Putting the Equity Through Access Map Toolkit to Work in Lower Bucks County

DELAWARE VALLEY
DVRPC
REGIONAL
PLANNING COMMISSION

Background

The ETA Map Toolkit is packed with features that allow users to easily retrieve information about disparities in access to services and explore the relationships between transportation access, opportunity, and equity throughout the Delaware Valley region. To understand how to use the Map Toolkit to its greatest capability, this case study provides a step-by-step guide to understanding an area's existing transit accessibility and developing ideas for how to improve it.

This case study was suggested by the Bucks County Planning Commission who suggested that access to essential services (particularly health services) via public transit was limited for mobility-constrained individuals living in Lower Bucks County. To take a deeper look at this issue, this case study uses one Census block with a high population of vulnerable individuals to demonstrate how each of the ranking systems work and how each of the maps can be used to better understand access to transit and essential services in that area. The census block group that we use (Tract 1058.05, Block Group 3) is the location of the Pennwood Crossing Mobile Home Park in Falls Township in Lower Bucks County (see Figure 1). Pennwood Crossing was chosen because it continually stood out when looking through each of the criteria that indicate potential vulnerability within the Map Toolkit.

This guide is broken into six steps:

Step 1: Why this location?
Step 2: Who lives here?
Step 3: What's the land use? What does it look like?
Step 4: Which essential services are accessible? And how accessible are they?
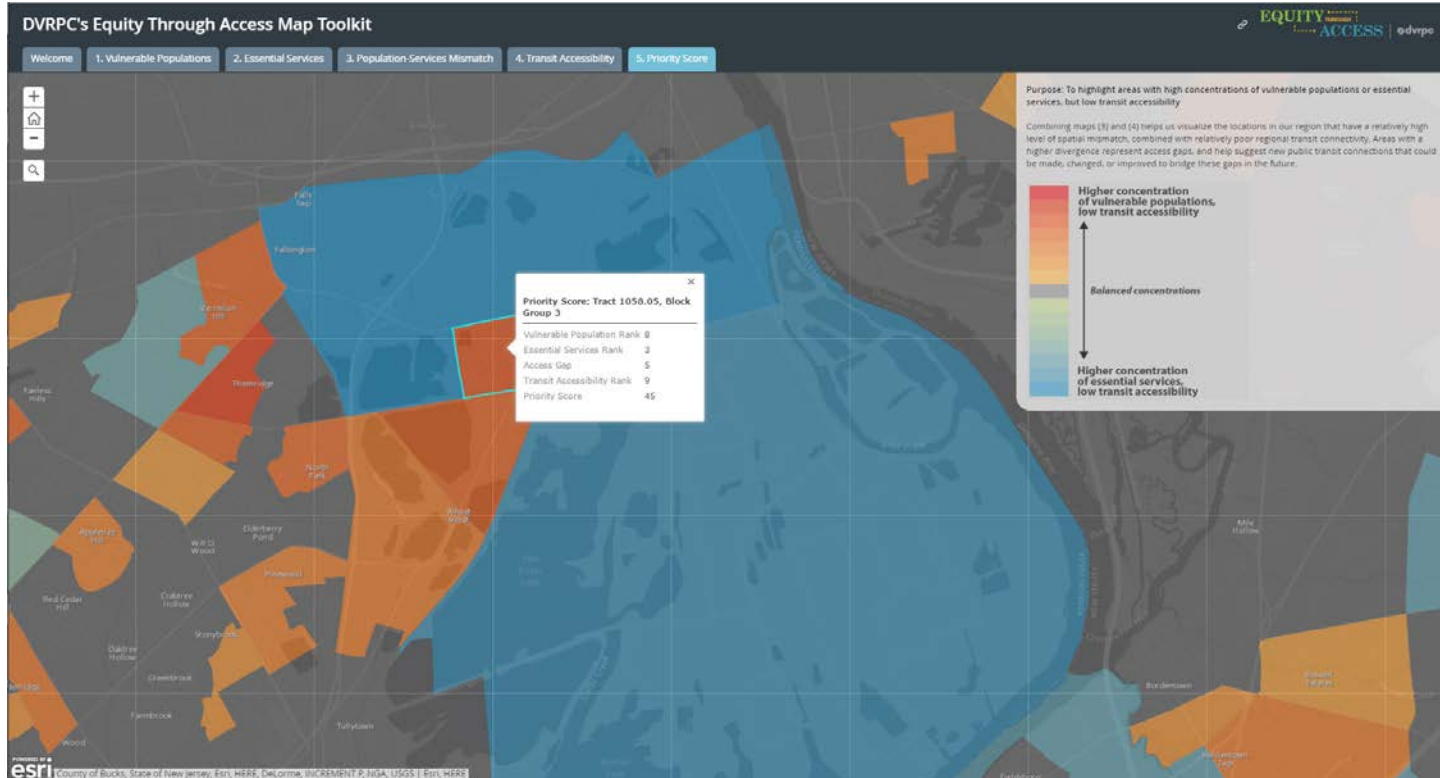Step 5: What are the existing transit options?
Step 6: What are the possible transit solutions?

Figure 1. Study Area

Source: DVRPC, 2016

Figure 2. ETA Map Toolkit: Priority Score

Step 1: Why this location?

When trying to identify areas with poor transit access, it's best to begin with the ETA Map Toolkit's priority score tab. In this map, Pennwood Crossing's parcel is an orange-red color. This signifies that the area has a high concentration of vulnerable people (65+ years of age, physically or mentally disabled, or low-income), few local essential services, and limited access to essential services. If you click on Pennwood Crossing in the map, a window pops up, indicating the Map Toolkit's four main measures and its cumulative scoring tool, the priority score ranking. Here's a breakdown of what each of these scores tells you about the Census block group:

Vulnerable Populations Rank: 8
On a scale of 1–10, Pennwood Crossing has a relatively high number of individuals who are considered a vulnerable population, meaning that this area has a large number of seniors, persons with a physical or mental disability, or low-income households.

Essential Services Rank: 3
The essential service ranking indicates that on a scale of 1–10 there is a low concentration of essential services (3) in the area. Essential services include activity centers for seniors and disabled persons, grocery stores, health care facilities, education institutions, parks, trails, and jobs.

Access Gap: 5
The access gap uses a 20-point scale ranging from –10 to 10 to indicate areas with a mismatch between local vunerable populations and essential services. For example, with a score of 5, this area has a relatively higher concentration of vulnerable populations, and lower concentrations of essential services. Areas with a score closer to zero are shown to have a relatively even balance of vulnerable populations and essential services.

Transit Accessibility Rank: 9
Transit accessibility uses a 1–10 rating to indicate whether a location is less accessible and has greater need (higher score) or more accessible and has less need (lower score). This location has a score of 9, indicating that transit is not widely available.

Priority Score: 45
The priority score provides an overall sense of the density of vulnerable populations (65+ years of age, physically or mentally disabled, households in poverty) in an area, how accessible transit is, and how many essential services are located in the block group. Priority scores range from –60 to 60. The lowest score (–60) indicates areas (shown in blue) where there are higher concentrations of essential services with low transit accessibility. The highest positive score (60) shows higher concentrations of vulnerable populations with low transit accessibility (shown in red). Pennwood Crossing's score of 45 indicates that the community has a high number of individuals considered part of a vulnerable population, few essential services, and limited access to transit that would bridge the two (see Figure 2).

Step 2: Who lives here?

By navigating to the vulnerable population tab and clicking on the block group we can see that there are:

- Four hundred twenty-seven Households and 811 total people live in this part of Pennwood Crossing. The community has an overall vulnerable population rank of 8/10.
- About one-third of the households living here have one or more people with a disability.
- About 15 percent of households are below the poverty line.
- Over 40 percent of those living here are 65 or older. Title IV of the Older Americans Act would refer to this Census block as a Naturally Occurring Retirement Community.

This information suggests that this community, which has such high percentages of disabled and senior residents, might require more supportive services than the typical neighborhood, including more transit options that provide access to essential services such as activity centers for senior and disabled people, health care facilities, and grocery stores (see Figure 3). The next step uses Google Street View to better understand the existing built environment of Pennwood Crossing.

Figure 3. ETA Map Toolkit: Vulnerable Populations
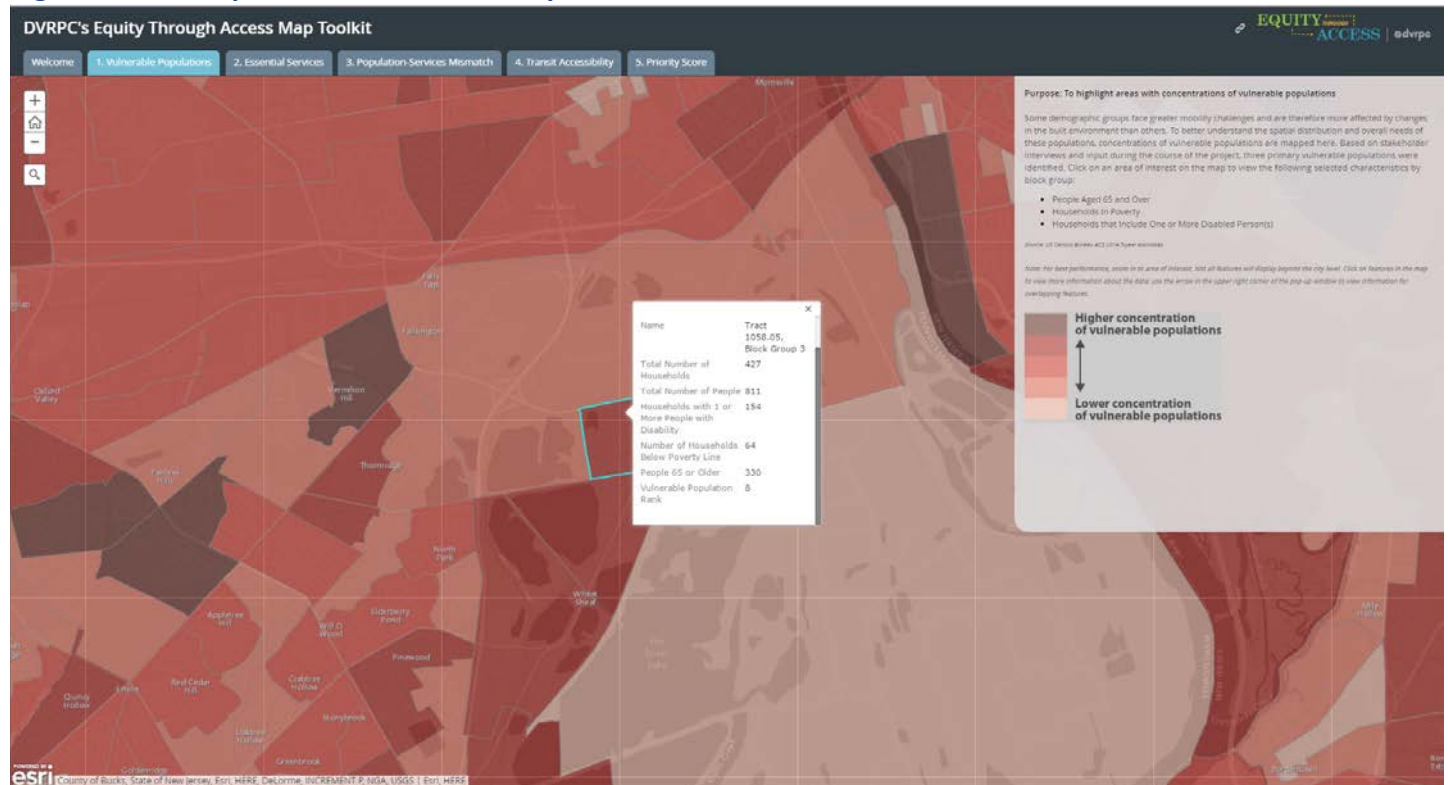
Source: DVRPC, 2016

Step 3: What's the land use? What does it look like?

A simple search of a candidate project location in Google Street View or Bing Streetside can provide information about what these locations look like on the ground.

Here's a link to a streetview of Pennwood Crossing

Using Google Street View, one can see that Pennwood Crossing is largely made up of mobile homes, contains few sidewalks, and has very little accessible commercial activity besides a Wawa near the corner of Penn Valley Road and Old Bristol Pike.

North of Tyburn Road is a large industrial park, including a K-Mart distribution center, a Rite-Aid Customer Support Center, and numerous other large manufacturers.

One of the few high-quality bicycle/pedestrian features in the area is along the south side of Penn Valley Road, a nearly two-mile bike trail that connects Pennwood Crossing to New Falls Road, as well as to a loop that goes around Falls Township Lake.

Overall, the lack of sidewalks and access to public transit suggests that people who live here are largely dependent on cars to reach essential services. This type of land use is of particular concern in areas with high percentages of older adults and low incomes because as individuals age out of their ability to operate personal vehicles, mobility and access to essential services becomes more difficult. One might also notice that Tyburn Road, a fast-moving, four-lane county road with narrow shoulders, is not pedestrian friendly, and functions as a barrier to walking to the north of the study area. These infrastructural issues exemplify the types of gaps in the regional transportation network that we discuss in the gaps and bridges section of this project.

Source: Google, 2012

Captions:
Top: Few of the streets within Pennwood Crossing feature sidewalks.
*Middle: The south side of Penn Valley Road features a two-mile shared path.*
Bottom: Tyburn Road, which runs along the north side of Pennwood Crossing, is wide, fast moving, and has narrow shoulders unsuitable for walking.

Step 4: Which essential services are accessible? And how accessible are they?

The third tab of the ETA Map Toolkit allows us to see what types of essential services currently exist in Pennwood Crossing. By clicking on the block group we can see that the community has access to several trails, including the D&L Canal Towpath, which provides a convenient and safe place for walking, running, and bicycling. Additionally, the area employs 140 people, most likely at businesses on the north side of Tyburn Road. These employment figures suggest that extending transit to the Pennwood Crossing area could provide better access to jobs and services for residents of the area.

By clicking on some of the essential service dots near Pennwood Crossing we can see that there are several senior activity centers, grocery stores, and medical facilities within a few miles of the area (see Figure 4). However, there is currently no transit access to these essential services in Pennwood Crosssing, and most are either beyond walking distance or have a major barrier to navigate, such as a highway interchange. Providing transit access to these services is important for those that are currently, or may soon be, unable to operate a personal vehicle.

### Figure 4. ETA Map Toolkit: Essential Services
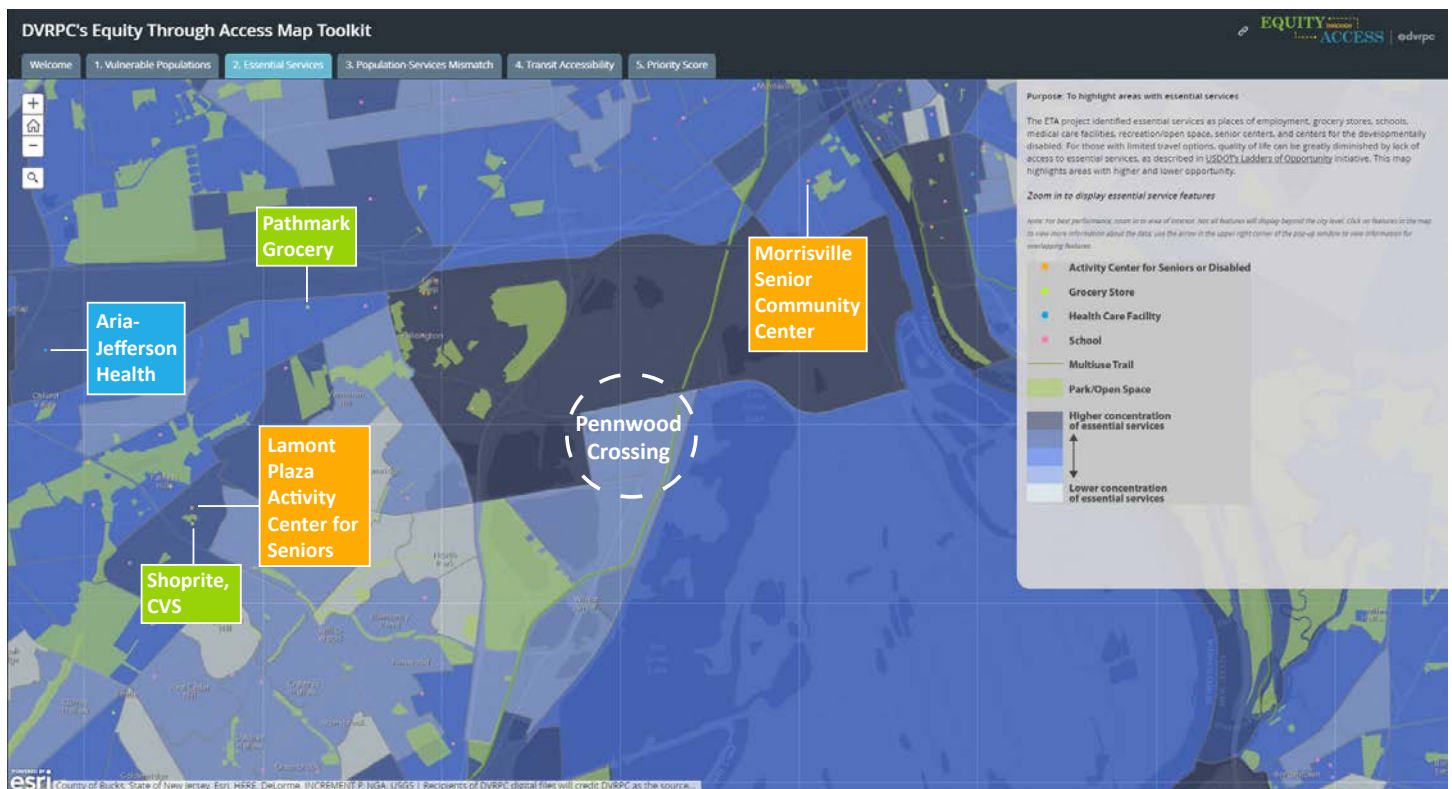
Source: DVRPC, 2016

Step 5: What are the existing transit options?

The fourth tab of the ETA Map Toolkit provides a map that shows existing transit (bus and train) routes and stops within a five-minute and 15-minute walkshed (symbolized in gray) for buses and trains, respectively. If you click on the walkshed it will tell you the name of the stop, how many square miles the walkshed is, the number of essential services in the area, and the population/ number of households of the block groups within the shed area (see Figure 5).

Figure 5. ETA Map Toolkit: Transit Walksheds
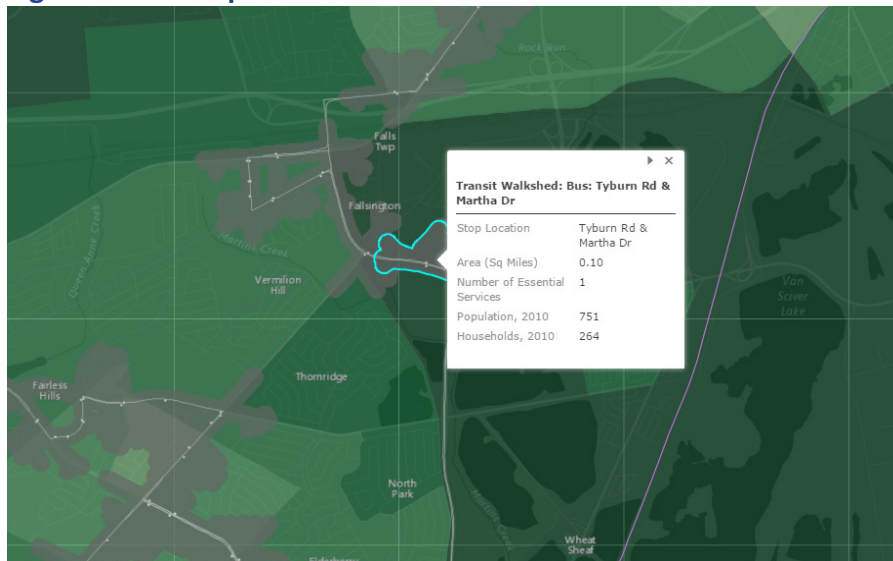
Source: DVRPC, 2016

If you click on a block group (see Figure 6), the following five rankings related to transit accessibility pop up:

Walkability Rank: 10
This ranking indicates how walkable a block group is to access transit stops and stations, with a rank of 1 indicating most walkable and 10 indicating least walkable (most need). Pennwood Crossing received a 10 due to its relatively disconnected street network and there being few transit stops in the area.

Frequency Rank: 10
This ranking indicates how frequently transit service runs through a block group using a scale of 1–10, 1 being very frequent and 10 being very infrequent. Pennwood Crossing received the lowest ranking of 10. The closest transit route, the SEPTA 127 route, runs relatively infrequently: roughly once an hour during peak periods, and less often during off-peak hours.

All Essential Services Accessible by Transit, Rank: 9
This ranking indicates the general number of essential services accessible in a 45-minute transit trip using a scale of 1–10, with 1 indicating that many essential services are accessible using transit and 10 meaning that very few are transit accessible. Pennwood Crossing received a 9, indicating that it's difficult to reach many essential services within 45 minutes using public transit from the area.

Number of Zones Accessible within 45 Minutes, Rank: 8
This ranking indicates the number of Census block groups that one could access within 45 minutes using transit. Pennwood Crossing ranked 8 out of 10, meaning that residents here can get to a relatively limited number of places within a 45-minute period using transit.

Transit Accessibility Rank: 9
The Transit Accessibility Rank is the composite measure of all the aforementioned rankings, reflecting the overall accessibility to and by transit in Pennwood Crossing using a ranking of 1 to 10, with 1 being the most accessible and 10 being the least accessible. Pennwood Crossing received a 9, suggesting that transit is not very accessible and that it does not provide access to many essential services or destinations overall.

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Existing Transit Options

Currently, the transit option that comes nearest to Pennwood Crossing is the SEPTA 127 bus. The 127 is a long and wandering route that runs between the Oxford Valley Mall in Langhorne and the Trenton Transit Center, with stops at the Fairless Hills Shopping Center and Levittown-Tullytown Regional Rail Station. This service is valuable for vulnerable communities in Lower Bucks that currently have access to the bus, in that it provides a route to several grocery stores as well as to the Aria Health Hospital. However, the bus route, length, and frequency (headways of over an hour during weekdays) greatly restrict its usefulness and dependability. The closest 127 bus stops for those living in Pennwood Crossing are not easy to get to. The bus stop on Tyburn Road features no sidewalks and has narrow shoulders. To access the stop, pedestrians have to cross a complicated and potentially dangerous highway interchange. The other closest stop, at the corner of Penn Valley Road and New Falls Road, is walkable using the bike and pedestrian path along Penn Valley Road, but is roughly a mile's walking distance from Pennwood Crossing—too far for many people, especially older or disabled individuals.

The closest Regional Rail station to Pennwood Crossing is in Tulleytown, roughly three miles south off of Bristol Pike. Regional Rail provides access to Trenton and Philadelphia, as well as numerous destinations in between.

Overall, Pennwood Crossing provides very few travel options for those without a vehicle or a bicycle. The next section provides several ideas for how to improve mobility and access to transit for this community.

Figure 6. ETA Map Toolkit: Transit Accessibility
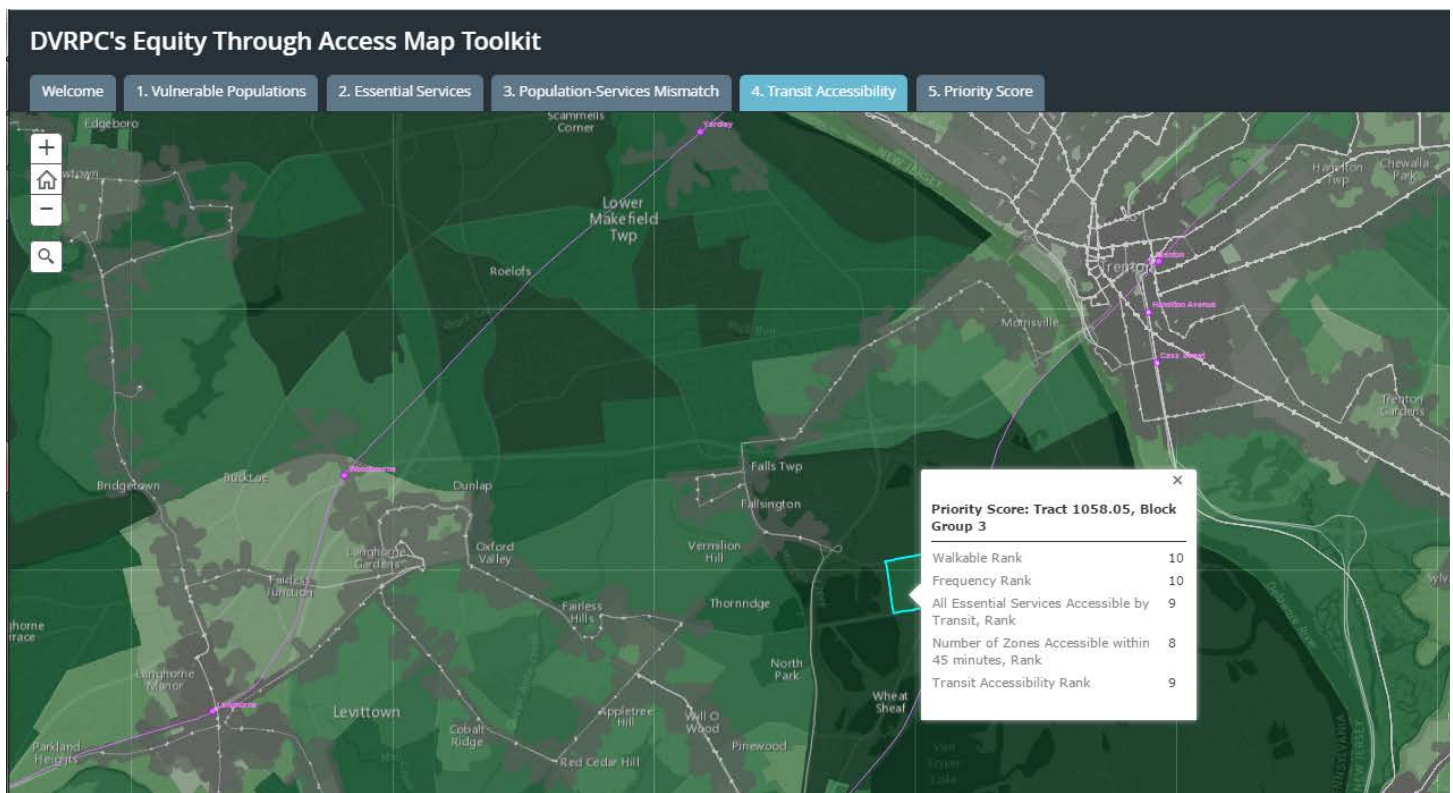
Source: DVRPC, 2016

Step 6: What are the possible transit solutions?

Using what we now know about the Pennwood Crossing, here are some ideas for improving transit access to the area:

Reroute the 127
One possible solution for improving transit access to Pennwood Crossing would be to reroute the SEPTA 127 bus. The route currently bypasses the area using Bristol Pike—a stretch in which it does not a make stop for over 3.2 miles between Tullytown Regional Rail Station and Tyburn Road east of the Bristol Pike interchange. One possible reroute of the bus would have the bus take Bristol Pike north to Mill Creek Road and then north along Old Bristol Pike. The route would head west at Tyburn Road, resuming its regular route (see Figure 7). This route would provide service to three previously unserved block groups with high vulnerable population ranks, linking them with direct access to shopping centers, health care, senior and disabled activity centers, and Regional Rail access.

Create Circulator or Shuttle Service
Another possibility for providing improved transit access to Pennwood Crossing residents and workers would be to develop a circulator bus route with the help of the local Transportation Management Association (TMA) or other partners. The route shown in blue shows a possible route that provides access between the Trenton Transit Center and Pennwood Crossing, with potential stops at the many employers in the industrial park along Newbold Road. The Z-Line shuttle, provided by Mercer County TMA, is a similar local service that's been successful in providing last-mile job access to the Amazon Distribution Center in Robbinsville, New Jersey.

Build Sidewalks
Creating a connective sidewalk network throughout Pennwood Crossing would encourage walking and make it safer to reach local destinations. If a rerouting of Route 127 were to occur, it would be of particular importance to prioritize sidewalk connections to bus stops along Bristol Pike.

Consider offering mobile health and social services in the community
One way to improve access to essential services for seniors with mobility limitations is to bring the services to them. There are many recent examples of mobilized health care and social services programs being developed by hospitals, health departments, and community-based organizations; and grants such as the Community Living Program offered through the Administration on Aging (an agency of the U.S. Department of Health and Human Services), which provides services to those at risk of nursing home placement to enable them to continue living in their communities.

Associated Gaps and Bridges:

Gaps:
• Some ADA-accessible transit vehicles and stops are hindered by inaccessible or nonexistent sidewalk networks.
• Some transportation infrastructure (such as overpasses, rail lines, and wide roadways) can create barriers within neighborhoods.
• Existing routes and schedules are not always coordinated, flexible, or convenient. For example, some on-demand paratransit services require advance reservations of a day or more.

Bridges:
• Ensure that transit stop locations, connecting pathways, and street crossings are accessible and prioritize improvements where they are not.
• Support Complete Streets, Vision Zero, connective sidewalk networks, public restrooms, and places to sit or rest in all communities—especially those with concentrations of vulnerable populations—recognizing that these features often make the difference between being able to safely go out or having to stay home.

• Prioritize accessibility improvements at/in communities with concentrations of disabled and/or senior populations.
• Support the creation of mobile health care programs that provide in-home appointments for vulnerable populations (like Johns Hopkins' Program of All-inclusive Care for the Elderly) (PACE).
• Plan for the changing travel needs of an aging population, such as a greater reliance on transit, paratransit, and shared-ride services, along with the need for a more accessible built environment.

Figure 7. SEPTA Route 127 Solutions

Conclusion

The ETA Map Toolkit is a powerful tool for mapping disparities in access to transit in our region. We hope that users will harness its capabilities to better understand the locations and transit needs of vulnerable communities and help us all take the steps needed to close the existing gaps in our region's transportation network.