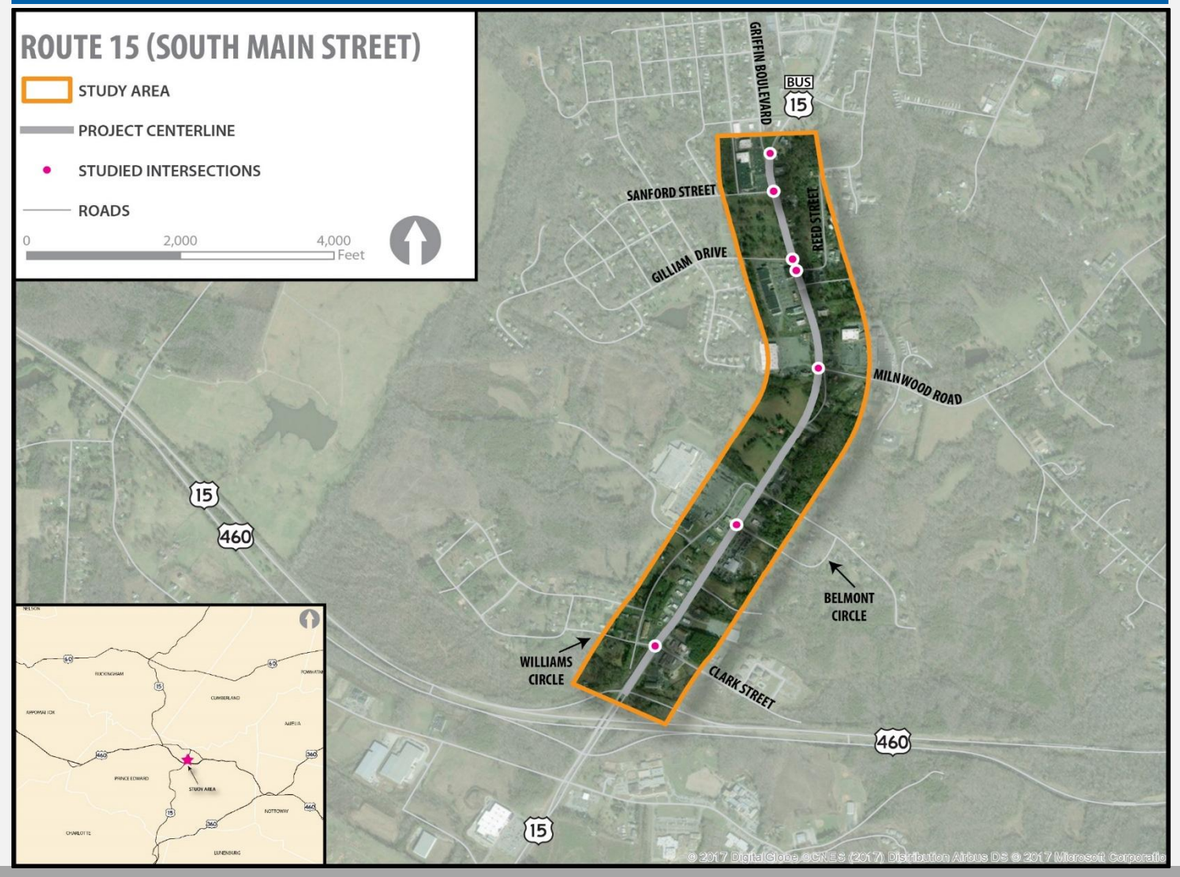
ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY
FROM US 460 TO GRIFFIN BOULEVARD (CORRIDOR-WIDE)

Project Description and Purpose

The primary goal of this study is to determine and assess measures to reduce congestion, recommend possible adjustments to signal phasing and/or spot improvements to alleviate congestion and address safety as well as access management deficiencies. The *operational* issues intended to be addressed by this study include existing and future projected congestion within the corridor. Reduction in intersection delays would mitigate congestion, improve mobility and reduce travel time. This study also intends to address existing and future *safety* concerns within the study corridor by analyzing crashes in the recent 5-year period. Numerous *access* deficiencies will also be addressed in this study within the limits of the study by identifying and documenting driveway locations and their spacing, with the objective of recommending access management improvements in the context of *VDOT Access Management Standards for Entrances and Intersections.*

Route 15 (South Main Street) Project Area and Location Map



Planning Level Cost Estimate

Phase	Six Year Improvement Program
Preliminary Engineering	$440,589
ROW and Utility Relocation	$960,906
Construction	$2,421,703
Total Cost =	$3,823,198

Note: Cost estimates reported in 2030 dollars

Traffic Operations Improvements

- Conversion of Griffin Blvd intersection to a Continuous Green-T layout.
- Improved capacity by addition of lanes.
- Improved lane utilization by changing lane configurations.
- Optimization of traffic signal timings: cycles lengths, phases, offsets.

Targeted Safety Improvements

- Access management measures of deficient locations.
- Pavement marking improvements throughout corridor.
- Construction of sidewalk connection along east side of Route 15
- Construction of grass median along Route 15 from north of Clark Street to north of Peery Drive
- Change left turn types to protected only phasing at key intersections.

For more details, refer to the 'STARS Route 15 (South Main Street) Corridor Study Report'

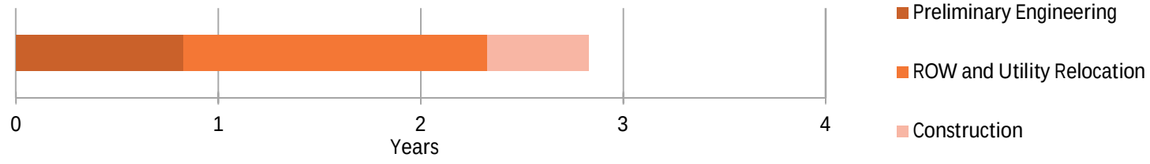
Project Benefits

Corridor-Wide Delay Reduction	
2027 No-Build Delay*	80.5 hours
2027 Build Delay*	84.5 hours
Δ Delay (% Change)	+3.9 (+4.9%)
20-Year Operations Savings	-$416,639.00

*Compounded AM and PM weekday travel delay in the influence area of all the proposed improvements within the corridor

Corridor-Wide Crash Reduction	
2030 No-Build Crashes*	65.72
2030 Build Crashes*	54.44
Δ Crashes (% Change)	-11.28 (-17%)
20-Year Crash Reduction Savings	$12,187,454.46

Project Schedule



ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY

IMPROVEMENT CONCEPT: ROUTE 15/GRIFFIN BLVD INTERSECTION (2030 ALTERNATIVE 1)

Existing Conditions

- Other Principal Arterial (Route 15) and Major Collector (Griffin Blvd)
- 3-leg signalized T-intersection
- Posted speed limit = 35 mph (Route 15); 30 mph (Griffin Blvd)
- Angle crashes were prominent crash type during recent 5-year period (13 total crashes, 46% angle)

Proposed Improvements

- Change the intersection layout to a Continuous Green-T intersection
- Convert the existing northbound left+thru lane into a left only lane
- Add a southbound exclusive right-turn lane with 200 foot storage
- Convert existing southbound shared thru+right to a thru only lane
- Improve/retrofit existing sidewalk and pedestrian ramps along east side of Route 15 to current ADA standards

Eastbound Approach (Griffin Blvd)

Planning Level Cost Estimate

Phase	Six Year Improvement Program
	Alternative 1
Preliminary Engineering	$185,742
ROW and Utility Relocation	$441,657
Construction	$1,043,201
Total Cost =	$1,670,600

Note: Cost estimates reported in 2030 dollars

Project Benefits

Intersection Delay Reduction	
2030 No-Build Delay*	8.0 hours
2030 Build Delay*	9.2 hours
Δ Delay (% Change)	+1.2 hours (+14.5%)
20-Year Operations Savings	-$157,018.00

*Compounded AM and PM weekday travel delay in the influence area of all the proposed improvements

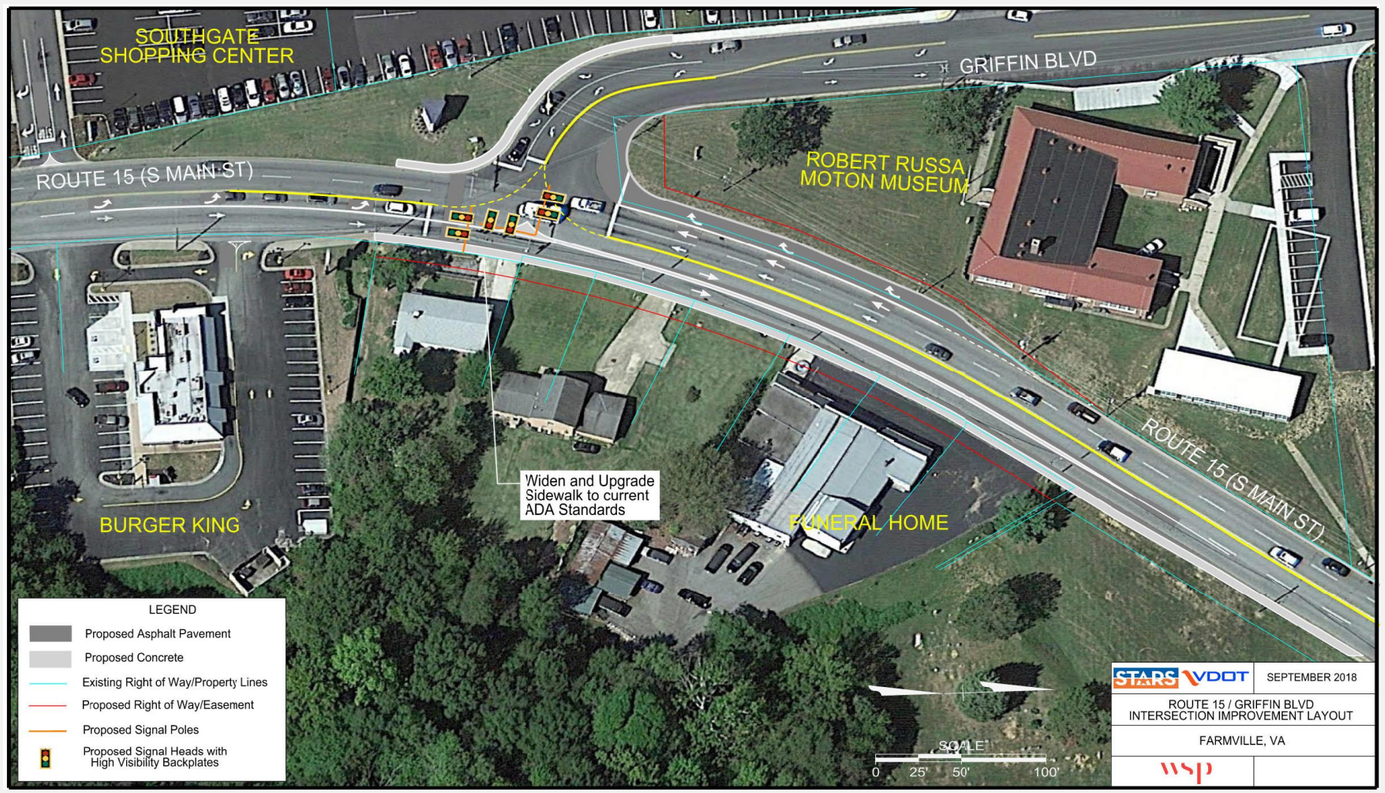
Crash Reduction	
2030 No-Build Crashes*	6.47
2030 Build Crashes*	5.88
Δ Crashes (% Change)	-0.59 (-9%)
20-Year Crash Reduction Savings	$471,073.54

*Projected Crashes in the influence area of the intersection

- Provides exclusive right turn lane for SB approach
- Aims to alleviate angle crashes by implementing CGT layout
- Provides free flowing through movement for NB approach
- Improves pedestrian facilities to current ADA standards.

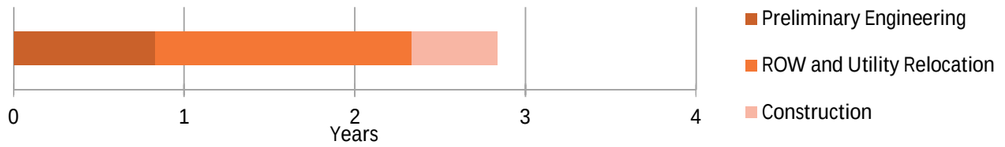
Benefit/Cost Ratio: 0.19

Conceptual Layout: Year 2030 Alternative 1



Northeast View (Route 15)

Project Schedule



ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY

IMPROVEMENT CONCEPT: ROUTE 15/GILLIAM DRIVE/REED STREET INTERSECTION (2030 ALTERNATIVE 2)

Existing Conditions

- 3-leg signalized T-intersection
- Posted speed limit = 35 mph (Route 15); 25 mph (Gilliam Dr)
- Rear-end crashes were prominent crash type during recent 5-year period (2 total crashes, 100% rear-end)

Proposed Improvements

- Both signals operated by one signal controller
- Relocate fixed objects off the sidewalk
- Upgrade sidewalk and pedestrian ramps to current ADA standards
- Retrofit signal heads with high visibility back plates (HVBPs)

Northbound Approach (Route 15)

Planning Level Cost Estimate

Phase	Six Year Improvement Program
	Alternative 2
Preliminary Engineering	$83,456
ROW and Utility Relocation	$395,410
Construction	$450,145
Total Cost =	$929,011

Note: Cost estimates reported in 2030 dollars

Project Benefits

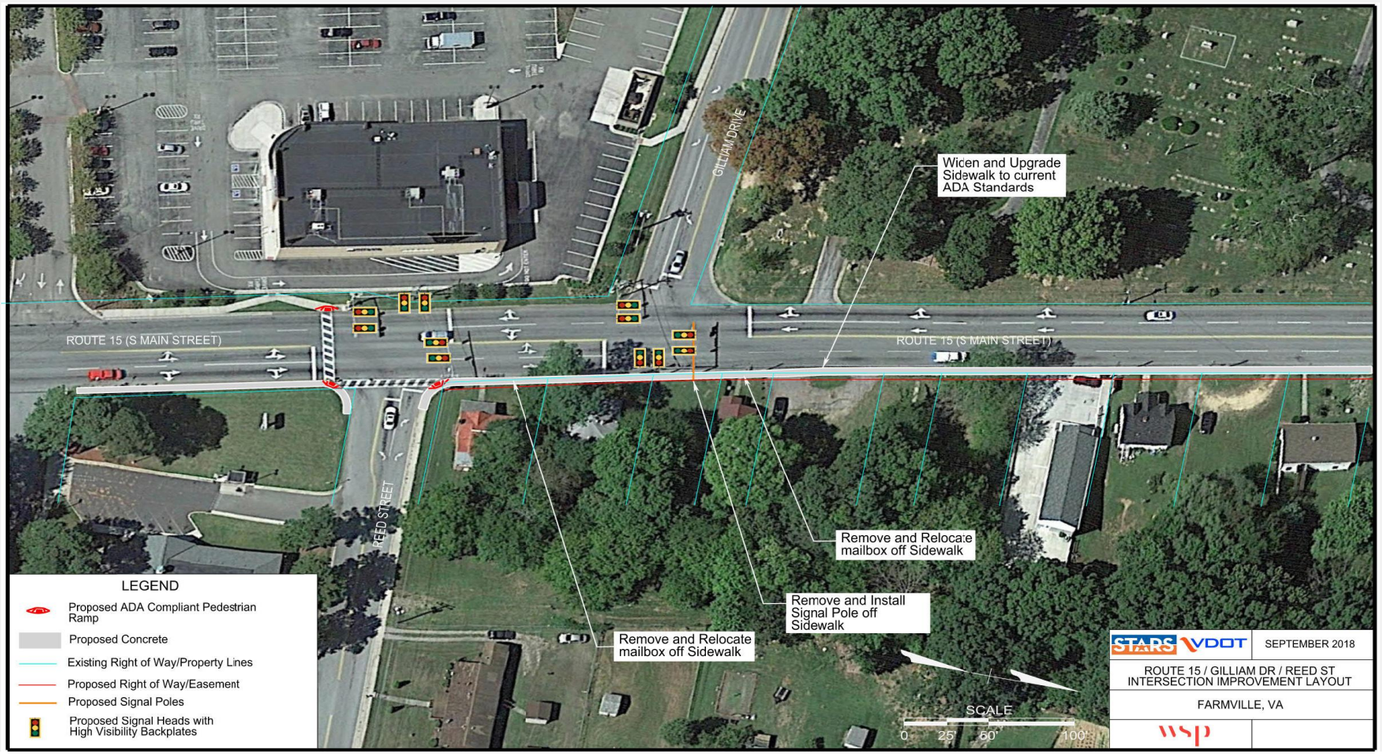
Intersection Delay Reduction	
2030 No-Build Delay*	12.1 hours
2030 Build Delay*	11.8 hours
Δ Delay (% Change)	-0.3 hours (-2.7%)
20-Year Operations Savings	$43,782.00
*Compounded AM and PM weekday travel delay in the influence area of all the proposed improvements	

Crash Reduction	
2030 No-Build Crashes*	4.40
2030 Build Crashes*	4.30
Δ Crashes (% Change)	-0.10 (-2%)
20-Year Crash Reduction Savings	$183,745.17
*Projected Crashes in the influence area of the intersection	

- Improves pedestrian facilities (sidewalks, pedestrian ramps) to current ADA standards
- Improves visibility of signal

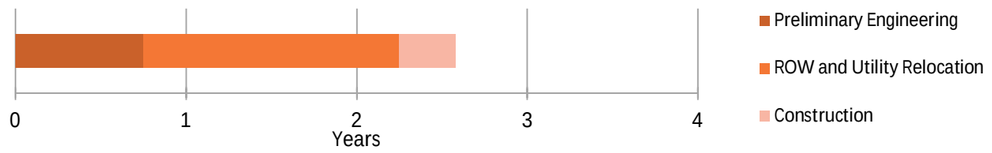
Benefit/Cost Ratio: 0.24

Conceptual Layout: Year 2030 Alternative 2



Westbound Approach (Reed St)

Project Schedule



ROUET 15 (SOUTH MAIN STREET) CORRIDOR STUDY

ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY

IMPROVEMENT CONCEPT: ROUTE 15/BELMONT CIRCLE/PEERY DRIVE INTERSECTION (2030 ALTERNATIVE 3)

Existing Conditions

- 4-leg signalized intersection
- Posted speed limit = 35 mph (Route 15)
- Angle and rear-end crashes were prominent during the recent 5-year period (6 total crashes southbound, 50% angle; 3 total crashes northbound, 67% rear-end)

Proposed Improvements

- Change the lane configurations for eastbound approach to left and thru+right
- Change the lane configuration for westbound approach to left and thru+right
- Change all the left turns at the intersection to protected only phasing
- Retrofit signal heads with high visibility back plates (HVBPs)

Westbound Approach (Belmont Cir)

Planning Level Cost Estimate

Phase	Six Year Improvement Program
	Alternative 3
Preliminary Engineering	$44,647
ROW and Utility Relocation	$0
Construction	$237,442
Total Cost =	$282,089

Note: Cost estimates reported in 2030 dollars

Project Benefits

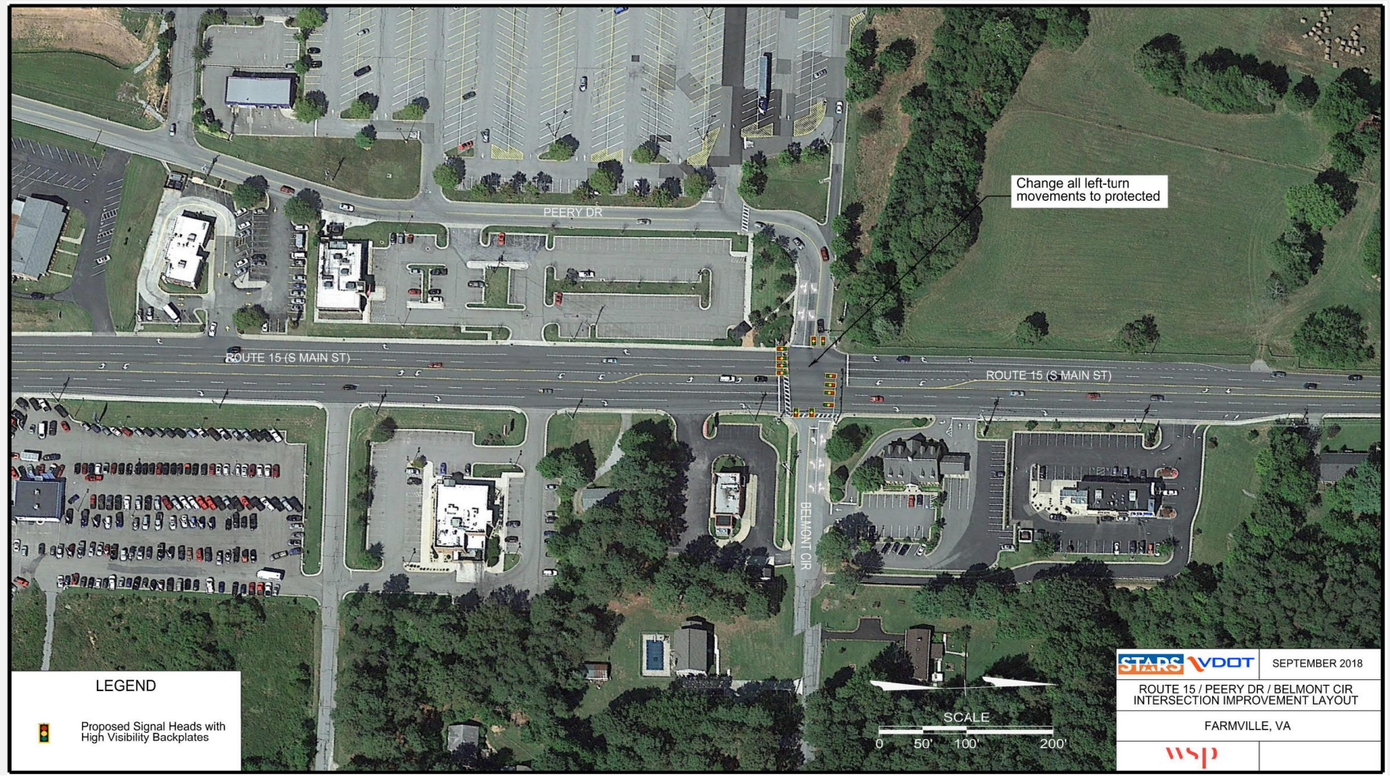
Intersection Delay Reduction	
2030 No-Build Delay*	18.6 hours
2030 Build Delay*	20.3 hours
Δ Delay (% Change)	+1.7 hours (+9.3%)
20-Year Operations Savings	-$234,018.00
*Compounded AM and PM weekday travel delay in the influence area of all the proposed improvements	

Crash Reduction	
2030 No-Build Crashes*	4.66
2030 Build Crashes*	4.14
Δ Crashes (% Change)	-0.51 (-11%)
20-Year Crash Reduction Savings	$297,418.28
*Projected Crashes in the influence area of the intersection	

- Aims to alleviate angle crashes by changing minor street phasing to protected
- Improves visibility of signal

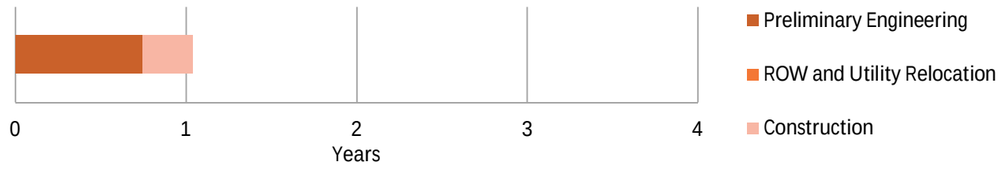
Benefit/Cost Ratio: 0.22

Conceptual Layout: Year 2030 Alternative 3



Northwest View (Route 15)

Project Schedule



ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY

IMPROVEMENT CONCEPT: ROUTE 15/WILLIAMS ST/CLARK ST INTERSECTION (2030 ALTERNATIVE 4)

Existing Conditions

- 4-leg signalized intersection
- Posted speed limit = 45 mph (Route 15); 25 mph (Clark St)
- Angle crashes were prominent during the recent 5-year period (3 total crashes on the north leg, 67% angle; 11 total crashes eastbound, 100% angle)

Proposed Improvements

- Extend the existing grass median on the north side to an additional 300 feet
- Change the northbound and southbound left turn types to protected only phasing
- Install missing sidewalk along southbound approach
- Retrofit signal heads with high visibility back plates (HVBPs)

Eastbound Approach (William St)

Planning Level Cost Estimate

Phase	Six Year Improvement Program
	Alternative 4
Preliminary Engineering	$8,453
ROW and Utility Relocation	$0
Construction	$44,391
Total Cost =	$52,844

Note: Cost estimates reported in 2030 dollars

Project Benefits

Intersection Delay Reduction	
2030 No-Build Delay*	19.6 hours
2030 Build Delay*	20.1 hours
Δ Delay (% Change)	+0.5 hours (+2.6%)
20-Year Operations Savings	-$69,385.00

*Compounded AM and PM weekday travel delay in the influence area of all the proposed improvements

Crash Reduction	
2030 No-Build Crashes*	7.76
2030 Build Crashes*	6.99
Δ Crashes (% Change)	-0.77 (-10%)
20-Year Crash Reduction Savings	$1,327,173.62

*Projected Crashes in the influence area of the intersection

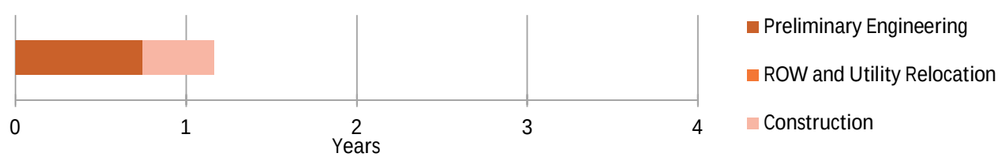
- Aims to alleviate angle crashes by changing the mainline left turn phasing to protected
- Improves access management
- Improves signal visibility

Benefit/Cost Ratio: 23.80

Conceptual Layout: Year 2030 Alternative 4

Northbound Approach (Route 15)

Project Schedule



ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY
IMPROVEMENT CONCEPT: CORRIDOR-WIDE IMPROVEMENTS (2030 ALTERNATIVE 5)

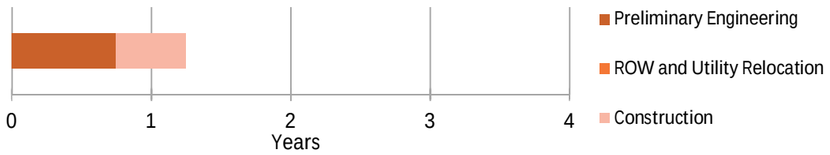
Existing Conditions

- Incomplete sidewalk along east side of Route 15
- Numerous driveways that do not meet VDOT Access Management Spacing Standards
- Parcels with multiple access points
- Crash pattern attributable to sub-standard access management along the corridor

Proposed Improvements

- Construct missing sidewalk connections along east side of Route 15 north of Clark Street
- Retrofit existing signal heads with high-visibility backplates
- Optimize signal timings and splits
- Refurbish faded pavement markings
- Construct grass median along Route 15 from north of Clark Street to north of Peery Drive to replace existing two-way left-turn lane; allow full median openings at all major intersections and strategic locations; allow directional median openings at major driveways

Project Schedule



Project Benefits

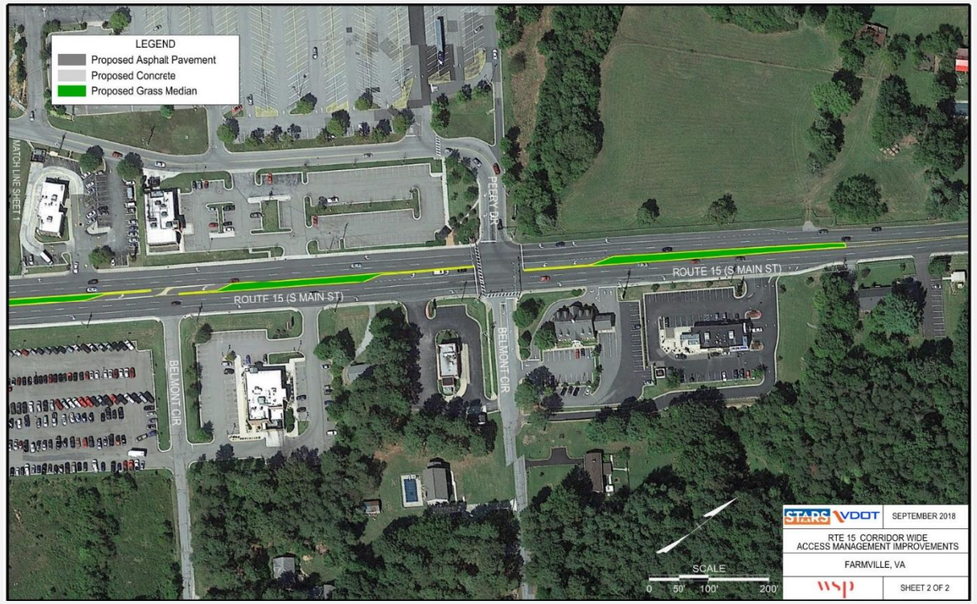
Crash Reduction	
2030 No-Build Crashes*	42.43
2030 Build Crashes*	33.12
Δ Crashes (% Change)	-9.31 (-22%)
20-Year Crash Reduction Savings	$9,908,043.85

*Projected Crashes in the influence area of the intersection

- Aims to reduce crashes and crash potential
- Preserves roadway capacity and the useful life of the corridor
- Improves access to businesses
- Improves travel efficiency and related economic prosperity
- Increases pedestrian safety

Benefit/Cost Ratio: 11.15

Conceptual Layout: Year 2030 Alternative 5



Planning Level Cost Estimate

Phase	Six Year Improvement Program Alternative 5
Preliminary Engineering	$118,291
ROW and Utility Relocation	$123,839
Construction	$646,524
Total Cost =	$888,654

Note: Cost estimates reported in 2030 dollars

ROUTE 15 (SOUTH MAIN STREET) CORRIDOR STUDY