Watershed Management

Watershed Goals and Objectives

The following goals and objectives are intended to guide the communities of Dubuque County in providing relevant information to all residents of Dubuque County regarding watersheds. The following goals encompass and highlight how existing and future development impact our county watersheds, and what objectives can be taken to mitigate and prevent watershed degradation.

1. **To prevent erosion by establishing preconstruction sediment control measures before, during, and after any land disturbing activities take place to improve the health of our local watersheds.**

    1.1. Plan for and design effective erosion and sediment control structures before any land disturbing development occurs.

    1.2. Install and maintain erosion and sediment control structures and monitor for continued effectiveness throughout until development is complete and full build out occurs.

    1.3. Identify and avoid developing in environmentally sensitive areas including stream banks, flood plains and low lying areas; steep slopes, bluff lands and slide prone areas; areas containing shallow soils or fractured limestone; karst areas and areas with low water tables that can have a significant influence on erosion.

2. **To prevent erosion and control sediment during construction.**

    2.1. Address areas that are prone to and/or have erosion problems with stabilization control Best Management Practices (BMPs) including grass channels, dust control, mulching, seeding and fertilizing, silt fence, sod, surface roughening, vegetative filter strip, compost blankets, compost filter tubes, rolled erosion control products (RECPs), wattles, flocculants, and turf reinforcement mats (TRMs) when working in existing built environments.

    2.2. Build and maintain structural erosion and sediment control Best Management Practices (BMPs) including benches, compost filter berms, check dams, temporary slope drains, energy dissipaters, flotation silt curtains, rock chutes and flumes, gabions, inlet protection, jetties, level spreaders, rock outlet protection, retaining walls, stabilized construction entrances, rip-rap, sediment barriers, sediment basins, streambank protection, stream channel enhancement, subsurface drainage, and diversion structures as any land disturbing activities take place.

3. **To reduce the rate and volume of stormwater runoff on post construction development, while at the same time promoting better water quality using infiltration based practices and controls.**

    3.1. Utilize Low-Impact Development (LID) principles and Conservation Subdivision Design to promote good stormwater management through smaller building lots, higher density standards, reduction of public right-of-way and protection of sensitive areas through preservation of open space.

    3.2. Use stormwater management BMP's during the site planning and design stage of development to reduce the volume of runoff, thus reducing the need for large retention and detention structures to store and treat stormwater.

    3.3. Design and strategically locate drainage outlets for site runoff that limits negative impacts to downstream neighbors.

3.4. Minimize impervious surfaces in development which are the primary source of runoff for both small and large storm events to reduce runoff volume.

4. To preserve and reproduce pre-development hydrologic conditions whenever possible to maximize runoff infiltration and reduce flooding and to promote healthy water supplies.

4.1. Utilize natural drainage flow paths using grass waterways, vegetated drainage channels and/or water quality swales along street right-of-ways or the back of lots to channel runoff without abrupt changes in the direction of flow.

4.2. Restore soil permeability using practices such as deep tilling, chisel plowing and incorporating organic matter into the upper soil layer to restore soil infiltration capacity on heavily disturbed sites to maximize water infiltration.

4.3. Minimize directly connected impervious areas or any impervious surface that drains into a catch basin, area drain, or other conveyance structure by outletting downspouts onto grassy areas and directing runoff from driveways to pervious areas to promote infiltration and reduce the velocity of runoff water.

4.4. Use bioretention and other similar practices such as rain gardens to soak up rainwater from roofs, driveways, and lawns which will increase natural infiltration, microbial soil processes and evapotranspiration and will improve stormwater quality and quantity.

4.5. Include green infrastructure measures such as conservation of natural habitat and green space consisting of large landscaped areas (including parks and lawns), grass/vegetated swales, and turf block paving areas to treat and infiltrate runoff.

5. To protect and establish site and lot vegetation to prevent erosion and infiltrate runoff.

5.1. Maintain as much predevelopment vegetation as possible to prevent erosion and absorb water reducing runoff volume.

5.2. Use shallow grassed roadside swales, boulevards and sunken parking lot islands with check dams instead of curb and gutter storm drain systems to handle runoff, wherever possible.

5.3. Maintain natural buffers, depressions and channels between development sites and water bodies to slow runoff, remove sediment and enhance infiltration.

6. To design transportation surfaces that account for and minimize stormwater runoff.

6.1. Minimize subdivision roadway length by using a roadway layout with the least pavement length suitable for the site's topography and other planning goals.

6.2. Minimize road width by narrowing road sections and/or reducing on-street parking to one side of the street or eliminating it altogether.

7. To design buildings and lots that account for and minimize stormwater runoff.

7.1. Reduce the impervious rooftop area by minimizing the building footprint of buildings by using vertical space rather than horizontal layouts or utilizing green roof technology by using sod or vegetative "green roofs" rather than conventional roofing materials.

7.2. Reduce impervious surfaces by using shared driveways, limiting driveway width, using pervious pavement, and reducing building setbacks.

7.3. Reduce overall impervious area on commercial sites by providing compact car spaces, eliminating excessive or unnecessary spaces, utilizing shared parking, minimizing stall dimensions, incorporating efficient parking layouts, establish maximum parking area requirements, and using pervious materials in spillover parking areas.

8. To establish standards and/or guidelines for the quantity and quality of water runoff that are flexible and that recognize the unique characteristics of each project site, to obtain maximum protection of the watersheds in the region.

8.1. Encourage local governments to adopt and/or create erosion control and stormwater ordinances or polices.

8.2. Encourage agricultural producers and landowners to implement conservation practices on their property that provide both erosion and sediment control and manage stormwater runoff.

8.3. Encourage landowners to utilize federal, state, and local resources to help with design, assessment, and cost-share opportunities for landowners to install conservation practices.

9. To reduce flood damages by promoting basin wide programs stressing non-structural measures, such as floodplain regulations, floodproofing, flood forecasting, and watershed treatment, in conjunction with other structural measures, where necessary, to protect the lives and property of residents.

9.1. Locate future development outside of flood hazard areas where feasible, and where development is allowed in the floodplain, require it to be elevated, floodproofed and located outside the floodway.

9.2. Ensure that local flood management programs meet or exceed regulatory requirements of the Federal Emergency Management Agency, and applicable state regulations.

9.3. Design local flood management programs to allow public and private options, while protecting life and property from storm water runoff generated by one-hundred year storm events.

9.4. Stress retention of natural drainage patterns and construction of detention systems to help ensure development activity will not add substantially to the flood problem.