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To: Colleen Coleman, City of Mosier, and Don Morehouse, ODOT

From: Derek Abe, Alta Planning + Design

Date: November 1, 2018

Re: Mosier TSP Tech Memo #6: Alternatives Analysis FINAL

This memorandum describes several alternatives for enhancing the Mosier transportation system and achieving goals identified by the City and community stakeholders. This memorandum also identifies funding programs and proposed policies and amendments that support the implementation of these alternatives in the near future.

Overview and Goals

The Mosier Transportation System Plan (TSP) process has involved community leadership and input in defining the vision and outcomes for the city. The following goals for Mosier transportation were developed in partnership with stakeholders:

1. Develop a transportation system that promotes safety throughout the city for all modes and ages, especially in the Downtown district.
2. Provide transportation options within Mosier that support connectivity among regional destinations and meet future mobility needs of the area. Options should consider all modes and ability levels and should also encourage connections among modes as a means to improve the quality of life in Mosier.
3. Develop a transportation system that supports a vibrant, successful Downtown business district; supports tourism (including bicycle tourism) as an economic strength; and supports regional economic activity, including agricultural production.
4. Develop a transportation system that support all modes, including pedestrians and bicyclists, through provision of dedicated facilities and related safety improvements.
5. Develop a transportation system that balances community mobility needs and transportation options with the need to protect the environment with the use of green street amenities that include street trees, bioswales and planted areas along city streets.
6. Identify a funding structure that supports a viable transportation system that is consistent with local, regional and state goals and standards in coordination with regional planning efforts.
7. Develop a transportation system that provides mobility choices for individuals of all ages, abilities, incomes, races, and ethnicities, specifically those who experience unequal access to transportation.

Stakeholders have provided input on the TSP through a series of public workshops and Public Advisory Committee meetings. They identified and reviewed several alternatives, many of which were developed from technical analyses by consultant teams and identified through previous planning efforts, including the 2015 Slow Mo' Main Street Concept Plan, authored by a student group from Portland State University's Master of Urban and Regional Planning program. The alternatives presented below are a culmination of these efforts.

Project Solutions and Alternatives

Project solutions and alternatives have been developed at the following project zones:

- Zone A: Downtown Circulation
- Zone B: US-30 West (Western City Limit to Idaho Street)
- Zone C: US-30 East (Idaho Street to Eastern City Limit)
- Zone D: North of US-30: Waterfront and Community Space
- Zone E: 3rd Avenue and Mosier Community School

Note that Downtown Circulation refers specifically to the circulation of motor vehicles, particularly freight, through downtown Mosier and is within the same geographic extent as other project areas.

Zone A: Downtown Circulation

Relocating the designated freight route through downtown Mosier can potentially improve traffic flow, reduce delay for freight vehicles, and provide safer, more comfortable pedestrian and bicycle environments at key locations along the route. The current freight route utilizes US-30, Washington Street, and 3rd Avenue.

This potential freight route improvement considers four alternatives to determine a route that will maximize freight efficiency while improving safety for cyclists, pedestrians, and students traveling to around downtown and near the Mosier Community School on 3rd Ave. The alternatives currently under evaluation include:

1. No-Build: Would maintain existing route, a bidirectional north-south route on Washington St between US-30 and 3rd Ave
2. Center St: Would shift to a bi-directional north-south route on Center St. between US-30 and 3rd Ave
3. Couplet: Would designate a southbound route on Center St between US-30 and 3rd Ave, and a northbound route on Washington St between US-30 and 3rd Ave. Both streets would maintain bidirectional traffic flow.
4. One-way couplet: Would restripe and designate a one-way southbound route on Center St between US-30 and 3rd Ave, and a one-way northbound route on Washington St between US-30 and 3rd Ave.

1. No-Route Change

Would maintain existing freight route, a bidirectional north-south route on Washington St between US-30 and 3rd Ave. This alternative makes several assumptions about intersection improvements at US-30 and Washington and at 3rd Ave and Washington that are included in this plan.

Key assumptions:

- Sidewalk and curb extension with ADA-compliant curb ramps installed, particularly at the southwest corner of Washington St
- Modification of stop controls at intersection. Considering removal of conditional right turn sign removed at the intersection of 3rd Avenue and Washington Street (WB to NB), and southbound stop sign added on Washington St. at 3rd Ave intersection

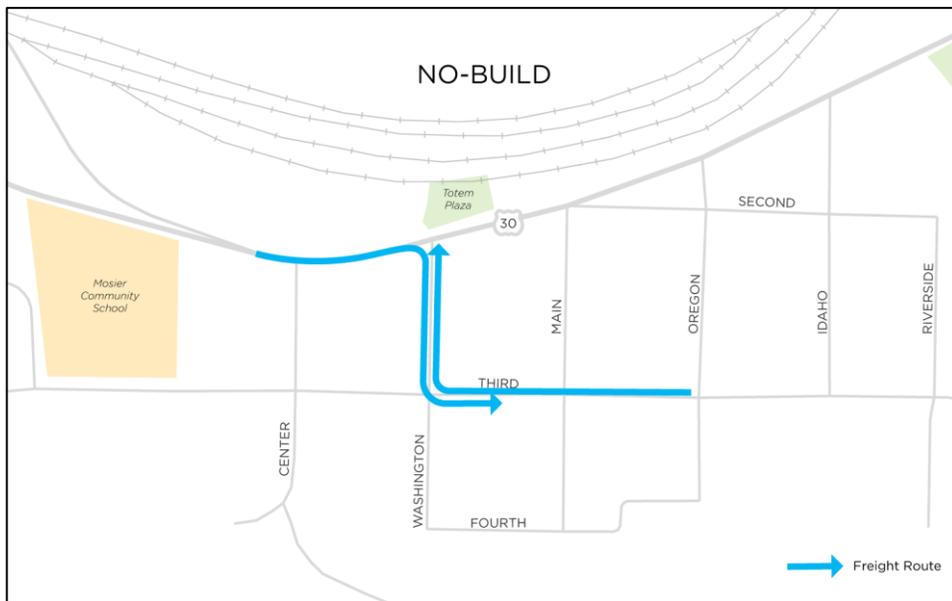


Figure 1. No-Build

Table 1. Summary of No Build Alternative

Consideration	Notes
Mobility Targets	No change
Cost	Low: Planning-level cost estimates for the assumed intersection improvements at Washington and US-30 are incorporated into other proposed solutions in the downtown project zone, regardless of the freight route alternatives. Approximately \$2,000 for intersection improvements at Washington and 3 rd .
Opportunities	<ul style="list-style-type: none"> • Maintains greatest distance between freight route and Mosier Community School than any other alternative • Maintains distance between freight route and potential Joint Use Facility site on Center St between US-3rd Ave
Considerations	<ul style="list-style-type: none"> • The existing EB-to-SB right turn from US-30 to Washington Street has poor sightlines due to the location and minimal setback of the Route 30 building. The proposed intersection improvements would slow vehicle speed, but cannot improve visibility.

2. Center Street

Would shift route from Washington St. to a bi-directional north-south route on Center St. between US-30 and 3rd Ave. Key assumptions:

- Southbound stop sign added on Center St. at 3rd Ave intersection
- Continental crosswalks installed on south and east sides of intersection of 3rd Ave at Center St.
- Modification of stop controls at intersection. Considering conditional right turn restriction removed at the intersection of 3rd Avenue and Washington Street (WB to NB); reduced corner radii to facilitate tighter, slower turns. Southbound stop sign added on Washington St. at 3rd Ave intersection
- Area along the north shoulder of 3rd Ave between Center St and Mosier Community School closed to pedestrians
- Landscaping removed from the northwest corner of intersection of 3rd Ave at Center St., to clear sightlines for southbound drivers on Center St



Figure 2.. Center St Alternative

Table 2. Summary of Center St Alternative

Consideration	Notes
Mobility Targets	No change
Cost	Medium: planning-level cost estimate around \$22,000 for route relocation and related intersection improvements
Opportunities	<ul style="list-style-type: none"> • The EB-to-SB right turn from US-30 to Center St, provides better sightlines for operators than the existing route • Relocating the NB freight route would simplify traffic operations along Washington Street with respect to vehicle demand and capacity at Route 30, Mosier City Hall and the potential future mixed-use development south of Mosier Market. • Implementing an all-way stop at the intersection of 3rd and Center Street will provide a safe crossing for children and parents walking to and from Mosier Community School. Because this intersection has a less severe grade than Washington Street, it will be easier for large trucks to accelerate up the hill from a stop at the intersection to turn EB onto 3rd Avenue.
Considerations	<ul style="list-style-type: none"> • Relocates freight route in closer proximity to Mosier Community School • AutoTURN path analysis performed on the intersection of Center and 3rd indicates that large trucks will experience difficulty making both left turns onto 3rd, and right turns onto Center, posing potential issues for a two-way freight route.

3. Couplet (maintains bidirectional traffic on Center St and Washington St)

Would designate a southbound route on Center St between US-30 and 3rd Ave, and a northbound route on Washington St between US-30 and 3rd Ave. Both streets would maintain bidirectional traffic flow.

Key assumptions:

- Southbound stop sign added on Center St. at 3rd Ave intersection
- Continental crosswalks installed on south side of intersection of 3rd Ave at Center St.
- Modification of stop controls at intersection. Considering conditional right turn restriction removed at the intersection of 3rd Avenue and Washington Street (WB to NB); reduced corner radii to facilitate tighter, slower turns. Southbound stop sign added on Washington St. at 3rd Ave intersection
- Area along the north shoulder of 3rd Ave between Center St and Mosier Community School closed to pedestrians.
- Landscaping removed from the northwest corner of intersection of 3rd Ave at Center St., to clear sightlines for southbound drivers on Center St

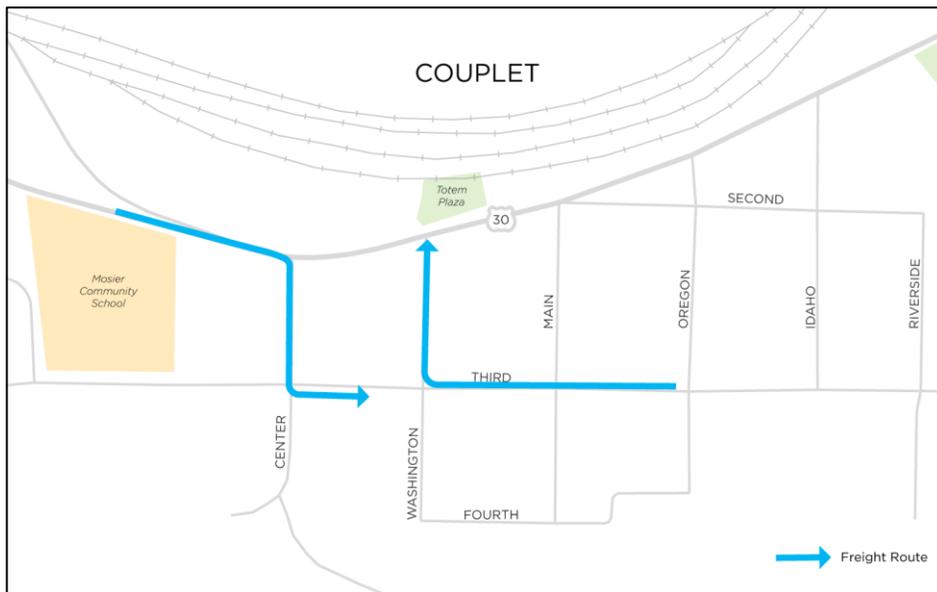


Figure 3. Couplet Alternative

Table 3. Summary of Couplet Alternative

Consideration	Notes
Mobility Targets	No impacts
Cost	Medium: planning-level cost estimate around \$22,000 for route relocation and related intersection improvements
Opportunities	<ul style="list-style-type: none"> • The EB-to-SB right turn from US-30 to Center St provides better sightlines for operators than the existing route • Implementing an all-way stop at the intersection of 3rd and Center Street will provide a safe crossing for children and parents walking to and from Mosier Community School. Because this intersection has a less severe grade than Washington Street, it will be easier for large trucks to accelerate up the hill from a stop at the intersection to turn EB onto 3rd Avenue.
Considerations	<ul style="list-style-type: none"> • Relocates a portion of the freight route in closer proximity to Mosier Community School • AutoTURN path analysis performed on the intersection of Center and 3rd indicates that large trucks will experience difficulty making left turns onto 3rd Ave

4. One-way couplet

Would restripe and designate a one-way southbound route on Center St between US-30 and 3rd Ave, and a one-way northbound route on Washington St between US-30 and 3rd Ave. Key assumptions:

- Southbound stop sign added on Center St. at 3rd Ave intersection
- Continental crosswalks installed on south and east sides of intersection of 3rd Ave at Center St.
- Modification of stop controls at intersection. Considering conditional right turn restriction removed at the intersection of 3rd Avenue and Washington Street (WB to NB); reduced corner radii to facilitate tighter, slower turns. Southbound stop sign added on Washington St. at 3rd Ave intersection.
- Area along the north shoulder of 3rd Ave between Center St and Mosier Community School closed to pedestrians
- Landscaping removed from the northwest corner of intersection of 3rd Ave at Center St., to clear sightlines for southbound drivers on Center St



Figure 4. One-Way Couplet Alternative

Table 4. Summary of One-Way Couplet Alternative

Consideration	Notes
Mobility Targets	No change
Cost	Medium: planning-level cost estimate around \$22,000 for route relocation and related intersection improvements
TSP Goals	Relocates portion of freight route to street with better sightlines for the right turn off US-30, but puts southbound freight in closer proximity to Mosier Community School; one-way streets provide optimal space for freight, and increase pedestrian and cyclist safety in the area; AutoTURN path analysis performed on the intersection of Center and 3 rd indicates that large trucks will experience difficulty making left turns onto Center, but the added space of a one-way route alleviates the issue.
Opportunities	<ul style="list-style-type: none"> • The EB-to-SB right turn from US-30 to Center St provides better sightlines for operators than the existing route • Implementing an all-way stop at the intersection of 3rd and Center Street will provide a safe crossing for children and parents walking to and from Mosier Community School. Because this intersection has a less severe grade than Washington Street, it will be easier for large trucks to accelerate up the hill from a stop at the intersection to turn EB onto 3rd Avenue.

	<ul style="list-style-type: none"> • One-way traffic flow provides optimal space for freight, particularly at turns • One-way traffic flow increases pedestrian and cyclist safety and comfort along roadways and at intersections
<p>Considerations</p>	<ul style="list-style-type: none"> • Relocates a portion of the freight route in closer proximity to Mosier Community School • AutoTURN path analysis performed on the intersection of Center and 3rd indicates that large trucks will experience difficulty making left turns onto 3rd Ave • Adds travel distance for vehicles traveling NB on Center St from the proposed residential developments south of Mosier Community School to reach downtown or I-84. • Assigning SB-only directionality to Washington between US-30 and 3rd Ave will compromise parking at Route 30

Zone B: US-30 West (from Western City Limit to Idaho Street)

Project Solutions proposed for US-30 West are essential to increase safety for all modes of travel. This route is the vehicular gateway in and out of Mosier from Interstate 84. It is also the primary commercial corridor; thus, it attracts multimodal traffic originating from both outside and within Mosier.

The following recommendations improve access to key destinations in downtown Mosier and address points of conflict for pedestrians, motor vehicles, and bicycles. Transportation investments in this area have the highest potential for contributing to economic growth for Mosier because it is the center of existing and future businesses, development, and regional attractions.

Reconfigure intersection of US-30 and Rock Creek Rd to slow down turning vehicles and create safer pedestrian crossing. The project includes:

- Close southbound left turn from Rock Creek Rd. onto Hwy 30, repave and reconfigure intersection to a T-intersection.
- Install high visibility continental crosswalk north of US-30
- Install high visibility continental crosswalk east of Rock Creek Rd
- Install landscaping/planting strips along south side of US-30
- Install landscaping/planting strips on both sides of Rock Creek Rd
- Install bike lane and shared lane markings on Rock Creek Road from US-30 to HCRH Trailhead.

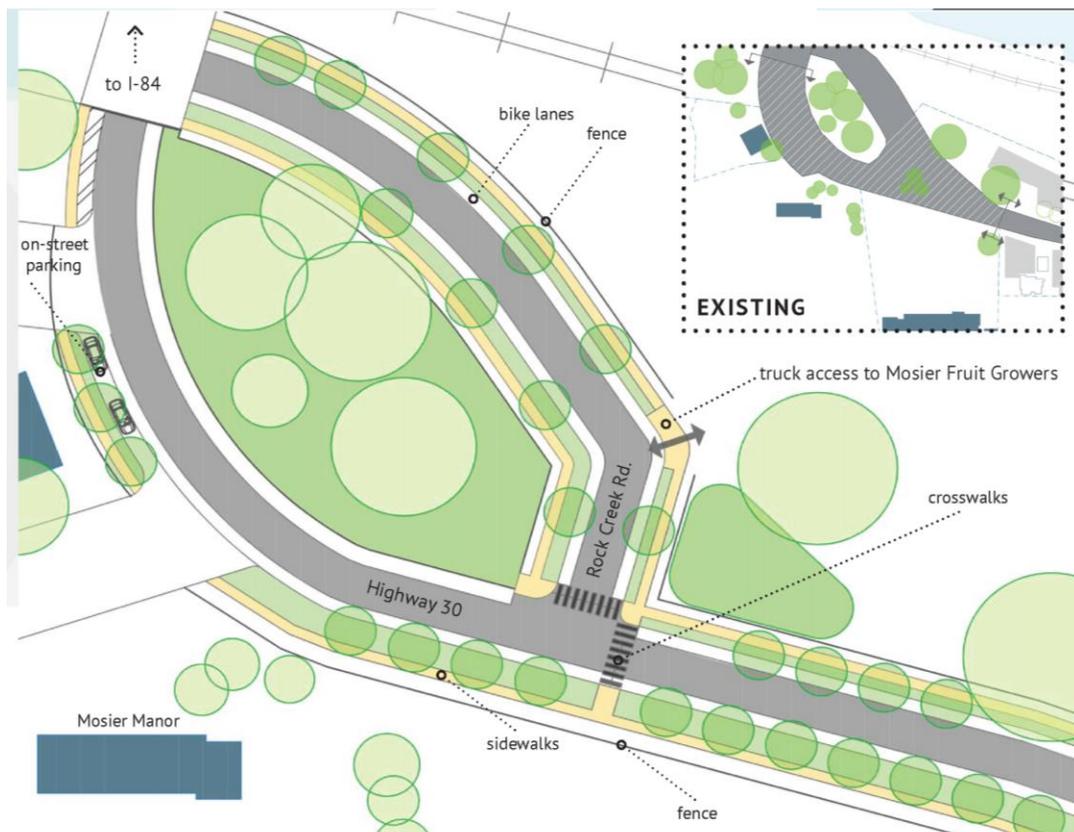


Figure 1. Proposed reconfiguration of the US-30 intersection at Rock Creek Road in Mosier, drawn from *The Slow Mo' Main Street Concept Plan, 2015*

Create a shared street environment with landscaping and other pedestrian crossing improvements along US-30 to calm traffic. The project includes:

- Install signs for reduced speed to 20 mph throughout downtown
- Install street trees, vegetation, and landscaping on north and south sides (5')
- Fill sidewalk gaps and maintain sidewalks in poor condition
- Install a low stress bike facility (bike lane) from River Way Dr to Center Street and from Washington St to the Mosier Creek Bridge
- Install curb extension with ADA-compliant curb ramps at southeast corner of Center St
- Install high visibility continental crosswalks on eastern leg of intersection at Center St
- Construct sidewalk along south side of Highway 30 between Center St and Washington St, at the southwest and southeast corner of Center St, and the southwest and southeast corner of Washington St.
- Install curb extension with ADA-compliant curb ramps at southwest corner of Washington St
- Install high visibility continental crosswalks on western leg of intersection at Washington St
- Install curb extension with ADA-compliant curb ramps at southwest corner of Main St
- Install high visibility continental crosswalks on western leg of intersection at Main St
- Install a full traffic diverter to close 2nd Avenue to through traffic at US-30, and provide bike and pedestrian cut throughs to preserve neighborhood access.

Enhance the Mosier Bike Hub. The project includes:

- Construct sidewalk, street trees, vegetation, and landscaping on all sides of the Bike Hub and restrict parking alongside the Hub on US-30.
- Install high visibility continental crosswalk on eastern leg of intersection at US-30 and Main St.
- Install high visibility continental crosswalks on the east, west, and south leg of intersection at US-30 and Oregon St.
- Construct a permanent impervious surface plaza area on Hwy 30 side of the triangle that includes interpretive maps, signage directing visitors to scenic area waysides, parks and trails. Design improvements to accommodate a public restroom at the site.

Other downtown improvements include:

- Install gateway/informational signage directing visitors to Downtown and waterfront
- Provide on-street parking adjacent to the Route 30 Property and Rack & Cloth business
- Improve CAT and LINK service and amenities: build transit stop location near the Totem Pole Plaza
- Install permanent impervious surface parking area east of the Totem Pole Plaza, extending east to the Joint Use Facility.
- Provide designated on-street parking on 2nd Avenue to accommodate parking demand on Oregon Street.

Zone C: US-30 East (from Idaho Street to Eastern City Limit)

Alternatives for US-30 East will increase safety, provide a more comfortable shared street environment and provide access across the Mosier Creek Bridge for all modes.

Project Solutions include:

- Provide permanent, impervious surface parking north of US 30 at Mosier Creek and west of bridge, for Mosier Plateau Trail access
- Reduce posted speed limit to 20 mph west of the Mosier Creek Bridge
- Add advanced yield signs at Mosier Creek Bridge
- Install marked crosswalks on both sides of the Mosier Creek Bridge
- Construct separate pedestrian-only bridge parallel to the bridge (on north side of bridge)
- Prohibit on-street parking east of Mosier Creek Bridge using signs
- Install signs to direct visitors to designated parking areas at Mosier Plateau trailhead
- Install gateway/informational signage directing visitors downtown east of the Mosier Creek Bridge

Mosier Creek Bridge Sensitivity

One-way traffic operations on the Mosier Creek Bridge were evaluated as part of the TSP to ensure that the bridge can continue to operate effectively through the 2037 planning horizon. The bridge traffic operations for both existing and future year conditions are summarized in Table 1. Traffic volume growth assumptions are based on ODOT's Future Volume Table.¹

Table 1. Mosier Creek Bridge Traffic Operations

Intersection ²	Volume to Capacity Ratio	Level of Service	Average Delay (sec)
Existing 2016			
Mosier Creek Bridge - west	0.28	A	3.5
Mosier Creek Bridge - east	0.26	A	3.3
Future 2037			
Mosier Creek Bridge - west	0.25	A	3.2
Mosier Creek Bridge - east	0.23	A	3.1

¹ ODOT 2035 Future Volume Tables identify expected traffic volume growth at the Mosier Creek Bridge. At this location the projected growth, scaled to 2037, is 62%. This growth rate was applied to Existing 2016 volumes to obtain Future 2037 volumes.

² Traffic operations on the bridge were represented as two signalized intersections (one on each side) per ODOT guidance.

The Mosier Creek Bridge operations analysis indicates very little delay is experienced by vehicles. The results of the future year operations analysis indicate that the one-way traffic operations on the Mosier Creek Bridge will continue to operate effectively through the 2037 planning horizon.³ Although no future vehicular operational issues have been identified with the bridge itself, the recommendations pertaining to the bridge in this plan are proposed to improve cyclist/pedestrian circulation and safety in the immediate area.

³ The average vehicle delay was found to be slightly reduced in the future despite higher forecasted volumes. This is the result of more efficient operations with longer cycle lengths (time between switching directions for allowed movement). Although delay may decrease very slightly, longer queues may be experienced.

Zone D: North of US-30: Waterfront and community space

The waterfront is one of the City's greatest assets and key attractions. Year-round access to the waterfront across the railroad alignment will ensure that residents and visitors can enjoy the outdoor opportunities and amenities in Mosier and the Columbia River Gorge. Connecting these accessways to downtown is a key strategy. Recommendations suggest improving access to this area while also considering environmental impacts of increased visitors. A mix of amenities in the Rock Creek area can better accommodate visitors, maximize use of the space, improve transit access, and generate revenue. Project solutions include:

- Construct a permanent, impervious undercrossing under railroad tracks at Rock Creek Park, and protect roadway from seasonal floods
- Construct a raised, permanent impervious surface trail connecting to waterfront along Mosier Creek, under railroad bridge and I-84
- Install informational and wayfinding signage at Mosier Creek and Rock Creek access points

Zone E: 3rd Avenue and Mosier Community School

3rd Avenue is one of the busiest streets in Mosier; in particular, project solutions are centered on roadway improvements to 3rd Avenue and addressing safety concerns and congestion at the Mosier Community School during school drop-off/pick-up times.

Project solutions include:

- Sidewalk infill on north side of 3rd Ave between Main St and Riverside St with curb and gutter.
- Curb-to-curb roadway reconstruction on 3rd Ave from Washington Street east to Riverside Street, includes full subgrade reconstruction, and striped bike lanes on both sides of 3rd Avenue between River Way Rd and Mosier Creek Rd.
- Repave 3rd Avenue between River Way Rd near Mosier Community School and Center Street.
- Designate school drop off traffic circle with striping and painted pavement markings
- Install associated signage for school drop-off area
- Construct a speed hump just west of Huskey (in the WB direction) to slow downhill traffic speeds
- Install new convex mirror on Third and Huskey that will allow motorists to see around the blind corner

Project Evaluation Matrix

Table 2 presents the project groups as evaluated against criteria derived from the TSP evaluation criteria identified in Tech Memo #2 and stakeholder-identified project goals (listed on page 1).

Table 2. Project Evaluation Matrix

	Criteria								
	4 = Exceeds Criteria 2 = Moderately fulfills criteria 0 = No effect on criteria ■ = Adverse impact								
Project Extents	Sustainability	Mobility + Connectivity	Safety	Economy	Health	Multiple Modes	Quality of Life	Equity	Connection to Goals:
Downtown Circulation and Parking	2	4	4	4	2	2	2	2	1,3
US-30 West	4	4	4	4	4	4	4	4	All
US-30 East	2	2	4	4	2	4	4	2	All
North of US-30	2	2	2	4	2	4	4	2	All
3rd Avenue and Mosier Community School	4	4	4	2	4	4	4	4	All

Project Cost Estimates

Table 3 provides planning-level cost estimates for the project solutions. Costs are broken down on a project-by-project basis, and summarized by project zone. All estimates include preliminary design & engineering, construction engineering and contingency costs. The project IDs, and colors assigned to the heading of each zone, correspond to the project map provided on page 28.

Table 3. Cost Estimates

ID	Project	Estimate
Zone A: Downtown Circulation		
A01	Install signs to indicate relocated eastbound freight route	\$16,500
A02 a	Install a stop sign at 3rd Avenue and Center Street in the SB direction to prohibit a free left-turn onto 3rd Avenue (EB).	\$1,650
b	Install high visibility continental crosswalks on south and east sides at 3rd Ave and Center St.	\$1,980
A03 a	Install a stop sign at 3rd Avenue and Washington Street in the SB direction to prohibit a free left-turn onto 3rd Avenue (EB).	\$1,650
b	Remove the conditional right turn sign at the intersection of 3rd Avenue and Washington Street (WB to NB)	\$495
ZONE A TOTAL		\$20,130
Zone B: US-30 West (Western City Limit to Idaho Street)		
<i>Reconfigure intersection of US-30 and Rock Creek Rd to slow down turning vehicles and create safer pedestrian crossing:</i>		
B01 a	Close southbound left turn from Rock Creek Rd. onto Hwy 30, repave and reconfigure intersection to a T-intersection.	\$123,750
b	Install high visibility continental crosswalk north of US-30	\$743
c	Install high visibility continental crosswalk east of Rock Creek Rd	\$743
B02	Install landscaping/planting strips along south side of US-30	\$16,500
B03	Install landscaping/planting strips on both sides of Rock Creek Rd	\$16,500
B04	Install bike lane and shared lane markings on Rock Creek Road from US-30 to HCRH Trailhead.	\$83,655
<i>Create a shared street environment with landscaping and other ped crossing improvements along US-30 to calm traffic:</i>		
B05 a	Install signs for reduced speed to 20 mph throughout downtown	\$16,500
b	Install street trees, vegetation, and landscaping on north and south sides (5')	\$247,500
c	Fill sidewalk gaps and maintain sidewalks in poor condition on both sides of US-30	\$107,250
d	Install a low stress bike facility (bike lane) from River Way Dr to Center Street and from Washington St to the Mosier Creek Bridge	\$34,848
B06 a	Install curb extension with ADA-compliant curb ramps at southeast corner of Center St	\$49,500
b	Install high visibility continental crosswalks on eastern leg of intersection at Center St	\$1,485
B07	Construct sidewalk along south side of Highway 30 between Center St and Washington St, at the southwest and southeast corner of Center St, and the southwest and southeast corner of Washington St.	\$32,175
B08 a	Install curb extension with ADA-compliant curb ramps at southwest corner of Washington St	\$49,500
b	Install high visibility continental crosswalks on western leg of intersection at Washington St	\$1,485

B09	a	Install curb extension with ADA-compliant curb ramps at southwest corner of Main St	\$49,500
	b	Install high visibility continental crosswalks on western leg of intersection at Main St	\$1,485
B10		Install a full traffic diverter to close 2nd Avenue to through traffic at US-30, and provide bike and pedestrian cut throughs to preserve neighborhood access.	\$82,500
		Enhance the Mosier Bike Hub. The project includes:	
B11	a	Construct sidewalk, street trees, vegetation, and landscaping on all sides of the Bike Hub and restrict parking alongside the Hub on US-30.	\$8,250
	b	Install high visibility continental crosswalk on eastern leg of intersection at US-30 and Main St.	\$1,114
	c	Install high visibility continental crosswalks on the east, west, and south leg of intersection at US-30 and Oregon St.	\$4,455
	d	Construct a permanent impervious surface plaza area on Hwy 30 side of the triangle that includes interpretive maps, signage directing visitors to scenic area waysides, parks and trails. Design improvements to accommodate a public restroom at the site.	\$495,000
		Other downtown improvements	
B12		Install gateway/Informational signage directing visitors to Downtown and waterfront	\$6,600
B13		Provide on-street parking adjacent to the Route 30 Property and Rack & Cloth business	\$49,500
B14	a	Improve CAT and LINK service and amenities: build transit stop location near the Totem Pole Plaza	\$165,000
	b	Install permanent impervious surface parking area east of the Totem Pole Plaza, extending east to the Joint Use Facility.	\$61,875
B15		Provide designated on-street parking on 2nd Avenue to accommodate parking demand on Oregon Street.	\$49,500
		ZONE B TOTAL	\$1,756,912
		Zone C: US-30 East (Idaho Street to Eastern City Limit)	
C01		Install sidewalk improvements from Idaho St to Mosier Creek Bridge	\$29,700
C02		Provide permanent, impervious surface parking north of US 30 at Mosier Creek and west of bridge, for Mosier Plateau Trail access	\$462,000
C03		Reduce posted speed limit to 20 mph west of the Mosier Creek Bridge	\$6,600
C04	a	Add advanced yield signs at Mosier Creek Bridge	\$3,300
	b	Install marked crosswalks on both sides of the Mosier Creek Bridge	\$1,485
	c	Construct separate pedestrian-only bridge parallel to the bridge (on north side of bridge)	\$1,155,000
C05	a	Prohibit on-street parking east of Mosier Creek Bridge using signs	\$3,300
	b	Install signs to direct visitors to designated parking areas at Mosier Plateau trailhead	\$6,600
	c	Install gateway/informational signage directing visitors downtown east of the Mosier Creek Bridge	\$8,250
		ZONE C TOTAL	\$1,676,235
		Zone D: North of US-30: Waterfront and Community Space	
D01		Construct a permanent, impervious undercrossing under railroad tracks at Rock Creek Park, and protect roadway from seasonal floods	\$396,000
D02		Construct a raised, permanent impervious surface trail connecting to waterfront along Mosier Creek, under railroad bridge and I-84	\$49,500
D03		Install informational and wayfinding signage at Mosier Creek and Rock Creek access points	\$6,600
		ZONE D TOTAL	\$452,100
		Zone E: 3rd Avenue and Mosier Community School	
E01	a	Fill sidewalk gaps along the north side of 3rd Ave between Oregon St and Riverside St	\$39,600

	b	Stripe bike lanes on both sides of 3rd Ave between River Way near Mosier Community School and Mosier Creek Road	\$105,600
	c	Repave 3rd Ave between Mosier Community School and Center St	\$412,500
	d	Complete rebuild of 3rd Avenue roadway between Washington St and Riverside St.	\$990,000
E02	a	Designate school drop off traffic circle with painted pavement markings	\$825
	b	Install associated signage for school drop-off area	\$495
E03		Construct a speed hump just west of Huskey (in the WB direction) to slow downhill traffic speeds	\$4,125
E04		Install new convex mirror on Third and Huskey that will allow motorists to see around the blind corner	\$2,475
		ZONE E TOTAL	\$1,555,620
		Project Total:	\$5,460,997

**All estimates include preliminary design & engineering, construction engineering and contingency costs.*

City of Mosier Funding Projection

Recent transportation-related resources have exceeded transportation-related expenditures in Mosier. For the past three years, resources have averaged approximately \$83,500 while expenditures (on street maintenance and repair only) have averaged \$6,000. Funding records and assumptions about growth were used together to estimate the available funding for transportation projects through 2040.

Projected Revenues

Current revenue sources are expected to provide about \$2.4 million through 2040 (see Table 4) from recurring sources, and up to \$2.6 million possible from ODOT discretionary funding. Although there is no index for cost inflation, the revenue sources based on gas taxes should increase in proportion to the City's population growth. As a conservative estimate, the same levels of annual funding are assumed through 2040. It should be noted that technological advances might further improve vehicle fuel efficiency, potentially resulting in lower revenues unless funding methodologies are modified.

Table 2. Transportation Revenue Projection through 2040 (2016 Dollars)

Revenue Source	Projection
Oregon State Gas Tax	\$442,000
Oregon State Gas Tax - Bicycle & Pedestrian (1%)	\$5,000
Wasco County Road Tax	\$400,000
Transfers from General Fund	\$547,000
Miscellaneous	\$117,000
Street Fund Balance (2016)	\$60,000
Federal or State Project Funding/Grants*	\$1,000,000
Total Revenues	\$2,571,000

*one-time funding opportunity

Projected Expenditures

City expenditures for maintenance, operations and management of the transportation system are expected to increase over time with inflation. Based on historical data, transportation expenditures are expected to total approximately \$2.14 million in 2016 dollars. However, based on historic personnel and construction cost increases ^{4,5} this amount is expected to increase to approximately \$4.3 million through 2040, roughly two times the current level.

Table 3. Transportation Expenditures Projection through 2040 (2016 Dollars)

Expenditures	Projection
Personnel Services	\$490,000
Materials & Services	\$665,000
Capital Outlay	\$987,000
Total Expenditures	\$2,142,000

Transportation projects that enhance or expand the current transportation system are not included in this estimate. It is also important to note that the current spending on maintenance and preservation activities may not have kept up with the desired quality for infrastructure. To address deferred maintenance and future needs, maintenance costs may be higher than the historical spending indicates.

With revenues expected to remain relatively flat (due to small population increase expected in Mosier and no cost inflation index for gas taxes) and maintenance costs increasing, Mosier will need to increase the transfer of general funds or utilize other (new) funding sources to maintain the current levels of maintenance and operations.

Funding Balance for Transportation System Improvements

Overall, Mosier is expected to have about \$1 million available to fund transportation system plan projects and strategies through 2040. The funding for transportation system enhancements is expected to come from external funding sources such as federal or state grants. The City may wish to consider expanding its funding options to provide a funding strategy that will enable desired improvements to be constructed in a timely manner.

⁴ Construction (maintenance) cost increases are estimated based on historical cost indices from 1995 to 2015, per RSMMeans.

<http://rsmeansonline.com/References/CCI/3-Historical%20Cost%20Indexes/1-Historical%20Cost%20Indexes.PDF>

⁵ Staff and operating cost increases are estimated based on Consumer Price Index conversion factors from 1995 to 2015, per Robert Sahr, Oregon State University. Revised April 10, 2014.

<http://liberalarts.oregonstate.edu/files/polisci/faculty-research/sahr/inflation-conversion/pdf/cv1995.pdf>

Potential Additional Funding Sources

New transportation funding options include local taxes, assessments and charges, and state and federal appropriations, grants, and loans. All of these resources can be constrained based on a variety of factors, including the willingness of local leadership and the electorate to burden citizens and businesses; the availability of local funds to be dedicated or diverted to transportation issues from other competing City programs; and the availability of state and federal funds. Nonetheless, it is important for the City to consider available opportunities for enhancing funding for the transportation improvements that will be identified in the TSP.

The following sources have been used by other cities to fund the capital and maintenance aspects of their transportation programs. There may be means to begin to or further utilize these sources, as described below, to address needs identified in the TSP.

Deferred Street Improvement Agreements

Deferred Street Improvement Agreements provide the City with a tool to hold developers accountable for necessary street improvements if it is determined that the required improvements are not feasible at the time of construction. Typically, a provision in the agreement ensures that if the property owner does not uphold the agreement, the costs for the improvements become a lien on the property.

Transportation Utility Fee (TUF)

A transportation utility fee is a recurring monthly charge that is paid by all residences and businesses within the City. The fee can be based on the number of trips a particular land use generates or as a flat fee per unit. It can be collected through the City's regular utility billing. Existing law places no express restrictions on the use of transportation utility fee funds, other than the restrictions that normally apply to the use of government funds. Some cities utilize the revenue for any transportation related project, including construction, improvements and repairs. However, many cities choose to place self-imposed restrictions or parameters on the use of the funds.

A transportation utility fee program was outlined for Mosier in 2015.⁶ The program was estimated to generate approximately \$4,000 annually to fund street repairs. Monthly rates would vary based on the water meter and be billed as part of the water/sewer bill. However, the City Commission rejected the proposed transportation utility fee at that time.

Street System Development Charge (SDC)

System development charges (SDC) are fees collected from new development and used as a funding source for all capacity adding projects for the transportation system. The funds collected can be used to construct or improve portions of roadways impacted by applicable development. The SDC is collected from new development and is a one-time fee. The fee is based on the proposed land use and size and is proportional to each land use's potential PM peak hour vehicle trip generation.

⁶ Transportation Utility Fee Memo, John Grim & Associates, December 2015.

Many cities in Oregon implement SDC fees locally, while others charge a SDC fee jointly with their County. Typical charges per residential units vary widely in the state.⁷ Hood River charges approximately \$1,800 per residence with an update anticipated in 2018.

Local Improvement Districts

Local Improvement Districts (LIDs) can be formed to fund capital transportation projects. LIDs provide a means for funding specific improvements that benefit a specific group of property owners. LIDs require owner/voter approval and a specific project definition. Assessments are placed against benefiting properties to pay for improvements. LIDs can be matched against other funds where a project has system wide benefit beyond benefiting the adjacent properties. Fees are paid through property tax bills. LIDs are often used for sidewalks and pedestrian amenities that provide local benefit to residents along the subject street.

Debt Financing

While not a direct funding source, debt financing can be used to mitigate the immediate impacts of significant capital improvement projects and spread costs over the useful life of a project. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but is also viewed as an equitable funding strategy, spreading the burden of repayment over existing and future customers who will benefit from the projects. The obvious caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

The Oregon Transportation Infrastructure Bank (OTIB) is a potential source for cities to borrow funds for transportation improvement projects. The OTIB is a statewide revolving loan fund. Projects eligible to receive funding include roadway improvements, bicycle and pedestrian access, and transit capital projects. Potential projects are rated by OTIB staff along with a regional advisory committee and require approval from the Oregon Transportation Commission.

Development Code Amendments

This section provides a preliminary list of proposed transportation policies and implementing ordinance amendments related to the following objectives:

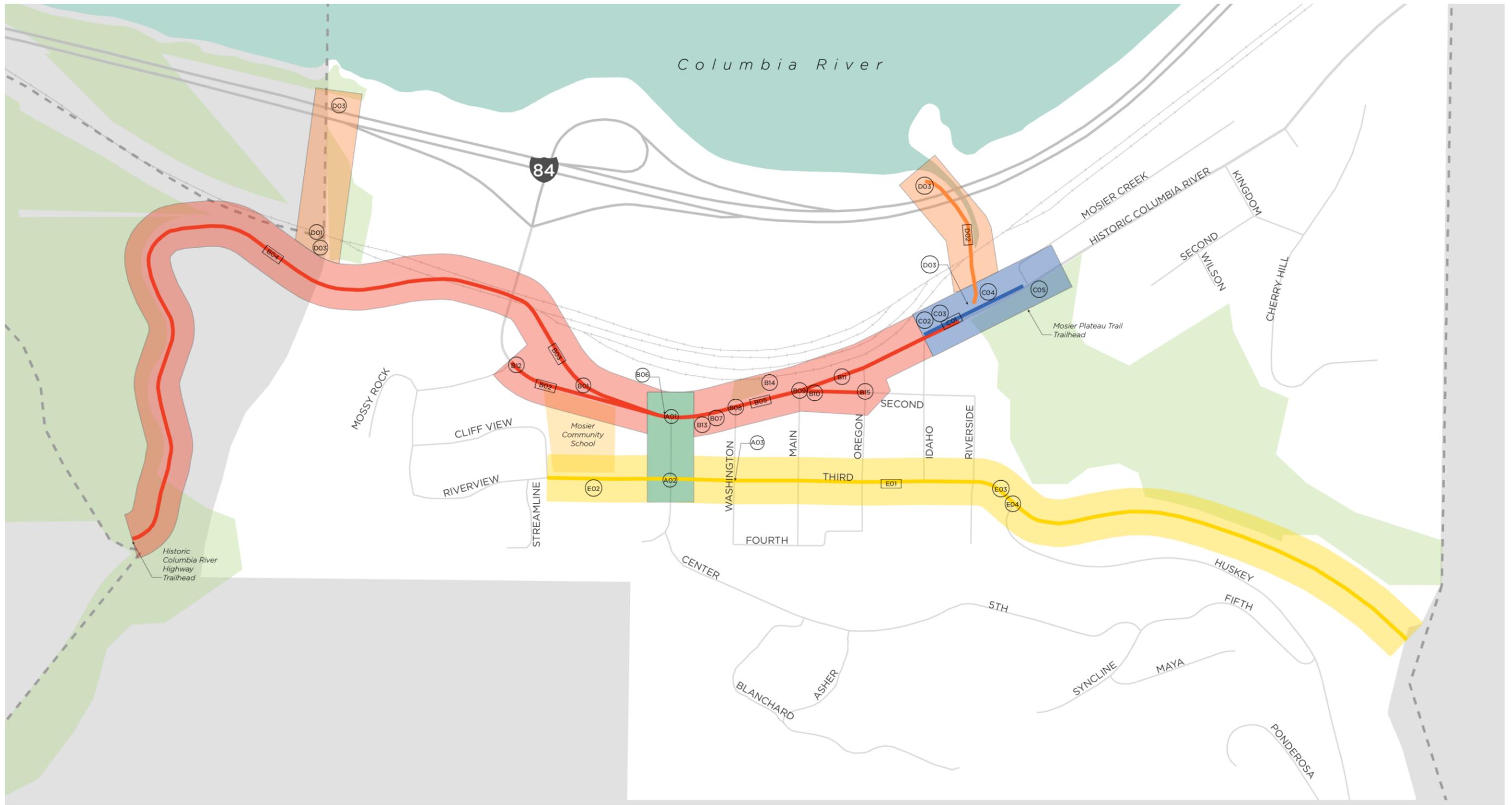
- Ensure consistency with and implement provisions of the Transportation System Plan (TSP) update.
- Ensure consistency with state transportation planning requirements found in the Oregon Transportation Planning Rule (TPR). Smaller cities (below 10,000) may request an exemption to the TPR. However, in the absence of requesting an exemption, they must comply with TPR requirements for implementation (OAR 660-012-045).
- Provide a means for adequately funding future transportation maintenance activities.

⁷ http://www.orcities.org/Portals/17/Premium/SDC_Survey_Report_2013.pdf

The initial list of amendments includes:

- **Mosier Municipal Code**, Titles 15 (Zoning) and 16 (Land Divisions), amendments including the following sections:
 - **Definitions, Section 15.02.050.** The current definition of Public Facilities will be modified to become Major Public Facilities which will continue to be allowed as conditional uses in most zones. These will be larger or more significant facilities which could have a greater impact on surrounding uses. A new definition of Minor Public Facilities will be added and will generally include transportation improvements such as repair, maintenance or improvement of existing facilities, water, sewer, storm drainage and other similar improvements typically located within the public right-of-way. These facilities will be permitted outright in all city zones (see below).
 - **Allowed minor public facility uses, Section 15.01.060.** A new subsection is proposed for this section of the MMC to allow all minor public facilities as outright permitting uses in all zones.
 - **Bicycle Parking Requirements, Section 15.03.130(J).** Additional bicycle parking requirements are proposed for multi-family residential development with four or more dwelling units and several types of institutional uses. These changes will ensure that bicycle parking is provided for a wider range of development types and will ensure compliance with the Oregon Transportation Planning Rule (TPR).
 - **Pedestrian Accessway Requirement, Section 15.06.040(E)(7).** Proposed changes to this section of the code will require that pedestrian accessways be provided through parking lots where necessary to provide a reasonably direct, safe and convenient pathway for pedestrians, consistent with community objectives and the TPR.
 - **Pre-Application Conferences, Section 15.07.030.** A proposed change to this section will indicate that the Oregon Department of Transportation (ODOT) and other transportation service providers will be invited to attend pre-application conferences when the proposed application could affect state highways or other transportation facilities.
 - **Notice of Hearing, Section 15.07.070(B) and (C).** A proposed change to these sections will ensure that ODOT and other transportation service providers are notified of public hearings for Type III decisions and that the Department of Land Conservation and Development is notified of proposed legislative amendments and associated public hearings 35 days in advance of the hearing, consistent with the TPR and other state requirements.
 - **Significant Effect on Transportation Facilities, Section 15.10.020(B).** A proposed change to this section to add language regarding review and analysis of proposed zone changes or Comprehensive Plan amendments that could have a “significant effect” on the transportation system. The new Code language will provide a reference to TPR Section -0060 requirements to prevent the code section from becoming very lengthy and to accommodate future amendments of Section -0060 without necessitating amendment of this code section.
 - **Street Design Generally, Section 16.02.020.** Amendments may be proposed to clarify criteria or standards for review of street designs which do not strictly conform to current code requirements.

- **Street Design Cross-Sections, Section 16.02.030(A) and (B).** References to existing street design cross-sections currently found in the Downtown and Local Street Network Plan (2002) will be revised to reference the new TSP (2018). Tabular information in the MMC will be updated or replaced with a reference to the TSP. References to additional or alternative cross-sectional requirements for streets in topographically constrained areas also may be added.
- **Private Accessway Standards, Section 16.04.050.** These standards may be modified to address partitioned lots, including flag lots, or other situations where turnarounds may be needed to provide adequate access for residents and/or emergency vehicles.
- **Bicycle and Multi-Use Pathway Standards, Section 16.02.030(G).** Minor changes to these standards are proposed to ensure that paved pathways are of an adequate width to meet functional needs and accessibility standards.
- **Mosier Comprehensive Plan policy updates.** Two types of amendments will be proposed:
 - Replacement of existing goals and policies with new goals and policy statements developed as part of the TSP process.
 - Replacement of background information related to transportation found on pages 36-37 of the Public Facilities chapter of the Comprehensive Plan with a similar, concise discussion of transportation facilities and conditions in Mosier or could be replaced with a reference to the TSP as the transportation element of the Comprehensive Plan.
- **New ordinance to establish a Transportation Utility Fee (TUF).** The City has previously contemplated establishing a TUF to help pay for the cost of regular maintenance of roadways, particularly maintaining adequate pavement conditions. An ordinance would be required to adopt the TUF and would establish the amount of the TUF to be assessed, and how the funds would be collected, administered and used.



RECOMMENDED PROJECTS

CITY OF MOSIER TRANSPORTATION SYSTEM PLAN

RECOMMENDATION TYPES

- A01 Spot Improvement
- A01 Linear Improvement

PROJECT ZONES

- A: Downtown Circulation
- B: Western City Limit to Idaho St
- C: Idaho St to Eastern City Limit

- D: North of US-30: Waterfront & Community Space
- 3rd Ave & Mosier Community School

FEATURES + BOUNDARIES

- Schools
- Parks
- Water
- City Limits
- Urban Growth Boundary

Data provided by the City of Mosier and ODOT. Map produced September 2018

