

# **Best** MANAGEMENT PRACTICES



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### 6.1 Definition of Resource

Seattle Parks and Recreation (SPR) operates the Atlantic City Nursery (at 5513 S. Cloverdale Street). The nursery occupies roughly seven acres and has been in continuous operation for more than 50 years. Atlantic City Nursery produces roughly 20,000 plants per year, providing a cost-effective system for the City of Seattle to meet landscape plant replacement needs throughout its park system. Atlantic City Nursery is a resource for both native and ornamental woody and herbaceous plants which are distributed throughout Seattle Parks. The goal of operational practices is to produce high quality, healthy plants for SPR.



The nursery is a facility for growing and limited propagation of plant material for use on both developed and undeveloped park property. The plant material provided supports various needs throughout the park system from small in-house planting projects to large capital improvement projects. In recent years the production of native plants has been increased substantially to meet increasing demand, primarily for forest and landscape restoration projects. The Atlantic City Nursery site contains the following features:

1. Office/storage building
2. Growing fields
3. Holding / heeling-in area
4. Container yards
5. Poly-house and shade-houses
6. Potting area
7. Soil, woody debris, and compost bulk storage bins

### 6.2 Goal Statement

The mission and goal of Atlantic City Nursery is to propagate, promote, and produce both ornamental and native plants of good quality and species diversity. The nursery plants provide wildlife habitats, erosion control and water filtration, as well as improve plant displays and exhibits within Seattle parks and greenspaces. The nursery is a resources for newly developed and restored landscapes in Seattle communities.

### 6.3 Definitions



**Clean Green:** Refers to various plant debris such as leaves, pruned limbs, etc. that has not been contaminated with garbage and is suitable for recycling and composting.

**Nursery:** A facility for the propagation, growing and holding of plants for use on developed and undeveloped park property.

**Poly-house or Shade-house:** Terms for greenhouse-type structure that provides a minimal level of cold weather or sun protection required by nursery crops.

### 6.4 Policies and Guidelines

[15.58 RCW - the Washington Pesticide Control Act](#) and [17.21 RCW - the Washington Pesticide Application Act](#): Under this authority, the Compliance Branch of the Washington State Department of Agriculture (WSDA) enforces federal and state regulations relating to the storage, distribution, transportation, disposal, and use of pesticides.

**The Mayor's Environmental Action Agenda (EAA):** The EAA presents the City's environmental goals and creates a framework for integrated City departmental environmental action. It addresses water conservation through mandates for increased energy and water efficiency of City buildings and facilities. The City has a continuing commitment to the Mayor's Environmental Action agenda

**Pesticide Reduction Program:** This program is an outgrowth of the Seattle Environmental Management Program (EMP) that was adopted to promote environmental stewardship in City operations. The two goals of the program are 1) to eliminate the use of the most potentially hazardous herbicides and insecticides and (2) to achieve a 30 percent reduction in overall pesticide use. The program outlines overall policies and rules governing purchasing, storage and use of pesticides, specific reduction goals and strategies to reduce use.

<http://www.cityofseattle.net/environment/pesticides.htm>

**Sustainable Infrastructure Initiative (SII):** The SII is a component of the Mayor's Environmental Action Agenda. It encourages application of innovative approaches that provide basic services in ways that are resource-efficient and environmentally responsible through a variety of incentive programs. Sustainable design encompasses the following broad topics:

- Efficient management of energy and water resources
- Management of material resources and waste
- Restoration and protection of environmental quality
- Enhancement and protection of health and indoor environmental quality
- Reinforcement of natural systems

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- Analysis of the life cycle costs and benefits of materials and methods
- Integration of life cycle costs in design decision-making

**Tri-County Pesticide Use Guidelines:** The purpose of this document is to offer consistent and constructive advice to jurisdictions in King, Snohomish, and Pierce counties that have IPM programs. It offers clarifying information on specific IPM practices in various landscape types such as waterways, developed landscapes, and natural areas.

<http://www.govlink.org/hazwaste/interagency/ipm/ipmtricityhome.html>

### 6.5 General Maintenance Practices

#### 6.5.1 Basic Operating Plan

Although the nursery does not supply all landscape plants SPR uses, it does provide a significant amount of plants for Parks staff, including gardeners', architects', foresters' and project managers' revegetation or restoration needs.

The nursery works very closely with the greenhouse operation at Jefferson Park. A majority of Most plants are propagated in Jefferson greenhouse and later moved to the nursery, where they are grown on to sufficient size for planting. The nursery is growing an ever-increasing number of plants to meet the demands from capital landscape and reforestation projects. This creates space and resource problems with the current operation. In the future, the nursery facility will require modification and upgrade.

#### 6.5.2 Inventory Management

Currently the Atlantic City Nursery's computer is connected to the Internet by a dial-up service. Resources need to be provided to establish a SPR Inweb network connection. This improved connection will enable the current horticultural database to be available to the Nursery and would also enable the creation of a computer-based inventory management system. A computer-based inventory system would keep track of the current inventory, the requests for new plants, and sequester plant material for specific projects. This inventory would also be available to Jefferson Greenhouse Facility and the Parks Horticulturist.

#### 6.5.3 Propagation

The nursery does a limited amount of propagation, including seeding, divisions, hardwood cuttings, and collection of salvageable seedlings in parks or private lands that will be razed or reconstructed. Bare root plants and plugs are purchased when it is considered to be the most efficient, economical, and timesaving means of production.

- Most of the nursery operation is containerized. Plants are grown in containers to various sizes for eventual planting in parks. A containerized



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operation is both cleaner and less labor intensive than field growing, particularly when moving plants out of the nursery.

- Plants are field grown on a very limited basis to meet specific needs, such as large specimen trees.

### 6.5.4 Plant Selection

- The SPR nursery program has limited personnel, resources and staging space. Surplus plants are not cost-effective to hold, given the care required to maintain a larger than needed inventory. Therefore, the size of the plant inventory is carefully considered with current demand.
- The types and quantities of plants selected for propagation are generally determined by the Nursery Manager based on requisitions submitted by other SPR staff and the particular requirements of various capital projects.
  - The annual quantity of both ornamental and native plants that are propagated is based on historical needs.
  - Some plants are grown as test subjects for possible introduction into park landscapes.
  - Some plants are grown as “stock” and are maintained for propagation.
  - Categories of plants help determine the available inventory. These categories include but are not limited to the following:
    - 1) Easily maintained or trouble-free plants
    - 2) Native plants
    - 3) Wildlife habitat plants
    - 4) Low water-use plants for both sun and shade
    - 5) Shrubs maturing at less than 4 feet
    - 6) Ground covers
    - 7) Plants that display seasonal interest

### 6.5.5 Growing Practices

The following are standard practice for preparing and maintaining plants grown in SPR nursery operations.

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Any potential invasive plant will not be grown as a Nursery crop or in the Nursery landscape. Evaluation of invasive plant potential will be continuous and ongoing.

### 6.5.6 Site Preparation



- All plant growing areas will have adequate drainage to ensure plants are not sitting in water or saturated soil.
- Imported potting soil will be tested as necessary to determine the need for amendments/nutrients. Monitor soils for pest organisms.
- The container soil mix shall be of proper composition and appropriate media for specific plant growing needs.
- Place all containers on clean weed-free fabric or gravel.
- A cover crop (mowable grass) will be used in field growing areas to reduce erosion potential.

### 6.5.7 Cultural Care

The following are preventive maintenance techniques SPR uses to ensure the quality of its nursery grown plants.

- Plants will be pruned per American Association of Nurserymen standards (or SPR-approved equivalent) as needed to ensure good health and structure.
- Routinely groom crops. Remove debris from ground cloth to reduce the potential for disease and to improve safety by reducing the likelihood for slips and falls.
- All plants shall be spaced to allow for optimal growth and good air circulation to prevent diseases.
- Containerized plants will be re-potted as needed to prevent encircling roots and to allow them to grow into their desired natural form without girdling.
- All plants will be watered as needed. The primary method of irrigation is the existing overhead system. This system works well for field growing areas but is modified as needed for watering containerized plants.
- Fertilize plants as needed with a fertilizer appropriate to the crop. Use a slow release product whenever possible.
- Plants requiring shade conditions will be held in the shade houses or provided a shade cover.
- City water used for plant irrigation purposes will be used efficiently.

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- o Plants will be grouped by size and water needs.
- o Watering will be done on an as-needed basis.
- o The most efficient system for watering individual planted areas will be used. Where plants are dissimilar in size or species differ, hand watering will be required.
- o Avoid watering nursery areas that aren't currently holding plants.
- The nursery will support recycling operations.
  - o Compost will be used whenever possible.
  - o Growing containers will be reused (following cleaning).
  - o Plant debris will be sent to “clean-green”.
- Plant holding areas will be used for plants that are in transition. While in holding, plants shall be mulched, staked as needed, watered, and provided with shade protection if required.
- Winter protection shall be provided for plants as needed through the use of existing greenhouses or “frost blankets”. Smaller, more tender plants will have priority for winter protection.
- Routinely evaluate all gravel surfaces where crops are staged for the presence of potholes and standing water.
- Wherever possible, hang hose ends up off the ground to prevent disease spread.

### 6.5.8 Site Maintenance

- All potting soil, compost, and bark mulch will be covered with a tarp to prevent weed seed germination. Alternatively, routinely turn all piles.
- Noxious weeds will be controlled or removed from the site during preparation (see Section 8.7 IPM).
- Roads and pathways will be maintained on an annual basis to ensure accessibility.
- While the nursery supports various community programs, the general public shall not have access to the nursery grounds except and unless a pre-approved department staff person is also present.

### 6.5.9 Building Maintenance

- Perform routine maintenance and upkeep of all greenhouses; shade houses, and storage sheds to provide safe day-to-day operation.
- Maintain all equipment in good working order. Equipment includes the tractor, electric cart, and all other motorized or non-motorized equipment used in the Nursery operation.
- Keep tools and supplies well organized and properly stored. Supplies include flammables, pesticides, and other hazardous materials.
- Monitor irrigation systems to ensure that they are working properly. Follow all periodic maintenance schedules including winterization. Notify the appropriate shops for repairs.
- Identify building, structure, and power equipment related periodic maintenance servicing needs and repair needs with appropriate shops.

## 6.6 Integrated Pest Management (IPM)

Control of pests and diseases in the nursery environment is very important due to the high likelihood for many plants to be affected.

### 6.6.1 Pest Tolerance Thresholds

The Nursery production operation deals with a large number of plants in close proximity to one another. Therefore, the spread of disease, insect pests, and weeds can occur quickly and easily. When plants leave the site, they have the potential to spread these pests to other landscapes. Pests that threaten the health of the general plant population will not be tolerated; suppression and control methods will be implemented.

### 6.6.2 Pest Management Strategies

The use of sound cultural practices to optimize plant health is essential in suppressing insects, diseases, and weed growth. Pesticide reduction strategies will be utilized while managing pests.

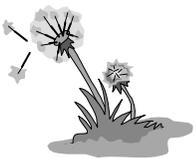
Pesticide applications should only be done by or directly supervised by a licensed Public Pest Control Operator. Follow all regulatory requirements for posting and documenting applications.

#### **Weed Control**

Whenever possible use of non-chemical strategies are preferred.

The following management techniques are used for weed control in the nursery:

- Hand weed before weeds set seed or fill pots.



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- Apply corn gluten to potted plants and mulch with fine bark.
- Cover potting soil with tarps to prevent weed contamination.
- Grade gravel service roads annually to keep weed growth to a minimum.
- Mow fields before weeds and grasses flower and set seed.
- Cover gravel staging area with landscape fabric

### **Disease Control**

Disease pathogens are controlled by the following methods:

- Select disease-resistant plant varieties.
- Provide proper cultural care including regular irrigation and fertilization.
- Monitor plant crops for disease outbreaks.
- Keep diseased plants quarantined away from healthy crops.
- Provide good sanitation techniques including routine removal of plant debris, keeping tools and work areas clean.
- Provide proper spacing between plants for good air circulation
- When necessary, apply the least toxic but effective pesticide products to control a specific disease pathogen on a specific plant or crop.



### **Insect Control**

Insect pests are controlled using the following strategies:

- Routinely monitor for insect pests by visual inspection and use of sticky traps
- Use proper cultural care for plants including regular irrigation and fertilization
- Remove insects by hand or wash them off the affected parts of the plants
- Habitat for natural insect pest predators is encouraged as an environmentally sound means to reduce populations of insect pests.
- Employ biological controls using beneficial insects and other organisms that attack pest insects. Periodic releases of beneficial insects help to suppress and reduce the need for chemical control



- Use spot treatments of the least toxic but effective insecticide directed at specific plant parts.

### 6.7 Training



#### Basic Nursery Training

People who are inexperienced in greenhouse or nursery operations but who are expected to perform a wide range of skilled tasks for SPR must have a reasonable period of hands-on training. This includes new employees, seasonal employees, or volunteers. Experienced senior staff will provide the training. All new or seasonal employees and volunteers must complete this training before they will be given full responsibility for work in SPR greenhouses and nursery facilities. The training should be given in full-day increments if possible, be as thorough as possible, and be specific to the location and type of work involved.

Basic comprehensive training on site operation, specific plant cultural care, and IPM should be developed as a training course and if possible, given during the less busy seasons in December or from June through July. Specific task training such as transplanting, potting, irrigation and other tasks as determined by nursery staff should be provided.

Training should include a yearly review of the Spill Response Plan and other Hazardous Materials plans as necessary.

#### Advanced Skills Training and Expert Consultation

Regular employees will be encouraged to pursue work related training to continue professional skills development. This training can be internal to the Department or from a variety of horticultural venues, such as lectures, courses, seminars and workshops offered at local courses at colleges and universities, the Center for Urban Horticulture, Washington State Department of Agriculture, government agencies or horticultural organizations.

Networking with other professionals in the field of greenhouse and nursery management through field trips, site visits, and meetings will allow staff valuable information sharing on all aspects of management.

Experts in greenhouse IPM or other topics can also provide onsite training and consultation for special problems or needs.

The Nursery topic areas for consulting:

- New products and equipment for nursery operations

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- Beneficial insect population strategies
- Monitoring insect and disease problems

### 6.8 Appendices Lists for Nursery Operations

#### ONLINE REFERENCES

1. **SPR Standards and Specifications:** All mandated SPR construction standards that apply to landscape projects.  
<http://www.cityofseattle.net/parks/projects/standards/specs.asp>
2. **Tri-County Pesticide Use Guidelines:** The purpose of this document is to offer consistent and constructive advice to jurisdictions in King, Snohomish, and Pierce counties that have IPM programs. It offers clarifying information on specific IPM practices in various landscape types such as waterways, developed landscapes, and natural areas (See next page for online link).  
<http://www.govlink.org/hazwaste/interagency/ipm/ipmtricityhome.html>