

Existing Conditions Memorandum

Tech Memo 1

Regional Transportation Demand
Management (TDM) Strategic
Action Plan

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Submitted to:
Southwestern Pennsylvania
Commission

Submitted by:
ICF International

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I. Introduction

As a starting point for developing the Regional Transportation Demand Management (TDM) Strategic Action Plan, this memorandum provides an analysis of existing conditions within the Southwestern Pennsylvania region. Analysis of existing conditions involved four primary activities:

- Data analysis of travel behavior
- Review of regional and local plans, studies, and initiatives
- Employer interviews
- A stakeholder survey to understand perceptions about existing conditions (as well as gather initial input on priorities)

The existing conditions summarized in this memo provide a baseline from which national best practices and stakeholder input will guide development of the region's goals and priorities for TDM. After reviewing regional travel patterns, this analysis explores existing TDM initiatives with respect to primary goals, strategies, regional travel market segments (geographies or populations), and outcomes observed to date. Employer interviews and stakeholder survey responses enrich these findings with diverse local perspectives on existing challenges and opportunities for managing transportation demand.

II. Review of Travel Patterns

TDM is about travel choices, and therefore understanding existing travel patterns provides a basis for understanding the mobility needs and opportunities for residents in the region. While people travel for various purposes, work trips are the largest single category of trips, yet make up less than one-third of all trips -- comprising on average 31% of weekday trips across the nation.¹ In the SPC region a high concentration of employment is located in the Pittsburgh area as well as throughout Allegheny County. Figure 1 at right shows the locations of jobs in 2015 within the 10 county SPC region. In addition to Allegheny County, jobs are clustered around major transportation corridors, including Route 119 in Fayette, Westmoreland, and Indiana Counties,

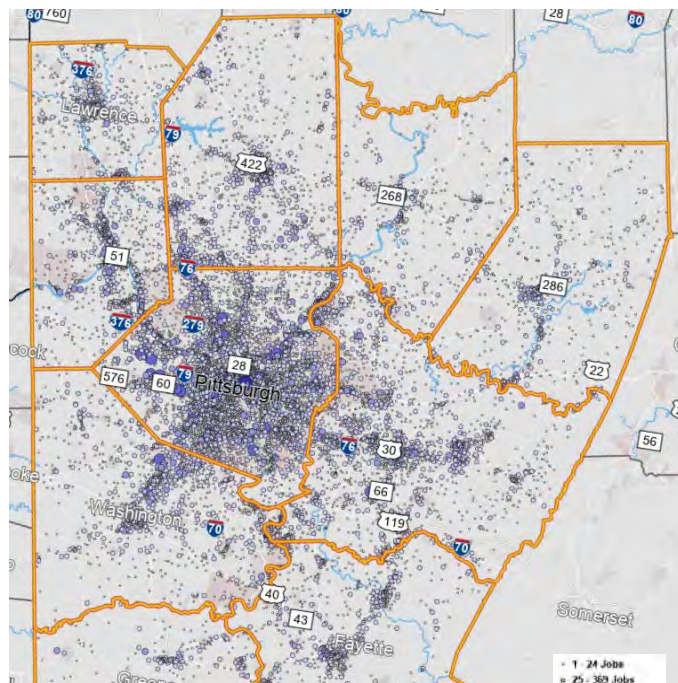


Figure 1: Locations of Jobs in the SPC Region in 2015 (Source: Census on the Map - Longitudinal Employer- Household Dynamics (LEHD) data)

¹ FHWA. 2018, July. *Summary of Travel Trends: 2017 National Household Travel Survey*. Retrieved from https://nhts.ornl.gov/assets/2017_nhts_summary_travel_trends.pdf.

Route 422 across the northeastern counties, Route 51 in Beaver County, and I-79 in Washington and Greene Counties.

1. Regional Commuting Patterns

The Census Bureau publishes county-level commuting flows, representing trips from home (place of residence) to work (primary place of work). These estimates are based on the 5-year American Community Survey (ACS), the most recent being the 2009-2013 ACS.

Figure 2 shows the top 10 intercounty (between SPC counties) flows of commuters for an average work day. The largest intercounty flow is from Westmoreland County to Allegheny County (over 43,000 commuters). Not represented in this map is the largest group of commuters who live and work within Allegheny County (532,625 or 46% of workers in the region).

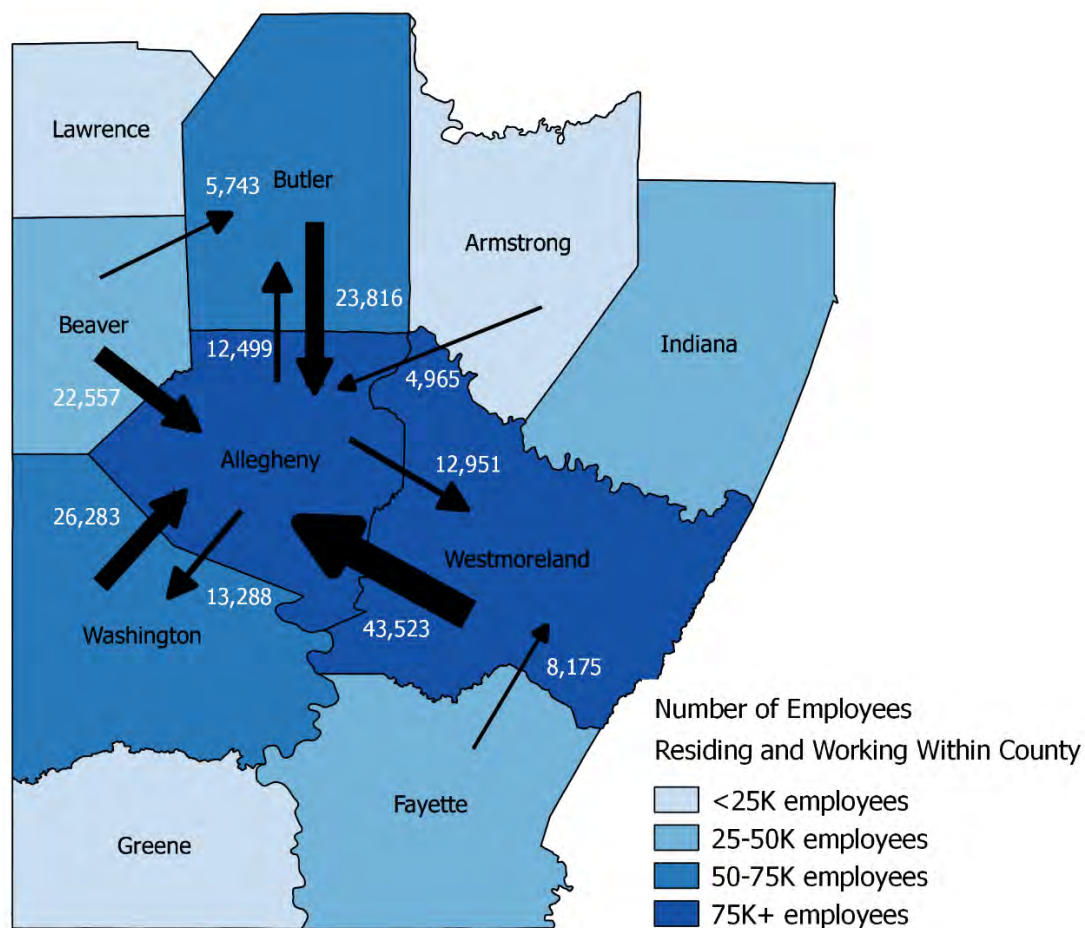


Figure 2: SPC Region Commute Flows (Source: 2009-2013 ACS)

Table 1 shows a summary of the commuting flows for the 10-county region. In the SPC region although majority (79%) of the workers commute within the same county for work, approximately one in five workers travel to another county for work. The cells highlighted in blue are commuting flows within the same county (intracounty flows) while the cells in green are the top 10 commuting flows between SPC counties (intercounty flows). The largest intercounty

flows are from Westmoreland to Allegheny County, followed by Washington, Butler, and Beaver Counties into Allegheny County.

Table 1: Commuting Flows (Source: 2009-2013 ACS)

	Counties	Workplace										
		Allegheny	Armstrong	Beaver	Butler	Fayette	Greene	Indiana	Lawrence	Washington	Westmoreland	Sum
Residence	Allegheny	532,625	983	4,254	12,499	1,005	308	478	425	13,288	12,951	578,816
	Armstrong	4,965	14,691	58	3,358	36	38	1,770	35	60	3,045	28,056
	Beaver	22,557	12	44,399	5,743			13	1,732	959	270	75,685
	Butler	23,816	1,243	1,207	55,244	32	13	76	853	423	790	83,697
	Fayette	3,241	16	11	84	33,051	1,712	4	6	2,738	8,175	49,038
	Greene	351	1	3	25	908	9,103	17		1,860	129	12,397
	Indiana	1,117	807	51	111	69	62	28,502	29	40	2,769	33,557
	Lawrence	2,407	8	2,572	3,025			6	24,982	64	57	33,121
	Washington	26,283	50	439	598	1,476	2,057	63	53	58,444	3,027	92,490
	Westmoreland	43,523	1,243	233	2,151	2,799	277	2,084	31	3,248	108,746	164,335
	Sum	660,885	19,054	53,227	82,838	39,376	13,570	33,013	28,146	81,124	139,959	1,151,192

XXXX	Intracounty Flows
XXXX	Top 10 Intercounty Flows

Based on analyses of travel patterns, the SPC's regional Transportation Operations & Safety Committee identified 11 travelsheds in the 10-county region, shown in Figure 3:

- Ohio & Beaver Valleys
- North Hills & Butler
- Allegheny Valley
- Northern Tier
- Airport West
- Urban Core
- Eastern Suburbs
- Southern Tier
- Southwest
- Mon Valley
- Laurel Ridge

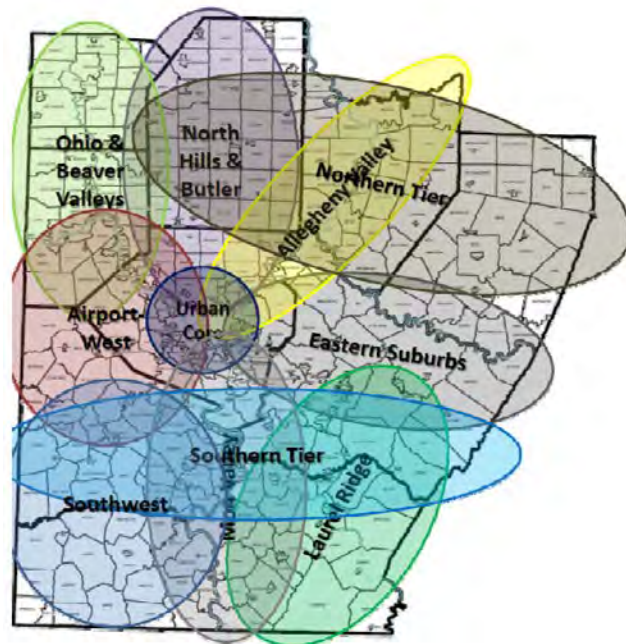


Figure 3: Travelsheds identified in SPC Regional Operations Plan (2015).

2. Regional Growth Forecasts

SPC has developed demographic forecasts for the year 2040 for jobs, population, and households, based on 2015 data. Overall regional growth is shown in Table 2 below while Figure 4 to Figure 6 illustrate the county-level growth in jobs, population and households across the SPC region. Overall, growth in population and households is anticipated to outpace growth in jobs, and household size is expected to decrease.

Table 2: SPC 2040 Forecasts

SPC Region	2015	2040	Growth	Percentage Growth	Annual Growth Rate
Jobs	1,597,589	1,797,150	199,561	12%	0.47%
Population	2,572,995	2,911,667	338,672	13%	0.50%
Households	1,092,095	1,271,415	179,320	16%	0.61%

2.1 Job Growth

In 2015, it is estimated that there were 1,597,589 jobs in the SPC region, with a large concentration of regional jobs located in the Allegheny County (57%). Employment in the SPC region is expected to increase 12% (0.47% annual rate) from 2015 to 2040. Allegheny County is expected to add 123,600 jobs (14%) and Washington County is expected to add over 34,500 jobs (30% growth) over the period of 25 years. It is estimated that there will be a slight decrease in the number of jobs in Armstrong (5%) and Greene (4%) Counties. Figure 4 below illustrates the forecasted growth in total jobs across the SPC counties; the coloring represents the percentage growth while the numbers below the county labels represent the forecasted change in number of jobs from 2015 to 2040.

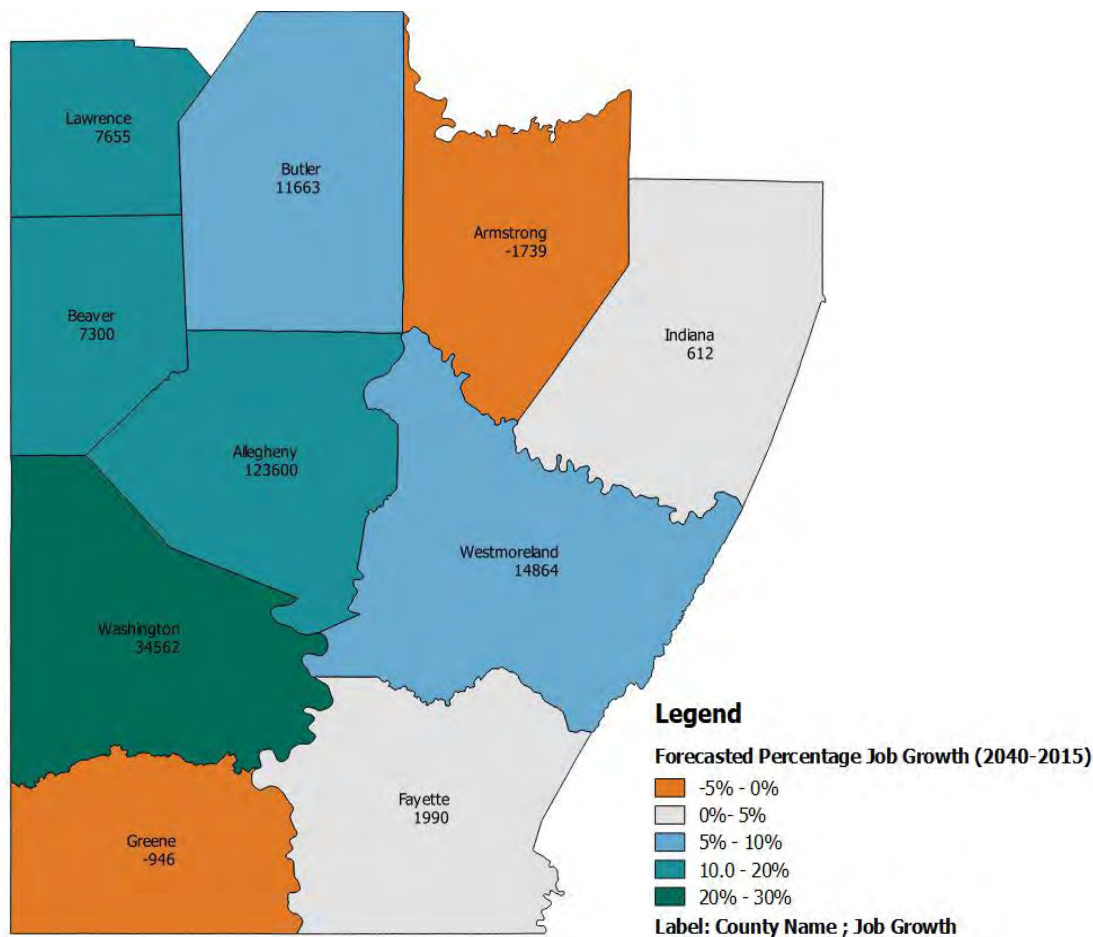


Figure 4: County Level Job Forecasts for the SPC Region (2040-2015)

2.2 Population Growth:

In 2015, it is estimated that the population of the SPC region was about 1,231,178 and was concentrated in Allegheny County (48%). Population in the SPC region overall is expected to increase at a moderate rate of 13% (0.5% Annual Rate) from 2015 to 2040. The population of Allegheny county is expected to increase by 160,472 (13%) and population of Washington county is increase by 24% (49,851) over the period of 25 years. The population in Armstrong and Beaver Counties is expected to increase at a lower rate (4-5%). No counties are expected to decrease in population. Figure 5 below illustrates the forecasted population growth across the SPC counties, the color shades represent the percentage growth and the numbers below the county labels are forecasted increase in population from 2015 to 2040.

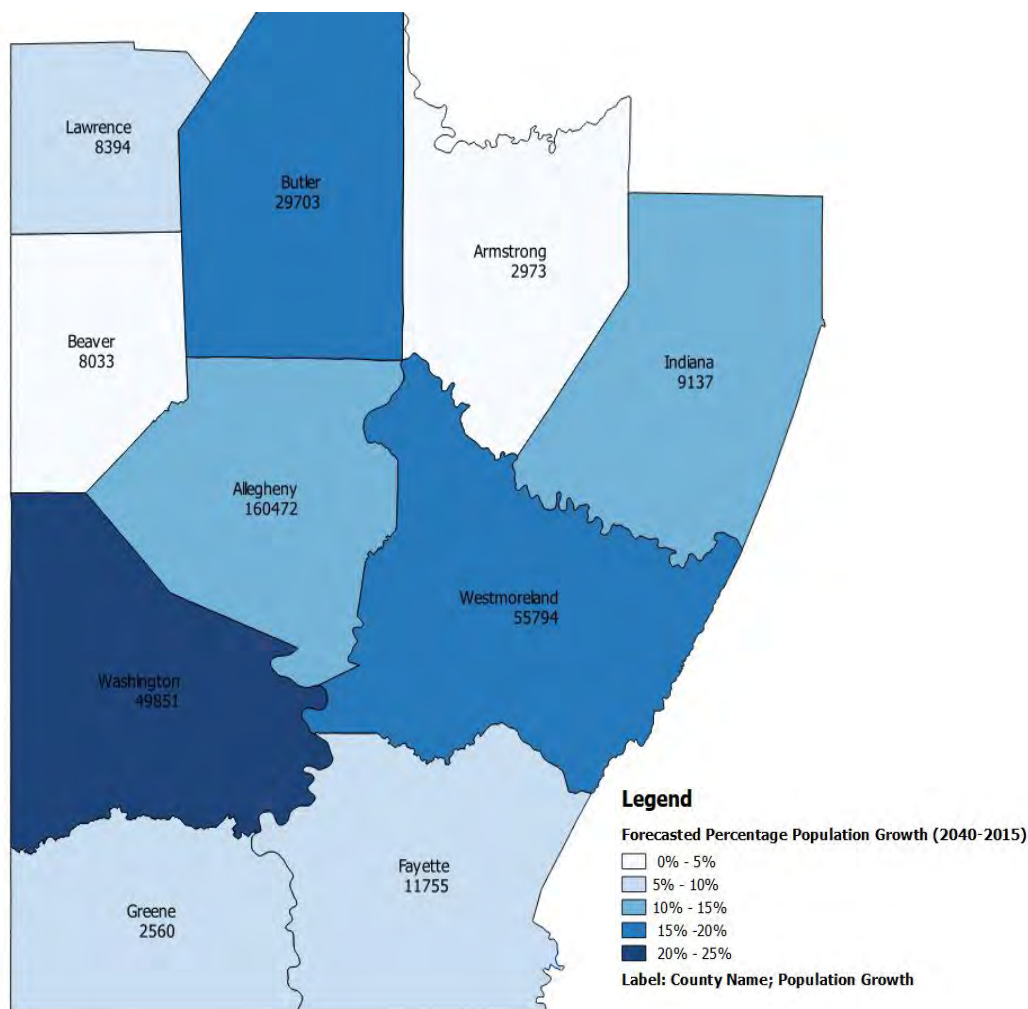


Figure 5: County Level Population Forecasts for the SPC Region (2040-2015)

2.3 Growth in Households

In 2015, it is estimated that in the SPC region there were about 539,182 Households and they were concentrated in Allegheny County (49%). Households in the SPC region are expected to increase at a moderate rate of 16% (0.61% Annual Rate) from 2015 to 2040. Households in Allegheny county are expected to increase by 87,033 (16%) and population of Washington

county is increase by 26% (22,192) over the period of 25 years. The Households in Armstrong and Beaver Counties is expected to increase a lower rate (7-8%). Figure 6 below illustrates the forecasted growth in households across the SPC counties, the color shades represent the percentage growth and the numbers below the county labels are forecasted increase in population from 2015 to 2040.

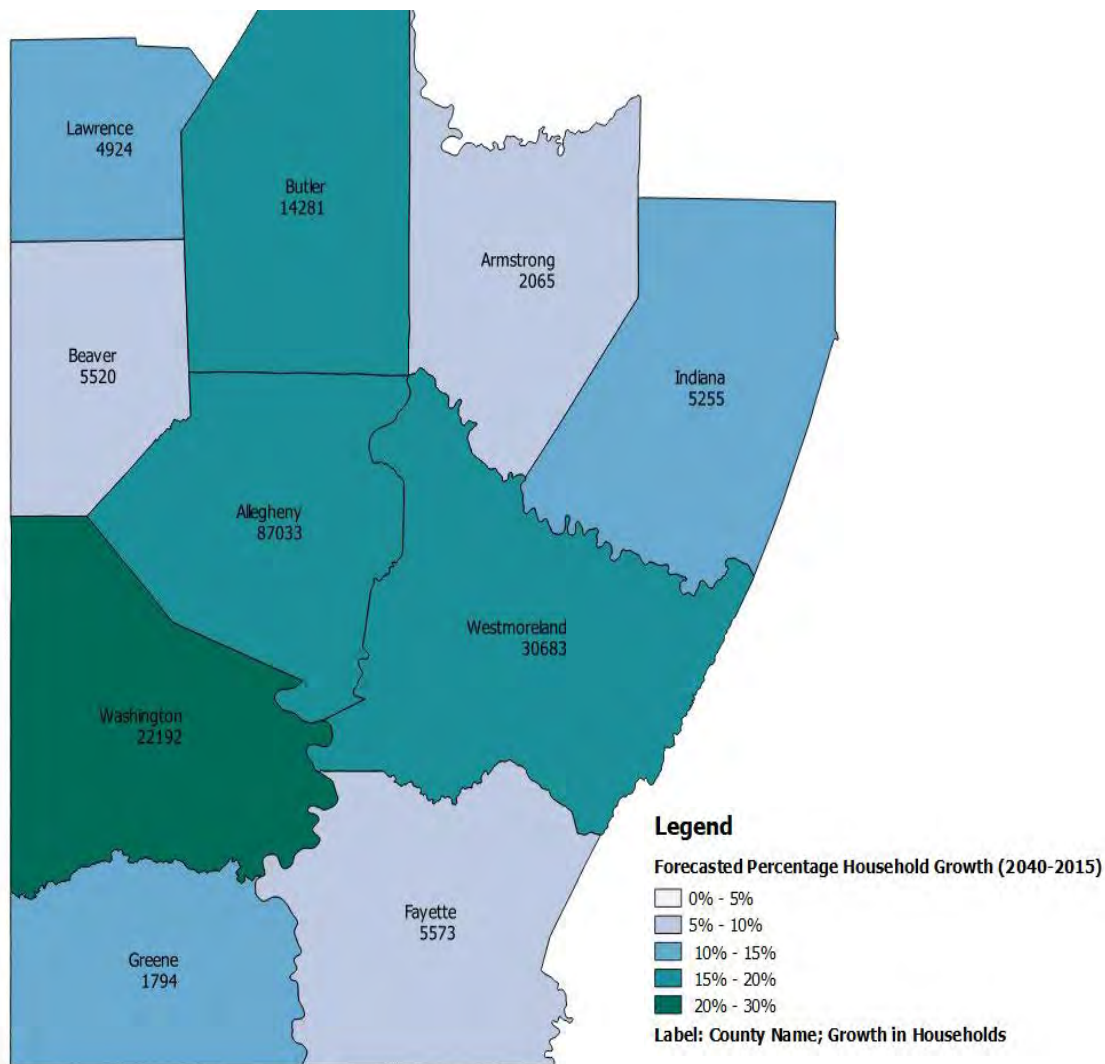


Figure 6: County Level Households Forecasts for the SPC Region (2040-2015)

3. Average Weekday Household Vehicle Miles Traveled

As the SPC region is a mix of urban, suburban and rural areas, the distances over which the public travels on an average day vary greatly. The 2017 National Household Transportation Survey (NHTS) gathers data on daily personal travel, including information on household and demographic characteristics, employment status, vehicle ownership, trips taken, modal choice,

and other related transportation data pertinent to U.S. households.² The Bureau of Transportation Statistics (BTS) uses a model to produce census tract level estimates for various travel characteristics such as average daily person miles, person trips, vehicle miles and vehicle trips. The census tract level travel characteristics were aggregated to the county level in Table 3 below. It is evident from the table that the average person miles and vehicle miles for Allegheny County are lower compared to the other counties of the region, due to shorter trip lengths, as well as higher non-driving mode shares.

Table 3: Average Daily County Level Travel Characteristics for the SPC Region (Source: 2017 Local Area Transportation Characteristics for Households)

County	Average Person Miles	Average Person Trips	Average Vehicle Miles	Average Vehicle Trips
Allegheny	45.4	7.6	30.9	4.3
Armstrong	63.9	7.6	44.4	4.8
Beaver	56.9	7.6	40.7	4.8
Butler	62.5	8.1	44.8	5.0
Fayette	58.1	7.4	41.9	4.6
Greene	64.2	7.7	46.5	4.9
Indiana	59.1	7.6	42.5	4.7
Lawrence	51.2	7.7	35.7	4.5
Washington	58.6	7.7	41.7	4.9
Westmoreland	57.0	7.8	41.2	4.9
SPC Average	51.6	7.7	36.2	4.5

Figure 7 below illustrates the average daily vehicle miles traveled on a census tracts level (based on location of residence) in the SPC region. As can be seen from this figure, the central areas in Pittsburgh have the lowest average daily vehicle miles traveled, while some of the suburban areas in Allegheny, Westmoreland, and Butler Counties have the highest figures.

² BTS. 2018, November. Methodology for 2017 Local Area Transportation Characteristics for Households. Retrieved from <https://www.bts.gov/latch/latch-methodology-2017>

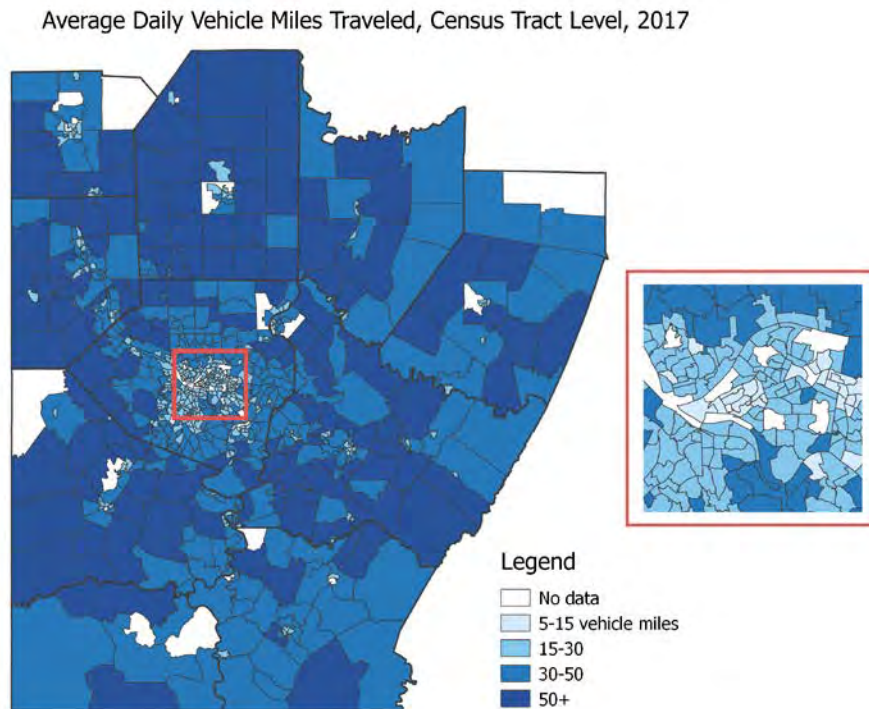


Figure 7: Average Daily Vehicle Miles Travelled for Census Tracts in the SPC Region (Source: 2017 BTS LATCH)

4. Mode Shares

In the SPC Region, driving is the most popular mode of travel for commuting to work. According to 2017 American Community Survey (ACS) 5-Year survey representing travel modes to work, about 77.8% of the population drives alone, 8.3% carpools to work, and 5.1% use public transportation to travel to work. These rates are shown in Figure 8 below. Allegheny County has the lowest share of drive alone commuters, at 72.0%, and the highest public transportation mode share, with around 9.2% of commuters using transit to get to work. The 2018 Make My Trip County Survey conducted by the Green Building Alliance of commuters travelling to Downtown Pittsburgh, Oakland, and other core neighborhoods found a much higher use of non-single occupant vehicle transportation modes: over 40% use public transportation to Downtown, 27% use public transportation to Oakland. In Oakland, 6.8% walk and 3.3% bike.

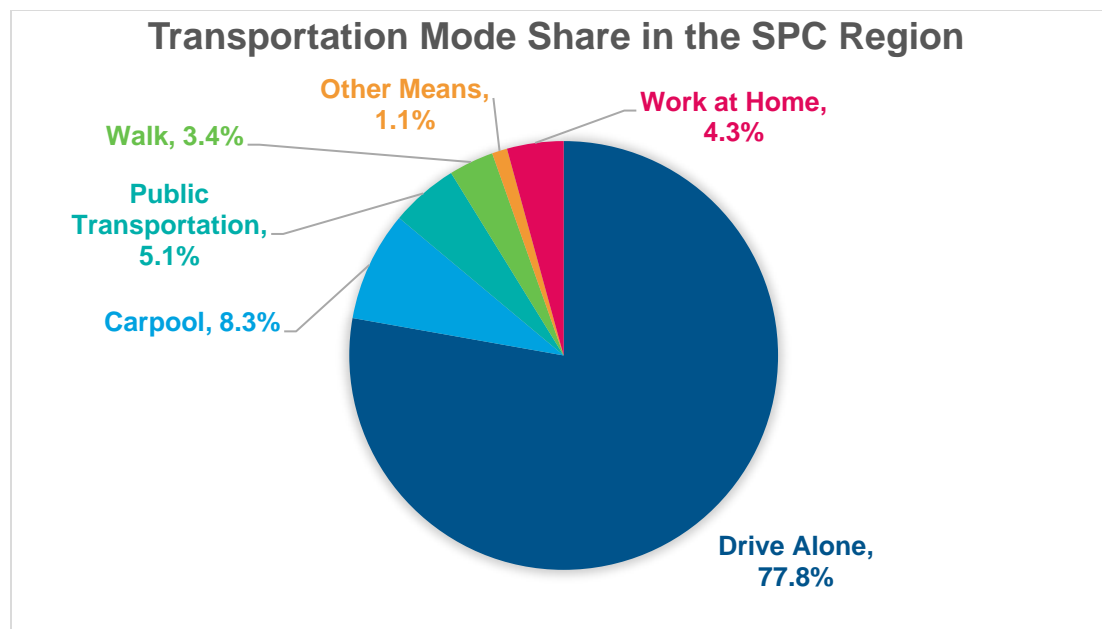


Figure 8: Travel to Work Mode Share in the SPC Region

At the county level, drive alone commute mode shares range from 72% (Allegheny) to 84.6% (Butler) as shown in Figure 9 below. Compared to other outlying counties, Indiana has a relatively low drive alone mode share of 79.6% and a high walking mode share (5.2%) that even surpasses the rate of walking in Allegheny (4.2%). Indiana also has the highest rate of carpooling (9.4%) in the region.

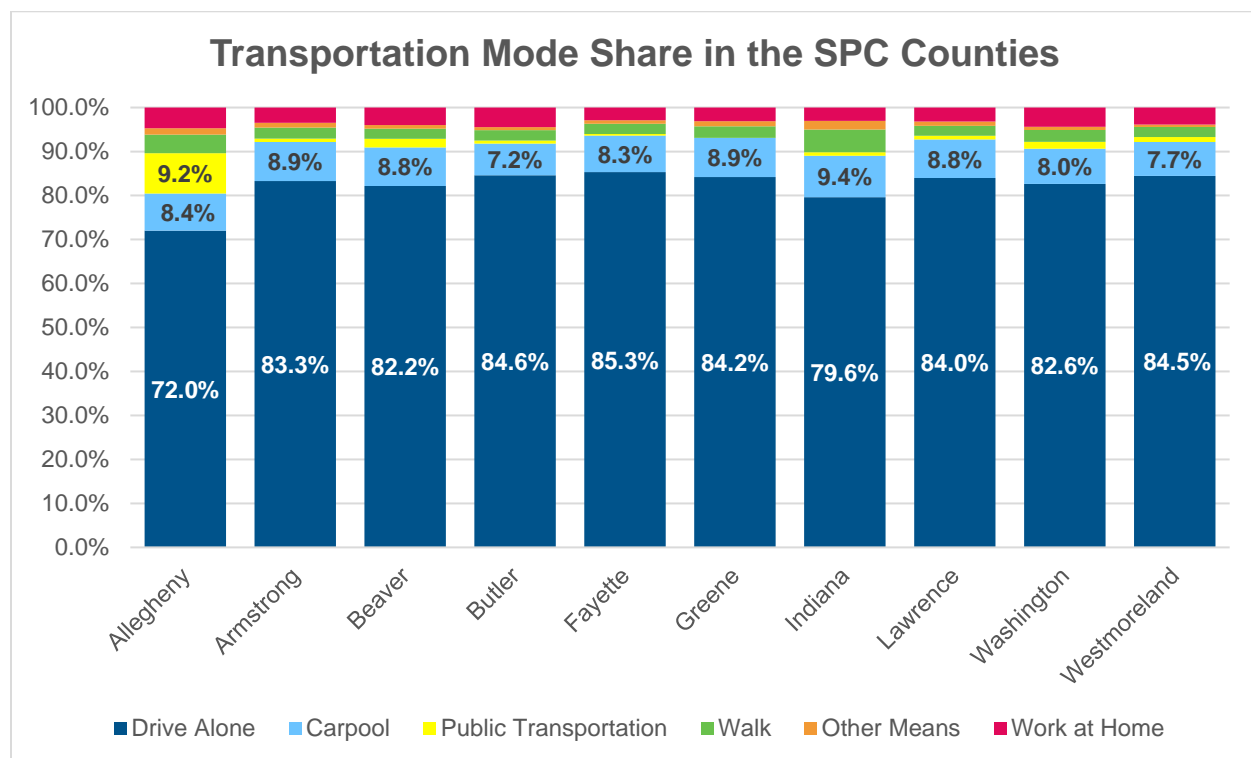


Figure 9: Transportation Mode Share in the SPC Counties

5. Commute Times

The commute times to work for the SPC counties were acquired from 2013-2017 ACS- 5 Year survey. ACS reports travel times for workers 16 Years and over who did not work at home. Though most of the workers commute within their own county for work, a substantial portion of workers have longer commutes (>30 minutes). Around 44.2% of Armstrong county commuters have commutes of over 30 minutes.

Figure 10 illustrates the percentage of commuters from each county and the collective SPC region having short commutes (< 10 Min) and long commutes (>30 Min.). In Allegheny County, residents have relatively longer commutes with 40.6% people having commutes longer than 30 minutes and only 9.8 % of people having commutes shorter than 10 minutes. Because travel distances are generally shortest in Allegheny County, this indicates that traffic congestion, higher use of transit, and higher density of traffic signals increase travel times in the region's most populated area. About 21.3% of commuters from Indiana County have commutes below 10 minutes.

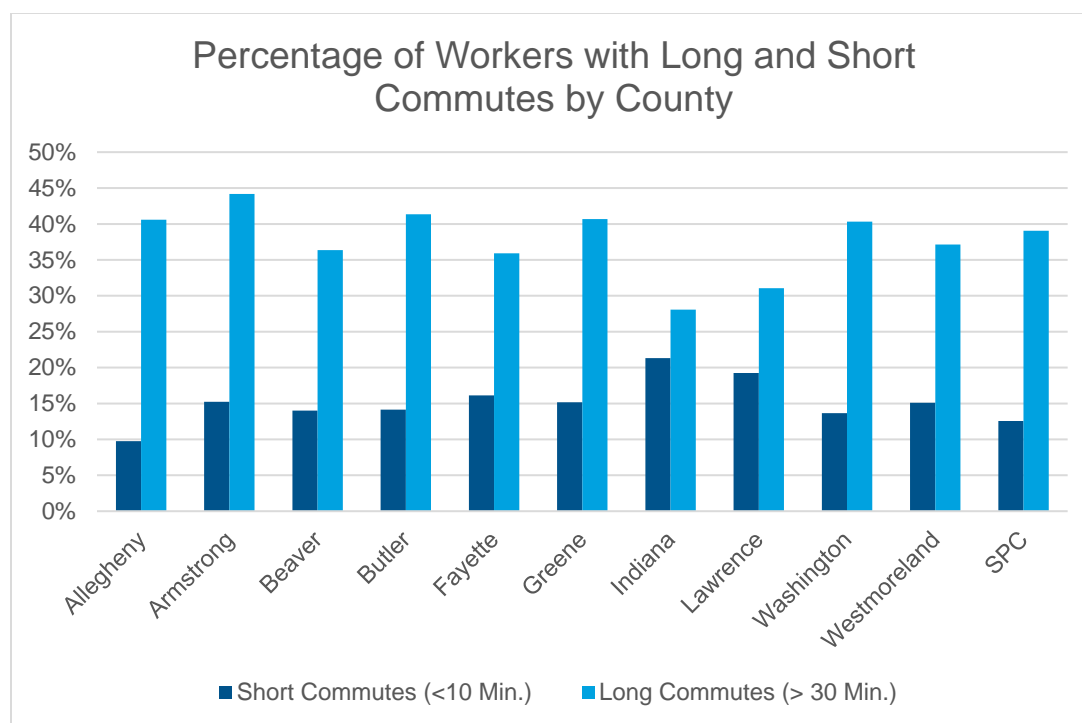


Figure 10: Percentage of Workers with Long and Short Commutes by County

6. Congestion

Congestion is problematic because it results in a loss of productivity, fuel wastage, and higher facility maintenance costs. Congestion is caused by recurring and non-recurring sources such as bottlenecks, traffic incidents, work zones, bad weather, and special events. The SPC's Congestion Management Process has compiled regional ratings for delay-related performance measures for Interstate Corridors, Arterial Corridors (Class I, II, and III) and Class IV Downtown Corridors.

In addition to causing delay to travelers, the sources of congestion also produce variability in congestion conditions. This variability in congestion is known as travel time reliability, in other words, how "reliable" travel conditions are day-to-day, and is an important measure of the travel experience and system performance.³ Figure 11 below shows the reliability on Interstate highways of the SPC region using a metric called Level of Travel Time Reliability (LOTRR), which is widely used for reliability performance measurement. Higher LOTTR means lower reliability, and from Figure 11, it is evident that the Interstate highways closer to Pittsburgh are less reliable.

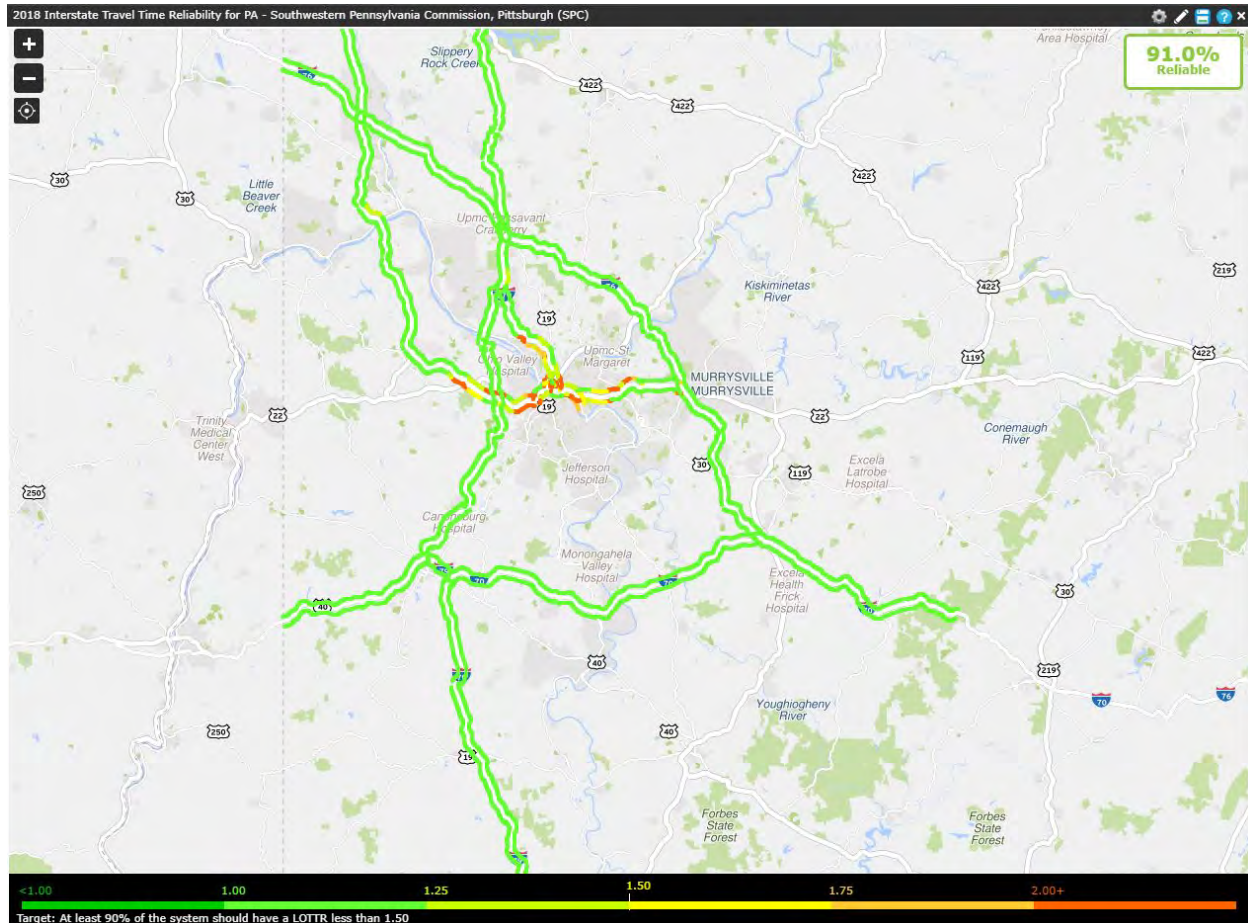


Figure 11: 2018 Interstate Travel Time Reliability: - Level of Travel Time Reliability (LOTRR) for SPC Region

6.1 User Delay Cost Analysis

Travel delay is the amount of extra time spent traveling due to congestion. There are two kinds of travel delay: vehicle-hours of delay and person-hours of delay. Vehicle-hours of delay is the total amount of time all vehicles on the chosen segments were delayed. Person-hours of delay is the total amount of time all passengers on the chosen segments were delayed, and accounts for passengers in high-occupancy and transit vehicles.

³ https://ops.fhwa.dot.gov/congestion_report/executive_summary.htm#overview

The research team performed a User Delay Cost using the Regional Integrated Transportation Information System (RITIS) platform and the National Performance Management Research Data Set (NPRMDS) User Delay Cost Analysis Tool. The tool determines delays on the specified set of roadways over a selected time period using observed speed probe data as well as data from the national Highway Performance Monitoring System (HPMS) including volume, speed limit, and percentage of Commercial vehicles.

The tool computed Person Hours and Vehicle Hours of delay on all the roadways (TMC Sections) in the SPC 10-county region available through NPRMDS datasets for 2018.⁴ Figure 12 at right shows the coverage of the data set and Table 4 below summarizes the results of this analysis of 2018 user delay measures for the SPC Region, including over one trillion dollars in cost.

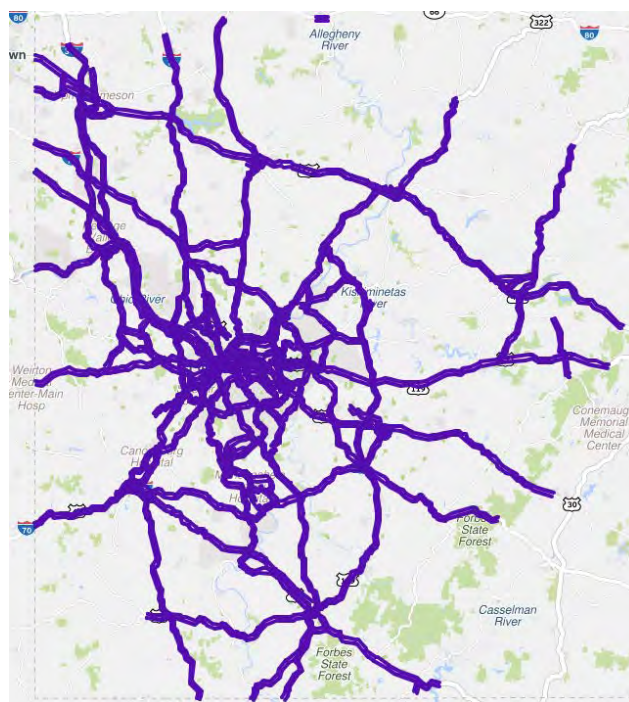


Figure 12: Coverage of NPRMDS-reporting Traffic Message Channels in the SPC Region

Table 4: 2018 User Delay Measures in the SPC Region

User Delay Measure (RITIS NPRMDS)	2018 Value
Person Hours of Delay (Person -Hours)	46,142,173
Vehicle Hours of Delay (Vehicle- Hours)	37,667,080
Cost of Delay (\$)	\$1,137,461,075

III. Review of Plans, Studies, and Other Initiatives

The Southwestern Pennsylvania region has a wide range of stakeholders that are already planning and implementing TDM at regional and local levels; these stakeholders include the Southwestern Pennsylvania Commission (SPC), three transportation management associations (TMAs), local governments, transit agencies, employers and institutions, as well as PennDOT. This section describes existing initiatives relating to TDM in the 10-county Southwestern Pennsylvania region. The research team conducted a broad inventory of TDM-related initiatives and assessed their scope, regional market segments, vision statements, goals, strategies, strengths, challenges, opportunities, and performance measures. For this analysis, existing initiatives were grouped into the following categories: Policies, Plans, and Studies; Leadership;

⁴ The delay was computed for Passenger Vehicles and Trucks against the free flow speed for segments whose speeds fall 20 miles per hour or more below free flow speeds. The percentage of commercial vehicles were computed based on HPMS data. For segments that do not have percentage commercial information, the defaults of 90% passenger and 10% commercial were used. The Vehicle hours of delay over all the roadway segments (TMCs) over one-hour time periods were summed up for the entire year of 2018. To compute the delay costs, RITIS assumes default hourly costs for passenger vehicles to be \$17.91 and for commercial vehicles to be \$100.49, which are provided by Texas Transportation Institute.

Employer-Led; Traveler Information and Payment Systems; Intelligent Transportation Systems (ITS) and Integrated Corridor Management (ICM); Mobility Services; and Promotion and Education. The sections following this summary provide key findings from the inventory of significant initiatives within each category. The full matrix of initiatives and noted characteristics is provided in Appendix A.

Table 5 starting on page 18 summarizes the visions and goals described in existing initiatives relating to mobility and demand management in Southwestern Pennsylvania. Vision statements describe the ideal future conditions that existing initiatives are working towards. They encompass a variety of local perspectives while establishing the core values that will guide the TDM Action Plan. Goals are more concrete; they provide actionable targets that serve as mile posts along the way to the desired destination, the Vision. Within policies, plans, and studies, visions and goals were often called out explicitly as such. However, within other categories of TDM initiatives, vision statements and goals were sometimes not identified. Where applicable, the research team recorded implicit visions and goals reflected in descriptions of existing initiatives.

Elements of the regional Vision that emerged from the analysis include:

- **Transportation system** is world-class, modern, integrated, multimodal, efficient, accommodating, and equitable across population groups and geographies.
- **Travel experience** is convenient, reliable, dependable, affordable, and safe.
- **Community members** are healthy and engaged. They have control, independence, freedom, mobility, access, and the ability to live to their full potential and prosper.
- **Environment** is resilient, clean, healthy, and sustainable.
- **Economy** is strong, diverse, globally competitive, interconnected, and attractive to new businesses.

Goals are more specific to individual initiatives and vary more than Vision statements. While Table 5 provides a more comprehensive summary, recurring goals include:

- Reduce vehicle travel
- Reduce congestion
- Change commuter behavior from driving alone to shared and active modes
- Expand access to transit and other shared mobility services
- Improve multimodal connections
- Improve workforce access to jobs
- Improve cooperation, coordination, and collaboration between stakeholders
- Establish sustainable funding strategies
- Make traveler information and payment easy and integrated
- Investigate and deploy technology
- Promote smart growth and transit-supportive land use.

Table 6 starting on page 20 summarizes the strengths, opportunities, and weaknesses that the research team identified through review of initiatives within each TDM category. The full existing initiatives matrix is provided in Appendix A and key themes are described at a higher level below.

The Pittsburgh area has strong foundation for TDM with a variety of multimodal services, infrastructure, planning commitments, and development policies. Pittsburgh has become a national leader in deployment of autonomous vehicle (AV) technology and ITS due to research institutions at Carnegie Mellon. At the regional level, stakeholders share a vision for TDM and the CommuteInfo provides core services and support, including employer outreach, Emergency Ride Home, ridematching, and vanpool subsidies.

County comprehensive plans share priorities of enhancing transit, supporting walking and biking, and several outlying counties support transit-oriented development. While limited public funding for transit operations and multimodal infrastructure constrains the extent to which stakeholders can implement projects that advance these priorities, there are funding sources set aside for them, including the SPC's SMART Program for multimodal connections and community livability enhancements and the PA Section 1513 Sustainable Mobility Options Operating Program.

A significant challenge in Southwestern Pennsylvania and other metropolitan areas across the country is jobs-housing mismatch and the lack of mobility options and initiatives in suburban and rural areas. While several transit agencies provide shared ride options that are open to the public, the unsubsidized fares for these services are not affordable for everyday use. While some outlying county comprehensive plans identified congested corridors, "demand management" is generally not a priority due to lower traffic volumes and demand for parking. As a result, transportation stakeholders in outlying counties have not been as engaged with TDM as those in Allegheny County.

In terms of opportunities, "mobility" rather than "demand management" is a need that unifies the region. To advance mobility, the SPC and transit operators have developed assets that provide a foundation for greater regional integration of traveler information: the CommuteInfo website and ridematching system as well as ConnectCard. CommuteInfo could be developed into a regional "umbrella" program and "one-stop shop" for traveler information to attract more users, while ConnectCard could become a regional transit payment that works across all ten (rather than six) transit operators. PennDOT Connects provides a framework for interagency coordination and planning for integrating TDM into the project development and delivery process.

Table 5: Summary of Visions and Goals Identified in Existing Initiatives

TDM Initiatives	Vision	Goals
Policies, Plans, and Studies	<p>Transportation system that is: World-class, well maintained, integrated, efficient, functions at its full potential, safe, secure, multimodal, intermodal.</p> <p>Results in: Connected mobility for all, freedom of mobility for all, resilient communities, globally competitive economy, interconnected region, economic activity and diversity, job and housing growth, vibrant quality of life, sustainable use of land and natural resources, improved safety, mobility, accessibility, multimodal options, public health, and environmental sustainability.</p>	<ul style="list-style-type: none"> •Reduce SOV trips, VMT, on-road transportation emissions, and vehicle ownership. •Increase commute trips by bicycle, walking, and transit. •Mitigate recurring congestion •Maintain mobility during planned events •Minimize the impact of unplanned events •Improve bicycle and pedestrian safety and connections •Develop better transportation connections to underserved employment areas and populations. •Calm traffic on high-volume roads.
Leadership	<ul style="list-style-type: none"> •An integrated regional network of transportation services and facilities that provides measurable improvements for freedom and mobility for all. •Promote public health and safety, strengthening community relations. 	<ul style="list-style-type: none"> •Facilitate local programs to leverage state and federal funding. •Reframe transportation from need to a basic human right to increase importance in human service organizations. •Develop models for alternative transportation funding that partner with private industry to benefit of all. •Investigate and deploy novel technologies, incentives, policies, and training programs. •Better interagency collaboration, cooperation, coordination, & communication. •Institutionalize the concept of “working together” among transportation agencies and other public and private sector interests.
Employer-led	<ul style="list-style-type: none"> •Employees have access to convenient, reliable, and affordable commute options. •Employer takes care of employee wellbeing and work-life balance. •Employer is a leader in environmental sustainability and social responsibility. 	<ul style="list-style-type: none"> •Improve employee access and transportation options. •Reduce parking pressure. •Fill open positions in outlying locations. •Reduce overtime worked by existing employees to cover shifts. •Improve corporate environmental sustainability.
Traveler Information and Payment Systems	<ul style="list-style-type: none"> •Provide reliable, real-time, traffic, weather and transit information to travelers to reduce congestion, and improve safety and mobility. •Modern mobile payments. •Help commuters take back control. 	<ul style="list-style-type: none"> •Residents and visitors can easily find and pay for parking. •Fare payment is faster, easier and more secure than paying with cash.



TDM Initiatives	Vision	Goals
ITS and ICM	<ul style="list-style-type: none"> •Agency systems will work together, sharing information and resources to provide a safer, more efficient, more effective transportation system for travelers in the region. •Provide citizens with the independence, safety, improved health and transportation efficiencies required to accommodate the changing needs of businesses, families and cultural amenities. •Enhance the region's ability to attract new employers and improve its economy. 	<ul style="list-style-type: none"> •Reduce: congestion, idling traffic, and delay to travelers. •Improve: air quality, pedestrian safety, efficiency of traffic signals. •Usher widespread use of AV/CV while ensuring the safety of all road users. •Brand the region as an internationally-recognized place for smart transportation. further investment in both research and commercialization.
Mobility Services	<ul style="list-style-type: none"> •To deliver outstanding transportation services that connect people to life. •Safe, dependable and affordable. •Position human powered transportation as an integral part of the larger public transit system. 	<ul style="list-style-type: none"> •Create a ubiquitous active transportation network. •Expand access to public transit through easy-to-use, affordable active transportation opportunities. •Develop alternative transportation systems that are convenient and affordable. •Improve urban area linkages with public transit •Provide quality services to all regardless of age, income or mobility requirements.
Promotion and Education	<ul style="list-style-type: none"> •CommuterInfo is the one-stop shop for ridesharing services. •Strong economy in which all people can live to their potential, are engaged, and prosper within the means of a clean and healthy environment. 	<ul style="list-style-type: none"> •Increase commuter's awareness of alternative modes of travel. •Cost savings, healthier and engaged employees, and positive recognition. •Encourage and accommodate walking and biking as modes of commuting to destinations. •Promote smart growth. •Commuters who live, work, or attend school in the region choose ridesharing instead of driving at least twice per week.

Table 6. Summary of Strengths, Opportunities, and Challenges Identified in Existing Initiatives

TDM Initiatives	Strengths	Opportunities	Challenges
Policies, Plans, and Studies	<ul style="list-style-type: none"> •Pittsburgh has enough physical infrastructure to support a population twice its size. •Region is a leader in the autonomous vehicle field •Support of employers and government agencies for TDM •SPC maintains a Transportation and Community Funding Programs guide for local governments with funding and resources that can assist with the implementation of TDM goals. 	<ul style="list-style-type: none"> •TDM offers another strategy to increase road capacity without expanding the highway system. •Complete a sidewalk network / set standard for sidewalks. •PennDOT Connects presents opportunity for TDM considerations to be integrated into PennDOT projects early in the development process, especially in communities that have adopted local plans. 	<ul style="list-style-type: none"> •While there is support for TDM as a vision, there is a lack of commitment and lack of a coalition to spearhead TDM as a vision. •Policies, plans, and studies focus on TDM in Allegheny County. •Infrastructure to allow people with disabilities to participate in TDM is lacking (curb access, TNC vehicles).
Leadership	<ul style="list-style-type: none"> •3 strong TMAs in Pittsburgh •CommutelInfo Partners is a forum for TDM issues that meets quarterly and hosted by the SPC. •Regional TDM Committee established at SPC for TDM Action Plan 	<ul style="list-style-type: none"> •Build on CommuteInfo to create umbrella TDM program. •Voucher-based pilot program giving user subsidy for any transportation service. 	<ul style="list-style-type: none"> •Lack of engagement with stakeholders in Counties outside of Allegheny on TDM. •Some road “maintenance” projects expand capacity to address congestion, rather than managing demand.
Employer-led	<ul style="list-style-type: none"> •64% of commuters in Oakland and Downtown Pittsburgh use employer transit benefits. •50+ vanpools operate throughout the region. •Employers recognize the value of maintaining a competitive business environment through mobility options. 	<ul style="list-style-type: none"> •Employer contributions to employee fares (e.g Homewood Suites IBEX Global Walgreens to RideACTA shuttle). •Recognition through SWPA Sustainable Business Compact, Sustainable Small Business Designation, and other voluntary programs for employers that encourage alternative transportation and provide incentives. 	<ul style="list-style-type: none"> •Employers in outlying areas view transportation as important workforce issue, but costs of transportation solutions can be prohibitive because of long distances. •Lack of population density makes carpool and vanpool matching difficult in outlying areas.
Traveler Information and	<ul style="list-style-type: none"> •ConnectCard allows users to purchase passes or store fare value that can be used with six participating transit systems across 	<ul style="list-style-type: none"> •Expand ConnectCard to Beaver, Armstrong, Lawrence, and Indiana County transit systems. 	<ul style="list-style-type: none"> •Lack of information on available transportation options can hinder access.



TDM Initiatives	Strengths	Opportunities	Challenges
Payment Systems	<p>Allegheny, Westmoreland, Washington, Mid Mon Valley, Butler, and Fayette.</p> <ul style="list-style-type: none"> •Pittsburgh has increased average parking payments by 18% through the Go Mobile PGH pay-by-cell platform for parking.⁵ •Mobile apps provide real-time transit vehicle locations and parking availability in Pittsburgh. 	<ul style="list-style-type: none"> •Future regional fare card integration is anticipated with park-n-ride lots, rideshare services, and Pittsburgh International Airport parking. •Develop a full trip planner that includes all modes for all agencies across 10 counties. •Aggregate road closure data across all maps. •If CommuteInfo were able to integrate more of those emerging mobility services, then we would have greater understanding of people's preferences for a wide range of alternative transportation options 	<ul style="list-style-type: none"> •It can take up to 72 hours for online ConnectCard purchases to be available, which limits usability if users need to take a trip immediately. •Potential users of CommuteInfo may be split across more mobile-friendly ride-share and ride-hail tools like Scoop, Waze Carpool, Uber, and Lyft.
ITS and ICM	<ul style="list-style-type: none"> •Carnegie Mellon hosts two University Transportation Research Centers leading research on mobility and transportation safety/efficiency. •Research activity places Pittsburgh at the forefront of the ITS field nationally. 	<ul style="list-style-type: none"> •UberMovement platform provides data on average vehicle trip times in Pittsburgh area. •Future Possibilities for ICM: Improved connections to busways; expanded park-n-ride near interchanges; hard shoulder running during peak hours; RTMC signal control during incidents; Multimodal travel time information on DMS and via apps; dynamic speed advisories; ramp metering; institutional collaboration on intermodal facilities. 	<ul style="list-style-type: none"> •Regional ITS Architecture will need to be revisited routinely as connected and autonomous vehicles come online. •Limited HOV network and enforcement.
Mobility Services	<ul style="list-style-type: none"> •Concentration of mobility options in Pittsburgh including local bus, express bus, dedicated busways, light rail, inclines, bikeshare, carshare, scooter-share, TNCs, and shuttles. 	<ul style="list-style-type: none"> •Enhance transit service in urbanized areas in outlying counties (e.g City of Butler and surrounding towns), where there are higher concentrations of non-drivers. •Establish regional transit authority to coordinate service. 	<ul style="list-style-type: none"> •Lack of mobility services outside of Pittsburgh. •Funding is an issue for private and public entities; cost is largest deterrent to sustaining mobility services. •Limited public funding, levels of service, geographic coverage, and urban/rural connectivity.

⁵ ParkMobile (2018). *Increase in Mobile Parking Adoption and Revenue*. Retrieved from <https://parkmobile.io/brochures/increase-in-mobile-adoption-and-parking-revenue/>

TDM Initiatives	Strengths	Opportunities	Challenges
	<ul style="list-style-type: none"> •For sporting events, stakeholders have implemented fare-free zones and water taxis. •Transit service considered strong in some outlying areas (Beaver County). Armstrong, Beaver, Butler, Indiana, and Washington County transit agencies offer shared ride service to the general public, though unsubsidized fares are unaffordable. •Transit/bikeshare first/last mile connections in Pittsburgh: ConnectCard holders get unlimited free 15-minute bikeshare trips by tapping their card on a Healthy Ride station. •PA Section 1513 program as available funding source for first/last mile services like RideACTA. •Vanpool subsidy of \$400 per month provided by SPC. 	<ul style="list-style-type: none"> •Busways have capacity for more; integrate transit with highway facilities, including park and ride lots. •MaaS may reduce individual vehicle ownership, lessen congestion, improve air quality, and create more equitable access. •Credit vouchers for ride-sharing services could be implemented to expand current public transit routes and incentivize riders. •15.1% of Oakland and Downtown Pittsburgh commuters have never commuted by bike but are interested in doing so, and availability of on-street, traffic separated bike lanes/trails would be most encouraging. 	<ul style="list-style-type: none"> •Complicated cross-country travel, inaccessible facilities, lengthy trips. •Human service program policies limit flexibility in use of funds. •Difficult to engage the private sector (such as TNCs).
Promotion and Education	<ul style="list-style-type: none"> •CommutelInfo is a robust/mature ridesharing program that reaches commuters and employers regionwide. •Emergency Ride Home available regionwide to travelers who register with CommuteInfo. 	<ul style="list-style-type: none"> •Winter biking education to increase bicycle ridership during off-season. •Expand trip tracker in Walk Pittsburgh app to other modes of transportation to “gamify” use of transit, carpooling, vanpooling, and biking as low-cost encouragement program. 	<ul style="list-style-type: none"> •Lack of complete and attractive wayfinding system in core urban areas.

1. Policies, Plans and Studies

Transportation policies, plans, and studies articulate a range of visions and goals related to mobility held by stakeholders and residents across the region. Foundational documents include the long-range transportation plan, municipal comprehensive plans, the FHWA TDM Workshop Summary, and others related to multimodal access, active transportation, congestion management, and sustainable development. This section describes the relevant elements of these documents that relate to TDM.

1.1 Long Range Transportation Plan

The 2019 Long Range Transportation Plan Update *Smart Moves for a Changing Region* has identified Connected Mobility as one of its three key themes. Connected Mobility is defined as a world-class, well maintained, integrated transportation system that supports the following goals:

- **Equity for All:** increase mobility equitably for all users including those in underserved rural areas and disadvantaged populations.
- **High Tech:** facilitate safe and efficient use of Connected and Autonomous Technology, offsetting impacts on safety, public sector revenue, congestion and local quality of life.
- **Funding and Financing:** Establish sustainable funding for transportation infrastructure, including revenue for local governments and dedicated transit funding.
- **Prioritize and Streamline Project Development & Delivery:** Employ holistic planning for mobility and accessibility when developing and prioritizing projects.

1.1.1 Public Input Related to Connected Mobility

Among priorities for Connected Mobility, **modernize infrastructure** was the most commonly identified priority (582 respondents) followed by **connect transit** (562 respondents) and **mobility for all** (482 respondents).

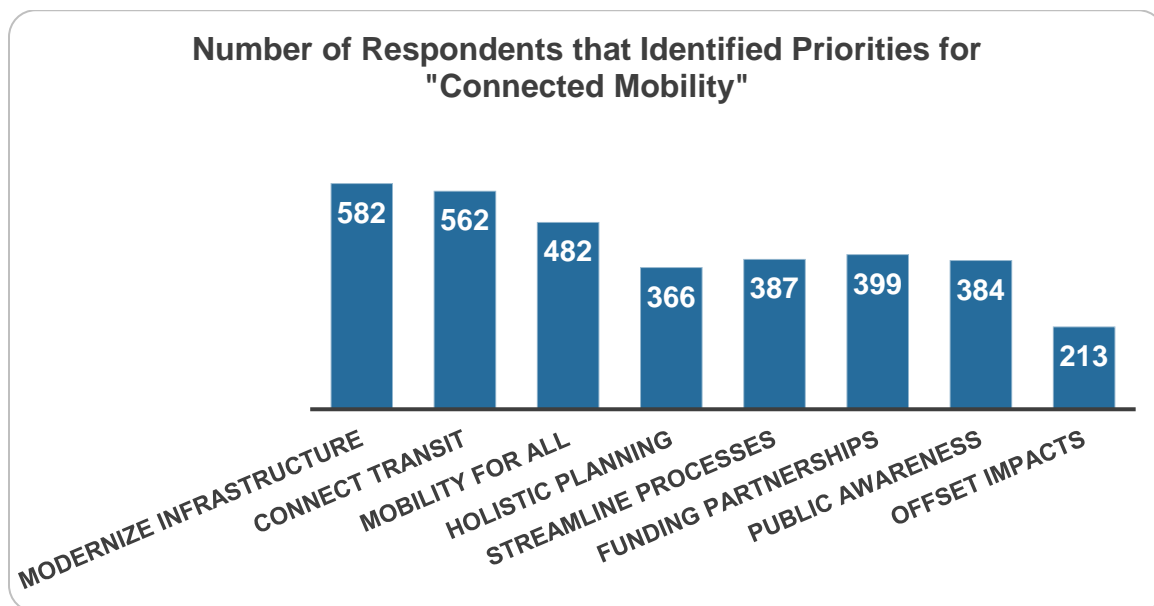


Figure 13: “Connected Mobility” Priorities Identified by Smart Moves Survey Respondents

Challenges and opportunities that emerged from the survey comments are listed below.

Challenges:

- Concern about the traffic congestion impacts of autonomous vehicles
- Concern about the impacts of mobility as a service on transit ridership
- Lack of transportation options and public transit service in rural/suburban areas

Priorities:

- Modernize and prioritize maintenance for existing infrastructure before investing in new facilities and technology systems.
- Need for inter-county transit connections
- Prioritize investments in biking, walking, and transit over technology/infrastructure for vehicles.
- Focus on underserved areas
- Concern about mobility for the elderly
- Larger regional transit authority rather than county specific transit service

1.2 County Comprehensive Plans

Every one of the 10 counties and 66% (or 365) of municipalities in the region have adopted comprehensive plans.⁶ County plans were adopted between 1998 and 2018 and identified TDM-related priorities below. Allegheny County was the only plan to call for improving equity and diversity, particularly to increase access of the African American population to public transportation. Enhancing access to transit and facilities for walking and biking were the most widely shared goals between counties.

- **Transportation Demand Management:** The Allegheny and Indiana County Comprehensive Plans explicitly identify TDM as a strategy to reduce traffic congestion without expanding road capacity. The Indiana County Plan identifies transit service marketing as a strategy to improve ridership. The Beaver County Comprehensive Plan identifies traffic congestion as a challenge but does not consider TDM as a solution.
- **Enhancing Transit Connections/Coordination:** Enhancing transit connections and coordination was the most commonly cited goal among County comprehensive plans.
 - Creating new transit service: the Greene County Plan calls for studying the feasibility of establishing a public transit service for county residents.
 - Increase service: Westmoreland County calls of increasing frequency of service and ensuring connections to employment centers. Butler County calls for increasing transit service between urban areas, particularly from the City of Butler and surrounding towns that have a relatively large proportion of non-drivers. Fayette County calls for expanding fixed route and shared-ride transit systems to a greater portion of the population.
 - Improving coordination: The Lawrence County Plan identified the option for the County to work with the New Castle Area Transit Authority to potentially expand NCATA to become a countywide transit agency, with all municipalities who are

⁶SPC. 2018. *Environment: Forces of Change Exploratory Scenario Report*. Retrieved from https://spcregion.org/pdf/2018%20Scenario%20Reports/Environment_Exploratory_Scenario_Report_012019.pdf

served providing financial assistance. Washington County calls for strengthening partnerships to create a transit system that serves the entire Mon River Valley. Fayette County calls for coordination between operators of the fixed-route and shared ride transit service. The Armstrong County Plan calls for coordination with surrounding counties to increase transit access to Allegheny County and Pittsburgh.

- **Improved street connectivity:** The Butler, Washington, and Indiana County Comprehensive Plans call for improved street connectivity, particularly in new developments and suburban streets. The Butler Plan identifies lack of street connectivity as the cause of congestion in many suburban locations.
- **New road linkages:** The Armstrong County Plan calls for extending Route 28 as a four-lane highway to I-80, while the Beaver County Plan calls for a new east-west corridor that links major destinations.

Table 7: TDM-Related Priorities Identified in County Comprehensive Plans

County	Support TOD	Complete/Multimodal corridors	Reduce traffic congestion	Support Biking/Walking	Enhance transit	Expand park & ride lots	Support ride-sharing	New road link(s)
Allegheny	X	X	X	X	X			
Lawrence		X		X	X			
Washington	X			X	X	X		
Westmoreland	X			X	X	X	X	
Butler			X		X			
Armstrong	X	X		X	X			X
Beaver			X	X				X
Fayette					X		X	
Greene		X		X	X	X		
Indiana			X	X	X			X

1.3 Other Policies, Plans, and Studies

While the regional long-range transportation plan and county comprehensive plans provide a foundation for the TDM Strategic Action Plan, other policies, plans, and studies address related factors within the areas of active transportation, congestion, collaboration, multimodal corridors, operations, and livability across the region. Within the City of Pittsburgh, planning efforts and development guidelines identify visions, goals, and requirements that are supported by TDM strategies.

1.3.1 Regional Initiatives

FWHA TDM Workshop: During the 2017 FHWA TDM Workshop at the SPC, stakeholders representing local agencies, county agencies, and the SPC identified action steps to better integrate TDM into the planning process. These action steps are listed below.

Establishing a Vision and Goal:

- Make TDM one major component of the Long Range Transportation Plan (LRTP), not strewn in throughout.

- Establish a regional TDM committee that informs the Commission, discusses TDM strategies from a corridor perspective, and develops a coordinated plan that is integrated into the RTP, TIP, and STP.

Setting Objectives for TDM:

- Assess current objectives for relevancy and applicability to all stakeholders.
- Define a scope of accountability.

Definition of Performance Measures:

- Link projects to performance measures and to objectives.
- Reevaluate current performance measures to see if they address TDM.
- Establish new performance measures strictly to address TDM.
- Have strict TDM performance measures and rank them.

Assessment and Selection of TDM Priorities

- Develop TDM Plan.
- Tie modeling to performance measures.
- Explore possibility for a different modeling system that looks at things more comprehensively.
- Advance planning initiatives from a regional perspective.

Integration of Strategies into Plans and Funding Programs

- Make sure TDM is represented in project planning under PennDOT Connects policy.

Monitoring and Evaluation of Progress Toward Objectives

- Create a report card / dashboard for TDM to help sell the TDM performance measures; determine the level of transparency for reporting.

PennDOT Connects: Adopted in 2016, the policy tasks PennDOT staff and planning partners to consider community needs at the beginning of the planning process. Project managers must document local collaboration and consideration of all road users on a project initiation form.

SPC Regional Active Transportation Plan: The plan was completed in 2019 and provides a cohesive vision for non-motorized active transportation across the region, as well as technical guidance to local governments to achieve their own active transportation goals. One of the plan's goals is to enhance multimodal accessibility and connectivity, and to this end it creates a functional classification system for trails to frame their role in the overall network: regional arterials, community arterials, community collectors, neighborhood collectors, and local trails.

SPC Livability through Smart Transportation Program (SMART): Established in 2014, the SMART program sets aside Surface Transportation Program (STP) funding to encourage project sponsors (municipalities in the 10-County region) to plan and implement approaches that link transportation improvements with appropriate land use development strategies.

SPC Congestion Management Process: Through the CMP, the SPC provides regional congestion ratings for Interstate Corridors, various classes of Arterial Corridors, and Downtown Corridors. Demand management is one of four major strategies in SPC's congestion management toolbox and is defined as: "programs and initiatives that attempt to address

congestion at the root of the problem by reducing the number of vehicles on the road. These efforts work to modify driver behavior by encouraging people to make fewer single-occupancy trips, travel in off-peak hours when possible, and support land use policies that reduce the demand for automobile transportation.”⁷

Regional Operations Plan: Adopted in 2015, the plan seeks to integrate transportation operations into the regional planning process to realize benefits including more reliable travel, safer travel, greater mode choice, more efficient travel and improved economic competitiveness, enhanced customer experience, accountability for performance, sustainability, and environmental benefits.

Lawrence County Multimodal Corridor Study: This study was completed in 2018 and identified ways to improve five main corridors in northern Lawrence County to accommodate all types of corridor users, including Amish populations (2,000) and cyclists. Statistics on costs for bicycle and pedestrian improvements are provided as well.

Active Allegheny: A Comprehensive Commuter Bicycle and Pedestrian Plan: Adopted in 2010, this is an implementation plan of the County’s comprehensive plan. Its primary objective is to encourage and accommodate walking and biking as modes of commuting to destinations.

1.3.2 Pittsburgh-Focused Initiatives

Transportation Development Review TDM Guidelines: Established in 2019, the guidelines apply to developments in the City of Pittsburgh submitting traffic impact studies during site plan review. TDM Guidelines describe submission requirements for developments that meet criteria.

Pittsburgh Climate Action Plan: Adopted in 2017, the plan addresses internal City operations and citywide actions for residents and businesses. Transportation & Land Use is one of six key areas for climate change mitigation and identifies TDM strategies to achieve greenhouse gas (GHG) emission reductions.

EcolInnovation District Plan: Adopted in 2017, the plan establishes an EcolInnovation District in the Uptown and West Oakland neighborhoods of Pittsburgh and seeks to provide the people of Uptown/West Oakland with safer and more alternative transportation options.

Riverfront Rezoning: This zoning amendment adopted in 2018 requires new developments in riverfront zones to submit transportation studies (including TDM plans) to pass site plan review.

2. Leadership

Leadership refers to organized groups of agencies and businesses that work together on initiatives that support TDM. Existing leadership is strongest in the City of Pittsburgh and Allegheny County through three transportation management associations (TMAs), city development policies described in the previous section, an EcolInnovation District of committed property owners, and two mobility research institutions based at Carnegie Mellon. Regional leadership is based at the SPC, which convenes stakeholders on the commute options, traffic

⁷ https://www.spcregion.org/trans_cong_strat.asp

incident management, operations and safety, and human services agencies addressing the transportation needs of vulnerable populations. This section describes these leadership groups.

CommuterInfo Partners Forum: The forum supports collaborative partnerships across stakeholders implementing TDM through quarterly meetings hosted by the SPC. It is comprised of regional transit agencies, TMAs, and employer/institution TDM programs across the 10-county region.

SPC Traffic Incident Management Steering Committee: Initiated in 2011, the steering committee is comprised of leadership and practitioners of diverse disciplines related to traffic incident management, including crash & homicide investigators, emergency medical services (EMS), fire & rescue, hazardous material handlers, law enforcement, media, medical examiners, road maintenance, service patrols, towing and recovery, traffic management centers, and utilities. The committee's leadership in effective traffic incident management improves transportation system management and operations by reducing congestion and delay due to non-recurring incidents.

SPC Transportation Operations and Safety Committee/Forum: Initiated in 2014, this leadership group is comprised of planners, engineers, and operators in the 10-County region. It provides a central regional forum to coordinate operations and safety planning and continued development, advancement, and implementation of the Regional Operations Plan and the Regional Safety Plan

Alliance for Transportation Working in Communities: The Alliance serves vulnerable populations in the 10-county region, focusing on accessible alternative transportation modes through human services delivery.

Pittsburgh Downtown Partnership TMA: Established in 1994, the TMA represents the interests of the Downtown business community and other Downtown stakeholders. The PDP supports transportation initiatives that provide Pittsburgh visitors and residents with transportation choices beyond driving to ease traffic congestion and parking pressure.

Oakland TMA: The Oakland TMA provides programs and activities meant to encourage alternative modes of transportation to improve air quality and reduce congestion. The TMA website provides online resources such as a multimodal interactive map. The Oakland TMA leads the Oakland's Smart Commute program in partnership with the Oakland Business Improvement District and CommuterInfo. This program encourages small business owners in Oakland to promote the use of alternative transportation to their employees.

Airport Corridor Transportation Association: ACTA serves the business community located along the Parkway West from the Western portal of the Fort Pitt Tunnel through Beaver County. Members include area businesses, developers, local governments, and municipalities and public entities that do business in the airport corridor. The Association works directly to provide sustainable transportation solutions and reduction of single occupancy vehicles.

Pittsburgh 2030 District: Established in 2013, the District connects 102 Property Partners with 43 Community and Resource Partners and leads all 19 international 2030 Districts. The Pittsburgh 2030 District is a private-public-nonprofit partnership facilitated by Green Building Alliance (GBA). Committed buildings are in the North Side, Downtown, and Oakland

neighborhoods of Pittsburgh. The District Supports building owners and managers to reduce transportation emissions.

Westmoreland Smart Growth Partnership: Established in 1999, the Partnership serves communities of Westmoreland County by promoting smart growth principles, including to improve air quality by reducing automobile emissions.

Traffic21: Traffic21 is a multi-disciplinary research institute of Carnegie Mellon University established in 2009 that positions the Greater Pittsburgh region as a “learning lab” in TDM-related areas like infrastructure, transportation access, transportation routing, human factors, artificial intelligence, web applications and autonomous vehicles. Traffic21 works to design, test, deploy and evaluate information and communications technology to address the problems facing the transportation system of the Pittsburgh region and the nation. Traffic21 housed the Technologies for Safe and Efficient Transportation (T-SET) University Transportation Center from 2012-2018.

Mobility 21: Established in 2016, Mobility21 is a new National University Transportation Center (UTC) established for mobility research with a \$14 million award from USDOT based at Carnegie Mellon University. It is comprised of researchers, students and deployment partners, including public and private sector transportation providers and stakeholders.

3. Employer-Led

Corporate sustainability goals are a common gateway for Southwestern Pennsylvania employers into TDM. There are several regional sustainability recognition programs for businesses that address transportation, including the Sustainable Pittsburgh Challenge, Sustainable Small Business Designation, SWPA Sustainable Business Compact, and the Sustainable Pennsylvania Community Certification. Two of the employers interviewed who have begun working with CommuteInfo have roles specifically in Sustainability. See the Employer Interviews section for more information on employer-led initiatives.

Within Pittsburgh, employers and institutions within TMA service areas have subsidized transit service fares for their constituents. Students, faculty, and staff of University of Pittsburgh, Carnegie Mellon, and Chatham University can use all Port Authority transit services for free using their ID cards. In the Airport Corridor, the employers Homewood Suites, IBEX Global, and Walgreens have subsidized the RideACTA first-last-mile shuttle service for their employees from nearby transit stops.

The CommuteInfo program has developed relationships with the following employers to promote ridesharing: Bayer Corp., BNY Mellon, California University of Pennsylvania, Carnegie Mellon University, Cigna, County of Allegheny, Department of Veterans Affairs, Eaton Corporation, evolveEA, FedEx, Highmark, Inc., Indiana University of Pennsylvania, Michael Baker, Jr. Inc, MEDCO, MSA, Penn State New Kingston, Pittsburgh Pirates, Point Park University, Slippery Rock University, University of Pittsburgh Greenburg, UMPC, UPS, UPMC Children's Hospital, and Westinghouse.

4. Traveler Information and Payment Systems

Traveler information and payment systems span multiple modes and are integrated to some extent, but there is opportunity for greater integration to improve the traveler experience. Lack of awareness about available mobility options and fares poses a barrier for travelers to change behavior. Therefore, creating a one stop shop for information and payment is a powerful strategy to encourage travel by shared and active modes of transportation.

CommuterInfo Ridesharing Platform: The CommuterInfo website www.commuterinfo.org is an online commuting resource center that serves commuters and employers in the 10-County Region. It provides ride-matching services for the region's vanpools, carpools, and bikepools as well as online tools such as a park & ride lot map and commute cost calculator.

ConnectCard: Established in 2012, ConnectCard serves users of fixed-route transit systems in Allegheny, Mid Mon Valley, Butler, Washington, Fayette, and Westmoreland. The reloadable card makes it faster and easier to pay for transit trips compared to using cash.

TrueTime: Launched in 2018, the app allows Port Authority transit riders to view service alerts and real-time vehicle location information.

TraXster: TraXster provides riders of Mid Mon Valley Transit with real-time bus location information and estimated arrival information through an online map, phone, scan, or text.

Beaver County Transit Real Time Bus Tracker: BCTA vehicles are equipped with AVL technology, allowing riders to access real-time information on next bus arrivals on mobile devices via text. Some bus stops are equipped with electronic displays with dynamic traveler information.

ParkPGH Mobile App: Launched in 2010, the app serves select Pittsburgh parking garages located in the Cultural District, the Central Business District, and the North Shore. It delivers real-time garage parking space availability for select garages and updates the parking inventory every 30 seconds.

Go Mobile PGH app: Launched in 2015, allows drivers looking for parking in City of Pittsburgh to find and pay for off-street and on-street parking.

Pittsburgh Downtown Partnership reserved parking program: Since 2009, the program has allowed Downtown visitors to reserve a parking space Monday through Friday between 10:00 a.m. and 2:00 p.m. Reservations are required at least 24 hours in advance to guarantee a place to park at the regular rate.

511PA: Since 2009, the statewide platform has provided commuters, travelers, and commercial carriers with real-time traffic information to help them make informed decisions and avoid delay.

5. ITS and ICM

Intelligent Transportation Systems (ITS) and Integrated Corridor Management (ICM) optimize utilization of the transportation network through technology and communications systems that respond to recurring and incident-based congestion and provide advanced traveler information. These efforts include traffic signal coordination, the regional ITS architecture, traffic

management centers, and corridor facilities that integrate shared mobility options with regional corridors including high occupancy vehicle lanes and the network of park and ride lots.

Regional Traffic Signal Program: Launched in 2008, the program serves local governments within the 10-County Region, focusing on local corridors. Through the program, the SPC assists local governments with improving traffic signal operations by optimizing traffic signal timings and upgrading existing signal equipment.

Regional ITS Architecture: Updated in 2016 by the SPC, the regional ITS architecture is an integral part of the planning process, providing a structured way to translate TDM and operational objectives and strategies into an interconnected set of ITS projects.

PennDOT Green Light n Go Program: Established in 2013, this program of PennDOT serves SPC and municipalities. Focusing on State highways, it is a competitive state grant program (reimbursement-based and requiring at least a 20% local match) designed to improve the efficiency and operation of existing traffic signals.

High Occupancy Vehicle (HOV) Lanes: Currently, the only HOV lane in the region is on Interstate 279 (“the Northway”); the lane occupies a three-mile segment between Downtown Pittsburgh and the Perrysville Avenue interchange. All vehicles using the HOV lane must have at least two people in them during morning and evening peak hours on weekdays, and the purpose is to reduce congestion and encourage ridesharing into and out of Downtown Pittsburgh. There is currently no enforcement technology to automate detection of in-vehicle occupants; the lane is periodically monitored by law enforcement. An HOV lane in the Wabash Tunnel on the South Side of Pittsburgh operated from 2004-2016, when the HOV lane was permanently opened to all traffic.

Park & Ride System: The region’s park & ride system is a significant asset to support multimodal commuting. There are 108 park & ride lots located across the 10-county region that collectively provide 16,037 parking spaces. Most (54%) of the lots are located in Allegheny County, while there are 24 lots in the northern counties and 25 in the southern counties. Five lots (four in Allegheny County and one in Lawrence County) charge a fee, ranging from \$1.50 to \$5.00 per day and \$22 to \$75 per month. Among the 108 lots, 91 are served by transit, 36 have route info, 28 have bike racks, 19 have bathrooms, and 11 have electronic signage.⁸

Traffic Management Centers: Four traffic management centers across the region control ITS equipment, incident detection, and emergency response on interstate highways as well as state and local corridors.

City of Pittsburgh Traffic Management Center (CityTMC): The CityTMC is in Downtown Pittsburgh and controls signalized intersections, coordinates timing plans and exchanges archived traffic data with other agencies, maintains traffic infrastructure, and coordinates emergency operations. City offices lead street maintenance and construction while incidents and emergency response are coordinated with City and County offices.

Cranberry Traffic Management Center: This TMC is located at the intersection of I-79, the Pennsylvania Turnpike (I-76), and US-19 in southwestern Butler County, where the large Cranberry community is growing. The TMC provides traffic management, incident detection and response, and

⁸ Data obtained from CommuteInfo at <https://commuteinfo.org/for-commuters/park-ride-locator/>.

shares roadway status information with other agencies and the media. The TMC maintains and programs 41 signals along State and Cranberry Township roads and seven additional signals in adjacent municipalities.

Western Region Traffic Management Center: This TMC is located in Bridgeville and covers PennDOT Districts 10, 11, and 12 (throughout the 1-county SPC region) for traffic management, incident detection, emergency response coordination and traffic response to maintenance and construction activities. PennDOT traffic sensors are focused on the most-heavily traveled portions of the interstate network. Traffic signal coordination in priority regional corridors is planned in partnership with local governments.

Pennsylvania Turnpike Commission Operations Center (PTC Ops Center): While the PTC Ops Center is located in Harrisburg, it manages traffic across the tolled Pennsylvania Turnpike system in Southwestern Pennsylvania including I-376 as well as the State Routes 43, 66, 576, and 60. In 2015, the PTC Ops Center partnered with the WAZE Connected Citizens Program to display on the WAZE mobile app real-time data from the Ops Center including incidents, road closures, construction alerts, and estimated travel times. In turn, turnpike motorists can share field information from the app to be viewed and verified through the Ops Center. Local TMCs have offered to partner with the PTC Ops Center in developing future regional traffic management strategies.

6. Mobility Services

Mobility services in Southwestern Pennsylvania include fixed-route transit, shared ride and demand-responsive transit, private shuttles, vanpools, bikeshare, and an on-demand first/last mile service. Private sector transportation providers are concentrated in Pittsburgh, though the transportation networks companies Uber and Lyft provide coverage to the 10-county region.

Transit Providers: Fixed route transit service in the 10-County region is mapped in Figure 14 and extends to most urbanized areas and urban clusters, except for Greene County and small urban clusters in Washington County and Butler County. Transit providers, their service area, integration of ConnectCard, and services beyond fixed route are outlined in Table 8 below. Transit service in Allegheny County provides the largest coverage, schedule span, and frequency, while service in outlying areas is generally limited on evening and weekends. Beyond fixed route service, demand-response shared rides are available via paratransit vehicles to the general public in Armstrong, Beaver, Butler, and Washington Counties. However, unsubsidized fares for these services can reach over \$50, making them cost-prohibitive to the general population.

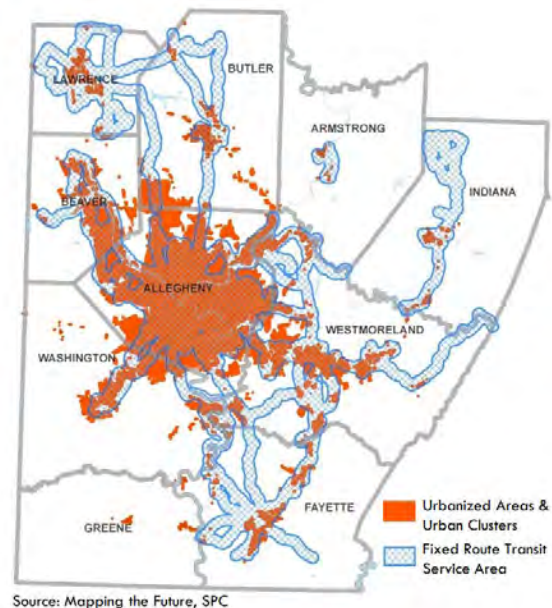


Figure 14: Fixed Route Transit Service Area in Southwestern Pennsylvania

Table 8: Southwestern Pennsylvania Public Transportation Providers

Provider	Service Area	Connect Card	Services Beyond Fixed Route
Port Authority of Allegheny County	Allegheny County	✓	ADA Paratransit
Town & Country Transit	Armstrong County		Shared ride service is available to the general public, though fares range from \$17-\$50.
Beaver County Transit Authority	Beaver County		Demand response service is available to any Beaver County resident not served by the fixed route network.
Butler Transit Authority	Butler County	✓	BART shared-ride service is available to the general public.
Freedom Transit	Washington County	✓	Shared ride service is available to the general public, though unsubsidized fares range from \$11-\$51.50
Westmoreland County Transit Authority	Westmoreland County	✓	GO Westmoreland paratransit shared ride service available to seniors, individuals with disabilities, and individuals receiving medical assistance.
Fayette Area Coordinated Transportation	Fayette County	✓	Shared ride program is only open to seniors 65+
Indiana County Transit Authority	Indiana County		Shared ride program is open to the public but targeted to seniors 65+.
New Castle Area Transportation Authority	Lawrence County		ADA Paratransit
Mid Mon Valley Transit Authority	22 Mid Monongahela River Valley communities located in Washington, Westmoreland, and Fayette Counties.	✓	ADA Paratransit
Heritage Community Initiatives Transportation	15 communities east of the City of Pittsburgh.		ADA Paratransit

Private Shuttles: Universities operate their own shuttle service:

- Carnegie Mellon University (Oakland, Allegheny County)
- University at Pittsburgh (Oakland, Allegheny County)
- Chatham University (Oakland, Allegheny County)
- California University (California, Washington County)

There is some concern that these services are redundant with fixed route public transit service, though consolidating them would reduce their utility to riders by deviating from routes and

schedules customized for each University's needs. University Pittsburgh Medical Center (UPMC) has established a parking shuttle to transport employees to peripheral and offsite parking.

Employer shuttles also operate near the Pittsburgh airport, and are coordinated through the Airport Corridor Transportation Authority TMA's RideACTA service, serving IBEX Global, Homewood Suites, and Walgreens.

Vanpools: There are currently 49 active vanpools in the 10-county region, and SPC provides a \$400 per month subsidy to all vanpools that are not sponsored by government employers, which provide a separate subsidy of up to \$260 per employee per month. Among the active vanpools, sixteen travel to Boyers, where there is a concentration of government employers. Fourteen vanpools travel to Pittsburgh, ten travel to Cranberry, 7 travel to Oakland, 1 travels to East Butler, and 1 travels to Wheeling, WV.

Healthy Ride Bikeshare: Launched in 2015 in the City of Pittsburgh, Healthy Ride Bikeshare expands access to public transit through easy-to-use, affordable active transportation opportunities. All Port Authority Connect Card pass holders received an unlimited number of free 15-minute trips by linking their accounts to Healthy Ride and tapping the Connect Card on a bicycle. This serves as a strong first/last mile connection. Bikes and stations are fully operational in colder months to provide a reliable connection during all seasons.

On-demand RideACTA shuttle: Launched in 2009, RideACTA provides airport corridor transit travelers with a first/last mile solution: a shared-ride, flex-route shuttle service that transports people between the IKEA Super Stop or West Busway station and nearly 200 local businesses. The standard fare is \$0.25 (cash) per trip. In February 2019, the RideACTA mobile app was launched, allowing users to request a ride from their mobile device.

Private Sector Shared and On-Demand Mobility Services: Uber, Lyft, and zTrip are transportation network companies with service concentrated in Pittsburgh, though Uber and Lyft do provide coverage across the 10-county region. Zipcar is the region's only car share provider with hubs at the Pittsburgh airport, Downtown, and several core neighborhoods. Scoobi electric scooters are concentrated in Downtown Pittsburgh and the East End.

7. Promotion & Education

TDM promotion and education efforts are directed toward individual travelers (such as Walk Pittsburgh and Bike PGH) as well as employer- and organization-focused. It is beneficial to balance mass-marketing efforts to commuters and business-to-business (B2B) outreach. While B2B resources like CommuteInfo and sustainability recognition programs for businesses and municipalities are spread regionwide, individual-level promotion and education efforts are concentrated in the Greater Pittsburgh Area. This indicates that there is opportunity for residents of outlying areas to engage directly with TDM promotion and education.

Walk Pittsburgh: Started in 2016, Walk Pittsburgh is an initiative of Pittsburgh's three TMAs. It provides resources and support to encourage walking as a viable commuting option, improve pedestrian safety, communicate the health and economic benefits of walking, and ensure that walkability is factored into transportation and development plans. The Walk Pittsburgh mobile

app provides a pedometer that tracks individual walking metrics, displays total statistics by neighborhood, and the overall results from all walkers in the program.

CommuteInfo Employer and Commuter Outreach: The CommuteInfo program provides outreach to employers and commuters across the 10-County region, providing technical assistance to employers to implement rideshare policies and services. The CommuteInfo website was recently redesigned as a part of a broader marketing campaign targeting individual commuters through radio, television, outdoor, and online advertising. The program has traditionally focused on employer engagement through human resources, but in the past six months has tried more direct-to-commuter outreach through programs like Pennsylvania CareerLink, which assists individuals with finding employment. An interview with the CommuteInfo Program Manager is provided in Appendix B.

Sustainable Pittsburgh: Established in 1998, Sustainable Pittsburgh works primarily with businesses, municipalities, and nonprofits in the Pittsburgh area, though individuals can participate in a pledge. Transportation is one of the sustainability focus areas. The Sustainable Pittsburgh Challenge is open to employers, universities, and institutions, and includes an employee transportation survey to establish an organization's transportation baseline and track progress towards goals. Other voluntary recognition programs include the Sustainable Small Business Designation (for small businesses) and the SWPA Sustainable Business Compact (for mid to large businesses).

Sustainable Pennsylvania Community Certification: The Statewide program provides certification to municipalities that commit to sustainable actions. Mobility is one of 26 certification topics, and strategies include promotion/accommodation of alternative transportation. Communities across Southwestern Pennsylvania are already certified.

Bike PGH: This organization primarily serves Pittsburgh-area cyclists and advocates for complete streets and transit policy, provides community events, as well as education (community-based and workplace-based) on biking.

IV. Employer and Program Interviews

Employer-led initiatives are essential to amplifying public traveler resources and providing commuters with benefits that support meaningful access by shared and active modes of transportation. However, employers' motivations for engaging with TDM vary significantly across Southwestern Pennsylvania: ranging from parking pressure in urban core environments to workforce access issues in peripheral areas. The research team conducted employer interviews representing locations across the 10-county region, with special focus on locations outside of Allegheny County to ensure that employers' needs and perspectives are included in the TDM Action Plan. The research team also interviewed the Program Manager of CommuteInfo as well as a transit planning consultant for Heritage Community Initiatives Transportation, a nonprofit, fixed-route public transportation provider that initially focused on jobs access in the Mon Valley and now functions as an extension of Port Authority service.

Employer contacts were selected through the CommuteInfo program network and were contacted by telephone.

- University Pittsburgh Medical Center (Regional)
- Westinghouse Electric Company (Cranberry, Butler County)
- Grocery store chain (Regional)
- FedEx Ground (Corporate headquarters in Moon, Allegheny County, with field facilities in Westmoreland and Butler Counties).

The research team contacted additional employers:

- Adams Manufacturing Corp (Lawrence and Butler Counties).
- PPG Industries (Pittsburgh)
- Office of Personnel Management (Butler County)
- Orrick Global Corporation (Wheeling, WV)

The interviews focused on employees' existing transportation and access needs, how the employer's leadership hears about these challenges, impacts to the employer's bottom line, commuter benefits offered, recent changes in employee transportation patterns, awareness of CommuteInfo, and interest in additional support with getting employees to work more effectively. Key findings from the interviews are summarized below, and notes from the original interviews are provided in Appendix B.

1. Gateway to TDM

In core urban areas where parking is limited, employers are establishing preferred parking for carpools and vanpools with hangtags for registered vehicles that allow them to park in designated spaces. UMPC is beginning to do this at a few core facilities including Children's Hospital, though the number of registered carpools is still small. FedEx Ground corporate headquarters is in a suburban campus environment in Moon Township but is still experiencing significant **parking pressure** among the 2,000 employees that work there. The FedEx Ground carpool program was established about 1.5 years ago and currently has 70 employees. Both employers are working with CommuteInfo to facilitate carpool programs and address alternative transportation for employees primarily through **corporate sustainability** initiatives.

At some employers, such as Westinghouse Electric Company located in Cranberry, vanpools are **self-organized among employees** with little involvement from the company. Additionally, while UPMC has been promoting carpooling and working with CommuteInfo to do so, many of the carpools are self-organized among employees. In these case, ridesharing develops "from the bottom up" organically among employees talking with one another rather than "from the top down" from management or a marketing campaign pushing commuters to register for a program like CommuteInfo.

In low-density areas east of the City of Pittsburgh, employers like UPMC and Forbes Hospital provide **courtesy cards** that pay for consumers to ride Heritage Community Initiatives fixed-route public transportation service, though the level of riders using the service is relatively low. Employers that function as activity nodes in rural areas (like the Walmart in North Versailles) can serve as a **hub for rural routes**.

2. Maintaining a Competitive Working Environment

Employers noted the need to maintain a competitive working environment and are considering TDM-related initiatives to do this. Westinghouse Electric company has started to offer **flexible scheduling and teleworking** to attract younger cohorts into their workforce, especially after recent retirement waves have reduced the Cranberry location workforce significantly. As a result, many employees can work from home two-to-three days per week. Vanpool riders that will pick up several telework days per week will continue to pay the full monthly fare of \$100-\$110, which speaks to the value that the vans provide in terms of stability and **social connection**. The vans are very **amicable** and there is low turnover.

UPMC also noted interest in greater support for telework, as they are going to increase teleworking due to growth and limited office space at existing facilities.

Because the labor market is so liquid among entry-level retail positions, grocery stores must compete with a vast landscape of retail and fast food companies to attract and retain employees. While **workers are primarily motivated by wage** and will switch employers for a \$0.50/hour raise, transportation affects recruitment and retention in outlying areas, where it is more difficult to fill open positions. While a retailer may not be able to compete with other companies based on wage, they may be **more attractive by offering a rideshare program**. In the retail industry, retention is also about the **organizational culture**. When employees stay with the same company for years, store leadership is usually the reason why. With a change in management change, the work environment can change significantly.

Another challenge to maintaining a competitive work environment in suburban/rural retail is **inconsistent scheduling**: schedules are dictated by the demands of business and fluctuate in terms of number of hours and shift times. This makes it difficult for employees to establish and maintain carpools and vanpools or even to rely on transit in areas where service is limited. In addition, there is a **jobs-housing mismatch**: the stores tend to be located in wealthier communities where the residents do not want to be taking the jobs offered.

3. Changes in Transportation Patterns

At UPMC and FedEx, **limited parking space** at facilities in the Pittsburgh area has been the biggest driver of change. Younger UPMC employees in their 20s tend to take public transit, walk, or bike to commute, but all demographics are starting to use different mobility options for travel during the day for meetings and other business purposes, which UPMC reimburses. For meeting travel, use of alternative transportation is starting to **move up the leadership chain**, at least between Downtown and Oakland. There hasn't been much change in suburban/rural facilities: most employees continue to drive alone.

At grocery store locations across the region, there has been significant growth over the past five years of employees using **Uber or Lyft ride-hailing services to get home**. This has been positive in that it enables workers to predetermine their transportation, though it can get expensive (especially for lower-wage workers) as a regular commute choice.

4. Anticipated Opportunities and Challenges

Promoting trails for bicycle commuting may be beneficial in suburban and rural areas routes between destinations might be limited to highways or other high-speed, high-volume arterials that are not bicycle-friendly. For example, the FedEx Ground headquarters is located off the Montour Trail, which could be promoted for commuting. This is line with the Active Transportation Plan's Trail Functional Classifications that identify regional, community, and local trail connections.

For employers that struggle to fill open positions in suburban and rural locations such as grocery stores, there is opportunity to tap into **smaller population centers** as a potential resource. There may still be no transit service reaching these population centers, but the distance is shorter and more manageable for ridesharing compared to Pittsburgh. Public transportation providers in these smaller areas (like Heritage Community Initiatives Transportation) have **more flexibility** than Port Authority because of their smaller scale and lack of interdependency between routes and schedules. Rural transit can **experiment and adapt to changing needs**, as shown by Heritage's focus on low-income apartment complexes, penetrating neighborhoods, and having the routes hub at a Walmart.

UPMC noted the opportunity for the CommuteInfo program to integrate more **online tools** and mobility options. Through CommuteInfo we can only know about people who carpool and vanpool, while others are using mobility services on proprietary apps. If CommuteInfo were able to integrate more of those emerging mobility services in a **trip tracker**, then we would have greater understanding of people's preferences for a wide range of alternative transportation options.

For employers in urban locations that are growing such as UPMC, the **fleet** and **freight** needs are less considered but will significantly impact the commutes of employees that work in transportation and logistics. UPMC is needing to expand and relocate warehouses farther from the core as they grow and need to operate 24/7, 365 days and receive bulk shipments. **It's going to be a future problem**: people are travelling longer distances to lower paying jobs at these warehouses. FedEx Ground also noted that employee access to transportation can be an issue at field locations.

Appendix A: Existing Conditions Summary Matrix

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
Policies, Plans, and Studies	Smart Moves for a Changing Region	10-County Region	A variety of Goals and Strategies to help address how the greater Pittsburgh region grows relative to transportation and development are broken down into groups by Demographics, Economy, Environment, Funding, and Technology.	Connected Mobility: A world-class, well maintained, integrated transportation system will provide mobility for all, enable resilient communities, and support a globally competitive economy. Resilient Communities: The revitalization of our communities will make us a magnet for new investment. Intensive investments in connectivity, walkable neighborhoods, and green infrastructure will attract business and residents to newer and older communities alike. Vision will focus on workforce needs.	Mobility for All-Equity Keeps Us Whole, High Tech Mobility- Connected Systems & Autonomous Vehicles, Funding and Financing- Sustainable Funding, Resilient Communities- Elevate Community,	Integrate multiple forms of public/private transportation to provide increased mobility equitably for all users including those in underserved rural areas and disadvantaged populations, Offset impacts associated with Connected and Autonomous Vehicles on safety, public sector revenue, congestion, and quality of life, Develop a comprehensive regional plan for public transit connections, including the identification of a possible regional source for dedicated public transit funding to facilitate seamless linkages and cooperation across the region, Provide municipal education on land use best practices, "Smart Growth" principles, community development transportation planning, and on existing mechanisms to leverage private sector development, Focus in the Right Places, Develop a Regional Comprehensive Public Transit Plan, Promote Land Use Best Practices, Community Development, and Transportation Planning, Identify Sustainable Public Transit Funding, Identify Sustainable State Revenues for Transportation Needs, Ensure the Provision of Transportation Options for Rural Areas and Disadvantaged Populations, Enhance Efficiency in Public Transit Systems, Fund Transportation with New Revenues, Integrate Multiple Forms of Public/Private Transportation to Equitably Provide Increased Mobility for All Users, and Identify how Transportation Agencies can Better Use Artificial Intelligence.				



TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
Policies, Plans, and Studies	Mapping the Future (SPC 2015 LRP) *do a very quick scan for relevant TDM info. SPC wants to focus on the materials for the plan UPDATE ("Smart Moves") in progress rather than this old plan.	10-County Region	It has a vision, goals, and strategies to improve alternative modes of transportation for the SPC region and make it the most effective as possible.	Transportation and land use that supports and enhances the regional economy and the communities within it.	Maintenance of the existing transportation system will be a regional priority, Transportation and development choices will reflect a priority on safe and secure multimodal and intermodal networks for both people and goods. The region's transportation system will be actively managed and operated to allow the system to function at its full potential, and the region's transit system will connect people with resources throughout the entire region.	Emphasize a strong multimodal focus including transit, bicycle & pedestrian facilities, trails, roadways, active transportation elements, railways & waterways, promote improved transportation operations, and promote improved transportation safety.				
Policies, Plans, and Studies	Technology Exploratory Scenario Report (Smart Moves)	10-County Region	Addresses Connected & Autonomous Vehicles; Mobility as a Service; Modal Impacts;		Autonomous/connected vehicles (AV/CV) will rely on public sector coordination, including policy setting, infrastructure development, and land use controls (drop off zones, curb management, etc.). Coordination between the private sector and local and regional public entities will be crucial in ushering widespread use of AV/CV while ensuring the safety of all road users. The region must plan for adaptable reuse of existing and future parking structures if they become obsolete due to AV/CV technology.	Deploy Appropriate Infrastructure to Facilitate Autonomous and Connected Vehicles Offset Impacts of Autonomous and Connected Vehicles Integrate Multiple Forms of Public/Private Transportation to Equitably Provide Increased Mobility For All Users (e.g first/last mile solutions) Identify how Transportation Agencies can Better Use Artificial Intelligence (e.g potholes and sidewalk problems, adjusting timing of traffic lights, and facial recognition for payment, transit preferences, and marketing/advertising) Use Existing Transportation Corridors to Facilitate Delivery of Broadband Throughout the Region (will facilitate telework)	The region is already a leader in the autonomous vehicle field with a 324% growth in job openings. Uber Movement has been launched in Pittsburgh, which provides anonymized traffic data from information collected on Uber trips in the region. The aggregate data can help cities make informed decisions about how to adapt existing infrastructure and invest in future solutions to make a region more efficient.	Funding for mobility remains an issue for both private and public entities. Cost is the largest deterrent to creating a sustainable system. Mobility services do not reach outlying Counties: Allegheny is the only County that is 100% covered by Uber service.	MaaS may change the way we travel and may reduce individual vehicle ownership, lessen congestion, improve air quality, and create more equitable access. Credit vouchers for ride-sharing services could be implemented to expand current public transit routes and incentivize riders.	
Policies, Plans, and Studies	Funding Exploratory Scenario Report (Smart Moves)	10-County Region	Has strategies related to sustainable transportation to work to take advantage of opportunities and mitigate potential disruptions.	N/A	N/A	Identify sustainable public transit funding, identify sustainable state revenues for transportation needs, ensure the provision of transportation options for rural areas and disadvantaged populations, enhance efficiency in				

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
						public transit systems, fund transportation with new revenues				
Policies, Plans, and Studies	Environment Exploratory Scenario Report (Smart Moves)	10-County Region	Environmental forces of change include climate change, land use, and air quality, which TDM strategies address.			Invest in Strategies That Help to Decelerate theRate of Climate ChangeCreate Livable Communities at the Local andNeighborhood Level (e.g through SMART program)Promote Land Use Best Practices, CommunityDevelopment, and Transportation PlanningSupport and Encourage Transportation Projects orPrograms That Enhance Air Quality				
Policies, Plans, and Studies	Economy Exploratory Scenario Report (Smart Moves)	10-County Region	Economic forces of changes include workforce, infrastructure, and technology, which TDM strategies address.			Improve Efficiency in Infrastructure Development, Design, Construction, Operation, and Maintenance	Pittsburgh has enough physical infrastructure to support a population twice its current size.			
Policies, Plans, and Studies	Demographics Exploratory Scenario Report (Smart Moves)	10-County Region	Identifies significant demographic trends that could affect transportation demand over the next 25 years.	The emerging regional vision is a world-class, well maintained, integrated transportation system that provides connected mobility for all, enables resilient communities and supports a globally competitive economy.	Develop better transportation connections to underserved employment areas.	<ol style="list-style-type: none"> 1. Focus in the right places (prioritize investment based on performance criteria - e.g near transit). 2. Develop a comprehensive regional plan for public transit to drive cooperation and linkage across the region. 3. Another related regional effort could be collaborating on the location of Park and Ride facilities across all counties to support their varying needs and providing bus access in areas with greater need but less demand. 4. Consider Transportation When Making Land Use Decisions and Simplify Regulations for Developers. 			N/A	

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
Policies, Plans, and Studies	SPC FHWA TDM Workshop Writeup	10-County Region	Workshop participants discussed success stories, challenges, and opportunities for TDM in SW PA. Participants conducted a self-assessment of the region's capability to integrate TDM into the planning processes.	The SPC, county representatives, and local representatives rated the regional vision and goals as ad-hoc and defined. Participants noted while there is support for TDM as a vision, there is a lack of commitment and lack of a coalition to spearhead TDM as a vision	See Vision.	Participants rated "Setting Objectives for TDM" as "Defined". Action Plan elements that are the responsibility of PennDOT and include:-Ensure PennDOT Connects includes TDM in discussions.-Include TMC staff in TDM discussions.	Strengths identified:- Robust/mature ridesharing program-3 strong TMAs- CommuteInfo Partners is a forum for TDM issues that meets quarterly and hosted by the SPC.-For sporting events, have implemented fare-free zones and water taxis.	Challenges identified:-No umbrella TDM program- Truly regional TDM is limited because there is only one major area where most of the strengths occur.- Infrastructure to allow people with disabilities to participate in TDM is lacking (curb access, TNC vehicles)-Difficulty engaging the private sector (such as TNCs)- Lacking a metropolitan transit authority- Lacking a full trip planner that includes all modes for all agencies- SPC noted a disconnect between existing objectives and TDM, and called out lack of land use objectives.	Opportunities identified:-TDM offers another strategy to increase road capacity without expanding the highway system.- Provide a one-stop shop for multi-modal travel information / a full integrated multimodal trip planner.-Get all counties in the ConnectCard system (only 6 of 10 are participating)- Aggregate road closure data across all maps.-Complete a sidewalk network / set standards for sidewalks.-Busways have capacity for more; integrate transit with highway facilities, including park and ride lots.	SPC has implemented or initiated several actions listed in the Action Plan:-Created a TDM Committee - Initiated development of a regional TDM plan.-Initiated a regional marketing campaign.SPC noted there are difficulties defining outcomes/performance measures (mode split, vehicle throughput, rideshare rates,) because they want to get straight to "person throughput".Participants noted that monitoring is done but may not be focused on a specific strategy. TDM is not evaluated from a regional perspective.
Policies, Plans, and Studies	Survey results from LRTP update	10-County Region	Survey collects public input on priority areas for Connected Mobility.	Connected Mobility: A world-class, well-maintained, integrated transportation system will provide mobility for all, enable resilient communities, and support a globally competitive economy.	Highest ranking Goals in Connected Mobility:- Offset Impacts (3.7): Offset impacts associated with Connected and Autonomous Vehicles on safety, public sector revenue, congestion and local quality of life.-Public Awareness (3.5): Conduct education on the need for sustainable funding as a continuing process, not a "one and done" endeavor; and garner an overall understanding of public infrastructure benefits, needs and subsequent support for needed infrastructure revenues.					

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
Policies, Plans, and Studies	SPC Regional Active Transportation Plan	10-County Region	Active transportation will reduce vehicle trips, improve multi-modal trips, and mode of trips.	Transportation and land use that supports and enhances the regional economy and communities within it. (note: not specific to plan, but SPC region)	Policy Goals: Transportation and development choices will prioritize safe and secure multimodal and intermodal networks for people and goods. Active Transportation Goals: Enhance multimodal accessibility and connectivity and Improve public health and the environment.	Enhance multimodal accessibility and connectivity: Support regional collaboration on planning for active transportation corridors and encourage connectivity within and between local and regional networks, including multi-state networks, encourage bicycle and pedestrian infrastructure that improves access to transit, and Provide guidance and educational resources that increase the ability of municipalities to plan, design, fund, build, maintain and operate bicycle and pedestrian networks. Enhance multimodal accessibility and connectivity and improve public health and the environment: Emphasize infrastructure improvements that encourage walking and bicycling for short trips and lead to a reduction in Vehicle Miles Traveled (VMT) and improved air quality and Support local communities in establishing new Safe Routes to School programs and in sustaining and enhancing existing efforts.				Performance measures: Number of non-motorized fatalities and non-motorized serious injuries, Bike-Ped Commute Mode Share, Miles of bicycle facilities, and Number of jurisdictions with adopted bicycle and pedestrian plans or active transportation plans
Policies, Plans, and Studies	SPC Livability through Smart Transportation Program (SMART)	10-County region	encourages sponsors to plan and implement approaches that link transportation improvements with appropriate land use development strategies. Uses \$3M/year in 2019 and 2020 in STP funding	create sustainable, livable communities.	Linking transportation investments and land use planning Multimodal Partnering Safety Sustainability	Eligible activities: • Bicycle/Pedestrian Improvements • Corridor Management/Congestion Reduction • Intermodal/Transit Oriented Development • Land Use and Transportation Linkage • Planning and Redevelopment • Road/Intersection/Network Improvements • Streetscapes/Traffic Calming				
Policies, Plans, and Studies	Regional Transit Profile	10-County Region	Simply shows regional transit providers contact, route/service, and general operating revenue information.	N/A	N/A	N/A				
Policies, Plans, and Studies	PennDOT Connects	Statewide	Policy tasks PennDOT staff and planning partners to consider community needs at the beginning of the planning process.	Every transportation project should begin its life as a project that improves safety, mobility, and accessibility for all users: drivers, pedestrians, bicyclists, transit passengers, freight carriers, and area businesses and residents.		Document collaboration and consideration of all road users on project initiation form.	N/A	N/A		Safety issues/concerns, bicycle/pedestrian accommodations, transit/multimodal considerations, transportation operations considerations, long range transportation plans, and other proposed transportation improvements

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
Policies, Plans, and Studies	SPC Congestion Management Process	10-County Region	CMP identifies congested corridors and recommends strategies for congestion mitigation. Demand management is one of 4 major strategies in SPC's congestion management toolbox. Defined as: Programs and initiatives that attempt to address congestion at the root of the problem by reducing the number of vehicles on the road. These efforts work to modify driver behavior by encouraging people to make fewer single-occupancy trips, travel in off-peak hours when possible, and support land use policies that reduce the demand for automobile transportation.	Provide a systematic way for helping manage congestion and provide information on transportation system performance.	To provide information that helps transportation planners, professionals and others to understand the overall congestion climate in individual corridors and the region.	Demand Management Techniques:- Employer-based programs-Parking management-Congestion pricing-Public relations & education for TDM-Growth management-TOD policies-Public relations & education for Transportation-supportive development.				The following performance measures are used to evaluate congestion in SW PA: Posted Speed Reliability Index, Expected Travel Time Reliability Index travel time, speed and delay as its fundamental performance measures. These building blocks are then used to calculate additional performance measures such as Delay per Vehicle per Mile and Total Delay.
Policies, Plans, and Studies	Make My Trip County Survey Results	Oakland and Downtown Pittsburgh	The Make My Trip Count survey asked where commuters travel from and to, and which modes they regularly use, and their inclination to use other transportation options.			Highest concentration of transportation options in the region.	64% of commuters use employer transit benefits.		15.1% of respondents have never commuted by bike but are interested in doing so. Availability of on-street, traffic separated bike lanes and bike trails would have broadest reach in increasing likelihood of biking for people (25%). For 48% of people who drive alone, the bus would be their next viable choice to commute followed by carpool (15%)	46.8% drove alone 5.25% carpooled 31% used public transportation 4.34% walked 4.25% biked 2% were dropped off 1.29% telecommuted 0.5% used university shuttles 34% reported that they used more than one mode of transportation in a week.

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Policies, Plans, and Studies	Regional Operational Plan	10-County Region	By integrating transportation operations into the planning process, the following benefits can be realized:-More reliable travel-Safer travel-Greater mode choice-More efficient travel and improved economic competitiveness-Enhanced customer experience-Accountability for performance-Sustainability-Environmental benefits	The region's transportation system will be actively managed and operated to allow the system to function at its full potential.	Goals are:-Mitigate Recurring Congestion-Maintain Mobility During Planned Events-Minimize the Impact of Unplanned Events-Provide an Efficient Multimodal Transportation System	To mitigate recurring congestion: - Reduce delays through known bottlenecks-Improve the operational efficiency and safety of traffic signals-Facilitate travel demand management by providing and marketing travel modes other than single-occupancy vehicles and by encouraging travel shifts to off-peak times.To maintain mobility during planned events:-Improve work zone management-Enhance established detour routes-Facilitate the management of traffic for special events-Provide timely and reliable traveler information for planned eventsTo minimize the impact of unplanned events:-Improve incident detection and verification to facilitate quicker response-Facilitate interagency coordination and cooperation for traffic incident management-Improve road weather management systems and programs-Enhance pre-planned detour routes-Provide timely and reliable traveler information for unplanned eventsTo provide an efficient multimodal transportation system:-Improve the operational efficiency and safety of freight movement within the region-Enhance intermodal integration for pedestrians and bicyclists-Improve the operational efficiency and safety of public transit within the region-Establish integrated corridor management systems that allow for operation of the transportation system as a whole-Promote institutional coordination to improve the efficiency of management and operations programs and initiatives across modes		Future Possibilities: Integrated Corridor Management-Improved connections to the Busways- Expanded park-n-ride near Parkway interchanges- Hard shoulder running during peak hours- RTMC signal control during incidents- Multimodal travel time information on DMS and via apps- Dynamic speed advisories (i.e., speed harmonization)- Ramp metering- Institutional collaboration on intermodal facilities	Based on resource considerations and the current availability of data, the following measures have been identified as key ROP performance measures for Southwestern Pennsylvania:-Transit ridership-% of regional bus routes with real-time tracking-Total Delay (vehicle-hours)-Posted Speed Reliability Index-Expected Travel Time Reliability Index-Annual # of crashes at signalized intersections-Annual # of pedestrian fatalities and major injuries-Annual # of bicyclist fatalities and major injuries-% of at-grade highway-rail crossings with active warning gates-# of first responders completing national TIM training-FHWA TIM self-assessment score-# of traffic signals capable of remote operation from an actively managed traffic management center	

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Policies, Plans, and Studies	Transportation Development Review TDM Guidelines	Pittsburgh	TDM Guidelines describe submission requirements for developments that meet criteria.		Reduce single-occupancy-vehicle (SOV) trips by making it easier and more attractive for travelers to utilize transit, biking, walking, and other efficient travel options.	Programmatic strategies and site plan strategies				DOMI is developing a TDM program that will establish regional and local TDM goals and incorporate a means for parties to monitor or report on the progress of goals. Until such a monitoring system is developed, applicants will work with the Department to develop a project-specific means of reporting.
Policies, Plans, and Studies	Pittsburgh Climate Action Plan	Pittsburgh	Transportation & Land Use is one of six key areas for climate change mitigation and identifies TDM strategies to achieve GHG emission reductions.	N/A	Reduce on-road transportation emission by 50%. Reduce vehicle miles traveled by 50%, no net increase in vehicle ownership, increase bicycle and pedestrian commute trips by 50% by 2030, increase transit commute trips by 100% by 2030, and decrease drive alone commute trips by 50% by 2030.	Having employers and landlords offer universal transit passes, car/bike share subscriptions, telecommute and flexible work schedules. Road and parking pricing Road space allocation to promote bike lanes and transit-only lanes. There must be other viable and easily accessible choices available to replace or supplement driving. All new development projects and re-development efforts should be focused on creating a multimodal environment. Designing and implementing "transit streets": to balance transit operations, car volumes, and pedestrians/cyclists is vital for people to easily and efficiently access destinations. Bus rapid transit				The first two climate action plans laid the groundwork and supported successful programs like the Green Workplace Challenge and the Pittsburgh 2030 District, which encouraged sustainable practices and energy and water conservation in local businesses.

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Policies, Plans, and Studies	EcoInnovation District Plan	Uptown / West Oakland, Pittsburgh	Works to help the people of Uptown/West Oakland have safer and more alternative transportation options to travel with.	Provide Choice in Mobility –Calm traffic, improve safety, encourage walking and bicycling, and improve the Fifth / Forbes corridor	Health: Elevate individual, community and environmental health in the planning, design and development of Uptown/West Oakland. Choice: Reduce traffic and offer real transportation choices that are cost effective, pleasant and safe for residents and businesses including walking and bicycling. Connectivity: Create stronger connections to the Hill, Oakland, Downtown, the Monongahela River, nearby parks and forested slopes, and beyond.	Increase transportation choice to decrease congestion, create a safe and livable street network, implement bus rapid transit on Fifth & Forbes Avenue, build a smarter Uptown, establish a district parking strategy, and Invest in bicycle infrastructure & culture.		winter weather and unsafe traffic conditions		
Policies, Plans, and Studies	Riverfront Rezoning	Pittsburgh Riverfront	Zoning amendment requires new developments in riverfront zones to submit transportation study (including TDM plan) to pass site plan review.		promote development of the City's riverfronts in a manner that: Creates an environment that supports multiple modes of transportation;					

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Policies, Plans, and Studies	Allegheny Places (Comprehensive Plan)	Allegheny County	Has a wide variety of transportation planning goals to increase transit and multi-modal transportation use and wants to better link major population and business centers with transit.	Transit-oriented development stimulates economic activity and relieves congestion on area roadways. A highly efficient transportation system links Oakland Downtown and Pittsburgh International Airport, our major economic centers.	Encourage Transit-Oriented Development, Make transportation corridors multi-modal, by providing vehicular, transit, pedestrian and bicycling options, Use Demand Management Strategies to Reduce Highway Congestion, Coordinate Transportation Systems, Modes and Facilities to Increase Connectivity and Mobility, Target Transportation Investments to Support Job and Housing Growth, Provide Integrated Transportation Alternatives to Increase Mobility, Connect Pittsburgh International Airport to Downtown, Oakland, and Major Population Centers via a Rapid Transit System, Provide Integrated 'Active' Transportation Alternatives including Bikeways, Sidewalks, and Transit, Coordinate Transportation Systems and Modes to increase Mobility,					

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Policies, Plans, and Studies	Lawrence County Comprehensive Plan	Lawrence County	Has goals and strategies to modernize its transportation network to become more effective and connect better with the surrounding region.	Develop a network that connects communities both physically via transportation corridors abstractly via collaborations and partnerships	Ensure that the regional transportation network meets the needs of business, industry, and residents, Encourage the continued collaboration and partnerships at the regional level as well as the municipal level, and Provide greenways and blueways to encourage healthy living and alternative modes of transportation.	Develop corridor plans for major thoroughfares to address multimodal improvements, access management, traffic signalization, aesthetics, and signage, Identify priority roadways to develop as multi-modal corridors to improve safety and encourage core communities to implement Safe Routes to School programs, Encourage municipalities to update subdivision and land development ordinances to encourage pedestrian and bicycle networks where appropriate, Educate municipalities on the benefits of complete streets and encourage them to incorporate them into future planning initiatives and core communities should develop bike lane plans for PennDOT to incorporate as part of future maintenance projects, Coordinate with transit authorities to research funding opportunities and partnerships to address future funding shortfalls, conduct periodic ridership surveys to ensure that the transit network adequately meets the needs of residents and communities, Foster dialogue between Lawrence County Economic Development Corporation, Industrial Development Authority, and the Transit Authority to ensure that transit can serve planned/future employment hubs, and Establish the Core Communities as walk/bike-friendly communities.				

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Policies, Plans, and Studies	Washington County Comprehensive Plan	Washington County	Has goals and strategies to support alternative transportation and encourage better regional connectivity.	The people of Washington County will lead the region and the Commonwealth in working together to encourage a vibrant and prosperous quality of life for people of all ages. We will serve as an example of responsible and sustainable use of land and natural resources. With this as our foundation, we will create a climate that promotes economic diversity and emphasizes education while celebrating our agricultural character, historical significance and scenic beauty.	Develop alternative transportation systems that are convenient and affordable to provide inter-connections to areas where people live, work, and shop, encourage coordination and cooperation between transportation improvement projects and the County's transportation goals, encourage pedestrian and bicycle pathways with new subdivision and development plans and improvements to existing residential/commercial development	Strengthen partnership between Mid Mon Valley Transit system and California University, creating a transit system that serves the entire Mon River Valley, Create a trails network that takes bicycle travel beyond recreation into becoming a viable commuter transportation alternative, Increase the number of Park and Ride facilities, especially in the northwest area around Southpointe, Encourage transit-oriented development where amenities such as grocery stores, coffee shops, video stores, etc. are clustered around transit stops, Support the county-wide study of transit needs proposed by the Washington County Transportation Authority, State and federal transportation agencies will be encourage to support only those transportation projects that are consistent with county goals. Action: Encourage the development of land use regulations that require vehicular inter-connections in new development, encourage developers and municipal officials to connect individual subdivisions to encourage pedestrian and bicycle circulation and socialization among neighborhoods, and Incorporate traffic calming design techniques in new and existing subdivisions to prevent pass-through/road running traffic in residential neighborhoods				
Policies, Plans, and Studies	Westmoreland County Comprehensive Plan	Westmoreland County	Has significant notes on creating great transportation choices and encouraging multi-modal transportation. Plan proposes creation of seven planning districts.	N/A	Create Transportation Choices.	1. Enhance Transit, Increase Ridership, & Promote Transit Oriented Development. 2. Increase Walkability and Biking Options 3. Enhance Trail Systems 4. Create Mobility Plans 4. Improve Passenger Rail Service 6. Augment Ridesharing Options 7. Focus on Freight				

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Policies, Plans, and Studies	Butler County Comprehensive Plan	Butler County	Due to increased commercial use on roads, traffic has been getting increasingly more bothersome on the communities thus diverting resident growth. Notes a great importance on linking small towns to urban areas as well as linking Butler and Cranberry counties via public transit.	To have a more interconnected region by improving urban area linkages with public transit, walker friendly streets to shopping and recreational sites, as well as evolving standards for suburban areas that will ease congestion key points	To have a more interconnected region by improving urban area linkages with public transit, walker friendly streets to shopping and recreational sites, as well as evolving standards for suburban areas that will ease congestion key points	1. Enhance Transit inter-connectivity 2. Enhance suburban street interconnectivity 3. Increase walkability options 4. Improve land use and transportation planning collaboration	The city of Butler and surrounding small towns have a large proportion of non-drivers, meaning public transit usage is high with certain demographics. They have a solid percentage of people who use it making the improving and enhancing of such systems possibly more productive.	Lack of street inter-connectivity in the county. This causes congestion stress in many suburban points.		
Policies, Plans, and Studies	Armstrong County Comprehensive Plan	Armstrong County	Transportation section identifies need expanded transit service, transit-supportive development, and multi-modal linkages.	Although some county residents desire major changes, most residents envision a place like the current character of the county. County residents would like most economic development within the county to occur along major transportation corridors.	1. To maintain and improve transportation networks 2. To improve public transit 3. To secure federal funding for the extension of Route 28 as a four-lane highway to I-80 4. To the greatest extent possible, link various modes of travel 5. To integrate transportation policies with land use policies to make them mutually supportive, i.e., target transportation improvements to growth areas/corridors	Collaborate with surrounding counties to investigate the feasibility of increased/improved public transit access to Pittsburgh, Allegheny County, and other counties, e.g., park-and-ride lots. Promote concentrated development to make transit more feasible.		Majority of survey respondents did not feel that public transportation in Armstrong County is adequate. Average commute time for county residents is increasing. Limited job opportunities within the county mean that most residents must commute outside the county.	Of the survey respondents who do not use public transportation, 36.0% reported that they would use public transportation if it were available in their area, including 44.0% of south region respondents and 40.4% of east region residents.	
Policies, Plans, and Studies	Beaver County Comprehensive Plan	Beaver County	Significant emphasis on the public transportation's two feature system. (fixed route and demand and Response Transit) making the system available to 100% of Beaver county residents.	A modernized, fully comprehensive transportation system including railways, bridges, waterways, highways, and public transportation routes and facilities.	Relieve congestion on a number of roadways, revamp underutilized ports for economic development, add a direct east-west transportation route linking major destinations in the County.	1. Vastly improving bridges 2. Upgrades along existing roadways 3. Working towards an east-west corridor.	County residents have repeatedly praised Beaver County for its location and proximity to the region's amenities due to the transportation network making such proximities possible. A big component to this includes their inclusive and exhaustive public transportation system.	Increasing congestion on multiple roadways, no direct east-west transportation route linking major destinations in the County.		

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Policies, Plans, and Studies	Fayette County Comprehensive plan	Fayette County	Included a transit study - examining state of transit in the county, documenting transit need, suggested various options for improvement and expansion, and a developed action plan.	Having transit play an important role in improving the local quality of life by bridging the obstacles of rural life and an aging population in the county.	Expanding both shared-ride and fixed route transit systems to a greater portion of the population.	1. Implementation of a more uniform communication system for the two transit services. 2. Enhance existing programs as there is low funding to introduce additional services.	There are seven private operators for the fixed route system and seven local carriers for the shared-ride system - which is considered high for the size of Fayette county.	Lack of coordination between carriers, distribution of schedules, and lack of route mapping.		
Policies, Plans, and Studies	Greene County Comprehensive Plan	Greene County	Outlining existing conditions of current transportation systems noting the status of transit usage and commuting habits.	Turning identified transportation deficiencies and needed improvements towards the county's assets.	Improving multi-modal mobility within developed areas, improving accessibility within existing built-up areas, making the most efficient use of transportation infrastructure, developing a public transportation system	1. Supporting expansion of pedestrian/bicycle trails 2. encourage retail commercial around multi-modal hubs 3. Establish Park and Ride facilities at a variety of locations 4. Work with the Federal Transit Administration and SPC to identify opportunities to establish a public transit service for county residents.				
Policies, Plans, and Studies	Indiana County Comprehensive Plan	Indiana County	County plan highlights the importance of Smart Transportation - consisting of methods other than building additional wide roadways to address congestion obstacles - promoting compact development patterns, alternative transportation, and preservation of open spaces	Strengthen land use/transportation relationships, promote Smart Growth, and place a priority on the improvement of the existing transportation system.	1. Improve bicycle and pedestrian conditions throughout Indiana county 2. Promote public transportation as a viable alternative to the single occupant vehicle 3. Enhance integration and connectivity of the roadway network	1. Encourage municipalities with their own ordinances to include regulations that require street connectivity in developments. 2. Implement practices such as enhancing crossing streets, developing a safe network of bicycling and walking routes that connect neighborhoods with popular destinations, encourage bicycle and pedestrian commuting, develop bicycle and pedestrian route signage, maps, and informational brochures. 3. Continue expanding marketing and advertising campaigns for public transit and offer transportation fringe benefits to county employees commuting to work by mass transit. 4. Increase public transit services and make them easier to use				

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Policies, Plans, and Studies	Lawrence County Multimodal Corridor Study	Lawrence County	Study is meant to analyze major corridors in the county to show existing conditions of active transportation infrastructure and possible ways to interconnect such corridors productively. Statistics on costs for bicycle and pedestrian improvements as well.	Identify ways to improve five main corridors and identify / prioritize bicycle and pedestrian projects and /or corridors. Four visions: 1. establish core communities, healthy communities, complete communities, and connected communities.	1. Provide safer multimodal connections between core communities in the county 2. improve corridors to become active transportation routes and alleviate congestion 3. provide corridors that serve a variety of users that will create complete streets and communities 4. improve county corridors to become multimodal, specifically to better accommodate the Amish and cyclist communities.	1. Consider corridor expansions and improvements to accommodate bicycles/Amish buggies/pedestrians into all future roadway planning efforts. 2. As funding permits, expand the corridors to better accommodate bicycle and Amish buggy users 3. Improve deficient intersections.				Benchmark: Increase in commuting percentage by transit, walking, cycling and carpooling.
Policies, Plans, and Studies	Active Allegheny: A Comprehensive Commuter Bicycle and Pedestrian Plan	Allegheny County	Works to show existing conditions of active transportation infrastructure so coordinated improvements can be made through SPC region to improve infrastructure, increase use and people utilizing it.	To encourage and accommodate walking and biking as modes of commuting to destinations.	To integrate nonvehicular modes of transportation, specifically walking and biking, into the transportation system through creation of a comprehensive active transportation plan.	Enhance bicycling as a mode of travel in the County, To improve pedestrian travel (*includes ADA accessibility), and To improve access for other travel modes (e.g., kayaks and skateboards), Support of Municipal, County, Regional, and State Active Transportation Plans and Plans/Programs with Bicycle and Pedestrian Improvement Recommendations, Assessment of Bicycle parking needs, Installation of bicycle racks on port authority of Allegheny County buses, and Develop and Implement plans for snow removal/winter maintenance for trails and bicycle facilities.				Active Allegheny Grant Program: Created as a result of the plan to implement projects/priorities. Funded by the Richard King Mellon Foundation and implemented by the Allegheny County Health Department (ACHD) and Allegheny County Economic Development (ACED). Grants fund municipalities (up to \$50K) to develop plans and design transportation projects that provide bicycle and pedestrian connections. Funding is also available for education/outreach. Over three years, the grant has funded 24 projects with \$597,000.
Leadership	Pittsburgh 2030 District	Pittsburgh	Supports building owners and managers to reduce transportation emissions.		A minimum 20% reduction in transportation CO2 emissions below the baseline by 2020, with incremental targets reaching a 50% reduction by 2030.					83 million sf committed 434,400 metric tons of CO2 reduced, though transportation impacts/strategies are not identified.

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Leadership	CommuteInfo Partners Forum	10-County Region	Support collaborative partnerships across stakeholders implementing TDM. Quarterly meetings hosted by the SPC.							
Leadership	SPC Traffic Incident Management Steering Committee	10-County Region	Effective traffic incident management improves transportation system management and operations by reducing congestion and delay due to non-recurring incidents.	By bringing TIM disciplines together on a regular basis, improvements in interagency traffic incident management will be achieved due to better collaboration, cooperation, coordination, and communication.	National Unified Goal for Traffic Incident Management:- Responder Safety- Quick Clearance of Roadways-Prompt, Reliable Communications					Created a TIM Program Guide that addresses team formation, alignment with the ROP, and the importance of meaningful programming. Established five Local TIM teams within the region, including the I-79/I-76 team, the I-70/I-79 Local TIM Team, the Pittsburgh International Airport Corridor team, the Pittsburgh TIM team, and the Indiana County team. SPC has also aligned and coordinated work with the City of Pittsburgh, Allegheny County, and the U.S. Department of Homeland Security to discuss ways to share information and training/exercise opportunities. Created regional TIM clearinghouse. Drafted TIM Guidelines. Created TIM Self-Assessment
Leadership	SPC Transportation Operations and Safety Committee/Forum	10-County Region	Provides a central regional forum to coordinate operations and safety planning and continued development, advancement, and implementation of the Regional Operations Plan and the Regional Safety Plan	Institutionalize the concept of “working together” among transportation agencies, public safety officials, and other public and private sector interests within the SPC region						

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Leadership	Pittsburgh Downtown Partnership TMA	Downtown Pittsburgh	Transportation initiatives related to providing Pittsburgh residents with transportation choices other than cars with ones that ease traffic congestion.	Transportation initiatives related to providing Pittsburgh residents with transportation choices other than cars with ones that ease traffic congestion.	Improve Wayfinding, analyze traffic/bus stop volumes, increase walk commuting via partnerships	Partnering with other organizations such as Airport Corridor Transportation Association (ACTA) and Oakland Transportation Management Association (OTMA) to have a more comprehensive pedestrian focused webpage, community engagement to learn more about appropriate infrastructure the local biking community would like to see,		Lack of complete and attractive wayfinding system.		
Leadership	Oakland TMA	Oakland neighborhood, Pittsburgh	OTMA is putting forth different programs and activities meant to encourage alternative modes of transportation to improve air quality and reduce congestion.	An Oakland that is an integrated and legible urban core. Create a safer, more mobile Oakland; promoting public health and safety, strengthening community relations, and increasing commuter's awareness of alternative modes of travel.	<ol style="list-style-type: none"> 1. Increasing the use of public transportation, shared vehicle programs, parking management programs and alternative transportation modes by those currently traveling through Oakland in single occupancy vehicles. 2. Supporting new developments and patterns that encourage the use of public transit and promote increased vehicle occupancy and reduce parking space requirements. 3. Encouraging pedestrian and bicycling transportation. 	<ol style="list-style-type: none"> 1. Provide resources and support to encourage walking as a viable commuting option, improve pedestrian safety, communicate the health and economic benefits of walking, and ensure that walkability is factored into transportation and development plans. 2. Encourage small business owners in Oakland to promote the use of alternative commuting to their employees for commuting to work. 	Comprehensive website and clear collection of information. Interactive Multi Modal Resources Map and various programs dedicated to each mode.			
Leadership	Airport Corridor Transportation Association	Airport Corridor	Association works directly to provide sustainable transportation solutions and reduction of single occupancy vehicles.	Improving mobility in the airport corridor and advocating for sustainable transportation solutions that will improve the quality of life in the airport communities.	<ol style="list-style-type: none"> 1. Provide innovative programs and studies that enhance our mission to broaden the spectrum of travel options and support responsible economic growth in the Airport Corridor. 	<ol style="list-style-type: none"> 1. Retrofit an existing overcrowded bus stop into a multimodal super stop. 2. Enhancing and expanding outreach work. 				<ol style="list-style-type: none"> 1. RideACTA in 2017-2018 has seen an overall increase in annual ridership of 73% resulting in 2,825,774 vehicle miles saved. 2. 44% increase in the traffic advisories database and 32% increase in twitter followers-keeping the community connected with their initiatives.

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Leadership	Alliance for Transportation Working in Communities	Southwest Pennsylvania	Focus of the initiative is to work to provide accessible alternative transportation modes to underprivileged populations.	An integrated regional network of transportation services and facilities that provide measurable improvements for greater freedom of mobility for all.	1. Encourage the creation of local funding programs to leverage state and federal funding 2. Promote the transition of transportation from a need to a basic human right to increase importance in human service organizations. 3. Foster a change in philosophy in public funding 4. Develop models for alternative transportation funding that partner with private industry to benefit of all	1. A local funding program to assist small organizations in the purchase, retrofit, or replacement of accessible vehicles could promote human service transportation. 2. Encouraging non-transportation human service organizations to provide access to transportation through partnerships and funding agreements with existing transportation providers. 3. Advocate for new funding regulations that increase the ability of individuals to access life-critical resources and economic opportunities. 4. Developing funding partnerships with private industry, including hospitals, medical providers, employers, or other large trip generators may help solve the funding gap that is present in human services transportation		1. Limitations in public funding 2. Insufficient levels of service, limited geographic coverage, minimum urban/rural connectivity, complicated cross-country travel, inaccessible facilities, lengthy trips 3. Transportation services are costly to provide and their dependence on public subsidies for ongoing operations impacts the quantity, quality, and affordability of the services. 4 Human service program policies and regulations limit flexibility in the utilization of funds and preclude agencies from having the capacity to fully serve and meet the needs of their clients. 5. Lack of information regarding available transportation options and their use can hinder a person's ability to get to the places and services that are necessary to daily life.	Pilot programs have been proposed throughout the country for the creation of voucher-based transportation programs, where users are given a general subsidy to use on any transportation service.	
Leadership	Westmoreland Smart Growth Partnership	Westmoreland County	A core Smart Growth Principle is to improve air quality by reducing automobile emissions							

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Leadership	Traffic21	Greater Pittsburgh	Multi-disciplinary research institute of Carnegie Mellon University that works to design, test, deploy and evaluate information and communications technology-based solutions to address the problems facing the transportation system of the Pittsburgh region and the nation	Stimulate a broad community partnership to identify, refine, and deploy “intelligent transportation system” technology advancements to the Pittsburgh region’s transportation system	Leverage projects that will brand the region as an internationally-recognized place for “smart transportation” thus attracting further investment in both research and commercialization. Place Pittsburgh at the forefront of the intelligent transportation field nationally. Enhance the region’s ability to attract new employers and improve its economy. Provides citizens with the independence, safety, improved health and transportation efficiencies required to accommodate the changing needs of businesses, families and cultural amenities.	Help the region gain access to state and federal funds to deploy systems that incorporate smart, cost-saving features. Smart Mobility Challenge provides research assistance to southwestern PA municipalities and public transit operators with their real-world mobility problems				
Leadership	Mobility 21	Greater Pittsburgh	New National University Transportation Center (UTC) established for mobility research with \$14 million award from USDOT.	Mobility21 will focus on safely and efficiently improving the mobility of people and goods in the 21st century by investigating and deploying novel technologies, incentives, policies, and training programs.		smart city technologies; connected and autonomous vehicles; improved transportation access to disadvantaged neighborhoods; multi-modal traveling; assistive technologies for people with disabilities; data modeling for monitoring traffic control systems; and regional planning to establish priorities and aid transportation deployment.	Mobility21 is the second national UTC located at Carnegie Mellon in Pittsburgh. The university is also home to the Technologies for Safe and Efficient Transportation National UTC on Safety, which was established in 2013 to develop and deploy technologies for safe and efficient transportation pertaining to in-vehicle technologies, infrastructure technologies, human-vehicle interactions, mobility/data analytics, and policy.			

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Traveler Information and payment systems	CommutelInfo Ridesharing Platform	10-County Region	customer-focused full service commuting options resource center, running the region's vanpool and carpool programs, and facilitating the forum for coordinating the regional ridesharing efforts	CommutelInfo Program is the regional one stop shop for ridesharing services.	Our goal is for commuters who live, work, or attend school in the ten-county region to choose ridesharing, instead of driving alone, at least twice a week (transit, carpools, vanpools, biking, walking)	Regional ridematching service Technical assistance Templates and sample documents Employee presentations Employee competitions/"challenges" Pre-written articles, information Connection to national resources Report of employee involvement Emergency ride home reimbursement Emergency roadside assistance kit (one per registered group)				As of 2018, there were 312 carpools and 51 vanpools traveling throughout the region every day. Annual commuter questionnaire found that most (50+%) or participants rideshare to work because it costs less than driving alone. 30% said that increased transit options would improve their commute and about 15% said finding rideshare partners would improve their commute.
Traveler Information and payment systems	ConnectCard	Allegheny, Mid Mon Valley, Butler, Washington, Fayette, Westmoreland	Reloadable card makes it faster and easier to pay for transit trips.					Gives users option to purchase passes on any of 6 participating transit systems, or to add stored fare value that can be used with any transit system.		
Traveler Information and payment systems	ParkPGH mobile app	Select Pittsburgh garages located in the Cultural District, the Central Business District, and North Shore	Delivers real-time garage parking space availability for select garages. Parking inventory is updated every 30 seconds.							
Traveler Information and payment systems	511PA	Statewide	Uses real-time traffic data from various sources throughout the state to provide current information to commuters, travelers and commercial carriers, allowing them to make informed decisions to avoid delays.	Provides reliable traffic, weather and transit information to travelers to reduce congestion, and improve safety and mobility.						
Traveler Information and payment systems	Pittsburgh Downtown Partnership reserved parking program	Downtown Pittsburgh	Allows visitors to reserve a parking space Monday through Friday between 10:00 a.m. and 2:00 p.m. Reservations are required at least 24 hours in advance to guarantee a place to park at the regular rate.							
Traveler Information and payment systems	Go Mobile PGH app	Pittsburgh	Users find and pay for off-street and on-street parking in the City of Pittsburgh.							

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Traveler Information and payment systems	TrueTime app	Port Authority service area	App provides users service alerts and vehicle arrival notifications.							
Traveler Information and payment systems	TRAXSTER : REAL TIME BUS INFORMATION	Mid Mon Valley	GoMMVTA site, MMVTA's separate tracking site for Riders to access Real Time bus information through live maps and arrival predictions.							
Mobility Services	On-demand RideACTA shuttle	Airport Corridor	Provides first/last mile solution: a shared-ride, flex-route shuttle service that transports people between the IKEA Super Stop and nearly 200 local businesses. The standard fare is \$0.25 (cash) per trip.				Mobile app launched in February 2019 (before this, dial-in dispatch center was used).			Serves on average 300 rides per day and 85,000 rides per year.
Mobility Services	Vanpools	10-County Region	SPC provides subsidy of \$400 per month to all vanpools other than those based at federal agencies.							
Mobility Services	Healthy Ride Bikeshare	Pittsburgh	expand access to public transit through easy-to-use, affordable active transportation opportunities.	The mission of Pittsburgh Bike Share is to expand access to public transit through easy-to-use, affordable active transportation opportunities.	to create a ubiquitous active transportation network that positions human powered transportation as an integral part of the larger public transit system in the city of Pittsburgh.	1. Direct community engagement and outreach 2. Host bike safety events and business engagement events 3. Ability for anyone to online suggest an area to introduce the bikeshare program 4. Partnering with Port Authority of Allegheny -		Ridership is low in winter months	Bike Share Pittsburgh partnerships with the local transit agency, the Port Authority of Allegheny County. All Port Authority Connect Card pass holders received an unlimited number of short, 15-minute trips, for free, simply by linking their accounts to Healthy Ride and tapping the Connect Card on a bicycle.	Although ridership is greatest during the warmer temperatures in spring and summer, Healthy Ride bikes and stations are modified, but fully operational, in colder months to provide a reliable bicycle option all year long
Promotion and Education	Walk Pittsburgh	Pittsburgh	Provides resources and support to encourage walking as a viable commuting option, improve pedestrian safety, communicate the health and economic benefits of walking, and ensure that walkability is factored into transportation and development plans.	To make Pittsburgh one of America's most walkable cities.			Mobile app provides pedometer that tracks individual walking metrics, displays total statistics by neighborhood, and the overall results from all walkers in the program.			# of Walkers: 1,515 Total Steps: 188,380,206 Distance Walked (mi): 95,323 CO2 Saved (kg): 31,323.14 Gas Saved (gal): 4,766
Promotion and Education	CommuteInfo Employer and Commuter Outreach	10-County Region	Assists employers with the implementation of rideshare policies and services.				Technical assistance Review employee concentrations and travel patterns Employee survey Speaker Transportation 101 training session to HR staff Promotional resources (ready-made articles, sample emails, employee challenges, flyers)			

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures
Promotion and Education	Sustainable Pittsburgh	Pittsburgh	Transportation is one of the focus areas	Shine a light on the pacesetters and bring more local government leaders to the forefront of sustainable community development.	Help municipalities achieve their sustainability goals to save money, conserve resources, and encourage innovation	Sustainable Pittsburgh Challenge for employers, universities, and institutions, included an employee transportation survey to establish an organization's transportation baseline and track progress towards goals. Sustainable Small Business Designation (for small businesses) SWPA Sustainable Business Compact (for mid to large businesses)				
Promotion and Education	Sustainable Pennsylvania Community Certification	Statewide	Mobility is one of 26 certification topics	Cost savings, healthier and engaged employees, and positive recognition are just a few of the benefits participants can derive.	Cost savings, healthier and engaged employees, and positive recognition are just a few of the benefits participants can derive.	Trails for walking and bicycling are being developed or maintained. Alternate transportation (e.g. transit, inter-modal, multi-modal, bicycle/pedestrian) are accommodated and promoted. Public transportation and ride sharing are promoted and facilitated, as is transit-oriented development (where applicable).				
Promotion and Education	Bike PGH	Pittsburgh	Advocates for complete streets and transit policy, community events, and education (community-based and workplace-based) on biking.	A diverse transportation network that safely connects all people to their destinations. Well-designed bikeways, walkways, and communities will make riding a bike or walking comfortable, convenient, and fun. Our embrace of an active and healthy lifestyle is reflected in Pittsburgh's commitment to providing safe, world-class facilities for biking and walking.	Health and Livability, Equity, Diversity, and Inclusion, Creativity and Best Practices, Strength, Fun	Advocacy, Education, Community				
Employer-led	Airport Corridor employers pay for employees' RideACTA fare.	Airport Corridor	Employees of Homewood Suites, IBEX Global, and Walgreens							
Employer-led	CommuterInfo program partners	10-county Region	Commuters and employers regionwide. Bayer Corp., BNY Mellon, California University of Pennsylvania, Carnegie Mellon University, Cigna, County of Allegheny, Department of Veterans Affairs, Eaton Corporation, evolveEA, FedEx, Highmark, Inc., Indiana University of Pennsylvania, Michael Baker, Jr. Inc, MEDCO, MSA, Penn State New Kingston, Pittsburgh Pirates, Point Park University, Slippery Rock	Employer engagement varies: hosting events, promoting	CommuterInfo platform and vanpools to employees.					

TDM Category	Initiative Title	Geographic Scope	How does this address TDM?	Vision	Goals	Strategies	Strengths	Challenges/Weaknesses	Opportunities	Outcomes / Performance measures	
			University, University of Pittsburgh Greenburg, UMPC, UPS, UPMC Children's Hospital, and Westinghouse. Walmart, Pittsburgh Port Authority								
ITS and ICM	Regional Traffic Signal Program	Local governments within 10-County Region	Through the program, the SPC assists local governments with improving traffic signal operations by optimizing traffic signal timings and upgrading existing signal equipment.							The overall goals of the program are to reduce congestion, reduce delay to motorists, reduce the negative impact that idling traffic has on air quality, and improve pedestrian safety.	The overall benefits of the program can be summarized in the benefit: cost ratio 64:1 for the program's first two cycles; for every dollar of public money invested in the program, the traveling public and the surrounding communities realize \$64 of benefits in reduced fuel usage, delay, and emissions.
ITS and ICM	Regional ITS Architecture	10-County Region	The regional ITS architecture is an integral part of the planning process, providing a structured way to translate TDM and operational objectives and strategies into an interconnected set of ITS projects.	ITS Architecture represents a shared vision of how each agency's systems will work together in the future, sharing information and resources to provide a safer, more efficient, and more effective transportation system for travelers in the region.	Using the architecture, each transportation project can be viewed as an element of the overall transportation system, providing visibility into the relationship between individual transportation projects and ways to cost-effectively build an integrated transportation system over time.	Operational concept includes:- Archived data systems-Electronic toll collection-Emergency management-Freeway management-Incident management-Maintenance and construction-Parking management-Surface street management-Transit services-Traveler information			As connected and autonomous vehicles come online, the Regional ITS Architecture will need to be revisited routinely to identify the necessary ITS strategies to ensure interoperability, to ensure that stakeholder needs are being met, and to maintain system sustainability.	Serves as the backbone for real-time performance monitoring regarding operations (mobility) and safety within the region. The Regional ITS Architecture will be instrumental in assisting stakeholder agencies meet the National Performance Goals	
ITS and ICM	PennDOT Green Light n Go Program	SPC and municipalities.	A competitive state grant program (reimbursement-based and requiring at least a 20% local match) designed to improve the efficiency and operation of existing traffic signals.		Improve safety and mobility by reducing congestion and improving efficiency of existing traffic signals on state highways.						
ITS and ICM	HOV Lanes	Downtown Pittsburgh	Encourages ridesharing and reduces congestion for traffic north of Downtown Pittsburgh.								
ITS and ICM	Traffic Management Centers	4 TMCs cover different areas of the 10-County region	Traffic and infrastructure management, incident detection and response								

Appendix B: Employer and Program Interview Notes

University Pittsburgh Medical Center

Interview Details

The phone interview took place Monday March 11th from 11:30am-12:00pm.

Interviewee: Allison Robinson, Director UPMC Environmental Initiatives

Interviewer: Katie O'Sullivan, ICF

Discussion Questions

In general, how do your employees get to work and where are they coming from?

- In the urban core (Pittsburgh), there is a mixture: younger people in their 20s will take public transportation and few (1-3%) will bike. These numbers reflect employees only, not students. Beyond that age group, commuters tend to take public transit and very few will take ridesharing. Among people who take transit into Pittsburgh, **most prefer the rail and inclines over the bus**. There are clusters of unregistered carpools. **The majority (80-85%) of employees working in the urban core drive alone**. In the urban core there are five hospitals but also data centers, billing centers, and other clusters that have high volumes of employees.
- Employees have the tendency to drive because of shifts that cover 24/7 365. Data centers are open 10 hours and offer 5-hour shifts. Data centers and call centers are near public transportation because of part-time schedules and higher turnover.
- **Suburban and rural facilities are about 100% driving** because there is not much public transportation. Biking is not an option because distances are too far and routes are on highways.
- In suburban and urban hospitals, we did install EV charging stations to promote alternative fuel vehicles, though that is still driving.
- UPMC set up a board for registered carpools that is small in scale: a few nurses at urban core hospitals where they have shift changes during the day. This internal carpool registration system is not used as significantly as CommuteInfo, where a few people are registered through CommuteInfo.
- UPMC started promoting CommuteInfo internally as an option because of push-back from the City about expanding parking.
- UPMC has a total of 86,000 employees (97.5% across the state of PA, some facilities outside of PA. About 10,000-15,000 work in suburban/rural facilities and 25,000-30,000 work in Pittsburgh. The majority of employees are within urban areas, so **parking is a critical factor**.

Can you tell me about what kinds of transportation programs, services, or benefits are available to your employees?

- Pre-tax deductions are available for public transportation, either monthly passes or fixed amounts on ConnectCard.



- This year, UPMC is beginning to label parking spaces for HOVs at a few facilities, especially Children's Hospital. UPMC is also labelling bike racks. If there is a registered carpool or vanpool, there is a big internal discussion between HR and parking about whether they qualify for reserved parking for patients. It is difficult to balance parking supply between needs of visitors/patients and employees.
- UPMC has a shuttle system to transport employees to peripheral and off-site parking. The shuttles run 5 days a week 4:00am – 1:30am, and stats help them verify the right shuttle routes. **Many employers have their own shuttles that compete with Port Authority service.** Port Authority 's public routes sometimes don't align with the schedule and location needs of employees.

Does company leadership hear about transportation issues that employees are experiencing?

- Employees can get reimbursed for travel during the day to meetings by any mode (transit, ride-hailing, or driving themselves).
- IT group have been ramping up the internal communications system to reduce the need for travel. UPMC promotes teleconferencing, web conferencing and video conferencing as an alternative to travelling for face-to-face meetings.
- UPMC's Environmental Initiatives has many different initiatives posted on its website, including education of alternative transportation, bike/pedestrian access, and an assessment of alternative transportation types.

Have you noticed any changes in how employees get to work in recent years?

- Parking expansion restrictions and option reductions by the City of Pittsburgh present a challenge for place-based service providers.
- There hasn't been much change in suburban/rural facilities: most employees continue to drive alone. Unlike the intensity of the urban core, the pace of business is less intense and employees have more flexible schedules.

If so, did these changes result from company-led transportation initiatives or did it result from individual employees changing their commutes on their own?

- UPMC promotes CommuteInfo on its digital message boards.

Do you observe any "tipping points" that cause employees to change their commutes?

- The economy influences how people get to work. Resources are available to staff that link to various types of alternative transportation options and transit calculators to assist with decision making. Cost of monthly leases for parking is a deterrent. Unregistered carpools happen by serendipity: people self-organize if they start talking and figure out that they live near each other. Some people get dropped off.

Does employee transportation affect the company's bottom line through recruitment, retention, absenteeism, or any other factors?

- Yes, this happens most for the for high-staff volume areas that work shifts like call centers and data centers, which are located in the urban core on public transit routes. These workers tend to have lower salaries and are part-time.

- Reimbursing transportation costs for travel to meetings and trainings can be significant. UPMC is focusing on IT/communications systems to enable remote conferencing and work.

Are you familiar with the regional CommuteInfo program or any other regional or local efforts to support employees in forming carpools or vanpools? Do you have perspectives on regional efforts to promote mobility options (e.g., are they valuable, would they be helpful to your employees)?

- The Universities are big on promoting carpool, ridesharing. UPMC is helping with BRT on 5th avenue. We're aware of options to change flow of direction of traffic to expedite BRT.
- The concentration of alternative transportation is high between Oakland and Downtown Pittsburgh. We're also aware of overlay of AV test range, bike rental stations, scooter rental stations. The density of competing alternative transportation option is a small urban space and was brought up with CommuteInfo. With all these mobility options, it's difficult to track what modes employees are using, particularly when they travel for meetings.
- Allison and CommuteInfo have been talking about a wide diversity of alternative transportation options, and what does it look like? Uber, Lyft, Scooter, and bike share are not obligated to share their data, which is a big unknown. Through CommuteInfo we can only know about people who carpool and vanpool, while everyone else is doing it by their app, even for riding AV Uber.
- If **CommuteInfo were able to integrate more of those emerging mobility services**, then we would have **greater understanding of people's preferences** for a wide range of alternative transportation options. Use of alternative transportation is moving up the leadership chain. Competing 2-wheeled transportation modes, and UPMC is trying to understand who is the type of person taking what type of transportation, at least between Oakland and Downtown.

Are there any services or other activities that you would like to see within the region or locally to help support getting your employees to work more effectively (particularly to support options such as transit, ridesharing, biking, or teleworking)?

- As UPMC grows, **reassessment of what needs to be place-based** services, administration and operation is occurring. For onsite services and operation, existing facilities have limited space; space usage is optimized through renovations and redesign and cultural change. HR is conducting cultural training around shared space. For business units doing telecommuting and working from home, IT has to develop a lot of communications infrastructure to support that.
- In Southwestern PA, transportation options, support, and resources are strong. However, our **logistics fleet** is the other side of the transportation coin that is less considered. With expansion across the state, our distribution warehouses, which operate most days of a calendar week, must cover statewide. We need to think about the people who have to get to warehouses, which may be relocated more centrally relative to the state, **It's going to be a future problem**: people are travelling long distances to work a shift at the warehouse.

Westinghouse Electric Company

Interview Details

The phone interview took place Wednesday March 13th from 10:00am-10:30am.

Interviewee: Anonymous vanpool participant

Interviewer: Katie O'Sullivan, ICF

Discussion Questions

In general, how do employees get to work and where are they coming from?

Westinghouse has had cutbacks lately and retirements, so the number of employees at the Cranberry location has dropped from around 3,000 to 1,500 employees. Most drive alone, but there are 8-9 vanpools that come to Cranberry from 30-40 miles east. In previous years when the workforce at Cranberry was larger, there were 12-13 vans, but since then some have disbanded or consolidated.

What kinds of transportation programs, services, or benefits are available to your employees?

12 years ago, when Westinghouse first moved to Cranberry from Monroeville, the company provided coach bus service for about two years, but then stopped providing transportation service/assistance. Vanpools were organized soon after this occurred.

The vanpools are entirely **self-organized** among employees with Enterprise and CommuteInfo; the **company is not involved** at all. Riders pay about \$100-\$110 per month on average. The vans sometimes pick up daily or occasional riders for a fare of \$7 per day.

Telework and flexible scheduling: Westinghouse has started to offer flexible scheduling and telework to employees to improve recruitment among the younger workforce. As a result, employees can work from home two to three days per week.

Vanpool riders that will pick up several telework days per week will continue to pay the full monthly fare, which speaks to the value that the vans provide. The vans are very amicable and there is low turnover.

Does company leadership hear about transportation issues that employees are experiencing?

Company is most concerned about safety and environment but has not made the connection to promoting transportation options. Several years ago, there were 1-2 incidents of people slipping on ice while stepping out of the van in the parking lot. The Environmental Health & Safety Directors wanted to meet with the vanpool coordinators about safety risk without recognizing the environmental and safety benefits of the vanpools taking 120+ cars off the road every day.

Does employee transportation affect the company's bottom line through recruitment, retention, absenteeism, or any other factors?

Westinghouse has started to offer flexible scheduling and telework to remain a competitive business environment, particularly with the younger workforce.



Grocery Store Chain

Interview Details

The phone interview took place Friday March 14th from 11:00am-11:30am.

Interviewee: Recruiter II

Interviewer: Katie O'Sullivan, ICF

Discussion Questions

In general, how do your employees get to work and where are they coming from?

- The company has over 200 grocery stores, pharmacies, 250 fuel stations, and five support centers across five states. There are four warehouses in Southwestern PA: one in Washington County, one in Butler County, and two in Allegheny County. There are about 32,000 employees across the system, and Michael estimates about 40% or 12,800 work at locations within Southwestern Pennsylvania.

Can you tell me about what kinds of transportation programs, services, or benefits are available to your employees?

- Within Allegheny County, many people take available public transit or bike. People have personal vehicle.
- For stores outside of Pittsburgh without public transit, the company is trying to solve the problem of how to get the population out to fill open positions. The company has been examining transportation and access issues over the last 3-6 months from a company-wide perspective. The company is looking at CommuteInfo to promote commute options and offer employees some means of transportation. Ongoing discussion include:
 - How many people would be interested?
 - How can we get them to outlying stores/locations?
 - How can the company work with job seeker and organizations supporting job seekers to fill positions and shifts that work for employees as well as for the organization.
- The company offers complementary bus pass at select locations for the first month of employment to allow employees to generate income to purchase bus pass for the following month.
- A major challenge for retail organizations is **inconsistent scheduling for employees** – they are dictated by the demands of business and fluctuate in terms of number of hours and shift times. Some stores are 24 hours.

Does company leadership hear about transportation issues that employees are experiencing?

- In Pittsburgh, where there's plenty of population, workers don't have means to get out to northern locations like Cranberry, North Hills, Shanor, etc. The wages of \$10 /hour aren't an attraction, but if we can offer a rideshare program where we can pick you up in your neighborhood and get you to work, and you don't have to take the bus, then the positions would be more attractive.

- Retention sometimes is linked to transportation, but much of it is oriented toward **wages**. Retail is a very **liquid labor market**: about 70% of positions are entry-level and workers can easily quit to work somewhere else. So, the other challenge beyond transportation is that people can leave a job soon after they start for a slight raise: \$0.50/hour increase is very significant to workers making \$9-\$10/hour. The competition is fierce among Walmart, Target, and fast food like McDonalds and Burger King: they all pull the same people. Even the company's fuel stations are pulling from other fuel stations.
- Retention is also about the **organizational culture**. When employees stay with the same company for years, the reason why is usually the leadership in the store. With a change in management change, the work environment can change significantly.

Have you noticed any changes in how employees get to work in recent years?

- Michael works in stores 60% of his week and often hears employees say that they will take an Uber home. Over the past five years, he seen growth in ridesharing. This is positive in that people can predetermine their transportation, but it gets expensive. We are probably years away from a more affordable solution.
- Michael has been in retail for 25 years. "**Jitneys**" were common in Pittsburgh 20 years ago – there were people in vehicles waiting outside grocery stores that you could pay to get a ride home. Technology has changed this industry.

Does employee transportation affect the company's bottom line through recruitment, retention, absenteeism, or any other factors?

- The effects are most significant in outlying locations, where recruitment is difficult. In these cases, the company must use overtime for existing employees to cover the schedule if they can't fill positions. Using overtime gets expensive and affects the bottom line by having to pay employees "time and a half". This also affects morale, as people get fatigued working overtime.
- The unemployment rate is at an all-time low and the company has over 900 positions that are available. Meanwhile, plenty of people are looking for work, but they don't live in areas that are accessible to the locations that need to fill positions. There is a **jobs-housing mismatch**. People that live in the counties North of Pittsburgh are financially stable and don't want to work at the company. These communities are wealthy and don't "need" public transportation or retail jobs. So, you can't draw from the local workforce (in the community) and the lack of transit service makes it hard to bring in workers from other parts of the region.

Are you familiar with the regional CommuteInfo program or any other regional or local efforts to support employees in forming carpools or vanpools? Do you have perspectives on regional efforts to promote mobility options (e.g., are they valuable, would they be helpful to your employees)?

- Michael was introduced to the CommuteInfo program through Pittsburgh Community Services Incorporated and thought the program was a great idea. There's obviously a lot of work to be done.
- It's easier for carpooling and vanpooling to work for commuters with 9-5 jobs, it's more consistent and worth it. He knows that some companies assume the transportation costs for their employees, and the company looked in to paying for a vanpool, but the \$1,500

cost per month was prohibitive. Michael likes the CommuteInfo model where riders are pitching in and splitting costs of vanpools and the employer could maybe subsidize to offset the cost. This a potential future avenue but would require extensive vetting within the company.

Are there any services or other activities that you would like to see within the region or locally to help support getting your employees to work more effectively (particularly to support options such as transit, ridesharing, biking, or teleworking)?

- The company is trying to figure out how to make it more attractive for a person to take a job farther from home. Available positions are not where the population centers are.
- Organizations like CommuteInfo are going in the right direction. Michael would like to see more resources like CommuteInfo that support people in finding transportation options to locations that are more remote.
- The company has positions all over the region, and some are far out. How can we tap into smaller population centers outside of Pittsburgh like Greensburg and get people out to Irwin and Johnstown where there is no transportation? **Smaller population centers** are a potential resource for filling open positions in outlying locations.

CommuteInfo Program

Interview Details

The phone interview took place Friday March 22nd from 1:00pm-1:30pm.

Interviewee: Anthony Hickton, Ridesharing Program Manager, SPC

Interviewer: Katie O'Sullivan, ICF

Discussion Notes

Strengths:

Outreach strategies: When Anthony joined as the SPC Ridesharing Program Manager in July 2018, the CommuteInfo program was largely oriented toward employer HR departments to get employees involved and to be able to tout the employer's accomplishments. The program's Outreach Specialist has focused on more of a grassroots approach while still balancing outreach to HR. In the last four-to-six months, the grassroots approach has generated more commuter engagement through avenues like Pennsylvania CareerLink, a state-sponsored workforce development program delivered at the County level for individuals who have been displaced from their jobs. CareerLink works with job seekers to create resumes and locate available employment opportunities, while also working with companies that are looking to fill open positions.

Vanpool program: SPC subsidizes vanpools at the rate of \$400/month except for federally-sponsored vanpools, which receive a subsidy of up to \$260 per participating employee. There are currently 17 vanpools going to Boyers (near Slippery Rock PA) where there is a concentration of government employers.

Marketing Capacity: Marketing campaign for CommuteInfo launched in early November 2018 and ran through January 1, 2019. This marketing is directed to individuals (the general public) rather than employers with the goal of getting people to the CommuteInfo site and filling out a commute options report. The second leg of the marketing campaign is currently underway after a break of several weeks that allowed time for tweaking the strategy based on initial results. Media for the marketing campaign included radio, television, outdoor, and online advertising, largely through Facebook. An important component of the campaign was the new CommuteInfo website <https://commuteinfo.org/>, which has a much cleaner design than the old site integrated into the SPC's website. Since the launch in November, there has been some increase in site traffic and commute report registrations, though not significantly. It is still too early to tell the results of the campaign.

Opportunities:

Pennsylvania CareerLink has been very receptive to the program. Unemployment in the region has been low, so there is opportunity to position the program as a tool for employers to attract and retain the workforce they need.

CommuteInfo has traditionally focused on individuals and employers holding "white collar" or administrative jobs instead of "blue collar" jobs involving manual labor, which tend to have more variable schedules. The program is currently exploring whether there is potential to develop an application that meets the needs of manual laborers and other commuters that work outside of office settings, such as in manufacturing or distribution centers.

A manufacturer approached CommuteInfo because employee access and transportation has posed a challenge to recruitment. They are involved with an inmate release program from county jails and are looking at creative solutions to fill transportation gaps. They're looking at using line supervisors as vanpool drivers to collect employees for each shift. The manufacturer is considering subsidizing vanpools by an additional amount over the \$400 provided by SPC to reduce the overall cost for employees. If this partnership with CommuteInfo comes to fruition, it would create a model to take to other production facilities to demonstrate success and the value of commitment. Always wanting to talk to employers about what they're spending to recruit and retain and throw it at a vanpool vehicle.

Challenges:

The CommuteInfo staff of three (one program manager, one outreach specialist, and one administrative assistant) limits the capacity of the program to conduct onsite outreach across the 10-county region.

With respect to green initiatives and sustainability, employers tend to make statements that are greater than their actual commitments and willingness to act.

The CommuteInfo ride-matching database software is relatively weak and outdated. It would be ideal to have a dynamic software program that allows users to view and match with potential rides on a daily or weekly basis, see the number of seats available, and online payment if applicable. The software used now is limited, though there may be additional modules offered that we're not aware of that may provide value to users.

Though the program has been around since the 1970s, few people seem to be aware of it. Previous marketing and outreach strategies haven't raised public awareness as much as desired.

Heritage Community Initiatives Transportation

Interview Details

The phone interview took place Monday April 15th from 10:00am-11:00am.

Interviewee: Lynda Conway, Senior Associate, Delta Development Group, Inc.

Interviewer: Katie O'Sullivan, ICF

Discussion

Overview of Heritage Community Initiatives Transportation Services

Delta Development Group, Inc. (Delta) is contracted as a transportation adviser for Heritage Community Initiatives (Heritage) and other transportation providers throughout the United States; however, their primary clients are located in Pennsylvania, Ohio, and West Virginia. Delta does a lot of work with grants, government relations, and public transportation, including federal and state compliance. The bulk of Delta's transportation work is with small transit agencies because the agencies often lack the staffing levels for technical projects.

Heritage is the only human services nonprofit in PA that is providing fixed route public transportation service. Many nonprofits across the state operate demand response and human service transportation, but not fixed route. All Heritage transportation service is paid through state funding and local match, and service is provided by a contractor. The current contractor is p.r.n. All vehicles are wheelchair-accessible 15-passenger vans and are wrapped with the Heritage logo.

Heritage Community Initiatives transportation service started as WorkLink. Heritage's transportation services were initially funded by federal JARC funds followed by the Bureau of Public Transportation's Welfare-to-Work grants and beginning in fiscal year 2015, the services are funded by PA Act 44 Section 1513 funds. The initial service was designed for work trips, but that changed in fiscal year 2015 with Section 1513 funds. Now, it provides fixed route service to complement and connect with Port Authority, for example to the Prospect Terrace housing complex in East Pittsburgh, which the Port Authority can't serve because of the terrain. Routes also connect to destinations like Walmart and fifteen communities along its path including downtown Braddock. The service is primarily designed to connect to Port Authority routes.

Ridership on Heritage is about 7,000 per month and 85,000 per year. Nearly 50% connect with Port Authority. All routes are healthy in terms of ridership and all connect to the Walmart in North Versailles, which serves as the hub for the system. Service frequency is once every one to two hours on weekdays and Saturdays. The service area is primarily underserved populations with low incomes: most passengers earn less than \$10,000 per year.

What are the roles of employers?

On a limited basis, employers are supporting Heritage Community transportation service. UPMC and Forbes Hospital purchase courtesy cards that pay for consumers to ride the service. The level of riders using the service is relatively low.

Could the Heritage's model of fixed route transit service be replicated in other rural parts of the region?

The model could be replicated. Airport Corridor Transportation Association's (ACTA) service model is different in that the organization provides first/last mile service to businesses for employees to use Port Authority and ACTA's transit services to get to and from work. Heritage's service is also a first/last mile solution for people to travel to and from their homes for multiple reasons including work.

With Port Authority bus rapid transit, Heritage could be a solution to getting people from the busway to remote low-density areas. The ideal situation would be for Heritage's service to result in maximum ridership capacity for all trips and call Port Authority to take over the service. This hasn't happened yet, but there could be future opportunities.

Heritage has more flexibility than Port Authority because of smaller vehicles and three routes – there is room to experiment. Port Authority has union contracts, scale, size, and interdependencies between routes and schedules. Most of the changes to Heritage service have been to serve underserved populations such as low-income apartment complexes and to penetrate neighborhoods. Connecting to Walmart was a big change a couple of years ago and very successful.

Different Service Models

Fixed route is the best service model for what Heritage is doing now. A different model would be better for other consumers in the area (i.e. medical providers) such as deviated fixed route or demand response. For example, people getting discharged from the hospital may need special assistance with carrying an oxygen bag and may need help to the door. They can't take ACCESS because it requires 24-hour advanced reservation, and they can't take a taxi cab because they need the additional assistance to the door of their home or may be in a wheelchair. There are a lot of nuances.

For the suburban portion of the Route 51 corridor, there is not enough demand for the Port Authority, and demand-response shuttles like RideACTA would not be a good model because there is not a sufficient concentration of businesses. Some rural transit agencies operate deviated routes to meet paratransit requirements; however, the deviated route can be a better option than demand response if there is a central activity node like a Walmart.

Challenges

Transit service has been requested by organizations who don't appreciate the cost and make bad/inaccessible location decisions without transportation in mind. All the services need to be designed based on what the local transportation issues are.

Funding (through the PennDOT Multimodal Transportation Fund) is not stable or secure and there is a requirement for local match, which Allegheny County provides. Funding was originally combined with RideACTA through Allegheny County, but now the funding channel is separated. Pennsylvania Turnpike financial issues present an unknown in terms of providing funding for

public transportation. Funding sustainability is a major issue: it's expensive to run fixed route service and more expensive to provide demand response service. If a consumer is not eligible for a funding program, shared-ride services can be unaffordable.

Medical Assistance Transportation Program (MATP), a shared ride service for medical trips for Medicaid consumers, is funded by the PA Department of Human Services, a different State entity from PennDOT. Transit agencies across Pennsylvania that operate fixed route service also provide ADA complementary service. Many provide MATP trips because of economies of scale, providing more efficient door to door service for both populations. The State is in the process of transitioning to a statewide broker model for MATP, which may cause some transit agencies to lose MATP service, reducing economies of scale for paratransit in their communities. This has the potential of significantly increasing costs per ride.

Opportunities for Coordination

If transit providers pooled resources together it may result in more efficient and effective transportation services. There have been many projects to identify transportation services; however, they often focus on primary providers such as Port Authority and often do not include private entities (i.e. Uber) and organizations (i.e. Cancer Society). Some organizations have volunteer drivers that transport their consumers. There is no central location to call and get a ride for the general public, cancer patients, veterans, or other special populations. Each agency provides its customers with their respective transportation agency and rarely provide information about other connecting services. Heritage currently has real-time vehicle location information for its riders and their map also identifies Port Authority's bus stops. ACCESS provides both ADA paratransit service and medical assistance paratransit. There is need for a central source of information for all the services that understands eligibility requirements. For younger people, there needs to be technology to book rides.

Rabbit Transit in York County is running a pilot project with Geisinger Hospital multiple counties coordinating mobility management using the paratransit software "Ecolane" (used by all Pennsylvania transit agencies for paratransit except for Port Authority and SEPTA). Mobility manager can reserve rides using Ecolane on any service in the surrounding counties. This is a step toward interagency coordination. Richard Farr, the Executive Director of Rabbit Transit, can provide more information.