



COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

VTRANS UPDATE:
MID-TERM AND LONG-TERM NEEDS
MPO Quarterly Coordination Meeting

Jitender Ramchandani, PMP, AICP

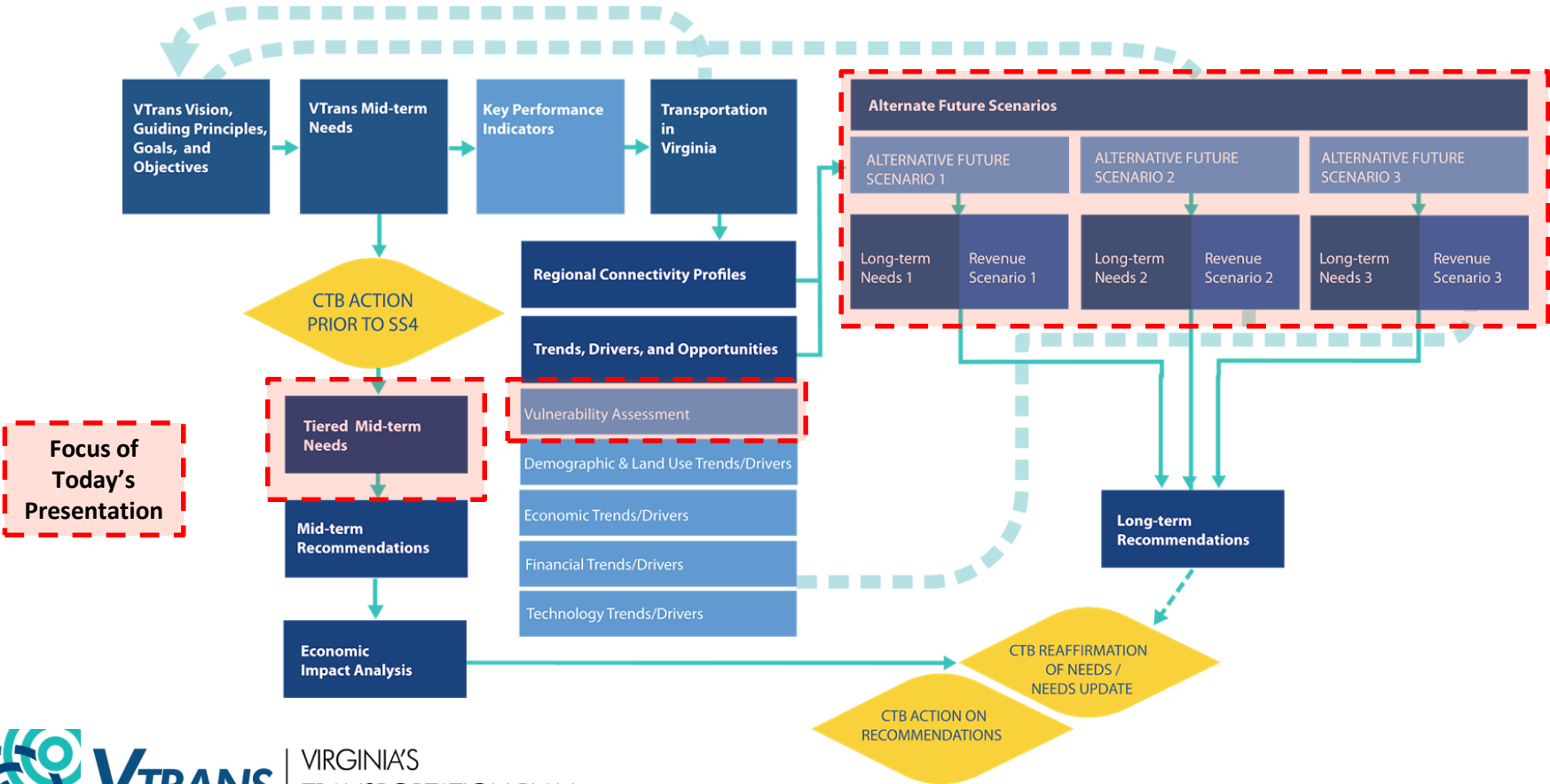
June 10, 2020



PRESENTATION TODAY

- Tiering of Mid-Term Needs
 - Vulnerability Assessment
- Long-Term Needs
 - Key Performance Indicators
- Development of InteractVTrans

PRESENTATION TODAY





TIERING OF MID-TERM NEEDS

TIERING OF VTRANS MID-TERM NEEDS | PURPOSE AND METHOD

1. Differentiate critical needs from less-pressing needs
2. Inform planning decisions for capacity and safety related investments
 - [VTrans Multimodal Project Pipeline](#)
3. Provide opportunities to improve coordination among different program areas
 - Allow for a more comprehensive overview of the VTrans Mid-term Needs by including existing and planned activities

Method

- Ensure that prioritization is transparent, replicable, and repeatable.

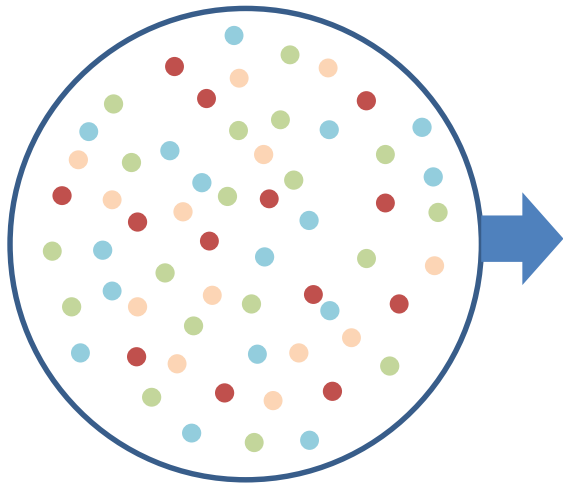
TIERING OF VTRANS MID-TERM NEEDS | PROPOSED STEPS

1. Define extent of Prioritization

- Corridors of Statewide Significance (CoSS): Statewide Prioritization
- Regional Networks
- Urban Development Area (UDA) } Prioritization within VDOT Construction Districts
- Safety

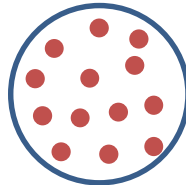
TIERING OF VTRANS MID-TERM NEEDS | PROPOSED STEPS

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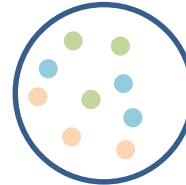


Example:
Needs in the
Commonwealth

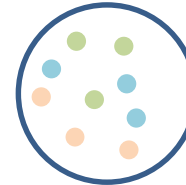
- CoSS Needs
- UDA Needs
- RN Needs
- Safety Needs



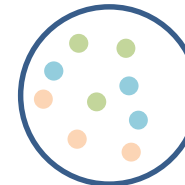
CoSS Needs In the
Commonwealth



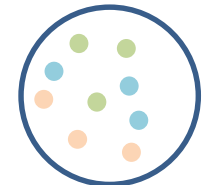
RN, UDA, Safety Needs
in Bristol District



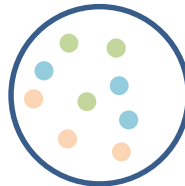
RN, UDA, Safety Needs
in Culpepper District



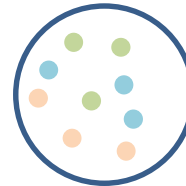
RN, UDA, Safety Needs
in Fredericksburg District



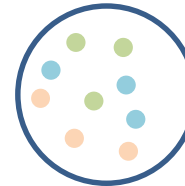
RN, UDA, Safety Needs
in HR District



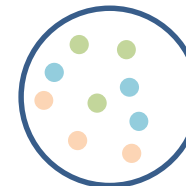
RN, UDA, Safety Needs in
Lynchburg District



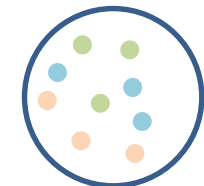
RN, UDA, Safety Needs
in NoVA District



RN, UDA, Safety Needs
in Richmond District



RN, UDA, Safety Needs
in Salem District

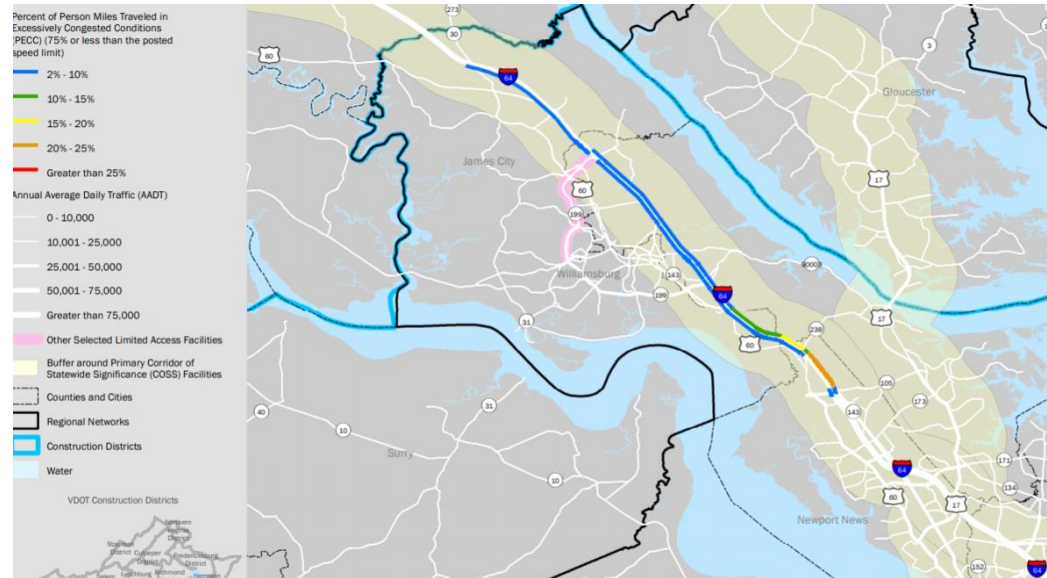


RN, UDA, Safety Needs
in Staunton District

TIERING OF VTRANS MID-TERM NEEDS | PROPOSED STEPS

2. Tiering Criteria

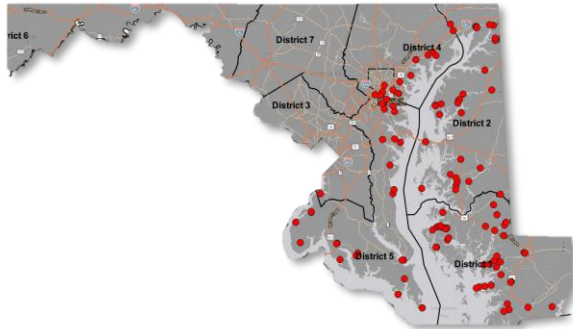
- Severity of the Need
- Number of users (e.g. AADT) or population (e.g. Equity Emphasis Areas)
- Co-located planned or committed SGR or maintenance improvements
- Risk associated with flooding and sea-level rise
- Potential: Committed Capacity and Safety improvements
- Potential: Ease of Implementation



TIERING OF VTRANS MID-TERM NEEDS | PROPOSED STEPS

2. Tiering Criteria: Vulnerability Assessment

- Screening-level analysis of the vulnerability of Virginia's transportation system to current and future flood hazards.



Example: Maryland Vulnerability Assessment



TIERING OF VTRANS MID-TERM NEEDS | PROPOSED STEPS

3. Determine appropriate thresholds for tiering

- Focus on systematic methods
- Ensure a transparent, replicable, repeatable method that is informed by an **iterative** feedback from the Board members and stakeholders



TIERING OF VTRANS MID-TERM NEEDS | PROPOSED STEPS

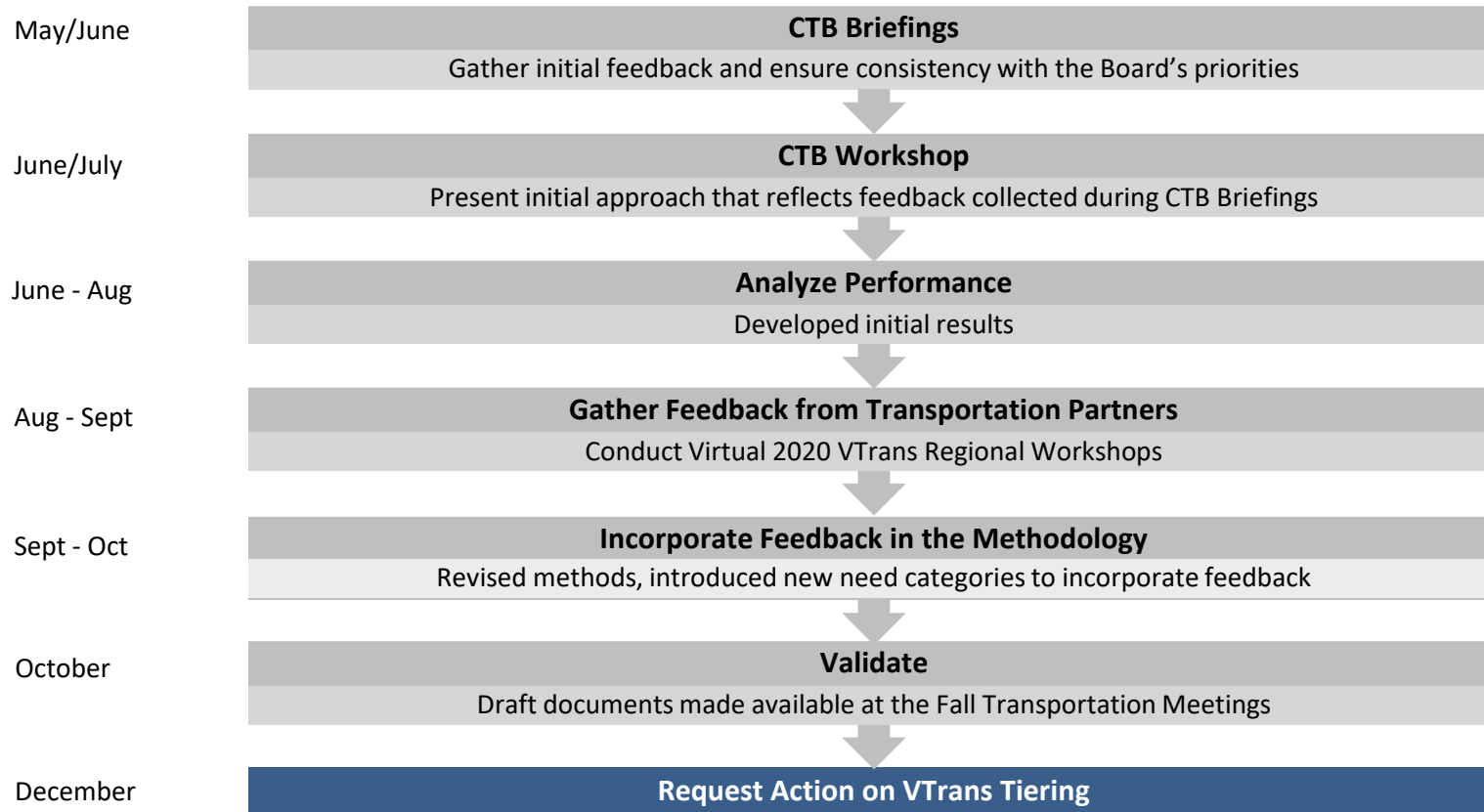
4. Request Board Action

- Provide ability to identify **Top Priorities** for the Commonwealth or any VDOT Construction District

	Congestion	Reliability	Safety	Transit	Total
Route 29 between MP XX and XX	1	3	3	3	10
Route 250 between MP XX and XX	2	2	2	1	7
I-64 between MP XX and XX	3	2	2	3	10

EXAMPLE of Needs, not Projects

TIERING VTRANS MID-TERM NEEDS | TENTATIVE SCHEDULE





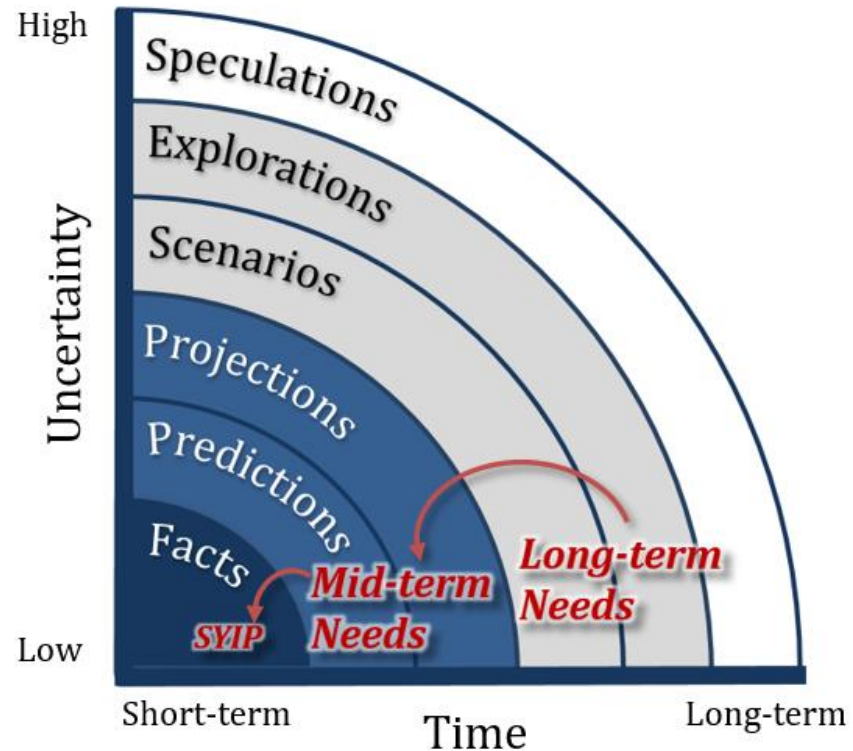
LONG-TERM NEEDS

MID-TERM VS. LONG-TERM NEEDS

Mid-Term Needs	Long-Term Needs
7 - 10 year time horizon	10 + year time horizon
<ul style="list-style-type: none">● Screening SMART SCALE applications● Prioritizing VDOT Revenue Sharing applications● Informing planning and project development activities	Used to inform policy recommendations to prepare for 10+ years out
Action taken in January 2020	Expect to request action in 2021

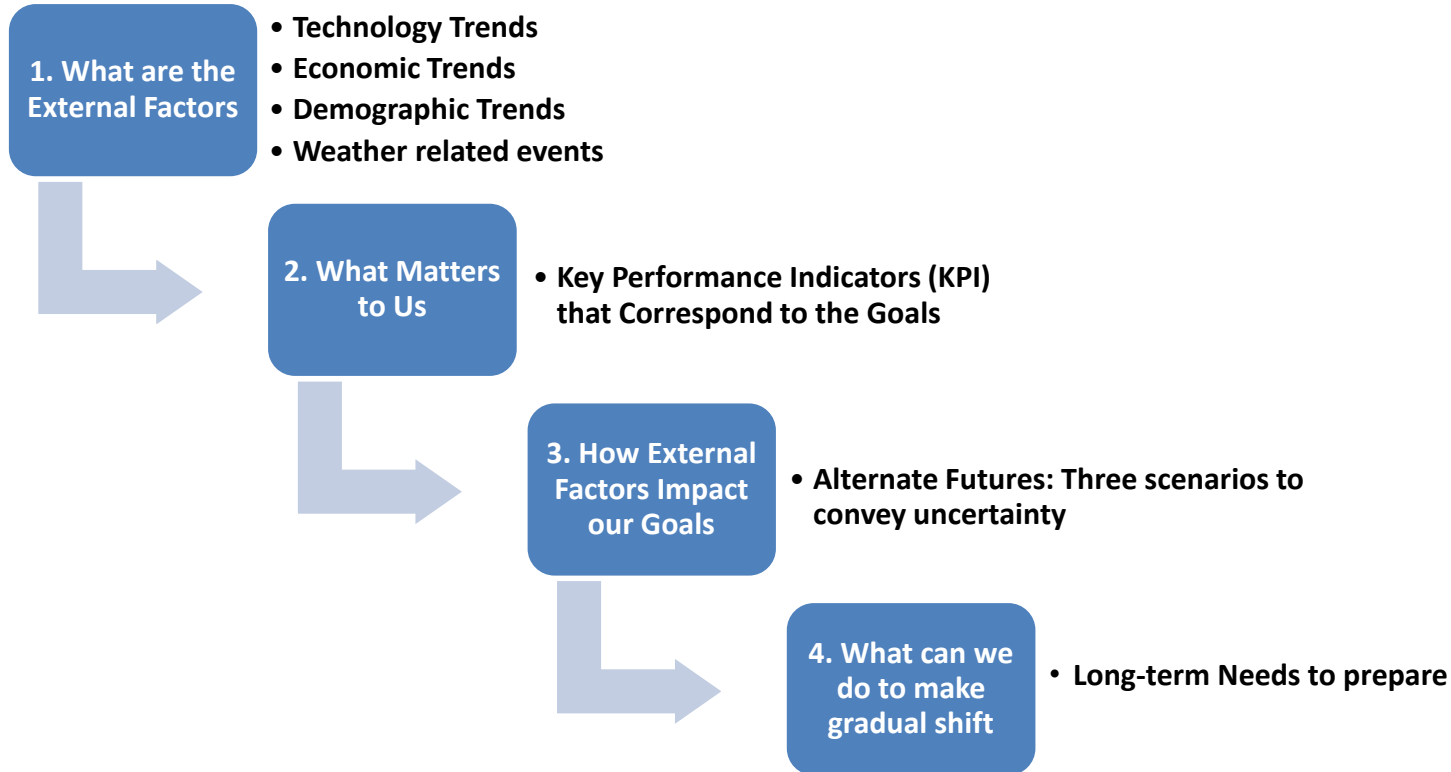
LONG-TERM NEEDS | CORRELATION BETWEEN TIME AND RISK

- **Long-term (10-25 years)**
 - Planning to prepare, not predict
 - Evaluate how external factors (technology trends, weather related events, economic trends, demographic trends) may impact an agency
 - Develop three (3) scenarios and associated **impacts**



[From the Kick-off CTB Presentation of VTrans Update, October 2018](#)

LONG-TERM NEEDS | STEPS



External Factors (Technological, Demographic, Economic)



Drivers

Demographic Trends – Min Value
Technology/Economic Trends – Min Value
Vulnerability Assessment – Min Value

Drivers

Demographic Trends – Avg Value
Technology/Economic Trends – Avg Value
Vulnerability Assessment – Avg Value

Drivers

Demographic Trends – Max Value
Technology/Economic Trends – Max Value
Vulnerability Assessment – Max Value

External Factors (Technological, Demographic, Economic)



Drivers
 Demographic Trends – Min Value
 Technology/Economic Trends – Min Value
 Vulnerability Assessment – Min Value

Drivers
 Demographic Trends – Avg Value
 Technology/Economic Trends – Avg Value
 Vulnerability Assessment – Avg Value

Drivers
 Demographic Trends – Max Value
 Technology/Economic Trends – Max Value
 Vulnerability Assessment – Max Value



Impact on Demand-side Key Performance Indicators (KPIs)

VMT	Air Quality	Mode Share	VMT	Air Quality	Mode Share	VMT	Air Quality	Mode Share
Trip Length (Time)	Trip Length (Miles)	Transit Equity Emphasis Area	Trip Length (Time)	Trip Length (Miles)	Transit Equity Emphasis Area	Trip Length (Time)	Trip Length (Miles)	Transit Equity Emphasis Area
Roadway Safety	Transit Safety	System Vulnerability	Roadway Safety	Transit Safety	System Vulnerability	Roadway Safety	Transit Safety	System Vulnerability

External Factors (Technological, Demographic, Economic)

Drivers
 Demographic Trends – Min Value
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 Vulnerability Assessment – Min Value

Drivers
 Demographic Trends – Avg Value
 Technology/Economic Trends – Avg Value
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Drivers
 Demographic Trends – Max Value
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 Vulnerability Assessment – Max Value

Impact on Demand-side Key Performance Indicators (KPIs)

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Roadway Safety	Transit Safety	System Vulnerability	Roadway Safety	Transit Safety	System Vulnerability	Roadway Safety	Transit Safety	System Vulnerability

Revenue Scenario 1

Revenue Scenario 2

Revenue Scenario 3

Impact on Supply-side Key Performance Indicators (KPIs)

Transit Asset Condition	Pavement Condition	Bridge Condition	Transit Asset Condition	Pavement Condition	Bridge Condition	Transit Asset Condition	Pavement Condition	Bridge Condition
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Revenue Scenario 1

Revenue Scenario 2

Revenue Scenario 3

Impact on Supply-side Key Performance Indicators (KPIs)

Transit Asset Condition	Pavement Condition	Bridge Condition	Transit Asset Condition	Pavement Condition	Bridge Condition	Transit Asset Condition	Pavement Condition	Bridge Condition
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Alternative Future 1

Alternative Future 2

Alternative Future 3

Long-term Needs

External Factors (Technological, Demographic, Economic)

Drivers
 Demographic Trends – Min Value
 Technology/Economic Trends – Min Value
 Vulnerability Assessment – Min Value

Drivers
 Demographic Trends – Avg Value
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Drivers
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Revenue Scenario 1

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Revenue Scenario 3

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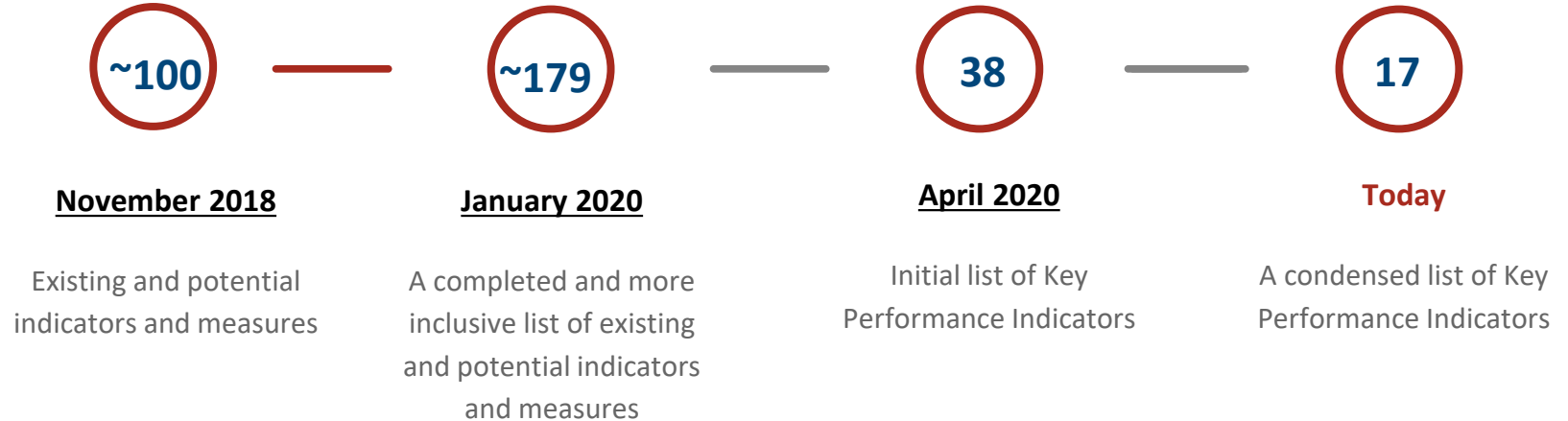
Alternative Future 1

Alternative Future 2

Alternative Future 3

Long-term Needs

LONG-TERM NEEDS | KEY PERFORMANCE INDICATORS



LONG-TERM NEEDS | KEY PERFORMANCE INDICATORS (EXAMPLE)

VTrans Goal / Objective	Reduce Travel in Several Congestion	
Indicator	<ul style="list-style-type: none"> ● Congestion Trends 	
Basis for Calculation	<ul style="list-style-type: none"> ● Percent Person Miles Traveled in Excessively Congested Conditions (PECC) ● Travel Time Index 	
Unit of Analysis	<ul style="list-style-type: none"> ● Directional Roadway Segment 	
Geography of Reporting	<ul style="list-style-type: none"> ● Statewide ● VDOT Construction District ● Regional Network ● Metropolitan Area 	
Unit of Reporting	<ul style="list-style-type: none"> ● Severely Congested Directional Roadway Miles ● Severely Congested Directional Roadway Miles as % of Total Directional Roadway Miles 	
Period of Reporting	<ul style="list-style-type: none"> ● Most recent 5 calendar years 	
Explanatory Variables	<ul style="list-style-type: none"> ● Population ● Employment ● Jobs-to-Housing Ratio 	<ul style="list-style-type: none"> ● Number of Lane Miles ● % Non-SOV Travel ● Vehicle Miles Traveled



DEVELOPMENT OF INTERACTVTRANS

INTERACTVTRANS | UPCOMING FEATURES/SERVICES

Transportation in Virginia with Key Performance Indicators

Forms the basis for soliciting feedback from local and regional stakeholders

The screenshot shows a web browser displaying the VTRANS website. The page title is "InteractVTrans" and it is part of the "Mid-Term Planning" section. The main content area features a heading "LOGO - TRANSPORTATION IN VIRGINIA" and a paragraph explaining the purpose of the dataset. To the right of the text is a map of Virginia with a network of red and blue lines representing transportation infrastructure. Below the map is a call to action: "Access and provide feedback on VTrans Mid-term Needs and visualize them in context of their surroundings." The word "ENTER" is written below both the text and the map.

Mid-term Needs with Additional layers

- Freight
- Census
- Vulnerability Assessment

INTERACTVTRANS | UPCOMING FEATURES/SERVICES

← → ↻ 🏠 🌐 vtrans.org/mid-term-planning/InteractVTrans ☆ 🗨️ 📄 Paused ⋮

An Agency of the Commonwealth of Virginia Virginia.gov Find an Agency

VTRANS VIRGINIA'S TRANSPORTATION PLAN Search Website

About Vision Mid-Term Planning Long-Term Planning Archive Get Involved

Home / Mid-Term Planning / InteractVTrans

Find Layers Comment

[Back to options](#) Download Results

2019 VTrans Mid-Term Needs (Segments) where Need - Congestion Mitigation (RN) includes: YES and Need - Improved Reliability (RN) includes: YES and Need - Improved Reliability (RN) includes: YES located in *Regional Networks (RNs): Northern Virginia Region* Results

Arlington Blvd Service Rd
Need - Congestion Mitigation (RN): YES
Need - Improved Reliability (RN): YES

Arlington Blvd Service Rd
Need - Congestion Mitigation (RN): YES
Need - Improved Reliability (RN): YES

Frontage Rd
Need - Congestion Mitigation (RN): YES
Need - Improved Reliability (RN): YES

Arlington Blvd Service Rd
Need - Congestion Mitigation (RN): YES
Need - Improved Reliability (RN): YES

Arlington Blvd Service Rd
Need - Congestion Mitigation (RN): YES
Need - Improved Reliability (RN): YES

Find Needs, Addresses, Districts, MPOs, and more...

County of Fairfax, Esri, HERE

About InteractVTrans

Zoom to

2019 VTrans Mid-Term Needs (Segments) - US-1N

Need Segment ID	129505
AADT (bidirectional)	48,000
Street Name	Richmond Hwy
Route Common Name	US-1N
Direction	Northbound
Need - Congestion Mitigation (CoSS)	YES
Need - Improved Reliability (CoSS)	YES
Need - Capacity Preservation (CoSS)	YES
Need - Transportation Demand Management (Limited Access CoSS)	NO
Need - Transportation Demand Management (non-limited Access CoSS)	NO
Need - Congestion Mitigation (RN)	YES
Need - Improved Reliability (RN)	YES
Need - Capacity Preservation (RN)	YES
Need - Transportation Demand Management	NO

Yes indicating a Need will be replaced by Tier 1, Tier 2, Tier 3

INTERACTVTRANS | UPCOMING FEATURES/SERVICES

- Convey different funding programs associated with every VTrans Need Category

Funding Program	Application Window
SMART SCALE	Apply Now
Revenue Sharing	March 1, 2021 - August 31, 2021
MERIT	November 1, 2020 - March 1, 2021

The screenshot displays the VTrans InteractVTrans web application. The top navigation bar includes 'About', 'Vision', 'Mid-Term Planning', 'Long-Term Planning', and 'Archive'. The main content area features a map of road segments in the Washington, D.C. area, with a search bar and zoom controls. A data table on the right side of the screen provides details for a specific road segment (VA-267W).

Need Segment ID	Value
AAADT (bidirectional)	108,000
Street Name	Rt267
Route Common Name	VA-267W
Direction	Westbound
Need - Congestion Mitigation (CoSS)	NO
Need - Improved Reliability (CoSS)	NO
Need - Capacity Preservation (CoSS)	NO
Need - Transportation Demand Management (limited Access CoSS)	NO
Need - Transportation Demand Management (non-limited Access CoSS)	NO
Need - Congestion Mitigation (RN)	YES
Need - Improved Reliability (RN)	NO
Need - Capacity Preservation	NO

CONTACT INFORMATION

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VTRANS | VIRGINIA'S
TRANSPORTATION PLAN