



The Confederated Tribes
of the Umatilla Indian Reservation

TRANSPORTATION SYSTEM PLAN

Photo: Kittelson & Associates, Inc.

Volume II: Technical Appendix



FINAL
April 2023

LIST OF APPENDICES

- A. Complete Project List
- B. High Priority Project Summary Sheets
- C. Comprehensive Plan Policy and Land Development Code Amendments
- D. Spring 2022 Outreach Summary
- E. Fall 2022 Outreach Summary
- F. Technical Memorandum #2: Context and Site Analysis
- G. Technical Memorandum #3: Vision Statement and Guiding Principles
- H. Technical Memorandum #4: Preliminary Concept Design and Transportation Solutions
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- J. Transportation Technical Standards Coordination Memorandum
- K. Winter 2023 Outreach Summary



Appendix I. Technical Memorandum #5: Revised Concept Design and Transportation Solutions





CTUIR TSP

DRAFT TECHNICAL MEMORANDUM #5: REVISED CONCEPT DESIGN

Date: December 8, 2022

Project #: 23021.046

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Cheryl-Jarvis Smith, ODOT Region 5

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Project: Confederated Tribes of the Umatilla Indian Reservation Transportation System Plan Update

Subject: Tech Memo #5: Revised Concept Design

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INTRODUCTION

This memorandum updates *Technical Memorandum #4: Preliminary Concept Design*, incorporating feedback from Technical Advisory Committee (TAC) members and the general public. It summarizes and evaluates projects that address identified deficiencies and needs within the Umatilla Indian Reservation (UIR). The information provided in this memorandum will serve as the foundation for projects for the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Transportation System Plan (TSP) update. By developing projects that promote connectivity, safety, and comfort for all people using the transportation system, CTUIR can support equitable access, active transportation, increased connectivity, and reduced environmental and climate impacts.

In addition to transportation projects, this memorandum also includes revised roadway cross-section standards and detailed concept design graphics for two areas within the UIR.



PROJECT GOALS, OBJECTIVES, AND EVALUATION CRITERIA

Project goals, objectives, and evaluation criteria were developed early in the planning process to guide the development of the TSP update. They reflect the vision of celebrating community history and emphasize the desire to increase options for people walking and biking. The project goals and objectives were used to develop projects, while the evaluation criteria were used to complete a preliminary prioritization.

The goals of the TSP update are documented in *Technical Memorandum #3: Vision Statement and Guiding Principles* and summarized below.

- **Goal 1: Safety** – Provide a safe multimodal transportation system for all members of the Umatilla Indian Reservation community.
- **Goal 2: Environment and Cultural Heritage** – Preserve existing cultural connections and the rural landscape.
- **Goal 3: Health** – Develop a transportation system that supports active transportation and encourages healthy and active choices for the Umatilla Indian Reservation community.
- **Goal 4: Equity and Accessibility** – Provide a multimodal transportation system that is accessible to all members of the Umatilla Indian Reservation community.
- **Goal 5: Connectivity** – Provide a multimodal transportation system that increases connections to the key hubs within the reservation and works to overcome existing barriers to regional connectivity.
- **Goal 6: Coordination** – Develop a transportation system that works together with Federal, State, regional, and local partners.
- **Goal 7: Financial Stability** – Develop attainable funding solutions for transportation system improvements.

The projects were evaluated based on the project evaluation criteria to identify preliminary priorities. The projects were identified as high, medium, and low priority based on how well they meet the evaluation criteria and by extension, the goals of the TSP update. *Attachment A includes the evaluation criteria and indicates how the evaluation criteria were used to evaluate and prioritize the projects.*

PROPOSED TRANSPORTATION POLICIES

Through review of previous planning efforts and CTUIR staff input, this memorandum identifies policies to be considered for the transportation system in within the UIR:

- Institute policies that encourage right-sizing, and adopting appropriate technology for, fleet vehicles and equipment, and encourage the adoption of alternative fuel vehicles through policy, infrastructure, etc.
- Adopt the cross-sectional standards provided in this memorandum into necessary code and guidelines.

ROADWAY SYSTEM

Streets serve most trips within the UIR across all travel modes. This section identifies alternatives to address gaps and deficiencies in the street system as well as alternatives that will facilitate improvements to the pedestrian, bicycle, and public transit systems.

The projects developed for the roadway system include realignments, repaving and updates to existing roadways, traffic calming, intersection reconfiguration, and more. Table 1 describes the projects for the roadway system. The priority levels shown in Table 1 are based on the project evaluation criteria as well as input from the project team. Prioritization has been updated based on input from the advisory committees and the community. Figure 1 illustrates the location of the projects. *Attachment B includes assumptions used to develop the planning-level cost estimates shown in Table 1. Attachment C includes summary sheets for each of the high priority projects.*

Table 1: Roadway System Projects

Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Cost
R01	Kash Kash Road	Kusi Road to east of OR 331	Close existing access to OR 331 and reroute Kash Kash Road north to a new intersection with Kusi Road.	County	Medium	\$1,900,000
R02	Spilya Road	Eastern end of roadway to Kash Kash Road realignment	Extend Spilya Road east to Kash Kash Road realignment.	CTUIR	Low	\$385,000
R03	Emigrant Road	Cayuse Road to Poverty Flat Road	Widen, add shoulders, and repave Emigrant Road (County Road #937) from Cayuse Road to Poverty Flat Road.	County	Medium	\$21,800,000
R04	56th Street-Theater Road	Mission Road to US 30	Widen, add shoulders, and pave/repave 56th Street-Theater Road to help support rerouting of trucks and other regional/state traffic during I-84 closures.	County/BIA	Low	\$3,900,000
R05	North Cayuse Road	River Road to Mann Road	Widen, add shoulders, and pave North Cayuse Road (County Road #925) from River Road north to Mann Road.	County	Low	\$2,400,000
R06	Mann Road	Crawford Hollow Road to North Cayuse Road	Widen, add shoulders, and pave Mann Road (County Road #925) from Crawford Hollow Road south to North Cayuse Road.	County	Medium	\$7,000,000
R07	Motanic Road	Best Road to Spring Creek Road	Widen, add shoulders, and pave Motanic Road (County Road #1031) from Best Road south to Spring Creek Road.	County	Medium	\$10,000,000
R08	Sumac Road	Spring Creek Road to McKay Creek Road	Widen, add shoulders, and pave Sumac Road (County Road #1050) from Spring Creek Road south to McKay Creek Road.	County	Low	\$6,000,000
R09	McKay Creek Road	Sumac Road to North Fork McKay Creek Road	Widen, add shoulders, and add gravel along McKay Creek Road (County Road #1050) from Sumac Road east to North Fork McKay Creek Road.	County	Medium	\$4,700,000
R10	Exit 2016 Truck Overflow Parking	South of I-84 Exit 216	Parking lot for overflow truck parking from I-84 winter closures. Could include a shuttle service from parking lot to Arrowhead during events.	ODOT	High	\$3,200,000

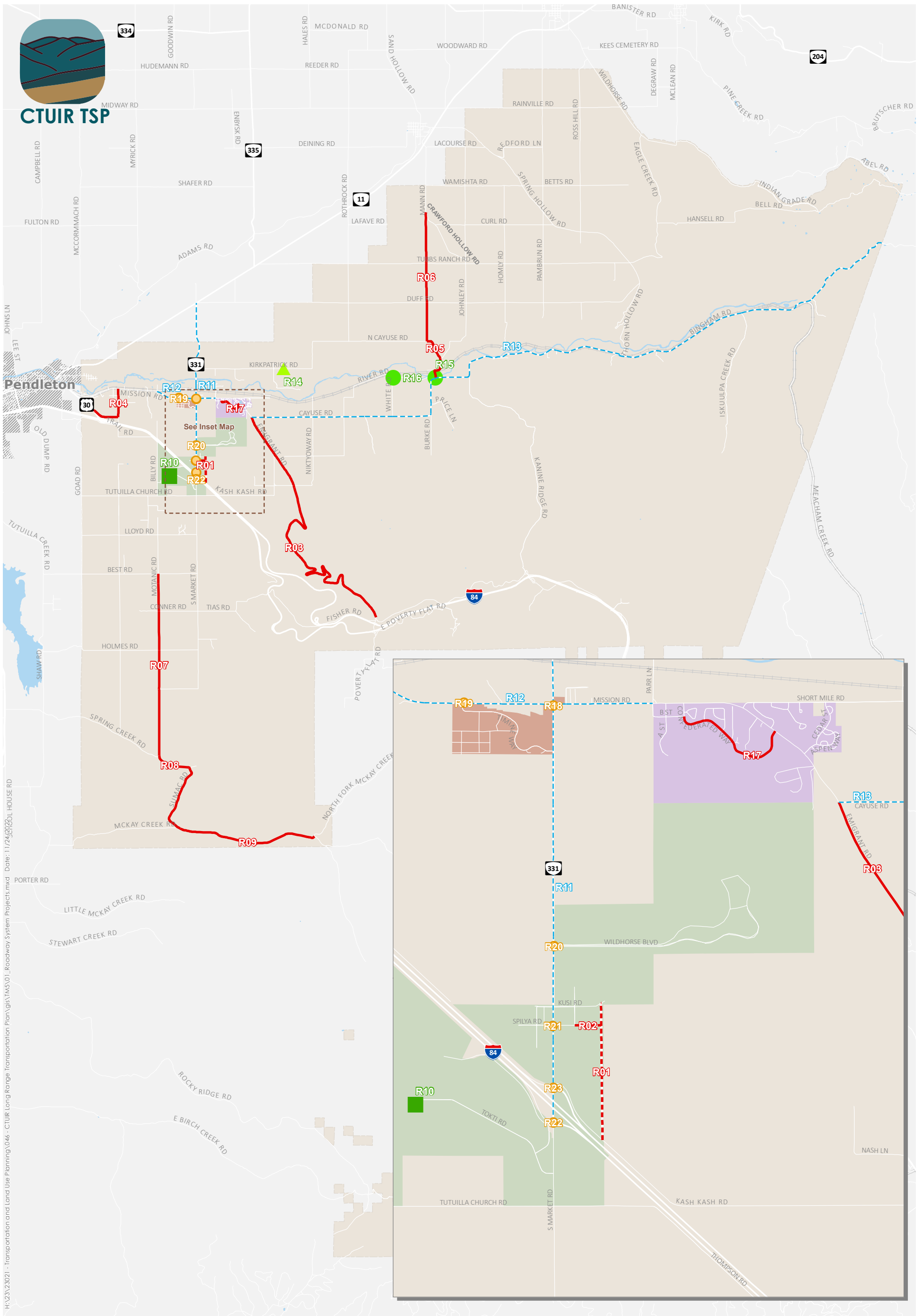
Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Cost
R11	OR 331 Speed Study	UIR northern boundary to I-84	Perform a speed study along the OR 331 corridor and determine whether to modify any speed zones.	ODOT	High	\$20,000
R12	Mission Road Traffic Calming	From Mustanger Lane to Parr Lane	Install speed feedback signage and other traffic calming measures.	CTUIR/ County	High	\$30,000
R13	County Road #900 (Cayuse Road and Bingham Road)	Emigrant Road to UIR eastern boundary	Perform a speed study at key intersections on the County Road #900 corridor to determine potential traffic calming or intersection safety treatments.	County	Medium	\$20,000
R14	Kirkpatrick Road, vertical curve east of McKinley Lane	Intersection extents	Evaluate sight distance and install advisory signage if warranted.	County	Low	\$25,000
R15	Cayuse Road/ Cayuse River Road intersection	Intersection extents	Reconstruct northern leg to connect at a more perpendicular angle.	County	Low	\$1,200,000
R16	River Road/White Road intersection	Intersection extents	Reconstruct southern leg to connect at a more perpendicular angle.	County	Low	\$1,200,000
R17	Confederated Way	B Street to Mission Road (east intersection)	Construct flood remediation projects on Confederated Way from B Street to Mission Road (east intersection). Mitigations may include building a levy, raising the roadway, creating water retention areas, and rerouting the roadway.	BIA	High	To be determined by ongoing study
R18	OR 331/ Mission Road	Intersection extents	<p>Construct a single lane roundabout. Realign the northbound and southbound approaches to avoid impacts to the Mission Market.¹</p> <p>OR</p> <p>Install a traffic signal when warranted. Construct separate left-turn lanes on all four intersection approaches. Construct a separate right turn lane on the northbound approach.¹</p>	ODOT/ County/ CTUIR	Development-Driven	

Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Cost
R19	Mission Road/Timíne Way	Intersection extents	Construct a single lane roundabout. OR Install a traffic signal when warranted.	ODOT/ CTUIR	Development-Driven	
R20	OR 331/ Wildhorse Boulevard	Intersection extents	Construct a single lane roundabout. OR Install a traffic signal when warranted.	ODOT/ CTUIR	Development-Driven	
R21	OR 331/ Spilya Road	Intersection extents	Construct a single lane roundabout. Modify access to right-in, right-out only at Kusi Road and Arrowhead Travel Plaza driveway. ¹ OR Install a traffic signal when warranted. Modify access to right-in, right-out only at Arrowhead Travel Plaza driveway. ¹	ODOT/ CTUIR	Development-Driven	
R22	OR 331/I-84 Eastbound Ramps	Intersection extents	Construct a single lane roundabout. ² OR Install a traffic signal when warranted. Construct exclusive left- and right-turn lanes on the off-ramp approach. ²	ODOT	Development-Driven	
R23	OR 331/I-84 Westbound Ramps	Intersection extents	Install a traffic signal when warranted. Construct exclusive left- and right-turn lanes on the off-ramp approach and an exclusive right-turn lane on the north approach. ²	ODOT	Development-Driven	
Total High Priority Cost						\$3,250,000
Total Medium Priority Cost						\$45,420,000
Total Low Priority Cost						\$15,110,000
Total Cost						\$63,780,000

1 Depending on the reconfiguration of the intersection, consider incorporating bus pull-outs into the project design.

2 This project may be completed in conjunction with future replacement of the Exit 216 I-84 overpass.





- Improvement to Existing Roadway
- - - New Roadway
- - - Traffic Calming or Speed Study
- ▲ Advisory Signage
- Intersection Reconfiguration
- Truck Overflow Parking
- Development-driven Intersection Project
- Development-driven Roadway Project
- Umatilla Indian Reservation Boundary
- Mission Hub
- July Grounds Hub
- Gateway Hub
- Pendleton UGB



Figure 1

**Roadway System Projects
Umatilla Indian Reservation**

Development Driven Capacity and Intersection Projects on OR 331

Although the operations analysis presented in *Technical Memorandum #2: Context and Site Analysis* did not highlight intersection capacity deficiencies based on generalized growth projections, previous planning efforts have identified potential intersection and roadway projects that may be needed to accommodate localized development or expansions of existing businesses and destinations.

These growth opportunities, such as expansion of the Coyote Business Park, further expansion of the Wildhorse Resort and Casino, and expansion of Arrowhead Travel Plaza, are not imminent, but could have local and regional impacts to the transportation system. If and when projects like this were to occur, the potential impacts and mitigation measures would have to be determined based on detailed traffic studies for the specific development scenario. Intersection solutions that have been identified through previous planning studies and preliminary traffic impact studies are included in Table 1. The identified solutions have historically included constructing roundabouts or installing traffic signals. Cost and benefit considerations for these two intersection control types are discussed below:

- **Construct a roundabout**
 - *Cost considerations:* Potentially higher construction cost and lower long-term maintenance cost.
 - *Benefit considerations:* Improved safety, including reducing the potential for fatal and serious injury crashes and lowering speeds near the intersection. Adds capacity and reduces delay.
- **Install a traffic signal**
 - *Cost considerations:* Potentially lower construction cost (depending on turn lane impacts) and higher long-term maintenance cost.
 - *Benefit considerations:* Adds capacity and reduces delay. May also reduce crash potential, but not to the same extent as a roundabout.

Due to the potential for development-related growth to influence traffic conditions along OR 331 from Mission Road to the I-84 interchange, it is recommended that CTUIR and ODOT require traffic impact studies for all new development projects requiring access along the corridor and that are expected to generate more than 500 daily trips.

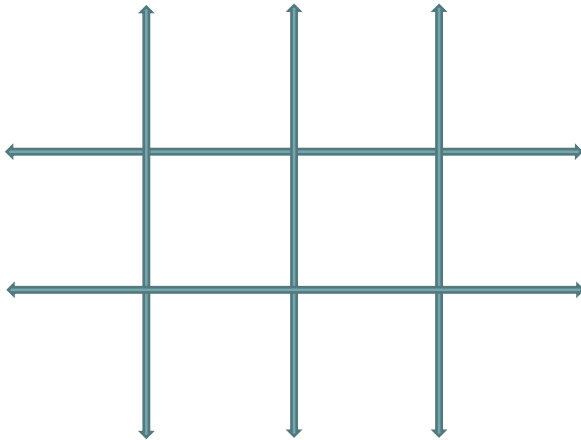
Roadway Programs and Plans

In addition to identifying potential projects, the project team also identified potential roadway-related policy and programmatic direction to support the transportation system based on input from CTUIR staff. Through the TSP update process, the following items were identified for incorporation into CTUIR programs and plans:

- Maintenance program for intersections in the northern UIR where crops limit sight distance during certain times of the year
 - Work with property owners adjacent to roads with limited sight distance to establish formal sight triangle boundaries. One example is Duff Road at Mann Road.
 - Where sight triangles cannot be established, add warning signage.
- Maintenance programs for striping
 - Complete annual striping projects to update worn striping and to add/restripe fog lines on collectors and arterials.
- Coordinate with the County and ODOT on how to address truck parking and routing when I-84 is closed.
- Coordinate with ODOT and Umatilla County on regional connecting roadways.
- Create walkable neighborhoods. Monitor the need for traffic calming measures in neighborhoods and near pedestrian and bicycle activity centers, such as the school, Mission Senior Center, July Grounds residential area, and Nixyáawii Governance Center. Potential mitigations include raised crosswalks, "Children at Play" signage, 20 MPH speed limits, and additional marked crossings.
- Update and maintain CTUIR's parking policy based on current national guidance and local trends.

- Maintain the Tribal Transportation Program (TTP) National Tribal Transportation Facility Inventory (NTTFI) and update with routes that CTUIR may wish to include as projects move forward. Coordinate with the BIA as needed. *Attachment D includes the existing NTTFI as of September 2022.*
- As new development occurs, create a local street network that provides a high level of connectivity, pedestrian and bicycle facilities, and multiple alternative routes.

Figure 2: Street Grid Template



Access Management

As noted in the 2001 CTUIR TSP, CTUIR supports the access spacing standards for County roads within the UIR. CTUIR also elects to apply these standards to the roads maintained and/or owned by CTUIR or BIA. To handle any discrepancies between functional classifications, the County standards for major and minor collectors should apply to all CTUIR rural and urban collectors. The County standards for local roads should apply to all CTUIR rural and urban local roads.

The OR 331 Access Management Plan was referenced in developing the roadway projects described in Table 1 and Figure 1. Once adopted, the standards in the updated CTUIR TSP will supersede this document.

Roadway Cross-sections and Design Standards

The 2001 CTUIR TSP does not include roadway cross-sections or standards within the UIR. Figures 3 to 15 provide proposed cross-sections for inclusion in the TSP update. Figures 16 to 19 provide proposed roadway design standards for inclusion in the TSP update.

OR 331 Detailed Concept Design Graphic

The project team created a detailed concept design graphic for OR 331 from Wildhorse Boulevard to the I-84 interchange shown in Figure 20. This graphic incorporates the projects identified throughout this memorandum, including projects that were originally identified in the 2006 OR 331 Access Management Implementation Strategy and Circulation Plan. The project team and CTUIR staff selected this location for one of the two detailed concept design graphics because it is important for the economy and cultural heritage of CTUIR. Many of the area’s key destinations for both residents and visitors are located along this corridor, creating conflicts between modes and safety concerns.

Figure 3: Cross-section for Arterial Roadway (i.e., OR 331 or Mission Road) – Multi-use Path Option

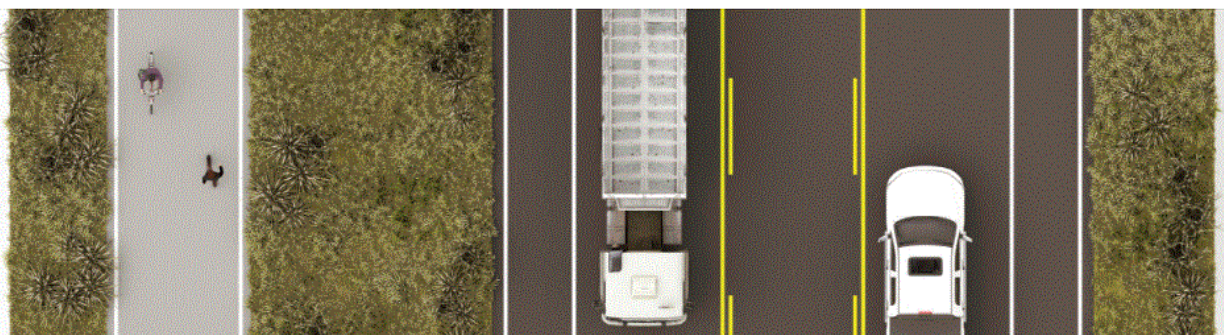
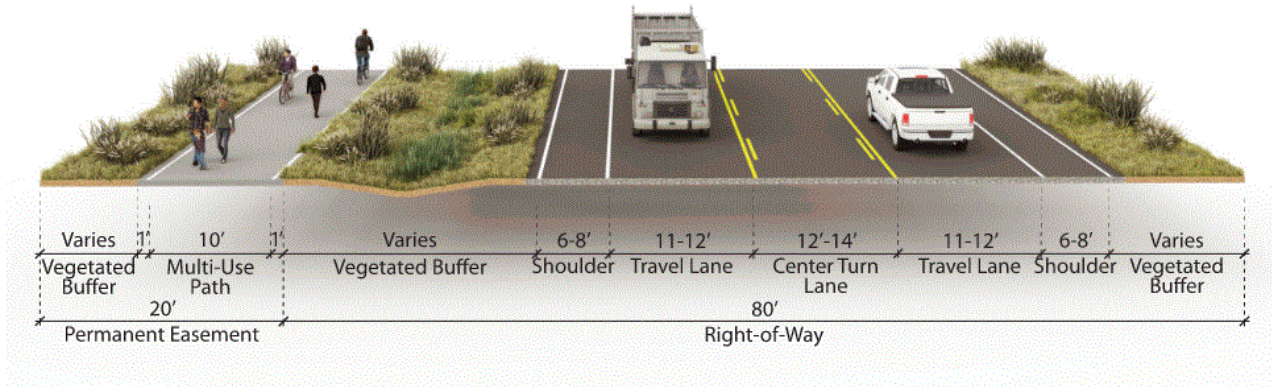


Figure 4: Cross-section for Arterial Roadway (i.e., OR 331 or Mission Road) – Curb and Gutter Option

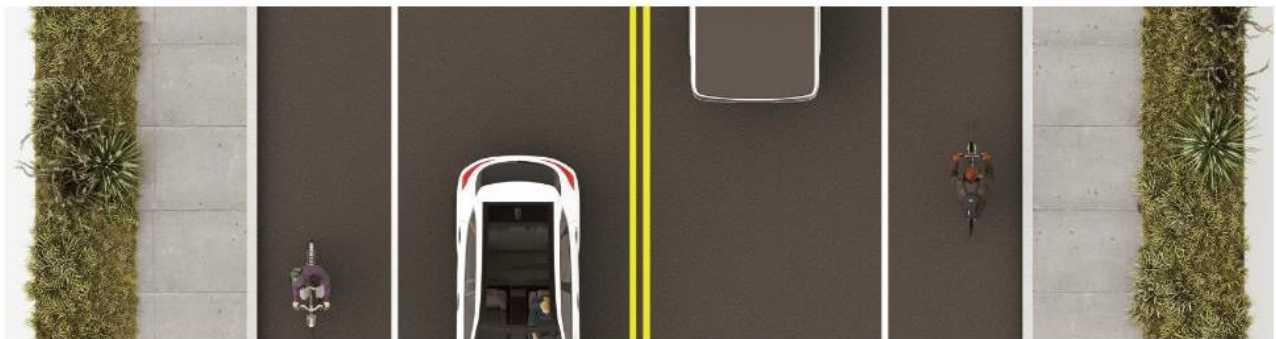
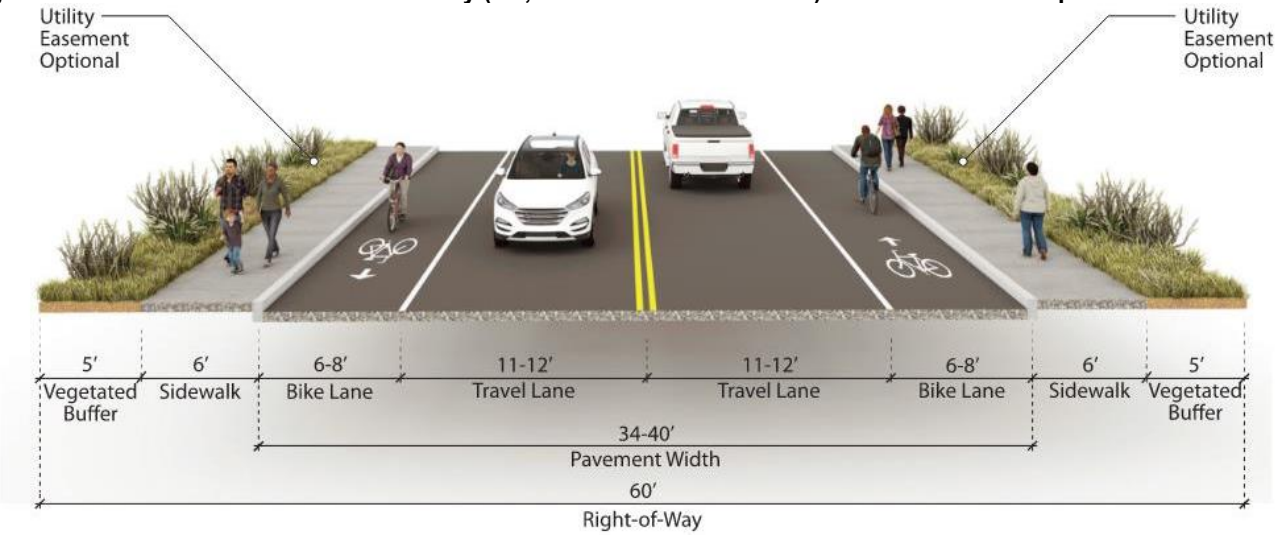


Figure 5: Cross-section for Rural Collector – Shoulder Option

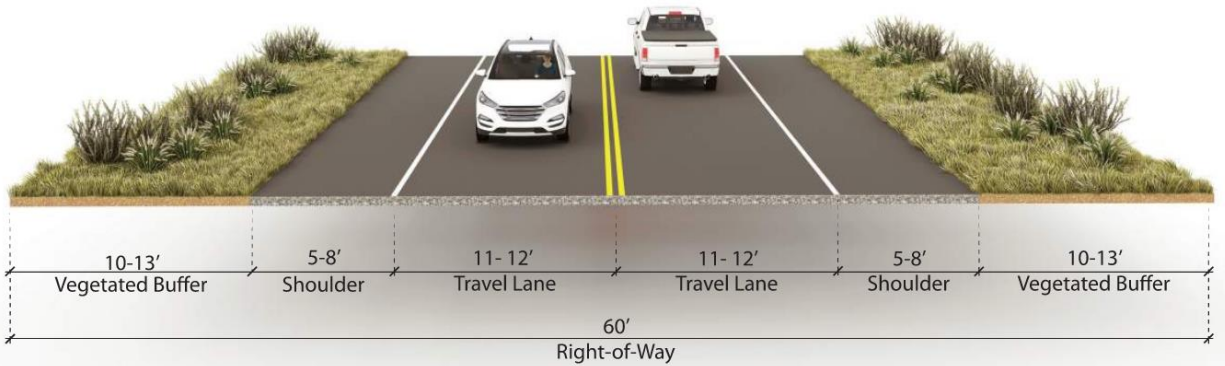


Figure 6: Cross-section for Rural Collector – Multi-use Path Option

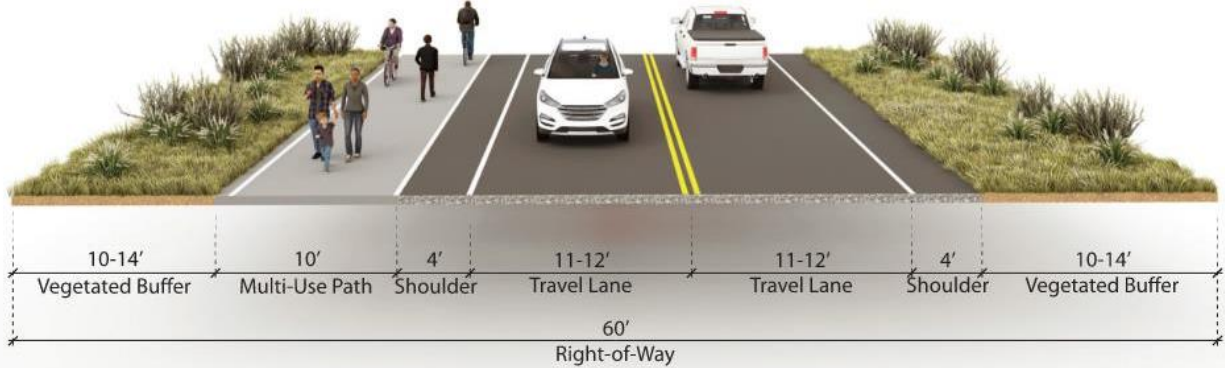


Figure 7: Cross-section for Rural Collector – Gravel Option

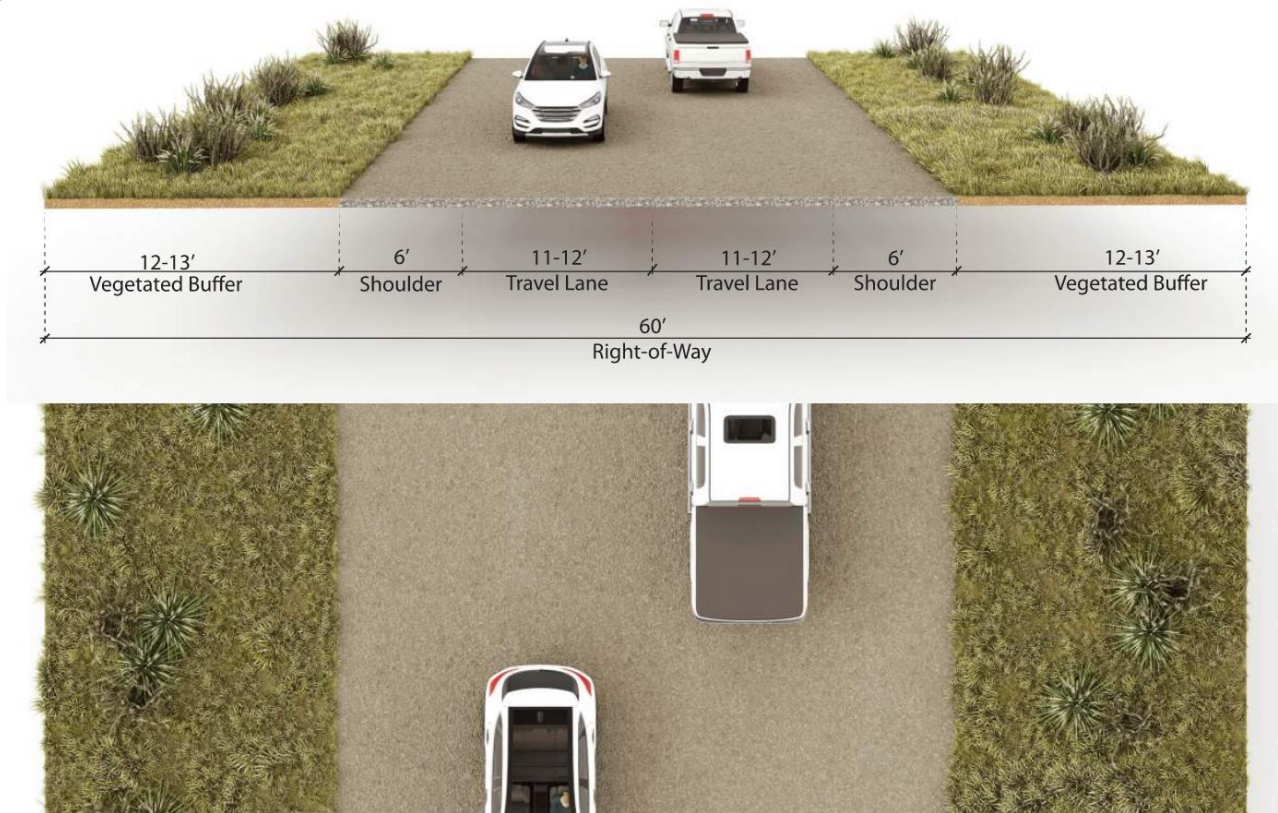


Figure 8: Cross-section for Urban Collector

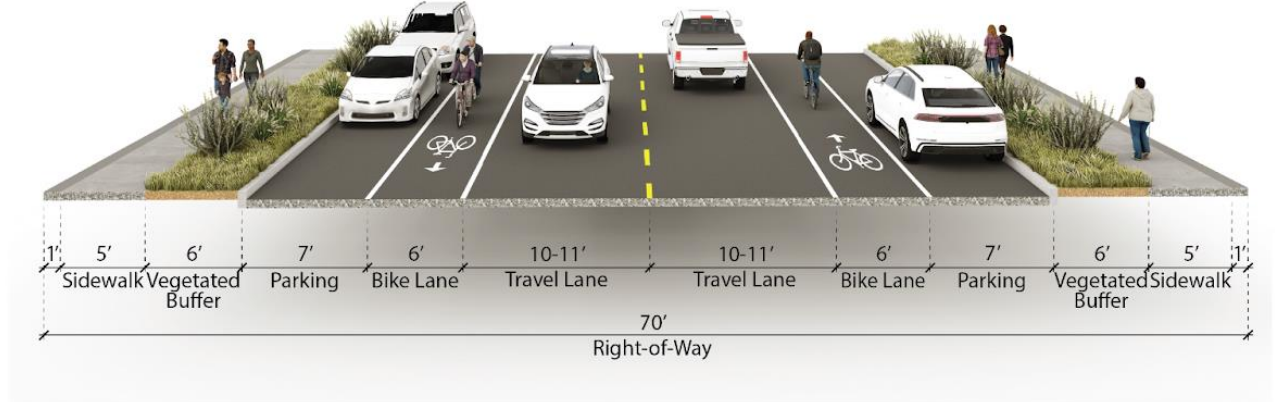


Figure 9: Cross-section for Rural Local Street

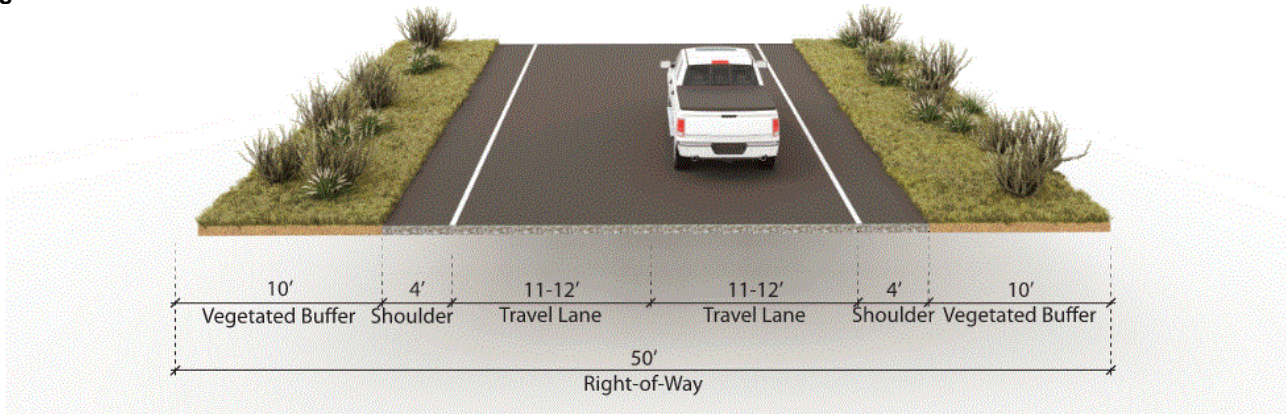


Figure 10: Cross-section for Rural Local Street – Gravel Option

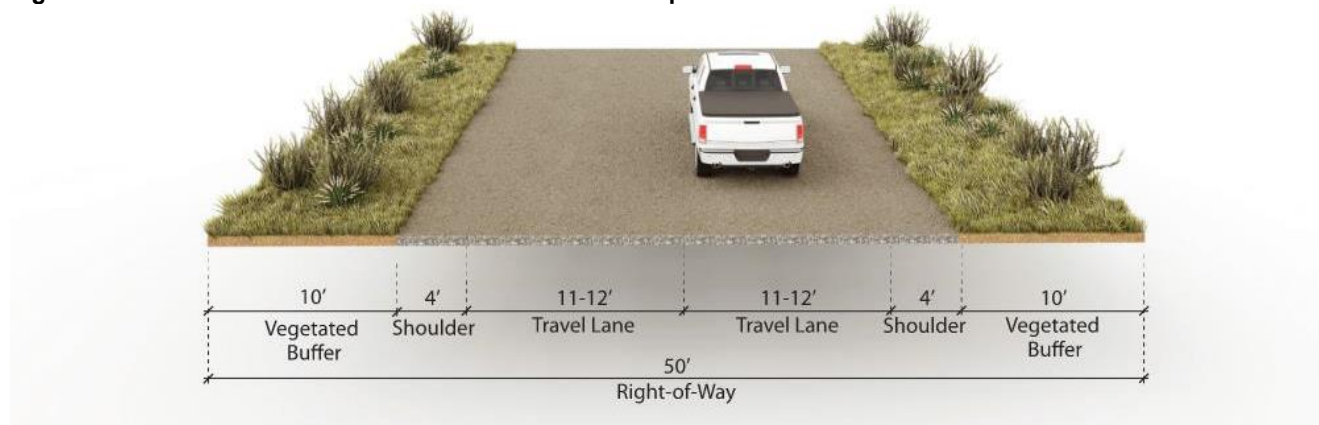


Figure 11: Cross-section for Urban Local Street – Standard Residential Street

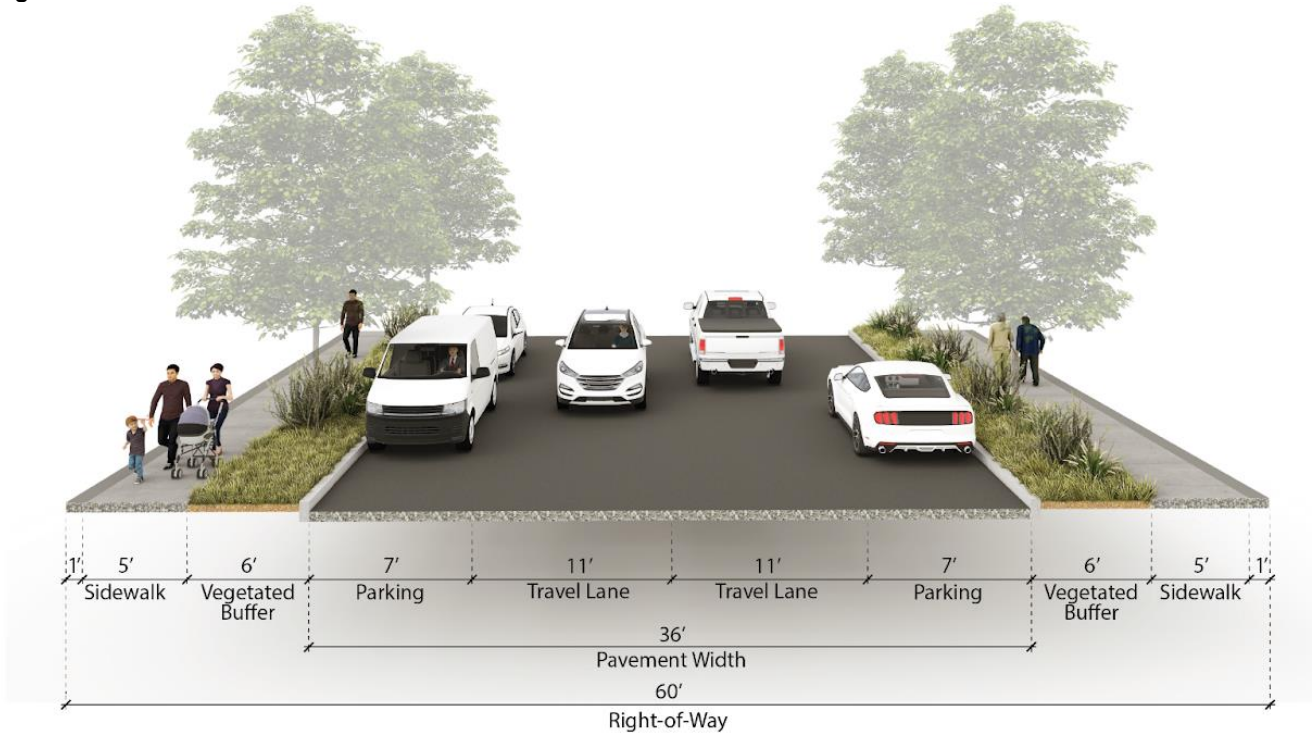


Figure 12: Cross-section for Urban Local Street – Minor Residential Street

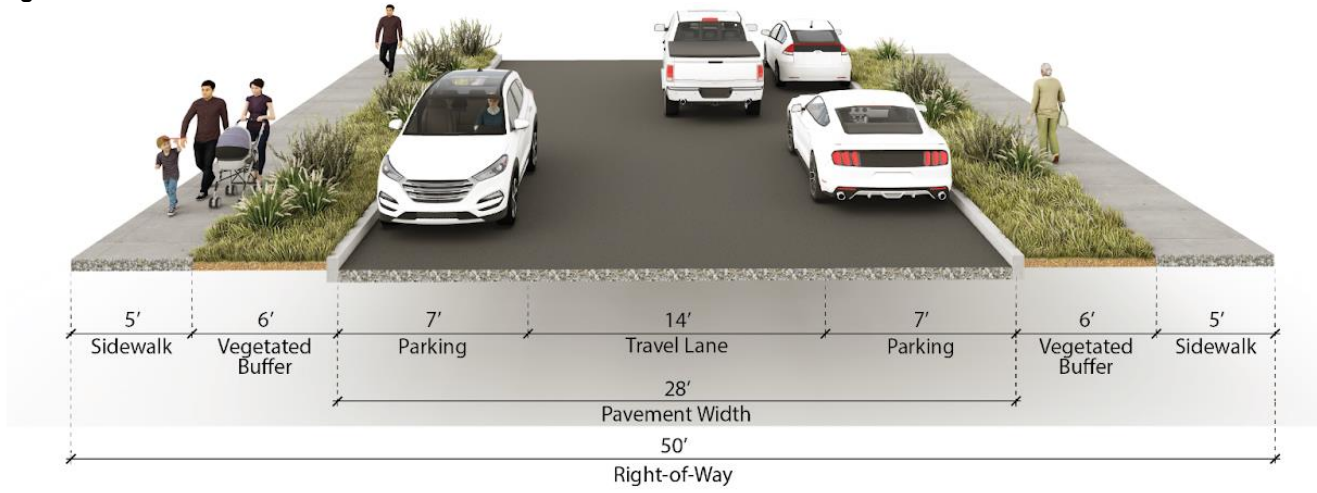


Figure 13: Cross-section for Alley



Figure 14: Cross-section for Multi-use Path

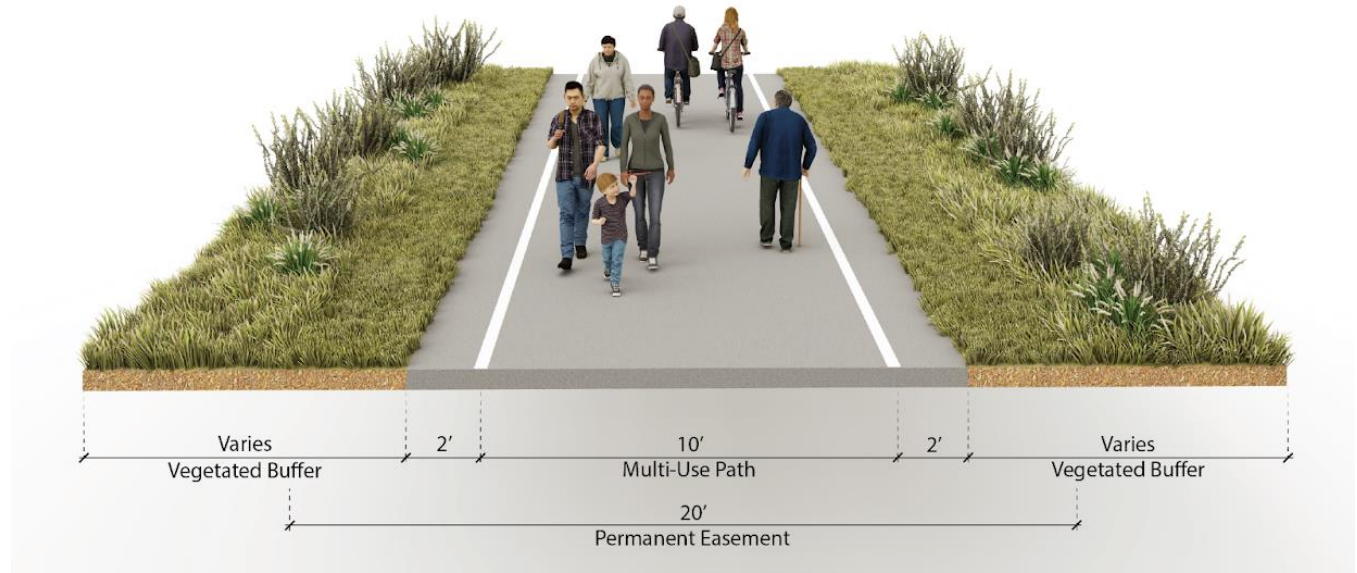
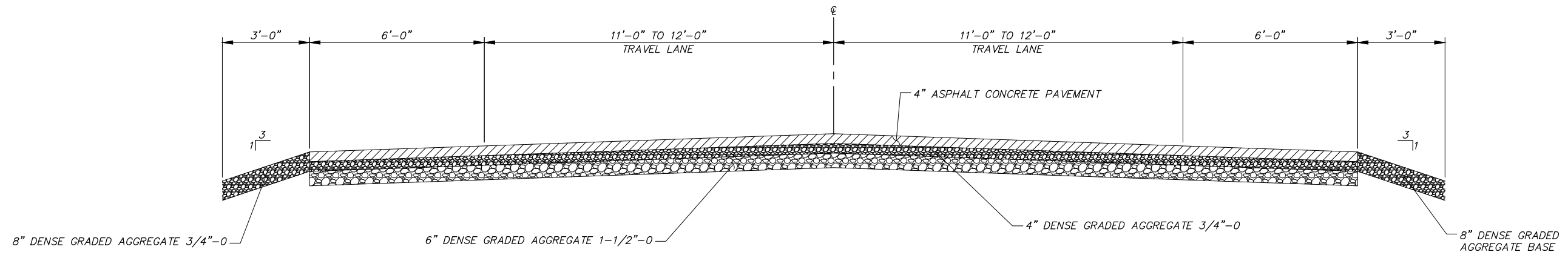
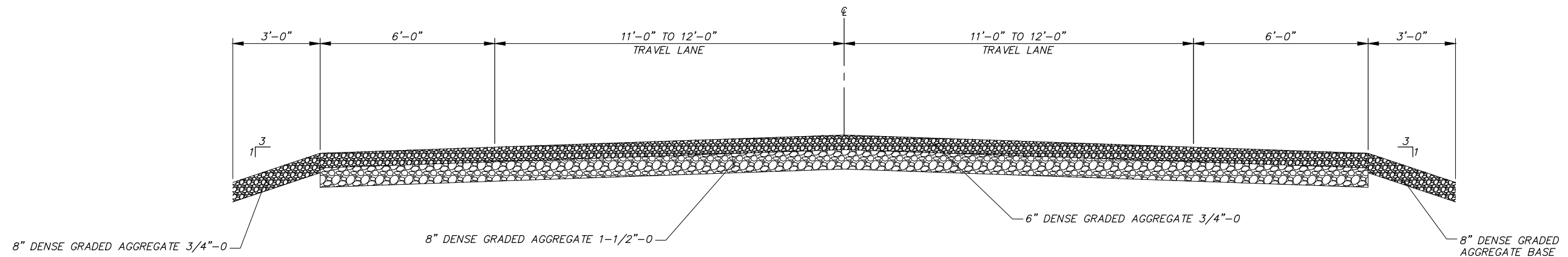


Figure 15: Cross-section for Umatilla River Multi-use Path and Horse Trail

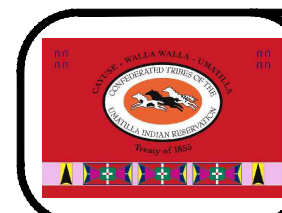




TYPICAL ROADWAY SECTION - ASPHALT
RURAL COLLECTOR
N.T.S.



TYPICAL ROADWAY SECTION - GRAVEL
RURAL COLLECTOR
N.T.S.

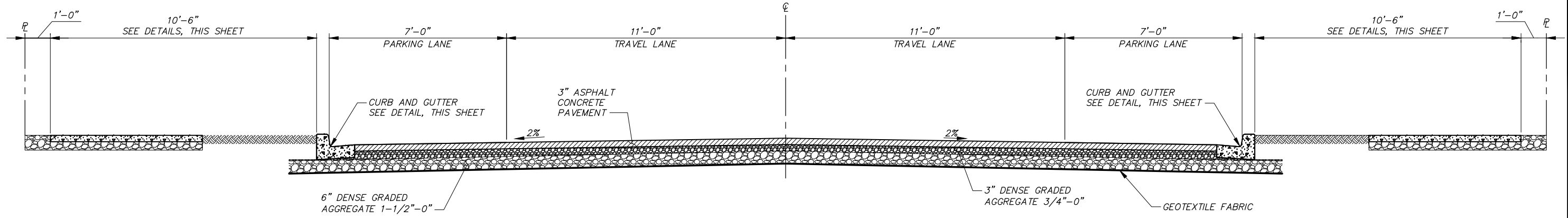


**CONFEDERATED TRIBES OF THE
UMATILLA INDIAN RESERVATION
STANDARD DETAILS**

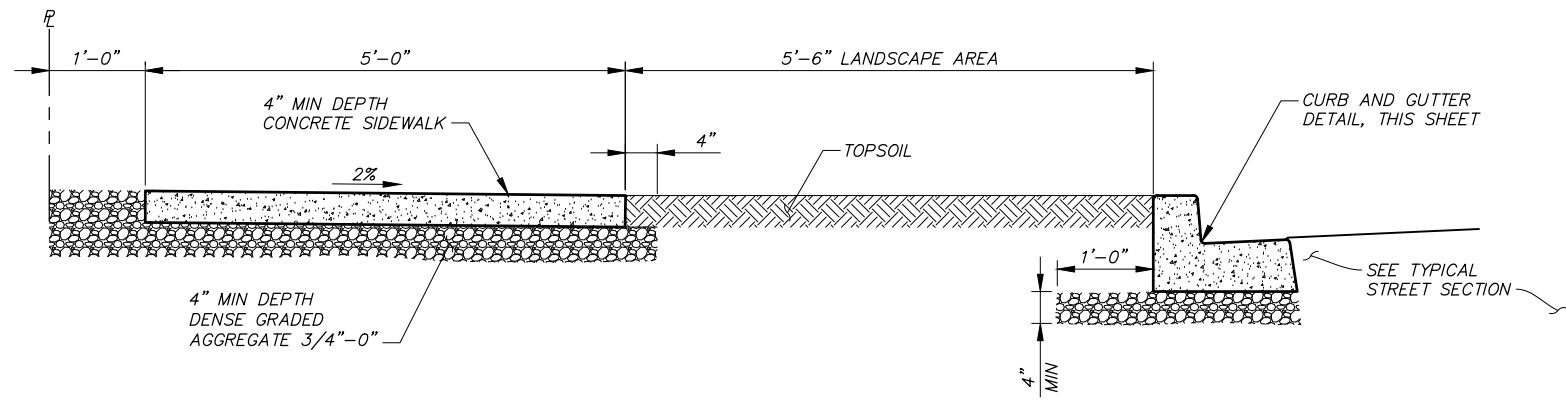
**TYPICAL ROADWAY SECTION
RURAL COLLECTOR**

FIGURE

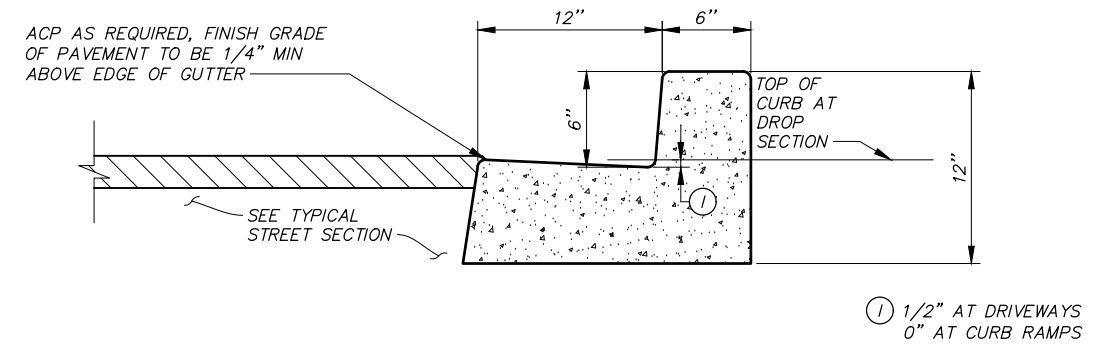
16



TYPICAL ROADWAY SECTION
LOCAL RESIDENTIAL
 N.T.S.



SIDEWALK/CURB AND GUTTER DETAIL
(FOR SETBACK SIDEWALK)
 N.T.S.



- NOTES**
1. ALL TOP EDGES HAVE 1/2" RADIUS, TYP.
 2. PROVIDE FULL SECTION EXPANSION JOINT AT 50' MIN SPACING FOR CONTINUOUS SECTIONS AND AT BEGINNING AND END OF CURVED SECTIONS.
 3. PROVIDE 1/2" DEPTH CONTRACTION JOINTS AT 10' SPACING.

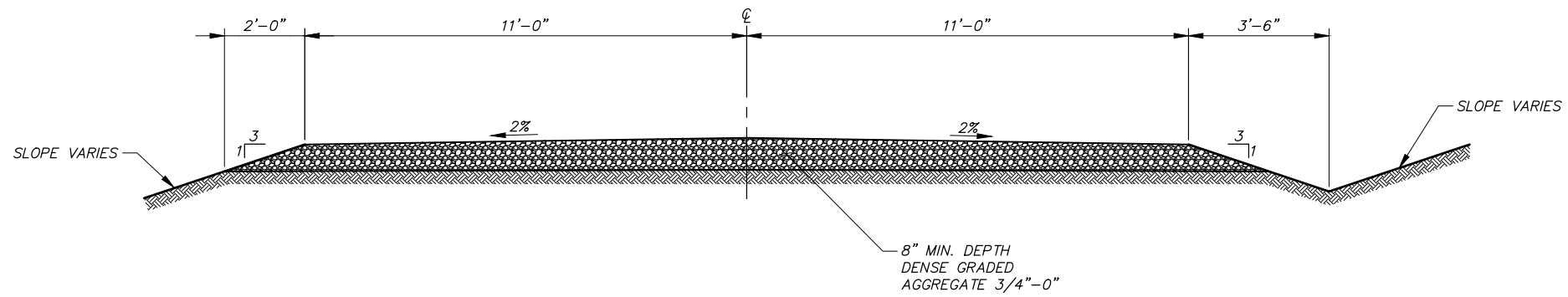
CURB AND GUTTER DETAIL
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CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION
STANDARD DETAILS

TYPICAL ROADWAY SECTION LOCAL RESIDENTIAL

FIGURE
17



TYPICAL ROADWAY SECTION
LOCAL RURAL STREET
N.T.S.

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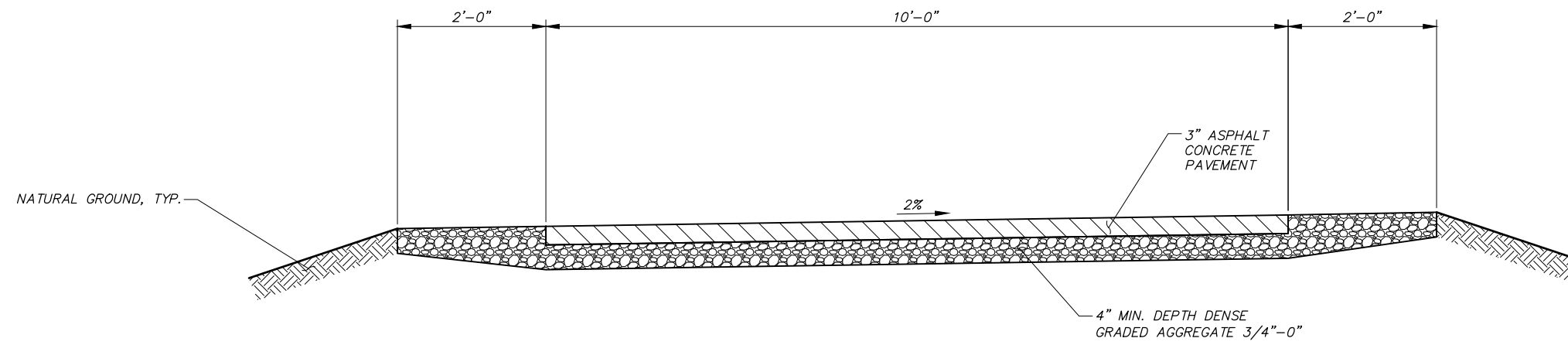


**CONFEDERATED TRIBES OF THE
 UMATILLA INDIAN RESERVATION
 STANDARD DETAILS**

**TYPICAL ROADWAY SECTION
 LOCAL RURAL STREET**

FIGURE

18



TYPICAL SECTION
MULTI-USE PATHWAY
N.T.S.

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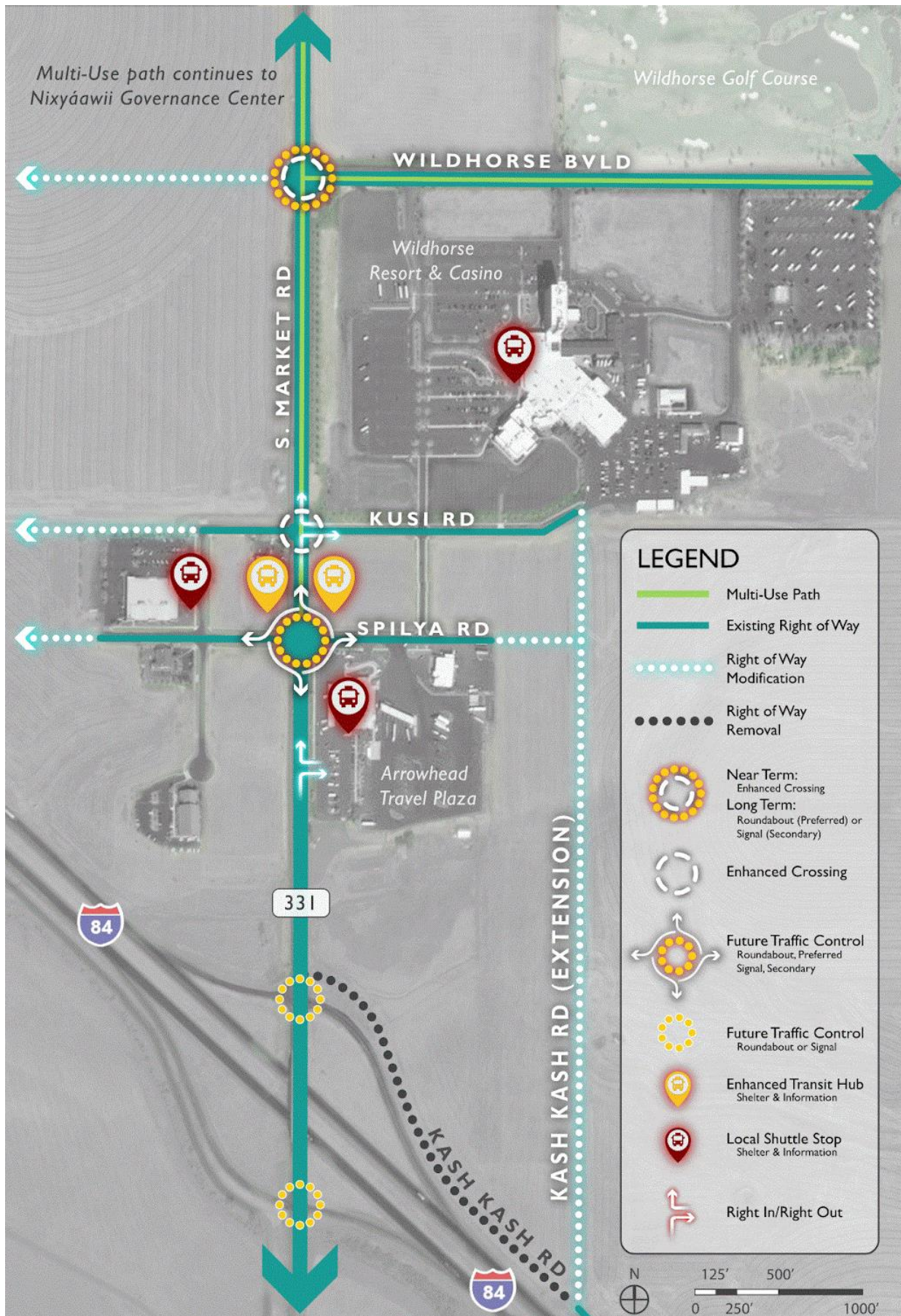
**CONFEDERATED TRIBES OF THE
 UMATILLA INDIAN RESERVATION**
 STANDARD DETAILS

**TYPICAL SECTION
 MULTI-USE PATHWAY**

FIGURE

19

Figure 20: Detailed Concept OR 331 from Wildhorse Boulevard to the I-84 Interchange



PEDESTRIAN SYSTEM – WALKING AND ROLLING

The projects developed for the pedestrian system include sidewalk infill and reconstruction, new multi-use path connections, pedestrian crossing treatments, and more. Table 2 describes the projects for the pedestrian system. The priority levels shown in Table 2 are based on the project evaluation criteria as well as input from the project team. Prioritization has been updated based on input from the advisory committees and the community. Table 2 also shows if a project is within a 2-mile radius of the Nixyáawii Community School. If it was, the priority was increased one level, if possible. *Attachment E includes the CTUIR Safe Route to School Plan, which has been used to develop the projects shown in Table 2. Figure 21 illustrates the location of the projects. Attachment B includes assumptions used to develop the planning-level cost estimates shown in Table 2. Attachment C includes summary sheets for each of the high priority projects.*

Table 2: Pedestrian System Projects

Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Near a School	Cost
P01	Mission Road	East of Huckleberry Street to Cedar Street	Install six-foot sidewalks along the north side of Mission Road from east of Huckleberry Street to Cedar Street. Consider incorporating bus pull-outs into the project design.	County	High	X	\$1,500,000
P02	Mission Road	Confederated Way (western intersection) to Confederated Way (eastern intersection)	Complete the sidewalk network along the south side of Mission Road from Confederated Way (western intersection) to Confederated Way (eastern intersection). Consider incorporating bus pull-outs into the project design.	County	High	X	\$680,000
P03	Mission Road	OR 331 to Confederated Way (western intersection)	Widen sidewalks to six feet on the south side of Mission Road from OR 331 to Confederated Way (western intersection) and address the existing mailbox obstructions. Consider incorporating bus pull-outs into the project design.	County	High	X	\$490,000
P04	Confederated Way	East of Whirlwind Drive to Mission Road (east intersection)	Complete the sidewalk network along the north side of Confederated Way from east of Whirlwind Drive to Mission Road (east intersection).	BIA	High	X	\$435,000
P05	Cedar Street	Short Mile Road to Mission Road	Widen sidewalks to six feet wide on both sides of Cedar Street from Short Mile Road to Mission Road.	BIA	Medium	X	\$580,000
P06	Multi-use Path to	Purchase Lane to OR 331	Construct a multi-use path on the south side of Mission Road from Purchase Lane to OR	CTUIR	High	X	\$775,000



Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Near a School	Cost
	Pendleton (Phase I)		331. This project is the first phase of a larger multi-use path connection to the City of Pendleton. Further study is needed to determine the ultimate alignment.				
P07	Multi-use Path to Pendleton (Phase II)	UIR western boundary to Purchase Lane	<p>Construct the second phase of the multi-use path to Pendleton, connecting at Purchase Lane. West of Purchase Lane, the alignment of the multi-use path connection may follow two potential alignments:</p> <p>1) Along the south side of the Umatilla River in parallel but offset from the river where applicable. If able, connect to Pendleton Riverwalk.</p> <p>OR</p> <p>2) Along the north or south side of Mission Road.</p> <p>Further study is needed to determine the ultimate alignment. Include benches, lighting, and safety amenities (such as emergency call boxes and security cameras).</p>	CTUIR/ County/ Pendleton	High	X	\$3,500,000
P08	Short Mile Road Multi-use Path	Mission Road to Cayuse Bridge	Construct a multi-use path along Short Mile Road to Sampson Lane adjacent to the Union Pacific Railroad maintenance road to River Road to North Cayuse Road Bridge.	CTUIR	Medium		\$3,900,000
P09	OR 331 Multi-use Path (Phase I)	Mission Road to Arrowhead Travel Plaza driveway	Construct a multi-use path along one or both sides of OR 331 from Mission Road to Arrowhead Travel Plaza driveway.	CTUIR	High		\$1,900,000
P10	OR 331 Multi-use Path (Phase II)	Kirkpatrick Road to Mission Road	Construct a multi-use path along one or both sides of OR 331 from Kirkpatrick Road to Mission Road, depending on feasible options for crossing the Umatilla River Bridge. River access could potentially	CTUIR	High	X	\$2,900,000



Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Near a School	Cost
			be included as part of this project.				
P11	South Market Road Multi-use Path	Arrowhead Travel Plaza driveway to Tutuilla Church Road	Construct a multi-use path along one or both sides of OR 331-South Market Road from Arrowhead Travel Plaza driveway to Tutuilla Church Road. The Exit 216 overpass may need to be replaced to fit the desired facilities.	CTUIR	Medium		\$3,900,000
P12	Wildhorse Boulevard Multi-use Path	OR 331 to the Tamástslíkt Trail	Construct a multi-use path along Wildhorse Boulevard, along the north side of the median or within the median.	CTUIR	Medium		\$675,000
P13	Parr Lane Multi-use Path	Umatilla River to Mission Road	Construct a multi-use path in the vicinity of Parr Lane and extending to the Umatilla River.	CTUIR	Low		\$305,000
P14	East-West Multi-use Path	OR 331 to Mission Road	Construct a multi-use path along the top of the bluff connecting OR 331 to Mission Road, intersecting the Tamástslíkt Trail. Coordinate with Project P19 – OR 331/Timíne Way pedestrian crossing and Project P23 - Mission Road/Cedar Street pedestrian crossing.	CTUIR	High	X	\$820,000
P15	Tamástslíkt Trail Lighting	Confederated Way to Tamástslíkt Cultural Institute	Install lighting and security cameras to existing multi-use path system.	CTUIR	High		\$530,000
P16	Timíne Way Multi-use Path Lighting	Mission Road to OR 331	Install lighting and security cameras to existing multi-use path system.	CTUIR	Medium	X	\$320,000
P17	July Ground Multi-use Path System Lighting	n/a	Install lighting and security cameras to existing multi-use path system.	CTUIR	Medium	X	\$480,000
P18	Mission Road Lighting	Short Mile Road to Cedar Street	Install pedestrian-scale lighting.	County	High		\$195,000
P19	OR 331/ Timíne Way	n/a	Install an enhanced pedestrian crossing. Treatment may include signalization or a pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), or a grade separated	ODOT	High	X	\$2,000,000

Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Near a School	Cost
			undercrossing of OR 331. Coordinate with Project P14 – East-West Multi-use Path.				
P20	Mission Road Mid-block Crossing	n/a	Install enhanced pedestrian crossing treatments at the existing mid-block crossing on Mission Road east of Short Mile Road. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and/or curb extensions.	County	High	X	\$105,000
P21	OR 331/ Kusi Road	n/a	Install an enhanced pedestrian crossing. Treatment may include pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), raised median island, high visibility crosswalk markings, and curb extensions.	ODOT	High		\$105,000
P22	Mission Road/ Confederated Way (east intersection)	n/a	Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions.	County	High	X	\$105,000
P23	Mission Road/ Cedar Street	n/a	Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions. Coordinate with Project P14 - East-West Multi-use Path.	County	High	X	\$105,000
Total High Priority Cost							\$16,145,000
Total Medium Priority Cost							\$9,855,000
Total Low Priority Cost							\$305,000
Total Cost							\$26,305,000

Pedestrian Programs and Plans

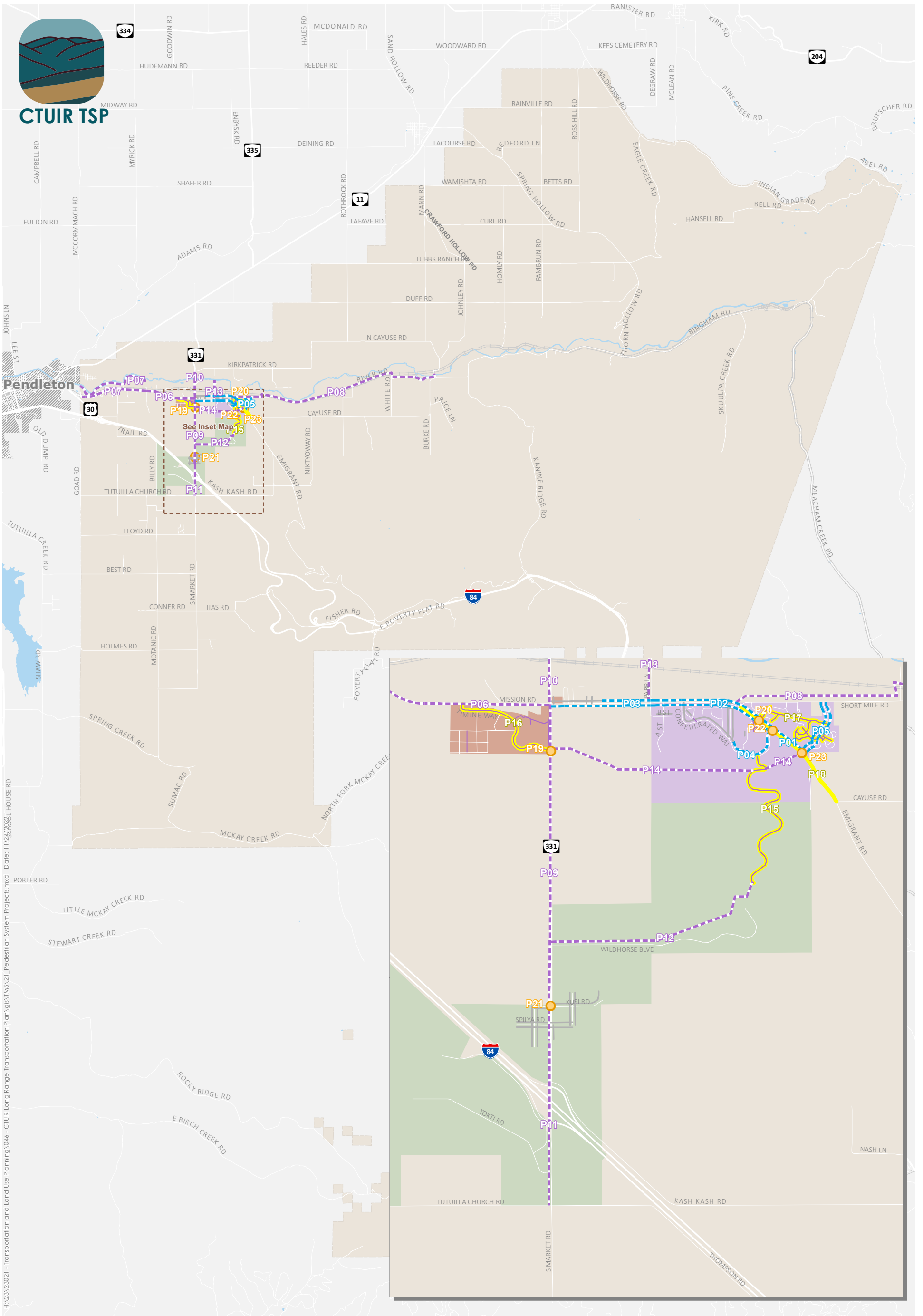
In addition to identifying potential projects, the project team also identified potential pedestrian-related policy and programmatic direction to support the transportation system based on input from CTUIR staff. Through the TSP update process, the following items were identified for incorporation into CTUIR programs and plans:

- New development within the Mission Hub should be required to include off-street multi-use paths to create a connected pathway system within the area.
- Parks and Transportation Coordinator
 - Create a new CTUIR staff position to oversee and coordinate multi-use path maintenance and construction, park and river access, and park maintenance.
 - Develop an Invasive Plant Management Plan for roads and multi-us paths in coordination with other CTUIR departments.
- Parks and River Access Plan
 - CTUIR is acquiring land impacted by the 2020 flooding, including areas near Cayuse River Road, Cayuse Road, and Sampson Lane. The plan will determine a vision for creating a park(s) with potential river access. Work with property owners adjacent to the river to gain access. Explore other river access locations including previous informal access points, such as Parr Lane and the swimming hole near the railroad bridge.

July Grounds Enhanced Pedestrian Crossing Detailed Concept Design Graphic

The project team created a detailed concept design graphic for the July Grounds enhanced pedestrian crossing shown in Figure 22. This graphic incorporates the projects identified throughout this memorandum, not just pedestrian-related projects. The project team and CTUIR staff selected this location for one of the two detailed concept design graphics because it provides an example of what an enhanced crossing could look like within the UIR. This mid-block crossing is also a current barrier to the connectivity of the pedestrian and bicycle networks.





- Existing Sidewalk
- Existing Multi-use Path
- - - Sidewalk Project
- - - Multi-use Path Project
- Lighting Project
- Pedestrian Crossing Project

- Umatilla Indian Reservation Boundary
- Mission Hub
- July Grounds Hub
- Gateway Hub
- Pendleton UGB



Figure 21

**Pedestrian System Projects
Umatilla Indian Reservation**

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Figure 22: Detailed Concept for July Grounds Enhanced Pedestrian Crossing



BICYCLE SYSTEM

The projects developed for the bicycle system include buffered bike lanes, shoulder bikeways, and shared roadways. Table 3 describes the projects for the bicycle system. The priority levels shown in Table 3 are based on the project evaluation criteria as well as input from the project team. Prioritization has been updated based on input from the advisory committees and the community. Table 3 also shows if a project is within a 2-mile radius of the Nixyáawii Community School. If it was, the priority was increased one level, if possible. *Attachment E includes the CTUIR Safe Route to School Plan, which has been used to develop the projects shown in Table 3.* Figure 23 illustrates the location of the projects. The figure also includes the multi-use path projects previously shown in the Pedestrian System section. *Attachment B includes assumptions used to develop the planning-level cost estimates shown in Table 3. Attachment C includes summary sheets for each of the high priority projects.*

Table 3: Bicycle System Projects

Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Near a School	Cost
B01	Mission Road	OR 331 to Cayuse Road	Widen Mission Road and install buffered or separated/ raised bicycle lanes along both sides of the roadway from OR 331 to Cayuse Road. Consider incorporating bus pull-outs into the project design.	County	High	X	\$4,200,000
B02	Kirkpatrick Road	OR 331 to McKinley Lane	Widen Kirkpatrick Road and install shoulder bikeways on both sides of the roadway from OR 331 to McKinley Lane.	County	Medium	X	\$2,400,000
B03	Cayuse Road	Emigrant Road to River Road	Widen Cayuse Road and install shoulder bikeways on both sides of the roadway from Emigrant Road to River Road.	County	Medium		\$6,800,000
B04	Confederated Way	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	BIA	Medium	X	\$30,000
B05	Whirlwind Drive	Mission Road to Confederated Way	Install shared roadway signage and/or striping (sharrows).	BIA	Medium	X	\$5,000
B06	Cedar Street	Short Mile Road to Mission Road	Install shared roadway signage and/or striping (sharrows).	BIA	Medium	X	\$35,000
B07	Kusi Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	Low		\$25,000
B08	Spilya Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	Low		\$30,000
B09	Coyote Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	Low		\$20,000
B10	Arrowhead Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	Low		\$15,000

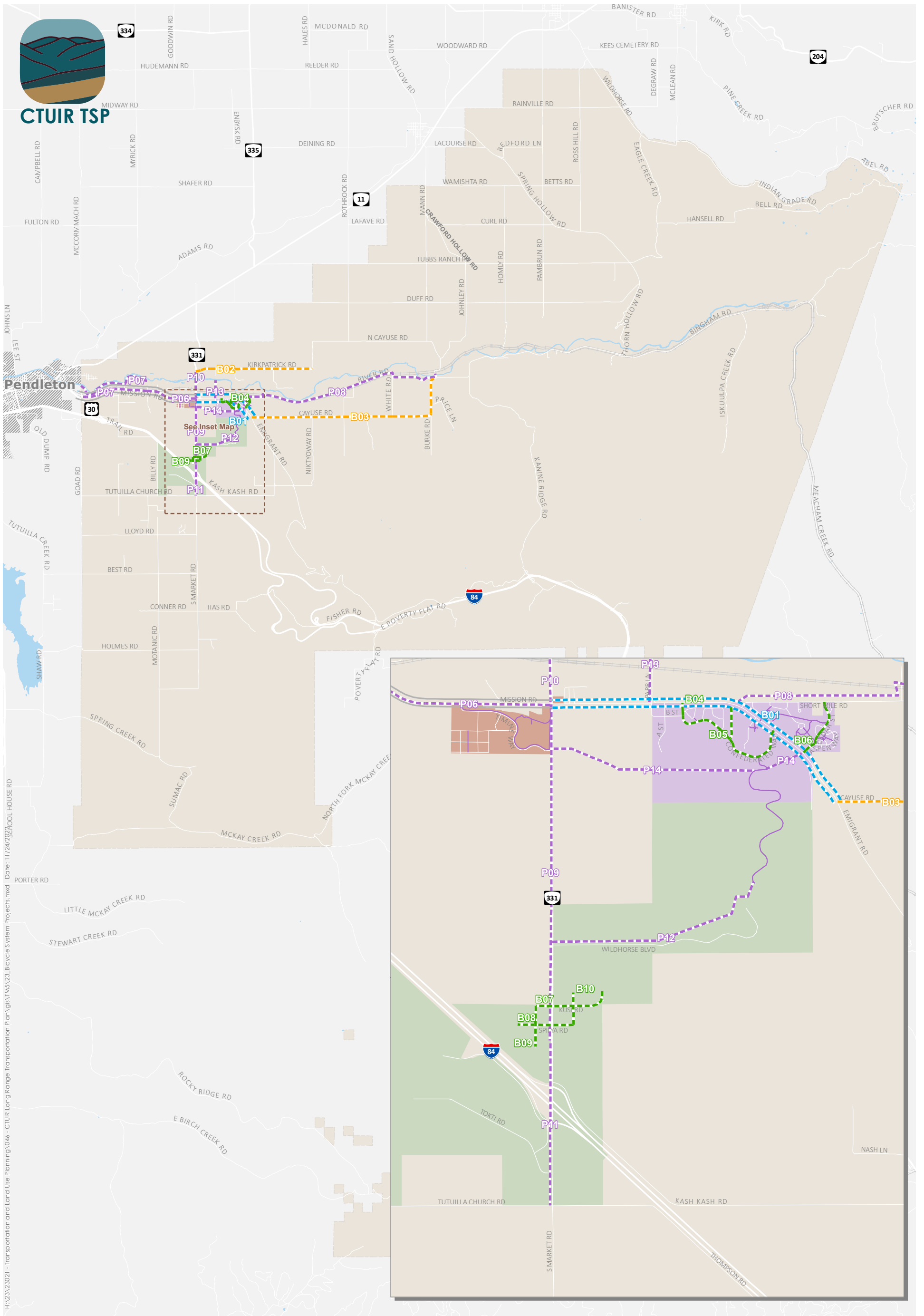
Project ID	Location/ Name	Extents	Description	Roadway Jurisdiction	Priority	Near a School	Cost
B11 ¹	Bicycle Fix-it Stations	Within UIR boundaries	Evaluate where bicycle fix-it stations would be beneficial to install within the UIR, such as trailheads, community hubs, or the school.	CTUIR	High		\$10,000 per station
Total High Priority Cost							\$4,200,000
Total Medium Priority Cost							\$9,270,000
Total Low Priority Cost							\$90,000
Total Cost							\$13,560,000

¹ Project not shown on the project map.

Bicycle Programs and Plans

In addition to identifying potential projects, the project team also identified the following potential bicycle-related item for incorporation into CTUIR programs and plans:

- Coordinate installation of future bicycle fix-it stations as part of construction of projects that will attract bicycle activity, such as commercial development, parks, civic centers, transit hubs, multi-use paths, and bike lanes.



- Existing Bike Lane
- Existing Multi-use Path
- - - Shoulder Bikeway (both sides of the roadway)
- - - Shared Roadway
- - - Widen and add buffered bike lanes
- - - Multi-use Path Project

- Umatilla Indian Reservation Boundary
- Mission Hub
- July Grounds Hub
- Gateway Hub
- Pendleton UGB



Figure 23

**Bicycle System Projects
Umatilla Indian Reservation**

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TRANSIT SYSTEM

The projects developed for the transit system include bus stop enhancements, modified service, and new service. Table 4 describes the projects for the transit system. The priority levels shown in Table 4 are based on the project evaluation criteria as well as input from the project team. Prioritization was updated based on input from the advisory committees and the community. Figure 24 illustrates the location of the projects. *Attachment B includes assumptions used to develop the planning-level cost estimates shown in Table 4. Attachment C includes summary sheets for each of the high priority projects.*

As CTUIR explores the transit system projects, coordination with other transit providers that serve the reservation and nearby areas will be needed. These other providers include Kayak, SafeT Transportation, Elite Taxi, Wildhorse Resort & Casino Shuttle, Greyhound, and Yellowhawk Tribal Health Center transportation through the Allied Health Service Department.

Table 4: Transit System Projects

Project ID	Location/Name	Description	Priority	Cost
T01 ¹	Park-and-ride Locations	Coordinate with regional transit providers for park-and-ride locations that help facilitate the use of transit by community members and maximize regional connectivity.	High	TBD, depends on partnerships available
T02	Bus Stop Enhancements	Evaluate transit stops for additional amenity needs, such as shelters, lighting, and signage.	High	\$324,000 (\$18,000/stop for 18 bus stops)
T03	OR 331 Transit Hub	Consolidate bus stops at Arrowhead Travel Plaza, Cayuse Holdings, and the Wildhorse Resort & Casino campus into one pair of transit hubs on OR 331 north of Spilya Road, reducing need for transit vehicles to turn to and from OR 331. Coordinate with Project T04 - Wildhorse Campus Shuttle. If a roundabout is constructed on OR 331 based on development-driven projects, a single transit hub on one side of OR 331 may be appropriate.	High	\$200,000
T04	Wildhorse Campus Shuttle	Partner with adjacent businesses to provide a shuttle to transport people from Arrowhead Travel Plaza, Cayuse Holdings, and the Wildhorse Resort & Casino campus to the OR 331 Transit Hub. Coordinate with Project T03 - OR 331 Transit Hub.	High	To be determined in conjunction with Kayak
T05	Kayak Transit Hub Expansion	Install public restrooms for passengers at the Kayak Transit Hub.	Low	To be determined in conjunction with Kayak
T06 ¹	Electric Vehicle and Shuttle Pilot	Acquire vehicles, install charging facilities, and begin electric vehicle service for the Metro and campus shuttle routes.	Medium	To be determined in conjunction with Kayak
T07 ¹	More frequent transit service	Explore adding more trips per day on the highest ridership routes including Hopper, Whistler, and Metro.	Low	To be determined in conjunction with Kayak

Project ID	Location/Name	Description	Priority	Cost
T08 ¹	Extended hours of service	Explore additional hours of service to serve the morning and evening shifts at Wildhorse Resort & Casino.	Medium	To be determined in conjunction with Kayak
T09 ¹	Extended coverage	Explore extended coverage for transit services to reach residential area near Riverside Avenue, Pendleton Airport, and Walla Walla Airport. Coordinate with surrounding jurisdictions and transit agencies who already provide services to these areas. Coordinate with local health and fitness facilities when locating new bus stops.	Medium	To be determined in conjunction with Kayak
Total High Priority Cost				\$524,000
Total Medium Priority Cost				\$TBD
Total Low Priority Cost				\$TBD
Total Cost				\$TBD

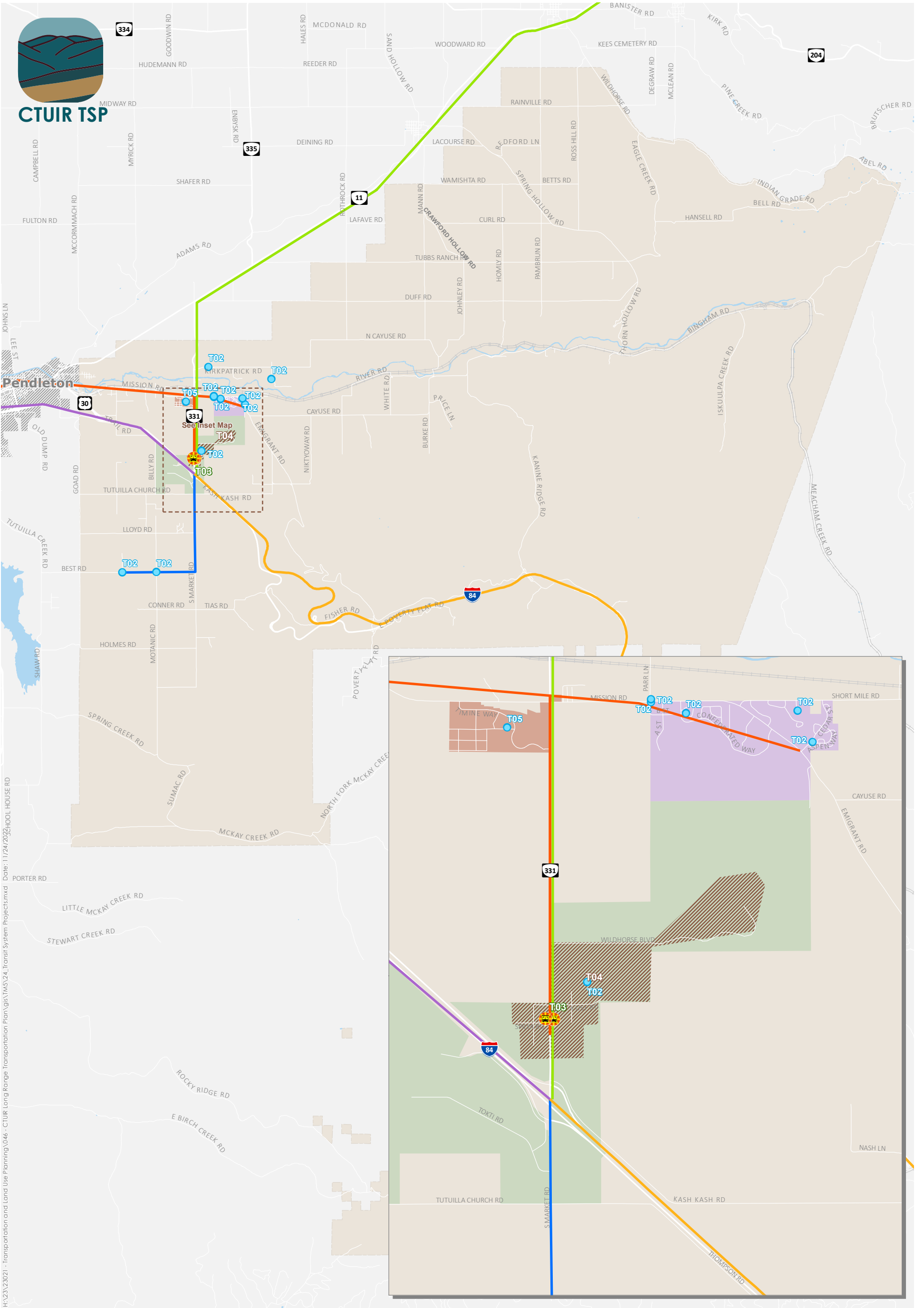
¹ Project not shown on the project map.

Transit Programs and Plans

In addition to identifying potential projects, the project team also identified potential transit-related policy and programmatic direction to support the transportation system based on input from CTUIR staff. Through the TSP update process, the following items were identified for incorporation into CTUIR programs and plans:

- Work with businesses adjacent to existing or planned transit stops to sponsor transit shelters at bus stops. Coordinate with businesses and the proposed Parks and Transportation Coordinator position to determine responsibility for maintenance of transit shelters.
- Work with partner jurisdictions and agencies to ensure that Kayak is part of the development review process where there may be opportunities for new transit facilities or impacts to existing transit service.





Existing Kayak Bus Routes

- Hopper
- Arrow
- Metro
- Rocket
- Tripper
- Whistler

- Bus Stop Enhancement
- Transit Hub
- Shuttle Service Area

- Umatilla Indian Reservation Boundary
- Mission Hub
- July Grounds Hub
- Gateway Hub
- Pendleton UGB



Figure 24

**Transit System Projects
Umatilla Indian Reservation**

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RAIL SYSTEM

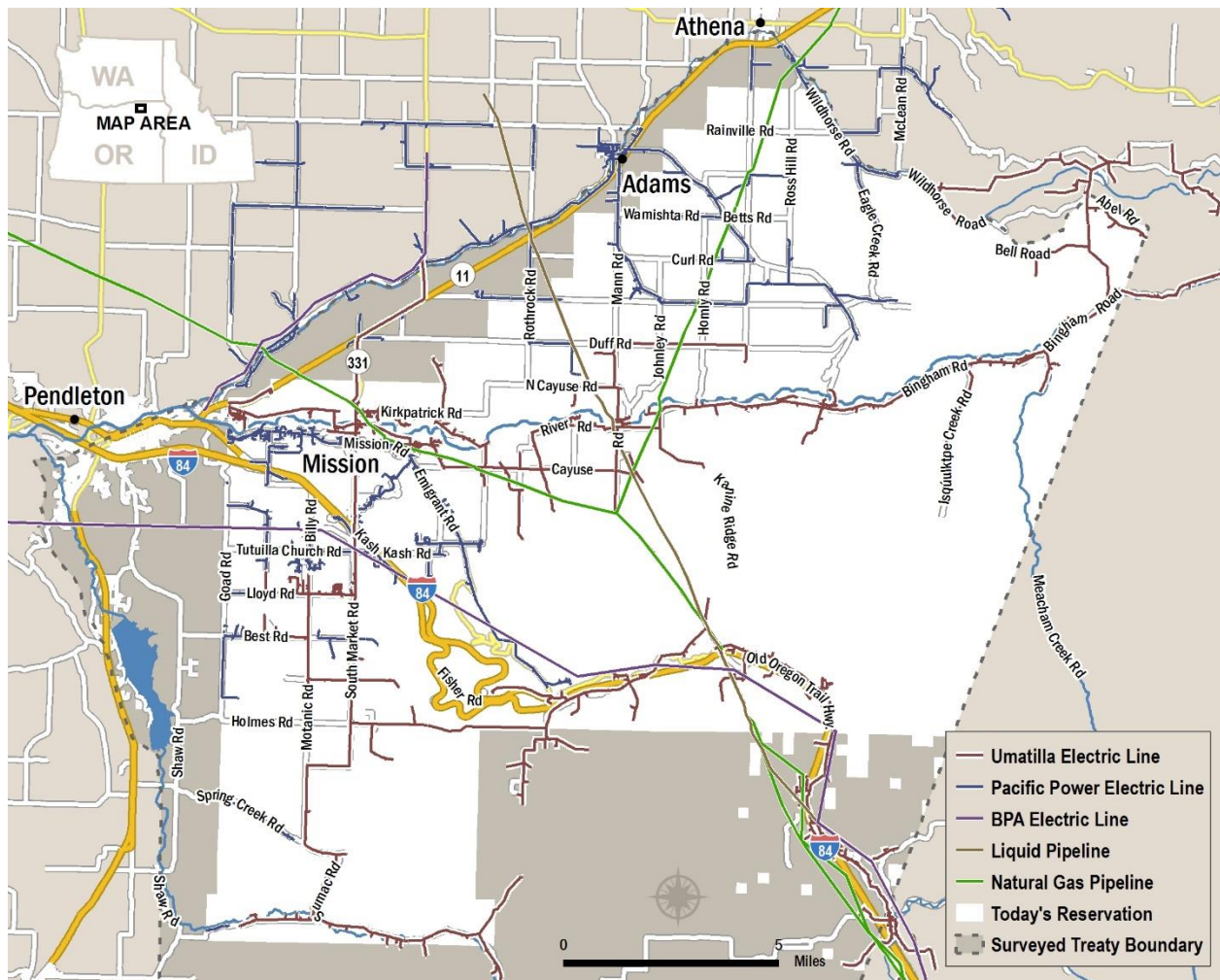
There is one Union Pacific rail line within the UIR boundary, connecting Pendleton and La Grande. The line runs east and west, parallel to Mission Road, Short Mile Road, Cayuse Road, and Bingham Roads before turning south along Meacham Creek Road and into the Blue Mountains. Although no projects were identified to support the rail system, the following plan was identified:

- Safe Rail Crossing Plan
 - Conduct a planning effort to establish a Quiet Zone Agreement for the Union Pacific railroad adjacent to the Mission area. The plan area would extend from the eastern boundary of the Community Water Sewer System service area to the UIR western boundary near Memory Lane.
 - The plan would include recommended safety upgrades for crossings in the plan area, including any recommended closures of specific crossings to enhance safety in the area.

PIPELINE SYSTEM

There are liquid and natural gas pipelines within the UIR boundary. Figure 25 shows the existing pipeline system, in addition to other utility lines within the UIR. No future projects, programs, or plans were identified to support the pipeline system.

Figure 25: Pipeline System (Image provided by CTUIR)



MODIFICATION OF PREVIOUS PLANNING DOCUMENTS

The proposed projects described in this memorandum represent modifications or elimination of the following projects currently found in the adopted 2001 CTUIR TSP, Mission Community Master Plan (MCMP), and the OR 331 Access Management Plan (AMP), described in Table 5. Table 5 does not include completed projects from these planning documents.

Table 5: Modifications to Previous Planning Documents

Planning Document(s)	Previous Project ID(s)	Location/Name	Description	Justification
Roadway System				
2001 CTUIR TSP	6	River Road	Widen, align, and add gravel from the railroad crossing east to White Road. CTUIR to take over ownership of two at-grade railroad crossings and pave crossings with asphalt.	CTUIR requested removal.
2001 CTUIR TSP and OR 331 AMP	9 and 14	Kash Kash Road	Kash Kash Road at Highway 331 – Close existing access to Highway 331 and reroute Kash Kash Road north to a new intersection with the highway. Add exclusive left-turn lanes on the highway approaches to new intersection. Also construct new driveway/street access on the west side of the intersection, opposite of Kash Kash Road. Install new traffic signal when warranted.	Edited project to focus only on Kash Kash Road realignment, since the other elements have mostly been completed
2001 CTUIR TSP and OR 331 AMP	10 and 8	OR 331	Highway 331 Median – Construct a non-traversable landscaped median along Highway 331 from the I-84 westbound ramps to the Wildhorse Resort Entrance Road. This project also includes bicycle/pedestrian improvements.	No longer desired for this roadway.
2001 CTUIR TSP	27	North-South Connector Road	North-South Connector Road – Construct a new north-south connector road from the Wildhorse Resort Entrance Road to “A” Street.	No longer desired by CTUIR. This area is difficult to develop because of cultural sites and topography.
2001 CTUIR TSP	28	East-West Connector Road (Phase II)	East-West Connector Road (Phase II) – Extend rural connector road from proposed North-South Connector Road to Highway 331. Timing for this project will be dictated by planned developments in the area.	No longer desired by CTUIR. This area is difficult to develop because of cultural sites and topography.
2001 CTUIR TSP	3	East-West Connector Road (Phase I)	East-West Connector Road (Phase I) – Construct a new urban/rural connector road from near Aspen Way to proposed North-South Connector Road. Timing for this project will be dictated by planned developments in the area (East Bench Subdivision).	No longer desired by CTUIR. This area is difficult to develop because of cultural sites and topography. MCMP shows a multi-use path instead
2001 CTUIR TSP	22	Wildhorse Creek Bridge	Replace County Bridge #59C401 along Wild Horse Road (County Road #685).	Not under CTUIR jurisdiction. CTUIR staff



Planning Document(s)	Previous Project ID(s)	Location/Name	Description	Justification
				requested removal from project list.
2001 CTUIR TSP	37	Tamástslikt Cultural Institute Connector Road	Tamástslikt Cultural Institute Connector Road – Construct a new connector road from the Tamástslikt Cultural Institute to the proposed east-west connector road, near the Cayuse Road/Emigrant Road intersection.	No longer desired by CTUIR. This area is difficult to develop because of cultural sites and topography.
OR 331 AMP	10	OR 331	Widen OR 331 to a five-lane cross-section in the vicinity of Spilya Road.	New cross-sections established in MCMP and through this TSP update process.
OR 331 AMP	13	Kusi Road	Extend Kusi Road and construct north-south local road for local circulation.	Edited to Spilya Road and without the additional north-south connection based on development that has occurred.
Pedestrian System				
2001 CTUIR TSP	26	Mission Road Bike/Ped Facility (Phase II)	Mission Road Bike/Ped Facility (Phase II) – Complete the extension of a bicycle/pedestrian facility to the City of Pendleton along Mission Road/US Highway 30.	Revised to have first phase along Mission Road and then two options to Pendleton: along Mission Road or along Umatilla River.
2001 CTUIR TSP	31	Highway 331 Sidewalk and Bike Lanes	Highway 331 Sidewalk and Bike Lanes – Provide bike lanes, curb and gutter, and sidewalks along Highway 331 from Mission Road to proposed East-West Connector Road.	Replaced by a multi-use path.
2001 CTUIR TSP	36	Path Across Umatilla River	Path Across Umatilla River – Construct a multi-use path in the vicinity of Parr Lane and extending across the Umatilla River to connect with Kirkpatrick Road.	Edited to remove bridge and only connect Parr Lane to the river based on input from CTUIR staff.
MCMP, TAC1	P2	Mission Road	Complete the sidewalk network along the south side of Mission Road from Confederated Way to Cedar Street. Widen existing sidewalks near the Four Corners area to six feet and address the existing mailbox obstructions located across from Lucky Seven.	Removed because the pedestrian crossing was moved north to Confederated Way, removing the need for sidewalks on both sides of the street to Cedar Street.
MCMP	P3	OR 331	Install sidewalks along the east and west sides of OR 331.	Replaced by a multi-use path.
MCMP	M5	Umatilla River Multi-use Path	Construct a new multi-use trail along the south side of the Umatilla River on in parallel but offset from the river where applicable. Connect to Pendleton Riverwalk.	Revised to have first phase along Mission Road and then two options to Pendleton: along Mission Road or along Umatilla River.



Planning Document(s)	Previous Project ID(s)	Location/Name	Description	Justification
Bicycle System				
2001 CTUIR TSP	32	OR 331	Highway 331 Shoulder Widening – Provide 8-foot paved shoulders along Highway 331 from Wildhorse Resort Entrance Road to proposed East-West Connector Road.	Replaced by a multi-use path.
MCMP	B3	OR 331	Install bicycle lanes along the east and west sides of OR 331.	Replaced by a multi-use path.
Transit System				
MCMP	T1	Multiple Locations	(For multiple locations) Install new transit amenities including new shelters with real-time transit tracking, benches, lighting, etc.	Replaced by more specific suggestions for the bus stop locations.



Attachment A

Description of Evaluation Process and Evaluation Criteria

A qualitative process using the evaluation criteria will be used to evaluate potential modal solutions and prioritize projects developed through the TSP update. The rating method used to evaluate the alternatives is described below.

Most Desirable: The concept addresses the criterion and/or makes substantial improvements in the criteria category. (+2)

Desirable: The concept addresses the criterion and/or makes improvements in the criteria category. (+1)

No Effect: The criterion does not apply to the concept or the concept has no influence on the criteria. (0)

Less Desirable: The concept does not support the intent of and/or negatively impacts the criteria category. (-1)

Least Desirable: The concept does not support the intent of and/or substantially negatively impacts the criteria category. (-2)

Objective	Evaluation Criteria	Evaluation Score
Goal 1: Safety		
Objective 1A: History of Crashes	Improve locations with a history of fatal and/or severe injury crashes	(-2 to +2)
Objective 1B: Reduce crash potential	Implement strategies that systemically reduce the potential for crashes	(-2 to +2)
Goal 2: Environment and Cultural Heritage		
Objective 2A: Respect rural and cultural context	Develop projects that respect the rural landscape and cultural context	(-2 to +2)
Objective 2B: Achieve economic potential	Develop projects that help the community achieve its economic potential	(-2 to +2)
Objective 2C: Culturally sensitive	Establish land-use strategies and policies that support desired development that is culturally sensitive	(-2 to +2)
Goal 3: Health		
Objective 3A: Increase active transportation options	Increase the user-friendliness and comfort of active transportation options available to all members of the Umatilla Indian Reservation community	(-2 to +2)
Objective 3B: Connections to health centers, schools, parks	Provide connections to community health centers, schools, and parks	(-2 to +2)
Goal 4: Equity and Accessibility		
Objective 4A: Access to essential destinations	Provide access to essential destinations for all members of the Umatilla Indian Reservation community	(-2 to +2)
Objective 4B: Responds to range of community needs	Develop a plan that responds to the range of needs within the community	(-2 to +2)
Goal 5: Connectivity		
Objective 5A: Improve multimodal connections between hubs	Improve existing, and/or create new multimodal connections between the Mission, July Grounds, and Gateway hubs	(-2 to +2)
Objective 5B: Improve regional multimodal connections	Improve existing, or create new, regional multimodal connections	(-2 to +2)
Goal 6: Coordination		
Objective 6A: Consistency with partners	Ensure consistency with Federal, State, regional, and local planning rules and regulations	(-2 to +2)
Objective 6B: Partner consensus on planned system for region	Coordinate with partners to gain consensus on the planned system for the region	(-2 to +2)
Goal 7: Financial Stability		
Objective 7A: Maximize benefit and return on investment	Prioritize investments and maximize partnerships to provide maximum benefit and return on investment for the associated cost.	(-2 to +2)
Objective 7B: Realistic, compatible with BIA, and/or positioning for grants	Develop projects that can be realistically achieved given the Tribe's existing, and potential, funding sources, including developing projects that will be compatible with Bureau of Indian Affairs (BIA) requirements and position CTUIR for future grant sources.	(-2 to +2)

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Evaluation Criteria (-2 to +2 scoring)																	Evaluation Total	Priority	Safe Routes to School Eligible	Cost	
					Goal 1: Safety		Goal 2: Environment and Cultural Heritage			Goal 3: Health		Goal 4: Equity and Accessibility		Goal 5: Connectivity		Goal 6: Coordination		Goal 7: Financial Stability		Other Criteria						
					Objective 1A: History of Crashes	Objective 1B: Reduce crash potential	Objective 2A: Respect rural and cultural context	Objective 2B: Achieve economic potential	Objective 2C: Culturally sensitive	Objective 3A: Increase active transportation options	Objective 3B: Connections to health centers, schools, parks	Objective 4A: Access to essential destinations	Objective 4B: Responds to range of community needs	Objective 5A: Improve multimodal connections between hubs	Objective 5B: Improve regional multimodal connections	Objective 6A: Consistency with partners	Objective 6B: Partner consensus on planned system for region	Objective 7A: Maximize benefit and return on investment	Objective 7B: Realistic, compatible with BIA, and/or positioning for grants	Right-of-way constraints	Physical barrier constraints					Environmental impacts
Roadway System																										
R01	Kash Kash Road	Kusi Road to east of OR 331	Close existing access to OR 331 and reroute Kash Kash Road north to a new intersection with Kusi Road.	County	1	2	0	0	0	0	1	1	1	0	2	2	2	0	0	-2	0	-2	8	Medium	No	\$ 1,900,000
R02	Spilya Road	Eastern end of roadway to Kash Kash Road realignment	Extend Spilya Road east to Kash Kash Road realignment.	CTUIR	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	-1	0	-1	1	Low	No	\$ 385,000
R03	Emigrant Road	Cayuse Road to Poverty Flat Road	Widen, add shoulders, and repave Emigrant Road (County Road #937) from Cayuse Road to Poverty Flat Road.	County	1	2	0	1	0	1	0	0	1	0	0	0	2	1	0	-1	0	-1	7	Medium	No	\$ 21,800,000
R04	56th Street-Theater Road	Mission Road to US 30	Widen, add shoulders, and pave/repave 56th Street-Theater Road to help support rerouting of trucks and other regional/state traffic during I-84 closures.	County/BIA	0	2	0	2	0	1	0	0	1	0	1	0	2	2	0	-1	0	-1	9	Low	No	\$ 3,900,000
R05	North Cayuse Road	River Road to Mann Road	Widen, add shoulders, and pave North Cayuse Road (County Road #925) from River Road north to Mann Road.	County	0	2	0	1	0	1	0	0	1	0	0	2	1	0	-1	0	-1	6	Low	No	\$ 2,400,000	
R06	Mann Road	Crawford Hollow Road to North Cayuse Road	Widen, add shoulders, and pave Mann Road (County Road #925) from Crawford Hollow Road south to North Cayuse Road.	County	0	2	0	1	0	1	0	0	1	0	0	2	1	0	-1	0	-1	6	Medium	No	\$ 7,000,000	
R07	Motanic Road	Best Road to Spring Creek Road	Widen, add shoulders, and pave Motanic Road (County Road #1031) from Best Road south to Spring Creek Road.	County	1	2	0	1	0	1	0	0	1	0	0	2	1	0	-1	0	-1	7	Medium	No	\$ 10,000,000	
R08	Sumac Road	Spring Creek Road to McKay Creek Road	Widen, add shoulders, and pave Sumac Road (County Road #1050) from Spring Creek Road south to McKay Creek Road.	County	0	2	0	1	0	1	0	0	1	0	0	2	1	0	-1	0	-1	6	Low	No	\$ 6,000,000	
R09	McKay Creek Road	Sumac Road to North Fork McKay Creek Road	Widen, add shoulders, and add gravel along McKay Creek Road (County Road #1050) from Sumac Road east to North Fork McKay Creek Road.	County	0	2	0	1	0	1	0	0	1	0	0	2	1	0	-1	0	-1	6	Medium	No	\$ 4,700,000	
R10	Exit 2016 Truck Overflow Parking	South of I-84 Exit 216	Parking lot for overflow truck parking from I-84 winter closures. Could include a shuttle service from parking lot to Arrowhead during events.	ODOT	0	2	0	0	0	0	0	2	0	0	2	2	2	2	2	0	0	14	High	No	\$ 3,200,000	
R11	OR 331 Speed Study	UIR northern boundary to I-84	Perform a speed study along the OR 331 corridor and determine whether to modify any speed zones.	ODOT	2	2	1	0	0	0	0	0	2	1	0	2	2	1	1	0	0	0	14	High	No	\$ 20,000
R12	Mission Road Traffic Calming	From Mustang Lane to Parr Lane	Install speed feedback signage and other traffic calming measures.	CTUIR/County	1	2	1	0	0	2	0	0	2	1	0	0	2	2	2	0	0	0	15	High	No	\$ 30,000
R13	County Road #900 (Cayuse Road and Bingham Road)	Emigrant Road to UIR eastern boundary	Perform a speed study at key intersections on the County Road #900 corridor to determine potential traffic calming or intersection safety treatments.	County	0	2	1	0	0	1	0	0	1	0	1	0	2	2	2	0	0	0	12	Medium	No	\$ 20,000
R14	Kirkpatrick Road, vertical curve east of McKinley Lane	Intersection extents	Evaluate sight distance and install advisory signage if warranted.	County	0	2	1	0	0	0	0	0	1	0	0	2	2	2	0	0	0	10	Low	No	\$ 25,000	
R15	Cayuse Road/Cayuse River Road intersection	Intersection extents	Reconstruct northern leg to connect at a more perpendicular angle.	County	1	2	0	0	0	0	0	0	1	0	0	2	1	1	-1	0	-1	6	Low	No	\$ 1,200,000	
R16	River Road/White Road intersection	Intersection extents	Reconstruct southern leg to connect at a more perpendicular angle.	County	1	2	0	0	0	0	0	0	1	0	0	2	1	1	-1	0	-1	6	Low	No	\$ 1,200,000	
R17	Confederated Way	B Street to Mission Road (east intersection)	Construct flood remediation projects on Confederated Way from B Street to Mission Road (east intersection). Mitigations may include building a levy, raising the roadway, creating water retention areas, and rerouting the roadway.	BIA	0	2	1	1	0	2	1	2	1	0	0	0	2	1	-1	0	-1	11	High	No	\$ -	
Development Driven - Roadway System																										

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Evaluation Criteria (-2 to +2 scoring)																	Evaluation Total	Priority	Safe Routes to School Eligible	Cost	
					Goal 1: Safety		Goal 2: Environment and Cultural Heritage			Goal 3: Health		Goal 4: Equity and Accessibility		Goal 5: Connectivity		Goal 6: Coordination		Goal 7: Financial Stability		Other Criteria						
					Objective 1A: History of Crashes	Objective 1B: Reduce crash potential	Objective 2A: Respect rural and cultural context	Objective 2B: Achieve economic potential	Objective 2C: Culturally sensitive	Objective 3A: Increase active transportation options	Objective 3B: Connections to health centers, schools, parks	Objective 4A: Access to essential destinations	Objective 4B: Responds to range of community needs	Objective 5A: Improve multimodal connections between hubs	Objective 5B: Improve regional multimodal connections	Objective 6A: Consistency with partners	Objective 6B: Partner consensus on planned system for region	Objective 7A: Maximize benefit and return on investment	Objective 7B: Realistic, compatible with BIA, and/or positioning for grants	Right-of-way constraints	Physical barrier constraints					Environmental impacts
P01	Mission Road	East of Huckleberry Street to Cedar Street	Install six-foot sidewalks along the north side of Mission Road from east of Huckleberry Street to Cedar Street. Consider incorporating bus pull-outs into the project design.	County	2	2	1	1	0	2	2	2	1	2	0	0	2	1	0	-1	0	-1	16	High	Yes	\$ 1,500,000
P02	Mission Road	Confederated Way (western intersection) to Confederated Way (eastern intersection)	Complete the sidewalk network along the south side of Mission Road from Confederated Way (western intersection) to Confederated Way (eastern intersection). Consider incorporating bus pull-outs into the project design.	County	1	2	1	1	0	2	2	2	1	2	0	0	2	1	1	-1	0	-1	16	High	Yes	\$ 680,000
P03	Mission Road	OR 331 to Confederated Way (western intersection)	Widen sidewalks to six feet on the south side of Mission Road from OR 331 to Confederated Way (western intersection) and address the existing mailbox obstructions. Consider incorporating bus pull-outs into the project design.	County	1	2	1	1	0	2	1	1	1	1	0	0	2	1	0	-2	-1	-1	10	High	Yes	\$ 490,000
P04	Confederated Way	East of Whirlwind Drive to Mission Road (east intersection)	Complete the sidewalk network along the north side of Confederated Way from east of Whirlwind Drive to Mission Road (east intersection).	BIA	0	2	1	1	0	2	1	2	1	0	0	0	0	1	1	-1	0	-1	10	High	Yes	\$ 435,000
P05	Cedar Street	Short Mile Road to Mission Road	Widen sidewalks to six feet wide on both sides of Cedar Street from Short Mile Road to Mission Road.	BIA	0	2	1	1	0	2	1	1	1	0	0	0	0	0	0	-2	0	-1	6	Medium	Yes	\$ 580,000
P06	Multi-use Path to Pendleton (Phase I)	Purchase Lane to OR 331	Construct a multi-use path on the south side of Mission Road from Purchase Lane to OR 331. This project is the first phase of a larger multi-use path connection to the City of Pendleton. Further study is needed to determine the ultimate alignment.	CTUIR	1	2	1	2	1	2	2	2	1	0	2	0	2	2	1	-1	0	-1	19	High	Yes	\$ 775,000
P07	Multi-use Path to Pendleton (Phase II)	UIR western boundary to Purchase Lane	Construct the second phase of the multi-use path to Pendleton, connecting at Purchase Lane. West of Purchase Lane, the alignment of the multi-use path connection may follow two potential alignments: 1) Along the south side of the Umatilla River in parallel but offset from the river where applicable. If able, connect to Pendleton Riverwalk. OR 2) Along the north or south side of Mission Road. Further study is needed to determine the ultimate alignment. Include benches, lighting, and safety amenities (such as emergency call boxes and security cameras).	UIR/County/Pendle	0	2	1	2	1	2	1	2	1	0	2	0	2	2	0	-2	-1	-1	14	High	Yes	\$ 3,500,000
P08	Short Mile Road Multi-use Path	Mission Road to Cayuse Bridge	Construct a multi-use path along Short Mile Road to Sampson Lane adjacent to the Union Pacific Railroad maintenance road to River Road to North Cayuse Road Bridge.	CTUIR	1	2	2	1	1	2	1	2	1	0	0	0	2	0	0	-2	-1	-1	11	Medium	No	\$ 3,900,000

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Evaluation Criteria (-2 to +2 scoring)																	Evaluation Total	Priority	Safe Routes to School Eligible	Cost	
					Goal 1: Safety		Goal 2: Environment and Cultural Heritage			Goal 3: Health		Goal 4: Equity and Accessibility		Goal 5: Connectivity		Goal 6: Coordination		Goal 7: Financial Stability		Other Criteria						
					Objective 1A: History of Crashes	Objective 1B: Reduce crash potential	Objective 2A: Respect rural and cultural context	Objective 2B: Achieve economic potential	Objective 2C: Culturally sensitive	Objective 3A: Increase active transportation options	Objective 3B: Connections to health centers, schools, parks	Objective 4A: Access to essential destinations	Objective 4B: Responds to range of community needs	Objective 5A: Improve multimodal connections between hubs	Objective 5B: Improve regional multimodal connections	Objective 6A: Consistency with partners	Objective 6B: Partner consensus on planned system for region	Objective 7A: Maximize benefit and return on investment	Objective 7B: Realistic, compatible with BIA, and/or positioning for grants	Right-of-way constraints	Physical barrier constraints					Environmental impacts
P09	OR 331 Multi-use Path (Phase I)	Mission Road to Arrowhead Travel Plaza driveway	Construct a multi-use path along one or both sides of OR 331 from Mission Road to Arrowhead Travel Plaza driveway. Include benches, lighting, and safety amenities (such as emergency call boxes and security cameras).	CTUIR	2	2	2	2	1	2	2	2	1	2	0	0	2	2	1	-2	0	-1	20	High	No	\$ 1,900,000
P10	OR 331 Multi-use Path (Phase II)	Kirkpatrick Road to Mission Road	Construct a multi-use path along one or both sides of OR 331 from Kirkpatrick Road to Mission Road, depending on feasible options for crossing the Umatilla River Bridge. River access could potentially be included as part of this project.	CTUIR	1	2	2	1	1	2	1	2	1	0	0	0	2	2	0	-2	-2	-1	12	High	Yes	\$ 2,900,000
P11	South Market Road Multi-use Path	Arrowhead Travel Plaza driveway to Tutuilla Church Road	Construct a multi-use path along one or both sides of OR 331-South Market Road from Arrowhead Travel Plaza driveway to Tutuilla Church Road. The Exit 216 overpass may need to be replaced to fit the desired facilities.	CTUIR	2	2	2	2	1	2	0	2	1	0	0	0	2	0	0	-2	-2	-1	11	Medium	No	\$ 3,900,000
P12	Wildhorse Boulevard Multi-use Path	OR 331 to the Tamástlikt Trail	Construct a multi-use path along Wildhorse Boulevard, along the north side of the median or within the median.	CTUIR	0	2	2	2	2	2	0	2	1	0	0	0	0	1	1	-2	0	-1	12	Medium	No	\$ 675,000
P13	Parr Lane Multi-use Path	Umatilla River to Mission Road	Construct a multi-use path in the vicinity of Parr Lane and extending to the Umatilla River.	CTUIR	0	2	2	1	1	2	1	2	1	0	0	0	0	1	1	-2	0	-1	10	Low	No	\$ 305,000
P14	East-West Multi-use Path	OR 331 to Mission Road	Construct a multi-use path along the top of the bluff connecting OR 331 to Mission Road, intersecting the Tamástlikt Trail. Coordinate with Project P19 – OR 331/Timine Way pedestrian crossing and Project P23 - Mission Road/Cedar Street pedestrian crossing.	CTUIR	0	2	2	1	1	2	1	2	1	2	0	0	0	1	0	-2	-2	-1	10	High	Yes	\$ 820,000
P15	Tamástlikt Trail Lighting	Confederated Way to Tamástlikt Cultural Institute	Install lighting and security cameras to existing multi-use path system.	CTUIR	0	2	2	1	2	2	1	1	1	1	0	0	0	1	1	0	0	0	15	High	No	\$ 530,000
P16	Timine Way Multi-use Path Lighting	Mission Road to OR 331	Install lighting and security cameras to existing multi-use path system.	CTUIR	0	2	2	1	2	2	1	1	1	0	0	0	0	1	0	0	0	0	13	Medium	Yes	\$ 320,000
P17	July Ground Multi-use Path System Lighting	n/a	Install lighting and security cameras to existing multi-use path system.	CTUIR	0	2	2	1	2	2	1	1	1	0	0	0	0	1	0	0	0	0	13	Medium	Yes	\$ 480,000
P18	Mission Road Lighting	Short Mile Road to Cedar Street	Install pedestrian-scale lighting.	County	0	2	2	1	1	2	2	2	1	0	0	0	2	1	2	0	0	0	18	High	No	\$ 195,000
P19	OR 331/Timine Way	n/a	Install an enhanced pedestrian crossing. Treatment may include signalization or a pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), or a grade separated undercrossing of OR 331. Coordinate with Project P14 – East-West Multi use Path.	ODOT	1	2	2	2	2	2	1	2	1	2	0	0	2	2	2	0	0	0	23	High	Yes	\$ 2,000,000
P20	Mission Road Mid-block Crossing	n/a	Install enhanced pedestrian crossing treatments at the existing mid-block crossing on Mission Road east of Short Mile Road. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and/or curb extensions.	County	0	2	2	1	1	2	2	2	1	0	0	0	2	1	2	0	0	0	18	High	Yes	\$ 105,000

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					Objective 1A: History of Crashes	Objective 1B: Reduce crash potential	Objective 2A: Respect rural and cultural context	Objective 2B: Achieve economic potential	Objective 2C: Culturally sensitive	Objective 3A: Increase active transportation options	Objective 3B: Connections to health centers, schools, parks	Objective 4A: Access to essential destinations	Objective 4B: Responds to range of community needs	Objective 5A: Improve multimodal connections between hubs	Objective 5B: Improve regional multimodal connections	Objective 6A: Consistency with partners	Objective 6B: Partner consensus on planned system for region	Objective 7A: Maximize benefit and return on investment	Objective 7B: Realistic, compatible with BIA, and/or positioning for grants	Right-of-way constraints	Physical barrier constraints					Environmental impacts
P21	OR 331/Kusi Road	n/a	Install an enhanced pedestrian crossing. Treatment may include pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), raised median island, high visibility crosswalk markings, and curb extensions.	ODOT	1	2	2	2	2	2	2	1	0	0	0	2	2	2	0	0	0	22	High	No	\$ 105,000	
P22	Mission Road/Confederated Way	n/a	Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions.	County	0	2	2	1	1	2	2	2	1	0	0	0	2	1	2	0	0	0	18	High	Yes	\$ 105,000
P23	Mission Road/Cedar Street	n/a	Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions. Coordinate with Project P14 - East-West Multi-use Path.	County	2	2	2	1	1	2	1	2	1	0	0	0	2	1	2	0	0	0	19	High	Yes	\$ 105,000
Bicycle System																										
B01	Mission Road	OR 331 to Cayuse Road	Widen Mission Road and install buffered or raised bicycle lanes along both sides of the roadway from OR 331 to Cayuse Road. Consider incorporating bus pull-outs into the project design.	County	2	2	1	2	0	2	1	1	1	2	0	0	2	1	0	-1	0	-1	15	High	Yes	\$ 4,200,000
B02	Kirkpatrick Road	OR 331 to McKinley Lane	Widen Kirkpatrick Road and install shoulder bikeways on both sides of the roadway from OR 331 to McKinley Lane.	County	1	2	1	1	0	2	1	2	2	0	0	0	2	1	0	-1	0	-1	13	Medium	Yes	\$ 2,400,000
B03	Cayuse Road	Emigrant Road to River Road	Widen Cayuse Road and install shoulder bikeways on both sides of the roadway from Emigrant Road to River Road.	County	2	2	1	1	0	2	0	2	2	0	0	0	2	1	0	-1	0	-1	13	Medium	No	\$ 6,800,000
B04	Confederated Way	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	BIA	0	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	8	Medium	Yes	\$ 30,000	
B05	Whirlwind Drive	Mission Road to Confederated Way	Install shared roadway signage and/or striping (sharrows).	BIA	0	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	8	Medium	Yes	\$ 5,000	
B06	Cedar Street	Short Mile Road to Mission Road	Install shared roadway signage and/or striping (sharrows).	BIA	0	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	8	Medium	Yes	\$ 35,000	
B07	Kusi Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	1	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	9	Low	No	\$ 25,000	
B08	Spilya Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	1	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	9	Low	No	\$ 30,000	
B09	Coyote Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	0	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	8	Low	No	\$ 20,000	
B10	Arrowhead Road	Full roadway extents	Install shared roadway signage and/or striping (sharrows).	CTUIR	0	1	1	1	0	2	0	0	1	0	0	0	0	2	0	0	0	8	Low	No	\$ 15,000	
B11	Bicycle Fix-it Stations	Within UIR boundaries	Evaluate where bicycle fix-it stations would be beneficial to install within the UIR, such as trailheads, community hubs, or the school.	CTUIR	2	2	1	2	0	2	1	1	1	2	0	0	2	1	0	0	0	17	High	No	\$ -	
Transit System																										

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Evaluation Criteria (-2 to +2 scoring)																		Evaluation Total	Priority	Safe Routes to School Eligible	Cost
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					Objective 1A: History of Crashes	Objective 1B: Reduce crash potential	Objective 2A: Respect rural and cultural context	Objective 2B: Achieve economic potential	Objective 2C: Culturally sensitive	Objective 3A: Increase active transportation options	Objective 3B: Connections to health centers, schools, parks	Objective 4A: Access to essential destinations	Objective 4B: Responds to range of community needs	Objective 5A: Improve multimodal connections between hubs	Objective 5B: Improve regional multimodal connections	Objective 6A: Consistency with partners	Objective 6B: Partner consensus on planned system for region	Objective 7A: Maximize benefit and return on investment	Objective 7B: Realistic, compatible with BIA, and/or positioning for grants	Right-of-way constraints	Physical barrier constraints	Environmental impacts				
T01	Park-and-ride Locations	n/a	Coordinate with regional transit providers for park-and-ride locations that help facilitate the use of transit by community members and maximize regional connectivity.		0	0	1	2	1	0	2	2	2	0	2	0	0	2	2	0	0	0	16	High	No	\$ -
T02	Bus Stop Enhancements	n/a	Evaluate transit stops for additional amenity needs, such as shelters, lighting and signage.		0	0	1	1	0	1	1	1	2	0	1	0	0	1	2	0	0	0	11	High	No	\$ 324,000
T03	OR 331 Transit Hubs	n/a	Consolidate bus stops at Arrowhead Travel Plaza, Cayuse Holdings, and the Wildhorse Resort & Casino campus into one pair of transit hubs on OR 331 north of Spilya Road, reducing need for transit vehicles to turn to and from OR 331. Coordinate with Project T04 - Wildhorse Campus Shuttle. If a roundabout is constructed on OR 331 based on development-driven projects, a single transit hub on one side of OR 331 may be appropriate.		0	2	1	2	1	1	2	2	2	0	2	0	1	2	2	0	0	0	20	High	No	\$ 200,000
T04	Wildhorse Campus Shuttle	n/a	Partner with adjacent businesses to provide a shuttle to transport people from Arrowhead Travel Plaza, Cayuse Holdings, and the Wildhorse Resort & Casino campus to the OR 331 Transit Hub. Coordinate with Project T03 - OR 331 Transit Hub.		0	0	1	2	1	1	1	2	2	0	1	0	1	2	0	0	0	0	14	High	No	\$ -
T05	Kayak Transit Hub Expansion	n/a	Install public restrooms for passengers at the Kayak Transit Hub.		0	0	0	1	0	1	1	1	2	0	1	0	1	0	1	0	0	0	9	Low	No	\$ -
T06	Electric Vehicle and Shuttle Pilot	n/a	Acquire vehicles, install charging facilities, and begin electric vehicle service for the Metro and campus shuttle routes.		0	0	2	1	2	0	0	0	1	0	0	1	0	0	2	0	0	2	11	Medium	No	\$ -
T07	More frequent transit service	n/a	Explore adding more trips per day on the highest ridership routes including Hopper, Whistler, and Metro.		0	0	0	2	0	1	1	2	2	0	1	0	1	0	0	0	0	0	10	Low	No	\$ -
T08	Extended hours of service	n/a	Explore additional hours of service to serve the morning and evening shifts at Wildhorse Resort & Casino.		0	0	0	2	0	1	1	2	2	0	1	0	1	0	1	0	0	0	11	Medium	No	\$ -
T09	Extended coverage	n/a	Explore extended coverage for transit services to reach residential area near Riverside Avenue, Pendleton Airport, and Walla Walla Airport. Coordinate with surrounding jurisdictions and transit agencies who already provide services to these areas. Coordinate with local health and fitness facilities when locating new bus stops.		0	0	0	2	0	1	1	2	2	0	2	0	1	0	0	0	0	0	11	Medium	No	\$ -

MEMO

To: Nick Foster, Kittelson & Associates, Inc.
From: Andy Lindsey, P.E. *AL*
Subject: **Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Transportation System Plan (TSP) Update - Roadway System Projects Cost Estimate Assumptions**
Date: December 9, 2022
Job/File No. 152-200-36
cc: Grant Banister, E.I., Anderson Perry & Associates, Inc.

This memo outlines the assumptions used in estimating costs for the proposed roadway system projects for the CTUIR TSP. Unit costs for specific project elements shown below are construction costs only. Total project costs include a 30 percent contingency and 30 percent for engineering, environmental, and administration. Costs shown are in 2022 dollars.

Project Elements

Roadway Construction/Reconstruction - Rural Collector - Asphalt Concrete Pavement (ACP) **\$320 per linear foot (LF)**
 (Standard Construction)

- Full construction to current CTUIR rural collector standard
- 12-foot ACP travel lane, 6-foot ACP shoulder, 3-foot gravel shoulder
- 4-inch ACP over 10-inch aggregate

Roadway Construction/Reconstruction - Rural Collector - ACP **\$360 per LF**
 (Complex Construction)

- Extensive cut/fill requirements
- Steep grades
- Intersection realignments
- Other complex issues

Widen and Resurface Roadway - Rural Collector - ACP **\$250 per LF**

- Assumes existing 20-foot roadway
- Widen 11 feet on each side
- Resurface ACP full width
- Per CTUIR standards

Widen and Resurface Roadway - Rural Collector - Gravel **\$150 per LF**

- Assumes existing 20-foot roadway
- Widen 11 feet on each side

- Resurface aggregate full width
- Per CTUIR standards

Single Lane Roundabout (RAB) \$2,250,000 Each

- Assumes approximately 180-foot diameter RAB
- Approximately 600 LF roadway each leg
- Per Oregon Department of Transportation (ODOT) standards

Signalized Intersection \$1,750,000 Each

- Full roadway reconstruction
- Approximately 600 LF roadway each leg
- Per ODOT standards

Traffic Calming \$18,000 Each

- Assumes two radar speed signs
- Enhanced striping/signage

Speed Study \$12,000 Each

Proposed Pedestrian System Projects

R01 - Kash Kash Road

- Full Reconstruction - Rural Collector - ACP: 3,700 LF

R02 - Spilya Road

- Full Reconstruction - Rural Collector - ACP: 750 LF

R03 - Emigrant Road

- Widen and Resurface - Rural Collector - ACP: 22,500 LF
 - Relatively flat sections on valley floor and top of hill
- Full Reconstruction - Rural Collector - ACP: 25,000 LF
 - Steep, winding section going up the hill

R04 - 56th Street - Theater Road

- Full Reconstruction - Rural Collector - ACP: 7,500 LF

R05 - North Cayuse Road

- Widen and Resurface - Rural Collector - ACP: 6,000 LF

R06 - Mann Road

- Widen and Resurface - Rural Collector - ACP: 17,500 LF

R07 - Motanic Road

- Widen and Resurface - Rural Collector - ACP: 25,000 LF

R08 - Sumac Road

- Widen and Resurface - Rural Collector - ACP: 15,000 LF

R09 - McKay Creek Road

- Widen and Resurface - Rural Collector - ACP: 19,500 LF

R10 - Exit 216 Truck Overflow Parking

- Design options currently in progress as separate CTUIR project
- Costs based on 5.7-acre improvement area
- Approximately 55 truck parking spaces and ancillary facilities

R11 - OR 331 Speed Study

- Conduct speed study

R12 - Mission Road Traffic Calming

- Two radar speed signs
- Enhanced signing/stripping

R13 - Cayuse Road and Bingham Road Speed Study

- Conduct speed study

R14 - Kirkpatrick Road/McKinley Lane Sight Distance

- Some topographic survey required to facilitate geometric analysis

R15 - Cayuse Road/Cayuse River Road Intersection

- Intersection realignment
- Full Reconstruction - Rural Collector - ACP (Complex): 2,000 LF
 - 750 LF east and west of intersection on Cayuse Road
 - 500 LF for Cayuse River Road and N. Cayuse Road
- Higher unit cost for more complex construction, cut/fill earthwork, etc.

R16 - River Road/White Road Intersection

- Intersection realignment
- Full Reconstruction - Rural Collector - ACP (Complex): 2,000 LF
 - 750 LF east and south of intersection
 - 500 LF north of intersection
- Higher unit cost for more complex construction, cut/fill earthwork, etc.

R17 - Confederated Way Flood Remediation

- Current standalone CTUIR project in planning phase
- Revisit cost after initial hydraulic analysis


AL/ct

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Cost
Roadway System					
R01	Kash Kash Road	Kusi Road to east of OR 331	Close existing access to OR 331 and reroute Kash Kash Road north to a new intersection with Kusi Road.	County	\$ 1,895,000
R02	Spilya Road	Eastern end of roadway to Kash Kash Road realignment	Extend Spilya Road east to Kash Kash Road realignment.	CTUIR	\$ 384,000
R03	Emigrant Road	Cayuse Road to Poverty Flat Road	Widen, add shoulders, and repave Emigrant Road (County Road #937) from Cayuse Road to Poverty Flat Road.	County	\$ 21,800,000
R04	56th Street-Theater Road	Mission Road to US 30	Widen, add shoulders, and pave/repave 56th Street-Theater Road to help support rerouting of trucks and other regional/state traffic during I-84 closures.	County/BIA	\$ 3,840,000
R05	North Cayuse Road	River Road to Mann Road	Widen, add shoulders, and pave North Cayuse Road (County Road #925) from River Road north to Mann Road.	County	\$ 2,400,000
R06	Mann Road	Crawford Hollow Road to North Cayuse Road	Widen, add shoulders, and pave Mann Road (County Road #925) from Crawford Hollow Road south to North Cayuse Road.	County	\$ 7,000,000
R07	Motanic Road	Best Road to Spring Creek Road	Widen, add shoulders, and pave Motanic Road (County Road #1031) from Best Road south to Spring Creek Road.	County	\$ 10,000,000
R08	Sumac Road	Spring Creek Road to McKay Creek Road	Widen, add shoulders, and pave Sumac Road (County Road #1050) from Spring Creek Road south to McKay Creek Road.	County	\$ 6,000,000
R09	McKay Creek Road	Sumac Road to North Fork McKay Creek Road	Widen, add shoulders, and add gravel along McKay Creek Road (County Road #1050) from Sumac Road east to North Fork McKay Creek Road.	County	\$ 4,680,000
R10	Exit 2016 Truck Overflow Parking	South of I-84 Exit 216	Parking lot for overflow truck parking from I-84 winter closures. Could include a shuttle service from parking lot to Arrowhead during events.	ODOT	\$ 3,200,000
R11	OR 331 Speed Study	UIR northern boundary to I-84	Perform a speed study along the OR 331 corridor and determine whether to modify any speed zones.	ODOT	\$ 20,000
R12	Mission Road Traffic Calming	From Mustang Lane to Parr Lane	Install speed feedback signage and other traffic calming measures.	CTUIR/County	\$ 29,000
R13	County Road #900 (Cayuse Road and Bingham Road)	Emigrant Road to UIR eastern boundary	Perform a speed study along the County Road #900 corridor to determine if traffic calming features are necessary.	County	\$ 20,000
R14	Kirkpatrick Road, vertical curve east of McKinley Lane	Intersection extents	Evaluate sight distance and install advisory signage if warranted.	County	\$ 24,000
R15	Cayuse Road/Cayuse River Road intersection	Intersection extents	Reconstruct northern leg to connect at a more perpendicular angle.	County	\$ 1,152,000
R16	River Road/White Road intersection	Intersection extents	Reconstruct southern leg to connect at a more perpendicular angle.	County	\$ 1,152,000
R17	Confederated Way	B Street to Mission Road (east intersection)	Construct flood remediation projects on Confederated Way from B Street to Mission Road (east intersection). Mitigations may include building a levy, raising the roadway, creating water retention areas, and rerouting the roadway.	BIA	\$ -

Full Reconstruction - Rural Collector - ACP (Standard)	Full Reconstruction - Rural Collector - ACP (Complex)	Widen & Re-Surface - Rural Collector - ACP	Widen & Re-Surface - Rural Collector - Gravel	Single Lane Roundabout	Signalized Intersection	Speed Study	Traffic Calming	Project Specific Cost
\$ 320 /LF	\$ 360 /LF	\$ 250 /LF	\$ 150 /LF	\$ 2,250,000 /Each	\$ 1,750,000 /Each	\$ 12,000 /Each	\$ 18,000 /Each	1 /Each
3,700 \$ 1,184,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
750 \$ 240,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25,000 \$ 8,000,000	\$ -	22,500 \$ 5,625,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7,500 \$ 2,400,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	6,000 \$ 1,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	17,500 \$ 4,375,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	25,000 \$ 6,250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	15,000 \$ 3,750,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	19,500 \$ 2,925,000	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,000,000 \$ 2,000,000
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 12,000	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 18,000	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 12,000	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15,000 \$ 15,000
\$ -	2,000 \$ 720,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	2,000 \$ 720,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Base Construction Cost (2022)	Contingency 30%	PE/CE/Env/Etc 30%	Total Estimated Project Cost (2022)
\$ 1,184,000	\$ 355,200	\$ 355,200	\$ 1,894,400
\$ 240,000	\$ 72,000	\$ 72,000	\$ 384,000
\$ 13,625,000	\$ 4,087,500	\$ 4,087,500	\$ 21,800,000
\$ 2,400,000	\$ 720,000	\$ 720,000	\$ 3,840,000
\$ 1,500,000	\$ 450,000	\$ 450,000	\$ 2,400,000
\$ 4,375,000	\$ 1,312,500	\$ 1,312,500	\$ 7,000,000
\$ 6,250,000	\$ 1,875,000	\$ 1,875,000	\$ 10,000,000
\$ 3,750,000	\$ 1,125,000	\$ 1,125,000	\$ 6,000,000
\$ 2,925,000	\$ 877,500	\$ 877,500	\$ 4,680,000
\$ 2,000,000	\$ 600,000	\$ 600,000	\$ 3,200,000
\$ 12,000	\$ 3,600	\$ 3,600	\$ 19,200
\$ 18,000	\$ 5,400	\$ 5,400	\$ 28,800
\$ 12,000	\$ 3,600	\$ 3,600	\$ 19,200
\$ 15,000	\$ 4,500	\$ 4,500	\$ 24,000
\$ 720,000	\$ 216,000	\$ 216,000	\$ 1,152,000
\$ 720,000	\$ 216,000	\$ 216,000	\$ 1,152,000
\$ -	\$ -	\$ -	\$ -

MEMO

To: Nick Foster, Kittelson & Associates, Inc.
From: Andy Lindsey, P.E. 
Subject: **Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Transportation System Plan (TSP) Update - Roadway System Projects Cost Estimate Assumptions Development Driven Projects**
Date: December 9, 2022
Job/File No. 152-200-36
cc: Grant Banister, E.I., Anderson Perry & Associates, Inc.

This memo outlines the assumptions used in estimating costs for the proposed development driven roadway system projects for the CTUIR TSP. Unit costs for specific project elements shown below are construction costs only. Total project costs include a 30 percent contingency and 30 percent for engineering, environmental, and administration. Costs shown are in 2022 dollars.

Project Elements

Roadway Construction/Reconstruction - Rural Collector - Asphalt Concrete Pavement (ACP) \$320 per linear foot (LF)

(Standard Construction)

- Full construction to current CTUIR rural collector standard
- 12-foot ACP travel lane, 6-foot ACP shoulder, 3-foot gravel shoulder
- 4-inch ACP over 10-inch aggregate

Roadway Construction/Reconstruction - Rural Collector - ACP \$360 per LF

(Complex Construction)

- Extensive cut/fill requirements
- Steep grades
- Intersection realignments
- Other complex issues

Widen and Resurface Roadway - Rural Collector - ACP \$250 per LF

- Assumes existing 20-foot roadway
- Widen 11 feet on each side
- Resurface ACP full width
- Per CTUIR standards

Widen and Resurface Roadway - Rural Collector - Gravel	\$150 per LF
<ul style="list-style-type: none">• Assumes existing 20-foot roadway• Widen 11 feet on each side• Resurface aggregate full width• Per CTUIR standards	
Single Lane Roundabout (RAB)	\$2,250,000 Each
<ul style="list-style-type: none">• Assumes approximately 180-foot diameter RAB• Approximately 600 LF roadway each leg• Per Oregon Department of Transportation (ODOT) standards	
Signalized Intersection	\$1,750,000 Each
<ul style="list-style-type: none">• Full roadway reconstruction• Approximately 600 LF roadway each leg• Per ODOT standards	
Traffic Calming	\$18,000 Each
<ul style="list-style-type: none">• Assumes two radar speed signs• Enhanced striping/signage	
Speed Study	\$12,000 Each

Proposed Roadway System Projects - Development Driven


- R18 - OR 331/Mission Road
 - Single lane RABOR
 - Traffic signal with intersection reconstruction
- R19 - Mission Road/Timine Way
 - Single Lane RABOR
 - Traffic signal with intersection reconstruction
- R20 - OR 331/Wildhorse Boulevard
 - Single Lane RABOR
 - Traffic signal with intersection reconstruction
- R21 - OR 331/Spilya Road
 - Single Lane RABOR
 - Traffic signal with intersection reconstruction
- R22 - OR 331/I-84 Eastbound Ramps
 - Single Lane RABOR
 - Traffic signal with intersection reconstruction
- R23 - OR 331/I-84 Westbound Ramps
 - Traffic signal installation

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Cost
Roadway System					
Development Driven - Roadway System					
R18	OR 331/Mission Road	n/a	Construct a single lane roundabout. Realign the northbound and southbound approaches to avoid impacts to the Mission Market. OR Install a traffic signal when warranted. Construct separate left-turn lanes on all four intersection approaches. Construct a separate right turn lane on the northbound approach. Depending on the reconfiguration of the intersection, consider incorporating bus pull-outs into the project design.	ODOT/CTUIR	\$ 3,600,000 \$ 2,800,000
R19	Mission Road/Timine Way	n/a	Construct a single lane roundabout. OR Install a traffic signal when warranted.	ODOT/CTUIR	\$ 3,600,000 \$ 2,800,000
R20	OR 331/Wildhorse Boulevard	n/a	Construct a single lane roundabout. OR Install a traffic signal when warranted.	ODOT/CTUIR	\$ 3,600,000 \$ 2,800,000
R21	OR 331/Spilya Road	n/a	Construct a single lane roundabout. Modify access to right-in, right-out only at Kusi Road and Arrowhead Travel Plaza driveway. OR Install a traffic signal when warranted. Modify access to right-in, right-out only at Arrowhead Travel Plaza driveway. Depending on the reconfiguration of the intersection, consider incorporating bus pull-outs into the project design.	ODOT/CTUIR	\$ 3,600,000 \$ 2,800,000
R22	OR 331/I-84 EB Ramps	n/a	Construct a single lane roundabout. OR Install a traffic signal when warranted. Construct exclusive left- and right-turn lanes on the off-ramp approach. Depending on the reconfiguration of the intersection, the Exit 216 overpass may need to be replaced.	ODOT/CTUIR	\$ 3,600,000 \$ 2,800,000
R23	OR 331/I-84 WB Ramps	n/a	Install a traffic signal when warranted. Construct exclusive left- and right-turn lanes on the off-ramp approach and an exclusive right-turn lane on the north approach. Depending on the reconfiguration of the intersection, the Exit 216 overpass may need to be replaced.	ODOT/CTUIR	\$ 2,800,000

Full Reconstruction - Rural Collector - ACP (Standard)	Full Reconstruction - Rural Collector - ACP (Complex)	Widen & Re-Surface - Rural Collector - ACP	Widen & Re-Surface - Rural Collector - Gravel	Single Lane Roundabout	Signalized Intersection	Speed Study	Traffic Calming	Project Specific Cost
\$ 320 /LF	\$ 360 /LF	\$ 250 /LF	\$ 150 /LF	\$ 2,250,000 /Each	\$ 1,750,000 /Each	\$ 12,000 /Each	\$ 18,000 /Each	1 /Each
\$ -	\$ -	\$ -	\$ -	1 \$ 2,250,000	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 1,750,000	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	1 \$ 2,250,000	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 1,750,000	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	1 \$ 2,250,000	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 1,750,000	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	1 \$ 2,250,000	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 1,750,000	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	1 \$ 1,750,000	\$ -	\$ -	\$ -

Base Construction Cost (2022)	Contingency 30%	PE/CE/Env/Etc 30%	Total Estimated Project Cost (2022)
\$ -		\$ -	\$ -
\$ 2,250,000	\$ 675,000	\$ 675,000	\$ 3,600,000
\$ 1,750,000	\$ 525,000	\$ 525,000	\$ 2,800,000
\$ 2,250,000	\$ 675,000	\$ 675,000	\$ 3,600,000
\$ 1,750,000	\$ 525,000	\$ 525,000	\$ 2,800,000
\$ 2,250,000	\$ 675,000	\$ 675,000	\$ 3,600,000
\$ 1,750,000	\$ 525,000	\$ 525,000	\$ 2,800,000
\$ 2,250,000	\$ 675,000	\$ 675,000	\$ 3,600,000
\$ 1,750,000	\$ 525,000	\$ 525,000	\$ 2,800,000
\$ 1,750,000	\$ 525,000	\$ 525,000	\$ 2,800,000

MEMO

To: Nick Foster, Kittelson & Associates, Inc
From: Andy Lindsey, P.E. 
Subject: **Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Transportation System Plan (TSP) Update - Pedestrian System Projects Cost Estimate Assumptions**
Date: December 9, 2022
Job/File No. 152-200-36
cc: Grant Banister, E.I., Anderson Perry & Associates, Inc.

This memo outlines the assumptions used in estimating costs for the proposed pedestrian system projects for the CTUIR TSP. Unit costs for specific project elements shown below are construction costs only. Total project costs include a 30 percent contingency and 30 percent for engineering, environmental, and administration. Costs shown are in 2022 dollars.

Project Elements

Construct 6-foot Concrete Sidewalk <ul style="list-style-type: none">• Concrete curb and gutter• 6-foot concrete sidewalk• Per CTUIR standards	\$150 per linear foot (LF)
Widen Existing Sidewalk <ul style="list-style-type: none">• Assumes 2-foot widening	\$60 per LF
Construct Multiuse Path <ul style="list-style-type: none">• 10-foot asphalt path• 2-foot gravel shoulder• Per CTUIR standards	\$70 per LF
Multiuse Path Railroad Crossing <ul style="list-style-type: none">• Two concrete Americans with Disabilities Act (ADA) ramps• Two signs per crossing	\$15,000 Each
Multiuse Trail Amenities <ul style="list-style-type: none">• Benches at 1,250-foot spacing• Pedestrian lighting at 100-foot spacing• Security cameras/call boxes at 200-foot spacing	\$60 per LF

Construct Bus Pullout **\$35,000 Each**

- Per Oregon Department of Transportation typical detail
- Accommodates 60-foot bus length

Enhanced Pedestrian Crossing **\$65,000 Each**

- Assumes new curb, gutter, and sidewalk, both sides of roadway
- ADA-compliant curb ramps
- Rectangular rapid flashing beacon
- Two signs per crossing
- Enhanced crosswalk striping

Pedestrian Bridge **\$5,000 per LF**

- Assumes 12-foot bridge

Proposed Pedestrian System Projects

P01 - Mission Road: Huckleberry Street to Cedar Street

- Construct 6-foot sidewalk with concrete curb and gutter: 5,900 LF
- Construct one bus pullout

P02 - Mission Road: Confederated Way (western intersection) to Confederated Way (eastern intersection)

- Construct 6-foot sidewalk with concrete curb and gutter: 2,600 LF
- Construct one bus pullout

P03 - Mission Road: OR 331 to Confederated Way

- Widen existing sidewalk to 6 feet: 4,500 LF
- Construct one bus pullout

P04 - Confederated Way

- Construct 6-foot sidewalk with concrete curb and gutter: 1,800 LF

P05 - Cedar Street

- Construct 6-foot sidewalk: 1,800 LF
- Widen existing sidewalk to 6 feet: 1,500 LF

P06 - Multiuse Path to Pendleton (Phase I)

- Construct multiuse path: 6,900 LF

P07 - Multiuse Path to Pendleton (Phase II)

- Alignment Option 1 - parallel Umatilla River
 - Construct multiuse path: 16,600 LF
 - Multiuse path railroad crossing: one
 - Install multiuse path amenities: 16,600 LF

OR

- Alignment Option 2 - parallel Mission Road
 - Construct multiuse path: 14,200 LF
 - Install multiuse path amenities: 14,200 LF

P08 - Short Mile Road Multiuse Path

- Construct multiuse path: 30,000 LF
- Multiuse path railroad crossing: two
- Pedestrian bridge: 50 LF

- Two small streams
- P09 - OR 331 Multiuse Path (Phase I)
 - Construct multiuse path: 9,000 LF
 - Install multiuse path amenities: 9,000 LF
- P10 - OR 331 Multiuse Path (Phase II)
 - Construct multiuse path: 3,700 LF
 - Multiuse path railroad crossing: one
 - Pedestrian bridge: 300 LF
 - Over Umatilla River
- P11 - South Market Road Multiuse Path
 - Construct multiuse path: 4,200 LF
 - Pedestrian bridge: 425 LF
 - Over I-84
- P12 - Wildhorse Boulevard Multiuse Path
 - Construct multiuse path: 6,000 LF
- P13 - Parr Lane Multiuse Path
 - Construct multiuse path: 2,500 LF
 - Multiuse path railroad crossing: one
- P14 - East-West Multiuse Path
 - Construct multiuse path: 7,300 LF
- P15 - Tamástslíkt Trail Lighting
 - Install multiuse path amenities: 5,500 LF
- P16 - Timine Way Multiuse Path Lighting
 - Install multiuse path amenities: 3,300 LF
- P17 - July Grounds Multiuse Path Lighting
 - Install multiuse path amenities: 5,000 LF
- P18 - Mission Road Lighting
 - Install multiuse path amenities: 2,000 LF
- P19 - OR 331/Timine Way
 - Pedestrian bridge: 250 LF
- P20 - Mission Road Mid-Block Pedestrian Crossing
 - Install enhanced pedestrian crossing: one
- P21 - OR 331/Kusi Road
 - Install enhanced pedestrian crossing: one
- P22 - Mission Road/Confederated Way
 - Install enhanced pedestrian crossing: one
- P23 - Mission Road/Cedar Street
 - Install enhanced pedestrian crossing: one

AL/ct

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Cost
Pedestrian System					
P01	Mission Road	East of Huckleberry Street to Cedar Street	Install six-foot sidewalks along the north side of Mission Road from east of Huckleberry Street to Cedar Street. Consider incorporating bus pull-outs into the project design.	County	\$ 1,472,000
P02	Mission Road	Confederated Way (western intersection) to Confederated Way (eastern intersection)	Complete the sidewalk network along the south side of Mission Road from Confederated Way (western intersection) to Confederated Way (eastern intersection). Consider incorporating bus pull-outs into the project design.	County	\$ 680,000
P03	Mission Road	OR 331 to Confederated Way (western intersection)	Widen sidewalks to six feet on the south side of Mission Road from OR 331 to Confederated Way (western intersection) and address the existing mailbox obstructions. Consider incorporating bus pull-outs into the project design.	County	\$ 488,000
P04	Confederated Way	East of Whirlwind Drive Mission Road (east intersection)	Complete the sidewalk network along the north side of Confederated Way from east of Whirlwind Drive to Mission Road (east intersection).	BIA	\$ 432,000
P05	Cedar Street	Short Mile Road to Mission Road	Widen sidewalks to six feet wide on both sides of Cedar Street from Short Mile Road to Mission Road.	BIA	\$ 576,000
P06	Multi-use Path to Pendleton (Phase I)	Purchase Lane to OR 331	Construct a multi-use path on the south side of Mission Road from Purchase Lane to OR 331. This project is the first phase of a larger multi-use path connection to the City of Pendleton. Further study is needed to determine the ultimate alignment.	CTUIR	\$ 773,000
P07	Multi-use Path to Pendleton (Phase II)	UIR western boundary to Purchase Lane	Construct the second phase of the multi-use path to Pendleton, connecting at Purchase Lane. West of Purchase Lane, the alignment of the multi-use path connection may follow two potential alignments: 1) Along the south side of the Umatilla River in parallel but offset from the river where applicable. If able, connect to Pendleton Riverwalk.	JIR/County/Pendle	\$ 3,477,000
			OR 2) Along the north or south side of Mission Road. Further study is needed to determine the ultimate alignment. Include benches, lighting, and safety amenities (such as emergency call boxes and security cameras).		\$ 2,954,000
P08	Short Mile Road Multi-use Path	Mission Road to Cayuse Bridge	Construct a multi-use path along Short Mile Road to Sampson Lane adjacent to the Union Pacific Railroad maintenance road to River Road to North Cayuse Road Bridge.	CTUIR	\$ 3,808,000
P09	OR 331 Multi-use Path (Phase I)	Mission Road to Arrowhead Travel Plaza driveway	Construct a multi-use path along one or both sides of OR 331 from Mission Road to Arrowhead Travel Plaza driveway. Include benches, lighting, and safety amenities (such as emergency call boxes and security cameras).	CTUIR	\$ 1,872,000
P10	OR 331 Multi-use Path (Phase II)	Kirkpatrick Road to Mission Road	Construct a multi-use path along one or both sides of OR 331 from Kirkpatrick Road to Mission Road, depending on feasible options for crossing the Umatilla River Bridge. River access could be included as part of this project.	CTUIR	\$ 2,839,000
P11	South Market Road Multi-use Path	Arrowhead Travel Plaza driveway to Tutuilla Church Road	Construct a multi-use path along the west side of OR 331-South Market Road from Arrowhead Travel Plaza driveway to Tutuilla Church Road. The Exit 216 overpass may need to be replaced to fit the desired facilities.	CTUIR	\$ 3,871,000

6' Sidewalk	Widen Extg Sidewalk	Multi-Use Path	Bus Pullout	Enhanced Ped X-Ing (w/ RRFB)	Multi-Use Path RR X-Ing	Pedestrian Bridge	Multi-Use Path Amenities	Project Specific Cost
\$ 150 /LF	\$ 60 /LF	\$ 70 /LF	\$ 35,000 /Each	\$ 65,000 /Each	\$ 15,000 /Each	\$ 5,000 /LF	\$ 60 /LF	1 /Each
5,900 \$ 885,000	\$ -	\$ -	1 \$ 35,000	\$ -	\$ -	\$ -	\$ -	\$ -
2,600 \$ 390,000	\$ -	\$ -	1 \$ 35,000	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	4,500 \$ 270,000	\$ -	1 \$ 35,000	\$ -	\$ -	\$ -	\$ -	\$ -
1,800 \$ 270,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1,800 \$ 270,000	1,500 \$ 90,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	6,900 \$ 483,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	16,600 \$ 1,162,000	\$ -	\$ -	1 \$ 15,000	\$ -	16,600 \$ 996,000	\$ -
\$ -	\$ -	14,200 \$ 994,000	\$ -	\$ -	\$ -	\$ -	14,200 \$ 852,000	\$ -
\$ -	\$ -	30,000 \$ 2,100,000	\$ -	\$ -	2 \$ 30,000	50 \$ 250,000	\$ -	\$ -
\$ -	\$ -	9,000 \$ 630,000	\$ -	\$ -	\$ -	\$ -	9,000 \$ 540,000	\$ -
\$ -	\$ -	3,700 \$ 259,000	\$ -	\$ -	1 \$ 15,000	300 \$ 1,500,000	\$ -	\$ -
\$ -	\$ -	4,200 \$ 294,000	\$ -	\$ -	\$ -	425 \$ 2,125,000	\$ -	\$ -


Base Construction Cost (2022)	Contingency 30%	PE/CE/Env/Etc 30%	Total Estimated Project Cost (2022)
\$ 920,000	\$ 276,000	\$ 276,000	\$ 1,472,000
\$ 425,000	\$ 127,500	\$ 127,500	\$ 680,000
\$ 305,000	\$ 91,500	\$ 91,500	\$ 488,000
\$ 270,000	\$ 81,000	\$ 81,000	\$ 432,000
\$ 360,000	\$ 108,000	\$ 108,000	\$ 576,000
\$ 483,000	\$ 144,900	\$ 144,900	\$ 772,800
\$ 2,173,000	\$ 651,900	\$ 651,900	\$ 3,476,800
\$ 1,846,000	\$ 553,800	\$ 553,800	\$ 2,953,600
\$ 2,380,000	\$ 714,000	\$ 714,000	\$ 3,808,000
\$ 1,170,000	\$ 351,000	\$ 351,000	\$ 1,872,000
\$ 1,774,000	\$ 532,200	\$ 532,200	\$ 2,838,400
\$ 2,419,000	\$ 725,700	\$ 725,700	\$ 3,870,400

Project ID	Location/Name	Extents	Description	Responsible Jurisdiction	Cost
P12	Wildhorse Boulevard Multi-use Path	OR 331 to the Tamástslíkt Trail	Construct a multi-use path along Wildhorse Boulevard, along the north side of the median or within the median.	CTUIR	\$ 672,000
P13	Parr Lane Multi-use Path	Umatilla River to Mission Road	Construct a multi-use path in the vicinity of Parr Lane and extending to the Umatilla River.	CTUIR	\$ 304,000
P14	East-West Multi-use Path	OR 331 to Mission Road	Construct a multi-use path along the top of the bluff connecting OR 331 to Mission Road, intersecting the Tamástslíkt Trail. Coordinate with Project P19 – OR 331/Timine Way pedestrian crossing and Project P23 - Mission Road/Cedar Street pedestrian crossing.	CTUIR	\$ 818,000
P15	Tamástslíkt Trail Lighting	Confederated Way to Tamástslíkt Cultural Institute	Install lighting and security cameras to existing multi-use path system.	CTUIR	\$ 528,000
P16	Timine Way Multi-use Path Lighting	Mission Road to OR 331	Install lighting and security cameras to existing multi-use path system.	CTUIR	\$ 317,000
P17	July Ground Multi-use Path System Lighting	n/a	Install lighting and security cameras to existing multi-use path system.	CTUIR	\$ 480,000
P18	Mission Road Lighting	Short Mile Road to Cedar Street	Install pedestrian-scale lighting.	County	\$ 192,000
P19	OR 331/Timine Way	n/a	Install an enhanced pedestrian crossing. Treatment may include signalization or a pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), or a grade separated undercrossing of OR 331. Coordinate with Project P14 – East-West Multi-use Path.	ODOT	\$ 2,000,000
P20	Mission Road Mid-block Crossing	n/a	Install enhanced pedestrian crossing treatments at the existing mid-block crossing on Mission Road east of Short Mile Road. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and/or curb extensions.	County	\$ 104,000
P21	OR 331/Kusi Road	n/a	Install an enhanced pedestrian crossing. Treatment may include pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), raised median island, high visibility crosswalk markings, and curb extensions.	ODOT	\$ 104,000
P22	Mission Road/Confederated Way (east intersection)	n/a	Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions.	County	\$ 104,000
P23	Mission Road/Cedar Street	n/a	Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions. Coordinate with Project P14 - East-West Multi-use Path.	County	\$ 104,000

6' Sidewalk	Widen Extg Sidewalk	Multi-Use Path	Bus Pullout	Enhanced Ped X-Ing (w/ RRFB)	Multi-Use Path RR X-Ing	Pedestrian Bridge	Multi-Use Path Amenities	Project Specific Cost
\$ -	\$ -	6,000 \$ 420,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	2,500 \$ 175,000	\$ -	\$ -	1 \$ 15,000	\$ -	\$ -	\$ -
\$ -	\$ -	7,300 \$ 511,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	5,500 \$ 330,000	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	3,300 \$ 198,000	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	5,000 \$ 300,000	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	2,000 \$ 120,000	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	250 \$ 1,250,000	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	1 \$ 65,000	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	1 \$ 65,000	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	1 \$ 65,000	\$ -	\$ -	\$ -	\$ -

Base Construction Cost (2022)	Contingency 30%	PE/CE/Env/Etc 30%	Total Estimated Project Cost (2022)
\$ 420,000	\$ 126,000	\$ 126,000	\$ 672,000
\$ 190,000	\$ 57,000	\$ 57,000	\$ 304,000
\$ 511,000	\$ 153,300	\$ 153,300	\$ 817,600
\$ 330,000	\$ 99,000	\$ 99,000	\$ 528,000
\$ 198,000	\$ 59,400	\$ 59,400	\$ 316,800
\$ 300,000	\$ 90,000	\$ 90,000	\$ 480,000
\$ 120,000	\$ 36,000	\$ 36,000	\$ 192,000
\$ 1,250,000	\$ 375,000	\$ 375,000	\$ 2,000,000
\$ 65,000	\$ 19,500	\$ 19,500	\$ 104,000
\$ 65,000	\$ 19,500	\$ 19,500	\$ 104,000
\$ 65,000	\$ 19,500	\$ 19,500	\$ 104,000

MEMO

To: Nick Foster, Kittelson & Associates, Inc
From: Andy Lindsey, P.E. 
Subject: **Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Transportation System Plan (TSP) Update - Bicycle System Projects Cost Estimate Assumptions**
Date: December 9, 2022
Job/File No. 152-200-36
cc: Grant Banister, E.I., Anderson Perry & Associates, Inc.

This memo outlines the assumptions used in estimating costs for the proposed bicycle system projects for the CTUIR TSP. Unit costs for specific project elements shown below are construction costs only. Total project costs include a 30 percent contingency and 30 percent for engineering, environmental, and administration. Costs shown are in 2022 dollars.

Project Elements

- | | |
|--|-----------------------------------|
| Construct Raised Bike Lane | \$250 per linear foot (LF) |
| <ul style="list-style-type: none">• 2-foot concrete ribbon curb• 6-foot asphalt bike lane• Concrete curb and gutter• 6-foot concrete sidewalk• Sidewalk component may overlap with some proposed TSP pedestrian projects | |
| Construct Shoulder Bike Way | \$140 per LF |
| <ul style="list-style-type: none">• Widen existing road on both sides• 6-foot asphalt bike lane• 3-foot gravel shoulder | |
| Install Shared Roadway Striping | \$1,500 Each |
| <ul style="list-style-type: none">• Install two "Sharrow" legends per intersection | |
| Construct Bus Pullout | \$35,000 Each |
| <ul style="list-style-type: none">• Per Oregon Department of Transportation typical detail• Accommodates 60-foot bus length | |
| Evaluate Bicycle Fix-It Stations | \$8,000 Each |
| <ul style="list-style-type: none">• Evaluate where Fix-It Stations would be beneficial• Fix-It Stations could include benches, tools, etc., for minor bicycle repair | |

Proposed Bicycle System Projects

B01 - Mission Road

- Construct raised bike lane: 10,200 LF
- Install bus pullout: one

B02 - Kirkpatrick Road

- Construct shoulder bikeways: 10,700 LF

B03 - Cayuse Road

- Construct shoulder bikeways: 30,000

B04 - Confederated Way

- Install shared roadway striping: 12

B05 - Whirlwind Drive

- Install shared roadway striping: two

B06 - Cedar Street

- Install shared roadway striping: 14

B07 - Kusi Road

- Install shared roadway striping: 10

B08 - Spilya Road

- Install shared roadway striping: 12

B09 - Coyote Road

- Install shared roadway striping: eight

B10 - Arrowhead Road

- Install shared roadway striping: six

B11 - Bicycle Fix-It Stations

- Study to evaluate locations for potential bicycle Fix-It Stations

AL/ct

Project ID	Location/Name	Extents	Type	Description	Responsible Jurisdiction	Cost
Bicycle System						
B01	Mission Road	OR 331 to Cayuse Road	Buffered bike lane	Widen Mission Road and install buffered or raised bicycle lanes along both sides of the roadway from OR 331 to Cayuse Road. Consider incorporating bus pull-outs into the project design.	County	\$ 4,192,000
B02	Kirkpatrick Road	OR 331 to McKinley Lane	Shoulder bikeway	Widen Kirkpatrick Road and install shoulder bikeways on both sides of the roadway from OR 331 to McKinley Lane.	County	\$ 2,397,000
B03	Cayuse Road	Emigrant Road to River Road	Shoulder bikeway	Widen Cayuse Road and install shoulder bikeways on both sides of the roadway from Emigrant Road to River Road.	County	\$ 6,720,000
B04	Confederated Way	Full roadway extents	Shared roadway	Install shared roadway signage and/or striping (sharrows).	BIA	\$ 29,000
B05	Whirlwind Drive	Mission Road to Confederated Way	Shared roadway	Install shared roadway signage and/or striping (sharrows).	BIA	\$ 5,000
B06	Cedar Street	Short Mile Road to Mission Road	Shared roadway	Install shared roadway signage and/or striping (sharrows).	BIA	\$ 34,000
B07	Kusi Road	Full roadway extents	Shared roadway	Install shared roadway signage and/or striping (sharrows).	CTUIR	\$ 24,000
B08	Spilya Road	Full roadway extents	Shared roadway	Install shared roadway signage and/or striping (sharrows).	CTUIR	\$ 29,000
B09	Coyote Road	Full roadway extents	Shared roadway	Install shared roadway signage and/or striping (sharrows).	CTUIR	\$ 20,000
B10	Arrowhead Road	Full roadway extents	Shared roadway	Install shared roadway signage and/or striping (sharrows).	CTUIR	\$ 15,000
B11	Bicycle Fix-it Stations	Within UIR boundaries	Study	Evaluate where bicycle fix-it stations would be beneficial to install within the UIR, such as trailheads, community hubs, or the school.	CTUIR	\$ 8,000

Raised Bike Lane (one side, incl. new walks)	Construct Shoulder Bikeway (both sides)	Install Shared Roadway Markings	Bus Pullout	Project Specific Cost
\$ 250 /LF	\$ 140 /LF	\$ 1,500 /EA	\$ 35,000 /EA	1 /Each
10,200 \$ 2,550,000	\$ -	\$ -	2 \$ 70,000	\$ -
\$ -	10,700 \$ 1,498,000	\$ -	\$ -	\$ -
\$ -	30,000 \$ 4,200,000	\$ -	\$ -	\$ -
\$ -	\$ -	12 \$ 18,000	\$ -	\$ -
\$ -	\$ -	2 \$ 3,000	\$ -	\$ -
\$ -	\$ -	14 \$ 21,000	\$ -	\$ -
\$ -	\$ -	10 \$ 15,000	\$ -	\$ -
\$ -	\$ -	12 \$ 18,000	\$ -	\$ -
\$ -	\$ -	8 \$ 12,000	\$ -	\$ -
\$ -	\$ -	6 \$ 9,000	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	5000 \$ 5,000

Base Construction Cost (2022)	Contingency 30%	PE/CE/Env/Etc 30%	Total Estimated Project Cost (2022)
\$ 2,620,000	786,000	786,000	4,192,000
\$ 1,498,000	449,400	449,400	2,396,800
\$ 4,200,000	1,260,000	1,260,000	6,720,000
\$ 18,000	5,400	5,400	28,800
\$ 3,000	900	900	4,800
\$ 21,000	6,300	6,300	33,600
\$ 15,000	4,500	4,500	24,000
\$ 18,000	5,400	5,400	28,800
\$ 12,000	3,600	3,600	19,200
\$ 9,000	2,700	2,700	14,400
\$ 5,000	1,500	1,500	8,000



Project ID
R10

Exit 216 Truck Overflow Parking

Description:

Parking lot for overflow truck parking from I-84 winter closures. Could include a shuttle service from parking lot to Arrowhead during events.

Responsible Jurisdiction: ODOT

Potential Project Partners: CTUIR, Kayak, Umatilla County, Trucking Companies, Arrowhead Travel Plaza

Project Type: Roadway

Project Priority: High

Cost: \$3,200,000

Considerations:

Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – ODOT is currently designing the parking lot.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
R11

OR 331 Speed Study

Description:

Perform a speed study along the OR 331 corridor and determine whether to modify any speed zones.

Responsible Jurisdiction: ODOT

Potential Project Partners: CTUIR, Umatilla County, Local Businesses/Property Owners along OR 331

Project Type: Roadway

Project Priority: High

Cost: \$20,000

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

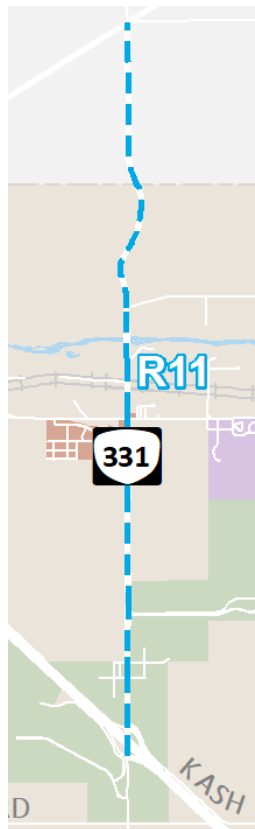
Considerations:

Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – OR 331 is the primary walking and biking route to the Wildhorse complex and other surrounding commercial development.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
R12

Mission Road Traffic Calming

Description:

Install speed feedback signage and other traffic calming measures.

Responsible Jurisdiction: CTUIR, Umatilla County

Potential Project Partners: Local Businesses/Property Owners along Mission Road

Project Type: Roadway

Project Priority: High

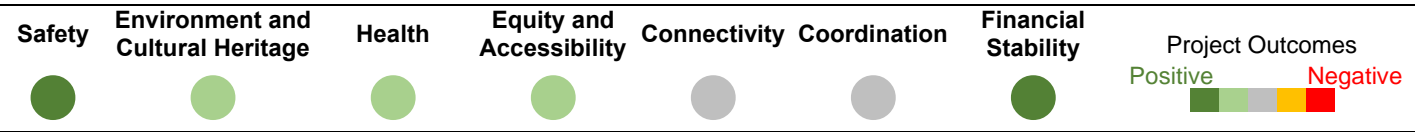
Cost: \$30,000

Considerations:

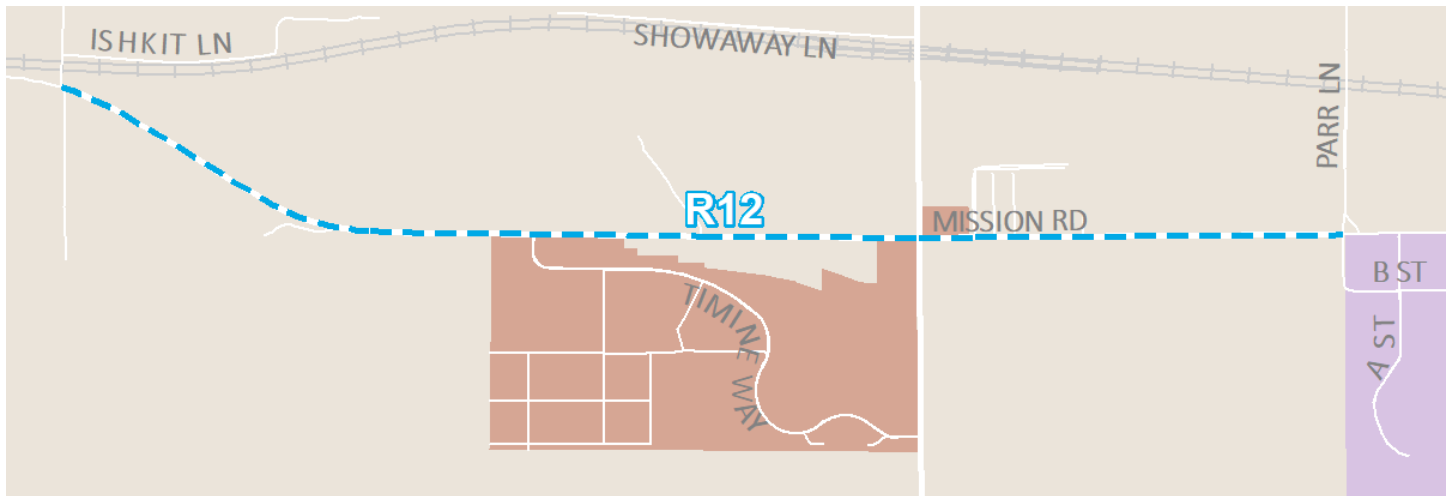
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – Other planned improvements (P01, P03, and B01) along Mission Road may help with traffic calming.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
R17

Confederated Way Flood Remediation

Description:

Construct flood remediation projects on Confederated Way from B Street to Mission Road (east intersection). Mitigations may include building a levy, raising the roadway, creating water retention areas, and rerouting the roadway.

Responsible Jurisdiction: BIA

Potential Project Partners: CTUIR, Local Businesses/Property Owners along Confederated Way

Project Type: Roadway

Considerations:

Right-of-way constraints – Potential for significant impacts.
Physical barrier constraints – No known concerns.
Environmental impacts – Project is highly linked to environmental outcomes.
Other – The study to determine which projects would be needed is currently ongoing.

Project Priority: High

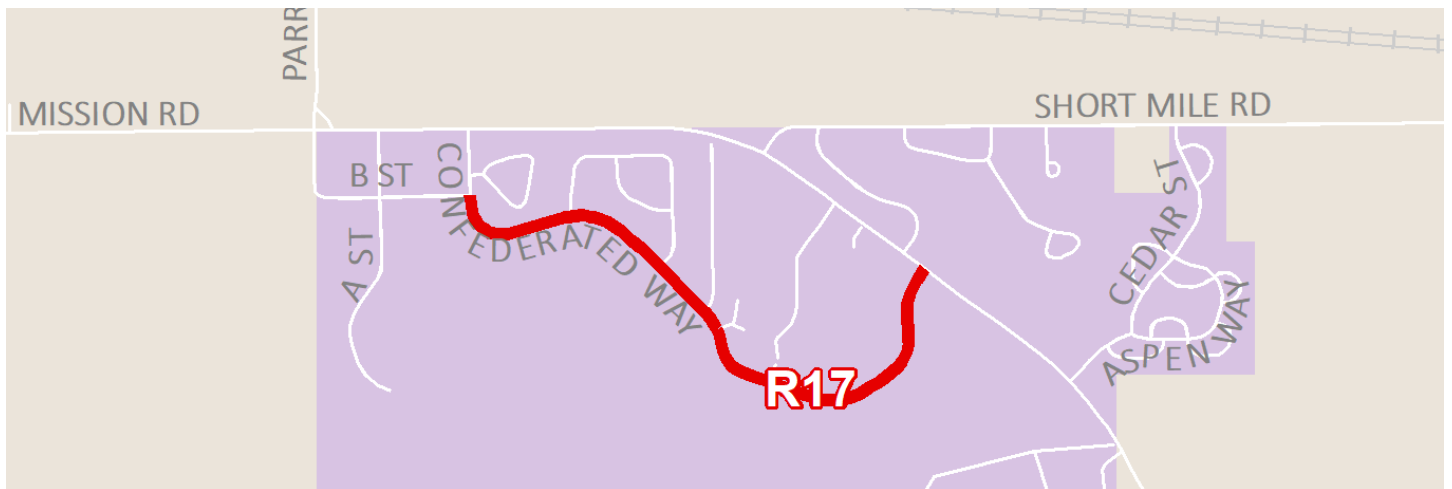
Cost: To be determined by ongoing study

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P01

Mission Road Sidewalks – East of Huckleberry Street to Cedar Street

Description:

Install six-foot sidewalks along the north side of Mission Road from east of Huckleberry Street to Cedar Street. Consider incorporating bus pull-outs into the project design.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR, ODOT, Local Businesses/Property Owners along Mission Road

Project Type: Pedestrian

Project Priority: High

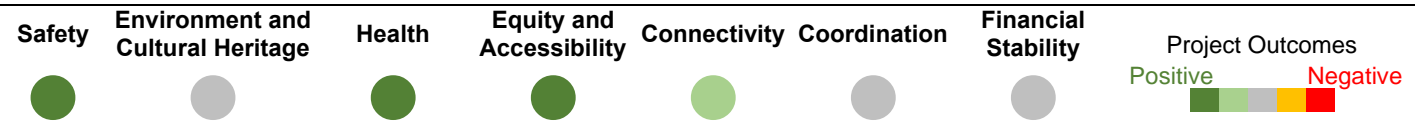
Cost: \$1,500,000

Considerations:

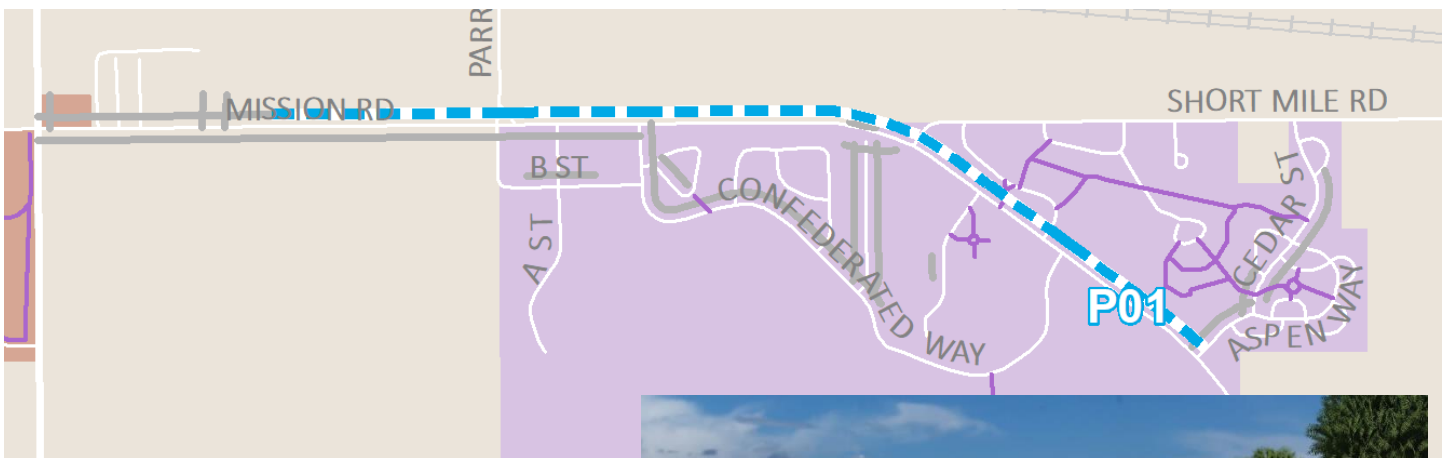
Right-of-way constraints – Potential impacts.
Physical barrier constraints – Potential impacts to culverts.
Environmental impacts – Potential impacts to wetlands.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P02

Mission Road Sidewalk Infill – Between Confederated Way Intersections

Description:

Complete the sidewalk network along the south side of Mission Road from Confederated Way (western intersection) to Confederated Way (eastern intersection). Consider incorporating bus pull-outs into the project design.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR, Property Owners along Mission Road

Project Type: Pedestrian

Project Priority: High

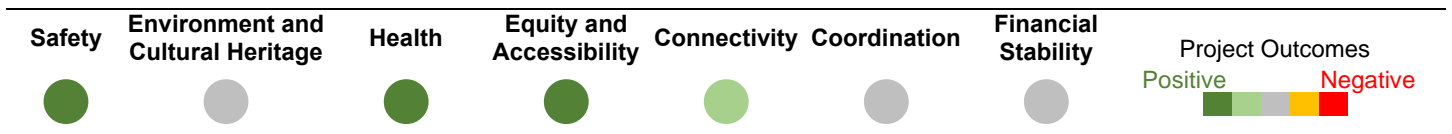
Cost: \$680,000

Considerations:

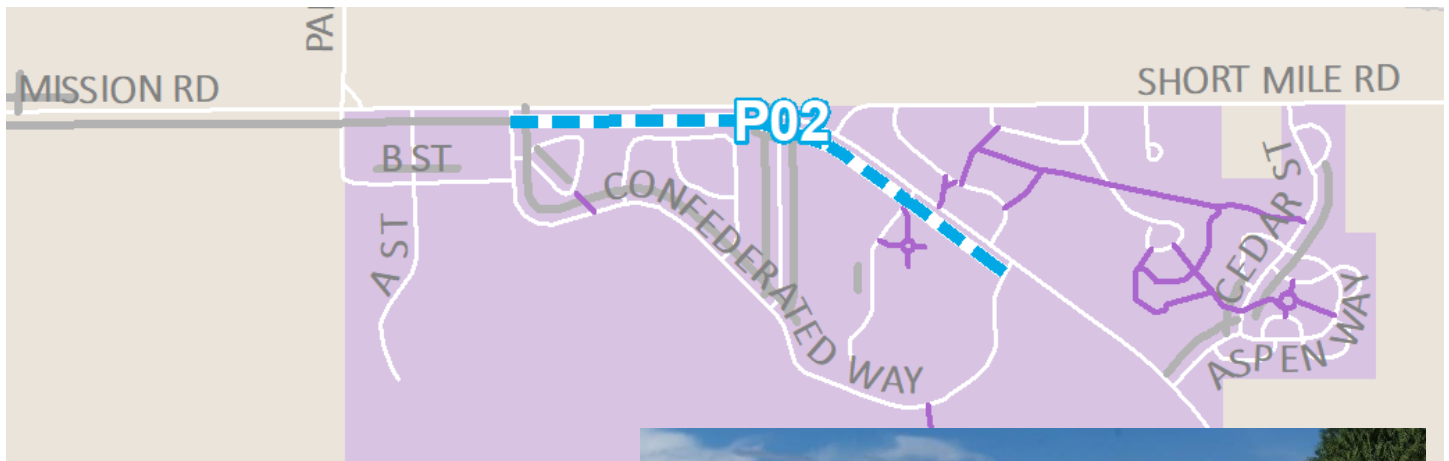
Right-of-way constraints – Potential impacts.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P03

Mission Road Sidewalk Widening – OR 331 to Confederated Way (Western Intersection)

Description:

Widen sidewalks to six feet on the south side of Mission Road from OR 331 to Confederated Way (western intersection) and address the existing mailbox obstructions. Consider incorporating bus pull-outs into the project design.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR, Local Businesses/Property Owners along Mission Road

Project Type: Pedestrian

Project Priority: High

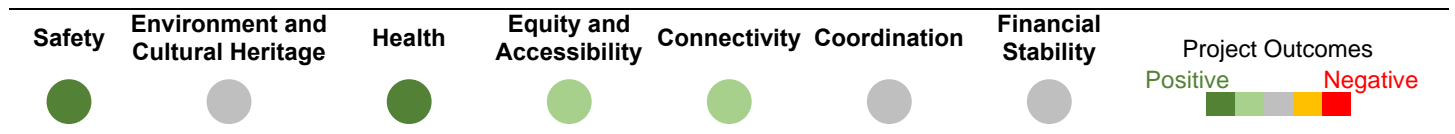
Cost: \$490,000

Considerations:

Right-of-way constraints – Likely impacts. Project may require purchasing R/W or coordination with adjacent property owners for easements or R/W dedication.
Physical barrier constraints – Potential utility impacts.
Environmental impacts – No known concerns.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P04

Confederated Way Sidewalk Infill – East of Whirlwind Drive to Mission Road (east intersection)

Description:

Complete the sidewalk network along the north side of Confederated Way from east of Whirlwind Drive to Mission Road (east intersection).

Responsible Jurisdiction: BIA

Potential Project Partners: CTUIR, Property Owners along Confederated Way

Project Type: Pedestrian

Project Priority: High

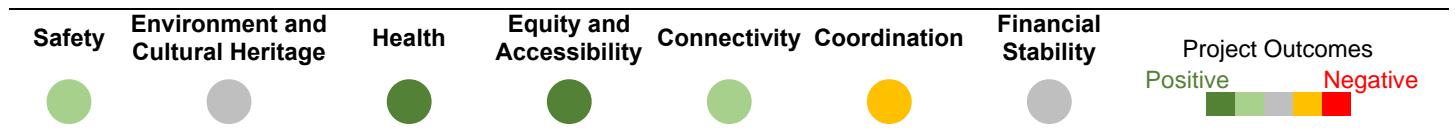
Cost: \$435,000

Considerations:

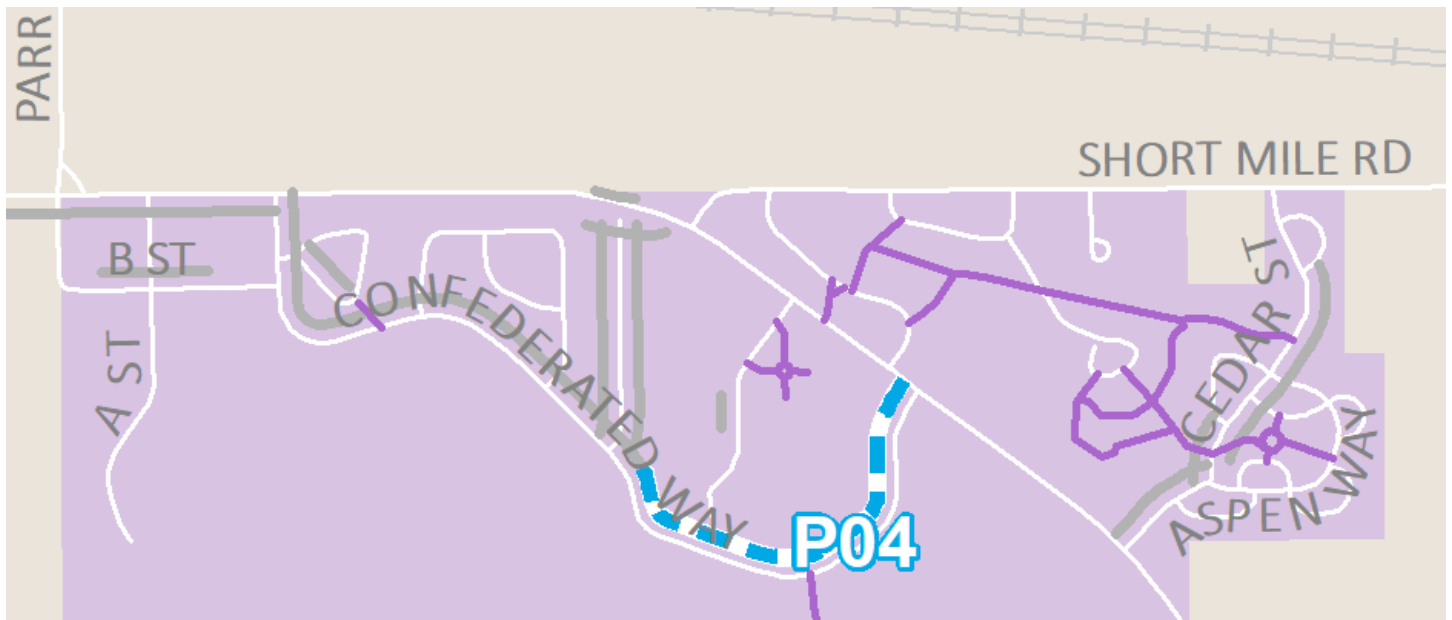
Right-of-way constraints – Potential impacts.
Physical barrier constraints – No known concerns.
Environmental impacts – Potential impacts.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P06

Multi-use Path to Pendleton (Phase I)

Description:

Construct a multi-use path on the south side of Mission Road from Purchase Lane to OR 331. This project is the first phase of a larger multi-use path connection to the City of Pendleton. Further study is needed to determine the ultimate alignment.

Responsible Jurisdiction: CTUIR

Potential Project Partners: Local Property Owners within Alignment

Project Type: Pedestrian

Considerations:

Right-of-way constraints – Likely impacts. Project may require purchasing R/W for the path or coordination with adjacent property owners for easements or R/W dedication.

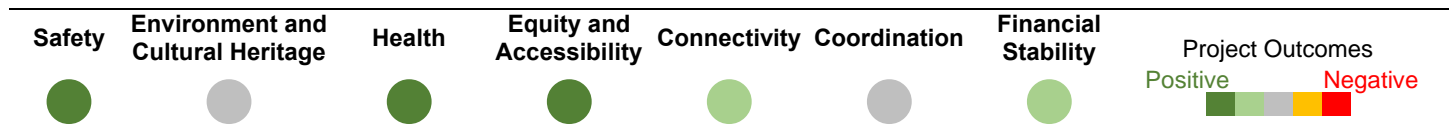
Project Priority: High

Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

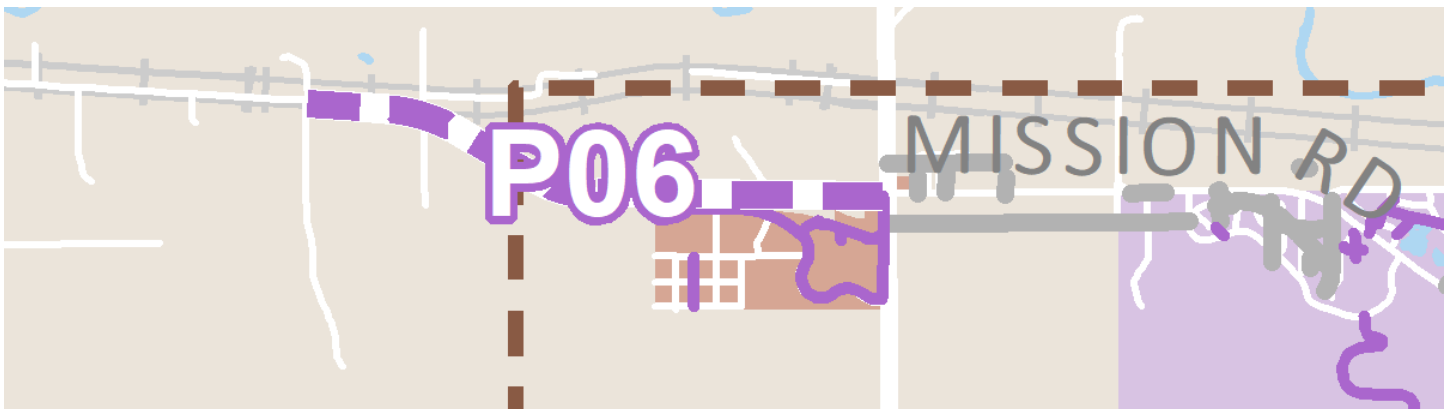
Cost: \$775,000

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P07

Multi-use Path to Pendleton (Phase II)

Description:

Construct the second phase of the multi-use path to Pendleton, connecting at Purchase Lane. West of Purchase Lane, the alignment of the multi-use path connection may follow two potential alignments:
1) Along the south side of the Umatilla River in parallel but offset from the river where applicable. If able, connect to Pendleton Riverwalk.

OR

2) Along the north or south side of Mission Road.

Further study is needed to determine the ultimate alignment. Include benches, lighting, and safety amenities (such as emergency call boxes and security cameras).

Responsible Jurisdiction: CTUIR, Umatilla County, City of Pendleton

Potential Project Partners: Local Property Owners within Alignment

Project Type: Pedestrian

Considerations:

Right-of-way constraints – Likely impacts. Project may require purchasing R/W for the path or coordination with adjacent property owners for easements or R/W dedication.

Project Priority: High

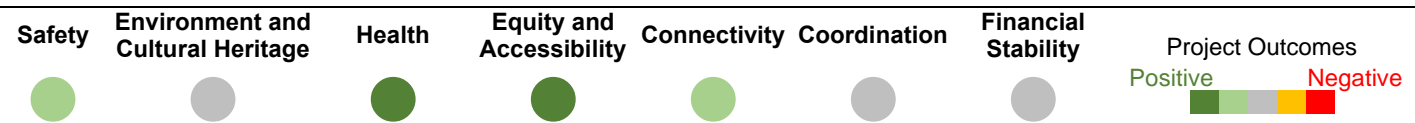
Physical barrier constraints – Potential constraints like bridge structures or water management facilities depending on the alignment.

Cost: 1) \$3,500,000
2) \$3,000,000

Environmental impacts – Likely impacts.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P09

OR 331 Multi-use Path (Phase I)

Description:

Construct a multi-use path along one or both sides of OR 331 from Mission Road to Arrowhead Travel Plaza driveway.

Responsible Jurisdiction: CTUIR

Potential Project Partners: Local Property Owners within Alignment

Project Type: Pedestrian

Project Priority: High

Cost: \$1,900,000

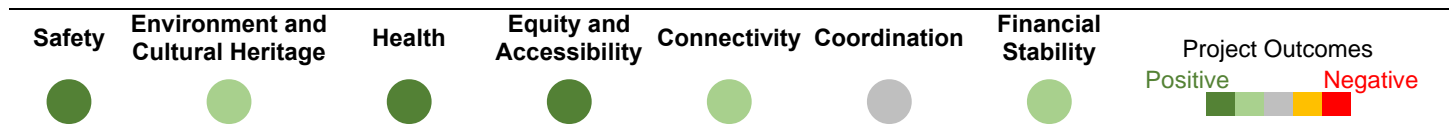
Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

Considerations:

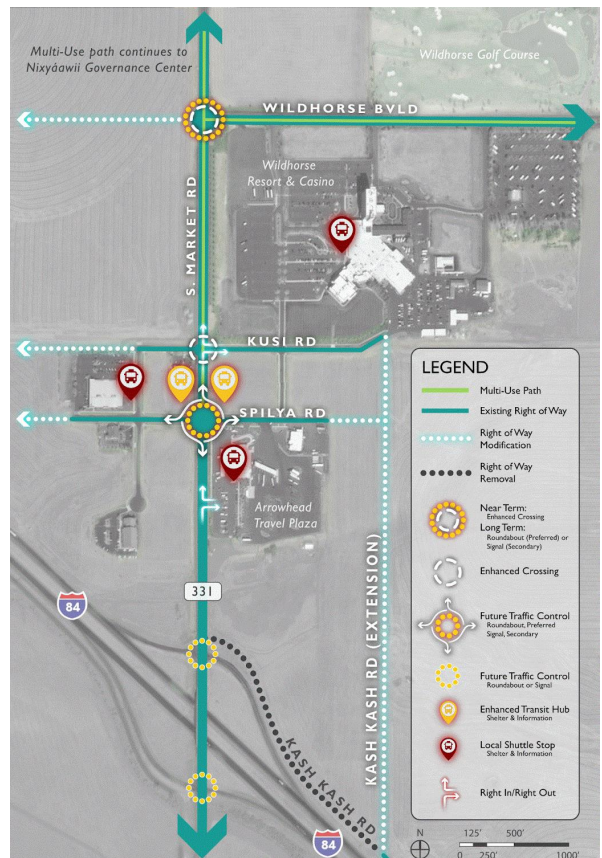
Right-of-way constraints – Likely impacts. Project may require purchasing R/W for the path or coordination with adjacent property owners for easements or R/W dedication.

Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P10

OR 331 Multi-use Path (Phase II)

Description:

Construct a multi-use path along one or both sides of OR 331 from Kirkpatrick Road to Mission Road, depending on feasible options for crossing the Umatilla River Bridge. River access could potentially be included as part of this project.

Responsible Jurisdiction: CTUIR

Potential Project Partners: Local Property Owners within Alignment

Project Type: Pedestrian

Considerations:

Right-of-way constraints – Likely impacts. Project may require purchasing R/W for the path or coordination with adjacent property owners for easements or R/W dedication.

Project Priority: High

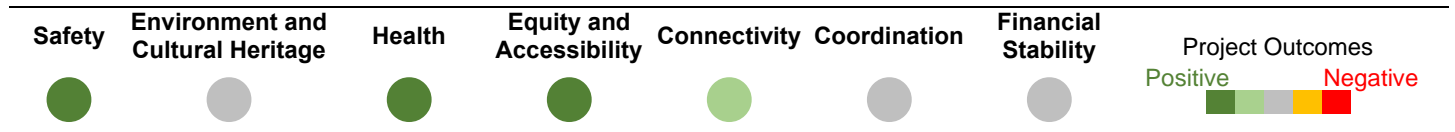
Physical barrier constraints – Likely impacts along Umatilla River Bridge.

Cost: \$2,900,000

Environmental impacts – Potential impacts.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P14

East-West Multi-use Path

Description:

Construct a multi-use path along the top of the bluff connecting OR 331 to Mission Road, intersecting the Tamástslikt Trail. Coordinate with Project P19 – OR 331/Timíne Way pedestrian crossing and Project P23 - Mission Road/Cedar Street pedestrian crossing.

Responsible Jurisdiction: CTUIR

Potential Project Partners: Local Property Owners within Alignment

Project Type: Pedestrian

Considerations:

Right-of-way constraints – Likely impacts. Project may require purchasing R/W for the path or coordination with adjacent property owners for easements or R/W dedication.

Project Priority: High

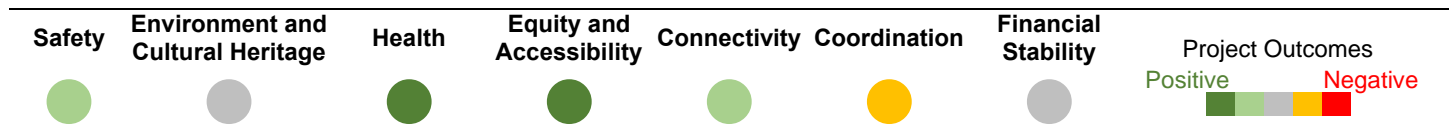
Physical barrier constraints – Likely impacts, depending on alignment. Barriers include significant topography changes and historical sites.

Cost: \$820,000

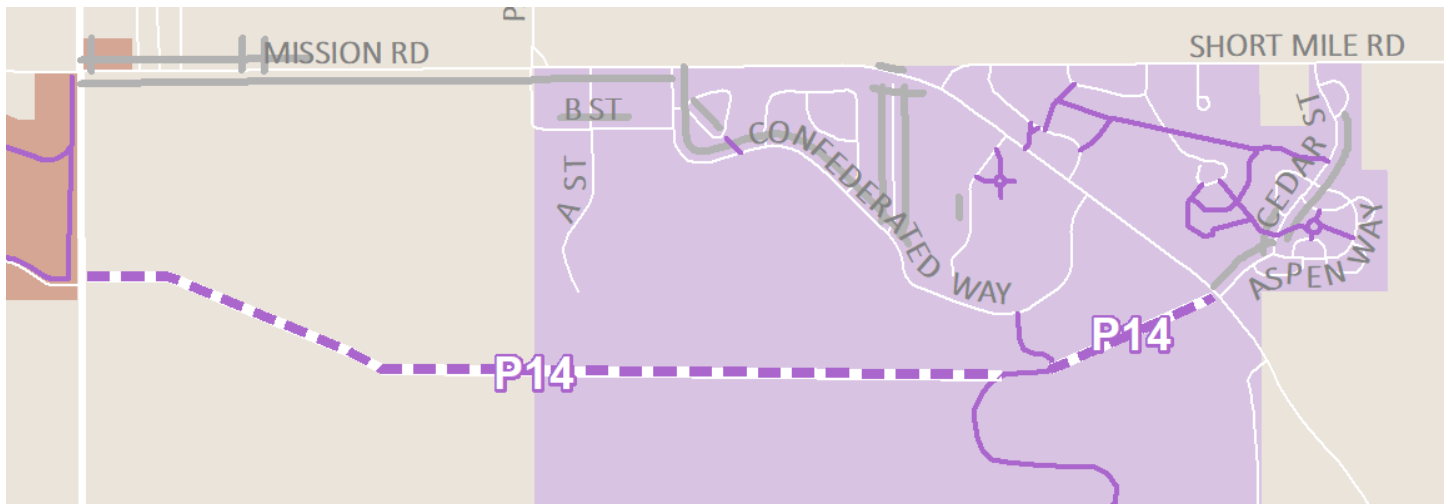
Environmental impacts – Potential impacts.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P15

Tamástslikt Trail Lighting

Description:

Install lighting and security cameras to existing multi-use path system.

Responsible Jurisdiction: CTUIR

Potential Project Partners: None

Project Type: Pedestrian

Project Priority: High

Cost: \$530,000

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

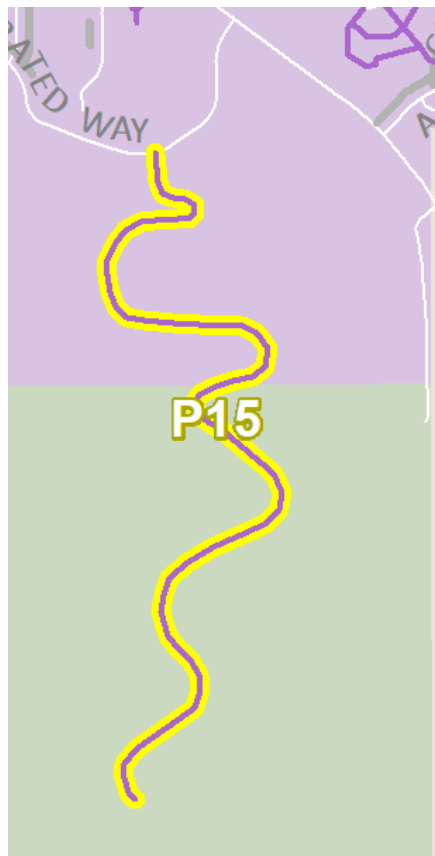
Considerations:

Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – A power source will be needed for this project. Solar may be an option in areas with adequate year-round sun exposure, but not in all areas.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P18

Mission Road Lighting

Description:
Install pedestrian-scale lighting.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR

Project Type: Pedestrian

Project Priority: High

Cost: \$195,000

Considerations:

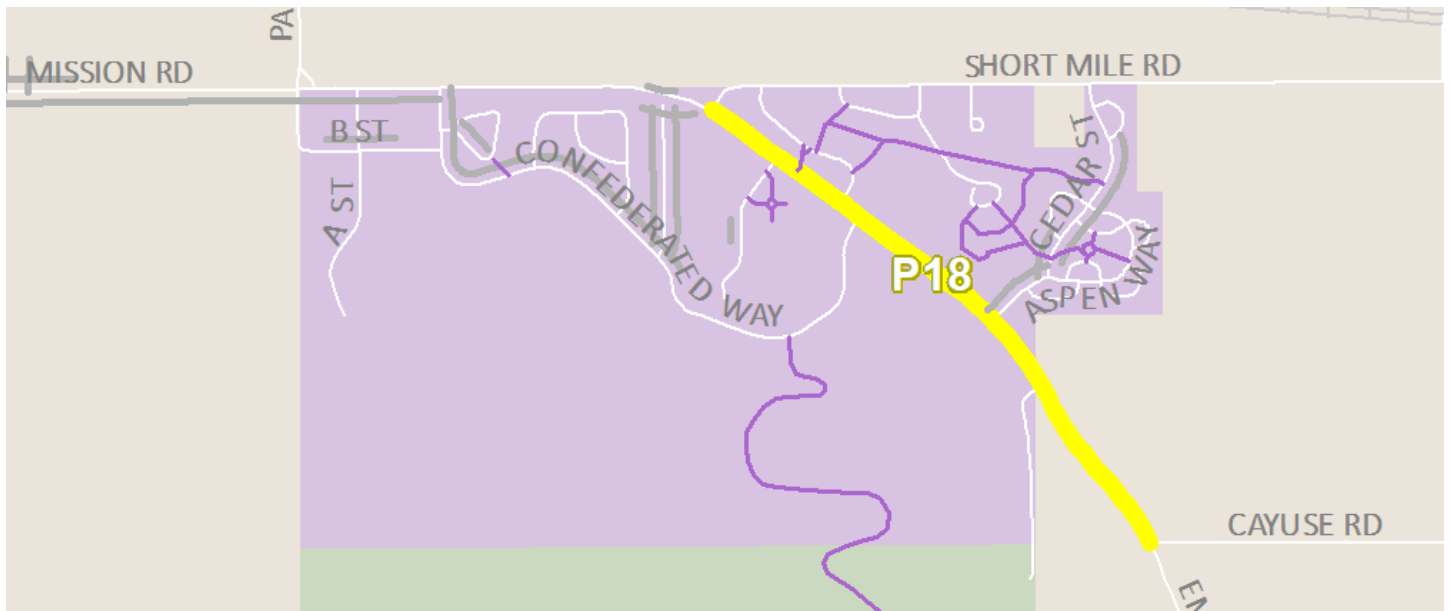
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – Potential to coordinate this project with other projects in the area (P01, P02, P20, P22, P23, and B01).

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P19

OR 331/Timíne Way Enhanced Pedestrian Crossing

Description:

Install an enhanced pedestrian crossing. Treatment may include signalization or a pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), or a grade separated undercrossing of OR 331. Coordinate with Project P14 – East-West Multi-use Path.

Responsible Jurisdiction: ODOT

Potential Project Partners: CTUIR

Project Type: Pedestrian

Project Priority: High

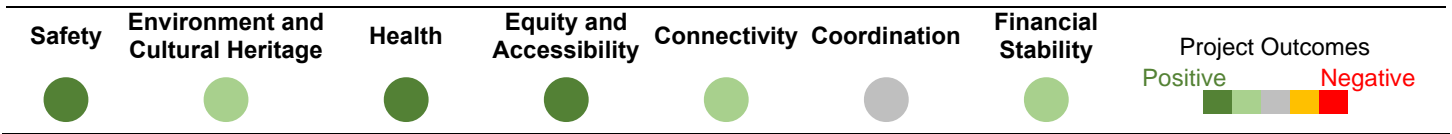
Cost: \$2,000,000

Considerations:

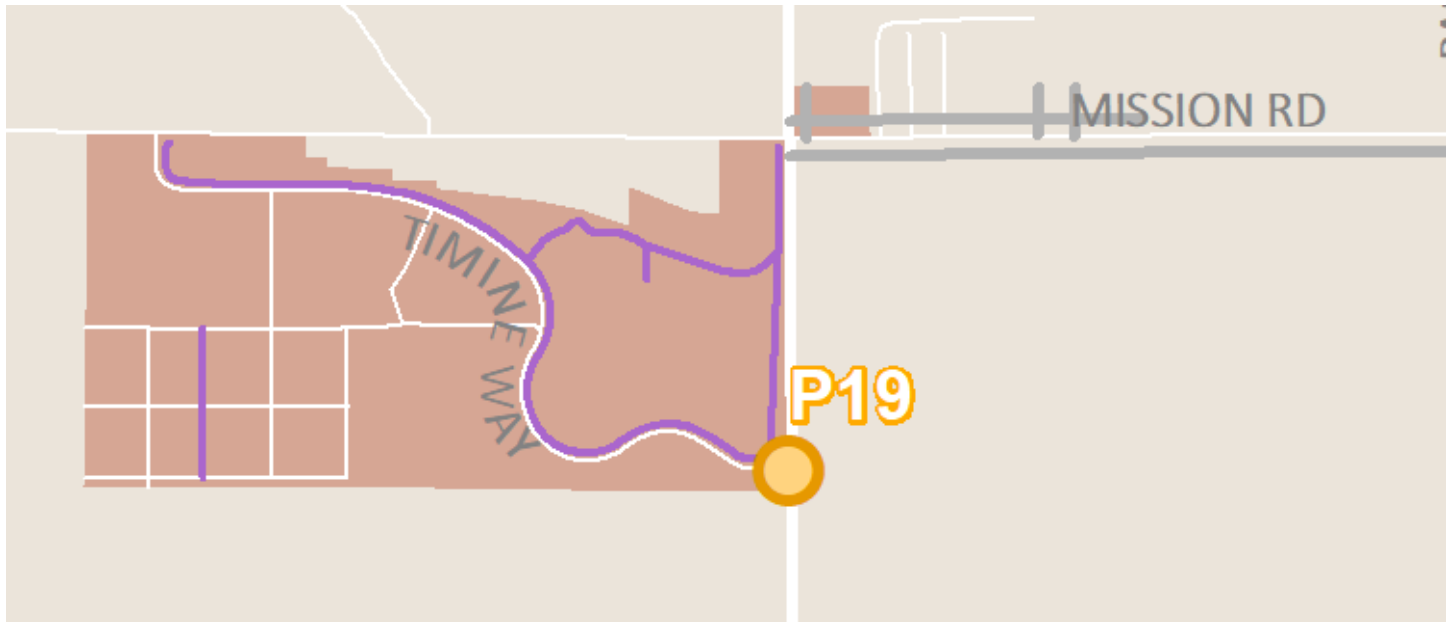
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – Potential to coordinate this project with other projects in the area (P09).

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P20

Mission Road Mid-block Crossing

Description:

Install enhanced pedestrian crossing treatments at the existing mid-block crossing on Mission Road east of Short Mile Road. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and/or curb extensions.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR

Project Type: Pedestrian

Project Priority: High

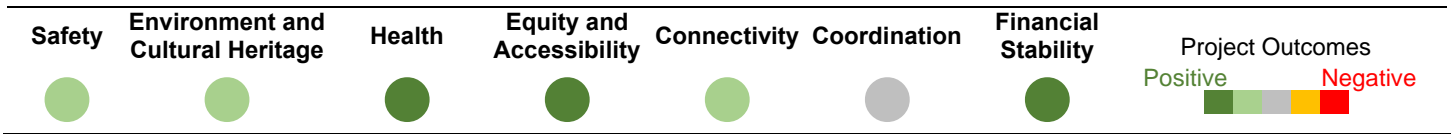
Cost: \$105,000

Considerations:

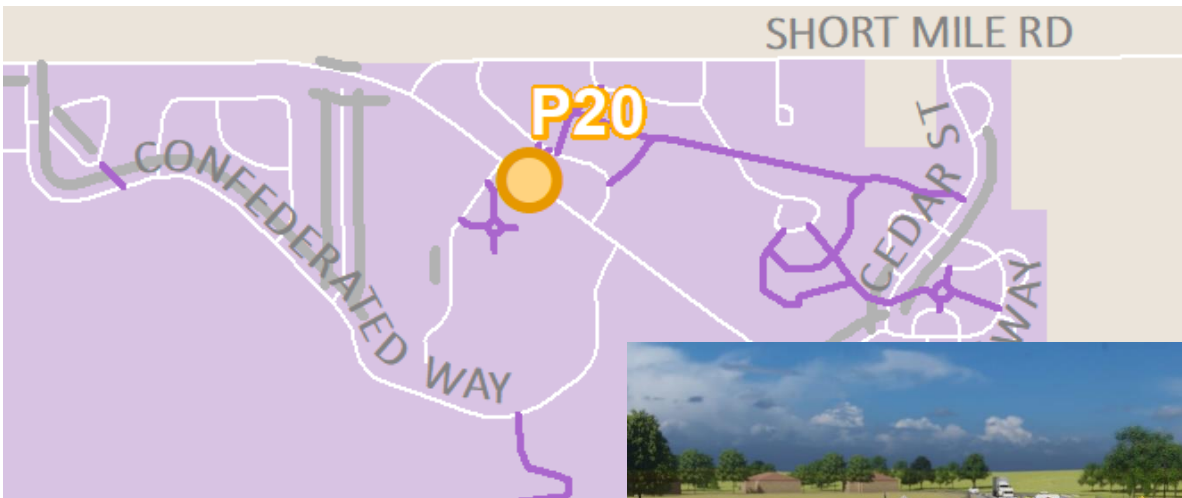
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – Potential to coordinate this project with other projects in the area (P01, P02, P18, P22, P23, and B01).

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P21

OR 331/Kusi Road Enhanced Pedestrian Crossing

Description:

Install an enhanced pedestrian crossing. Treatment may include pedestrian hybrid beacon (if warranted), rectangular rapid flashing beacons (RRFBs), raised median island, high visibility crosswalk markings, and curb extensions.

Responsible Jurisdiction: ODOT

Potential Project Partners: CTUIR

Project Type: Pedestrian

Project Priority: High

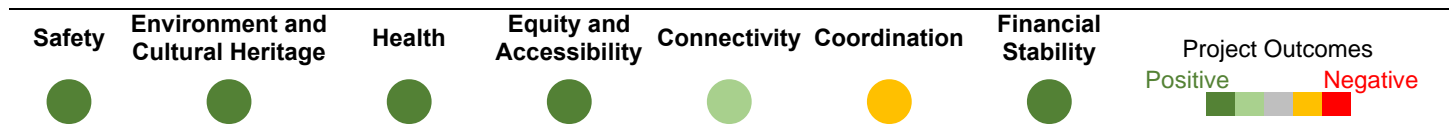
Cost: \$105,000

Considerations:

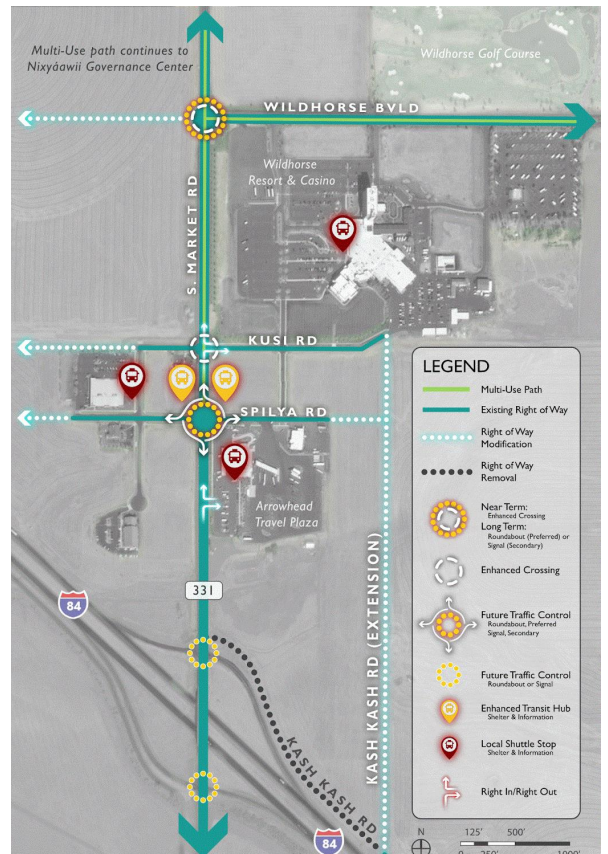
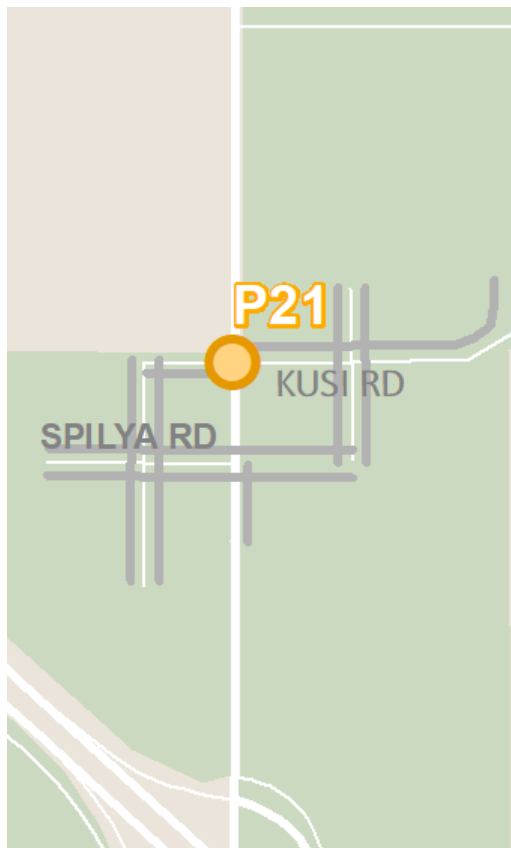
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P22

Mission Road/Confederated Way Enhanced Pedestrian Crossing

Description:

Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR

Project Type: Pedestrian

Project Priority: High

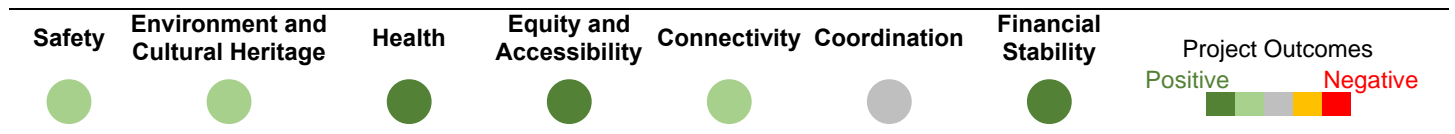
Cost: \$105,000

Considerations:

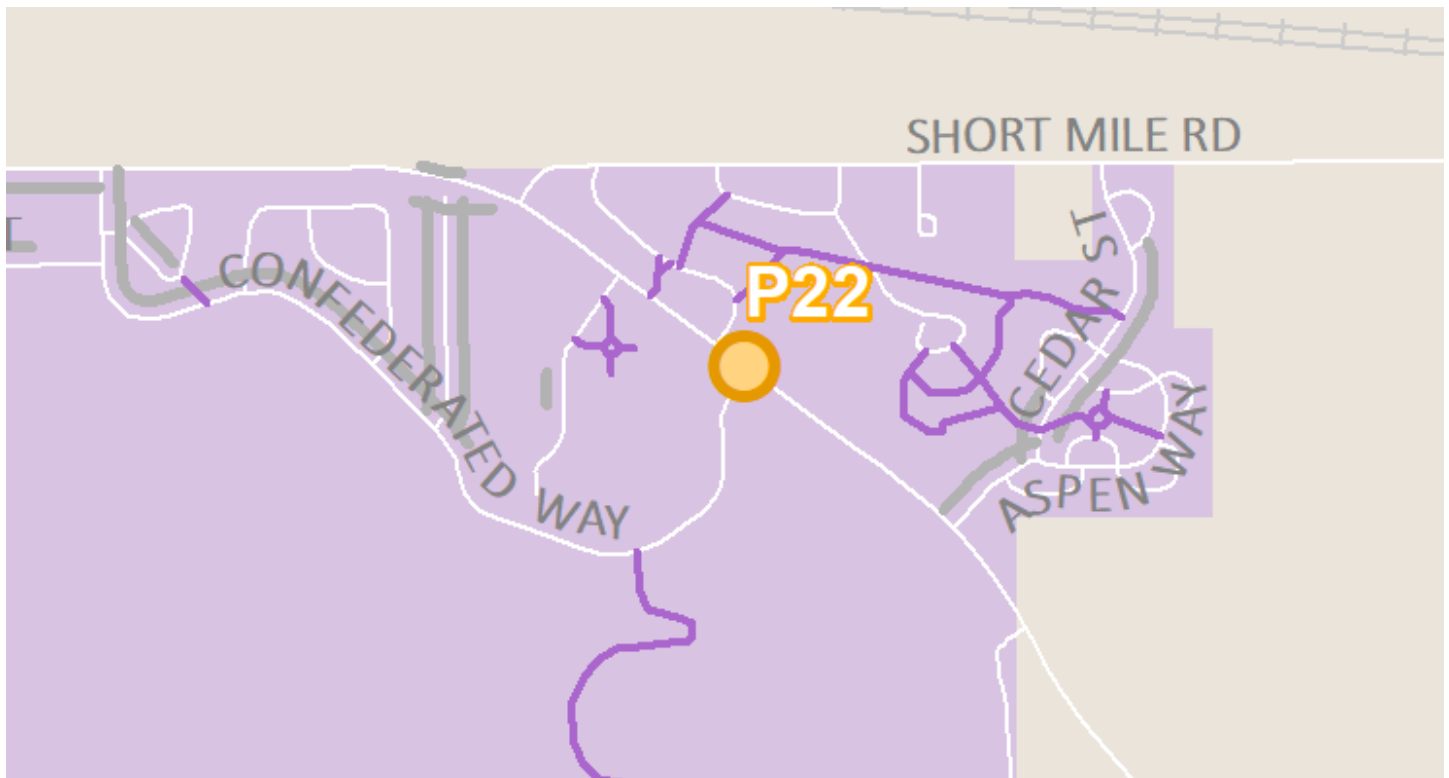
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – Potential to coordinate this project with other projects in the area (P01, P02, P18, P20, P23, and B01).

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
P23

Mission Road/Cedar Street Enhanced Pedestrian Crossing

Description:

Install an enhanced pedestrian crossing. Treatment may include raised crosswalk, rectangular rapid flashing beacons (RRFBs), high visibility crosswalk markings, and curb extensions. Coordinate with Project P14 - East-West Multi-use Path.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR

Project Type: Pedestrian

Project Priority: High

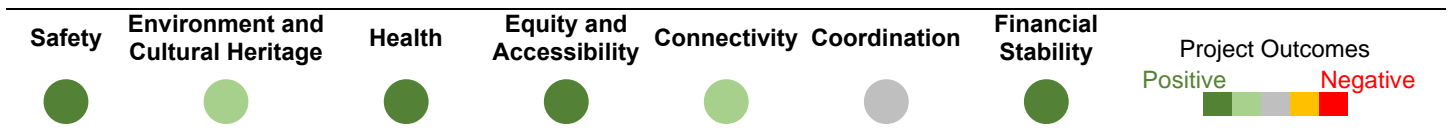
Cost: \$105,000

Considerations:

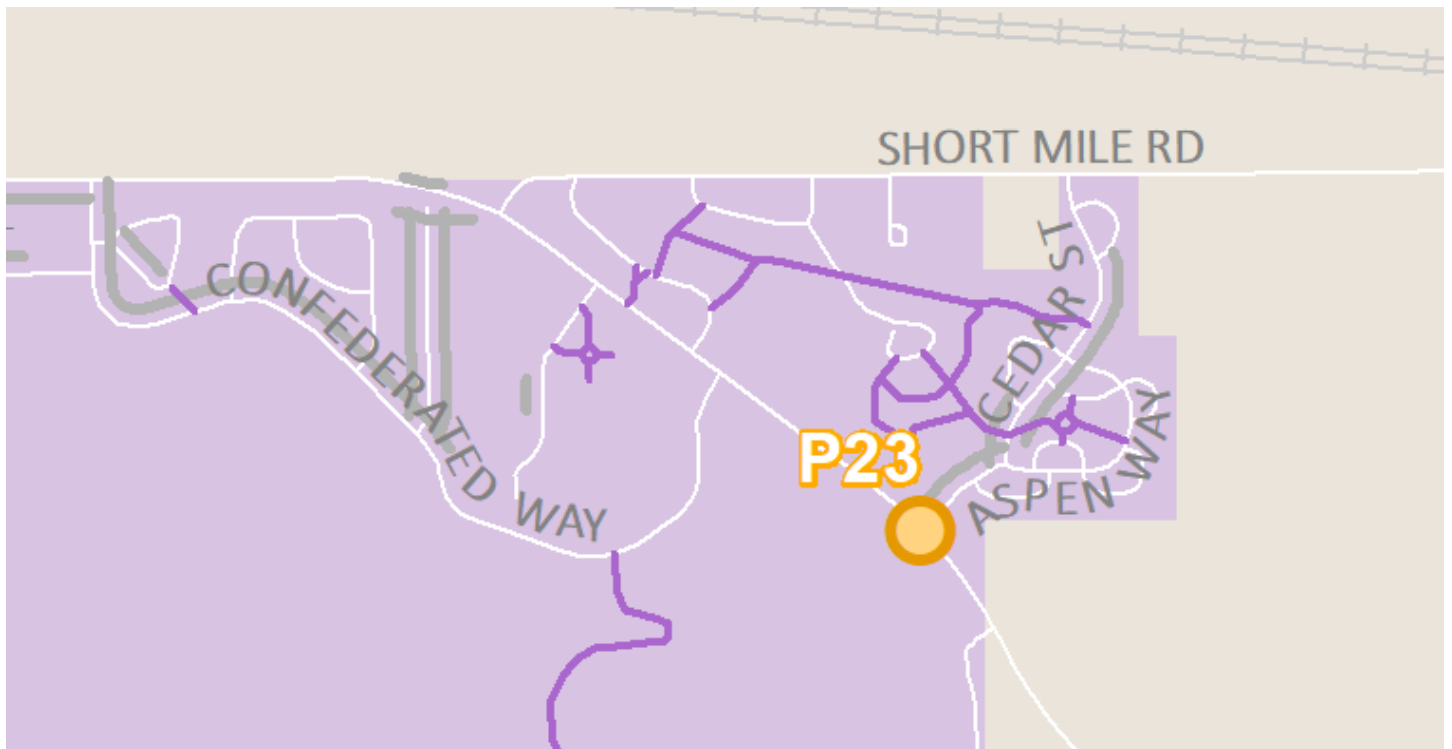
Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – Potential to coordinate this project with other projects in the area (P01, P02, P18, P20, P22, and B01).

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
B01

Mission Road Bicycle Lane Separation – OR 331 to Cayuse Road

Description:

Widen Mission Road and install buffered or separated/raised bicycle lanes along both sides of the roadway from OR 331 to Cayuse Road. Consider incorporating bus pull-outs into the project design.

Responsible Jurisdiction: Umatilla County

Potential Project Partners: CTUIR, Property Owners along Mission Road

Project Type: Bicycle

Project Priority: High

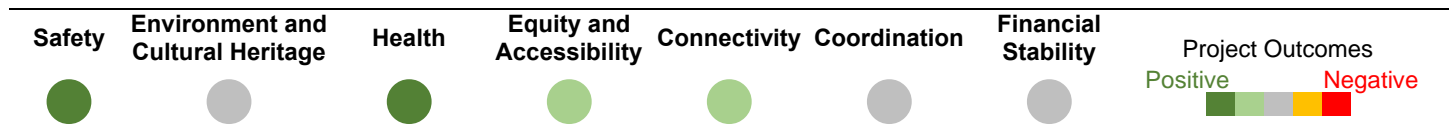
Cost: \$4,200,000

Considerations:

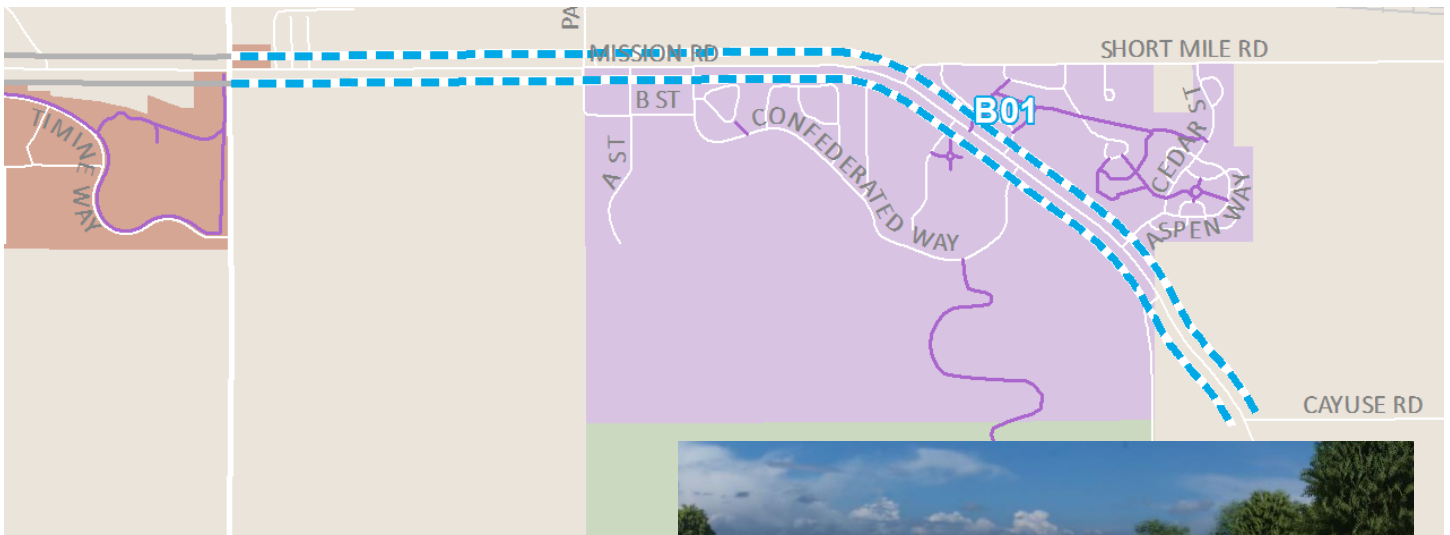
Right-of-way constraints – Potential impacts.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID

B11

Bicycle Fix-it Stations

Description:

Evaluate where bicycle fix-it stations would be beneficial to install within the UIR, such as trailheads, community hubs, or the school.

Responsible Jurisdiction: CTUIR

Potential Project Partners: Adjacent Property Owners, Adjacent Transit Providers

Project Type: Bicycle

Project Priority: High

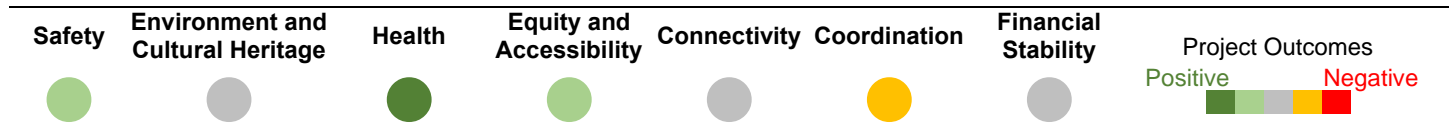
Cost: \$10,000 per station

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

Considerations:

Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?





Project ID
T01

Park-and-ride Locations

Description:

Coordinate with regional transit providers for park-and-ride locations that help facilitate the use of transit by community members and maximize regional connectivity.

Responsible Jurisdiction: CTUIR, Kayak

Potential Project Partners: Adjacent Property Owners, Adjacent Transit Providers

Project Type: Transit

Project Priority: High

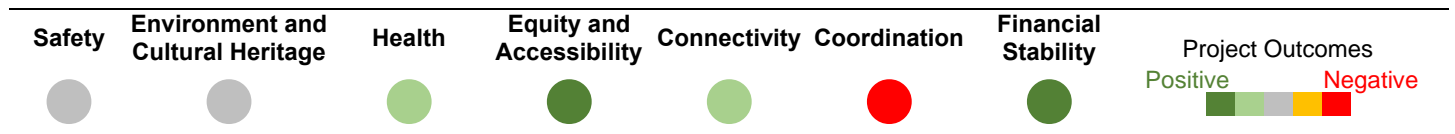
Cost: TBD, depends on partnerships available

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

Considerations:

Right-of-way constraints – Potential impacts. Implementation of specific locations may require partnering with private property owners or purchasing lots.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?





Project ID
T02

Bus Stop Enhancements

Description:

Evaluate transit stops for additional amenity needs, such as shelters, lighting, and signage.

Responsible Jurisdiction: CTUIR, Kayak

Potential Project Partners: Adjacent Property Owners, Adjacent Transit Providers

Project Type: Transit

Project Priority: High

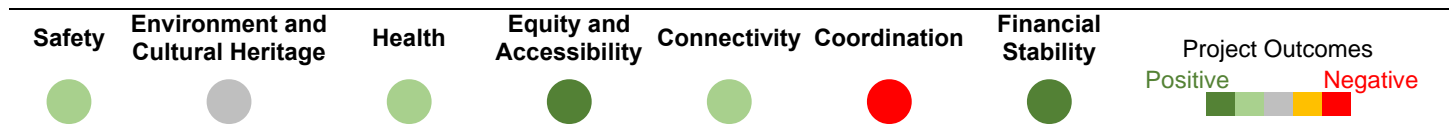
Cost: \$324,000 (\$18,000/stop for 18 bus stops)

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

Considerations:

Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.
Other – A power source will be needed for any enhancements requiring electricity. Solar may be an option if hardwiring is not, especially in areas with adequate year-round sun exposure.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?





Project ID
T03

OR 331 Transit Hub

Description:

Consolidate bus stops at Arrowhead Travel Plaza, Cayuse Holdings, and the Wildhorse Resort & Casino campus into one pair of transit hubs on OR 331 north of Spilya Road, reducing need for transit vehicles to turn to and from OR 331. Coordinate with Project T04 - Wildhorse Campus Shuttle. If a roundabout is constructed on OR 331 based on development-driven projects, a single transit hub on one side of OR 331 may be appropriate.

Responsible Jurisdiction: CTUIR, Kayak

Potential Project Partners: Adjacent Property Owners, Adjacent Transit Providers

Project Type: Transit

Project Priority: High

Cost: \$200,000

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

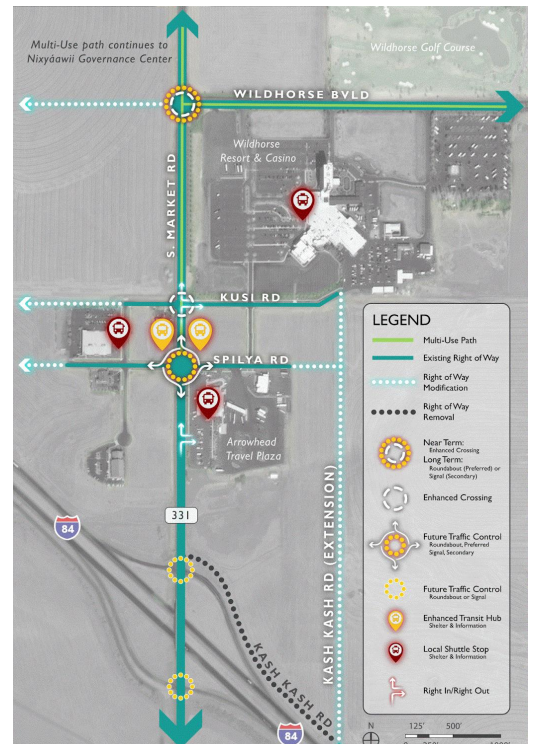
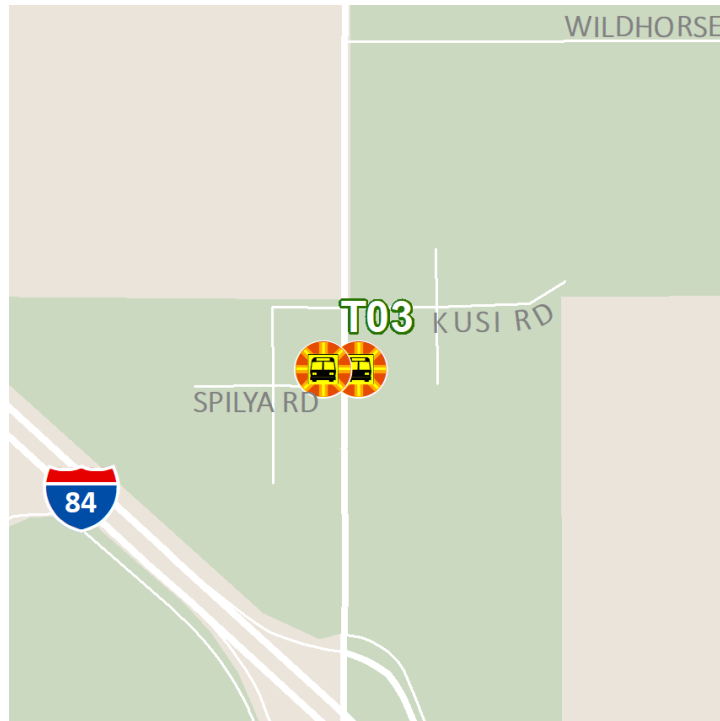
Considerations:

Right-of-way constraints – No known concerns. Assumes project is able to be constructed within CTUIR and/or ODOT right-of-way.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Project ID
T04

Wildhorse Campus Shuttle

Description:

Partner with adjacent businesses to provide a shuttle to transport people from Arrowhead Travel Plaza, Cayuse Holdings, and the Wildhorse Resort & Casino campus to the OR 331 Transit Hub. Coordinate with Project T03 - OR 331 Transit Hub.

Responsible Jurisdiction: CTUIR, Kayak

Potential Project Partners: Adjacent Property Owners, Adjacent Transit Providers

Project Type: Transit

Project Priority: High

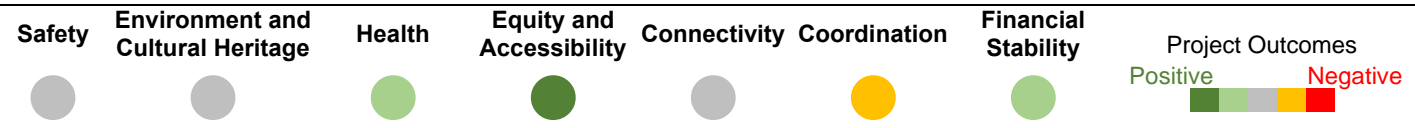
Considerations:

Right-of-way constraints – No known concerns.
Physical barrier constraints – No known concerns.
Environmental impacts – No known concerns.

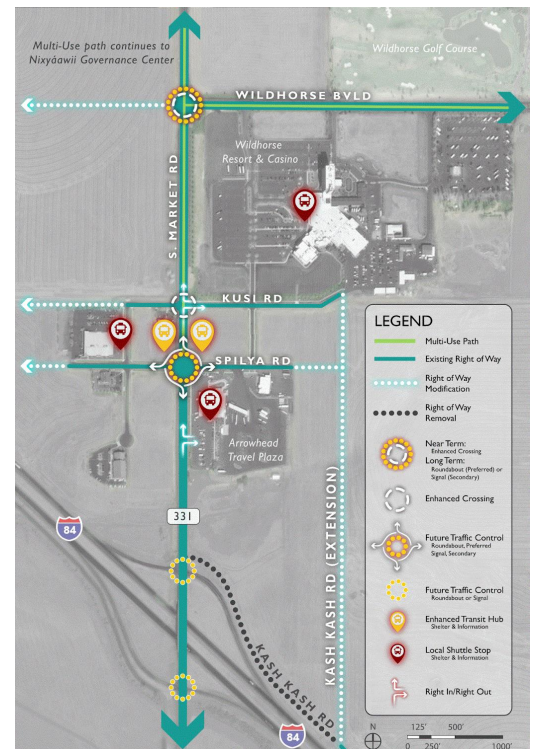
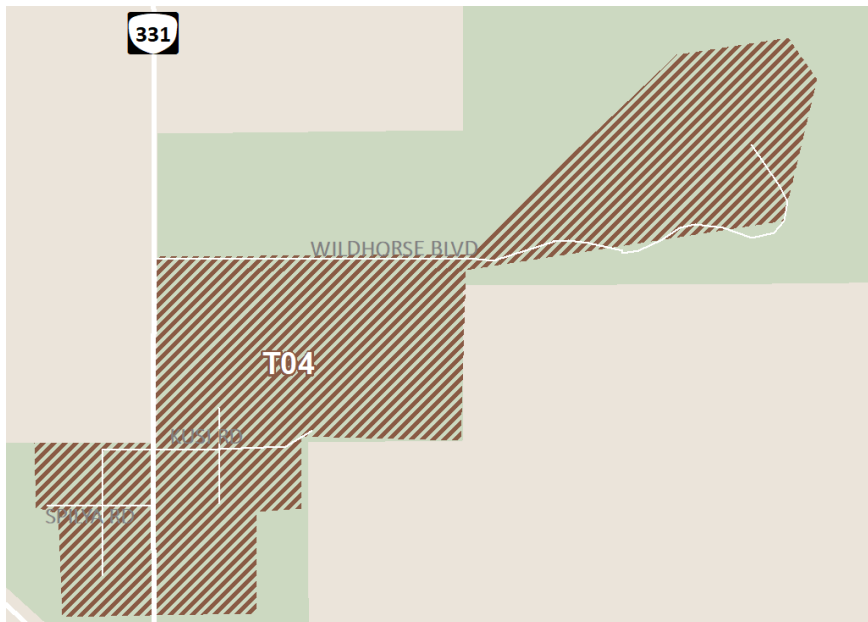
Cost: *To be determined in conjunction with Kayak.*

Potential Funding Sources: *To be added during Task 5 of TSP Update project.*

HOW DOES THE PROJECT RANK AGAINST TRANSPORTATION GOALS?



Project Location/Images





Confederated Tribes of the Umatilla Indian Reservation Safe Routes to School Plan



FINAL PHASE 1 SRTS PLAN

August 2020

NIXYÁAWII COMMUNITY SCHOOL
46250 TIMÍNE WAY, PENDLETON, OR 97801

<https://Nixyáawii.k12.or.us/>



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Chapter 1. Introduction

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Safe Routes to School (SRTS) Plan lays the foundation for school, CTUIR government, Charter School Board, Yellowhawk Tribal Health, Pendleton School District, Umatilla County, Oregon Department of Transportation (ODOT) Region 5, and wider community to work together on reducing barriers for students walking and biking to school. The CTUIR SRTS Plan addresses Nixyáawii Community School, the only school located within the CTUIR boundary.

This Plan is the first deliverable in a phased approach to the planning process, in response to the COVID-19 global pandemic and the need for social distancing and school closures. The Plan documents the process that took place remotely to identify and prioritize construction projects for the ODOT SRTS Competitive Infrastructure Grant Program.

Oregon Department of Transportation's Project Identification Program

This SRTS Plan supports Oregon's state-wide SRTS construction (infrastructure) and education/engagement (non-infrastructure) efforts. The Project Identification Program (PIP) Process is an ODOT technical grant program that connects communities in Oregon with planning assistance to identify needs and opportunities near one or more Schools, **focusing on streets within a quarter-mile of the School, as well as critical issues within a mile of the School.**

The goals of the PIP process are:

- To engage school stakeholders around identifying and prioritizing projects that will improve walking and bicycling routes to Schools.
- To identify and refine specific projects that are eligible for the ODOT SRTS Infrastructure Grants and prepare jurisdictions to apply for the funding.

CTUIR transportation planning staff, Charter School Board members, Yellowhawk Tribal Health staff, ODOT Region 5 staff, and Umatilla County staff worked with a consultant team from Alta Planning + Design to complete the Phase 1 SRTS Plan.

For more information on the program, visit: <https://www.oregon.gov/ODOT/Programs/Pages/SRTS-Project-Identification-Program.aspx>.

What is Safe Routes to School (SRTS)?

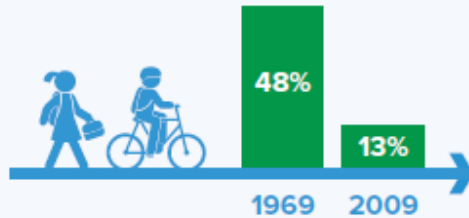
SRTS is a comprehensive program to **make School communities safer** by combining engineering tools and enforcement with education about safety and activities to enable and encourage students to **walk and bicycle to School**. SRTS programs typically involve partnerships among municipalities, school districts, community members, parent volunteers, and law enforcement.

The benefits of implementing a SRTS plan are far-reaching and include improving safety, encouraging physical activity, increasing access to school, and reducing traffic congestion and motor vehicle emissions near schools. Implementing SRTS programs and projects benefit adjacent neighborhoods, as well as students and their families, by reducing traffic conflicts and enabling walking and biking trips for all purposes.

Why Safe Routes to School?

THE PROBLEM

Within the span of one generation, the percentage of children walking or bicycling to school has decreased **73%**.



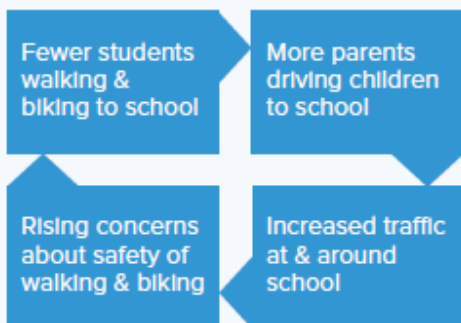
Children and adolescents should have **60 minutes (1 hour)** or more of physical activity daily.



Roads near schools are congested, decreasing safety and air quality for children.



This movement away from active transportation is a **self-perpetuating cycle**.



THE SOLUTION

Safe Routes to School programs and activities help overcome obstacles to walking, biking, and skating by **improving safety** and making it **fun and convenient for everyone**.



SRTS education and encouragement programs can result in a **25% increase** in walking and biking over five years.



When education and encouragement programs are combined with infrastructure improvements, such as sidewalks and safe crossings, SRTS can result in a **45% increase** in walking and biking.



1 mile of walking each way to school equals **2/3 of the daily recommended 60 minutes** of physical activity.



* McDonald, Noreen, Austin Brown, Lauren Marchetti, and Margo Pedrosa. 2011. "U.S. School Travel 2009: An Assessment of Trends." American Journal of Preventive Medicine. + Centers for Disease Control. www.cdc.gov/physicalactivity/basics/children/index.htm
 ** McDonald, N., Steiner, R., Lee, C., Rhoulac Smith, T., Zhu, X., and Y. Yang. (2014). Impact of the Safe Routes to School Program on Walking and Bicycling. Journal of the American Planning Association.

Nixyáawii Community School Overview

Nixyáawii Community School

Principal:	Ryan Heinrich	Address:	46250 Timine Way, Pendleton, OR 97801
Enrollment:	93	% students eligible for free or reduced lunch:	65%
Grades Served:	9-12		
Type of School:	Charter		

Table 1: School Demographics

SCHOOL	AMERICAN INDIAN/ ALASKA NATIVE		NATIVE HAWAIIAN/ PACIFIC ISLANDER		BLACK/ AFRICAN AMERICAN	HISPANIC	WHITE, NON- HISPANIC	MULTIRACIAL
	Nixyáawii Community School	80.6%	0.0%	0.0%	0.0%	6.5%	4.3%	8.6%

Source: Oregon Department of Education 2019-2020 School year.

Table 2: Pendleton School District Languages

TOP 5 LANGUAGES SPOKEN (BY SCHOOL DISTRICT)	# STUDENTS
English	3213
Spanish	132
Chinese	5
Other	17
Total Languages Spoken: 15	

Source: Oregon Department of Education 2019-2020 School year.

PIP Outreach Process

In response to the COVID-19 global pandemic and the need for social distancing and school closures, the outreach process for this Plan took place virtually. The outreach process consisted of two components, a Virtual School Safety Assessment and an Online Public Input Tool.

The Virtual School Safety Assessment took place on June 25, 2020 and included representatives from CTUIR Transportation Planning, Nixyáawii School Board, Umatilla County, and ODOT Region 5.

In June and July 2020, community members were invited to provide feedback via an Online Public Input Tool that asked about the best routes to school and challenging locations to walk and bike. CTUIR Transportation Planning, Nixyáawii School Board, and Yellowhawk Tribal Health coordinated to spread the word about the Online Public Input Tool and posted information about the project and online tool, using the following methods to encourage participation:

- CTUIR and YellowHawk Tribal Health website and social media channels

- CTUIR June and July monthly newsletter
- Flyers sent home with school meal pick-up promoting the public input map

A total of 5 comments were provided on the online map, and 6 “likes” of existing comments to indicate support for the comment. These comments informed the construction recommendations on page 24.

Chapter 2. Vision and Goals for Safe Routes to Schools

Chapter will be completed during Phase 2, when public health circumstances allow for a site visit and community meeting to establish shared community goals for SRTS.

Chapter 3. Existing Conditions

Background Data

In advance of the School Safety Assessment, the consultant team collected and compiled existing conditions data and local context information, as well as information about documented community concerns, demographics, travel routes, existing facilities, traffic patterns, school environment, and other relevant details. After the Virtual School Safety Assessment and Online Public Input Tool comment period, the consultant team added contextual details learned from the participants.

Plan Review

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION TRANSPORTATION SYSTEM PLAN

The Transportation System Plan (TSP) addresses the transportation needs of the Umatilla Indian Reservation over the next 20 years, and considers key modes of travel including roadway, bicycle, pedestrian, transit, and rail. It is used to guide decisions related to the classification of existing and future roadways on the Reservation, the implementation of roadway design standards when new roads are built or existing ones are improved, the needs of bicyclists and pedestrians and public transit, and the enforcement of access management policies.

Although the Transportation System Plan was adopted in 2001, its prioritized list of transportation improvements remains relevant to SRTS planning efforts today. Notable guidance related to the pedestrian and bicycle systems in particular are highlighted below:

- Provide bicycle/pedestrian facility along Mission Road (County Road #900) from Highway 331 to the west Reservation boundary near Hal's Trailer Park. Construct a multi-use path along the south side of Mission Road.
- When roadway improvements are made to Highway 331, the East-West Connector Road and Mission Road shall consist of two 12-foot travel lanes, with 6-foot bike lanes, 6-foot sidewalks, and underground storm water drainage.
- Full implementation of all improvement projects would result in a safe and continuous pedestrian route along Highway 331 from Mission Road to South Market Road consisting of a combination of paved shoulders, sidewalks, and a multi-use path.
- Sidewalks should be present along all roads located in the urban or urbanizeable areas of the Reservation.
- In cases where bike lanes are proposed, five to six feet of roadway pavement should be provided between the curb and vehicle travel lane. Striping should also be provided to distinguish the bike lane from the travel lane.
- Multi-use paths should be paved and have a minimum width of eight feet.

MISSION COMMUNITY MASTER PLAN

The purpose of the Mission Community Master Plan is to plan and coordinate the future of the Mission Community, the tribal commercial and emerging tribal services center of the reservation, with a focus on the Central Business District and Governance Activity Center Subarea. The Master Plan grew from an analysis of three alternative ways to meet the need for improved connectivity and additional housing for tribal members, and was adopted in

March 2018. It contains recommendations that serve as a technical memo advising recommended changes to the Transportation System Plan (2001) as well as the Mission Community Plan (1998).

The Mission Community Master Plan focuses on the area adjacent to the intersection of Highway 331 and Mission Road, also referred to as the “Four Corners” area. Among its many land use and transportation recommendations, the plan assesses that there is a lack of improved trails and safe pedestrian and bicycle routes to connect areas within the Four Corners, and that the future of the Mission Community’s active transportation network is an expanded and interconnected system of multi-use pathways. Some of the plan’s transportation goals are to:

- Promote a Connected and Healthy Community. Create a more physically connected community that provides viable multi-modal transportation opportunities; strengthens access to natural and cultural assets and other important destinations throughout the community; and improves transportation choices and health outcomes.
- Include pedestrian, bicycle, rolling, horse, and transit facilities while developing street and on-site circulation designs.
- Support the development of a community-wide multi-use path system, which connects residential, commercial/employment, public use/service, and open space areas, specifically those that highlight significant natural and cultural elements.

A few specific proposed improvements to the pedestrian and bicycle transportation networks are detailed below, which help inform the SRTS planning effort:

- P-1: Install six-foot sidewalks along the north side of Mission Road.
- M-4: Construct a new multi-use path connecting the Nixyáawii Governance Center to the Four Corners Area.
- B-1; B-2: Widen Mission Road and install bicycle lanes along the north side all the way east to Cedar Street; Widen Mission Road and install bicycle lanes along the south side from Short Mile Road to Cedar Street.

Figure 1. Mission Community Master Plan Future Pedestrian and Transit Facilities

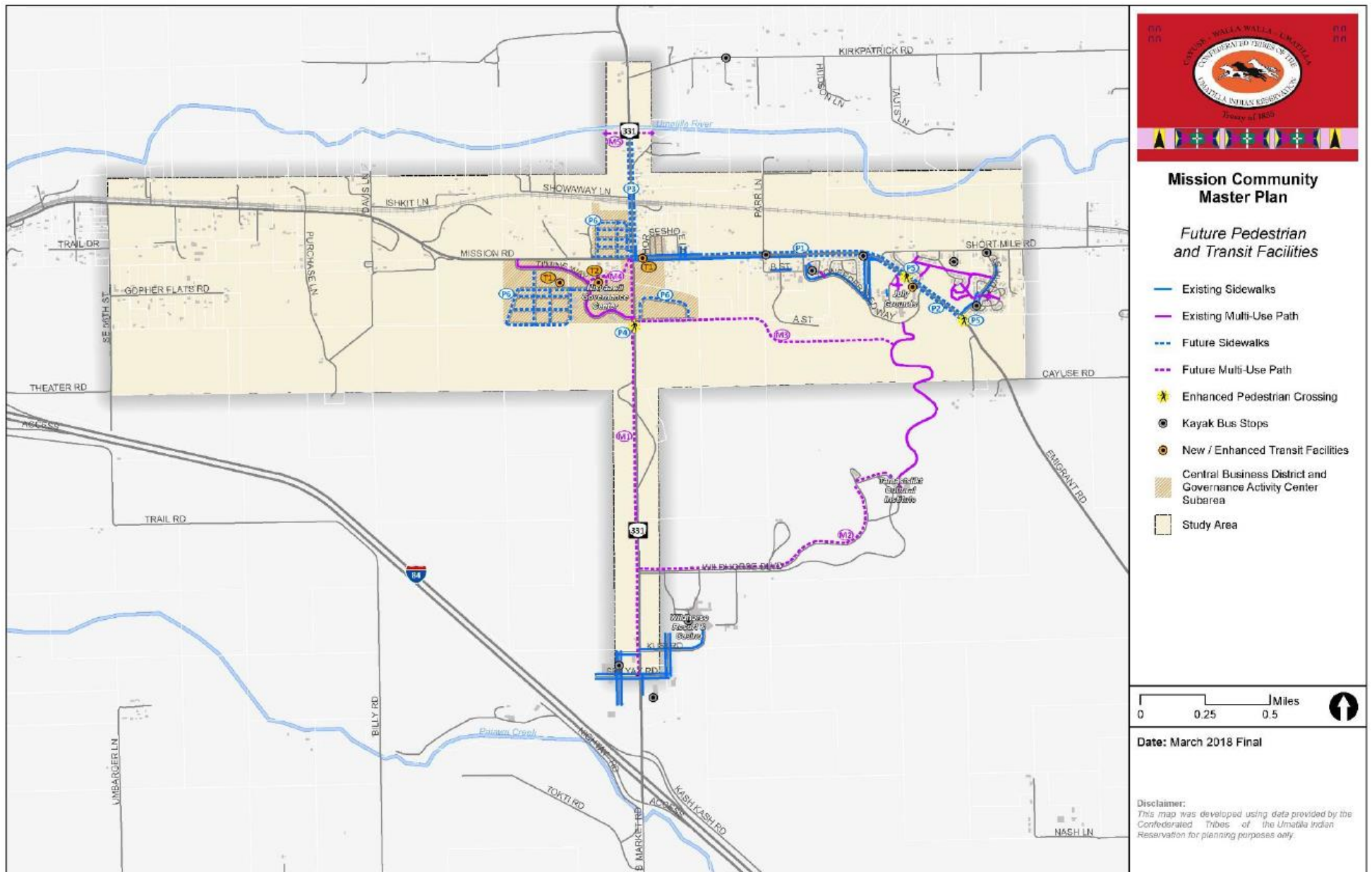
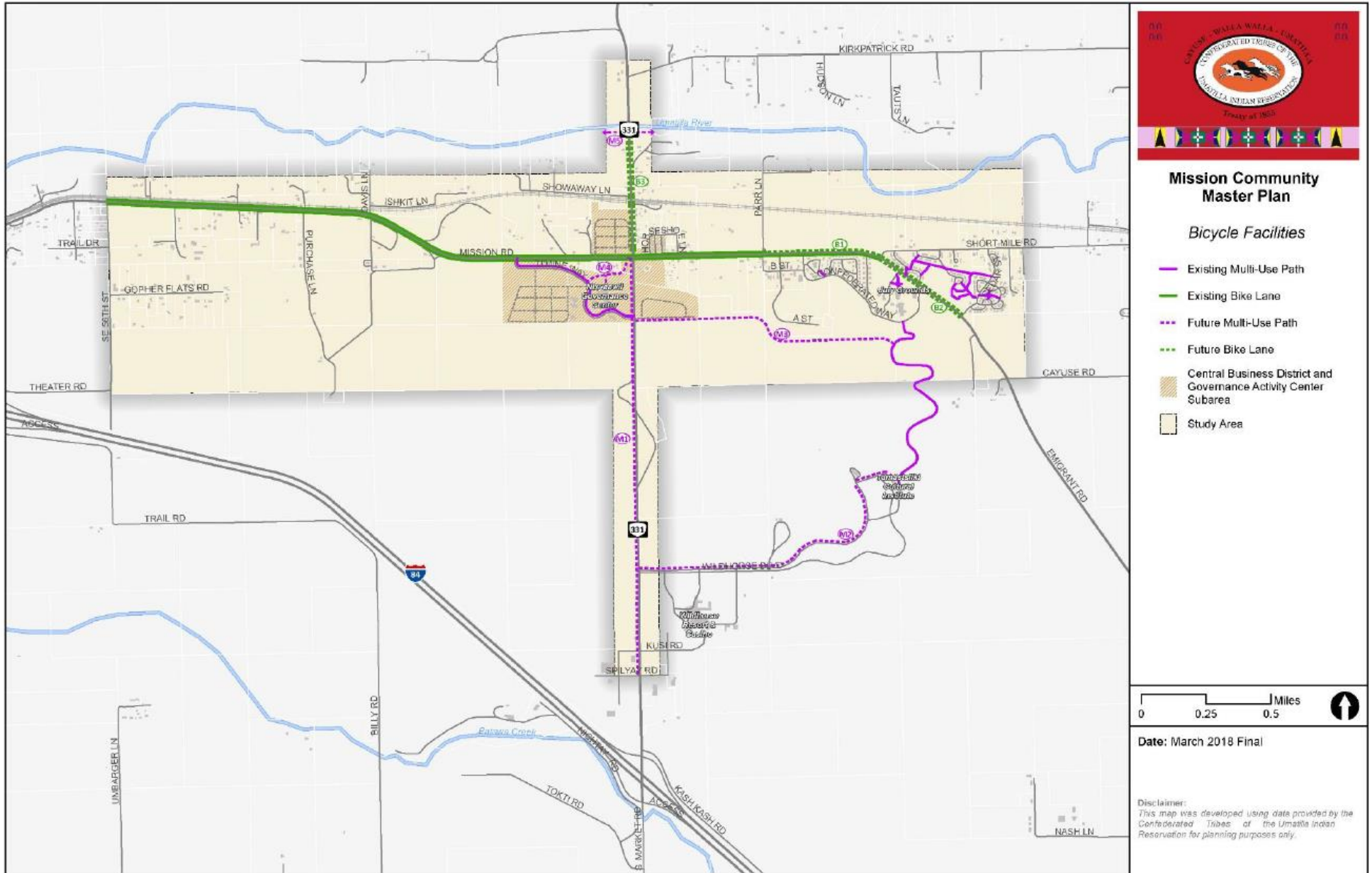


Figure 2. Mission Community Master Plan Bicycle Facilities



The Mission Community Master Plan also identifies the intersection of OR 331 and Mission Rd as a key intersection, which has been similarly identified in planning for safe routes to Nixyáawii Community School (Figure 3).

The plan calls for these improvement alternatives to the OR 331 and Mission Rd intersection:

1. Signalize the intersection
2. Construct separate left-turn lanes on all four intersection approaches
3. Construct a separate right turn lane on the northbound approach.

OR

1. Construct a single lane roundabout (Figure 4)
2. Realign the northbound and southbound approaches to avoid impacts to the Mission Market.

Figure 3. Mission Rd and Highway 331 Concept 1 (Mission Community Master Plan)



Figure 4. Mission Rd and Highway 331 Concept 2 (Mission Community Master Plan)



For a complete list of existing and planned pedestrian and bicycle facilities, as well as engineering design standards see pages 24-35 of the Mission Community Master Plan.

HIGHWAY 331 CORRIDOR PLAN – OREGON DEPARTMENT OF TRANSPORTATION

In 1995, there was a surge in economic and transportation activity along Highway 331 tied to the development of the Wildhorse Gaming Resort, located along the east side of Highway 331 approximately three-quarters of a mile north of Interstate 84. The Highway 331 Corridor Plan was subsequently developed to address the existing and emerging transportation needs of the highway corridor for the following 20 years since its adoption in 2002 and constitutes a public facility plan for ODOT.

The following projects in the prioritized implementation plan set forth in this document are especially relevant to the SRTS planning effort:

- Mission Road at Highway 331 – Modify intersection to include stop control at all four approaches, construct sidewalks and curbing with handicap ramps on all four corners, and provide striping for crosswalks. Must be reviewed by state traffic engineer. (Note that this project has been partially implemented, with sidewalks and curbing with handicap ramps on all four corners and crosswalk striping not done).
- East-West Connector Road – Extend urban connector road from the new intersection at Highway 331 to the west and then north to a new intersection with Mission Road. (Note this project has been implemented.)
- Mission Road Bike/Ped Facility – Provide bicycle/pedestrian facility along Mission Road (County Road #900) from Highway 331 to the west Reservation boundary near Hal’s Trailer Park (Option 1: Construct a multi-use path along the south side of Mission Road. Option 2: Widen roadway to include paved shoulders.)
- Highway 331 Sidewalks and Bike Lanes – Provide bike lanes, curb and gutter, and sidewalks along Highway 331 from Mission Road to proposed East-West Connector Road.

For a complete list and map of the prioritized projects, see page 9 of the Highway 331 Corridor Plan.

CTUIR VISIONING AND BEAUTIFICATION MASTER PLAN

Adopted in July 2009, the CTUIR Visioning and Beautification Master Plan was a conceptual study that sought to:

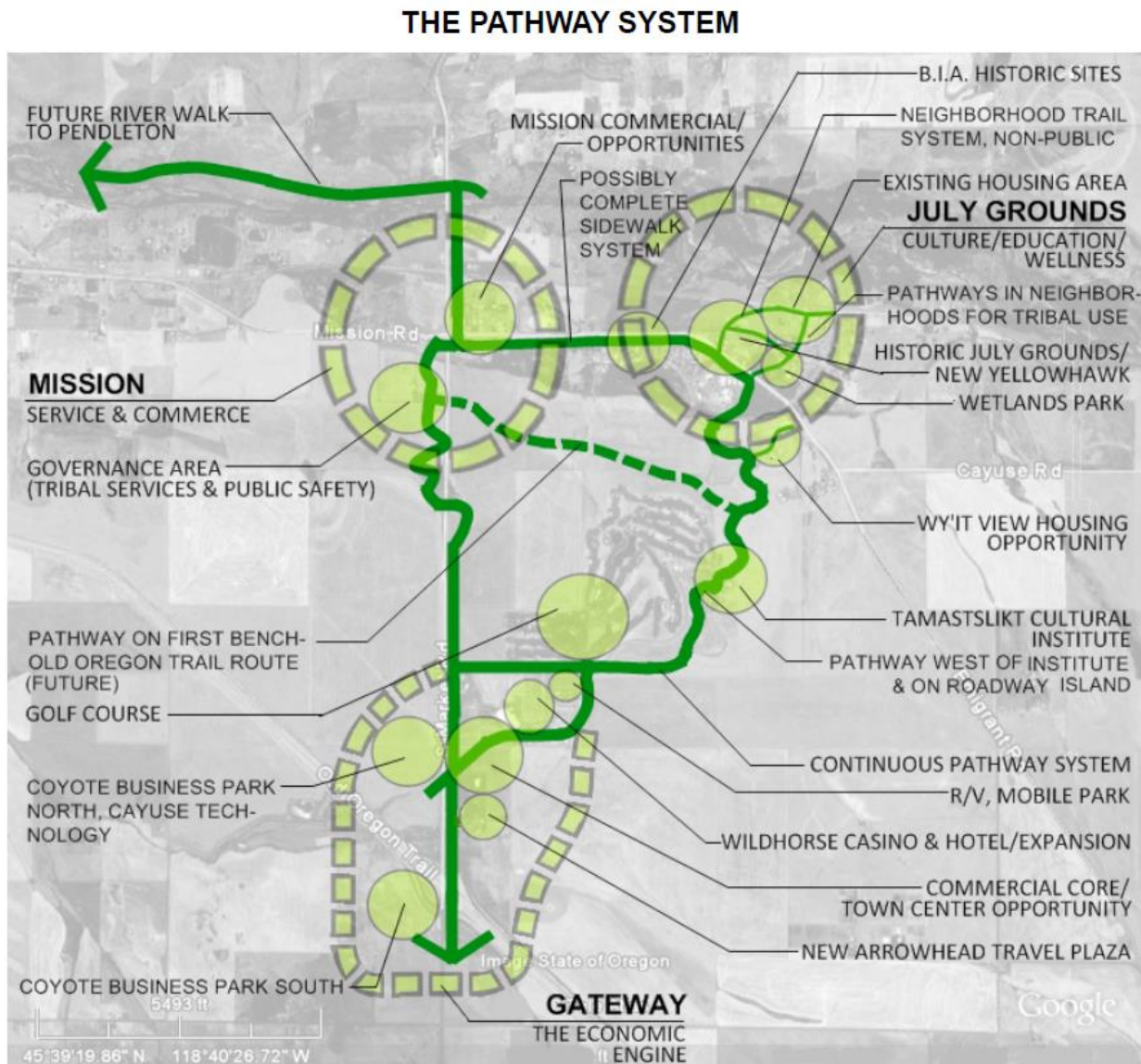
- Create and further enhance non-motorized connectivity of the land uses in the study area;
- Incorporate safety, exercise and health
- Create and enhance visual and aesthetic continuity between and within the diverse uses currently located on and planned for the most developed reservation lands.

The plan identifies three diverse general areas of current and planned development:

- Mission: the tribal commercial and emerging tribal services center of the reservation.
- July Grounds: the cultural, educational, wellness and housing center.
- Gateway: the economic engine, featuring most of the visitor draws, development and employment opportunities.

The plan notes in its conclusion that there is a unique and valuable opportunity for non-motorized connectivity, aesthetic continuity, entrance definition, recreation/exercise and education/interpretation on the most developed lands of the CTUIR. The plan conceptually indicates a pathway system, as a loop system and otherwise, connecting all three major developed “communities” listed above, which has implications for SRTS planning.

Figure 5. The Pathway System, CTUIR Visioning and Beautification Master Plan



CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION COMPREHENSIVE PLAN

Adopted in September 2010 and updated in November 2018, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Comprehensive Plan (Plan) articulates a vision for the future of the CTUIR community that sustains the values of the people and establishes a flexible policy framework to guide decisions on a continuing basis.

The Plan directs the creation of Tribal statutes and plans; the implementation of actions and services that support the vision. The Plan reflects the long-term values and aspirations of the CTUIR community as a whole and shows how various elements, such as economy, land base restoration, housing, transportation, community facilities, natural resources, health, education and culture can work together to achieve a desired vision.

The objectives within the transportation chapter that are especially relevant to the SRTS planning and implementation effort are highlighted below:

- Develop and maintain a transportation asset system that is safe, environmentally sensitive and economically sound and promotes the public health with future transportation in mind.
- Ensure public or personal transportation to meet cultural, economic, personal employment, health and other needs for all residents, particularly at-risk populations.

Finally, the Comprehensive Plan notes that the transportation safety, safety education and law enforcement, public transportation, new or reconstructed roads, and other transportation methods such as sidewalks, and multi-use paths are all needed for modern day transportation systems.

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION CAPITAL IMPROVEMENTS PROGRAM 2013-2030

The CTUIR Capital Improvement Plan is a financial tool for scheduling projects needed to accomplish the goals of the Tribes' Comprehensive Plan over time. It identifies projects, establishes and schedules priorities and commits needed funds.

While the plan outlays funding options for a range of transportation projects, there are some that are specifically related to active transportation both in the short term (2012-2015) and mid-term (2016-2020):

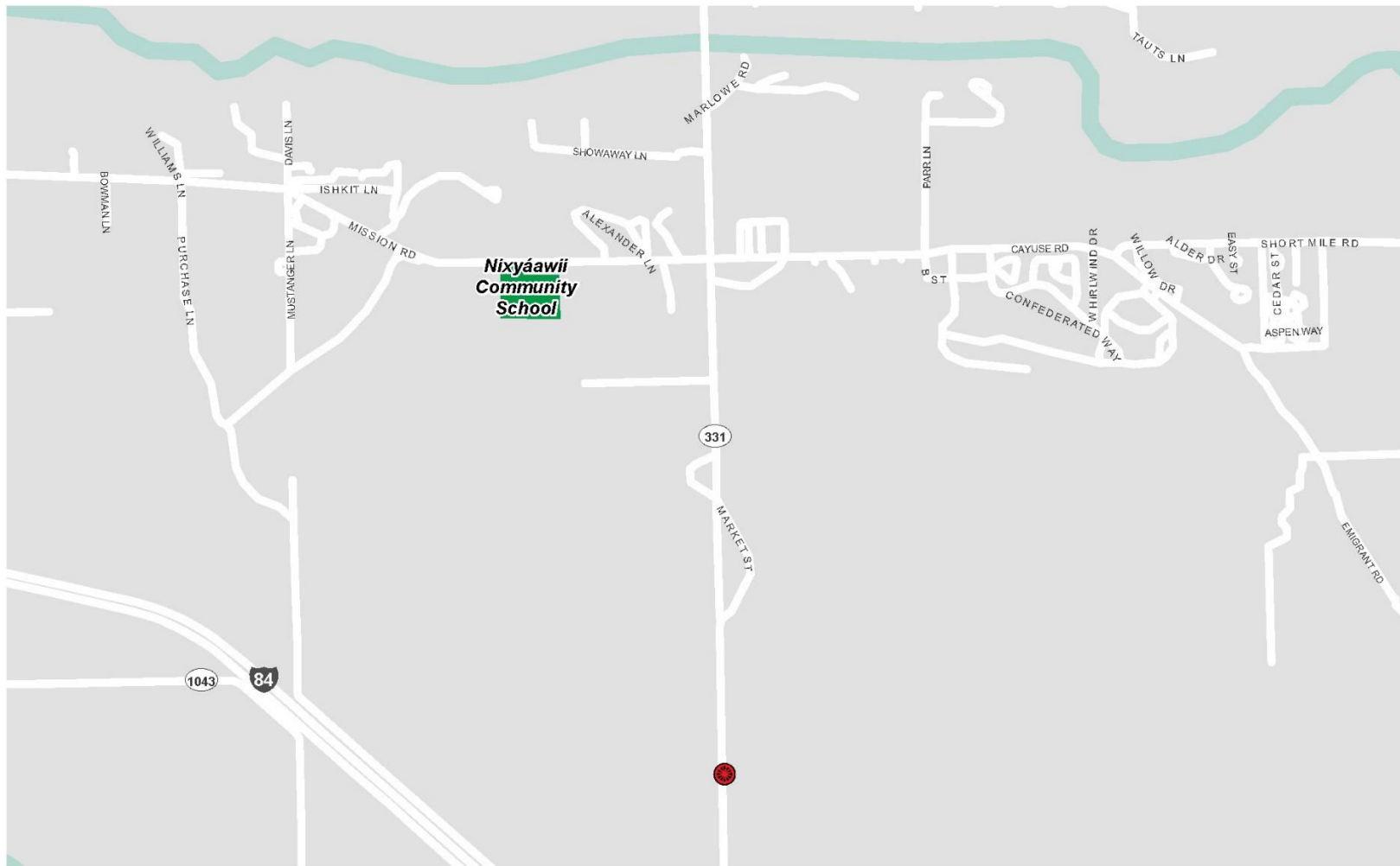
- 1.) M – 5: A trail connecting the CTUIR Governance Center with Mission Market. The trail is envisioned as one piece of a larger trail system connecting the Mission, July Grounds and Gateway neighborhoods.
- 2.) C – 3: A bridge is envisioned across Hwy 331 as part of a larger trail system connecting neighborhoods within the reservation. There is a natural place for the bridge where the topography on each side of the road rises south of the Governance Center.
- 3.) C – 4: A connecting network of trails is envisioned for pedestrians to safely move from the July Grounds and Mission neighborhoods to the Gateway commercial area. Paved and bark components of the trail would allow for ADA access as well as horse travel. The early phase would be an east-west connector between Yellowhawk clinic/ July grounds housing and the Mission Road intersection with Hwy 331; A later phase would be a north south link adjacent to Hwy331 between Mission Road and Coyote Business Park/ Wildhorse.

For a complete list of projects in the Capital Improvements Program, see page 20 of the report.

Crash History

Figure 6 and Figure 7 document all crashes near Nixyáawii Community School from 2012 to 2018. (Note that the most recent vehicle-only collision data is only through 2016). There was a fatal crash with a person biking in June of 2018. While this occurred more than a mile away from the school, the severity of the crash warranted acknowledgement in this report. Also, it is important to note that crash data do not record near misses and unreported incidents.

Figure 6: Crashes near Nixyáawii Community School



Nixyáawii Community School Bicycle and Pedestrian Collisions (2012-2018)

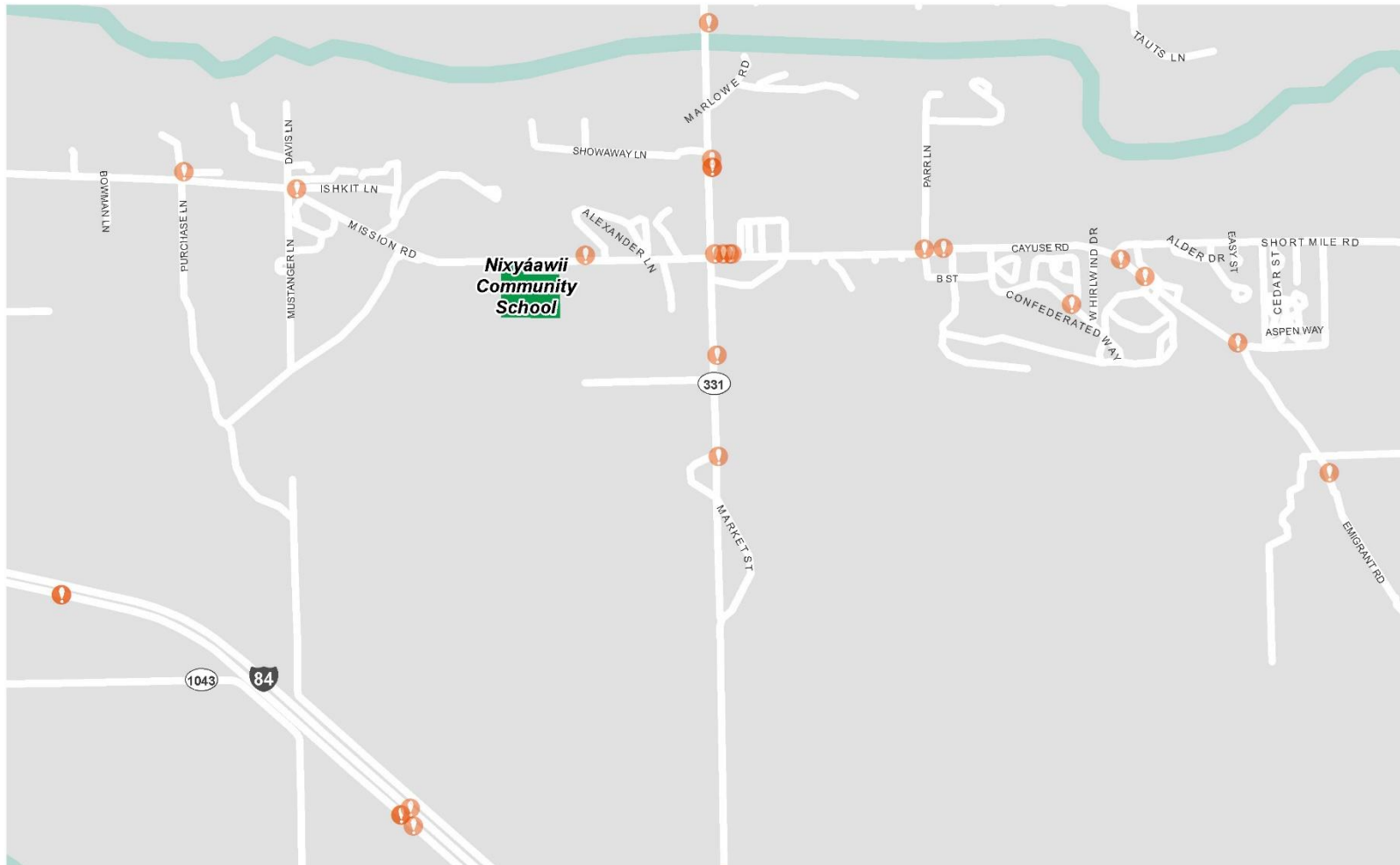


- | | | | | | |
|--|---------------------------|--|------------------------------|--|-------------------------|
| | Bicycle: Fatal Injury | | Pedestrian: Fatal Injury | | Primary Affected School |
| | Bicycle: Non-Fatal Injury | | Pedestrian: Non-Fatal Injury | | Other School |
| | Bicycle: No Injury | | Pedestrian: No Injury | | |




Source: Crash Analysis and Reporting Unit, ODOT (2012-2018)

Figure 7. Vehicle-Only Collisions near Nixyáawii Community School



Nixyáawii Community School Vehicle-Only Collisions (2012-2016)

-  Vehicle-Only Collision
-  Primary Affected School
-  Other School



Source: Crash Analysis and Reporting Unit, ODOT (2012-2016)

School Attendance Area and Transportation Policies

Nixyáawii Community School is a charter school located in the Pendleton School District. Currently, Nixyáawii Community School or Pendleton School District do not have any specific transportation policies in place to address walking and biking to school.

Previous SRTS Efforts or Walking/Biking Engagement Activities

Nixyáawii Community School does not have any existing SRTS efforts. However, Yellowhawk Tribal Health was recently awarded a Federal CDC grant that will fund some SRTS engagement at the school including walk + roll events, pedestrian education, and family outreach.

Nixyáawii Community School Virtual School Safety Assessment

The School Safety Assessment consisted of a Zoom Conference call among project partners, due to social distancing guidelines and School closures in response to the COVID-19 global pandemic. During the Virtual School Safety Assessment, the team discussed potential solutions to identified challenges with a particular focus on construction projects eligible for the ODOT SRTS Competitive Infrastructure Grant.

Date: June 25, 2020

Meeting Time: 10-11:30am

Attendees:

Facilitators

- Dani Schulte, CTUIR
- Randall Melton, Nixyáawii Community School Board
- Kenneth Patterson, ODOT Region 5
- Paul Howland, ODOT Region 5
- Tom Fellows, Umatilla County
- Katie Selin, Alta Planning + Design
- Kirk Paulsen, Alta Planning + Design
- Philip Longenecker, Alta Planning + Design

Key Themes from Outreach Process

Community members were invited to provide feedback via an Online Public Input Tool that asked about the best routes to school and challenging locations to walk and bike. A total of 5 comments were provided on the online map, and 6 “likes” of existing comments to indicate support for the comment. These comments informed the construction recommendations on page 24.

KEY THEMES FROM OUTREACH PROCESS

- Hwy 331 and Mission Rd intersection is a significant barrier for people walking and biking near the Nixyáawii Community School.
- Community members would like to be able to walk longer distances to reach the school and other destinations such as the Senior Center, Wildhorse Casino, and Pendleton.

Nixyáawii Community School Photos (Provided by CTUIR or Google Maps)



Hwy 331 and Mission Rd is the most significant barrier for students walking and biking to school.



Students cross from a bus stop on the south side of Mission Rd at Parr Ln without a marked crossing.



Community members report speeding traffic and lack of visibility for pedestrians and people biking through the Mission Rd curves approaching the school road at Timine Way.



Facing south from Timine Way Trail on campus, new curb ramps and crosswalks provide safe, comfortable crossings for students.

Bike and Pedestrian Facility Inventory

The bike and pedestrian facility inventory confirmed existing infrastructure conditions, and filled gaps in ODOT and CTUIR data focusing on all streets within a quarter mile of the School. In response to the COVID-19 global pandemic and the need for social distancing and School closures, the bike and pedestrian facility inventory was completed virtually to the best of the consultant's ability. An on-site inventory will be completed when circumstances allow for a site visit. As part of the online bike and pedestrian facility inventory, the consultant team collected the following information about general infrastructure deficiencies and needs:

- **Sidewalk deficiencies** – lack of continuity, insufficient width, poor surface condition, non-compliant cross-slopes and driveways, lack of separation from the travel lane, and obstacles (utility/light poles, signs, and vegetation)
- **School area signs and pavement markings** – presence, placement, and condition

- **Paths** – formal or informal, surface material
- **Bike lanes** – lack of continuity, insufficient width or markings, presence of on-street parking, speed and volume of traffic, poor pavement condition
- **Bicycle, scooter, and/or skateboard parking** – presence, location, visibility, degree of security, and utilization
- **Drop-off/pick-up areas** – designated areas, curb paint, and signs
- **Visibility** – insufficient pedestrian lighting, line of sight obstacles (parked cars, vegetation, signs, and poles)

The following types of information about street crossings were collected virtually by the consultant during the bike and pedestrian facility inventory:

- **Traffic signals** – pedestrian signals, push-button location and reach distance, signing, countdown feature, accessible pedestrian signal feature, and sufficient crossing time.
- **Marked crosswalks** – condition, type, signs, visibility, and whether ramp is contained within crosswalk markings.
- **Curb ramps** – presence at corners, ADA-compliant design (tactile domes, ramp and flare slope, level landing).
- **Connections with neighborhood trails or paths and transit** - signage, bike parking, ease of connection to transit hubs, parks, or schools.

Deficiencies and needs identified in the bike and pedestrian facility inventory inform the construction recommendations described in Table 3. *Note: All facilities listed above may not be present in every community, but serve as a general list.*

Chapter 4. Needs & Recommendations

Construction Recommendations

In response to the COVID-19 global pandemic and the need for social distancing and school closures, the recommendations included below are based on a virtual assessment of the site and are focused on short-term construction recommendations that are eligible for ODOT SRTS Competitive Infrastructure Grant Funding. When circumstances allow for an in-person site assessment and community meeting additional recommendations will be provided, including longer-term construction recommendations, construction recommendations on School grounds, and education and encouragement recommendations that complement infrastructure improvements and promote safe walking and bicycling to and from the School and in the community.

The construction recommendations identified below are based on:

- Existing conditions data
- Community feedback from the Online Public Input Tool
- Jurisdiction input

Table 3 lists the needs identified at each location and ensuing infrastructure recommendations, as well as the relative priority of the recommendation, a high-level cost, the agency responsible for implementing the recommendation, and the potential funding source for construction.

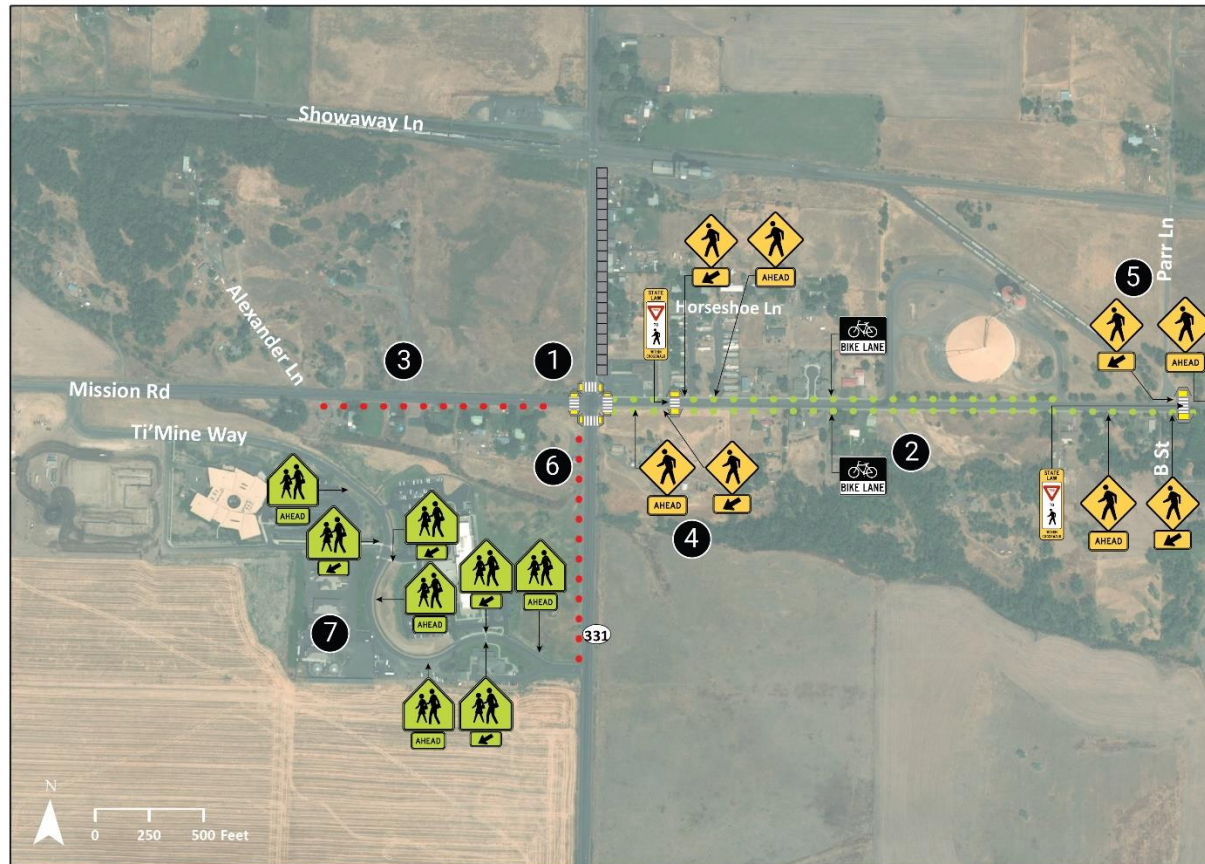
Table 3. Nixyáawii Community School Construction Needs and Recommendations

ISSUE/ CHALLENGE	RECOMMENDATION	PRIORITY LEVEL	PLANNING LEVEL COST	RESPONSIBLE AGENCY	POTENTIAL FUNDING SOURCE
Mission Road					
<i>The intersection of Mission Rd and Hwy 331 (also known as the Four Corners intersection) lacks crossing infrastructure, raising safety concerns for students walking and biking in the area.</i>	<i>Install perpendicular curb ramps on all four corners of the intersection. Install 2' wide high visibility white thermoplastic continental crosswalk markings across each leg of the intersection. Upgrade the stormwater system and review pedestrian lighting needs at the intersection, as necessary.</i>	<i>High priority Near-term</i>	\$\$\$	<i>ODOT, CTUIR, Umatilla County</i>	<i>ODOT SRTS Construction Grant</i>
	<i>Obtain and review speed data east of Four Corners along Mission Rd to determine feasibility of a speed reduction request.</i>	<i>Long-term</i>	\$	<i>ODOT, CTUIR, Umatilla County</i>	NA
<i>Cars and trucks illegally park along Mission Rd in the bike lane, for example to access Mission Market. The existing bike lanes are relatively wide, similar in size to a typical parking lane, and lack signs and markings identifying the intended use of the facility.</i>	<i>Install bike lane symbol pavement markings and stripe a buffer within the existing bike lanes east of the Four Corners intersection about 2,100 feet along the north side of the road and about 4,200 feet along the south side of the road. Install accompanying bike lane signs.</i>	<i>Near-term</i>	\$	<i>Umatilla County</i>	
<i>Students living north of Mission Rd and west of the Four Corners intersection do not have a designated crossing of Mission Rd west of the intersection, despite bus pick up and drop off occurring along this stretch.</i>	<i>Review the community's desire to construct a multi-use path along the south side of the road as had been indicated in previous planning documents. Consider enhanced crossings across Mission Rd, such as at Alexander Ln and Timine Way, based on anticipated crossing demand. At Mission Rd and Timine Way, review existing pedestrian crossing demand to determine applicability of installing a Rectangular Rapid Flashing Beacon (RRFB) including 2' wide high</i>	<i>Long-term</i>	\$\$-\$\$\$\$	<i>CTUIR</i>	

ISSUE/ CHALLENGE	RECOMMENDATION	PRIORITY LEVEL	PLANNING LEVEL COST	RESPONSIBLE AGENCY	POTENTIAL FUNDING SOURCE
	<p><i>visibility white thermoplastic continental crosswalk markings with associated school crossing warning signage and perpendicular curb ramps.</i></p> <p><i>If existing pedestrian crossing demand is currently deemed insufficient for the suggested improvements, consider requiring future housing development to construct crossing enhancements.</i></p>				
<p><i>Students living along and adjacent to Horseshoe Lane are dropped off by bus on the south side of Mission Rd, and are likely to dash directly across Mission Rd rather than walking to the Four Corners intersection to cross.</i></p>	<p><i>At Mission Rd and Horseshoe Lane, install perpendicular curb ramps on each side of Mission Rd. Install 2' wide high visibility white thermoplastic continental crosswalk markings with associated warning signage across Mission Rd.</i></p>	<p><i>Medium-term</i></p>	<p><i>\$\$-\$</i></p>	<p><i>Umatilla County</i></p>	<p><i>ODOT SRTS Construction Grant</i></p>
<p><i>Students living along and adjacent to Parr Ln and B St are picked up and dropped off at bus stops along Mission Rd and lack crossing infrastructure at this location, raising safety concerns for students walking in the area.</i></p>	<p><i>At Mission Rd and B St, install 2' wide high visibility white thermoplastic continental crosswalk markings with perpendicular curb ramps and associated warning signage, across Mission Rd, on the east leg of the Parr Ln/B St and Mission Rd intersection. Review the feasibility of and need for enhancing the crossing with a RRFB for safety reasons. Designate a formal school bus stop on the south side of Mission Rd at this location.</i></p>	<p><i>Near-term; High priority</i></p>	<p><i>\$\$-\$</i></p>	<p><i>Umatilla County</i></p>	<p><i>ODOT SRTS Construction Grant</i></p>
<p><i>Community input indicated that sidewalk gaps along Mission Road between Confederated Way</i></p>	<p><i>Install 6'sidewalks along the south side of Mission Rd / Cayuse Rd between the western intersection of Confederated Way and Cedar St.</i></p>	<p><i>Long-term</i></p>	<p><i>\$\$-\$\$\$</i></p>	<p><i>Umatilla County</i></p>	

ISSUE/ CHALLENGE	RECOMMENDATION	PRIORITY LEVEL	PLANNING LEVEL COST	RESPONSIBLE AGENCY	POTENTIAL FUNDING SOURCE
<i>and Cedar St are a barrier for students walking and biking to school.</i>	<i>Install 6' sidewalks along the north side of Cayuse Rd between Short Mile Rd and Cedar St, as project budget allows.</i>				
	<i>Upgrade the two existing marked crosswalks to ADA standards within the segment of roadway, and review additional marked crossing locations if installing only south side sidewalks.</i>				
Hwy 331					
<i>There are currently no sidewalks south of the Four Corners intersection, and approximately 175' of sidewalk north of the intersection. There is a history of train-pedestrian crashes at the railroad crossing north of Four Corners.</i>	<i>Install 6' sidewalks along the east side of Hwy 331 north of the existing sidewalk at the Four Corners intersection extending to Showaway Ln.</i>	<i>Near-term</i>	<i>\$\$\$</i>	<i>ODOT</i>	<i>ODOT SRTS Construction Grant</i>
	<i>Install a 12' multi-use path along the west side of Hwy 331 south of the Four Corners intersection extending to Timine Way.</i>	<i>Near-term; High priority</i>	<i>\$\$-\$\$\$</i>	<i>ODOT</i>	<i>ODOT SRTS Construction Grant</i>
Timine Way					
<i>Timine Way is the main road that students utilize to access school, and the current pedestrian crossing signage around the school should be updated.</i>	<i>Install bidirectional Pedestrian Crossing signs (S1-1 and W16-7P, S1-1 and W16-9P) in advance of the crosswalks on Timine Way.</i>	<i>Near-term; High priority</i>	<i>\$</i>	<i>CTUIR</i>	<i>ODOT SRTS Construction Grant</i>

Figure 8. Nixyaawii SRTS Construction Improvements Map



Map produced July 2020

- 1 Mission Road and Hwy 331: Install perpendicular curb ramps on all four corners of the intersection. Install 2' wide high visibility white thermoplastic continental crosswalk markings across each leg of the intersection. Upgrade the stormwater system and review pedestrian lighting needs at the intersection, as necessary.
- 2 Parking along Mission Road: Install bike lane symbol pavement markings and stripe a buffer within the existing bike lanes east of the Four Corners intersection about 2,100 feet along the north side of the road and about 4,200 feet along the south side of the road. Install accompanying bike lane signs.
- 3 Mission Road and Hwy 331: Review the community's desire to construct a multi-use path along the south side of the road as had been indicated in previous planning documents. Consider enhanced crossings across Mission Rd, such as at Alexander Ln and Ti'mine Way, based on anticipated crossing demand.
- 4 Mission Road and Horseshoe Lane: Install perpendicular curb ramps on each side of Mission Rd. Install 2' wide high visibility white thermoplastic continental crosswalk markings with associated warning signage across Mission Rd (R1-6a, W11-2 with 16-7P and W11-2 with 16-9P).
- 5 Mission Road and B St: Install 2' wide high visibility white thermoplastic continental crosswalk markings with perpendicular curb ramps and associated warning signage, across Mission Rd, on the east leg of the Parr Ln/B St and Mission Rd intersection (R1-6a, W11-2 with 16-7P and W11-2 with 16-9P).
- 6 Hwy 331: Install 6' sidewalks along the east side of Hwy 331 north of the existing sidewalk at the Four Corners intersection extending to Showaway Ln. Install a 12' multi-use path along the west side of Hwy 331 south of the Four Corners intersection extending to Ti'Mine Way.
- 7 Ti'Mine Way: Install bidirectional Pedestrian Crossing signs (S1-1 with W16-7P, S1-1 with W16-9P) in advance of the crosswalks on Ti'Mine Way.

Mission Road between Confederated Way and Cedar Street: Install 6' sidewalks along the south side of Mission Rd / Cayuse Rd between the western intersection of Confederated Way and Cedar St (not pictured in map extent).
Install 6' sidewalks along the north side of Cayuse Rd between Short Mile Rd and Cedar St, as project budget allows (not pictured in map extent).
Upgrade the two existing marked crosswalks to ADA standards within the segment of roadway, and review additional marked crossing locations if installing only south side sidewalks (not pictured in map extent).

Legend

- | | | | |
|---|---|--|---|
|  Crosswalk |  Multi-use path |  W11-2 with 16-9P |  S1-1 with 16-9P |
|  Sidewalk Improvements |  Buffered bike lane with pavement markings |  W11-2 with 16-7P |  S1-1 with 16-7P |
|  Curb Ramp |  R1-6a | | |
|  R13-7 | | | |

High Priority Improvements for the ODOT Infrastructure Grant Application

The following are top priority improvements recommended for the Competitive ODOT SRTS Construction Grant Application:

ISSUE/ CHALLENGE	RECOMMENDATION
<p><i>The intersection of Mission Rd and Hwy 331 (also known as the Four Corners intersection) lacks crossing infrastructure, raising safety concerns for students walking and biking in the area.</i></p>	<p><i>Install perpendicular curb ramps on all four corners of the intersection. Install 2' wide high visibility white thermoplastic continental crosswalk markings across each leg of the intersection. Upgrade the stormwater system and review pedestrian lighting needs at the intersection, as necessary.</i></p>
<p><i>There are currently no sidewalks south of the Four Corners intersection, and approximately 175' of sidewalk north of the intersection. There is a history of train-pedestrian crashes at the railroad crossing north of Four Corners.</i></p>	<p><i>Install a 12' multi-use path along the west side of Hwy 331 south of the Four Corners intersection extending to Timine Way.¹</i></p>
<p><i>Students living along and adjacent to Parr Ln and B St are picked up and dropped off at bus stops along Mission Rd and lack crossing infrastructure at this location, raising safety concerns for students walking in the area.</i></p>	<p><i>At Mission Rd and B St, install 2' wide high visibility white thermoplastic continental crosswalk markings with perpendicular curb ramps and associated warning signage, across Mission Rd, on the east leg of the Parr Ln/B St and Mission Rd intersection. Review the feasibility and need to enhance the crossing with a RRFB for safety reasons. Designate a formal bus stop on the south side of Mission Rd at this location.</i></p>
<p><i>Timine Way is the main road that students utilize to access school, and the current pedestrian crossing signage around the school should be updated.</i></p>	<p><i>Install bidirectional Pedestrian Crossing signs (S1-1 and W16-7P, S1-1 and W16-9P) in advance of the crosswalks on Timine Way.</i></p>

Additional details that will be needed to complete the application are provided in Table 4.

¹ The following additional recommendation has been cost-estimated below but has been removed from the near-term list because it is not recommended for the current grant opportunity: Install 6' sidewalks along the east side of Hwy 331 north of the existing sidewalk at the Four Corners intersection extending to Showaway Ln.

Table 4. Project Details for ODOT Competitive Infrastructure Grant

GRANT CRITERIA/QUESTION	RESPONSE FOR CTUIR
<i>Relevant Right of Way ownership</i>	<i>CTUIR transferring right-of-way ownership to ODOT for proposed multi-use path (MUP) adjacent to Hwy 331. No ot</i>
<i>Utility implications and opportunities to mitigate</i>	<i>Location of the proposed multi-use path (MUP) may conflict with the location of existing utility poles. Opportunity to design the MUP to avoid conflict with existing utility poles, dependent on available ROW and/or easements.</i>
<i>Environmental resource implications</i>	<i>Revisions to existing ditches may trigger wetland mitigation requirements because open ditches may be considered as surface water habitat. Proposed improvements have the potential to require archaeological evaluations and determinations.</i>
<i>Stormwater management implications</i>	<i>Revisions to existing ditches may trigger wetland mitigation requirements.</i>
<i>Near a rail road? Or bridge, tunnel, retaining wall affected?</i>	<i>No</i>
<i>AADT</i>	<i>Hwy 331 = 3,400, Mission Rd = 6,500, Timine Way = unknown</i>
<i>Priority Safety Corridor</i>	<i>Yes</i>

Table 5. Competitive Grant Cost Estimates: Four Corners Intersection Upgrades

ITEM DESCRIPTION	UNIT ²	UNIT COST	EST QTY	EST COSTS
Demo existing sidewalk/ramps	SF	\$ 6	600	\$ 3,600
Demo existing curb and gutter	LF	\$ 15	100	\$ 1,500
Remove pavement markings	LF	\$ 3	72	\$ 216
Install perpendicular curb ramp	EA	\$ 10,000	8	\$ 80,000
Install curb and gutter	LF	\$ 25	250	\$ 6,250
Install 6' wide sidewalk	SF	\$ 25	1500	\$ 37,500
Install 4 marked crosswalks with thermoplastic continental markings	SF	\$ 8	432	\$ 3,456
Install 4 stop bars	SF	\$ 8	120	\$ 960
Remove existing catch basin	EA	\$ 500	2	\$ 1,000
Install catch basin	EA	\$ 3,000	2	\$ 6,000
Install 3 luminaires	LS	\$ 37,500	1	\$ 37,500
Relocate street signs	LS	\$ 1,000	1	\$ 1,000
Traffic Mobilization (10%)	EA	\$ 17,367	1	\$ 17,367
Traffic Control (15%)	EA	\$ 26,050	1	\$ 26,050
Erosion Control (2%)	EA	\$ 3,473	1	\$ 3,473

² SF = Square Feet, LF = Linear Feet, EA = Each, LS = Lump Sum, CA/CEI = Construction Administration/Construction Engineering Inspections

			Sub- total	\$225,872
Contingency	%	40%		\$90,349
CA/CEI	%	15%		\$47,433
Total Estimated Construction Costs				\$363,654
Preliminary Engineering/Design Costs (12%)				\$43,638
ODOT Oversight (6%)				\$21,819
Inflation Risks per year (5%)*				\$36,365
Easements				\$0
Right of Way Acquisition				\$0
Utility Relocation				\$0
Other Costs				\$0
Total Estimated Soft Costs				\$101,823
Total Estimated Project Cost:				\$465,477

* Assumes construction by 2022. Additional inflation costs apply if constructed in 2023 or later

Table 6. Competitive Grant Cost Estimates: Highway 331 Path from Four Corners to Timíne Way

ITEM DESCRIPTION	UNIT	UNIT COST	EST QTY	EST COSTS
Clearing and grubbing	LS	\$ 2,000	1	\$ 2,000
Install 1200 LF 12' wide asphalt path	SF	\$ 10	14400	\$ 144,000
Install trail lighting (150' OC)	EA	\$ 3,000	8	\$ 24,000
Install 12x20' bike/ped bridge	SF	\$ 150	240	\$ 36,000
Install trail signs	EA	\$ 300	2	\$ 600
Traffic Mobilization (10%)	EA	\$ 20,660	1	\$ 20,660
Traffic Control (15%)	EA	\$ 30,990	1	\$ 30,990
Erosion Control (2%)	EA	\$ 4,132	1	\$ 4,132
Subtotal				\$262,382
Contingency	%	40%		\$104,953
CA/CEI	%	15%		\$55,100
Total Estimated Construction Costs				\$422,435
Preliminary Engineering/Design Costs (12%)				\$50,692
ODOT Oversight (6%)				\$25,346

Inflation Risks per year (5%)*	\$42,244
Easements**	\$25,478
Right of Way Acquisition	\$0
Utility Relocation	\$0
Other Costs	\$0
Total Estimated Soft Costs	\$143,759

Total Estimated Project Cost: \$566,194*

* Assumes construction by 2022. Additional inflation costs apply if constructed in 2023 or later

** Cost of easement based on an assumed size of 10' wide x 1,185' long, valued at \$2.15/SF. Land valuation based on the average 2019 real market value of land for two properties adjacent to the properties that would be impacted by the proposed path.

Table 7. Competitive Grant Cost Estimates: School Zone Signage

ITEM DESCRIPTION	MEASURE- MENT	COST/UNIT	UNITS	ESTIMATE
Install marked crosswalk warning sign assemblies	EA	\$ 1,000	8	\$ 8,000
Traffic Mobilization (10%)	EA	\$ 800	1	\$ 800
Traffic Control (15%)	EA	\$ 1,200	1	\$ 1,200
Erosion Control (2%)	EA	\$ 160	0	\$ -

Subtotal \$10,000

Total Costs

Preliminary Engineering/Design Costs (12%)	\$1,200
Construction Costs (Subtotal + 40% Contingency + 15% CE)	\$15,500
Right of Way Costs	\$0
Utility Costs	\$0
Other Costs	\$0
Total Project Cost:	\$16,700

Table 8. Summary of Competitive Grant Cost Estimates

PROJECT	ESTIMATED COSTS (SAME AS ABOVE)
Four Corners Intersection Upgrades	\$ 465,477
Highway 331 Path	\$ 566,194
School Zone Signage	\$ 16,700
TOTAL ESTIMATED COMPETITIVE GRANT COSTS:	\$ 1,048,371

Additional Cost Estimates for Near-Term Projects not Included in Competitive Grant Application

Table 9. Highway 331 Sidewalk Mission Road to Showaway Lane

ITEM DESCRIPTION	UNIT	UNIT COST	EST QTY	EST COSTS
Clearing and grubbing	LS	\$ 2,000	1	\$ 2,000
Construct embankment to widen highway by 6'	CUYD	\$ 30	427	\$ 12,810
Implement stormwater improvements associated with sidewalk	LF	\$ 80	1050	\$ 84,000
Install 1050 LF of 6' wide sidewalk	SF	\$ 25	6300	\$ 157,500
Install curb and gutter	LF	\$ 25	1050	\$ 26,250
Install bike lane symbol pavement markings	EA	\$ 250	3	\$ 750
Reconstruct 11 driveway access points	SY	\$ 160	123	\$ 19,680
Install UPRR-approved crossing	LS	\$ 200,000	1	\$ 200,000
Install perpendicular curb ramp	EA	\$ 10,000	6	\$ 60,000
Install 70 LF of 6' wide sidewalk	SF	\$ 25	420	\$ 10,500
Install curb and gutter	LF	\$ 25	70	\$ 1,750
Traffic Mobilization (10%)	EA	\$ 57,524	1	\$ 57,524
Traffic Control (15%)	EA	\$ 86,286	1	\$ 86,286
Erosion Control (2%)	EA	\$ 11,505	1	\$ 11,505
			Subtotal	\$730,555
Contingency	%	40%		\$292,222
CA/CEI	%	15%		\$153,417
Total Estimated Construction Costs				\$1,176,193
Preliminary Engineering/Design Costs (12%)				\$141,143
ODOT Oversight (6%)				\$70,572
Inflation Risks per year (5%)*				\$117,619

Easements	\$0
Right of Way Acquisition	\$0
Utility Relocation	\$0
Other Costs	\$0
Total Estimated Soft Costs	\$329,334

Total Estimated Project Cost: \$1,505,527

* Assumes construction by 2022. Additional inflation costs apply if constructed in 2023 or later

Table 10. Mission Street Crossing at B Street

ITEM DESCRIPTION	MEASURE- MENT	COST/UNIT	UNITS	ESTIMATE
Demo existing sidewalk	SF	\$ 6	150	\$ 900
Demo existing curb and gutter	LF	\$ 15	25	\$ 375
Install perpendicular curb ramp	EA	\$ 10,000	2	\$ 20,000
Install marked crosswalk with thermoplastic continental markings	SF	\$ 8	126	\$ 1,008
Install marked crosswalk warning sign assemblies	EA	\$ 1,000	4	\$ 4,000
Install in-street school sign	EA	\$ 500	1	\$ 500
Install solar powered RRFB assembly	EA	\$ 20,000	1	\$ 20,000
Traffic Mobilization (10%)	EA	\$ 4,678	1	\$ 4,678
Traffic Control (15%)	EA	\$ 7,017	1	\$ 7,017
Erosion Control (2%)	EA	\$ 936	1	\$ 936
			Subtotal	\$59,414
Total Costs				
Preliminary Engineering/Design Costs (12%)				\$7,130
Construction Costs (Subtotal + 40% Contingency + 15% CE)				\$92,092
Right of Way Costs				\$0
Utility Costs				\$0
Other Costs				\$0
Total Project Cost:				\$99,222

Chapter 5. Potential Funding & Implementation

This chapter lists a variety of funding sources that could be used to implement the recommendations outlined in Chapter 4. These funding sources are accurate as of February 2020, but may change over time. Please refer to ODOT or other funding jurisdictions' websites for the most up to date information.

Statewide Funding Opportunities

ODOT SRTS Infrastructure Grants:

ODOT currently offers specific Safe Routes to School funding pools for local jurisdictions interested in improving walking and biking conditions near schools, including a competitive infrastructure grant program and a rapid response infrastructure grant.

COMPETITIVE INFRASTRUCTURE GRANT

ODOT's SRTS Competitive Infrastructure Grant program funds roadway safety projects located within a one-mile radius of an educational facility that improves walking and biking conditions for children on their way to school. Funding requests may range between \$60,000 and \$2 million, with a 40% local match (special circumstances may allow a 20% reduction in match requirements). These funds are awarded on a competitive application basis to cities, counties, transit districts, ODOT, any other roadway authority, and tribes are in compliance with existing jurisdictional plans and receive school or school district support. Learn more about the 2021-2022 grant cycle at <https://www.oregon.gov/ODOT/Programs/Pages/SRTS.aspx>.

RAPID RESPONSE INFRASTRUCTURE GRANT

Up to 10% of state SRTS funding will be reserved for projects that can demonstrate serious and immediate need for safety improvements within a one-mile radius of schools. This funding would be awarded outside of the Competitive Infrastructure Grant cycle as a Rapid Response Infrastructure Grant. Eligibility requirements for Rapid Response Infrastructure grants can be found at <https://www.oregon.gov/ODOT/Programs/Pages/SRTS.aspx>.

ODOT STIP Program

Outside of Safe Routes to School programs, ODOT offers general funding opportunities for bicycle and pedestrian improvement projects through the development of ODOT's State Transportation Improvement Program (STIP), which programs funding for three years. Proposed projects should be nominated in coordination with ODOT's Region 2 office. To be eligible for STIP funding, CTUIR projects must be included an adopted Transportation System

Plan. The draft 2021-2024 STIP includes roughly \$115 million for walking and biking projects. Programs include Active Transportation Leverage, which adds walking or biking features to Fix-It projects, and ADA Curb Ramps, to boost accessibility of pedestrian infrastructure.

Learn more: <http://www.oregon.gov/ODOT/STIP/> and find contact info for your ODOT region at www.oregon.gov/ODOT/STIP/Pages/Contacts.aspx

ODOT All Roads Transportation Safety Program (ARTS)

ODOT's STIP process also funds safety improvement projects that reduce traffic related deaths and injuries through the All Roads Transportation Safety Program, which utilizes data collection and analysis to select projects that will maximize traffic safety benefits per investment dollar. For more information on ARTS, visit:

<https://www.oregon.gov/ODOT/Engineering/Pages/ARTS.aspx>.

Oregon Parks and Recreation Grants

Oregon Parks and Recreation manage a number of grants that may help in completing a Safe Routes to School off-road project like the Local Government Grant Program, the Land and Water Conservation Fund, and the Recreational Trails Program. For more information visit:

<https://www.oregon.gov/OPRD/GRANTS/pages/index.aspx>

Oregon Community Paths Program (OCP)

In 2020, ODOT will open solicitation for an off-system path grant program called the Oregon Community Paths Program (OCP) and will fund awarded projects (in 2021) with either the state Multimodal Active Transportation fund or the federal Transportation Alternatives Program funds. Through the OCP, ODOT strives to fund projects for pedestrian and bicycle transportation projects including the development, construction, reconstruction, resurfacing, or other capital improvement of multiuse paths, bicycle paths, and footpaths that improve access and safety for people walking and bicycling. <https://www.oregon.gov/odot/Programs/Pages/OCP.aspx>

Oregon Transportation Infrastructure Bank (OTIB)

Oregon Transportation Infrastructure Bank (OTIB) provides low cost loans for transportation related projects by: reducing total up-front costs; reducing overall interest costs; no prepayment penalties; draw funds only as needed. OTIB loans are processed quickly and a decision is typically received within 60 days, with loan closing between 90-120 days. www.oregon.gov/odot/cs/fs/pages/otib.aspx

State Highway Trust Fund/Bicycle Bill

When roads are constructed or reconstructed, Oregon law requires walkways and bikeways be provided. Additionally, all agencies receiving State Highway Funds are required to spend at least 1% of those funds on bicycle and/or pedestrian infrastructure improvements (ORS 366.514). Currently, cities and counties receive 20% and 30% of the state's highway trust funds, respectively, which can be used for walking and biking projects along roads. For more information contact Jessica Horning, (503) 986-3555.

Sidewalk Improvement Program (SWIP)

ODOT's SWIP builds pedestrian and bicycle facilities on state roads and local roads that help people moving across or around the state system. For more information contact Jessica Horning, (503) 986-3555.

Transportation and Growth Management (TGM) Funds

TGM offers grants for improving transportation system plans and planning efforts that integrate land use and transportation. TGM also offers Quick Response grants when pending development will impact the city's goals, Code Assistance to help with specific code questions, Transportation System Plan (TSP) Assessments to look at city TSPs, and Education and Outreach projects to move community conversations forward. www.oregon.gov/lcd/tgm/

State Transportation Improvement Fund (STIF)

Walking and biking connections to transit are eligible under ODOT's STIF Discretionary and Statewide Network Program, a new fund for transit started in 2018.

<https://www.oregon.gov/odot/RPTD/Pages/Funding-Opportunities.aspx>

Congestion Mitigation and Air Quality (CMAQ) program

The CMAQ program is jointly administered by the FHWA and FTA, with projects selected by local jurisdictions in high pollution areas. Bike/pedestrian projects make up a significant portion of the funded projects, which must focus on air quality improvement. www.fhwa.dot.gov/environment/air_quality/cmaq/

Federal Funds

Some federal funding sources may be available to certain communities and can be used for Safe Routes to School projects. Such as:

- Community Development Block Grant Program, <https://www.orinfrastructure.org/Infrastructure-Programs/CDBG/>
- Rural Development Grant Assistance Program, <https://www.usda.gov/topics/farming/grants-and-loans>
- FHWA Tribal Transportation Program, <https://highways.dot.gov/federal-lands/programs-tribal#:~:text=of%20transportation%20programs,-.Tribal%20Transportation%20Program,Established%20in%2023%20U.S.C.&text=The%20purpose%20of%20the%20TTP,and%20Alaska%20Native%20Village%20communities>
- FHWA Tribal Transportation Bridge Program, <https://highways.dot.gov/federal-lands/programs-tribal/bridge>
- FHWA Tribal Transportation Safety Fund, <https://highways.dot.gov/federal-lands/programs-tribal/safety>

Local Funding Opportunities

Potential School Bond Opportunities

Localities can leverage school bonds to collect funding for transportation educational programming and School-zone pedestrian/bicycle infrastructure improvements. School bonds may be sufficient to cover the cost of low to mid cost projects or could be utilized to collect local match dollars for state awarded grants.

SRTS Projects & the TSP

Cities and counties undergoing transportation system plan updates should consider including a section on their plans and priorities for Safe Routes to School infrastructure upgrades and programming to identify project expenses well in advance and allow ample time to gather project funding.

Demonstration Projects

Demonstration projects are temporary roadway improvement installments that utilize temporary barriers (such as traffic cones, planters, hay barrels, etc.) to test and demonstrate how a street would operate with bicycle and/or pedestrian infrastructure improvements. These low-cost projects can serve as an immediate term temporary solution to traffic issues while local jurisdictions build support and funding for permanent infrastructure improvements. Depending on specific site conditions and the nature of materials used, demonstration projects can last for several hours to several months.

Non-Infrastructure Programs Funding Opportunities

ODOT SRTS Non-Infrastructure Grant

In addition to funding infrastructure improvements for Safe Routes to School programs, ODOT reserves \$300,000 annually for funding of non-infrastructure SRTS projects that encourage children in grades K-8 to walk and bike to school. This competitive grant program distributes funding to a project over the course of three years (to allow for advanced planning) with a maximum award of \$50,000 per year with a 12% match requirement. For more information, visit <https://www.oregon.gov/ODOT/Programs/Pages/SRTS.aspx>

Appendix J. Transportation Technical Standards Coordination Memorandum



Technical Memorandum

June 27, 2022

Project# 23021.046

To: Cheryl-Jarvis Smith, ODOT Region 5
From: Molly McCormick and Nick Foster AICP, RSP₁
CC: Dani Schulte, CTUIR
RE: Confederated Tribes of Umatilla Indian Reservation Transportation System Plan Update

This memorandum documents the methodologies and assumptions to be used in preparation of analyses for the Confederated Tribes of Umatilla Indian Reservation (CTUIR) Transportation System Plan (TSP) update. The methodologies and assumptions included in this memorandum are based on guidance provided in the Oregon Department of Transportation (ODOT) Transportation System Plan Guidelines (Reference 1), the ODOT Analysis Procedures Manual (APM – Reference 2), and direction provided by CTUIR and ODOT staff. The methodologies and assumptions described in this memorandum will help identify potential deficiencies in the transportation system, including:

- Traffic operations at the study intersections under existing and future traffic conditions,
- Traffic safety at the study intersections and along study area roadways,
- Gaps and deficiencies in bicycle and pedestrian facilities,
- Gaps and deficiencies in transit facilities and services, and
- Gaps and deficiencies in other travel modes.

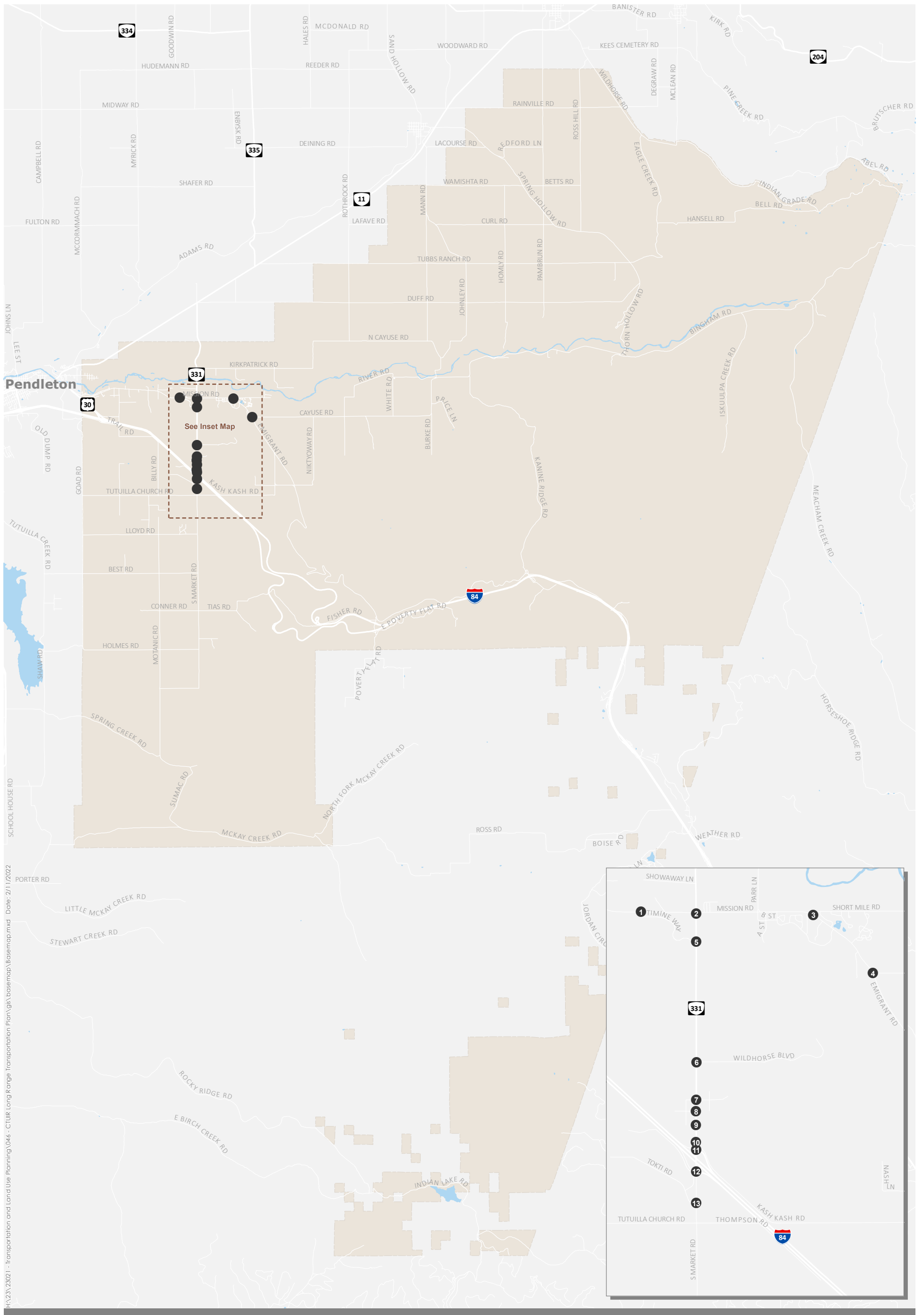
This information will serve as a baseline for identifying a comprehensive list of multi-modal transportation system needs to be addressed as part of the TSP update. It will also serve as a baseline for identifying and evaluating potential solutions and developing a prioritized list of improvements for the TSP update.

STUDY AREA

The study area for the CTUIR TSP update encompasses all lands within the boundaries of the Umatilla Indian Reservation (UIR), including several roads on off-reservation Trust lands. The primary focus of the project will be on areas within the UIR. The project will describe the location and access management conditions for off-reservation Trust lands. Figure 1 illustrates the primary study area.

FREIGHT MOBILITY ROUTES AND LOCAL TRUCK ROUTES

A summary map and description will be provided for the freight mobility routes, local truck routes, and snowplow routes in the study area. This information will be obtained from CTUIR documents and GIS files and ODOT's TransGIS database.



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- Study Intersections
- CTUIR Boundary



Figure 1

Study Area and Study Intersections Confederated Tribes of the Umatilla Indian Reservation

STUDY INTERSECTIONS

The study intersections for the TSP update were determined by CTUIR in coordination with ODOT. There is a total of 13 study intersections located along tribal, County, and ODOT facilities, all of which are unsignalized. Figure 1 illustrates the location of the study intersections, which include:

1. Mission Road/Timíne Way
2. Mission Road/OR 331
3. Mission Road/Short Mile Road
4. Mission Road/Emigrant Road-Cayuse Road
5. OR 331/Timíne Way
6. OR 331/Wildhorse Boulevard
7. OR 331/Kusi Road
8. OR 331/Spilya Road
9. OR 331/Arrowhead Travel Plaza Access
10. OR 331/Kash Kash Road
11. I-84/OR 331 Interchange Westbound Ramps
12. I-84/OR 331 Interchange Eastbound Ramps
13. S Market Road/Tokti Road

VOLUME DEVELOPMENT

Traffic Counts

Turning movement counts were conducted by ODOT at the study intersections on March 24th, March 31st, April 1st, and April 13th, 2021. The counts were conducted on mid-weekdays. All counts were conducted over a 16-hour period (6:00 AM to 10:00 PM) and include the total number of pedestrians, bicyclists, and motor vehicles that entered the study intersections in 15-minute intervals.

Peak Hour Development

The counts will be post-processed to determine system-wide PM peak hour. A system-wide peak hour will be utilized since the study intersections are generally closely spaced with limited access in between. The PM peak hour counts will be adjusted to develop analysis volumes as discussed below.

SEASONAL ADJUSTMENT FACTORS

30th Hour Volumes (30 HV) for the project will be developed based on the traffic counts collected at the study intersections and the application of seasonal adjustment factors consistent with the methodology identified in the APM. The APM provides three methods for identifying seasonal adjustment factors for highway traffic volumes. All three methods utilize information provided by Automatic Traffic Recorders (ATRs) positioned in select locations throughout the State Highway System that collect traffic data 24-hours a day, 365 days a year. Each method was evaluated to determine the most appropriate method for the study intersections. As discussed below, the seasonal adjustment factor shown in Table 1 will be used to

derive 30 HV volumes at the I-84 Ramp Terminals, while the average seasonal adjustment factors for Commuter and Summer facilities from Table 2 will be used to derive 30 HV at all other ODOT study intersections.

I-84

For I-84, ATR #30-026 was reviewed to see if it was able to be applied for this project. The project team does not recommend moving forward with using this ATR because it has had equipment failures and incomplete data for several of the most recent count years and would suggest a seasonal factor greater than 30% if the estimated data is utilized. There is another ATR available west of the study area that was reviewed for determining a seasonal adjustment factor for I-84 ramps in the study area. ATR 30-004 is an interstate non-urbanized ATR location on I-84 approximately 12.7 miles northwest of the OR 311 interchange. Because this ATR is west of the Pendleton interchange but is within the ten percent volume limitation, ODOT suggested its use for the west leg of the interchange only. The ODOT ATR Characteristic Table indicates this location has a weekend traffic trend, therefore the average daily traffic based on days of the week was used. Table 1 shows the calculated seasonal factor.

Table 1: Seasonal Adjustment Factor for ATR #30-004 (Pendleton)

	2016	2017	2018	2019	2020	Average
Peak Month (July)	119*	123*	119	121	123	121
Count Month (March)	97*	96	96	96	88*	96
Seasonal Adjustment Factor = 121 (Peak)/96 (Count) = 1.26						

*Indicates values that were discarded from the average as indicated in the APM.

For the east leg of the interchange, the Seasonal Trend Table Method was used to calculate the seasonal adjustment factor. The Seasonal Trend Table Method is used when there is not an ATR nearby or nearby ATRs do not meet the requirements outlined in the APM, and when there are no ATRs with similar characteristics to the study road segment. The corresponding factors were calculated using the 2019 Seasonal Trend Table¹ for the late March and early April 2021 counts. Table 2 shows the values for the count month, peak period seasonal factor, and the calculated seasonal factors that will be used for I-84 based on the interstate non-urbanized trend.

Table 2: Seasonal Adjustment Factors for I-84 Counts East of OR 331

Trend	Late March/Early April 2021 Count Date Season Factor	Peak Period Seasonal Factor	Seasonal Adjustment
Interstate Non-urbanized	1.0382	0.8139	1.0382/0.8139= 1.28

¹ The Seasonal Trend Table accessed in February 2022 is based off the 2019 values due to the irregularity caused by the Covid-19 pandemic.

OR 331

The Seasonal Trend Table Method was used to calculate the seasonal adjustment factor along OR 331. The Seasonal Trend Table Method is used when there is not an ATR nearby or nearby ATRs do not meet the requirements outlined in the APM, and when there are no ATRs with similar characteristics to the study road segment. The recently completed CTUIR Mission Community Master Plan was conducted in coordination with ODOT and reviewed some of this project’s study intersections. The Mission Community Master Plan used an average of the Commuter and Summer seasonal trends for this segment of OR 331.

This project proposes to use a similar method. The corresponding factors were calculated using the 2019 Seasonal Trend Table² for the late March and early April 2021 counts. Table 3 shows the values for the count month, peak period seasonal factor, and the calculated seasonal factors that will be used for OR 331.

Table 3: Seasonal Adjustment Factors for OR 331 Counts

OR 331 Counts Conducted in Late March/Early April 2021				
Trend	March 2021 Count Date Season Factor	Peak Period Seasonal Factor	Seasonal Adjustment	Average of Commuter and Summer Seasonal Factors
Commuter	1.0014	0.9355	1.0014/0.9355= 1.07	1.17
Summer	1.0620	0.8299	1.0620/0.8299= 1.28	
OR 331 Counts Conducted in Mid April 2021				
Trend	April 2021 Count Date Season Factor	Peak Period Seasonal Factor	Seasonal Adjustment	Average of Commuter and Summer Seasonal Factors
Commuter	0.9759	0.9355	0.9759/0.9355= 1.04	1.13
Summer	1.0100	0.8299	1.0100/0.8299= 1.22	

FORECAST TRAFFIC VOLUMES

Forecast traffic volumes for the study intersections will be developed based on the methodology identified in the National Cooperative Highway Research Program (NCHRP) Report 255 Highway Traffic Data for Urbanized Area Project Planning and Design. The methodology combines the year 2021 30 HV developed at the study intersections with the base year and future year traffic volume forecasts from the current Pendleton travel demand model, which covers the study area.

TRAFFIC ANALYSIS

Per the project scope, volume-to-capacity (V/C) ratio will be used to review performance thresholds/targets for the study intersections. This information will be provided in tables, figures, and/or technical appendices,

² The Seasonal Trend Table accessed in February 2022 is based off the 2019 values due to the irregularity caused by the Covid-19 pandemic.

but where possible will be provided in figures to give the general public a more clear and relatable understanding of the analysis results.

Table 6 of the Oregon Highway Plan (OHP) provides volume-to-capacity targets for facilities outside the Metro area. The OHP ratios are used to evaluate existing and future no-build conditions, while Table 10-2 of the ODOT 2012 Highway Design Manual (HDM) provides V/C ratios used to assist in evaluating future alternatives on State highways. Table 4 summarizes the classifications and applicable performance thresholds for study intersection roadways.

Table 4: Roadway Classification and Mobility Targets

Roadway	Existing Roadway Ownership	Functional Classification	Mobility Target/ Standard	HDM 20-year Design Mobility Target
I-84	ODOT	Interstate	0.70	0.60
OR 331	ODOT	District Highway	0.75 ¹	0.70
Mission Road east of OR 331	Umatilla County	Major Collector	LOS E	N/A
Cayuse Road	Umatilla County	Major Collector	LOS E	N/A
Short Mile Road	Umatilla County	Minor Collector	LOS E	N/A
Emigrant Road	Umatilla County	Minor Collector	LOS E	N/A
Market Road	Umatilla County	Minor Collector	LOS E	N/A
Mission Road west of OR 331	CTUIR	-	-.2	N/A
Timíne Way	CTUIR	-	-.2	N/A
Wildhorse Boulevard	CTUIR	-	-.2	N/A
Kusi Road	CTUIR	-	-.2	N/A
Spilya Road	CTUIR	-	-.2	N/A
Arrowhead Travel Plaza Access	Private Driveway	-	-.2	N/A
Kash Kash Road	Public Use Road	-	-.2	N/A
Tokti Road	CTUIR	-	-.2	N/A

¹ ODOT assesses intersection operations based on volume-to-capacity ratios. Table 6 of the Oregon Highway Plan identifies maximum volume-to-capacity targets for all intersections outside the Portland Metro area. Based on the OHP, OR 331 is classified as a District Highway and designated Freight Route. The resulting volume-to-capacity target for all intersections along OR 331 is a maximum volume-to-capacity ratio of 0.75.

² For intersection operations, the major road standard will apply.

TRAFFIC ANALYSIS PARAMETERS

The bullets below identify the specific sources of data and methodologies proposed to conduct the operational analyses. Analyses of all state facilities will be conducted according to the APM, unless otherwise agreed upon by CTUIR and ODOT.

1. Intersection/Roadway Geometry (lane numbers and arrangements, cross-section elements, signal phasing, etc.) will be collected through aerial photography and confirmed through a site visit. Available as-built data may also be used to verify existing roadway geometry. The analysis models will be built on scaled roadway line work from GIS or aerial photography.
2. Operational Data (such as posted speeds, intersection control, parking, transit stops, rail crossings, right-turn on red, etc.) will be collected through a site visit.

3. Peak Hour Factors (PHF) will be calculated for each intersection and applied to the existing conditions analyses. Per the APM, PHFs of 0.95 will be used for the year 2040 analysis for high-order facilities (arterials), with 0.90 applied to medium-order facilities (collectors) and 0.85 applied to local roads. If the existing PHF is greater than these default future values, the existing PHF will be applied.
4. Traffic Operations
 - a. The methodologies identified in the Highway Capacity Manual, 6th Edition (HCM – Reference 4) will be used to analyze traffic operations at the study intersections.
 - b. Synchro 11 will be used to conduct the traffic operations analyses. Synchro 11 is a software tool designed to assist with operations analyses in accordance with HCM 6th methodologies. The analysis results will be reported for the overall intersection at signalized intersections and the critical movement at unsignalized intersections – overall intersection v/c ratios will be developed for the signalized intersections in accordance with the methodologies identified in the APM.

Traffic Analysis Software and Input Assumptions

Synchro 11 software will be used for the intersection analysis. The reported results will be the level of service and intersection delay generated by the HCM report. Analysis assumptions are listed in Table 5.

Table 5: Synchro Operations Parameters/Assumptions

Arterial Intersection Parameters	Existing Conditions
Peak Hour Factor	From traffic counts
Conflicting Bikes and Pedestrian per Hour	From traffic counts, as available
Area Type	Other
Ideal Saturation Flow Rate (for all movements)	1,750 passenger cars per hour green per lane
Lane Width	12 feet unless field observations suggest otherwise
Percent Heavy Vehicles	From traffic counts by movement, as available
Percent Grade	Estimated based on field observations
Parking Maneuvers per Hour	Estimated based on field observations
Bus Blockages	Estimated based on frequency of service
95th percentile vehicle queues	Synchro 11 summary output

SAFETY ANALYSIS

Safety analyses will include reviewing historical crash data and examining roadway crossings, as described in the following sections.

Crash Analyses

The five most recent years of crash data will be obtained from ODOT’s crash database and reviewed at the study intersections and along the study roadway segments, consistent with the methodologies outlined in the APM. In addition, the five most recent years of bicyclist and pedestrian-related crash data will be obtained from ODOT’s crash database and reviewed.

The crash data will be analyzed to identify potential crash patterns (such as crash types and locations). Crash rates and critical crash rates will be developed as applicable at study intersections. Intersection crash rates will be compared to the published 90th percentile crash rates in Exhibit 4.1 of the APM, and segment crash rates will be compared to Table II in the current ODOT Crash Rate Tables. In addition, ODOT's Safety Priority Index System (SPIS) sites will be reviewed, as appropriate. At intersections or segments where the critical threshold is exceeded, a crash diagram will be prepared, and crash trends will be reviewed to identify contributing factors and potential countermeasures. Particular attention will be paid to the details of crashes involving pedestrians and bicyclists.

The risk factor screening methodology from ODOT's Pedestrian and Bicycle Safety Implementation Plan (2020) will be applied to the Project Area roadway network (to the extent sufficient data is available to apply the risk factors). This analysis will be used to identify areas with the greatest potential for bicycle and pedestrian crashes.

Identified potential countermeasures (and resulting crash percentage reduction) will be taken from the All Roads Transportation Safety (ARTS) Crash Reduction Factors (CRF) listing or the CRF Appendix when available. If no CRF is available from the ARTS database, then the FHWA CMF Clearinghouse may be reviewed to identify a suitable CRF. Only CMFs with a quality rating of three stars or greater and within 10% of the study roadway's/intersection's volume will be used.

Pedestrian Crossing Review

Key pedestrian crossings identified through the public involvement process, past work in the area, or the project team's review of the system will be evaluated to determine whether the type of crossing currently presented may warrant an enhancement. This review will include assessing the crossing using National Cooperative Highway Research Board (NCHRP) Report 562 procedures. If the crossing is not currently marked and is located on an ODOT Highway, it will be reviewed against ODOT's Criteria for Establishing Marked Crosswalks on State Highways (Section 6.6.2 of the ODOT Traffic Manual).

LEVEL OF TRAFFIC STRESS

The existing pedestrian, bicycle, and trail network will be reviewed to identify gaps and deficiencies. A gap is defined as a missing link in the network, such as a missing sidewalk on a collector or arterial roadway. A deficiency, or obstacle, is defined as a bicycle or pedestrian facility that is not up to standards or sufficient to meet users' needs. Examples of deficiencies include:

- On-street connection on a collector or arterial roadway that has a Bicycle Level of Traffic Stress rating greater than 2 (to support the Interested but Concerned bicyclists)
- Arterial or collector roadway crossing where enhancement may be warranted according to the Pedestrian Crossing Review analysis described previously
- Sidewalks that are too narrow to meet ADA standards or crossings without a curb ramp

Pedestrian Level of Traffic Stress (PLTS) and Bicycle Level of Traffic Stress (BLTS) analyses will be performed on significant roadways within the CTUIR water/sewer service area. Roadways to be studied include

Mission/Cayuse Road, Cedar Street, Confederated Way, Short Mile Road, Ti'mine Way, Wildhorse Blvd, A Street, B Street, Whirlwind Drive, Kusi Road, Spilya Road, Coyote Road, Kirkpatrick Road, and OR 331 between Showaway Lane and the I-84 Interchange. The analyses will be conducted in accordance with the procedures outlined in Chapter 14 of the ODOT APM.

The target level of traffic stress for the bicycle system will be LTS 2, as this target most closely appeals to most of the potential bicycle riding population and maximizes the available bicycle mode share. The target level of traffic stress for the pedestrian system will also be LTS 2, as this target will generally be acceptable to the majority of users; however, the project team may also review areas within a quarter mile of schools, and other routes heavily used by children, to determine what improvements may be necessary to achieve LTS 1 on these routes.

QUALITATIVE MULTIMODAL ASSESSMENT

A Qualitative Multimodal Assessment (QMA) will be used to evaluate the transit facilities and services within the study area to identify potential issues in transit connectivity that can be addressed as part of the Active Transportation Update. The QMA uses context-based subjective ratings of Excellent, Good, Fair, and Poor.

As outlined in the ODOT APM, the following factors are considered within the QMA:

- Frequency and on-time reliability
- Schedule speed/travel times
- Transit stop amenities
- Connecting pedestrian/bike network

Table 6 outlines the methodology that will be used for determining transit QMA within the study area.

Table 6: QMA Methodology

Category	Excellent	Good	Fair	Poor
Frequency and on-time reliability	<15-minute headways	15 to 30-minute headways	30 to 60-minute headways	60+ minute headways
Schedule speed/travel times	<20% slower than driving	20% to 40% slower than driving	40% to 60% slower than driving	>60% slower than driving
Transit stop amenities	Shelter	Bench	Sign with waiting area	No waiting area and/or no sign
Connecting pedestrian/bike network	BLTS and PLTS 2 or better and crossing	BLTS and PLTS 2 or better with no crossing	BLTS or PLTS >2 and no crossing	BLTS and PLTS >2 and no crossing

REFERENCES

1. Oregon Department of Transportation. Analysis Procedures Manual, 2020.
2. Oregon Department of Transportation. Oregon Highway Plan, 2015.
3. Oregon Department of Transportation. Highway Design Manual, 2012.
4. Transportation Research Board. Highway Capacity Manual, 6th Edition, 2016.

Appendix K. Winter 2023 Outreach Summary





CTUIR TSP

WINTER 2023 OUTREACH SUMMARY

Date: March 29, 2023

Project #: 23021.046

To: Dani Schulte, CTUIR
Cheryl-Jarvis Smith, ODOT Region 5

From: Molly McCormick and Nick Foster AICP, RSP₁

Project: Confederated Tribes of Umatilla Indian Reservation Transportation System Plan Update

Subject: Winter 2023 Outreach Summary

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INTRODUCTION

Confederated Tribes of Umatilla Indian Reservation (CTUIR) staff completed a third round of outreach efforts to guide the development of the CTUIR Transportation System Plan (TSP) Update. These efforts included gaining feedback from an online open house, stakeholder groups, and established committees. The groups and committees engaged in this round of outreach included:

Winter 2023 Outreach

CTUIR staff participated in meeting for 10 stakeholder groups and established committees to verify community support of the Draft TSP, in addition to continuing to hear from members of the public through the project website and emails/phone calls.



- Fish & Wildlife Commission
- Capital Improvements Committee
- Health Commission
- General Council
- Economic & Community Development Committee
- Elders Committee
- Youth Council
- Land Acquisition Committee
- Tribal Staff Review Committee
- Land Protection & Planning Commission

This memorandum summarizes the feedback received from these events as of March 28, 2023. Based on the feedback, the following major edits occurred to the Draft TSP:

- Updated vision statement to better capture the range of users of the transportation system.
- Changed project priorities to better align with community vision.
- Added and/or modified policies based on committee/commission feedback.
- Added discussion of tribal sovereignty and treaty rights.
- Provided further information about how the TSP will be reviewed and updated.
- Updated projects where drainage needs to be considered.
- Added information about the bridges within the Umatilla Indian Reservation.
- Added a new bridge project for Iskulpa Creek Bridge.
- Added a new pedestrian project for Riverside Avenue and added language to other projects to consider tying future pedestrian connections to that area.
- Added a new speed study project on Short Mile Road.

FISH & WILDLIFE COMMISSION

CTUIR staff attended the February 14, 2023, commission meeting to gather feedback on the Draft TSP. Seven commission members were present.

Comments included:

- Would like to see a Highway 331 road camera, like the ones on I-84 and Tollgate that show road conditions in winter.
- Fixing Emigrant doesn't seem like a high priority – the current conditions keep the traffic low. Some questions about whether repairing Emigrant would lead to the removal or reduction in use of the gate, or increasing the likelihood that road will be used as a detour when I-84 is closed. (keep this “medium priority”).
- Add wildlife crossings planning as a policy – it would be useful to have large culverts for small animals than to have overpasses.
- Expressed concern about the use of the phrase “people who [...] recreate on the reservation”.
- Add a turn lane at Timine Way.

CAPITAL IMPROVEMENTS COMMITTEE

CTUIR staff attended the February 14, 2023, committee meeting to gather feedback on the Draft TSP. Five committee members were present.

Comments/actions included:

- Add to rail policies: coordinate with regional agencies on potential restoration of passenger rail service between PDX and Boise.
- Voted to support the plan.

HEALTH COMMISSION

CTUIR staff virtually attended the February 14, 2023, commission meeting to gather feedback on the Draft TSP. Approximately 10 commission members were present.

Comments included:

- Expressed gratitude at the extent and genuine responsiveness of the community engagement.
- Adjust the Sumac Road pavement, in response to the community concern about additional traffic – part of the pavement project was to upgrade the road to reduce the hazards of the grade washing out. Perhaps this can be addressed by better drainage around the road, rather than by paving.
- Strongly supportive of pedestrian facilities, especially P08. Will need to work with UPRR for route maintenance.
- Concerns about goatheads. Make a specific maintenance plan, since goathead spraying timing is different than for other noxious weeds.
- B03, not specifically supportive of a bicycle lane, but generally supportive of widening the road for safety.
- Made a motion to support the plan.

GENERAL COUNCIL

CTUIR staff attended the February 16, 2023 meeting to gather feedback on the Draft TSP. There were 16 people in attendance and an unknown number joining virtually.

Comments included:

- In the vision statement, we may want to expand the scope of the phrasing from “people who [...] recreate on the reservation” to “people who [...] visit and recreate” on the reservation. We get plenty of short-term visitors (i.e. at Tamastlikt, Arrowhead) who may not recreate but still benefit from these improvements.
- Safety is a high priority with new trails. It’s important to give community members access, but we also want to make sure people are safe when using trails.

ECONOMIC & COMMUNITY DEVELOPMENT COMMITTEE

CTUIR staff attended the February 21, 2023, committee meeting to gather feedback on the Draft TSP.

Comments included:

- Concerns about speeding and nearby residents/kids safety on Short Mile.
- Proposed a bicycle registration fee for bicyclists using reservation roads. Assert tribal sovereignty.



- Asked about proposed improvements on Umatilla County roads in regards to tribal sovereignty and honoring treaty rights.

ELDERS COMMITTEE

CTUIR staff attended the March 3, 2023, commission meeting to gather feedback on the Draft TSP.

Comments included:

- South reservation roads have begun regularly flooding when it rains. Tutuilla and Motanic roads were identified.
- South reservation is starting to get hit hard with yellow star thistle (which is toxic to horses). The problem exploded last time Umatilla County graded the gravel roads – Conner, Motanic, Best.
- Proposed an alternative trail route – across the “backages” of the Mission area, e.g. to go by the old cemetery, Bus Barn and across Gopher Flats.
- Proposed a program to help elders w/ private road/driveway repair.
- Asked for taxi tickets to come back.

YOUTH COUNCIL

CTUIR staff attended the March 5, 2023, commission meeting to gather feedback on the Draft TSP. The Youth Council members did not have any new comments share after the previous outreach events with the committee for the TSP update.

LAND ACQUISITION COMMITTEE

CTUIR staff attended the March 7, 2023, commission meeting to gather feedback on the Draft TSP.

Comments included:

- Can we get a “No Air Braking” sign on Highway 331 near the RR crossing? Seen these signs in Washington. It’s flat so it’s not necessary, but trucks do it anyway, very noisy.
- McKay Creek Rd. has flooding issues, especially at the forks.
- Concerned about paving and maintenance of Sumac – wouldn’t that make the drainage and ice issues worse?
- What about the cost of maintenance?
- Could this plan include private driveway maintenance help? Especially for tribal elders.
- One Mission Road property owner (present at this meeting) reiterated that they are in favor of the trail crossing their property (P06).

ONLINE INPUT

Members of the public were encouraged to provide input via an interactive map on the project website (<https://www.ctuir.org/departments/tribal-planning-office/transportation-system-plan-update-2022/>).

- B01 Mission Road Bicycle Improvements: This is needed from B01 to P23, the last housing project entrance. this is where kids walk/bike/skateboard to and from school, as well as all the other amenities in the community. there are low-hanging trees also that need cleared...as big gravel trucks haul butt through



there. Also, even with bike lanes now, they are hardly ever swept. gravel and debris on both sides. hard for strollers and walkers.

- B02 Kirkpatrick Bikeway Improvements: Not enough foot or bike traffic on this stretch - low priority. the highest amount of traffic is on mission road, which is THE main artery of the community.
- B03 Cayuse Road Bikeway Improvements: Very little to no foot or bike traffic. gravel, for vehicles. sufficient as is.
- B04 Confederated Way Shared Roadway Improvements: Traffic is slow here, and a curb exists. roads are narrow, and also flood yearly.
- B05 Whirlwind Drive Shared Roadway Improvements: Sidewalks exist. many on-street parking of cars on both sides.
- B06 Cedar Street Shared Roadway Improvements: Sidewalks exist, plus speed in 20-25 mph.

PUBLIC FEEDBACK

Throughout the first few months of 2023, CTUIR staff fielded emails, phone calls, and in-person comments from some members of the public.

Comments included:

- Concerned that don't see anything about Riverside in the plan, except the Kayak service proposal. It's a densely populated area with a lot of needs for improved transportation. More tribal member families, especially with young kids, have been moving to this area in recent years.
- New pedestrian project: need a sidewalk on Riverside Ave. Could be a one-side sidewalk. Include lighting.
- Add language to the P07 project: "explore trail alignment potential in the Riverside neighborhood."
- Traffic calming in the Riverside neighborhood – people drive too fast, and poor infrastructure means there are many visibility issues for bicycles/pedestrians/kids.
- Riverside residents on the reservation pay the city of Pendleton a road utility fee, but these roads do not appear to be maintained by the city. Riverside is owned by Umatilla County, and NE Queen and cross-streets on the reservation are owned by CTUIR. Some concern about the basis of this fee and how they can levy a fee on the reservation. May warrant some further research.
- Concerns about maintenance and repair on roads important to the community regardless of road ownership – however they specifically noted poor maintenance on a list of county roads: Mission, Bingham, Cayuse, Pambrun, North Cayuse, Rothrock, Mann, Homly, Johnley, Duff, Tubbs, North McKay, Sumac, Kirkpatrick, South Market Road, Best, Lloyd, Tutuila.
- High priority for flood-impacted roads - Mission highway by old CTUIR campus, Cayuse Road, Motanic, North Mc Kay Creek, etc.
- Highway 331 - past Kirkpatrick Road heading to Highway 11—how many wrecks do have witness before this repaired.
- Seasonal road closures, trail roads, and particularly Buckaroo Creek Road (private trail) washed out.
- ROW issues are a nightmare all across CTUIR. Need a plan of how to fix it.
- Bridges – what are the status of bridges?

TRIBAL STAFF REVIEW COMMITTEE

Prior to the LPPC Public Hearing, the project must go through the Tribal Staff Review Committee. CTUIR staff working on the project attended the February 16, 2023. Five commission members were present.



Comments included:

- Why doesn't this plan address culverts? Discussion determined that culvert management is under the purview of the Hazard Mitigation plan/planner.
- Asked whether bridges were considered in this plan.
- Trail roads – some confusion has arisen in the past about what our policies are or should be with regards to informal trails, used by hunters and gatherers, or used for the purposes of timber harvests (and our expectations about what happens to the road when the timber harvest is over). These tend to naturally multiply, as when trails get muddy or washed out people just drive around them and potentially damage valuable harvest areas or wildlife habitat. And if people see jeep trails in wooded areas, they may assume they're allowed to drive on them.
 - Proposed roadway policy language: "Coordinate with the Range, Agriculture & Forestry program and other stakeholders to prepare an Upland Access Management Plan to determine a management approach for seasonal road closures, temporary timber harvest roads, and other publicly-used informal trails."

LAND PROTECTION & PLANNING COMMISSION

CTUIR staff attended the March 14, 2023, commission meeting to gather feedback on the Draft TSP. The Land Protection & Planning Commission recommended approval of the TSP with some changes, including those the project team already outlined for the Bridge section, and a couple more that came in through public testimony. Here are those new changes:

- Increase the priority of project P24 to High
- Add this text to the plan, likely in the "TSP Update Process" section of the Introduction chapter, page 16:
 - "Future 5-year updates of this plan should include a list of project revisions, noting which projects have been completed and which have been removed due to changing community priorities."