



# **CITY OF LACEY**

## **WATER SHORTAGE RESPONSE PLAN**

**(A Water Utility Demand Management Strategy)**



**Plan Updated: June 2, 2020**

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## **Background**

This Water Shortage Response Plan (WSRP) provides operating procedures to be implemented by the City of Lacey Water Utility in the event of a weather-related water shortage, natural or human-caused disaster, or other water system operating emergency.

The objective of the WSRP is to establish procedures for managing water supply and demand in times of shortage. The WSRP identifies the range of demand reduction actions that are available and defines the mechanism(s) by which decisions will be made during a shortage event. Since each situation has unique characteristics, the WSRP cannot address all of the possible scenarios, or all of the supply and demand management actions that are appropriate to a given situation. For this reason, the WSRP is intended as a framework of actions that will be tailored to meet the specific needs of a shortage situation. It is the goal of the WSRP to maintain essential public health and safety services, and minimize adverse impacts on the local economy, the environment, and the lifestyle of the City's water customers.

## **Overview**

The City of Lacey's water supplies are derived entirely from groundwater sources. For this reason, our water system is not highly vulnerable to short-term drought conditions. Summer drought conditions are a normal part of our annual weather cycle, and measures to meet annual summer demand are addressed in the City's Water Comprehensive Plan, which includes a chapter for the Water Use Efficiency Program.

This WSRP establishes procedures intended for use during unexpected periods of water shortage. There are several scenarios that could result in such a shortage and impair the ability of the City's water supplies to meet demand.

Drought conditions resulting in less than average fall/winter precipitation may decrease recharge to local aquifers. Because of the lag time between drought conditions, recharge and groundwater withdrawal, impacts from this scenario may not be immediately evident. Impacts may become evident in shallow aquifers 6 months to 1 year following below-average rainfall, and would likely be evident following a 1-2 year period of below-average precipitation. In deeper aquifers, it may take years before the impacts of below-normal precipitation were observed.

Unusually warm and dry weather sustained over the summer months also holds the potential to impact water supplies if our usual period of peak demand extends in duration. Effects from this scenario would be immediate.

Finally, unexpected failure of water system components, natural or human-caused disaster, or contamination of some portion of the water supply also might necessitate implementation of the WSRP and/or the Emergency Water Supply Agreement with Olympia. Any combination of these scenarios could prove problematic and require implementation of the WSRP or the Emergency Water Supply Agreement. Specific criteria triggering WSRP implementation are discussed later.

## **Coordination**

The Water Maintenance Supervisor and Senior Water Production Technician have primary responsibility for identifying water system supply and demand conditions that may lead to a water shortage. However, data that reflect daily water demand and current system production potential is routed to other Operations and Water Resources staff as well, any of which may notice conditions of concern. Once a trigger has been identified, a **Water Shortage Response Work Group (WSRWG)** led by the Water Maintenance Supervisor and including the Senior Water Production Technician, Water Resources Specialist, Water Quality Analyst and Senior Utility Engineer will meet to develop recommendations regarding whether the WSRP should be implemented.

If a decision is made to implement the WSRP, the Work group will then hold a meeting with the **Water Shortage Response Plan Team (WSRP Team)**, consisting of Water Resources Manager, Operations Manager, Public Affairs Manager and the Director of Public Works. The WSRP Team will decide what WSRP stage, if any, should be implemented and will carry their recommendation forward to the City Manager. The City Council will be updated regularly as to the status of the situation and may elect to pass a resolution or adopt ordinances to facilitate implementation of the WSRP.

The WSRP Team will consider a variety of factors in their decision-making, including:

- Total supply availability, including interties and groundwater rights
- Operational status of City wells, reservoirs, pressure zones and other facilities
- Rate of decline in aquifer levels compared with normal operating levels
- Time required to implement supply-side enhancements and quantities to be gained
- Weather conditions derived from short- and long-term weather forecasts and modeling of the National Weather Service
- Water demand forecasts identifying normal consumption levels and projected consumption patterns based on available historical data for previous drought periods
- Time required to implement demand reduction measures and quantities expected to be saved
- Estimated margin of safety provided by the demand reduction compared with the level of risk assumed if no action is taken
- Actions to be taken by neighboring jurisdictions (Cities of Olympia and Tumwater) that influence the situation
- Ultimate cost to City customers and equity in demand reduction between customer classes
- Consultation with elected officials, state resource agencies, the county, and other interested parties
- Customer response

Once WSRP implementation has been approved, the WSRP Team will coordinate as necessary with the WSRWG and other departments and staff to implement the Plan.

## Water Shortage Response Plan Stages

The plan involves four stages of phased response, to be implemented as conditions warrant, in an effort to manage water demand when supplies become limited. Stages will be implemented progressively, if timing and conditions allow, providing internal staff, cooperating agencies and the public with reasonable warning that the next stage of response is needed. However, conditions may warrant immediate implementation of an advanced stage without first moving through initial stages. The four stages include a variety of communications, internal operations, and supply-side actions and demand management strategies as appropriate. Supply-side actions are actions that are taken internally to increase or better leverage water supply, e.g. adjusting pressure zones or well call order to better leverage supply or activating the intertie with the Olympia water system. Demand management strategies are actions that encourage or require water customers to use less water. The stages are characterized as follows:

- **Stage 1: Advisory Stage** – Internal evaluation of conditions and coordination are initiated to determine the likelihood of shortage and facilitate next steps. The public is reminded that the WSRP is in place and seasonal or other conditions may warrant its implementation. The public is encouraged to use water wisely.
- **Stage 2: Internal Action Stage** – If supply conditions worsen, the plan moves to the internal action stage. During this stage, the City will implement demand and supply-side actions.
- **Stage 3: Mandatory Stage** – If the internal action stage does not result in needed demand reduction or if conditions worsen, the mandatory stage is implemented. During this stage, the City will implement more aggressive supply-side actions and will limit or prohibit certain uses of water by customers. This stage may involve an enforcement component with fines for non-compliance.
- **Stage 4: Emergency Stage**– This stage is implemented when supply conditions worsen and/or previous demand-reduction actions are not sufficient. Emergency curtailment addresses the most severe need for demand reduction and includes emergency restrictions.

## Equation for Stage Triggers

Water Shortage Response Plan triggers involve a comparison of current water demand to potential production. Triggers are marked when current demand reaches certain percentages of potential production. In that case, the WSRP Team would evaluate whether or not to implement the corresponding stage of the Plan. Meeting or exceeding the trigger is not the sole variable to be considered and alone may not necessitate implementation of the corresponding plan stage.

Definitions for the trigger equation variables follow:

**Useable Source:** A source of potable water supply that can be relied upon to pump water into the system at a moment's notice. Tanks can be drawn down only a certain amount without affecting area pressures. Pumping time is limited by the amount of drawdown within the tanks, thus all well pumps within the water system do not pump for 24 hours. For the purpose of this plan, a pumping time of 22 hours for each useable source will be utilized. (Note: Sources can become unusable due to mechanical/electrical failure, the well water level being too low to the pump, or if water quality concerns render the water unusable.)

**Present Possible Production (P3):** The maximum well pumping time of 22 hours per day which is based on the available standby and operational reservoir storage capacity of the water system, expressed in MGD units. The P3 will be reevaluated by the WSRP Team annually prior to June 1<sup>st</sup>, and the adopted P3 value shall be inserted as Appendix G of this plan.

**Current Demand (CD):** The values reported daily on the revised Weekly Water Log. These values consider water pumped from wells and used from storage the previous day.

**Triggers:**

**Stage 1: Advisory**

Every summer

**Stage 2: Internal Action Stage**

STEP 1 CD = 80% of P3 for 1 day

STEP 2 CD = 90% of P3 for 1 day

**Stage 3: Mandatory Stage**

CD = 95% of P3 for 3 consecutive days; or

CD = 97% of P3 for 1 day

**Stage 4: Emergency Stage**

CD = 100% of P3 for 1 day

**Stage 1: Advisory Stage**

*Objectives*

- Evaluate water supply and demand conditions to determine if further implementation of the WSRP is warranted.
- Initiate internal coordination to evaluate conditions and facilitate further implementation.
- Prepare City staff for a potential water shortage, thereby allowing adequate time for planning and coordination.
- Remind the public to use water wisely. Remind them also that a WSRP exists and can be implemented if it becomes necessary.

*Triggers*

Every summer

*Advisory Stage Actions*

**Coordination**

- The Senior Water Production Technician will compile data on a revised Daily Water Production Report and route the report via email to members of the WSRWG and WSRP Team to keep them informed of current demand and supply conditions.
- The Senior Water Production Technician or other staff will inform the Water/Wastewater Maintenance Supervisor if a trigger has been met or exceeded.
- If a trigger has been met, the Water/Wastewater Maintenance Supervisor will assemble a meeting of the WSRWG to develop a recommendation on whether to implement the WSRP and arrange a meeting with the WSRP Team to present their recommendation. The WSRP Team will decide if further implementation of the WSRP is needed.

**Public Outreach**

- The Water Resources Specialist will develop and distribute a press release reminding the public that summer weather leads to increases in water demands

and encouraging conservation. The message should include a reminder that the City has adopted a WSRP that can be implemented if necessary.

- The Water Resources Specialist will develop a fact sheet outlining the WSRP and provide it to City customer service staff and the public, as requested, to allow for uniform, consistent dissemination of information to the public.
- The Water Resources Specialist will include information regarding relative efficiencies of various irrigation systems and equipment in water conservation messages. The public will be reminded that use of less efficient equipment may be restricted or prohibited in the case of a water shortage.
- Ask the public to follow these specific watering guidelines:
  - Apply no more than one inch of water to landscaping each week.
  - Limit all landscape watering (turf and/or ornamental) to **no more than** three days per week. Residents with odd numbered addresses should water only on Monday, Wednesday and/or Saturday. Residents with even numbered addresses should water only on Tuesday, Thursday and/or Sunday.

## **Stage 2: Internal Action Stage**

### *Objectives*

- Reduce water use to accommodate supply limitations through internal actions
- Forestall or minimize the need for more stringent demand or supply management actions
- Minimize the disruption/inconvenience to customers while meeting demand reduction goals
- Maintain the highest water quality standards throughout the shortage

### *Triggers*

STEP 1: 80% of P3 for 1 day

STEP 2: 90% of P3 for 1 day

### *Internal Action Stage Actions*

#### *Internal Action Step 1*

##### **Coordination**

- Establish regular meetings for the WSRP Team and systematic communications with the City Manager and City Council.
- WSRP Team to establish regular communications with all City departments and staff to keep them up to date on conditions, goals, and City actions.
- WSRP Team will consider current and projected supply conditions and seasonal demand and set demand reduction goals that may be revised as necessary.
- WSRP Team will coordinate use of emergency interties with neighboring water suppliers to increase emergency supply availability and communicate with neighboring water suppliers (Cities of Olympia and Tumwater), state resource agencies, the county, and other interested parties to gauge regional status of supply.
- Contact the Lacey Fire Department to inform them of the situation and request implementation of actions listed in Appendix C.
- Implement staffing reassignments as needed and that may be needed for the Mandatory stage, including staff to enforce mandatory restrictions. See Appendix E for suggested staffing assignments. Initiate planning and preparation for the Mandatory stage.

### **Public Outreach**

- The Water Resources Specialist will begin additional, targeted outreach to commercial customers to remind them to adhere to the watering schedule listed above and/or prepare and implement a curtailment plan that reduces their water use by at least 10%.
- Ask commercial customers to plan ahead for possible implementation of the Mandatory stage. During that stage, they would be required reduce irrigation water use by 25%.

### **Internal Operating Actions**

- The Water Resources Specialist will begin close monitoring of the City's top 20 commercial irrigation consumers for compliance with the odd-even watering schedule.
- Increase water quality monitoring actions as necessary.
- Reduce all operating system water uses (flushing, truck washing, etc.) to essential levels.
- Reduce irrigation at City-owned and managed landscapes. Reduce or eliminate seasonal plantings. See Appendix D for more details regarding management of City parks and landscapes during the Voluntary stage.

### ***Internal Action Stage Actions***

#### ***Internal Action Step 2***

#### **Coordination**

- Technical WSR Team staff will meet to discuss potential supply-side actions based on water supply and demand.

#### **Internal Operating Actions**

- Operations staff will implement recommended changes based on the technical WSR Team staff meeting.
- WSR Team have the option of implementing the emergency water supply agreement with Olympia.

## **Stage 3: Mandatory Stage**

### ***Objectives***

- Achieve targeted demand reduction goals by restricting defined water uses.
- Ensure that adequate water supply will be available during the duration of the water shortage to protect public health and safety.
- Minimize the disruption to customers' lives and businesses while meeting target demand reduction goals.
- Promote equity among customers by establishing clear restrictions that affect all customers.
- Ensure water quality remains at the highest level possible.

### ***Triggers***

95% of P3 for 3 consecutive days; or  
97% of P3 for 1 day

### ***Mandatory Stage Actions***

#### **Coordination**



- The WSRT, with approval from the Public Works Director, will recommend to the City Manager, the move to the Mandatory Stage, and adopt mandatory restrictions. The WSRT will recommend the nature, scope and timing of restrictions.
- Implement water use restrictions, as developed by the WSRT. The following list serves as the baseline for water use restrictions. The exact restrictions used will depend on the situation and may change as the severity of the situation changes. However, this list should be used as the starting point, with additional, more stringent restrictions put in place as necessary:
  - Limit outdoor watering to 2 days per week, based on customer address:
    - Odd address: can water WEDNESDAY and SATURDAY only
    - Even address: can water THURSDAY and SUNDAY only
    - No watering on MONDAY, TUESDAY or FRIDAY
- Prohibit all watering during the warmest hours of the day, between 9 am and 7 pm.
- Prohibit use of outdoor ornamental fountains using potable water.
- Prohibit car washing except at commercial car wash facilities that recycle water.
- Prohibit washing of sidewalks, streets, decks or driveways. Only waterless means of cleaning these areas are allowed during this stage.
- Limit pressure washing of buildings to situations that require it as part of a scheduled building rehabilitation project (e.g. painting).
- Prohibit water waste, including untended hoses without shutoff nozzles, obvious leaks, and water running to waste, such as sprinkler/irrigation water hitting paved areas.
- Exemptions from restrictions might include:
  - Ball fields and playfields may be watered at the minimum rate necessary for safety purposes and dust control.
  - Landscapes installed within the previous 12 months are exempt from watering bans if such bans would result in significant property damage.
  - Customers with special medical needs, such as home dialysis, will be exempted from any emergency restrictions, provided these customers are included on the City's dialysis notification list or they notify the City of such a need. Their exemption will not apply to outdoor water use.
- Implement the process for receiving, recording and responding to reported violations of restrictions. Enforcement procedures will be implemented to assess fines where mandatory restrictions are not followed (see Appendix B). The WSRT will review and process all requests for exemptions from mandatory requirements. See Appendix F for recommended process.
- Increase enforcement actions in accordance with the applicable ordinance approved by City Council.
- Notify the Police Department regarding enforcement of curtailment actions and coordinate with them regarding the need for additional enforcement assistance.
- Work with the Lacey Fire Department to ensure that their operations and maintenance activities are consistent with actions listed in Appendix C for the Mandatory Stage.
- Restrict hydrant usage to essential purposes, including recall of hydrant meters previously issued. Require use of best management practices to reduce water use, meet operational needs, and provide for dust control.
- Work with the City's Community Planning and Development Department to defer landscape installation requirements until the shortage is over.

- Evaluate resources and plans for moving into the Emergency Curtailment stage. As appropriate, begin preparations.

### **Public Outreach**

- The public will be notified immediately using one or more of the methods listed below. The WSRT will decide which method(s) will be most appropriate and effective based upon the specific situation:
  - Automated phone calls using the City’s choice of automated phone call services
  - Directed phone calls to the City’s highest water users
  - Hand deliver pamphlets to households
  - Use Public Works Reader Boards on College St, Martin Way, and Pacific Avenue
- When feasible, include some or all of the following information when communicating the restrictions to the public:
  - Scope and nature of mandatory restrictions
  - Reasons for imposing restrictions
  - Demand reduction goals and ways to achieve those goals
  - Pending additional restrictions if goals not met
  - Enforcement mechanisms and fines
  - Projections for how long restrictions will be in place
- Provide area landscape management and property management companies directly with water use restriction information.
- Contact irrigation customers using potable water and inform them that the City may shut off their irrigation meters in the event of an extreme water shortage situation.
- Post updated status reports on the City web site
- Establish a “Customer Hotline” or similar for residents to report violations of restrictions

### **Internal Operations Actions**

- City-owned property irrigation will be restricted as proposed in Appendix D and will meet or exceed irrigation reduction goals being asked of the public.
- Enhance water quality monitoring actions as necessary.
- Fleet vehicles will be washed only at commercial facilities that recycle water and only when deemed necessary for public health and safety reasons. Notify vehicle washing staff at the maintenance center and the police department that this restriction is in place.

## **Stage 4: Emergency Stage**

### *Objectives*

- Ensure that throughout the water shortage, an adequate water supply exists to protect public health and safety.
- Sharply reduce water demand.
- Restrict certain defined water uses in order to meet demand reduction goals.
- Ensure water quality remains at the highest level possible.

### *Triggers*

In this stage, triggers indicate that a critical water situation exists and that without additional significant curtailment actions, a shortage of water for public health and safety would be imminent.

100% of P3 for 1 day

### ***Emergency Stage Actions***

#### **Coordination**

- The WSRT will define the water shortage as an emergency and work through the City Manager to implement procedures to formally declare a Water Shortage Emergency.
- The WSRT will recommend to the City Manager a list of water use restrictions, prohibitions and exemptions for consideration. Restrictions and prohibitions may include any of the following:

#### *Emergency – Step 1*

- Residential customers are allowed to water only 1 day per week:
  - 1 day per week
    - Addresses ending in 0, 2 can water: SUNDAY
    - Addresses ending in 1 or 3 can water: MONDAY
    - Addresses ending in 4 or 6 can water: TUESDAY
    - Addresses ending in 5 or 7 can water: WEDNESDAY
    - Addresses ending in 8 can water: THURSDAY
    - Addresses ending in 9 can water: SATURDAY
- Commercial/large irrigators are allowed to water only one day per week or implement a plan that would reduce irrigation water use by at least 50%.
- Exemption for new landscapes would remain in effect.
- Prohibit use of any ornamental fountains using potable water for operation
- Prohibit car washing except at commercial car wash facilities that recycle water
- Rescind all hydrant meters
- Prohibit washing of sidewalks, streets, decks and driveways
- Prohibit use of potable water for pressure washing of buildings
- Prohibit filling or adding potable water to swimming pools at public and private facilities
- Prohibit the use of water in training exercises and flushing activities by the Fire Department until the emergency is over

#### *Emergency – Step 2*

- Prohibit all lawn/turf irrigation
  - Prohibit all irrigation of gardens and ornamental landscapes
  - Prohibit irrigation of new landscapes as well (exemption for landscapes <12 months of age no longer in effect).
  - Prohibit use of any ornamental fountains using potable water for operation
  - Prohibit car washing except at commercial car wash facilities that recycle water
  - Rescind all hydrant meters
  - Prohibit washing of sidewalks, streets, decks and driveways
  - Prohibit use of potable water for pressure washing of buildings
  - Prohibit filling or adding potable water to swimming pools at public and private facilities
  - Prohibit the use of water in training exercises and flushing activities by the Fire Department until the emergency is over
- Exemptions may include:

- If dust control is required to comply with air quality standards and dust control and other hydrant uses are determined to be necessary to meet essential health and safety requirements, water may be applied to construction or other areas at the minimum rate necessary to achieve the desired result, provided that all appropriate best management practices are being employed.
- Customers with special medical needs, such as home dialysis, will be exempted from any emergency restrictions, provided these customers are included on the City’s dialysis notification list or they notify the City of such a need. Their exemption will not apply to outdoor water use.
- Increase enforcement actions in accordance with the applicable ordinance approved by City Council.
- Provide training for staff and deploy additional “Water Watcher” patrols.
- Notify the Police Department regarding enforcement of curtailment actions and coordinate with them regarding the need for additional enforcement assistance.
- The WSRT will increase the frequency of reports to the City Manager and City Council. Reports will provide detail on the implementation of the Emergency Curtailment Stage and customer response data.

**Public Outreach**

- The public will be notified immediately using one or more of the methods listed below. The WSRT will decide which method(s) will be most appropriate and effective based upon the specific situation:
  - Automated phone calls using the City’s choice of automated phone call services
  - Directed phone calls to the City’s highest water users
  - Hand deliver pamphlets to households
  - Use Public Works Reader Boards on College St, Martin Way, and Pacific Avenue
- When feasible, include some or all of the following information when communicating the restrictions to the public:
  - Scope and nature of mandatory restrictions
  - Reasons for imposing restrictions
  - Demand reduction goals and ways to achieve those goals
  - Pending additional restrictions if goals not met
  - Enforcement mechanisms and fines
  - Projections for how long restrictions will be in place
- Clearly identify and communicate exemptions from water use curtailment, such as for medical facilities and other public health situations.
- Inform customers about possible pressure reductions and problems this may cause.
- Provide area landscape firms with water use curtailment information to facilitate their compliance and ability to explain the need for compliance to their customers.
- Provide contractors and landscape firms with information on locations to obtain reclaimed water for street cleaning, construction projects, landscape irrigation, dust control, etc. if available.
- Post updated status reports on the City website.

## **Appendix A: City of Lacey Shortage Response Contact List**

A working list of contacts for easy reference should be developed and regularly updated by Water Resources staff. In the event of a water shortage caused by a drought, the following will be contacted directly. They will be apprised of the situation, and their support and cooperation in reducing demand will be requested.

### **Other Public Agencies**

- City of Olympia
- City of Tumwater
- Thurston County
- North Thurston School District
- State Department of Ecology
- State Department of Health
- Thurston County PUD #1

### **Intertied Water Systems**

- City of Olympia

### **High Water Use Customers**

- List Updated Annually

### **Landscape Interests**

- WSU/Thurston County Cooperative Extension
- Local nurseries
- Local landscape contractors
- The Irrigation Association
- Washington Association of Landscape Professionals
- Washington State Nursery and Landscape Association

### **Business Groups**

- Thurston County Chamber of Commerce
- Lacey/Olympia Chamber of Commerce
- Rotary Clubs of Thurston County
- Master Builders Association

## Appendix B: Mandatory Restrictions – Enforcement Procedural Checklist

\_\_\_\_\_ Violations of the water use restrictions constitute civil violations, as explained in LMC 14.40. Upon determination by the Director of Public Works that a violation has occurred, a written notice, allowing for voluntary correction, as described in 14.40.030 will be issued. All subsequent offenses will be charged using the same schedule provided in LMC 14.40.040, as follows:

- ◆ 1<sup>st</sup> day of each violation: \$100 fine
- ◆ 2<sup>nd</sup> day of each violation: \$200 fine
- ◆ 3<sup>rd</sup> day of each violation: \$300 fine
- ◆ 4<sup>th</sup> day of each violation: \$400 fine
- ◆ Each additional day of violation beyond four days: \$500/day

\_\_\_\_\_ Assign and train staff with customer service and communication experience to “Water Watch”, providing an explanation to the customer regarding the violation, suggestions for correcting the problem, and a reminder that further offenses result in fines.

\_\_\_\_\_ Print self-duplicating “Notice of Violation” forms: one copy for location where violation occurred, one to report violation to Utility Billing to enter into HTE, one to send out with the bill, and one for internal records. Print violations and fines on the Notice of Violation.

\_\_\_\_\_ Track violations in HTE. When violations with corresponding fines (1<sup>st</sup><sup>nd</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and subsequent offenses) are entered, HTE will add the infraction fine directly to the water bill.

\_\_\_\_\_ Establish “due process” to consistently collect and document evidence of violations.

Violations must be documented by a Water Watcher in the following way:

1. Record date, time, location, type of violation on a Notice of Violation form.
2. Take a photograph of the offense.
3. Note corroboration from any witnesses to the violation.
4. If the violation is not witnessed first-hand by a Water Watcher and a photograph is not obtained, the suspected violator can be issued only a warning.

\_\_\_\_\_ Establish a “hotline” for customers to report violations. To help avoid frivolous complaints, recorded message should note that only complaints with name and address of complainant will be pursued.

## **Appendix C: Lacey Fire Department Shortage Response**

The Fire Department uses water in a variety of ways. These uses include:

- Fire flow pressure testing
- Vehicle washing
- Washing of drill pad
- Training (evolution/wet training)
- Irrigation

The following explains how these water uses might be affected during the four stages of drought response.

### **Advisory Stage**

At this stage, we would be communicating a possible water supply shortage to our customers. It may make sense to schedule any line flushing or wet training for earlier in the season in case restrictions are in place.

### **Internal Action Stage**

In this stage, we would be asking our internal City staff to reduce their water use by a certain amount (generally about 10 percent). The Fire Department may change their water use at this stage in the following ways:

- Vehicle washing: Currently, several of the vehicles washed or at least rinsed daily. Washing is more frequent during the wet season, when vehicles are muddy. During this stage, vehicles would only be washed if they have mud on them but could continue to be rinsed each evening.
- Drill pad washing: The pad is now washed twice during the summer. If this internal action stage occurs during summer months, a sweeper from the Public Works Department would be brought in to sweep the pad instead of washing it.
- Fire flow testing: Testing could still occur at this stage.
- Training: Scheduled training could still occur at this stage. However, the need for the training should be weighed carefully against the water use.
- Irrigation: Irrigation of landscape should be slightly reduced at this stage.

### **Mandatory Stage**

At this stage, we would acknowledge a serious water supply shortage. Water use restriction would be enforced with fines. The Fire Department may alter their water use in the following way at this stage:

- Vehicle washing: As in the Internal Action Stage, vehicles would only be washed or rinsed if there is mud on them.
- Drill pad washing: As in the Internal Action Stage, the sweeper would be used instead of water.
- Fire flow testing: Testing should be postponed during this stage.
- Training: Scheduled training should not occur at this stage. If this stage continues for more than one month, limited training exercises would resume.
- Irrigation: Irrigation of landscape should be reduced further at this stage.

### **Emergency Stage**

At this stage, the utility would be faced with a critical water supply shortage. The goal would be to provide enough water to provide for our customers' health and safety during the duration of the emergency. No

outdoor irrigation would be allowed for any of our customers. At this stage, the Fire Department would need to change their water uses in the following ways:

- Vehicle washing: Vehicles would only be washed if there is mud on them. No rinsing could occur. Vehicles that can fit in commercial washes must be washed only at facilities that recycle water.
- Drill pad washing: As in the Internal Action and Mandatory Stages, the sweeper would be used instead of water.
- Fire flow testing: Testing may not occur during this stage.
- Training: Scheduled training may not occur at this stage.
- Irrigation: Irrigation of landscape may not occur at this stage.



## **Appendix D: Lacey Parks Department Alternative Irrigation Plan**

This plan will provide for reductions in irrigation water usage that meet thresholds provided for each of the stages of the Water Shortage Response Plan. The plan reduces water use at City-owned parks, streetscapes and other facilities by shifting irrigation schedules and prioritizing City facilities based on the age of landscaping, watering needs and public use.

In Stage 2, the Internal Action Stage, water use consumed through non-exempt meters will be reduced by 10%.

Stage 3, the Mandatory Stage, provides for water use reduction of 25%.

In Stage 4, the Emergency Stage – Step 1, provides for water use reduction of 50%, which would also be required for playfields. During the Emergency Stage – Step 2, all outdoor watering at City-owned facilities would cease, to comply with the severity of the situation and related restrictions.

## **Appendix E: Water Watcher Staffing Assignments**

- All City staff will watch for violations when in the field as they go about their usual business
- During the Advisory and Internal Action Stages, meter readers would watch for non-compliance with the odd-even watering schedule and hang “friendly reminder” door hangers where appropriate
- During the Mandatory and Emergency Stages, Water Watchers would respond to calls (information about suspected violations will be left by the public on a “hotline”) about violations. Staff available for duty may include: Water Quality Technician, Water Resources Specialist, Water Resources Manager, Public Works Inspectors, Senior Patrols.
- Water Watchers would investigate complaints, interact with customers for 1<sup>st</sup> offenses (friendly encounters) and gather evidence for all offenses.
- Police Officers would deliver civil violation notices for subsequent offenses involving fines. It is expected that there will be very few civil violations. Police officers could complete this task as time allows, since the evidence will have been gathered previously by the Water Watchers and the fines will be included on the water bills.

## **Appendix F: Procedure for Exemptions**

- Customers may request exemption for the following water uses:
  - irrigating new landscapes installed within the past 12 months
  - irrigating ball fields used regularly by community sports teams
  - water use for dust suppression to meet air quality standards
- Customers will submit exemption request to Public Works
- If approved, Utility Billing will flag customer account in billing system
- Customer will be provided a sign for posting to indicate exemption has been granted

## **Appendix G: Present Possible Production (P3)**

Last updated: June 2, 2020

For the annual period beginning June 1, 2019 unless modified by the WSRP Team at a sooner date, the P3 value, and corresponding triggers are identified as:

**P3:** 18.3 million gallons per day (MGD)

Stage 1 Trigger: Every summer

Stage 2 Trigger: STEP 1: 14.7 MGD or greater for 1 day  
STEP 2: 16.5 MGD or greater for 1 day

Stage 3 Trigger: 17.4 MGD or greater for 3 days, or  
17.8 MGD or greater for 1 day

Stage 4 Trigger: 18.3 MGD for 1 day

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The P3 value for this period was determined by the WSRP Team and is summarized below:

|  | max pumping capacity<br>in GPM | Comments                  |
|--|--------------------------------|---------------------------|
| Source 1 (Well 1)                            | 500                            |                           |
| Source 2 (Well 2)                            | 600                            |                           |
| Source 3 (Well 3)                            | 230                            |                           |
| Source 4 (Well 4)                            | 750                            |                           |
| Source 6 (Well 6)                            | 340                            |                           |
| Source 7 (Well 7)                            | 1600                           |                           |
| Source 9 (Well 9)                            | 750                            |                           |
| Source 10 (Well 10)                          | 1000                           |                           |
| Source 15 (BC 1)                             | 180                            | Set for low aquifer level |
| Source 16 (BC 2)                             | 190                            | Set for low aquifer level |
| Hawks Prairie Wellfield<br>(Sources 19 & 31) | 1100                           | S19: 450 gpm              |
|  |                                | S31: 650 gpm              |
| Source 20 (McAllister)                       | 600                            |                           |
| Madrona Wellfield<br>(Sources 21, 22, 28)    | 4000                           | 1320 gpm each             |
| Source 24 (Nisqually 19A)                    | 80                             |                           |
| Source 25 (Nisqually 19c)                    | 220                            |                           |
| Source 27 (Evergreen)                        | 750                            |                           |
| Source 29 (Betti Well)                       | 1000                           |                           |
| <b>Sub-Total</b>                             | <b>13,890</b>                  |                           |
| Assumed MAX pumping hours per day            | 22                             |                           |
| Minutes per hour                             | 60                             |                           |
| <b>P3 =</b>                                  | <b>18,334,800 GPD</b>          |                           |

## **Appendix H: Water Shortage Response Plan Summary**

Continued on next page

## Stage 1 Advisory Stage

### TRIGGER

Every summer

### PUBLIC MESSAGE

"Please use water wisely."

- This stage affects ALL water customers.
- A press release will remind the public to use water wisely, and contain tips for water wise yard care.

## Stage 2 Internal Action Stage

### STEP 1

#### TRIGGER

14.7 MGD for 1 day

#### COORDINATION

- Maintain regular, systematic communication between the WSR Team and all City departments including the City Manager.
- Lacey Fire will be notified and requested to follow a specific set of actions to reduce water consumption.
- Assigned staff will "tag" observed water waste with a Water Waste Notice, reminding customers of the need to reduce water waste.
- Begin additional outreach to commercial irrigation customers

#### INTERNAL OPERATIONS ACTIONS

- Begin to closely monitor consumption for the top 20 commercial irrigation customers for compliance with the odd-even watering schedule
- Reduce irrigation at City-owned/managed non-exempt class landscapes by 10%.
- Reduce washing of all City fleet vehicles.

### STEP 2

#### TRIGGER

16.5 MGD for 1 day

#### COORDINATION

- Technical WSR Team staff will meet to discuss potential supply-side actions based on water supply and demand.

#### INTERNAL OPERATIONS ACTIONS

- Operations staff will implement recommended changes based on the technical WSR Team staff meeting which includes the option to invoke the emergency water supply agreement with Olympia.

## P3 (Present Possible Production)

The maximum well pumping time of **22 hours per day** which is based on the available standby and operational reservoir storage capacity of the water system, expressed in MGD units.

For the annual period beginning June 1, 2020, unless modified by the water shortage response team at any time in between;

**P3 = 18.3 MGD**

## Stage 3 Mandatory Stage

### TRIGGER

17.4 MGD for 3 days or 17.8 MGD for 1 day

### PUBLIC MESSAGE

"In order to ensure that an adequate supply of water is available to maintain public health and safety, it is necessary to impose mandatory water use restrictions."

- This stage affects ALL water customers.
- Provide customers with water use restrictions, which may include:
  - Prohibit all watering between 9am and 7pm or
  - Limit watering to assigned weekdays only
- Establish "Customer Hotline" (or similar) for residents to report violations of restrictions.

#### COORDINATION

- The Water Shortage Response Team, with approval from the Public Works Director, will recommend to the City Manager, the move to the Mandatory Stage, and adopt mandatory restrictions.
- Implement process for receiving, recording, and responding to reported violations of restrictions.

#### INTERNAL OPERATIONS ACTIONS

- Reduce irrigation at City-owned/managed landscapes by 25%.
- All City fleet vehicles will be washed only at facilities that recycle water.

## Stage 4 Emergency Stage

### TRIGGER

18.3 MGD for 1 day

### PUBLIC MESSAGE

"A water supply emergency exists. Severe restrictions on water use are necessary to maintain adequate water supplies essential for basic health and safety."

- This stage affects ALL water customers.
- Provide customers with water use restrictions, that will be strictly enforced, which may include:
  - Residential watering limited to one day per week **or** prohibit all lawn/turf irrigation.
  - Rescind all hydrant meters.
  - Prohibit filling of swimming pools.
  - Prohibit all use of water for cleaning sidewalks or driveways.
- Restrictions may be grouped by: **Emergency Level 1** or **Emergency Level 2**

#### COORDINATION

- The Water Shortage Response Team will define the water shortage as an emergency and work through the City Manager to implement procedures to formally declare a Water Shortage Emergency.

#### INTERNAL OPERATIONS ACTIONS

- Reduce irrigation at City-owned/managed landscapes by 50%.

## TRIGGERS

|                                  |  |
|----------------------------------|--|
| Stage 1— <b>Advisory:</b>        | Every summer                                   |
| Stage 2— <b>Internal Action:</b> |  |
| <b>STEP 1</b>                    | 80% of P3 for 1 day                            |
| <b>STEP 2</b>                    | 90% of P3 for 1 day                            |
| Stage 3— <b>Mandatory:</b>       | 95% of P3 for 3 days or<br>97% of P3 for 1 day |
| Stage 4— <b>Emergency:</b>       | 100% of P3 for 1 day                           |