

Environmental Justice Documentation

2021-2024 TIP

Shenango Valley Area Transportation Study (SVATS) MPO

Introduction—What is Environmental Justice?

Environmental justice (EJ) is 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. Presidential Executive Order 12898 of 1994 requires Federal agencies to achieve Environmental Justice by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

Like other federal agencies, the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) are responsible for implementing an EJ-compliant program. This includes ensuring that Metropolitan and Rural Planning Organizations (MPOs and RPOs, e.g. SVATS MPO) and Departments of Transportation (e.g. PennDOT) adhere to the principles of EJ. These include the following directives:

To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations 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 populations and low-income populations.

FHWA Order 6640.23A defines disproportionately high and adverse effects as:

the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of human-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities.

A disproportionately high and adverse effect is:

1. is predominately borne by a minority population and/or a low-income population; or
2. will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the nonminority population and/or non-low-income population.

The SVATS MPO is the agency responsible for the planning and programming of federal funds for transportation projects and programs, and therefore must determine if the investment of those federal funds results in disparate impacts to minority and low-income populations. The following analysis explains this process.

Core Elements—An Approach for Pennsylvania Planning Partners

In April 2019, the FHWA PA Division, FTA Region III, PennDOT Central Office, PennDOT Engineering District 8-0, and six MPOs within District 8-0 Pennsylvania, jointly developed the *South Central Pennsylvania Environmental Justice Unified Process and Methodology Guide*. This was developed to help these agencies collaboratively analyze potential EJ impacts to minority and low-income populations in a straightforward manner. This guidance was then shared with the remaining MPOs and RPOs for consideration of their future programs including their respective Transportation Improvement Programs (TIP) and the Long Range Transportation Plans (LRTP).

The Guide outlines several strategies for accomplishing the core elements of an EJ analysis acceptable to FHWA and FTA. The Guide identifies specific core activities that MPOs in Pennsylvania should complete in an EJ analysis. Although the guide encourages some level of standardization and best-practices, it also allows for tailored approaches between different MPOs and RPOs. To this point, the guide provides an incremental approach to follow, with consideration given to variances in regional staff expertise and regional needs. The guide provides a number of strategies and tools to support the core elements.

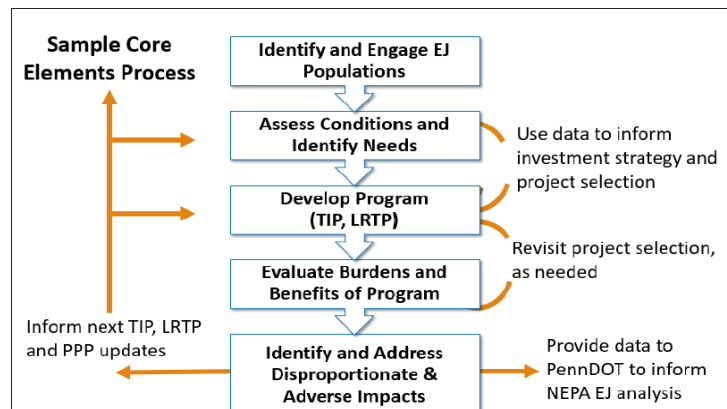


Chart from *South Central Pennsylvania Environmental Justice Unified Process and Methodology Guide*

These Core Elements, which also correspond to the organizational structure of this document, are the:

1. Identification of EJ populations
2. Assessment of conditions and identification of needs
3. Evaluation of burdens and benefits
4. Identification and addressing of disproportionate and adverse impacts, which will inform future planning efforts

SVATS MPO Approach to the Core Elements Methodology

The SVATS MPO, along with other MPOs and RPOs in Pennsylvania, have been hearing about the aforementioned approach since 2018 and awaited further guidance from PennDOT and FHWA about how this might inform our 2021-2024 TIP development as well as Mercer County's 2021 LRTP. The April 2019 Guidebook, along with access to data sets, were also shared with remaining MPOs and RPOs in June, 2019, approximately one month prior to the release of draft *General and Procedural Guidance* and *Financial Guidance* documents that outline how the 2021-2024 Regional TIPs were to be developed. This latter document included some challenging (yet not completely unexpected) news to MPOs/RPOs and PennDOT District staff: TIPs would be developed with significantly less funding than in previous TIPs, as

PennDOT sought to invest more heavily in Interstate highway preservation activities and other directions that took funding away from other needs. This, combined with a dramatically-increased effort to incorporate Transportation Performance Measures (TPMs) (see TPM document in this TIP), led to anxiety on the part of many planning partners on how a more meaningful approach to EJ assessment might be implemented.

Early on in the TIP development process (8/1/2019), and just days prior to the final versions of the TIP *General and Procedural Guidance* and *Financial Guidance* documents MPO staff met with District 1-0 to discuss several TIP development topics, including incorporation of the EJ Core Elements. With reductions in funding but several performance-based initiatives strongly championed by district staff, how could EJ be meaningfully addressed, and early in the TIP development process? These questions led to a phone call (9/30/19) with the MPO's Managers/Liaisons from FHWA and PennDOT CPDM to talk through these challenges. FHWA was well-aware and understanding of the unexpected burdens placed on the 2021 TIP update, and reiterated that the Core Elements guidance was in its infancy, and will likely evolve significantly for the 2023 TIP update. An after-action review will take place following the submittal of 2021 TIPs to assess what worked and what can be improved.

For the 2021 update, it was suggested that the MPO refer to prior (2019 TIP) EJ maps and analysis to gain a refreshed understanding of areas of higher concentrations of impoverished and minority populations. The maps and data developed through the statewide Core Elements Methodology could also be used to further analyze current demographics. This information could be shared with District 1-0 staff and be used as a conversation point when discussing specific projects. Finally, the MPO was encouraged use EJ as a factor into project selection criteria. This already took place (though will need to be refined) in our LRTP project selection.

One other challenge worth noting, but allowed for within the Core Elements guidance, has to do with staff and organizational capacity. The SVATS MPO and its parent agency—the Mercer County Regional Planning Commission (MCRPC)—does not have any dedicated GIS staff employed within its ranks. However, staff was able to take advantage of both the consultant-prepared maps from the Statewide Core Elements Methodology project and PennDOT's OneMap interactive mapping platform. Further, as noted earlier, demographic data was made available through the statewide initiative, which also abetted the MPO staff in performing a more-meaningful analysis. Finally, two SVATS MPO staff members were able to travel to an EJ Core Elements training course in February 2020, which helped fill in some blanks on ways to perform the analysis.

The next four sections of this document demonstrate the SVATS MPO's current approach to meeting the Core Elements Methodology. Despite the aforementioned challenges and limitations, the EJ analysis on the following pages includes several steps taken to continually improve the MPO's EJ process.

Core Element #1—Identification of EJ Populations

For the purposes of this analysis, two population groups are considered—racial minority and low-income members of the population. It is important to note that there is technically no such thing as an “Environmental Justice Population,” though this section title is used to align with the developed Pennsylvania Core Element framework. The table on the following page contains definitions used for the purposes of the EJ Analysis:

Population	Definition
Minority	Person who is: 1) Black/African American; 2) Hispanic or Latino; 3) Asian American; 4) American Indian/Native American and Alaskan Native; 5) Native Hawaiian and Pacific Islander
Low Income	Person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines

Two data sources were used to collect data in this analysis: the 2013-2017 American Community Survey (ACS) and the U.S. Census Bureau's 2010 Decennial Census. The ACS data contains a much larger margin of error, but is available for many different metrics and is updated on a much more frequent basis. Statistics from the ACS are taken from samplings of the population each year, and are grouped into a five-year rolling average. Because of the smaller sample sizes, these should be considered rough estimates. The 2010 Census is much more accurate and is considered a nearly complete inventory of the U.S. population. However, the amount of information collected starting with the 2010 decennial census (and continuing with 2020) was much smaller than in past censuses. In fact, racial composition was one of the few statistics collected through the decennial effort. Income data is collected purely through the ACS. In order to ensure that minority and low-income data are collected with the same methodology and during the same timeframe, ACS data is used as the primary data source for this analysis. 2010 Census data is used as an additional way of analyzing (only) the minority population, and comparing to the ACS data that serves as the primary data source. Some of the higher-level ACS demographic data relating to this EJ analysis is shown below on the table to the right.

Profile of Low-Income and Minority Populations, 2017		
Demographic Indicator	Mercer County, Pennsylvania	
	Population	Percentage
Total	113,623	100.00%
White, Non-Hispanic	102,613	90.31%
Minority	11,010	9.69%
Black or African American, Non-Hispanic	6,494	5.72%
American Indian and Alaska Native, Non-Hispanic	103	0.09%
Asian alone, Non-Hispanic	749	0.66%
Native Hawaiian and Other Pacific Islander, Non-Hispanic	3	0.00%
Some other race, Non-Hispanic	164	0.14%
Two or more races, Non-Hispanic	1,914	1.68%
Hispanic	1,583	1.39%
Low-Income Households	5,905	13.02%
Low-Income Population	14,521	13.67%
Other Potentially Disadvantaged Populations		
Limited English Proficiency (LEP)	1,678	1.55%
Persons with a Disability	18,200	16.60%
Female Head of Household with Child	2,497	5.45%
Elderly (65 years or older)	22,962	20.21%
Carless Households	4,348	9.49%

For this TIP (as well as the 2019 TIP), the prevalence of minority and low-income populations was analyzed at a U.S. Census Tract Block Group level of geography. Typically, Census Tracts (CTs) correspond to some degree with municipal borders. A more populous municipality might have several CTs within its jurisdictional boundaries, while very rural municipalities may share a CT. Most CTs contain several Block Groups (BGs). The borders of BGs often correspond to more significant geographical borders that separate neighborhoods. Examples include waterways, railroad tracks, and more significant roadways (such as arterials or collector roads). All of these can also correspond to CTs. Within BGs, there can be numerous blocks found within. A "block" is simply an area surrounded completely by roads. In an urban area, city blocks are commonplace, while blocks may be much larger in suburban or rural areas with fewer roads or no-outlet streets. Getting down to this level of geography can provide many inconsistencies, and data is not always available at this level. Therefore CT BGs were determined to be the most practical and detailed level of data available for this analysis.

Minority Population

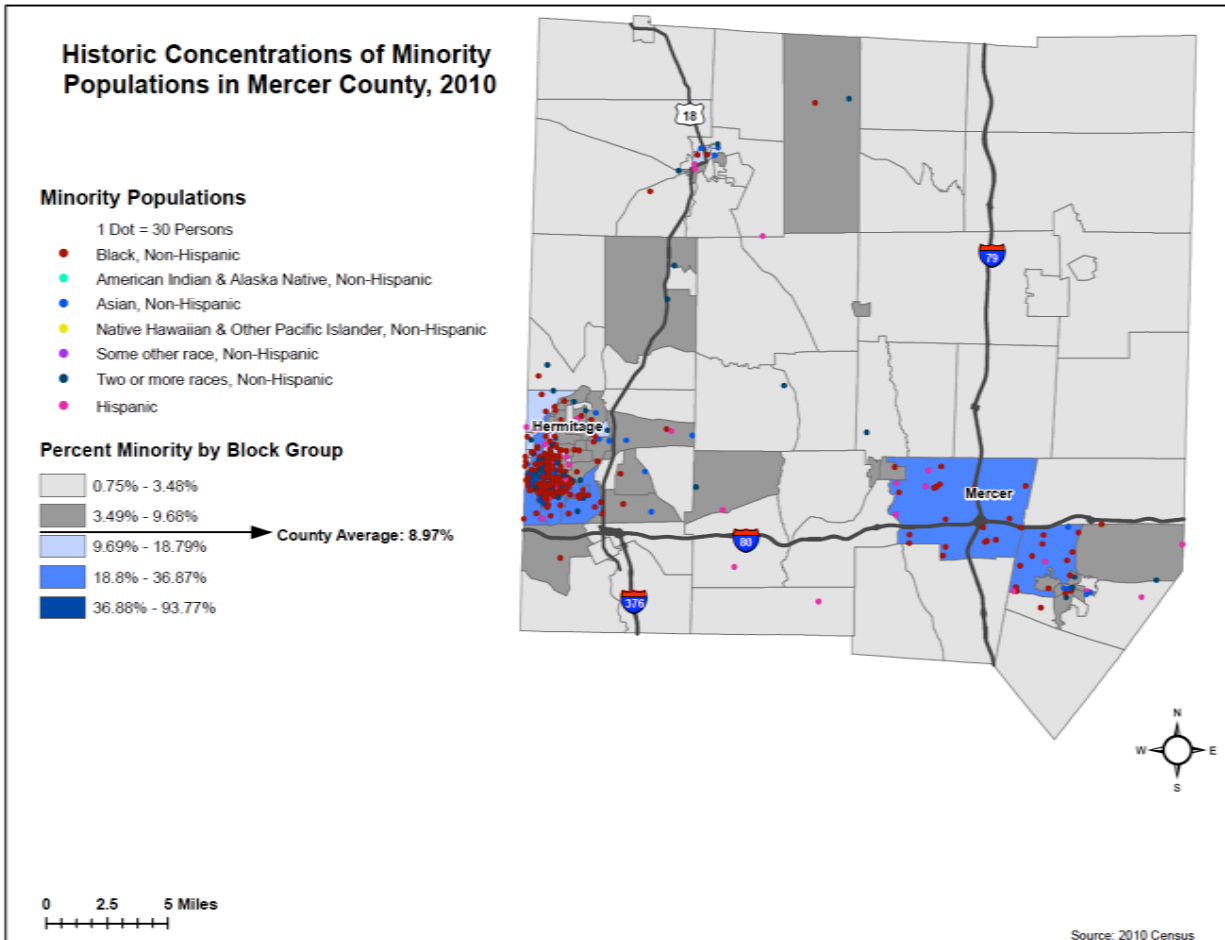
According to Five-Year Average (2013-2017) ACS data, Mercer County's minority rate is 9.69% of the entire population. This rate was 8.97% during the 2010 Census. Like many other regions, there is a tremendous geographic variance in the minority rate within the county. Areas of highest minority populations are found in portions of the Shenango Valley—a term used to define the urbanized cluster of municipalities in the southwestern portion of Mercer County. Much of the City of Farrell, and to a lesser extent, portions of the City of Sharon have minority rates well above the county average. The tables below show the top-five minority population rate BGs in Mercer County, using both the more reliable Census data, and the newer but less accurate ACS data. In these five BGs, the minority population (as defined on the previous page) is actually the majority of the overall population.

2010 U.S. Census			2013-17 5yr Avg., American Community Survey		
Rank	CT/BG/Municipality	Minority Rate	Rank	CT/BG/Municipality	Minority Rate
1.	CT 334, BG 4—Farrell City	77.19%	1.	CT 334, BG 4—Farrell City	77.41%
2.	CT 332, BG 3—Sharon City	73.41%	2.	CT 332, BG 3—Sharon City	73.41%
3.	CT 334, BG 1—Farrell City	70.44%	3.	CT 334, BG 1—Farrell City	71.02%
4.	CT 332, BG 2—Sharon City	58.67%	4.	CT 332, BG 2—Sharon City	58.92%
5.	CT 309, BG 1—Farrell City	50.32%	5.	CT 309, BG 1—Farrell City	50.84%

Other, pronounced clusters that are well-above the county average can be found in portions of the adjacent Shenango Valley communities: the City of Hermitage, Sharpsville Borough and Wheatland Borough. There are also two Block Groups in southeastern Mercer County that show up as significantly above countywide averages, with minority rates higher than many of the BGs in the Shenango Valley. These both, however, are presumed to be anomalies: (1.) CT 326.02, BG 2, covering all of Findley Township, contains a large state prison as well as Mercer County's jail. Since surrounding areas have very low minority rates and older (1990 and earlier) Census data indicates a very low minority rate, it can be assumed that these prisons, built in the mid-1990s, are responsible for the spike in the minority rate. (2.) CT 328, BG 2, which generally covers the northwest quadrant of Pine Township is likewise surrounded by low-minority BGs. However, this BG contains the George Junior Republic, a large residential treatment facility for adjudicated delinquent and dependent school-aged boys. This institution has a high minority population and is therefore considered the primary reason for this BG's high minority rate. Overall, 26 out of the 111 BGs in Mercer County contained minority population rates in excess of the countywide average of 9.69% when the 2013-2017 ACS estimates were prepared. These BGs account for 21.46% (25,036) of the overall county population (116,638).

The dot map shown on the following page shows the geographic distribution of the minority population within Mercer County. One dot represents 30 people, and different colored dots correspond to different races as indicated in the legend. Note that this map was prepared using the more reliable 2010 U.S. Census data, though a map using the more recent ACS data would likely look similar.

In Mercer County, the black population (5.72%) is by far the largest minority population, accounting for over 59% of the overall minority population. This is consistent with minority population figures in the aforementioned high-minority CT BGs (such as those in Farrell and Sharon). For example, in the highest minority Block Group in Mercer County—CT 334, BG 4 (Farrell)—the black population was 323 out of a total minority population of 353 during the 2013-2017 ACS (and 325 out of 352 per the 2010 Census). This accounts for approximately 92% of the overall minority population in this BG. Other surrounding BGs have similar proportions of black residents relative to the overall minority population.



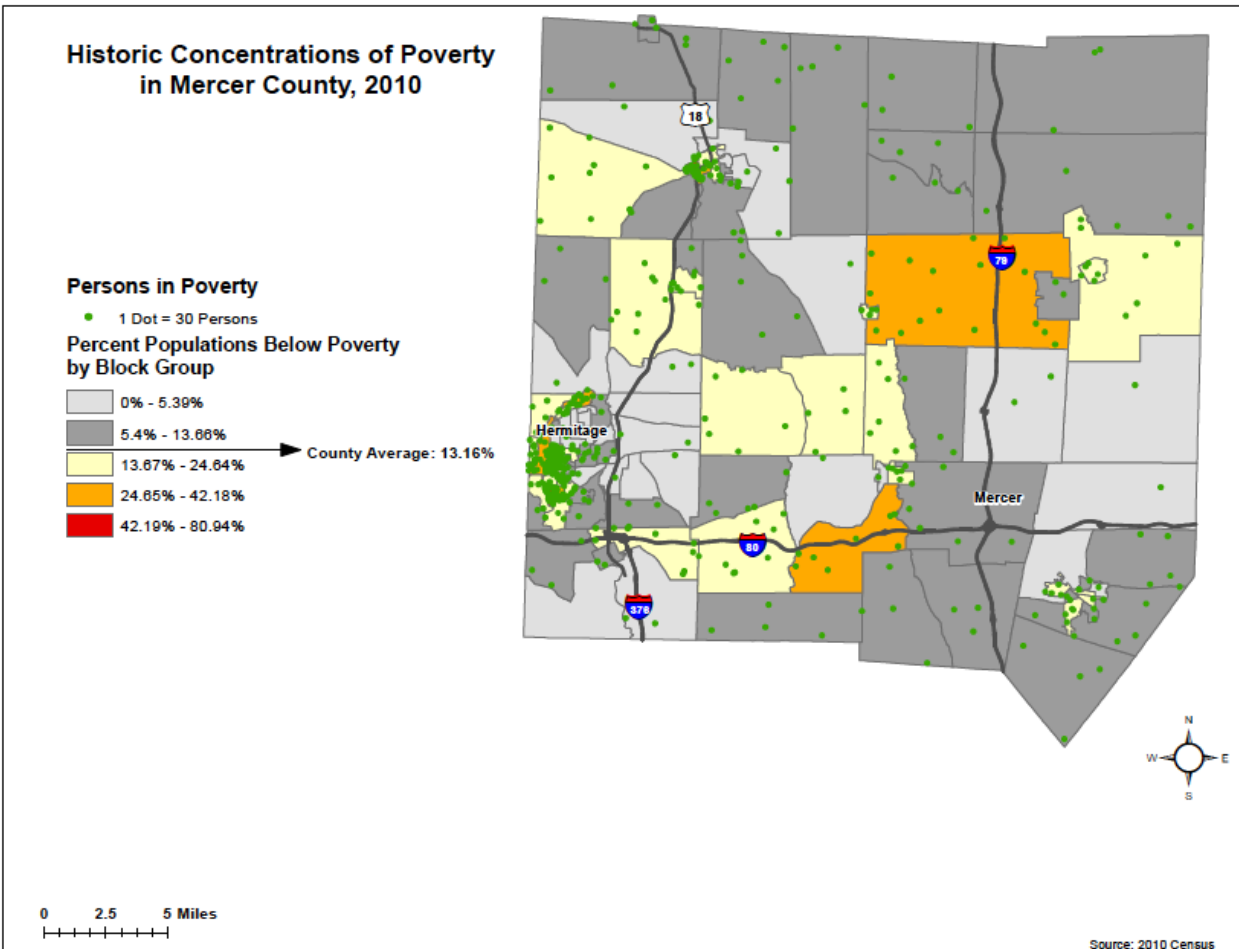
Most rural areas within Mercer County, and generally the areas outside of the Shenango Valley region, contain very low minority population numbers. In fact, 42 out of 111 BGs in Mercer County contained fewer than 3% minority populations during the most recent ACS analysis. In total, these 42 BGs account for 43,575—or 37.36%—of Mercer County’s total population of 116,638.

Low Income Population

According to Five-Year Average (2013-2017) ACS data, Mercer County’s average low-income by block group rate is 13.67% of the entire population. Much of the impoverished population is concentrated within the Shenango Valley communities, particularly the Cities of Sharon and Farrell. Less pronounced but still very notable concentrations exist in the City of Hermitage, the Town of Greenville, the Reynolds section of Pymatuning Township, and the southern portion of Lackawannock Township. Several BGs in rural townships and small boroughs, particularly in the northeastern quadrant of Mercer County, have incomes below the county’s average. Out of 111 BGs in Mercer County, 42 exceed the average rate of 13.67%. These 42 BGs contain a population of 38,797, or 33.26% of the total county population.

The dot map on the following page shows the geographic incidence of poverty by CT BG.

As in just about any county, income disparity is immediately evident by a quick glance at the map. In fact 7 BGs in Mercer County have a 0% incidence of poverty—representing 5,832, or exactly 5% of the



population—and 19 BGs contain poverty rates above 0% but below 5%. Together, all BGs with less than a 5% poverty rate account for over one-fifth (21.40%, 24,960) of the population.

Conversely, the 10 most impoverished BGs in Mercer County all contain low-income rates *at least* two-and-a-half times the county average, and three BGs have poverty rates in excess of 50%. Statistics for these BGs are shown in the table below:

Rank	CT/BG/Municipality	Low-Inc. Rate
1.	CT 334, BG 4—Farrell City	68.43%
2.	CT 332, BG 2—Sharon City	59.10%
3.	CT 321, BG 1—Town of Greenville	55.87%
4.	CT 332, BG 3—Sharon City	43.69%
5.	CT 334, BG 3—Farrell City	43.60%

Rank	CT/BG/Municipality	Low-Inc. Rate
6.	CT 303, BG 3—Sharon City	42.16%
7.	CT 332, BG 1—Farrell City	42.00%
8.	CT 332, BG 4—Farrell City	35.34%
9.	CT 309, BG 1—Farrell City	34.44%
10.	CT 321, BG 3—Town of Greenville	33.28%

It is noteworthy that all of these top-10 BGs are in urbanized/high-density communities. While more rural poverty is also prominent in Mercer County, the most marked concentrations of poverty are all in these older, core communities, particularly in the Shenango Valley communities of Sharon and Farrell. The dot map above illustrates just how prevalent the low-income population is in these communities.

Poverty Among Minorities

A keen observer may notice that many of the BGs on the previous table were also listed among the most racially diverse. Indeed, there is a strong correlation between poverty and minority status. This is true in Mercer County just as it is in many areas across the United States. The table to the right shows how poverty rates vary among different racial groups within Mercer County. This is most meaningful when looking at White and Black populations, and significantly less meaningful for minority racial groups small in number. For example, there is a 75% poverty rate amongst the County's Native Hawaiian population, yet only four members of this group live in Mercer County. Particularly noteworthy is that Mercer County's Black population has a poverty rate more than three times higher than exists for the White population.

Taking this information into account, and reviewing the dot maps on the previous pages, leads to the realization that there is a very strong correlation between the minority and low-income populations. This is particularly important to be mindful of, both when programming decisions are made (*e.g.* making sure investment occurs in such areas) and as project scopes are refined (*e.g.* making a concerted effort to take into consideration—through PennDOT Connects and other public involvement processes—any particular needs that may exist among these members of the population).

Poverty Rate Among Racial/Ethnic Groups in Mercer County		
White	Total:	97,877
	Low-Income:	11,623 (11.88%)
Black	Total:	5,334
	Low-Income:	2,139 (40.10%)
American Indian	Total:	103
	Low-Income:	12 (11.65%)
Asian	Total:	682
	Low-Income:	103 (15.10%)
Native Hawaiian	Total:	4
	Low-Income:	3 (75.00%)
Some Other Race	Total:	465
	Low-Income:	177 (38.06%)
Two or More	Total:	1,722
	Low-Income:	464 (26.95%)
Hispanic	Total:	1,235
	Low-Income:	335 (27.13%)

Core Element #2—Assessment of Conditions and Identification of Needs

The following section assesses the performance and condition of transportation assets in Mercer County, relative to the prevalence of low-income and minority populations. Essentially, this marries the concept of performance based planning (see the Transportation Performance Measures section of this TIP) with EJ. The following information can be used to determine the unmet needs and any gaps in the transportation system and its investment.

Myriad maps and data were made available to the MPO through the Statewide EJ project in order to provide a snapshot of transportation asset conditions and safety needs throughout the region. The information analyzed includes the following four components, and the correlation of each with populations defined as minority and low-income:

Metric	Description of What Is Analyzed
Pavement Condition	Excellent (best) and Poor (worst), based on International Roughness Index (IRI) ranking
Bridge Condition	Poor (worst), based on International Bridge Inventory (NBI) ranking (0-4 out of 9 pt scale)
Bike/Ped Crashes	Location of each occurrence, based on 5 years of data (2013-2017)
Injury/Fatal Crashes	Location of each occurrence, based on 5 years of data (2013-2017)

These four metrics are analyzed (beginning on the following page) as follows:

(1.) A brief summary table shows the existence of various conditions/issues both countywide and in CT BGs exceeding the countywide average rates for minority and low-income populations, as defined via the ACS 2013-2017 Estimates (9.69% and 13.67%, respectively). Such BGs constitute 21.46% and 37.36% of the total county population. In theory, a negative metric (such as poor condition of an asset) with a percentage exceeding the county average rate represents a potential underinvestment or need for future investment in these EJ-defined areas. Conversely, a positive metric (i.e. Excellent Condition Pavement) *not exceeding* the county average rates could indicate the need for further investment. For easier analysis, if a benchmark is not met/underinvestment exists cells are highlighted in **red**, while those meeting the benchmark are highlighted in **green**. The sample table below shows how this works:

Sample Condition Table

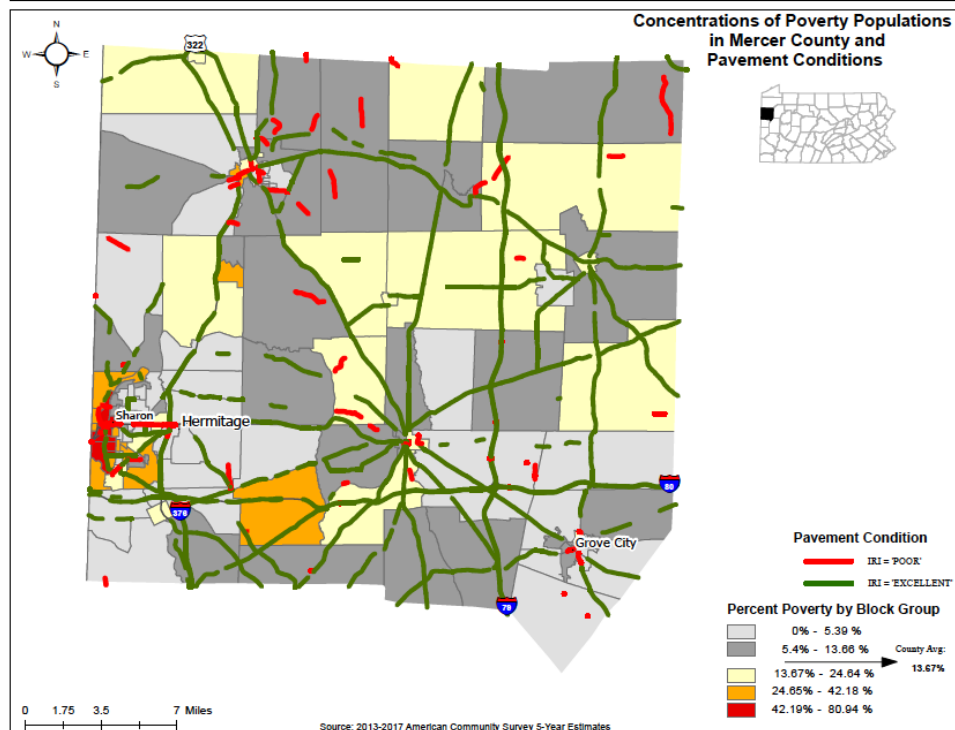
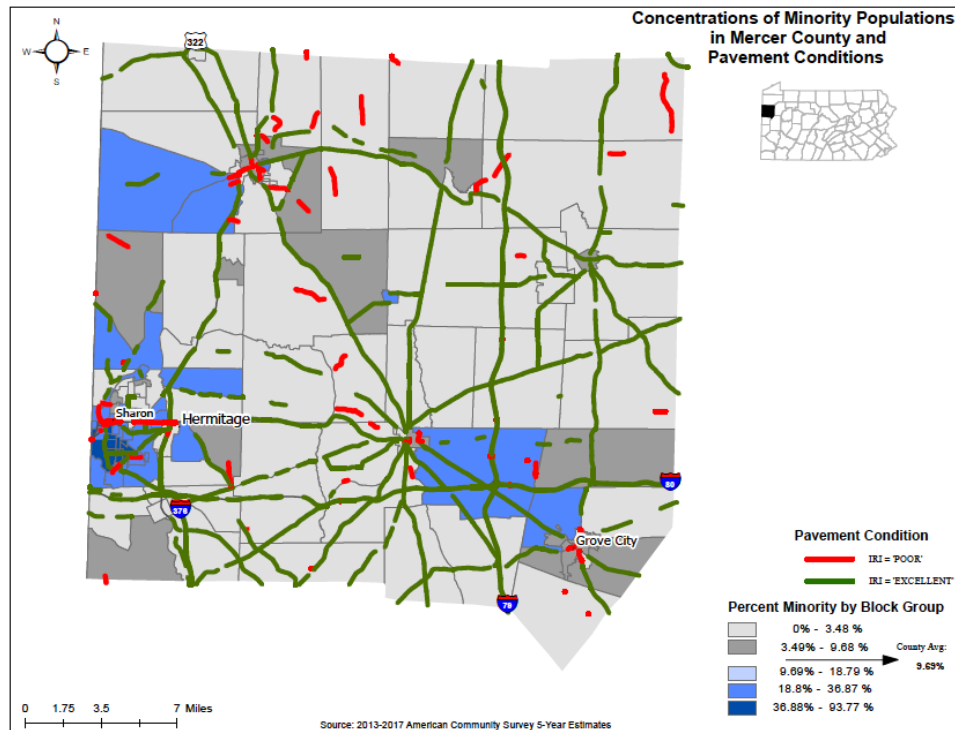
Sample Condition	Total Mileage/ Number	BGs w/Minority Rate Above County Avg. (21.46% of Total Pop.)		BGs w/Poverty Rate Above County Avg. (37.36% of Total Pop.)	
		Mileage/No.	Percent	Mileage/No.	Percent
Something Positive	55.5	12.5	22.5%	14.1	25.4%
Something Negative	28.5	9.4	33.0%	10.2	35.8%

In the “positive” row, a number exceeding the corresponding above-average population rate for either minority or low income populations (21.46% and 37.36%) is good. 22.5% exceeds 21.46%, but 25.4% does not exceed 37.36%. In the negative row, the opposite is true. 33% does exceed 21.46% but 35.8% doesn’t quite exceed 37.36%.

(2.) Two maps for each metric show how the specific location of an asset or incidence (e.g. poor condition bridges or pedestrian crashes) correlate with the rate of minority and low-income populations.

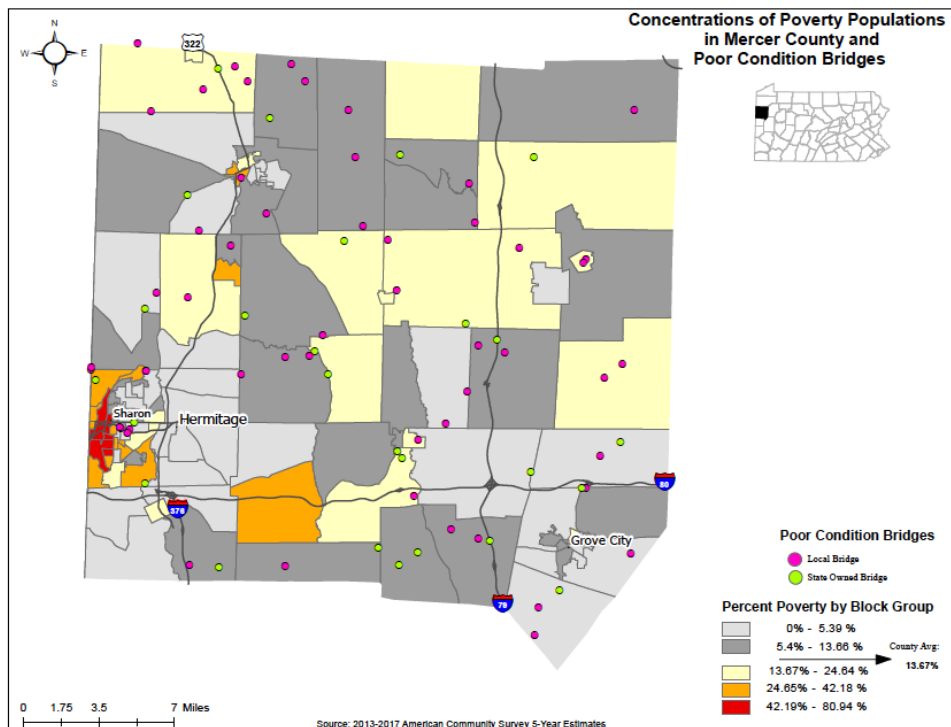
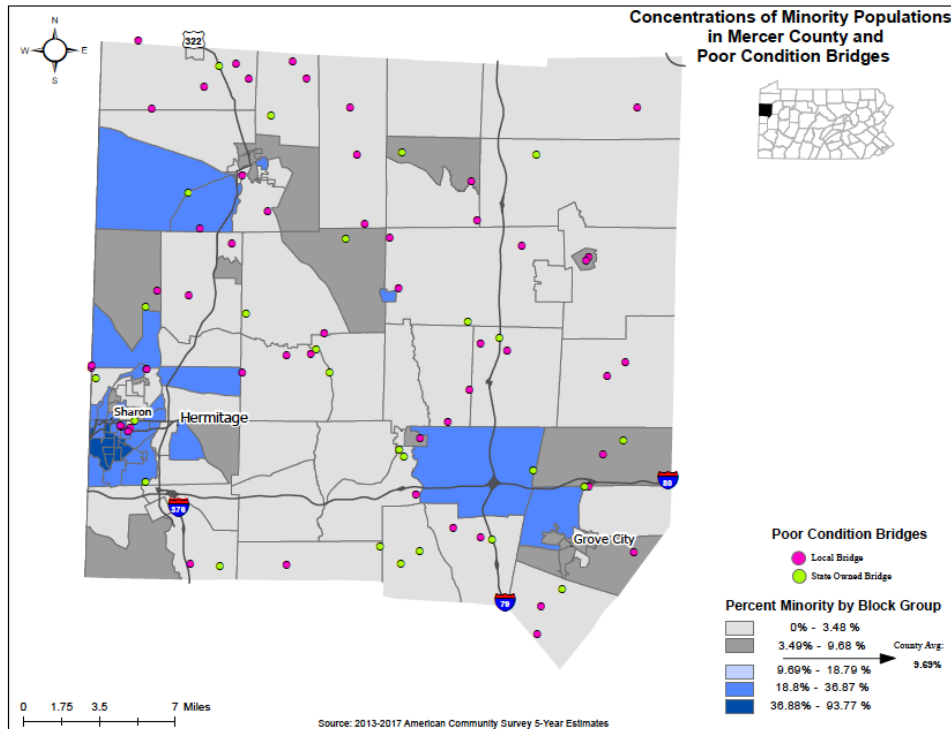
Pavement Condition

Pavement Condition	Total Mileage	BGs w/Minority Rate Above County Avg. (21.46% of Total Pop.)		BGs w/Poverty Rate Above County Avg. (37.36% of Total Pop.)	
		Mileage	Percent	Mileage	Percent
Excellent	395.21	59.07	14.9%	124.87	31.6%
Poor	34.04	6.70	19.7%	12.04	35.4%



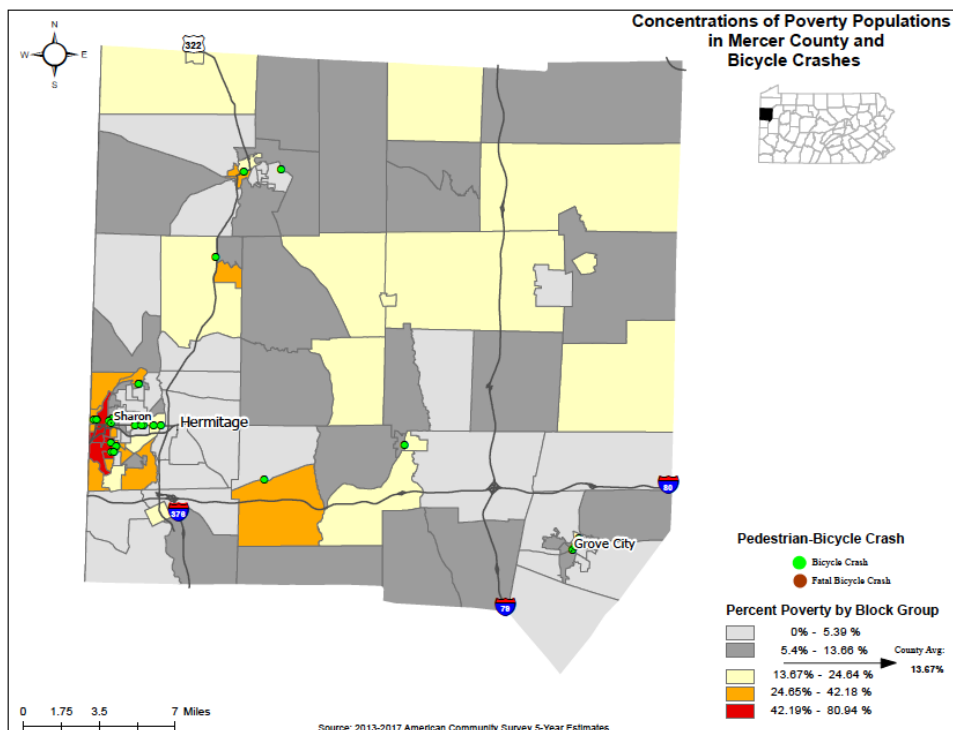
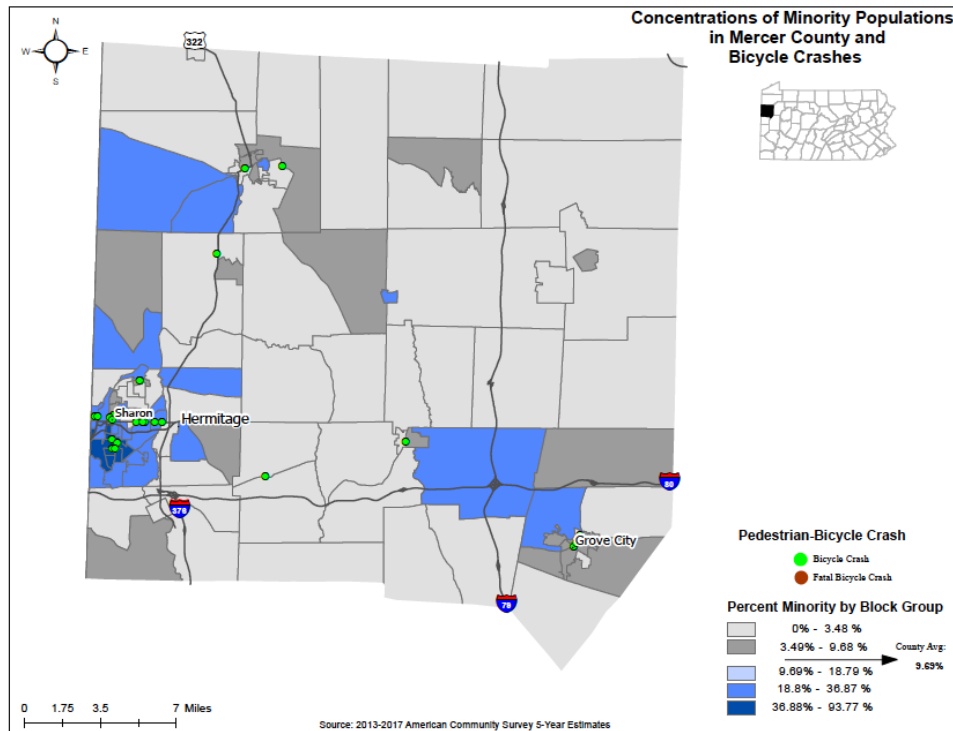
Bridge Condition

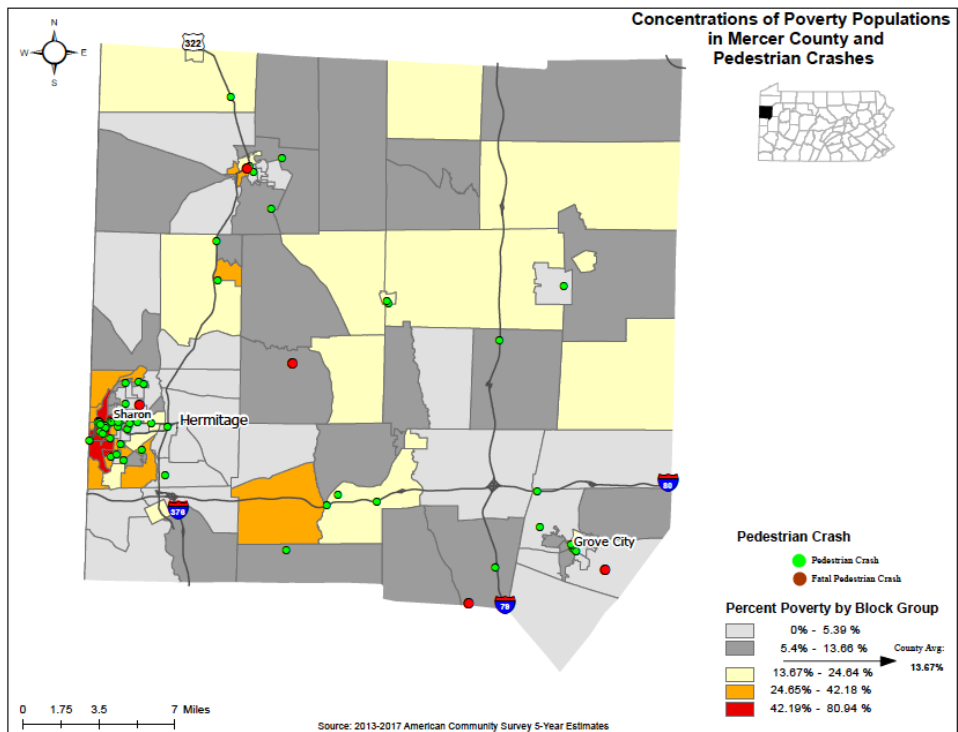
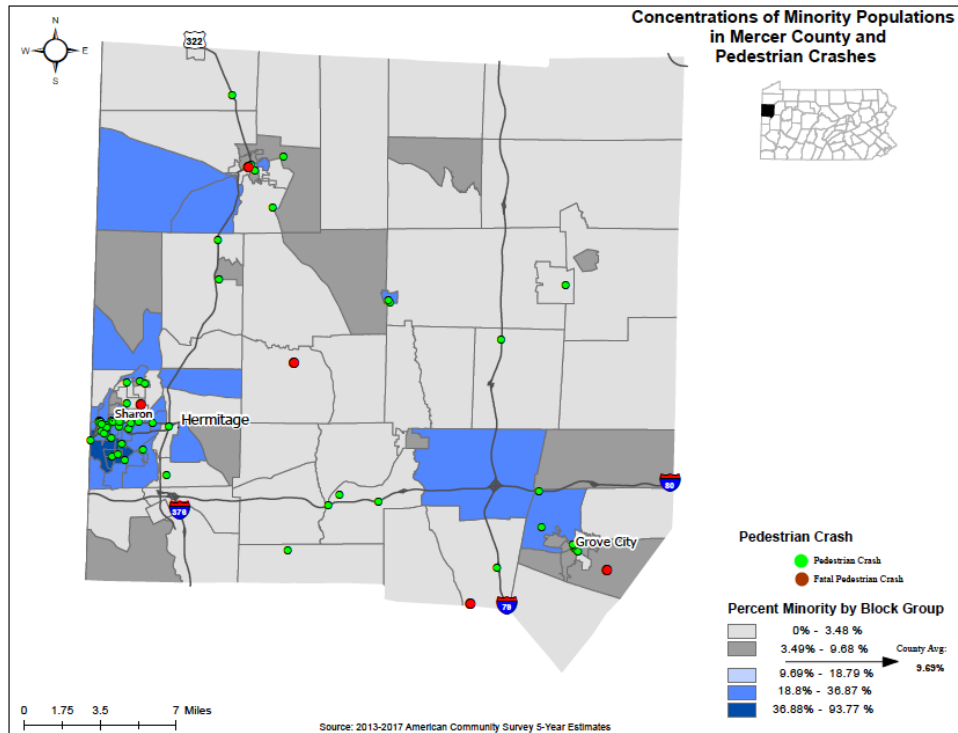
Bridge Condition	Total Number	BGs w/Minority Rate Above County Avg. (<u>21.46%</u> of Total Pop.)		BGs w/Poverty Rate Above County Avg. (<u>37.36%</u> of Total Pop.)	
		Number	Percent	Number	Percent
Poor	79	13	16.5%	26	32.9%



Bicycle and Pedestrian Crashes

Ped. and Bike	Total Number	BGs w/Minority Rate Above County Avg. (<u>21.46%</u> of Total Pop.)		BGs w/Poverty Rate Above County Avg. (<u>37.36%</u> of Total Pop.)	
		Number	Percent	Number	Percent
Crashes	93	44	47.3%	44	47.3%





Total Injury and Fatal Crashes

Injury and Fatal	Total Number	BGs w/Minority Rate Above County Avg. (21.46% of Total Pop.)		BGs w/Poverty Rate Above County Avg. (37.36% of Total Pop.)	
		Number	Percent	Number	Percent
Crashes	3,976	1106	27.8%	1,232	31.0%

Note—Due to the sheer number of fatal or injury crashes (3,976), and the fact that any county-level maps would not be readable, no maps were produced for this section.

Summary of Core Element # 2

Investment in the condition of assets appears to be beneficial overall to both low-income and minority populations in their totality. While “Excellent” condition pavement mileage is somewhat lower in those BGs exceeding countywide average rates, the mileage of “Poor” condition roadways in such areas (overall) is lower than would be proportionally expected.

Crash data, particularly those involving bicyclists and pedestrians, paints a different picture. However, as noted in the section above, many of the highest-minority and lowest-income populations in Mercer County reside in the more urbanized communities, such as Sharon, Farrell, and Greenville. While no data currently exists on the full extent of bicycle and pedestrian activity, it can logically be assumed that the vast majority of activity exists within these denser, more urbanized locations. These communities contain much higher traffic volumes than smaller towns or rural areas as well. The fact that many of these crashes occur in these areas is therefore not surprising. On the other hand, this does present an opportunity for further investment in projects that lead to safer walking or bicycling conditions.

The overall rate of injury and fatal crashes is higher in those BGs with higher-than-average minority populations, yet lower for above-average low-income BGs. The vast majority of the county’s minority population lives within the Shenango Valley, which itself has most of the county’s busiest roads (both in number and traffic volume), contains the majority of the county’s traffic signals, and many of the county’s highest-crash corridors. In other words, despite the lack of a more detailed analysis of any correlations, it seems logical that the rate of these serious crashes would be higher in high-minority BGs.

Core Element #3—Evaluation of Benefits and Burdens

As overall TIP funds decrease, it becomes even more important to prioritize investments based on where there is the greatest need and level of anticipated impact. This is where performance-based planning comes into play (see separate Transportation Performance Measures Document within the TIP). This could mean prioritizing a more-traveled road, bridge, or sidewalk over a less-traveled one. Or it could mean prioritizing a project that is likely to yield a significant safety benefit or travel time improvement. But, perhaps just as important, the MPO and PennDOT must always consider the impact a given project will have on the population. To this point, this section provides a framework for understanding the likely benefits and burdens of all 2021-2024 TIP projects on identified minority and low-income populations.

Analysis of the level of benefit or burden that a particular project may have is determined through several methods. First, the scope of project and what modes it will affect is considered. A simple in-place bridge replacement, for example, won’t typically have a major beneficial effect on the lives of

surrounding residents (unless it contains sidewalks where they didn't exist before), but perhaps a new bus shelter or new pedestrian amenities will. A new or substantially altered road that would increase traffic significantly (not that we have any such projects on our current TIP) may have detrimental quality-of-life, noise, or pedestrian safety burdens to the public, while a simple road resurfacing usually won't alter the current functionality very much at all.

Just about all of the non-asset management projects on the MPO's TIP (i.e. anything that is altering any asset beyond simple maintenance or preservation) requires a planning study. And when these studies are undertaken, a concerted effort is made to engage the public during the planning process. This process varies significantly depending upon the scope and size of the study, but a typical process looks something like this:

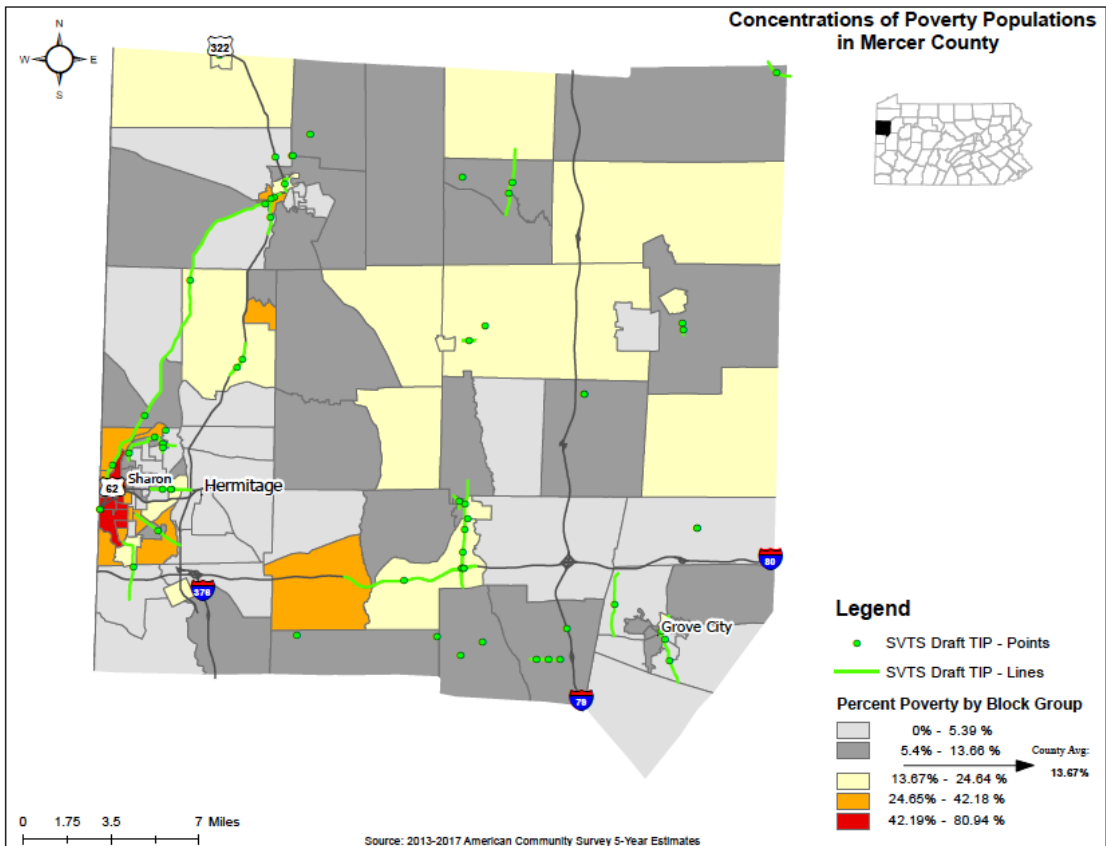
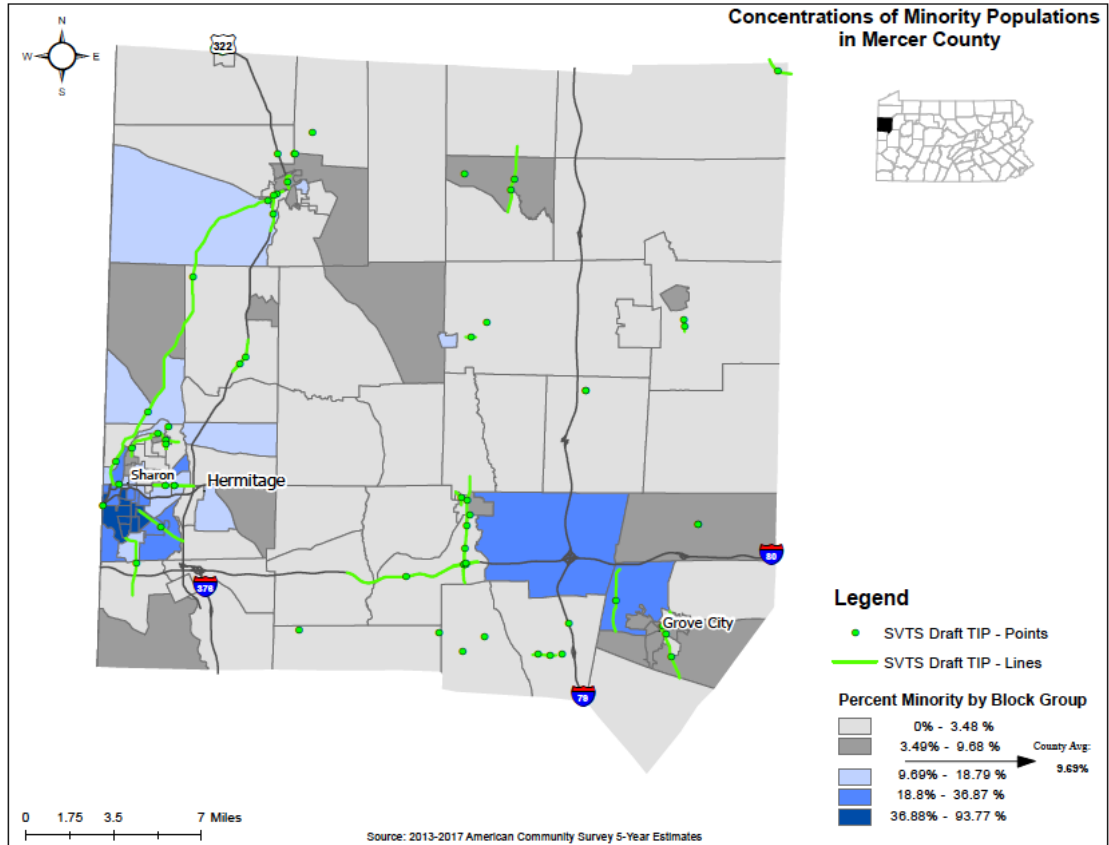
FINISH ← START	Public Input	Planning Process
	Listening tours, surveys, public meetings, etc. used to elicit project ideas	Issue Brought Up During LRTP Development
		Issue or Planning Study Recommendation Identified on LRTP
	Defined public outreach throughout the life of a plan (public meetings, surveys, pop-up events, stakeholder interviews, etc.)	Planning Study Initiated
		Project Alternatives Developed and Refined
		Preferred Alternative Selected, Listed as Recommended Projects
		Recommended Projects Prioritized (based on several factors)
	TIP EJ Analysis Completed, project Initiation forms via PennDOT Connects process	Projects Are Added to TIP through MPO/PennDOT collaboration
	Public comment opportunities (plan displays, meetings, etc.)	Project Progresses through Design
		Project Bid and Constructed

Whether or not it's formally defined as "Environmental Justice," the needs and impacts of/on people—including those traditionally underserved—are repeatedly considered throughout any planning process.

When a project eventually advances to be programmed on the TIP, it is specifically analyzed as part of the EJ Core Elements process. There are a few approaches used to conduct this project-level analysis. One method used to assess such impacts is mapping the location of each TIP project along with the corresponding rates of minority and low-income population. These maps are on the following page.

Not every TIP project can be mapped, and such projects fall into two categories: First, budget line items exist on the TIP in order to create reserves due to project overages, delays, and even the occasional new project. Any new projects that are programmed out of line items subsequent to TIP adoption are collaboratively processed according to the MPO's Memorandum of Understanding for TIP Revision Procedures (see MOU document within this TIP). Examples of line item categories include but are not limited to local bridges, all weather pavement markings, and (locally-selected) STU projects.

The second category includes most transit projects. The Shenango Valley Shuttle Service (SVSS) provides fixed-route transit services within the Mercer County urbanized area, which includes the Cities of Farrell, Hermitage and Sharon, and the Boroughs of Sharpsville and Wheatland. Routes are intentionally determined to better-connect neighborhoods with high minority and poverty rates to places of business and employment throughout the urbanized area of Mercer County (i.e. the Shenango Valley). In addition to this service, Mercer County Community Transit (MCCT) offers an on-demand, shared ride service as well as an exclusive ride service (operating much like a taxi) to residents living throughout the county. The Mercer County Regional Council of Governments (MCRCOG) manages both of these services. The only Transit TIP projects that could be mapped are geographically-specific capital improvements such as bus shelters. However, no such projects exist on the 2021-2024 TIP.



In addition to these maps, the tables below are a formalized inventory used to capture any likely benefits and burdens of all highway and transit projects, with the exception of TIP line items. All Highway projects are listed by the Project ID (MPMS) Number, The affected State Routes (projects are listed in ascending SR order), project title and the location. Project types are color-coded. The next columns are color-coded assessments of the low income and minority populations within a project area; how prevalent such populations are and the most likely level of impact (beneficial or burdensome) to be realized to these population groups. Because both of these columns can be somewhat subjective, additional notes and justifications are provided, where applicable, in the final column.

Benefits and Burdens Analysis, SVATS MPO 2021-2024 TIP—Highway Projects

PROJECT TYPE	PREVALANCE OF MINORITY AND/OR LOW INCOME POPULATION	ANTICIPATED IMPACT TO UNDER-SERVED POPULATION GROUPS
Bridge Replacement	% of both below county average	Significant Positive Benefit Expected
Bridge Rehab/ Maintenance	% of one above county average	Minor Net-Positive Benefit Expected
Highway (Betterment/Paving/Maintenance)	% of one significantly above county average*	Neutral/No Tangible Benefit/Burden Expected
Highway (Safety-Specific/Other)	OR % of both above county average	Mixed—Benefits w/ some Potential Burdens
Bicycle/Pedestrian	% of both significantly above county average*	Net-Negative Burden Expected

* - Populations belonging to the two highest categories on the EJ maps are defined as “significantly above average.”

PROJECT INFORMATION				LOW INCOME AND MINORITY POPULATION		JUSTIFICATION AND ADDITIONAL NOTES
PROJ. ID	STATE ROUTE(S)	PROJECT TITLE AND TYPE	LOCATION(S)	RATE	LIKELY IMPACT	
114013	SR 18	SR 18: SR 358 to Four Lane	Greenville, West Salem			Low-income population above county average, minority pop. well above average; project nature limited to resurfacing
109773	SR 18, SR 58	PA 18: SR 358 to Mill Hill Road	Greenville			Low-income pop. well-above county avg., nearby college pop. with heavy ped. traffic; Betterment proj. w/ ped. & safety benefits
110764	SR 18, SR 4005	PA 18/SR 4005 Intersection	Greenville			Low-income population well above county average; project nature includes signal improvements and pedestrian accommodations
110234	SR 18, SR 4006	PA 18/SR 4006 Intersection	Hempfield			Both populations below county average; project involves realignment of existing intersection; expected to improve safety
98384	SR 18	PA 18: Birchwood-Rutledge	Pymatuning			Low-income population above county avg.; project nature limited to resurfacing and will not significantly change existing conditions
97907	US 19	US 19 Corridor Improvements	Mercer, Coolspring, East Lackawannock			Low-income population above county average; Betterment project will also involve some ped., stormwater and safety improvements
113974	US 19	US 19: SR 358 to SR 1011	Perry, Sandy Creek			Both populations below county average; project largely limited to resurfacing and will not significantly change existing conditions
1725	US 19	SR 19 Bridge over Shenango Valley Trib.	Perry			Both populations below county average; Bridge replacement of similar design and along existing alignment
84914	US 19	SR 19 Bridge over Johnston Run	Springfield			Both populations below county average; project limited to maintenance/preservation of existing bridge
90032	US 19	US 19 Bridge over Neshannock Crk.Trib	East Lackawannock			Low-income population above county average; project limited to maintenance/preservation of existing bridge
97277	US 19	US 19 Bridge over Otter Creek Trib. #3	Fairview			Low-income population above county average; project limited to maintenance/preservation of existing bridge
111622	US 62	Sharon Gateway Project	Sharon			Both populations well-above county averages; streetscape project w/ ped. access improvements, poss. burden w/ closed street
114778	I-80	I-80 Mercer County ITS Addition - TSMO	Lackawannock, East Lackawannock			Low-income population above county average; project limited to technical upgrades to improve incident mgmt., safety, congestion
114779	I-80, US 19	I-80 Mercer County ITS Addition - TSMO	East Lackawannock			Low-income population above county average; project limited to technical upgrades to improve incident mgmt., safety, congestion
109154	SR 173	PA 173: Kocher Dr. to Main Street	Grove City			Both pops. below county avg.; will involve minor widening leading to some sliver takes, but improve. overall corridor, incl. sidewalks
98397	SR 173	PA 173 and Yankee School Intersection	Worth, Sandy Lake (Twp).			Both populations below county average; project involves safety and corridor maintenance improvements

PROJECT INFORMATION				LOW INCOME AND MINORITY POPULATION		JUSTIFICATION AND ADDITIONAL NOTES
PROJ. ID	STATE ROUTE(S)	PROJECT TITLE AND TYPE	LOCATION(S)	RATE	LIKELY IMPACT	
109139	SR 258	PA 258: E. South to Blossom	Mercer			Low-income population above county average in part of area; Betterment project will also include minor ped. improvements
114012	US 322	SR 322: Venango Co. to Crawford Co.	Jamestown, French Creek			Low-income population above county avg. in Jamestown section; Betterment project will also include minor ped. improvements
111157	SR 518, SR 3025	SR 518/SR 3025 Intersection	Sharpsville			Both populations below county average; project involves safety congestion mgmt. improvements, likely minor property impacts
99927	SR 518	PA 518: Sharon to Sharpsville	Sharon, Hermitage, Sharpsville			Low-income pop. above county avg. (partial), project near other above avg. BGs; Betterment project w/ped. & stormwater imprv.
111321	SR 518	SR 518: SR 18 to Division Street	Hermitage, Farrell			Both populations well-above county averages; Resurfacing project with some minor ped. and safety improvements
109750	SR 718	PA 718: Bank Pl. – River Rd.	Sharon, Hermitage			Both populations well-above county averages; Betterment project with some minor pedestrian, stormwater & safety improvements
109145	SR 718	PA 718: Middlesex – Broadway	Shenango, Wheatland			Both populations above county averages; Betterment project limited mostly to pavement activities
58080	SR 2001	SR 2001 Bridge over Indian Run	Wilmington, Springfield			Both pops. below county average, though low-income BG nearby; bridge replacement of similar design and along existing alignment
58081	SR 2002	SR 2002 Bridge over Neshannock Creek	Springfield			Both populations below county average; project involves bridge replacement of similar design and along existing alignment
1925	SR 2006	Blacktown Rd. Bridge over I-79	Springfield			Both populations below county average; project limited to maintenance/preservation of existing bridge
97292	SR 3007	SR 3007 Bridge over West Br. Nesh. Creek	Wilmington			Both populations below county average; project limited to maintenance/preservation of existing bridge
109077	SR 3008, SR 3025	State St. Pedestrian Improvements	Hermitage			Both populations above county average; project adds missing ped. facilities along busy commercial corridor in Shenango Valley
97324	SR 4017	SR 4017 Bridge over Little Shenango River	Sugar Grove			Both populations below county average; project limited to maintenance/preservation of existing bridge
58096	SR 4021	SR 4021 Bridge over Morrison Run	Perry			Both populations below county average; project involves bridge replacement of similar design and along existing alignment
1671	T-388	Kelly Road Bridges	Hermitage, Sharpsville			Minority pop. above county avg., Low income well-above avg.; project is bridge replacement w/ improved recreational access
1665	T-481	Glilmore Road Bridges	Wolf Creek			Both populations below county average; project limited to maintenance/preservation of existing bridge
112678	T-784	Hosack Road Bridges	Jackson			Both populations below county average; project involves bridge replacement of similar design and along existing alignment
111434	N/A	Alan Avenue Sidewalk Project	Greenville			Low-income population above county average; project adds missing ped. accommodations linking downtown, college, & park

All Transit projects are listed by the Project ID (MPMS) Number and the project title. Transit project types are color-coded as shown in the key on the following page. The remaining columns are the same as in the Highway Project table, although the color codes for the rates of low-income and minority populations are somewhat different, as noted.

Benefits and Burdens Analysis, SVATS MPO 2021-2024 TIP—Transit Projects

PROJECT TYPE	PREVALANCE OF MINORITY AND/OR LOW INCOME POP. IN AREAS SERVED	ANTICIPATED IMPACT TO UNDER-SERVED POPULATION GROUPS
Transit Capital Project—Vehicles	% of both significantly above county average	Significant Positive Benefit Expected
Transit Capital Project—Facilities/Equipment	Not applicable due to project nature	Minor Net-Positive Benefit Expected
Transit Operationa/Maintenance Expense		Neutral/No Tangible Benefit/Burden Expected
		Mixed—Benefits w/ some Potential Burdens
		Net-Negative Burden Expected

PROJECT INFORMATION		LOW INCOME AND MINORITY POPULATION		JUSTIFICATION AND ADDITIONAL NOTES
PROJ. ID	PROJECT TITLE	RATE	LIKELY IMPACT	
77148	ADA Related Expenses			Funding paid to the shared ride provider for transporting SVSS's eligible ADA passengers
83653	Asset Management Expenses			Expenditure of Section 5307 funds to maintain transit assets
83656	Shop/Garage Equipment			Purchase and replacement of shop and garage equipment necessary to the efficient operation of maintenance system
83658	Office Equipment			Upgrades to office equipment such as computers at the SVSS operational facility
95412	Safety and Security			Continuance of security enforcement relationship with local police departments to provide transit security services
95413	Office and Garage Improvements			Interior and exterior improvements to facilities (paving, painting, landscaping, new doors and new cement pad)
102638	Vehicle Purchase			Purchase of three fixed-route (SVSS) buses.
106707	Replace Admin Vehicle			Purchase of support vehicles; does not directly affect transit customers
111059	Small Transit Buses			Purchase of three shared-ride/paratransit (MCCT) buses
111060	Operating Assistance			Funds necessary to run transit operations

Further Evaluation of Benefits and Burdens

On the 2021 TIP, 19 out of 34 capital highway projects are located in BGs that contain minority and/or low-income populations above the countywide average rate. The top-ten most expensive TIP projects—all of the projects over \$2m—consist of two bridge replacements and eight roadway Betterment/paving projects. Of these ten projects, eight are located in CT BGs that have minority and/or low-income populations above or significantly above countywide-averages. All of the top five-most-expensive projects are located in such BGs as shown in the table to the right. Four of these five projects are in the Shenango Valley communities where, as previously noted, some of the most notable levels of poverty and minority rates coexist.

Project	Cost
Kelly Road Bridges	\$5.11m
PA 518: Sharon to Sharpsville	\$3.28m
PA 718: Middlesex – Broadway	\$3.25m
PA 18: SR 358 to Mill Hill Road	\$2.90m
SR 518: SR 18 to Division Street	\$2.55m

Transit projects directly applicable to the recipients of transit services are automatically assumed to serve such populations, at least in part, because all four SVSS routes traverse the Shenango Valley, particularly in many of the most highest-minority and economically disadvantaged neighborhoods. Locally and nationally, transit services often serve households without other means of transportation. While the reasons for not owning a vehicle are many (due to age or physical limitations, people choosing not to drive, etc.), quite often it is an indicator of a household's inability to procure safe and reliable personal transportation because of a household's economic circumstances.

In addition to demonstrating the TIP's investment in high-minority and low-income communities, it is also important to consider the overall level of a project's anticipated benefit. The summary table below shows that most of the 2021 TIP projects are anticipated to yield minor net-positive benefits or not significantly affect (positively or negatively) the defined population groups:

ANTICIPATED IMPACT TO UNDER-SERVED POP. GROUPS	HIGHWAY TIP	TRANSIT TIP
Significant Positive Benefit Expected	4	6
Minor Net-Positive Benefit Expected	10	3
Neutral/No Tangible Benefit/Burden Expected	20	1
Mixed—Benefits w/ some Potential Burdens	2*	0
Net-Negative Burden Expected	0	0
TOTAL PROJECTS	34*	10

* - Two "mixed" projects received other overall impact level assessments, which is why the total is 34.

Fortunately, there are not any projects where any highly-negative impacts/burdens are expected. Two highway projects are listed as having some minor potential burdensome impacts, falling into the "Mixed" category. However, it should be noted that these are just *possible* impacts, and that a net-positive level of benefit is expected with both projects. Still, a deeper look at both of these projects is warranted in order to explain what aspects of each project might be burdensome to underserved populations and how any such burdens can and will be minimized or eliminated. The table at the top of the following page provides additional pertinent information for both projects.

Project	Sharon Gateway Project	PA 173: Kocher Dr. to Main Street
BG Minority %*	18.0%	3.2%
BG Low-Inc %**	32.3%	8.6%
Explanation of Potentially Burdensome Element	Project selected from competitive STU funding round; sponsored by City of Sharon. The original planning concept suggested closing off one of two access points to US 62 from an already-isolated neighborhood. This recommendation was made from a safety perspective. More recent conversations with the city have revealed that the second access point may not be closed off after all due to the potential controversy.	Street reconstruction will involve a slight widening, and several older houses along the corridor are built very close to the roadway. No structures will be removed, but impacts may result in loss of already-limited front yard spaces and some large trees. Wider roadway will likely reduce accident rate but could increase speed and noise. Overall, new sidewalks, curbs, retaining walls, drainage improvements and a reconstructed street are all anticipated to greatly improve the function and form of the roadway.
Steps Taken to Mitigate Burden	This issue will be fully vetted through during the project kickoff and subsequent public involvement processes. The sponsor has specifically indicated that they want to ensure that closing the access point would not be detrimental to any residents of the neighborhood before proceeding with this aspect of the project.	Since project was also on 2019 TIP, the PennDOT Connects Project Initiation Form was completed. This concern was also discussed at the initial scoping meeting. Any serious concerns will likely be brought up when project goes through public involvement process. Note the relatively low minority and low-income rates.

* - 2010 U.S. Census,

** - 2013-2017 ACS Estimate

Although there is always some level of subjectivity in determining the anticipated level of impact a project may have on any population group, the preceding section's multi-step process (hopefully) assists in bringing to light such impacts, which can then be used to further justify a project's inclusion on Mercer County's TIP.

Core Element #4—Identification and Addressing of Disproportionate and Adverse Impacts, Which Will Inform Future Planning Efforts

The *Benefits and Burdens* section above demonstrates that there are not any likely to be any disproportionate and adverse impacts on any 2021-2024 SVATS MPO TIP Projects, with the *possible* minor exceptions to the two projects noted in the previous table. Strategies to avoid, mitigate or minimize any such impacts were listed above. Should any unforeseen impacts exist as these or any other 2021-2024 TIP projects continue through the project development and delivery process, the SVATS MPO will work closely with PennDOT District 1-0 and CPDM offices, FHWA, and FTA to ensure that any impacts can be avoided and/or minimized to the maximum extent possible. Modification of a project's scope or selecting additional projects that can be programmed through TIP line items are two possible strategies.

Looking forward, the SVATS MPO will continue to build on the process outlined within this analysis. The MPO is in the early stages of updating their Long Range Transportation Plan (LRTP), and this will include a more comprehensive EJ analysis than in past LRTPs. By doing so, the MPO staff and its planning partners will be afforded more time to meaningfully consider not only how to mitigate any potential EJ impacts prior to the programming of projects, but also make more strategic decisions about investing in

communities with significant levels of traditionally-disadvantaged populations. Through both the LRTP and other planning documents, a more overt consideration of EJ can be incorporated into project prioritization.

Like other MPOs and RPOs in Pennsylvania, it is anticipated that additional analyses will take place on future TIP updates. The recommended framework developed out of the *South Central Pennsylvania Environmental Justice Unified Process and Methodology Guide* and utilized for SVATS's TIP, is in its infancy. Prior to the 2023 TIP, planning partners will be able to jointly assess what worked best, what didn't work well, and what other types of data analysis will assist in developing evermore-meaningful EJ documents. As best practices around Pennsylvania are shared, guidance is refined, data becomes more accessible, and collaboration and training occurs; EJ analysis will only improve. As this transpires, the MPO and PennDOT will continue working together to make transportation investment decisions as wisely, thoughtfully and fairly as possible.

Please note that TIP project layers are saved on PennDOT's OneMap interactive GIS mapping site and all other data used in this report is on file. If any members of the public or other stakeholders wish to see anything in detail that is difficult to see on smaller-scale county-level maps, or they would like to see more detailed demographic data for a specific block group, they are encouraged to contact Matt Stewart of the SVATS MPO/MCRPC (mstewart@mcrpc.com; 724-981-2412, x3206).