

# COASTAL REDEVELOPMENT

January 30, 2001

Workshop Report



# COASTAL REDEVELOPMENT

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**This workshop was sponsored by the Jacques Cousteau National Estuarine Research Reserve and the New Jersey Department of Environmental Protection Office of Coastal Planning.**

## COASTAL REDEVELOPMENT

### ISSUE/BACKGROUND

Redevelopment is the process in which an existing developed area is adaptively reused, rehabilitated, renovated or expanded. Infill, on the other hand, is development that occurs on smaller parcels that remain undeveloped but are within or very close to existing urban areas. Both redevelopment and infill are strategies for accommodating growth and preventing sprawl through greater density and efficiency in land use within existing urban areas. Cheaper, unencumbered land will always be the focus of development activity unless public agencies and local governments develop clear programs to direct development to areas within existing urban locations. There are many tools and strategies available to local communities that can provide assistance in creating a bigger market for redevelopment. These range from financial incentives, such as land acquisition loans, to infrastructure improvements and planning guidance.

Redevelopment and infill projects can provide many opportunities for environmental restoration for highly developed coastal urban watersheds. Local communities need to promote the use of environmentally friendly redevelopment and infill practices into the larger master planning process. Several environmental practices that can be encouraged include: (1) the use of appropriate, effective and economical stormwater management where possible; (2) the rehabilitation of urban streams and the creation and restoration of aquatic corridors; (3) the use of open space designs, including the reduction of building footprints, preservation of natural areas, and innovative building techniques to reduce the amount of impervious cover; and (4) development designs that integrate new paths, open spaces, and improve waterfront access to the existing community.

#### **Stormwater Management**

The conventional approach to stormwater management is to capture the drainage with structures such as inlets, pipes, culverts, and detention basins and move the water from the site as quickly as possible. Recognition of the relationship between impervious cover and diminished groundwater, and between degraded streams and water quality has led to a movement away from such traditional approaches. Many opportunities exist to capture stormwater runoff and allow it to infiltrate the soil mantle, replicating the natural hydrologic cycle. Some alternatives to traditional stormwater practices include:

1. **Porous Paving.** Porous paving resembles conventional asphalt except that it lacks the fine aggregate stones that normally fills in voids between larger stones. This enables water to flow directly through the pavement while preserving structural integrity. A recharge bed is usually located under the porous paving surface. A maintenance savings can be achieved with this type of paving because the paving is less subject to the damaging freeze/thaw cycle caused by standing water.
2. **Infiltration Trenches.** Infiltration trenches are usually long, thin channels filled with coarse aggregate. They can be used on the downhill side of any type of impervious areas such as roadways, driveways, parking lots, and walkways. They can also be used to capture rooftop runoff.

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3. **Recharge Beds.** Recharge beds are underground storage basins, designed to store runoff until it can be absorbed into the underlying soil. They can be located under large areas of paving such as parking lots and can be designed to mitigate any increase in the one-hundred-year storm peak flow rate – creating a zero runoff condition in most cases. This can provide an economical and visually pleasing solution to parking lot runoff.
4. **Vegetated Swales.** Swales are surface channels that mimic natural drainage channels and serve to capture and slow water to promote infiltration. It is essential to meander the swale to lengthen the water's journey, include check dams to slow the water, and small basins to hold sediment. Planting swales with deep-rooted woody native plants provides biofiltration and encourages infiltration through the root channels.

### **Restore Urban Streams**

Urban streams are arguably the most extensively degraded and disturbed aquatic system in North America. Urban stream degradation is a classic example of the difficulty in addressing long-term environmental change at the local level. Development is a gradual process that spans decades over a wide region of the landscape. It is, however, composed of hundreds of individual projects completed over a much shorter time-span which transform just a few acres at a time<sup>1</sup>. On a practical level, it is at this scale that problems can begin to be addressed.

While watershed-level planning is the best approach to characterizing stream problems and identifying protection strategies, redevelopment projects present a unique opportunity to begin instituting restoration practices. In highly developed urban streams, the restoration on individual streams can contribute to an overall watershed restoration strategy. A number of restoration initiatives can be implemented at the site level. These include:

1. **Restore natural stream morphology.** Changes in urban stream morphology often include channelization, channel widening and downcutting, channel scour, streambank erosion, shifting bars of coarse sediments, and loss of pool/riffle structure.
2. **Restore Stream Buffers.** To fully protect urban streams it is necessary to establish a wide buffer adjacent to the stream channel. A forested buffer provides shade, woody debris, leaf litter, streambank protection and pollutant removal.
3. **Limit imperviousness in the drainage area and incorporate BMP's to treat the quality and quantity of runoff generated from impervious surfaces.** There are many strategies that can be used to minimize impervious area at the site level, these are discussed in detail in the next section.

### **Open Space Design**

The characteristics of the redevelopment site will often dictate what types of open space design can be utilized. However, there are a number of strategies that can be adapted from residential development and applied to urban redevelopment areas.

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These recommendations to minimize the amount of impervious cover on a site result in a reduction in the amount of stormwater runoff and can provide green, visually pleasing urban landscapes.

1. **Parking.** Utilize parking structures whenever possible, opting for shared parking and driveways when possible, using angled parking and smaller stalls of some of the ways to minimize imperviousness on a site. Poured paving, vegetated swales, and filter strips should be considered for the conveyance of stormwater runoff.
2. **Sidewalks.** Sidewalk widths should be kept to the minimum required. Use sidewalks on one side of the street and use poured paving surfaces when possible. In addition, slope sidewalk areas away from the street to promote drainage to vegetated areas for infiltration.
3. **Cluster Buildings.** Utilize cluster development patterns that arrange the layout of buildings in a compact area of the site, keeping a portion of the site available for common open space or green space. In addition, consider taller buildings with a larger floor to area ratio.

### **Public Access/Open Space**

The term open space has many different interpretations ranging from lighted, supervised parks and recreational fields to trails along a river corridor. Backyards, golf courses, and vacant lots also fit the definition. It is helpful for communities to develop open space inventories and identify their open space needs in a number of categories. Categories that should be considered include natural resource protection areas, outdoor recreation, resource management, protection of public health and safety (floodplains, wetlands), areas that shape community character or design, and historic or archeological sites. Many of these categories can be filled through the maintenance of sites in private ownership. For example, natural resource protection areas and protection of public health and safety can be upheld through the protection of streamside buffers and floodplain protection<sup>2</sup>.

Public access is not likely to occur on privately owned land. Local governments should seek out nonprofit organizations with goals of public access and open space as well as state and federal funding options for the purchase and management of land. There are however a number of ownership options that have been used by government and nonprofits to meet open space objectives. These include:

1. **Fee Simple purchase of land.** This allows for permanent protection, full control, and full public access. Drawbacks are the cost, removes land from tax rolls, and ownership includes liability and maintenance.
2. **Purchase of Development Rights or Conservation Easements.** This is less expensive than fee simple purchase. Landowner retains ownership and property remains on tax rolls yet on a lower rate because of restricted use.
3. **Lease.** Short or long-term rental of land, however affords only limited control and does not assure permanent protection.

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4. Land Exchange. Public agencies or nonprofits exchange developable land for land with high conservation value.
5. Outright donation or bargain sale: Considered a charitable contribution and provides tax benefits to seller.<sup>3</sup>

<sup>1</sup>Schueller, Tom 1995. Site Planning for Urban Stream Protection. The Center for Watershed Protection for Metropolitan Washington Council of Governments, Environmental Land Planning Document Series #95708.

<sup>2</sup>Gibbons, James 1998. Open Space: What is it, How do we Plan for it and Build Consensus to Protect it? Open Space Fact Sheet #1. Nonpoint Education for Municipal Officials, Cooperative Extension System, University of Connecticut.

<sup>3</sup>Gibbons, James 1998. Techniques for Preserving Open Space. Open Space Fact Sheet #T1. Nonpoint Education for Municipal Officials, Cooperative Extension System, University of Connecticut.

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### WORKSHOP SUMMARY

On January 30, Jacques Cousteau National Estuarine Research Reserve and NJ Coastal Management Program provided a coastal management seminar on Coastal Redevelopment at Brookdale Community College. The program was held from 6:00 pm to 9:00 pm and included a buffet dinner.

Redevelopment is a strategy for accommodating growth and preventing sprawl through greater density and efficiency in land use within existing urban areas. This workshop provided an overview of the redevelopment process and information on retrofit and environmental restoration techniques that can be incorporated into infill projects. The purpose of the workshop was to provide information on redevelopment strategies that incorporate conservation measures. Specifically, the workshop objectives were:

- (1) Participants will understand the impacts of traditional urban/suburban development on coastal water resources,
- (2) Participants will recognize some of the techniques that can be applied during the redevelopment process to restore the urban environment, and
- (3) Participants will recognize the public and private benefits of incorporating environmentally sensitive design into redevelopment projects.

The major environmental themes that were included in the workshop were stormwater retrofits, open space development, public access, and sector permits. Local sponsors of the workshop included the Monmouth County Planning Board and Brookdale Community College. The target audience was local elected and appointed officials at the municipal and county level. Twenty local officials from Monmouth County attended the workshop.

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### WORKSHOP AGENDA

- 6:00 Dinner Buffet
- 6:30 Welcome, Opening Remarks  
Robert Tudor, NJDEP
- 6:45 Redevelopment in New Jersey: Tools and Techniques  
Joseph Donald, Office of State Planning
- 7:15 Coastal Redevelopment: An Opportunity to Improve Stormwater  
Management  
Leslie Sauer, Andropogon and Associates
- 8:00 Streamlining the Coastal Permit Process through Sector Permitting  
Bill Purdie, NJ Department of Environmental Protection
- 8:30 Reclaiming Urban Waterfronts: The Hudson River Walkway  
Bill Neyenhouse, NJ Department of Environmental Protection
- 8:50 Questions and Discussion
- 9:00 Adjourn



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### RESOURCES

New Jersey Brownfields: A New Opportunity. Resource Guide. JoAnn Petrizzo. New Jersey Office of State Planning. April 2000. 20 pages. This report is available for viewing online. (<http://www.state.nj.us/osp.osppubs.htm>).

Brownfields Redevelopment as a Tool for Smart Growth: Analysis of Nine New Jersey Municipalities. Tyler Miller, Michael Greenberg, Karen Lowrie, Henry Mayer, et al. National Center for Neighborhood and Brownfields Redevelopment for New Jersey Office of State Planning. March 2000. 49 pages plus Tables. This report is available for viewing online. (<http://www.state.nj.us/osp.osppubs.htm>).

Center of Excellence for Sustainable Development.  
(<http://www.sustainable.doc.gov/landuse.shtml>)

Center for Watershed Protection  
(<http://www.cwp.org>)

Smart Growth Network  
(<http://www.smartgrowth.org>)

Local Government Commission  
(<http://www.lcg.org>)