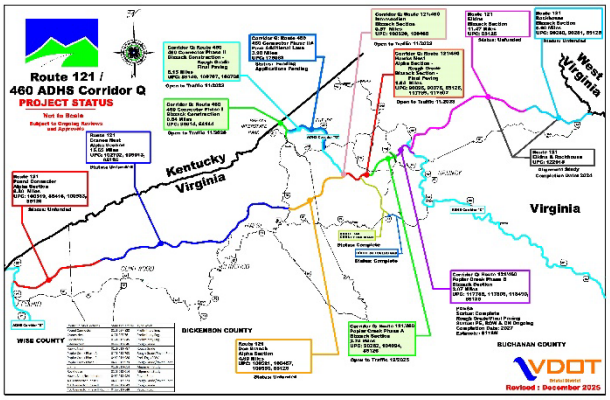
ATCS

Coalfields Expressway Preliminary Engineering Study – Future Conditions

Bristol District, Virginia

December 2025

Executive Summary



The 2045 Future Conditions analysis demonstrates that the Coalfields Expressway (CFX) is expected to deliver substantial improvements to mobility, safety, freight movement, and regional competitiveness across Wise, Dickenson, and Buchanan counties. Current east–west travel relies on steep, winding rural routes such as VA 83, which are projected to face increased operational constraints under future demand. By 2045, truck traffic along US 23 is expected to exceed 62,000 AADT, while segments of VA 83 may see increases to 30,000 trucks per day, representing a more than fivefold increase in some locations. Under these conditions, roadway geometry, steep grades, and limited passing opportunities are anticipated to contribute to operational challenges, with segments expected to operate at lower LOS, particularly near Grundy. Development of CFX would address these deficiencies by providing a modern, limited-access corridor with sufficient capacity to meet long-term transportation needs.

The region is expected to continue shifting from coal dependency toward industries such as light manufacturing, logistics, renewable energy, and IT infrastructure, with increased freight demand projected from materials such as gravel, nonmetallic mineral products, and timber. Because truck freight is expected to remain the dominant mode, CFX would enhance commercial route reliability and provide improved access to strategic industrial growth areas like Southern Gap Business Park and Red Onion Industrial Park. With forecast truck volumes and direct connectivity to major freight corridors (US 23 and US 460), the corridor may be eligible for future consideration as a Critical Rural Freight Corridor (CRFC), supporting future competitiveness for federal freight-related funding.

CFX is also projected to significantly improve regional access to essential services. Travel time reductions of up to 40% are estimated between Grundy or Haysi and Wise or Abingdon, supporting improved access to healthcare, emergency services, education, and workforce development institutions. Stakeholder input reinforced that improved transportation connectivity would support population retention, attract new employers, and reduce barriers to economic participation and training opportunities.

Though detailed resiliency analysis was limited by data availability, the region remains vulnerable to flooding, winter storms, landslides, and other hazards, which can isolate communities due to a lack of redundancy in the existing network. The CFX would enhance emergency access and reduce dependence on lower-standard mountain roadways susceptible to closure, improving safety and reliability.

In summary, the Future Conditions analysis confirms that completion of the Coalfields Expressway would provide long-term transportation, economic, and safety benefits. The corridor is well-positioned to support regional transition beyond coal, strengthen industrial and workforce mobility, and improve overall resiliency and access for historically underserved communities.

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Overview and Purpose

This Future Conditions Report provides an assessment of transportation, freight activity, safety, economic conditions, and regional mobility for the Coalfields Expressway (CFX) corridor, focusing exclusively on projected circumstances for the year 2045. The information is presented based on anticipated performance, planned network changes, and expected demographic and economic trends within Wise, Dickenson, and Buchanan Counties. By concentrating on future trends, the analysis creates a reference point to evaluate the long-term advantages of the CFX, highlighting where increased travel demand, freight transport, and regional development by 2045 will require better east–west connections. The report supports upcoming corridor planning, helps prioritize investments, and guides strategy formulation consistent with the CFX Roadmap Themes.

Study Area and Impact Area

The 2045 impact area includes the full CFX corridor from Pound, VA, to the West Virginia state line east of Slate, VA, along with key parallel and connecting routes: VA 83, US 23, US 58, and US 460. By 2045, the study area is projected to experience modest population shifts, continued economic transition away from coal, and increased dependence on safe, reliable highway access for freight and regional mobility. The corridor connects major community assets, including hospitals, higher education institutions, industrial sites, and workforce centers, and will increasingly function as the primary east–west freight and travel corridor for the region. Highway geometry, roadway capacity limitations, and mountainous conditions on existing facilities underscore the need for the higher-capacity system envisioned through the CFX.

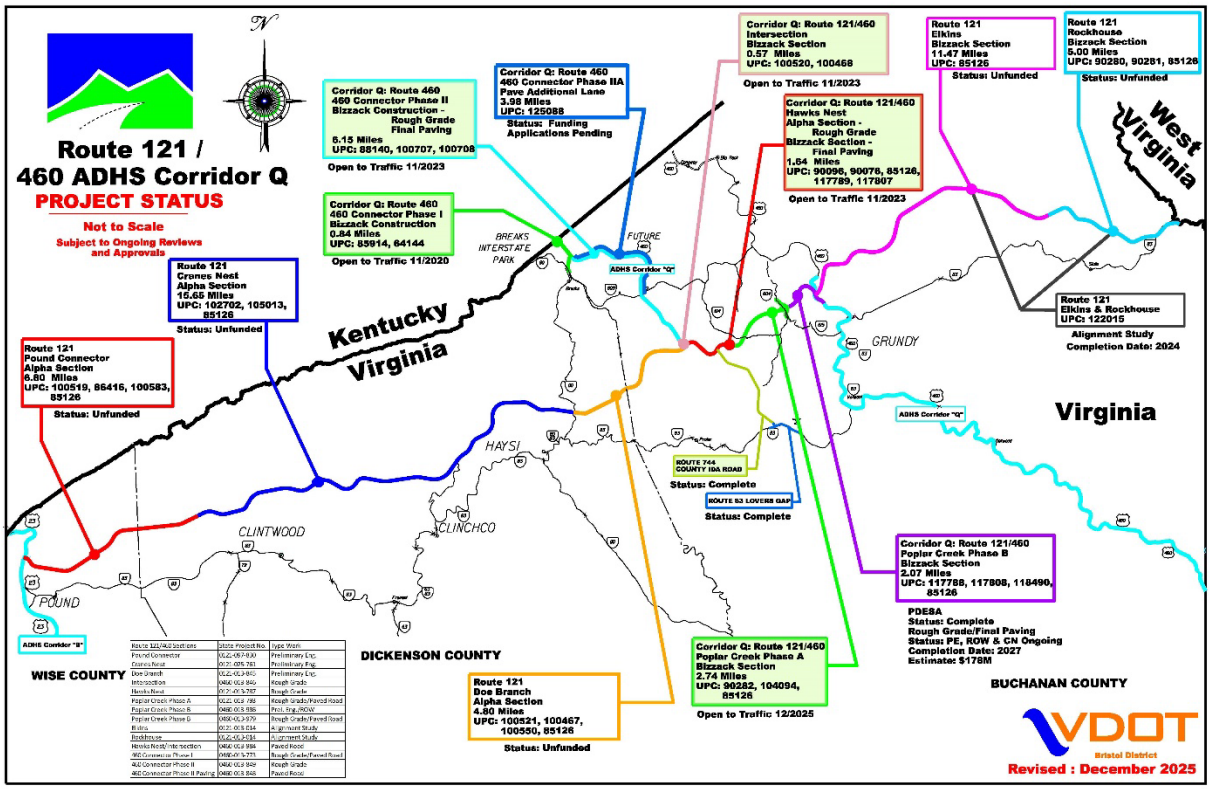

Figure 1. Coalfields Expressway Project Status (December 2025)

Future Conditions

Current Roadway Network

By 2045, from the estimated average USDOT FAF (Freight Analysis Framework) daily volumes for trucks, the region's transportation system will be under more strain from increasing truck traffic, changes in where goods are shipped, and ongoing dependence on two-lane rural roads for east–west travel. VA 83, which is still the main road, will continue to have issues in 2045 due to its sharp turns, steep inclines, varying shoulder widths, and sections with speed restrictions. These factors restrict both truck movement and emergency access, even as travel needs keep rising.

Community facilities such as regional hospitals, EMS stations, law enforcement centers, and higher education institutions continue to rely heavily on VA 83 and US 460 for primary access. Emergency response times remain challenged by roadway geometry and congestion in key locations. By 2045, the projected increase in truck volumes intensifies these operational challenges.

Freight-dependent industries across Southwest Virginia continue shifting away from coal and toward construction materials, wood products, natural gas transmission, and forestry-related commodities. These evolving freight patterns emphasize the need for an improved east–west corridor with predictable travel times and modern design standards.

Refer to **Figure 2** below for the locations of these major community facilities.

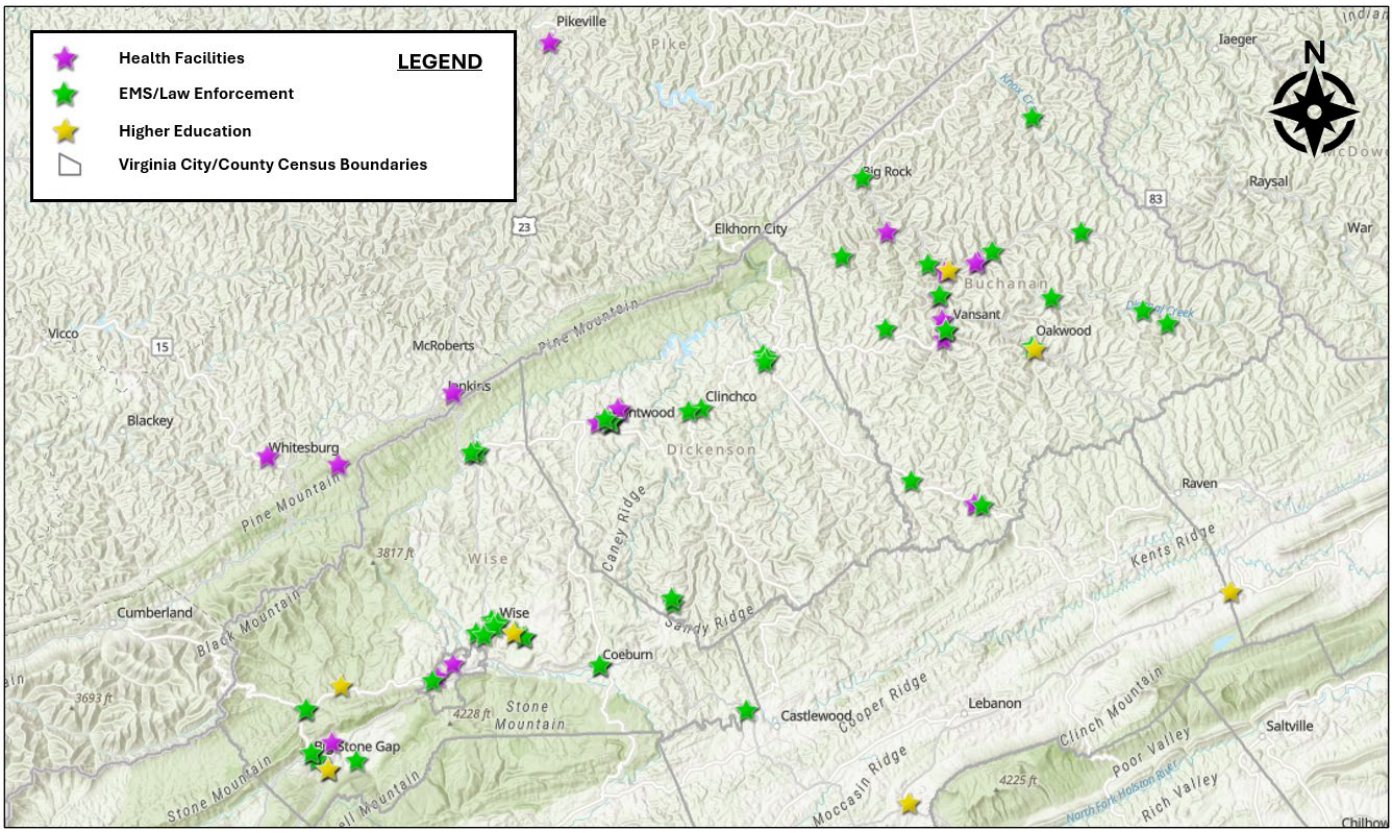

Figure 2. Existing Health, EMS, Law Enforcement, and Higher Education Facilities

Future Traffic Conditions

Future Volumes (AADTs)

By 2045, truck traffic demand is projected to increase substantially across US 23, US 460, and VA 83, highlighting intensifying regional freight pressures and the growing need for modern east–west connectivity. Along US 23, long-distance truck volumes are expected to increase by 38–44%. Near the Tennessee line, the total AADT is projected to rise from 13,000 to 63,000, reflecting continued reliance on US 23 as the region's primary north–south freight spine. Segments near Jenkins and toward Pound show comparable increases of approximately 39–40%, further demonstrating heavy north–south freight usage.

VA 83, historically a lower-volume and geometrically constrained two-lane rural route, is forecast to experience dramatic truck increases as well, with long-distance volumes rising 39–40% across multiple segments. Key locations are expected to increase from 6,000 to 29,000 trucks per day near Clintwood, 4,000 to 19,000 approaching Vansant, and 6,000 to 8,000 near Pound.

This rapid growth along segments already constrained by terrain and geometry demonstrates the region's increasing reliance on these primary corridors for goods movement and underscores the importance of

strategic investments such as CFX to improve east–west mobility, reduce truck dependency on substandard roadways, and support long-term economic competitiveness.

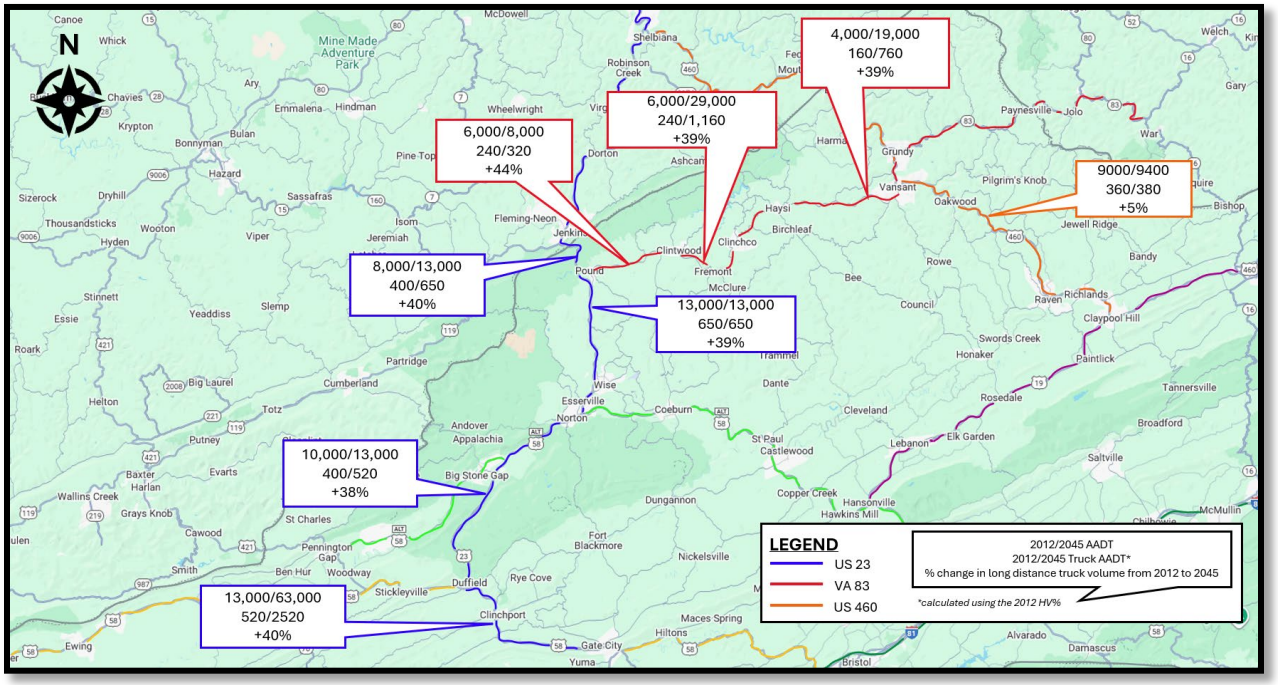

Figure 3. 2012 & 2045 AADT, Truck AADT, and Long-Distance Truck Volume Percentage Increase

Level-of-Service

Highway Capacity Software (HCS) projections for 2045 indicate that while some major routes operate at LOS B or better, several segments experience declines in performance due to increased traffic demand, particularly truck activity. Key 2045 LOS conditions include:

- **US 23 Business (Pound):** LOS C due to increased through-truck volume.
- **VA 83 – Hamilton Chapel Rd to Cooks Fork:** LOS C, reflecting growing freight movements and geometric limitations.
- **VA 83 – Clintwood to Dickenson:** LOS C, driven by increased local and long-distance truck traffic.
- **VA 83 – Deskins Road to Vansant:** LOS C, affected by capacity limitations and terrain-related speed reductions.
- **VA 83 – Grundy (US 460 to Hurley Road):** LOS D, the poorest performance in the study area, highlighting a key future bottleneck.

By 2045, these operational constraints reinforce the need for a limited-access facility such as CFX to accommodate future demand, reduce congestion at choke points, improve safety, and provide consistent travel times for freight and passenger travel.

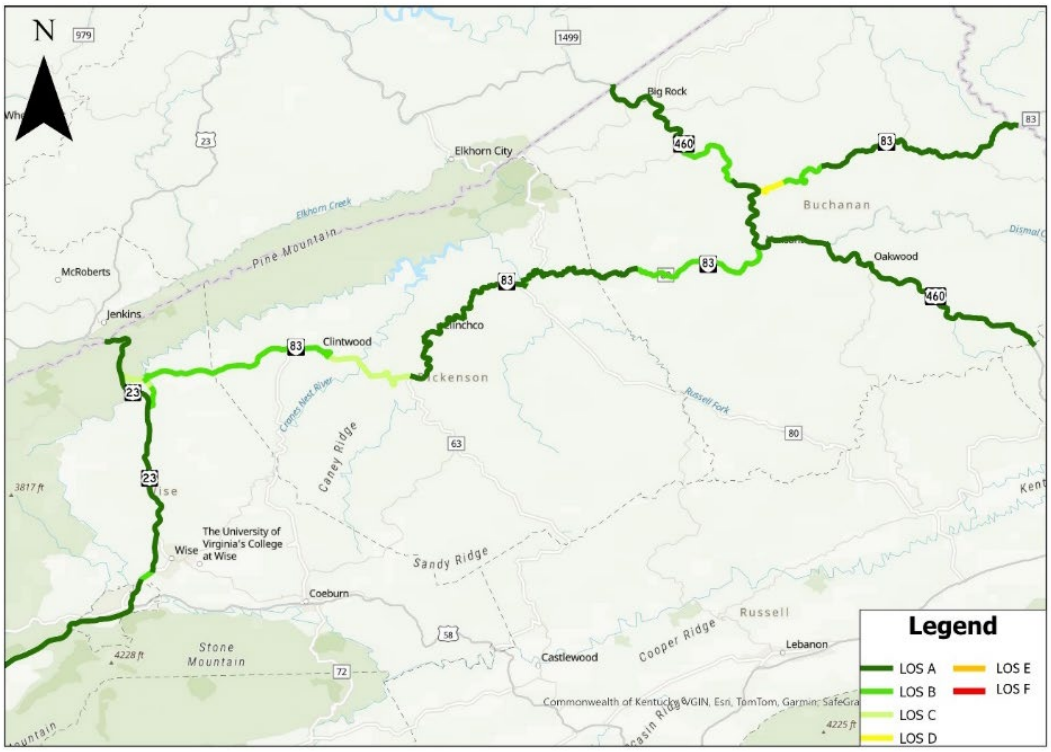

Figure 4. Level-of-Service for all vehicles based on 2019 AADTs

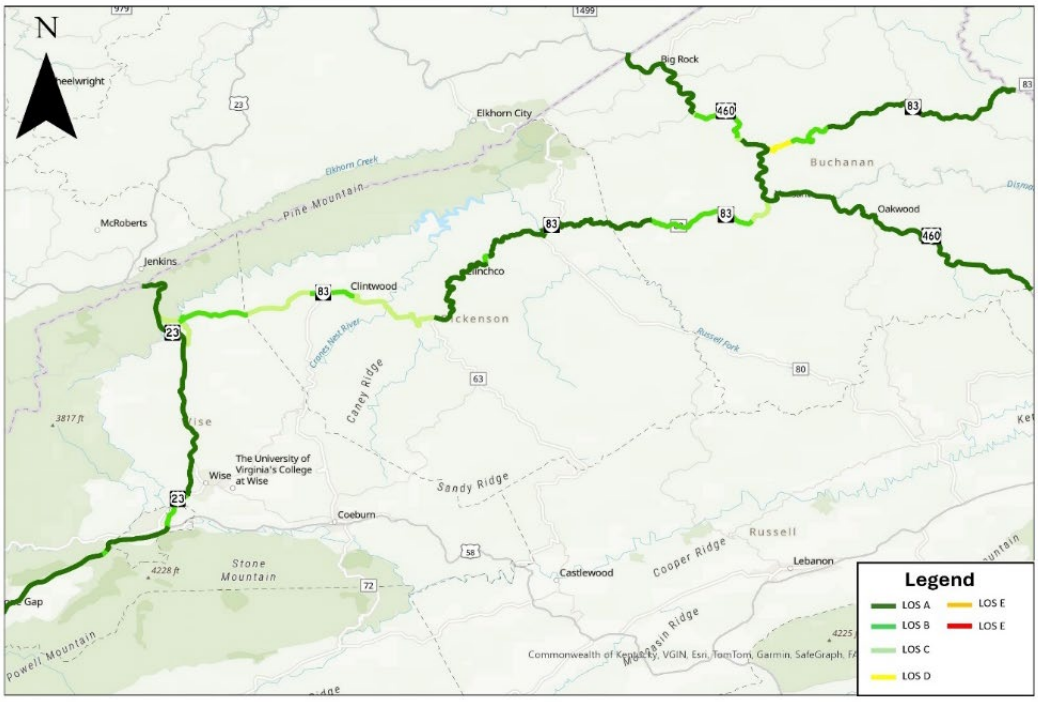

Figure 5. Level-of-Service for all vehicles based on 2045 AADTs

Future Transportation Infrastructure

Rail and Intermodal Facilities & Land Use Considerations

Freight and Commodity Outlook in 2045 and Beyond

Future freight activity analysis across Southwest Virginia is provided by long-term FAF projections through 2050. These trends directly influence 2045 conditions, with clear indicators of rising truck dependency:

- Truck freight dominates future movement, increasing from 86,148 Ktons (2017) to over 125,900 Ktons by 2050, with the upward trend fully in effect by 2045.
- Coal shipments decline sharply, decreasing nearly 90% by 2050, with reductions already well-established by 2045.
- Gravel, logs, nonmetallic minerals, and wood products all show significant long-term growth, driving higher truck demand on the regional network.
- Pipeline freight (primarily natural gas) remains strong and continues to play a role in the region's economic transition.

Freight Analysis Framework (FAF) Context

The FAF "Rest of Virginia" Zone (**Figure 6**) represents a broad geographic area capturing the freight dynamics of rural and Appalachian regions.

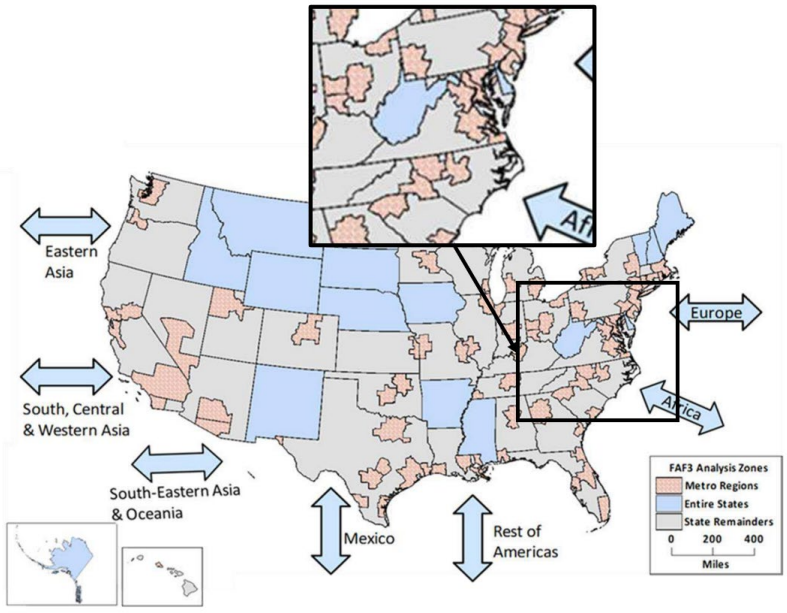

Figure 6. FAF Analysis Zones

- **Included:** Southwest Virginia and adjacent rural localities.
- **Excluded:** Richmond, Hampton Roads, and Northern Virginia regions.

This distinction allows a focused look at freight patterns more representative of the CFX corridor and surrounding counties.

Freight Corridors and Connectivity (2045)

In 2045, the predominant freight routes remain I-81 and I-77 to the east, with VA 83 and US 460 continuing to carry regional truck traffic despite geometric and operational challenges. The ADHS Corridors B and Q remain critical long-distance connectors, but their efficiency is limited by the lack of an improved east–west link through the coalfields. The new facility would provide access for all three counties to economic centers in Kentucky across the state line as well as give Kentucky businesses access to economic development zones in southwestern Virginia.

CFX by providing a direct connection between Corridors Q and B, would improve access to new markets not just in neighboring states but much farther afield. CFX would provide efficient and reliable connections to routes that directly go to the ports in the Hampton Roads areas and the Port of Charleston. The Port of Norfolk, which is a secondary port today for international freight, will be a key deep-water port in the future with more panmax and even super panmax container ships moving freight. The Port of Charleston is a primary port on the east coast along with New York/New Jersey and Savanna, GA.

Completion of the CFX would provide:

- A critical new east–west freight connection.
- **Reduced travel times** between industrial centers and Appalachian markets.
- **Improved reliability and safety** for long-distance truck routes currently sensitive to terrain, congestion, and weather.

Significant Freight Trends (2017–2050)

Top Commodities moving within the "Rest of VA"

Significant Trends, as shown in **Figure 7**:

- Gravel, logs, nonmetal mineral products and wood product shipments are projected to **increase** by 2050. Coal is projected to **decrease** by 2050, with projections of 22,000 Ktons in 2017 and 2,100 Ktons in 2050.

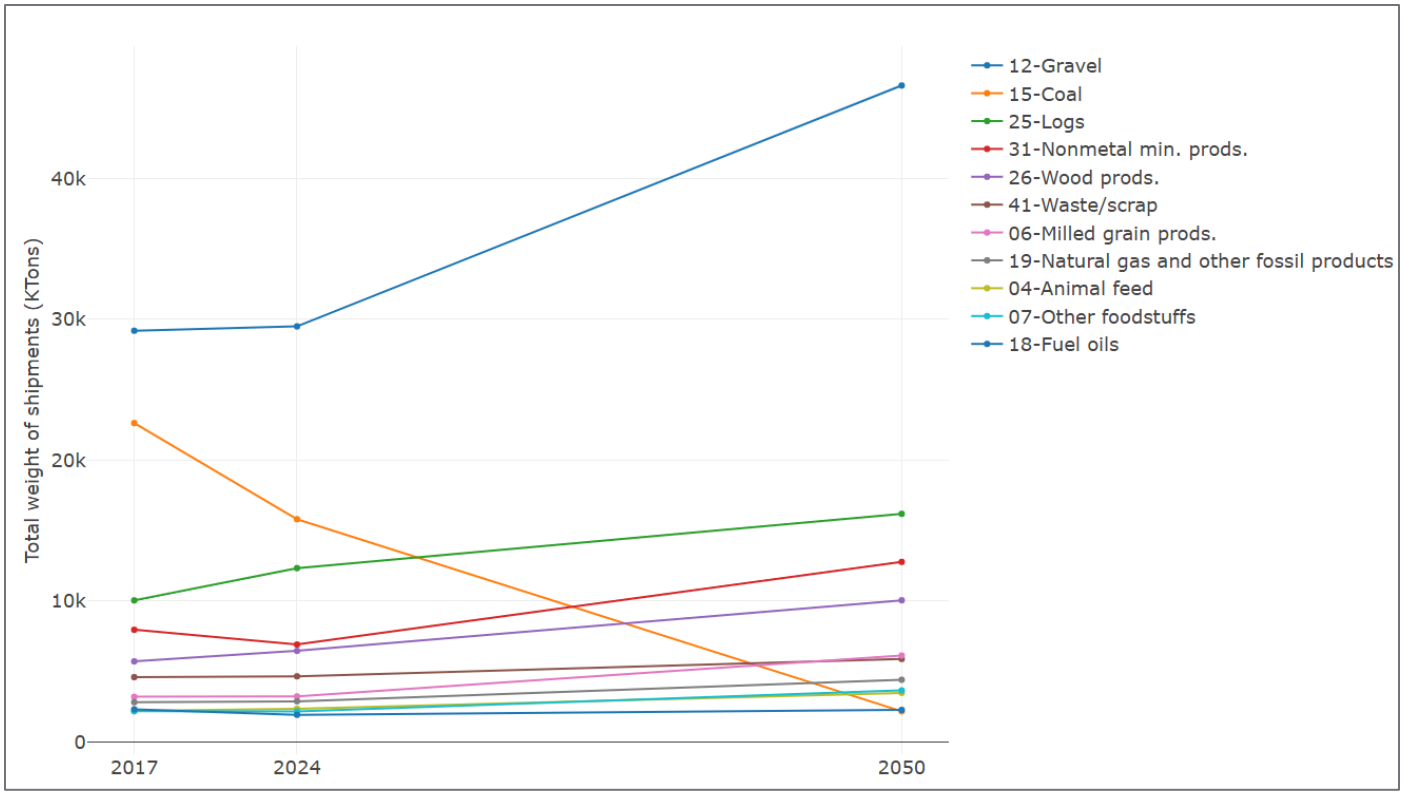

Figure 7. Total Weight of Shipments by Commodity within the "Rest of VA"

As shown in **Table 1**, in 2017, the top commodities moving within the "Rest of Virginia" freight zone were dominated by coal and construction-related materials such as gravel. By 2050, significant shifts are projected in both the type and mode of freight movement. Gravel shipments by truck are expected to increase by approximately 60%, reflecting growth in construction and infrastructure activity across the region. In contrast, coal shipments are projected to decline sharply, by about 90% for both truck and multiple modes/mail transport, highlighting the ongoing transition away from coal dependency toward more diversified freight and economic activity.

Table 1. Mode Split for Top Commodities within the "Rest of VA"

Commodity	Mode	Thousand Tons (2017)	Thousand Tons (2024)	Thousand Tons (2050)
Gravel	Truck	28,822.7	29,126.6	46,002.3
Coal	Multiple modes & mail	16,595.0	11,595.4	1,602.6
Logs	Truck	10,055.9	12,343.4	16,196.2
Nonmetal min. prods.	Truck	7,943.3	6,901.3	12,742.0
Coal	Truck	6,041.6	4,221.4	583.4

Top Commodities Originating from the "Rest of VA"

Significant Trends, as shown in **Figure 8**:

- Gravel, natural gas and other fossil products, wood products, logs, and other foodstuff shipments are projected to **increase** by 2050. Coal is projected to **decrease** by 2050, with projections of 33,790 Ktons in 2017 and 5,661 Ktons in 2050. Additionally, cereal grains are projected to **decrease** in 2050.

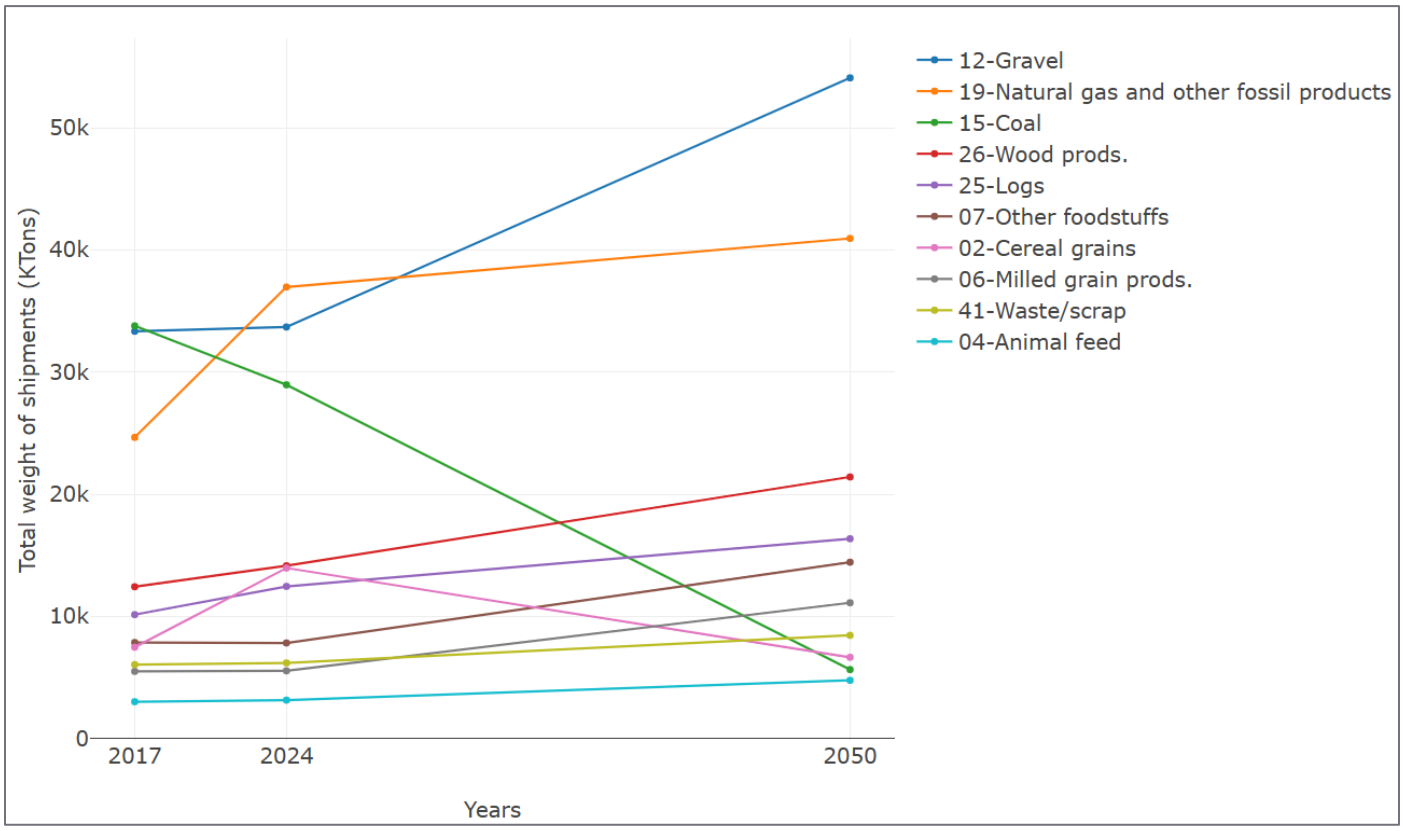

Figure 8. Total Weight of Shipments by Commodity from the "Rest of VA"

As shown in **Table 2**, in 2017, key commodities originating from the “Rest of Virginia” freight zone included gravel, natural gas and other fossil products, wood products, logs, and coal. By 2050, freight patterns are expected to shift notably, with increases in gravel transported by truck, natural gas and other fossil products moved by pipeline, and both wood products and logs carried by truck. Conversely, coal shipments moved by multiple modes and mail are projected to decline significantly, underscoring the region’s continued transition away from coal toward more diversified and sustainable freight activities.

Table 2. Mode Split for Top Commodities originating from the "Rest of VA"

Commodity	Mode	Thousand Tons (2017)	Thousand Tons (2024)	Thousand Tons (2050)
Gravel	Truck	32,550.7	32,894.0	53,067.9
Natural gas and other fossil products	Pipeline	22,322.3	35,604.7	36,946.2
Coal	Multiple modes & mail	17,657.3	14,627.4	2,108.7
Wood prods.	Truck	12,321.0	13,982.5	2,1224.7
Logs	Truck	10,150.4	12,458.6	16,360.4

Top Commodities with the Destination of the "Rest of VA"

Significant Trends, as shown in **Figure 9**:

- Gravel, logs, nonmetal mineral products and wood product shipments are projected to **increase** by 2050. Coal is projected to **decrease** by 2050, with projections of 24,957 Ktons in 2017 and 2,282 Ktons in 2050. Additionally, cereal grains are projected to **decrease** in 2050.

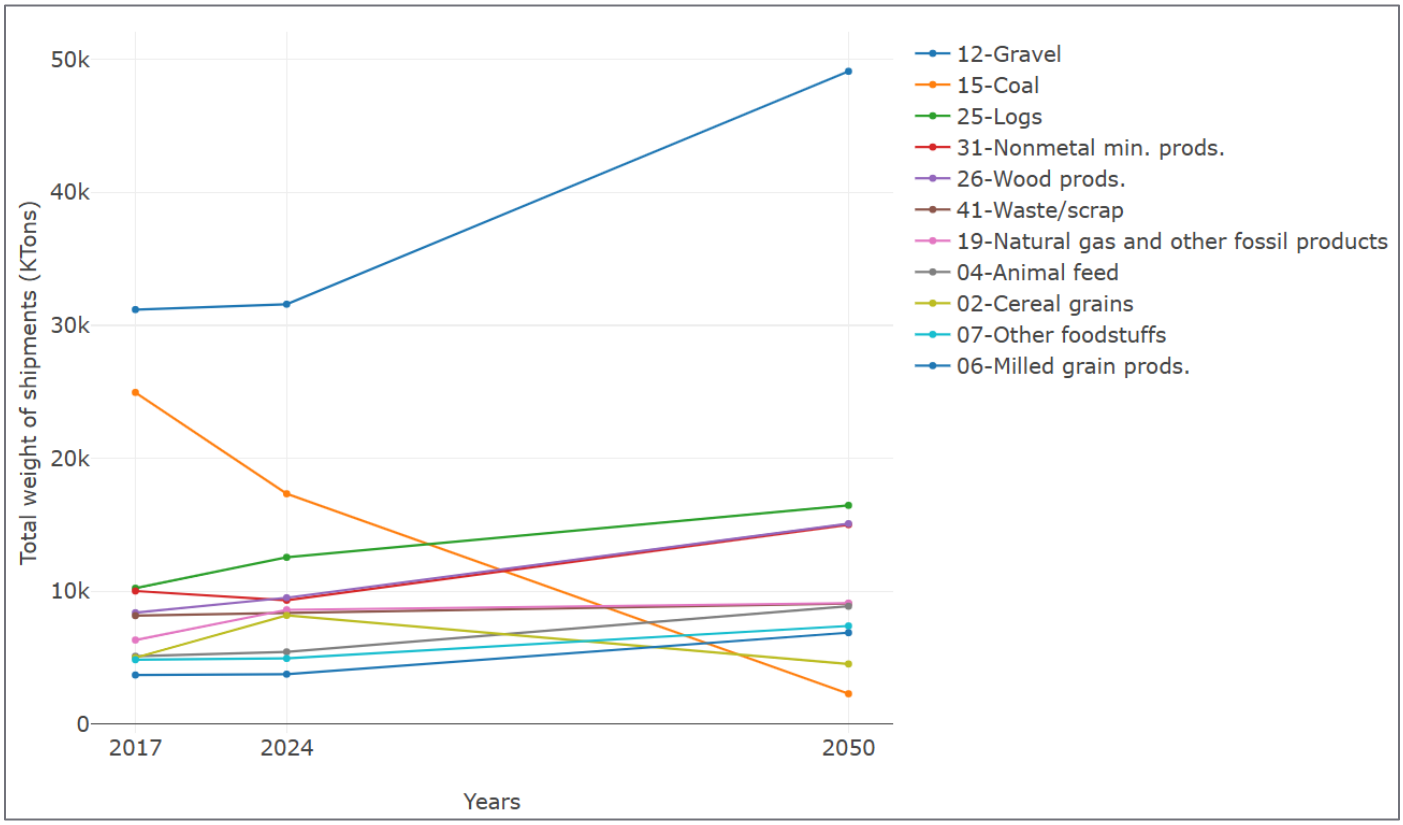

Figure 9. Total Weight of Shipments by Commodity with the destination of "Rest of VA"

As shown in **Table 3**, in 2017, the primary commodities destined for the "Rest of Virginia" freight zone included gravel, logs, nonmetallic mineral products, wood products, and coal. By 2050, notable growth is anticipated in truck shipments of gravel, logs, nonmetallic mineral products, and wood products, reflecting expanding demand in construction and manufacturing sectors. In contrast, coal shipments moved by multiple modes and mail are projected to decrease substantially, continuing the region's broader shift away from coal toward more diversified freight activity and resource-based industries.

Table 3. Mode Split for Top Commodities with Destination of the "Rest of VA"

Commodity	Mode	Thousand Tons (2017)	Thousand Tons (2024)	Thousand Tons (2050)
Gravel	Truck	30,401.4	30,750.4	47,796.1
Coal	Multiple modes & mail	16,595.0	11,595.4	16,02.6
Logs	Truck	10,224.3	12,549.7	16,460.9
Nonmetal min. prods.	Truck	9,964.0	8,941.1	14,938.3
Wood prods.	Truck	7,982.9	9,036.1	14,392.5

Top Freight Modes of Transportation within "Rest of VA"

Significant Trends, as shown in **Figure 10**:

- Truck shipments are projected to dominate future freight movement, **increasing** from 86,148 Ktons in 2017 and 125,925 Ktons in 2050, which emphasizes the need for reliable, high-capacity highways in the area, such as the CFX. There is a projected **decrease** in multiple modes and mail, with projections of 16,636 Ktons in 2017 and 1,678 Ktons in 2050. This decrease is largely attributable to reductions in coal shipments and limited intermodal connectivity.

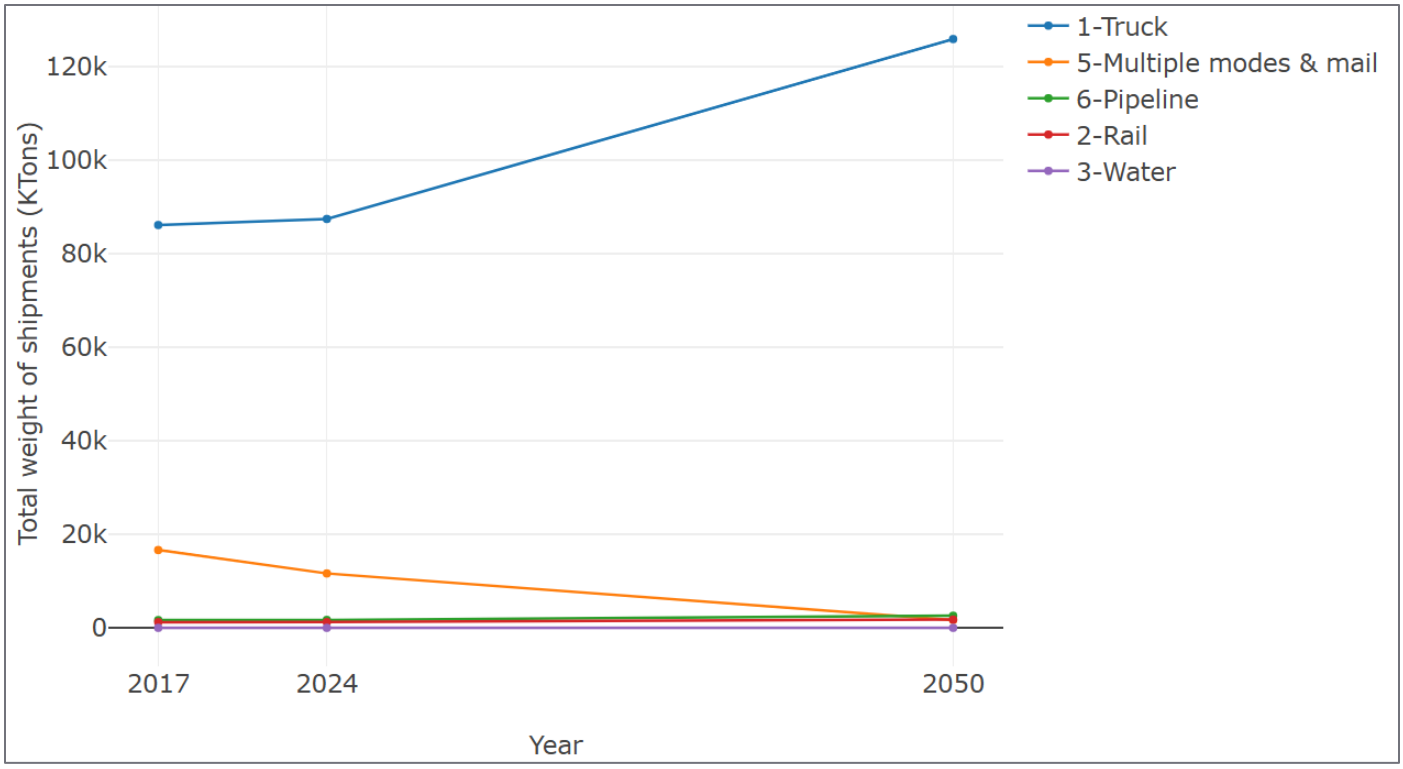

Figure 10. Total Weight of Shipments by Mode within the "Rest of VA"

Virginia Beach, Norfolk, and Newport News

As shown in **Table 4**, in 2017, most commodities exported from the Virginia Beach, Norfolk, and Newport News area were transported primarily by truck. Between 2017 and 2050, exports of nonmetallic mineral products and gravel are projected to increase significantly, indicating growth in construction-related freight activity. Waste and scrap exports are expected to remain relatively stable over this period. Natural gas and other fossil product exports are projected to decline around 2024 before rebounding by 2050, while shipments of natural sands are anticipated to rise by approximately 60%, reflecting expanding industrial and infrastructure demand.

Table 4. Top Commodities Transported from Virginia Beach, Norfolk, and Newport News

Commodity	Mode	Thousand Tons (2017)	Thousand Tons (2024)	Thousand Tons (2050)
Nonmetal min. prods.	Truck	5,125.0	5,612.1	9,065.0
Gravel	Truck	4,405.2	4,358.1	7,193.6
Waste/scrap	Truck	3,318.0	3,453.4	3,436.7
Natural gas and other fossil products	Truck	3,074.3	1,500.0	4,292.5
Natural sands	Truck	2,150.5	2,423.4	3,458.9

Rail and Intermodal Conditions (2045)

Rail remains present but capacity-limited in the region, particularly in Wise and Buchanan Counties (Norfolk Southern) and Dickenson County (CSX). By 2045, rail continues to serve selective markets such as natural resources, but is insufficient to offset growing truck demand. Bottlenecks near US 460 and Route 65 constrain modal flexibility, leaving the region heavily dependent on highways.

Between 2017 and 2050, commodity trends in the "Rest of Virginia" show a 60% increase in gravel transported by truck, while coal shipments by truck and by multiple modes including mail are projected to decline by 90%. Along VA 83, projections from 2012 to 2045 indicate an increase in both truck Average Annual Daily Traffic (AADT) and long-distance truck volumes.

The freight analysis demonstrates clear alignment with the **CFX Roadmap Themes**:

Table 5. CFX Themes and Freight Implications

CFX Theme	Freight Implication
1. Economic Development + Diversification	Shift from coal to wood, mineral, and construction materials underscores diversification opportunities. Improved freight mobility can attract logistics, manufacturing, and clean-energy industries.
2. Connectivity + Infrastructure + Resilience	The CFX enhances east–west access and provides alternative routing to I-81/I-77 for heavy trucks, improving reliability and reducing costs.
3. Community Building	Freight improvements stimulate job creation in logistics and support redevelopment of reclaimed mining lands for industrial use.
4. Energy + Environmental Opportunities	CFX facilitates access for renewable energy materials and reduces emissions by shortening truck routes.
5. Political + Regional + Industry Coordination	Coordinated freight planning supports cross-state corridor initiatives (e.g., ADHS) and strengthens legislative and industry coalitions for funding and investment.

Key Findings

- Freight in Southwest Virginia is shifting from coal toward construction, forestry, and energy-related commodities.
- Trucking will dominate future freight movement, emphasizing the need for safe, modern, and efficient highway infrastructure.
- The CFX can significantly improve freight travel times between resource areas, industrial parks, and regional markets.
- Improved connectivity will support economic diversification, industrial recruitment, and workforce development.
- Strategic alignment with ADHS corridors and multimodal networks will maximize regional competitiveness and resilience.

Network Analysis

By 2045, the regional highway network exhibits growing stresses from increased truck activity, population shifts, and economic diversification. Key elements of the 2045 network performance include:

- **Increasing truck volumes** on US 23, US 460, and VA 83, driven by commodity shifts and industrial growth along reclaimed mining lands.
- **Continued operational deficiencies** on VA 83 due to geometric constraints, reinforcing the safety and mobility benefits of the CFX.
- **Higher dependency on limited-access facilities** for freight movement, with I-81 and I-77 continuing to absorb the majority of long-haul traffic due to the absence of an improved east–west alternative.
- **Regional travel times remain inconsistent** in 2045 along east–west routes, impacting logistics, emergency response, and workforce mobility.

Completion of the CFX would resolve many of these constraints by providing a safer, higher-capacity corridor and redistributing truck volumes away from substandard facilities.

Section Analysis

The remaining alignment of the CFX, which is proposed but not yet fully planned and funded, can be divided into three viable segments. The first segment (includes all of section III C and part of section III B[1]) runs from the West Virginia state line to Grundy, covering the Elkins Bizzack and Rockhouse Bizzack portions. The second segment (includes all of section I and part of section II[2]) runs from the US 23 Corridor B and comprises the Pound Connector Alpha Section. The third segment (includes all of section II and section III A[3]) includes the Cranes Nest Alpha Section and Doe Branch Alpha Section and establishes the connection between Corridor B and Corridor Q of the ADHS.

A viable initial step to advance the CFX project could be the development of the Pound Connector Alpha Section and the two Bizzack Sections. Both of these sections demonstrate independent utility by providing essential connections to the highway network that serves southwestern Virginia.

Upgrading VA 83 to complete the Pound Connector Alpha Section, similar to the improvements made to US 119 in Kentucky, could significantly boost development in the region. This project would enhance connectivity between Clintwood and Pound, benefiting the Red Onion business opportunity area and improving access to the Red Onion DOC site. The proposed upgrade could include a bypass to the north of Pound, but should also include a comprehensive plan to enhance US Business Route 23 (Main Street), focusing on retail and housing development.

[1] VDOT Supplemental Environmental Impact Statement, US Route 121, Section II VDOT Project No.: 0121-013-772; UPC 85126; FHWA Project No.: NH-121-1 (020)
[2] VDOT Supplemental Environmental Impact Statement, US Route 121, Section II VDOT Project No.: 0121-013-772; UPC 85126; FHWA Project No.: NH-121-1 (020)
[3] VDOT Supplemental Environmental Impact Statement, US Route 121, Section II VDOT Project No.: 0121-013-772; UPC 85126; FHWA Project No.: NH-121-1 (020)

This strategic upgrade would greatly enhance accessibility to opportunities from Clintwood to the Red Onion area and Pound, as well as to locations further south, such as Wise and the University of Virginia's College at Wise. By upgrading VA 83 in alignment with the proposed CFX route, VDOT could achieve equal or improved mobility for residents and businesses in the Clintwood and Pound areas. Additionally, this would pave the way for a future connection to Corridor Q.

A link between Corridor Q and Corridor B would create improved routes to the interstates, enhancing connections between southwest Virginia and the east coast ports (i.e. Norfolk, Baltimore Harbor, Charleston). This connectivity is vital for fostering economic growth and improving the overall safety and reliability of the transportation network in the region.

The Bizzack Sections are designed to form an essential link with US 460/Corridor Q, providing a dependable and secure route through southwest Virginia to the CFX sections in West Virginia. This portion of the CFX in West Virginia connects directly to I-77 and I-64, facilitating interstate commerce while improving regional mobility and accessibility.

Connecting the study area to both Pikeville and West Virginia is particularly advantageous, as it provides the region with access to not only a key healthcare facility and trauma center but the Southern Gap area and potential new developments that could reshape the region. Furthermore, enhanced access to Beckley, WV, significantly improves mobility through a reliable and secure highway system, supporting more efficient north-south and east-west travel and strengthening connections to a major interstate hub.

Community Facilities and Future Accessibility

Under future conditions, completion of the CFX is anticipated to significantly improve access to essential community facilities throughout the region. The proposed corridor passes in proximity to multiple hospitals and urgent care centers, EMS and law enforcement stations, and institutions of higher education, all of which currently require travel along mountainous, two-lane roadways with limited passing opportunities and vulnerability to closure during adverse weather.

Improved roadway connectivity via CFX will help reduce emergency response times, particularly in communities such as Pound, Clintwood, Haysi, Breaks, and Vansant, where current route options are indirect and subject to delay. Stakeholders identified that delayed access to medical facilities is a major concern, often exceeding one hour in emergency situations. The expressway would enable faster, more reliable transport for EMS providers and law enforcement, supporting life safety outcomes and enhancing regional resilience.

Additionally, improved accessibility to higher education institutions such as UVA Wise could support greater workforce development and long-term population retention, helping address ongoing demographic challenges. From an equity standpoint, the expressway will strengthen connectivity for residents in rural low-income areas, increasing access to essential services, emergency care, and training centers. In the long term, CFX is expected to function as a backbone corridor that improves public safety, educational attainment, service access, and overall quality of life across the region.

Completion of the CFX is projected to yield significant travel time reductions for key east–west regional connections, particularly for trips originating in Grundy and Haysi, where current routes rely on slow,

indirect mountain roadways. Travel times from Grundy are expected to decrease by 40% to Wise and Abingdon, 30% to Pikeville, and 20% to Knoxville, while Haysi is projected to see a 40% reduction to Wise, 25% to Abingdon, and 20% to Pikeville. Longer-distance trips to Roanoke and destinations from Pound show minimal or no change due to routing outside the CFX corridor's influence. Overall, the expressway would substantially improve regional mobility by establishing a more direct, reliable, and higher-capacity connection, enhancing access to education, healthcare, employment, and freight destinations, while supporting long-term economic competitiveness and emergency response efficiency.

Table 6. Travel Time and Distances from Grundy, Haysi, and Pound to Key Destinations

From	To	Distance (miles)	Travel Time (minutes)	Estimated Travel Time Reduction with CFX
Grundy	Pikeville	42	60	30%
	Wise	57	90	40%
	Abingdon	66	90	40%
	Roanoke	179	189	No Change
	Knoxville	191	199	20%
Haysi	Pikeville	34	50	20%
	Wise	38	53	40%
	Abingdon	52	80	25%
	Roanoke	189	200	10%
	Knoxville	174	189	5%

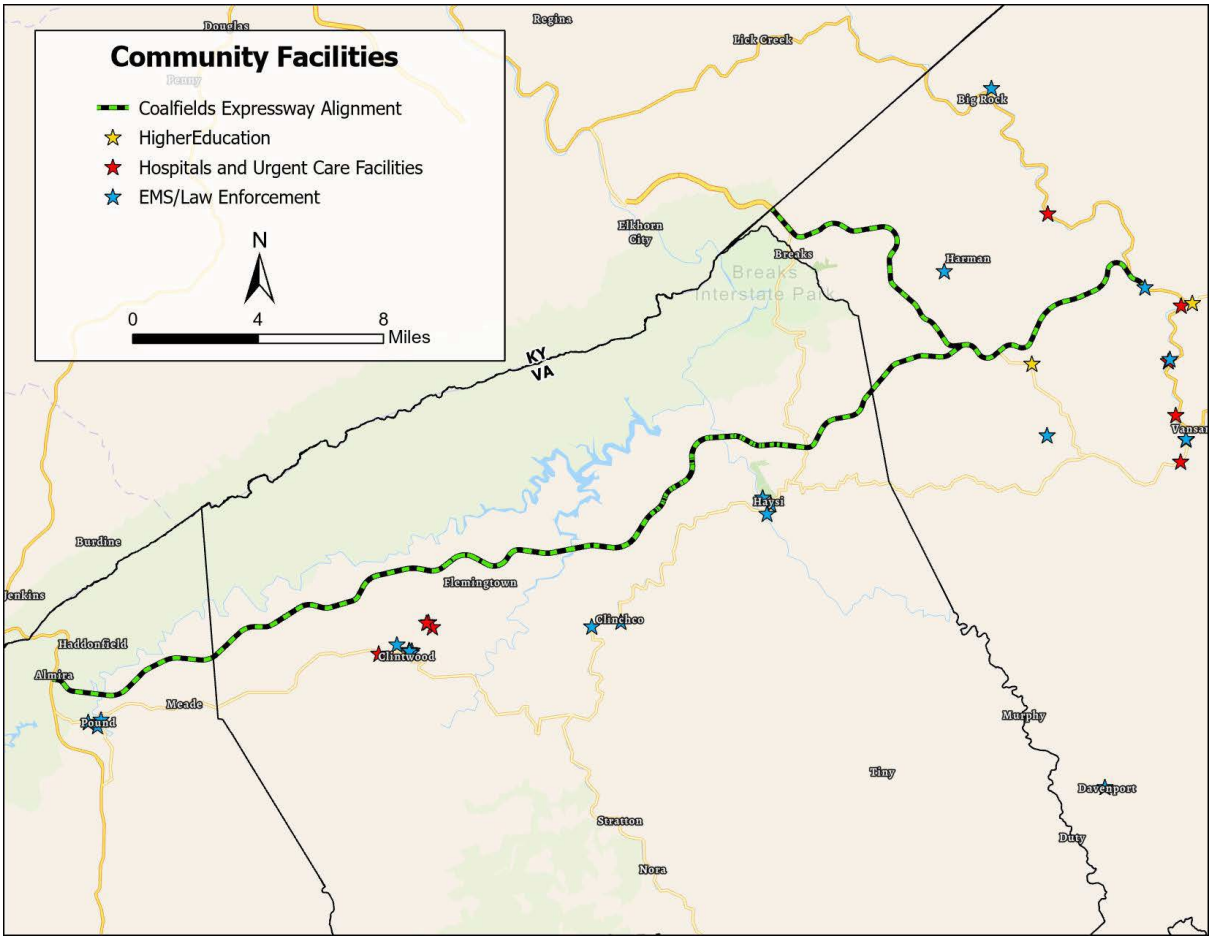

Figure 11. Community Facilities within the vicinity of the CFX

Economic and Demographic Factors

By 2045, Southwest Virginia will continue transitioning from a coal-dependent economy toward a diversified base that includes manufacturing, timber, construction materials, natural gas, and logistics. While coal production and employment continue to decline, the region sees growth in:

- Energy sector diversification, including natural gas, potential renewable installations, and grid infrastructure.
- Wood products and forestry-related sectors, supported by increased commodity flows.
- Tourism and outdoor recreation, particularly where highway access improves.
- Industrial development on reclaimed mining lands, supported by public-private partnerships.

Demographically, the region faces continued population stabilization or slight decline but benefits from workforce attraction related to targeted industry recruitment and improved accessibility. Economic development partners, including VCEDA, regional industrial authorities, and workforce organizations,

remain essential in supporting diversification and mitigating employment loss from declining coal markets.

Potential for CFX to Qualify as a Critical Rural Freight Corridor (CRFC)

The CFX meets multiple eligibility criteria for Critical Rural Freight Corridor designation when fully developed. The corridor is entirely rural, connects to designated freight-priority routes (US 23 and US 460), and serves areas with rapidly increasing projected truck volumes (20,000–60,000 trucks/day by 2045).

CFX enables access to major industrial development zones, including Southern Gap and Red Onion industrial parks, as well as reclaimed surface mine areas slated for light manufacturing, logistics, and energy production. The corridor is well positioned to support regional economic transition beyond coal, aligning with freight planning goals around industry diversification and rural competitiveness. Although not currently designated, corridors *may be added in future state freight plan updates* when freight demand projections are documented and regional partners support designation.

Based on FHWA guidance, CFX could qualify for CRFC designation once operational evidence or freight growth justification is submitted and supported by the Planning District Commissions and VDOT.

Strategic Integration with CFX Roadmap Themes

The 2045 future conditions strongly reinforce the importance of the CFX as a transformative infrastructure investment. The findings align with the CFX Roadmap Themes as follows:

Theme 1: Economic Development + Diversification

2045 freight and economic projections show broad diversification into construction materials, forestry, natural gas, and advanced manufacturing. The CFX supports this transition by providing modern highway access for logistics, site development, freight mobility, and industrial recruitment.

Theme 2: Connectivity + Infrastructure + Resilience

2045 LOS degradation, persistent VA 83 constraints, and increasing truck volumes all indicate a need for a resilient, high-capacity corridor. The CFX delivers reliable freight routing, improved emergency access, and enhanced regional mobility.

Theme 3: Community Building

The CFX improves access to hospitals, schools, workforce facilities, and job centers by 2045. It also enables redevelopment of reclaimed mining lands into mixed-use, commercial, and industrial areas, supporting improved quality of life.

Theme 4: Energy + Environmental Opportunities

CFX supports long-term energy transitions and environmental goals by enabling efficient movement of renewable energy components, supporting wood-based products, and reducing emissions through shorter truck routes.

Theme 5: Political + Regional + Industry Coordination

By 2045, the case for CFX is strengthened through coordinated economic development efforts, freight trends, and cross-state partnerships. Collaborative planning enhances competitiveness for federal funding and positions the region for long-term growth.

Appendix A

2019 LOS Segments

RTE_NM		start_mp	end_mp	AADT year	AADT	K-factor	D-factor	Future DDH	percent_tru	percenttru	percenttru	Future Opp	Length (mi	Length (ft)	Grade	LOS
R-VA	SR00083EB	0	0.541	2045	5792	0.0919	0.5559	346.1996	3.03058	1.26429	2.09166	276.5736	0.541	2856.48	0.13%	B
R-VA	SR00083EB	0.541	0.93	2045	5792	0.0919	0.5559	346.1996	3.03058	1.26429	2.09166	276.5736	0.389	2053.92	0.97%	B
R-VA	SR00083EB	0.93	3.57	2045	5792	0.0919	0.5559	346.1996	3.03058	1.26429	2.09166	276.5736	2.64	13939.2	2.42%	B
R-VA	SR00083EB	3.57	7.33	2045	6175	0.0905	0.5864	383.4117	3.03058	1.26429	2.09166	270.4282	3.51	18532.8	-2.10%	C
R-VA	SR00083EB	7.33	7.48	2045	6175	0.0905	0.5864	383.4117	3.03058	1.26429	2.09166	270.4282		1624	1.05%	B
R-VA	SR00083EB	7.48	8.17	2045	8301	0.0914	0.5015	445.1777	3.09821	1.47995	1.99862	442.5146	0.69	3643.2	5.38%	C
R-VA	SR00083EB	8.17	8.395	2045	8301	0.0914	0.5015	445.1777	3.09821	1.47995	1.99862	442.5146		1731	1.62%	C
R-VA	SR00083EB	8.395	9.33	2045	8301	0.0914	0.5015	445.1777	3.09821	1.47995	1.99862	442.5146	1.26	6652.8	0.63%	B
R-VA	SR00083EB	9.33	9.95	2045	8301	0.0914	0.5015	445.1777	3.09821	1.47995	1.99862	442.5146	0.62	3273.6	4.34%	C
R-VA	SR00083EB	9.95	15.52	2045	6647	0.1016	0.626	494.629	3.09821	1.47995	1.99862	295.5132	5.57	29409.6	-1.62%	C
R-VA	SR00083EB	15.52	18.213	2045	3241	0.0993	0.6014	226.4527	8.98139	3.06465	6.82019	150.0899	2.693	14219.04	-0.34%	A
R-VA	SR00083EB	18.213	19.13	2045	3241	0.0993	0.6014	226.4527	8.98139	3.06465	6.82019	150.0899	1.16	6124.8	-0.16%	A
R-VA	SR00083EB	19.13	20.46	2045	3241	0.0993	0.6014	226.4527	8.98139	3.06465	6.82019	150.0899	1.33	7022.4	-0.27%	A
R-VA	SR00083EB	20.46	20.72	2045	3007	0.1	0.6463	227.3806	9.27369	2.68773	7.32457	124.4384	0.26	2271	1.41%	A
R-VA	SR00083EB	20.72	22.06	2045	3007	0.1	0.6463	227.3806	9.27369	2.68773	7.32457	124.4384	1.34	7075.2	-0.44%	A
R-VA	SR00083EB	22.06	22.9	2045	3007	0.1	0.6463	227.3806	9.27369	2.68773	7.32457	124.4384	0.84	4435.2	-0.54%	B
R-VA	SR00083EB	22.9	26.43	2045	2798	0.0977	0.5851	187.1364	9.27369	2.68773	7.32457	132.7002	3.53	18638.4	-0.12%	A
R-VA	SR00083EB	26.43	26.69	2045	2798	0.0977	0.5851	187.1364	9.27369	2.68773	7.32457	132.7002	0.26	1372.8	-5.24%	A
R-VA	SR00083EB	26.69	26.84	2045	4054	0.0967	0.509	233.4607	4.95964	2.62399	3.05653	225.2048	0.15	792	11.36%	B
R-VA	SR00083EB	26.84	27.03	2045	4054	0.0967	0.509	233.4607	4.95964	2.62399	3.05653	225.2048	0.19	1003.2	-8.77%	B
R-VA	SR00083EB	27.03	28.12	2045	3067	0.093	0.5843	194.9928	4.95964	2.62399	3.05653	138.7275	1.09	5755.2	1.69%	A
R-VA	SR00083EB	28.12	28.21	2045	1991	0.0921	0.5063	108.6237	4.95964	2.62399	3.05653	105.9205	0.09	475.2	-2.10%	A
R-VA	SR00083EB	28.21	31.58	2045	1991	0.0921	0.5063	108.6237	4.95964	2.62399	3.05653	105.9205	3.37	17793.6	0.38%	A
R-VA	SR00083EB	31.58	34.05	2045	2645	0.0908	0.583	163.8196	4.5644	1.39642	3.66819	117.1746	2.47	13041.6	0.26%	A
R-VA	SR00083EB	34.05	36.27	2045	3539	0.0971	0.6688	268.8945	4.97117	1.12202	4.16082	133.1607	2.22	11721.6	1.31%	B
R-VA	SR00083EB	36.27	39.84	2045	3539	0.0971	0.6688	268.8945	4.97117	1.12202	4.16082	133.1607	3.57	18849.6	-1.90%	B
R-VA	SR00083EB	39.84	40.2	2045	4834	0.0925	0.6806	356.0625	4.97117	1.12202	4.16082	167.0972	0.36	1900.8	-1.68%	C
R-VA	SR00083EB	40.2	41.79	2045	4834	0.0925	0.6806	356.0625	4.97117	1.12202	4.16082	167.0972	1.59	8395.2	-0.89%	C
R-VA	SR00083EB	41.79	42.77	2045	9405	0.0883	0.5225	507.6819	3.46132	0.95682	2.95773	463.9581	0.98	5174.4	-0.35%	A
R-VA	SR00083EB	42.77	44.96	2045	9405	0.0883	0.5225	507.6819	3.46132	0.95682	2.95773	463.9581	2.19	11563.2	-0.20%	A
R-VA	SR00083EB	43.78	46.02	2045	737	0.096	0.6125	50.70265	4.08038	2.07065	2.43604	32.07719	2.24	11827.2	-0.34%	A
R-VA	SR00083EB	46.02	46.95	2045	12279	0.099	0.7408	1053.622	2.19659	1.44609	1.33626	368.6541	0.93	4910.4	0.65%	E
R-VA	SR00083EB	46.95	47.56	2045	12279	0.099	0.7408	1053.622	2.19659	1.44609	1.33626	368.6541	0.61	3220.8	0.93%	E
R-VA	SR00083EB	47.56	50.49	2045	6531	0.09	0.5498	378.1053	2.19659	1.44609	1.33626	309.609	2.93	15470.4	0.61%	B
R-VA	SR00083EB	50.49	51.13	2045	3009	0.0987	0.6154	213.8369	2.19659	1.44609	1.33626	133.6394	0.64	3379.2	0.53%	A
R-VA	SR00083EB	51.13	54.73	2045	3009	0.0987	0.6154	213.8369	2.19659	1.44609	1.33626	133.6394	3.6	19008	1.00%	A
R-VA	SR00083EB	54.73	57.2	2045	1865	0.0999	0.5412	117.9745	2.56939	1.44713	1.56526	100.0123	2.47	13041.6	0.84%	A
R-VA	SR00083EB	57.2	61.87	2045	953	0.0963	0.6548	70.30945	2.54482	1.44592	1.38808	37.06601	4.67	24657.6	3.26%	A
R-VA	US00023NBBUS	0.01	1.2	2045	6133	0.0903	0.6131	387.0766	2.64088	1.19469	1.7763	244.2667	1.19	6283.2	-0.84%	C
R-VA	US00023NBBUS	1.2	2.63	2045	6133	0.0903	0.6131	387.0766	2.64088	1.19469	1.7763	244.2667	1.43	7550.4	-0.01%	C
R-VA	US00023NBBUS	2.63	3.08	2045	6133	0.0903	0.6131	387.0766	2.64088	1.19469	1.7763	244.2667	0.45	2376	3.83%	C
R-VA	US00460EB	0	2.61	2045	2637	0.0878	0.5019	132.4728	19.5089	2.38816	17.7935	131.4698	2.61	13780.8	0.21%	A
R-VA	US00460EB	2.61	4.7	2045	2799	0.0912	0.5217	151.8181	10.0929	1.94032	8.82113	139.1884	2.09	11035.2	0.32%	A
R-VA	US00460EB	4.7	6.75	2045	3660	0.0939	0.5461	213.9556	3.46132	0.95682	2.95773	177.8327	2.05	10824	0.17%	A
R-VA	US00460EB	6.75	7.06	2045	3660	0.0939	0.5461	213.9556	3.46132	0.95682	2.95773	177.8327	0.31	1636.8	0.31%	A
R-VA	US00460EB	7.06	7.38	2045	5038	0.0989	0.6309	358.3603	3.46132	0.95682	2.95773	209.6541	0.32	1689.6	-0.12%	C
R-VA	US00460EB	7.38	8.84	2045	5038	0.0989	0.6309	358.3603	3.46132	0.95682	2.95773	209.6541	1.46	7708.8	0.23%	B
R-VA	US00460EB	8.84	9.65	2045	5038	0.0989	0.6309	358.3603	3.46132	0.95682	2.95773	209.6541	0.81	4276.8	0.26%	B
R-VA	US00460EB	9.65	11.21	2045	5332	0.0966	0.653	383.4293	3.46132	0.95682	2.95773	203.7519	1.56	8236.8	0.58%	B
R-VA	US00460EB	11.21	11.77	2045	5332	0.0966	0.653	383.4293	3.46132	0.95682	2.95773	203.7519	0.56	2956.8	0.30%	C
R-VA	US00460EB	11.77	12.78	2045	5332	0.0966	0.653	383.4293	3.46132	0.95682	2.95773	203.7519	1.01	5332.8	0.47%	A
R-VA	US00460EB	12.78	12.87	2045	5332	0.0966	0.653	383.4293	3.46132	0.95682	2.95773	203.7519	0.09	475.2	0.63%	A
R-VA	US00460EB	12.87	13.04	2045	737	0.096	0.6125	49.40258	4.08038	2.07065	2.43604	31.2547	0.17	897.6	-0.67%	A
R-VA	US00460EB	12.87	15.27	2045	737	0.096	0.6125	49.40258	4.08038	2.07065	2.43604	31.2547	2.4	12672	-0.79%	A
R-VA	US00460EB	15.27	17.26	2045	9405	0.0883	0.5225	494.6644	3.46132	0.95682	2.95773	452.0617	1.99	10507.2	-0.40%	A
R-VA	US00460EB	17.26	18.32	2045	7624	0.089	0.5143	397.827	3.46132	0.95682	2.95773	375.704	1.06	5596.8	0.41%	A
R-VA	US00460EB	18.32	19.01	2045	7624	0.089	0.5143	397.827	3.46132	0.95682	2.95773	375.704	0.69	3643.2	1.07%	A
R-VA	US00460EB	19.01	20.85	2045	7624	0.089	0.5143	397.827	3.46132	0.95682	2.95773	375.704	1.84	9715.2	0.54%	A
R-VA	US00460EB	20.85	24.18	2045	6072	0.0827	0.5063	289.8345	3.46132	0.95682	2.95773	282.6215	3.33	17582.4	0.88%	A
R-VA	US00460EB	24.18	25.08	2045	6072	0.0827	0.5063	289.8345	3.46132	0.95682	2.95773	282.6215	0.9	4752	0.63%	A
R-VA	US00460EB	25.08	26.1	2045	6072	0.0827	0.5063	289.8345	3.46132	0.95682	2.95773	282.6215	1.02	5385.6	1.80%	A
R-VA	US00460EB	26.1	28.31	2045	6097	0.0821	0.542	309.2883	3.46132	0.95682	2.95773	261.3543	2.21	11668.8	0.99%	A
R-VA	US00460EB	28.31	34.61	2045	6192	0.0908	0.5492	352.0077	3.46132	0.95682	2.95773	288.9386	6.3	33264	2.79%	A
R-VA	US00023NB	33.327	34.56	2045	11701	0.0886	0.5057	597.6604	1.27427	4.37966	0.82297	584.1874	1.233	6510.24	5.55%	A
R-VA	US00023NB	34.56	39.31	2045	16514	0.0888	0.5677	949.0498	5.20561	1.27427	4.37966	722.6955	4.75	25080	2.97%	A
R-VA	US00023NB	39.31	39.86	2045	16514	0.0888	0.5677	949.0498	5.20561	1.27427	4.37966	722.6955	0.55	2904	7.23%	B
R-VA	US00023NB	39.86	41.86	2045	14270	0.0852	0.5303	735.0046	5.20561	1.27427	4.37966	651.012	2	10560	-1.15%	A
R-VA	US00023NB	41.816	43.25	2045	15303	0.0898	0.5113	801.0019	5.73601	1.45325	4.88315	765.5968	1.434	7571.52	-1.03%	A
R-VA	US00023NB	43.25	44.84	2045	20943	0.0863	0.5057	1041.951	4.02783	0.84688	3.52862	1018.463	1.59	8395.2	0.63%	B
R-VA	US00023NB	44.84	45.75	2045	20084	0.1011	0.5194	1202.287	4.02783	0.84688	3.52862	1112.474	0.91	4804.8	13.57%	B
R-VA	US00023NB	45.75	47.71	2045	13978	0.0807	0.5736	737.6198	4.02783	0.84688	3.52862	548.3282	1.96	10348.8	-0.72%	A
R-VA	US00023NB	47.71	51.81	2045	13224	0.078	0.5937	698.1188	4.02783	0.84688	3.52862	477.7593	4.1	21648	-3.09%	A
R-VA	US00023NB	51.81	55.37	2045	13039	0.0787	0.6251	731.2626	4.02783	0.84688	3.52862	438.5704	3.56	18796.8	-0.17%	A
R-VA	US00023NB	55.37	57.9	2045	7435	0.0742	0.5534	348.0398	4.02783	0.84688	3.52862	280.872	2.53	13358.4	0.26%	A
R-VA	US00023NB	57.9	61.08	2045	7164	0.0747	0.5327	324.9853	4.02783	0.84688	3.52862	285.0866	3.18	16790.4	8.11%	A

Appendix B

2045 LOS Segments

RTE_NM		start_mp	end_mp	AADT year	AADT	K-factor	D-factor	DDHV	percent_tru	percenttru	percenttru	Opposite D	Length (mi	Length (ft)	Grade	LOS
R-VA	SR00083EB	0	0.541	2019	5792	0.0919	0.5559	295.8971	3.03058	1.26429	2.09166	236.3877	0.541	2856.48	0.13%	B
R-VA	SR00083EB	0.541	0.93	2019	5792	0.0919	0.5559	295.8971	3.03058	1.26429	2.09166	236.3877	0.389	2053.92	0.97%	B
R-VA	SR00083EB	0.93	3.57	2019	5792	0.0919	0.5559	295.8971	3.03058	1.26429	2.09166	236.3877	2.64	13939.2	2.42%	B
R-VA	SR00083EB	3.57	7.33	2019	6175	0.0905	0.5864	327.7023	3.03058	1.26429	2.09166	231.1352	3.51	18532.8	-2.10%	B
R-VA	SR00083EB	7.33	7.48	2019	6175	0.0905	0.5864	327.7023	3.03058	1.26429	2.09166	231.1352		1624	1.05%	B
R-VA	SR00083EB	7.48	8.17	2019	8301	0.0914	0.5015	380.4938	3.09821	1.47995	1.99862	378.2176	0.69	3643.2	5.38%	B
R-VA	SR00083EB	8.17	8.395	2019	8301	0.0914	0.5015	380.4938	3.09821	1.47995	1.99862	378.2176		1731	1.62%	B
R-VA	SR00083EB	8.395	9.33	2019	8301	0.0914	0.5015	380.4938	3.09821	1.47995	1.99862	378.2176	1.26	6652.8	0.63%	B
R-VA	SR00083EB	9.33	9.95	2019	8301	0.0914	0.5015	380.4938	3.09821	1.47995	1.99862	378.2176	0.62	3273.6	4.34%	B
R-VA	SR00083EB	9.95	15.52	2019	6647	0.1016	0.626	422.7598	3.09821	1.47995	1.99862	252.5754	5.57	29409.6	-1.62%	C
R-VA	SR00083EB	15.52	18.213	2019	3241	0.0993	0.6014	193.5493	8.98139	3.06465	6.82019	128.282	2.693	14219.04	-0.34%	A
R-VA	SR00083EB	18.213	19.13	2019	3241	0.0993	0.6014	193.5493	8.98139	3.06465	6.82019	128.282	1.16	6124.8	-0.16%	A
R-VA	SR00083EB	19.13	20.46	2019	3241	0.0993	0.6014	193.5493	8.98139	3.06465	6.82019	128.282	1.33	7022.4	-0.27%	A
R-VA	SR00083EB	20.46	20.72	2019	3007	0.1	0.6463	194.3424	9.27369	2.68773	7.32457	106.3576	0.26	2271	1.41%	A
R-VA	SR00083EB	20.72	22.06	2019	3007	0.1	0.6463	194.3424	9.27369	2.68773	7.32457	106.3576	1.34	7075.2	-0.44%	A
R-VA	SR00083EB	22.06	22.9	2019	3007	0.1	0.6463	194.3424	9.27369	2.68773	7.32457	106.3576	0.84	4435.2	-0.54%	A
R-VA	SR00083EB	22.9	26.43	2019	2798	0.0977	0.5851	159.9456	9.27369	2.68773	7.32457	113.419	3.53	18638.4	-0.12%	A
R-VA	SR00083EB	26.43	26.69	2019	2798	0.0977	0.5851	159.9456	9.27369	2.68773	7.32457	113.419	0.26	1372.8	-5.24%	A
R-VA	SR00083EB	26.69	26.84	2019	4054	0.0967	0.509	199.5391	4.95964	2.62399	3.05653	192.4827	0.15	792	11.36%	B
R-VA	SR00083EB	26.84	27.03	2019	4054	0.0967	0.509	199.5391	4.95964	2.62399	3.05653	192.4827	0.19	1003.2	-8.77%	B
R-VA	SR00083EB	27.03	28.12	2019	3067	0.093	0.5843	166.6605	4.95964	2.62399	3.05653	118.5705	1.09	5755.2	1.69%	A
R-VA	SR00083EB	28.12	28.21	2019	1991	0.0921	0.5063	92.84079	4.95964	2.62399	3.05653	90.53031	0.09	475.2	-2.10%	A
R-VA	SR00083EB	28.21	31.58	2019	1991	0.0921	0.5063	92.84079	4.95964	2.62399	3.05653	90.53031	3.37	17793.6	0.38%	A
R-VA	SR00083EB	31.58	34.05	2019	2645	0.0908	0.583	140.0168	4.5644	1.39642	3.66819	100.1492	2.47	13041.6	0.26%	A
R-VA	SR00083EB	34.05	36.27	2019	3539	0.0971	0.6688	229.8244	4.97117	1.12202	4.16082	113.8125	2.22	11721.6	1.31%	B
R-VA	SR00083EB	36.27	39.84	2019	3539	0.0971	0.6688	229.8244	4.97117	1.12202	4.16082	113.8125	3.57	18849.6	-1.90%	B
R-VA	SR00083EB	39.84	40.2	2019	4834	0.0925	0.6806	304.3269	4.97117	1.12202	4.16082	142.8181	0.36	1900.8	-1.68%	B
R-VA	SR00083EB	40.2	41.79	2019	4834	0.0925	0.6806	304.3269	4.97117	1.12202	4.16082	142.8181	1.59	8395.2	-0.89%	B
R-VA	SR00083EB	41.79	42.77	2019	9405	0.0883	0.5225	433.9161	3.46132	0.95682	2.95773	396.5454	0.98	5174.4	-0.35%	A
R-VA	SR00083EB	42.77	44.96	2019	9405	0.0883	0.5225	433.9161	3.46132	0.95682	2.95773	396.5454	2.19	11563.2	-0.20%	A
R-VA	SR00083EB	43.78	46.02	2019	737	0.096	0.6125	43.3356	4.08038	2.07065	2.43604	27.4164	2.24	11827.2	-0.34%	A
R-VA	SR00083EB	46.02	46.95	2019	12279	0.099	0.7408	900.532	2.19659	1.44609	1.33626	315.089	0.93	4910.4	0.65%	D
R-VA	SR00083EB	46.95	47.56	2019	12279	0.099	0.7408	900.532	2.19659	1.44609	1.33626	315.089	0.61	3220.8	0.93%	D
R-VA	SR00083EB	47.56	50.49	2019	6531	0.09	0.5498	323.1669	2.19659	1.44609	1.33626	264.6231	2.93	15470.4	0.61%	B
R-VA	SR00083EB	50.49	51.13	2019	3009	0.0987	0.6154	182.7666	2.19659	1.44609	1.33626	114.2217	0.64	3379.2	0.53%	A
R-VA	SR00083EB	51.13	54.73	2019	3009	0.0987	0.6154	182.7666	2.19659	1.44609	1.33626	114.2217	3.6	19008	1.00%	A
R-VA	SR00083EB	54.73	57.2	2019	1865	0.0999	0.5412	100.8329	2.56939	1.44713	1.56526	85.48063	2.47	13041.6	0.84%	A
R-VA	SR00083EB	57.2	61.87	2019	953	0.0963	0.6548	60.09355	2.54482	1.44592	1.38808	31.68035	4.67	24657.6	3.26%	A
R-VA	US00023NBBUS	0.01	1.2	2019	6133	0.0903	0.6131	339.5408	2.64088	1.19469	1.7763	214.2691	1.19	6283.2	-0.84%	B
R-VA	US00023NBBUS	1.2	2.63	2019	6133	0.0903	0.6131	339.5408	2.64088	1.19469	1.7763	214.2691	1.43	7550.4	-0.01%	C
R-VA	US00023NBBUS	2.63	3.08	2019	6133	0.0903	0.6131	339.5408	2.64088	1.19469	1.7763	214.2691	0.45	2376	3.83%	C
R-VA	US00460EB	0	2.61	2019	2637	0.0878	0.5019	116.2042	19.5089	2.38816	17.7935	115.3244	2.61	13780.8	0.21%	A
R-VA	US00460EB	2.61	4.7	2019	2799	0.0912	0.5217	133.1737	10.0929	1.94032	8.82113	122.0951	2.09	11035.2	0.32%	A
R-VA	US00460EB	4.7	6.75	2019	3660	0.0939	0.5461	187.6804	3.46132	0.95682	2.95773	155.9936	2.05	10824	0.17%	A
R-VA	US00460EB	6.75	7.06	2019	3660	0.0939	0.5461	187.6804	3.46132	0.95682	2.95773	155.9936	0.31	1636.8	0.31%	A
R-VA	US00460EB	7.06	7.38	2019	5038	0.0989	0.6309	314.3511	3.46132	0.95682	2.95773	183.9071	0.32	1689.6	-0.12%	B
R-VA	US00460EB	7.38	8.84	2019	5038	0.0989	0.6309	314.3511	3.46132	0.95682	2.95773	183.9071	1.46	7708.8	0.23%	B
R-VA	US00460EB	8.84	9.65	2019	5038	0.0989	0.6309	314.3511	3.46132	0.95682	2.95773	183.9071	0.81	4276.8	0.26%	B
R-VA	US00460EB	9.65	11.21	2019	5332	0.0966	0.653	336.3415	3.46132	0.95682	2.95773	178.7297	1.56	8236.8	0.58%	B
R-VA	US00460EB	11.21	11.77	2019	5332	0.0966	0.653	336.3415	3.46132	0.95682	2.95773	178.7297	0.56	2956.8	0.30%	B
R-VA	US00460EB	11.77	12.78	2019	5332	0.0966	0.653	336.3415	3.46132	0.95682	2.95773	178.7297	1.01	5332.8	0.47%	A
R-VA	US00460EB	12.78	12.87	2019	5332	0.0966	0.653	336.3415	3.46132	0.95682	2.95773	178.7297	0.09	475.2	0.63%	A
R-VA	US00460EB	12.87	13.04	2019	737	0.096	0.6125	43.3356	4.08038	2.07065	2.43604	27.4164	0.17	897.6	-0.67%	A
R-VA	US00460EB	12.87	15.27	2019	737	0.096	0.6125	43.3356	4.08038	2.07065	2.43604	27.4164	2.4	12672	-0.79%	A
R-VA	US00460EB	15.27	17.26	2019	9405	0.0883	0.5225	433.9161	3.46132	0.95682	2.95773	396.5454	1.99	10507.2	-0.40%	A
R-VA	US00460EB	17.26	18.32	2019	7624	0.089	0.5143	348.9711	3.46132	0.95682	2.95773	329.5649	1.06	5596.8	0.41%	A
R-VA	US00460EB	18.32	19.01	2019	7624	0.089	0.5143	348.9711	3.46132	0.95682	2.95773	329.5649	0.69	3643.2	1.07%	A
R-VA	US00460EB	19.01	20.85	2019	7624	0.089	0.5143	348.9711	3.46132	0.95682	2.95773	329.5649	1.84	9715.2	0.54%	A
R-VA	US00460EB	20.85	24.18	2019	6072	0.0827	0.5063	254.2408	3.46132	0.95682	2.95773	247.9136	3.33	17582.4	0.88%	A
R-VA	US00460EB	24.18	25.08	2019	6072	0.0827	0.5063	254.2408	3.46132	0.95682	2.95773	247.9136	0.9	4752	0.63%	A
R-VA	US00460EB	25.08	26.1	2019	6072	0.0827	0.5063	254.2408	3.46132	0.95682	2.95773	247.9136	1.02	5385.6	1.80%	A
R-VA	US00460EB	26.1	28.31	2019	6097	0.0821	0.542	271.3055	3.46132	0.95682	2.95773	229.2582	2.21	11668.8	0.99%	A
R-VA	US00460EB	28.31	34.61	2019	6192	0.0908	0.5492	308.7787	3.46132	0.95682	2.95773	253.4549	6.3	33264	2.79%	A
R-VA	US00023NB	33.327	34.56	2019	11701	0.0886	0.5057	524.2635	1.27427	4.37966	0.82297	512.4451	1.233	6510.24	5.55%	A
R-VA	US00023NB	34.56	39.31	2019	16514	0.0888	0.5677	832.4998	5.20561	1.27427	4.37966	633.9434	4.75	25080	2.97%	A
R-VA	US00023NB	39.31	39.86	2019	16514	0.0888	0.5677	832.4998	5.20561	1.27427	4.37966	633.9434	0.55	2904	7.23%	A
R-VA	US00023NB	39.86	41.86	2019	14270	0.0852	0.5303	644.7409	5.20561	1.27427	4.37966	571.0631	2	10560	-1.15%	A
R-VA	US00023NB	41.816	43.25	2019	15303	0.0898	0.5113	702.6333	5.73601	1.45325	4.88315	671.5761	1.434	7571.52	-1.03%	A
R-VA	US00023NB	43.25	44.84	2019	20943	0.0863	0.5057	913.9925	4.02783	0.84688	3.52862	893.3884	1.59	8395.2	0.63%	A
R-VA	US00023NB	44.84	45.75	2019	20084	0.1011	0.5194	1054.638	4.02783	0.84688	3.52862	975.8546	0.91	4804.8	13.57%	B
R-VA	US00023NB	45.75	47.71	2019	13978	0.0807	0.5736	647.0349	4.02783	0.84688	3.52862	480.9897	1.96	10348.8	-0.72%	A
R-VA	US00023NB	47.71	51.81	2019	13224	0.078	0.5937	612.3849	4.02783	0.84688	3.52862	419.0871	4.1	21648	-3.09%	A
R-VA	US00023NB	51.81	55.37	2019	13039	0.0787	0.6251	641.4584	4.02783	0.84688	3.52862	384.7109	3.56	18796.8	-0.17%	A
R-VA	US00023NB	55.37	57.9	2019	7435	0.0742	0.5534	305.2981	4.02783	0.84688	3.52862	246.3789	2.53	13358.4	0.26%	A
R-VA	US00023NB	57.9	61.08	2019	7164	0.0747	0.5327	285.0748	4.02783	0.84688	3.52862	250.076	3.18	16790.4	8.11%	A

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