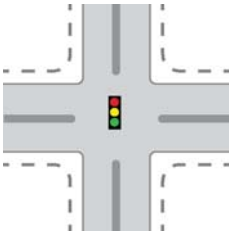
Appendix D: Alternatives Screening

22/390 Corridor Study

What are Major Intersection Options?

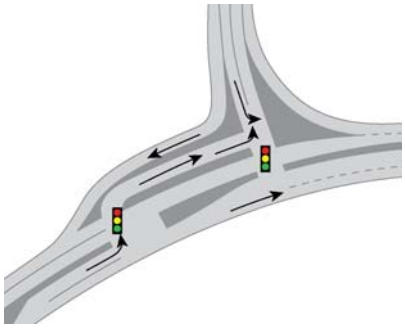
Expanded Signalized Intersection



+ Allows protected pedestrian movements
+ Accommodates unbalanced approach volumes
+ Relatively small footprint
+ Lower construction cost
– Can have high amounts and delay
– Higher potential for severe accidents
– Multiple lanes for pedestrians to cross

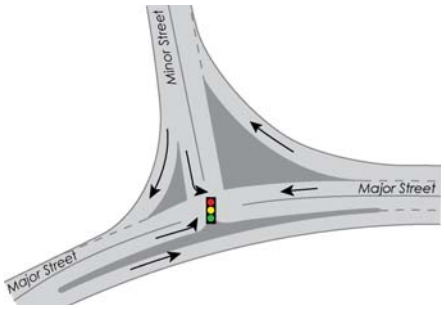
Numerous configurations of intersection designs have been analyzed for the major intersections.

Continuous Flow Intersection



+ Moves the left turn eliminating left turn movements from the main intersection
+ Improved capacity
+ Reduced delay
+ Suitable for high volume left turns
+ Allows protected pedestrian movements
+ Safer for vehicular travel than signalized intersections
– Motorists must travel through multiple intersections, and may stop multiple times through the junction
– Less intuitive than signalized intersection
– Other choices more pedestrian friendly
– Larger footprint than signalized intersection

Florida-T Intersection

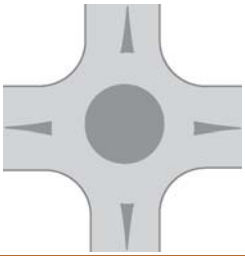


+ Suitable for a three-way intersection with moderate-to-low left turn volumes from cross street, and high arterial through volumes
+ Allows continuous green through movement in one mainline direction
+ Allows protected pedestrian movements
+ Safer than signalized intersections
+ Improved capacity
+ Reduced delay
– More footprint required than signalized intersection
– Pedestrian movements need pedestrian signal

Grade-Separated Intersections

+ Suitable for high volume intersections
+ Allows traffic to move freely, with fewer interruptions
+ Safer relative to signalized intersections
+ Creates less delay than other intersection types
– Represent a barrier for pedestrians
– Higher visual impacts than other intersection types
– Larger footprint than signalized intersection
– Much higher cost than other intersection types

Roundabout

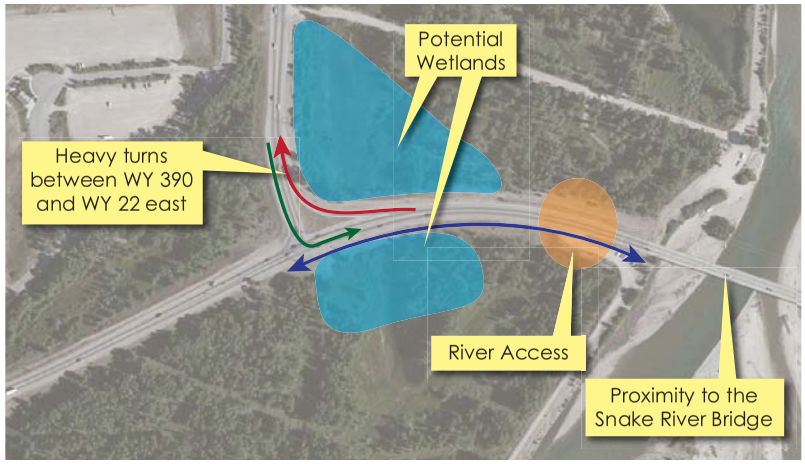


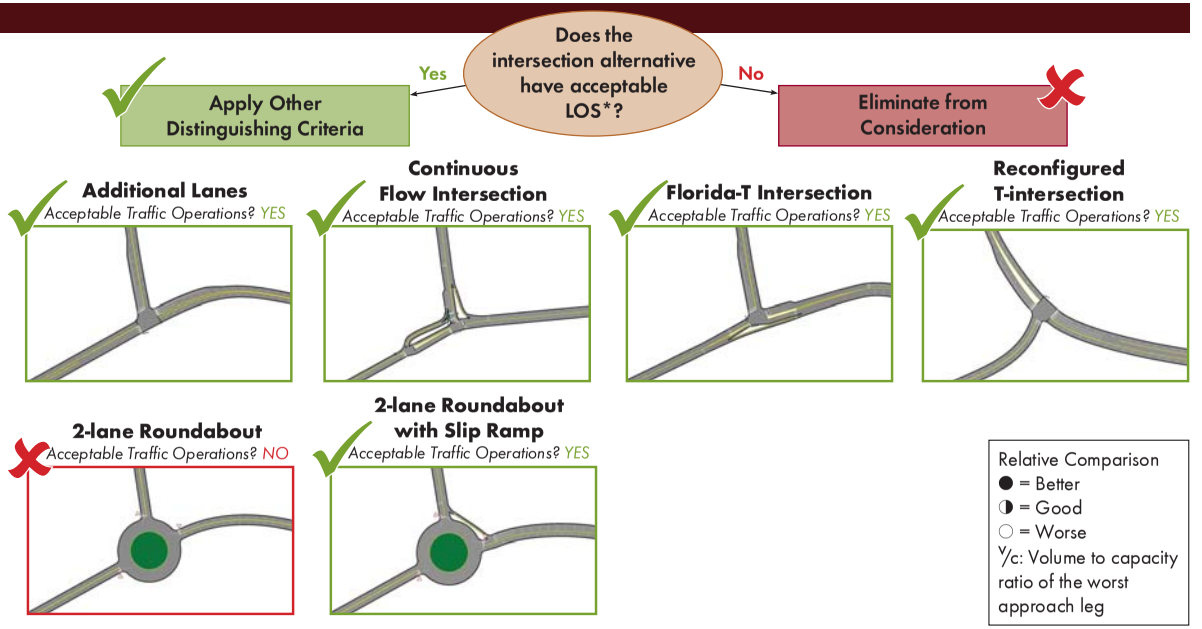
+ Suitable for relatively balanced approach volumes
+ Safer for vehicular travel relative to other intersection types
+ Can result in less delay
+ Can accommodate aesthetic treatments
– Larger footprint than signalized intersection
– Less suitable for high volume/multilane approaches
– Less intuitive for pedestrians/bicycle lists than other intersection types

22/390 Corridor Study

WYO 22 & 390

Major Issues





Relative Comparison
● = Better
◑ = Good
○ = Worse
v/c: Volume to capacity ratio of the worst approach leg

Study Results

	Intersection Operations	Pedestrian/Bikes	Transit	Safety/Vehicle Conflicts	Aesthetics	Environmental / ROW Impacts	Practical	Cost	Driver Expectations	Speed Calming	Maintenance
✓ **Additional Lanes**	●	●	●	○	◑	●	●	●	●	◑	●
	An expanded signalized intersection has a relatively smaller footprint but lower safety performance										
✓ **Continuous Flow Intersection**	●	○	●	◑	○	◑	●	◑	○	◑	◑
	The CFI provides relatively worse pedestrian & bicycle operations and worse aesthetics										
✓ **Florida-T Intersection**	●	○	●	◑	○	◑	●	◑	◑	◑	◑
	The **Florida-T** provides relatively worse pedestrian & bicycle operations and worse aesthetics										
✓ **Reconfigured T Intersection**	●	●	●	○	◑	●	●	●	●	○	◑
	The reconfigured T would result in faster speeds and lower safety performance										
✓ **2-lane Roundabout with Slip Ramp**	●	◑	◑	●	●	◑	●	●	◑	●	◑
	The roundabout offers relatively safer operations, better aesthetics, speed calming, but a larger footprint and providing safe pedestrian movements may require additional improvements										

22/390 Corridor Study

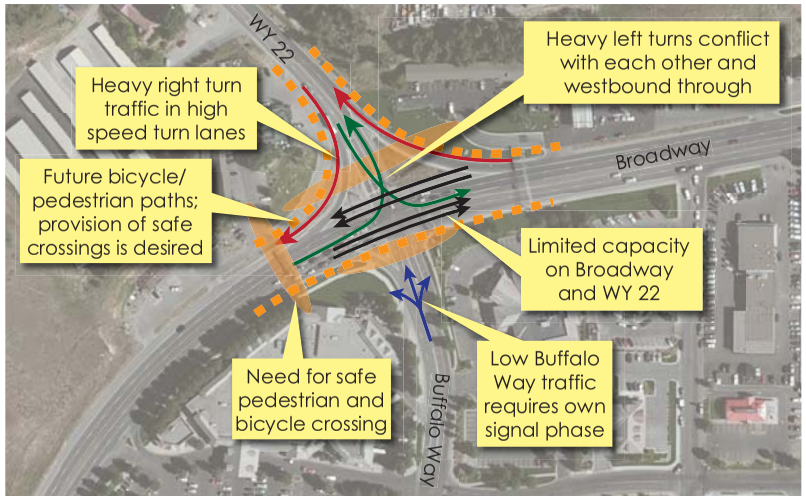
"Y" - WYO 22 & Broadway

Does the intersection alternative have acceptable LOS*?

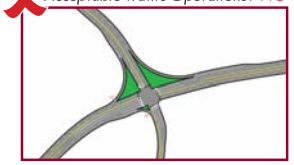
Yes → Apply Other Distinguishing Criteria

No → Eliminate from Consideration

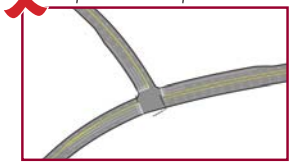
Major Issues



Eastbound Double Lefts — Acceptable Traffic Operations? NO

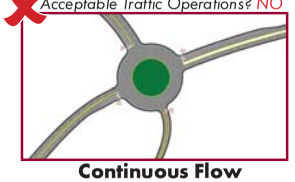


Close Buffalo Way — Acceptable Traffic Operations? NO

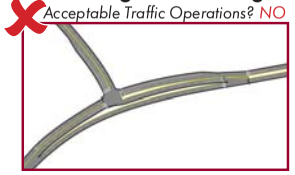


Eastbound and Southbound Triple Lefts — Acceptable Traffic Operations? NO

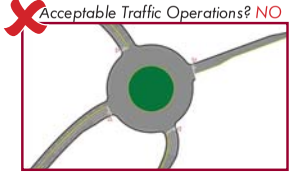
2-lane Roundabout — Acceptable Traffic Operations? NO



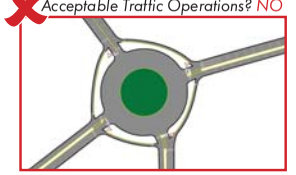
Florida-T Intersection with Signalized Merge — Acceptable Traffic Operations? NO



3-lane Roundabout — Acceptable Traffic Operations? NO



3-lane Roundabout with Slip Ramps — Acceptable Traffic Operations? NO



Continuous Flow Intersection — Acceptable Traffic Operations? NO

Inverted Continuous Flow Intersection — Acceptable Traffic Operations? YES

Inverted Continuous Flow Intersection with 3-lane Broadway — Acceptable Traffic Operations? YES

Florida-T with Signalized Merge and 3-Lane Broadway — Acceptable Traffic Operations? YES

Westbound Broadway Grade Separated — Acceptable Traffic Operations? YES

Study Results

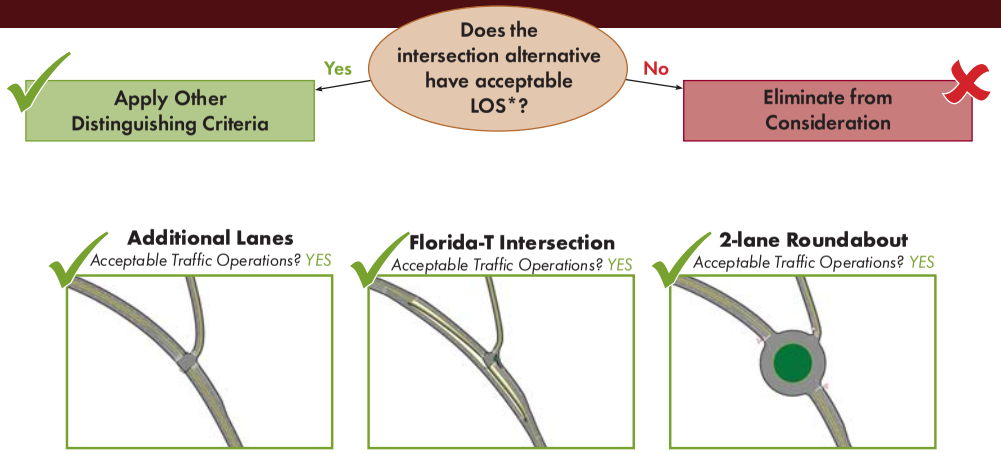
Relative Comparison
● = Better ◑ = Good ○ = Worse
$^{V}/_{C}$: Volume to capacity ratio of the worst approach leg

	Intersection Operations	Pedestrian/Bikes	Transit	Safety/Vehicle Conflicts	Aesthetics	Environmental / ROW Impacts	Practical	Cost	Driver Expectations	Speed Calming	Maintenance
✓ Inverted Continuous Flow Intersection	●	◑	●	◑	●	○	●	◑	○	◑	◑
	Inverted CFIs provide relatively good operations, but larger footprints and are less intuitive for drivers										
✓ Inverted Continuous Flow Intersection with 3-lane Broadway	●	○	●	◑	◑	○	●	◑	○	◑	◑
	Inverted CFIs provide relatively good operations, but larger footprints and are less intuitive for drivers										
✓ Florida-T with Signalized Merge and 3-lane Broadway	○	◑	●	●	◑	●	●	●	◑	◑	◑
	A modified Florida T would provide good operations and safety performance, but may require 3-lanes on Broadway										
✓ Westbound Broadway Grade Separated	◑	◑	◑	●	○	◑	◑	○	●	○	◑
	A westbound grade separation facilitates good and safe traffic operations, but relatively poor aesthetics, high cost and higher speeds										

22/390 Corridor Study

WYO 22 & Spring Gulch Road

Major Issues



Study Results

	Intersection Operations	Pedestrian/Bikes	Transit	Safety/Vehicle Conflicts	Aesthetics	Environmental / ROW Impacts	Practical	Cost	Driver Expectations	Speed Calming	Maintenance
Additional Lanes	●	●	●	○	◑	●	●	●	●	◑	●
	An expanded signalized intersection has a relatively smaller footprint but lower safety performance										
Florida-T Intersection	◑	◑	●	○	●	◑	●	◑	◑	◑	◑
	The advantages of a Florida T would likely not outweigh its additional impacts										
Roundabout	◑	◑	◑	●	●	◑	●	●	○	●	◑
	Roundabouts offer relatively safer operations, better aesthetics, speed calming, but a larger footprint and providing safe pedestrian movements may require additional improvements										
Roundabout with Slip Ramps	◑	◑	◑	●	●	○	●	●	○	●	◑
	Roundabouts offer relatively safer operations, better aesthetics, speed calming, but a larger footprint and providing safe pedestrian movements may require additional improvements										

Relative Comparison
● = Better ◑ = Good ○ = Worse
$^{V}/_{C}$: Volume to capacity ratio of the worst approach leg