

RECOVERY AND RESILIENCY PARTNERSHIP PROJECTS

CITY OF SPRINGFIELD CIVIC GREEN INFRASTRUCTURE

Background and Opportunities

Springfield's proximity to the bay and Lake Martin increases its vulnerability to major storm events which cause inland flooding from sea storm surge. Traditional stormwater infrastructure (drains and pipes) can be overwhelmed by large water volume. Integrating nature-based stormwater features can bolster the city's resiliency in typical and major storm events.

Design Recommendations

Ideal locations for large scale natural drainage strategies include parks, vacant lands, and new developments that are located close to flood zones and wetlands.

1 - Proposed City Complex

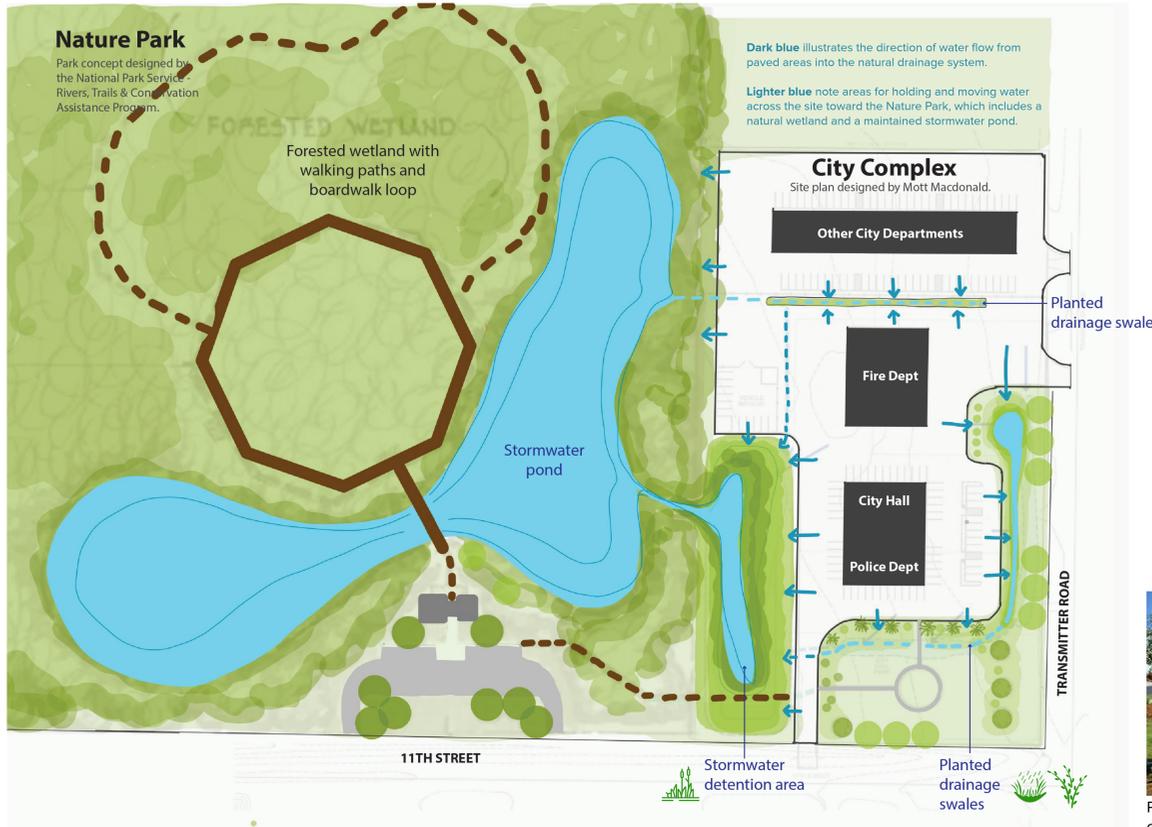
A stormwater management concept for the proposed City Complex planned for 11th Street and Transmitter Road illustrates how nature-based features can be integrated into new development.

2 - Parks and Vacant Lands

Several of Springfield's valuable parks and recreation areas are particularly prone to flooding from storm surge. Nature-based stormwater features such as those included as examples can increase resiliency for the parks and surrounding residential areas.

1- City Complex Sustainable Stormwater Management Approach

This diagram illustrates how stormwater can be captured from the city complex parking and drive areas in planted swales and retention basins, which slow the flow and direct overflow to the adjacent stormwater pond in the Nature Park for temporary storage and infiltration. This approach reduces water entering the city's stormwater treatment system, decreases flooding, and provides recreation opportunities.



Additional opportunities to enhance on-site stormwater management include:

- Extending swales along Transmitter Road and 11th Street to capture stormwater runoff from roadways.
- Use of pervious material such as crush mill or pervious pavement.
- Water reuse system for city vehicle wash stations.
- Capture roofwater for reuse such as irrigation.



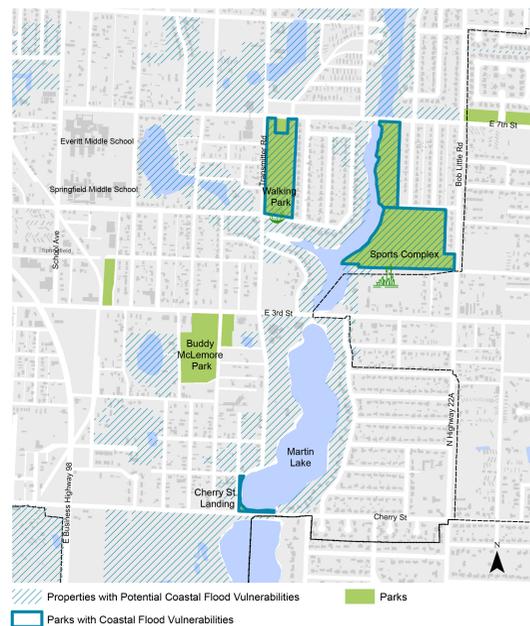
Parking lot with curb cut into planted drainage swale.

2 - Parks and Vacant Lands Stormwater Management approach

Natural drainage systems limit the negative impacts of stormwater runoff by utilizing plants, trees, and soils to clean runoff and manage stormwater flow. Vegetated swales, stormwater cascades, and small wetland ponds allow soils to absorb water, slowing flows and filtering out many contaminants.

Community opportunities and benefits:

- Potential to increase community spaces.
- Passive recreation such as trails.
- Reuse water for watering landscaping.
- Habitat for pollinators and other wildlife.
- Beautification using drought tolerant native plants, rocks and other low maintenance natural features.



NOAA's Coastal Flood Exposure Mapper is an online visualization tool to support communities in assessing their coastal hazard risks and vulnerabilities. Properties that may be exposed to some level of coastal flood vulnerability are shown in a hatch in this image. The parks shown in a blue outline may have the capacity to help mitigate storm surge and flooding if natural drainage features were added or enhanced.

Relationship Between Parks and Green Infrastructure

A typical park already contains open space areas that absorb stormwater and offer water quality, habitat, and aesthetic benefits. Park infrastructure—parking lots, roads, buildings, playing fields, courts, and other man-made surfaces—can be built or retrofitted to treat stormwater or drain to enhanced pervious surfaces. The following are some opportunities to enhance park features using green infrastructure.

Parking Lots

- Bioretention in landscaped areas, medians, and roundabouts
- Permeable pavement in parking stalls, overflow parking, and walkways
- Trees in landscaped areas
- Amended soils to improve infiltration, pollutant removal, and plant health

Visitor Centers

- Bioretention demonstration gardens
- Pollinator gardens that treat stormwater
- Green roofs
- Rainwater barrels and cisterns
- Planter boxes in space-limited areas

Playing Fields

- Temporary detention storage
- Permeable pavement in parking stalls, overflow parking, and walkways

Paved Trails, Walkways, and Roads

- Permeable pavement walkways, parking, and fire lanes
- Trees planted along roadsides and pathways

Wetlands and Drainage Systems

- Natural areas along stream channels
- Constructed wetlands created in existing drainage areas
- Wildlife habitat areas that serve as stormwater runoff areas

Opportunities to integrate natural drainage in park designs and features to increase flood resilience and recharge underground aquifers.



Examples of constructed natural drainage features

Please visit www.R2P2.skeo.com to comment on these preliminary concepts!