

# Improvement #7: Wingate Drive, Featherbed Lane and Pleasant Valley Road

(7A) Install Median and Modify Wingate Drive Access to Right-In/Right-Out

(7B) Add Dedicated Right-Turn Lane on Eastbound and Northbound Approaches at Featherbed Lane

## Conceptual Design

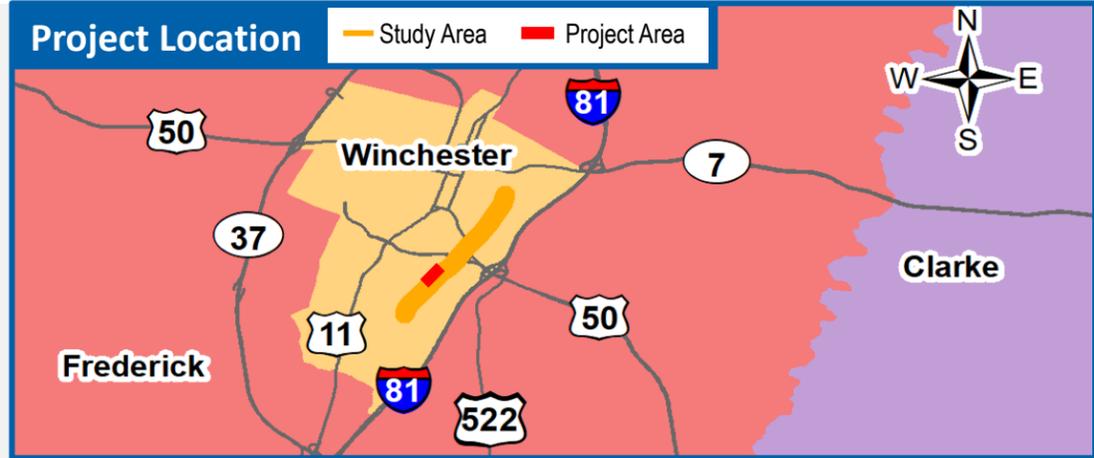
LEGEND

	EXISTING PROPERTY LINES		PROPOSED PAVEMENT
	PROPOSED MILL AND OVERLAY		PROPOSED CURB AND GUTTER
	PROPOSED GRASS MEDIAN		PROPOSED MEDIAN CURB
	PROPOSED CONCRETE ITEMS		PROPOSED BRIDGE WIDENING
	PROPOSED SIGNAL MODIFICATION		



Not to Scale

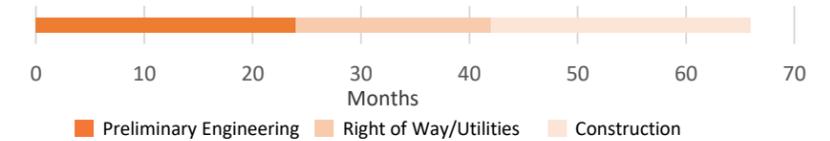
## Project Location



## Project Schedule & Preliminary Cost

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

### Schedule:



### Cost:

Phase	Cost Estimate (2020 Dollars)
Preliminary Engineering	\$840,000
ROW and Utility Relocation	\$430,000
Construction	\$3,850,000
<b>Total Cost</b>	<b>\$5,120,000</b>

## Operations and Safety Improvements

The following recommendations are projected to improve operations and/or safety along Pleasant Valley Road.

### Wingate Drive and Pleasant Valley Road

**Improvement 7A:** Install Median and Modify Wingate Drive Access to Right-In/Right-Out

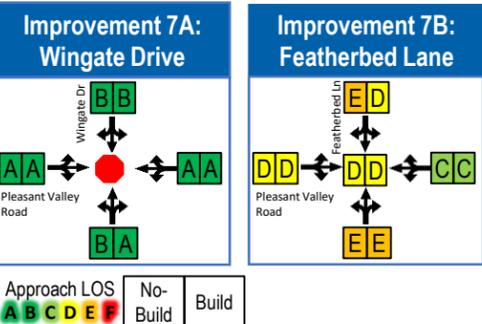
- ✓ Westbound approach on Wingate Drive improves from LOS B to LOS A
- ✓ Five-year EPDO crashes reduced by 106
- ✓ Fifty-nine intersection conflict points removed
- ✓ Eliminates the highest U-turn movement along the corridor

### Featherbed Lane and Pleasant Valley Road

**Improvement 7B:** Add Dedicated Right-Turn Lane on Eastbound and Northbound Approaches at Featherbed Lane

- ✓ Eastbound approach on Featherbed Lane improves from LOS E to LOS D
- ✓ Eastbound queue lengths reduced by 55%
- ✓ Northbound queue lengths reduced by 10%
- ✓ Five-year EPDO crashes reduced by 4

## Traffic Operations Results



### 95<sup>th</sup> Percentile Queue Length

The following reductions in 95<sup>th</sup> percentile queue length from No-Build to Build conditions target the areas of biggest need throughout the corridor:

Movement or Approach	No-Build Queue (ft)	Build Queue (ft)	% Reduction
<b>Improvement 7B:</b>			
Featherbed Lane – EBTR	391	175	55%
Pleasant Valley Road -- NBTR	602	540	10%

## Safety Results

Crash modification factors (CMFs) were chosen to project the reduction in all severity crashes weighted to equivalent property damage only (EPDO) crashes.

Improvement	2014-2019* EPDO	CMF	EPDO Reduction
Improvement 7A	177	Provide Median – RIRO (0.4)	106
Improvement 7B	101	Change # of approaches with right turn lanes (0.96)	4

\* 2019 VDOT crash data was available through July 30, 2019

Conflict points count the relative risk associated with vehicle interactions. Conflict point reduction is a metric used by VDOT to quantify safety improvements. Crossing conflict points are weighted twice as much as diverging and merging conflict points.

Conflict Point	Existing	Future
● Diverging (x1):	9	4
● Merging (x1):	8	2
○ Crossing (x2):	24	0
<b>Count Total:</b>	<b>41</b>	<b>6</b>
<b>Weight Total:</b>	<b>65</b>	<b>6</b>
<b>Weighted Conflict Point Reduction:</b>	<b>59</b>	

