



Homestead to McKeesport (H2M) Upgraded Transit



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Summary of Existing Corridor Conditions

Pittsburgh Regional Transit - Design Hub by Michael Baker International
December 6, 2022

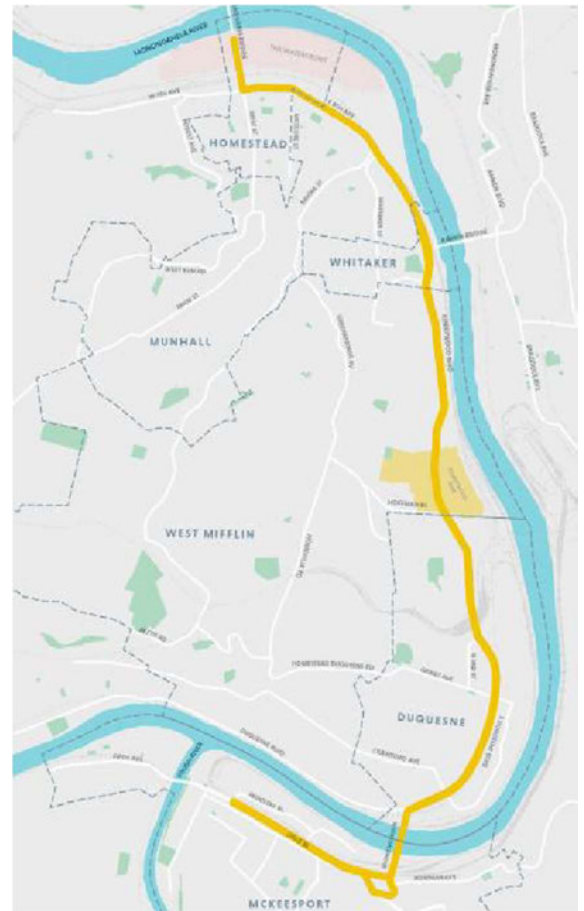
Introduction

Pittsburgh Regional Transit (PRT) is leading a corridor study to upgrade transit service and amenities on PA Route 837 between Homestead and McKeesport and PA Route 148 in McKeesport. PA Route 837 is a state route which parallels the Monongahela River in most of the study area, and PA 148 is Lysle Boulevard in McKeesport. The corridor is served by ten PRT bus routes carrying over 7,500 riders on an average weekday.

The gold line on the map to the right indicates the 7.3-mile portion of the corridor that will be the focus of the study. The

map also shows the six municipalities in the study corridor: Homestead, Munhall, Whitaker, West Mifflin, Duquesne, and McKeesport. The corridor changes character several times along its length, necessitating close coordination between each entity. The 61C bus route travels the entire duration of the corridor.

The following maps, charts, and graphics in this report explain the existing conditions for transit usage on the H2M corridor, setting the groundwork for targeted transit and pedestrian improvements. The corridor may be referred to as "Corridor R" throughout the report, in reference to the proposed project list in [PRT's 2021 NEXTransit plan](#).



SR 837 Corridor Focus Area

H2M Project Page

For the purposes of this story map, the "northbound" side of the corridor starts in McKeesport and ends in Homestead. This is the side where Kennywood is located and is closer to the Monongahela River. The "southbound" side of the corridor begins in Homestead and terminates in McKeesport, traveling away from the Waterfront and the Homestead business district.

Why the H2M Corridor?

Background

The Homestead to McKeesport transit connection was classified as one of five Essential Investments in [PRT's 2021 NEXTransit plan](#). NEXTransit places a strong emphasis on improving transit speed and reliability and rider access and safety in the corridor. This corridor scored highly for improvements because of the significant transit dependence of its riders, as a large portion of the corridor falls within areas that rate high on the equity scale.

The Homestead to McKeesport corridor is heavily utilized by PRT riders at all times of the day throughout the week. The corridor is in the Mon Valley, which has experienced economic challenges and disinvestment for decades. While steps toward economic recovery are underway, many residents near the corridor are transit dependent and rely on the bus routes to get them to work, school, medical appointments, grocery stores, and other necessary destinations. The recently-modernized McKeesport Transportation Center, located at the southeastern end of the corridor, is a major transfer hub for riders in the Mon Valley.

Many major employers are also located along the H2M corridor. Kennywood is a large seasonal employer that attracts thousands of employees each summer. Many Kennywood employees are young adults who may not have access to a car and rely on PRT bus service to commute each day. Other major employers include UPMC McKeesport, Regional Industrial Development Corporation (RIDC) McKeesport, and Greater Pittsburgh Community Food Bank. The corridor is also home to various industrial facilities, such as Durabond Coating in Duquesne and Durabond Pipe in McKeesport, that draw large volumes of commuters. Additionally, while the Waterfront mall is not located directly in the corridor study area, it attracts shoppers from all around the region and contributes to much of the traffic volume on the H2M corridor.

Transit Operations on the H2M Corridor

Ten PRT bus routes operate within the corridor study area: the 52L, 53, 53L, 55, 56, 57, 59, 60, 61C, and P7. The 52L, 53L, and P7 only operate on weekdays, and the 53 only operates on weekends. The 61C is the only route that traverses the entirety of the 7.3-mile study area, and has the highest ridership of all the routes on the corridor. The map below displays these bus routes. Click on a route to see average daily ridership numbers, and zoom in to see individual stops along the corridor. Clicking on the stops displays information about bus shelters and ridership.

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Transit Usage on Corridor R

Additionally, Heritage Community Initiatives (HCI) operates a weekday bus route that connects McKeesport to other portions of the Mon Valley. The route touches the H2M corridor on Lysle Blvd in McKeesport and overlaps with PRT service. This route is a potential transfer destination for riders on the H2M corridor.

Bus Amenities on the H2M Corridor

PRT serves 68 bus stops within the corridor study area. Of these stops, ten have shelters; eight are owned by PRT, and two are owned by Lamar, an advertising provider. There are not currently

any dedicated bus lanes or transit priority signals on the corridor.

We used data from the September 2022 pick to calculate the bus stops on the corridor with the heaviest average weekday usage. The numbers below include both boardings and alightings at each stop. The most heavily utilized stops on the corridor are:

- Lysle Blvd. opp. Coursin St: 181 riders/day (McKeesport)
- Lysle Blvd. at Coursin St: 141 riders/day (McKeesport)
- 8th Ave. at Ann St: 132 riders/day (Homestead)
- 8th Ave. at West St: 125 riders/day (Homestead)
- McKeesport Transportation Center: 106 riders/day (McKeesport)
- 8th Ave. at Amity St: 105 riders/day (Homestead)

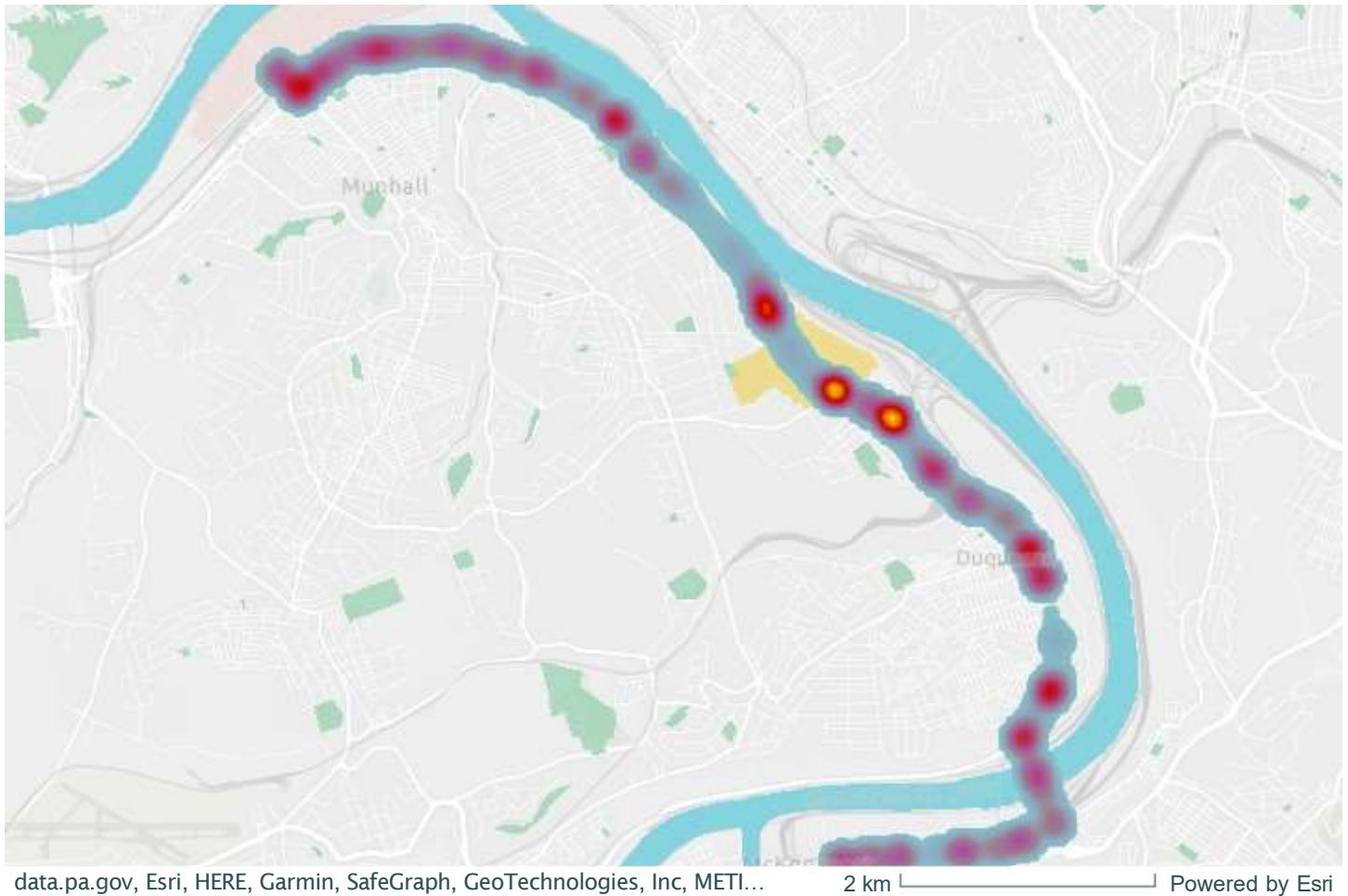
Out of these most popular stops with over 100 riders per day, three have shelters: Lysle Blvd. opp. Coursin St, Lysle Blvd at Coursin St, and McKeesport Transportation Center. Shelters are very important for rider comfort when both boarding and alighting at a station, especially if the stop is a popular transfer destination.

Existing Roadway Conditions

Crashes

Crash data from the past five years on the corridor (between 2016 and 2021) is presented below. As a result, the data reflects pre-COVID, peak COVID, and COVID recovery conditions. The crash data is sourced from the Pennsylvania Crash Information Tool (PCIT), which is managed by the Pennsylvania Department of Transportation (PennDOT). Click through the maps below to

examine distinct types of crashes in the corridor and identify hot spots in the crash locations. Clicking on a specific crash gives more context about each incident, such as date, time of day, severity, and number of vehicles involved.



Crash Totals

There have been 768 total crashes in the corridor in the past five years. This heat map displays the distribution of crashes and emphasizes the areas with the highest crash occurrences.

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Crash Types

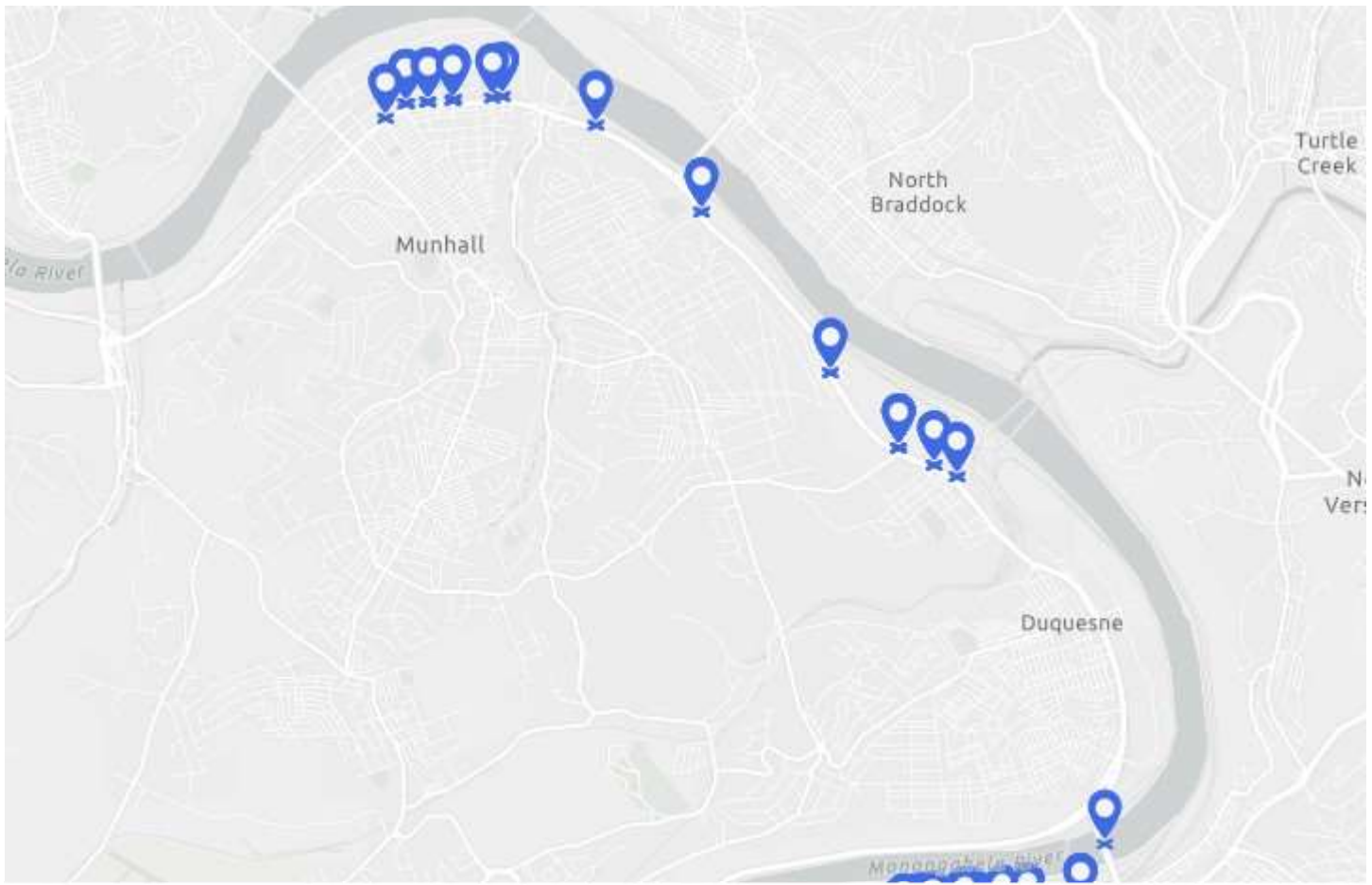
The most common types of crashes were rear end (264), hit-fixed-object (181 crashes), and angle (153 crashes), accounting for 34%, 24%, and 20% of the total crash count, respectively. These crash types are typical of a heavily travelled, signalized corridor with frequent turning movements.

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Crash Severity

There were ten fatal crashes over the 5-year period within the study area. Of those, four fatalities were pedestrians.

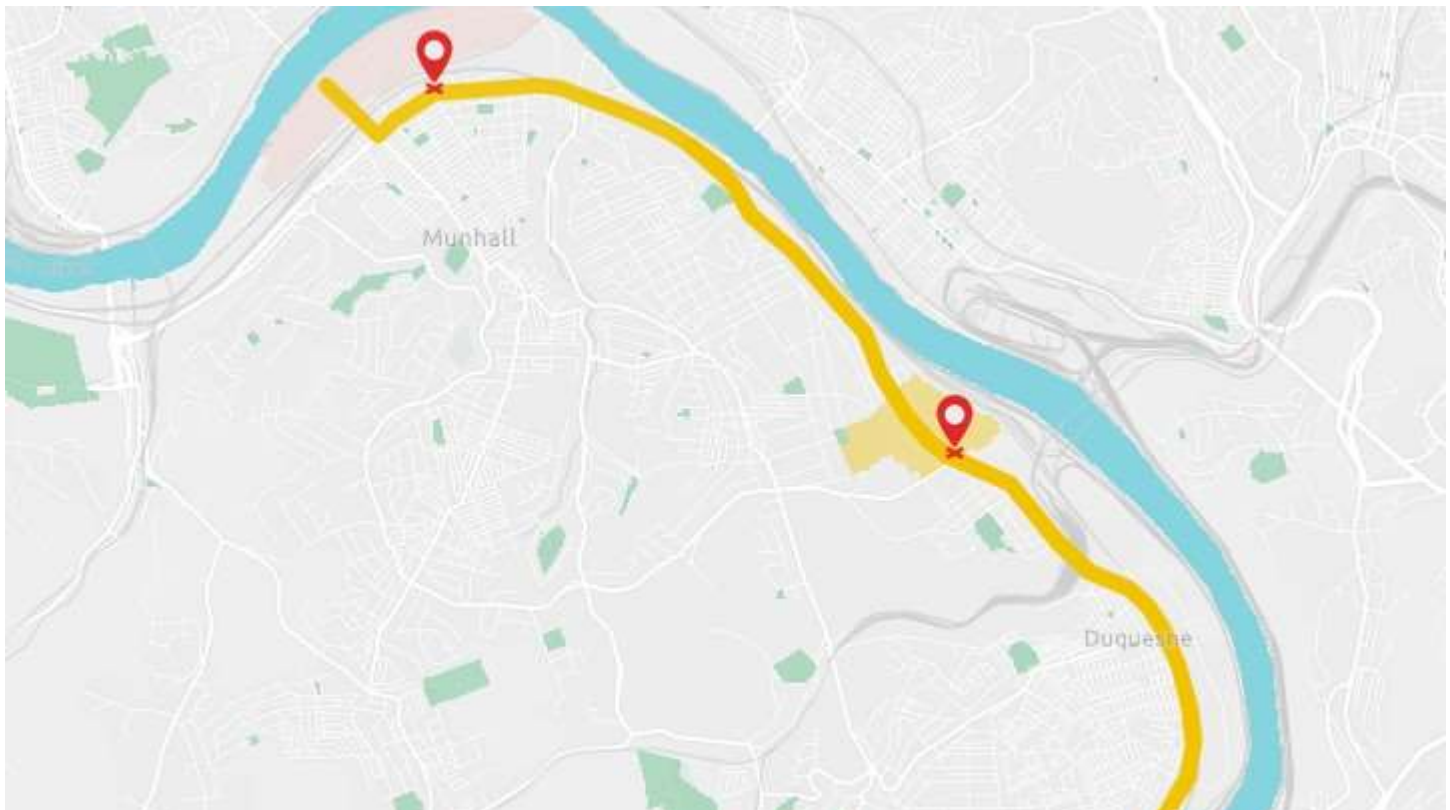
Intersections with a significant number of vehicular turning movements presents an increased risk of conflict. These intersections will be examined in greater detail later on in the story map.



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Most pedestrian crashes occurred in two general areas: Homestead and McKeesport. Both are densely developed, with large residential clusters located primarily on one side of the roadway and a variety of commercial destinations located on the other side. Along with transit stops, the local development patterns generate pedestrian trips across many intersections along the corridor.



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Fatal Pedestrian Crashes

The four fatal pedestrian crashes were located at the following intersections:

- Amity St and 8th St
- Hoffman Blvd and 8th St
- McKeesport-Duquesne Bridge
- Lysle Blvd and Coursin St

Out of the four pedestrian fatalities, three occurred at night, and weather was not a known factor in any of the crashes.

More than half of all crashes resulted in injury (385 crashes), while 350 crashes were classified as "property damage only." 33 crashes were classified as "unknown if injured."

Travel Speed

While the posted speed limit on a street can offer an estimate of how long it takes for a vehicle to travel, many factors can impact the actual travel time on a street. As a result, the project team

measured travel speed on the H2M corridor to determine where buses may be delayed.

The following video was obtained from the Regional Integrated Transportation Information System (RITIS) database and displays the average 15-minute travel speeds for all vehicles for a 24-hour period of an average weekday between the Homestead Grays and McKeesport-Duquesne bridges from mid-September to early October in 2022. Darker colors indicate slower travel speeds.



Corridor travel speeds throughout the day - left map shows peak workdays (Tuesday, Wednesday, and Thursday), and right map shows Saturday.

While congestion and difficult roadway conditions can lead to delays in travel speed for all vehicles, buses face unique complications because they must stop and start frequently. The project team examined the average travel speeds for buses on the corridor at various times of the day. The following maps show average bus travel speeds during the AM Peak (8:30-9:30 AM), PM Peak (4:30-5:30 PM), and Midday (noon-1:00 PM) time periods. Travel speed data for other time periods can be found in the appendix.



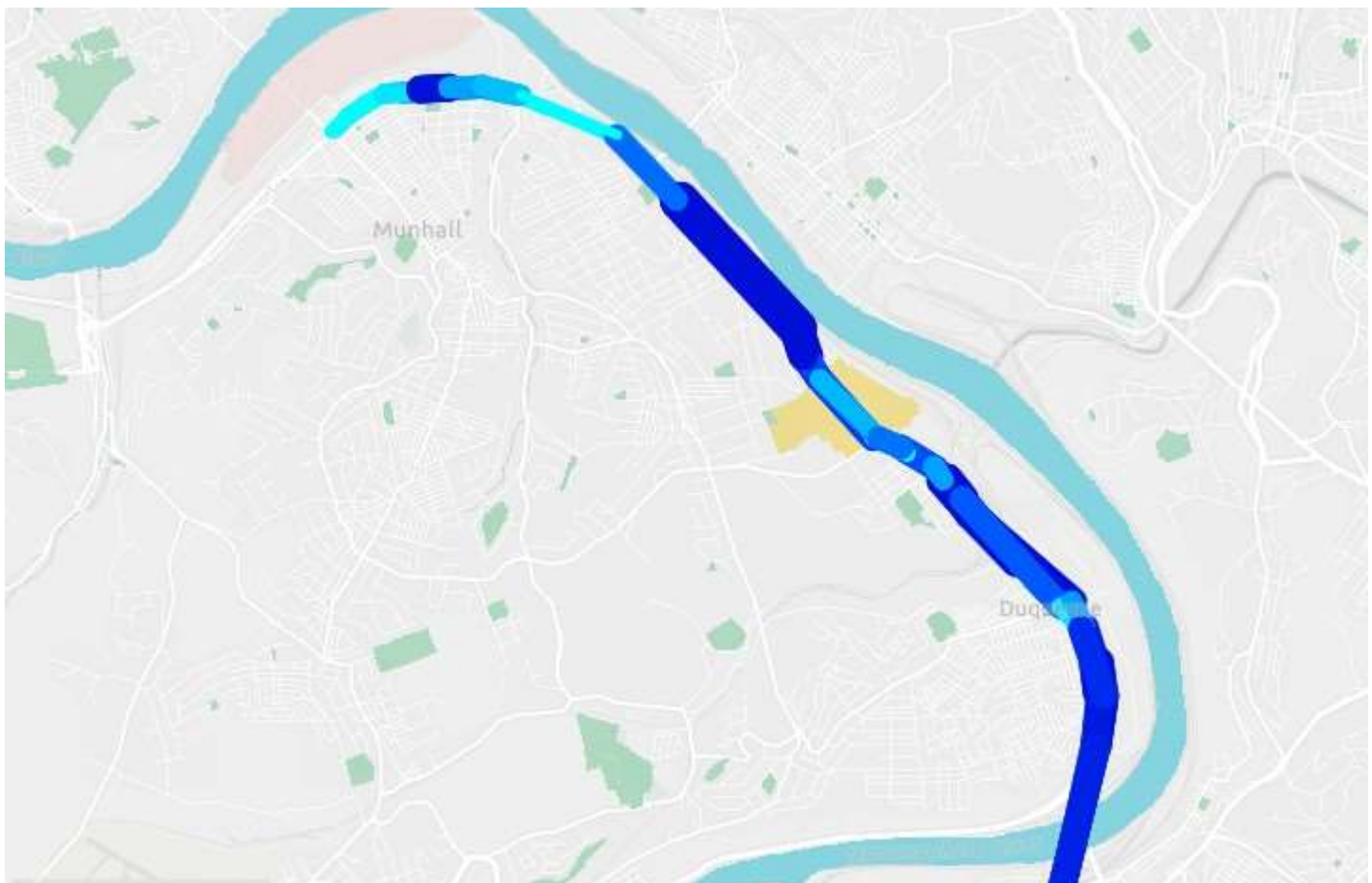
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap cont...

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AM Peak

Much of the corridor experiences speeds at or above the posted speed limit south of the Rankin bridge, but speeds reduce significantly approaching Munhall/Homestead.



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PM Peak

Similar to the AM Peak period, speeds are slow through Homestead up to the Rankin Bridge. Speeds are also reduced in the area around Kennywood Park. Minor slowdowns occur at key intersections in Duquesne and McKeesport.



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Mid-day Speeds

Unlike some arterial corridors that show significant spikes in traffic volume (and slower speeds) during peak periods, the H2M corridor experiences slower speeds throughout the day in the same locations as in the peak periods.

The project team observed that travel speeds were slowest in the Homestead business district, west of the Rankin Bridge, just east of Kennywood, in the Duquesne business district, and in the McKeesport business district. One would expect these locations to have slower travel speeds because they have more frequent turning movements and more destinations to visit. Buses suffer from lower overall travel speeds, as there is no transit-focused infrastructure to provide better and more consistent trips.

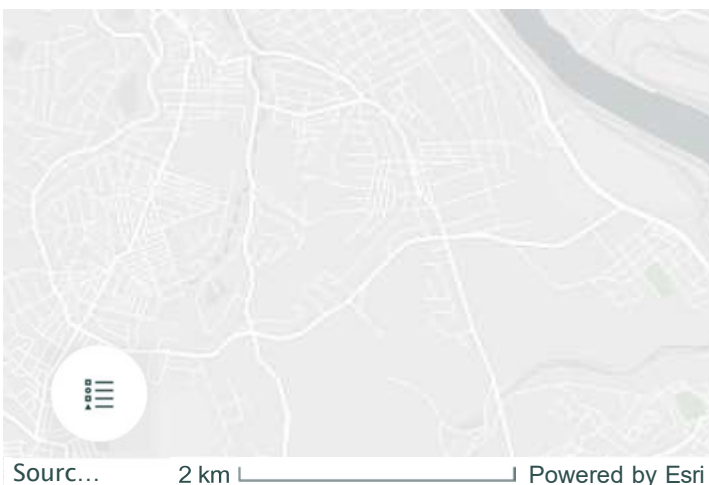
While cutting down on travel time for vehicles is a high priority in corridor planning, slower traffic speeds can be very beneficial for pedestrian safety. Research has shown that the rate of

pedestrian fatalities in crashes quickly rises when the speed of a vehicle is increased. In fact, one study recently found that reducing the speed limit by one mile/hour leads to a 6% decrease in traffic fatalities. Viewing reduced travel speeds as an asset rather than a hindrance in these high volume pedestrian areas can ensure that the corridor remains safe for all users.

Traffic Volume

To assist in the traffic analysis efforts on Corridor R, weekday and weekend traffic counts were collected at the study intersections. The project team converted the data to display mid-block traffic volumes in all segments in the corridor. These traffic volumes offer a realistic perspective on the overall number of vehicles traveling through the corridor each day and can offer insight into driving patterns when paired with turning movement data.

The map below displays average traffic volumes in the north and southbound directions at AM Peak conditions on a weekday from 8:15 to 9:15 AM. Move the slider to the right to view northbound morning traffic volumes for travelers going from McKeesport to Homestead. Move the slider to the left to view southbound morning traffic volumes for travelers going from Homestead to McKeesport. The legend in the bottom left corner of the map shows the range of traffic volumes on the map.



Traffic volumes were highest at AM peak conditions heading northbound on the Homestead Grays bridge (918 cars/hour) and on the stretch of PA 837 between E. Mifflin St. and the Rankin Bridge (900 cars/hour). These increased traffic volumes could be attributed to high volumes of commuters using the Rankin Bridge, as well as people traveling to the Waterfront to work or shop when stores open.

Other high traffic volume locations at AM Peak include:

- PA 837 between the Rankin Bridge and E. Waterfront Dr.
(Northbound): 786 cars/hour
- PA 837 between Glenn St. and E. Mifflin St. (Northbound): 751 cars/hour
- PA 837 between Commonwealth Ave. and Glenn St.
(Northbound): 746 cars/hour

The project team also examined PM Peak traffic volumes on the corridor. The following map displays average traffic volumes for northbound and southbound directions at PM Peak conditions on a weekday from 4:30 to 5:30 PM. As expected, more travelers use the corridor in the southbound direction (towards McKeesport) at the time. Move the slider to the right to view northbound evening traffic volumes for travelers going from McKeesport to Homestead. Move the slider to the left to view southbound evening traffic volumes for travelers going from Homestead to McKeesport. The legend in the bottom left corner of the map shows the range of traffic volumes on the map.



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Left: Northbound traffic; Right: Southbound traffic. Use slider to view each.

PM Peak traffic volumes were highest (1,125 cars/hour) on the southbound section of PA 837 between the Rankin Bridge and E. Mifflin St. This segment carries high traffic volumes during both the AM and PM peaks.

Other high traffic volume locations at PM Peak include:

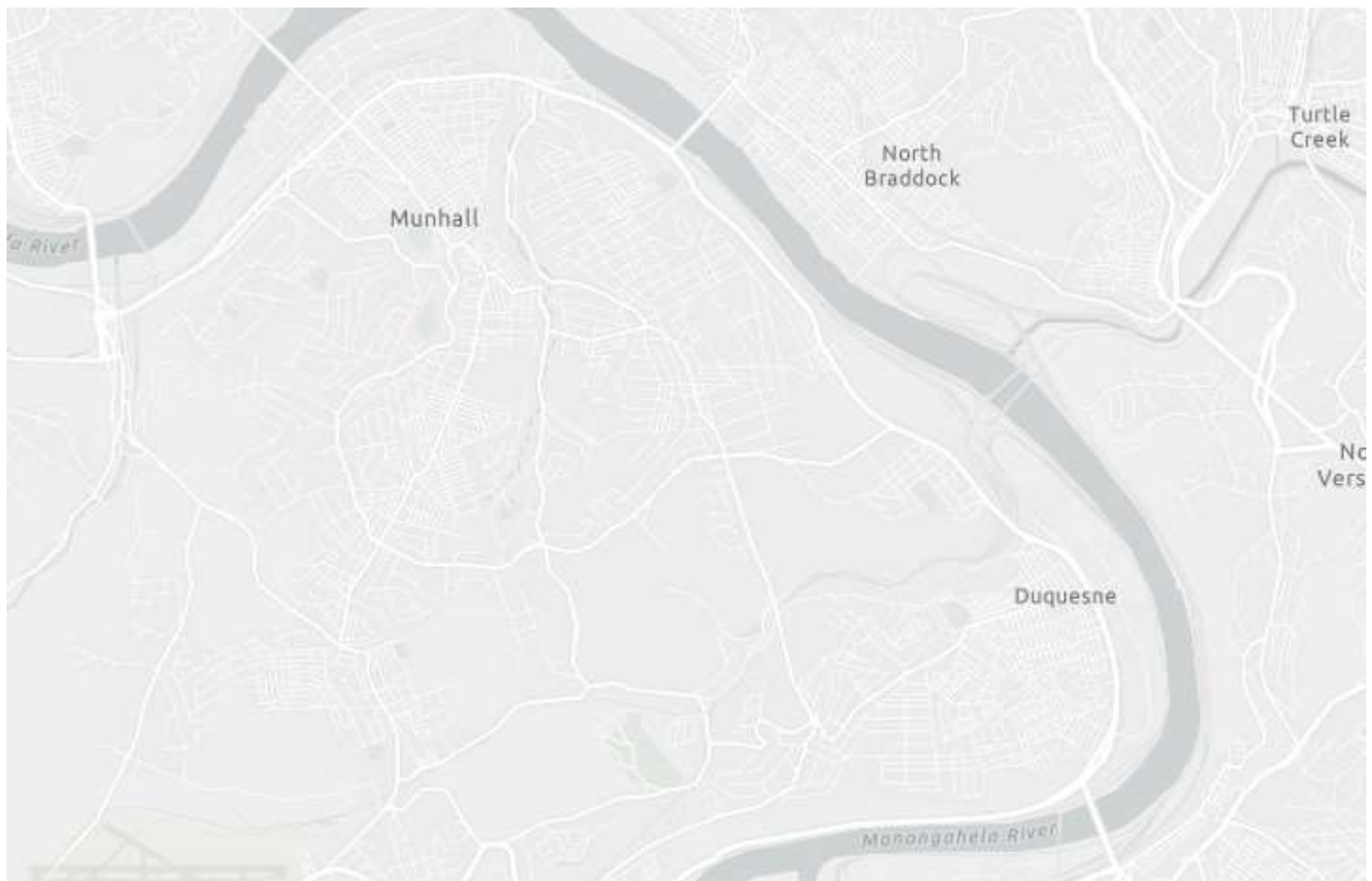
- Homestead Grays Bridge (Southbound): 1,052 cars/hour
- PA 837 between Center Ave. and Wylie Ave (Southbound): 963 cars/hour
- PA 837 between E. Mifflin St. and Glenn St. (Southbound): 954 cars/hour

Lane capacity on a typical segment on the corridor is roughly 1,100 cars/hour. Lane capacity is determined by lane width, speed, parking presence, and various other limiting factors. On this corridor, the highest traffic volumes are still not reaching maximum estimated lane capacity. As a result, proposed solutions such as road diets should not largely affect traffic or cause increased delays, because the lanes are handling more than enough traffic in current conditions.

Turning Movements at Intersections

Weekday 13-hour turning movement counts (TMCs) were collected at a total of 28 signalized intersections in the study

area. These counts were collected on September 27, September 29, and October 4, 2022.

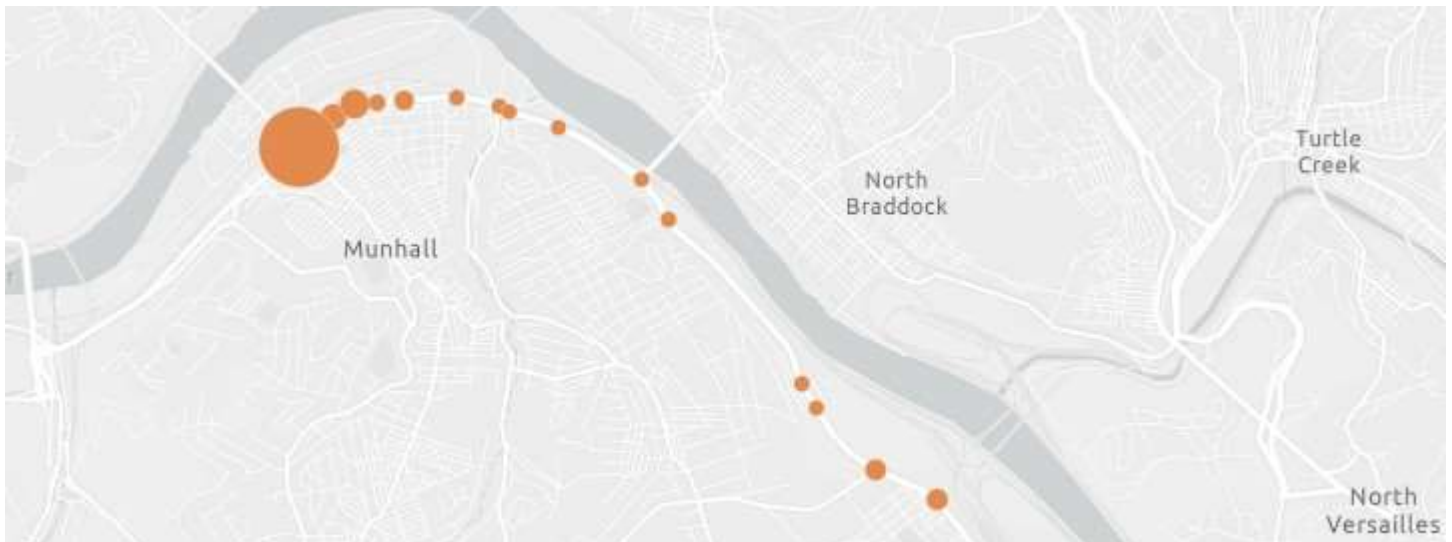


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Turning Movement Counts

Turning movements are highest at the Rankin Bridge, which is a key connector with the regional highway network. The Homestead Grays Bridge also has significant turning volumes, and is in a more urban context, which introduces more congestion and conflict without proper management.



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap cont...

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Pedestrian Crossing Counts

Significant volumes of people cross PA 837 at or near the Homestead Grays Bridge, which, when coupled with significant numbers of vehicular turns, introduces conflict at precisely the places where transit demand is highest.

The intersections with the highest volumes of turning movements in the corridor include:

- PA 837 at Rankin Bridge: 2,061 turns (Rankin)
- PA 837 at Homestead Grays Bridge: 1,166 turns (Homestead)
- PA 837 at Waterfront Dr: 918 turns (Homestead)
- PA 837 at Hoffman Blvd: 607 turns (Munhall at Kennywood)

The intersections with the highest number of pedestrian crossings include:

- PA 837 at Homestead Bridge: 7,879 crossings (Homestead)
- Lysle Blvd at Coursin St: 2,574 crossings (McKeesport)
- PA 837 at Amity St: 2,005 crossings (Homestead)
- PA 837 at McClure St: 1,696 crossings (Homestead)

Many of the busiest intersections for turning movements and pedestrian crossings have significant overlap. Homestead and McKeesport are the most densely populated areas of the corridor with heavy pedestrian activity, and have a different

context than the segments of PA 837 near the Rankin Bridge and Kennywood where the travel speeds are higher and the roadway is wider. Placing an emphasis on improving pedestrian infrastructure specifically at intersections where crossings are most frequent will help to increase safety on the corridor.



Re-stripping crosswalks is a simple fix to improve safety at busy pedestrian intersections. The second image above shows an intersection in McKeesport where a fatal pedestrian crash occurred.

In addition to the weekday counts, weekend 13-hour TMCs were collected at Kennywood Blvd/Kennywood Entrance and Kennywood Blvd/Hoffman Blvd on Saturday, October 8, 2022. The purpose of these counts was to capture traffic patterns created by Kennywood during its Phantom Fall Fest activities. This data can be viewed in the appendix at the end of the report.

Sidewalk Walksheds

Walksheds are an essential tool for measuring connectivity and pedestrian accessibility in a community. The project team performed a walkshed analysis for each of the 68 bus stops in Corridor R to examine how accessible the stops are for the riders. The walksheds measure a five-minute walk/roll distance surrounding each stop. The walksheds were created using a comprehensive sidewalk dataset and an estimated walk/roll speed of 3.1 mi/hr to offer the most realistic estimate of travel time in the corridor.

Click through the map below using the arrows to view all the walksheds and sidewalks in the corridor.

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There are 68 bus stops in the Corridor R study area

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Homestead Area



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap cont... 0.4 km Powered by Esri

Whitaker area



Esri Community Maps Contributors, County of Allegheny, data.pa.gov, W... 200 m Powered by Esri

Kennywood Park, West Mifflin



Esri Community Maps Contributors, data.pa.gov, Esri, HERE, Garmin, Saf... 0.4 km Powered by Esri

Duquesne North



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Duquesne South



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McKeesport Area

Sidewalk Gaps

While many bus stops on the corridor are served by sidewalks, others lack essential connections that would allow riders to access their stops safely. During a field view, the project team noticed significant gaps in sidewalks which inhibit access to stops and compromise pedestrian safety.



In the first image, a popular bus stop across from Kennywood Park has no clear sidewalk connection and may cause riders with accessibility challenges to have to use the shoulder of PA 837 to reach the stop. In the second image, a bus stop has a sidewalk to stand on, but no connection to reach the neighborhood behind the corridor.

The consultant team will be prioritizing an analysis on sidewalk gaps to target where accessibility improvements are most needed.

Curb Cuts

The 7.3-mile corridor study area contains a total of 231 curb cuts. Curb cuts are areas where there are breaks in the curb for vehicular access. These curb cuts pose risks for pedestrians, as vehicles can pull in and out of these areas at any time. There are 80 curb cuts in the inbound direction (river side) and 151 curb cuts in the outbound direction. This averages 10.9 curb cuts per mile in the inbound direction and 20.7 curb cuts/mile in the outbound direction. There are also five blocks of curb cuts along the corridor where the entire roadway between streets lacks a curb or has frequent garages that allow vehicles to access the area.

The map below displays the curb cuts along PA 837. Zoom in to see the locations and the blocks that are filled with curb cuts.



Conclusions

The consultant team will work with PRT to assess the data summarizing the existing conditions. This data will be used to identify deficiencies in the corridor that impact the goals of this transit upgrade project:

- Speed and reliability of transit service
- Rider safety
- Rider accessibility
- Rider experience

Upon initial review of the existing data, the following observations have been identified:

- Some of the highest utilized bus stops on the corridor do not have shelters. Many of these shelters are served by multiple routes.
- Traffic volumes follow the expected patterns for a "normal" commute.

- AM peak northbound (towards Homestead) direction holds higher vehicle volume.
- PM peak southbound (towards McKeesport) direction holds higher vehicle volume.
- The corridor has bus stops located on “islands” with little or no sidewalk connections. These "islands" are not located in Homestead or McKeesport but are still safety concerns.
- The corridor lacks real-time bus signage and transit priority infrastructure.

The consultant team will target the deficiencies identified in the existing conditions and work with PRT to develop concepts that will enhance rider experience and improve transit flow. These concepts will be vetted through stakeholder and community outreach beginning late 2022 and progressing through spring of 2023.

Appendix

The sources to the Corridor R data are located in the shared folder below.

Traffic and Crash Data