

Chapter 13.

# Community Infrastructure, Services, Safety, and Health



## Chapter 13 Community Infrastructure, Services, Safety, and Health

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### Introduction

This chapter examines the health, safety and welfare issues to which the City must provide or facilitate for basic City services. The facilities that support them are often taken for granted by community members, but are important to consider when planning the City’s future. There are also quasi-public and private utilities that residents rely upon. While the City may not have a hand in directly regulating these utilities, it is important that utility provision and development are complementary to forecasting and projecting for community facilities and in overall land use planning. The utilities and services discussed in this chapter include: public water supply and distribution, sanitary sewer collection and treatment, stormwater management, solid waste management, other utilities, public safety, local government facilities, and health.

The City’s Capital Improvement Program (CIP) serves as the major financial planning tool for expenditures towards public capital facilities and equipment. It guides development and budgetary priorities for large-

scale projects, which exceed funding amounts in the normal operating budget. The CIP helps to ensure that major projects are within fiscal reach for the community and helps to prioritize the most vital capital projects.

Safety and health issues are also addressed in this chapter for facilities and resources to support overall response of public safety agencies, while cooperative programs with local health organizations are also identified to inform community members of health programs and to encourage healthy lifestyles. The plan also acknowledges the impact of the built environment on the health of our community members.

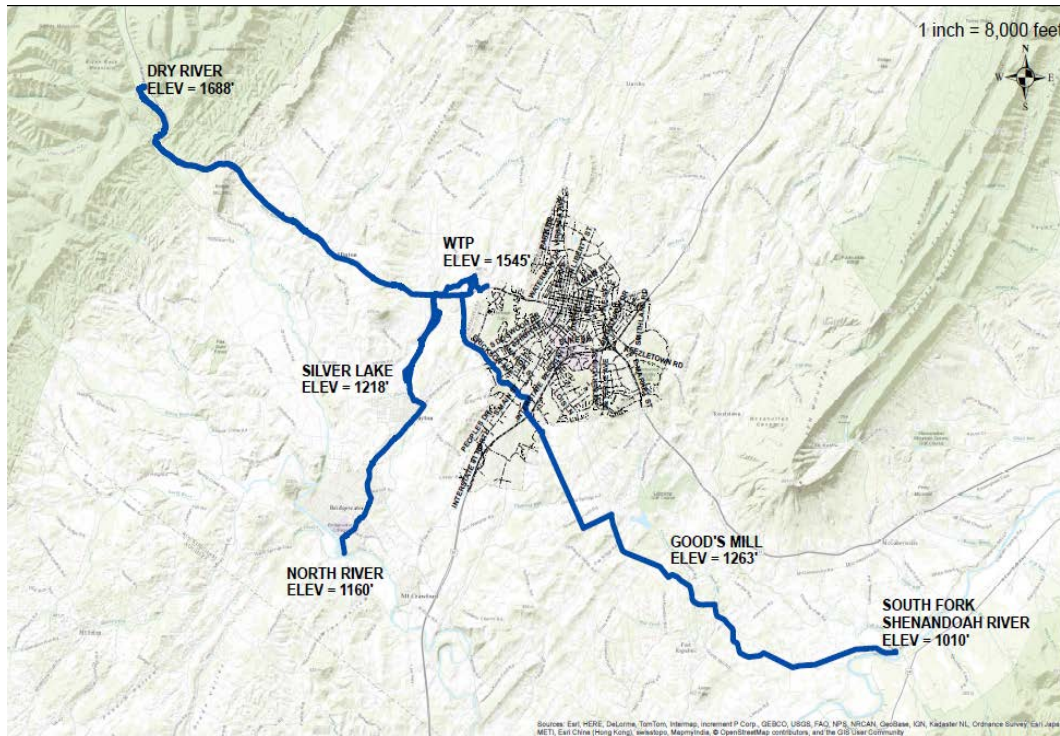
## Background

### Public Water Supply and Distribution

#### *Water Supply*

An adequate raw water supply is an absolute requirement for communities such as Harrisonburg to sustain its current land use, alter its current land use, and to bring into use the remaining undeveloped land. Providing an adequate water supply brings the greatest attention to reliability of raw water quantity and quality, sustainability of existing assets and management of energy usage, balancing of the raw water supply reliability versus environmental stewardship under drought, and emergency preparedness under risk management planning.

The City of Harrisonburg's raw water system is made up of the Western Raw Water Source and the Eastern Raw Water Source. The Western Raw Water Source includes the Dry River Source, North River Source, and the Silver Lake Source. The Dry River and North River Sources are active, while the Silver Lake Source is inactive and available only for emergency. The Eastern Raw Water Source is currently being installed to withdraw water from the South Fork of the Shenandoah River. Figure 13-1 shows a map of Harrisonburg's water sources.



**Figure 13-1. Map of Harrisonburg's Current and Future Water Sources**

*Source: Department of Public Utilities*

The City strives to maximize the utilization of the Dry River as its primary water source, which in 2017 provided approximately 50 percent of the annual raw water to the City. This source originates in the mountains west of Harrisonburg and is only minimally impacted by development, making the source nearly undisturbed by human activity. The water from the Dry River source is of such high quality that it requires little treatment at the City's Water Facility. In addition to the high quality, the source is located at an elevation which allows gravity flow with zero energy requirements to the treatment facility. Accordingly, the source requires no energy to deliver and smaller effort to treat for distribution than other available sources. Between 1897 and 1973 the City purchased 34,000 acres within the watershed to protect this valuable source. The intention was to keep control of the land so as to inhibit uses that would jeopardize the quality of the water from this source.

The North River is the City's secondary source, which in 2017 supplied the other 50 percent of the annual raw water. The Silver Lake water source is currently inactive and is used to supplement the Dry River and North River sources in times of emergency.

Looking forward, the Department of Public Utilities has selected a dual approach that delivers both an aggressive forecast and a conservative growth water use forecast; which together provides the forecast envelope. The aggressive approach is generally used for planning purposes whereas the conservative approach has been provided for comparison and understanding of the degree for margin of error (or safety margin) in planning.

Table 13-1 shows forecasted water usages made from Fiscal Year 2016-2017 records for Annual Average Demands (AAD).

**Table 13-1. Water Projections for Harrisonburg, Annual Average Demands (AAD) forecasted in Fiscal Year 2016-2017**

|                                       |                          | Historical Criterial     |            | Density Criteria         |            |
|---------------------------------------|--------------------------|--------------------------|------------|--------------------------|------------|
| Description                           | Existing gallons per day | Capacity gallons per day | % Maturity | Capacity gallons per day | % Maturity |
| City Residential (except Apartments)  | 1,320,000                | 1,800,000                | 74%        | 2,830,000                | 47%        |
| City Commercial                       | 1,170,000                | 1,610,000                | 73%        | 1,870,000                | 63%        |
| City Industrial                       | 900,000                  | 1,430,000                | 63%        | 2,2660,000               | 33%        |
| City Apartments                       | 720,000                  | 940,000                  | 77%        | 940,000                  | 77%        |
| City Institutional                    | 660,000                  | 790,000                  | 84%        | 790,000                  | 84%        |
| City Municipal                        | 30,0000                  | 30,000                   | 100%       | 100,000                  | 100%       |
| <b>Subtotal City</b>                  | <b>4,810,000</b>         | <b>6,600,000</b>         | <b>74%</b> | <b>9,120,000</b>         | <b>53%</b> |
| Rural (services in Rockingham County) | 850,000                  | 1,000,000                | 85%        | 1,000,000                | 85%        |
| Rockingham County government          | 201,000                  | 500,000                  | 42%        | 1,000,000                | 21%        |
| Michaels Property                     | -                        | 90,000                   | 0%         | 90,000                   | 0%         |
| Daley Property                        | -                        | 190,000                  | 0%         | 170,000                  | 0%         |
| Process Usage (Water                  | 140,000                  | 190,000                  | 74%        | 220,000                  | 64%        |

|                     |                  |                  |            |                   |            |
|---------------------|------------------|------------------|------------|-------------------|------------|
| Treatment Facility) |                  |                  |            |                   |            |
| Unaccounted Water   | 1,130,000        | 1,000,000        | 100%       | 1,000,000         | 100%       |
| <b>Total</b>        | <b>7,140,000</b> | <b>9,550,000</b> | <b>75%</b> | <b>12,600,000</b> | <b>57%</b> |

Source: Department of Public Utilities, 2017 Raw Water Supply Management Plan

Definitions for Descriptions: City Residential: This is any residential account within the City’s corporate limits which is not included in an Apartment class; City Commercial: This is any commercial account within the City’s corporate limits; City Industrial: This is any industrial account within the City’s corporate limits; City Apartments: This is any residential account where two or more residential units are located within the same dwelling structure; City Institutional: This is any institutional account within the City’s corporate limits. This includes educational, healthcare or support facilities; City Municipal: This is any account providing service to a City department; Rural: This is any account located outside of the City’s corporate limits, excluding master meter accounts billable to Rockingham County; Rockingham County: This is any account providing service directly to Rockingham County under a City-County Service Agreement; Michaels and Daley Properties: This represents a contract agreement to provide service to lands in exchange for easements; Process Usage: This represents water used in process at the City’s Water Treatment Facility.

To relate AAD to needed water supply requires recognition that the treatment plant must produce a volume of water at sufficient quantities to refill the potable water system storage reserves at the completion of two consecutive cycles of operations. Table 13-2 shows this relationship between forecasted AAD and the forecasted water supply target.

Table 13-2. Conservative and Aggressive Forecasts for Build-out, in million gallons per day (MGD)

|                              | <b>FY 2016-2017</b> | <b>Conservative Forecast Build-out</b> | <b>Aggressive Forecast Build-out</b> |
|------------------------------|---------------------|--|--------------------------------------|
| Average Annual Demands (AAD) | 7.14 MGD            | 9.55 MGD                               | 12.60 MGD                            |
| Water Supply Target          | 9.21 MGD            | 11.09 MGD                              | 14.63 MGD                            |

Source: Department of Public Utilities, 2017 Raw Water Supply Management Plan

For guidance into providing an adequate raw water supply, the Public Utilities Department maintains a formal Raw Water System Management Plan (RWSMP). The 2017 RWSMP describes that underlying principle of the RWSMP is to provide a roadmap to a reliable 14.39 MGD raw water supply that will meet a 12.60 MGD average annual water demand.

#### Potable Water Distribution

In 2016, the City’s Water Treatment Plant treated a total of 2.59 billion gallons, averaging 7.11 million gallons per day (MGD). The Water Treatment Plant has a current operating capacity of 13.6 MGD , but a water supply of only 9.7 MGD, with a future expansion potential to 15 MGD. Within the potable water

distribution system, the City has a total water storage capacity of 23.16 million gallons (MG). This storage capacity is provided by nine storage facilities spread across ten separate pressure zones (six zones with storage and four with no storage). The City owns, operates, and maintains nearly 301 miles of water distribution pipes ranging in size from 1-inch in diameter to 24-inch in diameter. This system serves water to approximately 16,000 customer accounts.

The City operates these systems of treatment, distribution, and metering to deliver clean reliable water to our customers for the purposes of residential consumption, commercial and industrial uses, and fire protection. The Department of Public Utilities is currently developing a Potable Water System Management Plan (PWSMP) to forecast and track the operation and maintenance of the system. This management plan will address the following areas of concern:

- *Criticality analysis and lifecycle management* - To evaluate (using metrics) each system to inform planning for rehabilitation, repair, and replacement of each asset, including but not limited to pumps, controls, mechanical systems and structures, distribution storage tanks, pipelines, and fire hydrants.
- *Technology Initiative* - To use new technologies to optimize daily operations.
- *Water Quality* – To continue providing high-quality water with continuous monitoring at the Water Treatment Plant, which includes monthly collection and testing of samples from the distribution system.
- *Water Accountability* – To develop a more thorough program to audit the use of all water entering the distribution system. The program will identify water sold, water lost to leaks, and unauthorized use.
- *Capacity* - To ensure the water system’s size is capable to meet the needs of users and to provide adequate fire flow delivery for fire protection.

### **Sanitary Sewer Collection and Treatment**

A major responsibility of the City is to provide a dependable and reliable sanitary sewer collection and conveyance to the Harrisonburg-Rockingham Regional Sewer Authority’s (HRRSA) conveyance system. HRRSA provides sanitary sewer treatment services for the City, Rockingham County, and the Towns of Bridgewater, Dayton, and Mount Crawford (the member jurisdictions).

#### *Treatment*

All sewage from customers within the City who are connected to the public wastewater collection system is conveyed to the HRRSA treatment facility in Mount Crawford, Virginia. This modern facility is a technologically advanced wastewater treatment plant (WWTP) that provides enhanced biological nutrient removal, also commonly referred to as enhanced nutrient removal (ENR), for meeting the stringent requirements of the Chesapeake Bay Preservation Act.

The HRRSA WWTP has a current capacity of 22.0 MGD and treats sewage from the City of Harrisonburg, portions of Rockingham County, and the Towns of Bridgewater, Mount Crawford, and Dayton. Of the current 22.0 MGD capacity, 12.8 MGD are specifically allocated to the City.

Figure 13-2 illustrates the adequate capacity over the past five years to accommodate “sales” (of water) but also identifies the challenges with infiltration and inflow abatement that must be completed to offset growth in the City sewer customer base. The portion of sewage treated at HRRSA is represented as “historic sales.” The variance between sales and historic sales represents infiltration and inflow into the sanitary sewer system.

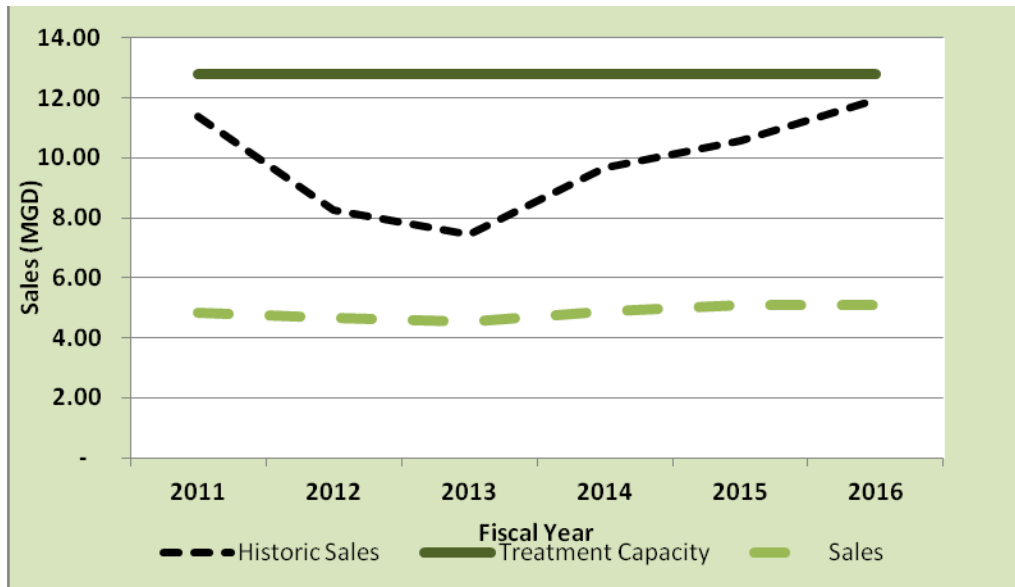


Figure 13-2. Harrisonburg Sewer Demand and Forecast (Average Annual Demands)

Source: Department of Public Utilities

#### Collection and Conveyance

Predictive, preventive, and corrective maintenance, along with construction, are the staple activities performed by the City. The Department of Public Utilities has crafted a Sanitary Sewer Management Plan (SSMP) to guide ownership and operation of its sewer system infrastructure as it increases with age. This strategy underlies the effort to deliver the level of services expected today and to safeguard this level of service into the future.

In looking forward, the Department of Public Utilities has carefully selected a dual approach that delivered both an aggressive forecast and a conservative sewer usage forecast. The aggressive approach is generally used for planning purposes whereas the conservative approach has been provided for comparison and understanding of the degree for margin of error (or safety margin) in planning.

Table 13-3 shows forecasted annual average demands determined by two criteria, historic criteria and density criteria. Historical criteria projects future flow based on applying historical flow densities from various land uses against remaining undeveloped lands in the City. The density criteria projects future flows by applying City standard for flow densities to undeveloped lands. Table 13-4 shows that an

additional 0.5 to 1.0 MGD is needed for wholesale services to Rockingham County, which must be included in consideration of conveyance capacity, but should not be included in capacity evaluation at HRRSA.

**Table 13-3. Sanitary Sewer Projections for Harrisonburg, Average Daily Demands for Fiscal Year 2016**

| Description                       | Existing gallons per day | Historical Criteria      |            | Density Criteria         |            |
|-----------------------------------|--------------------------|--------------------------|------------|--------------------------|------------|
|                                   |                          | Capacity gallons per day | % Maturity | Capacity gallons per day | % Maturity |
| City Residential                  | 1,300,000                | 1,838,462                | 71%        | 2,652,181                | 49%        |
| City Commercial                   | 1,060,000                | 1,391,733                | 76%        | 1,607,452                | 66%        |
| City Industrial                   | 830,000                  | 1,272,534                | 65%        | 2,357,243                | 35%        |
| City Apartments                   | 660,000                  | 841,322                  | 78%        | 1,396,018                | 47%        |
| City Institutional                | 510,000                  | 620,000                  | 82%        | 620,000                  | 82%        |
| City Municipal                    | 10,000                   | 10,000                   | 100%       | 10,000                   | 100%       |
| <b>Subtotal City</b>              | <b>4,370,000</b>         | <b>5,974,051</b>         | <b>73%</b> | <b>8,642,894</b>         | <b>51%</b> |
| Rural                             | 150,000                  | 150,000                  | 100%       | 150,000                  | 100%       |
| Rockingham County                 | 140,000                  | 500,000                  | 28%        | 1,000,000                | 14%        |
| Michaels                          | -                        | 90,000                   | 0%         | 90,000                   | 0%         |
| Daley                             | -                        | 170,000                  | 0%         | 170,000                  | 0%         |
| <b>Total W/ Rockingham County</b> | <b>4,660,000</b>         | <b>6,884,051</b>         | <b>68%</b> | <b>10,052,894</b>        | <b>46%</b> |

|                                    |                          |                  |            |                  |            |
|------------------------------------|--------------------------|------------------|------------|------------------|------------|
| <b>Total<br/>Rockingham County</b> | <b>WO/<br/>4,520,000</b> | <b>6,384,051</b> | <b>71%</b> | <b>9,052,894</b> | <b>50%</b> |
|------------------------------------|--------------------------|------------------|------------|------------------|------------|

To continue providing a reliable sanitary sewer system, the Department of Public Utilities maintains the Sanitary Sewer Management Plan.

### Stormwater Management

#### *System Description*

The City’s network of storm sewer pipes, culverts, inlets, and ditches make up the overall stormwater system. Best Management Practices (BMPs) are activities or structural improvements that reduce the quantity and improve the quality of stormwater runoff. Structural improvements include detention ponds, bioretention ponds, and underground treatment units. Currently, the City owns, operates, and maintains 51 structural BMPs. Activity-based BMPs include the Department of Public Works’ regular street sweeping and storm drain cleaning programs. As of Spring 2018, every City-owned drop inlet (or storm drain) is cleaned and inspected once per year. Every City-owned street is swept, at a minimum, once every two months. Some of these operations decrease during inclement weather.

In addition to City-owned and operated structures, there are many more that are owned and maintained by private property owners. Due to multiple waterways, and both natural and manmade conveyance systems in the City, there are cases where public and private property owners have existing drainage concerns. The Department of Public Works documents these drainage concerns, but is not responsible for managing drainage problems located on private property unless there is a legal agreement in place to do so that benefits public infrastructure.

#### *Existing Policies and Programs*

The Department of Planning and Community Development is responsible for review, approval, and enforcement of all new storm drainage and stormwater management designs associated with new developments and redevelopment. The policy and program tools the City uses in this endeavor consist of specific requirements set forth in the State’s Erosion and Sediment (E&S) Control Regulations, Stormwater Management Regulations, the State’s Erosion and Sediment (E&S) Control Handbook, the State’s Stormwater Management Handbook, the City’s Zoning Ordinance, the City’s Erosion and Sediment Control Ordinance, the City’s Stormwater Management Ordinance, and the City’s Design and Construction Standards Manual (DCSM).

The Department of Public Works is responsible for the physical aspects of operating and maintaining the City’s existing stormwater system. Principally, this effort involves the routine inspection, cleaning, and maintenance associated with pipes, culverts, inlets, and selected drainage ditches, as well as making any structural repairs, modifications, or improvements that may be required. This work is only conducted on City-owned assets located in City rights-of-way and those that are covered by a legal agreement with clearly defined rights and responsibilities pertaining to the City. The Department of Public Works

maintains the City's publicly-owned stormwater BMPs and administers the City's Municipal Separate Storm Sewer System (MS4) permit and its associated program.

In 2015, the City adopted a Stormwater Utility fee to raise revenue to support the stormwater program. Property owners in the City pay a utility fee based on the amount of impervious area on their properties because properties with larger amounts of impervious area contribute greater amounts of stormwater runoff and pollutants to the stormwater management system. The program includes a residential and non-residential credit program to allow property owners the opportunity to reduce their stormwater utility fee by reducing stormwater runoff volume and pollutant levels from their individual properties.

In 2018, the City adopted a citywide Stormwater Improvement Plan that identifies projects and programs for the City to consider to meet the stormwater pollution reductions required by its MS4 permit. The implementation of this plan is expected to result in the installation of additional stormwater BMPs that the Department of Public Works will maintain, as well as opportunities for public-private partnership to manage stormwater.

More information about the MS4 permit and program can be found in Chapter 10, Environmental Stewardship and Sustainability.

#### **Solid Waste Management**

The Department of Public Works handles solid waste management for the City. The City's integrated program of collecting, recycling, landfilling, and educating is described in detail in the City of Harrisonburg Solid Waste Management Plan. In 2008, to help defray the cost of solid waste collection, disposal, and recycling, the City adopted a Solid Waste Management fee that applies to all residents and commercial businesses in the City.

The City used to operate a Resource Recovery Facility (RRF), also referred to as the steam plant, that incinerated City and County trash, producing steam that powered heating and cooling systems at James Madison University (JMU) and power generators used by Harrisonburg Electric Commission (HEC) during periods of peak demand. Due to regional changes in solid waste management and disposal, the RRF could no longer be economically sustained, and was decommissioned in 2016.

#### **Collection**

Harrisonburg operates a curbside collection program for municipal solid waste (MSW). Collection by the City is available to all single-family detached, duplex, and townhome dwellings that have public street frontage, and to multi-family developments consisting of six dwelling units or less that also have public street frontage. MSW collected by the City is hauled to the Rockingham County Landfill for final disposal. Businesses and apartment complexes are required to develop and submit their own Solid Waste Management Program Plan to the Department of Public Works. The Solid Waste Management Plan estimates a per capita solid waste generation rate of 4.3 pounds per day, which excludes industrial waste and construction debris.

The City hosts Household Hazardous Waste collection events in partnership with Rockingham County twice per year. These events are held at various locations and allow residents to dispose of hazardous

waste, free of charge. The City and County share the cost of having the waste collected and disposed of by a specialized hauler by methods appropriate for each waste stream.

### *Recycling*

Recycling service are provided to residents and businesses by the Department of Public Works and private collection service providers. From August 2015 to February 2018, the City operated Single Stream Collection program that transferred all MSW it collected to a materials recovery facility (MRF) in central Virginia that further processed the MSW to remove and resell the recyclable materials. This program greatly increased the City's recycling rate, from two percent of City-collected MSW under the previous curbside collection program, to 25 percent under the Single Stream Collection program. Combined with private collection service providers, the overall city recycling rate increased from 27 percent in 2014 to 49 percent in 2016.

However, in January 2018, China and other South Asian nations banned imports of approximately 30 recyclable items, citing severe contamination of recyclables as the reason. The resulting reduction in demand for recyclables caused major instability in the worldwide recycling market. This had immediate negative costs implications for recycling programs globally. Due to these international market forces, the City of Harrisonburg's Single Stream Collection program ceased operations in February 2018. In March 2018, the City opened a Recycling Convenience Center at 2055 Beery Road in Harrisonburg, where citizens can drop off recyclables. These pre-sorted recyclables are considered uncontaminated or less contaminated, making them easier to market to local recycling organizations. As of Summer 2018, the City is unable to justify a traditional curbside recycling collection program due to the instability of the recycling market. Private collection service providers continue to provide some level of recycling collection to residents in private communities and local businesses through private contracts. The City will continue to study and evaluate the long-term viability of various recycling options to provide a sustainable program that diverts reusable products from landfills and continues to meet a minimum recycling rate of 25 percent, as required by the Virginia Department of Environmental Quality.

### *Disposal in the Sanitary Landfills*

The last cell of the City's landfill located on Ramblewood Road was closed in the late 1990s. This landfill operated from 1943 to 1996. Although a closed facility, the City realizes extensive long-term maintenance costs on an annual basis to remain in compliance with the approved Virginia Department of Environmental Quality (VA DEQ) closure plan. The City conducts a comprehensive set of groundwater monitoring to determine whether the former landfill is a source of contamination from the solid waste. Testing will continue for at least another 20 years. If it is determined that any contamination has occurred, a corrective action plan will be developed and implemented for the closed landfill. When the landfill was capped and a portion converted to recreational use as athletic fields. The site is currently operated by the Department of Public Works and Department of Parks & Recreation.

The City is now disposing of bulk and yard debris at the Rockingham County Landfill. Additionally, the MRF with which the City contracts for processing of MSW, disposes of the remaining waste in a landfill. The City continues to explore source reduction, reuse, and recycling of all solid waste to reduce contributions to sanitary landfills.

### *Education*

The City promotes source reduction, reuse, and recycling of solid waste to the general public and in the schools. Community members can learn more about the City's transfer station by scheduling tours with the Department of Public Works or participating in the Citizen Academy. Brochures and flyers are made available in City buildings and through a number of businesses. The Department of Public Works offers programs in the schools to discourage littering and to promote recycling. The City also coordinates an Adopt-a-Street Program to partner with community groups in providing regular litter pick-ups. This program has resulted in over 20 miles of city streets being cleaned up, each year. The city also organizes the annual Blacks Run/Downtown Clean-Up Day.

### *Other Utilities*

#### *Harrisonburg Electric Commission (HEC)*

Harrisonburg Electric Commission (HEC) purchases power for resale to its 21,000 customers from Dominion Energy at four separate delivery points. It is from these delivery points that they transmit and distribute power throughout the City and ultimately to the residents and businesses of Harrisonburg. Their service territory as defined by the General Assembly in 1999, are the extents of the City limits of Harrisonburg. The Commission operates under Section 8 of the City Code and accordingly has five, City Council appointed, Commissioners.

The City has had a municipal electric system since 1905. Steam, waterpower, and diesel were the original means of electric generation in the City. By the mid-1950s, the City's electric system had become run down and antiquated. Virginia Electric & Power Company (VEPCO) offered to purchase the electric system from the City and purchase a 30-year franchise for just over \$2 million. The sale went to referendum, but did not pass. It was believed that the operation of the system by an independent, nonpolitical commission would provide many advantages including more businesslike management, better long-range planning, and the elimination of excessive draining of revenues from the system. The Harrisonburg City Council created HEC in October 1956 with the first Board of Commissioners being sworn in to office in January of 1957. As a part of the creation of the Commission, by City Code, a minimum of 5 percent of total revenues is to be returned to the City annually as well as a payment equal to the amount of taxes that would be owed as if they were a private utility. To date, HEC has returned in excess of \$139,000,000 in contributions and taxes to the general fund of the City.

In January 2011, through a contract with the Virginia Municipal Electric Association (VMEA), in which HEC is one of seven members, they entered a 20-year power supply contract with Dominion Energy in effect through May of 2031. The contract is a full requirements contract, which means that HEC cannot purchase power from any other entity nor can it build generation, renewable or otherwise, to offset energy purchases from Dominion. Additionally, the retail customers of HEC may not enter into contracts to purchase power from any other entity, however, rooftop solar installations by its customers are allowed behind the customer's meter under HEC's parallel connection agreement (net metering agreement). As of February 2018, there are 100 solar panel systems (85 residential and 15 commercial installations) connected under this arrangement.

Beginning in 2016, the Commission began installation of Advanced Metering Infrastructure (AMI) throughout their system. This three-year project, aimed at replacing all electric meters on their system by the end of calendar year 2018, is designed to provide for increased efficiencies in their operations as well as to provide their customers access to energy usage with granularity down to 1-hour intervals. This helps customers estimate usage, understand the effects certain appliances have on their monthly bills and it will also help customers get feedback on conservation measures or the changes in usage habits can have to help them be more energy efficient. All AMI meters can be read on demand when required.

For HEC, all the meter readings are brought in by using a network of radio frequency equipment. This eliminates the need to send the meter readers out in their vehicles and avoids any weather hazards as well as highly congested areas, reducing the possibility of accidents. Most residential and some commercial meters are equipped with built in disconnects that can be operated remotely for discontinuance of service without having to put vehicles on the road. In addition to the data provided to help engineering make decisions about equipment sizing and operating more efficiently, this system will send alarms back to the office to notify them in the event of an outage. In some cases, when a customer calls in to report an outage, it can be determined through a quick read of the meter, if the problem that exists is a utility problem or a customer issue, since voltage at the meter is returned with each reading.

HEC continues to plan for growth throughout the City. HEC currently has 8 substations, 215 miles of distribution lines at 23,000 volts and approximately 20 miles of transmission line at 69,000 volts. Their previous system peak demand was 157.8 MW in February of 2015. As a distributor of power, it is of utmost importance that electric needs are met on demand. Future substations and transmission lines are being considered to ensure that adequate capacity is available to facilitate serving future electric loads. In serving the residents and businesses of Harrisonburg, HEC's Mission Statement "is to provide reliable service at a competitive rate in a courteous manner".

#### *Natural Gas Service*

The City is served by Columbia Gas of Virginia, a subsidiary of NiSource Company. NiSource owns and operates approximately 15,000 miles of strategically located natural gas pipelines, integrated with one of the largest underground storage systems in North America. The company headquarters is located in Houston, Texas with local contacts and offices located in Staunton, Virginia.

#### *Telecommunications/Broadband*

The City is served by a number of telecommunications providers, including, Verizon, Shentel and Comcast. These utilities commonly have pole attachment agreements to utilize HEC's poles for utility deployment.

In January 1996, the City Code was amended and gave HEC the authority to provide fiber optic services within the City. Approximately 17 miles of fiber were installed to provide network connections for local government offices and City School Buildings. In October 2014, City Council granted a franchise to Shentel so that it could install a fiber optic network in downtown Harrisonburg on Main Street, between Bruce

Street and Market Street. In July 2016, City Council granted Shentel a citywide franchise to lay a fiber optic network through the streets and across public owned property. The fiber optic network also serves private users. The City and Shentel have negotiated rates for the City government and school's use of the fiber optic network to connect all local government offices and City School buildings.

## Public Safety

### *Harrisonburg Rockingham Emergency Communications Center (HRECC)*

The Harrisonburg-Rockingham Emergency Communications Center (HRECC) is a consolidated center created by an Exercise of Joint Powers by the City of Harrisonburg and Rockingham County. "The Mission of the Harrisonburg-Rockingham Emergency Communications Center shall be to efficiently and professionally receive emergency 9-1-1 calls and dispatch emergency services to protect the community members and visitors of Harrisonburg and Rockingham County, VA."

The primary functions of the HRECC are:

- Efficiently process emergency calls within one minute of reception;
- Provide high quality communications through state-of-the-art technology;
- Constantly seek out ways to improve the quality of services provided to the community; and
- Facilitate the development of highly trained, proficient, dedicated and self-motivated personnel.

The Communications Center and joint Governmental Emergency Operations Center is located in the City of Harrisonburg's Public Safety Building, located at 101 North Main Street. The HRECC owns and manages eleven radio sites in various locations in the City and Rockingham County that affords two-way radio communications among public safety responders, general government employees, and the HRECC. Additionally, the HRECC owns/manages one (of five) Virginia Communications Caches. The Communications Cache holds over five-hundred radios, portable repeaters, and deployable trailer-towers that can be dispatched to significant local, state, and national incidents requiring additional radio assets and interoperable radio communications.

### *Fire Department*

The Harrisonburg Fire Department's formal mission statement is as follows: "The mission of the Harrisonburg Fire Department is to enhance the quality of life for the community by protecting their health, safety and welfare through fire suppression, emergency medical services, prevention and public education."

The mission is carried out through several core values:

- *Integrity* – consistency of actions and values; doing what is right
- *Professionalism* – skill, judgment and behavior that is expected of those that are highly trained
- *Safety* – ensuring the health and well-being of employees & customers alike
- *Teamwork* – the actions of a group to achieve a common purpose
- *Excellence* – the state of superior service

The mission statement and values lead toward the vision to be committed to providing a professional level of emergency service that continually enhances the quality of life, health, safety, and welfare of the community we serve.

The Fire Department has four Fire Stations and two other support facilities:

- Station 1 at 80 Maryland Avenue,
- Station 2 at 380 Pleasant Valley Road,
- Station 3 at 299 Lucy Drive,
- Station 4 at 210 East Rock Street,
- Administration offices located at the Public Safety Building, 101 North Main Street, and
- the Training Center located on East Mosby Road.

Typical Fire Department response times are about 4 minutes, although the Park View area has longer response times (about 5 minutes). A new Fire Station (#5) is planned in the City's Capital Improvement Plan to be located in Park View area in an effort to reduce response times to this area.

#### *Police Department*

The following mission statement captures the overall goals and operational objectives of the Harrisonburg Police Department.

The mission is to “preserve public peace and order, to protect life and property and to enforce the laws of the United States, Commonwealth of Virginia and the City of Harrisonburg.” To join with the community to reduce crime, improve safety, solve problems, and improve the quality of life for the residents of Harrisonburg, and those visiting the area.

The Police Department performs the following functions:

- Provides police presence and services throughout the City on a 24-hour basis.
- Responds to reports of criminal activity or requests for police service in a timely manner.
- Investigates criminal activity or potential criminal activity by identifying, apprehending and arresting suspects, and then providing evidence and testimony in court.
- Maintains responsive contact and communications with victims of crime.
- Ensures the orderly and safe flow of traffic and investigates motor vehicle crashes.
- Promotes motor vehicle, bicycle, and pedestrian safety.
- Encourages community compliance with laws and participation in public safety through crime prevention and education programs, community relations activities, and in setting examples for the public to follow.
- Resolves public or domestic disputes to avoid escalation to violence.
- Provides specialized police presence in the public parks and recreation areas.
- Provides specialized police presence in the City Schools, Middle and High School Levels.
- Develops and maintains pro-active programs directed at crime prevention.
- Provides other City Departments and businesses crime prevention methods through Crime Prevention through Environmental Design (CPTED)

- Provides personal services and programs directed at crime prevention among the youth
- Provides a formalized complaint process in order that community members and police can work together effectively.
- Provides community services to the public that aid in accomplishing the police mission.

The Department operates four police facilities:

- the Public Safety building (Harrison Plaza) at 101 North Main Street, and
- three unmanned satellite substations on Mosby Road, at 633 East Market Street, and at the Valley Mall.

The City pays 50 percent of the cost of administering the courts and the Regional Jail, which is managed by the Sheriff of Harrisonburg and Rockingham County. The Police Department has a close working relationship with the Sheriff's office. In addition to sharing the courts and jail, the City allows the County to utilize the shooting range and training facility, located on Greendale Road, within the City limits.

#### *Rescue Squad*

The Harrisonburg Rescue Squad, an all-volunteer organization, is an independent, non-profit corporation that is recognized as an integral part of the official safety program of the City for the purposes of saving lives, administering first aid, and teaching safety in Harrisonburg and parts of Rockingham County. The Rescue Squad is located at 1700 Reservoir Street, and owns and maintains a full fleet complete with ambulances, response vehicles, a Heavy Rescue Vehicle, and a Mass Casualty Response Unit. The Rescue Squad has approximately 200 active volunteer members and responds to over 8,500 calls-for-service per year.

#### *Local Government Facilities*

It is vital for the City to maintain its facilities as effectively and efficiently as possible. This requires periodic budgetary reviews for renovations, major capital repairs, expansions, and new facilities. Many of these items can be planned well in advance and these are vetted through the CIP process, but maintenance of existing structures requires a rapid and quick response when unexpected needs arise such as a premature equipment failure or structural failure. Many specific community facilities are discussed in Chapter 8 (Education), Chapter 11 (Parks & Recreation), and Chapter 12 (Transportation).

#### *Health*

Health has become an increasingly important topic for local communities to consider in their planning efforts. While most people equate health with access to physicians and hospitals, health is also linked to the built environment. A publication by the American Planning Association<sup>1</sup> states that “[a] comprehensive plan is a guide for improving quality of life, promoting economic development, and creating livable spaces, all of which improve community health.” Decisions made regarding land use,

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<sup>1</sup> American Planning Association, “Healthy Plan Making: Integrating Health Into the Comprehensive Planning Process: Analysis of seven case studies and recommendations for change.”

urban design, transportation, parks and recreation, and other community facilities and infrastructure have impact on local air quality, water quality and supply, traffic safety, physical activity which are linked to health issues such as adult and childhood obesity, inactivity, food access and nutrition, respiratory problems, chronic diseases, and environmental justice.

## Community Infrastructure, Services, Safety, and Health Goals, Objectives and Strategies

Goal 14. To support the City with community facilities, infrastructure, and services, which allow for sustainable growth and are accessible, equitable, efficient, cost-effective, and sensitive to the environment.

Objective 14.1 To continue to provide an adequate supply of high quality, environmentally sound public water service.

Strategy 14.1.1 To construct needed water supply, treatment, storage, and pressure improvements to provide effective and efficient water services.

Strategy 14.1.2 To work with Rockingham County and the US Forest Service to protect the Dry River water supply area.

Strategy 14.1.3 To continue to implement the recommendations of the Raw Water System Management Plan (RWSMP) and the Potable Water System Management Plan (PWSMP).

Objective 14.2 To continue to provide dependable, environmentally sound sanitary sewer service.

Strategy 14.2.1 To continue to implement the recommendations of the Sanitary Sewer Management Plan.

Strategy 14.2.2 To continue to support the Harrisonburg-Rockingham Regional Sewer Authority (HRRSA) to meet voluntary and other goals for nutrient reduction of the Chesapeake Bay Total Maximum Daily Load (TMDL).

Strategy 14.2.3 To eliminate septic systems in the City by promoting a septic to sanitary sewer connection conversion incentives program and/or offering financial assistance to encourage connections to the sanitary sewer system.

Objective 14.3 To improve stormwater and local water quality by reducing sediment, phosphorus, nitrogen, and bacteria loading into Blacks Run and its tributaries.

Strategy 14.3.1 To continue complying with the Small Municipal Separate Storm Sewer System (MS4) permit by implementing policies, programming, and maintenance activities to meet the required six minimum control measures: public education and outreach, public involvement, illicit

discharge detection and elimination, construction site stormwater runoff control, post-construction stormwater management, and good housing keeping and pollution prevention.

Strategy 14.3.2 To continue coordinating stormwater management in cooperation with James Madison University, Rockingham County, and the Virginia Department of Transportation.

Strategy 14.3.3 To use stormwater management techniques, that are both effective control measures and enhance the urban environment with aesthetically pleasing features, such as expansion of urban tree canopy and bioretention.

Strategy 14.3.4 To continue implementing the Stormwater Utility Fee and credit program to fund stormwater controls, maintain public facilities, and encourage management of stormwater on private property.

Strategy 14.3.5 To explore the feasibility of the City participating in the Community Rating System administered by the Federal Emergency Management Agency (FEMA) for the potential benefit of reducing flood hazard insurance rates.

Strategy 14.3.6 To implement the City's Stormwater Improvement Plan.

Strategy 14.3.7 To continue working with the Virginia Department of Environmental Quality, the Shenandoah Valley Soil & Water Conservation District, and other partners to improve stormwater and water quality in Blacks Run and local waterways.

Strategy 14.3.8 To require mandatory inspections of remaining septic systems.

Objective 14.4 To promote and implement strategies to reduce waste. See Chapter 10, Environmental Stewardship and Sustainability's Objective 11.7 for related strategies.

Objective 14.5 To support the development and expansion of multifaceted energy services, prioritizing renewable sources, and corresponding infrastructure that are reliable, cost-effective, properly maintained, and responsive to customer needs.

Strategy 14.5.1 To support programs to increase energy efficiency of municipal operations, businesses, and households. See Chapter 10, Environmental Stewardship and Sustainability for related strategies.

Strategy 14.5.2 To encourage new installations of electric service be constructed underground.

Strategy 14.5.3 To provide cost-effective, energy-efficient street lighting appropriate to the use and character of the area.

Strategy 14.5.4 To encourage the expansion of natural gas facilities to all new private developments.

Strategy 14.5.5 To support the development and expansion of solar energy infrastructure.

Objective 14.6 To support the development and maintenance of broadband and telecommunications services that are accessible to all residents and businesses to support education, health, economic development, and public safety.

Strategy 14.6.1 To continue to support franchise agreements between the City and broadband providers to lay fiber optic networks through city streets and across publicly-owned properties.

Strategy 14.6.2 To encourage the availability of more locations where the public can access wireless internet. For example, at local businesses, community centers, and other public places.

Objective 14.7 To continue planning for the expansion and upgrade of utilities during the planning, maintenance, and construction of new infrastructure projects.

Strategy 14.7.1 To continue to hold utility coordination meetings with public and private utility providers to discuss current and future projects.

Objective 14.8 To monitor the effectiveness and efficiency of City service delivery so that changes can be made as needed.

Strategy 14.8.1 To perform periodic studies of the adequacy, quality, efficiency, and equity of City service delivery, including potential needs for additional water supply sources, water and wastewater treatment expansions, stormwater capacity and conveyance, and availability of solid waste reuse/recycle/disposal options.

Goal 15. To enhance the quality of life of our community by protecting and enhancing health, safety and welfare through public safety, fire suppression, emergency medical services, preventative health care services, and community education.

Objectives 15.1 To proactively identify and analyze risks to the community and to the City, and to develop and implement effective strategies to address and/or minimize these risks.

Strategy 15.1.1 To continually work with partners in maintaining and updating the City/County Emergency Operations Plan.

*Chapter 13, Community Infrastructure, Services, Safety and Health, page 13-19*

Objective 15.2 To provide a well prepared first response force that is capable of response and mitigation as an all hazards organization (includes fire, police, EMS, and others).

Strategy 15.2.1 To continually provide opportunities to develop, train, and update skills and equipment resources.

Strategy 15.2.2 To continue to review and implement a strategic plan to maximize first response service delivery and safety.

Strategy 15.2.3 To provide adequate facilities and resources in the appropriate areas to support the overall response of public safety agencies.

Objective 15.3 To provide a proactive and comprehensive Community Risk Reduction<sup>2</sup> program through fire and life safety education and effective fire code enforcement.

Objective 15.4 To support the efforts of the Harrisonburg/Rockingham Community Criminal Justice Board to effectively hold people accountable for their actions while reducing recidivism and creating positive outcomes.

Strategy 15.4.1 To explore and promote alternatives to incarceration, when appropriate.

Strategy 15.4.2 To support substance abuse treatment centers.

Strategy 15.4.3 To support and expand community mental health services.

Objective 15.5 To increase the effectiveness of public awareness and engagement programs so community members better know and trust law enforcement and emergency service providers.

Strategy 15.5.1 To continue to host programs such as Citizen Academy, Community Police Academy, National Night Out, and Free Pizza/Smoke Alarm Night and to provide brochures in different languages.

Objective 15.6 To promote and support policies and programs that encourage healthier living and improve community overall well-being.

Strategy 15.6.1 To promote healthy activities through city-wide celebrations (e.g. “Walk to a Healthy Diet” and public health campaigns on nutrition).

Strategy 15.6.2 To promote initiatives that educate citizens regarding public and private programs to make health care more accessible.

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<sup>2</sup> In addition to fire and life safety, Community Risk Reduction also encompasses safety initiatives including, but not limited to bike safety and swimming safety.

Strategy 15.6.3 To evaluate local and regional public transportation routes through the Transit Development Plan to provide better access to health care and support services.

Strategy 15.6.4 To consider how public health is affected when making decisions regarding land use, urban design, and transportation.

### Chapter Resources

Harrisonburg Capital Improvement Program, <https://www.harrisonburgva.gov/capital-improvement-program>

Harrisonburg Raw Water System Management Plan, <https://www.harrisonburgva.gov/water-engineering>

Harrisonburg Sanitary Sewer Management Plan, <https://www.harrisonburgva.gov/water-engineering>

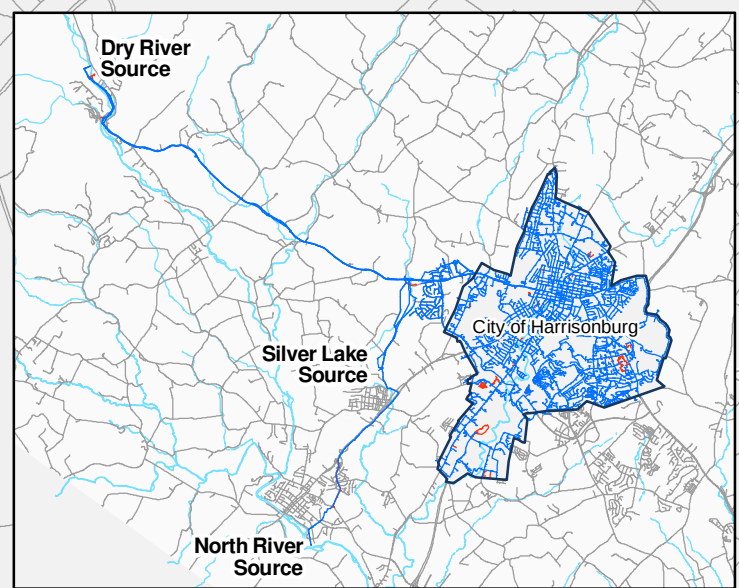
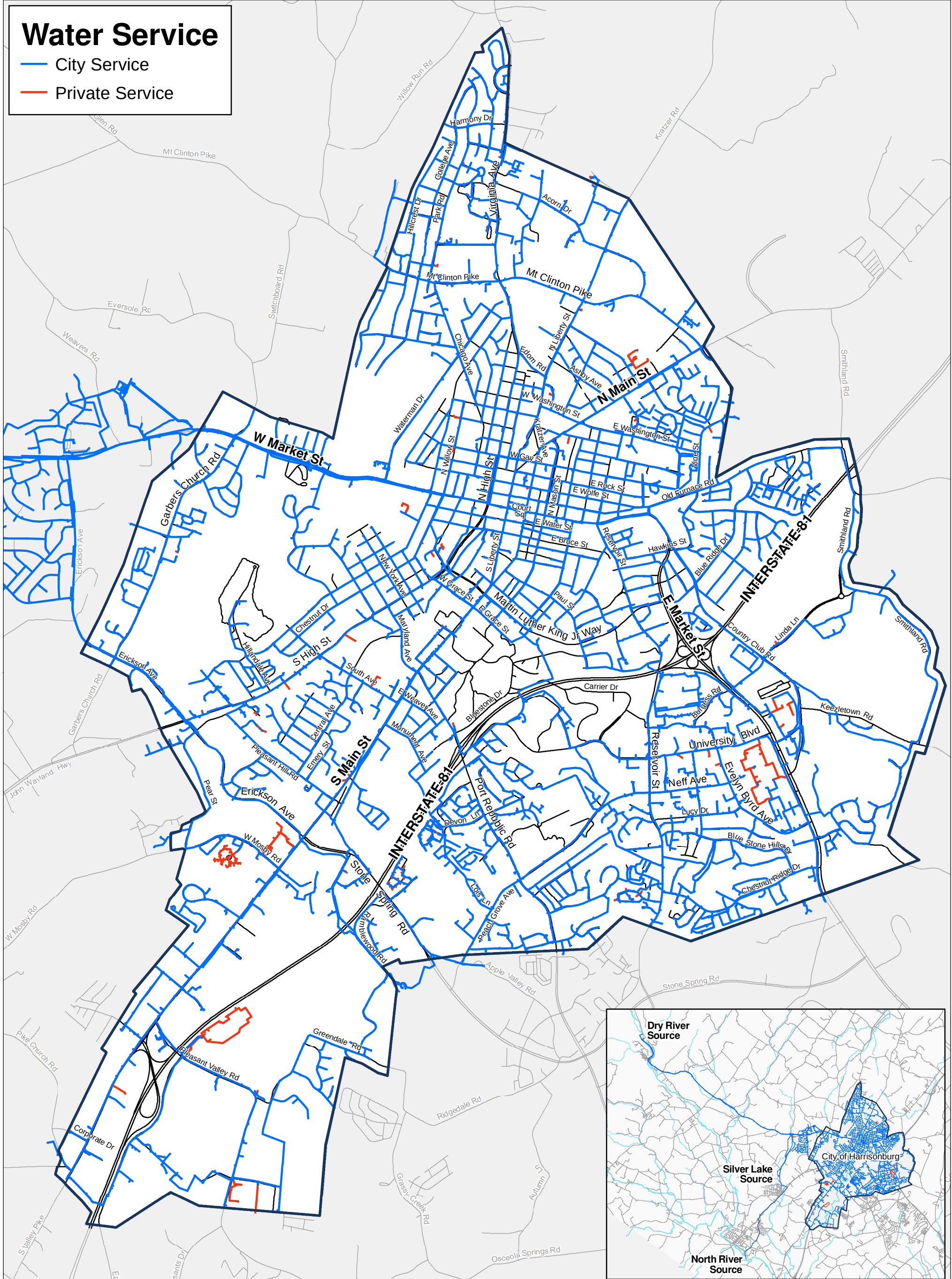
Harrisonburg Solid Waste Management Plan, <https://www.harrisonburgva.gov/trash>

Harrisonburg Stormwater Improvement Plan (SWIP), <http://www.harrisonburgva.gov/stormwater-improvement-plan>

Harrisonburg Stormwater Management Program, <https://www.harrisonburgva.gov/stormwater-management-program>

# Water Service

- City Service
- Private Service



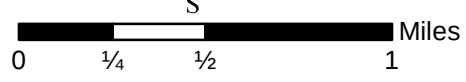
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Data Sources:  
 Department of Planning and Community Development  
 Department of Public Utilities

## Existing Water Service

### Comprehensive Plan

Map created: September 30, 2018

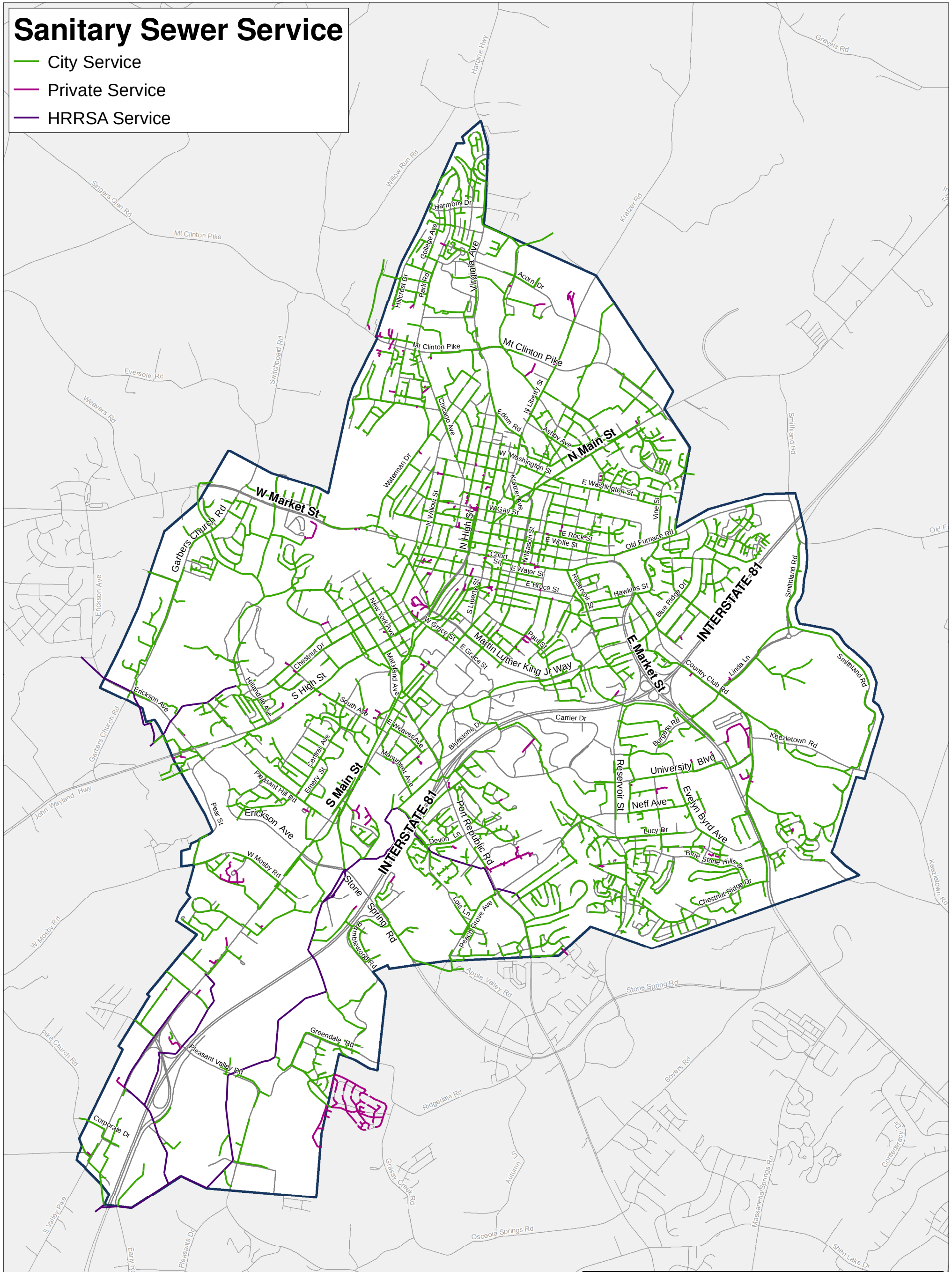


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# Sanitary Sewer Service

- City Service
- Private Service
- HRRSA Service



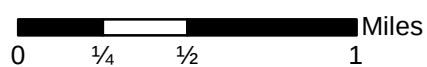
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**Data Sources:**  
 Department of Public Utilities  
 Harrisonburg Rockingham Regional Sewer Authority (HRRSA)  
 Department of Planning and Community Development

## Existing Sanitary Sewer Service

### Comprehensive Plan





Map created: September 30, 2018

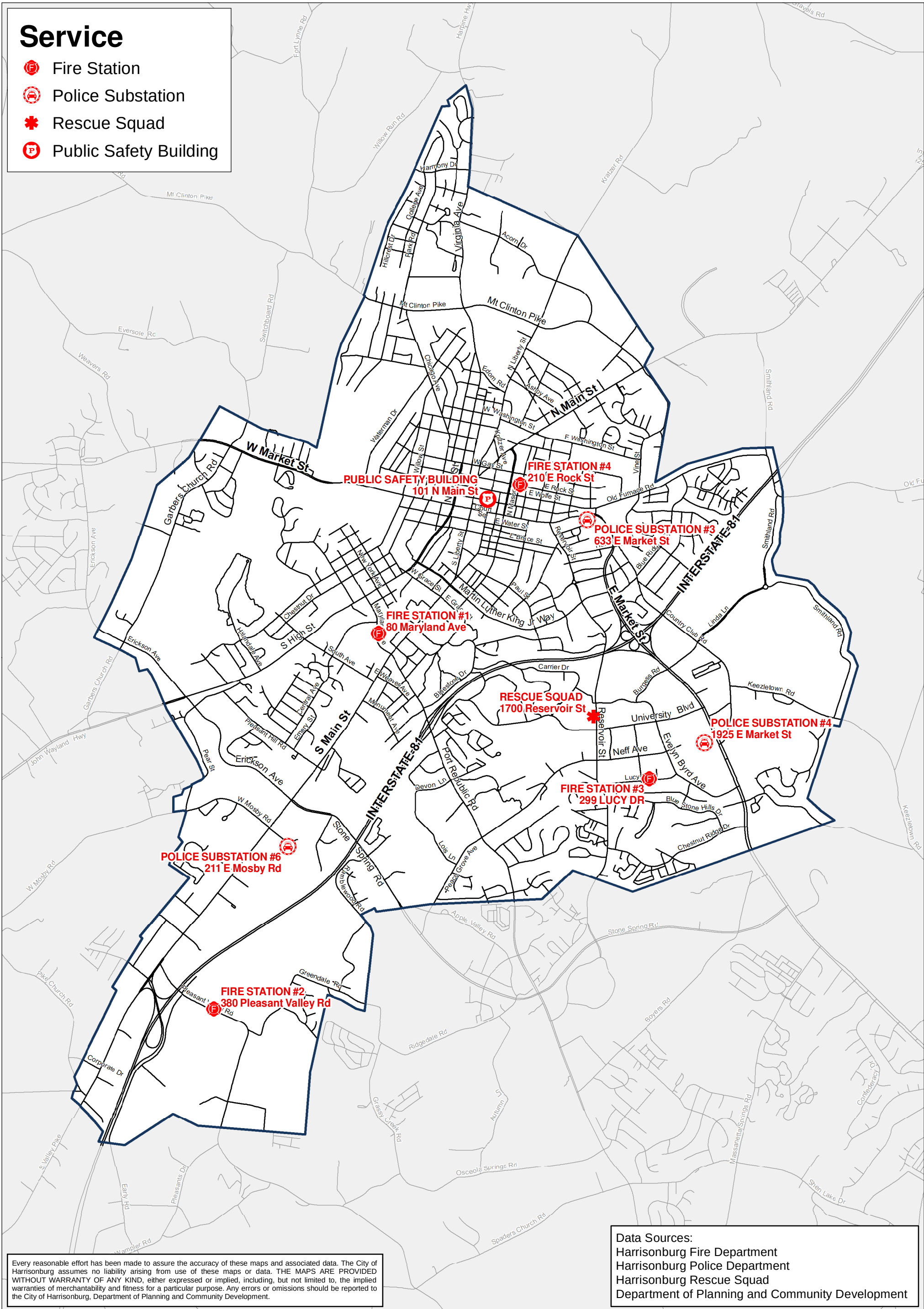


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# Service

-  Fire Station
-  Police Substation
-  Rescue Squad
-  Public Safety Building



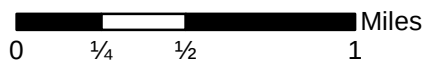
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Data Sources:  
 Harrisonburg Fire Department  
 Harrisonburg Police Department  
 Harrisonburg Rescue Squad  
 Department of Planning and Community Development

## Existing Public Safety Services

### Comprehensive Plan

Map created: September 30, 2018



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Harrisonburg VIRGINIA