READY REGION CENTRAL

Childcare Landscape Study and Gap Analysis

Methodology & Findings

PlanRVA · Crater PDC · Virginia Early Childhood Foundation

Prepared by PlanRVA

What Is This Project?

- Regional study of Early Childhood Care and Education (ECCE) access across Central Virginia
- Covers all 886 Census Block Groups across 17 localities
- Spans two planning district regions: **PlanRVA** (Richmond metro — 8 localities) and the **Crater PDC** (Petersburg / Tri-Cities — 9 localities)
- Commissioned by the Virginia Early Childhood Foundation (VECF)
- Built as a replicable, documented analytical pipeline — not a one-time report — so other PDC partners can adapt it for their own regions

Why Are We Doing This?

Childcare access directly shapes family economic stability, parental workforce participation, and early childhood outcomes

“Childcare deserts” and workforce shortages are widely discussed anecdotally – this study quantifies them at the Block-Group level

Local leaders and funders need an evidence base to prioritize scarce investment dollars, not just general impressions

A regional lens surfaces disparities that locality-only data hides – childcare need and workforce capacity don’t respect jurisdiction lines

Designed from the start to be standardized and extensible to other PDC regions across Virginia

Three Modules, Three Questions

Where childcare need is greatest when household, economic, and transportation barriers are considered?

Whether the regional ECCE workforce is positioned to meet that need.

Where resources should be prioritized for the greatest impact?

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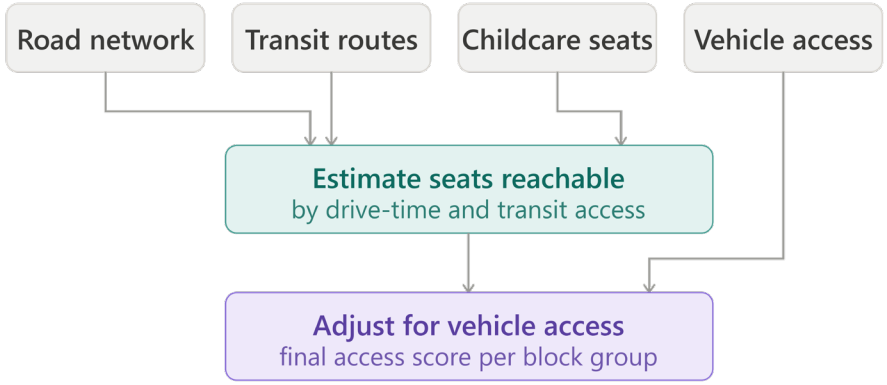
Module 1.2 Physical Accessibility Constraint

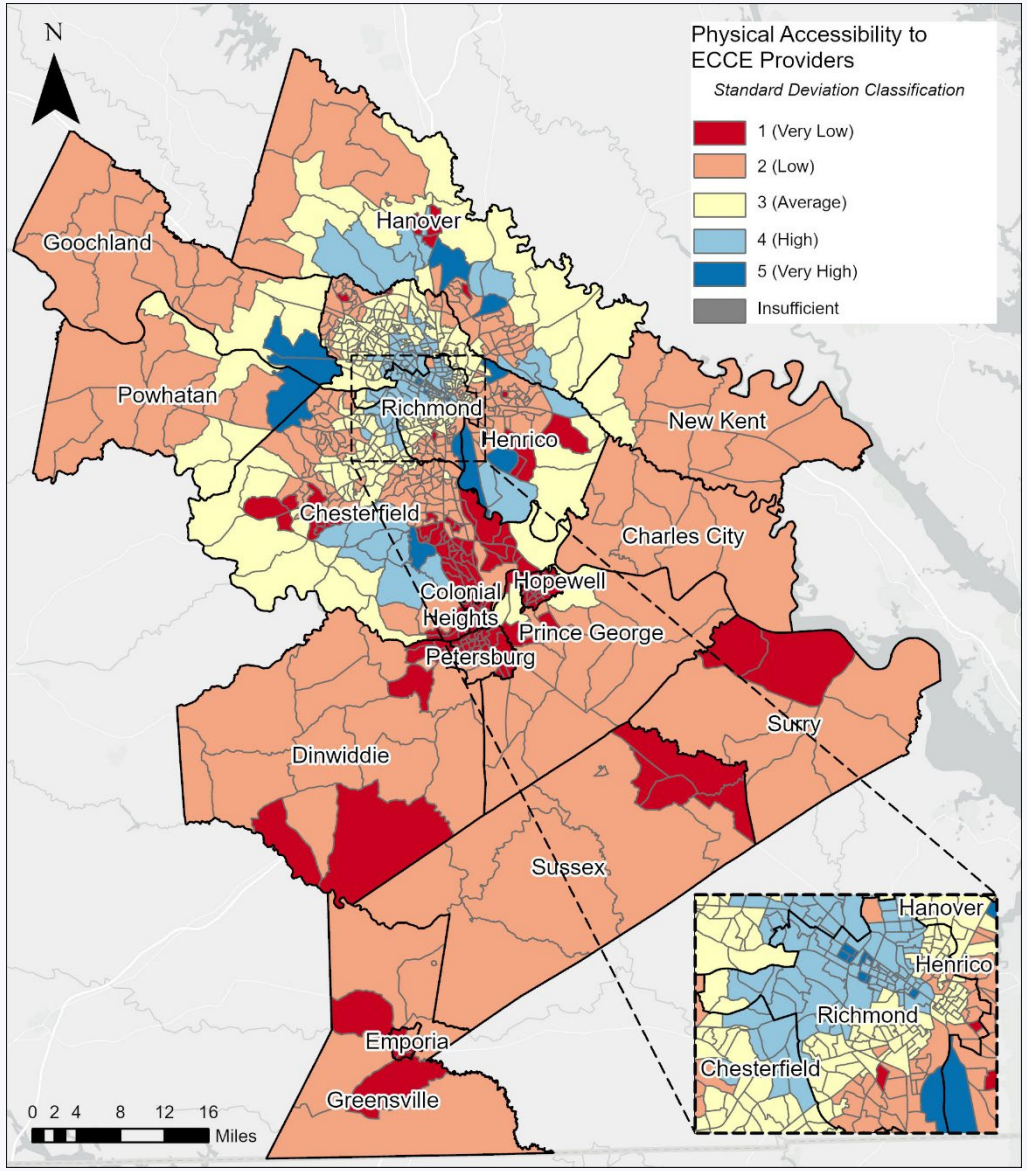
Module 1.2:
Access depends on where providers are located, how long it takes to reach them, and whether families have a practical way of getting there.

Methodology:



Interpretation:
Red block groups have the most limited access to licensed childcare within the region. The greatest accessibility constraints occur where limited childcare capacity overlaps with transportation barriers, particularly where many households do not have vehicles and public transit provides little or no alternative access.

[switch to map]



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Module 2: ECCE Workforce Conditions

Is the ECCE workforce sufficient in size, appropriately distributed, and available to sustain new childcare capacity?

Potential workforce barriers to meeting childcare demand:

- Insufficient number of workers compared with demand (need to recruit, train retain)
- Lack of available seats (need to increase provider capacity)
- Inability of workers to reach provider locations due to long commutes or lack of transportation access
- Housing or cost of living is too high to allow workers to live nearby

Location Quotient helps answer questions of how different factors compare to each other, but it is a relative measure!

- For example, a block group with a high workforce-to-demand LQ is workforce rich relative to the regional average, but if the whole region is undersupplied, it may still have a workforce deficit.

WHAT IS LOCATION QUOTIENT (LQ)?

The Location Quotient (LQ) is a standard economic geography measure that compares the concentration of a variable in a sub-area to its concentration in a reference region.

THE FORMULA

$$LQ = \frac{\text{Variable 1 in sub-area} \;/\; \text{Variable 1 in region}}{\text{Variable 2 in sub-area} \;/\; \text{Variable 2 in region}}$$

WHAT DOES IT MEAN?

LQ compares the region's share of two variables in the block group.

LQ > 1 — Over-represented
Variable 1 is more concentrated than variable 2 in the block group.

LQ = 1 — About average
Variable 1 is about as concentrated as variable 2 in the block group.

LQ < 1 — Under-represented
Variable 1 is less concentrated than variable 2 in the block group.

LQ uses shares, not totals—so it shows relative concentration, not whether there is enough overall.

HOW WE USE LQ (MODULE 2: 2.2 AND 2.4)

1	ECCE workers over- or under-represented relative to childcare demand	BLOCK GROUP (Sub-area) Share of ECCE workers	÷	BLOCK GROUP (Sub-area) Share of childcare demand (children <6)	=	LQ >1, =1, or <1
2	ECCE workers over- or under-represented relative to childcare capacity	BLOCK GROUP (Sub-area) Share of ECCE workers	÷	BLOCK GROUP (Sub-area) Share of licensed seats (childcare capacity)	=	LQ >1, =1, or <1
3	Affordable housing for ECCE workers over- or under-represented relative to ECCE demand	BLOCK GROUP (Sub-area) Share of affordable units (for ECCE workers)	÷	BLOCK GROUP (Sub-area) Share of ECCE demand (ECCE workers)	=	LQ >1, =1, or <1

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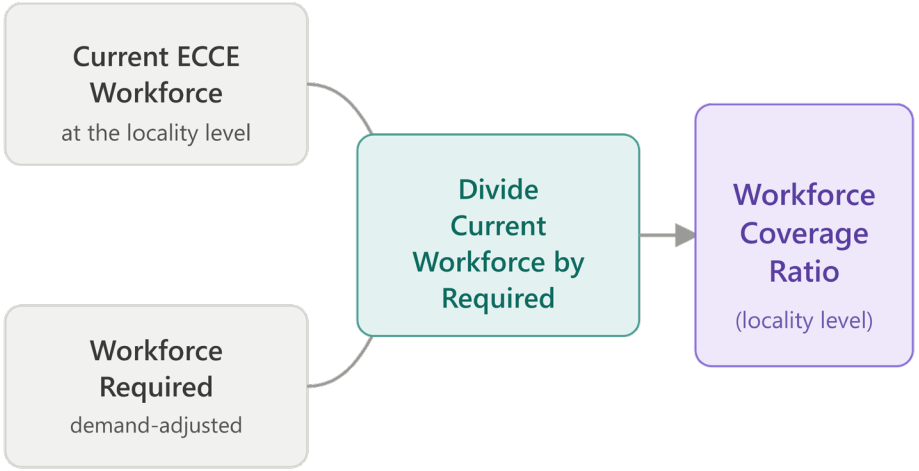
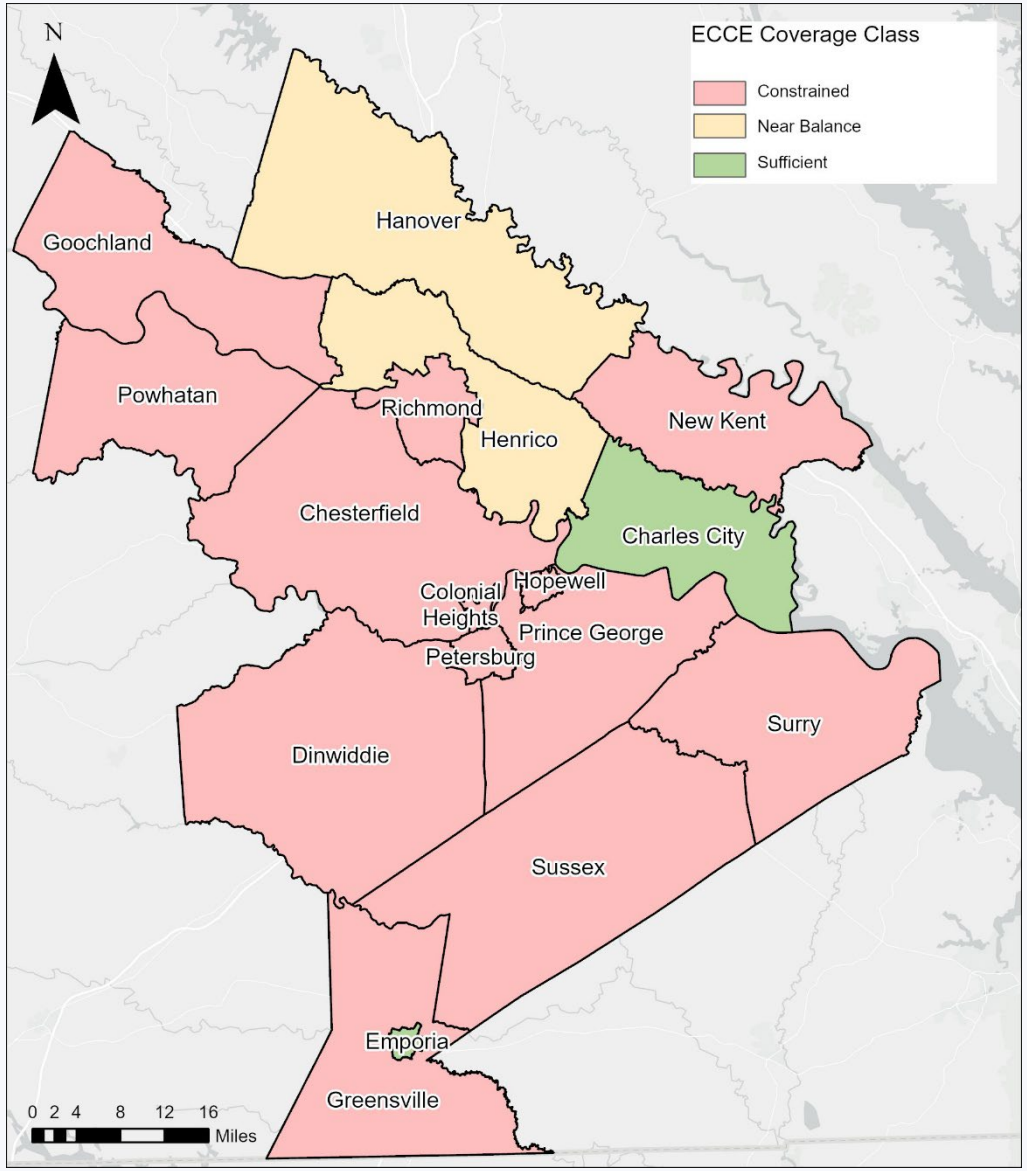
Module 2.1 Current Workforce Capacity and Demand

Module 2.1:
Where is there relatively more or less workforce capacity to meet staffing needs and/or childcare demand

Methodology:



Interpretation:
13 of the Ready Region Central 17 localities are workforce-constrained (the demand is more than 15% greater than the supply). Only Charles City County has a greater workforce supply than is needed by the estimated childcare demand.



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Module 2.2 Geographic Distribution and Shortage Zones

Module 2.2:

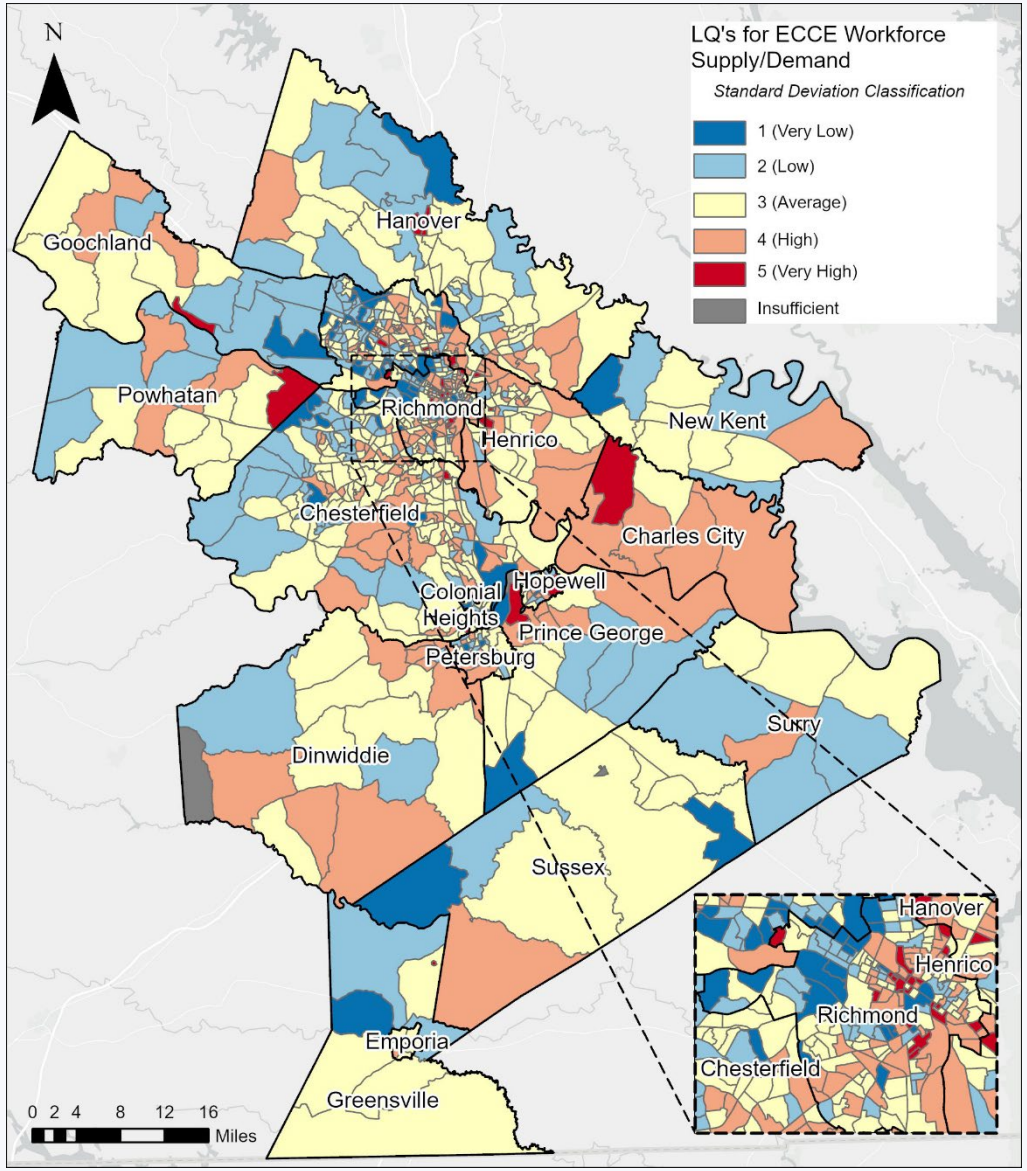
A region may have a sizable childcare workforce overall, but providers can still struggle to recruit if workers live far from the areas with the greatest demand and existing licenses.

Methodology:

TIER	ln(LQ) THRESHOLD	WHAT IT MEANS	CLASSIFICATION
Very High	ln(LQ) > mean + 2 SD	**Extreme Opportunity Zone** Workers far exceed est. demand	Opportunity
High	mean + 1 SD to + 2 SD	**Opportunity Zone** More workers than expected	Opportunity
Average	mean − 1 SD to + 1 SD	**Balanced** Workers and demand aligned	Balanced
Low	mean − 2 SD to − 1 SD	**Shortage Zone** Fewer workers than expected	Shortage
Very Low	ln(LQ) < mean − 2 SD	**Extreme Shortage Zone** Severely under-represented	Shortage

Interpretation:

Opportunity zones cluster in Charles City, Chesterfield, eastern Henrico, and the Tri-Cities; shortage zones concentrate in the western region, Surry, Sussex, and Greensville.



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Module 2.3 Commute Accessibility

Module 2.3:

Workers must be able to reach provider locations from their homes to take advantage of employment opportunities. This module evaluates whether existing and potential ECCE providers are located within a reasonable commute of the estimated workforce.

Methodology:

Inputs
- Existing & potential provider locations
- Road network
- Estimated ECCE workforce (Module 2.2)

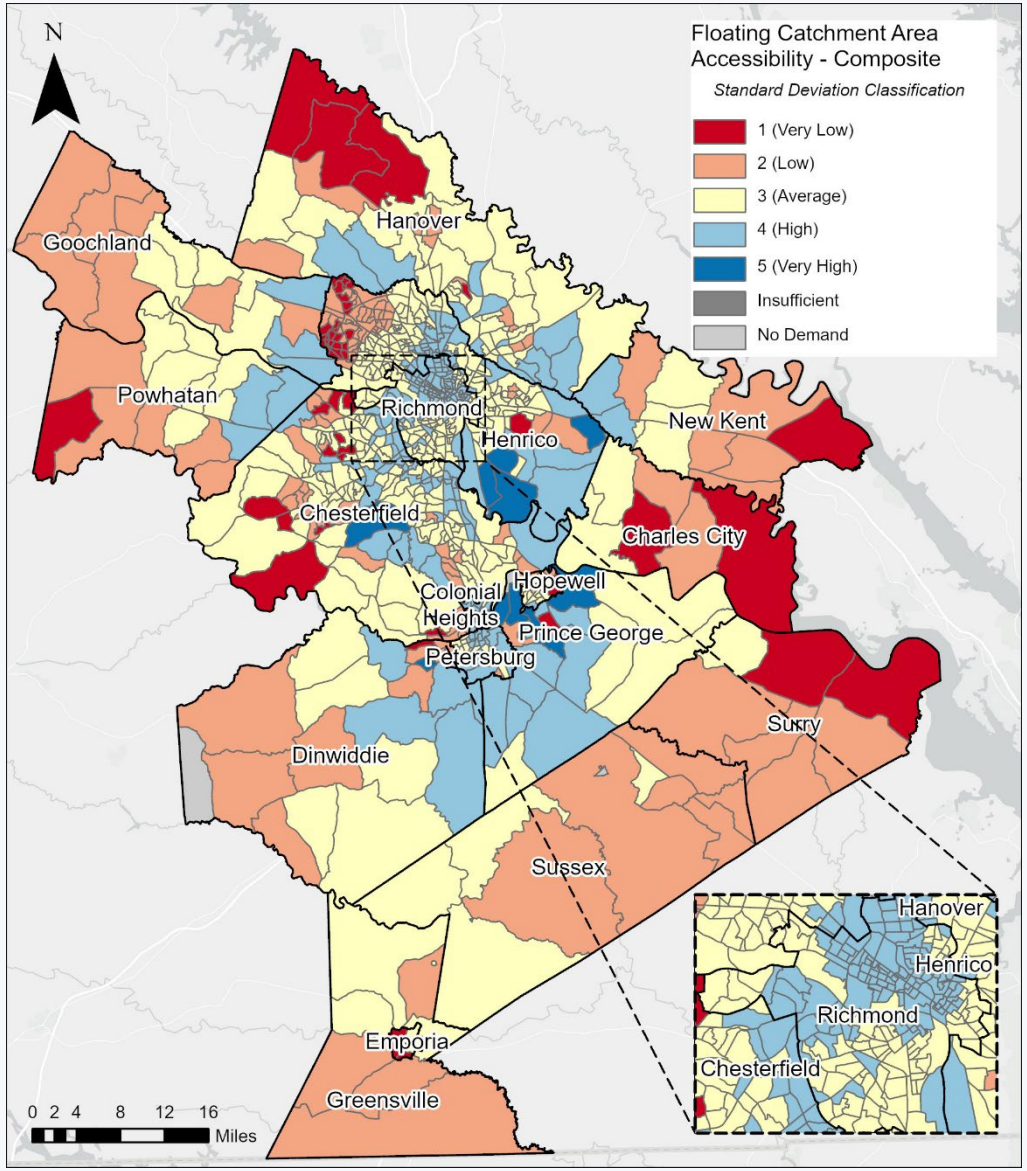
→ **Create Drive-Time Driveshed**
Around each provider site
15 min – urban
25 min – rural

→ **Count Workers in Driveshed**
Workers living within commuting distance of each provider site

→ **Adjust for Overlap**
Floating Catchment Area (FCA) method
Accounts for workers shared across sites

Interpretation:

Strong commute access clusters in northern Richmond, central/eastern Henrico, and the Tri-Cities; the weakest access sits in outlying rural areas like Charles City, Surry, Sussex, and Greensville, where low-scoring providers may need recruitment or transportation support.



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Summary of Outputs from All Modules

MODULE 1
Household Need

1.1 Economic Vulnerability
(Affordability constraint)

1.2 Physical Accessibility
(Drive-time + transit constraint)

1.3 Household Dependency
(Single-parent / all-working share)

1.4 Composite Index & Constrained Shortage
Blends 1.1–1.3, then weights the capacity gap by household constraint

MODULE 2
Workforce Capacity

2.1 Workforce Sufficiency
(Locality-level staffing balance)

2.2 Geographic Distribution
(Shortage zone location quotients)

2.3 Commute Accessibility
(Can workers reach the jobs?)

2.4 Wage & Housing Affordability
(Can workers afford to live nearby?)

2.5 Growth Readiness Classification
Combines 2.3 + 2.4 into workforce readiness, crossed with Module 1 demand

MODULE 3
Place-Based Action

3.1 Commute Corridor Access
(Is care along the routes families use?)

3.2 VEDP Site Readiness
(Can a new employer's hires find care?)

3.3 Site Feasibility & Growth Readiness
Reuses 1.4 + 2.5 outputs; scores real candidate sites against growth readiness

The Throughline: Who is most affected → Can the market respond → Where should we act

Questions & Comments

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