

Appendix A DROUGHT MITIGATION AND RESPONSE PLANNING COMMITTEE

Table A.1 DMRPC Contact List

AGENCY	CONTACT	E-MAIL	ITF or Sector or DMRPC
Colorado Department of Agriculture	Cindy Lair	cindy.lair@ag.state.co.us	Agriculture ITF
Colorado State University - Water Resource Institute	Reagan Waskom	Reagan.waskom@colostate.edu	Agricultural ITF
Office of State Planning and Budgeting	Mattie Albert	mattie.albert@state.co.us	Drought Task Force
Department of Local Affairs	Ann Miller	Ann.miller@state.co.us	DMRPC
Department of Local Affairs	Logan Sand	Logan.sand@state.co.us	DMRPC
Colorado Department of Public Health	Garry Dejong	garry.dejong@state.co.us	Municipal Water ITF
CO Parks and Wildlife	Jackie Corday	jackie.corday@state.co.us	Wildlife ITF
CO Parks and Wildlife	George Schisler	george.schisler@state.co.us	Wildlife ITF
Colorado Water Conservation Board	Ben Wade	Ben.wade@state.co.us	Water Availability ITF
Colorado Water Conservation Board	Taryn Finnessey	taryn.finnessey@state.co.us	Water Availability TF et al.; plan lead
Colorado Water Conservation Board	Kevin Reidy	kevin.reidy@state.co.us	Water Availability TF
Office of Emergency Management	Patricia Gavelda	patricia.gavelda@state.co.us	Water Availability TF
Department of Corrections	Chuck Hildebrand	chuck.hildebrand@state.co.us	State Assets sector
Department of Corrections	Paul Engstrom	Paul.engstrom@state.co.us	State Assets Sector
Division of Water Resources - SEO	Kevin Rein	Kevin.rein@state.co.us	Water Availability TF
Division of Water Resources - SEO - WATF Co-Chair	Tracy Kosloff	tracy.kosloff@state.co.us	Water Availability TF

AGENCY	CONTACT	E-MAIL	ITF or Sector or DMRPC
CSU – Colorado Climate Center	Russ Schumacher	Russ.schumacher@colostate.edu	Water Availability TF
CSU – Colorado Climate Center	Becky Bolinger	beckybol@atmos.colostate.edu	Water Availability TF
CSU – North Central Climate Science Center	Dennis Ojima	Dennis.Ojima@colostate.edu	Water Availability TF
Colorado School of Mines – Colorado Geological Survey	Annette Moore	Annete.moore@state.co.us	Municipal Water ITF
The Nature Conservancy	Betsy Neely	bneely@tnc.org	DMRPC
Natural Resource Conservation Service	Brian Domonkos	Brian.Domonkos@co.usda.gov	Water Availability TF
Natural Resource Conservation Service	Karl Wetlaufer	Karl.wetlaufer@co.usda.gov	Water Availability TF
National Integrated Drought Information System - NOAA	Elizabeth Weight	elizabeth.weight@noaa.gov	Water Availability TF
Cooperative Institute for Research in Environmental Sciences - NOAA	Klaus Wolter	Klaus.wolter@noaa.gov	Water Availability TF
DPS – Division of Fire Safety	Rocco Snart	Rocco.snart@state.co.us	Wildfire
Colorado State University	Chris Goemans	chris.goemans@colostate.edu	Ag
Colorado Energy Office	Andrew Sand	Andrew.sand@state.co.us	Energy ITF
DORA- PUC	Larry Duran	lawrence.duran@state.co.us	Energy ITF
Office of Economic Development - Tourism Office	Luis Benetiz	Luis.benetiz@state.co.us	Tourism
State Land Board	William Woolston	William.woolston@state.co.us	DMRPC
Dept of Military and Veterans Affairs	Mitch Utterback	mitchell.d.utterback@us.army.mil	DMRPC
Denver Water	Jeremy Allen	jeremy.allen@denverwater.org	Municipal Water ITF
Aurora	Lyle Whitney	gwhitney@auroragov.org	Municipal Water ITF
Thornton	John Orr	john.orr@cityofthornton.net	Municipal Water ITF
NCWCD	Katie Melander	kmelander@ncwcd.org	Municipal Water ITF

AGENCY	CONTACT	E-MAIL	ITF or Sector or DMRPC
Colorado Springs Utilities	Abby Ortega	ajortega@csu.org	Municipal Water ITF
National Drought Mitigation Center	Cody Knutson	cknutson@unlnotes.unl.edu	Stakeholder
National Drought Mitigation Center	Deborah Bathke	dbathke2@unlnotes.unl.edu	Stakeholder
National Drought Mitigation Center	Mark Svoboda	Msvoboda2@unl.edu	Stakeholder
Wood	Jeff Brislawn	Jeff.Brislawn@woodplc.com	Consultant
Wood	Emily LoDolce	emily.lodolce@woodplc.com	Consultant
Wood	Amy Carr	amy.carr@woodplc.com	Consultant
Wood	Marta Blanco Castano	marta.blancocastano@woodplc.com	Consultant
Lynker	Graeme Aggett	gaggett@lynkertech.com	Consultant
Lynker	Ryan Spies	rspies@lynkertech.com	Consultant
Lynker	Bill Szafranski	bszafranski@lynkertech.com	Consultant

Appendix B ACTIONS TAKEN TO REDUCE DROUGHT IMPACTS IN PREVIOUS DROUGHTS

This appendix includes information on actions taken by the State during previous droughts. Information was taken from multiple sources including: “Recently Impacted States Historical Drought Information” by the Western Drought Coordination Council Drought Response Working Group in 1999; the 2003 Drought Impact and Mitigation Report prepared by the Colorado Water Availability Task Force following the 2002 drought; agency input during the 2010 and 2013 Plan revisions; Drought of 2012 in Colorado Climatology Report 13-01; and a summary of “Colorado Parks and Wildlife 2012 Drought Impacts Highlights.” This appendix is intended to serve as a reference in future droughts for the various Impact Task Forces that have the responsibility of tracking impacts and recommending mitigation and response actions (See Annex A Drought Response Plan). The table is organized by Impact Task Force. Refer to Annex B Drought Vulnerability Assessment Technical Information for additional information on State actions in past droughts and recommendations for adaptive capacities for future droughts.

Table B.1 Previous Actions Taken

Past Impact	Response Action Taken	Related Task Force
Crop/livestock losses (agriculture) ²	USDA Secretarial Disaster Declaration	AITF
Reduced forage/water for livestock (agriculture) ²	Conservation Reserve Program – emergency grazing; list of water haulers to livestock producers; Hay Hotline	AITF
Tax implications of herd reductions (agriculture) ²	Workshop re: tax implementation and information re: available drought assistance	AITF
Water supply reduction/watershed restoration ²	Thin/remove trees	AITF
Various Agricultural impacts ²	State/federal aid; monitor legislation for benefits to agriculture; communicate with legislature re: drought impacts	AITF
Lack of water storage ²	Assess legislation to provide for more stored water and to support temporary transfers of agricultural water to cities during drought	AITF
Increase cost of cattle production (e.g., feed, shipping, lease) (Agriculture) ¹	Offset cost of feed to rancher <ul style="list-style-type: none"> - Setup 800# to locate feed - Ship cattle to areas with feed - Reduce size of herds - Reserve stocks 	AITF

Past Impact	Response Action Taken	Related Task Force
Loss of livestock production (Agriculture) ¹	Offset agricultural impact - Emergency Farm Loans - Livestock Indemnity Program - Emergency Conservation Program - Water Conservation and Enhancement Measures including wells, springs, pipelines, troughs, etc.	AITF
Agricultural contamination of groundwater (Environmental) ¹	Development of new database to focus on groundwater quality	AITF, MWITF
Need for public information dissemination (Social) ¹	Conduct workshops in affected areas	DTF
In rural communities, municipal water restrictions resulting from 1956 drought caused many schools to close (Social) ¹	Information on State response not available	DTF
Need for enhanced monitoring of water availability, blowing soils and agriculture, wildlife, and tourism (Social) ¹	Activation of State coordinating team	DTF
Transportation hazards – highway visibility reduced to ten feet at times (Social) ¹	Coordination with State Patrol	DTF
Loss of energy production ²	Review suppliers for ability to maintain supply; monitor snowpack/runoff; predict hydroelectric generation reductions; update contingency plans/improve communications; ensure adequate cooling water for plants	EITF
Public water system operational problems ²	Update list; provide impacted systems with technical/financial assistance information; update information on available funding sources for drought mitigation; develop technical/financial assistance plan for each system with problems based on prioritized needs	HITF
Risks associated with operational problems ²	Work with impacted systems to develop bottled water/ boil water advisories; approve new water supply sources	HITF
In-stream water quality problems (environmental) ²	Identify potential problems in key segments; assess low-flow-related fish kill impacts	HITF
Risks associated with body contact uses ²	Increase public awareness/education	HITF
Interrelated wastewater/drinking water treatment concerns ²	Identify potential problems caused by upstream wastewater discharges on downstream drinking water plants	HITF
Risks associated with intersystem impacts ²	Work with impacted systems to develop bottled water/ boil water advisories	HITF
Need for technical assistance to site new municipal wells (Economic) ¹	Technical assistance from universities	MWITF

Past Impact	Response Action Taken	Related Task Force
Greater reliance on water from wastewater treatment plant discharges (Environmental) ¹	Administration of “effluent bank”	MWITF
Possible water and wastewater treatment plan non-compliance due to increased salinity caused by inadequate streamflows. (Environmental) ¹	Additional Water Quality Control Division and enforcement activity	MWITF
Need ground and surface water management for drought protection (Social) ¹	Conjunctive use management	MWITF
Insufficient water supply for system ²	Identify systems with needs; potential funding sources; encourage water conservation planning/education; create incentives for those with less reliable sources to connect/consolidate with others with more reliable sources; support additional storage reservoirs	MWITF
Insufficient water system revenue due to reduced water sales ²	Identify ways to generate additional revenue to offset revenue losses; technical assistance	MWITF
Mechanical and process failures related to reduced water supplies, higher contaminant levels and high temperatures ²	Outreach to identify and assist needy systems; continued funding of emergency and long-term mitigation and infrastructure projects; assess President’s Healthy Forests Initiative to mitigate wildfire impacts on water quality/supply	MWITF
Lack of funding for municipal and wildlife related drought mitigation activities (Economic) ¹	Provide assistance in accessing grants and other resources	MWITF, WITF
Assessing downturn in tourism industry (Tourism) ¹	Financial analysis of impacts on local government tax revenues; analysis of credit needs at resort areas	TITF
Economic loss to recreation and tourism industries ²	Develop Local Community Mitigation and Response Plans; public outreach and education	TITF
Rafting industry impacts ^{2, 4}	Public education/outreach, maintain river flows wherever possible through coordination with multiple entities; keep river corridors open for commercial outfitters, In 2012 CPW along with many other municipalities, water districts and agencies worked together to maintain a flow of 350 cfs on the Arkansas River. Although this was half of the agreed upon flow, this helped to reduce impacts.	TITF
Golf industry impacts ²	Water conservation; public outreach/education	TITF
Ski industry impacts ²	Public outreach/education	TITF
State Parks impacts ^{2, 4}	Public outreach/education; lengthen boat ramps; fire bans	TITF
Local parks & recreation area impacts ²	Limit field access/practice hours in spring; close fields during periods of extreme duress; public outreach education; water conservation; BMPs	TITF

Past Impact	Response Action Taken	Related Task Force
Campground industry ²	Public outreach/education; fire bans	TITF
Fishing/hunting impacts ²	Public outreach/education; offset hatchery/fishery locations to provide best stocking coverage during drought events; monitor instream flows and reservoir levels for fish kill potential	TITF
Lodging industry impacts ²	Planning sessions with member properties; water conservation; public education/outreach	TITF
Food service industry impacts ²	Public outreach/education; reduced water usage	TITF
Competing Interest could require suspension of current water rights system ¹	Emergency water proclamation drafted to suspend statutes and rules regulating distribution of water in the state	WATF
Need to maximize supplies and minimize effects of drought on water users (Social) ¹	Aid in local water resources planning	WATF
Need for "Water Bank" to help water users buy water supplies and improve protection of fish and wildlife (Environmental) ¹	Administration of water bank, increase public awareness	WATF, WITF
Catastrophic Fires (Wildfire) ¹	Increased preparedness for fire suppression	Wildfire/ Forest Health
Loss of Fire Fighters (Wildfire) ¹	Research and improved firefighting equipment and tactics	Wildfire/ Forest Health
Fear of losing one's home (Wildfire) ¹	- Information on what can be done to protect homes from wildfire - Urban wildland interface programs for targeted high risk areas	Wildfire/ Forest Health
Increased potential for wildfires in wildland interface areas ²	Technical/cost-sharing assistance for county Fire Management Plans; provide for wildland-urban interface management needs and fuels mitigation cost-sharing program; mechanism for State contributions to Emergency Fire Fund; statewide wildfire risk assessment; update roles in Colorado interagency Cooperative Fire Protection Agreement; expanded state support to zone dispatch center and extended attack; coordinate funding efforts for various programs; public education/outreach	WITF

Past Impact	Response Action Taken	Related Task Force
<p>Low streamflow, low reservoir, high water temperatures, anoxic conditions, sediment impacts from wildfire and flash floods on fish have resulted in stress and fish kills^{2, 3, 4}</p>	<p>Identify critical reaches, monitor, implement emergency habitat improvements; communication network; emergency instream flow protection; drought emergency closures; fishing restrictions; fish salvage operations; advance stocking; inform anglers to monitor water temperatures. CPW's management response to fisheries impacts from the Hayman Fire of 2002 included: 1) Increased stocking fingerling and sub-catchable size (5 to 8 inch) trout in some areas in order to replace year class losses to offset natural reproduction declines 2) Worked closely with water providers within the South Platte Basin to implement sediment trap areas on tributaries of the South Platte River, increasing opportunities for flushing flows to move the sediment bed load downstream, and 3) Worked on other stream and riparian habitat enhancements to restore watershed function. As of 2010, the CPW is still experiencing the residual impacts of the increased sediment load resulting from the Hayman fire, yet to a lesser extent than in 2002 as the ecosystem and watershed recovers slowly over time. In 2012, emergency releases were made from Lake Avery to maintain in-stream flows and protect cold water fish in the White River.</p> <p>In 2012, the Colorado Water Trust launched the "Request for Water 2012" program and was able to purchase temporary water rights that were unclaimed in Stagecoach Reservoir. These rights were purchased within the Colorado water rights framework and used as in-stream flow to keep water flowing through the Yampa River near Steamboat Springs, CO during the summer recreation season.^{.5}</p>	<p>WITF</p>
<p>Decrease in recreational angling²</p>	<p>Public education/information activities</p>	<p>WITF</p>
<p>Reduced hatchery production²</p>	<p>Monitor hatchery water levels/stocking conditions; modify production levels and stocking procedures</p>	<p>WITF</p>
<p>Reduction in quality habitat for wildlife including reductions in supplies of food, water and cover^{2,4}</p>	<p>Identify priority areas; monitor impacts on T&E species; implement emergency habitat improvements; application of good herd management</p>	<p>WITF</p>
<p>Increases in predator/human/livestock interaction^{2, 4}</p>	<p>Identify/assess impacts; public education; issuing public advisories on black bear activity and need for good public hygiene practices on food and garbage management</p>	<p>WITF</p>
<p>Increased impacts to big game including game damage and habitat reduction from drought stressed lands; higher risk of starvation, predation and survival of the young^{2,4}</p>	<p>Evaluate compensating private landowners; reduce herd sizes via drought mitigation hunting licenses</p>	<p>WITF</p>
<p>Changes in migratory bird patterns and waterfowl production rates; reduction in chick survival, increased predation; declines in nesting and brood rearing habitat for some species^{2, 4}</p>	<p>Monitor/identify impacts; develop emergency habitat improvements</p>	<p>WITF</p>

Past Impact	Response Action Taken	Related Task Force
Fish migration impacts due to low flows ³	Due to the extremely low flows in the Gunnison River during late summer of 2002, the kokanee salmon run wasn't able to get beyond a barrier west of the town of Gunnison. As a result, CPW staff netted the trapped fish and transported them manually to the Roaring Judy Fish Hatchery on the East River for spawning operations. Kokanee salmon is a high value sport fishery in Colorado and the spawning run on the Gunnison River is a critical component of maintaining this high value fishery. Further, a long-term solution was implemented as the concrete barrier was removed, re-designed, and re-constructed under the direction of a CPW aquatic biologist in order to allow fish passage.	WITF
2011-2013 Drought impacts in southeast Colorado	Agricultural Impact Task Force Activation The agricultural impact task force met for much of 2012, bringing together Farm Service Agency personnel and state water managers to report failed and prevented planting acreages, updates on CRP (Conservation Reserve Program) grazing availability as well as emergency loan status and disaster declarations status by county. Reports were also given on (although hard numbers were rarely available) cattle being sold, which mainly occurred in the Arkansas basin. These reports were integral for understanding impacts in different regions of the state. ⁵	AITF
2013 Drought - Municipal water impacts	Municipal Water Impact Task Force Activation	MWITF
Inability to share water restrictions and other drought related information specific to communities	The Colorado Drought Response Portal, which is maintained by CWCB was developed to help individuals determine what restrictions are specific to their community. http://www.coh2o.co/	All
2018 Drought impacts on agricultural industry	Agricultural Impact Task Force Activation	AITF

¹ 1999 Western Drought Coordination Council Drought Response Working Group

² 2003 Drought Impact and Mitigation Report

³ 2010 state agency input

⁴ 2013 Colorado Parks and Wildlife 2012 Drought Impacts Highlights

⁵Ryan, Wendy, and Nolan Doesken, 2013: Drought of 2012 in Colorado. Climatology Report 13-01. Dept. of Atmos. Sci., CSU, Fort Collins, CO. June, 2013.

AITF – Agricultural Impact Task Force

DTF – Drought Task Force

EITF – Economic Impact Task Force

HITF – Former Health Impact Task Force (no longer exists as of 2010)

MWITF – Municipal Water Impact Task Force

TITF – Former Tourism Impact Task Force (no longer exists as of 2013)

WATF – Water Availability Task Force

WITF – Wildlife Impact Task Force

Appendix C DROUGHT MITIGATION CAPABILITIES SUMMARY

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Socioeconomic										
Colorado Disaster Emergency Act of 1992	Office of the Governor	CRS 24-32-2101 March 12, 1992	Part 21 shall be known and may be cited as the "Colorado Disaster Emergency Act of 1992"	x	x	All	x			No funding associated with the establishment of the "Act"
Colorado Disaster Emergency Act of 1992 - Purpose	Office of the Governor	CRS 24-32-2102 March 12, 1992	(a) Reduce vulnerability of people and communities of this state to damage, injury, and loss of life and property resulting from natural catastrophes or catastrophes of human origin, civil disturbance, or hostile military or paramilitary actions. (b) Prepare for prompt and efficient search, rescue, recovery, care and treatment of persons lost, entrapped, victimized, or threatened by disasters or emergencies. (c) Provide for a rapid and orderly start of restoration and rehabilitation of persons and property affected. (d) Clarify and strengthen roles of the governor, state agencies, and local governments in prevention of, preparation for, response to and recovery from disasters. (e) Authorize and provide for cooperation in disaster prevention, preparedness, response and recovery. (f) Authorize and provide for coordination of activities relating to disaster prevention, preparedness, response and recovery by agencies and officers of this state...	x	x	All	x			At the discretion of the Governor
Definitions	Department of Public Safety	CRS 24-33.5-701 July 1, 2012	"Disasters" means the occurrence or imminent threat of widespread or severe damage, injury, or loss of life or property resulting from any natural cause or cause of human origin, including but not limited to fire, flood, earthquake, wind, storm, wave action, hazardous substance incident, oil spill or other water contamination requiring emergency action to avert danger or damage, volcanic activity, epidemic, air pollution, blight, drought, infestation, explosion, civil disturbance, hostile military or paramilitary action, or a condition of riot, insurrection, or invasion existing in the state or in any county, city, town, or district in the state.			All	x			Drought has equal status with other natural and man-made hazards
The Governor and Disaster Emergencies	Department of Public Safety	CRS 24-33.5-702 July 1, 2012	Suspend provisions of any regulatory statute prescribing the procedures of conduct of state business or the orders, rules, and regulations of any state agency.		x	All	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Governor's Disaster Emergency Council	Department of Public Safety	CRS 24-33.5-704(3)(a) July 1, 2012	"Council" consisting of not less than six nor more than nine members. The attorney general, the adjutant general and the executive directors of Personnel, Transportation, Public Safety, Natural Resources. Additional members shall be appointed by the governor from among the executive directors of the other departments.	x	x	All	x			The "Council" has not been utilized to its fullest potential in the past to serve its purpose for creation.
Office of Emergency Management	Department of Public Safety	CRS 24-33.5-705(2) July 1, 2012	OEM shall prepare and maintain a state disaster plan which complies with all applicable federal and state regulations and shall keep such a plan current.	x	x	All	x			State agencies have made significant progress in developing disaster response and recovery plans relative to their area of expertise. State Hazard Mitigation Funds for mitigation plans and projects.
Disaster Emergency Fund	Office of the Governor	CRS 24-32-2106.(2)(a)(I) March 12, 1992 amended June 3, 2009	Disaster Emergency Fund established. The General Assembly declares that funds to meet disaster emergencies shall always be available.	x	x	All	x			The amount designated for each disaster varies based on damage assessment and unmet needs. Appropriated by the General Assembly. If demands are unreasonably great, the Governor, with concurrence of the council may transfer and expend moneys appropriated for other purposes.
Disaster Prevention	Department of Public Safety	CRS 24-335-710	The Governor shall consider steps that could be taken on a continuing basis to prevent or reduce the harmful consequences of disasters.	x		All	x			Programs established depending on disaster circumstances.

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
National Guard	Department of Public Safety	CRS 28-3-104	Governor can activate resources of the State National Guard.		x	All	x			The Guard is reimbursed with funds from the Disaster Emergency Fund.
Natural Hazards Mitigation Council	Office of the Governor	Executive Order B044-89	Council established by Governor's Executive Order to address Natural Hazard Mitigation.	x	x	All	x			EO had a sunset date of 1999. No longer an active Council but some subcommittees still active on a periodic basis (e.g. Earthquake Subcommittee).
The Governor and Disaster Emergencies		CRS 24-33.5-704 (4) July 1, 2012	An executive order will be disseminated promptly to bring its contents to the attention of the general public.	x	x	All	x			
Environment (includes Water Quality)										
Concerning the Establishment of Community Wildfire Protection Plans (CWPP) by County Governments	County Sheriffs, Board of County Commissioners	CRS 23-31-Part 3(VI)(b) SB09-001 August 4, 2009	By enacting this section, the general assembly intends to facilitate and encourage the development of CWPPs in counties with fire hazard areas in their territorial boundaries...	x		All	x			Grant funding from other agencies and private organizations available to local governments and fire protection districts.
Responsibility of Responding to Wildland Fires	Colorado State Forest Service	CRS 29-22.5-101(d) SB09-020 April 30, 2009	The development of a county wild land fire plan, in cooperation among the sheriff, the fire chiefs, the board of county commissioners of the county based on the resource capabilities specific to the county will assist in clarifying the roles and responsibilities of local emergency response agencies, in the management of wild land fire incidents, and for these reasons the development of such a plan is encouraged.		x	All	x			
County Wildfire Preparedness Plan	County Sheriff	CRS 29-22.5-104(1)	The Sheriff of each county may develop and update as necessary a wildfire preparedness plan for the unincorporated area of the county in cooperation with any fire district with jurisdiction over such unincorporated area.	x	x	E,S		x		

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Fire Planning Authority	County Government, Board of County Commissioners	CRS 30-11-124 HB 00-1283 Section added; May 26, 2000	The Board of County Commissioners of each county in the state, subject to the requirements of section 25-7-123 CRS (Open Burning - Penalties) may prepare, adopt and implement a county fire management plan that details individual county policies on fire management on prescribed burns, fuels management, or natural ignition burns on lands owned by the state or county. Such plans will be in coordination with the County Sheriff, the Colorado State Forest Service and the appropriate state and local governmental entities.	x		All		x		
Wildfire Emergency Response Fund	Colorado State Forest Service	CRS 23-31-309 August 3, 2007 amended August 5, 2009	Administered by CSFS and all moneys that may be appropriated, all private and public moneys received through gifts, grants, reimbursements, or donations are authorized to be used for wildfire emergency response.		x	All	x			Reimbursement funding for first aerial tanker flight or the first hour of firefighting helicopter to a wildfire at the request of any county sheriff, municipal fire department or fire protection district.
Wildfire Preparedness Fund	Colorado State Forest Service	CRS 23-31-309(4)(a)	All moneys that may be appropriated, all private and public moneys received through gifts, grants, reimbursements, or donations transferred to be used for wildfire preparedness activities.	x		All	x			Funding for wildfire preparedness activities
State Emergency Fire Suppression Fund	Colorado State Forest Service	CRS 24-33.5-1207.6	Trust fund managed by State Forest Service. Can be used to offset the cost of fire suppression.		x	All	x			Funding for assistance to local governments within the first suppression period (usually 12 hours).
Fire Bans	County Sheriff's	CRS 23-30-308	Authorized by Governor, bans on open burning in designated areas.	x	x	All	x			
Federal "Healthy Forest Restoration Act of 2003" PL 108-148	Colorado State Forest Service and County Governments	CRS 23-31-312 August 5, 2009	Facilitate and encourage the development of CWPP's in counties with fire hazard areas and to provide more statewide uniformity and consistency with respect to the content of CWPP's. The State Forester, in collaboration with representatives of the USFS, the Colorado DNR, county governments, municipal governments, local fire departments or fire protection districts, electric, gas, and water utility providers shall provide guidelines and criteria for counties to consider in preparing their own CWPP's	x	x	All	x			
Determination of Fire Hazard Area - Community Wildfire Protection Plans - Adoption - Legislative Declaration - Definitions.	Board of County Commissioners of Each County	CRS 30-15-401.7 (3)(a)	No later than January 1, 2011, the board of county commissioners of each county, with the assistance of the state forester, shall determine whether there are fire hazard areas within the unincorporated areas of the county. Not later than 180 days after determining there are fire hazard areas within the unincorporated portion of a county, the board of county commissioners, in collaboration with the representatives of the organizations or entities enumerated in section 23-31-312(3) that established the guidelines and criteria, shall prepare a CWPP for the purpose of addressing wildfires in fire hazard areas...In preparing the CWPP, the board shall consider the guidelines and criteria established by the state forester..	x		E, S, R				Technical Assistance from the State Forester

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Wildlife Cash Fund	Division of Parks and Wildlife	CRS 33-1-112	Can be used to fund both response and mitigation actions affecting wildlife during drought periods.	x	x	E, S,	x			
Income Tax Imposed on Individuals, Estates, and Trusts - Single Rate - Definitions - Repeal	Colorado State Forest Service	CRS 39-22-104(4)(n)(l)(A) HB08-1110	Tax relief for landowners who conduct wildfire mitigation measures on their property up to \$2,500.	x		E, S				2009–2014 - up to \$2,500 federal tax deduction for land owners for conducting wildland urban interface wildfire mitigation measures meeting the Colorado State Forest Service standards.
Economic Development	Office of Economic Development and International Trade	CRS 24-46-101 through 106 July 8, 1987; Section added July 1, 1998	The purpose of this article is to bring together people representing a broad spectrum of interests, including higher education, agriculture, advanced technologies, finance and banking, venture capital, energy and industry to review the economic condition of Colorado, to develop and implement programs for the promotion of economic development in Colorado.	x	x	S	x			
U. S. Department of Commerce	EDA Denver Region	Economic Development Administration and Reauthorization Act 2004 (P.L. 108-373)	Economic Development Administration (EDA) is an agency within the U.S. Department of Commerce that partners with distressed communities throughout the United States to foster job creation, collaboration and innovation		x	S	x			Job losses from natural disaster Economic Adjustment Program \$25,000 to \$2 million.
Drinking Water Revolving Fund (DWRF)	Colorado Water Quality Control Division (WQCD), Division of Local Government (DLG), Water Resources and Power Development Authority (CWRPDA)	CRS 37-95-107.8	Loans: If the project will help the water system maintain compliance with drinking water standards, or will further the health protection of goals of the Safe Drinking Water Act. Small grants (up to \$10,000) are available for system planning and design.	x	x	PHS	x			
Owner may loan agricultural water right (loans to CWCB for instream flows)	CWCB	CRS 37-38-105	Enables entities in collaboration with CWCB to lease water for streams on short notice to protect the environment. This tool has been available since 2003 however	X	X	E	X			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
			it was first utilized by the Colorado Water Trust in 2012 to maintain water flows in at-risk stream reaches during the drought.							
Water Pollution Control Revolving Fund (WPCRF)	Colorado Water Quality Control Division (WQCD), Division of Local Government (DLG), Water Resources and Power Development Authority (CWRPDA)	CRS 37-95-107.6	Loans: If the project will help the waste water system maintain compliance with sewer discharge permit requirements, or will further the health and environment protection of goals of the Clean Water Act. Small grants (up to \$10,000) are available for system planning and design.	x	x	PHS	x			Annual funding through EPA as well as revenues generated by the program
Colorado Water Institute - Creation	Colorado State University	CRS 23-31-801 Section amended March 20, 2008	Conducting scientific research and policy analysis in areas of drought planning and mitigation. Establish and maintain a clearinghouse and archive of water research, water quality, and climate projection data.	X		All	x			State funds granted
Colorado Noxious Weed Act	CSFS and CDA	CRS 35-5.5-101 through 119	In enacting this article the general assembly finds and declares that there is a need to ensure that all the lands of the state of Colorado, whether in private or public ownership, are protected by and subject to the jurisdiction of a local government empowered to manage undesirable plants as designated by the state of Colorado and the local governing body. In making such determination the general assembly hereby finds and declares that certain undesirable plants constitute a present threat to the continued economic and environmental value of the lands of the state and if present in any area of the state must be managed. It is the intent of the general assembly that the advisory commissions appointed by counties and municipalities under this article, in developing undesirable plant management plans, consider the elements of integrated management as defined in this article, as well as all appropriate and available control and management methods, seeking those methods which are least environmentally damaging and which are practical and economically reasonable.	x		E	x			1. Restore stream channel capacity and reduce flood hazards 2. Provide habitat for aquatic and terrestrial species 3. Intensive restoration of riparian areas 4. Reduce erosion 5. Improve water quality 6. Enhance recreational access, and 7. Increase the capacity to utilize water through demonstrated reductions in the non-beneficial consumption of water by TRO.
Water Suppliers (Water Quantity)										
Local Government Land Use Control Enabling Act of 1974	Local Governments	CRS 29-20-101 through 205 1974	Grants counties and municipalities broad authority to plan for and regulate the use of land with no specific procedures proscribed for local governments to follow.	x	x	All			x	
Land Use Planning Subdivision regulations (County)	County Government,	CRS 20-28-133 1972	Requires counties to adopt subdivision regulations, including "adequate evidence that a water supply that is sufficient in terms of quality, quantity, and dependability will be available", subject to state review. Evidence includes: ownership or use of	x	x	E, S WS	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
	Board of County Commissioners		water right, estimated yield of water right, amenability to change in use, etc. (Takes into account dry year yield.) The Department of Water Resources reviews this evidence and provides comments regarding the reliability and potential water rights injury for the proposed water supply.							
Local Government Land Use Control Enabling Act - Adequate Water Supply (Curry Bill, HB08-1141)	Local Governments	HB08-1141	Requires a local government to make a determination as to whether an applicant for a development in excess of 50 units or a single-family equivalents, or fewer as determined by the local government, has demonstrated that the proposed water supply is adequate to serve the proposed development	x	x	S, WS	x			
Local Government Land Use Control Enabling Act - Adequate Water Supply (Curry Bill, HB08-1141)	Local Governments	CRS 24-65.1-101 HB08-1141 Powers	Allows local government to identify, designate, and regulate (through a permitting process) 21 statutorily defined "areas of state interest" including: site selection and construction or major new water and sewage treatment systems; major extensions of existing domestic water and sewage treatment systems. Allows some local control over matters of statewide interest. The State Engineer's Office does not implement Act.	x	x	S, WS,	x			
Land Use Planning	Local Governments	CRS 30-28-106; CRS 31-23-206 1939 through 2007	Counties and municipalities meeting certain growth standards are required to adopt a master plan (comprehensive plan) for the physical development of their jurisdictions; MUST include a recreation and tourism element; extraction commercial mineral deposits. May include a "water supply element." If included, the county or municipality needs to coordinate with the local water supply entities.	x	x	E, S, WS	x			
Land Use Planning	Subdivision Notification	CRS 30-28-136	Requires counties to submit a copy of preliminary plans for subdivisions to affected governments, including school districts, special and other districts, counties and municipalities located within two miles of the proposal and other agencies.	x	x	All	x			
Land Use Planning	Local Governments	CRS 29-20-104.5	Grants broad impact fee authority to counties and statutory municipalities to have new development pay for certain costs associated with growth; home rule municipalities always had this authority through their constitutional home rule powers. Nearly half of Colorado's cities have implemented impact fees. The most commonly used fee is for water 40% and sewer 27%. (CML 2004b) Impact fees may only be used to offset the impacts of new development on existing infrastructure and capital improvements and may not be used to pay for improvements needed to correct existing deficiencies in levels of service.	x	x	All	x			
Waterworks	Municipal Governments	CRS 31-15-707	Allows municipalities to construct waterworks outside its boundaries and protect the waterworks and water supply from pollution up to five miles above the point from which the water is taken.	x	x	All	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Weather Modification Operations	Colorado Water Conservation Board	CRS 36-20-101 through 127	CRS 36-20-108(4)(b) The Director may direct the State and assist counties, municipalities and public agencies in contracting in commercial operators for the performance of weather modification or cloud seeding operations.	x	x	All	x			See Non Reimbursable Investment
The Colorado Water Conservation Act of 1991 HB91-1154	Colorado Water Conservation Board	CRS 37-60 124 and CRS 37-60-126	Creates the Office of Water Conservation and Drought Planning under the Colorado Water Conservation Board to promote water conservation and drought mitigation planning	x	x	All	x			
Water Conservation Board and Compacts	Colorado Water Conservation Board	CRS 37-60-101 to 210	Provides voluntary guidelines for use by water utilities and funding for water conservation projects for those who have a plan.	x	x	All	x			
Duties of the Board	Colorado Water Conservation Board	CRS 37-60-106(1)(c) & (d)	Authorizes CWCB to formulate plans for bringing about the greater utilization of the waters of the state.	x		All	x			
Water Studies	Colorado Water Conservation Board	CRS 37-60-115	Authorizes CWCB to study water resources toward a unified and harmonious development of all waters for beneficial use in Colorado to the fullest extent possible under the law including studies regarding interbasin transfers.	x		All	x			Each sponsor shall submit a final report to the board and the state engineer by January 15, 2025. The board and the state engineer shall provide a final briefing to the water resources review committee by July 1, 2025. and irrigation practices.
Colorado Water Conservation Board Construction Fund	Colorado Water Conservation Board	CRS 37-60-121	Funds projects dealing with Water resources, instream flows, etc. The CWCB Loan Program provides low interest loans to agricultural, municipal and commercial borrowers for the development of water resource projects in Colorado.	x	x	A, E, S, WS	x			
Flood and Drought Response Fund	Colorado Water Conservation Board	CRS 37-60-123.2	Transfers up to \$500,000 from CWCB's construction fund to support flood and drought preparedness in addition to response and recovery activities following flood or drought events.	x	x	All	x			
Agricultural Emergency Drought Response	Colorado Water Conservation Board	CRS 37-60-123.5	Appropriates funds to CWCB for use in making loans and grants to agricultural organizations for emergency drought related water augmentation purposes.		x	A	x			up to \$1 million
Water Conservation and Drought Planning - Programs - Relationship to State Assistance for Water	Colorado Water Conservation Board	CRS 37-60-126	Defines the requirements that cover water conservation and drought mitigation planning. Creates the water efficiency grant program for purposes of providing state funding to aid in the development and implementation of water conservation plan, and drought mitigation plans in addition to efforts for water resource conservation public education and outreach. Funds are continuously appropriated	x	x	S	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Facilities - Guidelines - Water Efficiency Grant Program			to the CWCB for this purpose, to be available until the programs financed by the grants have been completed. CWCB has also developed M&I drought and conservation guidance documents and sample plans for the purposes of assisting water providers in developing such plans in addition to various stakeholder outreach efforts to encourage drought planning throughout the State.							

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
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Water Conservation and Drought Planning - Programs - Relationship to State Assistance for Water Facilities - guidelines - Water Efficiency Grant Program	Colorado Water Conservation Board	CRS 37-60-126.4	Minimum water conservation plan elements for an entity that seeks financial assistance from either the CWCB or Colorado Water Resources and Power Development Authority. (I) Water-efficient fixtures and appliances, including toilets, urinals, showerheads, and faucets. (II) Low water use landscapes, drought-resistant vegetation, removal of phreatophytes, and efficient irrigation. (III) Water-efficient industrial and commercial water-using processes. (IV) Water reuse systems; (V) Distribution system leak identification and repair; (VI) Dissemination of information regarding water use efficiency measures, including by public education, customer water use audits, and water-saving demonstrations; (VII) Water rate structures and billing systems designed to encourage water use efficiency in a fiscally responsible manner; (VIII) The department of local affairs may provide technical assistance to covered entities that are local governments to implement water billing systems that show customer water usage and that implement tiered billing systems; (IX) Regulatory measures designed to encourage water conservation; (X) Incentives to implement water conservation techniques, including rebates to customers to encourage the installation of water conservation measures; (b) A section stating the covered entity's best judgment of the role of water conservation plans in the covered entity's water supply planning; (c) The steps the covered entity used to develop, and will use to implement, monitor, review, and revise, its water conservation plan; (d) The time period, not to exceed seven years, after which the covered entity will review and update its adopted plan; and (e) Either as a percentage or in acre-foot increments, an estimate of the amount of water that has been saved through a previously implemented conservation plan and an estimate of the amount of the water that will be saved through conservation when the plan is implemented.	x		S	x			
Water Conservation and Drought Planning - Programs - Relationship to State Assistance for Water Facilities - guidelines - Water Efficiency Grant Program	Colorado Water Conservation Board	CRS 37-60-126.4.5	Calls for the establishment of guidelines regarding the reporting of water use and conservation data by covered entities. The purpose of data reporting is to provide water use and conservation data to be used for statewide water supply planning. The data collection process described in these Guidelines, developed as part of HB10-1051, is designed to provide better, more frequent, and more reliable data than currently available. These Guidelines create standardized reporting in that each covered entity is required to report the same type of information. However, this does not necessarily standardize the data collection process and does not require entities to change their data/billing systems to report in a particular format. Specific reporting categories were identified to allow the data to be utilized for annual forecasting purposes and to predict how water demands for different customer categories may evolve over time, through considering potential effects of water conservation.	x		S	x			

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Drought Mitigation Planning - Programs - Relationship to State Assistance	Colorado Water Conservation Board	CRS 37-60-126.5	Regulates drought mitigation planning programs and the relationship to State assistance to manage water supplies and water demand appropriately.	x			x			
Drought Mitigation Planning - Programs - Relationship to State Assistance	Colorado Water Conservation Board	CRS 37-60-126(11)(a)	Homeowners associations cannot enforce restrictive covenants that prohibit or limit xeriscape, installation or use of drought-tolerant vegetative landscapes, or require cultivated vegetation to consist exclusively or primarily of turf grass.	x	x	S	x			
Water Availability Task Force - drought condition recommendations - legislative declaration - repeal.	Colorado Water Conservation Board	CRS 24-32-2105.5	Encourages Water Availability Task Force to continue to monitor drought conditions to recommend legislation addressing drought emergencies.	x	x	All	x			
Reservoirs and Ditches May Exchange	Colorado Water Conservation Board	CRS 37-83-104	Allows water users to release stored water to the stream or ditch and in exchange divert an equal amount of water from a point higher upstream without adjudicating an exchange. Such exchanges are subject to the no injury rule and a water user undertaking such an exchange may be required by the State Engineer to release additional water from storage to make up for delivery losses.		x	WS	x			
Owner may loan agricultural water right - loans to Colorado water conservation board for instream flows.	Colorado Water Conservation Board	CRS 37-83-105	Allowing persons taking water from the same stream or ditch to exchange or loan water to one another for a limited time for the purpose of saving crops or using water in a more economical manner without requiring an adjudication of a change of water rights. Recently amended to allow temporary loans of water to CWCB for instream flow purposes.	x	x	WS	x			Ongoing
Authority of political subdivisions to lease or exchange water.	Colorado Water Conservation Board	CRS 37-83-106	Allowing water conservancy and conservation districts to enter into cooperative agreements with other political subdivisions for the lease or exchange of water outside district boundaries.	x	x	S	x			
Interruptible water supply agreements - special review procedures - rules - water adjudication cash fund - legislative declaration.	Colorado Water Conservation Board	CRS 37-92-309	This section, adopted during last legislative session. Gives State Engineer authority to approve temporary, interruptible water supply agreements, between water users providing for the temporary transfer of historic consumptive use credit to another type and or place of use without requiring adjudication of a change of water rights. Subject to approval by State Engineer upon a finding of non-injury to other water users. And non-interference with interstate compact requirements and will only be approved for operation during a calendar year in which a drought or other emergency has been declared by the Governor and the first full calendar after the declared emergency terminates.	x	x	WS	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
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Water Conservation in State Landscaping	Colorado Water Conservation Board	CRS 37-96-101 to 103 1989; amended 1991, 99	Requirements of public project landscaping to promote water efficiency and conservation. Any governmental or quasi-governmental agency of the state and political subdivision of the state that receives State financing for a project or facility is subject to the requirements.	x	x		x			
Rooftop Precipitation Collection	State Engineer's Office	CRS 37-96.5-103 HB 16-1005	Allows for the installation of a maximum of two rain barrels with a combined capacity of 110 gallons at single-family and multi-family households with four or fewer units. Rain barrels can only be used to capture rainwater from rooftop downspouts and the captured rainwater must be used to water outdoor lawns, plants and/or gardens on the same property from which rainwater was captured. Rain barrel water cannot be used for drinking or other indoor water use. On or before March 1, 2019 and on or before March 1, 2022, the State Engineer shall report to the committees of reference in each House of the General Assembly with jurisdiction over agriculture on whether the allowance of small-scale residential precipitation collection pursuant to this article has caused any discernible injury to downstream water rights.	x		E, WS	x			
Water Metering Act	Colorado Water Conservation Board	CRS 37-97-101 to 103 July 1, 1990; 2004	Every water service supplier providing water to over 600 taps in this state shall provide a metered water delivery and billing service to its customers - residential, commercial and industrial. New construction will have meters installed at the time of construction. Existing construction are to have had meters installed by January 1, 2009.	x	x	PHS	x			
Colorado Water Resources and Power Development Authority Act	Not an agency of State Government, but a body corporate and a political subdivision of the state	CRS 37-95 July 1, 1981	To preserve, protect, upgrade, conserve, develop, utilize and manage the water resources of the state.	x		All, PH S	x			
Local Government Energy and Mineral Impact Assistance Fund	Department of Local Affairs	CRS 34-63-102, CRS 39-29-110	To assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels.	x			x			
Community Development Block Grant	Department of Local Affairs		Benefit persons of low and moderate income, prevent or eliminate slums or blight, and address other urgent needs.	x	x		x			
Water Resources Review Committee	CWCB	CRS 37-98-102	Creates a water resources review committee to monitor the conservation and development of water resources in Colorado.	x	x	All	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
State Engineer	State Engineer's Office	CRS 37-80, CRS 24-1-124, CRS 24-33-104	Reservoir, streamflow, and water resources data collection dissemination. Real time satellite stream gauge system: river basin simulation models, production of surface water supply index.	x	x	WS	x			
County Control of Reservoirs	County Commissioners	CRS 37-88-109(2)	Shall maintain and keep reservoirs in good condition and provide for the storage of water and for distribution of water under the direction of the division engineer for the district in which the reservoir is situated and should be replenished for agricultural purposes during water scarcity.	x	x	PHS	x			

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							Supports	Facilitates	Needs Improvement	
Arkansas River Water Bank Pilot Program	State Engineer	CRS 37-80.5-106	To authorize the creation of water banks within each water division to be operated under strict parameters established by rules approved by the water court. Accordingly, this article provides for the promulgation of rules concerning water banks and requires the water court to approve the rules and the state engineer to report to the general assembly regarding the operation of the banks. The water bank program created by this article is intended to simplify and improve the approval of water leases, loans, and exchanges, including interruptible supply agreements, of stored water within each river basin, reduce the costs associated with such transactions, and increase the availability of water-related information. It is also the purpose of the water banks to assist farmers and ranchers by developing a mechanism to realize the value of their water rights assets without forcing the permanent severance of those water rights from the land.	x	x	WS	x			
Substitute Water Supply Plans	State Engineer	CRS 37-92-308(7) HB 02-1414	The State Engineer may approve such a plan if it is needed to address an emergency situation meaning "affecting public health or safety".		x	PHS	x			Allows 90 days of operation with no notice requirement.
Substitute Water Supply Plans	State Engineer	CRS 37-92-308(5)	SWSP allows one year of operation but only in situations where the depletions from the operation will not go out for a duration of more than five years. For this SWSP, no water court application is required as a prerequisite but the applicant must still give notice through the SWSP Notification List and allow 30 days for comments.		x	PHS, Ag	x			
Substitute Water Supply Plans	State Engineer	CRS 37-92-308(4)	Allows for temporary operation of a plan for augmentation that has been filed in water court but has not received judicial approval. The applicant must have an active application in water court. The SWSP must not allow more than that which has been applied for in water court and the applicant must give notice to objectors to the water court application.		x	PHS, Ag	x			
Substitute Water Supply Plans	Colorado Water Conservation Board	CRS 37-92-308	Calls for the CWCB to update the Criteria and Guidelines to allow for the establishment of Regionally Applicable Factors that specify the amount of precipitation consumed through evapotranspiration of preexisting natural vegetative cover. If a sponsor submits an application in a region where a Regionally Applicable Factor has been adopted under these Criteria and Guidelines, the sponsor may propose the use of the Regionally Applicable Factor in SWSPs applied for pursuant to section 37-92-308(4) or (5), C.R.S. and associated with the sponsor's pilot project. The State Engineer shall give the sponsor's use of the Regionally Applicable Factor in said SWSP applications a presumptive effect, subject to rebuttal. Each sponsor shall submit a final report to the board and the state engineer by January 15, 2025. The board and the state engineer shall provide a final briefing to the water resources review committee by July 1, 2025.		x	PHS, Ag	x			Allows for easier entry into pilot program and creates an incentive for more sponsors to implement precipitation harvesting.

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							Supports	Facilitates	Needs Improvement	
Colorado Healthy Rivers Fund	Colorado Water Conservation Board	CRS 39-22-2403 2002; title amended in 2008	Creates a fund to be added to the Colorado Individual Income Tax Refund Check-off Program to give taxpayers the opportunity to voluntarily contribute to watershed protection efforts in Colorado. Moneys in the fund are available through a grant program jointly established by the CWCB and the Water Quality Control Commission, and the Colorado Watershed Assembly. Two categories of grants: 1) Project grants that support the improvement and/or protection of the condition of the watershed. 2) Planning grants to support development of plans for restoration or protection projects.	x	x	E	x			Provides additional contribution for a variety of funds.
The Construction Fund	Colorado Water Conservation Board (1971)	CRS 37-60-121	This fund provides low-interest loans for water projects. The fund has financed up to 90% of engineering and construction costs for more than 370 locally sponsored water projects. The fund may also provide non reimbursable investments. The Construction Fund is a revolving loan fund that allows the CWCB to be self-supporting and operate without money from the General Fund.	x	x	WS				Revenues come from interest earned on outstanding loans and on the fund's cash balance in the state treasury, and royalty distributions from federal mineral leases (FML). The Construction Fund's ability to support CWCB's operations and programmatic activities was significantly impacted by a \$10 million general fund transfer in FY08/09.
Severance Tax Trust Fund	Colorado Water Conservation Board (1997)	CRS 39-29-109	Creates the water supply reserve account in the severance tax trust fund. CWCB oversees the fund and makes loans or grants for water activities approved by a basin roundtable, including: Competitive grants for environmental compliance and feasibility studies; Technical assistance regarding permitting, feasibility studies, and environmental compliance; Studies or analysis of structural, nonstructural, consumptive, and non-consumptive water needs, projects, or activities; and Structural and nonstructural water projects or activities.	x	x	S, WS	x			\$10 million each year
Recommended Non Reimbursable Investments	Colorado Water Conservation Board (1997)		Projects or studies of statewide impact or importance. Feasibility studies and projects designed to address statewide, region-wide, or basin-wide issues. The Board examines whether such studies will result in new loans. CWCB can approve loans up to \$10 million without legislative approval.	x			x			
Colorado Water Quality Control Act	Colorado Department of Public Health and Environment	CRS 25-8-101 through 703 1963; repealed and reenacted 1981	In order to foster the health, welfare, and safety of the inhabitants of the state of Colorado and to facilitate the enjoyment and use of the scenic and natural resources of the state, it is declared to be the policy of this state to prevent injury to beneficial uses made of state waters, to maximize the beneficial uses of water, and to develop waters to which Colorado and its citizens are entitled and, within this context, to achieve the maximum practical degree of water quality in the waters of the state consistent with the welfare of the state.	x		E				Principal funding comes from the taxes paid by the producers of gas, oil, coal and other minerals. Also used for water supply projects. Loan rates are 2.75% for agriculture

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
										loans, 4% to 5.25% for municipal loans, and 6.25% for commercial loans (adjusted annually).
Regional Wastewater Management Plans	Colorado Department of Public Health and Environment	CRS 25-8-105 1963; repealed and reenacted 1981	Wastewater management plans guidelines; creates water quality control commission to ensure provision of continuously safe drinking water by public water systems; permit system for pollutant discharge; violation, remedies, penalties; construction of domestic wastewater treatment works. Covered governmental entities include "any regional commission, county, metropolitan district offering sanitation service, sanitation district, water and sanitation district, water conservancy district, city town, Indian tribe or authorized Indian tribal organization or any two or more of them which are acting jointly in connection with a sewage treatment works."	x	x	S, WS	x			
Colorado Water Resources Research Institute	Colorado State University	CRS 23-35-101 moved to Part 8 of Article 31	Program provides for funding of water resources related research and dissemination of findings, including drought as well as the dissemination of information of a water policy nature.	x	x	A, E, W	x			
Power and Mining										
Colorado Energy Assurance Emergency Plan Recovery Act -	Colorado Energy Office	CRS 24-38.5-101 through 103	Establishment of the Energy Office to fulfill the offices mission to lead Colorado to a new energy economy by advancing energy efficiency and renewable, clean energy resources.	x	x	All	x			Enhances State government energy assurance capabilities and planning ; multiple grant programs
Colorado Renewable Energy Standard	Colorado Energy Office	HB 1001	The new law requires utilities to supply at least 12% of their retail electric sales from such sources from 2011 to 2014, 20% from 2015 to 2019, and 30% for 2020 and thereafter. Those requirements apply to all providers of retail electric service in the state, with the exception of municipal utilities serving 40,000 customers or fewer. In-state power facilities receive extra credit towards the requirements. More rooftop solar, community wind farms and other distributed resources such as small hydro, biomass, and geothermal will enhance the stability of the electric grid and create predictability in the renewable market, allowing us to bring more clean resources onto the system.							Increases the Renewable Energy Standard to 30% of retail electric sales (from 20%) by 2020 for Investor-Owned Utilities (Xcel Energy and Black Hills Corp.) Creates a minimum requirement for renewable distributed generation of at least 3% of total retail electric sales by 2020. Sets a standard for solar photovoltaic system installations. Keeps in statute the existing standard for rural electric associations (REAs).

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Recreation & Tourism										
Creation of Colorado Tourism Office	Colorado Tourism Office	CRS 24-49.7-101 through 109 May 22, 2000	Tourism and travel industries are vital to the general welfare, economic well-being, and employment opportunities of the state and its communities and citizens and that the continued health and expansion of these industries requires a long-term and continuing investment by the State in the planning promotion, coordination and development of Colorado as a quality national and international tourist and travel destination.		x	All	x			Colorado Travel and Tourism Promotion Fund
Colorado Office of Economic Development	Office of Economic Development and International Trade	CRS 24-46-Part 1	Declares that the commission encourages, promotes, and stimulates economic development and employment in Colorado by awarding economic development incentives to employers in the form of grants, loans, and performance-based incentives. The general assembly further finds that it is in the best interest of the people of the state to ensure that United States citizens and others lawfully present in the state are the beneficiaries of employment opportunities that are made possible through moneys awarded to employers.	x	x	All	x			Colorado Economic Development Fund
Colorado Regional Tourism Act	Office of Economic Development and International Trade	CRS 24-46- Part 3 June 4, 2009	The health, safety, and welfare of the people of the state of Colorado are enhanced by a diverse revenue stream, and the people of the state would benefit from an expansion of opportunities for investment in large-scale regional tourism projects that will attract significant investment and revenue from outside the state.	x		All	x			Funds for regional tourism projects
Agriculture										
Colorado Agriculture Extension Service. Public Information Technical Assistance		CRS 22-34-101	Program provides for dissemination in a timely manner to the agriculture community of drought related information and provision of technical assistance to deal with drought impacts.	x	x	A	x			

Title	Lead Agency	Statute	Description	Pre-disaster	Post Disaster	Impact Sector*	Effect on Loss Reduction			Comments
							Supports	Facilitates	Needs Improvement	
Agriculture	FMA, FCA, FSA, FEMA, SBA,	Title 7 CFR Part 1945 Subpart A	This subpart describes and explains the types of incidents which can result in an area being determined a disaster area, thereby making qualified farmers in such areas eligible for Farmers Home Administration (FmHA) or its successor agency under Public Law 103-354 Emergency (EM) loans. With respect to natural disasters, it sets forth the responsibility of the Secretary of Agriculture; the factors used in making a natural disaster determination; the relationship between FmHA or its successor agency under Public Law 103-354 and the Federal Emergency Management Agency (FEMA); the method for establishing and using Emergency Loan Support Teams (ELST) and Emergency Loan Assessment Teams (ELAT); the training of FmHA or its successor agency under Public Law 103-354 personnel; and disaster related public information functions. The natural disaster determinations/notifications made under this subpart do not apply to any program other than the FmHA or its successor agency under Public Law 103-354 EM loan program. FmHA or its successor agency under Public Law 103-354's policy is to make EM loans to any otherwise qualified applicant without regard to race, color, religion, sex, national origin, marital status, age, or physical/mental handicap (provided the applicant can execute a legal contract) as provided by law.		x	A, S	x			Secretary of Agriculture activates programs
Credit for income eligible to be deferred on sale of livestock due to weather-related conditions	Taxation	CRS 39-22-128 HB 02S-1010 August 12, 2002	Allows qualified livestock producers to defer taxes on livestock sold due to drought (with four years to replace livestock without reporting gains).		x	A	x			Tax benefit to the agricultural community
Colorado Noxious Weed Act	Department of Agriculture	CRS 35-5.5-1-2	This "Act" declares that certain undesirable plants constitute a present threat to the continued economic and environmental value of the lands of the state and if present in any area of the state must be managed. It is the intent of the general assembly that the advisory commissions appointed by counties and municipalities under this article, in developing undesirable plant management plans.				x			Noxious Weed Management Fund under the State Treasurer

*A=Agriculture

*E=Environment

*PHS=Public Health and Safety

*R=Recreation

*S=Socioeconomic

*WS=Water Supply

Appendix D REFERENCES

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Appendix E DEFINITIONS AND ACRONYMS

Definitions

Drought Types	<p><i>Meteorological drought</i> – a period of below-average precipitation.</p> <p><i>Agricultural drought</i> – a period of inadequate water supply to meet the needs of the state’s crops and other agricultural operations such as livestock.</p> <p><i>Hydrological drought</i> – deficiencies in surface and subsurface water supplies. Generally measured as streamflow, snowpack, and as lake, reservoir, and groundwater levels.</p> <p><i>Socioeconomic drought</i> – occurs when drought impacts health, well-being, and quality of life, or when a drought starts to have an adverse economic impact on a region.</p>
Drought Stages	<p>Drought severity levels generally differentiated by pre-defined trigger points or thresholds.</p>
Drought Indices	<p>Assimilation of data on rainfall, snowpack, streamflow, and other water supply measurements into a comprehensible picture (NDMC website, “What Is Drought: Drought Indices,” Michael Hayes). Some examples of common drought indices are: Palmer Drought Severity Index, Crop Moisture Index, Surface Water Supply Index, and the Standardized Precipitation Index.</p>
Drought Management Planning	<p>Drought management planning includes drought mitigation and drought response planning. The main objective of drought management planning is to preserve essential public services and minimize the adverse effects of a water supply deficit on public health and safety, economic activity, natural resources and individual lifestyles.</p>
Impact	<p>Measured or observed effect of drought that could include social, economic, and environmental sectors.</p>
Mitigation	<p>Drought mitigation refers to actions taken in advance of a drought that reduce potential drought-related impacts when the event occurs. Measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and environment (U.N. 1992, 4). Examples of drought mitigation steps include community drought response plans, mutual aid agreements, and drought legislation. Advances in technology often result</p>

in improved mitigation strategies, such as increasingly efficient techniques for irrigating crops.

Response Planning Drought response planning addresses the conditions under which a drought induced water supply shortage occurs and specifies the actions that should be taken in response.

Response Action Actions that will be carried out during a drought as various drought trigger points are reached. Response strategies can include anything from short-term emergency aid to government assistance programs and media relations.

Risk A combination of hazard, vulnerability, and exposure. The impact a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage.

Vulnerability Being open to damage or attack (as defined by FEMA’s risk assessment guidance (FEMA 386-2). The likelihood that an area or sector will be negatively affected by environmental hazards (Bolin and Stanford, 1998).

Acronyms

AF	Acre-feet
AGO	Attorney General’s Office
AUM	Animal Unit Month
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BNDSS	Basin Needs Decision Support System
BRT	Basin Roundtable
CAA	Community Agriculture Alliance
CAH	Climate-Adjusted Hydrology
CAIC	Colorado Avalanche Information Center
CASA	Carnegie-Ames-Stanford Approach
C-BT	Colorado Big Thompson
CCA	Colorado Cattlemen’s Association

CCC	Colorado Climate Center
CDA	Colorado Department of Agriculture
CDBG	Community Development Block Grant
CDBG-DR	Community Development Block Grant – Disaster Recovery
CDC	Center for Disease Control
CDOC	Colorado Department of Corrections
CDPHE	Colorado Department of Public Health and Environment
CEAEP	Colorado Energy Assurance Emergency Plan
CEDMP	Colorado Equilibrium Displacement Mathematical Programming Model
CEO	Colorado Energy Office
CFWE	Colorado Foundation for Water Education
CGS	Colorado Geological Society
CIR	Crop Irrigation Requirement
CMI	Crop Moisture Index
CMPDI	Colorado Modified Palmer Drought Index
COAGMET	Colorado Agricultural Meteorological Network
CoCoRaHS	Community Collaborative Rain, Hail & Snow Network
CO WWC	CO Water Wise Council
CODOS	Colorado Dust-on-Snow program
COGCC	Colorado Oil and Gas Conservation Commission
COMaP	Colorado Ownership, Management, and Protection
CPW	Colorado Parks and Wildlife
CRC	Center for Resource Conservation

CROA	Colorado River Outfitters Association
CRP	Conservation Reserve Program
CRMI	Colorado Resource Monitoring Initiative
CRWA	Colorado Rural Water Association
CRWAS	Colorado River Water Availability Study
CSAS	Center for Snow and Avalanche Studies
CSCUSA	Colorado Ski Country USA
CSFS	Colorado State Forest Service
CSU Coop Ext	Colorado State University Cooperative Extension
CSU	Colorado State University
CSU-WRI	Colorado State University Water Research Institute
CU	University of Colorado
CWCB	Colorado Water Conservation Board
CWPP	Community Wildfire Protection Plan
CWR&PDA	Colorado Water Resources and Power Development Authority
DARE-CSU	Department of Agricultural and Resource Economics at Colorado State University
DART	Drought Assessment and Response Tools or Drought Assessment for Recreation and Tourism
DEWS	Drought Early Warning System
DHSEM	Colorado Division of Homeland Security and Emergency Management
DMA	Disaster Mitigation Act
DMRPC	Drought Mitigation and Response Planning Committee
DNR	Department of Natural Resources

DOI	Department of the Interior
DOLA	Department of Local Affairs
DOLA DLG	Division of Local Government
DOLA CRO	Colorado Resiliency Office
DORA-PUC	Department of Regulatory Agencies Public Utilities Commission
DOW	Division of Wildlife (merged with Colorado State Parks in 2012; currently Colorado Parks and Wildlife (CPW))
DPS	Department of Public Safety
DRMS	Division of Reclamation and Mining Safety
DTF	Drought Task Force
DWR	Division of Water Resources
DWRF	Drinking Water Revolving Fund
DWSA	Drought and Water Supply Assessment
DWSU	Drought and Water Supply Update
EDA	Economic Development Administration
EDDI	Evaporative Demand Drought Index
EHH	Extended Historical Hydrology
EHSB	Environmental Health Services Branch
EIA	Energy Information Administration
EMAP	Emergency Management Accreditation Program
EMPG	Emergency Management Performance Grant
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Agency

FSA	Farm Services Agency
FTAP	Flood Technical Assistance Partnership
FWS	Fish and Wildlife Service
GAR	Governor's Appointed Representative
GCM	Global Climate Model; General Circulation Model
GCSAA	Golf Course Superintendents Association of America
GIS	Geographic Information Systems
GOCO	Great Outdoors Colorado
GreenCo	Green Industries of Colorado
GW	Groundwater
HMA	Hazard Mitigation Assistance grant program
HMGP	Hazard Mitigation Grant Program
HSIP	Homeland Security Infrastructure Program
HSPA	Health Professional Shortage Area
HVAC	Heating, Ventilating and Air Conditioning
IBCC	Interbasin Compact Committee
IP&Ps	Identified Projects and Processes
IPCC	International Panel on Climate Change
IRP	Integrated Resource Planning
ISFDSS	Instream Flow Decision Support System
ITF	Impact Task Force
JFRCCVS	Joint Front Range Climate Change Vulnerability Study
KBDI	Keetch-Byram Drought Index
LMIC	Livestock Marketing Information Center

L-PDM	Legislative Pre-Disaster Mitigation Program
M&I	Municipal and Industrial
MODIS	Moderate Resolution Imaging Spectroradiometer
MWTF	Municipal Water Task Force
NASA	National Aeronautics and Space Administration
NASA ASO	NASA Airborne Snow Observatory
NASS	National Agriculture Statistics Service
NCAR	National Center for Atmospheric Research
NCNA	Non-Consumptive Needs Assessment
NCWCD	Northern Colorado Water Conservancy District
NDIS	Natural Diversity Information Source
NDMC	National Drought Mitigation Center
NETL	National Energy Technology Laboratory
NHD	National Hydrography Dataset
NHMP	Natural Hazard Mitigation Plan
NIDIS	National Integrated Drought Information System
NDIS	Natural Diversity Information Source
NIMS	National Incident Management System
NIMSCAST	National Incident Management System Capability Assessment Support Tool
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Agency
NPS	National Park Service
NRCS	National Resource Conservation Service

NREL	Natural Resource Ecology Laboratory
NRF	National Response Framework
NSAA	National Ski Areas Association
NTU	Nephelometric Turbidity Units
NWS	National Weather Service
NWS RFC	National Weather Service – River Forecast Center
OEDIT	Office of Economic Development and International Trade
OSPB	Governor’s Office of State Planning and Budgeting
OWDCP	Office of Water Conservation and Drought Planning
PA	Public Assistance
PDM	Pre-Disaster Mitigation Program
PEPO	Public Education, Participation, and Outreach
PR	Public Relations
QWEL	Qualified Water Efficient Landscaper
RAD	EPA’s Reach Address Database
RMA	Risk Management Agency
RW	Reservoir Water
SAP	Simplified Acquisition Procedures
SBA	Small Business Administration
SCS	Soil Conservation Service
SEO	State Engineer’s Office
SHMO	State Hazard Mitigation Officer
SHMP	State of Colorado Hazard Mitigation Plan
SLB	State Land Board

SM	Soil Moisture
SNOTEL	Snow Telemetry Network
SPEI	Standardized Precipitation – Evapotranspiration Index
SPI	Standardized Precipitation Index
ST	Streamflow
SWSI 2010 update	Statewide Water Supply Initiative 2010 update
SWSI	Statewide Water Supply Initiative
SWSI	Surface Water Supply Index
SWSP	Substitute Water Supply Plans
TABOR	Taxpayer Bill of Rights
THM	Trihalomethane
TMDL	Total maximum daily load
TNC	The Nature Conservancy
TRT	Technical Roundtable
UCAR	University Corporation for Atmospheric Research
UCRB	Upper Colorado River Basin
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USDM	United States Drought Monitor
USDOI	United States Department of Interior
USDOT	United States Department of Transportation
USFS	United State Forest Service
USFWS	United States Fish and Wildlife Service

USGS	United States Geological Survey
VAT	Vulnerability Assessment Tool
VIC	Variable Infiltration Capacity
WATF	Water Availability Task Force
WCD	Water Conservation District
WECC	Western Electricity Coordinating Council
WISE	Water Infrastructure and Supply Efficiency
WPA	Western Area Power Authority
WPCRF	Water Pollution Control Revolving Fund
WQCC	Water Quality Control Commission
WQCD	Water Quality Control Division
WRA	Western Resource Advocates
WRF	Water Research Foundation
WWA	Western Water Assessment