

On the Ground Changes

The goal of changes to local plans and regulations is to open the door for tangible, on the ground changes to the way development happens or doesn't happen. This category of impacts includes everything from the conservation of critical natural areas to the application of low impact development and other techniques to a new or retrofit development.



Students help plant the Yarborough Elementary School Rain Garden in the city of Auburn. (Photo courtesy of Eve Brantley.)

► **Alabama:** AL NEMO has partnered with Alabama Department of Environmental Management, the Alabama Clean Water Partnership, Alabama Cooperative Extension System, local governments, watershed groups, and other partners around the state to install **demonstration low impact development practices**. Educational workshops on the

benefits of low impact development practices have led to projects in the cities of Gadsden (filter strip), Auburn (rain garden), Alexander City (rain garden) and Fairhope (pervious concrete sidewalks).

► **Alabama:** AL NEMO, Alabama Cooperative Extension System, ADEM, U.S. EPA Region 4, North Carolina State University and USDA CSREES Southern Regional Water Program worked with the city of Auburn and other partners to conduct a series of workshops on **stream restoration** that corresponded to the planning, design and construction of a restored stream. Five workshops were completed in 2007 - 2008 that trained over 200 professionals from across the Southeast. Additionally, 1000 feet of stream were restored in a city of Auburn



AL NEMO is helping restore streams in the city of Auburn. (Photo courtesy of Eve Brantley.)

park that is being used as a demonstration and education site.

► **Arizona:** AZ NEMO-supported grant applications to both the Arizona DEQ 319 Fund and the Arizona Water Protection Fund have resulted in the construction of **erosion control structures** on the San Francisco River in Greenlee County; erosion control structures in Cochise County along the San Pedro River; and **buffer strip installations** and lake dredging in Navajo County.

► **Connecticut:** After a series of CT NEMO workshops in the town of Madison, a developer proposed and built a subdivision that uses **low impact development practices**.

► **Delaware:** The University of Delaware College of Marine and Earth Studies, with support from DE NEMO, Broadkill Tributary Action Team and the Department of Natural Resources and Environmental Conservation is installing bioretention swales on existing parking lots to serve as **demonstration sites for retrofitting old parking lots** with low impact development practices.

► **Georgia:** As a demonstration of better site design principles, Towns County Public Works Department installed a **porous paving** system and vertical infiltration drain at the county's swim beach and playground on Lake Chatuge, through a cooperative partnership with Tennessee Growth Readiness (the TN NEMO effort) and the Tennessee Valley



Authority, which provided the materials and technical support for the project.

- **Kansas:** KS NEMO presentations to Topeka, Kansas city planning staff and stormwater management staff helped shape the way redevelopment was done along a major city street. Redevelopment consisted of directing stormwater runoff into native vegetation-dominated **bioretention areas** in several locations along the street.



The city of Reno, Nevada installed four tree filter boxes as part of their downtown renovation project. (Photo courtesy of NV NEMO.)

- **Nevada:** The city of Reno installed four **tree filter boxes** as part of their downtown renovation project. The boxes intercept runoff that previously ran directly (and visibly) into the Truckee River. The city also received grant funding for a watershed protection program incorporating low impact development to address high *total dissolved solids* concerns in Chalk Creek and is designing infiltration best management practices to capture, divert and infiltrate stormwater runoff that currently enters the drinking water supply ditch.



Cabela's retail store in Verdi, Nevada installed bioretention islands in their parking lots. (Photo courtesy of NV NEMO.)

- **Nevada:** A new Cabela's retail development in Verdi was required to use low impact development techniques by the city of Reno. The development incorporated **bioretention islands with curb cuts** into their parking lots.

- **New York:** The villages of Northport, Freeport and Babylon, Nassau and Suffolk Counties and the town of Huntington have all initiated **storm drain retrofit pilot projects**. The town of Huntington installed filtration devices in storm drains at ten locations within the Bay Complex watershed to filter out bacteria prior to discharge to marine receiving waters. Nassau County installed **sedimentation basins, in-line treatment devices, wetland plantings, catch basin inserts, and floatable removal structures**. The village of Northport installed catch basin inlets/leaching pools at ten locations within the village.
- **Oregon:** OR NEMO has helped several communities design and implement low impact development projects. These projects include the **incorporation of bioswales and rain gardens** in the city of Brookings new Port office and retail building; **constructed wetlands** at Baby Bear Creek in Medford; **underground stormwater detention chambers** at the Southern Oregon University dormitory; bioswales in the city of Tillamook and Pacific City; and several water quality-friendly features in Redwood Park at the city of Grants Pass.
- **Rhode Island:** The towns of Charlestown, South Kingstown and New Shoreham (located on Block Island) participated in an EPA-funded **community wastewater demonstration project** that helped each town to establish a municipal wastewater management program to protect groundwater resources and coastal waters. With the project

coming to a close, each municipality has allocated funds to maintain the program, with funding for a full time wastewater manager in each community. RI NEMO has provided education and technical support to the towns in setting up these programs.



A green roof demonstration project in downtown Nashville, Tennessee. (Photo courtesy of Ralph Velasquez.)

► **Tennessee:** Tennessee Growth Readiness (the TN NEMO effort) added a **green roof** demonstration project to a residential building in downtown Nashville. The green roof project supports the ideals of the Growth Readiness Program and helps address the urban stormwater management issues in Nashville.

► **Texas:** TX NEMO coordinated the installation of the first **demonstration rain garden** in the Houston area. Located in front of the Bay Area Courthouse annex in Houston, the rain garden brings public awareness of this natural process for treating stormwater where it falls in a beautiful and functional way, while it provides habitat for wildlife with the inclusion of native plants.

► **Texas:** TX NEMO led the Mason Park Stormwater Wetland project along Brays Bayou in Houston, Texas. **Constructed wetlands** are known to be fairly effective at removing bacteria from stormwater, but the Brays Bayou stormwater wetland is the

first documented proof of the effectiveness of this method in the Houston region. This wetland consistently removes nearly 99 percent of the bacteria in the stormwater inflow. The project won several national and state awards and serves as a demonstration of how wetlands can be incorporated into drainage infrastructure.



A constructed wetland along the Brays Bayou in Houston, Texas. (Photo courtesy of TX NEMO.)

► **Texas:** Under the direction of TX NEMO, a WaterSmart Demonstration School Habitat Lab was installed at the Environmental Institute of Houston on the campus of the University of Houston at Clear Lake as a means of creating a habitat for wildlife that also functions as an instructional lab for teachers, students and the community. The landscape provides a safe, accessible area to



WaterSmart Demonstration School Habitat Lab, Environmental Institute of Houston on the campus of University of Houston at Clear Lake. (Photo courtesy of Chris LaChance.)

experience hands-on environmental education for teachers and students. For the community, it highlights **environmentally friendly landscaping practices that incorporate landscaping for wildlife** and can be used in residential and commercial locations.

► **Vermont:** VT NEMO worked with the towns of Winooski, Montpelier, Barre, Berlin and St. Albans to install **demonstration rain gardens** that have had a ripple effect through these communities. The Winooski project has led to a series of presentations for the Vermont Association of Professional Horticulturists and an advanced Master Gardeners training. Master gardeners in this region have since installed numerous rain gardens and have taken responsibility for their maintenance. The St. Albans project included a **porous concrete sidewalk**, painted **rain barrels** project (60 barrels distributed throughout the city) and cistern systems at the public works building and the fire department building.

Spotlight on Maine

The Town of Ogunquit

After a series of NEMO open space planning workshops, the town of Ogunquit, Maine took action on several fronts in the interest of preserving open space in the community.

With the assistance of the Southern Maine Regional Planning Commission, a new town ordinance was created that requires 50 percent of developable land in new subdivisions be set aside as open space. The town also set up the Ogunquit **Conservation Land Fund** to purchase priority parcels and obtain conservation easements. The fund is supported by an annual citizens' approval grant of \$25,000, which is used to locate sources of matching funds.

In addition, the Ogunquit Conservation Commission collaborated with the Mt. Agamenticus to the Sea Coalition, South Maine Regional Planning Commission and the Wells National Estuary Reserve to acquire and preserve as open space portions of a large rural/farm area west of the Maine turnpike. From geographic information systems topographic maps that were overlaid with tax parcels, they selected a number of larger contiguous tracts of open land. The landowners for those parcels were then

sent a series of letters defining the Ogunquit Conservation Land Fund's interest, and inviting them to a public workshop on conservation easements. Several of those landowners have expressed interest in pursuing easements.



While this was going on, the conservation commission located three large contiguous tracts, totaling about 100 acres, about 1.5 miles from downtown Ogunquit. Private parties own two and the other is town land. The private land owners have committed to the conservation commission to place **conservation easements** on the parcels.



The town of Ogunquit acquired 1.5 acres of forest and wetland property abutting the Josias River. This piece of land has been developed into the Josias River Public Park. (Photo courtesy of ME NEMO.)

Finally, the town acquired, by donation, 1.5 acres of forest and wetland property abutting the Josias River, near downtown. This parcel has been developed into the Josias River Public Park.

In total, the town has set aside more than 570 acres of land as open space and other preserved lands in recent years.