

Topic & Goals	Question	Metric	Resources Available & Needed	Stakeholders & Experts
Water Quality				
Ensure water quality sufficient to support water uses in the basin	<ul style="list-style-type: none"> What is the state of water quality to support current or desired uses for water supply, recreation, aquatic life, and agriculture? 	<ul style="list-style-type: none"> Ute Mountain Ute Tribal Water Quality Standards for Designated Uses, Water Quality Control Commission standards for water quality classified uses 303d lists and TMDLS 	<ul style="list-style-type: none"> Mancos Watershed Plan Mancos Source Water Protection Plan Water quality monitoring data- UMUT, NPS, CDPHE 	MCD, CDPHE, NPS, UMUT
	<ul style="list-style-type: none"> What water quality standards are being/not being met? Where? 	<ul style="list-style-type: none"> UMUT Water Quality Standards for Designated Uses, Water Quality Control Commission standards for water quality classified uses 303d lists and TMDLS 	<ul style="list-style-type: none"> Colorado Department of Public Health and Environment NPS UMUT 	CDPHE, NPS, UMUT
Water Quantity				
Ensure sufficient water supply to sustain all uses and values	<ul style="list-style-type: none"> How has annual discharge changed over time? How have monthly flows changed over time? What is the timing of water discharge? Where is water used and where is it available? 	<ul style="list-style-type: none"> Maximum annual discharge Minimum annual discharge Total annual discharge Timing of streamflow Timing of storage Water Critical Areas Call locations 	<ul style="list-style-type: none"> Mancos River Basin Instream Flow Report USGS Gage Periods of Record CDWR Call and Diversion Records Basin Implementation Plan Statewide Water Supply Initiative 	CDWR, USGS, MCD, SWCD, BOR,
	<p>Do we have enough water to support these water uses in the basin, now and by 2050?</p> <ul style="list-style-type: none"> Agriculture Municipal Recreational Industrial Environmental 	<ul style="list-style-type: none"> Frequency of calls on the river by use Water conservation measures Annual acre feet diverted by use Annual consumptive use by use Flow gaps for environmental needs 	<ul style="list-style-type: none"> Functional Assessment of the Mancos River Watershed Mancos River Basin Instream Flow Report CDWR Call and Diversion Records Colorado Water Plan Basin Implementation Plan Statewide Water Supply Initiative 	CDWR, Southwest Basin Roundtable CWCB UMUT
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Agriculture	Question	Metric	Resources Available & Needed	Stakeholders & Experts
Maintain agriculture	<ul style="list-style-type: none"> • Do we have productive soils for desired crops? • Are our soils healthy and productive? • Are we losing soils to erosion? • How is crop type and yield changing, including livestock? • How many private acres are in agricultural production? • How is the number and size of farms changing? • How many acres of cropland are there? Dryland? Irrigated? • Is land being subdivided? • How much private land is protected from subdivision? 	<ul style="list-style-type: none"> • Acreage in agricultural production • Distribution of land uses and parcel sizes • Private land with long-term protected status • Total acreage harvested by crop • Livestock inventory • Market value of Ag products sold 	<ul style="list-style-type: none"> • Rapid Watershed Assessment • USDA Ag Census • County Planning or Assessors Office. • Montezuma Land Conservancy 	UMUT, NRCS, CSU Extension,
Provide water through infrastructure	<ul style="list-style-type: none"> • Do we have the infrastructure and efficiency to support water delivery? • How many diversions are there? • How is irrigation consumptive use changing? • Are we getting the most out of our ag water supply? • How efficient is our irrigation? 	<ul style="list-style-type: none"> • Extent and condition of gated pipe, high efficiency (e.g., sprinkler) on farm systems • Improved diversion structures • Improved (piped or lined) ditch systems • BMPs in basin • Annual consumptive use by beneficial use over time. 		NRCS, MCD, CDWR
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River Health	Question	Metric	Resources Available & Needed	Stakeholders & Experts
Maintain healthy aquatic ecosystems	<ul style="list-style-type: none"> • Are aquatic ecosystems in the river healthy? • Where do we have native fish? A trout fishery? Invasive warm water fish? Are they reproducing and self-sustaining populations? • How are the macroinvertebrate communities in the river? • Can fish move up and down the river? 	<ul style="list-style-type: none"> • Presence/absence • Abundance and diversity of aquatic macroinvertebrates • Spatial distribution of warm and cold water fish species • Species composition • Fish age/size distribution • # of fish stocked by species • Frequency and extent of extreme events, such as debris flows and droughts 	<ul style="list-style-type: none"> • Functional Assessment of the Mancos River Watershed • Mancos River Basin Instream Flow Report • Rapid Watershed Assessment • Mancos Watershed Plan • Colorado Parks and Wildlife, NPS, and UMUT monitoring and stocking data 	Colorado Parks & Wildlife, NPS, UMUT, USFS, Town of Mancos, MCD
Maintain healthy riparian ecosystems	<ul style="list-style-type: none"> • Do we have invasive weeds? • Do we have woody cover? • Do we have connected wetland function? • Do we have channel complexity? • Do we have appropriate habitat and water flow for desired wildlife and bird species? • Do we have desired flora and fauna in the watershed? • What sub-watersheds are vulnerable? Impaired? 	<ul style="list-style-type: none"> • What is the extent/trend of: <ul style="list-style-type: none"> • RSRA metrics • Sedimentation • Channel grading • Overbank flooding • Bank erosion • PFC metrics 	<ul style="list-style-type: none"> • Functional Assessment of the Mancos River Watershed • Rapid Watershed Assessment • County Weed Mapping? • Proper Functioning Condition Assessments • Watershed Condition Classification • Instream Projects 	Colorado Parks & Wildlife, NPS, UMUT, Montezuma County, USFS
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Forest and Rangeland Health	Question	Metric	Resources Available & Needed	Stakeholders & Experts
Maintain healthy forest to support a healthy river	<ul style="list-style-type: none"> • How healthy are our forests? 	<ul style="list-style-type: none"> • Diversity of forest stands and age classes (species, composition) 	<ul style="list-style-type: none"> • USFS, NPS, BLM management plans • Colorado State FS GIS 	USFS, BLM, NPS, UMUT, CSFS
	<ul style="list-style-type: none"> • How susceptible are our forests to insects and disease now and in the future? 	<ul style="list-style-type: none"> • Insect and disease infestation 	<ul style="list-style-type: none"> • USFS Aerial Detection Survey • Colorado State CO WRAP 	USFS, BLM, NPS, UMUT, CSFS
Reduce wildfire risk for communities and resources	<ul style="list-style-type: none"> • What is the wildfire risk in the community and our forests? Where is it highest? Lowest? • Where are community assets at risk? • Where are the highest risks for post-fire impacts? • Are we reducing risk to our communities? 	<ul style="list-style-type: none"> • Percent acres burned (wildfire, Rx, ignitions) • Percent of WUI resistant to fire damage • History of fire incidence and extent • Critical fire risk • Areas of treatment and BMPs • Percent of areas with high risk of erosion and sediment 	<ul style="list-style-type: none"> • Multiple GIS- burned areas, ignitions • USFS Aerial Detection Survey • Colorado State CO WRAP • USFS High Value Risk Assessment (in process) • Community Wildfire Protection Plans (CWPPs) • Erosion and Sedimentation Analysis 	USFS, BLM, NPS, UMUT, SJNF
Maintain healthy rangelands (shrub and grasslands) to support a healthy river	<ul style="list-style-type: none"> • What is the extent of grazing in the basin? • What is the quality of the forage? • What is the condition of range? 	<ul style="list-style-type: none"> • Acres under grazing management • Forage condition 	<ul style="list-style-type: none"> • USDA Agricultural Census • Colorado Agricultural Statistics • Modified Range Assessments • 	USDA, CO SDA
	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	

Potential Other topics: Community Infrastructure, Economics, Community

Climate Metrics

Topic and Goals	Question	Metric	Resources Available & Needed	Stakeholders & Experts
Climate				
Temperature	What are the temperature trends?	<ul style="list-style-type: none"> • Maximum annual temperatures • Minimum annual temperatures • Seasonal max/min temperatures • Growing degree days • USDA Planting Zones • Frost free days • Heat Index • Phenology or spring indexes 	<ul style="list-style-type: none"> • NCDC • NOAA • SNOTEL 	Western Water Assessment, NOAA, National Climate and Atmospheric Research Laboratory (NCAR), North Central Climate Science Center
Precipitation and streamflow	What are our precipitation trends?	<ul style="list-style-type: none"> • Annual precipitation totals • Seasonal precipitation totals • Drought Index • Water Balance • Phenology or spring indexes • Benchmark Years 	<ul style="list-style-type: none"> • NCDC • NOAA • SNOTEL 	
Extreme Events	What extreme events are happening in our region?	<ul style="list-style-type: none"> • Timing and magnitude of peak runoff • 100, 1000 year storm events 	<ul style="list-style-type: none"> • NCDC • NOAA • SNOTEL 	
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