# Community Level Planning: Lessons Learned

NIDIS NDMC EPC Workshop
June 8, 2011 Chicago
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# COLORADO MUNICIPAL DROUGHT MANAGEMENT PLAN

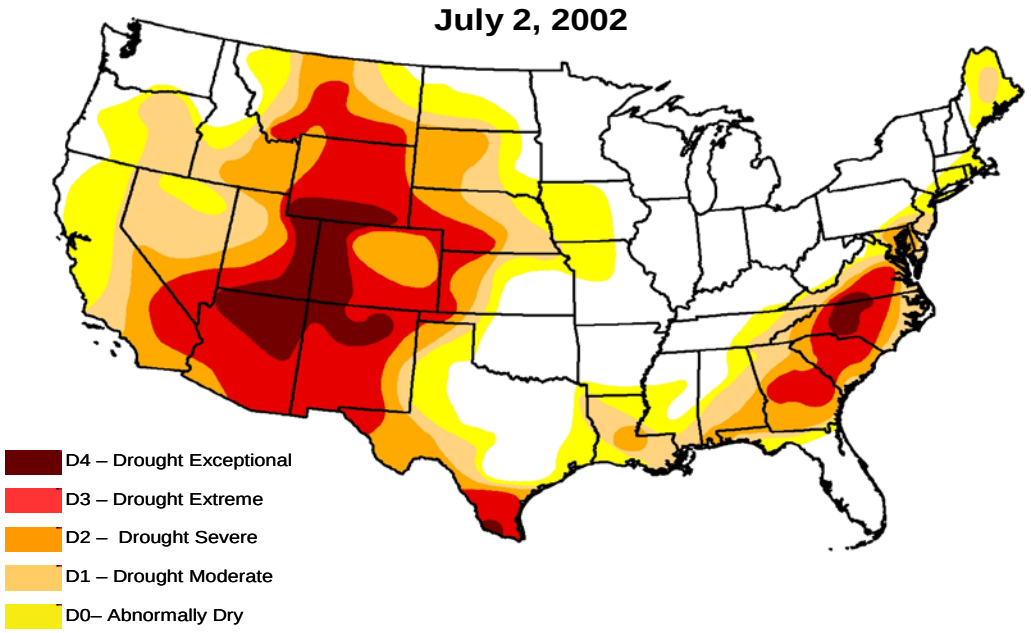
## *Guidance Document*

# 2010 Update to Drought Management Plan

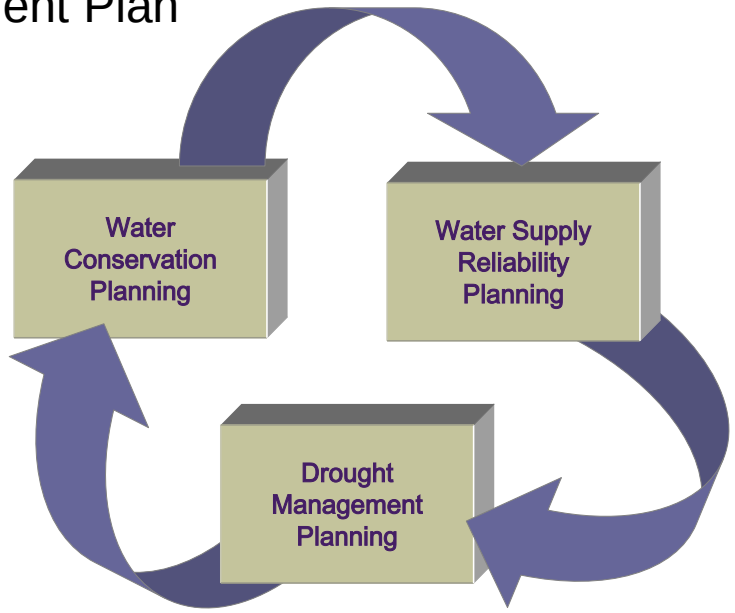
- Plan Coordination\Plan Revision
  - Coordinated standard planning process
  - Mitigation and Response Strategy Enhancements
  - Tool development: Local Guidance Document and Web Toolbox
  - Assessment of progress made

# Objectives of the Guidance Document

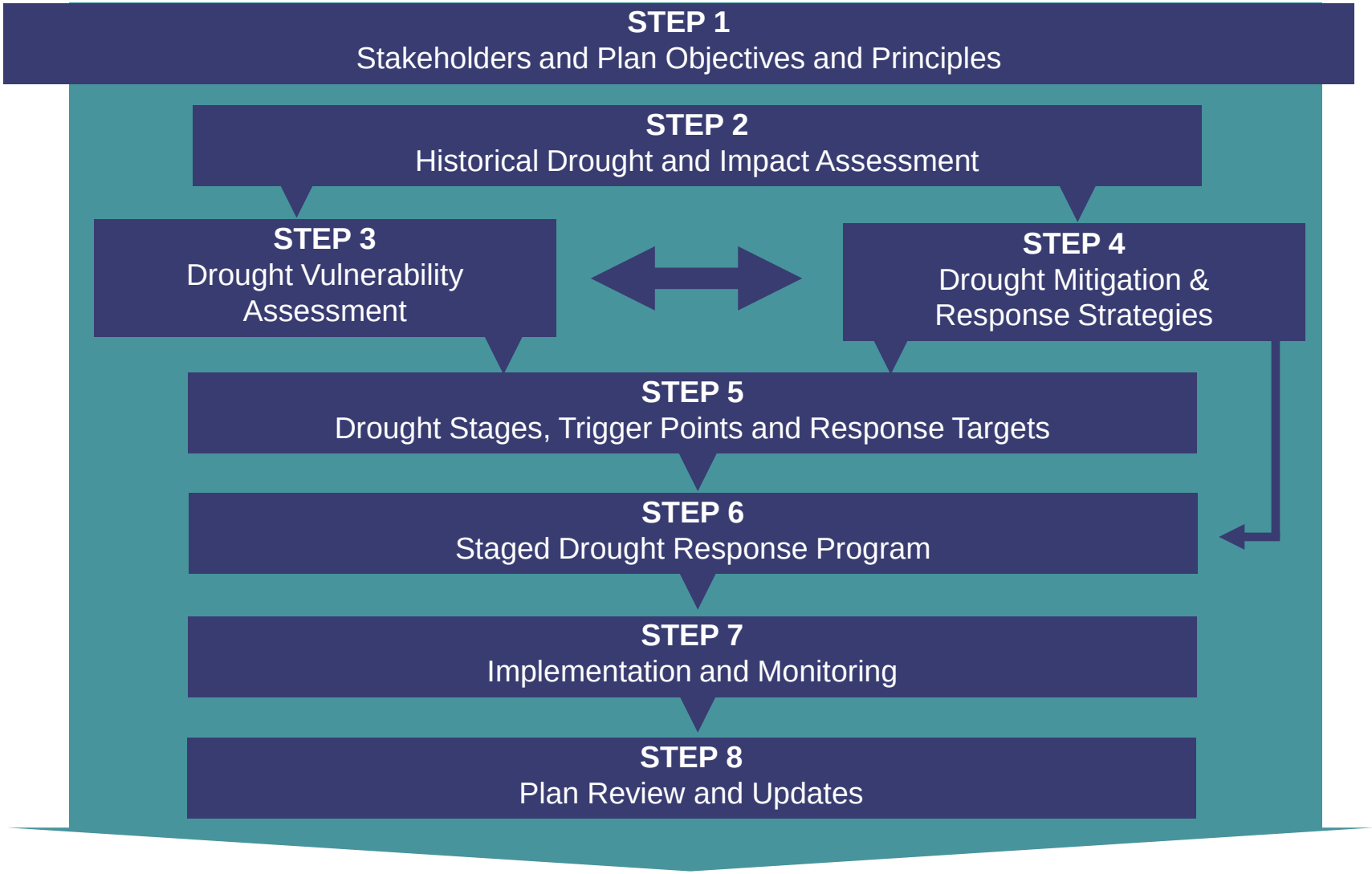
- Provide background on municipal drought management planning & recommend drought mitigation and response planning steps
- Disclose essential and recommended elements of an effective plan
- Ensure Guidance Document is applicable & useful to stakeholders statewide that vary by:
  - Geographic location
  - Size
  - Water supply sources
  - Financial resources
  - Etc.



- Purpose, Scope & Organization
- Introduction to Drought Management Planning
- State and Local Drought Planning
- Steps to Drought Management Planning
- Model Template of a Drought Management Plan
- Appendix A – Worksheets

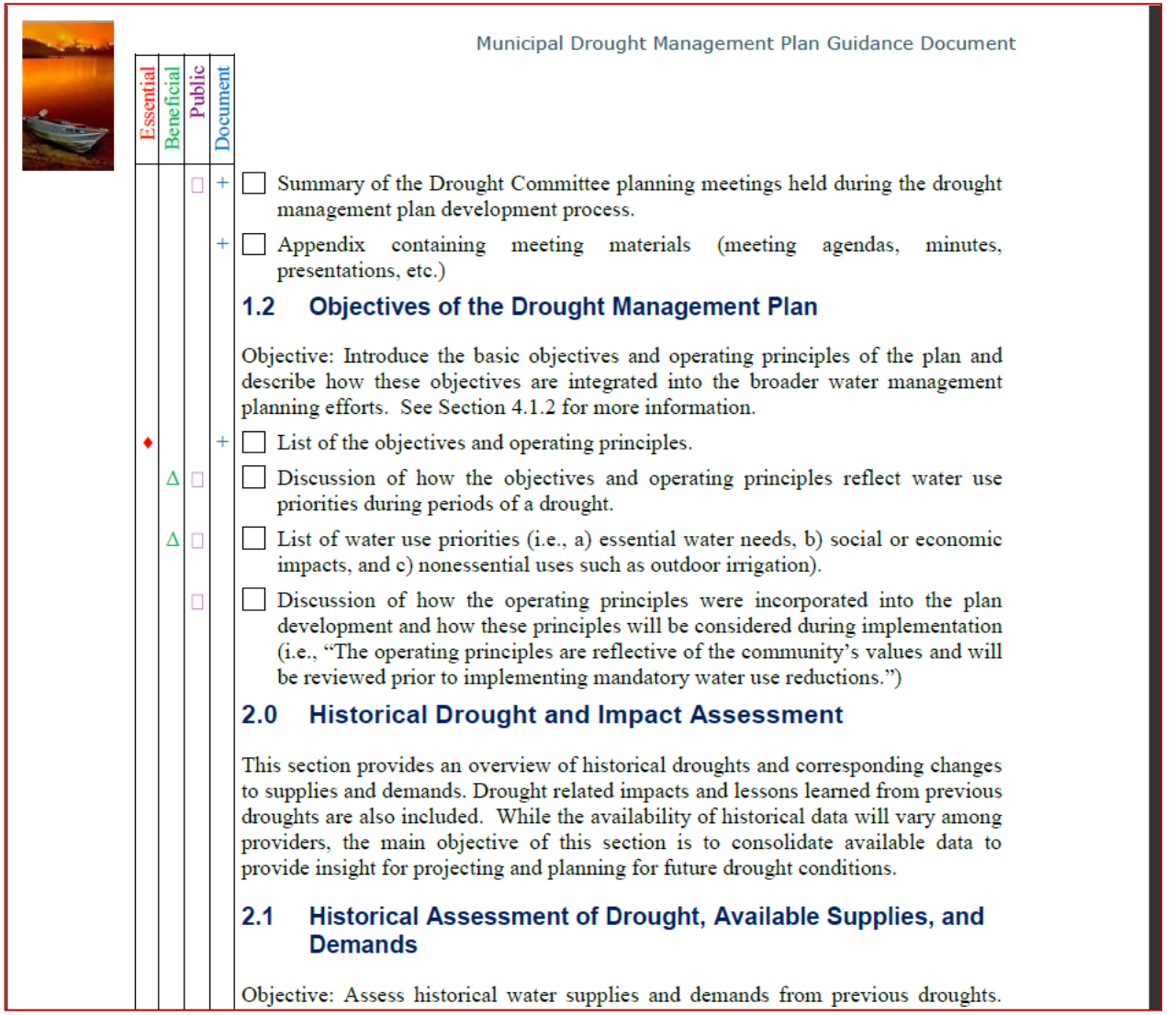


# Eight Drought Planning Steps



# Section 5 - Template

- Model Template
- Organized by Planning Step
- Itemized using check boxes
- Categorization of items:
  - Essential
  - Beneficial
  - Public
  - Documentation



Municipal Drought Management Plan Guidance Document

| Essential | Beneficial | Public | Document | |
|---|---|---|---|---|
| | | □ | + | ☐ Summary of the Drought Committee planning meetings held during the drought management plan development process. |
| | | | + | ☐ Appendix containing meeting materials (meeting agendas, minutes, presentations, etc.) |

## 1.2 Objectives of the Drought Management Plan

Objective: Introduce the basic objectives and operating principles of the plan and describe how these objectives are integrated into the broader water management planning efforts. See Section 4.1.2 for more information.

| | | | | |
|---|---|---|---|---|
| ♦ | | | + | ☐ List of the objectives and operating principles. |
| | Δ | □ | | ☐ Discussion of how the objectives and operating principles reflect water use priorities during periods of a drought. |
| | Δ | □ | | ☐ List of water use priorities (i.e., a) essential water needs, b) social or economic impacts, and c) nonessential uses such as outdoor irrigation). |
| | | □ | | ☐ Discussion of how the operating principles were incorporated into the plan development and how these principles will be considered during implementation (i.e., "The operating principles are reflective of the community's values and will be reviewed prior to implementing mandatory water use reductions.") |

## 2.0 Historical Drought and Impact Assessment

This section provides an overview of historical droughts and corresponding changes to supplies and demands. Drought related impacts and lessons learned from previous droughts are also included. While the availability of historical data will vary among providers, the main objective of this section is to consolidate available data to provide insight for projecting and planning for future drought conditions.

## 2.1 Historical Assessment of Drought, Available Supplies, and Demands

Objective: Assess historical water supplies and demands from previous droughts.

# Worksheets

E11

WORKSHEET A - HISTORICAL DROUGHT IMPACTS, FUTURE POTENTIAL IMPACTS, AND MITIGATION

Instructions:
[1] This column provides a list of drought related impacts. Add additional impacts identified during the planning process. The grouping of impacts (i.e., community, economic) may be modified.
[2] Enter an "X" for all impacts experienced during historical droughts.
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[4] Enter "1" - significant impact, "2" - moderate impact, or "3" - minor impact
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[7] Add any additional comments worth noting for historical drought assessment.
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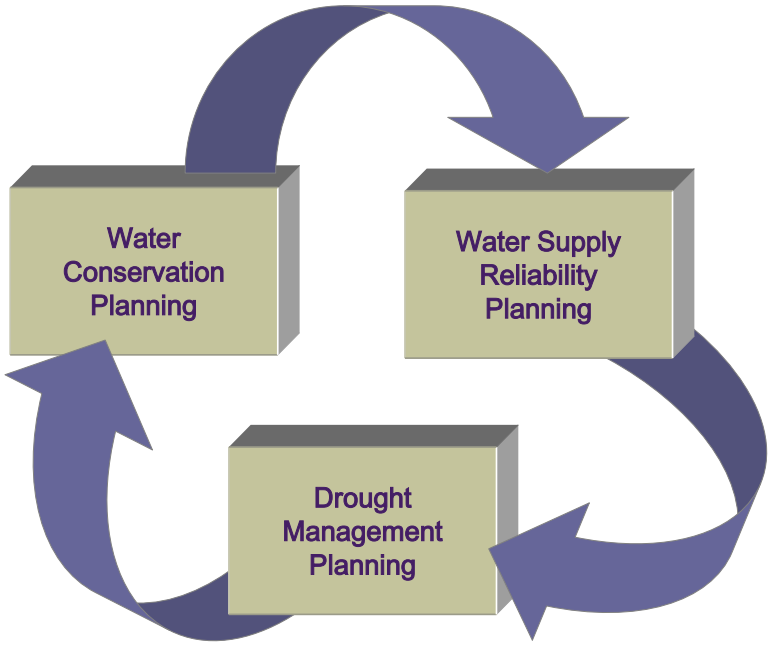
| | Step 2 - Historical Drought Assessment | | | | | | Step 3 - Vulnerability Assessment | | Step 4 - Drought Mitigation and Response Strategies | |
|---|---|---|---|---|---|---|---|---|---|---|
| Historical, Existing and Potential Drought Impacts [1] | Historical Impact [2] | Existing Impact [3] | Ranking of Drought Impact Severity [4] | Historical/Existing Mitigation & Response Strategies [5] | Effectiveness of Historical/Existing Mitigation & Response Strategies [6] | Comments [7] | Potential Future Impact [8] | Potential Impact Priority [9] | Mitigation [10] | Response Strategies [11] |
| **Water Provider** | | | | | | | | | | |
| Loss of revenue from reduction in water sales | | | | | | | | | | |
| Reduction in municipal well production | | | | | | | | | | |
| Reduction in storage reserves | | | | | | | | | | |
| Disruption of water supplies | | | | | | | | | | |
| Degraded water quality | | | | | | | | | | |
| Higher water treatment costs | | | | | | | | | | |
| Sediment and fire debris loading to reservoirs following a wildfire | | | | | | | | | | |
| Increased costs and staff time to implement drought plan | | | | | | | | | | |
| Increased data/information needs to monitor and implement drought mitigation plan | | | | | | | | | | |
| Costs to acquire/develop new water supplies/water rights transfers | | | | | | | | | | |
| Costs to increase water use efficiency | | | | | | | | | | |
| Public favorable/unfavorable perception of provider regarding drought response | | | | | | | | | | |
| Scarcity of equipment and other water related services (i.e., contractors to repair wells) | | | | | | | | | | |
| *List other provider related impacts* | | | | | | | | | | |
| | | | | | | | | | | |
| **Community and Societal** | | | | | | | | | | |
| Domestic landscaping stressed or killed | | | | | | | | | | |
| Public landscaping stressed or killed | | | | | | | | | | |
| Lower quality drinking water (i.e., poor taste and odor) | | | | | | | | | | |
| Reduced firefighting capability | | | | | | | | | | |

- 8 water providers, Northern, CO River District and 5 members from NDMC
- Larger providers (Denver Water) to smaller providers from the east and west slope
- *Biggest lesson* – Differentiation between water supply reliability planning and drought planning:

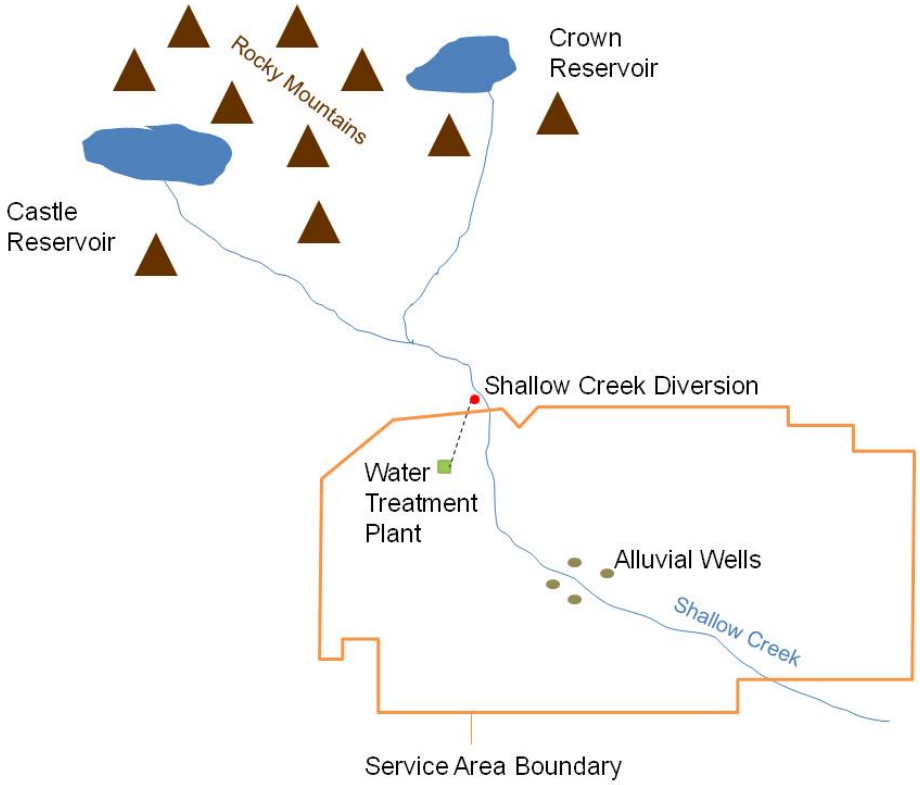


# The City of Shallow Creek
# Fiction County, Colorado

Photo Source: Compliments of NCWCD

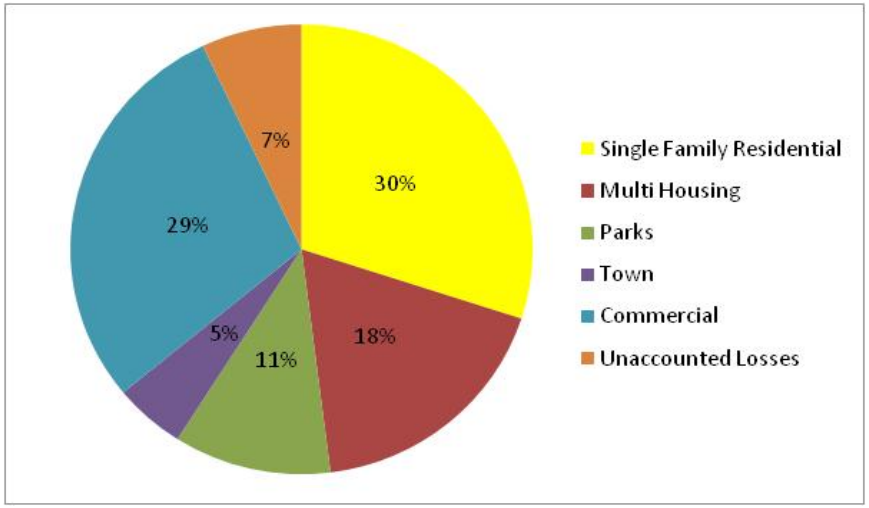
# Objectives of the Sample Plan

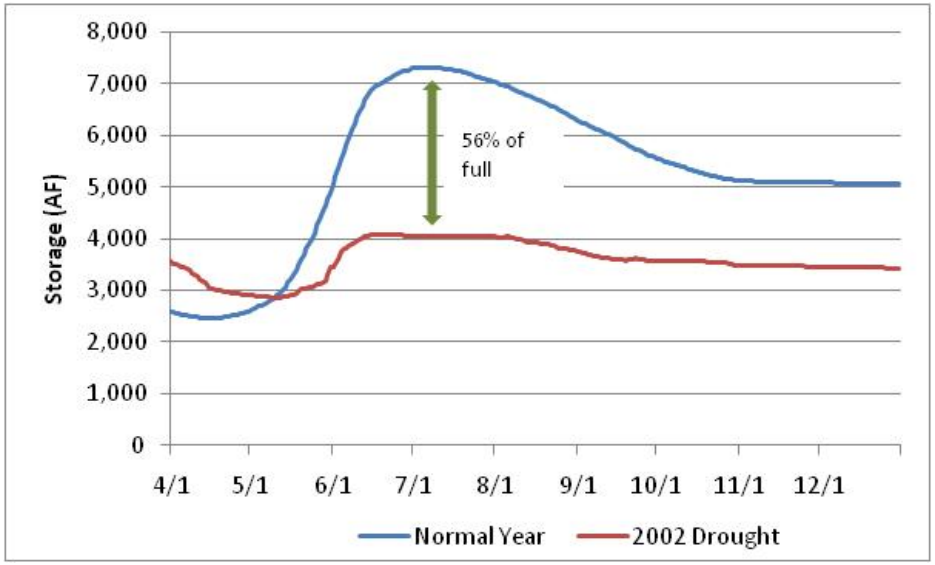
- Complementary second resource to the Guidance Document (2011)
- User friendly
- Closely follow Guidance Document template
- Represents a “typical” Colorado municipality:
  - Neutral location
  - Medium sized town (30,000 people)
  - Water supplies snowmelt- driven surface water hydrology, direct & storage rights, reservoirs, and alluvial groundwater wells



# Objectives of the Sample Plan Continued:

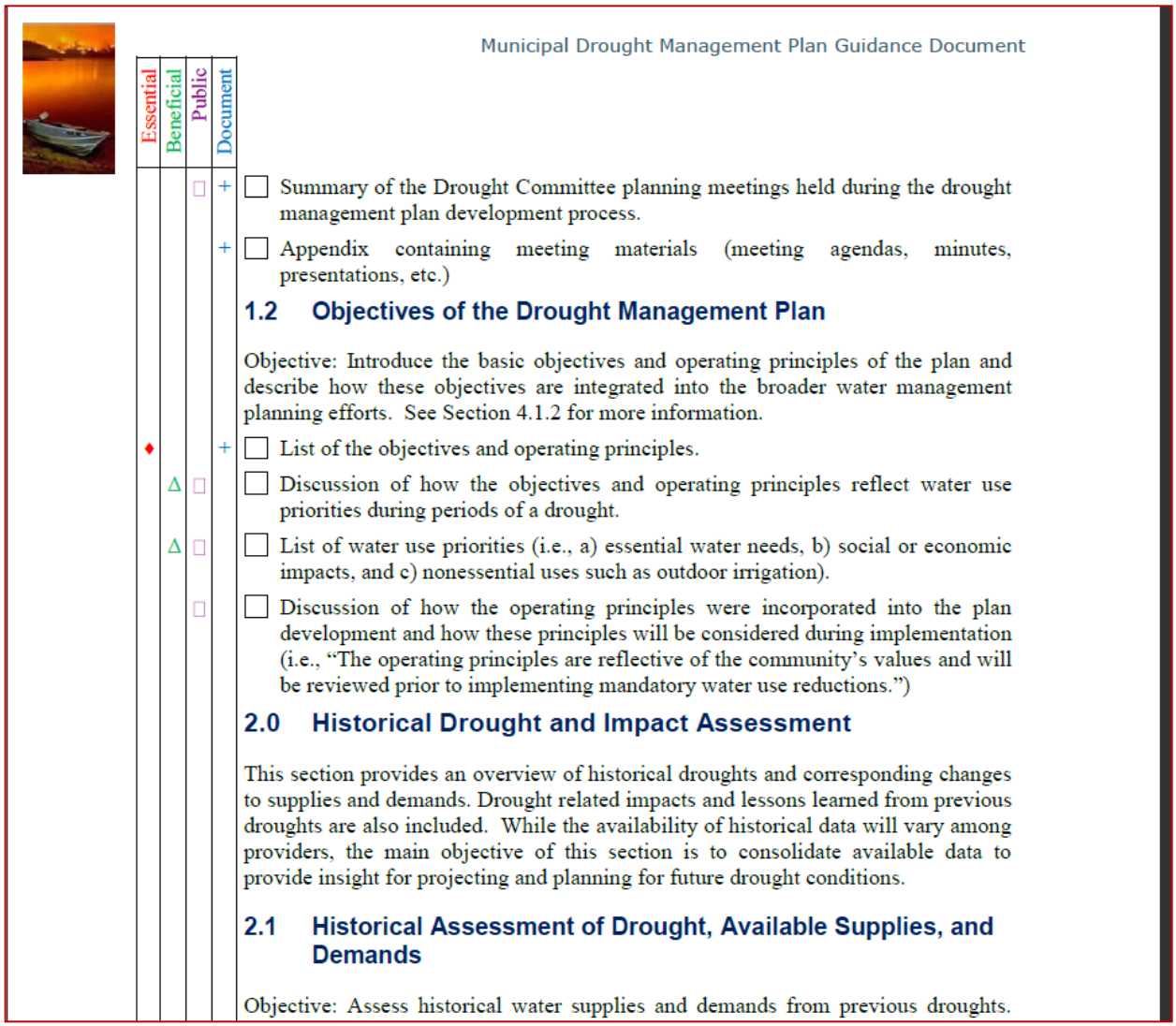
- Customer base of residential, commercial, parks, etc.
- Tourism and agriculture
- Typical challenges (growth, limited funds climate change, etc.)
- Moderate “sophistication” for forecasting water supply reliability



# Organization of a Sample Plan

- According to the Drought Template
- Introductory background information on the City
- Eight Planning Steps
- Included majority of checklist items







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| **Water Provider** | | | | | | | | | | |
| Loss of revenue from reduction in water sales | X | | 2 | Raised rates in 2003 | 2 | Effective but not popular | X | 2 | | Drought surcharge that is spread over period |
| Reduction in municipal well production | | | | | | | | | | |
| Reduction in storage reserves | X | | 2 | | | | X | 1 | Acquire addiitional storage/supplies | |
| Disruption of water supplies | | | | | | | X | 1 | Acquire addiitional storage/supplies | |
| Degraded water quality | X | | 2 | | | | X | 1 | | Blend sources, change reservoir operations |
| Higher water treatment costs | X | | 2 | Raised rates in 2003 | 2 | Minor when compared to revenue loss | X | 2 | | Drought surcharge that is spread over period |
| Sediment and fire debris loading to reservoirs following a wildfire | | | | | | | X | 1 | Develop Emergency Wildfire Plan | |
| Increased costs and staff time to implement drought plan | X | | 2 | | | | X | 3 | | |
| Increased data/information needs to monitor and implement drought mitigation plan | X | | 3 | | | | X | 3 | | |
| Costs to acquire/develop new water supplies/water rights transfers | | | | | | | X | 2 | | |
| Costs to increase water use efficiency | | | | | | | | | | |
| Public favorable/unfavorable perception of provider regarding drought response | X | | 3 | Public Education | 2 | Mixed reviews from public | X | 2 | | |

# Stakeholder Workshop for the Sample Plan

- 9 water providers, Northern, and several members from NDMC
- Larger providers (Denver Water) to smaller providers from the east and west slope
- Questionnaire distributed in advance & presented results at workshop for discussion

*The main objective of this exercise is to develop a Sample Plan that can easily be used by providers in conjunction with the Guidance Document to develop drought management plans.*

*What would you rank the document's overall usability?*

| Score | Description | Response |
|---|---|---|
| 1 | High | 5 |
| 2 | Moderate | 2 |
| 3 | Low | 1 |
| | Total | 8 |

# Other Tools and Resources
# Integrating state level information into local hazard mitigation plans

# Technical Assistance: Resources & Tools Development

- Web based Drought Tool Box developed concurrently with state plan revision
  - CWCB sponsored outreach and training sessions underway
- Drought Vulnerability tool – developed for state level but could be modified for local use

# Drought Tool Box Components

- Drought Status and Monitoring
  - Current drought conditions
  - Drought Indices
  - Water Supply Monitoring
  - Water Availability Task Force Reports
  - Drought and Weather Forecasts
- Drought Planning Resources
  - Guidance document
- Additional Drought Information
  - Drought and climate change
  - Financial assistance
  - Terms and definitions
  - FAQs
  - Other links


***http://cwcb.state.co.us/technical-resources/drought-planning-toolbox/Pages/main.aspx***

# Community Level Planning: Informing Local Hazard Mitigation Plans with State Level Vulnerability Information

- 2010-11 Archuleta County Hazard Mitigation Plan Development
- 2010-11 Southeast Colorado 6 County Regional Hazard Mitigation Plan Development
- Updates to Washakie, Park and Converse County Wyoming HMP's
- Custer County MT HMP, various County HMPs in Kansas

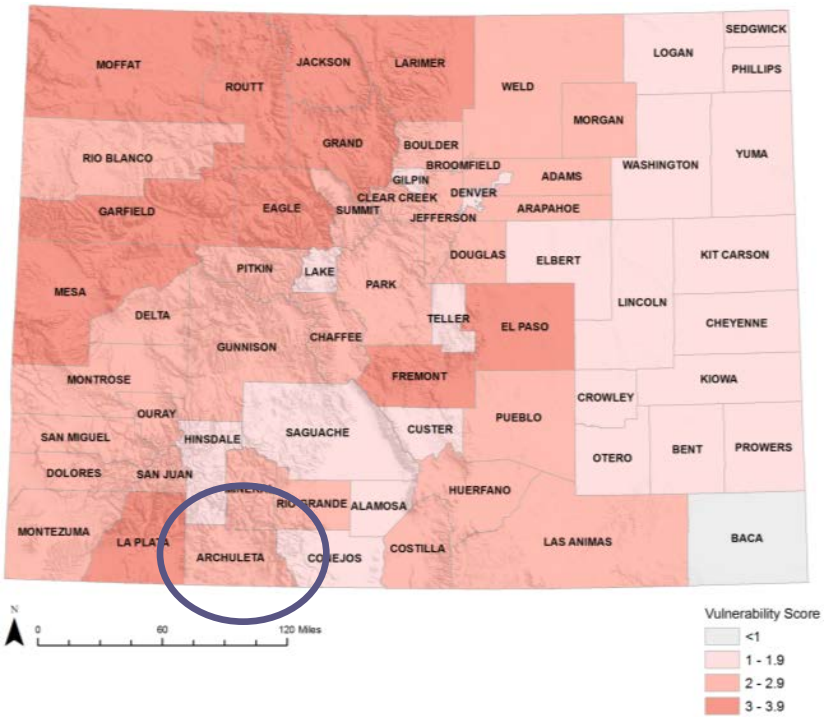
***Drought Hazard Identified as 'High' Significance hazard in each plan***

- Sources of hazard and vulnerability information vary and include
  - State Hazard Mitigation Plans
  - Colorado Drought Mitigation and Response Plan
  - Risk Management Agency Crop Indemnification Reports
  - State Agricultural Statistics
  - NIDIS Drought Impact Reporter

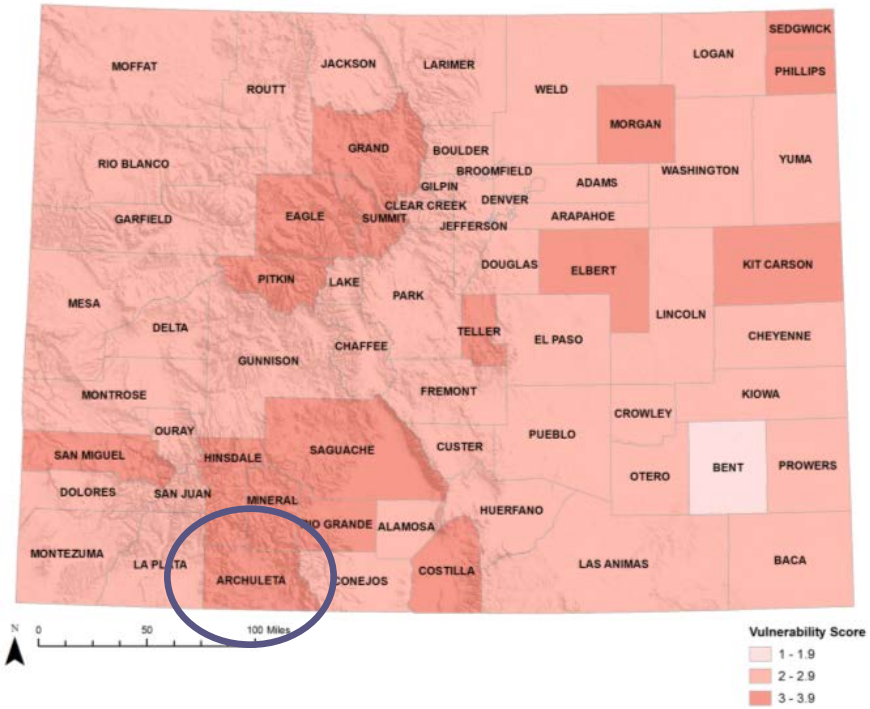
- Dollar losses difficult to quantify
  - Typically apply a % reduction in revenues from crops, livestock and tourism

# Community Level Planning:
# Archuleta County HMP Drought Vulnerability

## Recreation and Tourism Vulnerability Score




## Socioeconomic Vulnerability Score



# Community Level Planning: Summary of Lessons Learned

- Engaging Local Governments in guidance document review extremely valuable
- Important that guidance documents are specific to drought issues that may be encountered within a particular state
- Flexibility is important in planning guidance documents
  - Varying resources for planning at the local level
  - Basic plans to sophisticated plans

- Comprehensive mitigation worksheets allow communities to choose the options that work for them
- Some local governments in Colorado just beginning to use the guidance document and drought toolbox
- Drought vulnerability is variable across sectors depending on the local geography and economy
  - Data availability drives the level of detail and quantification of risk

# Community Level Planning: Next Steps and Future Directions

- Continued outreach on resources, tools, and vulnerability assessment
- Gauge usefulness of tools from local perspective
- Development of standard methods for vulnerability assessment
  - Refine vulnerability tool for use in local drought and hazard mitigation plans
- Integrate drought hazard information into other local plans
  - Water supply Plans
  - Climate Adaptation Plans
  - Energy Assurance Plans
- Incorporation of climate change aspects into local drought plans
- Develop database to track information in local drought plans
  - Ease of ‘roll-up’ of information from local to state plan during 3 year update cycle

# Questions?

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