



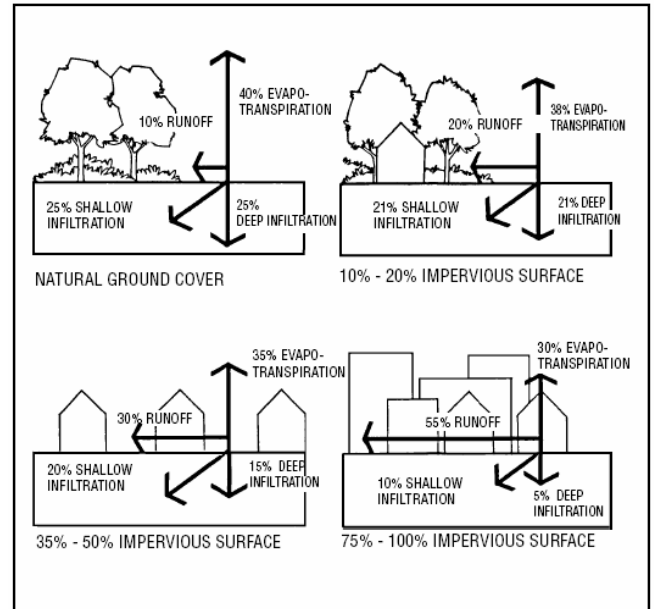
VOLUME REDUCTION FOR STORMWATER MANAGEMENT FAQ SHEET

1. Why is the District adopting a volume reduction rule?

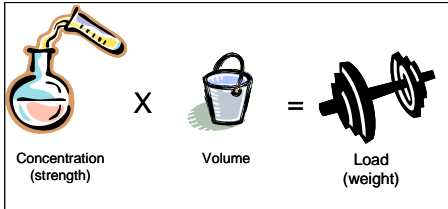
The Ramsey-Washington Metro and Capitol Region Watershed Districts realized that the most effective way to control water pollution is to reduce the amount of runoff that picks up and moves contaminants.

2. What role does rainfall and snowmelt runoff play in pollution?

The figure shows how roads, roofs, sidewalks, tightly compacted grass lawns and parking lots all add to the amount of runoff that leaves an area as it urbanizes. These “impervious surfaces” send water running down gutters and pipes instead of into the ground. When this happens, pollutants on the surface are picked up and carried to our lakes and streams.



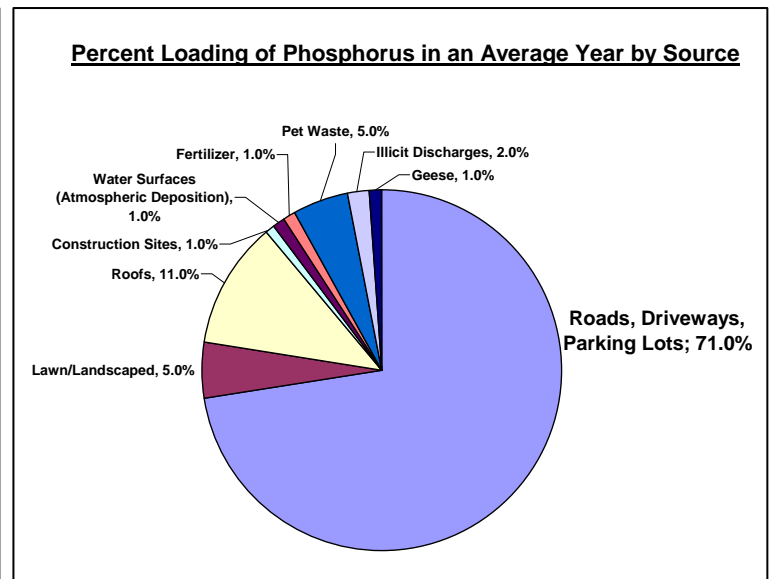
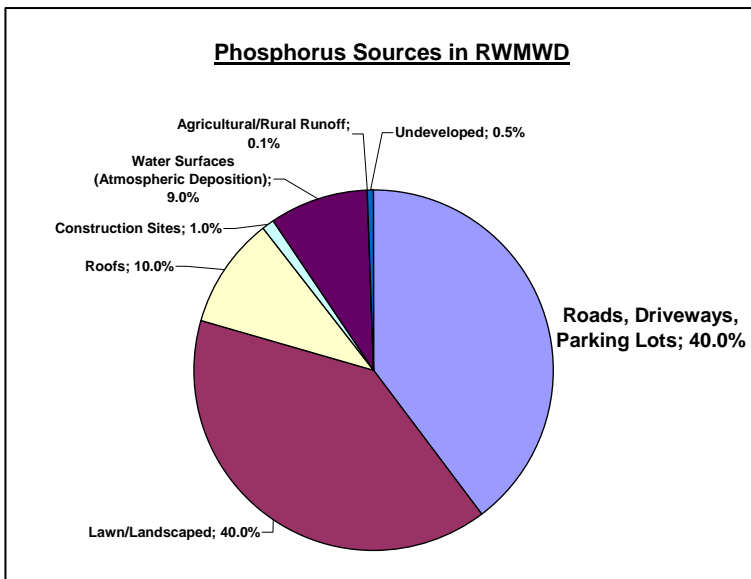
3. How does water quality benefit from volume reduction?



The amount of pollution load is dependent upon the strength of the contaminant and the volume of water in which it occurs. Any reduction in the volume yields direct surface water pollution improvements.

4. What are the biggest sources of phosphorus?

Research by the Ramsey-Washington Metro Watershed District shows that 71% of total phosphorus pollution comes from roads, driveways, and parking lots. These two land uses comprise only 40% of the watershed’s area. Similar land cover and phosphorus pollution sources exist for Capitol Region Watershed District.



5. Are all pollutants removed at the same rate when runoff is treated?

No. The hardest pollutants to remove are those that are dissolved in runoff. Unlike sediment or particles of grass and leaves, dissolved pollutants do not settle in a pond but behave more like sugar in a cup of coffee. Phosphorus is one pollutant that can be highly dissolved, which is why volume reduction is critical to pollutant reduction.

6. What techniques are available to reduce volume?

The most common technique is infiltration or soaking water into the ground. Other techniques include for evaporation and/or transpiration (from plants), storage of water for re-use (like irrigation), or diversion of stormwater away from the drainage system.

7. Why is infiltration often the first choice for volume reduction?

Infiltration mimics the natural water cycle by soaking water into the ground where it falls. The soil then works to reduce pollution through biologic and physical means.



8. How can volume control be implemented when our watershed is fully developed?

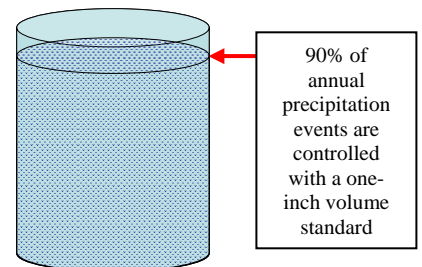
In many parts of the Watershed District, development occurred before the value of soaking in water was recognized. In these areas, gains toward un-doing that past practice can only be made in “retrofits” or corrective actions that are introduced when land is redeveloped or the character of the cover is changed, for example during the reconstruction of a street.

9. Doesn't our watershed discharge to the Mississippi River? How could our small watershed make a difference?

Water leaving both Districts ultimately flows into the Mississippi River and eventually to Lake Pepin. Lake Pepin has been declared “impaired” because of excess phosphorus and will be the subject of federally mandated watershed-wide corrective actions. Acting now to reduce the Districts contribution to this impairment is important.

10. Why was the one inch volume reduction standard chosen?

Research on the occurrence of precipitation in the metropolitan area indicates that controlling the first one-inch of a rainfall event will address 90% of all precipitation events and about 87% of all rainfall volume. This could lead to removal of over half of the soluble phosphorus leaving our urban surfaces.



11. How can we assure that groundwater will not be polluted?

It is very important that precautions are taken whenever infiltration of stormwater is used as a management practice. Runoff from land uses such as gas stations, fuel and maintenance facilities, and damaged-auto storage should be routed away from these systems and all runoff pre-treated (settled or filtered) prior to entering the system. If infiltration areas are properly designed, constructed, and maintained they pose little threat to groundwater quality.

12. Are there other benefits that result from a volume reduction standard?

Other benefits that result from volume control are:

- Less flooding and wetland inundation;
- Continued ground water recharge to replenish the region’s major water supply;
- Maintained shallow ground water flow for stream base flow and recharge cleansing;
- Decreased flow velocities and erosion from less water;
- Naturally irrigated vegetation when infiltration used; and
- Reduced infrastructure needed to deal with stormwater.