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Orange Water and Sewer Authority
Proposed Water Conservation Standards
February 27, 2003

Article I – Purpose and Definitions

I. A. Purpose

These Water Conservation Standards are enacted by the Orange Water and Sewer Authority (OWASA) for the purposes of:

1. Reducing the rate of increase in overall water use through year-round water conservation practices that will help maximize the community's existing and planned water supply sources and help reduce seasonal peak day demands that result in the need for costly expansion of water treatment, storage, and transmission facilities. Such year-round practices shall include:

    a. Reducing indoor water waste by encouraging the installation and maintenance of ultra-low flow toilets, faucet aerators, low-flow showerheads and similar devices, as well as other creative and commonsense indoor conservation practices.

    b. Reducing irrigation and irrigation-related water waste without sacrificing landscape quality through the cultivation of lower water use plants; improved landscape design and planting practices; more efficient watering practices; and improved irrigation system design and maintenance.

    c. Increasing the use of reclaimed wastewater and stormwater for irrigation and other uses that do not require water of potable quality.

2. Providing an orderly process for reducing community-wide water demands during periods of drought or other naturally occurring causes of water shortages; and

3. Providing an orderly process for reducing community-wide water demands during periods of water shortages due to natural disaster (other than drought), major OWASA facilities failure, or other unexpected and sudden loss of water supply, treatment, or distribution capacity that constitutes a water supply emergency.

I. B. Definitions

For the purpose of these Standards, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

AUTOMATIC CONTROLLER. A mechanical or electronic device capable of operating an irrigation system and its component valve stations according to a pre-determined schedule of irrigation frequency and duration.

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CISTERN. A tank or container, typically located underground, for the storage and subsequent reuse of rainwater collected from rooftops or other impervious surfaces that would have otherwise evaporated or drained off the premises.

DRIP IRRIGATION. The application of irrigation water through drip emitter devices at low pressure, volume, and velocity near or at ground level in order to minimize runoff and evaporative losses. Drip irrigation emitters are typically used for irrigating non-turf vegetation and release water in the range of 0.04 to 0.40 gallons per minute.

EVEN-NUMBERED PROPERTIES. Properties with street addresses that end in even-numbered digits, or other properties so designated for the purposes of these Standards through special arrangements with OWASA.

GRAYWATER. Domestic wastewater collected from household fixtures and appliances, such as washing machines, dishwashers, showers, sinks, and bathtubs, ***but not from toilets or urinals.*** Graywater may only be reused in accordance with practices approved by public health authorities.

HAND WATERING. The application of water for irrigation purposes through a hand-held hose or watering container.

HARVESTED WATER. Precipitation or irrigation runoff collected, stored and available for reuse for irrigation purposes.

IRRIGATION SYSTEM. Any permanently installed system of pipes, hoses, or other conveyance devices and appurtenances that provides water to living plant material through spray heads or other emission devices located at, above, or below the ground surface. For the purposes of these Standards, a sprinkler, soaker hose, or other device connected to its water source via a moveable above-ground garden hose is not considered to be an irrigation system.

LANDSCAPE AREA. That portion of a parcel that contains turf or non-turf vegetation.

LOW-PRECIPITATION BUBBLER. An irrigation head which typically operates within six inches of ground level and delivers water at a rate of less than 0.45 gallons per minute within a radius of less than two feet of the head. Low-precipitation bubblers are typically used for irrigating non-turf vegetation.

MICRO SPRAY. The application of irrigation water through small, low volume sprayer heads in order to minimize runoff losses. Micro sprays are typically used for irrigating non-turf vegetation. Individual micro spray heads typically operate less than

12 inches above ground level and typically deliver water in the range of 0.10 to 0.50 gallons per minute within a radius of five feet or less of the head.

MULCH. A protective covering of organic material, such as sawdust, wood chips, compost, or other vegetative matter, spread on the ground to reduce evaporation and increase water retention.

ODD-NUMBERED PROPERTIES. Properties with street addresses that end in odd-numbered digits, or other properties so designated for the purposes of these Standards through special arrangements with OWASA.

POTABLE WATER. Treated water provided by OWASA that is suitable for drinking, cooking, and other domestic use. Water that is collected indoors in containers from indoor faucets or spigots that would otherwise be discharged into drainpipes while a user awaits the warming of the water for dishwashing, other washing, shaving, bathing, or showering is not considered to be potable water for the purposes of these Standards.

PRECIPITATION RATE. The amount of water applied per unit of time, usually expressed in inches per hour.

PUBLIC RIGHT-OF-WAY. The area of land owned or maintained by municipal, county, or state government primarily for the use of the public for the movement of people, goods, vehicles, or storm water. For the purposes of these Standards, the public right-of-way shall include curbs, streets, sidewalks, and storm water drainage inlets, but shall not include adjacent landscaped areas that may also be located within the legally delineated public right-of-way.

RAIN BARREL: A tank or container, typically located on the ground beneath a roof drainage system, that captures and stores rainwater for subsequent reuse.

RAW WATER. Water drawn from a reservoir or other water source before treatment.

RECLAIMED WATER. Highly treated effluent from a wastewater treatment plant that can be safely used for such non-potable purposes as irrigation, heating/cooling, street cleaning, dust control, firefighting, and other applications that do not require water of potable quality.

RUNOFF. Water which is not absorbed by the soil or landscape to which it is applied. Runoff occurs when water is applied too quickly (application rate exceeds infiltration rate), particularly if there is a severe slope. These Standards do not apply to stormwater runoff which is created by natural precipitation rather than human-caused or applied water use.

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SERVICE AREA. The geographic area in which OWASA provides or is authorized to provide water and/or sewer service.

SHUT-OFF NOZZLE. A device attached to the end of a hose that completely shuts off the flow, even if left unattended.

SOAKER HOSE. A flexible hose designed to emit a trickle of water along its entire length, either through numerous small-diameter (less than 1/32-inch) perforations or through the permeable material of its composition.

SPRAY IRRIGATION. The application of water to landscaping by means of a device that projects water through the air in the form of small particles or droplets.

SPRINKLER HEAD. A device that projects water through the air in the form of small particles or droplets.

UNDERGROUND SYSTEM. An irrigation system with emitters installed beneath the ground surface.

WATER WASTE. The non-beneficial use of OWASA potable water. Non-beneficial uses include but are not restricted to:

a. Landscape water applied in such a manner, rate and/or quantity that it overflows the landscaped area being watered and runs onto adjacent property or public right-of-way; or landscape water applied during periods of rainfall or when soil moisture is already adequate.

b. The use of water for washing vehicles, equipment, or hard surfaces, such as parking lots, aprons, pads, driveways, or other surfaced areas, in such quantities to flow onto adjacent property or the public right-of-way.

c. Water applied in sufficient quantity to cause ponding on impervious surfaces.

d. Water lost through plumbing leaks that can be readily identified and corrected.

XERISCAPING. An approach to landscape design and maintenance that uses small amounts of water but sustains a traditional look through the proper conditioning of soil, the selection of appropriate drought-tolerant plants, generous use of mulch, efficient use of water, and other proven techniques.

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Article II – Water Waste Prohibite d, Penalties for Violating Standards

II. A. Water Waste Prohibited

No person, party, or entity shall use, cause, waste, or permit to be wasted any OWASA-supplied potable water, in violation of the Standards set out herein.

II. B. Penalties

OWASA may discontinue water service to any customer where, after notice of a prohibited use is delivered to the service address, OWASA-supplied potable water continues to be used or wasted in violation of the Water Conservation Standards set out herein.

Article III – Year-Roun d Requirements

III. A. Exterior Use

1. The following outdoor or exterior use requirements shall apply to all customers using OWASA-supplied potable water:

    a. Spray irrigation shall not occur more than three days per week. Even-numbered properties may be irrigated with spray systems only on Sundays, Wednesdays, and/or Fridays. Odd-numbered properties may be irrigated with spray systems only on Tuesdays, Thursdays, and/or Saturdays. All spray irrigation shall occur only between the hours of 8:00 p.m. and 9:00 a.m. These restrictions shall not apply to properties using underground, drip irrigation, micro spray, low precipitation bubblers, hand watering, or where watering of containerized plants and commercial plant stock in trade is maintained for resale.

    b. Regardless of irrigation methods used, no more than one inch of water may be applied to plant material in any given week.

    c. All irrigation systems shall be equipped with automatic controllers that activate the system according to a desired frequency and duration, and shall also be equipped with rain or soil moisture sensors that will prevent irrigation during periods of rainfall or when there is sufficient moisture in the ground for plant health and survival.

    d. All hoses used for hand watering, car washing, or other allowable outdoor uses shall be equipped with shutoff nozzles.

    e. No exterior use of OWASA-supplied potable water shall result in the flow of water onto adjacent property or public right-of-way, and all irrigation systems

shall be designed and maintained to prevent to the extent practicable water from flowing onto paved or other impervious surfaces.

f. Outdoor water leaks on property or facilities of OWASA customers must be repaired within ten (10) days of discovery and notification by OWASA.

2. The use of reclaimed or harvested water for outdoor uses is strongly encouraged. OWASA shall periodically publicize methods of collecting and storing harvested water in appropriate devices, such as rain barrels and cisterns; appropriate practices, such as xeriscaping, drought tolerant landscaping and mulching; and shall otherwise educate its customers on water conservation strategies and techniques.

3. Unless superceded by the declaration of a Water Supply Shortage or Emergency, the year-round requirements of III.A.1.a and III.A.1.b above shall not apply to the following:

a. Outdoor irrigation necessary for the establishment of newly sodded lawns and landscaping within the first 30 days of planting, or watering of newly seeded turf within the first six months of planting.

b. Irrigation necessary for one day only where treatment with an application of chemicals requires immediate watering to preserve an existing landscape or to establish a new landscape.

c. Water used to control dust or to compact soil when alternate methods are not available.

d. Visually supervised operation of watering systems for short periods of time to check system condition and effectiveness.

e. Water applied to prevent or abate health, safety, or accident hazards when alternate methods are not available.

f. Water used for construction or maintenance activities where the application of water is the appropriate methodology and where no other practical alternative exists.

g. Water used for firefighting, firefighter training, fire hose testing, fire pumper testing, and other emergency situation mitigation purposes.

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III. B. Interior Use

1. The following indoor or interior use requirements shall apply to all customers using OWASA-supplied potable water:

   a. Restaurants and dining facilities shall serve water only on request of the customer.

   b. Hotels, motels, and other facilities providing sleeping accommodations shall change bed linens only upon request of the customer, or upon customer changeover, or every five days for long-term customers.

   c. The operation of dishwashers and clothes washers only when loaded to their maximum capacity, or at water level settings appropriate for the size of the load being washed, shall be strongly encouraged.

   d. The use of ultra-low flow toilets, tank dams, flow restrictors (aerators) and low-flow showerheads, where not otherwise required, shall be strongly encouraged; and additional indoor conservation practices – as well as devices – shall also be encouraged.

   e. Plumbing systems shall be properly maintained and repaired to prevent water leaks.

   f. Indoor water leaks on property or facilities of OWASA customers must be repaired within ten (10) days of discovery and notification by OWASA.

2. Unless superceded by the declaration of a Water Supply Shortage or Emergency, the year-round requirements of III.B.1. above shall not apply to the following:

   a. Visually supervised operation and flushing of plumbing systems for short periods of time to check system condition and effectiveness.

   b. Water applied to prevent or abate health, safety, or accident hazards when alternate methods are not available.

   c. Water used for construction or maintenance activities where the application of water is the appropriate methodology and where no other practical alternative exists.

3. OWASA shall periodically publicize and otherwise educate its customers on additional methods to conserve the interior use of water.

Article IV – Determination of a Water Supply Shortage or Emergency

IV. A. Drought Condition Shortage

OWASA shall base its determination of existing or potential water shortage conditions on its analysis of reservoir levels, streamflow, existing and anticipated demand, availability of supplemental supplies, as well as other elements of reasonable professional judgment and management. The determination of drought shortage conditions shall be guided by periodic estimates of the risk (i.e., probability) that water stored in OWASA's reservoir system will decline to unacceptably low levels within the foreseeable future. Until improved or alternative criteria are developed, such guidance shall be based on a five percent or greater risk that total reservoir storage will decline to 20 percent or less of total storage capacity within an 18 month period. This guidance shall apply to the initial declaration of a Water Supply Shortage or Emergency and shall inform subsequent declarations of more or less severe Water Supply Shortages or Emergencies.

IV. B. Water Treatment, Storage, or Distribution Capacity Shortage

In addition to conditions caused by drought, OWASA may declare a Water Supply Shortage or Emergency whenever customer demand – as averaged over three consecutive days – exceed 85 percent of OWASA's capability of treating and delivering water. The stage and duration of such a Water Supply Shortage or Emergency shall be guided by the degree to which customer demands approach or exceed OWASA's capacity to meet those demands, and by the degree to which conservation efforts successfully reduce short-term demands.

IV. C. Natural and Man-Made Disasters and Catastrophic Equipment and Plant Failure Shortage

Any other circumstances, including service losses caused by equipment or facility failure, human error, deliberate act, weather, or other natural disaster, which constrain OWASA's water supply, treatment, or distribution capacity to less than that reasonably needed by its customers, shall constitute a Water Supply Shortage up to and including a Water Supply Emergency, requiring immediate action by OWASA.

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Article V – Requir ed Actions Under Water Supply Shortage or Emergency Conditions

In the event of a water supply shortage, OWASA shall, using its best professional judgment, determine which of the following stages is the most appropriate response to the estimated level of risk.

V. A. Water Supply Advisory

A Water Supply Advisory shall represent an alert to the public of a potential shortage and notification that water use restrictions may be imposed if the water supply and/or demand conditions do not improve in the near future. In the event of a declared Water Supply Advisory:

1. No mandatory water use restrictions other than year-round requirements already in place will be implemented.

2. OWASA shall make extensive use of media releases, advertising, and other reasonable means of publicizing the water supply advisory and the need for immediate voluntary conservation.

3. OWASA shall inform the Mayors of Carrboro and Chapel Hill and the Chair of the Orange County Board of Commissioners of its declaration of a Water Supply Advisory.

V. B. Stage One (1) Water Shortage

In the event that OWASA declares a Stage One Water Shortage, OWASA shall advise the Mayors of Carrboro and Chapel Hill and the Chair of the Orange County Board of Commissioners of its declaration and shall request that they issue Proclamations of Water Supply Shortage. Upon OWASA's declaration of a Stage One Water Shortage, the following actions shall be taken with the goal of reducing overall water demand by ten (10) percent:

1. Water use by individually metered residential customer accounts and by individually metered irrigation-only accounts shall be limited to no more than an average of one thousand (1,000) gallons per day during any monthly billing cycle beginning after the declaration of a Water Supply Shortage or Water Supply Emergency and ending while such restrictions are still in effect.

2. Spray irrigation using OWASA-supplied potable water shall not occur more than one day per week with a maximum of one-half inch of water applied to plant material in any given week. Even-numbered properties shall be allowed to spray irrigate only on Tuesdays; odd-numbered properties shall be allowed to spray irrigate only on

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Thursdays. Spray irrigation shall occur only between the hours of 8:00 p.m. and 9:00 a.m. These restrictions shall not apply to the watering of containerized plants and commercial plant stock in trade.

3. Irrigation by underground, drip irrigation, micro spray, low precipitation bubblers, soaker hose systems with automatic shutoffs, or by hand held hoses or watering cans may occur at any time or frequency, but shall be limited to a maximum of one-half inch of water applied to plant material in any given week.

4. No OWASA-supplied potable water may be used to re-fill ornamental fountains, ponds, and like devices.

5. No OWASA-supplied potable water may be used for the routine cleaning or washing of paved areas, such as sidewalks, decks, driveways, roadways, or parking lots. This restriction shall not apply to the pressure cleaning of exterior building surfaces.

V. C. Stage Two (2) Water Shortage

In the event that OWASA declares a Stage Two Water Shortage, OWASA shall advise the Mayors of Carrboro and Chapel Hill and the Chair of the Orange County Board of Commissioners of its declaration and shall request that they issue Proclamations of Water Supply Shortage, if not already issued. Upon OWASA's declaration of a Stage Two Water Shortage, the following actions shall be taken with the goal of reducing overall water demand by fifteen (15) percent:

1. Water use by individually metered residential customer accounts and by individually metered irrigation-only accounts shall be limited to no more than an average of 800 gallons per day during any monthly billing cycle beginning after the declaration of a Water Supply Shortage or Water Supply Emergency and ending while such restrictions are still in effect.

2. Spray irrigation with OWASA-supplied potable water shall not be permitted, except by persons regularly engaged in the sale of plants, who shall be allowed to irrigate their commercial stock in trade.

3. Irrigation by underground, drip irrigation, micro spray, low precipitation bubblers, soaker hose systems with automatic shutoffs, or by hand held hoses or watering cans shall be limited to a maximum of one-half inch of water applied to plant material in any given week.

4. No OWASA-supplied potable water shall be used to re-fill ornamental fountains, ponds, and like devices.

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5. No OWASA-supplied potable water shall be used for washing vehicles, except at commercial or institutional car washes in which at least 50 percent of the water has been recycled

6. No OWASA-supplied potable water shall be used for filling or re-filling empty swimming pools. OWASA-supplied potable water may be used to top off operating swimming pools.

7. No OWASA-supplied potable water shall be used for the routine cleaning or washing of exterior building surfaces, decks, or paved areas, such as sidewalks, driveways, roadways, and parking lots. This restriction shall not apply to the pressure cleaning of exterior building surfaces or decks prior to painting or re-painting that is necessary to protect or maintain the physical integrity of the structure.

8. No OWASA-supplied potable water may be used for fire department training or equipment testing unless required by State or Federal regulations.

V. D. Stage Three (3) Water Shortage

In the event that OWASA declares a Stage Three Water Shortage, OWASA shall advise the Mayors of Carrboro and Chapel Hill and the Chair of the Orange County Board of Commissioners of its declaration and shall request that they issue Proclamations of Water Supply Shortage, if not already issued. Upon OWASA's declaration of a Stage Three Water Shortage, the following actions shall be taken with the goal of reducing overall water demand by twenty (20) percent:

1. Water use by individually metered residential customer accounts and by individually metered irrigation-only accounts shall be limited to no more than an average of 600 gallons per day during any monthly billing cycle beginning after the declaration of a Water Supply Shortage or Water Supply Emergency and ending while such restrictions are still in effect.

2. The use of OWASA-supplied potable water for heating and/or cooling purposes shall be reduced in all but the most essential facilities to the extent allowable in consideration of indoor air quality standards, weather conditions, and health and safety requirements.

3. No irrigation with OWASA-supplied potable water shall be permitted, except via hand held hoses or watering cans. Such irrigation shall not occur more than three days each week, according to the schedule prescribed in III.A.1.a of these Standards; shall be applied to non-turf plant material only; and shall be limited to a maximum of one-half inch of water per week.

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4. OWASA-supplied potable water may not be used for any other outdoor purposes, except for emergency fire suppression or other activities necessary to maintain public health, safety, or welfare.

5. No bulk sale of potable OWASA water will be allowed except for purposes necessary to maintain public health, safety, or welfare.

6. No OWASA-supplied potable water may be used for washing any vehicles.

7. No OWASA-supplied potable water may be used for pressure washing building exteriors.

8. No OWASA-supplied potable water may be used for the flushing or pressure testing of new distribution lines unless that water is returned to the OWASA water supply system through methods approved by OWASA. This restriction shall not apply to the testing of in-building fire control sprinkler systems.

9. No OWASA-supplied potable water shall be used for filling or re-filling empty swimming pools or for topping off operating swimming pools.

10. No OWASA-supplied potable water may be used for fire department training or equipment testing.

V. E. Water Supply Emergency

In the event that OWASA declares a Water Supply Emergency, OWASA shall so advise the Mayors of Carrboro and Chapel Hill and the Chair of the Orange County Board of Commissioners and shall request the issuance of a Proclamation of a Water Supply Emergency. In addition to those applicable measures listed above for a Stage Three Water Shortage, the following actions shall be taken upon OWASA's declaration of a Water Supply Emergency:

1. No OWASA-supplied potable water may be used for any outdoor purposes other than emergency fire suppression or other activities necessary to maintain public health, safety, or welfare.

2. The use of OWASA-supplied potable water for heating and/or cooling purposes shall be reduced in all but the most essential facilities to the extent allowable in consideration of indoor air quality standards, weather conditions, and health and safety requirements.

3. Water service may be discontinued or reduced to designated users or in designated portions of the OWASA service area in order to preserve the availability of water for

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essential public health and safety requirements, such as fire protection, hospitals, clinics, and other critical community needs.