

APPENDIX K: VIRGINIA ROAD NETWORK CURRENT AND FUTURE 2025 CONDITIONS



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Every roadway within the state is assigned a functional classification. Streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. The concept of functional classification defines the role that a particular roadway segment plays in serving the flow of traffic through the roadway network. The Virginia Department of Transportation (VDOT) functional classifications and associated miles of travel are shown in **Table K-1**. All functional classification categories exist in both urban and rural areas. Principal Arterials can be further broken into four category types:

- Interstate
- Other Freeways
- Expressways
- Other

Table K-2 provides a breakdown of the centerline-mileage and vehicle miles traveled (VMT) of each type of roadway type and location. The data indicate that for year 2014 the Virginia state roadway network carried about 221.9 million vehicle-miles a day, for an estimated 81 billion vehicle-miles a year.

Table K-1: Virginia 2014 Lane-Mileage and VMT by Facility Type (in thousands)

Functional Class	Lane-Miles	Percent of Total Miles	VMT (in thousands)	Percent of Total VMT
Interstate	1,118	1.9	24,483,735	30.2
Primary	8,444	14.6	33,852,829	41.8
Secondary	48,305	83.5	22,648,072	28.0
Total	57,867	100	80,984,636	100

Source: VDOT Miles of Public Roads in Virginia by Functional Class

Based on planning-level data provided by VDOT, **Table K-2** shows the centerline-miles and percentage of VDOT-monitored roadways and their respective level of service (LOS) operations, sorted by functional class. LOS ranges from A to F, with LOS A describing free-flow conditions and LOS F describing highly congested and delayed traffic. LOS D through F conditions describe traffic conditions approaching or exceeding available capacity. Typical desired design conditions are between LOS A and LOS F, and address the need to balance the economics of roadway design while also maximizing traffic flows on the roadways.

Table K-2: VDOT Existing LOS Mileage and Operations by Functional Class

Functional Class	Total Miles	LOS Operations – Number of Miles											
		A	Percent	B	Percent	C	Percent	D	Percent	E	Percent	F	Percent
Interstate	1,160	109	9.4	257	22.1	358	30.8	323	27.8	67	5.8	46	4.0
Local	910	733	80.5	154	16.9	19	2.1	4	0.4	1	0.1	0	0.0
Major Collector	10,040	4,116	41.0	3,996	39.8	1,469	14.6	397	4.0	57	0.6	6	0.1
Minor Arterial	5,914	1,091	18.5	1,570	26.6	2,074	35.1	836	14.1	300	5.1	42	0.7
Minor Collector	5,627	4,194	74.5	1,257	22.3	150	2.7	22	0.4	4	0.1	0	0.0
Other Freeways and Expressways	447	182	40.7	98	22.0	85	19.1	47	10.6	25	5.5	9	2.1
Other Principal Arterial	3,378	1,920	56.8	433	12.8	547	16.2	289	8.5	119	3.5	70	2.1
Total	27,476	12,345	44.9	7,764	28.3	4,702	17.1	1,917	7.0	573	2.1	173	0.6

Source: VDOT 2016 Highway Planning Network Files (May not reflect all roadways in the Commonwealth)

A comparison between current and future 2025 conditions is presented in **Table K-3**, specifically the number of miles in the future expected to worsen compared to existing conditions.

Table K-3: VDOT 2025 LOS Mileage and Operations by Functional Class and Comparison of Existing Conditions

Functional Class	Total miles	LOS Operations – Number of Miles											
		A	Percent	B	Percent	C	Percent	D	Percent	E	Percent	F	Percent
Interstate	1,160	59	5.1	118	10.2	225	19.4	225	19.4	193	16.6	340	29.3
Local	910	648	71.2	225	24.7	28	3.1	7	0.8	2	0.2	0	0.0
Major Collector	10,035	3,067	30.6	4,033	40.2	2,124	21.2	604	6.0	188	1.9	20	0.2
Minor Arterial	5,894	817	13.9	1,302	22.1	2,009	34.1	1,072	18.2	496	8.4	197	3.4
Minor Collector	5,625	3,586	63.8	1,729	30.7	263	4.7	39	0.7	6	0.1	1	0.0
Other Freeways and Expressways	447	154	34.5	66	14.7	70	15.7	63	14.0	28	6.3	66	14.8
Other Principal Arterial	3,371	1,707	50.7	514	15.3	463	13.7	347	10.3	137	4.1	202	6.0
Total	27,441	10,039	36.6	7,988	29.1	5,182	18.9	2,356	8.6	1,050	3.8	826	3.0
Existing Total	27,476	12,345	44.9	7,764	28.3	4,702	17.1	1,917	7.0	573	2.1	173	0.6
Difference from 2016	35	(2,306)	(8.3)	224	0.8	480	1.8	439	1.6	477	1.7	653	2.4

Source: VDOT 2016 Highway Planning Network Files (May not reflect all roadways in the Commonwealth)