

REGIONAL CONNECTORS STUDY

Meeting Minutes

Date: February 14, 2019

Location: Webinar/Conference Call

Subject: Scenario Planning Updates

Attendees:

- HRTPO/HRPDC – Mike Kimbrel, Dale Stith, Leonardo Pineda, Greg Grootendorst, Keith Nichols, Kendall Miller, Theresa Brooks
- RCS Project Coordinator - Camelia Ravanbakht
- Army Corps of Engineers – George Janek
- City of Chesapeake – Earl Sorey
- City of Hampton – Angela Rico
- City of Newport News – Bryan Stilley
- City of Norfolk – Janice Hurley, Brian Fowler
- City of Portsmouth – Carl Jackson
- City of Virginia Beach – Tara Reel
- FHWA – Ivan Rucker
- US Navy – Michael King
- VDOT – Scott Smizik, Robin Grier
- Virginia Port Authority – Barbara Nelson
- Consultant Team – Craig Eddy, Lorna Parkins, Bill Thomas, Nick Britton, Vlad Gavrilovic, Jason Espie, Naomi Stein, Scott Middleton

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Land Use Model

Vlad Gavrilovic and Jason Espie provided an overview of the land use model that is under development for scenario planning. Discussion items were as follows:

George Janek: Does the “resource conservation” place type include wetlands?

Jason: It generally does where designated as protected lands, for example the Great Dismal Swamp.

Michael King: How are random points accurately oriented/synced up with census block groups?

Jason: When we choose a high intensity location, we clip block group to circle and take the proportion of the people and the jobs within the circle (to the ones outside the circle). It's not 1:1, but it's considered statistically accurate on this scale of planning.

Vlad: LEHD has tool for clipping data that is also a proportional method.

Michael King: What quality control factors are in place for the development of place type average densities?

Vlad: If we see an outlier, we'll look at the TAZ but we won't modify the average unless we see something totally askew. We cannot change the TAZ data because that would change the travel demand model, so we would have to reexamine the typical sampling if there are a lot of outliers.

Camelia R.: Is this variation from place types averages (as reflected in the density factor) typical in other regions?

Jason: Sometimes there are more than 22 place types. Grid geography can also change and you can attribute all sorts of data to it which varies by place type.

Lorna: The fewer place types you have, the more TAZs are going to vary from the average because each place type is representing a broader set of conditions. In scenario planning, the development factor becomes a lever you can use to intensify development later in the process in later scenario development.

Economic Analysis

Naomi Stein and Scott Middleton provided an overview of the Economics start-up tasks. Discussion items were as follows:

Tara Reel: How is elasticity of military employment going to play a role in the scenario planning? The same applies to the ports.

Naomi: We are definitely using that to build the alternatives. Military and ports are both drivers.

Brian Fowler: Other industries to consider—cyber-cable from Spain to Hampton Roads. Medical should also be considered heavily. Universities, warehouse/distributors. The study should identify the industries that are hampered by the transportation network.

Naomi: That's definitely something we evaluate in the 2045 baseline and it is in the scenarios and the economic implications of relieving those constraints via the connector projects.

Scenario Development

Lorna Parkins and Naomi Stein provided an overview and led a discussion of the scenario framework and potential scenario drivers. The discussion items were as follows:

Greg G.: Background on baseline. Two parts: There is the initial forecast from University of Michigan which is put into REMI model, and then the long-term data from the Bureau of Labor Statistics. When we look at alternative scenarios, baseline shows continuing decline in military employment, so if we look at consolidation of facilities, it might look more like investment in technology, not necessary in people. Also, port traffic does not necessarily correlate with jobs at the port, so you have to be careful when defining port-related employment. Should we consider one scenario where we see lower employment levels?

Lorna: Baseline forecast is pretty modest already, so we would expect to do better than that. But one of the more compelling reasons is to be better prepared for transportation needs and the needs of the transportation system in 2045 by examining higher growth scenarios.

Greg: Another consideration might be a significant baseline increase in employment without picking specific industries.

Carl Jackson: With residential growth, there's a tendency for people to move to cities. Scenario in future would be more urban population and less suburban population.

Lorna: Yes, place type development helps us turn these levers on and off. Each scenario will include assumptions about where people choose to live, and a more urban scenario is likely to be one choice.

Earl Sorey: How will you handle the regional mega-sites (Williams Tract)?

Naomi: We need feedback to figure out how to set the levers.

Brian: (Agreed with Carl).

Tara: (Agreed with Carl and Brian). We are expecting a "high retiree" scenario. We need to consider how we're going to handle both that and the millennial growth at the same time.

The webinar slides are attached and the webinar recording can be accessed [here](#).



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SCENARIO PLANNING UPDATE

February 14, 2019

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1

Scenario Planning Schedule

Task No	Task	Schedule												2020
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	
TASK 4	CONDUCT SCENARIO PLANNING													
4.1	Building the Base Data, Models, and Scenarios	▲	◆	◆	◆	◆	▲	◆	◆	◆	◆	◆	◆	
4.2	Defining Alternative Future Scenarios		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
4.3	Defining Measures of Success	■			◆	◆	◆	◆	◆	◆	◆	◆	◆	
4.4	Evaluate 2015 Current Regional Conditions	■					◆	◆	◆	◆	◆	◆	◆	
4.5	Modeling the 2045 Baseline Alternative							◆	◆	◆	◆	◆	◆	

◆ Draft Deliverables
◆ Final Deliverables
● Steering Committee Meetings and Presentations
◆ Working Group Coordination Meeting

▲ HRTPO to approve updated Prioritization Tool
▲ 2015 Regional Travel Demand Model available
▲ 2045 Regional Travel Demand Model available

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2



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TASK 4.1 UPDATE – LAND USE COMPONENTS OF BUILDING THE BASE DATA, MODELS, AND SCENARIOS

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3

Task 4.1c: Build Place Types

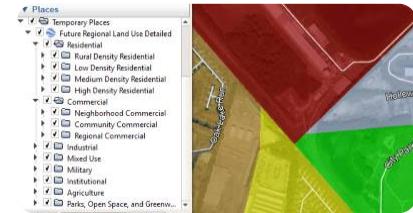
Task Summary:

1. Profile existing and future land use types in the region to develop a unified set of Place Types that describe regional development patterns
2. Develop quantitative summaries of each Place type that summarize land uses, developed areas, and environmental data for each
3. Develop summary visualizations of each Place type, to clearly explain them to stakeholders and the public

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Starting Assumptions

- Place types will need to accommodate several **purposes** in this study:
 - Allocate to match 2015 (existing) development (**The Virtual Present**)
 - Allocate to match 2045 (future) development (**The Virtual Future**)
 - Allocate to match Beyond 2045 **Alternate Scenario** development
- Place types should relate to **development in the region**
- Place types should relate to localities' **future land use categories**
- Place types should be **usable** by the TPO and the region for future planning efforts



Therefore:

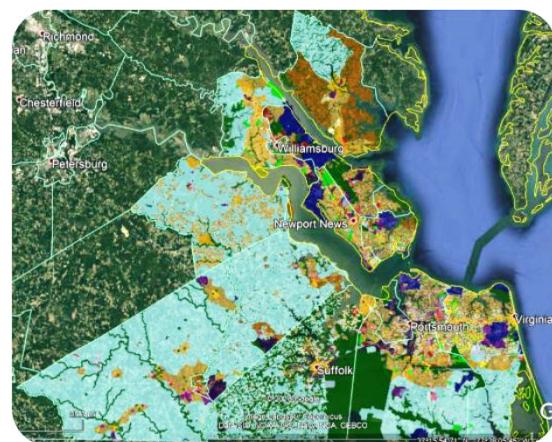
Utilize the **HRTPO'S REGIONAL LAND USE MAP** as the **basis** for the development of Place Types in this study

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HRTPO Regional Land Use Map

Why it's useful:

- Covers the entire region (**HRPDC boundaries**)
- Methodology **approved by the HRTPO Board** & coordinated with **localities' staff**
- Used & **updated** by HRPDC staff
- Developed an accepted methodology for "**the merging of 16 local comprehensive plans and existing land uses.**"
- Key tool** for inter-local and regional planning

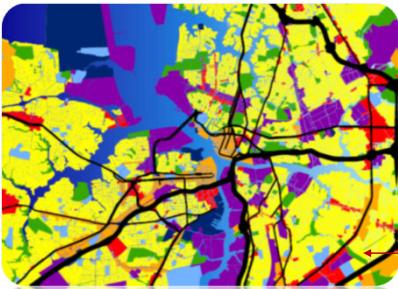


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HRPO Regional Land Use Map

How it works:

- Uses the same basic land use categories for both **Existing** and **Future** land uses
- Uses the regional **parcel** dataset
- **Does not have any data** associated with each category (e.g. population, employment, density, etc.)

 Sample Future Land Use

Basic Categories →

Detailed Categories →

Legend

- Residential
- Commercial
- Industrial
- Mixed Use
- Military
- Institutional
- Agriculture
- Parks, Open Space & Greenways

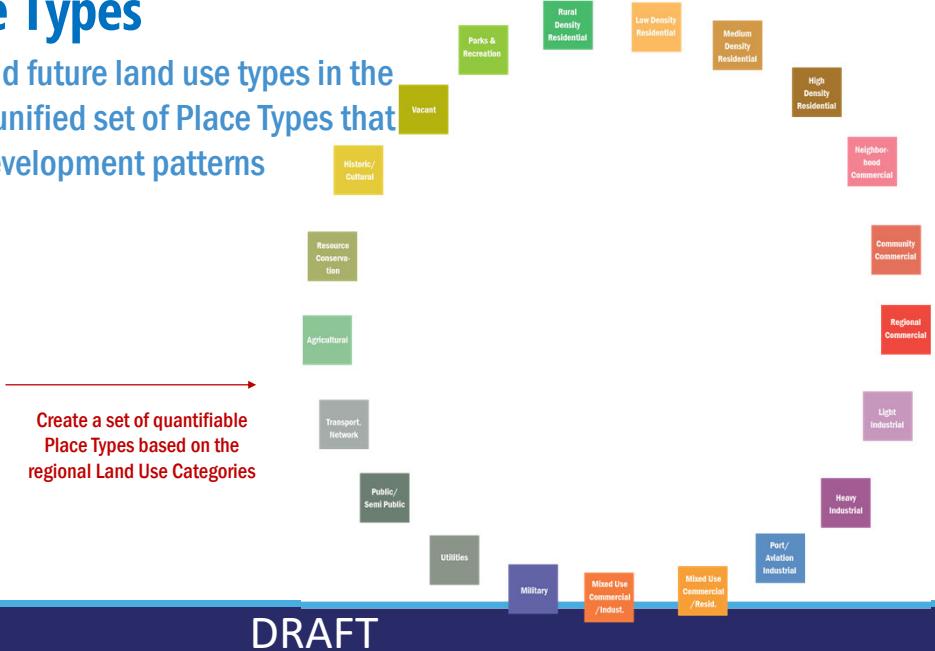
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Future Regional Land Use Detailed

- Residential
 - Rural Density Residential
 - Low Density Residential
 - Medium Density Residential
 - High Density Residential
- Commercial
 - Neighborhood Commercial
 - Community Commercial
 - Regional Commercial
- Industrial
 - Light Industrial
 - Heavy Industrial
 - Airport
 - Mixed Use
- Military
- Institutional
- Agriculture
- Parks, Open Space, and Greenways
 - Historical/Cultural
 - Parks
 - Resource Conservation

Building Place Types

1. Profile existing and future land use types in the region to develop a unified set of Place Types that describe regional development patterns



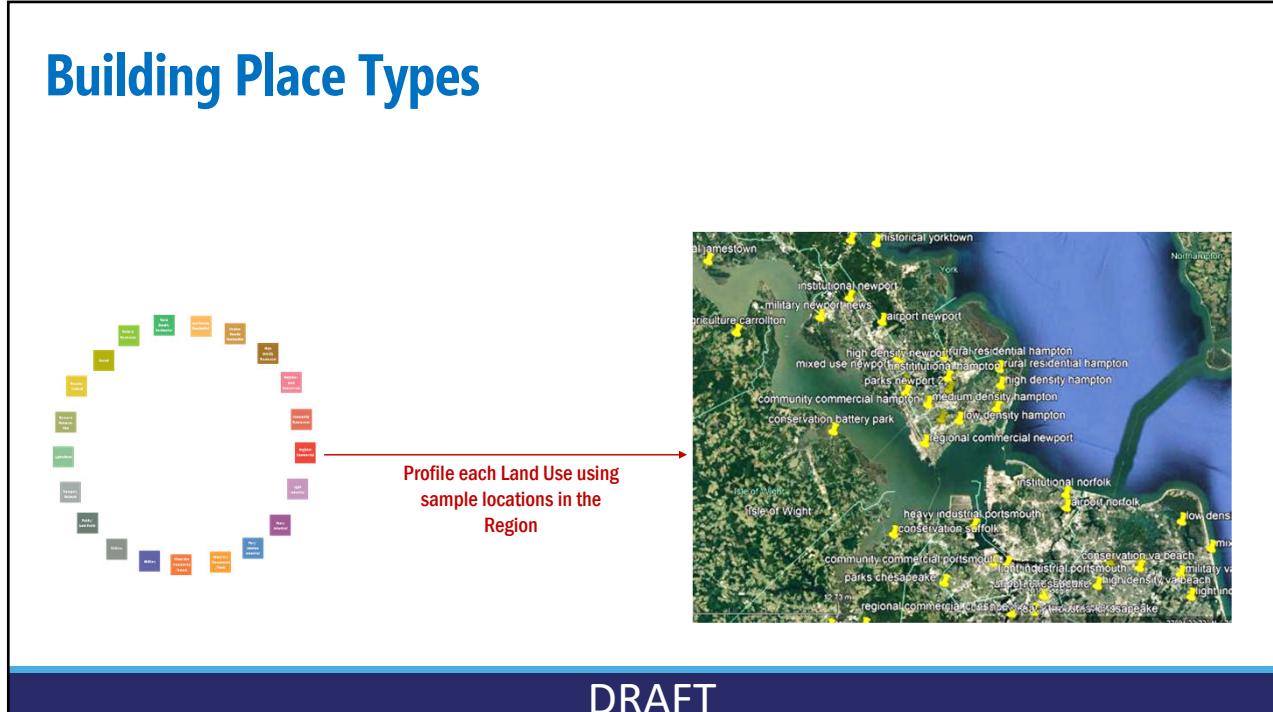
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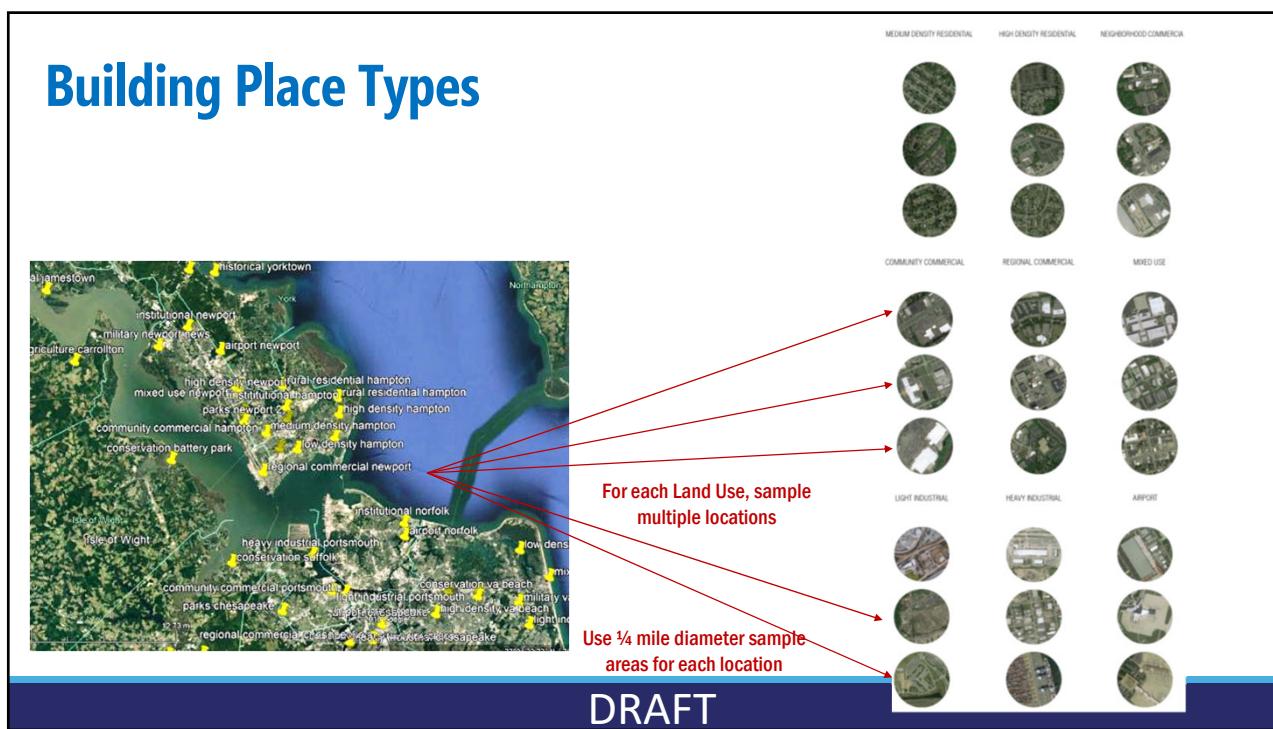
Create a set of quantifiable Place Types based on the regional Land Use Categories

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Building Place Types



Building Place Types

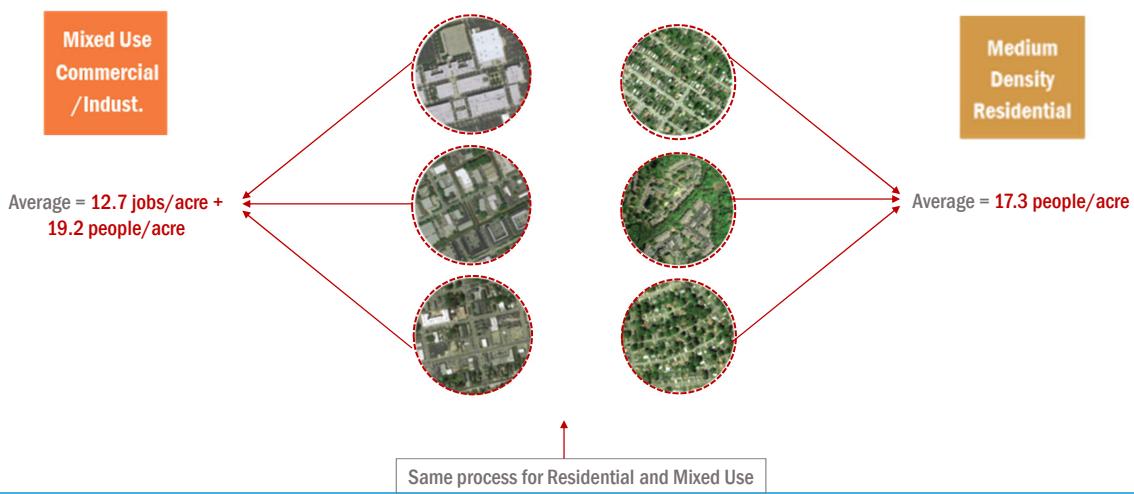


Building Place Types



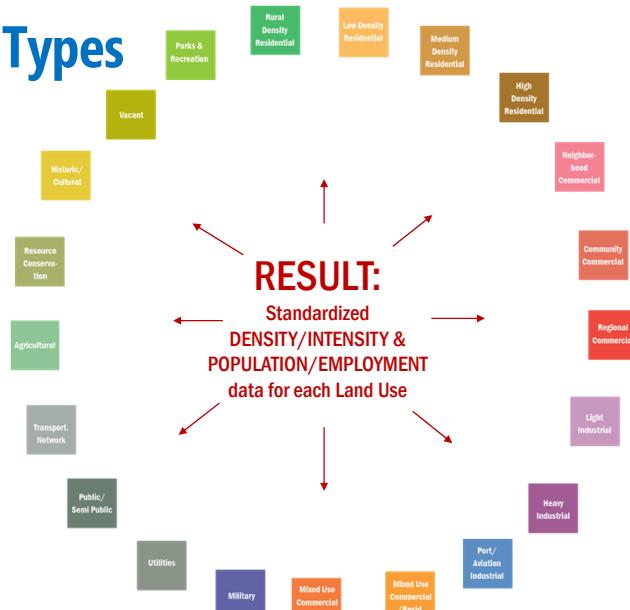
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Building Place Types



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Building Place Types



“Virtual Present”

Task 4.1d: Build “Virtual Present” Map of the Region

Task 4.1f: Calibrate “Virtual Present” to TAZ control totals

Task Summaries:

1. allocating the Place types onto the GIS base map of the region to match the existing pattern of development and land uses on the ground today
2. output to a GIS map of the Region that converts the existing land uses to Place types, with resulting data derived from the Place types about land use, environmental features, accessibility and transportation characteristics
3. modify the Place type allocation in the Virtual Present so that the population and industry employment totals match the 2015 controls in each TAZ according to the Travel Demand Model

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Allocating Place Types

TAZ 834 in Portsmouth

CONTROL TOTALS:
Emp. = **426 jobs**
Pop. = **2,362 people**



Allocating Place Types

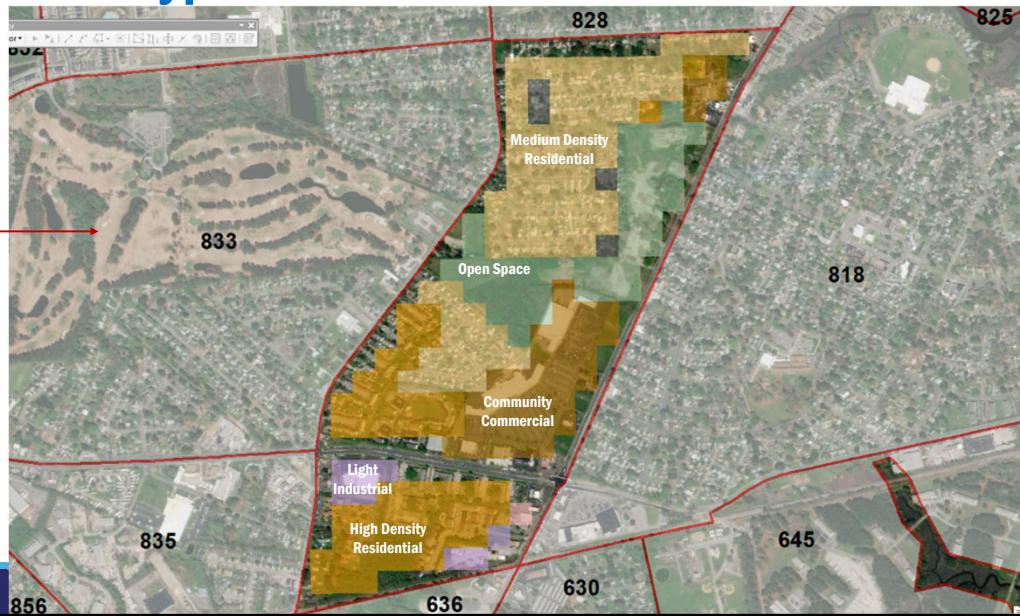
Applying 1-Acre Place Type Grid onto TAZ



Allocating Place Types

Applying Existing Land Uses (from Regional Map) onto Place Type Grid

MINORU	
Agriculture	
Rural Residential	
Low Density Residential	
Medium Density Residential	
High Density Residential	
Local Commercial	
Neighborhood Commercial	
Regional Commercial	
Historic/Cultural	
Light Industrial	
Heavy Industrial	
Port/Aviation Industrial	
Utilities	
Transportation Network	
Military	
Mixed Use Comm/Res	
Mixed Use Comm/Ind	
Public/Semi-Public	
Parks and Recreation	
Resource Conservation	
Vacant	
Wat	



Allocating Place Types

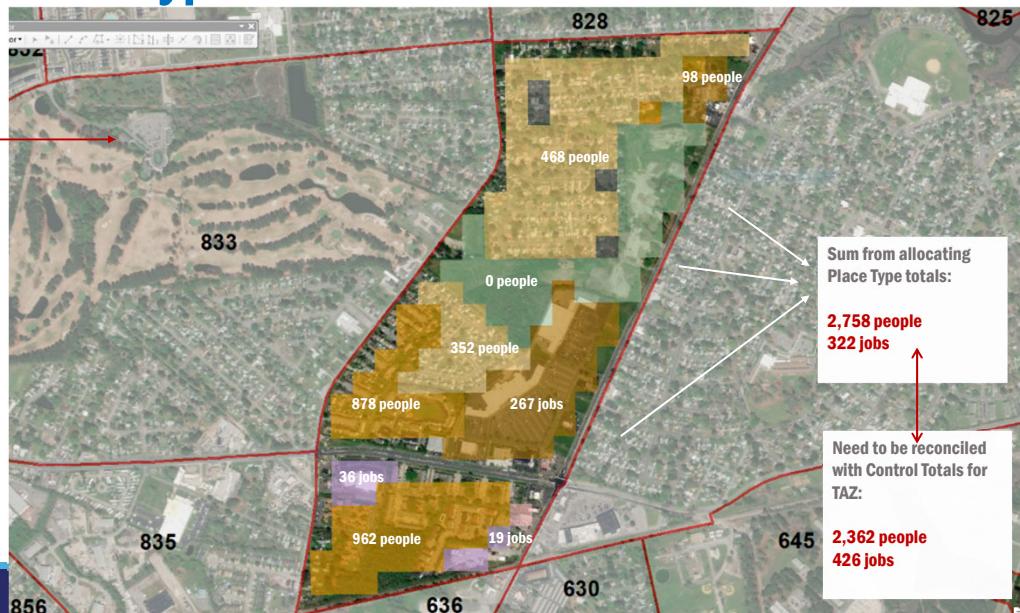
Applying Jobs & Population totals for each Place Type

Sum from allocating Place Type totals:

**2,758 people
322 jobs**

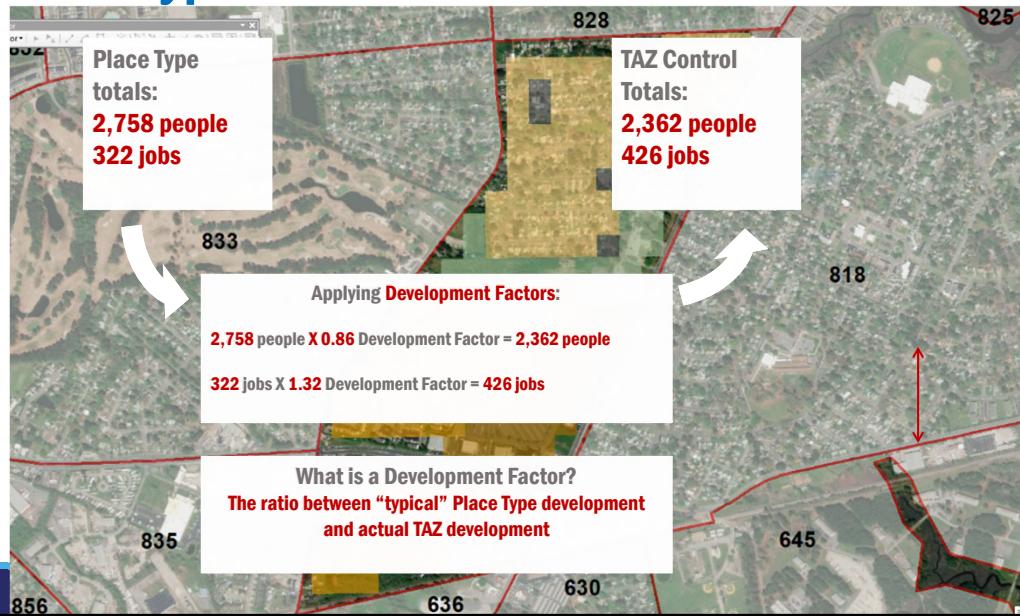
Need to be reconciled with Control Totals for TAZ:

**2,362 people
426 jobs**



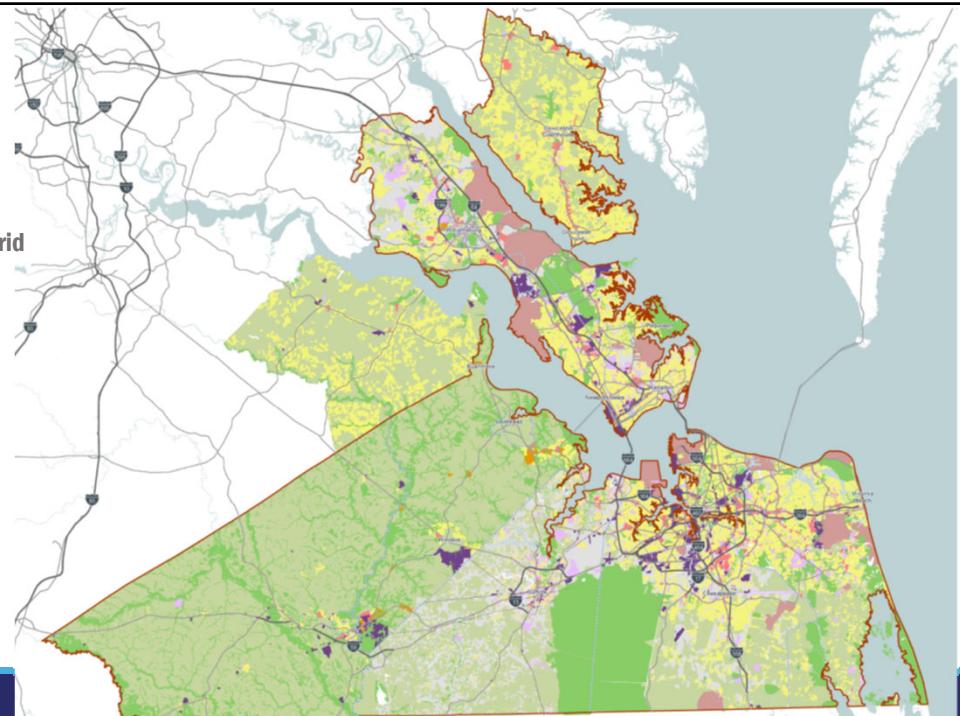
Allocating Place Types

Reconciling Place Type allocation with TAZ Control Totals



Next Steps

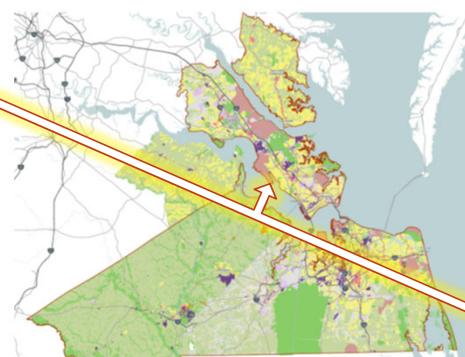
1. Apply the quantified grid of Place Types to the existing Land Uses for the Region
2. Apply Development Factors to reconcile each TAZ control total
3. Yields a 2015 "Virtual Present" map of the Region



The Result:



A Regional dataset
that matches up the
Regional Land Use
Map with the TAZ
Control Totals



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**TASK 4.1 UPDATE – ECONOMIC COMPONENTS OF
BUILDING THE BASE DATA, MODELS, AND SCENARIOS**

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22

Economic Objectives – Task 4.1

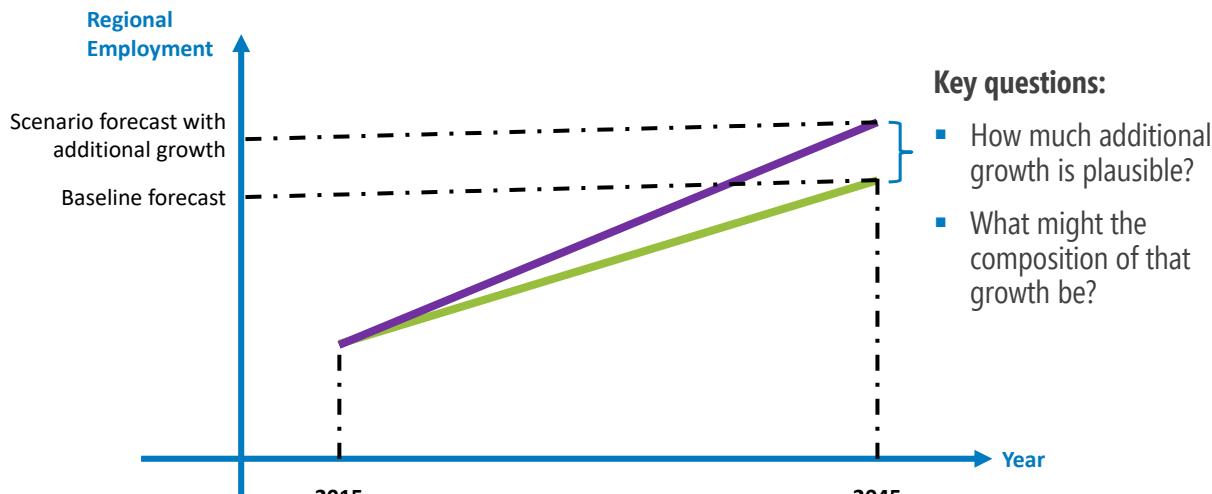
Research to support later development of economic “drivers” for use in scenario planning:

1. Understand TPO’s current and forecast future economic conditions – *establishes baseline conditions from which alternative scenarios will pivot*
2. Identify economic risks & opportunities that may affect spatial and industry patterns of long term regional growth – *start identifying building blocks of potential alternative scenarios*

Principles guiding economic research

- TPO’s 2045 growth forecasts to be regarded as conservative baseline – alternative future scenarios will involve plausible additional growth
- Propose to hold incremental growth constant across 3 alternative scenarios and to focus on the implications of different visions of economic futures
- Alternative scenarios should investigate the balance between military activity and economic diversification in the region
- Alternative economic futures should be sufficiently different so as to result in different spatial patterns and types of development, with associated implications for travel patterns and modal reliance

Alternative Economic Futures



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The Hampton Roads TPO
Transportation Planning Organization

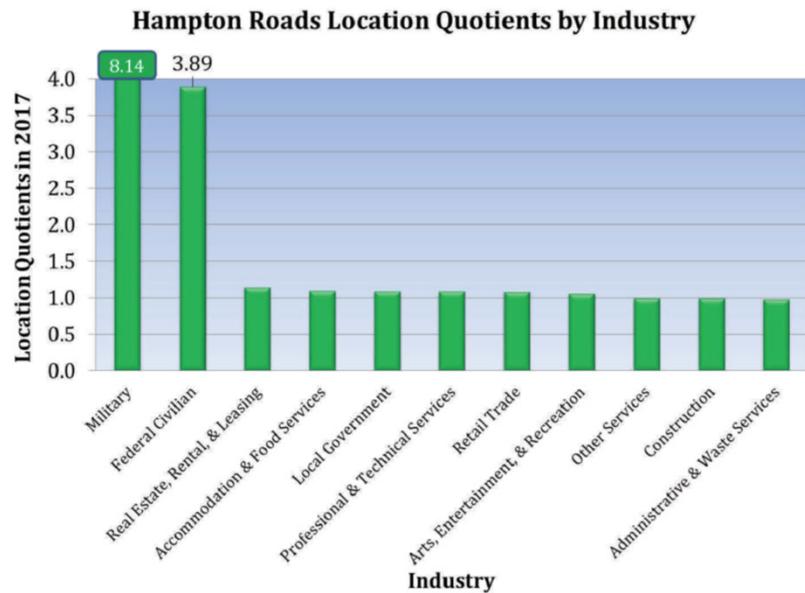
25

1. Understand TPO's current and forecast future economic conditions

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26

Current Industry Clusters



Source: Bureau of Labor Statistics,
HRPDC Regional Benchmarking
Study

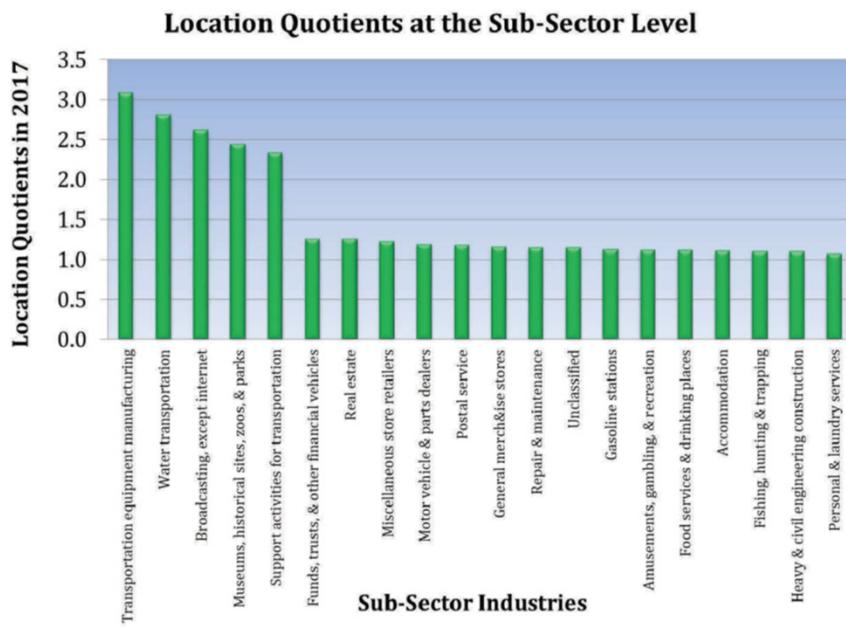
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ROADS
TPO
Transportation Planning Organization

27

Current Industry Clusters



Source: Bureau of Labor Statistics,
HRPDC Regional Benchmarking
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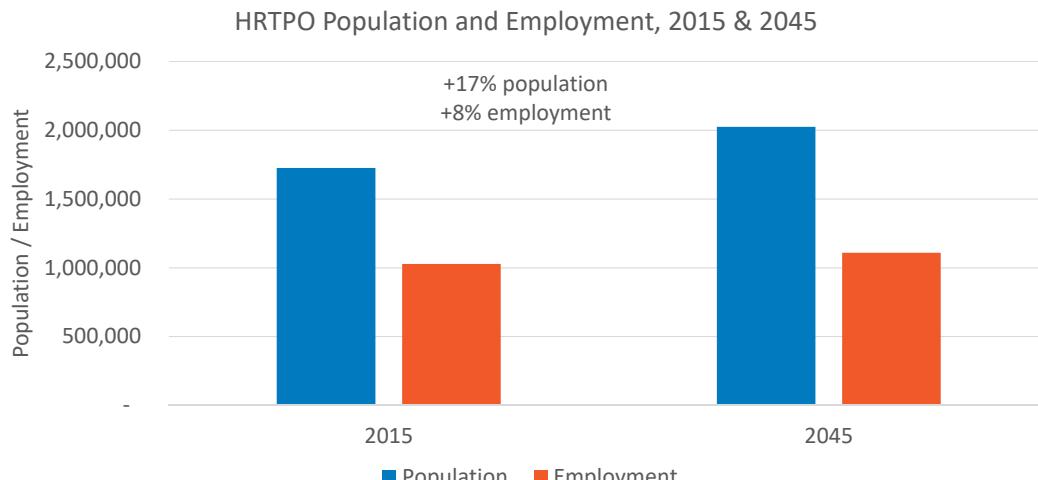
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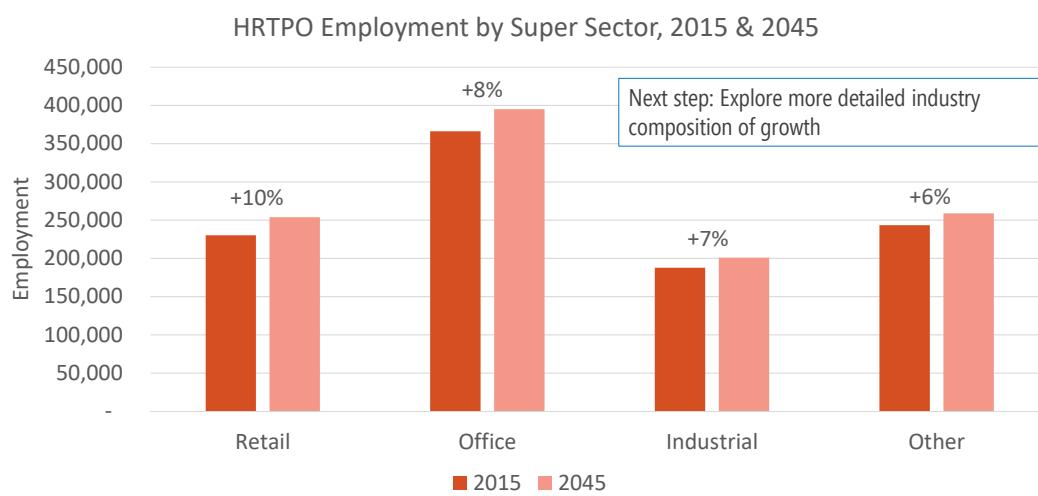
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28

2015 to 2045 TPO Forecast Summary



2015 to 2045 Industry Composition



Forecast Methodology

- Two forecasts: Southside and Peninsula
- Population & employment generated using REMI model
 - Regional control totals constrain localities (top-down process)
- Population growth driven by
 - Employment growth (in-migration for jobs)
 - Natural change (births & deaths)
- Other variables generated using bottom-up process
 - Review of comprehensive plans & development patterns
 - Woods & Poole provided household forecasts
 - Workers & vehicles based on past trends

2. Identify economic risks & opportunities that may affect patterns of long term regional growth

Sources of Information

- Industry composition
 - HREDA Go-to-Market Strategy (2019)
 - HRPDC Regional Economic Development Strategy (2015)
 - HRPDC Regional Benchmarking Study (2018)
 - Old Dominion University State of the Region Report (2015)

Industrial Patterns – Risks

- Jobs lost since Great Recession
 - *50,000 civilian jobs lost, 30,000 recovered; a further 20,000 military jobs lost*
- Growth in gross product weaker than similarly-sized metros
 - *Annualized growth of 0.5% in 2014-2017*
- Region remains highly reliant on military/civilian DoD employment
 - *25% of regional employment in 2013, and shrinking*
- Income and wages lags behind U.S.
 - *Regional per capita incomes \$3,000 lower than U.S. average; income from wage and salaries has decrease since 2011 even as incomes rise due to increases in personal transfers/government benefits*

Industrial Patterns – Opportunities

Regional Economic Development Strategy:

- Grow and maintain three pillars of the regional economy
 - Federal
 - Port/maritime
 - Tourism/arts & culture
- Nurture new opportunities (i.e., diversifying the economy)

Industrial Patterns – Opportunities

▪ Go-to-Market Strategy, Target Business Sectors

- **Shared services:** Provision of various internal support functions to corporate operations, including finance, customer support, human resources and IT
- **Software development and IT:** Development of software applications, support and consulting services for U.S. and international markets
- **Transportation technology:** Design and production of specialist components for the transport technologies manufacturing base; transfer of shipbuilding capabilities to production of railcars, buses, trucks, sensors, etc.
- **Distribution:** Regional distribution/logistics centers for Eastern U.S. market.
- **Food and beverage processing:** Specialized food processing for domestic and international markets (meat, dairy, coffee, seafood)

Next Steps

- Investigate plausible additional growth
 - Go-to-Market Strategy growth goals
 - Alternative published forecasts
- More detailed investigation into:
 - Port of Virginia forecasts
 - Regional large economic development sites
- Understand demographic changes in baseline forecast (e.g. age cohorts, labor force participation)
- Begin characterizing potential economic drivers of scenarios

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37

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**TASK 4.2 UPDATE – DEFINING ALTERNATIVE FUTURE
SCENARIOS**

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38

Framework Scenario Development

- Steps to developing scenarios
 1. Establish the baseline scenario
 2. Identify the "storylines" for alternative scenarios
 3. Affirm the scenarios with Working Group and Steering Committee
 4. Define drivers within the major parameters:
 1. Demographic/location drivers
 2. Economic drivers
 3. Technology drivers
 5. Quantify the drivers for each alternative scenario
 6. Develop a narrative for each alternative scenario

Certain drivers are linked to others (e.g., retirees pair with healthcare industry)



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39

Framework Scenario Matrix

		SCENARIOS			
DRIVER PARAMETERS AND TOOLS	DRIVER EXAMPLES	BASELINE	SCENARIO 1	SCENARIO 2	SCENARIO 3
DEMOGRAPHICS & LAND USE Land Use Allocation Model	Population; Locations of Growth; Generational Mix;	2045 SE Forecasts; Baseline Place Types;	Baseline Data (with scenario-based adjustments) Sea Level Rise Projection*	Baseline Data (with scenario-based adjustments) Sea Level Rise Projection*	Baseline Data (with scenario-based adjustments) Sea Level Rise Projection*
ECONOMICS TREDIS and vFREIGHT Models	Industry Diversification; Port Activities; Tourism	2045 SE Forecasts;	Baseline Data (with scenario-based adjustments)	Baseline Data (with scenario-based adjustments)	Baseline Data (with scenario-based adjustments)
TECHNOLOGY Travel Demand Model	CV/AV Implementation; Shared Mobility Costs and Usage	Baseline Assumptions	Scenario-based Assumptions	Scenario-based Assumptions	Scenario-based Assumptions

*Will not vary by scenario



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40

Potential Scenario Economic Narratives – Illustrative Only

- Baseline Scenario: HRTPO 2045 forecast
- Scenario 1: **The Defense Economy**
 - Baseline plus growth in military/DoD employment
 - National consolidation of military facilities within Hampton Roads
 - Port of Virginia (Assumption 1)
 - Growth also occurs in defense-related industries (e.g., federal civilian, marine transportation)
- Scenario 2: **Regional Industry Targets (Steering into existing strengths)**
 - Static military/DoD employment
 - Growth in travel to the region
 - Port of Virginia (Assumption 2)
 - Baseline plus employment growth from significant economic diversification
 - Diversification occurs according to regional industry targets (e.g., shared services, tourism, marine transportation)
- Scenario 3: **Something Completely Different - National Industry Targets**
 - Static military/DoD employment
 - National consolidation of military facilities outside of Hampton Roads
 - Port of Virginia (Assumption 3)
 - Baseline plus employment growth from significant economic diversification
 - Diversification occurs according to national growth industry targets



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Additional Driver Assumptions for Discussion

Assuming the big economic shifts will drive growth, what other uncertain trends should be considered within the scenarios?

- Demographic and Land Use Drivers
 - Considering two types of millennials to differentiate – military and tech sector (different preferences)
 - Would a high retiree scenario be of interest? What land use preferences would they have?
- Technology Assumptions
 - Will have a combination of levers built in to the model plus additional levers we define
 - Any specific concerns or must-haves?



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42