

**LAKE SHENANDOAH
STORMWATER CONTROL
AUTHORITY**

June 10, 2020
Public Hearing

WHAT IS STORMWATER INFRASTRUCTURE?

- Ditches, pipes, ponds, culverts, curbs, inlets
- Designed to collect & carry stormwater runoff away from all upslope properties
- Intended to prevent standing water & flooding of homes and roads

STORMWATER INFRASTRUCTURE



FAILING INFRASTRUCTURE IN LAKE SHENANDOAH AREA NEIGHBORHOODS

- Many ditches, pipes & culverts in Shen Lake neighborhoods are failing
- Met the standards at time of design, but over time more runoff is sent into the systems
- Not able to collect & contain the necessary amount of water
- Flooding of homes and roadways occurs

FLOODING

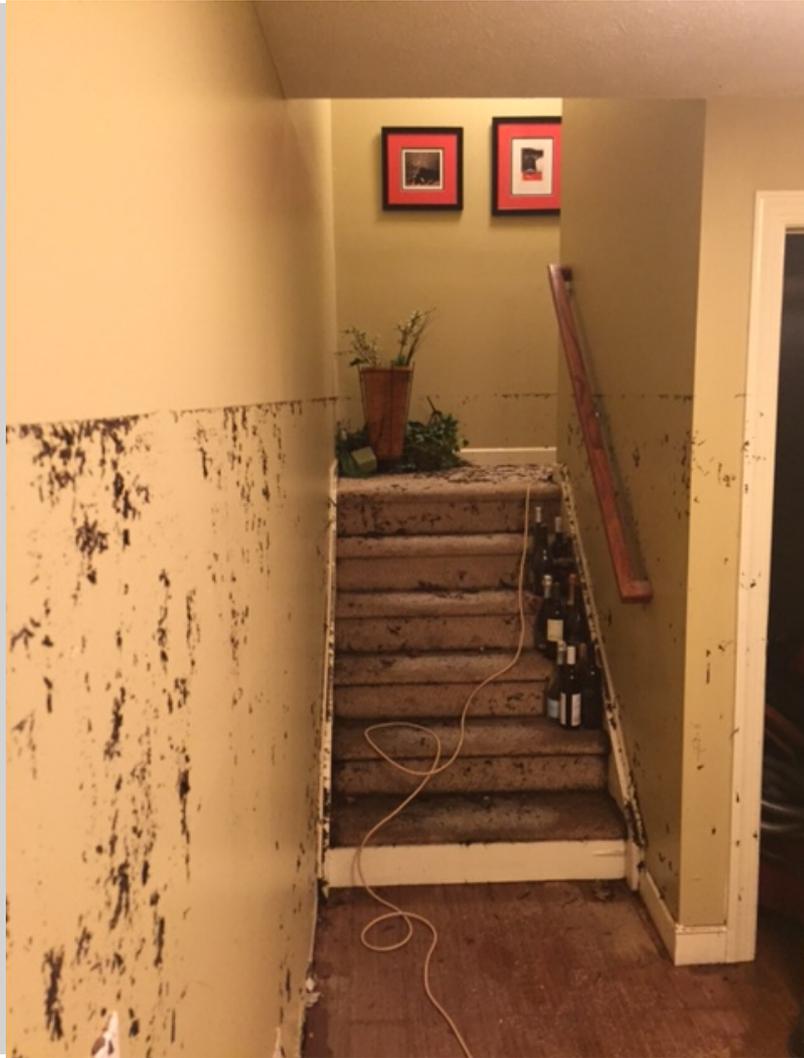


FLOODING





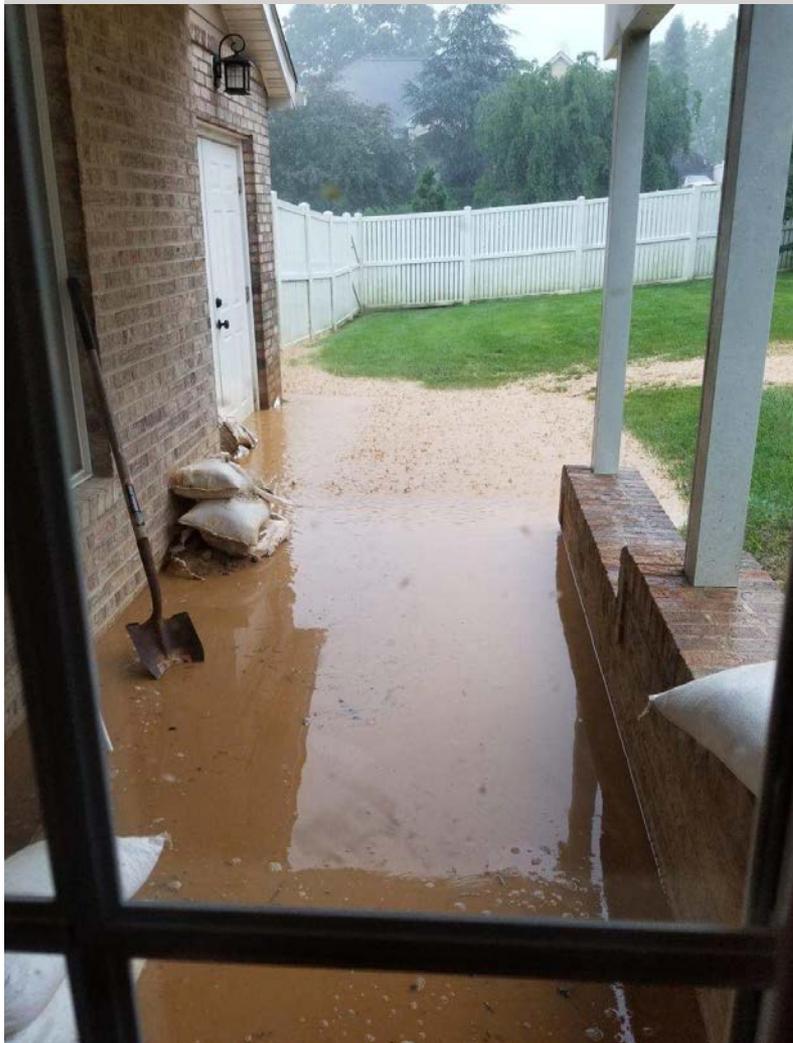
FLOODING



FLOODING



FLOODING



COUNTY INVOLVEMENT

- County became aware of flooding of homes – hired an engineering firm to assess the problem
- It became further evident in 2018 that the flooding posed a real risk to public safety - citizen committee formed to study solutions
- Formation of Stormwater Control Authority recommended, due to problem being larger than any one individual subdivision, and due to HOA's not having adequate resources for coordinated response

AUTHORITY FORMED

- **Following public outreach presentations & a public hearing, the Lake Shenandoah Stormwater Control Authority (LSSCA) formed to facilitate infrastructure upgrades needed to reduce flooding**

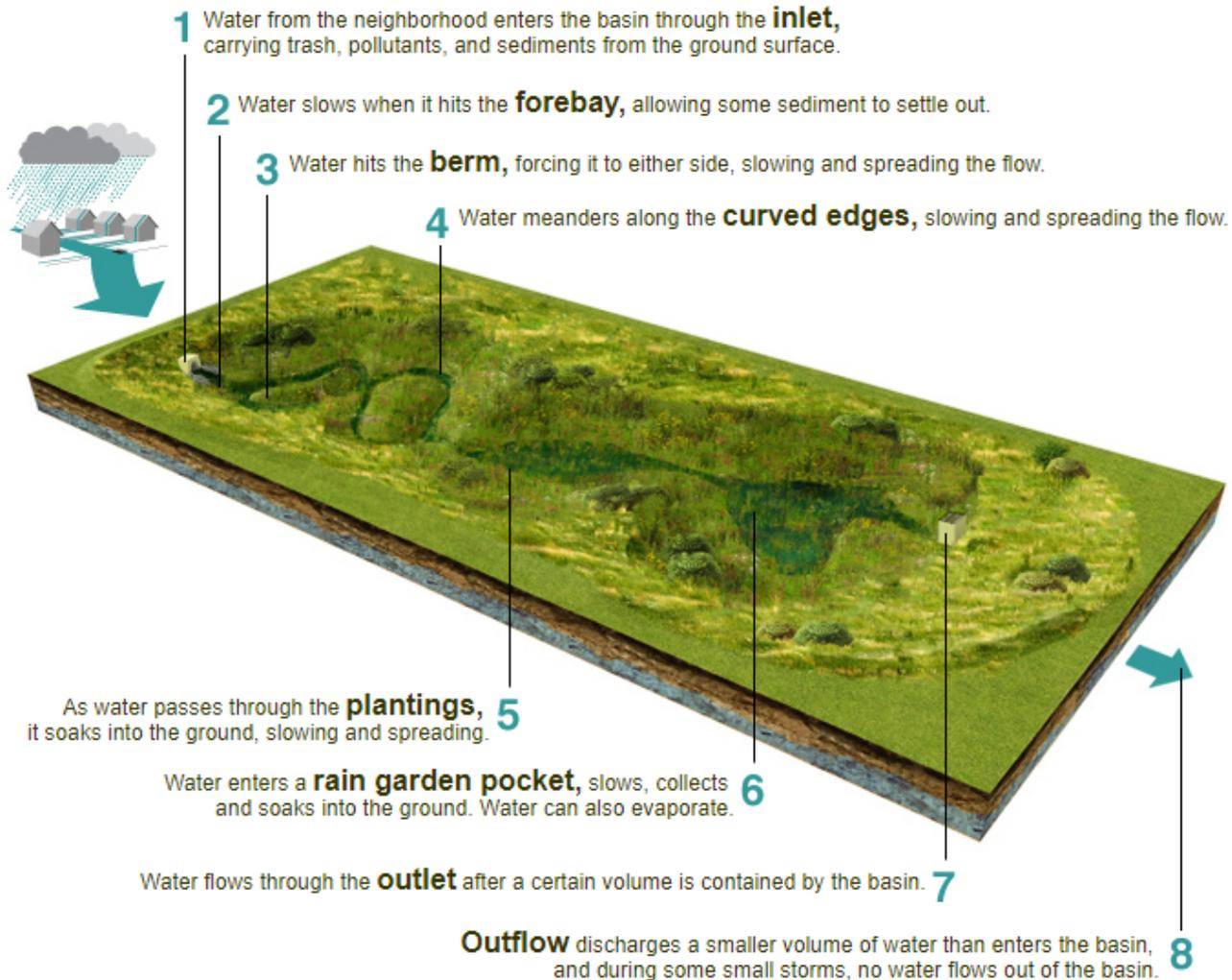
ACTIONS TO DATE

- At present, the LSSCA has taken two major steps:
 - Negotiations for purchase of land in a beneficial location
 - Contracted engineering firm to analyze watershed characteristics & stormwater runoff, and to evaluate what of improvements will be the most cost-effective

PROPERTY PURCHASE

- Purchase of a specific property in the Lake Shenandoah watershed would have 3 major benefits:
 - Prevent development of ~30 acres along the main drainageway
 - Provide a prime location for new runoff detention pond
 - Create opportunity for a public passive recreation area, in part of the County that does not have similar parks

EXAMPLE BASIN



TIMMONS REPORT

- New information from current engineering study will be summarized here once that information becomes available.

COST ESTIMATE

- Estimates used to calculate project costs:
 - Engineering Costs - \$150,000
 - Acquisition of properties and easements - \$2,000,000
 - Construction of mitigation strategies - \$800,000 - \$2,400,000 (specific strategies not yet chosen)
 - Ongoing operation & maintenance costs over 10 years - \$200,000
- **Total = \$3.15 - \$4.75 M**
- **Does not include County staff time (finance, legal, administration, environmental services, Treasurer, GIS, IT, etc.)**

FEE ASSESSMENT

- Direct relationship between impervious areas & stormwater runoff, rooftop area is proposed as the basis for fee calculation
- Rate of \$0.10/ sq. ft., assessed over a period of 10 years = **\$4.5 million**
- Revenues may **ONLY** be used for mitigation expenses.
- Revenues and expenses will be fully accounted for and part of County's annual audit.

DGIF UPDATE

- Lake is drawn down because damage to the emergency spillway from 2018 is considered a risk for downstream properties (erosion on the back side)
- Lake will be drawn down until repairs to the emergency spillway can occur -timeline through 2021
- The dam itself also needs work per DCR dam safety, plan to do that concurrently
- DGIF estimates 20 acres will still be underwater
- A culvert will be added this year that will allow large equipment to access the dam area for when the work is ready to occur
- They'd like to incorporate improvements to fishing & boating access with the work
- Further information can be found on the DGIF website:
<https://www.dgif.virginia.gov/waterbody/lake-shenandoah/>