VTrans Regional Workshop

Crater-Southside Area

Jitender Ramchandani, AICP, PMP

August 15, 2019
HOUSEKEEPING ITEMS

• Refreshments
• Restrooms
• Lunch
• Parking matters
• Wifi Code/Password
MEETING PACKET

• July 2019 Newsletter
• Mid-Term Needs FAQs
• VTrans2040 Needs
• Presentations Handout
• Maps of Measures
• Comment Form
• Next Steps
OIPI assists the Commonwealth Transportation Board in the Development of VTrans.
TODAY’S SCHEDULE

• Plenary Presentation (10:00am-11:00am)
  – VTrans Overview
  – Statewide Considerations
  – Regional Studies
  – Needs Measures Methodology

• Breakout Groups (11:00am-1:30pm with break for lunch)
  – Congestion and Reliability Measures
  – Passenger Rail On-Time Performance
  – Accessibility to Activity Centers
  – Disadvantaged Population Beyond ¼ Mile Access to Transit
  – Potential for Safety Improvement Locations (PSI)

• Summary/Wrap-up (1:30pm-2:00pm)
  – Review of Next Steps and Timeline
PURPOSE OF TODAY’S WORKSHOP

• Goal: Utilize today’s workshop to inform development of VTrans Mid-term Needs
  – We are still reviewing results of the data analysis and have not made any decisions
  – Needs are not projects - A need can be addressed by different types of projects and strategies
PURPOSE OF TODAY’S WORKSHOP

• Workshop format allows us to work together to:
  – Share information about the evolving VTrans process, measures, data and tools
  – Review region-specific data
  – Receive input on mid-term measures and thresholds
  – Utilize local and regional knowledge to capture issues that may not be fully or accurately captured by data alone
  – Discuss region-specific issues

  – Where we can use the most help (due to lack of data)
    o Environmental and equity considerations
    o Non-motorized access
    o Travel Demand Management opportunities associated with a roadway or a corridor
**Feedback We Need From You Today**

- Provide input on measures and thresholds
- Provide input on issues that may justify a Need
- Ways to provide input:
  - Verbally: During round table discussion
  - Written: Via comment form
  - Online: Interactive mapping application
**PURPOSE OF TODAY’S WORKSHOP**

- VTrans is used as one of the three screening criteria for SMART SCALE
  - Project is eligible
  - Project is ready
  - **Project meets one or more VTrans Needs**

- VTrans Needs will be utilized for SMART SCALE Round 4 that will start application intake in Spring 2020.
  - Getting your input on preliminary data analysis results is a key step leading to needs development
VTRANS OVERVIEW
VTrans Goals

Goal A: Economic Competitiveness and Prosperity
Goal B: Accessible and Connected Places
Goal C: Safety for All Users
Goal D: Proactive System Management
Goal E: Healthy Communities and Sustainable Transportation Communities
Mid-Term Needs Assessment | Travel Markets Review

- **Corridors of Statewide Significance (CoSS)** [Code of Virginia § 33.2-353]
  - Serve inter-regional travel
- **Regional Networks (RN)** [Code of Virginia § 33.2-353]
  - Serve commuters, intra-regional, and local travel
- **Urban Development Areas (UDA)** [Code of Virginia § 33.2-353 and § 15.2-2223.1]
  - Designated by local governments
  - Intended to promote walkable development and traditional neighborhood design
- **Safety**
- **Additional work underway to identify needs associated with local economic and industrial development areas**
Corridors of Statewide Significance

- Coastal Corridor
- Crescent Corridor
- East-West Corridor
- Eastern Shore Corridor
- Heartland Corridor
- North Carolina to West Virginia Corridor
- North-South Corridor
- Northern Virginia Corridor
- Seminole Corridor
- Southside Corridor
- Washington to North Carolina Corridor
- Western Mountain Corridor

*Thin lines of same color represent Corridor Component Facilities

Airports
Ports
Rail Network

Travel Markets:
Corridors of Statewide Significance serve inter-regional travel.
Corridors of Statewide Significance* 

Coastal Corridor  
Crescent Corridor  
East-West Corridor  
Eastern Shore Corridor  
Heartland Corridor  
North Carolina to West Virginia Corridor  
North-South Corridor  
Northern Virginia Corridor  
Seminole Corridor  
Southside Corridor  
Washington to North Carolina Corridor  
Western Mountain Corridor  

*Thin lines of same color represent Corridor Component Facilities

Airports
Ports
Rail Network
Regional Networks

Travel Markets:
Corridors of Statewide Significance serve inter-regional travel.
Regional Networks serve commuters, intra-regional and local travel.
Corridors of Statewide Significance:

- Coastal Corridor
- Crescent Corridor
- East-West Corridor
- Eastern Shore Corridor
- Heartland Corridor
- North Carolina to West Virginia Corridor
- North-South Corridor
- Northern Virginia Corridor
- Seminole Corridor
- Southside Corridor
- Washington to North Carolina Corridor
- Western Mountain Corridor

*Thin lines of same color represent Corridor Component Facilities

Airports
Ports
Rail Network
Regional Networks
Urban Development Areas (as of May 2018)

Travel Markets:

Corridors of Statewide Significance serve inter-regional travel.

Regional Networks serve commuters, intra-regional and local travel.

Urban Development Areas are designated by local governments and are intended to promote walkable development and traditional neighborhood design.
# Mid-Term Needs vs. Long-Term Needs

<table>
<thead>
<tr>
<th>Mid-Term Needs</th>
<th>Long-Term Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - 10 year time horizon</td>
<td>10 + year time horizon</td>
</tr>
<tr>
<td>Performance measures with current data to determine</td>
<td>Performance measures through scenario analysis with forecast data to determine</td>
</tr>
<tr>
<td>Used as screening criteria for SMART SCALE</td>
<td>Used to inform policy, planning and project recommendations to prepare for 10+ years out</td>
</tr>
<tr>
<td>Action requested by December 2019</td>
<td>Expect to request action in 2020 or 2021</td>
</tr>
</tbody>
</table>

Intended to be utilized for SMART SCALE Round 4
Mid-Term Needs – Statewide Considerations
STATEWIDE CONSIDERATIONS OF MID-TERM NEEDS

• Federal and State Requirements
  – Federal requirements per 23 U.S.C. 135 and other
  – State requirement § 33.2-353: OIPI to assist the CTB in the development and update of a Statewide Transportation Plan. Conduct a statewide needs assessment of CoSS, RN, UDA travel markets
  – State requirement § 2.2-229: OIPI to assist the Commonwealth Transportation Board in the development of a comprehensive, multimodal transportation policy, which may be developed as part of the Statewide Transportation Plan pursuant to § 33.2-353

• Virginia-specific Business Requirements
  – Identify safety needs to guide SMART SCALE safety investments
  – VTrans guides state funding programs (e.g. SMART SCALE, Revenue Sharing)
  – VTrans informs project development and advance activities
STATEWIDE CONSIDERATIONS OF MID-TERM NEEDS

• By the Code of Virginia § 33.2-353,

“It is the intent of the General Assembly that this plan assess transportation needs and assign priorities to projects on a statewide basis, avoiding the production of a plan that is an aggregation of local, district, regional, or modal plans.”
STATEWIDE CONSIDERATIONS OF MID-TERM NEEDS

• VTrans Needs Assessment
  – Acknowledges local and regional transportation plans, MPOs priorities and issues
  – Focuses on data-driven decision-making

• Continued data utilization evolution
  – Lack of reliable and complete data for all modes (highway, transit, non-motorized) in all areas (NoVA versus Bristol) across all facility types (interstates, arterials, collectors) remains a challenge
  – Unit for reporting may not allow detail/accuracy needed
STATEWIDE NEEDS TRADEOFFS

• “Transportation Need” is a broad term
  – The most congested spot for one locality may still be better than the number 50th congested spot for another locality

• VTrans is a statewide plan and has to address conflicting and contrasting priorities
  • More specific needs versus more general needs
  • Statewide criteria versus region-specific criteria
  • Demonstrable today’s needs versus aspirational needs
HISTORICAL POPULATION CHANGE BY PDC – 2000-2017

Statewide Population Change: 19.6%

Source: Data provided by Weldon Cooper Center for Public Service and the U.S. Census Bureau.
FORECAST POPULATION CHANGE BY PDC – 2017-2045

Population Change from 2017-2045 (Weldon Cooper) by PDC
- 0% or Less
- 1% - 10%
- 11% - 25%
- 26% - 50%
- 51% or Greater

Statewide Population Change: 24%

Source: Data provided by Weldon Cooper Center for Public Service and the U.S. Census Bureau.
REGIONAL STUDIES
C R A T E R - S O U T H S I D E  R E G I O N
The following Plans and Studies are under review.

<table>
<thead>
<tr>
<th>Name of Plan</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tri-Cities Area 2040 Transportation Plan</td>
<td>Tri-Cities Area MPO</td>
</tr>
<tr>
<td>Tri-Cities Area Bikeway Plan</td>
<td>Tri-Cities Area MPO</td>
</tr>
<tr>
<td>Richmond/Petersburg Coordinated Human Services Plan</td>
<td>DRPT</td>
</tr>
<tr>
<td>Commonwealth Regional Council Long Range Transportation Plan 2035</td>
<td>CRC</td>
</tr>
<tr>
<td>Southside Long Range Transportation Plan 2035</td>
<td>Southside PDC</td>
</tr>
<tr>
<td>Tri-Cities Area 2010 Transit Development Plan</td>
<td>Crater PDC</td>
</tr>
</tbody>
</table>
MID-TERM NEEDS MEASURES METHODOLOGY
NEEDS METHODOLOGY – COSS, REGIONAL NETWORKS AND DISTRICTS

- Build on Needs from VTrans2040
- Introduce new/improved data sources

*Thick lines of same color represent Corridor Component Facilities

Corridors of Statewide Significance*
- Coastal Corridor
- Crescent Corridor
- East-West Corridor
- Eastern Shore Corridor
- Heartland Corridor
- North Carolina to West Virginia Corridor
- North-South Corridor
- Northern Virginia Corridor
- Seminole Corridor
- Southside Corridor
- Washington to North Carolina Corridor
- Western Mountain Corridor

*In lines of same color represent Corridor Component Facilities

Travel Markets:
Corridors of Statewide Significance serve inter-regional travel.
Regional Networks serve commuters, intra-regional and local travel.
## Mid-Term Needs Assessment | Measures by Vtrans Travel Markets

<table>
<thead>
<tr>
<th>Goal</th>
<th>Mid-Term Needs Measures</th>
<th>CoSS</th>
<th>Regional Network</th>
<th>UDA</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Competitiveness</td>
<td>Congestion: Percent Person Miles Traveled in Excessively Congested Conditions (PECC)</td>
<td>✔*</td>
<td>✔*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Congestion: Travel Time Index (TTI)</td>
<td>✔**</td>
<td>✔**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reliability: Unreliable Delay (UD)</td>
<td>✔*</td>
<td>✔*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reliability: Buffer Time Index (BTI)</td>
<td>✔**</td>
<td>✔**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Passenger Rail On-time Performance</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* All of limited-access CoSS, plus select limited access facilities within Regional Networks  
** All of non-limited access CoSS, plus all other facilities within Regional Networks
### Mid-Term Needs Assessment | Measures by VTrans Travel Markets

<table>
<thead>
<tr>
<th>Goal</th>
<th>Mid-Term Needs Measures</th>
<th>CoSS</th>
<th>Regional Network</th>
<th>UDA</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessible Places</td>
<td>Accessibility to Activity Centers</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disadvantaged Population Beyond ¼ Mile Access to Transit</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>Potential for Safety Improvement Locations*</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

* Safety Needs will also be listed under CoSS and RN to ensure eligibility for High Priority Projects Program (HPPP).
LIMITATIONS OF CONGESTION AND RELIABILITY PERFORMANCE MEASURES

• General Limitations
  – Congestion and reliability measures may not reflect:
    o Slowdowns required by law
    o Slowdown necessitated by geometry or weather conditions
    o Those desired by local communities (i.e. downtowns)
  – Team has tailored measures to overcome limitations as much as possible
  – Data accuracy has improved but there is room for further improvement
PERFORMANCE MEASURE FOR CONGESTION
PERCENT PERSON MILES TRAVELED IN EXCESSIVELY CONGESTED CONDITIONS (PECC)

• What it tells us:
  – Amount of travel occurring under excessively congested conditions

• What it measures:
  – Percent of total travel that is significantly slower than posted speed limit

• Where it applies:
  – CoSS: limited access facilities
  – Regional Networks: select limited access facilities

• Data source:
  – Speed: Data collection from GPS and other mobile devices (INRIX)
  – Volume: VDOT Traffic Count Program
PERFORMANCE MEASURE FOR CONGESTION
PERCENT PERSON MILES TRAVELED IN EXCESSIVELY CONGESTED CONDITIONS (PECC)

• Period of analysis: Hourly weekday average for 6am to 8pm collected during calendar year 2018

• How it is calculated:
  – Check whether a road segment has an average speed below:
    o Below 90% of posted speed limit (PSL),
    o Below 75 % of posted speed limit (PSL)
    o Below 60% of posted speed limit (PSL)
  – If speed on a segment is below a speed limit
    o sum the person miles of travel on that segment in that hour
    o Divide the person miles of travel in congestion by the total person miles of travel
    o Result is the PECC
PERFORMANCE MEASURE FOR CONGESTION (INTERSTATE AND SELECT LIMITED-ACCESS ROADWAYS)
PERCENT PERSON MILES TRAVELED IN EXCESSIVELY CONGESTED CONDITIONS (PECC)

% of PMT Congestion in 2018 (6AM-8PM)

What does this chart show?

EXAMPLE: In Salem District, 0.5% of total person mile traveled on interstates and select limited-access roadways are at 60% or below average hourly speed.

What does this chart show?

What does this chart show?

What does this chart show?

Proportion of person miles traveled that are below the above speed limits
• How will this measure be used to determine Needs along CoSS and RN?
  – Based on further analysis and consultation with stakeholders, we will determine the most appropriate thresholds for Congestion (PECC)
  – We will evaluate a combination of slow speed and person miles of travel affected
**Performance Measure for Reliability (Interstate and Select Limited-Access Roadways)**

**Unreliable Delay (UD) - Number of Person Hours of Delay During Unreliable Conditions**

- **What it tells us:**
  - Amount of delay associated with high travel time variability (unpredictability). i.e. delay is accounted towards the UD measure for only those hours when the travel time is highly unpredictable.

- **What it measures:**
  - Person hours of delay during periods with large variation in travel times.

- **Where it applies:**
  - CoSS: limited-access facilities
  - Regional Networks: select limited access facilities

- **What is “high travel time variability”:**
  - 80th percentile / 50th percentile travel time above or equal to 1.5
**Performance Measure for Reliability (Interstate and Select Limited-Access Roadways)**

**Unreliable Delay (UD) - Number of Person Hours of Delay During Unreliable Conditions**

- **Data source:**
  - Speed: Data collection from GPS and other mobile devices (INRIX)
  - Volume: VDOT Traffic Count Program

- **Period of analysis:**
  - Hourly, every weekday and weekend, during calendar year 2018

- **Calculation:**
  - Check whether a road segment has high travel time variability. If so, calculate person hours of delay
  - The person hours of delay is the person hours traveled at the observed speed minus the person hours traveled at the median (50\textsuperscript{th} percentile) travel time for that hour
**Performance Measure for Reliability** (Interstate and Select Limited-Access Roadways)

**Unreliable Delay (UD) - Number of Person Hours of Delay During Unreliable Conditions**

**Example:** In Richmond District, 131,000 person hours of delay was experienced on interstates and select limited access facilities due to slower than median speed.
**Performance Measure for Congestion (Non Limited-Access CoSS and RN)**

**Travel Time Index**

- **What it tells us:**
  - If the TTI=2.0, it takes twice as long to travel the road during the peak time than at the reference speed (normal traffic conditions)

- **What it measures:**
  - It measures intensity of congestion

- **Where it applies:**
  - CoSS, non-limited access facilities
  - Regional Networks: all other roadways except select limited access facilities
PERFORMANCE MEASURE FOR CONGESTION (NON LIMITED-ACCESS COSS AND RN)

TRAVEL TIME INDEX

• Data source:
  – Speed: Data collection from GPS and other mobile devices (INRIX)

• Period of analysis:
  – Average weekday, by hour

• Calculation:
  – Observed time divided by reference travel time
  – For each hour of the day, there are 250+ (number of weekdays in a year) observations
Performance Measure for Reliability (Non Limited-Access CoSS and RN)

Buffer Time Index (BTI)

- What it tells us:
  - How much extra time (“buffer”) is needed to ensure on-time arrival least 95% of the time (be late one day per month)

- What it measures:
  - Indicator of “buffer” needed to not be late due to variation in travel times

- Where it applies:
  - All of non-limited access CoSS, plus all other roadways within Regional Networks
PERFORMANCE MEASURE FOR RELIABILITY (NON-LIMITED-ACCESS COSS AND RN)

BUFFER TIME INDEX (BTI)

• Data source:
  – Speed: Data collection from GPS and other mobile devices (INRIX)

• Period of analysis:
  – Average weekday, by hour

• Calculation:
  – Buffer Time Index = (95% Travel Time – Average Travel time) divided by Average Travel Time
"How will the reliability measure (BTI) be used to determine needs along Nonlimited Access CoSS and RN Roadways?

- What threshold is appropriate?
- Should all roads be treated the same?
- Is there be a level of a BTI that should be considered a problem regardless of AADT or VMT?

In this example, a hypothetical roadway segment VMT of 200,000 and BTI of 2.2. It is NOT in the shaded area and IS a need.

In this example, a hypothetical roadway segment VMT of 20,000 and BTI of 3.5. It is in the shaded area and is not a need.
• What it tells us:
  – Reliability of state-supported Amtrak and VRE commuter rail services

• What is “reliability” for a passenger rail service:
  – On-time (per the established schedule) arrival of a passenger train except if a train is originating from that station

• What it measures:
  – On-time performance per rail operator’s goals

• Data source: Average on-time performance
  – Virginia Railway Express (VRE) by line
  – State-supported Amtrak Services by station

• Period and unit of analysis:
  – Virginia Railway Express (VRE) by line (2004-2018)
  – State-support Amtrak Services by station (2018)
• What do these preliminary results tell us?
  – Northbound state-supported Amtrak services are more reliable
  – Southbound services are less reliable, likely due to the delay experienced in DC
  – Danville Amtrak station has the lowest service reliability
  – Often, originating stations have greater reliability than intermediate or terminus stations
  – VRE’s average on-time performance has degraded by nearly 7% since 2013
  – VRE’s Fredericksburg line is more unreliable than the Manassas line
• How will this measure be used to identify VTrans Needs?
  – Lack of reliability could hamper demand, or indicate other issues (such as rail line congestion)
  – Compare trends over time to determine if improvements may be necessary to keep to a standard performance level into the future
  – Identify stations/hotspots where improvements could be made
  – There are several initiatives in planning and advance activities states such as improvements to Long Bridge which is a bottleneck, DC2RVA, local passenger service studies, etc.
  – Benefit from stakeholder input to identify issues and need for improvements
**Performance Measure for Accessibility to Activity Centers**

**Accessibility Deficit - Highway**

- **What it tells us:**
  - Ability of workers to access Activity Centers (local-serving, knowledge-sector, freight-based)

- **What it measures:**
  - Needs associated with improved auto accessibility are being measured using congestion and reliability measures

- **Where it applies:**
  - Highway access is important for all three types of activity centers

---

**Economic and Transportation Correlation Table**

<table>
<thead>
<tr>
<th></th>
<th>Local Sector</th>
<th>Knowledge Sector</th>
<th>Freight Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway Access</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Passenger Reliability</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Bottleneck Relief</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Freight Reliability</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Freight Accessibility</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Network Connectivity</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Transportation Demand Management</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Modal Choice</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Transit Access</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Active Transportation (Walk/Bike) Options</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Walkable Places</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlations:**
- 3 = High Correlation to Transportation Need
- 2 = Moderate Correlation to Transportation Need
- 1 = Low Correlation to Transportation Need

Source: Summary correlations based on national research and survey of national industry site selection professionals conducted by GPI Consultants Team
PERFORMANCE MEASURE FOR ACCESSIBILITY TO ACTIVITY CENTERS

ACCESSIBILITY DEFICIT - TRANSIT

• What it tells us:
  – Ability of workers to access Local Serving and Knowledge based Activity Centers

• What it measures:
  • Difference in number of workers, between auto and public transportation, that can access a given activity center within 45 minutes of travel

• Where it applies:
  • To Local-serving and Knowledge-based Activity Centers

---

<table>
<thead>
<tr>
<th>Economic and Transportation Correlation Table</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Highway Access</td>
</tr>
<tr>
<td>Passenger Reliability</td>
</tr>
<tr>
<td>Bottleneck Relief</td>
</tr>
<tr>
<td>Freight Reliability</td>
</tr>
<tr>
<td>Freight Accessibility</td>
</tr>
<tr>
<td>Network Connectivity</td>
</tr>
<tr>
<td>Transportation Demand Management</td>
</tr>
<tr>
<td>Modal Choice</td>
</tr>
<tr>
<td>Transit Access</td>
</tr>
<tr>
<td>Active Transportation (Walk/bike) Options</td>
</tr>
<tr>
<td>Walkable Places</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Highway Access</td>
</tr>
<tr>
<td>Passenger Reliability</td>
</tr>
<tr>
<td>Bottleneck Relief</td>
</tr>
<tr>
<td>Freight Reliability</td>
</tr>
<tr>
<td>Freight Accessibility</td>
</tr>
<tr>
<td>Network Connectivity</td>
</tr>
<tr>
<td>Transportation Demand Management</td>
</tr>
<tr>
<td>Modal Choice</td>
</tr>
<tr>
<td>Transit Access</td>
</tr>
<tr>
<td>Active Transportation (Walk/bike) Options</td>
</tr>
<tr>
<td>Walkable Places</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Correlations:</td>
</tr>
<tr>
<td>3 = High Correlation to Transportation Need</td>
</tr>
<tr>
<td>2 = Moderate Correlation to Transportation Need</td>
</tr>
<tr>
<td>1 = Low Correlation to Transportation Need</td>
</tr>
</tbody>
</table>

Source: Summary correlations based on national research and survey of national industry Site Selection Professionals conducted by DRI Consulting Team.

---
PERFORMANCE MEASURE FOR ACCESSIBILITY TO ACTIVITY CENTERS

ACCESSIBILITY DEFICIT - TRANSIT

• Data source:
  – Workers: 2015 Longitudinal Employer-Household Dynamics
  – Highway Network: HERE
  – Existing Fixed-Route Transit Service: DRPT

• Period of analysis:
  – Weekday peak period

• Calculation:
  – Using TransCAD, calculate the number of workers that can access an activity center block group within a 45-minute drive
  – Using TransCAD, calculate the number of workers that can access an activity center block group within a 45-minute bus or train ride
  – Calculate the difference between automobile and transit accessibility
  – Categorize activity centers as having high, medium, and low transit access deficit at Regional Network
• How will this measure be used to identify VTrans Needs?
  – We are evaluating different thresholds for characterizing transit access deficit and would like to receive feedback from stakeholders
**Performance Measure for Accessibility to Activity Centers**

**Accessibility Deficit — Non-motorized**

- **What it tells us:**
  - Non-motorized access to Local Serving and Knowledge-based Activity Centers

- **What it measures:**
  - Existing average walk and bike shed to a Knowledge-based or Local-serving Activity Center

- **Where it applies:**
  - Knowledge-based and Local-serving Activity Centers

---

**Economic and Transportation Correlation Table**

<table>
<thead>
<tr>
<th>Economic and Transportation Correlation Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway Access</td>
</tr>
<tr>
<td>Passenger Reliability</td>
</tr>
<tr>
<td>Bottleneck Relief</td>
</tr>
<tr>
<td>Freight Reliability</td>
</tr>
<tr>
<td>Freight Accessibility</td>
</tr>
<tr>
<td>Network Connectivity</td>
</tr>
<tr>
<td>Transportation Demand Management</td>
</tr>
<tr>
<td>Modal Choice</td>
</tr>
<tr>
<td>Transit Access</td>
</tr>
<tr>
<td>Active Transportation (Walk/Bike) Options</td>
</tr>
<tr>
<td>Walkable Places</td>
</tr>
</tbody>
</table>

**Correlations:**
- 3 = High Correlation to Transportation Need
- 2 = Moderate Correlation to Transportation Need
- 1 = Low Correlation to Transportation Need

Source: Summary correlations based on national research and survey of national industry Site Selection Professionals conducted by CPi Consultants Team
**Performance Measure for Accessibility to Activity Centers**

**Accessibility Deficit – Non-Motorized**

- **Data source:**
  - Walk and bike speed: Manual on Uniform Traffic Control Devices
  - Average bike and walk travel time: 2017 American Community Survey

- **Period of analysis:** Weekday

- **Calculation:**
  - **Pedestrian:** 1 mile
    - Average speed of 2.4 mph
    - Travel time of 24 minutes: Census-reported 90th percentile single-mode walking commute time for Virginia
  - **Bike:** 7 mile
    - Average speed of 9.9 mph: Average in-town bike speeds from multiple sources
    - 40 minutes: Imputed by combining Census-report mean commute times by mode with 90th percentile walk commute time
• How will this measure be used to identify VTrans Needs?
  – We are evaluating different thresholds for characterizing non-motorized
    access deficit and would like to receive feedback from stakeholders
**Performance Measure for Travel Options for Disadvantaged Populations**

Disadvantaged Population beyond ¼ mile access to transit

- **What it tells us:**
  - Areas where transit access is of high importance but is unavailable

- **What it measures:**
  - Block groups with significant number of disadvantaged population without transit access

- **What is Disadvantaged Population:**
  - Population below 150% of poverty level
  - Population with age 75 year and older
  - Population with disability

- **Who developed this definition of Disadvantaged Population:**
• Data source:
  – 2017 5-year American Community Survey (ACS)

• Calculation:
  – Identify Census Block Groups where the population share of any component of disadvantage (i.e., income, age, disability) exceeds region-specific thresholds.
    o Two threshold were used, with one identifying the top 10% of block groups along each component (above the “90th percentile”) and the other identifying the top 20% (above the “80th percentile”).
    o Flag these block groups as disadvantaged.
  – Identify region-specific transit viability – population density served by transit.
    o Apply region-specific 10th percentile population density served by transit.
    o Block groups exceeding the population density threshold are flagged as viable for fixed-route transit.
What do these preliminary results tell us?

- Share of population in disadvantaged Block Groups that current not served by a fixed-route transit service is greatest in the Kingsport Region (which does not have fixed-route transit)
- It is lowest in the Northern Virginia and Charlottesville Regions
- Hampton Roads Region, followed by Northern Virginia and Richmond, has the largest disadvantaged population that is currently not served by a fixed-route transit service
- On average, a fixed-route transit service is viable for nearly half of disadvantaged Block Groups

Disability: with disability | Age: 75 or older | Income: Less than 150% of poverty level
How will this measure be used to identify VTrans Needs?

- Block groups that are found to be transit viable seem to have a demonstrable need for transit service.
- We are evaluating different modifications to thresholds for identification of disadvantaged Block Groups and will rely on stakeholder input.
MID-TERM NEEDS METHODOLOGY
– SAFETY NEEDS
• Safety Needs are identified for the entire roadway network in Virginia

• Locations with Potential Safety Improvements (PSI) are used to guide VTrans Needs Identification
The PSI list is used in many different forms.

We are considering the following tiering of the PSI list for ease of communication:

- Tier 1: Targeted safety needs (less than 100 per district)
- Tier 2: Top 100 PSI based on Fatal + Injury crashes only (100 per district)
- Tier 3: Top 100 PSI based on all crashes
- Tier 4: VTrans Safety Needs - Somewhere between complete list and 100 per district
- Tier 5: Complete PSI List
• When will the PSI list become available?
  – Early fall
• When will a subset of the PSI list be identified as VTrans Safety Needs?
  – A draft is expected to be available by October, 2019
Mid-Term Needs Methodology – Urban Development Areas, and Industrial and Economic Development Areas
NEEDS METHODOLOGY – URBAN DEVELOPMENT AREAS

• Per Virginia Code §15.2-2223.1, UDAs ...
  – Are designated by a locality with a comprehensive plan/ zoning authority
  – **May** be sufficient to support 10-20 years of projected growth
    – May extend planning horizon to 40 years around current/ planned rail transit
  – **May** be appropriate for higher residential densities and commercial floor area ratios (FAR)
  – **Shall** incorporate principles of traditional neighborhood design (TND)
    ✓ Pedestrian friendly road design
    ✓ Connected local street / pedestrian networks
    ✓ Preserved natural areas
    ✓ Mixed use neighborhoods, mixed + affordable housing
    ✓ Reduced front/ side yard building setbacks
    ✓ Reduced street widths and intersection turning radii
NEEDS METHODOLOGY – URBAN DEVELOPMENT AREAS

• My jurisdiction currently does not have a UDA. Can we designate one in time for inclusion of needs in VTrans?
  – Planned UDAs (expected designation by April 1st, 2020)
    o Provide the needs for these areas in this survey (contact us)
    o Upload relevant data and shapefiles
    o Describe your plans for designation
    o These needs will become eligible for the next round of SMART SCALE only if designation process is complete by April 1st, 2020
• We are evaluating needs associated with designated industrial and economic development areas that have achieved some level of planning and readiness as determined by Virginia Economic Development Partnership (VEDP)
  o Leverage Virginia Economic Development Partnership (VEDP) Business Ready Sites program to account for the transportation needs of future industrial and economic development in VTrans
• VEDP’s Business Ready Site Program
  – The Virginia Business Ready Sites Program (VBRSP) was established pursuant to § 2.2-2238 C. of the Code of Virginia of 1950, as amended (the Code), to identify and assess the readiness of potential industrial or commercial sites in the Commonwealth of Virginia (the Commonwealth) for marketing for industrial or commercial economic development purposes, thereby enhancing the Commonwealth’s infrastructure and promoting the Commonwealth’s competitive business environment.
NEEDS METHODOLOGY — INDUSTRIAL AND ECONOMIC DEVELOPMENT AREAS

• Program components
  – Site characterization to assess and designate a site’s current level of development
  – Site Development to further develop a pool of potential sites across the Commonwealth

• Requirements
  – Minimum of 100 contiguous acres (statutory) - VEDP is now accepting sites of 25+ acres
  – Allows for industrial, research and office parks
  – Applicants to program must be political subdivisions of the Commonwealth of Virginia, including counties, cities, towns, industrial/economic development authorities
“Shovel Ready”. All permits are in place and the site is ready for a site disturbance permit from the locality in which the site is located.

Certified as “infrastructure ready”. All infrastructure is in place or will be deliverable within 12 months. All permit issues have been identified and quantified.

Zoned industrial/commercial, due diligence complete, but site has minimal or no infrastructure.

Site controlled and marketed for development. Comprehensive Plan reflects site intended for industrial or commercial development and use, but site is not zoned as such and a rezoning hearing needs to be scheduled. Site has minimal or no infrastructure. Minimal or no due diligence has been performed.

Site under (a) public ownership, (b) public/private ownership, or (c) private ownership which such private owner(s) agreeable to marketing the site for economic development purposes and to allowing access to the property for site assessment and marketing purposes. Comprehensive plan reflects site as appropriate for industrial or commercial development and use, but site is not zoned as such. Site has minimal or no infrastructure. Minimal or no due diligence has been performed.

Source: [https://www.vedp.org/vbrsp](https://www.vedp.org/vbrsp)
## Location and Characteristics of Sites in VEDP’s Business Ready Site Program

<table>
<thead>
<tr>
<th>Construction Districts</th>
<th>Total Sites (number)</th>
<th>Total Developable Acreage (acres)</th>
<th>Average Developable Acreage per Site (acres)</th>
<th>Largest Site by Developable Acreage (acres)</th>
<th>Average Distance to nearest Interstate (miles)</th>
<th>Average Distance to nearest Port (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bristol</td>
<td>27</td>
<td>7,571</td>
<td>280</td>
<td>3,100</td>
<td>16</td>
<td>291</td>
</tr>
<tr>
<td>Culpeper</td>
<td>46</td>
<td>6,518</td>
<td>142</td>
<td>1,600</td>
<td>20</td>
<td>57</td>
</tr>
<tr>
<td>Fredericksburg</td>
<td>72</td>
<td>15,252</td>
<td>212</td>
<td>2,200</td>
<td>7</td>
<td>56</td>
</tr>
<tr>
<td>Hampton Roads</td>
<td>110</td>
<td>26,463</td>
<td>241</td>
<td>4,000</td>
<td>11</td>
<td>38</td>
</tr>
<tr>
<td>Lynchburg</td>
<td>51</td>
<td>9,254</td>
<td>181</td>
<td>2,500</td>
<td>42</td>
<td>120</td>
</tr>
<tr>
<td>Northern Virginia</td>
<td>9</td>
<td>1,530</td>
<td>170</td>
<td>524</td>
<td>4</td>
<td>49</td>
</tr>
<tr>
<td>Richmond</td>
<td>125</td>
<td>24,148</td>
<td>193</td>
<td>1,600</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Salem</td>
<td>42</td>
<td>6,106</td>
<td>145</td>
<td>720</td>
<td>15</td>
<td>181</td>
</tr>
<tr>
<td>Staunton</td>
<td>53</td>
<td>6,960</td>
<td>131</td>
<td>770</td>
<td>3</td>
<td>73</td>
</tr>
<tr>
<td>Total</td>
<td>535</td>
<td>103,802</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Location and Readiness of Sites in VEDP’s Business Ready Site Program

<table>
<thead>
<tr>
<th>Uncharacterized</th>
<th>Bristol</th>
<th>Culpepper</th>
<th>Fredricksburg</th>
<th>Hampton Roads</th>
<th>Lynchburg</th>
<th>NoVA</th>
<th>Richmond</th>
<th>Salem</th>
<th>Staunton</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>14</td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Tier 2</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>15</td>
<td>5</td>
<td>8</td>
<td>22</td>
<td>58</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>Tier 3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>18</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Tier 4</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>32</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Tier 5</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>46</td>
<td>72</td>
<td>110</td>
<td>51</td>
<td>9</td>
<td>125</td>
<td>42</td>
<td>53</td>
<td>535</td>
</tr>
</tbody>
</table>

**Needs Methodology – Industrial and Economic Development Areas**
## Needs Methodology – Industrial and Economic Development Areas

<table>
<thead>
<tr>
<th>Uncharacterized</th>
<th>VEDP’s Site Readiness Tiers</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Regional Network</td>
<td>256</td>
<td>6</td>
<td>44</td>
<td>13</td>
<td>8</td>
<td>1</td>
<td>328</td>
</tr>
<tr>
<td>Outside Regional Network</td>
<td>155</td>
<td>8</td>
<td>14</td>
<td>5</td>
<td>24</td>
<td>1</td>
<td>207</td>
</tr>
</tbody>
</table>

Business Ready Site Program Tier

![Map of Virginia with highlighted areas]
• How will we use VEDP’s Business Ready Site Program to determine VTrans Needs?
  – We are evaluating needs associated with sites that VEDP has determined to be “shovel ready” or Tier 5 and “infrastructure ready” or Tier 4
  – The readiness indicates that these sites are likely to benefit from the required transportation improvements
BREAKOUT TABLES
FEEDBACK WE NEED FROM YOU TODAY

• Provide input on measures and thresholds
• Provide input on issues that may justify a Need
• Ways to provide input:
  – Verbally: During round table discussion
  – Written: Via comment form
  – Online: Interactive mapping application
WRAP UP
NEXT STEPS

• Information presented today was for discussion purposes only.
  – We will continue seeking feedback from all stakeholders via in-person meetings and online
• For any pending items, we will follow up in the coming weeks.
• We will take your and feedback from all other regions to establish informed thresholds for CTB’s review and consideration
• VTrans performance measures and Needs, when available in draft format, will remain available for comment until CTB takes an action
<table>
<thead>
<tr>
<th>Date</th>
<th>VTrans Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 16</td>
<td>October CTB meeting: Present draft needs</td>
</tr>
<tr>
<td>December 11</td>
<td>December CTB Meeting: Request for CTB action</td>
</tr>
<tr>
<td>Before the end of 2019</td>
<td>OIPI intends to publish final approved list of Mid-Term Needs</td>
</tr>
<tr>
<td>April 1, 2020</td>
<td>Deadline for localities to adopt new UDAs in Comprehensive Plans</td>
</tr>
<tr>
<td>Spring-Summer 2020</td>
<td>SMART SCALE Round 4 proposals screened with updated Mid-Term Needs</td>
</tr>
</tbody>
</table>
OIP! Staff Contact Information:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jitender Ramchandani</td>
<td>804.786.0868</td>
<td><a href="mailto:Jitender.Ramchandani@oipi.Virginia.gov">Jitender.Ramchandani@oipi.Virginia.gov</a></td>
</tr>
<tr>
<td>Katie Schwing</td>
<td>804.786.2362</td>
<td><a href="mailto:Kathryn.Schwing@oipi.Virginia.gov">Kathryn.Schwing@oipi.Virginia.gov</a></td>
</tr>
<tr>
<td>Chris Wichman</td>
<td>804.786.2366</td>
<td><a href="mailto:Chris.Wichman@oipi.Virginia.gov">Chris.Wichman@oipi.Virginia.gov</a></td>
</tr>
</tbody>
</table>

Sign up for updates on the website ([www.VTrans.org](http://www.VTrans.org))

Like our Facebook Page ([www.facebook.com/VTransVirginia](http://www.facebook.com/VTransVirginia))

Follow our Instagram Page ([www.instagram.com/VTransVirginia](http://www.instagram.com/VTransVirginia))
ADDITIONAL SLIDES - HANDOUTS
• E-Blast to public and stakeholder contacts
• Printed for distribution
• Available on website
What is the status of the Mid-Term Needs identified in VTRANS2040 and will they be used in this Needs Identification process?

The mid-term needs identified in VTRANS2040 (as part of the VTRANS Plan) will be unmet needs as defined by the VTRANS Plan. However, an unmet need in VTRANS2040 will not be evaluated as a need in the current Needs Identification process. The methodology for identifying mid-term needs and the process for identifying needs (both unmet and unmet needs) will be used in this Needs Identification process.

Correlated of Statewide Significance (CSS) – Inter-regional or state level Regional Networks (RN) – A single rail or bus network Regional Development Areas (RDAs) – Locally or sub-regional

What are Corridors of Statewide Significance?

There are twelve designated Corridors of Statewide Significance (CSS) in the State. CSSs are essential facilities and routes that are considered to be capital assets for national and regional transportation networks. They are essential to the provision of a safe, reliable, and efficient transportation network for the State. The Corridors are designated by the Governor under the provisions of the Transportation Planning and Development Act (TPDA) and the 2030 and 2040 State Strategic Plans. The CSSs are designated to ensure that there is a coordinated and efficient transportation network for the State. To be considered a CSS, a corridor must be a rail or a road on the following:

Multimodal: Must have multiple modes on the corridor
Connectivity: Must connect regions, corridors, or major activity centers
Resilience: Must have a high degree of redundancy
Function: Must provide a unique contribution to the State with statewide goals.

What are Regional Networks?

Regional Networks refer to major regional networks, such as the Inter-regional Rail/Bus Network (IRBN) and the Inter-regional Road Network (IRRN). The IRBN and IRRN are coordinated by the CSIRO and the Victorian Government. The IRBN and IRRN provide a coordinated approach to regional transportation planning and development, and are designed to ensure that there is a coordinated and efficient transportation network for the State.

What are Urban Development Areas?

Urban Development Areas (UDAs) are major development areas within the State that are planned for urban development in the future. UDAs are designated by the Governor under the provisions of the TPDA and the 2030 and 2040 State Strategic Plans. The UDAs are designated to ensure that there is a coordinated and efficient transportation network for the State.

What are the mid-term needs measures associated with each of the Goals?

The mid-term needs measures associated with each of the Goals are:

- Goals 1, 2, 3, 4, 5, and 6: These Goals are associated with the mid-term needs measures associated with the Goals 1, 2, 3, 4, 5, and 6.
- Goals 7, 8, 9, and 10: These Goals are associated with the mid-term needs measures associated with the Goals 7, 8, 9, and 10.
- Goals 11, 12, 13, and 14: These Goals are associated with the mid-term needs measures associated with the Goals 11, 12, 13, and 14.
- Goals 15, 16, and 17: These Goals are associated with the mid-term needs measures associated with the Goals 15, 16, and 17.