

## MEMORANDUM

**To:** Randy McCaslin, Deputy City  
Manager (City of High Point)

**Date:** June 6, 2016

**Cc** Terry Houk, Lee Tillery, and Lee  
Burnette (City of High Point)

**Subject:** Water Supply Watershed  
Protection Plan Update – Buffer  
Management Recommendations

**From:** Trevor Clements, Kimberly  
Brewer (Tetra Tech)

### 1.0 BACKGROUND

The City of High Point adopted a Watershed Management Plan in the mid-1980s for protection of its water supply reservoirs – City Lake and Oak Hollow Lake. Although the existing High Point Watershed Management Plan provides a foundation for protection, much has changed or been learned since its development and the City, with the assistance of Tetra Tech, is updating the Plan to meet its intended purpose.

Given recent land-disturbing activities on the City-owned buffer area surrounding the lakes and confusion regarding the degree to which these activities comply with the existing Watershed Management Plan, the City wishes to focus this Watershed Plan update on operational, compliance, and enforcement procedures in these areas, with an overarching goal of creating a plan that is clear, transparent, and enforceable regarding management of the buffers around the lakes. The next phase of Plan Update will focus on wider watershed management issues for source water protection.

This memo highlights recommendations for the City to consider in the Plan update based on work with City Departmental staff to-date, with a particular emphasis on the land adjacent to the lake. It considers both City-owned conservation area and actively managed parkland as well as privately owned land adjacent to the lake. The **fifteen management recommendations** are numbered below. Some of the management options have *specific language recommended for the Watershed Plan Update*; this language is in italic.

The management recommendations for City-owned land and privately-owned land are drawn from programs, practices, and standards implemented by select cities in North Carolina and generally accepted industry best management practices (for example golf course water quality practices recommended by the Audubon Society). The City programs and experience include Asheville, Burlington, Durham, Greensboro, Mecklenburg County, Orange Water and Sewer Authority (Chapel Hill/Carrboro), and Winston-Salem. A number of options were discussed with representatives from the City's Public Services, Parks and Recreation, and Planning and Development Department who have responsibility for implementing City regulations and programs governing land adjacent to the Lakes to develop the recommendations contained in this memo.

It is important to note that the management options for new development in the water supply watersheds are, for the most part, framed by state regulations for water supply watershed protection and sedimentation and erosion control which are administered by the City. Based on state legislation enacted in 2015, these regulations are not to be exceeded except where local ordinances were adopted before 1997.

Building property owner and citizen support for water supply protection and associated requirements is critical. Therefore, the Memo also highlights management recommendations for educating and engaging citizens regarding allowed activities adjacent to the lakes.

After the City Manager and City Council review the management recommendations outlined in this memo, staff will work with Tetra Tech to present and discuss the recommendations with community stakeholders and the general public. Based on the advice received during public outreach, recommendations will be revised and incorporated into a Draft Water Supply Watershed Protection Plan update. The Draft Plan will be subject to wide community review and discussion.

## 2.0 LAND ADJACENT TO CITY LAKE AND OAK HOLLOW LAKE

The City and State of North Carolina have established a Tier 1 Critical Area adjacent to the lakes that includes land within 200 feet of the lakes. The Tier 1 Critical Area is the area where risk associated with pollution is greater than the remaining portions of the watershed. In essence, this Tier 1 Critical Area is to provide a protective zone or buffer around the lakes. The state and local regulations governing the Tier 1 Critical Area stipulate that there "shall be no built-upon area" allowed in this 200 foot zone adjacent to the lakes "except for water-dependent structures". A Tier 2 Critical Area was also established within 750 feet of the lakes that does allow limited built upon area, however requires a permit for any land disturbance (Figure 1).

The City currently owns 81% of the land within 200 feet of City Lake (189 owned of 234 acres) and 77% of the land within 200 feet of Oak Hollow Lake (355 owned of 542 acres). The City and private land adjacent to City Lake and Oak Hollow Lake can be divided into three categories: City-owned conservation land; City-owned park land, including the marina and golf course; and privately-owned land. Each subsection below lays out management recommendations. The section begins first with management recommendations for more clearly defining the lake protective buffer zone in the City code and associated regulations.

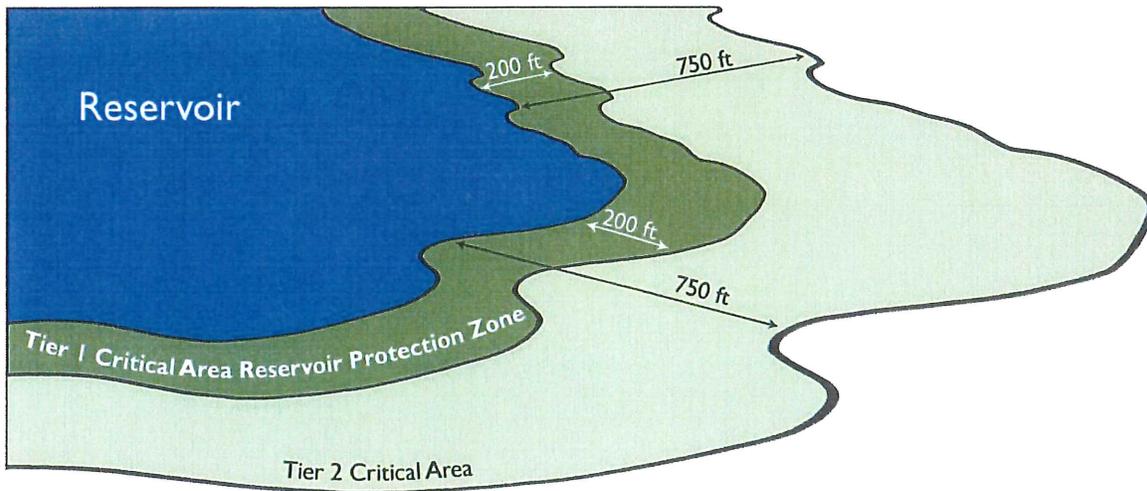


Figure 1. Tier 1 and 2 Critical Area Zones for Water Supply Protection

## 2.1 CLARIFYING THE LAKE BUFFER AREA AND ASSOCIATED REGULATIONS

Interviews with staff found there is lack of a common understanding or agreement about what the term “buffer” means and what regulations apply. Due to the history of the Watershed Management Plan, some staff refer to the buffer as a 50-foot area around the lake that must be undisturbed and includes City-owned property and steeply sloped areas. Some staff refer to the 50-foot surface water buffer requirement in the Watershed Protection Ordinance where generally no new development or activity is allowed for the first 30 feet and some disturbance in the next 20 feet (for a total 50-foot buffer); however, there are some exceptions and opportunities for variances for these surface water buffers. Finally, some staff refer to the buffer as all City-owned property around the lake, which in most areas extends 200 feet. As mentioned above, the City code also refers to a Tier 1 Critical Area where there is to be no built upon area within 200 feet of the reservoirs.

In referencing the protective buffer intended by the Tier 1 Critical Area, one recommended management option is to amend the City’s Watershed Protection Ordinance, naming the Tier 1 Critical Area the “Reservoir Protection Zone” to distinguish this area around the lakes from the surface water buffers referenced in Section 6.2.6.C that apply to all waterbodies in the watershed (streams, ponds, lakes), and more clearly state the variance procedures and other existing requirements. A second recommendation is to revise the Parks and Recreation Rules which refer to the City-owned land adjacent to the Lakes as “buffer” and rename this area “Reservoir Protection Zone”. A final recommendation is for the City to post the boundary of City-owned property adjacent to the Lakes so that staff and property owners know where public land begins. Below are specific recommendations for clarifying what is meant by “buffer” and associated regulations.

### Recommendation 1: Revise Existing City Watershed Protection Ordinance to Clarify “Buffer”

- Revise existing Watershed Ordinance reference to Watershed Critical Area Tier 1 Reservoir Protection Zone. (High Point Development Ordinance Section 6.2.9.A.2(b)(1))

- Amend the High Point Development Ordinance Section 6.2 Watershed Protection to establish a disclosure statement requirement for the Tier 1 Reservoir Protection Zone, similar to what occurs currently in the City's Airport Overlay District. The purpose of the statement would be to inform current and future owners of the restrictions and responsibilities of owning land in Tier 1 Reservoir Protection Zone and prevent further encroachment onto City property that protects the reservoirs. The education process would occur by the City mailing a letter to property owners in Reservoir Protection Zone informing them of the land use and development restrictions associated with the property and making the owner aware of the N.C. Residential Property Disclosure Act (Section 47E of the North Carolina General Statutes). Once notified by a local government in regards to a land restriction, the act requires that landowners and their agents provide a written disclosure statement to all prospective purchasers. The written disclosure statement would state that land in the Tier 1 Reservoir Protection Zone is subject to land use and development restrictions that protect the water supply reservoir. It would refer them to the City's Watershed Protection regulations and the Planning and Development Department for more information on the specific land use and development restrictions applied to their property.
- Cross reference High Point Development Ordinance Section 6.3 Soil Erosion and Sediment Control which requires all land disturbing activities within Watershed Critical Area Tier 1 Reservoir Protection Zone and Tier 2 to have a soil erosion and sedimentation control plan and land-disturbing permit.

### **Recommendation 2: Revise Parks and Recreation Department Rules and Regulations**

Clarify General Rule #14 as follows.

*14. Water Supply Regulations Relative to Reservoir Protection Zones Buffers. A Reservoir Protection Zone has been established around the City Municipal Lakes (Oak Hollow or Arnold J. Koonce, Jr. City Lake). For the purposes of these regulations, the Reservoir Protection Zone is 200 feet from the normal pool elevation of the Lakes, and any City-owned land adjacent to and extending beyond 200 feet from the normal pool elevation. No person shall maintain or alter City property in the reservoir protection buffer zone of the City Municipal Lakes (Oak Hollow or Arnold J. Koonce, Jr. City Lake), except as authorized by the City Parks and Recreation Department. This includes, but is not limited to, the following: distribution of chemicals, cutting, trimming, mowing and other modification or disturbance of City property. City-owned property in the Reservoir Protection Zone ~~buffer property~~ may not be used as a storage area for dog lots, playground equipment, lawn furniture, and yard waste disposal, or any other material or equipment.*

### **Recommendation 3: Post the Boundary of City-owned Property Adjacent to the Lakes**

One of the most important recommendations is for the City to post the boundary of City owned property adjacent to City Lake and Oak Hollow Lake. Currently citizens do not have a good way of determining where their property ends and City property begins, thus can inadvertently clear or disturb city-owned conservation land intended for water supply protection. The posting should include both signs and painting of trees to demark the boundary. Signage should read: **Reservoir Protection Zone owned by the City of High Point. Please protect your drinking water supply. No Trespassing. No Removal of Trees or Land Disturbance Allowed.**

The City should prioritize posting of signs in areas where there has been clearing of city conservation land and where there are residences near City-owned property. After any new development adjacent to City owned property, the City should post its boundary.

#### **Recommendation 4: Provide Easy to Use GIS Link Reservoir Boundaries**

The City has existing GIS layers of the Reservoir Protection Zone, City-owned property, and private property boundaries near the Lakes. The City's website could include an easy to use GIS overlay map of the land adjacent to the Lakes for staff and property owners to use as a reference.

## **2.2 CITY-OWNED CONSERVATION LAND**

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The City currently owns 189 acres of conservation land around City Lake (80% of the land within 200 feet of the Lake) and 355 acres around Oak Hollow Lake (65% of the land within 200 feet of the Lake). Below are recommendations for management of this conservation land, divided into "allowed activities", maintenance, inspection, and inspection/maintenance access.

### **Citizen Allowed Activities on Conservation Land**

#### **Recommendation 5: Adopt Policy Regarding Citizen Allowed Activities**

In order to protect city-owned conservation land adjacent to the reservoirs, it is recommended that the City implement the following policy and procedures:

**No authorized citizen use** of conservation land. No trespassing signage, no trespassing laws reinforced in letters to nearby property owners, park rules, city website and other documents.

### **City Maintenance**

#### **Recommendation 6: Adopt City Policy and Procedures Regarding Maintenance**

The City of High Point currently generates more disturbance in the conservation area in its cutting of trees and removal of dead trees than found in other jurisdictions researched. In order to protect the city-owned conservation area in the Reservoir Protection Zone, it is recommended that the City adopt and implement the following maintenance policy and procedures:

*Limited disturbance allowed in the City-owned Conservation Area. The City, or an agent of the city, may remove trees leaning onto private property and remove dead trees. In cases where forest has been removed, the City or an agent of the City may replant trees. Removal of such trees must use the following practices:*

- *Forest vegetation shall be protected and maintained. Removal of trees leaning onto private property and removal of dead trees is allowed in accordance with the following:*
- *Tracked or wheeled vehicles are permitted for the purpose of selective timber harvesting where there is no other practical alternative for removal of individual trees provided activities comply with forest practice guidelines for water quality as defined in 15A NCAC 011 .0101 through .0209, and provided no equipment shall operate within the first 10 feet immediately adjacent to the stream except at stream crossings designed, constructed and maintained in accordance with Rule 15A NCAC 011 .0203;*
- *Soil disturbing site preparation activities are not allowed; and*
- *Trees shall be removed with the minimum disturbance to the soil and residual vegetation.*

Note: The above best management practices are adapted from the NCAC Rule Jordan Water Supply Nutrient Management Strategy: Protection of Existing Buffers, best management practices for forest harvest practices in zone 1 of a riparian buffer.

As noted above, best management practices would also include marking the Reservoir Protection Zone boundary with paint and/or posting signs at intervals along boundary. At certain locations, signs could be posted about the water supply protection benefits of the reservoir buffer area.

### **Recommendation 7: Reforest Cleared Land in Conservation Area**

Identify cleared land in the Conservation Area. Develop and implement a strategic reforestation plan to restore the land and its reservoir protection functions.

## **City Inspection of Reservoir Protection Zone**

### **Recommendation 8: Adopt Inspections Procedures**

*For inspections of the Reservoir Protection Zone, the following management techniques are recommended.*

**Water Quality Monitoring.** *Conduct water quality monitoring, particularly sediment and nutrients, and observe changes. Investigate causes.*

**Satellite imagery.** *Use free access satellite imagery (e.g. Google Earth; LANDSAT, and or SENTINEL) to monitor disturbance of the Reservoir Protection Zone. Conduct this monitoring annually to biannually.*

**Citizens' Reports.** *Inspect potential violations based on citizens' reports and complaints. This would be particularly effective with a sustained citizens/property owners outreach effort. See Section 3, Regulations Governing Private Property in the Reservoir Protection Zone, for specific city departments citizens should contact for different potential complaints or code violations.*

**Boat patrols.** *Use regular boat patrols of the Lake to visually inspect the reservoir buffer for vegetation removed. Develop schedule for how often to patrol. Educate Parks and Recreation staff on boat patrol inspections needs and procedures.*

**Property Owner Visit.** *As needed.*

## **Inspection and Maintenance Access**

### **Recommendation 9: Adopt Inspections/Maintenance Access Protocols**

The following is recommended language to include in the Water Supply Watershed Protection Plan update regarding practices to use for inspection and maintenance access.

*The following can be used to access the Reservoir Protection Zone for inspection and maintenance.*

*First, use boat patrols for visual inspections and access the reservoir buffer via the Lake where practicable.*

*Use streets and City-owned land to gain access to the Reservoir Protection Zone. The City shall create a map of preferred access routes so that employees will know how to access an area when needed.*

*If public access routes are not available, obtain a temporary access easement/agreement from the property owner.*

*For new development and redevelopment in proximity to the reservoir buffer, require a permanent access easement.*

## 2.3 CITY-OWNED PARK LAND

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Below are management recommendations for the City park land in the Reservoir Protection Zone, including the golf course and marina area.

### Golf Course

Oak Hollow Golf Course opened in 1972 and has become a top-ranked golf course in the country. Forty-seven (47) acres of the golf course are located in the Oak Hollow Lake Reservoir Protection Zone area adjacent to the Lake. Therefore it is critical to use best management practices that balance recreation with protection of the Lake.

#### **Recommendation 10. Implement the Audubon International Environmental Management Practices for Golf Courses**

The Audubon's International Environmental Management Practices for Golf Courses include environmental planning, wildlife and habitat management, chemical use reduction and safety, water conservation, water quality management, and outreach/education. See attached Fact Sheet.

Although all of these environmental management practices will help protect Oak Hollow Lake, the most important practices to implement are those for water quality management and outreach/education. Highlights of these practices are listed below. Those in **bold** indicate practices already being implemented by the City; it is recommended that these practices continue. Additional practices recommended should be evaluated in light of water quality benefits, cost to implement, and potential impact to the golf course operations.

#### Water Quality Management

##### *Best Management Practices and Structural Controls*

- *Eliminate/mitigate erosion to streams, ponds and the Lake.*
- *Raise mowing heights along in-play shorelines to slow and filter runoff.*
- *Reduce the potential for nutrient loading to water bodies by employing BMPs such as slow release fertilizers, spoon feeding, and filtering drainage through vegetative or mechanical filters.*
- *Calibrate and adjust fertilizer and pesticide equipment.*
- *Maintain and clean maintenance equipment in a manner that eliminates the potential for water body contamination (see chemical use management practices).*
- *Store all chemicals in a manner that eliminates the potential for contamination of water bodies (see chemical use management practices).*
- *Mix and load pesticides in an area that guarantees spill containment (see chemical use management practices)*
- *Handle and apply fertilizers, pesticides, and other chemicals in a way that eliminates potential for contamination of water bodies (see chemical use management practices).*

- **Dispose of all chemical containers and all waste materials in a manner that eliminates the potential for contamination of water bodies.**
- *Employ environmentally-sensitive plant management techniques within 25 feet of all water bodies and well heads to minimize nutrient and chemical inputs.*
- *Eliminate potential chemical runoff and drift near waterbodies by designating “no-spray” zones, using spot treatments, increasing thresholds for pest problems, and taking the weather into account prior to application.*
- *Reduce/eliminate the need for chemical algae control in ponds through proper aeration, nutrient reduction, bio-filters, vegetation management, or bio-controls.*
- *When aquatic weed management is required, seek a physical solution (e.g. hand removal of plants) first.*

#### Monitoring

- **Visually monitor water bodies for water quality problems, such as erosion, algae, aquatic weed growth, fish kills, sediment buildup as part of regular integrated pest management scouting activities.**
- **Report water quality problems immediately to supervisor for appropriate action.**
- *Establish baseline data for representative water bodies and the Lake that may be adversely impacted by the golf course operations.*
- *Keep written records of monitoring activities and control measures taken.*

#### Outreach/Education

- **Invite employees, patrons, and community members to help stewardship projects, as appropriate (lake clean-up by kayak group, boy scouts, girl scouts, and other groups).**
- *Communicate environmental goals and projects to patrons, staff, and golf course decision makers.*
- *Provide regular updates about progress and accomplishments.*
- *Communicate with neighboring property owners, homeowners’ associations, and community groups to inform them of the course’s involvement in the stewardship projects.*

## Marina

Currently the City operates two marinas, one at Oak Hollow and one at City Lake. There is also a launching area at Oak Hollow, Sailboat Point. Boat marina operations, if not properly managed, can increase the potential for shoreline erosion, nutrients and hazardous liquids loading to the lakes in stormwater runoff, and the release of sewage to the lake.

### **Recommendation 11: Implement Best Management Practices for Marina Operations**

Below are recommended best management practices to reduce the impacts of the marinas on lake water quality. Those listed in **bold** are currently being implemented by the City and it is recommended that these practices be continued. Additional recommended practices listed below should be evaluated in light of water quality benefits, cost to implement, and potential impact to the marina operations.

#### Shoreline and Streambank

- **“No wake” markers should be used near the shore to prevent boats from gaining excessive speed and creating high energy waves.**
- *Periodically evaluate the need for shoreline and streambank stabilization measures.*

- *Vegetative stabilization is the preferred method of stabilization and should be used except where a serious erosion problem occurs.*
- *If structural controls are needed, methods should be chosen that incorporate revegetation.*
- *Wetland restoration near the shoreline can help reduce erosive wave energy and filter pollutants.*
- *Breakwaters should be properly designed and maintained to protect marina shorelines from wave energy.*

#### Chemical Pollutants from Marina Operations

- ***Perform boat repair and maintenance on concrete pads located as far from the lakes as possible (use maintenance shop).***
- *Construct stormwater treatment BMPs to treat stormwater runoff from the work and parking areas. Potential BMPs include grassed filter strips, grit/oil traps, and bioretention areas.*
- *Regularly sweep or vacuum hull maintenance areas, roads, driveways, and parking lots.*

#### Solid and Fish Waste

- ***Maintenance crews should regularly transfer trash to dumpsters so that receptacles do not overflow.***
- ***Discourage hull maintenance activities while boats are in the water. In-water maintenance should be limited to propeller work and hull inspection that do not generate solid waste.***
- *Do not allow fish cleaning at the marinas; communicate that patrons are expected to clean fish and dispose of fish at home. Or, at minimum, ensure the proper disposal of fish waste to prevent excessive nutrient concentrations and low dissolved oxygen in marina waters. This could include a sealed dumpster with a closing top as well as other measures.*
- *Ensure the proper disposal of solid waste to prevent release of hazardous materials into the lake. This could include a sealed dumpster with a closing top as well as other measures.*
- *Provide boaters with trash bags to discourage disposing of waste into the lake.*
- *Provide for hazardous materials collection or educate patrons on the proper disposal of waste. Typical hazardous waste on marina sites include lead acid batteries and used oil filters. Such materials should be stored in a covered location on an impervious surface and transported to a recycling center or disposal facility for hazardous waste.*

#### Hazardous Waste

- ***Train employees on the proper handling and disposal of hazardous liquids.***
- *Ensure fueling stations have proper spill containment and runoff treatment measures, and oil absorption pads to help patrons reduce fuel drips while fueling.*
- *Allow only non-toxic soaps for boat washing.*
- *Provide educational materials and programs for patrons on safe storage and use of hazardous liquids.*

#### Sewage Management

- ***Provide restrooms in convenient locations.***
- ***Regularly inspect and maintain the sewage facilities.***
- *Install audio and visual alarms in case of system failure.*
- *Provide low or no cost dump and pump out stations to discourage patrons from illegally dumping sewage.*

## Parks

In addition to the marina and golf course, the City operates four parks adjacent to Oak Hollow Lake: Oak Hollow Park, Festival Park, North Overlook Park, and Sailboat Point Park. In addition to these parks, the City operates a tennis center and campgrounds along the lake shore. These parks and facilities provide a variety of recreational opportunities:

- Festival Park: The park facilities include picnic shelters and a playground. The picnic shelters and grounds host outdoor concerts, boat racing, Fourth of July celebrations, festivals, company picnics, and a variety of smaller events.
- North Overlook Park: Located next to Festival Park, the facilities include picnic shelters with a scenic view of the lake.
- Oak Hollow Campgrounds: The campground facilities include two modern bathhouses, boat docks, washers and dryers, a camp store, outdoor swimming pool, bank fishing, picnic shelter, and children's play area.
- Tennis Center: This facility offers 10 outdoor and 4 indoor tennis courts.
- Sailboat Point Park: The park facilities include picnic shelters with a view of the lake and a marina for sail boating.

The recommended BMPs for the Oak Hollow golf course also apply to the Oak Hollow park facilities. In addition, a subset of the recommended marina BMPs apply (again the **bold** indicates the practice is already being implemented):

### Shoreline and Streambank

- *Periodically evaluate the need for shoreline and streambank stabilization measures.*
- *Vegetative stabilization is the preferred method of stabilization and should be used except where a serious erosion problem occurs.*
- *If structural controls are needed, methods should be chosen that incorporate revegetation.*
- *Wetland restoration near the shoreline can help reduce erosive wave energy and filter pollutants.*

### Solid and Fish Waste

- ***Maintenance crews should regularly transfer trash to dumpsters so that receptacles do not overflow.***
- *Do not allow fish cleaning at the marinas; communicate that patrons are expected to clean fish and dispose of fish at home. Or, at minimum, ensure the proper disposal of fish waste to prevent excessive nutrient concentrations and low dissolved oxygen in marina waters. This could include a sealed dumpster with a closing top as well as other measures.*
- *Ensure the proper disposal of solid waste to prevent release of hazardous materials into the lake. This could include a sealed dumpster with a closing top as well as other measures.*
- *Provide for hazardous materials collection or educate patrons on the proper disposal of waste, including lead acid batteries and used oil filters. Such materials should be stored in a covered location on an impervious surface and transported to a recycling center or disposal facility for hazardous waste.*

### Sewage Management

- ***Provide restrooms in convenient locations.***
- ***Regularly inspect and maintain the sewage facilities.***
- *Install audio and visual alarms in case of system failure.*

## 3.0 PROPERTY OWNERS

This section highlights responsibilities of property owners adjacent to and part of the Reservoir Protection Zone, and recommendations for communicating with such owners.

### 3.1 REGULATIONS GOVERNING PRIVATE PROPERTY IN THE RESERVOIR PROTECTION ZONE

While a number of local, state, and federal regulations may apply to land disturbance and development in the City of High Point, four key ordinances and laws govern disturbance and development of private property in the Reservoir Protection Zone. The updated Plan should briefly summarize these ordinances and laws, provide references and/or links to where they can be found, and the department that has authority for administration of the regulation. There should also be a note that other City zoning and development regulations apply. Suggested text to include in the updated Plan is as follows:

#### **Recommendation 12: Clarify Key Ordinances that Govern Disturbance of the Reservoir Protection Zone**

*Any New Development and Redevelopment (including additions of impervious area to an existing lots)*

*Must comply with the High Point Development Ordinance Section 6.2 Watershed Protection. This includes but is not limited to:*

- *Maintaining a 200-foot Reservoir Protection Zone with no built upon area or disturbance unless variances is obtained by the applicant.*
- *Slopes greater than 15 percent adjacent to a waterbody shall remain undisturbed.*
- *For portions of the property located outside the Reservoir Protection Zone, the Watershed Protection Ordinance has density and built upon area restrictions, steep slope and stream buffer protection, and prohibited uses of the property.*

*Contact: City Planning & Development Department for information regarding these and other applicable development regulations.*

*Land Disturbance within 750 Feet of the Lakes*

*Must comply with the High Point Development Ordinance Section 6.3 Soil Erosion and Sediment Control. No person shall initiate any land disturbing activity within 750 feet of the lakes without a soil erosion and sedimentation control plan and a land-disturbing permit must be approved by the City. The soil erosion and sediment control plan shall include but not be limited to:*

- *Identifying critical areas vulnerable to damage and erosion;*
- *Limiting time of exposure of disturbed area to minimize erosion;*
- *Establishing land disturbance buffer zones in proximity to lakes and water courses;*
- *Grading and maintaining groundcover to restrain erosion; and*
- *Providing stormwater control best management practices during land disturbance to prevent erosion and sedimentation.*

Contact: City Engineering Services Department

#### Tree Removal

Must comply with High Point Development Ordinance Section 6.1 Public Tree Protection. This ordinance makes it a violation of city code to cut a tree on any city owned property without proper authorization. The violator may be fined and required to plant 2 trees for every tree removed.

Contact: City Planning & Development Department

#### Disturbance of Existing Stream Buffer

Must comply with Randleman Lake Water Supply Nutrient Strategy: Protection of Existing Riparian Buffers and Mitigation of Existing Riparian Buffers Rule 15A NCAC 02B .0250 and .0252, respectively. Throughout the Oak Hollow and City Lake watersheds, existing forested buffers must be maintained, 50 feet along each side of the water body. This applies to all areas, including existing developed areas and undeveloped areas, even if no development or land disturbing permit has been approved for the site. The North Carolina Division of Water Quality has authority for administering and enforcing these requirements.

Contact: City Planning & Development Department/North Carolina Division of Water Quality

The City owns 2,566 acres in the Oak Hollow and City Lake Watersheds outside of the Reservoir Protection Zone area. To show leadership by example, it is recommended that the City adopt a policy that it will adhere to the above regulations on all of its property, and to the extent practicable will use Low Impact Design in development and redevelopment of such property. Low Impact Design techniques are discussed in the High Point Development Ordinance Section 6.2 Watershed Protection.

## Property Owner Responsibility

### Recommendation 13: Clearly Communicate Property Owners' Responsibilities.

The City should communicate the following responsibilities to property owners which own land adjacent to and in the Reservoir Protection Zone:

1. *Ensure that vegetative cover is maintained within the Reservoir Protection Zone in compliance with the applicable regulation(s), except those areas developed for active recreation (marina and golf course).*
2. *Ensure that the Reservoir Protection Zone remains undisturbed and not built upon except as allowed by the applicable regulations.*
3. *Maintain any required Reservoir Protection Zone signage.*
4. *If a tree from the Reservoir Protection Zone is leaning onto private property and endangering life or property, contact the Planning & Development Department so the City's Urban Forestry Committee can assess the maintenance needs. Only City staff or their representative may perform maintenance on City-owned land within the protection zone using maintenance techniques in Section 2.2 City Owned Conservation Land-City Maintenance above.*
5. *On private property in the Reservoir Protection Zone, if a citizen wishes to disturb land or remove a tree on his or her property, the citizen should contact the city to ensure compliance with all applicable regulations and to review best management practices which will protect the drinking water supply.*
6. *If vegetation is removed illegally on City-owned land within the Reservoir Protection Zone, the violator will be required to revegetate the property involved. If trees are removed, this will require paying for the planting of trees in accordance with the maintenance techniques in Section 2.2,*

*City Maintenance, above. Additionally, property owners may have to pay fines for clear cutting or other disturbance.*

7. *Upon the transfer of ownership of property with Reservoir Protection Zone requirements, ensure that the protection zone and riparian buffers are clearly identified on record plats, title surveys and deeds. In addition, ensure that the new property owner is fully informed of all Reservoir Protection Zone requirements. Provide a disclosure statement of watershed protection regulations to all prospective purchasers of the property.*
8. *If a potential Reservoir Protection Zone violation is observed, it should be reported by contacting X.*

## Communication with Property Owners

### Recommendation 14: Implement Multi-Faceted Outreach Program

*It is important to communicate often with property owners adjacent and in proximity to their drinking water supply reservoirs. All of the following are recommended to build support and understanding of the Reservoir Protection Zone requirements.*

**Landowner Letter.** *For all landowners within 750 feet of the reservoirs, send a letter every five years reminding landowners of requirements for the Reservoir Protection Zone area and Tier 2 Critical Area, potential penalties for violations, and ways the City and citizens can be partners in protecting the Reservoir Protection Zone and critical area.*

**Website.** *Develop website link that provides links to regulations, who to contact, how to volunteer, how to access most recent satellite imagery overlay property boundaries, events, etc.*

**Brochure.** *Provide brochure to all development applicants adjacent to or in the Reservoir Protection Zone area covering what is required. Require developer to give brochures to all new homeowners. Post brochure on the website. Use at Town-Hall Style meetings, Earth Day, and other community events.*

**Town Hall-Styled Meetings.** *Send letters to property owners within 750 feet of reservoir inviting them to Town-Hall Meeting (held near the lake). Discuss the City's protection efforts for the water supplies, requirements for landowners in the area, and ways the City and citizens can be partners in protecting the Reservoir Protection Zone.*

**Citizen Involvement in Stewardship.** *Invite citizens and neighbors of the Reservoir Protection Zone to participate in stewardship activities. This could include posting signs, tree planting, adopting a portion of protection zone for zone watch, stream or lake monitoring, etc. This could include a cost-share program for retrofitting developed property in the Reservoir Protection Zone area (or any Critical Area) with Low Impact Development BMPs, particularly property that was developed before stormwater controls were required. One local government researched has a 90%/10% cost-share program for installing such BMPs in their drinking water supply watershed areas.*

### Recommendation 15: Communicate with Adjacent Jurisdictions.

*The Town of Jamestown and a small portion of Guilford County's jurisdiction also border City Lake. The City should reach out to appropriate officials with these jurisdictions to present the thirteen recommendations above for the Reservoir Protection Zone, and encourage them to pursue similar actions as the City in order to better protect City Lake.*