

Sensible Development for Small Communities

The cost and considerations of
Environmental impacts

The Development

- 53 plus homes
- Each lot about one acre
 - Individual sand-filter septic systems
 - Water: wells provided by developer, with 5 lots per well. Well maintenance costs responsibility of landowner.
- Two entrance roads, two cul-de-sacs
- One pond, 1-2 detention basins?

The Environmental Impact

- All drainage flows into Wolf Creek
- Increased amounts of impervious surfaces will increase volume of water flowing directly into creek bisecting the property.
- Increased volume of water increases velocity, which greatly increases erosion.
- Increased erosion negatively effects water quality downstream, adding pollutants into the Mackinaw River.

Did you know....?

- 10% of land-use change is enough to decrease water quality measurements.
- The change is not due to habitat change, but rather a change in hydrology (flow of water).
- The run-off from a 1 acre of impervious surface is 16X that of undeveloped land.
- Flooding and destabilization of downstream channels is a result.

Plans to limit Erosion?

- Detention basins are in the upper part of the subdivision only.
- What is going to control water flow from roads, driveways, and homes in other areas?
- The outlots (low areas, creek) do **not** have any water control structures to slow velocity of water flow in creek.
- *Significant* erosion is likely to occur in the creek flowing through the property, and in Wolf Creek just below the property.
- The development plans do not appear to have totally addressed erosion issues and potential for flooding downstream.
- Costs would be passed on to the Village of Kappa to maintain roads or bridges impacted by erosion.

Plans to address Sewage treatment?

- New sand filter systems are being discussed by IEPA to regulate in the future.
- Permit fees (\$500-\$1000) per year, per home, are a possibility!
- Sand filter systems that are not maintained properly discharge pollutants into creek (nutrients and pathogens), thus creating a health hazard.
- Village of Kappa could be held liable for fines, and/or making sure homes have adequate systems.
- Water from wells has the potential to become contaminated.

What are some Solutions?

- Find a *balance* between development and natural resources protection.
- Improve the site design to incorporate BMP's (Best Management Practices):
 - Use landscape to naturally filter, absorb, and recharge run-off.
 - Encourage natural and vegetated stormwater controls. Vegetated swales are a low \$\$\$ solution to tiles and storm sewers.

Other solutions:

- Utilize filter strips...un-mowed natural areas near stream channels to slow down water and absorb nutrients.
- Create natural detention basins rather than concrete ones.
 - Re-created wetland detention basins:
 - are less costly: can reduce site development costs and maintenance long-term
 - can reduce volume of run-off by 20-70%
 - Can reduce pollutant loads 60-90%
 - Natural basins provide less suitable mosquito breeding habitat

Other solutions:

- Collection devices (rain barrels) from roofs
- Narrower roads, permeable paving
- Incorporation of community “open space” with trees, wildflowers, etc. which enhance the beauty of the development
- When multiple solutions are used on a development site, they can reduce both the stormwater-related impacts, pollution impacts, and construction costs.

Why should you care?

- Land use and water quality are inseparable. Non-point pollution, caused by run-off from the land, is the *#1 water quality problem* in the U.S. Every community will have to address this problem!
- Regulation is a matter of when, not if.
- Pro-active solutions are always less costly than reactive ones.
- Everyone has a part to play in protecting our water resources. We all live “downstream”.
- Conservation designed developments can enhance a community, not detract from it.