

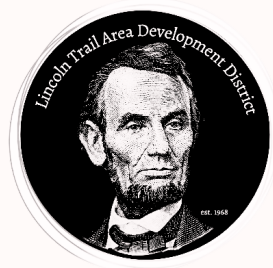


Socio-Economic Data

Visualizing Data
to tell a story

January 21, 2025

STP



Jocelyn Gross
Ava Oljeski

Socio-Economic Profiles

5-Year American Community Survey – Block Groups

- Age Over 65
 - B01001 – Sex by Age
- Disability Status
 - C21007 – Disability Status
- Minority Population
 - C21007 – Disability Status
- Poverty
 - B17021 – Poverty Status
- English Language Proficiency
 - B16004 – Language Spoken at Home by Ability to Speak English

Socio-economic profiles rely on selected variables from the U.S. Census Bureau's American Community Survey (ACS) 5-Year Estimates to identify populations that may be traditionally underserved by transportation systems. These variables are analyzed at the census block group level to capture localized concentrations and are normalized as percentages to support equitable comparison across geographies.

Socio-Economic Profiles

Geography Levels

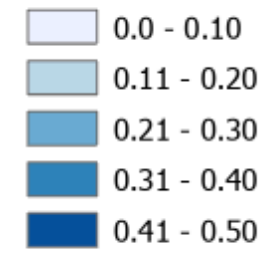
Geography	Relative Size	ACS Socio-Economic Data	Strengths	Limitations
Census Block	Smallest	No (population only)	Very precise location	No socio-economic detail
Block Group	Small	Yes	Best for equity & outreach	Some margin of error
Census Tract	Medium	Yes	Stable over time	Can mask local pockets
County	Largest	Yes	Simple, familiar	Hides internal disparities

Data Visualization

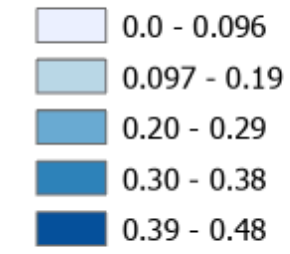
Chloropleth Maps

- Defined Interval - Fixed number
- Equal Interval - Equal number
- Quantile - Equal units
- Natural Breaks - Clusters
- Geometric Interval - Balances data
- Standard Deviation - Above/below average
- Manual - Adjustments/other criteria

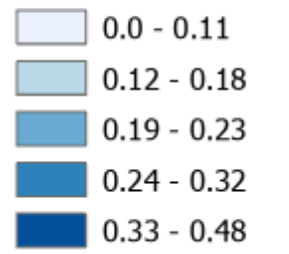
Census Block Groups



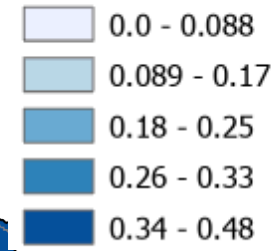
Census Block Groups



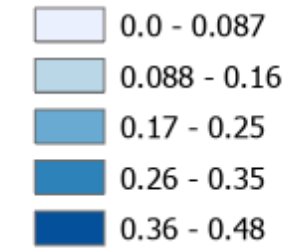
Census Block Groups



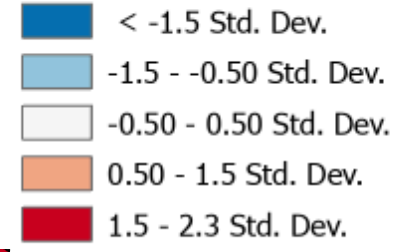
Census Block Groups



Census Block Groups



Census Block Groups



Defined Interval

Equal Interval

Quantile

Natural Breaks

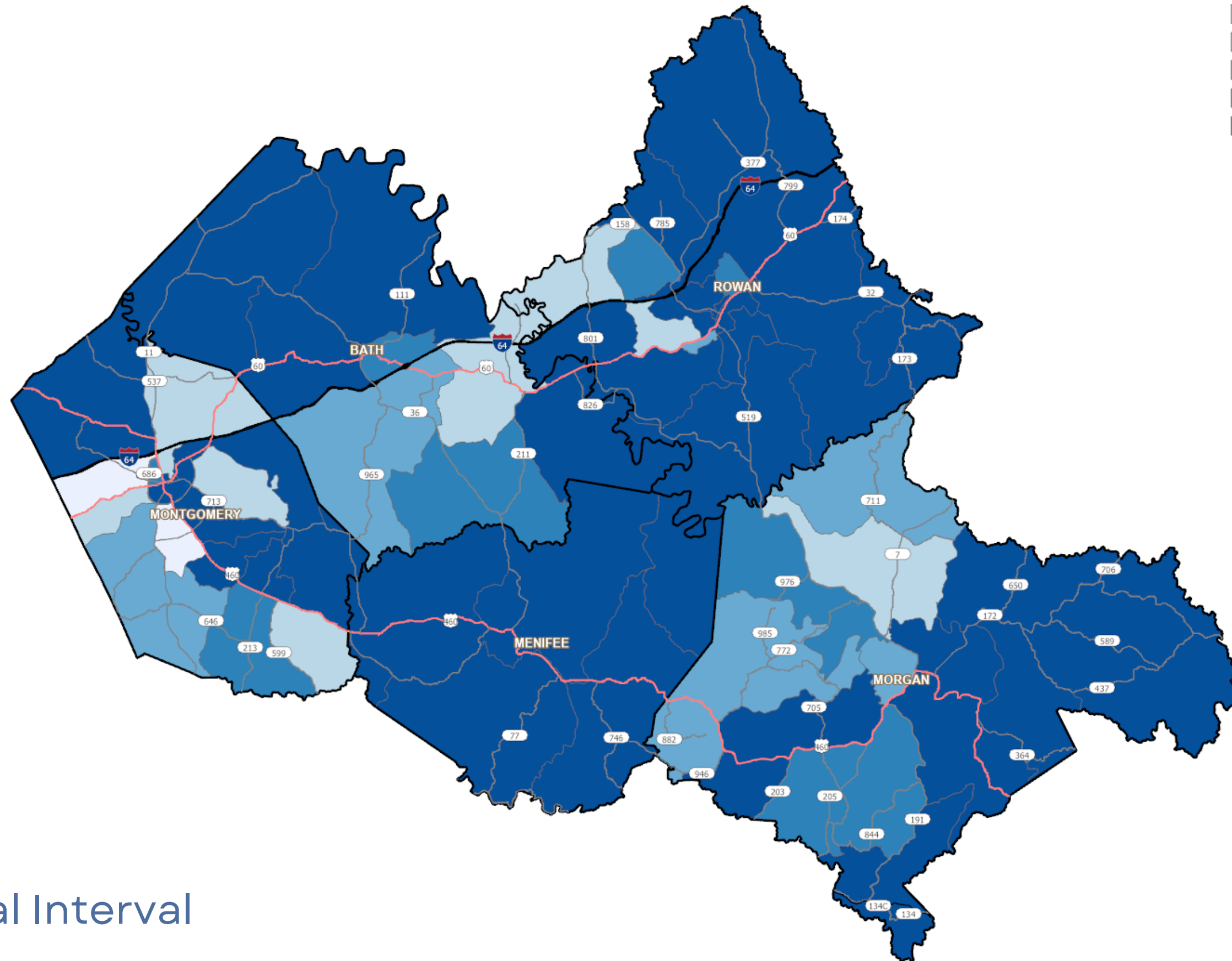
Geometric

Standard Dev.

Percent of Population Below Poverty

Census Block Groups

- 0.0 - 0.028
- 0.029 - 0.081
- 0.082 - 0.13
- 0.14 - 0.17
- 0.18 - 0.48



Manual Interval

Percent of Population Below Poverty

Additional Data to Consider

Data Category	Examples of Data	How It Supports Socio-Economic Analysis
Transportation System	Road functional classification, traffic volumes, transit routes and stops, sidewalks, bicycle facilities, trails	Evaluates access, connectivity, and service gaps affecting underserved populations
Safety and Crash Data	Vehicle crashes, pedestrian and bicycle crashes, high-injury networks	Identifies areas where vulnerable populations may face disproportionate safety risks
Access to Services	Employment centers, schools, healthcare facilities, grocery stores, social services	Assesses how well transportation networks connect residents to essential destinations
Land Use and Development	Zoning, future land use, residential density, commercial and industrial areas	Provides context for travel demand and infrastructure needs in sensitive areas
Transit and Mobility	Transit frequency, paratransit coverage, demand-response services	Evaluates mobility options for populations without access to private vehicles
Environmental Constraints	Floodplains, topography, environmental justice screening layers	Identifies compounded challenges affecting certain communities
Community Facilities	Parks, libraries, community centers, senior centers	Helps inform accessibility and public outreach strategies
Projects and Investments	Planned projects, capital improvement plans, funding allocations	Compares investment patterns with areas of greatest socio-economic need
Public Engagement	Meeting locations, survey responses, participation data	Evaluates whether outreach efforts are reaching underserved populations

Why does **visual data matter?**

- Strengthens writing and numbers listed in Socio-Economic **report**
- Color coding strengthens the **connections** your brain makes
- Cohesion and clear outlining helps people remember **trends** better



Deliverables

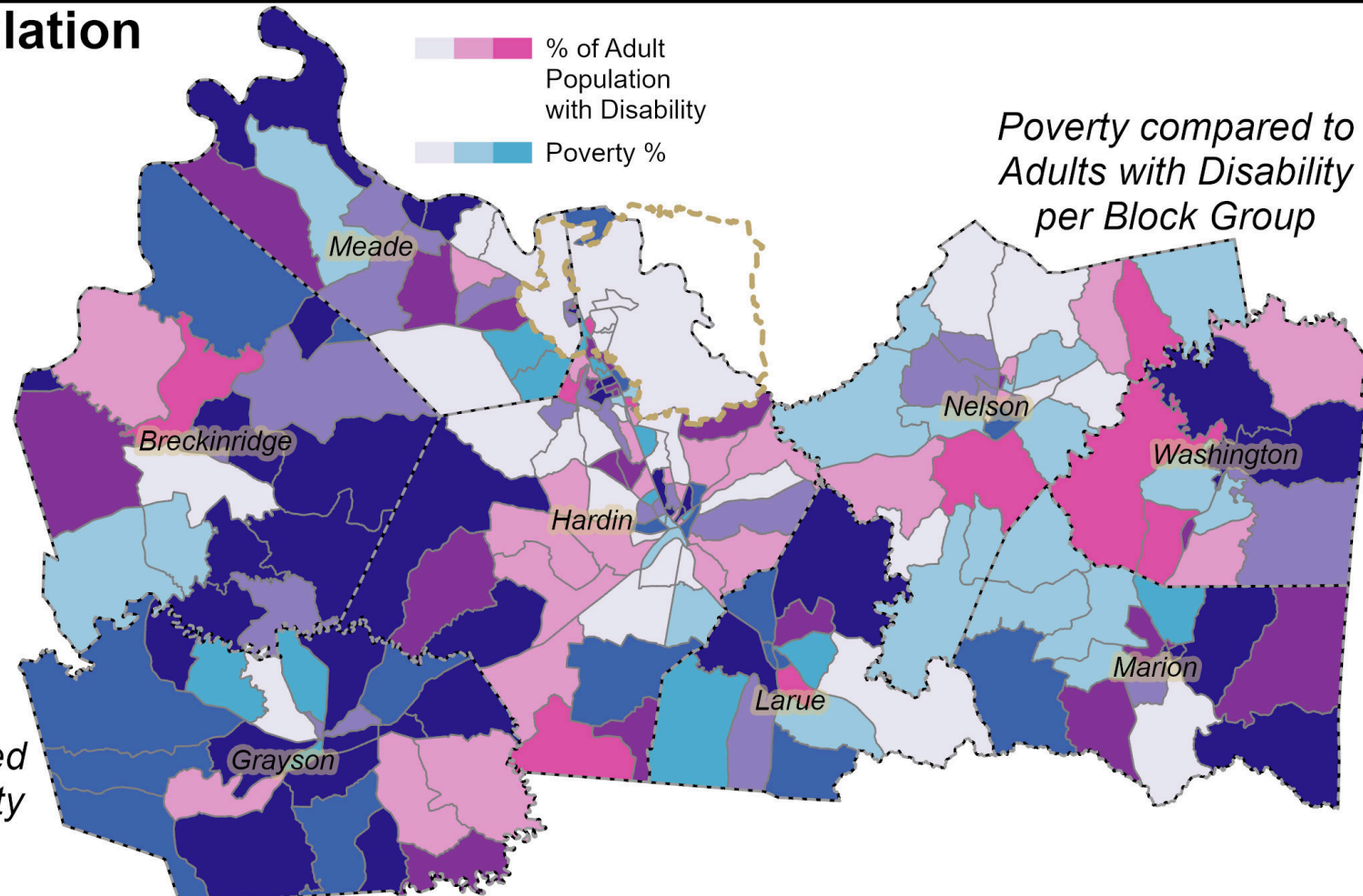
ARC GIS Maps

Bivariate Data: Percent Population of Adults with Disability Across LTADD

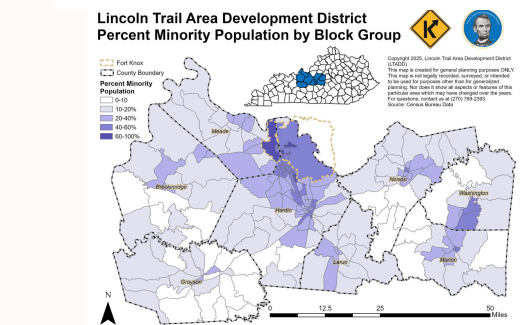
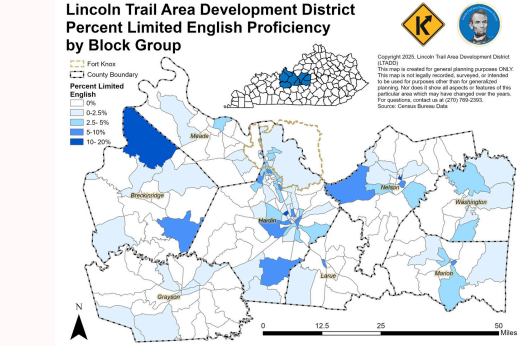
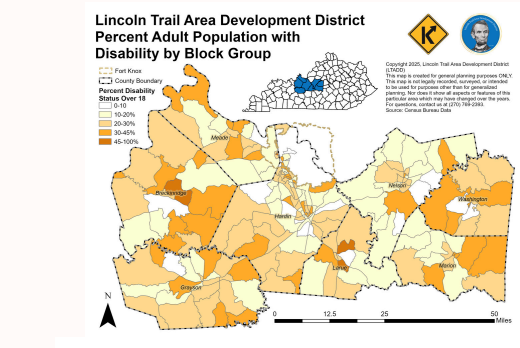
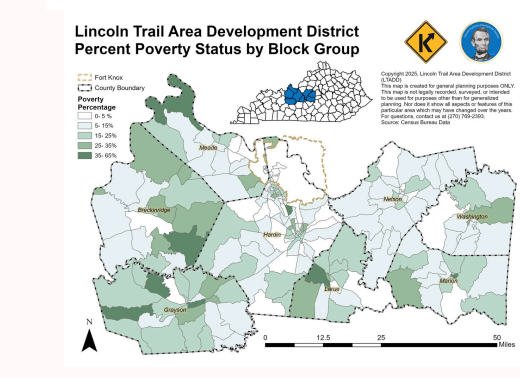
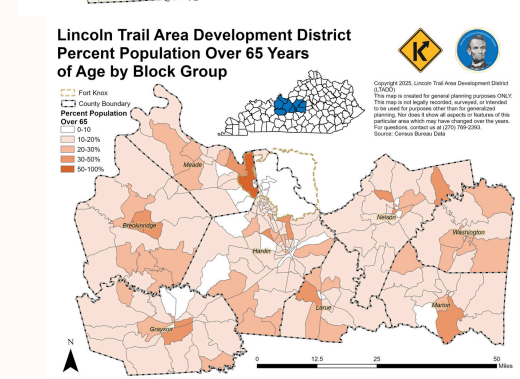
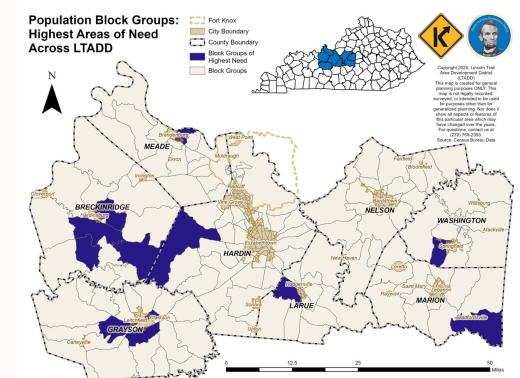
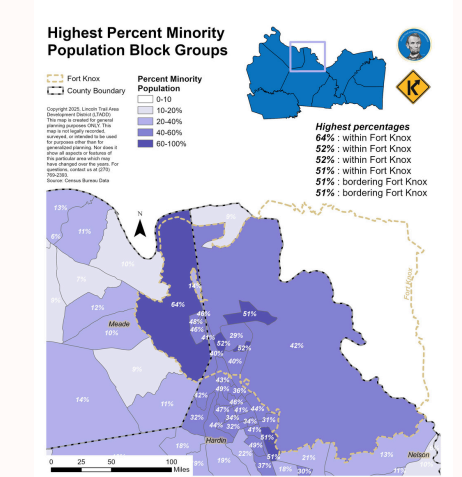
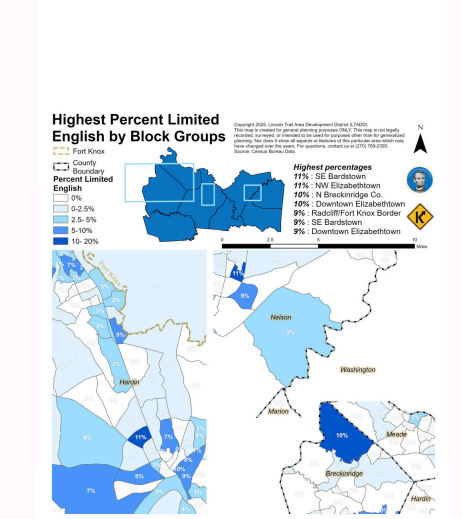
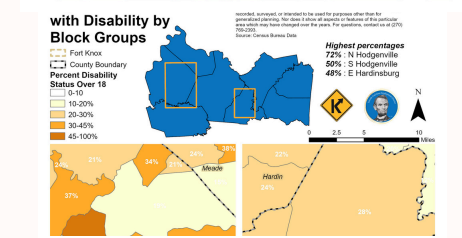
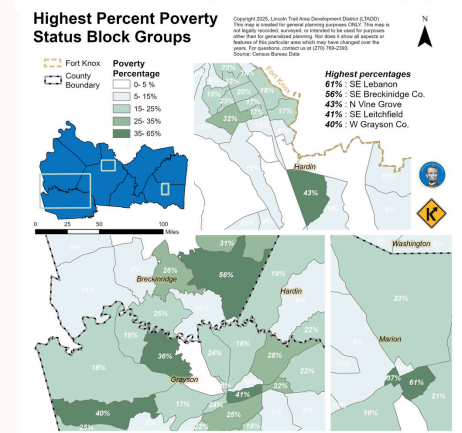
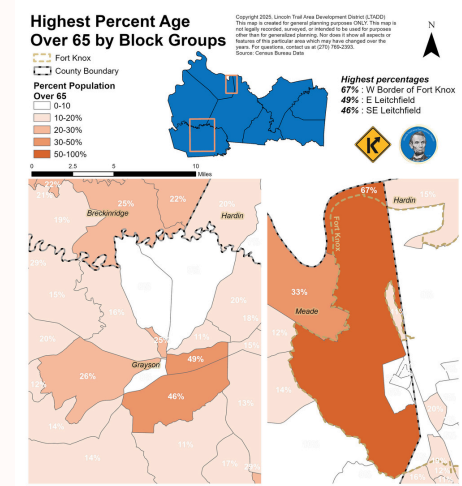
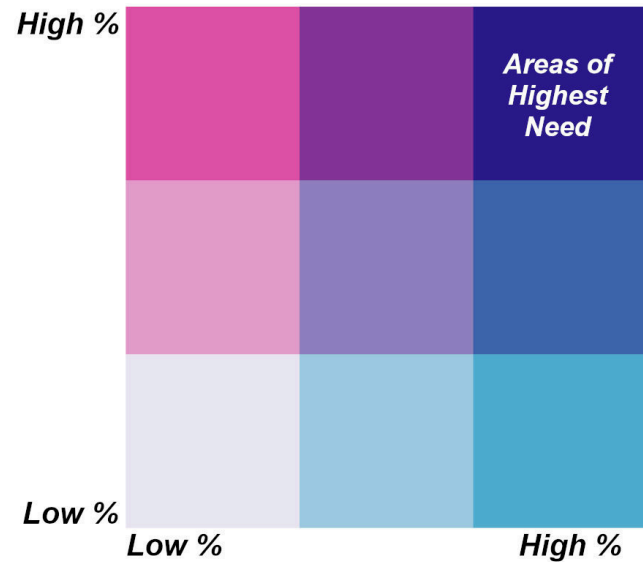
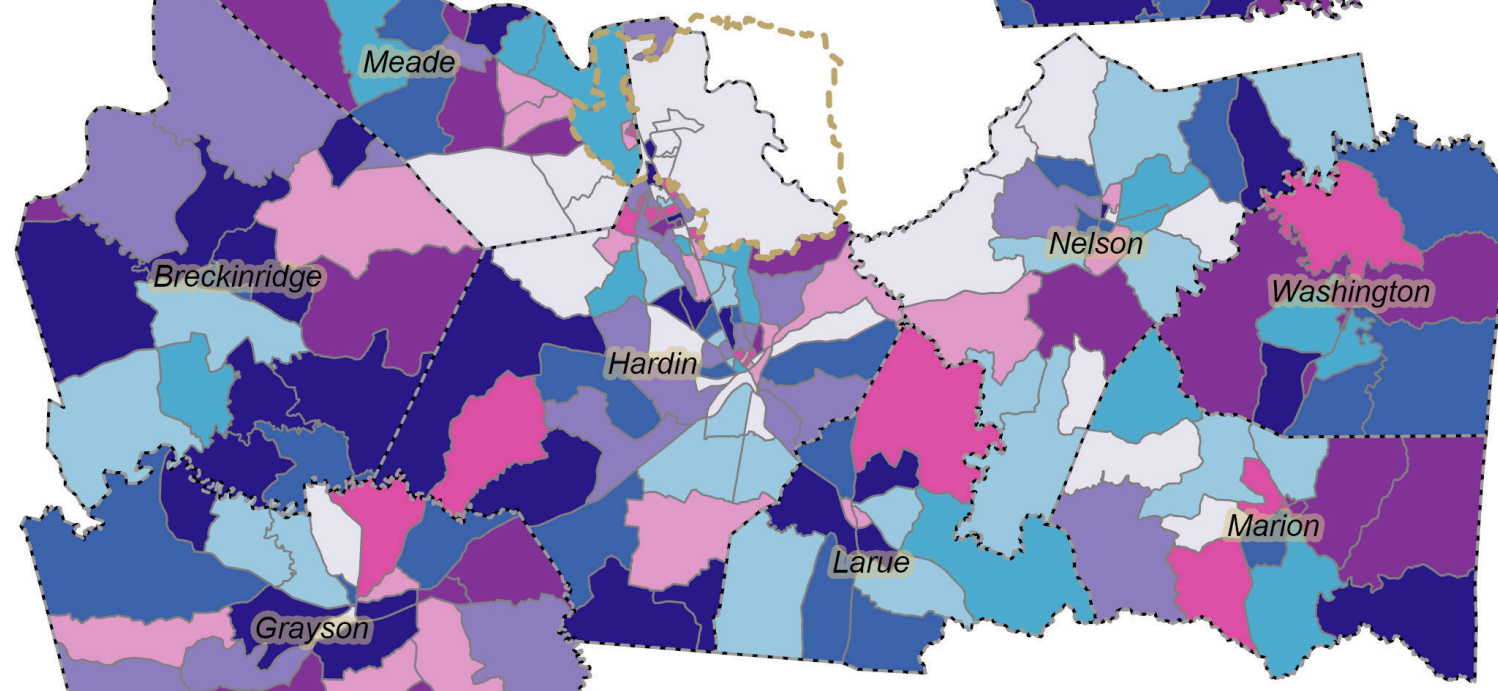
Fort Knox
County Boundary



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Source: Census Bureau Data

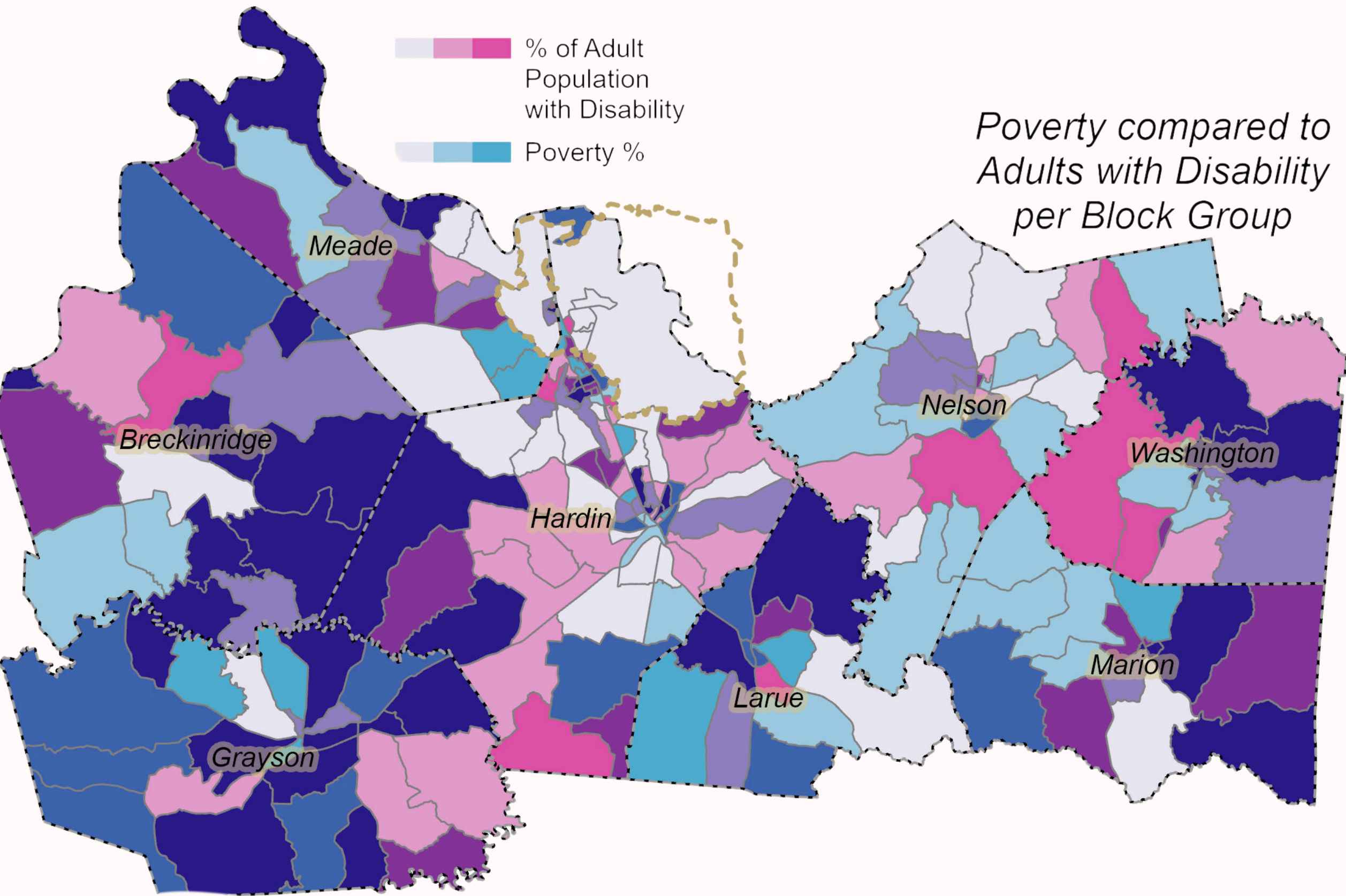


Age Over 65 compared to Adults with Disability per Block Group



Benefits of a **BIVARIATE MAP**

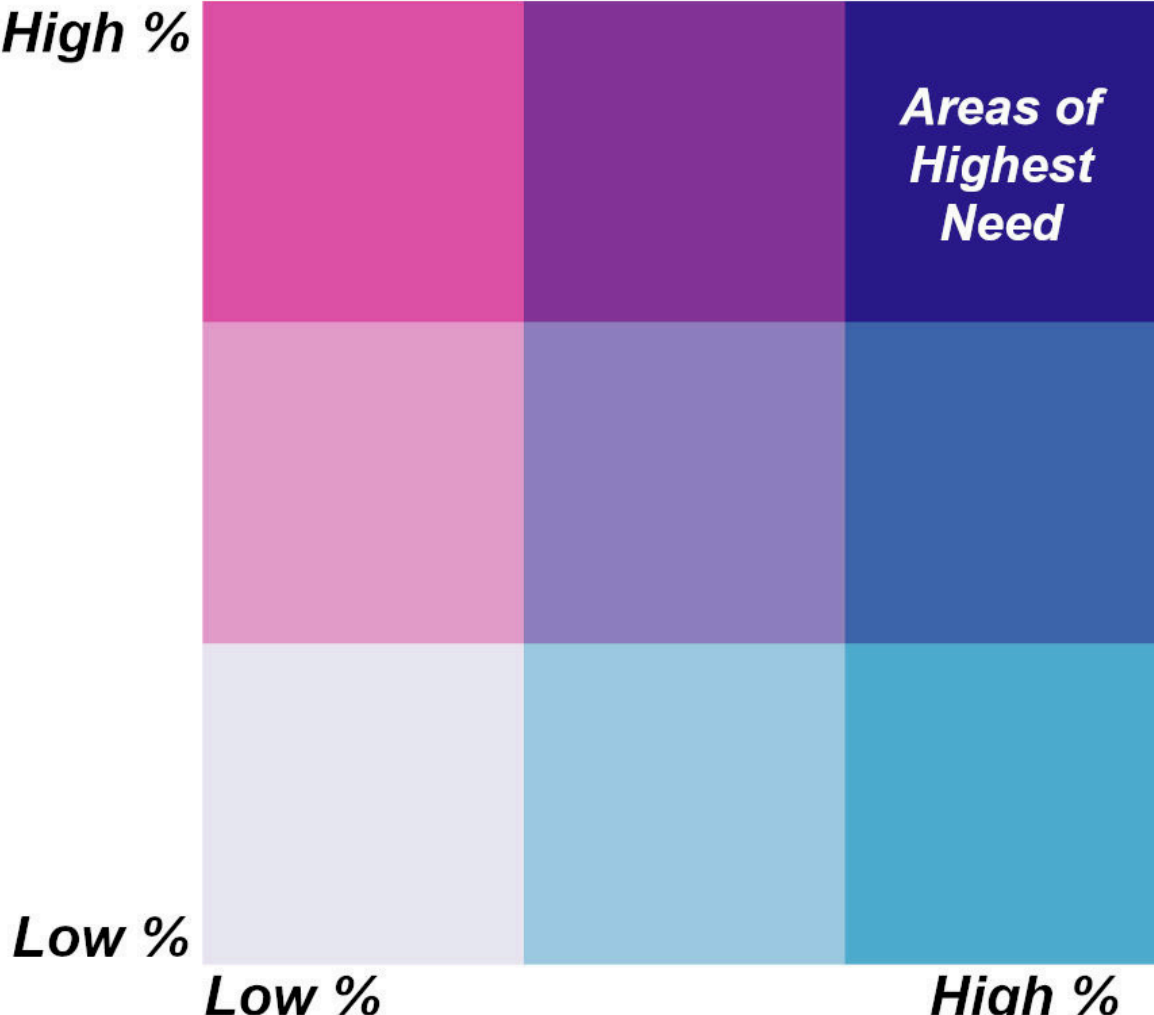
- Hue AND Color used to show severity
- Dark Blue Areas indicate Highest of BOTH
- Comparing 2 seperate data sets to paint a picture of overall condition



Poverty compared to Adults with Disability per Block Group

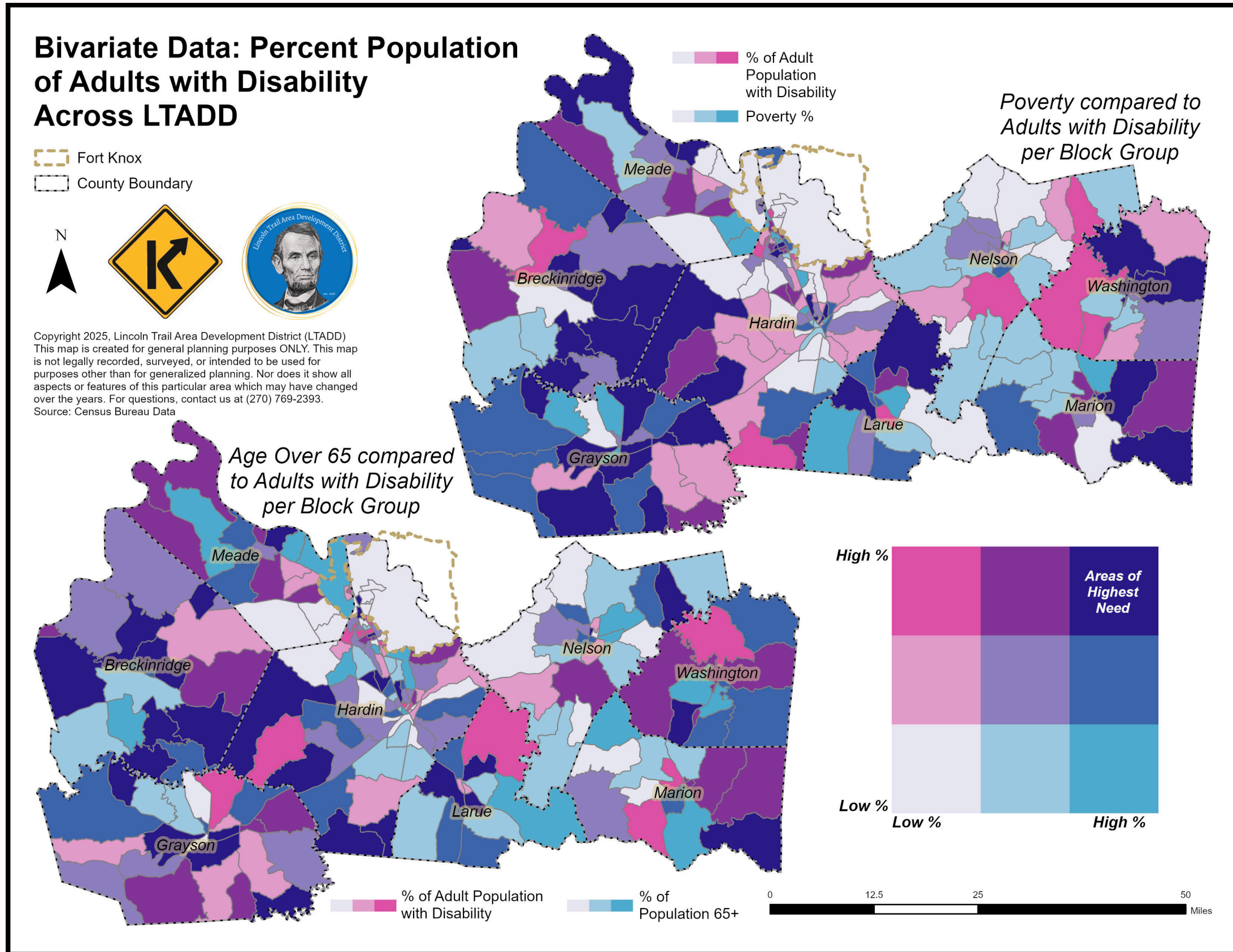
% of Adult Population with Disability

 Poverty %



Benefits of a BIVARIATE MAP

- Several Bivariate Maps Paint a Picture
- In these cases combining Adult Disability and Poverty Numbers, along with Adult Disability and Population over 65

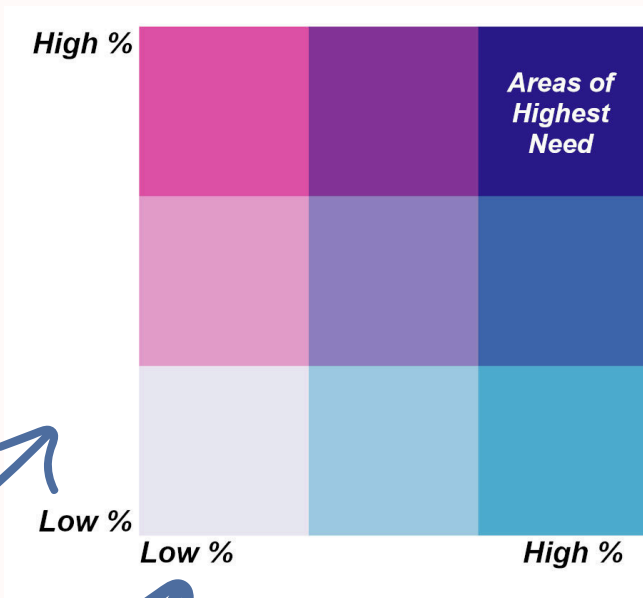


1

% of Adult Population with Disability
Poverty %

2

% of Adult Population with Disability
Poverty %

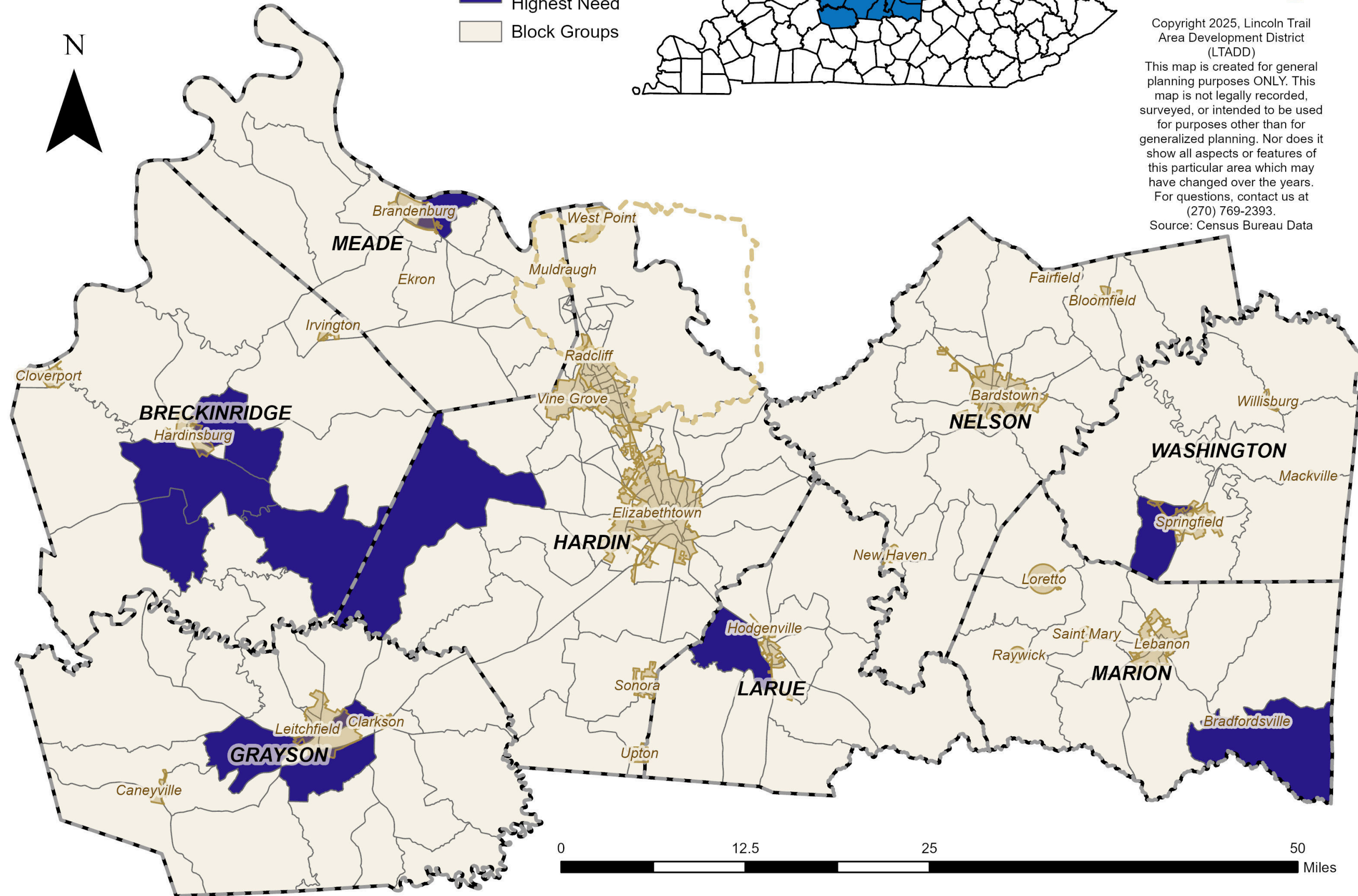


Bivariate Map Results

- **ONLY** the very dark blue areas from the previous map are Highlighted to show **TRENDS**
- We can now look for geographic explanations to these trends to include in the report

Population Block Groups: Highest Areas of Need Across LTADD

- Fort Knox
- City Boundary
- County Boundary
- Block Groups of Highest Need
- Block Groups

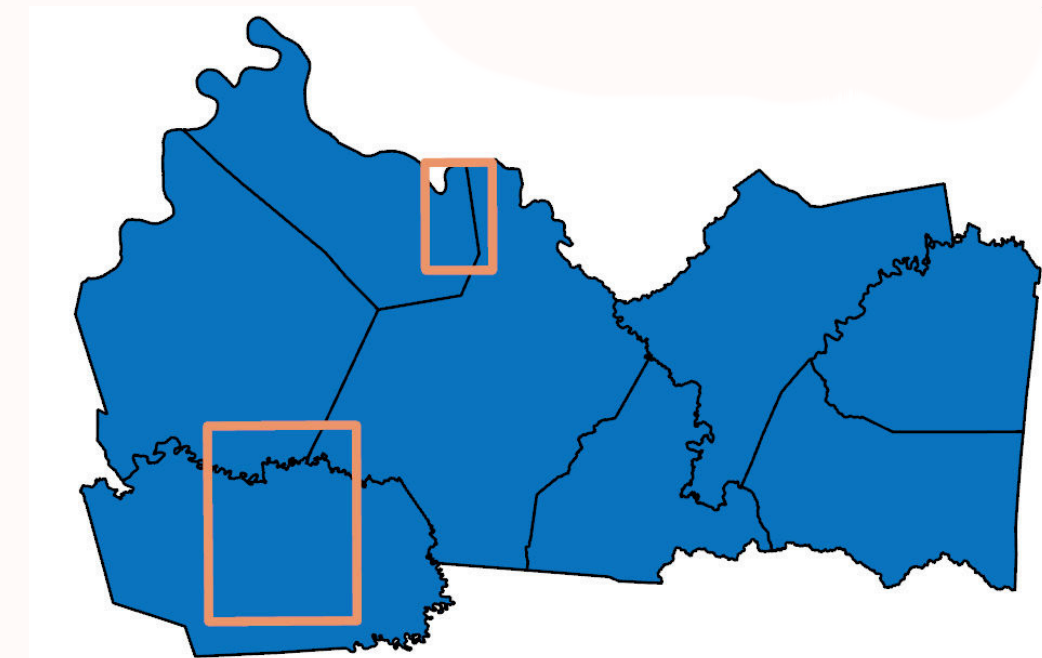
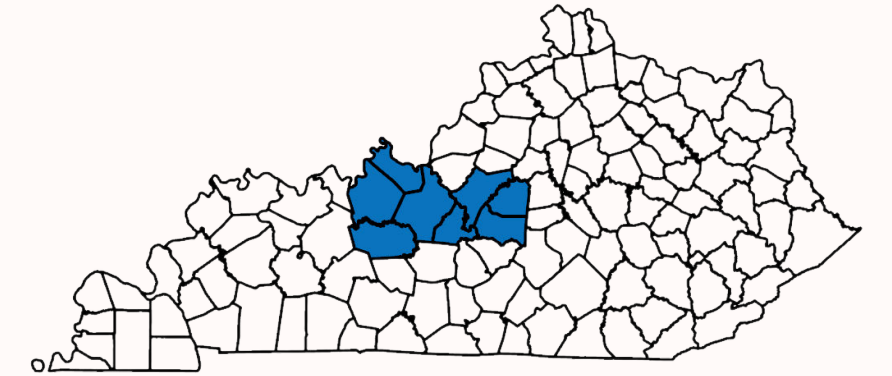
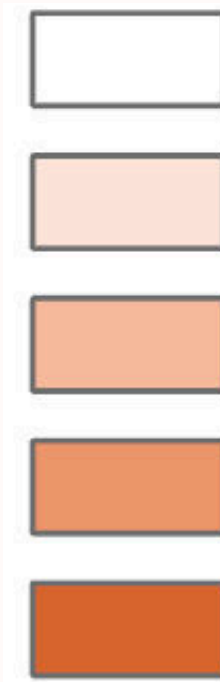


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 Source: Census Bureau Data

Improving Single Variable Maps



THE DELIVERABLES

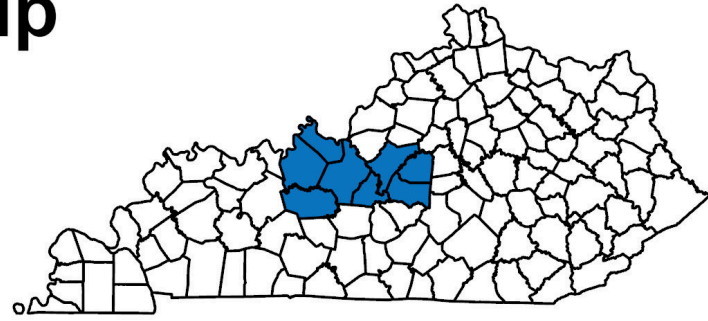
- **Consistency**
- **Map Extents and Inset Maps**
- **Careful Labeling**
- **Saturation Based Symbology**
- **We are highlighting the most saturated areas**



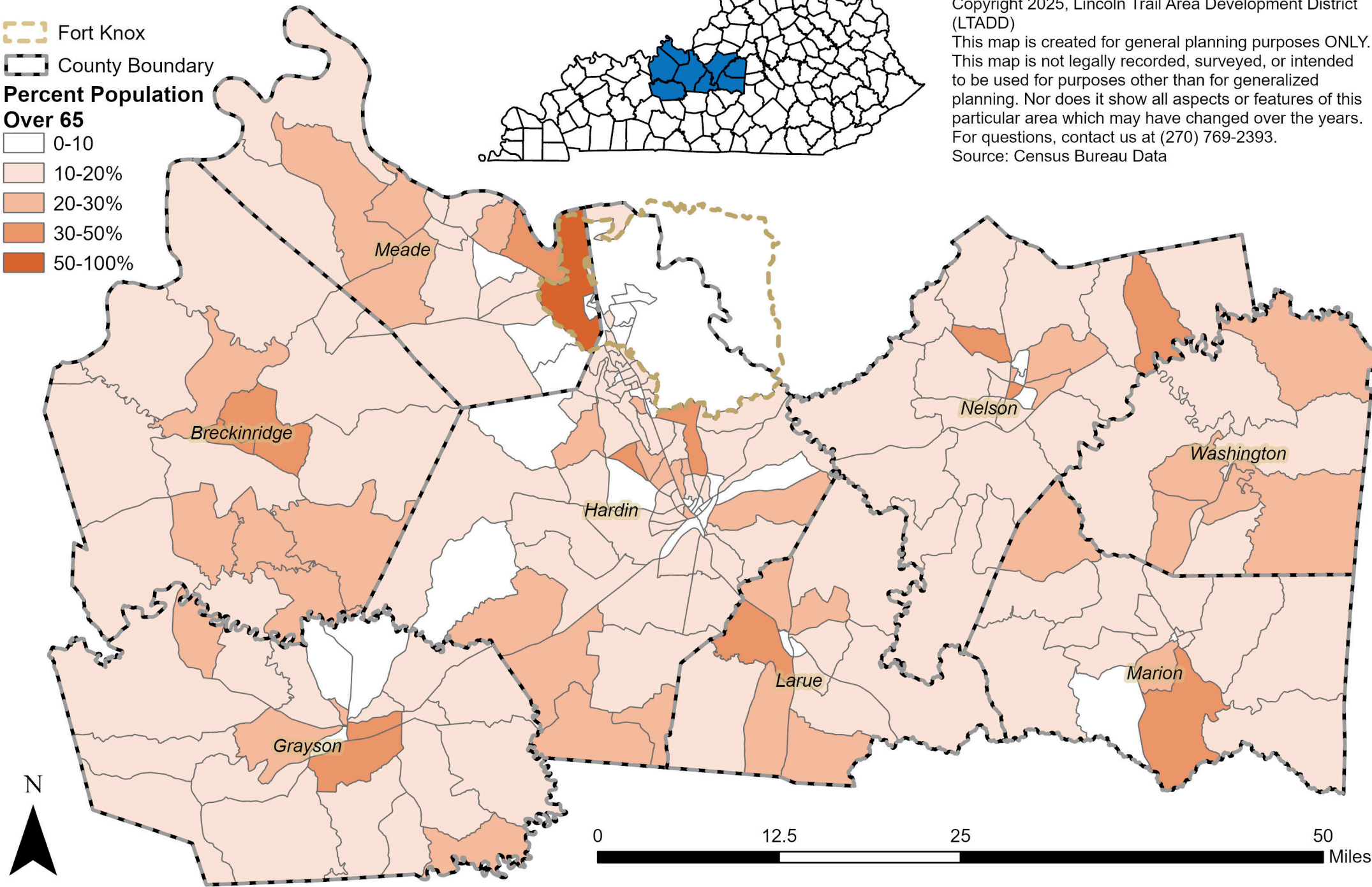
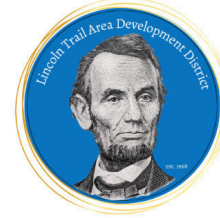
Deliverables

Lincoln Trail Area Development District Percent Population Over 65 Years of Age by Block Group



 Fort Knox
 County Boundary
Percent Population Over 65
 0-10
 10-20%
 20-30%
 30-50%
 50-100%

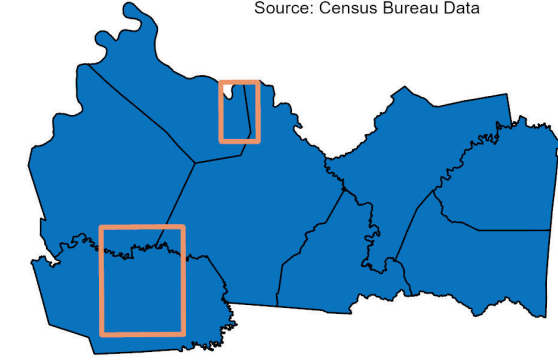


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 Source: Census Bureau Data



Highest Percent Age Over 65 by Block Groups

 Fort Knox
 County Boundary
Percent Population Over 65
 0-10
 10-20%
 20-30%
 30-50%
 50-100%



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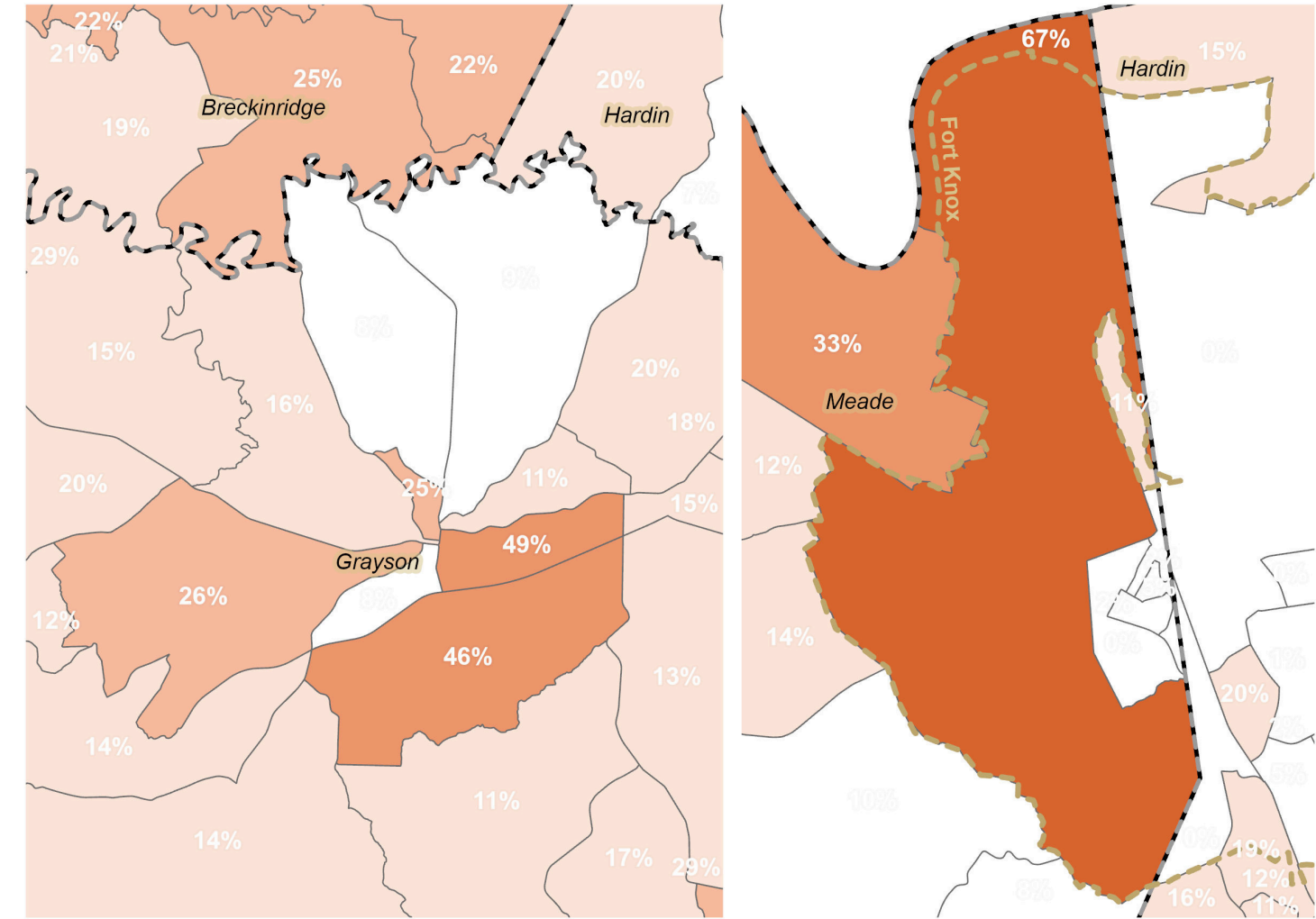
N



Highest percentages
67% : W Border of Fort Knox
49% : E Leitchfield
46% : SE Leitchfield

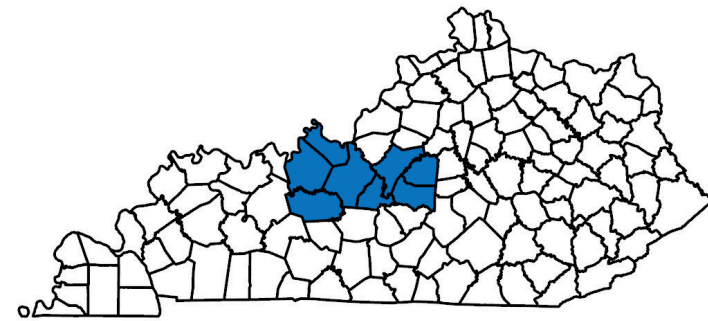
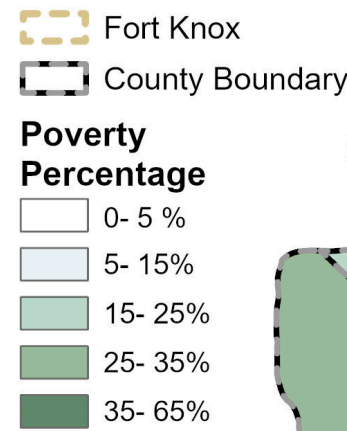


0 2.5 5 10 Miles

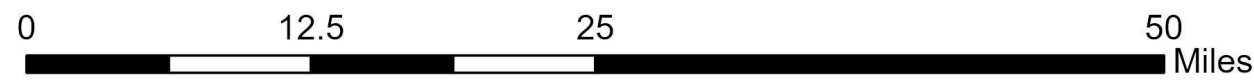
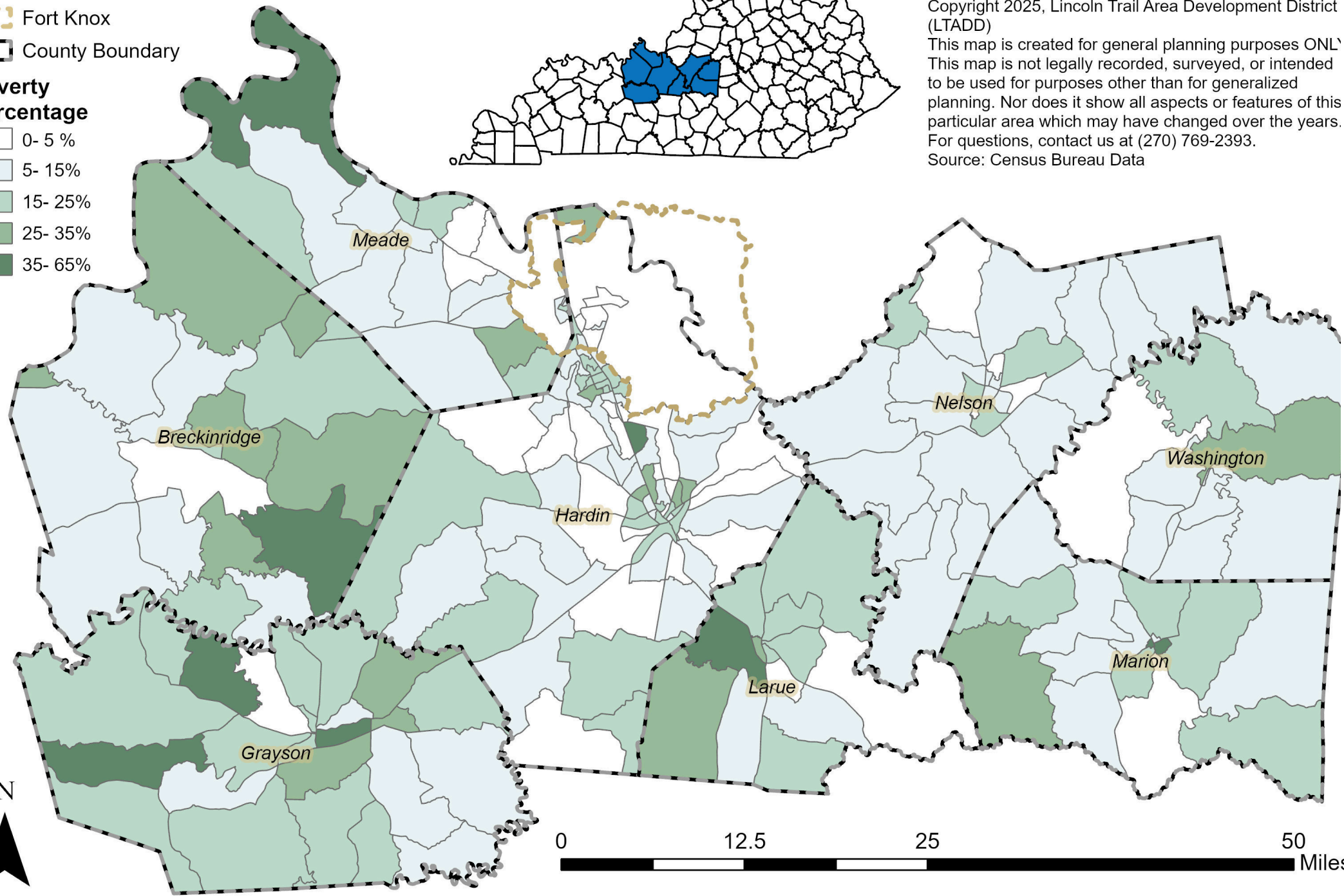


Deliverables

Lincoln Trail Area Development District Percent Poverty Status by Block Group

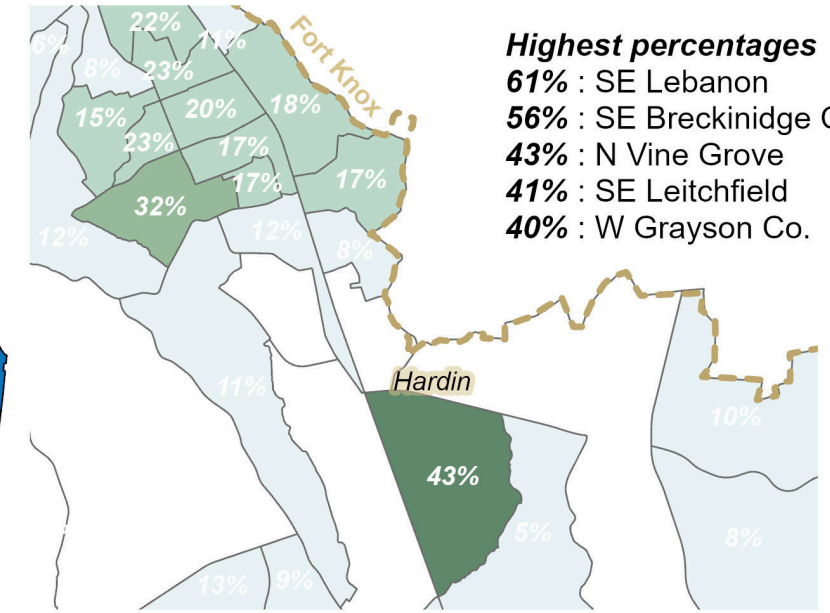
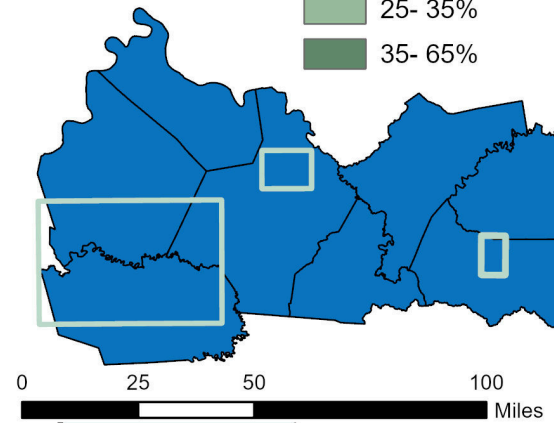
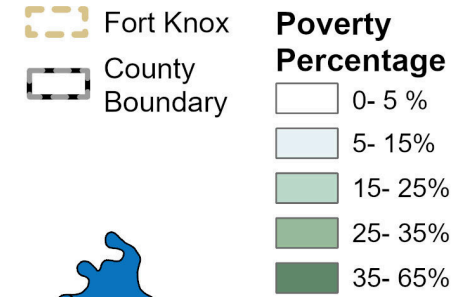


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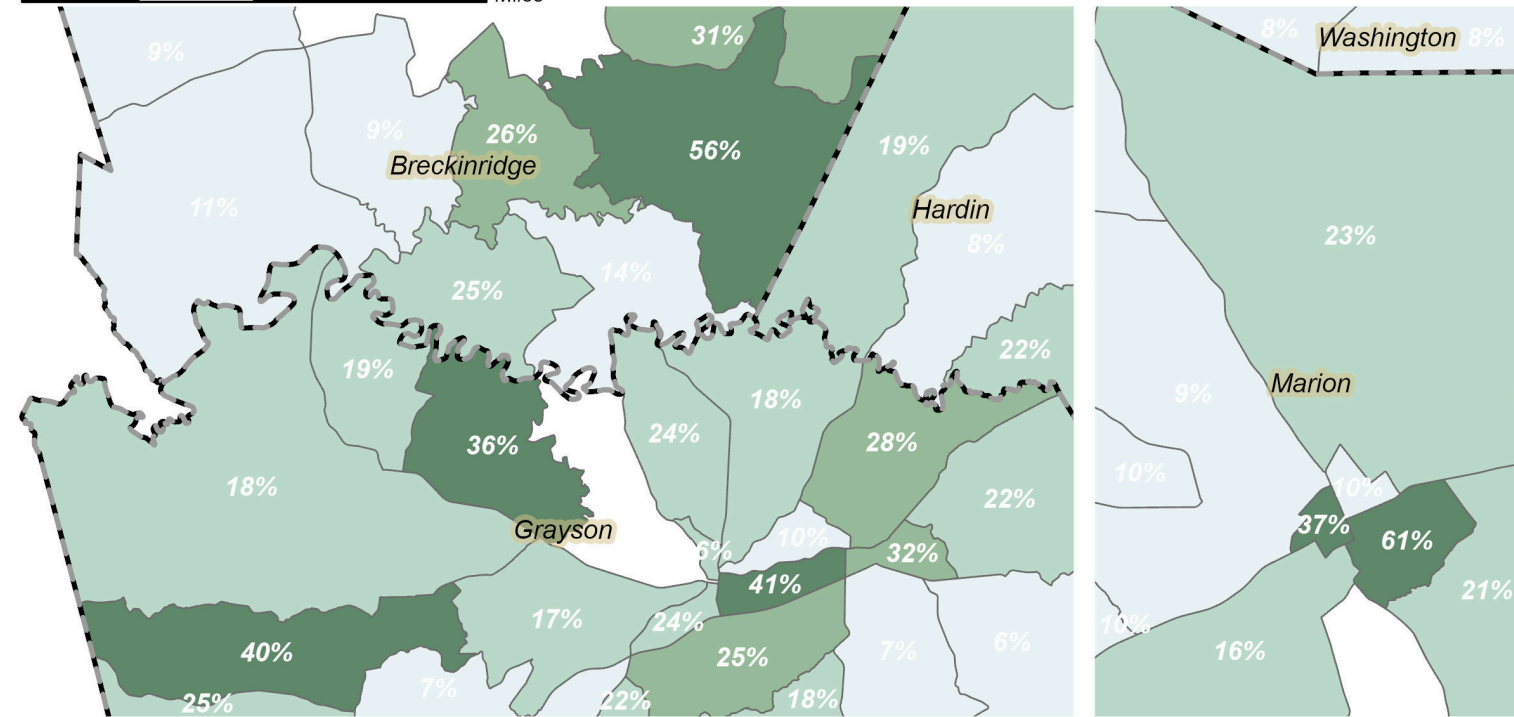


Highest Percent Poverty Status Block Groups

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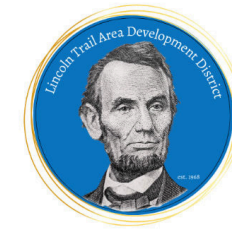
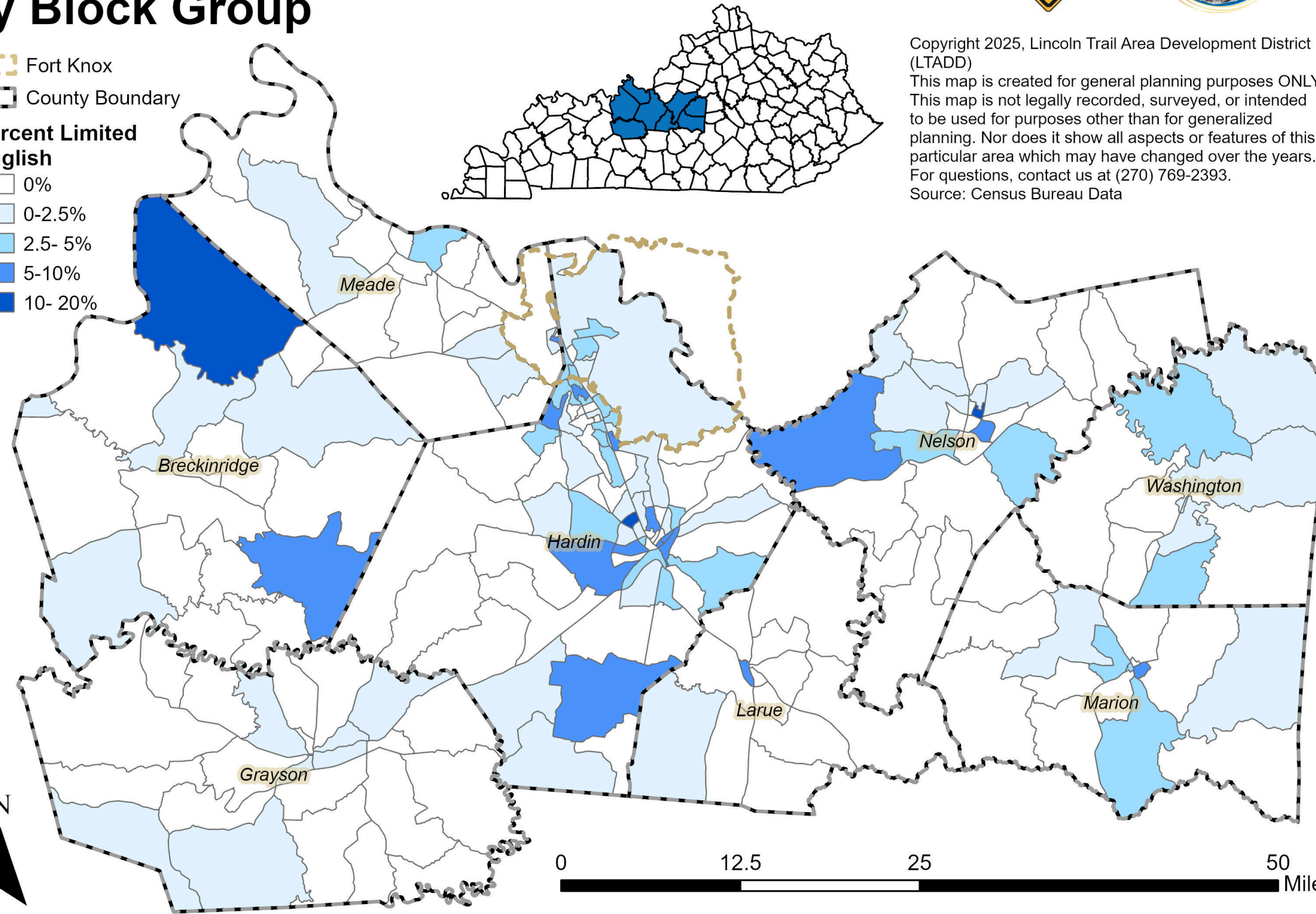
Highest percentages
61% : SE Lebanon
56% : SE Breckinridge Co.
43% : N Vine Grove
41% : SE Leitchfield
40% : W Grayson Co.



Deliverables








Lincoln Trail Area Development District Percent Limited English Proficiency by Block Group

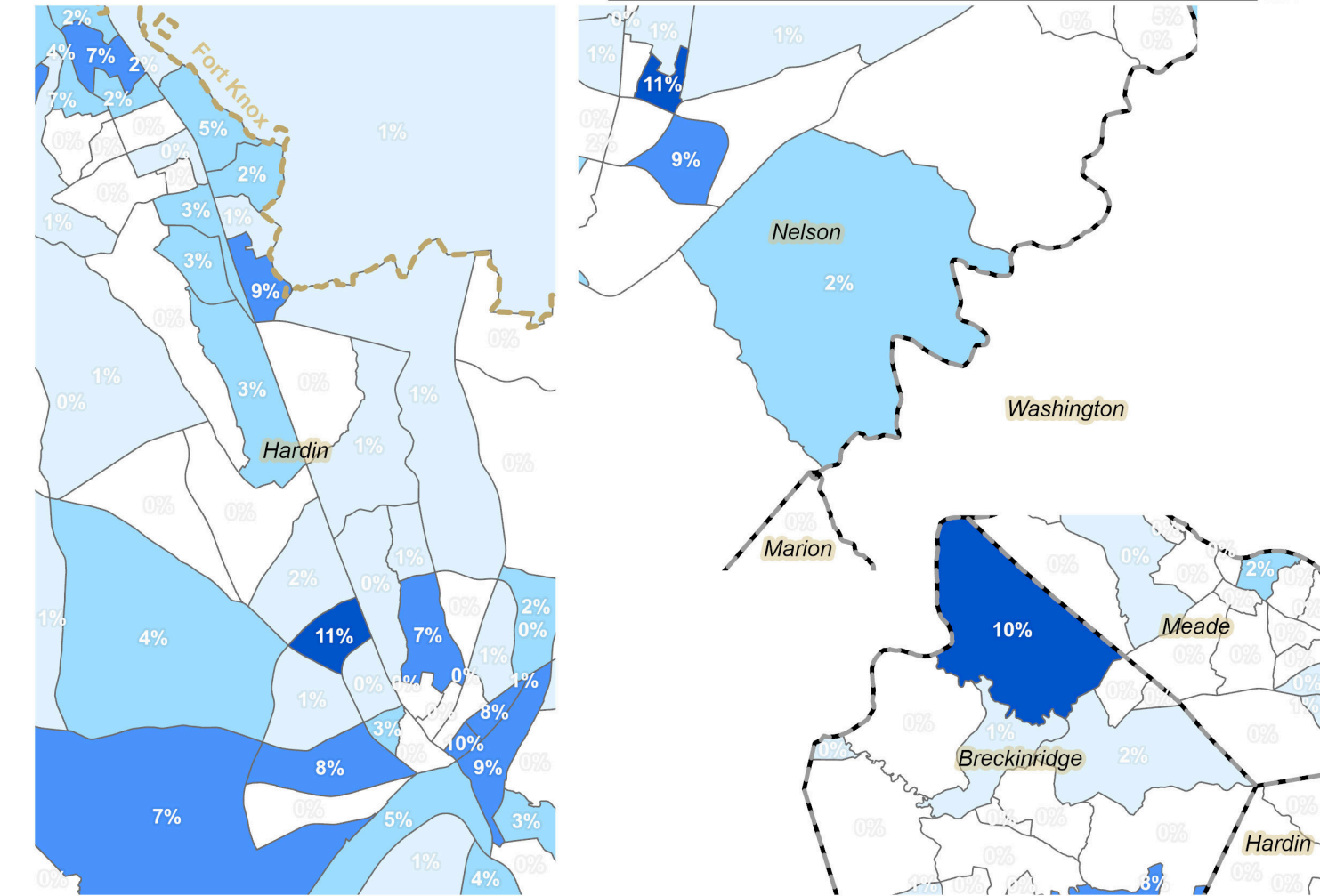
-  Fort Knox
-  County Boundary
- Percent Limited English**
-  0%
-  0-2.5%
-  2.5- 5%
-  5-10%
-  10- 20%



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 Source: Census Bureau Data

Highest Percent Limited English by Block Groups

-  Fort Knox
-  County Boundary
- Percent Limited English**
-  0%
-  0-2.5%
-  2.5- 5%
-  5-10%
-  10- 20%



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 Source: Census Bureau Data








- Highest percentages**
- 11%** : SE Bardstown
- 11%** : NW Elizabethtown
- 10%** : N Breckinridge Co.
- 10%** : Downtown Elizabethtown
- 9%** : Radcliff/Fort Knox Border
- 9%** : SE Bardstown
- 9%** : Downtown Elizabethtown

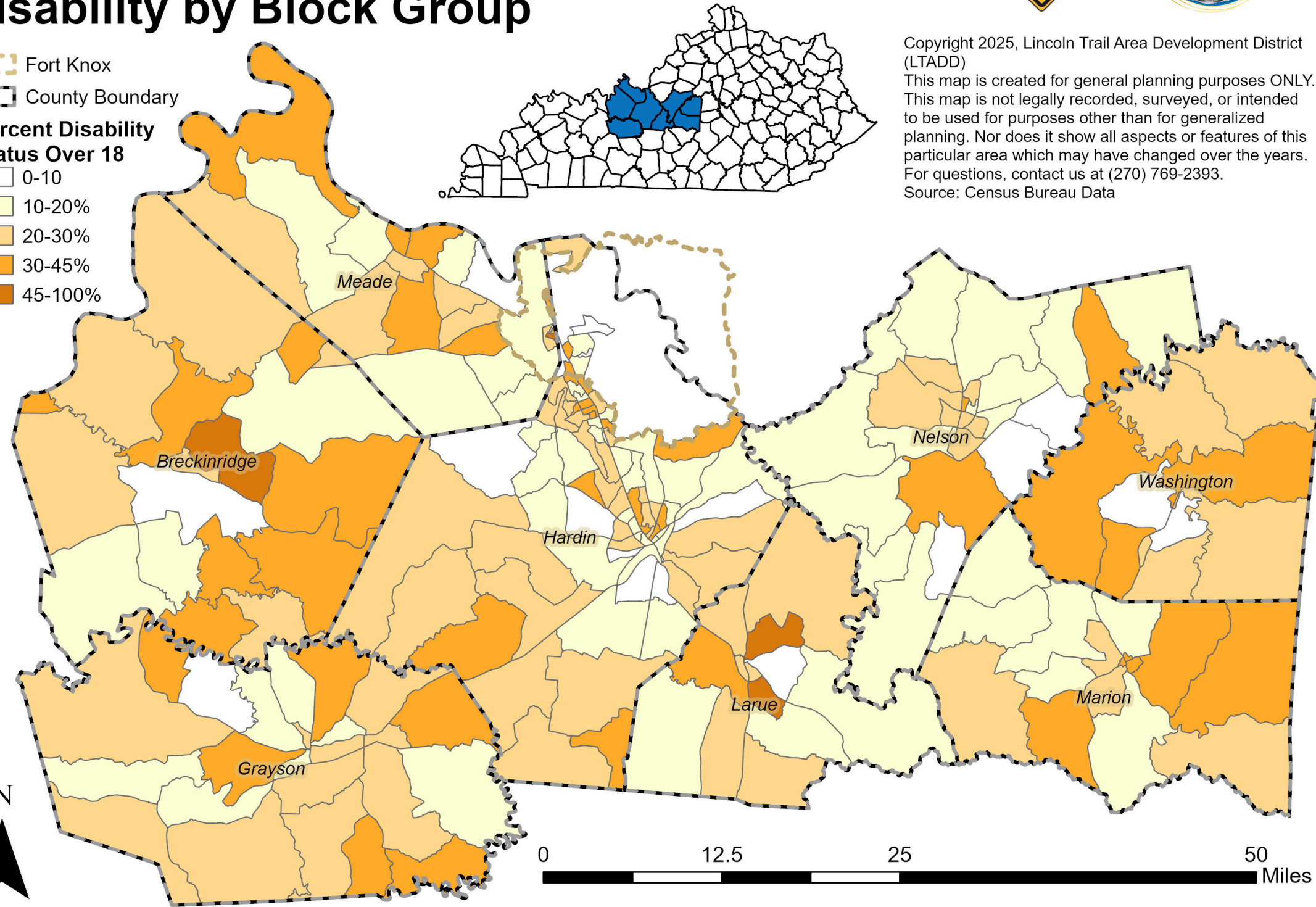


Miles

Deliverables

Lincoln Trail Area Development District Percent Adult Population with Disability by Block Group








-  Fort Knox
-  County Boundary
- Percent Disability Status Over 18**
-  0-10
-  10-20%
-  20-30%
-  30-45%
-  45-100%

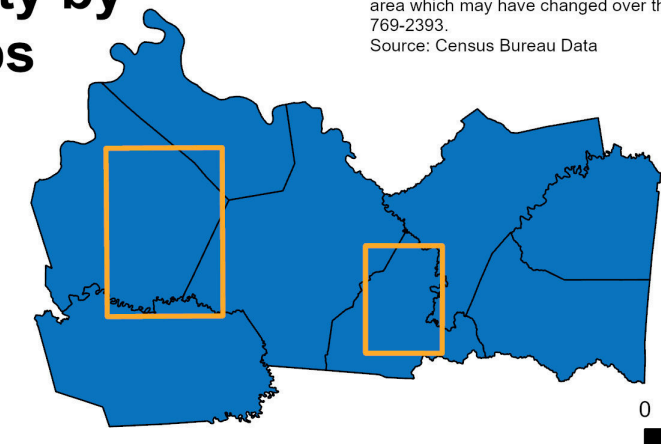


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Highest Percent Adults with Disability by Block Groups

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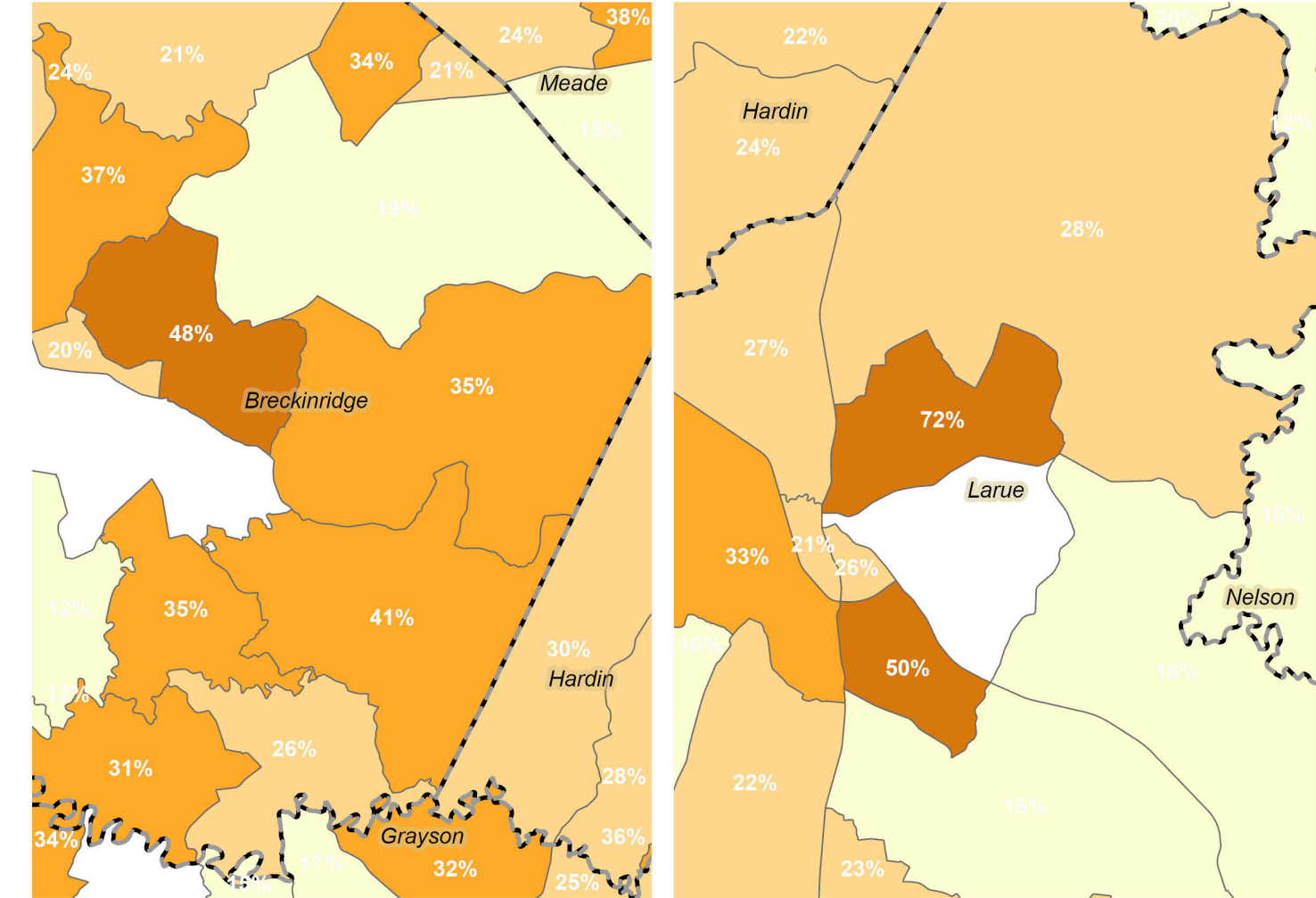
-  Fort Knox
-  County Boundary
- Percent Disability Status Over 18**
-  0-10
-  10-20%
-  20-30%
-  30-45%
-  45-100%



Highest percentages
72% : N Hodgenville
50% : S Hodgenville
48% : E Hardinsburg

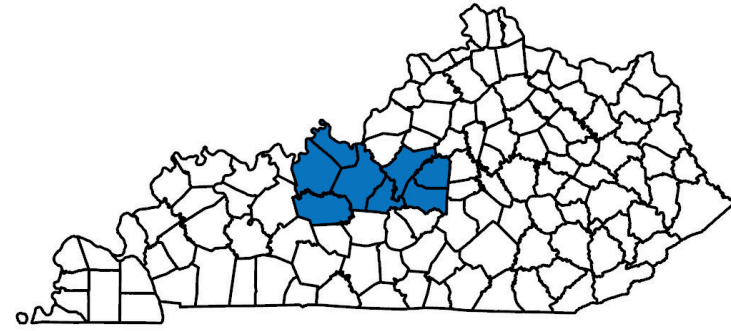
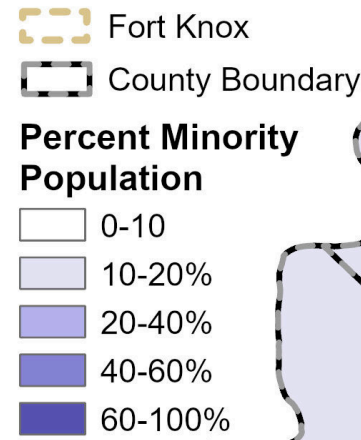


0 2.5 5 10 Miles

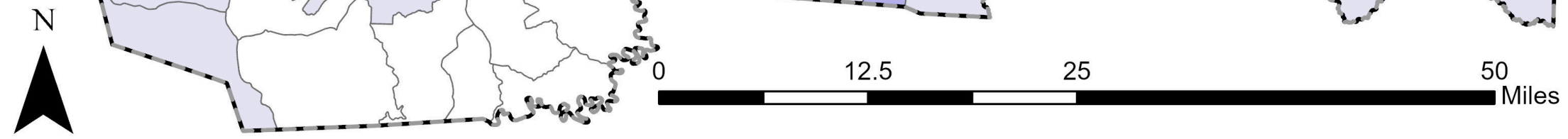
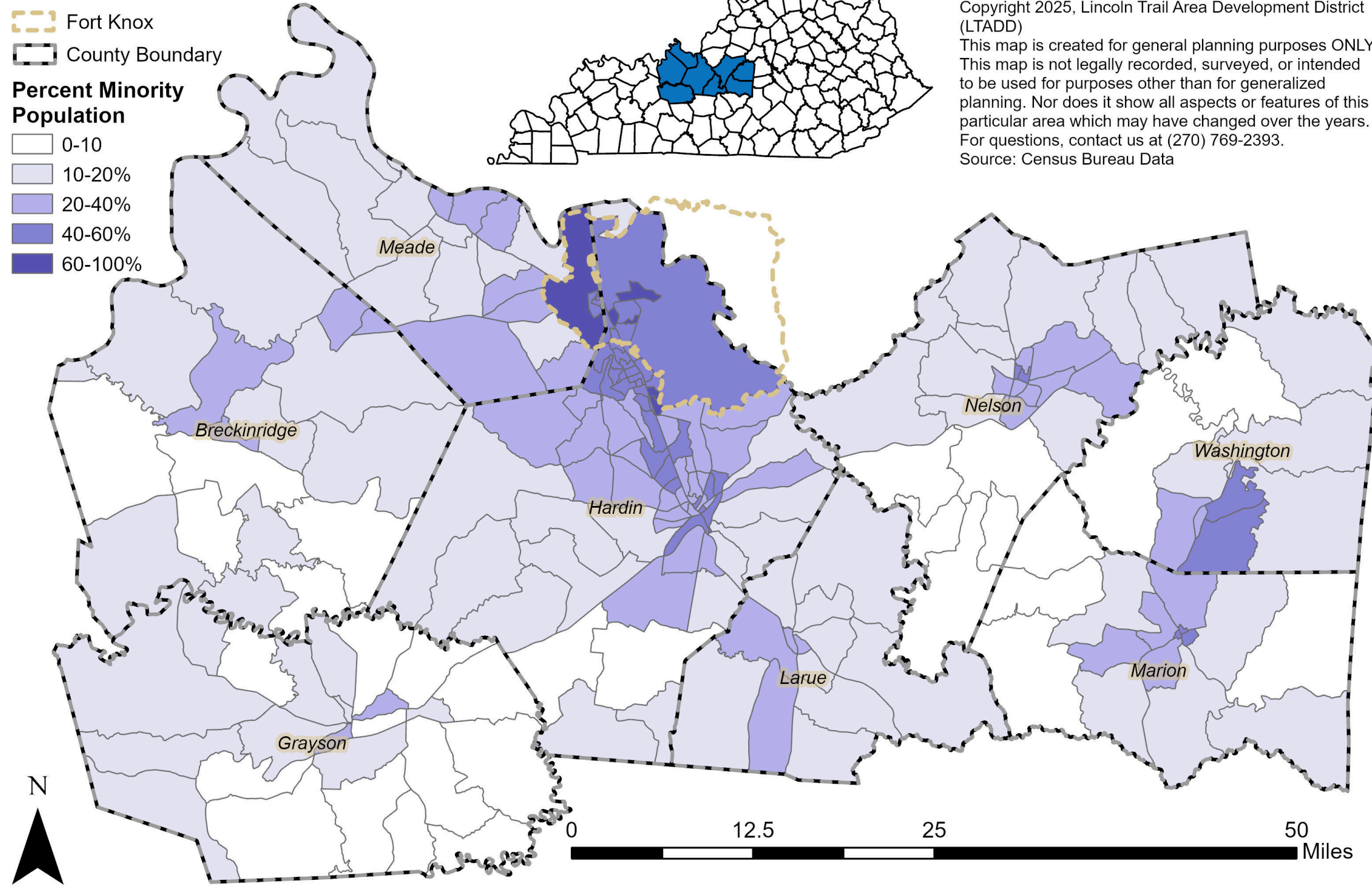


Deliverables

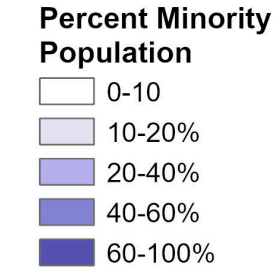
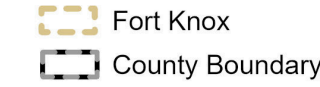
Lincoln Trail Area Development District Percent Minority Population by Block Group



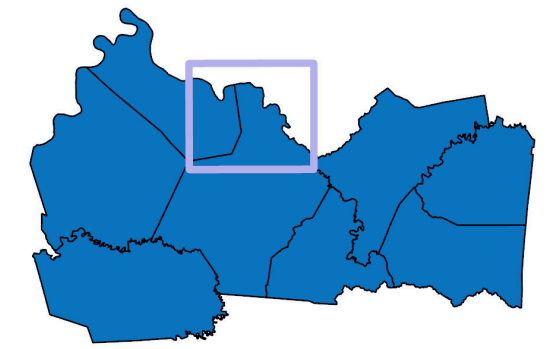
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 Source: Census Bureau Data



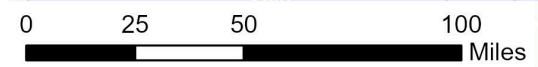
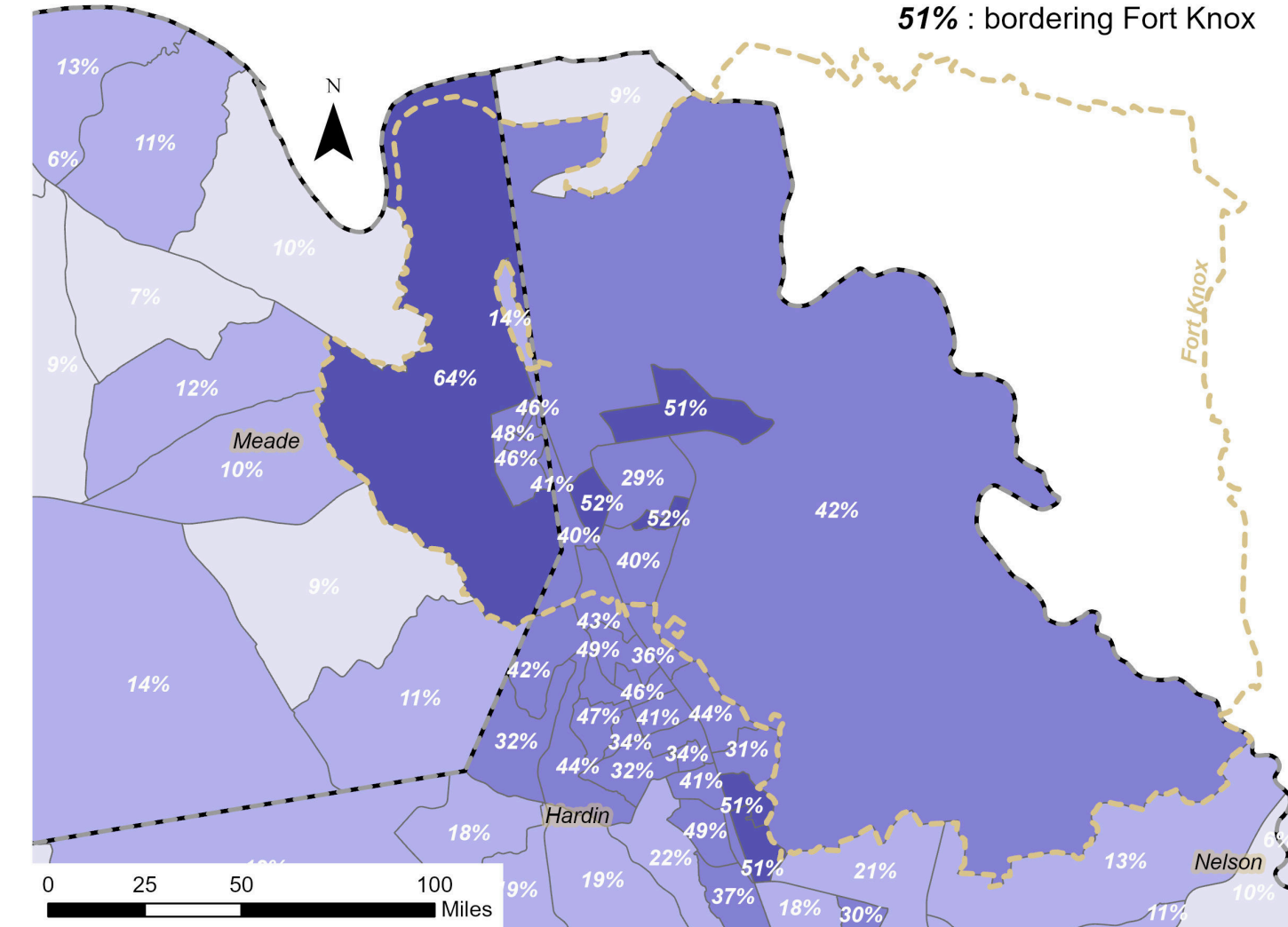
Highest Percent Minority Population Block Groups



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 Source: Census Bureau Data



Highest percentages
64% : within Fort Knox
52% : within Fort Knox
52% : within Fort Knox
51% : within Fort Knox
51% : bordering Fort Knox
51% : bordering Fort Knox



How to make

Bivariate Maps?



ESRI Tutorial Link here: <https://support.esri.com/en-us/knowledge-base/how-to-create-a-quantitative-bivariate-map-in-arcgis-pr-000027489>

- Must have Quantitative Data
- Build regular shapefiles and make the Symbology “Bivariate Colors”
- Ensure proper Normalization
- Pick appropriate Ggrid size
- Several color schemes to chose from

Questions?

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