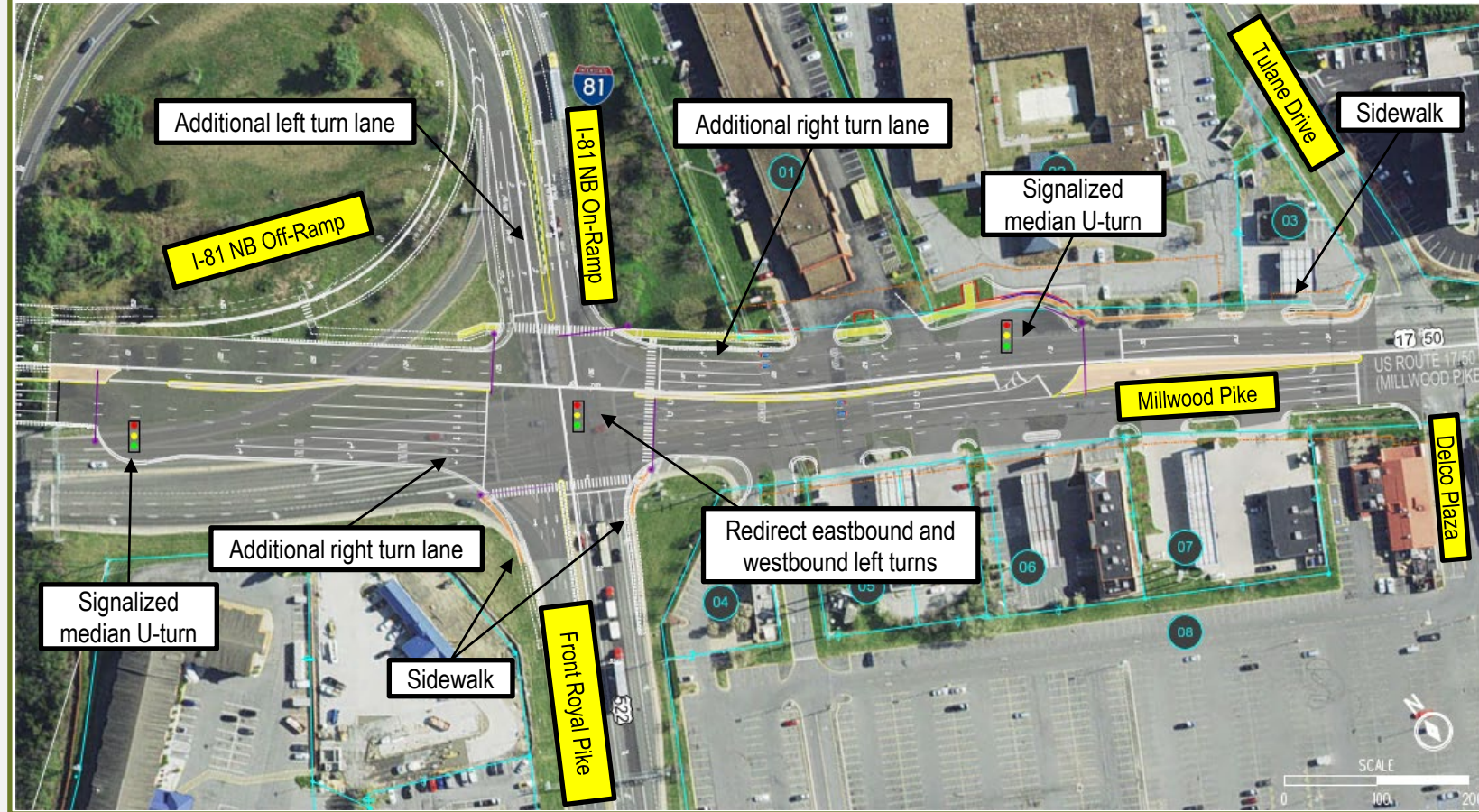


Millwood Pike Partial Median U-turn (MUT), Right Turn Lane Addition, & Pedestrian Recommended Improvements (Phase 2)



Conceptual Design



Safety Results

The safety results to be expected at this location include:

- Predicted total crash reduction is 19%
- Reduction of conflict points via partial median U-turns, driving down the number of angle crash incidents and severe crash types
- Increases pedestrian and cyclist safety and comfort levels with new and improved crossings and shared-use path

Conventional Intersection Conflict Points	Conflict Type	Count	Partial MUT Intersection Conflict Points	Conflict Type	Count
	Crossing	16		Crossing	6
	Merging	8		Merging	8
	Diverging	8		Diverging	8
	Total:			32 Conflicts	Total:

Improvements Description

The improvements proposed at this location include:

- Convert the intersection to a partial Median U-turn
- Reroute US 17/US 50 EB/WB left turns to signalized median openings
- Increase capacity on southbound left, eastbound right, and westbound right turn movements
- Expand pedestrian accommodations and access to Tulane Drive

The proposed Partial MUT redirects left-turn movements on US 50, allowing for fewer traffic signal phases, which reduces delay and increases capacity. The increased capacity will reduce congestion at the intersection, leading to fewer rear-end crash incidents along the corridor. Significant improvements are projected in the future opening year in Intersection delays and Crash frequency.

Traffic Operations Results (2034 PM Peak Hour)

Intersection	Intersection Delay (sec/veh)	
	No Build	Preferred Alternative
US 50 & WB U-Turn	-	5.7
US 50 & US 522/I-81 Northbound Off-Loop	88.0	26.6
US 50 & EB U-Turn	-	21.0

Millwood Pike Travel Time Between Mall Boulevard and Tulane Drive

Direction	Travel Time (mm:ss)		
	No Build	Preferred Alternative	% Change
Eastbound	01:59	01:22	-31%
Westbound	02:58	01:39	-44%

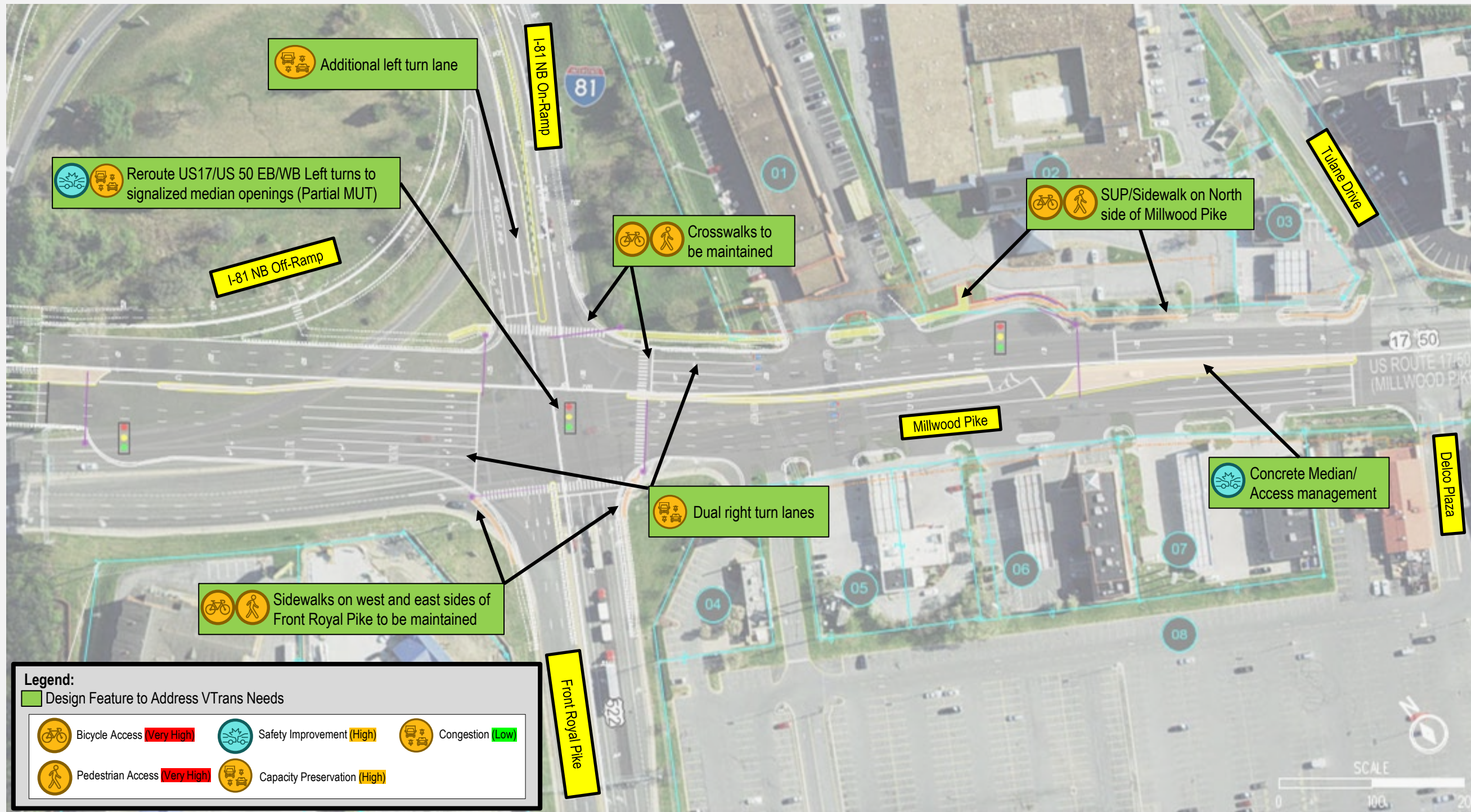
Preliminary Cost Estimate (from Pipeline Round 1)

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 (2020 Dollars)
Preliminary Engineering	\$2,721,300
ROW and Utility Relocation	\$1,544,940
Construction	\$11,449,834
Total Cost	\$15,716,074

Preferred Alternative 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:

Capacity Preservation/Safety Improvement

- Partial median U-turn at the Millwood Pike and Front Royal Pike/I-81 Northbound Ramps intersection
- Restriction of left turns in the eastbound and westbound direction on Millwood Pike, with these movements redirected to signalized median openings (partial median U-turns)
- Additional right turn lanes in the eastbound and westbound directions on Millwood Pike
- Additional left turn lane on the I-81 Northbound Off-Ramp
- Median restricting access management

Pedestrian Access

- SUP/sidewalk on the North side of Millwood Pike
- Sidewalks on the west and east sides of Front Royal Pike to be maintained
- Crosswalks on Millwood Pike and I-81 Northbound Ramps to be maintained