

Washington County Transportation Authority Transit Development Plan



June 2018

Prepared for:



Prepared by:



In association with:



Table of Contents

Executive Summary.....	2
Washington County Overview	4
Demographic Assessment.....	6
Public Transportation Overview	16
Review of Existing Plans.....	21
Community Input	24
Stakeholder Interviews	24
Interactive Online Survey.....	25
Public Meetings.....	32
Community Needs and Priorities	33
Existing Service Analysis.....	34
Fixed Route Service Analysis.....	35
Shared-ride Service Analysis	53
Service Area Analysis	54
Service Hours and Days Analysis.....	57
Shared-ride Analysis Service Recommendations.....	58
Public Transportation Recommendations	59
Short-Term Recommendations.....	61
Medium-Term Recommendations.....	66
Long-Term Recommendations.....	73
Draft Plan Review and Public Comment	80
Public Displays.....	80
Outreach	81
Comments.....	81
Appendix A: MetroQuest Map Markers by Type of Destination	
Appendix B: WCTA Service Guidelines	
Appendix C: Mon Valley Connection Option Maps and Data Metrics	
Appendix D: Washington-Canonsburg Connection Option Maps and Data Metrics	
Appendix E: Potential Metro/County Line Schedule	

This page left intentionally blank.

Executive Summary

The Washington County Transit Development Plan (TDP) is a five-year blueprint to improve public transportation in Washington County, Pennsylvania. It is part of a regional effort by the Southwestern Pennsylvania Commission (SPC) to improve public transportation throughout the Southwestern Pennsylvania region through good planning and by encouraging a broader regional discussion about public transportation.

SPC partnered with Washington County and the Washington County Transportation Authority (WCTA), also known as Freedom Transit, to undertake an intense three-part planning process. The planning process engaged all levels of the organization including county officials, the WCTA Board of Directors, management, and staff. In addition, a robust public involvement process engaged more than 200 community members and provided an opportunity for them to express their vision for public transportation in Washington County. The valuable information gathered through these discussions were incorporated into two companion documents to the TDP, which includes:

- **WCTA Five-Year Strategic Business Plan** – A Board-driven document that identifies the major tasks to be accomplished by WCTA staff over the next five years to advance the organization by accomplishing the mission and advancing toward a shared vision.
- **Service Guidelines** – A robust set of parameters for current and future transit service in Washington County, designed to establish a framework for service to be regularly evaluated and continually improved as well as to assure there is a well-reasoned approach to adding or reallocating service.

Throughout the course of the planning process, data was analyzed to develop a picture of Washington County and the current economic, transportation, and public transportation landscape. This analysis was then compared to public input and industry standards to identify opportunities to improve public transportation, specifically focused on ways to provide access to more people in Washington County and to increase WCTA system ridership.

Washington County is largely rural in its southern and western regions with a strong urban corridor along I-79 towards Pittsburgh, the major regional economic generator. Based on this geographic reality, opportunity exists to grow fixed route service within the “service spine” between the City of Washington and Canonsburg, with Metro service continuing into Downtown Pittsburgh and to the South Hills Village light rail station in Allegheny County.

An important connection currently absent from the WCTA fixed route network is between the county seat in the City of Washington and the densely populated “Mon Valley” in eastern Washington County. Adding fixed route service to the Mon Valley can be achieved through the reallocation of existing service that is unproductive, expanding opportunities for access between the two urban areas.

While the rural areas of the county lack enough density to support fixed route service, large numbers of potential riders remain scattered across those areas of the county. Opportunities exist to provide access to those areas through advancements in demand-response technology. Offering low-cost, same-day Shared-ride service that is available countywide will allow individuals to reach destinations across the county more easily and affordably.

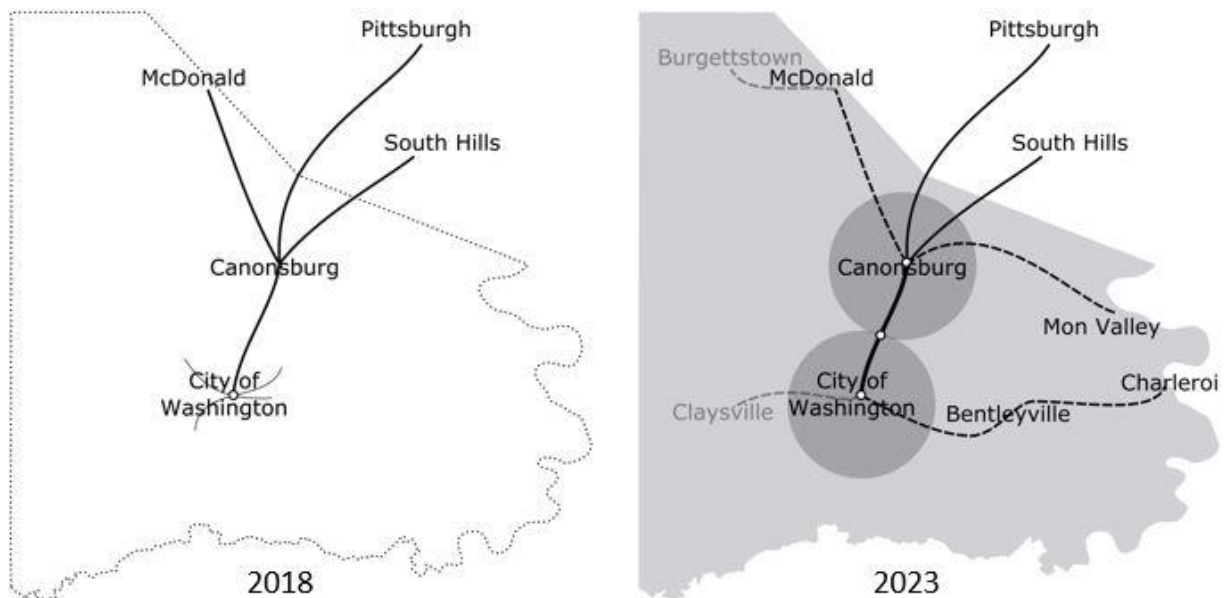
Additionally, longer-term procurement of advanced on-demand Shared-ride applications will be able to bring public, “Uber-like” service to the City of Washington and Canonsburg areas, providing more opportunities for residents and businesses in those urban areas to access one another.

The growth of the Washington County Transportation Authority network will take time to achieve. A set of short-, medium-, and long-term recommendations have been established to get there.

These Recommendations include:

- **Short-Term:** Reallocate Metro service to provide midday and evening service to and from South Hills Village, making service to Downtown Pittsburgh peak-only.
- **Short-Term:** Reorganize County Line service, adding two routes to the Mon Valley.
- **Short-Term:** Add Local Canonsburg service between Southpointe and Canonsburg.
- **Medium-Term:** Develop the “Service Spine” between the City of Washington and Canonsburg.
 - Include a new Transit Center in Canonsburg and new Park & Ride on Racetrack Road.
- **Medium-Term:** Subsidize low-cost, countywide Shared-ride service.
- **Long-Term:** Implement on-demand “microtransit” in the City of Washington and Canonsburg to replace local fixed route services.
- **Long-Term:** Expand service on County Line routes to McDonald, Monongahela, and Charleroi with potential extensions to Burgettstown and Claysville (Figure 1).

Figure 1: Proposed Service Expansion



Washington County Overview

Washington County is located in southwestern Pennsylvania within the Pittsburgh metropolitan area. The county was created on March 28th, 1781 with the City of Washington remaining as the county seat since its creation.

According to the 2010 US Census, there are 207,820 residents in Washington County, making it the 18th (out of 67) most populous county in Pennsylvania. The county covers 861 square miles, making it the 19th largest in Pennsylvania. The overall population density of the county is 241 people per square mile, but the majority of the population density is found in the City of Washington, where 13,663 residents live within its 2.95 square mile boundary (4,632 people per square mile).

There are two cities (Washington and Monongahela), 33 boroughs, and 32 townships within the county. According to the US Census 2010 American Community Survey 5-year estimates, the largest municipalities by population are:

1. Peters Township – 20,528
2. City of Washington – 13,915
3. North Strabane Township – 12,796
4. Cecil Township – 10,995
5. South Strabane Township – 9,111
6. Canonsburg Borough – 8,917
7. Canton Township – 8,474
8. Chartiers Township – 7,713
9. California Borough – 6,592
10. Union Township – 5,682



There are two formal college campuses and two additional auxiliary campuses in Washington County. Washington & Jefferson College is located in the City of Washington, and California University of Pennsylvania is located in the borough of California. Auxiliary campuses include Waynesburg University in Southpointe and the Community College of Allegheny County at the Washington Crown Center Mall.

There are three hospitals within the county:

- Canonsburg General Hospital in North Strabane Township
- Monongahela Valley Hospital in Carroll Township
- Washington Hospital in the City of Washington

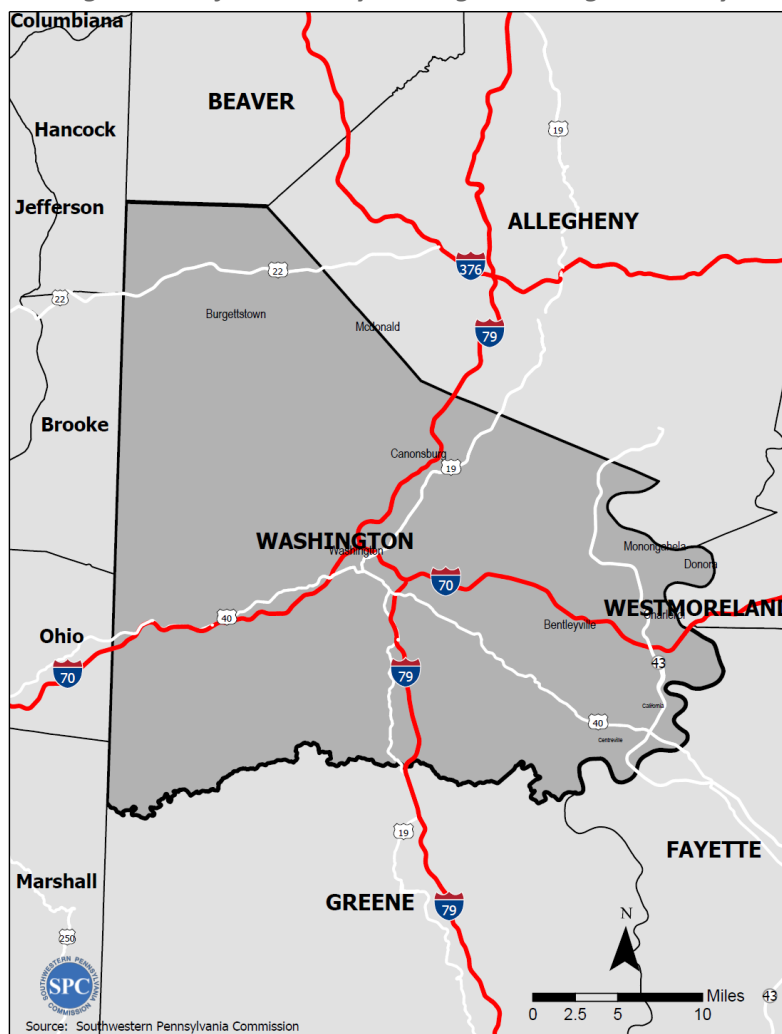
The only Veterans Affairs (VA) medical facility in Washington County is a VA Community-Based Outpatient Clinic in the City of Washington. The nearest VA Hospital is in Pittsburgh.

Washington County is surrounded by nine counties in the states of Pennsylvania and West Virginia:

- Allegheny County, PA
- Beaver County, PA
- Fayette County, PA
- Greene County, PA
- Westmoreland County, PA
- Brooke County, WV
- Hancock County, WV
- Marshall County, WV
- Ohio County, WV

Washington County is served by two interstate highways: I-70 traverses the county East-West between West Alexander and Donora, while I-79 traverses the county North-South between Hendersonville and Amity. The two interstates converge in the City of Washington. Eastern Washington County also contains a portion of Pennsylvania Turnpike Route 43, also known as the Mon/Fayette Expressway. This is a limited-access tollway connecting the Mid Mon Valley (California, Charleroi, Monongahela, etc.) with Uniontown and southern Allegheny County. Three US highways also cross Washington County. US-19 travels North-South and US-40 travels East-West, converging in the City of Washington. US-22 passes through the northern portion of the county, north of Burgettstown. Figure 2 depicts the regional roadway network in Washington County.

Figure 2: Major Roadways through Washington County



Demographic Assessment

Analyzing and understanding population trends are important for understanding the broader context in which public transportation operates. These trends can help to explain transit performance and can provide a useful foundation to adjust service to reflect the changing nature of WCTA's customers. Where possible, data from the 2016 American Community Survey (ACS) is used as it is the most recently available data that provides a reasonable look at the current conditions of Washington County. It is important to note that ACS data is based on a sample of residents and may be somewhat different from the population of Washington County today. For this reason, the population trend analysis is but one piece of the total Transit Development Plan.

For the demographic analysis, several key pieces of information were analyzed:

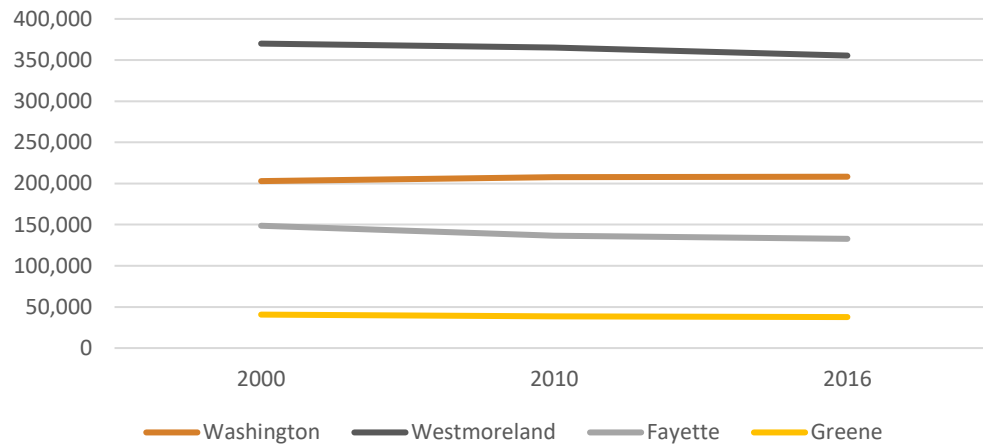
- **Total population** – A measure of the total amount of potential riders.
- **Senior citizen population** – In Pennsylvania, residents over the age of 65 receive free or reduced-cost public transportation.
- **Population dispersion** – Rural populations (lower density) are more difficult to serve by fixed route public transportation than those in urban areas (higher density).
- **Racial diversity** – According to the 2017 American Public Transportation Association (APTA) *Who Rides Public Transit* report, a majority of public transportation riders (60%) in the United States belong to a racial minority. It is important to track changes in racial diversity, as this is sometimes an indicator of future population growth or decline and can also indicate possible changes in the public's opinions and expectations of public transportation.
- **Disability status** – Pennsylvania offers the People with Disability (PwD) program that provides reduced-fare transportation for individuals with disabilities aged 18-64. There are also other programs, such as the federal Section 5310 Enhanced Mobility of Seniors & Individuals with Disabilities, which seek to serve this group with public transportation.
- **Veteran status** – Military veterans are often identified as a target group for public transportation with elected officials and others seeking to give back to military service members. In addition, veterans using Veterans Administration (VA) medical facilities represent a large group of people making routine trips to major facilities (trip density).
- **Household income** – Public transportation frequently serves as one of the only means of transportation to low-income individuals who do not own a car, do not have access to a reliable vehicle, or who may be a one-car household.
- **Car ownership** – Individuals that don't own cars are likely to use public transit to meet the needs of their daily life.

Population

According to the 2016 ACS 5-year estimates, the total population of Washington County is approximately 208,000. Unlike most of its neighboring counties, Washington County has experienced a slight increase in population, growing 2.5% between 2000 and 2016 (Figure 3). By comparison, the total population in Pennsylvania has grown around 4% in the same period. Most of Washington County’s growth is occurring outside of urban areas, with the notable exception of the Borough of California, which has grown in population by more than 22% since 2000.



Figure 3: Population Change by County, 2000-2016



Data Source: 2000 Census, 2010 Census, and 2016 American Community Survey 5-Year Estimates

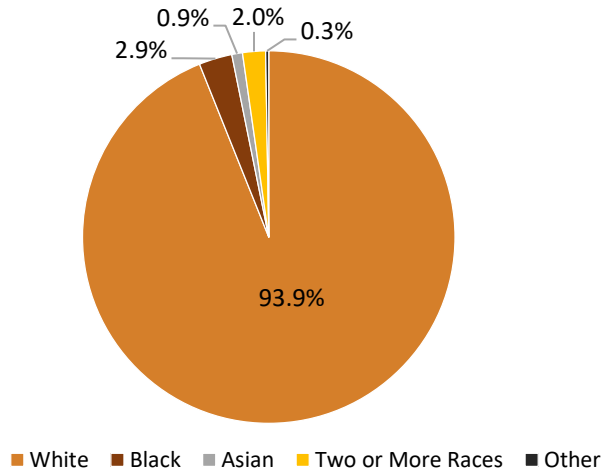
The population in Washington County is also aging steadily, with 18.9% of the population in 2016 estimated to be over the age of 65, up from 17.4% in 2000. Continuing this trend, around a fifth of county residents will be over 65 by the year 2020.



Racial Diversity

The racial makeup of the county is mostly homogenous, with 93.9% of the population identifying as white, 2.9% as African American, and 1.5% Hispanic of any race (Figure 4). Washington County is much less diverse than the Commonwealth overall, where roughly one out of every four residents identifies as either non-white or white Hispanic. Similarly, less than 2% of the population of Washington County were born abroad (both citizens and noncitizens), compared to 7% statewide.

Figure 4: Racial Makeup, Washington County 2016



Data Source: 2016 American Community Survey 5-Year Estimates

Individuals with Disabilities

According to the 2016 ACS 5-years estimates, 14.7% of county residents (around one out of every six) currently live with a disability. While residents under 35 are much less likely to have a disability, more than a third of Washington County adults over the age of 65 have a disability. Similarly, while only around 7.9% of the total county population has an ambulatory difficulty, more than one fifth of county adults over 65 have difficulty walking or navigating stairs.



Veterans

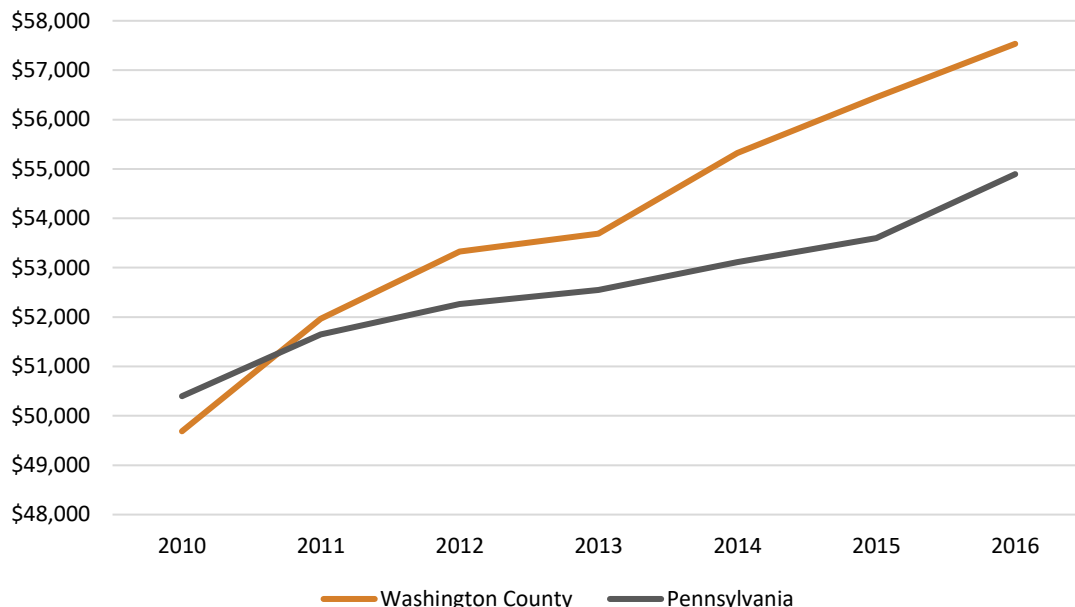


A relatively high proportion of Washington County residents are US military veterans—9.8%, representing more than 16,000 individuals. This is more than double the statewide rate of 4.3%. The county’s veteran population is served by one Veterans Affairs (VA) Community-Based Outpatient Clinic in the City of Washington, which is a satellite clinic of the VA Medical Center in Pittsburgh. Veterans who require transportation to the VA facilities in Pittsburgh but don’t have a car rely on WCTA fixed route and Shared-ride service to Pittsburgh.

Household Income

In 2016, the median household income in Washington County was estimated to be \$57,534, which is not only higher than the statewide average of \$54,895, but also higher than the median annual household incomes in Allegheny, Greene, and Westmoreland Counties. Figure 5 depicts median household income growth in Washington County and Pennsylvania over a 6-year trend period.

Figure 5: Median Household Income in Washington County and Pennsylvania, 2010 - 2016

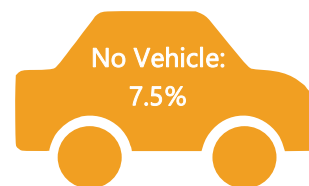


Data Source: 2016 American Community Survey 5-Year Estimates

The percentage of individuals living below the poverty line has decreased slightly, from 10.4% in 2010 to 10.1% in 2016. By comparison, the rate of poverty for individuals across the Commonwealth for 2016 was 13.3% or approximately 52 million people.

Car Ownership

More than 7.5% of households in Washington County do not have access to a personal vehicle, and 2.1% of workers do not have a vehicle available to drive to work. These rates are roughly the same as they were in 2010 when 7.9% of households and 2.0% of workers lacked a vehicle for regular use.



Out of 67 counties, Washington ranks 55th in percentage of car-free households. 97.99% of households in Washington County have access to a personal vehicle, while the statewide average is 94.94% of households. Larger shares of car-free households increase demand for public transit.

Density

The Commonwealth of Pennsylvania has 67 counties, 12,783,977 residents, and spans 44,742 square miles. The statewide population density is 286 people per square mile. The state is largely rural with a few major population centers, one of which is the City of Pittsburgh in nearby Allegheny County.

Shown in Table 1, Washington County ranks 22nd out of 67 counties in terms of population density, with 243 people per square mile. This is slightly lower than the statewide average. Comparatively, Allegheny County has a population density of 1,685 people per square mile.

Table 1: Top 25 Pennsylvania Counties by Population Density

Rank	County Name	Total Population	Square Miles	Population Density
	Pennsylvania Statewide	12,783,977	44,742	285.73
1	Philadelphia County, Pennsylvania	1,559,938	134.18	11,625.95
2	Delaware County, Pennsylvania	562,316	183.87	3,058.21
3	Montgomery County, Pennsylvania	815,876	483.01	1,689.16
4	Allegheny County, Pennsylvania	1,230,360	730.07	1,685.26
5	Lehigh County, Pennsylvania	358,792	345.18	1,039.44
6	Bucks County, Pennsylvania	626,220	604.40	1,036.09
7	Northampton County, Pennsylvania	300,520	369.62	813.04
8	Chester County, Pennsylvania	512,028	750.51	682.24
9	Lancaster County, Pennsylvania	533,110	943.86	564.82
10	Dauphin County, Pennsylvania	271,962	525.05	517.97
11	York County, Pennsylvania	440,604	904.20	487.29
12	Berks County, Pennsylvania	414,097	856.39	483.54
13	Lackawanna County, Pennsylvania	213,006	458.77	464.30
14	Cumberland County, Pennsylvania	243,838	545.50	447.00
15	Beaver County, Pennsylvania	169,205	434.71	389.24
16	Lebanon County, Pennsylvania	136,950	361.83	378.49
17	Luzerne County, Pennsylvania	318,917	890.34	358.20
18	Westmoreland County, Pennsylvania	359,377	1,027.56	349.74
19	Erie County, Pennsylvania	279,133	799.21	349.26
20	Monroe County, Pennsylvania	167,126	608.26	274.76
21	Lawrence County, Pennsylvania	88,528	358.16	247.17
22	Washington County, Pennsylvania	208,269	856.98	243.03
23	Blair County, Pennsylvania	125,917	525.80	239.48
24	Butler County, Pennsylvania	185,974	788.59	235.83
25	Northumberland County, Pennsylvania	93,590	458.00	204.35

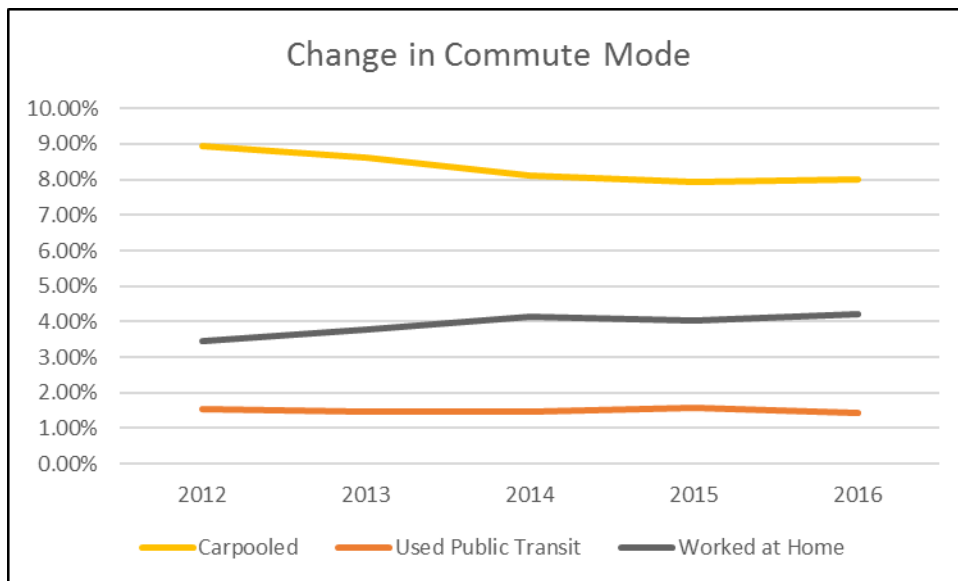
Data Source: 2016 American Community Survey 5-Year Estimates, 2016 TIGER/Line Shapefiles

The majority of population density can be found in certain corridors, including the I-79 corridor north of the City of Washington and the Monongahela Valley. The remainder of the county is largely rural in character. Residents currently must rely on automobiles to complete most trips in those areas.

Commute Mode

While driving alone remains by far the dominant mode of commuting in Washington County, minor shifts in commuting have recently occurred. Figure 6 illustrates that the share of carpooling commuters dropped by nearly one percent, while at the same time the share of teleworkers (working from home) increased. During that same period, the share of transit riders barely changed.

Figure 6: Change in Commuter Mode Share for Washington County Residents 2012-2016



Data Source: US Census American Community Survey, Means of Transportation to Work 2012-2016.

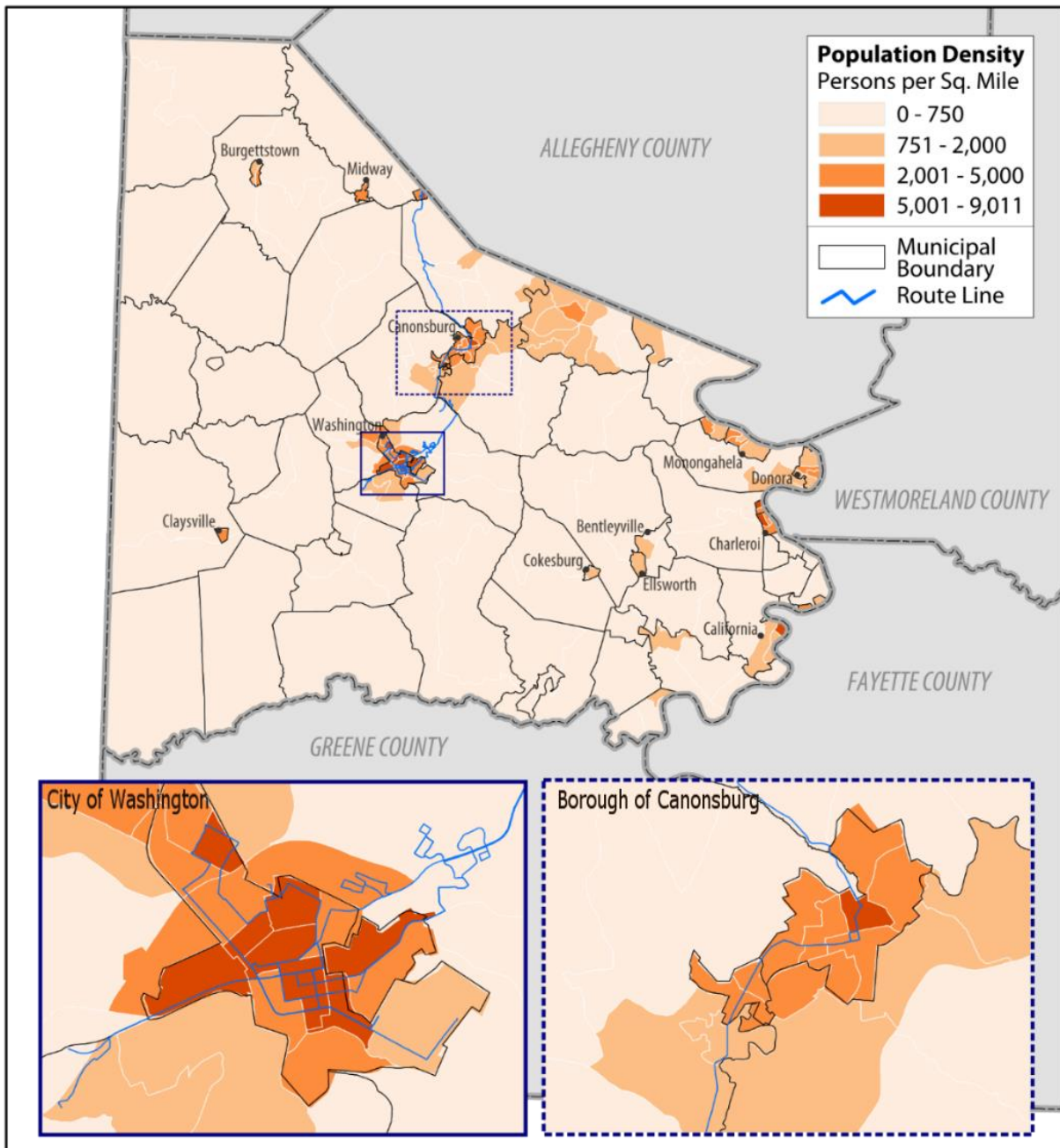
Population Density

Public transit is generally most accessible to areas within a quarter mile of a route, or a ten-minute walk. As a result, the size of the transit market is related to the density of population along the route. In Washington County, population densities are highest in cities and boroughs like Washington, Canonsburg, California, Charleroi, and Donora. Figure 7 depicts population density by Census block group for Washington County.

Key takeaways from the population density map include the following:

- Population density is highest within the cities and boroughs and lowest in the townships, with the exception of Peters Township (also known as McMurray).
- The Monongahela Valley has a cluster of higher-density areas that may be worth connecting with the City of Washington and Canonsburg, including the City of Monogahela and the Boroughs of California, Charleroi, and Donora.
- Large portions of the county are rural and population densities may be too low to support fixed route service in a cost-effective and efficient manner.

Figure 7: Population Density in Washington County, PA

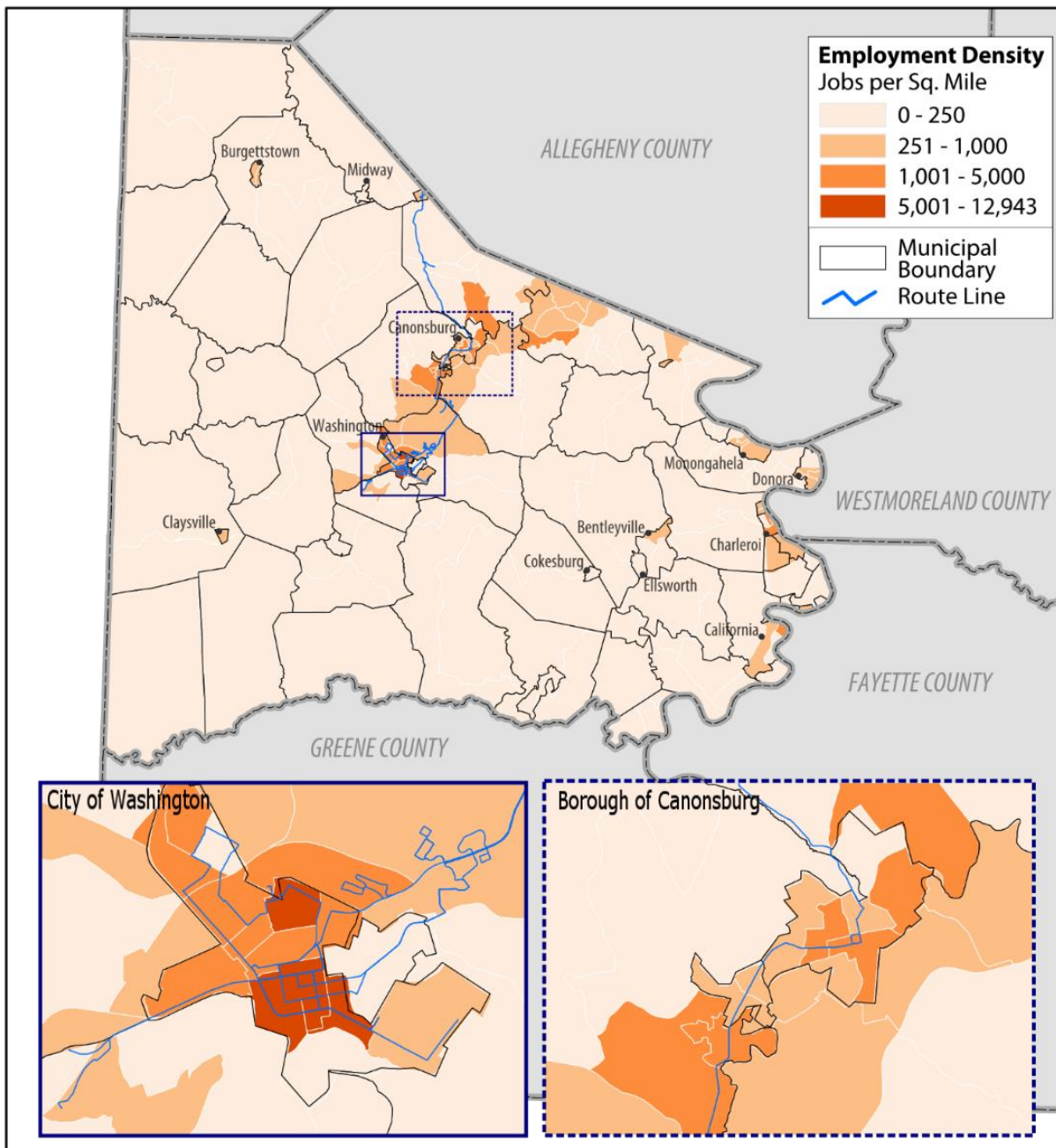


Data Source: Census Block Groups – ACS 2010-2014

Employment Density

The location and density of jobs is another strong indicator of transit demand, as work-related trips account for a large share of transit trips in most markets. For areas with high employment density, transit can provide key connections to job opportunities. Similar to population densities, employment densities are greatest within the City of Washington and Borough of Canonsburg, with pockets of high employment density occurring in the Monongahela Valley and along US-19 in Peters Township. Employment density in Washington County is shown in Figure 8.

Figure 8: Employment Density in Washington County, PA



Data Source: Census Block Groups – ACS 2010-2014, LEHD 2014

Location of Major Employment Centers

In addition to population and employment density, it is also important to review the size and distribution of employment to better understand travel demand and potential service markets. For most individuals, traveling to and from work is highly repetitive, which makes these trips well suited for fixed route transit service. Longitudinal Employer-Household Dynamics (LEHD) data from the U.S. Census Bureau was used to determine the number of workers within the county. An analysis of the LEHD data revealed the following:

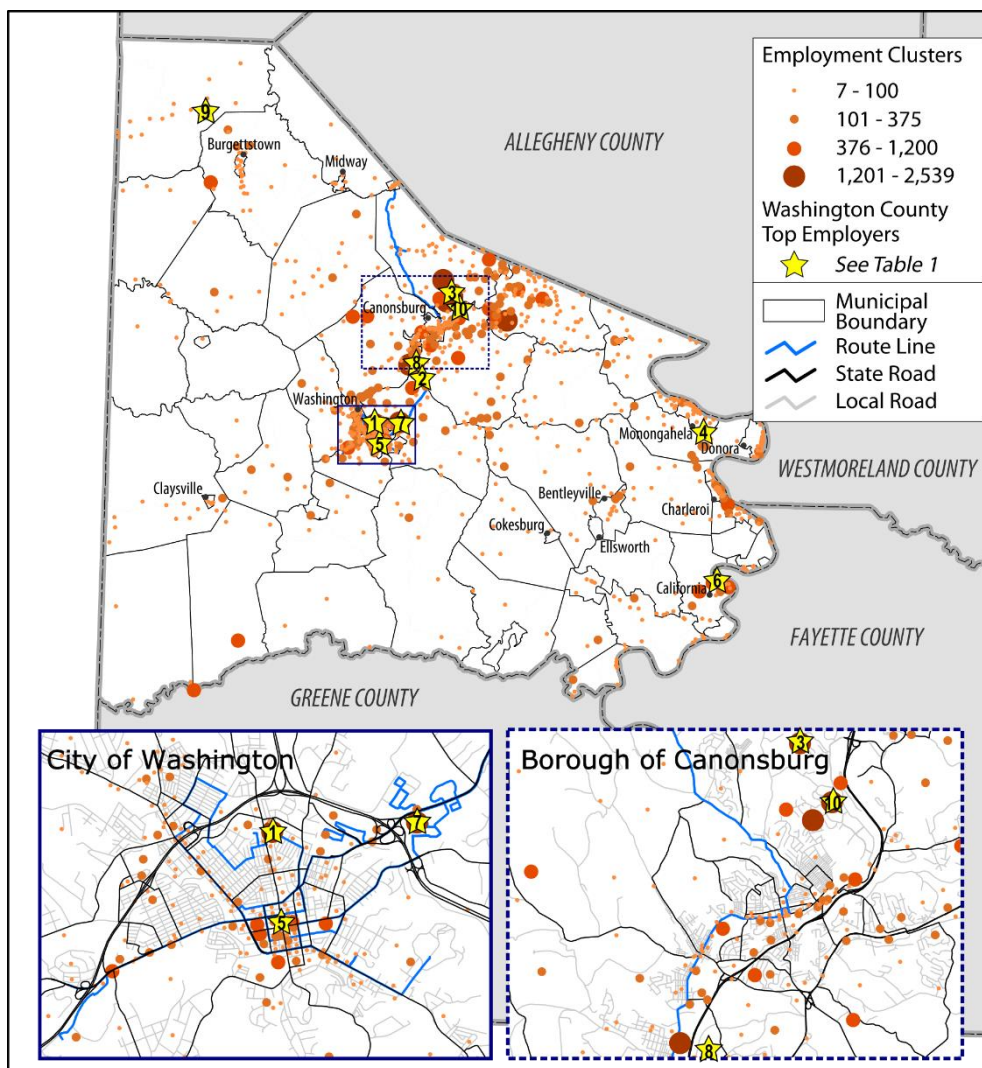
- The City of Washington has the largest volume of jobs in the service area. There is also a large concentration of jobs in Canonsburg.
- Three of the largest employment clusters exist in Cecil Township.
- There are clusters of employment located along two of the County’s major roadway corridors:
 - Along Interstate 79, beginning west of the City of Washington and continuing northeast until the Washington County/Allegheny County border.
 - Beginning in North Strabane Township, there are clusters of employment along US-19 going north toward the Washington County/Allegheny County border.
- A number of communities in the Monongahela Valley have high concentrations of employment, specifically in Charleroi and California.

Figure 9 on the following page shows where employment clusters exist throughout the county, along with the top 10 employers as reported by the Washington County Economic Development Partnership (Table 2).

A majority of workers leave the county for work every day. According to 2015 LEHD data, approximately 40,000 residents live and work in the county. 49,000 leave the county every day for their job while 42,000 commuters travel from surrounding counties into Washington County. These figures show a relatively stable balance between jobs and residency. While there is a strong commuter connection between Pittsburgh and Washington County, there is also a strong commuter connection within the county.



Figure 9: Employment Clusters in Washington County, PA



Data Source: Census Block Groups – Census TIGER 2014, LEHD 2014, Washington County Economic Development Partnership

Table 2: Top 10 Employers in Washington County, PA

Employer	Map ID
The Washington Hospital	1
Meadows Racetrack and Casino	2
Crown Castle USA	3
Monongahela Valley Hospital	4
Washington County	5
California University of Pennsylvania	6
WalMart	7
Giant Eagle	8
KeyBank Pavilion	9
Consol Energy	10

Data Source: Washington County Economic Development Partnership

Public Transportation Overview

The Washington County Transportation Authority (WCTA) is the primary public transportation provider in Washington County, but additional service providers operate in and around the county. It is important to recognize these providers as potential assets to work with in creating a unified public transportation network.

Washington County Transportation Authority: Fixed Route Service

WCTA operates four weekday fixed routes and two Saturday fixed routes. Service is primarily concentrated in the City of Washington, the Borough of Canonsburg, and North Strabane Township with express service to downtown Pittsburgh on weekdays and South Hills Village on Saturdays. Figure 10 depicts WCTA's service within the City of Washington while Figure 11 provides an overview of service available outside of Washington County.

Weekday Routes:

- **Local A** – Local fixed route service within the City of Washington between Washington Park and Maple Terrace Apartments, making stops throughout the city including Washington High School, Washington Hospital, and the Washington Transit Center.
 - Weekday-only service
 - Service span: 7:00am – 7:05pm
 - Headways: Every hour

 - **Local B** – Local fixed route service between Washington Crown Center mall in North Franklin Township and various shopping complexes in South Strabane Township, making stops throughout the City of Washington, including the Washington Transit Center.
 - Weekday-only service
 - Service span: 7:15am – 7:03pm
 - Headways: Every 1.5 hours

 - **County Line** – Regional fixed route service between McDonald Borough and the City of Washington, making intermediate stops in Cecil-Muse, Canonsburg, Houston, Meadowlands, Meadows Casino in North Strabane Township, Tanger Outlets in South Strabane Township, and the Arden/Washington County Fairgrounds Area of Chartiers Township.
 - Weekday-only service
 - Service span: 6:30am - 7:38pm
 - Headways: Between 1.5 hours and 2.5 hours

 - **Metro Commuter** – Express service between the City of Washington and downtown Pittsburgh, making stops at the Beau Street Park & Ride, Meadowlands, Houston, Canonsburg, and the Southpointe Park & Ride.
 - Weekday-only service
 - Service Span: 4:55am – 7:45pm
 - Headways: Between 50 minutes and 3 hours
-

Saturday Routes:

- **Local Saturday** – Local circulator service utilizing the alignments of Local A and Local B service, but dividing the service into four loops (North, South, East, and West) originating from the Washington Transit Center.
 - Saturday-only service
 - Service Span: 8:33am – 6:20pm
 - Headways: Irregular service to destinations. Departures from Washington Transit Center every 15 minutes to 1 hour

- **Metro Saturday** - Express service between the City of Washington and South Hills Village light rail station, making stops at the Beau Street Park & Ride, Meadowlands, Houston, and Canonsburg.
 - Saturday-only service
 - Service Span: 9:15am – 5:42pm
 - Headways: Every 3 hours

Figure 10: WCTA Service in the City of Washington

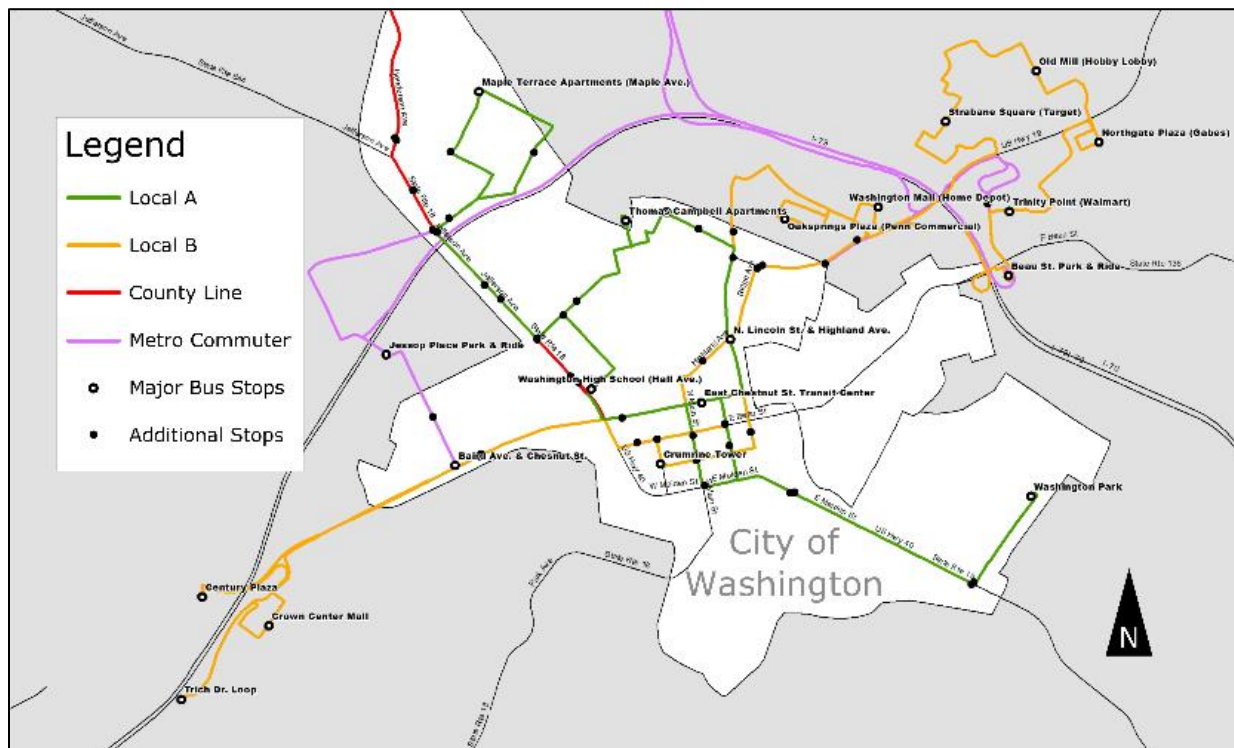
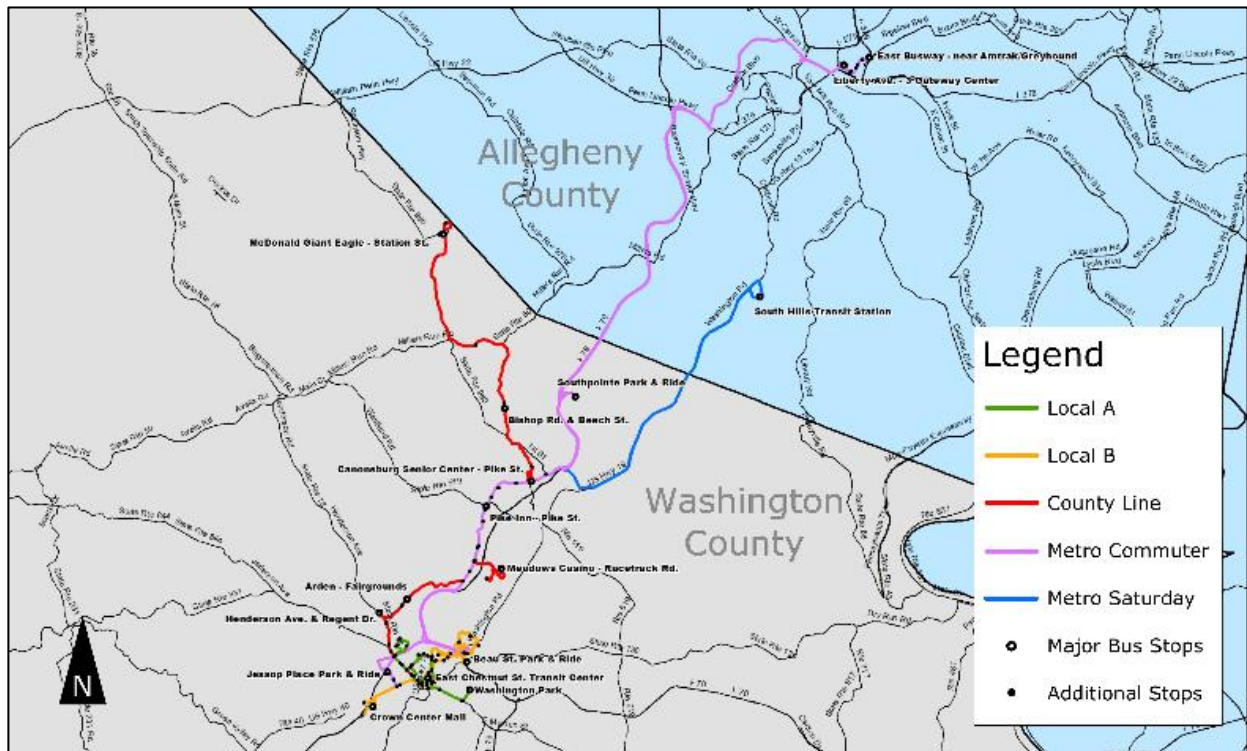


Figure 11: WCTA Service between Washington and Allegheny Counties



Washington County Transportation Authority: Shared-ride Service

WCTA provides curb-to-curb Shared-ride service countywide between the hours of 5:00am and 8:00pm Monday through Saturday. Service must be scheduled at least one day in advance and does not operate on a set schedule. Fares are mileage-based, and range from \$10-\$50 per trip for the general public. Subsidies exist for seniors, as well as passengers with disabilities and other medical uses.

Mid Mon Valley Transit Authority

Mid Mon Valley Transit Authority (MMVTA) operates local fixed route service in the Monessen-California Urbanized Area, also referred to as the Mid Mon Valley, as well as express commuter service between the Mid Mon Valley and the City of Pittsburgh. While MMVTA service is divided between Washington and Westmoreland Counties, all seven fixed routes in the system operate portions of their alignments in Washington County.

- **CAL Commuter** – Express senior service between California and Pittsburgh.
 - Weekday peak-only service
 - Four trips each direction (to Pittsburgh mornings, from Pittsburgh afternoons)
- **Commuter A** – Intercity commuter service between Donora and Pittsburgh, making stops in Monessen, Charleroi, Monongahela, Finleyville, Bethel Park, and Castle Shannon.
 - Service seven days per week
 - Weekday service span: 4:25am-11:58pm
 - Weekday headways: Between 15 minutes and 2 hours
 - Saturday service span: 6:00 am-11:48 pm

- Saturday headways: Between 2 hours and 4 hours
- Sunday service span: 8:00am-8:21 pm
- Sunday headways: Every 4 hours

- **Commuter Express 1** – Express service between Donora, Monongahela, and Pittsburgh.
 - Weekday peak-only service
 - One trip each direction (to Pittsburgh mornings, from Pittsburgh afternoons)

- **Commuter Express 2** – Express service between Donora, Monessen, Charleroi and Pittsburgh.
 - Weekday peak-only service
 - One trip each direction (to Pittsburgh mornings, from Pittsburgh afternoons)

- **Valley 1** – Local service between Charleroi and New Eagle, making stops in North Belle Vernon, Monessen, Donora, and Monongahela.
 - Service seven days per week
 - Weekday service span: 6:40am-8:30pm
 - Weekday headways: Between 1.5 hours and 2 hours
 - Saturday service span: 8:10 am-5:04 pm
 - Saturday headways: Every 1.5 hours
 - Sunday service span: 9:40am-5:04 pm
 - Sunday headways: Every 3 hours

- **Valley 2** – Local service between West Brownsville and Rostraver Township, making stops in California, Roscoe, Stockdale, Speers, and Charleroi.
 - Service seven days per week
 - Weekday service span: 7:14am-10:00pm
 - Weekday headways: Between 1.25 hours and 1.75 hours
 - Saturday service span: 9:39am-8:22pm
 - Saturday headways: Every 1.25 hours and 2 hours
 - Sunday service span: 10:10am-8:55pm
 - Sunday headways: Between 2.5 hours and 3 hours

- **Valley 4** – Local service between Charleroi and Donora, making stops in North Charleroi, Fisher Heights, and Monongahela Valley Hospital.
 - Weekday-only service
 - Service span: 9:00am-4:55pm
 - Headways: Every hour

Mountain Line Transit Authority

Mountain Line Transit Authority (Mountain Line) provides fixed route service in Morgantown, West Virginia. While the majority of their service operates in the immediate area around Morgantown, they offer one express route through Washington County, making one stop at the Beau Street Park & Ride:

- **Grey Line** – Express service between Fairmont and Pittsburgh, making stops in Morgantown, Waynesburg, Washington, and Pittsburgh International Airport. This service is also operated through ticketed Greyhound Bus Lines service.
 - Service seven days per week.
 - Service from Washington to Pittsburgh: 8:40am Monday-Sunday, 2:05pm Friday & Saturday, 5:20pm Sunday-Friday.
 - Service from Washington to Waynesburg/Morgantown: 11:05am Monday-Sunday, 6:35pm Friday & Saturday, 9:45pm Sunday-Friday.

Fayette Area Coordinated Transportation

Fayette Area Coordinated Transportation (FACT) provides fixed route service in Uniontown. While most of their service operates in Fayette County, they offer one express route, making two stops in Washington County:

- **Brownsville Express** – Express service between California and Uniontown, making stops in Brownsville and Searights.
 - Weekday-only service
 - Five daily trips each direction
 - Service span: 7:20am-5:48pm
 - Headways: Between 1.75 hours and 2.5 hours

Greene County Transportation Program

Offers Shared-ride grouped trips to and from the City of Washington on Mondays, Wednesdays, and Fridays between the hours of 10:00am and 2:00pm. There is no set schedule, and trips must be scheduled at least 24 hours in advance.

Southwestern Pennsylvania Commission CommuteInfo Program

SPC's CommuteInfo Program coordinates seven (7) carpools with 13 participants originating in Washington County through a free, ride-matching database. CommuteInfo also operates the regional vanpool program, which matches riders and subsidizes van rental. Twenty-five Washington County residents in seven vans use this program to get to jobs in Downtown Pittsburgh, Butler County and Wheeling, West Virginia. No CommuteInfo vanpools currently have Washington County employers as destinations.

Additional Regional Service Providers

Port Authority of Allegheny County

Port Authority of Allegheny County (PAAC) provides fixed route service in the greater Pittsburgh area. They currently do not offer service within Washington County, however they do offer connecting service with WCTA's Metro Commuter route in downtown Pittsburgh and with WCTA's Metro Saturday route in South Hills Village. PAAC light rail service terminating in South Hills Village and Library are popular routes for commuters from northern Washington County.

Steel Valley Regional Transit Authority

Steel Valley Regional Transit Authority (SVRTA) provides fixed route service in the Steubenville, Ohio, area. They currently operate one express route through Washington County between Steubenville and Robinson Township, but make no stops within Washington County.

Ohio Valley Regional Transportation Authority

Ohio Valley Regional Transportation Authority (OVRTA) provides fixed route service in the Wheeling, West Virginia, area. They do not provide service within Washington County; however, they do have service the “The Highlands,” a regional shopping destination in Triadelphia. This is the nearest retail destination for Washington County residents near West Alexander.

Review of Existing Plans

Planning is an important process that allows communities to set a direction for the future of their area. A key step in the transit development planning process is to identify existing plans and determine what these plans say about the vision for public transportation in their area. By reviewing existing plans and incorporating relevant information, Washington County is ensuring the needs and wants of the communities that have expressed their desires are considered.

In total, more than 20 plans created over the past 15 years were identified and reviewed. Below is a list of plans related to Washington County’s transit network:

2005 – *Washington County Comprehensive Plan*

- Recommended placing public housing developments near fixed route transit.
- Supported modifying land use regulations to encourage mixed-use developments in walkable neighborhoods with access to transit facilities.
- Included a countywide objective to encourage transportation improvement incorporating provisions for all transit modes (public transit, pedestrians, bicycles, etc.).
- Encouraged “smart growth,” supporting diverse transportation modes.

2007 – *Washington County Greenways Plan*

- Suggested pedestrian, greenway, and sidewalk improvements can make public transit service more accessible and efficient.
- Promoted a balanced, multimodal transportation system in the county.

2007 – *Washington County Transit Study*

- Recommended improving fixed route services in the City of Washington and the Monongahela Valley.
- Suggested improvements to public information and marketing in the City of Washington.
- Recommended expanding regional services between the City of Washington and Allegheny County.
- Encouraged paratransit riders to switch to fixed route services in the City of Washington.
- Suggested providing new services in the I-79 urban corridor north of the City of Washington.
- Suggested studying new rural services through a “Rover Bus” concept.
- Led to the recommendation of connecting McDonald to the City of Washington via Canonsburg.

2008 – *Stormwater Management Plan for Washington County, Phase One*

- Included a transportation section but does not mention carpooling, fixed route, or public transportation options.

2010 – *Washington County Transit Vision Plan*

- Developed public transportation systems and services to be highly efficient, coordinated, and partnership focused.
- Called for transit to be at the forefront of development planning, and promoted the use of Transit Oriented Design (TOD).
- Recommended improving access to Pittsburgh and Washington County employment, education, healthcare centers, and social activities.
- Suggested expansion of public transportation marketing with an emphasis on innovation and culture change.

2012 – *Washington County Fair and Expo Center Master Plan*

- Recommended finding better ways to transport people, specifically the elderly and disabled, to the fairgrounds during large events.

2012 – *City of Washington and East Washington Borough Multi-Municipal Comprehensive Plan*

- Recommended evening and weekend transit service.
- Recommended consolidating transit systems in Washington County.
- Recommended developing a smart phone app for transit users.

2013 – *Washington County Transit Consolidation Financial Impact Study and Implementation Plan*

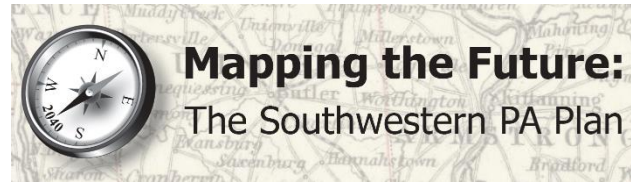
- Recommended consolidation of Washington City Transit and Washington County Transportation Authority.

2016 – *Freedom Transit Service Route Analysis*

- Recommended reorganizing Local Hopper routes in the City of Washington into two fixed routes, encouraging transfers at the newly built Washington Transit Center.
 - Recommended re-routing the Freedom Line (now County Line) to serve the Washington County Fairgrounds and Regent Drive residential community. Six alternative alignments were suggested.
 - Recommended simplification of WCTA's fare structure.
-

Mapping the Future: The Southwestern PA Plan

In 2015, the Southwestern Pennsylvania Commission (SPC) published its long-range regional plan. The plan, *Mapping the Future: The Southwestern PA Plan*, incorporated public feedback during multiple planning phases from 2013 to 2015. The SPC plan was focused on issues at the regional level, looking toward the year 2040. It highlighted several key facts about public transportation in the 10-county region:



- In FY 2012, transit providers in the SPC region provided over 67 million rides on fixed route and rail, plus 4.6 million Shared-ride trips.
- The CommuteInfo Program operates the regional vanpool and carpool program for SPC and provides passengers commuting opportunities from multiple locations in Washington County to Pittsburgh, Oakland, and Wheeling.
- A companion document to *Mapping the Future*, the Southwestern PA Public Transit-Human Services Coordinated Transportation Plan, reviewed the 12 fixed route transit providers and 15 demand response service providers in the SPC region. Five transportation barriers identified through research and public outreach include:
 - Limitations in public funding
 - Availability and accessibility
 - Cost and affordability
 - Program policies and regulations
 - Education and information
- Another companion document, the Comprehensive Economic Development Strategy, or CEDS, included an analysis of the benefits of public transportation for the regional economy.

Community Input

Community input is a critical part of any planning process—it identifies the needs and wants of the people who use the transportation network daily to get to where they need to go. Throughout the development of the Washington County TDP, more than 200 community residents provided input through a variety of methods. These community input opportunities were designed to engage both riders and non-riders alike, with the overall goal of maintain current riders and meeting their needs while identifying new markets for additional riders that are currently underserved.

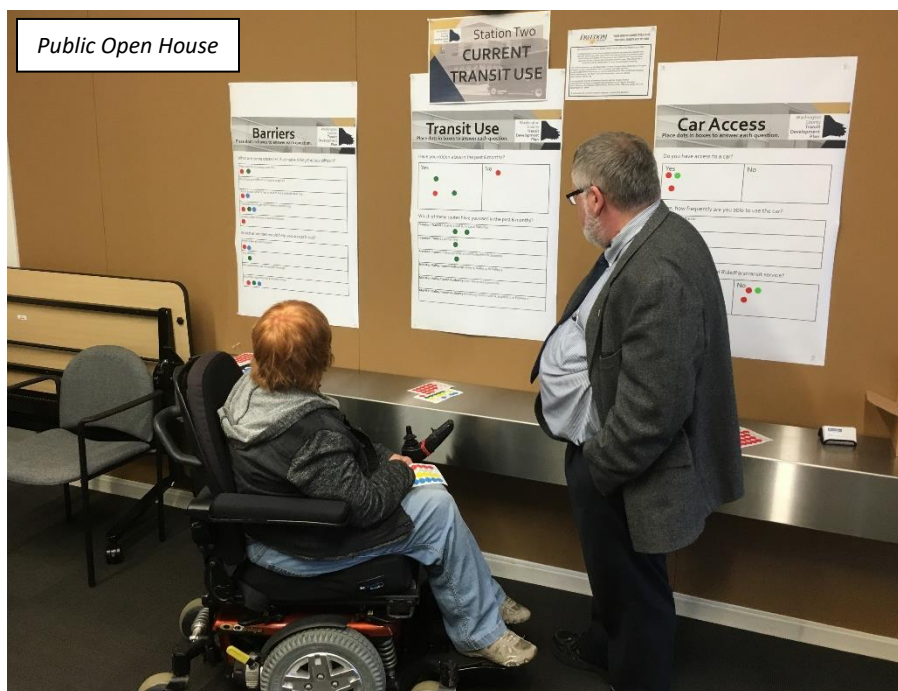
Four distinct public outreach activities were utilized during the planning process; they are:

- **Stakeholder Interviews**
- **Interactive Online Survey**
- **Public Input Sessions**
- **Draft Plan Displays**

Community input is the foundation by which the improvements outlined in the TDP were primarily identified. A summary of outreach activities and the themes that were heard throughout the process are identified on the next few pages.

Stakeholder Interviews

As part of the stakeholder interview process, more than a dozen community groups and leaders were contacted to learn about their views on public transportation in Washington County and how best to serve their constituents. Stakeholders included colleges/universities, state governmental entities, chambers of commerce, economic development organizations, and career development organizations. Input received through these stakeholder interviews is incorporated through the TDP, but is not assigned directly to any person or organization.



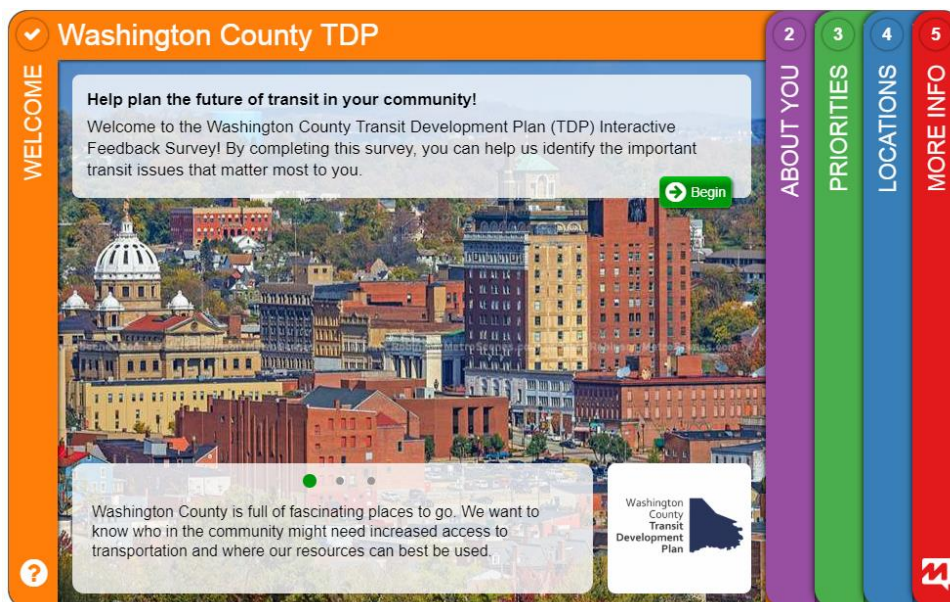
Interactive Online Survey

To engage a wide range of current and potential riders within Washington County, an interactive online survey was developed. The survey focused on identifying the priorities for improved public transportation in Washington County, as well as identifying locations where survey participants thought transit should take them. It is important to note that online survey participants were self-selected and may not represent a statistically valid sample of the community. However, the individuals that chose to participate represent the involved public in Washington County, many of which are, or could be, public transportation riders.

The survey launched on March 9th, 2018, and ran for approximately 30 days. Over the survey period, more than 190 people completed the survey, providing valuable input for the planning process. Shown in Figure 12, the survey was organized into five “pages” of interactive questions designed to work on all forms of internet-enabled devices. The pages consisted of:

1. **Welcome** – Introduced the purpose of the survey with facts about Westmoreland County.
2. **About You** – Asked participants related questions about their general use of transit, barriers to transit that they had encountered, and their access to personal vehicles.
3. **Destination Priorities** – Each participant was asked to rank their top three destination priorities (where they would like to go) out of 8 possible categories.
4. **Interactive Map** – Participants placed markers on a topographical map of the region to show locations of six categories of destinations: home, education, work, shopping, medical, and other.
5. **More Info** – A “thank you” for participating, with a list of optional demographic questions, including home zip code, employment status, household income, and age.

Figure 12: Online Interactive Survey Interface



Participant Demographics

Of the interactive survey participants, almost half were between 41 and 60 years old (Figure 13). Older respondents tended to be between 61 and 80, but rarely older; this demographic corresponds roughly with the proportion of respondents who were retired from their careers. More than a sixth of respondents were 25 years or younger, which is noteworthy because of younger generations' preference for public transportation¹. It is also possible that up to half of the younger respondents were students at one of the major institutions of higher education in Washington County (California University of Pennsylvania, Community College of Allegheny County's Washington branch, and Washington & Jefferson College), indicating a mix of both students and young professionals among the survey-takers (Figure 14).

Figure 13: Age of Respondents

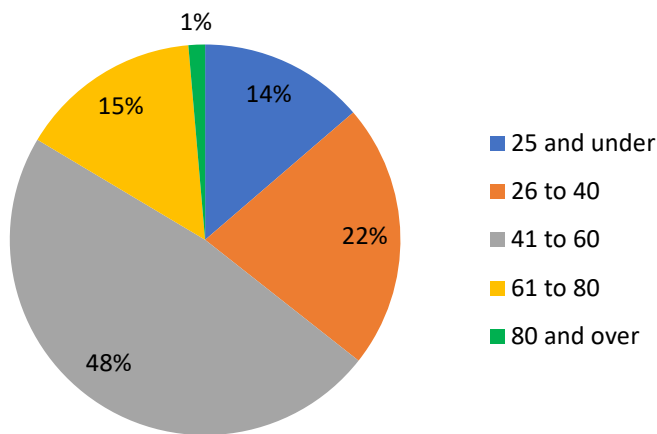
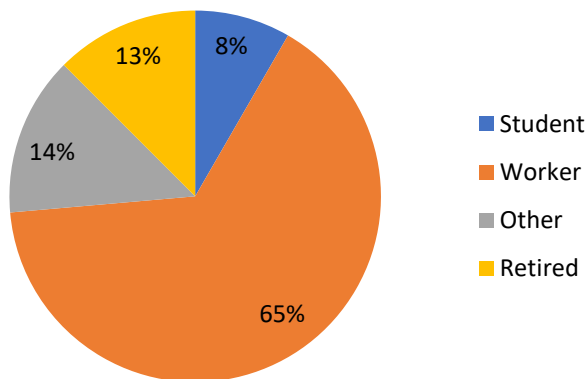


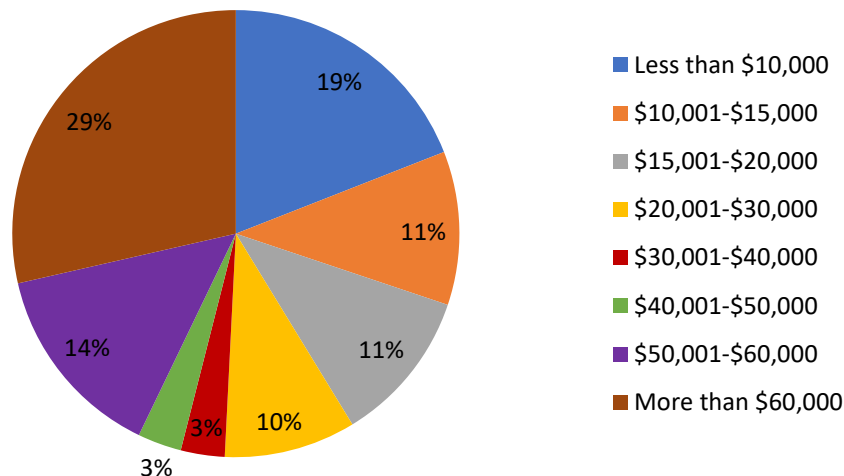
Figure 14: Employment Status of Respondents



¹ Source: Millennials & Mobility: Understanding the Millennial Mindset, American Public Transportation Association (APTA)/Transit Cooperative Research Program (TCRP), October 2013

Shown in Figure 15, household income levels among survey respondents were fairly diverse. According to the 5-year American Community Service data from 2016, the median household income in Washington is around \$57,000, and the federal poverty level for a family of four is around \$24,000. Participants in the Washington TDP survey were split evenly across the six income bracket options, with half of respondents from households earning more than \$30,000 and half from households earning less than \$30,000.

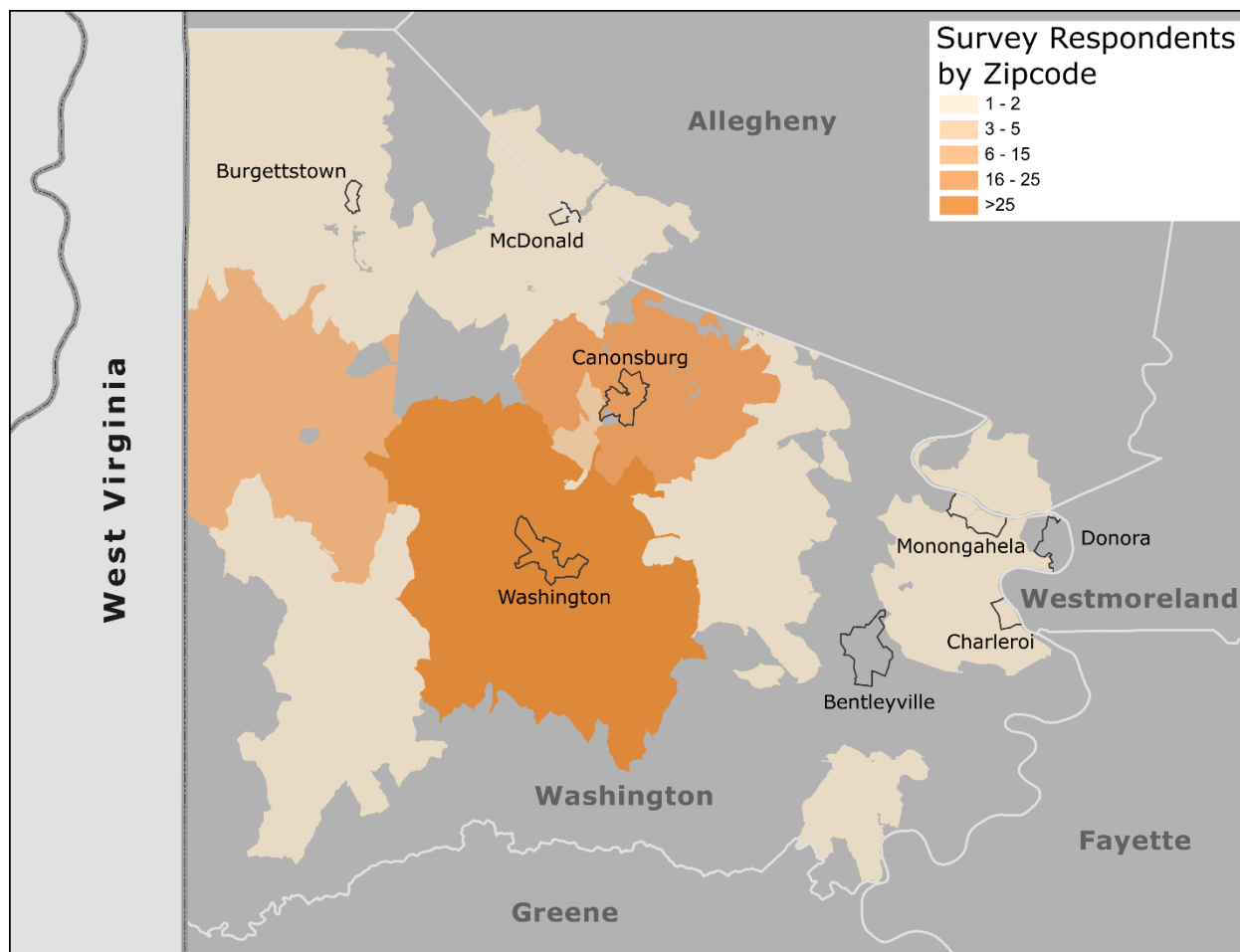
Figure 15: Annual Household Income Level of Respondents



Another metric that frequently influences transit use is access to a personal vehicle. Around 48% of survey participants noted that they didn't have consistent access to a car, with two-thirds of that group lacking any access to a car. For this half of respondents, public transit is a necessity more than a preferred transportation option.

It should also be noted that survey respondents were not completely representative of the county in geographic terms, shown in Figure 16. Although press releases were published across the county, overall respondents tended to be from areas where WCTA already provides fixed route services. Consequently, there is comparatively less data available from this survey for some areas of the county, such as the Monongahela Valley.

Figure 16: Representation of MetroQuest Respondents by Zip Code

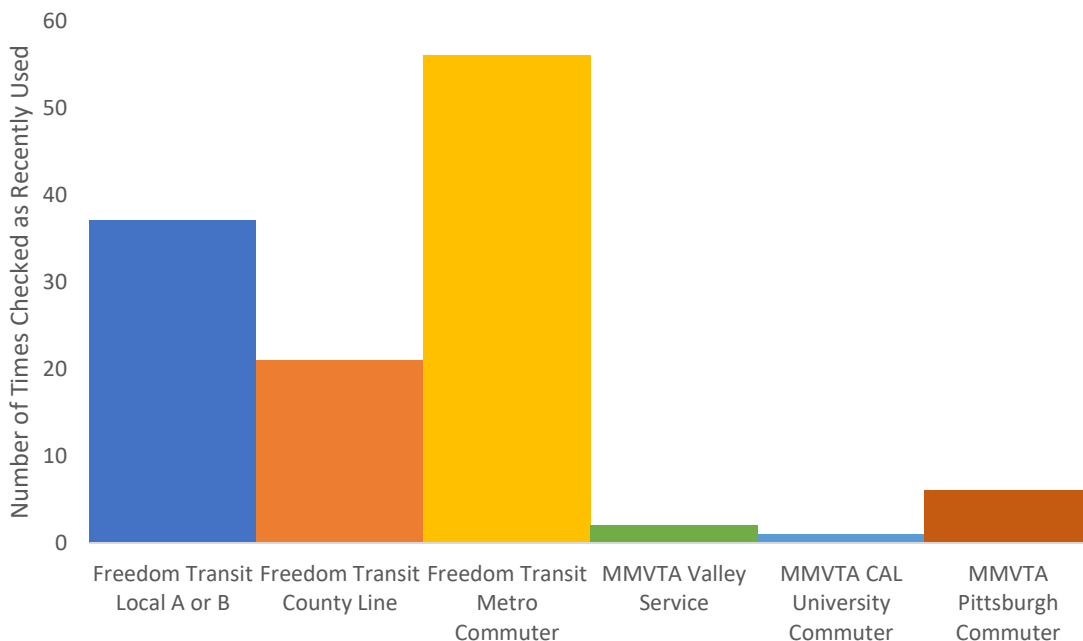


Service Usage

In the first interactive feature, participants could answer multiple-choice questions about if and how they use transit in Washington County.

Around two-thirds of respondents noted that they had used fixed route transit recently (in the past 6 months), and of those, the most popular services were WCTA Pittsburgh Metro Commuter Service and the Local A or Local B services. That, coupled with the fact that the most frequent use of Mid Mon Valley Transit Authority (MMVTA) was its Pittsburgh commuter service, suggests a significant demand for transportation to Pittsburgh from many parts of the county. Figure 17 shows the number of respondents who rode various fixed route services in the past six months.

Figure 17: Transit Services in Washington County Recently Used by Respondents



For respondents who use transit less frequently (or not at all), distance to bus stops was frequently identified as a major obstacle to riding the bus. Around a quarter of respondents stated that the lack of nearby bus stops or lack of sidewalks or safe walking paths deterred them from using the bus more often. More than one fifth stated that their usual destinations aren't currently accessible by any fixed route service. Another issue that survey participants identified was a general lack of communication and education about bus services.

In terms of appealing amenities that might encourage county residents to ride more frequently, adding bus shelters and bus stop signs that list which routes are available both received votes from around a third of survey participants. Some respondents also said that adding sidewalk connections would make buses easier or more enticing to use.

Given that a considerable number of respondents saw lack of communication and education about fixed route services as an obstacle, adding more signage at bus stops and bus shelters would help more county residents learn about and use bus services.

Destination Priorities

In the second feature, survey participants were asked to choose up to three of their top service priorities out of the eight listed, and then rank those top priorities from 1 to 3 (“1” representing an issue of primary importance). These priorities indicate which types of service participants wanted to connect to most. The tables below show both how often and how highly the eight priorities were ranked.

It is important to note that some priorities received high ratings among those who ranked them, despite being ranked as major priorities less frequently. To illustrate each priority’s relative importance, Table 3 and Table 4, list the eight priorities first by average ranking and frequency of ranking, respectively.

Table 3: Service Priorities by Average Ranking 1 to 3

	Service Priority	Average Rank
1.	Travel to Pittsburgh	2.4
2.	Within Washington County	2.4
3.	Door-to-Door Service	2.5
4.	More Frequent Service	2.5
5.	Access to Mon Valley	2.6
6.	Connect to PIA Airport	2.8
7.	Inexpensive Fares	2.9
8.	Outside Washington County	3.3

Table 4: Service Priorities by Number of Times Included in Respondents' Top 3

	Service Priority	Number of Times Ranked
1.	More Frequent Service	71
2.	Travel to Pittsburgh	62
3.	Inexpensive Fares	61
4.	Within Washington County	51
5.	Outside Washington County	47
6.	Connect to Pittsburgh Airport	32
7.	Door-to-Door Service	19
8.	Access to Mon Valley	18

Interactive Map

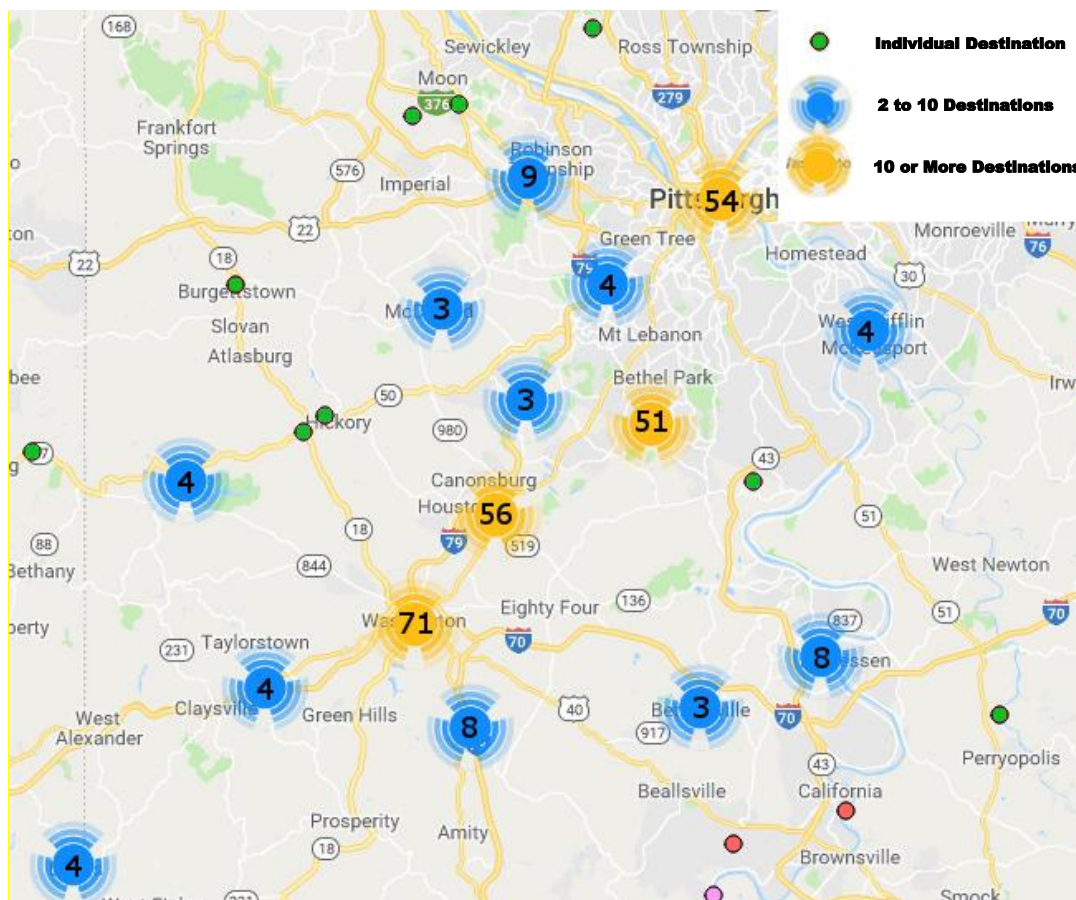
A third feature of the online survey provided respondents the opportunity to interact with an online map. The feature allowed users to identify specific destinations across the region. Survey respondents left a total of 305 markers on the interactive map, with corresponding comments. Survey respondents were able to classify the interactive markers by type of destination: home (used as origin data), education, medical facility, shopping, work, and other.

The majority of markers of all types were placed in the corridor that connects the City of Washington and Pittsburgh, including the Canonsburg-Houston area and the Mt. Lebanon-Bethel Park area around South Hills Village (Figure 18). Most of the respondents who plotted education destinations lived in the area around Washington and Canonsburg and went to school in Pittsburgh. Pittsburgh was also a destination for medical services, but most medical trips converged around the City of Washington. These trends point to Pittsburgh as a major destination for a variety of trip purposes.

South Hills Village was shown as the destination primarily for shopping (since the South Hills Village Mall is there), but also as a connection point to the Port Authority “T” light rail station.

Maps of the markers organized by each of the six destination categories can be found in Appendix C.

Figure 18: MetroQuest Survey Transit Destination Clusters



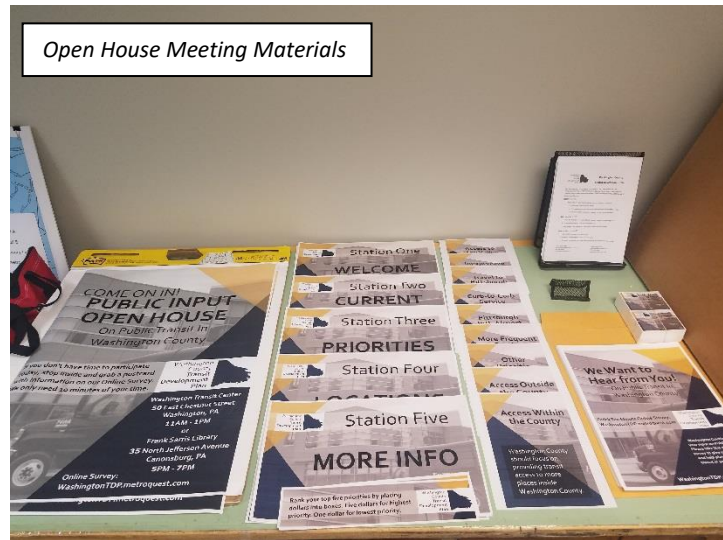
Public Meetings

Two separate public meetings were held on Wednesday, March 28th, 2018. Their locations and times were selected to allow maximum potential for access by Washington County residents. The first meeting was held over the lunch hour (11am-1pm) at the Washington Transit Center in downtown Washington. This meeting was intended to capture transit commuters at the transit center as well as downtown Washington workers in the nearby county seat offices. The second meeting was held after office hours (5pm-7pm) at the Frank Sarris Library in Canonsburg. This meeting was intended to capture the commuter market returning from Pittsburgh on Metro Commuter service as well as the Canonsburg local population and nearby workers who couldn't attend the earlier meeting.

Additionally, a representative attended the Tuesday, March 27th meeting for the companion "Northern Washington County Corridor Based Transportation Plan" to discuss transit needs with stakeholders in congested corridors surrounding Southpointe and the Southern Beltway freeway construction project.

Meetings were advertised countywide using various platforms. Posters were hung at local universities, county buildings, and WCTA facilities. Press releases were sent to all newspaper, radio, and television networks in the Pittsburgh, Steubenville, Wheeling, and Washington County media markets. Postcards were handed out to riders on WCTA vehicles and placed in stacks at various public places including libraries and grocery stores. Information was posted on the homepage banner of WCTA's website, www.freedom-transit.org. Additionally, Senator Camera Bartolotta actively promoted the meetings and online survey via her office mailers and online postings.

Nearly 40 members of the public attended the meetings and gave input. Meeting attendees provided valuable feedback enriching data collected from online surveys. Generally, feedback from meetings reflected the MetroQuest data.



Individuals attend the public meeting to learn more about the plan and offer their input on transit improvements.

Community Needs and Priorities

Through the community input process, several recurring themes were identified. These themes represent the priorities for public transportation in Washington County by people who currently are, or could become, riders. Common themes identified in public input sessions include:

- **Improvement to weekday and evening access to US-19 in Peters Township & South Hills Village (Canonsburg Lake, Donaldson's Crossroads, Waterdam Plaza)**
 - **Improvements to fare technology to allow for pre-tax commuter benefits**
 - **Implementation of real-time bus arrival information**
 - **Addition of a Canonsburg Park & Ride/Transfer Center**
 - **Development of of Canonsburg/Southpointe circulator service**
-

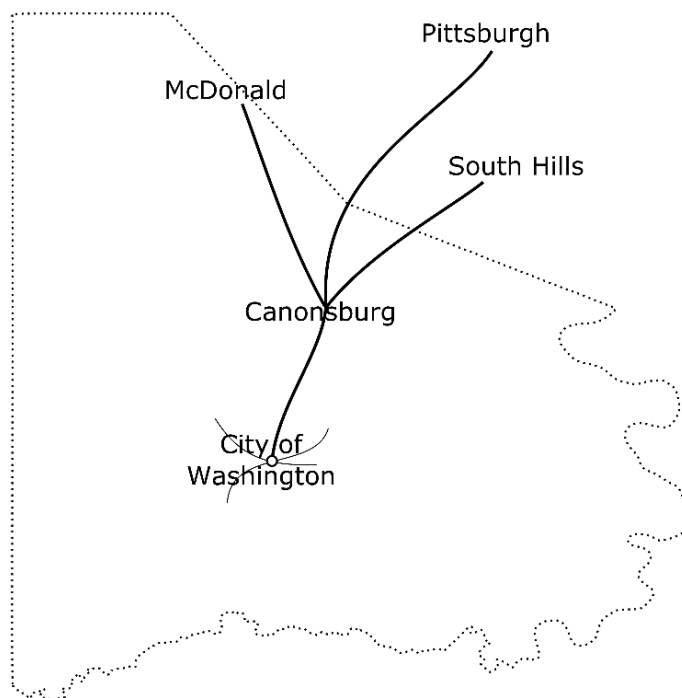
Existing Service Analysis

WCTA fixed route public transportation service has evolved considerably over time, and is currently organized in a “tree” pattern, with routes originating in the City of Washington and branching out toward McDonald and Downtown Pittsburgh on weekday, and South Hills Village on Saturdays (Figure 19). Additionally, local service in the City of Washington, and countywide Shared-ride service are offered Monday through Saturday.

Understanding the performance of existing transit services and comparing it to needs identified through demographic analysis and community input are critical to identifying where public transportation improvements could be made throughout Washington County. When evaluating service, it is important to look at segments of routes individually in addition to evaluating the entire route. Some routes may have high productivity at certain times or locations while having other segments with significantly lower productivity.

As a companion to the TDP, a set of WCTA Service Guidelines were developed. Service Guidelines are a set of basic requirements that should be met for an agency to offer a service based on measurable performance standards. These guidelines are an important and useful tool for a transit agency to help balance service requests with budgets and foster a culture of continuous improvement. The Service Guidelines are located in Appendix B and as a companion document titled “Washington County Transit Development Plan Service Guidelines.”

Figure 19: WCTA Simplified Transit Network



Fixed Route Service Analysis

Monthly ridership data metrics over a two and a half-year period (beginning in July 2015 and ending in March 2018) were analyzed for changes in ridership for each of WCTA's fixed route categories:

- County Line (City of Washington to McDonald)
- Metro (City of Washington to Downtown Pittsburgh & South Hills Village)
- Local (City of Washington)

WCTA underwent a consolidation prior to fiscal year 2015-16, combining Washington City Transit and the former Washington County Transportation Authority, to create the complete Urban and Rural fixed route network operated by WCTA today. Data prior to fiscal year 2015-16 is difficult to compare rationally, and as a result the cumulative data for WCTA doesn't allow for long-term trend analysis. Monthly assessments since the consolidation, however, provided insight into more localized trends.

It is important to note that a major service change in March 2017 had an effect on ridership for all fixed routes. Changes included de-interlining Local service to allow for faster transfers at the Washington Transfer Center, adjusting the Metro alignment in the City of Washington to better access Park & Ride lots, and adjusting the County Line alignment (formerly called Freedom Line) to serve more transit accessible destinations and provide a faster connection to the City of Washington.

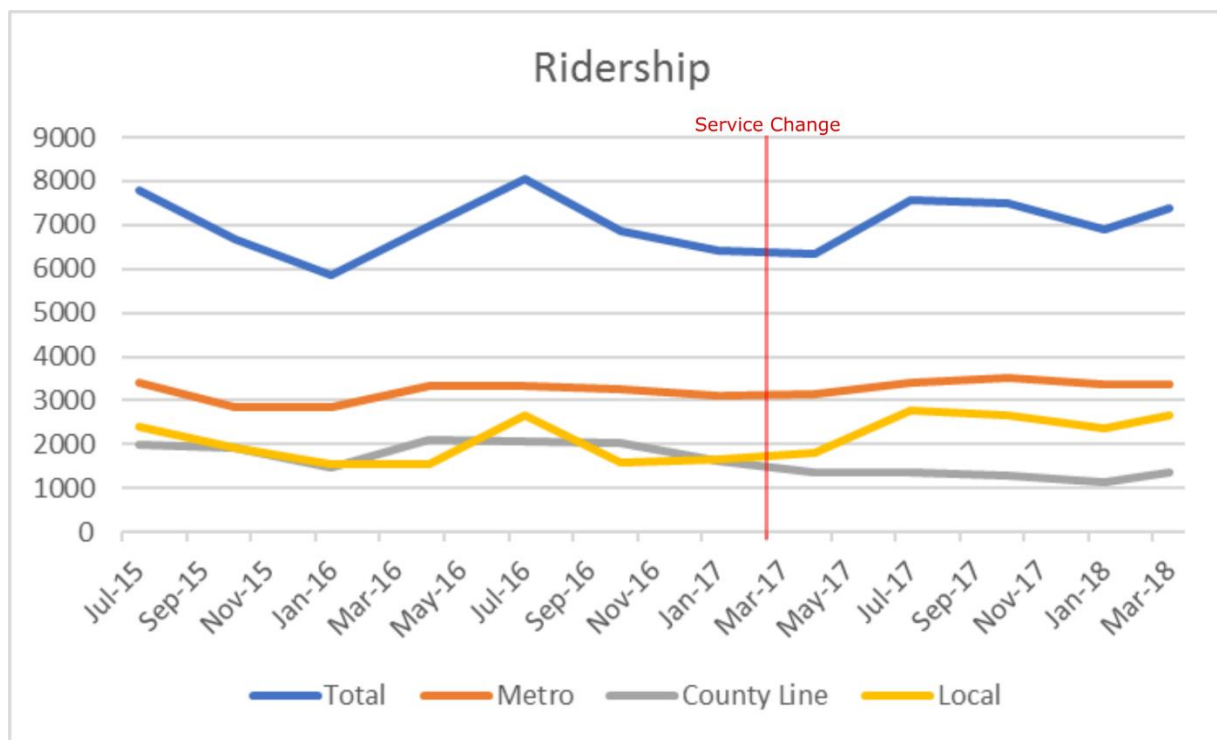
As a result of the 2017 service change, metric analyses were compared to both Fiscal-Year-to-Fiscal-Year, as well as Month-to-Month before and after the service change. It is important to note that service changes generally take three to five years to fully appreciate potential service levels as riders adjust to changes.

WCTA Fixed Route Performance

Ridership on the WCTA fixed route system has fluctuated by as much as 27%, but remains near the overall average of 7,030 passengers per month. In the year following consolidation, systemwide ridership grew 1.42%. That growth was accelerated following the March 2017 service change, showing a 5.8% increase in average monthly ridership.

The growth in ridership appears to have come mostly from local service in the City of Washington, balancing out a loss in ridership on County Line service. In the year following the March 2017 service change, Local ridership has grown by 35% and Metro ridership has grown by 6.5% while County Line ridership fell by 27%. This shift away from County Line service has been explained anecdotally by riders as the result of the removal of Walmart as a stop on the County Line. In response, an assessment of all feasible alternative alignments between the City of Washington and Canonsburg was performed in order to determine if any alignments accessing Walmart offer advantages over the current alignment. That analysis can be found later in this section under "Corridor Assessment."

Figure 20: WCTA Ridership by Route Type



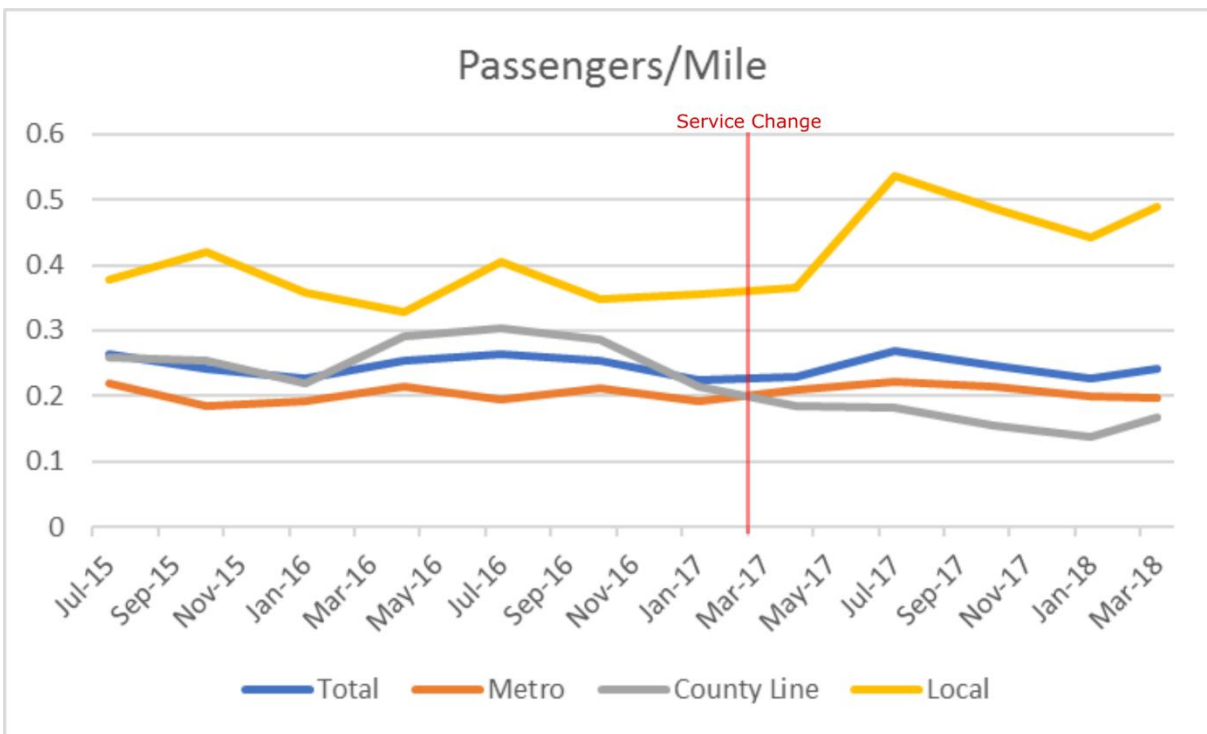
Data Source: WCTA Total Fixed Route Statistic Database.

Two key performance indicators which offer value in assessing fixed route systems are Passengers per Mile (Pass/Mi) and Passengers per Hour (Pass/Hr). Both metrics offer valuable insight into the productivity of routes within a system. Pass/Mi is generally more helpful in assessing the maintenance costs associated with service while Pass/Hr is generally more helpful in assessing the operations costs associated with service.

As shown in Figure 21 and Figure 22, since consolidation the productivity on Local service has increased dramatically (33% Pass/Mi, 15% Pass/Hr), Metro service has increased steadily (3.9% Pass/Mi, 3.27% Pass/Hr), and County Line service has dropped (-35% Pass/Mi, -33% Pass/Hr). Overall, systemwide productivity has remained relatively constant. Passengers per Mile are up by 1.37% while Passengers per Hour are down by 2.34%.

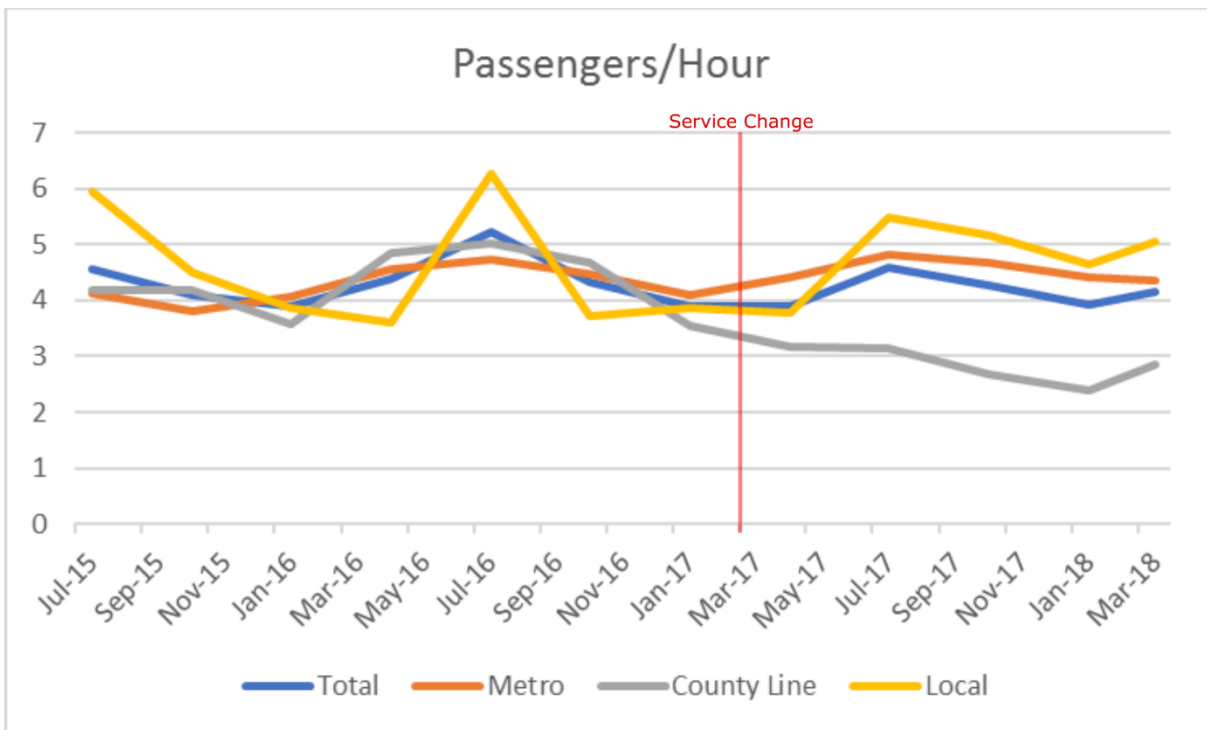
One major advantage of the March 2017 service change is that it detangled the service types allowing for a stop level assessment of services by type. The following section looks at service corridors to determine where and when the services are most productive.

Figure 21: WCTA Productivity by Route Type (Passengers per Mile)



Data Source: WCTA Total Fixed Route Statistic Database.

Figure 22: WCTA Productivity by Route Type (Passengers per Hour)



Data Source: WCTA Total Fixed Route Statistic Database.

Stop and Route Level Assessment

WCTA currently maintains 113 bus stops in their datasets, however a number of areas in the system allow for flag stops. At flag stops drivers may pick up or drop off passengers in safe areas along routes not currently designated as stops. For the purposes of this assessment, riders at flag stops were associated with the nearest designated stop.

Ridechecks were performed the third week of March 2018. These checks allowed for an on-street assessment of stops at all times of day throughout the week to calculate average ridership by stop. Observed ridership at each stop was then factored into systemwide and per-route annual totals to create more reliable average annual ridership by stop. Stop activity is the summation of both boardings and alightings, reflecting a stop as both a trip origin as well as a trip destination based on time of day. It is important to note that these averages are based on observations made the week of the checks and may not reflect event-based changes in ridership throughout the year. They are helpful in determining generally higher ridership stops, and in assessing the times of day stops are being accessed.

The highest ridership stop by far is the Washington Transit Center on East Chestnut Street, showing average daily ridership activity of 54.5 riders, as shown in Table 5. Additionally, stops in downtown Pittsburgh and at the Southpointe Park & Ride on the Metro Commuter Route round out the top 5 stops.

Estimated Annual Activity is based on the share of annual ridership by number of service days for each day type divided into the average daily activity share for each stop. Generally, stops with higher average daily activity also have proportionally higher estimated annual activity. One notable exception is at South Hills Transit Station which is the sixth highest ridership stop based on average daily activity, but 43rd (out of 113) in estimated annual activity. This is attributed to the stop only being accessible on Saturdays, and may reflect unmet demand for additional service to this stop.

Table 5: Average Daily Ridership Activity by Stop (Top 15)

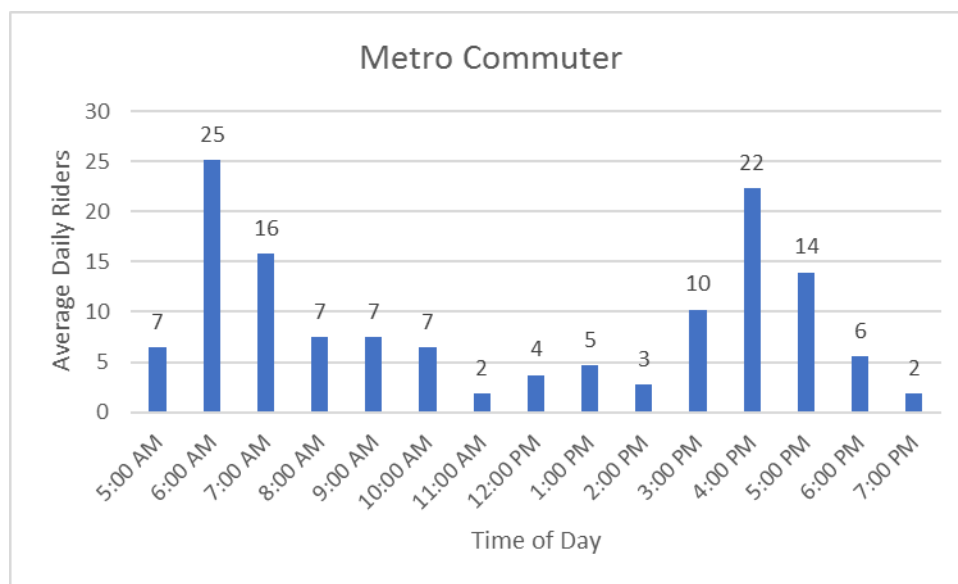
Stop Name	Average Weekday Activity	Average Saturday Activity	Average Daily Activity	Estimated Annual Activity
Washington Transit Center	64.7	3.6	54.5	16813
Smithfield St. @ 6th Ave.	22.9	0.0	22.9	5897
Gateway Center - Liberty Ave. & Stanwix St.	18.4	0.0	18.4	4742
Southpointe Park & Ride	14.8	0.0	14.8	3799
Trinity Point (Walmart)	12.8	8.6	12.1	3725
South Hills Transit Station	0.0	9.8	9.8	508
Meadows Casino - Racetrack Rd.	8.7	3.4	7.8	2410
Liberty Ave. - 3 Gateway Center	7.6	0.0	7.6	1956
McDonald Giant Eagle - Station St.	5.6	0.0	5.6	1441
Valley View Terrace - Valley Rd.	5.6	0.0	5.6	1436
Canonsburg Shop n Save - Pike St.	6.1	2.1	5.5	1685
Crown Center Mall	3.6	14.1	5.3	1652
Pike St. & Greenside Ave.	6.1	0.5	5.2	1589
Trinity Point Dr.	5.1	3.3	4.8	1487
Thomas Campbell Apartments	4.1	7.6	4.7	1442

Data Source: Calculated from manual ridechecks, March 2018

Metro Commuter

Ridership on Metro Commuter service is most productive between 5am-8am and 3pm-6pm, and is relatively weak midday, as shown in Figure 23. This appears to generally match the commuter peak for downtown Pittsburgh workers. Table 6 more clearly shows the peaks of daily service on Metro Commuter service are in downtown Pittsburgh around the hours of 7am and 5pm. One notable finding represented in Table 6 is that, while some ridership does remain throughout the day, none of the ridership activity between 8am and 3pm is at the Southpointe Park & Ride. Riders are accessing the system locally between the City of Washington and Canonsburg, and in downtown Pittsburgh. This may afford the opportunity to deviate midday Metro service from downtown Pittsburgh express service to more localized service to South Hills Village following the Metro Saturday service alignment. This alternative would provide additional options for accessing amenities locally while also maintaining a connection to downtown Pittsburgh through Port Authority of Allegheny County light rail service.

Figure 23: Metro Commuter Average Daily Ridership by Time of Day



Data Source: Calculated from manual ridechecks, March 2018

Table 6: Metro Commuter Percentage of Daily Ridership by Segment by Time of Day

Metro Commuter Weekday Percentages																
Segment	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	
Pittsburgh	0%	4%	7%	5%	2%	4%	1%	0%	2%	1%	3%	4%	7%	3%	0%	42%
Southpointe	1%	3%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	2%	1%	0%	10%
Canonsburg	0%	2%	3%	0%	1%	0%	0%	1%	0%	1%	0%	0%	1%	0%	0%	10%
Houston	0%	1%	1%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	5%
McGovern	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%
Meadowlands	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
South Strabane	0%	1%	1%	1%	0%	0%	0%	1%	0%	0%	1%	1%	0%	0%	0%	6%
Washington	1%	2%	1%	3%	2%	0%	1%	2%	0%	0%	1%	4%	4%	0%	1%	23%
	2%	12%	16%	8%	6%	4%	3%	3%	3%	3%	7%	9%	15%	5%	2%	100%

Data Source: Calculated from manual ridechecks, March 2018

County Line

A review of stop level ridership on County Line service shows relatively even distribution of riders throughout the day, as illustrated in Table 7. Highlights include regular ridership all day in the City of Washington, Canonsburg, and at Meadows Casino/Racetrack Rd. Significant ridership shares also exist in McDonald and Arden, but are more bunched in the early morning and afternoon.

Additionally, an analysis of productivity by segment, shown in Table 8, reflects significantly lower productivity in riders per hour on the segment through Arden, and lower productivity in both riders per mile and riders per hour between Canonsburg and McDonald.

This suggests that the bulk of ridership on County Line service is between the City of Washington and Canonsburg, with stops in Arden being accessed on fewer trips than other destinations along the way. Potential exists to reallocate some of the trips between Canonsburg and McDonald to other areas of need across the county, grouping ridership in that corridor onto two or three more productive trips. Similarly, potential exists to redirect a couple of the County Line trips through Arden to another, more popular alignment such as one accessing Trinity Point in South Strabane Township.

Table 7: County Line Percentage of Daily Ridership by Segment by Time of Day

County Line Weekday Percentages															
Segment	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	
McDonald/Muse	3%	0%	2%	2%	0%	0%	0%	2%	3%	1%	0%	0%	0%	0%	14%
Canonsburg	4%	1%	7%	0%	0%	6%	2%	2%	5%	1%	0%	1%	0%	0%	27%
Houston	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	0%	1%	1%	0%	4%
McGovern	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	2%
Racetrack Rd	0%	1%	1%	0%	2%	0%	1%	1%	4%	1%	0%	2%	2%	0%	13%
Meadowlands	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	2%
Arden	0%	1%	4%	1%	0%	0%	2%	1%	1%	0%	2%	0%	0%	0%	10%
Washington	0%	6%	3%	5%	0%	0%	3%	2%	0%	0%	5%	0%	4%	0%	28%
	7%	9%	19%	8%	2%	6%	7%	6%	14%	6%	6%	4%	6%	0%	100%

Data Source: Calculated from manual ridechecks, March 2018

Table 8: County Line Productivity by Segment

Productivity by Segment				Daily		Daily	Miles	Riders	Riders
Segment	Share	Riders	Miles	Miles	Mins	Hours	/ Hour	/ Mile	/ Hour
McDonald/Muse	14%	12.1	10.4	145.6	22	5.13	28	0.08	2.37
Canonsburg	27%	24.3	1.9	26.6	16	3.73	7	0.91	6.51
Houston	4%	3.6	1.5	21	3	0.70	30	0.17	5.10
McGovern	2%	1.4	0.8	11.2	2	0.47	24	0.13	3.06
Racetrack Rd	13%	11.4	4.4	61.6	11	2.57	24	0.19	4.45
Meadowlands	2%	2.1	0.7	9.8	2	0.47	21	0.22	4.59
Arden	10%	9.3	3.8	53.2	18	4.20	13	0.17	2.21
Washington	28%	25.0	2.2	30.8	9	2.10	15	0.81	11.91
Full Route:	100%	89.3	25.7	359.8	83	19.37	19	0.25	4.61

Data Source: Calculated from manual ridechecks, March 2018

Systemwide Ridership Share

A look at ridership across the WCTA system, shown in Table 9, reflects strongest ridership shares by peak commuters to Pittsburgh on weekdays and to South Hills Village on Saturday.

Ridership on the remaining system remains fairly consistent throughout the week. Local A & Local B services show a loss in ridership midday, but those losses are closely related to the share of service offered during each hour that service is paused over the lunch hour. The loss in ridership after 5pm on Local A service may warrant a reduction of service hours on that line.

Ridership on Saturday remains strong throughout the day. Opportunities may exist to expand service on weekends to grow ridership.

Table 9: Average Daily Ridership and Systemwide Share by Route and Time of Day

Average Daily Riderhip (FY16-17)																	
Weekday		Hour Beginning															Total
Route	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM		
Metro Commuter	3.1	12.1	7.6	3.6	3.6	3.1	0.9	1.8	2.2	1.3	4.9	10.8	6.7	2.7	0.9	65	
County Line	No Service	2.4	0.6	4.1	1.2	0.0	1.2	1.2	1.2	2.1	0.9	1.2	0.9	1.2	0.0	18	
Local A	No Service	0.1	0.6	0.5	0.9	0.3	0.0	No Service	0.0	0.5	1.1	0.7	0.0	0.0	0.0	5	
Local B	No Service	No Service	0.2	0.9	0.9	0.6	1.2	0.6	No Service	1.4	0.6	0.5	1.4	0.2	No Service	8	
Total	3.1	14.6	8.9	9.1	6.6	4.1	3.3	3.6	3.4	5.3	7.6	13.1	9.0	4.0	0.9	97	
Saturday		Hour Beginning															Total
Route	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM		
Metro Saturday	No Service	No Service	No Service	No Service	0.9	3.4	0.3	2.2	1.2	0.0	2.8	0.6	0.6	No Service	No Service	12	
Local Saturday	No Service	No Service	No Service	1.6	7.2	5.2	3.1	5.7	2.1	2.6	1.6	5.7	4.1	0.0	No Service	39	
Total				1.6	8.2	8.6	3.4	7.9	3.3	2.6	4.3	6.3	4.8	0.0		51	
Share of Daily Ridership																	
Weekday		Hour Beginning															Total
Route	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM		
Metro Commuter	2.3%	8.9%	5.6%	2.6%	2.6%	2.3%	0.7%	1.3%	1.7%	1.0%	3.6%	7.9%	5.0%	2.0%	0.7%	48.2%	
County Line	No Service	2.6%	0.7%	4.6%	1.3%	0.0%	1.3%	1.3%	1.3%	2.3%	1.0%	1.3%	1.0%	1.3%	0.0%	20.1%	
Local A	No Service	0.3%	1.7%	1.3%	2.6%	1.0%	0.0%	No Service	0.0%	1.3%	3.3%	2.0%	0.0%	0.0%	0.0%	13.5%	
Local B	No Service	No Service	0.3%	2.0%	2.0%	1.3%	2.6%	1.3%	No Service	3.0%	1.3%	1.0%	3.0%	0.3%	No Service	18.2%	
Total	2.3%	11.9%	8.3%	10.6%	8.6%	4.6%	4.6%	4.0%	3.0%	7.6%	9.2%	12.2%	8.9%	3.6%	0.7%	100%	
Saturday		Hour Beginning															Total
Route	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM		
Metro Saturday	No Service	No Service	No Service	No Service	2.6%	9.6%	0.9%	6.1%	3.5%	0.0%	7.9%	1.8%	1.8%	No Service	No Service	34.2%	
Local Saturday	No Service	No Service	No Service	2.6%	12.3%	8.8%	5.3%	9.6%	3.5%	4.4%	2.6%	9.6%	7.0%	0.0%	No Service	65.8%	
Total				2.6%	14.9%	18.4%	6.1%	15.8%	7.0%	4.4%	10.5%	11.4%	8.8%	0.0%		100%	

Data Source: Calculated from manual ridechecks, March 2018

Transit Propensity Analysis

After considering the performance of the existing service, understanding the markets within Washington County and how they may or may not be served by transit is the last critical component of the TDP process. One way in which to measure the potential for transit use is through a transit propensity analysis.

The transit propensity analysis is based on *Transit Cooperative Research Program (TCRP) Report 28: Transit Markets of the Future*, which identifies fourteen groups of users as being “more likely than average to use transit as their principal mode for commuting to work, relatively independent of their income or the size or density of the metropolitan areas in which they live” (TCRP Report 28, page 8). Table 10 summarizes the most relevant of these characteristics that impact transit propensity.

Table 10: Socioeconomic Transit Determinants

Transit Determinant	Measure
Population	<ul style="list-style-type: none"> Population Density
Age	<ul style="list-style-type: none"> Seniors as % of Total Population Young Workers as % of Total Population
Race & Ethnicity	<ul style="list-style-type: none"> Black Hispanic
Vehicle Ownership	<ul style="list-style-type: none"> No Car
Education	<ul style="list-style-type: none"> High School or Less
Immigrant Status	<ul style="list-style-type: none"> Immigrant
Disability Status	<ul style="list-style-type: none"> Has disability
Income	<ul style="list-style-type: none"> Percent below poverty line

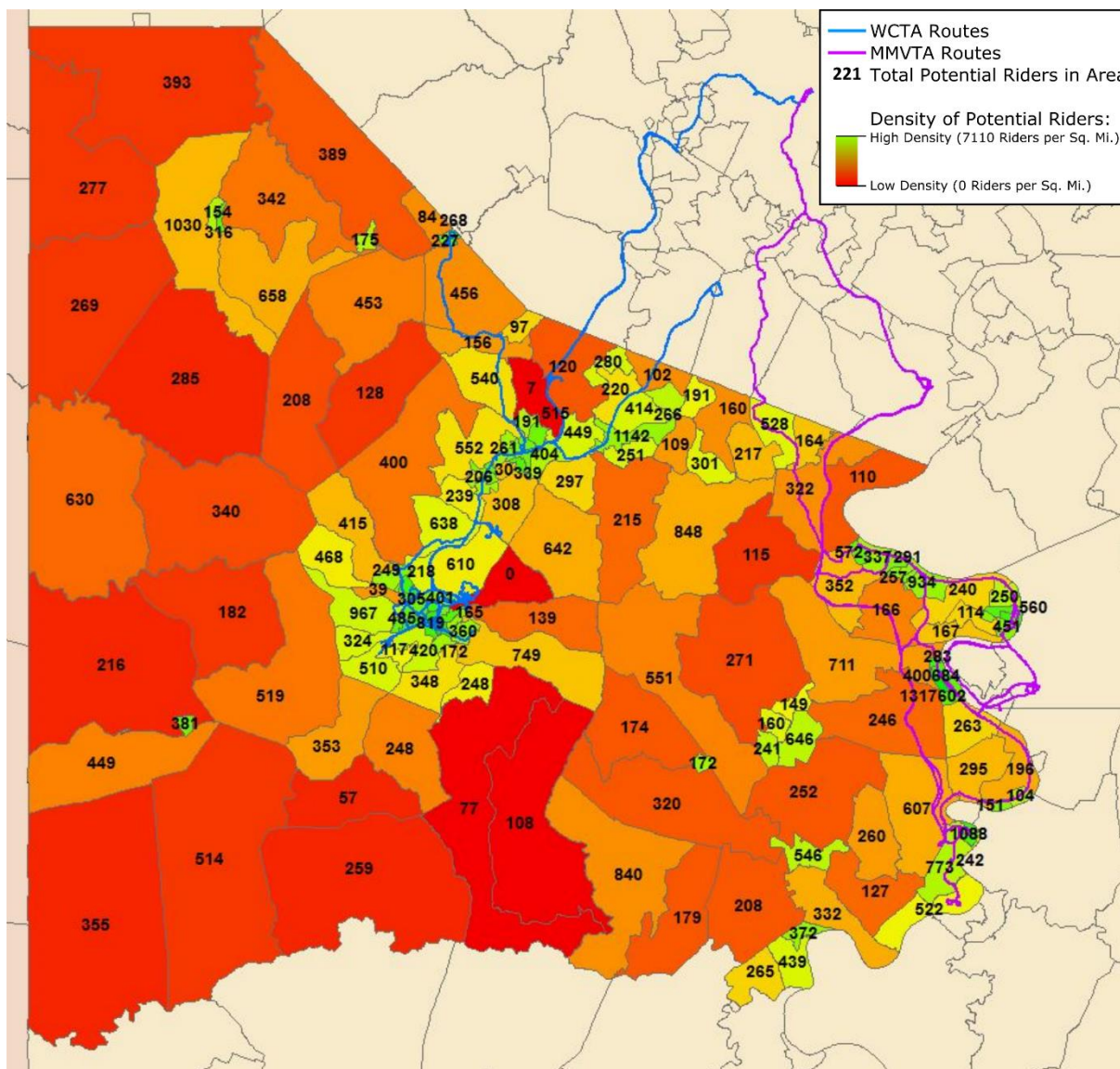
Source: TCRP Report 28: Transit Markets of the Future

To better understand the overall likelihood of transit use, a “Transit Propensity Index” was created using the characteristics defined in Table 10. For all variables, higher values are indicative of greater need and likelihood of transit use. In this analysis, US Census Bureau defined tracts and/or block groups are the most common areas of measurement. For example, a block group with a higher number of zero-car households exhibits a greater mobility need and has a higher propensity for transit use.

It’s important to understand propensity as a measure of need and not necessarily efficiency. A block group with the highest propensity means that the residents of that census block are most likely to ride transit service, but it does not mean that transit service would be most productive there. Population density and job density are the biggest factors in determining transit productivity. When overlaying current service on top of propensity, WCTA can begin to see new markets that are unserved by transit today.

Propensity scores, when applied to US Census Longitudinal Employer Household Dynamics data, can provide insight into the total potential riders in a service area. Figure 24 depicts the total potential riders in each census tract, with tracts shaded by potential rider density.

Figure 24: Rider Origin Density with Total Potential Riders



Data Source: Calculated using data from 2016 TIGER/Line Shapefiles, GTFS, 2016 ACS 5 Year Estimates, and 2016 LEHD

A few conclusions can be drawn from the Potential Ridership map:

- Ridership density is concentrated in areas currently served by WCTA and MMVTA fixed routes.
- Pockets of unserved ridership density exist in Bentleyville, Burgettstown, and Peters Township.
- Collectively, there are large numbers of potential riders in southern and western Washington County. However, they are not concentrated into densities suitable for fixed route service.

Corridor Assessment

The two key service corridors that were repeatedly reflected in community input include a connection between the Monongahela Valley and Washington and improvements to the current high-ridership corridor between Canonsburg and Washington. In order to effectively determine the best alignments in these corridors, a number of alternatives were tested on a number of comparative metrics. Metrics tested include:

- Potential Riders
- Roundtrip Miles
- Roundtrip Runtime
- Riders per Mile
- Riders per Hour
- Miles per Hour
- Total Population near stops
- Total Jobs near stops
- Percentage in Poverty near stops
- Percentage Minority Race near stops
- Percentage Over the Age of 65 near stops
- Percentage Under the Age of 18 near stops
- Percentage of Zero Car Households near stops

No metric is paramount in alternative testing. Rather, the metrics are used as comparisons in order to select the alternative meeting the objectives of as many metrics as possible.

Mon Valley Connection

Nine alternatives were considered between the City of Washington and Mid Mon Valley Transit Authority service area. All options originate at the Washington Transit Center in the City of Washington as it is the primary transfer point in the WCTA network. There are three potential ends of lines offering connection potential to MMVTA service:

1. 1st and Main Streets, Monongahela, PA
2. MMVTA Transit Center, Lincoln & McKean Avenues, Charleroi, PA
3. 3rd Street & University Avenue, California, PA

Using these four ends of lines, nine Mon Valley Connection (MVC) Options were developed. Route maps of these options can be found in Appendix E:

- MVC Option A – Washington to Monongahela via SR 136
- MVC Option B – Washington to Charleroi via SR 136, Monongahela, and Country Club Rd
- MVC Option C – Washington to Charleroi direct via I-70
- MVC Option D – Washington to Charleroi via I-70 and Bentleyville
- MVC Option E – Washington to Charleroi via US-40, Route 917, I-70, Cokeburg, and Bentleyville
- MVC Option F – Washington to California via US-40
- MVC Option G – Washington to California via US-40, Route 917, I-70, SR-43, Cokeburg, and Bentleyville

- MVC Option H – Washington to Monongahela via Houston, Canonsburg, US-19, Peters Township, Venetia, and Finleyville
- MVC Option I – Washington to Charleroi via Houston, Canonsburg, US-19, Peters Township, Venetia, Finleyville, Monongahela, and County Club Drive

For the assessment of alignments in this corridor, a one-mile buffer was placed around stops in rural areas for the assessment of stop-level metrics.

Initial data findings for each metric are shown in Figure 25, with a red to green shading scale where green indicates stronger transit outcomes. These initial finds show no clear priority alignment. Tables ranked by each of the metrics can be found in Appendix E. MVC Options H & I rank very high in Potential Riders, Riders per Mile, and Riders per Hour. MVC Option I may be capturing some of MMVTA’s riders through the connection between Monongahela and Charleroi. Based on these determinants, MVC Option H appears to be the best alternative to reach the Mon Valley.

Access to Bentleyville was a popular request and, as there is a dense population of potential riders, a second alternative with service through Bentleyville is recommended as an alternate to MVC Option H. Of the options accessing Bentleyville, MVC Option E is the most productive.

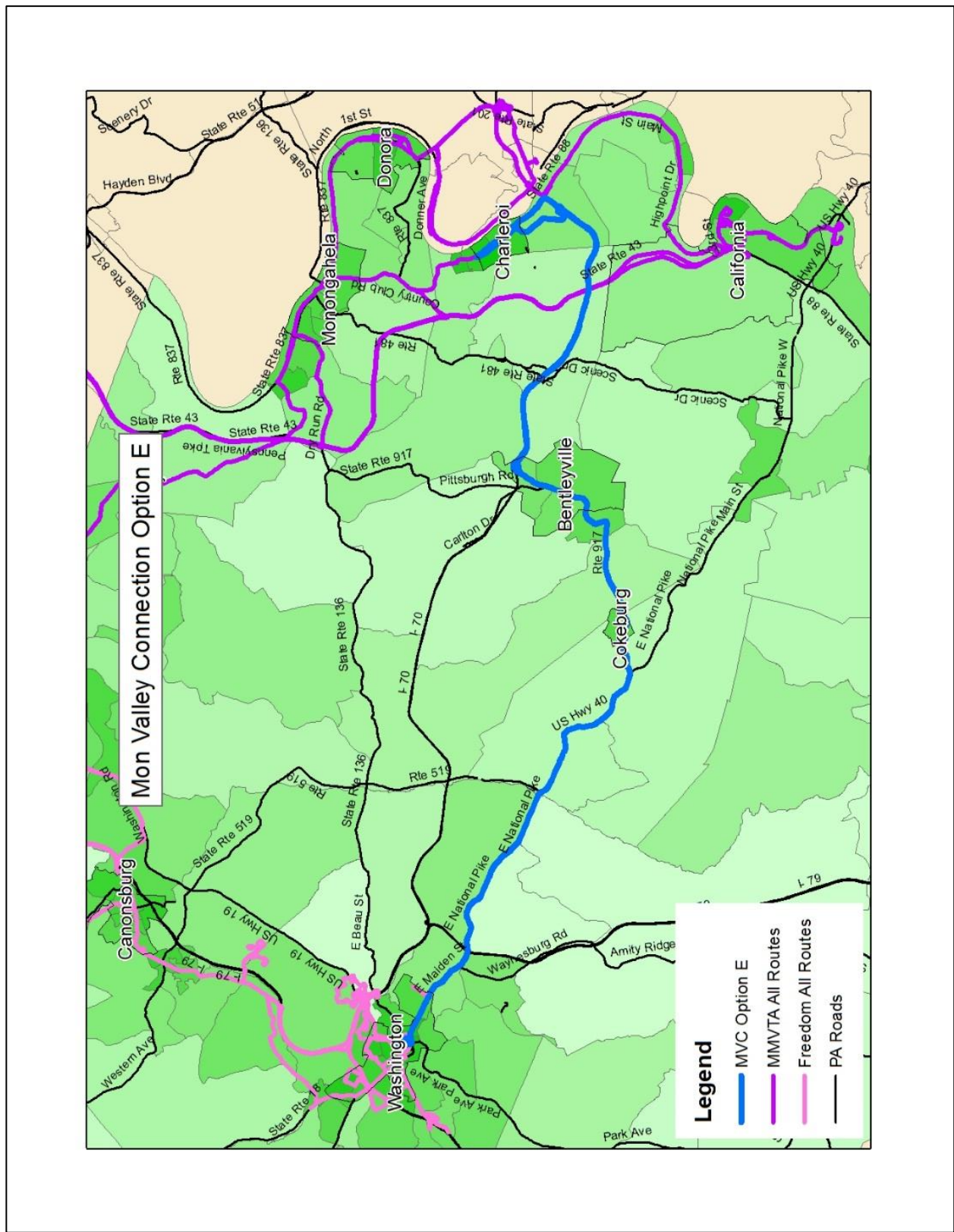
Figure 25: Mon Valley Connection Metrics

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%

Data Source: Calculated using data from Google Maps WAZE, GTFS, 2016 ACS 5 Year Estimates, and 2016 LEHD

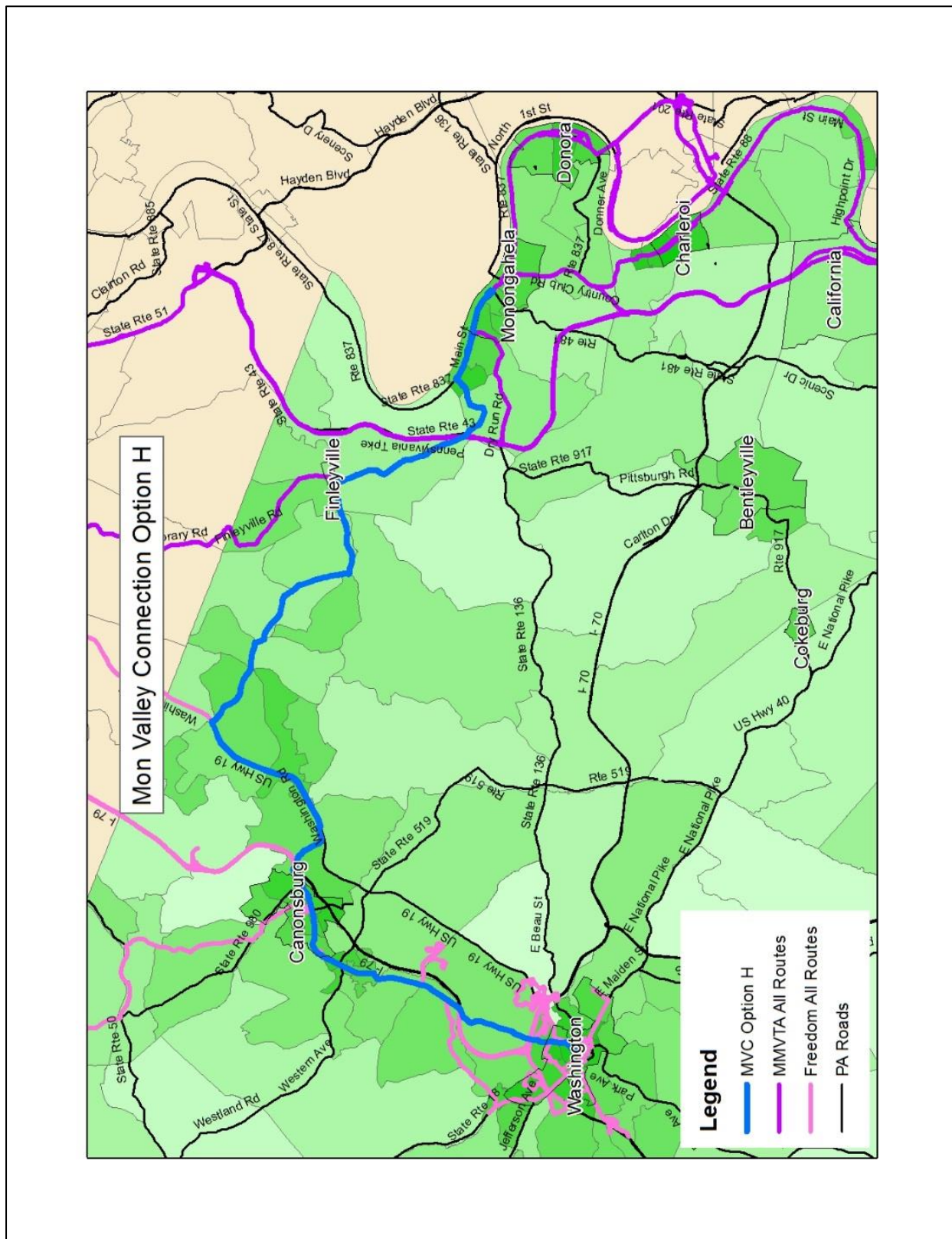
For these reasons MVC Option E (shown in Figure 26) and MVC Option H (shown in Figure 27) are both potential alternatives for accessing the Monongahela Valley.

Figure 26: Mon Valley Connection Option E



Source: ESRI and Michael Baker International

Figure 27: Mon Valley Connection Option H



Source: ESRI and Michael Baker International

Washington-Canonsburg Connection

Many comments were given on the indirectness of the County Line following the March 2017 service change. As the corridor between Washington and Canonsburg is the primary corridor for transit users in Washington County, it is important to ensure the alignment or alignments for routes in this corridor be the most productive.

Ten Washington-Canonsburg (WC) Options were considered between the City of Washington and the Borough of Canonsburg. All options originate at the Washington Transit Center in the City of Washington and terminate at the intersection of Pike Street and Central Avenue in downtown Canonsburg, the location where alignments toward McDonald, Pittsburgh, South Hills Village, and Monongahela deviate from the main corridor. Route maps of these options can be found in Appendix F:

- WC Option A – Via Pike St., Country Club Rd., Henderson Ave., and Jefferson Ave.
- WC Option B – Via Pike St., Meadows Casino/Tanger Outlets, Country Club Rd., Henderson Ave, and Jefferson Ave.
- WC Option C – Via Pike St. and Locust Ave.
- WC Option D – Via Pike St., Meadows Casino/Tanger Outlets, and Locust Ave.
- WC Option E – Via Pike St., Meadows Casino/Tanger Outlets, Locust Ave., Trinity Point, and Beau St.
- WC Option F – Via Pike St., Meadows Casino/Tanger Outlets, Locust Ave., Trinity Point, and Murtland Ave.
- WC Option G – Via Pike St., Meadows Casino/Tanger Outlets, US-19, Trinity Point, and Beau St.
- WC Option H – Via Pike St., Meadows Casino/Tanger Outlets, US-19, Old Mill, Strabane Sq., Trinity Point, and Beau St.
- WC Option I – Via Pike St., Meadows Casino/Tanger Outlets, US-19, Old Mill, Strabane Sq., Trinity Point, Washington Mall, Murtland Ave.
- WC Option J – Via Pike St., I-79, Beau St. P&R, Trinity Pt., and Murtland Ave.

For the assessment of alignments in this corridor, a ¼ -mile buffer was placed around stops in rural areas for the assessment of stop-level metrics. Tables ranked by each of the metrics can be found in Appendix F.

A Review of the data is shown in Figure 28, with a red to green shading scale where green indicates stronger transit outcomes. This data reflects two alignments standing out for different reasons.

- WC Option B (which is the current alignment of the County Line) shows the highest potential riders as well as the best ranked alignment for Total Population, Total Jobs, Percentage in Poverty, and Percentage under the age of 18 within ¼ mile of stops.
- WC Option J (which is the current alignment of the Metro excluding the Jessop Park & Ride) shows the highest productivity in Potential Riders per Mile, Potential Riders per Hour, Miles per Hour, as well as the highest percentage of Minorities within ¼ mile of stops.

The conclusion of this analysis is that current Metro and County Line alignments are the most productive and best options for fixed routes between the City of Washington and Canonsburg. The two alternatives provide access to different amenities and opportunities for riders however, and care should be given to evenly distributing trips throughout the day. Advantages of the Metro alignment include access to

multiple Park & Rides, Walmart, and a faster connection between the City of Washington and Canonsburg. Advantages of the County Line alignment include access to more jobs and transit dependent residents, access to the Washington County Fairgrounds, and access to Tanger Outlets & Meadows Casino.

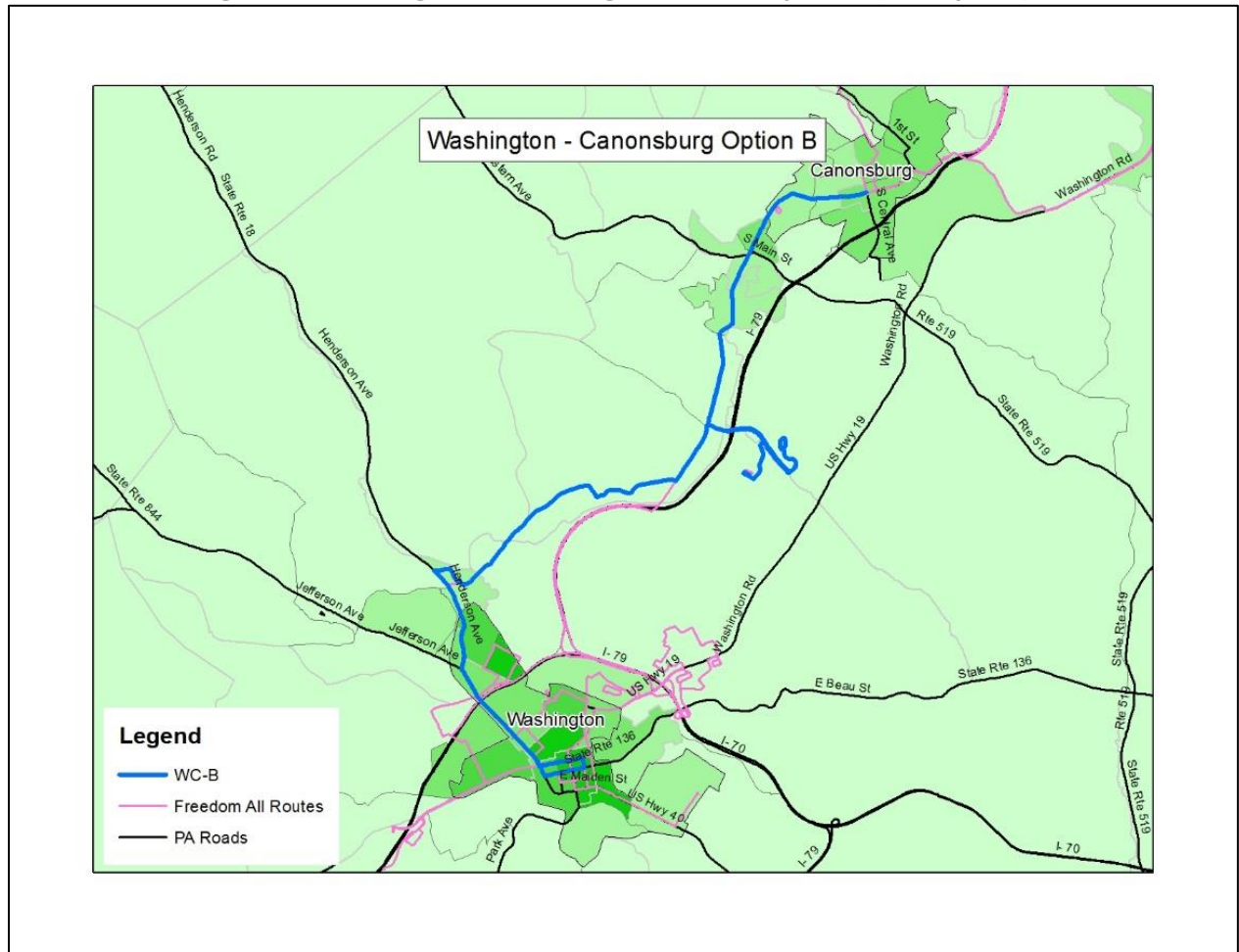
Maps of these two alignments are shown in Figure 29 and Figure 30.

Figure 28: Washington Canonsburg Connection Metrics

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option J	981.9297	22.07	82	44.5	718.5	16.1	6,992	5,652	14.0%	20.4%	17.3%	16.7%	14.3%

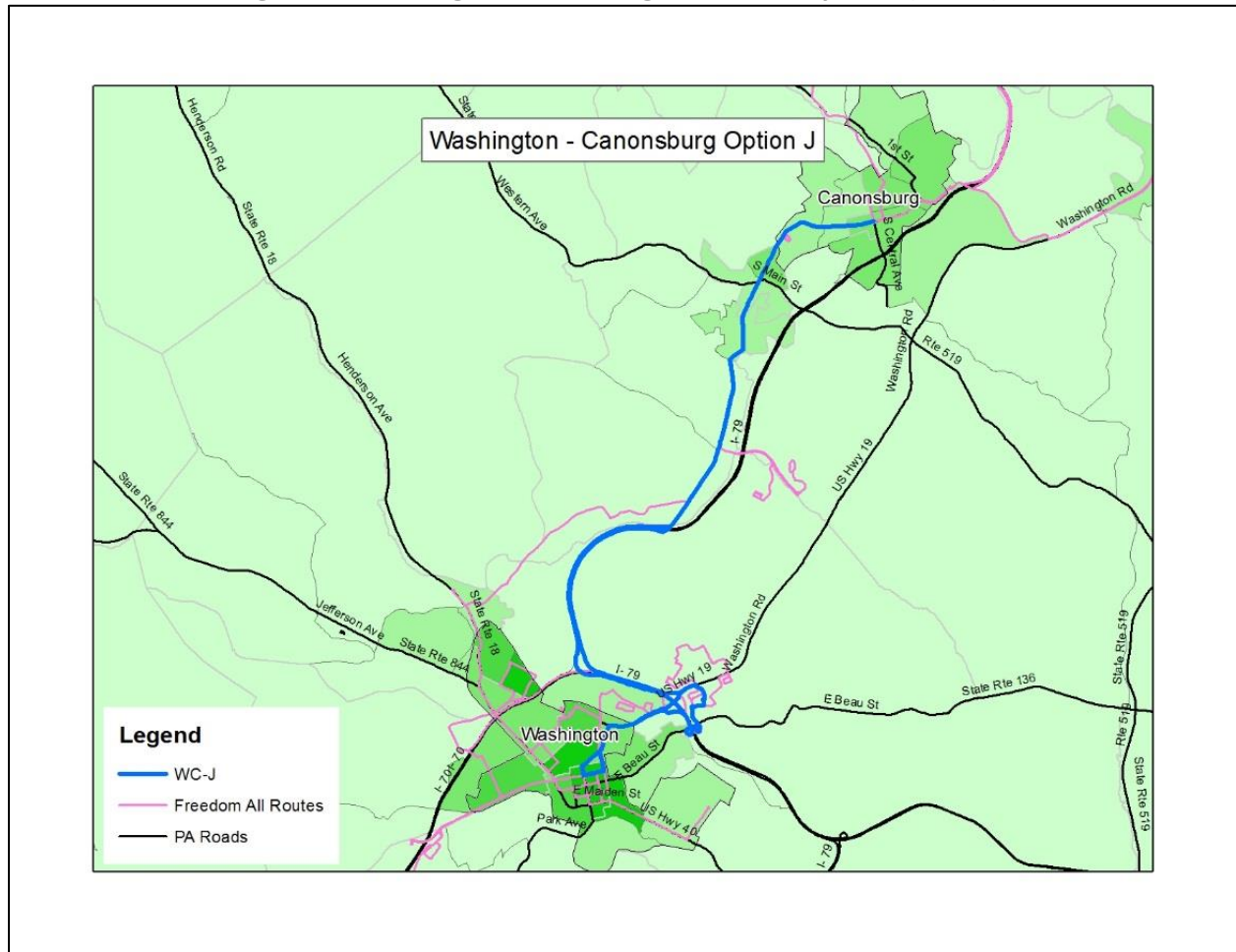
Data Source: Calculated using data from Google Maps WAZE, GTFS, 2016 ACS 5 Year Estimates, and 2016 LEHD

Figure 29: Washington Canonsburg Connection Option B (County Line)



Source: ESRI and Michael Baker International

Figure 30: Washington Canonsburg Connection Option J (Metro)



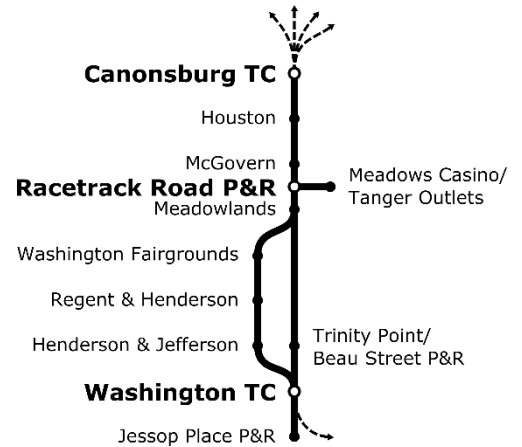
Source: ESRI and Michael Baker International

Fixed Route Service Recommendations

By far the largest share of potential transit riders is in one linear corridor between the City of Washington and Canonsburg. A natural “service spine” exists through which rural and commuter routes can be operated. Within this corridor, focus can be given to rider amenities such as improved shelters, new transit centers and Park & Rides, real-time displays, and increased frequency of buses.

There are three potential alignments through the service spine:

- **Metro Express** (current Metro Commuter alignment):
 - Operating express along I-79 between Meadowlands and the City of Washington with a focus on service Park & Rides.
 - Washington-Canonsburg runtime: 25 mins.
- **Metro** (current Metro Saturday alignment):
 - Operating express along I-79 between Meadowlands and the City of Washington, but also service local destinations like Trinity Point (Walmart), Meadows Casino, and Tanger Outlets.
 - Washington-Canonsburg runtime: 40 mins.
- **County Line** (Current County Line alignment):
 - Serving all local stops between Washington and Canonsburg.
 - Washington-Canonsburg Runtime: 55 mins.



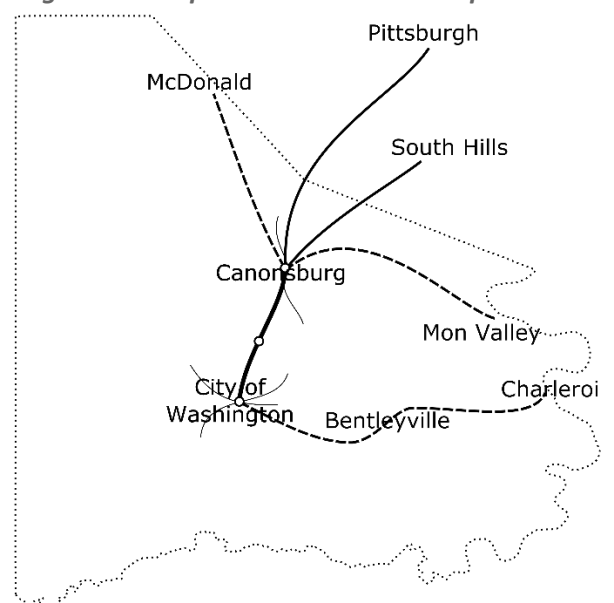
Because of the focus on commuters to Pittsburgh, it is recommended that service through the spine remain on the Metro Express alignment for Pittsburgh trips. Because of requests for weekday access to the US-19 corridor and the South Hills Village light rail station on weekdays and in evenings, it is recommended that Pittsburgh service be cut back to peak-only, shifting those trips to South Hills midday and in evenings. South Hills trips should remain on the Metro or Metro Express alignments in order to allow for access back to vehicles at Park & Rides should downtown workers choose to stay later and take advantage of the light rail connection.

Current County Line service to McDonald is not meeting productivity goals. While it is important to retain access to McDonald, service hours can be reallocated to new County Line service to the Monongahela Valley via a northern alignment through Peters Township/Finleyville and/or via a southern alignment through Bentleyville.

Service to McDonald and the Monongahela Valley should operate on the County Line spine alignment when possible to provide access to the more transit-oriented destinations along the spine.

In addition to the successful City of Washington local service, additional local service in Canonsburg, operating between Southpointe and Downtown Canonsburg, should be pursued.

Figure 31: Proposed WCTA Service Expansion



Shared-ride Service Analysis

Washington County Transportation Authority (WCTA) provided 209,498 Shared-ride and Americans with Disability Act (ADA) complementary paratransit trips during FY 2016-17 according to data exported from WCTA’s paratransit software system, Ecolane. This analysis did not include trips provided as contracted services². As shown in Table 11, most of these trips were funded by the Shared-ride lottery program and the Medical Assistance Transportation Program (MATP). This trend continued into the first six months of FY 2017-18, with these two programs funding the majority of trips.

Table 11: WCTA Trips by Funding Source

Funding Source	Trips	Percent
Area Agency on Aging (AAA)	1,331	0.64%
ADA	15,526	7.41%
Behavioral Health/ Intellectual Development Disability (BH/IDD)	4,670	2.23%
General Public	174	0.08%
Shared-ride Lottery	91,890	43.86%
MATP	71,274	34.02%
Persons with Disabilities (PwD)	21,941	10.47%
Other Programs ³	2,692	1.28%
Total	209,498	100.00%

Data Source: WCTA reported data through Ecolane

To understand details about these trips, how they impact the operations of WCTA, and to identify improvements that may be made, a Shared-ride analysis was completed, examining service area, hours, and days to:

- Analyze the efficiency and effectiveness of WCTA’s Shared-ride service.
- Better understand existing travel patterns.
- Identify trips that are costly for WCTA to provide.
- Examine the potential for developing user service guidelines to group trips, increase efficiency, and reduce costs.
- Examine the potential for coordinating trips with Shared-ride providers in surrounding counties.
- Assess current service hours and days.

² Trips provided as contracted services that were excluded from this analysis included those with the funding sources of AAA-Contract, MATP Special, MMVTA, MMVTA Special, and Veterans-HSDF.

³ Trips under the “Other” category were provided by the following funding sources: Drug & Alcohol (D&A), Foster Grandparents, Greenery, Havencrest, Kades, Manor, McMurray Hills, Mon Valley Care, Office of Vocational Rehabilitation (OVR), Presbyterian, Step By Step, Townview, Transitions Humbert Nursing, Wash Co Health, Wash Hospital, Wash Rides.

Service Area Analysis

This analysis illustrates locations in WCTA’s Shared-ride service area with the highest density of Shared-ride trips provided to, from, or through each location. It also compares areas of high density, or “hot spots,” to WCTA’s existing fixed route service.

Overall, WCTA’s Shared-ride service is concentrated in the City of Washington and its surrounding municipalities to the northeast through Canonsburg and along US-19. The bulk of Shared-ride trips begin or end in Washington. As a destination alone, the City of Washington accounts for almost one-fifth of Shared-ride drop-off points, while the Borough of Canonsburg is the next most popular municipality for Shared-ride destinations (see Table 12).

Table 12: Top Shared-ride Destinations

Municipality	Total Drop-Offs	Percent of Drop-Offs
Washington	40,436	19.30%
Canonsburg	12,195	5.82%
Donora	9,694	4.63%
Charleroi	6,660	3.18%
Monongahela	5,056	2.41%
California	4,604	2.20%
Bentleyville	4,360	2.08%
Burgettstown	1,833	0.87%
Pittsburgh	1,618	0.77%
McDonald	770	0.37%

Data Source: WCTA reported data through Ecolane

As illustrated in Table 12, the next highest concentration of Shared-ride travel occurs in the Mon Valley region near Washington County’s border with Westmoreland County. Shared-ride vehicles transport County residents throughout the major municipalities of Monongahela, Donora, California, and Charleroi, as well as from the Mon Valley region to the Washington/Canonsburg area. These four municipalities in the Mon Valley combined represent more than 12% of all Shared-ride destinations in Washington County.

Outside of Washington County, Allegheny County is the most popular destination. Shared-ride trips to Allegheny County tend to originate in the central portion of Washington County and end in either Pittsburgh’s city center or its southwestern suburbs. This suggests that demand for access to Pittsburgh is mainly restricted to points of interest just south of I-376.

Table 13 shows trips by purpose. While Medical trips remain the dominant trip purpose (35.1%), service usage includes all trip types including shopping, social/recreational, beauty shop, etc.

Table 13: Shared-ride Trips by Purpose

Trip Purpose	Trips	Percent
Adult Day Care	6,975	3.3%
ARC HS Work	269	0.1%
Banking	891	0.4%
Beauty Shop	2,426	1.2%
Dialysis	26,474	12.6%
Education	829	0.4%
Legal Services	33	0.0%
Medical	73,483	35.1%
Methadone	14,481	6.9%
Miscellaneous	2,401	1.1%
Pharmacy	991	0.5%
Restaurant	671	0.3%
Senior Center	26,844	12.8%
Shopping	10,236	4.9%
Social/Recreational	12,326	5.9%
Urgent Care	335	0.2%
Visit	2,286	1.1%
Volunteer	1,851	0.9%
Work	25,696	12.3%
Total	209,498	100.0%

Data Source: WCTA reported data through Ecolane

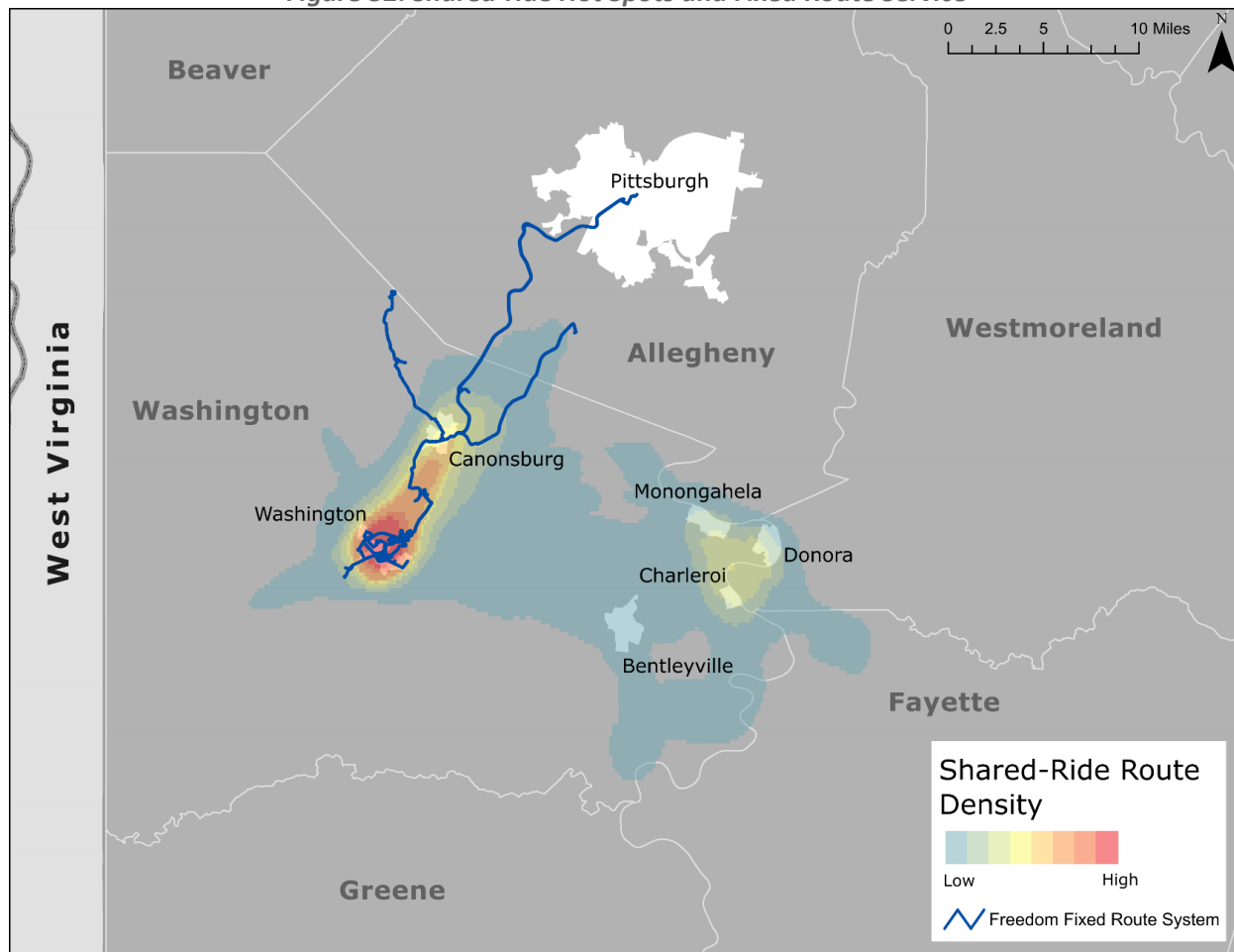
Shared-ride Hot Spots and Fixed Route Service

As shown in Figure 32, WCTA's fixed route system overlaps high-demand areas of Shared-ride use between the Washington area and Canonsburg. The area between Washington and Canonsburg is served by each of the three fixed routes that connects Washington to other major municipalities—the County Line, the Metro Commuter, and the Saturday Metro Commuter.

Many other Shared-ride trips continue this trajectory northeast from Washington into the South Hills. Currently, the only route that serves this area is the Saturday Metro Commuter. As shown in Figure 32, the current weekday Metro Commuter to Pittsburgh veers west of the South Hills, where Washington County residents are more likely to go. Conversely, the Saturday Metro Commuter travels through the South Hills without completing the trip to downtown Pittsburgh.

The third intercity route, the County Line, may benefit from closer analysis of the route's productivity. The County Line connects Washington and Canonsburg to McDonald at the Allegheny County border, an area that does not show significant trip density. Table 12 shows that McDonald is one of the less popular destinations among Shared-ride users, accounting for less than half of one percent of total trips. Unless a future environmental justice analysis can show that the current County Line provides vital transportation to an underprivileged community, or a ridership analysis can show that the McDonald leg of the County Line meets a sufficient demand, WCTA might consider reducing service hours or service area for that route. If so, those funds could be reallocated to meet other transportation needs in the County or fill gaps in service.

Figure 32: Shared-ride Hot Spots and Fixed Route Service



Data Source: WCTA reported data through Ecolane, GTFS

The largest gap in fixed route service coverage is the Mon Valley area. Although that region is served locally by Mid Mon Valley Transit Authority (MMVTA), there is currently no fixed route that connects the WCTA network in the county’s center to the MMVTA’s network in the east. The hot spot analysis shows that Shared-ride passengers frequently travel between the county center and the Mon Valley region, illustrating a demand for a link between the two areas.

Service Hours and Days Analysis

Shown in Table 14, WCTA’s ADA service hours were defined as Monday through Friday, 5:00am to 7:30pm, and Saturday 8:30am to 5:30pm. WCTA’s service hours for Shared-ride service were defined as Monday through Saturday, 5:00AM to 8:00PM. Holidays on which service was not provided included Christmas, Thanksgiving, and New Year’s Day.

Table 14: WCTA Shared-ride Service Hours

Fiscal Year	ADA	Shared-ride
FY 2016-17	Monday – Friday, 5:00am to 7:30pm Saturday, 8:30am to 5:30pm	Monday – Friday, 5:00am to 8:00pm Saturday – 5:00am to 8:00pm
FY 2017-18	Monday – Friday, 5:00am to 8:00pm Saturday, 8:30am to 6:30pm	Monday – Friday, 5:00am to 8:00pm Saturday, 5:00am to 8:00pm

Data Source: WCTA

WCTA revised its service area and hours for FY 2017-18. The updated ADA service hours are defined as Monday through Friday, 5:00am to 8:00pm, and Saturday 8:30am to 6:30pm. WCTA did not make any changes to its Shared-ride service hours, but specified that it will only provide trips up to five miles into surrounding counties, as opposed to anywhere within surrounding counties. It also notes that any trips provided beyond this five-mile area would have to be for medical purposes. This analysis of service hours and days assesses these service changes and the potential for additional opportunities to enhance service.

Service Hours Analysis

WCTA’s service hours are defined as Monday through Saturday, 5:00am to 8:00pm. Currently, trips with pick-ups after 5:00pm account for only 3.5% of all trips. Less than 1% of all pick-up trips occur after 7:00pm, as shown in Table 15.

Table 15: Trips by Time of Day and Day of the Week

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Total	
	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
5 AM - 6 AM	1,638	4.8%	1,241	3.31%	1,617	3.69%	1,181	3.12%	1,718	4.13%	1,011	7.04%	8,406	4.01%
6 AM - 7 AM	2,712	7.9%	2,251	6.00%	2,833	6.46%	2,350	6.21%	2,754	6.62%	1,398	9.74%	14,298	6.82%
7 AM - 8 AM	3,461	10.1%	3,597	9.59%	3,981	9.08%	3,650	9.64%	3,426	8.24%	1,390	9.68%	19,505	9.31%
8 AM - 9 AM	2,968	8.6%	3,486	9.29%	3,833	8.75%	3,630	9.59%	3,801	9.14%	1,122	7.82%	18,840	8.99%
9 AM - 10 AM	3,437	10.0%	4,182	11.15%	4,670	10.66%	4,079	10.78%	4,415	10.62%	1,333	9.29%	22,116	10.56%
10 AM - 11 AM	3,426	10.0%	3,638	9.70%	4,336	9.89%	3,481	9.20%	4,414	10.62%	1,362	9.49%	20,657	9.86%
11 AM - 12 PM	3,118	9.1%	3,163	8.43%	4,429	10.11%	3,306	8.73%	4,134	9.94%	1,147	7.99%	19,297	9.21%
12 PM - 1 PM	2,547	7.4%	3,263	8.70%	3,497	7.98%	3,235	8.55%	3,350	8.06%	958	6.67%	16,850	8.04%
1 PM - 2 PM	2,701	7.9%	3,301	8.80%	3,644	8.32%	3,308	8.74%	3,327	8.00%	797	5.55%	17,078	8.15%
2 PM - 3 PM	3,249	9.4%	3,989	10.63%	4,091	9.34%	4,077	10.77%	4,039	9.71%	1,122	7.82%	20,567	9.82%
3 PM - 4 PM	2,675	7.8%	2,864	7.64%	3,777	8.62%	2,955	7.81%	3,211	7.72%	1,008	7.02%	16,490	7.87%
4 PM - 5 PM	1,331	3.9%	1,326	3.54%	1,733	3.95%	1,400	3.70%	1,541	3.71%	665	4.63%	7,996	3.82%
5 PM - 6 PM	434	1.3%	533	1.42%	550	1.26%	515	1.36%	588	1.41%	417	2.91%	3,037	1.45%
6 PM - 7 PM	407	1.2%	416	1.11%	517	1.18%	437	1.15%	533	1.28%	404	2.81%	2,714	1.30%
7 PM - 8 PM	280	0.8%	256	0.68%	314	0.72%	241	0.64%	322	0.77%	218	1.52%	1,631	0.78%
8 PM - 9 PM	-	0.0%	3	0.01%	1	0.00%	3	0.01%	8	0.02%	1	0.01%	16	0.01%
Total	34,384		37,509		43,823		37,848		41,581		14,353		209,498	

Data Source: WCTA reported data through Ecolane

Shared-ride Analysis Service Recommendations

This analysis of WCTA's service area, hours, and days revealed several recommendations that should be evaluated in further detail:

- Consider revising Shared-ride service hours to 5:00am to 6:00pm due to the small number of trips provided past 6:00pm to keep fares low and provide additional connections to areas of the county.
 - Consider reducing fixed route service hours or service area for the McDonald leg of the County Line, unless a ridership analysis can show that they meet a sufficient demand.
 - Consider expanding fixed route service coverage in the Mon Valley area. The hot spot analysis shows demand for a link between Washington and the Mon Valley area.
 - Explore opportunities to meet with Fayette Area Coordinated Transportation (FACT), Greene County Transportation, Westmoreland County Transit Authority (WCTA), and the Port Authority of Allegheny County (PAAC) to discuss the potential for coordinating service into more distant areas of these counties, or trips that both originate and end in these counties.
 - Explore ways to encourage public use of Shared-ride services to connect rural areas to nearby fixed routes.
-

This page left intentionally blank.

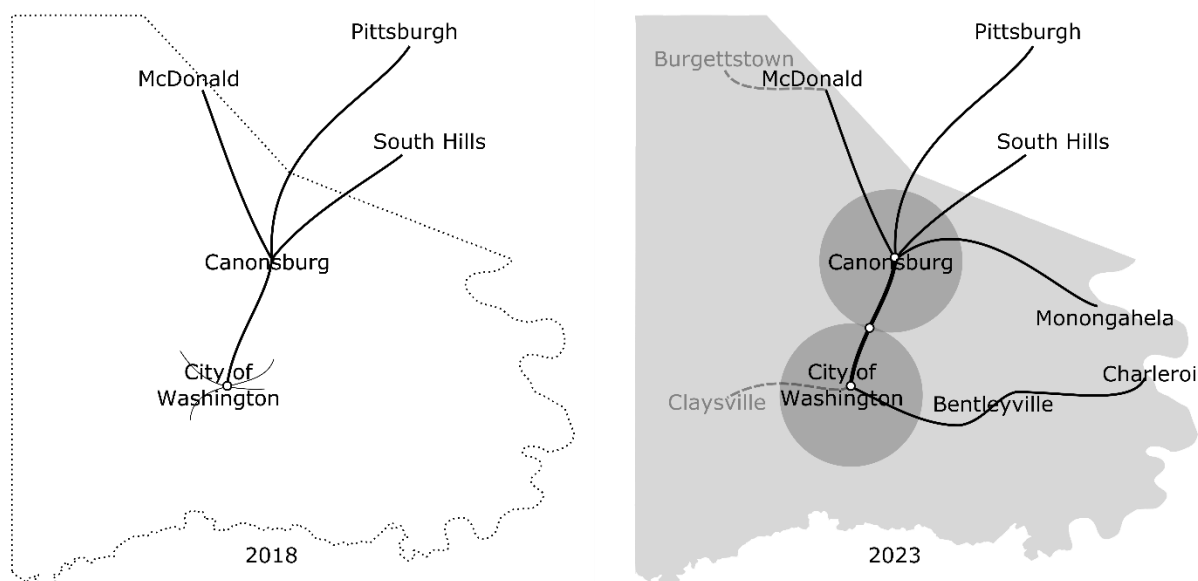
Public Transportation Recommendations

Through data collection and analysis and community input, a picture has developed for the future of public transportation in Washington County. This picture of the future includes:

- Due to the largely rural nature of the county in its southern and western regions with a strong urban corridor along I-79 into Pittsburgh, opportunity exists to grow fixed route service within the “service spine” between the City of Washington and Canonsburg, with Metro service continuing on into downtown Pittsburgh and to the South Hills Village light rail station.
- An important connection currently missing from the fixed route network is between the densely populated Mon Valley in eastern Washington County and the County seat in the City of Washington. Two or three trips per day to the Mon Valley can be achieved through the reallocation of County Line service, expanding opportunities for access between the two urban areas.
- While the rural areas of the county lack enough density to support fixed route service, large numbers of potential riders remain scattered across those areas of the county. Opportunities exist to give access to those areas through advancements in the Shared-ride program.
- Additionally, longer-term procurement of advanced on-demand Shared-ride applications may be able to bring public “Uber-like” services to the City of Washington and Canonsburg areas, providing more opportunities for residents and businesses in those urban areas to access each other.

The growth of the WCTA network will take time to achieve. This section details the short-, medium-, and long-term steps that can be taken to get there. Each phase is illustrated through a series of conceptual network diagrams, where heavier lines are indicative of more frequent service and dotted lines are used to display changes to the current system.

Figure 33: Proposed Service Expansion

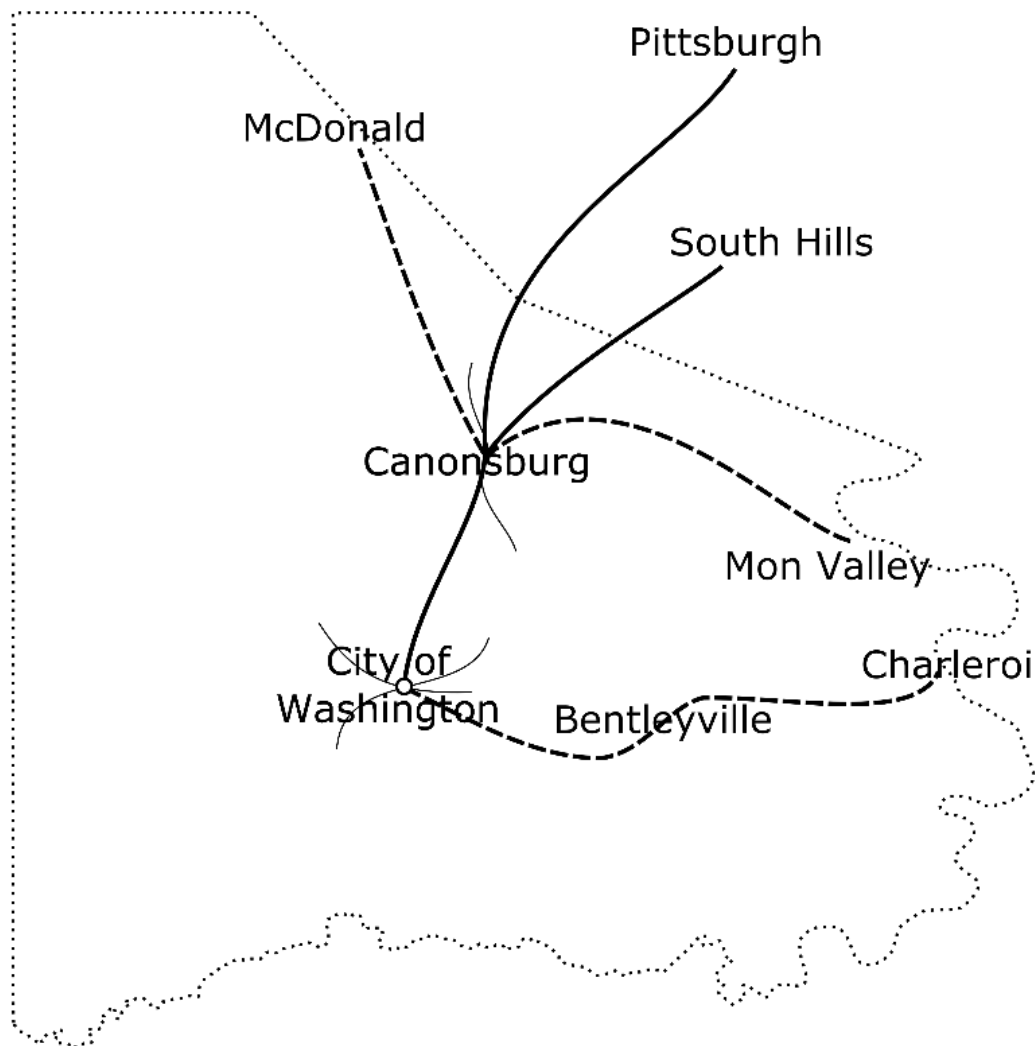


Short-Term Recommendations

A number of opportunities currently exist to work toward the long-term vision for little to no cost. These short-term recommendations involve the reallocation of current fixed route services. Recommendations include:

- Reallocate Metro service to provide midday and evening service to and from South Hills Village, making service to Downtown Pittsburgh peak-only.
- Reorganize County Line service, adding two routes to the Mon Valley.
- Add Local Canonsburg service between Southpointe and Canonsburg.

Details on these recommendations follow the graphic of proposed changes shown below.



Reallocate Metro Service

Currently Metro Service is divided into two categories: Metro Commuter and Metro Saturday. Metro Commuter service operates on weekdays only and provides 10 inbound and 10 outbound trips to Downtown Pittsburgh each day. Metro Saturday operates on the same alignment between the City of Washington and Canonsburg but then deviates through Peters Township along US-19 to access the South Hills Village light rail station. This alignment currently only operates on Saturdays with three inbound and three outbound trips.

As access to the US-19 corridor and South Hills Village on weekdays and in evenings was a common request, and as midday trips on Metro Commuter service are currently unproductive, most of the midday trips on weekdays can be reallocated to the South Hills Village Alignment.

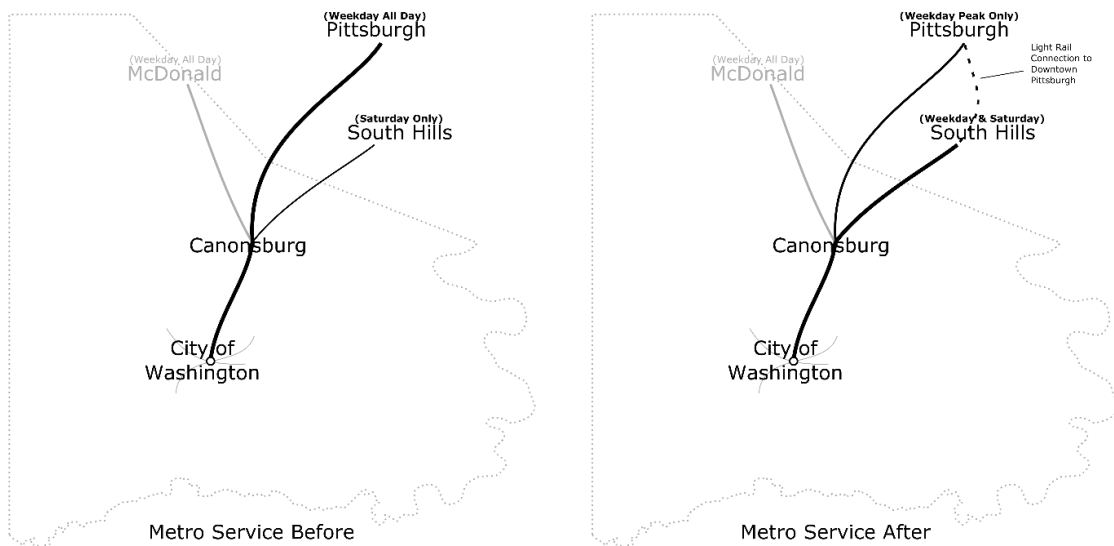
Metro routes would be renamed as Metro Express Pittsburgh and Metro South Hills to help riders understand the distinction. Both Metro South Hills and Metro Express Pittsburgh services operate on the same general alignment between the City of Washington and Canonsburg prioritizing speed and access to Park & Rides. However, Metro South Hills makes additional stops at the Meadows Casino and Tanger Outlets. Metro, Metro Express, and County Line routes will be coordinated to provide all-day service opportunities between the City of Washington and Canonsburg while balancing speed and access to destinations between the population centers.

New service allocations are recommended as follows (depicted in Figure 34):

Metro Express Pittsburgh: Weekday Peak Only. Six inbound trips (three AM & three PM) and six outbound trips (three AM & three PM).

Metro South Hills: Monday-Saturday. Three inbound and three outbound trips on weekdays. Four inbound and four outbound trips on Saturdays.

Figure 34: Proposed Route Change to Metro Service



An example of potential Metro & County Line schedules can be found in Appendix G.

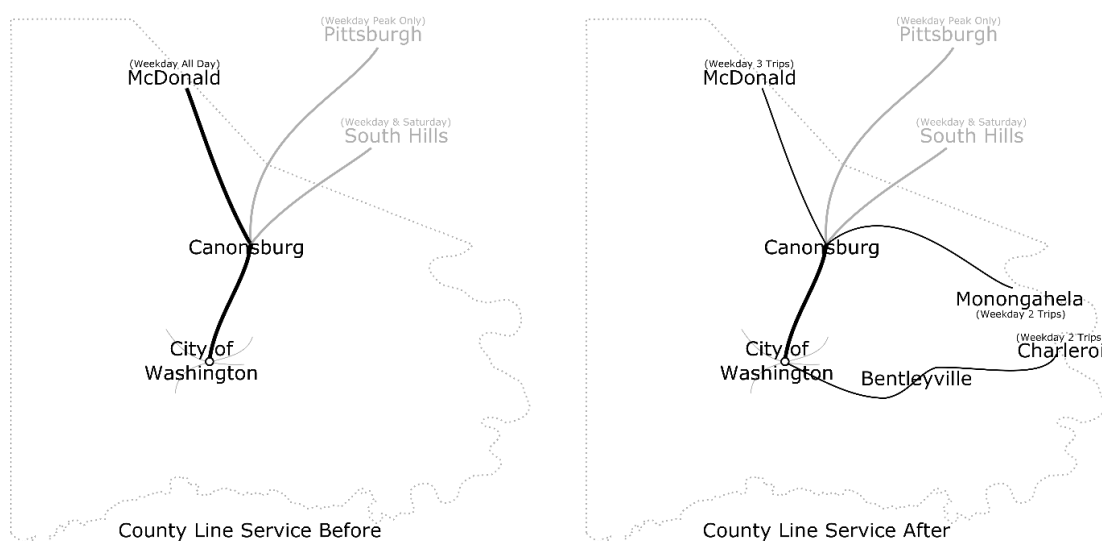
Reorganize County Line Service

County Line service to McDonald has been a valuable lifeline to residents in northern Washington County. However, the current service levels are not achieving necessary productivity goals. While the portion of the County Line along the service spine between the City of Washington and Canonsburg maintains regular ridership and could use additional service, the portion of the alignment between Canonsburg and McDonald could be reallocated elsewhere. Since there is a need for service to the Mon Valley, there are opportunities for reallocating some of the 7 daily trips to McDonald to instead service Monongahela and Charleroi in the Mid Mon Valley.

The service spine corridor analysis described earlier in this document looked at whether or not the current County Line alignment between Canonsburg and the City of Washington is the most efficient and productive route. This analysis was conducted due to a number of concerns over the realignment of the service in March 2017. The conclusion is that the current alignment is the most productive alignment as it reaches the most jobs and potential riders per mile. It is also the fastest alignment in miles per hour between the cities outside of the two Metro alignment alternatives considered. Destinations on this alignment include:

- Downtown Canonsburg
- Canonsburg Shop ‘n Save
- Houston
- The Meadows Casino
- Tanger Outlets
- Meadowlands
- Washington County Fairgrounds
- Jefferson Avenue (Washington)
- Washington Shop ‘n Save
- Downtown Washington and the Washington Transit Center

Figure 35: Proposed County Line Service Realignment



The end result of County Line service reorganization would create weekday all-day service between the City of Washington and Canonsburg and occasional trips to three ends of lines across the county:

- **County Line McDonald** – Service between the City of Washington and McDonald following the current alignment of the County Line. Service to McDonald would be reduced from seven daily trips to three daily trips.
- **County Line Monongahela** – Service between the City of Washington and Monongahela in the Mid Mon Valley following the current County Line alignment between the City of Washington and Canonsburg, then following US-19 through Peters Township, accessing the frequently requested destination of Donaldson’s Crossroads, then following Valley Brook Rd., Bebout Rd, Venetia Rd., Rankintown Rd., and PA-88 to Monongahela providing access to McMurray, Venetia, and a connection to MMVTA Route Commuter A in Finleyville. Connections with MMVTA Routes Commuter A, Commuter Express 1, Valley 1, and Valley 2 can be made at the MMVTA Monongahela Transfer Point.
- **County Line Charleroi** – Service between Canonsburg and Charleroi in the Mid Mon Valley following the current County Line alignment between Canonsburg and the City of Washington, then following US-40, PA-917, and I-70 to access Charleroi via Laboratory, Glyde, Cokeburg, and Bentleyville. Connections with MMVTA Routes Commuter A, Commuter Express 2, Valley 1, Valley 2, and Valley 4 can be made at the MMVTA Charleroi Transfer Point and the MMVTA North Charleroi Transit Center.

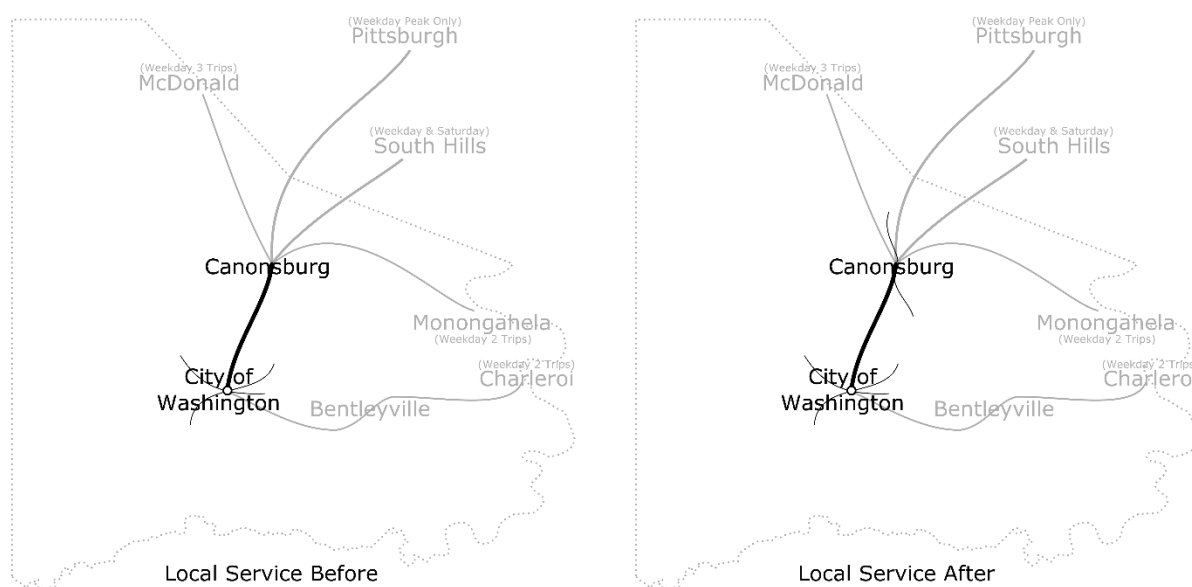
Metro, Metro Express, and County Line routes will be coordinated to provide all day service opportunities between the City of Washington and Canonsburg while balancing speed and access to destinations between the population centers.

An example of potential Metro and County Line schedules can be found in Appendix G.

Add Local Canonsburg Service

Local service in and around Canonsburg, including to new businesses in Southpointe, was a popular request in public outreach. Additional discussions with representatives for the Canonsburg and Southpointe Chambers of Commerce reflected a desire to create access between office complexes and area restaurants, as well as create a link between downtown Canonsburg and an area Park & Ride for use during festival events. These goals can all be achieved through a short Canonsburg Local “C” route. The exact alignment will need to be determined by invested stakeholders based on potential funding sources and desired ends of lines. However, an analysis of demographics in the Canonsburg area coupled with an assessment of local destinations shows a recommended alignment for the central core of the potential route. A map of the recommended core alignment can be found in Appendix H.

Figure 36: Proposed Service Change to Canonsburg

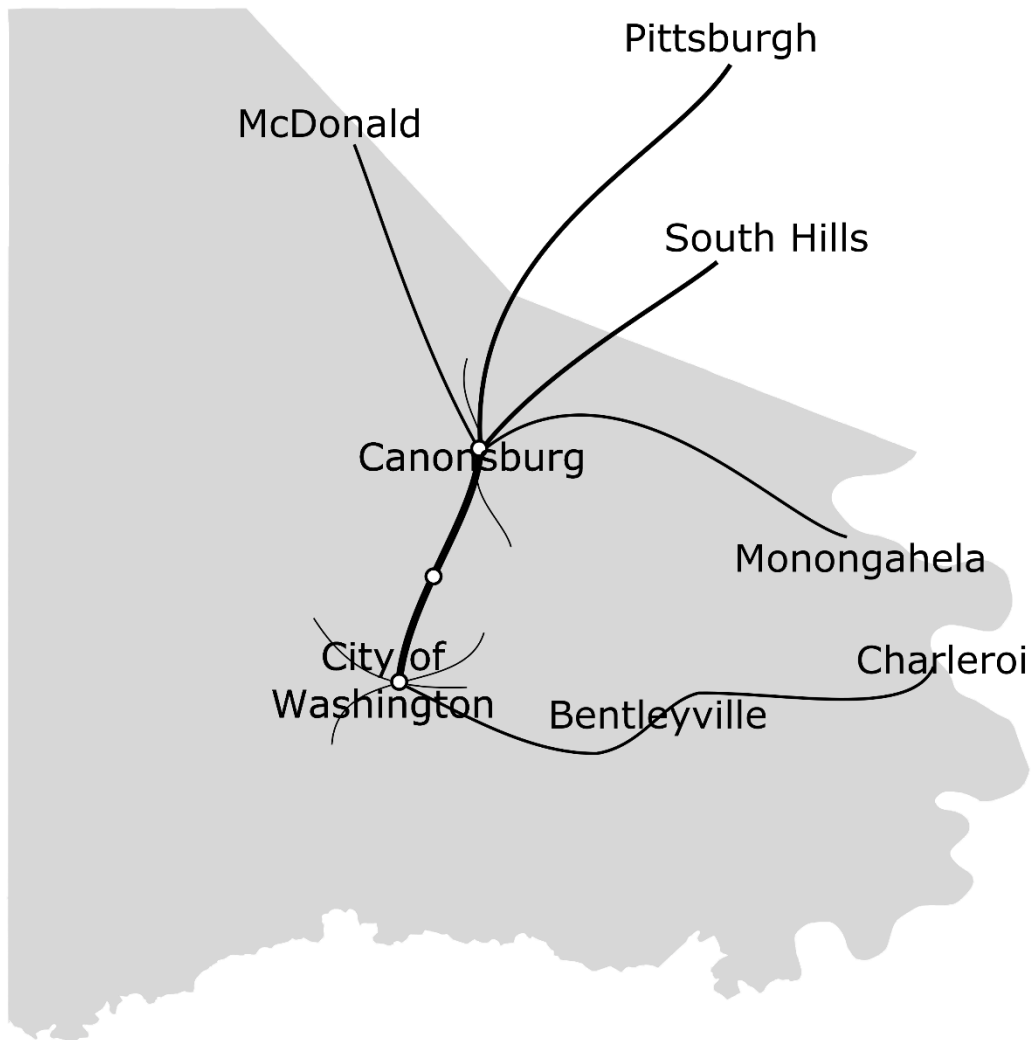


Medium-Term Recommendations

Medium-term recommendations are opportunities to provide improvements as soon as possible pending additional funding availability. These are improvements that can be completed in no particular order. Medium-term recommendations include:

- Development of the Service Spine between the City of Washington and Canonsburg.
 - Including a new Transit Center in Canonsburg and new Park & Ride on Racetrack Road.
- Subsidized low-cost countywide Shared-ride service.

Details on these recommendations follow this graphic of proposed changes.



Development of Service Spine

By far the largest share of ridership in the WCTA service is between the City of Washington and Canonsburg. This is the core area where urban fixed route amenities such as transfer points, bus shelters, landing pads, real-time displays, and frequent all-day service should be targeted. As recommended in the short-term recommendations section, reorganized County Line and Metro Service already form the base service levels recommended for this corridor. As part of those adjustments, three variations on all-day service through the Service Spine include:

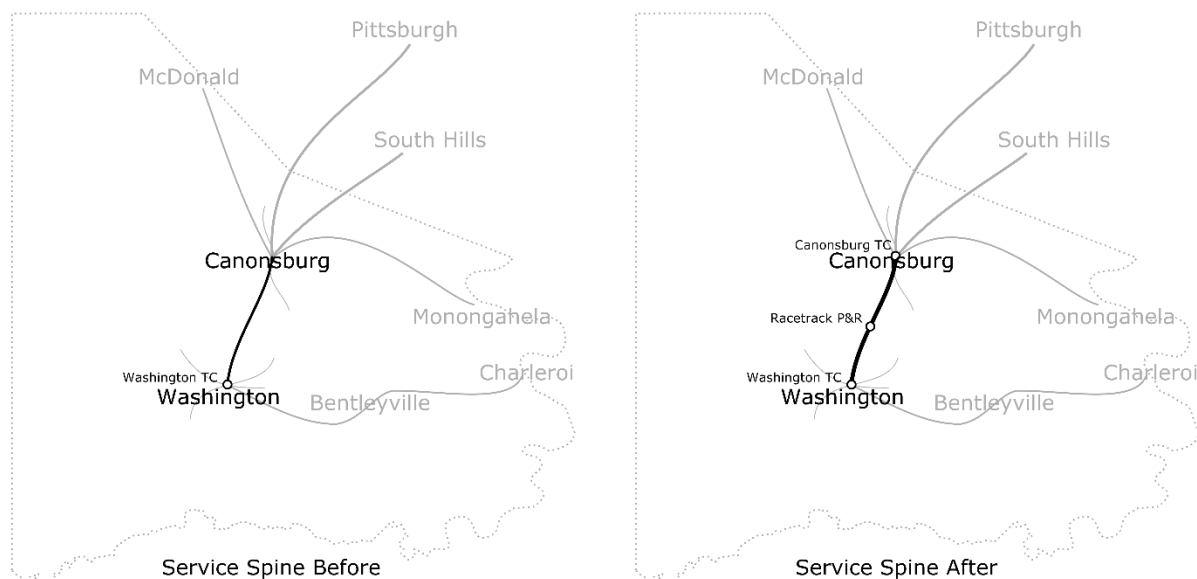
- **County Line – Trip Length: 55 minutes.** Destinations: Downtown Canonsburg, Canonsburg Shop ‘n Save, Houston, The Meadows Casino, Tanger Outlets, Meadowlands, Washington County Fairgrounds, Jefferson Avenue (Washington), Washington Shop ‘n Save, and Downtown Washington.
- **Metro – Trip Length: 45 minutes.** Destinations: Downtown Canonsburg, Houston, The Meadows Casino, Tanger Outlets, Meadowlands, Trinity Point (Walmart), Beau Street Park & Ride, and Downtown Washington.
- **Metro Express – Trip Length: 30 minutes.** Destinations: Downtown Canonsburg, Canonsburg Houston, Meadowlands, Trinity Point (Walmart), Beau Street Park & Ride, Downtown Washington, and the Jessop Place Park & Ride

Naturally, riders are going to choose from these three alignments based on timing of needs and destinations. There are three places along that spine requiring the need for adequate transfer amenities such as shelter and schedule information:

- **Downtown Washington** – The southern end of the Service Spine, where County Line, Metro, and Metro Express services meet and offer transfer connections to Washington Local services.
- **Racetrack Road & Pike Street** – Halfway between Washington and Canonsburg, where County Line, Metro, and Metro Express services converge as they all follow the same alignment north to Canonsburg.
- **Downtown Canonsburg** – The northern end of the Service Spine, where County Line, Metro, and Metro Express service diverge to various destinations, as well as the potential connection point to Canonsburg Local service.

These three locations, shown in Figure 37, are strategically important to WCTA’s fixed route services and should be locations for targeted investments. Proper waiting facilities including seating, lighting, heating (indoor or outdoor heat lamps), real-time and/or schedule information, and maps are all important amenities at these three locations.

Figure 37: Proposed Service Spine Adjustments



Downtown Canonsburg Transit Center

Downtown Canonsburg is relatively compact with the majority of destinations centered around the intersection of Pike Street and Central Avenue. This is also the intersection where fixed routes begin to diverge from each other. The placement of a transit center in downtown Canonsburg should be no more than two blocks from this intersection. The primary purpose of this facility is to provide a safe, comfortable waiting area for riders making transfers, as well as to provide a location for operators to layover between trips.

These goals can be achieved through the construction of a larger, custom-built shelter located on a nearby parcel of land, similar in nature to the Lebanon Transit Facility at Fort Indiantown Gap, shown to the right. Or it can take the form of two improved shelters on opposite sides of Pike Street west of Central Avenue similar to those used in various BRT-lite projects such as the MetroTransit A-Line project shown on the following page.



Source: Michael Baker International

This facility will not only afford riders and operators of WCTA a place to comfortably wait for scheduled buses, but will also provide a welcoming access point to the system for occasional riders during events, or those who may not otherwise be aware of WCTA services.

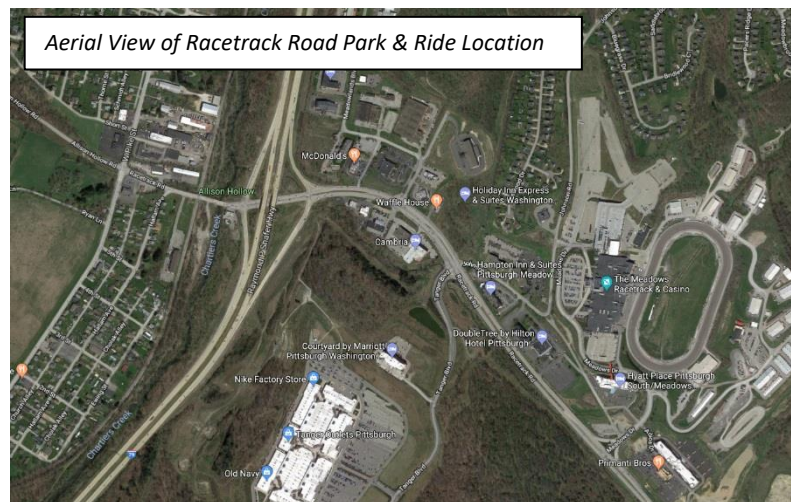


Source: Michael Baker International

The Canonsburg Chamber of Commerce has expressed interest in partnering with WCTA to provide shuttle service from a nearby Park & Ride facility to events in downtown Canonsburg, such as Oktoberfest. These events typically take place on Pike Street between Central and Jefferson Avenues. As such, it is important to position this facility in a location that will remain accessible during those street closures, utilizing alternate access routes via side streets such as Murdock Avenue or College Street.

Racetrack Road Park & Ride

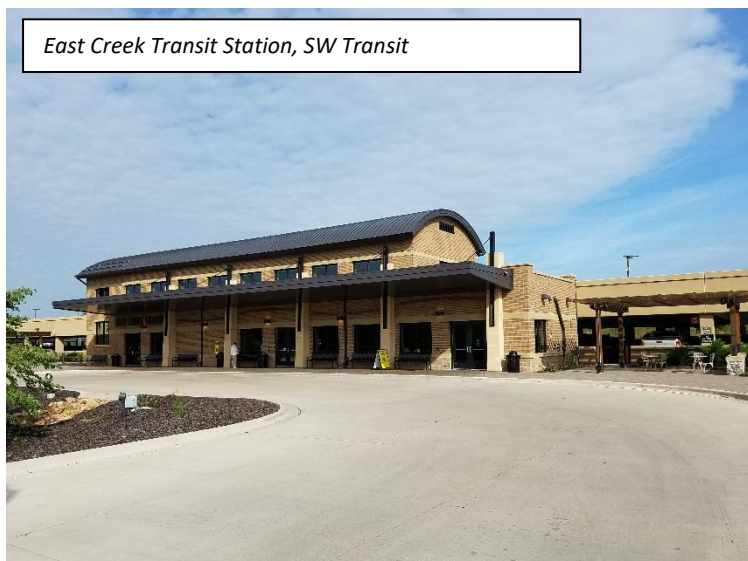
One area of concern expressed in public outreach and stakeholder engagement was issues pertaining to current Park & Ride facility locations. Currently, the Jessop Place and Beau Street Park & Rides near the City of Washington are located on the Metro Commuter route; however, the time it takes to get from these Park & Rides to the express portion of the route north of the Southpointe Park & Ride make the drive all the way to Southpointe to catch the bus the more logical choice for most commuters with cars. A location closer to Canonsburg was commonly requested by both stakeholders in interviews and by riders at public meetings. Additionally, the reallocation of Metro service to the South Hills branch midday and in evenings affords downtown office workers the opportunity to stay downtown later after work, catch the light rail to South Hills Village, and return home later via the Metro South Hills route.



Source: Imagery ©2018 Google, Map data ©2018 Google

The need for a transfer node on fixed route services near Racetrack Road and Pike Street, coupled with the need for a new Park & Ride facility on both Metro South Hills and Metro Express Pittsburgh routes, along with the easy access on and off I-79 at that location makes it a good place for a new Park & Ride facility and transit center.

This facility will not only serve as a parking and waiting location for Metro and Metro Express commuters, but also as a service hub for the growing business and residential district along Racetrack Road, including the Meadows Casino, Tanger Outlets, Meadowlands, and Houston.



As ridership in the Service Spine is intended to grow, this facility should be built with future needs in mind. The facility could take the form of a surface parking lot with enhanced shelter, heated seating, and real-time displays, or – with the help of additional funding sources – it could be a structured facility with an indoor waiting area as is common in suburban metropolitan areas with downtown express commuter service, such as the East Creek Transit Station by SW Transit in suburban Minneapolis.

Source: Michael Baker International

Downtown Washington Transit Center

Downtown Washington is already served by the Washington Transit Center located at 50 East Chestnut Street. This facility contains most of the recommended amenities. Two amenities currently missing from this facility include real-time departure displays and lighting/heat lamps at the outdoor shelter when the building lobby is closed to the public.



Source: WCTA

Scheduling

The facilities in Canonsburg, the City of Washington, and at Racetrack Road can be used as nodes for scheduling fixed routes. Routes can be scheduled to depart each of these nodes at regular times throughout the day. (An example schedule that integrates the new facilities is shown in Table 16.) As mentioned previously, all three facilities will be accessed on every trip by all County Line, Metro, and Metro Express trips between the City of Washington and Canonsburg. Once service is established, service guidelines can be set for this corridor to create regular all-day service in the spine.

An example of potential Metro and County Line schedules can be found in Appendix G. As the system grows and opportunities for service expansion arise, efforts can be made to fill in trips missing from the intended headways between the City of Washington and Canonsburg.

Table 16: Example of Potential Future Schedule with Regular Departure Times in Service Spine

Weekday	Metro X	Metro	County L	Metro	Metro X	Metro	County L	Metro	Metro X
Southbound	PGH	Wash	Mon	Wash	PGH	SHV	Charleroi	Wash	PGH
Monongahela			7:00 AM						
Finleyville			7:15 AM						
South Hills Transit Station			-			8:00 AM			
Donaldson's Crossroads			7:30 AM			8:15 AM			
Pittsburgh - East Busway	6:45 AM		-		7:45 AM	-			8:45 AM
Pittsburgh - Gateway Center	6:55 AM		-		7:55 AM	-			8:55 AM
Southpointe Park & Ride	7:20 AM		-		8:20 AM	-			9:20 AM
Canonsburg TC	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	9:00 AM	9:15 AM	9:30 AM
Meadows Casino/Tanger	-	8:00 AM	8:15 AM	8:30 AM	-	9:00 AM	9:15 AM	9:30 AM	-
Racetrack Park & Ride	7:40 AM	8:10 AM	8:20 AM	8:40 AM	8:40 AM	9:10 AM	9:20 AM	9:40 AM	9:40 AM
Trinity Point (Walmart)	7:50 AM	8:20 AM	-	8:50 AM	8:50 AM	9:20 AM	-	9:50 AM	9:50 AM
Fairgrounds	-	-	8:35 AM	-	-	-	9:35 AM	-	-
East Chestnut Street TC	7:55 AM	8:25 AM	8:50 AM	8:55 AM	8:55 AM	9:25 AM	9:50 AM	9:55 AM	9:55 AM
Bentleyville							10:25 AM		
Charleroi							10:45 AM		

Source: Michael Baker International

Subsidized Low Cost Countywide Shared-ride

One major finding in the data analysis for Washington County is a very large share of transit dependent populations in southern and western areas of the county. These potential riders would benefit from access to public transportation, but lack the density to support fixed route service. WCTA currently offers Shared-ride service countywide that is open to the public, but too often it is cost prohibitive for potential riders, with fares ranging from \$10-50.

Case studies from other rural transit agencies have shown success in subsidizing general public fares to bring them to more comparable levels with fixed route services. Maintaining a per-mile fare structure allows for this service to be implemented with current WCTA Shared-ride assets, requiring no upgrades to scheduling or billing systems.

Additionally, a per-mile fare encourages riders to schedule trips to their nearest fixed route bus stop, growing ridership on the fixed route system.

Maintaining current rules on advanced reservations on this system will allow for schedulers to group trips to County Line stops, and afford the opportunity for Shared-ride drivers and riders to wait for the arrival of fixed route buses at designated stops. This provides a level of comfort and quality service that will encourage additional riders.



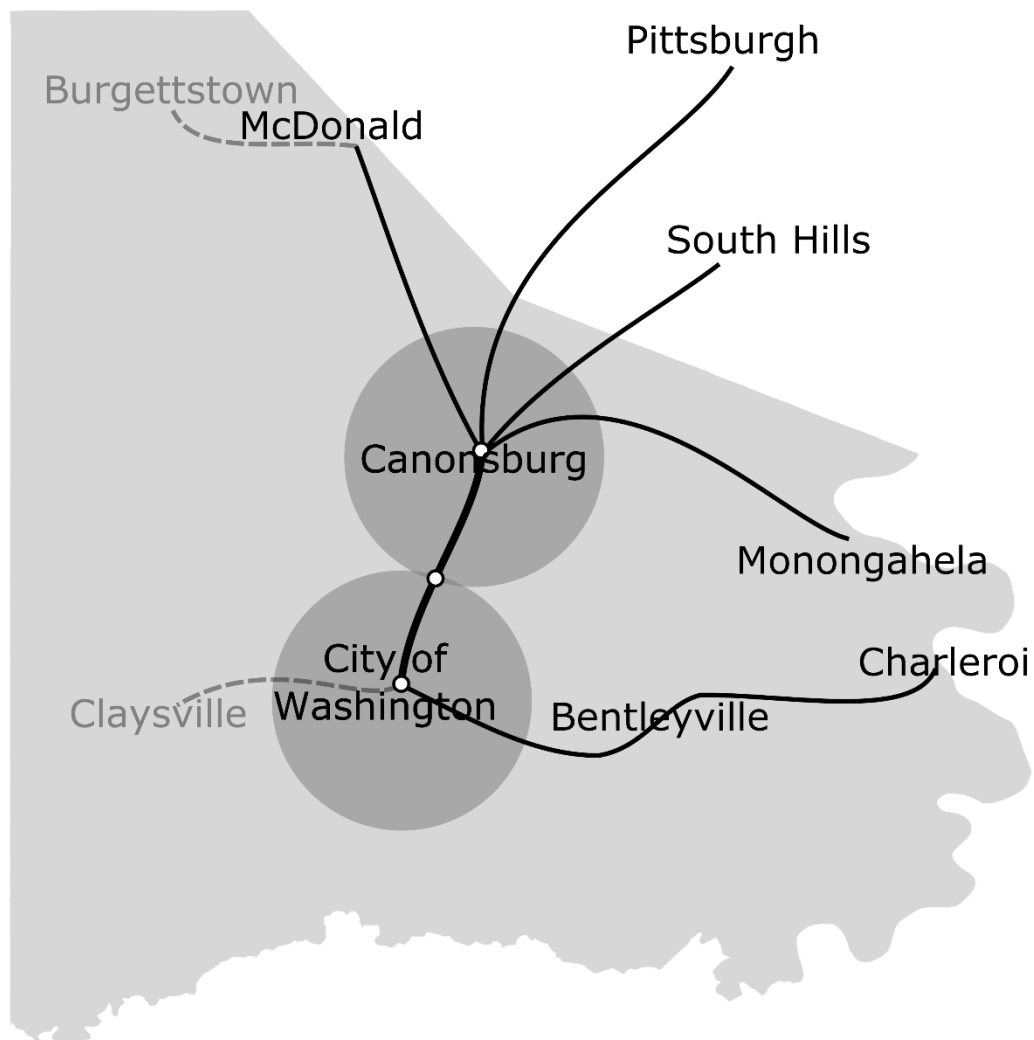
Source: Michael Baker International

Long-Term Recommendations

Long-term recommendations represent large, transformational changes to the WCTA system that require significant time for implementation due to the need for development of the appropriate technology, procure of additional capital assets, and/or build upon improvements made from short- and medium-term recommendations. These long-term recommendations include:

- On demand microtransit in the City of Washington and Canonsburg to replace local fixed route services.
- Expand service on County Line routes to McDonald, Monongahela, and Charleroi with potential extensions to Burgettstown and Claysville.

The following pages detail these recommendations.



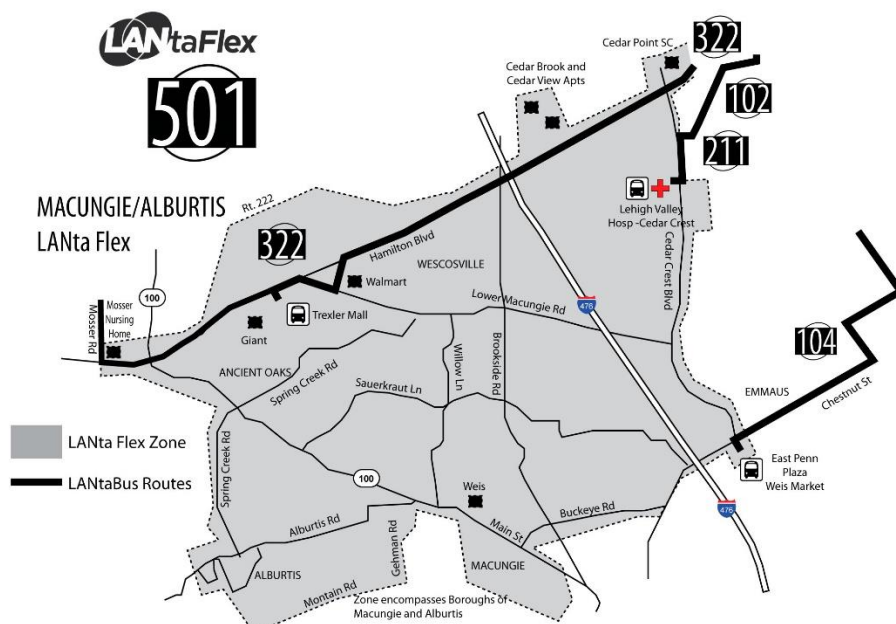
On-Demand Microtransit

An emerging trend in public transportation, particularly in rural and suburban areas, is a new type of service called “microtransit.” Microtransit represents the intersection of the personalized service design of door-to-door options with the low price of subsidized fixed route transit.

The hallmark of Microtransit is small geographic zones, within which any member of the public can reserve a ride to travel from one point to another. Typically, one or more vehicles is assigned to a zone. The size of the zone dictates how efficient or expedient the service is—the smaller the zone, the more quickly and efficiently trips can be provided, while larger zones potentially capture more customers or destinations. These zones are usually centered around populations centers and fixed route transit hubs that provide access to more regional destinations and can serve to collect people for transport on fixed route, making microtransit a potential compliment to a high-quality fixed route service, such as the Service Spine concept between Washington and Canonsburg (see page 52).

Microtransit is often provided using traditional small transit buses or vans. Due to the smaller size of the vehicle and the elimination of the requirement for drivers to hold a Commercial Driver’s License (CDL), it can be a less expensive service to operate than traditional fixed route service.

One example of an early deployment of microtransit can be seen at the Lehigh and Northampton Transit Authority (LANta), through its LANta Flex service in Allentown. In 2012, LANta replaced unproductive fixed route service in select suburban areas with a point-deviated service with two fixed stops where passengers have the option to board at the stops without a reservation, or they may be picked up and dropped off at their destination within the LANta Flex zone with a reservation, all for a fare similar to the discontinued fixed route service. The Flex service has been successful and LANta has expanded the service to other areas and continues to evaluate expansions on a case-by-case basis.⁴



⁴ “Coopersburg residents get new Flex Service from LANTA,” *The Morning Call*, 25 JUL 2018, <http://www.mcall.com/business/mc-biz-lanta-flex-service-coopersburg-20180725-story.html>

The current fixed route service in the City of Washington represents the largest expenditure of resources but does not represent significant ridership (approximately 4 riders per hour). While changes have been made to improve performance and serve more people, ridership has increased only marginally. The current Local routes feature a compact design that transport people over relatively short distances. For this reason, these routes may be able to be replaced with microtransit, effectively lowering the per hour cost of providing service due to smaller vehicles and fewer driver requirements, while maintaining the same productivity (approximately 1 rider every 15 minutes) and enhancing mobility options by allowing people point-to-point transportation.

With technological advancements in on-demand transportation brought about through Transportation Network Companies (TNCs) like Uber and Lyft, there is a growing expectation in the travelling public that transportation will be available at their fingertips (on-demand). Agencies throughout the country have begun to experiment with the next wave of microtransit, providing the service on-demand using an app-based platform.

Another system that can function as a case study for how this could work in Washington County is SouthWest Transit in the Minneapolis suburbs of Chaska, Chanhassen, and Eden Prairie. For the last 30 years, the agency has provided commuter service to downtown Minneapolis and other regional destinations from large Park & Ride lots throughout their service area. At various times, the agency has tried local fixed route service to connect residential areas with commercial areas, but those services were discontinued due to low productivity, primarily caused by low residential densities and the lack of major nodes from which to build a customer base.

In July 2015, SouthWest Transit launched an on-demand curb-to-curb system called SW Prime. SW Prime is essentially Shared-ride paratransit service common in most areas of the country, but with a new CAD/AVL and scheduling software package which allows for the service to be more accessible to the casual user.

For a variety of reasons—many of which could be re-examined in light of changing technology and market conditions—Shared-ride systems require reservations to be made at least one day in advance. With this new software, efficient schedules can be calculated in just seconds.

The software used to schedule and navigate SW Prime service offers a highly adaptable user interface to request rides via a web browser or smartphone. Riders create a free account with SouthWest Transit requiring only a first name, last name, and phone number. There are also options to store a credit card with the system if that is the preferred payment method and to choose texting or calling as a preferred contact method. SouthWest Transit is also capable of creating an account and requesting rides over the phone for those without access to the internet.



Source: Michael Baker International

How it Works for Riders

This arrangement has many tangible benefits. The system is more versatile, to allow more tech savvy riders to use apps or web browsers to request transit. However, the system also allows for the continued use of scheduling through a dispatch center allowing people to call for a ride over the phone.

When riders open the application to request a ride, they are greeted with a map of the service area, an average current wait time for pickup based on rider queues, and five simple questions:

1. Where are you traveling from?
2. Where are you traveling to?
3. How many people are riding?
4. How will you pay?
5. Do you require a bicycle- or wheelchair-equipped vehicle?

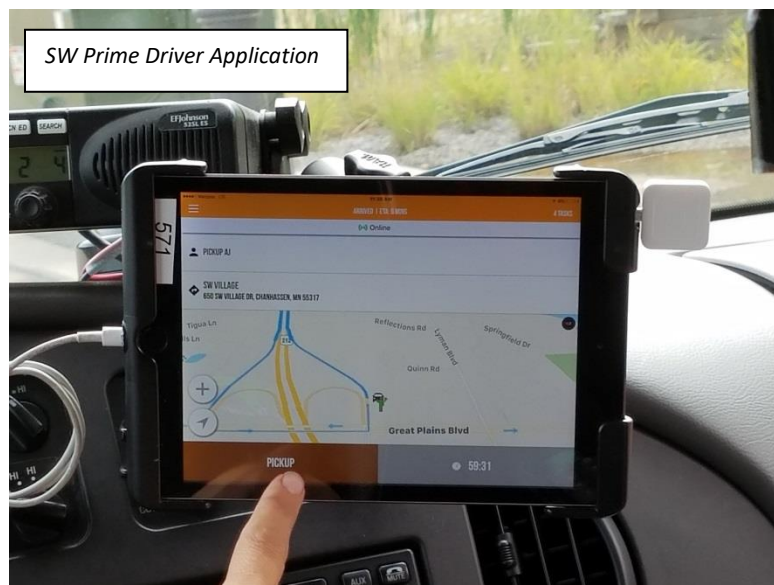
As pick-up and drop-off addresses are entered, drop-down menus suggesting businesses and addresses appear listing destinations within the service area. If an address outside the service area is requested, dispatchers will call the rider to offer other transportation options. Ride requestees can select the number of riders, age brackets, and optional transfers to fixed routes, allowing the requestees to pay for all riders and ensure they're on the same ride. Riders may opt between cash and credit for payment. Next, customers may select a bicycle- or wheelchair-equipped vehicle. (All SW Prime vehicles are equipped with both, but this option allows dispatchers to ensure riders won't experience overloaded bike racks or wheelchair tie-downs.) Finally, there is an optional comments section allowing riders to give additional details. (For example: "Trying to catch the express bus.")

The fare is \$3.00 for the general public, \$2.00 for children under 13, and \$1.00 for seniors (60+). With these fares, SW Prime has been able to maintain a subsidy per passenger between \$8.00-9.00, and a fare recovery of 29%. In 2016, the SW Prime system provided 80,000 rides.

How it works for Operators

Operators receive instructions through tablet computers in each vehicle. Tablets give GPS directions between each pick-up and drop-off, and show relevant details about each rider. Operators see the first name of each rider, allowing for confirmation of each rider as they enter. If riders need to pay cash onboard, a prompt for each rider will appear on the screen, allowing the operator to mark off receipt of payment as fares are paid.

Operator schedules are based on demand. Schedules are built to provide a certain number of vehicles within each service area providing the necessary coverage to meet demand. Breaks are taken during



Source: Michael Baker International

periods of overlapping shifts. During break periods, operators are allowed to take their vehicles anywhere within the service area to park, find a restroom, grab a bite to eat, etc.

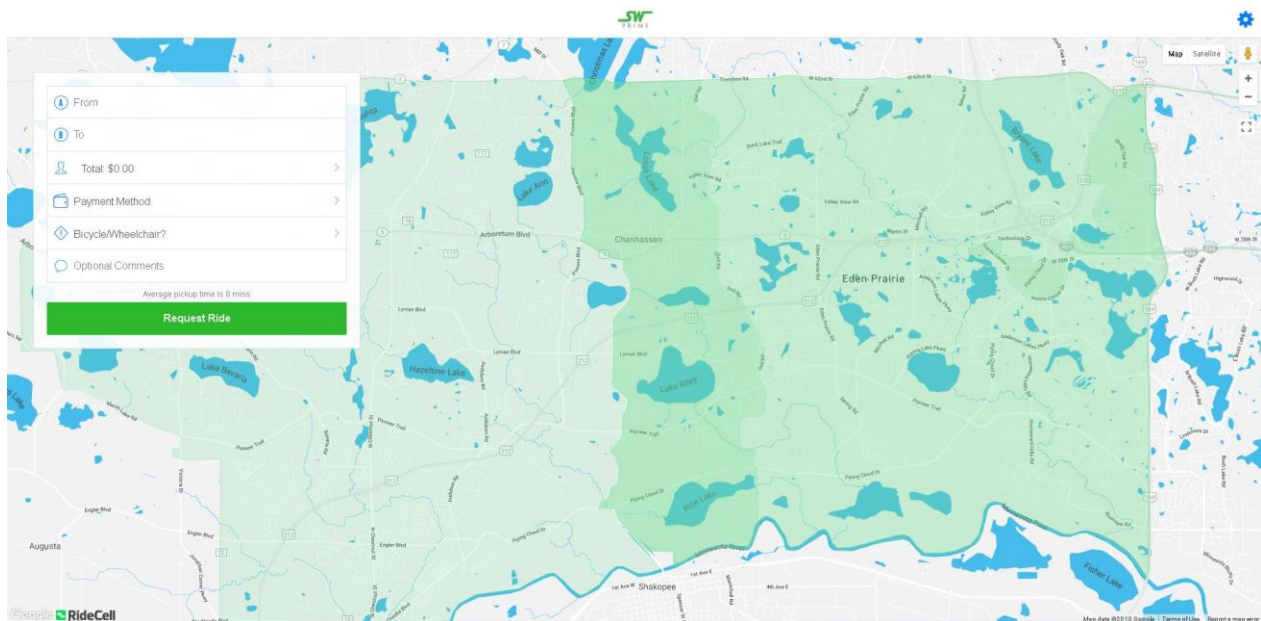
How it Works for Dispatchers

According to SouthWest Transit, much of the system savings came from Dispatch. Previously, under their former Shared-ride system, they needed six reservationists and one dispatcher to properly receive, schedule, and dispatch vehicles. With the new on-demand system, they are able to handle all ride requests and reservations with only one dispatcher. The contracted operating cost for the system is \$35 per hour.

Dispatchers can see all ride requests and vehicle locations as they are received. Algorithms determine optimal pick-up and drop-off ordering. However, each assignment is first sent to dispatch for approval. If a dispatcher does not agree with the assignment, they can simply click and drag the reservation to another vehicle or reorder operator tasks.

As shown in Figure 38, SW Prime is divided into two service areas in which vehicles remain when they're in service. This keeps wait times for vehicles low and maintains equitable availability across the system. When riders need to travel between zones, the scheduling software automatically creates a timed transfer at the SouthWest Village Park & Ride lot in the center of the overlapping zones.

Figure 38: SW Prime Service Areas (including overlapping zone where timed transfers are made)



Source: SWPrime.org, accessed August 2017

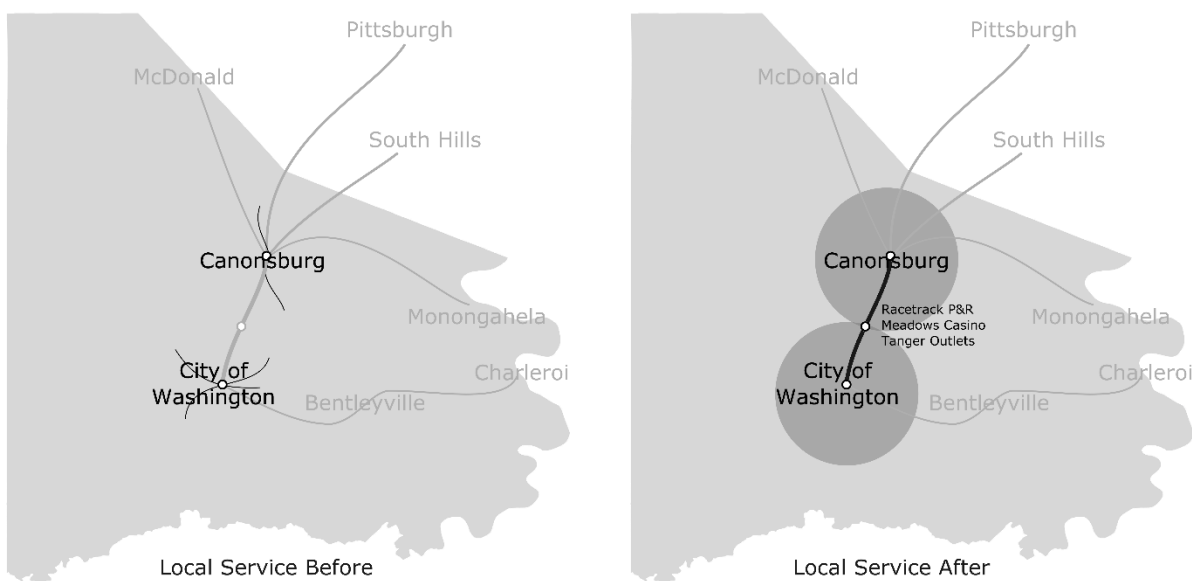
Washington County Microtransit Concept

WCTA could employ a similar model as SouthWest Transit with two service zones around the City of Washington and Canonsburg. A three-mile radius around each captures the majority of potential riders in each urbanized area while creating an overlapping zone in Meadowlands and along Racetrack Road, including the Meadows Casino and Tanger Outlets. By creating the new Racetrack Road Park & Ride facility (recommended previously on page 64), a transfer point between the two zones could exist.

This service could offer potential solutions to some of the challenges identified in this report. It would have the potential to create last mile connections to and from the transit centers on the County Line, Metro, and Metro Local routes. It provides flexibility for local riders who currently need to plan work schedules around Local Service schedules. It also opens up access to areas near the urban centers that may not be accessible by traditional fixed route services.

While this software is available now, it remains experimental in nature. This recommendation is categorized as long-term to allow for continued planning work to craft a proposal that will meet the service, technology and funding needs of WCTA into the future.

Figure 39: Proposed Microtransit Locations



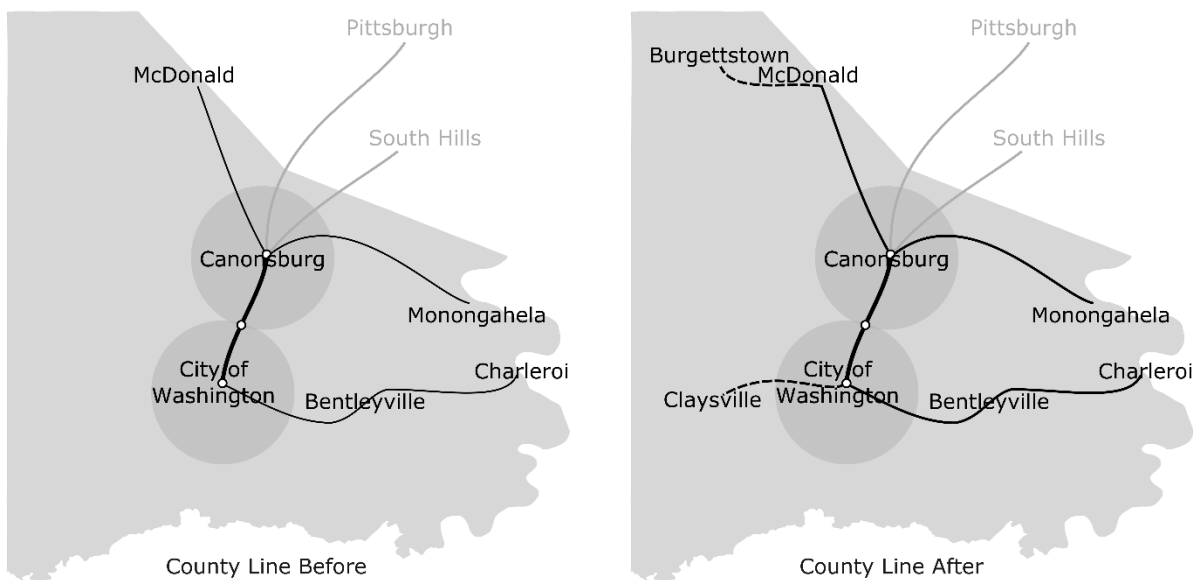
Marketing and System Expansion

The County Line network has the opportunity to grow beyond what is proposed in short-term Recommendations, both in terms of frequency on the three identified routes but also in terms of destinations. Currently, however, pockets of potential riders in smaller communities like Claysville, Burgettstown, and Bentleyville are not accessing or demanding transit at the rates they could potentially achieve.

Following the establishment of subsidized countywide Shared-ride service as well as growth in awareness of WCTA's fixed route services, demand should continue to grow countywide. With active monitoring of ridership trends, in a few years' time there may be the opportunity to expand the system to these smaller communities (Figure 40).

In order to achieve this goal, active marketing must remain strong on both the services provided by WCTA and the benefits of accessing the system through fixed route services over Shared-ride services. Once public awareness of the system grows to a point where demand for the services increases, the opportunity for system expansion will be created.

Figure 40: Proposed System Expansion



Draft Plan Review and Public Comment

Public Displays

Public Transportation Recommendations outlined in the previous section were presented to the public through a series of displays, offering opportunities for additional public comment. Displays were placed at four locations throughout Washington County during the week of June 1-8, 2018. Display locations included:

Washington

Washington Transit Center
50 East Chestnut Street
Washington, PA

Charleroi

Mid Mon Valley Transit Authority
Transfer Center
1300 McKean Avenue
Charleroi, PA

Canonsburg

Canonsburg Borough Building
68 East Pike Street
Canonsburg, PA

Monongahela

Office of Senator Camera Bartolotta
316 West Main Street
Monongahela, PA



Draft Plan display at Monongahela location. June 1, 2018.

Outreach

A news release was sent out to media outlets across the Washington, Pittsburgh, Uniontown, Waynesburg, Wheeling, and Steubenville markets. This led to news stories in The Herald-Standard of Uniontown, The Observer-Reporter of Washington, and other media outlets.



Draft Plan coverage on Pittsburgh's WPXI Channel 11 News.

Comments

Comment cards were included at each display as well as an email address to send comments in directly. At least fifteen comments were received while the draft plan was on display. Comments were generally positive, with most comments asking for additional service on top of short- and medium-term recommendations.

A selection of comments:

"I am whole-heartedly in favor of creating an "on demand" system similar to taxi service and Uber. I suggest the service be available also in the evenings and weekends for attending meetings and church. Being legally blind, this type of door-to-door service is necessary for involvement in the community and independent living. I like the idea of having a route from Washington to Charleroi. It would be nice to have stops along the route, including a designated safe area in Bentleyville."

"One last chance to enter my plea for service to Claysville, PA."

"Consider having a Metro bus run until at least 9 PM. Many do have work related responsibilities after hours."

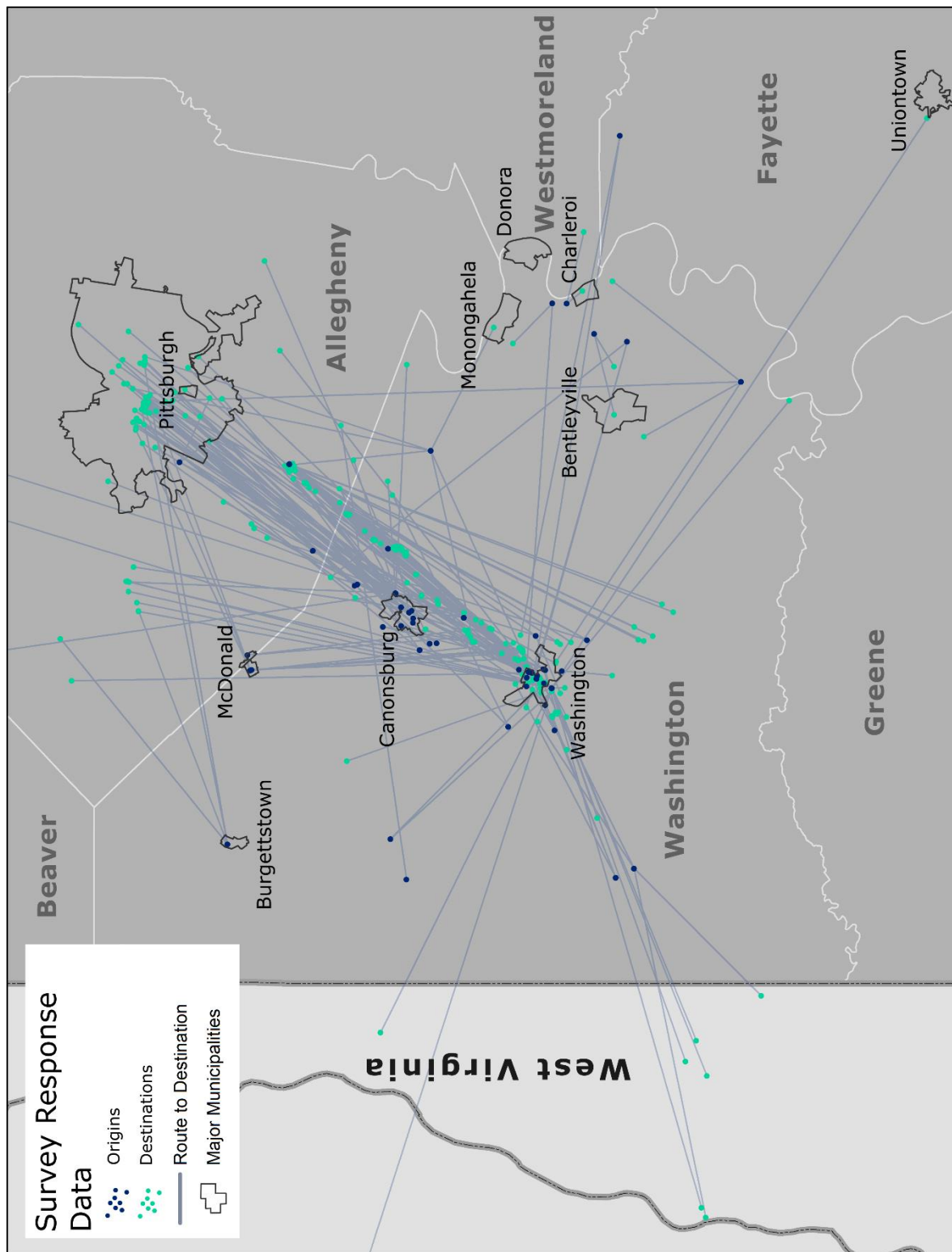
"Many out of town buses have mechanical problems at the present, so how will this be resolved?"

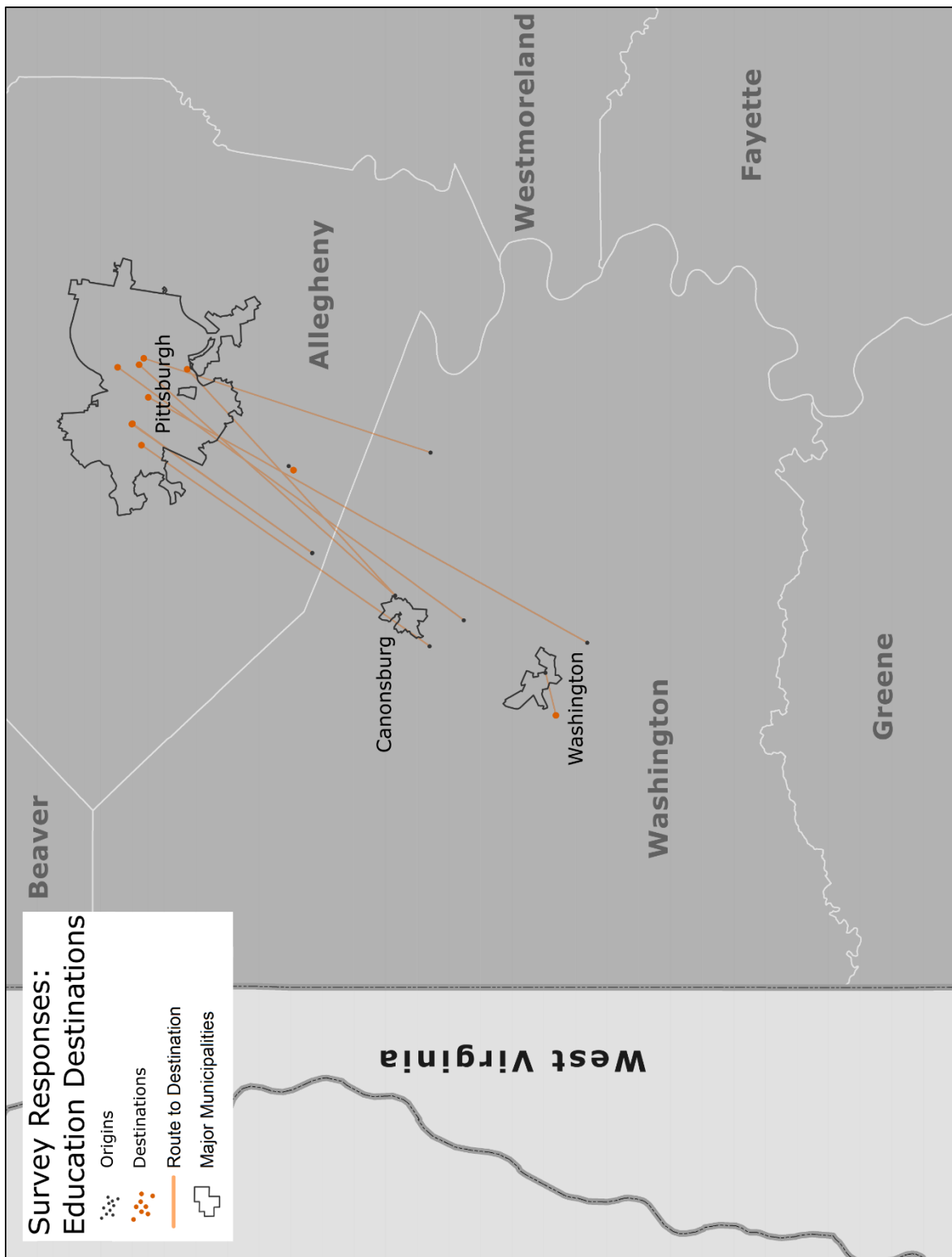
"The routes are well chosen. The biggest problem seniors and disabled is waiting 3-4 hours after their doctor appointments to return home."

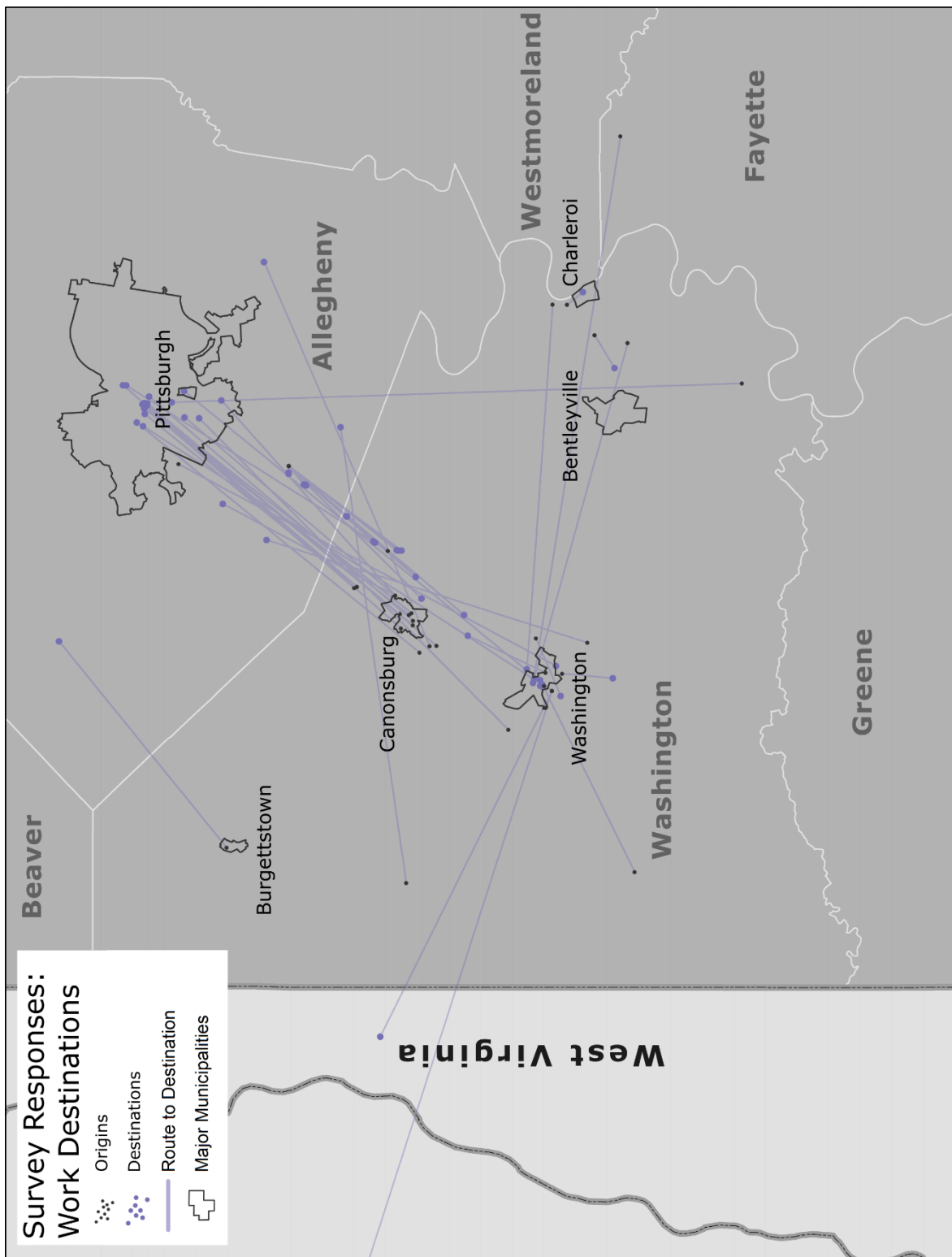
"I'm looking for that Northern Route. Me and 15 others just lost our jobs in Finleyville and are looking for work in that area."

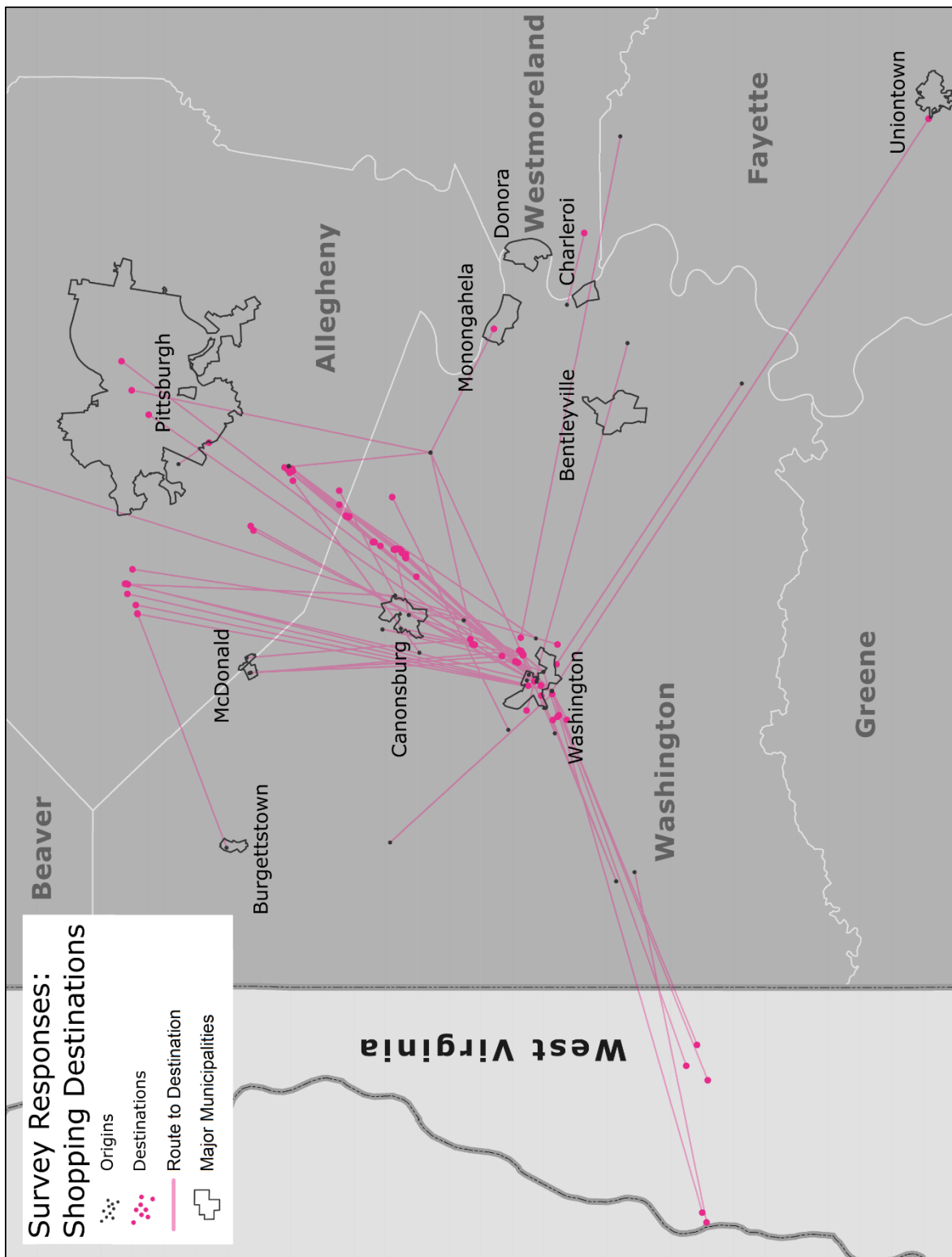
Appendix A: MetroQuest Map Markers by Type of Destination

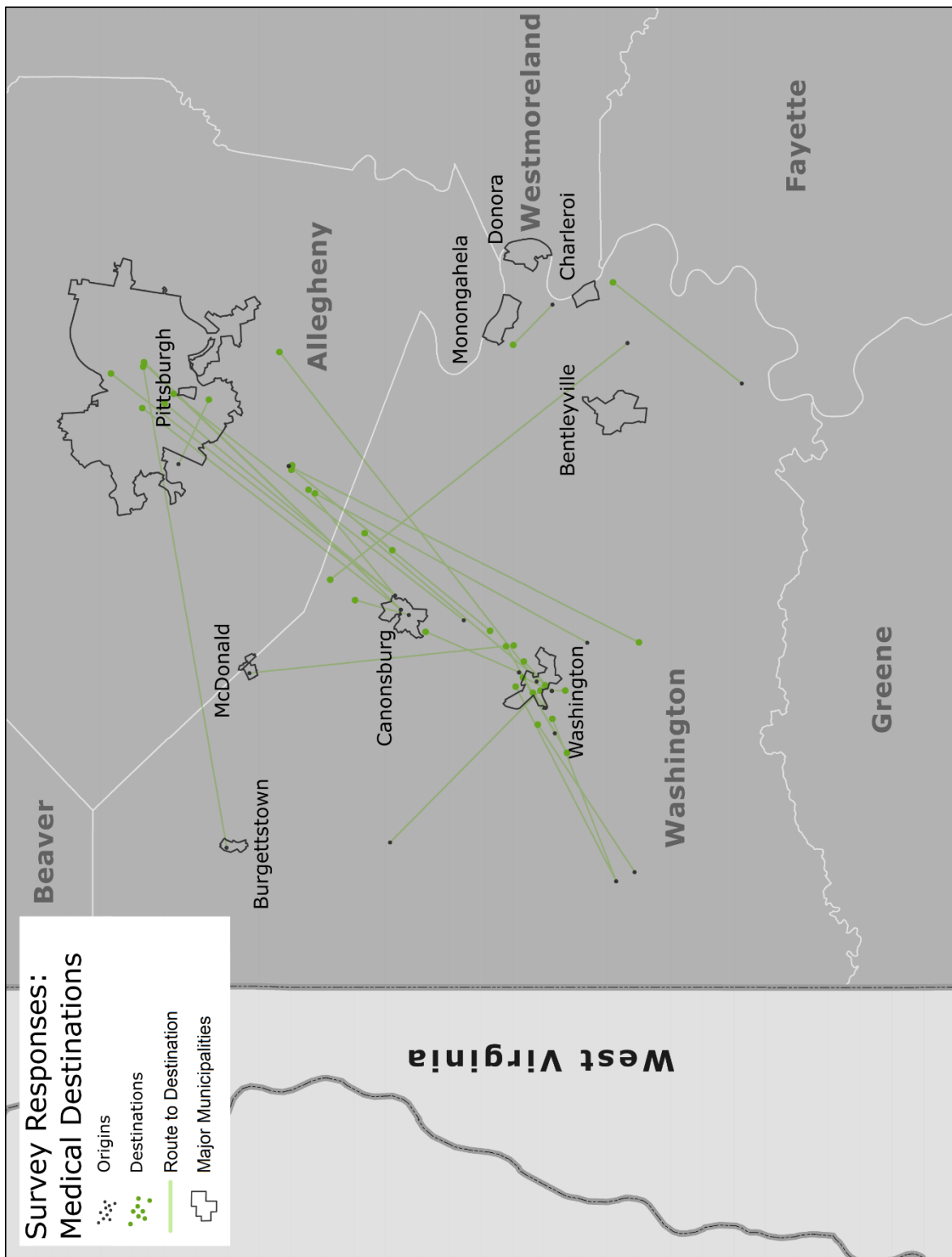
This page left intentionally blank.

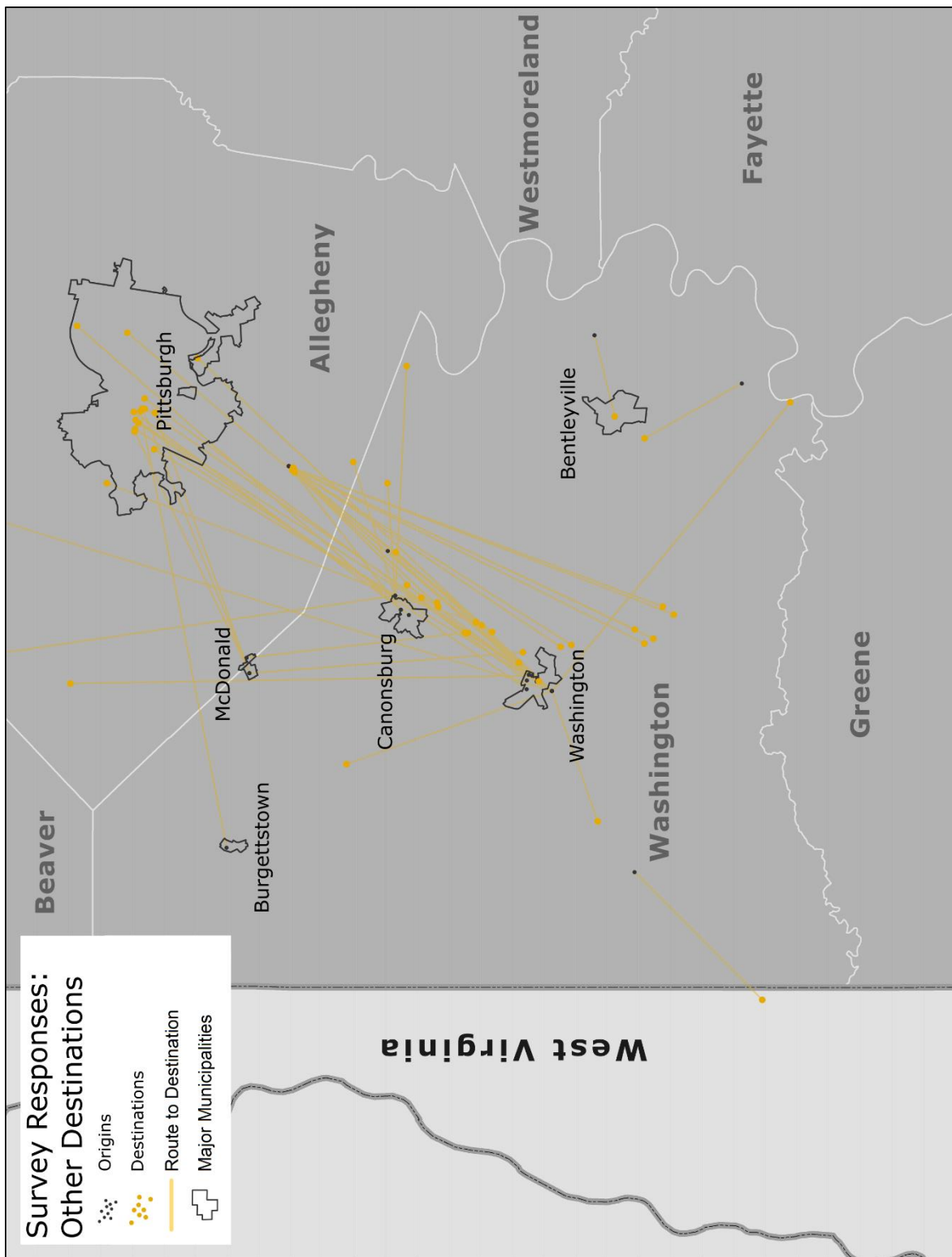












Appendix B: WCTA Service Guidelines

This page left intentionally blank.

Washington County Transportation Authority Service Guidelines



June 2018

Prepared for:



Prepared by:



In association with:



Table of Contents

Table of Contents.....	ii
Introduction	1
Service Definitions	1
Service Design Guidelines	2
Transit Service Types.....	2
Density and Service Coverage.....	3
Minimum Service Levels	4
Route Directness.....	5
Bus Stops.....	6
Annual Performance Report	7

This page left intentionally blank

Introduction

Every year, millions of Americans rely on mobility services provided by public transit agencies to fulfill basic life functions such as travelling to work, accessing medical care, and going shopping for food and other staples. Transit agencies provide these services even though they are unprofitable and, as such, rely on public investments to operate. Reconciling the needs and wants of the public with a limited budget can be challenging. Service guidelines, a set of basic requirements that should be met for an agency to offer a service based on measurable performance standards, are an important and useful tool for a transit agency to help balance service requests with budgets.

The guidelines outlined in this document are based on public feedback detailed in the companion Washington Transit Development Plan, as well as best practices from peer agencies in the public transportation industry. These guidelines will help Washington County Transportation Authority (WCTA) to make informed decisions on an ongoing basis to deliver the best possible transit services to the people of Washington County.

The guidelines outlined in this document are intended to assist WCTA in:

- Establishing measurable standards for service performance.
- Organizing and classifying service types.
- Setting service goals.
- Prioritizing future service changes.

Service Definitions

This document uses transit-specific terminology. Definitions relevant to this document are:

- **Public Transportation** (also called **transit**, **public transit**, or **mass transit**) is transportation using a shared vehicle that provides regular and continuing transportation to the public.
- **Transit Agency** is an entity (public or private) responsible for administering and managing transit activities and services. Transit agencies can directly operate transit service or contract out for all or part of the transit service provided.
- **Fixed Route** is service on which a vehicle is operated along a prescribed route according to a fixed schedule. For example, a bus that makes the same stops every day at the same times.
- **Paratransit** service uses vans or small buses to provide curb-to-curb (origin-to-destination) service in response to reservations made from passengers or their representatives. The vehicles do not operate over a fixed route or on a fixed schedule. In Pennsylvania, paratransit service is provided through federally-required Americans with Disabilities Act (ADA) Complementary Paratransit service within $\frac{3}{4}$ mile of any existing fixed route and through the PennDOT Shared-Ride Program.
- **Revenue Service** is the operation of a transit vehicle during the period which passengers can board and ride on the vehicle.
- **Trips** describe the one-way operation of a transit vehicle between two terminus points on a route. Each instance of a transit vehicle leaving the end of a route is considered one trip.

- **Headway** is the time interval between transit vehicles moving in the same direction on a particular route.
- **Branch** is used to describe a portion of a route with less frequent service than the main alignment. A route can have multiple branches.
- **Deviation** is used to describe a portion of a route operating off of the main street the route is service. Deviations most commonly occur to serve Park & Rides, shopping centers, housing complexes, and other destinations with poor pedestrian access to the street.
- **Span of Service** is the length of time a route operates each service day. Span is measured from the time the first vehicle of the day goes into revenue service along a route to the time the last vehicle on that route leaves revenue service.
- **Passenger Load** is the number of passengers aboard a transit vehicle at any one time.
- **Microtransit** is small-scale, on-demand public transit that features a low-fare for all riders. It is usually operated with dedicated vans or paratransit vehicles.

Service Design Guidelines

These service design guidelines serve to implement the vision set out by the WCTA Board Mission Statement. The statement, as defined by the WCTA Board in 2018, is:

“To be a preferred travel choice that connects the region by satisfying today’s needs and anticipating tomorrow’s demands.”

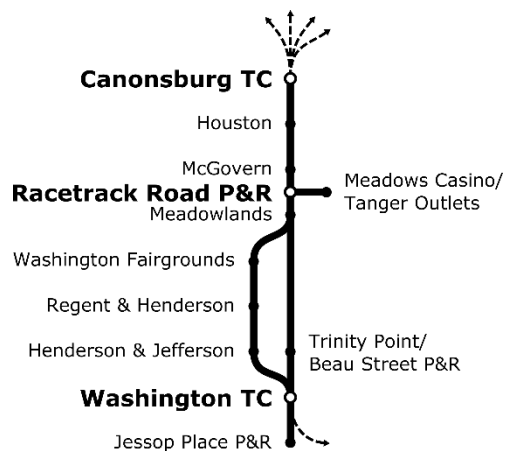
WCTA offers a diverse array of transit services in the form of long-distance commuter routes, intercity regional routes, local circulator routes, and curb-to-curb paratransit (called Shared-ride) services. WCTA’s services shall work together as one cohesive network, taking advantage of free transfers and other amenities.

Transit Service Types

A key priority of the WCTA Strategic Business Plan and Transit Development Plan (TDP) is the focus on offering four brands of transit service. These brands are reflected in current service, but by defining each as a service type, WCTA will be able to add new routes to the service network without additional learning curve for current riders. Each service will be evaluated for effectiveness according to the goals they are designed to advance:

- **Metro** – Fixed routes in the City of Washington and Canonsburg and utilizing limited access freeways or busways to connect with regional destinations outside the county, including South Hills Village and Downtown Pittsburgh. This service primarily serves the commuter market, but can be expanded to include service outside of the typical office work day.

- County Line** – Fixed routes connecting cities and boroughs primarily within Washington County. These routes often travel on rural highways between destinations but may make stops along the way to service smaller, less frequently accessed stops. This service is designed to provide reasonable, all-day access for residents countywide.
- Service Spine** – A conceptual corridor between the City of Washington and Canonsburg in which service standards and amenities are targeted for higher standards. Three destinations along the act as transfer nodes: the Washington Transit Center on East Chestnut Street, a Racetrack Road Park & Ride (currently unbuilt) near the intersection of Racetrack Rod and I-79, and a Canonsburg Transit Center (currently unbuilt) near the intersection of Pike Street and Central Avenue.
- Local** – Fixed routes and/or microtransit operating within Washington County’s cities and boroughs, and their surrounding neighborhoods. These routes operate on more frequent headways or may be on-demand and may provide access to destinations off of primary roadways.
- Shared-ride** – Demand response services operating curb-to-curb service within Washington County. Service does not operate on a fixed schedule and requires a reservation.



Density and Service Coverage

Residential and commercial/employment centers are primary generators of transit demand. Density, the number of residents in a given geographical area, drives transit efficiency. The denser a place is, the more potential transit riders there are. Service coverage guidelines outlined here reflect industry standards for minimum density required for productive transit service.

Washington County is largely rural and as a result, different service types need to target different service areas. Priority should always be given to areas with the highest employment and residential densities. For **Local** service minimum densities should cover the majority of the service area. For **County Line** service, minimum densities are necessary at the end-of-line destinations. The minimum densities required before consideration of service to an area are:

- Eight (8) Employees per Acre, or
- Four (4) People per Acre

Currently, the Employees per Acre metric is met in Census Tracts covering the City of Washington, South Strabane Township, North Strabane Township, Southpointe, Peters Township, Bentleyville, California, Charleroi, and Monongahela. Currently the People per Acre metric is met in Census Tracts covering most of the City of Washington, East Washington, Canonsburg, Houston, Monongahela, Donora, Charleroi, California, McDonald, Burgettstown, and Claysville.

Transit service may be established in less dense areas if the service connects to higher density destinations at both ends of a corridor. County Line routes may place boarding locations in rural areas to

increase access to the system for rural commuters. Service should not, however, be deviated from these corridors to serve areas less dense than the above criteria.

Metro service is more oriented toward commuters, with destinations and service time set to meet commuter needs. These routes may be deviated to meet park-and-ride facilities in less dense areas, and can operate as express service between service areas without regard for intermediate densities.

Shared-ride service operates across the entire county, regardless of density.

Minimum Service Levels

The following section outlines the minimum levels of service recommended for transit in Washington County. These figures should be used to determine how and if transit service should be implemented. These minimum service levels are the lowest levels of service that should be provided; routes should provide higher levels of service wherever possible.

Span of Service

The length of time each day that a bus is available for use is a key factor for the mobility of transit users. If a rider cannot complete their trip within the span offered on a route, they will be forced to use another mode of travel. For this reason, minimum span of service guidelines ensures that a consistent level of transit service is offered across the WCTA system and riders can complete their trips without needing to use another mode. These are minimum standards; actual service delivery may improve on these service spans.

- **Metro** – Minimum six-hour span between first and last trip on each branch. Times of trips may vary based on each destination’s needs.
- **County Line** – Minimum six-hour span between first and last trip on each branch. Times of trips may vary based on each destination’s needs.
- **Service Spine** – 5:00am – 9:00pm weekdays, 9:00am – 7:00pm Saturdays. Alignments within the Service Spine (Metro, County Line, or other) may be determined based on demand, but all trips should access all three transfer nodes.
- **Local** – 8:00 am – 5:00 pm weekdays. Local service may be productive later in the evening for shopping destinations such as current Local B service.
- **Shared-ride** – 5:00 am-8:00 pm weekdays and Saturdays. Share-ride service should match the span of all County Line branches to allow it to be used for last mile trips.

Service Headways

Frequency of service is commonly identified as one of the most important factors for transit ridership. Utilizing standard headways on similar service types provides riders with an understanding of how frequently they can expect service and allows them to adjust their travel plans accordingly.

- **Metro** – Service on branches have no headway standard. Service should meet demand based on branch destination.
- **County Line** – Service on branches have no headway standard. Service should meet demand based on branch destination.

- **Service Spine** – One-hour or better headways between the City of Washington and Canonsburg.
- **Local** – 30-minute or better headways. Local service should provide frequent, all-day connectivity within a service area.
- **Shared-ride** – Not Applicable. Service is reservation-based and is not headway-based.

Service Type	Minimum Service Spans	Minimum Service Headways
Metro	Minimum Six Hour Span	Based on Demand
County Line	Minimum Six Hour Span	Based on Demand
Service Spine	5:00 am – 9:00 pm	One Hour or Better
Local	8:00 am – 5:00 pm	Thirty (30) Minutes or Better
Freedom Countywide	5:00 am – 8:00 pm	Not Applicable

Route Directness

Bus routes should be designed to operate as directly as possible to and from major destinations to minimize passenger travel time. Ideally, routes should operate on major arterial streets as much as possible. When a deviation from major streets exists or is being considered, the gain in convenience to those passengers who are boarding or alighting at the stop must be balanced against the additional travel time for the passengers traveling through. Factors for consideration include:

- Bi-directional service should be provided on the same street.
- Express service should be routed in the most direct manner possible.
- Deviations from the basic route alignment to serve activity centers will be made only when they have the potential to attract new riders equal to or exceeding the route performance evaluation standards for the corresponding route category (discussed later in the guidelines).
- Deviations should avoid operating on private property.
- Additional time to operate route deviations should not exceed five (5) minutes (one-way) or 10 percent (10%) of the one-way running time, whichever is less.
- Single-directional loops should not be operated in the middle of a route. A single-directional loop gives a passenger access to only one direction of travel. This practice limits the usability of the route and lengthens travel times for riders that board during the single-directional loop.
- Single-directional loops may be placed at one end of the route, but should not exceed 25 percent (25%) of a route’s total length for routes that exceed 30 minutes in one-way travel time. Trips should never terminate midway through a one-directional loop.
- Access to both directions of travel should be maintained from all locations along the route. Companion bus stops for opposite directions of travel should be located across from each other when possible and should never be out of line-of-site from each other, and not be more than a two-minute walk excluding crossing signal wait time.

Bus Stops

Bus stops are the primary access points to the WCTA network. Stop spacing, placement, and amenities are decision factors for riders when choosing to ride a bus. Priorities that will be considered in determining bus stop locations and spacing include:

- Major transit generators (For example: employment centers, residential areas with 500+ units, retail centers, public education centers, major medical facilities)
- Transfer nodes (Washington TC, Racetrack Rd P&R, Canonsburg TC)
- Signalized intersections where there are designated crossings
- Intermediate stops along corridors with few cross streets at an interval of at least 2,500 feet

The greatest delay factor experienced by transit services is from leaving primary road networks to access bus stops. Whenever possible, bus stops should be placed along the main corridor roadways. If conditions require stops to be placed off the main roadways, these should be minimized in length to lessen the impact to schedule.

Bus Stop Accessibility

The Americans with Disabilities Act (ADA) requires all new bus stops to have a set of standard features to provide accessibility to individuals with disabilities. These features include:

- 5' by 8' waiting area made of a hard, compacted, non-slip surface (such as concrete)
- The waiting area must be connected to the nearest public right-of-way with accessible pathways a minimum of 4' in width with less than a 2 percent (2%) cross-slope
- Absence of obstructions including poles, signs, or other obstacles which may impede access to the waiting area.

Through years of incremental development, many stops in the WCTA system are not ADA-compliant. WCTA will prioritize capital improvements for stops along major corridors to improve accessibility.

Bus Stop Amenities

Investments in stop amenities, such as bus shelters, will be made based on ridership. Generally, stops with average daily boarding greater than 25 people should have some form of bench or shelter. Given the limited funds for such improvements, stops with the highest levels of ridership and along statistically dangerous corridors should be prioritized.

Stop safety is always the top priority.

Additionally, WCTA will work with local municipalities and developers to incorporate bus pads and transit-friendly sidewalk designs into roadway improvement projects and new developments. WCTA will also coordinate with PennDOT through "PennDOT Connects" and other future initiatives to integrate transit into traditional roadway design and construction.

Other factors that should be considered in determining the priority for amenities at stops are:

- Length of wait times between buses,
- Percentage (high) of transfer passengers, and
- Percentage (high) of seniors or disabled persons using the stop.

Annual Performance Report

Following each fiscal year, WCTA staff will present an Annual Performance Report to the WCTA board to evaluate the productivity of every route segment and type. This evaluation will formalize a route optimization process in pursuit of long-term growth, a primary purpose of WCTA's Strategic Business Plan. To maintain transparency, this report will be available to the public. This will afford riders, Washington County residents, and other stakeholders the opportunity to understand any potential future service changes.

Routes will be assessed by the following metrics:

- Total Passengers
- Passengers per Revenue Vehicle Mile
- Passengers per Revenue Vehicle Hour
- Passengers per Actual Vehicle Mile
- Passengers per Actual Vehicle Hour

Revenue Vehicle statistics refer to times during which buses are operating in-service (on a schedule and collecting passengers.) Actual Vehicle statistics refer to the entire time a vehicle is out of the garage, both in-service and out-of-service (on breaks, traveling to the garage, etc.) Revenue Vehicle statistics are helpful in determining how effectively WCTA service is meeting the customers' needs. Actual Vehicle statistics are helpful in determining the overall operational efficiency of the service.

The purpose of the Annual Performance Report is to act as a guide for decision-making. WCTA currently maintains a detailed monthly spreadsheet including the above metrics as well as many other helpful data points; however, they are currently totaled only by service type: **Metro, County Line, Local, and Total.**

The Annual Performance Report should deliver the above metrics for each service segment (including branches, service spine, and shared-ride) and type as they are added to the system, for example:

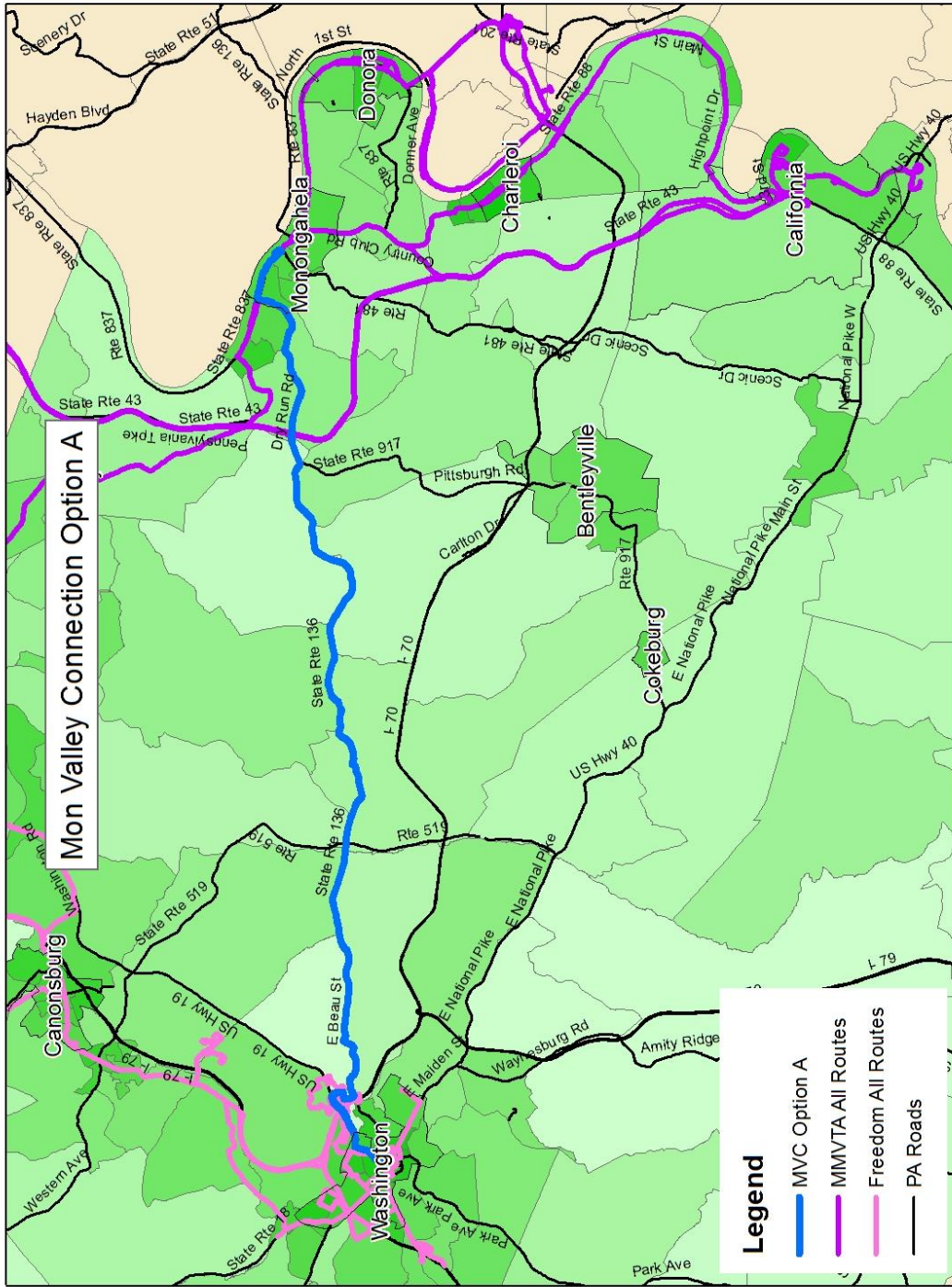
- Metro Express Pittsburgh
- Metro Canonsburg-South Hills Village
- Metro Washington-Canonsburg (Service Spine)
- Metro Network Total
- County Line McDonald-Canonsburg
- County Line Charleroi-Washington
- County Line Monongahela-Canonsburg
- County Line Washington-Canonsburg (Service Spine)
- County Line Network Total
- Local A
- Local B
- Local C (Canonsburg)
- Local Total
- Service Spine Total
- Shared Ride

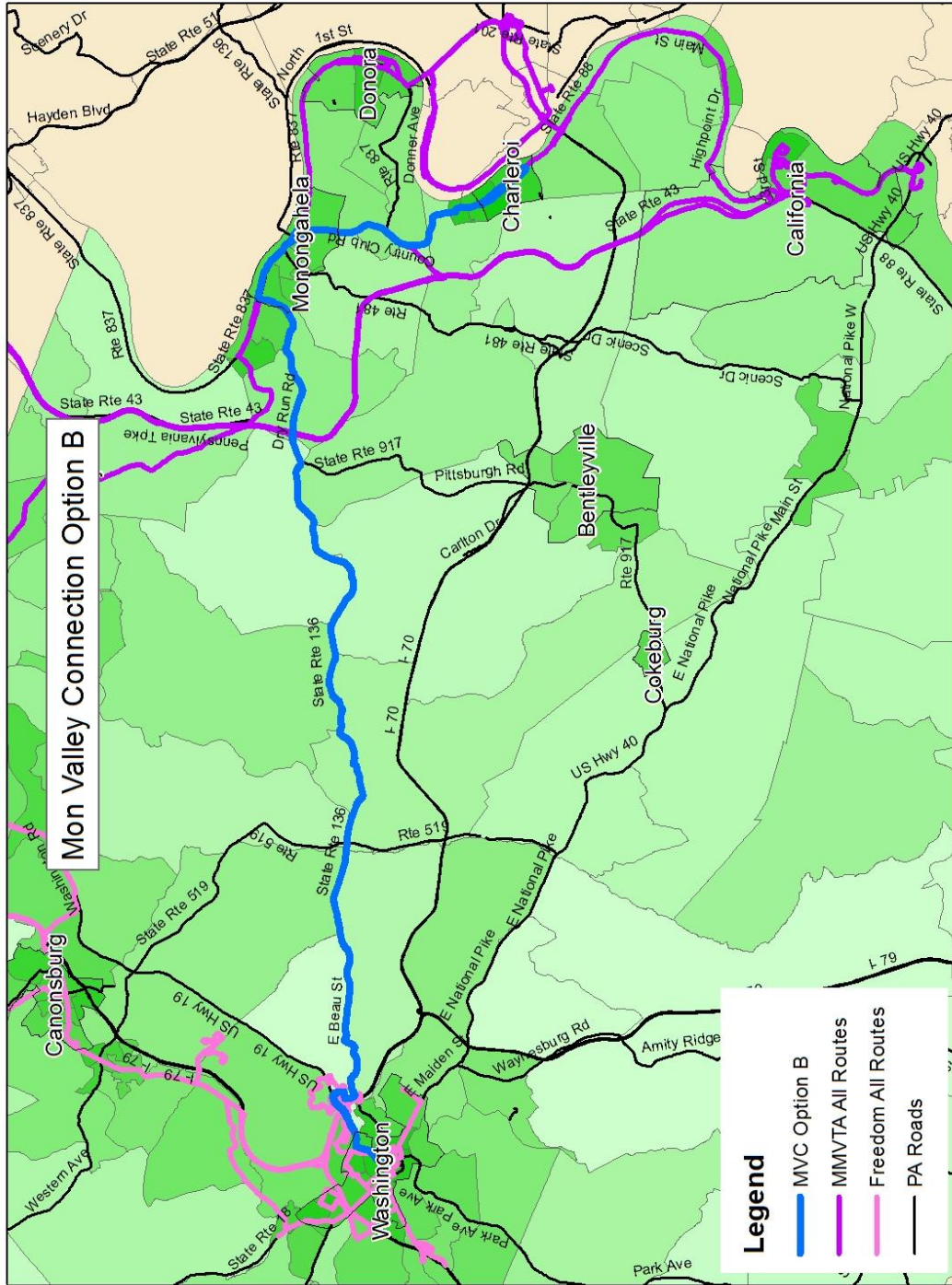
When possible, each metric should be compared to previous years for reference.

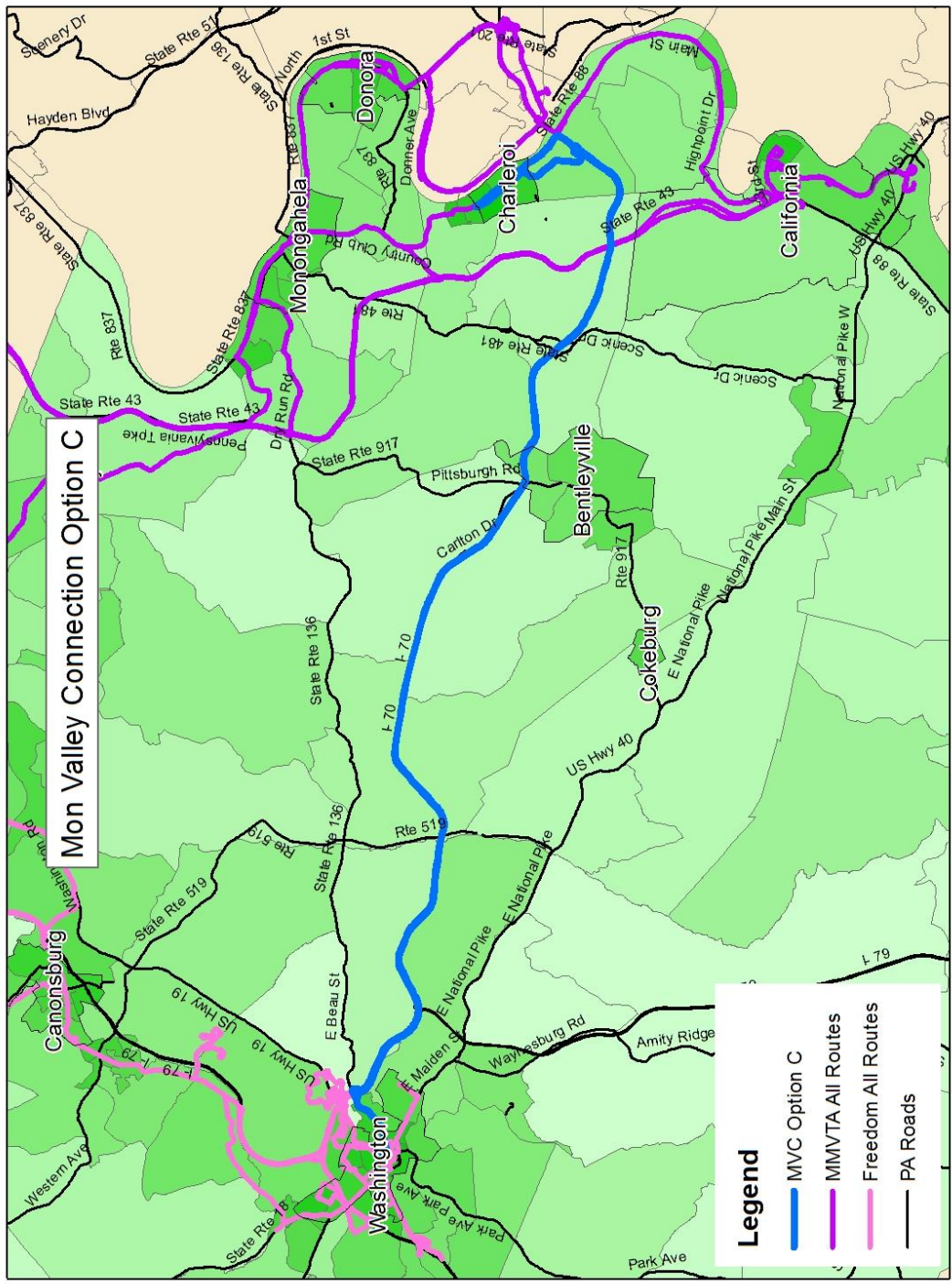
This page left intentionally blank.

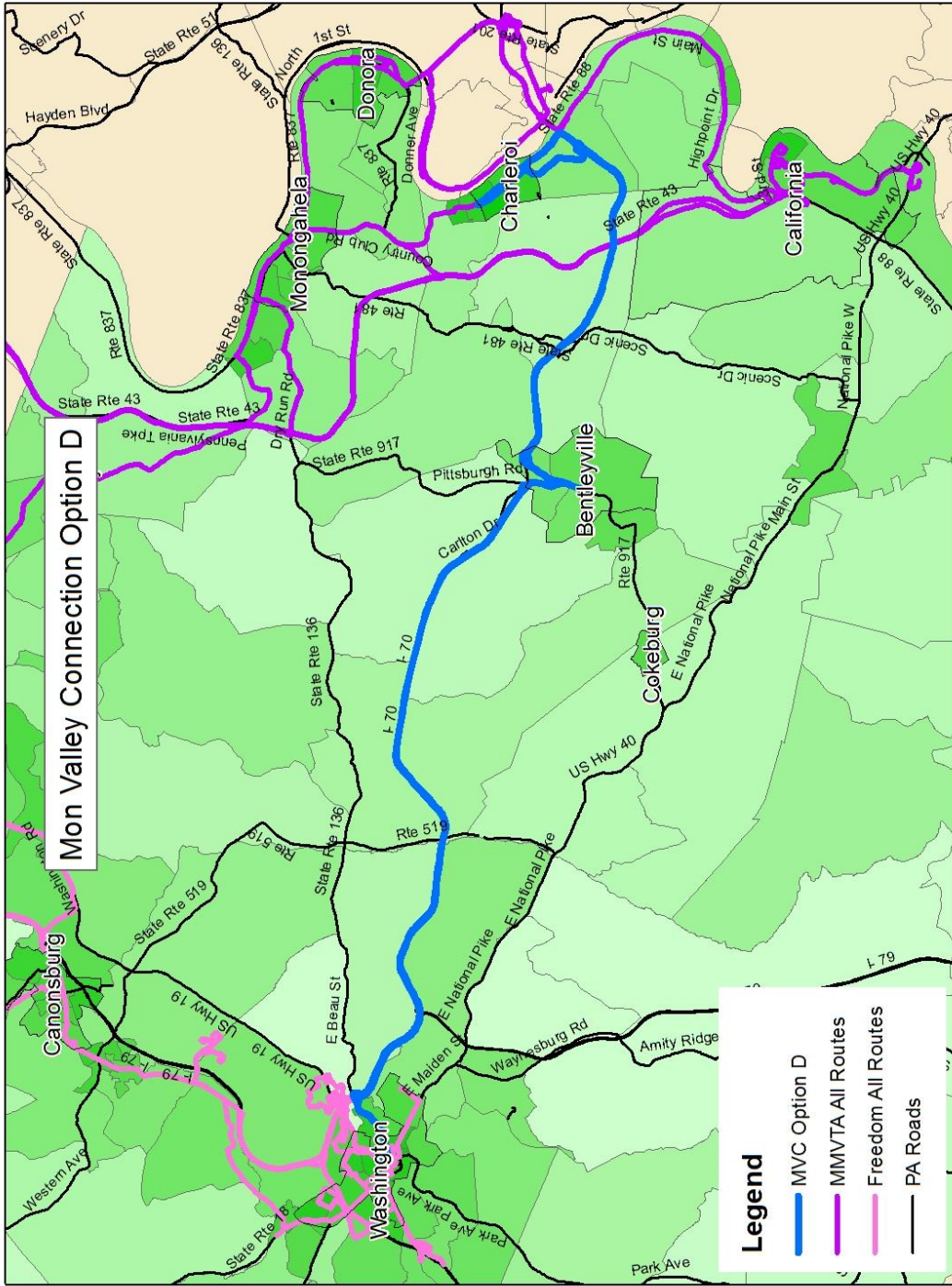
Appendix C: Mon Valley Connection Option Maps and Data Metrics

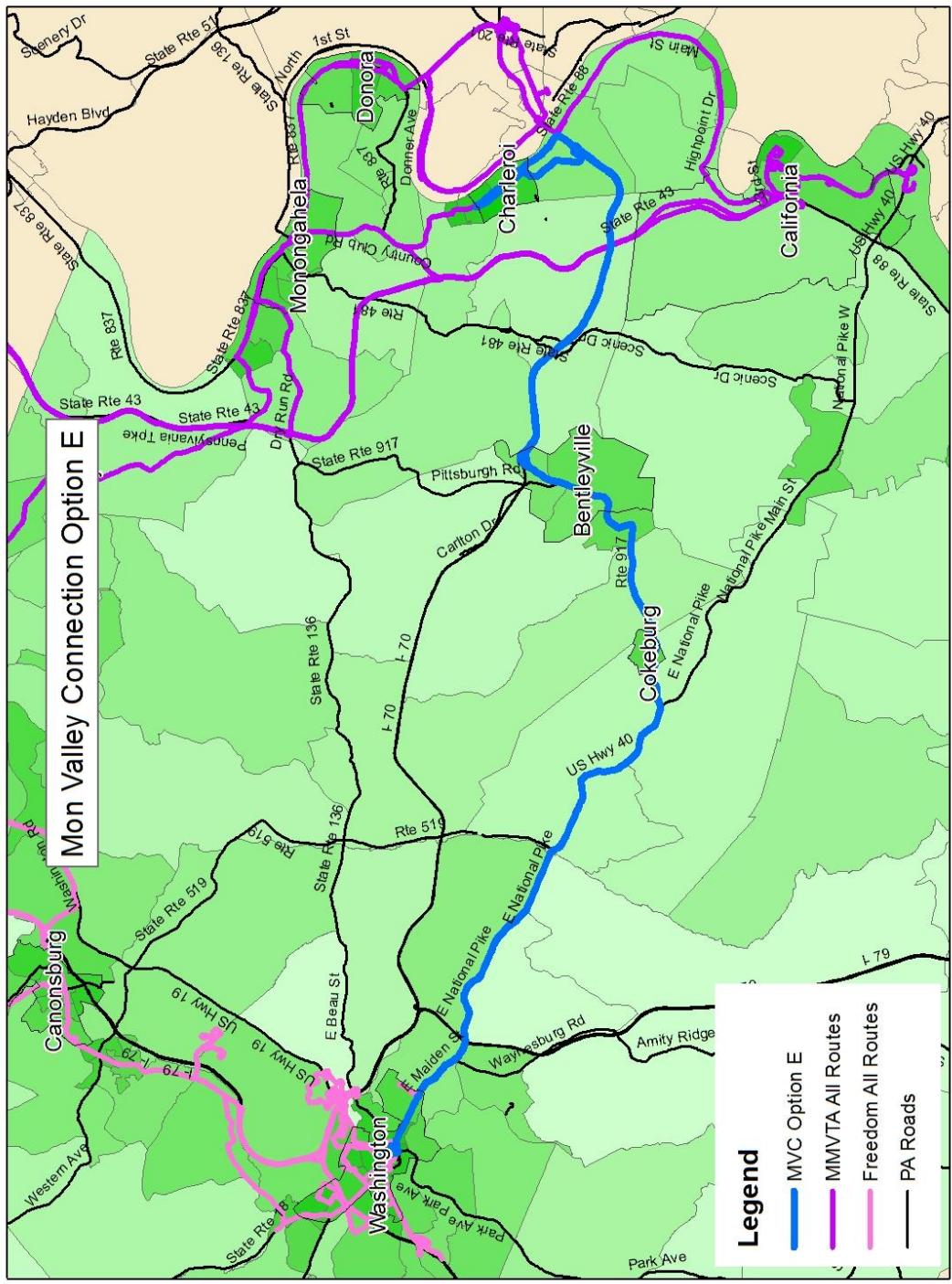
This page left intentionally blank.

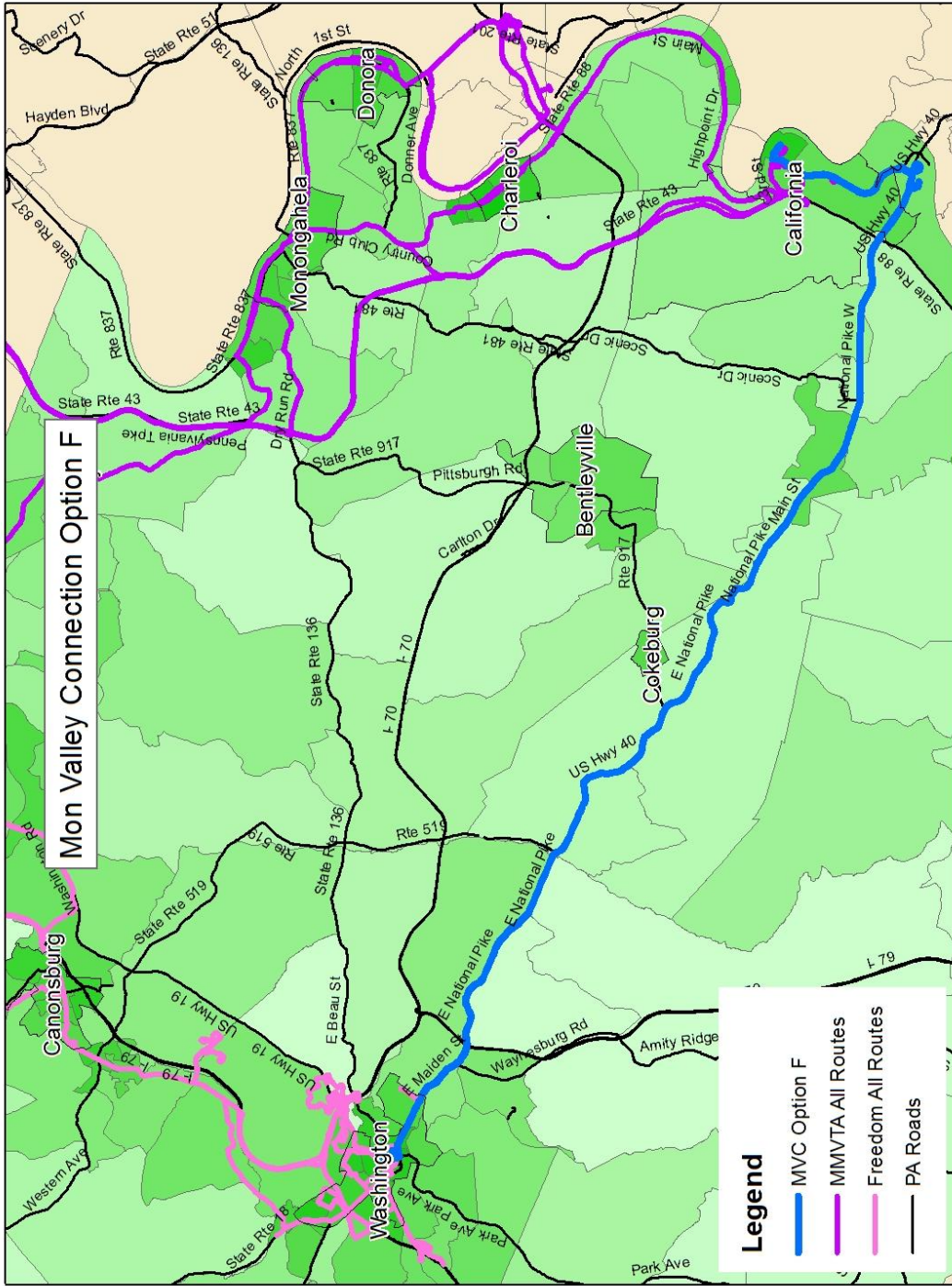


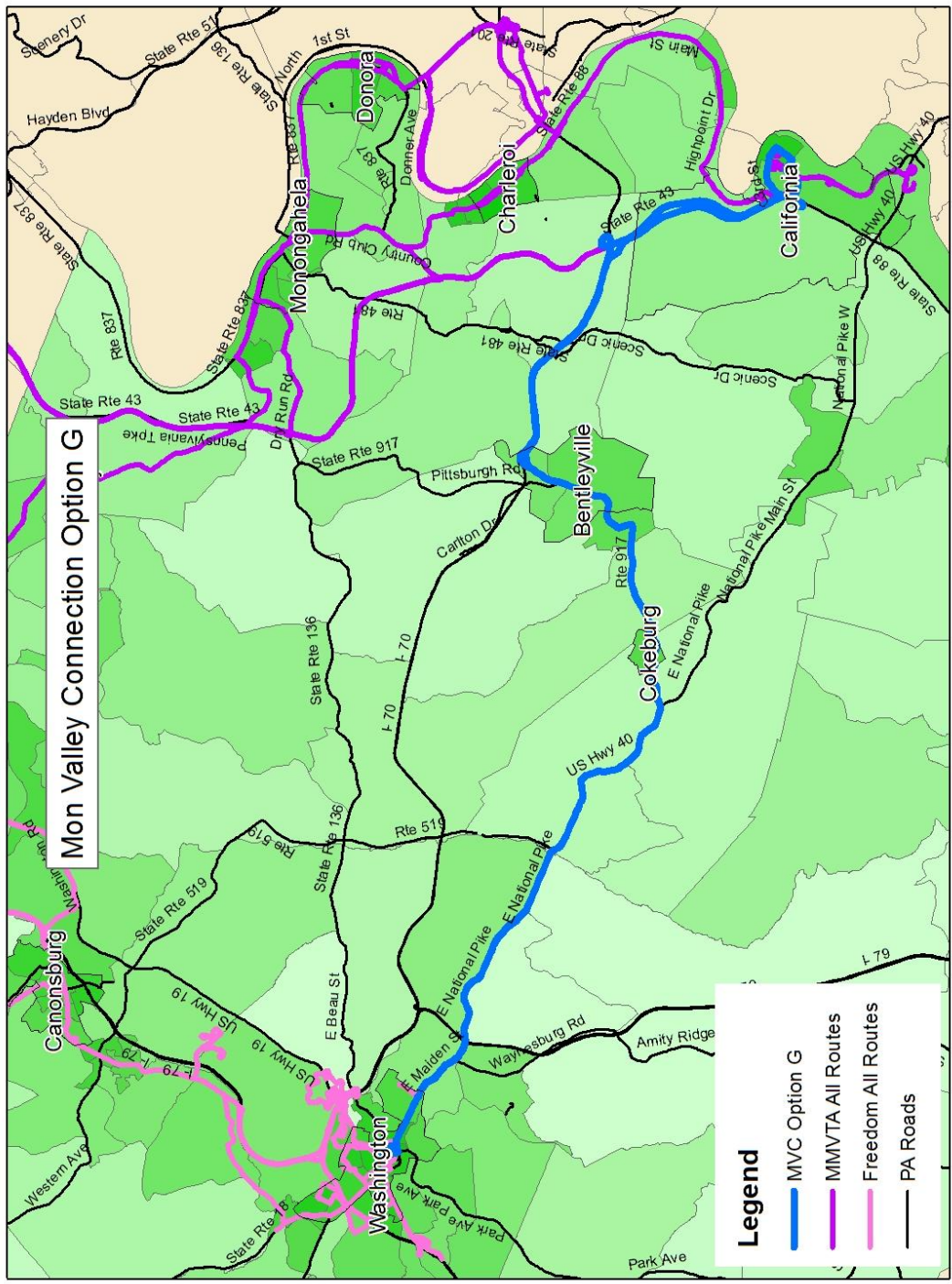


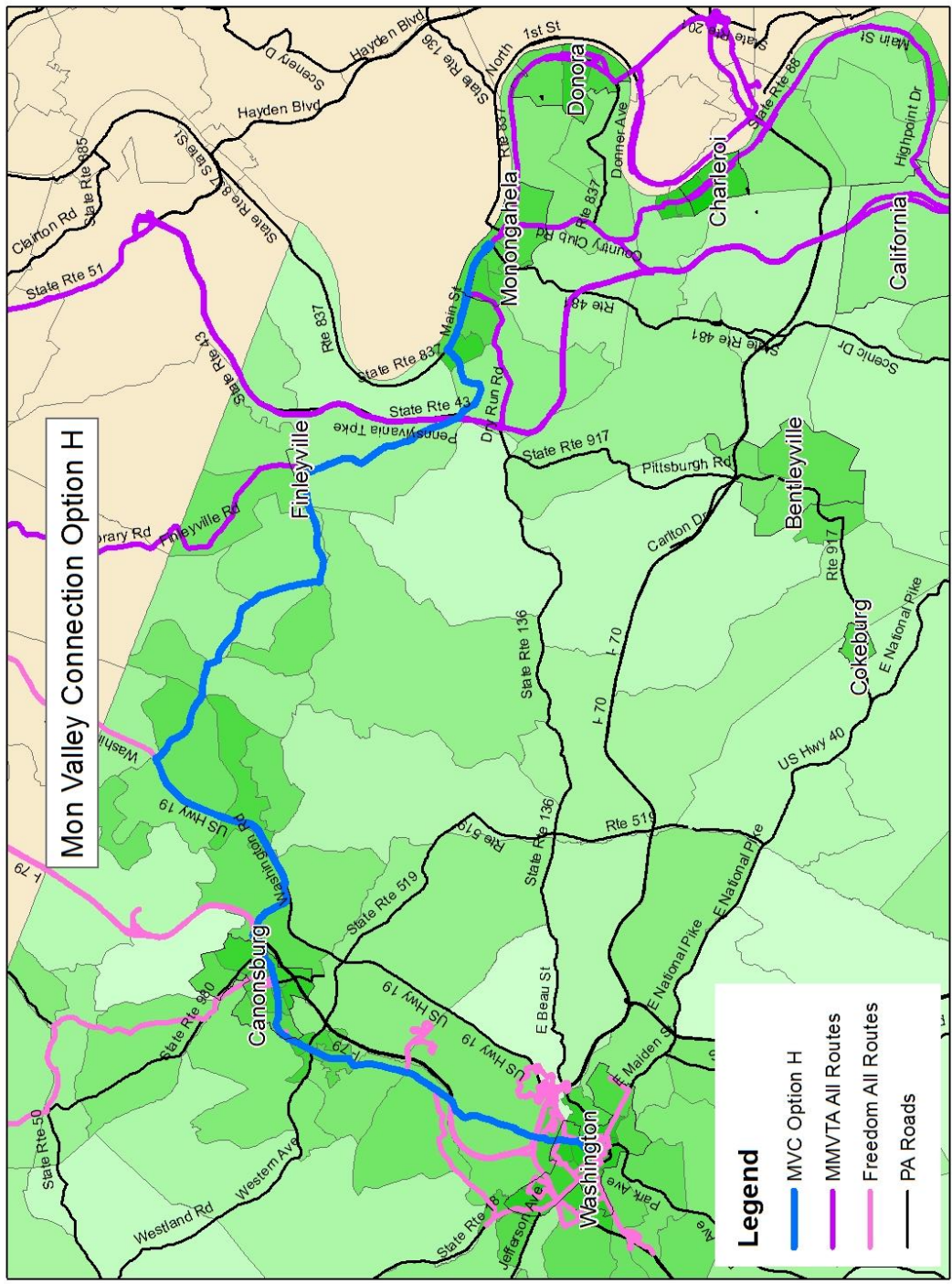


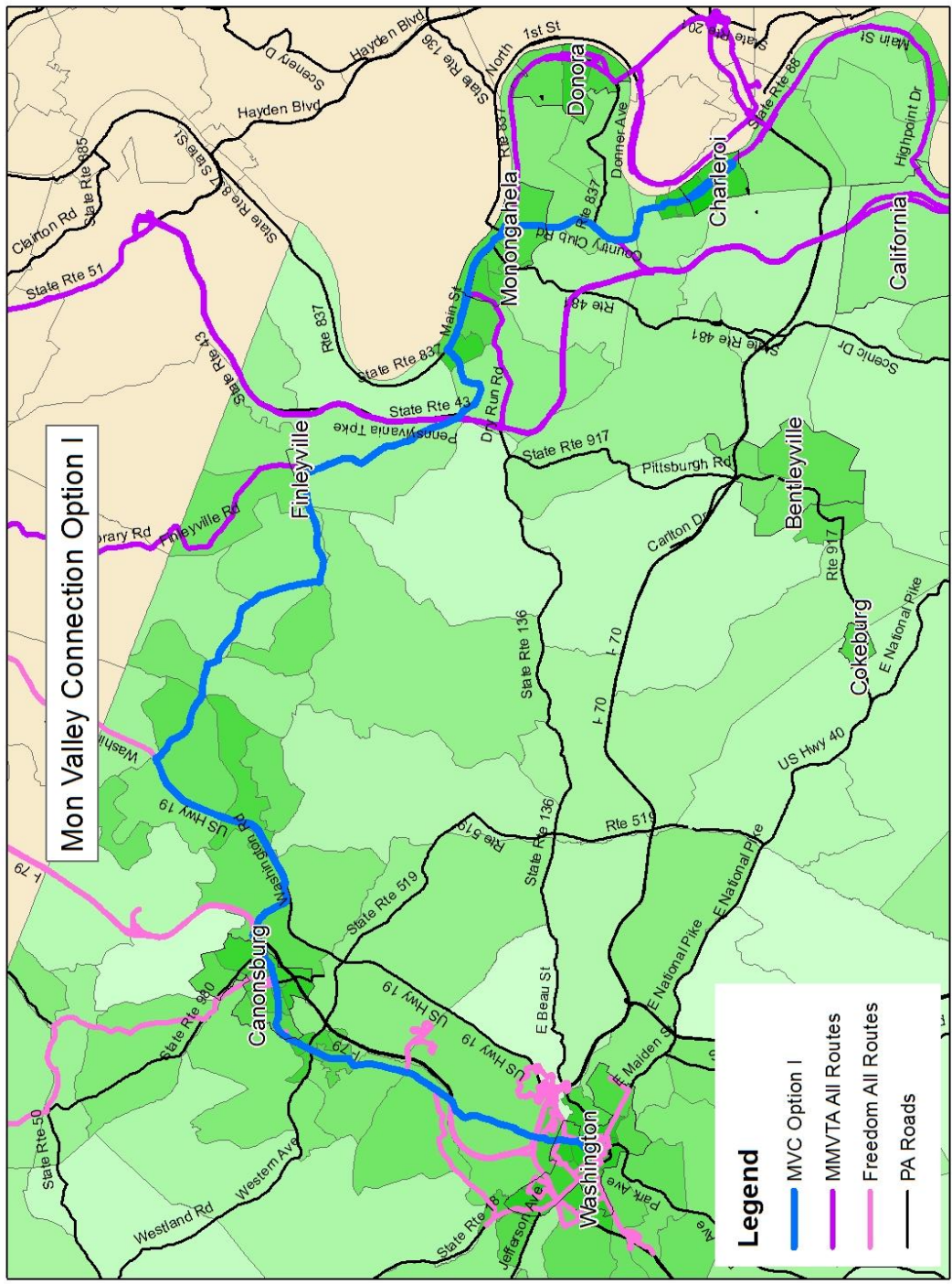












Statistics by Option Alphabetically

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%

By Potential Riders

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%

By Roundtrip Miles

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%

By Roundtrip Runtime in Minutes

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%

By Riders/Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/Mile	Riders/Hour	Miles/Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%

By Riders/Hour

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/Mile	Riders/Hour	Miles/Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%

By Miles/Hour

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/Mile	Riders/Hour	Miles/Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%

By Total Population within 1 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/Mile	Riders/Hour	Miles/Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%

By Total Jobs within 1 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%

By Percent in Poverty within 1 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%

By Percent Minority within 1 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%

By Percent Over Age 65 within 1 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%

By Percent Under Age 18 within 1 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%

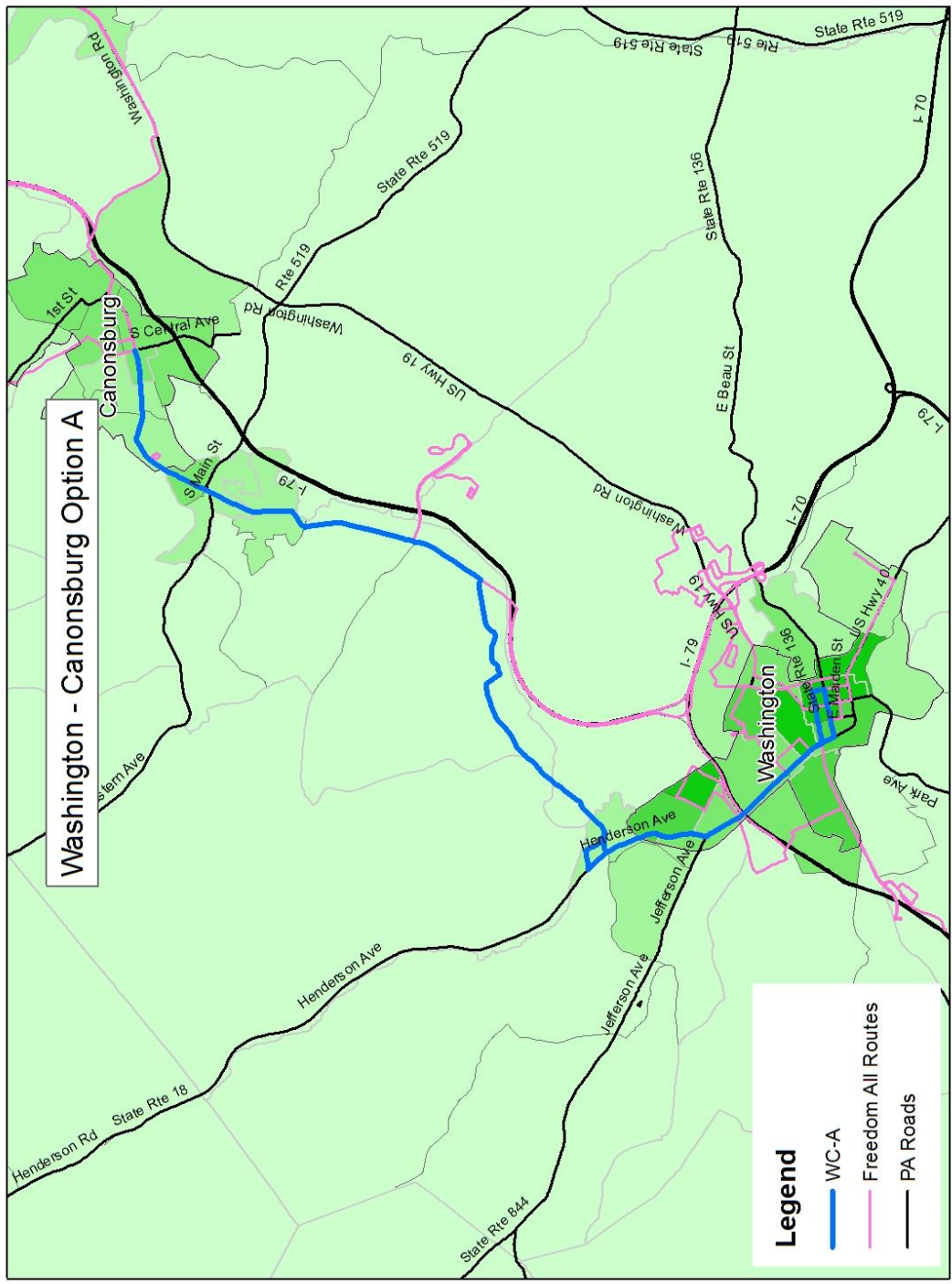
By Percent Zero Vehicle Houses within 1 Mile

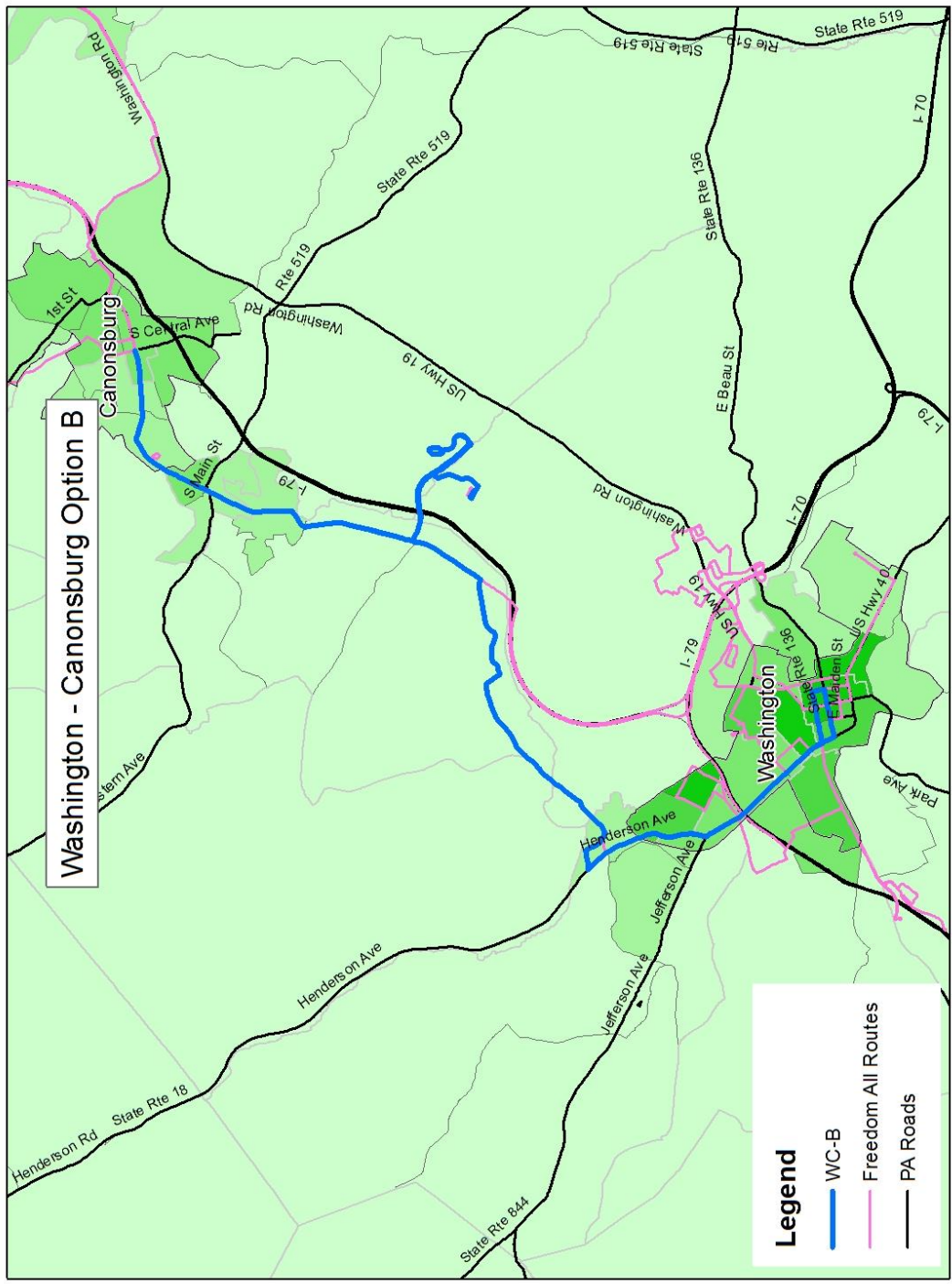
	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within One Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	376	50.02	89	7.5	253.7	33.7	21,849	13,864	19.6%	15.9%	18.2%	16.9%	18.1%
Option D	436	53.76	109	8.1	240.1	29.6	24,343	14,573	19.7%	14.8%	18.1%	17.5%	17.5%
Option E	470	53.58	131	8.8	215.3	24.5	29,408	15,623	18.8%	13.1%	18.8%	17.6%	16.1%
Option G	375	54.54	125	6.9	180.1	26.2	23,778	13,567	20.1%	14.6%	16.2%	16.0%	16.1%
Option H	1752	56.66	165	30.9	637.0	20.6	22,315	12,558	17.5%	14.8%	17.8%	16.8%	15.6%
Option F	558	53.57	130	10.4	257.4	24.7	27,019	14,327	20.7%	14.6%	16.4%	15.9%	15.4%
Option I	2066	67.86	216	30.5	574.0	18.9	33,780	16,863	17.1%	13.1%	19.3%	17.3%	15.2%
Option A	764	40.61	124	18.8	369.5	19.7	25,725	15,792	15.3%	13.3%	17.4%	17.5%	14.7%
Option B	974	51.8	175	18.8	333.8	17.8	37,186	20,067	15.6%	12.2%	18.9%	17.7%	14.6%

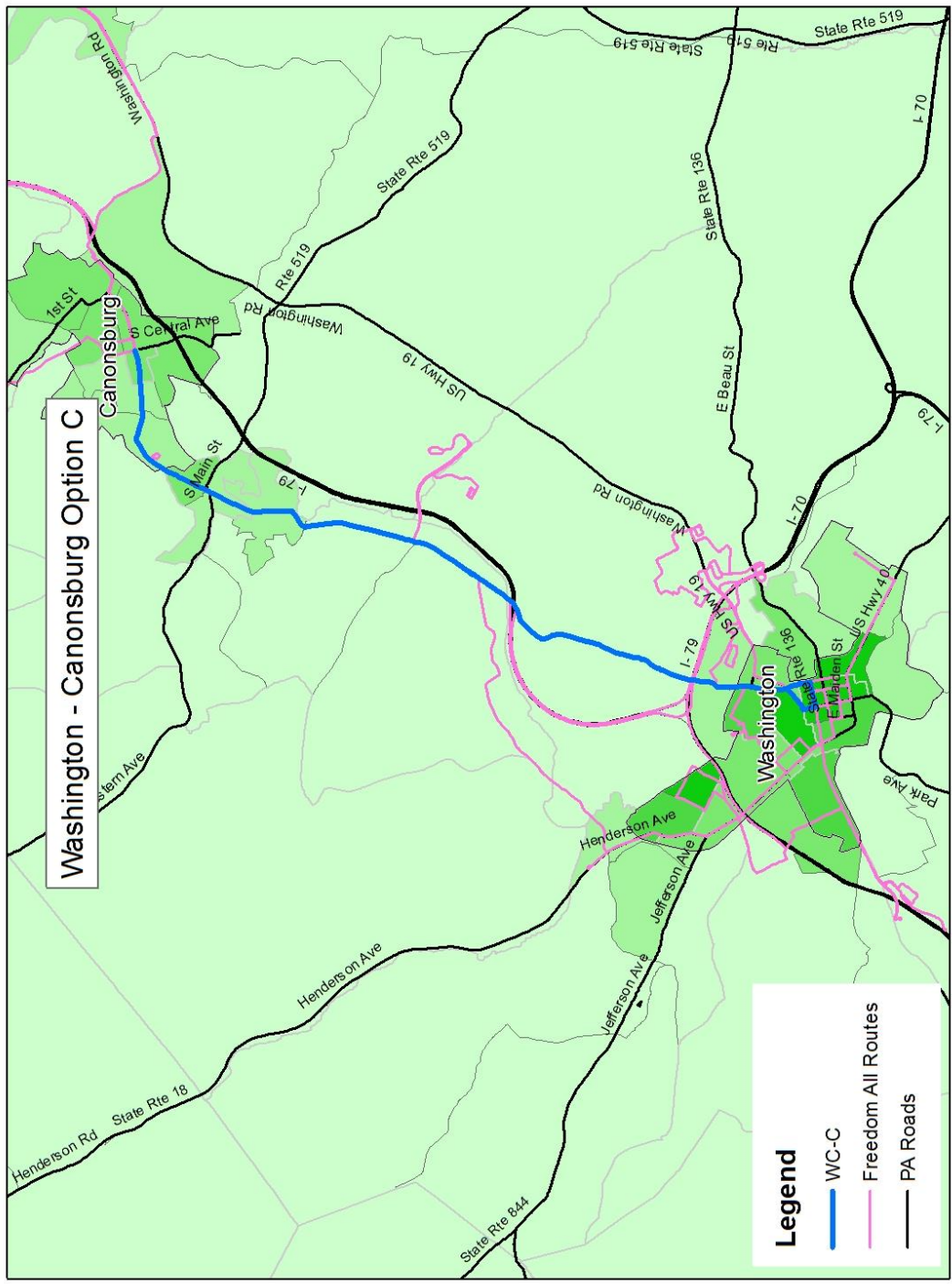
This page left intentionally blank.

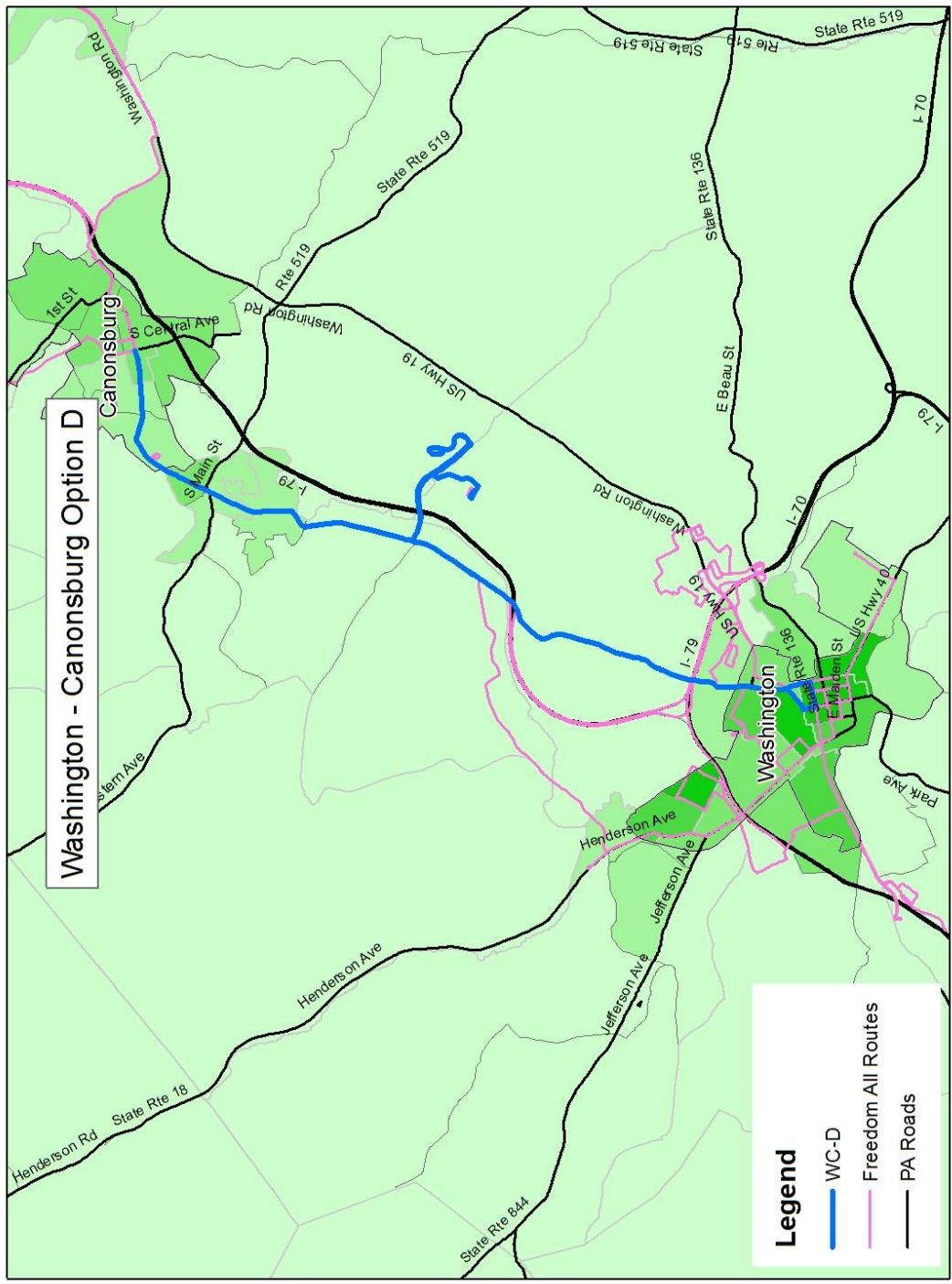
Appendix D: Washington-Canonsburg Connection Option Maps and Data Metrics

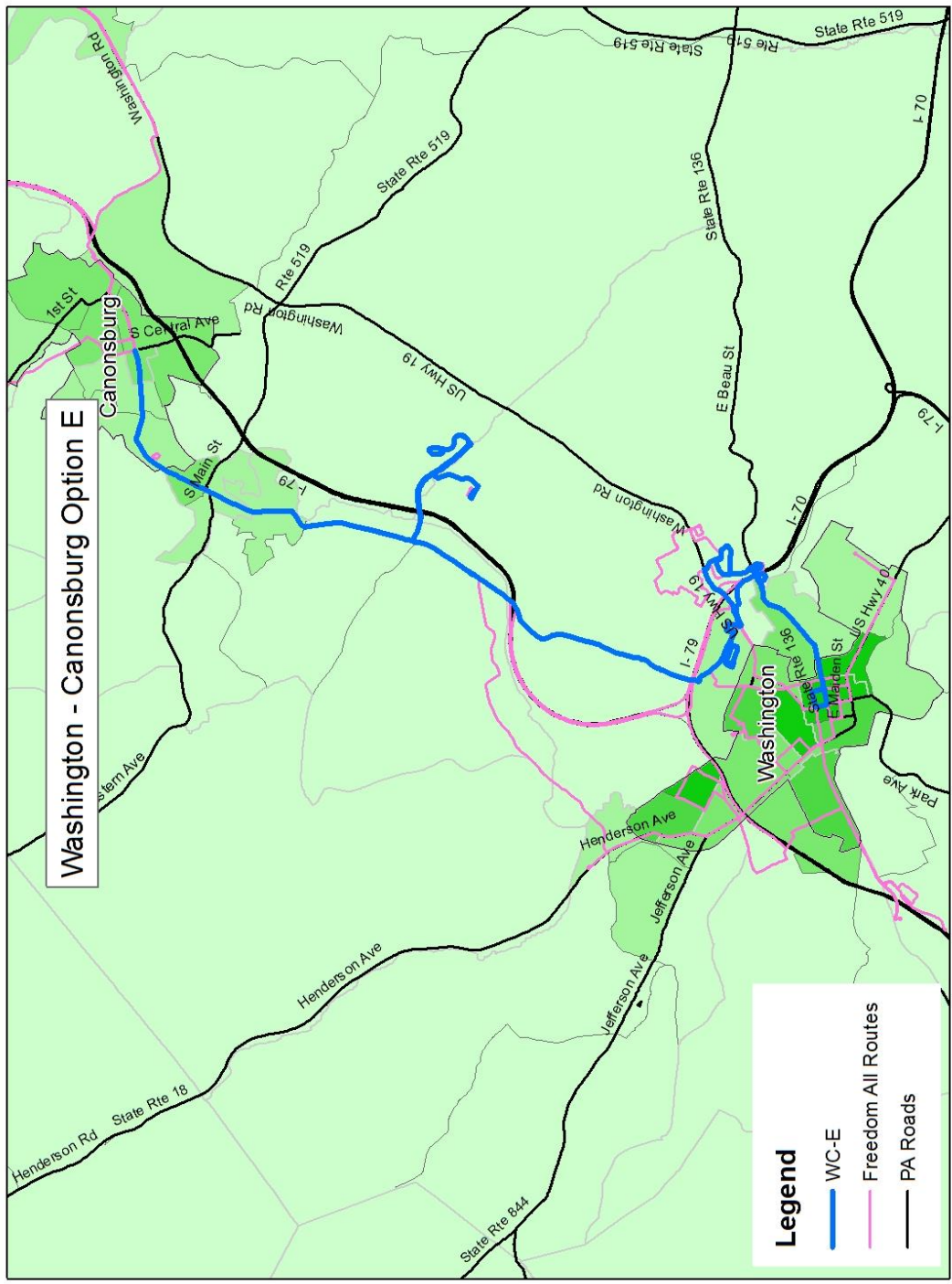
This page left intentionally blank.

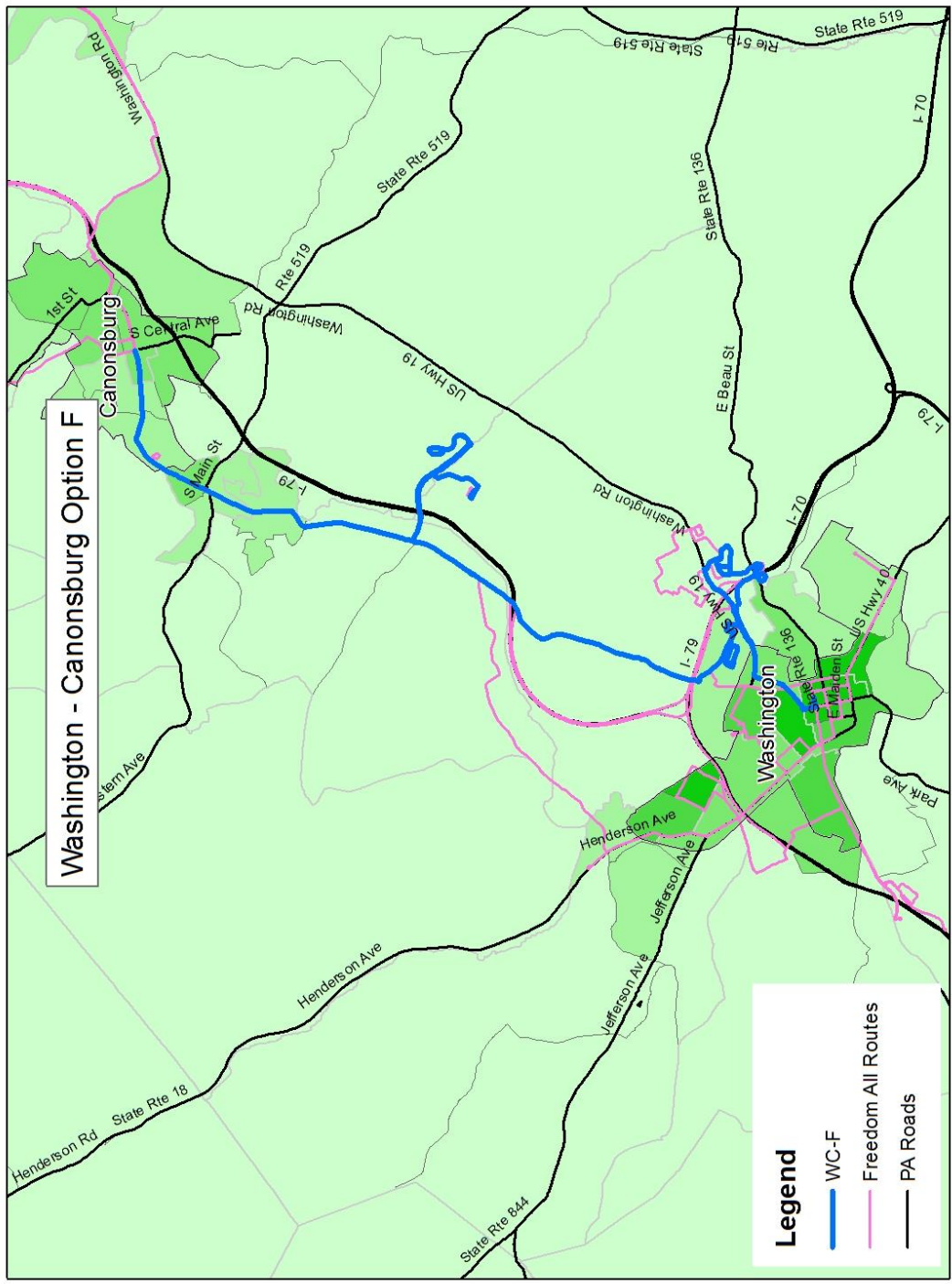


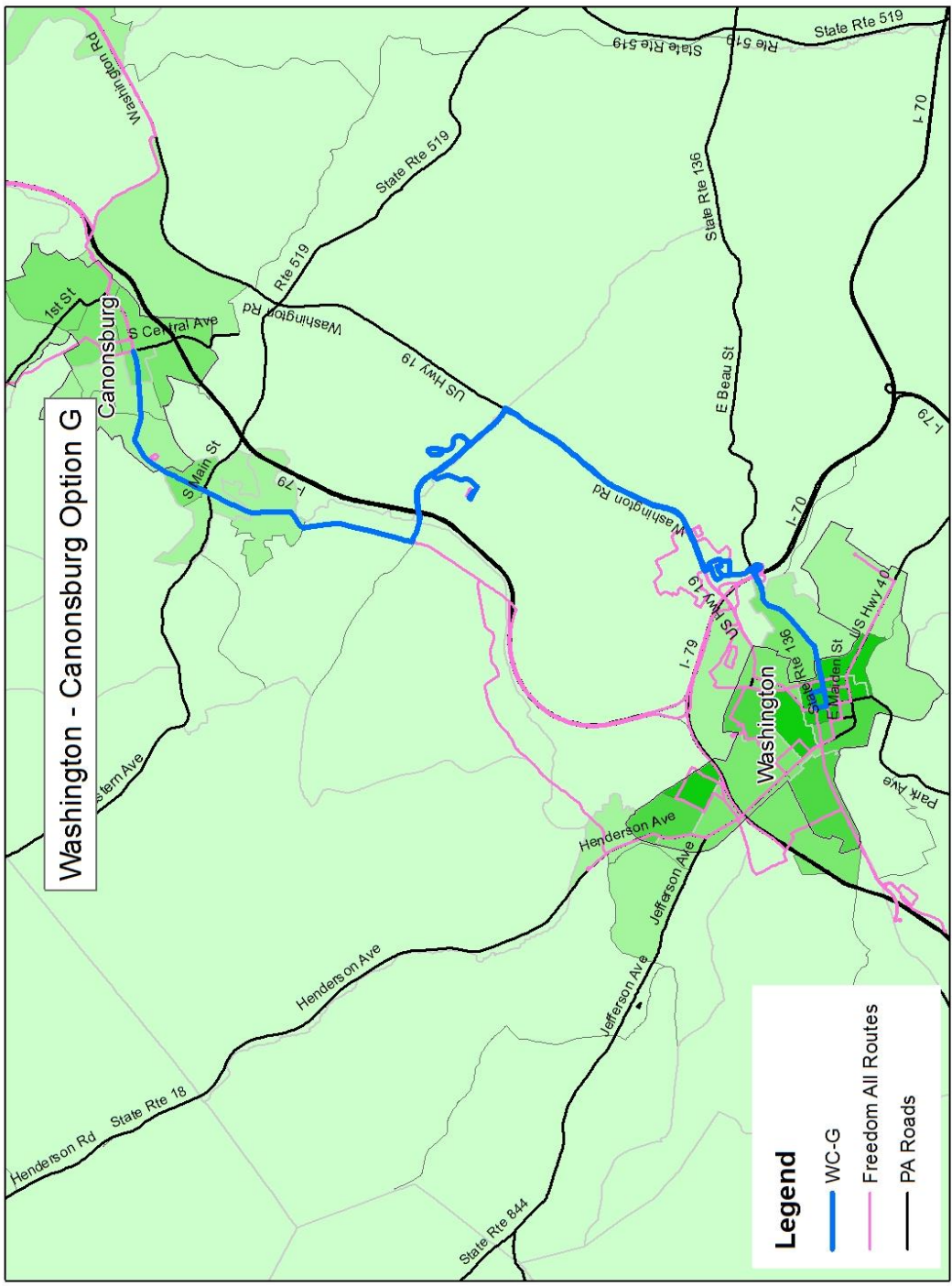


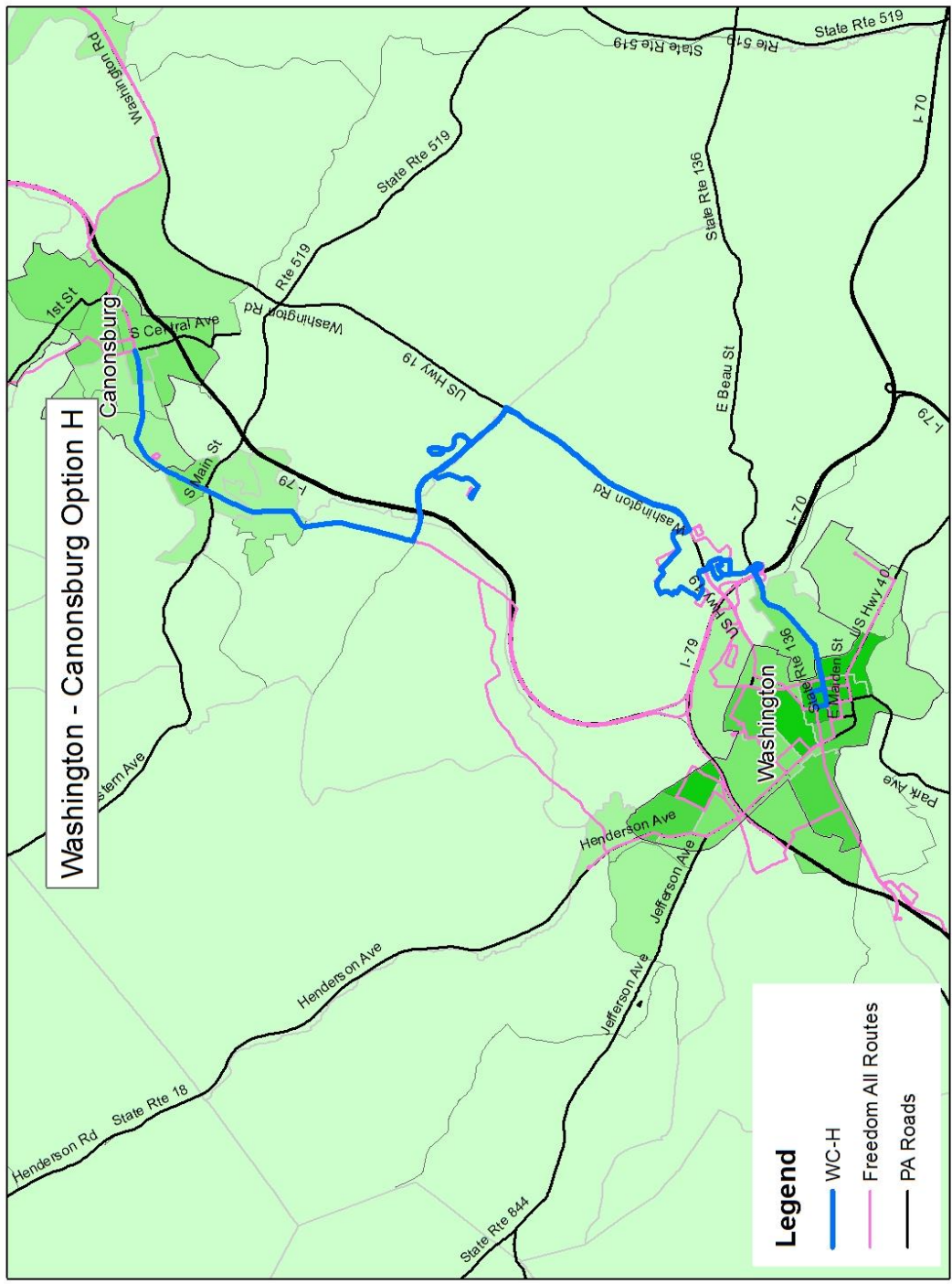


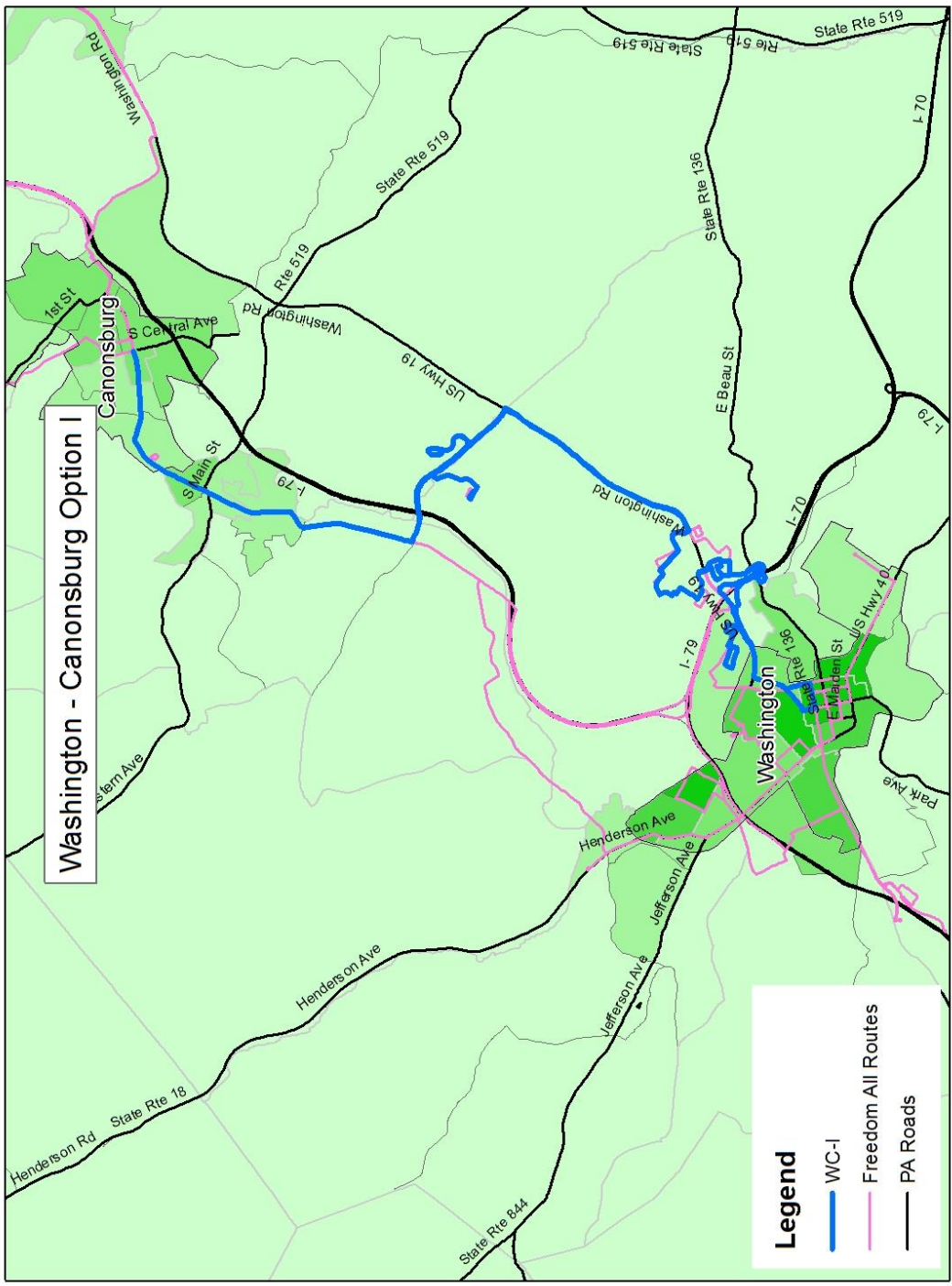












Statistics by Option Alphabetically

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%

By Potential Riders

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%

By Roundtrip Miles

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%

By Roundtrip Runtime in Minutes

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%

By Riders/Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%

By Riders/Hour

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%

By Miles/Hour

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%

By Total Population within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%

By Total Jobs within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%

By Percent in Poverty within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%

By Percent Minority within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%

By Percent Over Age 65 within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%

By Percent Under Age 18 within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%

By Percent Zero Vehicle Houses within 1/4 Mile

	Potential Riders	Roundtrip Miles	Roundtrip Runtime (Mins)	Riders/ Mile	Riders/ Hour	Miles/ Hour	Within 1/4 Mile of Stops						
							Total Pop.	Total Jobs	% in Poverty	% Minority	% Over Age 65	% Under Age 18	% Zero Vehicles
	Green = High	Green = Low	Green = Low	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High	Green = High
Option A	841.3239	20.7	86	40.6	587.0	14.4	9,321	7,306	18.1%	18.3%	17.0%	17.8%	16.4%
Option B	1110.176	29.54	129	37.6	516.4	13.7	9,560	7,584	17.7%	17.9%	17.2%	17.8%	16.0%
Option C	550.7819	15.28	66	36.0	500.7	13.9	6,910	5,856	14.7%	20.0%	18.0%	16.3%	14.8%
Option D	776.6856	23.97	105	32.4	443.8	13.7	7,149	6,134	14.3%	19.4%	18.3%	16.3%	14.4%
Option I	1041.472	29.68	158	35.1	395.5	11.3	7,583	6,319	13.8%	18.9%	18.3%	16.2%	14.4%
Option F	854.8546	31.74	156	26.9	328.8	12.2	7,190	6,029	14.1%	19.1%	19.0%	16.4%	14.2%
Option E	787.0674	30.94	155	25.4	304.7	12.0	8,080	5,663	12.7%	17.5%	18.3%	15.6%	12.1%
Option H	842.9385	26.63	133	31.7	380.3	12.0	7,564	5,213	11.6%	16.8%	16.6%	16.3%	11.9%
Option G	842.9385	24.32	121	34.7	418.0	12.1	7,523	5,192	11.5%	16.9%	16.2%	16.5%	11.6%

This page left intentionally blank.

Appendix E: Potential Metro/County Line Schedule

This page left intentionally blank.

	Weekday	Weekday	Sat.	Sat
	Current	Future	Current	Future
Daily Departures	Departs.	Departs.	Departs.	Departs.
Charleroi	0	2	0	0
East Chestnut Street TC	17	21	3	4
Fairgrounds	14	11	0	0
Trinity Point (Walmart)	20	18	6	8
Racetrack Park & Ride	34	30	6	8
Meadows Casino/Tanger	14	20	6	8
Canonsburg TC	35	30	6	8
Pittsburgh - East Busway	10	6	0	0
Donaldson's Crossroads	0	10	6	8
South Hills Transit Station	0	3	6	8
Monongahela	0	2	0	0
McDonald	7	3	0	0

Service Spine

Canonsburg-Washington Runtime (Mins)	
County Line:	55
Metro:	40
Metro Express:	25

Saturday	Metro	Metro	Metro	Metro
Northbound	SHV	SHV	SHV	SHV
East Chestnut Street TC	9:15 AM	12:15 PM	3:15 PM	6:15 PM
Trinity Point (Walmart)	9:20 AM	12:20 PM	3:20 PM	6:20 PM
Racetrack Park & Ride	9:30 AM	12:30 PM	3:30 PM	6:30 PM
Meadows Casino/Tanger	9:45 AM	12:45 PM	3:45 PM	6:45 PM
Canonsburg TC	10:00 AM	1:00 PM	4:00 PM	7:00 PM
Donaldson's Crossroads	10:10 AM	1:10 PM	4:10 PM	7:10 PM
South Hills Transit Station	10:25 AM	1:25 PM	4:25 PM	7:25 PM

Service Spine

Saturday	Metro	Metro	Metro	Metro
Southbound	Wash	Wash	Wash	Wash
South Hills Transit Station	10:30 AM	1:30 PM	4:30 PM	7:30 PM
Donaldson's Crossroads	10:45 AM	1:45 PM	4:45 PM	7:45 PM
Canonsburg TC	11:00 AM	2:00 PM	5:00 PM	8:00 PM
Meadows Casino/Tanger	11:15 PM	2:15 PM	5:15 PM	8:15 PM
Racetrack Park & Ride	11:30 AM	2:30 PM	5:30 PM	8:30 PM
Trinity Point (Walmart)	11:40 AM	2:40 PM	5:40 PM	8:40 PM
East Chestnut Street TC	11:45 AM	2:45 PM	5:45 PM	8:45 PM

Service Spine

Appendix H: Potential Canonsburg Local Alignment



This page left intentionally blank.
