

#### 4-7-17 The Great Collector and the Great Guidance System

The catch basins you see along the edge of the road are more than a convenient way to drain water off the road and, thus, prevent flooding and/or freezing of that water. They can be considered the Great Collector of everything in the environment. Even pollutants from the air, both near and far, waft along until they settle to the earth. There, they are gathered by rain and are washed into the catch basins.

Even if you clean up after your dog, the residue is washed away and delivers E.coli, coliform, viruses and veterinary medicines into the catch basin.

When your yard receives a heavy rainfall, and that is more often than not the pattern now, fertilizers and herbicides are collected by run-off and delivered to the catch basins.

The cars we drive deliver not only us to our destinations; they deliver oil, fuel emissions, particulate matter, and a variety of chemicals considered to be carcinogens. Phosphorous is added to tires and bit by bit, it wears off, providing one of the main nutrients required by cyanobacteria to bloom and thrive in our local waterways. Where are these chemicals delivered? Initially, they are delivered to the road itself.

The pavement upon which we drive is the Great Guidance System leading to the Great Collector. The paved roads are impervious surfaces that have already gathered all the rain water from the other impervious surfaces, such as our roofs and driveways. All this rushing flowing water is filled during a heavy rain with whatever is in the total environment: air pollutants, building materials, chemicals, and organic compounds, containing carbon and frequently containing nitrogen, sulfur, and phosphorus.

Now, you might think that the Great Collector has some way of managing or filtering these pollutants. Until we build differently and live differently, that is not the case. These catch basins were made a long time ago and they achieve their original purpose: they collect and move the water out of our way. I suspect that most of us are satisfied they do this job well, or well enough, and don't give it another thought.

Did you know that those catch basins lead directly to water bodies or wetlands? When they were built many decades ago, that made sense. Have water join the water. End of story.

But it is not the end of the story. We now understand that the Great Guidance System Delivers pollution to the Great Collector and the Great Collector delivers pollutants to the Great Network of Water Bodies and that Great Network drains to the Great Oceans.

And that is why the New England Interstate Water Pollution Control Commission (NEIWPCC) awarded \$57,338 to Halifax to assist in engineering efforts to help mitigate storm water impacts to East and West Monponsett Ponds! There are 40 outfalls (open pipes that discharge surface runoff during rain events) that contribute untreated storm water runoff to the ponds in Halifax. No wonder they wanted us to examine this more carefully!

The receiving ocean of our pollutants from Halifax is Narragansett Bay. That is why the Narragansett Bay Estuary Program was motivated to award these funds for our efforts. What we do in Halifax affects the quality of the lives and the environment in Rhode Island. According to the National Oceanic and Atmospheric Administration (NOAA), the largest contributor of pollution (80%) to the ocean is from the land. <http://oceanservice.noaa.gov/facts/pollution.html>. This is all pretty cool once you start connecting the dots, so to speak; for our waters are all connected.

The engineering work by GHD of Hyannis, MA funded by the grant began with the mapping of the drainage pipes that make up all 40 outfalls. The area was calculated for impervious surfaces leading to each outfall, such as pavement, roof tops, driveways, etc., and outfalls were prioritized by the largest contributing impervious area. This tells the Town of Halifax which outfalls to rehabilitate/modify first by installing treatment mechanisms for phosphorus reduction. The grant also funded the conceptual design of all the outfalls, highlighting the three highest priority ones with a permit-ready design. These designs can be used when applying for future grants that will help fund construction.

And we will need that assistance, for this work on the Great Collector will be expensive but it will be for the Greater Good.

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