

Localized Flooding Mitigation Policy for Infill Lot Development

Land Use Policy Committee

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Discussion Points

- Overview of flooding (stormwater quantity) and single-family detached (SFD) homes with Infill Lot Grading (INF) Plans
- Proposed drainage policy regarding INF Plans ("Localized Flooding Mitigation" Policy")

- Proposed Simplified Design Tools
- Next Steps





Stormwater Quantity and INFs

- Staff and elected leaders increasingly aware of localized flooding issues
- Flooding and channel degradation are widespread
- July 8, 2019, storm highlighted importance of better stormwater runoff management
- INF projects proposing increased stormwater flows are scrutinized for downstream impacts on a case-by-case basis



Overwhelmed Drainage – Dead Run Drive, 7/8/2019





Costs of Unmanaged Stormwater Runoff

Degraded channels and capacity issues require repairs

- Tucker Avenue Upgrades Est. \$9.2M
- Sunset Hills Drainage Improvements - \$11M
- Hayfield Road Conveyance -\$9.7M
- Stream restoration \$1,350 per linear foot



Channel Degradation – Little Pimmit Run





County's Current Stormwater Regulations

- Chapter 124 Stormwater Management Ordinance (SWMO)
- Chapter 118 Chesapeake Bay Preservation Ordinance (CBPO)
- Article 2-600 Zoning Ordinance

 Chapter 104 – Erosion and Sediment Control Ordinance



Channel Degradation – Dead Run at Georgetown Pike







Stormwater Regulations for INFs

- For SFD Projects (land disturbance > 2,500 square feet), the SWMO detention requirements apply to Infill Lot grading Plans:
 - All projects discharging concentrated flow (124-4-4.B & C)
 - Projects without concentrated flow but with known downstream issues (124-4-4.E)
- SWMO § 124-1-7.3.b provides exemption categories for INFs
 - Exemptions carried from CBPO when SWMO was adopted, with additional exemptions added by the Board
 - Includes lots < 18% or 2,500 square feet impervious area, and lots < 0.5 acre adding < 500 square feet impervious area
 - => Approximately one-third of Infill Lot Grading Plans are exempt from the SWMO
- SWMO-exempt projects are required to provide detention based on different authorities on a case-by-case basis





Localized Flooding Mitigation Policy Development

- Goals developed in collaboration with a core group of local engineering firms
- Extensive collaboration between Department of Public Works and Environmental Services (DPWES) and LDS
- Outreach:
 - Frequent INF plan submitters
 - Engineers & Surveyors Institute
 - Northern Virginia Building Industry Association
 - Northern Virginia Soil and Water Conservation District



Backlick Run Tributary at Deer Ridge





Localized Flooding Mitigation Policy

- Policy will:
 - Acknowledge known drainage issues
 - Reiterate SWMO requires detention when downstream issues exist
 - Reaffirm detention requirement for drainage to inadequate systems in all cases
 - Provide compliance tools
 - Template detention facility designs
 - Calculation spreadsheets
- DPWES & LDS have collaborated to prepare an upcoming Technical Bulletin



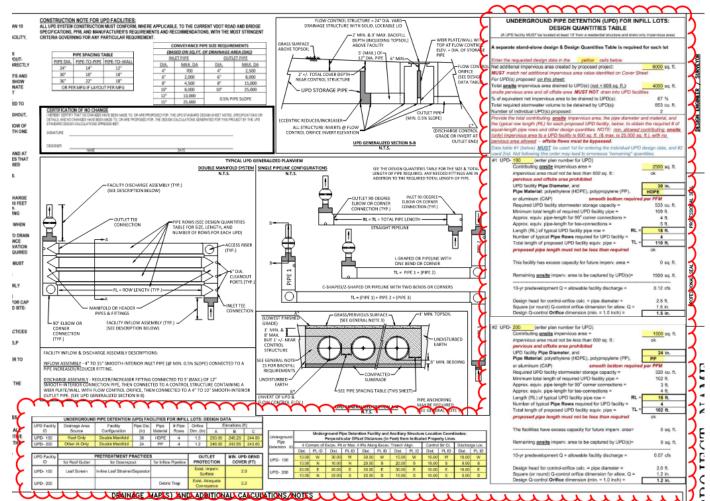
Private Drive Damaged by Flooding





Localized Flooding Mitigation Policy Compliance Tool

- Example: template design & calculations sheet for detention
- "plug and play" calculations
- Benefits:
 - Minimizes future flooding
 - Standard methods speed design and review
 - Standard facilities speed installation and inspection
 - Maintainability was a primary design consideration







Committee Input Requested

Support from the Committee regarding:

- Localized Flooding Mitigation Policy
 - Issue technical Bulletin with Implementation Tools
- Evaluation of potential SWMO amendment so that all INF projects are regulated in a consistent manner