

Appendix A: Watershed Assessment

Introduction

As the first step in the Stormwater Improvement Plan development, the City conducted an overall watershed assessment of the City of Harrisonburg in line with the following SWIP Objective 1.1 (see main SWIP report):

The following strategies were employed for the task:

- Collect and review previous city records, reports, studies, and information related to stormwater improvement needs, including relevant citywide master plans.
- Collect and review geospatial data that is provided by the City or available from others for use in this SWIP.

Review of Previous Plans, Studies and Reports

The City conducted a review of previously developed plans and city records for an understanding of past planning the City has done and how past planning can aid in the development of this SWIP. A review of existing plans and city records included the following documents:

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| 1. | 2016 MS4 Annual Report | 19. | 2006 Water Quality Improvement Plan for Blacks Run and Cooks Creek |
| 2. | 2016 Chesapeake Bay TMDL Action Plan | 20. | 2002 Blacks Run Greenway Master Plan |
| 3. | 2016 Street Sweeping Credits | 21. | 1999 Storm Water Action Plan |
| 4. | 2016 Storm Drain Cleaning Credits | 22. | Harrisonburg Downtown Park Plan |
| 5. | 2016 City Owned BMPs Database | 23. | Cityworks BMP Maintenance Records |
| 6. | 2016 Drainage Issues Tracking | 24. | Routine Inspection and Maintenance Records |
| 7. | 2016 Stormwater Improvement Plan Scoping Report | 25. | Maintenance Hard Copy Maps and Spreadsheets |
| 8. | 2016 Maintenance Facility SWPPPs | 26. | City Floodplain Modeling and Mapping |
| 9. | 2016 East Market Street BMP Design | 27. | City and Non-City GIS data (e.g., NWIS, NRCS soil maps) |
| 10. | 2015 Historical BMP Inspection Report | | |
| 11. | 2015 Cost Share Programs Overview | | |
| 12. | 2014 Downtown Streetscape Plan | | |
| 13. | 2013 Drainage Problems List | | |
| 14. | 2013 Stormwater Retrofits on Public Land | | |
| 15. | 2013–2018 MS4 Program Plan | | |
| 16. | 2011 Comprehensive Plan | | |
| 17. | 2010 Bicycle and Pedestrian Plan | | |
| 18. | 2008 Urban Values and Vision Plan | | |

The review of these studies and reports can be categorized as shown in Table A-1.

Table A-1. Summary of Previous Plans, Studies, and Reports

Category	Items	Notes
City MS4 Program Reviews and Pollutant Reduction Calculations for Non-Structural BMPs	1, 2, 3, 4, 7, 11, and 15	These documents form the basis for the non-structural BMP calculations of TP, TN and TSS pollutant reductions as well as the review of Citywide programs and policies in the SWIP. City Excel sheets containing pollutant removal calculations for non-structural BMPs were key parts of this data.
Structural BMP Opportunities and Associated Pollutant Reduction Calculations	5, 8, 9, 10, 12, 14, 19, 20, 22, 23 and 27	These documents form the basis of identifying BMP opportunities throughout the City. Document #14 was the primary data source for identifying BMP opportunities on public lands. Document #9 was used for pollutant removal calculations for the three BMP retrofit designs on East Market Street (US-33).
Previously Identified Storm Sewer Capacity Issues	6, 13, 21, 23, 24, 25, and 26	These documents formed the basis of identifying storm sewer capacity issues such as drainage and flooding problems. Document #6 was the primary data source for listing known problems currently.
Citywide Planning Guidance and Goals	2, 7, 16, 17, 18, and 20	These documents were used to determine if BMP recommendations were consistent with previous planning studies important for future coordination to establish synergy A key element was identifying stream reach opportunities consistent with the Blacks Run Greenway Development Plan (Document #20).

Further discussion regarding how these previous data sources help to inform the SWIP can be found in the report chapters that follow.

Review of Geospatial Data

The City maintains a comprehensive database of geospatial data within a geographic information system (GIS) that can help reveal the best potential sites for stormwater improvements. Examples of the relevant types of data that were reviewed and used in this SWIP include:

- Property Boundaries (e.g., JMU boundaries, regulated MS4 area, parcel mapping)
- Land use / land cover (e.g., impervious areas, forested areas, streams)
- Topographic information or contours (elevation data)
- Soil types (including information on karst areas)
- Existing BMP locations
- Storm sewer systems and other utility system mapping