RESOLUTION 12-2012

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF CEDAREDGE COLORADO, Drought Response Plan

WHEREAS, the Board of Trustees recognize that Drought is a natural on-going situation in Colorado and a phenomenon that has recurred regularly throughout Colorado's history, and

WHEREAS, Recently drought has occurred in Cedaredge in the year 1977 and 2002 with water resources effected proceeding years and state wide concerns in 2012, and

WHEREAS, the Town of Cedaredge understands the fundamental need to make efficient use of the limited and valuable water resource under its stewardship in order to protect the public's health and safety and environmental integrity, and

WHEREAS, the Board of Trustees have determined that a Drought Response Plan is necessary to effectively manage water resources, and

WHEREAS, the Drought Response Plan documents a strategy to either increase water supply or decrease water use and establish a plan with procedures for managing water demand and evaluating supply options, and

WHEREAS, the Drought Response Plan documents levels of severity with each level being evaluated for declaration by specific indicators and actions needed to be taken in each level, and

WHEREAS, with exception to budgetary requirements and rate changes, Drought Response Plan actions may be immediately applied per declared indicators by authorized staff until the Board of Trustees can officially approve appropriate actions, and

WHEREAS, the Board of Trustees shall identify and consider annual budgets with appropriate measures to manage water demand and evaluate supply options, and

WHEREAS, the Board of Trustees believes that it is in the best interest to protect critical water resources and adopt the Drought Response Plan by Resolution.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Trustees of the Town of Cedaredge, Colorado that;

1. The Drought Response Plan dated September 20, 2012 is herby adopted by resolution.
2. The Drought Response Plane shall become effective upon adoption of this resolution.
3. The Drought Response Plan shall remain in effect and shall be modified from time to time by resolution.

RESOLVED this 20th day of September, 2012 by the Board of Trustees of the Town of Cedaredge, Colorado.

Patricia Means
Mayor

Attest:

Patricia V. Luna
Town Clerk

Drought Response Plan

Town of Cedaredge

September 20, 2012
Resolution 12-2012

Public Works Director
David Smith

Board of Trustees
Mayor Patricia "Pat" Means
Mayor Pro-tem Gene Welch
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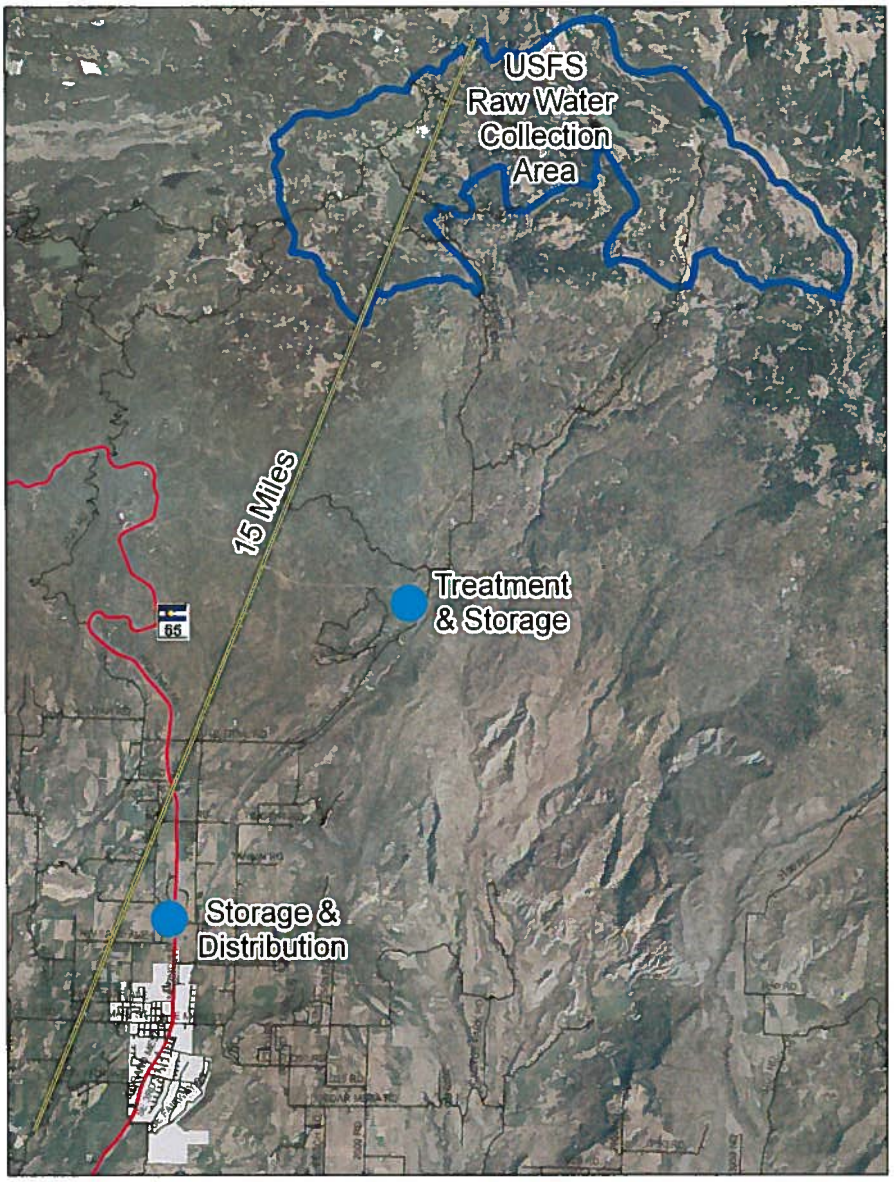

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Introduction

Drought can be defined as an extended period of below-average precipitation and/or stream flow that stresses a water supply. Drought is a natural, on-going situation in Colorado - a phenomenon that has recurred regularly throughout Colorado's history.

For planning purposes, the Town of Cedaredge water supply strategy is to have enough water to provide normal customer usage during periods similar to the 1977 or 2002 droughts.

No one can predict how long a drought will last or if it will be worse than those used in any calculations. Therefore, even though Surface Creek drainage domestic water supply exceeds its use far more often than not, any water purveyor relying on the basin for water must be prepared to recognize drought conditions early and respond appropriately. This Drought Response Plan (DRP) is designed to provide the Board of Trustees with tools to assist in evaluating drought conditions and options to consider in preparing for and reacting to them.

There are a number of tools and resources that are available to help Trustees determine drought severity so they can effectively administer policies that meet user needs. Additional resources are given in APPENDIX A.

Strategy

This plan identifies two ways to respond to a drought: increasing water supply and decreasing water use.

Increasing Water Supply. There are several options for doing this. Among the possibilities:

- Call back water rights we allow others to use; don't lease our reserve water.
- Seek waivers, such as a Substitute Water Supply Plan, from Colorado Division of Water Resources to allow us to divert and use irrigation water decrees when available.
- Budget to operate and maintain raw water collection system for optimal performance.
- Budget to operate and maintain reservoirs for optimal storage and performance.
- Update Capital Improvement Plan in order to identify long term water system needs.
- Pay another water user to allow us to divert more water. It should be kept in mind that irrigation water will typically not be allotted on a 1:1 basis due to consumptive use considerations. Sources of Municipal and Industrial water will typically include the Grand Mesa Water Conservancy District and shareholders of Leon Lake Reservoir among others.

Decreasing Water Use. The primary purpose of the Town's water system is to provide safe drinking water for the health and welfare of all aspects of the community. Therefore, the primary drought response should be to budget available water for the most essential uses for the drought's duration. Determining the available water beyond the present in any meaningful way can be difficult to ascertain, as is explored in APPENDIX B.

There are a wide variety of options that could be used to decrease water use. The development and implementation of a Water Conservation Planning will play a key role in lowering household usage so that water availability issues are minimized as the community grows. Refer to APPENDIX D for more information on Water Conservation Planning. During cycles of drought, however, additional voluntary conservation measures will be promoted through Stage I and Stage II drought declarations. Mandatory measures may be implemented during a Stage II drought. We believe it is important to ensure that any discomfort, difficulty or potential loss is shared as equitably as possible across all customer classes.

Stage I Drought –

Indicators

Monitor these indicators when evaluating the need to declare and initiate a Stage I Drought Response.

- Agricultural impacts to crops being reported in local area.
- Conditions are similar to 2001 - 2002 drought, but no immediate impacts to area domestic water providers are apparent.
- Statewide drought conditions may exist that affect area irrigators.
- There is less than 20" of water in winter snowpack.
- Treated water usage may climb well over 10% above average water years. This is due to reduced availability of lower priority irrigation water for landscaping and gardens in addition to very high evaporation rates from land and transpiration rates from vegetation. This combination will naturally result in an increased use of treated water for irrigation purposes.

Actions

- Inspect all of raw water collection system. Ensure that leaks are repaired in a timely manner. If needed, reposition or improve spring intakes to collect the most water under current conditions. The work will have to comply with US Forest Service Regulations and the provisions and stipulations given in our alternate points of diversion adjudications. Clean intakes frequently, observe and document through field notes decreases or increases in water level at each spring location.
- Meet with Grand Mesa Water Conservancy District, Colorado Division of Water Resources Division 4 (local office) and other local water purveyors to coordinate basin-wide strategies, including whether or not we should refrain from leasing stored water.

- Begin public awareness and education efforts using monthly newsletter, press releases, pamphlets, website, and other appropriate forms of media.. Demonstrate why water conservation is important and be specific with how our customers can reduce water consumption during any summer season.
- Promote ideas to reduce indoor water use, such as:
  → The exclusive use of showerheads meeting maximum flow rates of 2.5 gallons per minute and faucet aerators meeting maximum flow rates of 2.2 gallons per minute, giving particular attention to hotels, motels, inns and bed and breakfast establishments.
  → The efficient and conscientious use of swamp coolers, reminding customers that swamp coolers can be a significant source of water consumption during very dry weather.
  → The efficient and conscientious use of dish washers, clothes washing machines, and bath tubs, educating customers on their typical consumption.
- Promote the following ideas to reduce outdoor water use:
  → Broom cleaning sidewalks, driveways and streets instead of hosing them off.
  → Minimizing water waste when washing vehicles, and give ideas how to do so.
  → Ways to stay cool other than filling above ground swimming pools.
  → Turning off ornamental fountains.
  → Pamphlets and other assistance to customers wanting to keep a well maintained landscape while using only what they need.

Stage II Drought –

Indicators

Monitor these indicators when evaluating the need to declare and initiate a Stage II Drought Response.

- Agricultural impacts to both crops and herds being reported in local area.
- Conditions are similar to 2001 - 2002 drought at the same time of year or before. This applies to both statewide reports and examination of Surface Creek water diversion reports and availability.
- Water purveyors on the Western Slope are leasing water in a rare move to meet demand.
- Park Reservoir did not fill.
- Less than 50% of average snowpack was achieved in our watershed.
- Water Commissioners have calls for reservoir water before the end of April.
- Start of irrigation season: Surface Creek appropriations start out at or below 60%
- Mid-year re-appropriations: Surface Creek appropriations fall to less than 50% in or near June.

- Late season re-appropriations: Surface Creek appropriations fall to less 45% in or near August
- Any contributing reservoir was drained the prior year for maintenance/rehabilitation work.
- Multi-year drought conditions have left reservoirs below average. This is typically accounted for in the appropriations.
- Evaluation of supply (probable supply, since this can change with re-appropriations) and demand (current and anticipated) that projects a depletion of stored Municipal and Industrial (M&I) water.

As can be seen from the evaluation criteria, moving from a Stage I Drought to a Stage II Drought will be dependent on several factors. Town staff will need to initiate the flow of the best information available to the Board of Trustees. Stage II triggers will need to be evaluated, discussed, and modified as precipitation outlooks and water demand dictates. It is important to understand that a sustained low appropriation of the town's flow decree along with a high demand may deplete the town's M&I reservoir rights surprisingly fast. Board meetings with staff should occur routinely during a Stage II Drought declaration.

Actions

Based on past experience of other domestic water providers we can expect to achieve between 10% and 20% reduction in water consumption using the following measures. Since water demand often increases during a drought due to increased outside uses, this reduction may only bring demand back more in line with an average year.

- Continue all measures initiated in Stage I.
- Adjust water rates in proportion to drought severity to create a financial incentive for customers to use less water.
- Intensify public outreach and information to reinforce the need for the extreme measures required to ensure potable water for everybody.
- Generate continued awareness of drought status, response effectiveness, and any water use restrictions and penalties.
- Eliminate all fire hydrant uses except those required for public health and safety.

Reduce indoor water use:

- The Town may require all hotels, motels, inns and bed and breakfast establishments to have only showerheads meeting maximum flow rates of 2.5 gallons per minute and faucet aerators meeting maximum flow rates of 2.2 gallons per minute and strongly encourage the use of these effective devices in homes. The Town may consider incentives for the purchase and installation of these devices.

- Offer other conservation tips, such as only running dishwashers when they are full; if waiting for water to get hot, collect the running water and use it for plants; keep drinking water in refrigerator to avoid letting water run until its cold enough.

Intensify reductions of outdoor water use:

- Reduce park watering by at least 30%
- Implement Cedaredge Golf Club Drought Response Plan
- Prohibit street, sidewalk and driveway washing by flushing methods—except where spills of toxic or hazardous substances or where public health and safety issues can only be resolved by washing the impermeable surface.
- Prohibit curbside car/truck washing by all customers.
- Prohibit filling private swimming pools.
- Require that ornamental fountains be turned off.
- Impose restrictions in landscape water use in proportion to the severity of the drought.
  - → As a last resort in an extremely severe drought, prohibit outdoor water use except for subsistence irrigation of trees and shrubs.
    - ❖ The Tree Board will be relied upon to provide guidance in tree and shrub health and watering requirements.
    - ❖ Staff should be prepared to provide assistance to customers in finding the resources needed to determine how much and when to water trees and shrubs to sustain them.
    - ❖ Staff should be prepared to provide assistance to customers with post-drought landscape revival or replacement by directing customers to appropriate resources.
- Prohibit all new landscaping including planting of trees and shrubs.
- Establish enforceable penalties for ignoring restrictions.
- Train and direct field and customer service personnel to be cognizant of noncompliant water use and report it.
- Assign appropriate personnel to document noncompliance with restrictions and impose penalties.

Stage III Drought – Reserved

Indicators

Actions

Cedaredge Golf Club Drought Response Plan

It is the resolve and directive of the Cedaredge Golf Club to be responsible stewards of the Town's financial and natural resources. As an enterprise fund it is managed like a business, and as such, intends to self-impose restrictions that are commensurate with reductions that are required throughout other parts of town. Additional instruction from the Board of Trustees on water management will need to carefully consider economic impact to the Golf Course, and therefore the Town, regarding subsequent playability and weigh that against other socioeconomic considerations the Town may have some control over.

Specifically, the Board of trustees may need to be involved when excessive use of reservoir water is called upon to keep grass areas green when there is the possibility of a multi-year drought.

Actions

At or before the time a Stage I drought is declared by the Board of Trustees, the Golf will allow some wilting of the Bluegrass and Ryegrass mix. This can be accomplished at 80% of the decreed water for Alfalfa Ditch if some precipitation is expected. Unusually dry conditions, such as no rain for more than 6 weeks may force the dormancy of these areas, but some water will still be required.

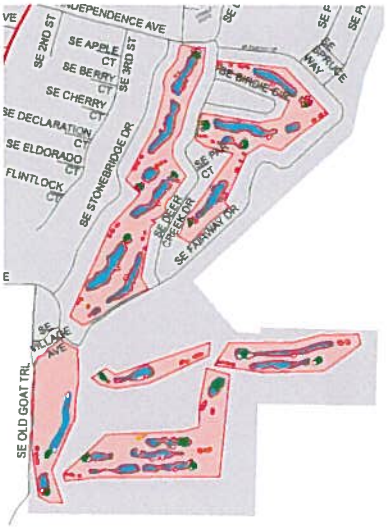
The Creeping Bent grass on the greens shall be maintained unless substantial funds can be set aside to replant the grass and offset the lack of play for at least one half of a golfing season while it grows back.

Determine how much water is used on the golf course each year (usually reported in Acre Feet):
In 2000, 527 acre feet of water was used from reservoirs.
In 2001, 482 acre feet of water was used from reservoirs.
In 2002, 349 acre feet of water was used from reservoirs.

Given the numbers above, a 30% reduction in watering is conceivable without long-term detriments occurring to the town, although extra effort will be needed to recover and other actions should be considered such as:

- Visually inspect all of the irrigation system components for wear and leaks
- Evaluate the purchase of penetrants to allow for deep and infrequent irrigation cycles. This is not typically achievable in the local soils.
- Utilize wetting agents to maximize the effectiveness of the water that is applied
- Utilize more hand watering rather than turning on irrigation heads
- Future coordination with the wastewater treatment plant facility to get an estimate of approximate water gained by using effluent and to explore the cost of such a system
- Post the notice from the water provider in a high traffic area regarding the percent reduction or water restrictions.

- Utilize as-builts of the irrigation system to highlight areas that have been selected for a reduction in irrigation. Color code various areas to illustrate the percent reduction:
  - → 10% reduction: areas highlighted in green
  - → 20% reduction: areas highlighted in orange
  - → 40% reduction: areas highlighted in blue
  - → Greater than 50% reduction: areas highlighted in red.
- Post these photos/posters in high traffic areas. If as-builts are not suitable, obtain an aerial photo of the course or digital pictures of each hole and highlight the reductions with different color highlighters, pins, etc.
- Inform golfers that they will see a reduction in course conditions, especially those in the highlighted areas listed above.
- Be prepared to give interviews to media personnel regarding the steps your facility has made to address the drought.



Summary

The Town of Cedaredge will endeavor to monitor the conditions that will affect its water customers, and take reasonable actions to ensure there will be safe drinking water for all of its customers during a period of drought. Town actions and customer expectations will be communicated clearly to the public. It has been demonstrated in Colorado that water use planning along with public outreach and education is key to the success of any drought response. If future droughts are similar to historical droughts, it will often be within the customer's ability to prevent the need for a Stage II Drought declaration. This can be done by acknowledging the periodic lack of potable water available for outdoor use and responding and planning responsibly. If this is to remain true in the decades ahead, the significance of planning will become equal to a drought response as the population increases locally and in Colorado as a whole.

During a drought, it is essential that the Town communicate effectively not only with their customers, but also with other area water suppliers, local governments, and other groups who are involved with the planning, conservation, and appropriation of water.

While the options and triggers listed in this Drought Response Plan are based on historical lessons learned from both here and from other water utilities during past droughts, it is important to understand that every drought is different and that the Board of Trustees will adjust and refine measures based on evaluation of actual and projected drought conditions. This plan is intended to help the Board of Trustees, staff, customers, and other stakeholders better understand how to recognize the extent of our water rights during a drought, how a drought can affect us, and how to prepare for and best respond to cyclical drought conditions.

APPENDIX A - Additional Resources

Planning for and managing drought in Colorado requires diligent monitoring of a variety of dynamic water availability and climate factors in order to gauge the severity of drought. The severity of droughts is directly related to the following:

- Magnitude (how large the water deficits are in comparison with historic averages)
- Duration (how long the drought lasts)
- Areal Extent (what area is impacted by the drought)

There are a number of tools and resources that are available to help water resource managers and planners assess drought severity so they can effectively administer their systems and meet user needs. These resources include:

- **Water Availability Task Force (WATF)**: This task force monitors conditions that affect Colorado's water supply, including snowpack, precipitation, reservoir storage, streamflow, and weather forecasts. http://cwcb.state.co.us/public-information/flood-water-availability-task-forces/Pages/WaterAvailabilityTaskForce.aspx
  An extreme but brief drought period returned for the fall of 1980 into the summer of 1981 and stimulated the writing of the "Colorado Drought Response Plan" and the formation of the "Water Availability Task Force" which has been meeting at least once per quarter since 1981.

- **Drought Status Reports**: Drought status reports synthesize drought indicators and present aggregate results. Several agencies report on drought conditions across the state on a monthly or weekly basis. http://cwcb.state.co.us/technical-resources/drought-planning-toolbox/Pages/DroughtStatusReports.aspx

- The **Drought Portal** is a helpful online tool that summarizes drought conditions across the Nation. www.drought.gov or more specifically, http://www.drought.gov/portal/server.pt/community/drought_gov/202;jsessionid=BC5F0DAB28B8AC70371792BBD9FA7A07

APPENDIX A

Additional Resources (continued)

- **Drought Indices**: Drought indices assimilate one or more drought-related variables into a single index score. The drought indices are examined in greater detail in APPENDIX C of this document

- The **Drought Monitor** uses a drought severity classification to produce a national weekly drought summary. http://droughtmonitor.unl.edu/

- **Water Supply Monitoring Measurements**: These measurements include data collected regularly to monitor drought conditions. This includes precipitation, snowpack, evapotranspiration, streamflows, reservoir levels, etc. These measurements often comprise the raw data that is used to calculate drought indices. http://cwcb.state.co.us/technical-resources/drought-planning-toolbox/Pages/WaterSupplyMonitoringMeasurements.aspx

- **Drought and Weather Forecasts**: This section includes forecasts of future drought and weather conditions. http://cwcb.state.co.us/technical-resources/drought-planning-toolbox/Pages/DroughtWeatherForecasts.aspx

- **COLORADO DROUGHT RESPONSE PLAN** ANNEX A TO THE COLORADO DROUGHT MITIGATION AND RESPONSE PLAN September 2010, Prepared Pursuant to Disaster Mitigation Act 2000 & Section 409, PL 93-288 Prepared by Colorado Water Conservation Board Department of Natural Resources in Cooperation with the Department of Local Affairs Division of Emergency Management

    - Meets FEMA and Emergency Management Accreditation Program (EMAP) standards & requirements
    - Meets drought requirements for the State of Colorado's Natural Hazard Mitigation Plan
    - Incorporates improvements in drought monitoring since 2001
    - Modernizes drought monitoring indices such as the Surface Water Supply Index (SWSI)
    - Includes a vulnerability assessment of natural resource & economic sectors, including an examination of the influence of climate change

APPENDIX B - What Is Drought?

Drought is a normal, recurrent feature of Colorado's climate. Drought is a shortage of water associated with a lack of precipitation. It occurs when a normal amount of moisture is unavailable to satisfy an area's usual water consumption. Drought can appear slowly and last for many years or it can be a short-lived event. It can occur locally, regionally or statewide. The impact of a drought is a result of the interactions of a natural event, preplanning and management of water resources, the demands placed on the water supply, and the economic and health impacts than can result.

How Is Drought Classified?

The ***National Drought Mitigation Center*** outlines the following "operational definitions of drought":

Meteorological drought is usually an expression of precipitation's departure from normal over some period of time. Meteorological measurements are the first indicators of drought. Agricultural drought occurs when there is not enough soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought happens after meteorological drought but before hydrological drought. Agriculture is usually the first economic sector to be affected by drought.

Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured as streamflow and as lake, reservoir and groundwater levels. There is a time lag between lack of rain and less water in streams, rivers, lakes and reservoirs, so hydrological measurements are not the earliest indicators of drought. When precipitation is reduced or deficient over an extended period of time, this shortage will be reflected in declining surface and subsurface water levels.

Socioeconomic drought occurs when physical water shortage starts to affect people, individually and collectively. Or, in more abstract terms, most socioeconomic definitions of drought associate it with the supply and demand of an economic good.

APPENDIX C - Drought Indices

Given the complex nature of drought is difficult to determine its progress from a single physical measurement. Drought indices assimilate one or more drought-related variables into a single index score.

These indices are the primary tools used by the State in assessing drought severity. As part of the 2010 Drought Mitigation Plan update the Surface Water Supply Index (SWSI) has been modernized and the Colorado Modified Palmer Drought Severity Index (CMPDSI) was validated as a useful index for Colorado. The indices are described below.

Primary Indices

Standard Precipitation Index (SPI):

The SPI was developed at the Colorado Climate Center as a tool for defining and monitoring drought and is a robust index for describing drought patterns. The SPI is based only on current and historical precipitation data for a particular location. The computed SPI values are proportional to precipitation deviation from the "average" (surplus or deficit).The SPI is computed for several time scales, ranging from one month to 24 months, to capture the various scales of both short-term and long-term drought. The SPI can be used to identify the beginning and end for each drought, as well as an intensity level for each month in which the drought occurs.

Surface Water Supply Index (SWSI):

The SWSI index was developed by the Office of the State Engineer and the USDA Natural Resources Conservation Service (NRCS). SWSI is an indicator of mountain-based water supply conditions in the major river basins. During the winter months (December - May) it is based on snowpack, water year precipitation and reservoir storage. In summer and fall, (June - November) the index switches to streamflow, previous month's precipitation and reservoir storage. The resulting scores generally range from +4 (abundant supplies) to -4 (exceptional drought).

Drought Indices (continued)

Revised SWSI:

In the early 1990s the NRCS refined the SWSI calculation to improve upon the limitations of the existing SWSI procedures. This method substitutes streamflow forecasts for the weighting factor variables, which is an objective, statistical assessment of the data relating to snowmelt runoff. Streamflow forecasts are optimized from the data for the hydrologic components and implicitly contain optimal weighting of the components. The revised technique provides a more stable month to month transition which eliminates some of the illogical shifts in index values, which the existing SWSI sometimes produces as the variables change throughout the year.

Palmer Drought Severity Index:

A complex soil moisture calculation that has been used by federal agricultural agencies to determine when to provide drought assistance. It requires weekly or monthly precipitation and temperature data as inputs. The Palmer Index uses a +4 to -4 scale where 0 represents normal and negative reflects drought.

Colorado Modified Palmer Drought Severity Index:

In an effort to improve the utility of the Palmer index in Colorado, Doesken et al., 1983, created the Colorado Modified Palmer Drought Severity Index (CMPDSI). The CMPDSI creates 25 geographical subregions of the state that are more climatically similar than the original 5 regions calculated on the national scale. The procedure for calculating the CMPDSI is the same method as described by Palmer (1965), it is only the regions that are being calculated that were modified. Please refer to Palmer (1965) for a complete description of how the index is calculated.

Secondary Indices

The Drought Monitor:

The Drought Monitor is a consensus of federal, state and academic expert opinions. A national drought summary is produced weekly using a drought severity classification system to illustrate drought conditions.

Colorado Monthly Precipitation and Percent of Normal Maps:

The Colorado Climate Center develops monthly precipitation maps in or to track Water Year (October 1- September 30) precipitation to aid in drought monitoring, runoff forecasting, agricultural planning, and emergency management. The percentage of normal precipitation is calculated by dividing actual precipitation by normal precipitation—typically considered to be a 30-year mean. This can be calculated for a variety of time scales. Usually these time scales range from a single month to a group of months representing a particular season, to an annual or water year. Normal precipitation for a specific location is considered to be 100%.

Crop Moisture Index:

This index was developed from the Palmer Index, and was designed to evaluate short-term moisture conditions across major crop producing regions. It uses the average temperature and total precipitation for each week and compares the calculated index with the previous week. This is a better index to measure rapidly changing conditions and for comparing different locations but the gross scale of the climate divisions (only 5 for Colorado) makes it a less useful index for Colorado.

Keetch-Byram Soil Moisture Index:

A drought index specifically designed for fire potential assessment. This index is based on weather station latitude, mean annual precipitation, maximum dry bulb temperature, and the last 24 hours of rainfall. The resulting index relates to the flammability of organic material on the ground. Scores range from 0 to 800 where zero is the point of no moisture deficiency and 800 is the maximum drought.

One can also reference the following before finalizing decisions:

NRCS State Basin Outlook Reports
Historical Norms
Weather Forecasts and Long-Term Outlooks
Reservoir Levels
Streamflow Data
Rain Gauge Sites
NRCS Snow Telemetry Network (SNOTEL) Sites
USBR Snow Data Assimilation System (SNODAS)

APPENDIX D - Water Conservation Planning

It is anticipated that an overall Water Conservation Plan we be developed to consider and direct future water usage trends, the scope of which is somewhat outside the Drought Response Plan document. Such planning is, however, integral to the effectiveness of the Drought Response Plan as the population of the Surface Creek area increases.

The following items may be used as topics of discussion for Water Conservation Planning:

- Provide public education through all sources of media on why and how to reduce per capita consumption.
- Encourage all customer classes to evaluate, redesign and reconstruct existing landscapes and outdoor water uses to reduce overall consumption.
- The Town of Cedaredge, to the extent practical, to take the lead in evaluating in-door and out-door water use practices. Public facilities, parks, open spaces, sidewalks, etc. to be audited for current consumption and redesigned or re-operated to reduce consumption. The Town activities alone make only a small difference, but that is the point in a group effort.
- Examine all municipal and county code provisions that affect water usage, such as development standards, storm water practices, or other code provisions. If appropriate, amend these code provisions to meet not only the objectives of the Code as originally intended but also to reduce net potable water consumption.
- Education and proclamations, as needed in the future, to alert the public to the need to conserve water. These must be based in fact to develop and sustain credibility.
- Communicate with high usage customers to get their ideas and suggestions for obtaining long-term use reductions.
- Develop "water waste reduction" suggestions for households and promote them by including it with water bills, putting it on web sites, and using other effective distribution methods, including bill boards, and Public Service Announcements.
- Communicate with the Grand Mesa Water Conservancy District and the local office of the Colorado Division of Water Resources to cooperatively work with them to ensure that adequate irrigation and municipal water will be available.
- Develop some Xeriscape areas for customers to identify with.
- Encourage Xeriscaping and low-water consumption practices.
- Consider incentives to customers to replace out-dated, water consuming in-door plumbing fixtures, faucets and shower heads.

APPENDIX E - Emergencies

RESERVED

Fire

Dam Breach

Neighboring Communities
Health Impact

Economic Impact

APPENDIX F - History and Technical Considerations

The 2002 drought had a statewide drought declaration. The Town of Cedaredge's primary spring intakes could not provide enough water to meet demand. Spring intakes have since been improved and leaks have been fixed so that more spring water will be available in conditions like those of 2002. However, our decreed flow rights still diminish with overall Surface Creek appropriation and our Municipal and Industrial stored water can be drawn upon without actually making a call for reservoir water. In 2002, reservoir water was called upon, including that designated for irrigation use only.

When that occurs, water can be collected from Surface Creek about 4.6 miles above the treatment plant, or from one of many creeks depending on the situation. This water can be more difficult to treat, requiring more man hours, backwashes (creating water loss), chemical additions, and monitoring. The organic material found in the reservoir or Surface Creek water source is not prevalent in the spring water we have become accustomed to, and can lead to taste and odor complaints in the distribution system. The organic material can also combine with chlorine to form increased levels of highly regulated and possibly harmful disinfection byproducts that may require modifications to normal operations of the distribution system.

Modifications to distribution system operations to minimize the formation of these disinfection byproducts include lowering tank levels and hydrant flushing to minimize the age of the water in the system. **Hydrant flushing can appear to be a waste of water, and all town representatives need to be prepared to give an explanation.**