
DWR
Division of Water Resources
WELCOME
WATER SYSTEM MANAGERS
WATER SHORTAGE RESPONSE PLANNING
Town of Mayberry

Rules addressing water use during droughts became effective March 19, 2007 (15A NCAC 02E .0600)

- **Include several sub-sections that directly affect water systems:**
  - **Annual Water Use Reporting**
  - **Specific items that must be included in a Water Shortage Response Plan**
  - **Default measures during DMAC designated Extreme and Exceptional Droughts if no WSRP**
  - **Report Water Conservation activities**

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ANNUAL REPORTING of the following information

- **Annual Average Daily Water Use**
- **Monthly Average Daily Water Use**
- **Water Use by Category of Use**

Monthly Average Daily Water Use

	Average Daily Use (MGD)		Average Daily Use (MGD)		Average Daily Use (MGD)		Average Daily Use (MGD)
Jan		Apr		Jul		Oct	
Feb		May		Aug		Nov	
Mar		Jun		Sep		Dec	

Water Use by Type

Type of Use	Metered		Non-Metered	
	Connections	Average Use (MGD)	Connections	Estimated Use (MGD)
Residential				
Commercial				
Industrial				
Institutional				

How much water was used for system processes in 2006? _____ MGD

Four Steps to Completing a Water Shortage Response Plan (WSRP)

1. Complete the Water Shortage Response Summary Form
2. Develop a Water Shortage Response Plan
3. Plan review by Division of Water Resources
4. Plan adopted by local governing board

Town of Mayberry's Water Shortage Response Summary

- Mayberry is a fictitious Town and is only used as an example to help illustrate how to complete the Water Shortage Response Summary.

- Each water system should tailor a WRSP to its local conditions.

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Public water systems that must prepare a Local Water Supply Plan are required by the new rule to provide specific information in their Water Shortage Response Plan.

(15A NCAC 02E .0607)

The following slides present the questions that must be addressed in your system's Water Shortage Response Plan in order to meet the requirements of this rule using the Town of Mayberry as an example.

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Who is responsible for implementing the water shortage response protocols?

1. **Mayberry Town Manager :**

   Andrea Smith

   Phone 098-765-4433

   Email manager@townofmayberry.com

2. **Utility Director**

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How will water users and system employees be notified when the water shortage response protocols are activated?

- Employee email notification
- Notices at municipal buildings
- Town of Mayberry website
- Notice in The Mayberry Town Crier
- PSA on local radio stations
- Notice in water bills

How will water users be informed of required response measures?

- Publish provisions of WSRP in The Mayberry Town Crier
- Post to Mayberry's website
- Direct mailings to current customers
- Provide to new customers
- Handouts during facility tours
- Radio PSAs

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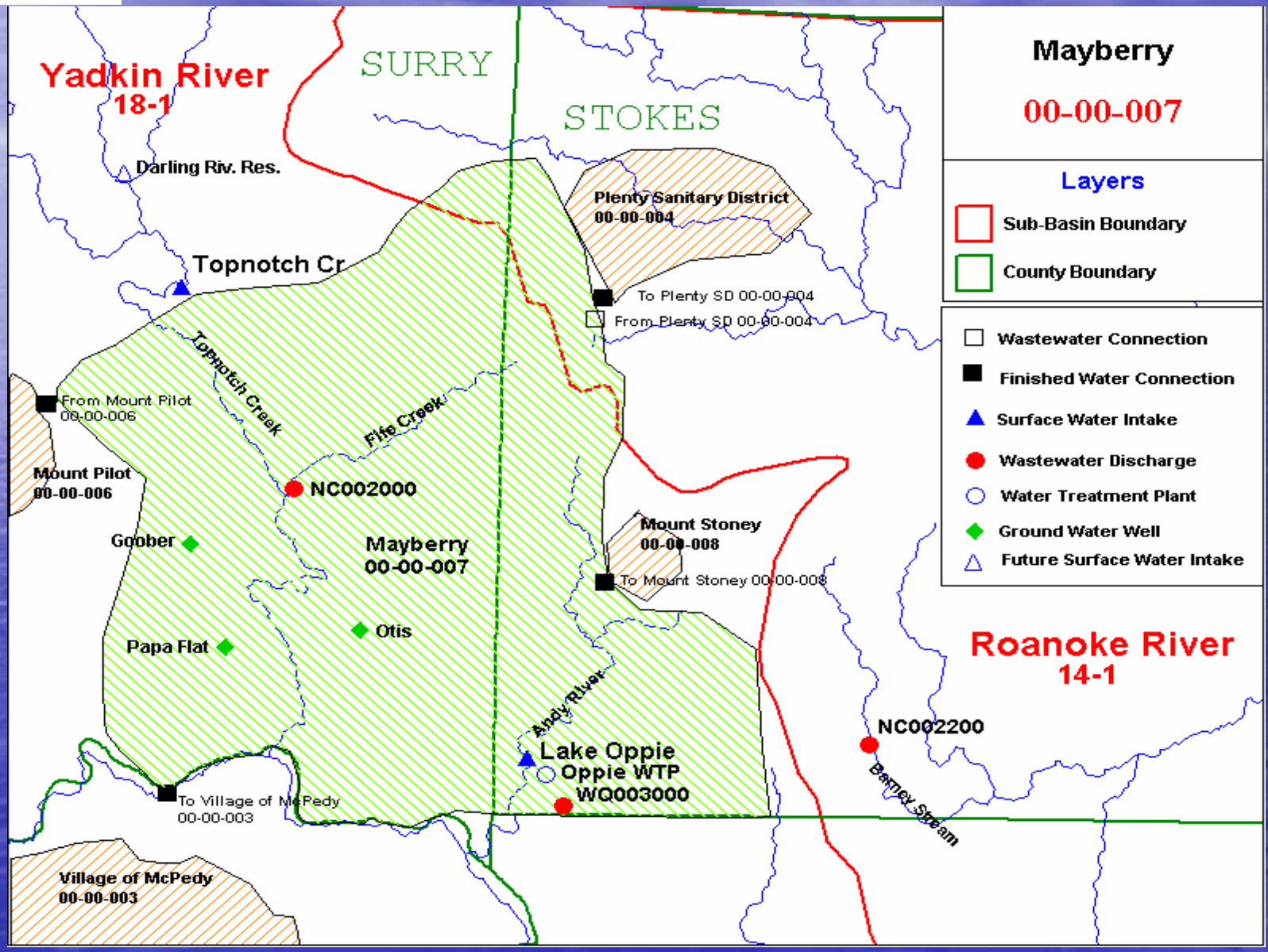
What specific measurements of available supply, demand or system conditions will be used to determine the severity of a drinking water shortage?

- **Amount of Available Water**
- **Demand / Treatment Capacity**
- **Mechanical Failures**
- **Source water contamination**

Mayberry Service Area Map



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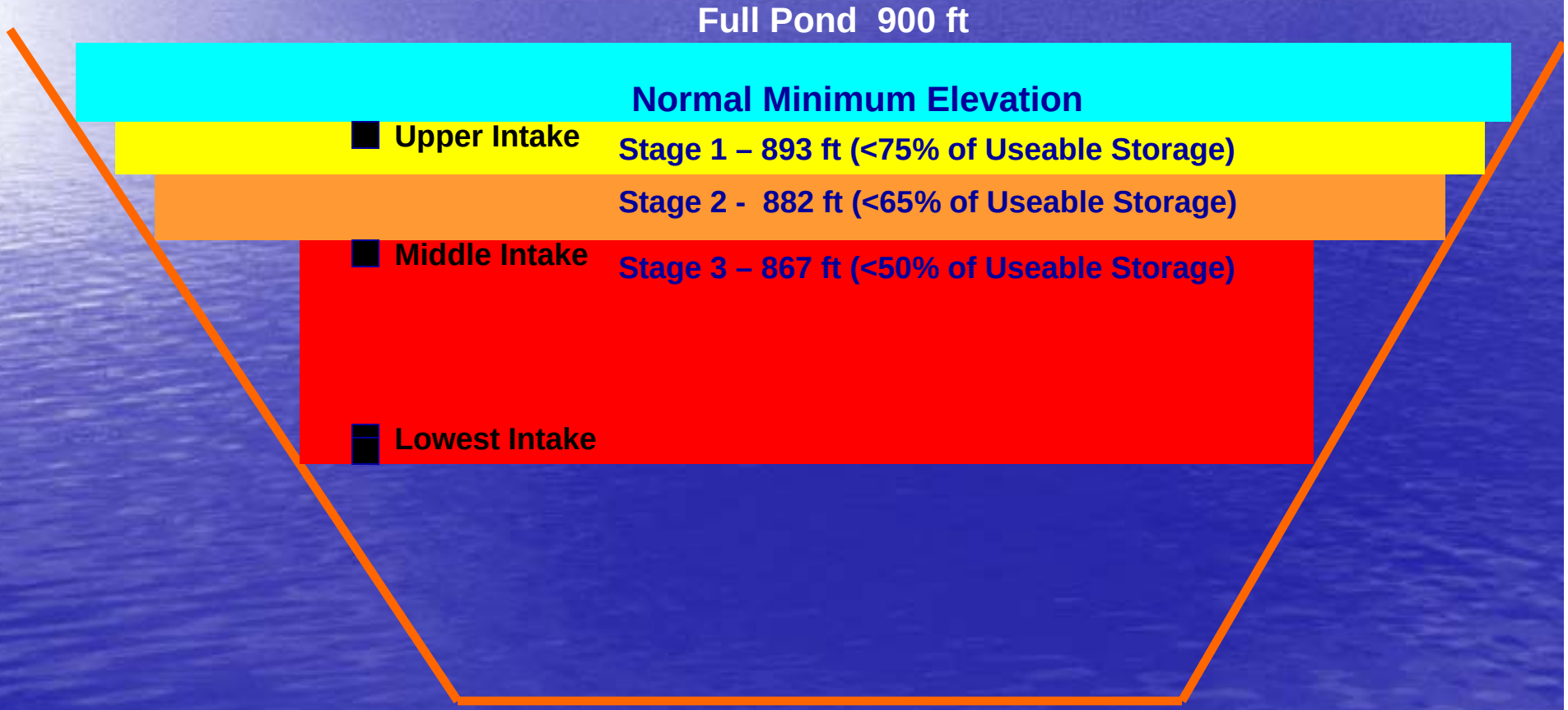
What specific conditions will be used to trigger use reduction measures and the movement to more restrictive and less restrictive measures?

- Lake Opie most important source
- Topnotch Creek likely could supply more to keep water in Lake Opie

- Focus on Lake Opie for drought triggers

Lake Opie's Triggers



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What specific conditions will be used to trigger movement to more restrictive and less restrictive measures?

- **Stage 1**
  - <75% Useable Storage
  - Upper Intake (7’ below full)
- **Stage 2**
  - <65% Useable Storage
  - 18’ below full
- **Stage 3**
  - <50% Useable Storage
  - Middle Intake (33’ below full)

What specific conditions will be used to trigger movement to more restrictive and less restrictive measures? (Ground Water Source)

- **Stage 1**
  - > 10 hrs Pumping Time
  - 20 % reduction in seasonal normal distance from static water level and pump intake
  - 20 % increase pumping time for same output
- **Stage 2**
  - >12 hrs Pumping Time
  - 40 % reduction in seasonal normal distance from static water level and pump intake
  - 40 % increase pumping time for same output
- **Stage 3**
  - >14 hrs Pumping Time
  - 60 % reduction in seasonal normal distance from static water level and pump intake
  - 60 % increase pumping time for same output

What specific conditions will be used to trigger movement to more restrictive and less restrictive measures? (Run of River Intake)

- **Stage 1**
  - Water Level at 52' msl at Intake in River
  - Discharge at USGS Gage XXX is <300 cfs for >14 days
  - > 80% of Production Capacity for 3 consecutive days
- **Stage 2**
  - Water Level at 50' msl at Intake in River
  - Discharge at USGS Gage XXX is <200 cfs for >10 days
  - > 90% of Production Capacity for 3 consecutive days
- **Stage 3**
  - Water Level at 48.5' msl at Intake in River
  - Discharge at USGS Gage XXX is < 150 cfs for > 3 days
  - > 100% of Production Capacity on any day

What levels of response are required?

- **Stage 1 Voluntary Reductions**
- **Stage 2 Mandatory Reductions**
  - **Could have more than one Mandatory**
- **Stage 3 Emergency Reductions**

Stage 1 Voluntary Reductions (Examples)

- Ask all water users to cut back use 5%
- Irrigated landscape only needs 1” per week
  - Prevent runoff and watering impervious surfaces
- Wash only full loads in washer / dishwasher
- Do not allow children to play with hose or sprinkler
- Repair any known leaks

Stage 2 Mandatory Reductions (Examples)

- Goal reduce water use by 10% from previous month level
- Continue Voluntary Actions
- Irrigation limited to ½" per week between 8pm and 8am
- Ban use of drinking water for washing impervious surfaces
- Limit testing and training that uses drinking water

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Stage 3 Emergency Reductions (Examples)

- Continue actions from previous stages
- Goal reduce use an additional 20%
- Ban non-essential uses of drinking water
- Limit garden and landscape irrigation to minimum amount necessary for survival
- Increase water rates

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How will the provisions of the water shortage response protocols be enforced? Mayberrry decided to:

- Establish hotline for reporting violations
- Provide email contact for reporting
- Water Dept personnel and Town police will issue citations:
  - 1st Warning
  - 2nd $100 Fine
  - 3rd / 4th $500 Fine
  - 5th $500 and cut off

How will customers be given opportunities to review and comment on the water shortage response protocols before they are finalized?

Mayberry selected:

- **WSRP Task force**
- **Draft WSRP posted to Mayberry's website and published in The Mayberry Town Crier**
- **Notice in water bills**
- **Public meeting for comments on draft**
- **Revised Draft published at least 30 days before adoption vote by Town Council**

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How can water users apply for a variance from water reduction measures?

Mayberry's procedure:

- Applications available from utility office and website
- Submitted to the Utility Director's office
- Review and decision by Utility Director

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What criteria will be used to decide if a variance will be granted?

Mayberry will use:

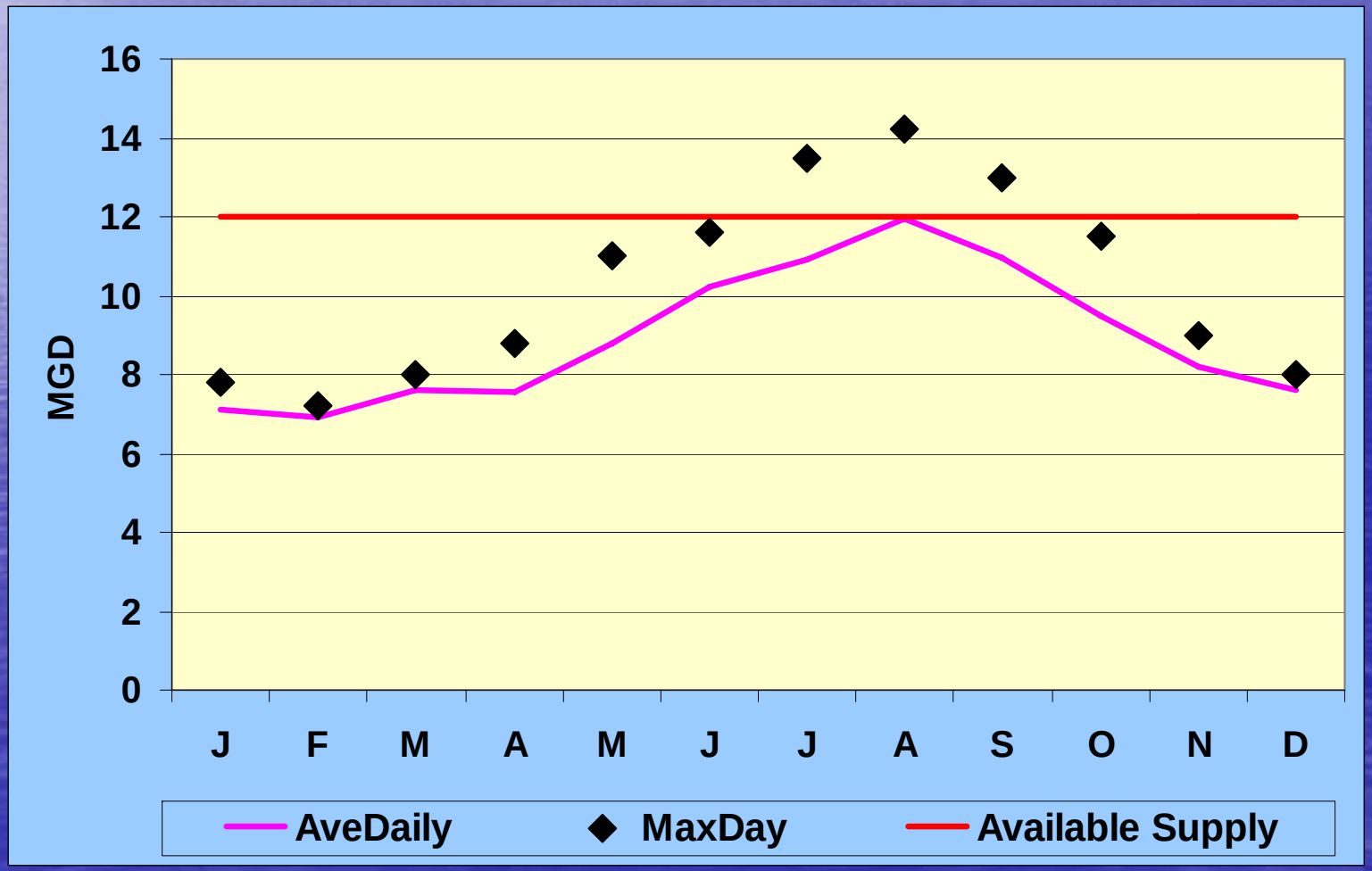
- Impact on water demand
- Essential use of drinking water
- How long is it needed
- Existence of alternative source
- Social and Economic Importance
- Prevention of structural damage

How will the effectiveness of the water shortage response protocols be measured?

Mayberry will evaluate effectiveness based on:

- Frequency of activation
- Problem periods without activation
- Were desired reductions attained
- Were reductions in demand more than expected for historical use patterns
- Number of violation citations

Mayberry's Historical Water Use Pattern



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How will the protocols be revised when needed?

- Utility Director will review after each activation
- After activation of Emergency provisions a working group will review and recommend needed improvements to Town Council

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Does the system depend on water storage in an impoundment not owned by the system? YES NO

If yes, are the water shortage response protocols consistent with the Water Shortage Response Plan adopted by the owner of the impoundment? YES NO

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Questions?

www.ncwater.org

919-733-4064