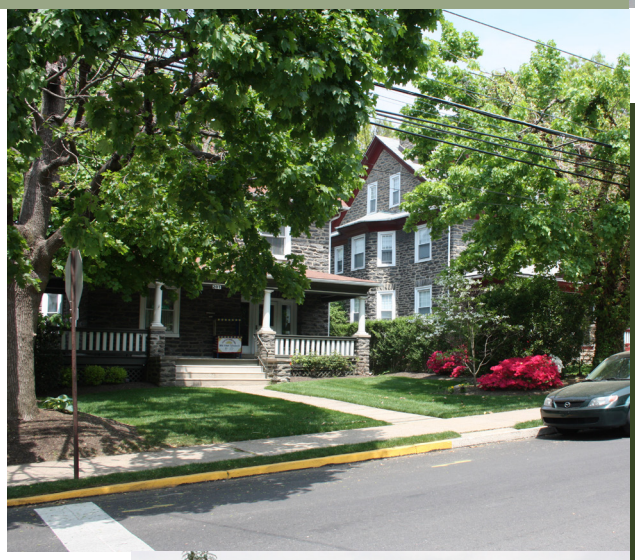
Sustainability



GUIDING PRINCIPLES

- *Preserve and enhance the street tree cover in the Borough in both residential and commercial areas to capture the ecological and aesthetic benefits of trees.*
- *Identify and prioritize opportunities for the installation of new stormwater management facilities to increase water capture and local infiltration, and reduce runoff.*
- *Provide for the long-term maintenance and planning for integral infrastructure systems such as water and sewer.*
- *Encourage the safe installation and use of renewable energy technologies on individual properties.*
- *Reduce the Borough's overall production of solid waste through enhanced recycling and composting programs.*

Summary of Sustainability Recommendations

RECOMMENDATION S1: Protect and enhance Jenkintown's diverse and established tree canopy.

RECOMMENDATION S2: Protect areas of steep slope, which are typically more susceptible to erosion, land slides, and subsidence when disturbed.

RECOMMENDATION S3: Implement small-scale, localized stormwater management practices throughout the Borough through the installation of strategies that reduce the amount of stormwater runoff and sediment which is discharged into local waterways.

RECOMMENDATION S4: Ensure Jenkintown Borough has adequate sewer capacity to serve any future development.

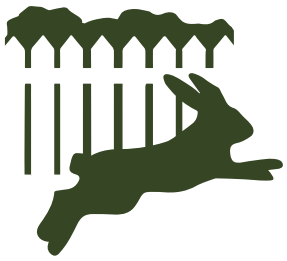
RECOMMENDATION S5: Encourage the increased application of renewable energy technologies on individual residential and non-residential properties to allow individuals to reduce their use of fossil fuel-intensive sources of electricity for their homes and businesses.

RECOMMENDATION S6: Improve overall recycling rates and reduce the amount of solid waste generated within the Borough.

RECOMMENDATION S7: Increase composting of kitchen scraps and yard waste, to reduce the unpleasant odor and residue that is often associated with kitchen scraps in curbside trash collection, as well as reduce the amount (both weight and volume) of solid waste that is generated by individual households.

BACKGROUND

The natural features of the Borough, including its geology, hydrology, and topography, have both influenced and been shaped by the patterns of human settlement. All of the soil types present in the Borough are classified as "Urban Land" which means that 75% or more of the land surface is covered by pavement, buildings, and other artificial surfaces. Jenkintown is situated on a hilltop that affords attractive views of the surrounding valley. There are a number of steep slopes in the Borough, predominantly toward the southwest. The combination of the topography and the soil type heavily influence the way water moves through the Borough. Stormwater management is critical for the protection and health of local streams and rivers which provide both drinking water and important natural habitat. Because of the high impervious cover of the largely developed Borough, natural infiltration of rainwater is limited and leads to water runoff that can have detrimental effects on area waterways.



THEME ELEMENT:
ECOLOGICAL STEWARDSHIP

GEOLOGY & SOILS

A region's geology, or type and distribution of underlying rock formations, can have a major influence on the topography, soils, hydrology, building suitability, and vegetative character of a community.

Geology

The characteristics of the underlying bedrock geology within a community can impact infiltration rates and building suitability. The bedrock is often the parent material for the local soils as well. The Wissahickon Formation accounts for the vast majority of the bedrock of Jenkintown Borough (see Map 17 on the following page). The ***Wissahickon Formation*** "is named for [the] alternately clay-rich and moderately metamorphosed schist layered with thin calcareous sandstone exposed along the Wissahickon Creek in Philadelphia."[1] The primary and secondary rock types in this formation are mica schist and gneiss, which are both metamorphic rocks.[2] Historically, the schist from this formation was quarried and used to build homes in the local area.

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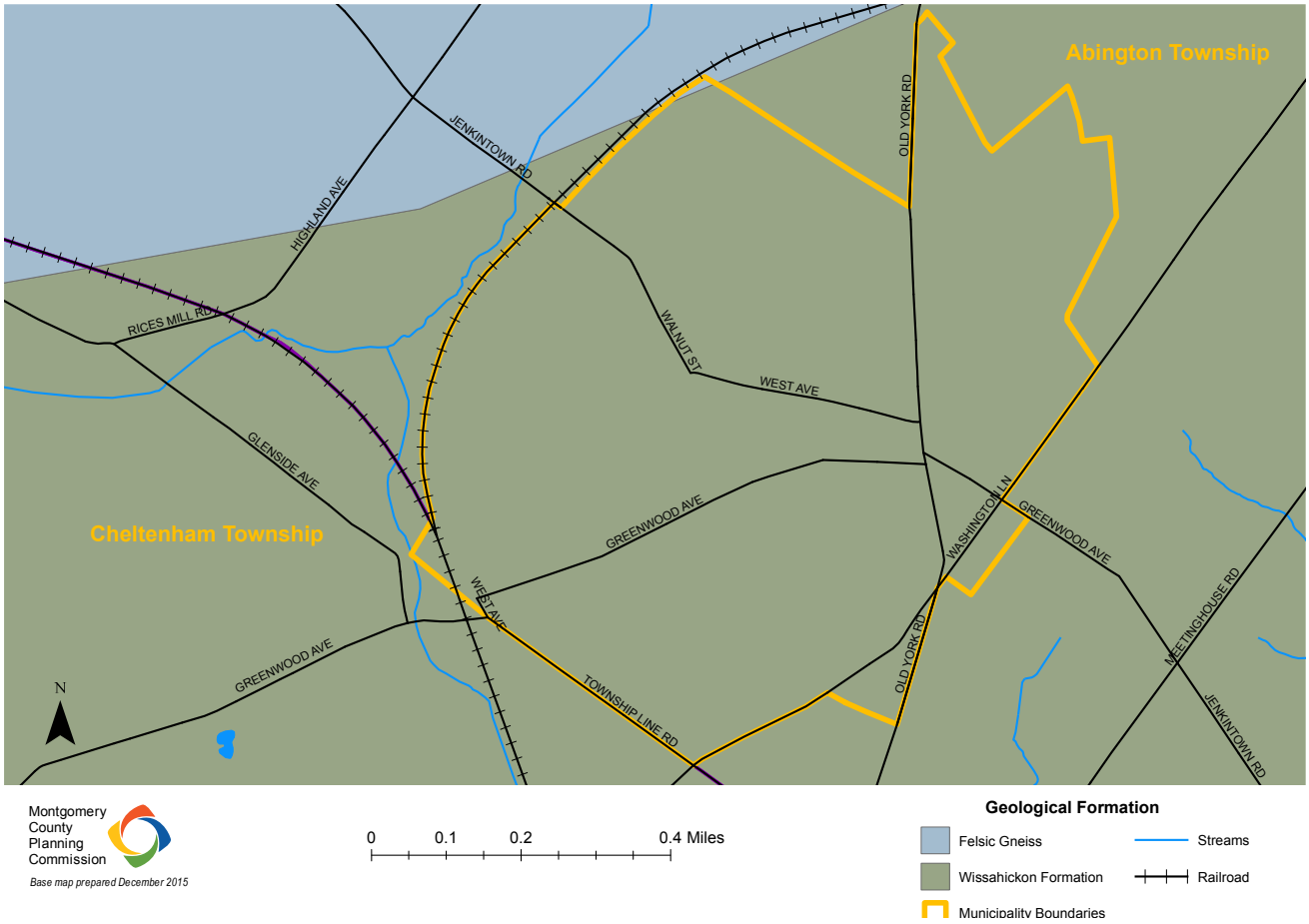
1 "The Wissahickon Formation – a persistent problem in the central Appalachian piedmont." Pennsylvania Department of Conservation and Natural Resources. http://www.dcnr.state.pa.us/topogeo/field/gsaabstr/gsalist/wissahk/index.htm

2 " Wissahickon Formation." U.S. Geological Survey. http://mrdata.usgs.gov/geology/state/sgmc-unit.php?unit=PAPZw%3B0

Map 17. Jenkintown Geology[3]



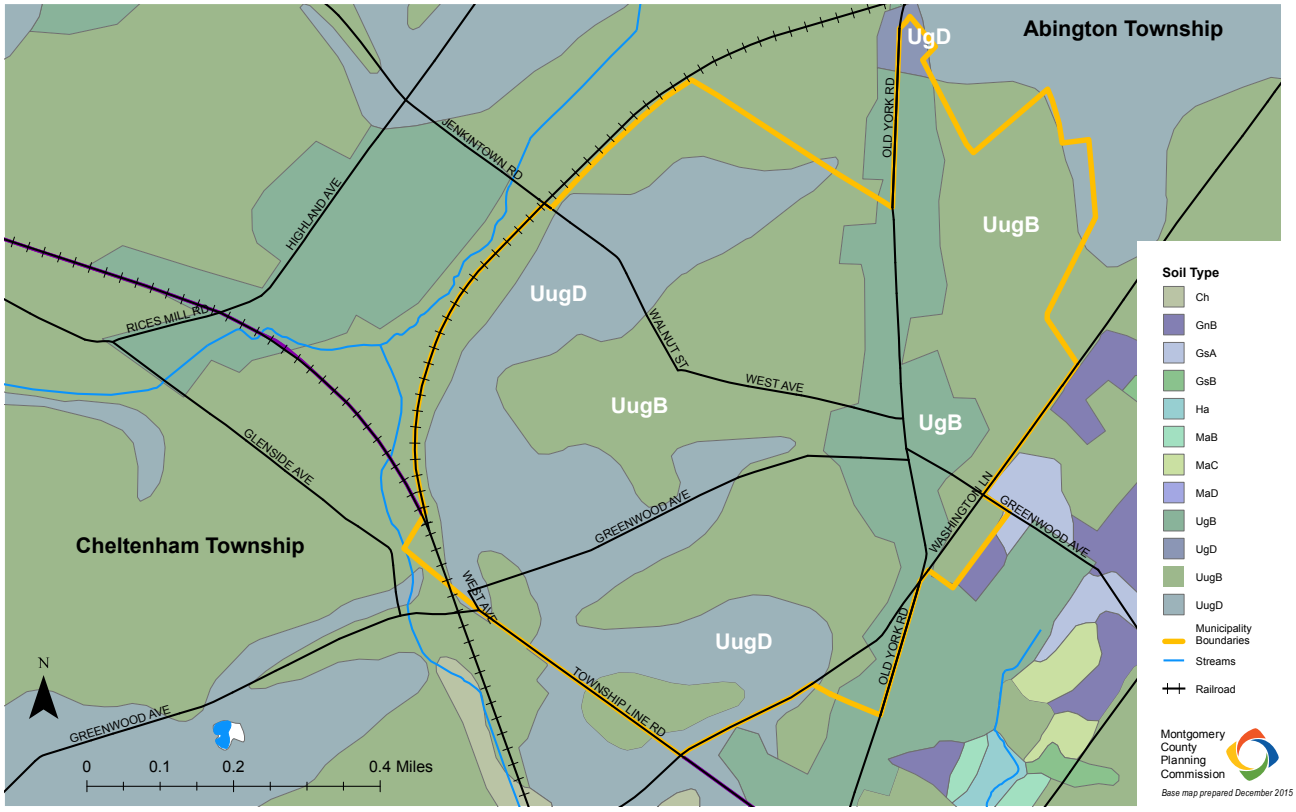
Soils

Soils naturally develop as local bedrock weathers, but they are also influenced by human activity and the activity of soil organisms. Jenkintown's soils can be classified into four categories: ***UgB***, ***UgD***, ***UugB***, and ***UugD*** (see Map 18 on the following page). All four soil types present in Jenkintown are classified as "Urban Land," which means that 75% or more of the land surface is covered by pavement, buildings, and other artificial surfaces. This typically means that the soil composition is so obscured and altered that the original source material cannot be identified. Urban soils typically have a modified structure that reduces infiltration capacity and can commonly be contaminated from development activity and the presence of vehicles.

Soil types ***UgD*** and ***UgB*** are categorized as Urban Land exclusively because the land under these categories is covered by the roadways and buildings of the downtown commercial district along Old York Road. Soil types ***UugD*** and ***UugB*** are composed of the Schist and Gneiss Complex, in addition to Urban Land, which is characteristic of soils derived from the ***Wissahickon Formation***. These soil types cover almost the entire borough; ***UugB*** and ***UugD*** combined make up 86% of the soil type found in Jenkintown. These soil types are still largely intact because they are primarily found in the residential areas of the Borough where there has been less intense development.

3 *Source: Pennsylvania Geological Survey.*

Map 18. Jenkintown Soils[4]



The different soil categories also indicate the percentage of slope: ***UugD*** and ***UgD*** are soils that have a slope between 8-25% and ***UugB*** and ***UgB*** are soils that have a slope between 0-8%. Based on water runoff characteristics, soils are classified into four hydrologic groups: A, B, C, and D, ranging from low runoff potential with high infiltration rates, to high runoff potential with slow infiltration rates. All of the soils in Jenkintown are classified as Group C soils, meaning they have slow infiltration rates even when thoroughly wet due to impervious surfaces that impede downward movement of water. This signifies that there is an increased potential for stormwater runoff during storm events that may exceed the capacity of the aging sewer infrastructure and lead to ponding on roadways.

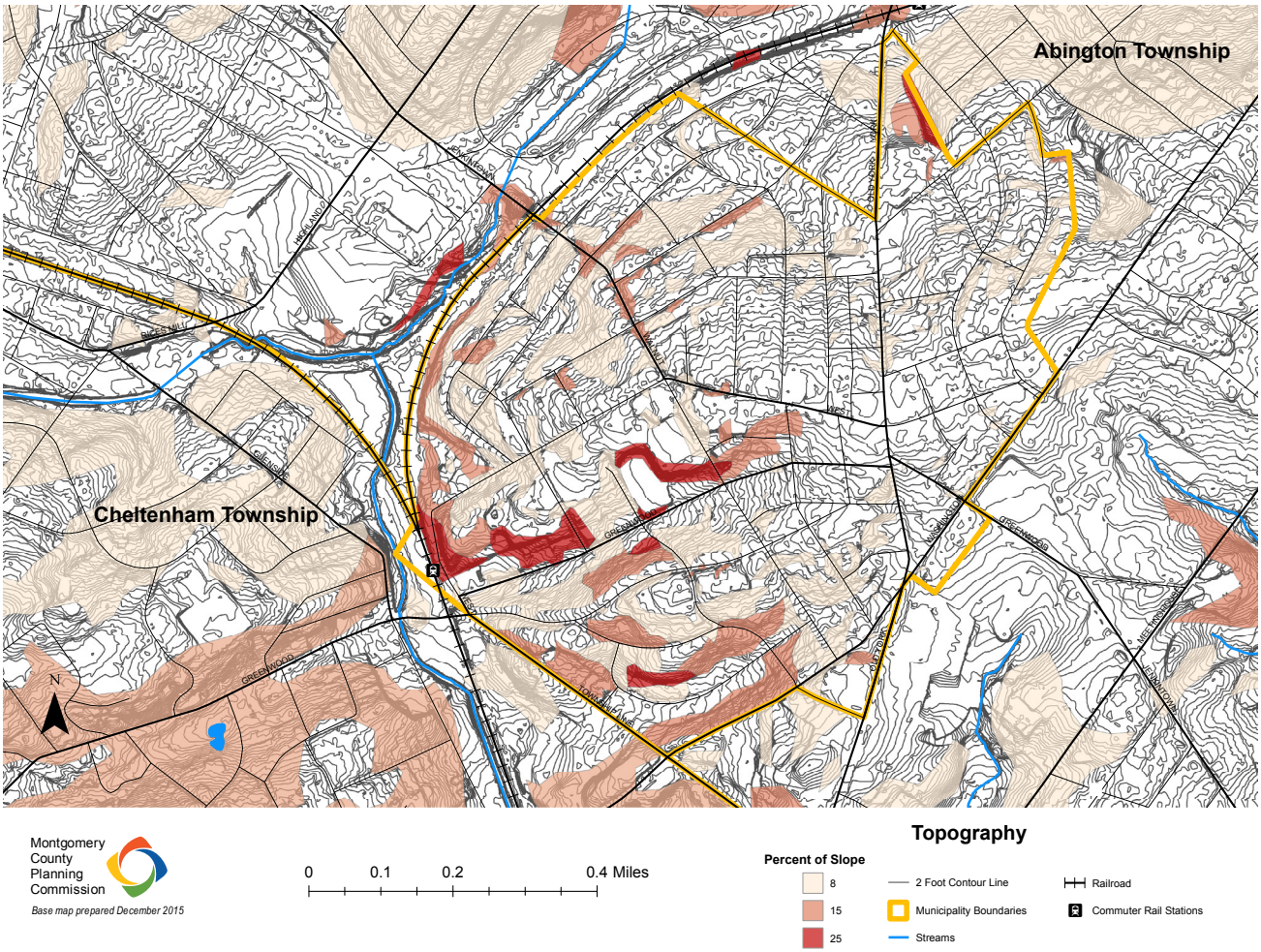
TOPOGRAPHY & STEEP SLOPES

Topography is a way to illustrate changes in elevation on a map (see Map 19 on the following page. Contour lines that are closer together indicate a steeper slope and lines that are further apart indicate a shallower slope. Slopes that are greater than 25% are considered undesirable for development because of the increased risk for erosion and runoff, and the amount of grading needed for building stabilization. Jenkintown is already built-out on even the most steeply sloped areas, but some measures are being undertaken to reduce the effects of erosion on these areas such as the planting of blueberry bushes on 300 square feet of sloped land on the school property. This reduces the need to mow the grass on this incline and provides increased soil stabilization, both of which will help reduce runoff[5].

4 *Source: Natural Resources and Conservation Service*

5 *Jenkintown Borough Environmental Advisory Committee Annual Report. October 2014.*

Map 19. Jenkintown Topography & Steep Slopes[6]



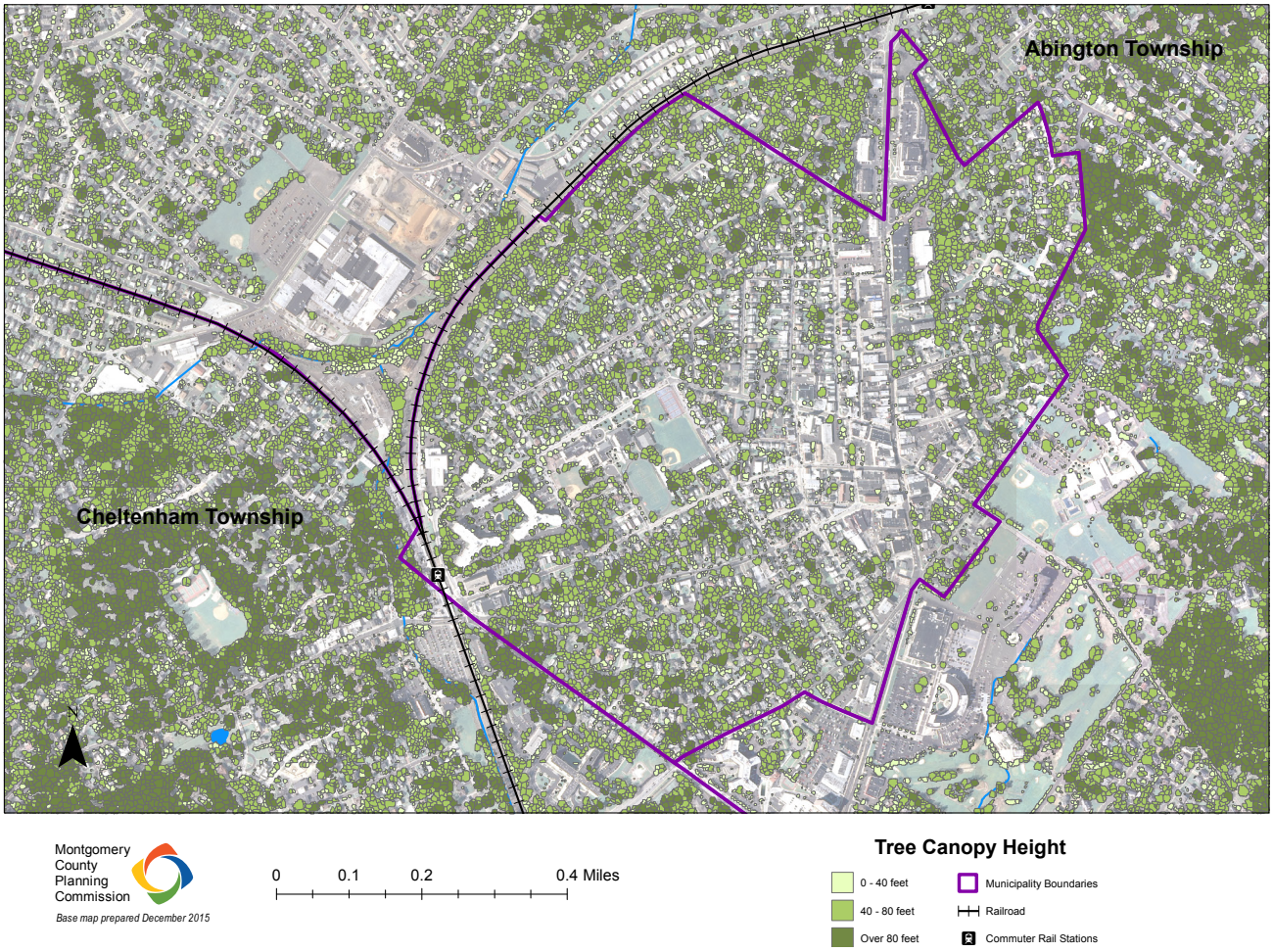
Jenkintown's hilltop location affords several views of the surrounding valley. While none of these were designated scenic in a natural or historic context by the 1996 and 2006 open space plans, they were deemed to provide a sense of location and topography. These vistas were also noted to give visual relief from the short views within the Borough. The most prominent views are from the top of the hill on Old York Road looking north and south, on Johnson Street looking north, and from the intersection of West Avenue and Walnut Street looking northwest down Walnut Street.

TREE COVER

Although Jenkintown no longer has any naturally occurring woodlands remaining, the Borough does have a significant canopy of mature trees within the residential areas. Categorized by the *1996 Open Space Plan* as distinctive "Forest Neighborhoods," street and lawn trees provide ecological benefits such as carbon sequestration and benefits to human health such as shade cooling as well as contribute to the overall aesthetics of the neighborhoods.

6 *Source: U.S. Geological Survey.*

Map 20. Jenkintown Tree Canopy Height[7]



The *1996 Open Space Plan* used the term "Forest Neighborhoods" to describe how Jenkintown's residential areas have a canopy of mature trees. Map 20 above shows where trees are located in the Borough and the approximate height of the tree cover. The taller the tree, presumably the older and more mature the tree is, however different tree species grow at different rates and contribute to the overall tree canopy to a different degree. There is a concentration of mature trees in the residential areas of the Borough. There are a few areas that lack tree coverage, including the streets along the school boundaries and throughout the Old York Road commercial corridor. These areas could be the focus of a Borough-wide greening program that works to increase the number of street trees present in highly-trafficked areas.

Jenkintown's Shade Tree Commission works to interpret the Jenkintown Borough Code on trees and provide their opinion on Borough issues that involve trees. Shade tree commissions also fulfill an educational role in many communities - often providing information about what trees are most appropriate for different planting sites. An annual planting of shade trees in the fall is supported by Borough Council. Jenkintown also supports an incentive for replacing street trees that were removed by providing a refund of tree removal fees if the tree is replaced within 6 months. Planting of street trees may be impeded or constrained by overhead wires which are prevalent

7 *Source: Pennsylvania Horticultural Society*

Map 21. Jenkintown Region Forest Patch Cover[8]

throughout the Borough. Street trees in the commercial district may also be impractical due to the size of the sidewalk and/or proximity to buildings that could obscure business windows and signs.

Looking at the larger regional context (see Map 21 above), the majority of the land area, including Jenkintown, is covered in small patch forest with only a few areas covered in large patch forest. The forest patch classes are based on a combination of size, edge to perimeter ratio, length, and width. In general, small patches represent individual trees or small rows of trees. Medium patches represent clumps of trees that are fragmented and may or may not have a duff layer (organic material layer in forests that are decomposed to the point at which there is no identifiable individual materials). Large forest patches consist of forested stands that in most cases will have a duff layer. The small patch forest is mainly street trees in predominantly residential areas and in some areas the outline of the street network is clearly visible. Large patch forest areas are desirable because larger contiguous woodland areas provide a stronger, more stable habitat for native flora and fauna and increased diversification. Fragmentation of forested lands results in the "edge effect." Edge forests and fragmented woodlands degrade the quality of the forest habitat and encourage invasive plants and nest parasites. Deer also thrive in edge forests where they can overbrowse native vegetation and can cause public health and safety issues as they enter more heavily populated areas.

8 *Source: Pennsylvania Horticultural Society*

Street trees add distinctive character to a commercial street and provide shade for outdoor seating. The corner bump-outs along West Avenue provide additional space for trees to grow, next to on-street parking.

Well-established large canopy trees line the residential streets which add charm and character, as well as serve an important ecological function in the Borough.

Street trees, such as those along Markley Street in Norristown, can also be designed to incorporate stormwater management benefits where site conditions and space allows.

Unfortunately, large shade trees can outgrow their planting strips overtime causing damage to adjacent sidewalks. Selecting tree species based on the constraints of the planting location can help reduce the likelihood of damage caused by trees as they grow.

The City of Asbury Park in New Jersey has designated this public park as a "pesticide free zone."

Diverse and naturalized plantings on the slopes along the Cynwyd Heritage Trail and SEPTA railroad tracks in Lower Merion Township allows for greater soil stabilization and screening.

RECOMMENDATION S1:

Protect and enhance Jenkintown's diverse and established tree canopy. Shade trees provide a wealth of benefits, including improving air quality, providing shade cooling, capturing and absorbing stormwater runoff, and enhancing the visual appearance of a street. Although the Borough has an extensive residential tree canopy, there are areas in the residential and commercial districts that could be improved with additional street trees.

Strategy S1a

Complete a street tree inventory. The street tree inventory will record important data about every street tree and tree on public property, including species, size (measured as diameter at breast height (dbh)), tree pit size, sidewalk width, observations of pest damage, and other maintenance recommendations or concerns such as overhead wire conflicts or sidewalk damage.

During the street tree inventory process, locations for new trees, such as empty tree pits, should be identified as priority locations for future planting projects. The tree pit or planting area size should be noted in order to better determine the most appropriate replacement tree species, or other planting material (such as perennial or evergreen, low-growing ground covers) if there is not sufficient room for a street tree.

Some front yards do not have much, if any, tree cover. Additional shade trees in these areas could benefit the property owner and the neighborhood overall. On the other hand, some front yard areas may be impractical for street trees because of overhead wires, limited yard space, or other environmental constraints.

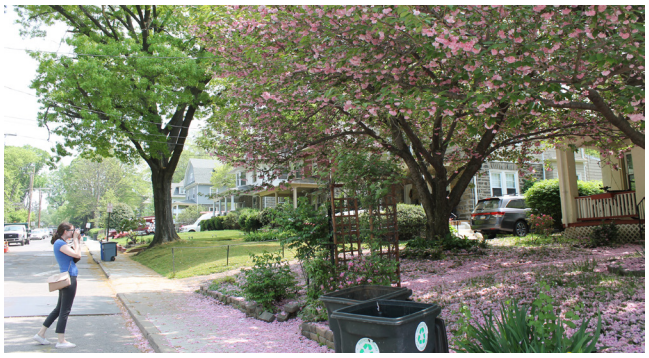
Typically, street trees need 800-1,200 cubic feet of soil. Where tree planting areas are constrained, smaller trees could be planted or structural soils could be used underneath the adjacent sidewalk to allow for the preferred soil volume.

In general, smaller trees can be planted underneath utility wires and columnar trees are appropriate where there are shallow setbacks.

Where the landscape strip is too narrow for any tree planting; hardy, salt-resistant grasses and low-growing perennial ground covers are suitable.

Strategy S1b

Enhance the role and duties of the Shade Tree Commission. The Shade Tree Commission should provide guidance to property owners on the proper maintenance and planting of trees. Establish a yearly audit of the Borough's trees to identify the loss or addition of new trees. The Shade Tree Commission could also provide assistance to replace felled trees and encourage the planting of trees in areas of Jenkintown that currently lack trees.



The unique character and comfort of the Borough's residential streets is due in large part to the established shade tree canopy. The 1996 Open Space Plan emphasized the "forest neighborhood" character of the Borough's residential streets.

Strategy S1c

Continue to conduct outreach to residential and commercial property owners to encourage the planting of new trees through programs such as "TreeVitalize." As part of this effort, focus on educating property owners on the environmental and economic value of tree planting and what tree species and planting types are most appropriate for challenging sites such as narrow planting strips along streets.

Strategy S1d

Amend the Subdivision and Land Development Ordinance (SALDO) to strengthen tree protection and tree replacement standards. As part of an evaluation of the SALDO, consider additional ways to emphasize the use of native vegetation, low-impact maintenance techniques, and enhanced landscaping requirements for new development.

Landscaping standards, in both residential and commercial areas, should encourage the preservation of existing vegetation, where possible, and provide standards for appropriate screening, shading, and beautification through the use of diverse vegetation.

RECOMMENDATION S2:

Protect areas of steep slope, which are typically more susceptible to erosion, land slides, and subsidence when disturbed.

Strategy S2a

Coordinate with property owners with steep slopes on their properties to re-vegetate slopes with appropriate vegetation that have deeper root systems that help stabilize the sloped soils and reduce the likelihood and effects of erosion. Educate property owners with steep slopes regarding options for appropriate and attractive landscaping and vegetative maintenance strategies that can help to protect areas of steep slope from excessive erosion.

The Jenkintown Environmental Advisory Council (EAC) worked with the Jenkintown School District to plant blueberry bushes on a section of steep slope next to a basketball court (left photo). With proper maintenance, this section of steep slope will be stabilized so that the effects of erosion on the site are reduced. Additional vegetation could help stabilize this area of steep slope along Main Street in Souderton Borough (right photo).

THEME ELEMENT:
WATER RESOURCE MANAGEMENT

BACKGROUND

Water is an extremely important natural resource that supports all forms of life. It is important to understand the quantity, quality, and location of water resources within a region.

Watershed Protection

Watersheds represent the land area in a region where water resources drain into a common water body, either overland or underground. Watershed management is a critical component of maintaining healthy waterways to preserve the ecological health of an area as well as ensure that water supplies are protected. High percentages of impervious cover in urban areas increase water runoff volumes and rates, which highlights the importance of stormwater management to control the amount of contaminated runoff that reaches our waterways and ground water recharge areas. Erosion and sedimentation of waterways lead to impaired streams that put our wildlife and water quality at risk. Different rock types within the watersheds dictate the ways in which water moves over, into, and through them.

In Jenkintown, two major watersheds, the *Tookany/Tacony-Frankford Watershed* (TTF) and the *Pennypack Creek Watershed*, make up the majority of the land area (see Map 22 on the following page). The Jenkintown Creek Watershed is a part of the TTF Watershed and is one of the headwater tributaries of the Tookany Creek.[9]

- The *Tookany/Tacony-Frankford Watershed* system is a tributary of the Delaware River and encompasses a total area of approximately 33 square miles. Jenkintown accounts for 0.57 square miles (1.7%) of the total watershed area. Six municipalities drain into the TTF Watershed: Jenkintown Borough, Rockledge Borough, Abington Township, Cheltenham Township, Springfield Township, and the City of Philadelphia[10].
- The *Pennypack Creek Watershed* encompasses a total area of 56 square miles and also drains into the Delaware River. This large watershed includes land area from twelve municipalities across Bucks, Montgomery, and Philadelphia counties. The PA DEP has determined that about 82% of the watershed's stream miles are impaired for designated uses. Urban runoff is a significant concern and is the primary cause of impairment in 78% of the designated streams[11].

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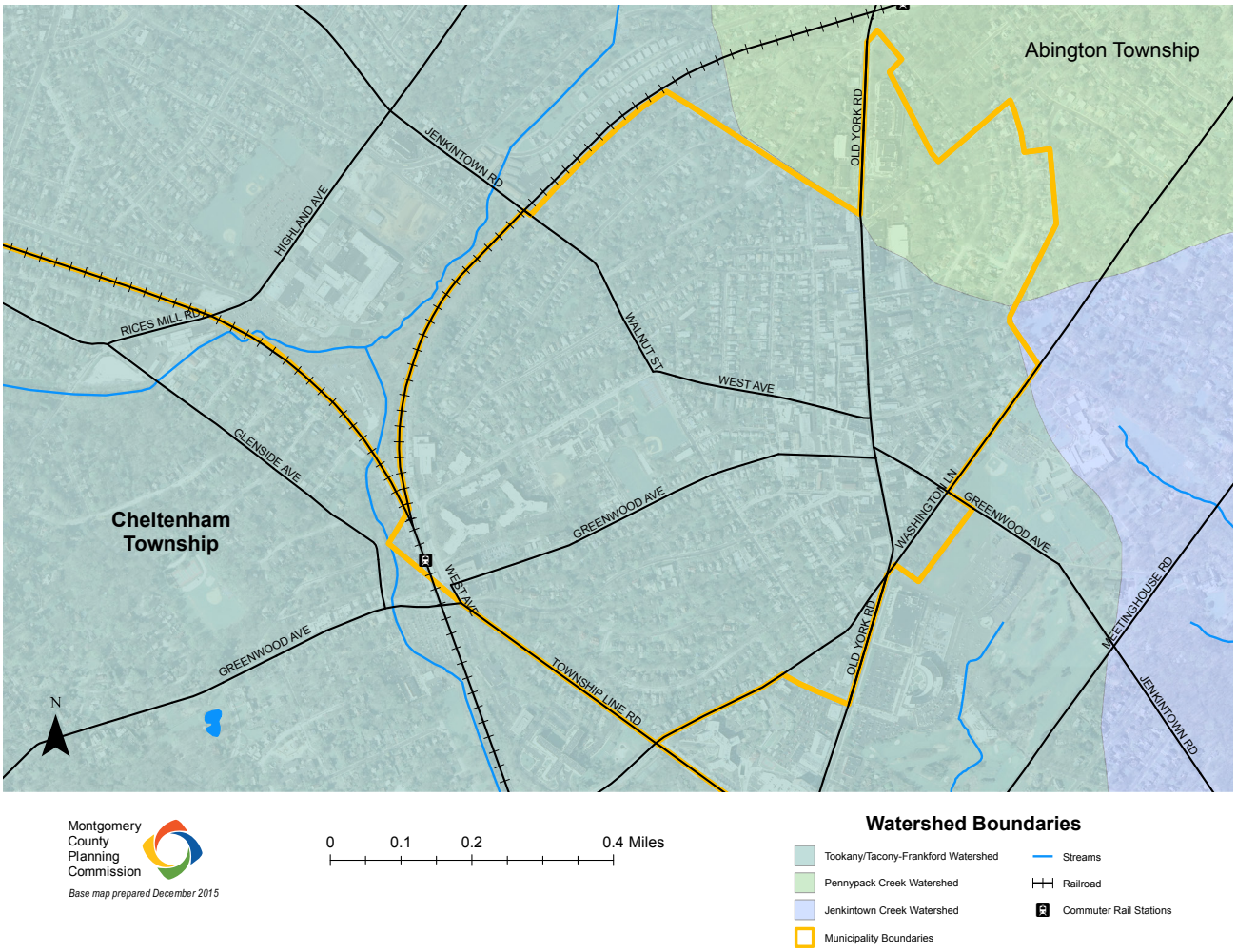
9 Tookany Creek Watershed Management Plan, 2003.

10 Tookany/Tacony-Frankford Watershed Act 167: Stormwater Management Plan. Borton-Lawson Engineering, Inc and Philadelphia Water Department. October 10, 2008.

11 Pennypack Creek Watershed Act 167 Plan. Temple University Center for Sustainable Communities. December 2011.

Map 22. Jenkintown Watersheds[12]

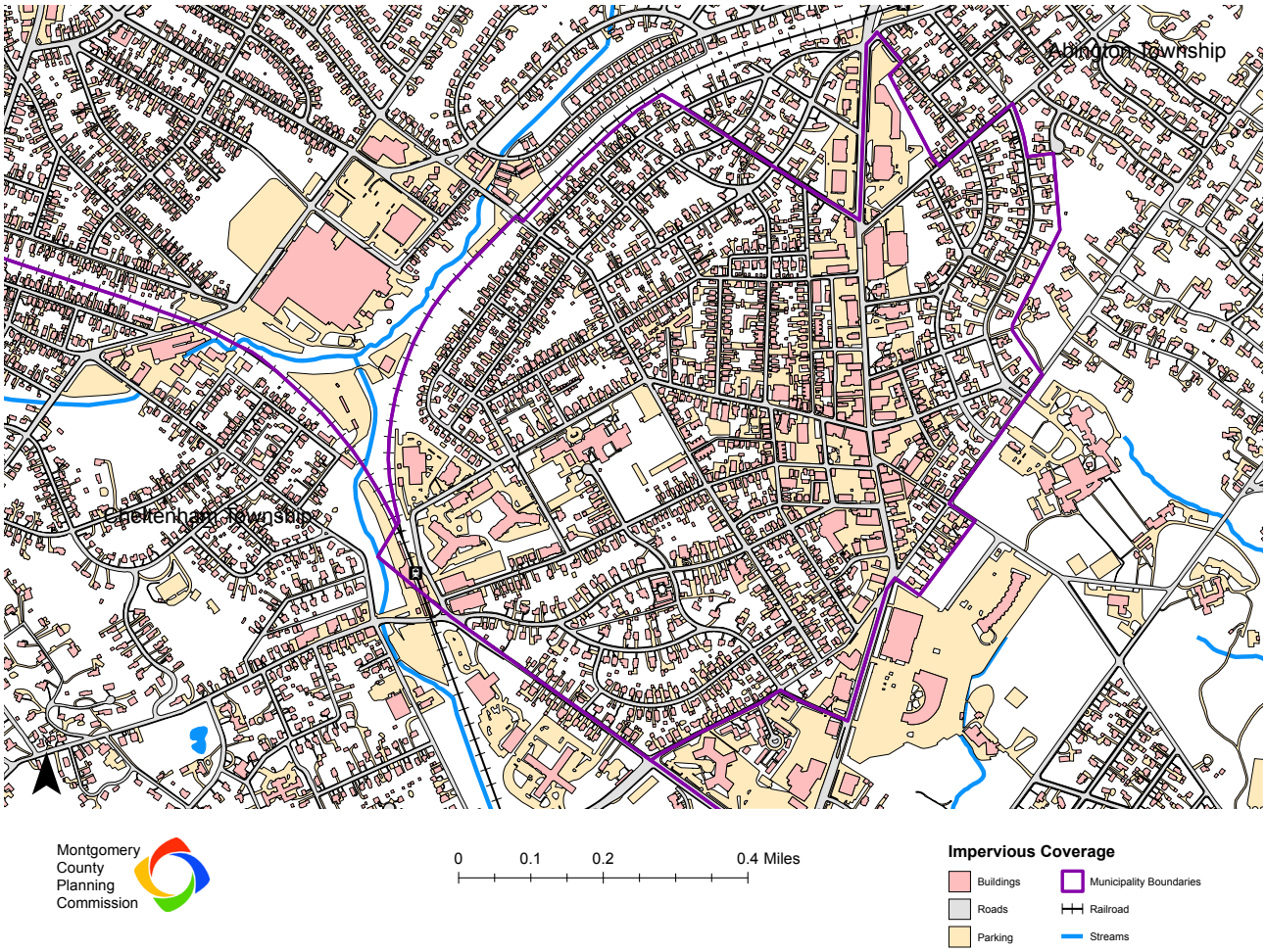


Increased partnerships with other municipal governments and agencies on a watershed-wide level will be beneficial to addressing water resource management issues. Past plans have provided watershed management recommendations specific to Jenkintown, including:

- The *Tookany/Tacony-Frankford Watershed Management Plan*, published in 2005, recommended that municipal sewage facilities plans be kept up to date. It also recommended that the Borough work in conjunction with Abington, Cheltenham, Rockledge, and the City of Philadelphia on public education about watershed management issues.
- The *Pennypack Creek Watershed Act 167 Plan*, published in 2011, recommended Jenkintown provide additional volume reduction in stormwater runoff. The runoff volume reduction target set for Jenkintown was 0.4 acre-feet.

12 *Source: U.S. Geological Survey.*

Map 23. Jenkintown Impervious Coverage[13]



Stormwater Management

The majority of rainfall that lands on impervious surfaces within the Borough becomes stormwater runoff. The cumulative land area covered by impervious surface such as roads, parking lots, and rooftops is shown in Map 23 above. Jenkintown Borough's stormwater runoff is discharged into the local streams. The majority of Jenkintown's runoff drains to streams within the Tookany/Tacony-Frankford

Watershed to the south and west; however a small portion of the Borough's runoff drains into streams within the Pennypack Creek Watershed to the north. Both of these watersheds eventually drain into the Delaware River.

Because the Borough's runoff drains into a surface water body, the Municipality is required to maintain a Municipal Separate Storm Sewer System (MS4) permit with DEP. Activities such as tree plantings, street sweepings, and educational programs contribute to the Borough's MS4 permit

13 *Source: Delaware Valley Regional Planning Commission, 2017.*

requirements. The MS4 permit program requires that municipalities incorporate the following six elements (or minimum control measures) into their stormwater management programs:[14]

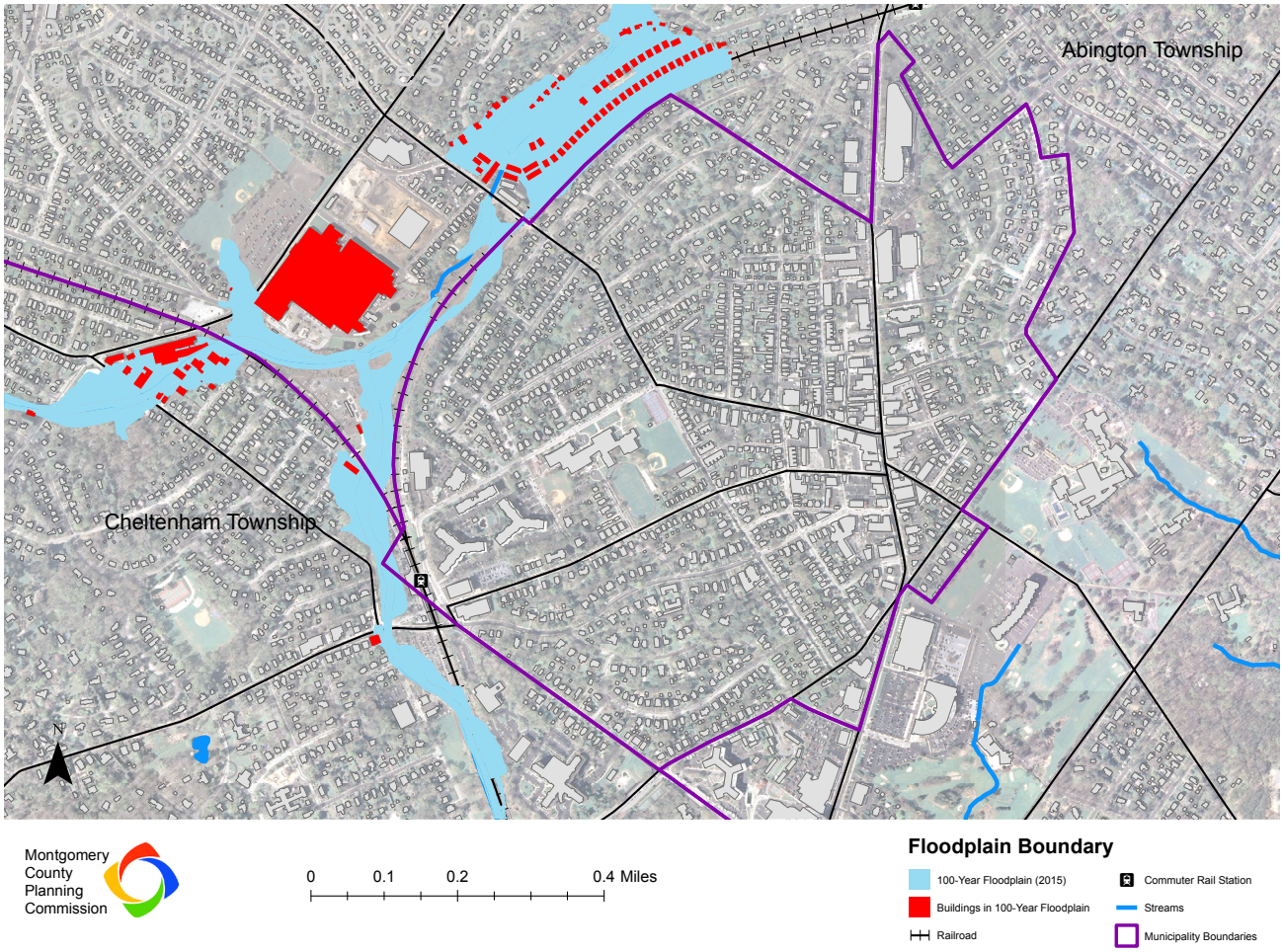
1. Public education and outreach
2. Public involvement and participation
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention and good housekeeping for municipal operations and maintenance

Every five years, DEP evaluates the MS4 permit program and makes adjustments as needed. One change that is being implemented in 2017 is to require municipal MS4 stormwater management plans in areas where there are impaired streams with a designated TMDL (Total Maximum Daily Load) limitation to also incorporate plans to address the TMDL. For example, excessive sedimentation within a stream can be related to stormwater runoff. If a TMDL for sediment has been established for a creek within the municipality's watershed, then the municipality's MS4 plan must establish measures for how the discharge of that pollutant will be adequately reduced to improve the health of the impacted stream.

Although the Borough's storm sewer system has sufficient capacity to drain excess rainwater from the Borough's streets, additional on-site stormwater management will reduce pollution in neighboring streams and reduce pressure on the existing drainage infrastructure. Stormwater management in Jenkintown with its greater percentage of land area covered by impervious surfaces, will continue to be of critical importance to maintaining the health of the area's water supply and preserving natural habitat within the nearby stream channels and floodplains. Because the Borough is built-out with no large open spaces for the construction of centralized stormwater management infrastructure, more localized stormwater management applications are more appropriate. As part of a larger watershed, the Borough needs to also continue to look at ways to manage stormwater runoff in partnership with adjacent communities.

Trees are an essential part of a stormwater management program. Trees intercept rainwater as it falls and encourage infiltration and evaporation of stormwater runoff. Therefore, initiatives that encourage the planting and appropriate maintenance of trees could also have significant benefits for the control of stormwater runoff within the Borough.

14 StormwaterPA. "MS4 Program." http://www.stormwaterpa.org/ms4-program.html



Map 24. Jenkintown Floodplains[15]

Floodplain Conservation

The Federal Emergency Management Agency (FEMA) recently updated the floodplain insurance rate maps (FIRM) for Montgomery County and all municipalities were required to update their floodplain ordinances to reflect these changes. Based on the most recent FEMA Floodway maps, Jenkintown is at low-risk for flooding based on the 1%-annual chance flood, or "100-year flood." In Jenkintown, the designated flood zone is primarily located along the SEPTA rail tracks and only a few buildings, none of them residential, are within the floodplain (see Map 24 above).

15 *Source: Federal Emergency Management Agency (FEMA); Montgomery County Planning Commission.*

The recent realignment of the intersection of Greenwood Avenue and Old York Road resulted in an overall decrease in the impervious coverage of the intersection allowing a larger portion of local stormwater runoff to be infiltrated on-site.

Permeable pavers, which allow rain water to infiltrate through the pavement, can be an attractive option for lower-traffic areas, such as this parking lot in Hilton Head, South Carolina.

Where space and environmental factors allow, rainwater from downspouts can be directed to vegetated areas such as rain gardens. This is an example of a downspout planter at a recreation center in Philadelphia.

Rain gardens and stormwater drainage systems can be attractively incorporated into public spaces, such as in Linwood Park in Lower Merion Township.

The parking islands in this East Norriton Township shopping center incorporate attractively landscaped biofiltration basins.

Strategically placed depressed curbs allow runoff from this Horsham Township parking lot to be directed into a planting area where the stormwater can be infiltrated back into the ground.

RECOMMENDATION S3:

Implement small-scale, localized stormwater management practices throughout the Borough through the installation of natural drainage systems and other strategies that reduce the amount of stormwater runoff and sediment which is discharged into local waterways. Examples of potential strategies include rain gardens, bio-retention basins, and rain barrels.

Strategy S3a

Identify locations suitable for localized stormwater management facility installation within the right-of-way or on public lands and implement improvements, as appropriate. Such landscaping improvements and reconfigurations of large intersections can also have traffic calming benefits (see *Strategy T4c* for more information on the traffic calming benefits of this strategy).

Grassy landscaping strips along sidewalks could be reconstructed with rocks and low-maintenance native grasses to create localized stormwater basins to help capture stormwater during rain events.

Map 10 on page # identifies several overly wide intersections throughout the Borough where a road diet, which narrows the intersection crossing distances, and the installation of additional landscaping could also have benefits for the Borough's stormwater management system. An example of these improvements at the intersection of Cheltena Avenue, Linda Vista Avenue, and Cedar Street is shown below.

Wide Y-shaped intersections, such as the intersection of Cheltena Avenue, Linda Vista Avenue, and Cedar Street shown above, have excessive paving and encourage speeding. Bump-outs from the existing sidewalk would create a more acute angle that would serve to reduce traffic speeds and create additional green space for the removal of paving and installation of a localized stormwater feature.

Strategy S3b

Provide ongoing education to homeowners about best management practices (BMPs) for stormwater management on their properties. For example, an illustrated brochure that demonstrates the importance of managing stormwater runoff and reducing pollution in our local streams could be mailed to homeowners. One way homeowners can reduce the volume of stormwater runoff from their properties that ends up in the Borough's storm sewer systems is to design their landscaping so that runoff coming out of their home's downspouts is collected in rain barrels or directed to vegetated areas such as rain gardens, where site conditions allow.

Rain barrels allow rain water from a building's roof to be collected on-site and slowly discharged after the rain storm to reduce the peak flow of stormwater that occurs during a storm.

Strategy S3c

Continue efforts to coordinate with the Tookany/ Tacony-Frankford Watershed Partnership (TTF) to provide interested residents with rain barrels. Continue to offer regular workshops at Borough Hall on the proper installation, use, and maintenance of barrels and provide free or reduced cost barrels to residents who participate. Pursue additional partnerships and educational opportunities related to stormwater management of residential properties, as they arise.

Strategy S3d

Adopt an updated subdivision and land development ordinance to reflect modern sustainability standards and landscaping practices appropriate for a developed borough. As part of the ordinance update, perform an audit of the Borough's zoning, subdivision and land development, and stormwater management ordinances to identify ordinance amendments which could encourage more sustainable development practices within the Borough. For example, ordinances should define and provide standards that encourage the appropriate utilization of stormwater management practices such as permeable paving and green roofs.

Work with the Environmental Advisory Committee to create a green infrastructure checklist to assist the Planning Commission, Design Review Board, and Borough Council in evaluating opportunities for incorporating stormwater management and landscaping best practices earlier in the development process.

See *Strategy S1d* for more information about recommended updated landscaping standards which could be incorporated into an updated subdivision and land development ordinance.

THEME ELEMENT:
INFRASTRUCTURE & ENERGY

BACKGROUND

Infrastructure as a whole is often referred to as the "backbone" of a community. In particular, the systems that provide drinking water and convey wastewater are essential to the safety and comfort of the residents, workers, and visitors. The Borough currently has sufficient water supply and sewer pipe capacity for existing uses; however limitations on the sewer pipe conveyance and wastewater treatment systems downstream could have the potential to delay new developments that require additional sewer capacity. Energy, in the form of electricity and natural gas, is another essential component of the Borough's infrastructure. Finding ways to reduce the environmental impact of generating, transmitting, and using energy is of increasing importance to many people.

Water Infrastructure

Soon after being established in 1874, the Borough began modernizing and providing essential services to their dense residential population. The Jenkintown Water Company was first chartered in 1889 and water pipes were laid throughout the Borough.[16] Originally, the Borough's drinking water was supplied by artesian wells and stored in a 100,000-gallon water tower. By 1928, the Borough's water company had been merged with the Philadelphia Suburban Water Company, which is known as Aqua PA today.

The majority of Aqua PA's water is taken from surface water sources, including the Schuylkill River, the Upper Merion Reservoir, and the Perkiomen Creek; however it also operates 19 wells within Montgomery County.[17] As of 2006, there were a total of 103,968 water connections within Aqua PA's Montgomery County service area.

All public water suppliers are required to provide a water quality report to their customers on an annual basis. Water suppliers test and report on levels of turbidity, chemical and microbial contaminants, and disinfectant residuals and byproducts of disinfection. Levels of heavy metals such as lead and copper are also monitored at both the treatment plant and within the distribution system. Some types of solder and pipes (especially brass or chrome-plated brass faucets and fixtures in older homes) can leach lead into a home's water system.[18]

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16 "Montgomery County: The Second Hundred Years." Chapter 20: Jenkintown. 1983.

17 "Water Supply Facilities: 2006 Status Report." Montgomery County Planning Commission, 2006.

18 City of Lancaster. "Information about Lead in Drinking Water." http://www.cityoflancasterpa.com/information-about-lead-drinking-water

Exposure to excess levels of lead, especially for young children, has received increased attention in recent years. The majority of Jenkintown's homes and buildings were built prior to 1978 and therefore could contain lead paint. Renovation activity and insufficient maintenance can contribute to lead exposure. Lead can also be present in drinking water, especially in homes where lead pipes, fixtures, and solder were used (more common in homes built before 1986).

Sewer Infrastructure

In 1912, Jenkintown Borough Council authorized the establishment and maintenance of a sanitary sewer system.[19] Although the option of creating a separate sewer system was reviewed, Council eventually decided to sign an agreement with neighboring Cheltenham Township to connect with their sewer lines. Today, all of Jenkintown's sewage is conveyed to a wastewater treatment plant in the City of Philadelphia for treatment.

Jenkintown Borough's sewage collection system consists of about 10 miles of sanitary sewer pipes which range in size from 8" to 12" in diameter[20] with a total of 350 manholes[21]. Three metered connections record the discharges from Jenkintown Borough into Cheltenham Township's system.

The Pennsylvania Department of Environmental Protection (DEP) is in charge of allocating sewage flow based on an Equivalent Dwelling Unit (EDU) measurement. Each wastewater treatment plant, as well as the conveyance systems to and from that plant, are monitored and is allocated a certain sewage treatment capacity (measured in terms of the number of EDUs).

Each time there is a change in use or new development within the service area of a certain wastewater treatment plant, a permit is needed for the additional sewage flow created by the development. The Borough participated in a draft Act 537 sewage facilities plan update with Cheltenham Township in 2013. The Act 537 plan is a way of anticipating and planning for the allocation of the EDU needs of each community based on projected development and land use changes.

If DEP has identified a constraint in any part of the wastewater collection, conveyance, and treatment systems, the EDU permit process can be delayed. In some situations, the developer creating the need for additional sewage flow can offer to pay for improvements to the system that would open up enough flow to accommodate their development. Examples include replacing leaky manholes or installing a pump system to redirect the flow to another part of the conveyance system.

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19 *"Montgomery County: The Second Hundred Years." Chapter 20: Jenkintown. 1983*

20 *"DRAFT Cheltenham Township Act 537 Official Sewage Facilities Plan Update." ARRO Consulting, Inc. 2013.*

21 *"Municipal Wasteload Management Annual Report for 2010." Pennoni Associates, Inc. 2011.*

Jenkintown's 2010 Chapter 94 report indicates that the sanitary sewer system within the Borough's boundaries has not experienced any capacity issues. The Borough is actively pursuing additional corrective actions such as installing velocity flow meters, conducting video inspections of sewer mains, and remediating inflow and infiltration through the installation of cured-in-place liners and chemical grouting of pipe joints.[22] The current limitations in Jenkintown's larger sewage collection and conveyance system are due to undersized and/or malfunctioning sections of the conveyance system that runs through Cheltenham Township.[23]

The Pennsylvania Department of Environmental Protection is charged with maintaining a State Water Plan[1] which studies the water resources supply within the Commonwealth as well as planning for the projected water needs of the population. The State Water Plan outlines regional priorities for the Delaware River drainage basin as: (1) Link land use decisions and water resources management; and (2) Improve management of water resources (including stormwater and wastewater) and waterway corridors to reduce damages from extreme conditions (including floods and droughts).

1 Pennsylvania Department of Environmental Protection. "State Water Plan." http://www.pawaterplan.dep.state.pa.us/StateWaterPlan/docroot/Default.aspx.

Energy

Electric and gas service within Jenkintown Borough is provided by PECO. The primary source of public electricity for the County is the 2,284-megawatt Limerick Nuclear Power Station, while gas supplies are obtained from interstate gas transmission companies. Renewable energy (e.g., solar, wind, geothermal) refers to energy that can be harnessed from natural processes which help reduce reliance on fossil fuels and nuclear power.

In a built-out community like Jenkintown, renewable energy design needs to be scaled down to fit into the existing community. The most effective forms of renewable energy that could be installed would be solar panels and geothermal wells. Conditions must be suitable in order to maximize the investment in renewable energy infrastructure, and not all locations are appropriate for the installation of these technologies. For example, prevailing wind conditions in this part of the County make wind energy less of an effective form of renewable energy; however wind energy technologies are constantly evolving and smaller turbine configurations could potentially fit into a borough context. Residential and commercial interest in using renewable energy may increase as the cost of energy rises. The Borough should have a regulatory format in place to encourage and accommodate the appropriate and safe installation of renewable energy infrastructure.

22 "Municipal Wasteload Management Annual Report for 2010." Pennoni Associates, Inc. 2011.

23 "Status Report and Corrective Action Plan for the Cheltenham Township Sanitary Sewer System." BCM Engineers. 2012.

Buildings are a major source of energy use for heating, cooling, lighting, and water consumption. One way to reduce the energy used for these processes is to implement green building practices when designing and constructing the building. These practices follow standards outlined by the US Green Building Council for LEED certification. LEED (Leadership in Energy and Environmental Design) is a set of criteria that can be applied to any building type, from residential house to major corporate office or hospital, which focuses on reduction and efficiency of energy and water use within the building. LEED can be used for new construction, or for modification of an existing structure. For the Borough, LEED certified building practices may be most appropriate for any new construction of municipal buildings. The Borough may also wish to consider encouraging the use of LEED design practices for any building conversion or new construction within the Borough, regardless of use. In order to be formally recognized as LEED certified, there is a registration and certification fee, although LEED practices can be implemented without formally certifying a building.

Renewable energy ordinance frameworks have been prepared by DVRPC's Alternative Energy Ordinance Working Group (AEOWG) that can be used as a resource for the Borough as they evaluate ordinance language relating to the construction and operation of small renewable energy installations consistent with state laws while promoting sound community development.

It is also important to keep in mind that the Montgomery County Public Health Code (Chapter 17: Individual Water Supply, Irrigation Well, and Geothermal Well System Regulations) contains regulations relevant to geothermal well installation and operation.

DVRPC Renewable Energy Ordinance Frameworks: *http://www.dvrpc.org/EnergyClimate/AEOWG/*

Montgomery County Health Department Geothermal Well Regulations: *http://www.montcopa.org/533/Individual-Water-Supply-Well-Permitting*

Utility work underway on Greenwood Avenue near West Avenue in spring of 2015.

Example of solar photovoltaic (PV) panels installed on a business in Lower Salford Township.

Example of small-scale vertical axis wind turbines installed in the parking lot of the Montgomery County Community College campus in Pottstown Borough.

Example of an underground geothermal energy system being installed on a church property in Bryn Athyn Borough.

RECOMMENDATION S4:

Ensure Jenkintown Borough has adequate sewer capacity to serve any future development.

Strategy S4a

Continue to coordinate with officials in Cheltenham Township and the City of Philadelphia on the capacity of the wastewater collection, conveyance, and treatment systems that also serve Jenkintown Borough.

Strategy S4b

Continue to work with Cheltenham Township to maintain an up-to-date sewage facilities plan (Act 537 plan) that reflects any zoning and/or land use changes that could impact the projected sewer capacity demand within the Borough.

RECOMMENDATION S5:

Encourage the increased application of renewable energy technologies on individual residential and non-residential properties to allow individuals to reduce their use of fossil fuel-intensive sources of electricity for their homes and businesses.

Strategy S5a

Adopt a renewable energy ordinance with standards for the safe installation and appropriate use of renewable energy facilities while minimizing any negative impacts on the community character and environment.

THEME ELEMENT: WASTE REDUCTION

BACKGROUND

Trash & Recycling

Trash is collected curbside each Friday for all residential and non-residential properties. Borough public works staff also collects trash on a regular basis from the public trash receptacles placed on public sidewalks and in Town Square to prevent litter by pedestrians. The total weight of solid waste generated (see Table 20 below) by both residential and commercial properties within Jenkintown, as well as the per capita solid waste generation rates, decreased between 2013 and 2014. The greatest waste generation reduction amount was seen in the commercial sector.

Table 20. Solid Waste Collected Annually (Tons)[24]

	Jenkintown Borough			Abington Township			Cheltenham Township		
	2013	2014	Change	2013	2014	Change	2013	2014	Change
Residential Solid Waste Collected (Tons)	1,355	1,307	-3.5%	17,667	17,594	-0.4%	7,962	7,879	-1.0%
Commercial Solid Waste Collected (Tons)	3,894	2,920	-25.0%	11,093	9,388	-15.4%	10,059	11,947	18.8%
Combined Solid Waste Collected (Tons)	5,249	4,227	-19.5%	28,760	26,982	-6.2%	18,021	19,826	10.0%
Per Capita (Tons per Borough Resident)	1.19	0.96	-19.3%	0.52	0.49	-5.8%	0.49	0.54	10.2%

Single-stream recycling (meaning all accepted recyclable materials are placed in the same container) is also collected curbside each Friday. Recycling has been mandated by Chapter 152 "Solid Waste Disposal" of the municipal code since 2012. At the state-level, the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988[25] established requirements for comprehensive municipal waste management including encouraging recycling, conservation, and waste reduction. A slight decrease in the total amount of recyclables collected (see Table 21 on the following page) from residential properties was seen between 2013 and 2014; however the total weight of recyclables collected from commercial properties increased by 15% during the same time frame.

24 *Waste System Authority of Eastern Montgomery County, Waste Generation Report, 2014-2015 Update.*

25 *Act 1988-101. http://www.palrb.us/pamphletlaws/19001999/1988/0/act/0101.pdf.*

Table 21. Recyclables Collected Annually (Tons)[26]

	Jenkintown Borough			Abington Township			Cheltenham Township		
	2013	2014	Change	2013	2014	Change	2013	2014	Change
Residential Recyclables Collected (Tons)	1,034	998	-3.5%	43,072	42,962	-0.3%	12,644	12,144	-4.0%
Commercial Recyclables Collected (Tons)	326	375	15.0%	7,379	7,282	-1.3%	3,524	2,293	-34.9%
Combined Recyclables Collected (Tons)	1,360	1,373	1.0%	50,451	50,244	-0.4%	16,168	14,437	-10.7%
Per Capita (Tons per Borough Resident)	0.31	0.31	0.6%	0.91	0.90	-0.6%	0.44	0.39	-10.9%

The recycling rate can be estimated as the amount of recyclables collected annually as a percentage of the total weight of recyclables (including yard waste) and solid waste collected (see Table 22 below). The recycling rate was calculated for both residential users and commercial users. Although Jenkintown's total estimated recycling rate increased from 21% to 25% between 2013 and 2014, the recycling rate is still much lower than that of Abington and Cheltenham Township. Additionally, Jenkintown's recycling rate is lower than the County-wide average recycling rate of 34%.

Table 22. Estimated Recycling Rates

	Jenkintown Borough		Abington Township		Cheltenham Township	
	2013	2014	2013	2014	2013	2014
Recyclables Collected Annually (Tons)	1,360	1,373	50,451	50,244	16,168	14,437
Residential Recyclables Collected Annually (Tons)	1,034	998	43,072	42,962	12,644	12,144
Commercial Recyclables Collected Annually (Tons)	326	375	7,379	7,282	3,524	2,293
Solid Waste Collected Annually (Tons)	5,249	4,227	28,760	26,982	18,021	19,826
Residential Solid Waste Collected Annually (Tons)	1,355	1,307	17,667	17,594	7,962	7,879
Commercial Solid Waste Collected Annually (Tons)	3,894	2,920	11,093	9,388	10,059	11,947
Total Collected Annually (Tons)	6,609	5,600	79,211	77,226	34,189	34,263
Residential Total Collected Annually (Tons)	2,389	2,305	60,739	60,556	20,606	20,023
Commercial Total Collected Annually (Tons)	4,220	3,295	18,472	16,670	13,583	14,240
Estimated Total Recycling Rate	20.6%	24.5%	63.7%	65.1%	47.3%	42.1%
Estimated Residential Recycling Rate	43.3%	43.3%	70.9%	71.0%	61.4%	60.7%
Estimated Commercial Recycling Rate	7.7%	11.4%	40.0%	43.7%	26.0%	16.1%

Jenkintown's residential recycling rate remained the same, at approximately 43%, between 2013 and 2014 while the commercial recycling rate increased slightly from 7.7% to 11.4%. The Borough's estimated commercial recycling rate is extremely low compared to the residential portion of the Borough and the commercial entities of neighboring communities and may reflect a lack of education, enforcement, or challenges regarding collection of recyclable materials in the Borough's densely-developed commercial core.

26 Annual ReTrak and DEP Trash Data Reports, 2004-2014.

The Act 101 Recycling Performance Grant Program[1] offers grants to municipalities that offer recycling programs with grant amounts based on the weight of approved recyclable materials that were collected during the calendar year and the municipality's population. Both residential and commercial recyclables can count towards the municipality's grant amount. Therefore, detailed and accurate reporting of recyclables collected by all haulers that operate within the Borough is important.

The Pennsylvania Department of Environmental Protection also offers Recycling Program Development and Implementation Grants[2] that reimburse counties and municipalities 90% of eligible recycling program development and implementation expenses, such as educational programs, curbside recycling bins, and leaf waste processing programs.

1 Pennsylvania Department of Environmental Protection. "Recycling Performance Grants." http://www.dep.pa.gov/Business/Land/Waste/Recycling/Municipal-Resources/FinancialAssistance/Pages/Recycling-Performance-Grants.aspx

2 Pennsylvania Department of Environmental Protection. "Recycling Program Development and Implementation Grants." http://www.dep.pa.gov/Business/Land/Waste/Recycling/Municipal-Resources/FinancialAssistance/Pages/Recycling-Program-Development-and-Implementation-Grants.aspx

Yard Debris & Food Composting

Yard waste (including grass clippings, leaves, branches, etc.) is collected curbside each Tuesday. Yard waste, which is composted and therefore diverted from the landfill, is considered recycling and contributes to a municipality's total recycling rate. In 2013 and 2014, Jenkintown's yard waste accounted for nearly half of its recyclable material collected, as measured in tons.

Many communities only offer collection of leaves and yard debris at certain times of the year. The fact that the Borough offers this service year-round could encourage more residents to maintain their yards and may also help to reduce the amount of leaves and yard debris that end up in the Borough's storm drains. The collected yard debris is transported to Abington Township where they are composted. Abington Township offers finished compost free of charge to both Abington and Jenkintown residents.

Food waste accounts for up to 40% of solid waste by weight. By encouraging composting of kitchen scraps, household and institutional solid waste (as measured by weight) can be greatly reduced, which can reduce unpleasant odors associated with trash collection and improve the Borough's overall recycling rates. Backyard composting of all organic material, including kitchen scraps (but not meats, oils, or bones), grass clippings, leaves, and other plant material is an efficient and cost-effective means of reducing household waste creation. For larger entities such as school and offices, commercial composting systems can be installed on-site or a service can be contracted to pick-up compostable materials on a regular schedule.

Additional recycling bins, which should always be clearly labeled and paired with trash cans, in high-pedestrian traffic areas, could increase recycling collection rates in the Borough's commercial areas.

The Borough offers curbside commingled (meaning all recyclable materials are placed in the same collection bin) recycling collection for all residents.

The County Recycling Program offers several paper shredding events each year where residents can confidentially dispose of sensitive documents. The shredded paper collected can then be recycled by Shred One Security Corporation.

Some municipalities offer composting pick-up and drop-off services that take residents' lawn waste and allow it to decompose into usable compost to be used as a soil amendment on residents' properties. Jenkintown currently partners with Abington Township for a similar service.

RECOMMENDATION S6:

Improve overall recycling rates and reduce the amount of solid waste generated within the Borough. Jenkintown collects much more solid waste per capita than the neighboring townships of Cheltenham and Abington and has a lower recycling rate than both Townships and the County. Although the amount of collected solid waste has been decreasing and the recycling rate has been increasing, there is still room to improve overall recycling rates and reduction of waste creation in the Borough.

Strategy S6a

Create a more uniform culture of recycling by providing uniform recyclables collection bins to residents, either supplied by the contract hauler or through the Borough. If the Borough is distributing recycling bins, seek out grant funding for the acquisition of the bins.

Many communities have experienced greater recycling collection rates through the use of uniform bins. Increasingly, communities are using "toter" type recycling bins that are easier to haul to the curb but require a special truck for collection.

Strategy S6b

Work with the County Recycling Coordinator, the Jenkintown EAC, and the contract trash and recycling hauler to increase recycling rates through education and enforcement. Cross-promote the County's regularly-scheduled recycling events and other resources to residents; including document shredding, tire collection, and household hazardous waste collections.

Strategy S6c

Increase recycling rates at non-residential properties, especially restaurants and the school. Coordinate with business owners and property owners to understand and address any impediments to recycling on these properties. Evaluate ways to encourage or require increased single-stream recycling by local businesses. For example, continue to work with business owners, particularly in the dense Town Square area, to coordinate dumpster size, location, and pick-up schedule to streamline and consolidate pick-ups.

The greatest opportunity area to increase the Borough's overall recycling rates is through increased recycling by commercial properties, such as offices and restaurants.

Evaluate whether changes to the Solid Waste Collection ordinance are needed to ensure commercial businesses are recycling to the greatest extent feasible. The State DEP offers free assistance with evaluating recycling ordinances.

Strategy S6d

Conduct periodic inspections of the materials being collected for solid waste and recycling. For those property owners who are improperly separating trash from recycling, notify them and provide educational materials about proper disposal using tags on the bins themselves or flyers to put on the front door or in the mailbox that identify the materials not being disposed of properly and techniques for proper disposal.

Graphics often help communicate the types of materials that can be recycled and what materials should not be placed in recycling bins so as to minimize contamination and maximize recycling. Graphics provided by The Recycling Partnership via http://www.montcopa.org/2243/Waste-less-Recycle-more.

RECOMMENDATION S7:

Increase composting of kitchen scraps and yard waste, to reduce the unpleasant odor and residue that is often associated with these materials in curbside trash collection, as well as reduce the amount (both weight and volume) of solid waste that is generated by individual households. The nutrients and organic matter in the compost could then be reused on-site to supplement the homeowner's gardens and landscape beds.

Strategy S7a

Adopt ordinance language encouraging backyard composting for residential properties. The ordinance should clearly state the guidelines for appropriate composting of kitchen scraps and yard waste. Standards for backyard composting could include requirements that composting be conducted within certain types of containers, that minimum setbacks from property lines be applied in the siting of the compost locations, and the maximum size of the composting areas.

Evaluate the feasibility of offering compost bins to residents at a reduced rate, similar to the Borough's current rain barrel program.

Strategy S7b

If increased community interest in community composting for kitchen scraps is identified, explore local options for curb-side composting collection services for both residential and commercial/institutional use.