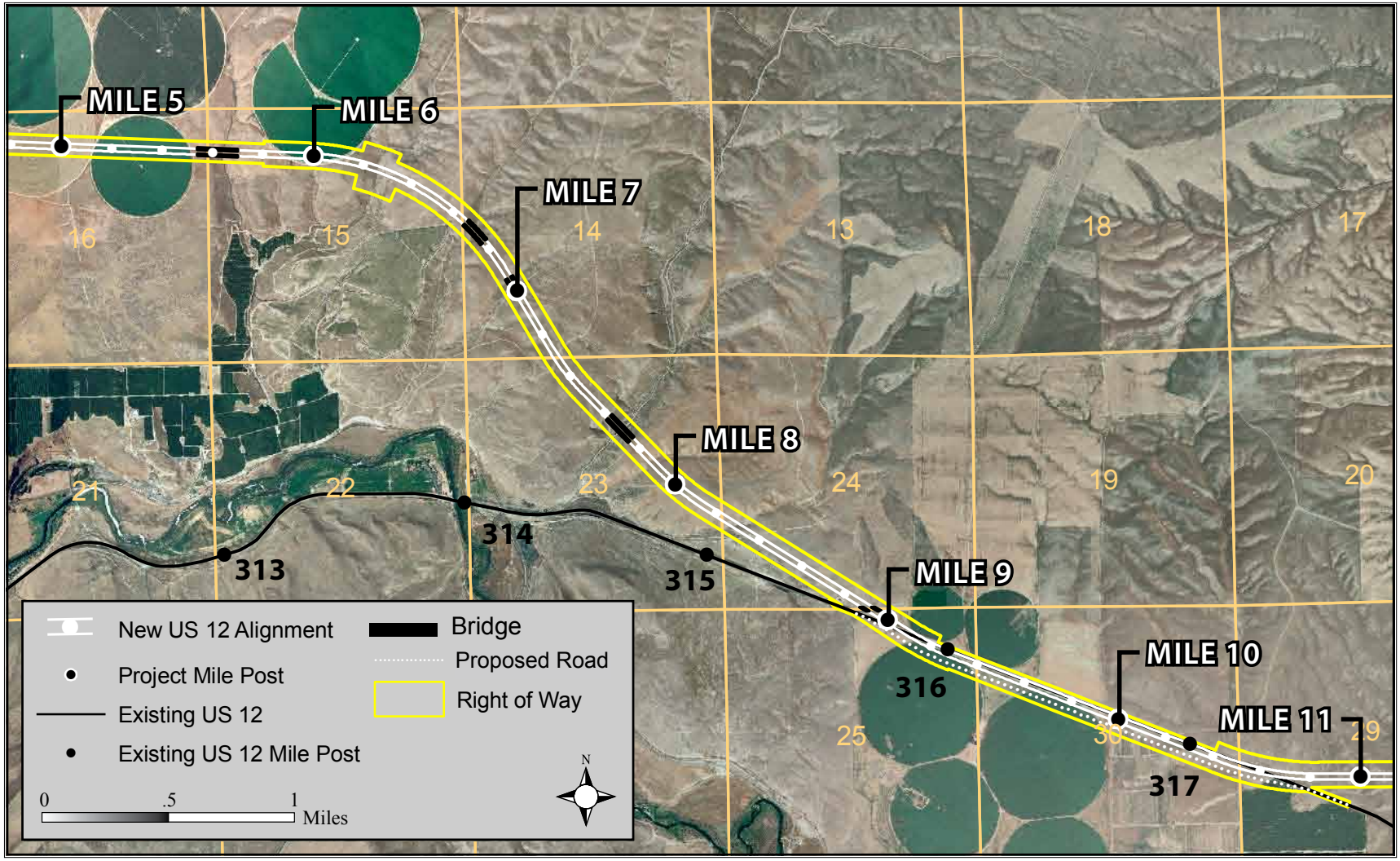


Exhibit 11. Map showing Miles 5 through 11 of the Preferred Alternative.

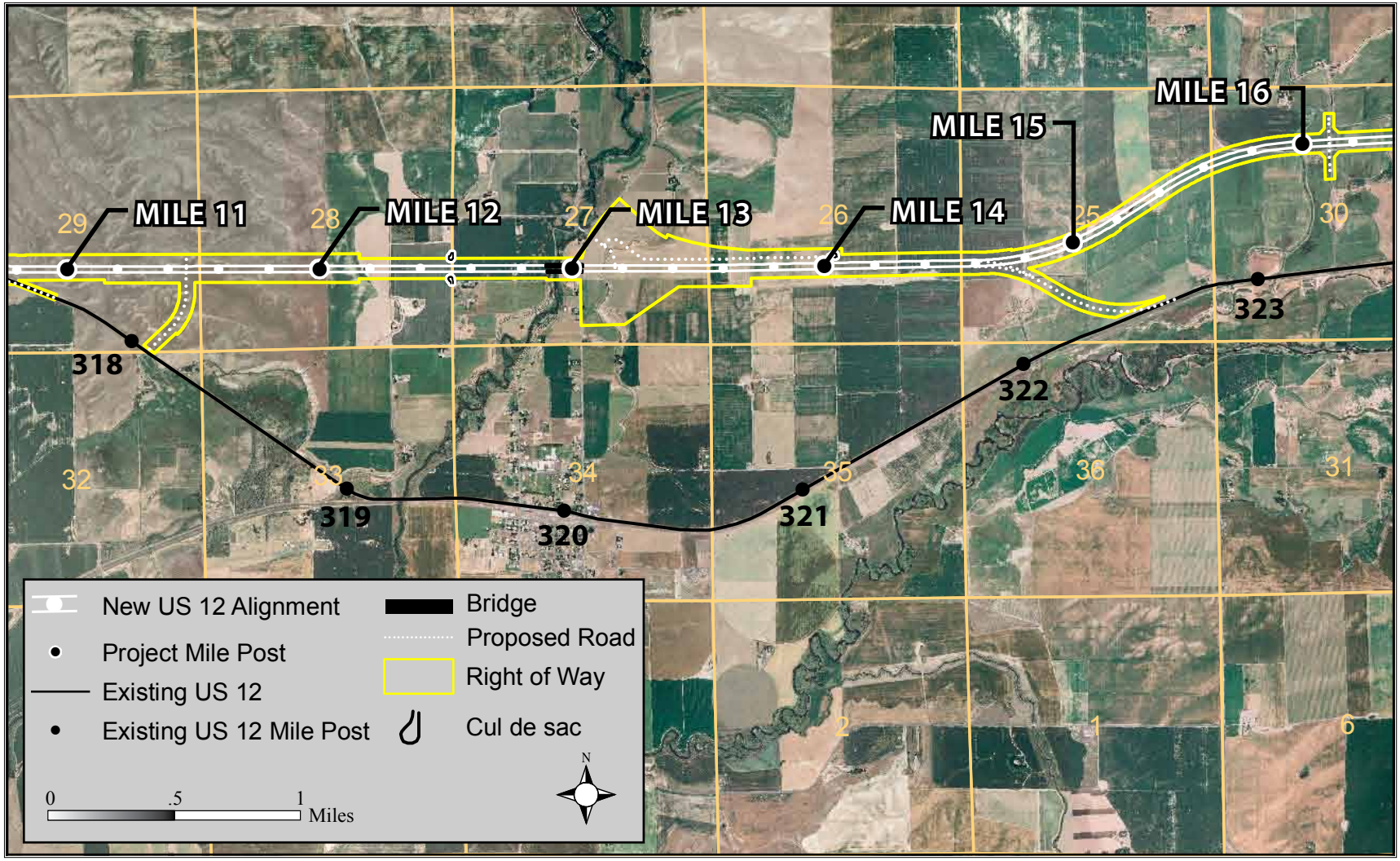


Exhibit 12. Map showing Miles 10 through 16 of the Preferred Alternative.

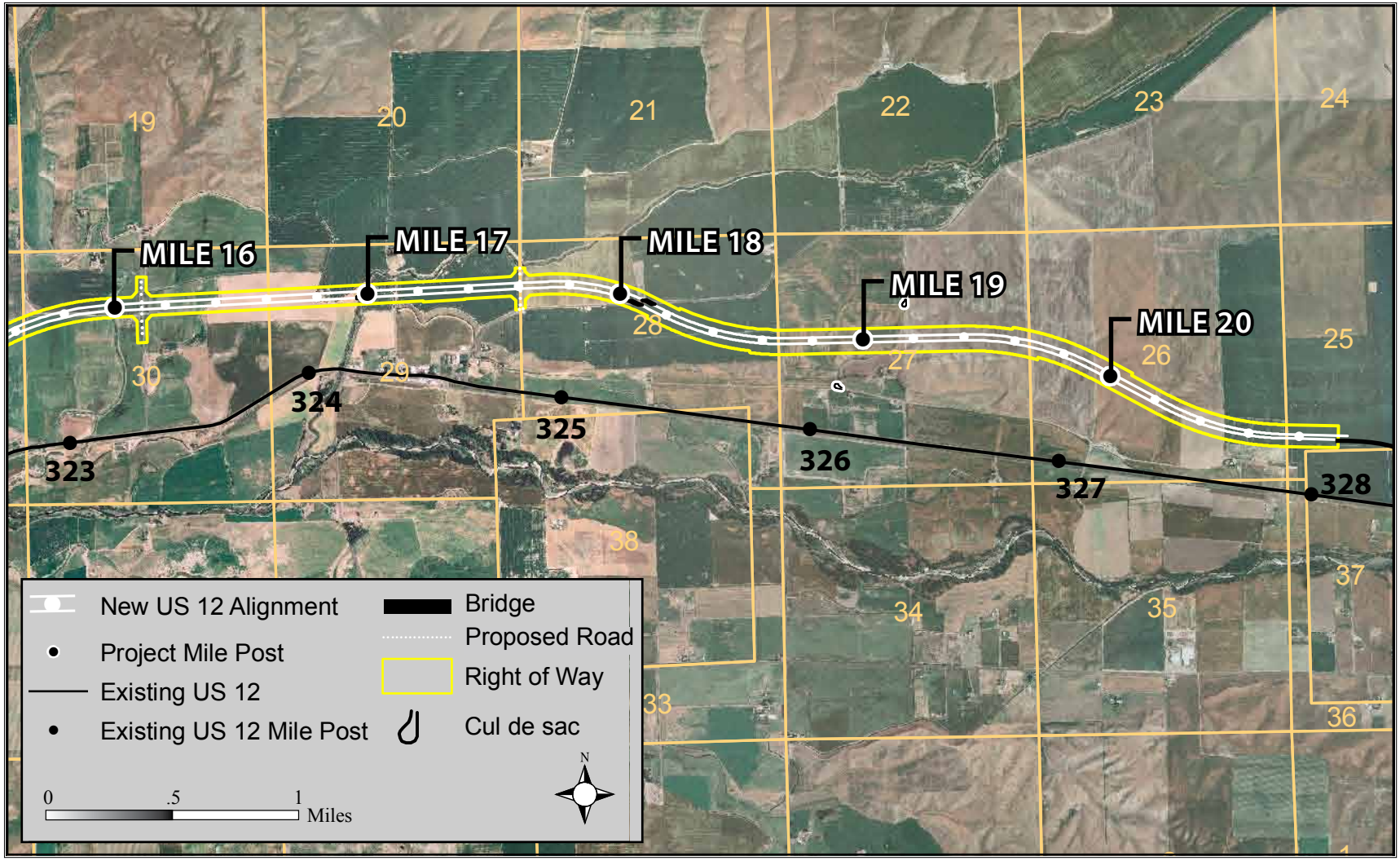


Exhibit 13. Map showing the last six miles of the Preferred Alternative.

The Preferred Alternative crosses the Touchet River and Dry Creek on bridges. It also crosses Touchet North Road and Lower Dry Creek Road on bridges. At-grade intersections are located just east of Touchet North Road, Woodward Canyon Road, and Buckley Road, with the primary purpose of the latter being a local connection to nearby Lower Dry Creek Road. Other features in this segment include the following:

- Right-of-way acquisition east of Touchet North Road for a full interchange in the future
- A frontage road north of the new highway running east from Cummins Road and Touchet North Road
- An optional tie-in, in the event that Phase 7 construction occurs as two separate phases due to funding limitations
- A cul-de-sac on Cummins Road west of Touchet and on Nibler Road east of Lowden
- As part of completing Phase 7, the removal of the tie-in constructed during Phase 6
- A farm crossing under US 12 at the Cummins Road cul-de-sac

The four-lane alignment would cross the Touchet River on bridges near the center of this aerial photograph looking east. Cummins Road bridge is to the left of the barn.

The Preferred Alternative runs between Dry Creek (on right) and Old Lowden Ditch (center) north of Lowden in this view to the southwest.

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