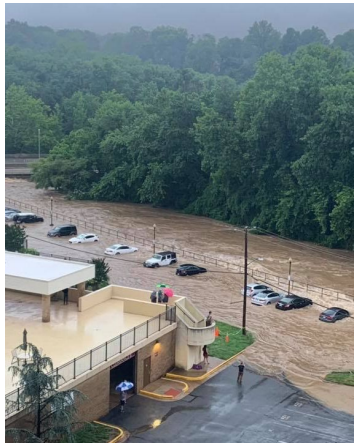
Flood Resilient Arlington

ARLINGTON
VIRGINIA



July 8, 2019

In less than an hour, more than 4 inches of rain fell in parts of Arlington, causing flash flooding

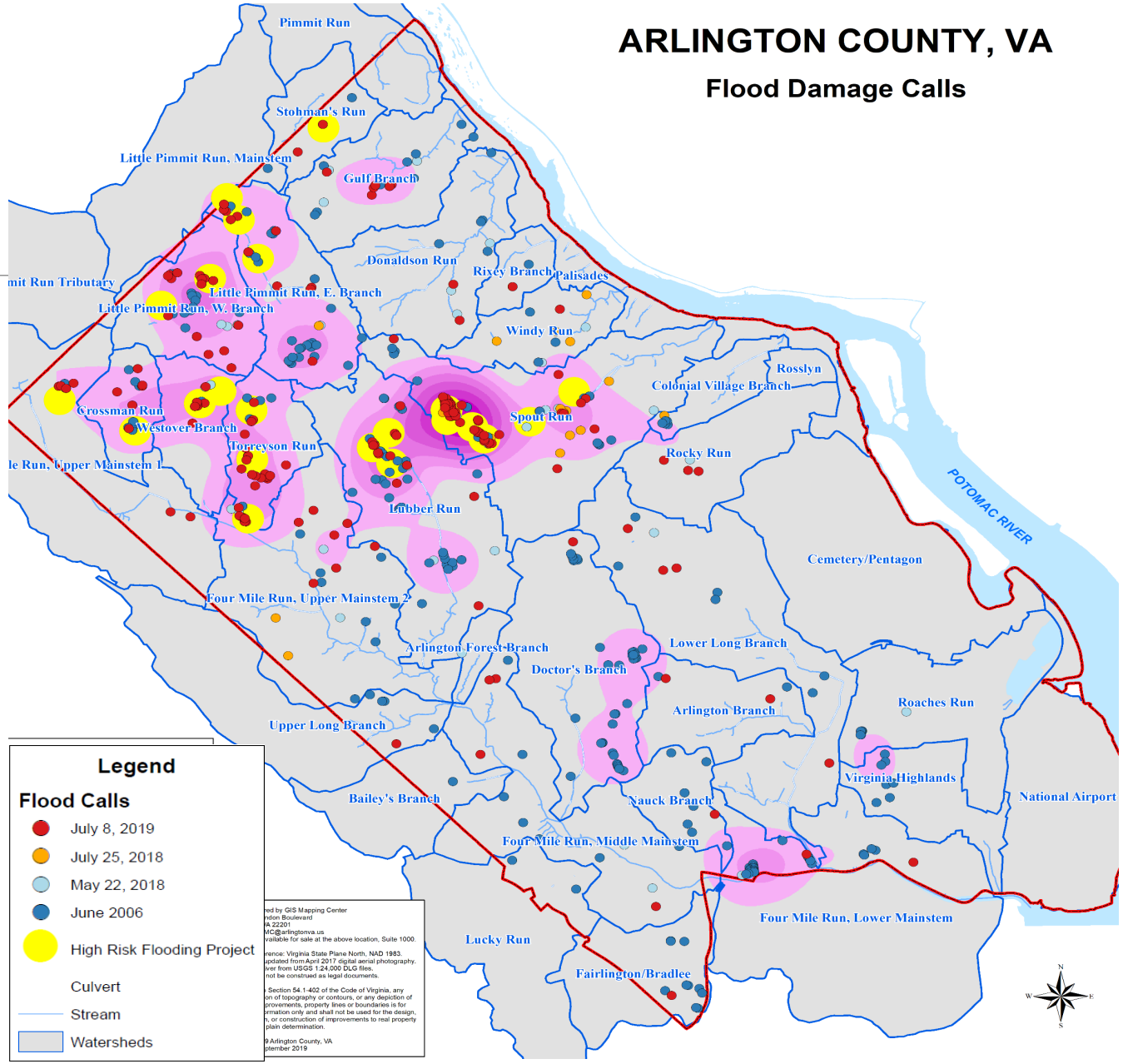
Significant public and private property damage with over 1000 property owners reporting flooding

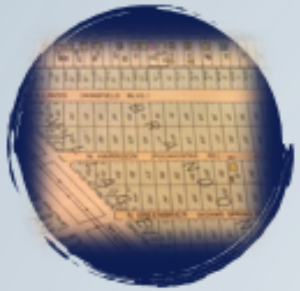
County set up Flood Recovery Center to assist property owners with information on permitting, low interest loans, and debris cleanup

Flood Damage Calls

Map demonstrates flood calls from the following storms in relation to high risk flooding projects identified in Stormwater Master Plan:

- July 8, 2019
- July 25, 2018
- May 22, 2018
- June 2006





Inherited Development

- Rapid early development without “system” approach
- Undergrounding / lack of overland relief
- Bad assumptions on long term impervious scope

Lack of Early Regulation

- Late adoption of overland relief standards
- Design Storm is antiquated
- No requirements for tertiary or lateral assets

Urbanization and Continuing Growth

- Increasing density
- Increasing impervious
- Poor soils surfaced, plus compaction, tree/canopy reduction

Climate Volatility and Acceleration

- Increasing frequency, intensity and/or duration of storms
- “Design-storm” standard is no longer responsive
- Sea-level rise and storm surge

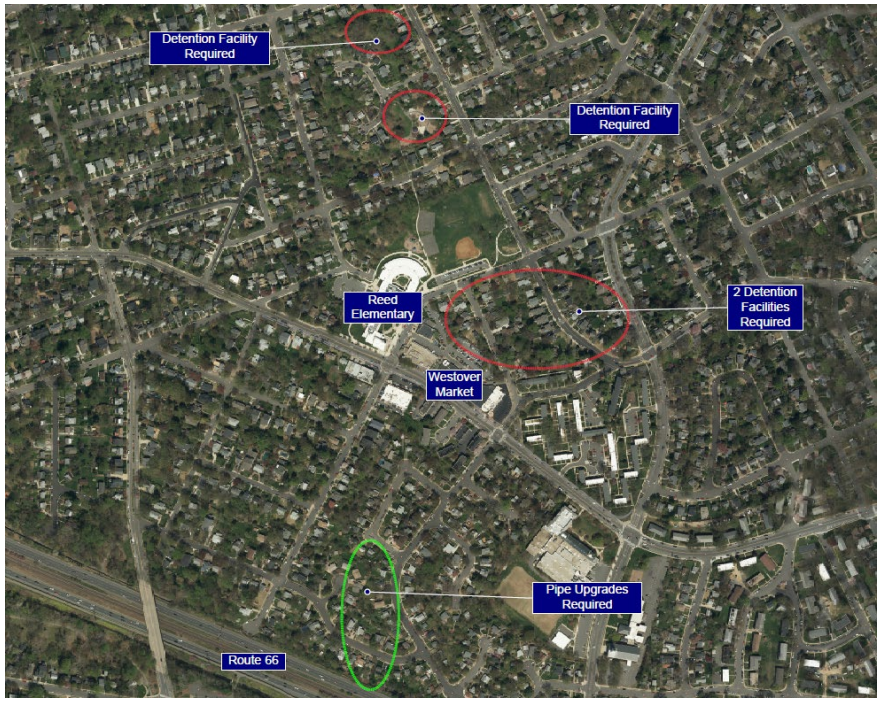
Under-Sized, Under-Capacity and Non-Adaptive Systems

- Combined, under-performance
- An urban profile that is not moving toward adaptation and resilience.

Elements of Flood Resilient Arlington

- Expansion of types of capacity projects and location of projects
- Expanded outreach - helping property owners floodproof and protect themselves.
- Revising development requirements
- Stormwater bond included on November, 2020 ballot
- Integration of projects – infrastructure and water quality
- Increased maintenance cycles

Watershed Scale Projects



Expanded Outreach

Site Visits

Floodproofing site visits were offered to 90 high risk homes (more severely impacted by flooding on July 8th).

StoryMap

Visual presentation to educate public on historical development & present day stormwater challenges

Public Forums

Experts on flood proof design, flood insurance and installation of floodproof measures

Budget Engagement

Opportunity for input in capital improvement plan and budget process via online feedback forums

https://www.arlingtonva.us/flooding/

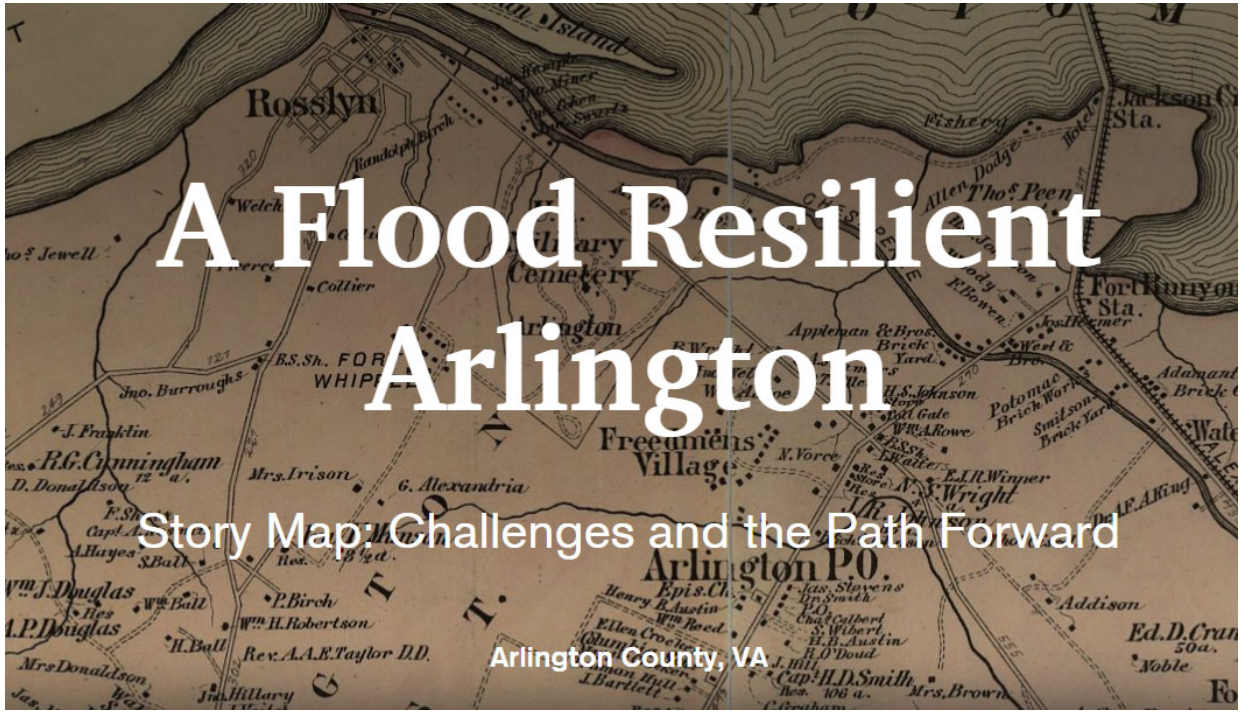
Storymap to educate on historical context

Educate residents on background of development in Arlington and how that affects current stormwater management challenges

Most of Arlington developed very rapidly in the 40s and 50s, without stormwater management

Over 6000 views since Oct, 2019

https://www.arlingtonva.us/flooding/



Strategic & Programmatic Framework

Stormwater Master Plan (SMP) remains a living document following numerous updates since 1957.

Risk Assessment and Management Plan, or RAMP (2021 Q1) combines updated climate projections (2040 and 2070) with new capacity studies to identify system gaps. The RAMP maps critical community facilities in all sectors, to support vulnerability and risk assessments. The result is multi-resource asset for resiliency planning, high-performance blended engineering solutions, and measuring the "cost of inaction".

Stormwater Interdepartmental Working Group (formed 2019), to inform Emergency Planning/Response, Enhanced Communications, Strategic Engineering and Capital Programming, and Policy Innovations for Re/Development.

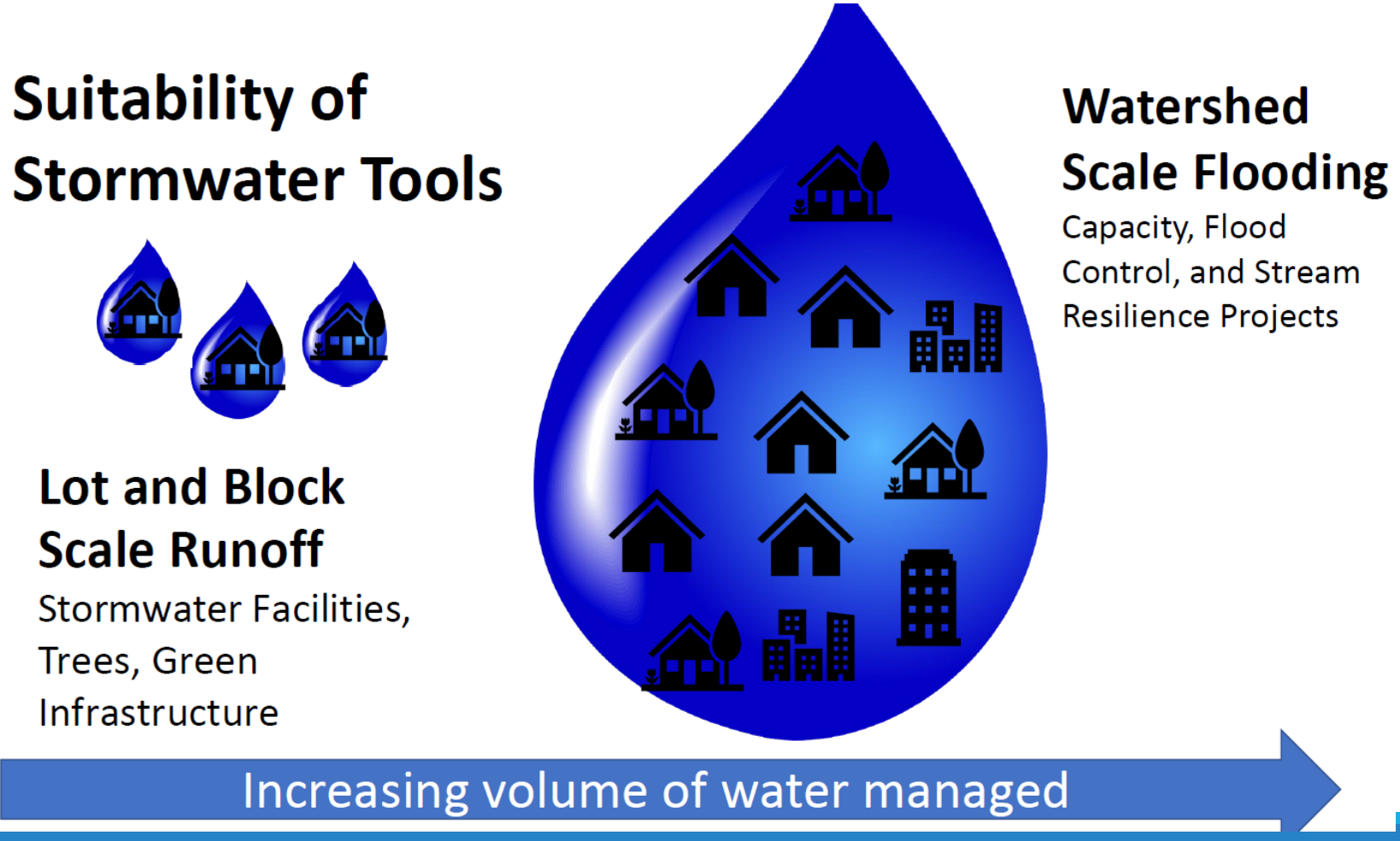
Utility Feasibility Study (2020-21), as part of expanding funding/financing mechanisms and options.

RAMP – Application(s)

- Map County's "urban" floodplains (outside FEMA floodplains)
- Measures both Flooding and Sea Level Rise/Storm Surge Risks
- Define and value risks from flooding
- Measure true value(s) of stormwater investments
- Support cross-sector (e.g., transportation) climate adaptation planning
- Drive innovations in engineering and policy solutions
- Informs flood resilient design and construction standards
- Expands communications platform

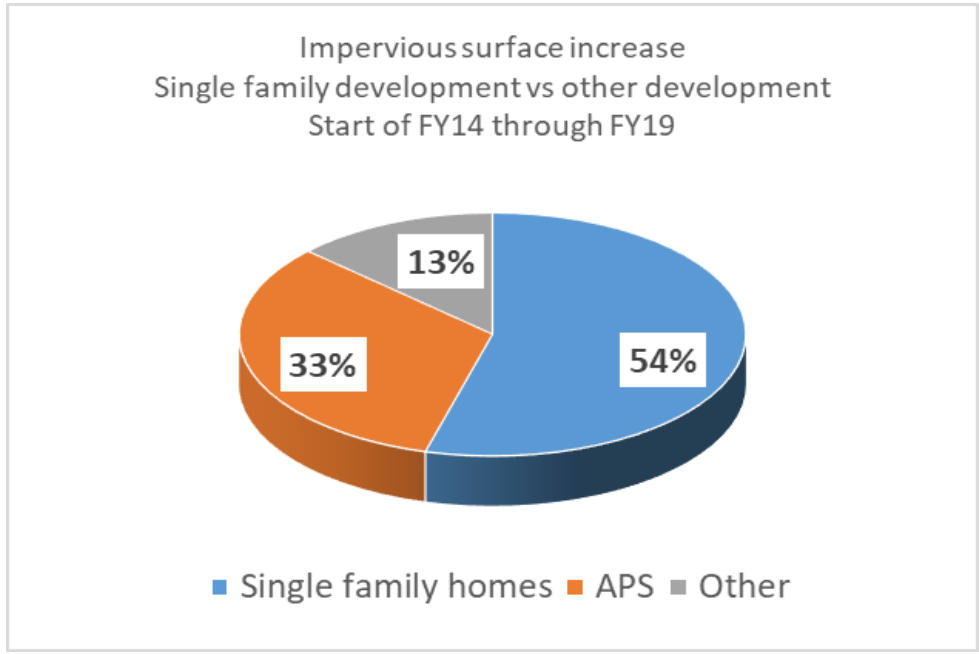
Tools to address stormwater challenges from the ‘lot to the river’

Many small scale tools complement but cannot replace function of larger scale tools



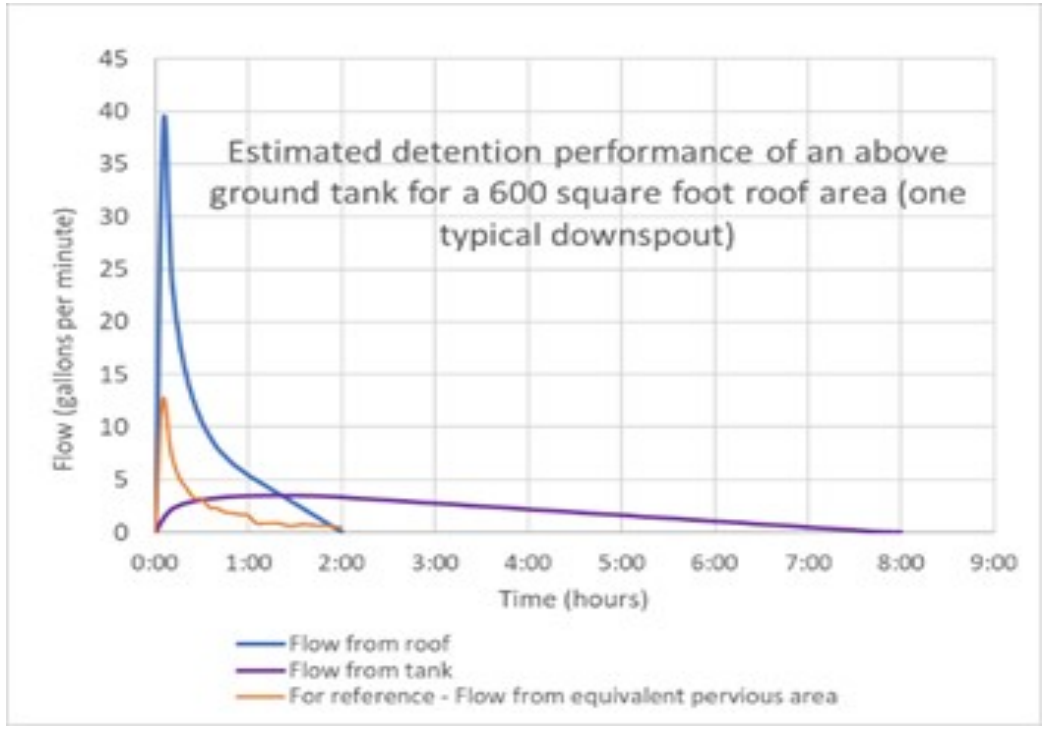
Lot scale: Regulating single family homes

Recalibrating to improve mitigation of off-site impacts in a more demanding development and precipitation environment



‘Slow it Down, Soak it In’

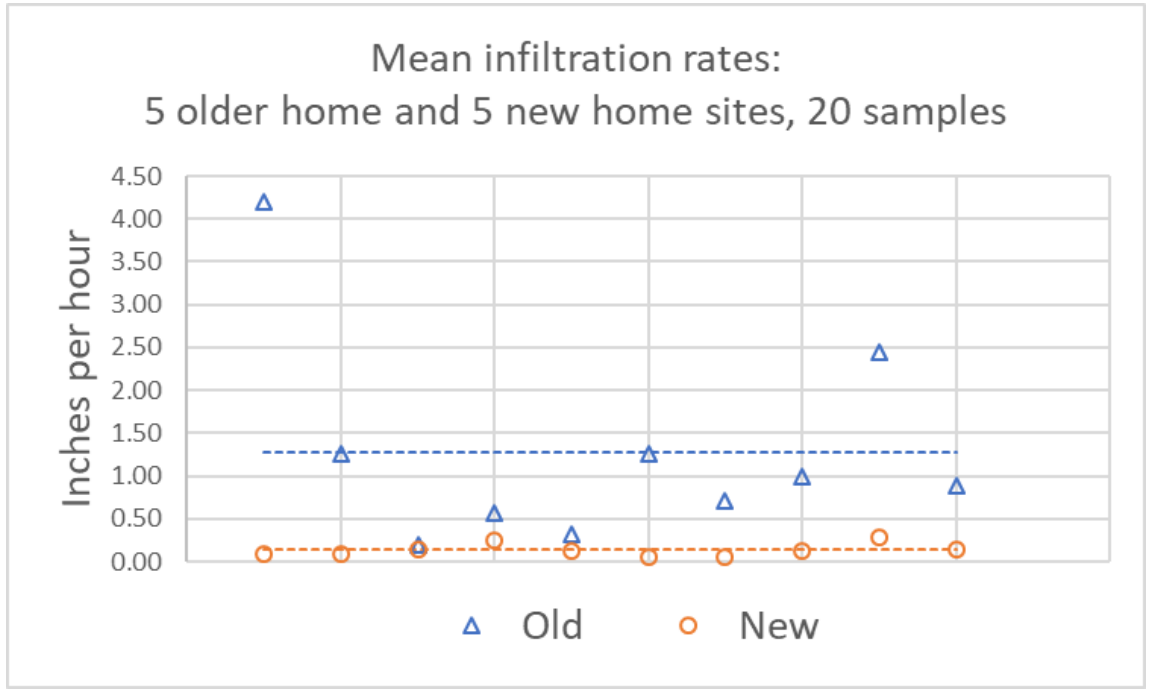
Promoting strategies to detain runoff and release slowly, as a more robust and more reliable way to handle intense rainfall



Soils

Hidden impervious cover

“Soil profile rebuilding”: Require amendment and de-compaction



Integrating projects

Stream Resilience

Questions?

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