
## Jordan Cove

Long Island Sound, CT (1998)

### Background:

Long Island Sound is an impaired estuary due to low dissolved oxygen (hypoxia), toxic contaminants, pathogens, floatable debris, and habitat degradation. Excessive nitrogen from nonpoint sources is believed to be responsible for hypoxia. Jordan Cove is a small estuary flowing into Long Island Sound.

To assess the Cove's condition, the Jordan Cove Urban Watershed Section 319 National Monitoring Program Project designed a 10-year study ending in 2007 to determine the water quantity and quality benefits through the development of an urban subdivision using pollution prevention BMPs. Stormwater runoff from three watersheds - control, traditional and best management practice (BMP) - were monitored. For the BMP site, alternative driveway pavement treatments, grassed swales, roof runoff rain gardens, landscaping, reduced site imperviousness, and general good housekeeping practices were employed as LIDs.

Goals for success were to maintain post-development peak runoff rates and volumes at levels equal to predevelopment rates, to reduce nitrogen export by 65% and phosphorus by 40%.

### Monitoring:

In the BMP watershed, a reduction of stormwater runoff was observed. Concentrations of TSS, TN and TP significantly increased in stormwater runoff at the BMP site during construction and remained higher following construction. The TN and TP levels eventually stabilized after 2 years and began decreasing. TSS levels remain high.

### Conclusions:

Only the BMP watershed was able to keep runoff volume and peak at predevelopment levels, which was a main project goal. Reduced N and P export goals were also met but TSS export goals were not. The overall reduction in runoff volume from the events monitored was 51 percent. Based on this study design changes for future projects were suggested. Cluster designs, LID-based regulations and stormwater disconnects were recommended. Future construction projects should control compaction and maximize undisturbed soils. Earthen berms were an effective BMP. Sediment control for swales is important. Following construction, maintenance of bioretention areas, infiltrating pavers, turf dams, and appropriate grass mixes is needed.

While the project achieved the stated goals and met pre-development site conditions, the contaminant levels fell well short of meeting the Bay's draft aspirational goal of zero runoff. It is noteworthy that retaining runoff becomes much more difficult and LID intensive as you approach the 90-95% mark for managing runoff onsite. That means we can't be sure this site could ever meet our aspirational goal onsite since this project only managed 51% of the runoff, which met their targeted pre-development loading levels.