

Environmental Resources and Sustainability

Introduction

This element describes environmental resources in Hagerstown, and establishes policies to balance the City's growth management goals with environmental considerations. This element addresses the requirement of the Economic Growth, Resource Protection and Planning Act of 1992 and a mineral resources element, as well as requirements of the Land Use-Local Government Planning Act of 2006 (H.B. 1141) for a water resources element (See Chapter 4). This element also addresses air quality issues and goals to achieve a more sustainable community.

Goals

1. Continue to recognize and protect sensitive areas.
2. Reduce urban heat island effect resulting from development.
3. Limit disruption of natural water hydrology resulting from new development.
4. Maintain and improve the quality of the region's water resources.
5. Reduce greenhouse gas emissions.
6. Provide for effective stormwater management.
7. Increase the rate of recycling across the city to meet or exceed the U.S. national average.
8. Implement sustainable practices as identified by the Sustainable Maryland Program.

Sensitive Areas

Antietam Creek, shown in Map 10-1, is Hagerstown's primary stream. More than three-quarters of the city's land area, and more than half of the land in the Medium-Range Growth Area are in the Antietam Creek watershed. Other portions of the City and Medium-Range Growth Area are in the Conococheague Creek and St. James Run watersheds. Hamilton Run and Marsh Run, both tributaries to Antietam Creek, also run through the city and the Medium-Range Growth Area. All of the streams in and around Hagerstown drain into the Potomac River.

Table 10-1 lists the amount of wetland and floodplain found in Hagerstown and the Medium-Range Growth Area. As shown in Map 10-1, floodplains are generally found along Antietam Creek and its tributaries (especially Hamilton Run and Marsh Run outside the City), while wetlands are typically found near waterways and ponds. Map 10-2 shows slopes greater than 15 percent in and around Hagerstown. Most steep slopes are found along the banks of Antietam Creek.

The Floodplain Management chapter of the City's Land Management Code prohibits or heavily restricts most development in the 100-year floodplain. As a result, existing development near

Antietam Creek is limited. Portions of some residential neighborhoods and individual lots along Hamilton Run are near or in the 100-year floodplain, and Longmeadow Shopping Center sits atop a segment of the Hamilton Run.

Buffers around streams and wetlands filter and reduce the velocity of runoff from development. Hagerstown’s Land Management Code does not require buffers wider than the 25’ buffer already mandated by the state Non-tidal Wetlands Act of 1989. The existing state law applies to all wetlands, including creeks, streams, and other bodies of water. In Hagerstown, nearly all development is at least 25 feet from the banks of Antietam Creek, Hamilton Run, and other non-tidal wetlands. Marsh Run¹ is almost entirely channelized within the city, and thus has no buffer or floodplain. Portions of the buffer zones around Antietam Creek and its tributaries are forested, which improves the effectiveness of buffer zones.

Figure 10-1: Environmentally Sensitive Areas

Facility	Acreage in City	Portion of City Land Area (7,758 acres)	Acreage in Medium-Range Growth Area	Portion of Medium-Range Growth Area (17,793 acres)
100-Year Floodplain ^a	419	5.4%	1,049	5.9 %
Wetlands ^b	21	0.3 %	49	0.3 %
Forested Areas ^c	981	12.6%	2,917	16.4%
City Forest Conservation Easements ^d	129	1.6%	---	---

a: Floodplain mapping was conducted by the Federal Emergency Management Agency in 1984 and is in process of being amended as of 2016
 b: Wetlands were mapped by the Maryland Department of Natural Resources between 1988 and 1995.
 c: Data Sources: Land Use/Land Cover data compiled by Maryland Department of Planning, 2010;
 d: Data Source: City of Hagerstown, 2015

Neither the Maryland Department of Natural Resources’ geospatial data center nor the 2002 Washington County Comprehensive Plan indicates the presence of endangered or threatened species in Hagerstown or the Medium-Range Growth Area.

Hagerstown’s Forest Conservation Article of the Land Management Code encourages the protection of existing forest and tree resources and requires afforestation and reforestation as part of the development process. The City utilizes fees collected from developers in lieu of planting on site for a fairly aggressive urban street tree planting program. In recognition of these efforts, Hagerstown has also been a recipient of the National Arbor Day Foundation’s Tree City USA award for more than two decades. In addition, the City has a goal of having 30% of land covered by forest or street tree canopy coverage by 2030.

¹ This reference to “Marsh Run” here indicates the waterway that is adjacent to, or in the middle of, Memorial Boulevard within the City.

Mineral Resources

The Hagerstown region is underlain primarily with limestone, but mineral extraction does not occur in Hagerstown or in the Medium-Range Growth Area. One active limestone quarry exists outside, but adjacent to, the Medium-Range Growth Area, east of the city at the eastern terminus of Security Road.

Stormwater Management

Water quality in the Hagerstown region is negatively affected by stormwater runoff from older developments and streets that were constructed prior to the imposition of modern stormwater management practices. Groundwater sources are negatively affected when impervious development surfaces prevent stormwater from percolating through the ground to recharge underground aquifers. In order to address these deficiencies, efforts would need to be taken to reduce impervious surfaces in new development and to retrofit older developments to allow for infiltration of some volumes of stormwater.

A number of possible strategies are possible to improve water quality and recharge groundwater supplies in the Hagerstown region:

- Promote use of green roofs, non-structural filtration techniques (e.g. rain gardens, vegetated swales, etc.) and pervious hardscape surfaces to reduce imperviousness and promote infiltration
- Explore use of green street bulb-outs or filter boxes as means of retrofitting older urban areas and reducing volume of flows into the City storm drain
- Promote use of native plants in buffer areas and building setback areas, rather than lawn, as a better solution to accommodate infiltration.
- Promote restoration of stream channels and stormwater outflow channels with native vegetation to assist with filtration of storm flows and cooling of water temperatures
- Promote green infrastructure, an interconnected network of open space and natural areas (greenways, wetlands, parks, forest preserves, and native plant vegetation) that naturally manages stormwater, reduces risks of floods, captures pollutants, and improves water quality.

The City is working to comply with the National Point Discharge Elimination System (NPDES) for mapping of all structures and performing point of origin traces. The City recently completed the development of Geographic Information System (GIS) data for the City's storm drainage system. With the aid of a consulting firm, the tracing of flow from point of origin to discharge is possible. Both privately owned and City controlled and maintained structures have been identified.

Air Quality

National concerns over climate change have grown dramatically over the past few years with increasing emphasis being placed on reducing greenhouse gas emissions, as a means of combating global climate change. Implementation of more sustainable development practices is

Nonattainment - any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for criteria pollutants. The six criteria pollutants are Carbon Monoxide, Nitrogen Dioxide, Lead, Ozone (or smog), Particulate Matter, and Sulfur Dioxide. Source: EPA

widely recognized as a critical step in improving air quality, as well as reducing demand on non-renewable natural and energy resources.

Air quality issues are of concern for the Hagerstown region, too. Hagerstown is part of a two-county clean air nonattainment area for fine particulate matter (PM2.5) and was recently removed from non-attainment status for ozone. Designation by the U.S. Environmental Protection Agency (EPA) as a nonattainment area for air quality in our region requires transportation projects to be evaluated through a transportation conformity process. For the Hagerstown region, this process is completed by the Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO) and sent to the EPA and U.S. Department of Transportation for review and approval to ensure that construction of new road capacity will not exceed standards for pollutant levels established for our area by the EPA and Maryland Department of the Environment (MDE).

The City of Hagerstown has implemented a number of green actions over the past few years to achieve a more sustainable future. These actions include replacement of traffic signal lights to lower-energy LED, replacement of street lights with more efficient high pressure sodium lights, replacement of light bulbs in City buildings to lower wattage bulbs, upgrade of outdated cooling systems in City buildings to more energy efficient systems, and planting hundreds of street trees and vegetated traffic islands around the city.

A number of additional strategies are possible to improve air quality and to reduce greenhouse gas emissions in the Hagerstown region:

- Encourage mixed-use, higher density walkable communities with good access to public transportation and bicycle routes to reduce automobile dependency
- Promote stricter energy efficiency standards for buildings, such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) and use of EnergyStar® rated equipment
- Encourage use of renewable energy sources as alternative to fossil fuels, such as wind, solar, and geothermal
- Increase tree canopy coverage to absorb carbon dioxide and reduce the heat island effect
- Educate the public about the impact of lifestyle practices on the environment and ways to reduce energy consumption and to improve air and water quality

Sustainability

Sustainability is a broad term that has a variety of meanings. For the purposes of *visionHagerstown 2035*, sustainability refers to a community that encourages practices that attempt to reduce use of natural and personal resources. Sustainability in this context can include ways to reduce a community's carbon footprint by encouraging methods that reduce energy consumption, reduce greenhouse gases, protect water quality, and promote local economies and local food resources.

Sustainable Maryland Certified Program

In 2014 the Mayor & Council adopted a resolution to register the City with the Sustainable Maryland Certified Program, which is for Maryland municipalities that want to “go green”, save money, and take steps to sustain quality. In October 2015 the City became Sustainable Maryland Certified. The City then took the next step and formed a Green Task Force (or “Green Team”) that identifies and works on completing sustainability projects under eight broad action areas. The actions areas are:



- **Community Action:** The City has implemented a number of programs to encourage community action, including:
 - Implementing EngageHagerstown – a website is a My Sidewalk-based social media platform to provide opportunities for our community to connect, collaborate and put ideas to work.
 - Maryland Green Schools Program – Hagerstown has three Maryland Green Schools located within its boundaries, including Fountaindale Elementary, Northern Middle School, and Western Heights Middle School.
 - Clean, Safe, and Green Work Group – Part of the Hagerstown Main Street program, this work group works on enhancing the perception of a community through the principles of Smart Growth and sustainability. The goals of this work group are to have a clean and safe commercial and residential Main Street area through the use of strategies such as expanding parks and playgrounds, implementing commercial recycling programs, and promoting energy and water efficient building improvements.
- **Community-Based Food System:** This system has become a popular way for consumers to buy local, seasonal food directly from a grower as well as having a place for citizens to grow food for personal use. The Sustainable Hagerstown public survey conducted in 2016 revealed that buying locally-grown food, going the City's Farmers Market, and growing food at



Plot in the Community Garden on South Potomac Street

home were activities respondents participated in most often.

Below are ways Hagerstown is building a community-based food system and improving access to food:

- In 2015 Hagerstown established a community garden on South Potomac Street directly across from the new Bester Elementary School. The community garden features 26 plots and includes space for herbs. There are six rain barrels, compost bins, sheds for storage and adequate parking. The mission of the Community Garden is as follows: “Provide and maintain organic plots with the City of Hagerstown and to provide the community with the opportunity and means to grow vegetables, herbs, and flowers.” The community garden is being used heavily, and the City is exploring the possibility of a second garden.
- The historic City Farmer's Market is a 232 year old tradition in Hagerstown and Washington County. On a peak week in summer produce season, market attendance averages 800 customers; during winter months, the foot traffic slows a bit, but remains steady at 550 to 600. The market boasts approximately 30 vendors who sell produce, baked goods, sweet treats, hand-made crafts, and a variety of other products. The City is also looking to expand the market and its hour of operations (see Chapter 6 - Downtown).
- Community-Supported Agriculture (CSA): CSA is a way of providing local food access by having members of the community buy at the beginning of the season from a local producer and receive their “share” of produce at regular intervals during the growing season. CSAs provide more financial stability for farmers because they have guaranteed cash flow at the beginning of the season, and CSAs provide the benefit of local, fresh foods for consumers. It is recommended that the City should explore setting up a pilot CSA program in Hagerstown that connects local and regional farmers to city residents by providing fresh produce during the growing season.
- **Energy:** According to the Pew Center on Global Climate Change, buildings in the United States account for nearly 40 percent of the country’s energy use and nearly 40 percent of its carbon dioxide emissions. Most of these emissions occur during building operation, i.e. they result from fossil fuels that are burned at the power plants that provide heating, cooling, lighting, and electricity for equipment and appliances in buildings. Furthermore, energy costs are an increasing burden on tight budgets – both for the government and for businesses and residents. Initiatives the City has undertaken to reduce energy usage include:
 - Water Heater Blankets: Approximately 256 electric water heater blankets were distributed in 2013. City Utilities staff are the coordinators for audits and they use the simplistic approach by working through customer outreach documents and allowing the customer to make the choices they feel are beneficial to assist their

specific needs. This project was specific to the 2013 EmPOWER Maryland Grant for low- to moderate- income customers. The 2013 initiative was advertised through customer bills.

- The Hagerstown Light Department provides information on how residential electric users can both save on their energy bills while conserving electricity. Information on 100 Ways to Save Energy is available on the Hagerstown Light Department's webpage.
- Light-Emitting Diode (LED) Lighting: The predominant light fixture in residential areas is the 150 W HPS, which draws 197 Watts with ballast loss. The City's streetlight bill is based on an overall count of each fixture type. Hagerstown has a streetlight replacement program in the CIP to replace obsolete fixtures and faulty wiring with new.
- Energy Audit for City Facilities: In December 2015 the City hired Keres Consulting to conduct energy audits on three of its facilities – City Hall, the Grandstand, and the Ice Rink. Each of the buildings were evaluated using methods, procedures and calculations consistent with ASHRAE Level 2 Energy Audits and industry standards along with a performance baseline and relative energy usage of each facility, compared to buildings of similar size and usage. The recommendations of the energy audits include making upgrades to more efficient lighting, replacing inefficient water heaters, plumbing fixtures, and air conditioning systems. As of 2016, the City has requesting proposals to have the work done to implement the audit's recommendations. If all recommendations were implemented buildings, the City would reduce annual energy consumption collectively for these three facilities by nearly 14%, greenhouse gas emissions by 18%, and cost savings that result in a simple payback of a maximum of 20 years.
- **Greenhouse Gas:** The greenhouse effect is a process that results from naturally occurring heat-trapping gases in the atmosphere, such as carbon dioxide, water vapor, and methane. According to a 2007 report issued by the IPCC², "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level." Climate change poses serious threats such as rising sea levels, changes in rainfall patterns, severe droughts and floods, more intense and frequent hurricanes and other windstorms, and new pathways for disease. Local governments must consider how these threats could affect municipal assets, including facilities, parks, roads, bridges, waterfronts, and water and sewage networks.
 - To date, the City has actively promoted the reduction of greenhouse gases by encouraging alternative transportation. The City has completed enough of the requirements of the



² Climate Change 2007: Synthesis Report: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

League of American Bicyclists (LAB) to earn a coveted "Bicycle Friendly Community" distinction at the Bronze level. This was a three-year process and a lot of effort by staff and the City's Bicycle Advisory Committee.

- City Fleet Fuel Consumption Reduction: According to the U.S. Energy Information Administration (EIA), the burning of one gallon of retail gasoline (6 pounds) or diesel (7.25 pounds) produce between 17 and 22 pounds of carbon dioxide. The City is committed to lowering the amount of fuel consumption in its vehicle fleet, which reduces carbon dioxide emissions while also saving money on gasoline and diesel purchases. In 2014 the City fleet consumed 191,077 gallons of fuel. As the fleet is replaced with newer, more fuel efficient vehicles, it is a stated goal by the Mayor & Council that the City, through replacement of the existing fleet with more fuel efficient vehicles, to reduce fuel consumption and carbon dioxide emissions an additional 20% by 2019.
- **Health & Wellness:** The City has joined the Healthy Eating Active Living (HEAL) Cities & Towns Campaign for the Mid-Atlantic. This is an initiative of the Institute for Public Health Innovation that began in 2012. Hagerstown has adopted local policies that promote access to healthy, affordable foods, convenient access to opportunities for physical activity and recreation, and workplace wellness for municipal employees. These policies set the framework for healthy, prosperous communities where people live, work, and play.

Also, the City has released a "Hagerstown Walks" Map, which allows a user to find over 85 points of interest and more than 50 self-interpretive plaques throughout the city that



highlight historic points of interest. The tours will take you over sidewalks and multi-use paths. The map provides five walking tours of the city, all beginning and ending at the Public Square in city center (downtown). The tours include: North End Walk (3.7 miles), Jonathan Street Neighborhood Walk (2.4 miles), City Park Walk (2.4 miles), West End Walk (3.3 miles), and National Pike Walk (1.9 miles).

In 2016 the City began promoting health and wellness activities through an initiative called "Hagerstown Fit for You". Hagerstown Fit for You's goal is to create healthy and engaging lifestyles for the community by promoting the city's wide range of park amenities and facilities as well as new recreation programs. The Hagerstown Fit for You program is also designed to encourage physical by meeting people wherever they may be at:

- FIT FOR YOUR Schedule: Parks are open mornings, evenings, and weekends so that people can visit them at their own convenience.
- FIT FOR YOUR interests: Park space provide space to be active, including walking, running, and bicycling.

- FIT FOR YOUR budget: City parks are free for anyone to use, and the City's fitness and recreation programs are delivered at affordable costs in order to be accessible to a broader population.
- FIT FOR YOUR ability and experience levels: The City's recreation programs are adapted to people's different skill levels, from amateur to experienced athlete.
- **Local Economies (Buy Local Campaign):** The goals of a buy local campaign are to educate consumers about the social and economic benefits of independent, locally owned businesses and create a thriving local economy that maximizes the potential of local independent businesses by creating a culture of support. Efforts to encourage local economies include:
 - The Downtown Movement is a grassroots group of volunteers organized around efforts to aid in the revitalization of downtown Hagerstown. They've organized three Pop-Up Shop events in coordination with city events, including Augustoberfest last August, Blues Fest at the end of May and the Christmas Tree Lighting/Small Business Saturday in November.
 - City Center Dollars, a gift-card based rewards program, are accepted by more than 20 businesses in downtown Hagerstown, including restaurants, retail stores, and services. The City Center Dollars program has been in existence since 2007.
 - Small Business Saturday: Customers can shop at small local businesses within the Hagerstown city limits for a chance one of five \$50 City Center Dollars certificate packages. This initiative is managed by the City Department of Community and Economic Development.
- **Natural Resources:** In addition to City's regular curbside recycling program, Hagerstown has implemented a number of programs to conserve and preserve natural resources including:
 - Recyclebank - This program was established in the city in 2011 and is still running. It is funded by the residents of the city who pay \$0.27 per residential unit per month to have this program. All city residents are eligible to participate; currently around 3,200 households are subscribers. Recyclebank runs the program for the City and we advertise it several times a year through billboards, social media, and bill stuffers.
 - Tree City USA – Hagerstown has celebrated 30 years of having Tree City USA designation. The City has also set an urban tree canopy goal of 30% by the year 2030.
 - Pet Waste – A public survey on sustainable practices conducted in 2016 revealed that pet waste is an important issue for the community. Section 28 of the ~~attached~~ Animal Control Ordinance makes it illegal for dog owners to not collect their pet's waste when it is on public property or on the property of others to prevent it from contaminating waterways.
 - Recycling of e-waste – The term “e-waste” generally refers to electronic products like TVs, VCRs, stereos, computers, and printers that have reached the end of their useful

lives and are discarded. Many of products consider e-waste also contain hazardous materials such as heavy metals (lead, cadmium, and beryllium). While most e-waste can be properly and safely recycled, the Environmental Protection Agency (EPA) estimated in 2013 that nearly 60% of e-waste nationally was still deposited in landfills. In 2014 the City held its first e-waste recycling event in order to cut down on electronic products being thrown away, and the City held another such event in 2016. It is recommended that the City continue this effort and explore increasing the frequency of recycling.

- **Planning and Land Use:** The area covers topics addressed in other sections of *visionHagerstown 2035*, including addressing housing needs and participating in Department of Housing & Community Development's (DHCD's) Sustainable Communities Program. Chapters 2 and 7 of *visionHagerstown 2035* address growth/future land use and housing/neighborhoods, respectively.

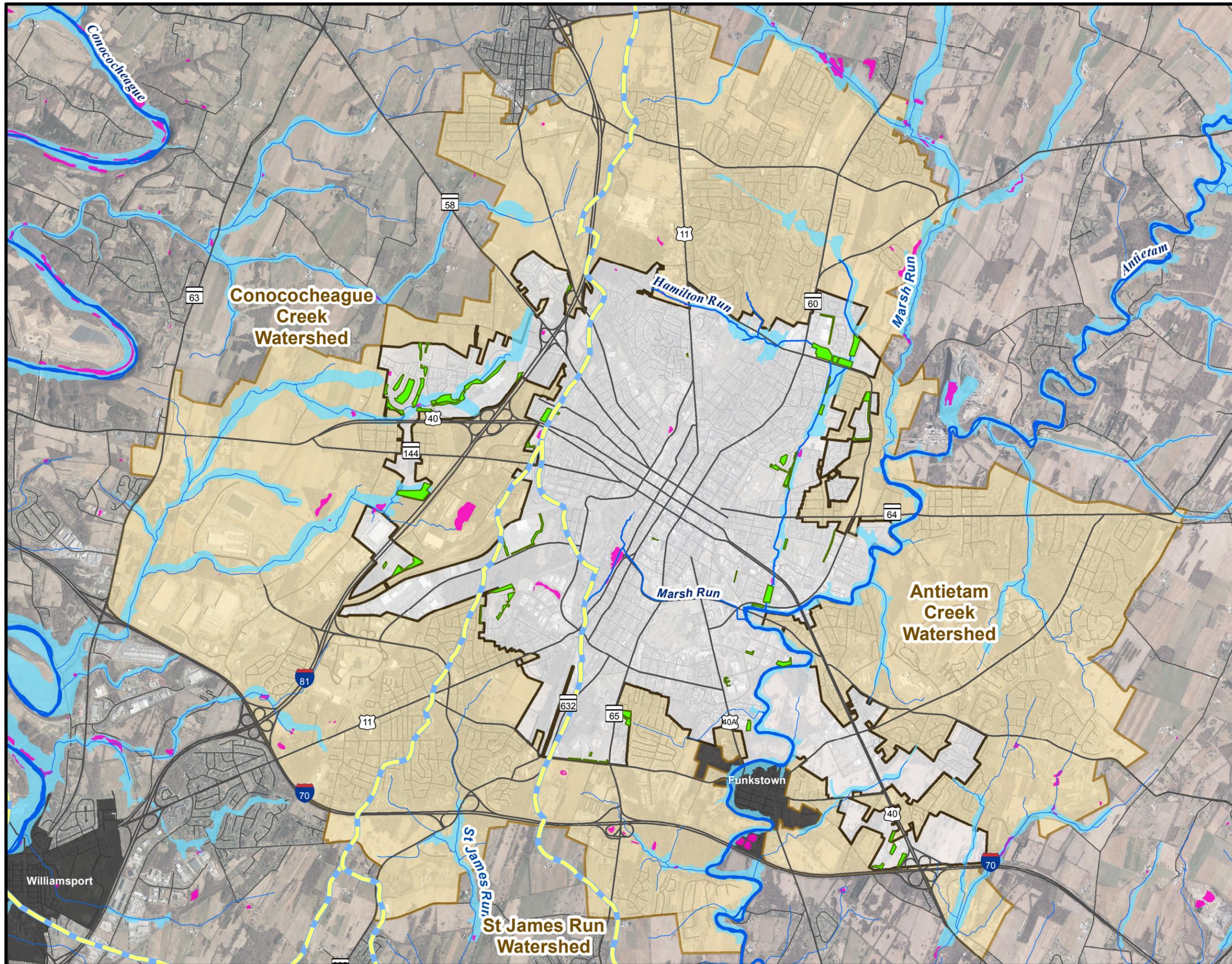
Environmental Resources and Sustainability Policies

- Policy 10-1.** New development and redevelopment in Hagerstown and the Medium Range Growth Area will avoid stream buffers and 100-year floodplains.
- Policy 10-2.** New development and redevelopment will also avoid steep slopes (greater than 15%) where possible. Proper slope stabilization will be required where development or redevelopment on steep-slope areas is desirable.
- Policy 10-3.** The urban heat island effect in Hagerstown and the Medium-Range Growth Area will be reduced through protection and re-establishment of natural features and trees.
- Policy 10-4.** The City will encourage ways to increase the urban tree canopy from 21% to 30% by 2030.
- Policy 10-5.** In order to increase tree canopy coverage, areas of reforestation or forest conservation created as a result of new development should be established within the city limits.
- Policy 10-6.** Natural stormwater flows will be maintained in Hagerstown and the Medium-Range Growth Area through stormwater management best practices. This is in accordance with pollutant reduction strategies consistent with Washington County's Watershed Implementation Plan.
- Policy 10-7.** The City will work to implement the goals, objectives, and action steps of the Sustainable Maryland program.
- Policy 10-8.** The City should work to increase the amount of solid waste diversion from landfills for Hagerstown from the current 27% to national average of 34% by 2035.

Environmental Resources and Sustainability Actions

- Action 10-1.** Develop stream buffer and steep slope regulations to guide future development and redevelopment.
- Action 10-2.** Encourage strategies to reduce stormwater runoff from buildings (see Page 10-3).
- Action 10-3.** Set goal of reduce stormwater runoff in Hagerstown and implement by promoting reduction of impervious areas.
- Action 10-4.** Encourage (re)development of Leadership in Energy and Environmental Design (LEED)-certified building standards by developers and private property owners.
- Action 10-5.** Reduce greenhouse gases and the heat island effect by implementing the city's urban tree canopy coverage goal.
- Use the Forest Conservation Ordinance and work cooperatively with landowners and developers to identify priority areas for tree and forest conservation.
 - Encourage the planting of native tree species.
- Action 10-6.** Conserve water resources by setting a goal of elimination of potable city water as irrigation source and implement through rainwater harvesting and use of native vegetation.
- Action 10-7.** Implement practices to make Hagerstown more sustainable and also consistent with the Sustainable Maryland Program:
- Expanding the hours and operation of the Farmer's Market (see Downtown element).
 - Develop a community-supported agriculture program.
 - Develop additional community gardens in areas of demand and in areas where there is less access to fresh foods.
 - Reduce the electric and fuel usage for the City's facilities, infrastructure (such as street lights), and vehicle fleet.
 - Develop recreational programs that encourage health and wellness for the community.
 - Encourage the recycling of electronic waste (e-waste) by establishing regular recycling events for city residents and businesses.

**Map 10-1:
 Sensitive Areas**



- Major Road
- Local Street
- Corporate Boundary
- Medium Range Growth Area
- Other Municipality
- Forest Conservation Easement (City)
- Stream
- Watershed Boundaries
- Wetlands
- Floodplain

0 0.5 1 1.5
 Miles

Map Projection: NAD83 State Plan Maryland FIPS (feet)

Data Sources:
 City of Hagerstown, 2016; State of MD Imagery, 2014
 Washington County, 2016; MD Dept of the Env., 2015

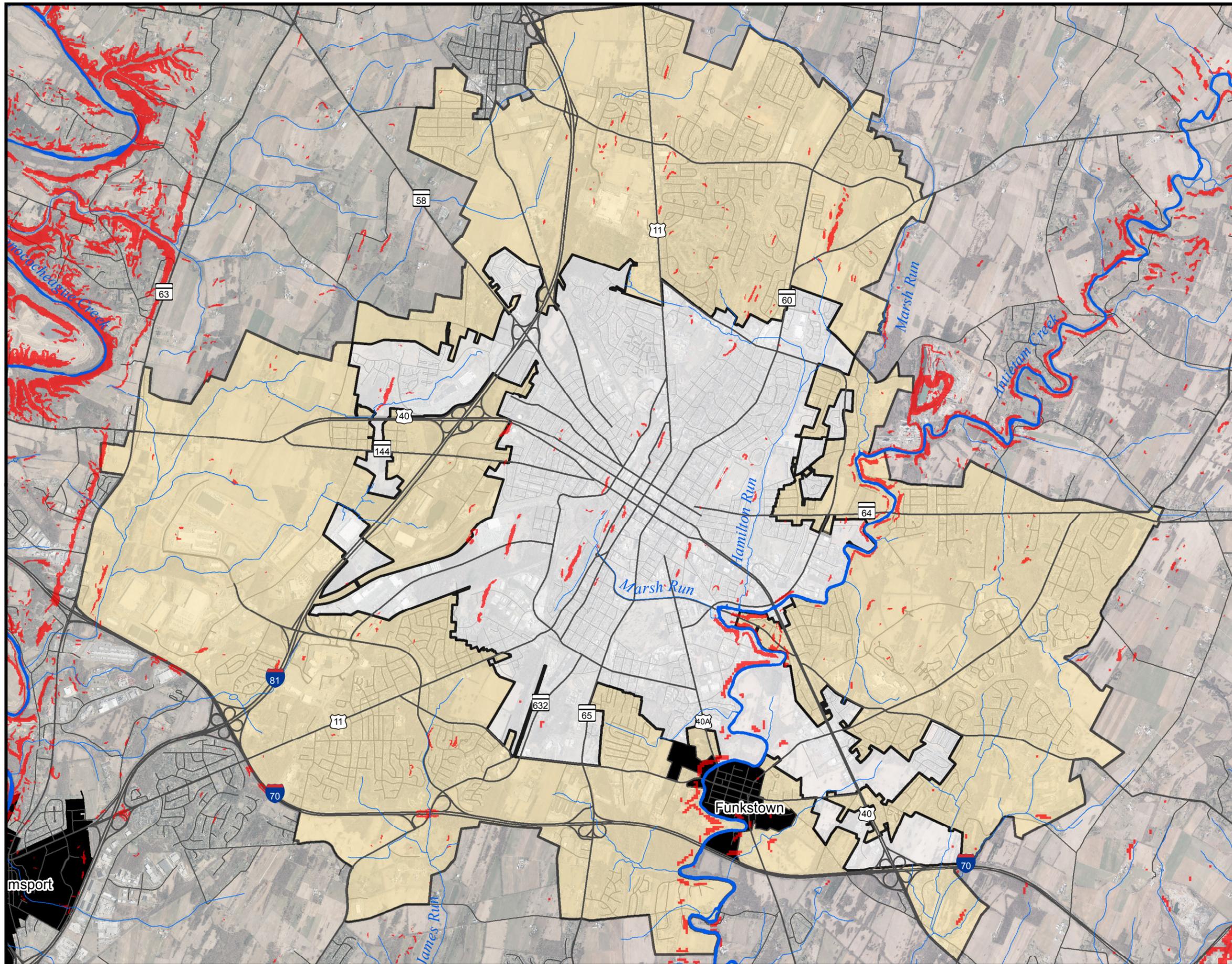
Prepared By:
 Hagerstown Planning & Code Admin Dept, 01/30/17, (rev. 10/27/17)



Map 10-2:
Steep Slopes



- Major Road
- Local Street
- Corporate Boundary
- Medium Range Growth Area
- Stream
- Slopes Greater than 15%



0 0.5 1 1.5
Miles

Map Projection: NAD83 State Plan Maryland FIPS (feet)

Data Sources:
City of Hagerstown, 2016; State of MD Imagery, 2014
Washington County, 2016

Prepared By:
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