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## Public Involvement/Participation

### Reforestation Programs

#### Description

Reforestation is essential to the restoration of many natural habitats. These forested buffers between land and water are an essential part of the ecosystem. In some parts of the country, however, they are disappearing at an alarming rate. Reforestation programs attempt to preserve and restore forested buffers and natural forests. In areas all over the country, volunteers, community groups, and state and local conservation groups have initiated tree planting efforts.

In addition to buffer establishment and improvement with reforestation, municipalities can accomplish several tasks including park improvement, neighborhood and highway beautification, and provision of shade in parking and pedestrian areas. A municipality should determine what their priorities are and identify candidate sites for reforestation based on these priorities.

With the variety of tasks involved in tree planting efforts, everyone can help out. While some people man wheelbarrows, haul the plants, or shovel ground, there are many less-strenuous ways that volunteers can assist in these efforts. For example, to maintain a steady supply of trees, some organizations establish small nurseries where volunteers can pot seedlings and care for them for about 2 years until they are ready to be transplanted to a natural setting. Other participants in a tree planting program might be responsible for contacting local businesses, residences, or nursery farms to seek financial or vegetative donations.



**A reforestation program teaches children about the importance of planting trees**  
(Source: Chesapeake Bay Foundation, 2000)

#### Applicability

Reforestation programs can be used throughout a community to reestablish forested cover on a cleared site, establish a forested buffer along stream corridors to filter pollutants and reduce flood hazards, provide shade and aesthetic benefits in neighborhoods and parks, and improve appearance and pedestrian comfort along roadsides and in parking lots. It is up to the municipality to choose candidate sites for reforestation programs, and these decisions can be based on residents' recommendations or on overall capital improvement goals of the community.

#### Implementation

Municipalities should determine who will be in charge of a reforestation program. The program can be run by the local environmental department if one exists, but this department needs to have the organizational and managerial capacity to handle such an undertaking. Additional staff may need to be hired to conduct this program. Another option is to solicit volunteer organizations to run the program. The municipality can provide support to these volunteer groups in the form of materials, equipment, staff supervision, and funds for additional expenditures.

Funding for a reforestation program can come from a variety of sources, both public and private. Federal grants are available through USDA (Wildlife Habitat Incentives Program, Forestry Incentives Program, Resource Conservation and Development Program, Small Watershed Program, Watershed Surveys and

Source: US Environmental Protection Agency, March 2003



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Planning) and EPA 319(h) funding for nonpoint source demonstration projects, among others). More information about these and other federal grant programs can be found at USDA's Natural Resources Conservation Service web site at [www.nrcs.usda.gov/NRCSProg.html](http://www.nrcs.usda.gov/NRCSProg.html) and EPA's Nonpoint Source Control Branch web site at [www.epa.gov/owow/nps/funding.html](http://www.epa.gov/owow/nps/funding.html). State funds also might be available for reforestation programs--municipalities should check with state environmental agencies to identify what grant and loan programs are available for this purpose.

Additionally, municipalities can look to private sources of funding. Partnerships can be established with nurseries or with the organizations participating in the volunteer effort. Also, municipalities can solicit contributions from developers and businesses that want to be associated with this endeavor. Finally, citizens can donate money to have trees, groves, or parks named after them.

Once the program and funding are established, the next step is to choose sites suitable for tree planting efforts. Areas of disturbance such as sparsely vegetated streambanks or areas on the periphery of a forest are often ideal for restoration efforts. When the site is selected, it is important to conduct a detailed feasibility study to ensure the success of the tree planting. Each site has unique soil and other environmental characteristics that must be considered when selecting tree species to be planted. To properly assess a site, it is wise to consult a local horticulturist or landscape architect for technical assistance. Park employees, rangers, local scientists, and experts at nurseries and garden stores can also provide advice concerning the types of native tree species that are appropriate under various conditions. Municipalities should develop a timetable for planting depending on program priorities, site conditions, and the availability of materials and labor.

Once the site and tree species are selected and a schedule is set, the municipality should organize an outreach campaign to get the word out about the reforestation program to the public. This outreach campaign can advertise the reforestation program at town meetings or by holding meetings with individuals and groups, such as neighborhood coalitions, that might be interested in participating in a reforestation program. Additionally, if municipalities have a web site or newsletter, the program and volunteer opportunities can be advertised there.

Once volunteers are found, the next step is to secure the materials and equipment needed for tree planting events. Trees for plantings can be donated, purchased commercially, or raised by the group, but note that raising them involves a significant time commitment (up to 2 years). A commitment is needed from the nursery that the plants will be delivered in a timely manner for the planting.

The site might need to be prepared for planting. This preparation includes clearing any vines or other overgrowth from the planting area. Equipment and supplies also must be collected prior to the planting. For example, shovels, wheel barrels, gardening gloves, pruning cutters, and mulch should be gathered and transported to the site. This equipment can be supplied by the public works department or a local contractor.

With the materials collected and in place, tree planting can begin. Trees and shrubs take about a year to become established in a new environment, during which time substantial root growth occurs. To ensure that trees flourish in their new environment, consult with a horticultural specialist or other expert for detailed planting instructions and specifications. The plant specialist should also recommend maintenance of the newly planted trees, and inspections should be made to identify and repair vandalism if it occurs. Maintenance can be conducted by the municipality or volunteer groups, but a plan and schedule must be in place to ensure that maintenance occurs as scheduled.

## Effectiveness

With the proper tools, types of plants, planting, and maintenance, reforestation can be very effective in reducing pollutants in and decreasing the volume of storm water. The nonprofit organization American Forests conducted a study in the Houston area to document urban forest covering a 3.2-million-acre area. They also analyzed 25 specific sites with aerial photography using CITYgreen software to map and

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measure tree cover and to calculate the benefits of Houston's trees. Study results show that trees provide significant benefits relative to storm water runoff, energy savings, and pollutant removal. The study found that Houston's tree cover reduces the need for storm water management by 2.4 billion cubic feet per peak storm event, saving \$1.33 billion in one-time construction costs (ENN, 2001).

### Benefits

Pollutants in urban and agricultural runoff, especially sediment that reduces the water clarity, nutrient pollution from fertilizers and manure, and toxics from weed and pest killers, can freely flow into valuable natural water resources without a vegetated buffer along stream corridors and lakeshores. Trees and forested areas reduce runoff through interception and by increasing surface storage and infiltration. The trees mitigate peak flows through storm water retention, provide habitat for wildlife, shade streams to help maintain appropriate water temperatures, and provide aesthetic benefits. Trees are also beneficial in urban areas. Not only are they aesthetically pleasing, but they also provide habitat for wildlife, capture rainfall, and reduce the urban heat index, which in turn reduces the need for air conditioning.

### Limitations

Limitations to an effective reforestation program include the costs associated with buying and planting the trees and other vegetation, finding people to install and maintain the plants, and continuing the upkeep of the buffer areas. Weather patterns, such as hurricanes and other storms or droughts, can cause significant damage to reforested areas. These natural weather patterns are unavoidable, but if indigenous vegetation is used, the plants are more likely to survive.

### Cost

Reforestation programs involve a variety of costs, especially staff time needed to organize the program, select sites, coordinate supplies, and recruit, organize, and supervise volunteers. Supplies and equipment might also be expensive, depending on the size of the reforestation effort. The cost to the municipality can be minimized by soliciting donations from businesses and private citizens and by obtaining grants and loans from public sources.

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