Chapter 1
Introduction

Governor John Hickenlooper initiated Colorado's Water Plan when a Statewide Water Supply Initiative (SWSI) indicated that by mid-century there will be a gap between projected water demand and the known water supply if no action is taken. The gap is the result of two assumptions: by 2050, the state's population is projected to increase by up to 40 percent - mostly in Colorado's metropolitan regions (23 percent in the Upper Gunnison River Basin); and in the same period, the water supply is projected to diminish due to climate change - a permanent reduction of as much as 20 percent from 20th-century averages.

The Colorado River is the major water provider for 40 million people and 5 million acres of irrigated agriculture. The Gunnison River is a major tributary, contributing on average one- sixth of the Colorado River Basin's total annual flow. It is the largest river in Colorado whose Basin lies entirely within the state. The headwaters in the Upper Gunnison River Basin include seven major tributaries: Ohio Creek, East River, Taylor River, Tomichi Creek, Cochetopa Creek, Cebolla Creek, and the Lake Fork of the Gunnison River. In addition, the Basin includes approximately twenty miles of the Gunnison River main stem that extends from Almont to Blue Mesa Reservoir.

The Upper Gunnison River Water Conservancy District is geographically defined by the Upper Gunnison River Basin and includes most of Gunnison County and parts of Hinsdale and Saguache Counties. Approximately 82 percent of the lands located within the District are federal public lands administered by the U. S. D. A. Forest Service (USFS), Bureau of Land Management (BLM), and National Park Service (NPS). Based on 2010 United States Census data, the total population of the District (including seasonal residents) is estimated to be 19,416, a 1.91 percent increase from the 2000 Census. Agriculture accounts for over 97 percent of the current water diversions in the District and is a significant producer of economic revenue. Although some hay is sold, over 75 percent of the hay grown in the District is used by ranchers for winter feeding of their own livestock. Over 90 percent of the hay production in the District is dependent upon irrigation. The total amount of irrigated acreage in the District is approximately 60,000 acres. The Upper Gunnison River Basin is noted for its fishing, boating, skiing, hunting, camping, scenery, and general recreational uses. The District is home to traditional industrial uses such as mining, geothermal, and hydropower energy production. Popular water-based recreation activities include rafting, kayaking, boating, standup paddle boarding, stream and reservoir fishing and skiing. All of those activities contribute significantly to the Distict's's economy. The District also contains numerous ecological communities that require a certain quantity and quality of flowing water to sustain healthy ecosystem functions.

The District's *Upper Gunnison River Watershed Assessment and Stream Management Plan* is intended to improve water security for all water uses in the Upper Gunnison River Basin, by protecting existing uses, meeting user shortages, and maintaining healthy riverine ecosystems in the face of future demands and climate uncertainty, consistent with the GBIP and CWP. Baseline

and future needs assessment information will be compiled from the seven tributary sub-basins and the main stem, resulting in a comprehensive watershed management plan for the Upper Gunnison River Basin that recognizes the complex interactions between agricultural, domestic, and recreational uses of water and the environment.

Work that has been completed in Phase I under the direction of the WMPC includes assessment and planning tasks in three of the seven sub-basins of the Upper Gunnison Basin: Ohio Creek, East River, and the Lake Fork of the Gunnison River (Phase I Basins).

Stakeholder outreach. Stakeholder engagement is key to successful watershed management and was therefore the first and most essential task. Outreach was initiated with public meetings in Gunnison and Lake City introducing the assessment and management purpose and process. Both meetings were well attended. Thereafter, basin coordinators distributed paper and electronic surveys and conducted basin stakeholder meetings. These were followed up with targeted in-person interviews with key stakeholders to discuss basin issues, information gaps, and potential pilot projects.

Basin mapping and data compilation. Consultants constructed a detailed map of each Phase I Basin and compiled existing information about water usage and health of basin ecosystems. Included is a description of irrigation practices, water rights, diversion records, irrigated acreage and areas where shortages occur. Areas with significant human concentrations (incorporated towns and cities, unincorporated communities with organized water and sanitation districts, Planned Unit Developments and legal subdivisions, educational facilities, unofficial settlements (with five or more structures) and industrial areas and activities were identified. Areas with individual recreational use (whitewater boating, flatwater boating, standup paddle boarding, fishing, swimming) and areas with significant environmental concerns (instream flow problems, fishery concerns, riparian degradation, water quality concerns) were also identified. Data and information gaps in consumptive and non-consumptive uses were identified for all areas.

Needs assessments. Each Phase I Basin was divided into reaches defined by their unique characteristics and issues. The approach to investigating consumptive water needs, environmental and water quality needs, and recreational needs were tailored for each reach. The report summarizes the characteristics of each reach, issues identified by stakeholders and consultants, and the assessments performed to further understand specific needs.

Identification of Potential Projects, Programs and Activities for Improved Water Use Efficiency
As part of the stakeholder process, potential projects, best management practices (BMPs), monitoring, modeling and studies were identified for consideration in the Phase I Basins. Chapter 8 identifies potential demonstration projects to test concepts and educate stakeholders about implementation of the WMP. Chapter 9 introduces options for increased water use efficiency. These efforts will be refined as more information and data become available; however, the implementation program strategy generally includes the following components:

- Conducting monitoring, modeling, and studies to support feasibility of potential projects and refine proposed actions.

- Evaluating cost/benefit of each proposed activity.
- Implementing projects that complement the District's Mission and Vision.
- Conducting ongoing outreach to stakeholders to increase awareness of water issues, the watershed planning process, and collaboration opportunities.

Chapter 2
The Legal and Regulatory Framework

Section 1. Colorado Water Law

1.1 The Legal Framework

The legal framework for water management planning is defined by Colorado water law, which is founded on the prior appropriation doctrine (first in time, first in right). The Colorado Constitution declares that the waters of the state are the property of the public, subject to appropriation[1], guarantees the right to divert unappropriated waters, and provides that priority of appropriation gives the better right.[2] Water users with earlier water rights decrees (senior rights) have better rights in times of short supply, and can fill their needs before others with later rights (junior rights) can begin to use water.

A water right is defined as "a right to use in accordance with its priority a certain portion of the waters of the state by reason of the appropriation of the same."[3] A water right is created by an appropriation: the diversion of water from the natural stream and application to a beneficial use. "Beneficial use" is the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made.[4] In addition, there are recognized beneficial uses that qualify as diversions by "controlling water in the natural course", such as instream flow rights that can be appropriated or acquired by the CWCB for preservation or improvement of the natural environment.[5] Before initiating a water rights filing for an instream flow right, the CWCB must determine that the natural environment will be preserved to a reasonable degree by the water available for the appropriation to be made; that there is a natural environment that can be preserved to a reasonable degree with the water right, if granted; and that such environment can exist without material injury to water rights.[6] (See Section 1.2 below.) Certain governmental entities can appropriate recreational in-channel diversion water rights by placing control structures in the natural stream channel that create a reasonable recreational experience.[7] Impoundment of water for storage is also recognized as a beneficial use.[8]

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[1] Colo. Const. Art. XVI, Section 5.
[2] Colo. Const. Art. XVI, Section 6.
[3] § 37-92-103(12), Colorado Revised Statutes.
[4] § 37-92-103(4), Colorado Revised Statutes
[5] §§ 37-92-102(3), 37-92-102(4), 37-92-103-4(c), Colorado Revised Statutes.
[6] § 37-92-102(3(c), Colorado Revised Statutes
[7] §§ 37-92-102(5)(6); 37-92-103(4)(7)(10.3); 37-92-305(13)-(16), Colorado Revised Statutes.
[8] § 37-92-103 (4)(a), Colorado Revised Statutes

To protect a water right, it must be adjudicated in the water court. "Adjudication of a water right results in a decree that confirms the priority date of the water right, its source of supply, amount, point of diversion, type and place of use and includes conditions to protect against injury to other water rights."[9] Once adjudicated, a water right can be administered by the State Engineer; the Division Engineer and Water Commissioners on the local level. Administration occurs when a senior water right is not receiving the full amount of its decree, and the owner of that right places a "call" on the stream. The call directs the water commissioner to shut down diversions by upstream junior water rights so that the senior right can be satisfied. An irrigator is required to dry up the stream in order to place a call.

Instream flow rights are administered under the priority system just as other water rights. Because they were not authorized until 1973, most appropriated instream flow rights are junior in priority to irrigation rights in the Upper Gunnison Basin.

Two factors may limit the supply of water to a user: 1) There is not enough water physically present in the stream to accomplish the user's desired diversion or in-channel use, or 2) the water is physically present in the stream, but the user is prevented from diverting water by a call from a downstream senior right.

The extent of calls in the UGRWCD varies from basin-wide to internal. A basin-wide call originates from a senior right on the mainstem of the Gunnison River downstream of Blue Mesa Reservoir and impacts all junior users in the District on a basin-wide basis. Downstream water rights with the potential to place a basin-wide, or external, call and curtail private diversions throughout the District are the water rights for the Gunnison Tunnel and Redlands Power Canal. The federal reserved water right for the Black Canyon of the Gunnison National Park and the water rights for the Aspinall Unit are subordinated to water uses in the Upper Gunnison Basin up to 40,000 acre-feet of annual depletions.[10]

Internal calls typically originate from a senior right on one tributary of a stream and have an impact only on junior users on that tributary. These calls do not affect the water supply or water rights administration status of other tributaries.

In general, water rights and water uses where there is no consumptive use and the water remains in the natural stream are not subject to being curtailed due to a downstream senior call because they do not reduce the amount of water that is available to the calling right. However, calls placed during the spring which prevent storage may have an impact on the water available to the stream for fishery, wildlife and recreational purposes during late summer and fall.

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[9] Citizen's Guide to Colorado Water Law 6 (2009), Water Education Colorado.

[10] *Agreement for the Administration of Water Pursuant to the Subordination of Wayne N. Aspinall Unit Water Rights Within the Upper Gunnison River Basin* dated June 1, 2000, Contract No. 00-WC-40-6590; Case No. 03CW263, Water Division 4; Case No. 01CW05, Water Division 4.

More detailed discussion of Colorado water law is available from the following sources:

Citizen's Guide to Colorado Water Law, written by former Colorado Supreme Court Justice Gregory Hobbs, published by Water Education Colorado. available at:

https://www.watereducationcolorado.org/publications-and-radio/citizen-guides/citizens-guide-to-colorado-water-law/

Colorado Water Law for Non-Lawyers, P. Andrew Jones and Tom Cech, published by University Press of Colorado, available from Amazon.

1.2 Colorado's Instream Flow Program

Colorado has a well-established instream flow and natural lake level program. Since 1973, the CWCB has appropriated instream flow water rights on more than 1,500 stream segments covering more than 8,500 miles of stream and 477 natural lakes.[11]

Each January, the CWCB holds a workshop to request recommendations for streams and lakes to be protected. Instream flow recommendations may be proposed by any interested person. CWCB Staff collaborates with state and federal agencies and other interested persons to plan and coordinate collection of field data necessary for development of instream flow recommendations. The timeline for processing new instream flow appropriations is typically about two years, unless the appropriation is contested.[12]

The R2CROSS tool is one of the standard techniques employed by state and federal agencies to model instream hydraulic parameters and develop instream flow recommendations in Colorado. Standardized field and office procedures have been developed to help ensure that final instream flow recommendations meet statutory guidelines and are consistent. The standard field procedures that were established concern selection of transect sites and collection of hydraulic and biologic data. Standard office procedures have been established for determining biological instream flow recommendations using output from R2CROSS and for analyzing water availability.[13]

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[11] Colorado Water Conservation Board, http://cwcb.state.co.us/environment/instream-flow-program/Pages/main.aspx, last accessed December 1, 2019.

[12] See: *Rules Concerning the Colorado Instream Flow and Natural Lake Level Program*. 2 CCR 408-2.

[13] Colorado Water Conservation Board, *Development of Instream Flow Recommendations in Colorado Using R2CROSS* (1996), p. 2, https://dnrweblink.state.co.us/cwcb/0/doc/158688/Electronic.aspx?searchid=e14efb21-664b-47ed-92fc-fe9be91dbda8, last accessed December 1, 2019.

Biologic sampling is conducted to document the existence of a natural environment. Coldwater fish species, particularly salmonids, have been used to indicate the existence of such a natural environment in the majority of the CWCB's instream flow appropriations to date.[14]

Following the field survey, raw data is entered into an Excel Macro that calculates a flow recommendation based on three criteria: average water depth, average water velocity, and the percent wetted perimeter (R2CROSS criteria). The R2CROSS model output is used to create initial recommendations for winter and summer minimum flow rates, based upon meeting the specific criteria. R2CROSS model output represents the minimum flow required to preserve the natural environment to a reasonable degree.

The CWCB relies upon the biologic expertise of the cooperating agencies to interpret the output from R2CROSS and develop an initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. After receiving the cooperating agencies' biologic recommendation, the CWCB staff evaluates stream hydrology to determine whether water is physically available for an instream flow appropriation.[15]

A detailed site-specific water availability analysis that considers both existing water rights and physical flows is used to determine whether water is available for appropriation of the instream flow water right. Water availability typically is assessed using median hydrology. There are instances where the initial instream flow recommendations are revised based on the results of the water availability analysis. Following the water availability analysis, the revised instream flow rates are provided to the party that recommended the appropriation for additional review. Water right owners near the proposed instream flow reach are given an opportunity to comment on the instream flow proposal.

The CWCB is also authorized by statute to acquire water, water rights, or interests in water for instream flow purposes by following the procedure described in the Instream Flow Rules.[16]

Section 2. Regulation of Water Quality

Water quality standards are the foundation of the water quality-based pollution control program mandated by the federal Clean Water Act (CWA)[17]. These standards define goals for a

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[14] *Id.*, p. 5.
[15] *Id.*, p. 10.
[16] "The Board may acquire, by grant, purchase, donation, bequest, devise, lease, exchange, or other contractual agreement, from or with any Person, including any governmental entity, such water, water rights, or interests in water that are not on the Division Engineer's abandonment list in such amounts as the Board determines are appropriate for stream flows or for natural surface water levels or volumes for natural lakes to preserve or improve the natural environment to a reasonable degree." Rule 6a., *Rules Concerning the Colorado Instream Flow and Natural Lake Level Program,* 2 CCR 408-2.
[17] 33 U.S.C. §1251 *et seq*. (1972)

waterbody by designating its uses, setting criteria to protect those uses, and establishing provisions such as antidegradation policies to protect waterbodies from pollutants.

In Colorado, water quality standards are assigned to all waterbodies, including streams, river, lakes, and reservoirs. Standards are established through a public hearing process conducted by the Colorado Water Quality Control Commission (WQCC) within the Colorado Department of Public Health and Environment (CDPHE). The Water Quality Control Division (WQCD) is the department in CDPHE that implements WQCC policies and regulations. Regulations 31, 35, and 93[18] were used to support this water quality analysis.

Regulation 31 describes a set of designated uses for Colorado's waters and defines the water quality conditions generally necessary to attain and maintain each designated use. In addition, it establishes procedures for classifying waters of the state, for assigning water quality standards, and for periodic review and modification to the classifications and standards.

Regulation 35 classifies and assigns numeric water quality standards to surface waters located in the Gunnison and Lower Dolores River Basins. All waterbodies are partitioned into segments, which are discrete areas that share similar characteristics, uses, and other features. These segments are assigned designated uses and numeric water quality standards that must be met in order to protect those uses. Each of the use classifications has specific standards for many water quality parameters. The water use classification with the most conservative criteria (i.e., lowest value) is applied as the effective standard for each parameter (e.g., pH, temperature or lead). This approach assures that all water uses are protected because the use with the most conservative criteria is applied as the standard.

The criteria to protect aquatic life generally have two standards associated with each parameter: chronic and acute. Chronic conditions cause stress in aquatic organisms during prolonged or repeated exposures resulting in physical abnormalities, impaired growth, reduced survival, and lowered reproductive success. Acute conditions cause extreme stress during instantaneous or brief exposures that can result in sub-lethal and lethal effects on aquatic life. This approach requires an understanding of both the species expected in a given waterbody and the tolerance of those species to various water quality parameters.

The chronic and acute standards are designed to protect 95 percent of the genera in a given waterbody. Colorado relies on guidance from Federal, State, and local scientists to establish these standards which are frequently reviewed. Because chronic standards are designed to prevent problems associated with long term exposure to parameters, the value of a chronic

[18] Regulation No. 31 - *The Basic Standards and Methodologies for Surface Water*, 5 CCR 1002-31; Regulation No. 35 - *Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins*, 5 CCR 1002-35; Regulation No. 93 - *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*, 5 CCR 1002-93.

standard is always lower than the acute standard, which is designed to prevent lethal effects. If the concentration of a given parameter exceeds the applicable standard, the quality of the water is not protective of the given use. This condition is referred to as an "exceedance".

Section 303(d) of the CWA requires that each state prepare a list of waters that do not meet water quality standards. Regulation 93 is used to document the Colorado List of Impaired Waters (also call the 303(d) List). The list must describe the waterbody and the parameter for which it is impaired. Typically, these lists are updated and reexamined every two years; Colorado's next update occurs in 2020 however, the Gunnison Basin will not be the focal point of the 303(d) List until the 2022 update.

To assemble the list, the Colorado WQCD reviews readily available water quality data, typically collected within five years of the assessment period, by segment relative to state water quality standards. When water quality data do not pass the evaluation, the waterbody is added to the 303(d) List. When impairment is in question because the available data is somehow insufficient (typically too few samples), the waterbody is added to Colorado's Monitoring and Evaluation (M&E) List. The version of the 303(d) and M&E List used in this assessment was effective on March 2, 2018.[19]

[19] Regulation No. 93, *id.*

Chapter 3
Environmental Issues

Several environmental characteristics were assessed and summarized based on information collected from existing studies, stakeholder feedback, and field assessments. The following issues occurred commonly in all of the Phase I Basins.

1.1 Stream and Riparian Characteristics

The current condition of a stream and the adjacent riparian areas reflect the action of both natural processes and human activity. Stream and riparian characteristics provide important context to understand stream stability and watershed function. This assessment included a cursory review of channel and landscape form, debris supply, floodplain connectivity, stream stability, and physical structure. The objective of this portion of the assessment was to preliminarily evaluate issues identified by stakeholders and to support field assessment locations.

1.2 Aquatic Life

The health and diversity of aquatic life provides a unique signature that characterizes the quality of a waterbody or watershed. Environmental conditions such as temperature, chemistry, flow regime, and habitat type dictate which aquatic species are suited to the waterbody. Aquatic life responds to fluctuations in water temperature, chemistry, and quantity. Fish and other mobile species will migrate if unsuitable conditions persist. Aquatic insects and invertebrates, also called macroinvertebrates, cannot readily escape unsuitable conditions. Therefore, the species composition and diversity of macroinvertebrate communities can provide insight into the long-term character of a waterbody.

Diversions are the most common and severe stressor to aquatic life within a watershed. When diversions account for a considerable portion of the stream flow, the following issues tend to affect aquatic life:

- Many diversion structures prevent fish passage. During high flows, the velocities near diversion structures can be too swift to allow for upstream passage. During low flow periods, the diversion structure may dry up or nearly dry up down-gradient sections of the stream. As noted previously, to place a water right call, a water user must dry up the stream.

- Reductions in natural flows alter natural sediment transport regimes. Over time, this may alter the channel form, habitat types, and bed materials available to aquatic life.

- Reductions in natural flows may alter water temperatures. Increased temperatures reduce dissolved oxygen concentrations and may alter additional water quality characteristics (e.g. metals solubility).

- Return flows from irrigated parcels can support late season stream flows. The duration that return flows support stream flows is subject to the reach characteristics, including the stream, riparian area, and irrigated parcels and the irrigation practices employed in that area. Generally, about 50 percent of the water diverted that is not consumed by vegetation returns to the stream in four days or less; an additional 35 percent returns within approximately 60 days. The physical and chemical characteristics of return flows are difficult to measure, as a portion returns through the shallow alluvium. Return flows may accumulate nonpoint source pollutants, like nitrogen or phosphorus, that may reduce the quality of water in the stream. In addition, return flows may alter stream temperatures.

1.3 Water Quality

The assessment process identified various water quality issues, ranging from heavy metal loading to increased concern over *E. coli* concentrations and nutrient loading. Water quality was examined by reviewing Colorado's 303(d) list for impaired waters, assessment files compiled by the WQCD, and data included in the national water quality portal. Data was reviewed from 2000 to present to determine if reaches were meeting both chronic and acute water quality standards.

For instance, the water supply standard for arsenic is a two-part standard. The first criterion is a human-health standard of 0.02 µg/L. The second criterion is a maximum contaminant level, developed through the federal Safe Drinking Water Act. The maximum contaminant level is the acceptable level of a substance in public water supplies and accounts for treatability and laboratory detection limits. The maximum contaminant level for arsenic is 10 µg/L. In practice, this means that raw source waters for public drinking water systems are not classified as impaired unless arsenic concentrations exceed 10 µg/L. There was insufficient data available to review certain water quality components, including nutrient loading.

1.4 Water Temperature

Water temperature provides a critical role in regulating the physical and chemical characteristics of streams. As water temperature increases, dissolved oxygen concentrations decrease. Aquatic organisms require adequate dissolved oxygen to survive. Likewise, warm waters are more effective solvents than cold waters; which can increase the concentrations of metals, salts, and other constituents.

The stream temperature standards, which are applied to protect fish and other aquatic organisms, require continuous temperature data collection (e.g. the standard is not typically evaluated using a single temperature measurement). The chronic standard, which assesses "long-term" stress to fish, is based on the mean weekly average temperature. The acute standard is based on the daily

maximum, which is the highest two-hour average water temperature recorded during a given 24-hour period.

1.5 Flow Limited Areas

Streamflow quantity and timing are critical components of water supply, water quality, and the ecological integrity of river systems. Indeed, streamflow, which is strongly correlated with many critical physicochemical characteristics of rivers, such as water temperature, channel geomorphology, and habitat diversity, can be considered a "master variable" that limits the distribution and abundance of riverine species. [20]

One purpose for the assessment described in this Report is to identify current flow conditions in the rivers and streams in the basin. For this purpose, the Basin Coordinators used stakeholder input and records of administrative calls to identify locations where diversions either dried up the stream or significantly reduced the flow ("near dry up" indicates at least a 50 percent reduction). Under Colorado law, an irrigator is required to dry up the stream in order to place a call to satisfy a decreed senior water right (see Section 1.1 above), so a "dry up" identified in this Report may be a function of normal water rights administration. Under current law, there is no alternative for the irrigator. Where dry up occurs as a result of physical water availability, or near dry up occurs, it is possible that there are options for water use efficiency that could reduce the impact on the stream without affecting irrigation. Those options will be evaluated in future phases of the planning process, Examples being tested are described in Chapter 8.

1.6 Environmental Flow Goals

The WMPC uses the term "environmental flow goals" to refer to stream flow goals in excess of existing or potential instream flow water rights. Preliminary environmental flow goals were developed, or recommended, on selected reaches based on the uses and priorities specific to the reach. Over time, the WMPC plans to create tiered environmental flow goals on selected reaches. This work will occur in subsequent phases of the planning process and will include ample stakeholder outreach.

[20] Poff, L. et al (1997). *The Natural Flow Regime.* Stomberg BioScience, Vol. 47, No. 11, pgs. 769-784.

Chapter 4
Stakeholder Engagement

Stakeholder engagement is key to successful watershed management from the beginning of the assessment and planning process. This task runs concurrent with other tasks because stakeholder input was sought for all aspects of the project, from data gathering to planning and implementation.

The primary objectives of this task are twofold. The first objective is to identify different stakeholders' perception of water user and watershed health needs under current conditions; the second is to identify needs they perceive based upon projected changes in the future.

At the beginning of the process, Basin Coordinators for each of the Phase I Basins were identified based upon their expertise as it relates to stakeholders and needs in these Basins. Once the Coordinators were identified, each worked on preparing a preliminary list of stakeholders, and contacts were made. As part of the initial contacts, the WMPC developed a survey regarding the values and perceptions about water use, environmental and recreational conditions. The standard survey is reproduced below.

Upper Gunnison Watershed Planning Questionnaire

The mission of the Watershed Management Planning Committee (WMPC) is to help protect existing water uses and watershed health in the Upper Gunnison Basin in the face of pressure from increased water demands and permanent reductions in water supply.

Your responses to these questions will help the Upper Gunnison River Water Conservancy District and its partners to develop a Watershed Management Plan to prioritize the projects or programs that will protect existing uses and improve watershed health through 2050. We want to hear your ideas on how water resource uses could be managed to protect existing uses and to improve local watershed health. We want to hear your concerns about how growth and climate changes might impact local water resources. Please skip questions that are not relevant to you.

NAME (Optional): _____

CONTACT INFORMATION: _____

_____

Please let us know if we can contact you for an interview regarding your responses to the questionnaire. Yes _____ No _____

Please mark all that apply:

Full time resident	___	Landowner	___
Part-time resident	___	Size of Property	_____
Local Business Owner	___	Water rights (categories)	_____
Public service (government, non-profit, etc.)	___	Choose not to answer	___

1. **What type of water use categories would you, your property, or your business best be associated with? (Select all that apply)**

Agricultural	_____	Recreation (boating–commercial)	_____
Industrial	_____	Recreation (boating–personal)	_____
Recreation (fishing-commercial)	_____	Domestic (central water system)	_____
Recreation (fishing-personal)	_____	Domestic (individual well)	_____

2. **What information would you like to have about your watershed?**

3. **Do you have any planning or legal concerns about your watershed?**

4. **Do you have any concerns related to the following topics: yes/no/uncertain (if yes, please explain)**

    - **Low flows**
    - **Riparian degradation (erosion, bank stability, etc.)**
    - **Irrigation shortages**
    - **Recreation access**
    - **Fish habitat**
    - **Other (Some examples are water infrastructure needs, water quality, stream temperature, etc.)**

5. **Do you have recommendations for projects or actions that could help improve water use for your property or business (i.e. a diversion structure reconstruction, riparian restoration, an efficiency project)?**

6. **Do you have recommended projects or programs that will help improve water use for your watershed?**

7. **Do you have recommended projects or programs that could help improve water quality?**

8. **What could be done, if anything, to improve recreational opportunities in the area (quality, use, and/or safety)?**

9. **Have you experienced or are you aware of conflicts between water users?**

10. **What could be done to improve irrigation infrastructure in the watershed?**

11. **What is your biggest concern about the future of water uses in your watershed (i.e. irrigation shortages, downstream calls, riparian health late season flows, Big River Issues i.e. Colorado River issues)?**

12. **Are there additional objectives or issues that you would like to see addressed in the attached watershed assessment framework?**

The stakeholder issues identified by the surveys are depicted below.

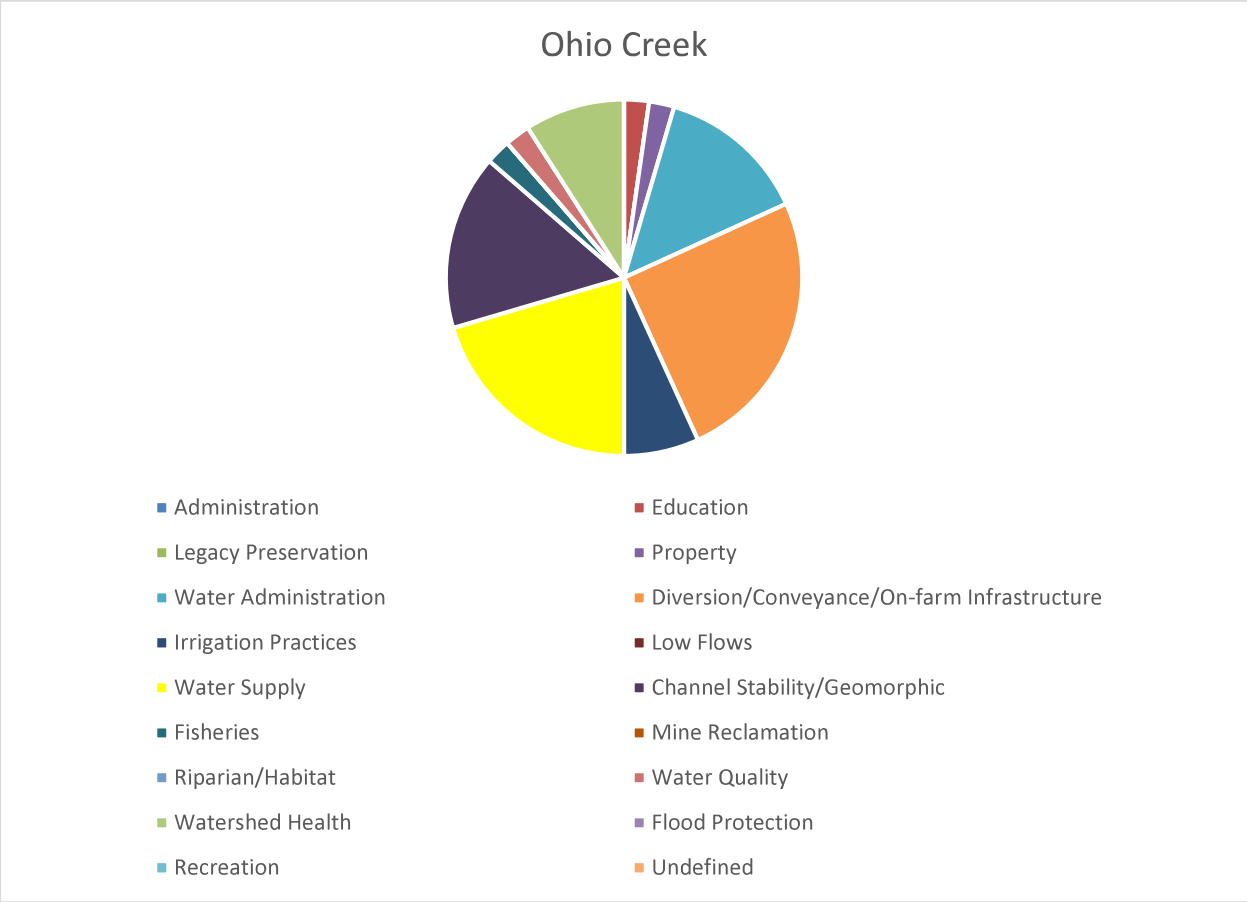

Figure 4-1: Ohio Creek Stakeholder Identified Issues

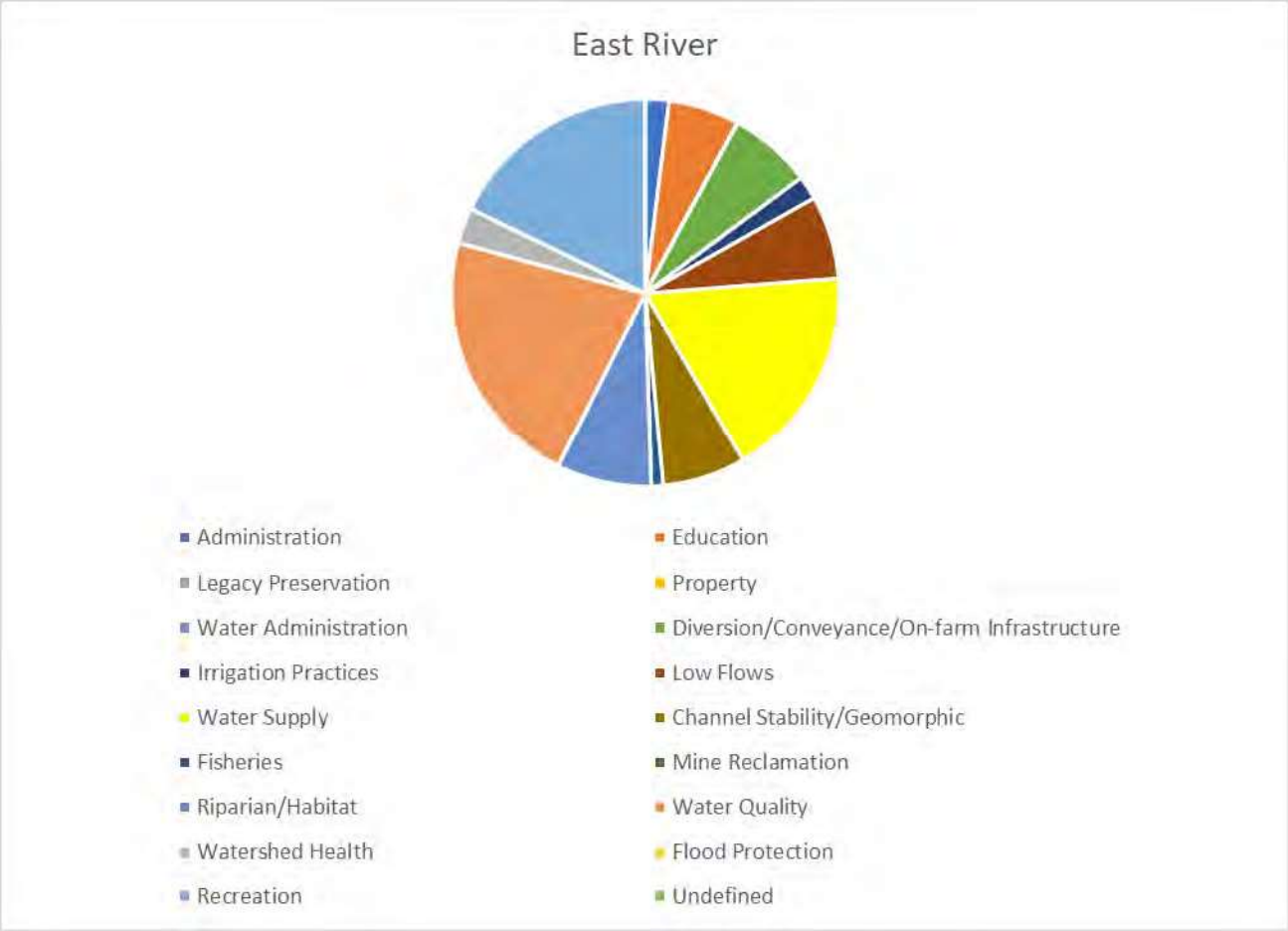

Figure 4-2: East River Stakeholder Identified Issues

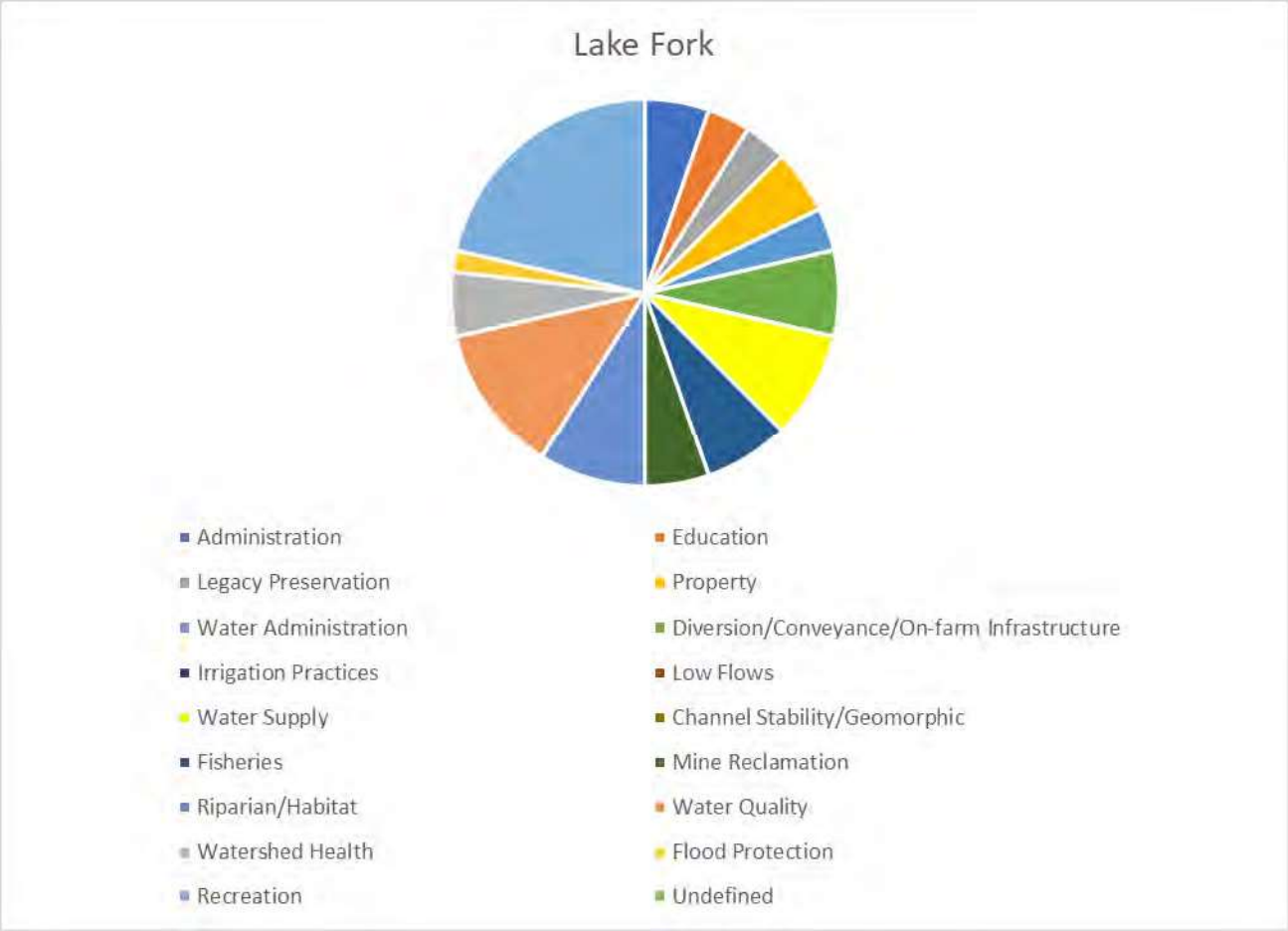

Figure 4-3: Lake Fork Stakeholder Identified Issues

Based on the results of these surveys received in each of the Phase I Basins, the Basin Coordinators and District staff continued conversations with targeted groups and individuals regarding Basin issues, information gaps, potential pilot projects, and possible long-term solutions. This enabled the Basin Coordinators to build and maintain relationships with stakeholders. Contact will continue throughout the planning process. While stakeholder involvement for regularly scheduled committee meetings has been less than desirable, one-on-one contact with the Basin Coordinators has provided significant input, particularly in areas of pilot project development and the establishment of stakeholder groups throughout the Phase I Basins.