

November 8, 2021

**MEMORANDUM**

TO: Members, Transportation Technical Committee  
 FROM: Cristina Finch, AICP, LEED AP, Secretary to the Transportation Technical Committee  
 SUBJ: November 15, 2021 TTC Meeting/Agenda

The November meeting of the Transportation Technical Committee (TTC) will be held Monday, November 15, 2021 at 10:30 a.m. at the Roanoke Valley-Alleghany Regional Commission office (Top Floor Conference Room), 313 Luck Avenue, SW, Roanoke, VA. In accordance with Virginia Occupational Safety and Health regulations, all attendees (vaccinated or unvaccinated) must wear a mask while inside the Commission building. All attendees who are unvaccinated or are otherwise at-risk must physical distance themselves from others. RVARC staff will make the necessary accommodations to comply with these regulations.

**TTC AGENDA**

1. Welcome, Call to Order, Roll Call ..... *Chair Jamison*
2. **Action Needed:** Approval of the Consent Agenda items ..... *Chair Jamison*
  - A. Approval of the Agenda
  - B. Action on the October 14, 2021 TTC Minutes, pp. 3-44
3. Chair’s Remarks ..... *Chair Jamison*
4. **Action Needed:** Election of Vice Chair, p. 45.....*Megan Cronise & Michael Gray*
  - Nominating Committee Report
  - Additional Nominations from the floor
5. Virginia Transit Equity and Modernization Study ..... *Daniel Sonenklar, VDRPT*
6. **Action Needed:** Recommendation on 2022 Safety Performance ..... *Bryan Hill*  
 Measure Targets, pp. 46-47
7. Continued Development of the Update to the Roanoke ..... *Cristina Finch & Cambridge Systematics*  
 Valley Transportation Plan: **Action Needed:** Recommendation on Needs Prioritization, Objectives,  
 Performance Measures, pp. 48-69

**TPO POLICY BOARD:** Cities of Roanoke and Salem; Counties of Bedford, Botetourt, Montgomery and Roanoke;  
 Town of Vinton; Greater Roanoke Transit Company (*Valley Metro*); Roanoke-Blacksburg Regional Airport;  
 Virginia Department of Rail & Public Transportation; Virginia Department of Transportation



8. Other Business
  - A. Overview of Surface Transportation Block Grant (STBG) ..... *Cristina Finch & William Long*  
Round 5 Candidate Projects
9. Comments by TTC Members and/or Citizens
10. Adjournment (by 12:30 p.m.)

**TPO POLICY BOARD:** Cities of Roanoke and Salem; Counties of Bedford, Botetourt, Montgomery and Roanoke;  
Town of Vinton; Greater Roanoke Transit Company (*Valley Metro*); Roanoke-Blacksburg Regional Airport;  
Virginia Department of Rail & Public Transportation; Virginia Department of Transportation

**MINUTES**

The October meeting of the Transportation Technical Committee was held on Thursday, October 14, 2021 at 1:30 p.m. at the Roanoke Valley-Alleghany Regional Commission, 313 Luck Avenue, SW, Roanoke, VA.

**VOTING MEMBERS PRESENT**

Mariel Fowler	County of Bedford
Jonathan McCoy	County of Botetourt
Megan Cronise	County of Roanoke
Will Crawford	County of Roanoke
Wayne Leftwich	City of Roanoke
Mark Jamison, <i>Vice Chair</i>	City of Roanoke
Crystal Williams	City of Salem
Charles E. Van Allman	City of Salem
Anita McMillan	Town of Vinton
Cody Sexton	Town of Vinton
Frank Maguire	Roanoke Valley Greenway Commission
Michael Gray	Virginia Dept. of Transportation - Salem District
Daniel Sonenklar ( <i>via zoom</i> )	Virginia Dept. of Rail and Public Transportation

**VOTING MEMBERS ABSENT**

David Givens	County of Botetourt
Dan Brugh	County of Montgomery
Nathan Sanford	Unified Human Serv. Transp. System (RADAR)

**NON-VOTING MEMBERS ABSENT**

Kevin Jones	Federal Highway Administration
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**Others Present:** David Jackson, Cambridge Systematics.

**RVARC Staff Present:** Cristina Finch, Bryan Hill, Rachel Ruhlen, Jeremy Holmes (via zoom), Tim Pohland-Thomas (via zoom), Andrea Garland and Virginia Mullen.

**1. WELCOME, CALL TO ORDER, ROLL CALL**

Vice Chair Jamison called the meeting to order at 1:30 p.m. and asked Cristina Finch, Secretary to the TTC, to call the roll. Ms. Finch stated that a quorum was present.

Vice Chair Jamison reported that Mr. Dan Sonenklar, representing the Virginia Department of Rail and Public Transportation, requested to participate remotely in meetings of the Roanoke Valley Transportation Planning Organization (RVTPO) Transportation Technical Committee under the TPO’s Policy for Electronic Meeting Participation, allowing for remote participation when a member’s primary residence is more than sixty miles away, and a physical quorum is present. Mr. Sonenklar’ s request was made for the remainder of the fiscal year unless

otherwise noted. No objection was voiced. Vice Chair Jamison approved Mr. Sonenklar' s request via unanimous consent.

Vice Chair Jamison welcomed two new TTC members: Crystal Williams, representing the City of Salem and Jonathan McCoy, representing Botetourt County.

Vice Chair Jamison welcomed the newly hired Director of RIDE Solutions, Commission staff member Andrea Garland.

## **2. APPROVAL OF CONSENT AGENDA ITEMS**

The following consent agenda items were distributed earlier:

- A. October 14, 2021 RVTPO Meeting Agenda
- B. September 9, 2021 TTC Minutes

Anita McMillan proposed a correction to the following sentence under item #6 B Update on FY23 and FY24 Transportation Alternatives Set-Aside Block Grant Program Application:

*Staff have received notice that two projects were submitted for RVTPO: Williamson Road Pedestrian Improvement Project, City of Roanoke and Glade Creek Greenway Vinyard West, ~~Town of Vinton~~ Roanoke County.*

**Motion:** by Wayne Leftwich to approve items (A) and (B) under the consent agenda, as amended; seconded by Megan Cronise.

**TTC Action:** Motion carried unanimously.

## **3. VICE CHAIR REMARKS**

- Vice Chair Jamison reported that staff sent an email to current STBG project sponsors asking for project status updates. Any project sponsor also wishes to request additional funding for currently funded project phases in order to cover cost overruns will need to include that request with their project update, which is due to staff on Friday, November 5, 2021.
- Vice Chair Jamison reminded that TTC member scores on new STBG applications are due on Thursday, November 18, 2021.
- Vice Chair Jamison noted that the form to request that the RVTPO or RVARC submit a SMART SCALE application on behalf of a locality is due by Friday, November 12, 2021. Vice Chair Jamison inquired if staff could look into extending the deadline to consider strategies given the analysis of SMART SCALE Round 4 conducted by staff to which Ms. Finch replied staff would look into the schedule.

## **4. ACTION NEEDED: NOMINATING COMMITTEE REPORT**

At the September 9, 2021 TTC meeting, Chair Tripp appointed a Nominating Committee (Megan Cronise, Roanoke County and Michael Gray, VDOT) tasked with preparing a slate of

nominees for the TTC office of Chair to fulfill the two-year term vacated by Chair Tripp which will end after the conclusion of the July 14, 2022 TTC meeting.

The Nominating Committee recommended that Vice Chair Jamison be elected as the new Transportation Technical Committee (TTC) Chair.

The floor was opened for additional nominations for Chair. None were voiced.

**Motion:** by Megan Cronise to elect Mark Jamison as Chair of the TTC for a term ending at the conclusion of the July 14, 2022 TTC meeting; seconded by Michael Gray.

**TTC Action:** Motion carried unanimously.

Chair Jamison informed the TTC members that now there is a vacancy in the Vice Chair position. "According to Section 6 of the TTC Bylaws "A vacancy in the office of Chair or Vice Chair shall be filled for the unexpired term at an election during the next TTC meeting following occurrence of the vacancy, except that no such action shall be taken unless placed on the agenda mailed or electronically communicated to all members". Chair Jamison appointed Megan Cronise and Michael Gray to propose a nominee(s) to fill the remainder of his two-year term as a Vice Chair ending in July, 2022. If any member is interested in serving, they should let the nominating committee know. The election of the new Vice Chair will be held at the next meeting.

5. **CONTINUED DEVELOPMENT OF THE UPDATE TO THE RONOAKE VALLEY TRANSPORTATION PLAN: NEEDS PRIORITIZATION AND DRAFT OBJECTIVES/PERFORMANCE MEASURES**

David Jackson from Cambridge Systematics presented on needs prioritization and draft objectives/performance measures (The PowerPoint presentation is included with the Minutes. Please note- first copy of the presentation is the one that was presented at the meeting and second copy is the one with the corrected weight numbers.) TTC members were asked to discuss the feedback received to date on the Needs Prioritization methodology and discuss how to use the results of Needs Prioritization to start the next steps of Plan development-identification and review of potential solutions.

Discussion ensued. Michael Gray expressed concern about the Environmental Justice (EJ) weighting being 20% and is applied to every need type while in the OIPI VTrans needs prioritization EJ was only considered on two or three types and maxed out at 6.5%. He also noted that safety weighting is high on safety needs but that is ok. Mr. Jackson replied that it would be easy to adjust weightings.

Cody Sexton pointed out that the vehicle safety adds up to 110 (not 100). Mr. Sexton also asked if the weighting reflects values and if so, whose values do they reflect or whose values should they reflect. Mr. Jackson replied that criteria have been developed over time. UDAs are relatively recent, developed by local governments based on where they think or want development to occur. Multimodal centers and districts were developed by localities and adopted by the TPO, and they have tried to incorporate these values into the criteria.

Cody Sexton asked if there is a reliability metric. The answer was no, not explicitly. Information on reliability across the region is mixed- there is a lot of information on highest traveled corridors but not on lower end corridors.

Charles Van Allman asked about value engineering noting that the need could indicate high priority, but value engineering could show it is not feasible. Mr. Jackson answered that needs prioritization is independent of solutions. The GAP team process being developed will derive solutions for needs and may consider value engineering at that point. The first most obvious solution may be the costly.

Michael Gray asked what to do with needs that are not aligned with VTrans needs and there is no overlap but there is a higher priority and what if we do not pay attention to a fundable need because we are focused on an unfundable need. Mr. Jackson replied that VTrans needs are inclusive for the region but constrained to higher traveled corridors. Needs that fall below VTrans threshold means projects fall below SMART SCALE threshold and create an opportunity to look at smaller projects that go through other funding programs. VTrans process is continuous and will evolve over time. Region's needs are deeper, more localized than VTrans needs.

TTC members participated in the survey about draft objectives. There was no overwhelming opposition or disagreement to any one draft objective. There were several that were neutral or had some disagreement. Eighteen objectives across seven goals may be too many. The first draft is more inclusive, some may be cut. TTC will review the summary of their input and make a recommendation at their November meeting. Comments should be addressed to Cristina.

Wayne Leftwich suggested using "eliminate fatalities and reduce injuries" instead of "reduce injuries and fatalities." Mr. McGuire agreed.

**6. OTHER BUSINESS**

No other business was discussed.

**7. COMMENTS BY MEMBERS AND / OR CITIZENS**

Bryan Hill thanked TTC members for responses received regarding the RVARC's new COVID-19 Operations Standards Policy for public meetings.

**9. Adjournment**

The meeting was adjourned at 3:04 p.m.

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Cristina D. Finch, AICP, LEED AP, Secretary,  
Transportation Technical Committee

# Roanoke Valley Transportation Plan Update

Priority Needs – Next Steps

presented to  
Transportation Technical Committee

presented by  
Cambridge Systematics, Inc.



1

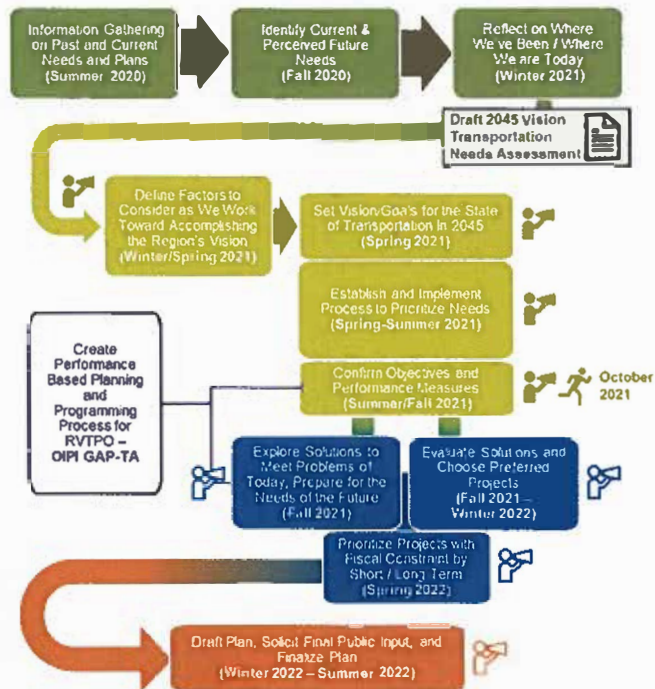


## Priority Needs

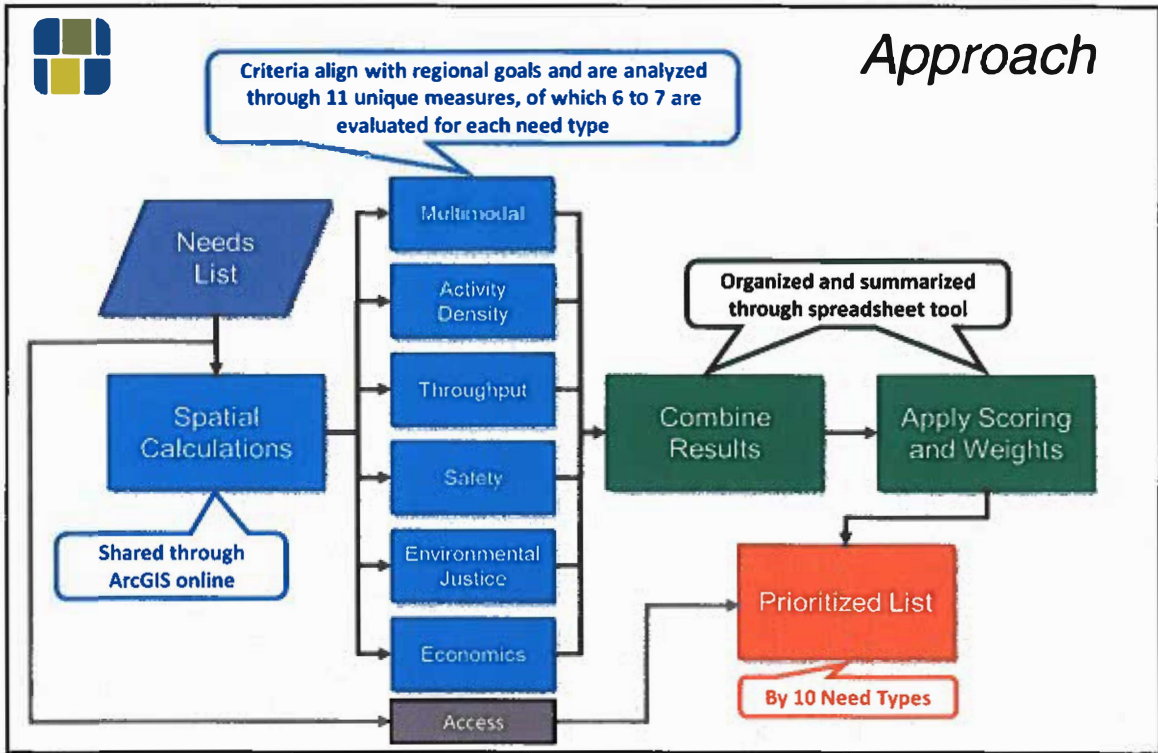
**Purpose** – Use readily available data representing Plan goal areas to assess the importance of each need

**Outcome** – Priority list of needs, by need type, that RVTPO and the TTC can review to decide where to focus attention on solutions for possible inclusion in the Roanoke Valley Transportation Plan

*This approach is a tool to inform decisions by regional planning partners on the next steps of the planning process, helping ensure that the Plan addresses the region's most critical needs while helping to meet goals*



2



3

### Criteria and Measures Quantitative Process

Theme	Description
<b>Data and Plan Focused</b>	
<b>Multimodal</b>	Overlap with designated multimodal centers and/or districts
<b>Activity Density</b>	Overlap with current (2019) and future (2045) combined population and employment density within the need area by Traffic Analysis Zone (TAZ)
<b>Throughput</b>	Overlap with the change in need area vehicle miles traveled (2019 to 2045) and overlap with identified priority corridors from Congestion Management Process
<b>Safety</b>	Overlap with potential for safety improvement (PSI) locations identified in Roanoke Valley Regional Transportation Safety Study and priority non-motorized safety needs from the VDOT pedestrian safety action plan (PSAP)
<b>Environmental Justice</b>	Overlap with regional equity emphasis areas as identified by VTrans
<b>Economics</b>	Overlap with future development priority location as identified through the recent Transportation and Economic Development study and/or with designated Urban Development Areas (or growth areas)

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## Access Needs Qualitative Criteria

Mode	What is here?	How many people are affected, what is the severity of lack of access, or environmental justice?
All modes	Government services	<ul style="list-style-type: none"> <li>Severity – many government services are essential and available in only one place (i.e. a courthouse), lack of access is high severity</li> </ul>
All modes	Essential services	<ul style="list-style-type: none"> <li>Severity – necessary but may be available in multiple locations (i.e. a grocery store or health clinic), lack of access is moderate severity</li> </ul>
All modes	Retail, services	<ul style="list-style-type: none"> <li>Severity – may not be necessary and may be available in multiple locations, lack of access is low severity               <ul style="list-style-type: none"> <li>Number of people</li> <li>Environmental justice (low wage jobs)</li> </ul> </li> </ul>
Transit	Bus service	<ul style="list-style-type: none"> <li>Severity – No existing bus service is high severity, existing bus service without sidewalks is moderate severity, existing bus service without other amenities is low severity</li> </ul>
Motor vehicle	Average Annual Daily Traffic	<ul style="list-style-type: none"> <li>Number of people</li> </ul>

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## Weighting

Criteria & Measures	Multimodal		Activity Density		Throughput		Safety		Environmental Justice	Economics	
	Centers	District	2019	2045	Priority Corridor	VMT Change	VTrans Needs (PSI)	PSAP	Equity Emphasis Areas	Development Priority Locations	Urban Development Areas
Vehicle Safety			5	5		20	50		20	5	5
Pedestrian Safety	5	5		10				50	20	5	5
Bicycle Safety	5	5		10				50	20	5	5
Transit Safety	5	5		10				50	20	5	5
Congestion			15	15		15			25	15	15
System Management			12.5	12.5	12.5	12.5			25	12.5	12.5
System Management (Transit)	10	10		20		20			20	10	10
<b>Access Criteria</b>	<b>Population Affected</b>				<b>Severity</b>			<b>Environmental Justice</b>			
Transit and Non-Transit	Points Available		5				5			2	

6



# Summary Results

- Online Map (ArcGIS Online)
- Summary Table (Excel)

ENTO Transportation Needs Prioritization

Layers

- Transportation Needs
- Automobile Safety Needs
- Priority Score
- Automobile Safety Score

100

Road Name	100
Priority Score	100
Automobile Safety Score	100

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# Summary Results

Prioritized Transportation Needs

Properties

Prioritized Transportation Needs

Automobile Safety Needs

Automobile Safety Score

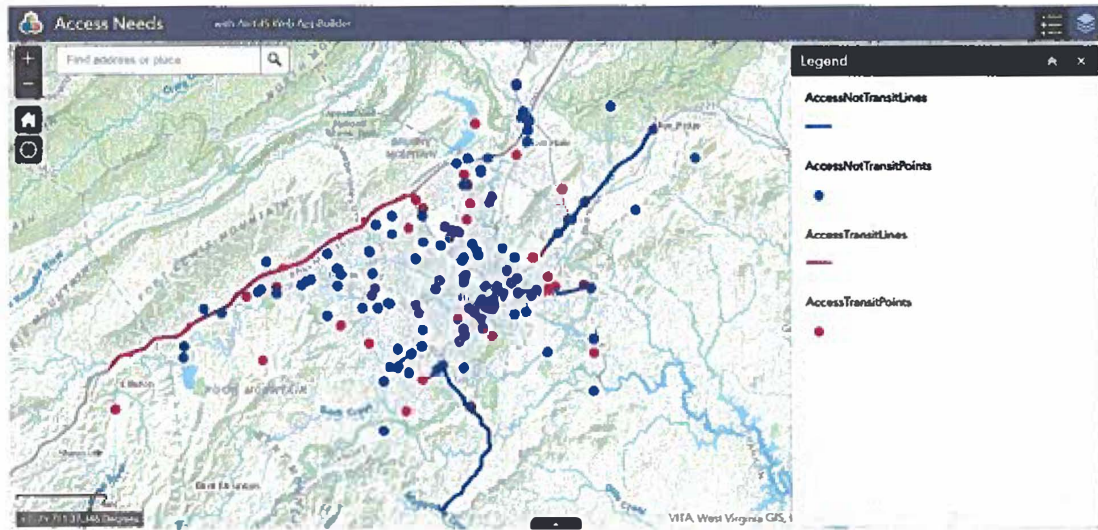
- ≤ 100,000,000
- ≤ 75,000,000
- ≤ 50,000,000
- ≤ 25,000,000

<https://catalog.maps.arcgis.com/apps/mapviewer/index.html?webmap=c08980f1444144a0ba613fb8f474103b>

8



## Summary Results Access Needs Only



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## Questions to Consider

**As you review the approach and the results, consider the following:**

- Are there any criteria and/or measures that we have missed (where data is readily available)?
- Do the measures for each need type and the weights make sense (e.g., do the highest weighted measures best identify the most critical aspects of the need type)?
- For each need type, do the results make sense? Do the needs in the top tier generally align with your perspective/opinion for the region or your jurisdiction?
- Do the results appear unbalanced or biased based on geography, development type, or corridor type?

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## Comments

### Related to projects...

- “how the prioritization criteria works with current or proposed projects” .... “It is hard to comment on percentages of certain factors when we don't know how they'll shake out with actual projects.”
- “Can an evaluation be provided that looks at the results of the needs prioritization process in relation to projects that the members have sought funding for over the past couple rounds of SMART SCALE and TA?”
- “At a high level, the criteria seem to be appropriate and are generally aligned with the criteria through which Smart Scale applications are scored.”

The needs prioritization process does not consider active or programmed projects (e.g., projects in the current SYIP)

Needs are evaluated based on the importance/severity of the need independent of an existing solution

Existing projects will be considered during the review of solutions for priority needs – if a priority need has projects programmed to address, then we retain it as a priority need, but leave the solution as is

Unfunded projects can become solutions to priority needs, assuming that the project scope is the right solution to address the need

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## Comments

### Related to needs and future project development...

“Since these priority needs will help drive the RVTPO's planning process in the future, I would like to better understand them and how the prioritization process was developed”

“Do these priorities include the state priority needs identified through VTrans? If so, how can a user determine this?”

Priority needs, particularly those not evaluated through recent planning studies or project development activities, could represent the focus of planning efforts, in coordination with VDOT, ValleyMetro, etc...

Potential solutions, including those developed within the Plan Update and those identified for future study will require partnerships

The VTrans mid-term needs and priority needs were developed through a different process and methodology. Overlaps typically occur on major corridors and near activity centers.

*This process is establishing a regional project pipeline focused on regional and local needs. Having both a statewide driven process and a regional process enables RVTPO to be more comprehensive in leveraging resources for planning and project development.*

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## Comments

### Methodology and weighting...

"I'm not sure how the weighting was determined. Safety and environmental justice seem to be weighted very heavily. How do these compare to the Smart Scale weighting for this area?"

"The results seem to make better sense in some areas than in others. Generally, the geographic spread seems reasonable when I look at the overall list of needs but within specific need types, there seems to be a little less geographic spread. That may be partially reflective of where certain infrastructure exists?"

"Some of the descriptions of needs are too vague to be of much use. For example, all major Vinton corridors in Safety Auto, I-81 from MM 128-136 in Safety Auto, Downtown Salem in Safety Ped, and Downtown Roanoke in Safety Bike."

**For SS Round 4: safety is 20 to 30%, EJ is within the accessibility factor, at most 12.5% (but, difference is needs compared to projects)**

**Once you drop down to individual needs, the geographic spread does reduce based on survey response (which is connected to where infrastructure exists – focus is on existing needs, not future needs)**

**Right on needs specificity – in these cases, once we proceed into solutions, we will need to more carefully review the need and better define it**

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## Priority Needs – Recommendation

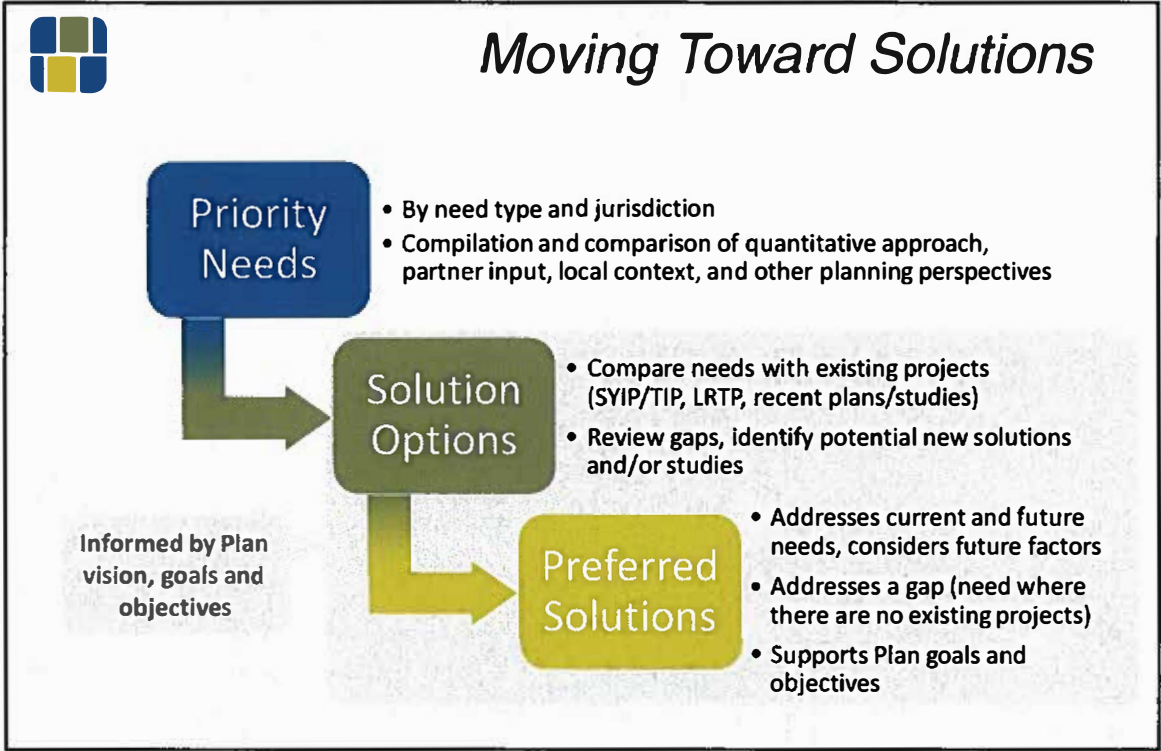
- **TTC confirmation of the purpose for establishing priority needs and acceptance of the priority needs methodology**
  - **Recognizes role of priority needs within the Plan development process**
  - **Accepts the methodology (similar to VTrans approach – adopt the methodology, not the actual results)**
  - **Acknowledges that the results of the methodology are a planning tool guiding the next step of the planning process (developing solutions)**

**Prioritizing needs is different than prioritizing projects**

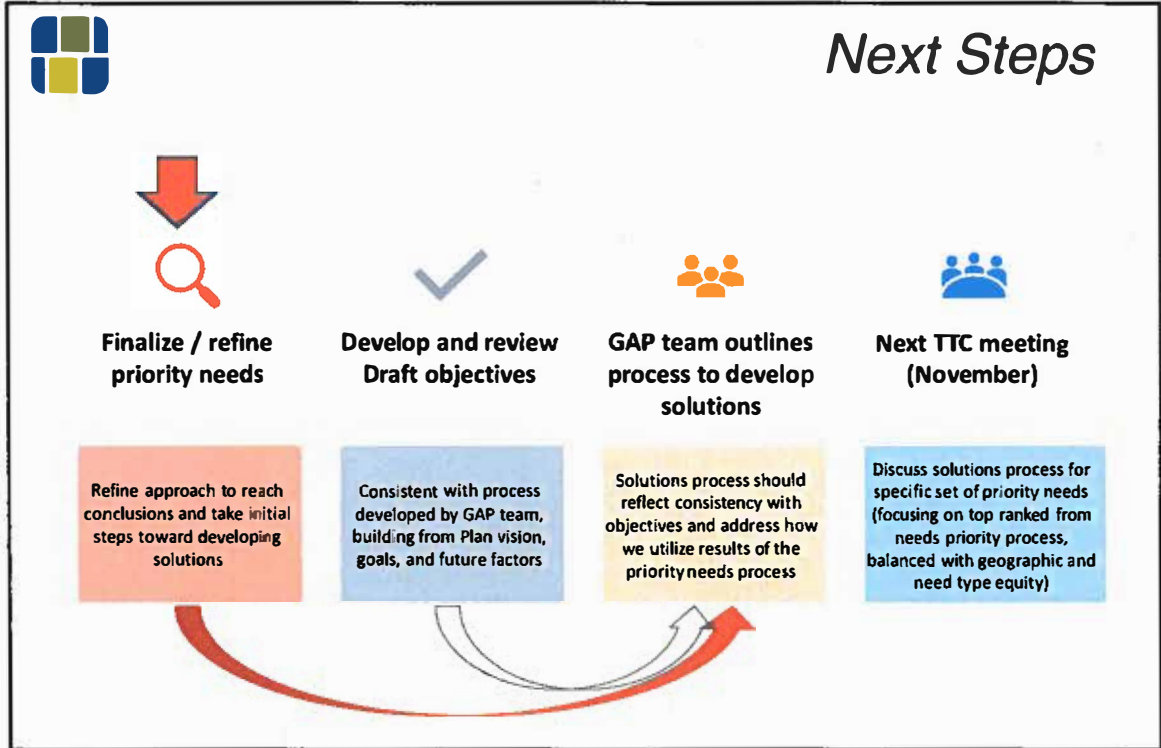
**Less important – ranking or score**

**More important – context, relationships, scope**

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# Roanoke Valley Transportation Plan Update

Plan Goals, Objectives, and Measures

presented to  
Transportation Technical Committee

presented by  
Cambridge Systematics, Inc.



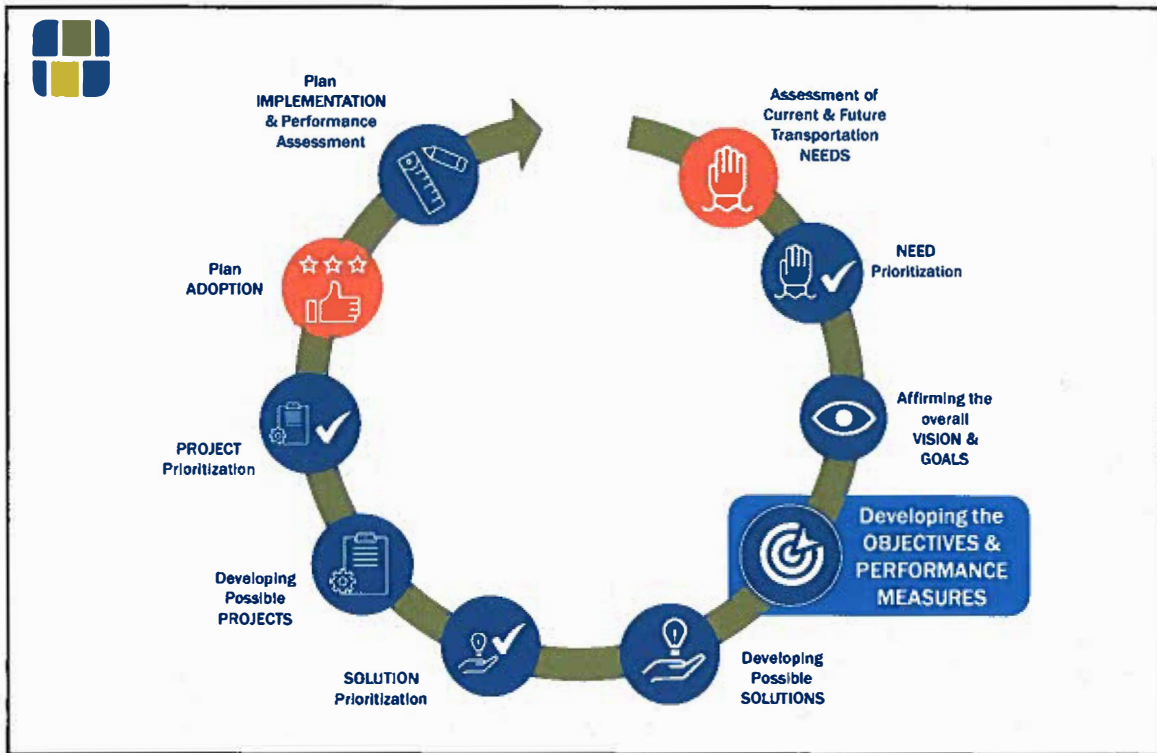
17



## Plan Process





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## Definitions

-  **Vision** describes the desired future state
-  **Goals** describe what guides us toward attaining the vision and our overall desired outcomes
-  **Objectives** describe how we are going to attain the vision, objectives represent our specific desired outcomes
-  **Solutions** offer various ideas of how to address a need and achieve the goals and objectives
-  **Projects/Services** represent the preferred means to address a need and achieve objectives
-  **Measures** quantify objectives, enabling us to assess the degree to which the system is achieving objectives  
*Note – performance measure are different from prioritization criteria (but they are related)*

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## Vision

**The Roanoke Valley's seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well maintained and reliable, accessible for all users, and promotes economic vitality of the community.**



***Vision describes the desired future state***

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## Goals

-  **Provide a safe and secure transportation system**
-  **Enable reliable mobility**
-  **Enable convenient and affordable access to destinations**
-  **Foster environmental sustainability**
-  **Maintain and operate an efficient and resilient transportation system**
-  **Support economic vitality**
-  **Promote equitable transportation investments**



***Goals describe what guides us toward attaining the vision and our overall desired outcomes***

***Goals are action oriented***

***Goals create the platform for objectives***

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## Objectives Approach

### Developing Objectives – FHWA Guidance

- Objectives should **support local goals**, but also be informed by federal and state programs.
- Objectives must be **measurable and flexible** with multiple possible ways to accomplish the objective.
- Objectives should be as **specific** as possible, and if possible, **attainable** within a working timeframe.
- Objectives are accomplished through **strategies/solutions** (general plans of action) and appropriate **projects/services** (how the solution will be executed) for the preferred solution.
- Solutions **should not be** included in the objective as there might be more than one possible solution to address the objective.



Link priority needs to goals, which helps identify themes within each goal

Translate themes into candidate objectives

Compare candidate objectives to priority needs criteria

Refine objectives through review of Virginia and Federal programs

Finalize objectives, ensuring they meet the SMART framework

Note – the approach represents a summary of the GAP-TA Process for Developing Objectives and Performance Measures

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## Objectives Approach

### SMART Framework

Reduce fatalities and injuries on the region's multimodal transportation system

**S** (Specific)

**S** Types of crashes, regional focus, multimodal

**M** (Measurable)

**M** Annual crash data trends

**A** (Agreeable)

**A** Important at all geographic and policy scales



**R** (Relevant)

**R** Understood and proven

**T** (Time-Bound)

**T** Can be monitored over time

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# Objectives

Goal	Objective	Reaction
Safe & secure	Reduce injuries and fatalities on the multimodal transportation system.	👍
Reliable mobility	Maintain vehicle travel time reliability on priority corridors.	👍
	Maintain transit and passenger rail on-time performance (OTP).	👍
Convenient and affordable access	Provide motorized access to inaccessible properties identified for future development.	👎
	Increase the number of destinations accessible by transit.	👍
	Increase transportation system connectivity between inter-regional travel modes.	👍
Environmental sustainability	Increase transit, bicycle and pedestrian connections within all multimodal centers and districts.	👍
	Manage growth in total vehicle travel per regional household.	👎
	Manage emissions from on-road transportation.	👎
Efficient & resilient	Minimize / mitigate new impervious surfaces.	👍
	Maintain state and national standards for infrastructure and asset condition.	👍
Economic vitality	Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by <u>more than one mode of transportation infrastructure</u> .	👎
	Maintain truck travel time reliability.	👎
	Maintain acceptable levels of congestion during peak travel periods on priority corridors.	👍
Equitable investments	Promote and ensure benefits and avoid or mitigate disproportionate adverse effects of transportation projects included in this Plan on <u>minority and low-income communities</u> .	👎
	Ensure at least 40% of new non-vehicle-based investments benefit minority and low-income communities.	👍
	Reduce traffic injuries and fatalities in minority and low-income communities.	👍
	Maintain state and national standards for infrastructure condition in minority and low-income communities.	👎

👍 Majority strongly agree or agree      👎 Some agreement, some neutral, few disagree

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# Objectives

## Provide a safe and secure transportation system

Draft Objective for Review	Considerations	Performance Measure Possibilities
Reduce injuries and fatalities on the multimodal transportation system.	<ul style="list-style-type: none"> <li>Consistent with FHWA required measures</li> <li>Can break out into fatalities, injuries, motorized/nonmotorized, and transit</li> <li>Data readily available</li> <li>Can segment by community to track safety impacts on specific populations (see Goal 7)</li> <li>Transit safety measures also include security related events (within the National Transit Database - NTD)</li> </ul>	Motorized, non-motorized, and transit safety performance measures and targets are specified through FHWA and FTA rulemakings (these apply at both the Statewide and MPO level).

**8** Strongly agree  
**4** Agree  
**1** Neutral

**General comments:**

- Expand focus to note all crashes (do not isolate the objective only to fatalities and injuries)
- Choose stronger word than "reduce"

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# Objectives

## Enable reliable mobility

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Maintain vehicle travel time reliability on priority corridors.	<ul style="list-style-type: none"> <li>Focus on Congestion Management Process priority corridors.</li> <li>Consistent with FHWA required measures.</li> <li>Can expand to more corridors than National Highway System (based on availability of data)</li> </ul>	Travel time reliability performance measures on the National Highway System (NHS) are specified through FHWA rulemakings. Other performance measures exist beyond FHWA, including those developed by VDOT and OIPI for corridor level analysis and statewide planning (VTrans).
b. Maintain transit and passenger rail on-time performance (OTP).	<ul style="list-style-type: none"> <li>Segmented by system – Amtrak, Valley Metro</li> <li>Data availability through Department of Rail and Public Transportation and National Transit Database (often at least 1 year behind)</li> </ul>	Amtrak on-time performance is reported on a monthly basis by DRPT and also is a Federally required measure through FRA. DRPT and FTA also report transit reliability by provider.

**a.** 5 Strongly agree  
3 Agree  
4 Neutral  
1 Disagree

**b.** 7 Strongly agree  
3 Agree  
3 Neutral

**General comments:**

- Uncertain on “maintain”, does this imply that current reliability is acceptable?
- Do we have data enabling us to decide if “maintain” is the right approach, maybe “enhance”?

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# Objectives

## Enable convenient and affordable access to destinations

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Provide motorized access to inaccessible properties identified for future development.	<ul style="list-style-type: none"> <li>New developments should be accessible by more than one direction to enable multi-directional vehicle connectivity.</li> </ul>	Track number of localities with ordinances or policies that incentivize or require multiple accesses in new developments.
b. Increase the number of destinations accessible by transit.	<ul style="list-style-type: none"> <li>Could include types of destinations</li> <li>Multiple accessibility measures to consider</li> </ul>	Track the number of destinations adjacent to bus stops and hours of day/days of week with transit service.
c. Increase transportation system connectivity between inter-regional travel modes.	<ul style="list-style-type: none"> <li>Connections to Amtrak, Intercity bus terminals, and airport</li> </ul>	Track the number and frequency of regional connections offered.
d. Increase transit, bicycle and pedestrian connections within all multimodal centers and districts.	<ul style="list-style-type: none"> <li>Transit, on and off-road bicycle and pedestrian connections within centers and districts</li> </ul>	Focus on measures that assess the system extent of available transit-walk connections, transit-bike connections, walk-bike connections.

**a.** 4 Strongly agree  
2 Agree  
1 Neutral  
3 Disagree  
1 Against

**b.** 7 Strongly agree  
1 Agree  
3 Disagree

**c.** 4 Strongly agree  
5 Agree  
1 Neutral  
1 Against

**d.** 5 Strongly agree  
4 Agree  
1 Neutral  
1 Disagree

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# Objectives

## Enable convenient and affordable access to destinations

Draft Objective for Review	Comments
<p>a. Provide motorized access to inaccessible properties identified for future development.</p> <p>b. Increase the number of destinations accessible by transit.</p> <p>c. Increase transportation system connectivity between inter-regional travel modes.</p> <p>d. Increase transit, bicycle and pedestrian connections within all multimodal centers and districts.</p>	<ul style="list-style-type: none"> <li>• Too specific of an objective? Does this encourage more access to facilitate greenfield development? Should we focus more broadly when we discuss access barriers?</li> <li>• Reference access by multimodal options (transit, bike, ped, shared)</li> <li>• Increase number of destination implies expanding service area? Are we ready for this commitment? Maybe instead reference level of service, rather than extent?</li> <li>• Simplify the terminology... connectivity and inter-regional is too much jargon.</li> <li>• Remove reference to "all", as readiness for expanded access in these places is variable.</li> </ul> <p>General -- no reference to greenways/regional trail system. What about incorporating access for all users (e.g., ADA, LEP, seniors, etc...)</p>

<p><b>a.</b> 4 Strongly agree 2 Agree 1 Neutral 3 Disagree 1 Against</p>	<p><b>b.</b> 7 Strongly agree 1 Agree 3 Disagree</p>	<p><b>c.</b> 4 Strongly agree 5 Agree 1 Neutral 1 Against</p>	<p><b>d.</b> 5 Strongly agree 4 Agree 1 Neutral 1 Disagree</p>
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# Objectives

## Foster environmental sustainability

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Manage growth in total vehicle travel per regional household.	<ul style="list-style-type: none"> <li>• Direct tie to greenhouse gas emissions and overall transportation system sustainability</li> <li>• A substantial share of regional VMT is pass-thru (minimal benefit to the region's economy, but does create an environmental impact)</li> </ul>	Measures should balance impact of economic growth with potential for managing or decreasing VMT per person or per household.
b. Manage emissions from on-road transportation.	<ul style="list-style-type: none"> <li>• Focuses on vehicle and fuel technology opportunities in the region</li> </ul>	Measures could track investments in zero-emission technologies (buses, county fleets, charging stations).
c. Minimize / mitigate new impervious surfaces.	<ul style="list-style-type: none"> <li>• Helps consider environmental risks associated with transportation system expansion, particularly in environmentally sensitive areas.</li> </ul>	Minimize and mitigate new impervious surface area outside of designated growth areas and in floodplains.

<p><b>a.</b> 3 Strongly agree 1 Agree 3 Neutral 1 Disagree 2 Against</p>	<p><b>b.</b> 3 Strongly agree 1 Agree 3 Neutral 1 Disagree 2 Against</p>	<p><b>c.</b> 3 Strongly agree 6 Agree 1 Against</p>
--	--	---

30



### Foster environmental sustainability

Draft Objective for Review	Comments
a. Manage growth in total vehicle travel per regional household.	<ul style="list-style-type: none"> <li>Note, many of the prior objectives (esp. accessibility related) support this objective. Do we need it?</li> <li>Rethink the wording, maybe: "Implement programs to increase the use of alternate modes and reduce SOVs."</li> <li>As phrased, objective may imply to some that we are able to manage travel demand.</li> </ul>
b. Manage emissions from on-road transportation.	<ul style="list-style-type: none"> <li>Isn't our objective to reduce emissions?</li> <li>Note, many of the prior objectives (esp. accessibility related) will support this objective.</li> <li>Uncertainty on the possible strategies the regional can implement to support this objective.</li> </ul>
c. Minimize / mitigate new impervious surfaces.	<ul style="list-style-type: none"> <li>Does this also apply to developments in member localities; such as parking lots, buildings, trails, etc?</li> <li>Is this more a project level design consideration?</li> <li>Maybe, "Reduce impervious surfaces in transportation projects where possible."</li> </ul>

<b>a.</b> 3 Strongly agree 1 Agree 3 Neutral 1 Disagree 2 Against	<b>b.</b> 3 Strongly agree 1 Agree 3 Neutral 1 Disagree 2 Against	<b>c.</b> 3 Strongly agree 6 Agree 1 Against
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### Maintain and operate an efficient and resilient transportation system

Draft Objective for Review	Considerations	Performance Measure Possibilities
Maintain state and national standards for infrastructure and asset condition.	<ul style="list-style-type: none"> <li>Both Federal and State measures, each have unique applicability to the regional planning and performance management process.</li> </ul>	<p>Bridge and pavement condition measures are related (but intentionally focusing on different outcomes) for FHWA and VDOT. RVTPQ should incorporate both sets of measures into this process. There are also transit state of good repair measures reported by each provider, with targets for Tier 2 providers (like Valley Metro) established statewide through coordination with DRPT.</p>

<b>4 Strongly agree</b> <b>3 Agree</b> <b>3 Neutral</b>	<b>General comments:</b> <ul style="list-style-type: none"> <li>Should the objective be to attain a higher standard than current conditions (or targets)?</li> <li>Need to define infrastructure better – assume this is "transportation infrastructure"</li> <li>Balance between maintaining assets and preserving/protecting the environment</li> </ul>
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# Objectives

## Support economic vitality

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	<ul style="list-style-type: none"> <li>• Could include access to regional economic development sites and VTrans industrial development areas</li> </ul>	Track the number of developments approved adjacent to more than one existing or planned transportation mode.
b. Maintain truck travel time reliability.	<ul style="list-style-type: none"> <li>• Truck travel time reliability measure would help characterize performance of the overall regional freight system</li> </ul>	FHWA tracks truck travel time reliability on Interstates. Data is available on all NHS routes.
c. Maintain acceptable levels of congestion during peak travel periods on priority corridors.	<ul style="list-style-type: none"> <li>• Multiple possible measures to consider</li> </ul>	Performance measures should be consistent with (or build from) measures used within the Congestion Management Process.

**a.** 4 Strongly agree  
3 Agree  
2 Neutral  
1 Disagree

**b.** 2 Strongly agree  
5 Agree  
2 Neutral  
1 Disagree

**c.** 4 Strongly agree  
2 Agree  
4 Neutral

33



# Objectives

## Support economic vitality

Draft Objective for Review	Comments
a. Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	<ul style="list-style-type: none"> <li>• Consider "promote" instead of "ensure" as more than one mode in these areas is a challenge</li> <li>• Or...add to the end "where economically feasible"</li> </ul>
b. Maintain truck travel time reliability.	<ul style="list-style-type: none"> <li>• Maintain? Is truck travel time currently acceptable? "Accommodate truck volumes and minimize conflict with passenger vehicles" or "Enhance truck safety and access". Also consider noting value of freight rail.</li> </ul>
c. Maintain acceptable levels of congestion during peak travel periods on priority corridors.	<ul style="list-style-type: none"> <li>• Focus on <u>managing</u> congestion during peak travel periods – "maintain" implies that existing or future levels are acceptable.</li> </ul>

**a.** 4 Strongly agree  
3 Agree  
2 Neutral  
1 Disagree

**b.** 2 Strongly agree  
5 Agree  
2 Neutral  
1 Disagree

**c.** 4 Strongly agree  
2 Agree  
4 Neutral

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# Objectives

## Promote equitable transportation investments

Draft Objective for Review	Considerations	Performance Measure Possibilities
Promote and ensure benefits and avoid or mitigate disproportionate adverse effects of transportation projects on minority and low-income communities.	<ul style="list-style-type: none"> <li>Assume that NEPA process protects communities from disproportionate impacts</li> <li>Consider benefits &amp; burdens for each project</li> <li>Regional specific community definition</li> </ul>	Track project benefits to these communities and identify projects or project types that could create burdens to targeted disadvantaged communities.
Ensure at least 40% of new non-vehicle based investments primarily benefit minority and low-income communities.	<ul style="list-style-type: none"> <li>Consider unique benefits of each project on these communities</li> <li>Justice40 initiative builds on environmental justice outlined in Executive Order 12898</li> </ul>	Track progress toward 40% of non-highway investments providing documented benefits primarily for minority and low-income populations.
Reduce traffic injuries and fatalities in minority and low-income communities.	<ul style="list-style-type: none"> <li>Special attention to provide a safe and secure transportation system in these communities</li> </ul>	Segment safety performance measures, within these communities.
Maintain state and national standards for infrastructure condition in minority and low-income communities.	<ul style="list-style-type: none"> <li>Special attention to maintain and operate an efficient and resilient transportation system in these communities</li> </ul>	Segment bridge and pavement performance measures within these communities.

<b>a.</b> 2 Strongly agree 4 Agree 2 Neutral 1 Disagree 1 Against	<b>b.</b> 4 Strongly agree 3 Agree 1 Neutral 1 Against	<b>c.</b> 5 Strongly agree 3 Agree 1 Neutral 1 Against	<b>d.</b> 3 Strongly agree 1 Agree 3 Neutral 2 Disagree 1 Against
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# Objectives

## Promote equitable transportation investments

Draft Objective for Review	Comments
Promote and ensure benefits and avoid or mitigate disproportionate adverse effects of transportation projects on minority and low-income communities.	<ul style="list-style-type: none"> <li>Too wordy and difficult to understand, change to: "Consider all impacts of all transportation projects on minority and low-income communities"</li> <li>Perhaps reference how to address historical patterns of inequitable development?</li> </ul>
Ensure at least 40% of new non-vehicle based investments primarily benefit minority and low-income communities.	<ul style="list-style-type: none"> <li>A number of comments along these lines...can the TPO impose a goal/restriction on what investments each member locality makes and how would this be measured?</li> <li>Leaves a lot of room for interpretation, misrepresentation – also the use of a specific value (40%) is inconsistent with other objectives.</li> </ul>
Reduce traffic injuries and fatalities in minority and low-income communities.	<ul style="list-style-type: none"> <li>This is already covered in the safety goal – why do we need to repeat this here?</li> <li>Is their proof that there are disproportionate safety issues in these communities?</li> </ul>
Maintain state and national standards for infrastructure condition in minority and low-income communities.	<ul style="list-style-type: none"> <li>Historically there has been underinvestment in these communities – should we aspire to doing better than maintain?</li> <li>Duplicative of the other goal – what are we uniquely trying to achieve here?</li> </ul>

<b>a.</b> 2 Strongly agree 4 Agree 2 Neutral 1 Disagree 1 Against	<b>b.</b> 4 Strongly agree 3 Agree 1 Neutral 1 Against	<b>c.</b> 5 Strongly agree 3 Agree 1 Neutral 1 Against	<b>d.</b> 3 Strongly agree 1 Agree 3 Neutral 2 Disagree 1 Against
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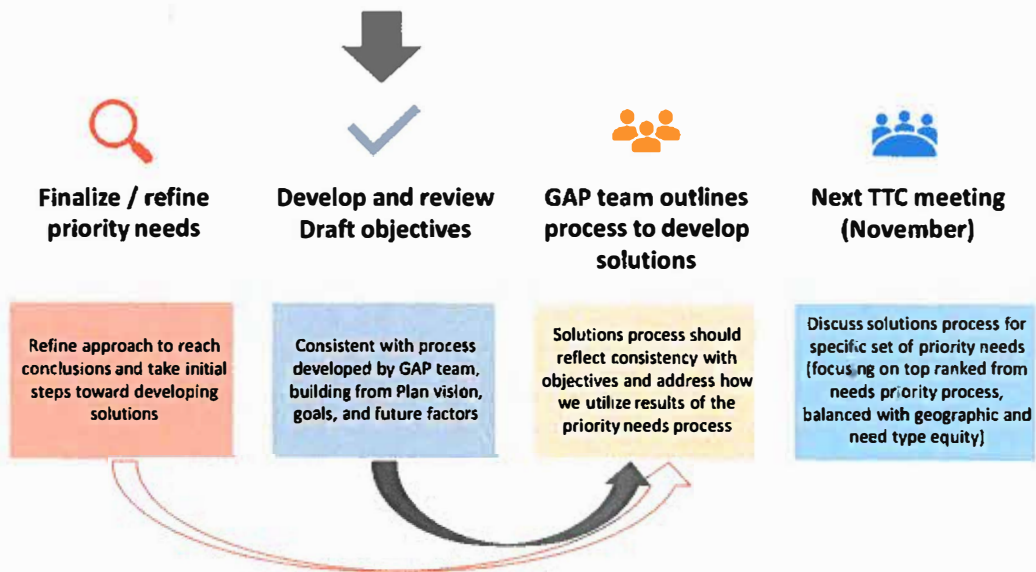
## Objectives – Recommendation

- **TTC review and recommendation**
  - Finalizes objective statements within each goal
  - Acknowledges purpose of objectives within the planning process to inform:
    - Development and review of solutions
    - Criteria for selecting preferred solutions and prioritizing projects
    - Performance measures for the region

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## Next Steps



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# Roanoke Valley Transportation Plan Update

## Priority Needs – Next Steps

presented to  
Transportation Technical Committee

presented by  
Cambridge Systematics, Inc.

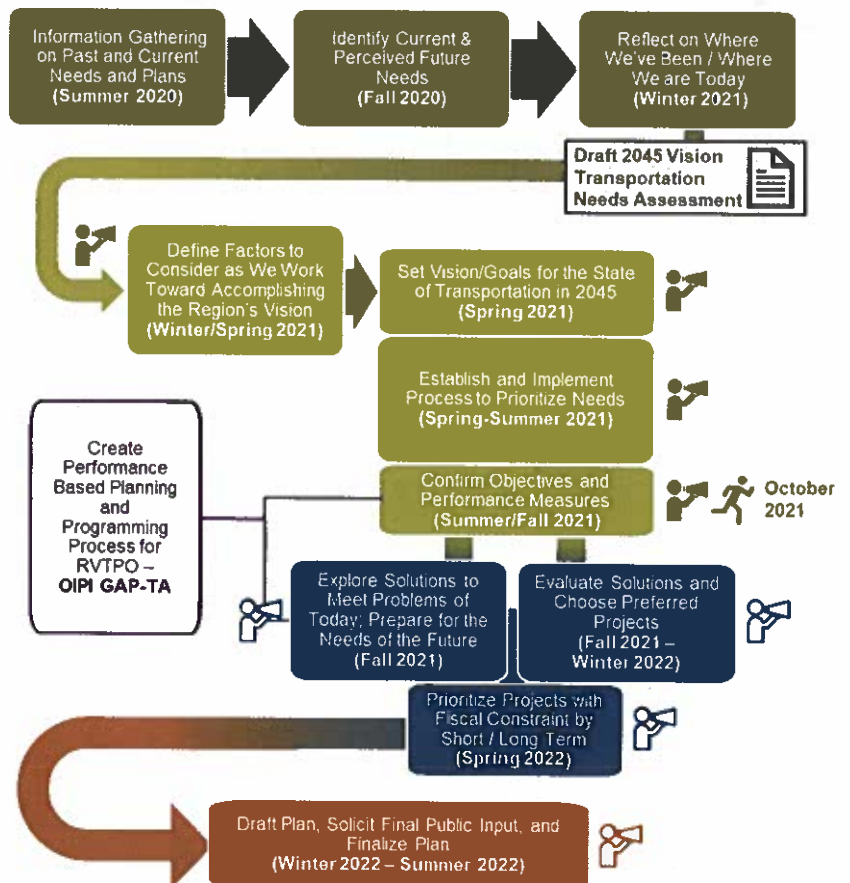


## Priority Needs

**Purpose** – Use readily available data representing Plan goal areas to assess the importance of each need

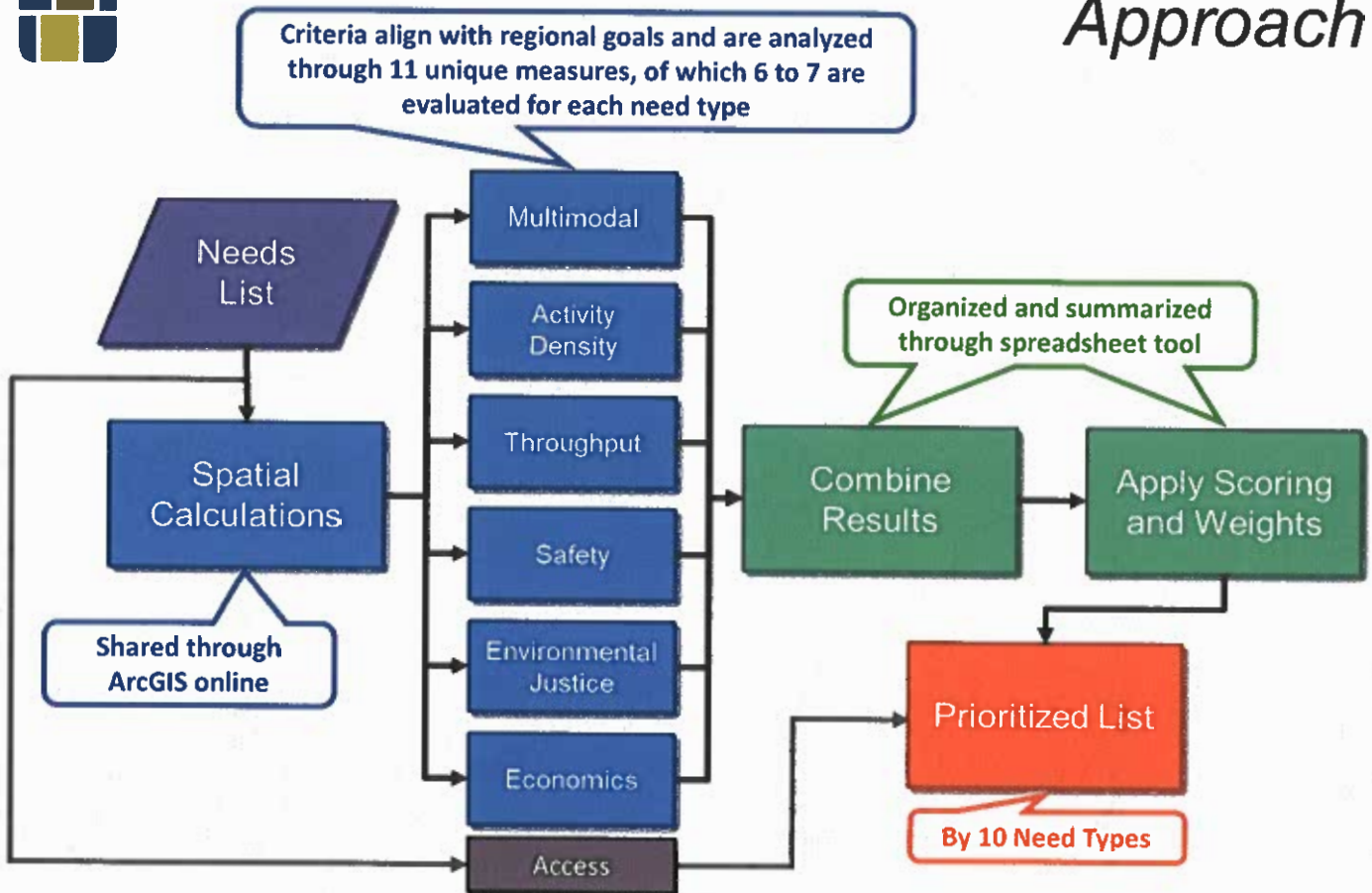
**Outcome** – Priority list of needs, by need type, that RVTPO and the TTC can review to decide where to focus attention on solutions for possible inclusion in the Roanoke Valley Transportation Plan

*This approach is a tool to inform decisions by regional planning partners on the next steps of the planning process, helping ensure that the Plan addresses the region's most critical needs while helping to meet goals*





# Approach



# Criteria and Measures Quantitative Process

Theme	Description
<b>Data and Plan Focused</b>	
<b>Multimodal</b>	Overlap with designated multimodal centers and/or districts
<b>Activity Density</b>	Overlap with current (2019) and future (2045) combined population and employment density within the need area by Traffic Analysis Zone (TAZ)
<b>Throughput</b>	Overlap with the change in need area vehicle miles traveled (2019 to 2045) and overlap with identified priority corridors from Congestion Management Process
<b>Safety</b>	Overlap with potential for safety improvement (PSI) locations identified in Roanoke Valley Regional Transportation Safety Study and priority non-motorized safety needs from the VDOT pedestrian safety action plan (PSAP)
<b>Environmental Justice</b>	Overlap with regional equity emphasis areas as identified by VTrans
<b>Economics</b>	Overlap with future development priority location as identified through the recent Transportation and Economic Development study and/or with designated Urban Development Areas (or growth areas)



# Access Needs

## Qualitative Criteria

Mode	What is here?	How many people are affected, what is the severity of lack of access, or environmental justice?
All modes	Government services	<ul style="list-style-type: none"> <li>Severity – many government services are essential and available in only one place (i.e. a courthouse), lack of access is high severity</li> </ul>
All modes	Essential services	<ul style="list-style-type: none"> <li>Severity – necessary but may be available in multiple locations (i.e. a grocery store or health clinic), lack of access is moderate severity</li> </ul>
All modes	Retail, services	<ul style="list-style-type: none"> <li>Severity – may not be necessary and may be available in multiple locations, lack of access is low severity               <ul style="list-style-type: none"> <li>Number of people</li> <li>Environmental justice (low wage jobs)</li> </ul> </li> </ul>
Transit	Bus service	<ul style="list-style-type: none"> <li>Severity – No existing bus service is high severity, existing bus service without sidewalks is moderate severity, existing bus service without other amenities is low severity</li> </ul>
Motor vehicle	Average Annual Daily Traffic	<ul style="list-style-type: none"> <li>Number of people</li> </ul>



# Weighting

Criteria & Measures	Multimodal		Activity Density		Throughput		Safety		Environmental Justice	Economics	
	Centers	District	2019	2045	Priority Corridor	VMT Change	VTrans Needs (PSI)	PSAP	Equity Emphasis Areas	Development Priority Locations	Urban Development Areas
Vehicle Safety			5	5		20	50		10	5	5
Pedestrian Safety	5	5		10				50	20	5	5
Bicycle Safety	5	5		10				50	20	5	5
Transit Safety	5	5		10				50	20	5	5
Congestion			15	15		15			25	15	15
System Management			12.5	12.5	12.5	12.5			25	12.5	12.5
System Management (Transit)	10	10		20		20			20	10	10
<b>Access Criteria</b>	<b>Population Affected</b>				<b>Severity</b>			<b>Environmental Justice</b>			
Transit and Non-Transit	12 Points Available		5		5			2			



# Summary Results

- Online Map (ArcGIS Online)
- Summary Table (Excel)

ID	Single Location	Detailed Location	Need
1	U.S. 460	400 Street SE	Criss
2	U.S. 460	Market Avenue SW	at 7th Street SW
3	U.S. 460 - Orange	Walton Avenue SW to 1st Boulevard	Short turn lane
4	U.S. 460 - Orange	near Long Street	
5	U.S. 460 - Orange	1501 to 1600th city block	Hard to judge processing traffic when waiting
6	U.S. 460 - Orange	at major intersection	
7	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
8	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
9	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
10	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
11	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
12	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
13	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
14	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
15	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
16	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
17	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
18	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
19	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
20	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
21	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
22	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
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28	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
29	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
30	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
31	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
32	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
33	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
34	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
35	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
36	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
37	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
38	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
39	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road
40	U.S. 460 - Orange	U.S. 460	Short merge lanes, too many lanes for road

RVTP0 Transportation Needs Prioritization

Layers:

- Transportation Needs
- Mult-modal Metrics
- Activity Density Metrics
- Throughput Metrics
- Safety Metrics
- Environmental Justice Metric
- Economics Metrics
- Proposed Transportation Needs
- Accessibility Safety Needs
- Pedestrian Safety
- Bicycle Safety Needs
- Transit Safety Needs

Pop-up window for ID: 163:

- Simple Loc: 7th Street SE
- Desc Loc: 7th Street SE to Boone Lane Boulevard SE
- Need: Pedestrian Vision Plan
- Source: Safe access for pedestrians to walk along the corridor; access adjacent destinations
- Comment: ID: 163\_P\_5; 20168402137



# Summary Results

Prioritized Transportation Needs

Properties

Prioritized Transportation Needs

Automobile Safety Needs

Automobile Safety Score

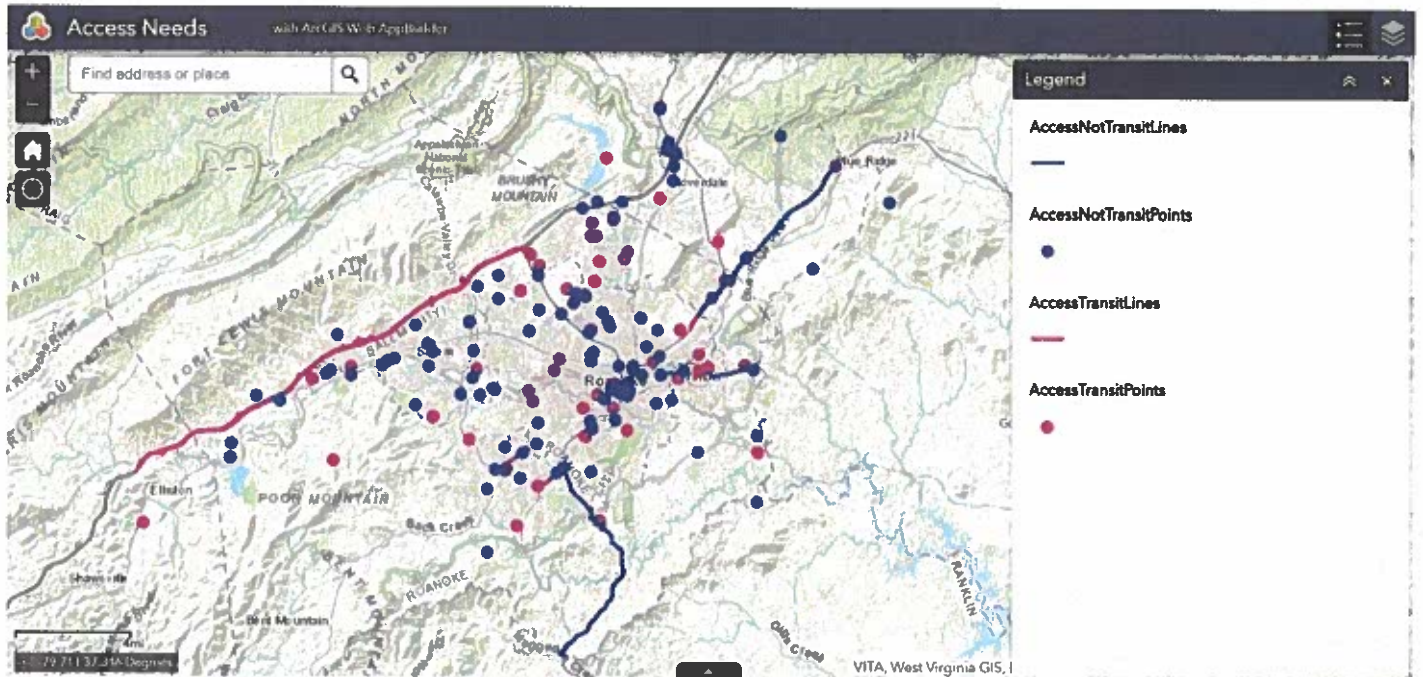
- $\le 100.000000$
- $\le 75.000000$
- $\le 50.000000$
- $\le 25.000000$

<https://camsys.maps.arcgis.com/apps/mapviewer/index.html?webmap=cd8980f1444144a0ba613fb8f474103b>



# Summary Results

## Access Needs Only



<https://rvarc.maps.arcgis.com/apps/webappviewer/index.html?id=1a524c07e8e7486ea7cb414fa3a3c147>



## Questions to Consider

**As you review the approach and the results, consider the following:**

- Are there any criteria and/or measures that we have missed (where data is readily available)?
- Do the measures for each need type and the weights make sense (e.g., do the highest weighted measures best identify the most critical aspects of the need type)?
- For each need type, do the results make sense? Do the needs in the top tier generally align with your perspective/opinion for the region or your jurisdiction?
- Do the results appear unbalanced or biased based on geography, development type, or corridor type?



# Comments

## Related to projects...

- “how the prioritization criteria works with current or proposed projects” .... “It is hard to comment on percentages of certain factors when we don't know how they'll shake out with actual projects.”
- “Can an evaluation be provided that looks at the results of the needs prioritization process in relation to projects that the members have sought funding for over the past couple rounds of SMART SCALE and TA?”
- “At a high level, the criteria seem to be appropriate and are generally aligned with the criteria through which Smart Scale applications are scored.”

The needs prioritization process does not consider active or programmed projects (e.g., projects in the current SYIP)

Needs are evaluated based on the importance/severity of the need independent of an existing solution

Existing projects will be considered during the review of solutions for priority needs – if a priority need has projects programmed to address, then we retain it as a priority need, but leave the solution as is

Unfunded projects can become solutions to priority needs, assuming that the project scope is the right solution to address the need



# Comments

## Related to needs and future project development...

“Since these priority needs will help drive the RVTPO's planning process in the future, I would like to better understand them and how the prioritization process was developed”

“Do these priorities include the state priority needs identified through VTrans? If so, how can a user determine this?”

Priority needs, particularly those not evaluated through recent planning studies or project development activities, could represent the focus of planning efforts, in coordination with VDOT, ValleyMetro, etc...

Potential solutions, including those developed within the Plan Update and those identified for future study will require partnerships

The VTrans mid-term needs and priority needs were developed through a different process and methodology. Overlaps typically occur on major corridors and near activity centers.

*This process is establishing a regional project pipeline focused on regional and local needs. Having both a statewide driven process and a regional process enables RVTPO to be more comprehensive in leveraging resources for planning and project development.*



# Comments

## Methodology and weighting...

"I'm not sure how the weighting was determined. Safety and environmental justice seem to be weighted very heavily. How do these compare to the Smart Scale weighting for this area?"

"The results seem to make better sense in some areas than in others. Generally, the geographic spread seems reasonable when I look at the overall list of needs but within specific need types, there seems to be a little less geographic spread. That may be partially reflective of where certain infrastructure exists?"

"Some of the descriptions of needs are too vague to be of much use. For example, all major Vinton corridors in Safety Auto, I-81 from MM 128-136 in Safety Auto, Downtown Salem in Safety Ped, and Downtown Roanoke in Safety Bike."

**For SS Round 4: safety is 20 to 30%, EJ is within the accessibility factor, at most 12.5% (but, difference is needs compared to projects)**

**Once you drop down to individual needs, the geographic spread does reduce based on survey response (which is connected to where infrastructure exists – focus is on existing needs, not future needs)**

**Right on needs specificity – in these cases, once we proceed into solutions, we will need to more carefully review the need and better define it**



## *Priority Needs – Recommendation*

- **TTC confirmation of the purpose for establishing priority needs and acceptance of the priority needs methodology**
  - **Recognizes role of priority needs within the Plan development process**
  - **Accepts the methodology (similar to VTrans approach – adopt the methodology, not the actual results)**
  - **Acknowledges that the results of the methodology are a planning tool guiding the next step of the planning process (developing solutions)**

**Prioritizing needs is different than prioritizing projects**

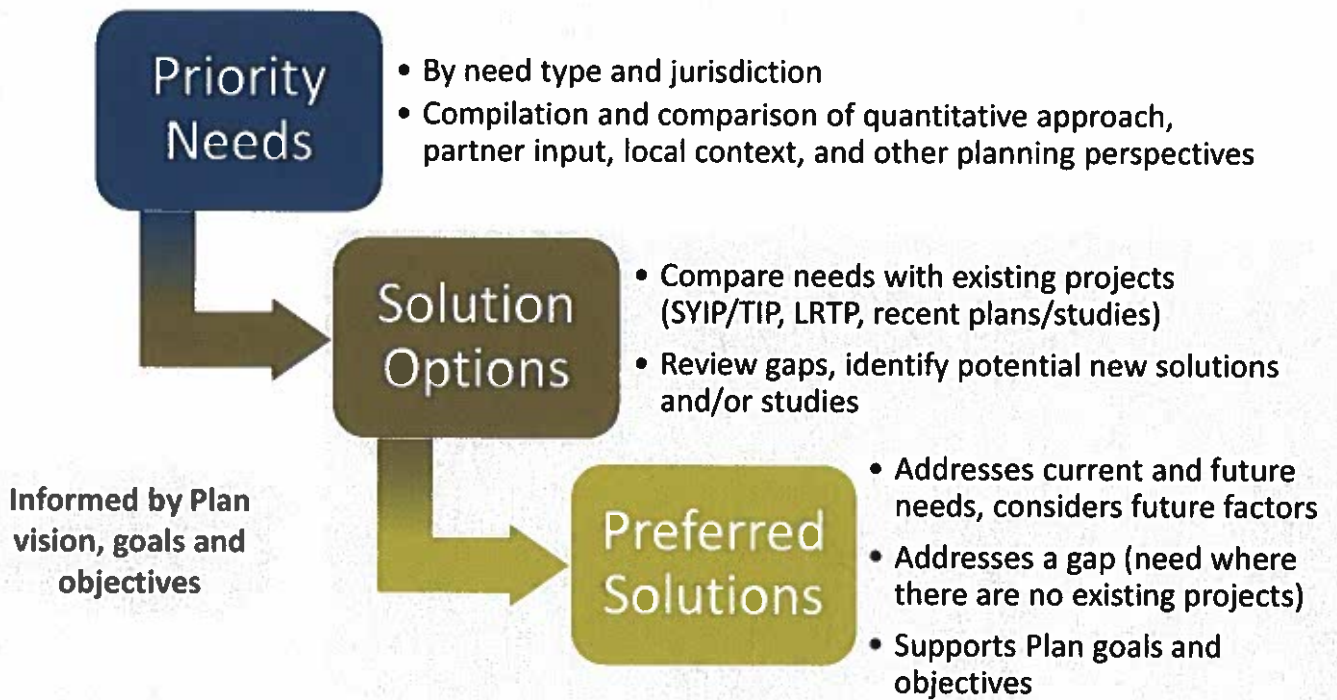
Less important – ranking or score

More important – context, relationships, scope





# Moving Toward Solutions



# Next Steps



# Roanoke Valley Transportation Plan Update

Plan Goals, Objectives, and Measures

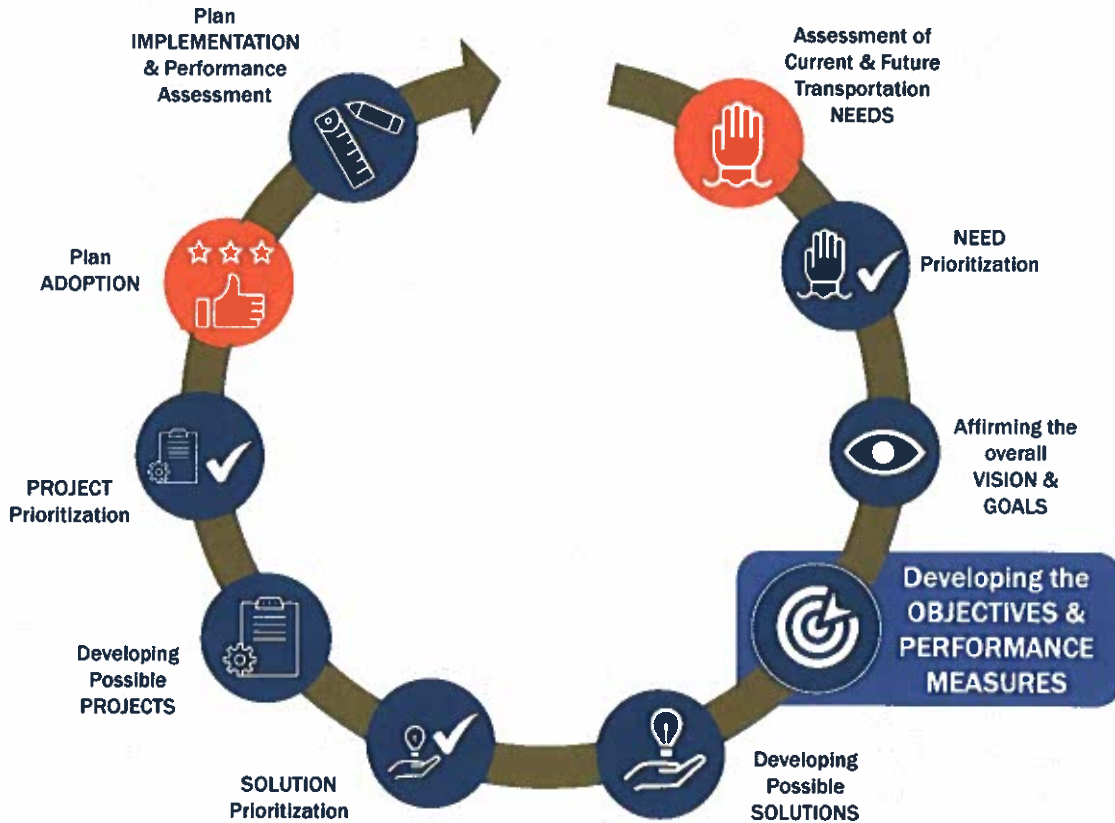
presented to  
*Transportation Technical Committee*

presented by  
*Cambridge Systematics, Inc.*



## Plan Process





## Definitions



**Vision** describes the desired future state



**Goals** describe what guides us toward attaining the vision and our overall desired outcomes



**Objectives** describe how we are going to attain the vision, objectives represent our specific desired outcomes



**Solutions** offer various ideas of how to address a need and achieve the goals and objectives



**Projects/Services** represent the preferred means to address a need and achieve objectives



**Measures** quantify objectives, enabling us to assess the degree to which the system is achieving objectives

*Note – performance measure are different from prioritization criteria (but they are related)*



## *Vision*

**The Roanoke Valley's seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well maintained and reliable, accessible for all users, and promotes economic vitality of the community.**



*Vision describes the desired future state*



## *Goals*

-  **Provide a safe and secure transportation system**
-  **Enable reliable mobility**
-  **Enable convenient and affordable access to destinations**
-  **Foster environmental sustainability**
-  **Maintain and operate an efficient and resilient transportation system**
-  **Support economic vitality**
-  **Promote equitable transportation investments**



*Goals describe what guides us toward attaining the vision and our overall desired outcomes*

*Goals are action oriented*

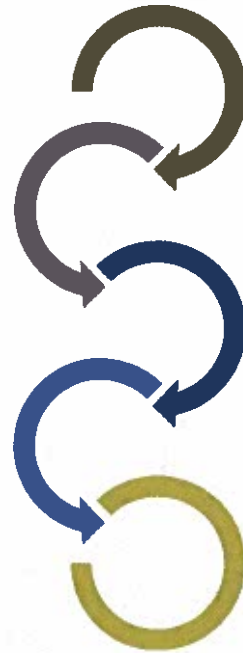
*Goals create the platform for objectives*



# Objectives Approach

## Developing Objectives – FHWA Guidance

- Objectives should **support local goals**, but also be informed by federal and state programs.
- Objectives must be **measurable and flexible** with multiple possible ways to accomplish the objective.
- Objectives should be as **specific** as possible, and if possible, **attainable** within a working timeframe.
- Objectives are accomplished through **strategies/solutions** (general plans of action) and appropriate **projects/services** (how the solution will be executed) for the preferred solution.
- Solutions **should not be** included in the objective as there might be more than one possible solution to address the objective.



- Link priority needs to goals, which helps identify themes within each goal
- Translate themes into candidate objectives
- Compare candidate objectives to priority needs criteria
- Refine objectives through review of Virginia and Federal programs
- Finalize objectives, ensuring they meet the SMART framework

Note – the approach represents a summary of the GAP-TA Process for Developing Objectives and Performance Measures



# Objectives Approach

## SMART Framework

Reduce fatalities and injuries on the region's multimodal transportation system

**S** (Specific)

**S** Types of crashes, regional focus, multimodal

**M** (Measurable)

**M** Annual crash data trends

**A** (Agreeable)

**A** Important at all geographic and policy scales

**R** (Relevant)

**R** Understood and proven

**T** (Time-Bound)

**T** Can be monitored over time



# Objectives

Goal	Objective	Reaction
Safe & secure	Reduce injuries and fatalities on the multimodal transportation system.	👍
Reliable mobility	Maintain vehicle travel time reliability on priority corridors.	👍
	Maintain transit and passenger rail on-time performance (OTP).	👍
Convenient and affordable access	Provide motorized access to inaccessible properties identified for future development.	👎
	Increase the number of destinations accessible by transit.	👍
	Increase transportation system connectivity between inter-regional travel modes.	👍
Environmental sustainability	Increase transit, bicycle and pedestrian connections within all multimodal centers and districts.	👍
	Manage growth in total vehicle travel per regional household.	👎
	Manage emissions from on-road transportation.	👎
Efficient & resilient	Minimize / mitigate new impervious surfaces.	👍
	Maintain state and national standards for infrastructure and asset condition.	👍
Economic vitality	Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	👎
	Maintain truck travel time reliability.	👎
	Maintain acceptable levels of congestion during peak travel periods on priority corridors.	👍
Equitable investments	Promote and ensure benefits and avoid or mitigate disproportionate adverse effects of transportation projects included in this Plan on minority and low-income communities.	👎
	Ensure at least 40% of new non-vehicle-based investments benefit minority and low-income communities.	👍
	Reduce traffic injuries and fatalities in minority and low-income communities.	👍
	Maintain state and national standards for infrastructure condition in minority and low-income communities.	👎



Majority strongly agree or agree



Some agreement, some neutral, few disagree



# Objectives

## Provide a safe and secure transportation system

Draft Objective for Review	Considerations	Performance Measure Possibilities
Reduce injuries and fatalities on the multimodal transportation system.	<ul style="list-style-type: none"> <li>Consistent with FHWA required measures</li> <li>Can break out into fatalities, injuries, motorized/nonmotorized, and transit</li> <li>Data readily available</li> <li>Can segment by community to track safety impacts on specific populations (see Goal 7)</li> <li>Transit safety measures also include security related events (within the National Transit Database - NTD)</li> </ul>	Motorized, non-motorized, and transit safety performance measures and targets are specified through FHWA and FTA rulemakings (these apply at both the Statewide and MPO level).

8 Strongly agree

4 Agree

1 Neutral

### General comments:

- Expand focus to note all crashes (do not isolate the objective only to fatalities and injuries)
- Choose stronger word than "reduce"



# Objectives

## Enable reliable mobility

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Maintain vehicle travel time reliability on priority corridors.	<ul style="list-style-type: none"> <li>Focus on Congestion Management Process priority corridors.</li> <li>Consistent with FHWA required measures.</li> <li>Can expand to more corridors than National Highway System (based on availability of data)</li> </ul>	Travel time reliability performance measures on the National Highway System (NHS) are specified through FHWA rulemakings. Other performance measures exist beyond FHWA, including those developed by VDOT and OIPI for corridor level analysis and statewide planning (VTrans).
b. Maintain transit and passenger rail on-time performance (OTP).	<ul style="list-style-type: none"> <li>Segmented by system – Amtrak, Valley Metro</li> <li>Data availability through Department of Rail and Public Transportation and National Transit Database (often at least 1 year behind)</li> </ul>	Amtrak on-time performance is reported on a monthly basis by DRPT and also is a Federally required measure through FRA. DRPT and FTA also report transit reliability by provider.

**a.** 5 Strongly agree  
3 Agree  
4 Neutral  
1 Disagree

**b.** 7 Strongly agree  
3 Agree  
3 Neutral

### General comments:

- Uncertain on “maintain”, does this imply that current reliability is acceptable?
- Do we have data enabling us to decide if “maintain” is the right approach, maybe “enhance”?



# Objectives

## Enable convenient and affordable access to destinations

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Provide motorized access to inaccessible properties identified for future development.	<ul style="list-style-type: none"> <li>New developments should be accessible by more than one direction to enable multi-directional vehicle connectivity.</li> </ul>	Track number of localities with ordinances or policies that incentivize or require multiple accesses in new developments.
b. Increase the number of destinations accessible by transit.	<ul style="list-style-type: none"> <li>Could include types of destinations</li> <li>Multiple accessibility measures to consider</li> </ul>	Track the number of destinations adjacent to bus stops and hours of day/days of week with transit service.
c. Increase transportation system connectivity between inter-regional travel modes.	<ul style="list-style-type: none"> <li>Connections to Amtrak, intercity bus terminals, and airport</li> </ul>	Track the number and frequency of regional connections offered.
d. Increase transit, bicycle and pedestrian connections within all multimodal centers and districts.	<ul style="list-style-type: none"> <li>Transit, on and off-road bicycle and pedestrian connections within centers and districts</li> </ul>	Focus on measures that assess the system extent of available transit-walk connections, transit-bike connections, walk-bike connections.

**a.** 4 Strongly agree  
2 Agree  
1 Neutral  
3 Disagree  
1 Against

**b.** 7 Strongly agree  
1 Agree  
3 Disagree

**c.** 4 Strongly agree  
5 Agree  
1 Neutral  
1 Against

**d.** 5 Strongly agree  
4 Agree  
1 Neutral  
1 Disagree



# Objectives

## Enable convenient and affordable access to destinations

Draft Objective for Review	Comments
a. Provide motorized access to inaccessible properties identified for future development.	<ul style="list-style-type: none"> <li>• Too specific of an objective? Does this encourage more access to facilitate greenfield development? Should we focus more broadly when we discuss access barriers?</li> <li>• Reference access by multimodal options (transit, bike, ped, shared)</li> <li>• Increase number of destination implies expanding service area? Are we ready for this commitment? Maybe instead reference level of service, rather than extent?</li> <li>• Simplify the terminology... connectivity and inter-regional is too much jargon.</li> <li>• Remove reference to "all", as readiness for expanded access in these places is variable.</li> </ul> <p>General – no reference to greenways/regional trail system. What about incorporating access for all users (e.g., ADA, LEP, seniors, etc...)</p>
b. Increase the number of destinations accessible by transit.	
c. Increase transportation system connectivity between inter-regional travel modes.	
d. Increase transit, bicycle and pedestrian connections within all multimodal centers and districts.	

**a.** 4 Strongly agree  
2 Agree  
1 Neutral  
3 Disagree  
1 Against

**b.** 7 Strongly agree  
1 Agree  
3 Disagree

**c.** 4 Strongly agree  
5 Agree  
1 Neutral  
1 Against

**d.** 5 Strongly agree  
4 Agree  
1 Neutral  
1 Disagree



# Objectives

## Foster environmental sustainability

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Manage growth in total vehicle travel per regional household.	<ul style="list-style-type: none"> <li>• Direct tie to greenhouse gas emissions and overall transportation system sustainability</li> <li>• A substantial share of regional VMT is pass-thru (minimal benefit to the region's economy, but does create an environmental impact)</li> </ul>	Measures should balance impact of economic growth with potential for managing or decreasing VMT per person or per household.
b. Manage emissions from on-road transportation.	<ul style="list-style-type: none"> <li>• Focuses on vehicle and fuel technology opportunities in the region</li> </ul>	Measures could track investments in zero-emission technologies (buses, county fleets, charging stations).
c. Minimize / mitigate new impervious surfaces.	<ul style="list-style-type: none"> <li>• Helps consider environmental risks associated with transportation system expansion, particularly in environmentally sensitive areas.</li> </ul>	Minimize and mitigate new impervious surface area outside of designated growth areas and in floodplains.

**a.** 3 Strongly agree  
1 Agree  
3 Neutral  
1 Disagree  
2 Against

**b.** 3 Strongly agree  
1 Agree  
3 Neutral  
1 Disagree  
2 Against

**c.** 3 Strongly agree  
6 Agree  
1 Against





## Foster environmental sustainability

Draft Objective for Review	Comments
a. Manage growth in total vehicle travel per regional household.	<ul style="list-style-type: none"> <li>Note, many of the prior objectives (esp. accessibility related) support this objective. Do we need it?</li> <li>Rethink the wording, maybe: "Implement programs to increase the use of alternate modes and reduce SOVs."</li> <li>As phrased, objective may imply to some that we are able to manage travel demand.</li> </ul>
b. Manage emissions from on-road transportation.	<ul style="list-style-type: none"> <li>Isn't our objective to reduce emissions?</li> <li>Note, many of the prior objectives (esp. accessibility related) will support this objective.</li> <li>Uncertainty on the possible strategies the regional can implement to support this objective.</li> </ul>
c. Minimize / mitigate new impervious surfaces.	<ul style="list-style-type: none"> <li>Does this also apply to developments in member localities; such as parking lots, buildings, trails, etc?</li> <li>Is this more a project level design consideration?</li> <li>Maybe, "Reduce impervious surfaces in transportation projects where possible."</li> </ul>

**a.** 3 Strongly agree  
 1 Agree  
 3 Neutral  
 1 Disagree  
 2 Against

**b.** 3 Strongly agree  
 1 Agree  
 3 Neutral  
 1 Disagree  
 2 Against

**c.** 3 Strongly agree  
 6 Agree  
 1 Against



## Maintain and operate an efficient and resilient transportation system

Draft Objective for Review	Considerations	Performance Measure Possibilities
Maintain state and national standards for infrastructure and asset condition.	<ul style="list-style-type: none"> <li>Both Federal and State measures, each have unique applicability to the regional planning and performance management process.</li> </ul>	<p>Bridge and pavement condition measures are related (but intentionally focusing on different outcomes) for FHWA and VDOT. RVTPO should incorporate both sets of measures into this process. There are also transit state of good repair measures reported by each provider, with targets for Tier 2 providers (like Valley Metro) established statewide through coordination with DRPT.</p>

4 Strongly agree  
 3 Agree  
 3 Neutral

### General comments:

- Should the objective be to attain a higher standard than current conditions (or targets)?
- Need to define infrastructure better – assume this is "transportation infrastructure"
- Balance between maintaining assets and preserving/protecting the environment



# Objectives

## Support economic vitality

Draft Objective for Review	Considerations	Performance Measure Possibilities
a. Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	<ul style="list-style-type: none"> <li>• Could include access to regional economic development sites and VTrans industrial development areas</li> </ul>	Track the number of developments approved adjacent to more than one existing or planned transportation mode.
b. Maintain truck travel time reliability.	<ul style="list-style-type: none"> <li>• Truck travel time reliability measure would help characterize performance of the overall regional freight system</li> </ul>	FHWA tracks truck travel time reliability on Interstates. Data is available on all NHS routes.
c. Maintain acceptable levels of congestion during peak travel periods on priority corridors.	<ul style="list-style-type: none"> <li>• Multiple possible measures to consider</li> </ul>	Performance measures should be consistent with (or build from) measures used within the Congestion Management Process.

**a.** 4 Strongly agree  
3 Agree  
2 Neutral  
1 Disagree

**b.** 2 Strongly agree  
5 Agree  
2 Neutral  
1 Disagree

**c.** 4 Strongly agree  
2 Agree  
4 Neutral



# Objectives

## Support economic vitality

Draft Objective for Review	Comments
a. Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	<ul style="list-style-type: none"> <li>• Consider "promote" instead of "ensure" as more than one mode in these areas is a challenge</li> <li>• Or...add to the end "where economically feasible"</li> </ul>
b. Maintain truck travel time reliability.	<ul style="list-style-type: none"> <li>• Maintain? Is truck travel time currently acceptable? "Accommodate truck volumes and minimize conflict with passenger vehicles" or "Enhance truck safety and access". Also consider noting value of freight rail.</li> </ul>
c. Maintain acceptable levels of congestion during peak travel periods on priority corridors.	<ul style="list-style-type: none"> <li>• Focus on <u>managing</u> congestion during peak travel periods – "maintain" implies that existing or future levels are acceptable.</li> </ul>

**a.** 4 Strongly agree  
3 Agree  
2 Neutral  
1 Disagree

**b.** 2 Strongly agree  
5 Agree  
2 Neutral  
1 Disagree

**c.** 4 Strongly agree  
2 Agree  
4 Neutral



# Objectives

## Promote equitable transportation investments

Draft Objective for Review	Considerations	Performance Measure Possibilities
Promote and ensure benefits and avoid or mitigate disproportionate adverse effects of transportation projects on minority and low-income communities.	<ul style="list-style-type: none"> <li>Assume that NEPA process protects communities from disproportionate impacts</li> <li>Consider benefits &amp; burdens for each project</li> <li>Regional specific community definition</li> </ul>	Track project benefits to these communities and identify projects or project types that could create burdens to targeted disadvantaged communities.
Ensure at least 40% of new non-vehicle based investments primarily benefit minority and low-income communities.	<ul style="list-style-type: none"> <li>Consider unique benefits of each project on these communities</li> <li>Justice40 initiative builds on environmental justice outlined in Executive Order 12898</li> </ul>	Track progress toward 40% of non-highway investments providing documented benefits primarily for minority and low-income populations.
Reduce traffic injuries and fatalities in minority and low-income communities.	<ul style="list-style-type: none"> <li>Special attention to provide a safe and secure transportation system in these communities</li> </ul>	Segment safety performance measures, within these communities.
Maintain state and national standards for infrastructure condition in minority and low-income communities.	<ul style="list-style-type: none"> <li>Special attention to maintain and operate an efficient and resilient transportation system in in these communities</li> </ul>	Segment bridge and pavement performance measures within these communities.

**a.** 2 Strongly agree  
4 Agree  
2 Neutral  
1 Disagree  
1 Against

**b.** 4 Strongly agree  
3 Agree  
1 Neutral  
1 Against

**c.** 5 Strongly agree  
3 Agree  
1 Neutral  
1 Against

**d.** 3 Strongly agree  
1 Agree  
3 Neutral  
2 Disagree  
1 Against



# Objectives

## Promote equitable transportation investments

Draft Objective for Review	Comments
Promote and ensure benefits and avoid or mitigate disproportionate adverse effects of transportation projects on minority and low-income communities.	<ul style="list-style-type: none"> <li>Too wordy and difficult to understand, change to: "Consider all impacts of all transportation projects on minority and low-income communities"</li> <li>Perhaps reference how to address historical patterns of inequitable development?</li> </ul>
Ensure at least 40% of new non-vehicle based investments primarily benefit minority and low-income communities.	<ul style="list-style-type: none"> <li>A number of comments along these lines...can the TPO impose a goal/restriction on what investments each member locality makes and how would this be measured?</li> <li>Leaves a lot of room for interpretation, misrepresentation – also the use of a specific value (40%) is inconsistent with other objectives.</li> </ul>
Reduce traffic injuries and fatalities in minority and low-income communities.	<ul style="list-style-type: none"> <li>This is already covered in the safety goal – why do we need to repeat this here?</li> <li>Is their proof that there are disproportionate safety issues in these communities?</li> <li></li> </ul>
Maintain state and national standards for infrastructure condition in minority and low-income communities.	<ul style="list-style-type: none"> <li>Historically there has been underinvestment in these communities – should we aspire to doing better than maintain?</li> <li>Duplicative of the other goal – what are we uniquely trying to achieve here?</li> </ul>

**a.** 2 Strongly agree  
4 Agree  
2 Neutral  
1 Disagree  
1 Against

**b.** 4 Strongly agree  
3 Agree  
1 Neutral  
1 Against

**c.** 5 Strongly agree  
3 Agree  
1 Neutral  
1 Against

**d.** 3 Strongly agree  
1 Agree  
3 Neutral  
2 Disagree  
1 Against

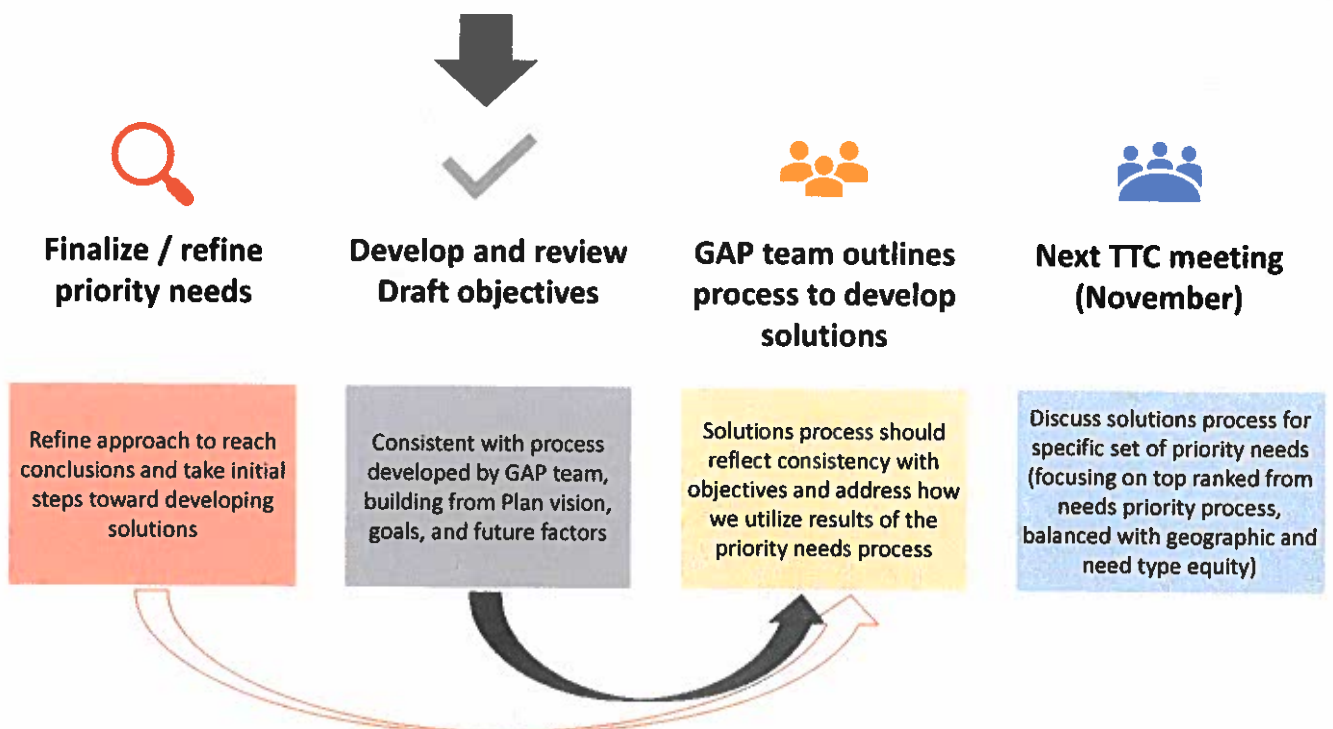


# Objectives – Recommendation

- **TTC review and recommendation**
  - Finalizes objective statements within each goal
  - Acknowledges purpose of objectives within the planning process to inform:
    - Development and review of solutions
    - Criteria for selecting preferred solutions and prioritizing projects
    - Performance measures for the region



## Next Steps



**2021 TTC NOMINATING COMMITTEE REPORT &  
ELECTION OF OFFICERS  
TTC Meeting November 15, 2021**

At the October 14, 2021 TTC meeting, Vice-Chair Mark Jamison was elected to be Chair to fulfill the vacated position formerly held by Ben Tripp. Chair Jamison appointed a Nominating Committee (Megan Cronise, Roanoke County and Michael Gray, VDOT) tasked with preparing a slate of nominees for the TTC office of Vice-Chair to fulfill the remainder of his two-year term which will end after the conclusion of the July 14, 2022 TTC meeting. A history of these positions is shown below.

Term Years	Chair	Chair's Agency	Vice-Chair	Chair's Agency
2020-2022	Ben Tripp until September 2021 / October 2021 - Mark Jamison	City of Salem / City of Roanoke	Mark Jamison until October 2021 / VACANT	City of Roanoke / VACANT
2018-2020	Cody Sexton	Botetourt County	Ben Tripp	City of Salem
2016-2018	Cody Sexton	Botetourt County	Ben Tripp	City of Salem
2014-2016	David Holladay	Roanoke County	Liz Belcher	Greenway Com.
2012-2014	Michael Gray	VDOT	Mark Jamison	City of Roanoke
2010-2012	Michael Gray	VDOT	Mike Kennedy	Town of Vinton
2008-2010	Michael Gray	VDOT	Mike Kennedy	Town of Vinton

**RECOMMENDATION:**

The Nominating Committee is recommending:

Vice-Chair – Cody Sexton

**Note:** Additional nominations may be made from the floor during the November 15, 2021 TTC meeting.

**TTC ACTION:** Election of Chair to fulfill the remaining two-year term vacated by Vice-Chair Jamison ending at the conclusion of the July 14, 2022 TTC meeting.

**TPO POLICY BOARD:** Cities of Roanoke and Salem; Counties of Bedford, Botetourt, Montgomery and Roanoke; Town of Vinton; Greater Roanoke Transit Company (*Valley Metro*); Roanoke-Blacksburg Regional Airport; Virginia Department of Rail & Public Transportation; Virginia Department of Transportation

**STAFF REPORT**  
**TTC Meeting November 15, 2021**  
**SUBJ: Recommendation on 2022 Safety Performance Measure Targets**

At the January 25, 2018 RVTPO Policy Board meeting, five MAP-21 Safety Performance Measure Targets were first adopted and have been updated yearly since that time. The RVTPO Policy Board chose to adopt the same safety targets that were established by VDOT. Those targets relate to number of fatalities, fatality rate, number of serious injuries, serious injury rate, and the number of bicycle and pedestrian fatalities and serious injuries.

In 2017, the RVTPO Policy Board elected to focus on how to utilize the federal performance measures in the RVTPO's transportation performance-based planning and programming (PBPP) process. The 2020 Federal Certification Review reiterated the need to improve the RVTPO's PBPP process and in spring 2021, the RVTPO was granted a state grant via the OIPI GAP program to assist with this task. As part of the region's transportation plan update, Cambridge Systematics has been working with staff and the TTC on safety goals, objectives and related performance measures. These safety targets are linked with the transportation plan as they provide the mechanism for how the RVTPO will measure attainment of safety goals. The draft safety goal and objectives are provided below for context.

**Draft Regional Transportation Vision:**

The Roanoke Valley's seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well maintained and reliable, accessible for all users, and promotes economic vitality of the community.

**Draft Regional Transportation Safety Goal:**

Provide a safe and secure transportation system.

**Draft Regional Transportation Safety Objective:**

Reduce fatalities and injuries on the multimodal transportation system.

**RVTPO Regional Transportation Safety Performance Measures (FHWA):**

- Number and rate of motorized fatalities per 100 million vehicle miles traveled (VMT) (FHWA)
- Number and rate of motorized serious injuries per 100 million VMT (FHWA)
- Number of nonmotorized fatalities and serious injuries (FHWA)

The proposed 2022 safety performance targets are based on the average five-year period of 2016 to 2020.

Annual adoption is necessary, given the need to include the next "out year" in the target range. Staff continues to support adoption of VDOT-established safety performance measure targets.

### Future Target Annual Percent Reductions

Target Description	*Statewide Annual Goal Percent Change
Number of Fatalities	+1.37%
Number of Serious Injuries	-2.36%
Number of Non-Motorized Fatalities and Serious Injuries	-2.37%
Vehicle Miles Traveled (VMT)	+6.8%

*\*A positive value represents an increase, and a negative value represents a reduction in five-year averages each year from 2020 to 2022. Year 2020 VMT was 11% lower than 2019 and predicted to recover in 2021 and grow 0.4% in 2022 resulting in 6.8 % per year growth.*

Although a positive value represents an increase in the target, and a negative value represents a decrease in the target, because targets are based on five-year averages, proposed targets may fluctuate in the opposite or counterintuitive direction.

### 2022 Safety Performance Targets

The following 2022 target values were calculated using the target annual percent reductions:

Target Description	2020 Actual Values*	Previous 2021 Target Value	Proposed 2022 Target Value
Number of Fatalities	--	19	20
Fatality Rate (per 100 million VMT)	--	0.92	0.945
Number of Serious Injuries	209	202	184
Serious Injury Rate (per 100 million VMT)	10.003	10.020	8.878
Number of Non-Motorized Fatalities and Serious Injuries	--	18	18

*\*2020 Actual Values obtained from VDOT as available.*

**TTC Action:** Recommend to the RVTPO Policy Board adoption of the VDOT 2022 Safety Performance Measure Targets as presented.

**STAFF REPORT**

**TTC Meeting November 15, 2021**

**SUBJ: Continued Development of the Update to the Roanoke Valley Transportation Plan**

As shown in the overall Transportation Plan update process diagram below, two main topics are presented for TTC review and action at this point as we work towards updating the Roanoke Valley Transportation Plan – 1) Priority Needs and 2) Objectives/Performance Measures.



**Roanoke Valley Transportation Plan – Priority Needs**

**Summary**

RVTPO staff and the consultant team have been working since June to develop, test, and apply a needs prioritization process. The process uses available data to assess the importance of around 1,000 specific needs identified through the Regional Transportation Needs Assessment by aligning each need with data that represents aspects of the Roanoke Valley Transportation Plan goals. The outcome of the process **is a prioritized list of needs, organized by need type and jurisdiction.** RVTPO staff and the TTC will use this information, as well as insights from the VTrans needs assessment and other ongoing planning and project development efforts, as a **means to commit planning resources to developing solutions to address priority needs** for possible inclusion in the Plan.



**For the purposes of continuing the plan development process, and moving forward confidently with developing solutions, the TTC is asked to accept the priority needs methodology and acknowledge how the results will be used in the planning process.** TTC action will be communicated as a recommendation for Policy Board consideration at the December meeting.

## Comments and Responses

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**Comment: Environmental justice (EJ) factor weighting, impact of the weighting on priority needs in densely developed compared to suburban or exurban locations, and differences in how environmental justice is addressed compared to VTrans and SMART SCALE.**

**Response:** The EJ factor utilizes the VTrans Equity Emphasis Areas (EEAs) which goes beyond traditional EJ to include seniors, disabled populations, etc. There are EEAs in the rural / suburban and urbanized portions of the RVTPO study area.

The priority needs process for RVTPO focuses on how important each individual need is relative to different regional socioeconomic, land use, and transportation factors that represent the Plan goals. This is different from the VTrans approach, where each segment of VDOTs linear referencing system (LRS) and specific nodes (like rail stations, activity centers) are assigned a score of 1 to 7 based on a unique methodology by applicable need type. For example: multiple segments of Orange Ave. NE are identified as a priority 1 need in the Salem District because they rate a 7 for TDM, Transit Access, and Bicycle Access, and a 6 for Pedestrian Access. Based on the weights, these segments are in the top 1% of total mileage in the Salem District. **So, the VTrans approach is not assigning weights to factors but is assigning weights to the type of need in order to come up with an aggregate priority.** This is fundamentally different to the RVTPO approach primarily because the VTrans approach is still very solutions-based (TDM, transit, bicycle, etc. are solutions to address a need) and applied statewide consistent with the VTrans travel markets (corridors of statewide significance, regional networks, urban development areas) and only on higher classification roadways.

**SMART SCALE is also fundamentally different because it prioritizes projects.** There is only one measure that directly accounts for EJ populations within the accessibility factor, which is 25% of the weighted score in the RVTPO region. While that individual measure represented up to 5% of a total project score in Round 4, other measures that indirectly account for EJ populations, such as the land use measures, represent another 10% of the score. This may be considered as the RVTPO develops the Transportation Plan's project prioritization tool.

**Action: No change in methodology or weights. The results of the priority needs are a tool to inform investigating solutions for inclusion in the Plan.** RVTPO staff/Consultant team will compare the results of the region's approach to the results in VTrans and note areas where the VTrans results complement the RVTPO results. In areas where there are differences, RVTPO staff/Consultant team will review the reasons for those differences.

Overall, the priority needs process should help the region create solutions and projects that both address regional goals and compete in future rounds of SMART SCALE as well as a diversity of existing and future funding programs and grants.

**Comment: Concern on limitations created by the use of multimodal centers and districts, pedestrian safety action plan (PSAP) locations, and existing and future activity density.**


**Response:** The multimodal centers and districts were identified by each jurisdiction in prior regional planning efforts as priority locations for current and future multimodal transportation. For prioritizing needs, we use these locations to assign importance to pedestrian, bicycle, and transit safety and transit system management needs within these areas. For this first iteration of the RVTPO priority needs process, the focus was on using existing data and policy layers.

The use of VDOTs PSAP locations acknowledge the best practice analysis that VDOT has completed using crash data from 2014 through 2018 to understand the most critical barriers and behaviors impacting pedestrian safety. Again, this is a statewide data source with a strong precedent for use in safety planning in Virginia.

The activity density measures rely on existing and projected population and employment data consistent with growth forecasts and future land use developed collaboratively by RVTPO with each jurisdiction. Because current needs are prioritized with consideration of the future, most of the weight for non-vehicle needs are focused on future density. For vehicular related needs, there is an even balance between existing and future density to reflect the balance of today's needs with future needs.

**Action: No change in methodology, will review use of these layers in future Plan updates.** Any change in methodology would also need to reconsider the data being used. Given the timing of the process, and the use of priority needs as a tool for decision making, recommendation is to proceed with this approach and revisit the data feeding the needs prioritization criteria for the next plan update.

## Additional Information

1. **Needs Prioritization Methodology Report** – This methodology documentation outlines the process for prioritizing various transportation needs throughout the Roanoke Valley region. (See attached.)
2. **Needs Prioritization Spreadsheet**– This spreadsheet includes each individual need and the associated prioritization result for each criteria outlined in the methodology report. Access enabling viewing and downloading the spreadsheet model is available here:  
 [Needs Prioritization Calc 20210910.xlsx](#)
3. **Needs Prioritization Online Map** – The online map enables a spatial understanding of the needs that were prioritized and the outcomes of the methodology.  
<https://camsys.maps.arcgis.com/apps/mapviewer/index.html?webmap=cd8980f1444144a0ba613fb8f474103b>

## Roanoke Valley Transportation Plan – Objectives and Performance Measures

### Summary

Prior to initiating the process of identifying and reviewing solutions, RVTPO staff and the Cambridge Systematics consultant team developed a Draft set of plan objectives carrying out the process outlined by the OIPI GAP consultant team. During the October TTC meeting and through a survey, input on the Draft objectives was solicited from TTC members. Since the October TTC meeting, RVTPO staff and the Cambridge Systematics consultant team have developed a revised set of objectives and noted existing and candidate performance measures for consideration.

Objectives help describe how the RVTPO will attain the Plan vision and goals that the TTC reviewed in May and June. Objectives also create the framework for other steps of the Plan development process, including:

- Objectives inform how we reach agreement on preferred solutions
- Objectives can guide the development of criteria to prioritize projects for inclusion in the fiscally constrained Plan
- Objectives help create performance measures to assess how the region's transportation system performs today and into the future, consistent with the Plan goals and objectives.

Included with this staff report is a summary document (see attached) presenting a table of final draft objectives for TTC review, considerations supporting development of those objectives, and existing and candidate performance measures. **Existing performance measures** include those that RVTPO has already adopted as part of the FHWA and FTA required transportation performance management process as well as the region's adopted measure for congestion via the Congestion Management Process. **Candidate performance measures** are options for further research and consideration by RVTPO within objectives that do not have existing federal, state, or regional measures.

**For the purposes of continuing the plan development process, and moving forward confidently with developing solutions, the TTC is asked to accept the Plan Update objectives.** TTC action will be communicated as a recommendation for policy board consideration at the December meeting.

### **TTC Action:**

Recommend the Policy Board accept the Needs Prioritization Methodology, acknowledging the results in the spreadsheet as a tool to guide addressing needs, as well as the Objectives and Performance Measures as they relate to the region's Vision and Goals for utilization in the next steps of the plan's update.

## Needs Prioritization Methodology

*November 9, 2021*

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## 1. Introduction

This methodology documentation outlines the process for prioritizing various transportation needs throughout the Roanoke Valley region. Included is the overall process for completing the prioritization and an overview of the needs criteria and individual metrics within each criteria.

Currently, the described process and associated files only represent the quantitative / geospatial performance. Other considerations will be applied to these quantitative results, such as alignment with regional goals, geographic equity, comparison to VTrans mid-term needs, and other factors. All results serve as a tool to inform priority need decisions but should not be treated as a definitive or absolute list or ranking.

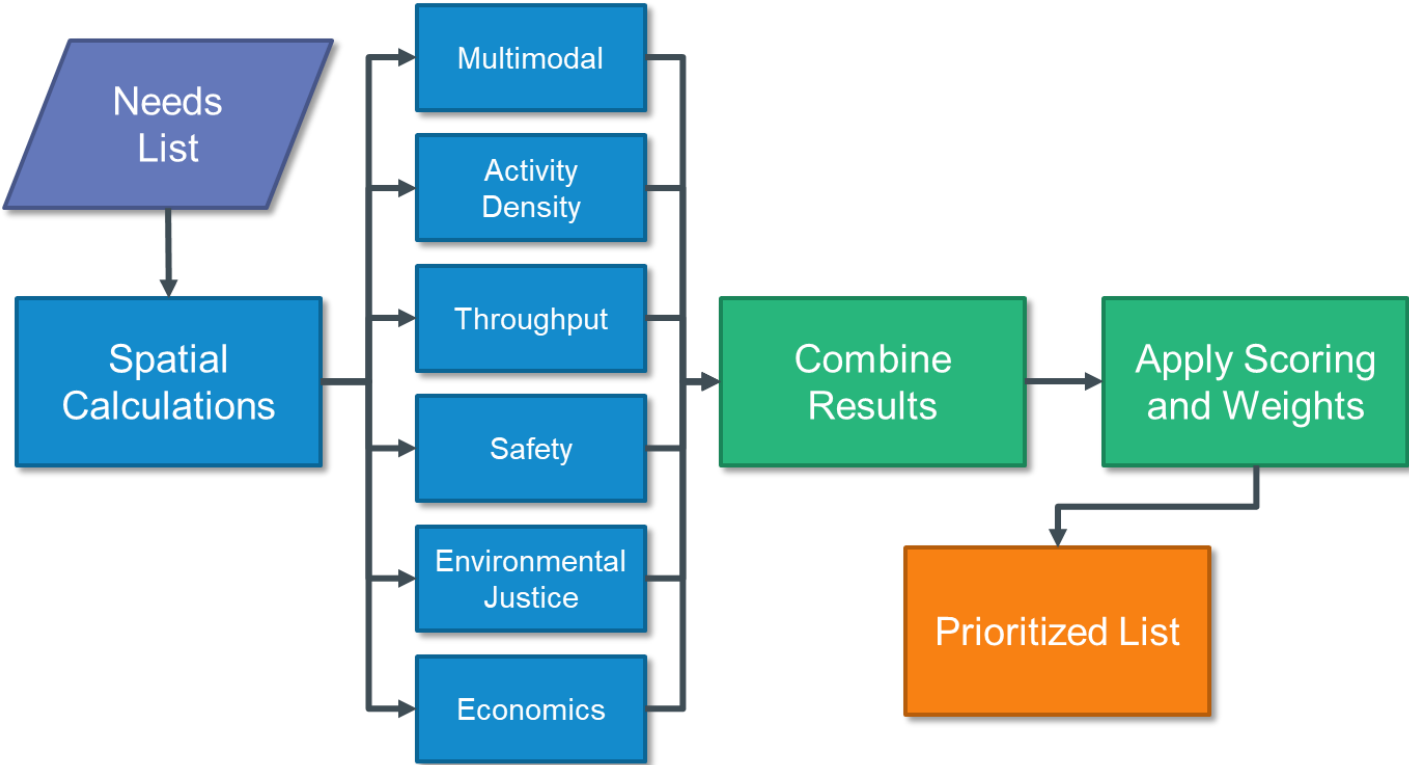
## 2. Methodology Overview

The overall process for scoring and prioritizing the list of transportation needs involves a few steps. A generalized flowchart of this process is shown in **Figure 1**.

- Needs List:** First, a comprehensive needs list is cleaned and organized. This includes placing the identified need in the correct geospatial location, removing any duplicates, and assigning each need to one of seven categories: **Automobile Safety, Pedestrian Safety, Bicycle Safety, Transit Safety, Congestion, System Management (Non-Transit), System Management (Transit)**.  
*Note: Access Needs were considered separately and are discussed in detail on page 8.*
- Spatial Calculations:** After the needs list is organized, the needs list is then spatial analyzed, calculating whether the need applies to a series of six criteria: **Multimodal, Activity Density, Throughput, Safety, Environmental Justice, Economics**. See **Section 3** for more information on each criteria and **Table 2** for a full list of the criteria and associated metrics.
- Combine Results:** All the criteria results are then combined in Excel. Users can define more specific thresholds and conditions for each criteria (e.g., what constitutes a need being located in a multimodal center).
- Apply Scoring and Weights:** Scoring and weights are then applied. Weighting varies depending on the needs category, with some metrics receiving 0 to 25 points. An overview of the weighting by need type / metric is shown in **Table 1**.
- Prioritized List:** The scoring and weighting creates the final prioritized needs list. This displays the total points received for each individual need by its associated needs type. Scores can receive a maximum of 100 points.

The criteria align with the seven goals developed for the Roanoke Valley Transportation Plan by considering related metrics associated with different goals across every need type. However, every need, and its ultimate solutions, are not intended to address every goal as indicated in **Table 1**.

Figure 1 Overall Needs Prioritization Process



**Table 1 Scoring Weighting by Need Type**

Alignment with Plan Goals	3, 6		3, 6		2, 3, 5, 6		1, 5, 7		4, 7		3, 6, 7	
	Multimodal		Activity Density		Throughput		Safety		Environmental Justice		Economics	
Need Type	Centers	District	2019	2045	Priority Corridor	VMT Change	VTrans Needs (PSI)	PSAP	Equity Emphasis Areas	Development Priority Locations	Urban Development Areas	
Automobile Safety			5	5		20	50		10	5	5	
Pedestrian Safety	5	5		10				50	20	5	5	
Bicycle Safety	5	5		10				50	20	5	5	
Transit Safety	5	5		10				50	20	5	5	
Congestion			15	15		15			25	15	15	
System Management (Non-Transit)			12.5	12.5	12.5	12.5			25	12.5	12.5	
System Management (Transit)	10	10		20		20			20	10	10	
<b>Access Criteria</b>	<b>Population Affected</b>				<b>Severity</b>				<b>Environmental Justice</b>			
Transit and Non-transit	5				5				2			

**Roanoke Valley Transportation Plan Goals:**

1. Provide a safe and secure transportation system
2. Enable reliable mobility
3. Ensure convenient and affordable access to destinations
4. Foster environmental sustainability
5. Maintain and operate an efficient and resilient transportation system
6. Support economic vitality
7. Promote equitable transportation investments

### 3. Need Prioritization Criteria

Needs are assessed within the following criteria categories, comprised of individual metrics (**Table 2**). This section provides an overview of each individual criteria and metric, including definition, sources, and how it is calculated for the analysis.

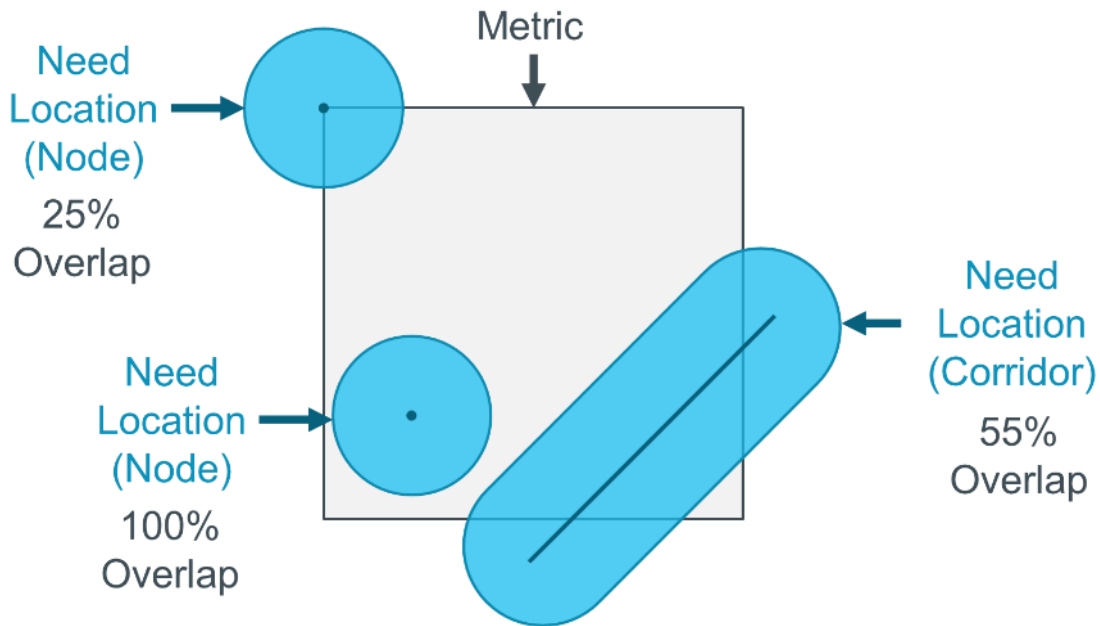
**Table 2 Needs Criteria, Metrics, and Rationale**

Needs Criteria	Needs Metrics	Criteria Rationale
Multimodal	Multimodal Centers	Places importance on needs that support access and mobility in designated multimodal areas within the region
	Multimodal Districts	
Activity Density	2019 Activity Density	Places importance on needs that address population and employment centers within the region today and in the future
	2045 Activity Density	
Throughput	Priority Corridor	Places importance on needs within congested corridors identified in the Congestion Management Process and high travel-growth corridors
	VMT Change	
Safety	VTrans Safety Needs (based on Potential for Safety Improvement (PSI))	Places importance on needs in areas with observed high crash frequency and severity for both vehicles and non-motorized users
	Pedestrian Safety Action Plan (PSAP) Priority Needs	
Environmental Justice	Equity Emphasis Areas	Places importance on needs supporting communities in designated equity emphasis areas
Economics	Development Priority Locations	Places importance on needs adjacent to economic development priority locations and serving designated urban development areas
	Urban Development Areas	
Transit and Non-transit Access	Population Affected	Places importance on needs by relative number of people impacted by lack of access and how significant the inability to access the destination is to daily life particularly for EJ populations.
	Severity	
	Environmental Justice	

For all metrics, a 1/8th mile buffer was applied to each individual need to represent the catchment area. The only exception are needs covering a specific area, such as a neighborhood. In these cases, the area was left as-is. Many of the metrics used a proportional overlap to estimate whether the metric impacted each individual need. An example of this process is shown in **Figure 2**, where the grey box is the metric, and the blue shapes are individual needs. This was also completed the opposite way to account for metrics impacting a smaller area. For example, if a needs corridor fully extends from A to C but the metric only extends from A to B. All metrics, besides Activity Density and VMT, assumed a metric impacts a need if it overlaps by at least 50 percent.



Figure 2 Proportional Overlap Calculation Example



## Multimodal

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Multimodal Needs are identified through two metrics:

- **Multimodal Districts**
  - **Description:** Any portion of a city or region with land use characteristics that support multimodal travel, such as higher densities and mixed uses, and where it is relatively easy to make trips without needing a car as gauged by the number of bus routes available, and safe walking or biking paths – either currently or proposed in the future.
  - **Source:** RVARC Staff (Approved by the RVTPO Policy Board in 2015)
- **Multimodal Centers**
  - **Description:** A smaller area of even higher multimodal connectivity and more intense activity, roughly equivalent to a 10-minute walk or a one-mile area.
  - **Source:** RVARC Staff (Approved by the RVTPO Policy Board in 2015)

**Methodology:** Multimodal Needs use a proportional overlap to estimate whether a need is within a Multimodal District or Center.

## Activity Density

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Activity Density Needs are identified through two metrics:

- **2019 Activity Density**
  - **Description:** The current activity density in the region. This metric sums the existing population and employment then divides by the area to estimate current activity density.
  - **Source:** Traffic Analysis Zone (TAZ) within the Travel Demand Model (TDM)
- **2045 Activity Density**
  - **Description:** The activity density in the region in 2045. This metric sums the future population and employment then divides by the area to estimate future activity density.
  - **Source:** Traffic Analysis Zone (TAZ) within the Travel Demand Model (TDM)

**Methodology:** Both 2019 and 2045 Activity Density metrics use a slightly different methodology when compared to other metrics. Instead, a weighted proportional overlap is used, considering not only the overlap area but also the underlying density. Essentially the calculation estimates the area overlap then multiplies by the TAZ's total activity. So, if a TAZ has 120 residents and employees and the need overlaps by 25 percent, this method estimates the need covers 30 residents and employees. This is completed for every TAZ the need intersects with, sums all of the proportional overlapping residents and employees, then divides by the total need area to reach an estimated activity density.

## Throughput

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Motorized and Non-Motorized Throughput Needs are identified through two metrics:

- **Priority Corridors**
  - **Description:** Identified corridor for congestion management activities, as defined in the 2020 Congestion Management Process. These corridors were identified from the Top 10 Areas of Emphasis and had a Planning Time Index (PTI) greater than three
  - **Source:** RVARC Staff, Traffic Congestion Management Process 2020
- **Vehicle Miles Traveled (VMT) Growth**
  - **Description:** The estimated growth in VMT between 2019 and 2045
  - **Source:** Travel Demand Model (TDM)

**Methodology:** Priority Corridors use a proportional overlap to estimate whether a need is within a one of the identified priority corridors in the 2020 Congestion Management Process.

VMT Growth was estimated slightly different. Here, the change between 2019 and 2045 VMT was calculated for each segment. All segments were then placed into a percentile, equally distributing the segments with the highest to lowest (or no) estimated growth. A proportional overlap was then completed for each individual need, identifying which percentile overlapped the most. A need was considered along a high-growth VMT corridor if it overlapped with 75<sup>th</sup> or higher percentile corridors.

## Safety

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Safety Needs are identified through two metrics:

- **VTrans Safety Needs (PSI)**
  - **Description:** Identified segments with the highest Potential for Safety Improvement (PSI), including Corridors of Statewide Significance (CoSS), and non-Corridors of Statewide Significance.
  - **Source:** 2019 VTrans Mid-Term Needs for Roadway Safety
- **PSAP Needs**
  - **Description:** The top crash clusters and priority corridors (Top 5%) identified through the VDOT Pedestrian Safety Action Plan.
  - **Source:** VDOT Pedestrian Safety Action Plan (PSAP) 2.0

**Methodology:** VTrans Safety and PSAP Needs use a proportional overlap to estimate whether a need is within a one of these identified corridors.

## Environmental Justice

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Environmental Justice Needs are identified through one metric:

- **Equity Emphasis Areas (EEA)**
  - **Description:** Identified areas as defined by the Office of Intermodal Planning and Investment (OIPI) for the purposes of the VTrans mid-term needs identification and prioritization process. Areas are identified based on resident's income, age, race and ethnicity, English proficiency, and disability.
  - **Source:** 2019 VTrans Mid-Term Needs and Priority

**Methodology:** Equity Emphasis Areas use a proportional overlap to estimate whether a need is within a one of these identified areas.

## Economics

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Economic Needs are identified through two metrics:

- **Development Priority Locations**
  - **Description:** Future development priority locations as identified through the 2021 Regional Study on Transportation Project Prioritization for and Economic Development and Growth
  - **Source:** RVARC Staff, (Study completed in August 2021)
- **Urban Development Areas (UDA)**
  - **Description:** Areas designated by locality that may be sufficient to meet projected residential and commercial growth within the next 10 to 20 years
  - **Source:** VTrans

**Methodology:** Development Priority Locations and UDA use a proportional overlap to estimate whether a need is within a one of these identified locations.

## Access Needs Methodology

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It was quickly apparent that the methodology to prioritize other needs wasn't applicable to access needs. For example, transit riders have overwhelmingly cited the Department of Motor Vehicles as a place they need to access but currently cannot. Applying a methodology similar to that described for the other needs yields the Department of Motor Vehicles as a low priority because its location doesn't overlap any of the desired criteria. But it is *because* its location doesn't overlap those criteria that it is so inaccessible. A different method was needed to prioritize access needs.

Transit access needs seemed distinct from non-transit access needs, so access needs were divided into Access (Transit) and Access (Non-transit). Most access needs were location-based, but three systemic access needs were also reviewed: transit frequency, hours of transit, and ADA accessibility. Staff identified what the access need was at each location. If no access need could be discerned, the location was not scored. Motor vehicle access needs were often actually congestion concerns or system management issues, for example, and bicycle and pedestrian needs were often actually safety needs. Motor vehicle access needs were typically regarding resiliency or having more than one way to access a destination.

Staff identified criteria about each location that indicated the number of people affected, the severity of lack of access, and the effect of a lack of access on environmental justice populations (such as poverty, minority, and disability). Staff used these criteria to subjectively assign a score for environmental justice (0-2 points), number of people affected (0-5 points), and severity of the lack of access (0-5 points).

**Table 3 Access Needs Criteria and Rationale**

Mode	What is here?	Does this affect number of people, the severity of lack of access, or environmental justice?
All modes	Government services	Severity – many government services are essential and available in only one place (i.e. a courthouse), lack of access is high severity
All modes	Essential services	Severity – necessary but may be available in multiple locations (i.e. a grocery store or health clinic), lack of access is moderate severity
All modes	Retail, services	Severity – may not be necessary and may be available in multiple locations, lack of access is low severity Number of people Environmental justice (low wage jobs)
All modes	Recreation	Severity – Access to recreation and outdoor spaces improves quality of life, lack of access is low severity
All modes	Residential density	Number of people
All modes	EJ Index	Environmental justice
All modes	Special residence (assisted living, affordable housing)	Environmental justice
Transit	Bus service	Severity – No existing bus service is high severity, existing bus service without sidewalks is moderate severity, existing bus service without other amenities is low severity
Transit	Bus stop activity	Number of people
Transit	Traffic congestion (Priority corridor for congestion management, corridor of concern for congestion, VTrans congestion need)	Number of people (people driving could use transit, people driving benefit if other drivers switch to transit)
Motor vehicle	Average Annual Daily Traffic	Number of people
Motor vehicle	Alternative routes	Motor vehicle access needs are typically resilience issues, if alternative routes are available the severity is low.

Systemic (non-mappable) access needs were similarly subjectively scored based on the number of people affected, the severity of lack of access, and the effect of lack of access on environmental justice populations.

## Objectives & Performance Measures in the Roanoke Valley Transportation Plan Update

**Objectives Definition:** Describe how the RVTPO will attain the Plan vision and goals. Objectives represent specific desired Plan outcomes.

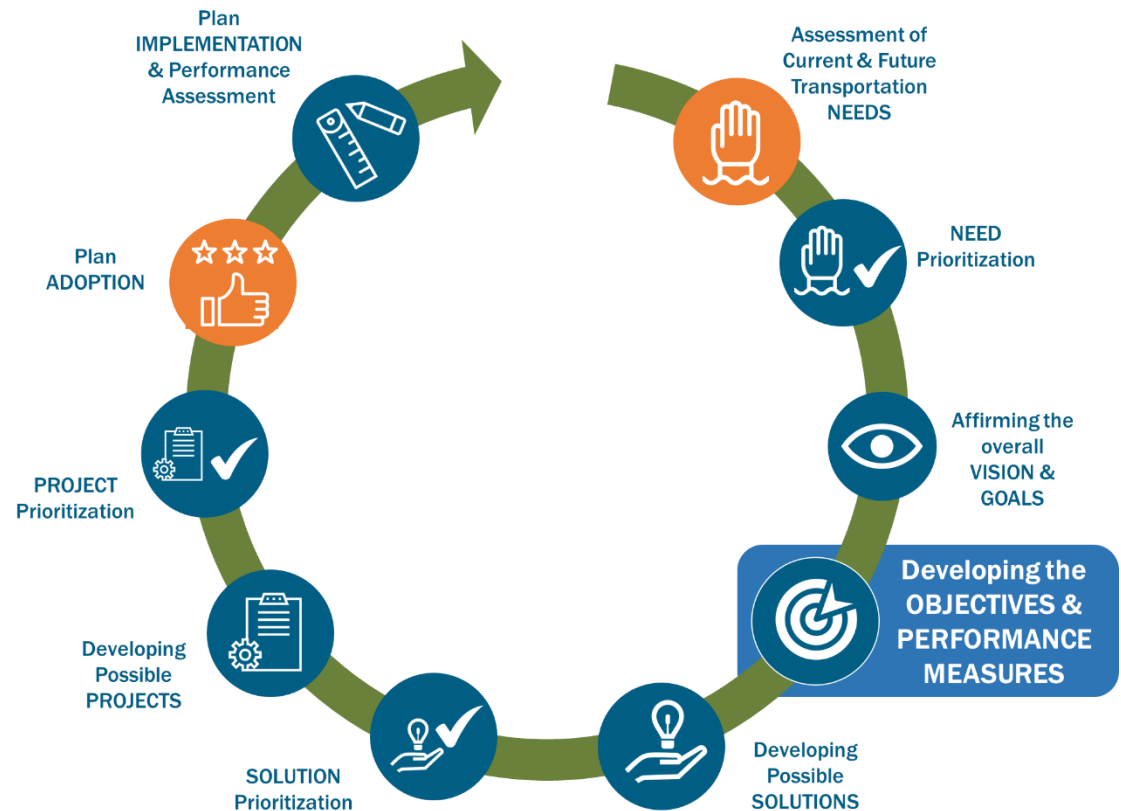
**Objectives Purpose:** Objectives inform how to develop solutions to respond to needs, how to prioritize projects within the Plan, and how to track the Plan and overall system performance.

**Performance Measures Definition:** The quantitative link to objectives, performance measures assess the degree to which investments address transportation needs and meet acceptable thresholds.

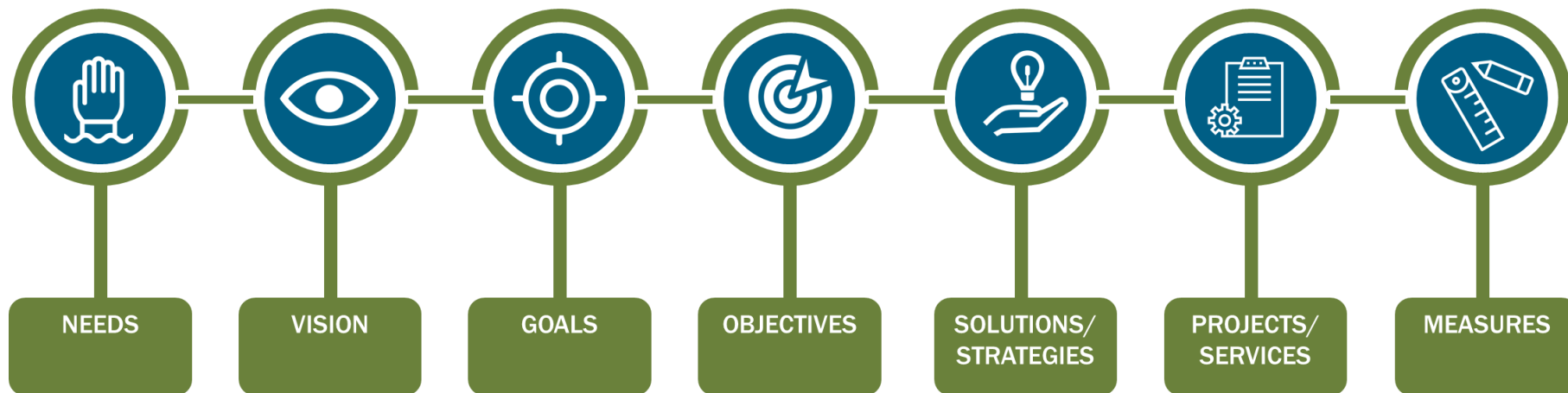
**Performance Measures Purpose:** Enables the RVTPO to assess the degree to which the transportation system is achieving objectives.

**Considerations:**

- Objectives inform the process to develop solutions and could inform project prioritization.
- Objectives and performance measures together meet the SMART framework and are readily measurable based on available data.
  - **S = Specific M = Measurable A = Agreeable R = Relevant T = Time-Bound**
- Some objectives have existing and well defined performance measures, including those established through USDOT rulemakings within performance areas managed by the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Federal Railroad Administration (FRA). Targets have been established for these measures by RVTPO (through coordination with VDOT and OIPI), by transit providers (through coordination by DRPT), and by Amtrak (for the FRA measures).
- Some objectives represent emerging topics where performance measures, and the data to support them, are not yet well defined. For this Plan Update, RVTPO will adopt the objectives and note opportunities for RVTPO to research and develop candidate performance measures in the future.



### Elements of the Transportation Planning Process



**VISION:**  
 The Roanoke Valley’s seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well maintained and reliable, accessible for all users, and promotes economic vitality of the community.

- GOALS:**
- Provide a safe and secure transportation system
  - Enable reliable mobility
  - Enable convenient and affordable access to destinations
  - Foster environmental sustainability
  - Maintain and operate an efficient and resilient transportation system
  - Support economic vitality
  - Promote equitable transportation investments

### Recommended Objectives and Performance Measures

Recommended Objective	Considerations	Performance Measures (Federal Measure as noted) Note: Candidate measure, developed post Plan adoption
<b>Goal 1: Provide a safe and secure transportation system</b>		
<b>a. Reduce fatalities and injuries on the multimodal transportation system.</b>	<ul style="list-style-type: none"> <li>• Consistent with FHWA and FTA measures</li> <li>• Data readily available</li> <li>• Can segment by community to track safety impacts on specific populations (see Goal 7)</li> <li>• Transit safety measures also include security related events (within the <a href="#">National Transit Database, NTD</a><sup>1</sup>)</li> <li>• Transit safety measures are tracked by individual agency, including both fixed-route and on-demand (or paratransit) services</li> </ul>	<ul style="list-style-type: none"> <li>• Number and rate of motorized fatalities per 100 million vehicle miles traveled (VMT) (FHWA)</li> <li>• Number and rate of motorized serious injuries per 100 million VMT (FHWA)</li> <li>• Number of nonmotorized fatalities and serious injuries (FHWA)</li> <li>• Number of reportable fatalities and rate per total vehicle revenue miles by transit agency per year (FTA)</li> <li>• Number of reportable injuries and rate per total vehicle revenue miles by transit agency per year (FTA)</li> <li>• Number of safety events and rate per total vehicle revenue miles by transit agency per year (FTA)</li> </ul>
<b>Goal 2: Enable reliable mobility</b>		
<b>a. Maintain vehicle travel time reliability on priority corridors.</b>	<ul style="list-style-type: none"> <li>• Focus on Congestion Management Process priority corridors</li> <li>• Consistent with FHWA required measures</li> </ul>	<ul style="list-style-type: none"> <li>• % of person miles traveled on the Interstate system and on the non-interstate National Highway System (NHS) that are reliable (FHWA)</li> </ul>
<b>b. Maintain transit and passenger rail on-time performance (OTP).</b>	<ul style="list-style-type: none"> <li>• Reported by system – Amtrak, Valley Metro</li> <li>• Data availability through DRPT and NTD (often at least 1 year behind)</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Amtrak on time performance (FRA, DRPT)</a><sup>2</sup></li> <li>• <a href="#">Valley Metro on time performance</a></li> <li>• Distance between transit system major mechanical failures (FTA)</li> </ul>

<sup>1</sup> <https://www.transit.dot.gov/ntd>

<sup>2</sup> <http://drpt.virginia.gov/rail/amtrak-reports/>



Recommended Objective	Considerations	Performance Measures (Federal Measure as noted) Note: Candidate measure, developed post Plan adoption
<b>Goal 3: Enable convenient and affordable access to destinations</b>		
<b>a. Provide motorized access to inaccessible properties identified for future development.</b>	<ul style="list-style-type: none"> <li>New developments should be accessible by more than one direction to enable multi-directional vehicle connectivity to the roadway network</li> </ul>	<ul style="list-style-type: none"> <li>Number of localities with ordinances or policies that incentivize or require multiple access points in new developments</li> </ul>
<b>b. Increase accessibility to key destinations by transit.</b>	<ul style="list-style-type: none"> <li>Could include types of destinations (e.g., essential services)</li> <li>Transit level of service measure is an option (see <a href="#">ARC Rural Transit in Appalachia Study<sup>3</sup></a>)</li> <li>Multiple statewide accessibility measures to consider, including VTrans</li> <li>Accessibility measures are consistent with SMART SCALE approach</li> </ul>	<ul style="list-style-type: none"> <li>Number of destinations (government service, major grocery store, medical, school/higher education, business) within ¼ mile of a transit stop</li> <li>Transit level of service (number of days per week and/or hours per day that service is available to key destinations)</li> </ul>
<b>c. Increase transportation connections to markets outside the region, including across Virginia and the U.S.</b>	<ul style="list-style-type: none"> <li>Connections to Amtrak, intercity bus terminals, and airport</li> </ul>	<ul style="list-style-type: none"> <li>Number and frequency of daily or weekly inter-regional or interstate connections offered</li> </ul>
<b>d. Increase transit, bicycle and pedestrian connections for all users within multimodal centers and districts.</b>	<ul style="list-style-type: none"> <li>Transit, on and off-road bicycle and pedestrian connections within centers and districts</li> </ul>	<ul style="list-style-type: none"> <li>Number and percent of transit stops with connecting sidewalks and ADA accommodations in multimodal centers and districts (walk – transit connection)</li> <li>Number and percent of transit stops adjacent to a marked bicycle accommodation in multimodal centers and districts (transit – bike connection)</li> <li>Number and percent of bike racks with connecting sidewalks in multimodal centers and districts (walk – bike connection)</li> </ul>

<sup>3</sup> <https://www.arc.gov/report/public-transportation-in-appalachia/>

Recommended Objective	Considerations	Performance Measures (Federal Measure as noted) Note: Candidate measure, developed post Plan adoption
<b>Goal 4: Foster environmental sustainability</b>		
<b>a. Minimize emissions from motorized on-road transportation.</b>	<ul style="list-style-type: none"> <li>The RVTP0 is in attainment of air quality standards per the <a href="#">Clean Air Act</a><sup>4</sup> (existing standards may become more stringent)</li> <li>Greenhouse gases (GHG) are not part of the Clean Air Act, but many states (including <a href="#">Virginia</a><sup>5</sup>) are developing inventories</li> <li>GHG related measures likely will be included in the next Federal surface transportation bill</li> </ul>	<ul style="list-style-type: none"> <li>Track investments and implementation of low and/or zero-emission technologies within the region (zero-emission buses, zero-emission fleets, charging stations, energy efficient infrastructure)</li> </ul>
<b>b. Minimize / mitigate new impervious surfaces created by transportation infrastructure.</b>	<ul style="list-style-type: none"> <li>Helps consider environmental risks associated with transportation system expansion, particularly in environmentally sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>Track new impervious surface area associated with transportation investments outside of designated growth areas</li> <li>Track new impervious surface area associated with transportation investments in floodplains</li> </ul>
<b>Goal 5: Maintain and operate an efficient and resilient transportation system</b>		
<b>a. Maintain state and national standards for infrastructure and asset condition.</b>	<ul style="list-style-type: none"> <li>Federal measures focus only on the National Highway System</li> <li><a href="#">State measures</a><sup>6</sup> expand to all VDOT owned/maintained bridges and pavement</li> <li>Valley Metro also tracks asset condition and sets targets through coordination with DRPT</li> </ul>	<ul style="list-style-type: none"> <li>% good and poor NHS bridge deck area (FHWA)</li> <li>% good and poor NHS pavement lane miles (FHWA)</li> <li>% sufficient bridges and average weighted General Condition Rating (VDOT)</li> <li>% sufficient pavement lane miles on Interstate, Primary, and Secondary systems (VDOT)</li> <li>% of revenue and of non-revenue vehicles that have met or exceeded their useful life benchmark (FTA)</li> <li>% of facilities rated in poor condition (FTA)</li> </ul>

<sup>4</sup> <https://www.epa.gov/green-book>

<sup>5</sup> <https://www.deq.virginia.gov/air/greenhouse-gases>

<sup>6</sup> [http://www.ctb.virginia.gov/resources/2021/sept/pres/2\\_september\\_presentation\\_09012021\\_1.pdf](http://www.ctb.virginia.gov/resources/2021/sept/pres/2_september_presentation_09012021_1.pdf)

Recommended Objective	Considerations	Performance Measures (Federal Measure as noted) Note: Candidate measure, developed post Plan adoption
<b>Goal 6: Support economic vitality</b>		
<b>a. Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.</b>	<ul style="list-style-type: none"> <li>• Could also include access to regional economic development sites and VTrans industrial development areas outside of designated growth areas</li> </ul>	<ul style="list-style-type: none"> <li>• Number of developments approved adjacent to more than one existing and/or planned transportation mode</li> </ul>
<b>b. Maintain truck travel time reliability</b>	<ul style="list-style-type: none"> <li>• Consistency with <a href="#">VTrans Freight Element</a><sup>7</sup> (which tracks freight-related performance measures and truck bottleneck locations)</li> <li>• Truck travel time reliability measure helps characterize performance of the overall regional freight system</li> <li>• Baseline performance relative to 2019 (pre-pandemic levels)</li> </ul>	<ul style="list-style-type: none"> <li>• Interstate truck travel time reliability (FHWA)</li> </ul>
<b>c. Maintain acceptable levels of congestion during peak travel periods on priority corridors</b>	<ul style="list-style-type: none"> <li>• Multiple possible measures to consider consistent with <a href="#">Congestion Management Process (CMP)</a><sup>8</sup>, VTrans, and Improve I-81</li> <li>• Federal measures (peak hours of excessive delay) is not applicable to the RVTPPO region currently (only to non-attainment areas over a certain population threshold)</li> </ul>	<ul style="list-style-type: none"> <li>• Planning time index on Congestion Management Process Priority Corridors (RVTPPO adopted via the CMP)</li> </ul>

<sup>7</sup> <https://www.vtrans.org/mid-term-planning/freight-plan>

<sup>8</sup> <https://rvarc.org/wp-content/uploads/2020/10/Traffic-Congestion-Management-Process-2020.pdf>

Recommended Objective	Considerations	Performance Measures (Federal Measure as noted) Note: Candidate measure, developed post Plan adoption
<b>Goal 7: Promote equitable transportation investments</b>		
<b>a. Assess planning-level benefits or disproportionate adverse effects of transportation projects included in this plan on Equity Emphasis Areas and identify mitigation strategies.</b>	<ul style="list-style-type: none"> <li>Assume that NEPA process protects communities from disproportionate impacts</li> <li>Within solution development and prioritization process, could consider benefits &amp; burdens qualitatively for each project</li> <li>More details on VTrans Equity Emphasis Areas is available <a href="#">here</a><sup>9</sup></li> </ul>	<ul style="list-style-type: none"> <li>Identify projects creating potential disadvantages for Equity Emphasis Areas and track mitigation strategies</li> </ul>
<b>b. Ensure at least 40% of new non-vehicle roadway investments primarily benefit Equity Emphasis Areas.</b>	<ul style="list-style-type: none"> <li>Consider unique benefits of each project on these communities</li> <li>Incorporate benefits to these communities within project prioritization</li> <li><a href="#">Justice40 initiative</a><sup>10</sup> builds on environmental justice outlined in <a href="#">Executive Order 12898</a><sup>11</sup></li> </ul>	<ul style="list-style-type: none"> <li>Track share of non-highway capacity or operational investments that provide documented benefits primarily for Equity Emphasis Areas</li> </ul>
<b>c. Reduce fatalities and serious traffic injuries in Equity Emphasis Areas.</b>	<ul style="list-style-type: none"> <li>Special attention to provide a safe and secure transportation system in these communities</li> </ul>	<ul style="list-style-type: none"> <li>Decrease traffic fatalities in Equity Emphasis Areas</li> <li>Decrease traffic serious injuries in Equity Emphasis Areas</li> <li>Decrease nonmotorized fatalities and serious injuries in Equity Emphasis Areas</li> </ul>
<b>d. Maintain state and national standards for infrastructure condition in Equity Emphasis Areas.</b>	<ul style="list-style-type: none"> <li>Special attention to maintain and operate an efficient and resilient transportation system in Equity Emphasis Areas</li> </ul>	<ul style="list-style-type: none"> <li>% good and poor pavement lane miles in Equity Emphasis Areas</li> </ul>

<sup>9</sup> [https://vtrans.org/resources/Technical\\_Guide\\_for\\_the\\_Identification\\_and\\_Prioritization\\_of\\_VTrans\\_Mid-term\\_Needs.pdf](https://vtrans.org/resources/Technical_Guide_for_the_Identification_and_Prioritization_of_VTrans_Mid-term_Needs.pdf)

<sup>10</sup> <https://www.transportation.gov/equity-Justice40>

<sup>11</sup> <https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>

### General Comments/Comment Themes and Responses

Goal	Survey Response / Comments	Response/Edits
Safety & Security	Strong agreement with the objective, preference to use stronger language than “reduce”	Retained use of “Reduce” – The broad statewide and regional goal is to reduce, without reference to an ultimate zero fatalities aspiration. Region can choose to follow state targets or specify more aggressive targets on an annual basis
Reliable Mobility	General agreement with objective, with some concern on data availability to monitor performance over time	Use of FHWA and FTA performance measures ensures confidence in data. Note, for highways this is focused only on the National Highway System.
Reliable Mobility	Concern over the use of “maintain” within the objective statements	Use of “maintain” is consistent with approach in the Congestion Management Process. Amtrak is already exceeding on-time performance targets.
Accessibility	Concern with focus on just motorized access (objective a.)	Objective 3a. retains focus on “motorized”, while Objective 6a. focuses on multimodal access.
Accessibility	Access is about more than the number of destinations, need to incorporate level of service (objective b.) and id the destinations	Reworded objective to speak to transit accessibility more broadly. Candidate measures will look at actual access and level of service.
Accessibility	Simplify terminology (objective c.)	Reworded to: “Increase transportation connections to markets outside the region, including across Virginia and the U.S.”
Accessibility	Expand definition to focus on access for all types of users (objective d.)	Reworded to include reference to “all users” and clarified candidate measures with reference to ADA accommodations.
Sustainability	For objective a. (manage growth in VMT), many other objectives already address this idea, this is duplicative	Removed objective.
Sustainability	Many prior objectives also help reduce emissions (by managing total SOV travel), objective (if included) should focus more on technology (charging stations, fleet, etc...)	Reworded objective to: Minimize emissions from motorized on-road transportation. Candidate performance measures focus on technology deployment.
Sustainability	Objective c. should be clarified to focus exclusively on impervious surfaces associated with transportation investments	Clarified focus on transportation infrastructure impervious surfaces in candidate performance measures.
Efficient System	Strong agreement, clarify type of infrastructure and confirm terminology (e.g., maintain v. improve)	Retained use of “maintain” as VDOT and CTB regularly are reviewing performance, establishing appropriate performance targets given performance trends and programmed investments.
Economic Vitality	Concern over if “maintain” is the right message for truck travel time reliability and congestion objectives	Use of “maintain” is consistent with approach in the Congestion Management Process.
Equity	Streamline descriptions of objectives, too wordy/full of jargon, specify what we are measuring and how it is unique relative to other similar objectives	Streamlined definitions and added candidate performance measures. Created consistent focus on VTrans Equity Emphasis Areas through the candidate measures which capture the key communities within the region where performance will be tracked.