



# CARSON CITY Integrated Pest Management Program



## Noxious and Invasive Weed and Mosquito Abatement Programs

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**Mission Statement:** Carson City aims to create an effective Integrated Pest Management (IPM) program and implement strategies that include non-chemical techniques and reduces pesticide use on Carson City property with least toxic and most effective techniques, while recognizing that pesticides are used (as directed by the manufacturers label) to treat critical needs, such as defensible space and right of way to maintain the safety of Citizens of Carson City, as well as to comply with NRS 555.150 which requires the treatment of noxious weeds on your property. Additionally, this plan also aims to achieve the statutory goal of reducing the discharge of pollutants to the storm drainage system and watershed to the maximum extent practicable.

## **Introduction**

On October 18, 2018, Carson City, Nevada became the 76<sup>th</sup> Bee City USA affiliate in the nation, and the first in the state – setting an example for the rest of Nevada to choose to promote pollinator populations too. Carson City acknowledges the importance of pollinators to healthy ecosystems, agriculture, and the local economy. Due to the dramatic declines in pollinator populations globally, Carson City chooses to support and encourage pollinator habitat creation and enhancement on both public and private land. In order to increase understanding among staff and the public about the vital role that pollinators play and what each of us can do to sustain them, Carson City was established as a Bee City USA affiliate and are committed to educate the public on efforts to support sustainable pollinator habitat in Carson City. Ultimately becoming a Bee City USA affiliate is a commitment to the cause of pollinator conservation in Carson City, and participation in this program will help ensure the survival of vital pollinator species in our community. One way to achieve this is through the creation and implementation of an IPM program that identifies least toxic practices to be applied throughout Carson City to reduce the overall use of herbicide.

Additionally, it is important that a municipality's operations minimize contamination of stormwater and serve as a model for the entire regulated area. Municipal operations can contribute significant amounts of pollutants to stormwater runoff and impact water quality. Examples of these activities include landscaping and maintaining parks, golf courses, and other municipal areas (e.g., sidewalks, rights-of-ways). These areas can contribute pesticides, herbicides, fertilizers, litter, and sediment to the storm drainage system if they are not properly maintained. Carson City has initiated a program to reduce the discharge of pollutants to the storm drainage system by implementing a variety of activities designed to comply with the permit conditions and achieve the goals and milestones outlined in the adopted MS4 Stormwater Management Plan. Through these efforts, discharge of pollutants to the stormwater system is decreased, thereby reducing impacts to water quality, given that the Carson River is a prominent natural feature in Carson City and has the potential to be impacted by stormwater management practices.

## **Integrated Pest Management (IPM)**

An IPM program is a holistic approach to pest control that examines the interrelationship between soil, water, air, nutrients, insects, diseases, landscape design, weeds, animals,

weather, and cultural practices to select an appropriate pest management plan. The goal of an IPM program varies depending on the pest identified, but management objectives range from eradication (Class A noxious weed species) to managing species to an acceptable level while avoiding disruptions to the environment. An IPM program incorporates preventable practices in combination with non-chemical and chemical pest controls to minimize the use of pesticides and promote natural control of pest species.

The IPM process first determines if a pest needs to be managed, and if so, how best to do it. Key elements of an IPM program are information gathering, decision making, management action, and monitoring of results.

- Information gathering includes proper identification of the pest to understand the most effective abatement strategies recommended for that specific species.
- Decision making includes evaluating the recommended strategies for the identified pest and selecting the method based on ecological health, budgetary and staffing resource constraints.
- Management actions include cultural, physical, mechanical, manual, biological and chemical methods. Licensed and/or trained staff often select a combination of methods to manage specific pest populations on a case-by-case basis with a goal of reducing reliance on pesticides.
- Lastly, staff will conduct an annual review of pest management activities to monitor for efficacy and identify any issues or areas for improvement for further reduction of pesticides and alternatives for their application.

## **Training**

Adequate training for staff responsible for vegetation management, mosquito abatement and overall maintenance throughout the City is a critical first step in any effective IPM program. A minimum of one Maintenance Coordinator and the Senior Natural Resource Specialist within the Parks, Recreation & Open Space Department will be trained as a Nevada Pest Control Government Licensed applicator and will be charged with coordinating training for all maintenance staff, including proper weed identification, IPM methods and proper herbicide mixing and spraying procedures. Additionally, the Senior Natural Resource Specialist is responsible for directly overseeing or coordinating with other staff to manage pesticide application activities throughout Carson City, including on Public Works property and private lands. No pesticides will be used on City-owned property without a Nevada Pest Control Government Licensed applicator on staff.

Other training considerations are outlined below:

- Train employees in the Carson City policies for plant identification, safe handling of pesticides, proper mixing procedures and effective and safe application methods. No employee will apply pesticides without prior training.
- Verify that designated employees achieve and maintain appropriate pesticide applicator licenses, including achieving annual continuing education units (CEUs).

- Train/encourage maintenance crews on the importance of IPM and how to use IPM techniques.
- Use a training log to document all training.
- Staff will continue to seek out opportunities for training related to IPM, and to evaluate new programs and products as they become available.
- All employees who handle pesticides should be familiar with the most recent material safety data sheets (MSDS) files and their locations.

### **Best Management Practices (BMPs)**

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; aeration; irrigation and other gardening and lawn care practices. Vegetation control typically involves a combination of mechanical methods and chemical (herbicide) application. Specific BMPs related to landscape maintenance and vegetation management are outlined in the sections below.

All maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of identifying BMPs are to:

- (1) Minimize the discharge of pesticides; herbicides and fertilizers to the storm drain system and receiving waters (Carson River and its tributaries).
- (2) Minimize impacts to pollinator populations by reducing herbicide use, and ensuring they are correctly and safely applied when used.
- (3) Prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings.
- (4) Educating staff and the public about BMPs, water quality, pollinator health and habitat enhancement.

### **Mowing, Trimming and Weeding Protocols**

- Whenever possible and practical, use mechanical methods of vegetation removal, such as mowing, hand cutting with weed trimmers or hand removal.
- Use mulching to prevent weeds where turf is absent.
- Utilize volunteer for physical removal of noxious and invasive annual weed species.
- Implement proper mowing, irrigation, and fertilization of park turf to increase vigor and reduce weed populations.

### **Fertilizer and Pesticide Management**

- Follow all federal, state and Carson City laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and provide adequate training of applicators and pest control advisors. Follow all manufacturer recommendations and label directions.
- All pesticides will be stored in a safe, labeled, secure environment. Only authorized staff will have access to this area.

- Identify and diagnose an infestation early to reduce the need for chemical intervention. Utilize IPM techniques and apply mechanical removal methods of invasive plants wherever possible.
- Application of selected herbicides to control invasive weeds before flowering to reduce impacts to foraging pollinators, as well as before seed formation to prevent proliferation of future weed infestations.
- Select least toxic pesticides that will be effective, whenever possible. No 'restricted use' pesticides will be used.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Apply pesticides only when wind speeds are low (less than 5 mph) and temperatures are less than 85° Fahrenheit to avoid drift, volatilization and to maximize uptake of the chemicals by the plants for greatest efficacy.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques and equipment types.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given timeframe (month or year depending on the product).
- Triple rinse containers and use rinse water as product. Dispose of unused pesticide as hazardous waste. Dispose of empty pesticide containers according to the instructions on the container label.
- Do not apply pesticides within 100 feet of surface water unless they are labeled for aquatic use. Do not mix or prepare pesticides for application near storm drains.
- Do not use pesticides if rain is expected, unless utilizing a granular pre-emergent product that is labeled for use with impending precipitation.
- Schedule herbicide applications at times to minimize or reduce contact with the public.
- Use of natural biocontrol methods for a non-chemical form of invasive and noxious weed control.

### **Planting Protocols**

- To conserve water and minimize the use of fertilizers, pesticides and herbicides, native and adapted plants are selected that will thrive in established conditions.
- Consider low water use flowers, trees, shrubs, and groundcovers when installing landscaping or reseeding.
- Utilize plants with natural resistance to pests or that have a higher establishment success rate to reduce invasion by weeds.

- Future design of landscaping within parks, open spaces and rights-of-ways will consider site planning and plant selection consistent with the IPM program, maintenance plan and master plan.
- Restore non-turfed areas using native grasses and wildflowers to increase forage for pollinators and reduce the potential for invasive plant establishment.

### **Yard Waste Management Protocols**

- Collect yard waste such as leaves, sticks or other collected vegetation in Waste Management yard waste bins to be diverted from the landfill for compost.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.
- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

### **Mosquito Abatement Program**

Carson City Environmental Health Department (“Health Department”) oversees the mosquito abatement program to keep the community safe from diseases such as West Nile Virus. Public awareness is a high priority for the Health Department as the West Nile Virus has emerged in the Western United States. With public education through flyers, public displays and worksheets, the Health Department aims to provide the public with awareness related to mosquito populations, how to identify areas of concern, how to eliminate possible breeding areas and use preventive maintenance for mosquito problems. Each spring, the Health Department completes an aerial application of granules over larger areas of wetland habitats, including Empire Ranch Golf Course, Old Buzzy’s Ranch, the Linear Ditch and Riverview Park. Approximately ten pounds of granules per acre are applied with the aerial spreading. The treatments are slow release and provide 21 days of coverage. Typically, a second application is required in mid to late summer to continue to keep the community safe. Additionally, treatment is completed using slow dissolving briquets in surface water receptacles where on-going control is necessary, such as in catch basins, ponds, lakes, roadside ditches. The briquets provide 30 days of coverage. The Health Department also encourages homeowners take responsibility for continuing mosquito prevention in their own homes and decorative ponds and suggests several steps to reduce the possibility of breeding mosquitoes such as using mosquito fish, *Gambusia affinis*. The mosquito fish are also used in appropriate areas on City-owned property as a non-chemical option for controlling mosquito populations to reduce West Nile Virus risk.