When it rains, we need to drain…

By Lisa Knapton

In urban areas, when it rains it pours! Streets, rooftops and parking lots make for impervious surfaces which create huge amounts of storm water needing to be collected, transported and finally discharged into a natural water system such as a creek, river or lake or a constructed retention or detention pond.

On public roads, the presence of water usually means trouble and can be very dangerous. Even a thin layer of water located on the travel surface of a road can lead to vehicle hydroplaning at speeds as low at 35 miles per hour. An essential feature of any roadway design is the ability to channel or divert flood and storm water from pooling on the roadway surface. There are many drainage elements used to clear public roadways of standing water including but not limited to the crown peak and slope of the roadway, curbs, gutters, inlets, catch basins, vaults, pipes, culvert and ditches needed to collect and channel flood and storm drainage away from the road.

All required drainage related improvements must be designed and constructed in accordance with the member's street standards, storm water code and storm water manual. When drainage features are installed on public streets where vehicles and bicycles are likely to encounter them, then they must also be designed for safety, especially if they create any changes to the surface of the street. Prior to the installation of any drainage enhancement, the design of the feature should be vetted using a science-based study conducted by a traffic engineer.

The study should determine if the drainage feature being considered is warranted and the design of it is safe not only for vehicle traffic but for bicycle travel, as well. Occasionally, drainage enhancements can be well intended, but poorly thought out which can lead to injuries to people or damage to property, especially those enhancements that change the surface regularity of the roadway.

Once installed, municipal drainage systems require maintenance. Typical maintenance includes an inspection program and the clearing of trash, debris and sediment from gutters, and catch basins. Vegetation surrounding drainage ditches, culvert openings and retention/detention ponds should be mowed if it restricts flow or causes a back-up. The mowing operation is a good time to inspect drainage ditches for signs of erosion and debris build-up.

Detention/retention ponds should be inspected and have maintenance performed in early fall as well. The inlets, outlets, animal grates and filters should be cleared of debris. If erosion is identified, the pond should be flagged for re-seeding in the spring.

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Now that fall is here, the need to clear leaves from catch basin grates, gutters and ditches becomes even more important since the buildup of leaves can create drainage issues leading to flooding of streets and water encroachment onto private property. Most catch basin waste is of acceptable quality for landfills, however, if oil, antifreeze, paint or other wastes are discovered in any catch basin, the waste may be hazardous thus requiring special disposal. When the temperature dips and snowfall occurs, accumulations of snow and ice should be removed from catch basin grates to avoid clogging of the system.

Finally, the location and maintenance of storm systems should be tracked, ideally, by using a database and special reference system (e.g., Global Positioning System or Geographical Information System). Accurate records of your inspections and maintenance should always be documented and indexed for easy retrieval. For further guidance, please contact your Risk Management Representative at WCIA.