

LEVERAGING CENSUS DATA FOR MPO EQUITY ANALYSES



2018 Pennsylvania Data User Conference

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LEVERAGING CENSUS DATA FOR MPO EQUITY ANALYSES

Overview

- About DVRPC
- DVRPC's Approach to Equity Analysis: *Indicators of Potential Disadvantage 1.0*
- IPD 2.0:
 - Aligning Indicators with Guidance
 - Updating Methodology
- Thinking Beyond the Legislation
- Experiments:
 - Statistical Significance
 - Workplace and Journey to Work



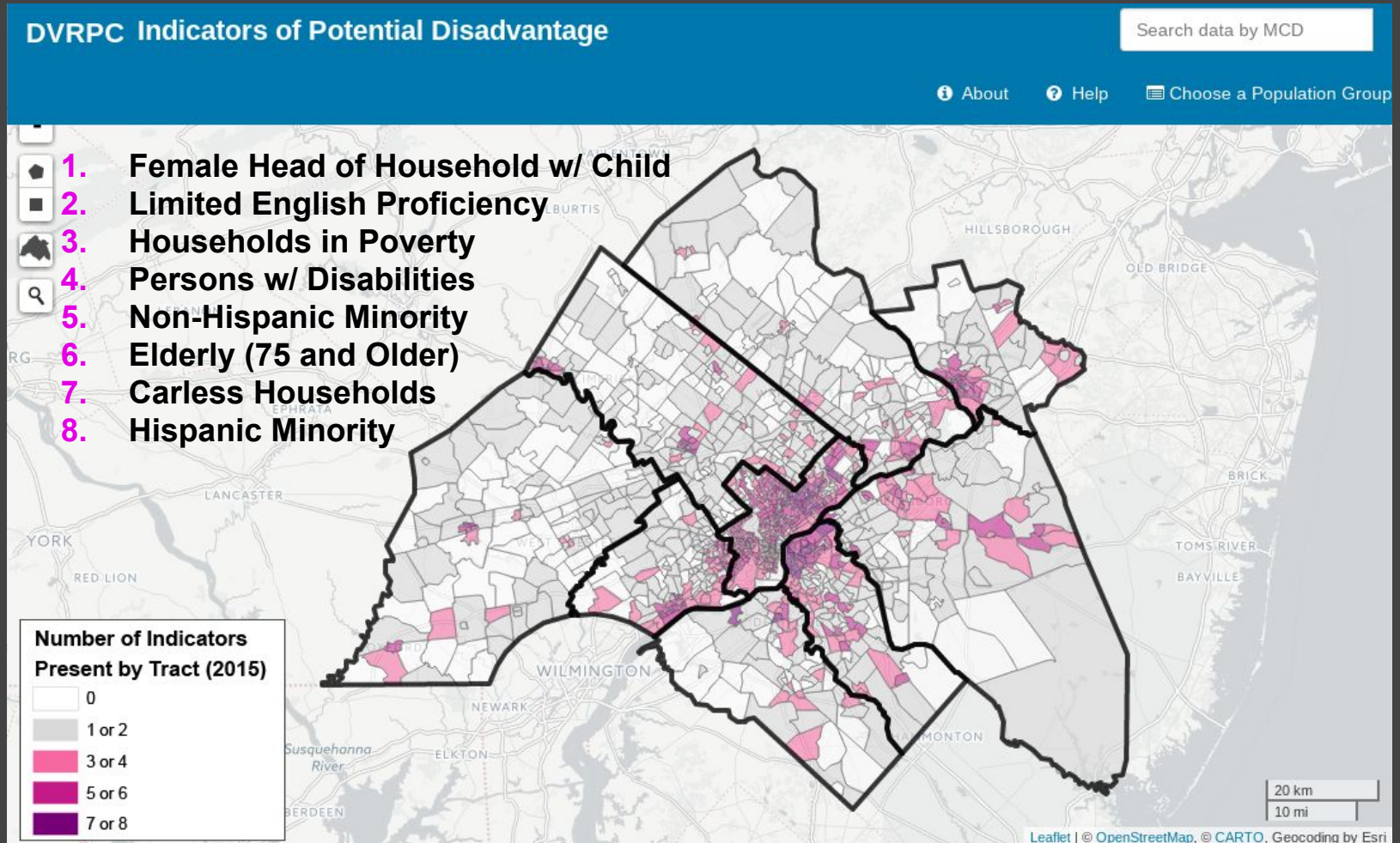
DELAWARE VALLEY REGIONAL PLANNING COMMISSION

**Federally designated MPO for
nine-county Philadelphia region**

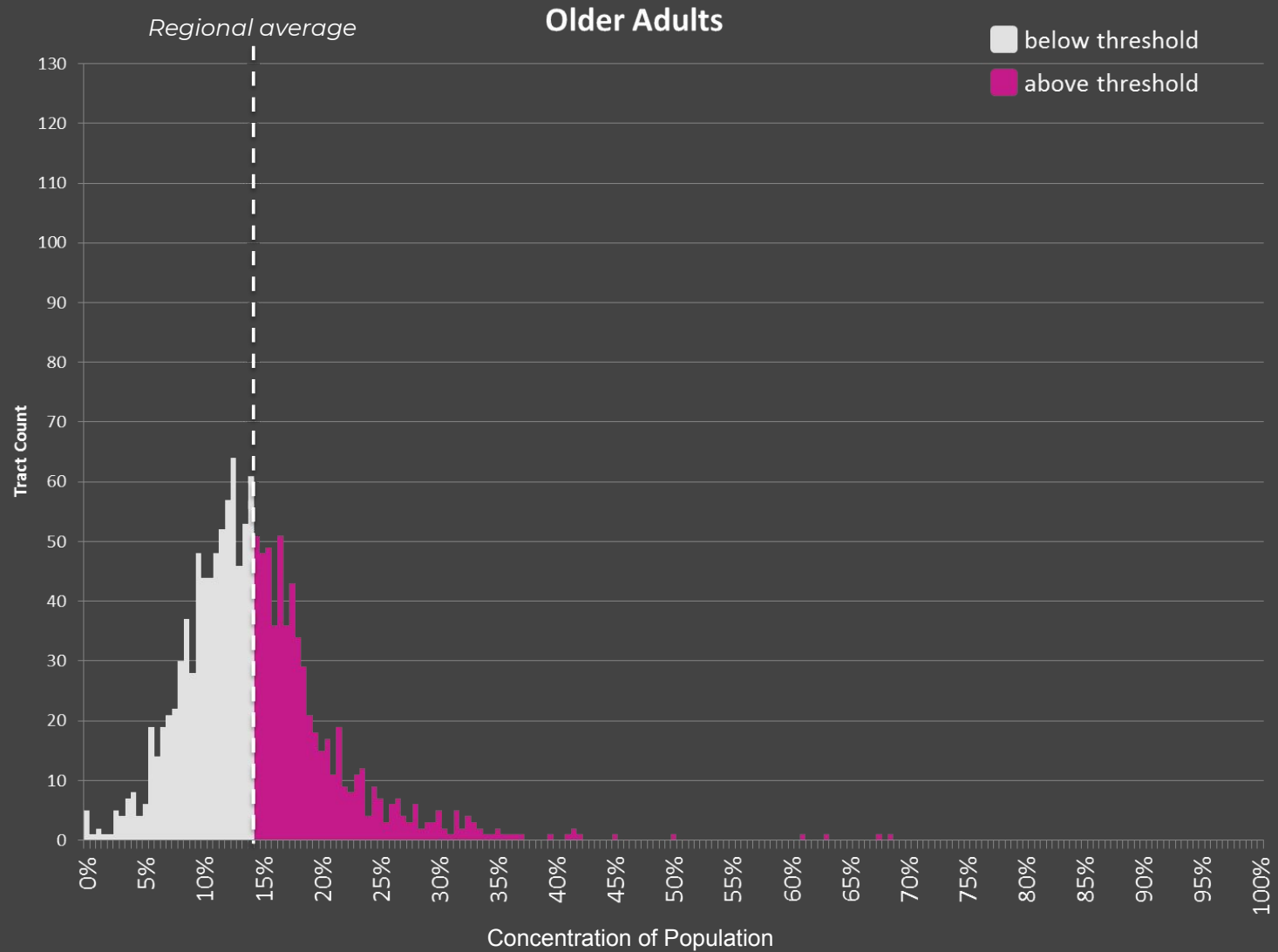
**Must comply with Title VI
requirements and Environmental
Justice (EJ) recommendations**

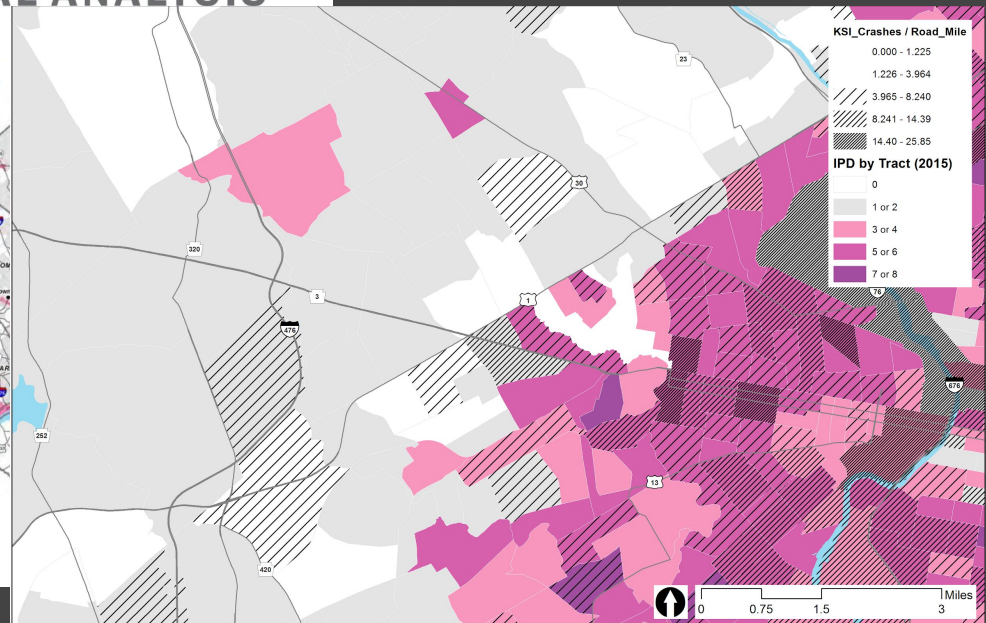
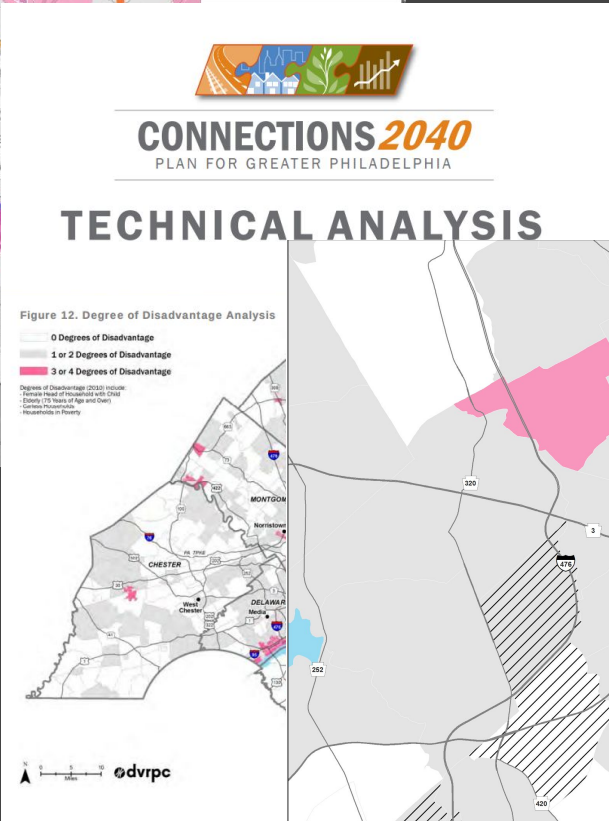
DVRPC'S APPROACH: INDICATORS OF POTENTIAL DISADVANTAGE 1.0

IPD 1.0



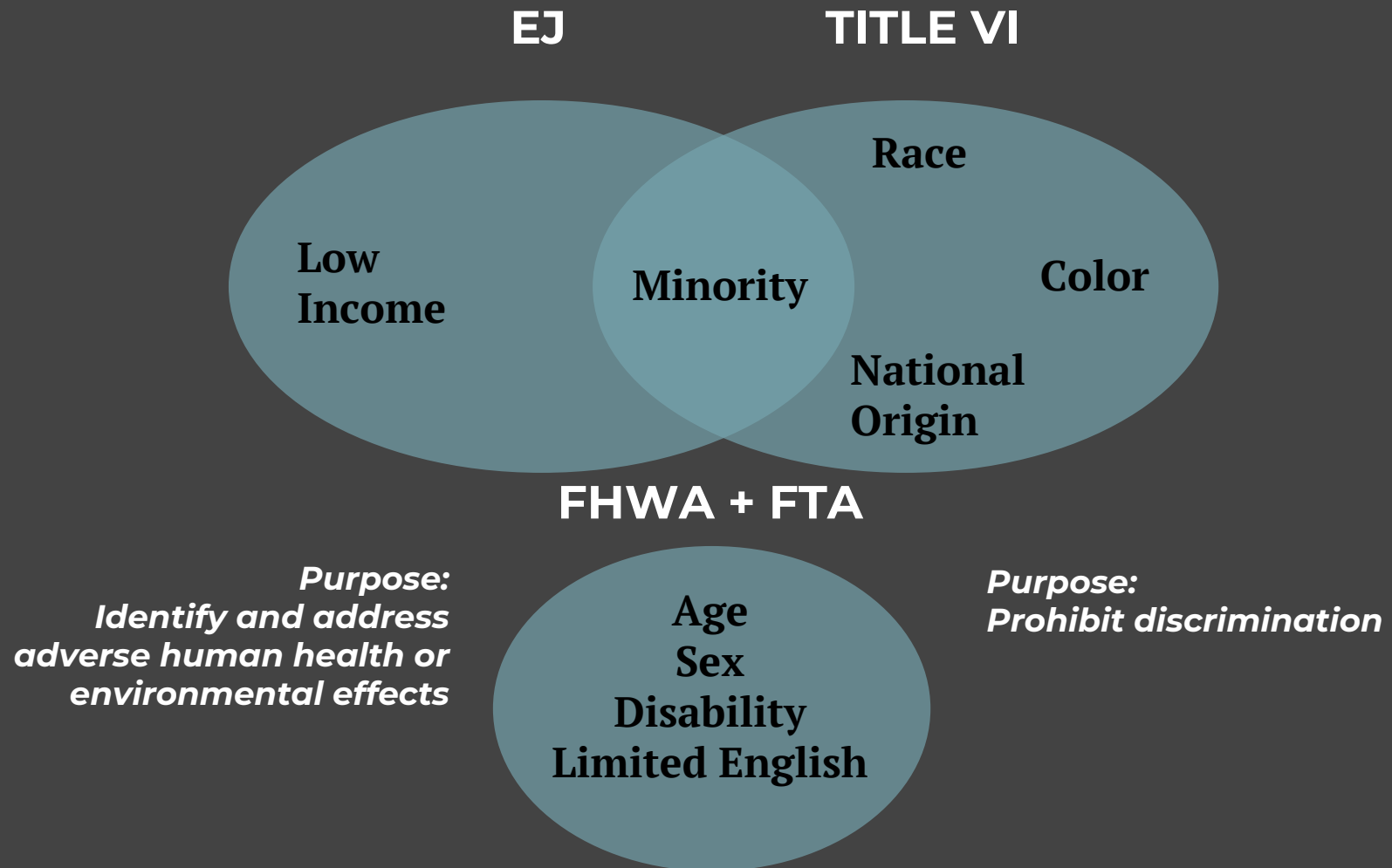
IPD 1.0





IPD 2.0: ALIGNING INDICATORS WITH GUIDANCE

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IPD 2.0: ALIGNING INDICATORS WITH GUIDANCE

Current indicators	Title VI and EJ populations
<ul style="list-style-type: none">• Elderly (75 and Older)• Female Head of Household with Child• Non-Hispanic Minority• Hispanic Minority• Limited English Proficiency• Persons with Disabilities• Households in Poverty• Carless Households	<ul style="list-style-type: none">• Age• Sex• Minority• Race• Ethnicity• National origin• Limited English Proficiency• Disability• Low-Income

IPD 2.0: ALIGNING INDICATORS WITH GUIDANCE

Yellow Text = removed from IPD

Teal Text = population added to IPD

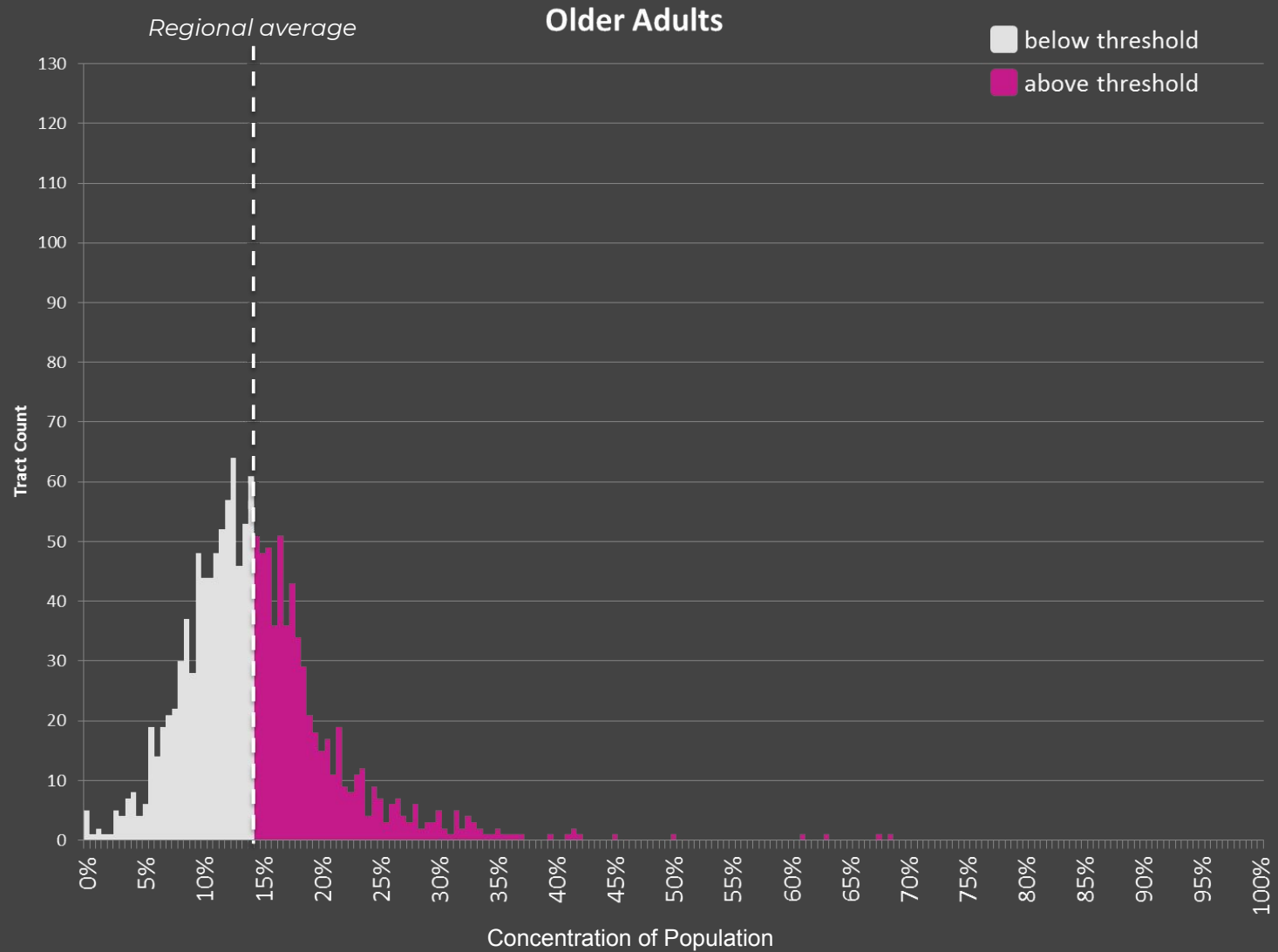
Current indicators	Title VI and EJ populations
<ul style="list-style-type: none">• Elderly (75+) (65+)• Female Head of Household with Child• Non-Hispanic Minority• Hispanic Minority• Limited English Proficiency• Persons with Disabilities• Households in Poverty ^{Low-Income}• Carless Households	<ul style="list-style-type: none">• Age• Sex• Minority• Race• Ethnicity• National origin• Limited English Proficiency• Disability• Low-Income

ALIGNING INDICATORS WITH GUIDANCE

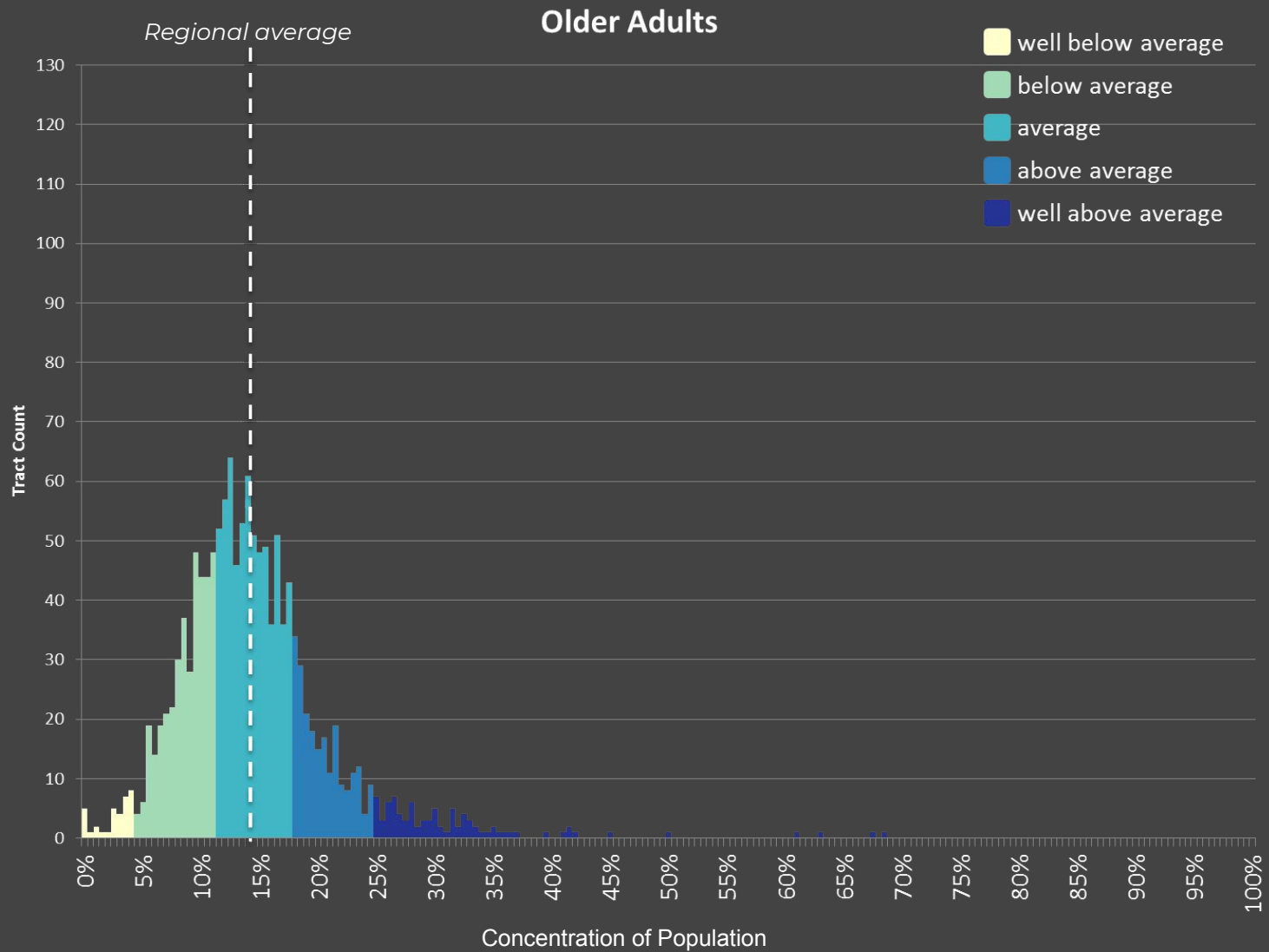
Indicator in IPD analysis update	ACS data table for indicator in IPD analysis	Community of concern indicator represents
Youth	B09001: Population Under 18 Years by Age	Age
Older Adults	S0101: Age and Sex	Age
Female	S0101: Age and Sex	Sex
Racial Minority	B02001: Race	Race and Minority
Ethnic Minority	B03002: Hispanic or Latino Origin by Race	Minority and National Origin
Foreign Born	B05012: Nativity in the United States	National Origin
Limited English Proficiency	S1601: Language Spoken at Home	Limited English Proficiency and National Origin
Disabled	S1810: Disability Characteristics	Disability
Low-Income	S1701: Poverty Status in the Past 12 Months	Low-Income

IPD 2.0: UPDATING METHODOLOGY

1.0 METHODOLOGY



2.0 METHODOLOGY



NEW METHODOLOGY: BINNING THE DATA

Youth

Older

Female

Racial Minority

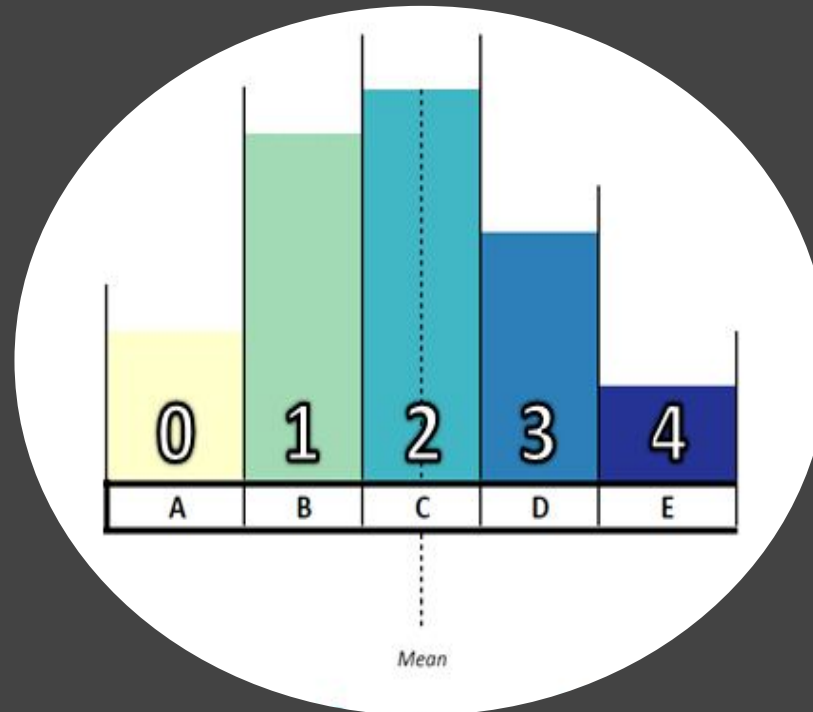
Ethnic Minority

Foreign Born

Limited English Proficiency

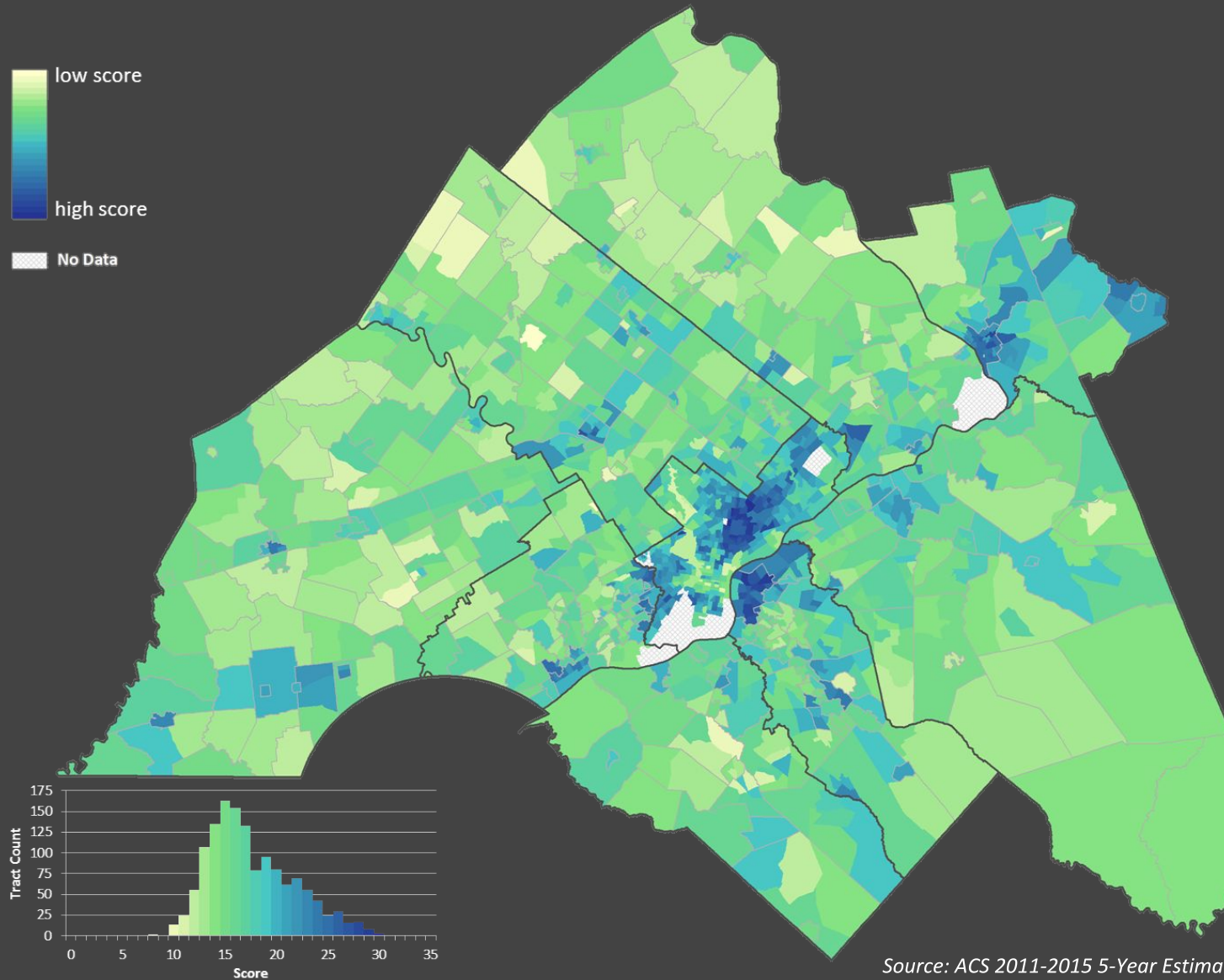
Disabled

Low-income

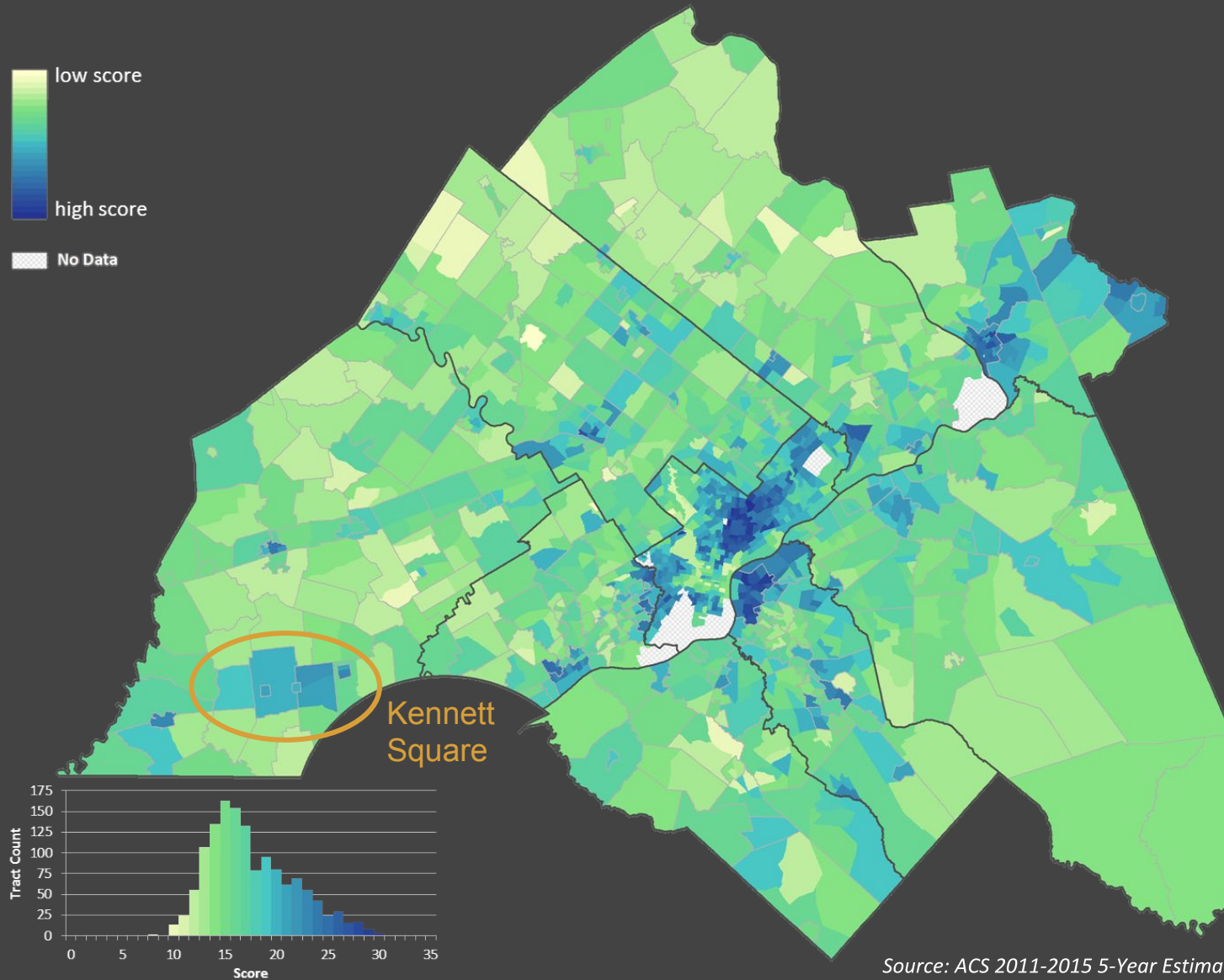


A - well below average
B - below average
C - average
D - above average
E - well above average

NEW METHODOLOGY: THE END RESULT OF BINNING THE DATA



IPD 2.0 METHODOLOGY: THE END RESULT OF BINNING THE DATA



GIS Data Portal for further analysis.

Youth ⁱ

30.5%

+/- 3.1%

of residents are under 18 years old

above average

Female ⁱ

49.7%

+/- 2.6%

residents are female

average

Ethnic Minority ⁱ

34.0%

+/- 8.0%

of residents identified themselves as being of Hispanic or Spanish origin.

well above average

Limited English Proficiency ⁱ

16.7%

+/- 4.0%

of residents report having English proficiency below "very well"

above average

Low-Income ⁱ

31.8 %

+/- 9.8%

of residents live in households with an income below 200% of the national poverty level

average

Older Adults ⁱ

10.3%

+/- 1.5%

of residents are 65 years or older

below average

Racial Minority ⁱ

10.9%

+/- 3.5%

of residents identify as one or more racial minority

below average

Foreign Born ⁱ

20.9%

+/- 5.6%

of residents were born outside of the United States

above average

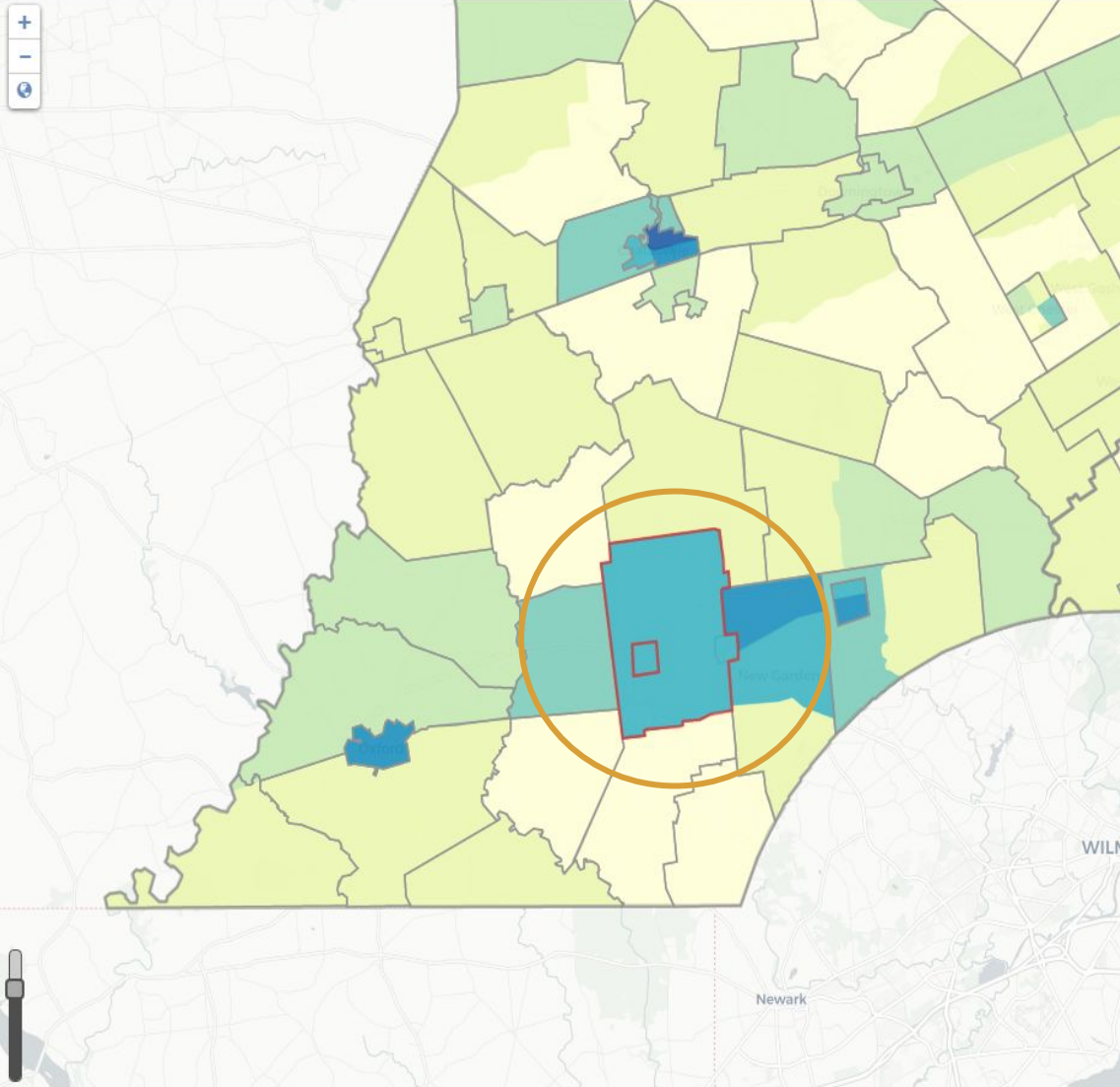
Disabled ⁱ

7.6%

+/- 3.4%

of residents with one or more physical and/or mental disabilities

below average



Limited English Proficiency ⁱ

16.7%

+/- 4.0%

of residents report having English proficiency below "very well"

above average

Disabled ⁱ

7.6%

+/- 3.4%

of residents with one or more physical and/or mental disabilities

below average

Low-Income ⁱ

31.8 %

+/- 9.8%

of residents live in households with an income below 200% of the national poverty level

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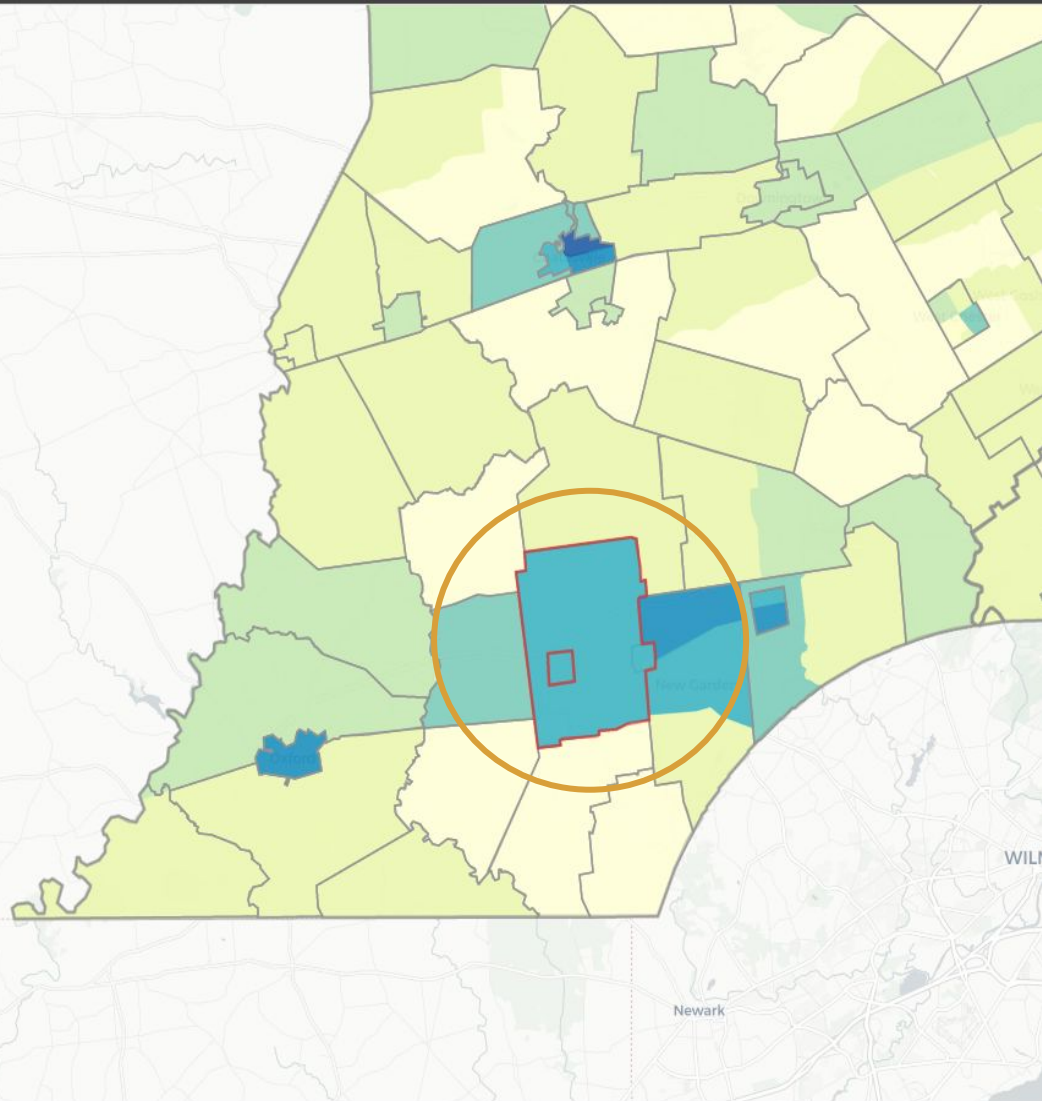
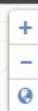


IPD Scoring Analysis ⁱ

The information below provides tract-level IPD scores and percentages for our nine indicators. The entire set of indicators may be downloaded from DVRPC's GIS Data Portal for further analysis.

IPD Score

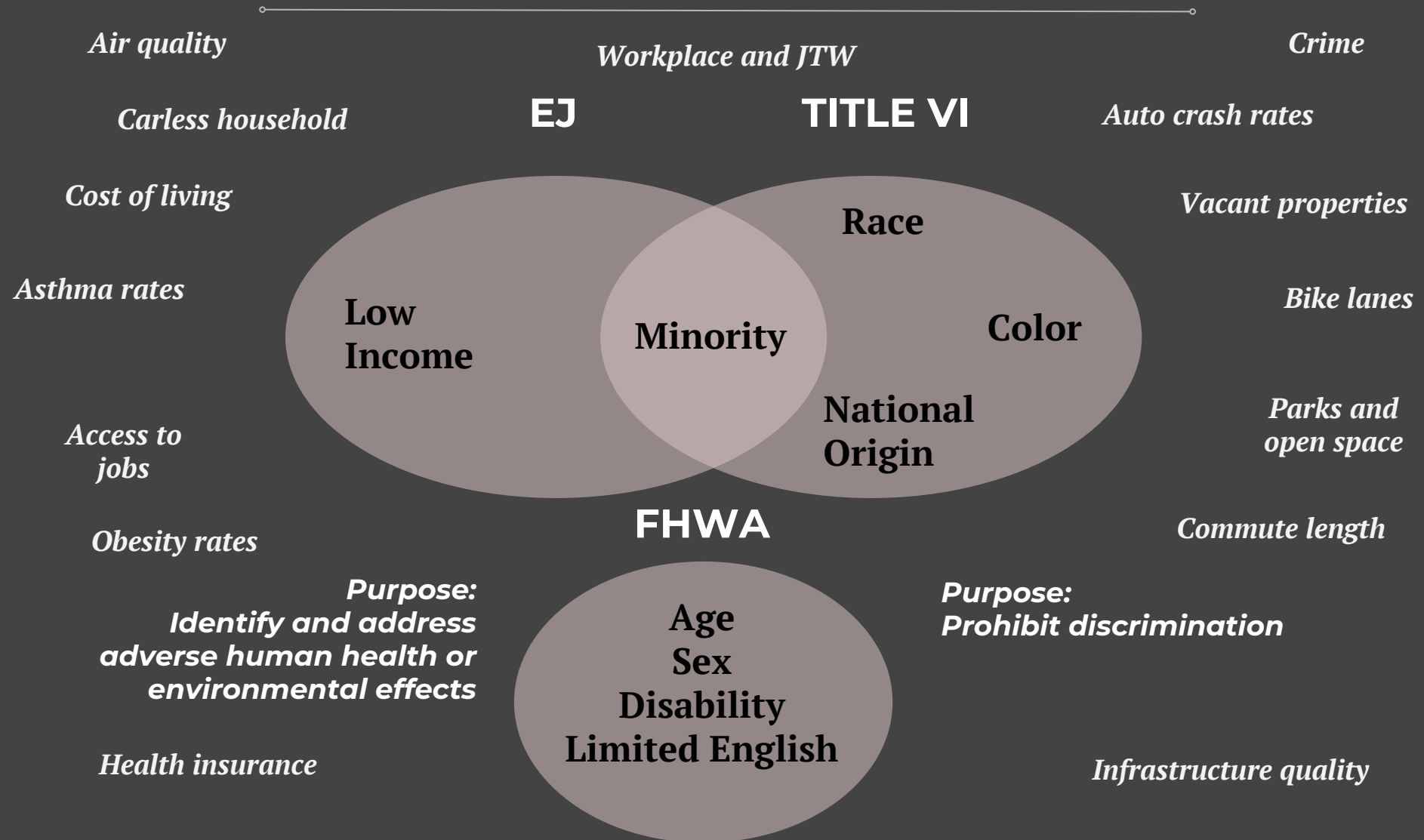
20



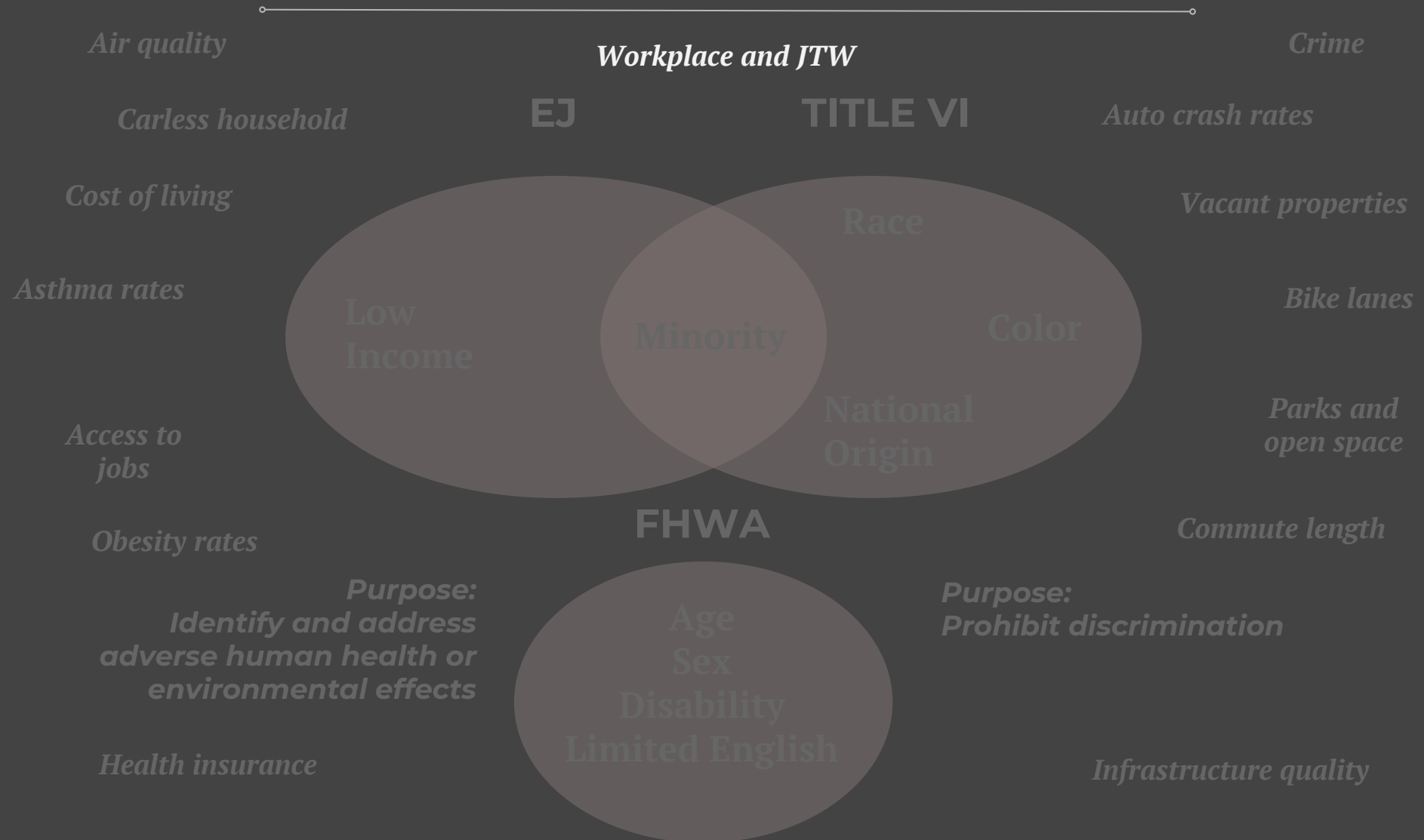
BEYOND THE LEGISLATION



BEYOND THE LEGISLATION



BEYOND THE LEGISLATION

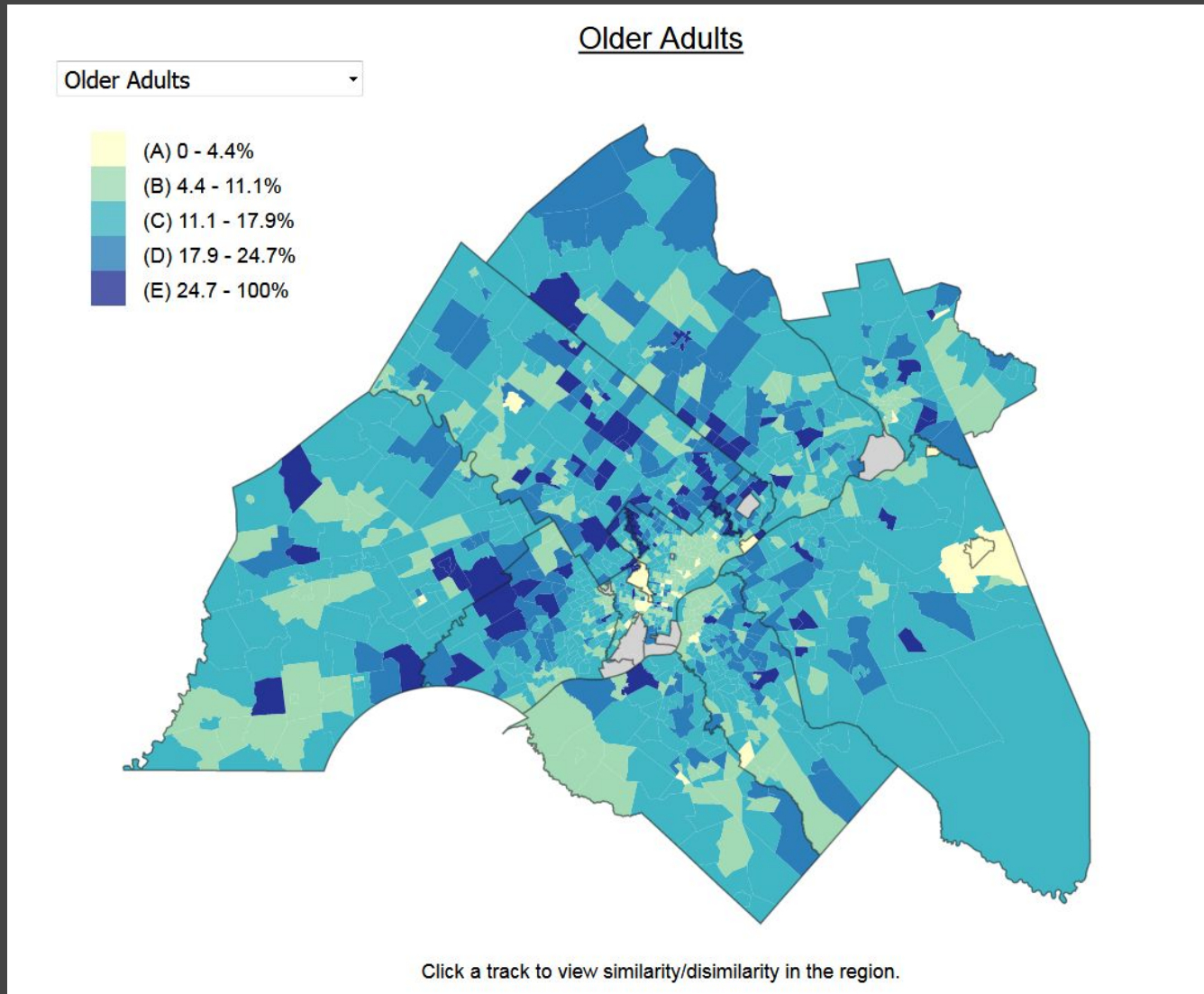


EXPERIMENT #1

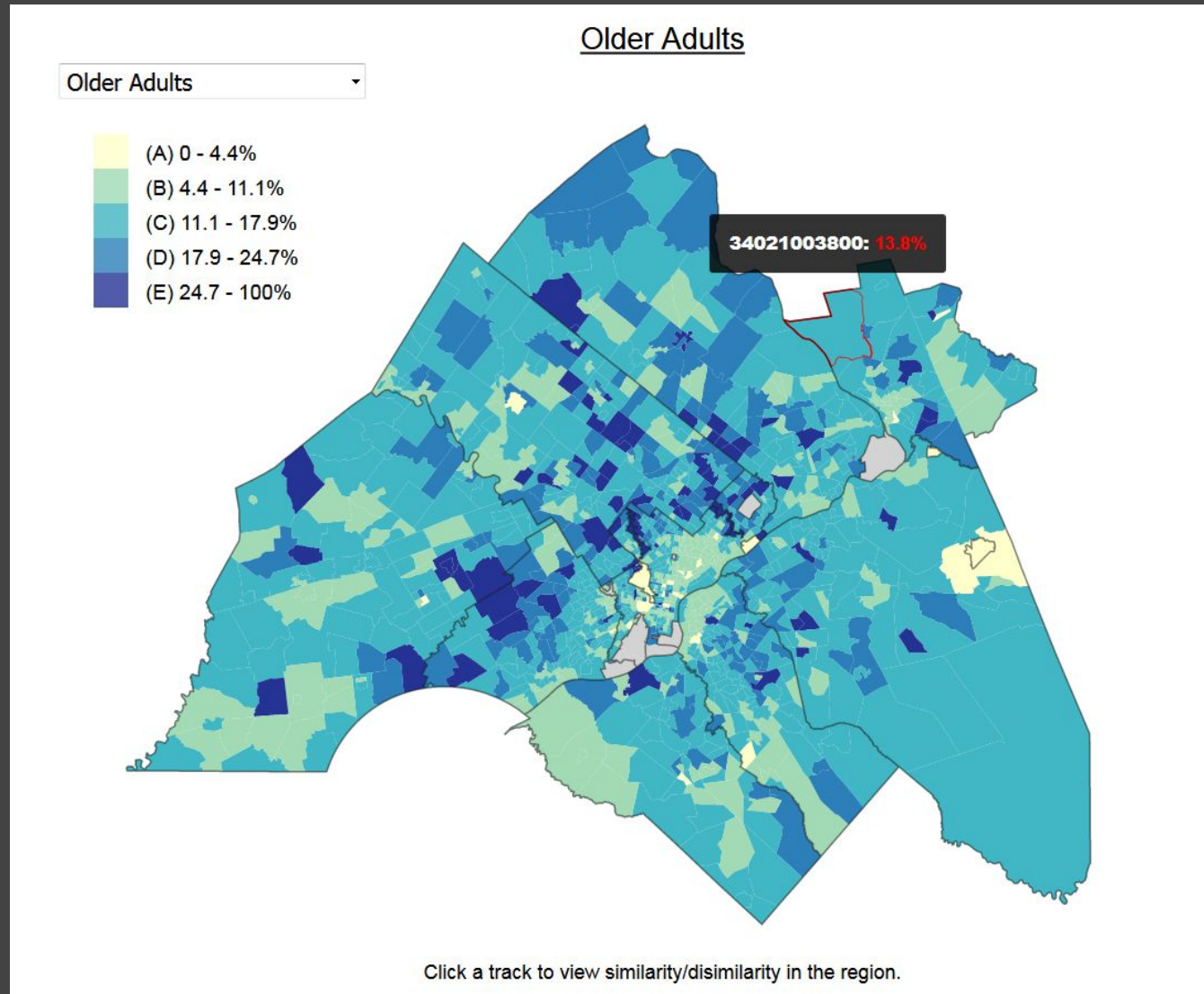
COMMUNICATE STATISTICAL SIGNIFICANCE



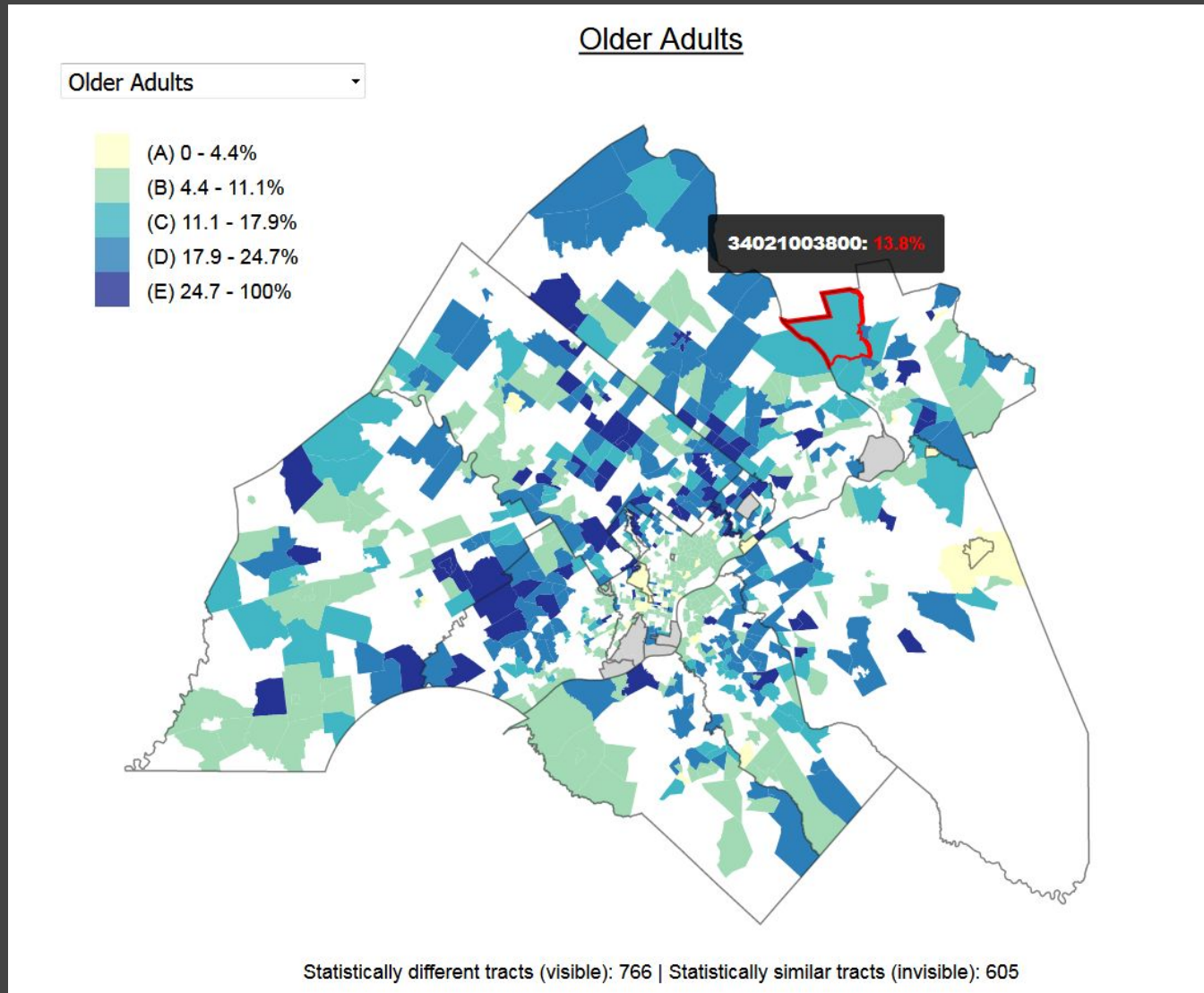
COMMUNICATE STATISTICAL SIGNIFICANCE



COMMUNICATE STATISTICAL SIGNIFICANCE

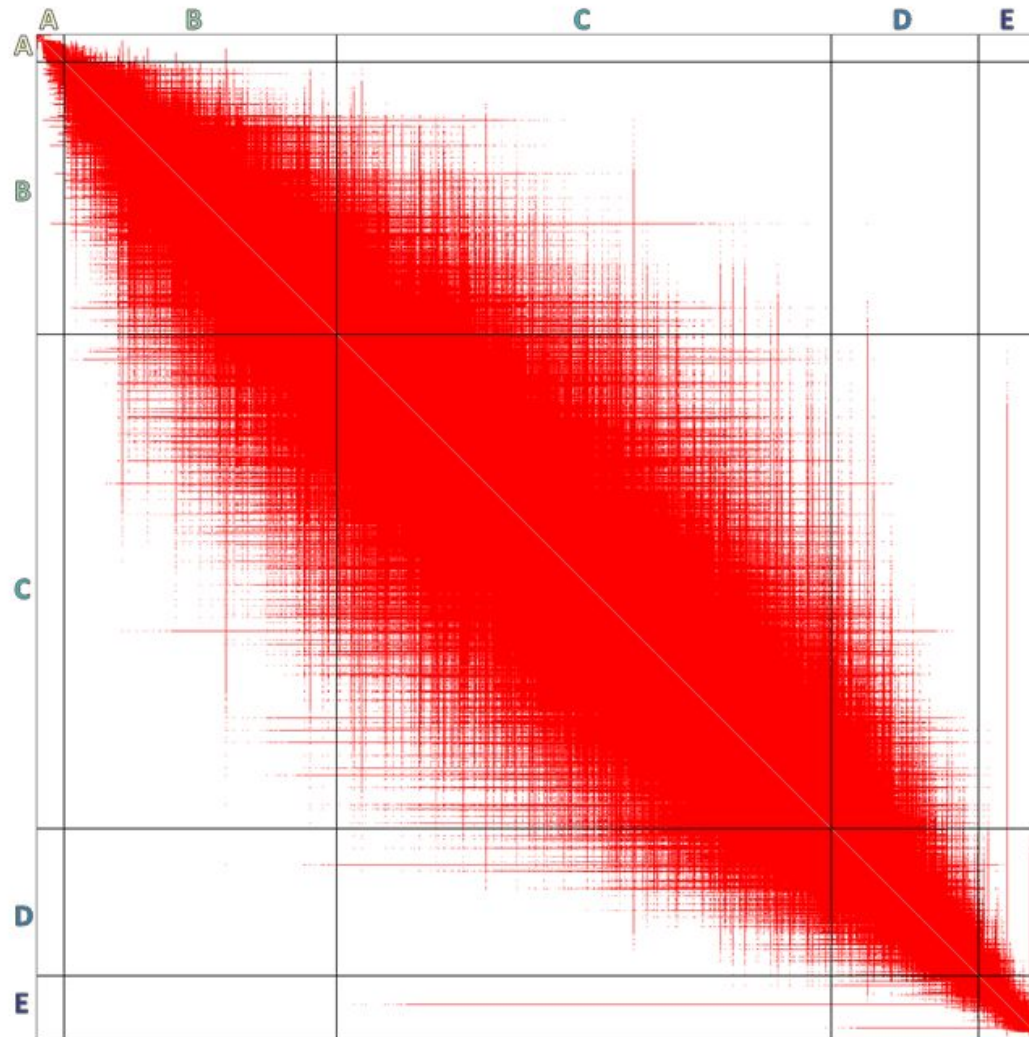


COMMUNICATE STATISTICAL SIGNIFICANCE



COMMUNICATE STATISTICAL SIGNIFICANCE

Older Adults



Percent Not Distinct

	A	B	C	D	E
A	65%	7%	0%	0%	0%
B	7%	76%	22%	0%	0%
C	0%	22%	78%	23%	1%
D	0%	0%	23%	88%	18%
E	0%	0%	1%	18%	61%

A – well below average

B – below average

C – average

D – above average

E – well above average



EXPERIMENT #2

GO BEYOND RESIDENCE



CTPP EXPERIMENTATION

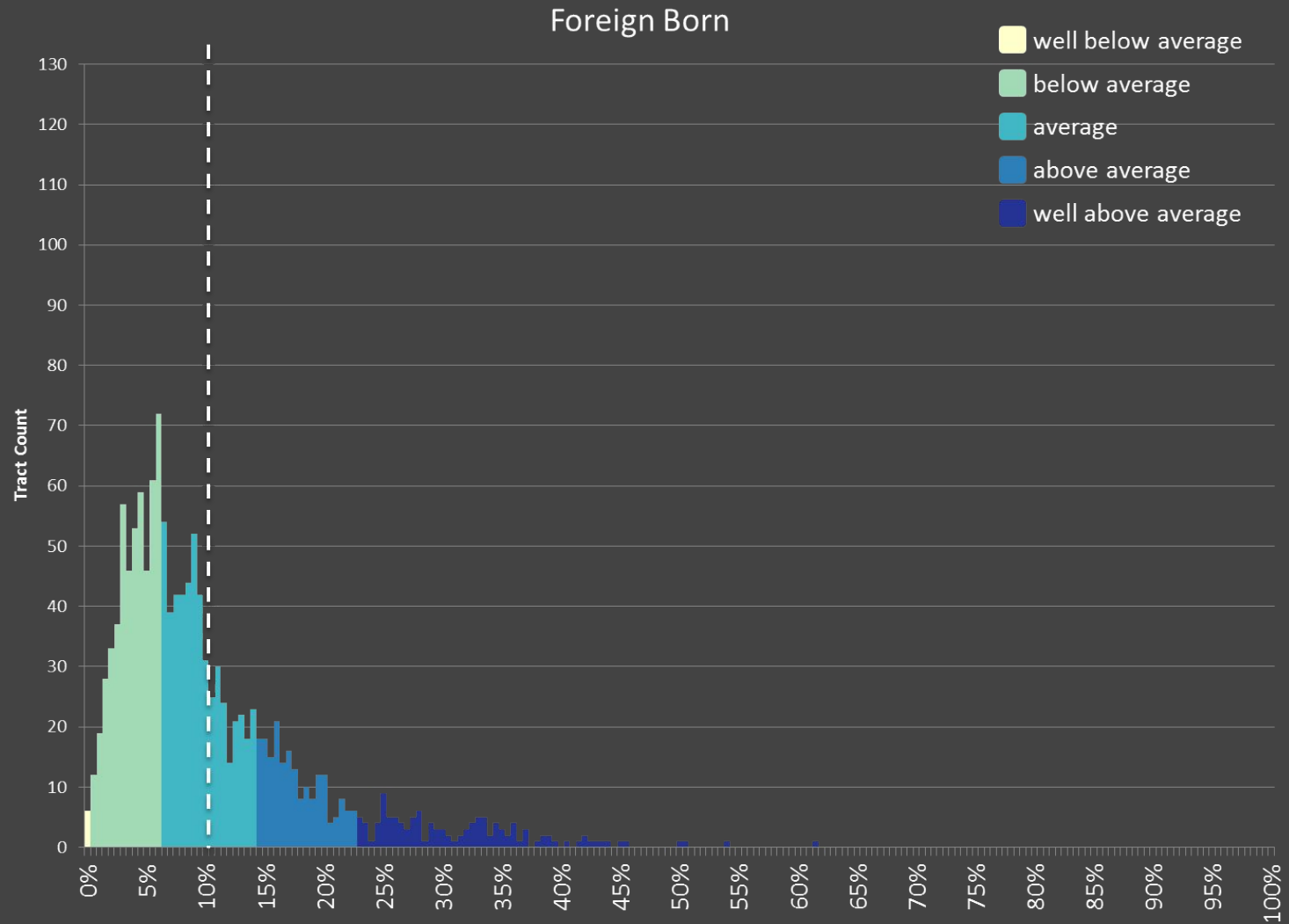
Workplace

- Minority (Race & Ethnicity)
- Foreign Born
- Limited English Proficiency
- Low Income (150% Poverty Rate)
- Carless Households

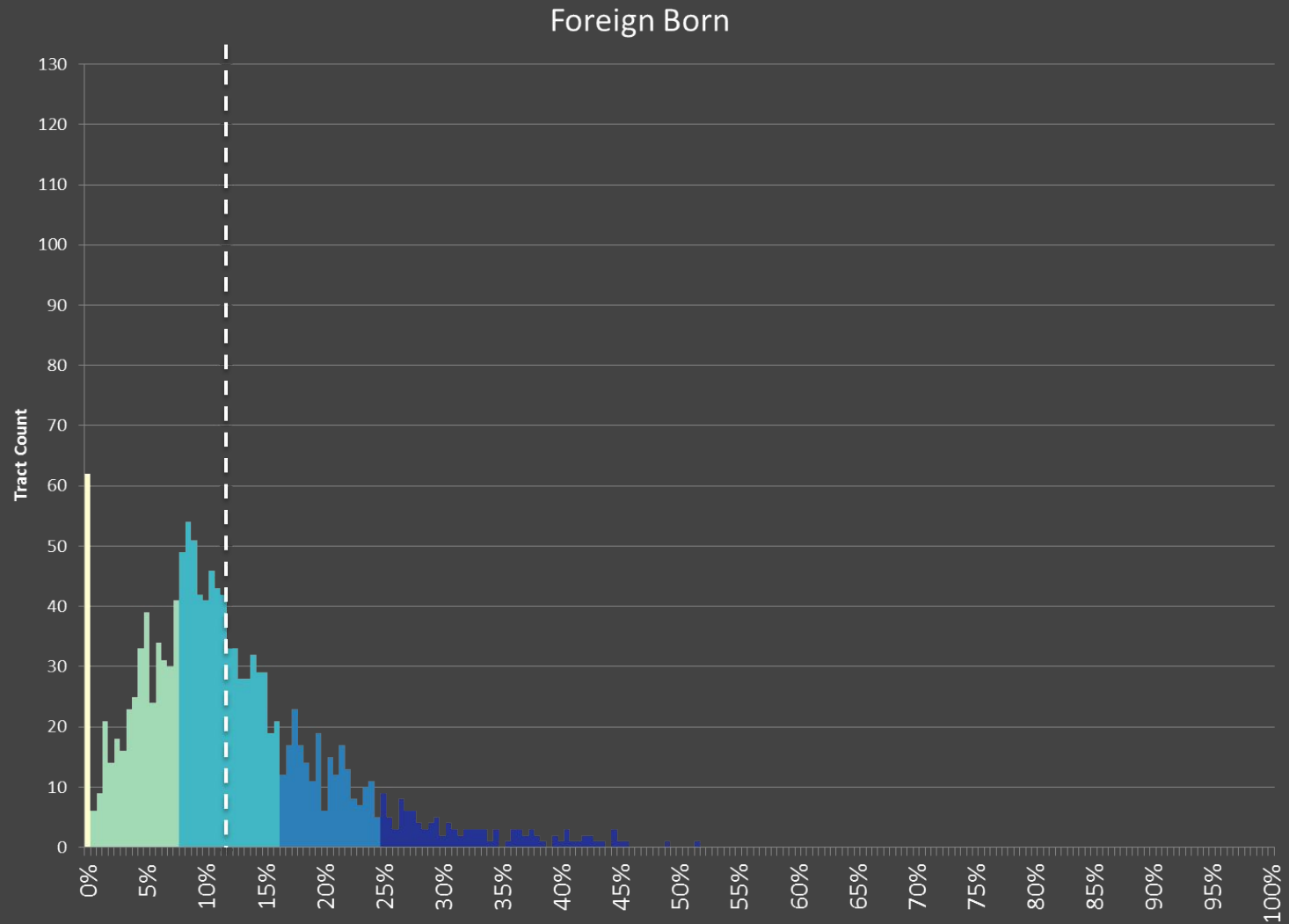
Journey-to-Work Flows

- Minority (Race & Ethnicity)
- Low Income (150% Poverty Rate)

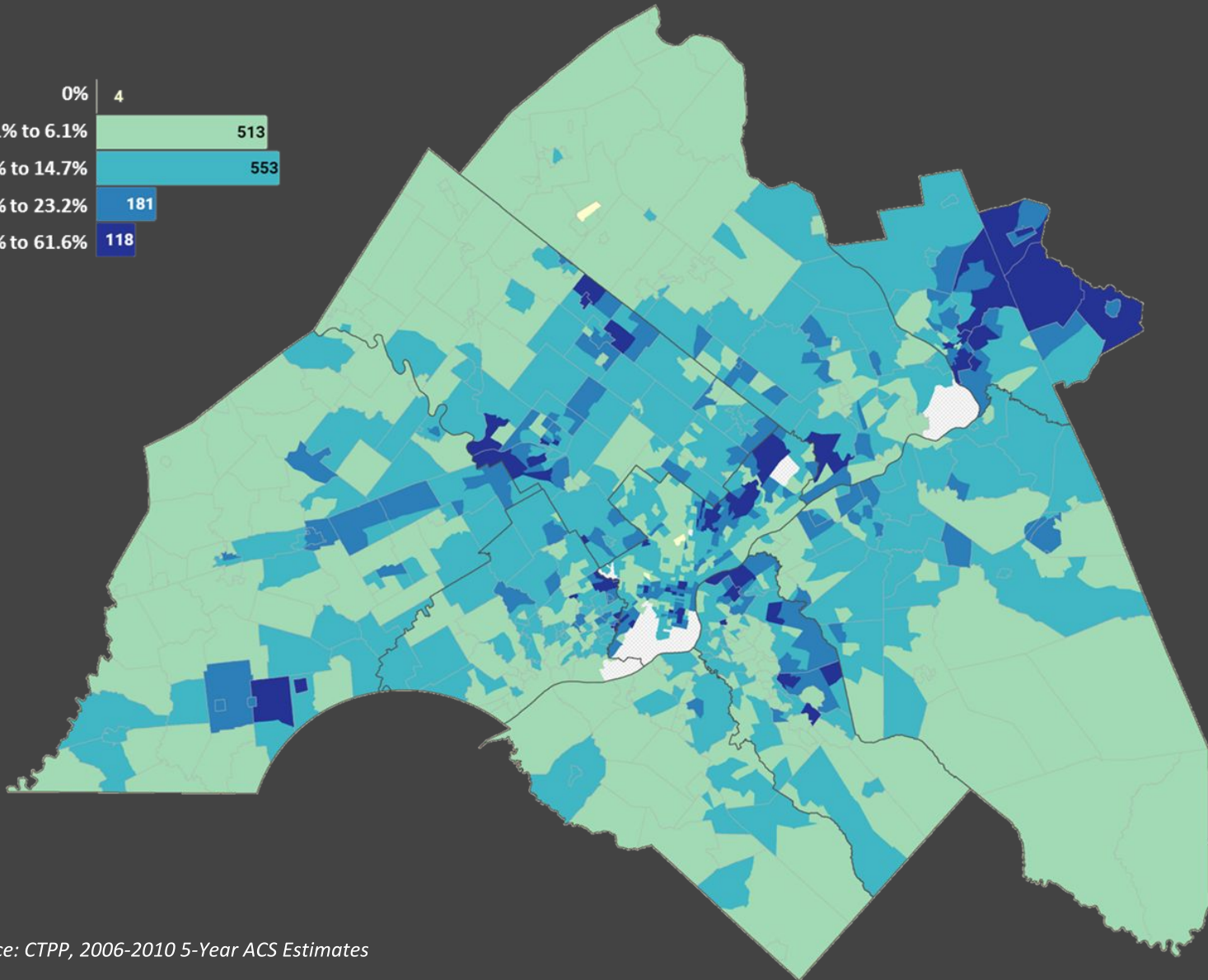
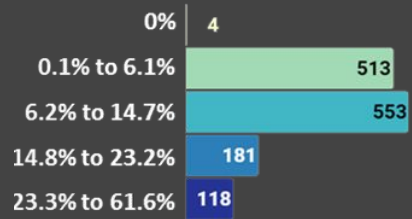
FOREIGN BORN - RESIDENCE



FOREIGN BORN - WORKPLACE

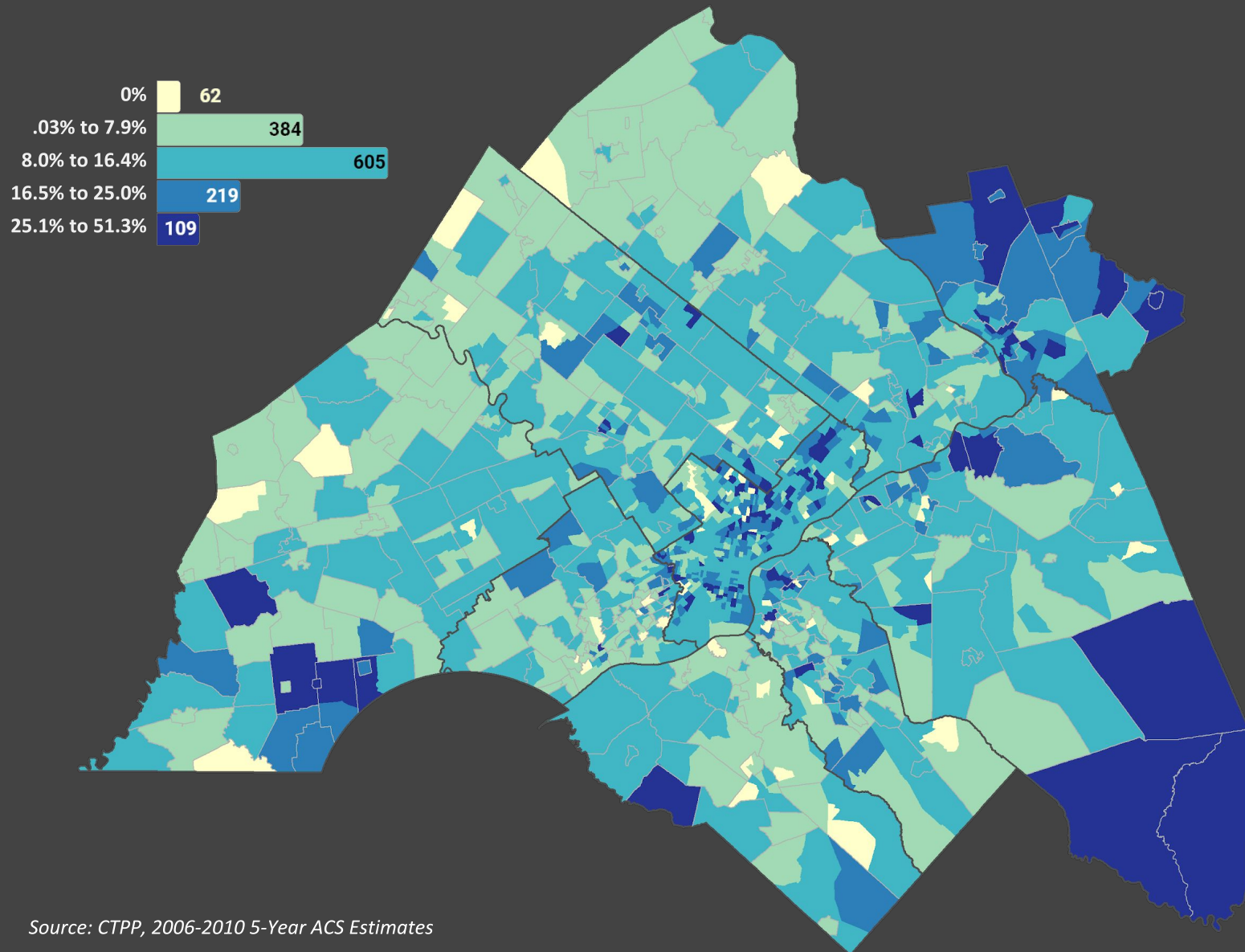


FOREIGN BORN - RESIDENCE



Source: CTPP, 2006-2010 5-Year ACS Estimates

FOREIGN BORN - WORKPLACE



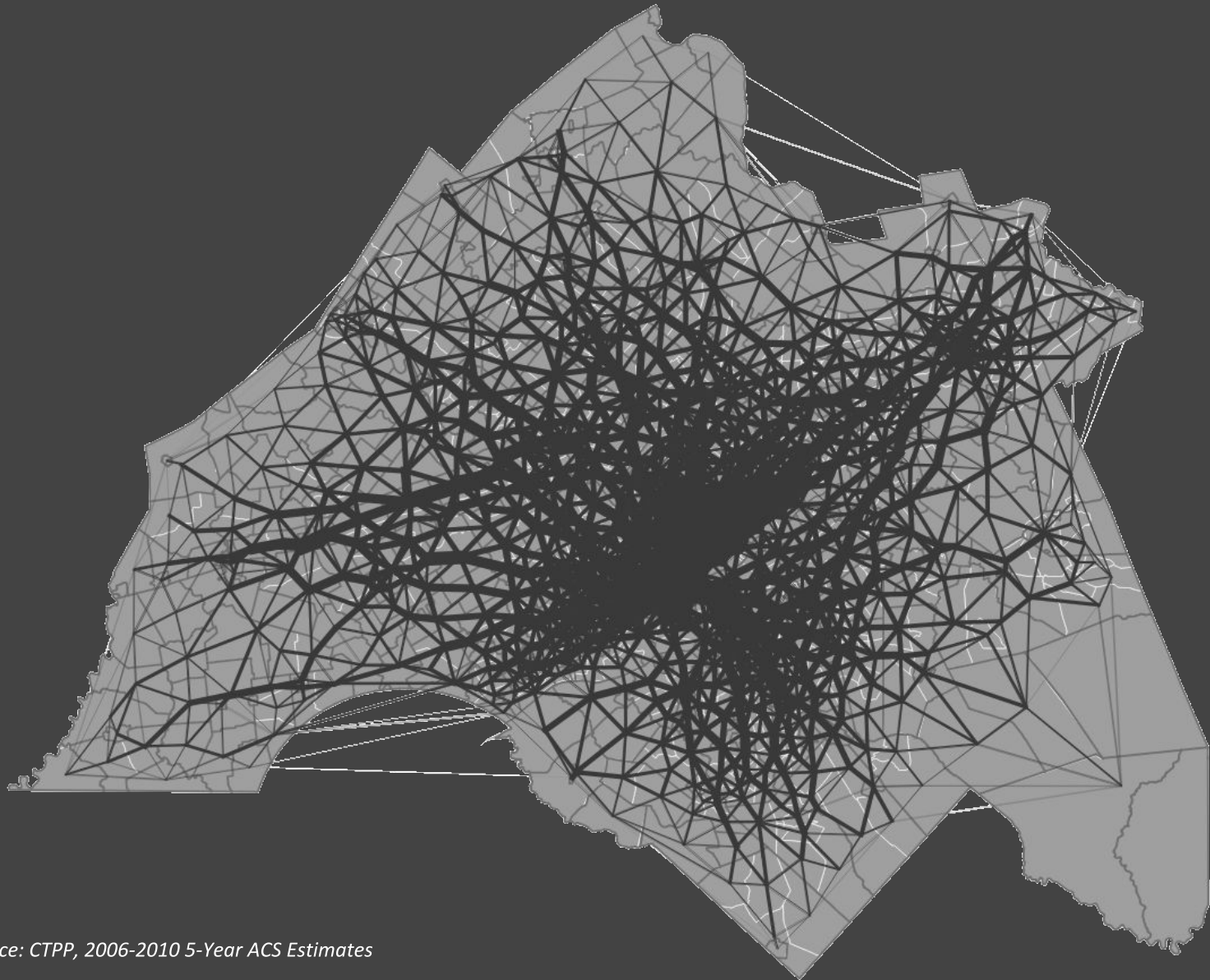
Source: CTPP, 2006-2010 5-Year ACS Estimates

DESIRE LINES - TOTAL FLOW (20+ WORKERS)



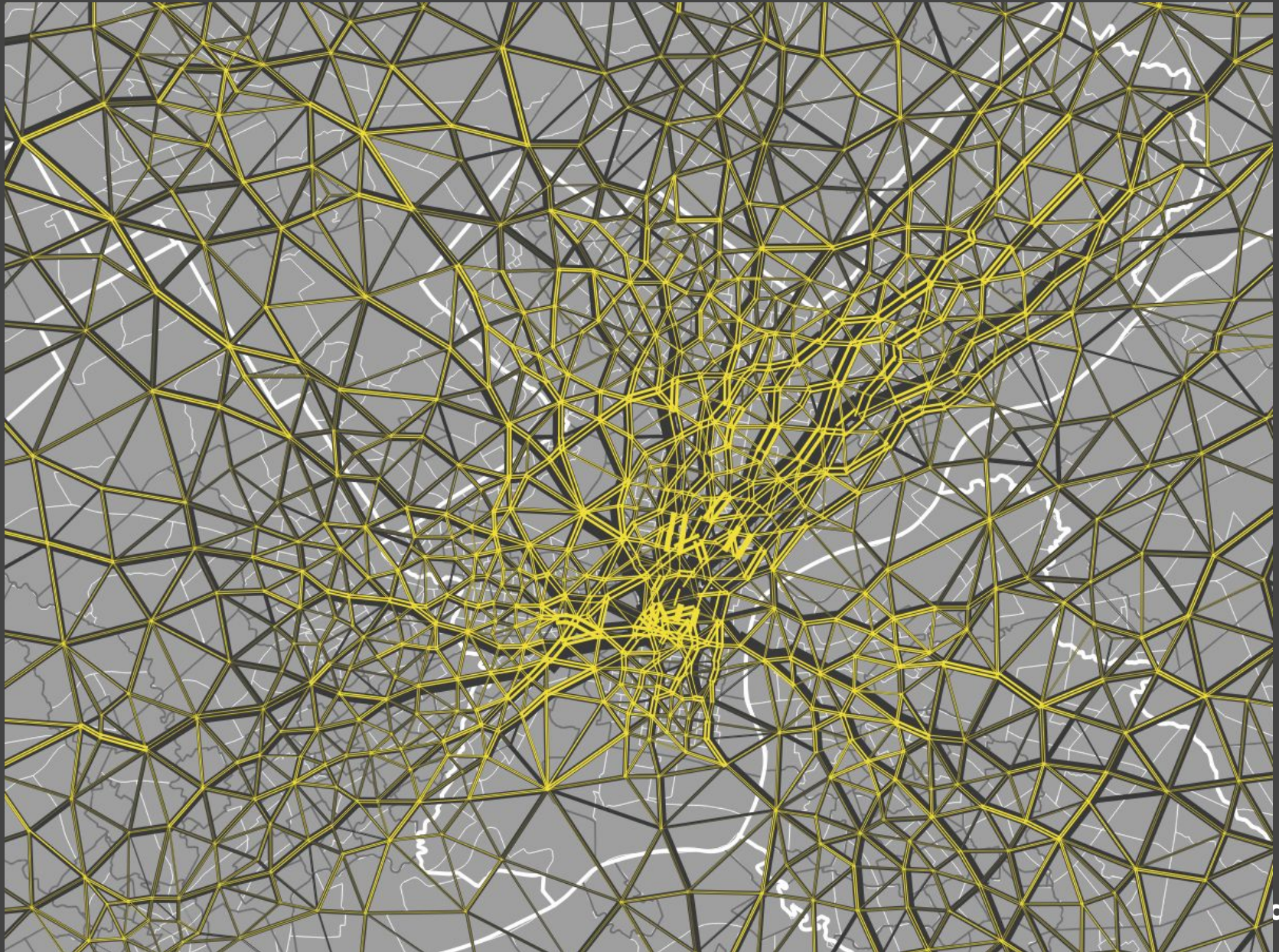
Source: CTPP, 2006-2010 5-Year ACS Estimates

DELAUNAY LINES - TOTAL FLOW



Source: CTPP, 2006-2010 5-Year ACS Estimates

DELAUNAY LINES - LOW INCOME FLOW



THANK YOU!

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RESOURCES

DVRPC's IPD Interactive Map: www.dvrpc.org/webmaps/IPD/

Experimental Statistical Significance Map:

https://g-rock.github.io/ej_mapping/

List of CTPP EJ Tables: CTPP Status Report - April 2017

www.fhwa.dot.gov/planning/census_issues/ctpp/status_report/sr0417/index.cfm

QGIS Delaunay Line Tool: <https://github.com/AequilibraE/AequilibraE>

EXTRA SLIDES



ALIGNING INDICATORS WITH LEGISLATION

Indicator (ACS 5-year estimates)	Executive Order 12898	Title VI of the Civil Rights Act of 1964	FHWA's Title VI and EJ documents	FTA's Title VI and EJ documents
Youth			✓	
Older			✓	
Female			✓	
Racial Minority	✓	✓	✓	✓
Ethnic Minority	✓	✓	✓	✓
Foreign Born		✓	✓	✓
Limited English Proficiency		✓	✓	✓
Disabled			✓	
Low-income	✓		✓	✓

ALIGNING INDICATORS WITH LEGISLATION

Indicator (ACS 5-year estimates)	Executive Order 12898	Title VI of the Civil Rights Act of 1964	FHWA's Title VI and EJ documents	FTA's Title VI and EJ documents
Youth			✓	
Older			✓	
Female			✓	
Racial Minority	✓	✓	✓	✓
Ethnic Minority	✓	✓	✓	✓
Foreign-Born		✓	✓	✓
Limited English Proficiency		✓	✓	✓
Disabled			✓	
Low-income	✓		✓	✓
Carless Households	✗	✗	✗	✗
Female Head of Household	?	✗	?	✗