

# 2050

## HAMPTON ROADS

### LONG-RANGE TRANSPORTATION PLAN

# DRAFT 2050 LRTP

## Regional Scenario

# Planning Framework



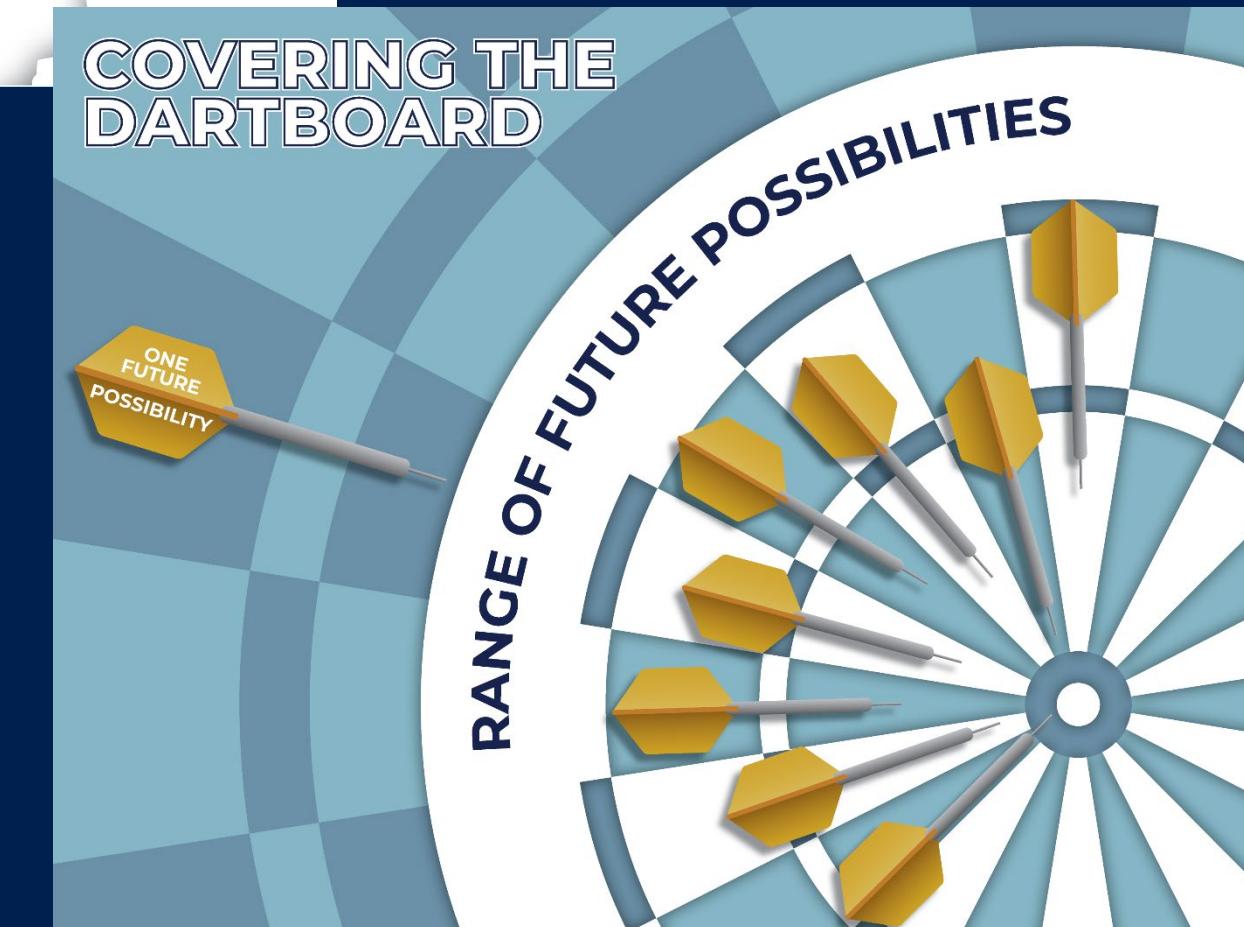
# 2050 LRTP Regional Scenario Planning Framework

- To help prepare for future uncertainty, the HRTPO is employing exploratory scenario planning as part of the 2050 Long-Range Transportation Plan (LRTP).
- A framework has been established to help guide the scenario planning process. The Framework consists of:
  - Regional Place Types
  - Scenario Narratives
  - Control Total for Additional “Greater” Growth (range 24% - 33% growth over 2020)
- The public was invited to review the draft framework between February 28, 2024 – March 12, 2024. Comments received were addressed by HRTPO staff.

# Exploratory Scenario Planning

Asks  
WHAT COULD  
HAPPEN?

- Shift from PREDICTING to PREPARING for the future
- Create multiple plausible scenarios (not picking a preferred scenario)
- Used to stress test the resilience of the transportation network to identify the most robust projects

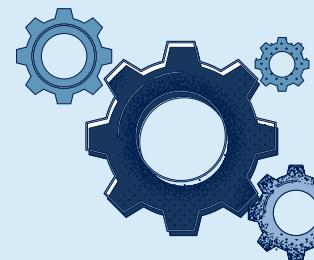


# LRTP Exploratory Scenario Planning



## Objectives

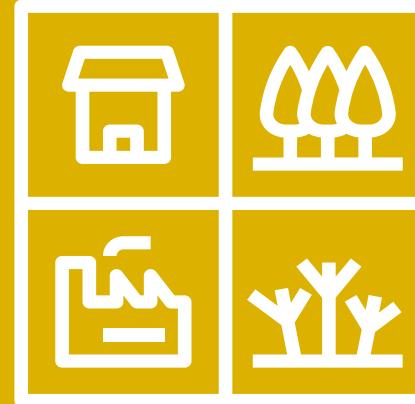
- Establish framework to prepare for uncertainty
  - Identify Drivers of Change and Trends
  - Link preferred outcomes to goals
- Analyze 4 Scenarios, with no preferred scenario
- Evaluate candidate projects across ALL plausible future scenarios



## Major Considerations

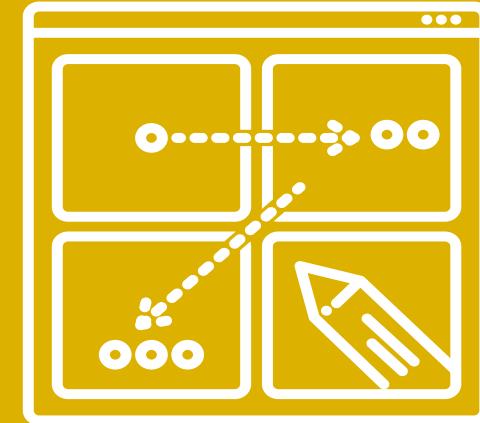
- Objective, data driven process
- Utilize regional transportation tools (Regional Land Use Model and Data, Regional Travel Demand Model, Project Prioritization Tool)
- Scenario Planning tools/models transferable to other/future planning efforts

# Regional Scenario Planning Framework



## Regional Place Types

- Unified dataset to describe regional patterns (virtual present and virtual future)
- Based off locality existing and future regional land use
- Quantitative densities to determine capacity (for allocating growth)



## Scenario Narratives

- Distinct, plausible futures organized by spatial/ economic themes and varying assumptions for “Drivers of Change”
- Suitability factors and weights are scenario specific (scenario specific growth)



## Greater Growth Control Total

- Greater employment growth above 2050 baseline: range 24% to 33% increase above 2020
- Additional population growth dependent on employment assumptions

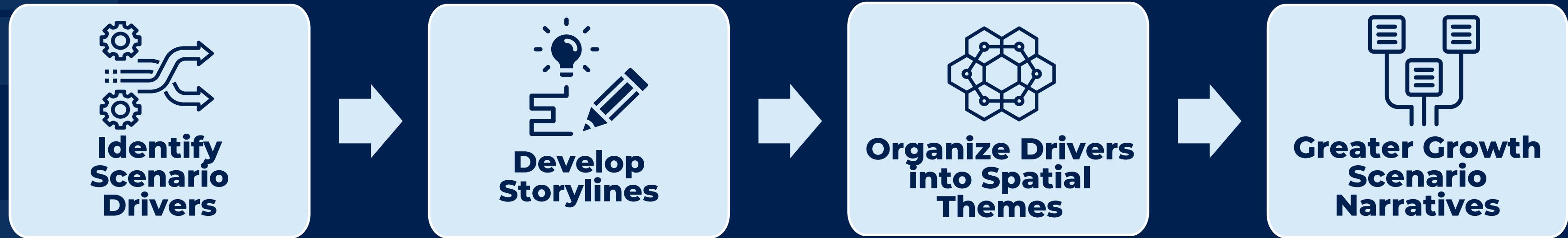
# Regional Place Types

- Place Types are based off locality land use data
- Same Place Types used for Existing data and the Future scenarios (Baseline and Greater Growth)
- Used to identify capacity and suitability for future growth

## REGIONAL PLACE TYPES BASED ON LOCALITY LAND USE



# Developing Scenario Planning Narratives



- Considerations
  - Do drivers represent highly impactful *and* highly uncertain factors?
  - Do scenarios explore the bounds of possible outcomes?
  - Do drivers align within scenario narratives in a way that is mutually reinforcing rather than cancelling-out of spatial effects?
  - Can drivers be reflected in available modeling tools (levers)?

# Scenario Drivers



## Economic

- Office-Warehouse-Industrial Mix
- Port of Virginia/Freight/e-Commerce Growth
- Military Growth
- Fiber Ring
- Data Centers/High-Tech Industries
- Hybrid Work Location
- Spatial Pattern of Employment



## Community

- Location Type Preferences
- Affordable Housing/Land Availability
- Activity & Mixed-Use Centers
- Multimodal Preferences
- Behavior/Land Use Responses to Technology (reduced parking, commute times/frequency, etc.)



## Technology

- Connected/Autonomous Vehicles (CAV) Adoption Rates
- Mobility as a Service (Ride Sharing)
- Micro-Transit/Micro-Mobility
- System Performance (altered capacity)
- Work-from-Home Rates
- AI Impacts



## Environmental

- Sea Level Rise (SLR) - inland/high ground preferences
- Storm Surge impacts to travel patterns

- Drivers represent highly impactful and highly uncertain factors

# Scenario Spatial Themes

## Greater Urban Growth

What happens if jobs and housing growth focus in dense urban areas, with more “missing middle” housing, more office and high-tech jobs, greater multimodal availability, and high adoption of connected vehicle technology?

## Greater Suburban Growth

What happens if jobs and housing growth is dispersed, with more affordable housing in mixed-use suburban areas, more industrial/warehousing growth and data jobs from the fiber ring, and high adoption of autonomous vehicle technology?

## Greater Inland/Westward Growth

What happens if jobs and housing focus in exurban and inland areas, with industrial/logistics/ warehousing growth along highway corridors, more remote work, low adoption of vehicle technology, and significant sea level rise/storm surge impacts?

# Draft Scenario Narratives



## Greater Urban Growth

- Densification of existing urban areas for jobs and homes
- Economic diversification. Greater office and tech growth.
- Affordable “Missing Middle” housing in urban cores.
- Increased multimodal use: transit, micro-mobility, ride sharing, bike/ped, high CV adoption, low auto ownership.
- 3-ft SLR, 10-yr Storm Surge.



## Greater Suburban Growth

- Decentralized growth, suburban mixed-use focus.
- Port more competitive. More industrial/ warehousing growth, distribution automation.
- Data center development driven by fiber ring.
- Affordable options in suburban mixed-use areas.
- High AV adoption, Zero Occupant Vehicles, micro-transit for first/last mile.
- 3-ft SLR, 100-yr Storm Surge.



## Greater Inland/Westward Growth

- Inland/western growth.
- Industrial/logistics/warehousing growth along highway corridors.
- Port more competitive, more rail freight and e-commerce.
- Data centers in exurban areas.
- Higher WFH rates. Increased military automation.
- More dispersed housing away from coast.
- Low CAV adoption. Altered commuting patterns/frequency.
- 4.5-ft SLR, 100-yr Storm Surge.

WHAT THESE HELP US TEST

Test more urban and multimodal travel patterns.

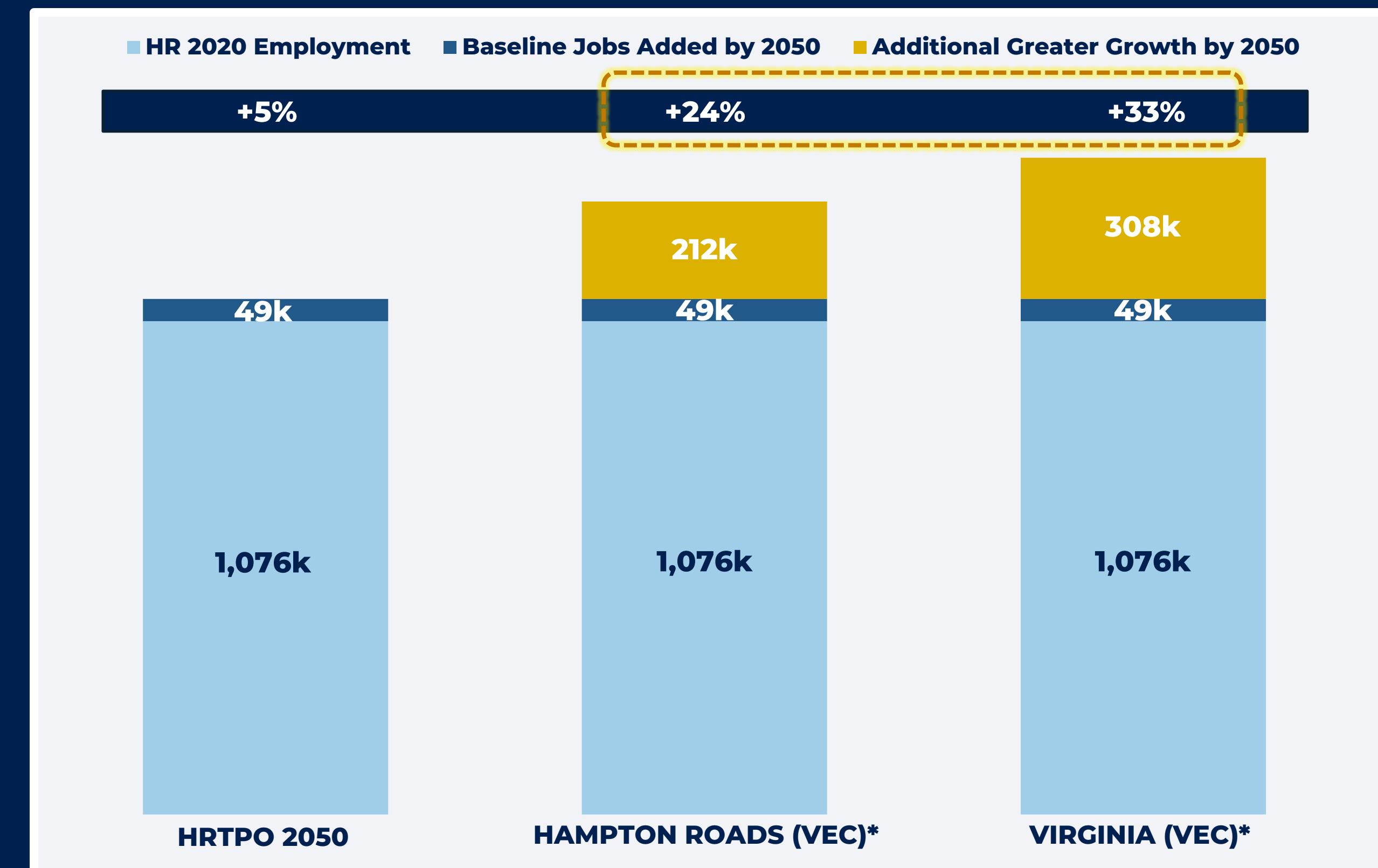
Test more overall regional travel.

Test major impacts from climate change and alternate commuting patterns.

# Regional 2050 LRTP

## Greater Growth Range: 24% - 33%

- “Greater Growth” intended to stress test transportation alternatives (not predict future)
  - Plausible growth
  - Too little growth could dilute differences
  - Too much growth could mask differences



# THANK YOU

## 2050 LRTP WEBPAGE



<https://tinyurl.com/hr2050lftp>

## Other LRTP Resources:

### 2045 LRTP WEBPAGE

[https://www.hrtpo.org/page/2045-long\\_range-transportation-plan/](https://www.hrtpo.org/page/2045-long_range-transportation-plan/)

### 2045 LRTP SCENARIO PLANNING

[https://www.hrtpo.org/page/2045-long\\_range-transportation-plan:-scenario-planning/](https://www.hrtpo.org/page/2045-long_range-transportation-plan:-scenario-planning/)

### HRTPo PROJECT PRIORITIZATION

<https://www.hrtpo.org/page/project-prioritization/>

## LRTP Team: [LRTP@hrtpo.org](mailto:LRTP@hrtpo.org)

Dale M. Stith - Principal Transportation Planner

Kyle Gilmer - Senior Transportation Planner

CJ Headley - Transportation GIS Planner

