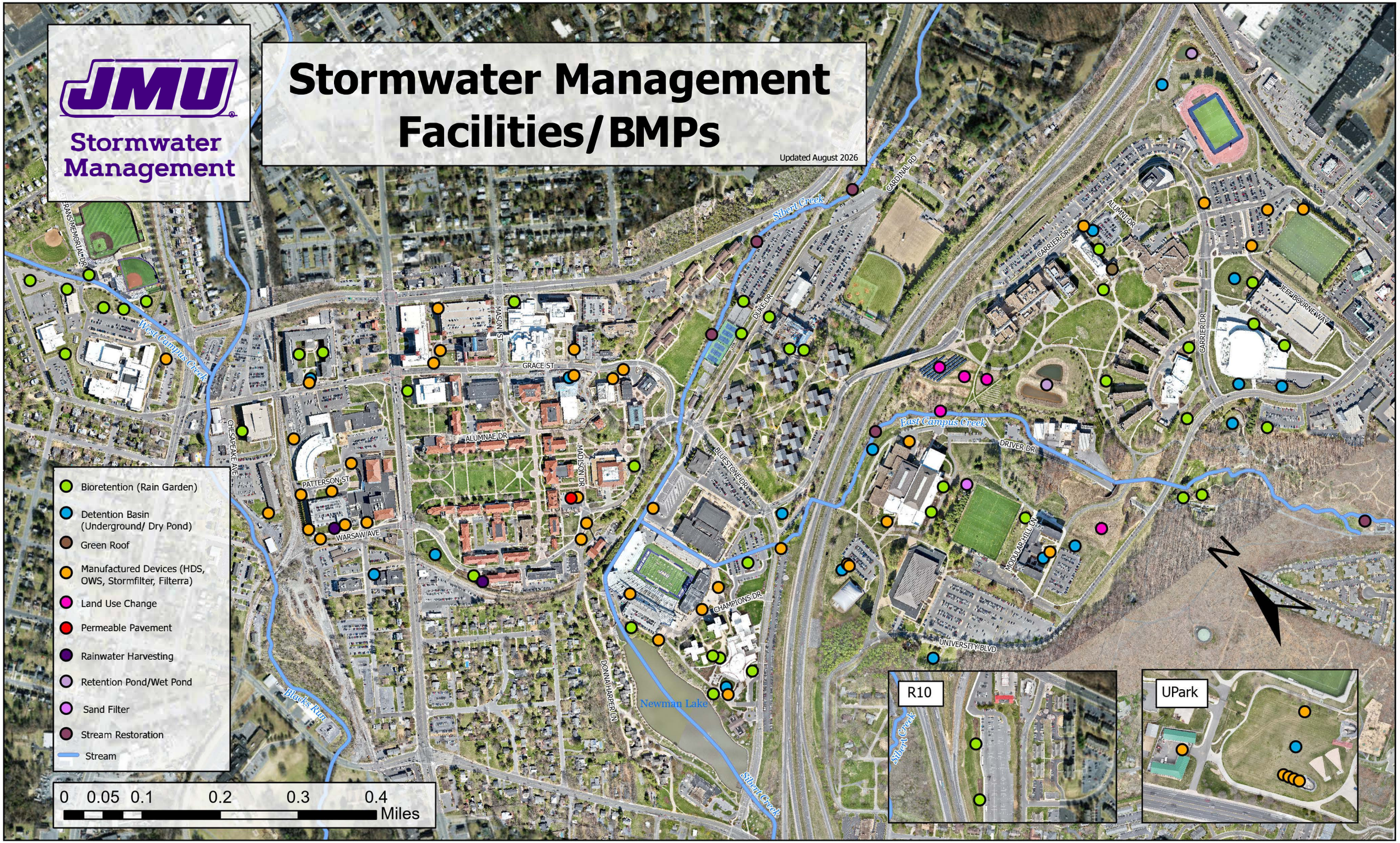
JMU
Stormwater Management
Stormwater Management Facilities/BMPs
Updated August 2026
Bioretention (Rain Garden)
Detention Basin (Underground/ Dry Pond)
Green Roof
Manufactured Devices (HDS, OWS, Stormfilter, Filterra)
Land Use Change
Permeable Pavement
Rainwater Harvesting
Retention Pond/Wet Pond
Sand Filter
Stream Restoration
Stream
0 0.05 0.1 0.2 0.3 0.4 Miles
N
R10
UPark
Sibert Creek
West Campus Creek
East Campus Creek
Blacks Run
Newman Lake
GRACE ST
MASON ST
ALUMNAE DR
MADISON DR
PATTERSON ST
WARSAW AVE
CHESAPEAKE AVE
BLUESTONE DR
CHAMPIONS DR
DONNA HARPER LN
DRIVER DR
MODULAR HILL LN
UNIVERSITY BLVD
DUKE DR
CARDINAL RD
CARRIER DR
ALUMNI DR
BEERY BOURNE WAY
GRAHAM MEMORIAL DR

There are many different types of stormwater Best Management Practices (BMPs). Some are designed to deal with water quantity and store stormwater runoff and release at a slower rate to reduce downstream flooding and erosion, while others are designed more for water quality and filter potential pollutants that drain through the practice. And then there are some that do both! The following is a quick summary of stormwater BMPs that can be found on JMU's campus.

1. Bioretention filters, more commonly known as rain gardens, are constructed treatment areas that slowly release collected stormwater runoff and filters gathered pollutants naturally through plants, mulch and soil media. There are **41 bioretention filters** of various sizes located on JMU's campus.

2. Detention, or dry ponds are constructed to provide general flood protection, collecting stormwater runoff during and immediately after a rain event and releasing it downstream at a slower rate helping reduce possible flooding. There are **12 detention ponds** located on JMU's campus.

3. Detention ponds can also be constructed underground in vaults and work the same as above ground, and generally go unnoticed. Most are a collection of concrete vaults, and there are **7 underground detention** systems located on JMU's campus.

4. Green, or living roof, is a constructed roof with vegetation and soil media planted over a waterproof membrane. In addition to reducing the amount of runoff leaving a property, this practice also has additional benefits such as thermal reduction and energy conservation. There are three installations on campus: at Madison Union, on Bioscience building's roof and a small on at the College of Business.

5. Hydrodynamic separators are manufactured structures that separate sediment and other pollutants as they flow through the structure. Collected sediment and debris will then need to be removed during regular maintenance cleanings. There are **13 hydrodynamic separators** on JMU's campus.

6. Land use changes, or conservation landscaping, is the process of taking hardscape surfaces or typical "lawns" and changing the type of plants in the area to allow meadows and/or additional tree density. JMU has completed several of these land conversions on East Campus, changing ares of turf to meadow. Throughout campus, vegetation has been allowed to grow adjacent to streams to provide a riparian buffer and trees have planted to help convert these buffers to forested conditions.

7. Oil/Water separators are underground tank systems installed to collect petroleum products in the case of a large accidental spill, thus preventing the product from getting into our local streams. JMU has three oil/water separators located at fueling stations throughout campus

8. Permeable pavement allows for stormwater infiltration in hardscapes such as sidewalks, parking lots, and roadways. There is one installation of pavers on JMU's campus located at Parking Lot A near Wilson Hall. These require regular street sweeping to keep the pavers infiltrating as designed.

9. Rainwater harvesting is a process of capturing stormwater runoff and reusing it on-site. JMU has one installation of this practice on campus located at Wayland Hall.

10. Retention, or wet ponds work very similarly to dry ponds except they have a permanent pool of water and these increase water quality. There are **3 wet ponds** on JMU's East Campus.

11. Sand filters are another type of infiltration practice that work similarly to bioretention filters except the media is mainly comprised of sand and the practices are not intentionally landscaped with plants. There is one installation of this practice on JMU's campus located below the UREC turf field.

12. Stormfilters are another manufactured filtering device that are installed underground and filter stormwater as it flows through the storm system. There are **16 stormfilters** installed on JMU's campus.

13. Stream restoration is the process of re-engineering the stream to include natural design concepts to help ensure bank stabilization and reconnect the stream to the floodplain. JMU has **restored approximately 3,700 linear feet of stream** through campus.

14. Tree-in-a-Box is another manufactured practice that basically puts a one-plant rain garden in a storm drain inlet. This will treat the first runoff from a storm event which typically have the majority of new pollutants in the drainage area. There are **15 tree-in-a-box units** on JMU's campus.

15. Wetlands, or in this case constructed wetlands, are a natural biofilter, called nature's sponges, installed to treat pollutants from stormwater runoff. Several "pocket" wetlands were installed along with the stream restoration work in the E.J.C. Arboretum which allows for additional connection to the floodplain and water storage during flooding events.