

KATOTAWA CREEK PLANNING

OUR GOALS

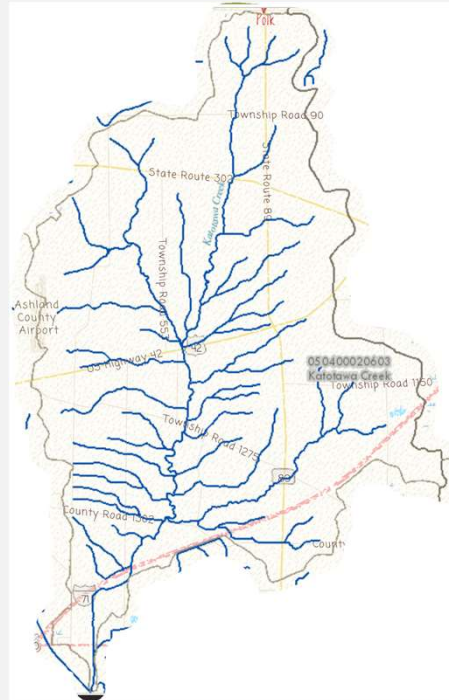
- Identify critical areas
- Identify projects
- Gain partnerships
- Gain Community Input

WHAT IS A 9-ELEMENT PLAN?

MAKES US ELIGIBLE FOR EPA 319 GRANTS AND FUNDING FOR PROJECTS TO IMPROVE WATER QUALITY

- 1. ID causes & sources of impairment
- 2. Estimate improvement in habitat
- 3. ID & describe solutions/practices & critical areas
- 4. Estimate staff & financial cost of implementation.
- 5. Info/education component
- 6. Schedule for implementation
- 7. Measurable milestones
- 8. Measurable habitat improvements.
- 9. Monitoring component

KATOTAWA CREEK WATERSHED



Aquatic Life Use: Warm water
Habitat – Full Attainment

Recreational Use Assessment:
NO!! Impaired
(bacteria – manure, septic,
sedimentation)

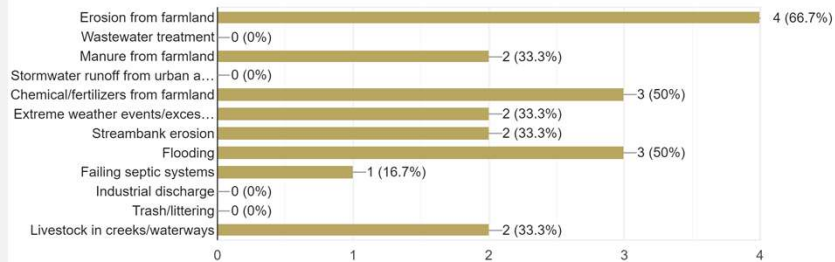


CRITICAL AREAS EXAMPLES

- Groups of failing septic systems
- Communities/Town without sewage systems or failing treatment plants
- Farms without nutrient management plans on highly erodible land
 - This can include manure and/or commercial fertilizer

BIGGEST CONCERNS IN THE WATERSHED

I believe the biggest concerns to the health of the Katotawa Creek watershed are
6 responses



WHAT PROBLEMS AND SOLUTIONS DO YOU SEE?

- Failing septic systems?
- Manure runoff?
- Streambank stabilization?
- Erosion?
- A need to wetlands?

Water You Gonna Do?
An Educational Game about Watershed Management

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THE KRESGE FOUNDATION

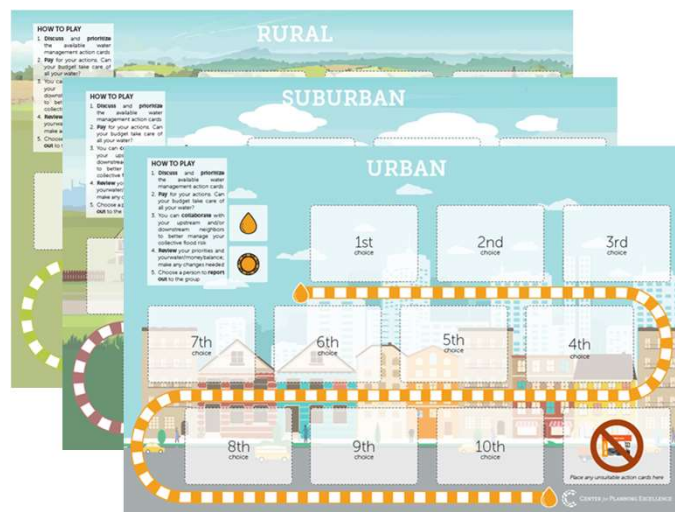
 **Foundation for Louisiana**

MCKNIGHT FOUNDATION

Agenda



- Why did we make a watershed game?
- Framing up the game in a workshop
- Key takeaways and observations
- Play the game



What is a Watershed?



Watershed:

An area of land that drains all the streams and rainfall to a common point



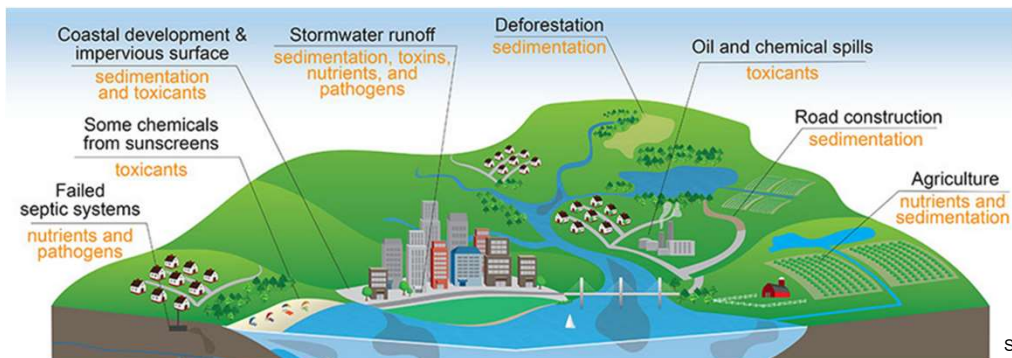
Source: riversweb.org

What is Watershed Management?



The process that involves both land use and water management practices within a watershed

- Holistic approach
- Considers upstream and downstream impacts of actions
- **Not just limited to floodplains**



Source: NOAA

What is a Floodplain?



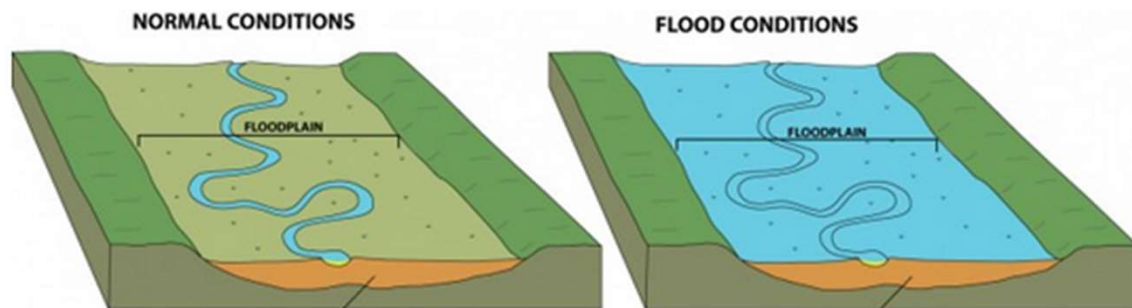
- **Topographic definition:** a flat area adjacent to a stream
- **Geomorphological definition:** a landform composed primarily of unconsolidated depositional material derived from sediments being transported by the related stream
- **Hydrological definition:** a landform subject to periodic flooding by a parent stream
- **Ecological definition:** a highly productive area of unique habitat created by periodic inundation from an adjacent river

What is a floodplain?



Regulatory definition (FEMA)

- any land area susceptible to being inundated by floodwaters from any source by a flood event with a 1-percent chance of occurring
- “100-year storm event”



Source: City of Peachtree Corners, Georgia

A Difficult Question

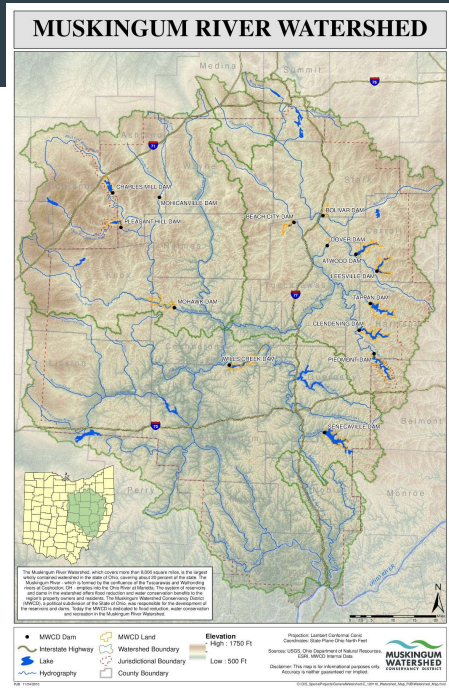


Understanding Stormwater



Hydrology:
How much
 runoff will be
 generated from
 a storm

Hydraulics:
Where that
 water will go

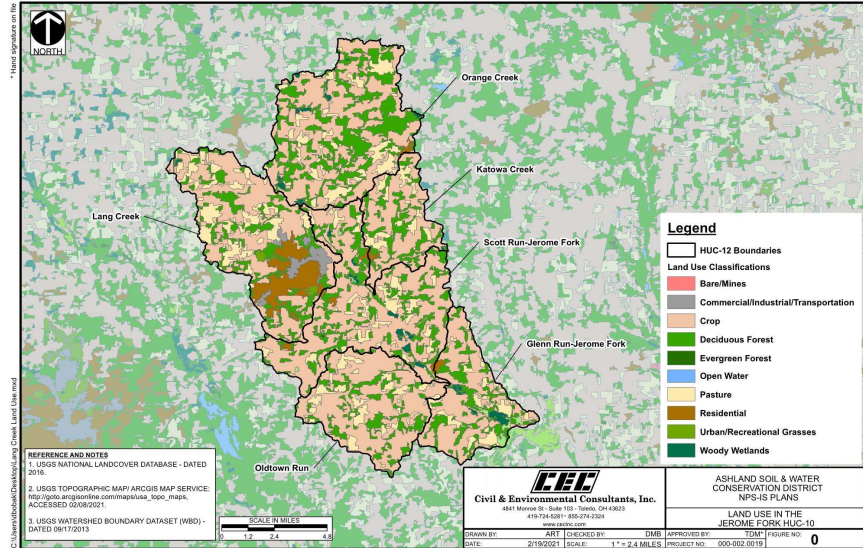


Risk Management

A Moving Baseline: Altered Hydrology



Humans can have dramatic effects on how watersheds function

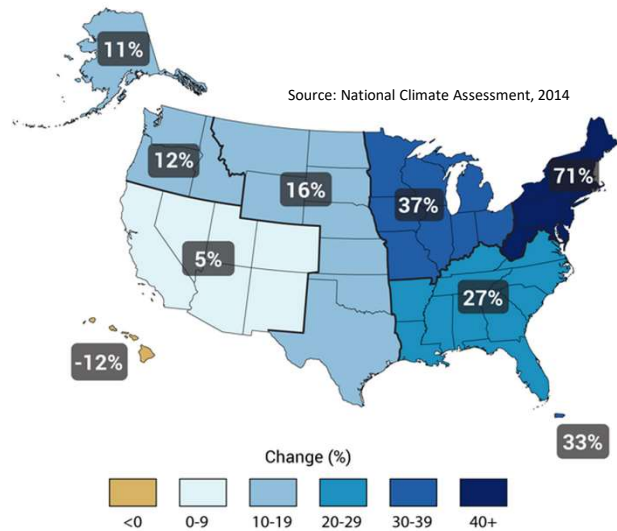
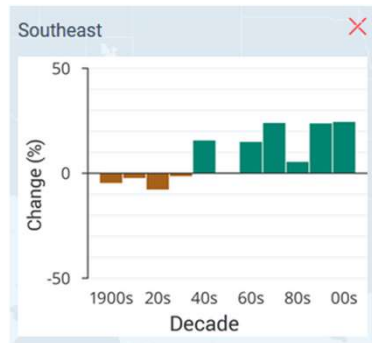


Changing Conditions: Climate



- Warmer climate holds more water vapor
 - Heavier downpours

Observed Change in Very Heavy Precipitation



Watershed Management



- 2 basic approaches to stormwater management:
 - Manage water
 - Manage impacts



Source: www.salina.com

Managing Water



- Gray infrastructure
 - Traditional
 - The pipes, channels, ditches, pumps, sewers, sewage treatment plants, retention ponds, etc. engineered to manage stormwater
 - Typically single purpose



Managing Water



- Green Infrastructure
 - Engineered features that use natural processes to slow down or prevent water from entering a drainage system
 - Typically has multiple benefits



Managing Water



City of Bel Aire



Managing Water



- Green roofs/rainwater capture



Managing Water



- Bioswales, raingardens



Managing Water



- Green streets, stormwater capture trees



Managing Water



- Conservation and restoration
 - Reconnecting floodplains



Managing Water



- Conservation and restoration
 - Restoring wetlands, conserving/restoring open space



Managing flood impacts



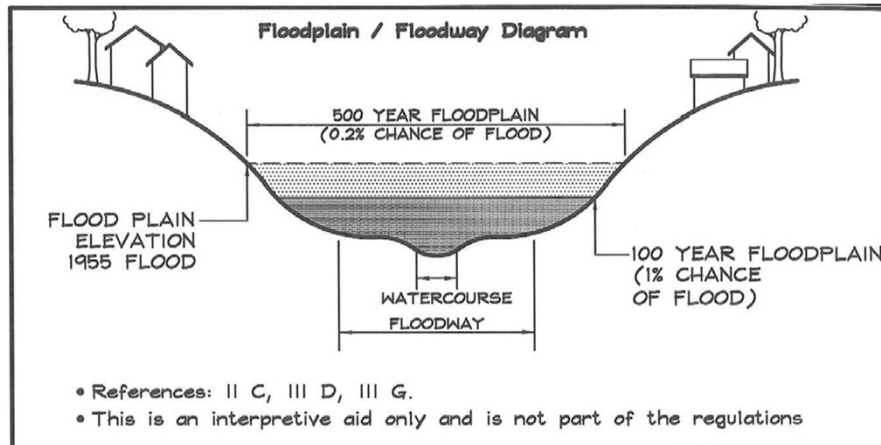
- Housing and building design
 - Elevation and flood proofing



Managing Flood Impacts



- Subdivision regulations, development codes
 - Freeboard, required green space



Watershed Management



- Complex issue – strategies should complement one another
- Need to consider: Unintended consequences, equity issues, environmental justice
- Can't look to the past to address future challenges
- Requires working across political boundaries



Water You Gonna Do?



Encourage participants to:

- Consider stormwater management options
- Understand the programs and policies available for a comprehensive approach to manage stormwater
- Consider the potential of coordination across political boundaries to manage stormwater



Game Scenarios



Over time, decisions were made that altered the hydrology of your community thereby increasing flood risk

- **Rural** - Wetlands were drained and some forests were cleared to make way for agriculture. A few homes were built in low-lying areas.
- **Suburban** – Some agricultural land was filled with subdivisions and commercial development. Natural areas were lost and there is now more impermeable surfaces due to roads, parking lots, and buildings.
- **Urban** - Roads were expanded, more parking lots were built, and buildings and homes got larger increasing the amount of impermeable surfaces. Some of the limited amount of open space in the urban community was lost.

Game Scenarios

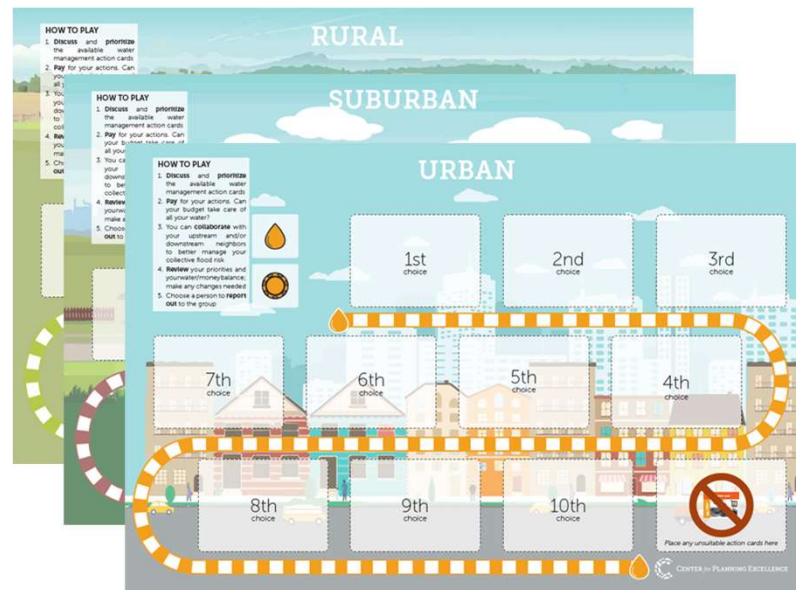


- Each table/group represents your community's stormwater management planning committee
- There have been community-wide public meetings, educational materials widely distributed, and extensive feedback from the community has been received
- It is up to each committee to determine how to manage their community's stormwater

Game Scenarios



Three communities:



Game Components



Goal:

- Manage your water (glass pieces) within your budget (poker chips) using the action cards provided

Stormwater 



Budget (\$)




Action Card



Game Play




1. **Review** the game materials and discuss the actions available to manage water.
2. **Prioritize** the action cards on the board - build consensus on which actions should have the highest priority - the priorities may change as you move through the exercise.
3. Pay for your actions and see if you can take care of all of the water you will have
4. Consider using a regional policy or program card to magnify the impact of one of your priority actions. Build consensus among your group which regional policy/program if desired.
5. Discuss as a group the benefits and tradeoffs of the decisions made.


Action Cards 

MAINTAIN DRAINAGE INFRASTRUCTURE

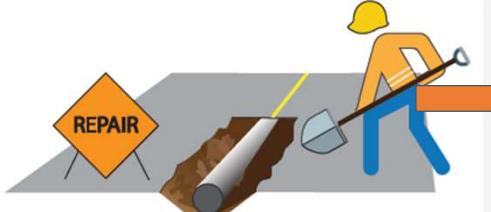
RURAL

PROGRAM
Maintenance required to ensure the functionality of existing drainage system


Manages: 3


Costs: 4


REPAIR



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Action Cards 

MAINTAIN DRAINAGE INFRASTRUCTURE





RURAL

PROS

- Maintains level of service

CONS

- May be outdated
- Limited adaptability to changing conditions


Regional Comparison:
Suburban: 3 , 4 
Urban: 3 , 4 

EXPAND DRAINAGE INFRASTRUCTURE


RURAL

PROGRAM


Expand the capacity of existing drainage systems



Manages: 2



Costs: 4

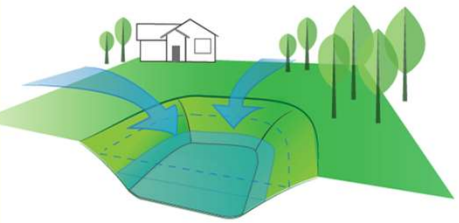


CONSTRUCT LARGE SCALE DETENTION FEATURE


RURAL

PROGRAM


Uses open space to engineer a feature designed to detain excess stormwater



Manages: 3



Costs: 1




CONSERVE NATURAL AREAS AND OTHER OPEN SPACE

RURAL


PROGRAM

Preserves natural areas and other open spaces to store/slow down stormwater




CONSERVATION AREA

Manages: 3



Costs: 2




PROGRAM FOR PRIVATE GREEN INFRASTRUCTURE


SUBURB

PROGRAM


Incentivizes implementation of GI on private property with features designed to reduce runoff




Manages: 2



Costs: 1






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IMPLEMENT PUBLIC GREEN INFRASTRUCTURE

PROGRAM


Incorporates green infrastructure into public infrastructure projects

////////////////////





SUBURB

Manages: 2



Costs: 3




PRIVATE PROPERTY BUYOUT

PROGRAM


Buys out flood prone properties and returns land to natural state

////////////////////





SUBURB

Manages: 2



Costs: 3

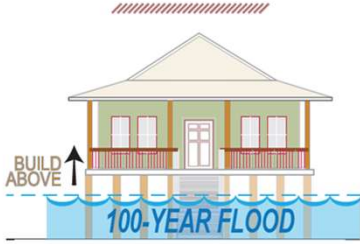


ADOPT FREEBOARD


SUBURB

POLICY


Requires homes to be elevated above estimated 100-year flood levels




Manages: 1



Costs: 0






RESTRICT FILL IN FLOODPLAIN


URBAN

POLICY


Limits the amount of fill that can be used to elevate structures in the floodplain




Manages: 1




Costs: 0






CONDUCT EDUCATIONAL CAMPAIGN

URBAN



PROGRAM

Informs residents about a chosen water management strategy to raise support and increase effectiveness.


//////////




Manages: +1




Costs: 1




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OTHER PROGRAM OR POLICY

RURAL



//////////

Have an idea for a policy or program to manage floodwater in your area?
Write it in the space above.

Manages:



Costs:



ADOPT REGIONAL POLICY

REGIONAL



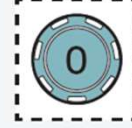
This card may be combined with one policy to reduce additional water. Upstream and/or downstream partners must agree to policy adoption.



Manages: 1



Costs: 0



IMPLEMENT REGIONAL PROGRAM

REGIONAL



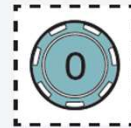
This card may be combined with one program to reduce additional water. Upstream and/or downstream partners must agree to coordinated program implementation.



Manages: 1



Costs: 0




IMPLEMENT OTHER REGIONAL STRATEGY

REGIONAL

//////

Upstream and/or downstream partners must agree to coordinated program implementation.

Manages:



Costs:



Prioritizing Strategies



1. How did you prioritize? **Who benefits and loses** from the strategies you chose?
2. What are the **short-term and long-term** costs and benefits of your choices?
3. Who bears the costs of maintenance or compliance for your choices?
4. How might your actions impact **economic development** choices?
5. Who would benefit from regional coordination? **Who bears/shares the cost?**

Some Observations



- Players often assume roles representing diverse voices within the community
- Communication is key; players requested cards like “Conduct an Educational Campaign” to help communicate their actions to constituents and build buy-in
- Actions are often coupled
 - “The only way we are doing buyouts is if we also conserve natural areas”

Some Observations



- Some people play to win
- Demonstrated learning – people want to discuss seemingly unrelated strategies
- Every game is different
- “Dudes, let’s work together!”

Let's play!



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Conservation District*

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