

MEMORANDUM

DATE: September 9, 2020

TO: Ricardo Canizales
Director of Transportation
Prince William County, VA

SUBJECT: Route 28 Widening from City of Manassas Park to Fairfax County
Comprehensive Plan Amendment (CPA 2021-00001)

INTRODUCTION

Prince William County has initiated a Comprehensive Plan Amendment process to widen Route 28 (Centreville Road) from four to six lanes from the City of Manassas Park to Fairfax County. This memorandum provides background on the Route 28 corridor and past studies, as well as information regarding the transportation impact, property impact, and fiscal impact of the proposed widening.

Supporting documents that are referenced herein include the *2017 Route 28 Corridor Feasibility Study* and a *Draft Alternatives Development Technical Memorandum* and *Traffic Technical Report* that were prepared in 2019 as part of the Route 28 Environmental Study. These documents and others can be found on the Project Resources page of the Route 28 project website: www.route28study.com.

BACKGROUND

Route 28 is a corridor of statewide significance and improvements to Route 28 in Prince William County are a local and regional priority. Route 28 carries high-volume intra-county and regional traffic, with an Annual Average Daily Traffic (AADT) count of 54,000 vehicles per day on the section between Manassas Park and the Fairfax County line according to the 2018 VDOT Jurisdiction Report. The *Route 28 Corridor Feasibility Study* (Feasibility Study) identified and evaluated alternatives for potential bypasses spanning from Godwin Drive at Sudley Road in Prince William County to Compton Road at Route 28 in Fairfax County as well as alternatives for widening Route 28 on its existing alignment. The study was guided by key objectives of reducing congestion and improving reliability on Route 28, enhancing commuter traffic flow from residential areas to Interstate 66 during peak travel periods, improving access to transit, and increasing opportunities for travel mode alternatives to single occupancy vehicle travel.

The Feasibility Study evaluated a total of 13 alternatives. A two-phase screening process was used that enlisted the participation of a Technical Committee and Executive Committee comprised of 67 professional staff, executive leadership, and elected officials at the federal, state, regional, and local levels. In the first screening, the committees reviewed the 13 alternatives and recommended four for

further analysis. In the second screening, the four alternatives were compared to each other and the 2040 No Build Alternative and were ranked based on four criteria: 2017 Planning Level Costs, Traffic Impacts, Socioeconomic/ROW Impacts, and Environmental Impacts. Alternative 4 was one of the alternatives carried forward to the second screening.

In the Feasibility Study, Alternative 4 is described as the widening of existing Route 28 from four lanes to six lanes between Liberia Avenue and Compton Road, as shown in the map in **Attachment 1**. The widened Route 28 would consist of six travel lanes (three in each direction) and a 16-foot-wide median. A 5-foot-wide sidewalk and a 10-foot-wide shared use path were included in the typical section. The bridge over Bull Run would be replaced or widened, or a second bridge would be built next to the existing bridge to accommodate the new typical section.

The Route 28 Environmental Study began in 2018 with the goal of further analyzing the alternatives identified in the Feasibility Study. As part of the study, the footprint and impacts of Alternative 4 were updated, and they will continue to be refined during further development of the project. The limits of Alternative 4 in the Environmental Study were modified to extend from Liberia Avenue to just north of Bull Run where improvements would tie into Fairfax County's Route 28 Widening Project, as shown in Attachment 1.

The Environmental Study initially followed procedures under the federal National Environmental Policy Act (NEPA). However, Prince William County later concluded that since no federal funding is anticipated to be used for this project, the focus would shift to preparing documentation for the Local Environmental Review Process (LERP)/State Environmental Review Process (SERP).

Public input has been solicited throughout the Feasibility Study and Environmental Study processes. Public Information Meetings held to date are listed below. Each meeting provided opportunity for input, including question and answer sessions and comment sheets. Note that all public meeting materials, including presentations, display boards, brochures, and comment sheets, can be found on the project website (<http://route28study.com/project-resources/>).

Feasibility Study Public Information Meetings

- September 7, 2017- Manassas Park Community Center
- September 11, 2017- Centreville Elementary School (Fairfax County)

Environmental Study- Scoping Public Information Meetings

- December 5, 2018- Loch Lomond Elementary School
- December 6, 2018- Sully District Governmental Center (Fairfax County)

Environmental Study- Alternatives Public Information Meetings

- October 9, 2019- Yorkshire Elementary School (~15,000 postcard notifications were sent for this meeting to properties within a one-mile radius of project area)
- October 23, 2019- Development Services Building (Follow-up meeting for potentially affected property owners of Alternatives 2A and 2B)

The Prince William Board of County Supervisors (Board) voted on June 16, 2020, via Resolution Number (Res. No.) 20-497, to authorize a public hearing to select a project location (alternative) for the Route 28 project, and a public hearing was advertised for this purpose and conducted on July 14, 2020. All interested parties were heard, and after extensive public comment and discussion, the Board deferred

action to August 4, 2020. At the August 4th meeting, the Board endorsed Alternative 4, via Res. No. 20-593, as the project location for Route 28.

The map in Attachment 1 provides a comparison of the limits of Alternative 4 as identified in the Feasibility Study and the Environmental Study, as well as the Comprehensive Plan Amendment.

TRANSPORTATION IMPACT

The widening of Route 28 from four lanes to six lanes from Liberia Avenue to just north of Bull Run was analyzed in the *Traffic Technical Report* prepared as part of the Route 28 Environmental Study (http://route28study.com/wp-content/uploads/2020/07/190522_Route28_TrafficTechnicalReport.pdf).

Table 1 below shows the AADT volumes for 2018 Existing Conditions and for 2040 No Build and Alternative 4 Build Conditions. The 2018 volumes were developed using 2017 VDOT Jurisdiction Report data and growing the volumes to 2018 using a 1% growth rate while the 2040 forecasts were developed using the Prince William County Travel Demand Model 2016 Version 2.4.

Table 1. Existing and 2040 AADTs

Segment of Route 28	2018 Existing AADT	2040 No Build			2040 Alternative 4		
		AADT	Change from Existing	% Change	AADT	Change from No Build	% Change
<i>Prince William County, Cities of Manassas and Manassas Park</i>							
Route 234 (PW Pkwy) to Godwin Drive	32320	45260	+12940	40.0%	45700	+440	1.0%
Godwin Drive to Wellington Road	22220	35708	+13488	60.7%	36171	+463	1.3%
Wellington Road to Cockrell Road	22220	30964	+8744	39.4%	31403	+439	1.4%
Cockrell Road to Brinkley Lane	22220	37782	+15562	70.0%	38242	+460	1.2%
Brinkley Lane to Stonewall Road	22220	37782	+15562	70.0%	38242	+460	1.2%
Stonewall Road to W Court House Road	22220	35670	+13450	60.5%	36211	+541	1.5%
W Court House Road to Grant Avenue (Center Street)	21210	36490	+15280	72.0%	37011	+521	1.4%
Grant Avenue (Center Street) to Main Street (Center Street)	23230	37594	+14364	61.8%	35052	-2543	-6.8%
Main Street (Center Street) to Zebedee Street (Center Street)	23230	42958	+19728	84.9%	42111	-847	-2.0%
Zebedee Street (Center Street) to Sudley/Prescott Road	27270	34430	+7160	26.3%	33337	-1093	-3.2%
Sudley / Prescott Road to Liberia Avenue	27270	42064	+14794	54.3%	38428	-3636	-8.6%
Liberia Avenue to Manassas Drive	43430	66071	+22641	52.1%	74589	+8518	12.9%
Manassas Drive to Browns Lane	50500	83925	+33425	66.2%	96412	+12487	14.9%
Browns Lane to Maplewood Drive	50500	76853	+26353	52.2%	87195	+10342	13.5%
Maplewood Drive to Leland Road	50500	72757	+22257	44.1%	83630	+10873	14.9%
Leland Road to Yorkshire Lane	50500	73124	+22624	44.8%	83878	+10754	14.7%
Yorkshire Lane to Orchard Bridge Drive	50500	76848	+26348	52.2%	85973	+9125	11.9%
Orchard Bridge Drive to Compton/Ordway Road	58580	76488	+17908	30.6%	85578	+9090	11.9%

Table 1. Existing and 2040 AADTs

Segment of Route 28	2018 Existing AADT	2040 No Build			2040 Alternative 4		
		AADT	Change from Existing	% Change	AADT	Change from No Build	% Change
<i>Fairfax County</i>							
Compton/Ordway Road to Green Trails/Old Mill	58580	93012	+34432	58.8%	95219	+2207	2.4%
Green Trails/Old Mill to New Braddock Road	58580	114909	+56329	96.2%	117042	+2133	1.9%
New Braddock Road to Machen Road	58580	107780	+49200	84.0%	109153	+1373	1.3%
Machen Road to Upper Ridge/Old Centreville	58580	107780	+49200	84.0%	109153	+1373	1.3%

As shown in the table above, traffic volumes on most segments would be greater under the Build Condition compared to the No Build Condition since additional capacity would be available with the widening.

Critical Lane Volume (CLV) analysis was performed in order to compare the 2040 No Build Alternative with Alternative 4. A comparison of total CLV values across 15 intersections within the Route 28 study corridor from Godwin Drive to Machen Road shows that Alternative 4 provides a 6.2% reduction in CLV in the AM peak and a 6.5% reduction in the PM peak when compared to the No Build Alternative; see **Table 2** below. While care should be used in reviewing and interpreting these totals because differences between intersections are masked when the values are totaled, the totals provide a proxy planning measure representing overall operations in the corridor.

Table 2. Change in Total CLV from 2040 No Build to Build Alternative 4

2040 No Build		2040 Alternative 4			
AM	PM	AM		PM	
Total CLV	Total CLV	Total CLV	Change from No Build	Total CLV	Change from No Build
17689	23064	16586	-1103	21557	-1507

Twelve of the 15 intersections within the study corridor are listed in **Table 3** below (the three in Fairfax County are not shown). From Existing to 2040 No Build, the CLV increases across the board, resulting in a degradation of LOS at many locations. In 2040, Alternative 4 when compared to the 2040 No Build would result in a reduction of intersections operating at Level of Service (LOS) E or F in the AM peak hour and would maintain the number of intersections operating at an LOS E or F in the PM peak hour. Overall Alternative 4 results in letter grade improvements at four signalized intersections in the AM peak and two in the PM peak.

Finally, with respect to travel speeds, as shown in **Table 4**, from Existing to 2040 No Build, the speeds are projected to decrease throughout the study corridor in Prince William County. In comparison to the 2040 No Build Alternative, Alternative 4 improves travel speeds between Manassas Drive and Bull Run in both the AM and PM peaks.

Table 3. Intersection Summary from CLV Analysis

Intersection	Existing				2040 No Build				2040 Alternative 4			
	AM		PM		AM		PM		AM		PM	
	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV
Route 28 and Godwin Drive	A	814	B	1002	A	958	C	1220	A	967	C	1227
Route 28 (Center St) and Grant Avenue	A	767	A	837	A	933	B	1136	A	934	B	1132
Route 28 (Church St) and Grant Avenue	A	580	A	833	A	841	C	1185	A	847	C	1190
Route 28 (Center St) and Main Street	A	616	A	564	A	899	C	1211	A	873	C	1189
Route 28 (Church St) and Main Street	A	459	A	558	A	648	A	891	A	640	A	877
Route 28 and Sudley Road / Prescott Avenue	A	662	B	1008	A	996	D	1425	B	1033	E	1456
Route 28 and Liberia Avenue	B	1048	C	1202	E	1490	F	1770	F	1620	F	1827
Route 28 and Manassas Drive	A	872	C	1272	D	1421	F	1953	C	1208	F	1710
Route 28 and Maplewood Drive	B	1104	D	1438	D	1343	F	2032	B	1107	F	1682
Route 28 and Yorkshire Lane	D	1331	D	1433	E	1509	F	1994	C	1199	E	1558
Route 28 and Orchard Bridge Drive	B	1132	C	1206	D	1370	F	1729	B	1078	D	1356
Route 28 and Compton/Ordway Road (Fairfax County)	D	1364	E	1462	E	1510	F	1942	F	1707	F	1912
TOTAL E/F:	0	--	1	--	3	--	6	--	2	--	6	--

Table 4. Existing and 2040 No Build and Alternative 4 Travel Speeds

Segment	Existing Speed (mph)		2040 No Build				2040 Alternative 4			
			Speed (mph)		Change from Existing		Speed (mph)		Change from No Build	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Godwin Drive to Wellington Road	43	42	41	39	-2	-3	41	40	0	+1
Wellington Road to Cockrell Road	30	28	28	18	-2	-10	28	26	0	+8
Cockrell Road to Brinkley Lane	18	16	16	2	-2	-14	15	3	-1	+1
Brinkley Lane to Stonewall Road	28	26	27	3	-1	-23	27	10	0	+7
Stonewall Road to W Court House Road	20	19	18	15	-2	-4	18	8	0	-7
W Court House Road to Grant Ave (Center Street)	23	24	12	23	-11	-1	12	22	0	-1
Grant Ave (Center Street) to Main St (Center Street)	18	19	8	19	-10	0	11	16	+3	-3
Liberia Avenue to Manassas Drive	31	33	14	32	-17	-1	29	31	+15	-1
Manassas Drive to Browns Lane	18	30	4	9	-14	-21	4	25	0	+16
Browns Lane to Maplewood Drive	8	3	2	1	-6	-2	3	2	+1	+1
Maplewood Drive to Leland Road	23	9	8	4	-15	-5	15	7	+7	+3
Leland Road to Yorkshire Lane	21	7	6	3	-15	-4	12	5	+6	+2
Yorkshire Lane to Orchard Bridge Drive	15	5	4	2	-11	-3	8	4	+4	+2
Compton/Ordway Road to Green Trails/Old Mill Road (Fairfax County)	16	8	34	10	+18	+2	35	7	+1	-3

Note: Results for some arterial segments were not calculated by ARTPLAN based on high input volumes and/or geometrics that are outside of the analysis range of the software. These segments are not included in the table.

Overall, the Route 28 widening from four to six lanes will improve peak period commuter traffic flow. As travel demand continues to increase in the corridor without corresponding increases in capacity, traffic volumes will spill over into adjacent hours, resulting in longer periods of congestion as well as motorists making conscious decisions to travel earlier or later to avoid congestion. This phenomenon, termed “peak spreading”, is confirmed by traffic count data in congested areas. With the widening of Route 28, the peak period would reduce as additional capacity is available to accommodate the peak hour travel demand.

In summary, the widening of Route 28 would reduce congestion, improve travel times and network reliability, and enhance peak period commuter traffic flow by reducing the peak period.

PROPERTY IMPACT

The Route 28 Environmental Study assessed potential displacements for Alternative 4 extending from Liberia Avenue to just north of Bull Run. As indicated in the December 2019 *Draft Alternatives Development Technical Memorandum*, within those limits, Alternative 4 has the potential to displace 7 residences, 79 businesses, and one community facility.

(http://route28study.com/wp-content/uploads/2020/08/Draft_AlternativesTechnicalMemo_RT28-12-27-19.pdf)

The Comprehensive Plan Amendment extends from the City of Manassas Park to Fairfax County; thus, the number of potential displacements would be different. Additional refinements and modifications will be studied to reduce property impacts.

FISCAL IMPACT

The initial cost estimate for Alternative 4 was \$366 million, as reported in the December 2019 *Draft Alternatives Development Technical Memorandum*. This cost estimate was developed using the VDOT Project Cost Estimating System (PCES), Version 8.11. Note that this estimate is based on the Environmental Study project limits from Liberia Avenue to just north of Bull Run. See **Table 5** for the breakdown of the costs shown in 2019 values. Along with the truncation of the project limits from the City of Manassas Park to Fairfax County, additional refinements and modifications will be studied to reduce costs and impacts as the project progresses. For additional information on the cost estimates, see **Attachment 2**.

Table 5. Planning-Level Costs (2019 values)

Category	Alternative 4
Preliminary Engineering ¹	\$5,000,000
Construction ¹	\$67,000,000
Bridge Construction ¹	\$35,000,000
<i>Subtotal</i>	<i>\$107,000,000</i>
Right-of-Way ²	\$145,000,000
Utilities ³	\$17,000,000
<i>Subtotal</i>	<i>\$269,000,000</i>
Contingency (25%) ⁴	\$67,000,000
Total	\$336,000,000

All costs rounded up to the nearest million.

¹ Developed using the VDOT Project Cost Estimating System (PCES), Version 8.11 for preliminary engineering and construction and Version 1.4 for bridge construction; incorporates features such as: lighting, traffic signals/signage, MOT, noise barriers (if needed), and environmental investigation/mitigation.

² Includes displacements (total value + 50% relocation estimate) and partial property impacts (based on % of property in project limits). All estimates based on current total market value (or equivalent), available at time of estimate.

³ Assumed \$3.5 million/mile in existing corridors, with an additional \$1 million per transmission power pole on Route 28.

⁴ Contingency applied to account for the uncertainties inherent with the planning-level design detail.

ATTACHMENTS

1. Alternative 4 Project Area Map
2. Cost Estimate Additional Information

Attachment 1 Alternative 4 Project Area Map

