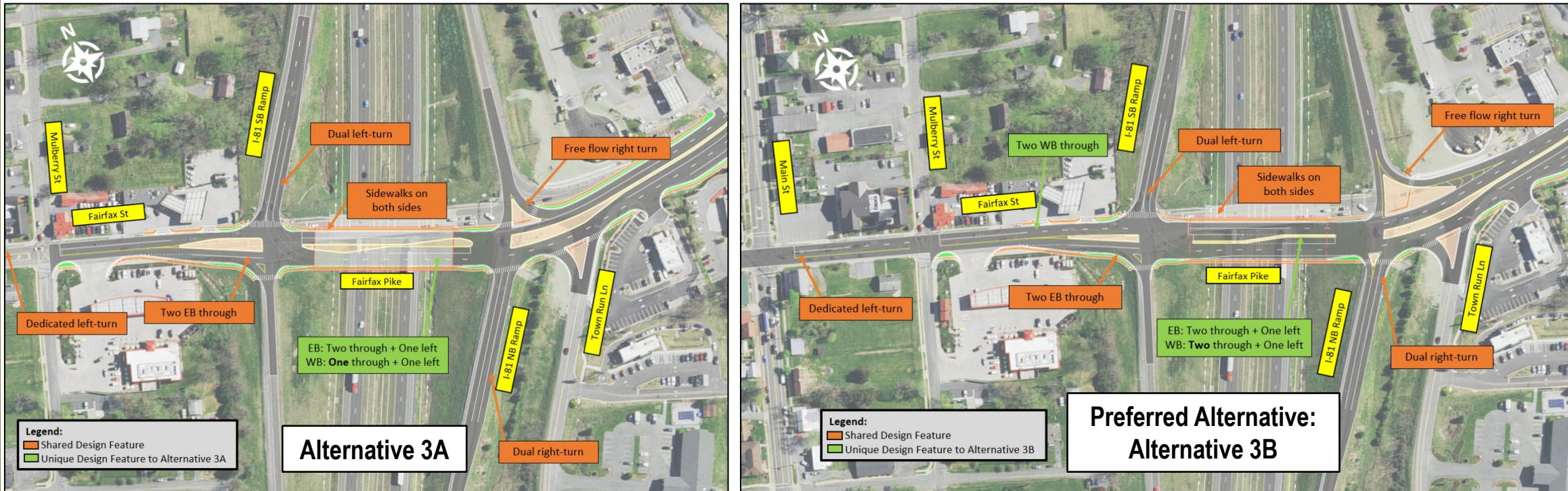


ALTERNATIVE 3A & 3B IMPROVEMENTS

Recommended Improvements (Phase 2)



Planning-Level Conceptual Design



Improvements Description

The shared improvements proposed at this location include:

- A dedicated westbound left turn lane at Main Street
- Traffic Signals remain in place at both I-81 ramps
- Dual eastbound through lanes starting at the southbound off-ramp intersection
- Dual northbound off-ramp right turn lanes
- Dual southbound off-ramp left turn lanes
- Free flow right turn lane from Fairfax Pike to the I-81 North on-ramp
- Sidewalk on both sides of the bridge

The unique design feature of Alternative 3A is the lane configuration on the bridge.

- In the eastbound direction, there are two through lanes and one left turn lane.
- In the westbound direction, there is one through lane and one left turn lane.

The unique design features of Alternative 3B include:

- The lane configuration on the bridge - two through lanes and one left turn lane in each direction.
- Two westbound through lanes on Fairfax Street between Main Street and the I-81 South off-ramp.

These improvements are expected to improve travel times through the study corridor. Alternative 3A provided a 35% savings in travel time during the 2054 PM peak compared to the No-Build scenario for the westbound approach. Alternative 3B provided an even greater savings of 53% in travel time during the 2054 PM peak for the westbound approach compared to the No-Build scenario; and therefore, is the preferred alternative.

Traffic Operations Results

I-81 Northbound and Southbound Ramps Average Delay

Alternative	SB Ramp Intersection: PM Peak	NB Ramp Intersection: PM Peak
No-Build (2054)	137 s	21 s
Alternative 3A (2054)	20 s	9 s
Alternative 3B (2054)	16 s	10 s

Fairfax Pike Route 277 Travel Time Results

Year	Alternative	Eastbound	Westbound
2054	No-Build	02:17	03:14
	3A	01:43	02:06
	3B	01:32	01:26

Project Location



Preliminary Cost Estimate

Project cost estimates were developed based on information available at the time of study and should be reassessed prior to submitting funding applications.

Phase	Cost Estimate (2024 Dollars)
Preliminary Engineering	\$2,952,000
ROW and Utility Relocation	\$2,852,480
Construction	\$19,099,914
Total Cost	\$24,904,394

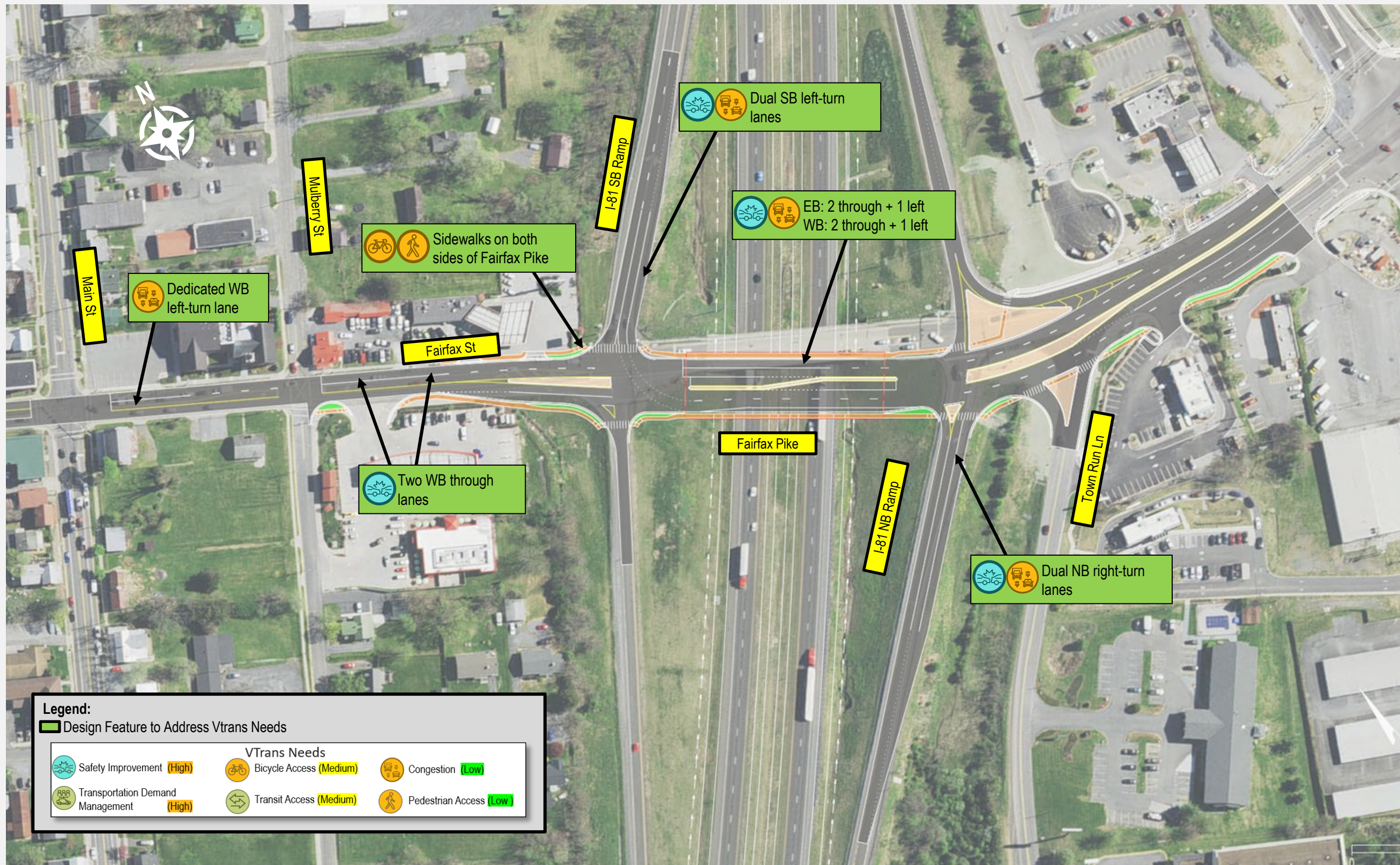
Safety Results

Alternative 3B provides a 66% reduction in total crashes due to the proposed improvements.

- 69% reduction in injury crashes
- 65% reduction in property damage only crashes

Preferred Alternative (Alt 3B) VTrans Needs Addressed

VTrans Needs and Improvements Summary



VTrans Needs Addressed

The VTrans Needs at this location and the proposed improvements to alleviate the needs include:

Congestion/Safety Improvement

- A dedicated westbound left turn lane at Main Street.
- Two EB/WB through lanes and one left turn lane on the bridge.
- Two WB through lanes on Fairfax Street between Main Street and the I-81 South off-ramp.
- Two northbound off-ramp right turn lanes.
- Two southbound off-ramp left turn lanes.

Bicycle Access

- Sidewalk on both sides of the bridge

Pedestrian Access

- Sidewalk on both sides of the bridge

Legend:

Design Feature to Address Vtrans Needs

VTrans Needs		
Safety Improvement (High)	Bicycle Access (Medium)	Congestion (Low)
Transportation Demand Management (High)	Transit Access (Medium)	Pedestrian Access (Low)