



Appendix F

Environmental Justice Appendix

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

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

Demographic Analysis

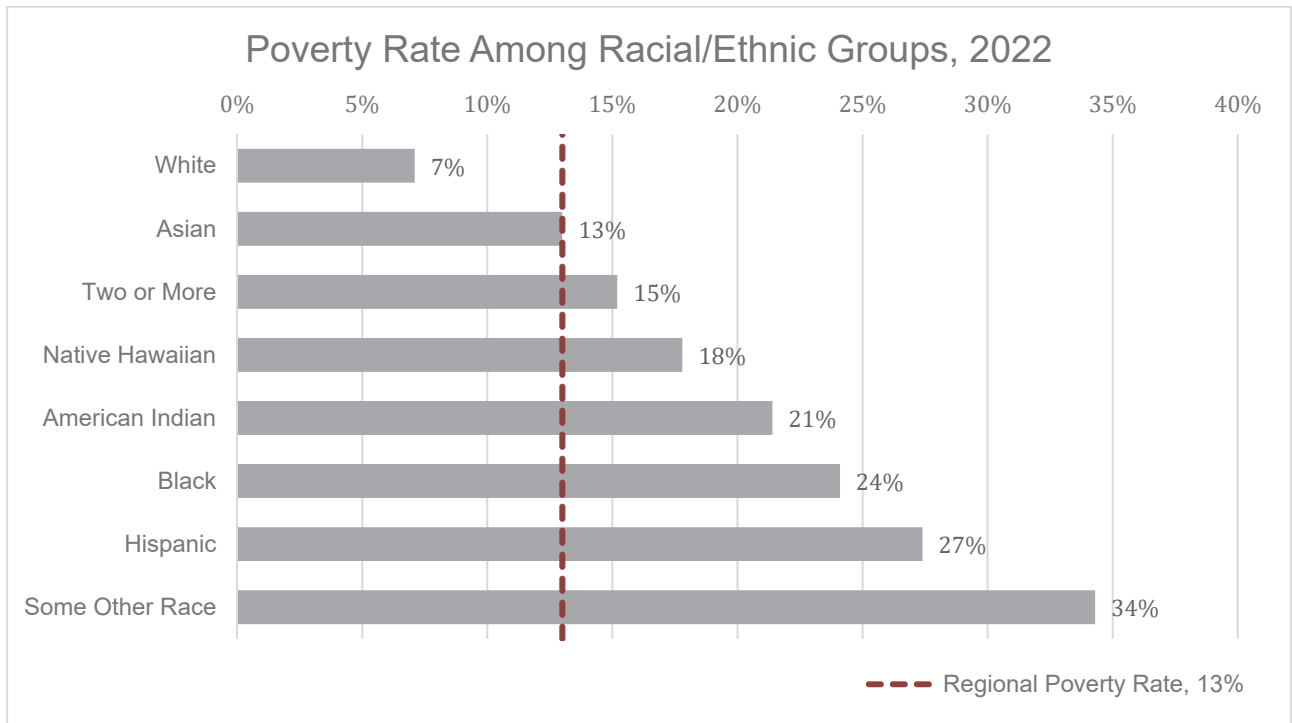
Table F1: Populations Estimates in the DVRPC-PA Region (2018-2022)

Population for Five DVRPC Pennsylvania Counties	Population Estimate	Regional Percentage
Total	4,206,556	100%
White, Non-Hispanic	2,476,647	60%
Minority	1,705,215	40%
Black or African American, Non-Hispanic	873,519	21%
Asian, Non-Hispanic	286,887	7%
Two or more races, Non-Hispanic	142,545	3%
Hispanic	402,264	10%
Low-Income Population*	1,074,068	26%
Other Communities of Concern		
Limited English Proficiency (LEP)	278,515	7%
Persons with a Disability	538,310	27%
Female Head of Household with Child	95,385	6%
Elderly (65 years or older)	691,650	16%
Carless Households	244,629	15%

Source: American Community Survey, U.S. Census Bureau, 2018-2022.

*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, 2018-2022.

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

Figure F1: Concentrations of Low-Income Populations

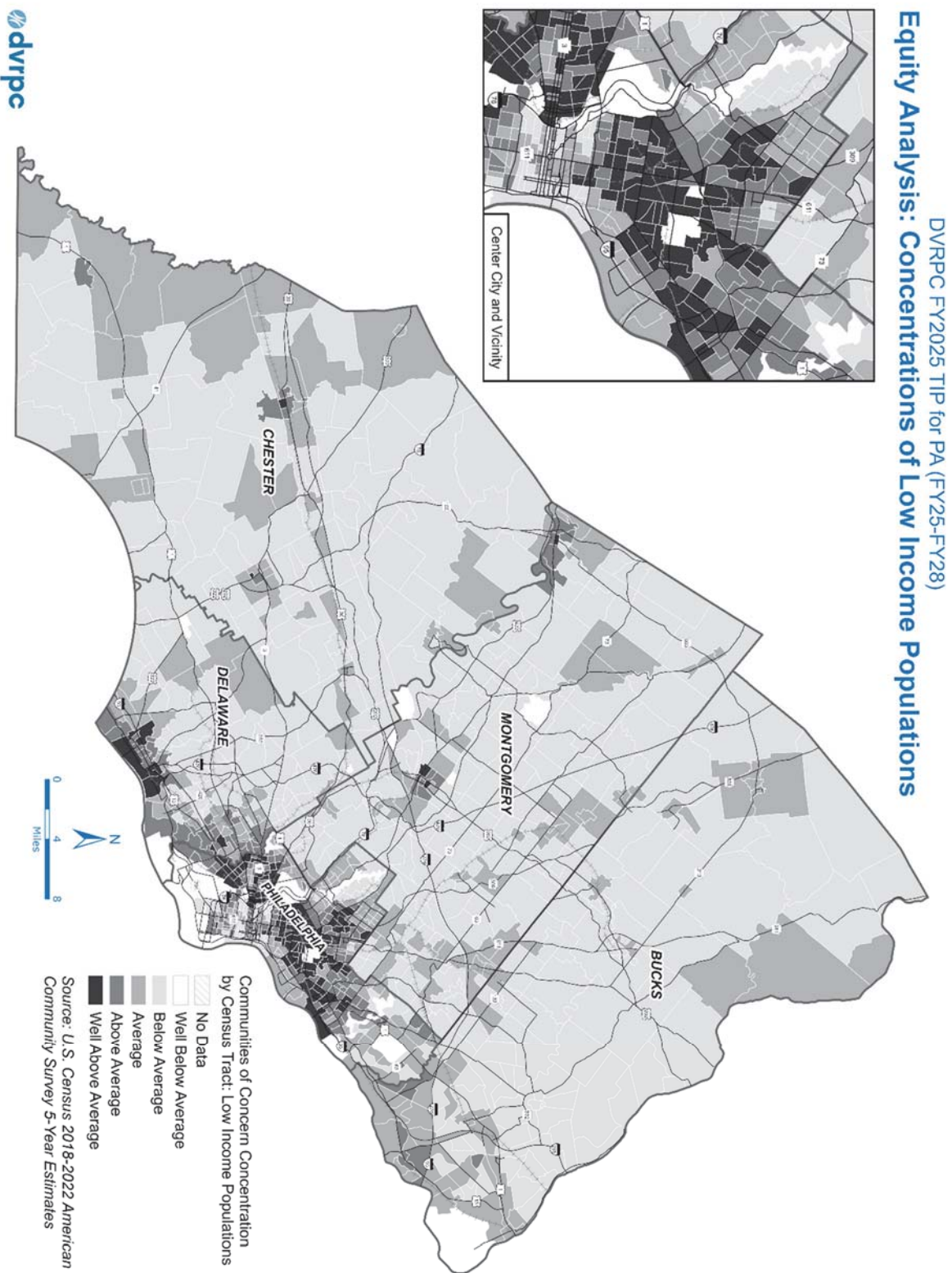


Figure F2: Concentrations of Racial Minority Populations

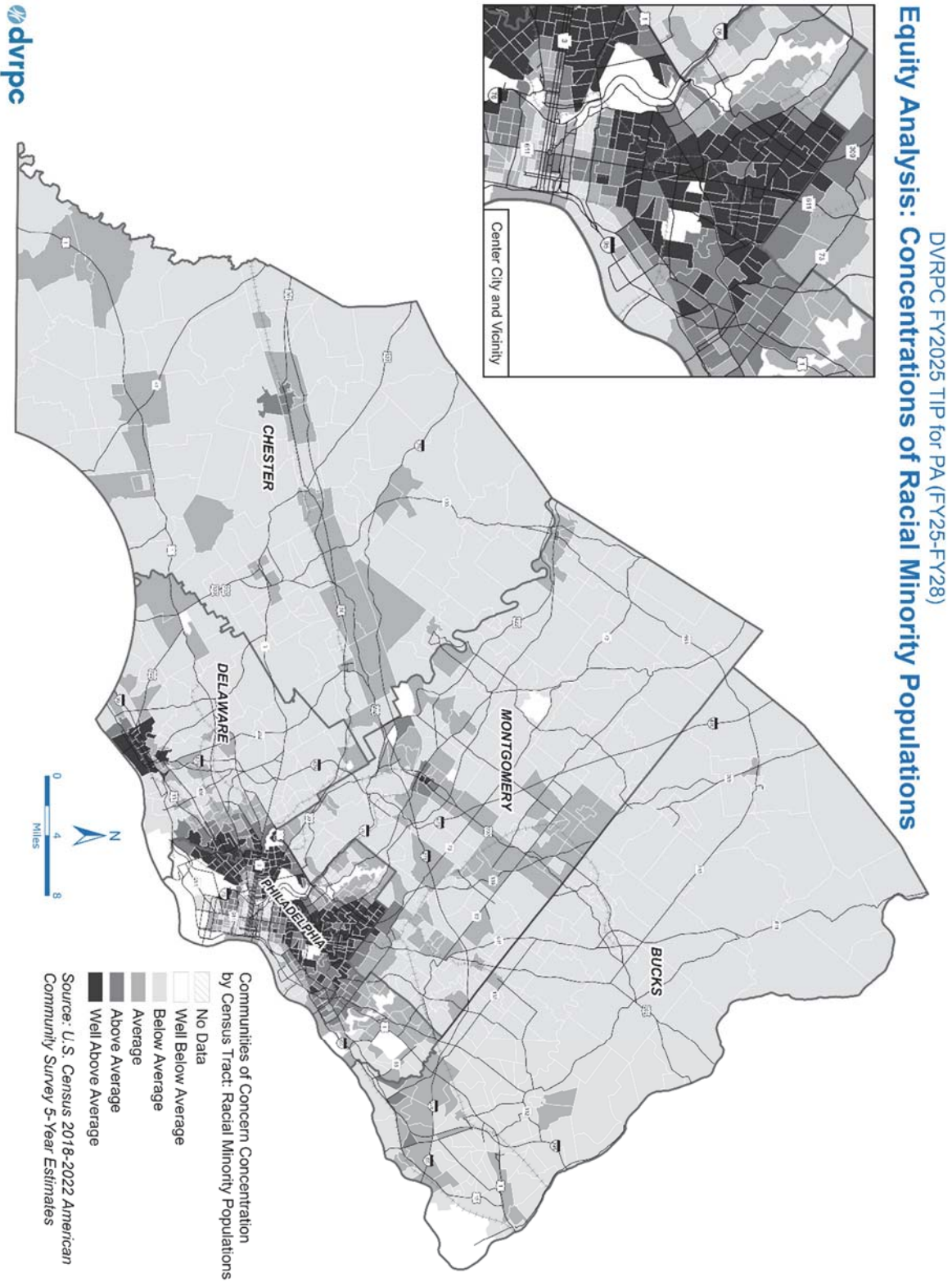
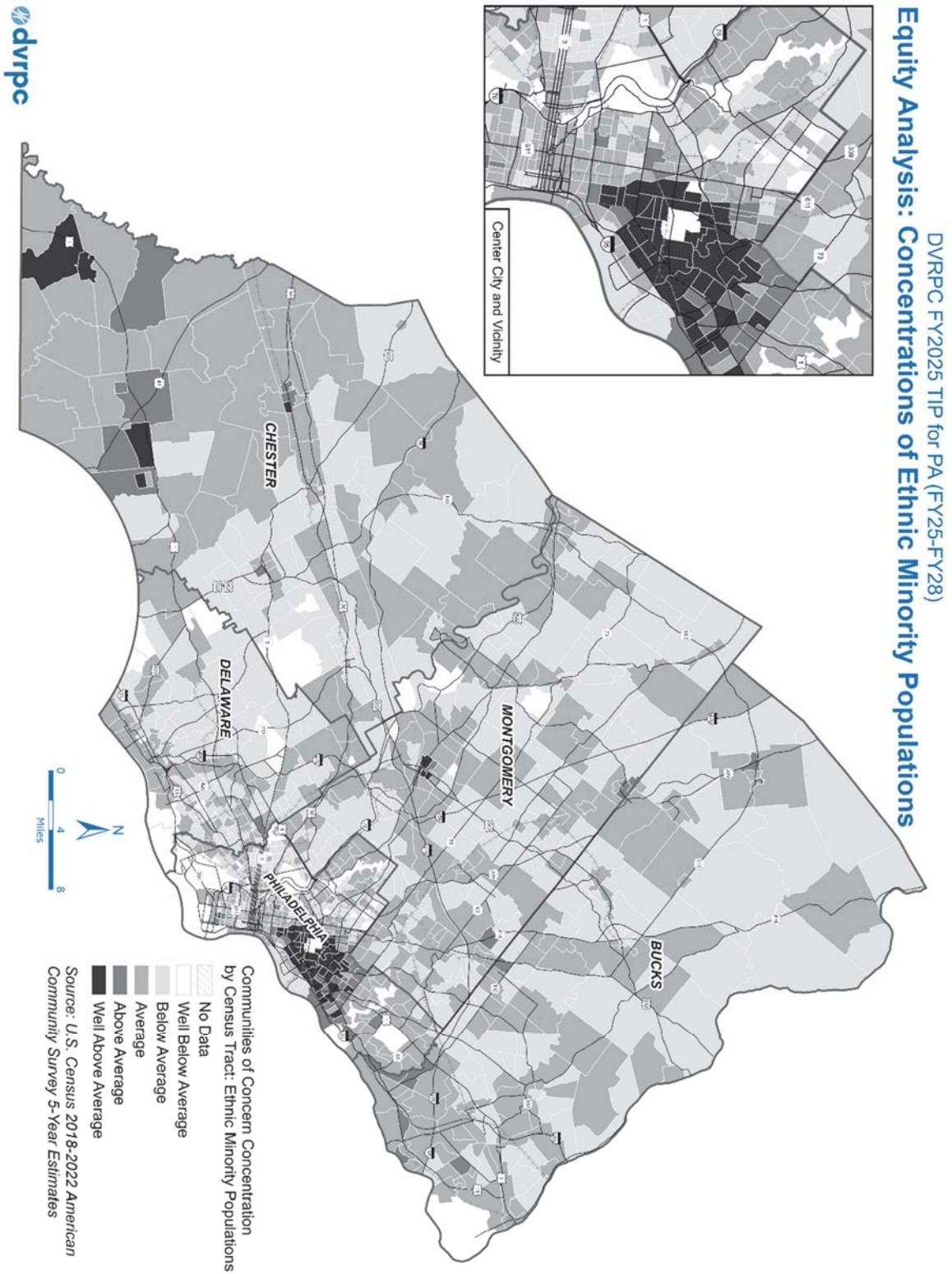


Figure F3: Concentrations of Ethnic Minority Populations



Assessing Conditions and Needs

Data included in the tables and maps below were acquired from the US Census Bureau, 2018-2022 American Community Survey 5-year estimates and PennDOT. The International Roughness Index (IRI) data for pavement condition is collected by PennDOT for about 30,000 miles of state road network across Pennsylvania. The bridge condition data was collected from PennDOT’s Bridge Management System (BMS). Low-income and minority population intervals were based on the breaks used for DVRPC’s Indicators of Potential Disadvantage (IPD). Note that this analysis defined “Low-Income” as 200 percent of the federal poverty level or less, and data was analyzed at the census tract level. DVRPC utilized data provided by PennDOT and sourced from the US Census Bureau data to calculate and compile the results shown in the following tables and maps.

Table and map representations of asset condition data shown alongside demographic data are consistent with methodology put forth in the [South Central Pennsylvania Environmental Justice Unified Process and Methodology Guide](#).

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

Low-Income Intervals	Population	Population as a Percent of the Region	Total Bridges in Poor Condition	Percent Bridges in Poor Condition	Total Deck Area in Poor Condition	Percent of Deck Area in Poor Condition
Well Above Average	545,212	13.0%	37	20.1%	429,617	13.1%
Above Average	710,636	16.9%	70	22.5%	609,641	14.2%
Average	1,177,761	28.0%	177	14.5%	972,175	10.1%
Below Average	1,767,679	42.1%	328	13.3%	823,900	6.7%
DVRPC- PA Regional	4,201,288	100%	527	14.0%	2,328,525	7.9%

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT. DVRPC’s IPD analysis defines Low-Income Populations as 200% of the poverty level or below.

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

Racial Minority Intervals	Population	Population as a Percent of the Region	Total Bridges in Poor Condition	Percent Bridges in Poor Condition	Total Deck Area in Poor Condition	Percent of Deck Area in Poor Condition
Well Above Average	685,144	16.3%	39	21.0%	488,509	27.5%
Above Average	534,907	12.7%	43	20.9%	252,667	12.9%
Average	1,069,545	25.5%	135	12.4%	720,346	6.9%
Below Average	1,911,692	45.5%	385	14.5%	1,276,380	8.1%
DVRPC- PA Regional	4,201,288	100%	527	14.0%	2,328,525	7.9%

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

Table F5: Distribution of Poor Condition Bridges (State and Local) by Ethnic Minority Population Intervals

Ethnic Minority Intervals	Population	Population as a Percent of the Region	Total Bridges in Poor Condition	Percent Bridges in Poor Condition	Total Deck Area in Poor Condition	Percent of Deck Area in Poor Condition
Well Above Average	291,054	6.9%	17	18.5%	207,877	25.9%
Above Average	269,236	6.4%	31	17.9%	206,427	14.1%
Average	2,163,073	51.5%	311	14.6%	1,191,541	7.5%
Below Average	1,406,561	33.5%	255	13.8%	1,252,988	11.5%
Well Below Average*	71,364	1.7%	11	19.6%	70,795	7.7%
DVRPC- PA Regional	4,201,288	100%	527	14.0%	2,328,525	7.9%

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

*DVRPC's Indicators of Potential Disadvantage (IPD) includes a fifth interval for Well Below Average concentrations of ethnic minority populations.

Equity Analysis: Concentrations of Low Income Populations

BRIDGE CONDITION

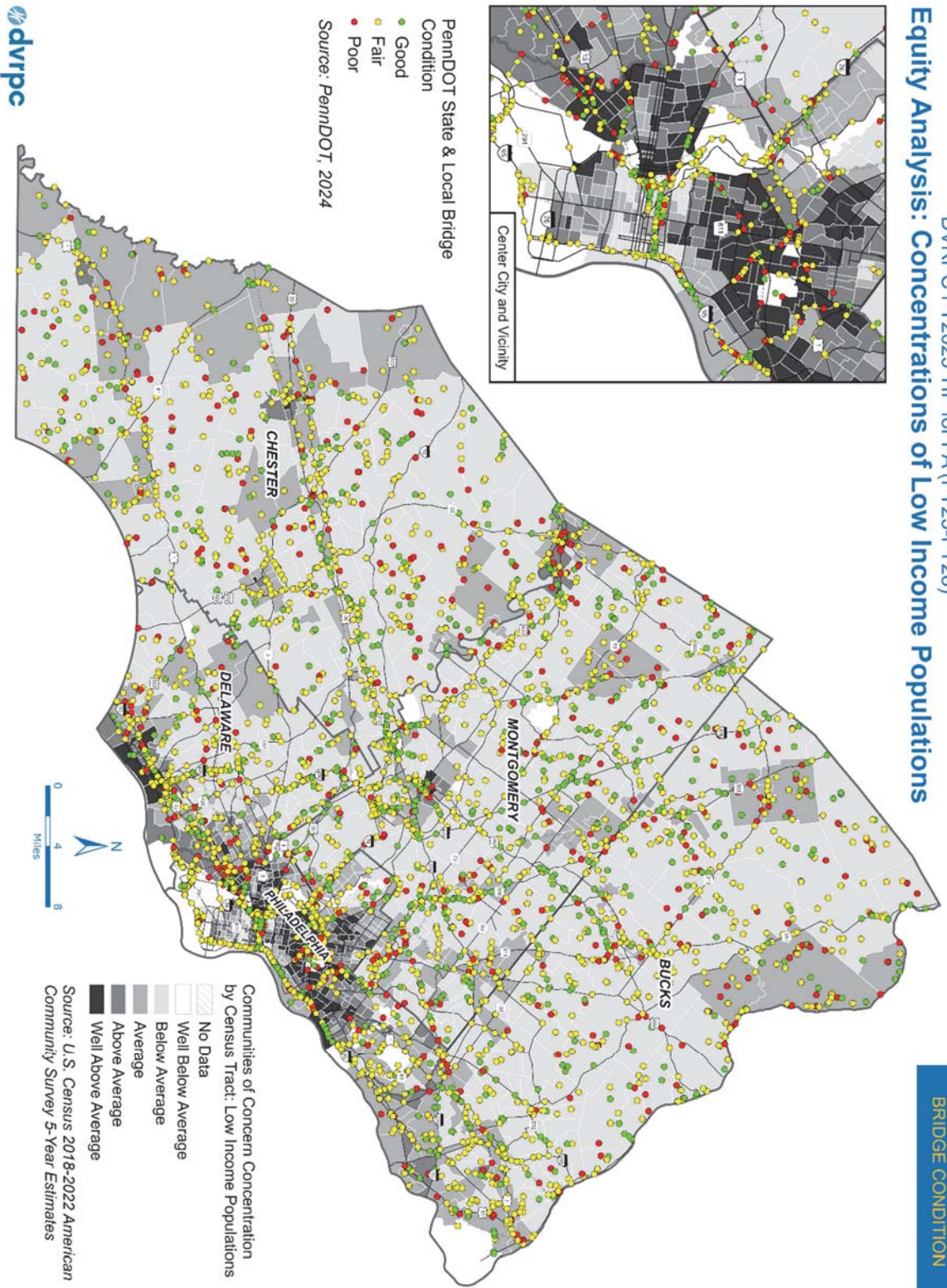


Figure F4: Bridge Condition and Concentrations of Low-Income Populations



DVRPC FY2025 TIP for PA (FY25-FY28)
Equity Analysis: Concentrations of Racial Minority Populations

BRIDGE CONDITION

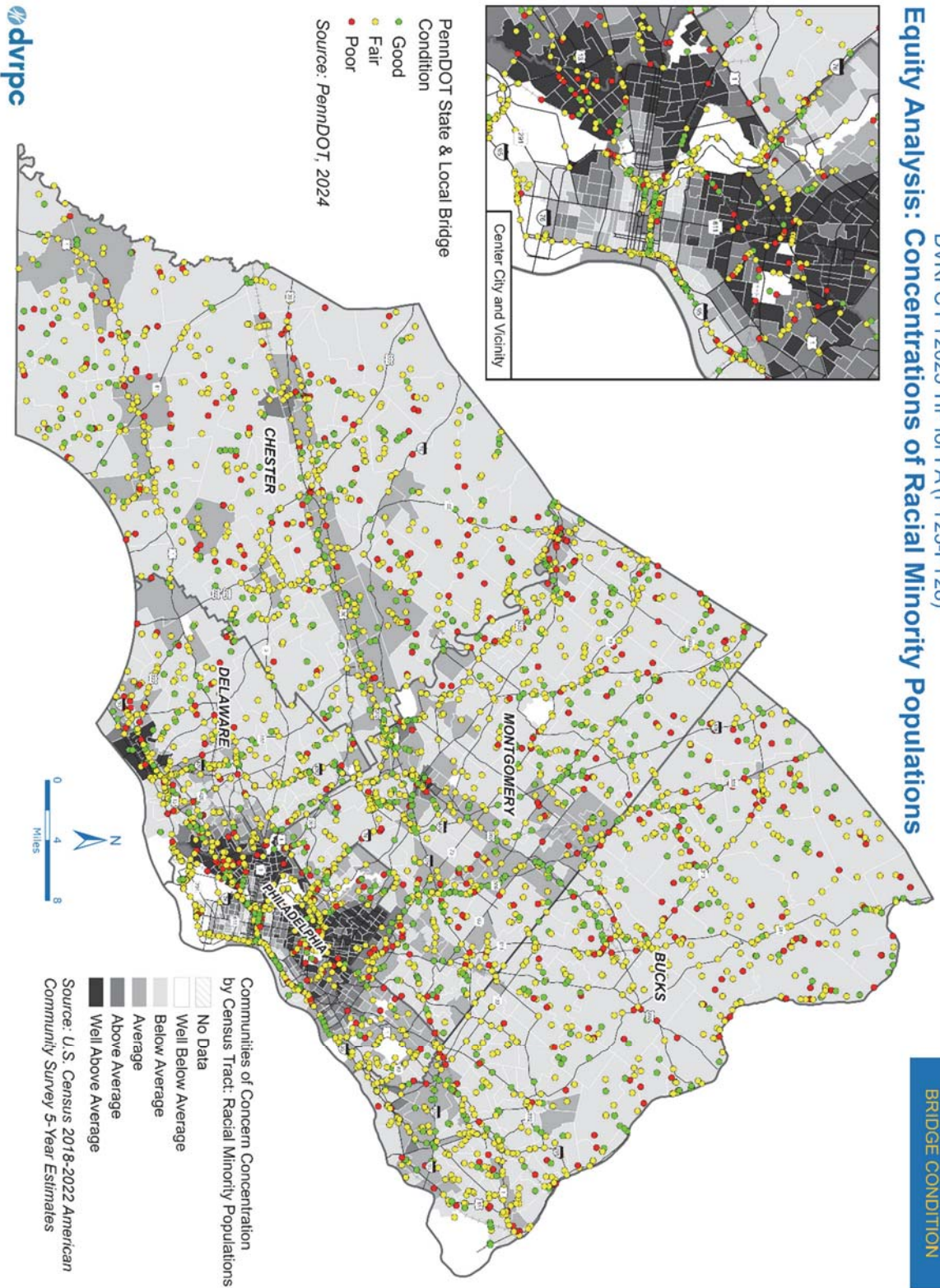


Figure F5: Bridge Condition and Concentrations of Racial Minority Populations



DVRPC FY2025 TIP for PA (FY25-FY28)
Equity Analysis: Concentrations of Ethnic Minority Populations

BRIDGE CONDITION

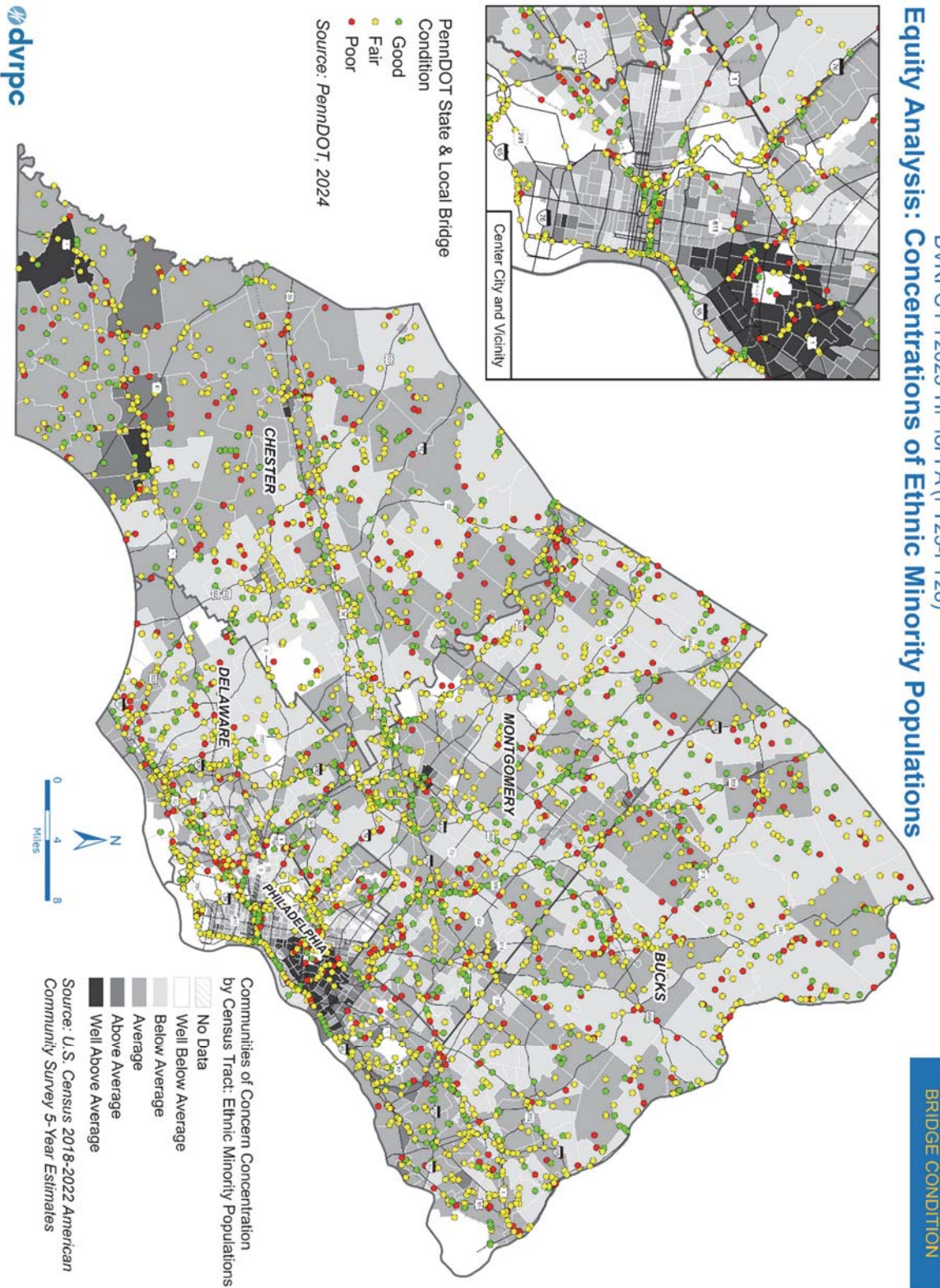


Figure F6: Bridge Condition and Concentrations of Ethnic Minority Populations

Table F6: Distribution of International Roughness Index (IRI) Values by Low-Income Population Intervals

Low-Income Intervals	Population	Population as a Percent of the Region	Pavement in Excellent Condition (%)	Pavement in Good Condition (%)	Pavement in Fair Condition (%)	Pavement in Poor Condition (%)
Well Above Average	545,212	13.0%	3.3%	18.5%	24.9%	48.7%
Above Average	710,636	16.9%	2.9%	18.3%	32.9%	40.3%
Average	1,177,761	28.0%	8.5%	28.8%	31.8%	25.4%
Below Average	1,767,679	42.1%	10.0%	29.9%	32.6%	17.6%
DVRPC- PA Regional	4,201,288	100%	9.2%	29.2%	32.3%	21.3%

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.
 DVRPC's IPD analysis defines Low-Income Populations as 200% of the poverty level or below.

Table F7: Distribution of International Roughness Index (IRI) Values by Racial Minority Population Intervals

Racial Minority Intervals	Population	Population as a Percent of the Region	Pavement in Excellent Condition (%)	Pavement in Good Condition (%)	Pavement in Fair Condition (%)	Pavement in Poor Condition (%)
Well Above Average	685,144	16.3%	2.3%	10.1%	27.6%	51.9%
Above Average	534,907	12.7%	3.4%	16.2%	29.0%	46.5%
Average	1,069,545	25.5%	9.5%	26.6%	28.6%	24.5%
Below Average	1,911,692	45.5%	9.8%	31.5%	33.2%	17.5%
DVRPC- PA Regional	4,201,288	100%	9.2%	29.2%	32.3%	21.3%

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

Table F8: Distribution of International Roughness Index (IRI) Values by Ethnic Minority Population Intervals

Ethnic Minority Intervals	Population	Population as a Percent of the Region	Pavement in Excellent Condition (%)	Pavement in Good Condition (%)	Pavement in Fair Condition (%)	Pavement in Poor Condition (%)
Well Above Average	291,054	6.9%	2.4%	33.8%	34.1%	28.0%
Above Average	269,236	6.4%	11.2%	27.5%	30.8%	30.2%
Average	2,163,073	51.5%	8.6%	27.3%	32.3%	22.8%
Below Average	1,406,561	33.5%	9.3%	30.2%	32.2%	19.5%
Well Below Average*	71,364	1.7%	4.3%	23.0%	35.9%	30.7%
DVRPC- PA Regional	4,201,288	100%	9.2%	29.2%	32.3%	21.3%

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

*DVRPC's Indicators of Potential Disadvantage (IPD) includes a fifth interval for Well Below Average concentrations of ethnic minority populations.

Figure F8: Pavement Condition and Concentrations of Low-Income Populations

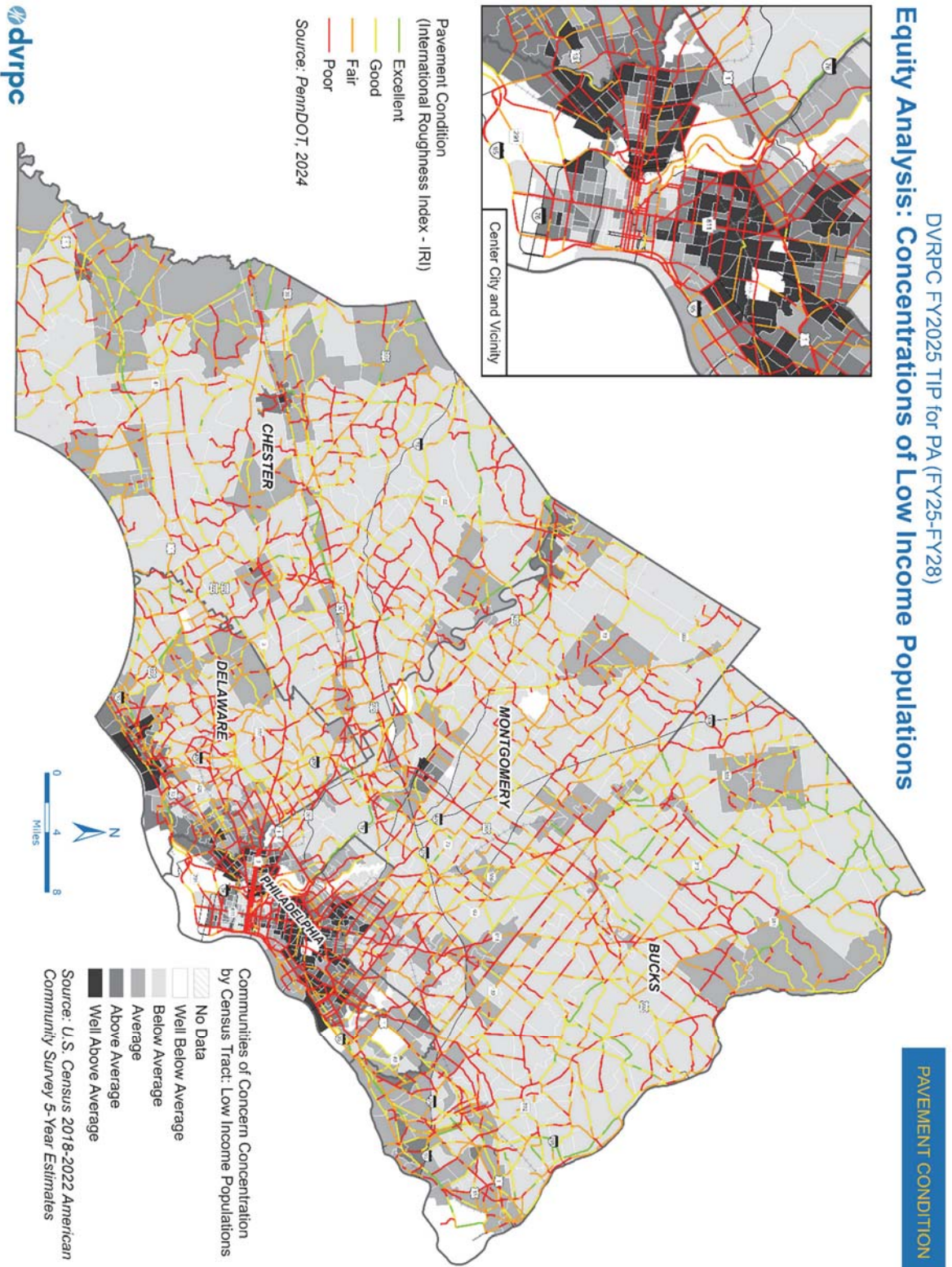


Figure F9: Pavement Condition and Concentrations of Racial Minority Populations

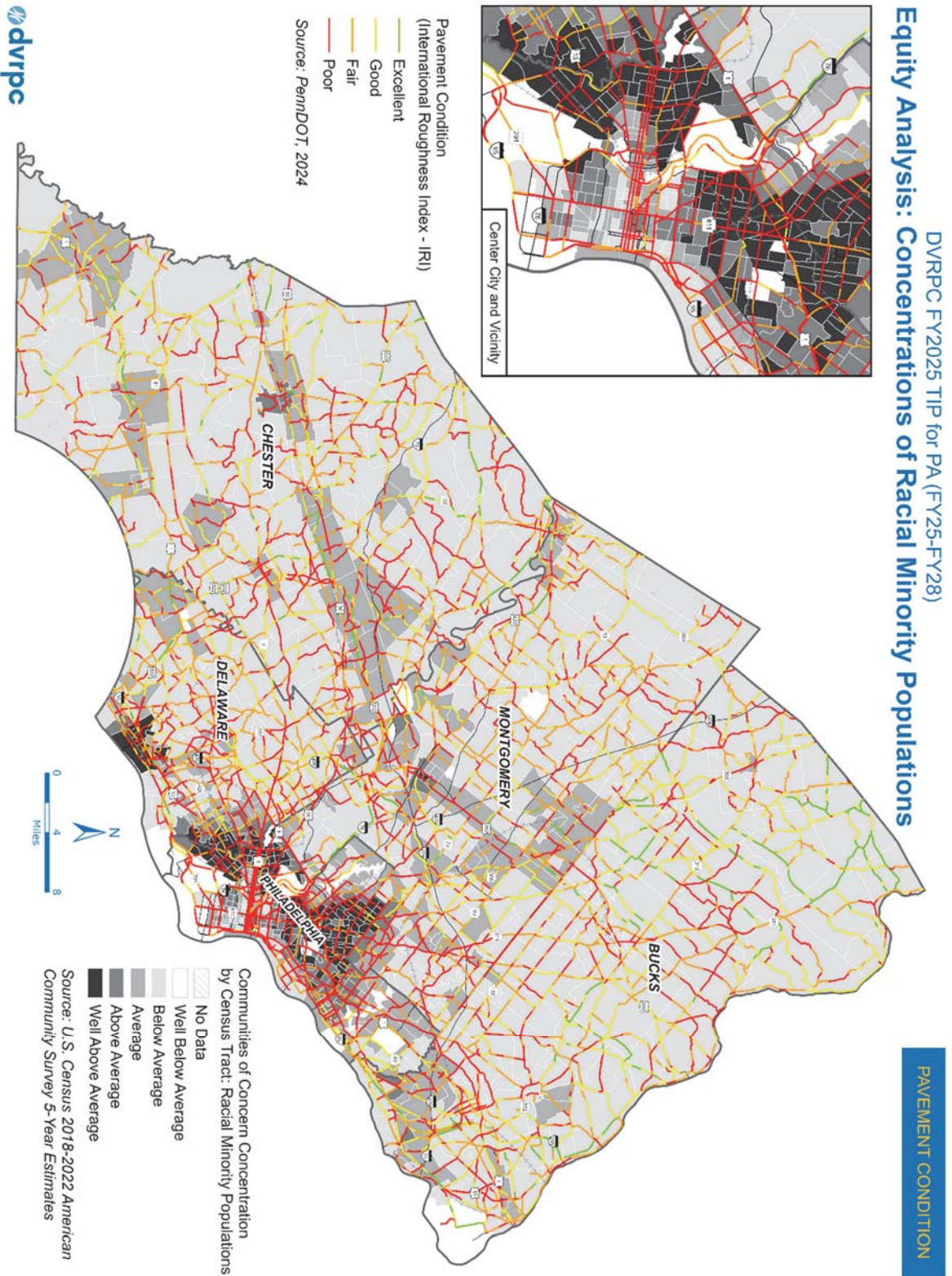


Figure F9: Pavement Condition and Concentrations of Ethnic Minority Populations

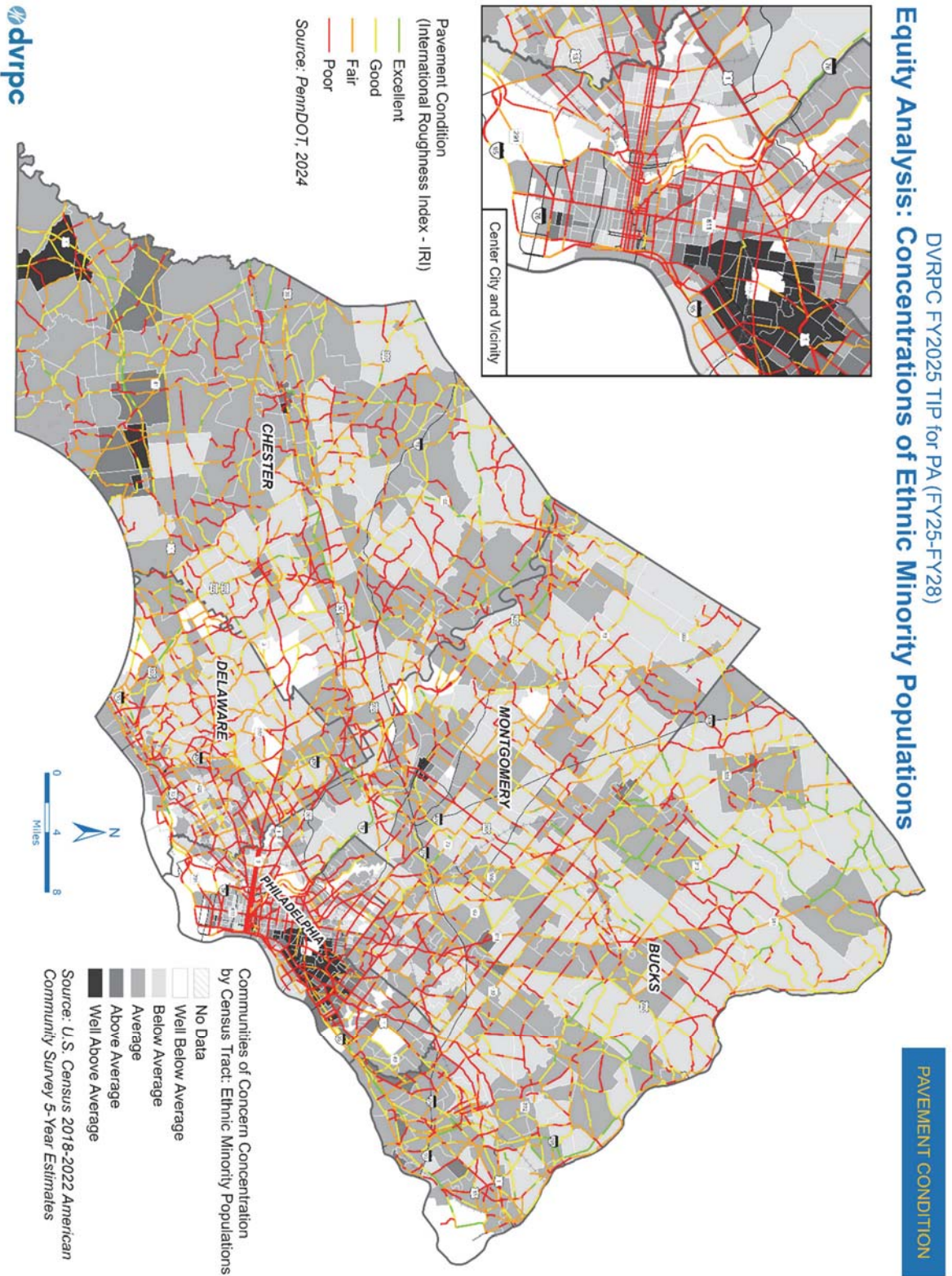


Table F9: Distribution of Crashes (2018-2022) by Low-Income Population Intervals

Low-Income Intervals	Population	Population as a Percent of the Region	Total Crashes	Crashes Per 10K People	Fatalities per 10K People	Serious Injuries per 10K People
Well Above Average	545,212	13.0%	18,909	346.8	4.3	8.3
Above Average	710,636	16.9%	22,018	309.8	3.3	6.2
Average	1,177,761	28.0%	45,527	386.6	3	6.9
Below Average	1,767,679	42.1%	71,618	405.2	2.7	6.3
DVRPC- PA Regional	4,201,288	100%	166,950	397.4	3.3	7

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.
DVRPC's IPD analysis defines Low-Income Populations as 200% of the poverty level or below.

Table F10: Distribution of Crashes (2018-2022) by Racial Minority Population Intervals

Racial Minority Intervals	Population	Population as a Percent of the Region	Total Crashes	Crashes Per 10K People	Fatalities per 10K People	Serious Injuries per 10K People
Well Above Average	685,144	16.3%	21,037	307	3.6	7.8
Above Average	534,907	12.7%	16,688	312	3.7	6.2
Average	1,069,545	25.5%	41,976	392.5	3	6
Below Average	1,911,692	45.5%	78,371	410	2.8	6.9
DVRPC- PA Regional	4,201,288	100%	166,950	397.4	3.3	7

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

Table F11: Distribution of Crashes (2018-2022) by Ethnic Minority Population Intervals

Ethnic Minority Intervals	Population	Population as a Percent of the Region	Total Crashes	Crashes Per 10K People	Fatalities per 10K People	Serious Injuries per 10K People
Well Above Average	291,054	6.9%	8,545	293.6	4.9	7.2
Above Average	269,236	6.4%	10,187	378.4	4.5	6.8
Average	2,163,073	51.5%	80,291	371.2	2.8	6.5
Below Average	1,406,561	33.5%	56,370	400.8	3	6.9
Well Below Average*	71,364	1.7%	2,679	375.4	2.7	7.3
DVRPC- PA Regional	4,201,288	100%	166,950	397.4	3.3	7

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

*DVRPC's Indicators of Potential Disadvantage (IPD) includes a fifth interval for Well Below Average concentrations of ethnic minority populations.

Figure F10: Bicyclist and Pedestrian Related Crashes, Killed and Severely-Injured (KSI) (2018-2022) and Concentrations of Low-Income Populations

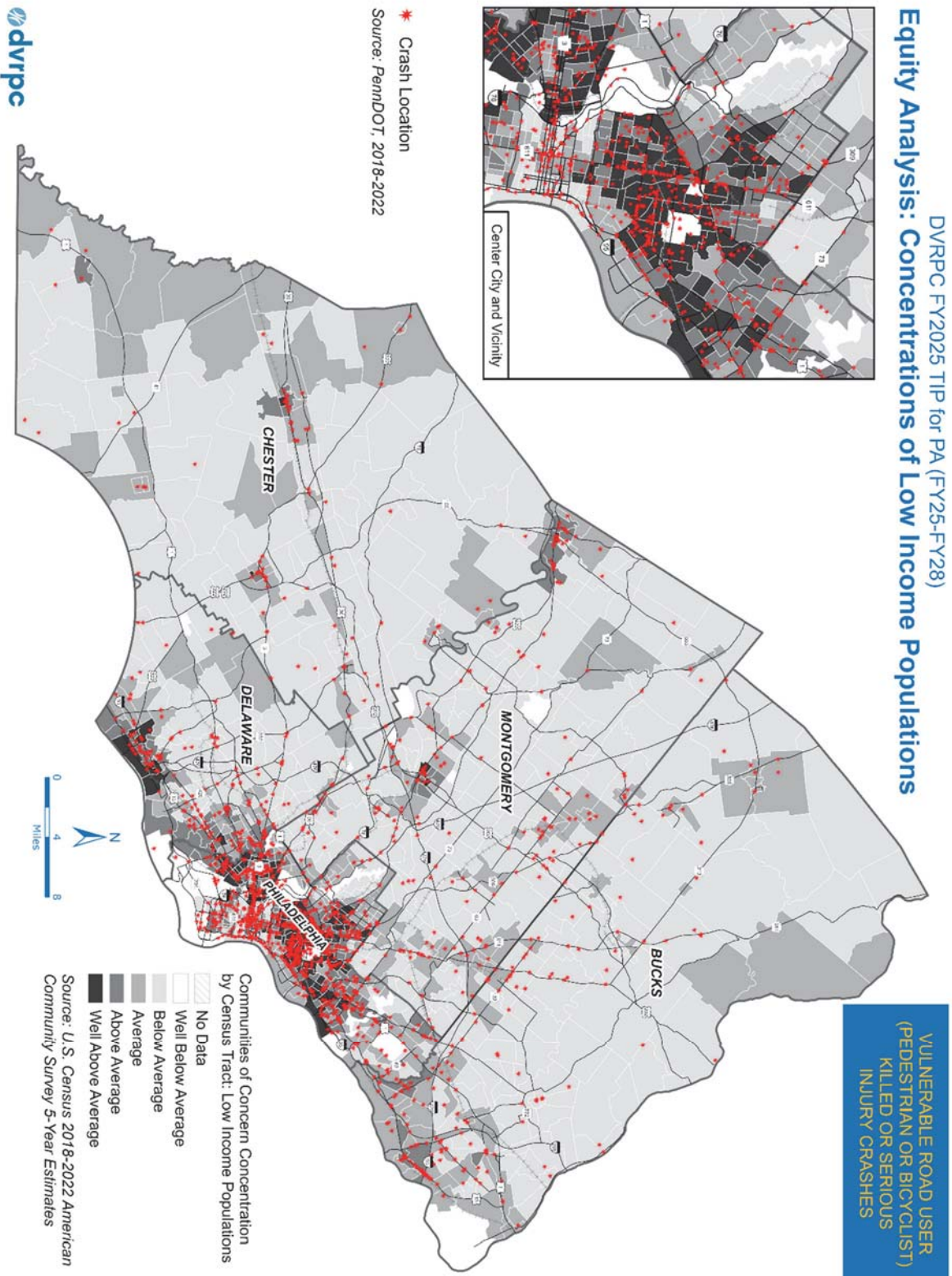


Figure F11: Bicyclist and Pedestrian Related Crashes, Killed and Severely-Injured (KSI (2018-2022) and Concentrations of Racial Minority Populations

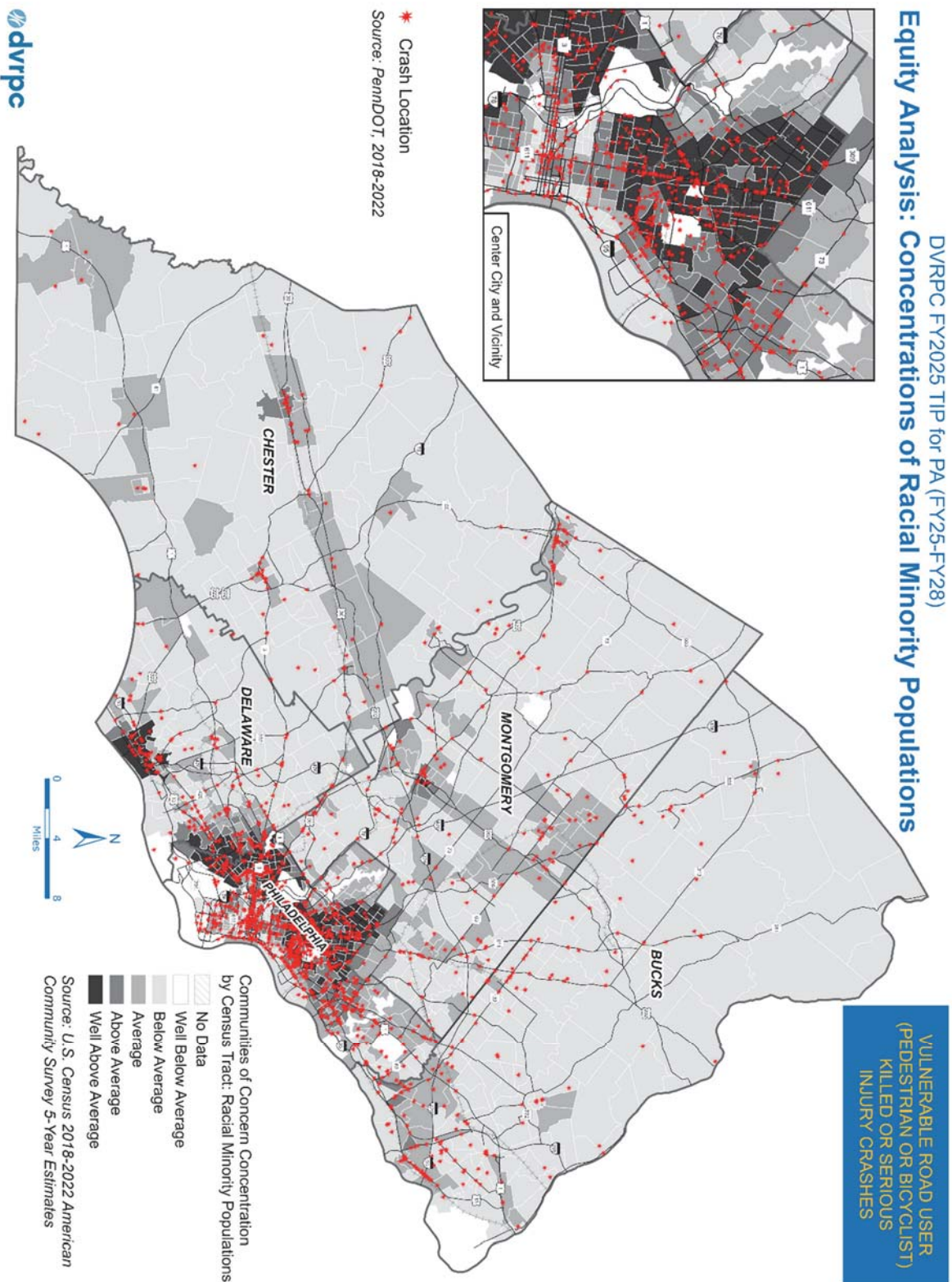


Figure F12: Bicyclist and Pedestrian Related Crashes, Killed and Severely-Injured (KSI (2018-2022) and Concentrations of Ethnic Minority Populations

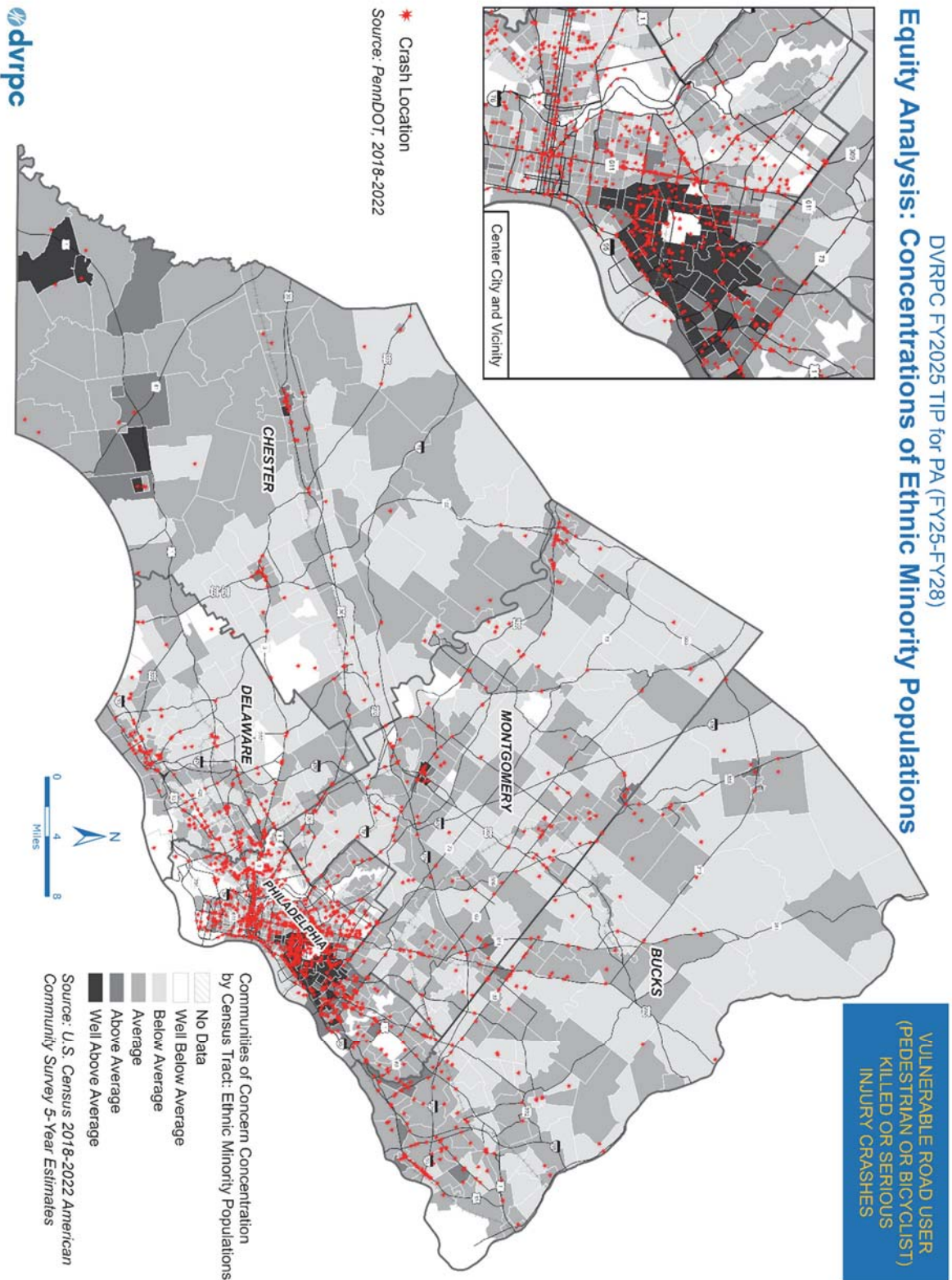


Table F12: Distribution of Bicyclist and Pedestrian Related Crashes (2018-2022) by Low-Income Population Intervals

Low-Income Intervals	Population	Population as a Percent of the Region	Total VRU* KSI** Crashes	VRU* KSI** Crashes per 10K People	VRU* Fatalities per 10K People	VRU* Serious Injuries per 10K People
Well Above Average	545,212	13.0%	259	4.8	1.4	3.6
Above Average	710,636	16.9%	246	3.5	0.9	2.6
Average	1,177,761	28.0%	220	1.9	0.4	1.5
Below Average	1,767,679	42.1%	184	1	0.3	0.8
DVRPC- PA Regional	4,201,288	100%	952	2.3	0.6	1.7

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

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

*Vulnerable Road Users (VRUs) include bicycle users and pedestrians

**Killed and Severely Injured (KSI)

Table F13: Distribution of Bicyclist and Pedestrian Related Crashes (2018-2022) by Racial Minority Population Intervals

Racial Minority Intervals	Population	Population as a Percent of the Region	Total VRU* KSI** Crashes	VRU* KSI** Crashes per 10K People	VRU* Fatalities per 10K People	VRU* Serious Injuries per 10K People
Well Above Average	545,212	13.0%	292	4.3	1.2	3.3
Above Average	710,636	16.9%	181	3.4	1	2.5
Average	1,177,761	28.0%	221	2.1	0.5	1.6
Below Average	1,767,679	42.1%	215	1.1	0.3	0.9
DVRPC- PA Regional	4,201,288	100%	952	2.3	0.6	1.7

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

Table F14: Distribution of Bicyclist and Pedestrian Related Crashes (2018-2022) by Ethnic Minority Population Intervals

Ethnic Minority Intervals	Population	Population as a Percent of the Region	Total VRU* KSI** Crashes	VRU* KSI** Crashes per 10K People	VRU* Fatalities per 10K People	VRU* Serious Injuries per 10K People
Well Above Average	545,212	13.0%	142	4.9	1.4	3.6
Above Average	710,636	16.9%	92	3.4	1.1	2.4
Average	1,177,761	28.0%	424	2	0.5	1.5
Below Average	1,767,679	42.1%	238	1.7	0.5	1.3
Well Below Average*	71,364	1.7%	13	1.8	0.6	1.3
DVRPC- PA Regional	4,201,288	100%	952	2.3	0.6	1.7

Source: American Community Survey, U.S. Census Bureau, 2018-2022; PennDOT.

*DVRPC's Indicators of Potential Disadvantage (IPD) includes a fifth interval for Well Below Average concentrations of ethnic minority populations.

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

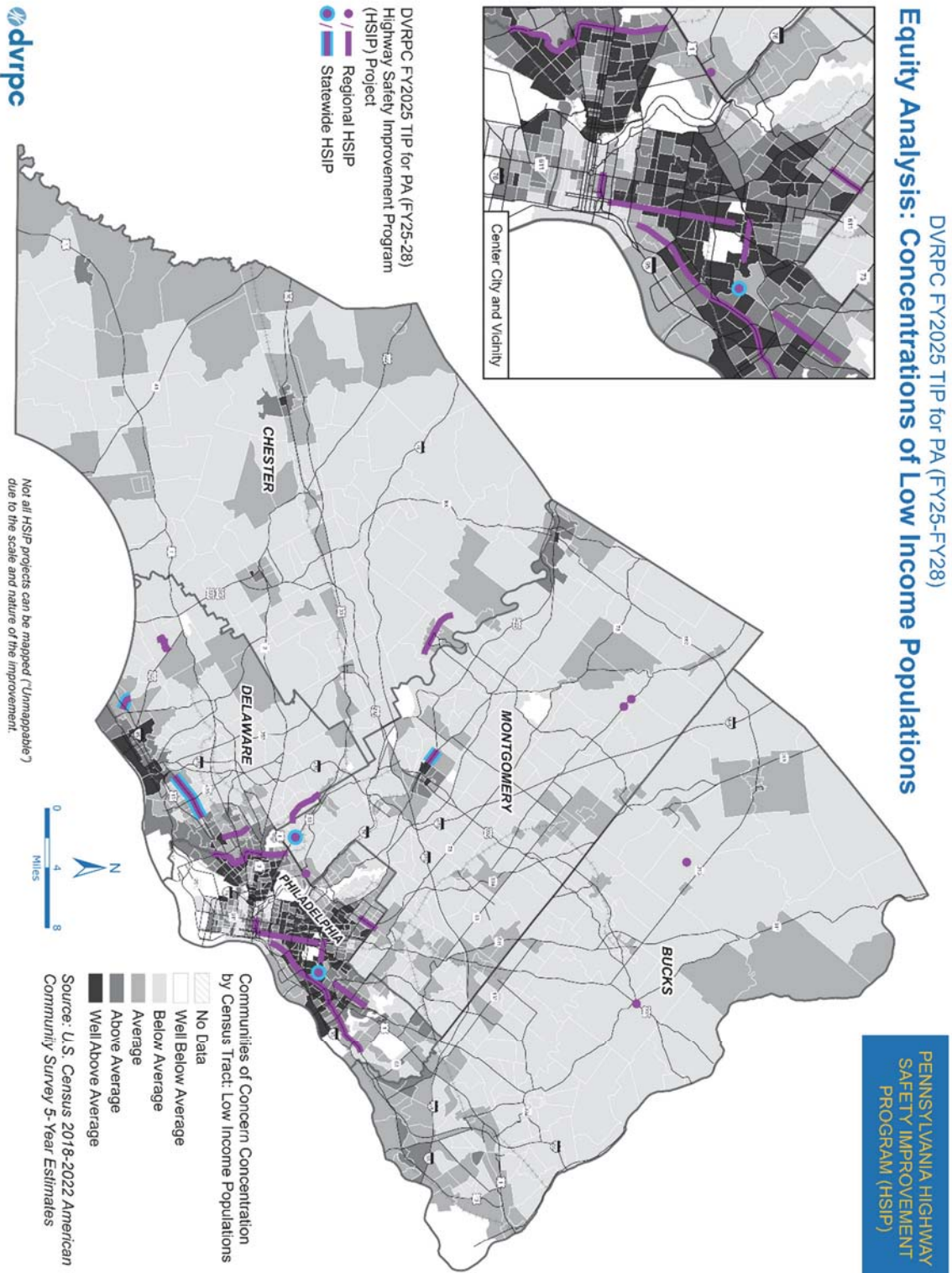


Figure F14: Pennsylvania Highway Safety Improvement Program (HSIP) and Concentrations of Racial Minority Populations

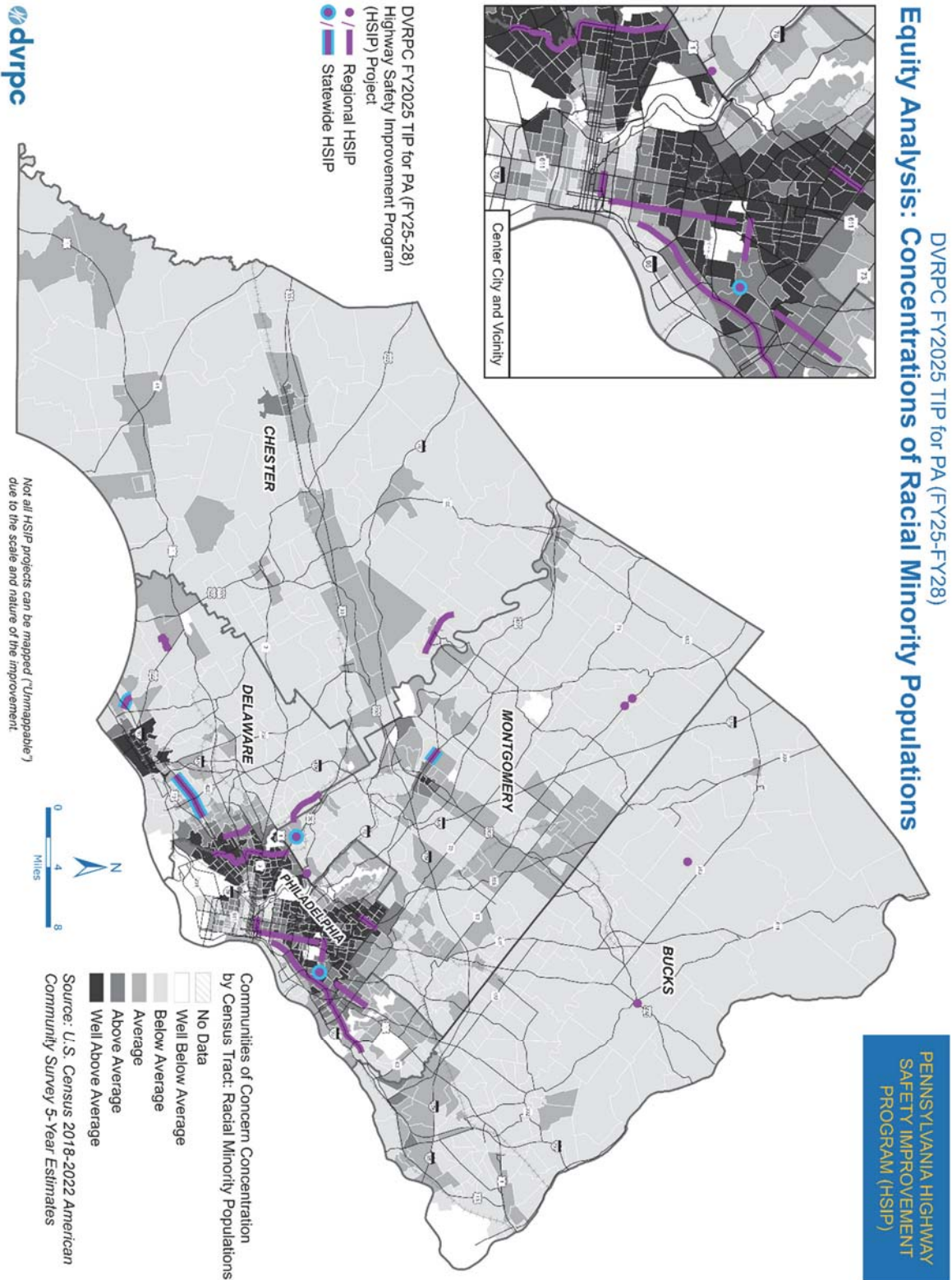


Figure F15: Pennsylvania Highway Safety Improvement Program (HSIP) and Concentrations of Ethnic Minority Populations

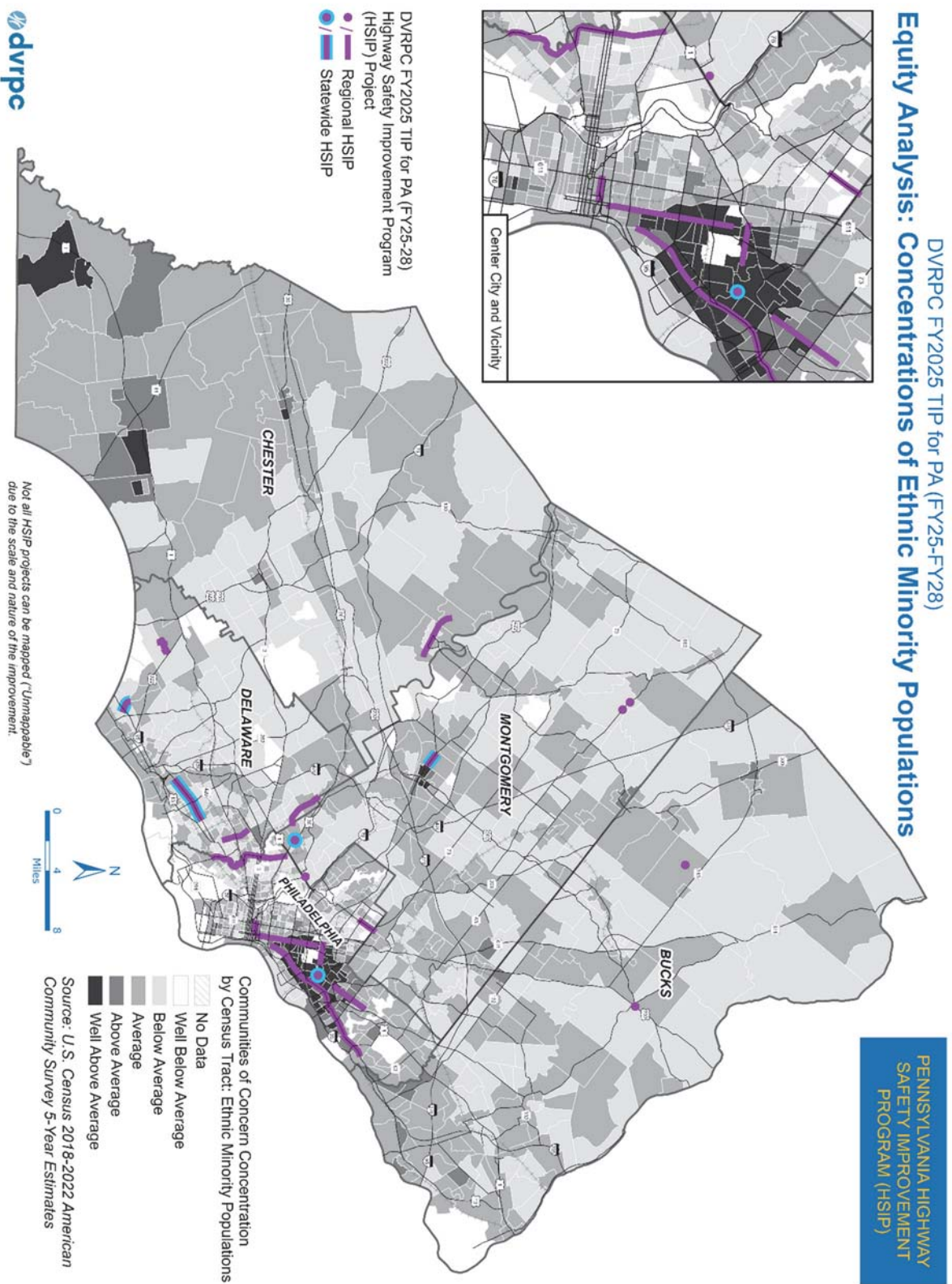


Figure F16: TIP “Highway Program” Projects and Concentrations of Low-Income Populations

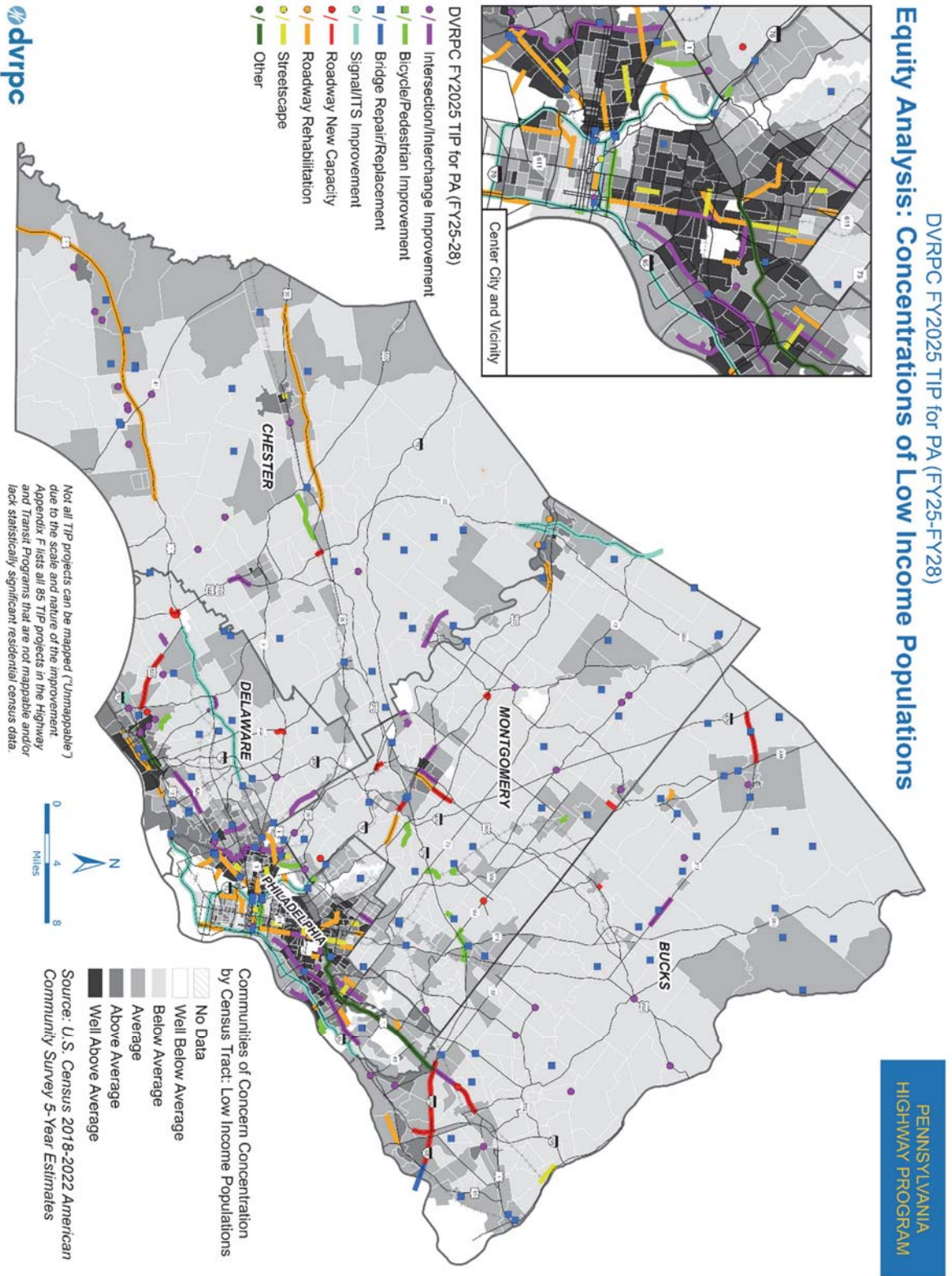


Figure F17: TIP “Highway Program” Projects and Concentrations of Racial Minority Populations

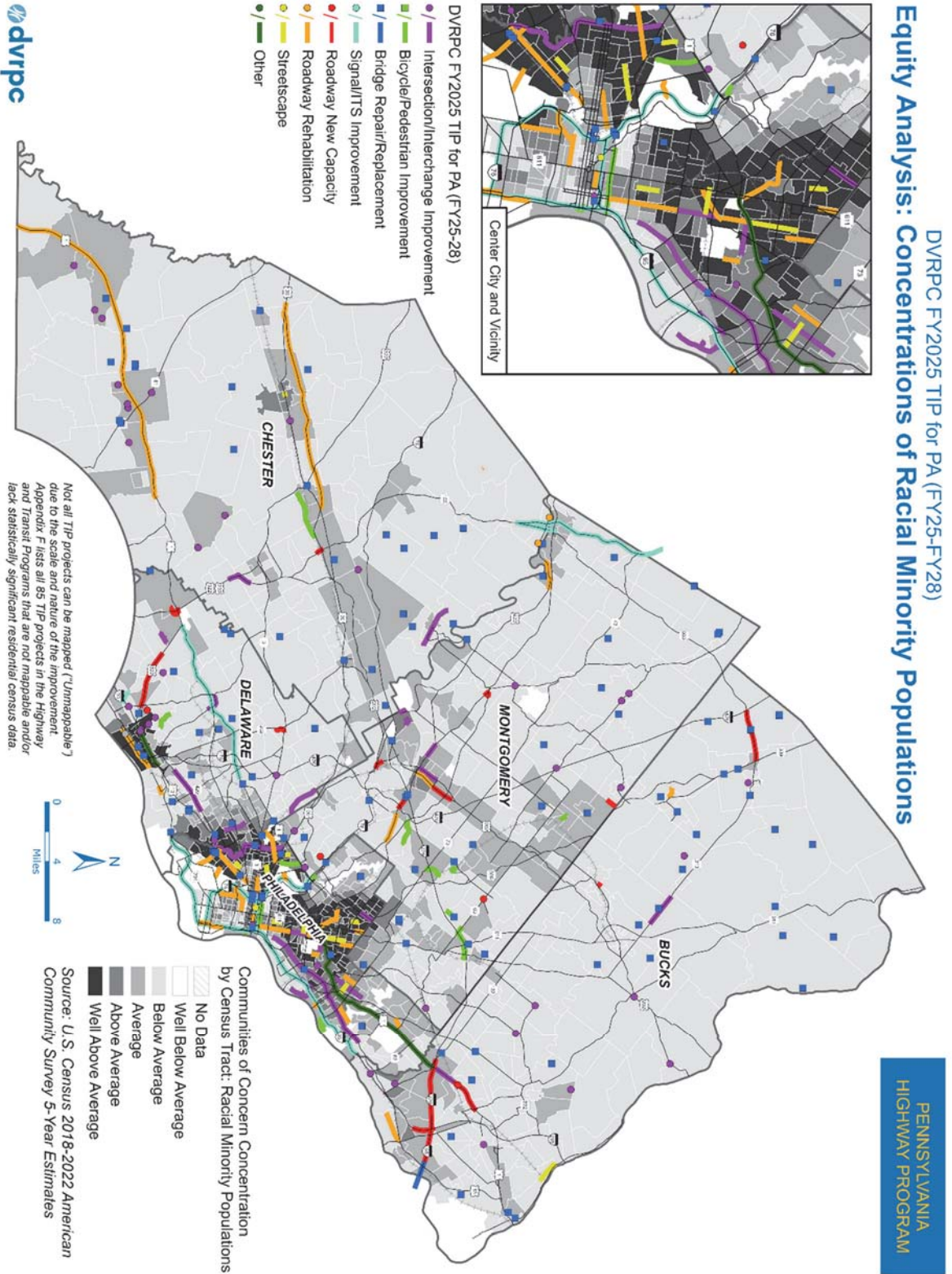


Figure F18: TIP “Highway Program” Projects and Concentrations of Ethnic Minority Populations

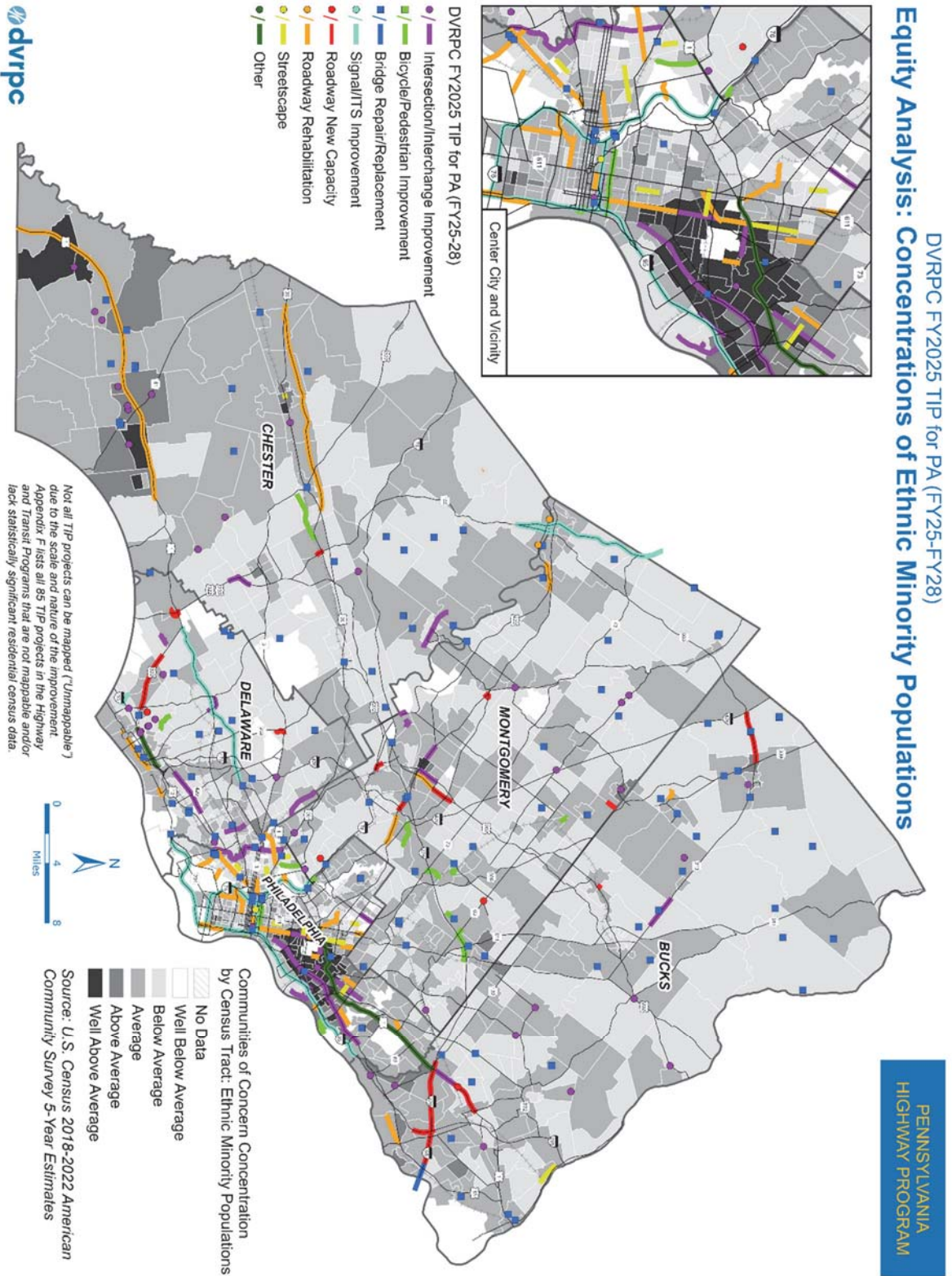


Figure F19: Transit Projects and Concentrations of Low-Income Populations

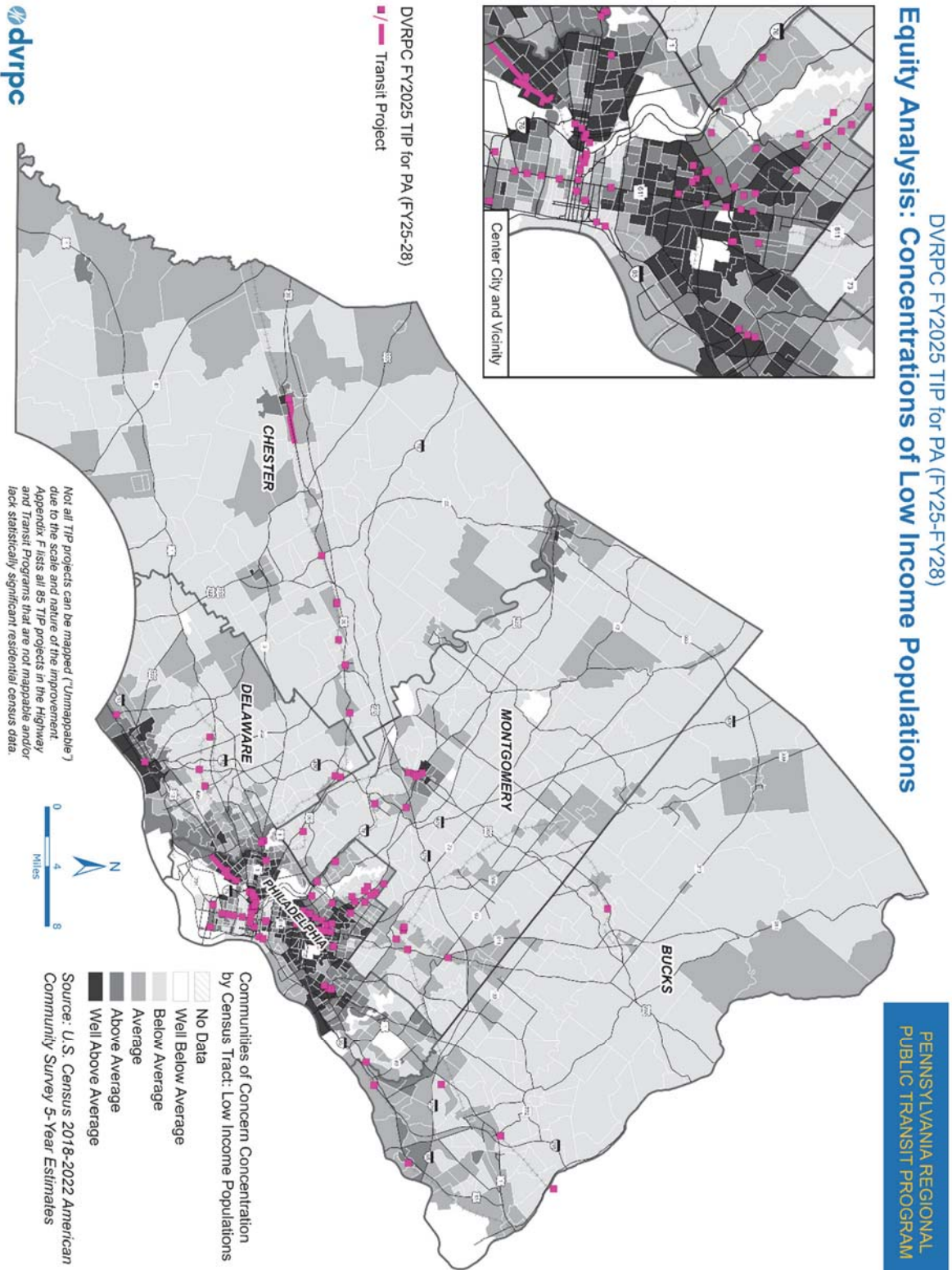


Figure F20: Transit Projects and Concentrations of Racial Minority Populations

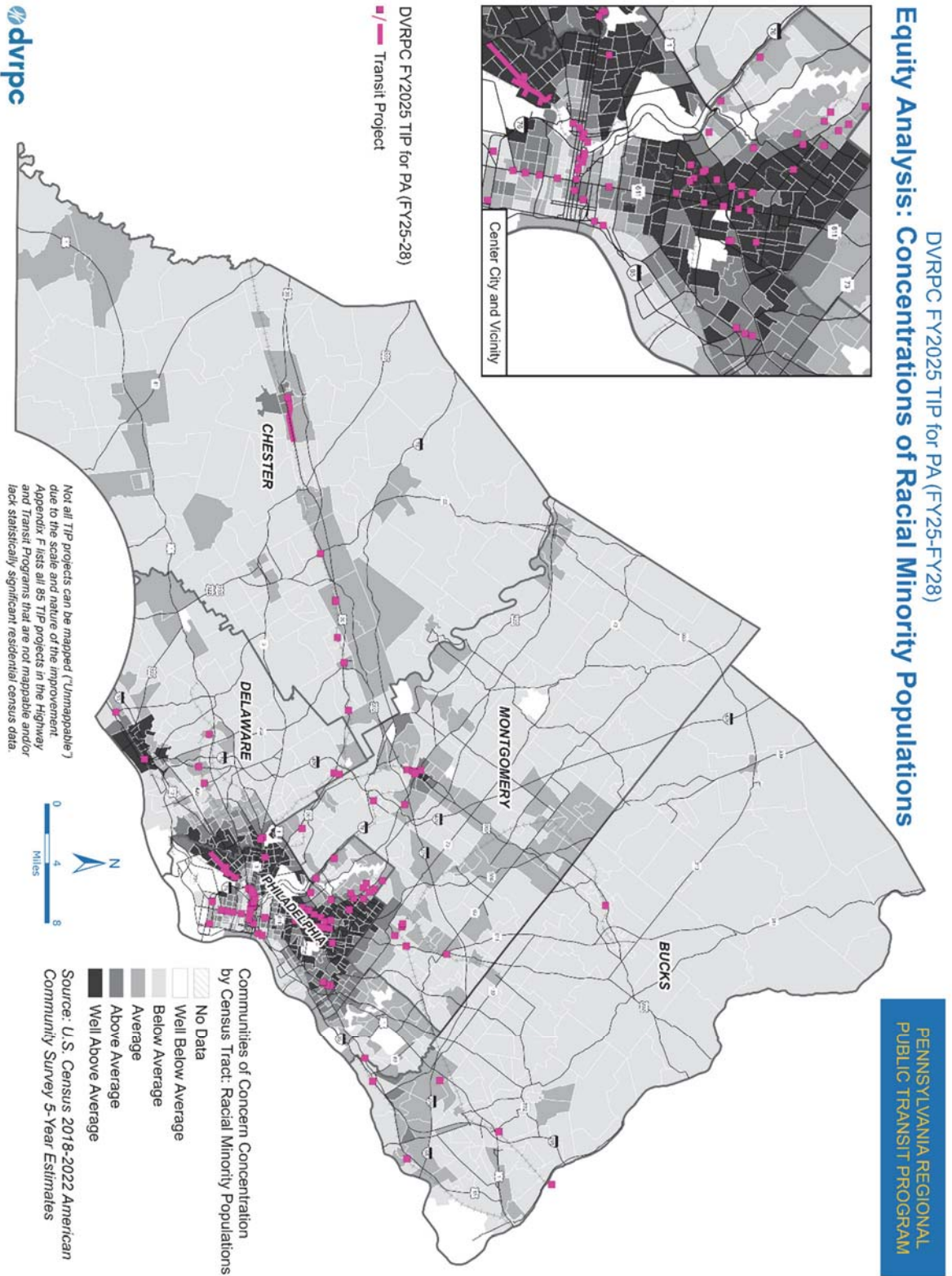


Figure F21: Transit Projects and Concentrations of Ethnic Minority Populations

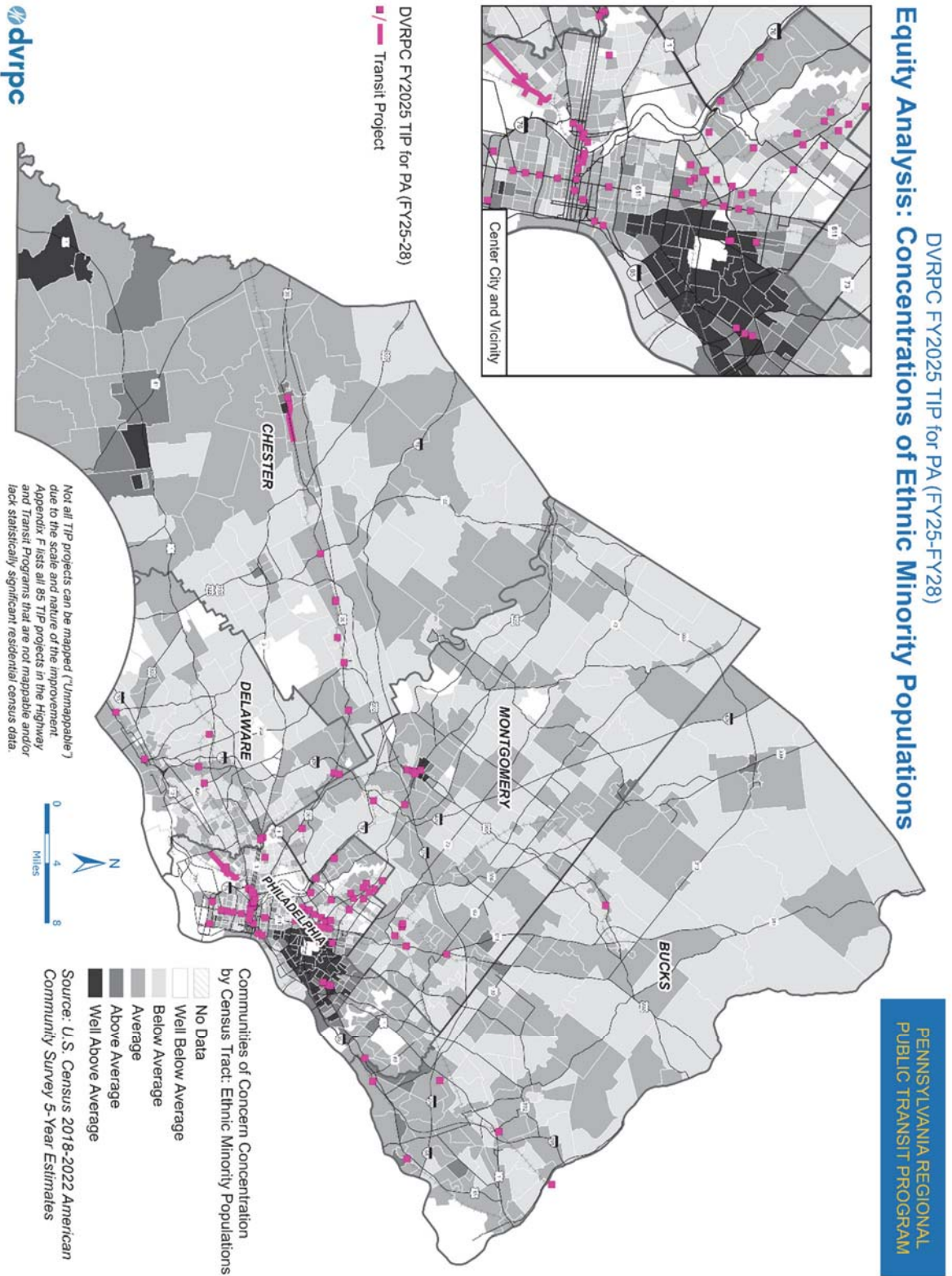


Figure F22: Candidate Projects and Concentrations of Low-Income Populations

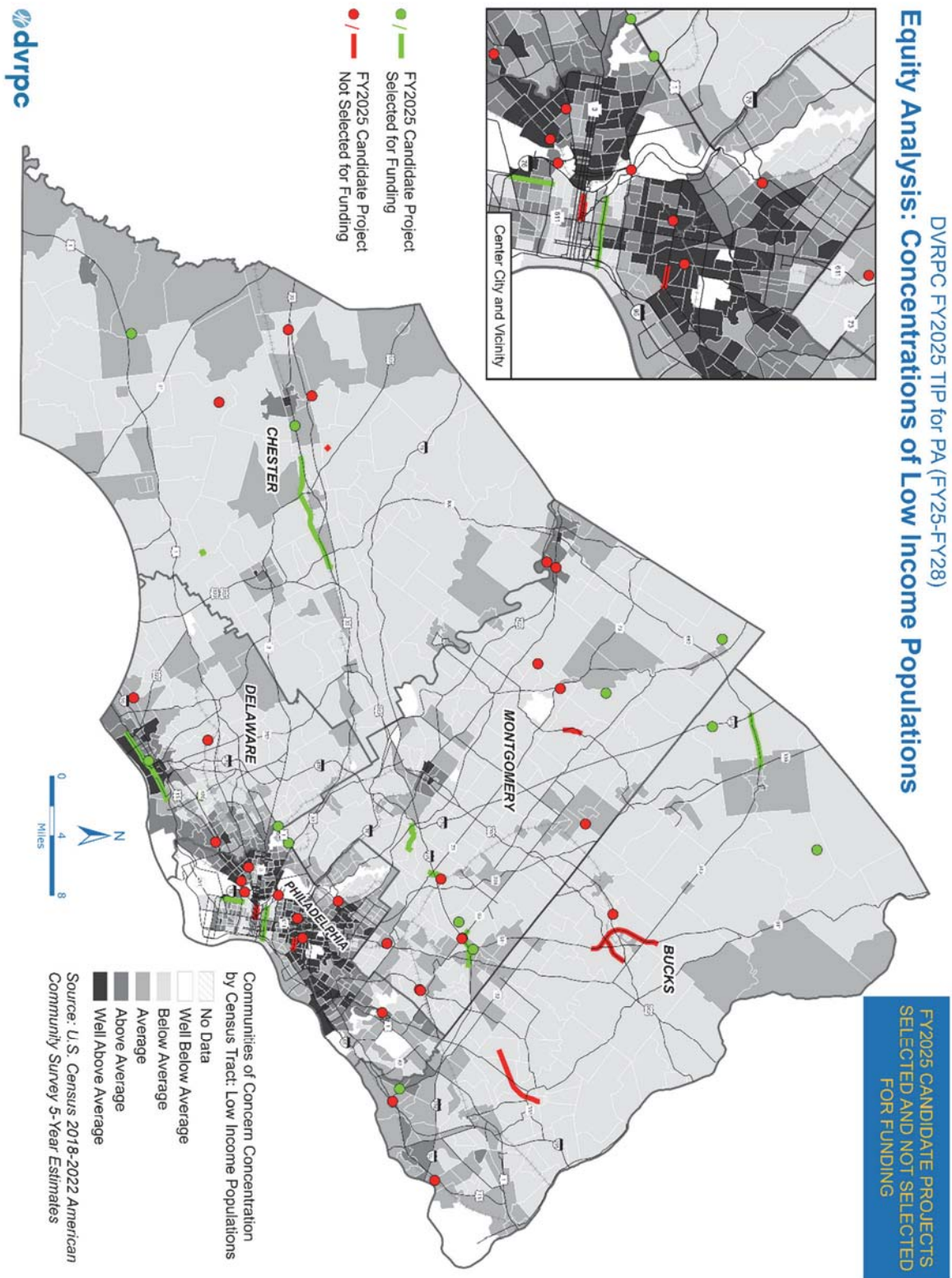


Figure F23: Candidate Projects and Concentrations of Racial Minority Populations

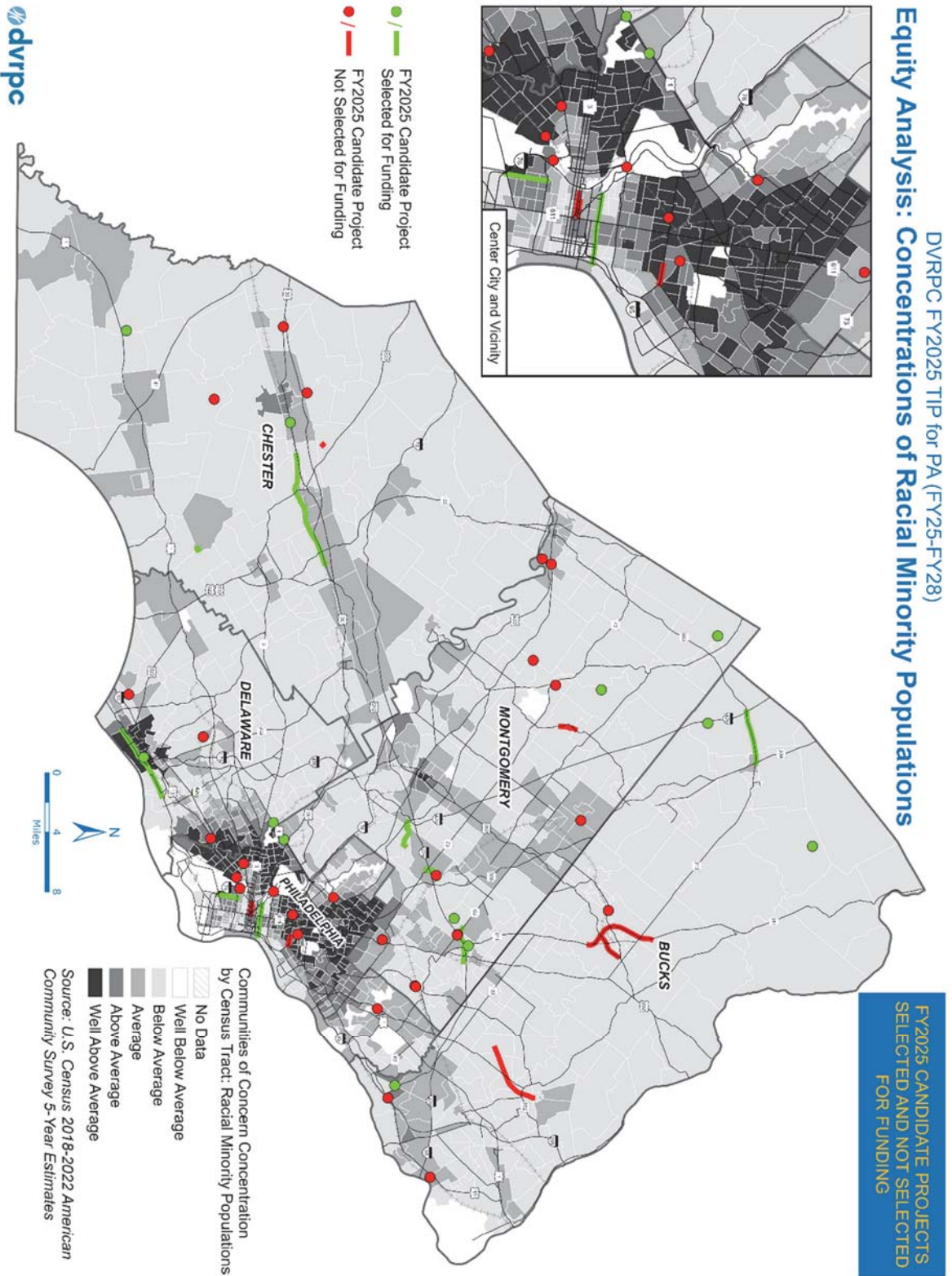


Figure F24: Candidate Projects and Concentrations of Ethnic Minority Populations

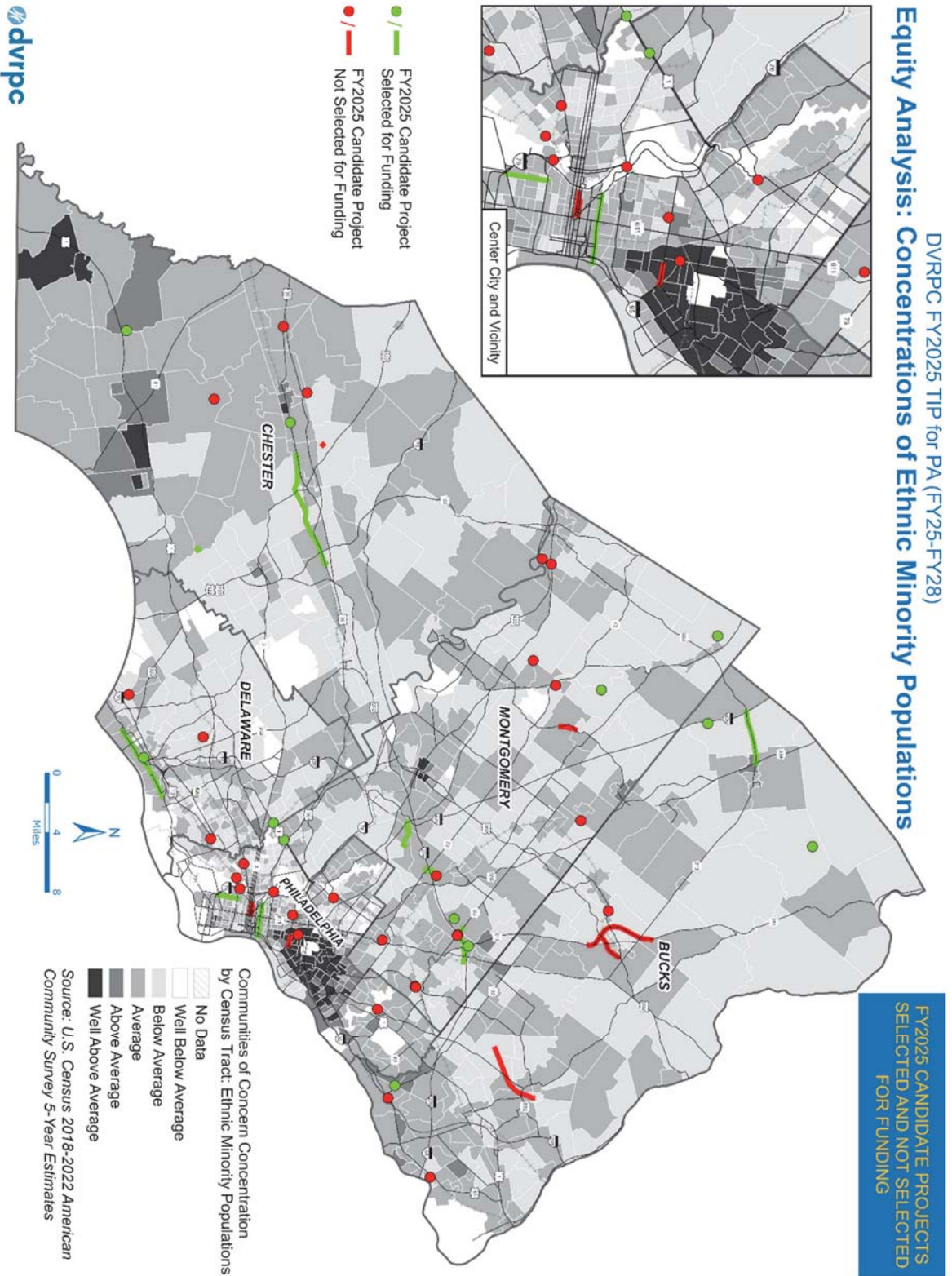


Figure F25: Pennsylvania Interstate Management Program Projects and Concentrations of Low-Income Populations

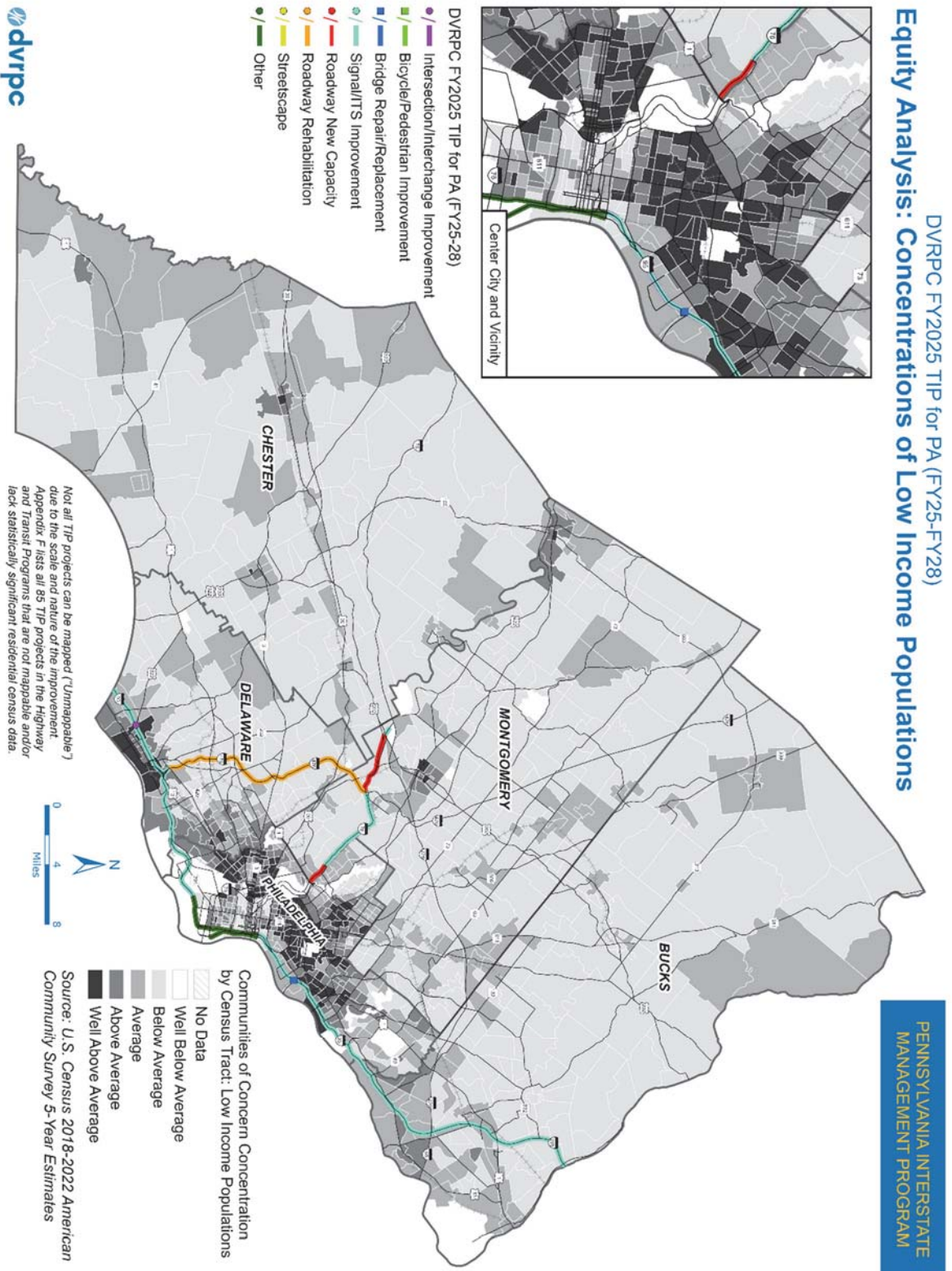


Figure F26: Pennsylvania Interstate Management Program Projects and Concentrations of Racial Minority Populations

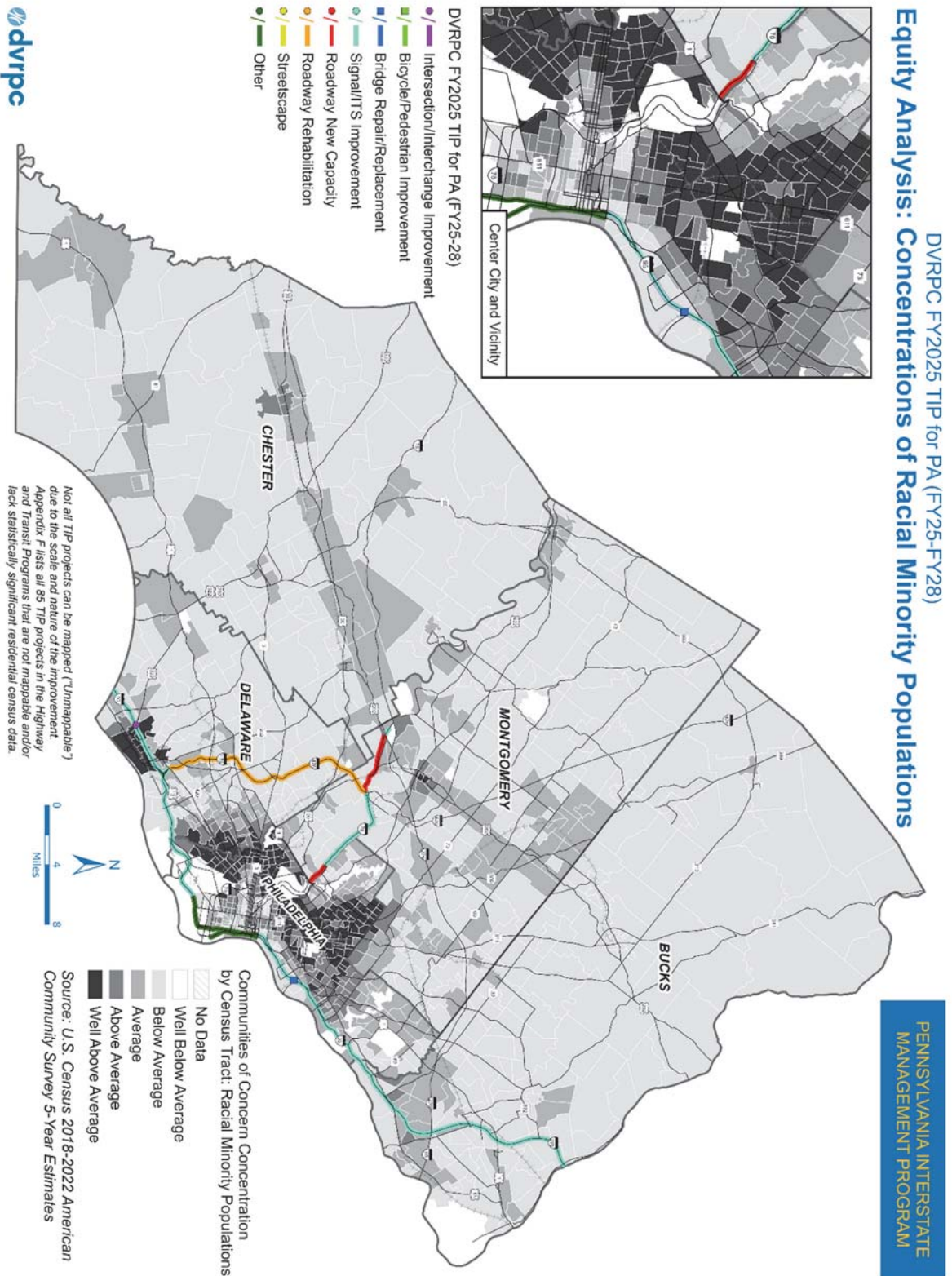


Figure F27: Pennsylvania Interstate Management Program Projects and Concentrations of Ethnic Minority Populations

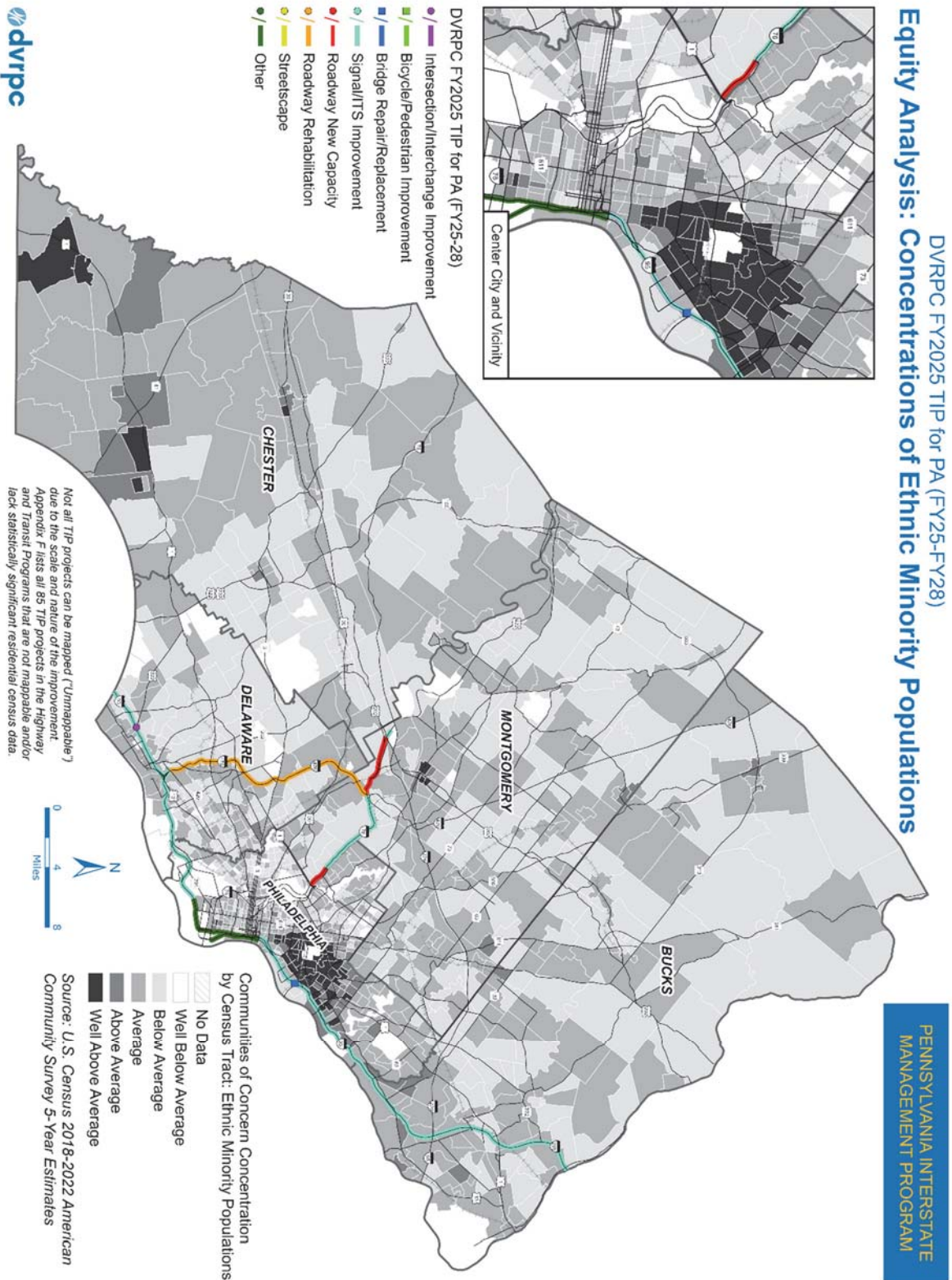


Table F15: List of Unmappable TIP Projects

MPMS #	Project Name	Project Type
16178	Construction Management Tasks	Other
16438	PA 309, Connector Project - Phase I	Roadway New Capacity
46959	I-95 Design Review Manager	Other
48201	DVRPC Competitive CMAQ Program	Other
51095	ITS Program Integrator	Signal/ITS Improvements
57902	City Wide 3R Betterments Line Item	Roadway Rehabilitation
57927	Regional Safety Initiatives (HSIP) Line Item	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
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 Car and Locomotive Acquisition	Transit Improvements
63406	Retrofit for Bike Lanes and Shoulders	Bicycle/Pedestrian Improvement
64984	Transportation Alternatives - Urban (TAU) Line Item	Bicycle/Pedestrian Improvement
65109	Transit Flex - SEPTA	Transit 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
82087	Systemic Intersection Improvement Program	Intersection/Interchange Improvements
82088	Systemic Vulnerable User Improvements	Intersection/Interchange Improvements
82089	Systemic Improvements: Wrong Way Countermeasures	Intersection/Interchange Improvements
82091	ITS Network Arch Tech Refresh Ph1 - PA 309 Hubs	Signal/ITS Improvements
82095	Systemic Improvements: High Friction Surface Treatments	Intersection/Interchange Improvements

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
90497	Infrastructure Safety and Renewal Program	Transit Improvements
90512	SEPTA Bus Purchase Program	Transit Improvements
92182	Expressway Service Patrol 13-16 Suburban Counties	Signal/ITS Improvements
95739	Transportation Capital Improvements	Transit Improvements
96223	Philadelphia Signal Retiming	Signal/ITS Improvements
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
106648	Sink Holes Line Item	Roadway Rehabilitation
106649	Stormwater Permits/Environmental Mitigation Design	Roadway Rehabilitation
106654	I-95 Transportation Demand Mgt (TMA)	Other
109847	ROW Divestment 6-0	Other
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
115687	I-95: Allegheny & Castor Ave Int.	Other
115964	Transportation Operations 2022-23	Other
115965	TAP Project Engineering/Management 2022-23	Other
115966	CMAQ Project Engineering/Management 2022-23	Other
115968	Travel Monitoring 2022-23	Other
115969	Regional GIS Coordination 2022-23	Other
115970	Air Quality Action Supplemental Services 2022-23	Other
115971	Transportation Systems Management and Operations (TSMO)	Other
115972	I-95 Planning Assistance 2022-23	Other
115973	Enhance and Maintain Travel Forecasting Tools 2022-23	Other
115974	District 6 Modeling Assistance 2022-23	Other

116807	Citywide ADA Ramps 4	Roadway Rehabilitation
117341	Penn's Landing Project Development - Local	Other
117904	PA Transportation and Community Development Initiative (TCDI) 2022-23	Other
117912	PA SHRPP 2022-23	Other
117928	Travel Options Program (TOP) 2022-23	Other
117929	PA Transportation Demand Management (TDM) Base Program 2022-23	Other
117930	PA Transportation Demand Management (TDM) Base Program Administration and Commuter Services 2022-23	Other
117931	Regional TOP Competitive Administration 2022-23	Other
117966	Overbrook Education Center Slow Zone	Bicycle/Pedestrian Improvement
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
118494	Eastern Delaware County Bikeway Implementation Plan (TOP)	Bicycle/Pedestrian Improvement
118496	The Woodland Avenue Trolley Portal Complete Streets Project (TOP)	Bicycle/Pedestrian Improvement
119299	Carbon Reduction Program Line Item	Other
119476	I-76 Arterial Corridor ITS	Signal/ITS Improvements
120934	Bucks and Montgomery Counties ADA Ramps	Bicycle/Pedestrian Improvement
120938	Chester and Delaware Counties ADA Ramps	Bicycle/Pedestrian Improvement
120940	Philadelphia County ADA Ramps	Bicycle/Pedestrian Improvement
120942	MS4 and 105 Remediation	Streetscape
120993	North Philadelphia School Zones RAISE 23	Bicycle/Pedestrian Improvement
121366	Resiliency and Sustainability Program	Transit Improvements
121367	Safe, Clean, and Secure Program	Transit Improvements

Source: DVRPC, 2024.