IMPACTS ASSESSMENT MATRIX			
Design Alternatives	**Alternative 1A/B**	**Alternative 1C**	**Alternative 3**
Issues	• Rivers Edge grade is 10% • Available clearance may not be sufficient for standard bridge structure • Old Columbia Rd tie-in elevation is low, may not cross stream • Complex MOT needed to construct underpass	• Underpass would be skewed and curved, but allows for additional clearance as compared to Alternative 1A/B • Complex MOT needed to construct underpass	• Long bridge over US 29 (approx. 500 ft length) • Modified traffic patterns within community
History/Origin of Alternatives	*Modification of FONSI Selected Alt. C-4* *Location of southbound US 29 ramps optimized*	*Modified Alt. 1A/B with underpass skew to avoid stream impacts*	*Concept from member of local community*
Description of Alternatives	*Rivers Edge Rd underpass to connect to Old Columbia Rd* *SB ramps are improved including longer acceleration lane* *NB ramps are located 800 feet south on Old Columbia Rd*	*Rivers Edge Rd skewed and curved underpass to connect to Old Columbia Rd* *SB ramps are improved including longer acceleration lane* *NB ramps are located 800 feet south on Old Columbia Rd*	*Bridge over US 29 2,000 ft north of Rivers Edge Rd at Vista Rd* *SB acceleration lane is extended* *NB ramps are located 800 feet south on Old Columbia Rd*
Traffic Operations and Access			
Traffic Operations and Safety During Final Build Condition	All proposed Alternatives are projected to improve existing and future traffic operations along US 29. All proposed Alternatives will improve safety along US 29 by removing the signalized at-grade intersection and moving the on-ramp to the right side of northbound US 29 instead of the left.		
Maintenance of Traffic During Construction	<u>All Phases:</u> US 29 lanes will be maintained using lane shifts and crossovers <u>Phase 1 and 2:</u> Access to/ from Northbound US 29 at Rivers Edge Rd will be detoured <u>Phase 3:</u> New connection to Old Columbia Rd will be completed, allowing access to/from Northbound US 29 Access to Southbound US 29 from Rivers Edge Rd will be detoured	<u>All Phases:</u> US 29 lanes will be maintained using lane shifts and crossovers <u>Phase 1 and 2:</u> Access to/ from Northbound US 29 at Rivers Edge Rd will be detoured <u>Phase 3:</u> New connection to Old Columbia Rd will be completed, allowing access to/from Northbound US 29 Access to Southbound US 29 from Rivers Edge Rd will be detoured	<u>Throughout Construction:</u> US 29 lanes will be maintained using lane shifts and crossovers All movements at the existing US 29 intersection at Rivers Edge Road will be maintained
Direct Access to Old Columbia Road	Yes	Yes	Yes
Changes in traffic patterns within community	No	No	Yes Potential Mitigation: Traffic calming and vehicle restrictions community streets
Distance from center of community to NB US 29	1.0 mile	1.0 mile	1.4 mile
Emergency Vehicle (Fire/EMS) Access	Response time from Rivers Park station will be faster	Response time from Rivers Park station will be faster	Response time from Rivers Park station will be faster
Potential Accommodations for Bicycle and Pedestrian Facilities	Sidewalks and shoulders provided on new connection from Long View Road to Old Columbia Road	Sidewalks and shoulders provided on new connection from Long View Road to Old Columbia Road	Sidewalks and shoulders provided on new connection from Long View Road to Old Columbia Road
Cost, Design and Constructability			
Cost	$5-7 million	$5-7 million	$6-8 million
Design Issues	• Rivers Edge grade is 10% • Available clearance may not be sufficient for standard bridge structure • Old Columbia Rd tie-in elevation is low, may not cross stream	• Underpass would be skewed and curved, but allows for additional clearance as compared to Alternative 1A/B • Complex MOT needed to construct underpass	• Long bridge over US 29 (approx. 500 ft length) • Modified traffic patterns within community
Stormwater Management requirements	Additional facilities needed in areas of improvements	Additional facilities needed in areas of improvements	Additional facilities needed in areas of improvements, likely not as significant as in 1A/B & 1C
Drainage Issues	Underpass road surface is relatively low vs. stream elevation, design of positive drainage to outfall may be challenging	Underpass road surface is relatively low vs. stream elevation, design of positive drainage to outfall may be challenging	No significant issues
Constructability Issues	Complex MOT needed to construct underpass	Complex MOT needed to construct underpass	Night-time lane closures or temporary lane shifts on US 29 possibly needed for construction of bridge

IMPACTS ASSESSMENT MATRIX			
Design Alternatives	**Alternative 1A/B**	**Alternative 1C**	**Alternative 3**
Socio-Economic Impacts			
# Properties/ Resources Affected (incl. displacements)	6 Residential	6 Residential	1 Residential
# Properties/ Resources Displaced Residential Commercial	2 Residential	2 Residential	1 Residential
Historic Sites Affected	0	0	0
Natural Environmental Impacts			
Wetlands (acres)	0	0	0
Stream Crossings (#)	2	1	2
Forest (acres)	2	2	2

IMPACTS ASSESSMENT MATRIX							
Design Alternatives	**Alternative 1A/B**	**Alternative 1C**	**Alternative 2A**	**Alternative 2B**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Issues/ Fatal Flaws	• Rivers Edge grade is 10% • Available clearance may not be sufficient for standard bridge structure • Old Columbia Rd tie-in elevation is low, may not cross stream • Complex MOT needed to construct underpass	• Underpass would be skewed and curved, but allows for additional clearance as compared to Alternative 1A/B • Complex MOT needed to construct underpass	• **Fatal Flaw: Rivers Edge Rd ramp tie-in does not meet min. AASHTO intersection spacing** • Ramp curve on bridge spur does not meet AASHTO • Ramp adjacent to homes would require extensive retaining walls • Ramp will impact SWM facility	• **Fatal Flaw: Ramps 1 and 3 will require steep grades (10%)** • Ramp adjacent to homes would require extensive retaining walls	• Long bridge over US 29 (approx. 500 ft length) • Modified traffic patterns within community	• **Fatal Flaw: Requires land within Conservation Easement (3 year process)** • Relocation of Old Columbia Rd and construction of ramps require extensive earthwork	• **Fatal Flaw: Requires land within Conservation Easement (3 year process)** • Relocation of Old Columbia Rd requires extensive earthwork
History/Origin of Alternatives	*Modification of FONSI Selected Alt. C-4 Location of southbound US 29 ramps optimized*	*Modified Alt. 1A/B with underpass skew to avoid stream impacts*	*Value Engineering concept Formerly referred to as Alt. 2*	*Modified Value Engineering concept to mitigate fatal flaw*	*Concept from member of local community*	*Concept developed looking for an overpass at US 29*	*Concept developed for an overpass at US 29 with connection to Old Columbia Rd*
Description of Alternatives	*Rivers Edge Rd underpass to connect to Old Columbia Rd SB ramps are improved including longer acceleration lane NB ramps are located 800 feet south on Old Columbia Rd*	*Rivers Edge Rd skewed and curved underpass to connect to Old Columbia Rd SB ramps are improved including longer acceleration lane NB ramps are located 800 feet south on Old Columbia Rd*	*Spur to Bridge over US 29 800 ft south of Rivers Edge Rd SB ramps will be improved at the original locations NB ramps connect to/from spur but not Old Columbia Rd*	*Spur to Bridge over US 29 800 ft south of Rivers Edge Rd including SB on-ramp SB off-ramp will be improved at original location NB ramps connect to/from spur but not Old Columbia Rd*	*Bridge over US 29 2,000 ft north of Rivers Edge Rd at Vista Rd SB acceleration lane is extended NB ramps are located 800 feet south on Old Columbia Rd*	*Bridge over US 29 at Rivers Edge Rd to NB ramps SB ramps will be improved at the original locations NB ramps connect to/from bridge but not Old Columbia Rd*	*Bridge over US 29 at Rivers Edge Rd to Old Columbia Rd SB ramps will be improved at the original locations NB ramps are located 800 feet south on Old Columbia Rd*