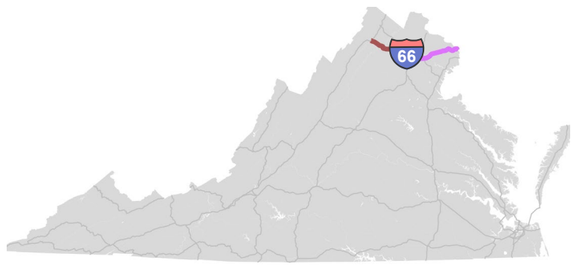
VTrans2040 Multimodal Transportation Plan

Corridors of Statewide Significance Needs Assessment

Northern Virginia Corridor (H)



Office of INTERMODAL Planning and Investment

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Corridors of Statewide Significance

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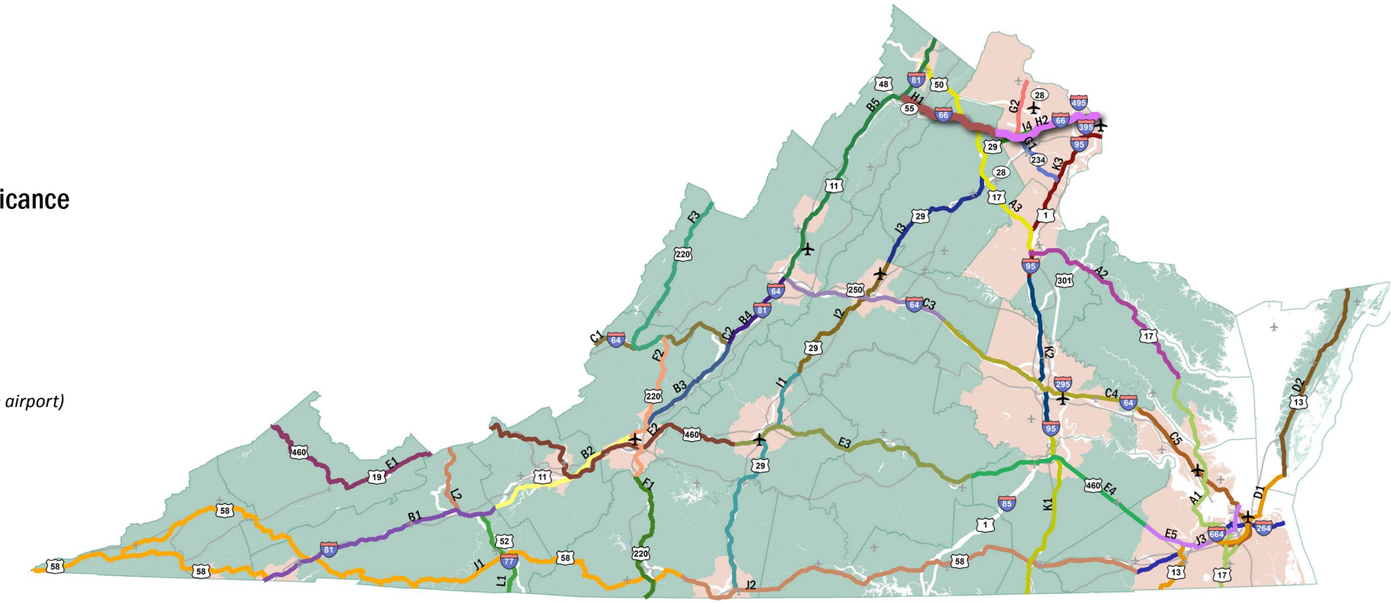
L	Western Mountain Corridor (I-77)

Corridor of Statewide Significance
(color varies by segment)

Railroad

Airport Facility
(grey denotes not a commercial service airport)

Metropolitan Planning Organization Area



The Northern Virginia Corridor (Corridor H) is primarily defined by I-66, which is a four- to eight-lane interstate highway located in the northern part of Virginia. This corridor traverses urban, suburban, and rural areas over the course of its approximate 75-mile length. The western limit of I-66 is located at I-81 near Strasburg, Virginia, and the eastern limit is at the border with the District of Columbia in Arlington, Virginia.

I-66 is primarily a commuting corridor used to connect residential areas in the west to employment centers in the east. I-66 is primarily an urban highway through Arlington County and travels through a primarily suburban environment through Fairfax and Prince William Counties. The environment is mostly rural through both Fauquier and Warren Counties.

US 29 and Route 55 both run parallel to and at times concurrently with I-66. US 29 runs within the Northern Virginia Corridor from Arlington to Gainesville, and Route 55 is part of the corridor from Gainesville to the western limits of I-66. US 50 also runs parallel to I-66 from Arlington County to Winchester, and runs concurrently with US 29 for a short section in the City of Fairfax.

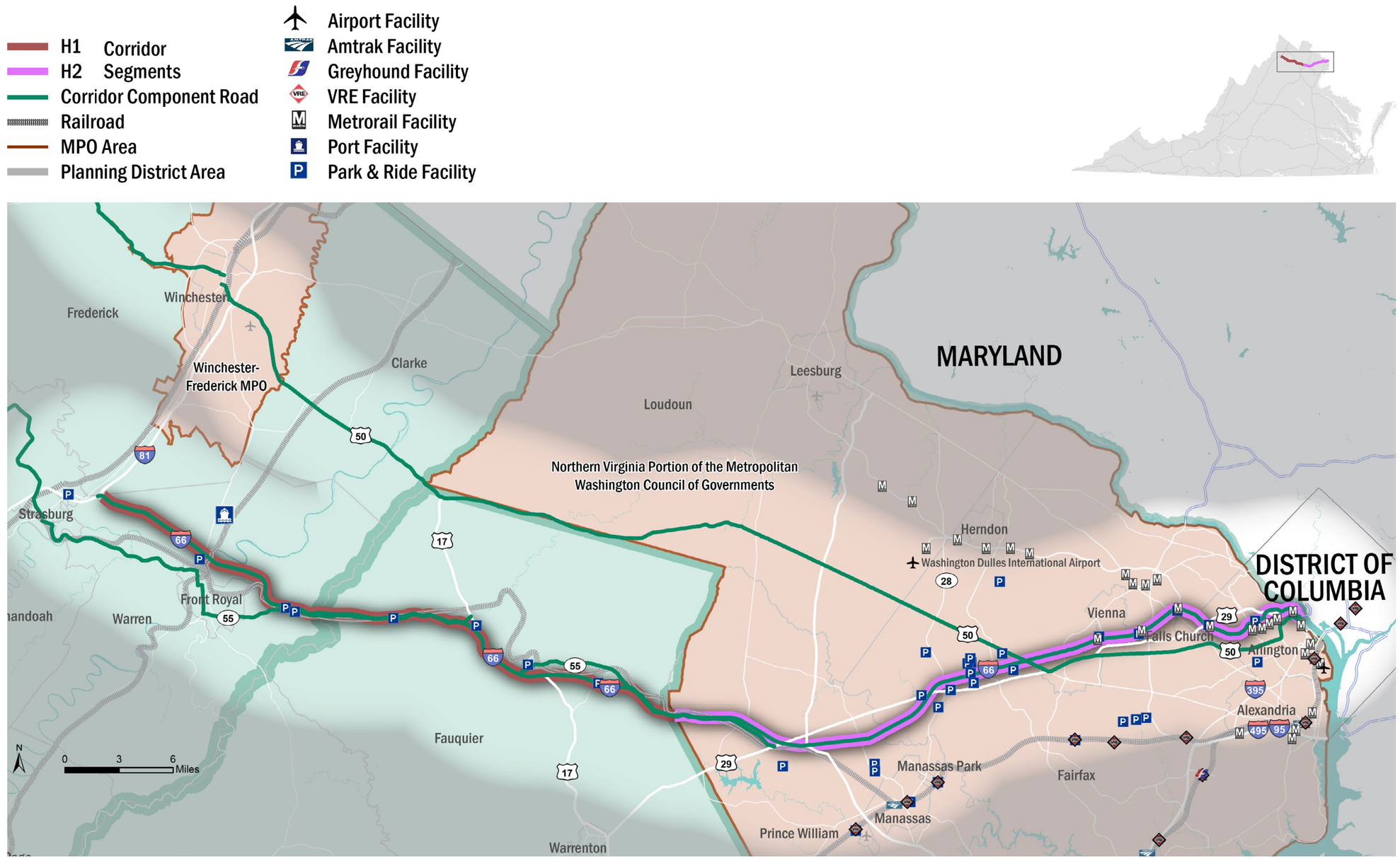
I-66 is an important multimodal corridor, and a range of transit options is available for long- and short-distance commuters, including the following:

- Multiple transit options, including Metrorail's Orange and Silver Lines and the Virginia Railway Express (VRE), which runs near I-66 between Manassas and Washington, DC;
- Multiple express bus services, including commuter bus services provided by Metrobus, Loudoun County Transit, the Potomac and Rappahannock Transportation Commission (PRTC), and Fairfax Connector;
- East of I-495, I-66 is limited to high-occupancy vehicles (HOV) during weekday peak periods/peak directions;
- At least ten Park-and-Ride lots in Prince William County along the Northern Virginia Corridor, several in Arlington County, and approximately 30 Park-and-Ride lots in Fairfax County, many associated with Metrorail stops and VRE stations;
- Both Dulles International Airport and Reagan National Airport, located within ten miles of the Northern Virginia Corridor, and I-66 which provides access to numerous other airports; and
- Amtrak, which operates a station in Manassas that provides passenger rail service along Amtrak's Crescent Route, which runs from Washington, DC, to the south along the US 29 Corridor.

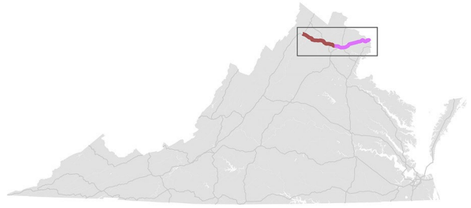
The Virginia Inland Port is located one mile north of I-66 and five miles west of I-81, providing freight connections to Northern Virginia and the Metropolitan Washington Area. Norfolk Southern operates rail lines along the Northern Virginia Corridor, accessing the Inland Port, Washington, DC, and points north. The Inland Port is located near the junction with I-81, which is the major freight corridor in Virginia. Norfolk Southern provides rail lines in and out of the Inland Port. The Winchester and Western Railroad Company operates a short-line railroad between Gore and Winchester and then north to Maryland that is exclusively a freight line with connections to the CSX and Norfolk Southern lines.

Corridor Components

Highway Facilities	
Primary Facility	• I-66
Other Highway Facilities	• US 50 • Route 55
Transit Services	
	• WMATA Metrorail • Virginia Railway Express • Amtrak • Intercity bus service
Rail Facilities	
	• Norfolk Southern Crescent Corridor
Port Facilities	
	• Virginia Inland Port
Airport Facilties	
	• Ronald Reagan National • Washington Dulles International



Demographics and Economic Trends



The primary population centers with greater than 500 persons per square mile along Corridor H are currently found in Prince William, Fairfax, and Arlington Counties, and the Cities of Manassas, Manassas Park, Fairfax and Falls Church. The remainder of the corridor traverses counties and cities with population densities between 100 and 250 persons per square mile. The most densely-populated segment along the corridor is Segment H2.

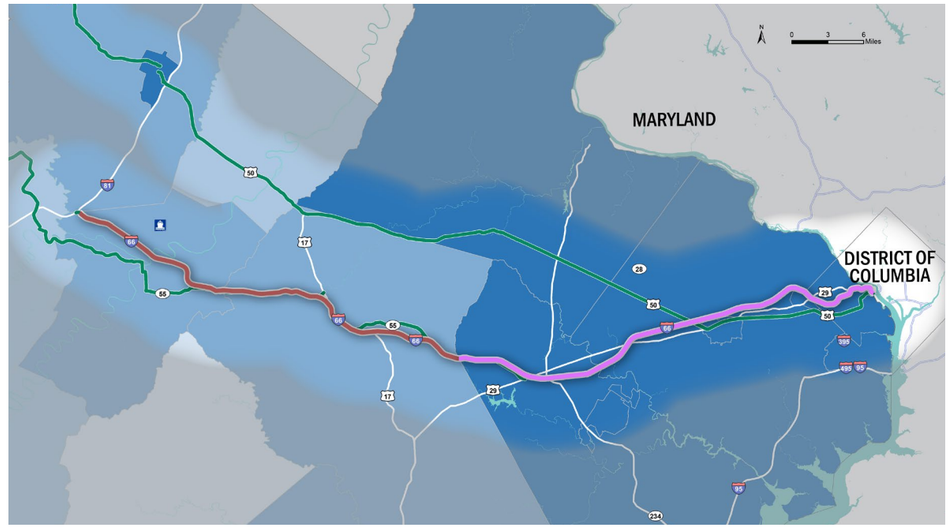
Between 2012 and 2025, Frederick County is anticipated to experience the largest population growth (greater than 34 percent) among jurisdictions along the corridor. Warren, Fauquier, and Prince William Counties, as well as the City of Manassas Park are anticipated to have the next-highest population growth, between 11 and 25 percent. The already densely-populated Arlington County is expected to decrease in population. However, overall, population along the corridor is expected to grow significantly.

Current employment centers follow a pattern similar to the population centers, with the highest concentrations of employment located in Fairfax and Arlington Counties, and the Cities of Manassas, Manassas Park, Fairfax, and Falls Church. Employment growth is projected to be relatively high along the entire corridor, with the highest growth in Manassas Park and Prince William County. Employment is expected to decrease in rural Shenandoah County.

Corridor H passes through two Metropolitan Planning Organization (MPO) areas along its route, each with a different size and focus for its local economy. The Northern Virginia Area has a much larger GDP than the Winchester MPO Area, and the largest industry sectors in the corridor include professional/ scientific/technical services, public administration, and retail trade.

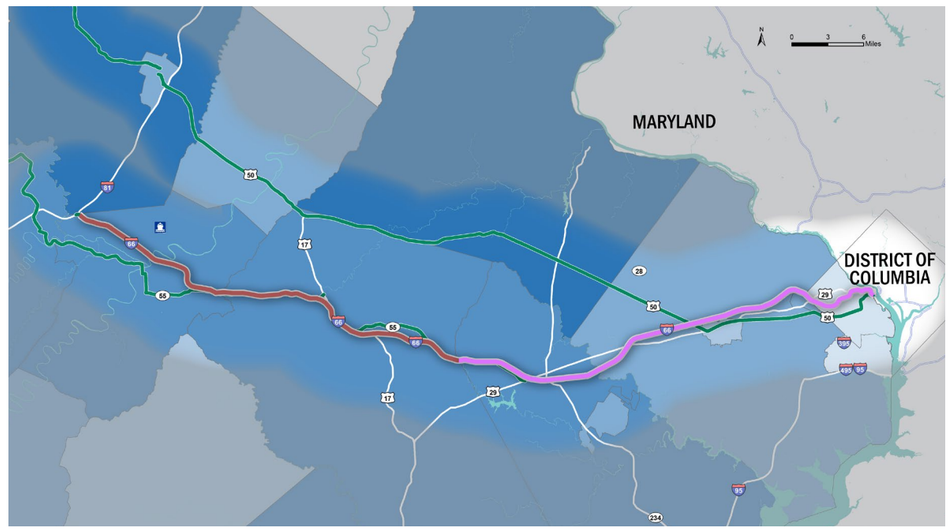
2012 Population Density Persons / Square Mile

- 0 - 50
- 50 - 100
- 100 - 250
- 250 - 500
- 500 +



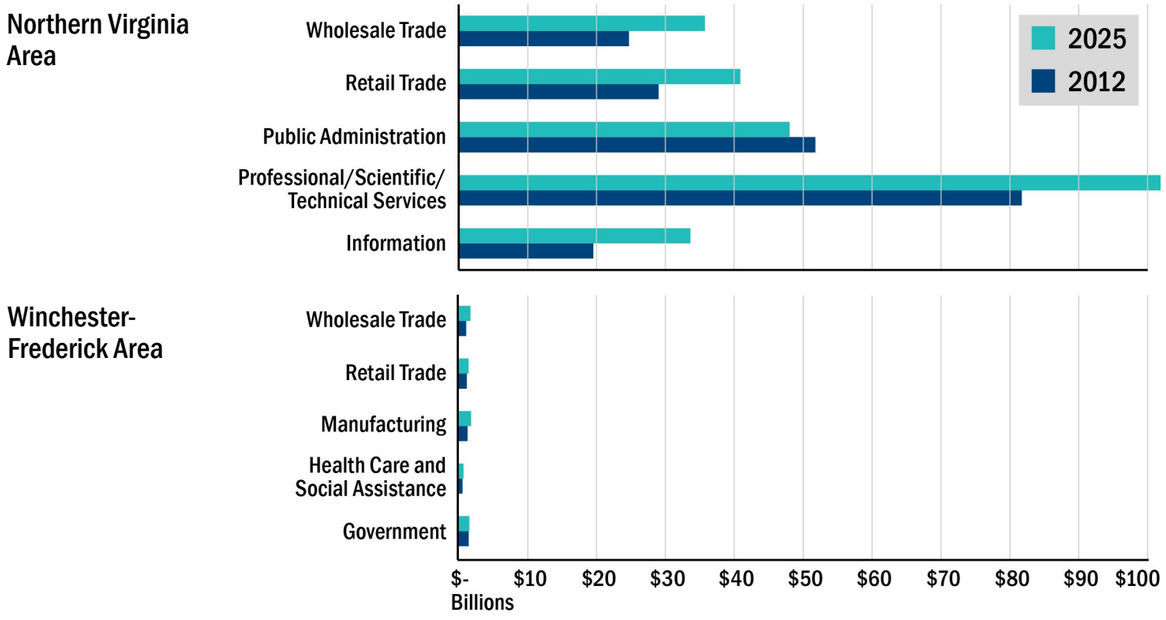
Population Growth (2012-2025 Percent Change)

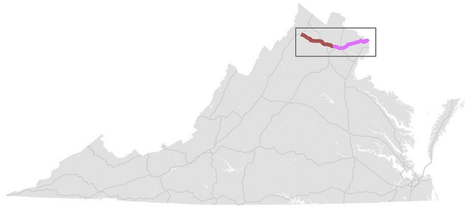
- -8% - 0%
- 1% - 5%
- 6% - 10%
- 11% - 25%
- 26% - 57%



CORRIDOR H OVERVIEW

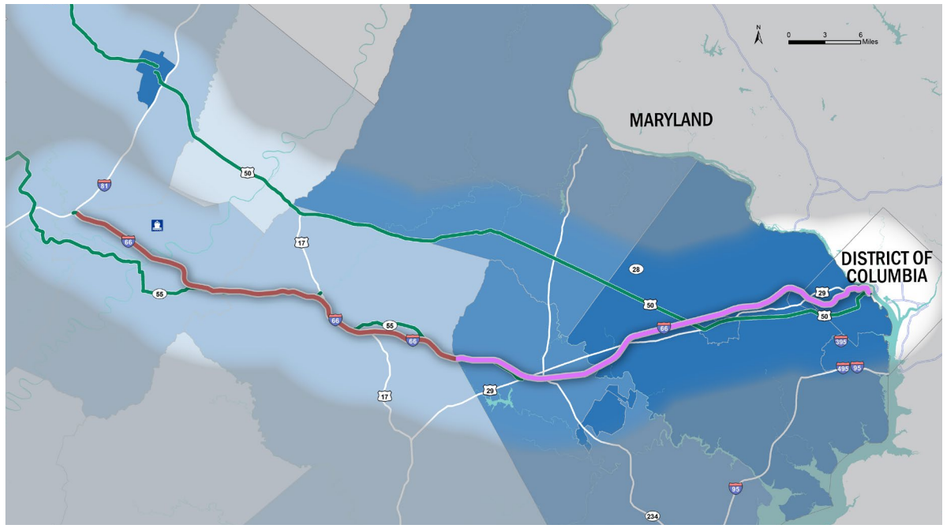
Top Industries (GDP)





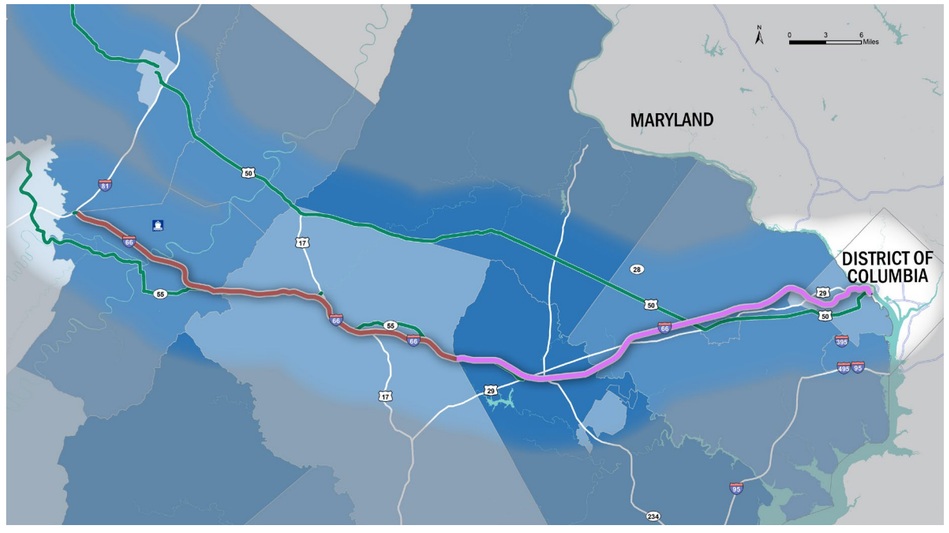
2012 Employment Density Jobs / Square Mile

- < 25
- 25 - 100
- 100 - 250
- 250 - 500
- > 500



Employment Growth (2012-2025 Percent Change)

- -7% - 0%
- 1% - 5%
- 6% - 10%
- 11% - 25%
- 26% - 69%



Corridor Travel Patterns

Passenger

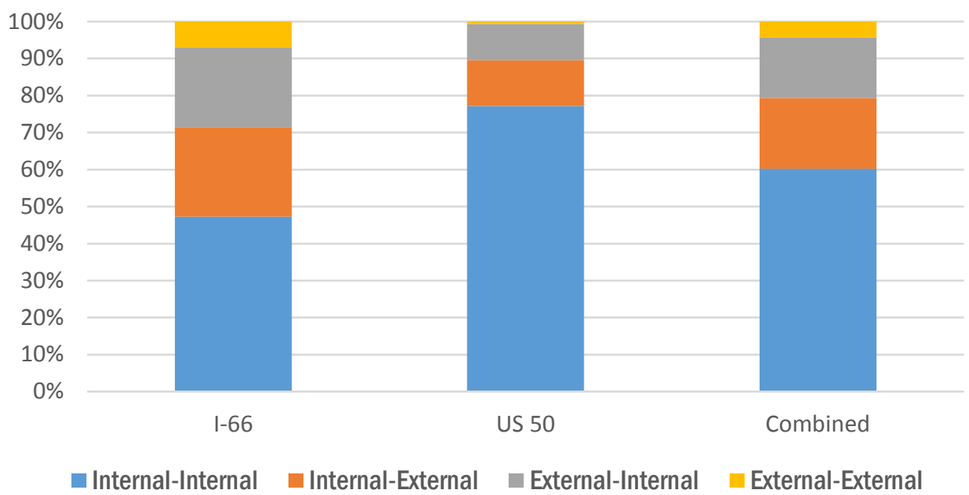
Corridor H passes through the Northern Virginia portion of the Metropolitan Washington Area, and provides a connection to the District of Columbia. Within the Northern Virginia Area, local traffic dominates and comprises 60 percent of the traffic on the corridor. Through traffic represents a very small portion (less than five percent) of the traffic along Corridor H in Northern Virginia. The proportion of local traffic is somewhat less on the primary facility in the corridor (I-66); however, it is still close to 50 percent.

Freight

By truck, Corridor H carried 26 million tons of freight worth $30 billion in 2012, and is estimated to carry 34 million tons of freight worth $45 billion in 2025. A large proportion of truck freight traffic on Corridor H - 27 percent of total corridor tonnage and almost 50 percent of total value in the corridor - passes through Virginia. Freight movements between North Carolina and the Middle Atlantic region account for more than 11 percent of the total truck freight tonnage in the corridor. In terms of value, Fairfax County is a major attractor of truck freight on Corridor H, accounting for more than 12 percent of the total value on the corridor, with significant truck freight movements originating from California, Texas, and Tennessee.

By rail, Corridor H carried 644,000 tons of freight worth $1 billion in 2012, and is estimated to carry 832,000 tons of freight worth $2 billion in 2025. Nearly all rail freight on this corridor is destined for Virginia, with no rail freight passing though Virginia. Rail freight flows from Illinois to Culpeper County account for more than 35 percent of the total corridor rail tonnage. There are also significant rail freight flows on Corridor H from West Virginia and South Carolina to the City of Winchester. In terms of value, flows between the Port of Virginia facilities in the Hampton Roads region and the Virginia Inland Port, located in Warren County, are the dominant rail freight movements on Corridor H, accounting for approximately 80 percent of the total rail freight value.

Distribution of Internal and External Travel



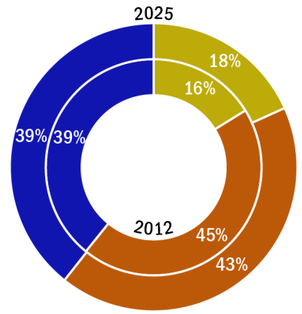
Truck Freight

2012	2025
Truck Freight Value	
$30 Billion	$45 Billion
Truck Freight Tonnage	
26 Million Tons	34 Million Tons
Freight Value per Ton	
$1159	$1305
Corridor Tonnage Passing Through	
27%	27%

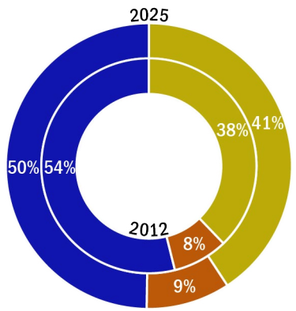
Rail Freight

2012	2025
Rail Freight Value	
$1 Billion	$2 Billion
Rail Freight Tonnage	
644,000 Tons	832,000 Tons
Freight Value per Ton	
$2034	$2020
Corridor Tonnage Passing Through	
0%	0%

Northern Virginia Area



Winchester-Frederick Area



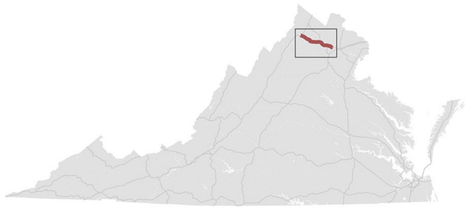
GDP by Sector, 2012 and 2025

- Freight Dependent
- Local Serving
- Knowledge-based

II. Segment H1

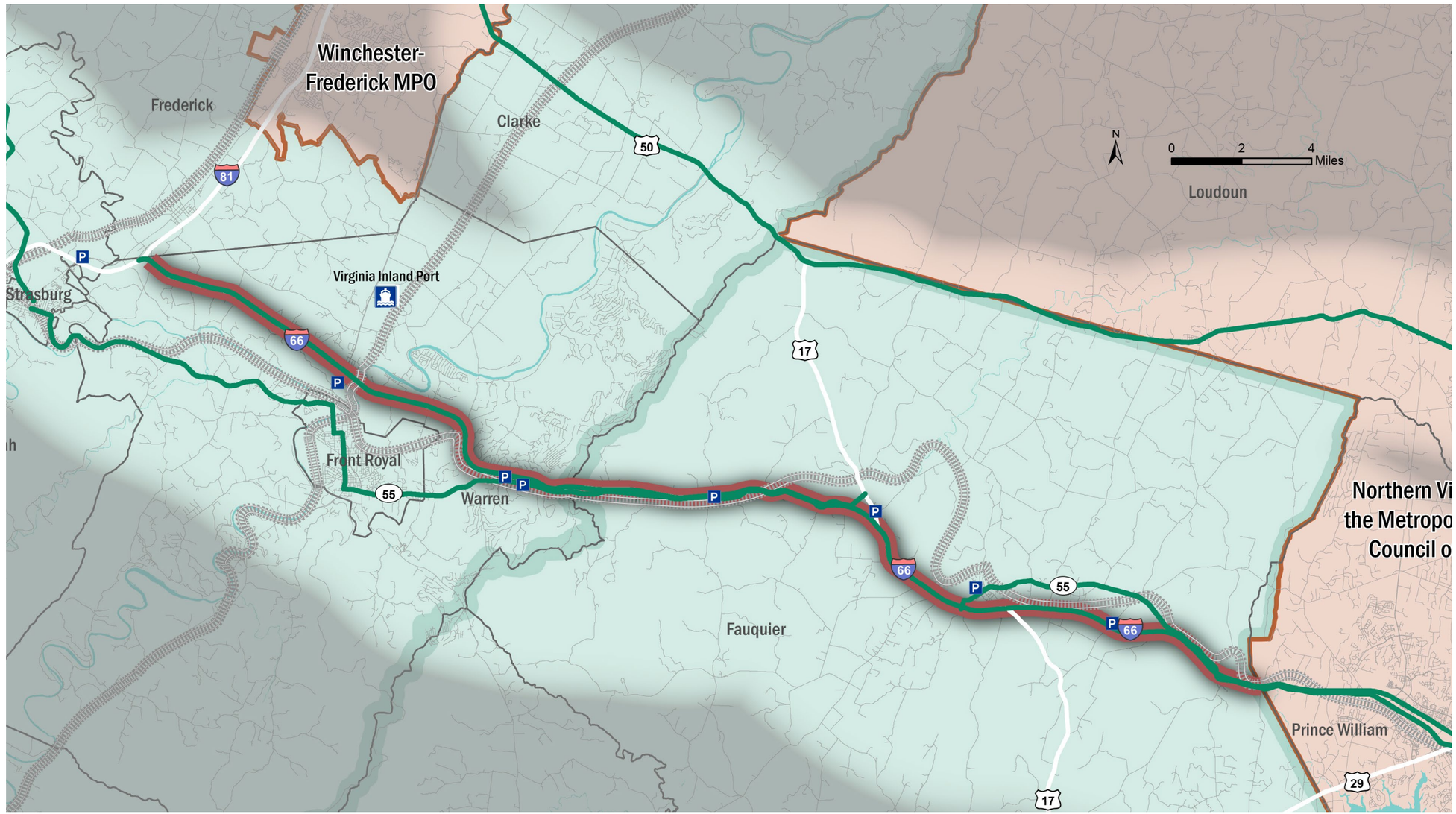
H1
Corridor Component Road
Railroad
MPO Area
Planning District Area

Airport Facility
Amtrak Facility
Greyhound Facility
VRE Facility
Metrorail Facility
Port Facility
Park & Ride Facility



Corridor Segment H1 Components

- I-66
- US 50
- Route 55
- Virginia Inland Port
- Norfolk Southern Crescent Corridor



H1 SEGMENT PROFILE

Segment H1 begins at the western terminus of I-66 near the town of Strasburg and travels through Warren and Fauquier Counties on its route to the Prince William County border. The segment is primarily defined by I-66, which is mostly a rural highway in this segment, and an important multimodal corridor, with critical access to the Virginia Inland Port and rail lines. The segment also serves as an important corridor for local commuter travel in Northern Virginia.

Highway Facilities: Within this segment, I-66 is a four-lane highway. Route 55 is a two-lane facility that runs parallel to, and occasionally concurrently with, I-66.

Transit Services: Transit services provide connections from Segment H1 to Northern Virginia and Washington, DC. Commuter bus service, operated by PRTC and private service operators, is provided throughout the segment. While no Amtrak or Greyhound service is provided in Segment H1, both services are available from Manassas nearby on Segment H2. There are Park-and-Ride locations available throughout the length of the segment.

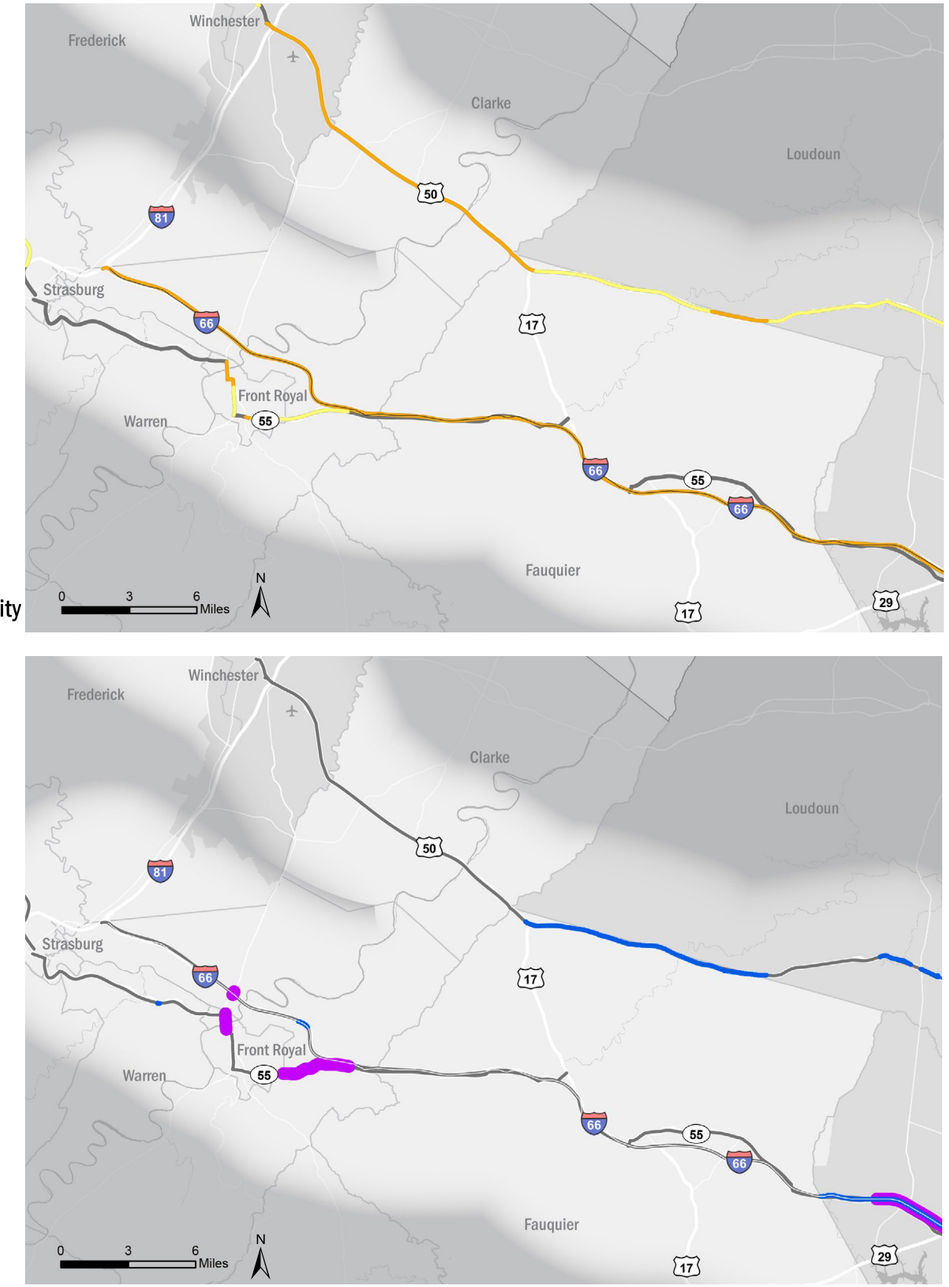
Rail Facilities: Norfolk Southern rail lines grant access to the Virginia Inland Port, Washington, DC, and areas to the north.

Port Facilities: The Virginia Inland Port is located one mile north of I-66 on Segment H2 and five miles west of I-81, providing freight connections to Northern Virginia and the Metropolitan Washington Area.

Airport Facilities: There are no commercial airports in this segment.

Major planned and future projects include:

- VRE commuter rail extension to Gainesville/Haymarket on the Norfolk Southern B Line.



Number of Lanes (both directions)

- 2
- 3 - 4
- 5 - 6
- 7 - 8
- 9 - 12
- Primary facility

Future Projects

- Reconstruction with added capacity
- Safety improvements
- Primary facility

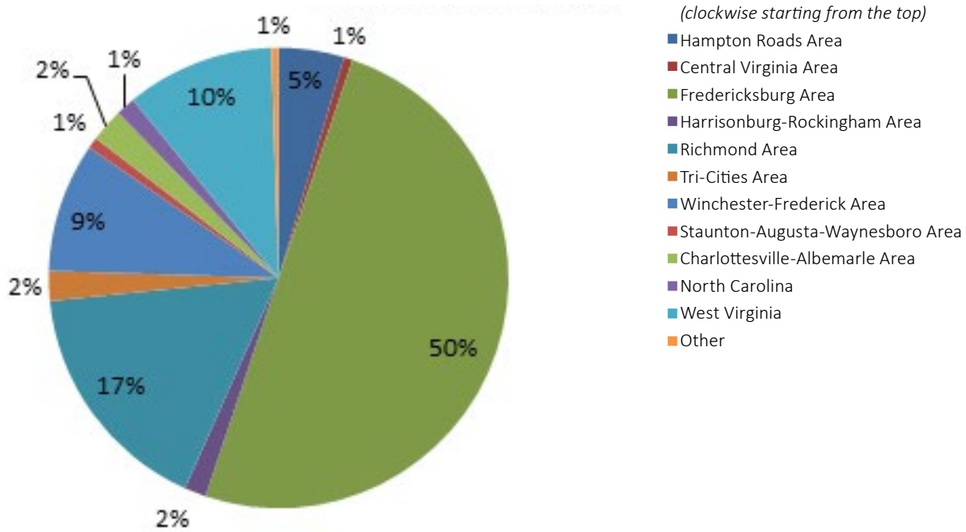
Travel Demand

Passenger Demand

Segment H1, the western segment of Corridor H, connects the Northern Virginia Area to Corridor B near Winchester. Segment H1 primarily provides access to and from the Metropolitan Washington Area. In particular, travel between the Metropolitan Washington Area and West Virginia accounts almost four percent of statewide intercity passenger travel, while travel between the Metropolitan Washington Area and Winchester accounts for an additional three percent.

Segment H1 also provides access between the Northern Virginia Area and the communities along the I-81 corridor. Of the intercity passenger travel originating in the Metropolitan Washington Area, significant portions are destined for locations requiring the use of Segment H1 including West Virginia (ten percent), Winchester (nine percent), and Harrisonburg (two percent).

Travel from Metropolitan Washington Region to...



H1 SEGMENT PROFILE

Freight Demand

By truck, Segment H1 carried 11 million tons of freight worth $13 billion in 2012, and is estimated to carry 15 million tons of freight worth $20 billion in 2025. A large proportion of truck freight traffic on Corridor H - 27 percent of total corridor tonnage and almost 50 percent of total value in the corridor - passes through Virginia. Freight movements between North Carolina and the Middle Atlantic region account for more than 11 percent of the total truck freight tonnage in the corridor. In terms of value, Fairfax County is a major attractor of truck freight on Corridor H, accounting for more than 12 percent of the total value on the corridor, with significant truck freight movements originating from California, Texas, and Tennessee. Adjacent to Segment H1, Culpeper County is a significant generator of truck freight, accounting for more than five percent of the total corridor truck tonnage, with major truck freight movements destined for Maryland, Pennsylvania, and New York.

By rail, Segment H1 carried 480,000 tons of freight worth $1.1 billion in 2012, and is estimated to carry 630,000 tons of freight worth $1.4 billion in 2025. Nearly all rail freight on this corridor is destined for Virginia, with no rail freight passing though Virginia. Rail freight flows from Illinois to Culpeper County account more than 35 percent of the total corridor rail tonnage. There are also significant rail freight flows on Corridor H from West Virginia and South Carolina to the City of Winchester. In terms of value, flows between the Port of Virginia facilities in the Hampton Roads Area and the Virginia Inland Port, located in Warren County, are the dominant rail freight movements on Corridor H, accounting for approximately 80 percent of the total rail freight value. The jurisdictions adjacent to Segment H1 are dominant attractors of rail freight on the corridor, accounting for more than 70 percent of the total rail tonnage on the corridor.

Truck Freight

Major Origins (by Tonnage)
1. Virginia (44% / 42%)
2. Maryland (11% / 9%)
3. North Carolina (9% / 9%)
4. Pennsylania (8% / 9%)
5. Culpeper County (6% / 5%)

Corridor Tonnage Originating in Segment H1: 13% / 15%

Major Origin-Destination Pairs for Freight
North Carolina and Maryland
North Carolina and New York
North Carolina and New Jersey
Prince William County and Pennsylvania
Culpeper County and Maryland

Percentages represent 2012 / 2025 values.

Major Destinations (by Tonnage)
1. Virginia (41% / 44%)
2. Maryland (19% / 20%)
3. Fairfax County (9% / 11%)
4. Pennsylvania (8% / 7%)
5. North Carolina (6% / 6%)

Corridor Tonnage Destined for Segment H1: 11% / 10%

Rail Freight

Major Origins (by Tonnage)
1. Virginia (41% / 39%)
2. Illinois (35% / 37%)
3. City of Norfolk* (17% / 16%)
4. City of Portsmouth* (9% / 9%)
5. West Virginia (9% / 7%)

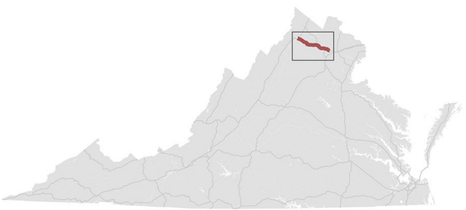
Corridor Tonnage Originating in Segment H1: 12% / 11%

Major Origin-Destination Pairs for Freight
Culpeper County and Illinois
City of Norfolk* and Warren County
City of Portsmouth* and Warren County
City of Winchester and West Virginia
City of Winchester and South Carolina

Percentages represent 2012 / 2025 values.
*Includes freight passing through the Port of Virginia.

Major Destinations (by Tonnage)
1. Virginia (91% / 91%)
2. Culpeper County (36% / 39%)
3. Warren County (26% / 25%)
4. City of Winchester (17% / 17%)
5. Maryland (4% / 5%)

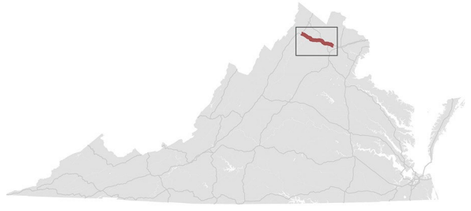
Corridor Tonnage Destined for Segment H1: 32% / 30%



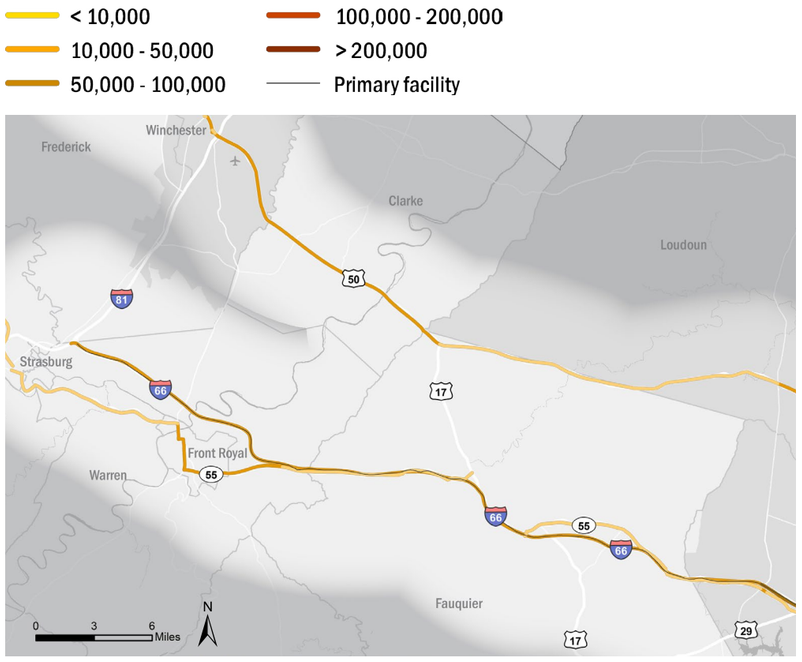
Traffic Conditions

Traffic Volume and AADT

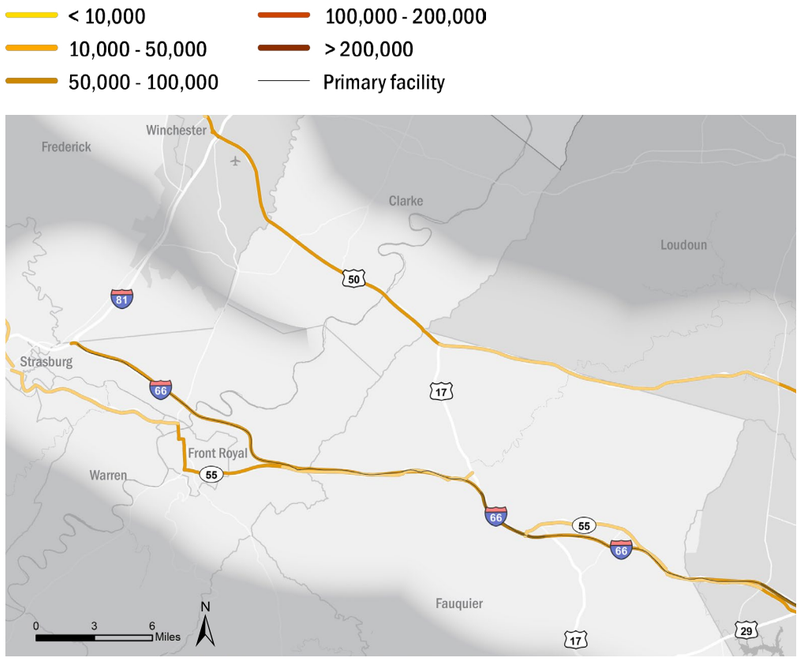
Traffic volumes on Segment H1 are much lower than traffic volumes on Segment H2, which is in the Northern Virginia Area. The highest traffic volumes on Segment H1 occur along I-66, where average daily traffic volumes range from 31,000 to 46,000 vehicles. Traffic volumes on US 50 range quite significantly across the segment (between 5,000 and 42,000 vehicles per day), with the highest volumes occurring in the City of Winchester near the interchange with I-81. Traffic on Route 55 reaches its highest levels in Front Royal, with volumes exceeding 30,000 vehicles per day. Average daily traffic along I-66 is projected to increase by 7,000 to 10,000 vehicles by 2025, bringing traffic volumes to over 50,000 vehicles per day. Traffic growth on US 50 is expected to be more modest, with an additional 1,000 to 5,000 vehicles per day by 2025. Traffic growth on Route 55 is expected to be negligible outside of the Town of Front Royal.



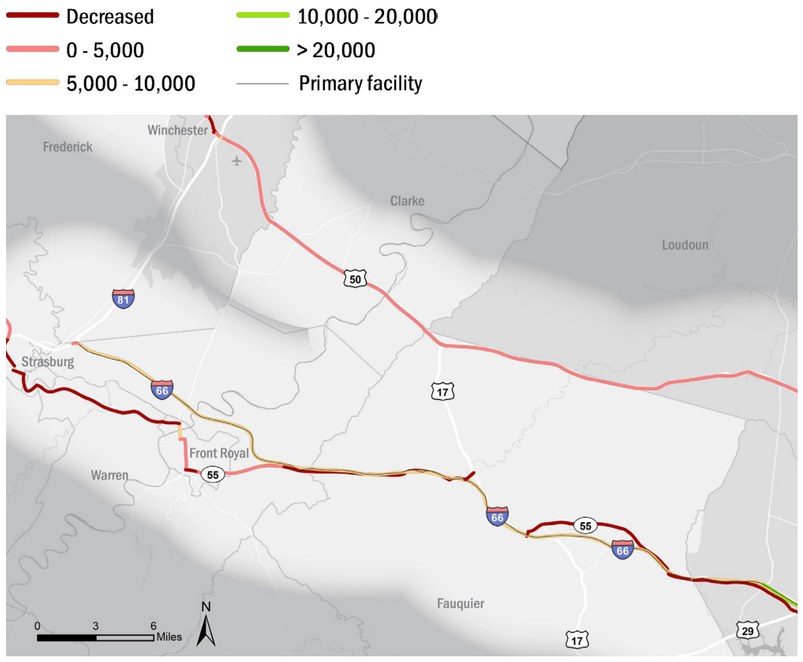
Traffic Volume 2014 (AADT)



Traffic Volume 2025 (AADT)



Change in Traffic Volume 2014- 2025 (AADT)



H1 SEGMENT PROFILE

Traffic Distribution

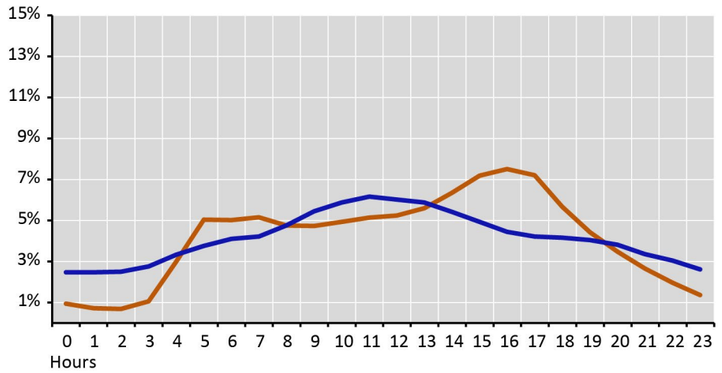
On average, traffic on Segment H1 is distributed throughout the day as shown in the graphs below. Weekday traffic shows two peak periods over the course of the day, and steady flow during the midday period. The evening peak period shows an hourly peak flow between 4 and 5 p.m. (7.5 percent of daily traffic) and a less busy morning peak between 7 and 8 a.m. accounting for 5.2 percent of daily traffic. The combined weekday traffic from the 7 a.m. to 7 p.m. period accounts for 70 percent of total daily traffic. Peaking patterns for truck traffic show a single peak during the midday period with a peak hourly flow of 6.2 percent of daily traffic between 1 and 2 p.m. Weekend traffic patterns are different from the typical commute patterns, showing an even distribution of traffic during the middle of the day between 11 a.m. and 6 p.m. for all traffic, and a steady flow of truck traffic throughout the majority of the day.

Weekday traffic volumes on Segment H1 vary by as much as 77 percent throughout the year, with the highpoint in June (around 35,000 vehicles per day) and the low point in January (around 20,000 vehicles per day). Truck volumes vary less than passenger volumes throughout the year, with the June high (around 4,000 vehicles per day) 56 percent higher than the January low (around 2,500 vehicles per day). Weekend traffic levels also vary over the course of the year, and the highest levels of weekend traffic (October, around 36,000 vehicles per day) are 115 percent higher than January levels (around 17,000 vehicles per day). Weekend truck traffic is steadier than all vehicle traffic, with the June high 48 percent higher than the January low. Since truck volumes account for a relatively small portion of traffic on Segment H1, traffic conditions are much more responsive to variations in automobile traffic than truck traffic.

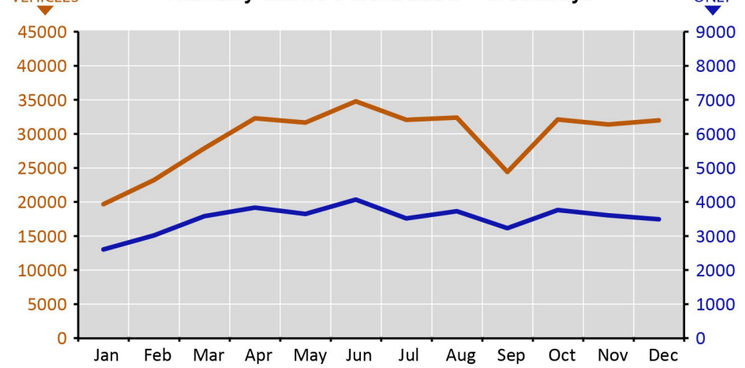
Truck Volume

The percent of daily traffic comprised of heavy trucks on Segment H1 is high compared to Segment H2. In Segment H1, heavy trucks comprise less than four percent of total traffic along US 50 and Route 55. Along I-66, heavy trucks comprise between seven and 12 percent of daily traffic between I-81 and US 17, with the highest truck volumes occurring in western Fauquier County.

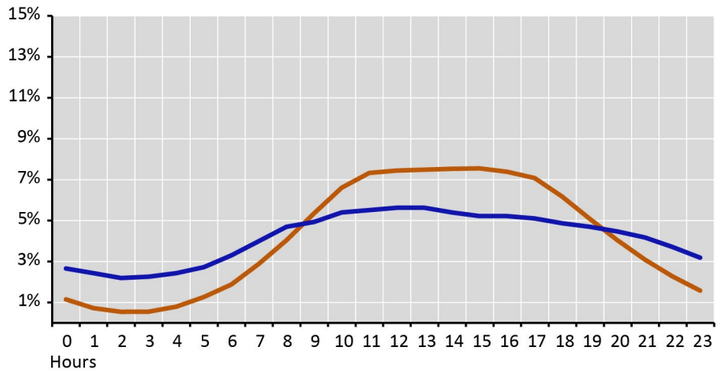
Hourly Traffic Distribution – Weekdays



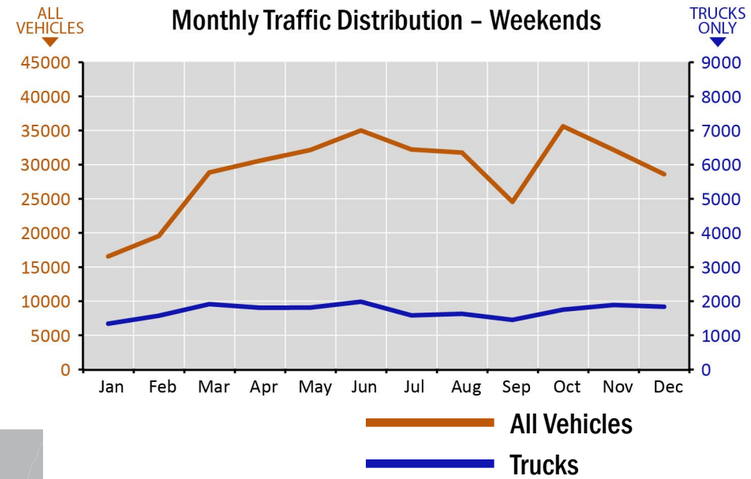
Monthly Traffic Distribution – Weekdays

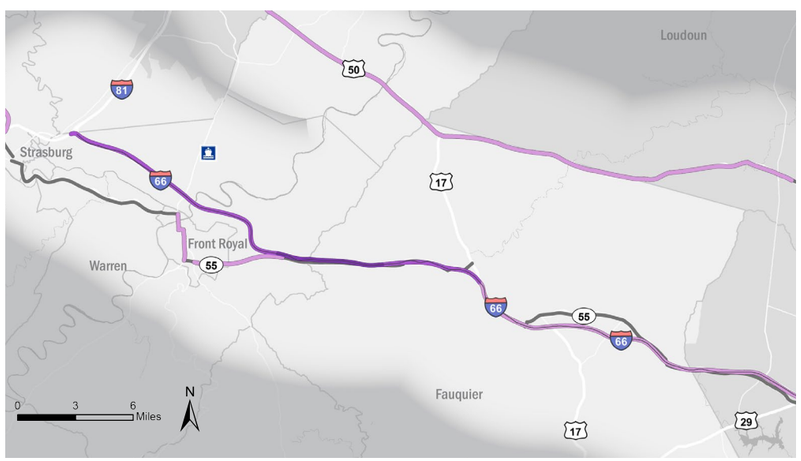


Hourly Traffic Distribution – Weekends



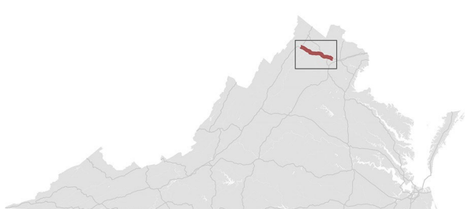
Monthly Traffic Distribution – Weekends



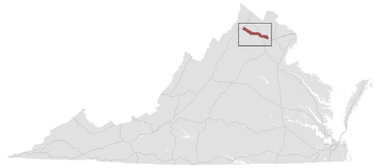


Percent Heavy Trucks

- < 5%
- 5% - 10%
- 10% - 15%
- 15% - 20%
- > 20%
- Primary facility



H1 SEGMENT PROFILE

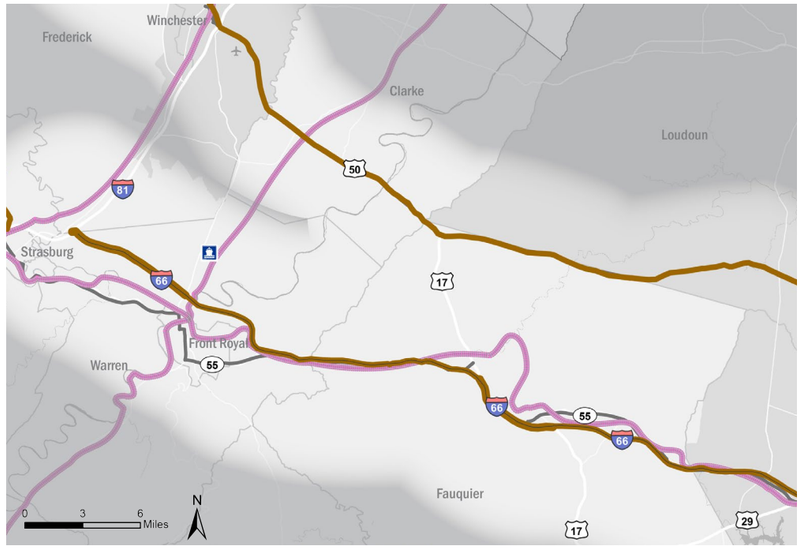


Freight Flows

Near the Virginia Inland Port in Warren County, freight is moved primarily by truck in relation to both tonnage and value. In total, 11 million tons (98 percent) of freight is moved through this section of Segment H1 by truck, compared to 204,000 tons (two percent) by rail. By value, $13 billion (99 percent) of freight travels by truck, compared to $177 million (two percent) by rail. On average, a ton of freight traveling through this section of Segment H1 by truck is worth $1,209 while a ton of freight traveling by rail is worth $865. In 2025, both rail and truck freight tonnages and values in this area of Segment H1 are expected to increase; however, the percentage of the freight traveling by truck is expected to remain the same. It is anticipated that freight value per ton on trucks and rail will increase to $1,308 and $971, respectively.

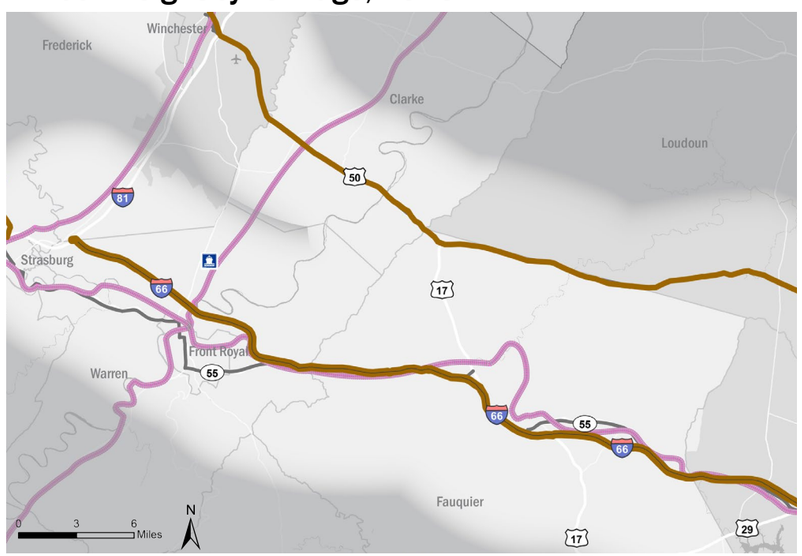
East of US 17 in Fauquier County, freight is moved primarily by truck, in terms of both tonnage and value. In total, 7 million tons (94 percent) of freight travels through this section of Segment H1 by truck, compared to only 478,000 tons (six percent) by rail. With regard to value, $11 billion (90 percent) of freight travels by truck, compared to $1 billion (10 percent) by rail. On average, a ton of freight traveling through this section of Segment H1 by truck is worth $1,506 while a ton of freight traveling by rail is worth $2,378. This is one of the few locations in the Commonwealth where rail freight is on average more valuable than truck freight. In 2025, both rail and truck freight tonnages and total values in Segment H1 are expected to increase. The percentage of the freight traveling by truck is expected to remain the same by tonnage and to increase to 95 percent by value. It is anticipated that freight value per ton on trucks will increase to $1,594 and decrease to $2,282 for rail.

Annual Freight by Tonnage, 2012

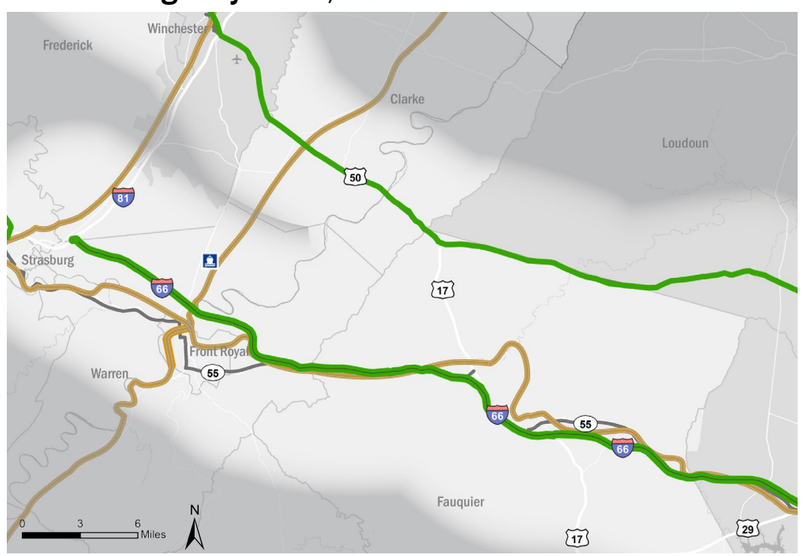


Annual Freight by Value, 2012

Annual Freight by Tonnage, 2025



Annual Freight by Value, 2025



Truck Freight (in tons)

- < 10M
- 10M - 25M
- 25M - 50M
- 50M - 100M
- > 100M
- Primary facility

Rail Freight (in tons)

- < 10M
- 10M - 25M
- 25M - 50M
- 50M - 100M
- > 100M
- Primary facility

Truck Freight

- < $10B
- $10B - $50B
- $50B - $100B
- $100B - $200B
- > $200B
- Primary facility

Rail Freight

- < $10B
- $10B - $50B
- $50B - $100B
- $100B - $200B
- > $200B
- Primary facility

Redundancy and Mode Choice

Passenger trips on Segment H1 of the Northern Virginia Corridor have several travel options, both in terms of travel path and mode choice. US 50 serves as a parallel facility to the north, as does Route 55 further south. However, the use of Route 55 for long distance travel is limited by speed and capacity and its use as a parallel facility is primarily for local access and bypassing incidents causing congestion on sections of I-66. West of Gainesville, alternative modes of travel are limited to commuter bus services provided by PRTC, as well as private bus services.

Park-and-Ride

Within Segment H1, commuters can utilize many Park-and-Ride locations, most of which are located near I-66. Fauquier County provides the highest number of Park-and-Ride locations, while Warren County has the most spaces and the highest utilization rate of spaces available in the area. Only Warren County (85 percent) has a rate higher than the statewide average for Park-and-Ride utilization, which is 76 percent.

Comparable Travel Options

Manassas to Winchester

Inter-City Bus	Train
0 Trips per Day 0:00 Travel Time $0 Est. Cost	0 Trips per Day 0:00 Travel Time $0 Est. Cost

Auto

Via I-66: 1:05 Travel Time $30 Est. Cost
Via Rt. 50 / I-66: 1:04 Travel Time $30 Est. Cost

DC to Winchester

Inter-City Bus	Train
0 Trips per Day 0:00 Travel Time $0 Est. Cost	0 Trips per Day 0:00 Travel Time $0 Est. Cost

Auto

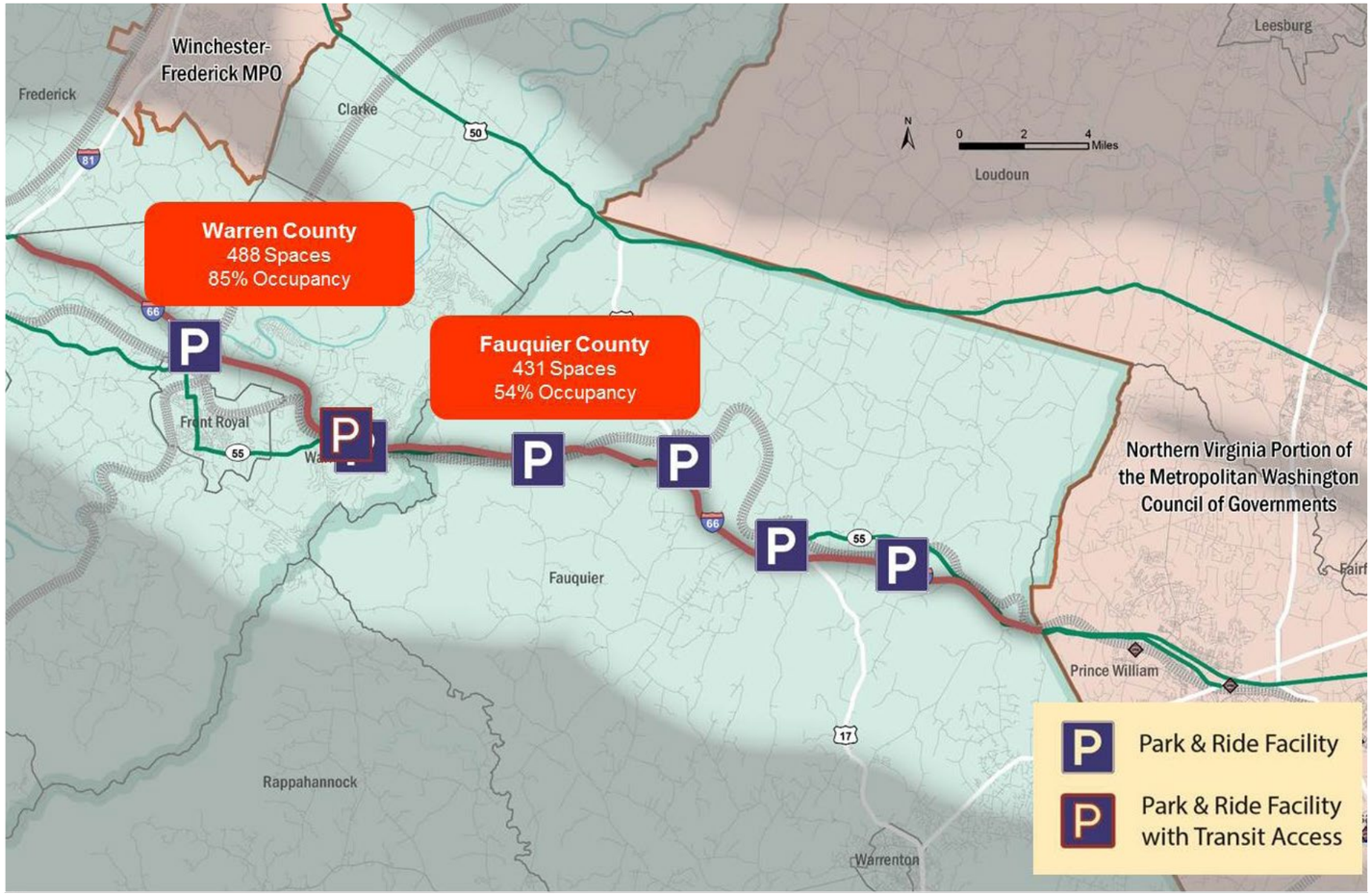
Via I-66: 1:30 Travel Time $52 Est. Cost
Via Rt. 50 / I-66: 1:50 Travel Time $42 Est. Cost

DC to Harrisonburg

Inter-City Bus	Train
0 Trips per Day 0:00 Travel Time $0 Est. Cost	0 Trips per Day 0:00 Travel Time $0 Est. Cost

Auto

Via I-66: 2:05 Travel Time $74 Est. Cost
Via I-66 / Rt. 55 / I-81: 2:23 Travel Time $76 Est. Cost



H1 SEGMENT NEEDS

Safety

Between 2010 and 2012, 155 severe crashes occurred on Segment H1, which were concentrated in several areas. In Front Royal, on Route 55 (US 340 and South Street), there were 29 collisions within approximately 2.1 miles between West 7th Street and Route 522 (Remount Road). On Route 55 (John Marshall Highway) in Warren County, east of Front Royal, there were 11 incidents over a 1.9-mile stretch between Esa Lane and Faith Way, and in Linden, there were six crashes at the intersection of Route 55 and Freezeland Road. Along I-66 in Fauquier County, there were ten crashes over a distance of approximately 0.6 miles between Winchester Road and Bolling Branch Creek.

Performance Metrics:

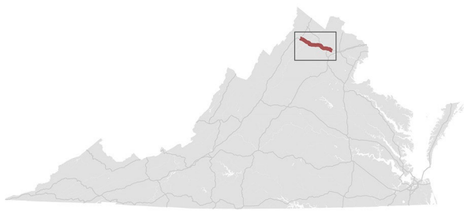
Number of Severe Crashes	155
Severe Crashes/Million VMT	0.7
Number of Railroad Crashes	0

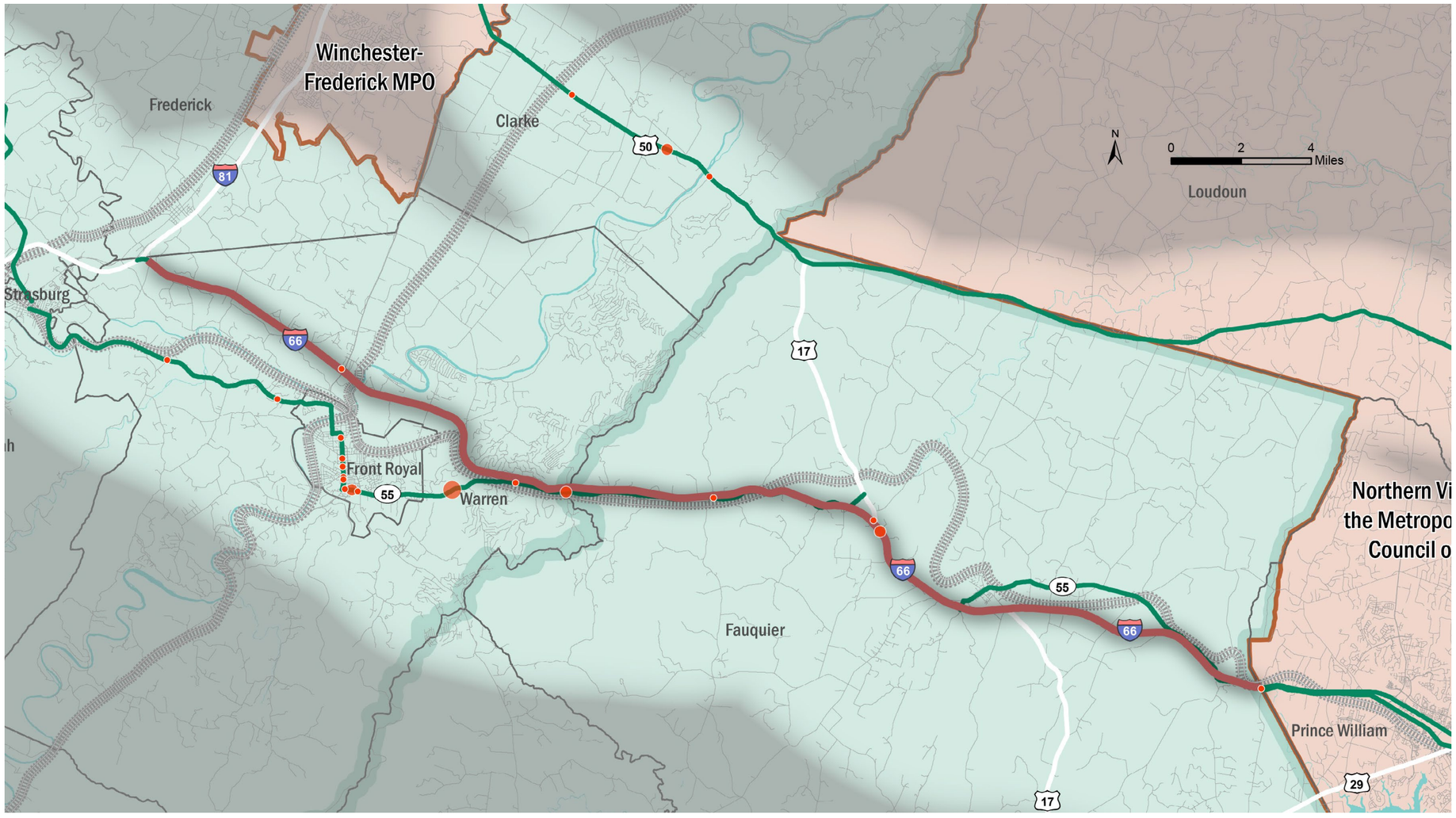
Fatality and Injury Crashes (2010 - 2012)

- < 5
- 5 - 10
- 11 - 15
- 16 - 20
- > 20

Railroad Incidents/Accidents per County (2011-2014)

#





Congestion

Performance Metrics:

Person Hours of Delay per Mile	7
Freight Ton Hours of Delay per Mile	17.3K

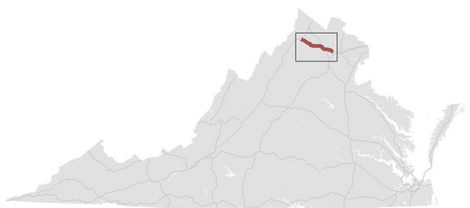
Passenger Delays

Passenger congestion along Segment H1 is minimal for most of the corridor segment with an average of only seven person-hours per mile of delay for passenger traffic. The only location in which passenger delays are in excess of 100 person-hours per mile is along US 50 in the City of Winchester near the interchange with I-81. Peak-period passenger delays along Segment H1 account for only 19 percent of daily congestion, which ranks near the bottom of peak-period delay share for passengers among CoSS segments.

Freight Delays

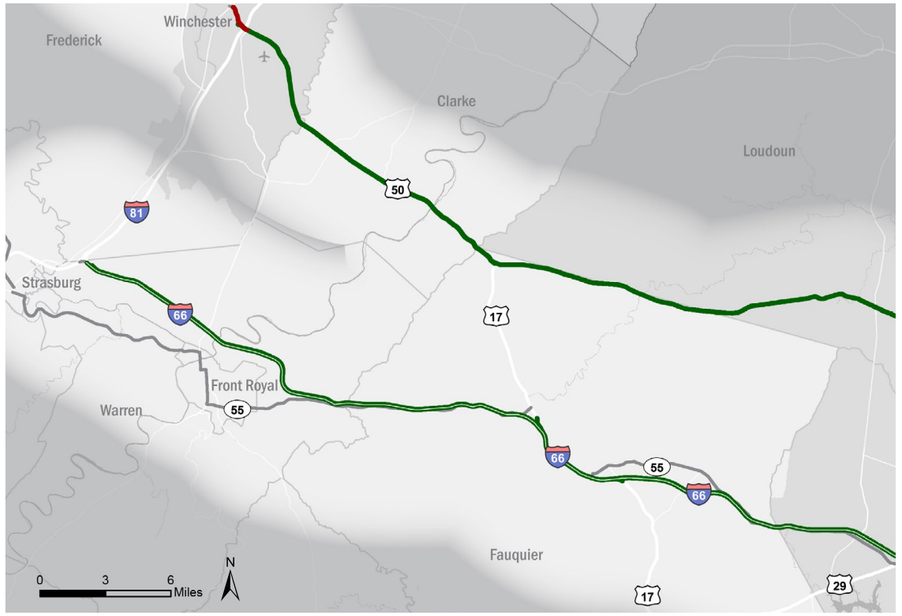
Freight congestion along Segment H1 is minimal for most of the corridor segment, although it is more substantial than passenger congestion. Total daily freight delay along this segment is over three million ton-hours. The only location on Segment H1 with significant freight delay is on US 50 in the City of Winchester between US 11 and the interchange with I-81. These delays are among the most significant on the CoSS segments statewide, with delays over 2.1 million ton-hours per mile. Peak-period freight delays along Segment H1 account for only four percent of daily congestion, which is very low for CoSS segments. This may be because truck traffic levels along Segment H1 peak around noon and are low during the traditional peak periods.

Daily Person Hours of Delay per Mile



< 50
51 - 100
101 - 250
251 - 500
> 500

Daily Freight Ton Hours of Delay per Mile



< 100,000
100,001 - 250,000
500,001 - 1,000,000
> 1,000,000

Reliability

Weekday Peak

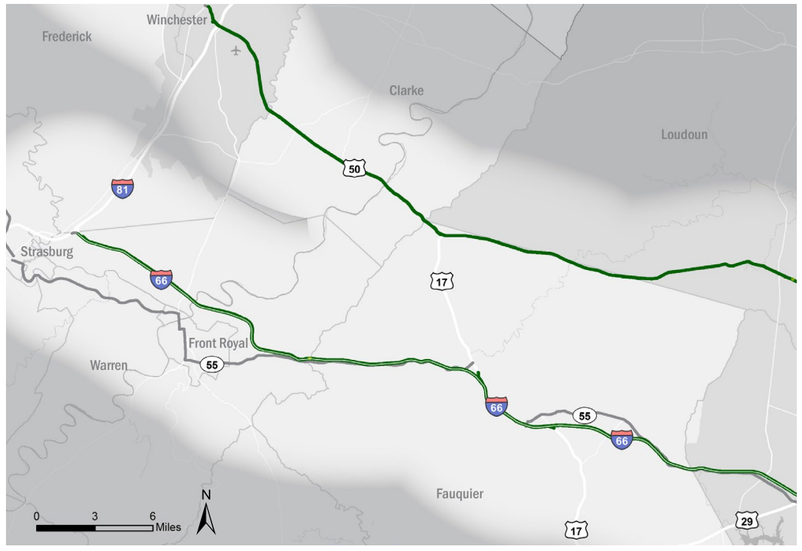
Reliability of travel during the peak period on a typical weekday on Segment H1 ranges from 0.00 to 0.27 in terms of reliability index, with an average value of 0.07. None of the locations along Segment H1 have reliability index values exceeding the statewide threshold.

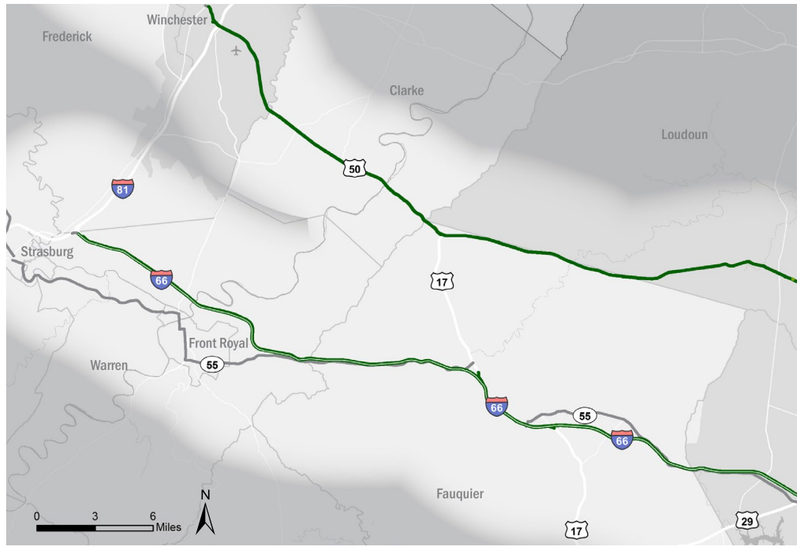
Weekday

Reliability of travel during a typical weekday ranges from 0.00 to 0.22 in terms of reliability index, with an average value of 0.06. None of the locations along Segment H1 have reliability index values exceeding the statewide threshold.

Weekend

Reliability of travel during a typical weekend ranges from 0.00 to 0.27 in terms of reliability index, with an average value of 0.07. None of the locations along Segment H1 have reliability index values exceeding the statewide threshold.



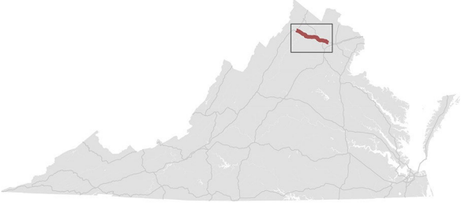


Reliability Index

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- > 0.8
- Primary facility (in white)

Statewide reliability index thresholds have been set for weekday peak, weekday and weekend travel to assess the reliability of travel on each segment on all corridors of statewide significance. A higher reliability index indicates that travel times are more unreliable. The following are the reliability index thresholds:

- Weekday Peak - 0.80
- Weekday - 0.40
- Weekend - 0.60



H1 SEGMENT NEEDS

Summary of Needs

Identified locations are approximate. See "Summary of Needs" table on the following page for details.

Redundancy

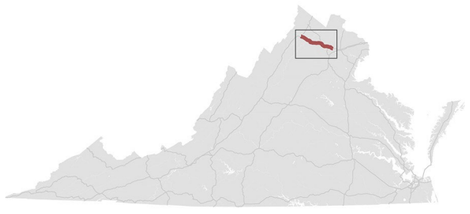
Mode Choice

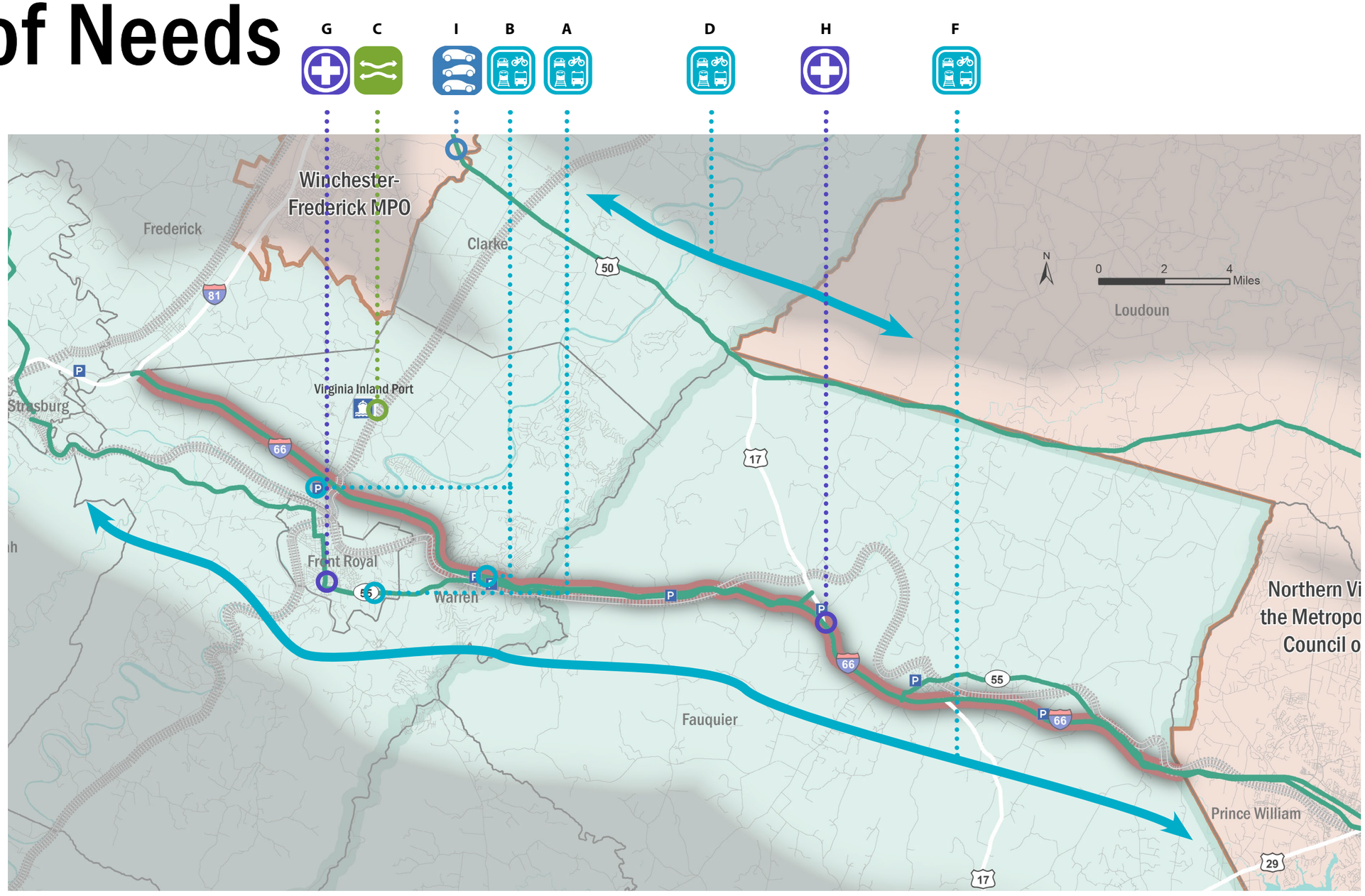
Safety

Congestion

Bottlenecks

Reliability





H1 SEGMENT NEEDS

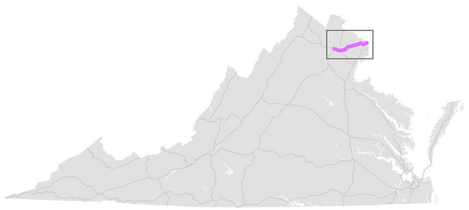
Summary of Needs - H1 Segment

A.	Lack of commuter transit service between Front Royal and D.C./Northern Virginia
B.	Park-and-Ride lots at capacity
C.	Limited rail access to the Inland Port
D.	Lack of transit service between Winchester and D.C./Northern Virginia
E.	Park and Ride lots in Warren County have higher utilization rates than statewide average
F.	Ability for VA 55 to serve as a parallel highway facility limited by speed and capacity
G.	Route 55 in Front Royal: 29 severe crashes
H.	I-66 near Exit 23 in Delplane: 10 crashes
I.	Congestion issue on US 50 from I-81 to US 11 in Winchester

III. Segment H2

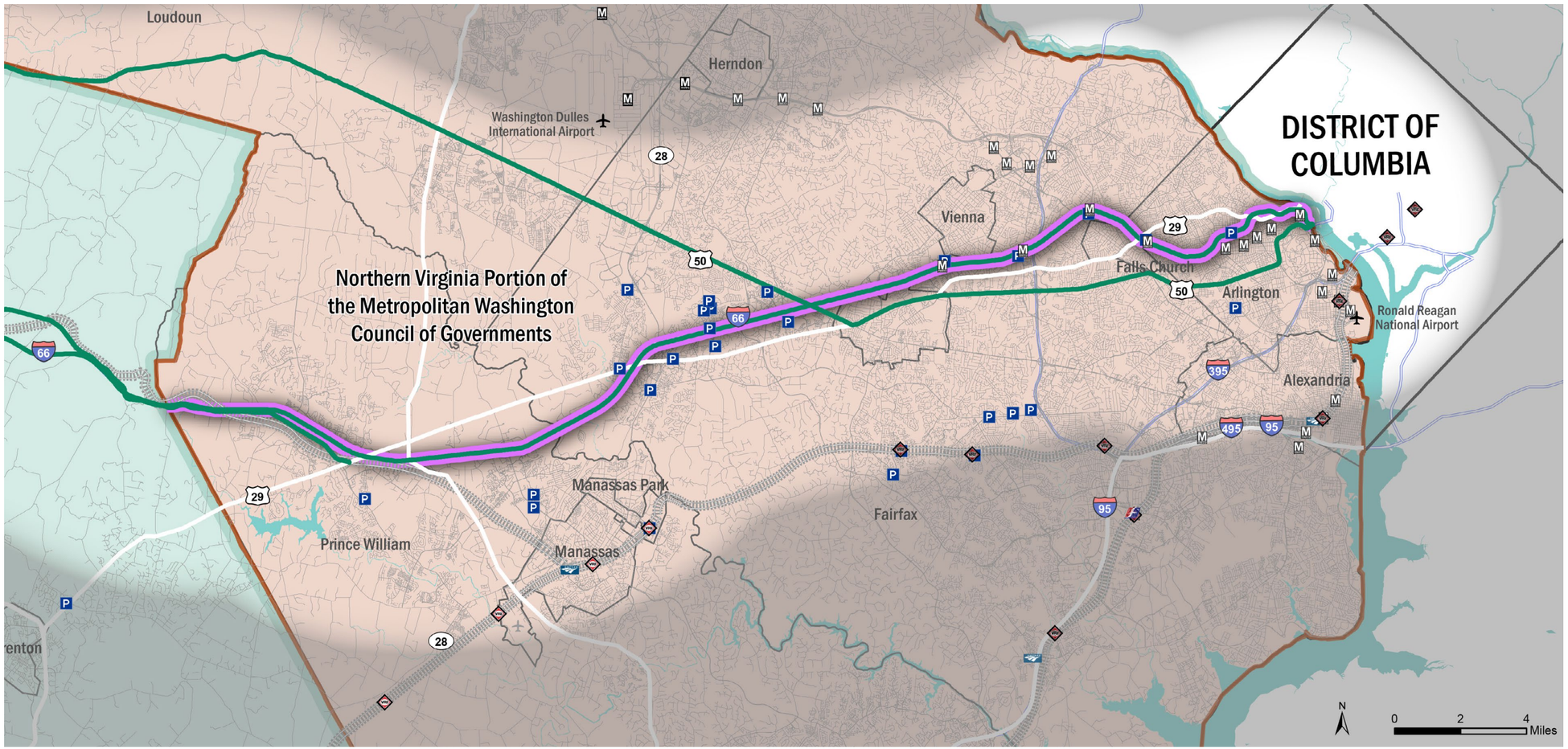
H2
Corridor Component Road
Railroad
MPO Area
Planning District Area

Airport Facility
Amtrak Facility
Greyhound Facility
VRE Facility
Metrorail Facility
Port Facility
Park & Ride Facility



Corridor Segment H2 Components

- I-66
- US 50
- Route 55
- Metrorail Orange Line
- Virginia Railway Express
- Amtrak
- Washington Dulles International Airport
- Ronald Reagan Washington National Airport



H2 SEGMENT PROFILE

Segment H2 begins near Broad Run in Prince William County, runs to Rosslyn in Arlington County, and also serves Fairfax and Loudoun Counties and the Cities of Fairfax and Falls Church. The segment is primarily defined by I-66, which is a commuting corridor used to connect residential areas in the west to employment centers in the east.

Highway Facilities: Within this segment, I-66 is a four- to eight-lane highway, with eight lanes between US 29 in Gainesville and US 50 in Fair Lakes, six lanes from US 50 to Gallows Road and four lanes elsewhere in the segment. In various segments, I-66 provides peak direction HOV restrictions during weekday peak periods. Trucks are prohibited at all times in both directions on I-66 east of I-495. US 29 (Corridor I) and US 50 serve as parallel facilities. US 50 is primarily a six-lane roadway in Fairfax and Arlington Counties, while it narrows to two lanes in the western half of Loudoun County. US 50 runs concurrently with US 29 along a short section in the City of Fairfax. In the western portion of Prince William County (west of Gainesville), Route 55 also serves as a parallel facility.

Transit Services: Multiple line-haul transit options are available along I-66 in the Northern Virginia Area including:

- The Washington Metropolitan Area Transit Authority (WMATA) which operates the Metrorail Orange Line which runs parallel to I-66 from Arlington to Vienna with multiple stations and almost 9,000 Park-and-Ride spaces available. Metrorail's Silver Line (Phase I opened in 2014 and Phase II is currently under construction) connects to Dulles Airport and into Loudoun County;
- The VRE which operates commuter rail service in Segment H2 on the Manassas Line. Service travels between the Manassas Airport and Washington, DC using the Norfolk Southern Piedmont freight rail line;
- Amtrak, which has a station in Manassas that provides passenger rail service along its Crescent Route, which runs from Washington, DC to the south along the US 29 Corridor;
- Commuter bus service, provided from outlying jurisdictions into the District of Columbia by PRTC and Loudoun County Transit. Bus connections to the Metrorail system are also provided by the Fairfax Connector and Metrobus; and
- Dozens of Park-and-Ride facilities, available in the Northern Virginia Corridor, including many associated with Metrorail or VRE stations.

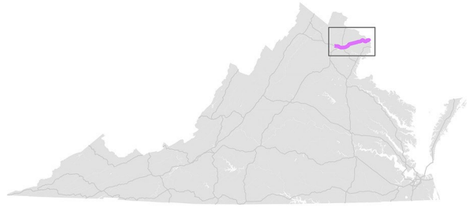
Rail Facilities: Norfolk Southern operates the Piedmont Division and Washington District rail lines along the Northern Virginia Corridor. These lines provide rail access north of Washington, DC to Baltimore and areas north along the east coast.

Port Facilities: No port facilities are located directly adjacent to Segment H2, but the Northern Virginia Corridor does provide direct access to the Virginia Inland Port south of Winchester.

Airport Facilities: Dulles International Airport and Reagan National Airport are within ten miles of the Northern Virginia Connector.

Major planned and future projects include:

- Rehabilitation and addition of capacity to the Chain Bridge Road bridge;
- Accessibility improvements to the Vienna Metrorail station; and
- Safety improvements along I-66 from mile marker 40 to mile marker 75 (DC Line/Potomac River), including lane/shoulder control display, queue/ incident detectors, and emergency areas with detection and surveillance



Number of Lanes (both directions)

2
3 - 4
5 - 6
7 - 8
9 - 12
Primary facility

Future Projects

Reconstruction with added capacity
Safety improvements
Primary facility

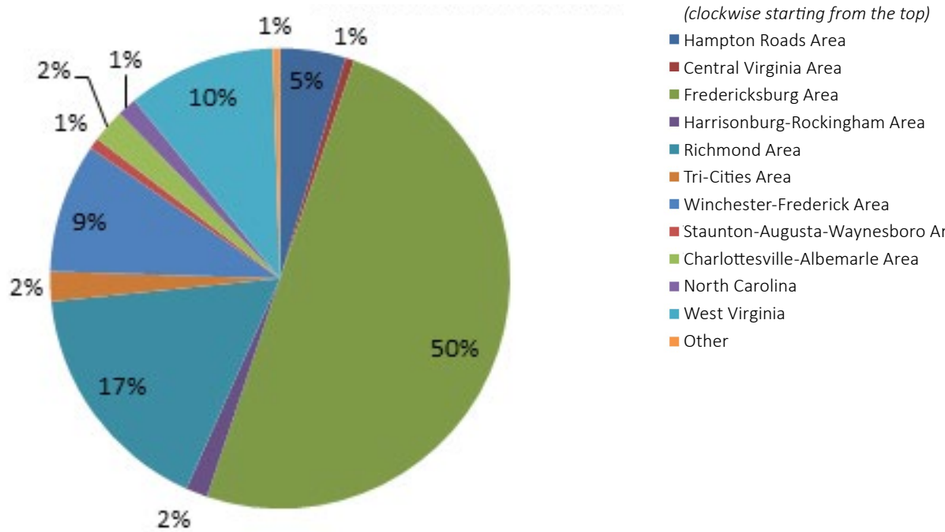
Travel Demand

Passenger Demand

Segment H2, the eastern segment of Corridor H, exists entirely within the Northern Virginia portion of the Metropolitan Washington Area, and accommodates large amounts of traffic local to the region. Travel between the Metropolitan Washington Area and West Virginia accounts for almost four percent of intercity passenger travel in the Commonwealth, while travel between the Metropolitan Washington Area and Winchester accounts for an additional three percent. These trips are likely to use portions of Segment H2.

Segment H2 provides access between the Northern Virginia Area and the communities along the I-81 corridor. Of the intercity passenger travel originating in the Metropolitan Washington Area, significant portions are destined for locations requiring the use of Segment H2 including West Virginia (ten percent), Winchester (nine percent), and Harrisonburg (two percent).

Travel from Metropolitan Washngton Region to...



H2 SEGMENT PROFILE

Freight Demand

By truck, Segment H2 carried 20 million tons of freight worth $27 billion in 2012, and is estimated to carry 27 million tons of freight worth $39 billion in 2025. A large proportion of truck freight traffic on Corridor H - 27 percent of total corridor tonnage and almost 50 percent of total value in the corridor - passes through Virginia. Freight movements between North Carolina and the Middle Atlantic region account for more than 11 percent of the total truck freight tonnage in the corridor. In terms of value, Fairfax County is a major attractor of truck freight on Corridor H, accounting for more than 12 percent of the total value on the corridor, with significant truck freight movements originating from California, Texas, and Tennessee. Adjacent to Segment H2, Manassas is a major generator of truck freight, accounting for one percent of total corridor truck tonnage in 2012 and estimated to account for more than four percent by 2025. Arlington and Prince William Counties are major destinations for truck freight on the corridor, accounting for four to six percent of the truck freight value destined for Corridor H, with major truck flows originating from Maryland, Pennsylvania, and California.

By rail, Segment H2 carried nine million tons of freight worth $12 billion in 2012, and is estimated to carry 11 million tons of freight worth $15 billion in 2025. Nearly all rail freight on this corridor is destined for Virginia, with no rail freight passing though Virginia. Rail freight flows from Illinois to Culpeper County account more than 35 percent of the total corridor rail tonnage. In terms of value, flows between the Port of Virginia facilities in the Hampton Roads region and the Virginia Inland Port, located in Warren County, are the dominant rail freight movements on Corridor H, accounting for approximately 80 percent of the total rail freight value. No rail freight originates along Segment H2 and the value and tonnage of rail freight heading to the jurisdictions located adjacent to this segment are negligible.

Truck Freight

Major Origins (by Tonnage)
1. Virginia (44% / 42%)
2. Maryland (11% / 9%)
3. North Carolina (9% / 9%)
4. Pennsylania (8% / 9%)
5. Culpeper County (6% / 5%)

Corridor Tonnage Originating in Segment H2: 12% / 12%

Major Origin-Destination Pairs for Freight
North Carolina and Maryland
North Carolina and New York
North Carolina and New Jersey
Prince William County and Pennsylvania
Culpeper County and Maryland

Percentages represent 2012 / 2025 values.

Major Destinations (by Tonnage)
1. Virginia (41% / 44%)
2. Maryland (19% / 20%)
3. Fairfax County (9% / 11%)
4. Pennsylvania (8% / 7%)
5. North Carolina (6% / 6%)

Corridor Tonnage Destined for Segment H2: 24% / 28%

Rail Freight

Major Origins (by Tonnage)
1. Virginia (41% / 39%)
2. Illinois (35% / 37%)
3. City of Norfolk* (17% / 16%)
4. City of Portsmouth* (9% / 9%)
5. West Virginia (9% / 7%)

Corridor Tonnage Originating in Segment H2: <1% / 1%

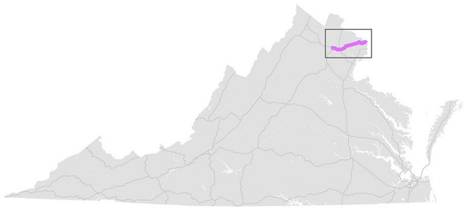
Major Origin-Destination Pairs for Freight
Culpeper County and Illinois
City of Norfolk* and Warren County
City of Portsmouth* and Warren County
City of Winchester and West Virginia
City of Winchester and South Carolina

Percentages represent 2012 / 2025 values.
*Includes freight passing through the Port of Virginia.

Major Destinations (by Tonnage)
1. Virginia (91% / 91%)
2. Culpeper County (36% / 39%)
3. Warren County (26% / 25%)
4. City of Winchester (17% / 17%)
5. Maryland (4% / 5%)

Corridor Tonnage Destined for Segment H2: <1% / 1%

Traffic Conditions



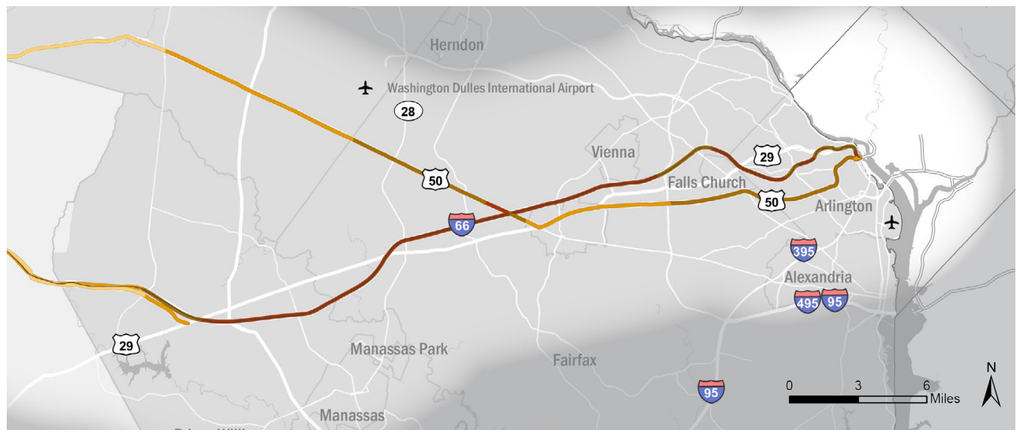
Traffic Volume 2014 (AADT)

- < 10,000
- 10,000 - 50,000
- 50,000 - 100,000
- 100,000 - 200,000
- > 200,000
- Primary facility

Traffic Volume and AADT

Traffic volumes on Segment H2 are the highest on the Northern Virginia Corridor, with the highest trafficked sections located along I-66 in Fairfax County. Average daily traffic volumes along I-66 range from 39,000 vehicles per day west of Gainesville, to 174,000 vehicles per day near the City of Fairfax. On US 50, average daily traffic volumes are somewhat lower, but still significant. East of Dulles Airport, volumes range from 34,000 to 98,000 vehicles per day, with the highest traffic levels occurring near the interchange with I-66. Volumes on US 50 in Loudoun County are generally less than 30,000 vehicles per day.

Traffic volumes on I-66 are expected to grow significantly by 2025, and an additional 4,000 to 25,000 vehicles per day are forecast for the segment. The highest growth of traffic on I-66 is expected west of US 50 in Fairfax County. Traffic volumes on US 50 are also expected to grow significantly, with more than 15,000 additional vehicles per day forecast by 2025 to the west of I-66 in Fairfax County.



Traffic Volume 2025 (AADT)

- < 10,000
- 10,000 - 50,000
- 50,000 - 100,000
- 100,000 - 200,000
- > 200,000
- Primary facility

Change in Traffic Volume 2014- 2025 (AADT)

- Decreased
- 0 - 5,000
- 5,000 - 10,000
- 10,000 - 20,000
- > 20,000
- Primary facility

H2 SEGMENT PROFILE

Traffic Distribution

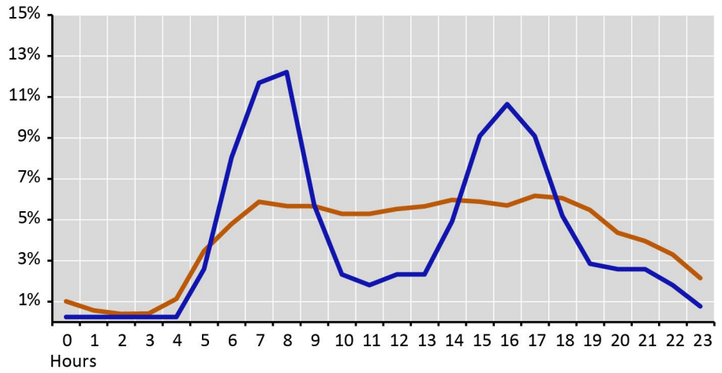
On average, traffic on Segment H2 is distributed throughout the day as shown in the graphs below.

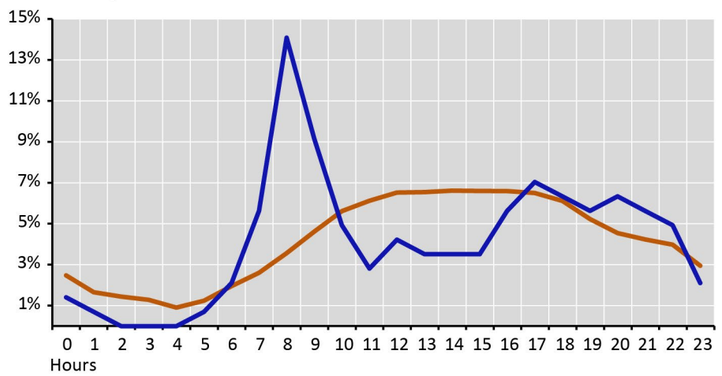
Weekday traffic shows steady flow over the course of the day from 7 a.m. and 7 p.m., which is quite different from the typical commute patterns. The combined weekday traffic during the 7 a.m. to 7 p.m. period accounts for 69 percent of total daily traffic. While accounting for only a small portion of total traffic on this segment (due in large part to truck restrictions on I-66 east of I-495), truck traffic shows two sharp peaks: the morning peak period between 6 a.m. and 10 a.m. (38 percent of daily truck traffic) and evening peak period between 3 p.m. and 6 p.m. (34 percent of daily truck traffic). Weekend traffic patterns are also different from the typical commute patterns, showing an even distribution of traffic during the middle of the day, with the highest peak hour flow for all traffic between 2 and 3 p.m. (6.6 percent of daily traffic). Weekend truck traffic shows a very sharp morning peak hour flow between 8 and 9 a.m. (14.0 percent of daily truck traffic).

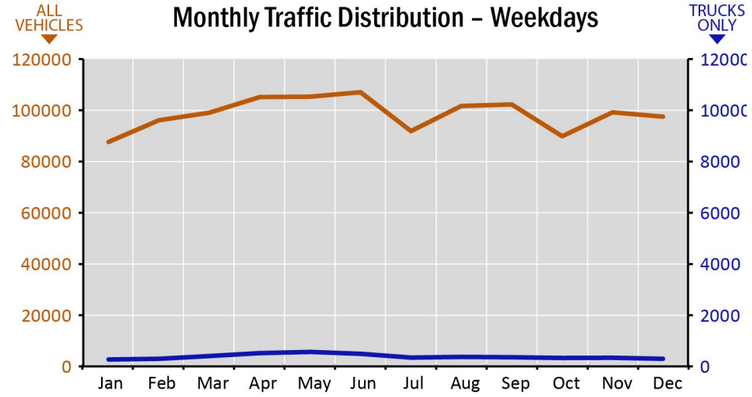
Weekday traffic volumes on Segment H2 vary by as much as 22 percent throughout the year, with the highpoint in June (around 100,000 vehicles per day) and the low point in January (around 88,000 vehicles per day). Weekend traffic levels also vary over the course of the year, and the highest levels of weekend traffic (April, around 86,000 vehicles per day) are 24 percent higher than July levels (around 69,000 vehicles per day). Truck volumes account for a very small portion of traffic on Segment H2 (less than one percent of overall daily traffic for weekday and weekend); as a result, truck traffic has almost no impact on overall traffic conditions.

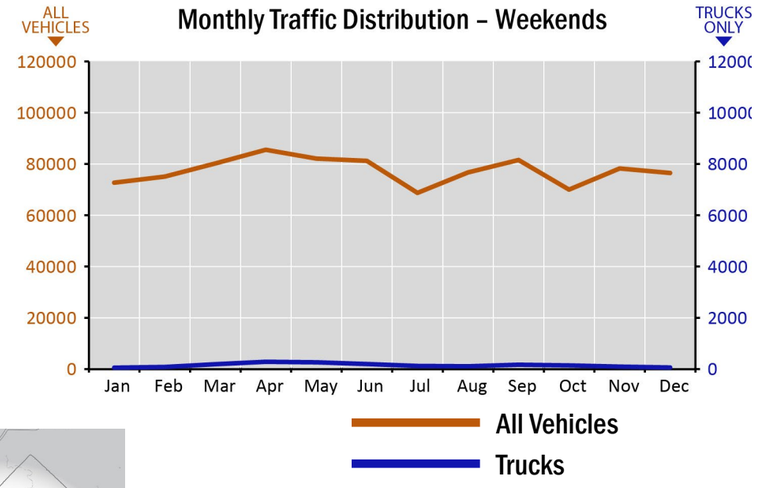
Truck Volume

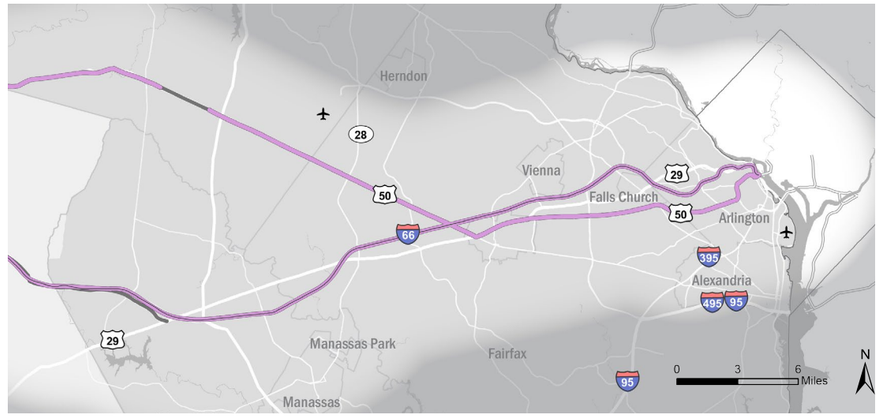
The percent of daily traffic comprised of heavy trucks on Segment H2 is low relative to Segment H1. Due to use restrictions, there is no heavy truck traffic on I-66 or on US 50 east of I-495. Further west, heavy trucks comprise three to four percent of traffic on I-66, and one percent of traffic on US 50.





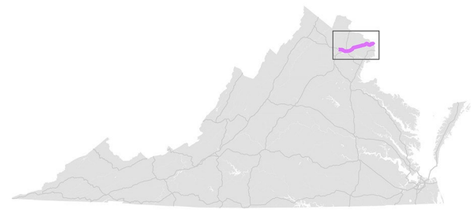




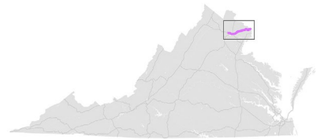


Percent Heavy Trucks

- < 5%
- 5% - 10%
- 10% - 15%
- 15% - 20%
- > 20%
- Primary facility



H2 SEGMENT PROFILE

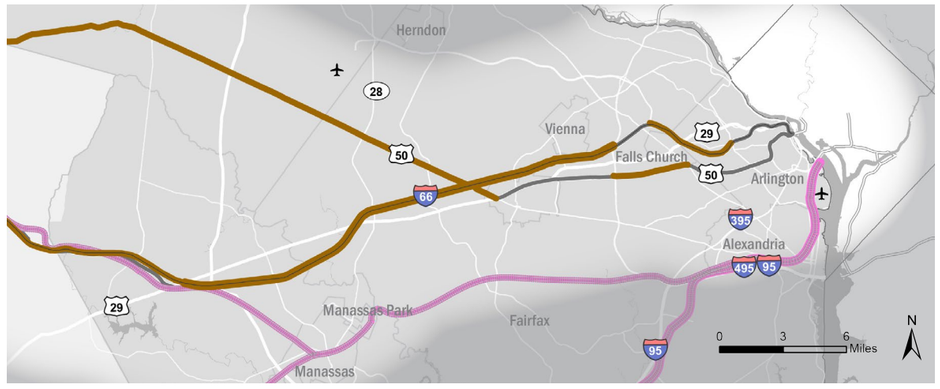


Freight Flows

On Segment H2 near Gainesville, freight is moved primarily by truck in relation to both tonnage and value. Much of this truck freight is likely to travel through Dulles International Airport, which accommodates the largest amount of air freight in the Commonwealth. In total, 19 million tons (98 percent) of freight is moved through this section of Segment H2 by truck, compared to 478,000 tons (two percent) by rail. With regard to value, $27 billion (96 percent) of freight travels by truck, compared to $1 million (four percent) by rail. On average, a ton of freight traveling through this section of Segment H2 by truck is worth $1,360 while a ton of freight traveling by rail is worth $2,378. This is one of the few locations in the Commonwealth where rail freight is on average more valuable than truck freight. In 2025, both rail and truck freight tonnages and total values in this area of Segment H2 are expected to increase. It is anticipated that the percentage of freight traveling by truck by tonnage and value will remain the same. Freight value per ton on trucks is expected to increase to $1,472 and decrease to $2,282 for rail.

Near the City of Fairfax, freight on Corridor H is moved primarily by truck in relation to both tonnage and value. In total, 19 million tons (69 percent) of freight is moved through this section of Segment H2 by truck, compared to nine million tons (31 percent) by rail. By value, $25 billion (67 percent) of freight travels by truck, compared to $12 billion (33 percent) by rail. On average, a ton of freight traveling through this section of Segment H2 by truck is worth $1,295 while a ton of freight traveling by rail is worth $1,396. In 2025, both rail and truck freight tonnages and total values in this area of Segment H2 are expected to increase. The percentage of freight traveling by truck by tonnage is expected to remain the same and to increase by value to 70 percent. Freight value per ton on trucks and rail is expected to increase to $1,466 and $1,355, respectively.

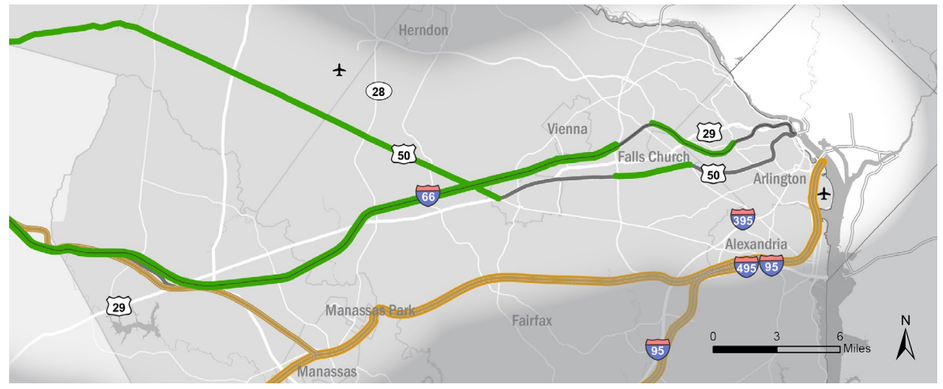
Annual Freight by Tonnage, 2012



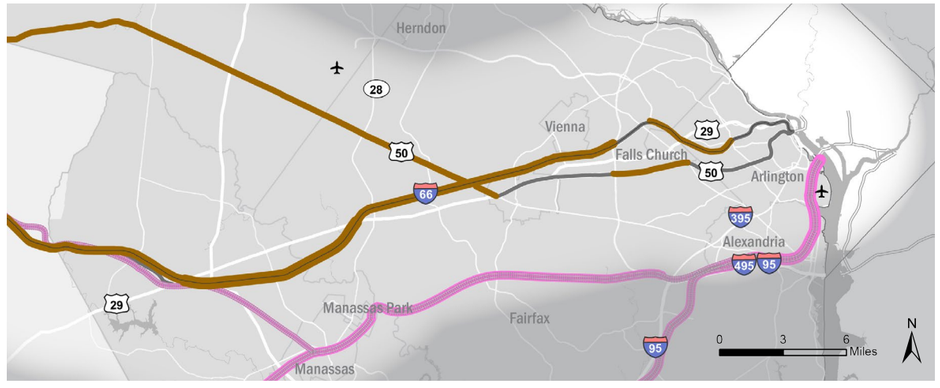
Truck Freight (in tons)
- < 10M
- 10M - 25M
- 25M - 50M
- 50M - 100M
- > 100M
- Primary facility

Rail Freight (in tons)
- < 10M
- 10M - 25M
- 25M - 50M
- 50M - 100M
- > 100M
- Primary facility

Annual Freight by Value, 2012



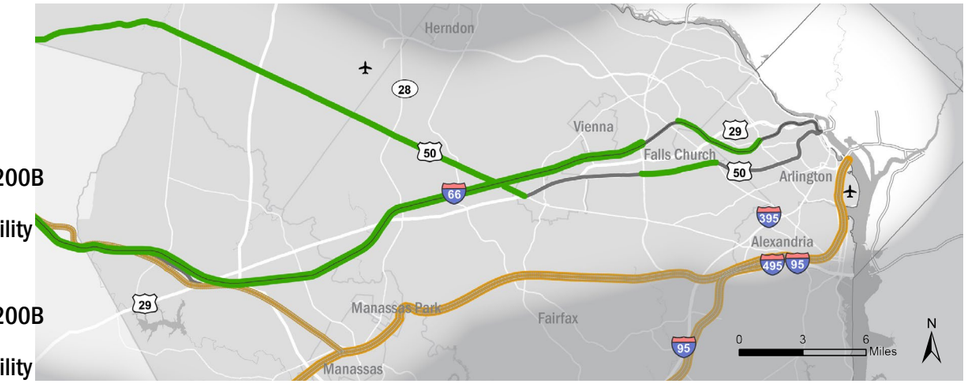
Annual Freight by Tonnage, 2025



Truck Freight
- < $10B
- $10B - $50B
- $50B - $100B
- $100B - $200B
- > $200B
- Primary facility

Rail Freight
- < $10B
- $10B - $50B
- $50B - $100B
- $100B - $200B
- > $200B
- Primary facility

Annual Freight by Value, 2025



Redundancy and Mode Choice

Passenger trips on Segment H2 of the Northern Virginia Corridor have several travel options, both in terms of travel path and mode choice. US 50 serves as a parallel facility and is a viable option in the eastern half of the corridor. Further west, US 50 diverges from I-66 and travels further to the north. To mitigate congestion and encourage carpooling and transit use, HOV restrictions are imposed on I-66 during weekday peak periods. Truck prohibitions east of I-495 further restrict the availability of alternative highway routes on Segment H2. Direct or indirect connections to all of the other CoSS in the Northern Virginia Area are available, including Corridors G, I and, K.

Many transit options are available within Segment H2, mostly providing connections within the Northern Virginia Area or to neighboring DC. Transit services in the segment include:

- Metrorail's Orange Line which runs parallel to I-66 from DC to Vienna with multiple stations;
- Metrorail's Silver Line which runs parallel to I-66 through the City of Falls Church, before diverting to the northern areas of Tysons Corner, Reston (Phase I), Dulles Airport, and Loudoun County (phase II);
- The VRE which operates commuter rail service in Segment H2 on the Manassas Line. Service travels between the Manassas Airport and Washington, DC using the Norfolk Southern Piedmont freight rail line;
- Amtrak, which has a station in Manassas that provides passenger rail service along its Crescent Route, which runs from Washington, DC to the south along the US 29 corridor; and
- Commuter bus service, provided from outlying jurisdictions into the District of Columbia by PRTC and Loudoun County Transit. Bus connections to the Metrorail system are also provided by the Fairfax Connector and Metrobus.

Park-and-Ride

Within Segment H2, commuters can utilize a number of Park-and-Ride locations, many of which are served by transit service. Fairfax County provides the highest number of Park-and-Ride locations and the most parking spaces in the Commonwealth, accounting for nearly half of the Park-and-Ride parking spaces in Virginia. Arlington County has the highest utilization rate of spaces available in the segment. Fairfax (83 percent) and Prince William (80 percent) Counties also have a rate higher than the statewide average for Park-and-Ride utilization, which is 76 percent.

Comparable Travel Options

DC to Manassas

Inter-City Bus	*Train*
11 Trips per Day 1:20 Travel Time $8 Est. Cost	11 Trips per Day 1:15 Travel Time $10 Est. Cost

Auto

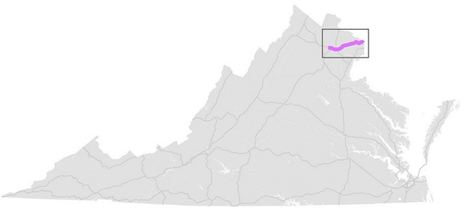
Via I-66: 0:45 Travel Time $18 Est. Cost
Via Rt. 50 / I-66: 1:01 Travel Time $18 Est. Cost

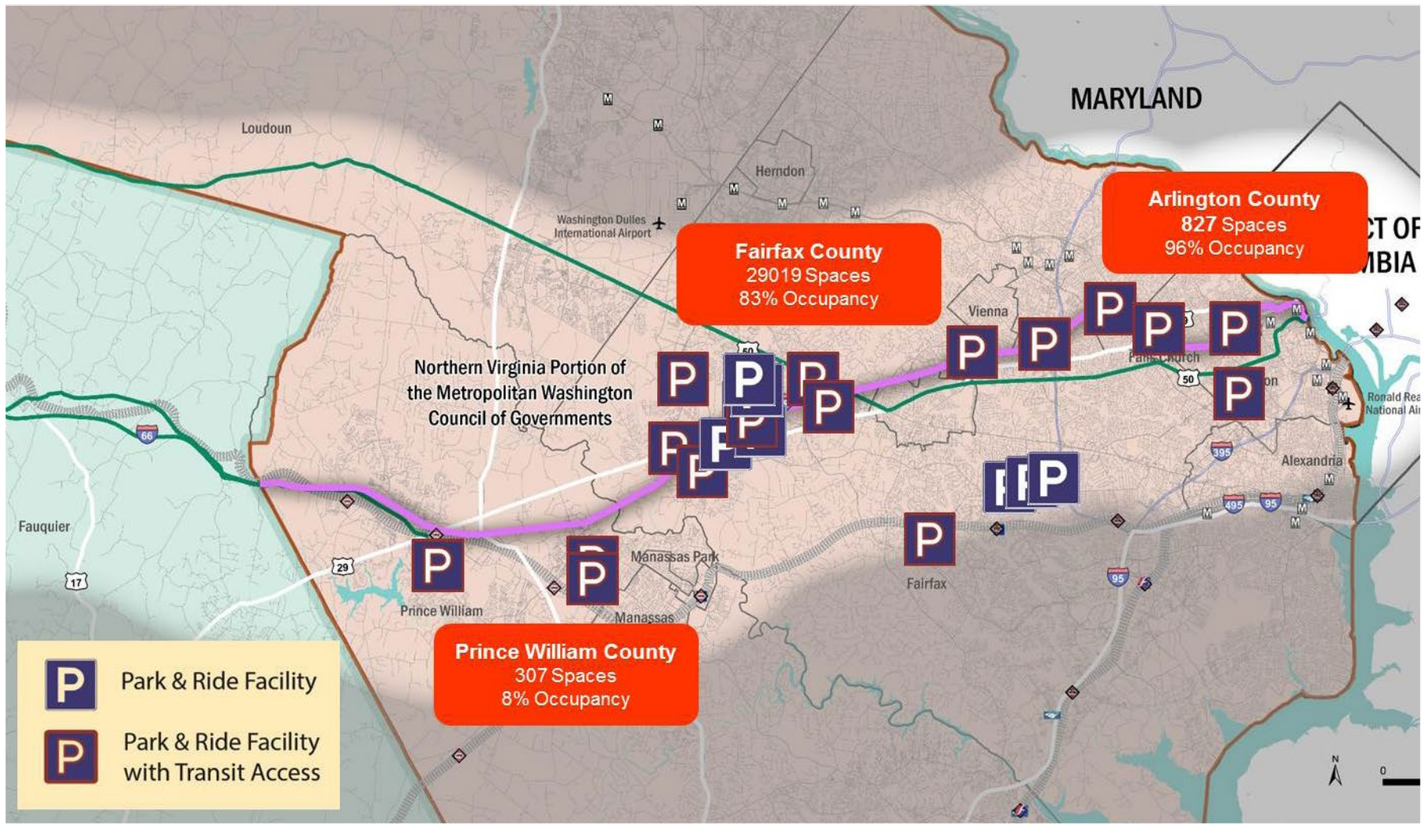
Manassas to Winchester

Inter-City Bus	*Train*
0 Trips per Day 0:00 Travel Time $0 Est. Cost	0 Trips per Day 0:00 Travel Time $0 Est. Cost

Auto

Via I-66: 1:05 Travel Time $30 Est. Cost
Via Rt. 50 / I-66: 1:04 Travel Time $30 Est. Cost

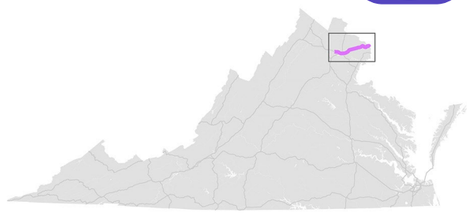




H2 SEGMENT NEEDS

Safety

Between 2010 and 2012, 391 severe crashes occurred on Segment H2, resulting in the highest crash rate on the Northern Virginia Corridor. The highest concentrations of severe collisions along Segment H2 occurred between Centreville and the District of Columbia. Along US 50 (Lee Jackson Memorial Highway) in Fairfax County, there were 46 crashes near Fair Oaks Mall. Of the 46 crashes, 29 occurred at the intersection with Fair Ridge Drive. On US 50 (Lee Jackson Highway/Fairfax Boulevard) in the City of Fairfax, there were 75 incidents that took place over approximately 3.6 miles between the I-66 W on-ramp and Campbell Drive. Of the 75 incidents, 26 occurred over a distance of 0.7 miles between Main Street and McLean Avenue. On US 50 (Arlington Boulevard) west of I-495, there were 32 crashes near the intersection with Prosperity Avenue. On US 50 (Arlington Boulevard) east of I-495, there were 24 collisions that occurred over approximately 0.6 miles between Fenwick Road and Wallace Drive. On US 50 (Arlington Boulevard) in Arlington, 23 crashes took place within about 0.3 miles between North Jackson Street and Fenwick Street.



Performance Metrics:

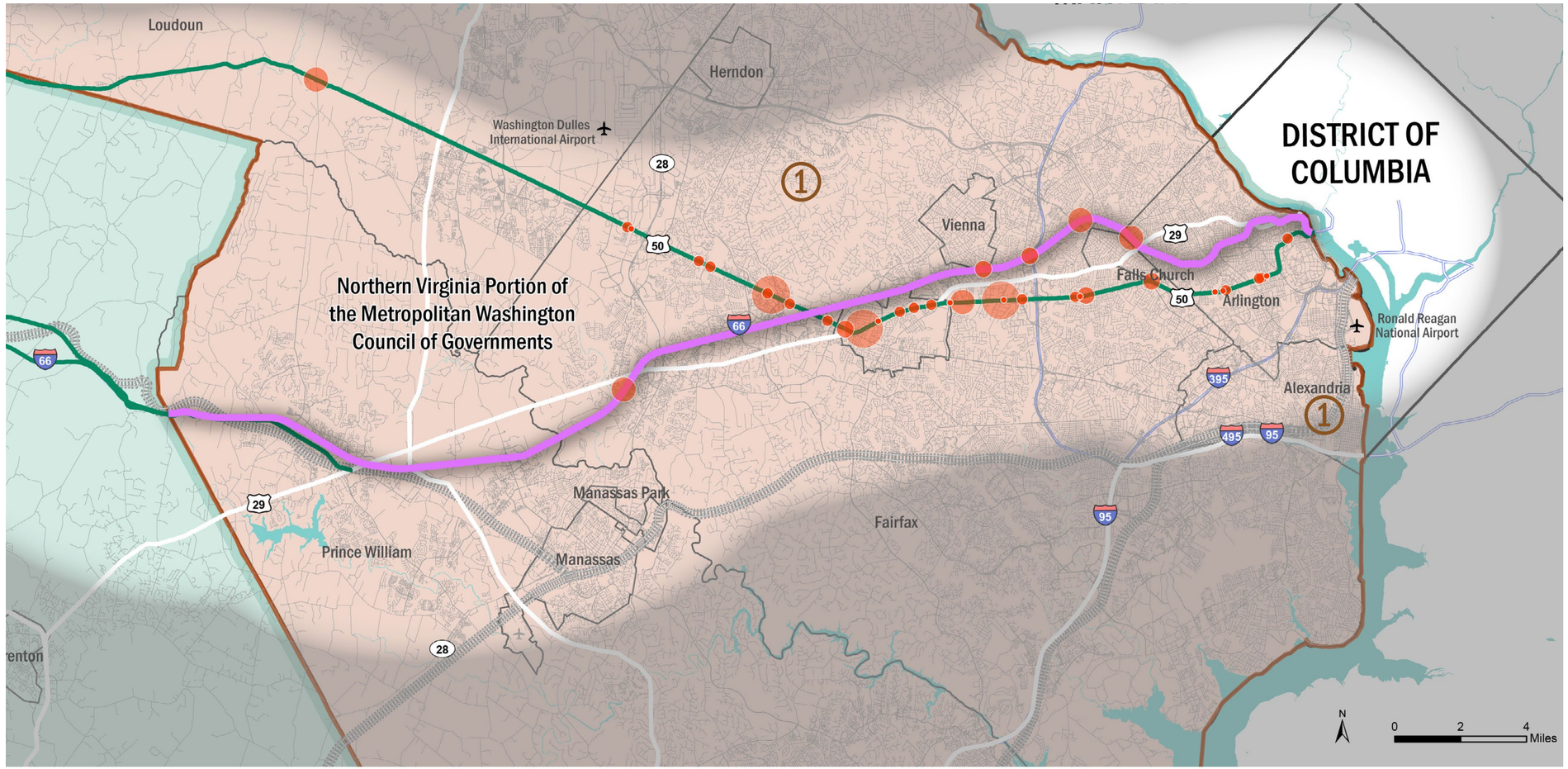
Number of Severe Crashes	391
Severe Crashes/Million VMT	0.9
Number of Railroad Crashes	2

Fatality and Injury Crashes (2010 - 2012)

- < 5
- 5 - 10
- 11 - 15
- 16 - 20
- > 20

Railroad Incidents/Accidents per County (2011-2014)

#



Congestion

Performance Metrics:

Person Hours of Delay per Mile 210

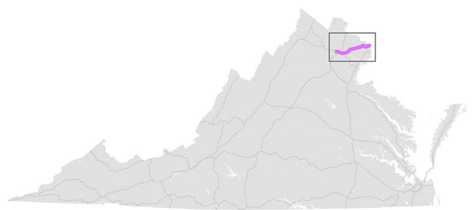
Freight Ton Hours of Delay per Mile 17.1K

Passenger Delays

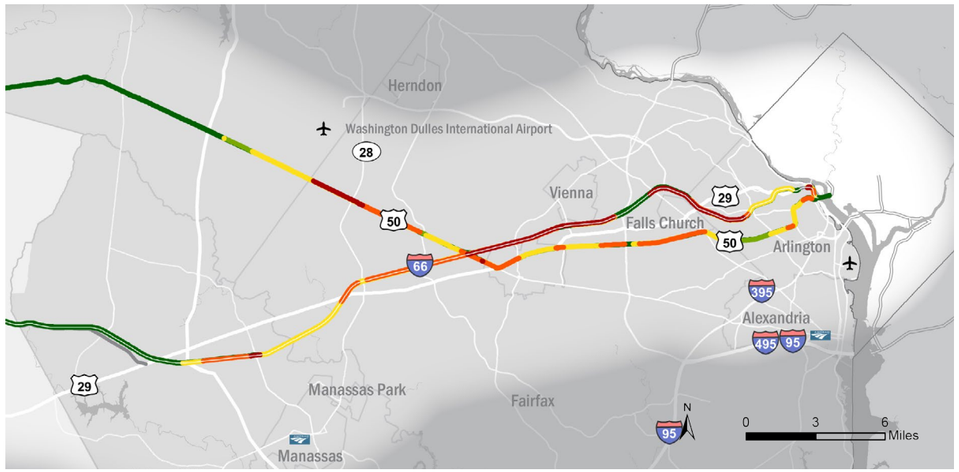
Passenger congestion is far more substantial along Segment H2 than H1, with total daily passenger delays exceeding 29,000 person-hours. On a per-mile basis, Segment H2 has the highest passenger delay among CoSS segments at 210 person-hours per mile. There are significant passenger delays at almost all locations in Segment H2, including I-66 east of Route 234 near Manassas and US 50 east of Route 606 near Dulles Airport. The worst passenger delays (exceeding 1,000 person-hours per mile of delay) occur on I-66 east of US 50 in Fairfax County. Peak-period passenger delays along Segment H2 account for 58 percent of daily congestion, which is considerably higher than the peak-period share of congestion along Segment H1. All lanes on I-66 east of I-495 are open only to HOV traffic from 6:30 to 9:00 a.m. in the eastbound direction and from 4 to 6:30 p.m. in the westbound direction.

Freight Delays

Freight delays along Segment H2 are minimal relative to passenger congestion, with around 2.4 million ton-hours of delay. Freight congestion is so low on Segment H2 due to the low level of truck traffic caused in part by truck restrictions east of I-495. As such, there are no locations of significant freight delay along Segment H2. Peak period freight delay on Segment H2 accounts for 78 percent of daily freight congestion, which is the highest peak-period share of congestion among CoSS segments.

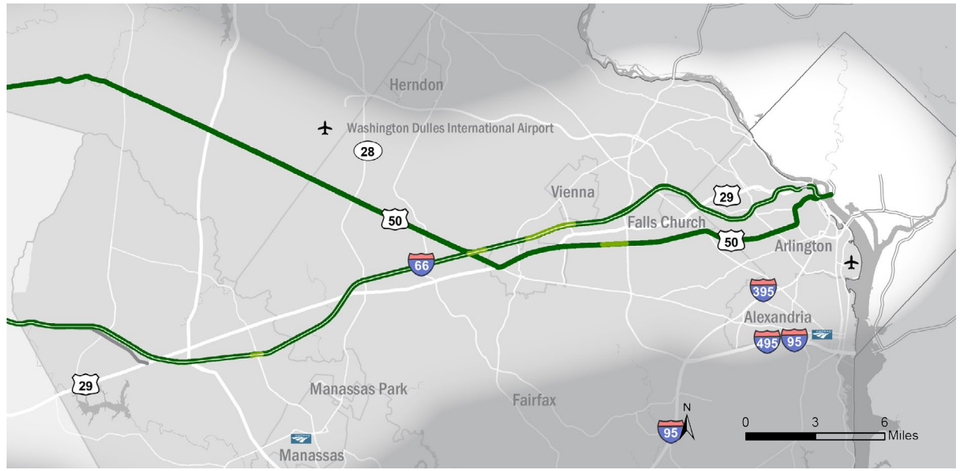


Daily Person Hours of Delay per Mile



< 50
51 - 100
101 - 250
251 - 500
> 500

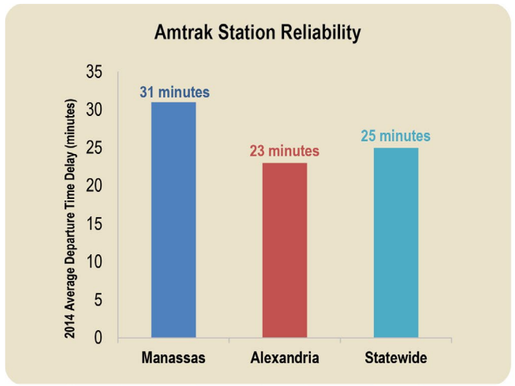
Daily Freight Ton Hours of Delay per Mile



< 100,000
100,001 - 250,000
250,001 - 500,000
500,001 - 1,000,000
> 1,000,000

H2 SEGMENT NEEDS

Reliability



VRE On-Time Performance

Manassas Line

93%

WMATA On-Time Performance

Orange Line

91%

Silver Line

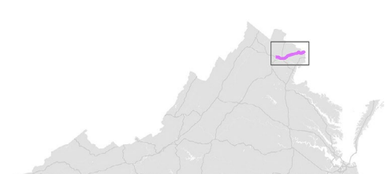
88%

Reliability Index

- < 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- > 0.8
- Primary facility (in white)

Statewide reliability index thresholds have been set for weekday peak, weekday and weekend travel to assess the reliability of travel on each segment on all corridors of statewide significance. A higher reliability index indicates that travel times are more unreliable. The following are the reliability index thresholds:

- Weekday Peak - 0.80
- Weekday - 0.40
- Weekend - 0.60



Weekday Peak

Reliability of travel during the peak period on a typical weekday on Segment H2 ranges from 0.04 to 1.38 in terms of reliability index, with an average value of 0.29. This segment has one of the highest peak period reliability index values of CoSS segments statewide, and locations where the weekday peak reliability index exceeds the statewide threshold include:

- US 50 near I-66 in Fairfax County;
- I-66 near Route 234 in Gainesville;
- I-66 near the interchange with US 50 in Fairfax County;
- I-66 near the interchange with Nutley Street near Vienna;
- I-66 near Gallows Road in Fairfax County; and
- I-66 near the merge with the Dulles Toll Road where four eastbound lanes merge into two.

Weekday

Reliability of travel during a typical weekday ranges from 0.03 to 0.69 in terms of reliability index, with an average value of 0.22. This segment has one of the highest weekday reliability index values of CoSS segments statewide, and locations where the weekday reliability index exceeds the statewide threshold include:

- US 50 at the intersection with US 29 in the City of Fairfax;
- I-66 near Route 234 in Gainesville; and
- I-66 east of US 50 in Fairfax County.

Weekend

Reliability of travel during a typical weekend ranges from 0.00 to 1.00 in terms of reliability index, with an average value of 0.17. This segment has one of the highest weekend reliability index values of CoSS segments statewide, and locations where the weekend reliability index exceeds the statewide threshold include:

- US 50 east of Route 606 in Loudoun County;
- US 50 just south of I-66 near the City of Fairfax;
- I-66 just east of the interchange with US 50 in Fairfax County; and
- I-66 between Nutley Street and Gallows Road in Fairfax County.

Summary of Needs

Identified locations are approximate. See "Summary of Needs" table on the following page for details.

Redundancy

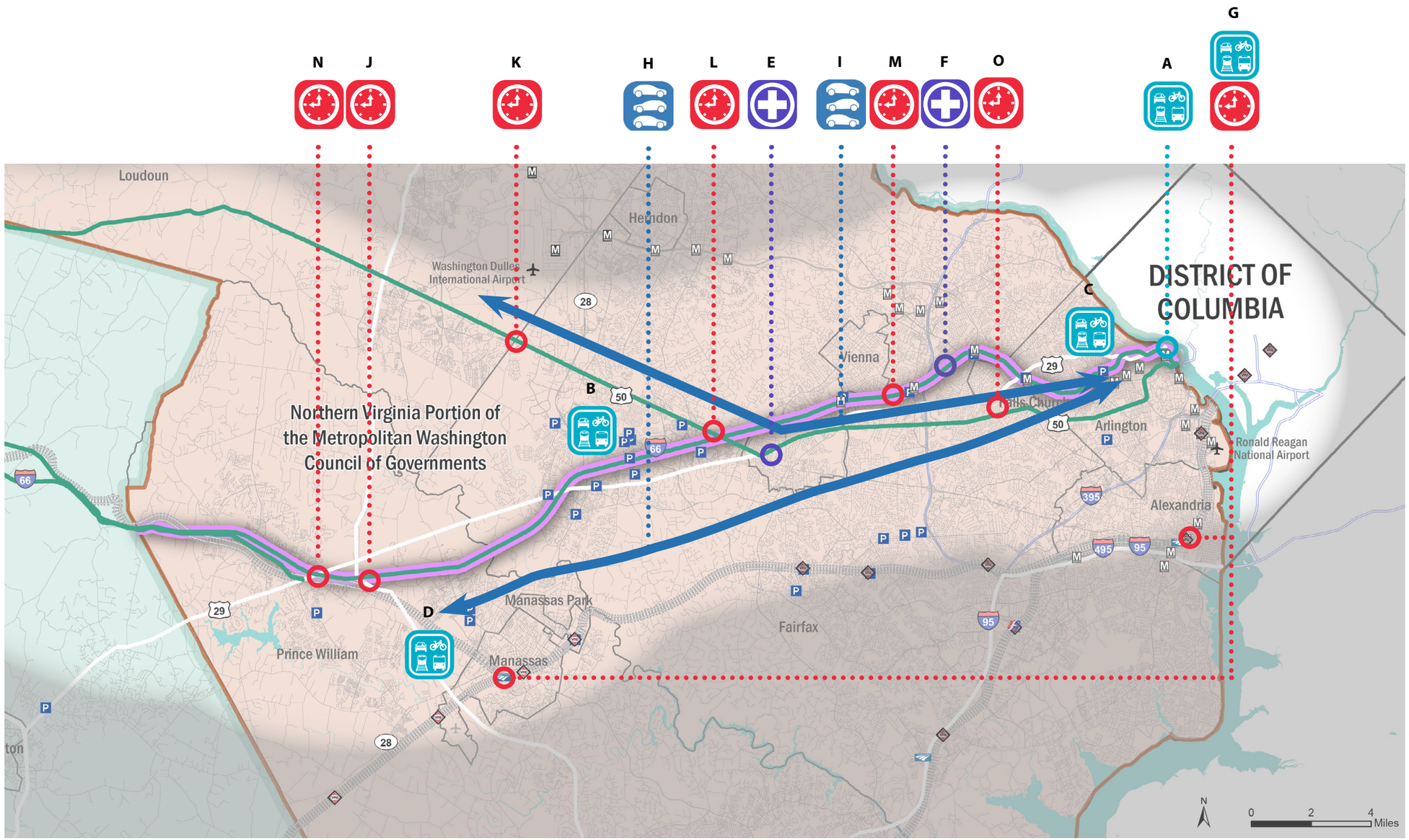
Mode Choice

Safety

Congestion

Bottlenecks

Reliability



H2 SEGMENT NEEDS

Summary of Needs - H2 Segment

A.		Orange Line Metrorail Over capacity in many portions of the corridor; Potomac River crossing at Rosslyn at capacity
B.		Park and Ride lots in Fairfax County have higher utilization rates than statewide average
C.		Park and Ride lots in Arlington County have higher utilization rates than statewide average
D.		Park and Ride lots in Prince William County have higher utilization rates than statewide average
E.		US 50 between Fairfax County Pkwy and Gallows Rd: 181 severe crashes
F.		I-66 between Gallows Rd and US 29 in East Falls Church: 62 severe crashes
G.		Unreliable Amtrak service from Alexandria station (23 minutes average departure delay) and Manassas Station (31 minutes average departure delay) totaling over 42,500 person-hours of delay from this segment.

Summary of Needs - H2 Segment

H.		Congestion issue on I-66 from Exit 44 (US 234) to Exit 73 (US 29)
I.		Congestion issue on US 50 from VA Route 606 (Loudoun County Parkway) to I-66 and George Washington Memorial Parkway
J.		Reliability issue on I-66 at Exit 44 (VA Route 234)
K.		Reliability issue on US 50 between VA Route 606 (Loudoun County Parkway) and VA Route 28
L.		Reliability issue on US 50 at I-66 interchange
M.		Reliability issue on I-66 from Exit 57 (US 50) to Exit 69 (US 29) in Fairfax County
N.		Reliability issue on I-66 at Exit 43 (US 29)
O.		Reliability issue at US 50 and US 29 in Fairfax County