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MEMO

TO: Downtown Main Street Reconstruction Task Force
FROM: Andrew Beyer, Director of Public Works
DATE: November 14, 2024
RE: Potential Green Stormwater Infrastructure Options for Main Street

Green stormwater infrastructure practices (green infrastructure) are long-term stormwater management systems that are typically designed to improve localized flooding and water pollution control in small drainage areas. Green infrastructure is often designed to be a cumulation of multiple smaller systems in a particular neighborhood, business complex, or along a city street.

Of the many different types of green infrastructure, City staff have evaluated and recommend 3 specific types for consideration and installation along the City's downtown Main Street corridor:

1. Permeable Pavers
2. Stormwater Trees
3. Biofilters

1. Permeable Pavers

Permeable Pavers are designed to allow stormwater to flow between the paver bricks, into engineered layers of stone and/or soils below. The layers of stone underground offers storage for excess stormwater, to minimize localized flooding. The stone and engineered soils below the pavers also serve as a filter, capturing pollutants and other particles, allowing cleaner water to flow into underdrains/storm sewer systems, which then discharge to the Rock River. Permeable pavers typically require vacuum-assisted sweeping (or similar) 2-4 times per year, depending on the surrounding land use.

2. Stormwater Trees

Stormwater trees refer to intentionally planted trees along roadsides that intercept rain that would otherwise fall onto the street, washing pollutants into nearby rivers, lakes and wetlands. Stormwater trees in urban settings are typically species that are chosen due to the potential size/canopy at maturity, aesthetics such as color of leaves throughout the year, and maintenance needs throughout the life cycle of the individual trees (ex., hackberry and ginkgo trees). Underground grid/block systems can be installed with soil to intentionally provide space for tree roots to grow under sidewalks, and provides storage for stormwater runoff prior to discharging to the nearby storm sewer system. The underground soils also serve to capture pollutants before cleaner water discharges to



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underground drain tile and storm sewers. Stormwater trees require occasional maintenance (pruning, trimming as needed) as well as leaf collection during the fall.

3. Biofilters

Biofilters are small depressions with specifically designed engineered soils below ground that receive stormwater runoff from sidewalks and streets. These systems filter stormwater as it soaks into the ground, capturing pollutants and other particles, allowing cleaner stormwater to flow into underground drain tiles and storm sewer before discharging to the Rock River. Biofilters can also be sized to retain stormwater for 48-72 hours, to minimize localized flooding. These landscaped systems are often planted with native plantings, which can be chosen by size/height at maturity, color, timing of blooms during the season, and ease of maintenance. Alternatively, grass or native grasses can be planted in biofilters. Regular landscaping maintenance such as planting, weeding, mulching, trimming, etc. is typically needed.