



Identifying Drivers and Analyzing Ecosystem Services in Stormwater Detention Ponds

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Motivation

- Urbanization increases impervious surfaces, increasing flooding
- Stormwater infrastructure decreases risk of flooding



Gray Infrastructure



Stormwater Detention Ponds



Green Infrastructure



Motivation

Figure 2. Flow difference between inflow and outflow hydrographs.

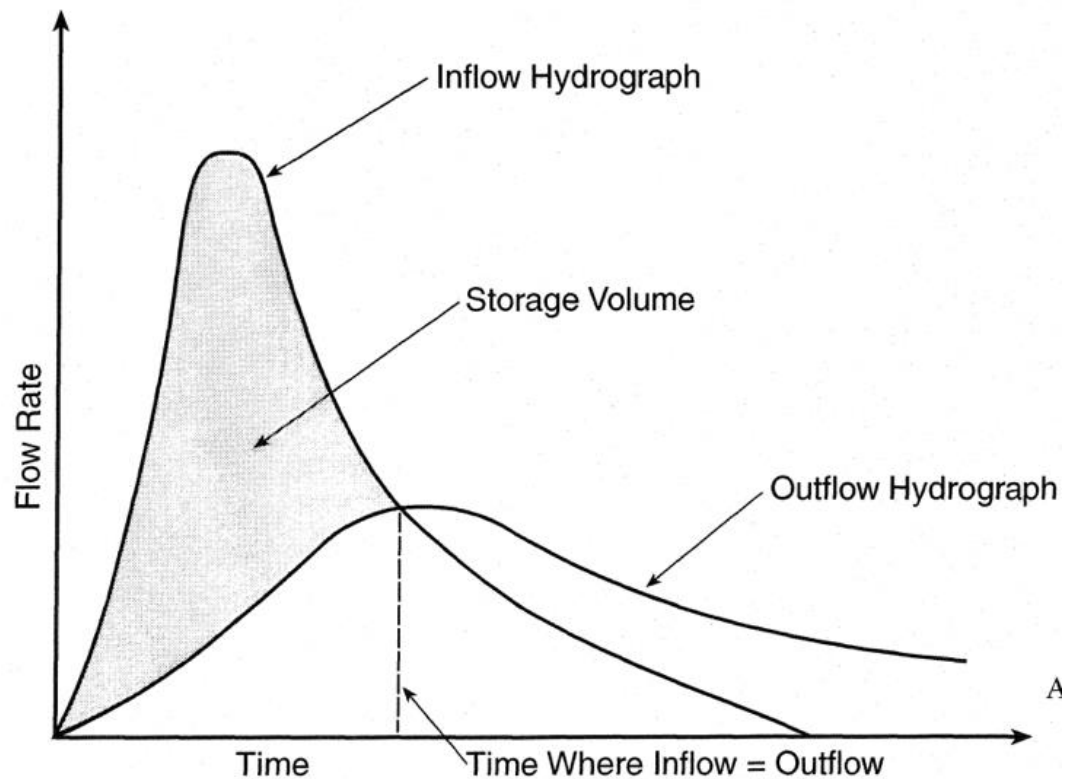
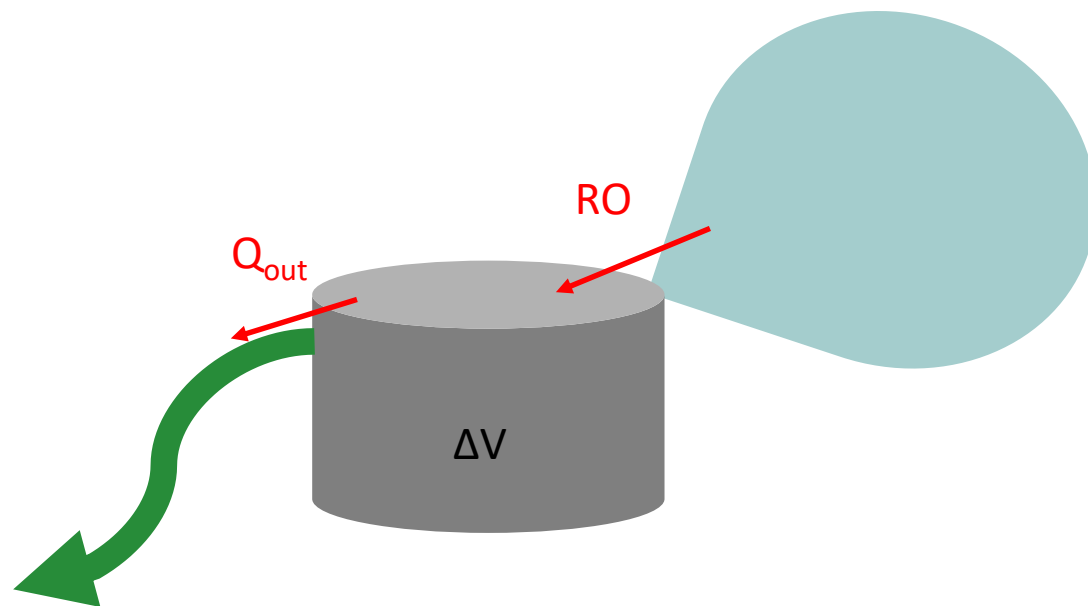


Figure from The Wisconsin Storm Water Manual

- Stormwater detention ponds hold runoff and slowly release it
- Creates highly variable water levels (bounce) after storms



Motivation



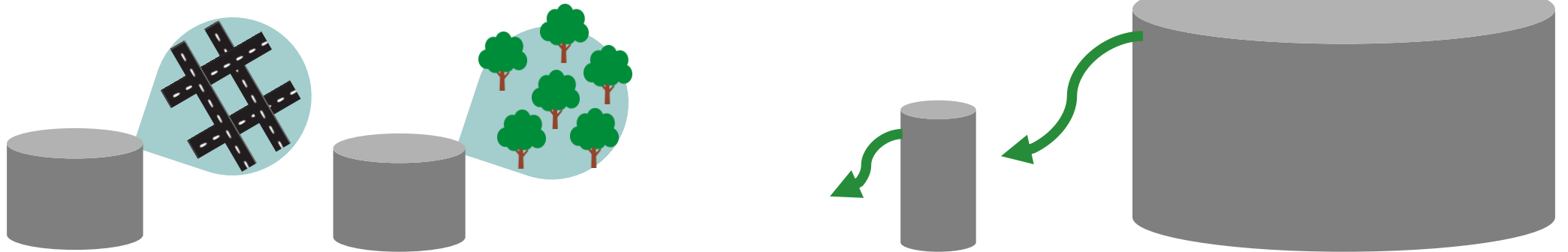
Water Balance of Stormwater Detention Ponds

- Watershed characteristics influence inflow into ponds and bounce
- Engineering design influences bounce and outflow from ponds



Research Question

1. To what extent do **watershed characteristics** and **engineering design** play a role in the rapidly-changing water levels in stormwater detention ponds?





Methods: Water Level Measurements

- Pressure transducers instrumented in each pond
 - T-post
- Estimate inflow from a single water level measurement
 - Uses relationships between water level, storage, and outflow

