

City of Santa Monica Urban Watershed Management Program

Low Impact Development Strategies:

Beach Green

2030 Barnard Way



← [Completed recreational multi-use field, educational sign in foreground and traditional asphalt parking lot in left background]



← [Blending of plastic matrix pieces into the surface sand/soil layer]

[Aerial view of parking lot BEFORE installation, area in green outlines project site] →



[Netlon™ turf field with parked cars] →



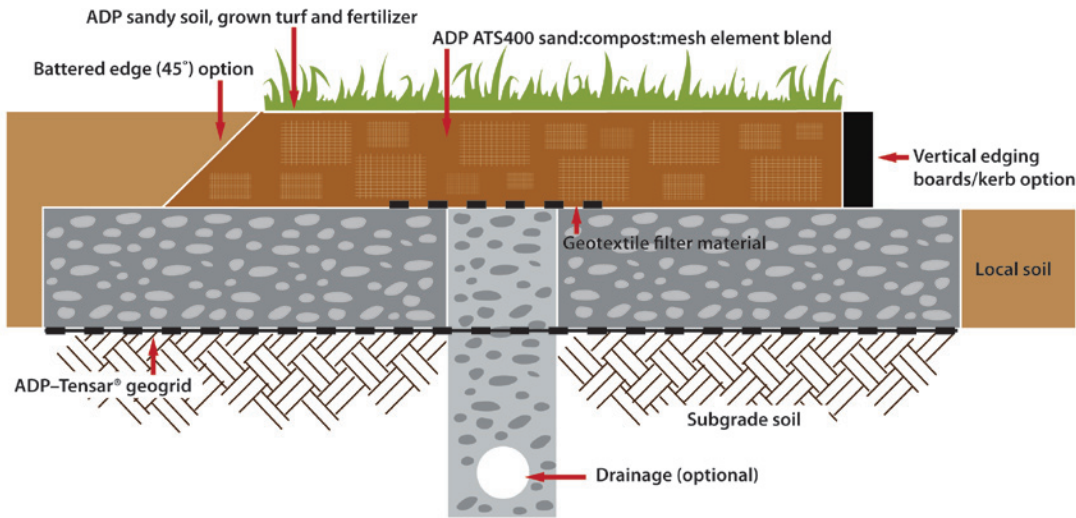
The Beach Green demonstration project is an exciting example of how communities across the country, often cramped for space, can transform existing parking lots into parks and open space vital to sustainable communities; while losing no parking spots, and adding water quality protections from polluted rainwater runoff. The project provides year-round recreation and the same number of parking spaces previously available, and treats rainwater runoff originating from it and the adjacent paved parking lot by incorporating proven techniques often referred to as Low Impact Development strategies (LIDs). Any rainwater runoff flowing to this new open space will percolate into the grass surface for treatment via infiltration, a process where soil and turf root ecology neutralize low-level concentrations of pollutants commonly found in runoff.

Some eighty-three parking spaces or 28,600 square feet of asphalt were converted into the **Beach Green** space (PHOTO top left, bottom left). During periods when beach parking demand is low, Beach Green and the adjacent paved parking lot (total 75,000 sq ft) remain closed to vehicular traffic and open for recreational play. During busy holidays and warm weekends (approximately six days per year), Beach Green is closed to recreation and available for overflow parking.

Beach Green uses the **Netlon Advanced Turf System™** (GRAPHIC back page) with the salt/drought-tolerant *Paspalum* turf species. The system mixes hundreds of thousands of fabric-like polypropylene mesh matrix pieces (2" x 4") into the soil. The pieces are **blended uniformly into the sand/soil medium by a special attachment on a tractor** (PHOTO top right). The mesh matrix interlocks with soil particles, providing tensile resistance to the soil matrix. The random orientation of the mesh elements produces a highly reinforced soil mass, thus, **allowing cars to park on the turf** (PHOTO bottom right). When the grass is established, the roots penetrate and entwine with the mesh elements, further stabilizing the system. The increase in strength is achieved without any reduction in permeability, which provides for the infiltration of rainwater that is taken by turf roots or allowed to percolate into the groundwater. During a year with average rainfall (approximately 12"), this amounts to a total of 560,000 gallons of polluted water that would normally flow to the Santa Monica Bay.

The city received a grant from the State Water Resources Control Board for implementation of this project (Costa-Machado Water Act of 2000, Clean Beaches Initiative, Proposition 13). Additional support came from the city's Department of Cultural and Community Services, the Department of Public Works, and the Office of Sustainability and the Environment.

Cross-section view of the turf system



Planning for a Cleaner Bay

Urban runoff flowing through storm drains is the single greatest source of pollution to the beaches and near shore waters of the Santa Monica Bay. Unlike sewage and discharges from industrial sources, urban runoff is not generally adequately treated before it reaches the bay and our beaches.

The City of Santa Monica passed an ordinance that is designed to reduce the amount of urban runoff pollution that reaches our storm drain system and the Santa Monica Bay. The ordinance requires a reduction in urban runoff flowing off of all impermeable surfaces from newly developed or retrofitted parcels within the city.

Reducing the amounts of urban runoff and of pollutants contained in the runoff is essential for the health and safety of our community. A cleaner bay means a healthier marine ecosystem and improved quality of life for residents, and increases Santa Monica's appeal to visitors and businesses.

By implementing post-construction Best Management Practices (BMPs) and making these strategies part of our daily lives, we can make a genuine difference - and clean the bay!

Putting the LID on Urban Runoff, the Santa Monica Way

In the city's efforts to reduce runoff pollution through the use of BMPs, we can manage, use and redevelop our lands in a more sustainable manner through the use of Low Impact Development (LID) and smart growth design strategies, and BMPs. LID is an economically and environmentally responsible strategy to site development which still allows land development, but in a long-term cost-saving manner that also mitigates potential environmental impacts. Whether employed at a single-family home or large commercial or public project, LID integrates land planning, and site design practices and techniques to mitigate development impacts to land, water and air, to conserve and protect natural resources and ecosystems, and to reduce infrastructure costs, e.g., storm drain systems.

This strategy views each development project as a small micro-watershed, part of the greater watershed or drainage basin of a particular area. The strategy promotes the concept of "start at the source," that is, to keep as much precipitation on each parcel to minimize the amount of runoff or waste water leaving a site. In the end, watershed management must include the individual and each parcel, and LID approaches should be used in planning and designing phases. The results of these strategies will be to maximize onsite rainwater and runoff harvesting, retention and use, and to minimize runoff pollution in reaching the bay.

For more information contact **310-458-8223** or visit **sustainable-sm.org**



Urban Runoff & Watershed Management Program

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