

TECHNICAL MEMORANDUM #5a

Pendleton IAMPs: Exit 207 & Exit 210

Concepts Evaluation and Screening

Date: April 27, 2020 Project #: 24043

To: Technical Advisory Committee, Citizen Advisory Committee

From: Nick Foster, AICP, and Matt Hughart, AICP; Kittelson & Associates, Inc.

This memorandum documents the development and evaluation of interchange, access, and local circulation concepts for the I-84 Exits 207 and 210 Interchange Area Management Plans (IAMPs). It includes a summary of the concept development process, qualitative evaluations of each concept, a summary of public feedback from an on-line feedback tool, and a consultant team recommendation for which concepts will be evaluated at a more detailed level.

DRAFT CONCEPTS

Concept Development Process

The concepts considered in this memorandum were initially developed by members of the project team, the TAC Committee, and CAC Committee at the January 29, 2020 project meeting to address known geometric and anticipated future traffic conditions. Following this initial work session, the project consultant team took the various circulation improvement ideas and distilled them into a set of unique/representative concepts. For each concept, the subsequent tables provide the following:

- A graphical illustration that conveys the basic components of the concept in a quick single-line sketch overlaid on an aerial photograph.
- A short narrative summarizing the main components of the concept.
- A high-level screening evaluation using the project evaluation criteria.
- A summary of committee and public comments received as part of the two-week virtual open house.
- Based on all the information listed above and following discussions with the City and ODOT, whether or not the concept will move forward in the more detailed alternatives evaluation.

Section 1 Exit 207 Concepts

Table 1 – Concept 1A

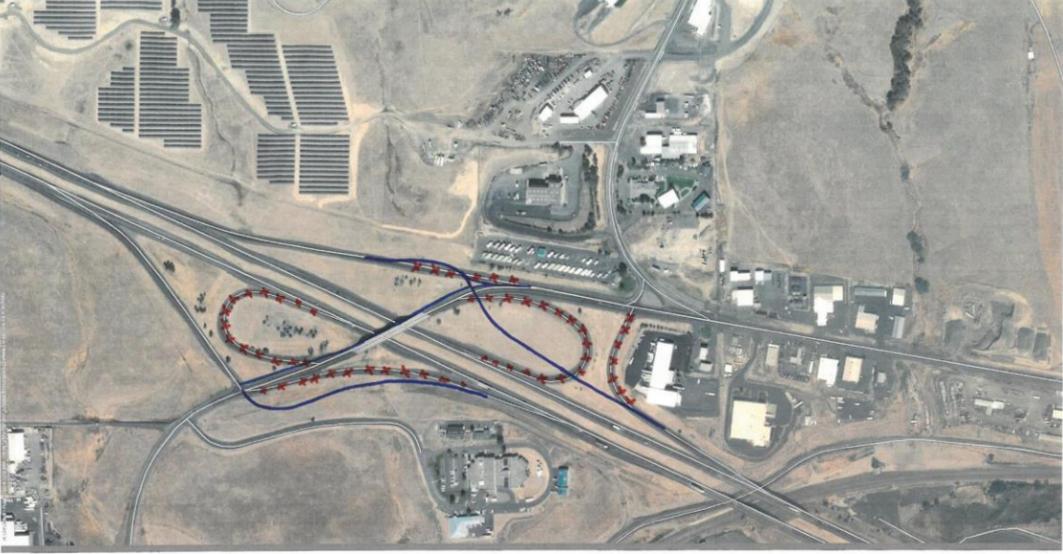
Exit 207 – Concept 1A		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept converts the existing interchange to a diamond interchange and widens the existing overpass structure to add-in a left-turn lane. This redesign would provide a simpler interchange form. Realigning the I-84 Westbound off-ramp will reduce the potential for slide-offs during the winter and improve access spacing to Airport Road and private accesses along US 30, thereby reducing conflicts in the interchange area. Removing the free-right-turns will also reduce conflicts for people walking through the area.</p>	<p>1 A</p> 	Transportation	Addresses the identified operational and safety concerns at the interchange: 1) Location of Airport Road across from I-84 WB off-ramp 2) Slide-offs along the I-84 WB off-ramp"	+1	Addresses both identified concerns	+1	The existing WB off ramp is relocated further to the west. This addresses the existing geometric slide-off deficiencies and eliminates the connection across from Airport Road.
				0	Addresses only one identified concern		
				-1	Does not address concerns and/or introduces new concerns		
			Improves walking and biking access	+1	Improves walking and biking in the study area for both ramps	+1	This concept eliminates the free-flowing right-turn movements at the ramp terminals, improving pedestrian comfort and visibility. A widened overpass would allow for the construction of new sidewalks.
				0	Improves walking and biking in the study area for one ramp		
				-1	Does not improve walking or biking in the study area		
	Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts	+1	The diamond interchange and associated widening of the overpass structure can accommodate long-term growth. The right-of-way impacts to private property are expected to be minimal.	
			-1	Alternative precludes long-term growth or has significant ROW impacts			
	Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This alternative moves the WB ramp terminal further to the west, thereby increasing the spacing distance to Airport Road and other private accesses along Highway 30.	
			-1	Does not move in the direction of ODOT's access spacing guidelines			
Cost	Cost relative to other concepts	+1	Low construction costs				
		0	Moderate construction costs				
		-1	Substantial construction costs	-1	The costs associated with widening the overpass and modifying the ramp terminals would be substantial.		
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.				
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	The existing overpass likely cannot be widened based on its current form. A separate parallel structure would need to be constructed in order to accommodate the extra width for a center turn lane.		
					2		
On-line Public Feedback & Miscellaneous Evaluation Comments							
General support for the diamond reconfiguration for its simplicity and addressing identified safety concerns							
Some concern about cost of structure modifications and whether all of this is necessary							
Need to verify adequate acceleration/deceleration is provided on the ramps							
Why modify the EB ramp configurations? They are adequately addressing existing interchange volumes							
Next Steps		Justification					
Do not move forward for further evaluation.		While this concept scored well on the whole, it is a major reconstruction of the entire interchange. There is not enough evidence that the EB ramp terminals need to be completely modified.					

Table 2 – Concept 1B

Exit 207 – Concept 1B		Evaluation Information			Evaluation Results			
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments		
<p>This concept converts the westbound ramps to a diamond interchange with a roundabout. Realigning the I-84 Westbound off-ramp will reduce the potential for slide-offs during the winter and improve access spacing to Airport Road and private accesses along US 30, thereby reducing conflicts in the interchange area. Removing the free-right-turns will also reduce conflicts for people walking through the area.</p>  <p>1B</p> <p>KITTELSON & ASSOCIATES</p>	Transportation	Addresses the identified operational and safety concerns at the interchange: 1) Location of Airport Road across from I-84 WB off-ramp 2) Slide-offs along the I-84 WB off-ramp"	+1	Addresses both identified concerns	+1	The existing WB off ramp is relocated further to the west. This addresses the existing geometric slide-off deficiencies and eliminates the connection across from Airport Road.		
			0	Addresses only one identified concern				
			-1	Does not address concerns and/or introduces new concerns				
		Improves walking and biking access	+1	Improves walking and biking in the study area for both ramps	0	Improves walking and biking in the study area for one ramp	0	A roundabout at the WB ramp terminal could provide modern pedestrian and bicycle accommodations. No modifications are proposed for the EB ramp terminal where free flowing right-turns would still exist.
			0	Improves walking and biking in the study area for one ramp				
			-1	Does not improve walking or biking in the study area				
	Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts	+1	+1	It is anticipated that the roundabout could be constructed with minimal impacts to privately-owned right-of-way.	
			-1	Alternative precludes long-term growth or has significant ROW impacts				
	Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Moves in the direction of ODOT's access spacing guidelines	+1	+1	This alternative moves the WB ramp terminal further to the west, thereby increasing the spacing distance to Airport Road and other private accesses along Highway 30.	
			-1	Does not move in the direction of ODOT's access spacing guidelines				
Cost	Cost relative to other concepts	+1	Low construction costs	0	0	As this option maintains the current overpass and does not modify the EB portion of the interchange. The costs of a roundabout at the WB ramp terminal would be significant. Compared to Concept 1A, the overall cost would be lower.		
		0	Moderate construction costs					
		-1	Substantial construction costs					
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	-1	-1	Construction of a roundabout at the WB ramp terminal would be difficult to implement while maintaining existing traffic flow.		
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.					
					2			
On-line Public Feedback & Miscellaneous Evaluation Comments								
Some people opposed to roundabouts (in general, not just at this location)								
How does the interchange maintain traffic volumes during roundabout construction?								
Can the roundabout be replaced with a more traditional intersection?								
Next Steps				Justification				
Move forward for further evaluation				Concept scored well. Generally supported by survey respondents. Concept better addresses known geometric issues and does not involve an unnecessary rebuild of the entire interchange.				

Table 3 – Concept 1C

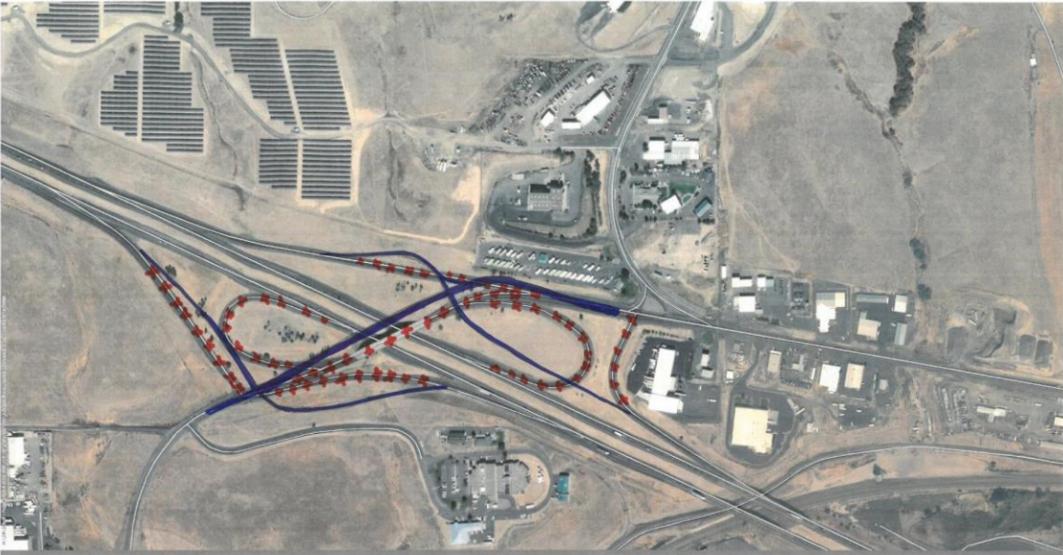
Exit 207 – Concept 1C		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept constructs a new diamond interchange and a new overpass structure. This redesign would provide a simpler interchange form. Realigning the I-84 Westbound off-ramp will reduce the potential for slide-offs during the winter and improve access spacing to Airport Road and private accesses along US 30, thereby reducing conflicts in the interchange area. Removing the free-right-turns will also reduce conflicts for people walking through the area.</p>  <p>1C</p> <p><small>KITTELSON & ASSOCIATES</small></p>		Transportation	Addresses the identified operational and safety concerns at the interchange: 1) Location of Airport Road across from I-84 WB off-ramp 2) Slide-offs along the I-84 WB off-ramp"	+1	Addresses both identified concerns	+1	The existing WB off ramp is relocated further to the west. This addresses the existing geometric slide-off deficiencies and eliminates the connection across from Airport Road.
				0	Addresses only one identified concern		
				-1	Does not address concerns and/or introduces new concerns		
			Improves walking and biking access	+1	Improves walking and biking in the study area for both ramps	+1	Like Concept #1A, this design eliminates the free-flowing right-turn movements at the ramp terminals, improving pedestrian comfort and visibility.
				0	Improves walking and biking in the study area for one ramp		
				-1	Does not improve walking or biking in the study area		
		Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts	+1	The diamond interchange and new overpass can accommodate long-term growth. The right-of-way impacts to private property are expected to be minimal.
				-1	Alternative precludes long-term growth or has significant ROW impacts		
		Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This alternative moves the WB ramp terminal further to the west, thereby increasing the spacing distance to Airport Road and other private accesses along Highway 30.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
Cost	Cost relative to other concepts	+1	Low construction costs				
		0	Moderate construction costs				
		-1	Substantial construction costs	-1	This option and the new parallel overpass is expected to have substantial construction costs.		
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.				
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	A new interchange overpass and new diamond ramps would be extremely difficult to construct while maintaining existing traffic flow through the interchange.		
					2		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Similar comments as at 1A							
Next Steps		Justification					
Do not move forward for further evaluation.		Similar to 1A. Involves a complete rebuild of a functioning interchange.					

Table 4 – Concept 2

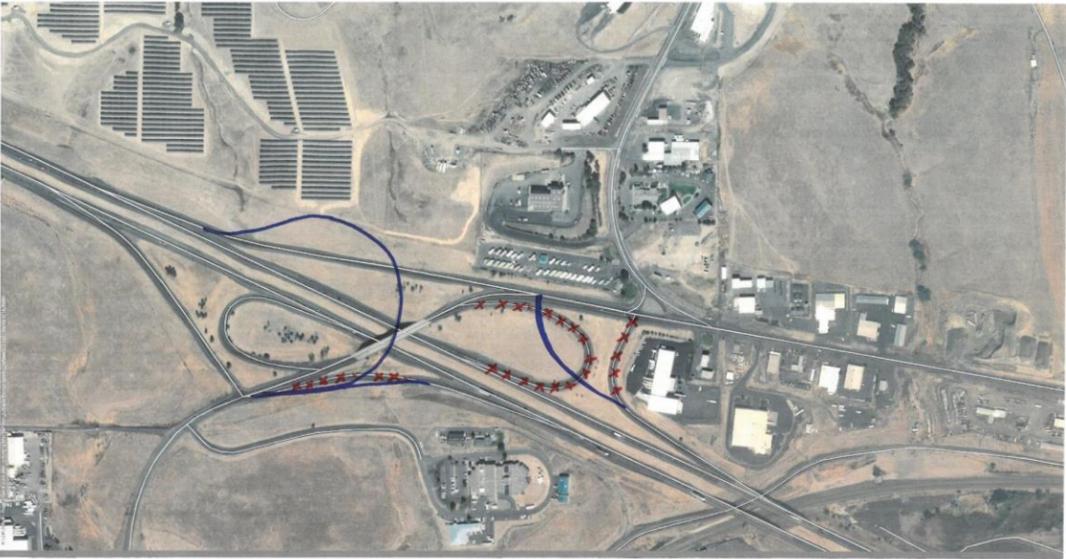
Exit 207 – Concept 2		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept constructs a flyover ramp and modifies the westbound ramps. Realigning the I-84 Westbound off-ramp will reduce the potential for slide-offs during the winter and improve access spacing to Airport Road and private accesses along US 30, thereby reducing conflicts in the interchange area. Removing the free-right-turns will also reduce conflicts for people walking through the area.</p>  <p>2</p> <p>KITTELSON & ASSOCIATES</p>		Transportation	Addresses the identified operational and safety concerns at the interchange: 1) Location of Airport Road across from I-84 WB off-ramp 2) Slide-offs along the I-84 WB off-ramp"	+1	Addresses both identified concerns	+1	The existing WB off ramp is relocated further to the west. This addresses the existing geometric slide-off deficiencies and eliminates the connection across from Airport Road.
				0	Addresses only one identified concern		
				-1	Does not address concerns and/or introduces new concerns		
			Improves walking and biking access	+1	Improves walking and biking in the study area for both ramps		
				0	Improves walking and biking in the study area for one ramp		
				-1	Does not improve walking or biking in the study area	-1	There are minimal improvements to the walking or biking environment.
		Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts	+1	The fly-over is anticipated to provide for long-term growth in the study area. The right-of-way impacts to private property are expected to be minimal.
				-1	Alternative precludes long-term growth or has significant ROW impacts		
		Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This alternative moves the WB ramp terminal further to the west, thereby increasing the spacing distance to Airport Road and other private accesses along Highway 30. Compared to the other evaluated concepts, this improved access spacing is not as significant.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
Cost	Cost relative to other concepts	+1	Low construction costs				
		0	Moderate construction costs				
		-1	Substantial construction costs	-1	The construction of a fly-over ramp is anticipated to have substantial construction costs. Further, the eastbound left-turn volumes do not warrant such a massive and costly structure.		
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.				
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	The construction of a fly-over ramp will be an engineering challenge while maintaining existing traffic flow.		
					0		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Like the relocation of the WB off-ramp.							
Concern about the cost of the concept, especially relative to others and whether the flyover may result in wintertime slide issues.							
Next Steps		Justification					
Do not move forward for further evaluation.		Flyover ramp is not necessary nor proportionate to the interchange volumes.					

Table 5 – Concept 3

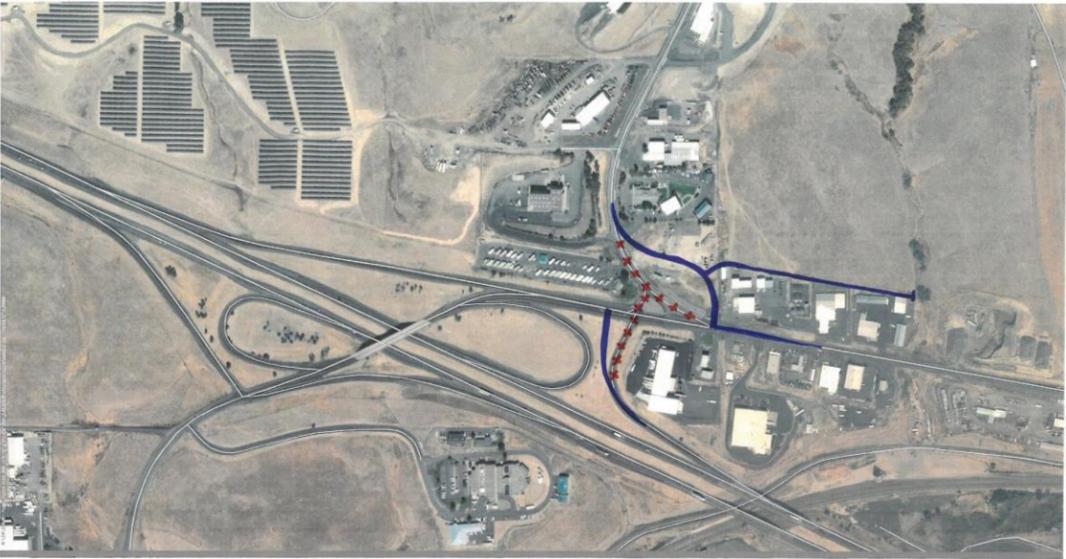
Exit 207 – Concept 3		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept provides minimal changes to the interchange. It realigns the I-84 Westbound off-ramp to reduce the potential for slide-offs during the winter and improve access spacing to Airport Road and private accesses along US 30, thereby reducing conflicts in the interchange area. It also realigns Airport Road to provide more spacing between Airport Road and the I-84 Westbound off-ramp. It creates a new access road behind businesses along the northside of US 30 (Westgate) so that they can take access from that road instead of US 30; thereby reducing the number of accesses within ¼-mile of the I-84 interchange.</p>  <p>3</p> <p>KITTELSON & ASSOCIATES</p>		Transportation	Addresses the identified operational and safety concerns at the interchange: 1) Location of Airport Road across from I-84 WB off-ramp 2) Slide-offs along the I-84 WB off-ramp"	+1	Addresses both identified concerns	+1	The existing WB off ramp is relocated slightly to the west and the Airport Road intersection is relocated slightly to the east. This addresses the existing geometric slide-off deficiencies and eliminates the connection across from Airport Road.
				0	Addresses only one identified concern		
				-1	Does not address concerns and/or introduces new concerns		
			Improves walking and biking access	+1	Improves walking and biking in the study area for both ramps		
				0	Improves walking and biking in the study area for one ramp		
				-1	Does not improve walking or biking in the study area	-1	Compared to Concepts #1A-#1C, this concept does not improve walking or biking conditions in the vicinity of the existing interchange ramps.
		Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts		
				-1	Alternative precludes long-term growth or has significant ROW impacts	-1	The backage road paralleling the north side of Highway 30 will require right-of-way acquisition. The Airport Road realignment may impact the OSP crime lab and/or the parking area.
		Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This alternative moves the WB ramp terminal slightly to the west, thereby increasing the spacing distance to Airport Road and other private accesses along Highway 30. The backage road along the north side of Highway 30 would further improve access management.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
		Cost	Cost relative to other concepts	+1	Low construction costs	+1	In comparison to other concepts, this option is less expensive.
				0	Moderate construction costs		
				-1	Substantial construction costs		
		Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	+1	The entire project could be constructed while maintaining existing traffic flow between I-84 and Airport Road.
				-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.		
					2		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Like the simplicity and that this may be the lowest cost option.							
New WB off-ramp should be designed to alleviate slide-off/winter start-up issues.							
Sight distance will need to be re-evaluated from the new WB off-ramp with respect to the curve to the west on US 30.							
Eliminates a local street across from the WB off-ramp, but creates one additional intersection in closer proximity to WB on ramp.							
Next Steps		Justification					
Move forward for further evaluation		Potentially the least costly option while addressing the primary issues at the interchange.					

Table 6 – Concept Accessory Elements

Exit 207 – Concept Accessory #1	Evaluation Results	
Concept Description and Illustration		Comments
<p>This accessory creates new access roads on the north and south sides of US 30 (Westgate) so that businesses can take access from these roads instead of US 30; thereby reducing the number of accesses within ¼-mile of the I-84 interchange. This accessory can be paired with concepts 1A, 1B, 1C, and 2. The frontage road elements can be paired with Concept 3.</p>	<p>Positives:</p>	<p>This accessory moves the Airport Road intersection away from the I-84 WB off-ramp. The new frontage and backage roads on Highway 30 will significantly improve access management within the vicinity of the WB off-ramp.</p>
	<p>Negatives:</p>	<p>This option requires a fairly significant amount of right of way acquisition. It would increase the travel distance between Airport Road and I-84. This may be an important concern for the Pendleton Police Department and OSP offices. New backage road would need to cross a fairly sizable ravine.</p>
<p><i>Accessory 1 - Pair with 1A, 1B, 1C, 2, elements pair with 3</i></p>  <p>KITTELSON & ASSOCIATES</p>		
On-line Public Feedback & Miscellaneous Evaluation Comments		
<p>Like that it provides access to businesses away from the interchange relocates the Airport Road access.</p>		
<p>Concern about business access, cost, and ability to construct given the topography and land-use.</p>		
Next Steps		
<p>Do not move forward for further evaluation.</p>	<p>Cost and implementation challenges.</p>	

Table 7 – Concept Accessory Elements

Exit 207 – Concept Accessory #2		Evaluation Results	
Concept Description and Illustration			Comments
<p>This accessory creates a roundabout intersection with four legs: Airport Road, US 30 (Westgate), and a new access road behind the businesses on the north side of US 30. This accessory can be paired with concepts 1A, 1B, 1C, and 2. It improves access spacing by moving access to the northern businesses to the new access road.</p>		<p>Positives:</p>	<p>A new roundabout at Airport Road would result in a fully complete and modernized pedestrian and bicycle network. The roundabout could be constructed with minimal impacts to private right-of-way. The backage road along the north side of Highway 30 improves access management.</p>
		<p>Negatives:</p>	<p>The backage road requires right of way acquisition. Construction of a roundabout would require significant grading. A roundabout would be difficult to construct while maintaining existing traffic flow along Airport Road.</p>
<p>Accessory 2 - Pair with 1A, 1B, 1C, 2</p>  <p>KITTELSON & ASSOCIATES</p>			
<p>On-line Public Feedback & Miscellaneous Evaluation Comments</p>			
<p>Like that it relocates access and moves the Airport Road intersection. Roundabout may be in public ROW already.</p>			
<p>Concern about business access, cost, and ability to construct given the topography and land-use.</p>			
<p>Some opposed to roundabouts (in general, not just at this location)</p>			
<p>Next Steps</p>			
<p>Move forward for further evaluation, as an accessory to Concept 1B.</p>			<p>Improves access spacing</p>

Section 2 Exit 210 Concepts

Table 8 – Concept 1

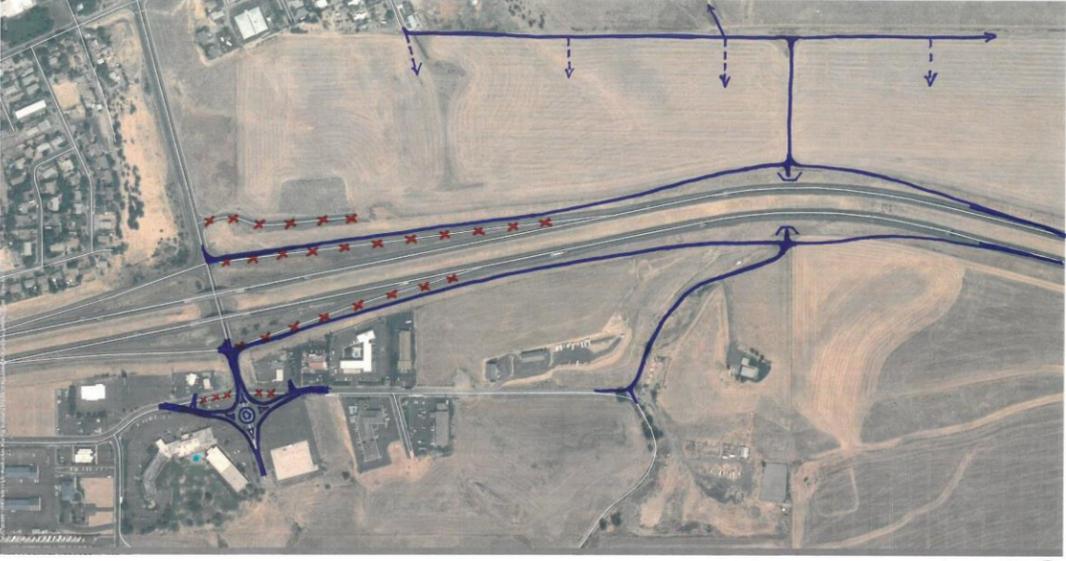
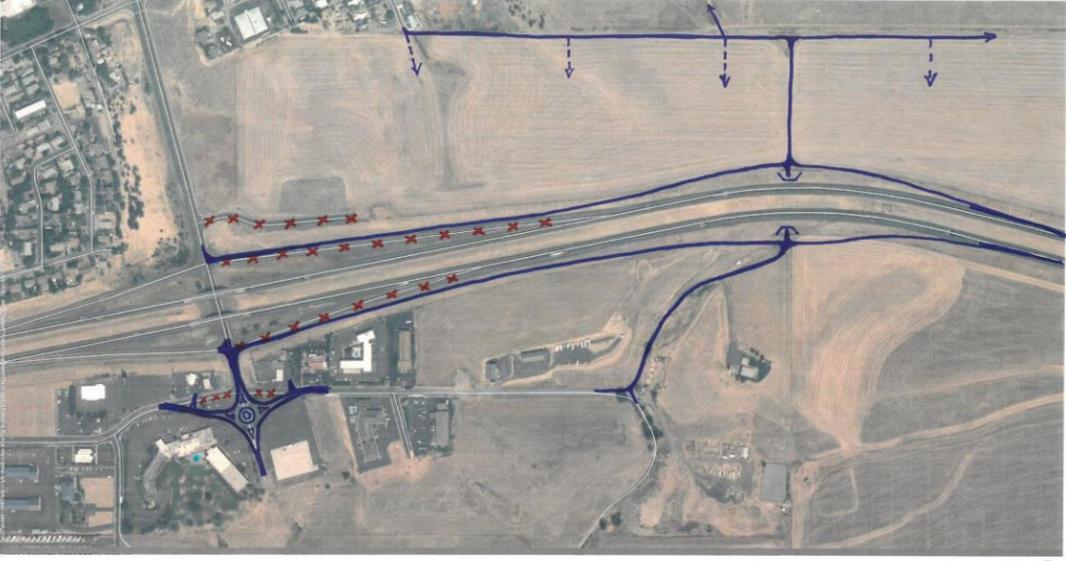
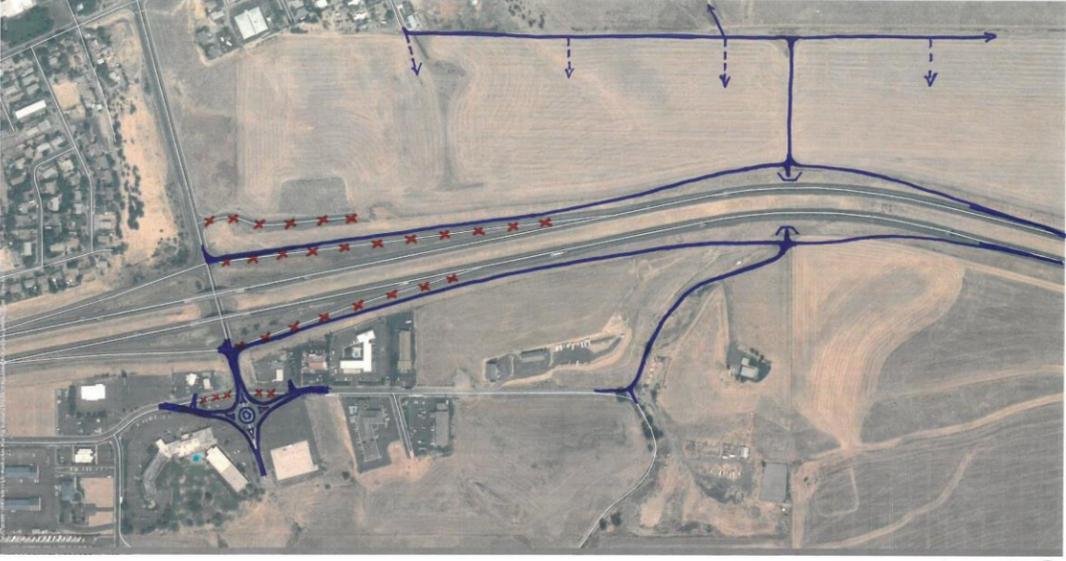
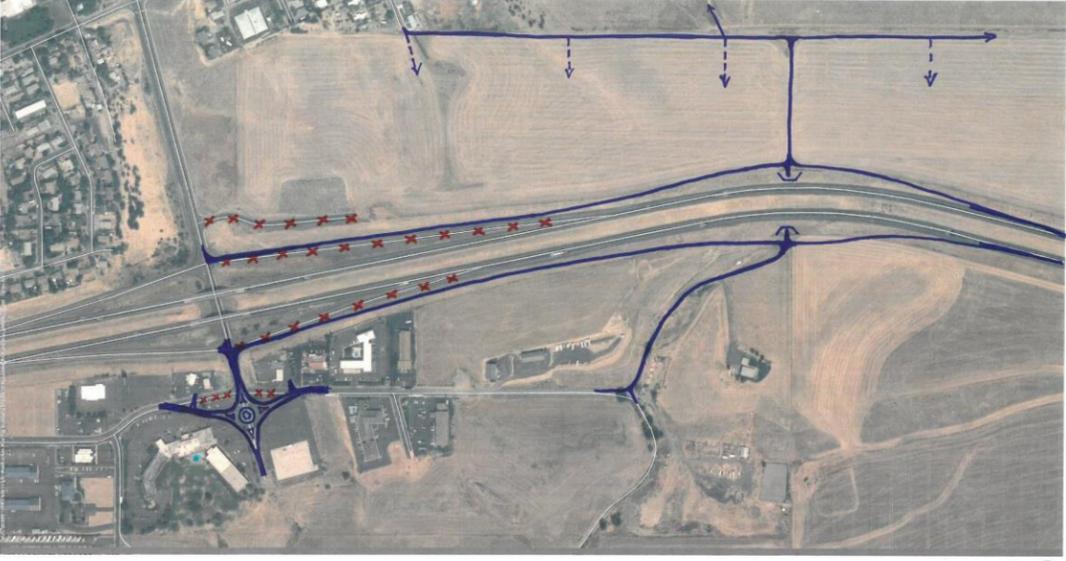
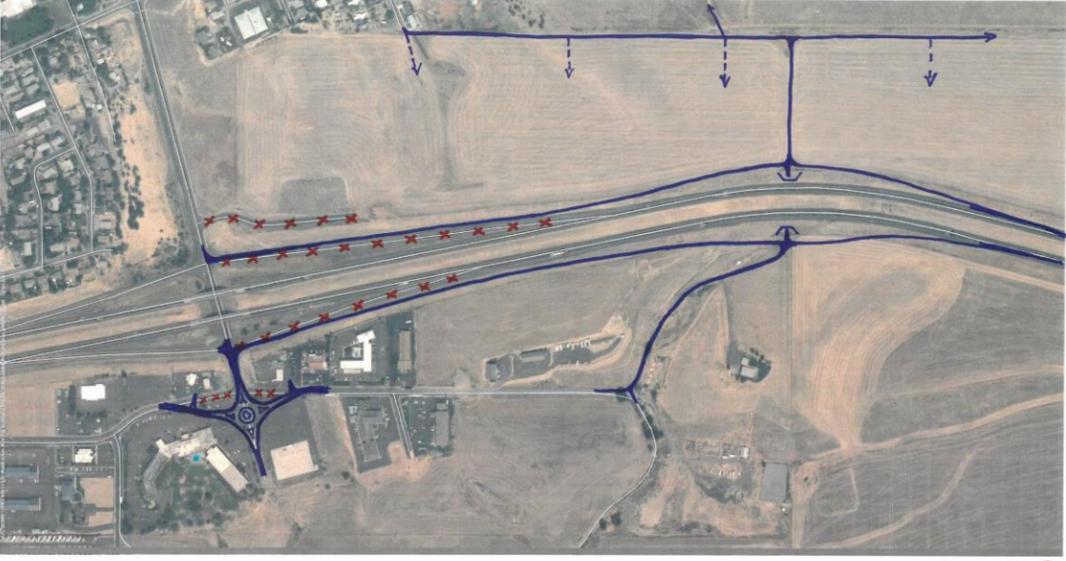
Exit 210 – Concept 1		Evaluation Information			Evaluation Results	
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments
<p>This concept converts the existing interchange to a split diamond interchange in which the westbound off-ramp and the eastbound on-ramp would be further to the east (where Old Dump Road is). This would allow development and existing neighborhoods north of I-84 to take access from a new road connecting to the new on/off ramps. It also closes off Kirk Avenue, eliminating the close spacing from the westbound ramp terminal. This concept relocates Nye Avenue further away from the eastbound ramp terminal and uses a roundabout to improve circulation. These adjustments improve access spacing thereby reducing potential conflicts and improving the capacity of the roadways.</p>	Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This concept closes off Kirk Avenue, eliminating the close spacing from the WB ramp terminal.
			-1	Does not move in the direction of ODOT's access spacing guidelines		
	Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This concept relocates Nye Avenue further away from the EB ramp terminal and utilizes a roundabout intersection form to improve circulation efficiency
			-1	Does not move in the direction of ODOT's access spacing guidelines		
	Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts		
			-1	Alternative precludes long-term growth or has significant ROW impacts	-1	There would be ROW impacts associated with a new interchange at Old Dump Road. The new circulation network serving the northeast quadrant would require ROW, but most of these impacts would affect currently undeveloped property. Some infrastructure would be located outside the current Pendleton UGB.
	Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.	+1	The new split diamond interchange at Old Dump Road would provide direct access to the northeast quadrant of the interchange.
			-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.		
	Cost	Cost relative to other concepts	+1	Low construction costs		
			0	Moderate construction costs		
			-1	Substantial construction costs	-1	A new interchange underpass at Old Dump Road and the associated frontage roads would have substantial construction costs.
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.		
			-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	While the majority of the split diamond interchange could be constructed while maintaining existing traffic, the scale of the project is comparatively large with many unknown complexities.
					0	
On-line Public Feedback & Miscellaneous Evaluation Comments						
Like that it opens up access to property north of the interchange and provides a different access to the properties on the south side.						
Concern about roundabouts (in general, not just here) and about closing Kirk Avenue.						
Concern that access to north side from the north would be confusing/out-of-direction for potential customers.						
Next Steps		Justification				
Move forward for further evaluation.		Third highest score. Supported by survey respondents.				

Table 9 – Concept 2

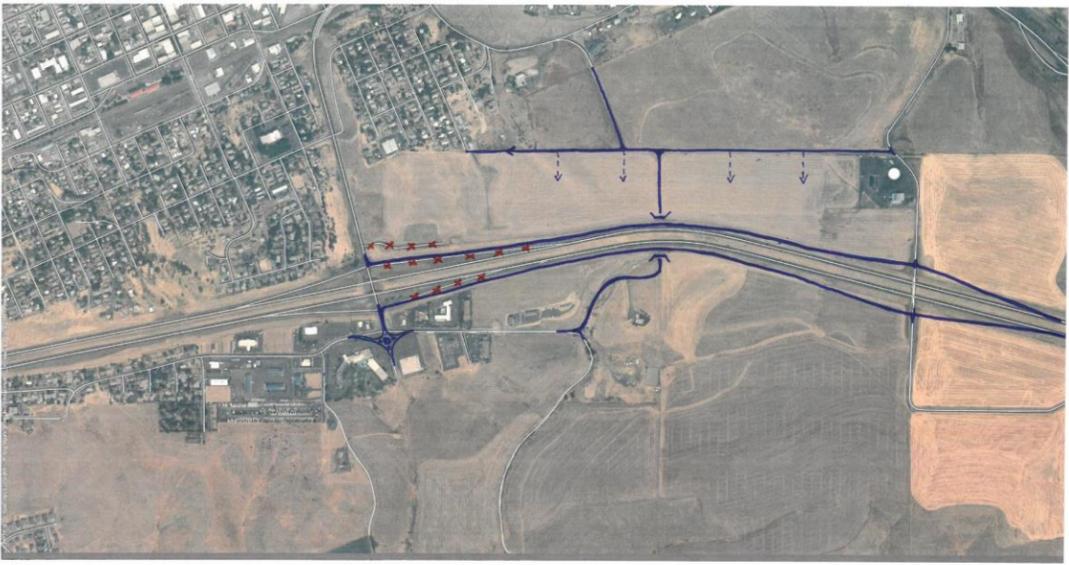
Exit 210 – Concept 2		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept converts the existing interchange to a split diamond interchange in which the westbound off-ramp and the eastbound on-ramp would be further to the east (where Goad Road is). This would allow development and existing neighborhoods north of I-84 to take access from a new road connecting to the new on/off ramps. It closes off Kirk Avenue, eliminating the close spacing from the westbound ramp terminal. It also relocates Nye Avenue further away from the eastbound ramp terminal and uses a roundabout to improve circulation. These adjustments improve access spacing thereby reducing potential conflicts and improving the capacity of the roadways.</p>  <p>EXIT 210 CONCEPT #2</p> 	Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This concept closes off Kirk Avenue, eliminating the close spacing from the WB ramp terminal.	
				-1	Does not move in the direction of ODOT's access spacing guidelines		
			Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This concept relocates Nye Avenue further away from the EB ramp terminal and utilizes a roundabout intersection form to improve circulation efficiency
				-1	Does not move in the direction of ODOT's access spacing guidelines		
	Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts			
			-1	Alternative precludes long-term growth or has significant ROW impacts	-1	There would be ROW impacts associated with a new interchange at Goad Road. All of this infrastructure would be located outside of the Pendleton UGB. The new circulation network serving the northeast quadrant would require ROW, but most of these impacts would affect currently undeveloped property.	
	Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.	+1	The new split diamond interchange at Goad Road would provide direct access to the northeast quadrant of the interchange.	
			-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.			
	Cost	Cost relative to other concepts	+1	Low construction costs			
			0	Moderate construction costs			
		-1	Substantial construction costs	-1	A new interchange at Goad Road and the associated frontage roads would have substantial construction costs.		
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.				
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	While the majority of the split diamond interchange could be constructed while maintaining existing traffic, the scale of the project is comparatively large with many unknown complexities.		
					0		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Similar comments as to #1.							
FHWA not likely to approve due to proximity of Exit 211.							
Next Steps							
Do not move forward for further evaluation.							
Justification							
Interchange spacing and length of frontage roads are not likely to be approved by FHWA							

Table 10 – Concept 3

Exit 210 – Concept 3		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept creates a five-legged roundabout at the westbound ramp terminal. The roundabout would provide direct access to the northeast quadrant of the interchange via Kirk Avenue. The concept also creates a new south side access road, which allows for removing the intersection of 3rd Drive & Nye Avenue. This reduces conflicts in the study area. It also adds an underpass of I-84 via an extension of Old Dump Road to provide more connections to existing neighborhoods and future development and more evenly distribute traffic.</p> 		Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines		
				-1	Does not move in the direction of ODOT's access spacing guidelines	-1	The incorporation of Kirk Ave into the WB ramp terminal is questionable from FHWA policy on interchange ramp design with local streets.
			Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	1	This concept closes off Nye Avenue and incorporates a new southside backage road.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
		Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts		
				-1	Alternative precludes long-term growth or has significant ROW impacts	-1	A southside backage road would have significant ROW impacts. A new Old Dump Road underpass and associated access roads would also have significant ROW impacts, but would improve north-south connectivity.
		Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.	1	A five legged roundabout would provide direct access to the northeast quadrant of the interchange.
				-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.		
		Cost	Cost relative to other concepts	+1	Low construction costs		
				0	Moderate construction costs		
-1	Substantial construction costs			-1	A roundabout at the WB ramp terminal and the southside backage road would have significant construction costs.		
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.				
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	There a significant grade challenges associated with a southside backage road. Grades are likely to steep at the WB ramp terminal for a roundabout.		
					-2		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Like the access to the north side properties and the simplicity of the north side solution.							
South side roads may not be feasible. Opposition to closing Nye.							
Next Steps		Justification					
Do not move forward for further evaluation.		Roundabout constructability challenges and south side roads are not feasible from a grade/topography standpoint. Low score.					

Table 11 – Concept 4

Exit 210 – Concept 4		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This concept modifies the Kirk Avenue/OR-11 intersection so that it is only a right-in/right-out access. This minimizes the operational issues created by the close spacing to the I-84 Westbound off-ramp. The concept also relocates Nye Avenue further away from the eastbound ramp terminal and uses a roundabout to improve circulation. It also adds an underpass of I-84 via an extension of Old Dump Road to provide more connections to existing neighborhoods and future development and more evenly distribute traffic.</p>  <p>EXIT 210 CONCEPT #4</p> <p>KITTELSON & ASSOCIATES</p>		Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	A Kirk Avenue right-in/right-out access off OR 11 would minimize the operational issues associated with the WB ramp terminal.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
			Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This concept relocates Nye Avenue further away from the EB ramp terminal and utilizes a roundabout intersection form to improve circulation efficiency.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
		Land Use/Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts		
				-1	Alternative precludes long-term growth or has significant ROW impacts	-1	The Nye Avenue roundabout would require right-of-way from the Red Lion Hotel. The Old Dump Road access would have right-of-way impacts.
		Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.		
				-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.	-1	A right-in/right-out access at Kirk Avenue would limit return access to I-84 and other regional destinations.
		Cost	Cost relative to other concepts	+1	Low construction costs		
				0	Moderate construction costs	0	Compared to other concepts, costs would be more moderate.
-1	Substantial construction costs						
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	+1	All improvements could be constructed while maintaining existing traffic flow.		
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.				
					+1		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Like the simplicity and the use of Kirk Avenue.							
Concern about Kirk being restricted to Right-in/right-out. General roundabout concerns.							
Concerns about property impacts of relocating Nye/3 rd intersection.							
Next Steps		Justification					
Do not move forward for further evaluation.		Right-in/right-out access only to Kirk Avenue is not an ideal long-term solution.					

Table 12 – Concept 5

Exit 210 – Concept 5		Evaluation Information			Evaluation Results	
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments
<p>This concept realigns the intersection of Kirk Avenue/OR-11 to the north to improve spacing between it and the I-84 Westbound ramp terminal. The concept also relocates the intersection of Nye Avenue/3rd Avenue further from the eastbound ramp terminal. These adjustments improve access spacing thereby reducing potential conflicts and improving the capacity of the roadways.</p> 	Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	A realigned Kirk Avenue 700 feet to the north along OR 11 would eliminate the operational issues associated with the WB ramp terminal.
			-1	Does not move in the direction of ODOT's access spacing guidelines		
		Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	This concept relocates Nye Avenue further away from the EB ramp terminal.
			-1	Does not move in the direction of ODOT's access spacing guidelines		
	Land Use/ Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts	+1	Realignment of Nye Avenue would have adjacent right-of-way impacts, but significantly less compared to other concepts.
			-1	Alternative precludes long-term growth or has significant ROW impacts		
	Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.	+1	While slightly relocated to the north, Kirk Avenue would be a full access intersection with OR 11 and provide efficient access back to the I-84 corridor.
			-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.		
	Cost	Cost relative to other concepts	+1	Low construction costs	+1	Kirk Avenue realignment would be costly, but the overall costs are low compared to other concepts.
			0	Moderate construction costs		
			-1	Substantial construction costs		
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.		
-1			Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	The Kirk Avenue realignment would require significant regrading and large retaining walls against the adjacent steep hillside.	
					+4	
On-line Public Feedback & Miscellaneous Evaluation Comments						
Like the simplicity and that Kirk Avenue provides full access.						
Questions about whether extending Kirk in this way is really feasible given topography and basalt layers.						
Concerns about property impacts of relocating Nye/3 rd intersection.						
Next Steps				Justification		
Move forward for further evaluation (including with one version that keeps the current Kirk Avenue as a right-in access, too).				Highest scoring concept. Provides intuitive access to north side.		

Table 13 – Concept 6

Exit 210 – Concept 6		Evaluation Information			Evaluation Results	
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments
<p>This concept relocates the eastbound ramps, which would eliminate the existing close spacing between Nye Avenue and eastbound ramps. It also modifies the Kirk Avenue/OR-11 access to only permit right-in and right-out access. These adjustments reduce potential vehicle conflicts. It also adds an underpass of I-84 via an extension of Old Dump Road to provide more connections to existing neighborhoods and future development and more evenly distribute traffic.</p> 	Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	A Kirk Avenue right-in/right-out access off OR 11 would minimize the operational issues associated with the WB ramp terminal.
			-1	Does not move in the direction of ODOT's access spacing guidelines		
		Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	The new buttonhook ramp design at Nye Avenue would eliminate the existing close spacing between Nye Avenue and EB ramp terminal.
			-1	Does not move in the direction of ODOT's access spacing guidelines		
	Land Use/Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts		
			-1	Alternative precludes long-term growth or has significant ROW impacts	-1	The new buttonhook ramp design and Old Dump Road underpass would have significant ROW impacts.
	Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.		
			-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.	-1	Access to the northeast quadrant is indirect and inefficient.
	Cost	Cost relative to other concepts	+1	Low construction costs		
			0	Moderate construction costs		
			-1	Substantial construction costs	-1	Buttonhook ramps and Old Dump Road underpass would have significant construction costs.
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.		
-1			Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	Button hook ramp design would likely require widening of the I-5 bridge structure over OR 11. The buttonhook design would introduce a significant speed curve on the offramp which would be a challenge to incorporate a design that is adequate for inclement weather conditions.	
					-2	
On-line Public Feedback & Miscellaneous Evaluation Comments						
Like the relocation of the eastbound interchange. Concern that this could create new access challenges, though.						
Relocated interchange uses up developable land.						
Similar feedback as before about Kirk Avenue being used, but as a right-in/right-out access.						
Preliminary Consultant Team Recommendation				Justification		
Do not move forward for further evaluation.				Interchange relocation impacts to private property and may transfer access challenges to a new location.		

Table 14 – Concept 7

Exit 210 – Concept 7		Evaluation Information			Evaluation Results		
Concept Description and Illustration		Category	Evaluation Criteria	Scoring Key	Score	Comments	
<p>This option creates roundabouts at the I-84 ramp terminals and at Nye Avenue. This would help reduce some of the concerns about having intersections closely spaced to the I-84 ramps by reducing potential conflicts and improving the capacity of the roadways.</p> 		Transportation	Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines		
				-1	Does not move in the direction of ODOT's access spacing guidelines	-1	The incorporation of Kirk Ave into the WB ramp terminal is questionable from FHWA policy on interchange ramp design with local streets.
			Addresses the limited intersection spacing between the WB ramp terminal and Kirk Avenue.	+1	Moves in the direction of ODOT's access spacing guidelines	+1	Roundabouts at the EB ramp terminal and Nye Avenue would introduce a constant flowing interchange minimizing the concerns associated with closely spaced ramps/intersections.
				-1	Does not move in the direction of ODOT's access spacing guidelines		
		Land Use/Economic Development	Accommodates future growth and minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW impacts	+1	Realignment of Nye Avenue would have adjacent right-of-way impacts, but significantly less compared to other concepts. ROW impacts at the other roundabouts would not impact high-value portions of private property.
				-1	Alternative precludes long-term growth or has significant ROW impacts		
		Accessibility	Moves in the direction of ODOT access spacing requirements	+1	Provides direct and efficient access to properties in the northeast quadrant of the interchange.	+1	A five-legged roundabout would provide direct access to the northeast quadrant of the interchange.
				-1	Provides indirect or inefficient access to properties in the northeast quadrant of the interchange.		
		Cost	Cost relative to other concepts	+1	Low construction costs		
				0	Moderate construction costs		
-1	Substantial construction costs			-1	All three roundabouts would have significant construction costs.		
Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.				
		-1	Construction of improvements will be a physical challenge and/or will require major detours during construction.	-1	Grades are likely to steep at the EB and WB ramp terminals for a roundabout. It would be difficult to maintain existing traffic flow on OR 11 and the interchange during construction.		
					0		
On-line Public Feedback & Miscellaneous Evaluation Comments							
Like the simplicity and potential cost, relative to other concepts.							
Topography may make this unrealistic.							
General roundabout concerns.							
Preliminary Consultant Team Recommendation		Justification					
Do not move forward for further evaluation.		Roundabouts at the EB and WB ramp terminals are likely not feasible due to significant downslope of OR 11					

NEXT STEPS

The project team will perform more detailed analyses of the following concepts:

Exit 207

- Concept 1B, w/ Accessory #2
- Concept 3

Exit 210

- Concept 1
- Concept 5 (as shown)
- Concept 5B (with right-in access at Kirk)

The results of this evaluation will be presented to the project advisory committees and the general public at upcoming virtual meetings and used to select the preferred alternative at each location.