

**Lancaster County MPO**  
**2021-2024 Transportation Improvement Program (TIP)**  
**Environmental Justice Benefits and Burdens Analysis**

**Introduction**

Environmental Justice (EJ) refers to the implementation of Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which directs procedures to be put in place to identify and address any disproportionately high and adverse human health or environmental effects on minority and low-income population groups. The fundamental principles of EJ can be defined as:

- To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin. More importantly for this analysis, Executive Order (EO) 12898 requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects, including the interrelated social and economic effects of their programs, policies, and activities, on minority populations and low-income populations in the United States. This requirement applies to the Lancaster County MPO as a recipient of federal funding, and recognizes the importance given to addressing the needs of low income and minority populations as outlined in the Metropolitan Transportation Planning regulations (23 CFR 450).

Based on the Office of Management and Budget (OMB) Policy Directive 15, *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity*, issued in 1997, five minimum categories were established to address data on race. They are:

*Black* -- a person having origins in any of the black racial groups of Africa.

*Hispanic* -- a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

*Asian* -- a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.

*American Indian and Alaskan Native* -- a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition.

*Native Hawaiian or Other Pacific Islander* -- a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

In addition, low income persons are defined as follows:

*Low-Income* -- a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines.

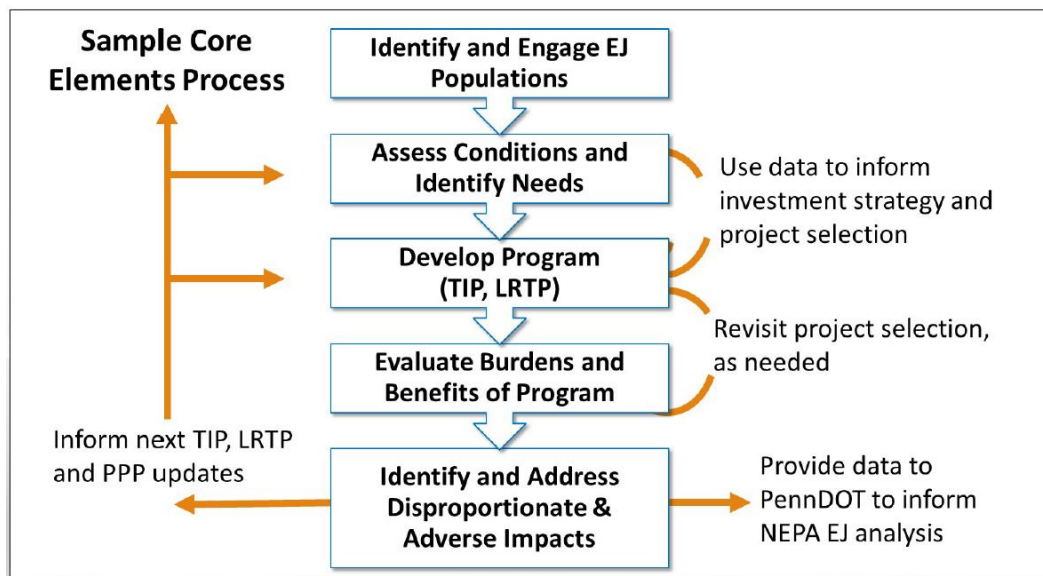
EO 12898, and the DOT and FHWA Orders on Environmental Justice (EJ) address persons belonging to any of these groups, and these groups as they apply to Lancaster County are the basis for this analysis.

### **Core Elements Process**

In the development of 2021-2024 Transportation Improvement Program (TIP), the Lancaster County MPO conducted an Environmental Justice Benefits and Burdens analysis using the Core Elements Methodology that has been recommended by FHWA and FTA:

1. Identify environmental justice populations
2. Assess conditions and identify needs
3. Evaluate burdens and benefits
4. Identify and address disproportionate and adverse impacts and inform future planning efforts

### **Core Elements Process Steps**



The identification of these populations is essential to establishing effective strategies for engaging them in the transportation planning process. When meaningful opportunities for interaction are established, the transportation planning process can effectively draw upon the perspectives of communities to identify existing transportation needs, localized deficiencies, and the demand for transportation services. Mapping of these populations not only provides a baseline for assessing impacts of the

transportation improvement program, but also aids in the development of an effective public involvement program.

Fundamentally, the principles of Environmental Justice are aimed at preventing the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations. The establishment of transportation funding as a performance measure is consistent with this principle by supporting the evaluation of funding priorities considered for *connects2040*, including the four-year TIP. Mapping and analyzing transportation funding can assist in making the prioritization process more open, transparent, and accountable to the public. In developing this funding performance measure, the core issue is whether the types of projects and the total project investment are equitably distributed throughout Lancaster County.

#### **Identifying Minority and Low-Income Populations**

A statistical analysis of Lancaster County was performed to determine population averages, minority population, and low-income population. If necessary, project alternatives will be developed to prevent disproportionately high or adverse effects on any identified minority or low-income populations.

Minority population is defined as any readily identifiable group of Black, Hispanic, Asian American, American Indian, and Alaskan Native who live in geographic proximity and who would be similarly affected by any proposed FHWA program, policy, or activity. Based on 2017 American Community Survey (ACS) Data, the average minority population rate in Lancaster County is 17.3 percent as shown in **Table 1**.

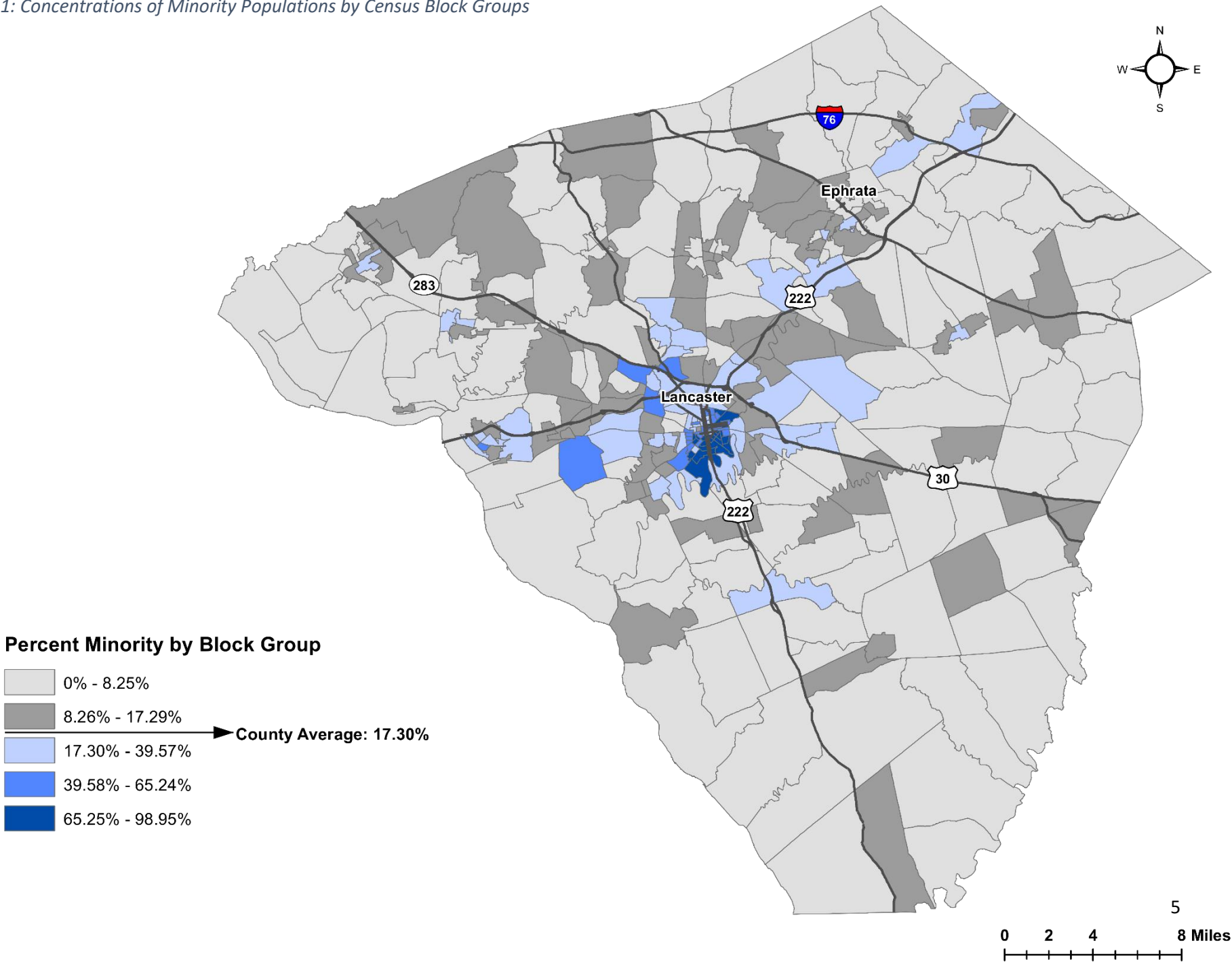
The low-income population is defined as any readily identifiable group of persons at or below the Department of Health and Human Services poverty guidelines who live in a geographic proximity who would be similarly affected by a proposed FHWA program, policy, or activity. The average poverty rate based on the status of all ages in the 2017 ACS Data for Lancaster County is 10.4 percent.

Table 1: Profile of Minority and Low-Income Populations, 2017

Demographic Indicator	Lancaster County, Pennsylvania	
	County Population	County Percentage
<b>Total</b>	536,494	
White, Non-Hispanic	443,708	82.71%
<b>Minority</b>	<b>92,786</b>	<b>17.29%</b>
Black or African American, Non-Hispanic	19,261	3.59%
American Indian and Alaska Native, Non-Hispanic	520	0.10%
Asian alone, Non-Hispanic	11,423	2.13%
Native Hawaiian and Other Pacific Islander, Non-Hispanic	29	0.01%
Some other race, Non-Hispanic	448	0.08%
Two or more races, Non-Hispanic	7,313	1.36%
Hispanic	53,792	10.03%
<b>Low-Income Households</b>	<b>19,116</b>	<b>9.74%</b>
<b>Low-Income Population</b>	<b>54,244</b>	<b>10.37%</b>

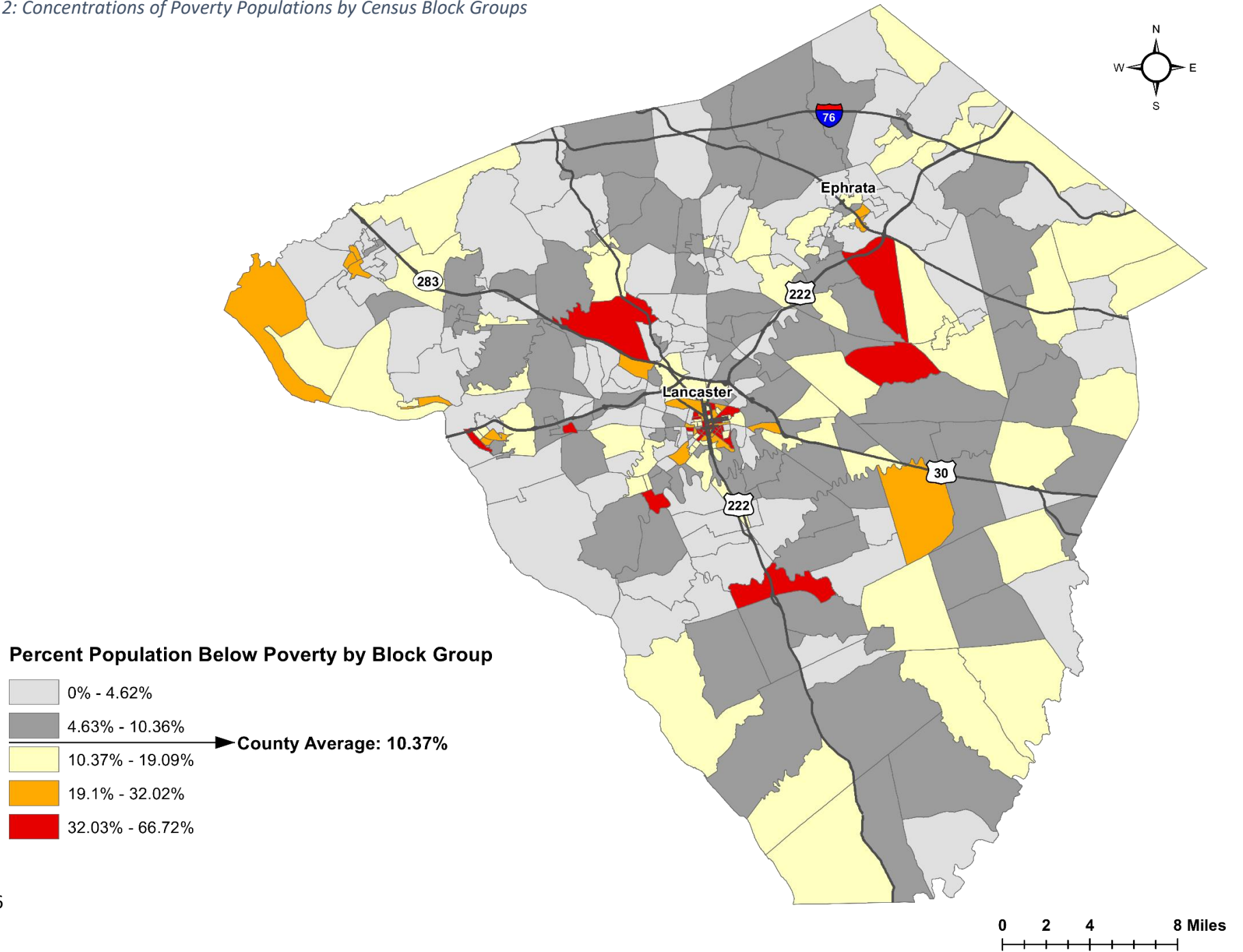
The maps on the following pages depict the locations of environmental justice populations and households in Lancaster County. **Figure 1** shows the concentrations of minority populations by census block groups based on 2013-2017 ACS data. **Figure 2** shows the concentrations of households below the county average for poverty by census block groups., also based on 2013-2017 ACS data. **Figure 3** shows concentrations of minority populations by the density of those populations throughout the County. **Figure 4** shows concentrations of low income populations by the density of those populations throughout the County.

Figure 1: Concentrations of Minority Populations by Census Block Groups

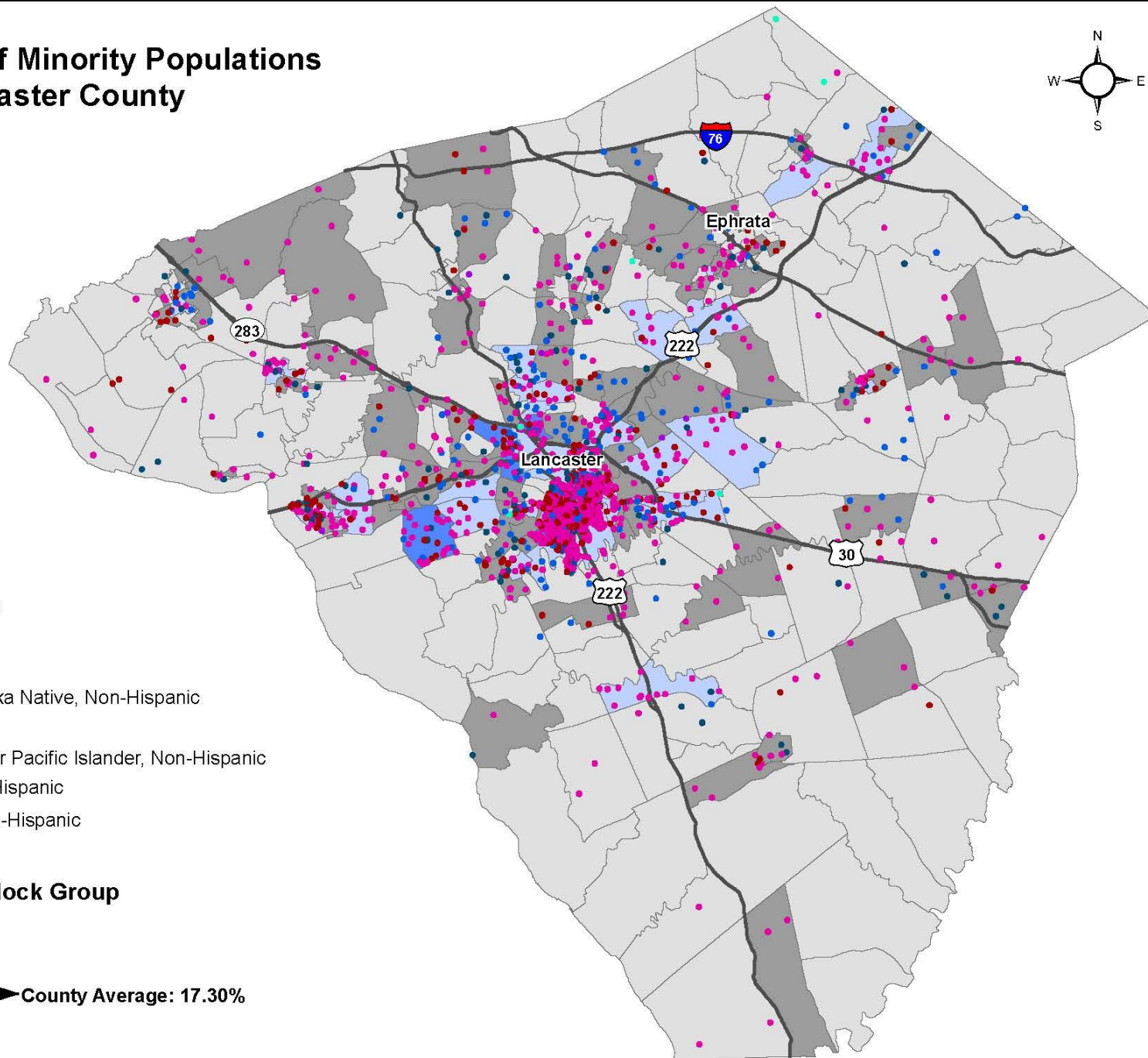
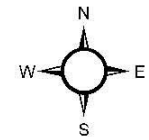


Source: 2013-2017 American Community Survey 5-Year Estimates

Figure 2: Concentrations of Poverty Populations by Census Block Groups



# Concentrations of Minority Populations in Lancaster County

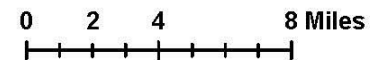
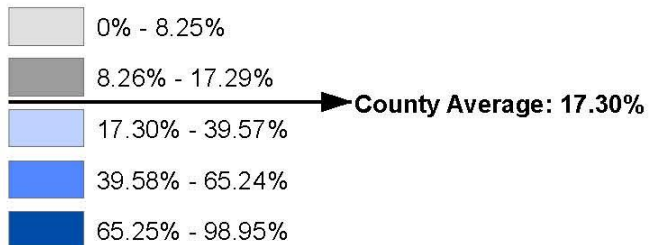


## Minority Populations

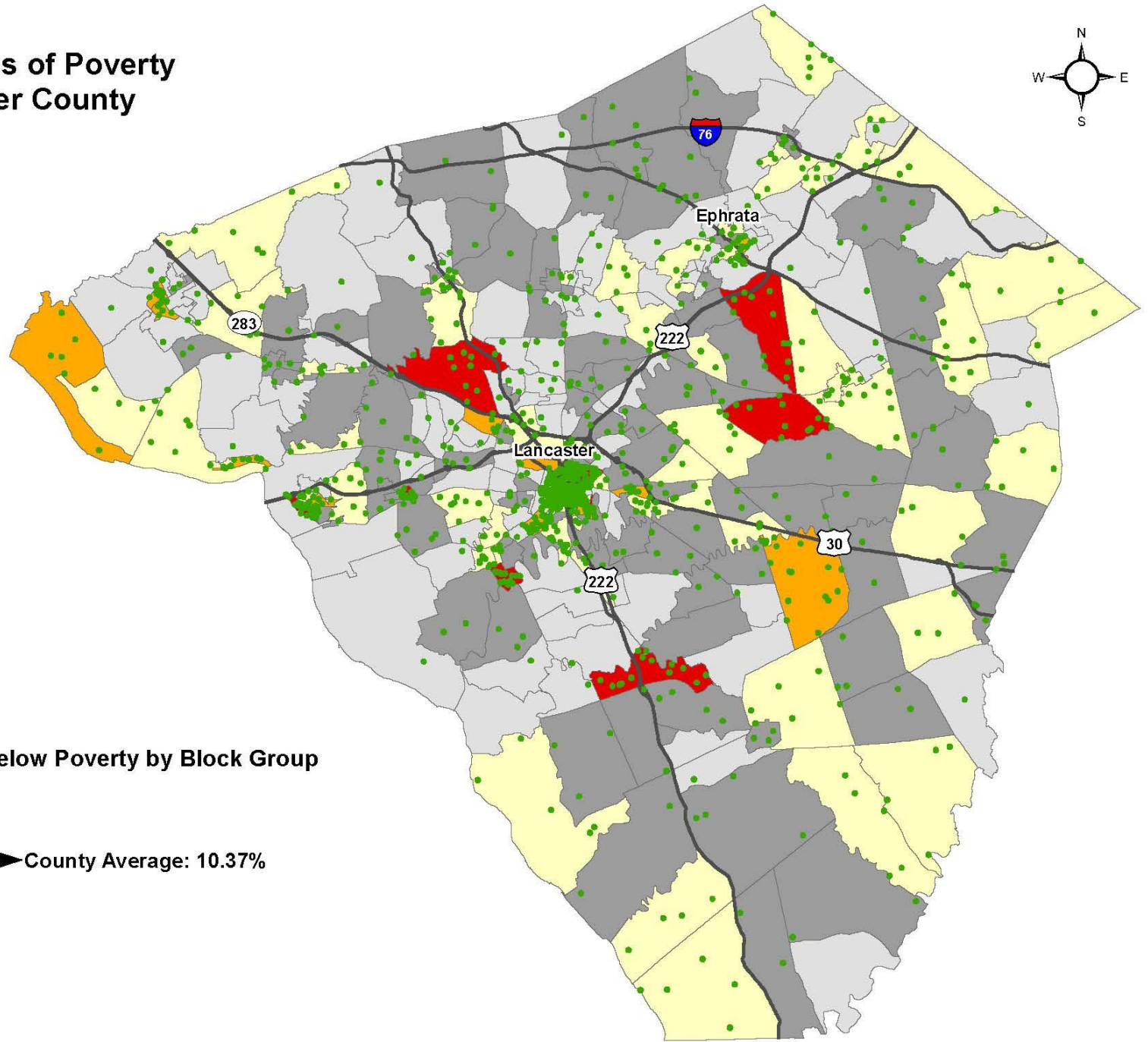
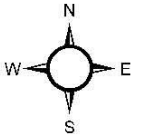
1 Dot = 50 Persons

- Black, Non-Hispanic
- American Indian & Alaska Native, Non-Hispanic
- Asian, Non-Hispanic
- Native Hawaiian & Other Pacific Islander, Non-Hispanic
- Some other race, Non-Hispanic
- Two or more races, Non-Hispanic
- Hispanic

## Percent Minority by Block Group



# Concentrations of Poverty in Lancaster County



## Persons in Poverty

• 1 Dot = 50 Persons

## Percent Population Below Poverty by Block Group

- 0% - 4.62%
- 4.63% - 10.36%
- 10.37% - 19.09%
- 19.1% - 32.02%
- 32.03% - 66.72%

County Average: 10.37%





### **2021-2024 Transportation Improvement Program**

As part of the 2021-2024 Transportation Improvement Program (TIP), Lancaster County MPO reviewed transportation projects located in areas that were determined to be “high minority” or “high in-poverty.” “High minority” refers to census block groups that have a concentration of minority persons that is greater than or equal to the Lancaster County regional average of 17.3 percent. “High in-poverty” refers to census block groups that have a concentration of low-income persons that is greater than or equal to the Lancaster County regional average of 10.37 percent.

The 2021-2024 TIP was analyzed to determine whether the distribution of transportation spending throughout the County was having disproportionately high or adverse impacts on locations with significant concentrations of minority and low-income populations. Projects from the 2021-2024 TIP for Lancaster County MPO have a total value of **\$218,386,215**.

<b>Project Type</b>	<b># of Projects</b>	<b>% Projects</b>	<b>Cost</b>	<b>% Cost</b>
<b>Bike/Ped</b>	4	5%	\$4,697,200	2.2%
<b>Bridge</b>	41	55%	\$65,763,984	30.1%
<b>Congestion Reduction</b>	12	15%	\$95,803,351	43.9%
<b>Railroad Crossing</b>	1	1%	\$1,500,000	0.7%
<b>Reserve Line Item</b>	8	11%	\$15,020,426	6.9%
<b>Roadway Reconstruction/Resurfacing</b>	2	3%	\$3,380,000	1.5%
<b>Safety Projects</b>	5	7%	\$28,521,254	13.1%
<b>Traffic Signals/Intersection Improvements</b>	1	1%	\$3,200,000	1.5%
<b>Traffic System Management/ITS</b>	1	1%	\$500,000	0.2%
<b>Total</b>	75	100%	\$218,386,215	100%

This TIP is weighted heavily by the transportation system performance needs associated with the PM-2 pavement and bridge performance measures. Spending on bridge improvements is consistent with the current statewide priority to address bridge condition in accordance with the treatments indicated through the lowest life cycle cost approach to bridge maintenance and preservation. Bridges located in minority and low-income population areas targeted for improvement will likely be a benefit if improvement in the condition of the bridge improves the use of the bridge, access to major roadways, bicycle and pedestrian access, and other important factors. Temporary impacts during improvement or replacement of a bridge could be a burden on these communities.

The TIP also shows significant investment in congestion reduction. These projects include interchange improvements, addition of roadway capacity, and roadway extensions. Within this project category, the County continues to support the Commuter Services of PA ridesharing program, which provides for more efficient movement of resident workers within Lancaster County who make use of these programs, some of which could be EJ users. Most of these projects are taking place on the county’s major arterials. Improvement projects located within minority and low-income population areas will

provide benefit by increasing the efficiency of traffic movement within these areas but could present temporary burdens due to the extent of construction impacts.

The below table summarizes the dollar value of projects according to project type and geographic proximity to high minority and in-poverty populations. Projects affecting several population concentrations (i.e. one high minority, one high in-poverty) had costs split amongst those concentrations.

There was a total investment of \$53.6 million (26.5 percent of the TIP) in areas of high minority population, \$22.1 million (11 percent of the TIP) in high in-poverty areas, and \$66.3 million (33 percent of the TIP) in both high minority and high in-poverty areas.

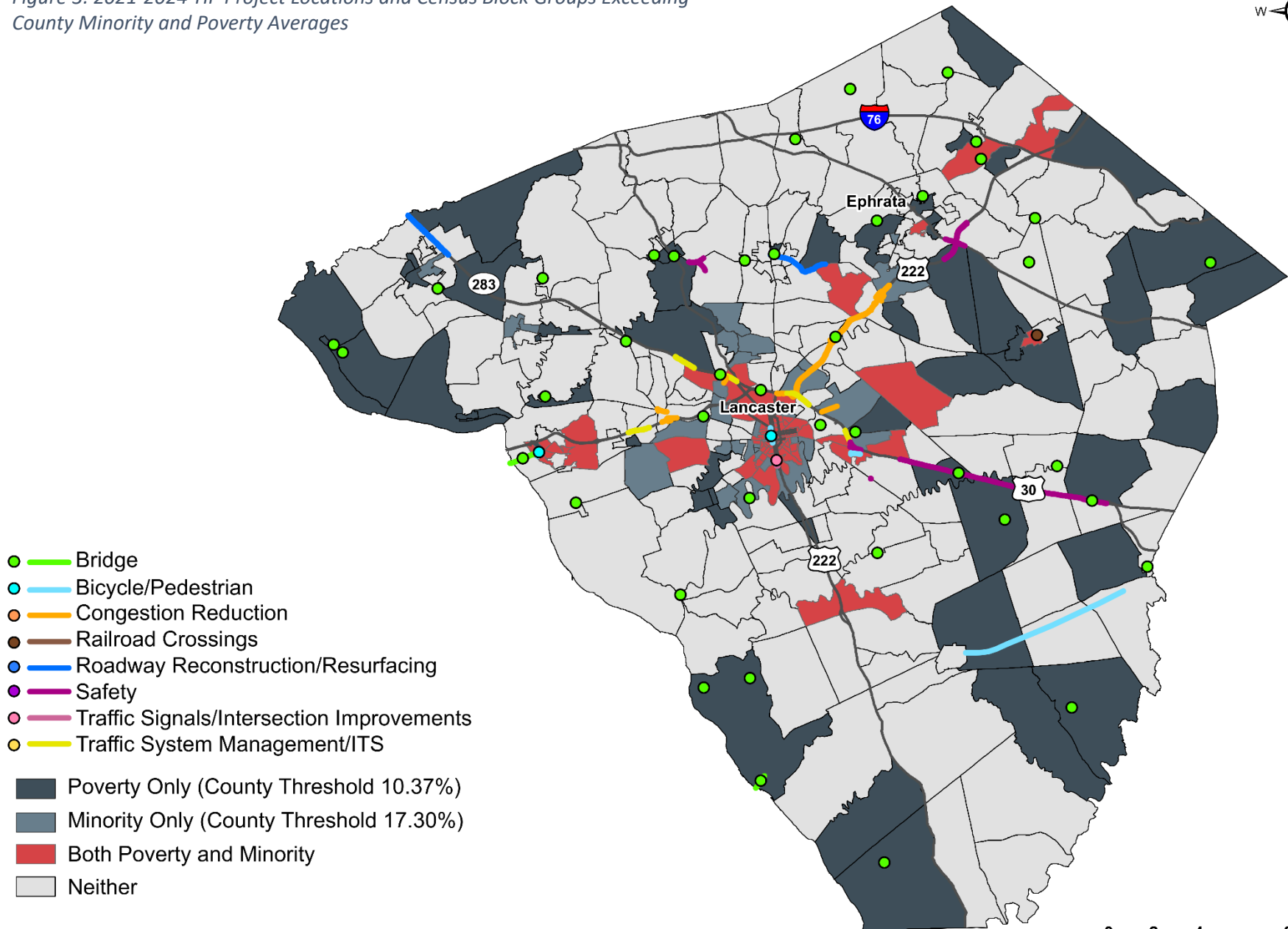
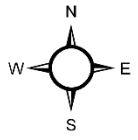
Table 2: Dollar Value of TIP Projects by Type in High Minority and In-Poverty Populations

Project Category	High Minority Only	In-Poverty Only	Both High Minority and High In-Poverty	Neither High Minority nor High In-Poverty	Lancaster County MPO Total
BRIDGE	\$823,401	\$10,736,833	\$7,230,340	\$46,973,410	<b>\$65,763,984</b>
	2.4%	39.1%	7.3%	51.2%	
BICYCLE/PEDESTRIAN		\$1,033,550	\$3,063,650	\$600,000	<b>\$4,697,200</b>
		22.1%	65.2%	12.7%	
CONGESTION REDUCTION	\$52,783,543	\$404,000	\$31,470,645	\$9,737,075	<b>\$94,395,263<sup>1</sup></b>
	55.9%	0.5%	33.3%	10.3%	
RAILROAD CROSSINGS				\$1,500,000	<b>\$1,500,000</b>
				100%	
HIGHWAY (RECONSTRUCTION/RESURFACING)		\$1,690,000	\$1,690,000		<b>\$3,380,000</b>
		50%	50%		
SAFETY	\$7,974,975	\$4,951,151	\$8,886,975	\$6,701,151	<b>\$28,521,254</b>
	28%	17.4%	31.2%	23.4%	
TRAFFIC SIGNALS/INTERSECTION IMPROVEMENTS			\$3,200,000		<b>\$3,200,000</b>
			100%		
TRAFFIC SYSTEM MANAGEMENT/ITS	\$125,000	\$125,000	\$125,000	\$125,000	<b>\$500,000</b>
	25%	25%	25%	25%	
TOTAL	<b>\$53,606,944</b>	<b>\$22,069,136</b>	<b>\$66,314,136</b>	<b>\$59,967,485</b>	<b>\$201,957,701<sup>2</sup></b>
	<b>26.5%</b>	<b>10.9%</b>	<b>32.8%</b>	<b>29.7%</b>	<b>100%</b>

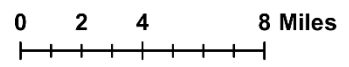
<sup>1</sup> Does not include Commuter Services Rideshare Program, totaling \$1,408,888

<sup>2</sup> Does not include County Reserve Line Items totaling \$15,020,426 or Commuter Services Rideshare Program, totaling \$1,408,088. Total TIP cost is \$218,386,215.

Figure 3: 2021-2024 TIP Project Locations and Census Block Groups Exceeding County Minority and Poverty Averages



- Bridge
- Bicycle/Pedestrian
- Congestion Reduction
- Railroad Crossings
- Roadway Reconstruction/Resurfacing
- Safety
- Traffic Signals/Intersection Improvements
- Traffic System Management/ITS
- Poverty Only (County Threshold 10.37%)
- Minority Only (County Threshold 17.30%)
- Both Poverty and Minority
- Neither



## Condition Assessment

In order to analyze benefits and adverse effects of transportation system changes, the MPO examined existing conditions of transportation assets throughout the county and safety performance relative to the minority and low-income populations. The use of the tables below will allow the MPO to track performance relative to the number of non-motorized crashes, poor condition bridges, and mileage of poor condition pavement in the county, and identify performance disparities between minority and low-income populations and populations that are not minority or low-income.

Lancaster County currently has 145 bridges in poor condition. Of those bridges, 18, or 12%, are located within High Minority block groups and 54, or 37%, are within High Poverty block groups.

*Table 3: Distribution of Poor Condition Bridges by Minority Population Intervals*

<i>Population/Asset</i>	<b>Percent Minority Population Intervals</b>					<i>Total</i>
	0% -8.25%	8.26% -17.29%	17.3% -39.57%	39.58% -65.24%	65.25% -98.95%	
<b>Poor Condition Bridge Count</b>	96	31	16	1	1	145
<b>Percentage</b>	66.2%	21.4%	11.0%	0.7%	0.7%	100%
<b>Total Population</b>	232,838	151,225	85,465	38,145	28,821	536,494
<b>Total Population (in %)</b>	43.4%	28.2%	15.9%	7.1%	5.4%	100%
<b>Minority Population</b>	8,882	19,134	22,560	19,736	22,474	92,786
<b>Minority Population (in %)</b>	9.6%	20.6%	24.3%	21.3%	24.2%	17%

*Source: 2013-2017 ACS, PennDOT*

*Table 4: Distribution of Poor Condition Bridges by Poverty Population Intervals*

<i>Population/Asset</i>	<b>Percent Below Poverty Population Intervals</b>					<i>Total</i>
	0% -4.62%	4.63% -10.36%	10.37% -19.09%	19.1% -32.02%	32.03% -66.72%	
<b>Poor Condition Bridge Count</b>	36	55	37	9	8	145
<b>Percentage</b>	24.8%	37.9%	25.5%	6.2%	5.5%	100%
<b>Total Population</b>	176,063	179,392	116,117	33,832	31,090	536,494
<b>Total Population (in %)</b>	32.8%	33.4%	21.6%	6.3%	5.8%	100%
<b>Below Poverty Population</b>	17,293	11,385	9,306	8,127	8,133	54,244
<b>Below Poverty Population (in %)</b>	31.9%	21.0%	17.2%	15.0%	15.0%	10%

*Source: 2013-2017 ACS, PennDOT*

The pavement condition charts below indicate 16.3% of poor pavement mileage in Lancaster County occurs in High Minority block groups and 46.7% occurs in High Poverty block groups.

Table 5: Distribution of Poor Pavement Mileage by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -8.25%	8.26% -17.29%	17.3% -39.57%	39.58% -65.24%	65.25% -98.95%	
<b>Poor Pavement Mileage</b>	52.72	20.46	8.32	2.61	3.27	87.38
<b>Percentage</b>	60.3%	23.4%	9.5%	3.0%	3.7%	100%
<b>Total Population</b>	232,838	151,225	85,465	38,145	28,821	536,494
<b>Total Population (in %)</b>	43.4%	28.2%	15.9%	7.1%	5.4%	100%
<b>Minority Population</b>	8,882	19,134	22,560	19,736	22,474	92,786
<b>Minority Population (in %)</b>	9.6%	20.6%	24.3%	21.3%	24.2%	17%

Source: 2013-2017 ACS, PennDOT

Table 6: Distribution of Poor Pavement Mileage by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -4.62%	4.63% -10.36%	10.37% -19.09%	19.1% -32.02%	32.03% -66.72%	
<b>Poor Pavement Mileage</b>	21.35	25.15	27.52	10.30	3.06	87.38
<b>Percentage</b>	24.4%	28.8%	31.5%	11.8%	3.5%	100%
<b>Total Population</b>	176,063	179,392	116,117	33,832	31,090	536,494
<b>Total Population (in %)</b>	32.8%	33.4%	21.6%	6.3%	5.8%	100%
<b>Below Poverty Population</b>	17,293	11,385	9,306	8,127	8,133	54,244
<b>Below Poverty Population (in %)</b>	31.9%	21.0%	17.2%	15.0%	15.0%	10%

Source: 2013-2017 ACS, PennDOT

Higher percentages of bicycle and pedestrian crashes in the county take place within block groups of larger populations. 57.1% of crashes occur in High Minority block groups while 57.7% of crashes occur in High Poverty block groups. The distribution of these crashes is shown in the tables below.

Table 7: Distribution of Bicyclist and Pedestrian Related Crashes by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -8.25%	8.26% -17.29%	17.3% -39.57%	39.58% -65.24%	65.25% -98.95%	
<b>Bike-Pedestrian Crash Count</b>	247	168	240	160	152	967
<b>Percentage</b>	25.5%	17.4%	24.8%	16.5%	15.7%	100%
<b>Total Population</b>	232,838	151,225	85,465	38,145	28,821	536,494
<b>Total Population (in %)</b>	43.4%	28.2%	15.9%	7.1%	5.4%	100%
<b>Minority Population</b>	8,882	19,134	22,560	19,736	22,474	92,786
<b>Minority Population (in %)</b>	9.6%	20.6%	24.3%	21.3%	24.2%	17%

Source: 2013-2017 ACS, PennDOT

Table 8: Distribution of Bicyclist and Pedestrian Related Crashes by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -4.62%	4.63% -10.36%	10.37% -19.09%	19.1% -32.02%	32.03% -66.72%	
<b>Bike-Pedestrian Crash Count</b>	178	232	230	138	189	967
<b>Percentage</b>	18.4%	24.0%	23.8%	14.3%	19.5%	100%
<b>Total Population</b>	176,063	179,392	116,117	33,832	31,090	536,494
<b>Total Population (in %)</b>	32.8%	33.4%	21.6%	6.3%	5.8%	100%
<b>Below Poverty Population</b>	17,293	11,385	9,306	8,127	8,133	54,244
<b>Below Poverty Population (in %)</b>	31.9%	21.0%	17.2%	15.0%	15.0%	10%

Source: 2013-2017 ACS, PennDOT

Evaluation of environmental justice benefits and burdens in the MPO's regional transportation planning is an evolving process. Anticipated changes to funding requirements, performance based planning and programming requirements, and regional needs will continue to be incorporated in the environmental justice analysis. Success in improving the impact of the environmental justice benefits and burdens analysis on transportation decision-making will also depend on the continued outreach to minority and low-income communities and improving their access to information on transportation benefits and burdens.

In summary, the TIP is not expected to create any disproportionately high or adverse effects on Lancaster County's EJ populations. Over 70% of the TIP budget is being invested in communities that have significant low income or minority populations. The planned projects are expected to benefit communities through improved safety, reduced congestion and bridges in better condition. Communities may experience some burdens during the construction process, but no lasting disruptions or adverse effects are expected from the 2021 TIP.