



# APPENDIX F

## Environmental Justice Appendix

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# APPENDIX F: ENVIRONMENTAL JUSTICE (EJ) AND TITLE VI SUPPORTING DATA AND MAPPING

This appendix includes detailed tables and maps to complement the information provided in Chapter 3. All tables include data for Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties.

## Demographic Analysis

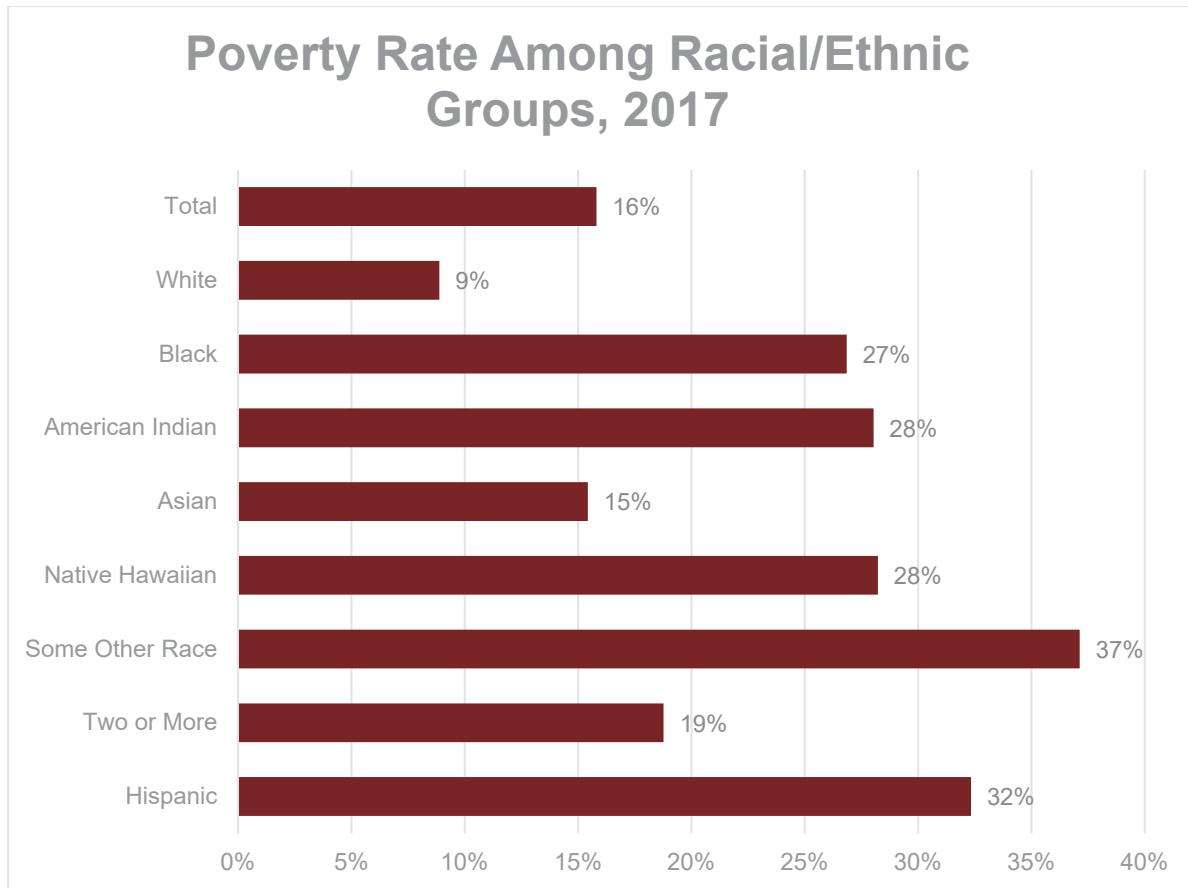
**Table F1:** Populations Estimates in the DVRPC Region (2015-2019)

Population	Population Estimate	Regional Percentage
<b>Total</b>	4,113,818	100%
White, Non-Hispanic	2,485,458	60%
<b>Minority</b>	1,628,360	40%
Black or African American, Non-Hispanic	891,255	22%
American Indian or Alaskan Native, Non-Hispanic	5,942	0.14%
Asian, Non-Hispanic	266,340	7%
Native Hawaiian or Pacific Islander, Non-Hispanic	853	0.02%
Some Other Race, Non-Hispanic	9,789	0.24%
Two or more races, Non-Hispanic	86,640	2%
Hispanic	367,541	9%
<b>Low Income Population*</b>	1,105,811	27%
<b>Other Communities of Concern</b>		
Limited English Proficiency (LEP)	147,413	4%
Persons with a Disability	521,593	13%
Female Head of Household with Child	232,150	6%
Elderly (65 years or older)	620,403	15%
Carless Households	152,626	4%

Source: American Community Survey, U.S. Census Bureau, 2015-2019.

\*DVRPC's IPD analysis defines Low-Income Populations as 200% of the poverty level or below.

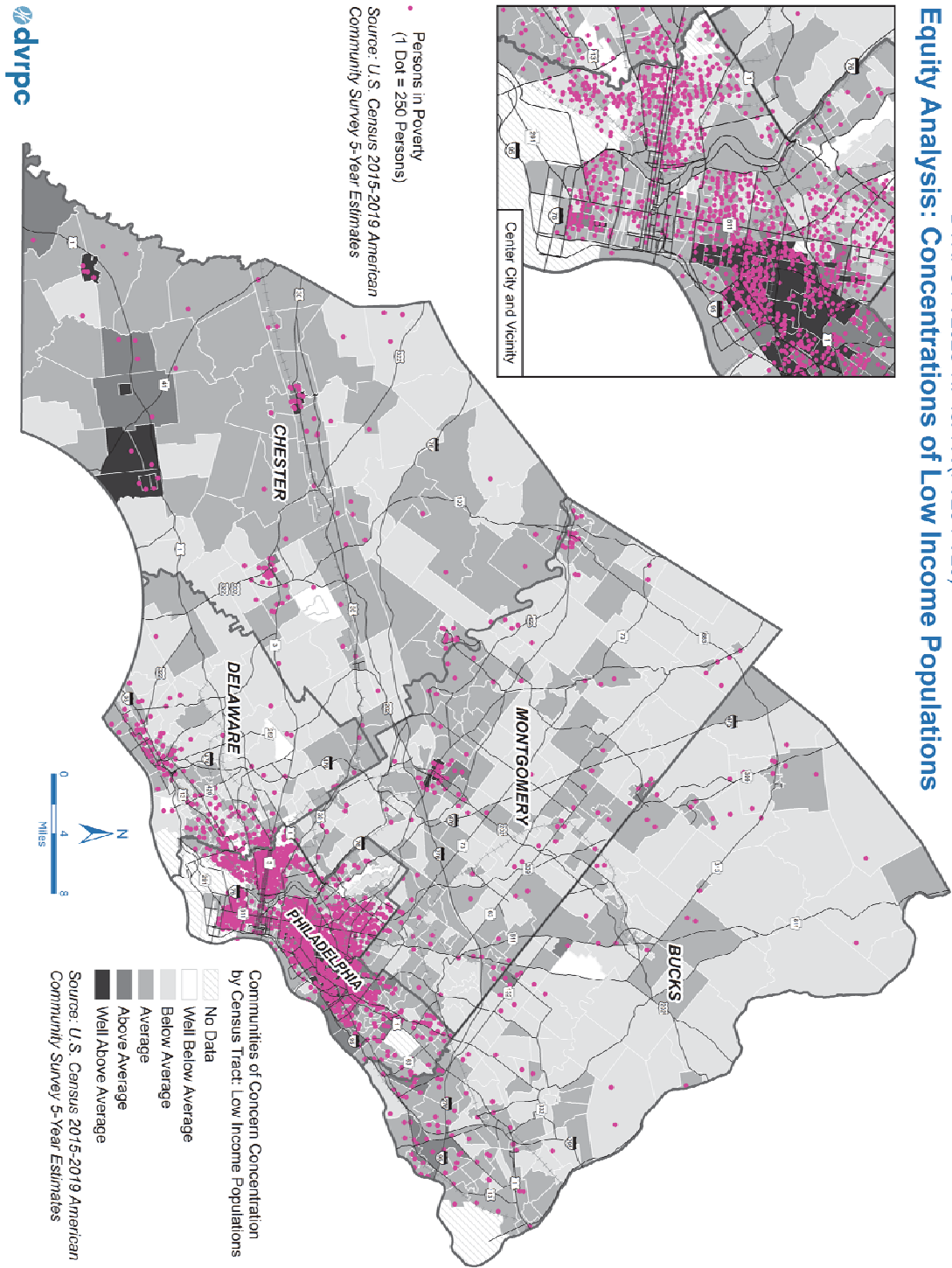
**Table F2: Cross-tabulations of Low Income and Minority Populations**



Source: American Community Survey, U.S. Census Bureau, 2013-2017.

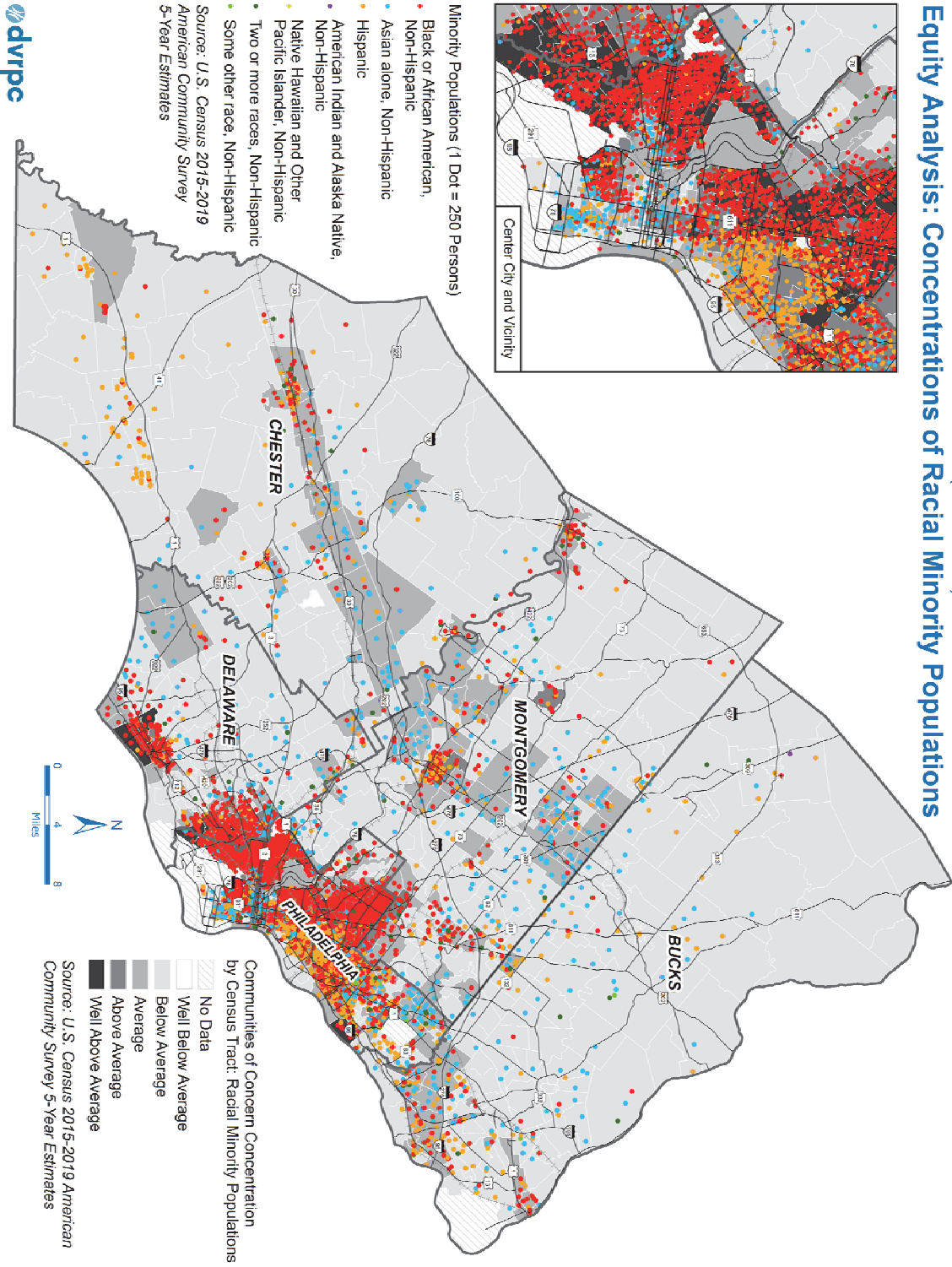
Figure F1: Concentrations of Low Income Populations

DVRPC FY2023 TIP for PA (FY23-FY26)  
**Equity Analysis: Concentrations of Low Income Populations**

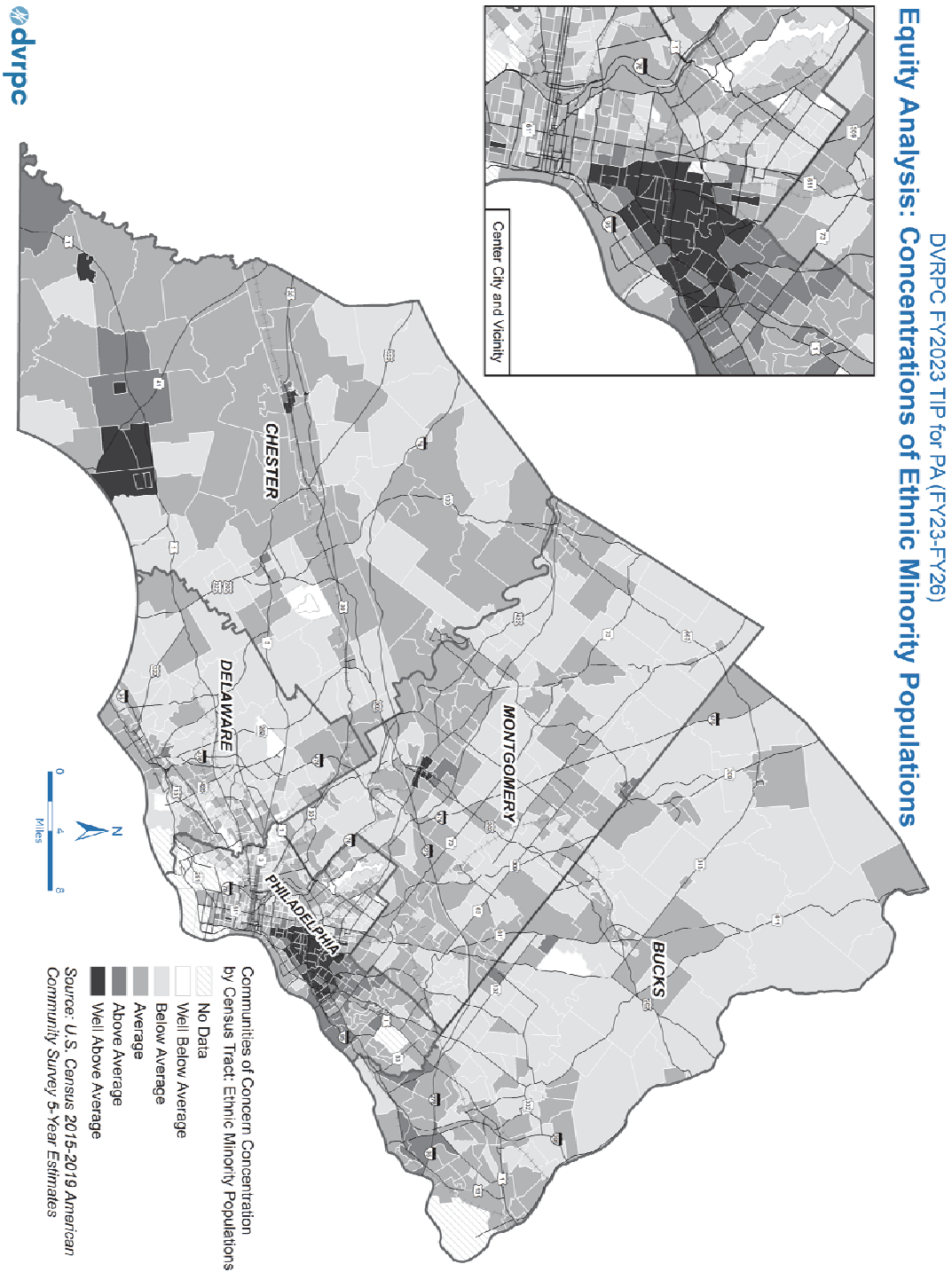


**Figure F2: Concentrations of Racial Minority Populations**

DVRPC FY2023 TIP for PA (FY23-FY26)  
**Equity Analysis: Concentrations of Racial Minority Populations**



**Figure F3: Concentrations of Ethnic Minority Populations**





## Assessing Conditions and Needs

Data included in the table below were acquired from the US Census Bureau, 2015-2019 American Community Survey datasets and provided to DVRPC as a part of PennDOT’s Statewide Environmental Justice Analysis Methodology for the FY2023 Pennsylvania TIP update. Low-income and minority population intervals were calculated by staff from the Williamsport Area Transportation Study Metropolitan Planning Organization (WATS MPO) at PennDOT’s request, largely according to the methodology outlined in the [South Central Pennsylvania Unified Environmental Justice Process and Methodology](#) document distributed to Planning Partners ahead of the FY 2021 (2021- 2024) TIP update cycle. Note that this analysis defined “Low-Income” as 100 percent of the federal poverty level or less. The process for the FY2023 TIP was updated to calculate the ratio of census block group minority/low-income percentage to the region’s overall minority/low-income percentage. This was done to create a uniform scale that could be used across all counties or regions in Pennsylvania. The tables below were compiled by DVRPC from the data PennDOT provided.

**Table F3:** Distribution of Poor Condition Bridges by Low-Income Population Intervals

Population/ Asset Condition	Ratio of Low-Income Population Percentage to Regional Low-Income Population Percentage by Census Block Group					
	Well Below Average (2.7%)	Below Average (9.7%)	Average (19.8%)	Above Average (38.1%)	Well Above Average (65%)	Total
Total Population	1,891,915	762,259	685,555	554,349	112,610	<b>4,006,688</b>
Low-income Population	51,083	73,763	135,519	210,961	73,169	<b>544,495</b>
Poor Bridges Percent	8.7%	10.6%	10%	8.8%	6.3%	<b>Mean = 8.9%</b>
Deviation from Mean Percent	-0.2%	+1.7%	+1.1%	-0.04%	-2.6%	
Poor Bridge Deck Area Percent	5.6%	9.9%	16.8%	13.6%	11.2%	<b>Mean = 11.4%</b>
Deviation from Mean Poor Bridge Deck Area Percent	-5.8%	-1.5%	+5.4%	+2.2%	-0.2%	

Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

**Table F4:** Distribution of Poor Condition Bridges (State and Local) by Minority Population Intervals

Population/ Asset Condition	Ratio of Minority Population Percentage to Regional Minority Population Percentage by Census Block Group*				
	Below Average (10.3%)	Average (28%)	Above Average (58.1%)	Well Above Average (93.6%)	Total
Total Population	1,653,013	915,922	686,716	858,167	<b>4,113,818</b>
Minority Population	169,868	256,762	398,707	803,023	<b>1,628,360</b>
Poor (or worse) Bridges Percent	9.5%	7.5%	7.6%	9%	<b>Mean = 8.4%</b>
Deviation from Mean Poor (or worse) Bridges Percent	+1.1%	-0.9%	-0.8%	+0.6%	
Poor (or worse) Bridge Deck Area Percent	8.4%	8.7%	10.1%	14.8%	<b>Mean = 10.5%</b>
Deviation from Mean Poor (or worse) Bridge Deck Area Percent	-2.1%	-1.8%	-0.5%	+4.3%	

Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

\*Note: The PennDOT statewide methodology resulted in only four intervals for minority populations.

**Figure F4: Bridge Condition and Concentrations of Low Income Populations**

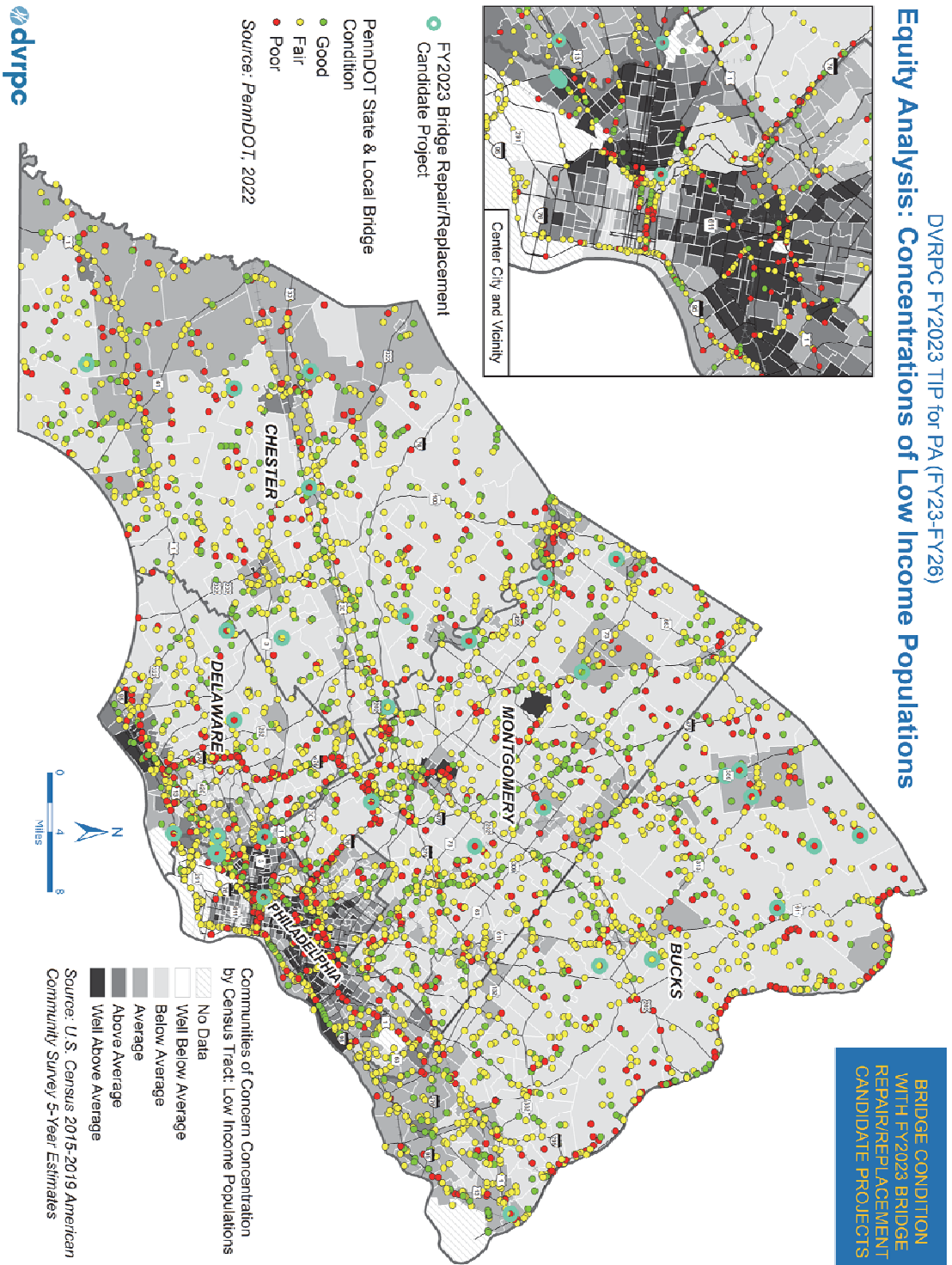
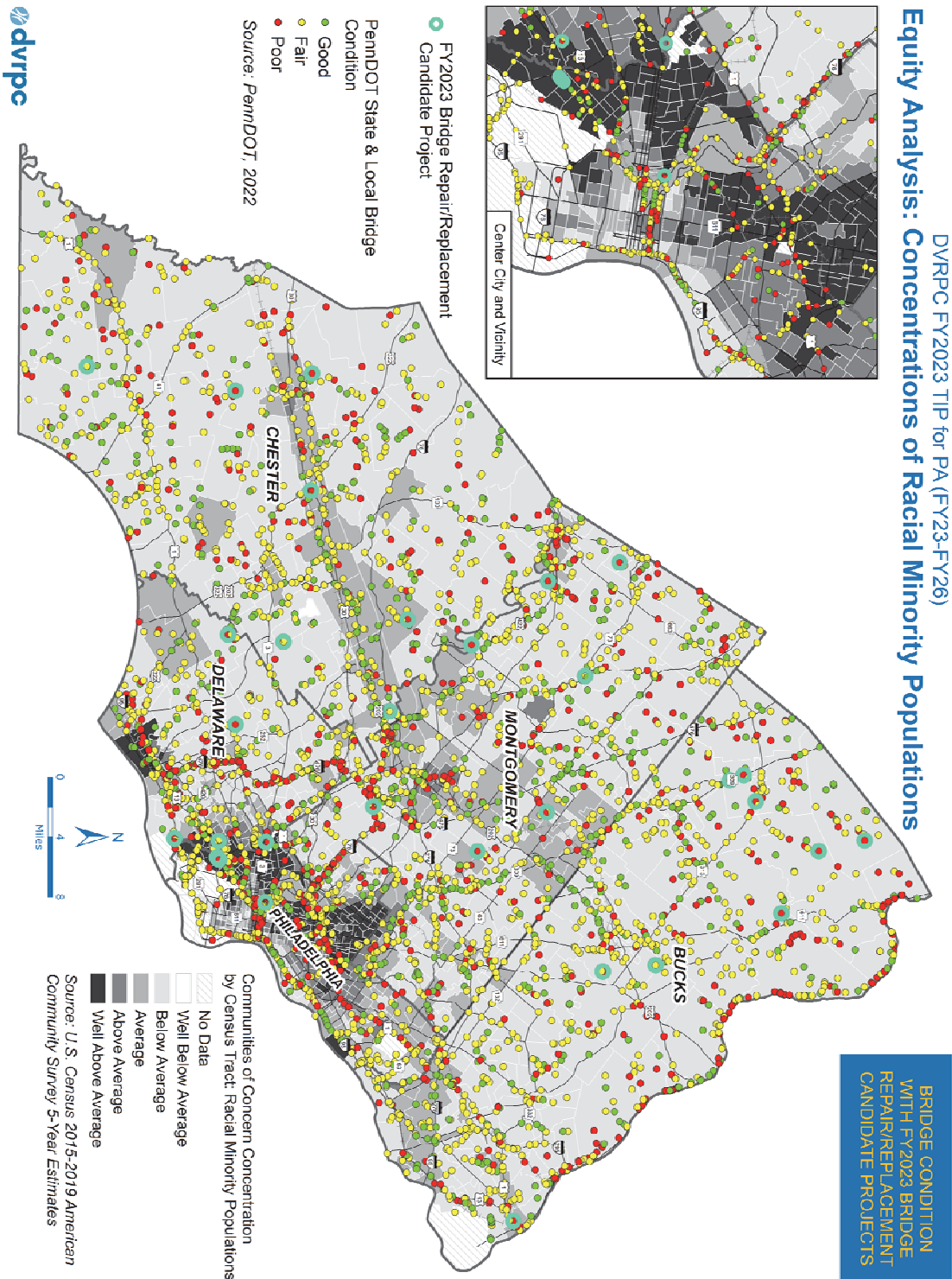
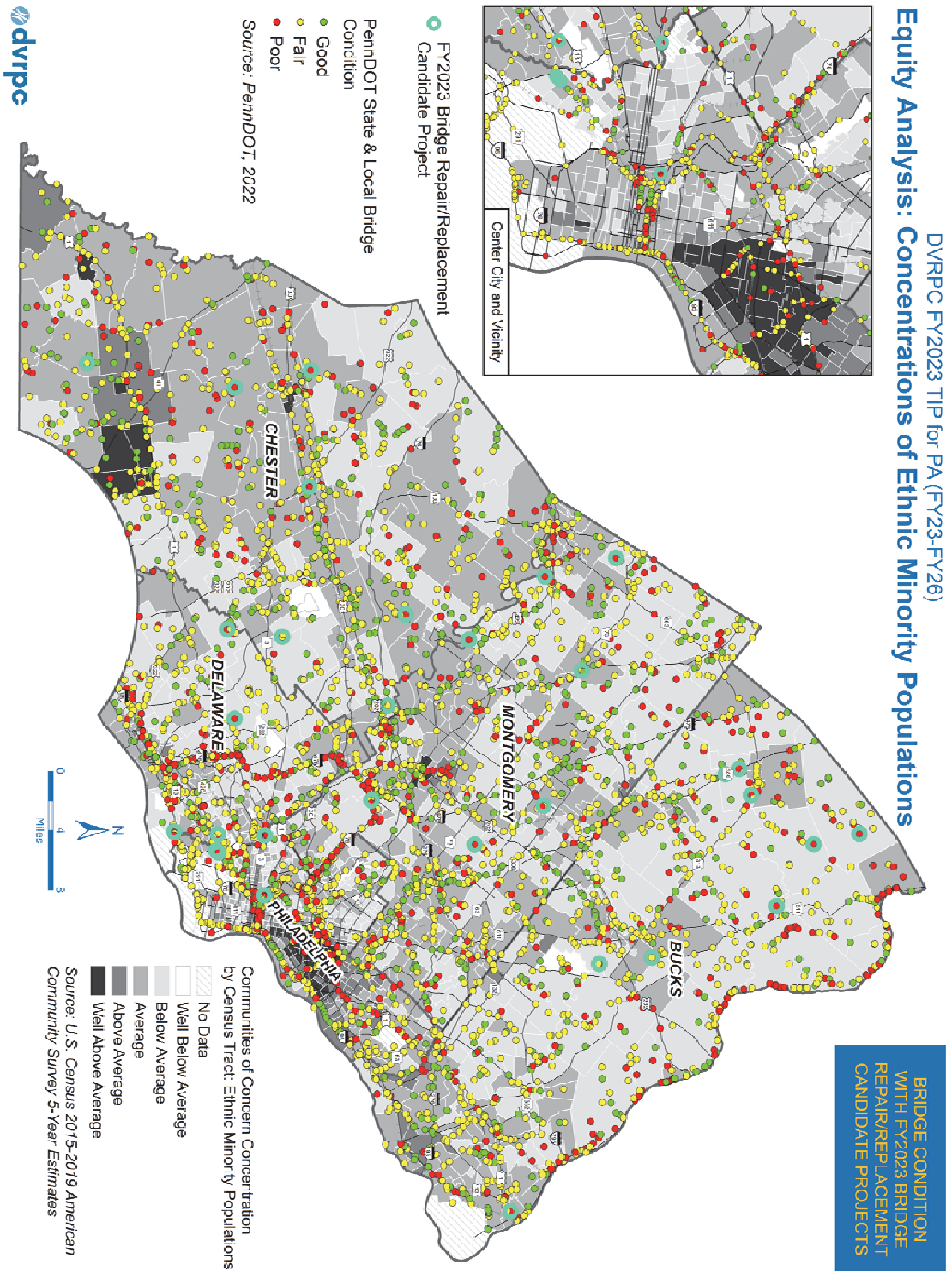


Figure F5: Bridge Condition and Concentrations of Racial Minority Populations





**Figure F6: Bridge Condition and Concentrations of Ethnic Minority Populations**





**Table F5:** Distribution of International Roughness Index (IRI) Values by Low-Income Population Intervals

Population/ Asset Condition	Ratio of Low-Income Population Percentage to Regional Low-Income Population Percentage by Census Block Group					
	Well Below Average (2.7%)	Below Average (9.7%)	Average (19.8%)	Above Average (38.1%)	Well Above Average (65%)	Total
Total Population	1,891,915	762,259	685,555	554,349	112,610	<b>4,006,688</b>
Low-income Population	51,083	73,763	135,519	210,961	73,169	<b>544,495</b>
Segment Miles with Excellent IRI as Percent	7.5%	7.2%	5.3%	1.9%	5.3%	<b>Mean = 5.4%</b>
Deviation Excellent IRI as Percent	+2.1%	+1.8%	-0.1%	-3.5%	+0.2%	
Miles with Poor IRI as Percent	21.3%	24.9%	38.2%	44.8%	41.2%	<b>Mean = 34.05%</b>
Deviation Poor IRI as Percent	-12.8%	-9.2%	+4.1%	+10.7%	+7.1%	

Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

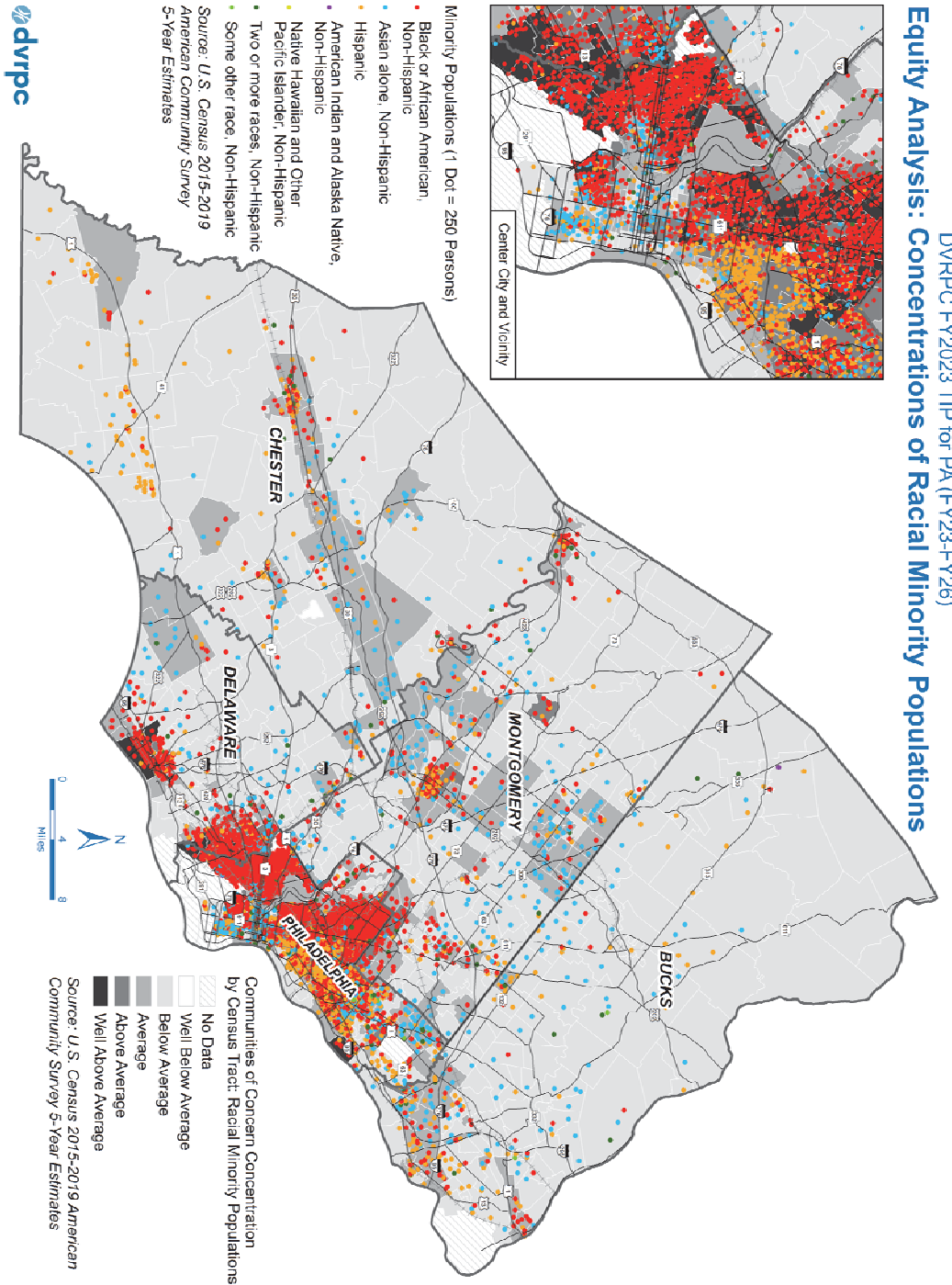
**Table F6:** Distribution of International Roughness Index (IRI) Values by Minority Population Intervals

Population/ Asset Condition	Ratio of Minority Population Percentage to Regional Minority Population Percentage by Census Block Group*				
	Below Average (10.3%)	Average (28%)	Above Average (58.1%)	Well Above Average (93.6%)	Total
Total Population	1,653,013	915,922	686,716	858,167	<b>4,113,818</b>
Minority Population	169,868	256,762	398,707	803,023	<b>1,628,360</b>
Segment Miles with Excellent IRI as Percent	7.7%	7.5%	5.6%	1.5%	<b>Mean = 5.6%</b>
Deviation Excellent IRI as Percent	+2.1%	+1.9%	0%	-4.1%	
Miles with Poor IRI as Percent	20.5%	24.8%	32.3%	46.5%	<b>Mean = 31%</b>
Deviation Poor IRI as Percent	-10.6%	-6.2%	+1.3%	+15.5%	

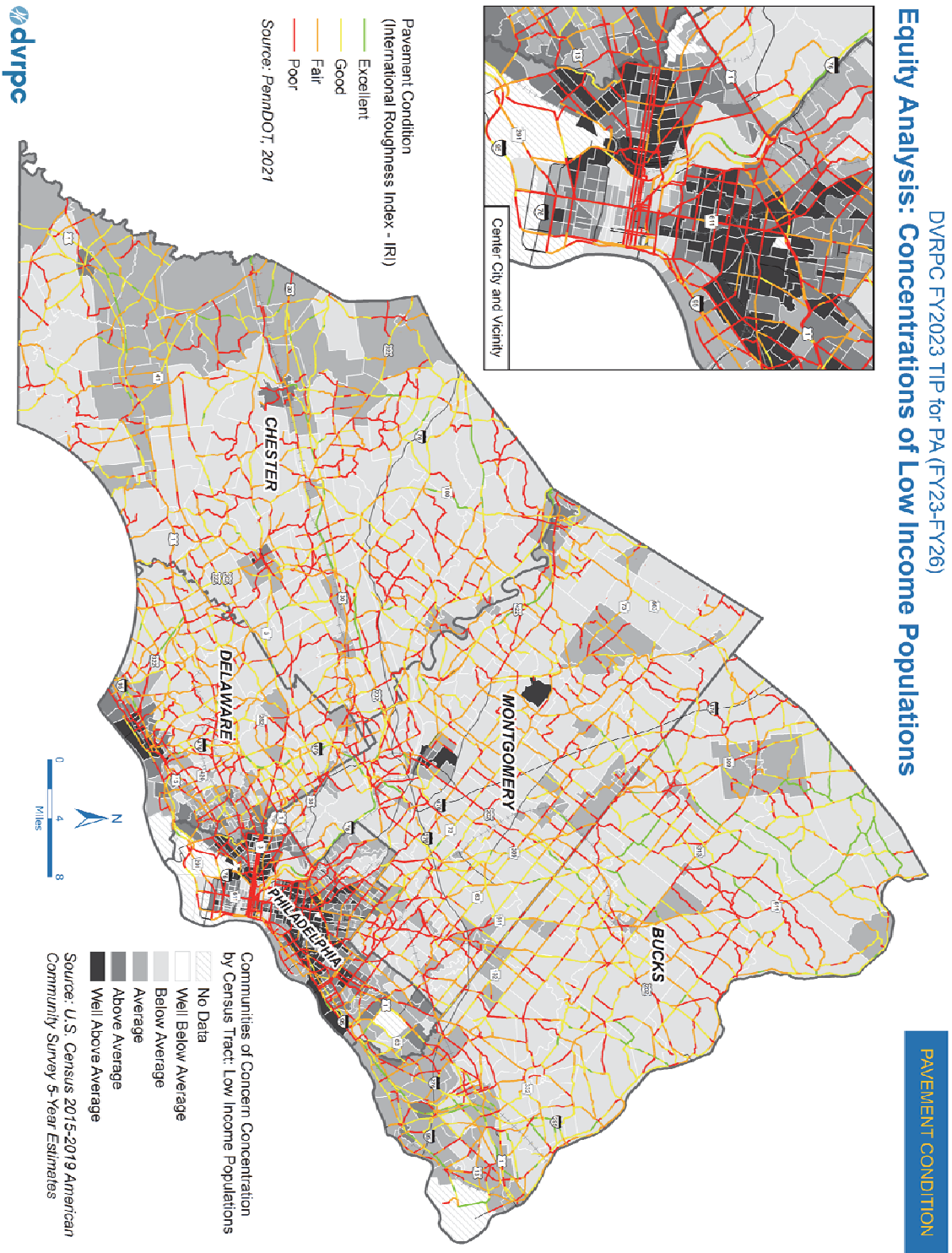
Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

\*Note: The PennDOT statewide methodology resulted in only four intervals for minority populations.

**Figure F7: Pavement Condition and Concentrations of Low Income Populations**

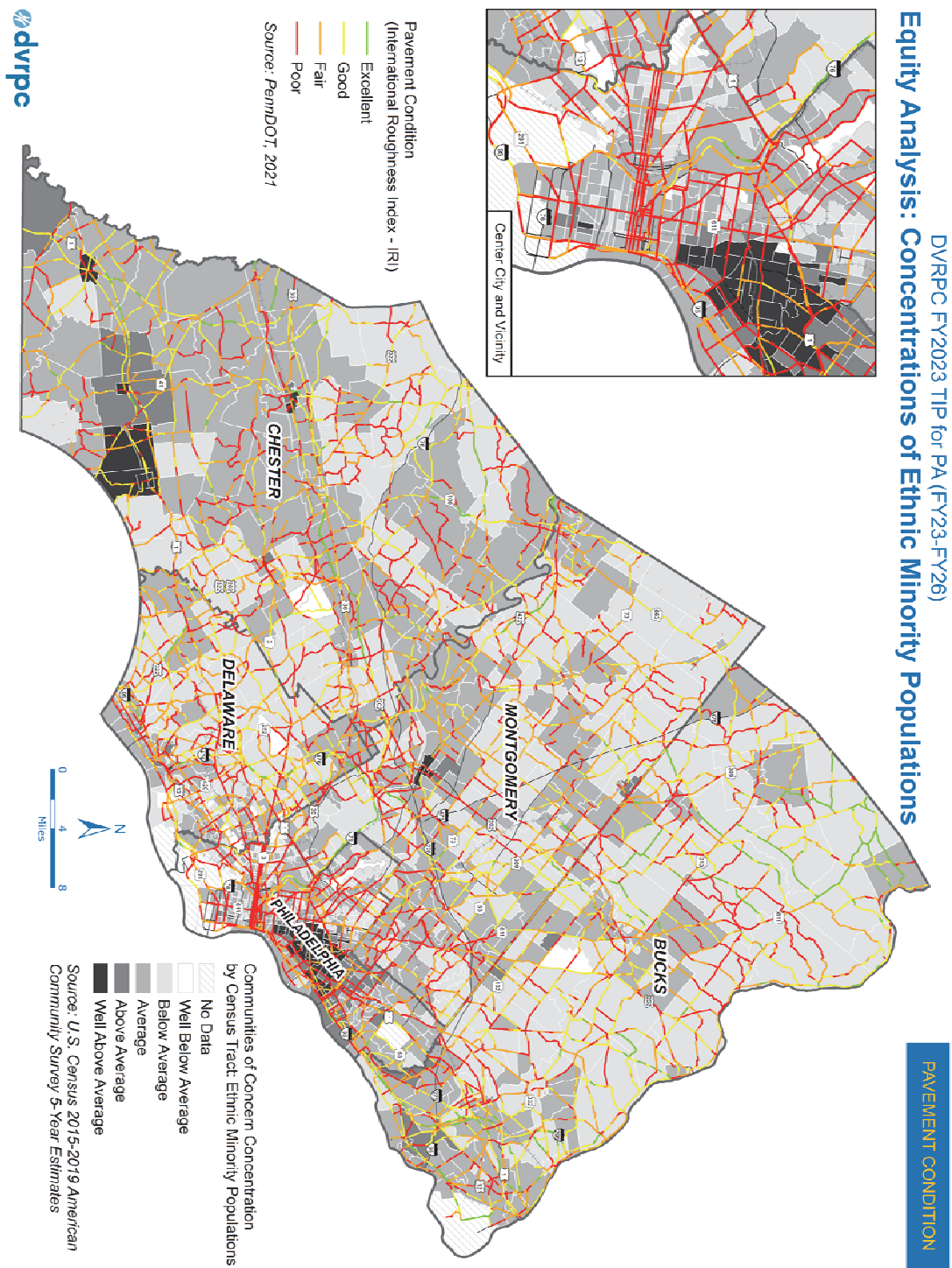


**Figure F8: Pavement Condition and Concentrations of Racial Minority Populations**



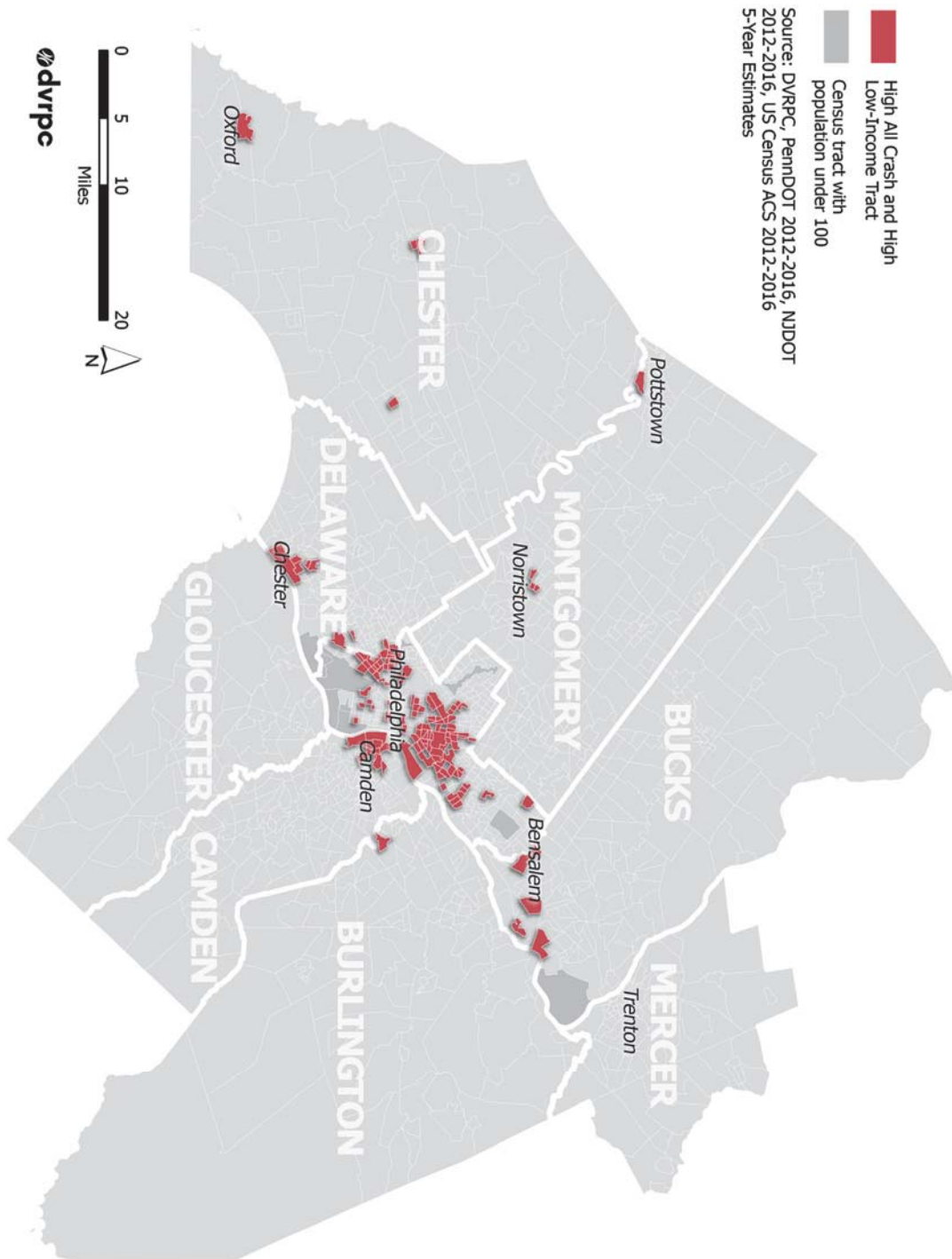


**Figure F9: Pavement Condition and Concentrations of Ethnic Minority Populations**

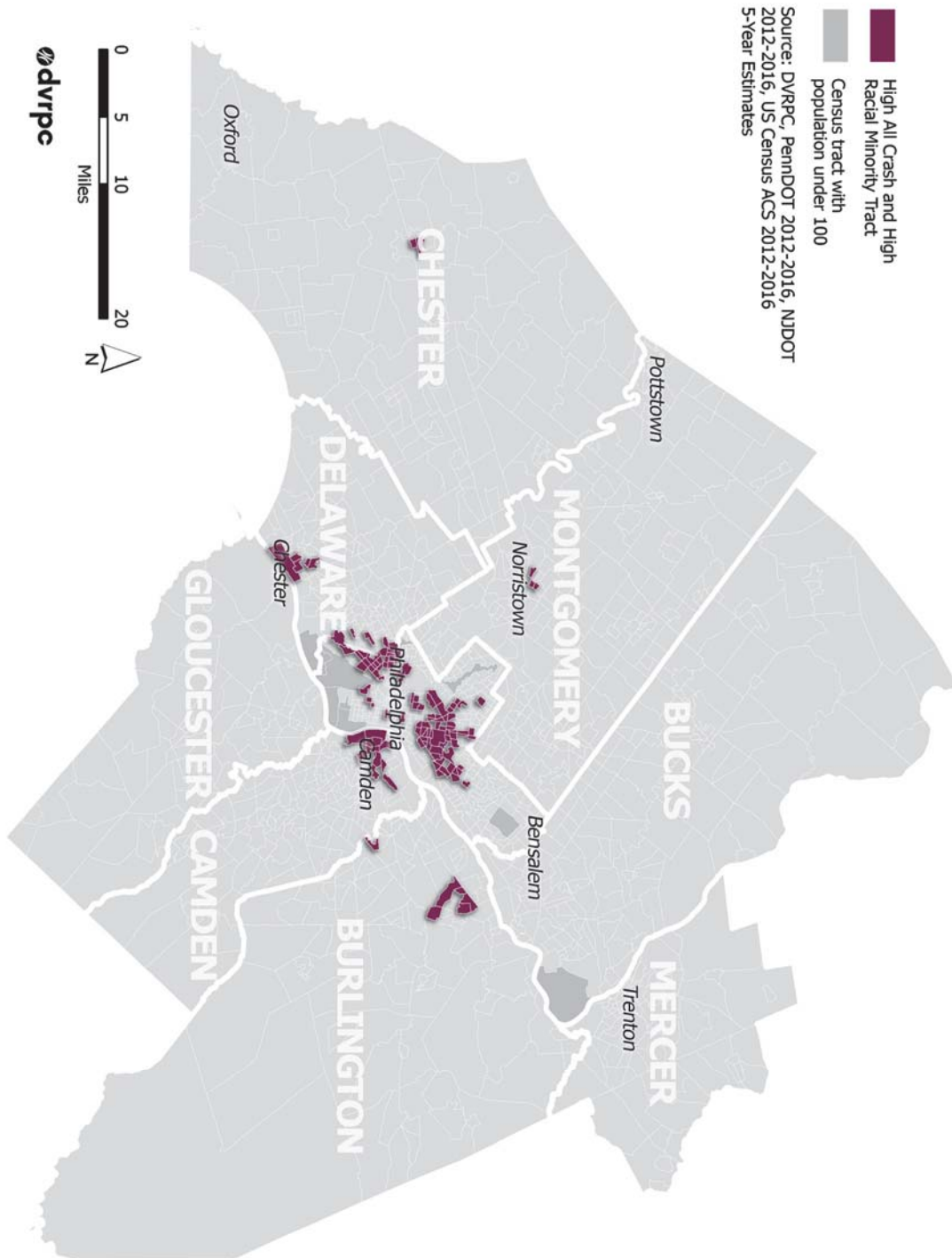




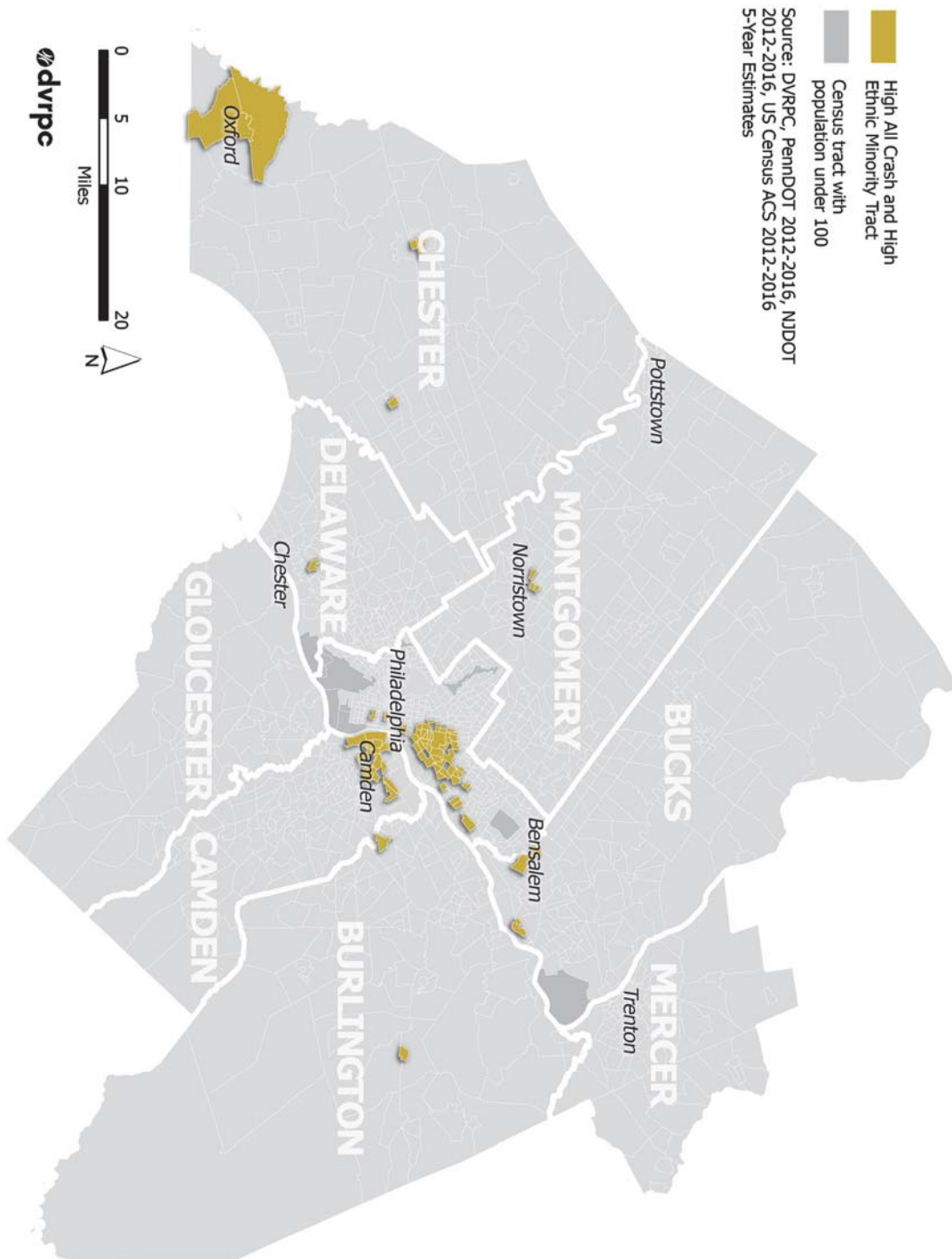
**Figure F10: Crashes in Communities of Concern - Low Income**



**Figure F11: Crashes in Communities of Concern: Racial Minority**



**Figure F12: Crashes in Communities of Concern: Ethnic Minority**



Source: DVRPC, PennDOT 2012-2016, NJDOT 2012-2016, US Census ACS 2012-2016 5-Year Estimates



**Table F7:** Distribution of Crashes (2015-2019) by Low-Income Population Intervals

Population/ Crash Data	Ratio of Low-Income Population Percentage to Regional Low-Income Population Percentage by Census Block Group					Total
	Well Below Average (2.7%)	Below Average (9.7%)	Average (19.8%)	Above Average (38.1%)	Well Above Average (65%)	
Total Population	1,891,915	762,259	685,555	554,349	112,610	<b>4,006,688</b>
Low-income Population	51,083	73,763	135,519	210,961	73,169	<b>544,495</b>
Total Reportable Crashes	112,905	49,375	43,567	31,576	8,299	<b>245,722</b>
Crash Fatalities	734	310	321	248	68	<b>1,681</b>
Suspected Serious Injury Crashes	2,925	1,312	1,171	966	272	<b>6,646</b>
Percent Crashes per Population Size	14.5%	16.1%	16.3%	14.7%	19%	
Persons Using Nonmotorized Modes Involved in Crashes	5,250	4,399	6,045	6,753	1,978	<b>24,425</b>
Nonmotorized Fatalities	165	104	118	121	34	<b>542</b>
Nonmotorized Suspected Serious Injuries	434	283	326	333	112	<b>1,488</b>
Percent Nonmotorized Crashes per Population Size	0.28%	0.58%	0.88%	1.22%	1.76%	

Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

**Table F8:** Distribution of Crashes (2015-2019) by Minority Population Intervals

Population/ Crash Data	Ratio of Minority Population Percentage to Regional Minority Population Percentage by Census Block Group*				
	Below Average (10.3%)	Average (28%)	Above Average (58.1%)	Well Above Average (93.6%)	Total
Total Population	1,653,013	915,922	686,716	858,167	<b>4,113,818</b>
Minority Population	169,868	256,762	398,707	803,023	<b>1,628,360</b>
Total Reportable Crashes	94,766	58,979	43,225	34,150	<b>231,130</b>
Crash Fatalities	605	360	284	278	<b>1,527</b>
Suspected Serious Injury Crashes	2,598	1,440	1,050	1,059	<b>6,147</b>
Percent Total Crashes per Population Size	13.8%	16.1%	16.2%	10.3%	
Persons Using Nonmotorized Modes Involved in Crashes	3,775	4,289	5,248	7,353	<b>20,665</b>
Nonmotorized Fatalities	119	104	115	126	<b>464</b>
Nonmotorized Suspected Serious Injuries	343	304	291	364	<b>1,302</b>
Percent Nonmotorized Crashes per Population Size	0.23%	0.47%	0.76%	0.86%	

Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

\*Note: The PennDOT statewide methodology resulted in only four intervals for minority populations.



**Table F9:** Distribution of Bicyclist and Pedestrian Related Crashes (2015-2019) by Low-Income Population Intervals

Population/ Crash Data	Ratio of Low-Income Population Percentage to Regional Low-Income Population Percentage by Census Block Group					
	Well Below Average (2.7%)	Below Average (9.7%)	Average (19.8%)	Above Average (38.1%)	Well Above Average (65%)	Total
Total Population	1,891,915	762,259	685,555	554,349	112,610	<b>4,006,688</b>
Low-income Population	51,083	73,763	135,519	210,961	73,169	<b>544,495</b>
People on Bicycles Involved in Crashes	1,115	833	1,060	1,142	328	<b>4,478</b>
Bicyclist Fatalities	9	7	10	11	7	<b>44</b>
Bicyclist Suspected Serious Injuries	74	45	39	37	16	<b>211</b>
Percent Bicyclist Crashes per Interval Population	0.06%	0.11%	0.15%	0.21%	0.29%	
Pedestrians Involved in Crashes	3,561	3,142	4,419	4,930	1,417	<b>17,469</b>
Pedestrian Fatalities	155	97	108	109	27	<b>496</b>
Pedestrian Suspected Serious Injuries	357	237	286	292	96	<b>1,268</b>
Percent Pedestrian Crashes per Population Size	0.19%	0.41%	0.64%	0.89%	1.26%	

Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

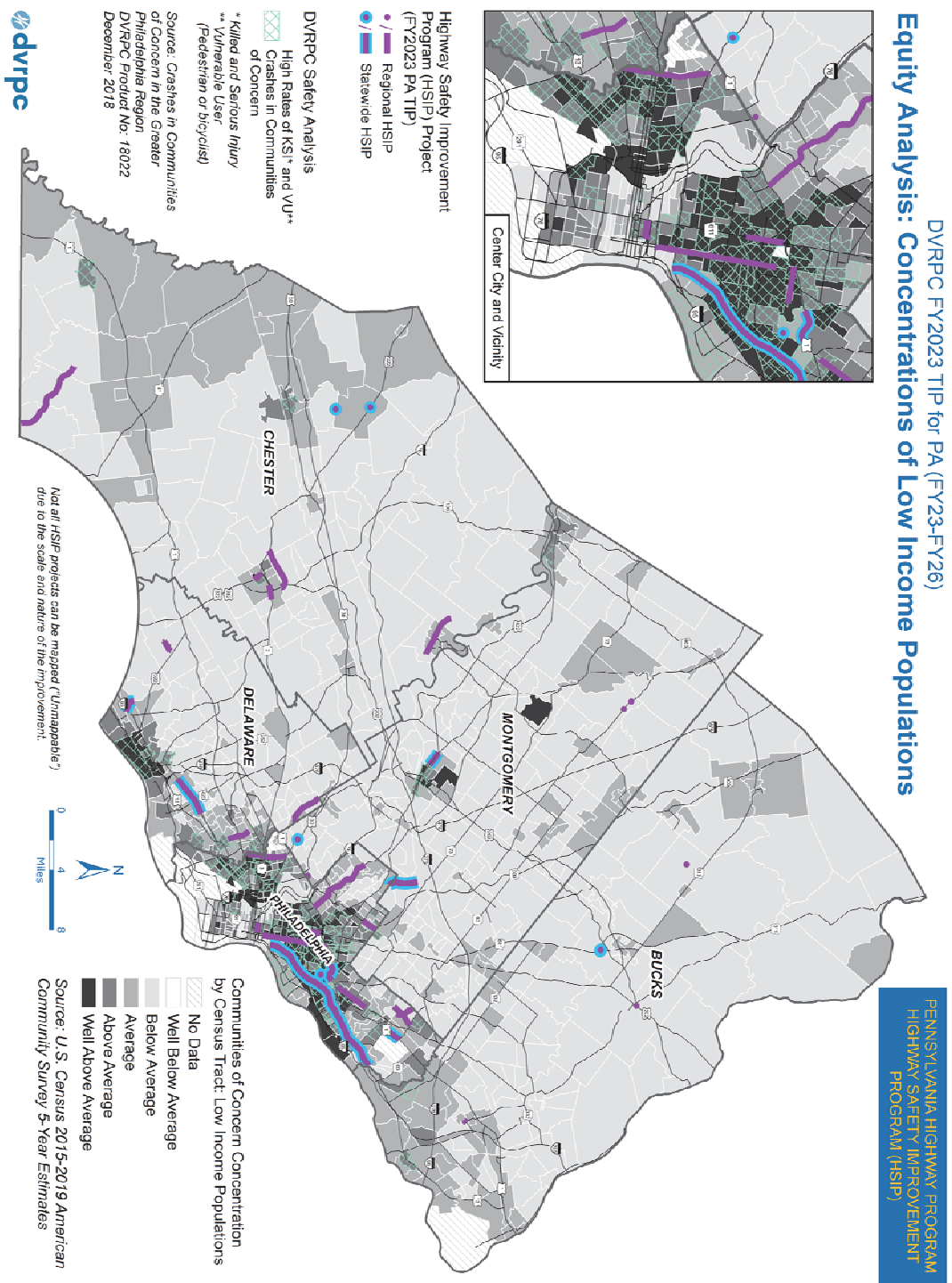
**Table F10:** Distribution of Bicyclist and Pedestrian Related Crashes (2015-2019) by Minority Population Intervals

Population/ Crash Data	Ratio of Minority Population Percentage to Regional Minority Population Percentage by Census Block Group*				
	Below Average (10.3%)	Average (28%)	Above Average (58.1%)	Well Above Average (93.6%)	Total
Total Population	1,653,013	915,922	686,716	858,167	<b>4,113,818</b>
Minority Population	169,868	256,762	398,707	803,023	<b>1,628,360</b>
People on Bicycles Involved in Crashes	799	962	1,094	1,094	<b>3,949</b>
Bicyclist Fatalities	10	4	10	13	<b>37</b>
Bicyclist Suspected Serious Injuries	59	60	42	42	<b>203</b>
Percent Crashes per Population Size	0.05%	0.11%	0.16%	0.13%	
Pedestrians Involved in Crashes	2,504	2,969	3,726	5,421	<b>14,620</b>
Pedestrian Fatalities	108	100	104	113	<b>425</b>
Pedestrian Suspected Serious Injuries	282	241	249	319	<b>1,091</b>
Percent Pedestrian Crashes per Population Size	0.15%	0.32%	0.54%	0.63%	

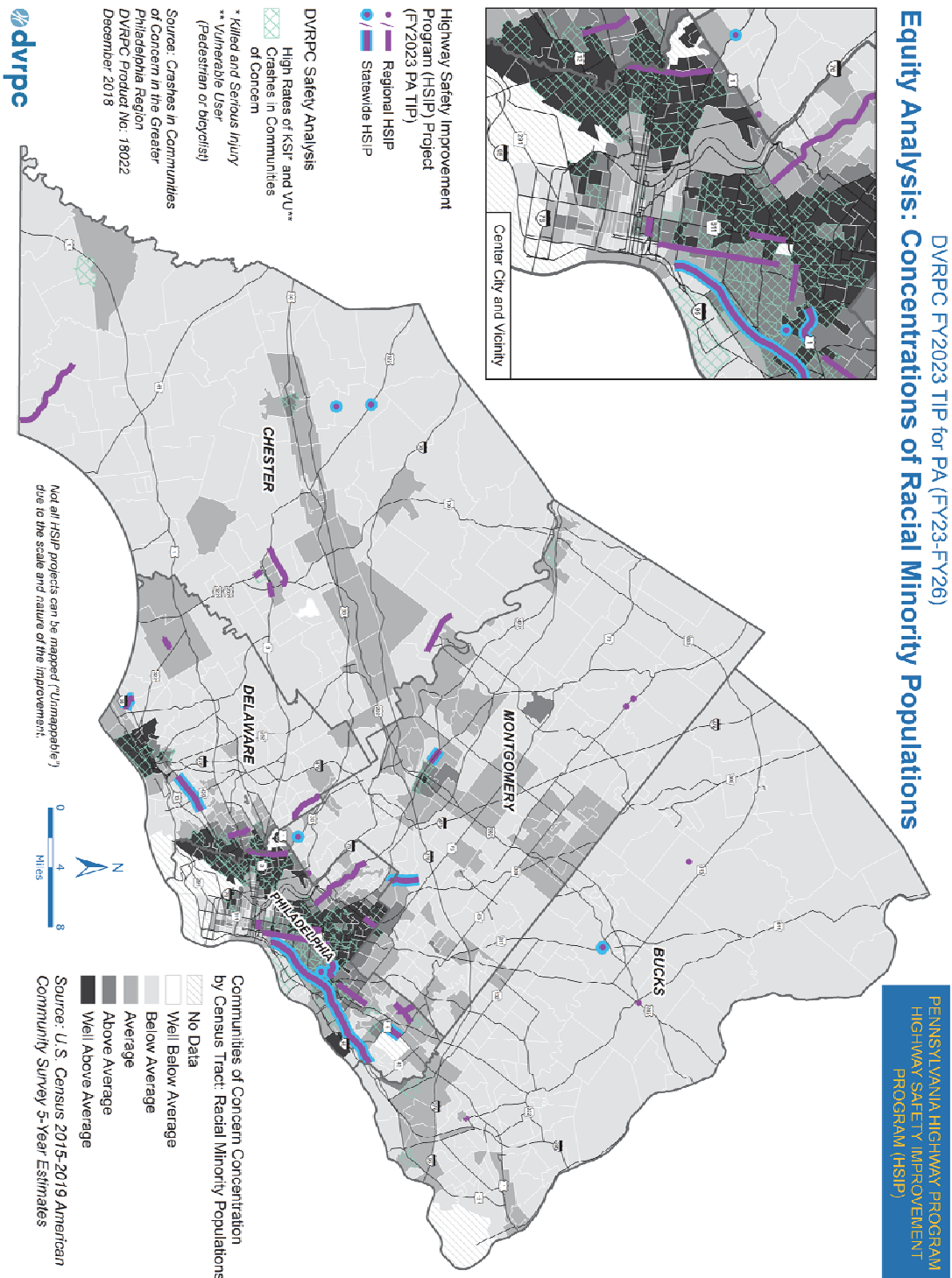
Source: American Community Survey, U.S. Census Bureau, 2015-2019; PennDOT.

\*Note: The PennDOT statewide methodology resulted in only four intervals for minority populations.

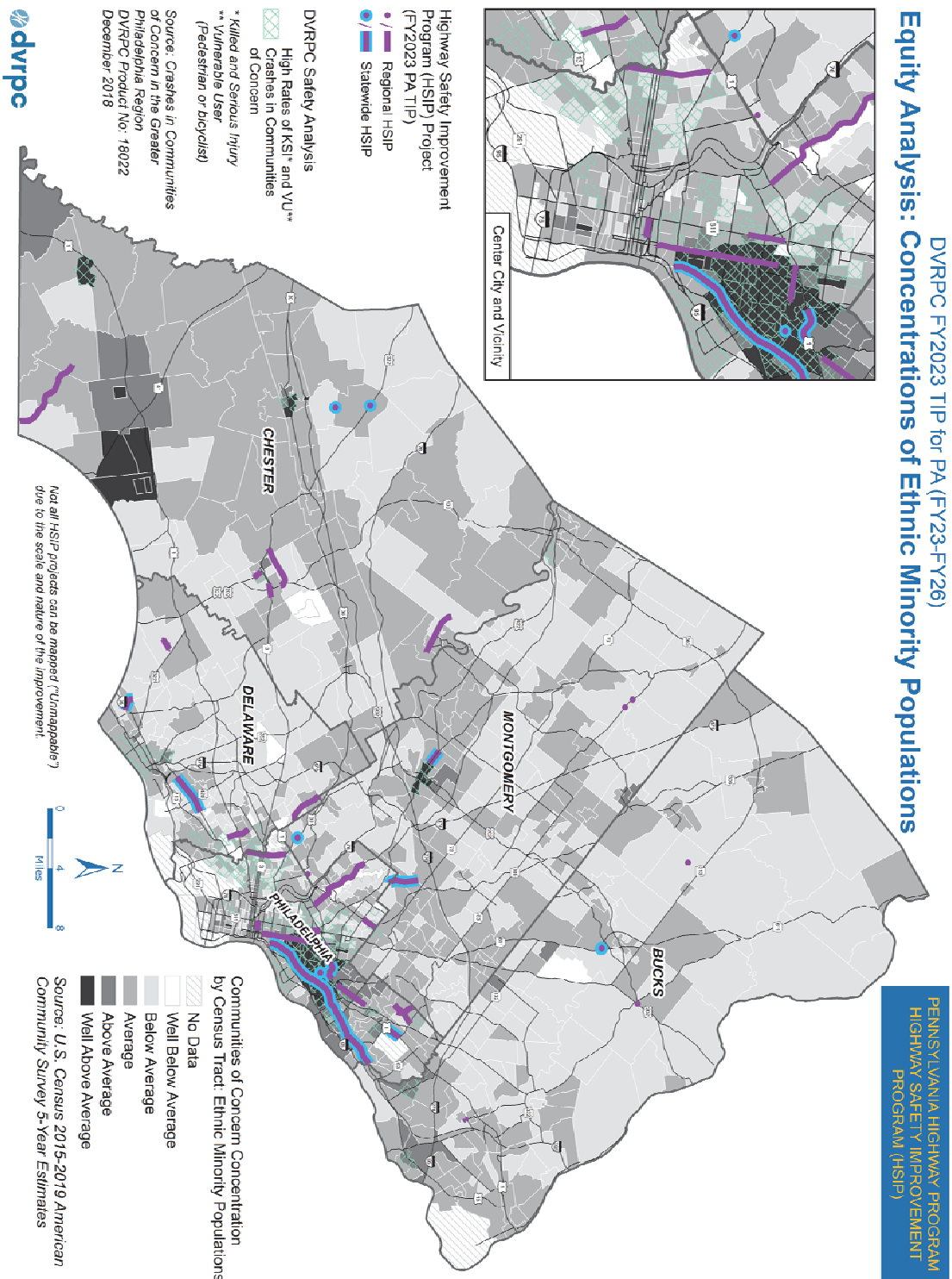
**Figure F13: Pennsylvania Highway Safety Improvement Program (HSIP) and Concentrations of Low Income Populations**



**Figure F14: Pennsylvania Highway Safety Improvement Program (HSIP) and Concentrations of Racial Minority Populations**



**Figure F15: Pennsylvania Highway Safety Improvement Program (HSIP) and Concentrations of Ethnic Minority Populations**





**Figure F16: Highway Projects and Concentrations of Low Income Populations**

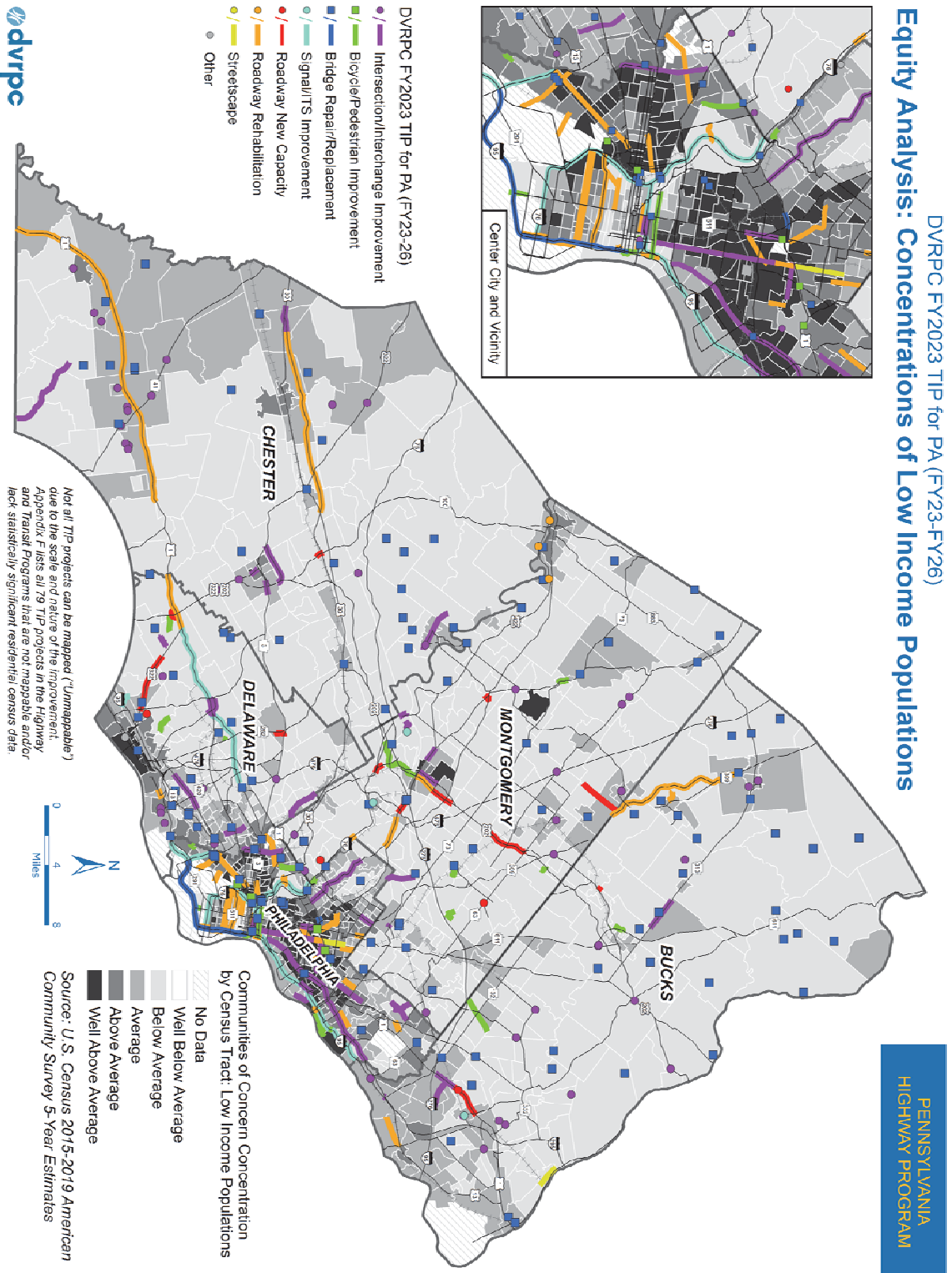
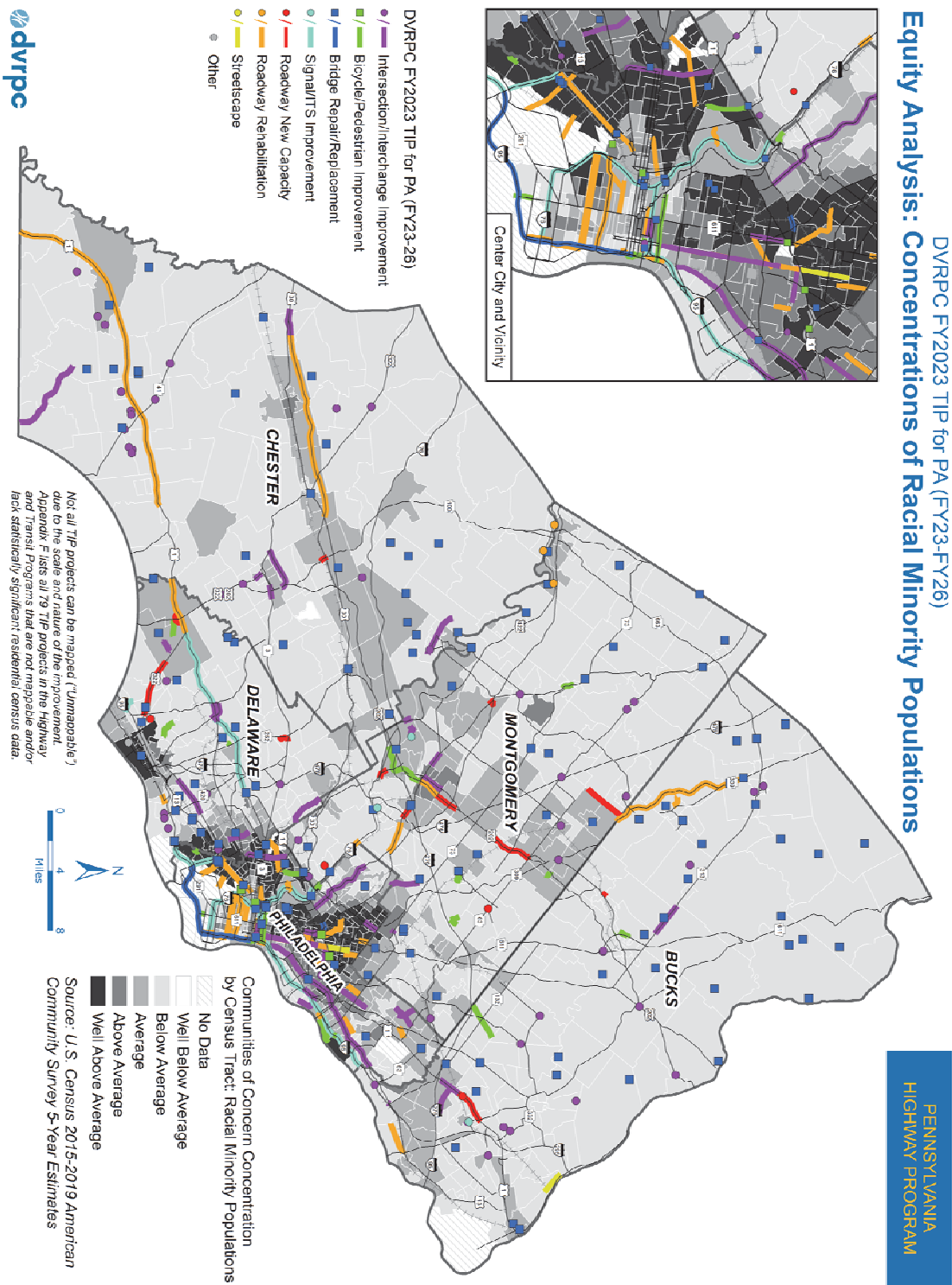
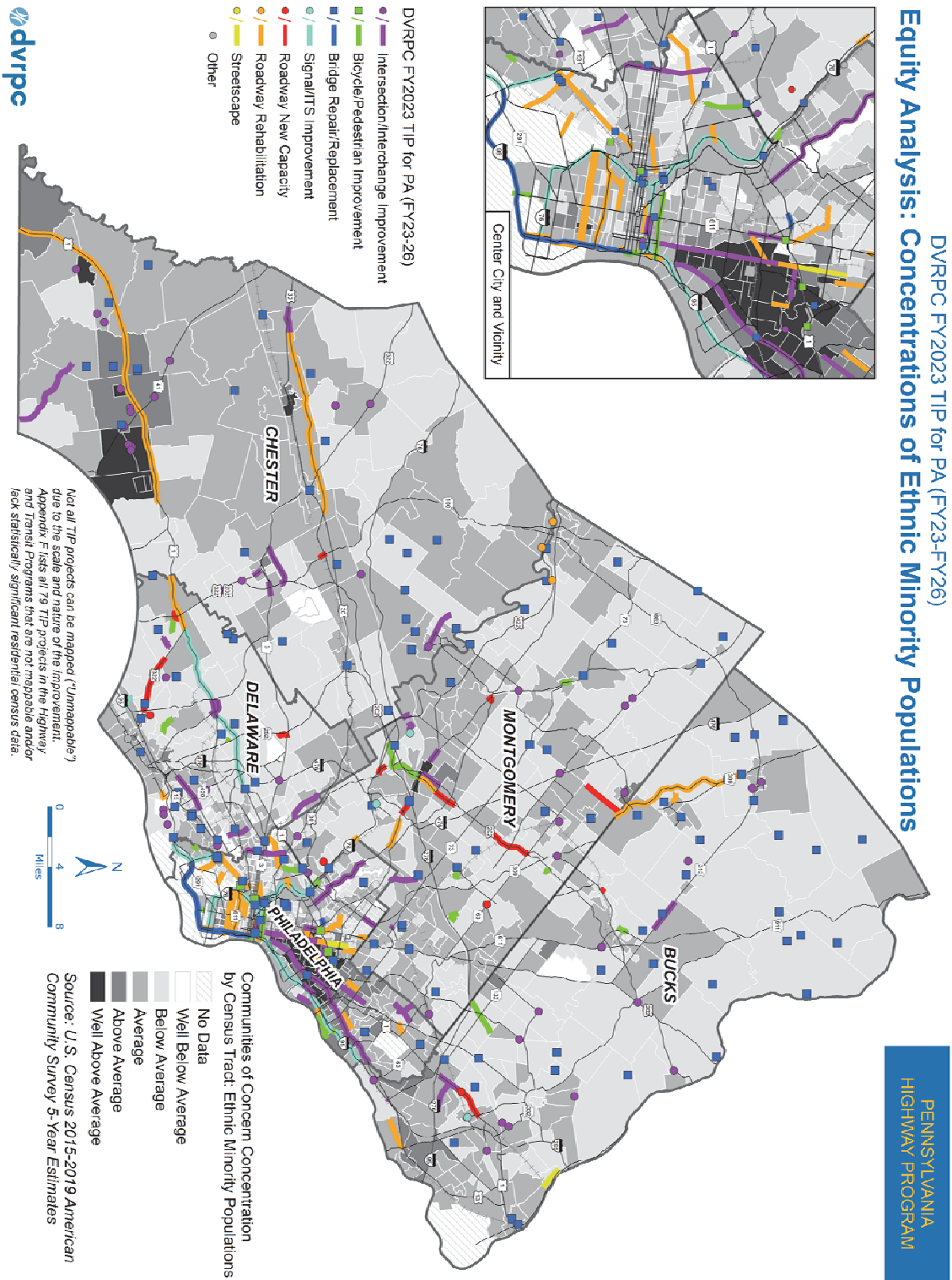




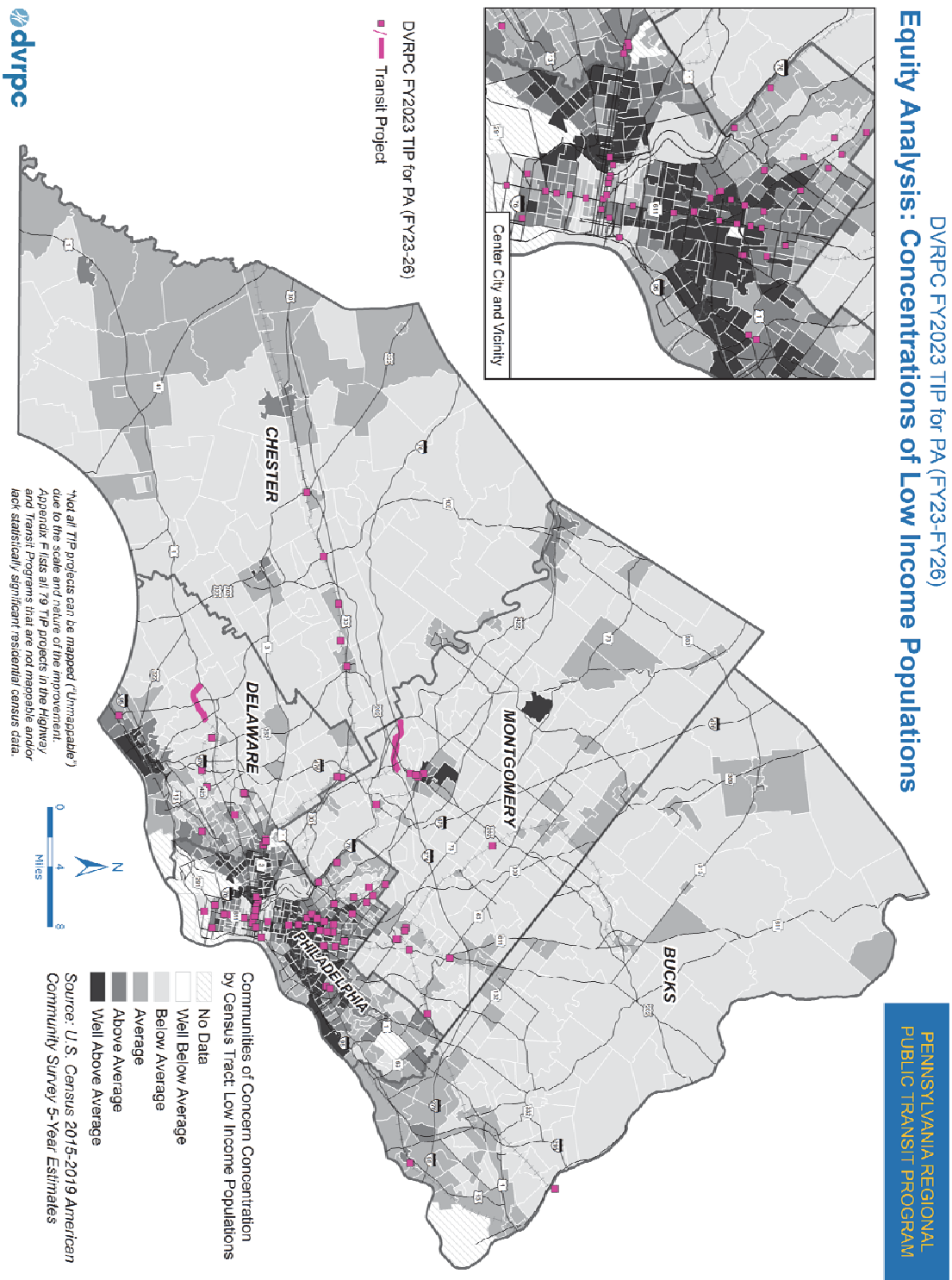
Figure F17: Highway Projects and Concentrations of Racial Minority Populations



**Figure F18: Highway Projects and Concentrations of Ethnic Minority Populations**



**Figure F19: Transit Projects and Concentrations of Low Income Populations**





**Figure F20: Transit Projects and Concentrations of Racial Minority Populations**

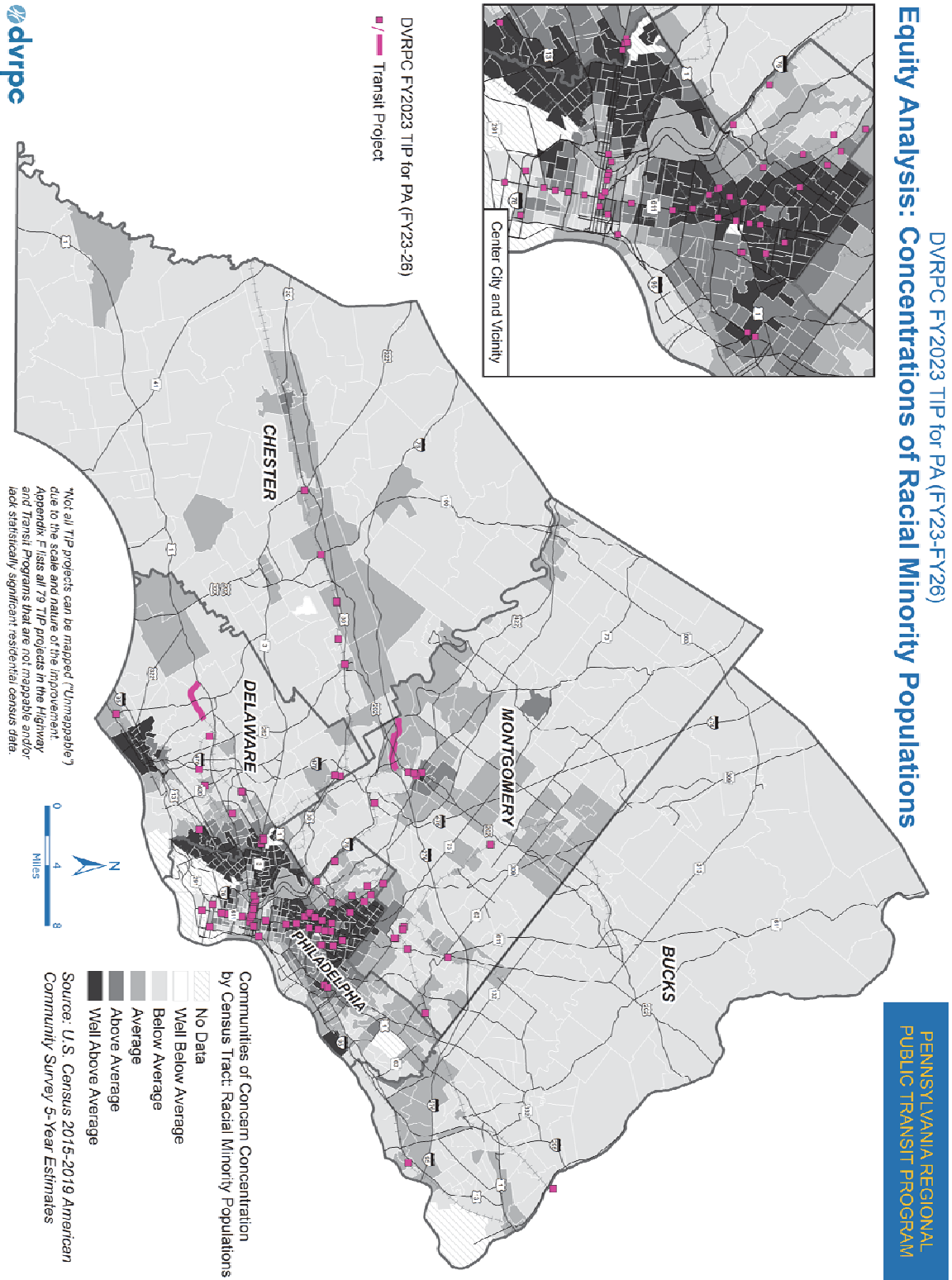
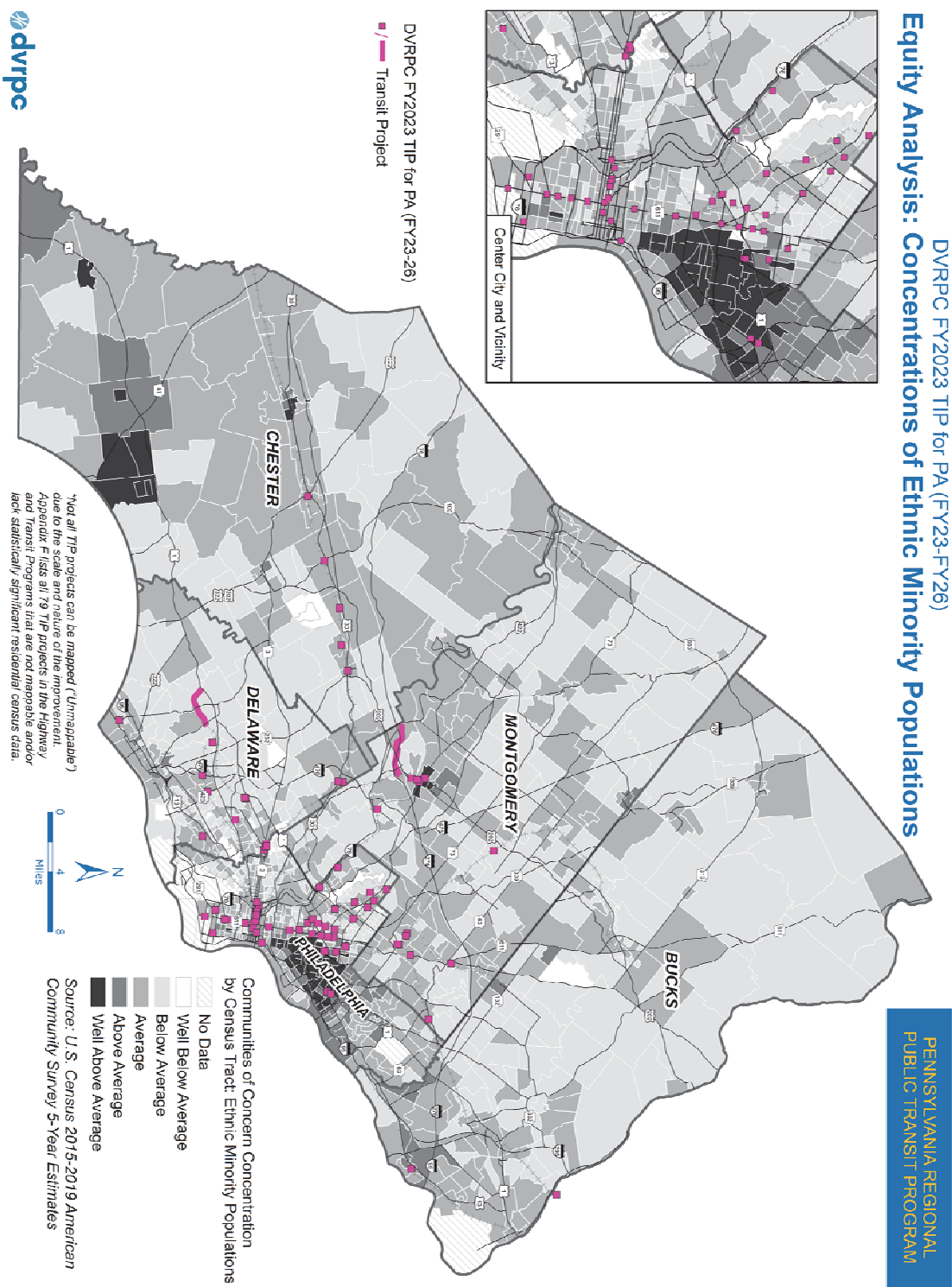
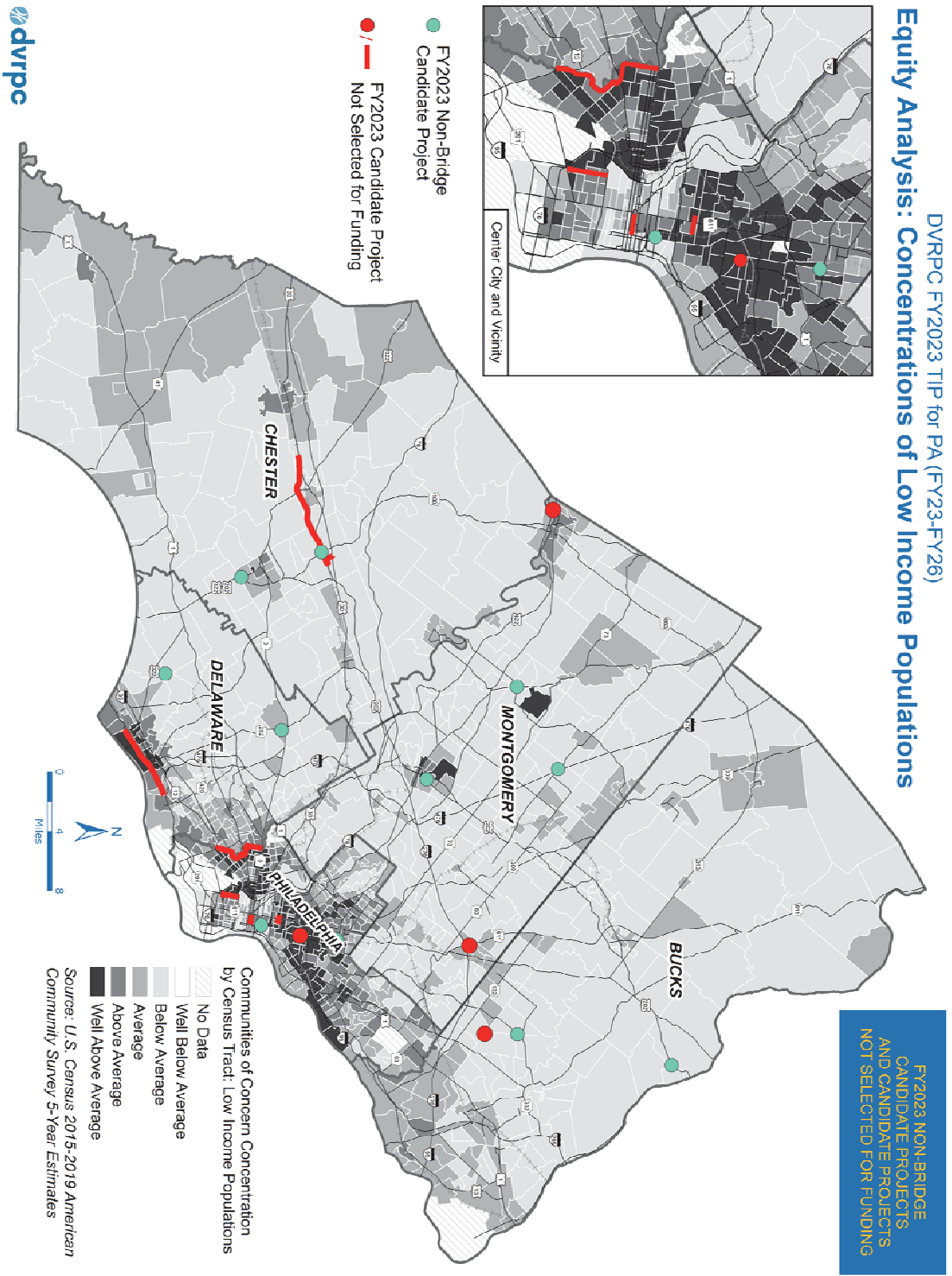


Figure F21: Transit Projects and Concentrations of Ethnic Minority Populations

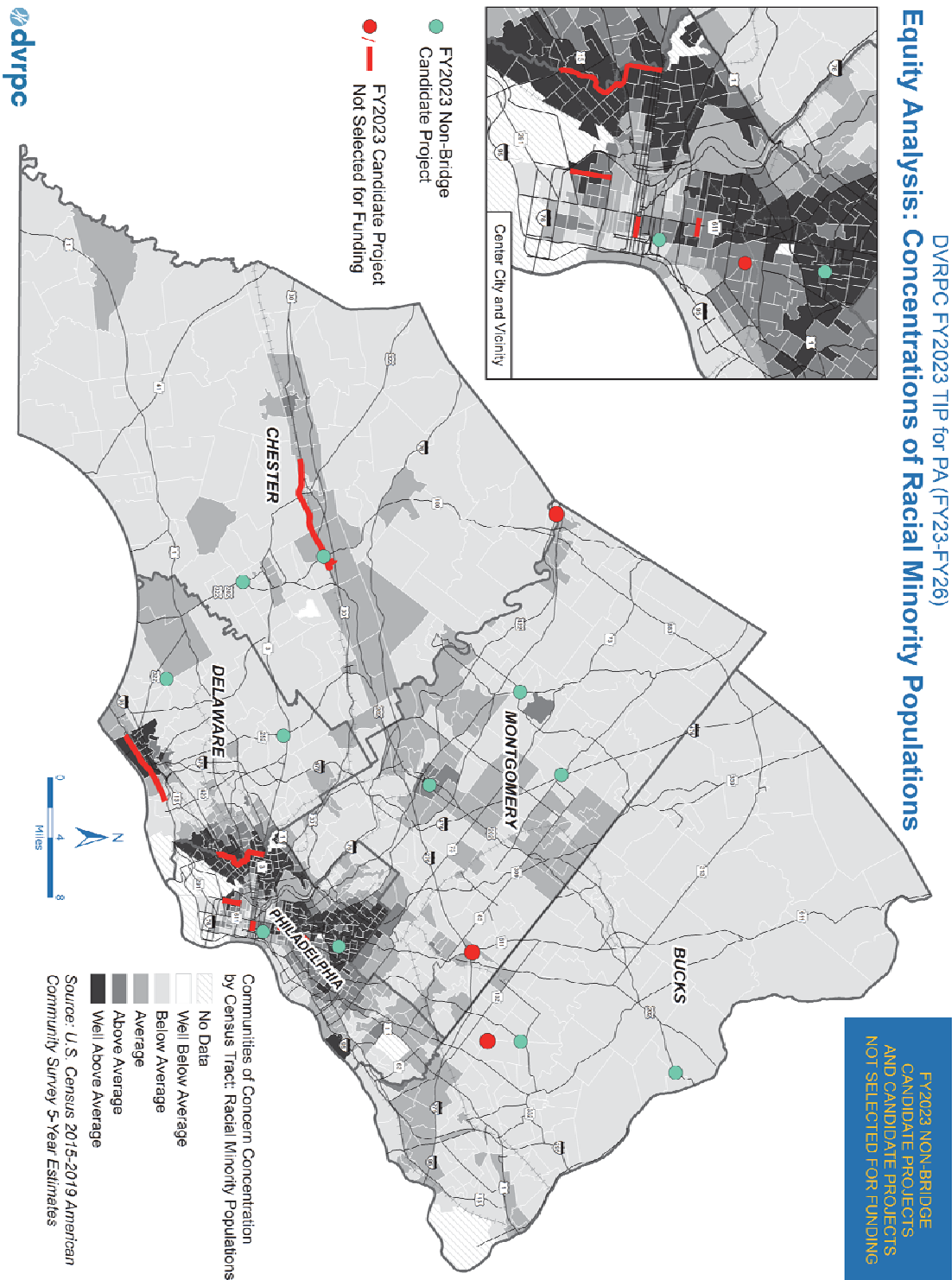




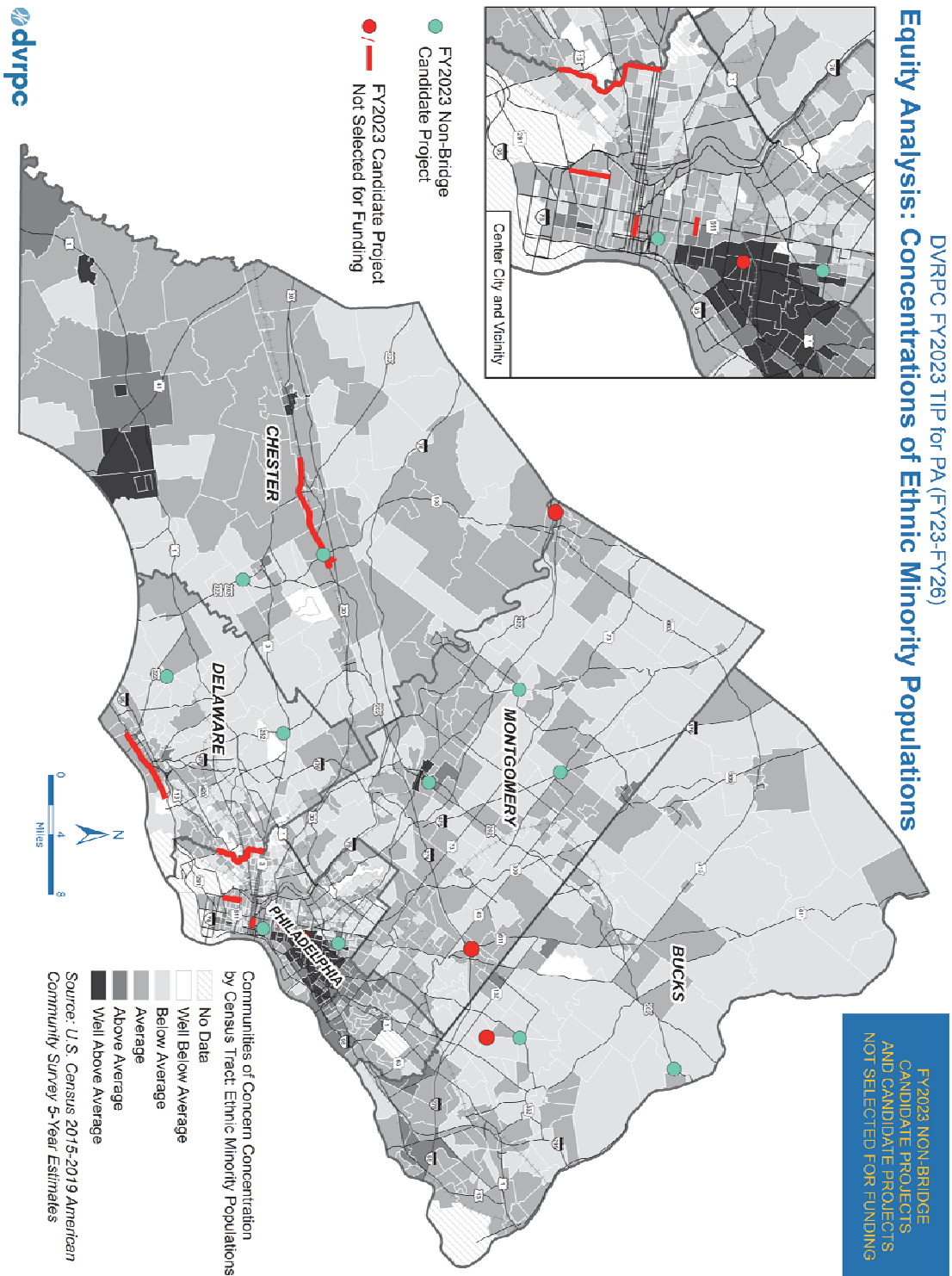
**Figure F22: Non-Bridge Candidate Projects and Candidate Projects Not Selected for Funding and Concentrations of Low Income Populations**



**Figure F23: Non-Bridge Candidate Projects and Candidate Projects Not Selected for Funding and Concentrations of Racial Minority Populations**

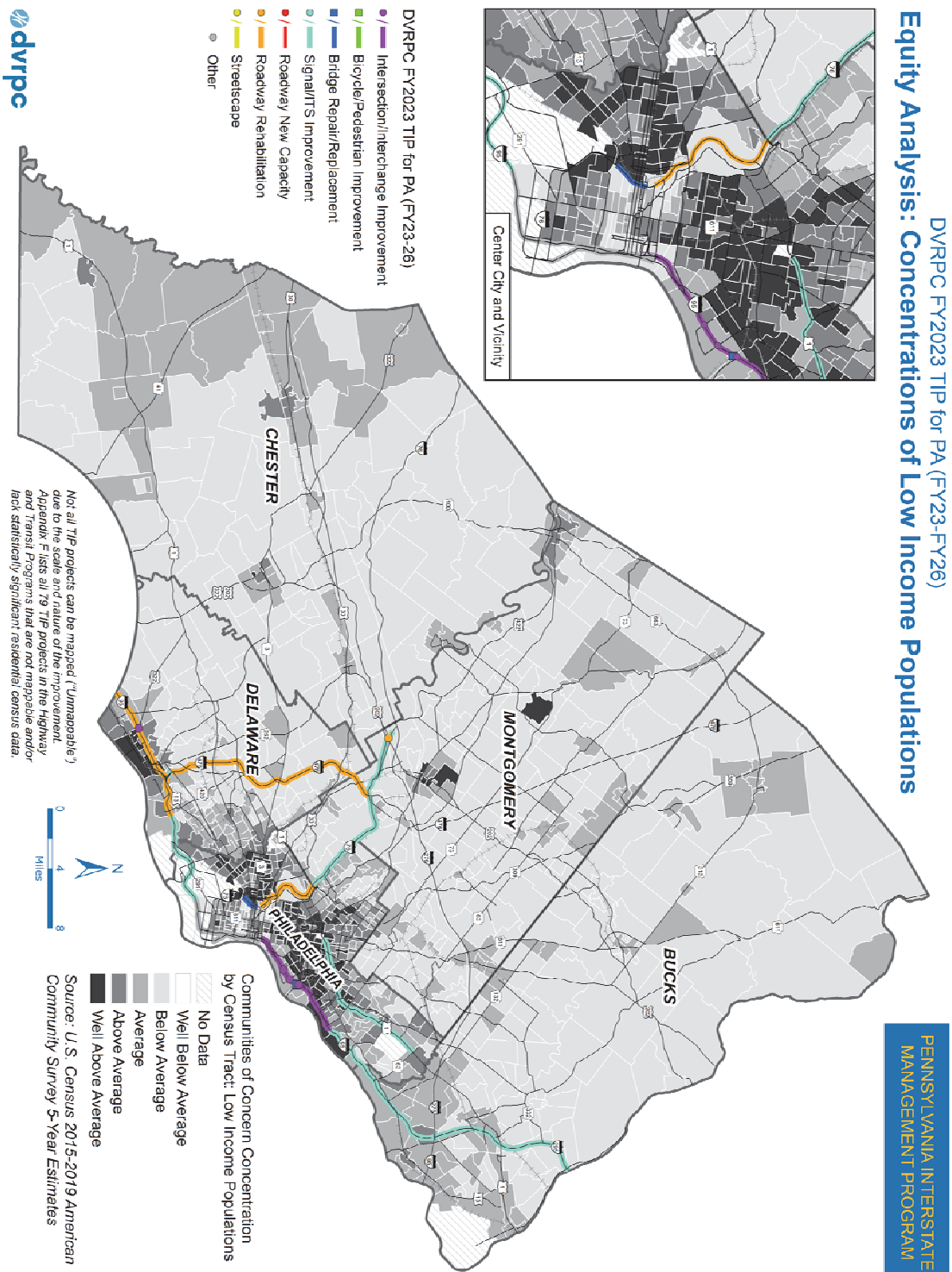


**Figure F24: Non-Bridge Candidate Projects and Candidate Projects Not Selected for Funding and Concentrations of Ethnic Minority Populations**

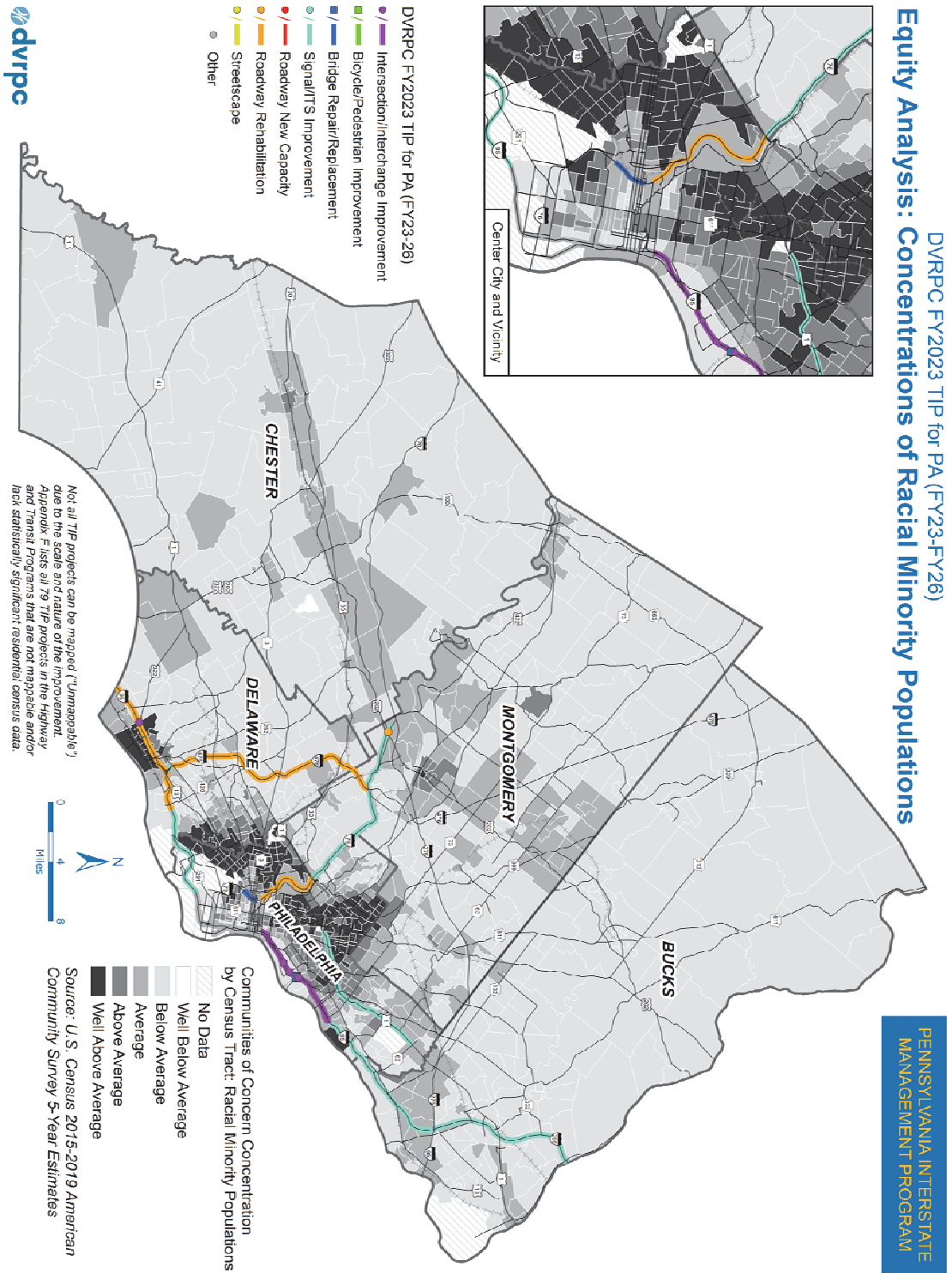




**Figure F25: Pennsylvania Interstate Management Program Projects and Concentrations of Low Income Populations**

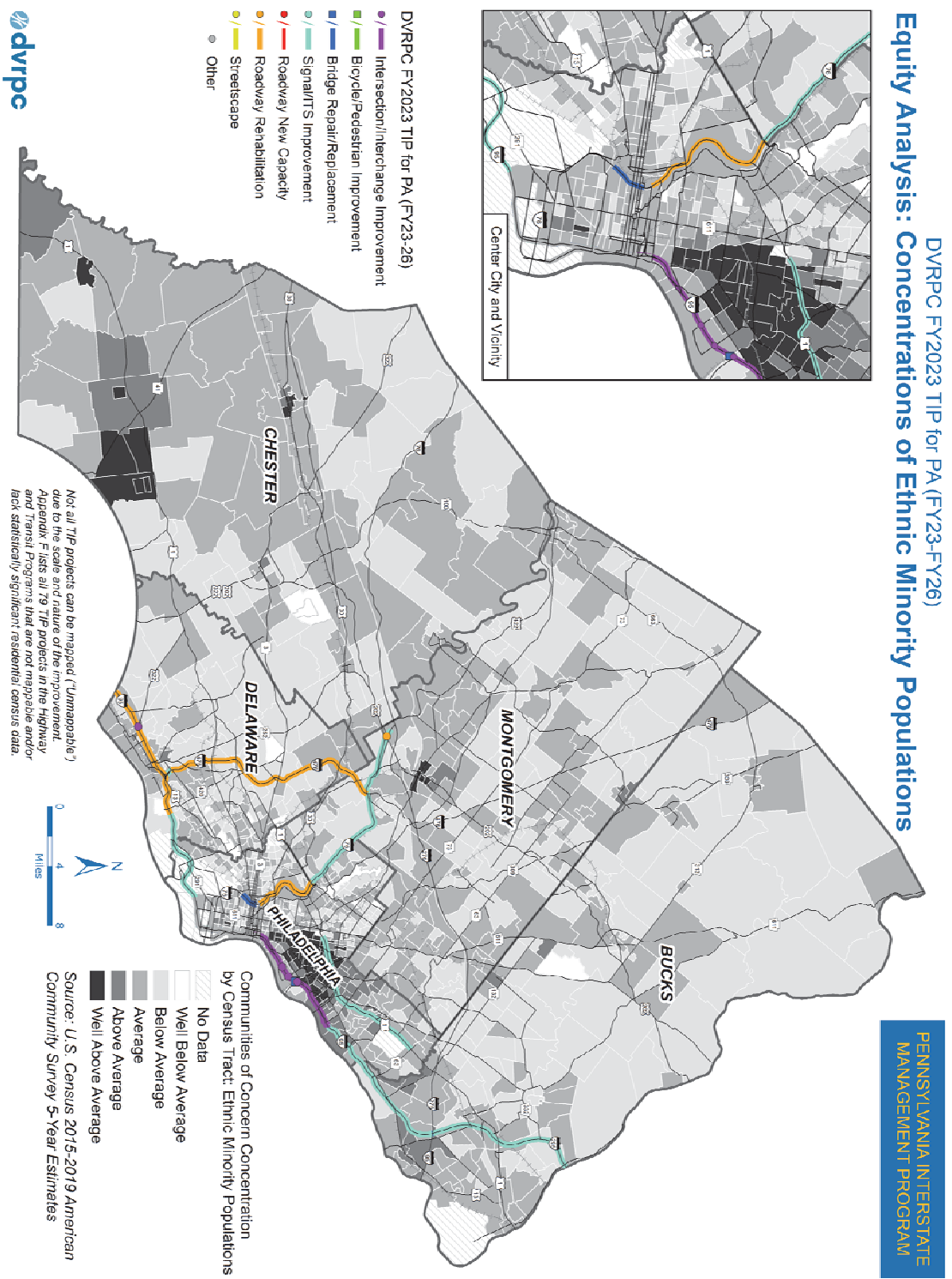


**Figure F26: Pennsylvania Interstate Management Program Projects and Concentrations of Racial Minority Populations**





**Figure F27: Pennsylvania Interstate Management Program Projects and Concentrations of Ethnic Minority Populations**



**Table F11: List of Unmappable TIP Projects**

MPMS #	Project Name	Project Type
16178	Construction Management Tasks	Other
16438	PA 309, Connector Project - Phase I	Roadway New Capacity
17928	PA Air Quality Action Supplemental Services	Other
46959	I-95 Design Review Manager	Other
48201	DVRPC Competitive CMAQ Program	Other
48202	Regional GIS Support - DVRPC	Other
48203	Aerial Photography	Other
51095	ITS Program Integrator	Signal/ITS Improvements
57902	City Wide 3R Betterments Line Item	Roadway Rehabilitation
57927	Regional Safety Initiatives (HSIP)	Intersection/Interchange Improvements
59935	Capital Operating Assistance - Pottstown Area Rapid Transit (PART)	Transit Improvements
59966	Capital Asset Lease Program	Transit Improvements
59973	Utility Fleet Renewal Program - Non Revenue Vehicles	Transit Improvements
60275	Debt Service	Transit Improvements
60317	Federal Preventive Maintenance	Transit Improvements
60582	Vehicle Overhaul Program	Transit Improvements
60599	Paratransit Vehicle Purchase	Transit Improvements
60611	SEPTA Key (Fare Collection System/New Payment Technologies)	Transit Improvements
60638	Regional Rail Multi-Level Car Acquisition	Transit Improvements
60651	Substations and Power Improvements	Transit Improvements
63406	Retrofit for Bike Lanes and Shoulders	Bicycle/Pedestrian Improvement
64652	Transportation Community Development Initiative (TCDI)	Other

Source: DVRPC, 2022.

**Table F11: List of Unmappable TIP Projects (cont.)**

MPMS #	Project Name	Project Type
64984	Transportation Alternatives - Urban (TAU) Line Item	Bicycle/Pedestrian Improvement
65109	Transit Flex - SEPTA	Transit Improvements
66460	TAP Project Engineering and Management - DVRPC	Bicycle/Pedestrian Improvement
66461	CMAQ Project Engineering and Management - DVRPC	Other
72738	Transportation Systems Management and Operations (TSMO)	Signal/ITS Improvements
75854	District Program Management Services "A"	Other
75855	District Program Management Services "B"	Other
79927	Highway Reserve Line Item-STP	Other
79929	Bridge Reserve Line Item	Other
79980	STU Reserve Line Item	Other
82216	NHPP Reserve Line Item	Other
83743	ADA Ramps Line Item	Bicycle/Pedestrian Improvement
84318	CAQ Reserve Line Item	Other
84457	Signal Retiming Program	Signal/ITS Improvements
86077	Enhance and Maintain Travel Forecasting Tools - DVRPC	Other
90497	Infrastructure Safety and Renewal Program	Transit Improvements
90512	SEPTA Bus Purchase Program	Transit Improvements
92182	Expressway Service Patrol - Suburban Counties (2022-2026)	Signal/ITS Improvements
92289	I-95 Consultant Mgmt	Other
95739	Transportation Capital Improvements	Transit Improvements
96223	Philadelphia Signal Retiming	Signal/ITS Improvements

Source: DVRPC, 2022.

**Table F11: List of Unmappable TIP Projects (cont.)**

MPMS #	Project Name	Project Type
97311	Transportation Community Development Initiative (TCDI) Administration	Other
102105	Municipal Bridge Line Item	Bridge Repair/Replacement
102275	Study Line Item	Other
102565	Track Improvement Program	Transit Improvements
102571	Communications, Signals, & Technology Improvements	Transit Improvements
102665	Signal Upgrade Line Item	Signal/ITS Improvements
104639	Travel Monitoring	Other
106648	Sink Holes Line Item	Roadway Rehabilitation
106649	Stormwater Permits/Environmental Mitigation Design	Roadway Rehabilitation
106654	I-95 Transportation Demand Mgt (TMA)	Other
106708	I-95 Planning Assistance	Other
108098	Citywide ADA Ramps 2	Roadway Rehabilitation
109847	ROW Divestment 6-0	Other
110127	District 6 Modeling Assistance	Other
110460	Commuter Services	Other
111424	Transportation Management Associations (TMA)	Other
112463	ADA Ramps in Center City Philadelphia	Bicycle/Pedestrian Improvement
112525	Citywide 3R 111	Roadway Rehabilitation
112527	Citywide ADA Ramps 3	Roadway Rehabilitation
113257	Outdoor Advertising Control	Other
113813	Group HB1 Bridge Rehabilitation	Bridge Repair/Replacement
114592	Interstate ITS Contract 2020(C)	Intersection/Interchange Improvements

Source: DVRPC, 2022.

**Table F11: List of Unmappable TIP Projects (cont.)**

MPMS #	Project Name	Project Type
114939	Regional TDM Program	Other
114967	Transportation Operations	Intersection/Interchange Improvements
115687	I-95: Allegheny & Castor Ave Int.	Other
115913	Philadelphia Trip Generation Model	Other
115962	PA Supportive Regional Highway Program (SRHPP)	Other
115985	I-95 Traffic Forecasts	Other
116225	I-476 Advance Travel Management	Signal/ITS Improvements
116807	Citywide ADA Ramps 4	Roadway Rehabilitation
117793	Systemic Improvements - Lane Departure	Other
117796	Systemic Improvements - Vulnerable Users	Other
117997	Bridge Investment Program Line Item	Other
118014	2023 Bridge Painting Pkge	Bridge Repair/Replacement
118015	CMAQ Flex for SEPTA Projects of Significance Line Item	Transit Improvements
118036	HSIP Supportive Line Item	Other

Source: DVRPC, 2022.



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