Chapter 10

Transportation

Transportation plays a vital role in our daily lives by determining how we get from our homes to our places of work and school, and also how we travel to restaurants and shopping, medical and business appointments, libraries, places of worship, playgrounds and parks, movies, theaters and museums and visiting with family and friends. Because Springfield's established transportation network is inter-connected with the region, most transportation improvements need to be coordinated with other agencies outside of municipal government, including the Pennsylvania Department of Transportation (PennDOT), Southeastern Pennsylvania Transportation Authority (SEPTA), the Delaware Valley Regional Planning Commission (DVRPC), and Montgomery County Department of Roads and Bridges.

Figure 10.1
Road Classification

- Expressway
- Principal Arterial
- Minor Arterial
- Major Collector
- Local Road
- Ramp

Source: Delaware Valley Regional Planning Commission, 2010

Highway Functional Classification System

The Highway functional Classification System is a hierarchical grouping of the roads based on function, service levels, and vehicle capacity. Based on standards established by the American Association of State Highway and Transportation Officials (AASHTO), it is used by the Pennsylvania Department of Transportation (PADOT) for appropriate design guidelines, as well as to coordinate road functions and highway improvements among neighboring municipalities, the county, the region, and the state. The hierarchy of roads includes expressways and other limited access highways, arterials, collectors, and local roads. These can be further divided according to the urban or rural character of an area, such as designating principal and minor arterials or major and minor collectors. The classifications for township roads are shown in Figure 10.1.

Right-of-Way

The right-of-way is publicly-owned land that contains all elements of a highway and its related functions. This includes travel lanes, turning lanes, shoulders, parking lanes, and the border areas (which might contain sidewalks or paths, curbing or swales, and grass areas). Right-of-way widths are determined partly by the functional classification, but other factors such as the extent of development in an area need

to be considered. The width should be based on the preferable dimensions of each element to the maximum extent possible. In developed areas, it is often necessary to consider less desirable dimensions.

The design should provide an overall cross section that will give maximum service within a limited right-of-way. Procuring sufficient right-of-way for the ultimate function of a road at the time of an initial subdivision, land development, or other improvement is important.

This permits future improvements, such as widenings, to be performed at a more reasonable cost with less physical impact.

Number of Lanes

Number of lanes refers to the number of continuous travel lanes assigned to a road. This number is determined by traffic volume, level of service, and capacity conditions. Two travel lanes are appropriate on low volume roads such as local roads and minor collectors. A continuous two-way center left-turn lane may be desirable in highly congested commercial areas along major collectors and arterials. The lane would provide a "safe" area for turning movement while permitting an uninterrupted flow to through traffic. Depending upon traffic demand and available right-of-way, some roads such as arterials may have four or more travel lanes in addition to turning lanes. Expressways have minimum of two lanes per direction, physically separated by a median or barrier. Expressways may have three or more travel lanes per direction depending upon traffic volume and right-of-way.

Travel Lanes

Width and condition of pavement surface are two important safety and comfort features of a highway. Typical lane widths are ten to fifteen feet. Twelve feet is desirable for all roads except minor collectors and local roads. A ten-foot-wide lane is considered adequate for minor collectors and local roads where oncoming and passing vehicles is infrequent and the proportion of trucks is low. Although lane widths of twelve feet for most functional classifications are desirable on rural and urban highways, there are circumstances that necessitate more narrow lanes. In urban areas where right-of-way and development become the controlling factor, eleven-foot-wide lanes are acceptable. Ten-foot-widths are acceptable only on low speed roads (less than 30 miles per hour). Where a lane is adjacent to a curb, a fourteen-foot-width (thirteen feet minimum) is desirable as drivers tend to shy aware from the curb edge.

Shoulders

A shoulder is the portion of the roadway contiguous to the travel lane. It accommodates stopped vehicles, emergency use, and bridge and overpass supports. For safety, a shoulder should be continuous regardless of its width. A shoulder may vary in width from only two feet, where an emergency stopping area is not needed and roadway stability is its only function, to twelve feet on an urban expressway where the entire shoulder may be paved. Well-designed and properly maintained shoulders are necessary in all classes of roads. A vehicle stopped on the shoulder should clear the pavement edge by at least one, but preferably two feet. This preference has led to a shoulder width standard of ten feet. An absolute minimum width of two feet should be provided along rural minor collectors; six to eight feet is preferable so that a stopped vehicle can be outside the travel lane.

Although it is highly desirable that a shoulder be wide enough for a vehicle to be completely off of a travel lane, vehicles can pass with caution. Heavily traveled, high speed highways and those carrying a big percentage of trucks should have usable shoulders at least ten feet wide (preferably twelve feet).

Parking Lanes

Movement of vehicles is the primary function of a roadway network. Parking on an arterial street is not desirable because it generally decreases lane capacity, impedes traffic flow, and increases accident potential. However, segments of the network may be required to provide for the parking of vehicles are a result of adjacent land use. When on-street parking is required, parallel parking is the preferred method. It is generally allowed and accepted on local roads, although not usually designated. It may also be necessary where there is inadequate off-street parking. Curb parking on urban arterial streets is often necessary and is acceptable when the travel lane(s) can accommodate the traffic volume. Many urban residential areas use pavement widths of between twenty-six and thirty feet for both mobility and parking. When parking occurs on both sides of the street, this dimension assures adequate room for one moving lane. Most vehicles park within six to twelve inches of the curb when parking lane is eight feet. On rural arterials, provisions should be made for emergency stopping only.

Rural collector roads generally require provisions for emergency stopping only. On most urban collector roads, the minimum parking lane width is eight feet. A width of ten to twelve feet is most desirable because it provides better clearance and the potential to use the parking lane during peak periods as a through lane. This width can also accommodate transit operations. On urban minor collector roads within residential areas, an eight-foot-wide lane is adequate.

Border Areas

The border is the area between the outside edge of the road or shoulder and the right-of-way line. It helps separate traffic from homes and businesses and provides needed space for uses corollary to the road. Some needs to consider when determining minimum border widths are pedestrian requirements, snow storage, storm drainage, parallel bike paths or trails, traffic control devices, signs, and utilities. Every effort should be made to provide wide borders for functional needs, aesthetics, safety, and reducing the impact of traffic on adjacent development. A border area should be provided along all roads and should between feet or wider to properly accommodate present and future needs.

Curbing

Curbs control drainage, delineate pavement edge, provide aesthetics, reduce maintenance operations, and limit access points to roadside development. Barrier curbs, the most common type, are relatively high and steep faced. Ranging in height from six to nine inches, they are designed to inhibit or at least discourage a vehicle form leaving the road. The width of a curb is generally up to eight inches. Where they are not used, grading is required to carry surface runoff in swales or natural drainage areas. As the general guide, curbs are not required where the residential density is less than or equal to one unit per acre.

Sidewalks

Sidewalks are integral parts of urban streets, but few are provided in rural areas. However, the accident potential increases for those walking on or adjacent to travel lanes in rural areas due to higher travel speeds and lack of street lighting.

Studies have shown that sidewalks in suburban and rural areas reduce pedestrian accidents. As a general practice, sidewalks or paths should be constructed along any street or highway without shoulders. Whenever roadside and land development conditions allow pedestrian movement along a main or high speed highway, a sidewalk or path area should be provided. Sidewalks in suburban areas are justified where land uses generate pedestrian concentrations or where connection between facilities is desired. Sidewalks in residential areas are recommended to be four feet wide. The width of the grass strip between the sidewalk and curb should be a minimum of four feet for maintenance. Commercial areas, schools, and other pedestrian generators may require sidewalks covering the entire border width. If sidewalks must be placed adjacent to the curb, the walkway width should be two feet wider than when a grass strip separates the walk and curb. This provides space for street hardware, opening of car doors, and safety from traffic.

Figure 10.2
Road Conditions by Functional Classification

Functional Classification	Street Name	Jurisdiction	Right-of-Way (ft.)	Cartway Width (ft.)	Number of Travel Lanes	On-Street Parking	Bicycle Lanes On/Off Street	Sidewalks/ Paths
ARTERIALS								
Principal	Church Road	State	70	50	2/4	No		
	Germantown Pike	State	80	50	2	No		
	Ridge Pike	County	120	N/A	4	No		
	Bethlehem Pike	State	60	44	4	Yes**		
	Stenton Avenue *(East of Paper Mill Road)*	State	50*	50	4	No		
Minor	Pennsylvania Avenue	State	80	N/A	2	Yes**		
	Stenton Avenue *(West of Paper Mill Road)*	Township	70	N/A	2	No		
	Paper Mill Road	State	70	40-60	2	Yes**		
	Cheltenham Avenue	State	70	50	2	Yes**		
COLLECTORS								
Major	Willow Grove Avenues	State	60	N/A	2	Yes**		
	Ivy Hill Road	Township	35*	24	2	Yes**		
	Haws Lane	Township	60	26	2	Yes**		
	East and West Mill Road	Township	60	20-30	2	Yes**		
	Valley Green Road	State	60	N/A	2	No		
	Camp Hill Road	State	60	N/A	2	No		
Minor	Oreland Mill Road	Township	60	24	2	Yes**		
	Mermaid Lane	Township	52	32	2	Yes**		
	Wissahickon Avenue	Township	60	24-30	2	Yes**		
	Northwestern Avenue	Township	30*	16-20	2	Yes**	Yes	
LOCAL ROADS		Conditions Vary						

* *From county line (remainder in Philadelphia)*
** *Location and/or time restrictions*
N/A Not Available
Sources: Township staff; Township code; field checks.

Traffic Volume

Figure 10.3 shows traffic counts for selected roads in the township. Traffic counts provide a measure of how much use a road is getting at a given point in time. They typically include all types of vehicles traveling in both directions during a 24-hour period and are shown as average daily traffic (ADT) loads. Below is a summary of counts for the most of the major township roads. The baseline year for comparing counts in most cases is 1983 and is used wherever possible.

Fort Washington Expressway (PA Route 309) – Route 309 carries heavy traffic volumes of traffic from Philadelphia to Allentown. Beginning in 2001, PennDOT began rebuilding and widening the highway in Montgomery County from Philadelphia to Montgomery Township as part of a $375 million transportation investment. The improvements within Springfield Township, completed in 2010, include sound walls and two reconstructed ramps, one at Route 73, Church Road and the other at Paper

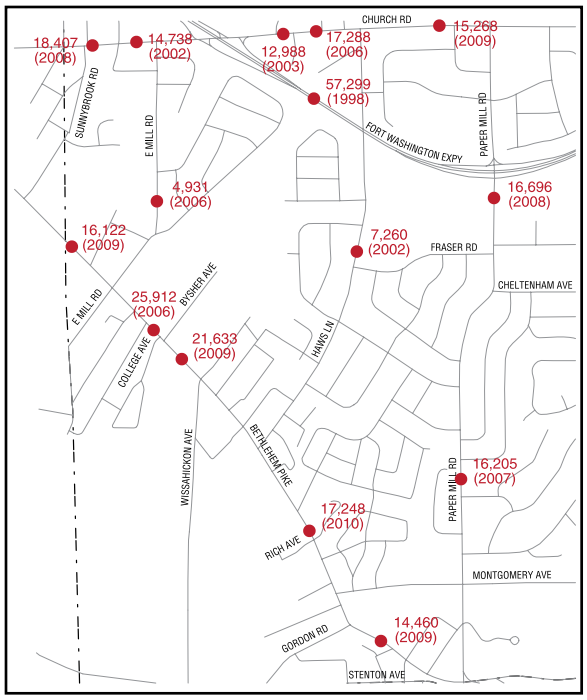


Figure 10.3
Traffic Counts

Street Name	Responsible Agency	Average Daily Traffic		
		Count	Year	Location Between
EXPRESSWAYS				
		57,298	1998	Paper Mill Road ramps to PA 73 Church Road ramps
Fort Washington Expressway	State	56,233	2010	Pennsylvania Avenue to PA 73 Church Road
PRINCIPAL ARTERIALS				
Church Road (Route 73)	State	18,407	2008	Valley Green Road and PA 309 Fort Washington Expressway
Ridge Pike	County	30,911	2010	Northwestern Avenue to Manor Road
MINOR ARTERIALS				
Bethlehem Pike	State	21,633	2009	Bysher Road and Wissahickon Avenue
Cheltenham Avenue	State	12,322	2007	Willow Grove Avenue and Delphine Road
		16,696	2008	Cheltenham Avenue and PA 309 Fort Washington Expressway
Paper Mill Road	State	8,202	2006	PA 309 Fort Washington Expressway and PA 73 Church Road
Pennsylvania Avenue	State	17,513	2009	Camp Hill Road
Stenton Avenue	Township/State	9,928	2008	Paper Mill and Flourtown Roads
		11,218	2006	Newbold Lane and Sandy Hill Road
Willow Grove Avenue	State	12,535	2009	Stenton Avenue and Cheltenham Avenue
MAJOR COLLECTORS				
Camp Hill Road	State	10,475	2007	Walnut and Pennsylvania Avenues
Ivy Hill Road	City/Township	11,512	2007	Stenton and Cheltenham Avenues
East Mill Road	Township	4,931	2006	Penn Oak and Poplar Roads
MINOR COLLECTORS				
Oreland Mill Road	Township	1,733	1996	Paper Mill Road and Walnut Avenue

Source: Delaware Valley Regional Planning Commission (DVRPC).

Mill Road. In 2011, Intelligent Transportation System (ITS) components were installed including closed circuit cameras, incident detectors and electronic messaging signs.

Church Road (PA Route 73) – As part of state route 73, a major east-west county road, Church Road is an important link to outside areas and connects other important roads within the township, such as Route 309 and Paper Mill Road. As a result of its function as a principal arterial road, traffic volumes are relatively high but stable, with past ADT counts at more than 18,000 vehicles. Because Church Road is primarily a residential corridor in Springfield Township speed limits are in place to mitigate the large volume of vehicles. The township is interested in further study of this residential corridor, especially with regard to vehicular and pedestrian safety and changes in home ownership and land use over time.

Bethlehem Pike – Bethlehem Pike is a major north-south road which serves as the township's main commercial corridor and links the community to other activity centers such as the Chestnut Hill area of Philadelphia to the south and Montgomery Township to the north. Bethlehem Pike was the subject of a 2008 DVRPC Taming Traffic Study that looked at vehicle crash locations between 2003 and 2005 along with traffic counts from Erdenheim through Flourtown. The study resulted in a number of recommendations that include road narrowing, intersection alignments, reduction of curb cuts, and a center turning lane in appropriate locations.

Cheltenham Avenue – This minor arterial road provides an east-west link between Willow Grove Avenue and Paper Mill Road, two other minor arterials.

Paper Mill Road – Paper Mill Road is a key minor arterial road that directly connects the east and west parts of the township and also links many of the other important roads, including the fort Washington Expressway (Route 309), church Road (Route 73), and Stenton Avenue.

Pennsylvania Avenue and Camp Hill Road – Recently completed improvement to this intersection corrected alignment problems, add a turning lane to Pennsylvania Avenue, and provided proper signalization.

Willow Grove Avenue – This north-south minor arterial connects with Stenton Avenue, Cheltenham Avenue, and Church Road in Cheltenham Township (Route 73), effectively linking Wyndmoor with other township neighborhoods. The road also serves as a neighborhood commercial corridor.

Road Improvements

Bethlehem Pike – The 2008 DVRPC Taming Traffic Study recommends a "Road Diet" for Bethlehem Pike to improve pedestrian and vehicular safety, especially in the Erdenheim Village and at certain intersections in Flourtown. The recommendations include reducing the number of travel lanes, reducing curb cuts, creating a center

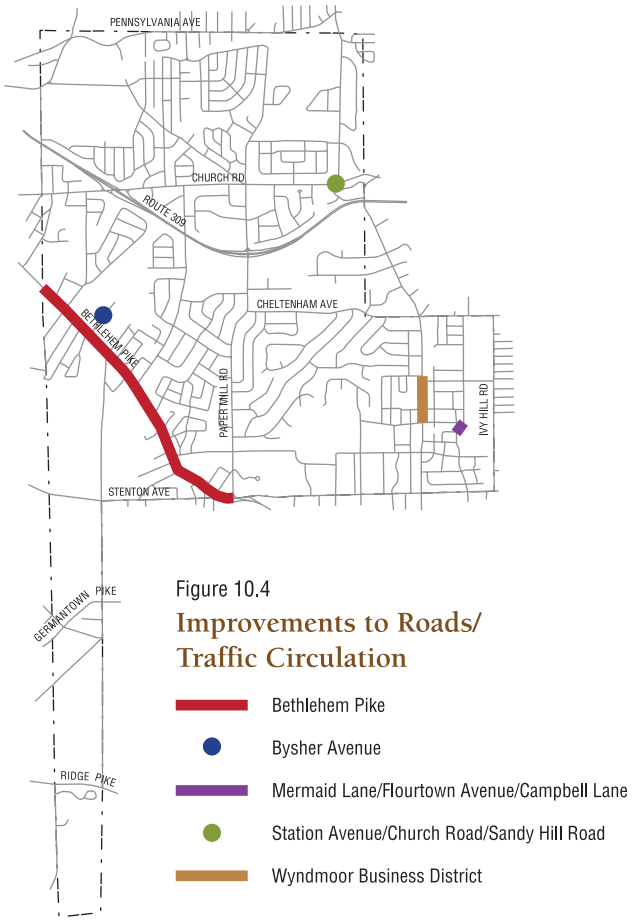


Figure 10.4
Improvements to Roads/ Traffic Circulation

turning lane, crosswalk improvements, curb extensions, streetscape and place-making enhancements, on street parking improvements and other enhancements.

Bysher Avenue/College Avenue – The Taming Traffic Study also addressed the alignment of Bysher Avenue and College Avenue along Bethlehem Pike. Currently, the offset creates conflicts for turning movements and pedestrian crossing. The study identifies a long-term solution to correct the offset however in the shorter-term, improvements to crosswalks and the creation of dedicated left-turning lanes will increase visibility for drivers and increase pedestrian and vehicular safety.

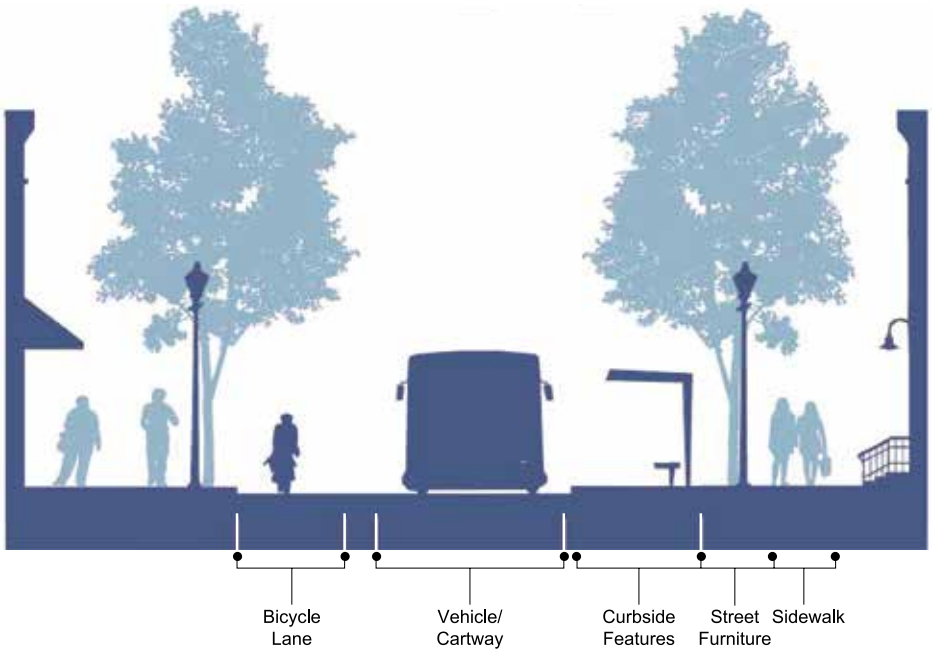
Mermaid Lane/Flourtown Avenue/Campbell Lane – Proposed improvements to correct the sharply curved alignment of Mermaid Lane include vacating Campbell Lane between Flourtown Avenue and Linden Road, and signalizing the Mermaid Lane/ Flourtown Road intersection.

Wyndmoor Business District – Businesses along Willow Grove Avenue in this area tend to have multiple access points contributing to congestion and allow for too many traffic movements. Better access controls could be implemented through consolidating curb cuts, shared parking, and some turning movement restrictions.

Smart Transportation and Complete Streets

Smart transportation principles propose to manage roadway capacity and congestion by better integrating land use and transportation planning. Rather than encouraging sprawling land uses which require building more or wider roadways to accommodate an increasing number of vehicles that can travel at faster speeds, smart transportation practices consider the context of the community and attempts to scale projects to local needs. By integrating transportation and land use decisions, new residential developments would be connected to the established road network rather than being physically isolated or connected by a single local road. New streets and sidewalks would be connected to existing neighborhoods. This higher level of connectivity would improve circulation throughout the road network and offer emergency service providers multiple routes to a single destination. In business districts, reducing the number of curb cuts along busy arterial roads and encouraging shared parking between multiple users helps alleviate congestion and improve road safety. Adding shared access points via secondary driveways along side streets that lead to signalized intersections reduces the number of potential conflicting vehicle turning movements.

Smart transportation practice also introduces the concept of "complete streets," and elevates the importance of considering the safety and design needs of all users of the transportation network including drivers and pedestrians. A complete street is considered safe, comfortable, and convenient for travel by automobile, foot, bicycle and transit, regardless of the users' age or physical ability. This usually means putting more emphasis on the needs of pedestrians, bicyclist and transit riders in order to find the right balance in the transportation network that is currently tilted toward the use of automobiles.



Transportation Mode and Travel Time to Work

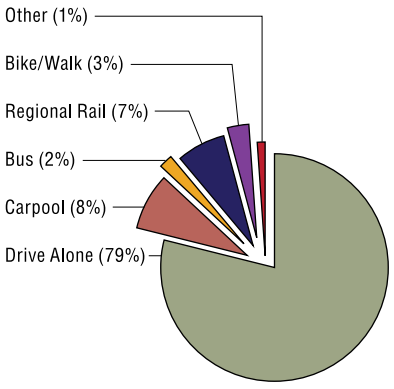
The American Community Survey reports that Springfield workers make a variety of transportation choices for commuting every year. As shown in figure 10.5, of the 9,368 workers identified, 73.9% drive alone, 7.7 % carpool, 7.5% ride public transit, 2.8% walk or ride a bicycle, and 0.5% travel by other means. Springfield residents are more likely to work at home (7.6%) as compared to its neighbors (range 3%-4.8%) but less likely to carpool when they do drive to work. When it comes to taking public transit, Springfield, as a percent of the total population, falls in the middle of the pack at 7.5 % compared with it neighbors (range 4%-10.5%). There are many factors that contribute to a commuter's transportation choices including, proximity to transit stations, travel time and distance to employment, and the existence of convenient sidewalks and bike lanes. Improvements to existing facilities and services can expand transportation choices and reduce travel times. Incremental approaches can yield cumulative improvements over time and are worth considering. An increase in telecommuting and other work at home options along with more choices for commuters can mean less miles traveled by car, reduced traffic congestion, improved air quality, and more physical activity, all of which may lead to a healthier community.

Figure 10.5

Means of Transportation to Work by Municipalities: 2010

Municipality	2010 Totals	Drive Alone		Carpool		Bus/Trolley(1)		Regional Rail	
		#	%	#	%	#	%	#	%
Springfield	9,368	6,927	73.9%	719	7.7%	139	1.5%	563	6.0%
Abington	27,411	21,718	79.2%	2,315	8.4%	457	1.7%	1,493	5.4%
Cheltenham	19,010	13,629	71.7%	1,749	9.2%	810	4.3%	1,171	6.2%
Upper Dublin	12,638	10,118	80.1%	766	6.1%	260	2.1%	725	5.7%
Whitemarsh	8,728	6,807	78.0%	777	8.9%	16	0.2%	333	3.8%
Montgomery County	403,375	320,543	79.5%	31,592	7.8%	6,255	1.6%	12,659	3.1%

Municipality	Bicycle		Walk		Work at Home		Other(2)	
	#	%	#	%	#	%	#	%
Springfield	58	0.6%	205	2.2%	713	7.6%	44	0.5%
Abington	38	0.1%	521	1.9%	809	3.0%	60	0.2%
Cheltenham	86	0.5%	756	4.0%	711	3.7%	98	0.5%
Upper Dublin	14	0.1%	112	0.9%	602	4.8%	41	0.3%
Whitemarsh	16	0.2%	363	4.2%	379	4.3%	37	0.4%
Montgomery County	1,077	0.3%	12,369	3.1%	16,145	4.0%	2,725	0.7%



Source: American Community Survey
Footnotes (1) Includes bus, trolley, subway and elevated train.
(2) Includes motorcycle, taxicab, ferryboat, or other means.

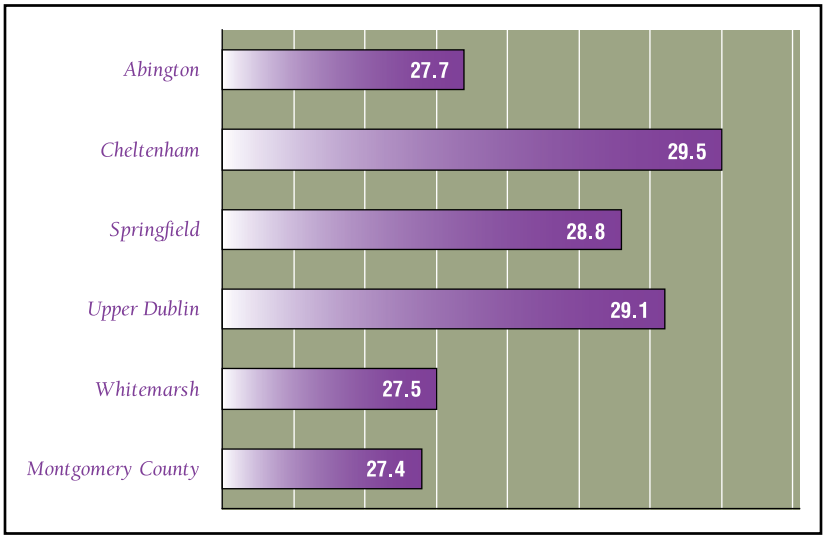
The graph in Figure 10.6 shows the average travel time to work for residents by municipality and for Montgomery County as a whole. The average commute time has continued to increase slightly in Springfield and for its neighbors between 2000 and 2010. Although the increase may appear small (1-2 minutes) the cumulative effect of all vehicles on the road results in increased driver frustration, congestion, and air pollution. Again, if every community takes steps to reduce travel times, vehicle miles traveled, and traffic congestion using an incremental approach, the benefits will also be cumulative over time and improve the quality of life for everyone in the region.

Figure 10.6

Travel Times for Resident Non-Home Workers by Municipality: 2010

Municipality	2010 Length of Travel Time in Minutes									Change 2000 - 2010	
	2010 Total Workers	2010 Average Travel Time in Minutes	2000 Average Travel Time in Minutes	Less than 10 Minutes	Between 10 and 19 Minutes	Between 20 and 29 Minutes	Between 30 and 39 Minutes	Between 40 and 59 Minutes	More than 60 Minutes	Minutes	Percent
Abington	26,602	27.7	26.3	13.1%	27.3%	16.7%	15.8%	17.8%	9.2%	1	5.3%
Cheltenham	18,299	29.5	29.0	10.1%	20.3%	19.5%	22.5%	18.8%	8.7%	1	1.7%
Springfield	8,655	28.8	26.8	10.5%	22.0%	20.8%	20.4%	17.6%	8.6%	2	7.5%
Upper Dublin	12,036	29.1	28.3	11.1%	24.6%	18.2%	18.5%	18.6%	9.1%	1	2.8%
Whitemarsh	8,349	27.5	26.9	11.2%	24.4%	19.4%	20.5%	17.6%	7.0%	1	2.2%
Montgomery County	387,230	27.4	26.5	12.5%	25.7%	19.2%	17.7%	16.0%	8.9%	1	3.4%

Source: American Community Survey



Average Travel Time in Minutes by Municipality

Public Transit

Smart transportation principles also encourage frequent and reliable transit service with stops located in close proximity to the source of rider demand. Transit stops should have well maintained all-weather surfaces with direct access to a sidewalk to support transit ridership. Springfield is fortunate to have access to three regional rail lines and direct service to six regional bus routes. All are operated by the Southeastern Pennsylvania Transportation Authority (SEPTA). Figure 10.8.

Regional Rail

The Lansdale/Doylestown regional rail line runs along the northern border of the township and directly serves the township via the Oreland Station. It connects with Philadelphia, Glenside, Fort Washington, Ambler, Lansdale, and Doylestown, Buck County, and links with other connecting rail and bus lines. Oreland Station and the North Hills Station in Abington Township both provide ample parking for commuters. The Chestnut Hill East and Chestnut Hill West rail lines are located just outside of the township linking Chestnut Hill with Center City Philadelphia. Ridership data in Figure 10.7 shows the number of passengers boarding trains at Oreland Station on weekdays and weekends.

Figure 10.7
Oreland Station Ridership

Oreland Station	Passengers Boarding Trains*
Weekday	257
Saturday	96
Sunday	44

*Source: SEPTA: 2009 Regional Rail Census; *Includes all passengers boarding inbound and outbound.*

Oreland Train: Lansdale/Doylestown Regional Rail

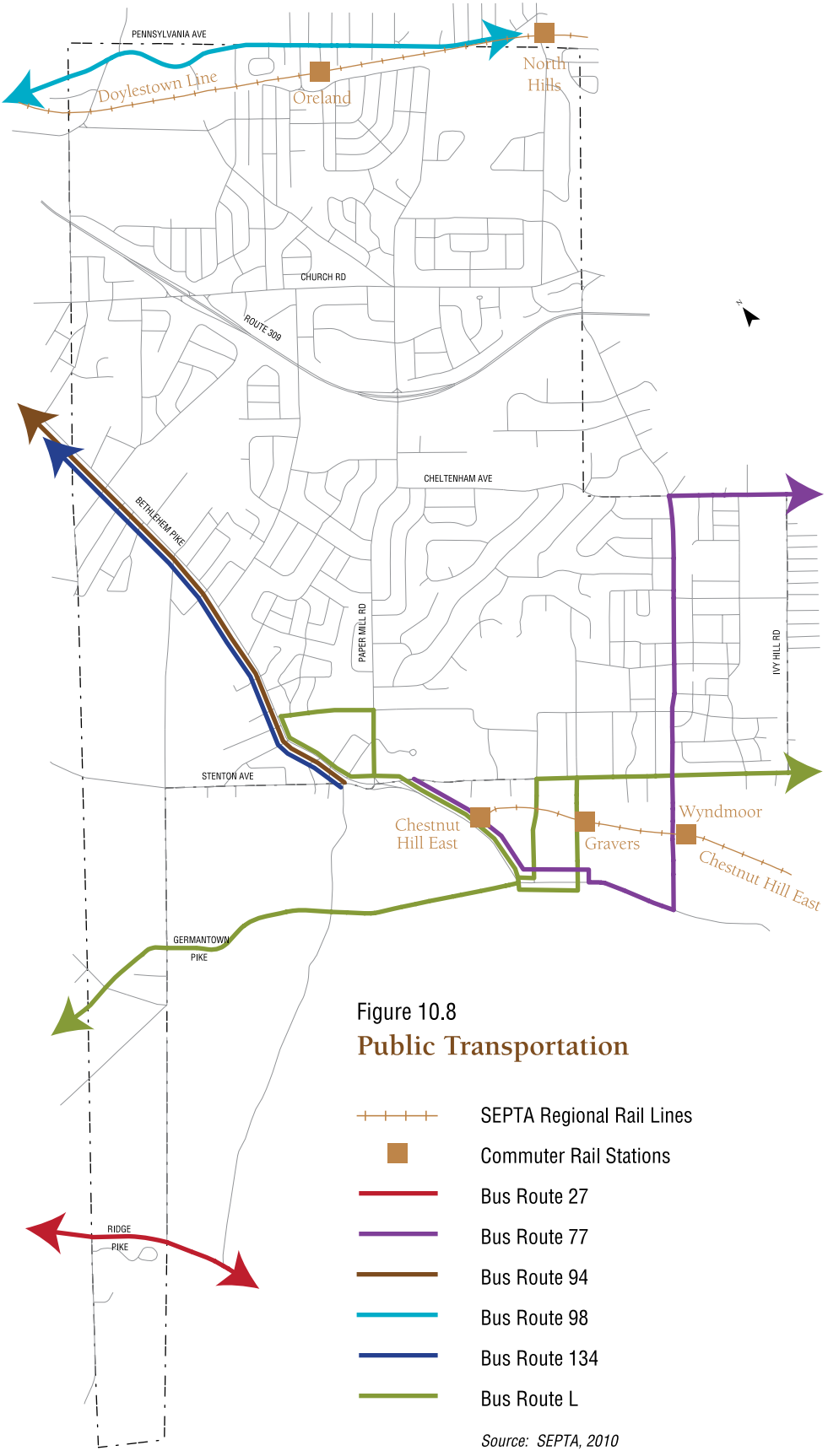


Figure 10.8
Public Transportation

- SEPTA Regional Rail Lines
- Commuter Rail Stations
- Bus Route 27
- Bus Route 77
- Bus Route 94
- Bus Route 98
- Bus Route 134
- Bus Route L

Source: SEPTA, 2010

Bus Routes

The 94 bus route runs between Chestnut Hill in Philadelphia and the Montgomery Mall. It serves Springfield Township's main commercial area along Bethlehem Pike and links major destination points such as Fort Washington, Ambler, Montgomery County Community College in Whitpain Township, Merck Pharmaceuticals in West Point and Lansdale Borough.

Figure 10.9
Bus Route 94

Bus Route 94	Weekday Boarding	Weekday Leaving
Southbound	30	16
Northbound	24	47
Subtotal	54	63
Total NB & SB*	**117**	

*Source: SEPTA; *Includes Springfield Township transit stops only.*

The 97 bus route runs from Chestnut Hill West Regional Rail Station, through Whitemarsh, past the Spring Mill Corporate Center, along Fayette Street Business District in Conshohocken, the Metroplex Center in Plymouth Township and terminates at the Norristown Transportation Center.

Figure 10.10
Bus Route 97

Bus Route 97	Weekday Boarding	Weekday Leaving
Eastbound	1	1
Westbound	1	12
Subtotal	2	13
Total EB & WB*	**15**	

*Source: SEPTA; *Includes Springfield Township transit stops only.*

The 98 bus route runs from the Willow Grove area of Upper Moreland Township and terminates at the Norristown Transportation Center. Among the key destinations it reaches are the North Hills, Oreland, Fort Washington, Ambler Region Rail Stations, Plymouth Meeting office center and mall, and Sentry Park Office Center in Blue Bell.

Figure 10.11
Bus Route 98

Bus Route 98	Weekday Boarding	Weekday Leaving
Eastbound	21	17
Westbound	9	15
Subtotal	30	32
Total EB & WB*	**62**	

*Source: SEPTA; *Includes Springfield Township transit stops only.*

The "L" bus route runs 24 hours a day between the Olney Transportation Center in Philadelphia and Plymouth Meeting Mall, serving the Chestnut Hill area of Philadelphia and two large industrial/office parks in Plymouth Township (Meetinghouse Business Center and Plymouth Meeting Executive Campus). In Springfield it serves the Wyndmoor neighborhood (via Stenton Avenue), Erdenheim (via Montgomery Avenue and Paper Mill Road), and the panhandle area (via Germantown Pike).

Figure 10.12
Bus Route L

	Weekday - Summer AM		Weekday - Summer PM		Weekday - Fall AM		Weekday - Fall PM		Saturday		Sunday	
Bus Route L	**Boarding**	**Leaving**	**Boarding**	**Leaving**	**Boarding**	**Leaving**	**Boarding**	**Leaving**	**Boarding**	**Leaving**	**Boarding**	**Leaving**
Southbound	67	4	164	34	74	10	172	32	160	39	108	12
Northbound	11	125	14	147	14	144	19	162	25	185	15	137
Subtotal	78	129	178	181	88	154	191	194	185	224	123	149
Total NB & SB*	**566**				**627**				**409**		**272**	

*Source: SEPTA: Samples collected by automated passenger counter June 27, July 15, August 7, and November 22, 2010; *Includes Springfield Township transit stops only.*

The 77 bus route runs between Northeast Philadelphia (from Roosevelt Boulevard) and Chestnut Hill. The route travels along Township Line Road between Cheltenham and Abington Townships and links the Jenkintown and Glenside regional rail stations and Glenside business district with Springfield's industrial district in Wyndmoor along Ivy Hill Road.

Figure 10.13
Bus Route 77

Bus Route 77	Weekday Boarding	Weekday Leaving	Saturday Boarding	Saturday Leaving	Sunday Boarding	Sunday Leaving
Eastbound	25	14	4	3	4	5
Westbound	15	16	2	8	2	6
Subtotal	40	30	6	11	6	11
Total NB & SB*	**70**		**17**		**17**	

*Source: SEPTA: Samples collected by automated passenger counter September 27, 2008, November 17, 21, 2010; *Includes Springfield Township transit stops only.*

The 27 bus route travels from Center City Philadelphia to the Plymouth Meeting Mall passing through Springfield Township's panhandle along Ridge Pike.

Figure 10.14
Bus Route 27

Bus Route 77	Weekday Boarding	Weekday Leaving	Saturday Boarding	Saturday Leaving	Sunday Boarding	Sunday Leaving
Eastbound	34	6	36	4	25	1
Westbound	5	90	9	59	0	36
Subtotal	39	96	45	63	25	37
Total NB & SB*	**135**		**108**		**62**	

*Source: SEPTA: Samples collected by automated passenger counter November 18, December 4, 5, 2010; *Includes Springfield Township transit stops only.*

The 134 bus route runs between the Chestnut Hill West train station and the Montgomery Mall along the Bethlehem Pike corridor through Erdenheim, Flourtown and Fort Washington, Spring House, and Lower Gwynedd.

Figure 10.15
Bus Route 134

Bus Route 134	Weekday Boarding	Weekday Leaving
Southbound	2	1
Northbound	4	12
Subtotal	6	13
Total NB & SB*	**19**	

*Source: SEPTA: 2011 Samples collected by automated passenger counter; *Includes Springfield Township transit stops only.*

Parking Facilities

Existing On- and Off-Street Surface Parking

Allowing for off-site parking is a flexible standard that could benefit the township. Nearby uses could be allowed to count some of the parking lot spaces toward their required parking, thereby reducing the amount needed on site. A well located and designed lot can encourage walking between sites instead of driving, helping to reduce traffic congestion. Development of one or more municipal lots could be appropriate as a way to support commercial areas. Ideally, a municipal lot would serve a relatively small, concentrated commercial area that has on-site parking constraints and a good pedestrian scale, such as is found in Wyndmoor.

The Pedestrian Environment

Neighborhood layout and street design affects the walkability of a community including street patterns, road width, block length, vehicular speed, and whether sidewalks are present. Neighborhoods with interconnected streets that have well maintained sidewalks on both sides of the street, smaller street widths, lower speed limits, and intersections with crosswalks are more pedestrian-friendly than auto-dependent, isolated neighborhoods without sidewalks or areas with streets carrying high volumes of traffic.

Springfield's development pattern contains neighborhoods that are interconnected and pedestrian-friendly and those that are cut off from important township destinations such as schools, parks, shopping and transit by busy roads without adequate pedestrian facilities.

Sidewalks are an important part of a community's transportation network because they provide an alternative means of access to key activity centers. Sidewalks should be at least four feet wide and located along both sides of the street wherever possible. Border areas along sidewalks that contain street trees provide a sense of scale, visual interest and shade for pedestrians. Pedestrian circulation can be improved by filling in the gaps of the existing sidewalk network. For these reasons, the township has established a priority sidewalk network. The most critical extensions for improving this network are identified in Figure 10.16. In many cases, a complete sidewalk along just one side of the road will be sufficient to serve residents' needs.

Bicycle Mobility

Another important but often overlooked means of transportation is bicycling. Although some think that bicycling is solely a recreational activity, many people bike to work or to run errands. Bicycle planning has the most impact on vehicle trips of fewer than three miles. National surveys show that about half of all local trips under three miles however, are made by car. If all residents were able to shift even a small portion of their short vehicle trips to walking or biking, the community would realize a benefit through reduced traffic congestion, improvement in public health through regular physical exercise, improved access to goods and services, and a reduction of vehicle emissions.

The Federal Highway Administration (FHWA) formulates guidelines for accommodating all types of bicyclists under a variety of road conditions. The three categories of bicyclist are:

- **Group A:** Advanced, experienced riders who can operate under most traffic conditions.
- **Group B:** Basic, casual adults or teens that are confident of their ability to operate in traffic.
- **Group C:** Child or preteen riders who use the roadway under adult supervision.

The FHWA recommends four basic types of road improvements to accommodate

bicyclists on public roads including designated bike lanes, paved shoulders, wide curb lanes and shared lanes.

Creating space for bicycles along all roadways should be considered. While a separate parallel off-road bicycle path is the most desirable method to increase a bicyclist's sense of safety, it is necessary to accommodate bicycles on the roadway surface in developed communities. On-road, one-way, designated bicycle lanes of at least four feet in width should be considered where ever possible.

Off-road parallel multiuse trail on Northwestern Avenue near the Morris Arboretum

On roadways without a curb, bicycle lanes should be located between the travel lanes and shoulders. A width of five feet or greater is preferable when a shoulder is not present. Where substantial truck traffic is present or where vehicle speeds exceed 35 miles per hour, additional widths up to eight feet are desirable. On roadways that are too narrow to accommodate a designated bike lane or that lack a paved shoulder, a "Sharrow," or share-the-road symbol, may be placed in the road surface in areas with limited road widths. These symbols are being used more widely to warn motorists of possible presence of bicyclists.

"Sharrows" are being used more widely in urban areas and warn motorists of possible presence of bicyclists.

Springfield Township

Montgomery County, Pennsylvania

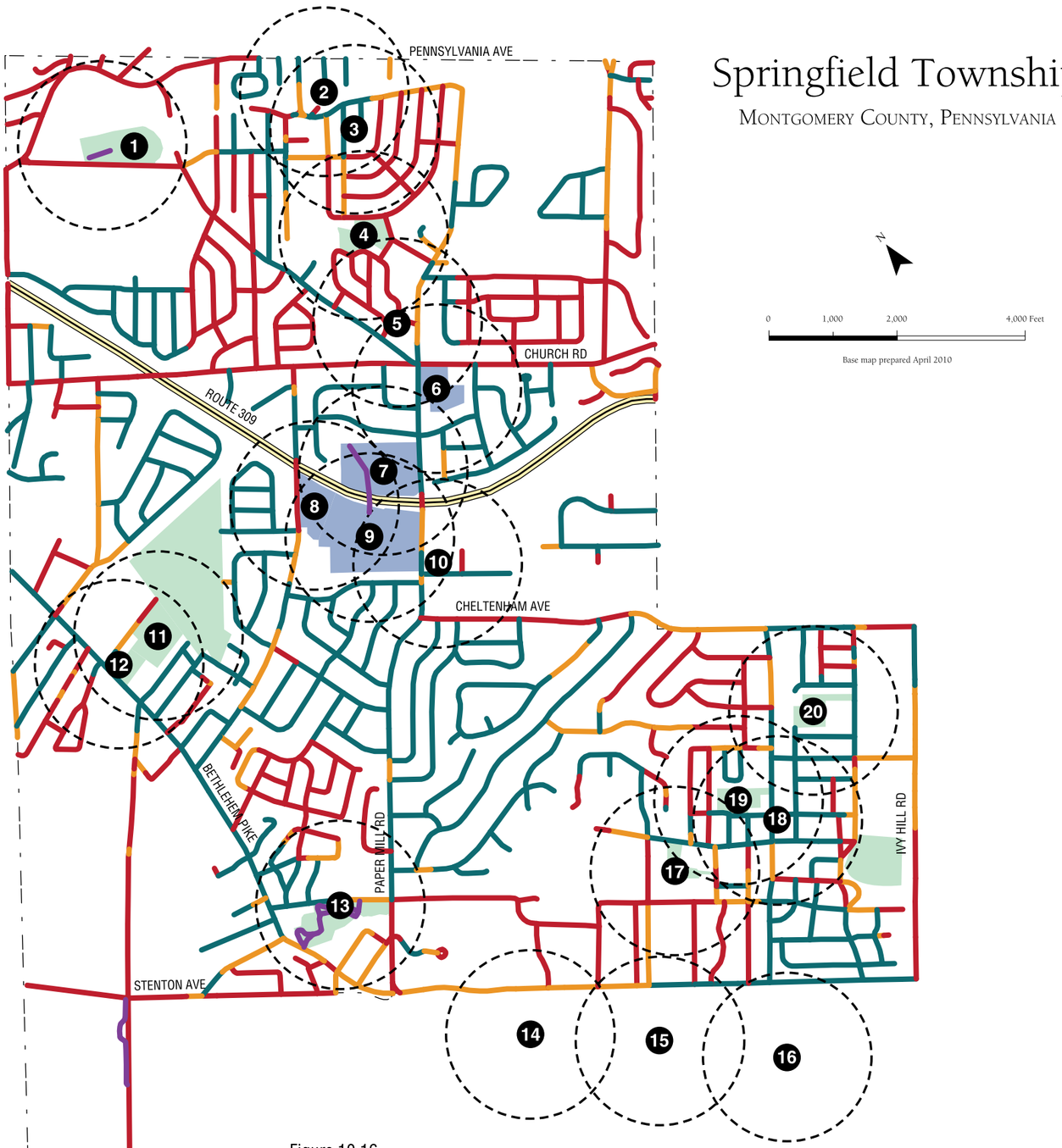
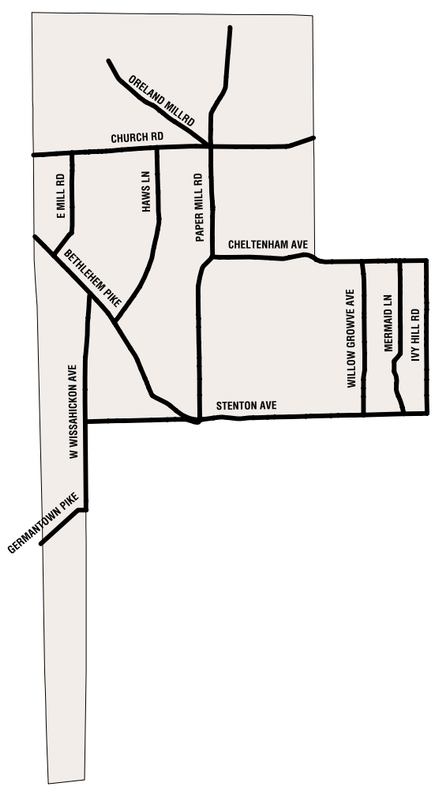


Figure 10.16

Pedestrian Circulation

- Sidewalk - One Side
- Sidewalk - Two Sides
- Sidewalk - None
- Paths and Trails
- Expressway
- 1/4-Mile Radius
- Recreation Area
- Public School
- 0 Points of Interest:
  - 1 Sandy Run Park
  - 2 Oreland Train Station
  - 3 Oreland Park
  - 4 Manor Fields
  - 5 Oreland Playground
  - 6 Enfield Elementary School
  - 7 Middle School
  - 8 Erdenheim Elementary School
  - 9 High School
  - 10 Library
  - 11 Bysher Field
  - 12 Flourtown Village
  - 13 Cisco Park
  - 14 Chestnut Hill East Train Station
  - 15 Gravers Train Station
  - 16 Wyndmoor Train Station
  - 17 Wyndhill Park
  - 18 Wyndmoor Business District
  - 19 Veterans Park
  - 20 Laurel Beech Park

Priority Network



cut line

PennDOT has adopted FHWA guidelines as recommended and Montgomery County's Bicycle Mobility Plan endorses these standards as well. The plan identifies 15 potential destinations including major employers, commercial areas, public and private schools, parks and transit hubs as well as key bicycling corridors within Springfield Township, including:

- Bethlehem Pike
- Stenton Avenue
- Cheltenham Avenue
- Camp Hill Road
- East Mill Road
- Haws Lane
- Haws Avenue
- Ivy Hill Road
- Paper Mill Road
- Pennsylvania Avenue
- Thomas Road
- West Mill Road
- Willow Grove Avenue

Successful bicycle and pedestrian planning in the US and other countries have demonstrated that effective initiatives involve more than roadway improvements. To thoroughly address all impediments to bicycling, the "Four Es" must be considered.

1. **Engineering** and Planning deals with roadway design and construction that makes the road bikeable and also provides secure bicycle parking facilities at destinations and accommodates bikes on transit.
2. **Encouragement** and promotion of bicycling as a means of transportation.
3. **Education** deals with teaching the proper bicycling skills and key safety issues for bicyclists and motorists.
4. **Enforcement** involves enforcing traffic laws to ensure safe roads for all users.

Trails

Development of trails is among the goals identified in the 2008 Springfield Parks and Recreation Connections Plan and the 2005 Springfield Township Open Space Plan. In addition to its value as a recreation amenity, a trail can be a valuable pedestrian and bicycling link for access between neighborhoods, parks, and activity centers such as shopping and schools.

The Green Ribbon Preserve is a combination of public, private institutional lands, and trail access easements that follow the meandering path of the Wissahickon Creek. It

Pedestrian bridge and walking trail in Cisco Park

Where standard sidewalks are missing, a trail spur can provide connectivity between neighborhoods and activity centers and public transit.

follows the stream from its source in Montgomery Township to its confluence with the Schuylkill River in Philadelphia. Created through the efforts of the Fairmount Park Commission, the Wissahickon Valley Watershed Association, Pennsylvania Department of Natural Resources (DCNR), the county, and local municipalities, the preserve helps to protect large portions of the stream. The Green Ribbon Preserve Trail, also know as the Wissahickon Trail is multiuse trail from Fort Washington State Park to Forbidden Drive in Fairmount Park traveling along Northwestern Avenue in front of the Morris Arboretum. Portions of the multiuse section include some existing sidewalks. Beyond Fort Washington State Park the trail remains a walking path that protects the environmentally sensitive nature of the Wissahickon Valley.

Wissahickon Green Ribbon Trail

Transportation Goals

The township benefits from its location near major transportation routes and transit facilities, allowing easy access to surrounding areas and employment centers. The township is pedestrian-oriented, with an extensive sidewalk network for access needs within the community. The goal is to maintain these advantages and to expand and improve upon them wherever possible.

Objectives

1. Increase resident access to all modes of transportation including walking, bicycling, and public transit by creating safe pedestrian and bicycle connections between existing/proposed parks, trail systems, institutional open space, commercial areas, neighborhoods and public transit stops.
2. In commercial districts, provide and enhance parking opportunities, locate parking to the side and rear of buildings, encourage shared parking, and update zoning code to facilitate this goal. Maintain on-street parking in and around the commercial districts. Improve access to parking through coordinated way finding signage.
3. Maintain and improve the existing pedestrian network and create new sidewalks or trail networks to enhance community walkability. Fill in gaps in the existing

sidewalk network. Explore ways to convert informal pedestrian paths to a public pedestrian network.

4. Encourage new development to be designed with pedestrians in mind, providing ADA accessibility, safe and inviting pedestrian connections internally to the development and to adjacent neighborhoods, schools, public transit and commercial areas. Add crosswalks to intersections near schools, parks, houses of worship, public buildings, and public transit stops. Use textured crosswalks and other traffic-calming measures on streets with high traffic volumes.
5. Install bicycle racks and other bike facilities at community destinations including train station, shopping centers, and municipal park and recreation facilities. Encourage bicycle parking facilities in all public and private parking lots and bicycle storage facilities in multi-family developments.
6. Continue to coordinate with PennDOT, DVRPC, Montgomery County and surrounding communities to improve the regional transportation network. Participate on PennDOT, DVRPC and County technical and steering committees during local project planning and development process.
7. Work with SEPTA, Upper Dublin Township, Whitemarsh Township, Philadelphia, and others to beautify transit stops and train station areas, improve commuter rail service, enhance parking opportunities, and promote transit oriented development. Enhance the appearance and functionality of the train stations with landscaping, pedestrian lighting, coordinated signage, and improved parking and circulation.
8. Maintain and enhance public and private parking lots with appropriate landscaping, lighting and signage.
9. Continue the program of road maintenance and reconstruction.
10. Improve lighting along streets where needed using energy efficient technologies.
11. Support an interconnected and “complete streets” network.