



Statewide Transit & Transportation Demand Management Plan Update

Stakeholders Meeting 2

July 24, 2012, Springfield
July 25, 2012, Charlottesville

Agenda

1. Welcome, Meeting Objectives
2. Overview of Statewide Transit/TDM Plan Update
3. Summary of First Stakeholder Meetings
4. Transit Analysis
 - Service Standards/Parameters Used to Define Transit Needs
 - Needs Analysis Results
 - Draft Needs Recommendations: Service Levels and Cost Estimates
5. TDM Analysis: same elements
6. Next Steps

Meeting Objectives

- To gain stakeholder input on results of needs analysis, recommendations framework, and cost estimates
- To share material to be presented at VSTP35 Update public meetings



Project Overview

Study Objectives

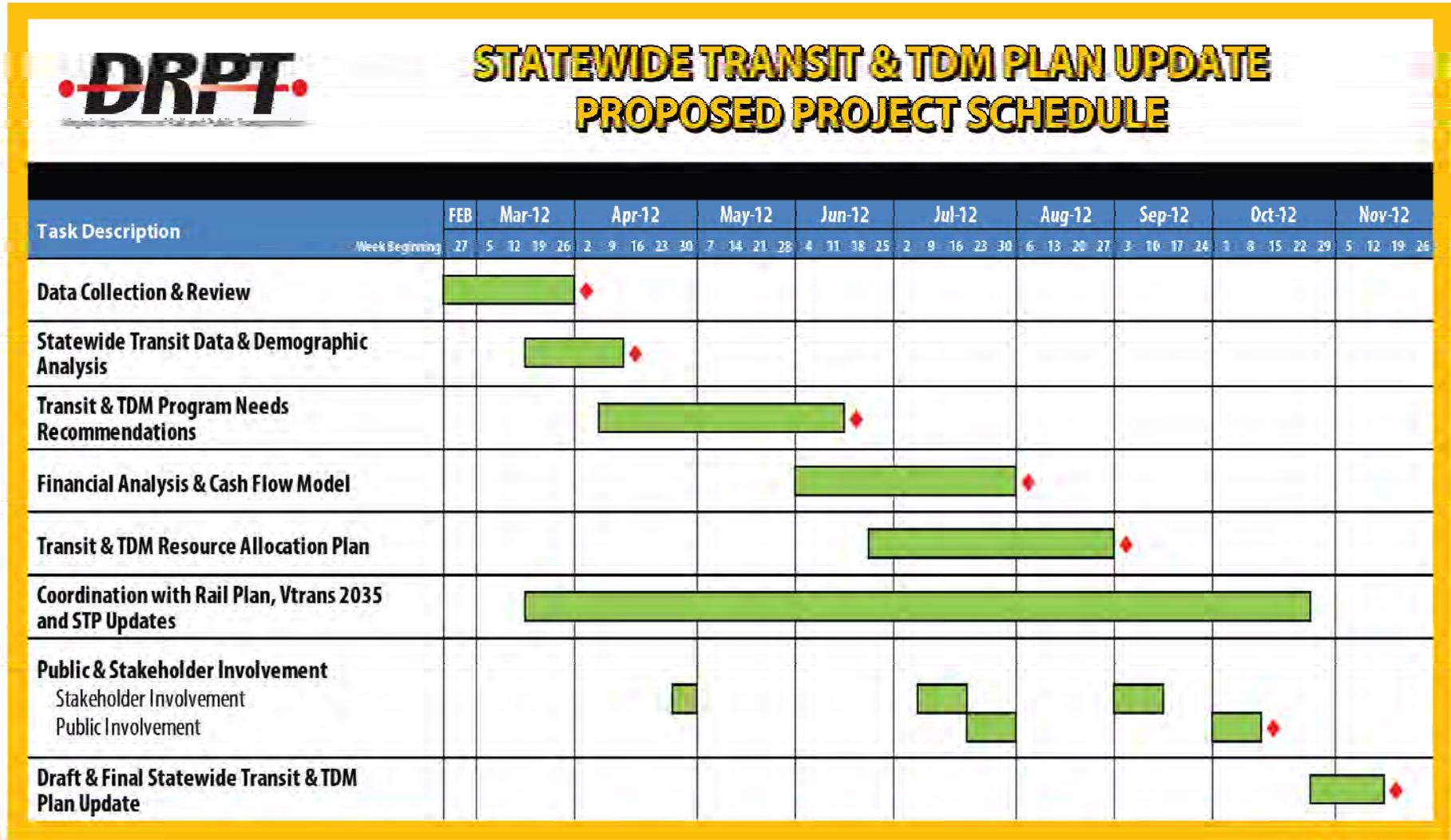
Study objectives for the Statewide Transit and TDM Plan (VST/TP):

- Identify existing public transportation conditions
- Define guidelines for Transit and TDM levels of service
- Provide a blueprint for addressing needs for the future, with a focus on key investment priorities and maintaining a “state of good repair”
- Make recommendations to the Virginia Surface Transportation Plan Update
- Provide guidance on fiscal requirements and strategies to maximize Virginia’s investment in public transportation

Study Scope of Work

- Data Collection & Review
- Transit Data & Demographic Analysis
- Transit & TDM Program Needs Recommendations
- Financial Analysis & Cash Flow Model
- Transit & TDM Resource Allocation Plan
- Coordination with VTrans2035 and Virginia Surface Transportation Plan Updates
- Public & Stakeholder Involvement
- Draft & Final Statewide Transit & TDM Plan Update

Project Schedule



◆ Deliverable

Relationship to Other Studies

- 2035 VA Surface Transportation Plan Update (VSTP):
 - VST/TP will provide input to ongoing update of 2035 VSTP Update
 - Using the VSTP public involvement process
- SuperNoVa Transit/TDM Vision Plan:
 - VST/TP uses consistent approach and methods
 - VST/TP uses SuperNoVa analyses to refine VST/TP analysis for Northern VA
- DRPT Multimodal & Public Space Guidelines and Transit Service Design Guidelines: VST/TP intent is to ensure consistency with DRPT Guidelines

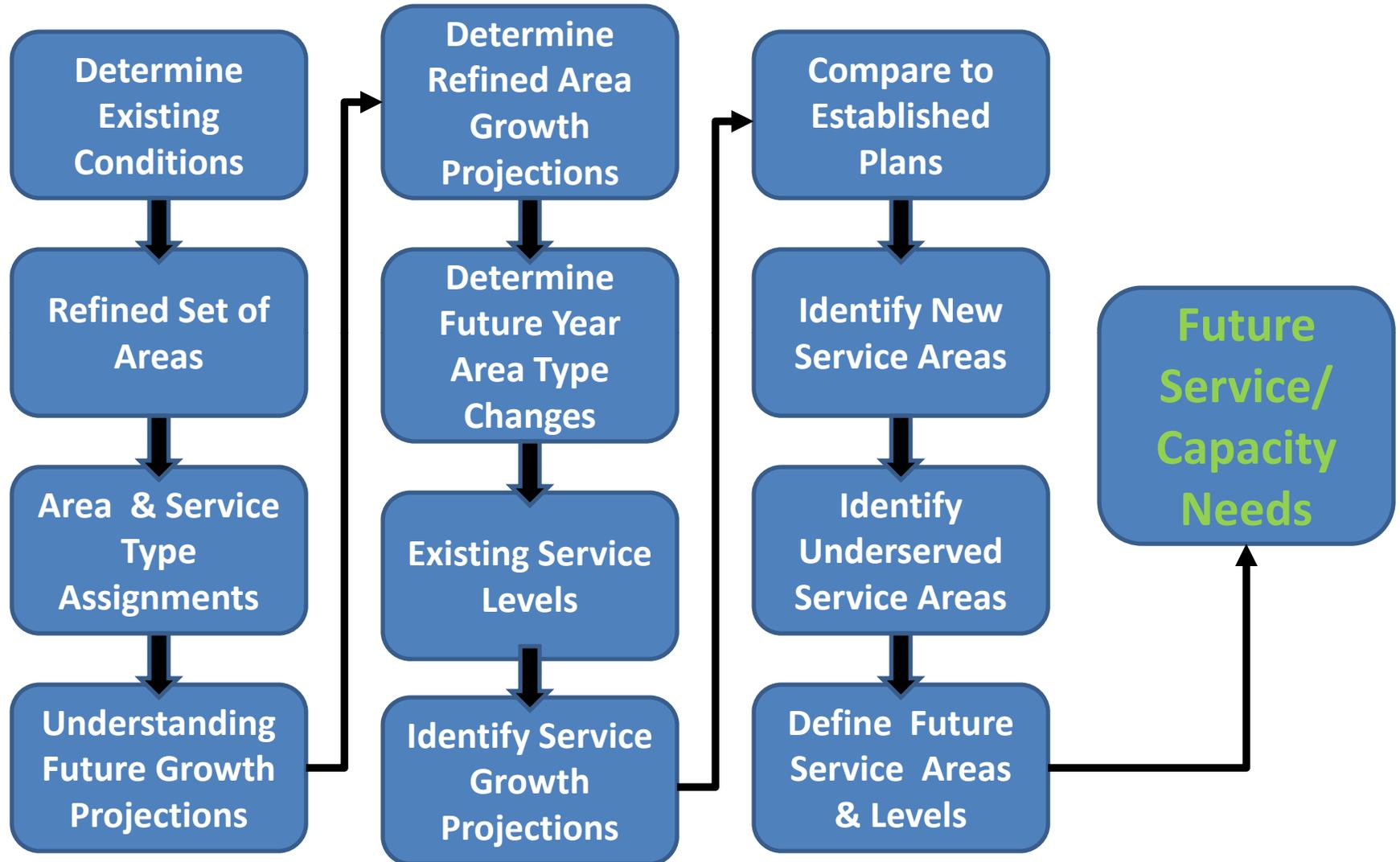


Summary of 1st Round of Stakeholder Meetings

Stakeholder Meetings 1 Summary

- Described overall study approach
- Reviewed data collection efforts
- Summarized demographic analysis and conclusions
- Discussed methodology for Needs Assessment: State of Good Repair, Transit and TDM Capacity Expansion, Major Capital Investments
- Discussed geographic area types and associated transit & TDM service types

Capacity Expansion Methodology



Transit Service by Area Type

Service Category	Service Type	Area Type	Urban Core			Urban / Suburban				Small Urban	Non-Urban	
			Urban Core	Large Urban	Medium Urban	Urban County	Urbanizing	Suburban	Emerging	Small Urban	Rural Village	Rural
Demand Response	Urban		✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Rural								✓	✓	✓	✓
Local Route Services	Fixed Route		✓	✓	✓	✓	✓	✓	✓	✓		
	Deviated Fixed Route					✓	✓	✓	✓	✓	✓	
	Circulators		✓	✓	✓	✓	✓	✓		✓		
	Urban BRT		✓	✓	✓	✓						
Regional Bus	Commuter/Express Bus		✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Rural Regional									✓	✓	
	Regional BRT		✓	✓	✓	✓		✓	✓			
Rail Services	Streetcar		✓	✓								
	Light Rail		✓	✓		✓						
	Heavy Rail		✓	✓		✓						
	Commuter Rail		✓	✓	✓	✓	✓	✓	✓			
	Inter City Pass. Rail		✓	✓		✓						

TDM Service Categories by Area

<i>Area Types</i>	Urban	Small Urban	Suburban/Feeder		Non-Urban	
<i>Primary Travel Markets</i>	Work & Non-Work	Work & Non-Work	Work	Non-Work	Work	Non-Work
<i>Primary Audience</i>	Employees & Residents	Employees & Residents	Employees	Residents	Employees	Residents
Transportation Information	H	M	M	M	M	M
Employer Services	H	M	H		M	
Education & Outreach	H	M	H	L		L
Ridesharing	M	H	H		M	
Infrastructure	H	M	M	L	L	
Financial Incentives	L	M	H	L	M	
Support Services	L	H	H	L	M	L
Land Use & Zoning	H	L	H	L	L	

H = High priority; M = Medium Priority; L = Low priority



Transit

Review of Service Standards/ Parameters Used to Define Needs

Statewide Plan Transit and TDM Investment Elements

- Transit State of Good Repair (SGR)
- Transit & TDM Capacity Enhancements
- Transit Major Capital Projects

Statewide Plan Transit Investment Scenarios

- **Low Investment**
 - Addresses SGR for existing vehicles
 - Maintains existing service levels with No Growth
 - Assumes Major Capital Projects currently under development
- **Moderate Investment**
 - Addresses SGR for existing and future growth vehicles
 - Increases service levels
 - TDPs through 2018
 - Service level growth consistent with area population growth 2019 through 2040
 - Assumes Lower Level of Major Capital Project Investment
- **High Investment**
 - Addresses SGR for existing and future growth vehicles
 - Increases service levels
 - Moderate Growth plus
 - 3% service hour growth / year – Top quartile performers
 - 2% service hour growth / year – 2nd quartile performers
 - Assumes High Level of Major Capital Project Investment

State of Good Repair (SGR)

- Goal: Achieve and Maintain SGR on existing and future transit assets (capital and operating) – Function & Safety
- Capital investments in vehicles, supporting facilities and infrastructure used in service
- Commitment to continue operation of current service
- Use up-to-date DRPT Asset Inventory database
- Establish capital resource life cycles and replacement requirements through Year 2040 = capital costs
- Determine operating requirements to maintain existing level of service through Year 2040 = operating costs

SGR Resources & Guidance

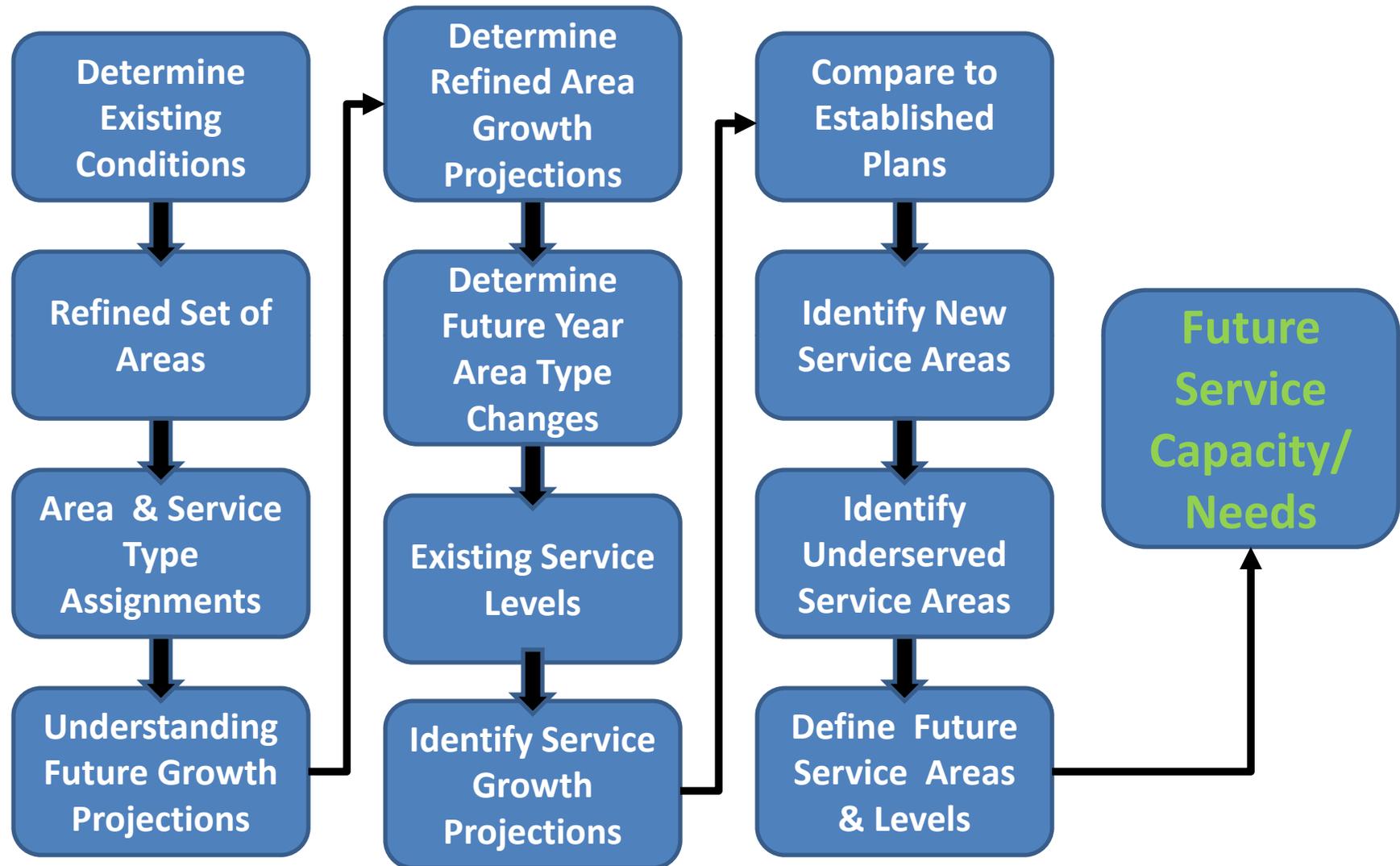
- DRPT Asset Inventory Database
- Vehicle Type
- Vehicle Standard Lifecycles (e.g., 4,7,10,12 years)
- Identified existing vehicle replacement backlog for 2012
- Identified vehicle replacement schedule over the Plan period (2013 – 2040)
- Identified facilities and lifecycle replacement timeframes
- Does not address equipment and tool needs

Transit Capacity Enhancements

- Expand statewide capacity to meet needs of growing economy and population
- Identify un-served areas that exhibit characteristics supportive of transit services – determine service needs
- Identify under-served areas that exhibit characteristics supportive of higher levels and increased types of transit services – determine service needs

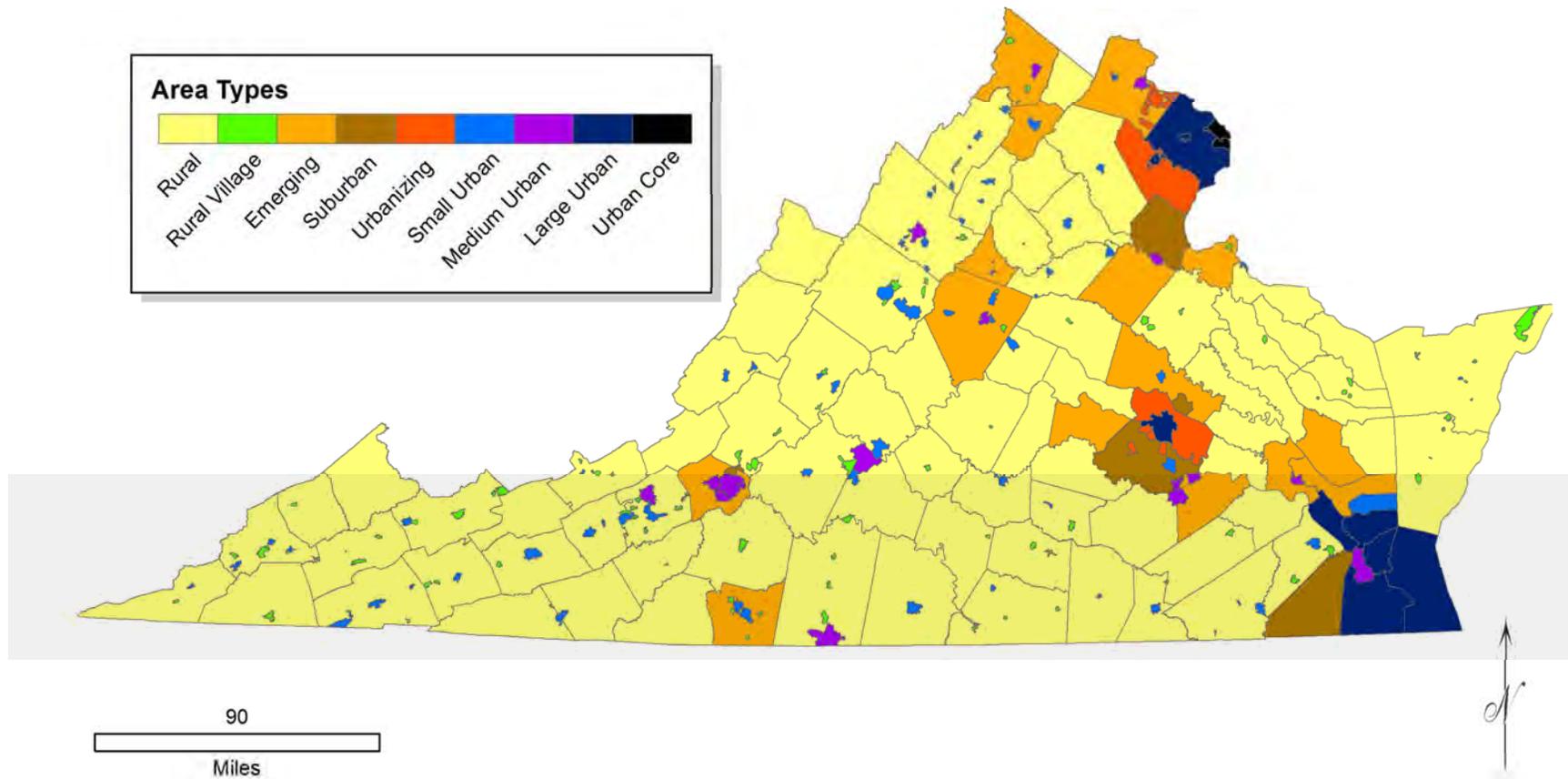
Capacity Enhancement Methodology described on next slide

Transit Capacity Expansion Methodology



Transit Capacity Enhancements - Resources & Guidance

Existing Area Type Classifications



Transit Capacity Enhancements - Resources & Guidance

- Low Investment
 - Existing Public Transit and Human Services Hours Remain Constant from 2012 to 2040
- Moderate Investment
 - Existing + TDP improvements by FY2018
 - Hours Grow by Area Type Population Growth 2019 to 2040
 - New service in Areas that meet New Service Criteria
 - Human Services Grow based on Population Growth
- High Investment
 - Same as Moderate Investment Scenario
 - Areas in the top two quartiles of Median Riders Per Hour receive 2% or 3% Hours Increase per Year

Transit Capacity Enhancements - Resources & Guidance

- Low Investment
 - Transit revenue hours and ridership based on Transit Development Plans (TDP)s, National Transit Database (NTD), DRPT Data or estimated based on online schedules
 - Total hours include both bus and rail
 - Hours and riders are allocated across area types
 - Riders per Hour are assumed to remain constant from 2012 through 2040
 - Revenue Hours are assumed to remain constant from 2012 through 2040

Transit Capacity Enhancements

- Resources and Guidance

- Moderate Investment
 - TDP Improvements by 2018
 - Revenue hours change with population based on area type average hours per capita for existing service
 - Existing Service: Areas with lower than average Hours per capita are brought up to the existing area type average
 - New Service: Existing area type average hours per capita applied to areas that meet the new service criteria
 - If the area type changes, hours per capita are applied based on new area type

Existing Average Hours per Capita		
Key	Area Type	Hours Per Capita
R1	Rural	0.3
V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1

New Service Criteria		
Area Type	Minimum Population	Persons per Square Mile
R1	20,437	46
V1	1,568	741
E1	54,064	184
S1	100,052	845
U1	53,017	2,863
T1	7,523	1,333
M1	42,908	2,255
L1	235,824	2,882
H1	173,797	8,510

Transit Capacity Enhancements - Resources and Guidance

- High Investment
 - Same criteria as Moderate Investment
 - Urban Core and VRE hours increased 3% annually beginning in 2019
 - High performance areas are given an annual increase in hours based on the ranking among the top two quartiles for median riders per hour beginning in 2019 of 3% (top quartile) or 2% (50%-74% quartile)

Top Two Quartiles: Median Riders per Hour		
% Increase (Annual)	2.00%	3.00%
Area Type	50% Quartile	75% Quartile
R1	2.5	4.6
V1	2.4	4.3
E1	6.53	18.78
S1	17.56	42.25
U1	17.87	27.02
T1	4.59	6.33
M1	13.73	27.8
L1	22.77	30.18
H1	*	*

Transit Capacity Enhancements - Resources and Guidance

- Human Services
 - Hours per Capita by PDC based on hours reported to DRPT
 - Low Investment: No Change
 - Moderate & High Investment: Hours applied to all areas based on the PDC average hours per capita and change with population
 - PDCs with zero hours per capita assume hours are included in public transit hours for agencies that provide both human services and public transit (i.e. Mountain Empire Older Citizens)

PDC	Annual Hours	Population	Hrs/Capita
1	5,200.00	94,174.00	0.06
3	20,072.00	193,595.00	0.1
4	17,524.00	178,237.00	0.1
6	80,340.00	286,781.00	0.28
7	111,852.00	222,152.00	0.5
8	230,048.00	2,230,623.00	0.1
9	41,236.00	166,054.00	0.25
11	31,928.00	252,634.00	0.13
12	209,768.00	249,182.00	0.84
13	7,020.00	86,402.00	0.08
14	9,568.00	104,609.00	0.09
15	156,624.00	1,002,696.00	0.16
16	52,052.00	327,773.00	0.16
17	9,620.00	50,429.00	0.19
18	2,340.00	90,826.00	0.03
19	32,552.00	166,405.00	0.2
22	24,076.00	45,553.00	0.53
23	172,848.00	1,629,452.00	0.11
	1,214,668.00	7,377,577.00	0.16

Major Capital Projects

- Identify potential Major Capital Projects focused on managing congestion and increasing transit mode share
- Typical modes include Metrorail, bus rapid transit (BRT), light rail transit, streetcar and commuter rail
- Projects likely to rise out of rapid transit projects planning in various urban regions
- Projects likely to be identified in Long Range Transportation Plans (LRTPs)

Major Capital Projects - Resources & Guidance

- SuperNoVa Study Analysis and Project Identification (currently under study)
 - Using identified corridors and potential modal options
 - Estimated range of capital and O&M costs
- Richmond Regional Mass Transit Study (May 2008)
 - 3 Tiers/Timeframes for Implementation
 - FY 2015-2016, Beyond 2025, Beyond 2035
 - Corridors and modes identified
 - Identified capital and O&M costs (escalated to 2012\$)
- Hampton Roads Regional Transit Vision Plan (Feb 2011)
 - 3 Timeframes for Implementation
 - Short-Term (by 2025), Long-Term (by 2035), & Extended (after 2035)
 - Corridors and modes identified
 - Identified capital and O&M costs (escalated to 2012\$)



Transit Results of Needs Analysis



State of Good Repair

SGR Vehicle Needs

Low Investment Scenario

Replacement Category	Backlog	Ongoing Replacement by Period Interval					Total
Operator and Vehicle Type	2012	2013 - 2018	2019 - 2024	2025-2030	2031-2035	2036-2040	2012-2040
Washington Metropolitan Area Transit Authority (WMATA)							
Metrorail	0	374	354	4	0	0	732
Metrobus	555	554	778	572	615	665	3,739
MetroAccess	0	2,002	2,132	2,030	1,739	1,779	9,682
Virginia Railway Express (VRE)							
Commuter Rail Cars	0	21	21	0	0	8	50
Commuter Locomotives	0	0	0	0	0	20	20
All Other Virginia Operators							
Buses	222	668	1,161	641	776	838	4,306
Vans	291	819	1,020	870	727	649	4,376
Support Vehicles	77	154	206	184	165	132	918
Ferries	1	1	1	0	0	1	4
Human Services Operators							
Buses	40	108	122	142	94	109	615
Vans	370	275	608	619	565	513	2,950
Support Vehicles	174	131	281	287	262	259	1,394
Total Vehicle Replacements	1,730	5,107	6,684	5,349	4,943	4,973	28,786

SGR Vehicle Needs

Moderate Investment Scenario

Replacement Category	Backlog	Ongoing Replacement by Period Interval					Total
Operator and Vehicle Type	2012	2013 - 2018	2019 - 2024	2025-2030	2031-2035	2036-2040	2012-2040
Washington Metropolitan Area Transit Authority (WMATA)							
Metrorail	0	374	354	4	0	0	732
Metrobus	555	554	812	775	809	865	4,370
MetroAccess	0	2,002	2,292	2,636	2,589	3,011	12,529
Virginia Railway Express (VRE)							
Commuter Rail Cars	0	21	21	0	0	8	50
Commuter Locomotives	0	0	0	0	0	20	20
All Other Virginia Operators							
Buses	222	668	1,161	1,001	1,431	993	5,476
Vans	291	819	1,164	1,230	747	684	4,935
Support Vehicles	77	154	246	302	211	168	1,158
Ferries	1	1	1	0	0	1	4
Human Services Operators							
Buses	40	108	122	142	94	109	615
Vans	370	275	688	685	615	569	3,202
Support Vehicles	174	131	281	287	262	259	1,394
Total Vehicle Replacements	1,730	5,107	7,142	7,062	6,758	6,687	34,485

SGR Vehicle Needs

High Investment Scenario

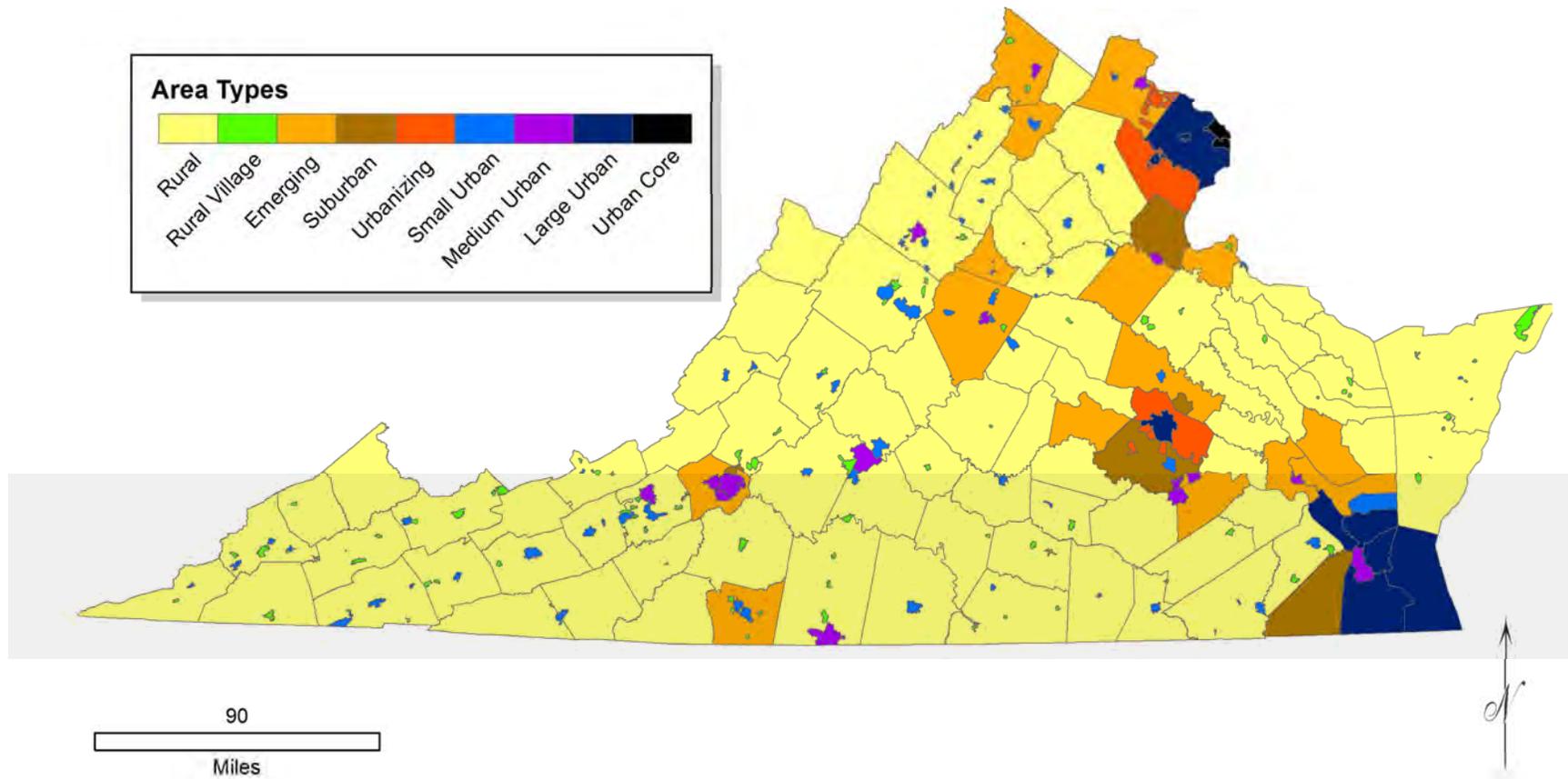
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Washington Metropolitan Area Transit Authority (WMATA)							
Metrorail	0	374	354	4	0	0	732
Metrobus	555	554	812	775	879	1,040	4,615
MetroAccess	0	2,002	2,407	3,125	3,377	4,296	15,207
Virginia Railway Express (VRE)							
Commuter Rail Cars	0	21	21	0	0	8	50
Commuter Locomotives	0	0	0	0	0	20	20
All Other Virginia Operators							
Buses	222	668	1,161	1,211	1,501	1,003	5,766
Vans	291	819	1,224	1,266	752	684	5,036
Support Vehicles	77	154	266	311	208	168	1,184
Ferries	1	1	1	0	0	1	4
Human Services Operators							
Buses	40	108	122	142	94	109	615
Vans	370	275	688	685	615	569	3,202
Support Vehicles	174	131	281	287	262	259	1,394
Total Vehicle Replacements	1,730	5,107	7,337	7,806	7,688	8,157	37,825



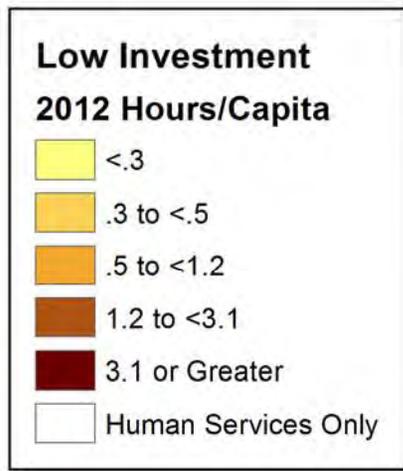
Transit Capacity Enhancements

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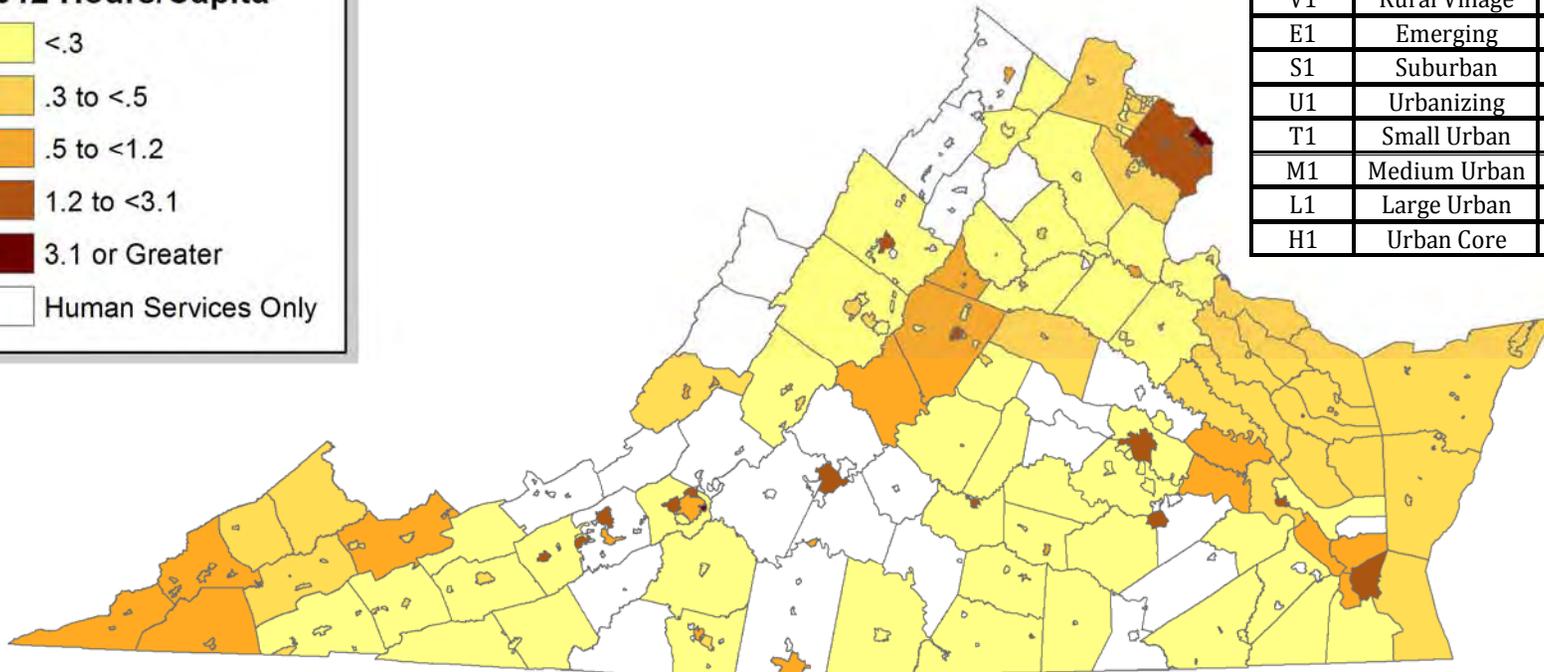
Existing Area Type Classifications



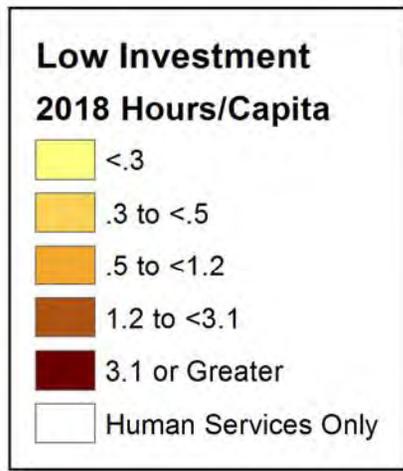
Transit Capacity Enhancements Service Hour Needs (Low Investment)



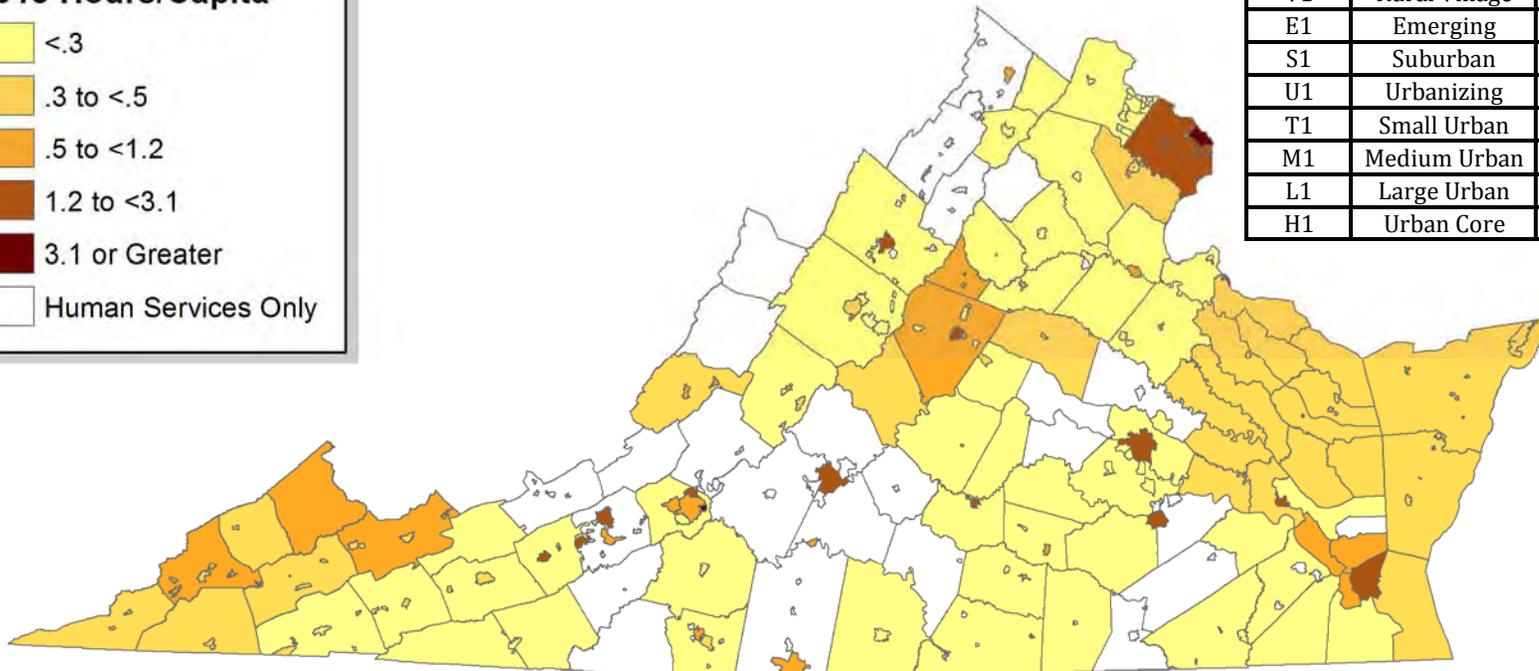
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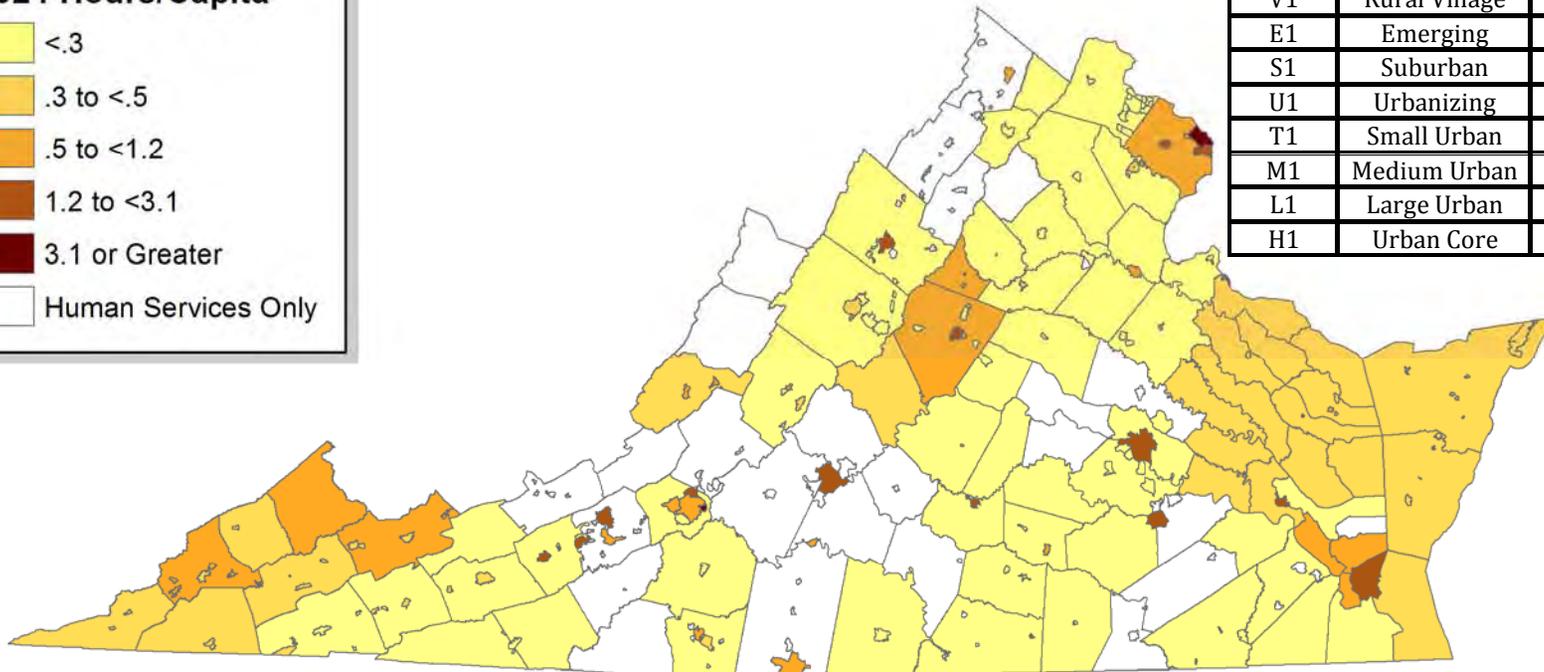
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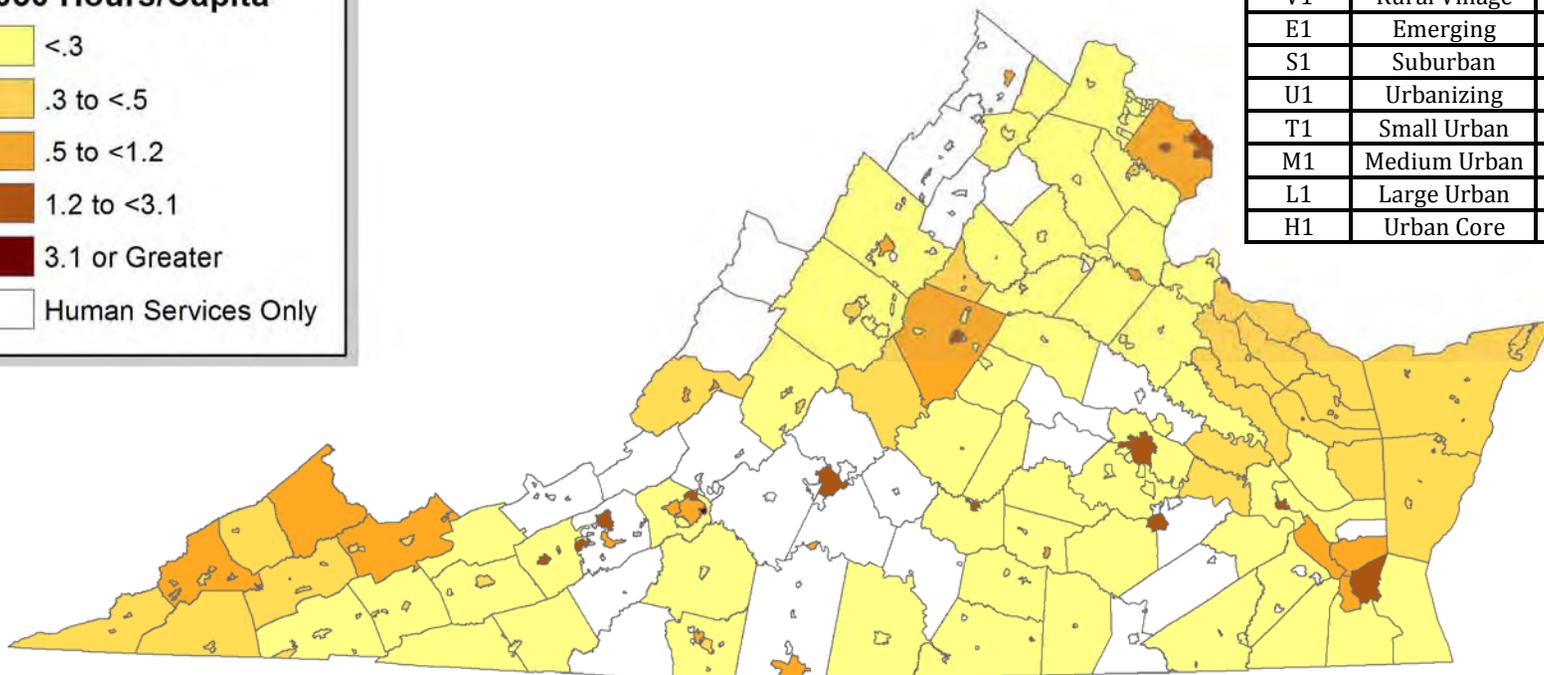
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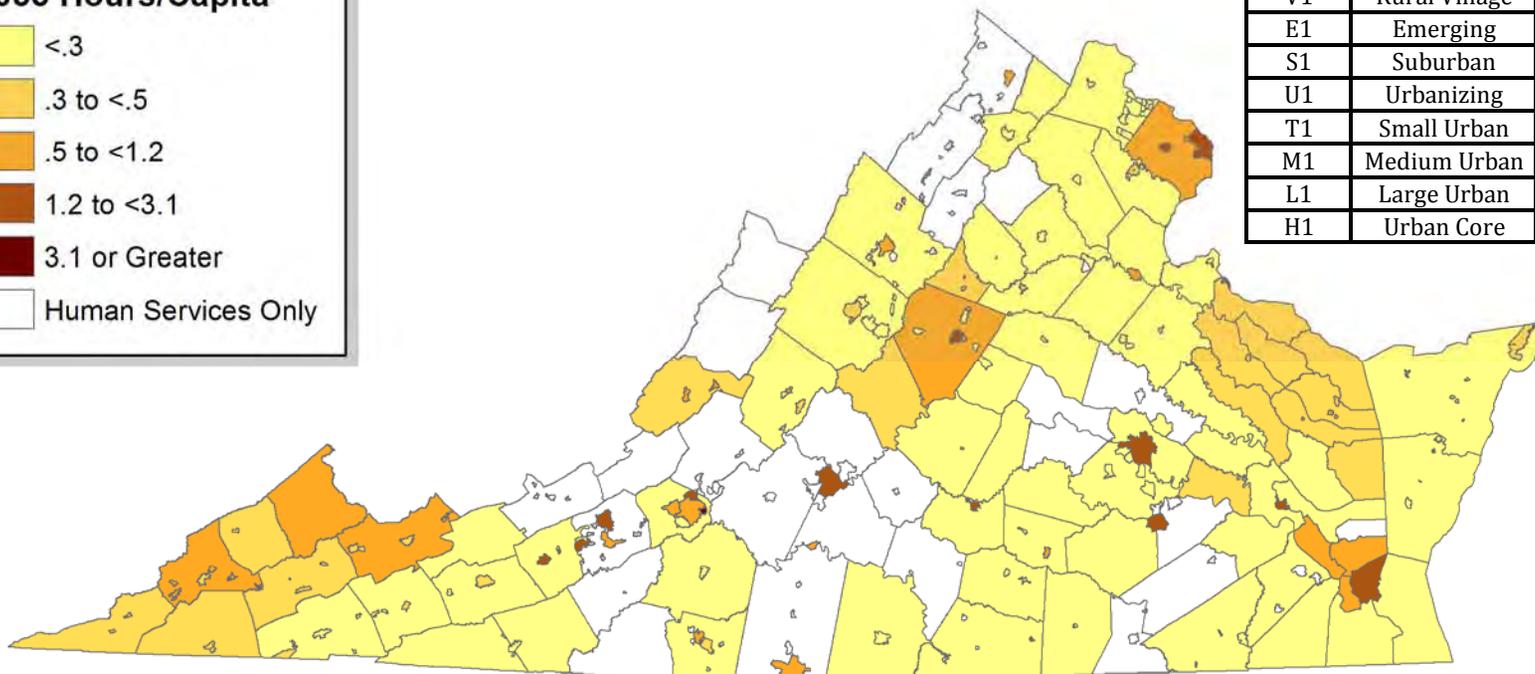
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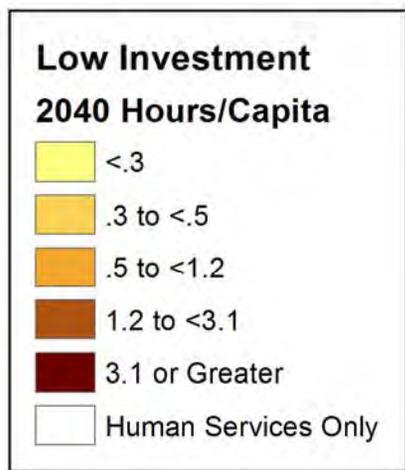
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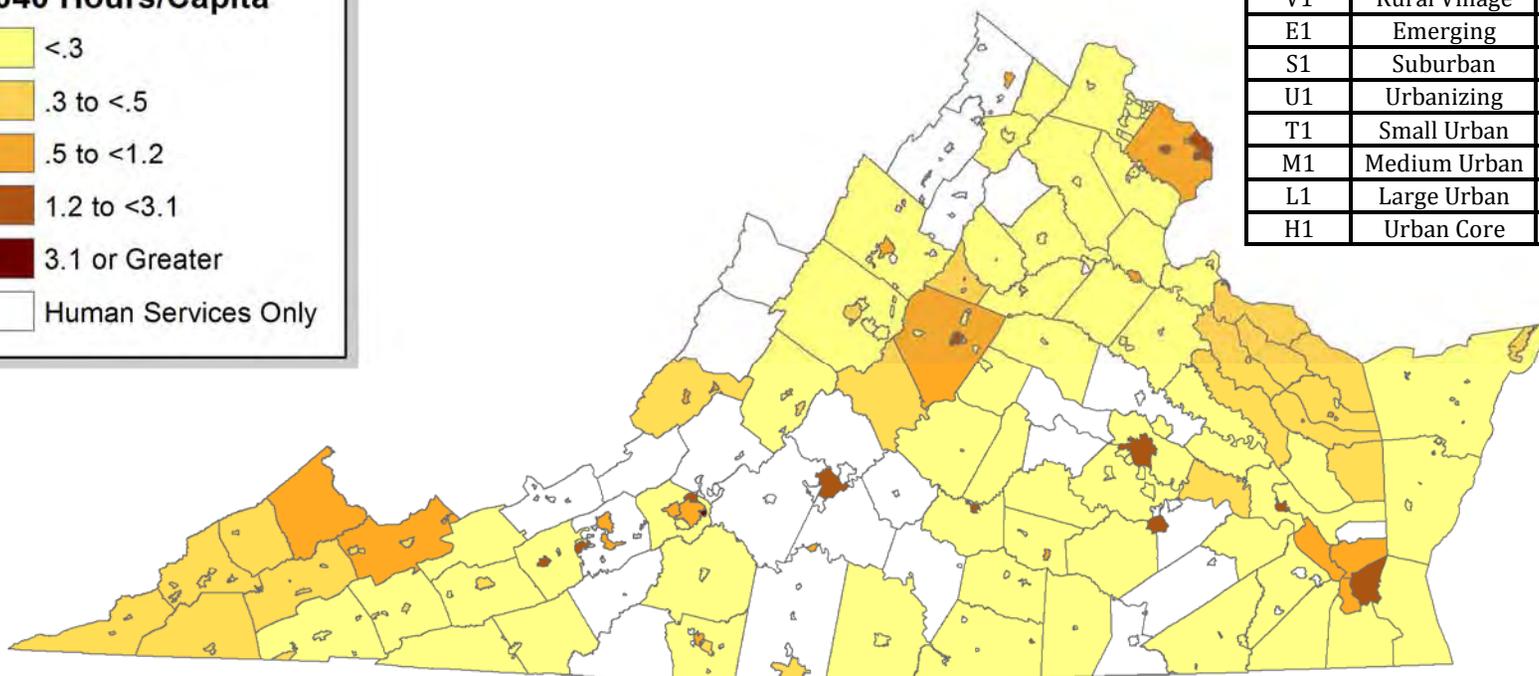
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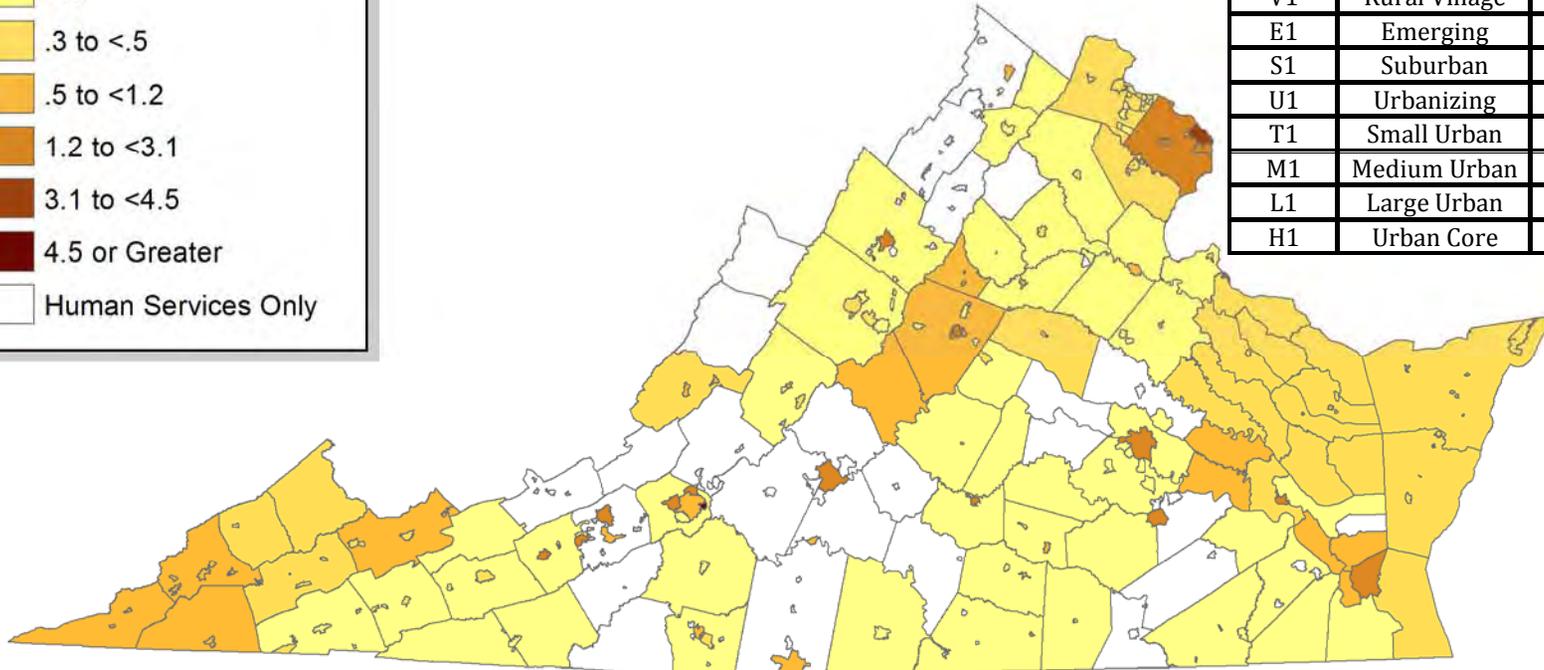
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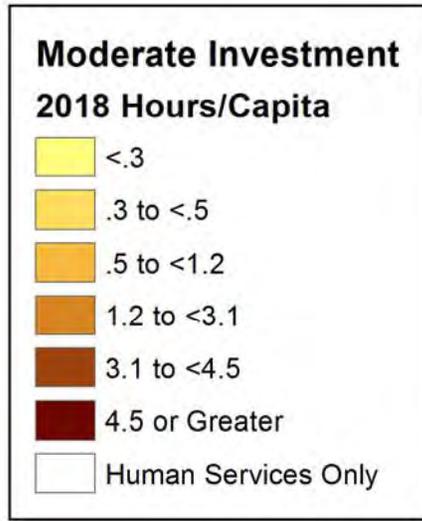
Transit Capacity Enhancements Service Hour Needs (Moderate Investment)



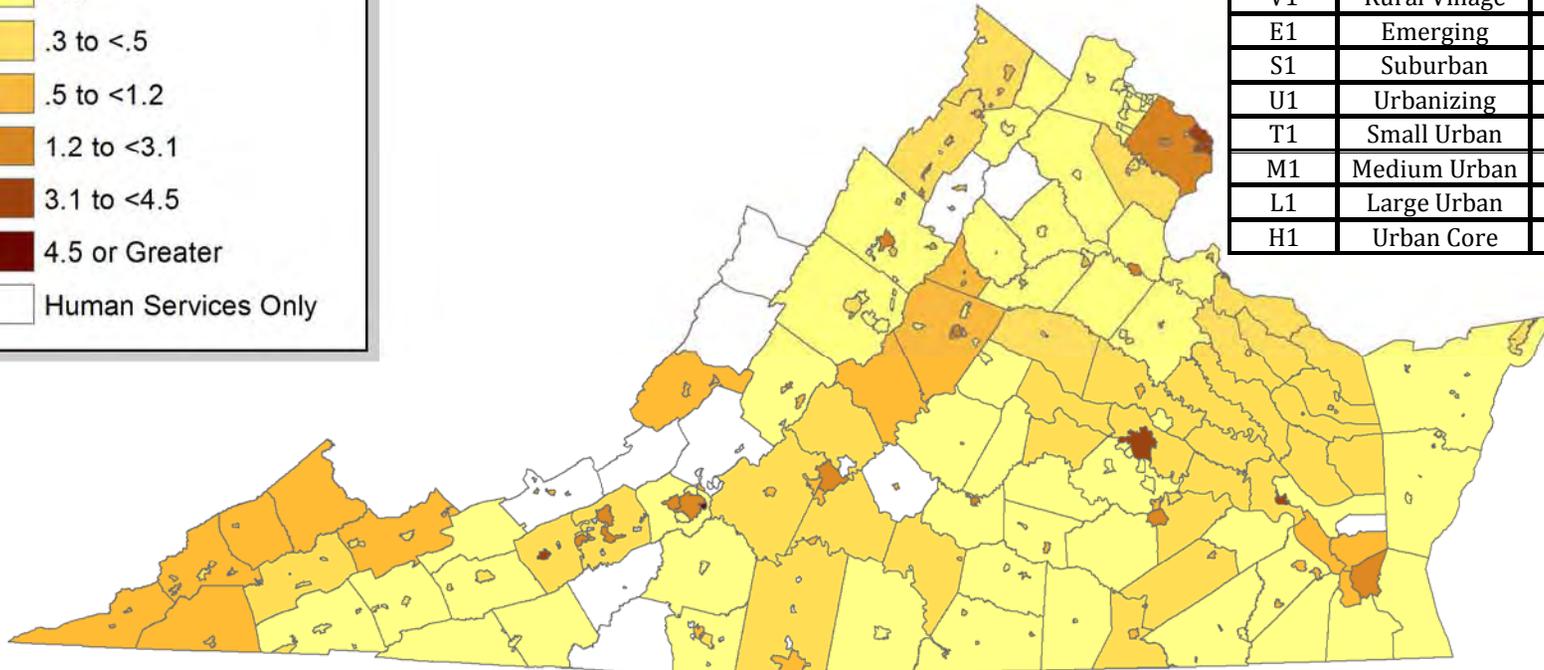
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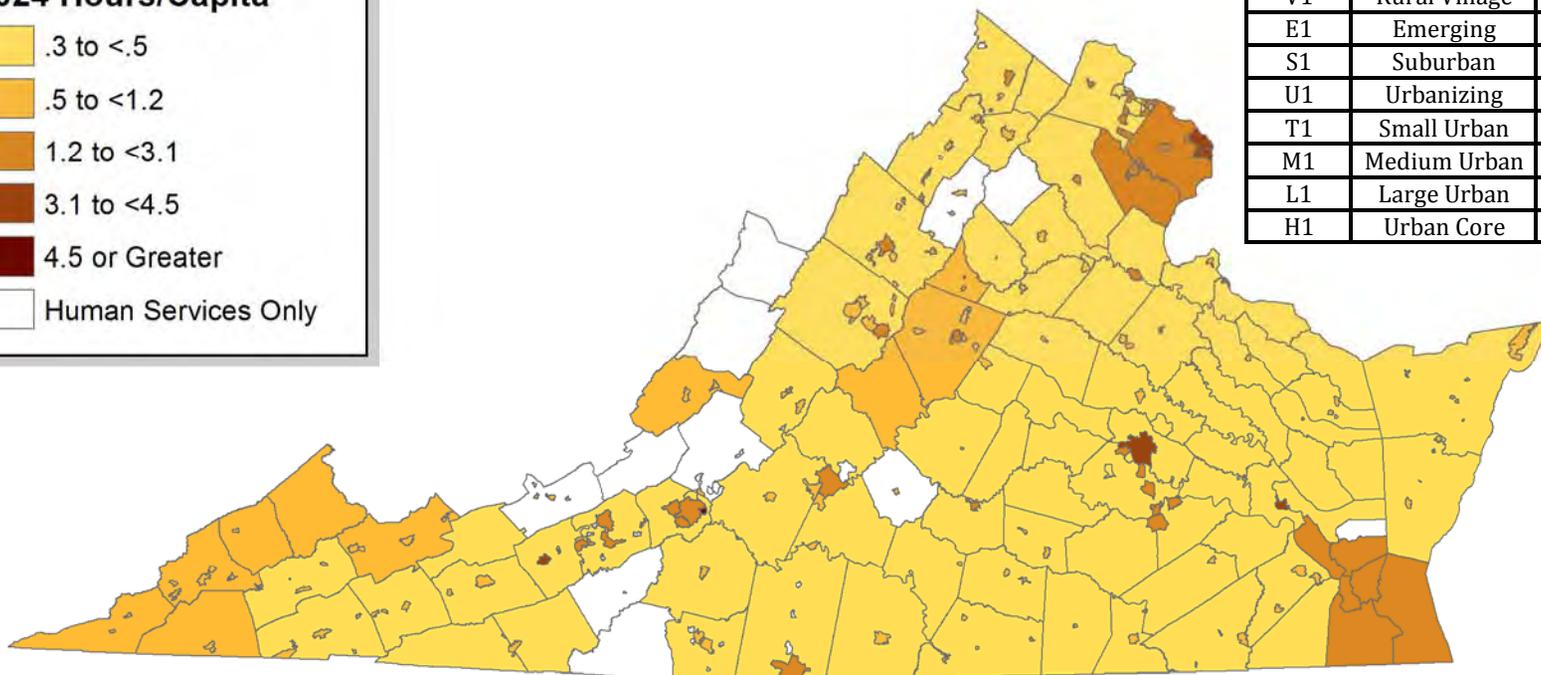
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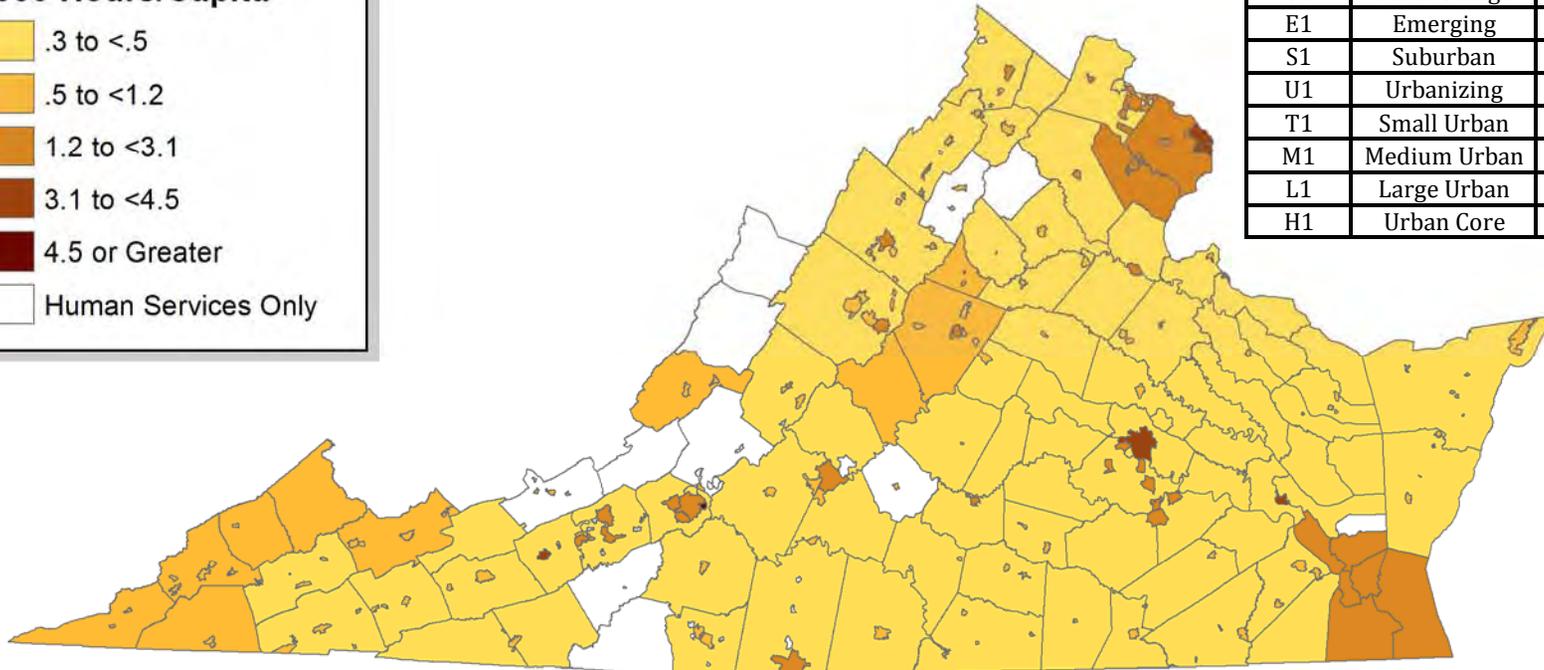
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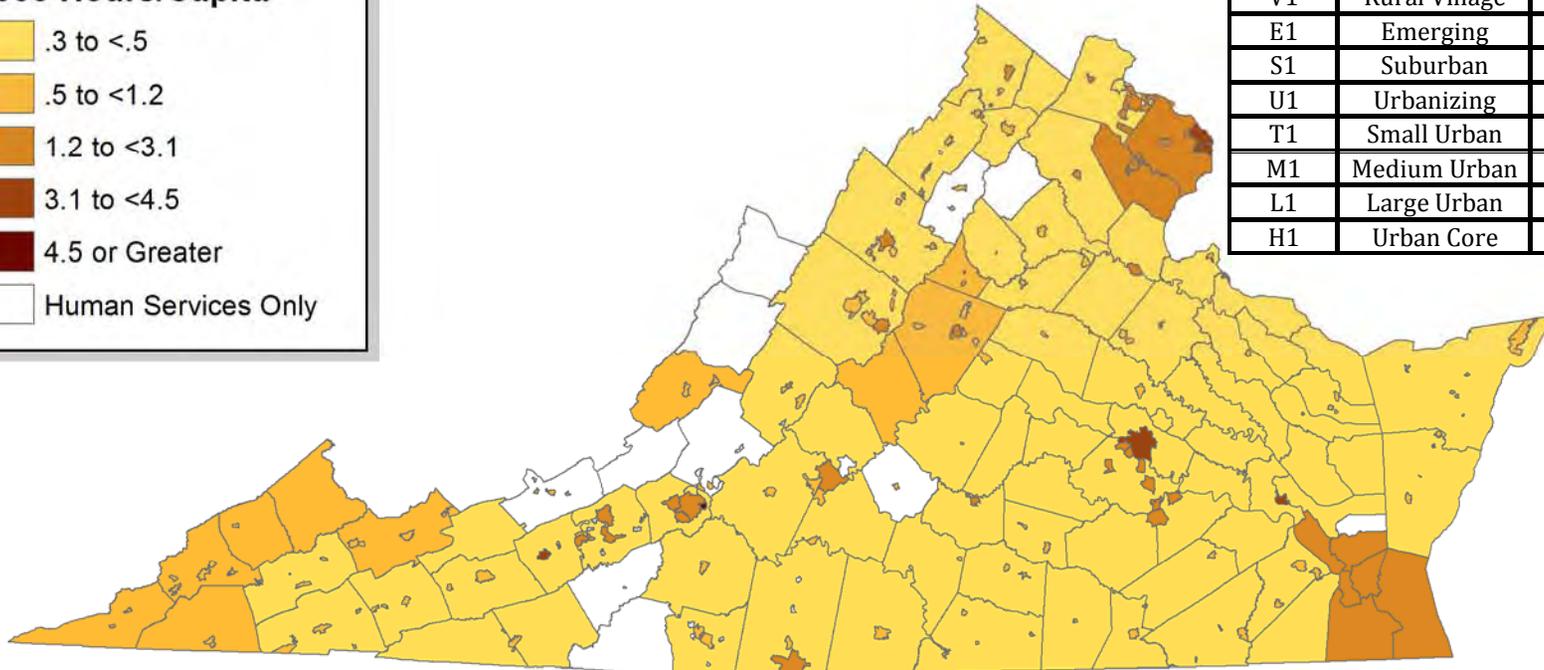
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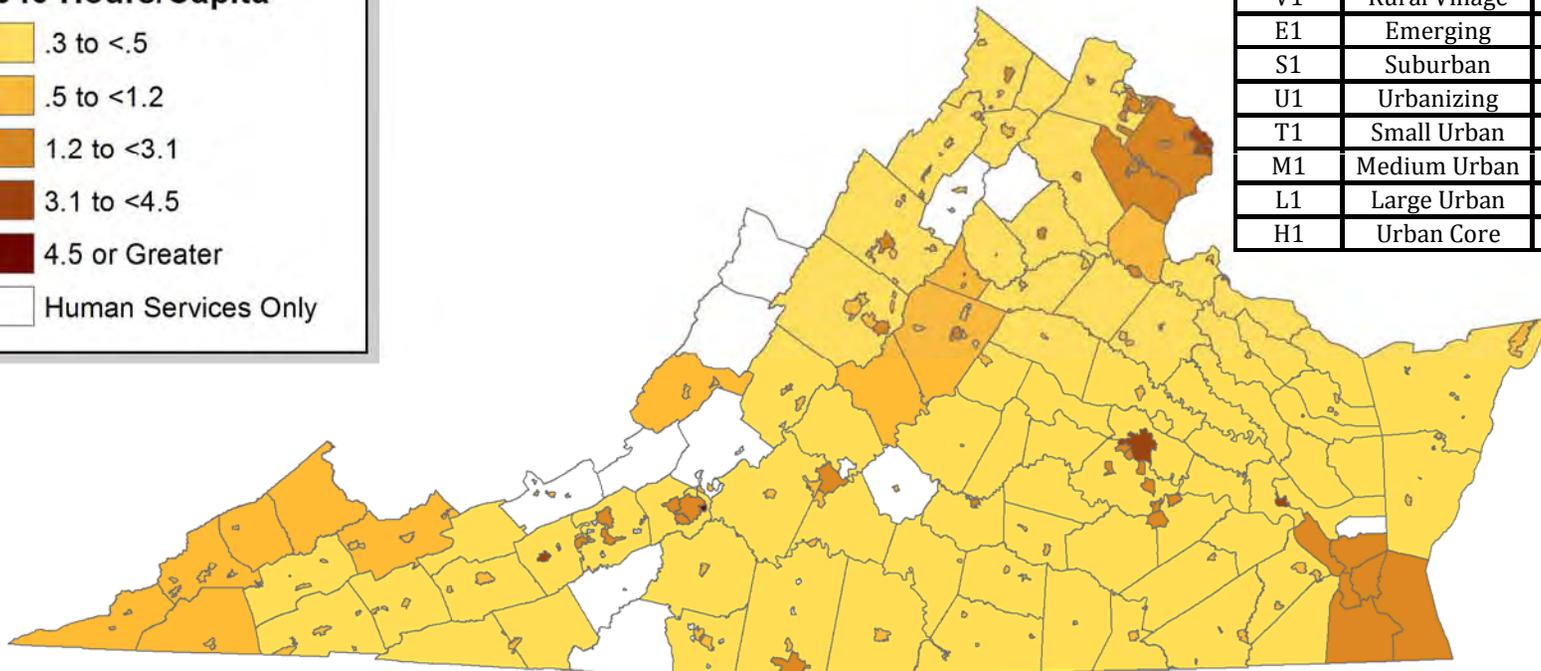
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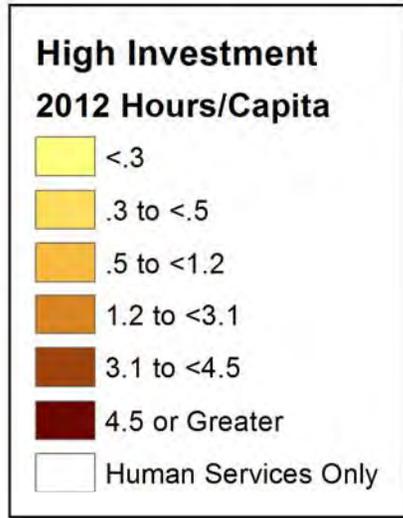
Transit Capacity Enhancements Service Hour Needs (Moderate Investment)



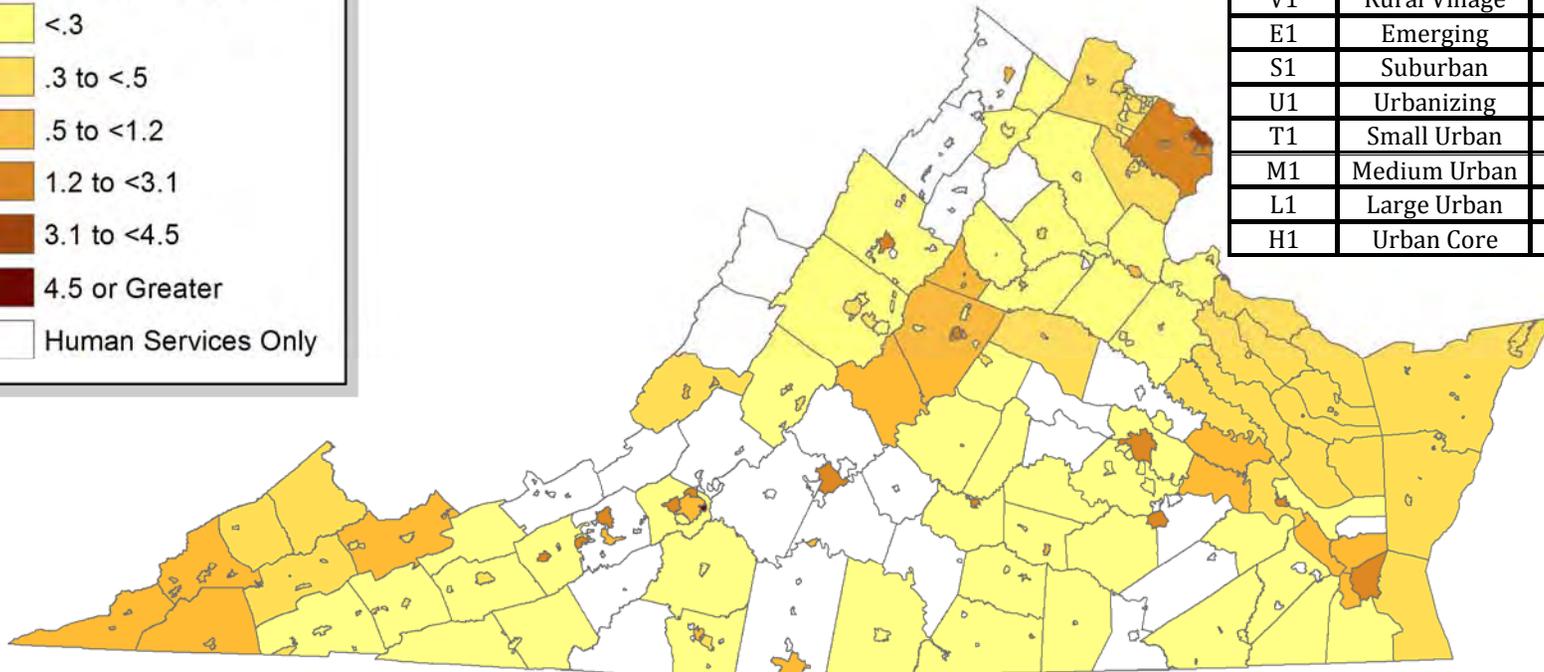
Existing Average Hours per Capita		
Key	Area Type	Hours Per Capita
R1	Rural	0.3
V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



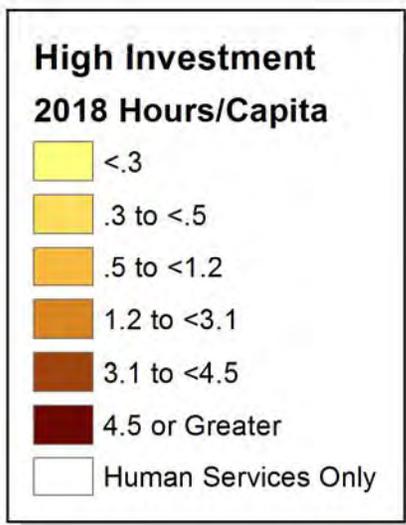
Transit Capacity Enhancements Service Hour Needs (High Investment)



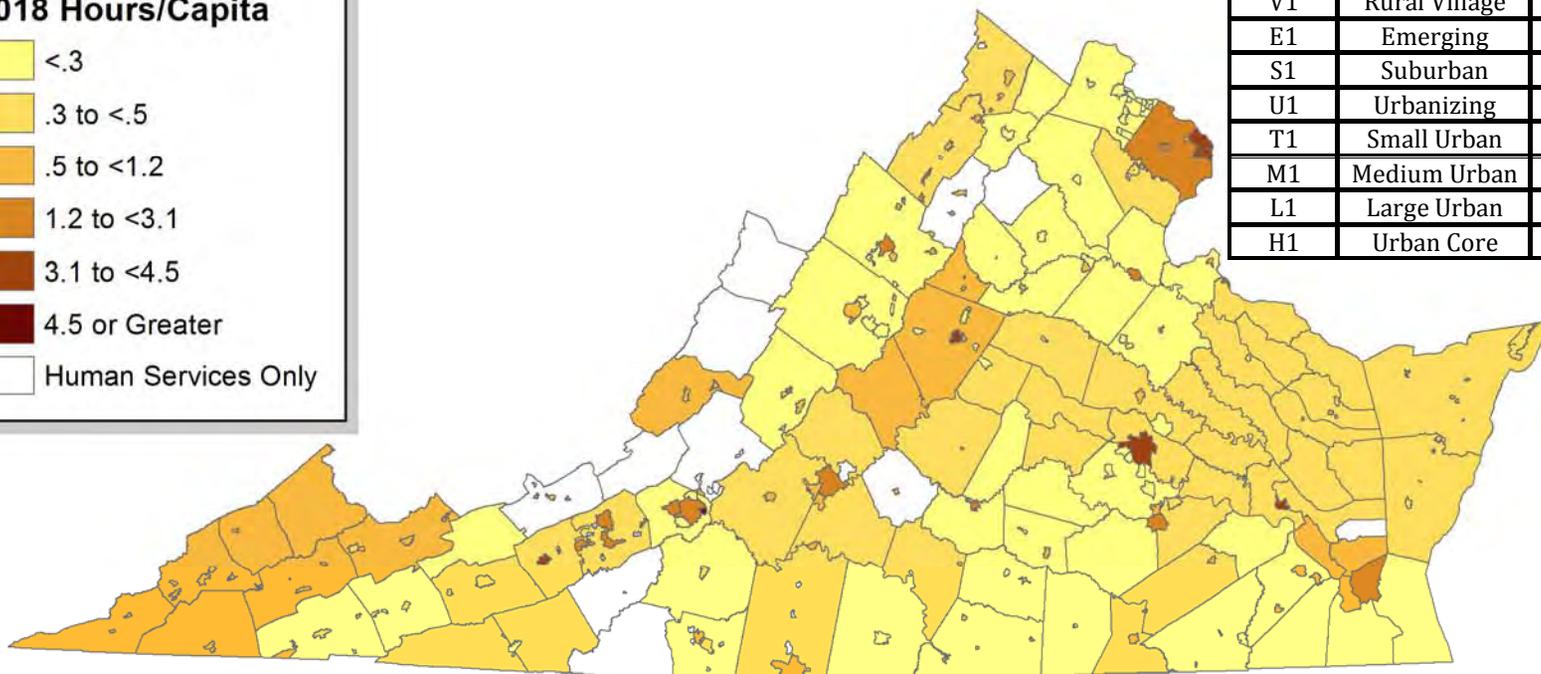
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Key	Area Type	Hours Per Capita
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V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



Transit Capacity Enhancements Service Hour Needs (High Investment)



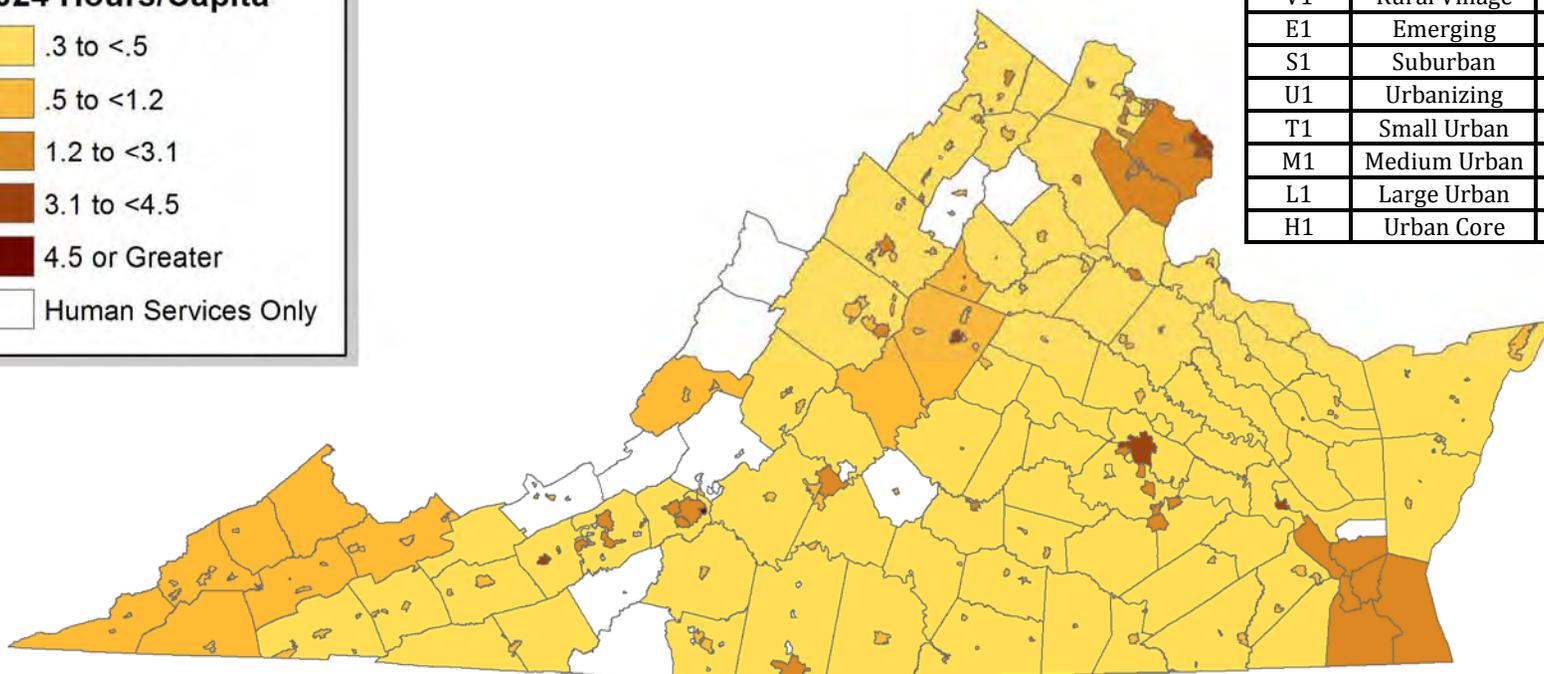
Existing Average Hours per Capita		
Key	Area Type	Hours Per Capita
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V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



Transit Capacity Enhancements Service Hour Needs (High Investment)



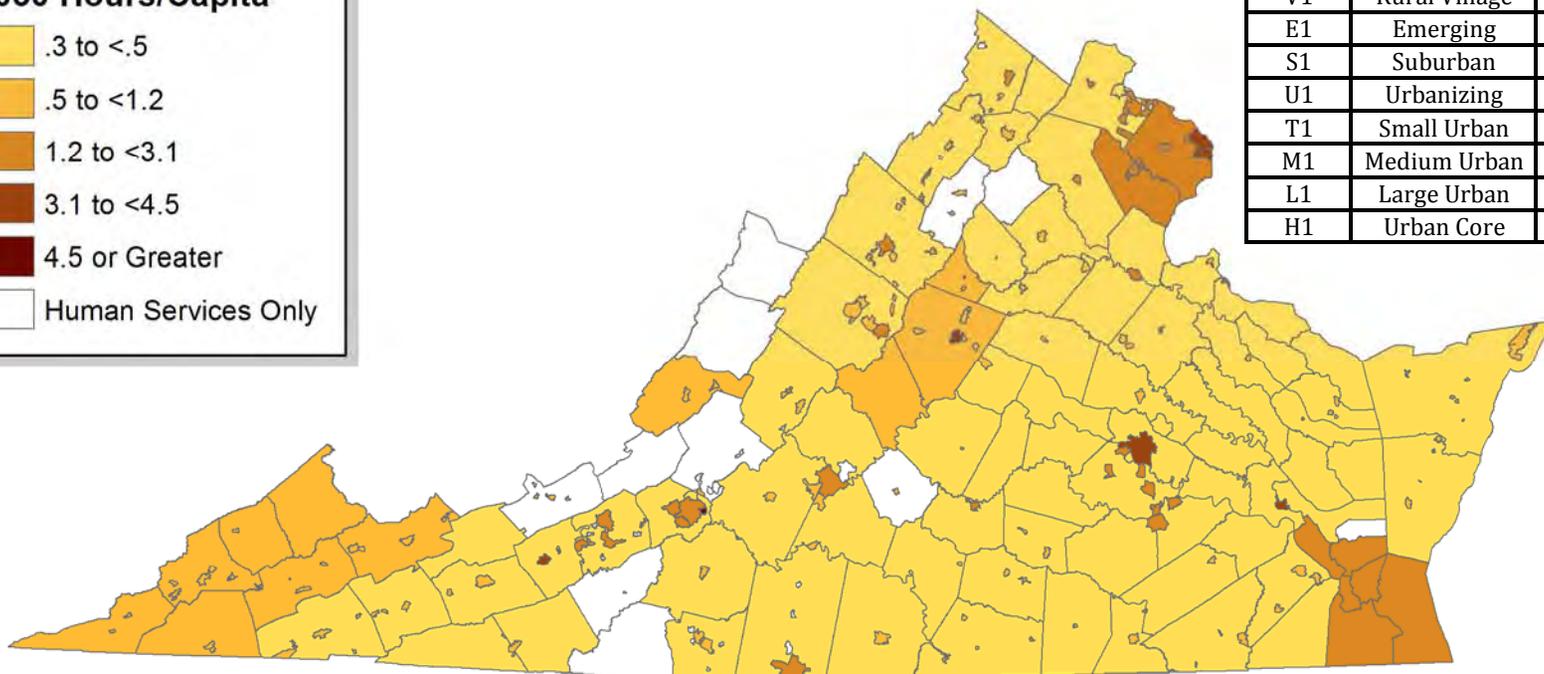
Existing Average Hours per Capita		
Key	Area Type	Hours Per Capita
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V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



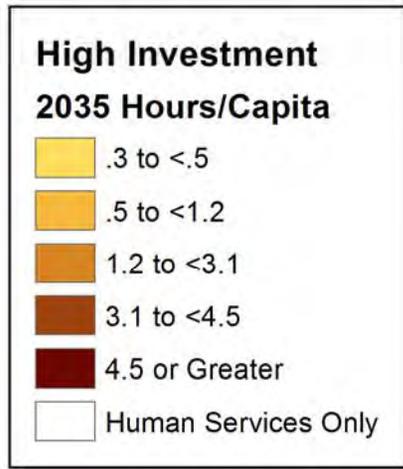
Transit Capacity Enhancements Service Hour Needs (High Investment)



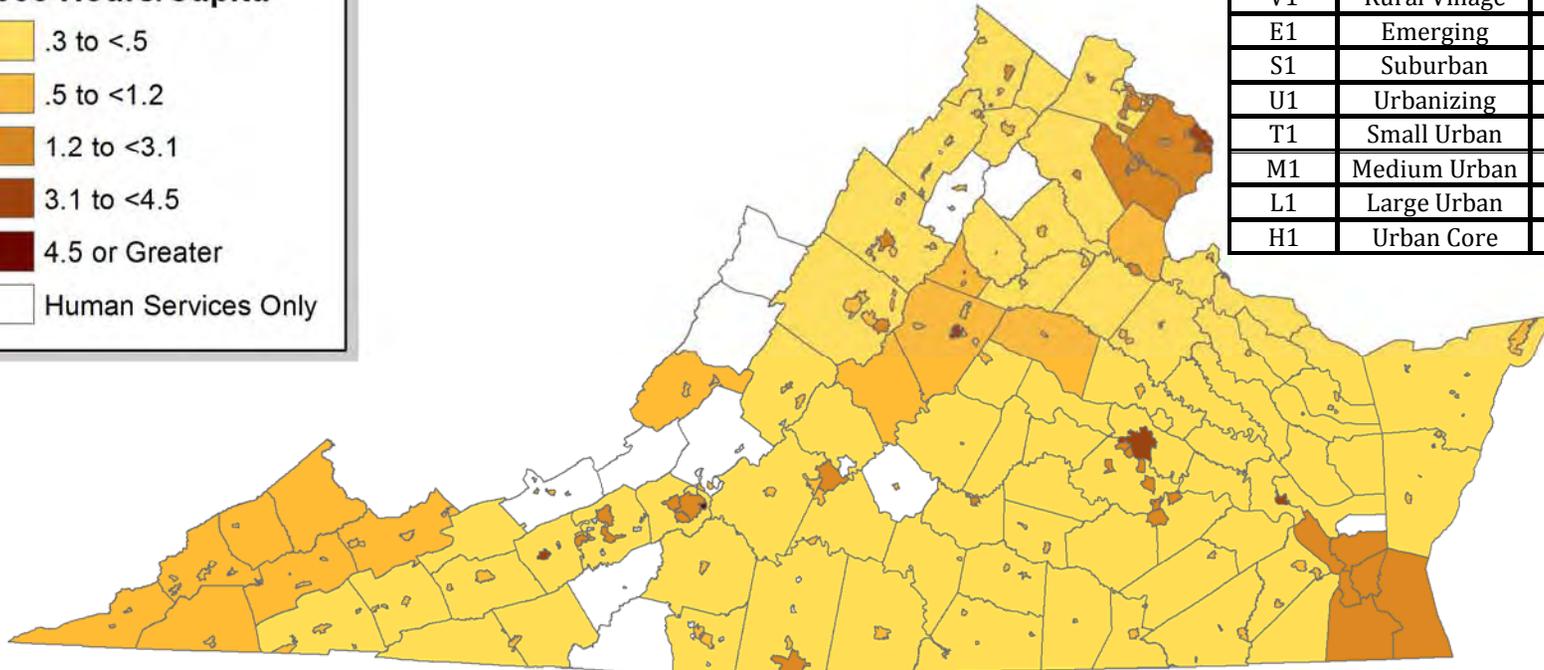
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Key	Area Type	Hours Per Capita
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V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



Transit Capacity Enhancements Service Hour Needs (High Investment)



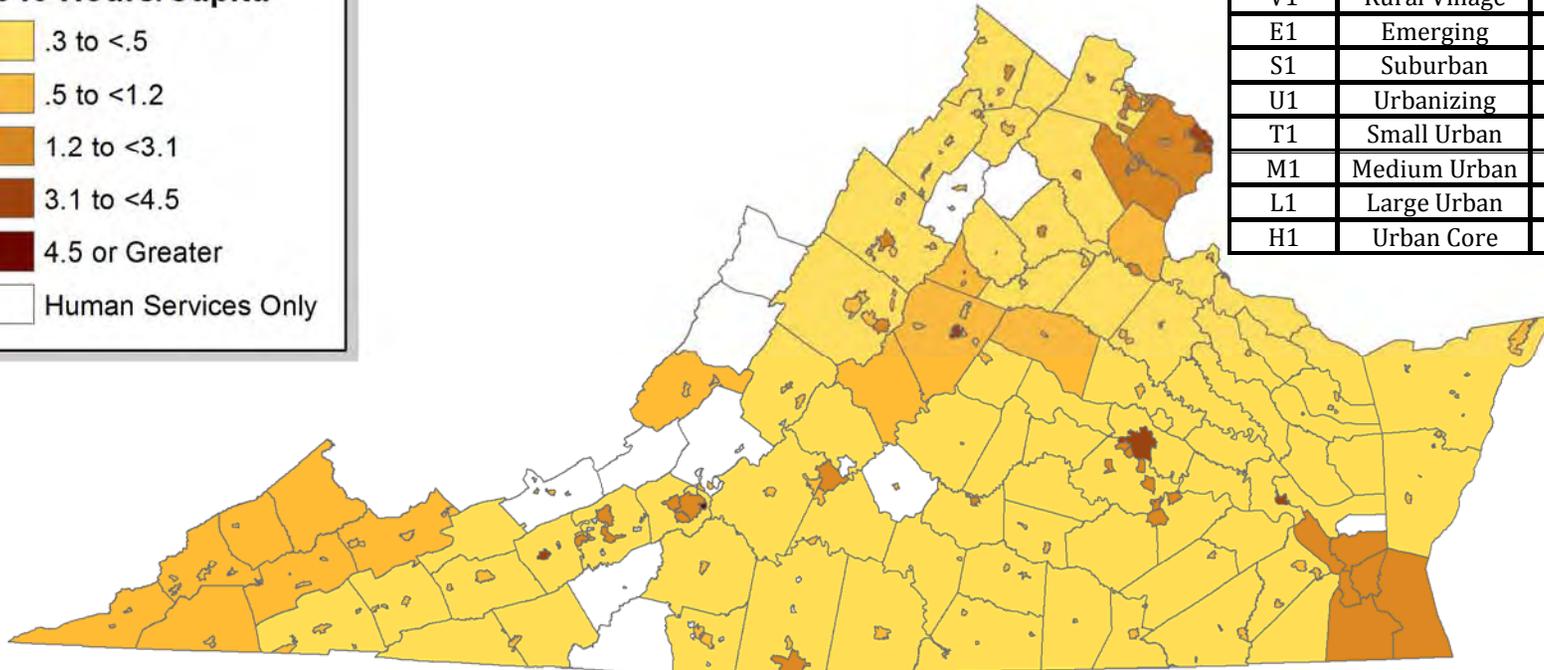
Existing Average Hours per Capita		
Key	Area Type	Hours Per Capita
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V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



Transit Capacity Enhancements Service Hour Needs (High Investment)



Existing Average Hours per Capita		
Key	Area Type	Hours Per Capita
R1	Rural	0.3
V1	Rural Village	0.5
E1	Emerging	0.3
S1	Suburban	0.3
U1	Urbanizing	0.3
T1	Small Urban	0.5
M1	Medium Urban	1.2
L1	Large Urban	1.2
H1	Urban Core	3.1



Transit Capacity Enhancements Service Hour Needs

Total Revenue Hours (Interval Periods)								
Investment Scenario		2013-2018	2019-2024	2025-2030	2031-2035	2036-2040	Grand Total	% Change
Low	Public Transit	33,949,885	33,949,885	33,949,885	28,291,571	28,291,571	158,432,797	0%
	Human Services	7,288,008	7,288,008	7,288,008	6,073,340	6,073,340	34,010,704	0%
	Total	41,237,893	41,237,893	41,237,893	34,364,911	34,364,911	192,443,501	0%
Moderate	Public Transit	37,066,484	48,864,235	57,894,372	51,476,494	54,905,589	250,207,173	58%
	Human Services	7,676,839	8,246,147	8,746,045	7,694,003	8,096,723	40,459,757	19%
	Total	44,743,323	57,110,382	66,640,417	59,170,497	63,002,312	290,666,930	51%
High	Public Transit	40,077,557	54,741,481	64,474,254	56,649,852	59,998,216	275,941,361	74%
	Human Services	7,676,839	8,246,147	8,746,045	7,694,003	8,096,723	40,459,757	19%
	Total	47,754,396	62,987,628	73,220,300	64,343,855	68,094,939	316,401,118	64%

Transit Capacity Enhancements

Expanded Existing Transit Services (by 2040)
Based on Population Growth and Performance

- Expanded Rural Transit Service
- Expanded Urban Transit Service
- Expanded Urban and Rural Transit Service
- Human Services Transportation Only
- Area Type Change 2010-2040

New Transit Service (by 2040)

- Rural/Suburban Transit Service
- Rural Village/Small Urban Transit Service
- Medium Urban Transit Service
- Areas with Major Capital Investments

Major Capital Investments

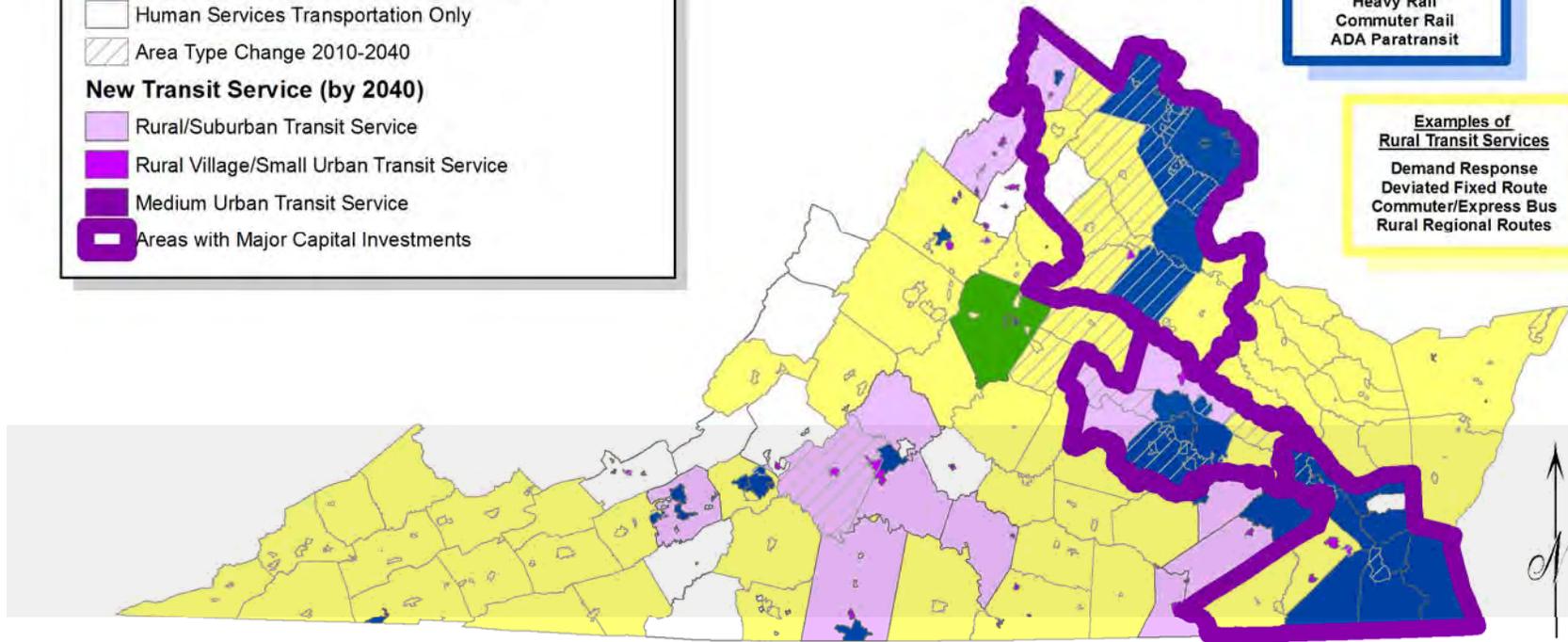
- Heavy Rail
- Commuter Rail
- Light Rail Transit
- Bus Rapid Transit

Examples of Urban Transit Services

- Fixed Route
- Deviated Fixed Route
- Community Circulator
- Bus Rapid Transit
- Commuter Bus
- Streetcar
- Light Rail
- Heavy Rail
- Commuter Rail
- ADA Paratransit

Examples of Rural Transit Services

- Demand Response
- Deviated Fixed Route
- Commuter/Express Bus
- Rural Regional Routes





Major Capital Projects

Major Capital Project Implementation Timeframes

Richmond Region Project Implementation

- Capital and O&M costs distributed evenly starting in Period of Implementation (FY 2015-2016, Beyond 2025, Beyond 2035 to 2040)
- Capital and O&M costs projected to Year of Expenditure Dollars

Projects include:

- Broad Street BRT (later conversion to LRT)
- Midlothian Corridor Commuter Rail
- Ashland Corridor Commuter Rail
- Airport LRT

Major Capital Project Implementation Timeframes

Norfolk Region Project Implementation

- Capital and O&M costs distributed evenly starting in Period of Implementation (by 2025, by 2035, after 2035 to 2040)
- Capital and O&M costs projected to Year of Expenditure Dollars

Projects include:

- TIDE LRT extension to Virginia Beach
- TIDE LRT to Naval Station
- High Speed Ferry – Newport News/Naval Station/Harbor Park/Newport News/Hampton
- TIDE LRT – Harbor Park to Greenbriar
- TIDE LRT – Downtown Newport News/CNU/Huntington Pointe
- Commuter Rail – Williamsburg/LightFoot-Toano/Suffolk/Fentress
- Streetcar – Harbor Park/Portsmouth/Midtown Loop, Phoebus Waterfront/Coliseum Central, Portsmouth/Harbor Park
- BRT – Harbor Park to Harbour View (via Portsmouth)

Major Capital Project Implementation Timeframes

SuperNoVa Region Project Implementation

- Projects under study:
 - Projects to be identified and discussed at Super NoVa stakeholder meetings next week
 - Technology not assumed in advance of more detailed studies



Transit

Draft Needs Recommendations: Service Levels and Cost Estimates

SGR Capital Costs

Low Investment Scenario

(Millions YOE Dollars)

Replacement Category	Backlog	Ongoing Replacement by Period Interval					Total
Operator and Vehicle Type	2012	2013 - 2018	2019 - 2024	2025-2030	2031-2035	2036-2040	2012-2040
Washington Metropolitan Area Transit Authority (WMATA)							
Vehicles & Fixed Assets	\$0.0	\$1,258	\$1,210	\$1,436	\$1,407	\$1,631	\$6,943
Virginia Railway Express (VRE)							
Commuter Rail Cars	\$0.0	\$60.1	\$69.7	\$0.0	\$0.0	\$48.4	\$178.2
Commuter Locomotives	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$134.0	\$134.0
HRT The Tide LRT Project							
Fixed Assets	\$0.0	\$3.0	\$8.6	\$34.6	\$25.1	\$25.1	\$96.4
All Other Virginia Operators							
Buses	\$122.4	\$215.4	\$502.8	\$304.2	\$459.9	\$557.5	\$2,162.2
Vans	\$17.9	\$49.7	\$73.4	\$73.9	\$72.8	\$75.8	\$363.5
Support Vehicles	\$2.9	\$5.3	\$8.4	\$8.9	\$9.4	\$8.7	\$43.6
Ferries	\$9.4	\$10.5	\$11.9	\$0.0	\$0.0	\$19.6	\$51.4
Fixed Assets	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Human Services Operators							
Buses	\$12.6	\$32.8	\$44.5	\$64.4	\$50.0	\$66.2	\$270.5
Vans	\$18.9	\$15.5	\$39.5	\$49.1	\$54.1	\$59.0	\$236.1
Support Vehicles	\$5.4	\$4.5	\$11.0	\$13.7	\$15.1	\$17.8	\$67.5
Total Vehicle Replacement Costs	\$189.5	\$1,654.5	\$1,980.1	\$1,984.7	\$2,093.7	\$2,643.5	\$10,546.1

SGR Capital Costs

Moderate Investment Scenario

(Millions YOE Dollars)

Replacement Category	Backlog	Ongoing Replacement by Period Interval					Total
Operator and Vehicle Type	2012	2013 - 2018	2019 - 2024	2025-2030	2031-2035	2036-2040	2012-2040
Washington Metropolitan Area Transit Authority (WMATA)							
Vehicles & Fixed Assets	\$0.0	\$1,032.7	\$1,210.3	\$1,435.9	\$1,407.3	\$1,631.4	\$6,717.7
Virginia Railway Express (VRE)							
Commuter Rail Cars	\$0.0	\$60.1	\$69.7	\$0.0	\$0.0	\$48.4	\$178.2
Commuter Locomotives	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$134.0	\$134.0
HRT The Tide LRT Project							
Fixed Assets	\$0.0	\$3.0	\$8.6	\$34.6	\$25.1	\$25.1	\$96.4
All Other Virginia Operators							
Buses	\$122.4	\$215.4	\$502.8	\$520.9	\$923.7	\$762.0	\$3,047.2
Vans	\$17.9	\$49.7	\$82.1	\$101.7	\$80.1	\$79.2	\$410.7
Support Vehicles	\$2.9	\$5.3	\$10.1	\$14.7	\$12.0	\$11.1	\$56.1
Ferries	\$9.4	\$10.5	\$11.9	\$0.0	\$0.0	\$19.6	\$51.4
Fixed Assets	\$0.0	\$435.2	\$6.8	\$0.0	\$0.0	\$0.0	\$441.9
Human Services Operators							
Buses	\$12.6	\$32.8	\$44.5	\$64.4	\$50.0	\$66.2	\$270.5
Vans	\$18.9	\$15.5	\$42.0	\$51.8	\$56.6	\$62.6	\$247.4
Support Vehicles	\$5.4	\$4.5	\$11.0	\$13.7	\$15.1	\$17.8	\$67.5
Total Vehicle Replacement Costs	\$189.5	\$1,864.7	\$1,999.7	\$2,237.7	\$2,569.9	\$2,857.4	\$11,719.0

SGR Capital Costs

High Investment Scenario

(Millions YOE Dollars)

Replacement Category	Backlog	Ongoing Replacement by Period Interval					Total
Operator and Vehicle Type	2012	2013 - 2018	2019 - 2024	2025-2030	2031-2035	2036-2040	2012-2040
Washington Metropolitan Area Transit Authority (WMATA)							
Vehicles & Fixed Assets	\$0.0	\$1,032.7	\$1,210.3	\$1,435.9	\$1,407.3	\$1,631.4	\$6,717.7
Virginia Railway Express (VRE)							
Commuter Rail Cars	\$0.0	\$60.1	\$69.7	\$0.0	\$0.0	\$48.4	\$178.2
Commuter Locomotives	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$134.0	\$134.0
HRT The Tide LRT Project							
Fixed Assets	\$0.0	\$3.0	\$8.6	\$34.6	\$25.1	\$25.1	\$96.4
All Other Virginia Operators							
Buses	\$122.4	\$215.4	\$502.8	\$647.4	\$973.2	\$779.5	\$3,240.7
Vans	\$17.9	\$49.7	\$85.7	\$105.1	\$81.1	\$79.2	\$418.7
Support Vehicles	\$2.9	\$5.3	\$10.9	\$15.1	\$11.8	\$11.1	\$57.1
Ferries	\$9.4	\$10.5	\$11.9	\$0.0	\$0.0	\$19.6	\$51.4
Fixed Assets	\$0.0	\$435.2	\$6.8	\$0.0	\$0.0	\$0.0	\$441.9
Human Services Operators							
Buses	\$12.6	\$32.8	\$44.5	\$64.4	\$50.0	\$66.2	\$270.5
Vans	\$18.9	\$15.5	\$42.0	\$51.8	\$56.6	\$62.6	\$247.4
Support Vehicles	\$5.4	\$4.5	\$11.0	\$13.7	\$15.1	\$17.8	\$67.5
Total Vehicle Replacement Costs	\$189.5	\$1,864.7	\$2,004.1	\$2,368.0	\$2,620.2	\$2,874.9	\$11,921.5

Transit Capacity Enhancements Capital and O&M Costs

Total Operating Costs (Interval Periods in Millions)							
Investment Scenario		2013-2018	2019-2024	2025-2030	2031-2035	2036-2040	Grand Total
Low	Public Transit	\$5,271.37	\$6,294.29	\$7,515.71	\$7,360.01	\$8,532.26	\$34,973.65
	Human Services	\$252.89	\$301.93	\$360.48	\$352.99	\$409.18	\$1,677.47
	Total	\$5,524.26	\$6,596.22	\$7,876.20	\$7,712.99	\$8,941.45	\$36,651.12
Moderate	Public Transit	\$5,704.04	\$8,683.79	\$12,012.54	\$12,620.68	\$15,699.32	\$54,720.36
	Human Services	\$267.35	\$342.48	\$433.61	\$447.92	\$546.43	\$2,037.79
	Total	\$5,971.40	\$9,026.27	\$12,446.15	\$13,068.60	\$16,245.74	\$56,758.16
High	Public Transit	\$6,238.56	\$9,831.73	\$13,529.02	\$14,024.35	\$17,325.23	\$60,948.90
	Human Services	\$267.35	\$342.48	\$433.61	\$447.92	\$546.43	\$2,037.79
	Total	\$6,505.91	\$10,174.21	\$13,962.63	\$14,472.28	\$17,871.66	\$62,986.69

Operating cost assumptions:

- Operating cost per hour based on agency operating costs as reported in TDPs or to DRPT
- Operating costs in areas with multiple agencies are allocated based on the percentage of hours each agency provides in an area
- Human services are assumed to cost \$31.15/hour in FY2012
- Inflation factor of 3% per year

Major Capital Project Capital and O&M Cost Estimates

(Millions YOE Dollars)

	Total in 2012	Values by Period Interval					Total
	Dollars	2013 - 2018	2019 - 2024	2025-2030	2031-2035	2036-2040	2013-2040
Capital							
Estimated Capital							
Low End of Range	\$23,009	\$3,366	\$4,097	\$6,353	\$5,209	\$14,460	\$33,484
Middle of Range	\$27,128	\$3,670	\$4,529	\$7,162	\$6,023	\$18,507	\$39,891
High End of Range	\$31,248	\$3,974	\$4,960	\$7,971	\$6,838	\$22,555	\$46,298
Operating & Maintenance							
Estimated Operating & Maintenance Costs							
Low End of Range	\$396	\$71	\$107	\$229	\$234	\$672	\$1,313
Middle of Range	\$431	\$79	\$116	\$240	\$244	\$683	\$1,361
High End of Range	\$466	\$86	\$125	\$250	\$253	\$694	\$1,409

2013-2040 Transit Summary

Capital and O&M Cost Estimates

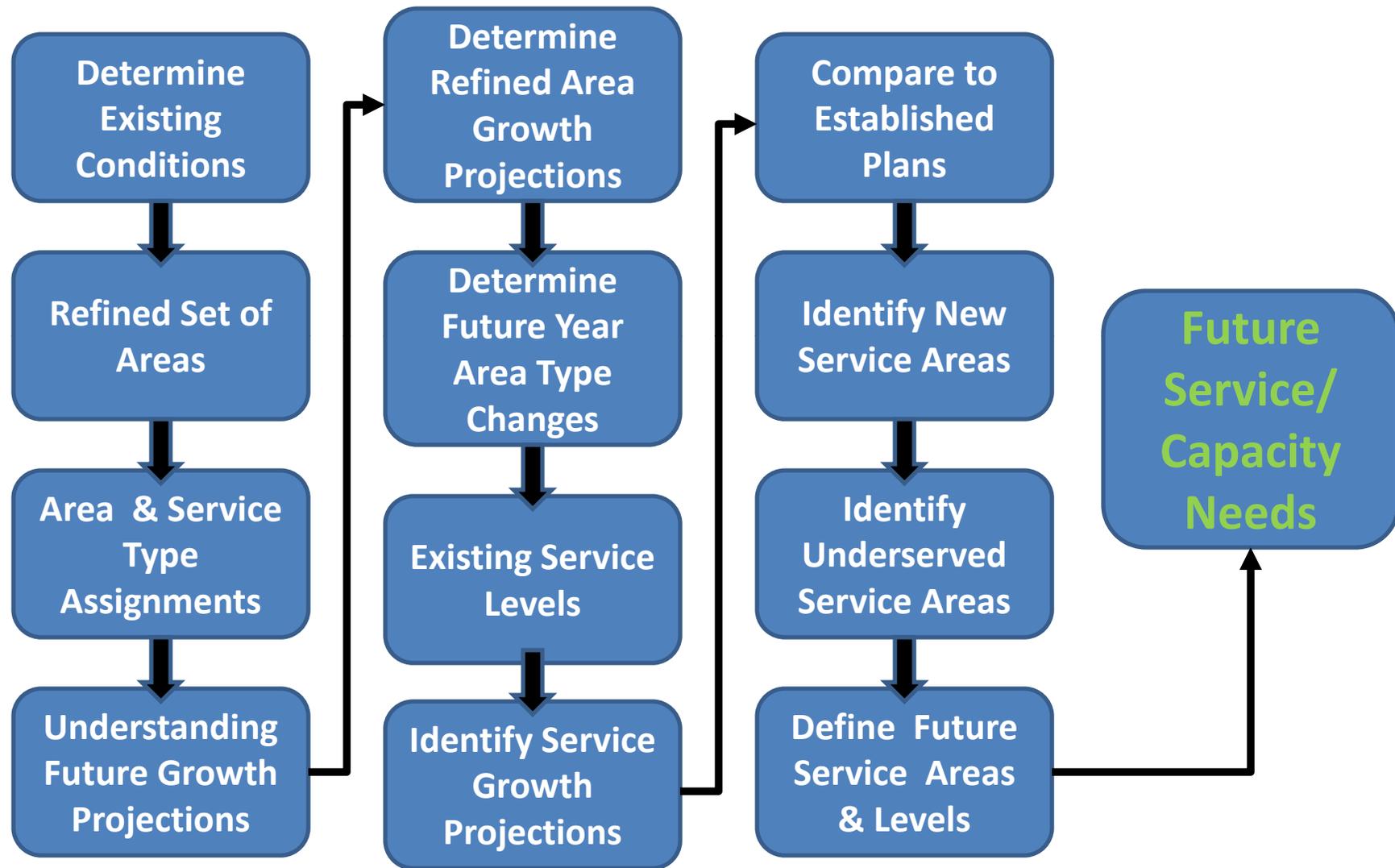
Investment Scenario (Millions YOE Dollars)	2013 - 2040 Transit Capital and Operating & Maintenance Cost Estimates							
	State of Good Repair		Service Capacity Enhancements			Major Capital Investments		
	Year 2012 Backlog	Ongoing	Transit (O&M Costs)	Transit (Capital Costs)	TDM	Range	Capital	O&M
Low Investment	\$190	\$10,357	\$36,650	\$0	\$632	n/a	\$1,136	\$474
Moderate Investment	\$190	\$11,719	\$56,758	\$1,462	\$669	Low	\$33,484	\$1,313
High Investment	\$190	\$11,922	\$62,986	\$1,602	\$1,662	High	\$46,298	\$1,409



TDM

Service Standards/ Parameters Used to Define Needs

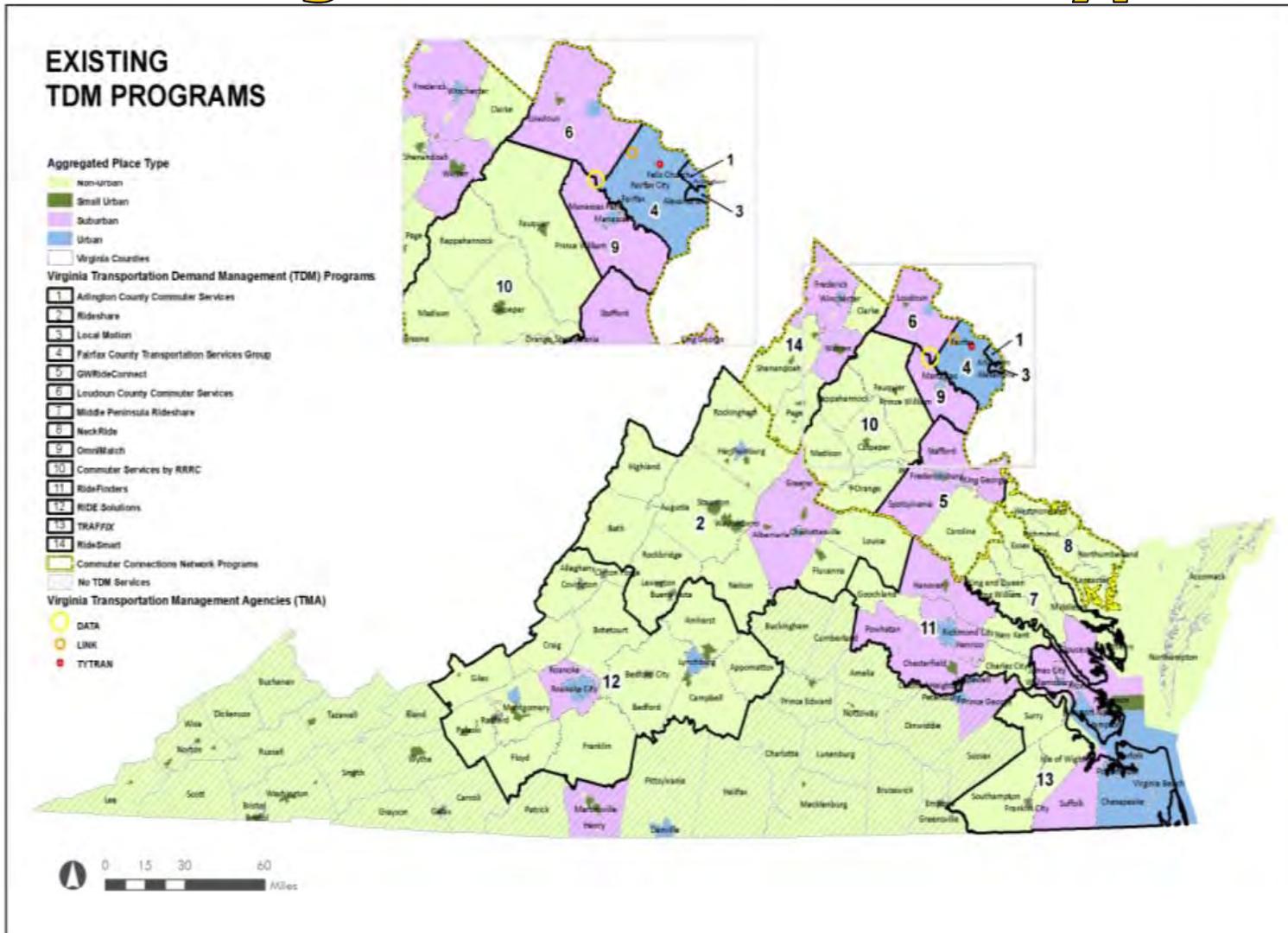
TDM Capacity Expansion Methodology



TDM Agencies and Place Types

TDM Agency / TMA	Aggregated Area Type Served
Arlington County Commuter Services	Urban (Urban Core)
Charlottesville Rideshare	Urban, Small Urban, Suburban, Non-Urban
City of Alexandria Local Motion	Urban (Urban Core)
Fairfax County Transportation Services Group	Urban
GWRideConnect	Urban, Suburban, Non-Urban
Loudoun County Commuter Services	Urban, Small Urban, Suburban
Middle Peninsula Rideshare	Suburban, Non-Urban
NeckRide	Small Urban, Non-Urban
OmniMatch	Urban, Suburban
RRRC	Small Urban, Non-Urban
RideFinders	Urban, Small Urban, Suburban, Non-Urban
Roanoke Ride Solutions	Urban, Small Urban, Suburban, Non-Urban
Traffix	Urban, Small Urban, Suburban, Non-Urban
Valley Commuter Assistance Program	Urban, Small Urban, Suburban, Non-Urban
Dulles Area Transportation Association (DATA)	Suburban
LINK	Urban
TYTRAN	Urban

TDM Agencies and Place Types



Recommended TDM Strategies by Area

Service Category	Aggregated Areas	Urban	Small Urban	Suburban/Feeder		Non-Urban	
	Area Types	Urban Core/ Large Urban/ Medium Urban	Small Urban	Urbanizing County/ Suburban County/ Emerging County		Rural Village/ Rural	
	Primary Market for TDM Strategies	Work & Non-Work	Work & Non-Work	Work	Non-Work	Work	Non-Work
Transportation Information	Retail/Mobile Store	✓					
	Call Center/Help Line	✓	✓	✓	✓	✓	✓
	Radio/TV/Paper	✓	✓	✓	✓	✓	✓
	Websites/Social Media	✓	✓	✓	✓	✓	✓
	Realtime Travel Information	✓	✓	✓	✓		✓
Employer Services	Commuter Planning	✓	✓	✓		✓	
	Telework Support	✓	✓	✓		✓	
	Commuter Benefit Programs	✓	✓	✓		✓	
	CWS/AWS	✓	✓	✓		✓	
Education & Outreach	Corridor-level Programs	✓	✓	✓	✓		✓
	Bike	✓	✓		✓		
	Walk	✓	✓	✓	✓		
	New Resident Kits	✓	✓		✓		
Ridesharing	Ridematching	✓	✓	✓	✓	✓	✓
	Vanpool Subsidy	✓	✓	✓		✓	
	Slug Lines	✓	✓	✓			
Infrastructure	Park & Ride Lots		✓	✓			
	Private Shuttles	✓		✓		✓	
	Carshare	✓		✓		✓	
	Bikeshare	✓					
Financial Incentives	Goal-based programs	✓	✓	✓	✓	✓	
Support Services	Guaranteed Ride Home	✓	✓	✓	✓	✓	✓
Land Use & Zoning	TDM conditions	✓	✓	✓	✓	✓	
	Parking management	✓		✓		✓	

Sample TDM Gap Analysis

<i>Service Category</i>	<i>TDM Strategies</i>	<i>Urban</i>	<i>TDM Agency</i>	
		<i>Work & Non-Work</i>	<i>Existing</i>	<i>Gap</i>
Transportation Information	Retail/Mobile Store	✓	✓	
	Call Center/Help Line	✓	✓	
	Radio/TV/Paper	✓	✓	
	Websites/Social Media	✓	✓	
	Realtime Travel Information	✓	✓	Enhance
Employer Services	Commute Planning	✓	✓	
	Telework Support	✓	✓	
	Commuter Benefit Programs	✓	✓	
Education & Outreach	Corridor-level Programs	✓		New
	Bike	✓	✓	
	Walk	✓	✓	
	New Resident Kits	✓	✓	
Ridesharing	Ridematching	✓	✓	Enhance
	Vanpool Subsidy	✓		New
	Slug Lines	✓	✓	
Infrastructure	Park & Ride Lots			
	Carshare	✓	✓	Enhance
	Bikeshare	✓	✓	Enhance
Financial Incentives	Goal-based programs	✓		New
Support Services	Guaranteed Ride Home	✓	✓	
Land Use & Zoning	TDM conditions	✓	✓	
	Parking management	✓	✓	



TDM Results of Needs Analysis

TDM Needs Assessment

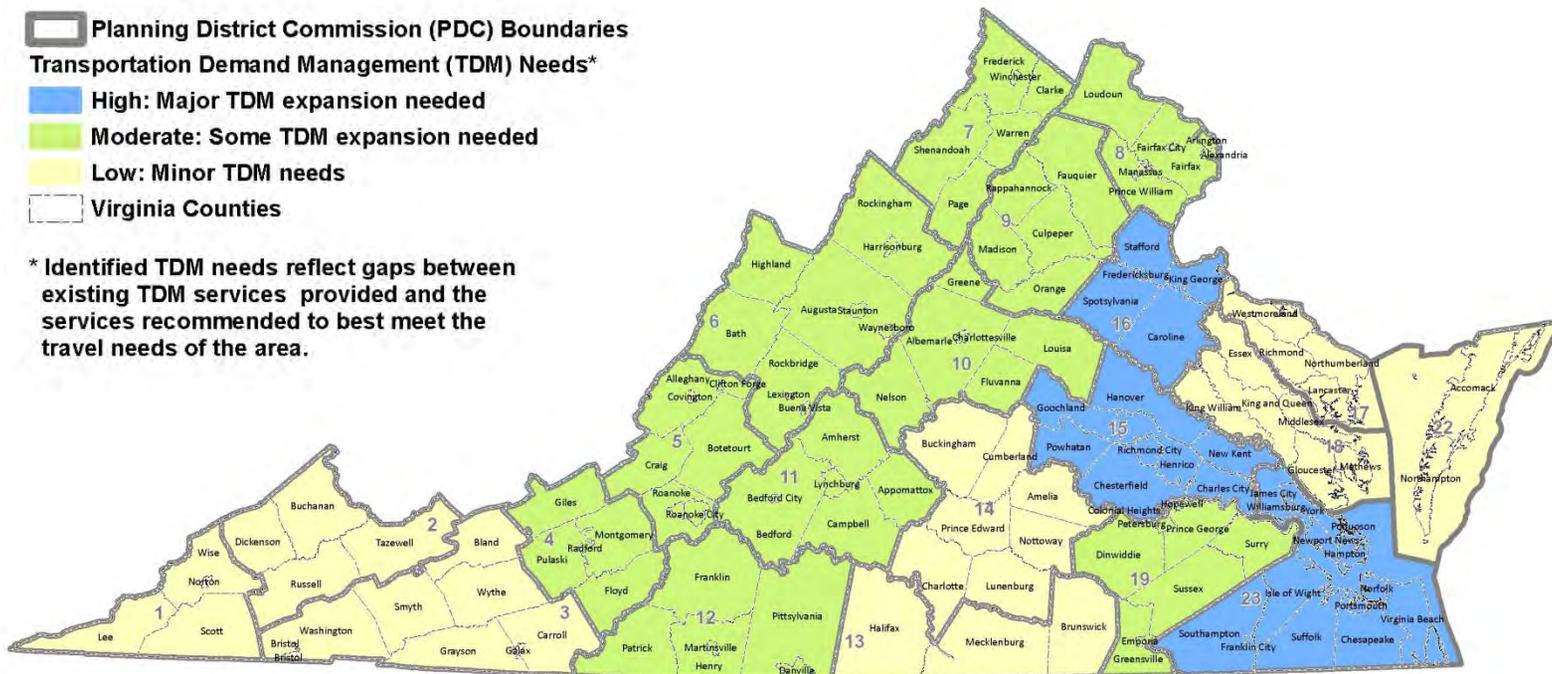
TDM Program	Recommended New/Enhanced TDM Strategies (#)	TDM Needs Tier
TRAFFIX	16	High
RideFinders	15	High
GWRideConnect	15	High
RIDE Solutions	14	Moderate
Loudoun County	14	Moderate
Fairfax County	14	Moderate
RideSmart	13	Moderate
OmniMatch	13	Moderate
RRRC	11	Moderate
Rideshare	10	Moderate
Middle Peninsula Rideshare	9	Low
NeckRide	9	Low
ACCS	7	Low
Local Motion	6	Low

TDM Needs Assessment

TRANSPORTATION DEMAND MANAGEMENT (TDM) NEEDS BY PLANNING DISTRICT COMMISSION (PDC)

-  Planning District Commission (PDC) Boundaries
- Transportation Demand Management (TDM) Needs***
-  High: Major TDM expansion needed
-  Moderate: Some TDM expansion needed
-  Low: Minor TDM needs
-  Virginia Counties

* Identified TDM needs reflect gaps between existing TDM services provided and the services recommended to best meet the travel needs of the area.





TDM

Draft Needs Recommendations: Service Levels and Cost Estimates

TDM Investment Scenarios

- **Low Investment**

- Maintains existing service levels for existing TDM programs with no growth
- Costs escalated to year of expenditure dollars at 3% per year

- **Moderate Investment**

- Closes geographic gaps to expand to a statewide TDM program while maintaining existing service levels
- Costs escalated to year of expenditure dollars at 3% per year

- **High Investment**

- Closes geographic gaps to provide statewide TDM service and increases existing service levels to recommended levels based on area type
- TDM services increased to keep up with population growth and area type changes
- Costs escalated to year of expenditure dollars at 3% per year

Low Investment Scenario – Statewide TDM Costs

Name	FY 2010 Operating Budget
Arlington County Commuter Services	\$ 7,719,582
Charlottesville Rideshare	\$ 171,500
City of Alexandria Local Motion	\$ 360,450
Fairfax County Transportation Services Group	\$ 896,530
GWRideConnect	\$ 666,293
Loudoun County Commuter Services	\$ 367,376
Middle Peninsula Rideshare	\$ 62,825
NeckRide	\$ 60,000
OmniMatch	\$ 137,249
RRRC	\$ 110,000
RideFinders	\$ 1,498,336
Roanoke Ride Solutions	\$ 158,050
Traffix	\$ 1,000,000
Valley Commuter Assistance Program	\$ 159,500
Dulles Area Transportation Association	\$ 110,000
	\$ 13,477,691

**Grow existing services
at 3% per year**

*Preliminary –
costs under DRPT
review*

**Total statewide costs
2013-2040 =
\$632,000,000 (YOE)**

NOTE: Based on costs documented in Long Range TDM Plans; Includes various funding sources

Moderate Investment Scenario – Cost Basis for Unserved Regions

Name	PlaceType	TDM_ID	FY 2010 Operating Budget	Census 2010 Population	Per Capita Cost	
Arlington County Commuter Services	Urban	1	\$ 7,719,582.00	207,627	\$ 37.18	
Charlottesville Rideshare	Urban, Small Urban, Suburban, Non-Urban	2	\$ 171,500.00	518,925	\$ 0.33	
City of Alexandria Local Motion	Urban	3	\$ 360,450.00	139,966	\$ 2.58	
Fairfax County Transportation Services Group	Urban	4	\$ 896,530.00	1,116,623	\$ 0.80	
GWRideConnect	Urban, Suburban, Non-Urban	5	\$ 666,293.00	327,773	\$ 2.03	suburban
Loudoun County Commuter Services	Urban, Small Urban, Suburban	6	\$ 367,376.00	353,372	\$ 1.04	urban
Middle Peninsula Rideshare	Suburban, Non-Urban	7	\$ 62,825.00	90,826	\$ 0.69	
NeckRide	Small Urban, Non-Urban	8	\$ 60,000.00	51,836	\$ 1.16	
Potomac & Rappahannock Transportation Commission	Urban, Suburban	9	\$ 137,249.00	454,096	\$ 0.30	
Rappahannock - Rapidan Regional Commission Commute	Small Urban, Non-Urban	10	\$ 110,000.00	164,674	\$ 0.67	small & non-urban
RideFinders	Urban, Small Urban, Suburban, Non-Urban	11	\$ 1,498,336.00	1,020,107	\$ 1.47	
Roanoke Ride Solutions	Urban, Small Urban, Suburban, Non-Urban	12	\$ 158,050.00	748,914	\$ 0.21	
Traffix	Urban, Small Urban, Suburban, Non Urban	13	\$ 1,000,000.00	1,629,452	\$ 0.61	
Valley Commuter Assistance Program	Urban, Small Urban, Suburban, Non-Urban	14	\$ 159,500.00	222,152	\$ 0.72	
Dulles Area Transportation Association			\$ 110,000.00			
			\$ 13,477,691.00			

*Highlighted per capita costs were used as base rates for similar areas types without existing TDM programs

Moderate Investment Scenario – Statewide TDM Costs

Area Type	2010 Population w/out TDM	Scenario Cost per Capita	Total Cost (2010)
Urban	98,066	\$1.04	\$102,000
Suburban	78,106	\$2.03	\$159,000
Small Urban	103,331	\$0.67	\$69,000
Non-Urban	692,436	\$0.67	\$463,000
Total New Services			\$792,000
Total Existing Services			\$13,478,000
Statewide Total			\$14,270,000

Preliminary –
costs under DRPT
review

**Close geographic service gaps
& grow existing services at 3%
per year**

**Total statewide costs 2013-2040
= \$669,000,000 (YOE)**

High Investment Scenario – TDM Enhancements

- **Urban Area Type:** Based on gap closure enhancements to Loudoun County TDM Program costs as documented in FY 2013 Annual Work Plan
- **Urban Core:** Enhancements to Urban Core costs based on Arlington County costs for retail/mobile stores, employer services and bikeshare
- **Suburban Area Type:** Based on gap closure enhancements to GWRideConnect TDM Program costs as documented in FY 2013 Annual Work Plan
- **Small Urban Area Type:** Based on gap closure enhancements to RRRC TDM Program costs as documented in FY 2012 Annual Work Plan
- **Non-Urban Area Type:** Based on gap closure enhancements to RRRC TDM Program costs as documented in FY 2012 Annual Work Plan
- **Statewide:** Gaps closed for real-time travel information and financial incentives

High Investment Scenario – Statewide TDM Costs

Aggregated Area Type	TDM Costs per Capita	Annual TDM Cost (2010)
Urban Core	\$22.17	\$7,706,000
Urban	\$3.94	\$12,927,000
Suburban	\$2.23	\$5,006,000
Small Urban	\$2.26	\$1,076,000
Non-Urban	\$2.21	\$3,657,000
TOTAL		\$30,372,000

Preliminary –
costs under DRPT
review

Compared to Low
Scenario at \$13.5 M

Total statewide costs 2013-2040 = \$1.662 Billion (YOE)

- Some level of TDM services provided statewide
- TDM services increased to keep pace with population growth
- TDM services also increased to account for changing area types between now and 2040

2013-2040 Transit Summary

Capital and O&M Cost Estimates

Investment Scenario (Millions YOE Dollars)	2013 - 2040 Transit Capital and Operating & Maintenance Cost Estimates							
	State of Good Repair		Service Capacity Enhancements			Major Capital Investments		
	Year 2012 Backlog	Ongoing	Transit (O&M Costs)	Transit (Capital Costs)	TDM	Range	Capital	O&M
Low Investment	\$190	\$10,357	\$36,650	\$0	\$632	n/a	\$1,136	\$474
Moderate Investment	\$190	\$11,719	\$56,758	\$1,462	\$669	Low	\$33,484	\$1,313
High Investment	\$190	\$11,922	\$62,986	\$1,602	\$1,662	High	\$46,298	\$1,409

Low Investment	\$49
Moderate Investment	\$106
High Investment	\$126



Next Steps

Next Steps

Technical Analysis

- Financial and Resource Allocation Analysis
- Development of Recommendations

Public Involvement

- VSTP public meetings

Next Stakeholder Meetings

- Fall 2012

Study Team Contact Information

VDRPT

- Amy Inman, Manager of Transit Planning
 - Email: amy.inman@drpt.virginia.gov
 - Phone: (804) 225-3207
- Chris Arabia, Manager of Mobility Programs
 - Email: Christopher.Arabia@drpt.virginia.gov
 - Phone: (804) 786-1059

Consultant Team

- Mark Boggs, Atkins
 - Email: mark.boggs@atkinsglobal.com
 - Phone: (919) 437-5263
- Tim Crobons, CTG
 - Email: tcrobons@ctgconsult.com
 - Phone: (407) 302-5131