**Building Blocks for Regional Resilience Workshop – Southern Minnesota**

**Workshop 2 Homework:**

**Ranking Regional Resilience Priorities to**

 **Reduce Flooding from Extreme Precipitation**

Please fill out the survey at <https://forms.gle/MbdxwXQfVWuvAcJs8> to rank the five resilience strategies below.

These five (5) resilience strategies were sourced from the Region 9 Development Commission’s *South Central Minnesota Climate Change Vulnerability Assessment & Adaptation Plan* (June 2017).” To see the full report, please visit: <https://www.rndc.org/download/community_economic_development/health-impact-assesment-region-nine.pdf>.

1. **Manage tile drainage during extreme precipitation events.**By replacing/retrofitting older, conventional tiling systems with controlled systems drainage from extreme rain can be better managed**,** along with denitrifying bioreactors to decrease chemical and nutrient loss. Each county’s drainage authority and/or watershed district authority, along with the Minnesota Department of Agriculture (MDA), should partner with area farmers and landowners over the next five years to discuss funding and design options that are available to implement improved conservation drainage systems in their fields. (Strategy 1.1 Increase Conservation Practices)
2. **Reduce stormwater runoff through nature-based solutions such as vegetative buffers.**The Minnesota Department of Natural Resources (DNR) issued the buffer map that indicates the type and location of each required buffer strip. The implementation deadline for 30-50 foot buffers along public waters was November 1, 2017. The implementation deadline for 16.5 foot buffers along DNR-identified public ditches was November 1, 2018. Next steps are to for county extension services and Minnesota DNR to outreach to area landowners on best practice implementation and to increase landowner’s return on investment regarding buffer strips. Potential actions under this strategy include partnering with DNR to confirm buffers along public waters and ditches and conducting outreach to area landowners on implementing best practices. (Strategy 1.2 Retain topsoil and agriculture productivity during extreme rain, drought, and freezing events).
3. **Reduce tillage by encouraging alternative residue management methods such as cover crops and crop rotation.**
MDA and each county’s Soil and Water Conservation District (SWCD) should reach out to landowners and farmers in Region Nine to determine if there are ways to incorporate conservation tillage practices. This will not only increase conservation tillage and reduce soil erosion, but also to help farmers determine best practices on a case-by-case basis. This recommendation should be implemented within the next five years. (Strategy 1.2 Retain topsoil and agriculture productivity during extreme rain, drought, and freezing events)
4. **Mitigation in flood-prone areas and restore flood plains**.
Short-term flood mitigation along critical infrastructure and vulnerable populations should be prioritized – potentially including strategically placed pumping stations where flooding occurs - until long-term flood control methods can be established.

Each county’s Emergency Management and Environment Services Department, along with each Watershed Management District should create a detailed plan of each flood-prone area within the county and determine a course of action to prevent flooding. This is done by making use of the National Flood Insurance Program (NFIP) and Federal Emergency Management Agency (FEMA) county studies and current hazard mitigation plans.

Once a prioritized list of flood-prone areas is completed, county officials can determine if there is grant funding available for flood mitigation projects through the Minnesota DNR and Minnesota Homeland Security and Emergency Management compatible with their needs.

With torrential rain and flooding issues becoming more common, this recommendation should be implemented within the next two-three years, with the knowledge that projects may take longer to implement due to funding and changes in conditions.

The ultimate goal of this recommendation is to maintain watershed integrity and natural flood plains as much as possible, while understanding that there are some instances where levees may be most appropriate. (Strategy 1.3 Manage impact of flooding)

1. **Promote** **water harvesting, collection and storage.**Rainwater can be used to conserve groundwater supplies and mitigate extreme heat/drought events and be used for landscaping and gardens. City Public Utilities (Water) Departments or Municipal Separate Storm Sewer Systems (MS4s) in Region Nine should partner with MPCA and their Watershed Management Districts to promote rainwater harvesting best practices to homeowners and facilities managers.

There should be a strong focus on homeowners with extensive landscaping and/or underground sprinkler systems, like subdivisions and homeowner association communities. Outreach to facilities could include schools with athletic fields to maintain, parks, and larger venues such as hotels, event centers or malls. Rainwater harvesting workshops could be promoted through local environmental outreach groups to increase awareness.

(Strategy 1.4 Promote water conservation)