2020

DVRPC

WHITE PAPER

# Indicators of Potential Disadvantage (IPD): Discussion of the 2018 Update



DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

**The Delaware Valley Regional Planning Commission** is the federally designated Metropolitan Planning Organization for a diverse nine-county region in two states: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

**DVRPC's vision** for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

**DVRPC's mission** is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

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# Executive Summary

The Delaware Valley Regional Planning Commission (DVRPC)—Greater Philadelphia's Metropolitan Planning Organization (MPO)—has conducted an evaluation of the Indicators of Potential Disadvantage (IPD) analysis (www.dvrpc.org/webmaps/ipd/) and launched a significantly revised version in 2018. The IPD analysis is used throughout the Commission to demonstrate compliance with Title VI of the Civil Rights Act and fair treatment of population groups identified through Environmental Justice (EJ).

DVRPC first created the analysis in 2001, and it was initially called "Degrees of Disadvantage (DOD)." Over the years, this analysis was adopted or adapted by similar organizations around the country, cited as a best practice for considering equity issues in planning and demonstrating compliance with federal nondiscrimination mandates. Since then, the dataset used in the analysis has been updated annually to include most recently available data from the U.S. Census Bureau's American Community Survey (ACS). The indicators in the analysis have also been refined as needed. In 2013, the analysis was renamed to "Indicators of Potential Disadvantage (IPD)" to communicate that DVRPC is not presupposing disadvantage in a given population group and to more conscientiously meet the aims of equity.

Until this recent effort, the creation and application of the IPD methodology and indicators had not been systematically reviewed within DVRPC's plans, programs, and processes or compared to the newer guidelines from the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and U.S. Census Bureau.

To update the IPD analysis, DVRPC conducted an internal review of how the analysis tool was used among staff, evaluated data sources and published margins of error, researched best practices and methodologies used by peer agencies, and reviewed federal guidance. The processes for the internal review, research, and update of the IPD are detailed in this document.

Based on the internal review and best practice research, the project team found gaps in the original IPD analysis (referred to as IPD 1.0 hereafter):

1. Some protected classes and EJ populations were inaccurately identified.
2. A binary scoring method relied on a "regional threshold," which resulted in the exclusion of census tracts with lower concentrations of indicator populations.
3. The margins of error in census data made the binary scoring method inaccurate in categorizing protected classes and EJ populations.
4. Since the creation of the IPD tool, FHWA, FTA, and the U.S. Census Bureau have issued guidance and recommendations for Title VI and EJ populations.

DVRPC updated two major elements of the IPD analysis (referred to as IPD 2.0 hereafter):

1. The indicators are matched to the populations that federal funding recipients and subrecipients are required and/or recommended to consider.
2. The methodology was updated to acknowledge the varying levels of concentration of those populations and better recognize margins of error in census data.

# Introduction

DVRPC's commitment to equity is reflected in the Commission's Unified Planning Work Program (UPWP), Transportation Improvement Program (TIP), and Long-Range Plan (LRP), as well as its publications, communications, public involvement efforts, and policies. DVRPC's Office of Communications & Engagement (OCE) is within the Executive Office, and has four full-time staff members who work directly with project planning and administrative staff to coordinate, implement, and document activities that are related to nondiscrimination. The DVRPC Board adopts a self-certification resolution annually.

## Title VI Compliance Program

DVRPC is guided by federal Title VI and Environmental Justice (EJ) mandates and guidelines, and the Commission strives to not only meet these, but also to create a transparent, inclusive, and equitable planning process. Title VI of the Civil Rights Act states that "no person in the United States, shall, on the grounds of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."[1] EJ is defined by the federal government as, "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[2] Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

In 2014, the DVRPC Board updated its Title VI Compliance Plan, which establishes a framework for DVRPC's efforts to ensure compliance with Title VI, as well as nondiscrimination mandates. See www.dvrpc.org/Reports/TM14010.pdf.

DVRPC puts forth its commitment to Title VI of the Civil Rights Act by placing a full Title VI statement on all of its published products, throughout its website, on public meeting agendas and announcements, and in legal notices. An abbreviated version of the statement appears on shorter documents, such as brochures, outreach materials, flyers, and postcards. See www.dvrpc.org/GetInvolved/TitleVI/ or www.dvrpc.org/policies/ for the most up-to-date Title VI statement.

[1]U.S. Department of Justice, "Title VI Of The Civil Rights Act Of 1964 42 U.S.C. § 2000d Et Seq.," Federal Coordination and Compliance Section, January 22, 2016, accessed September 2019, www.justice.gov/crt/fcs/TitleVI-Overview.

[2]Federal Register, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population," *Presidential Documents*, February 16, 1994, accessed September 2019, www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf.

As established in the full statement, one can learn where to find the Title VI Complaint Form and procedure online (www.dvrpc.org/GetInvolved/TitleVI/). DVRPC's Title VI Program web page includes information on each state and federal agency's Civil Rights Office of Title VI Compliance contact. DVRPC maintains a complaint log.

Activities related to Title VI, EJ, and Public Involvement are documented monthly through the OCE's progress reports, and documented annually through various internal staff surveys that collect information about fiscal year project processes and outcomes. In the past, DVRPC has published these as annual reports entitled *Environmental Justice at DVRPC* (see: www.dvrpc.org/GetInvolved/TitleVI/). Staff reconsidered publishing these reports, and instead efforts were redirected to related activities, including:

- updating the region's Coordinated Human Services Transportation Plan (CHSTP):
- LRP 2045 public participation efforts;
- thoroughly evaluating and updating data analyses and geographic information system (GIS) tools used to demonstrate Title VI and EJ compliance;
- conducting more in-person outreach in areas that may include traditionally underserved groups; and
- expanding language access measures.

In 2001, DVRPC developed an analysis to identify impacts of disparate funding and services on defined low-income and minority groups identified in Title VI and EJ and released DVRPC's EJ technical analysis methodology. See www.dvrpc.org/Products/02036/. Formerly known as the Degrees of Disadvantage (DOD) method, DVRPC's equity analysis is now called the Indicators of Potential Disadvantage (IPD). Neither Title VI of the Civil Rights Act nor Executive Order #12898 provides specific guidance to evaluate discrimination within a region's transportation planning process. Therefore, MPOs must devise their own methods for ensuring that population groups and issues are represented in decision making and planning efforts. It should be noted that while DVRPC employs the IPD methodology to ascertain population data, it is just one tool that is part of a larger strategy that includes public participation, stakeholder outreach, data sources, and other research utilized by DVRPC staff to plan for all residents in the Greater Philadelphia region.

# IPD 1.0 Indicators and Methodology

The previous methodology is referred to in this report as IPD 1.0. Below is a description of the IPD 1.0 indicators and score calculation that was used by DVRPC until 2018. A publication about that methodology can be found under "Annual Update of '…and Justice for All': DVRPC's Strategy for Fair Treatment and Meaningful Involvement of All People" on the DVRPC website.[3]

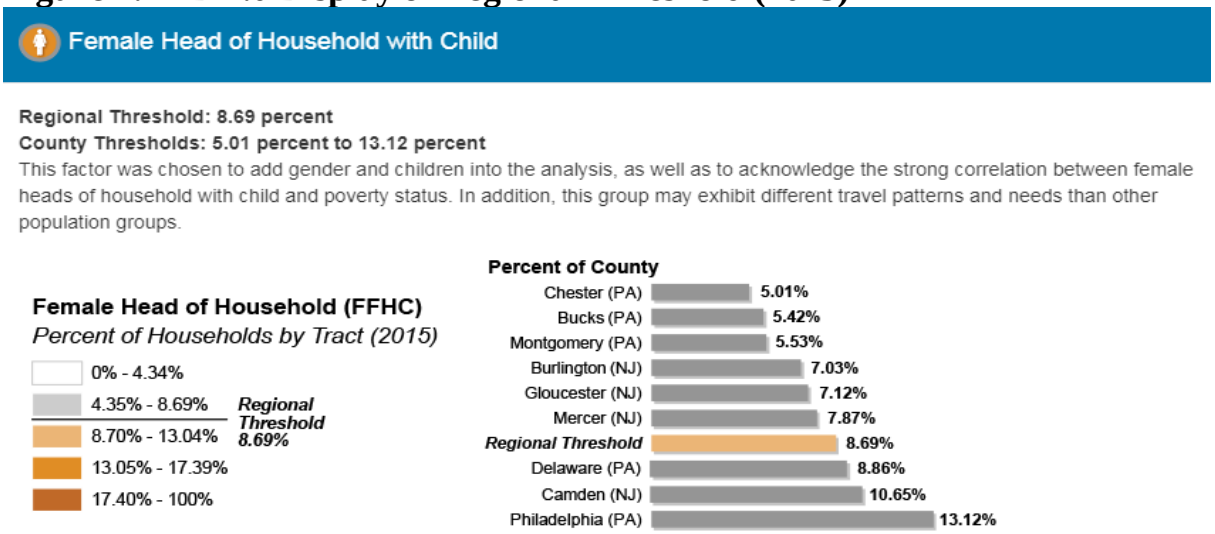
Using ACS five-year estimates data, the eight population groups listed below were identified and located at the census tract level for use in IPD 1.0:

- Non-Hispanic Minority;
- Carless Households;
- Households in Poverty;
- Female Heads of Households with Children;
- Elderly (75 years and over);
- Hispanic;
- Limited English Proficiency; and
- Persons with Disabilities.

To create a regional threshold, all of the census tracts in the region were combined under each of the indicators and divided by the appropriate universe (either total population or number of households) for the nine-county region. This calculated the regional average for each population group and became the regional threshold. See Figure 1 for an example of the IPD 1.0 calculation for one of the indicators.

[3]DVRPC, "Annual Update of '…and Justice for All': DVRPC's Strategy for Fair Treatment and Meaningful Involvement of All People," Data Services: Publications, September 2002, accessed September 2019, www.dvrpc.org/Products/02036/.

**Figure 1: IPD 1.0 Display of Regional Threshold (2015)**




*Sources: DVRPC; ACS (2011–2015 five-year estimates)*

Any census tract that met or exceeded the regional threshold for a population group was an EJ-sensitive tract and given a score of 1. Any census tract that was below the regional threshold for a population group was given a score of 0, arguably determining that the tract did not include populations of concern and/or did not need to be evaluated for Title VI or EJ considerations. Each of the scores from the eight population groups were added together to determine a cumulative score, ranging from 0 to 8 for each tract. This score was then used by DVRPC's plans, programs, and decision-making processes to evaluate and demonstrate compliance with Title VI and EJ mandates.

# Evaluating IPD 1.0

The evaluation of IPD 1.0 and creation of IPD 2.0 was led by staff from OCE over the course of two years. The project team included several staff members with expertise in GIS, statistics, and/or census data.

## Internal Review

To begin this project, all the managers of DVRPC offices were interviewed and asked the following three questions:

1. How do you currently use the IPD?
2. If you could change the IPD, what changes would be important or helpful for your unit's work?
3. Are there any projects, grants, or programs that are contingent on the current IPD 1.0 methodology?

These questions helped frame staff needs, cultivate ideas, and made OCE aware of high-priority DVRPC activities that needed to be kept informed throughout the update process. The interviews took about one hour, and managers could invite their department staff if desired.

From these interviews, it was established that the IPD 1.0 was utilized in many different planning projects and decision-making processes. However, these interviews also discussed the Commission-wide miscommunications of the purpose of IPD 1.0. The three primary miscommunications the project team sought to resolve in the update were:

1. establishing the similarities and differences between the nondiscrimination mandates for Title VI and EJ among DVRPC staff;
2. communicating and implementing the Commission-wide responsibility to address and consider discrimination within DVRPC projects, programs, and policies; and
3. training staff on how to utilize the IPD across a variety of planning products to meet the needs and intention of compliance.

To facilitate a solution-based discussion and address the planning and data needs of the IPD update, a Planning Staff Group and a Data Staff Group were organized and relevant staff members were invited to each group. The Planning Staff Group consisted of at least one staff member from each planning unit at DVRPC. The Data Staff Group was created by recruiting members from a staff interest group, the Data Innovation Team.

## *Planning Staff Group*

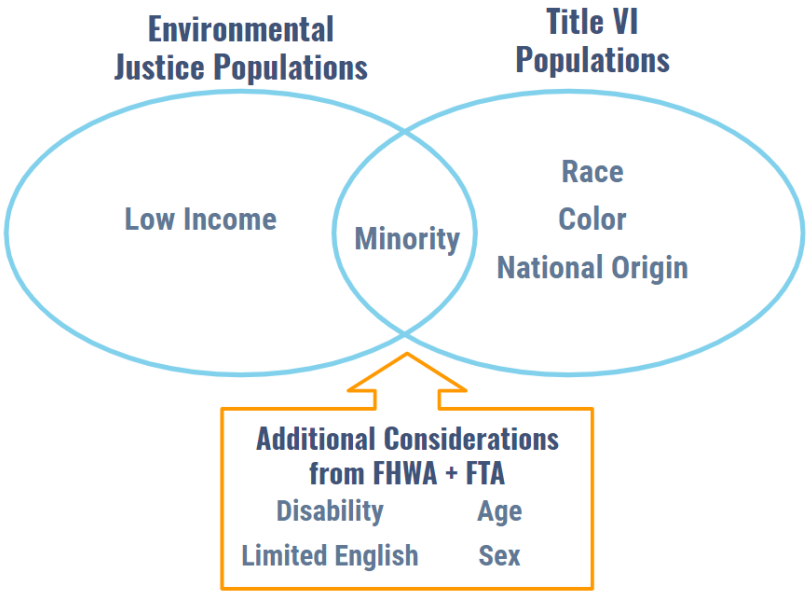
The Planning Staff Group had two meetings during the update process. The first meeting was used to present shortcomings of IPD 1.0 that were identified by staff in the interviews, discuss an MPO's responsibilities in responding to federal nondiscrimination mandates, and brainstorm ideas for IPD 2.0. Figure 2 shows a visual created by the project team to explain the different population groups covered or referenced by Title VI of the Civil Rights Act and the EJ executive order, as well as other federal mandates.

The group came to three major conclusions:

1. Some of the demographic groups identified in IPD 1.0 are known to be interrelated and correlated with each other.
2. There are many more indicators that planners would like to analyze in order to understand equity.
3. The IPD 1.0 methodology of a regional average did not effectively identify Title VI or EJ populations.

OCE staff also found throughout the discussion that Title VI and EJ were often conflated, and the update to IPD should include a clearer mission within the methodology and that trainings for staff should be explored after the IPD 2.0 was launched.

### Figure 2: Understanding Population Groups Covered by Federal Nondiscrimination Mandates




*Source: DVRPC*

At the second meeting, the Planning Staff Group reviewed additional data sources, discussed the new IPD 2.0 indicators that aligned with equity guidelines, and brainstormed how DVRPC can "go beyond compliance." See Table 1 that illustrates alignment of IPD 1.0 indicators with guidance.

### Table 1: Aligning EJ and Title VI Principles with IPD Indicators

| EJ and Title VI Principles | IPD 1.0 Indicators |
|---|---|
| • Low-income<br>• Minority<br>• **Age**<br>• **Sex**<br>• **National origin**<br>• Ethnicity<br>• Disability<br>• Limited English proficiency | • ~~Non-Hispanic~~ **Racial** Minority<br>• ~~Hispanic~~ **Ethnicity**<br>• ~~Carless households~~<br>• **Low-income** Households ~~in poverty~~<br>• Elderly ~~(75+)~~ **(65+)**<br>• Limited English proficiency<br>• Persons with a physical disability<br>• ~~Female-headed households~~ |

**Legend:**
**Blue = additions to IPD 1.0, Red = removed from analysis for IPD 2.0**
*Source: DVRPC*

### *Data Staff Group*

Similar to the Planning Staff Group, the Data Staff Group met twice and focused discussions on updating the IPD GIS data layers, the webmap application, and brainstorming the best way to create a scoring methodology. The primary conclusions from the Data Staff Group were:

1. agreement with many of the planning staff's indicator suggestions for exploring additional data sources; and
2. suggestion to use a standard deviation methodology instead of the regional average to create a composite score.

From there, the project team researched standard deviation methodologies that could be used in the IPD 2.0 analysis.

# Best Practices Research

As mentioned before, the project team identified equity analyses used by similar organizations. The team came to five primary conclusions to guide the IPD update and inform staff:

- Public health agencies have developed equity indicators that feature useful built environment and transportation indicators, which could be used by planners.
- There is a strong relationship between low income, race, and ethnicity. However, most equity policy recommendations suggest conducting an initial analysis that identifies each of the communities of concern and their demographic characteristics. Statistical correlation could be considered in additional analyses on a project-by-project basis.
- Using asset condition and management data with demographic data can be a helpful way to understand "benefits and burdens," a main tenet of EJ.
- While "carless households" is a helpful indicator for transportation agencies, it is not a universally applicable equity indicator. The primary recommendation from transportation equity policy reports is to use carless households when working in emergency preparedness and climate change planning.
- FHWA and FTA have published guidance in the last few years to help transportation organizations meet Title VI compliance and understand EJ guidelines. These documents have specific recommendations and practices, which are applied to the IPD 2.0 update.

# Creating IPD 2.0

From the internal review and best practice research, DVRPC found that it was time to comprehensively change the IPD analysis.

## Updating the Indicators

In the evaluation of IPD 1.0 indicators, the project team sought to more directly and clearly identify populations protected under Title VI of the Civil Rights Act[4] and considered within the Executive Order on Environmental Justice.[5] Additional populations were added based on FHWA's Environmental Justice recommendations (2017),[6] FHWA's Title VI and Additional Nondiscrimination requirements (2017),[7] FTA's Environmental Justice policy guidance (2012),[8] and FTA's Title VI requirements and guidelines (2012).[9] From these documents, the project team identified nine population groups to be included in the analysis:

- Youth
- Older Adults
- Female
- Racial Minority
- Ethnic Minority
- Foreign Born
- Limited English Proficiency
- Disabled
- Low-Income

Table 2 shows the indicators chosen for IPD 2.0, the data sources used in the analysis, the population protected or considered under the appropriate regulations or guidance, and the documents that support the use of each indicator.

[4]U.S. Department of Justice, 2016.
[5]Federal Register, 1994.
[6]USDOT, FHWA, "Environmental Justice, Title VI, Non-Discrimination, and Equity," *Environmental Justice*, 2013, accessed September 2019, www.fhwa.dot.gov/environment/environmental_justice/equity/.
[7]FHWA, "FHWA Office of Civil Rights," *U.S. Department of Transportation Federal Highway Administration*, 2010, accessed September 2019, www.fhwa.dot.gov/civilrights/programs/title_vi/.
[8]USDOT, FTA, "Environmental Justice Policy Guidance for Federal Transit Administration Recipients," *Circular FTA C 4703.1*, August 15, 2012, accessed September 2019, www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_EJ_Circular_7.14-12_FINAL.pdf.
[9]USDOT, FTA, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients," *Circular FTA C 4702.1B*, October 1, 2012, accessed September 2019, www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Title_VI_FINAL.pdf.

## Table 2: Summary of IPD Analysis Alignment with Relevant Regulations

| Indicator | ACS Data Table | Protected Population | Authorizing Source |
|---|---|---|---|
| **Youth** | B09001: Population under 18 Years by Age | Age | FHWA's Title VI Program and Additional Nondiscrimination Requirements |
| **Older Adults** | S0101: Age and Sex | Age | FHWA's Title VI Program and Additional Nondiscrimination Requirements |
| **Female** | S0101: Age and Sex | Sex | FHWA's Title VI Program and Additional Nondiscrimination Requirements |
| **Racial Minority** | B02001: Race | Race and Minority | Executive Order 12898, Title VI of the Civil Rights Act of 1964, FHWA's Title VI Program and Additional Nondiscrimination Requirements, **and** Title VI Requirements and Guidelines |
| **Ethnic Minority** | B03002: Hispanic or Latino Origin by Race | Minority and National Origin | Executive Order 12898, Title VI of the Civil Rights Act of 1964, FHWA's Title VI Program and Additional Nondiscrimination Requirements, **and** Title VI Requirements and Guidelines |
| **Foreign Born** | B05012: Nativity in the United States | National Origin | Title VI of the Civil Rights Act of 1964, FHWA's Title VI Program and Additional Nondiscrimination Requirements, **and** Title VI Requirements and Guidelines |
| **Limited English Proficiency** | S1601: Language Spoken at Home | Limited English Proficiency and National Origin | Title VI of the Civil Rights Act of 1964, FHWA's Title VI Program and Additional Nondiscrimination Requirements, **and** Title VI Requirements and Guidelines |
| **Disabled** | S1810: Disability Characteristics | Disability | FHWA's Title VI Program and Additional Nondiscrimination Requirements |
| **Low-Income** | S1701: Poverty Status in the Past 12 Months | Low-income | Executive Order 12898 **and** FHWA's Title VI Program and Additional Nondiscrimination Requirements |

*Sources: DVRPC; ACS (2013–2017 five-year estimates)*

IPD 2.0 includes three new indicators: “Female,” “Youth” (defined as population younger than 18 years), and “Foreign Born.” These three population groups were referenced in FHWA’s and FTA’s guidance documents but were not included as standalone indicators in IPD 1.0.

Two of the IPD 1.0 indicators were relabeled to make the IPD 2.0 terminology consistent with the groups identified in the regulations and guidance: "Non-Hispanic Minority” became “Racial Minority” and “Hispanic” became “Ethnic Minority.” According to Title VI and EJ, all ethnic minority populations are protected and considered, but currently the U.S. Census Bureau only collects population data on one ethnicity, Hispanic. Therefore, the IPD 2.0 “Ethnic Minority” indicator includes Hispanic population data exclusively. This is communicated on the IPD 2.0 website. The relabeling of both of these indicators was suggested and supported by staff as it communicates a stronger connection to the equity requirements and guidance. Additionally, the new “Ethnic Minority” label accommodates any additional data on ethnic minority populations that could be collected in future ACS releases, such as Middle East or North African (MENA), which was explored by the U.S. Census Bureau for potential inclusion on the 2020 Census.[10]

Two IPD 1.0 indicators were redefined for IPD 2.0 to better reflect the populations included in the regulations and guidance: “Households in Poverty” became “Low-Income,” and “Elderly (over 75)” became “Older Adults” (65 years old or greater). “Low-Income” is the language included in EJ guidelines and is defined in IPD 2.0 as population below 200 percent of the poverty rate, which is the low-income rate used by the U.S. Health Resources and Services Administration (HRSA). “Older Adults” (65 years old or greater) now includes all persons considered under the Age Discrimination Act of 1975 per FHWA’s additional nondiscrimination requirements.

Two of the IPD 1.0 indicators were omitted from the IPD 2.0 indicators, as they do not reflect regulations and guidance: “Carless Households” and “Female Heads of Households with Children.” However, these indicators can be used by DVRPC staff for individual studies and projects when relevant for considering equity issues. “Carless Households” are important to consider in transportation planning but is not a protected population. “Female Heads of Household with Children” includes the populations of women and children, but the IPD 1.0 indicator excluded the majority of female persons and children in the region. By creating two separate indicators for these groups in IPD 2.0 as described above, the populations can be considered in full.

The project team also found that IPD 1.0 had a mix of population-based and household-based indicators, which affects comparison between census tracts in the scoring methodology. To

[10]Nicholas A. Jones, “Update on the U.S. Census Bureau's Race and Ethnic Research for the 2020 Census,” *Survey News*, U.S. Census Bureau, 2014, accessed September 2019, www.census.gov/content/dam/Census/newsroom/press-kits/2014/article_race_ethnic_research_2020census_jones.pdf.

standardize the indicators and be able to accurately aggregate a cumulative score for DVRPC projects, all of the IPD 2.0 data sources for the nine indicators are population based.

Lastly, the DVRPC project team discovered in the internal review and best practices research that mixing "equity indicators," or indicators that look at external factors rather than demographics, in with "protected class indicators" confuses users on the intents of Title VI and EJ and how to apply the IPD analysis in a given project. By focusing the indicators in the IPD analysis to the nine demographic groups mentioned in USDOT regulations and guidelines, more meaningful and accurate analyses may be developed to better understand equity implications in plans, projects, policies, and decision-making processes.

# Updating the Methodology

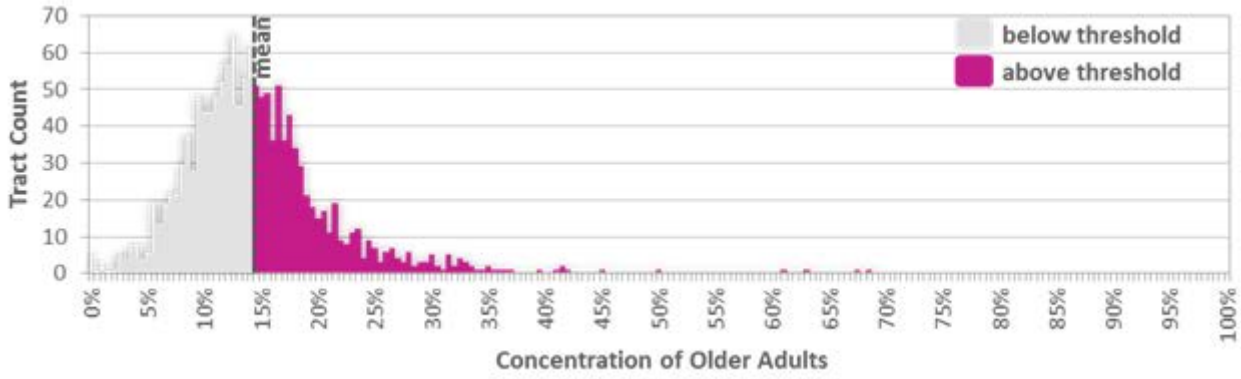
IPD 1.0 gave a score to each tract in the region based on the concentrations of the eight IPD populations above or below the regional average. A score of 1 was given for each indicator that exceeded the regional average, and a score of 0 to each that fell below that threshold. A composite score was calculated. Scores ranged from 0 (where all indicators fell below the regional average) to 8 (where each indicator was above that average). This summary score was used by DVRPC's plans, programs, and decision-making processes to demonstrate compliance with federal nondiscrimination mandates.

The project team found this binary method excluded many tracts that should be considered, categorized tracts as the same that were distinctly different, and miscommunicated the purpose of understanding discrimination and equity in transportation planning. Both the FHWA and FTA guidance encourage agencies to create a meaningful threshold for measuring communities of concern, as well as to consider the amount of impact on the number of persons in an equity analysis rather than the size of the population exclusively. This requires agencies to first identify all persons protected or considered under Title VI and EJ that are present in the project area and then create a meaningful threshold.

To see how the binary methodology excluded census tracts and created a harsh boundary, see Figure 3. This figure displays the distribution of census tracts for one population group (Older Adults) by the IPD 1.0 scoring methodology. The distribution curve shows the percentage value of Older Adults living in each tract and the number of tracts that fall within a given percentage value. The regional mean for this population group is 13 percent according to 2015 ACS data, which means that approximately half of the region's tracts were given a score of 1. Using this methodology, these tracts with average or higher than average concentrations of various communities of concern are prioritized, while those with lower concentrations are not and given a score of 0. However, when the dataset's Margin of Error (MOE) is taken into account, the regional average delineation becomes more tenuous; a tract given a score of 0 could realistically be over the regional average, and therefore should warrant consideration. Additionally, the binary used in the 1.0 methodology grouped tracts together that contained a wide range of population concentrations and gave the tracts the same score when, statistically,

the tracts that fell close to the regional average were more similar than the tracts at either extreme of the distribution curve.

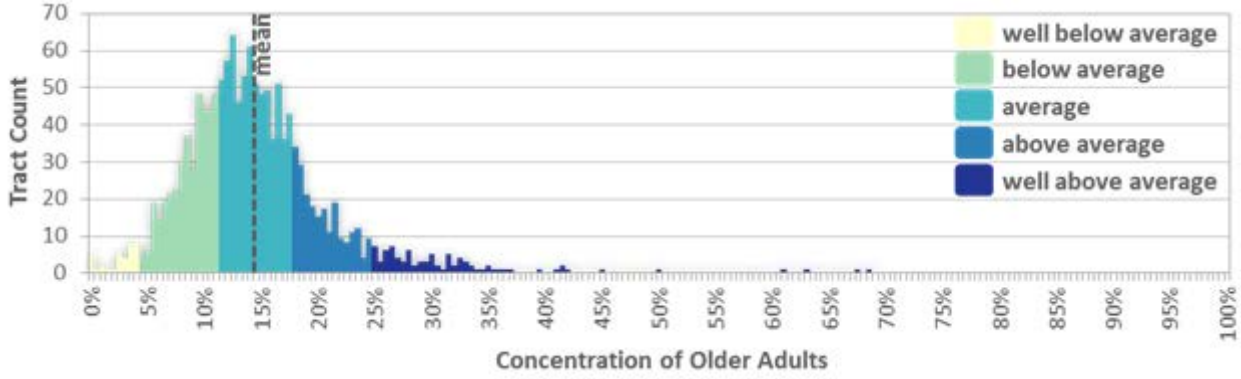
## Figure 3: IPD 1.0 Categorization of Census Tracts Containing Older Adults




*Sources: DVRPC; ACS (2012–2016 five-year estimates)*

The IPD 2.0 methodology mitigates for these shortcomings by using a standard deviation method to categorize and score tracts, thereby more accurately illustrating the concentration of the communities of concern and including all relevant tracts in the region. The “average” category is a half-standard deviation above and below the regional average for each indicator, and the remaining four categories use single-standard deviation breaks from the mean to differentiate higher or lower concentrations: “well below average,” “below average,” “above average,” and “well above average.” Figure 4 shows the results of the IPD 2.0 methodology using the Older Adults population group.

## Figure 4: IPD 2.0 Categorization of Census Tracts Containing Older Adults

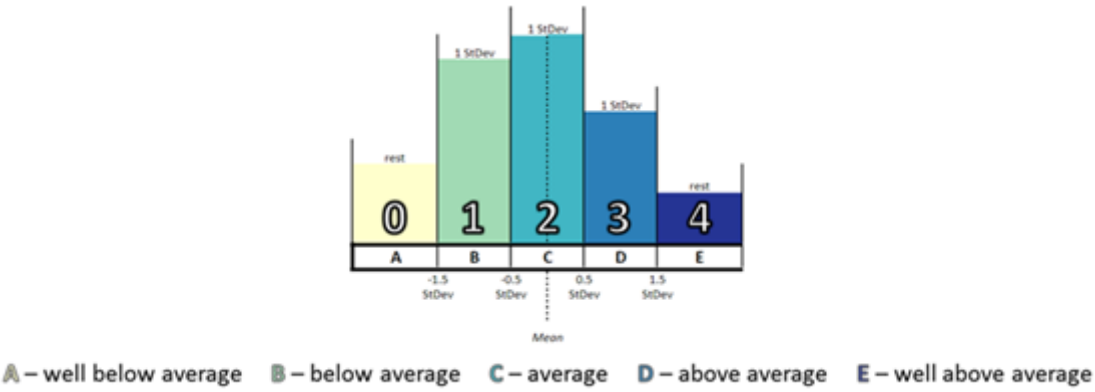



*Sources: DVRPC; ACS (2012–2016 five-year estimates)*

For detailed documentation of methods and source code for DVRPC’s calculations, please see github.com/dvrpc/ipd_2017.

Each of the five categories in the IPD 2.0 gets a score that correlates to the concentration of the population in the tract; for each of the nine IPD 2.0 indicators, “well below average” tracts receive a score of 0, “below average” receive a 1, “average” receive a 2, “above average” receive a 3, and “well above average” receive a 4 (see Figure 5). A composite score is calculated by summing each score for the 9 indicators, totaling 0 to 36 depending on the populations present. See Figure 6 for a map of the region using IPD 2.0 composite scoring methodology.

## Figure 5: Example Standard Deviations and Corresponding Scores




*Source: DVRPC*

By implementing the IPD indicators and methodology, the project team found the region’s population demographics for Title VI and EJ were more accurately represented and captured. For example, in IPD 1.0 Kennett Square in Chester County, an area with a large agricultural industry that is supported by many immigrant workers, received a low score when compared to all the census tracts in the region; many of the indicators were just below the regional average and therefore each received a score of 0. With IPD 2.0’s use of standard deviations in the methodology and the addition of the “Foreign Born” indicator to capture the populations protected under national origin in Title VI, the populations within Kennett Square came into sharper relief in the analysis. See Figures 6–15 for the summary map and the map of each indicator.

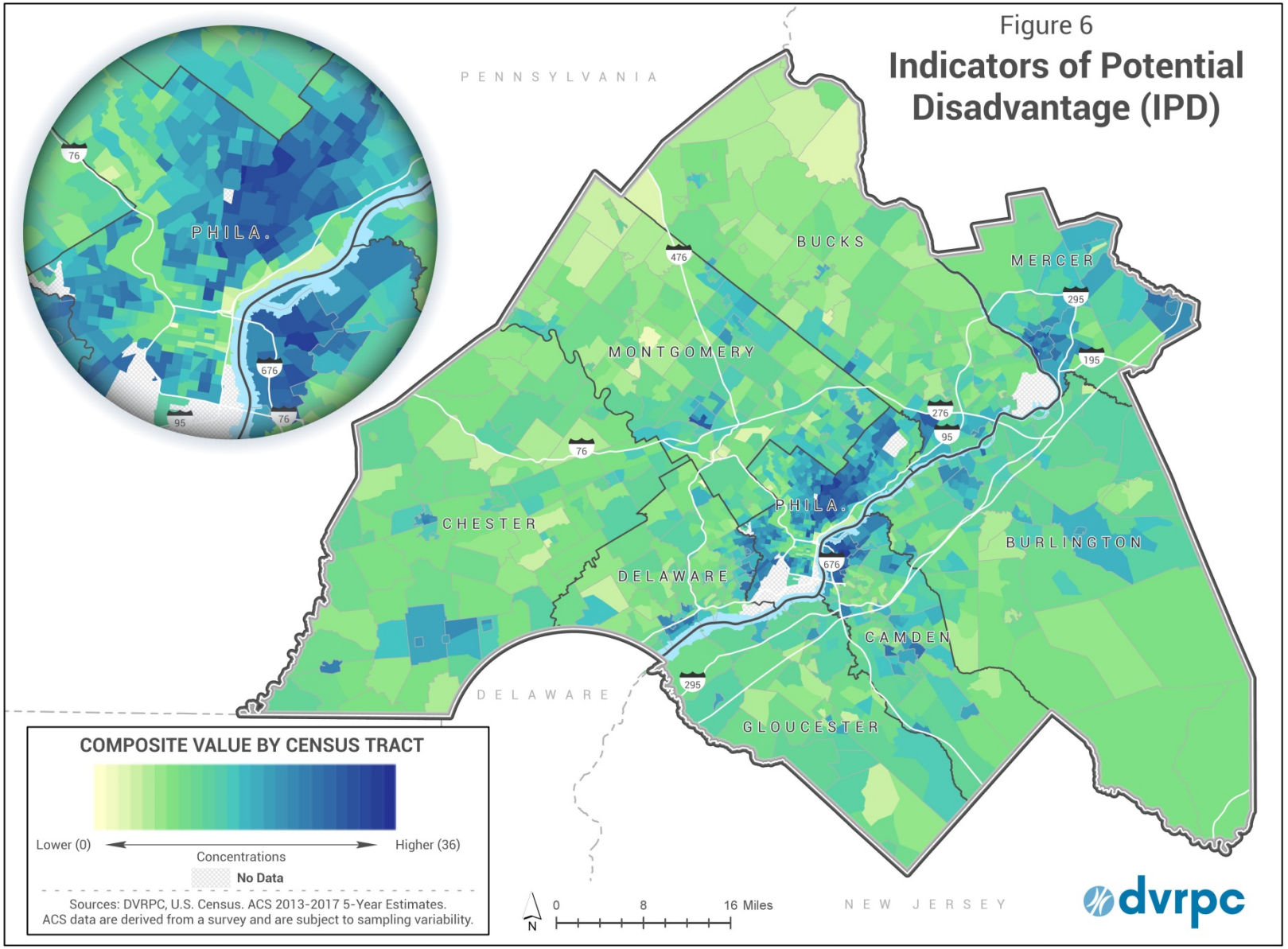


Figure 6
Indicators of Potential Disadvantage (IPD)
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
PHILA.
BURLINGTON
CAMDEN
GLOUCESTER
DELAWARE
NEW JERSEY
76
476
295
195
276
95
676
COMPOSITE VALUE BY CENSUS TRACT
Lower (0)
Higher (36)
Concentrations
No Data
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

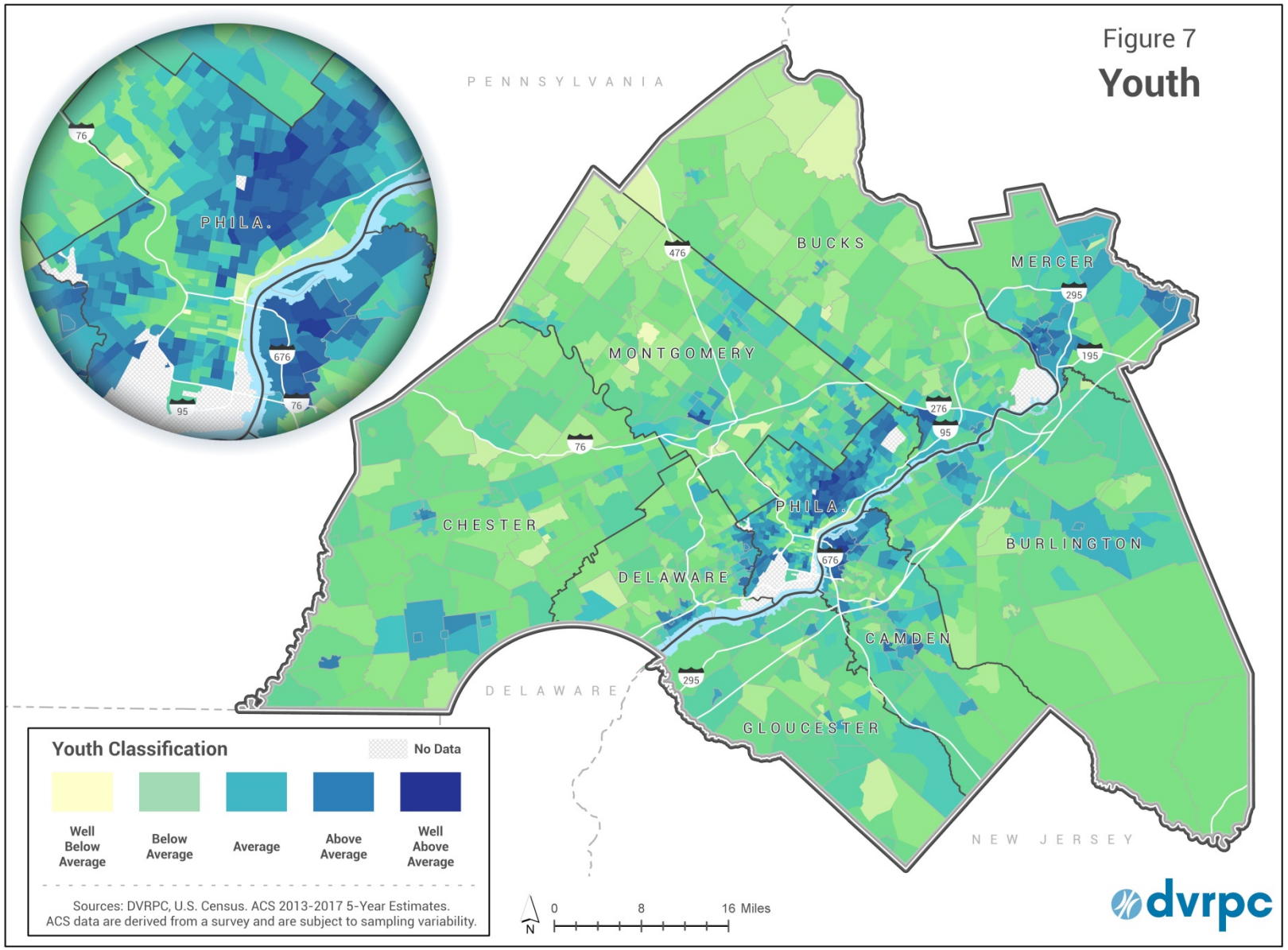


Figure 7
Youth
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
PHILA.
BURLINGTON
CAMDEN
GLOUCESTER
DELAWARE
NEW JERSEY
76
476
295
195
276
95
676
Youth Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

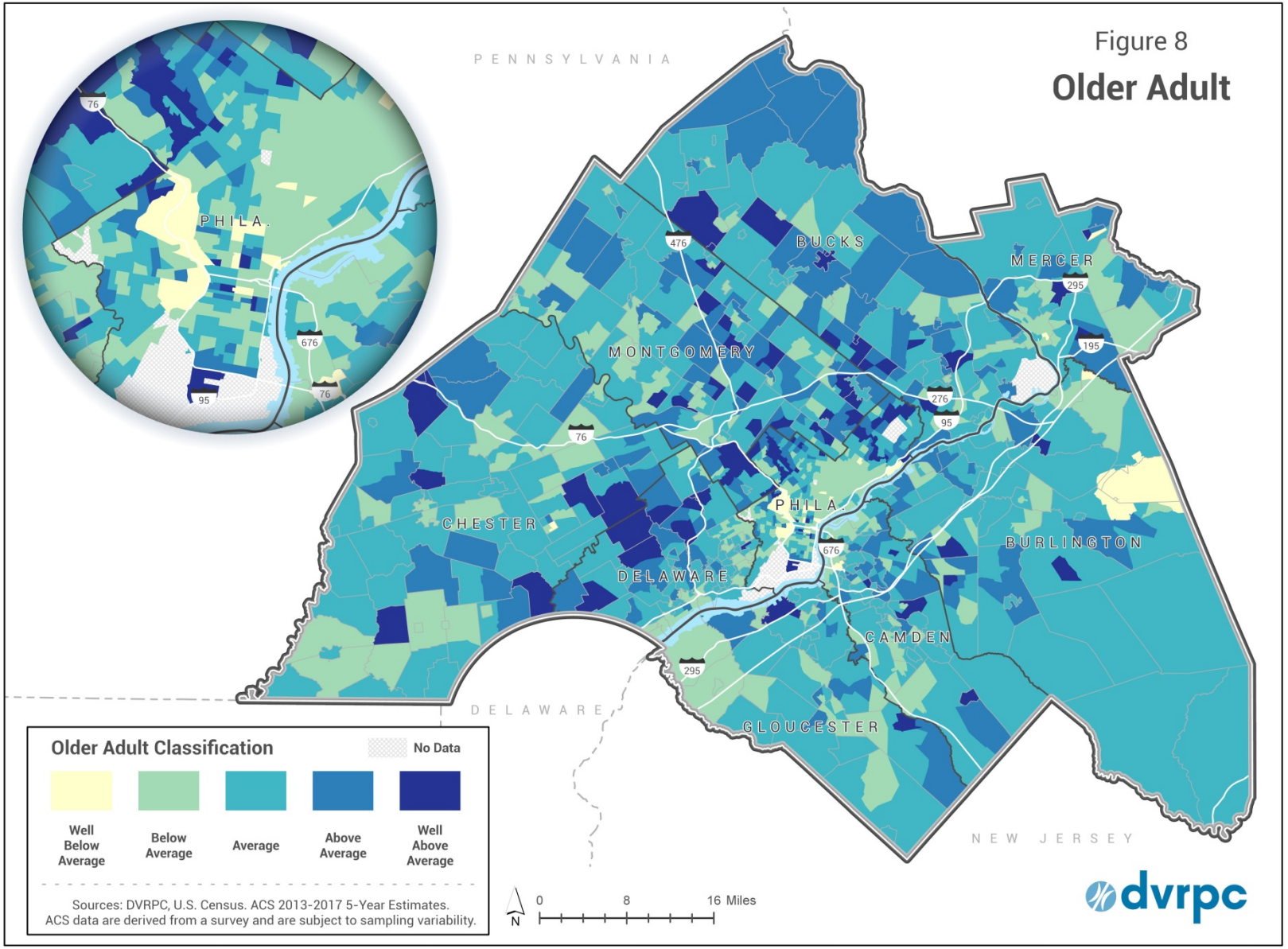


Figure 8
Older Adult
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
PHILA.
BURLINGTON
CAMDEN
GLOUCESTER
DELAWARE
NEW JERSEY
76
476
295
195
276
95
676
Older Adult Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

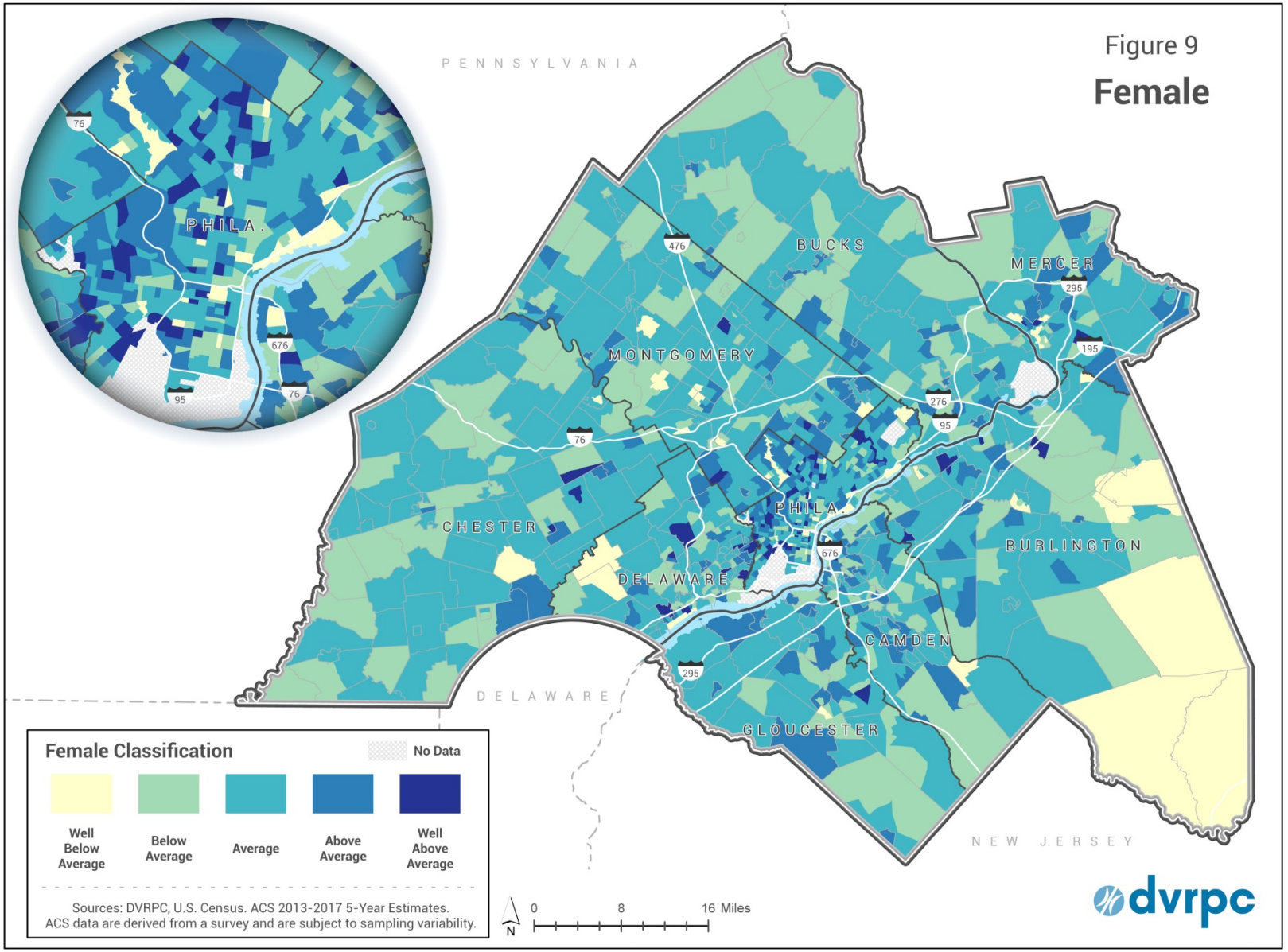


Figure 9
Female
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
PHILA
BURLINGTON
CAMDEN
GLOUCESTER
DELAWARE
NEW JERSEY
76
476
295
195
276
95
676
Female Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

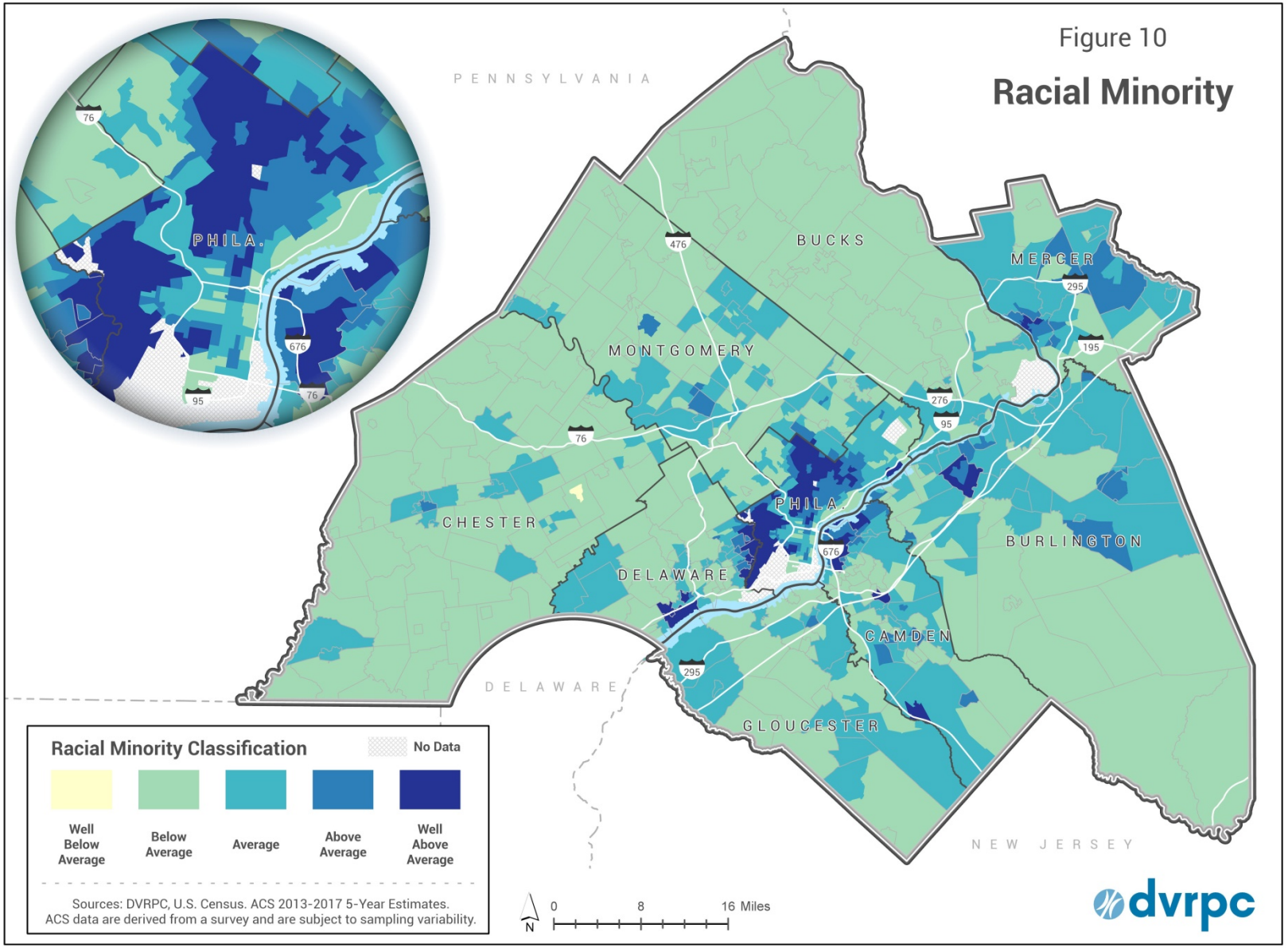


Figure 10
Racial Minority
PENNSYLVANIA
DELAWARE
NEW JERSEY
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
PHILA.
BURLINGTON
CAMDEN
GLOUCESTER
76
676
95
476
295
195
276
Racial Minority Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

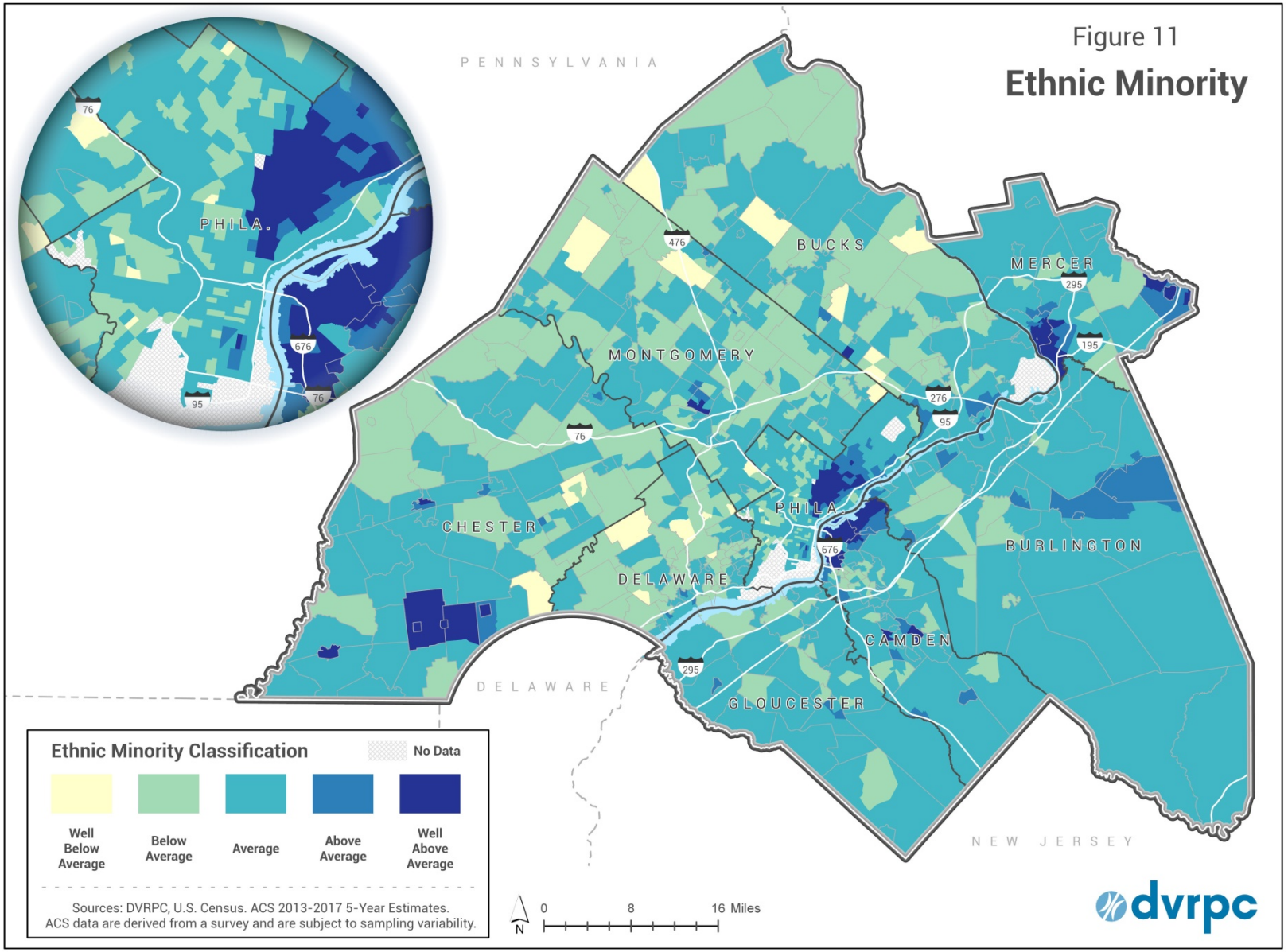


Figure 11
Ethnic Minority
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
BURLINGTON
CAMDEN
GLOUCESTER
NEW JERSEY
76
476
295
195
276
95
676
Ethnic Minority Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

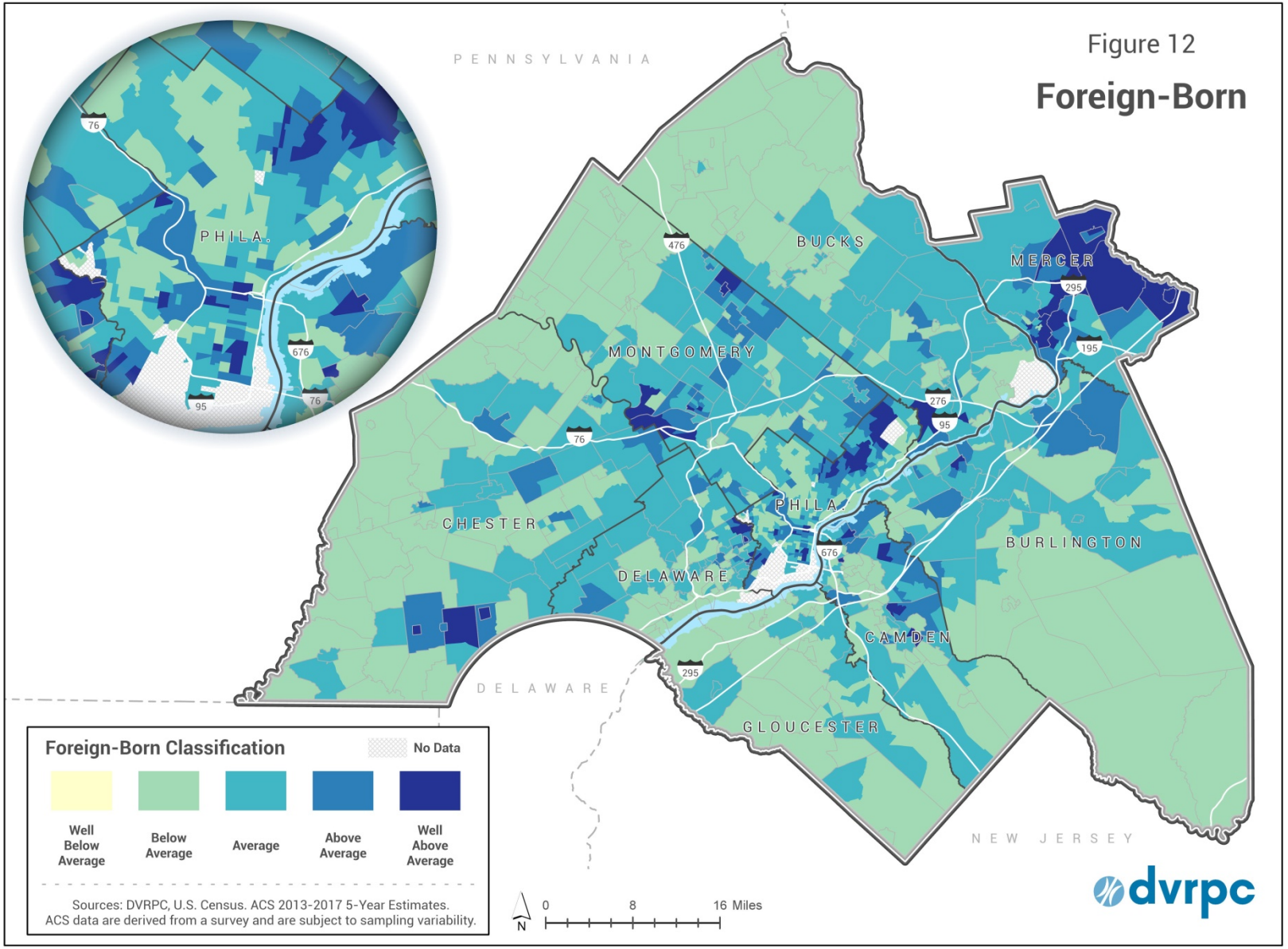


Figure 12
Foreign-Born
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
BURLINGTON
CAMDEN
GLOUCESTER
NEW JERSEY
76
476
295
195
276
95
676
Foreign-Born Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

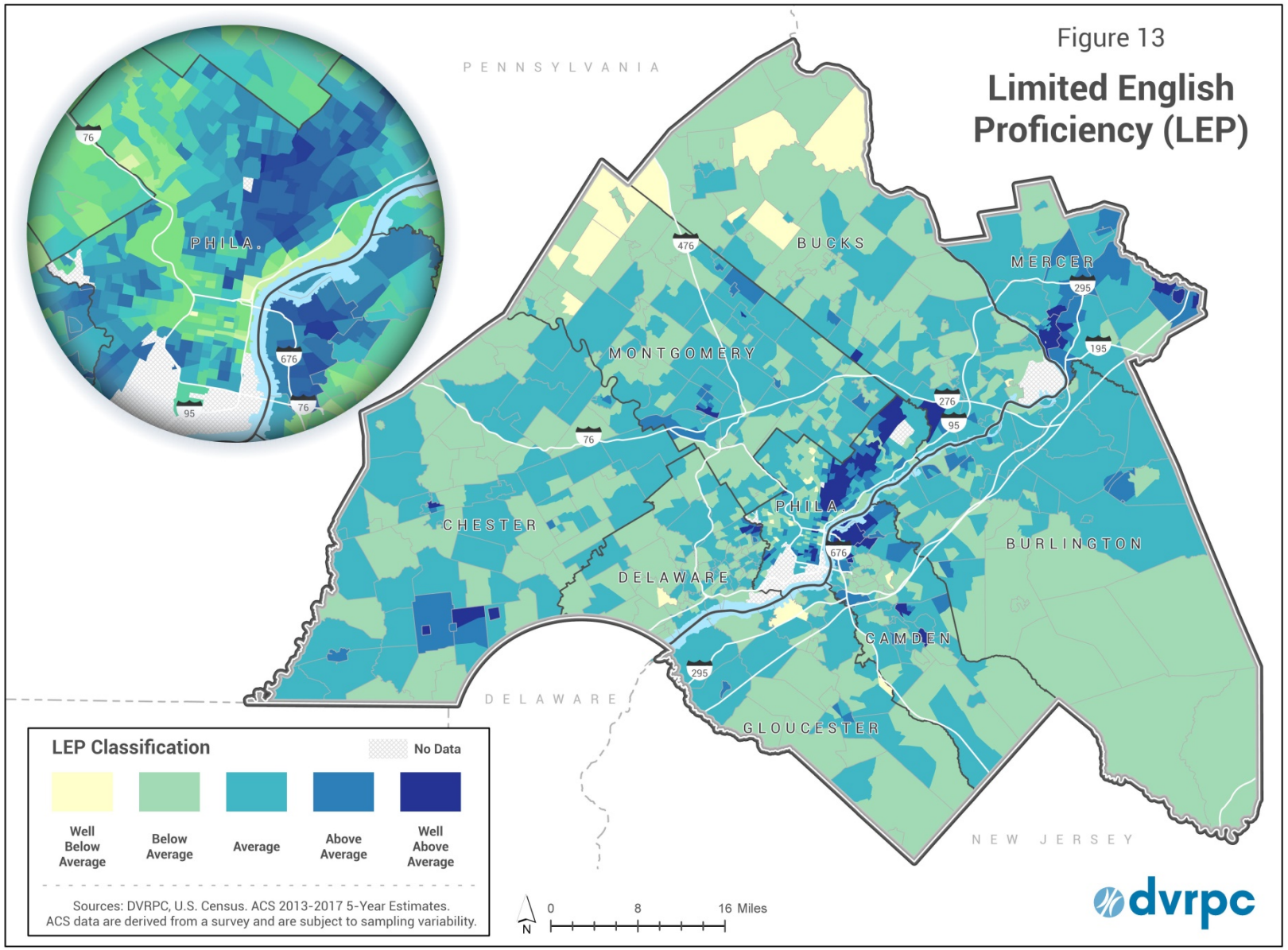


Figure 13
Limited English Proficiency (LEP)
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
BURLINGTON
CAMDEN
GLOUCESTER
NEW JERSEY
LEP Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
0
8
16 Miles
dvrpc

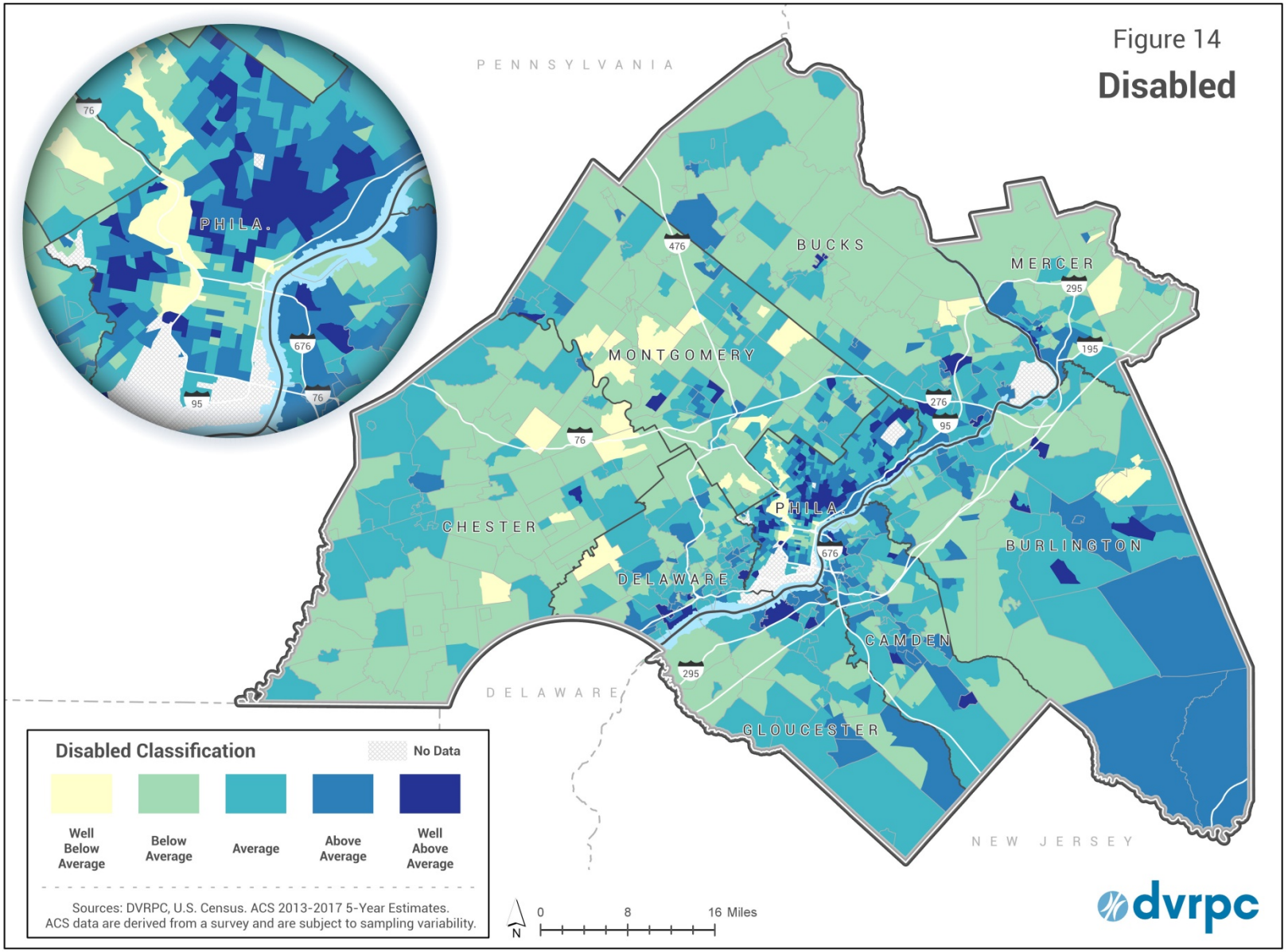


Figure 14
Disabled
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
BURLINGTON
CAMDEN
GLOUCESTER
NEW JERSEY
76
476
295
195
276
95
676
Disabled Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

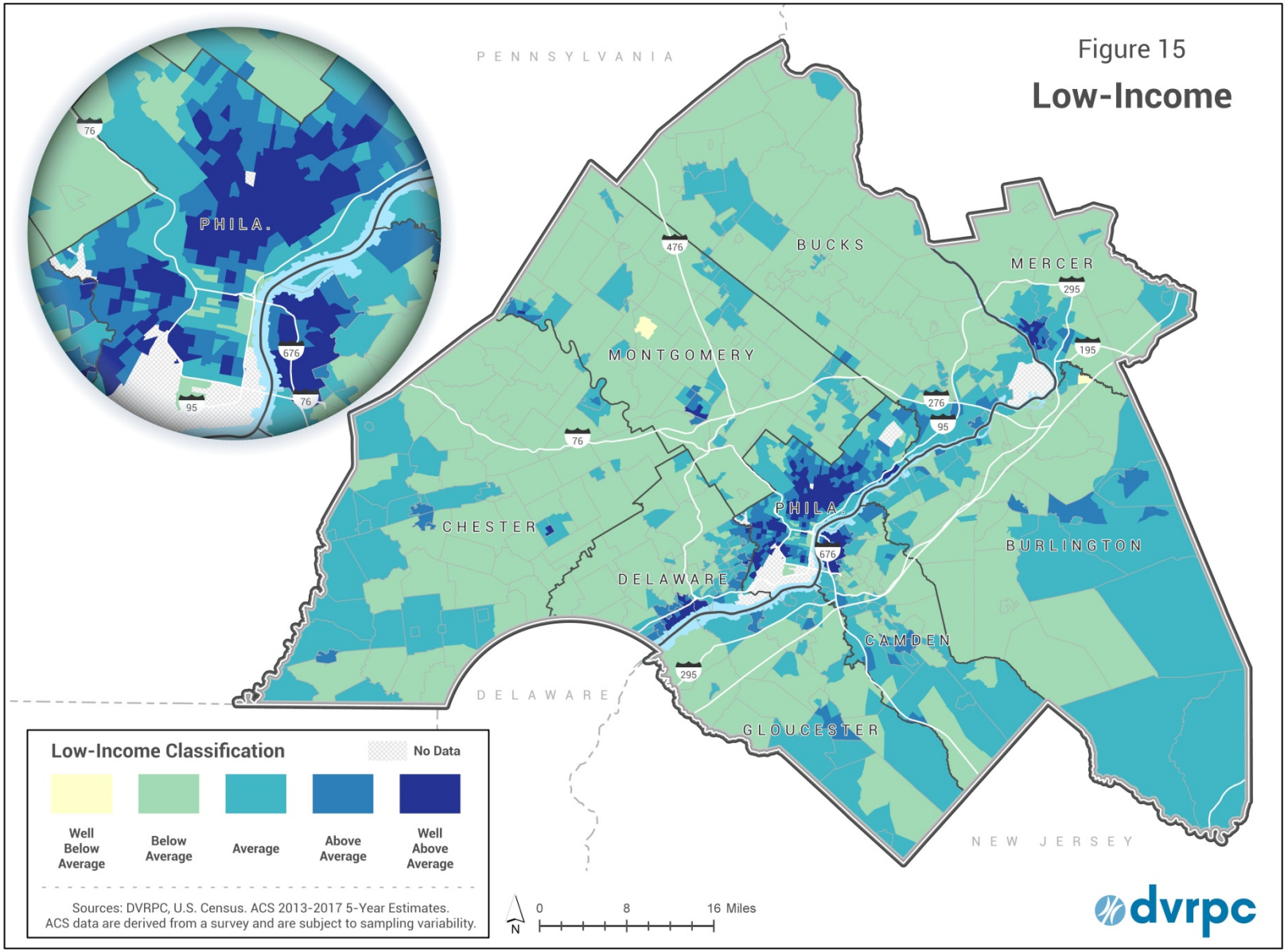


Figure 15
Low-Income
PENNSYLVANIA
PHILA.
BUCKS
MERCER
MONTGOMERY
CHESTER
DELAWARE
BURLINGTON
CAMDEN
GLOUCESTER
NEW JERSEY
76
476
295
195
276
95
676
Low-Income Classification
No Data
Well Below Average
Below Average
Average
Above Average
Well Above Average
Sources: DVRPC, U.S. Census. ACS 2013-2017 5-Year Estimates.
ACS data are derived from a survey and are subject to sampling variability.
N
0
8
16 Miles
dvrpc

# Next Steps

The DVRPC project team will explore other changes and uses of IPD 2.0 by undertaking the activities detailed below:

## Staff Education and Training

All DVRPC staff members have the opportunity to participate in training on Commission policy and procedures, communications best practices, public outreach, and other topics. Upon release of IPD 2.0, staff were invited to informal training to present work done by the Planning and Data staff groups to all staff, inform staff about the process and update, and receive additional feedback.

OCE staff meet with all new staff members during a formal orientation process and regularly advise staff on area-specific projects, plans, and studies. This office will instruct DVRPC staff about meeting compliance, understanding equity, language access measures, and developing additional resources for Title VI and EJ needs. The OCE team is also considering organizing additional annual trainings to meet staff needs for understanding equity in planning and integrating these trainings with the needs of the Title VI Compliance Plan. There will be additional coordination and guidance from trainings provided by USDOT, Pennsylvania Department of Transportation (PennDOT), and New Jersey Department of Transportation (NJDOT).

## Updating Web Viewer

The IPD webmap will be updated as the newest ACS dataset is released. The team will also continue to seek feedback from member governments, planning partners, and other stakeholders as the IPD 2.0 analysis is incorporated into DVRPC plans, projects, and programs.

## Expanding Equity Tools and Resources

Throughout this update process, the DVRPC project team received valuable feedback, recommendations, and suggestions from staff and stakeholders on how to create additional equity analyses and measures. These suggestions could not be considered until the foundational assumptions of the IPD analysis were evaluated and updated to reflect the latest USDOT guidance. Suggestions include building a GIS webmap of additional equity measures, creating toolkits to evaluate specific types of planning projects, using Census Transportation Planning Products (CTPP) data to analyze equity considerations by workplace location, and revisiting the name “Indicators of Potential Disadvantage.” OCE staff will continue to support

staff with equity analyses and explore the possibilities for further development of equity measures.

# Closing

The IPD 2.0 methodology was updated to align with the intention of, and populations included in, Title VI and EJ. Title VI aims to correct/remediate discriminatory programs, policies, and activities to prohibit discrimination on the basis of race, color, or national origin in programs receiving federal assistance. EJ aims to avoid, minimize, and mitigate disproportionately high and adverse effects on minority and low-income populations. The IPD data is updated annually as ACS data is released and can be found here: www.dvrpc.org/webmaps/IPD/.

The Commission's *Equity and Opportunity—Title VI Compliance Plan* establishes a framework for DVRPC's efforts to ensure compliance with Title VI, as well as other EJ and nondiscrimination mandates. See www.dvrpc.org/Reports/TM14010.pdf.

DVRPC's Title VI Compliance Plan and the IPD analysis will be reviewed on a monthly and yearly basis, keeping up with guidance by DVRPC's federal and state partners. DVRPC's Limited English Proficiency (LEP) Plan and Public Participation Plan will be maintained in conjunction with the Commission's Title VI efforts to support comprehensive, inclusive, and equitable practices, policies, and programs.

# Citations

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# ABSTRACT

**Title:** Indicators of Potential Disadvantage (IPD): A Discussion of the 2018 Update

**Publication Number:** TEM220

**Date Published:** August 2020

**Geographic Area Covered:**
Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties in New Jersey

**Key Words:**
Civil Rights, Communities of Concern, Compliance, Degrees of Disadvantage, Environmental Justice, Indicators of Potential Disadvantage, Title VI

**Abstract:**
The Delaware Valley Regional Planning Commission (DVRPC)—the Metropolitan Planning Organization of Greater Philadelphia—evaluated and launched an update to the Indicators of Potential Disadvantage (IPD) analysis. DVRPC first created the analysis in 2001, and it was initially called “Degrees of Disadvantage.” The IPD analysis is used throughout the Commission to demonstrate compliance with Title VI of the Civil Rights Act and fair treatment of population groups identified through Environmental Justice (EJ).

To update the IPD analysis, DVRPC conducted an internal review of how the analysis was applied to projects and plans; researched best practices; reviewed U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and U.S. Census Bureau USDOT guidance; and evaluated data sources and their reliability. This document details that internal process, summarizes research findings, and explains the change in population groups and scoring methodology.

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