



COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

VTrans Long-term Risk & Opportunity Register

CVTPO Technical Committee

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Office of Intermodal Planning and Investment

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TODAY'S PRESENTATION: PURPOSE

- ▶ Share Key Takeaways from the CTB Policy for the **Development and Monitoring of VTrans Long-term Risk & Opportunity Register**

COMPONENTS OF VTRANS

1
CTB's Vision, Guiding
Principles, Goals
and Objectives

2
VTrans Mid-term
Needs: Identification
and Prioritization

3
VTrans Long-term
Risk & Opportunity
Register

4
Strategic Actions
(Recommendations)



STEP 1 IDENTIFY MEGA- & MACROTRENDS

STEP 2 IDENTIFY METRICS FOR CTB GOALS

STEP 3 ESTIMATE IMPACTS OF MACROTRENDS ON METRICS

STEP 4 DEVELOP VTRANS LONG-TERM RISK
& OPPORTUNITY REGISTER

STEP 5 TRACK MACROTRENDS FOR ANNUAL REPORTING

► Key Terms

MEGATREND

“A large, social, economic, political, environmental or technological change that is slow to form. Once in place, megatrends influence a wide range of activities, processes and perceptions, both in government and in society, possibly for decades. They are the underlying forces that drive trends.” – European Foresight Forum

MACROTREND

An emerging pattern of change likely to impact state government and require a response.

More than one macrotrend can be associated with a megatrend.

RISK & OPPORTUNITY REGISTER

It “identifies and records the risks facing different areas of business. Identifying risk is a critical step in managing it and the risk and opportunity register allow our organization to assess the risk in context with our overall strategy and help record the controls and treatments of those risks.” – ISO9001

STEP 1: IDENTIFY MEGA- & MACROTRENDS

MEGATREND

**IMPACT OF CLIMATE
CHANGE /
GREENHOUSE GAS
EMISSIONS**

**TECHNOLOGICAL
ADVANCEMENTS**

**CHANGE IN
CONSUMPTION
PATTERNS**

**SOCIO-DEMOGRAPHIC /
EMPLOYMENT
CHANGES**

MACROTREND



Increase in
Flooding Risk

- Sea-level Rise
- Storm Surge
- Inland/Riverine Flooding



Adoption of
Highly
Autonomous
Vehicles



Adoption of
Electric Vehicles



Growth in
Shared Mobility



Growth in E-
commerce



Greater
Automation of
Production and
Services



Growth of
Professional
Service Industry



Increase in
Workplace
Flexibility








Growth of the
65+ Cohort

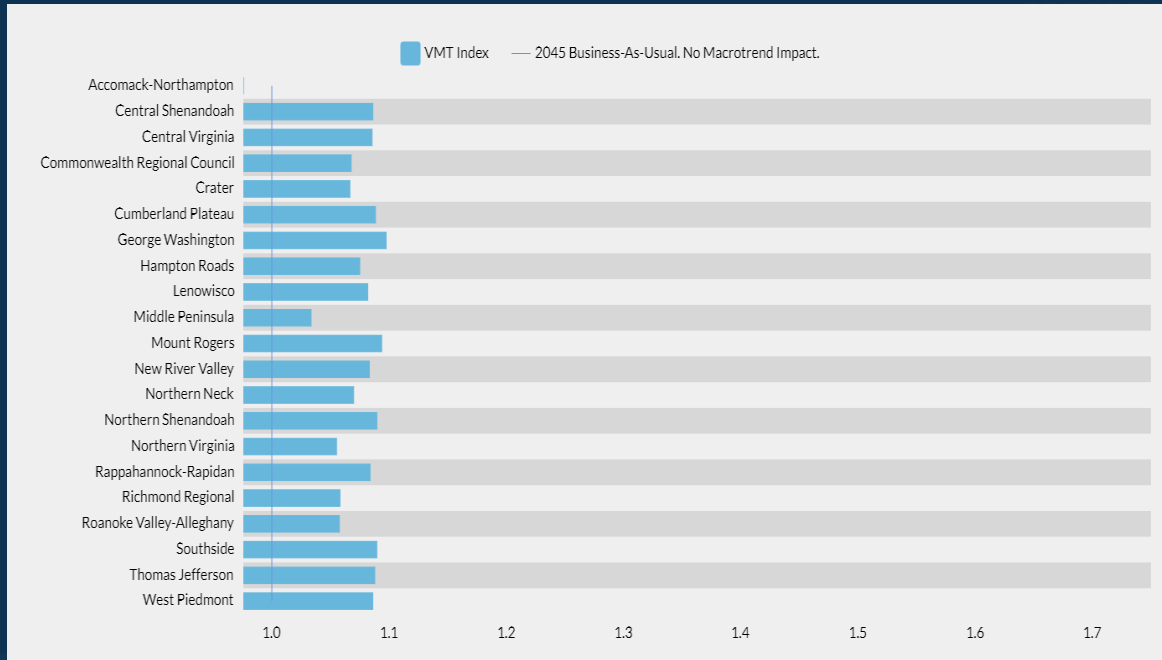


Population and
Employment
Shift

STEP 2: IDENTIFY METRICS FOR CTB GOALS

	GOALS	OBJECTIVES	METRICS FOR CTB GOALS
	Economic Competitiveness and Prosperity	<ul style="list-style-type: none"> A.1. Reduce the amount of travel that takes place in severe congestion A.2. Reduce the number and severity of freight bottlenecks A.3. Improve reliability on key corridors for all modes 	Vehicle Miles Traveled (VMT) Index
	Accessible and Connected Places	<ul style="list-style-type: none"> B.1. Reduce average peak-period travel times in metropolitan areas B.2. Reduce average daily trip lengths in metropolitan areas B.3. Increase the accessibility to jobs via transit, walking, and driving in metropolitan areas 	Shared Mobility Index
	Safety for All Users	<ul style="list-style-type: none"> C.1. Reduce the number and rate of motorized fatalities and serious injuries C.2. Reduce the number of non-motorized fatalities and serious injuries 	Safety Index
	Proactive System Management	<ul style="list-style-type: none"> D.1. Improve the condition of all bridges based on deck area D.2. Increase the lane miles of pavement in good or fair condition D.3. Increase percent of transit vehicles and facilities in good or fair condition 	Roadways At Risk from Flooding
	Healthy Communities & Sustainable Transportation Communities	<ul style="list-style-type: none"> E.1. Reduce per-capita vehicle miles traveled E.2. Reduce transportation related NOX, VOC, PM, and CO emissions E.3. Increase the number of trips traveled by active transportation (bicycling and walking) 	Emissions Index

VEHICLE MILES TRAVELED (VMT) INDEX: ESTIMATED CHANGE IN VMT DUE TO VTRANS MACROTRENDS COMPARED TO THE 2045 BUSINESS-AS-USUAL SCENARIO



STATEWIDE IMPACT

+4%

LOW

+8%

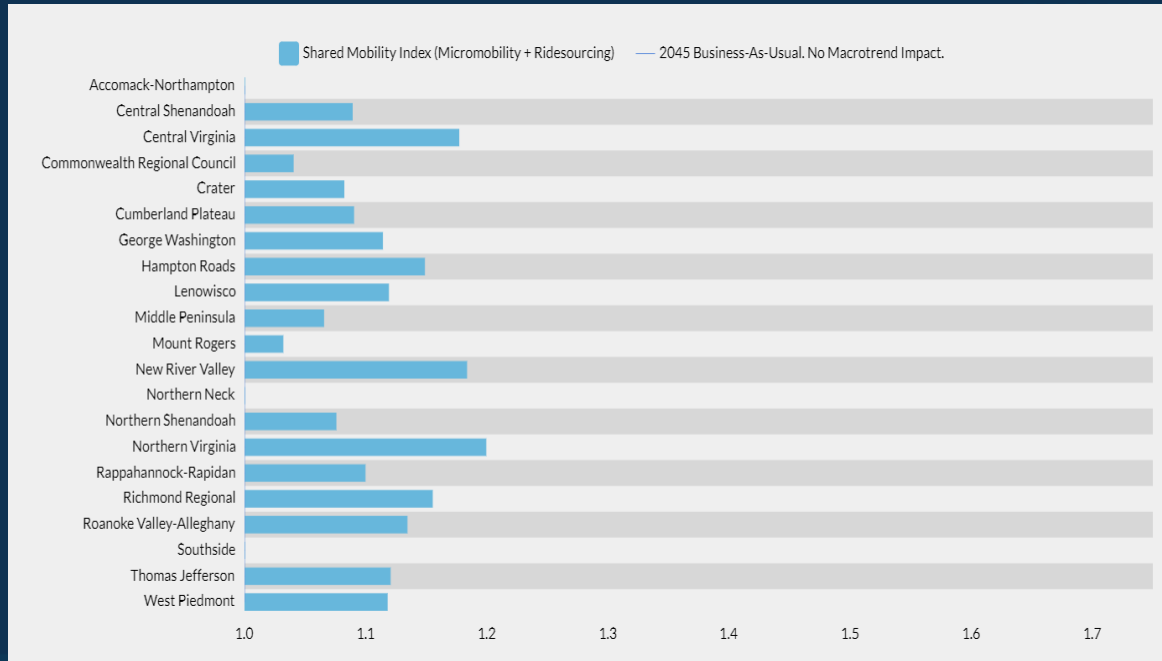
MEDIUM

+17%

HIGH



SHARED MOBILITY INDEX: ESTIMATED SWITCHABLE URBAN AUTO SOV VMT TO MICROMOBILITY + RIDESOURCING DUE TO VTRANS MACROTRENDS COMPARED TO THE 2045 BUSINESS-AS-USUAL SCENARIO



STATEWIDE IMPACT

+9%

LOW

+18%

MEDIUM

+27%

HIGH



SAFETY INDEX: ESTIMATED CHANGE IN NUMBER OF CRASHES INVOLVING FATALITIES + SERIOUS INJURIES DUE TO VTRANS MACROTRENDS COMPARED TO THE 2045 BUSINESS-AS-USUAL SCENARIO



STATEWIDE IMPACT

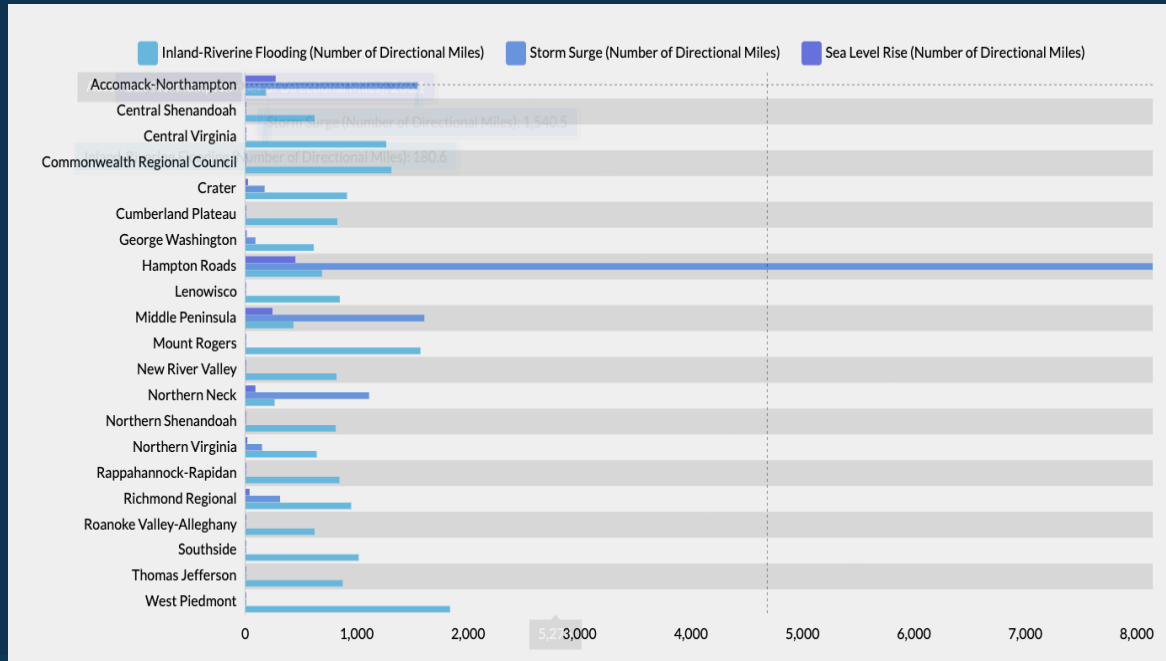
-26%
LOW

-38%
MEDIUM

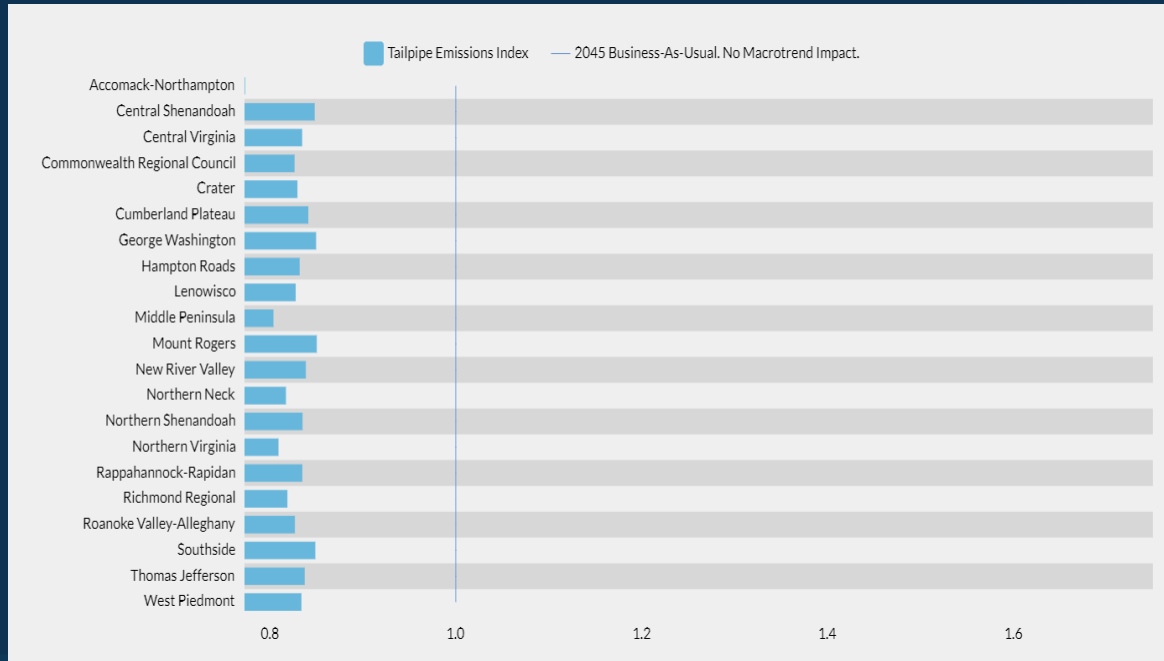
-67%
HIGH



ROADWAYS AT RISK OF FLOODING: ESTIMATED DIRECTIONAL MILES OF ROADWAY AT RISK OF FLOODING DUE TO SEA LEVEL RISE, STORM SURGE, AND/OR INLAND/RIVERINE FLOODING IN 2045



TAILPIPE EMISSIONS INDEX: ESTIMATED CHANGE IN TAILPIPE EMISSIONS DUE TO VTRANS MACROTRENDS COMPARED TO THE 2045 BUSINESS-AS-USUAL SCENARIOS



STATEWIDE IMPACT

-3%
LOW






-17%
MEDIUM

-69%
HIGH








- ▶ OIPI has identified 19 risks and opportunities
- ▶ How can regional entities and local jurisdictions utilize that?
 - ▶ Share region- or locality-specific data to policymakers to increase awareness
 - ▶ Consider planning to prepare (eg. Apply for OIPI's GAP Technical Assistance program to update building codes, identify best practices to manage scooters and electric bikes, etc.)

OIPI will provide annual updates to the Board.

MACROTREND	VTRANS TREND TRACKERS
	<ul style="list-style-type: none"> ▪ Number of directional miles at risk from sea level rise ▪ Number of directional miles at risk from storm surge ▪ Number of directional miles at risk from inland/riverine flooding ▪ Annual cost of transportation repair due to flooding events
	<ul style="list-style-type: none"> ▪ Market Penetration of Semi- and Highly Autonomous Vehicles* ▪ Attitude and Preferences for Adoption of Semi- and Highly Autonomous Vehicles*
	<ul style="list-style-type: none"> ▪ Number of Electric Vehicles ▪ Market Penetration of Electric Vehicles* ▪ Attitude and Preferences for Adoption of Electric Vehicles* ▪ Transportation Funding by Funding Source
	<ul style="list-style-type: none"> ▪ Access to Shared Mobility Services* ▪ Utilization of Shared Mobility Services by Type*
	<ul style="list-style-type: none"> ▪ Number of Warehouse and Distribution Centers ▪ Square Footage of Warehouse and Distribution Centers ▪ Share of E-commerce Sales (Business-to-business, business-to-customers) ▪ Number of Jobs in Goods Movement Dependent Industries

*Based on the VTrans State of Transportation Biennial Survey

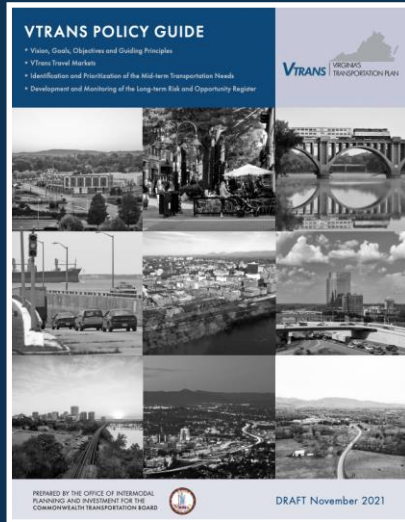
OIPI will provide annual updates to the Board.

MACROTREND	VTRANS TREND TRACKERS
	<ul style="list-style-type: none"> ▪ Number of short-range drone deliveries ▪ Number of long-range drone deliveries
	<ul style="list-style-type: none"> ▪ Share of Professional Service Industry Jobs ▪ Number of STEM Jobs
	<ul style="list-style-type: none"> ▪ Number of Workers with Workplace Flexibility* ▪ Utilization of Workplace Flexibility*
	<ul style="list-style-type: none"> ▪ Number of Virginians Age 65 or higher ▪ Share of Age 65+ Cohort
	<ul style="list-style-type: none"> ▪ VTrans Land Use Vitality Index ▪ Population ▪ Employment ▪ Income

RESOURCES

POLICY GUIDE

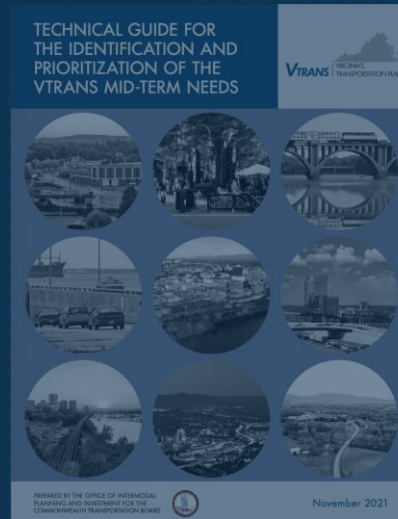
For Policy Makers | Adopted by the CTB



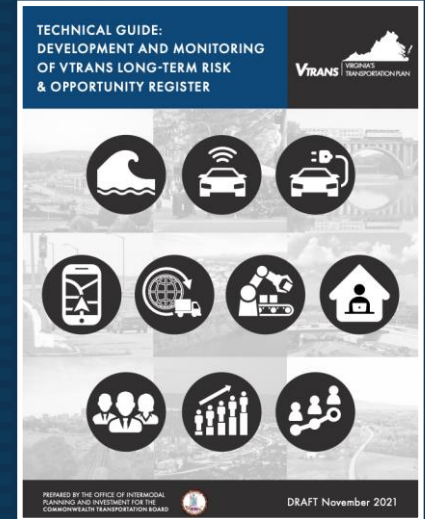
Includes all policies

TECHNICAL GUIDES

For practitioners | Not adopted by the CTB



Needs Identification and Prioritization



Long-term Risk & Opportunity Register

► Gather jurisdiction and region specific impacts of VTrans Macrotrends

VTrans.org > InteractVTrans > DataExplorer



► OIPI will:

- Monitor long-term risks & opportunities and modify based on new data and information
- Develop and track progress towards VTrans Strategic Actions to minimize risks and maximize opportunities
- Inform local and regional jurisdictions of available resources to ensure all stakeholders are aware

THANK YOU!

► OIPI's Statewide Transportation Planning (STP) Section

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