COMMONWEALTH of VIRGINIA

Office of the

SECRETARY of TRANSPORTATION

Performance-Based Planning

in Virginia's Project Pipeline

September 2026

Agenda and Goals for Presentation

PROJECT PIPELINE

- **Goal – Prepare Board to take action on new locations in October**
- **Goal - Introduce/Remind Members of Pipeline Program Purpose**
  - Performance-Based Planning/Project Development
  - Solutions hierarchy
  - National best practices
- **2026 Pipeline Study Candidate Process**
  - Candidate study identification
  - Next Steps
  - Proposed studies by District (Appendix)

Spending Limited $

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Why we must rethink how we plan and invest in transportation

$5-20

per vehicle per day just for road maintenance and parking facility costs of adding peak capacity (VTPI)

1:1

research finds that increases in highway capacity tend to induce comparable increases in vehicle travel over time, limiting long-run congestion relief (Duranton and Turner)

~50%

of urban congestion is caused by non-recurring events, not insufficient capacity (FHWA)

The question isn't whether to invest — it's how to invest strategically.

What Is Performance-Based Planning?

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A Data-Driven Approach

Performance-based planning uses measurable outcomes — not assumptions — to guide transportation investment decisions. It answers the fundamental question: What strategies will deliver the greatest benefit per dollar invested?

If it's not broke don't fix it… ensure there is a need/problem (focus on VTrans priorities)

If you can, prevent breakage from occurring… preserve/protect assets

If it's broke, try to fix what you have…

- Operational improvements
- Targeted intersection improvements
- Travel Demand Management (i.e., HOT lanes, Park and Ride, Vanpools, etc.)

After exhausting options to improve/protect what you have, then consider a new one (build more)

How Studies Are Selected & Conducted

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The Project Pipeline process: from need identification to funded solutions

1	2	3	4	5
Identify Needs	**Scope & Analyze**	**Engage Stakeholders**	**Evaluate/Test Alternatives**	**Recommend & Seek Funding**
CTB selects study locations based on VTrans Priority 1 & 2 locations statewide	OIPI, VDOT, DRPT analyze root causes: safety, reliability, congestion, etc.	Local, regional, state and federal partners provide input through working groups and public outreach	Develop and test alternatives - seek public feedback - select preferred solution	Solutions prepared to compete for funding: SMART SCALE, Revenue Sharing, HSIP, etc.

Solution Hierarchy

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Evaluate lower-cost strategies first — capacity expansion when warranted

EVALUATE FIRST

Travel Demand Management (TDM)

Telecommuting programs, transit (BRT, Bus, Rail), bike/ped, ride-sharing, and parking management. These strategies reduce the number of single-occupant vehicles on the road.

Operational & Safety Improvements

Signal optimization, access management, turn lanes, innovative intersections, intelligent transportation systems (ITS). These maximize performance of existing infrastructure.

WHEN JUSTIFIED

Capacity Expansion

New lanes, new alignments, grade-separated interchanges. Reserved for situations where solutions above cannot adequately address the identified needs.

The Evidence: TDM & Operations Work

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Minneapolis–St. Paul

34-37% less traffic at office buildings with TDM plans vs. ITE-predicted rates; 17-24% fewer parking spaces needed

Spack & Finkelstein, 2014

Fairfax County, VA

63% fewer trips at 13 developments with TDM programs compared to standard ITE trip generation rates

Fairfax Co. TDM Report

Ohio DOT

1200+
Intersections

$10M in annual Transportation Systems Management and Operations (TSMO) funding; integrated signal management under TSMO umbrella; deployed smart signal technology throughout state

Signal Retiming Return-on-Investment

40:1 return on investment typical for traffic signal retiming programs — one of the most cost-effective improvements

FHWA / NTOC

When Capacity Expansion Is the Right Answer

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A balanced approach acknowledges when building is necessary

Capacity Expansion IS Warranted When:

- Sustained volume-to-capacity ratios exceed thresholds even after TDM and operational improvements
- Critical safety deficiencies require geometric redesign (sight distance, lane configuration)
- Regional economic growth requires additional system capacity
- Strategic freight corridors need additional capacity for goods movement

The Key Insight

Capacity expansion isn't a problem — defaulting to it without evaluating alternatives first is. When the data supports building, the Pipeline process provides the evidence to justify the investment confidently.

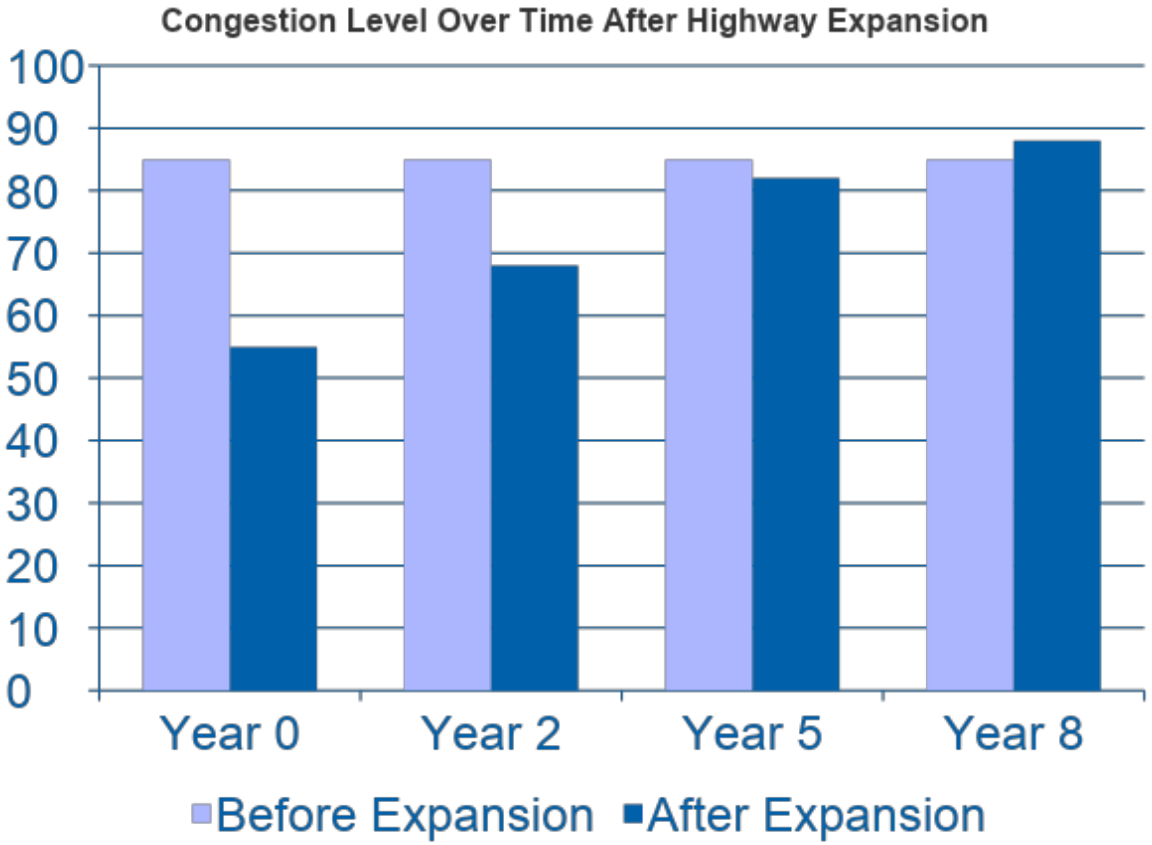
Virginia Example

Project Pipeline standardized this philosophy by always looking at operational improvements and travel demand management before considering widening or capacity expansion.

Capacity Expansion Caveat: Induced Demand



Why capacity alone doesn't solve congestion long-term



1 **Handy and Boarnet (2014)**

A 10% increase in highway capacity generates approximately 10% more vehicle miles traveled

2 **UC Berkeley (Cervero)**

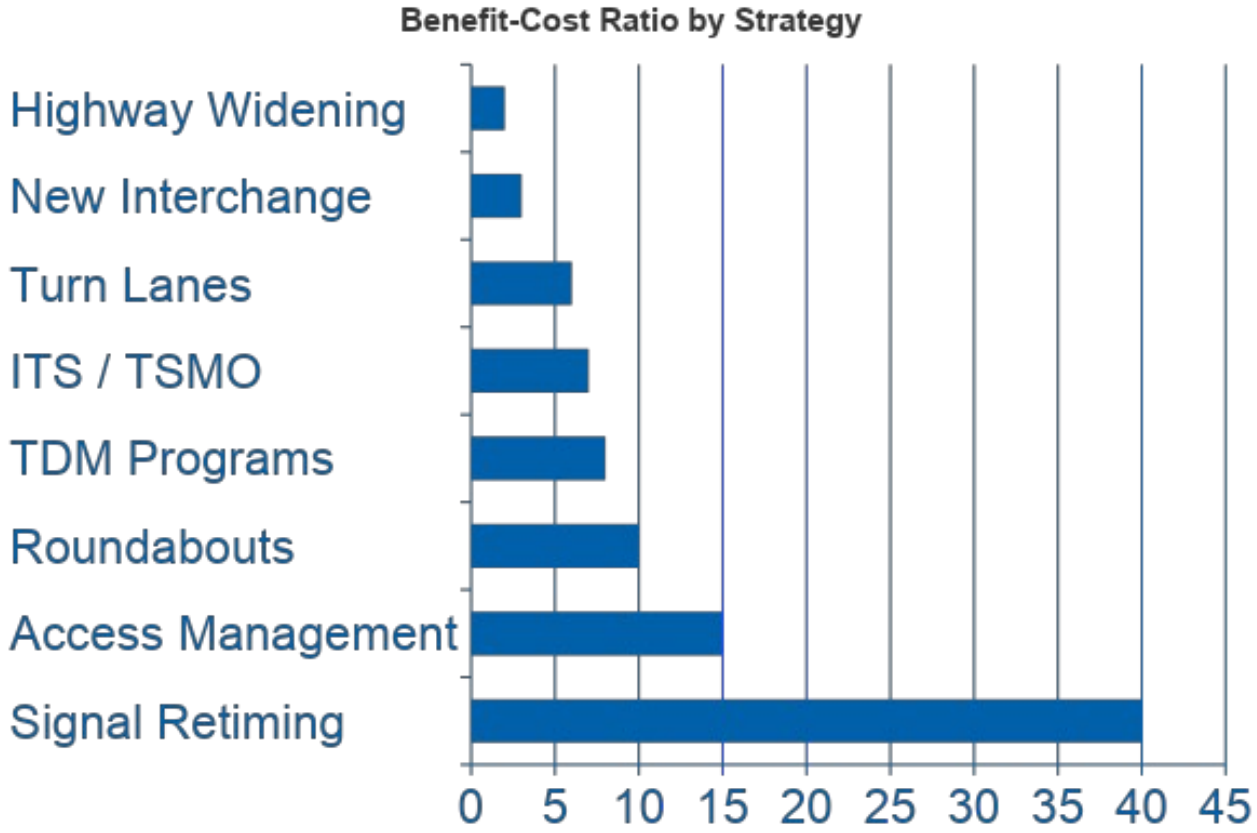
Within 6-8 years, roughly 80% of added capacity is absorbed by additional demand

This doesn't mean never build — it means build strategically and pair expansion with demand management.

Cost Comparison: Strategy Effectiveness

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Return on investment by strategy type



Smarter Dollars

Operational strategies like signal retiming can deliver benefit-cost ratios 10-20x higher than capacity expansion, making them a powerful first option for addressing transportation challenges.

Virginia's Track Record

Pipeline study recommendations feed directly into SMART SCALE, where benefit-cost analysis is central to project selection and funding.

Note: Benefit-cost ratios are illustrative ranges based on national research by FHWA and VTPI research. Actual ratios vary by project context.

Virginia Aligns with National Best Practices

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Performance-based planning leadership across the country

Ohio DOT — TSMO 2.0 Program

Secured $10M in annual Transportation Systems Management and Operations (TSMO) funding; integrated signal management under TSMO umbrella; deployed smart signal technology at 1,200+ intersections.

Texas DOT — Statewide TSMO Strategy

25 district-level TSMO plans plus 13 ITS master plans. Early wins focused on operational solutions ahead of capacity investments.

Washington State DOT — Practical Solutions

“Practical Solutions” philosophy directs planners to identify the right-sized solution for each problem before considering major expansion.

Minnesota DOT — TDM Integration

Comprehensive TDM-in-planning approach. Research showed TDM-supported buildings generate 34-37% less traffic than standard predictions.

Project Pipeline
Selecting New Study Locations

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- OIPI worked with VDOT and DRPT to identify study candidates for Board consideration
- Following steps used to identify study locations:
  1. Start with VTrans priority 1 and 2 need locations
  2. Remove locations to be addressed by funded projects e.g. Six-Year Plan, NVTA, CIPs, etc.
  3. Remove locations with recent and current planning studies
  4. Look for high benefit SMART SCALE applications that were not funded
     a. Opportunity to improve project and/or reduce costs
  5. **Ongoing - Discuss study locations (see Appendix) with Board members**
  6. Board action on new study locations (October Action Meeting)





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Thank you.

DMV Now
Virginia Department of Motor Vehicles

Virginia Department of Aviation

DRPT
Virginia Department of Rail and Public Transportation

Office of Intermodal Planning and Investment

MVDB
Motor Vehicle Dealer Board
Commonwealth of Virginia

The Port of Virginia

VDOT

Virginia Space

Appendix
Proposed 2026 Study Locations by District

Project Pipeline

Selecting New Study Locations

District	Corridor Description	Jurisdiction / Locality
Bristol	US 460 from Thru Drive to Claypool Hill Mall Drive	Tazewell
Bristol	US 11 from N 11th St & E Monroe St to Cassell Rd/ Withers Rd	Wytheville
Bristol	US 11 from Hillman Highway to Empire Drive	Abingdon
Bristol	US 421 (W State Street) at Euclid Avenue and Gate City Highway	Bristol City
Culpeper	US 29 From Alanthus Rd to Kellys Ford Rd	Culpeper County
Culpeper	US 29 & Covington's Corner	Fauquier County
Culpeper	US 29 From Matthew Mill Rd to Frays Mill Rd	Greene County
Culpeper	US 33 & Shannon Hill Rd	Louisa County
Culpeper	US 29 at Airport Road	Albemarle County
Fredericksburg	Garrisonville Rd From Staffordboro Blvd/ Mine Rd to US 1/95 ramps	Stafford County
Fredericksburg	US 1 From Truslow Rd to Warrenton Rd / Butler Rd	Stafford County
Fredericksburg	Route 207 From US 1 to Enterprise Parkway	Caroline/Spotsylvania
Fredericksburg	Route 17 (Gloucester) From Crewe Road to Coleman Bridge	Gloucester County
Fredericksburg	Route 3 From Salem Church Rd to Williams Street	Spotsylvania / City of Fredericksburg

Project Pipeline

Selecting New Study Locations

District	Corridor Description	Jurisdiction / Locality
Hampton Roads	US 258/Rte 10 From Rte 10 to Benns Grant Blvd	Carrollton
Hampton Roads	US 17 (Brewers Neck Blvd) & US 258 (Carrollton Blvd)	Carrollton
Hampton Roads	Armory Drive from US 58 (Southampton Parkway) to College Drive	Franklin
Hampton Roads	Rosemont Rd from I-264 to VA Beach Blvd	Virginia Beach
Hampton Roads	Market Dr/Atlantic St from Cloverleaf Dr to US 301 (Main St)	Emporia
Lynchburg	BUS US-29N (Central Blvd) From Boxwood Ct to Beavers Mill Rd and BUS US 29 N From Nor- Dan Dr to Davis Dr	Danville
Lynchburg	US 29 & VA-6 (River Road)	Nelson County
Lynchburg	Leesville Rd & VA-24 (Colonial Hwy)	Campbell County
Lynchburg	Mount Cross Road From Laniers Mill Rd to Mill Creek Rd	Pittsylvania County
Lynchburg	Kentuck Road From Dodson Ln to Ringgold Church Road and Ringgold Church Rd From Fire Department to Dan River HS Entrance #1	Pittsylvania County
Northern Virginia	Sycolin Road From Crosstrail Boulevard to Belmont Ridge Road	Loudoun County
Northern Virginia	VA 28 From Cockrell Rd to Commerce Ct	City of Manassas
Northern Virginia	Minnieville Rd From Caton Hill Rd to Dale Blvd	Prince William County
Northern Virginia	Rte 286 & West Ox Rd	Fairfax County

Project Pipeline
Selecting New Study Locations

District	Corridor Description	Jurisdiction / Locality
Richmond	Route 460 from Bull Hill Rd to Hines Rd	Prince George
Richmond	Route 144 Between Conduit Road & Puddledock Road	Colonial Heights
Richmond	Route 1 from Rio Vista Street to Brightpoint Drive	Chesterfield
Salem	US 460 at Laymantown Rd	Botetourt
Salem	1-81 Exit 98 (Cleburne Ave) – from Newburn Road to Alexander Road	Pulaski County
Salem	SR 24 (E Washington Ave) from Dogwood Blvd to Bedford County Line at Blue Ridge Pkwy	Vinton/Roanoke County
Salem	Melrose Ave from Lafayette Blvd to Roanoke/Salem City Limit at Barnett Rd NW	Roanoke City
Salem	Gus Nicks from US 460 to Pollard St	Roanoke City/Vinton
Staunton	I-81 Exit 315 & Route 7	Frederick County/Winchester City
Staunton	Route 37 & Route 50	Frederick County/Winchester City
Staunton	US-250 from Statler Boulevard to Sangers Lane	Staunton City