Appendices

Appendix 1: References

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Appendix 2: Available Reports and Information

Water Supply and Demand

1. Gunnison Basin Roundtable – Principles, Policies, Priorities, Gunnison Basin Roundtable, 2013. *Summary of Gunnison Basin Roundtable objectives, priorities and goals for the Basin Implementation Plan.*

2. Gunnison Basin Fact Sheet, CWCB, 2006. *Summarizes compact information, major storage projects, water management issues, basin growth and water demands.* Report Link

3. Gunnison River basin Information Report, CWCB, 2004. *General descriptions of Gunnison River Projects and Special Operations; water rights, diversions, and operations.* Report Link

4. Water Supply Needs Report for the Gunnison Basin, CWCB, 2006. *Inventories water supplies and demands in the Basin; helpful reference for general basin information; looks at projected water supplies and demands out to the year 2030; catalogs consumptive IPPs.* Report Link

5. Colorado's Water Supply Future Statewide Water Supply Initiative – Phase 2, CWCB, 2007. *Summarizes a range of solutions that will help meet future water supply needs through addressing water conservation and efficiency, alternative agricultural water transfer methods, delineating environmental and recreational resources and needs, and addressing the water gap.* Report Link

6. SWSI 2010 Gunnison Basin Report Basin Wide Consumptive and Nonconsumptive Water Supply Needs Assessment, CWCB, 2011. *Summarizes SWSI basin specific data and analysis of existing and projected consumptive and nonconsumptive water supply needs; and catalogs projects to meet needs (IPPs). Report* Link

7. Colorado River Basin Water Supply and Demand Study, United States Department of Interior, 2013. *Summarizes the next 50 years of current and future water supply and demand imbalances, including investigation of impacts of projected climate change.* Report Link

8. Colorado River Water Availability Study Phase I, CWCB, 2009. *Study to determine how much water is available to meet Colorado's future water needs considering possible climate change hydrology. Identifies the impact of potential climate change to agricultural demands.* Report Link

9. Gunnison River basin Water Resources Planning Model User's Manual, CWCB, 2009. *A reference manual that describes the CDSS model which can be used to understand basin operations and issues; evaluate the applicability to a planning or management issue; analyze a development or management scenario; or estimate conditions under current development over a range of hydrologic conditions.* Report Link

10. Historical Crop Consumptive Use Analysis for the Gunnison River basin, CWCB, 2009. *A reference manual providing approach and results to estimating historical crop consumptive use.* Report Link

11. Technical Memorandum: Reconnaissance Level Cost Estimates for Agriculture and New Supply Strategy Concepts, CWCB, 2010. *Summary of evaluations for agricultural transfer and new supply development strategies.* Report Link

12. Gunnison Basin Water: No Panacea for the Front Range, The Land and Water Fund of the Rockies, 2003. *Summarizes water rights in the Basin and reasons against a diversion to Front Range.* Report Link

13. Aspinall Study: Blue Mesa Reservoir Water Banking, CDM, 2013. *Summarizes model tool that was developed to assess the effectiveness of using excess capacity storage in the reservoir to avoid, forestall, and/or mitigate the magnitude and duration of potential Colorado River Compact curtailment.*

14. Aspinall Unit Operations Final Environmental Impact Statement, United States Department of Interior, 2012. *Summary of proposed action to modify reservoir operations that will result in higher and more natural downstream spring flows and moderate base flows.* Report Link

15. Curecanti National Recreation Area Water Resource Scoping Report, United States Department of Interior, 1995. *Summarizes analysis of water resource issues facing Curecanti NRA to help ensure and maintain appropriate reservoir levels.* Report Link

16. Considerations for Modeling a Water Bank at the Aspinall Unit with Current Environmental Flows Draft Report, Prepared for the Colorado River Program of the Nature Conservancy, Hydros Consulting, 2011. *Summarizes a review of computer models to assess their ability to simulate different water banking options and their effect on operations and environmental flows.* Report Link

17. Grand Valley Regional Water Conservation Plan, City of Grand Junction, Clifton Water District, and The Ute Water Conservancy District, 2012. *Summarizes a plan for development and utilization of strategies to help improve water use efficiency by addressing supply and demand issues.* Report Link

18. Tri-County Water Conservancy District Water Conservation Plan, Tri-County Water Conservancy District, 2012. *Summarizes a plan for the development and utilization of a set of strategies that provide water suppliers and local communities a means of using water resources in a wise and prudent manner.* Report Link

19. Nonconsumptive Toolbox Report, CWCB, 2013. *Provides a compilation of information and tools for use to address nonconsumptive needs and implementation of projects and methods.* Report Link

20. Assessing Streamflow Needs for Whitewater Recreation in the Gunnison River basin, American Whitewater, 2013. *Provides baseline information on stream flows and whitewater recreation that can be applied to evaluating how future water management actions or risk management strategies may impact whitewater recreation.* Report Link

Water Quality and Watershed Health

21. Statewide Water Quality Management Plan, CDPHE, 2011. *Summarizes current conditions of the state's surface waters on a basin scale; key water quality regulations and policies; and serves as an education tool for both current and future stakeholders.* Report Link

22. Integrated Water Quality Monitoring and Assessment Report, CDPHE, 2012. *Summarizes water quality conditions and corresponding standards to assess attainment over the past five years.* Report Link

23. Colorado Nonpoint Source Program 2012 Management Plan, CDPHE, 2012. *Identifies and prioritizes nonpoint source issues; summarizes coordinating resources and partners to address issues and track progress in water quality improvement; and addresses the priorities through on-the-ground watershed restoration efforts.* Report Link

24. Total Maximum Daily Load Assessment Gunnison River and Tributaries: Uncompahgre River and Tributaries: Delta/Mesa/Montrose Counties, CDPHE, 2011. *Summarizes assessment of TMDL of selenium and implementation action plans.* Report Link

25. GIS Map of Statewide Water Quality Data, CDPHE, 2013. *GIS map portraying stream and lake segments with Outstanding Water (OW) use classifications, 303(d) impairments, and TMDL and Monitoring and Evaluation (M&E) designations.*

26. Water Quality Data Analysis and Interpretation: Curecanti National Recreation Area, National Park Service, 1995. *Summarizes water quality data collected and interpretation of the data.* Report Link

27. Final Gunnison River Programmatic Biological Opinion, United States Fish and Wildlife, 2009. *Summarizes biological opinion on modification of the operation of the Aspinall Unit to address flow needs for endangered fish.* Report Link

28. Selenium Watershed Management Plan Update, Gunnison Basin and Grand Valley Selenium Task Force, 2012. *Summarizes relevant background concerning selenium problem, historical planning and implementation activities, and recommended strategies for addressing existing and potential new sources of selenium loading as part of the on-going management plan.* Report Link

29. Selenium Management Program: Program Formulation Document Gunnison River basin, Colorado, prepared by the Selenium Management Workgroup complied by BLM, 2011. *Summarizes the Selenium Management Program including background and action plan.* Report Link

30. CWCB Watershed Flow Evaluation Tool Pilot Study for Roaring Fork and Fountain Creek Watersheds and Site Specific Quantification Pilot Study for Roaring Fork Watershed, CWCB, 2009. *Summarizes the pilot study to determine if the WFET process for examining ecological risk related to flow conditions is a viable option for Colorado.* Report Link

31. Uncompahgre Watershed Plan, Uncompahgre Watershed Partnership, 2013. *Summarizes the existing conditions; identifies and prioritizes issues; defines objectives of managements; and identifies protection and remediation strategies.* Report Link

32. Lake Fork Valley Conservancy Long Term Monitoring Plan 2012 to 2022, Alpine Environmental Consultants, 2012. *Summarizes monitoring goals and action plans for the watershed.* Report Link

33. Assessment of Riparian and Aquatic Habitat Associated with the Upper Gunnison River, Gunnison County, Colorado, Bio-Environs, 2010. *Summarizes assessment of the riparian habitat associated directly with the Upper Gunnison River channel.* Report Link

34. North Fork of the Gunnison River Watershed Plan Update, North Fork River Improvement Association, 2010. *Summarizes new water quality data, community concerns, and revised action plan for river-restoration.* Report Link

35. Coal Creek Watershed Protection Plan, Stantec Consulting, 2005. *Summarizes existing water quality data, known and potential pollution sources, management measures, implementation strategies and monitoring plan.* Report Link

36. Gunnison Basin and Grand Valley Selenium Task Forces. *Contains various resources and information pertaining to Selenium.* Web Link

37. Coal Creek Watershed Coalition. *Includes documents and data concerning the mine superfund site, water quality data, water shed protection plans (Slate and Coal Creek) and education and outreach information.* Web Link; Files and Publications Link

38. Lake Fork Valley Conservancy. *Includes documents and data relevant to the conservancy, Henson Creek, TMDL assessments, and critical wetlands surveys.* Web Link

39. Uncompahgre Watershed Partnership. *Various documents from the Uncompahgre Watershed Partnership including the watershed plan.* Web Link

40. Western Slope Conservation Center. *Various documents and water quality data including the North Fork Watershed Plan*. Web Link

41. Colorado State Forest Service Publications. *Information related to forest health; forest management; forest insects, diseases, and disorders; and wildfire mitigation and education.* Web Link

42. 2013 Report on the Health of Colorado's Forests, Colorado State Forest Service, 2013. *Updates on insect, disease, and wildfires and discussion on active forest management, forest restoration grant programs, effective use of beetle-kill trees, wildfire risk reduction, and community education programs.* Web Link

43. Colorado Statewide Forest Resources Assessment, Colorado State Forest Service, 2010. *A geospatial assessment of forest type and ownership including the data used to inform the assessment, the process followed, list of people engaged, and actions taken to address priority needs.* Report Link

44. Colorado Statewide Forest Resources Strategy, Colorado State Forest Service, 2010. *The strategy provides a platform for CSFS and partners to focus efforts on important forest landscapes and leverage limited resources to achieve positive and significant results.* Report Link

45. Grand Mesa Uncompahgre and Gunnison National Forests. *Includes the proposed forest plan.* Web Link

46. Rocky Mountain Region Forest and Grassland Health, U.S. Forest Service. *Information related to annual forest health reports, insects and disease, and forest health protection.* Web Link

Climate and Drought

47. Draft Climate Change in Colorado – A Synthesis to Support Water Resources Management and Adaptation, Version 3, CWCB, 2014. *Summarizes Colorado climate including observed variability and trends; overview of available climate models; and global model projections of potential climate futures. Summarizes the implications to water resources and discusses using the findings in vulnerability assessments and long-range water resource planning.* Report Link

48. Gunnison Basin Climate Change Vulnerability Assessment for the Gunnison Climate Workgroup, The Nature Conservancy Colorado Natural Heritage Program and others, 2011. *Summarizes a land-scape vulnerability assessment to determine relative vulnerability of 24 ecosystems and 73 species of conservation concern.* Report Link

49. The Colorado Drought Mitigation and Response Plan, CWCB, 2013. *Provides a blue print for how the State will monitor, mitigate and respond to drought.* Report Link

Public Outreach

50. The Gunnison River basin, A Handbook for Inhabitants, CWCB Gunnison River basin Roundtable, 2013-14. *A public outreach document with the purpose of educating citizens on water issues in the Gunnison River basin.* Report Link

51. Gunnison Basin Roundtable: 2012 Education Action Plan, 2012. *Summarizes the Gunnison Basin's education action plan.* Report Link

52. CWCB Gunnison Basin Round Table. *Contains information pertaining to the roundtable and various links.* Web Link

53. Upper Gunnison River Water Conservancy District. *Includes documents and data relevant to the Upper Gunnison River basin.* Web Link

54. Colorado River Water Conservation District. *Includes documents and data relevant to the Colorado River District boundaries, including the Gunnison River basin. Relevant information includes operations and on-going programs and projects.* Web Link

55. CWCB Web Link. *Contains links to relevant state documents.* Web Link

Appendix 3: Education Action Plan

~~~ Gunnison Basin Roundtable ~~~

Michelle Pierce – Chair
George Sibley – Public Education, Participation and Outreach Liaison

DRAFT 2015 – GUNNISON BASIN ROUNDTABLE EDUCATION ACTION PLAN

Overview: The Gunnison Basin Roundtable Education and Outreach Program will focus activities for 2015 on three areas:

A. Continue to keep decision-makers and interested general citizenry in the six sectors of the Basin informed on the development of the Gunnison Basin Plan and the Colorado State Plan.

B. Continue existing water education programs in any of the six sectors of the Basin that have such programs in place. Local watershed groups especially have initiated public education and participation programs addressing problems specific to their areas; these need support for continuity.

C. Lay the foundation for an Education Action Plan for the years 2016-2025, toward some specific goals described below to prepare the people of the Gunnison Basin for the cultural and economic changes that will probably take place through the decades of the planning period (2015-2050).
The underlying assumption here is that a possible doubling of population statewide, with a fixed or quite probably decreasing water supply, will require significant cultural and economic changes in Colorado life. The current "generation in charge" that is doing the planning will be retiring or otherwise leaving the active field by 2030-35; a new generation, now in school, will be taking over the actual execution of the Colorado Water Plan for its critical years. The next decade (2015-25) will be critical in developing a moving toward not just public awareness-raising, but the institutional changes necessary for a more proactive approach to the water problems we will face as the Southwest both "fills up and dries up."

TASK A: Continue to keep decision-makers and general citizenry in the six sectors of the Basin informed on the development of the Gunnison Basin Plan and the Colorado State Plan This will be achieved with continuity from the 2014 Education Action Plan:

- As benchmarks on the way toward the adoption of a Colorado Water Plan late in 2015 are reached, "GBRT Progress Reports" will be drafted by the PEPO Liaison, and distributed in paper and electronic format to City Councils, County Commissioners and other Basin decision-makers.
- An updated website with the evolving Basin and State plans will be maintained, with links from local water organization sites, and with online opportunity for public responses.
- Public meetings will be held in the six sectors of the Basin as benchmarks on the way toward adoption of a Colorado Water Plan are reached, and at other times when it seems desirable to do so.

TASK B: Continue existing water education programs in any of the six sectors that have such programs in place.

- The Basin watershed groups, conservancy districts and some water providers have education plans and programs in various stages of development.

- The public schools have some water education activities that should be not only continued, but also amplified on and expanded.

TASK C: Lay the foundation for an Education Action Plan for the years 2015-2025, at the end of which time these things will be in place for the rest of the planning period (2015-2050):

- Every school district in the Gunnison River basin will have an established water education program, involving 4th, 7th and 11th grades that will combine responsible field stewardship (watershed monitoring, stream cleanups, riparian restoration) with standards-based classroom education. This will involve all segments of the curriculum – natural sciences, social sciences, arts and humanities.
- All Basin governing bodies (municipal, county, water-related special districts, and their planning staffs) will participate in annual half-day seminars on "the state of the streams and water resources" in their sector of the Basin, and in the Basin, state and region at large.
- Each of the six sectors of the Gunnison River basin will have an annual spring or summer celebration focusing on the watershed streams and water resources, combining educational presentations (booths, films, readings or theater, etc.) with in-stream activities, displays and competitions. (Gunnison's River Festival or the North Fork's Float are examples.)
- Municipal and county governments, Chambers of Commerce, realtors, and others at the interface with new and existing residents will have informational materials prominently available to inform new and existing homeowners on basic personal water concerns and to help engage them in creating water-efficient and climate-appropriate homes and landscaping.

Toward those goals, these things will occur in 2015:

A. A Gunnison Basin Education and Outreach Committee (GBEOC) will be organized, composed of a representative from each of the six sectors of the Gunnison Basin (Upper Gunnison, North Fork, Surface Creek/Grand Mesa, Upper Uncompahgre, Lower Uncompahgre, Lower Gunnison). For sectors with existing watershed groups, the education facilitator from that group should ideally be a GBEOC member. The Roundtable Public Education, Participation and Outreach Liaison will also be a member. This group will meet quarterly (February, May, August and November), prior to Gunnison Basin Roundtable meetings, and as necessary between those meetings.
B. The six sector representatives will explore partnership opportunities in their sector, identifying organizations and individuals interested in participating in the water future of their area, either financially in supporting project activities or through providing volunteers for program field activities, or in other more specific participatory ways.
C. The six sector representatives, working with funds provided by the CWCB and Roundtable, will assess the perceived education needs in their sector, for youths, adults, and specifically targeted groups (city councils, county commissions, business organization, etc.), and will report that to the full committee. (See the attached exemplary model for youth water-ed needs from the Uncompahgre Watershed Partnership.)
D. The GBEOC will prepare activities for the Roundtable, and possibly for selected other Basin organizations, to spur discussion on water-related issues requiring clarified or changed thinking. An example will be the challenge of gradually freeing up some water from agriculture for other uses over the 35-year time period without diminishing the acreage under irrigation in the Basin.
E. The GBEOC will (presumably working with other basins and state organizations) develop an education program for enlarging basin inhabitants' thinking about M&I water providers, bringing them to acknowledging that water providers are not selling water by the gallon, but are providing a service with fixed costs independent of individual use decreases.

F. The GBEOC will initiate an inventory of Gunnison Basin land-use planning codes, regulations and guidelines as those codes, et cetera, relate to the relationship between land and water. Once this is complete, a follow-up study will pull together "Best Practice" analysis of alternatives that will try to balance land development with water sufficiency.
G. The GBEOC representatives in the Upper Gunnison and Lower Gunnison sectors, together with other representatives, will initiate discussion with relevant college faculty and officials at Western State Colorado University and Colorado Mesa University, and organizations like the Youth Corps Association, to initiate a "Water Leaders" program for the Basin, utilizing college students to work in the Basin's public schools, assisting in delivering educational programs, and leading small field groups in stewardship activities.

The GBEOC will meet in February 2016, and in February each year following, to evaluate progress on those action items, and to determine what the next steps in each area of activity will be toward the goals above for the 2016-2025 decade.

Appendix 4: Public Input on Gunnison Basin Implementation Plan

Index of Materials in Appendix 4

Part 1: Record of Public and Other Meetings with Basin citizens and water organizations

1. Summary Report on all Public and Other Meetings

Meeting Notes:

2. 3/25/14 Meeting in Gunnison with County Commissioners and Upper Gunnison Citizens
3. 4/30/14 Meeting in Hotchkiss with North Fork Citizens – Questions & Responses summarized
4. 4/30/14 Meeting in Hotchkiss – Tally of results from 5 Input Forms completed and submitted
5. 6/18/14 Meeting in Gunnison – Senate Bill 115 Gunnison Basin Public Hearing
6. 2/25/15 Meeting in Gunnison Library – Newspaper report on meeting, WSCU Student Paper
7. 3/8/15 Meeting in Crested Butte Library, High Country Conservation Advocates & Citizens
8. 3/16/15 Meeting at Western State Colorado University – Tally of 59 Input Forms from Students
9. 3/25/15 Meeting at Cedaredge – Questions asked and discussed
10. 3/25/15 Meeting at Cedaredge – Delta County Independent newspaper report on meeting
11. 4/6/15 Meeting in Montrose, Uncompahgre Basin – Notes on questions discussed
12. 4/6/15 Meeting in Montrose – Written input from two citizens

Part 2: Critiques of the BIP and/or State Water Plan

13. High Country Conservation Advocates, Upper Gunnison Subbasin (Julie Nania, principal author)
14. Model Environmental Needs Inventory Project for Upper Gunnison Basin, HCCA
15. The West Slope Conservation Center, North Fork Subbasin (Sarah Sauter, principal author)
16. Lynn Cudlip Letter on Agricultural Irrigation Value
17. Bureau of Land Management Analysis of Basin and State Plans
18. National Park Service Analysis of Basin and State Plans
19. Loretta Molitor Letter on Conservation, Reuse and Diversion
20. Modene Gaulke, Letter on Three Values in Colorado Water Plan Quick Guide

Part 3: General Letters of Support for Gunnison Basin Implementation Plan

21. Crawford Water Conservancy District
22. Upper Gunnison River Water Conservancy District
23. Gunnison County Stockgrowers Association
24. Project 7 Water Authority
25. City of Gunnison
26. City of Montrose
27. Town of Ridgway
28. Menoken Water District

Part 4: Guides prepared to help citizens understand and search the Basin and State Water Plans

29. Summary of the Gunnison Basin Water Plan
30. Quick Guide to major issues addressed in the State and Basin Plans and where to find them in plans
31. Citizen's Guide to the Colorado Water Plan – relatively detailed outline of the plan
32. Input Survey Form (used with most public meetings and available online)
33. Results from Input Survey Form, Colorado Mesa University Water Center website

1. Public Meeting Summary

EVENT	#	PRESENTERS	NOTES
3/25/2014: Public meeting in conjunction with Gunnison County Commissioners Work Session	35	Frank Kugel, George Sibley	Present: 3 County Commissioners, County Manager, Gunnison City Manager, two ag producers, 5 GBRT members, Crested Butte News reporters, members of Upper Gunnison watershed/environmental organizations. Concerns: Focus on TMD threat; absence of water quality as a goal (quickly corrected). Detailed notes in Appendix 4 'Meeting Notes'.
4/16/2014: Lake City, joint meeting of Hinsdale County Commissioners and Lake City Council	25	Frank Kugel, Michelle Pierce	Present: Three County Commissioners, four City Council members, Town Clerk, ~15-20 cirizens. Concerns: TMD issue, protection of ag water, conservation.
4/30/2014: Hotchkiss, Public meeting for North Fork Valley inhabitants	80	George Sibley, Wendell Koontz, Tom Alvey	General public meeting: no public officials present, participants were a balanced mix of small to medium-size agricultural producers, small business owners, local residents. Concerns: TMD issue, Colorado River Compact issues, energy production and fracking in the upper reaches of the valley. Detailed notes from meeting and from Input Forms included in Appendix 4 'Meeting Notes'.
5/13/2014: Orchard City Public Meeting for Grand Mesa/ SurfaceCreek area	25	Austin Keiser, Ron Shaver, George Sibley	Present: One Orchard City Council member, a Delta County Independent reporter, one candidate for state assembly (ultimately unsuccessful), mostly curious and interested citizens. Concerns: TMD issue, possible effects of irrigation efficiency on landscape (ditch trees, etc), Colorado River Compact issues, local IPPs.
5/14/2014: Cedaredge public meeting for Grand Mesa/Surface Creek area.	40	Austin Keiser, Ron Shaver, Hannah Holm	Present: Cedaredge Town Manager, interested citizens. Concerns: Very similar to those from the meeting the previous day, but with more attention to the numerous small reservoirs on Grand Mesa in need of maintenance and restoration.

6/2/2014: Montrose public meeting for Upper and Lower Uncompahgre Valley area.	35	Bob Hereford (District Engineer), Eric Knight (BuRec), George Sibley, Frank Kugel, Jim Pokrandt (CRWCD)	This meeting was held in conjunction with the Colorado River District 'State of the River' meeting. Present: About 50 percent interested citizens primarily from Montrose and Delta area, and 50 percent GBRT members from around the Basin. Concerns: Diminishing water supply in Upper Colorado River Basin despite a 'normal' water year, implications for Colorado River Compact issues, the amount of water lost from Blue Mesa Reservoir for endangered fish program, TMD issue, selenium concerns.
11/11/2014: League of Women Voters, Upper Gunnison	25	Frank Kugel, George Sibley	~20 women, 5 men, one ranchwife, rest domestic water users urban/suburban. Concerns expressed: TMD threat? Oil & gas development issues (fracking impact on both quantity and quality)? Open space/ag protection?
12/8/2014: Western State Colorado Univ., Upper Gunnison	24	Michelle Pierce	Informational presentation to WSCU class on water plan process - undergraduates from diverse backgrounds.
2/4/2015: KBUT Public Radio Station, Upper Gunnison	NA	Frank Kugel, George Sibley	Recording short radio spots about planning process to be broadcast frequently
2/13/2015: Ditch & Reservoir Company Alliance Convention, Grand Junction	85	George Sibley	Presentation to statewide convention of ditch and reservoir company representatives. Concerns: Future of agriculture w/ growth & drought, concern about TMD mitigation (even possible?), implications for water law.
2/18/2015: Gunnison Valley Realtors, Upper Gunnison	35	Frank Kugel, Bill Nesbitt, Jason Ullmann, Bob Hereford	Presentation on planning process mostly to realtors and other business persons. Concerns: Opposition to TMDs.
2/19/2014: High Country Conservation Advocates, UGRWCD, Blackstock Bistro, Upper Gunnison	30	Frank Kugel, George Sibley	Presentation on planning process to group including one rafting business owner and several whitewater business employees, most of the others were citizens with environmental interests. Concerns: Instream flows expanded, 'right to float' resolution, return flow reporting accuracy.

2/25/2015: UGRWCD, Gunnison County Public Library, Upper Gunnison	10	Frank Kugel, George Sibley	Presentation on planning process to group including 2 senior citizens, two businessmen, the rest were college-age. Concerns: Forest Service water-shed management, oil & gas development/ fracking, conservation. News-paper account in Appendix 4, Meeting Notes.
3/8/2015: High Country Conservation Advocates, UGRWCD, Crested Butte Library, Upper Gunnison	9	Julie Nania, Steve Glazer	Present: members of High Country Conserva-tion Advocates, RRAFT, citizens. Concerns: environmental needs, conservation/protection of water quantity & quality. Detailed notes in Appendix 4 'Meeting Notes'.
3/10/2015: UGRWCD, Gunnison City Council, Upper Gunnison	10	Frank Kugel, Bill Nesbitt	Presentation on planning process and progress to the City Council, Q&A
3/11/2015: Montrose/Delta Counties Realtor Rally, Uncompahgre, North Fork & Grand Mesa	100	Austin Keiser	Present: mostly realtors, interested citizens. Concerns: land use in the planning process, transmountain and downriver questions, emphasis on importance of public input.
3/16/2015: UGRWCD, Masters in Environmental Management (MEM) Forum, WSCU, Upper Gunnison	70	George Sibley, Frank Kugel, Tyler Morrison (MEM)	Presentation on planning process, followed by table discussions primarily with WSCU students (maybe half a dozen general public). Table discussions led by 1 rancher, 1 NCRS official (retired), 1 city manager, 1 county commissioner, 2 recreation industry reps, 2 environmental educators. **59 WSCU students filled out Input Forms (see response totals in Appendix 4), our best sense of what 'the next generation' is thinking.**
3/16/2015: UGRWCD, Crested Butte Town Council, Upper Gunnison	25	Frank Kugel, Bill Nesbitt, Steve Glazer	Presentation on planning process with Q&A and discussion of issues involving headwaters communities.
3/17/2015: Gunnison & Colorado Basin Roundtables, Joint Public Meeting, Lower Gunnison	35	Hannah Holm, Rick Brinkman, Jim Pokrandt	Presentation of information on State Plan and both Basin Plans and input forms distributed and collected. Concerns/questions raised: Oil & gas development impacts, water & land use carrying capacity, storage opportunities on West Slope.

3/18/2015: UGRWCD, Lake Fork Valley Conservancy, Lake City Council and Public, Upper Gunnison	25	George Sibley, Michelle Pierce	Presentation to City Council and citizens in attendance on the planning process with Q&A and discussion of issues involving headwaters communities. Concerns: Opposition to TMDs, growth control options, Front Range developing storage opportunities, conservation & demand reduction, public Trust threat to Lake San Cristobal.
3/25/2015: Grand Mesa WCD, Public Meeting, Cedaredge, Grand Mesa/Surface Creek	35	Austin Keiser, Ron Shaver	Present: interested citizens. Concerns: transmountain and downriver conservation, impacts on water supply of tree mortality and evaporation, condition of Grand Mesa Reser-voirs and possibility of assistance in repairs. The questions raised are detailed in Appendix 4 'Meeting Notes'; also a newspaper article.
4/6/2015: Tri-County WCD, Ouray & Ouray County officials, Project 7, Montrose, Uncompahgre Valley Public Meeting	35	Joan Fagan, Mike Berry, Adam Turner, Marti Whitmore	Present: One Delta County Commissioner, several ag people, interested citizens, ~10 GBRT members. Concerns: keeping water in the basin (what happened to 'Not One Drop'), plan versus existing water law, unity among West Slope basins, paying for work that needs to be done. The questions raised are detaled in Appendix 4 'Meeting Notes'.
TOTAL PARTICIPANTS	**793**		
(Unless otherwise noted, all presenters are GBRT members.)			

2. GBRT Public Education Meeting
Gunnison County Commissioners Work Session
March 25, 2014

Public Comment

Butch Clark: Large projects in Gunnison County are a threat to current water supply.
- Proposed mine at Whitepine – County population could double.
- Fracking – Could involve new demands on Blue Mesa.

Bill Nesbitt: Conservation – Does conserved water potentially go to the Front Range?

Phyllis Guerreri: Non-consumptive use – Hydropower at Taylor Park may result in year round generation and reduced reservoir storage.
EPA – Has adverse impact on agriculture production. Education is important.

Jen Bock: BIP requires prioritization of our goals
- We should maximize utilization of WSRA grant money in basin.
- Be more aggressive in seeking funds for combined consumptive/non-consumptive use projects.

Marlene Zanatell: BCNP flows benefit many uses downstream, including fish.
Ranchers do not want us in their hair – want the ability to sell.

Ken Coleman: Asked if there was any unappropriated water in Gunnison Basin. Frank said Basin was over appropriated in 2003, but water is available in high flow years.

Ramon Reed: No reference to water quality in GBIP goals.
- Has been added since document was printed.

Gary Hausler: Is there unappropriated water in other West Slope basins?
- Yes, Yampa/White and San Juan

Marlene Zanatell: Aspinall provides an insurance policy against Colorado Compact curtailment. The Supreme Court said only 15,000 acre-feet was available.
- 'Not One Drop' still a valid approach.
- Do not dry up our pastures until there are no Front Range lawns.

Ramon Reed: New Supply – Take out "New Project…December 31, 2013." No TMD.

Gary Hausler: Colorado is working provincially. BRT process is a subterfuge. A better alternative to meet the gap is the Mississippi River. It should be investigated.

Butch Clark:	There should be more coordination of Hazmat movement in our basin. This puts our water supply at risk. He recommends a warning system including irrigators, warning them to close headgates in the event of spill in the rivers.
Ken Coleman:	Water is a finite resource and continued growth is unsustainable. Land use planning should address this issue.
Marlene Zanatell:	Reuse needs to be stressed.
Gary Hausler:	What happens after 2050? Are we planning beyond that?
Pete Dunda:	What about desalinization as an option for lower basin states?
Ramon Reed:	Constraints must be clarified under the Compact before CWP is adopted.
Bob Drexel:	What is the process for assembling BIP plans into CWP?

EMAIL RESPONSES RECEIVED

George:

I won't be able to make it to the meeting but salute yours and Frank's efforts to plan ahead. In passing two things that worry me:

(a) Freshwater ecosystems need protection to insure the availability of potable water for rural residents and downstream users. Those ecosystems are threatened a variety of forces:Mining: Whitepine and Red Lady mines, the potential of fracking in Ohio Creek.: Off road travel especially where federal agencies have allowed unrestricted travel (ATV's, RV's,OHV's, dirt bikes, across and through watersheds, streams, creeks and drainages).Ranching A considerable amount of manure lying about and it is bound to end up in water table. Leroy Poff, CSU professor biology is looking at this.

(b) How to play Phoenix and Denver off against each other so that neither one will be able to annnex our "unappropriated" water for anticipated or actual growth.

Best,

Frank Coleman (PO Box 116, Parlin, CO 81239, fcoleman@wildblue.net)

Hi George,

I wanted to get back to you with some brief comments about the presentation last week. Thanks for putting it all together.

I think that all the Intrabasin Goals are good. I can't speak to the Statewide Principles as I think the exact wording which leads to no transmountain diversion is beyond my ability and understanding.

I would like to explore the 5th goal: "Identify, quantify and encourage beneficial relationships between agricultural water uses and nonconsumptive uses." I would add the words research. Down the road perhaps the Roundtable could fund this research. See the following. It may lead to a NEED, which I believe is the next step.

You mentioned that the ranchers would like to understand how they benefit from the relationship between ag water use and nonconsumptive uses. The link is that in this basin, flood irrigation leads to development of wetlands have which numerous ecosystem services ranging from water storage to water purification and even carbon sequestration. The ranchers are farming carbon and creating wetlands which support small mammal and birds of the non-endangered type. The new MEM program at WSCU could lead the way in researching these aspects of the relationship between ag use and nonconsumptive use.

If any of this is of interest, and you want to discuss more, please give me a call at 209-1143. It may be of no help, but the presentation got me thinking. You don't have any easy job and once again I am late to the water party though I know it's been going on for 25 years and will continue to go on.

Thanks for listening.
Lynn Cudlip

INPUT NOTES FROM LYNN CUDLIP (BIOLOGIST, PART-TIME WSCU FACULTY):

One of the basin goals expressed in Gunnison Basin Implementation Plan is: Identify, quantify, and encourage beneficial relationships between agricultural water uses and nonconsumptive uses. The goal implies that links between the two uses is direct and beneficial though it is difficult to determine the benefits gained by the agricultural water users from nonconsumptive users such as recreationists utilizing appropriated instream flows. Perhaps instead, the link or links between the two users are indirect; in this basin, both users receive and provide ecosystem services to the basin water landscape. In doing so, the agricultural water users and the nonconsumptive water users are benefiting each other by providing and expanding ecosystem services in the basin, which in turn benefit each use and the entire basin from ecological an environmental standpoint. When a basin's environment is healthy, the basin's inhabitants can achieve a healthful living.

Some ecosystem services associated with water include water purification and storage, wildlife habitat maintenance, stream stabilization, groundwater recharge and discharge, and carbon sequestration. One agricultural use of water in the Gunnison Basin is flood irrigation; this form of irrigation leads to development of wetlands which has extensively expanded the ecosystem services listed above. While we have quantified how many acres are irrigated and can count the tons of hay produced or forage available, we have not quantified what other services these irrigated hay meadows provide. The type of irrigation that occurs in Gunnison County simulates a wetland environment where soils are saturated for an extensive part of the growing season. Like wetlands the irrigated hay meadows store water for later release to streams; they are highly productive and as a result sequester carbon; they provide habitat for small mammals and birds which are a food source for larger mammal and avian species. None of these services have been quantified and other ecosystem services have not been identified. Any new water supply project which would reduce the amount of irrigated land in Gunnison County should be evaluated for its impact to these services. And while some would argue that conversion of sagebrush habitat to hay meadow has incurred impacts to the Gunnison landscape and its inhabitants, removal of irrigation water and leaving the land fallow could have tremendous impacts on the ecosystem services that would be diminished. Habitat would diminish as a result of little plant cover; water storage would not occur as precipitation events may cause surface runoff and erosion without vegetative cover; carbon sequestration would be reduced. Under conditions of irrigation cessation, these changes in ecosystem services should also be researched and quantified.

Nonconsumptive uses also provide ecosystem services. Water remaining in streams and creeks provide habitat and a water source for wildlife and domestic grazing animals including cattle and sheep. Instream flows also provided habitat for aquatic insects and algae that are the food source for fish; presence and maintenance of fish in our streams is important to a healthy environment and economy in our area. Intact stream systems support streambanks that are stable, which do not contribute massive amounts of eroded material to downstream users; a dynamic equilibrium has been established whereby

established instream flows lead to degradation and aggradation of stream materials in a way that reduces erosive energy found in less healthy stream systems. And water left in the stream may serve as a source of water farther down the stream for additional agricultural uses, while providing recreation for boaters and fishers alike. Like agricultural water uses, nonconsumptive use of water and the links to ecosystem services have not been identified, quantified or researched. The new MEM program at WSCU could lead the way in researching these links between established water uses and ecosystem service, and by extension, the relationship between agricultural water uses and nonconsumptive water uses in the Gunnison Basin.

3. NOTES FROM NORTH FORK VALLEY MEETING

April 30, 2014, 7:00, Hotchkiss Senior Center

~80 people were present for the meeting, including 5 members of the Gunnison Basin Roundtable.

The meeting went as described on Page 1. Wendell Koontz gave the welcome and introduction of the topic; George Sibley did the presentation of the plan for the BIP Committee. Neal Schweiterman took notes; Tom Alvey addressed many of the questions. Other Roundtable member present: Henry LeValley.

Comments, Questions discussed:

~ How would Colorado water supplies be curtailed in the event of a "Colorado River Compact Call"? (A number of responses were offered: Priority would be enforced, but junior water going to the cities would not be entirely shut off; how it would be curtailed remains to be worked out. The Compact itself makes no provisions for a "call." But California and Arizona have considerable power in Congress, should it come to legislation.)

~ Is the BIP taking into account the possible impacts of the EPA rule-making about "waters of U.S. interest"?

~ Will the BIP have specific projects listed? (The participants had the unedited and unfiltered list of potential projects assembled from the technical meetings and other input, but were warned that it was just to show what is on the table, and not to be considered a final list. Tom Alvey handled the question, observing that feasibility will be a big factor in determining which projects and programs go in the final BIP.)

~ Is more storage possible? (Opinions offered indicate that more storage is mostly a matter of whether larger entities – state or national governments – make it a priority; otherwise, probably limited to some enlargements and improved storage through infrastructure repair and maintenance.)

~ What is GBRT stance on transmountain diversion? (Variations on this occurred in subsequent questions – obviously on many people's minds. RT members indicated that there is probably "not one drop available" in the headwaters part of the Basin, and then went through all the conditions, risk factors and compensations Front Range diverters would have to address for West Slope RTs before there could be even a firming project, let alone a major TMD.)

~ Is rooftop collection (cistern use) legal? Will it or should it be? Under what conditions?

~ Should we be collecting fees or compensation for bottled water originating on the West Slope but sold elsewhere? (No one had an answer for that one.)

~ Will the Colorado Water Plan have the same structure and format as the BIPs? (No one knows for sure; mention was made of a possible "conflict committee" to resolve impasses.)

~ The fundamental problem is unfettered Front Range growth; how can they be made to live within their means? (Led to brief discussion of land use planning issues, the commitment to local control, the power of development proponents, etc.)

~ Is the BIP taking into account the tree-ring studies showing that the 20th century was unusually favored with above average precipitations? (Brief discussion of the need for low, medium and high water scenarios in planning.)

~ From a local small farmer: can the majority owners of a ditch company sell the ditch's water out from under small owners who would oppose the sale? (No one knew for sure – thought it probably depended on the bylaws of the ditch companies.)

~ Does the BIP address alluvial recharge of wells and springs? (Discussion of surface-ground waters, difficulty of establishing sources, etc. Shutdown of South Platte wells mentioned.)

~ If a farmer or rancher reduces his use through more efficient irrigation systems, can he lease or sell the saved water? (While there has been recent legislation about this, no one seemed to know for sure what has and has not been actually passed, what the actual situation is – need to be able to answer this one. It was noted that the farmer could do nothing to his system that injured other users.)

~ Has the GBRT decided to support or not support conservation of irrigation waters? (Could only say we support ag conservation measures that are consistent with the law, avoid injury to other users and their decrees, etc.)

~ Has the GBRT taken stand on Shell (and other energy companies) buying irrigation water rights for oil shale production? (Pointed out our goal to "discourage" conversion of ag water to anything else "within the context of private property rights." We don't stand in the way of "willing seller" situations.)

~ Are the small domestic water companies accounted for in the GBRT plan, and how will they be handled as they double their users? (Raised the idea under discussion in the Upper Gunnison, of a multi-district conservation plan bringing together all the "non-covered" (<2,000 af/yr) domestic water providers in a single conservation/efficiency plan, sharing consultant fees, resident expertise, and where possible, water supply. This would probably work in other parts of the Basin, and we need to make sure it is in the plan.)

4. INPUT FOR GUNNISON BASIN WATER PLAN – North Fork

Five residents of the North Fork sub-basin of the Gunnison Basin filled out Input Forms at the April 30, 2014 public meeting in Hotchkiss. Their responses are totaled here….

STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals:

A. A productive economy that supports vibrant and sustainable cities
B. Viable and productive agriculture
C. A robust skiing, recreation, and tourism industry
D. Efficient and effective water infrastructure promoting smart land use
E. A strong environment with healthy watersheds, rivers and streams, and wildlife

From your Gunnison Basin perspective, which of the five goals do you consider most important? A B3 C D E2

Which do you consider least important to the Gunnison Basin? A3 B C2 D E

Do any of the five appear potentially harmful to your sense of the Gunnison Basin's future? A2 B C D E No3

If there proves to be insufficient water to fulfill all of those goals, which one(s) do you think should ***sacrifice*** a portion to fulfill the others? A4 B1 C2 D1 E
(None circled indicates a belief that there will be no need for such sacrifice.)

Indicate your agreement, disagreement or uncertainty about these statements:

The Gap is a state problem and should have state-level solutions in which all citizens share the burden statewide. Agree2 Not sure Disagree3

There is probably enough West Slope water for at least one more major transmountain diversion. Agree Not sure Disagree5

Any further Colorado River water development in/from *any* West Slope basin will negatively affect *all* West Slope basins. Agree4 Not sure1 Disagree

GUNNISON BASIN USES AND GOALS

Indicate your agreement, disagreement or uncertainty about these statements:

The Gunnison Basin population will double by 2050. Agree1 Not sure4 Disagree

This part of the Basin has a healthy economy. Agree1 Not sure1 Disagree3

This part of the Basin has a healthy environment. Agree4 Not sure1 Disagree

This part of the Basin is sufficiently diversified economically. Agree3 Not sure Disagree2

A priority goal of ***protecting existing uses*** in the event of future development is appropriate for the Gunnison Basin. Agree4 Not sure1 Disagree

Except for the Primary Goal, the Basin Roundtable's other planning goals have no priority assigned; however, we would like for you to indicate the relative importance you think they should have: (top four ranked for each)

A. Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights. 3 first, 1 third
B. Improve agricultural water supplies to reduce shortages. 1 second, 1 third
C. Identify and address municipal and industrial water shortages. 1 fourth
D. Quantify and protect nonconsumptive water uses. 1 fourth
E. Maintain and, where necessary, improve water quality throughout the Basin. 1 second, 2 fourth
F. Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses. 1 second, 1 third
G. Restore, maintain, and modernize critical water infrastructure, including hydropower. 2 first, 1 second, 1 third
H. Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.
1 second, 1 third, 1 fourth

The Gunnison Basin Roundtable draft planners have identified water needs in the three areas below, as described on the 'Progress Report 2a.'
How would you prioritize projects to meet those needs (1,2,3, with 1 being "most important')?

Agricultural needs 4 1st, 1 2nd Municipal/Domestic/Industrial needs 1 2nd, 4 3rd Nonconsumptive 1 1st, 3 2nd, 1 3rd

Do you have concerns about the "Projects List" for your area? Something left off?

Do you have other concerns about the future of the Gunnison River and its water that you feel the Roundtable needs to consider? (Attach another sheet if necessary)

Opportunities to develop small water storage projects all over our area.

Energy use of water should be discouraged. Protecting area's food producing capability is most important.

Specifically address fracking. Family planning for population control.

Personal information:

What Gunnison Basin county do you live in?

Mesa Delta (5) Montrose Ouray Gunnison Saguache Hinsdale

What best describes the place where you live?

City Suburb Town Unincorporated Village Farm/Ranch (5) Other Rural

What is your age? Under 20 20-29 30-49 (2) 50-65 (2) Over 65 (1)

What best describes your role in the local community?

Agriculture (4) Retail/Service Professional Education Student Government

Retiree (1) "Lone Eagle" (living here, working elsewhere) Other _____

What is your principal interest(s) in water (other than domestic needs)? Agriculture (5) Fishing (1)

Whitewater Rec Flatwater Rec Water Professional Environmental (1) Other _____

5. Senate Bill 115 Gunnison Basin Public Hearing

Senate Bill 115 Comments - Summary and CWCB Response

Source of Comment	Summary of Comments	Associated Chapters	Staff Response
Public Comments Provided Outside of Committee Meetings and Not Using Questionnaire			
Senator Larry Crowder E-mail to committee staff (excerpts provided in the following column).	• The Colorado W ater Plan (CW P) should include reports from all municipal water providers concerning water losses relative to leaking pipes and aging infrastructure. • It should also include a goal of limiting such losses to one percent of the water delive red by a water provider.	6.5	Thank you for your comment. CWCB's information indicates that 6-7% of water loss is sufficient for meeting high conservation strategies. This would also be a helpful process to propose at the roundtable level. Infrastructural and maintenance costs are also emphasized in Section 6.5.5.
Kay L. Linder E-mail to committee (excerpts provided in the following column).	• Expressed concerned about the possible future issues with the Poudre River and felt very strongly that the committee) could make irreparable damage to it if the committee) was not careful in (its) decisions. • Objected to a reservoir that would impede the flow of water through the city of Fort Collins or harm the Poudre River.	6.5	Thank you for your comment. Colorado's Water Plan and the South Platte BIP emphasize the importance of environmental resiliency in development.
Public Comments from June 18, 2014 Gunnison Basin Hearing			
Steve Glazer	• The Joint Review Process (Article 10 of Title 34, repealed in 2003) s hould be reinstated so that all permits from all state offices may be dealt with at one time. The state should imitate a Colorado Env ironmental Quality Act to help avoid future litigation.	9.4, 10	Your legislative suggestions will be considered in the drafting of Chapter 10. Permitting issues are explored in Section 9.4 and the section will be further developed in 2015.
Marlene Zanetell	• Public education materials for the basin roundtables should not identify the purchase of water rights that are senior to the Colorado River Compact as a possible solution to enable c ontinued Front Range diversions during droughts • The state should encourage greater water conservation and reuse to reduce the pressure on W est Slope water resources. • The CWP should also explain that Blue Mesa Reservoir and other elements of the Colorado River Storage Project do not directly benefit Gunnison and Montrose Counties but provide benefits to the state as a whole.	6.2, 6.5	Thank you for your comment. Compact concerns are addressed in west slope BIPs as well as within Colorado's Water Plan. The Gunnison BIP does a great job of articulating the role of the CRSP reservoirs within the Gunnison Basin and within the greater Colorado River basin. The state is working vigorously with other upper basin states and the Colorado River Basin as a whole to mitigate any risks Colorado may face with regard to compact compliance and other interstate issues.
Marc Catlin	• There is not more water in the Gunnison basin than what is needed by the basin. • All tributaries should be treated equally in the CW P. • Water efficiency does not necessarily mean lower consumption. • Water use and reuse is important. • Tamarisk and Russian-Olive trees are using huge amounts of water. Grant programs to remove phreatophytes quickly are crucial to prevent land fallowing. • Water banking is not the whole solution and needs to be examined closely. • The law should be amended to prohibit the us e of water obtained from new transmountain diversions (TMDs) for outdoor water consumption, such as lawn watering.	6, 8,10	The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Your legislative suggestions will be considered in the drafting of Chapter 10. In Section 8.3.4, Colorado's Water Plan addressed the need for reducing noninative phreatophytes in order to gain salvaged water.
Jennifer Bock, environmental representative on the Gunnison Basin Roundtable, and W ater Program Director for High Country Conservation Advocates Also submitted a letter to the c ommittee	• The CWP should promote funding for environmental needs assessments and increased instream flows such as funding to increase efficiency and purchasing or leasing of water rights for instream flows. • The plan should also include criteria for new diversions including a requirement that conservation and reuse be maximized prior to allowing new diversions.	10, 6.3	Thank you for your comment. The role of funding for environmental and recreational projects and methods, and the historical disparity between those projects and M&I or agricultural needs is discussed in 9.1 - Economics and Funding. Chapter 8 also discusses the issues at hand when proposing new conservation strategies or new supply. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3.
Cassidy Tawse-Garcia, High Country Conservation Advocates	• Protect the Gunnison watershed.	6	With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work.

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Senate Bill 115 Comments - Summary and CWCB Response

Source of Comment	Summary of Comments	Associated Chapters	Staff Response
Garin Vorthman, Colorado Farm Bureau	• The word "viable" should not be attached to "agriculture" in the CW P. Instead it should be "robust" and "strong." "Viable" implies there is a value judgement. • The CWP should respect the doctrine of prior appropriation.	6.4	6.4 - The word viable has been replaced in several locations as suggested.
Donna Brosamer, Greeley Water Utilities	• The CWP should not prioritize water projects proposed by municipalities and other water users. The state should treat water users equally and not withhold state funding or permits for projects based on their priority in the CWP. • The CWP should respect property rights and local control. • Local land use planners and water providers should also work more closely together.	2.3, 6.3.3	Thank you for your comments. Staff has addressed your land use and local comments in the latest version of the chapter 6.3.3 draft. Colorado water allocation and governance has always been guided by local users meeting local needs and Colorado's Water Plan will not change that. Rather than diminishing local control or authority over water, Colorado's Water Plan seeks to strengthen local decision-makers' ability to achieve regional and statewide water solutions. To that effect, Colorado's Water Plan will work to encourage, rather than mandate, several of the points presented in the comments.
J. Paul Brown, Colorado Wool Growers Association	• The CWP should respect property rights and encourage additional s torage on the Front Range to ens ure that Colorado is able to use its full entitlements under the South Platte River and Arkansas River compacts. • The state should also coordinate federal perm its for water projects.	9.1, 9.4	Thank you for your comments. The state is working vigorously with other upper basin states and the Colorado River Basin as a whole to mitigate any risks Colorado may face with regard to compact compliance and other interstate issues. See compacts information in 2.2 and 9.1. Look to section 9.4 for permitting efficiency goals.
Chris Treese, Colorado River Water Conservation District Submitted written comments using the original questionnaire	• The CWP statewide goals and objectives should also include "minimize impacts, adequate compensation and mitigation for inherent/nev itable conflicts/tradeoffs, affirmation of prior appropriation; do not ov erdevelop the Colorado River Basin." • Priorities for addressing possible Gunnison-basin-specific issues should include "basin directed actions: first, do no harm; protect existing uses; broaden education/participation in water matters." • Basin-specific priorities that should also be included: "coordinated management and development of Gunnison basin with other 3 basins of the Colorado River."	1, 3, BIP	Thank you for your comments. These comments and others with similar sentiment have been taken into consideration and will be reflected in the November draft of CWP. Additionally, the updated Chapter 3 will have a more detailed look at the themes, goals, and policy statements identified by the basin roundtables in their respective BIPs. CWCB Staff will work with the BRTs and pass these comments along to the Gunnison Basin.
Roger Espinoza Submitted written comments using the original questionnaire	• Does this plan help to mediate some of the tensions between recreationalists and private land owners? • Seeing the differences in absoluteness between water and land rights would make this task difficult. • Lastly, would this be a money issue or a value issue?"	5	Colorado's Water Plan does not currently address policies related to recreational activity on waterways.
Table 1 Small Group Discussion Report	• The CWP's goals should explicitly acknowledge the need to protec t and preserve existing water rights and the environment, and to encourage conservation. • Measures to address the gap between supply and demand should not hurt agriculture. • Water storage should be listed as a goal or as a strategy of the CW P. • The plan should acknowledge the effect of the Endangered Spec ies Act on Colorado's ability to complete projects as they were originally intended. • A goal of CW P should be to protect watershed health. • Additional storage in the upper Gunnis on basin should be emphasized. • The plan should also explain how conservation is beneficial to the environment.	1, 6.3	Thank you for your comments. The four values driving Colorado's Water Plan are 1) vibrant and sustainable cities, 2) viable and productive agriculture, 3) a robust recreation and tourism industry, and 4) a thriving environment that includes healthy watersheds, rivers, streams, and wildlife. Colorado's Water Plan will not include any specific water projects. The CWCB would like to encourage multipurpose projects and full mitigation. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs; however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. Staff has addressed your "how conservation benefits to environment" comments in the latest version of the chapter 6.3.1 draft. The response is taken from the CWCB's Water Efficiency Municipal Planning Guidance Document.

Senate Bill 115 Comments - Summary and CWCB Response

Source of Comment	Summary of Comments	Associated Chapters	Staff Response
Table 2 Small Group Discussion Report	• The goals identified in chapter 1 of the draft CWP are inherently in conflict. • The doctrine of prior appropriation is important. • Current uses of water both statewide and in the Gunnis on basin should be retained. • Do not over-develop statewide nor in the Gunnison Basin. • The values identified in chapter 1 of the draft CW P concerning a productive economy that supports "viable and productive agriculture" should instead be "robust and productive agriculture." • Front Range water usage must be conserved to limit the need for additional trans basin diversions. • Compact compliance is also a concern	1, 6.3, 8, 9.1	The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. The state is working vigorously with other upper basin states and the Colorado River Basin as a whole to mitigate any risks Colorado may face with regard to compact compliance and other interstate issues. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work.
Table 3 Small Group Discussion Report	• The CWP is brilliant idea that needs to be done and organized well • Concerned about outcomes and how to meet supply and demand issues. including transbasin diversions. watershed protection, the importance of water quality. • Public education about water is critical. The public is uninformed about water. They have little to no understanding of our relations hip to other states including CO's fixed amount of water. • Agriculture must not be harmed. • Enlarging existing storage facilities should be considered, rather than building new storage facilities. • Recreational and economic impacts of water and evaporation from storage projects are real impacts. • Water is key to the quality of life on the W estern Slope. • Forests are our largest reservoir. Forest health is key to healthy water.	9.5,6,5,7, 8	Thank you for your comments. These comments and others with similar sentiment have been taken into consideration and will be reflected in the November draft of CWP. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Refer to Chapter 8 for more discussion about TMDs, and Chapter 9 for looking at public education and outreach. Chapter 4 also looks at the potential in existing storage facilities. The Water Quality Division of the Colorado Department of Public Health and Environment (CDPHE) regulates water quality issues of this nature in the state. Water Quality has been recognized as critical for Colorado's water future. The CWCB is working closely with the Water Quality Control Division and the Basin Roundtables in order to address Colorado's Water Quality needs. This is further explored in Section 7.3. Forest health addressed in Chapter 7. Colorado's Water Plan will not include any specific water projects. The CWCB would like to encourage multipurpose projects and full mitigation.
Table 4 Small Group Discussion Report	• There may not be enough water for both agriculture needs and municipal needs. • Agriculture is key because it sustains the environment. recreation. and groundwater recharge. Incentives should be provided to encourage agricultural water efficiency. • The Front Range should conserve their water better. The ration of indoor to outdoor w ater use by Front Range residences should not be 50/50 as it is currently, and instead be closer to 70/30. • The goals of the CW P must be more specific. especially related to conservation measures. • The pre-1922 W estern Slope diversions should be prioritized.	6.3, 1	Thank you for your comments. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. Staff has taken a best practice approach to setting goals in the latest version of the chapter 6.3.1 draft. Additionally, staff has included the IBCC's no and low regrets conservation stategies which are the minimum level of water conservation that should be undertaken and equates to around 170,000 acre feet of active savings by 2050.

Senate Bill 115 Comments - Summary and CWCB Response

Source of Comment	Summary of Comments	Associated Chapters	Staff Response
Table 5 Small Group Discussion Report	• The values identified in chapter 1 of the draft CWP are too broad and do not all apply to the Gunnison Basin. • The value of "sustainable cities" should be further defined. • Water quality should be preserved even during "boom" and "bust" cycles. • The plan should protect existing uses. • The meaning of "forest health" is different to people living in different areas of the state. • There are concerns about funding for water projects to promote conservation. It is unclear where the money for such projects will come from. • There are concerns about the effect of compacts on the basin. • The plan should support an equitable distribution of water, rather than distributed according to population or the demographics of the legislature. • The CWP drafting process should be nonpartisan and encompassing of people from all areas of the state--not urban vs. rural.	1, 6.5, 7, 9.2, 9.5	6.5 - Thank you for your comments. These comments and others with similar sentiment have been taken into consideration and will be reflected in the November draft of CWP. The CWCB and the Basin Roundtables will be working to support conservation, environment, and recreation in the Basin Implementation Plans and draft of Colorado's Water Plan. Meeting Colorado's nonconsumptive needs is a critical aspect of Colorado's Water Plan. Each Basin Roundtable is made up of a diverse set of stakeholders and the inclusion of both an environmental and recreational representative is required by the Colorado Water for the 21st Century Act. In addition, representatives from each county, municipalities within each county, industry, agriculture, and domestic water suppliers are required. Lastly, a representative from each water conservation and conservancy district are also mandated. There are also several other at large seats, and many of these are held by environmental interests, and many of the local government representatives are also focused on environmental and recreational issues since their citizens care about these topics and the area may be dependent on tourism. Watershed Health is discussed chapter 7.1. Thank you for your comment, no further incorporation is needed because your comment has already been considered or addressed.
Table 6 Small Group Discussion Report	• The Western Slope is concerned about being "bullied" into trans mountain diversions. • Conflicts exist and will continue to exist and there must be continuous cooperation to work through these conflicts. • It is unclear how much water is actually available. Efforts should be made to clarify water availability through improved data collection. • There must be an acceptance of a certain amount of uncertainty. • Conservation is important. The connection between land use and water connection should be examined.	6.3, 4, 8	Thank you for your comments. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. The CWCB does take water conservation seriously and considers it an integral part of managing water statewide.6.3.3 addresses you comments on land use and water connection. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversion may not be needed in the future, however some futures suggest that new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Refer to Chapter 8 for more on transmountain diversions and cross-basin concepts. CH 4 comments have been taken into consideration and will be reflected in the November draft of CWP.
Table 7 Small Group Discussion Report	• There are concerns about the state government playing too large of a role in s tatewide water planning that loc al communities are better suited to planning for their needs. • Different basins in Colorado have very different needs and a "one size fits all" CW P may not fit all basins. • There are concerns that the doctrine of prior appropriation is not mentioned in the CW P goals. • One property right should not be prioritized over another. • The CWP should not prioritize water supply projects and should not be used prevent individual water projects from moving forward. • Education about water in Colorado schools should be a priority of the CW P	9.5, 2.3	Colorado water allocation and governance has always been guided by local users meeting local needs and Colorado's Water Plan will not change that. Rather than diminishing local control or authority over water, Colorado's Water Plan seeks to strengthen local decision-makers' ability to achieve regional and statewide water solutions. To that effect, Colorado's Water Plan will work to encourage, rather than mandate, several of the points presented in the comments. The development of Colorado's Water Plan has helped to raise the level of importance placed on education and outreach statewide related to water supply planning. The CWCB is working together with the Basin Roundtables (BRTS) to expand education and outreach activities related to raising awareness regarding the issues presented in the webform comments submitted and Section 9.5 Outreach, Education, and Public Engagement will include recommendations on continuing education on these topics long-term.

Senate Bill 115 Comments - Summary and CWCB Response

Source of Comment	Summary of Comments	Associated Chapters	Staff Response
Table 8 Small Group Discussion Report	• Conservation in the CWP and in the water process must be made a priority. • Transmountain diversions from the W estern slope are a large concern. New diversions should also address the economic loss in the basin of origin. • Lake Powell should not be used as a water bank to enable the East Slope to make diversions from the Colorado River Basin. Once the water reaches Lake Powell it is no longer Colorado's water because there is no way to return it to the state.	6, 2.2, 8	Thank you for your comments. The CWCB does take water conservation seriously and considers it an integral part of managing water statewide. The Basin Implementation Plans and Colorado's Water Plan will incorporate conservation and reuse as critical components to helping meet future water needs, however those strategies alone might not be enough to meet Colorado's future water needs. Additional balanced options need to be explored. These topics are explored in Section 6.3. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. The state is working vigorously with other upper basin states and the Colorado River Basin as a whole to mitigate any risks Colorado may face with regard to compact compliance and other interstate issues.
Public Comments from August 21, 2014 Colorado Basin Hearing			
Robert Ittner, Jr. Chair, Pitkin County Board of County Commissioners Letter to Committee (excerpts provided in the following column).	• Transbasin diversions (TBDs) and other projects of statewide interest which are implicated or propounded by the CWP must be subject to robust 1041 review by local governments. • CWP should recognize and account for the disproportionate impact that TBDs have on the state's ability to meet its compact delivery obligations compared to in-basin diversions. • Recreational in-channel diversion (RICDs) and Wild and Scenic designations support western slope recreation and economies, and are tools for compact compliance.	6.5, 9.1, 8	Thank you for your comments. These comments and others with similar sentiment have been taken into consideration and will be reflected in the November draft of CWP. With regard to new transmountain diversion projects, the IBCC provided a draft conceptual agreement which explored innovative ways to address this issue in a balanced manner. Scenario planning indicates that a new transmountain diversions may be a necessary part of Colorado's water supply portfolio. Colorado's Water Plan will not include any specific transmountain water project, but it will discuss how we can move forward with this option should it be needed, based on the IBCC's work. Transmountain diversions are addressed in Chapter 8. Colorado water allocation and governance has always been guided by local users meeting local needs and Colorado's Water Plan will not change that. Rather than diminishing local control or authority over water, Colorado's Water Plan seeks to strengthen local decision-makers' ability to achieve regional and statewide water solutions. To that effect, Colorado's Water Plan will work to encourage, rather than mandate, several of the points presented in the comments. Local control issues are explored in Chapter 2, as well as 9.1. The state is working vigorously with other upper basin states and the Colorado River Basin as a whole to mitigate any risks Colorado may face with regard to compact compliance and other interstate issues.

6. Meeting in Gunnison Library – Newspaper report on meeting, WSCU Student Paper

TOP O'THE WORLD, Western State Colorado University Student Newspaper, March 5 issue
Report on February 25, 2015 Public Meeting in Gunnison, CO

March 5, 2015

Colorado Water Plan

Dustin Eldridge
Staff Writer

A small group of concerned citizens met at the Gunnison Library last week to discuss one of Colorado's most basic and dire needs for the near future: water.

On Wednesday, Feb. 26, the Upper Gunnison River Water Conservancy District (UGRWCD) held a presentation regarding the current state and future of the Gunnison Basin and Colorado Water plans. George Sibley, of the Board of Directors, and Frank Kugel, general manager, spoke to a small group of interested citizens regarding the Gunnison Basin's role in the State Water Plan.

Currently, the local and state water plans have been in a process of constructive dialogue. The plans for each of the state's nine river basins were released in July of 2014 and the state plan was released in December. The responsibility is now back in the hands of the various basin roundtable groups, which have until April to provide feedback on the state plan, as well as to revise their own plans. A final state water plan will be written taking each basin's concerns into consideration.

The Colorado Water plan is being developed to meet the increasing demand and shrinking supply of water in the state. As development continues along Colorado's Front Range — a region responsible for 80% of Colorado's growth and only a modest natural supply of water — the region will continue to look towards the Western Slope to meet their water needs. In addition, states that are a part of the Lower Colorado River Basin (New Mexico, Nevada, Arizona and California) are also looking at ways to increase water yields from the Colorado River. By mid-century, a gap of 500,000 acre-feet between demand and supply of water in the state is projected. The current plan is looking at three avenues to close the projected mid-century water gap.

"Some organizations argue that conservation could make up the whole gap," said Sibley. "Conservation is about using the water better," he added.

Conservation practices being evaluated include land use planning that reduces landscaping, re-using water in industrial schemes and investing in efficient appliances and infrastructure. Kugel pointed towards developments along the I-25 corridor as land-use planning that would help to conserve water.

"Along the South Platte there has been quite a bit of development of clustered apartments with little to no landscaping or lawns. These are the type of smart developments that we need," Kugel said.

(continued on page 6)

Colorado Water Plan

Continued from pg. 3

Dustin Eldridge

Staff Writer

Along with conservation, state and local water planners are also looking towards possibilities of new supplies of water. However, water planners aren't optimistic regarding new water supplies.

While Front Range planners are looking towards the Western Slope for these new supplies, Western Slope communities aren't sure this is a viable option.

"The state water plan is 350 pages and one page of the plan garners more attention than any other: the Trans-Mountain Diversion page," Kugel said.

Trans-mountain diversions (TMD) are the tool in which the Front Range is able to ascertain water from the Western Slope. There are already a number of these TMDs supplying the Front Range with Western Slope water.

"We think there isn't any water available for transfer to the Front Range," Sibley said.

Finally, since 89 percent of water used in Colorado goes towards agriculture, water planners are looking at ways to transfer agricultural water towards municipal and industrial uses. The most common form of this kind of transfer occurs when willing ranchers sell their water rights to interested parties.

"No one is twisting ranchers' arms for their water," Sibley said. He noted that ranchers who are growing elderly and have no one to operate their ranch, or are looking for bigger income, have sold their water rights to municipalities.

However, Sibley and Kugel both noted the difficulty in these agricultural transfers.

"How we get water from agriculture without drying out the agriculture is a real challenge," Sibley said.

Oftentimes when a ranch sells their water rights, the land becomes fallow — decreasing food production — and the family may leave the area. This negatively impacts the economy and culture of the community.

Currently, the UGRWCD is working on the Gunnison Basin plan to address the concerns and possibilities laid out in the previous water planning sessions. The UGRWCD is working to communicate with local user groups to weigh in on the state and basin plans.

"We are striving to get as much feedback as we can from as broad a constituency as possible," Kugel said. One of the challenges of this process is to find solutions that meet the needs of multiple user groups.

"The primary goal of the (UGRWCD) roundtable is to maintain what we have," Kugel said. With strong recreational, environmental and agricultural ties in the Valley, it's important to appease these two user groups.

Kugel cited a project on the Upper Ohio Creek that demonstrated a benefit towards multiple user-groups. Prior to the project, water from Castle Creek was diverted for agriculture into the Acme Creek diversion ditch. This often left parts of Castle Creek dry during late summer months after the runoff decreased.

Remote sensors have recently been installed to measure the flows of Castle Creek before the Acme Creek diversion. This allows water managers to only pull water from Castle Creek when it is necessary and when the flows are high enough to leave water in Castle Creek. Additionally, more efficient sprinklers for agricultural uses have been installed, which further decrease the amount of water needed to irrigate these fields. This project not only benefits the agricultural users but also has ecological benefits for wildlife in the area, including the Gunnison Sage Grouse.

"This is an example of a win-win situation for the environment and agriculture, and these are they types of solutions we need to meet our water demands in the near future," Kugel said.

The UGRWCD is looking for feedback on the state and local water plans. Those who are interested in reading the plan can view it at www.coloradowaterplan.com.

Additionally, citizens are encouraged to provide input towards the plan and can fill out a "General Input Form" on the website under the "Get Involved" tab.

7. Notes from Water Input Meeting at the Crested Butte Old Rock Library – 3-8-15

Note-taker: Cassidy Tawse-Garcia

Attendees:

- Julie Nania (Facilitator)
- Steve Glazer
- Sue Navy
- Dan Omasta
- Arvin Ram
- Cassidy Tawse-Garcia
- Kate Vogel
- Jeff Whiteside
- Jen Hildebrandt

Questions from attendees:

- Cities
- Agriculture
- Tourism
- Efficient/ Effective infrastructure
- Healthy watershed, rivers, wildlife
- *what, where and when are there "co-benefits?"

-1st priority of Gunnison BIP is to maintain agriculture and existing uses

Conversation: What are you interested in or do you perceive as tensions in current plan?

- Steve: Interested in support of bills that would allow agricultural efficiencies to be transferred to ISF
- Sue: Perceived tension between Ag and ISF
- -Steve: Recent Ag efficiencies should go to environment. → Should go downstream.
- Dan: Is CWP a prior appropriation system? With RRAFT (River Rafting Adventures for Tomorrow)

What is most important to you in plan?

- Cassidy: Advocate for a balanced approach of multiple uses
- Jeff: Interested in recreation and environmental uses
- Steve Glazer: Smart land use/ efficiency, keep municipal supplies in check → Protection (of our West Slope water) is most important
- Kate: Clean and access to drinking water is major importance, water for golf courses not important
- Sue: Improving retention of water (ground water), restoration
- Dan: Restoration, preserve water in its natural state, allowing ecosystems to store it for us. → Ag section of plan says that 10% of water is going to invasive species → Need more efficient land use, on Ag properties

Efficiencies:

- We don't have the same amount of municipal water use as more populated areas, because of our rural nature (Gunnison Basin)
- With Ag → Kathleen Curry will be first to promote junior rights of users.
- Entire group promotes/supports better/greater research into efficiency improvements. Some examples of these are:

    - Low-flow appliances
    - Rainwater collection
    - Xeriscaping
    - Native Shrubbery
    - Users
    - Conservation to help with climate adaptation
    - Use Denver Water's conservation measures as a positive example of efficiency
    - Rate structuring
    - Re-use of water (use more times)
- Dan → Find Efficiencies, target bigger users

-"Use it or lose it" → Leasing and rotational fallowing → options to create water and create efficiencies

-What are some considerations of "Buy and Dry"? → Fallowing?

- Consider loss of yield for next year(s) (for hay)
- Look at crops in Gunnison Basin that could do well with fallowing (besides hay)
- Row cropping
- Start to retire inefficient lands

-What are some concerns for people for future?

- Arvin: More water staying on the Western Slope → "Good water, for good coffee"
- Sue: Adequate water for habitat needs
- Dan: Adapting to climate change
- Jeff: Maintain quality of water
- Steve: Adapting to changes conditions and increasing demands
- Kate: Ditto to Steve's comments → water for people to drink
- Steve: The plan needs to get WAY more specific
- Dan: The resource protection chapter is the shortest of plan? Why?

8. MEM FORUM - INPUT FOR GUNNISON BASIN WATER PLAN

This is the tallied results from 59 Input Forms that were submitted by Western State Colorado University students following a Forum organized by graduate students in the University's Masters in Environmental Management and the Upper Gunnison River Water Conservancy District.

STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank these goals 1 through 5 from most important to least important from your personal perspective ('1' is most important to you):

RANK	1	2	3	4	5
A productive economy that supports vibrant and sustainable cities	**4**	**5**	**17**	**11**	**21**
Viable and productive agriculture	**2**	**11**	**19**	**16**	**10**
A robust skiing, recreation, and tourism industry	**0**	**6**	**9**	**18**	**25**
Efficient and effective water infrastructure promoting smart land use	**11**	**23**	**11**	**12**	**1**
A strong environment with healthy watersheds, rivers and streams, and wildlife	**41**	**13**	**2**	**1**	**1**

One sheet did not answer at all in this section.

There are three possible sources for the 'new water' to meet that gap, listed below. Please rank these, 1 through 3, indicating which source you believe most of the water should come from (1), to which source the least should come from (3):

RANK	1	2	3
No answer			
Municipal and Industrial conservation, upfront demand reduction (requiring efficient fixtures & appliances, rewarding xeriscaping, delivery system efficiencies, etc), reuse (cleaning 'used' municipal water and moving it through the system again)	**51**	**8**	**0**

Transfers from agriculture (conversion of farmland to suburban development, land-fallowing, temporary leases, etc)	**6**	**32**	**15**	**6**
New supply (new West Slope-to-East Slope transmountain diversions, new storage reservoirs, cisterns if legalized, etc)	**2**	**10**	**41**	**6**

GUNNISON BASIN GOALS

The priority goal for the Gunnison Basin Water Plan is *to protect existing uses in the event of future development.*

What is your degree of support for this primary goal?

Fully Support	Support with conditions	Oppose	Neutral/No opinion	No answer
16	**40**	**2**	**1**	

OTHER BASIN GOALS: The eight goals below are specific goals to be fulfilled within the context of the primary goal above. What is your *relative* degree of support each of these?

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.

Fully Support	Support with conditions	Oppose	Neutral/No opinion	No answer
17	**28**	**11**	**2**	**1**

Improve agricultural water supplies to reduce shortages.

Fully Support	Support with conditions	Oppose	Neutral/No opinion	No answer
18	**31**	**4**	**5**	**1**

Identify and address municipal and industrial water shortages.

Fully Support	Support with conditions	Oppose	Neutral/No opinion	No answer
22	**27**	**3**	**4**	**3**

Quantify and protect nonconsumptive water uses.

Fully Support	Support with conditions	Oppose	Neutral/No opinion	No answer
43	**13**	**1**	**1**	**1**

Maintain and, where necessary, improve water quality throughout the Basin.

Fully Support	Support with conditions	Oppose	Neutral/No opinion	No answer

51 **7** **0** **0**
1

Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.

Fully Support Support with conditions Oppose Neutral/No opinion No answer
46 **11** **0** **0**
2

Restore, maintain, and modernize critical water infrastructure, including hydropower.

Fully Support Support with conditions Oppose Neutral/No opinion No answer
18 **38** **1** **1**
1

Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.

Fully Support Support with conditions Oppose Neutral/No opinion No answer
48 **9** **0** **0**
1

Indicate (1-4) your preference for approaches to achieving these goals?

RANK	1	2	3	4	No Answer
Funding	**2**	**11**	**22**	**20**	**4**
Incentives	**16**	**19**	**13**	**7**	**2**
Regulation	**5**	**12**	**12**	**26**	**4**
Education	**31**	**12**	**7**	**5**	**4**

Do you have other concerns about the future of the Gunnison River and its water – including the Basin Plan Project List – that you feel the Roundtable needs to consider further? (Attach another sheet if needed)

Personal information:

What Gunnison Basin county do you live in?

Mesa Delta Montrose Ouray
Gunnison **56** Saguache Hinsdale Other **1**
No Answer **2**

What is/are your principal interest(s) in water (other than domestic needs)?

Agriculture **13** Fishing **9** Whitewater Rec **13** Flatwater Rec **5** Water Professional **8**
Environmental **45** Other **5**

9. Meeting at Cedaredge – Questions asked and discussed

Notes

Grand Mesa Water Conservancy District Discussion with the Public Regarding the State of Colorado Water Plan.

March 25, 2015 – approximately 35 people present.

Questions and comments addressed to Round Table members:

Is Eastern Colorado giving any credit back to Western Colorado for reuse water put back in the system for downstream flow needs? Credit against the gap?

Any Trans Mountain Diversion needs to give credit to the West?

Regarding the 50 gallons per household use in Denver area: How are the figures per household consumption determined? The folks in those households are using water elsewhere also.

How are dollars really going to be used?

How many times has there been a call on the river?

Re: Lake Mead – Are municipalities, like Las Vegas, taking out more water than they are allowed?

What is the criteria for Las Vegas to put another pipe in Lake Mead to get more water?

Why isn't desalinization being used in California for their water needs?

Does California tapping in ground water affect us?

Is there anything in this plan that addresses any of the overreach of governmental/environmental groups ?

How much water evaporates in rivers in getting to Lake Mead?

Trees across Colorado are dying. That will affect runoff.

Since 69% of the TMD water is junior to the compact, are they considering condemnation?

If call on the river came litigation would be huge.

I would like to see stats on overuse of State of Colorado on water allocated to them.

Re: Identifying projects on Grand Mesa for water storage. Who will do analysis of all reservoirs on the Mesa?

How involved are our representatives in this plan?

Does the dam safely engineer look at reservoirs every year?

10. Meeting at Cedaredge – Delta County Independent newspaper report on meeting

DELTA COUNTY INDEPENDENT
Report on March 25, 2015 Public Meeting in Cedaredge, CO

Stronger voices for water are needed

BY HANK LOHMEYER
Staff Writer

The Gunnison Basin Water Roundtable hosted an information meeting in Cedaredge last week urging people to add their voices to the developing Colorado Water Plan (CWP) — a document that will guide water planning and use throughout the state including Surface Creek Valley for the next 35 years.

According to historical evidence taken from tree ring analysis and other data, the current 30-year-long drought cycle in the Colorado River Basin could last another 20 years.

But even if the long drought cycle ends sooner, the problem of water shortages going forward will remain for no other reason than the growing needs of increasing populations in Colorado and elsewhere.

The Gunnison Basin portion of the CWP, including Surface Creek Valley, is nearing completion. Water interest groups and their professional staff, along with hired lawyers, have submitted a lot of comments on the draft plan. But comments from the public and private citizens are sorely lacking, explained Austin Keiser and Ron Shaver, local members of the roundtable.

Comments don't have to be new ideas. Even if comments are ideas that others have expressed or issues that have been around forever, the members of the Roundtable want to hear them so they know what is important to local water users.

"Others have their eyes on our water," Keiser told about 40 people attending the information and comment session.

"I'm not trying to be alarmist. The state plan will take years to evolve. But we have to start planning now for water in the year 2050."

While the Front Range eagerly eyes Western Slope water supplies, there is another potent threat to local water coming from the west — the thirsty demand for water by drought-plagued California.

The threat of a call on the Colorado River under the 1922 Colorado River compact is not taken seriously by some local water users. That is because the senior water rights on Grand Mesa were decreed prior to 1922. But those early decrees are no guarantees against all threats to local water rights.

For example, the Grand Mesa's storage system has lost some 3,000 acre feet of storage because of restrictions on failing dams and water rights abandonment, Shaver noted. That represents about 10 percent of the total storage in the Grand Mesa Water Conservancy District.

"We need to take care of what we've got," Keiser said. "If your water is precious to you now, you will see how precious it really is."

Shaver said that the Gunnison Basin Roundtable has money for doing reservoir rehab work. There have been about a dozen such projects completed in the last few years "and it has helped," he said.

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Photo by Hank Lohmeyer

The Gunnison Basin Water Roundtable is asking people for their comments on water resources. Comments from the public are needed in order to strengthen the local voice in water policy decisions that will affect Surface Creek Valley out to the year 2050. Austin Keiser, standing, and Ron Shaver, both local members of the Gunnison Basin Water Roundtable, last week made a presentation, responded to questions, and took comments on the developing Colorado Water Plan. The Roundtable is to complete its part of the Colorado Water Plan by April 17. Comments are still being accepted.

Stronger voices

FROM PAGE C1

Keiser added, "We've talked about this (reservoir repair) for years. We need to plan ahead and begin thinking about making repairs on reservoirs, dams and ditches."

There are three major ways of making up the water deficit for the Front Range: conservation, conversion of ag water to municipal use, and new storage projects on the Western Slope.

New water projects pose a problem because all the available water is already allocated. Local water officials don't like the subject of converting ag water to municipal uses. That leaves increased conservation measures as a key element in finding enough water to fill what is called "the Front Range water gap."

The average Cedaredge resident uses 250 to 260 gallons of water per day (gpd). Front Range water interests say the average Denver apartment dweller uses just 50 gpd. So Front Range water managers believe that water being "wasted" on the Western Slope should be put to use on their side of the mountains.

Local water users find plenty of reason to question that 50-gpd figure. But the fact remains that Front Range cities have made big strides in conservation including metering water and "reusing" once-treated waste water.

The Gunnison Basin Roundtable counters the Front Range's arguments by pointing out that the Gunnison Basin is already short of 128,000 acre feet of water a year and should not be expected to make up the Front Range's deficit with water we don't have. There is also a water deficit in Surface Creek Valley.

"We don't have a lot of strength in numbers of votes or population," Keiser said. "How can we protect what we have?"

There are currently 24 transmountain water diversions taking water from the Western Slope to the Front Range. The Front Range wants another transmountain diversion approved in the final CWP to make up its current and projected shortage. In the Gunnison River Basin, 89 percent of the water use goes to agriculture. So thirsty Front Range water interests are looking to the local area for ag water it can convert to the municipal supplies it needs.

Most of the Front Range's transmountain diversion water, 70 percent, is decreed after the 1922 Colorado River compact. If there is a call on the Colorado River's water that is taken from the Front Range decrees, how will the Western Slope make up water the Front Range would lose in such an event?

However, there has never been a call on the Colorado River's waters under the 1922 Compact, though Shaver noted that it has come very close in the last few years. If there ever is a call on the Colorado by Lower Basin states, no one really knows what would happen — other than that a lot of high-priced lawyers would be getting a lot of new work to do.

The thirsty, growing cities to the west need more of the water that originates on the Western Slope. Shaver noted, "The entire Colorado River Basin is in a serious drought."

Lake Powell and Lake Mead are at about 45 percent of storage capacity. Electricity generation is being threatened. Powell will get only an estimated 71 percent of its normal inflow this year.

Some of the thoughts and ideas that came up for discussion at the Cedaredge session last week included:

- The impact of water shortages caused by EPA and other government regulations and actions needs to be considered.
- The issue of compensatory storage for the Western Slope needs to be part of any solution.
- Are the gallon-per-day use comparisons between East and Western Slope accurate, and do they reflect the different lifestyles on the Western Slope and Front Range?
- The CWP should treat Surface Creek Valley and its reservoir system as a unique situation and resource; but how to do that?
- The "C" word, condemnation of water, has not been discussed a lot in public. Any condemned water would have to be paid for.
- Taxpayers of the Grand Mesa Water Conservancy District will have to be part of the decision-making process and any local solution.

Keiser said there would be another presentation for water users and ditch and reservoir owners. "All of Colorado runs on natural resources and water is the main one," he said. "It's not a pretty picture. The water's not there."

People can go online at Colorado Water Plan, or contact Keiser or Shaver in Cedaredge.

A similar meeting will be held on Monday, April 6, in Montrose at the Holiday Inn, 1391 S. Townsend Avenue. The public is welcome to offer input at this meeting, which begins at 7 p.m.

11. QUESTIONS AND COMMENTS RECEIVED AT PUBLIC MEETING UNCOMPAHGRE RIVER BASIN (UPPER AND LOWER), APRIL 6, 2015

Notes compiled by Marti Whitmore, Ouray County Attorney

- Regarding the M&I 'Gap' for 2050 – Has there been discussion about changing water law?
  The group was reminded that the Governor's directive mandated that the State Water Plan would be drawn up within the prior appropriation doctrine.
- Are West Slope group working cooperatively to respond to TMD issues?
  The West Slope Roundtables' Caucus was cited as the best example of such cooperative effort.
- How did the Gunnison Basin go from 'Not one drop' to 'Here are the conditions for a TMD'?
  Response emphasized the cost and absence of real resolution from litigation; observed that the 'conditions' are stringent enough to perhaps preclude a TMD.
- Questions were raised about 'agricultural efficiency.'
  Response dealt with problems of impacts to other water users through changed return flows, and legislative efforts to enable farmers/ranchers to conserve or lease water without loss of rights.
- Could ag producers change to less water intensive crops?
  Ag producers in the audience said they grow what sells, and can't afford to change just on basis of water use.
- Question on goals, and who is in charge of carrying them out? Implementation of the plan?
  Most of the projects proposed to meet the goals will be driven by the proponents; the CWCB will have funding for some projects, based on how well they fulfill both local and state goals and needs.
- What does it mean to say that any new project must assume all risks associated?
  Project proponents (whether for TMDs or local-basin projects) must go into it with eyes wide open; there will be no new 'firm yield' projects, and diverters must be prepared for the possibility that they may only be able to divert their water once every 5, 10, 15 years. West Slope project proponents may not be able to afford that kind of risk, but the Front Range has the capacity and perhaps eventually the desperation to pay a lot for a little.
- One participant stated a belief that there should be no property rights, in land or water, that the common good should prevail over private property (public trust?).
  A couple other participants spoke up in defense of property rights, but the discussion moved on without serious followup to the statement.
- Where do funds come from for projects?
  The CWCB funds numerous projects around the Basins. Municipal projects are generally funded by user charges, but often with bonding help from organizations like the Water and Power Authority.
- What drives TMD, and under what conditions?
  The 'can and will' evaluation of projects was briefly outlined, which since Union Park includes proof of a sufficient water supply.
- Will our taxes go up to pay for all of this?
  Impossible to say right now. Water rates will almost certainly increase even if there is strong conservation, as communities need to expand their supply options. State funding may increase, requiring either diversion of funds or raising of new funds.

12. WRITTEN COMMENTS SUBMITTED
UNCOMPAHGRE RIVER BASIN MEETING APRIL 6, 2015

From a Montrose County Inhabitant: Sharing and management are key to proper and responsible use of water. 'Education' often gets a grimace reaction (by me and others). But it will become a significant key issue to allowing western water law to continue. Without knowledge and proper understanding of the issues and their importance, an uneducated public *will* get pulled toward an egalitarian sharing model of 'public good' fairness (public trust?).
We *cannot* let people on the Front Range, or anywhere, think that a state constitution proposition/petition to eliminate the current doctrine would be a good idea.

From a Montrose County Inhabitant: Concern on the plan: does it take into consideration ground water and the balance that needs to be maintained with surface and ground water, and the health of the environment and the impact on the river system and others when water is diverted. We need to consider the West Slope and our future needs. People must follow the waste water law of needing to make sure that unused water is getting back to a water way and not just sitting on the land.
Before transferring more water to the East Slope, are those communities doing the most they can to conserve the water they have? How accountable are they for their water?

13. High Country Conservation Advocates

HIGH COUNTRY CONSERVATION ADVOCATES

P.O. Box 1066 • Crested Butte, CO 81224
970.349.7104 • office@hccacb.org • www.hccacb.org

March 31, 2015

Re: Public Comment on the Draft Gunnison Basin Implementation Plan

Dear Gunnison Basin Roundtable:

Please accept this summary of comments submitted on behalf of High Country Conservation Advocates regarding the draft Gunnison Basin Implementation Plan as requested by Gunnison Basin Roundtable member George Sibley.

I. Introduction

High Country Conservation Advocates (HCCA) is submitting these comments to aid the Gunnison Basin Roundtable (GBRT) as it finalizes the Gunnison Basin Implementation Plan (GBIP). HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around Gunnison County. Many of our members live and work here and enjoy recreational opportunities and a quality of life preserved by our Valley's wildlife, habitat, and water resources. We offer the comments below to strengthen the final GBIP.

II. REINFORCE STRONG CONSERVATION AND REUSE POLICIES

Conservation is a low-risk investment that will free up supplies in the face of demand and climate change uncertainties. HCCA supports projects 23 & 29, IPPs supporting Water Conservation Planning Process for the Upper Gunnison Basin and a City of Ouray Water Efficiency and Conservation Plan. At the same time, we encourage the GBRT to:

- Support state policies that will conserve indoor and outdoor domestic water use.
- Adopt a statewide goal of a 600,000 AF reduction in urban demand by 2050 for statewide urban conservation to reflect the "high conservation" principle.
- Reflect the GBRT's adoption of high-conservation municipal standards in GBIP text.[1]
- Reference specific strategies to achieve conservation savings, potentially including:
    - Indoor residential use.
        - Achieve an average per capita indoor use of 30 gallons per day by 2050 by requiring already available high efficiency fixtures and supporting water provider incentive programs.
        - Encourage the adoption of local ordinances that:
            - Require adherence with WaterSense standards
            - Require retrofit on resale
            - Use permitting authority to prioritize building permits for home designs that meet efficiency guidelines.

[1] Currently, page 38, addressing new supply development, reads that "Entities must first reach at least medium levels of municipal and industrial water conservation as defined in SWSI 2010 prior to further development of Colorado River System water."

- Outdoor residential use.
  - To support conservation of outdoor residential uses, the GBIP could encourage local water providers to engage in targeted irrigation efficiency evaluations and support the inclusion of such projects as IPPs.
  - The GBIP could discuss encouraging local ordinances including land use ordinances that govern landscape and irrigation system design and installation for new development and require greywater systems.
- IPPs that explore municipal conservation measures should be encouraged. An effort should be made to work with municipalities to develop these IPPs.

The GBRT should also support exhaustible reuse on the Front Range and look for opportunities to increase reuse in the Gunnison Basin.

III. PRIORITIZE NONCONSUMPTIVE USE ASSESSMENTS AND PROJECT IDENTIFICATION

One of the key areas that the GBRT has identified as needing additional assessment and project development is for environmental needs and nonconsumptive use projects.[2] HCCA asks that the GBRT make this a priority moving forward and encourages the GBRT to prioritize funding for non-consumptive use project assessments and streamflow management plans. The type of analysis provided on page 81, discussing instream flow case studies, is a nice starting point for this type of project.

In addition to focusing on nonconsumptive use assessments, attention should be paid to how environmental uses can benefit other uses in the Basin. We also ask that the GBRT further describe how agricultural projects can provide benefits to the environment to make this more actionable. Finally, Table 8 discusses the relationship between basin goals and the proposed basin projects. The GBRT should revise Table 8 in the GBIP to include nonconsumptive use projects in Goal 1. Preserving the environment to a reasonable degree should be considered an existing use—healthy riparian and aquatic environmental are not new water uses- rather, they represent the original state of the Gunnison Basin.

IV. DESCRIBE AND ENCOURAGE THE BENEFICIAL RELATIONSHIP BETWEEN AGRICULTURE AND ENVIRONMENTAL USES

Goal 7 of the GBIP is to "Describe and encourage the beneficial relationship between agricultural and environmental/ recreational water uses." At several points in the GBIP the draft discusses how return flows from agriculture benefit instream flows. HCCA recognizes that return flows can benefit instream flows to a certain extent. However, the sweeping

[2] The GBRT has developed placeholders for environmental and recreational projects but has not developed project lists or descriptions.

statements in the Draft GBIP seem to suggest that diverting water for irrigation always benefits environmental values, even above leaving some water in the natural stream.[3]

It is our belief that the relationship between irrigation return flows and instream flows is far more nuanced than it is currently portrayed in the GBIP. The GBRT should support IPPs that study this relationship in the Upper Gunnison Basin. A study could address:

- Where do late season return flows provide a benefit?
- What percentage of these flows actually makes it back to the stream system?
- Would the overall health of a stream be improve more if that water were used more efficiently in the first place?[4] Are there key times to keep flows in streams?
- What are the water quality issues associated with return flow?

This analysis could be similar to the NoChico Brush project but tailored to the Upper Basin.

In addition to answering these questions about how irrigation may support instream flows, HCCA would like to see language included in the GBIP about how instream flows can support agriculture. This discussion could include:

- Recognition that instream flow leases can be used to protect stream habitats while providing financial benefits to lessees and an explanation of short-term leasing methods that can perhaps preserve agriculture by avoiding more permanent alternatives.

V. PROTECTING INSTREAM FLOWS

Traditional water supply strategies have resulted in adverse impacts to rivers and their associated environmental, recreational, and economic values. Instream flows provide one method to legally protect adequate flows.

The draft GBIP discusses the value of instream flows pertaining to protecting native fish populations and for meeting Endangered Species Act requirements. Although these are both valid reasons to support instream flows, the benefits of environmental flows reach far beyond those articulated reasons. Language should be incorporated into the GBIP that explains the numerous other benefits of instream flows:

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[3] For instance, the GBIP explains that "Previous discussions at the GBRT and IBCC have noted the beneficial effects that the extensive agricultural water uses in the Gunnison Basin have on environmental and recreational uses." Page 34. Statements such as these seem to presume that extensive agricultural water uses always benefit environmental uses. In contrast, on page 34, the GBIP describes that "delayed irrigation return flows and the irrigation water stored in the "soil reservoir" provide some benefit to stream flows and environmental and recreational water uses in the Gunnison Basin." This conclusion appears more objective.

[4] Additional information should be provided to support the following sentence on Page 73: "Due to a number of natural factors, irrigation diversions in the Upper Gunnison Basin are higher than most other regions in Colorado." What are these factors?

> Instream flows maintain stream ecosystems while providing habitat for a range of species and helping to minimize potential ESA concerns. These environmental and recreational flow benefits also support river-based recreation and translate into substantial economic value.

There are several suitable places where such language could be inserted, for instance, on pages 16-17.

In addition, HCCA asks that the following be acknowledged or incorporated into the GBIP:

- Acknowledgement that even though a river reach may not have a quantified instream flow right appropriated, the environmental benefits of those flows form and important part of our existing uses in this Basin.
- Support for projects designed to address the Basin goal articulated in Table 1 of quantifying and protecting environmental and recreational water uses.
- An expansion of the discussion of instream flow mechanisms as a nonconsumptive use tool. The report begins to address this relationship on page 77.[5]
- The incorporation of language describing how ISFs work in the prior appropriation system and interact with other uses.

VI. CLIMATE CHANGE

It is difficult to predict the impact that climate change will have on future water availability in the Gunnison Basin, but preliminary research funded by state agencies reveals that impacts may be significant.[6] Potential impacts could include earlier spring runoff peaks, lower summer flows, and a decrease in water supplies from 5 to 20 percent by 2070.

The GBIP describes how climate may impact crops. However, just as climate change has the potential to impact agricultural uses of water, so too will it impact the health of aquatic and riparian ecosystems.[7] Warmer tributaries and changes in the patterns of flows in spawning tributaries could reduce the habitat of and general abundance of trout.[8]

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[5] Page 77 describes that "Shortages to instream flow rights generally follow the pattern of the more senior irrigation rights... The hydrology of the basin does not allow instream flows to be met every month of every year; and similar to agricultural demands, they are generally shorted in the late season during dry years. In addition, instream flow rights often experience shortages in winter months during dry years."

[6] The Colorado River Water Availability studies address these issues in more detail.

[7] The GBIP does include some language getting at this on page 61, explaining that "As with agricultural and M&I use, environmental and recreational uses are vulnerable to severe droughts." The GBIP continues to explain that the CWCB statewide drought surveys (2004, 2007, and 2013) also characterized environmental and recreational impacts, adaptive capacities, and vulnerability to recent droughts. Environmental uses, particularly for cold-water fisheries, will be particularly susceptible to these changes. Thus, it is important to continuously consider how changing climatic conditions will impact stream ecosystems.

[8] See, i.e., educational information provided by the NPS. http://www.nps.gov/idp/interp/EPA%20brochure%20cc-and-coldwater-fish[1].pdf. Trout Unlimited has sponsored studies examining the impact of potential climate changes on trout.

We ask, that following the above text discussing potential climate change impacts on agriculture (page 28), the following sentences are inserted:

> Potential climate change impacts could include changes in total precipitation, altered timing of spring runoff, and elevated stream temperatures. These changes could impact the health of our stream ecosystems and should be considered when determining effective instream flow protections.

In addition to adopting the above proposed language, HCCA would like to see the GBRT incorporate the following into the GBIP:

- On page 17 when discussing Water Quality and Watershed Management, include issues related to warmer stream temperature, timing of snowpack runoff, and the potential implications of a warmer climate.
- Discuss climate change and related fisheries and stream connectivity concerns on page 40 in the discussion of scenario planning.
- On page 31 the GBIP articulates that part of the process for protecting existing uses in the Gunnison Basin is to "Detail the projected effects of climate change that may require additional water development to protect existing uses." HCCA would like to clarify that protecting nonconsumptive uses against the challenges presented by climate change may require NOT developing additional water sources.

VII. WATERSHED HEALTH

The Colorado Water Plan supports the development of watershed coalitions and watershed master plans that address needs from a diverse set of local stakeholders. HCCA asks that the GBRT incorporate language addressing watershed health and asks that the GBRT:

- Incorporates a section describing watershed health and how watershed health can impact water resource supplies and quality. This conversation could readily be incorporated into pages 18-21, Watershed and Water Quality Management.
- Include language that encourages the formation of and supports the activities of local watershed coalitions that address watershed health issues.

VIII. STREAM MANAGEMENT PLANS

The GBRT should adopt language describing the role that stream management plans can play in defining and meeting environmental and recreational uses in light of other existing uses. Stream management plans utilize both existing and new data sources to analyze and identify necessary flows for habitat, water use, recreation, and water quality and should consist of the following efforts[9]:

[9] Partially derived from draft Grand County Stream Management Plan (http://www.co.grand.co.us/DocumentCenter/View/866)

1. Identification and prioritization of ecological and recreational values leading to the establishment of protection goals for streams within a given watershed.

   Examples: a) Protect 25 miles of stream habitat suitable for sustainable trout populations; b) Protect recreational flows for boaters along 10-mile reach; define flows for different craft and at different times of the year.

2. Collection and synthesis of existing data and information describing flows for aquatic habitat, boating, or other needs in the watershed.

3. Development of quantitative flow targets to meet articulated goals.

4. Quantification and communication of specific numeric flow targets (or ranges of flow) to support nonconsumptive values.

Effective stream management plans recognize the importance of accommodating existing and future human use needs while striving to maintain or improve the current state of aquatic ecosystem health. Connectivity between stream reaches must also be considered.

The GBRT should commit to supporting IPPs that use these steps to create stream management plans and should incorporate text explaining this support as a bullet point on page 35 under "Process to Achieve Goal".

IX. SPECIFIC REACHES

Table 6 of the GBIP addresses Environmental and Recreational Needs and notes that projects should be identified and inventoried to address environmental and recreational needs in "target reaches." The named reaches should be treated as a starting point for this analysis, rather than as a comprehensive list of reaches to be examined for these projects.

X. WATER QUALITY CONCERNS

Goal 6 in the GBIP discusses maintaining or improving water quality. Historic mining activities have rendered a number of our tributaries impaired by heavy metals contamination. Some of these impairments impact our aquatic life.[10] A greater emphasis should be put on remediating heavy metals issues that are impacting our water quality.

To strengthen the water quality component of the GBIP, the GBRT should:
- Include stream temperature as a water quality concern.
- Support watershed planning efforts that address water quality.
- Incorporate water quality concerns into stream management plans.

[10] Heavy metals contamination can have a range of impacts on aquatic ecosystems. The Aquatic Toxicity Laboratory at Colorado Parks and Wildlife has conducted a range of studies on these issues, including on the toxicity of zinc to Colorado native aquatic species, acute and chronic toxicity of cadmium to early life state cutthroat trout and mountain whitefish, and the toxicity of zinc, copper and cadmium to certain species of mayflies, among other things.

- Broaden the discussion of certain water quality issues raised in the GBIP, including the discussion of runoff and sedimentation issues from roads on public lands.
- Create a separate table to address water quality concerns. Currently water quality is addressed along with a discussion of target reaches for nonconsumptive use projects within Table 6, Environmental and Recreational Needs.
- Page 56 of the GBIP notes that drought can have negative impacts on water quality. This discussion should be expanded upon when discussing watershed health.
- When discussing Goal 6 the section "Process to Achieve Goal" should include an additional bullet point, "Participate in Water Quality Control Division hearings addressing impaired waters."
- Provide support for local watershed groups collecting data to inform local standards.

XI. OTHER SUGGESTED CHANGES

The suggestions below are minor modifications falling outside the topics addressed above.

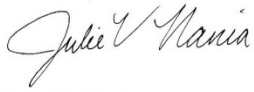
- It is HCCA's impression that the following sentence, found on page 10 of the GBIP, is biased against environmental uses: "The basin's heritage of agriculture and mining has been both augmented and challenged in the 20th century by growth of a robust recreational economy and an era of environmental concerns." This sentence could be just as easily be amended to read that "the basin's environmental heritage has been both augmented and challenged in the 20th century by agriculture and mining." Please modify or remove this sentence.
- The GBIP has a project placeholder for a nonconsumptive needs assessment for the Upper Gunnison Basin. Please replace Jennifer Bock's (former GBRT member and HCCA Water Director) name with Julie Nania's (current HCCA Water Director).

XII. CONCLUSION

We appreciate the effort and consideration that the Gunnison Basin roundtable has invested in the draft Gunnison Basin Implementation Plan. We encourage the GBRT to consider the above comments when revising and refining the BIP to arrive at a final draft.

Thank you for this opportunity to comment.

Sincerely,



Julie V. Nania
Water Director
High Country Conservation Advocates
julie@hccacb.org

Note: *High Country Conservation Advocates has also submitted a "Model Environmental Inventory Project" to guide the preparation of the Tier 1 IPP in the Project List (Section 4).*

14. Model Environmental Needs Inventory Project for Upper Gunnison Basin, HCCA

Proposed Upper Gunnison Basin Environmental Needs Assessment

Prepared by Julie Nania, High Country Conservation Advocates

PROJECT OVERVIEW

Identifying projects for protecting the balance of existing uses is an integral component of the draft Gunnison Basin Implementation Plan (BIP).[1] However, due to time and resource constraints, and the currently unknowable natural and cultural changes unfolding over the coming decades, the BIP, like the statewide planning process in general, "inevitably falls short of adequately identifying all projects and issues in the basin."[2] This has resulted in an 'adaptive management' approach to the planning process, whereby projects and programs will continue to be identified, refined and developed as the future emerges with more clarity.[3]

The BIP states that "Environmental and Recreational needs include identification and inventorying of specific projects throughout the basin and in 29 target stream reaches." To that end, the BIP includes nonconsumptive use placeholders for projects,[4] including a project titled "Nonconsumptive Project Identification/Inventory - Upper Gunnison Region."[5] High Country Conservation Advocates (HCCA) is proposing that a portion of the additional roundtable scoping funds be used to fill this informational gap by identifying nonconsumptive use and water quality projects in the Upper Gunnison River Basin that will help fulfill these goals articulated in the BIP:

- Quantify and protect environmental and recreational water uses.
- Maintain or, where necessary, improve water quality.
- Describe and encourage the beneficial relationships between agricultural and environmental/recreational uses.

SCOPE

The proposed study will use a consultant to coordinate an assessment of potential nonconsumptive use projects and projects for the maintenance or improvement of water quantity and quality in the Upper Gunnison Basin. The consultant will conduct stakeholder outreach to collect information about known potential projects, to identify reaches that need additional scrutiny, and to prioritize projects according to the BIP criteria.

Geographically, the consultant will examine reaches that include - but not limited to- the following reaches:

1. Gunnison River - Almont to Blue Mesa Reservoir

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[1] The purpose of the Basin Implementation Plans is for each basin [roundtable] to identify projects and methods to meet basin-specific municipal, industrial, agricultural, environmental, and recreational needs. The Basin Implementation Plans will inform and help drive Colorado's Water Plan. Draft Gunnison BIP, page 1.
[2] Id.
[3] See Colorado Water Plan, Chapter 6.1.
[4] BIP. Table 7. Proposed Basin Projects.
[5] Id.

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2. Coal Creek, Slate River and their Tributaries
3. East River - Gothic to Almont
4. Tributaries to Taylor Park Reservoir
5. Taylor Park Reservoir
6. Henson Creek and Tributaries
7. Taylor River - Taylor Park Reservoir to Almont
8. Lake San Cristobal
9. Lake Fork of the Gunnison River - Lake San Cristobal to Blue Mesa Reservoir
10. Upper East River and Tributaries - Headwaters to Gothic
11. Tomichi Creek (Sargents to confluence with Gunnison River) and its tributaries
12. Ohio Creek (headwaters to confluence with Gunnison)

Ultimately, the consultant will compile a written report that includes the following information:

1) A brief description of each project, including the following information:
    a. Overview
    b. Reach
    c. Type of project
    d. Project benefits and beneficiaries
    e. An estimate of what it will cost to accomplish the project goals
2) A section suggesting how these projects may be tiered under the BIP criteria.
3) A section identifying additional informational needs.

TASKS & TIMELINE

Phase One: Review of existing studies and stakeholder outreach

The consultant will review the most recent studies addressing non-consumptive use needs in the Upper Gunnison River Basin.[6] After this initial information gathering, local organizations and stakeholders will work with the consultant to 1) identify any known potential projects that may further non-consumptive use objectives and 2) to provide local knowledge to facilitate the identification of additional projects.

Potential project collaborators include the following entities/individuals:

- Trout Unlimited
- Crested Butte Land Trust
- Coal Creek Watershed Coalition
- Slate River Watershed
- BLM
- USFS
- Upper Gunnison River Water Conservancy District
- Lake Fork Conservancy District
- Western Resource Advocates
- Various stakeholder groups, potentially including:
    - Taylor River Water Users Group

[6] This will include reviewing the Gunnison Basin Basinwide Consumptive and Nonconsumptive Water Supply Needs Assessment, June 2011 (2011 Report).

- Gunnison Angling Society
- Backcountry Hunters and Anglers

HCCA will conduct outreach with the above entities to request that each group/individual prepare a list of identified projects to share with the consultant and identify stream reaches that could benefit from an additional assessment. In this manner, we can maximize the consultant's time and use the additional time to focus on determining additional projects that can meet the needs of impaired reaches, preliminary scoping of the projects, and ranking identified projects.

Phase Two: Determine additional projects to meet nonconsumptive needs in impaired reaches

We anticipate that the stakeholders above will have identified certain reaches or areas that are impaired but may not have identified projects to address those impairments. With the project stakeholders directing the consultant's focus, during Phase Two the consultant will identify potential projects to address these impairments.

Phase Three: Preliminary scoping and tiering of nonconsumptive use projects

The consultant will provide a brief description of each identified project. This description will include:

1) A brief overview of each project
2) The reach and impairment addressed by the project
3) Project benefits and anticipated outcomes
4) An estimate of what it will cost to accomplish the project goals

Once initial scoping of the projects is complete, the consultant will then tier the projects according to the criteria outlined in the BIP. If there are reaches that have been identified as impaired but with insufficient information to identify specific projects, the consultant will articulate, to the extent possible, the nature of the impairment and suggest the next step towards addressing those needs.

BENEFITS

Upon completion of the Study, the Roundtable, local stakeholders, business owners, and recreational users, and the general public will realize the following benefits:

- The Study will provide a roadmap to begin implementing projects to protect nonconsumptive uses and water quality in the watersheds of the Upper Gunnison River Basin.
- Entities participating in the study plan will be able to better prioritize projects.
- The Gunnison Basin Roundtable will address a need identified in the BIP.

DELIVERABLE

The consultant's work will be compiled as a report listing specific projects to address non-consumptive use needs in the Upper Gunnison River Basin.

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15. The West Slope Conservation Center

April 8, 2015

TO: Gunnison Basin Roundtable Implementation Plan Committee
Frank Kugel, Chair [fkugel@ugrwcd.org]

FROM: Western Slope Conservation Center
Sarah Sauter, Executive Director

SUBJECT: Gunnison Basin Implementation Plan

Please accept these comments on behalf of the Western Slope Conservation Center regarding the draft Gunnison Basin Implementation Plan (GBIP).

The Western Slope Conservation Center is a grassroots non-profit conservation organization based in Paonia, CO, and dedicated to protecting and enhancing the lands, air, water and wildlife in the Lower Gunnison Basin. The Conservation Center (formerly NFRIA) has been actively involved in designing and constructing river improvement projects on the North Fork of the Gunnison River since 1996. We have restored 8 miles of the North Fork, rehabilitated over 20 acres of wetlands, reconstructed 8 irrigation diversions for fish migration and recreational boating, removed a dam, and relocated two in-stream gravel mines, and converted an in-stream gravel mine into the 24 acre Paonia River Park. Our team of volunteers has collected water quality data on the North Fork and Surface Creek in partnership with Colorado River Watch since 2001. This year we will be hosting our 16th annual River Awareness Float Trip for interested community members and our 4th annual Paonia River Park Conservation Days – a water festival-like event for area 4th graders.

The Conservation Center is pleased that the state's water planning process gives consideration to the importance of maintaining and improving the quantity and quality of water flowing in the ecosystems of our Basin, and we look forward to helping make more specific plans for the stretches of our streams and rivers that have been identified in the Plan as needing attention. In addition to the local economic importance of healthy watersheds, a "headwaters basin" has a larger responsibility to everyone and everything downstream.

We thank the Gunnison Basin Roundtable and the Basin Implementation Plan Committee for their work on the Gunnison Basin Water Plan to meet the future water needs of the people of the Gunnison Basin and the State of Colorado. We generally support your analysis of the challenges facing water users and water providers moving forward into the 21st century, but we want to go on record with some specific observations about local concerns.

We recognize and value the agricultural heritage that defines the Gunnison Basin. However the GBIP goals as stated imply that environmental and recreational water uses are secondary to agriculture when, to the contrary, they should be valued and protected on equal grounds. Healthy riparian zones and aquatic habitat represent the original state of the Gunnison Basin, and preserving the environment and instream flows should be considered existing uses. The GBIP should identify ways to actively protect and improve our rivers – not simply avoiding additional harm. Therefore, we suggest the following modification to **Goal 5: Quantify, protect, *and enhance when possible*, environmental and recreational water uses.**

Western Slope Conservation Center
Protecting Rivers, Public Lands, and Quality of Life in Delta County since 1977
Box 1812, (204 Poplar Ave.) Paonia CO 81428 • 970-527-5307 • www.theconservationcenter.org

We share the request raised by High Country Conservation Advocates (HCCA) in their comment letter dated February 27, 2015, that the GBRT should make it a priority to develop and fund nonconsumptive use Identified Projects and Processes (IPPs). The GBIP is rich in agricultural projects and focus, but environmental and recreational projects are, for the most part, limited to placeholders or an aside to other projects. As a representative of all water interests, we share the responsibility to work with the GBRT to develop projects that benefit nonconsumptive attributes along with consumptive. We have attached a proposal for development of a needs assessment for environmental and recreational projects in the Lower Gunnison Basin region.

The Conservation Center believes that the relationship between agricultural and environmental uses is much more complicated than described in the GBIP. We recognize that in some instances return flows can provide beneficial instream flows. However, statements in the GBIP seem to imply that agricultural water always benefits environmental/recreational uses. Taken to the extreme, one might use this logic to argue that environmental/ recreational uses rely entirely on irrigation water. More realistically, future beneficial uses will depend on more storage, collaboration, and optimized demand-based delivery systems that effectively manage diversions, releases, and take irrigation return flows into account. We support HCCA's request for an IPP that studies the relationship between agricultural and environmental/ recreational water uses. This study should identify specific locations where late season irrigation flows could provide environmental/recreational benefits, the quality/quantity of the return flows that make it back to the stream system, and opportunities for instream flows to benefit all water users. We also suggest the following modification to **Goal 7: Describe and encourage *mutually* beneficial relationships between agricultural, environmental, and recreational water uses.**

We also suggest the GBRT consider maximizing the nonconsumptive use of water in the Basin by promoting and supporting the use of hydroelectric power generation, especially agricultural micro-hydro where substantial potential exists as outlined in the 2014 study prepared for the Colorado Department of Agriculture.

We support the GBIP's emphasis on projects with multiple benefits. However, the IPP list includes a number of projects with agriculture as the sole beneficiary. In addition, we recommend that the complete GBIP project list include all the beneficial uses instead of lumping all identified uses as "MP" or multipurpose. It is important to know which projects have and have not identified nonconsumptive benefits. As the long-time environmental stewards of the North Fork of the Gunnison River, the Conservation Center offers the following modifications for specific projects.

- **Fire Mountain Canal Delivery Efficiency Project:** We support the project's primary goal of increasing efficient use of irrigation water in the North Fork of the Gunnison River and encourage GBRT and project sponsors to consider nonconsumptive benefits that could be incorporated into the project's design, such as removing fish barriers, reducing fish entrainment in the canal, and improving boater safety. We encourage the project sponsors to consider the design and implementation of a demand based system instead of the existing supply based system that more accurately meets the demands of the water users under the system, reduces waste, improves stream flow and management of stored water. Such a system would supply all of the needed agriculture water, while at the same time leaving more water in the river for riparian benefit throughout periods of the growing season. Such a project could be designed and implemented in conjunction with the Bureau of Reclamation, which has the expertise and experience to develop such systems.

- **Paonia Reservoir Sediment Removal and Outlet Modification Project:** The Conservation Center supports the project sponsors' efforts to rehabilitate the Paonia dam and reservoir. Paonia Reservoir provides multiple benefits to the North Fork Valley - ranging from irrigation storage and recreation to flood control and water quality. We ask the GBRT and project sponsors to consider nonconsumptive benefits as the project moves through planning, engineering, and implementation phases. We are extremely concerned about the amount and timing of sediment expected to be flushed from the reservoir. We request that the project sponsors evaluate the environmental impacts associated with sediment removal and outlet modification. We also request that the project sponsors involve local stakeholders and the general public in the planning process as soon as possible.

- **Crawford Reservoir System Optimization Study and Prioritized Conveyance Improvements:** The Conservation Center supports the Crawford Water Conservancy District's efforts to improve their irrigation delivery system. In addition to the stated agricultural benefit, we request that the GBRT and project sponsors consider the nonconsumptive water uses in the Smith Fork that could benefit from system optimization. The Smith Fork is a considerable tributary to the Gunnison River and has been listed in the GBIP as a target reach to identify projects to address environmental and recreational needs. This project could be a model for improving multiple beneficial uses in the Gunnison Basin.

The GBIP must raise the bar when it comes to water conservation and reuse. We are pleased that the GBRT is supporting water conservation measures, both in the Front Range and locally within the Gunnison Basin. We ask the GBRT to encourage and even incentivize the adoption of water conservation plans by municipalities and water districts in the Lower Gunnison Basin. Corresponding to the GBRT's decision to adopt "high-conservation" municipal standards for future development, we ask the GBRT to apply this principle across the board for all water uses - including industrial uses such as oil and gas.

On page 38 (Section 1, Goal 4), the GBIP states: "This report documents the planned efforts and related water availability of major water providers in the Basin to meet needs projected through the year 2050. Potential major industrial needs, such as those related to large-scale oil and gas development are not included at this time." We implore the GBIP to reconsider this position and evaluate the potential future water need from oil and gas in the Gunnison Basin. The Gunnison Basin is poised to experience a significant increase in natural gas development in the next year. The BLM has already leased over 170,000 acres on National Forest land for oil and gas development and in 2009 the Bull Mountain Pipeline was completed, which we estimate will require more than 1,000 new gas wells in the Muddy Creek area. Natural gas development is no longer speculative, it is happening now. This spring the BLM released a draft EIS for SG Interest's Bull Mountain Unit on McClure Pass which calls for 146 gas wells in the next six years. Oil and gas development is not limited to the North Fork watershed. The Norwegian Company FRAM has already broken ground in the Whitewater Unit, on the Delta/Mesa County line less than 5 miles from the Gunnison River, which calls for up 500 oil wells. While the amount of water used per well varies by geology and the type of fluid mineral being sought, the fact that oil and gas development presents a new challenge to managing water use in the Gunnison Basin cannot be disputed. Consequences from an accidental spill could be dire and annihilate the region's rich farming and ranching economy for decades to come. Anticipating industrial needs and impacts to water supplies from oil and gas cannot be put off until a later time.

We appreciate the efforts that the members of the Gunnison Basin Round Table have invested in the draft Gunnison Basin Implementation Plan. We especially thank George Sibley for his efforts to reach out to the watershed community for comments and input. We are hopeful that the GBRT will continue to partner with existing environmental interests to develop nonconsumptive projects and protect the long-term health of the Gunnison Basin.

Thank you for the opportunity to comment,

Sarah Sauter
Executive Director
Western Slope Conservation Center

Appendix: Proposed Lower Gunnison Basin Region Environmental Needs Assessment
(Adopted from HCCA's Upper Gunnison Basin Environmental Needs Assessment)

Project Overview:

Identifying projects for protecting the balance of existing uses is an integral component of the draft Gunnison Basin Implementation Plan (BIP). However, due to time and resource constraints, and the currently unknowable natural and cultural changes unfolding over the coming decades, the BIP, like the statewide planning process in general, "inevitably falls short of adequately identifying all projects and issues in the basin." This has resulted in an 'adaptive management' approach to the planning process, whereby projects and programs will continue to be identified, refined and developed as the future emerges with more clarity.

The BIP states that "Environmental and Recreational needs include identification and inventorying of specific projects throughout the basin and in 29 target stream reaches." To that end, the BIP includes nonconsumptive use placeholders for projects, including a project titled "Environmental/Recreational Project Identification and Inventory - North Fork Region." The Western Slope Conservation Center is proposing that a portion of the additional roundtable scoping funds be used to fill this informational gap by identifying nonconsumptive use and water quality projects in the entire Lower Gunnison Basin, not including the Uncompahgre, that will help fulfill these goals articulated in the BIP:

- Quantify and protect environmental and recreational water uses.
- Maintain or, where necessary, improve water quality.
- Describe and encourage the beneficial relationships between agricultural and environmental/recreational uses.

SCOPE:

The proposed study will use a consultant to coordinate an assessment of potential nonconsumptive use projects and projects for the maintenance or improvement of water quantity and quality in the Lower Gunnison Basin region. The consultant will conduct stakeholder outreach to collect information about known potential projects, to identify reaches that need additional scrutiny, and to prioritize projects according to the BIP criteria.

Geographically, the consultant will examine reaches that include - but not limited to- the following reaches:

- Gunnison River - Hartland Diversion to Confluence with Colorado River
- Gunnison River - Confluence with North Fork Gunnison River to Hartland Diversion
- North Fork of the Gunnison River - Paonia Dam to Confluence with the Gunnison River
- Smith Fork Creek

Ultimately, the consultant will compile a written report that includes the following information:

1) A brief description of each project, including the following information:
    a. Overview
    b. Reach
    c. Type of project
    d. Project benefits and beneficiaries
    e. An estimate of what it will cost to accomplish the project goals
2) A section suggesting how these projects may be tiered under the BIP criteria.
3) A section identifying additional informational needs.

5

TASKS & TIMELINE

Phase One: Review of existing studies and stakeholder outreach

The consultant will review the most recent studies addressing non-consumptive use needs in the Lower Gunnison Basin region. After this initial information gathering, local organizations and stakeholders involved in protecting non-consumptive uses in the Lower Gunnison Basin region will work with the consultant to 1) identify any known potential projects that may further non-consumptive use objectives and 2) to provide local knowledge to facilitate the identification of additional projects.

Potential project collaborators include, but are not limited to, the following entities/individuals:

- Trout Unlimited
- Colorado Canyons Association
- Desert Rivers Collaborative
- Tamarisk Coalition
- BLM
- USFS
- North Fork Water Conservancy District
- Grand Mesa Water Conservancy District
- Crawford Water Conservancy District
- Colorado River Water Conservation District
- Delta Conservation District
- Western Resource Advocates
- Various stakeholder groups, potentially including:
    - Local fishing and rafting outfitters
    - Gunnison Gorge Anglers
    - Backcountry Hunters and Anglers

The Conservation Center will conduct outreach with the above entities to request that each group/individual prepare a list of identified projects to share with the consultant and identify stream reaches that could benefit from an additional assessment. In this manner, we can maximize the consultant's time and use the additional time to focus on determining additional projects that can meet the needs of impaired reaches, preliminary scoping of the projects, and ranking identified projects.

Phase Two: Determine additional projects to meet nonconsumptive needs in impaired reaches

We anticipate that the stakeholders above will have identified certain reaches or areas that are impaired but may not have identified projects to address those impairments. With the project stakeholders directing the consultant's focus, during Phase Two the consultant will identify potential projects to address these impairments.

Phase Three: Preliminary scoping and tiering of nonconsumptive use projects

The consultant will provide a brief description of each identified project. This description will include:

1) A brief overview of each project
2) The reach and impairment addressed by the project
3) Project benefits and anticipated outcomes
4) An estimate of what it will cost to accomplish the project goals

Once initial scoping of the projects is complete, the consultant will then tier the projects according to the criteria outlined in the BIP. If there are reaches that have been identified as impaired but with insufficient information to identify specific projects, the consultant will articulate, to the extent possible, the nature of the impairment and suggest the next step towards addressing those needs.

BENEFITS:

Upon completion of the Study, the Roundtable, local stakeholders, business owners, and recreational users, and the general public will realize the following benefits:

- The Study will provide a roadmap to begin implementing projects to protect nonconsumptive uses and water quality in the watersheds of the North Fork region.
- Entities participating in the study plan will be able to better prioritize projects.
- The Gunnison Basin Roundtable will address a need identified in the BIP.

DELIVERABLE: The consultant's work will be compiled as a report listing specific projects to address non-consumptive use needs in the Lower Gunnison region.

16. Lynn Cudlip Letter on Agricultural Irrigation Value

INPUT NOTES FROM LYNN CUDLIP (BIOLOGIST, PART-TIME WSCU FACULTY):

One of the basin goals expressed in Gunnison Basin Implementation Plan is: Identify, quantify, and encourage beneficial relationships between agricultural water uses and nonconsumptive uses. The goal implies that links between the two uses is direct and beneficial though it is difficult to determine the benefits gained by the agricultural water users from nonconsumptive users such as recreationists utilizing appropriated instream flows. Perhaps instead, the link or links between the two users are indirect; in this basin, both users receive and provide ecosystem services to the basin water landscape. In doing so, the agricultural water users and the nonconsumptive water users are benefiting each other by providing and expanding ecosystem services in the basin, which in turn benefit each use and the entire basin from an ecological and environmental standpoint. When a basin's environment is healthy, the basin's inhabitants can achieve a healthful living.

Ecosystem services associated with water use in agriculture include water purification and storage, wildlife habitat maintenance, stream stabilization, groundwater recharge and discharge, and carbon sequestration. One agricultural use of water in the Gunnison Basin is flood irrigation; this form of irrigation leads to development of wetlands which have extensively expanded the ecosystem services listed above. While we have quantified how many acres are irrigated and can count the tons of hay produced or forage available, we have not quantified what other services these irrigated hay meadows provide. The type of irrigation that occurs in the Upper Gunnison Basin simulates a wetland environment where soils are saturated for an extensive part of the growing season. Like wetlands the irrigated hay meadows store water for later release to streams; they are highly productive and as a result sequester carbon; they provide habitat for small mammals and birds which are a food source for larger mammal and avian species. ***None of these services have been quantified and other ecosystem services have not been identified. Any new water supply project which would reduce the amount of irrigated land in Gunnison County should be evaluated for its impact to these services.*** *(Emphasis added.)* And while some would argue that conversion of sagebrush habitat to hay meadow has incurred impacts to the Gunnison landscape and its inhabitants, removal of irrigation water and leaving the land fallow could have tremendous impacts on the ecosystem services that would be diminished. Habitat would diminish as a result of little plant cover; water storage would not occur as precipitation events may cause surface runoff and erosion without vegetative cover; carbon sequestration would be reduced. Under conditions of irrigation cessation, these changes in ecosystem services should also be researched and quantified.

Nonconsumptive uses also provide ecosystem services. Water remaining in streams and creeks provide habitat and a water source for wildlife and domestic grazing animals including cattle and sheep. Instream flows also provided habitat for aquatic insects and algae that are the food source for fish; presence and maintenance of fish in our streams is important to a healthy environment and economy in our area. Intact stream systems support streambanks that are stable, which do not contribute massive amounts of eroded material to downstream users; a dynamic equilibrium has been established whereby established instream flows lead to degradation and aggradation of stream materials in a way that reduces erosive energy found in less healthy stream systems. And water left in the stream may serve as a source of water farther down the stream for additional agricultural uses, while providing recreation for boaters and fishers alike. Like agricultural water uses, nonconsumptive use of water and the links to ecosystem services have not been identified, quantified or researched. The new MEM program at WSCU could lead the way in researching these links between established water uses and ecosystem service, and by extension, the relationship between agricultural water uses and nonconsumptive water uses in the Gunnison Basin.

17. Bureau of Land Management Analysis of Basin and State Plans

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Colorado State Office
2850 Youngfield Street
Lakewood, Colorado 80215-7210
www.co.blm.gov

In Reply Refer To:
7250 (CO-932)

FEB 1 9 2015

Ms. Rebecca Mitchell
Chief, Water Supply Planning Section
Colorado Water Conservation Board
1313 Sherman St., 7th Floor
Denver, CO 80203

Dear Ms. Mitchell:

The Bureau of Land Management (BLM) Colorado is pleased to provide comments on the first draft of the Colorado Water Plan. The BLM is impressed with the water resources vision set forth by stakeholders across the state, which is to have sustainable and vibrant economies supported by healthy stream systems. The BLM's mission, which is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations, is directly complementary to this vision. The BLM is equally impressed by the magnitude of resources, including monetary, human, and scientific resources that will be necessary achieve the vision of the stakeholders. The BLM Colorado stands ready to partner with the State of Colorado to assist in realizing this vision.

This comment letter does not provide direct comments on specific policies or projects proposed in the Colorado Water Plan. Rather, this comment letter focuses on technical comments that the BLM believes would strengthen the plan, and that would assist the state in accurately describing the role of federal agencies in water supply issues. In addition, this comment letters provides suggestions for additional actions or projects the state may want to consider for inclusion in the plan. Our specific comments are provided in the enclosed document. If you would like to discuss these comments further, you may contact Roy Smith at (303) 239-3940.

Sincerely,

Brian St. George
Deputy State Director
Resources and Fire Management

Enclosure

BLM Colorado Comments on Colorado Water Plan

Chapter 2 – Legal and Institutional Setting

Page 23 – The text that describes the role of federal agencies is accurate with regard to the regulatory functions of federal agencies, but it doesn't fully describe the roles the federal agencies play as managers of large numbers of acres in Colorado. Addressing the federal role as land manager is critical for effective water planning and for approval and permitting of proposed projects. The BLM suggests that section describe how federal agencies provide land use authorizations for water projects that occupy federal lands. The description could include the key federal laws that provide guidance to federal agencies when they issue land use authorizations, including the Federal Land Policy and Management Act, the Endangered Species Act, and the Wild and Scenic Rivers Act.

To give the reader of the plan a better understanding of the federal land use authorization role in water project development, it may be helpful to provide a list of large water supply projects in Colorado that are located wholly or partially on federal lands. From the BLM perspective, good examples would include Clear Creek Reservoir in the Arkansas River watershed and Terrace Reservoir in the Rio Grande watershed, both of which operate on historic authorizations on BLM lands, and Wolford Mountain Reservoir in the Colorado River basin, which operates on a recent BLM land use authorization.

Pages 25 and 26 – The text describing federal reserved water rights exercised by federal agencies lacks a description of federal reserved water rights exercised by the BLM Colorado. The BLM has adjudicated federal reserved water rights for more than 1,200 public water reserves for livestock grazing purposes, for two National Oil Shale Reserves near Rifle, and for the Park Center Well, which provides water for municipal purposes near Canon City.

Chapter 5 – Water Demands

Page 81 – The BLM suggests slightly recasting the discussion of environmental and recreational needs to increase understanding of the plan by the public. The current discussion may lead a lay reader to conclude that "focus areas" identified by the basin roundtables are equivalent to the only stream reaches where there is a concern about maintaining sustainable stream environments, when in fact there are thousands of stream miles that must be maintained in order to provide sustainable watershed functions. The "focus areas" could be described as locations where there are high visibility streams and potential for water use conflicts, but they are only a subset of the streams where sustainable water management is desired.

The BLM acknowledges that it is challenging to express environmental and recreational needs in a quantified manner that would be equivalent to the acre feet needed for future consumptive uses. There are simply too many stream miles to quantify all needs, and environmental needs are generally not consumptive, so it may be misleading to provide a gross acre foot amount.

However, providing only a listing of stream miles with environmental and recreational attributes may not provide the reader with a full understanding of the difficult tradeoffs that will need to be evaluated between diverting water for human usage and leaving water in streams to sustain river-related values. The plan could benefit from pointing the reader to multiple efforts that have been made to quantify environmental and recreational needs in stream reaches with potential conflicts, such as the Arkansas River Flow Needs Assessment that the BLM completed jointly with Colorado Parks and Wildlife. The state could also consider including a goal in the plan to identify stream reaches where conflicts are likely to occur and develop similar quantification of environmental and recreational needs in those focus areas.

In the basin implementation plans, it appears that there is an overwhelming need for easily accessible and understandable science on water requirements for riparian species and aquatic species. The BLM suggests that the state consider the establishment of a geospatial environmental water demands database, similar to what has been established for the State of Arizona by the Water Resources Research Center at the University of Arizona.

Chapter 6 – Water Supply Management

Page 93 – The BLM Colorado suggests that, as part of the development of "low and no regret actions" to address water supply needs, the state may want to consider a commitment to fully assist basins in quantifying environmental and recreation needs. If quantifications of environmental and recreational needs are complete when it is time to implement future water supply projects, the time necessary to implement those projects could be greatly reduced. The quantification information would aid in both project design and project permitting processes.

Page 98 – While developing projects to meet water supply gaps, the BLM notes that all of the basin roundtables have proposed objectives and projects that focus on imperiled and/or endangered species, protecting wetland/riparian areas and protecting recreation. From the BLM perspective, it will be very difficult to meet water supply goals in these arenas without possessing information on flow rates and volumes necessary to support these attributes. However, some of the basin roundtables have not proposed projects designed to quantify non-consumptive needs. The BLM suggests that quantifying recreational and statewide needs be considered as a statewide goal, and that the state could consider work with all basin roundtables to develop quantification projects in locations with potential conflict between consumptive and non-consumptive needs.

Pages 127 through 130 – The plan notes that many basin roundtables identified a significant information gap in relation to understanding environmental and recreational needs. The basin roundtables also noted there aren't sufficient projects in place to address environmental and recreational needs. It appears that the information gaps and lack of projects may be a result of lack of funding and resources at the basin level.

The BLM Colorado suggests that the state may want to consider adding identification of potential funding sources for basin projects on environmental and recreational needs as part of the plan. If legislative action is needed to create new funding sources, then plan could serve as a resource for legislators who are considering funding options. The BLM Colorado notes that the Colorado Basin Implementation Plan has identified funding mechanisms that have worked for projects that have already been completed, and the Colorado Basin Implementation Plan also suggests other potentially viable funding mechanisms.

Chapter 7 - Water Resource Management and Protection

The BLM always seeks to further develop our partnerships with stakeholders and state government in water resource management and protection. Accordingly, the plan may benefit from a specific commitment to working with federal land management agencies on meeting water quality and watershed management objectives. Partnerships on water quality and watershed management could be facilitated if the plan were to fully describe the BLM's role in water resource management and protection, especially since the Colorado Water Plan is both an educational and strategic document. The BLM offers the following observations concerning water resource and management that could be included in the plan:

- Out of the 8.4 million acres in Colorado managed by the BLM, approximately 4.5 million acres are forests and woodlands. This includes 3 million acres of pinon-juniper woodlands, 800,000 acres of deciduous woodlands, and 700,000 acres of coniferous forests.
- The BLM Colorado is involved in multiple forest health initiatives, including the Bark Beetle Collaborative, the Front Range Roundtable, and Cooperative Wildlife Protection Plans.
- The BLM Colorado is preparing a Climate Adaptation Strategy that will identify resources, land uses, and communities that may be vulnerable to climate change and will develop meaningful adaptation strategies. The strategy will be designed to sustain basic ecological processes, including hydrologic function, and to assist communities in developing strategies to adapt to climate change.
- The BLM is responsible for protecting, restoring, and maintaining the chemical, physical, and biological integrity of surface and ground waters that could be influenced by the BLM resource management activities. The Federal Land Policy and Management Act requires the BLM to comply with pollution control laws in land use plans and in land use authorizations. Specifically, BLM complies with applicable federal, state, tribal, and local water quality standards, such as the Federal Water Pollution Control Act and the Safe Drinking Water Act.
- The BLM is very active in source water protection in watersheds that provide municipal water supplies.

- In Colorado, the BLM manages a significant portion of watersheds that provide water to communities such as Parachute, Grand Junction, Palisade, Paonia, Hotchkiss, Norwood, Rangely, Meeker, Rifle, and Canon City. To protect these source water areas, the BLM has entered into a data sharing agreement with Colorado Department of Public Health and Environment (CDPHE), and is currently negotiating a Memorandum of Understanding on source water protection with CDPHE.
- The BLM has an active program to address roads that reduce the functionality of floodplains and wetlands, which in turn have a large impact on water storage and water quality. The BLM frequently takes actions to reroute roads, improve drainage from roads, reduce sediment from roads, and reconnect habitats that are bisected by roads

Chapter 8 – Interbasin Projects and Agreements

The BLM suggests including the Upper Colorado River Wild and Scenic Stakeholder Group as a good example of a functioning interbasin agreement that includes diverse stakeholders (private landowners, conservation groups, local government, and state government) working with federal agencies to achieve water supply management goals.

Chapter 9 – Alignment of State Resources and Policies

Page 288 – The BLM suggests that it may be counterproductive in a long-term plan to broadly state that federal land use plans have upset the balance between state and federal water management authorities, because such language may limit the potential for future cooperation. The disputed issues mentioned in this chapter are limited to some isolated provisions in a few federal land use plans, while the bigger picture is that the overwhelming majority of the language in federal land use plans is clearly supportive of the state's water management goals. The BLM believes it would be more productive to state that the Colorado Department of Natural Resources has MOUs with federal land management agencies concerning water management, and that those MOUs have provided an avenue for productive discussions when these limited conflicts do arise.

Page 314 – The BLM believes that establishment of joint a National Environmental Policy Act review process, beginning before land use authorization applications are submitted for new water projects, would be productive. The BLM's experience is that applicants who are willing to have pre-application discussion of potential impacts and perform analysis of alternatives before submitting land use authorization applications enjoy much shorter authorization times.

Basin Implementation Plans

In general, the BLM believes that the basin implementation plans accurately acknowledge the role that federal land management agencies play in water supply. In addition, the BLM is pleased that the basin implementation plans seek to further develop cooperative relationships with federal land management agencies.

The BLM does not wish to provide comments that are specific to each plan, but the BLM does wish to provide the following overall comments on the basin implementation plans:

- Some of the basins have adopted highly useful tools for assessing environmental and recreational needs, and other basins could consider adopting the same tools. Specifically, the Yampa/White/Green roundtable has utilized "Ecological Limits of Hydrologic Alteration," has conducted an extensive analysis of how instream flow rights compare to actual flow rates found in streams, and has implemented risk assessments for trout, warm water fishes, and cottonwood communities. The Colorado River basin roundtable supports the idea of flow evaluation tools and stream management plans. While some of these techniques require substantial resources to implement, the experience gained in one basin has the potential to greatly reduce the cost of implementing similar analysis in other basins.
- A key component of aquatic ecosystem resiliency is to ensure connectivity between aquatic habitats. With climate change, species will seek to move to cooler aquatic habitats and barriers could inhibit that movement. The basin roundtables could consider projects designed to inventory barriers to aquatic passage, such as road/stream crossing (fords/culverts), headgates, and other water control facilities. Projects that remove or modify these barriers could also be considered.
- A key component of aquatic ecosystem resiliency is aquifer conditions that support continued discharge of groundwater systems to stream systems and springs. The basin roundtables could consider projects designed to inventory groundwater conditions and identify locations where groundwater depletions create risks to streams and springs.
- The basin roundtables could consider expansion of their objectives and projects to support, whenever possible, all native species that are water-dependent, and not just higher profile species. For example, many projects are designed to benefit native trout species, but could also be designed to simultaneously benefit other native species such as long-nosed dace and speckled dace. Similarly, the BLM encourages the roundtables to think very broadly about maintaining health of native species as a strategy to reduce obstacles to future water supply projects. For example, Sage-Grouse are dependent upon discharge from springs. If Sage-Grouse populations are healthy, then impacts to Sage-Grouse are less likely to become an issue in the authorization of water supply projects that occupy sage grouse habitat.

Form 1220-1
(July 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CLEARANCE SHEET

- ☐ Manual Release
- ☐ Handbook
- ☐ Instruction Memorandum
- ☐ Information Bulletin
- ☐ Regulation
- ☑ Other

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Attach to copies of documents being submitted for clearance. List all reviewing officials by office code and office title. For Bureauwide Directives, list (WO-560) IRM Policy & Directives both before and after signing official.

Brief Description of Issuance *(include Subject-Code Number and Heading)*

In Reply Refer To:
7250 (CO-932)

Colorado Water Plan letter

FEB 1 9 2015

SIGN ALL DOCUMENTS IN BLACK INK

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Branch Chief 932	BHR	2-19	☐	
DSD 930	BSG	2-19	☐	
Secretary 930	MH	2-19	☐	
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18. National Park Service Analysis of Basin and State Plans

United States Department of the Interior

NATIONAL PARK SERVICE
INTERMOUNTAIN REGION
12795 West Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

IN REPLY REFER TO:
NR-RSS

MAR 19 2015

Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Board Members:

The National Park Service (NPS) respectfully submits the following comments and questions regarding the Basin Implementation Plans (BIPs) and the Colorado State Water Plan (Water Plan or CWP). Our comments are consistent with the NPS mission -- to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education and inspiration of this and future generations. The NPS' Colorado River Basin Parks Program includes eleven units within the Colorado River Basin that encompass 1,130 river miles and more than 5 million acres of surrounding land. Management decisions regarding the river system have the potential to affect the unique natural, cultural, and recreational resources of these park units including those downstream in other states.

I. Goals for the Environment and Recreation

Concerns and challenges with Colorado River supply and demand

We support and share your concern regarding risk of shortage in the Colorado River basin, that "*the gap between our water supply and water demand is real and looming*" (CWP-pg 1) and that "*climate change and associated impacts make it more difficult to meet Colorado's future water needs because of diminishing suppl[y]*" (CWP – pg 3).

Environmental and recreational values to be protected

We also agree that it is necessary and appropriate to highlight the exceptional environmental and recreational values within the State of Colorado. We share your goal to "*honor Colorado's water values and ensur[e] that the state's most valuable resource is protected and available for generations to come*" (CWP – pg 4) and agree that Colorado's multipurpose water projects should include language about "*protecting the health of rivers, streams and watersheds*" (CWP – pg 5).

Desire to use water the most efficiently

We agree with Governor John Hickenlooper's statement that "*Every conversation about water should start with conservation*" (CWP -pg 145). Given that "*future supply of Colorado River water is highly variable and uncertain*" (CWP - pg 282), the NPS believes, along with the western slope basin roundtables, that minimum water conservation for future scenarios should be changed from "*low to medium*" to "*high*" (CWP – pg 99) to more adequately address the gap between water supply and demand. We agree with the InterBasin Compact Committee (IBCC) work to further define what is meant by, and to set, "*high conservation standards*" (CWP – pg 76 and pg 274), particularly for municipal and agricultural efficiencies. Water conservation and efficiency could positively affect the resources in the national park units if that water was kept in the streams.

II. Environmental and recreational water quality and quantity

Encourage inventory for environmental and recreation purposes

Many projects listed in the BIPs seek to protect environmental and recreational resources via inventories of agricultural uses and existing infrastructure. While we agree it is important and necessary to inventory agriculture-related needs and conditions, we feel it is equally important to explicitly inventory and evaluate streams to identify key reaches with high (or low) environmental and recreational value, and those that are most in need of protection from threats to water quality and flow-dependent resources and values. We particularly encourage these inventories in the Gunnison Basin above Curecanti National Recreation Area and Black Canyon of the Gunnison National Park, and in the Yampa Basin above Dinosaur National Monument, as well as the Colorado Basin which is upstream of Canyonlands and Arches National Parks.

Identify more on-the ground projects for water quality or environmental improvements

We also encourage more action projects in all the BIPs to restore and address water quality and environmental concerns. We fully support those projects identified in the Colorado BIP that take steps towards on-the-ground environmental and recreation protection, and those in the Gunnison BIP that identify and address water quality concerns. More of these types of projects would help further meet BIP goals to ensure that key reaches are protected to the appropriate degree and to provide environmental and recreation benefits to the park units, the basins and the State.

Current in-stream flow protections of base flows may not protect all environmental and recreation purposes

Throughout the CWP and the BIPs, many references to existing in-stream flows imply that protection of minimum flows (i.e., base or subsistence flows) adequately protects all environmental and recreational uses. While in-stream flow protections for base flows are a good first step, it may be incorrect to assume that protection of just the minimum base flow will be sufficient to protect all environmental resources and/or recreational uses. Fish, sediment, and vegetation resources are influenced by peak and base flows, as well as other aspects of flow transitions, and in many cases have specific needs for both, as well as other specific flows, to maintain their quality and dynamic condition. It may be appropriate to evaluate whether existing in-stream flow protection is sufficient for environmental and recreational uses.

III. Concerns regarding risk associated with basin diversions

Risks and uncertainties related to water availability

We share the concerns raised by West Slope basins regarding increased risk in the Colorado River Basin from new supply projects, especially trans-basin diversions (CWP- pg 282-284). There has been a great deal of discussion in the roundtables about information which supports the idea that the Colorado River is currently over allocated. Uncertainty in climate change futures, changes in average inflow to Lake Powell, and incomplete information surrounding basin water commitments (e.g., existing water rights) result in uncertainty over the amount of water that is currently available for diversions out of the Upper Basin. During the West Slope Basin Meeting in December 2014, there was a call for more information on existing water commitments in each basin. The last Upper Basin hydrologic determination was completed in 2007, thus we are a long way from complete quantification of water rights and commitments in each basin. We support further data and information collection in order to better determine the water availability in these basins as it would help assess the potential impacts to our downstream national park units. Until there is more complete information available regarding commitments in each of the basins and less uncertainty in future water availability under climate change scenarios, concerns will remain related to any large future transmountain diversions.

Concerns related to diversions in wet years

We agree that "*Drought and dry periods have significant and lasting impacts on water supplies and availability for years, while wet years offer relief with as much as six times the amount of annual water*

supplies compared to dry years" (CWP -pg 56). Wet years refill reservoirs, like Lakes Powell and Mead, which are critical to the water infrastructure of the West. If wet-year water is instead diverted and used to supplement dry-year consumptive uses (CWP, IBCC Conceptual Agreement – pg 3), not only are reservoirs not refilled, but many of the aquatic and riverine ecosystems and associated wetland systems that depend on these high-flow wet years will be further imperiled. NPS recognizes the rights of states to develop their water and appreciates the State of Colorado's efforts on the CWP. Yet we remain concerned about the increasing risk of shortages and their effects not only on the environment and recreation, but also on agriculture, municipalities and industry. We agree with several of the roundtables that if new diversions are planned there is a need for thorough data collection and the need to quantify and evaluate impacts prior to setting aside water rights (CWP - pg 283). This would allow us to assess the impacts to our downstream resources in the park units.

IV. Economics metrics and trends for all sectors

Need for consistency in economic metrics

The CWP and BIPs use specific metrics (e.g., amount of water diverted and consumed, jobs generated, and dollars generated, etc.) to describe the contribution of agriculture to the regional and state economy (e.g., CWP –pg 78 and 118). These same reports also state that *"[o]utdoor recreation (including hunting, fishing, biking, hiking, skiing, golfing, wildlife watching and many other types of outdoor activities) significantly contributes to Colorado's economy, with non-consumptive water-based recreation an important part of that economy*" and that "*Healthy watersheds, rivers and streams, and wildlife are vital to maintaining Colorado's quality of life and a robust economy*" (CWP – pg 212). It would therefore seem appropriate to use the same metrics to compare and contrast the different uses of water (agriculture, hydropower, environmental and recreational) in terms of (1) amount of water diverted and consumed, (2) number of local and regional jobs supported, (3) dollars generated and infused into the local and regional economies, and (4) expected trends over time. This would provide clarity and allow for comparison of the economic value of consumptive and non- consumptive uses.

V. Drought contingency

Need inclusion of resource protection in priorities for drought contingency

Please include "*protection of in-stream natural resources, including endangered fish and other natural resources*," as one of the principles for the contingency planning. On page 18 of the CWP, in legal and institutional setting, it currently mentions only power generation. Protection of downstream resources has been mentioned as a priority in discussions at the roundtables as well as in discussions with CWCB staff, so we agree with those sentiments and suggest that wording to that effect be included in this plan. Flows out of Flaming Gorge Dam and Aspinall Dam directly affect resources within National Park units as well as the endangered fish within these reaches.

Thank you for this opportunity to comment on the Colorado Water Plan and the Basin Implementation Plans. And thank you for incorporating in your December 2014 draft, many of the comments from our November 2014 letter. We look forward to working with the State of Colorado further on the Water Plan and issues affecting NPS system units which arise from it. Please contact Rob Billerbeck, NPS Colorado River Coordinator for additional information on these comments or for more in-depth discussion about them. Rob can be reached by telephone (303-987-6789) or by electronic mail at rob_p_billerbeck@nps.gov.

Sincerely,

Sue E. Masica
Regional Director

cc: NPS Colorado River Steering Committee Members:

- Christine Lehnertz, Regional Director, Pacific West Region
- Ray Sauvajot, Acting Associate Director, Natural Resource Stewardship and Science
- Mark Foust, Committee Chair and Superintendent, Dinosaur National Monument
- Dave Uberuaga, Superintendent, Grand Canyon National Park
- Todd Brindle, Superintendent, Glen Canyon National Recreation Area and Rainbow Bridge National Monument
- Bruce Noble, Superintendent, Black Canyon of the Gunnison National Park and Curecanti National Recreation Area
- Kate Cannon, Superintendent, Arches National Park and Canyonlands National Park
- Patrick Gubbins, Acting Superintendent, Lake Mead National Recreation Area

NPS Staff:

- Tammy Whittington, Associate Regional Director, Resource Stewardship and Science, Intermountain Region
- Karen Breslin, Senior Policy Advisor, Intermountain Region
- Rob Billerbeck, Colorado River Coordinator, Intermountain Region
- Ed Harvey, Chief Water Resources Division, Natural Resource Stewardship and Science
- Bill Hansen, Water Resources Division, Natural Resource Stewardship and Science
- Mark Wondzell, Water Resources Division, Natural Resource Stewardship and Science

Basin Implementation Plan Representatives:

- Michelle Pierce, Gunnison Basin Roundtable Chair
- Jon Hill, Yampa Basin Roundtable Chair
- Jim Pokrandt, Colorado River Roundtable Chair

19. Loretta Molitor Letter on Conservation, Reuse and Diversion

Water for Colorado April 2, 2015

There can be little doubt that the availability of water for agriculture, wildlife, and domestic use will be a major problem facing us all for some time to come. It is true that agriculture uses by far the largest share of the available water. Overuse of aquifers for decades has resulted in their near disappearance. This is fossil water for the most part and will most likely not be recharged without a major ice age.

What can be done? Any plan for water for the future of Colorado has to be comprehensive.

1. Conservation:
   a. Severely limit use of water for frivolous applications for things like golf courses and lawns. Saves only a small per cent but as droughts continue and population increases every little bit counts.
   b. Agriculture as an industry needs to look at raising crops that require less water. For example: Reduce corn production – ethanol isn't that great as a fuel or even as a fuel additive, grass fed beef is better for all of us. California is looking to replace the growing of rice. What other crops could be used as substitutes for providing food for people?
   c. Use education and financial incentives to get citizens involved in decreased domestic use of water. Another "drop in the bucket" but ultimately useful.

2. Reuse
   a. As I understand it Denver is already using partially treated water to maintain their parks. Unlike golf courses that benefit a few, healthy tree growth in public parks in populated areas serve to moderate summer temperatures and sequester CO2.
   b. **All water that is used in the process of natural gas and oil exploration and production should be treated and restored to the environment.** Deep well disposal may have the benefit of putting these contaminated waters out of sight and thus out of mind. It may be that the old environmentally unsound practice of using evaporating ponds actually had some benefit in that the water was returned to the atmosphere to become part of the natural water cycle. Of course, that created a whole other set of problems. Portable water purification units exist. The remaining grunge would have to be sequestered but the clean water could be returned to the environment.

In summary, whatever the causes global warming is occurring. To some of us with a geological perspective it has already passed the tipping point where efforts to stop or slow the process might be too little too late. We need to recognize the prospect of ever increasing length and depth of drought in parts of the world and water surpluses in other parts.

Personally I would like to see what water we do get here in Colorado be allowed to run free to support the natural environment. Unfortunately I do realize that people live here and need water for their life and livelihoods. **As a first step the least we can do to help ourselves is to restore and maintain the infrastructure needed to keep what water we do get in our local watersheds.** A delicate balance will be required to allocate water judiciously for our needs and maintenance of some natural flows to the traditional major drainages such as the Colorado River. **It is important to note that the natural drainages of the Western Colorado slopes , i.e. west of the Continental Divide, are generally westward. Diversions to the Front Range are anachronistic.**

Loretta L. Molitor
18667 Surface Creek Rd.
Cedaredge, CO 81413

lor2mol@aol.com
970 856-4680

20. Modene Gaulke, Letter on Three Values in Colorado Water Plan Quick Guide

April 9, 2015

Tri-County Water Conservancy District
647 N. 7th Street
Montrose, CO 81401

Regarding: Gunnison Basin Implementation Plan (Colorado Water Plan)

Thank you for the opportunity to comment on the GBIP. I would like to address the three values that are listed in the Quick Guide to the Colorado Water Plan and the Gunnison Basin Water Plan.

Value 1. "A productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation and tourism industry."

Comment: These values are going to have to be prioritized. Agriculture should be the number one priority. Not only is our food produced by farmers and ranchers, but their craft produces a variety of other jobs. I do a lot of traveling and I always brag about living in Colorado. People talk about Olathe Sweet Corn and the Palisade Peaches. They know about those much more so than they do about where to go skiing or hiking or fishing. Tourism should also be high on the list of priorities. We live in a beautiful state that everyone should be able to visit and enjoy at least once in a lifetime. If we keep our agriculture base strong and our tourism opportunities effectively advertised, people will come. When they do, they will get hooked on the state's beauty and stay as I did. They will start up their businesses or retire here, and be well fed due to our robust agriculture. They will buy homes which will help the real estate market thrive.

Grants should be awarded to food producers who have degenerating irrigation systems. Along with the grant, mandatory conservation/use education should be given.

Vibrant and sustainable cities should not include unlimited water for private swimming pools and golf courses when there is such a serious shortage of water. Cosmetic watering should be limited. Anyone going over the limit should be taxed and the money used to build projects that will store and/or enhance the conservation of all types of water.

Make the general public aware that we are in trouble and that every citizen of Colorado needs to help conserve water. Encourage zero-based landscaping. Reward people for converting. Educate! Educate! Educate!

Value 2. "Efficient and effective water infrastructure promoting smart land use."

Comment: Clean out and around all waterways to eradicate harmful vegetation and brush which consumes more water than people.

Repair all existing infrastructure when it is needed. Don't wait until it has deteriorated to the point of being useless.

Value 3. "A strong environment that includes healthy watersheds, rivers and streams, and wildlife."

Comment: You have people who know what it takes to create and sustain that type of strong environment. Share that information with the general public. Let us help.

Keep politics out of the way when working at accomplishing the values. Otherwise, they won't get done.

Thank you for your time.

Sincerely,

Modene Gaulke

Modene Gaulke
443 Golden Drive
Montrose, CO 81401

21. Crawford Water Conservancy District

CRAWFORD WATER CONSERVANCY *DISTRICT*

183 Highway 92
Crawford CO 81415
970-921-4775
Fax: 921-5323
crwfwater@aol.com

April 7, 2015

GBRT
george@gard-sibley.org
(970) 641-4340

The Crawford Water Conservancy District (CWCD) would like to thank the Gunnison Basin Roundtable and the Basin Implementation Plan Committee for its work on the Gunnison Basin Water Plan.

The CWCD strongly supports the primary Basin goal to protect existing uses in the basin. The CWCD also strongly supports the following goals:

- Discouraging the conversion of productive agricultural land to all other uses within the context of private property rights
- Improving agricultural water supplies to reduce shortages
- Identifying and addressing municipal and industrial water shortages
- Quantifying and protecting environmental and recreational water uses
- Maintaining or, where necessary, improving water quality throughout the Gunnison Basin
- Describing and encouraging the beneficial relationships between agricultural and environmental/recreational uses
- Restoring and maintaining active, relevant, and comprehensive public education, outreach and stewardship processes involving water resources in the six sectors of the Gunnison Basin

The CWCD also supports the strong language the Gunnison Basin Roundtable used in the Statewide Principles for conditions limiting future transmountain diversions.

The CWCD would like the State Plan to address hydrologic risks before any new transmountain diversions are contemplated.

Sincerely,

Randall W. Fisher
Secretary/Treasurer
The Crawford Water Conservancy District Board

22. Upper Gunnison River Water Conservancy District

Upper Gunnison River Water Conservancy District
210 West Spencer Avenue, Suite B, Gunnison, Colorado 81230
(970)641-6065 • Fax (970) 641-1162 • www.ugrwcd.org

April 14, 2015

TO: Gunnison Basin Roundtable Implementation Plan Committee
Frank Kugel, Chair [fkugel@ugrwcd.org]

FROM: Board of the Upper Gunnison River Water Conservancy District
Brett Redden, President

SUBJECT: Gunnison Basin Implementation Plan

The Board and Staff of the Upper Gunnison River Water Conservancy District thank the Gunnison Basin Roundtable and members of the Basin Implementation Plan Committee for their work on the Gunnison Basin Water Plan for meeting the future water needs of the people of the Gunnison Basin and the State of Colorado. We generally support your analysis of the challenges facing water users and water providers moving forward into the 21st century, but want to go on record with some specific observations about local concerns.

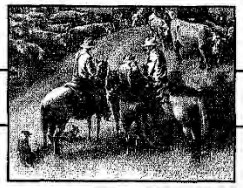
We appreciate the importance accorded to Colorado's agricultural lands in both the Basin and State Water Plans, and the importance of sustaining that agriculture and its use of water into the future, even though some of its land and water will undoubtedly have to be converted to municipal and industrial uses. One of the challenges that might be better addressed in both plans is how the costs associated with improvements and efficiencies in irrigated agriculture, in order to transfer some agricultural water with minimal damage to productivity, will be fairly distributed to those who will benefit from the water thereby freed up.

We are glad to see that the Gunnison Basin Plan takes a firm stand on stringent conditions that must be met for any future transmountain diversions – and that the State Plan has accepted most of those conditions. Our hope is that there will be even clearer definitions in the final State Plan on matters like hydrologic risk and the "triggers" that would limit further diversion even in above-average years – presumably tied to levels in existing West Slope reservoirs, and the West Slope's own developmental opportunities. It is our hope that, once the "Conceptual Framework" has been completely analyzed and drafted, Front Range water providers will concur with our conviction – broadly shared on the West Slope – that there is simply not enough unused water in the Colorado River tributaries for a significant and feasible transmountain diversion.

We are also glad that the state's water planning process gives consideration to the importance of maintaining and improving the quantity and quality of water flowing in the ecosystems of our Basin; the UGRWCD is already working with The Nature Conservancy, local watershed groups and the federal land management agencies on ways to improve watershed health in the basin, as the best way to prepare for the uncertainties of climate change already manifesting in the Basin.

We look forward to participating locally in the execution of these plans in the future.

23. Gunnison County Stockgrowers Association



Established 1894

GUNNISON COUNTY STOCKGROWERS ASSOCIATION, INC.

P.O. Box 1711 ◆ Gunnison, Colorado 81230

From Burt Guerrieri (Burt@millcreekranches.com)

Current President of Gunnison County Stockgrowers Association

Dear Gunnison Basin Roundtable,

Our local Stockgrowers Association represents the majority of Gunnison ranchers. As ranchers, continued water availability is the absolute essential link to our existence. Without water all other facets of ranching are meaningless. Gunnison Basin has a solid agricultural base that exemplifies sustainability and efficiency. Cattle ranching in our valley continues to be viable, as it has been for well over a century.

In our world that continues to pressure increased food production to feed the expanding human population, it is essential that we as a nationwide community support and protect solid agricultural systems, like we have here in the Gunnison Basin. We must keep our water home to be used on our rich Gunnison soil.

Transmountain diversion from this Basin is a bad idea. Distorting and destroying the ecology of the Gunnison Basin is not the answer to the insatiable thirst of municipalities.

Yours Truly, 04/10/2015

Burt Guerrieri

President Gunnison County Stockgrowers

PO Box 602

Gunnison, CO 81230

24. Project 7 Water Authority

PROJECT 7 WATER AUTHORITY

4/6/2015

To the Colorado Water Conservation Board:

As a Regional Water Treatment Plant serving the communities of Montrose, Delta, and Olathe, as well as the Tri-County Water Conservancy District, Menoken Water District, and the Chipeta Water District; we would like to add our support to several key points contained in the Gunnision Water Basin Implementation Plan as it pertains to the Colorado Water Plan.

First, we want to reiterate that the plan MUST protect current uses before taking on more junior uses. We fully support the appropriation doctrine as the law of the land; seeing no other position that will protect the fragile balance we have over the limited resources we share. We feel the shortages that *already* exist within current uses; ANY new project increases the risk of out-stripping the supply and causing more pain within the basin.

Secondly, we see the very real problem of allowing more water to be taken from the headwaters of river systems and "re-routed" to other basins. This causes more problems than merely changing in-stream flows in certain reaches. It permanently changes the delicate water balance by guaranteeing absolutely no return flows, causing wave after wave of negative secondary ramifications downstream. Much more study has to be made on the "real" cost of trans-basin diversions and ways to mitigate those impacts in the basin from which the water is taken.

Finally, we recognize that Agriculture is important to the rural lifestyle we seek in Colorado. We understand that Ag supports the open spaces we love, provides the environment for the wildlife we enjoy, as well as moves the water upon which recreationalists play. We support legislative and/or legal changes to allow for more flexibility with alternative agriculture transfer methods that would deter traditional "buy-and-dry" transactions. These include water-banking, interruptible supply leasing, long-term fallowing agreements and on-farm efficiency alternatives. We need to be creative and innovative in our support of Agriculture, not allowing default to be status quo.

We understand that water is VERY important to the future success of Colorado. We want to do everything in our power to make sure we protect the fragile balance that sustains this wonderful way of life for future generations.

Thank you,
On behalf of the Project 7 Water Authority Board,

Adam Turner
Adam Turner
Manager, Project 7 Water Authority

25. City of Gunnison

City of Gunnison

Michelle Pierce
P.O. Box 518
Lake City, Colorado 81235

March 18, 2015

Dear Michelle,

The City of Gunnison takes this opportunity to thank the Gunnison Basin Roundtable for years of thoughtful deliberation in creating the Gunnison Basin Implementation Plan as part of the Colorado Water Plan initiative. We understand the issues you are addressing are complex and finding answers to Colorado's critical water supply questions can be controversial.

The Colorado Water for the 21st Century Act provides a process for grassroots participation and we applaud this inclusive approach. The Gunnison Basin Roundtable team has taken this task seriously and provides an informed and relevant plan for our basin.

The priorities outlined respect current practices and preserve historic water uses. This plan also looks prudently to future values. You are all to be commended for your work and we, as representatives of the citizens of the City of Gunnison, fully support the positions presented.

Again, thank you for your dedication and hard work in this endeavor.

Sincerely,

Robert E. Drexel; Mayor

Stu Ferguson; Mayor Pro Tem

Richard Hagan; Councilor

Carolyn Riggs; Councilor

Anne Steinbeck; Councilor

P.O. Box 239 201 W. Virginia Avenue Gunnison, CO 81230-0239 PHONE: (970) 641-8000 FAX: (970) 641-8051

26. City of Montrose

CITY OF MONTROSE

433 South First Street
P.O. Box 790
Montrose, Colorado
81402-0790

www.cityofmontrose.org

Bob Nicholson, Mayor
David Romero, Mayor Pro-Tem
Judy Ann Files, Council Member
Kathy Ellis, Council Member
Rex Swanson, Council Member

970-240-1422 Phone
970-240-1493 Fax

April 6, 2015

Gunnison Basin Roundtable:

As the largest domestic water provider within the basin, The City of Montrose supports the Gunnison Basin Implementation Plan and agrees with all goals identified within. The Montrose City Council and staff appreciate the roundtable's commitment to drafting a sound plan that represents the interests of municipal, industrial, agricultural, environmental, and recreational water users. Montrose agrees that it is the responsibility of each roundtable to identify appropriate water uses within the basins and believes the Prior Appropriation Doctrine is necessary to protect senior water rights.

Montrose recognizes the importance of maintaining existing and constructing new infrastructure to accommodate growth, maintain water quality, and enhance the vibrancy of our communities for future generations. Critical infrastructure needs within the Gunnison Basin are:

- Additional Storage Capacity
- Emergency Treatment and Distribution Facilities
- Regional Water Quality Facilities That Will Not Injure Existing Water Rights

As the Colorado Water Plan develops, Montrose hopes the Colorado Water Conservation Board will recognize that the Gunnison Basin Implementation Plan represents interests of all water users within the basin, without catering to any individual group. It is imperative that existing water rights be protected as regions within the basin develop.

The City of Montrose strongly supports the Gunnison Basin Implementation Plan and applauds the collaborative efforts of all that contributed.

Sincerely,

David Romero
Mayor Pro Tem

DR:clb
cc: City Council

DM #78231

27. Town of Ridgway

TOWN HALL PO Box 10 | 201 N. Railroad Street | Ridgway, Colorado 81432 | 970.626.5308 | www.town.ridgway.co.us

Gunnison Basin Roundtable (GBR) Implementation Plan Committee
Frank Kugel, Chair
Via Email: fkugel@ugrwcd.org

RE: Gunnison Basin Implementation Plan (BIP)

Dear Mr. Kugel:

The Town of Ridgway thanks the Gunnison Basin Roundtable and the Basin Implementation Plan Committee for its work on the Gunnison Basin Implementation Plan for meeting the future water needs of the people of the Gunnison Basin and the State of Colorado. We generally support your analysis of the challenges facing water users and water providers moving forward into the 21st century, but want to go on record with some specific observations about local concerns.

As a municipality we are particularly concerned with insuring there is sufficient water to meet domestic needs into the future. We support the GBR's decision to set the highest level of conservation as a basin-wide goal. The Town has had voluntary water conservation measures in place for decades. We live in a high desert and need to make the most efficient use of water, as is practical, both locally and state wide. We are also concerned that the uncertainties associated with drought and potential climate changes make it critical that high conservation be the goal state wide. Research on ways to improve efficiencies, passive conservation and public education will be critical to achieving high levels of conservation.

Ridgway is surrounded by agricultural lands and that is part of what defines Ridgway. We appreciate the importance accorded to Colorado's agricultural productivity in both the Basin and State Water Plans, and the importance of sustaining that agriculture and its water use into the future even though some of its land and water will have to be converted to municipal and industrial uses due to development and population increases.

We are glad that the state's water planning process gives consideration to the importance of maintaining and improving the quantity and quality of water flowing in our rivers and ditches and support the BIP goal to protect, quantify, and protect non consumptive uses, to protect and improve water quality, and to describe and encourage linkages between agriculture and non-consumptive uses.

We are glad to see the Gunnison Basin Plan take a firm stand on stringent conditions that must be met for any future trans-mountain diversions, and that the State Plan has accepted many of those conditions. Our hope is that there will be even clearer definitions in the final State Plan on matters like hydrologic risk and the "triggers" that would preclude further diversion even in above-average years, presumably tied to levels in existing West Slope and Upper basin reservoirs, and the West Slope's own developmental opportunities.

We concur with other organizations in the Gunnison Basin and in the other West Slope Basins that any further trans-mountain diversions from any Colorado River tributary basin will be limiting the future of all

TOWN HALL PO Box 10 | 201 N. Railroad Street | Ridgway, Colorado 81432 | 970.626.5308 | www.town.ridgway.co.us

West Slope basins, since the same amount of water will still have to go to the Lower Basin. Any future trans-mountain diversion must account for and mitigate these impacts.

We appreciate the opportunity to provide input on the Gunnison Basin Implementation plan.

In Gratitude,

John Clark, Mayor

28. Menoken Water District

MENOKEN WATER DISTRICT
4386 6225 RD.
MONTROSE COLORADO
81401
menokenwaterco1@qwestoffice.net

April 09, 2015

Colorado Water Conservation Board
Subject: Support of Gunnison Basin Implementation Plan as pertains to the Colorado Water Plan

To Whom it may Concern;

As a Domestic Water Provider on the Western Slope of Colorado, we have a special interest in the creation and implementation of the Statewide Water Plan being put together at the behest of Governor Hickenlooper. We feel it is imperative that we weigh in on the ramifications of the plan.

We want to reiterate that the plan MUST protect current historical uses and users before taking on new junior uses. We recognize that water is a limited resource and the prior appropriation doctrine is the tool designed to keep new uses and diversions from over-whelming the supply.

The plan should also protect the historical appropriation users from storage releases to achieve other purposes or programs, especially during times of drought, jeopardizing the available supply, and river infrastructure.

If you have any questions of comments feel free to contact the District office at 970-249-3242.

Representing The Menoken Water District Board of Directors
Sincerely,

John McMillan, District Manager
Menoken Water District

29. Summary of the Gunnison Basin Water Plan

~~~The Gunnison Basin Roundtable~~~

GUNNISON BASIN WATER PLAN - SUMMARY - January 2015

The Gunnison River Basin is a major tributary of the Colorado River, providing on average one-sixth of that river's part of the water supply for 35-40 million water users (mostly urban and outside the natural Basin), four million acres of irrigated land, and a great array of recreational adventures on and near the river.

Rugged geography and 10,000 feet of elevation changes make the Basin a very diverse region. Nine Wilderness Areas lie all or partly in the Basin - three of them more or less in the middle of the Basin. Yet the Basin also has large, rich alluvial valleys with some of Colorado's most productive agricultural land. High deserts with 10-12 inches annual precipitation are within a half-hour drive of mountain slopes that get 300 inches of winter snow on average. More than half the Basin is public land.

The Gunnison Basin Roundtable was formed by statute in 2005, under the "Colorado Water for the 21st Century" Act; it is one of nine similar Roundtables in Colorado, charged to "encourage locally driven collaborative solutions to water supply challenges," assess "basin-wide consumptive and nonconsumptive water supply needs," and "serve as a forum for education and debate regarding methods for meeting water supply needs." Its 32 members represent all local governments and significant economic and environmental actors in the Basin.
*(For list of members: **cwcb.state.co.us** --> "Water Management" in top menu --> "Basin Roundtables" --> "Gunnison Basin".)*

Colorado's Water Planning Process actually began in 2003-4 with a "Statewide Water Supply Initiative" study (SWSI) by the Colorado Water Conservation Board (CWCB); a SWSI 2010 update, incorporating Roundtable work, indicated that by the mid-21st century, the state would be experiencing a gap of 200,000-600,000 acre-feet of water (65-200 billion gallons) between projected water demand for new population (mostly in the metropolitan area) and the known supply. This moved Governor John Hickenlooper in 2013 to order the CWCB to develop a "Colorado Water Plan" for reconciling that gap by 2050. His executive order mandated a grassroots process, with each Basin Roundtable first creating a plan for addressing its own needs and goals, within the context of these statewide goals:

- A productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation, and tourism industry;
- Efficient and effective water infrastructure promoting smart land use; and
- A strong environment that includes healthy watersheds, rivers and streams, and wildlife.

Draft Basin Implementation Plans (BIPs) were completed in July 2014, and incorporated into a Draft Colorado Water Plan in December 2014; the draft BIPs are being reworked through April 17, 2015, with a final Colorado Water Plan to 2050 submitted to the Governor by December 2015.

The Gunnison Basin Water Implementation Plan

*(See the completed Draft Plan at **coloradowaterplan.com** --> **'Communities'** in top menu --> **'Gunnison Basin'** page)*

Developing the Gunnison Basin Plan followed the major steps summarized below:

DEFINING GOALS: The first stage in drafting the plan at the Basin level was to define goals for the plan. The drafting committee began with ***Intrabasin Goals***, to guide the future internal development of water resources within the Basin, out to mid-century.

One priority Basin goal was established early in the discussion:

- ***Protect existing water uses in the Gunnison Basin***. This signifies a desire to preserve the existing mix of both decreed and nondecreed uses - agricultural, municipal and domestic, industrial, recreational and environmental - in the Gunnison Basin today; new projects or climate change scenarios should be evaluated in terms of potential impacts on the existing mix of uses.

That primary goal is to be supported or supplemented by the following goals, given no priority over each other:

- *Discourage the conversion of productive agricultural land to all other uses within the context of private property rights.*
- *Improve agricultural water supplies to reduce shortages.*
- *Identify and address municipal and industrial water shortages.*
- *Quantify and protect environmental and recreational water uses.*
- *Maintain or, where necessary, improve water quality throughout the Gunnison Basin.*
- *Describe and encourage the beneficial relationships between agricultural and environmental/recreational uses.*
- *Restore, maintain, and modernize critical water infrastructure, including hydropower.*
- *Create and maintain active, relevant and comprehensive public education, outreach and stewardship processes involving water resources in the six sectors of the Gunnison Basin.*

The Gunnison Roundtable also generated several *Statewide Principles* to guide the Basin in further developing its relationships with the other Basins on the West Slope, and with the rest of the state. These principles are summarized:

- *Future supply of Colorado River water is highly variable and uncertain; therefore any proponent of a new supply project from the Colorado River System must accept the risk of a shortage of supply however the shortage occurs, strictly adhere to the prior appropriation doctrine, and protect existing water uses and communities from adverse project impacts.*
- *A new consumptive use development from any location in the Upper Colorado River System must be explicitly recognized as impacting the entire Upper Colorado River Basin.*
- *Any new supply project from the Colorado River System must have specifically identified sponsors and beneficiaries, and must meet certain minimum criteria.*
- *Local solutions must be utilized to meet Colorado's future water needs without a major state water project or related water right.*
- *Water conservation, demand management, & land use planning that incorporates water supply factors must be equitably employed statewide.*
- *Scenario planning should be used as the principal tool for water planning.*
- *Statewide discussion, outreach, and education concerning the Gunnison Basin Roundtable's vision for water development in Colorado should be continued.*

ASSESSING BASIN NEEDS: The second major planning task. Technical meetings were held with the Basin's agricultural and municipal & industrial consumptive users and recreational & environmental nonconsumptive users, to determine what water needs, shortages, gaps, et cetera exist in the Gunnison Basin. The following needs have been identified and catalogued (af=acre-feet):

- ***Agricultural water shortages*** have been identified in all Basin Water Districts, in three categories: a) ***Physical shortages*** mostly reflecting a need for storage of water for late-summer and fall irrigation; b) ***legal shortages*** due to calls from downstream senior users; and c) ***irrigation practice shortages*** caused by labor shortages, inefficient or deteriorating delivery systems or other infrastructure issues. SWSI 2010 estimates this Basin "ag gap" *currently* at ~128,000 acre-feet (>2 million acre-feet statewide).
- ***Municipal/domestic and industrial shortages*** will probably be modest in the Basin, despite a projected doubling of population (mostly urban), with M&I demand increasing from 24,000 af to ~44,000 af; of the increase, SWSI 2010 projects unidentified M&I shortages at ~6,500 af/yr (~1% of the 2050 statewide unidentified shortage); much of this could be made up through conservation and infrastructure efficiency and some agricultural conversion (retiring ranchers). There are other M&I infrastructure needs, however. The largest M&I water supplier in the Basin, Project 7 serving 50,000 people in the Montrose-Delta Corridor, depends on water from the aging Gunnison Tunnel with only a 30-day reserve supply; a Uncompahgre Valley reservoir is needed. Other communities either have, or anticipate by mid-century, problems with aging infrastructure.
- ***Environmental and Recreational needs*** have been identified in 29 "Priority Stream Segments," which all need an inventory of specific projects to alleviate the identified needs. These segment needs run the gamut of environmental, recreational, scientific and educational uses; some involve problems of water shortages at critical times, others are water quality problems (sometimes exacerbated by water quantity problems). Endangered or threatened species problems are nearly all water-related - even for non-aquatic species like the Gunnison sage grouse which needs wet-meadow ecosystems, many of which have lost water tables to gullies over time. Quantifying environmental and recreational needs is difficult but necessary. It would be advantageous to agricultural users to better identify and quantify the ecosystem services provided by high-country irrigation.

In all of the technical meetings, agricultural and recreational users indicated an awareness that there were neither financial resources nor political will for addressing most of the identified shortages; the main concern expressed was that the shortages not grow significantly worse in the future, through either in-basin development or interbasin projects or programs.

IDENTIFYING AND ANALYZING PROJECTS AND METHODS: Roundtable members generated than 130 potential water projects and programs for addressing identified needs and goals; that list has been pared down to 102 projects and programs, and further sorted into three tiers:

Tier 1: The project or program will help meet Basin Goals, meet No/Low Regret goals, and implementation is feasible by 2020.
Tier 2: The project or program would help meet Basin Goals but implementation is probably not feasible by 2020.
Tier 3: The project or program is unfeasible by 2020, in preliminary planning stages, or may have lesser impact on Basin Goals.

A summary of the tiered list is attached to this Progress Report; the full list with more description is online with the Plan. Further discussion of feasibility, constraints, and other analysis of the projects and programs will be in the full plan, now available at the website cited above. ***Your comments on this "shopping list" of projects and programs will be appreciated.***

What does the Gunnison Basin Roundtable need from you?

We need your input on these things: **1)** Are the ***Intrabasin Goals*** and ***Statewide Principles*** presented above consistent with your hopes for the future of the Basin and the State? Is anything missing? **2)** Do you perceive any ***water-related needs*** not covered above? **3)** What other ***projects and programs*** should be considered for meeting future needs?

The Roundtable planning committee also has a more formal survey ***online*** at **www.coloradomesa.edu/watercenter/GunniBasinPlan.html**. It will help us if you will take 10 minutes to engage with this survey. ***We need your grassroots participation. This is an opportunity to help shape the world our children will grow up in.***

For more on this process, contact GBRT Outreach Chair George Sibley - george@gard-sibley.org, 970-641-4340. Or look up the Roundtable member from your area on the CWCB site, and invite him or her for a cup of coffee!

30. Quick Guide to major issues in State and Basin Plans and where to find them:

~~~ GUNNISON BASIN ROUNDTABLE ~~~

QUICK GUIDE to the COLORADO WATER PLAN and the GUNNISON BASIN WATER PLAN

This is a quick guide to getting into the 350-page draft **Colorado Water Plan (CWP)** and the **Gunnison Basin Water Plan (GBWP)**. The Colorado Water Conservation Board and Basin planning groups want public input, but realize that few citizens will have the time to read each plan thoroughly. **So this guide goes back to the basic questions the water planning process is addressing, referencing the questions to sections in the Plans.**

FINDING THE PLANS: Go to website **Coloradowaterplan.com.** Click on **Resources** on the top menu bar. For the Colorado Water Plan, click on **'Draft Colorado's Water Plan'**. For the Gunnison Basin Plan, click on **'IBCC and Roundtable Documents'**, scroll down to **'Basin Roundtable Implementation Plans'** & click on Gunnison's.

A CITIZEN'S GUIDE TO THE CWP: The Gunnison Basin Roundtable has prepared a more thorough guide to the CWP, keyed to the pdf chapters that can be downloaded from the website above. You can find this guide on the **Colorado Mesa University website**: www.coloradomesa.edu/water_center/documents/COWaterPlanGuide-GSibley.pdf

What goals & values underlie the Colorado Water Planning process?

The ultimate goal of the CWP is to make sure Colorado has enough water at mid-century to meet a **probable expanded water demand** (population increase) with a **probably shrinking water supply** (climate changes). A decade-long State Water Supply Initiative determined that by mid-century a statewide **Municipal & Industrial 'Gap'** of 200,000-500,000 acre-feet annually is anticipated between known supplies and anticipated demand. Most of that Gap will be in the Front Range metropolitan region, which draws on other Basins for its water supply. so its Gap becomes a statewide problem, necessitating the CWP. (Gunnison Basin's gap is <1% of the total Gap.)

But Governor Hickenlooper decided to give all the river basins first shot at describing their own need-and-supply problems; the Draft Colorado's Water Plan has been compiled out of all of those basin specific plans. So there is a 'dialogue' between the state (as represented by the CWCB) and the basins over intra-basin needs and supplies, versus the interbasin need to increase the metro region water supply.

Governor Hickenlooper stated some **values** he believes the Colorado Water Plan should incorporate in planning:

- A productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation and tourism industry;
- Efficient and effective water infrastructure promoting smart land use; and
- A strong environment that includes healthy watersheds, rivers and streams, and wildlife.

Do you perceive any tensions among these values (especially the three parts of the first value)? If it were not possible to 'have it all,' which values should we sacrifice for others?

How do we know what is actually going to be happening in 2050?

We *don't*, so the CWP is an **'adaptive management' plan**, which will be constantly reviewed and refined as future conditions emerge, according to **five scenarios** factoring climate and population variables. **See CWP Chapter 6.1** for descriptions of the scenarios.

What are the possible sources of water for meeting The Gap?

- **Municipal & Industrial Conservation – including Demand Reduction, Land Use Reform, & Reuse: CWP Chapters 5 & 6.3** cover efforts to make M&I water go farther. The **GBWP** has 'High' conservation goals.
- **New Supply:** This generally refers to new or expanded transmountain diversions (TMDs), but also includes existing storage expansion, weather modification, etc. **CWP Chapters 4 & 8** analyze these options; Ch 8 has an analysis of strict conditions the Front Range would need to meet for future TMDs to occur. Similar conditions were laid out in the **GBWP Section 1 'Statewide Principles.'** *(over for 3rd option)*
- **Transfers from Agriculture:** 89% of the water consumed in Colorado is used in food production; some of the 'Gap' water will have to come from agricultural transfers to Municipal and Industrial uses. The challenge is to do it without serious impacts on food production, and on the communities supporting agricultural producers. **CWP Chapters 6.3, 6.4, 6.5** address this. The **GBWP Goals (Sec. 1)** emphasize minimizing ag transfers.

How should we draw on these three sources proportionally in meeting The Gap? Which should be carried out first? What conditions should be placed on any future transmountain diversions?

Can we meet The Gap and still maintain our generally high quality environment?

'Nonconsumptive' environmental, recreational and power uses of Colorado water receive considerable attention in the CWP, as does water quality. All chapters include E&R considerations, usually toward the end; **CWP Chapters 6.6 and 7** are most important here. A 'Watershed Health' section is still being developed for the **GBWP Section 4** involving the Basin's environmental and recreational groups; studies to identify specific nonconsumptive-use projects are included in Tier 1 of the **Section 4** Project Listing.

What suggestions do you have for better integrating nonconsumptive uses with consumptive uses? Should NC uses be quantified? How can relations between recreational and ag users be improved?

How will we pay for all of the work laid out in these Plans?

CWP Chapter 9 explores this; the final **CWP** draft in December 2015 will include a **Chapter 10** with recommendations for the State Legislature. **Chapter 9 describes important state considerations for future funding.**

Are all water users really paying a fair share for their use? Would you support a new 'water tax' (whatever form that might take)? Could other economic sectors help with funding (severance-type fees, bottle tax)?

Will this planning process have an impact on Colorado Water Law?

While the basic Appropriations Doctrine is considered inviolable, there is a growing sense in the state that some of the body of law and practice that has grown up around that doctrine results in a rigidity and expenses that prevents the creative and flexible adaptations we will need in addressing future challenges. We may be facing another episode of administrative changes like the State went through in 1969 – something for which the plans should lay the groundwork.

What concerns or caveats do you have on behalf of the users you represent?

How can you join the conversation?

Watch your newspaper and email for announcements of public meetings on the CWP and Basin Water Plans. The Roundtable is making serious efforts to get input on the plans.

Go to to your Basin Roundtable meeting. Each Basin has a website on the Colorado Water Conservation Board website, with meeting information. Go to **cwcb.state.co.us/water-management/basin-roundtables/Pages/main.aspx**, find your Roundtable in the left margin.

Talk with a Basin Roundtable member. A list of Roundtable members is on each Roundtable website (see URL info above). Find your rep.

Submit 'General Input Form'. Go to **coloradowaterplan.com** website, and click on **'Get Involved'** on top menu; click on **'General Input Form'**, and then on the category that relates to your own concerns/interests.

Gunnison Basin inhabitants can find a **two-page summary** of the Gunnison Basin Water Plan and an **Input Survey** on the Colorado-Mesa website: http://www.coloradomesa.edu/watercenter/GunnisonBasinPlan.html.

OUTLINE OF THE COLORADO WATER PLAN:

- Chapter 1 - Introduction (Plan Goals & primary challenges)

CHAPTERS 2 & 3 are background & context:

- Chapter 2 - Our Legal & Institutional Setting
- Chapter 3 - Overview of Each Basin (very brief overviews)

CHAPTERS 4 & 5 discuss basin supplies and demands

- Chapter 4 - Water Supply (compiled from SWSI 2010)
- Chapter 5 - Water Demand by Sector (also from SWSI 2010)

CHAPTERS 6-9 are the plan:

- Chapter 6 - Water Supply Management for the Future
- Chapter 7 - Water Resource Management & Protection
- Chapter 8 - Interbasin Projects & Agreements
- Chapter 9 - Alignment of State Resources & Policies
- Chpater 10 – Legislative Recommendations (none yet)
- Chapter 11 - Updating Colorado's Water Plan
- Appendices

OUTLINE OF GUNNISON BASIN WATER PLAN:

Introduction: Overview of Basin and the Basin Plan

Section1: Basin Goals

Section 2: Basin Needs

Section 3: Basin Water Resource Evaluations

Section 4: Basin Plan and Projects for Plan

Appendices

31. Citizen's Guide to the Colorado Water Plan

DRAFT ***~~~The Gunnison Basin Roundtable~~~*** **DRAFT**

A CITIZEN'S GUIDE TO KEY POINTS IN THE DRAFT COLORADO WATER PLAN

The Colorado Water Plan (CWP) and the Gunnison Basin Water Plan are both available online at ***coloradowaterplan.com:*** Go to 'Resources' in Menu Bar →2014 Draft Colorado's Water Plan, or → IBCC & Roundtable Documents →Gunnison Basin Implementation Plan. *Page numbers below are the PDF page numbers for the individual CWP chapters downloaded one at a time from the website. Bolded numbers are section numbers (2.1) or PDF page numbers (3-11). AF=Acre-feet; M= million, K=thousand.*

This document is not a summary *per se*, but an attempt to provide a map for Gunnison Basin/West Slope stakeholders (everyone) through the CWP, directing attention to specific areas on which your Basin Roundtable reps want input. The CWP draft was assembled by the Colorado Water Conservation Board (CWCB) staff, seeking an *integrated statewide plan*, from eight Basin Roundtable Plans, each more focused on their own *internal basin concerns*. Some tensions result which the final December 2015 CWP must resolve – with stakeholder help. **Questions have been inserted in this 'Citizen's Guide' that citizens can help the Roundtable answer.**

CHAPTER 1: Introduction: Collaborating on Colorado's Future

Two parts of the Introduction are worth noting here. First the CWP statement of Colorado's 'water values':

- A productive economy that supports vibrant and sustainable cities, viable and productive agriculture, and a robust skiing, recreation, and tourism industry;
- Efficient and effective water infrastructure promoting smart land use; and
- A strong environment that includes healthy watersheds, rivers and streams, and wildlife.

Also important are the 'primary challenges' gleaned from the state and basin concerns:

- *Growing water supply gap (now to 2050):* All of the West Slope basins have varying municipal gaps that can be dealt with *inbasin* (~6 KAF in the Gunnison Basin); the South Platte/Metro and Arkansas basins municipal shortfalls require statewide solutions (135-470 KAF). All basins report varying agricultural shortages: ~2 MAF statewide, 128 KAF in the Gunnison Basin.
- *Agricultural dry-up:* Water for urban/suburban growth is currently being acquired through the purchase and subsequent dry-up of agricultural land – both in-basin and inter-basin; alternatives are needed to keep food-producing land in production.
- *Critical environmental concerns:* Primarily endangered fish, but also due to….
- *Variable climatic conditions:* Changes in both natural supply patterns and ensuing demand are already evident.
- *Inefficient regulatory process:* Coordination of local, state and federal regulatory steps is needed, along with more multi-partner and multipurpose projects that would avoid competitive contention.
- *Increasing funding needs:* Intra- and inter-basin projects to increase supply and cut demand will be expensive.

QUESTIONS: Does the first 'value' ask for too much? If there is not enough water for everything, how would you rank these values? Can you think of any 'primary challenges' to state water use and future development that are not on that list?

CHAPTER 2: Our Legal & Institutional Setting

This chapter is 'infrastructure,' background and context for the planning process – well done and worth reading thoroughly if you have the time, but there are also specific sections worth looking at from a local and West Slope perspective. **2.1** is an overview of Colorado's *instate* water law, which the planning process is pledged to preserve; look at this if you do not understand 'first in time, first in right.' **2.2** describes all of Colorado's *interstate* compacts and agreements. Of the water that falls in Colorado, roughly two-thirds must go to other states. Because future *transmountain diversions* to the Front Range from the West Slope is an open question in the plan, West Slope citizens should read at least the information here on the Colorado River Compacts and subsequent agreements (Ch 2, pp 7-8,12-13) concerning our obligations to other states. **2.3** is a summary of Colorado's 'local control structure' – our down-on-the-ground capabilities for pursuing development of local resources and also asserting our preferences in the plans of larger entities for local waters. Read this section (Ch 2, pp 14-16), and also… **2.4** which covers *local, state, & federal water planning, approval & permitting* (Ch 2, pp 16-19), listing the local, state and federal agencies that regulate and control permitting for water development in the state. Making a less duplicative and contentious order in this labyrinth of legitimate agency concerns is a goal of the CWP. **2.5** addresses two federal issues that at this point are primarily an issue in the Southwest Basins, Indian rights and federal reserved rights.

CHAPTER 3: Overview of Each Basin

These overviews are short and, accordingly, somewhat superficial, with a very brief 'description' and a summary of 'challenges' identified from the Basin Plans. The Gunnison Basin is covered, as it were, on page 4.

QUESTION: Do you 'see' your watershed(s) in this overview? What might you add (or remove)? Should this chapter have more depth?

CHAPTER 4: Water Supply

This chapter is a discussion of the present (1981-2010) water supply – both surface water (rivers and streams) and groundwater – and projections about future water supply out to the 2050 planning horizon. If you lack time to read the entire chapter, these are some highlights, by page number: **3**: Map of annual average precipitation across the state. **6**: Average annual flow values for the rivers. **6+**: Discussion of uncertainties affecting supply, with a table of projected climate-change influences. **10+**: Discussion of the role of storage, with tables on how much storage exists and how much that storage might be expanded. **15**: Brief discussion of water quality.

CHAPTER 5: Water Demand

This chapter begins with a reasonably good explanation of how Coloradans can currently divert 15.3 MAF from natural flows of 13.7 MAF and still allow 8.4 MAF to leave the state for compact obligations. From there it grows more complex, as future demands are projected…. This important chapter outlines the projections (mostly drawn from the CWCB's 2010 Statewide Water Supply Initiative) on which the CWP is predicated, and should all be at least skimmed, with attention to the many charts.

1: Note first the graph showing *consumptive uses* of water in the state – water that is 'used up' in the process of use, as opposed to *nonconsumptive uses* that do not use up the water but leave it for other users in the system. 89% of the water *consumed* in the state (4.7 MAF) is consumed in agriculture; municipal water use consumes 7% (400 KAF) and industrial uses are 4% (200 KAF). The rest of Chapter 5 is an overview of these uses, plus nonconsumptive uses, and projected future demand/need for each type of use.

The amount of space dedicated to analysis of each use seems inversely proportional to the amount of water each uses: **2-9:** Overview of municipal and industrial uses and future needs. **10-11:** Agricultural uses and needs. **12-14:** Environmental and recreational needs (including climate change considerations). The discussion of conservation in the M&I section (pp. 4-9) is the most developed and probably most important part of the chapter since if all municipal and industrial users were to embrace the highest conservation strategies, most of The Gap at 2050 could be met. These strategies are summarized in a chart on pp.6-7.

CHAPTER 6: Water Supply Management

This chapter is large and complex, and lays out the framework of a comprehensive 'adaptive management' plan for the next several decades, tied it in with all of the Basin Plans. 'Adaptive management' is the process of working to a plan but with frequent reference to the unfolding economic, political and natural realities as seen through observation and feedback, and adapting the plan according to the emerging realities. Chapter 6 is divided into six sections, with compiled *recommended actions* at the end of each section.

6.1 ***Scenario planning & developing an adaptive water strategy (pp. 1-11):*** Five future scenarios have been developed, each derived from possible combinations of demographic, economic, political and climatic conditions. A good sense of the scenario process can be gleaned from illustrations on pp. 2-3, and the five scenarios are described on **5-6**: *'Business as Usual', 'Weak Economy', 'Co-operative Growth', 'Adaptive Innovation'*, and *'Hot Growth'*. Familiarity with these will help one 'see what's coming' as the future unfolds. The adaptive strategy (**7-11**) begins with the implementation of *'No/Low Regrets Actions'* across the state – projects that will be beneficial no matter which scenario ultimately develops, but without requiring huge investments or sudden cultural changes. The 'No/Low Regrets Portfolio' is described **8-10**, and the Portfolio is fitted to the five scenarios on a chart. The No/Low Regret goals:

- Minimize statewide agricultural acres transferred and implement agricultural sharing projects
- Plan and preserve options for existing and new supply
- Establish low to medium conservation strategies
- Implement nonconsumptive projects
- Have a high success rate for identified projects and processes
- Implement storage and other infrastructure
- Implement reuse strategies

The No/Low Regrets Portfolio can be found in its entirety on the CWCB website (cwcb.state.co.us). The section ends with 8 'Actions'.

QUESTIONS: Do the scenarios described seem comprehensive enough to cover future uncertainties? Do they fit your watershed(s)? Would you add any goals (things that should be done regardless of future changes) to the No/Low Regrets Portfolio list above?

6.2 ***Meeting Colorado's Water Gaps (pp. 11-59):*** This lengthy section (48 pages) catalogues how all of the Basins plan to meet their water supply goals. **Pp. 11-15**: An overview of common objectives and strategies in the 8 plans (see chart p. 13, explicated in following pages). The rest of this section looks at how the individual basins plan to address the three major areas of water supply needs – M&I, agricultural, and environmental/recreational: **15-29 M&I needs:** Good summary chart 16-17. Gunnison Basin, 21. **29-40 Agricultural needs:** Map showing changes in irrigated land by 2050 (1), chart summarizing shortage reductions, 32. Gunnison Basin, 36. **40-57 Environmental/recreational needs (nonconsumptive)**: Summary chart for addressing needs (42-43). Gunnison Basin, 46. (Some other Basin summaries are worth looking at – the CWP looks favorably on the Yampa-White-Green sections in this chapter.)

6.3 ***Water Conservation & Reuse (59-104):*** This section covers *all* aspects of water conservation, reuse, etc, in six subsections.

6.3.1 ***Water Conservation (59-103):*** **Pp. 59-66**: An overview and discussion of conservation strategies currently implemented by water providers in Colorado and other states – worth skimming. Pp. 65-66 are another discussion of the 'No/Low Regrets Portfolio,' which recommends low-to-medium conservation goals for the near term, with a table of No/Low Regret options on p. 65.

66-70: Summaries of each Basin's conservation plans (Gunnison Basin on p. 67). **71-73**: The importance of conservation and demand reduction in the CWP is indicated in these *three pages of 'Actions'* that CWCB will support in developing and implementing conservation plans. *These pages are important to study in the final drafting of Basin Plans.*

6.3.2 ***Reuse (73-80):*** Much of this section focuses on strategies for large water providers, although there is some attention to individual and small-utility reuse ideas – see table on p. 76 for No/Low Regret ideas on reuse. **76-79**: Summary of each Basin's reuse plan. Most West Slope basins only address it by observing that major urban areas should/must implement substantial reuse plans before looking to other basins for more water. **79-80:** Actions – mostly of concern for major water providers, but worth skimming.

6.3.3 ***Land Use (80-86):*** The importance of this section is indicated in the CWP statement: 'The manner by which Colorado develops into the future will have a strong influence on Colorado's future water supply gap and vice versa.' **80-82**: Discussion of existing efforts to better link land and water use planning – worth reading. **82-85:** Each Basin's plan for land and water use coordination (Gunnison Basin 83). Colorado Basin plan (83) is worth a look for West Slope basins.**85-86:** Actions – worth reading and trying to incorporate in plan.

6.3.4 ***Agricultural Conservation, Efficiency and Reuse (86-95):*** Given that agricultural consumptive use is 89% of the state's consumptive use, this is obviously an important part of the water planning process – yet the summary of Basin Plan ideas took less than half a page (93), with the Gunnison Basin single-sentence summary typical: 'Restore, maintain, and modernize critical water infrastructure, including hydropower.' Given that a substantial portion of any unmet gap at midcentury will be met from ag water, if only through willing-seller buy-and-dry (because 'that's where the water is'} the suggestions and ideas in this section are worth reading.

6.3.5 ***Self-supplied Industrial Conservation & Reuse (95-102):*** Both sides of the water-energy nexus are considered here. **95-100** *Water use in energy production:* Citizens can pick and choose in this section as fits their Basin's involvement in energy production.

Section 6.3.5 continued -
Gunnison Basin citizens: hydroelectric power is on 98; gas, oil and coal production are covered 99-100. **100-102** *Energy use in water supply (moving, distributing, cleaning it).* No Basin summaries, but good discussion and action steps (101-2).
6.3.6 ***State Agency Conservation (102-104):*** Primarily of interest and concern to state agencies.

QUESTIONS: Should all Basins commit to the highest standards for conservation? Or just those Basins looking for water from other Basins? And should such commitments be just for M&I water, or for everyone (ag users too)?

6.4 ***Alternative Agriculture-to-urban Transfers (104-112):*** An important section that explores practices, ideas, existing and possible future legislation, funding options, and other 'alternate transfer methods' (ATMs) to the buy-&-dry of agricultural lands for urban use. **106-8:** Examples of ATMs in Colorado and elsewhere. **108-9:** Colorado grants & legislation for ATMs. **110-11:** Each Basin's ATM plans (or lack thereof, as in the Gunnison Basin plan). **111-12:** Action steps, including No/Low Regrets actions.

QUESTIONS: Who should pay for ATM programs? And who should devise and design them? (Who will, if those who should don't?)

6.5 ***Municipal, Industrial & Agricultural Infrastructure Projects & Methods (112-127):*** The introduction to this subsection is a general discussion of water projects and methods (studies, experimentation & research, etc) for addressing the CWP and Basin plan goals, with encouragement for developing *multi-purpose* projects and methods (113). Specific examples of 'new and emerging projects and methods' are discussed (114-5). **115-123:** Each Basin's plan is analyzed for its M&I and ag infrastructure projects (Gunnison Basin 118). A 'primary message' is deduced from each Basin plan, and its projects list is analyzed in the context of that message. (The Gunnison Basin primary message essentially restates the Basin's primary goal.) **124-26:** Another discussion of the No/Low Regrets Portfolio and its suitability for these projects and methods. **126-27:** Discussion of actions.

6.6 ***Environmental & Recreational Projects & Methods (127-148):*** An extensive introductory overview emphasizes the 'importance of Colorado's natural environment and recreational opportunities to its quality of life and to its economy.' **129-138:** Existing E&R projects & methods are described (instream flows, RICDs, ESA programs, Wild & Scenic Rivers, etc); the current state of knowledge of E&R needs, and the need for more quantification study; and a review of existing E&R-related legislation. **138-146:** Individual Basin E&R projects & methods. **146:** No/Low Regrets table of strategies to 'be carried out in the near term statewide.' **147-8:** CWCB actions.

QUESTIONS: For your questions about the number and type of Gunnison Basin E&R projects, go to the Gunnison Basin Plan. (coloradowater.com →Resources →IBCC and Roundtable Documents → Gunnison Basin Implementation Plan – PDF page 147+)

CHAPTER 7: Water Resource Management & Protection

Three sections in this chapter cover the care and maintenance of the quantity and quality of our water resources. **This is an important chapter for watershed groups, forest partnerships, and other local/grassroots efforts.**

7.1 ***Watershed Health & Management (1-8):*** A good overview on the care and maintenance locally of the local watershed, from both the hydrologic and forest perspectives, with both quantity and quality considerations. The importance of local, state and federal coordination on forest health and wildfire concerns is emphasized. **6-8:** Quick summaries of specific Basin Plan approaches to watershed health & management (Gunnison Basin 8). **8:** An important set of 'Actions' for local groups to contemplate.

7.2 ***Natural Disaster Management (9-12):*** Most of this section is a discussion of how current climate variability in Colorado is likely to change as anticipated global climate change factors become more evident; the takeaway message is that the past century will probably not be a dependable predictor for water supply in this planning process. The importance of serious and careful *scenario planning* and *adaptive management* (Section 6.1) is re-emphasized, with advance planning for both more frequent drought areas and also flooding.

7.3 ***Water Quality (12-28):*** The importance and complexity of this section is explicit in a statement from a recent Executive Order (D 2013-005): 'Colorado's water quantity and quality questions can no longer be thought of separately. Each impacts the other and our state water policy should address them conjunctively.' **13-17:** This important section discusses the relationships and connections between water quality and quantity (13-14), and the complex of state and federal statutes and entities that attempt to regulate water quality (14-17). **17-18: A goal for integrating water quality and quantity in Colorado is outlined,** with some emphasis on the role of basin- and watershed-level actions that will presumably be made explicit in future legislation and regulatory actions. **18-20:** Discussion of current and future water quality. **21-24:** Discussion of water quality management currently, with some listing of current and projected funding resources.**24-25:** A quick overview of BIP efforts to date to incorporate water quality considerations. **25-28:** An extensive and detailed section of 'Actions' for a) integrated water quality and quantity management, b) quality/quantity policy considerations, c) financial considerations, and d) stakeholder and public outreach. Overall, an important section for all 'waters of the United States.'

QUESTIONS: What local water groups are at work in your watershed? Local groups (watershed coalitions, conservancies, etc.) need to make sure that both their current actions and future wish-lists are brought to the GBRT's attention, in written form.

CHAPTER 8: Interbasin Projects and Agreements

This planning process has been driven by the potential future need for around 500,000 acre-feet of currently unknown water for the metropolitan Front Range; most of this water will have to come from outside the metro area. Chapter 8 seeks to establish criteria for water projects that would obtain water for the Front Range while also benefitting the basin(s) of origin. A short but important chapter. **1-4:** Descriptions of cooperative interbasin and intrabasin projects that appear to be mutually beneficial for both areas of water origin and water destination. **4-5:** A very brief discussion of state funding for 'collaborative projects'. **5-7:** A summary of existing 'conceptual agreements and points of consensus' statewide since the drought of 2002 and the 2003 creation of the Statewide Water Supply Initiative and 2005 creation of the Roundtable/IBCC process – worth reviewing. **7-8** ***(important):*** A new 'Draft Conceptual Agreement' to determine the terms under which a 'new' (not already in planning) East Slope transmountain diversion from the Colorado River could occur. Become familiar with the seven terms, which need considerable clarification from a West Slope perspective. 8: Actions indicating continued push for something like the 'Draft Conceptual Agreement.' 9-10: A table of comments sifted from BIPs, concerning attitudes about Colorado's tension between transmountain diversion desires and Colorado River Compact concerns. Worth reading.

32. Input Survey Form (used with most public meetings and available online)

INPUT FOR GUNNISON BASIN WATER PLAN

*The members of the **Gunnison Basin Roundtable** would appreciate your input on the Gunnison Basin Water Plan currently being prepared. We would encourage you to first read the Roundtable's "Basin Implementation Plan – Progress Report 1."*

This survey is also online, at **www.coloradomesa.edu/WaterCenter/GunniBasinPlan.html**.

STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank these goals 1 through 5 from most important to least important from your personal perspective ('1' is most important to you):

☐ A productive economy that supports vibrant and sustainable cities

☐ Viable and productive agriculture

☐ A robust skiing, recreation, and tourism industry

☐ Efficient and effective water infrastructure promoting smart land use

☐ A strong environment with healthy watersheds, rivers and streams, and wildlife

The ultimate goal of the planning process is to have enough water at mid-century to meet the increased demand for water from new population (3-5 million new people), with supplies that may be decreased due to climate changes; the gap between potential demand and known supplies could be as much as 600,000 acre-feet (160 billion gallons), with most of the need in the Denver area/Front Range metropolis.

There are three possible sources for the 'new water' to meet that gap, listed below. Please rank these, 1 through 3, indicating which source you believe most of the water should come from (1), to which source the least should come from (3):

☐ Municipal and Industrial conservation, upfront demand reduction (requiring efficient fixtures & appliances, rewarding xeriscaping, delivery system efficiencies, etc), reuse (cleaning 'used' municipal water and moving it through the system again)

☐ Transfers from agriculture (conversion of farmland to suburban development, land-fallowing, temporary leases, etc)

☐ New supply (new West Slope-to-East Slope transmountain diversions, new storage reservoirs, cisterns if legalized, etc)

GUNNISON BASIN GOALS

The priority goal for the Gunnison Basin Water Plan is *to protect existing uses in the event of future development.* (Existing uses are agricultural, municipal and other domestic, industrial/hydropower, environmental, and recreational – 'protecting existing uses' means maintaining the current balance among these uses as much as is possible.)

What is your degree of support for this primary goal?

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion *(see other side)*

BASIN GOALS *(continued)*: The eight goals below are specific goals to be fulfilled within the context of the primary goal. What is your *relative* degree of support each of these?

A. Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

B. Improve agricultural water supplies to reduce shortages.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

C. Identify and address municipal and industrial water shortages.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

D. Quantify and protect nonconsumptive water uses.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

E. Maintain and, where necessary, improve water quality throughout the Basin.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

F. Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

G. Restore, maintain, and modernize critical water infrastructure, including hydropower.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

H. Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.

☐ Fully Support ☐ Support with conditions ☐ Oppose ☐ Neutral/No opinion

Indicate (1-4) your preference for approaches to achieving these goals?

☐ Funding ☐ Incentives ☐ Regulation ☐ Education

Do you have other concerns about the future of the Gunnison River and its water – including the Basin Plan Project List – that you feel the Roundtable needs to consider further? (Attach another sheet if needed)

Personal information:

What Gunnison Basin county do you live in?

Mesa Delta Montrose Ouray Gunnison Saguache Hinsdale

What is/are your principal interest(s) in water (other than domestic needs)? Agriculture Fishing

Whitewater Rec Flatwater Rec Water Professional Environmental Other _____

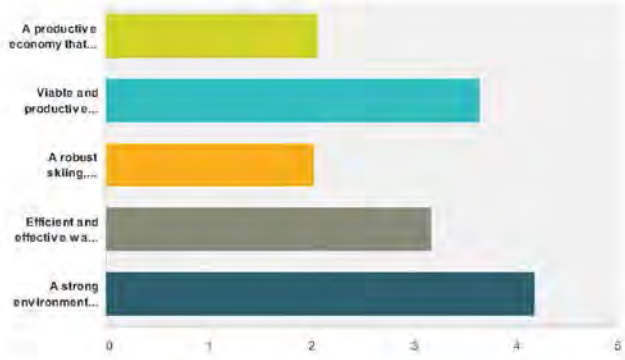
Please return this survey form to: Upper Gunnison River Water Conservancy District, 210 W. Spencer Ave., Suite B, Gunnison, CO 81230. (Or do the one on the Internet)

33. Results from Input Survey Form, Colorado Mesa University Water Center website

Gunnison Basin Water Plan Input

Q1 STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.

Answered: 83 Skipped: 1



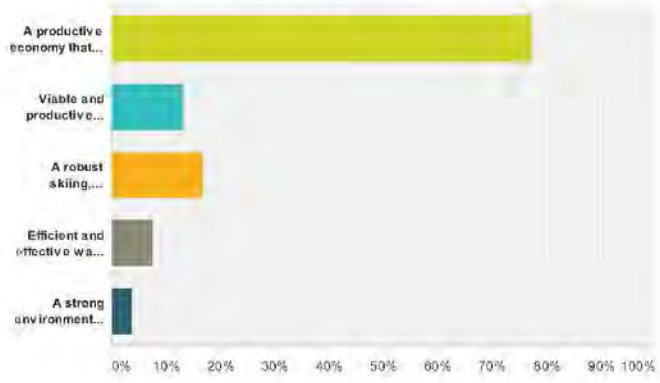
	1	2	3	4	5	Total	Average Ranking
A productive economy that supports vibrant and sustainable cities	4.82% 4	4.82% 4	19.28% 16	33.73% 28	37.35% 31	83	2.99
Viable and productive agriculture	30.49% 25	28.05% 23	21.95% 18	13.41% 11	6.10% 5	82	3.83
A robust skiing, recreation, and tourism industry	1.20% 1	15.66% 13	12.05% 10	26.51% 22	44.58% 37	83	2.02
Efficient and effective water infrastructure promoting smart land use	3.66% 3	34.15% 28	40.24% 33	18.29% 15	3.66% 3	82	3.15
A strong environment with healthy watersheds, rivers and streams, and wildlife	60.24% 50	18.07% 15	7.23% 6	7.23% 6	7.23% 6	83	4.17

1 / 15

Gunnison Basin Water Plan Input

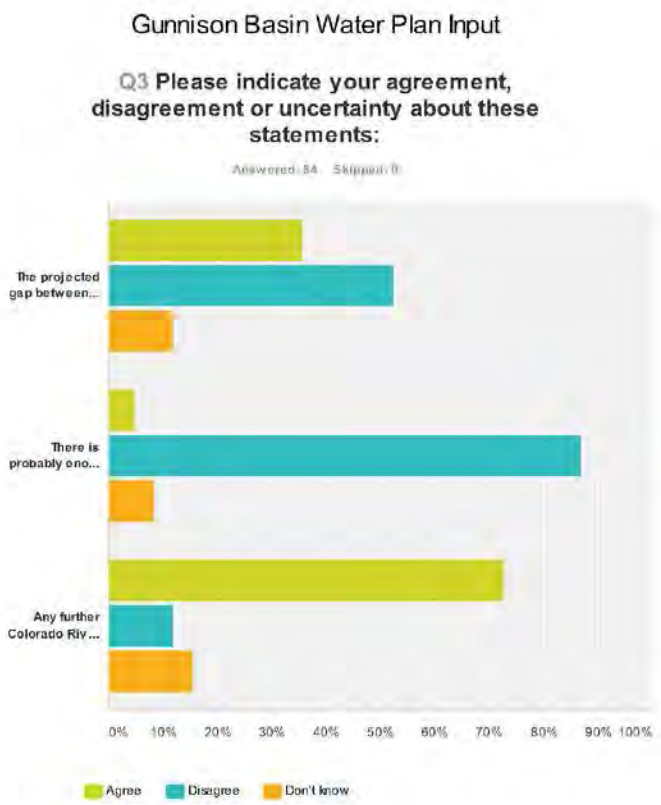
Q2 Do any of these goals appear potentially harmful to your sense of the Gunnison Basin's future? If so, which one(s)?

Answered: 53 Skipped: 31



Answer Choices	Responses	
A productive economy that supports vibrant and sustainable cities.	77.36%	41
Viable and productive agriculture.	13.21%	7
A robust skiing, recreation, and tourism industry.	16.98%	9
Efficient and effective water infrastructure promoting smart land use.	7.55%	4
A strong environment with healthy watersheds, rivers and streams, and wildlife.	3.77%	2
Total Respondents: 53		

2 / 15

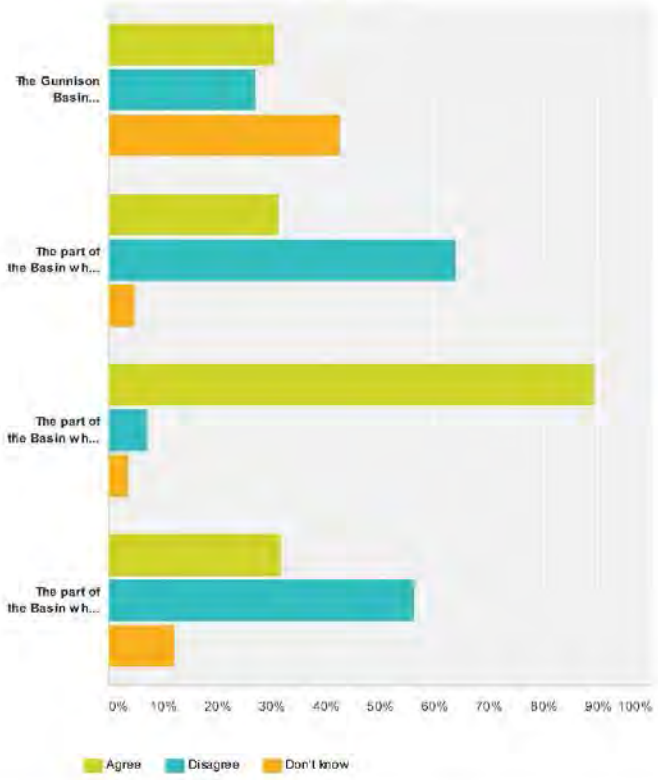


	Agree	Disagree	Don't know	Total
The projected gap between urban water needs and developed supplies is a state problem and should have state-level solutions in which all citizens share the burden statewide.	35.71% 30	52.38% 44	11.90% 10	84
There is probably enough West Slope water for at least one more major transmountain diversion	4.82% 4	86.75% 72	8.43% 7	83
Any further Colorado River water development in/from any West Slope basin will negatively affect all West Slope basins.	72.62% 61	11.90% 10	15.48% 13	84

Gunnison Basin Water Plan Input

Q4 GUNNISON BASIN USES AND GOALS: Please indicate your agreement, disagreement or uncertainty about these statements:

Answered: 84 Skipped: 0

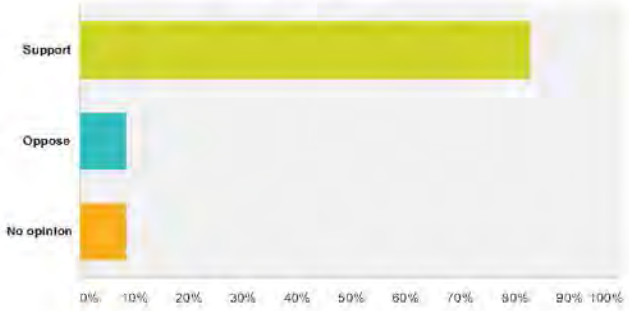


	Agree	Disagree	Don't know	Total
The Gunnison Basin population will double by 2050.	30.49% 25	26.83% 22	42.68% 35	82
The part of the Basin where I live has a healthy economy.	31.33% 26	63.86% 53	4.82% 4	83
The part of the Basin where I live has a healthy environment.	89.29% 75	7.14% 6	3.57% 3	84
The part of the Basin where I live is sufficiently diversified economically.	31.71% 26	56.10% 46	12.20% 10	82

Gunnison Basin Water Plan Input

Q5 The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal.

Answered: 82 Skipped: 2

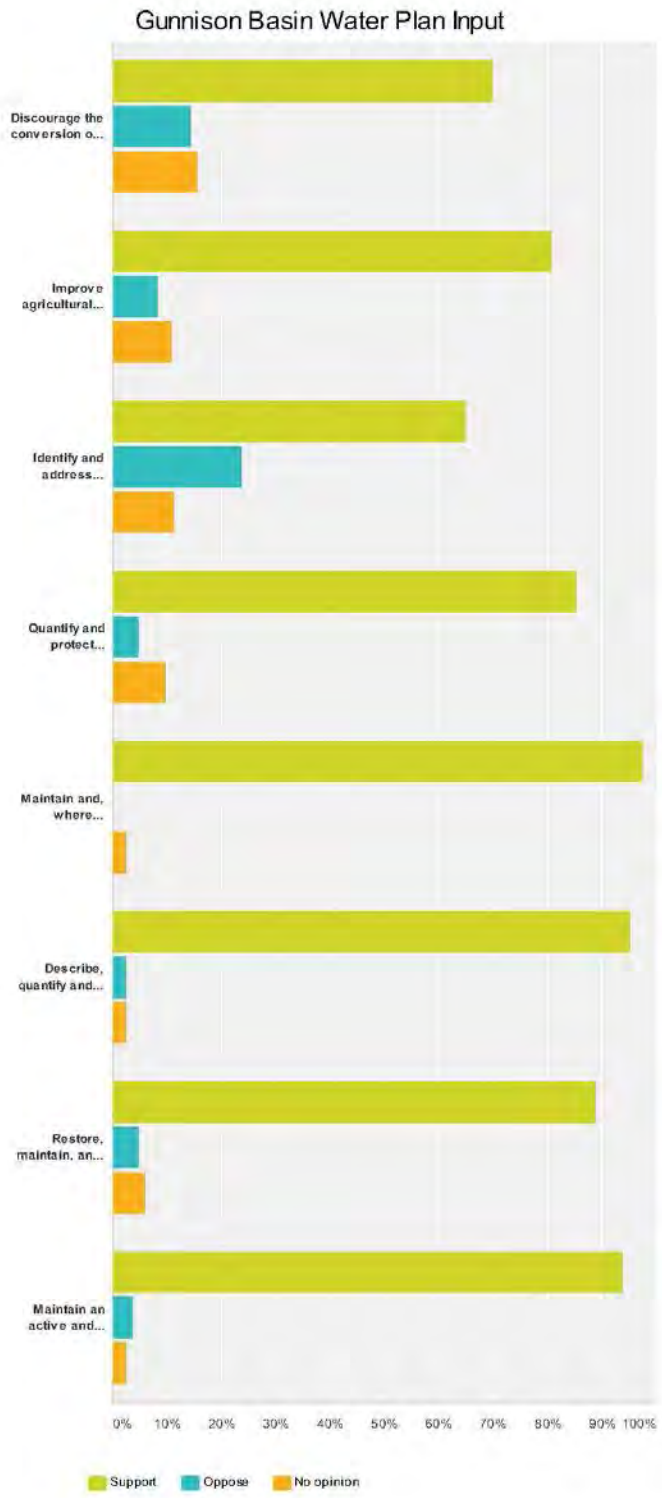


Answer Choices	Responses	
Support	82.93%	68
Oppose	8.54%	7
No opinion	8.54%	7
Total		82

Gunnison Basin Water Plan Input

Q6 Please indicate your degree of support for these additional planning goals:

Answered: 85 Skipped: 1


Gunnison Basin Water Plan Input
Discourage the conversion o...
Improve agricultural...
Identify and address...
Quantify and protect...
Maintain and, where...
Describe, quantify and...
Restore, maintain, an...
Maintain an active and...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Support
Oppose
No opinion
7 / 15

Gunnison Basin Water Plan Input

	Support	Oppose	No opinion	Total
Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights	69.88% 58	14.46% 12	15.66% 13	83
Improve agricultural water supplies to reduce shortages	80.72% 67	8.43% 7	10.84% 9	83
Identify and address municipal and industrial water shortages	65.00% 52	23.75% 19	11.25% 9	80
Quantify and protect nonconsumptive water uses	85.37% 70	4.88% 4	9.76% 8	82
Maintain and, where necessary, improve water quality throughout the Basin.	97.53% 79	0.00% 0	2.47% 2	81
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses	95.12% 78	2.44% 2	2.44% 2	82
Restore, maintain, and modernize critical water infrastructure, including hydropower	89.02% 73	4.88% 4	6.10% 5	82
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin	93.90% 77	3.66% 3	2.44% 2	82

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Gunnison Basin Water Plan Input

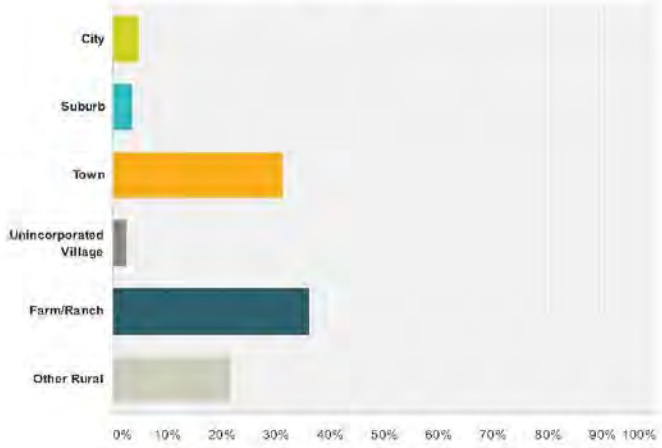
Q7 Do you have other concerns about the future of the Gunnison River Basin and its water that you feel the Roundtable needs to consider?

Answered: 34 Skipped: 59

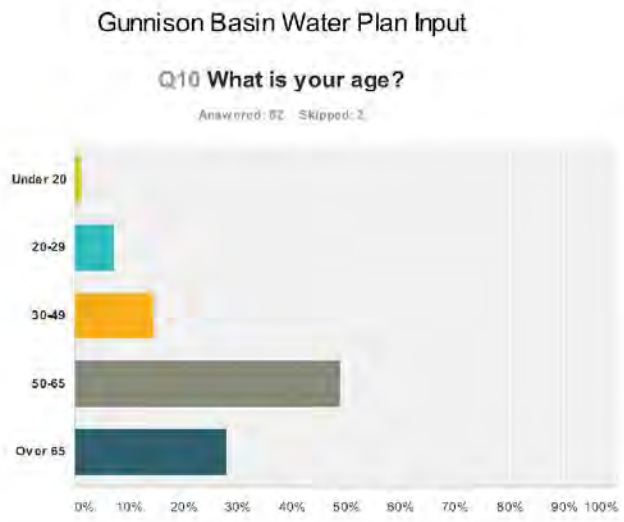
Gunnison Basin Water Plan Input

Q9 What best describes the place where you live?

Answered: 83 Skipped: 1



Answer Choices	Responses	
City	4.82%	4
Suburb	3.61%	3
Town	31.33%	26
Unincorporated Village	2.41%	2
Farm/Ranch	36.14%	30
Other Rural	21.69%	18
Total		83

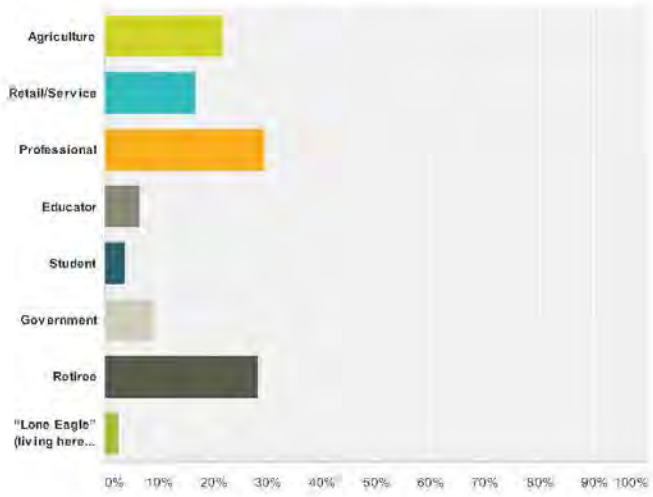


Answer Choices	Responses	
Under 20	1.22%	1
20-29	7.32%	6
30-49	14.63%	12
50-65	48.78%	40
Over 65	28.05%	23
Total		82

Gunnison Basin Water Plan Input

Q11 What best describes your role in the local community?

Answered: 78 Skipped: 6

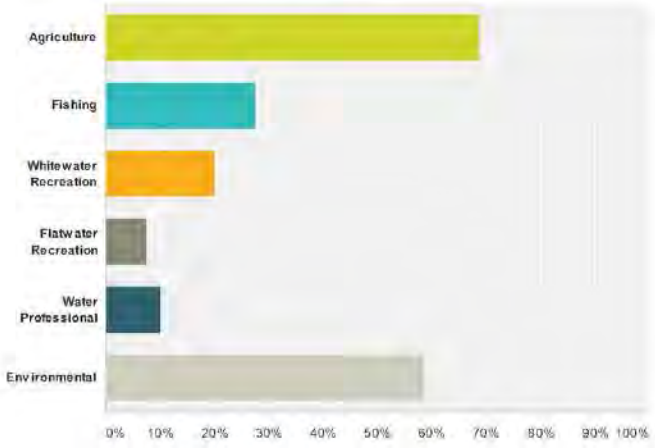


Answer Choices	Responses	
Agriculture	21.79%	17
Retail/Service	16.67%	13
Professional	29.49%	23
Educator	6.41%	5
Student	3.85%	3
Government	8.97%	7
Retiree	28.21%	22
"Lone Eagle" (living here, working elsewhere)	2.56%	2
Total Respondents: 78		

Gunnison Basin Water Plan Input

Q12 What describes your principal interest(s) in water (other than domestic needs)?

Answered: 80 Skipped: 4



Answer Choices	Responses	
Agriculture	68.75%	55
Fishing	27.50%	22
Whitewater Recreation	20.00%	16
Flatwater Recreation	7.50%	6
Water Professional	10.00%	8
Environmental	58.75%	47
Total Respondents: 80		

Gunnison Basin Water Plan Input

Q13 If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

Answered: 35 Skipped: 49

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Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#1

COMPLETE

Collector: Web Link (Web Link)
Started: Wednesday, March 04, 2015 7:28:13 PM
Last Modified: Wednesday, March 04, 2015 8:00:18 PM
Time Spent: 00:32:05
IP Address: 69.25.218.209

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	3
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.	
Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	No opinion
Improve agricultural water supplies to reduce shortages.	Oppose
Quantify and protect nonconsumptive water uses.	Support
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	No opinion
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support
Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.	
Funding	Support
Incentives	Support
Regulations	Support
Education	Support
Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*
Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q8: What Gunnison Basin county do you live in?	Gunnison
Q9: What describes your principal interest(s) in water (other than domestic needs)?	Environmental

Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#2

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, March 05, 2015 10:47:14 AM
Last Modified: Thursday, March 05, 2015 10:54:29 AM
Time Spent: 00:07:15
IP Address: 63.238.70.11

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**	
A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	1
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	3
Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**	
Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2
Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support
Quantify and protect nonconsumptive water uses.	Support
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support

Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.

Funding	Support with conditions
Incentives	Support
Regulations	No opinion
Education	Support

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*
Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q8: What Gunnison Basin county do you live in?	Gunnison

Gunnison Basin Water Plan Input 2015 SurveyMonkey

Q9: **What describes your principal interest(s) in water (other than domestic needs)?**	Agriculture, Environmental
Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

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Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#3 COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 13, 2015 5:51:21 PM
Last Modified: Friday, March 13, 2015 5:54:18 PM
Time Spent: 00:02:56
IP Address: 76.120.65.178

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**	
A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1
Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**	
Conservation	3
Transfers from Agriculture	2
New water projects on the West Slope	1
Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support with conditions, Comments Agricultural water conservation approaches should be considered.
Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.	*Respondent skipped this question*
Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.	*Respondent skipped this question*

7 / 33

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*
Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q8: What Gunnison Basin county do you live in?	*Respondent skipped this question*
Q9: What describes your principal interest(s) in water (other than domestic needs)?	*Respondent skipped this question*
Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#4

COMPLETE

Collector: Web Link (Web Link)
Started: Tuesday, March 17, 2015 2:01:13 PM
Last Modified: Tuesday, March 17, 2015 2:04:10 PM
Time Spent: 00:02:56
IP Address: 69.63.94.90

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	2
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	5

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Oppose
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support
Quantify and protect nonconsumptive water uses.	Oppose
Maintain and, where necessary, improve water quality throughout the Basin.	Support with conditions
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Oppose
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support with conditions

Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.

Funding	Support
Incentives	Support
Regulations	Oppose
Education	Support with conditions

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*

Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

address impact of groundwater and its relation in the system

Q8: What Gunnison Basin county do you live in?	Gunnison

Q9: What describes your principal interest(s) in water (other than domestic needs)?

Agriculture, Flatwater Recreation, Water Professional

Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

mdawson@guclaw.com

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#5 COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:04:18 AM
Last Modified: Friday, March 20, 2015 10:07:31 AM
Time Spent: 00:03:13
IP Address: 71.211.237.66

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support with conditions, Comments Effective methods to set and enforce determined goals. Water should be quantity discount based. "More" should not be cheaper.

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.	
Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support with conditions
Quantify and protect nonconsumptive water uses.	Support with conditions
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support with conditions
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support
Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.	
Funding	Support with conditions
Incentives	Support with conditions
Regulations	Support with conditions
Education	Support with conditions
Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*
Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q8: What Gunnison Basin county do you live in?	Mesa

Q9: What describes your principal interest(s) in water (other than domestic needs)? Environmental

Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

ron.baker862@gmail.com

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#6 COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:08:09 AM
Last Modified: Friday, March 20, 2015 10:12:30 AM
Time Spent: 00:04:21
IP Address: 71.211.237.66

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	5
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**

Support,

Comments
We need to treat drinkable water as precious, if not sacred. Oil, gas and coal (fossil fuels) are no longer appropriate as continuing energy sources. Stop oil shale fracturing, oil pipeline dependency as well as rail transport - rail routes parallel rivers.

15 / 33

Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support
Quantify and protect nonconsumptive water uses.	Support with conditions
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support with conditions
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support

Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.

Funding	Support with conditions
Incentives	Support
Regulations	Support
Education	Support

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?

Forge ahead despite challenges, to the Missouri River for shortfall on Front Range.

Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

California's need for water is never ending. Get rid of silt in storage reservoirs.

Q8: What Gunnison Basin county do you live in?	Mesa

Q9: What describes your principal interest(s) in water (other than domestic needs)?

Agriculture, Fishing, Flatwater Recreation, Environmental

Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

cghwater@yahoo.com

Gunnison Basin Water Plan Input 2015 SurveyMonkey

#7 COMPLETE

Collector: Web Link (Web Link)
Started: Friday, March 20, 2015 10:13:06 AM
Last Modified: Friday, March 20, 2015 10:15:08 AM
Time Spent: 00:02:01
IP Address: 71.211.237.66

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	2
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	3
New water projects on the West Slope	2

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support with conditions

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Q4: **Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.**	
Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support with conditions
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support with conditions
Quantify and protect nonconsumptive water uses.	Support with conditions
Maintain and, where necessary, improve water quality throughout the Basin.	Support with conditions
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support

Q5: **Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.**	
Funding	Support
Incentives	Support
Regulations	Support with conditions
Education	Support with conditions

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*
Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q8: **What Gunnison Basin county do you live in?**	Mesa

Q9: What describes your principal interest(s) in water (other than domestic needs)?

Agriculture, Environmental

Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

nschuerr39@yahoo.com

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#8 COMPLETE

Collector: Web Link (Web Link)
Started: Wednesday, April 01, 2015 11:44:42 AM
Last Modified: Wednesday, April 01, 2015 1:22:20 PM
Time Spent: 01:37:38
IP Address: 69.25.218.116

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	3
Viable and productive agriculture.	5
A robust skiing, recreation, and tourism industry.	4
Efficient and effective water infrastructure promoting smart land use.	2
A strong environment with healthy watersheds, rivers and streams, and wildlife.	1

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**

Support with conditions.

Comments
I agree with supporting agricultural uses but feel they could be more efficient in their use of water. I do not support existing uses for fracking in the North Fork because of the large amount of water used, the contamination of that water preventing reuse and the potential for contamination of ground and surface water when things don't go as planned. Finally, I don't think existing uses give enough value or importance to instream flows and maintaining healthy environmental conditions.

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support with conditions
Improve agricultural water supplies to reduce shortages.	Support with conditions
Identify and address municipal and industrial water shortages.	Support with conditions
Quantify and protect nonconsumptive water uses.	Support
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support with conditions
Comments	Water is a limited resource and it is stupid to try to accommodate unlimited growth with a limited resource. We must recognize the limited nature of the water resource and learn to adapt human activities to live within those limits. Agricultural lands are also a limited resource that are constantly decreasing in supply because our society is too stupid and short sighted to fully appreciate their value and importance. At the same time ag users use more water than any other group and often are not very efficient in their use of water. In part this is because of outdated and anti-conservation terms of current water law such as use it or lose it. In part this is because ag hasn't been forced to be more efficient in their use. We should try not to lose or dry up our ag land. At the same time we shouldn't impact the ecological integrity of our water sources just to give ag or municipal users all they want. Both user groups need to practice more stringent conservation measures.

Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.

Funding	Support with conditions
Incentives	Support with conditions
Regulations	Support with conditions
Education	Support

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*

Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Accepting unlimited population growth as a given that we are powerless to do anything about is the fundamental flaw in the State Water Plan. We are willing to spend billions of dollars and undoubtedly piss off a bunch of people to scramble to find the water to accommodate unlimited growth. Yet we aren't willing to spend a dime or lift a finger or make anyone upset by bringing up the possibility that we might be able to do something to put some rational controls on growth.

Global climate change has the potential to disrupt plans that are based on 30 year averages. Models for projected weather patterns in our state are uncertain but many suggest we will be hotter and dryer. Beetle kill and increased forest fires could significantly affect the proper functioning of our watersheds. This could reduce both the quality and quantity of available water. We aren't meeting our current commitments in the CO River Compact and downstream states will likely be demanding more from us. California is already drying up and will push to get every drop they can. It seems we are likely to get less water in the future if these trends continue. This will make it harder to accommodate current demand let alone increased demand from unplanned or unrestricted growth. Even if our growth rate on the Western Slope is sustainable within the limits of our available water resources we run the risk of losing our resources to the Front Range or downstream states with more financial resources and political clout than our area.

I know this isn't news to anyone in the water management community. But the overall tone of the plan seems to be that we shouldn't have any problem accommodating unlimited growth with a limited and diminishing resource. We don't want to inconvenience anyone. We don't want to consider updating our outdated water law. We just need to conserve a little bit and build some more reservoirs and take some water from ag users somehow without drying them up and we should be fine. When that unsustainable strategy doesn't work we will turn to water raids and transmountain diversions so the state only inconveniences a minority of politically powerless people on the West Slope. We won't like it but people will always win out over nature so we will be forced to to dewater streams throughout the state which, in turn, will compromise their ecological integrity. As an added bonus that strategy will undermine the multi billion dollar tourism industry in the state as well as the quality of life for many of our residents. We will be forced to dry up more farmland until one day we realize that we have lots of big cities full of people but are having a hard time feeding them. We will swirl further and further down the toilet all the time bemoaning that no one could have predicted this catastrophe. We are currently on an unsustainable path and this plan doesn't lead us back to sustainability because it doesn't want to inconvenience anyone. It is going to be costly and inconvenient to get back to a sustainable path but the cost and inconvenience will be less the sooner we start. The longer we wait the more expensive, the less possible and less popular our options become.

Gunnison Basin Water Plan Input 2015 SurveyMonkey

Q8: **What Gunnison Basin county do you live in?**	Gunnison
Q9: **What describes your principal interest(s) in water (other than domestic needs)?**	Whitewater Recreation, Environmental, Other (please specify) Smart planning with the goal of long term sustainability.
Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

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Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#9

COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, April 02, 2015 2:19:42 PM
Last Modified: Thursday, April 02, 2015 2:24:00 PM
Time Spent: 00:04:18
IP Address: 70.196.197.94

PAGE 1

Q1: STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.	*Respondent skipped this question*
Q2: Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:	*Respondent skipped this question*
Q3: The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.	*Respondent skipped this question*

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support
Quantify and protect nonconsumptive water uses.	Support
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support

Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.

Funding	Support
Incentives	Support
Regulations	Support
Education	Support
Comments	I would pay more in taxes for water projects.

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?

Cannot access link 6-20 from this page. Address returns me here.

Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

Front Range needs to show their support for limiting water demand by reducing new construction permits before simply taking it.

Q8: **What Gunnison Basin county do you live in?**	Delta
Q9: **What describes your principal interest(s) in water (other than domestic needs)?**	Agriculture

Q10: **If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).**

randann14@gmail.com

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#10 COMPLETE

Collector: Web Link (Web Link)
Started: Monday, April 06, 2015 11:33:56 AM
Last Modified: Monday, April 06, 2015 12:05:52 PM
Time Spent: 00:31:55
IP Address: 69.146.238.58

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	4
Viable and productive agriculture.	3
A robust skiing, recreation, and tourism industry.	2
Efficient and effective water infrastructure promoting smart land use.	1
A strong environment with healthy watersheds, rivers and streams, and wildlife.	5

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**

Support with conditions,

Comments
Your website is not functioning properly. I was unable to provide the rankings of my choosing for questions 1 and 2. Once I picked a rank the site filled in them all in ascending order and I was unable to change this. Protecting existing uses is a common sense approach. But the Roundtable needs to go beyond this goal and look into other projects "outside the box".

28 / 33

Q4: **Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.**

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support with conditions
Improve agricultural water supplies to reduce shortages.	Support with conditions
Identify and address municipal and industrial water shortages.	Support
Quantify and protect nonconsumptive water uses.	Support
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support

Q5: **Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.**

Funding	Support
Incentives	Support with conditions
Regulations	Support with conditions
Education	Support
Comments	Education is extremely important. Even our older population is somewhat ignorant about water use and management on the Western Slope.

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?

As a professional hydrogeologist, I would like to know if the Gunnison Basin Roundtable has even considered aquifer storage and recovery as a viable water storage and supply project. I know the Upper Colorado River Basin Roundtable has not considered ASR and probably has not even discussed it. Why is this? I believe it is a technical mistake not to consider ASR in every main watershed in Colorado. The Roundtables should at least have a project proposed that would consist of a feasibility study for ASR in their respective river basins. Such studies may be conducted in phases, starting with the identification of potential candidate aquifers. Follow-up studies could reach the level of field-scale testing, ultimately resulting in a valuable storage and supply alternative. I would be glad to give a brief presentation to the Roundtable concerning ASR status in Colorado and its general potential for their river basin.

Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?

See no. 6.

Q8: What Gunnison Basin county do you live in?	Mesa
Q9: What describes your principal interest(s) in water (other than domestic needs)?	Agriculture, Whitewater Recreation, Water Professional, Environmental

Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).

bsmith@westernwaterandland.com

Gunnison Basin Water Plan Input 2015 — SurveyMonkey

#11 COMPLETE

Collector: Web Link (Web Link)
Started: Thursday, April 09, 2015 3:38:12 PM
Last Modified: Thursday, April 09, 2015 4:07:04 PM
Time Spent: 00:28:52
IP Address: 174.32.151.229

PAGE 1

Q1: **STATE GOALS – The Governor has said the Colorado Water Plan must include the following goals. Please rank them (with 1 indicating most important) according to how important you feel they are to the Gunnison Basin.**

A productive economy that supports vibrant and sustainable cities.	2
Viable and productive agriculture.	1
A robust skiing, recreation, and tourism industry.	5
Efficient and effective water infrastructure promoting smart land use.	3
A strong environment with healthy watersheds, rivers and streams, and wildlife.	4

Q2: **Please rank the following choices (with 1 indicating first choice) for how to meet Colorado's growing urban water needs:**

Conservation	1
Transfers from Agriculture	2
New water projects on the West Slope	3

Q3: **The Gunnison Basin Roundtable's primary goal is to protect existing uses. Please indicate your level of support for this goal. Comments to explain your position are appreciated.**	Support, Comments Strongly agree that existing uses should be protected, decreed waters should receive a higher ranking for use.

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Q4: Please indicate your degree of support for these additional planning goals. Comments to explain your position are appreciated.

Discourage the conversion of currently productive agricultural land to all other uses within the context of private property rights.	Support
Improve agricultural water supplies to reduce shortages.	Support
Identify and address municipal and industrial water shortages.	Support with conditions
Quantify and protect nonconsumptive water uses.	Support
Maintain and, where necessary, improve water quality throughout the Basin.	Support
Describe, quantify and encourage beneficial relationships between agricultural and environmental and recreational water uses.	Support
Restore, maintain, and modernize critical water infrastructure, including hydropower.	Support
Maintain an active and comprehensive public education process about water resources in the Gunnison Basin.	Support
Comments	We all must work together. The economic value of agricultural use of water must be recognized and protected. Understand there is some economic value derived from urban landscaping.

Q5: Please indicate your level of support for the following actions to achieve the goals listed above that you support. Comments to explain your position are appreciated.

Funding	Support
Incentives	Support
Regulations	Support with conditions
Education	Support
Comments	Funding and incentives help produce favorable and immediate outcomes. Education, funding and incentives all help bring positive long term outcomes. Regulation cause burden and regulators.

Q6: Do you have any comments on the Gunnison Basin priority projects listed here: http://www.coloradomesa.edu/watercenter/documents/CopyofGBIP_Working_Project_List_6-20_Condensed.xlsx ?	*Respondent skipped this question*

Q7: Do you have other concerns about the future of the Gunnison River Basin and its water, or the Colorado Water Plan, that you feel the Roundtable and the Colorado Water Conservation Board need to consider?	*Respondent skipped this question*
Q8: **What Gunnison Basin county do you live in?**	Gunnison
Q9: **What describes your principal interest(s) in water (other than domestic needs)?**	Agriculture
Q10: If you would like to receive information and event announcements related to the Colorado Water Plan, please provide your email address below (will never be used for commercial purposes).	*Respondent skipped this question*

Appendix 5: Grand Mesa Water Conservancy District Letter on Permitting Issues

GRAND MESA WATER CONSERVANCY DISTRICT
P.O. BOX 129
CEDAREDGE, CO 81413

February 6, 2012

Congressman Scott Tipton
218 Cannon House Office Building
Washington, DC 20515

Re: Congressional Hearing on Western Water Storage

Dear Congressman Tipton,

The Grand Mesa Water Conservancy District (District) would like to have the following experience and issues logged into the public record at the hearing February 7, 2012 entitled "Water for Our Future and Job Creation: Examining Regulatory and Bureaucratic Barriers to New Surface Storage Infrastructure." The District serves an area encompassing the Grand Mesa and Surface Creek Valley, Delta County, Colorado. As a taxpayer funded water conservancy district, it is mandated to monitor and preserve the water sources and tributaries supplying this precious lifeblood to our diverse area. The interests currently served are municipal, agriculture, recreation and recently several inquiries from the energy field (hydroelectric and fossil fuel energy). In the fall of 2008, the District board of directors voted to embark on a plan to rehabilitate breached reservoirs on the Grand Mesa National Forest within its jurisdictional boundaries. As of this date, the District has completed approximately 35% of the Peak Reservoir project and 5% of the Blanche Park Reservoir Project. Note, due to weather conditions, site work is limited to the months of July through October.

The District has encountered a laundry list of regulations and studies that has taken several years to wade through. The agencies involved are the US Forest Service and The Army Corps of Engineers. When the first project, the Peak Reservoir was started, the US Forest Service gave us an outline of the studies required to be completed and told us that they could not address any of these studies until maybe the next year. If we were interested in seeing our project move forward, the District should consider hiring a private firm qualified and approved by the Forest Service to complete the work. There were a couple of the studies that the Forest Service, personnel were required to complete. The District contracted with an approved firm to complete the work which was done summer of 2010. The District was then billed by the Forest Service for the work despite that fact we hired private contractors thus double payments. With the Army Corps, they do not do anything on the ground. They require the applicant to hire qualified services to address the list of concerns the Corps has which is always subject to change. The District was able to take aggressive action with a company that had experience working on the issues at hand. To complete this leg of our project took until spring of 2011. It was determined that there had to be mitigation due to the wetland plants along a tiny stream that ran through this empty structure. With all the permits finally in hand, the spring of 2011, financing in place, contractor hired, work was set to begin July of 2012. Remaining was a timber cruse involving

approximately 150 trees. The timber turned out to be of no economic value, but the District was charged $6,000 for the right to remove them. Incidentally the Forest Service Timber personnel held up this entire project until late August because they did not have time to deal with our project. With the seven weeks of lost time, the construction was not able to be completed and over this winter, one of the grants that was held for this project was canceled. Part of the excess material from this project is scheduled to be used in the rebuilding of the Blanche Park Reservoir.

The District began the process to rebuild Blanche Park with the US Forest Service and the US Corps of Engineers during the fall of 2010. The engineering reports revealed that there would be enough excess material from the Peak Reservoir project to supply the needs for Blanche Park thus eliminating the need to disturb any surface area of the reservoir footprint except the dam structure. As before, the District hired a private firm to deal with the studies allowed by the Forest Service. The application for the project with the Forest Service was filed January of 2011. There was not even an acknowledgement received until January 2012 when a bill arrive for the work we had all ready completed. This project is being built on a "1891 Easement" however the access road has disappeared during the course of time. The District engineer has spent seven months attempting to identify a new access to the site and we still do not have a USFS accepted route. The distance is less than 2000 feet. The hope is that the permits can be secured for this project allowing us to move material a mile and a half from the Peak project to the Blanche Park project. If this cannot be accomplished, the excess material will have to be stockpiled and moved later, thus doubling the cost.

The District considers these huge tasks of studies and reviews as necessary if the District were building large reservoir structures. The Peak Reservoir project holds 35 acre feet of water on less than five acres. The Blanche Park Reservoir project hold 115 acre feet of water with only the dam site being disturbed. Despite the fact, these are small projects, the security these projects offer to the water supply of our service area is very important.

I hope these two examples provide insight to the frustration that is endured to accomplish any type of activity on the Federal Lands. Also, there are two very important issues that have faced our reservoir owners. First, the required studies and permits make what was simple repairs to the reservoirs a multi-year undertaking. Secondly, these are owned privately or under small corporations that do not have the financial ability to cover the costs of studies and permits now required. Most owners would have the ability to cover the cost of an actual repair but the cost incurred for now required engineering and studies have tripled what the actual cost should be. The District made a study in conjunction with the Grand Mesa Water Users Assn. of the water storage capacity that is currently under restriction for deferred dam maintenance and found 3800 acre feet of water storage is in jeopardy of being lost due mainly to cost of repairs. This figure represents approximately 15% of the total capacity of water storage on the Grand Mesa.

Please consider the damage these policies and regulations are placing upon our constituents living in the Surface Creek Valley, Delta County, Colorado

Respectfully Submitted,
Austin M. Keiser, President

Appendix 6: County of Ouray Feedback

OURAY COUNTY
COUNTY ATTORNEY

111 Mall Road P.O. Box28 Ridgway, Colorado 81432 970-626-3302 Fax 970-626-4439

May 5, 2014

Mr. Frank Kugel
Chair, Basin Implementation Plan Committee
Gunnison River Basin Roundtable

VIA Email: fkugel@ugrwcd.org

Re: Ouray County Population and Water Needs Projections for 2050

Dear Frank:

As you know, I have expressed concern that the population numbers and water needs assessment contained in the Colorado Water Conservation Board's 2010 Statewide Water Supply Initiative ("SWSI") understate the future water needs of Ouray County. The purpose of this letter is to document the data that should be considered and incorporated into the Basin Implementation Plan ("BIP") currently in draft form.

An under-representation of the needs of Ouray County is a disservice to the basin as it results in a perception that more water is available in the Gunnison River Basin, and the Colorado River Basin, than actually is likely to be available after providing for increased population, and fully providing for agricultural needs, and other miscellaneous needs such as mining, in the County. Additionally, any analysis of water availability in Blue Mesa Reservoir to meet Front Range supply needs should incorporate the ramifications of such a draw, not only on Compact compliance, but on operation of the Uncompahgre River, including the Upper Uncompahgre River and its tributaries in Ouray County, and the "domino effect" of calls, including calls from the Uncompahgre Water Users at the M&D Canal resulting from increased diversions from Blue Mesa, and how those calls will affect the water users in Ouray County.

SWSI 2010 projects a total population for Ouray County in 2030 of 6,392. (*See* Exhibit A, State of Colorado Population Projections). The current population is approximately 4,500, and I agree that the SWSI projection for 2016 of 5,198 may be fairly accurate, reflecting the economic downturn of the last seven years. However, assuming that economic conditions improve, the Theobald Study dated September, 2008, suggests that the number of housing units in Ouray County, *not including populations in the Town of Ridgway or the City of Ouray*, would be approximately 4800 in 2030 and over 6,000 by 2050. (*See* Exhibit B, Theobald Study Summary and Analysis). Even accounting for the lag-time of the economic downturn, and depending on the multiplier used for population per housing unit, clearly the population projections for Ouray County in the BIP need to be increased significantly. I would propose using a population of 9,000 by 2030 and 12,000 by 2050, in addition to the proposed population projections of the Town of Ridgway and the City of Ouray.

These population projections then lead to the assumption that additional water will need to be developed by the various water providers serving Ouray County. The amount and source of additional water, including any proposed projects, have not been determined at this time due to a lack of resources for an engineering analysis.

Additional information and data should be sought from both the City of Ouray and the Town of Ridgway regarding their population projections, water needs, and proposed projects. In particular, SWSI understated the Town of Ridgway's storage project, Lake Otohawanda. That information may be obtained from Joanne Fagan, GRBRT representative for Ouray County municipalities.

Given the low projections for additional M&I supply, I would also like to request that the BIP consultants give close attention to the agricultural needs in Ouray County, including any storage requirements that could eliminate or assist with future calls on the Uncompahgre River below Ridgway Reservoir. It is possible that those needs have also been underreported.

Finally, Ouray County acknowledges the importance of non-consumptive uses of water in the county, especially for fishing. Ouray County's economy depends in large part on tourism, and fishing is an important component of tourism interest in the county. Based on current drafts, it appears that those uses are being considered carefully and fully.

Thank you for your consideration of this important data for inclusion in the BIP.

Best regards,

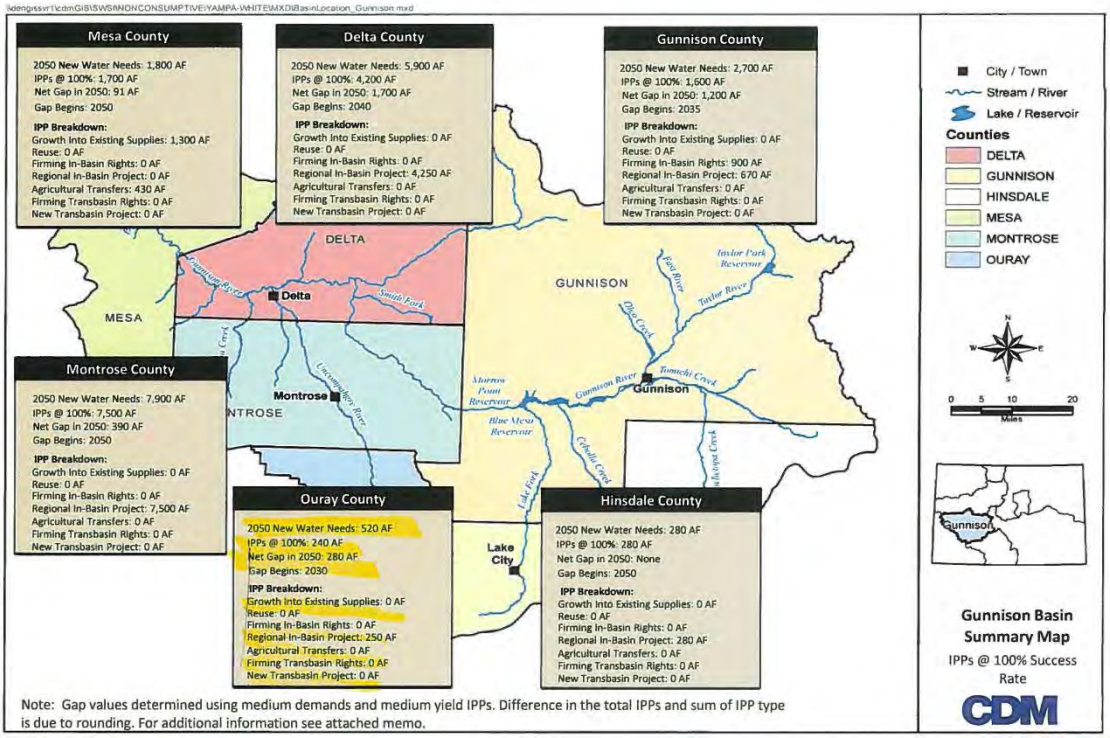
Martha P. Whitmore

Martha P. Whitmore

Appendix A
State of Colorado Population Projections 2000 to 2030

STATE OF COLORADO
POPULATION PROJECTIONS
2000 to 2030

Basin	County	Percent	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Arkansas	Baca		3,937	3,909	3,892	3,872	3,849	3,831	3,819	3,805	3,797	3,775	3,761	3,750	3,725	3,715	3,709
	Bent		6,515	6,539	6,570	6,594	6,617	6,648	6,673	6,688	6,711	6,727	6,745	6,759	6,764	6,760	6,750
	Chaffee		21,803	22,237	22,672	23,102	23,523	23,955	24,378	24,796	25,205	25,632	26,034	26,440	26,831	27,210	27,579
	Cheyenne	38%	763	758	754	751	748	744	738	739	733	732	728	728	722	716	715
	Crowley		5,704	5,704	5,699	5,697	5,693	5,701	5,712	5,715	5,712	5,716	5,713	5,711	5,710	5,702	5,687
	Custer		5,814	5,987	6,174	6,346	6,530	6,705	6,884	7,063	7,231	7,409	7,587	7,749	7,921	8,077	8,239
	El Paso		682,849	672,332	682,078	691,809	701,193	710,519	720,354	730,233	740,537	750,808	761,078	771,279	781,447	791,600	801,721
	Elbert	31%	11,229	11,702	12,191	12,681	13,203	13,729	14,265	14,814	15,356	15,895	16,427	16,921	17,380	17,802	18,215
	Fremont		58,840	59,900	61,043	62,166	63,301	64,426	65,563	66,664	67,789	68,904	69,903	70,887	71,865	72,843	73,797
	Huerfano		10,355	10,521	10,684	10,853	11,008	11,169	11,338	11,487	11,645	11,784	11,887	11,980	12,076	12,157	12,228
	Kiowa		1,428	1,426	1,414	1,411	1,407	1,407	1,402	1,391	1,390	1,385	1,370	1,371	1,357	1,357	1,355
	Lake		12,072	12,501	12,946	13,362	13,820	14,285	14,754	15,243	15,736	16,207	16,674	17,127	17,569	18,027	18,458
	Las Animas		20,234	20,567	20,910	21,251	21,593	21,925	22,264	22,554	22,834	23,107	23,367	23,631	23,893	24,150	24,396
	Lincoln	61%	5,378	5,423	5,468	5,493	5,531	5,577	5,623	5,668	5,703	5,749	5,784	5,821	5,860	5,893	5,932
	Otero		21,219	21,394	21,584	21,762	21,891	22,018	22,145	22,247	22,352	22,422	22,482	22,558	22,620	22,668	22,724
	Prowers		15,484	15,602	15,706	15,804	15,900	16,000	16,114	16,211	16,313	16,419	16,513	16,617	16,709	16,806	16,890
	Pueblo		163,964	166,989	169,016	193,091	196,110	199,172	202,222	205,271	208,314	211,369	214,407	217,430	220,416	223,360	226,311
	Teller	51%	14,714	15,011	15,292	15,582	15,829	16,097	16,353	16,609	16,882	17,114	17,368	17,603	17,833	18,061	18,278
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Colorado	Eagle		65,980	67,533	69,076	70,624	72,157	73,698	75,227	76,742	78,218	79,673	81,141	82,589	84,020	85,440	86,842
	Garfield		68,960	70,891	72,836	74,766	76,705	78,748	80,778	82,832	84,877	86,922	88,976	91,008	93,007	94,997	96,969
	Grand		20,143	20,712	21,298	21,918	22,532	23,153	23,758	24,390	25,018	25,678	26,327	26,969	27,600	28,226	28,834
	Mesa	90%	148,699	152,308	155,926	159,588	163,230	166,969	170,741	174,573	178,466	182,389	186,389	190,361	194,363	198,360	202,338
	Pitkin		21,326	21,763	22,210	22,647	23,083	23,508	23,949	24,370	24,781	25,204	25,608	26,013	26,400	26,784	27,152
	Summit		37,619	38,537	39,464	40,419	41,372	42,322	43,268	44,191	45,123	46,040	46,953	47,836	48,716	49,582	50,421
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Dolores/ San Juan	Archuleta		17,512	18,087	18,675	19,246	19,813	20,390	21,018	21,676	22,352	23,140	23,942	24,737	25,522	26,293	27,048
	Dolores		2,311	2,339	2,369	2,401	2,431	2,458	2,491	2,523	2,563	2,597	2,630	2,663	2,699	2,733	2,760
	La Plata		63,054	64,409	65,735	67,071	68,385	69,692	70,976	72,250	73,500	74,726	75,928	77,134	78,305	79,461	80,598
	Montezuma		31,798	32,418	33,032	33,652	34,273	34,885	35,502	36,118	36,724	37,319	37,920	38,522	39,104	39,640	40,157
	Montrose	10%	5,083	5,218	5,354	5,488	5,626	5,761	5,894	6,020	6,175	6,290	6,405	6,516	6,626	6,730	6,830
	San Juan		629	633	640	641	645	649	647	647	646	648	648	649	653	657	662
	San Miguel		10,341	10,582	10,819	11,057	11,291	11,515	11,758	12,000	12,240	12,479	12,704	12,930	13,162	13,389	13,586
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gunnison	Delta		39,057	39,840	40,634	41,480	42,325	43,178	44,022	44,830	45,615	46,400	47,184	47,967	48,732	49,472	50,215
	Gunnison		16,423	16,675	16,925	17,171	17,457	17,748	17,972	18,201	18,426	18,655	18,879	19,088	19,295	19,498	19,682
	Hinsdale		888	1,008	1,036	1,058	1,067	1,090	1,108	1,125	1,140	1,148	1,178	1,200	1,221	1,237	1,250
	Mesa	10%	16,522	16,923	17,325	17,730	18,137	18,552	18,971	19,397	19,830	20,265	20,710	21,151	21,596	22,040	22,482
	Montrose	90%	45,746	46,956	48,185	49,404	50,630	51,853	53,045	54,179	55,574	56,606	57,649	58,648	59,630	60,571	61,474
	Ouray		5,196	5,300	5,400	5,502	5,601	5,696	5,781	5,873	5,960	6,026	6,112	6,184	6,253	6,317	6,392
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
North Platte	Jackson		1,790	1,806	1,833	1,847	1,866	1,881	1,896	1,909	1,926	1,933	1,943	1,958	1,954	1,979	1,986
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Rio Grande	Alamosa		16,883	19,172	19,444	19,732	20,015	20,303	20,590	20,868	21,154	21,441	21,731	22,017	22,311	22,609	22,901
	Conejos		8,253	8,311	8,373	8,427	8,485	8,543	8,605	8,663	8,711	8,766	8,815	8,856	8,899	8,948	8,990
	Costilla		4,212	4,247	4,284	4,311	4,339	4,367	4,391	4,414	4,445	4,476	4,505	4,525	4,548	4,580	4,606
	Mineral		1,048	1,068	1,085	1,092	1,111	1,116	1,128	1,138	1,148	1,151	1,158	1,158	1,160	1,155	1,144
	Rio Grande		14,218	14,334	14,450	14,562	14,691	14,800	14,911	15,009	15,107	15,189	15,271	15,335	15,409	15,479	15,532
	Saguache		7,829	7,715	7,798	7,873	7,955	8,037	8,105	8,170	8,232	8,292	8,358	8,417	8,465	8,515	8,575



Note: Gap values determined using medium demands and medium yield IPPs. Difference in the total IPPs and sum of IPP type is due to rounding. For additional information see attached memo.

STATE OF COLORADO
POPULATION PROJECTIONS
2000 to 2030

Basin	County	Percent	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Arkansas	Baca		4,516	4,514	4,413	4,347	4,286	4,234	4,204	4,166	4,147	4,112	4,085	4,061	4,036	4,003	3,983	3,954
	Bent		5,971	5,865	6,089	6,120	6,134	6,158	6,180	6,208	6,241	6,275	6,308	6,347	6,385	6,434	6,459	6,492
	Chaffee		16,298	16,522	16,737	16,915	17,142	17,418	17,797	18,182	18,576	18,962	19,348	19,743	20,144	20,542	20,943	21,386
	Cheyenne	38%	848	847	841	834	824	815	809	804	798	791	784	780	776	771	769	764
	Crowley		5,513	5,491	5,838	5,807	5,778	5,755	5,748	5,740	5,731	5,723	5,711	5,709	5,698	5,700	5,699	5,699
	Custer		3,540	3,686	3,779	3,828	3,934	4,062	4,205	4,348	4,497	4,638	4,797	4,951	5,117	5,282	5,447	5,638
	El Paso		520,572	533,526	541,491	547,567	554,426	561,849	569,919	578,616	587,654	596,881	606,147	615,477	624,763	634,082	643,480	652,992
	Elbert	31%	6,258	6,650	6,819	6,906	7,113	7,381	7,649	7,927	8,203	8,490	8,783	9,140	9,505	9,892	10,323	10,768
	Fremont		46,439	47,209	47,561	47,820	48,264	48,806	49,491	50,242	51,067	51,899	52,847	53,812	54,783	55,761	56,756	57,759
	Huerfano		7,861	7,857	8,056	8,104	8,254	8,461	8,664	8,866	9,043	9,201	9,369	9,530	9,691	9,861	10,020	10,188
	Kiowa		1,617	1,598	1,578	1,563	1,539	1,529	1,517	1,501	1,495	1,486	1,476	1,469	1,459	1,443	1,440	1,438
	Lake		7,908	7,878	7,924	7,940	7,977	8,034	8,331	8,630	8,935	9,233	9,554	9,956	10,374	10,791	11,213	11,650
	Las Animas		15,276	15,550	15,879	16,122	16,376	16,633	16,933	17,256	17,574	17,887	18,216	18,552	18,873	19,216	19,548	19,897
	Lincoln	81%	4,998	4,955	4,973	4,933	4,929	4,954	5,007	5,040	5,086	5,117	5,145	5,188	5,229	5,263	5,305	5,343
	Otero		20,244	19,976	19,771	19,659	19,587	19,622	19,714	19,819	19,915	20,031	20,151	20,315	20,489	20,668	20,843	21,030
	Prowers		14,434	14,240	14,219	14,216	14,225	14,292	14,394	14,498	14,604	14,718	14,830	14,937	15,055	15,165	15,275	15,389
	Pueblo		142,054	144,383	147,264	149,386	151,561	153,986	156,376	158,836	161,339	163,900	166,522	169,324	172,189	175,095	178,047	180,978
	Teller	51%	10,784	11,132	11,244	11,343	11,457	11,671	11,904	12,148	12,404	12,669	12,947	13,230	13,504	13,800	14,103	14,409

			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Colorado	Eagle		43,354	44,824	45,944	46,978	48,216	49,601	51,069	52,535	53,981	55,410	56,816	58,298	59,769	61,326	62,878	64,436
	Garfield		44,267	46,173	47,447	48,483	49,619	50,900	52,402	53,901	55,418	56,928	58,558	60,235	61,918	63,625	65,338	67,043
	Grand		12,884	13,253	13,458	13,639	13,879	14,264	14,787	15,301	15,790	16,249	16,740	17,256	17,838	18,414	18,988	19,566
	Mesa	90%	105,891	107,965	110,112	111,951	114,147	116,451	118,910	121,396	123,944	126,512	129,232	132,175	135,231	138,424	141,731	145,179
	Pitkin		15,913	16,197	16,301	16,352	16,483	16,822	17,214	17,647	18,071	18,490	18,906	19,319	19,719	20,124	20,528	20,923
	Summit		25,725	26,355	26,641	27,075	27,606	28,247	28,963	29,781	30,673	31,559	32,427	33,284	34,125	34,977	35,846	36,722

			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Dolores/ San Juan	Archuleta		10,028	10,548	10,942	11,318	11,676	12,100	12,565	13,032	13,491	13,968	14,449	14,927	15,402	15,874	16,353	16,934
	Dolores		1,844	1,844	1,881	1,888	1,915	1,966	2,002	2,036	2,083	2,103	2,127	2,144	2,181	2,213	2,237	2,272
	La Plata		44,566	45,616	46,239	46,793	47,494	48,259	49,396	50,776	52,155	53,517	54,881	56,256	57,628	58,988	60,347	61,696
	Montezuma		23,864	23,999	24,282	24,610	25,017	25,546	26,069	26,566	27,105	27,629	28,182	28,764	29,363	29,965	30,571	31,178
	Montrose	10%	3,367	3,460	3,553	3,622	3,717	3,812	3,910	4,014	4,121	4,228	4,337	4,458	4,580	4,702	4,825	4,948
	San Juan		558	560	565	561	568	576	583	591	591	602	600	603	611	623	617	623
	San Miguel		6,666	6,956	7,154	7,322	7,520	7,775	8,012	8,244	8,473	8,699	8,919	9,156	9,384	9,609	9,866	10,106

			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gunnison	Delta		28,009	28,709	29,276	29,738	30,279	30,830	31,464	32,114	32,861	33,628	34,405	35,197	35,946	36,717	37,495	38,273
	Gunnison		13,967	14,012	14,037	14,021	14,040	14,100	14,251	14,429	14,620	14,796	14,968	15,182	15,398	15,663	15,918	16,166
	Hinsdale		791	794	812	807	813	820	831	840	853	870	883	899	914	939	961	974
	Mesa	10%	11,766	11,996	12,235	12,439	12,683	12,939	13,212	13,488	13,772	14,057	14,359	14,686	15,026	15,380	15,748	16,131
	Montrose	90%	30,299	31,141	31,978	32,600	33,453	34,305	35,188	36,122	37,085	38,048	39,034	40,122	41,220	42,321	43,428	44,534
	Ouray		3,771	3,888	3,948	3,968	4,059	4,160	4,291	4,391	4,491	4,567	4,648	4,722	4,816	4,910	5,010	5,101

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
North Platte	Jackson	1,586	1,620	1,607	1,602	1,604	1,632	1,655	1,671	1,682	1,707	1,720	1,729	1,741	1,758	1,763	1,778

			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Rio Grande	Alamosa		15,139	15,282	15,419	15,596	15,816	16,040	16,285	16,508	16,752	17,005	17,255	17,509	17,786	18,055	18,326	18,601
	Conejos		8,400	8,401	8,423	8,421	8,461	8,498	8,558	8,598	8,669	8,739	8,804	8,886	8,961	9,028	9,114	9,185
	Costilla		3,675	3,723	3,756	3,778	3,807	3,841	3,884	3,898	3,941	3,971	4,011	4,042	4,070	4,116	4,157	4,187
	Mineral		833	843	867	874	889	911	924	937	951	971	989	1,004	1,018	1,031	1,039	1,039
	Rio Grande		12,434	12,518	12,593	12,584	12,618	12,767	12,916	13,041	13,143	13,251	13,359	13,499	13,643	13,799	13,929	14,071
	Saguache		5,954	6,100	6,212	6,281	6,412	6,562	6,686	6,783	6,883	6,975	7,070	7,172	7,270	7,369	7,454	7,542

Theobald/RPI Study Group

Scenarios and indicators for Ouray County build-out analysis (revised 9/08)
David M. Theobald, Ph.D., NREL, Colorado State University

Summary and Analysis

The "Executive Summary" prepared by Dr. David Theobald of his report *Scenarios and indicators for Ouray County build-out analysis , Revised September 2008* provides an overview of the goal, process, and major findings of his study.

The summary and analysis presented below summarizes basic data and illustrates current and future conditions with selected examples from the maps provided by Dr. Theobald. In addition, the increase in the number of housing units that the County may have to absorb, based on two different projections of growth, 3% and 4.7%, is used as a way of understanding the challenges the County will be facing by 2015 (RPI study endpoint) and 2025 (a prominent endpoint in the Theobald study).

The information in this build-out study provides the basis for several kinds of analysis and should be extremely valuable as the County moves forward. The map layers in the final report allow users to study land use alternatives in considerable detail.

Current status of Ouray County land use:

The 50% of private land in Ouray County is divided into 2,662 parcels on 162,457 acres. There are 1,269 housing units on parcels in the unincorporated County and, if the towns are included, there are 2,047 total housing units in the County. There are 896 platted parcels that do not currently contain housing units. There are an estimated 9,300 acres of mining claims, not including those protected by the Red Mountain Project.

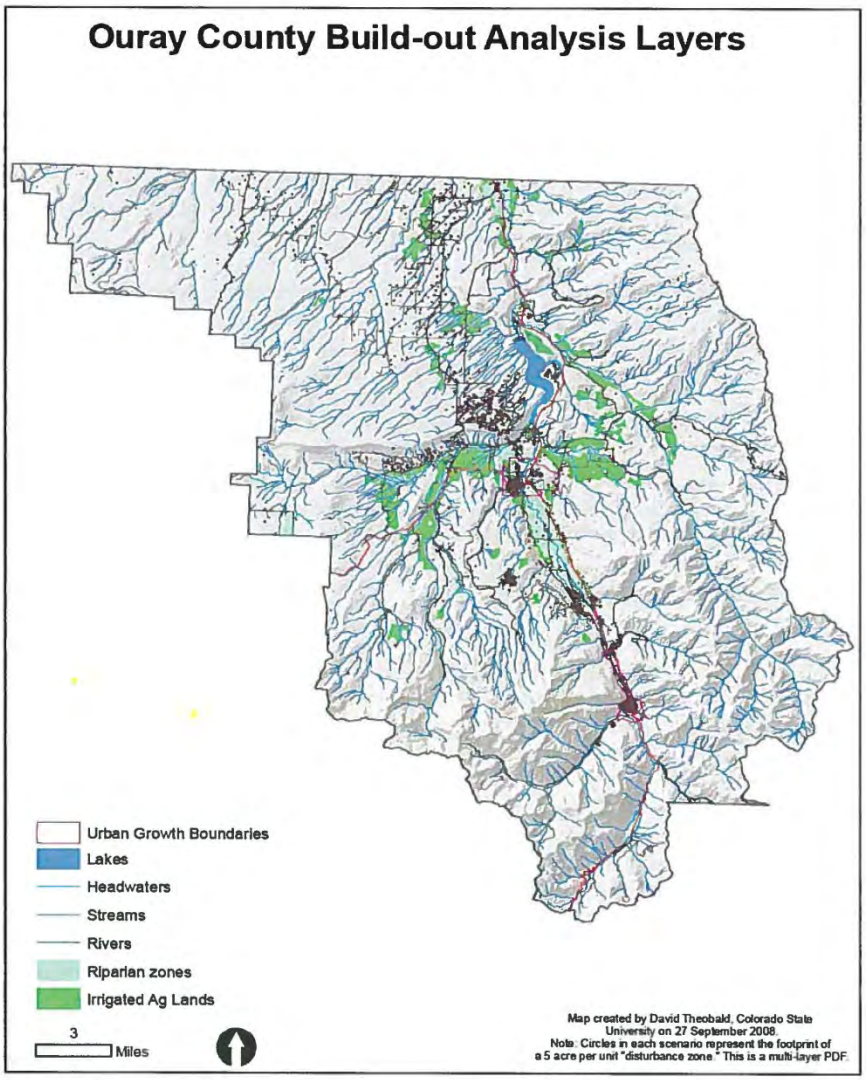
According to the Ouray County Master Plan, land use planning should seek to preserve agricultural land, especially irrigated agricultural land; important wildlife habitat; riparian areas; and scenic vistas. The following maps show the current status of housing units and Master Plan values in Ouray County.

Map 1: The first map contains three layers: irrigated agricultural land (green), riparian areas (turquoise), and housing units (brown dots). Urban growth boundaries are outlined in red. Parcels and cluster preference areas are not shown.

Map 2: The second map shows winter range for economically important wildlife species—deer, elk, sheep.

Map 3: The third map shows locations for rare and imperiled species—bald eagle, lynx, miscellaneous species.

Map 4: The fourth map shows locations of scenic corridors as defined by the stakeholders group at the beginning of the study.

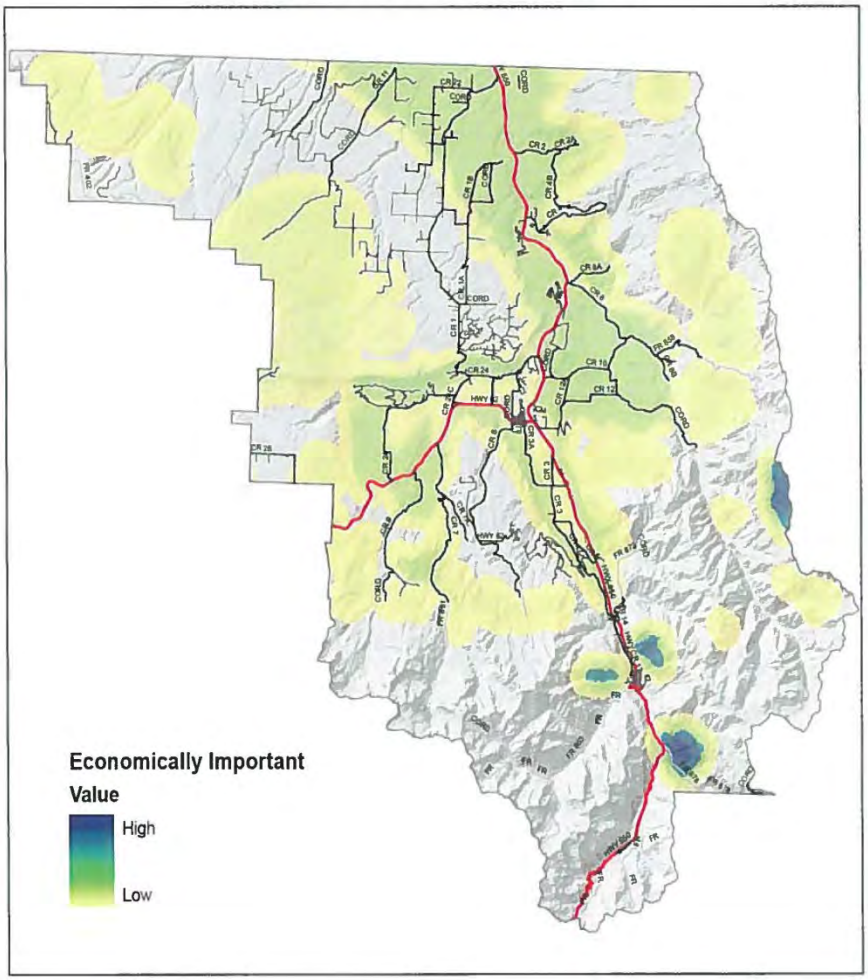


Map 1: Irrigated Agriculture, Riparian, and Current Housing Units

2

Economically-important Wildlife Species

Ouray County Build-out Analysis

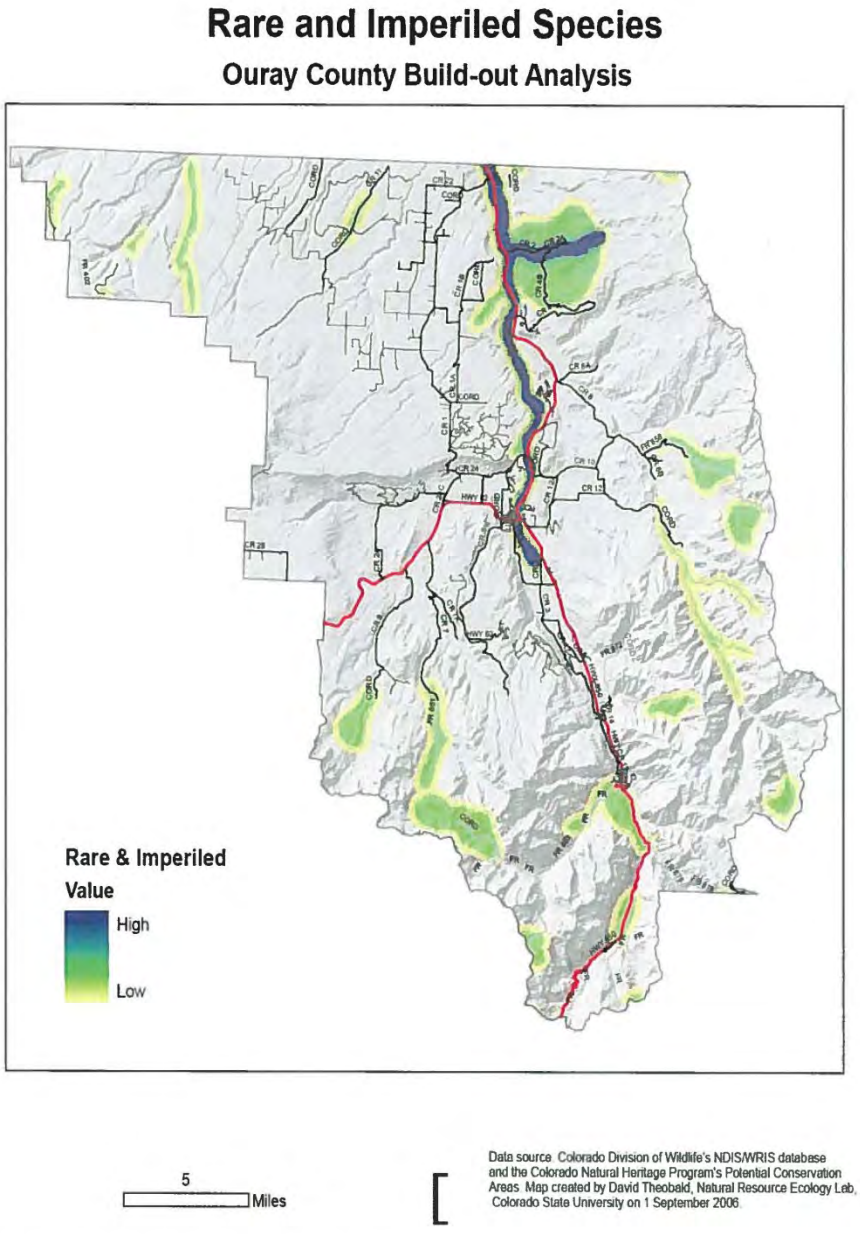


5 Miles

Data source: Colorado Division of Wildlife's NDIS/WRIS database.
Mule deer and elk winter concentration areas and bighorn sheep winter concentration areas.
Map created by David Theobald, Natural Resource Ecology Lab, Colorado State University on 1 September 2006.

Map 2: Economically important wildlife species

3

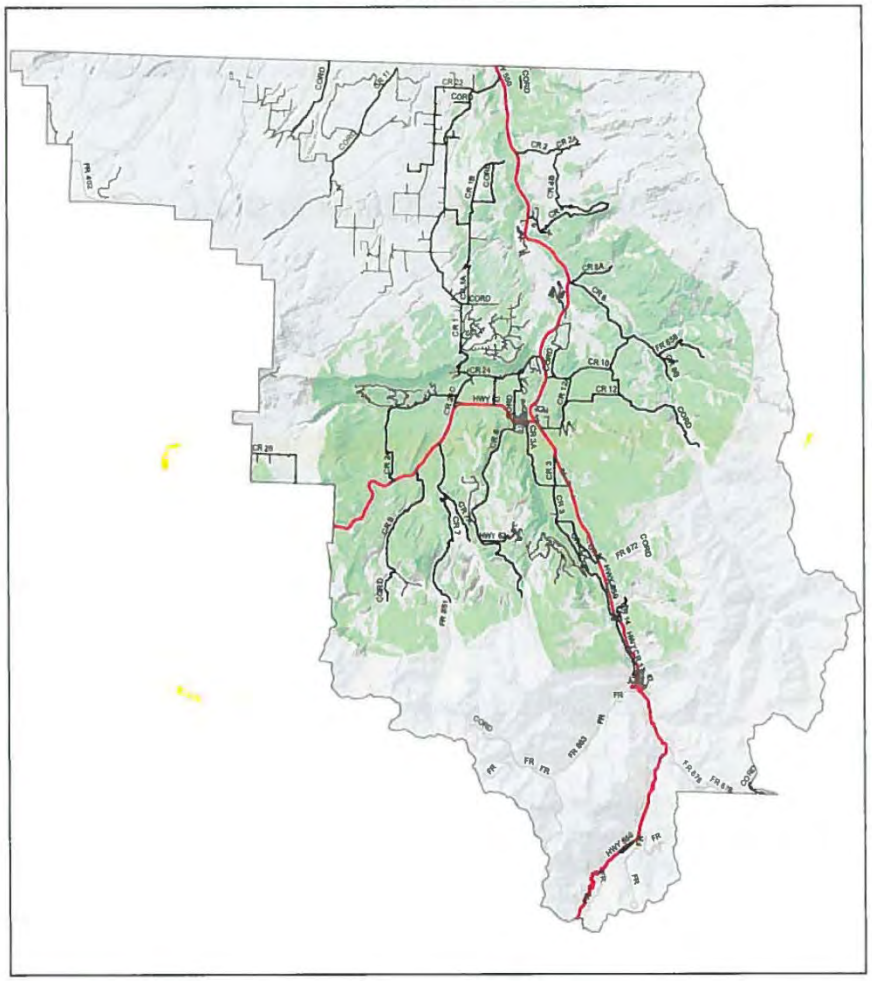


Map 3: Rare and Imperiled Wildlife Species

4

Scenic corridors

Ouray County Build-out Analysis



Viewshed w/in 1.5 miles

5 Miles

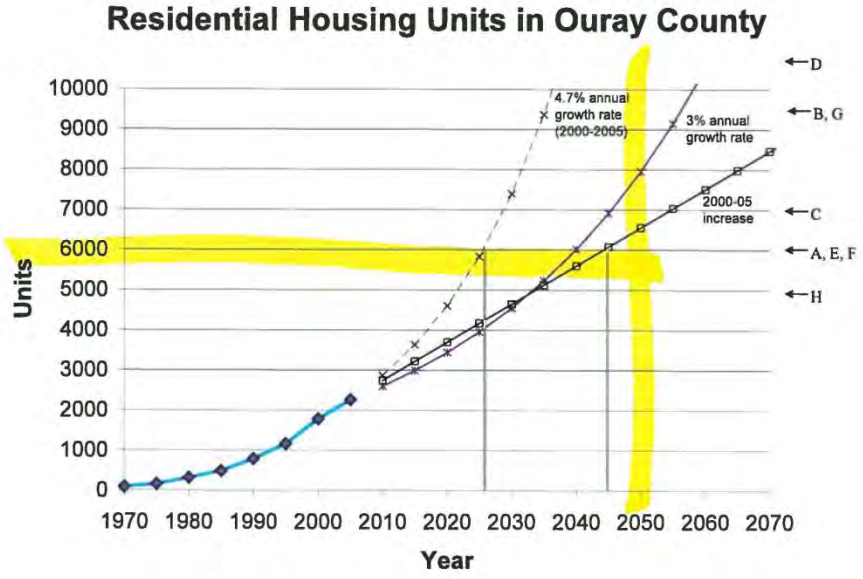
Data source: Created from roads and 30 m Digital Elevation Model
Map created by David Theobald, Natural Resource Ecology Lab,
Colorado State University on 1 September 2006

Map 4: Scenic Corridors

5

It is apparent from a comparison of these maps that there is a great deal of overlap in the location of irrigated agricultural, riparian, wildlife, and scenic values. Both people and animals like to occupy valleys along rivers or streams, especially in the winter. Likewise, irrigated agriculture is likely to be located in such areas. The scenic corridors overlap also but cover a somewhat broader swath. The current approximately 2,000 housing units are concentrated in the towns and subdivisions with the remainder widely scattered (see Theobald, Table 2, page 3, for exact zone locations). This is the current status of housing units and Master Plan values in Ouray County.

Future land use issues:



Using the graph "Residential Housing Units in Ouray County" on page 17 of the Theobald report as the basis for the rate of growth in relation to the increase in the number of housing units required, the following figures can be determined.

By the year 2015

3% rate of growth	1,000 additional housing units
4.7% rate of growth	1,800 additional housing units

By the year 2025

3% rate of growth	2,000 additional housing units
4.7% rate of growth	4,000 additional housing units

Working from the knowledge of how many housing units the County will need to absorb and when this need is likely to occur, the information in the scenarios and indicators can suggest alternative land use planning strategies and their impacts.

The nine scenarios calculated and mapped by Dr. Theobald consider four different housing densities: 1 house per 17.5 acres (B), 1 house per 26 acres on lots over 105 acres (C), 1 house per 35 acres (A, Colorado use by right), and 1 house per 70 acres (H). In addition, the impact of clustering and transferring development rights to the urban growth boundary were calculated and mapped for some scenarios (D, E, G1, G2). The impacts of the nine scenarios on the values expressed in the Ouray County Master Plan are presented by Dr. Theobald in the following Table 10. Note that all of the numbers represent total build out of that particular scenario. The black numbers are increases in housing units; the red numbers are losses in acres of land; and the green numbers have been converted from red to green to indicate the lowest numbers among the losses for an individual indicator.

Results

Table 10. Results of indicators for all zones (including mining claims), excluding towns of Ouray & Ridgway.

	Scenarios								
Indicators	A. Existing zoning	B. 35 ac at 17.5 per unit	C. 105 ac at 26 per unit	D. Urban Growth Boundaries	E. Scenic corridor	F. Scenic corridor transfer to UGB	G1. Cluster (1 unit per 35 acres)	G2. Cluster (1 unit per 17.5 acres)	H. Low-density (1 per 70 acres)
No. of units (county only) *1,269 in 2006	6,648	10,102	7,787	10,902	6,648	6,648	6,648	10,102	5,053
No. of units (Alpine, High Mesa & Valley Zones only)	5,611	9,036	6,741	9,840	5,611	5,327	5,611	9,036	4,026
Irrigated Ag	-2,175	-3,824	-2,700	-2,558	-2,175	-1,232	-595	-1,062	-1,472
Ag Land Use	-17,351	-33,756	-22,886	-17,624	-17,351	-15,265	-8,678	-16,881	-9,656
Econ. Important Species Habitat	-17,453	-29,983	-21,572	-17,789	-17,536	-14,941	-16,973	-29,534	-11,787
Rare & Imperiled Species Habitat	-2,347	-3,400	-2,682	-2,495	-2,353	-1,524	-1,597	-2,604	-1,872
Riparian Areas	-1,769	-2,747	-2,064	-2,110	-1,769	-1,307	-1,083	-1,312	-1,374
VMT w/~830 % mining claims[1]									
- 100%	**1,234**	**2,064**	**1,493**	**2,137**	**1,234**	**1,234**	**1,234**	**2,064**	**873**
- 75%	1,161	1,983	1,418	2,038	1,161	1,161	1,161	1,983	804
- 50%	1,089	1,902	1,343	1,940	1,089	1,089	1,089	1,902	734
- 25%	1,016	1,820	1,268	1,842	1,016	1,016	1,016	1,820	665

The figures in Table 10 suggest that any of the scenarios at build-out would provide more than the maximum number of housing units needed to absorb 3-4.7% growth (1,000-1,800 units by 2015 and 2,000-4,000 units by 2025). In reality, it is unlikely that any single

[1] VMT computed assuming 100%, 75%, 50%, and 25% of mining claims built. This compares to 242 (1000s vehicle miles traveled per day) for 2006.

scenario will be selected by property owners and buyers to absorb all the growth. Rather, a combination of scenarios that reflect individual choice and response to incentives and regulations is likely to represent where growth will actually occur. The question is: which scenarios does the County want to encourage through incentives and regulation because they preserve more of the values in the Ouray County Master Plan? And where does the County want to encourage these scenarios?

Based on the figures in Table 10, Scenario G1, 1/35 with clustering, loses the least number of acres of irrigated agricultural land, non-irrigated agricultural land, and riparian areas. G1 results in a low, but not the least, loss of wildlife habitat for economically important wildlife and for rare and imperiled species. G1 shows the power of clustering when compared to Scenario A, 1/35, which is the same density without clustering. Scenario H, 1/70, with its very low density preserves the most wildlife habitat for economically important species. Scenario F, transfer to UGB from the scenic corridor, produces some favorable results in preserving the values of the Master Plan, but note that whenever you transfer to the UGB, irrigated agriculture and riparian areas are being sacrificed; however, since the density is so much higher in the UGB (7 units per acre), many more housing units are absorbed in less land area than in any other alternative.

To illustrate, using a smaller section of the County--the valley between Ridgway and Ouray, map layers have been enlarged to 300% and presented below for comparison.

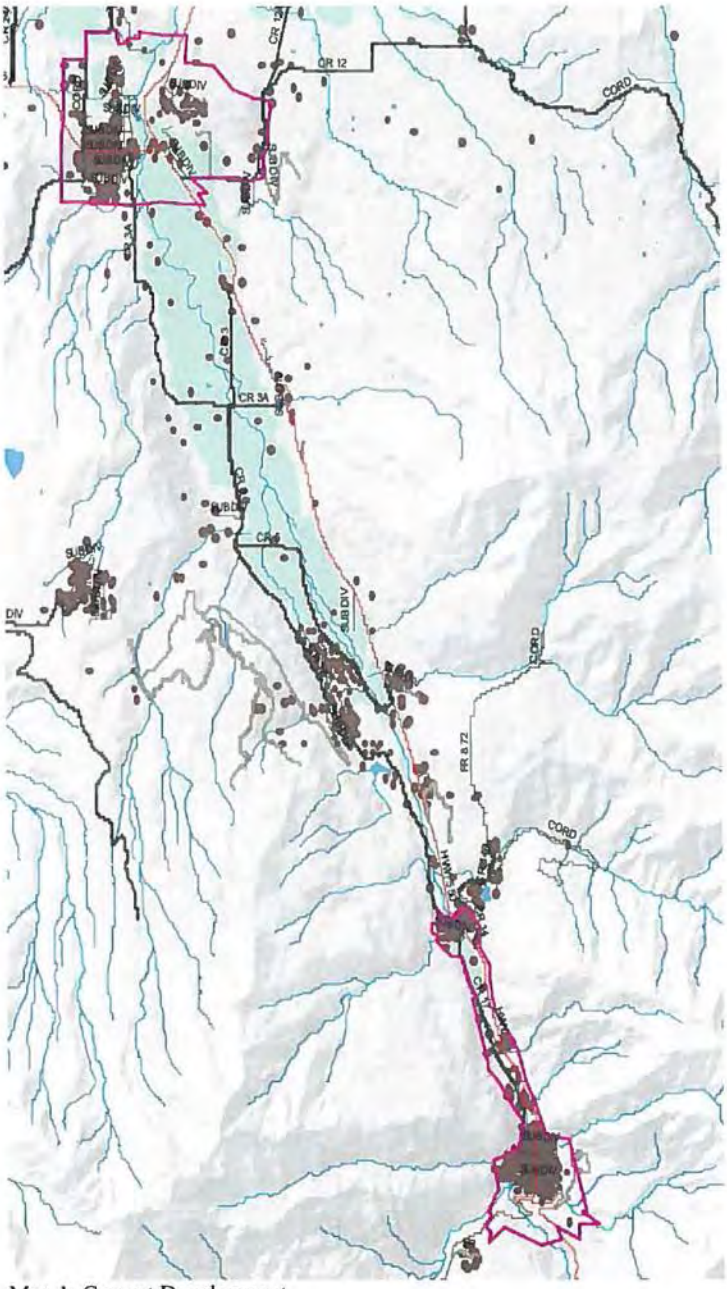
Map 1: The first map is a section of the County along 550 between Ridgway and Ouray as it currently exists.

Map 2: The second map is the same area built out at the current 1/35 zoning (Scenario A).

Map 3: The third map is the same area developed with clustering (Scenario G1) to preserve the values of irrigated agricultural lands, riparian areas, and ridgelines.

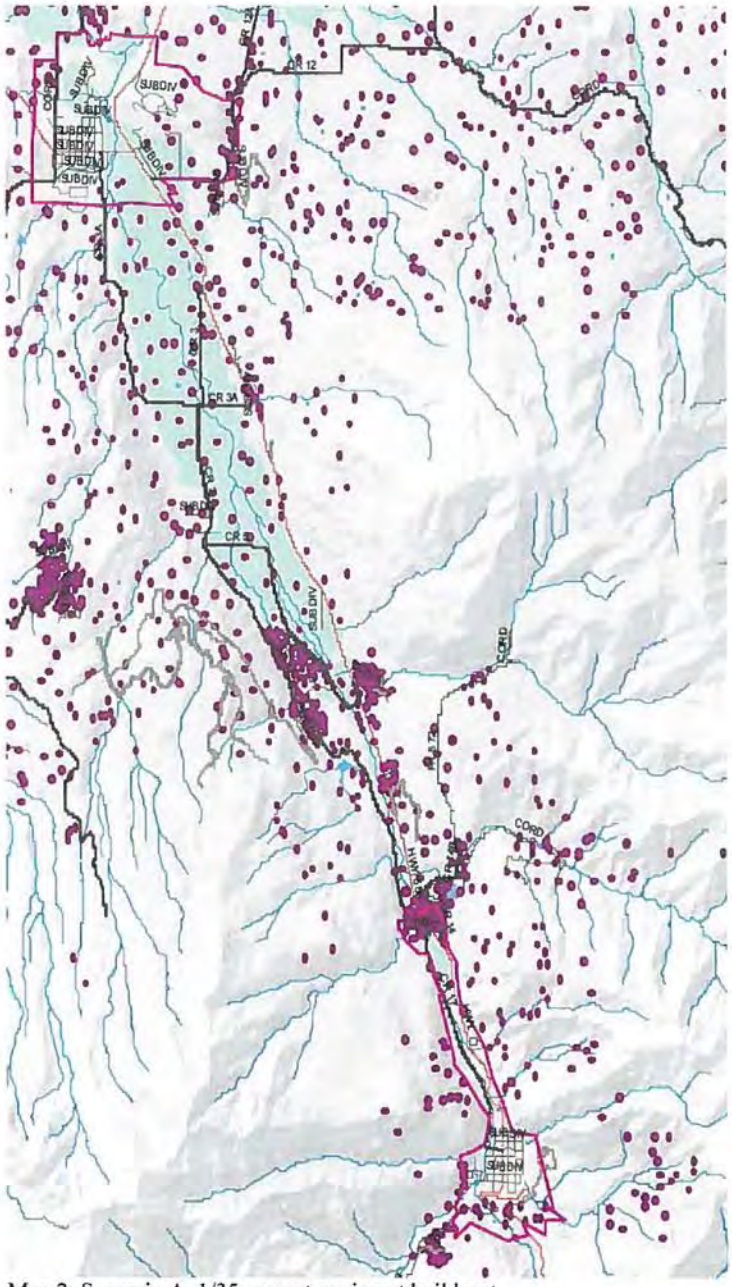
Map 4: The fourth map applies the scenic corridor preservation of Scenario F.

Reminder: each dot represents a structure and its 5-acre area of impact or influence (radius of 80 meters), including driveways, access roads, outbuildings, and adjacent vegetation that is modified. This area of influence will have a wildlife impact that could be greater or smaller depending on the species involved. Each dot has to be located within a parcel and in the area of least impact on the values being studied. Parcel lines are not represented on these maps for clarity, but there is a layer available for that element. Also, the dots do not represent current actual locations of buildings within a parcel.



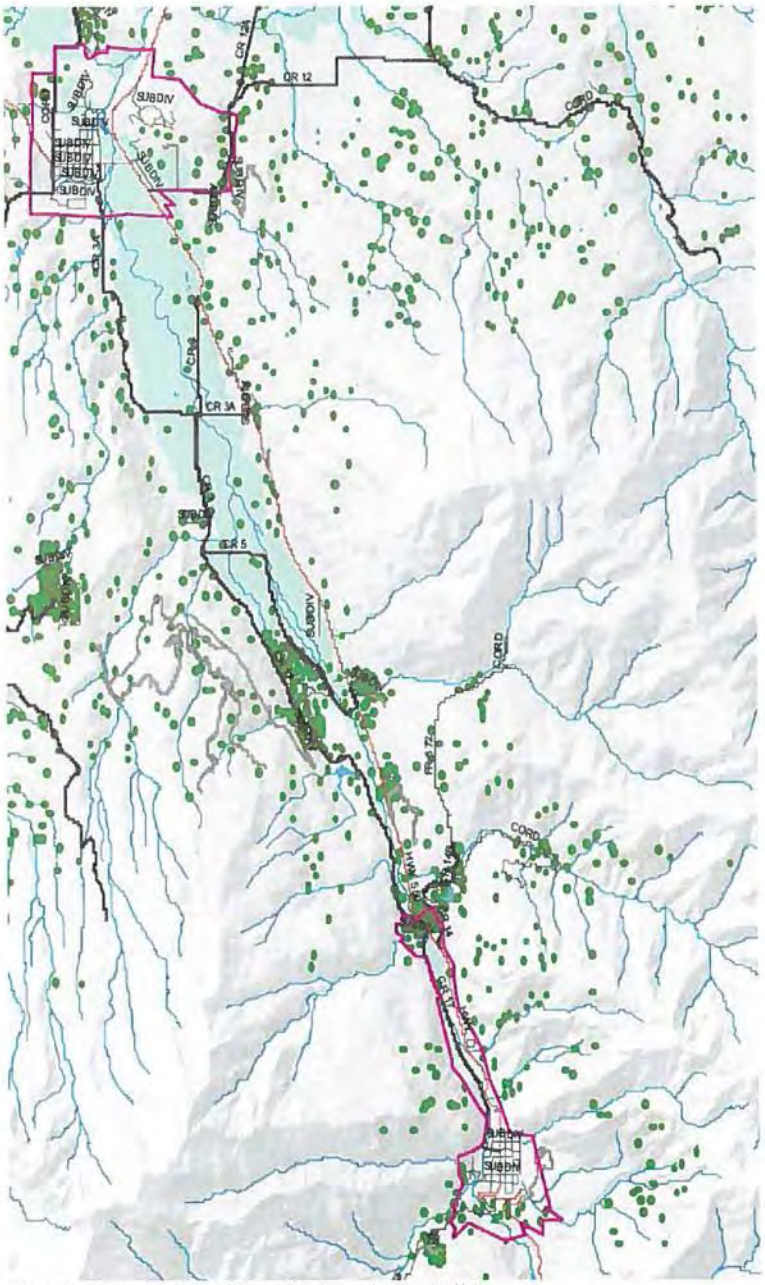
Map 1: Current Development

9



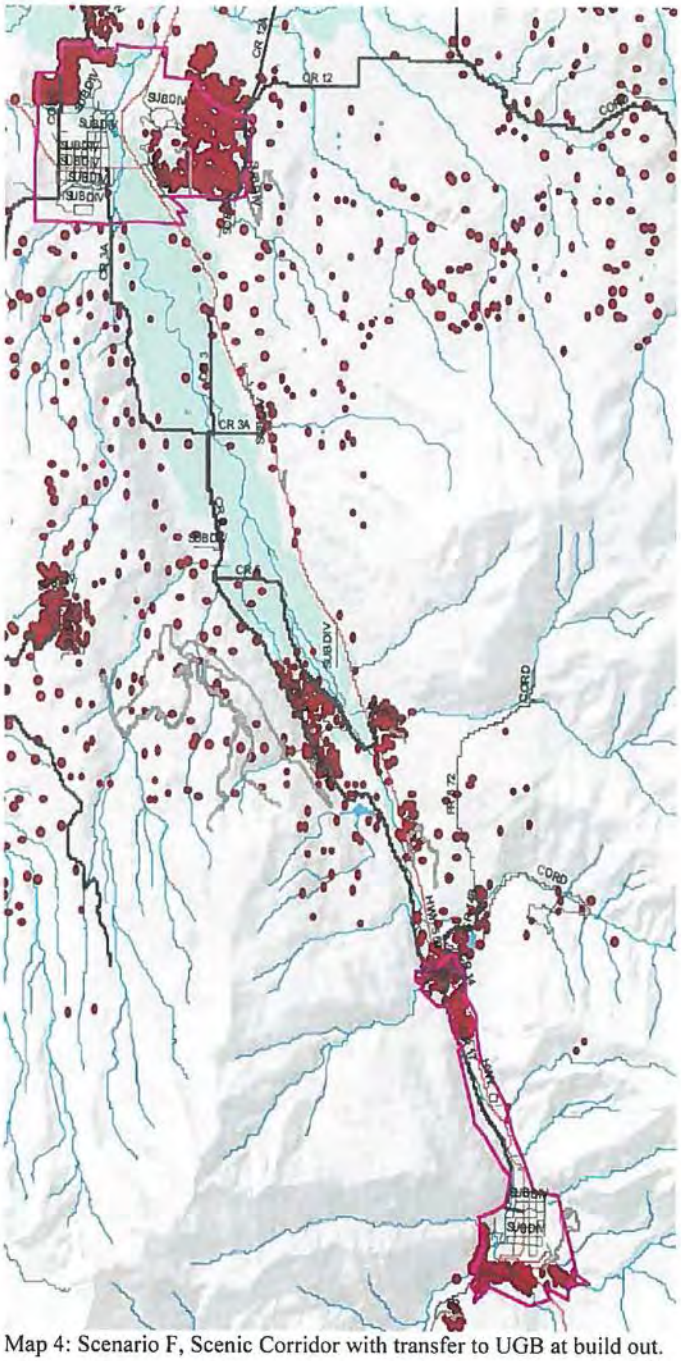
Map 2: Scenario A, 1/35 current zoning at build-out.

10



Map 3: Scenario G1, 1/35 with clustering at build-out.

11



Map 4: Scenario F, Scenic Corridor with transfer to UGB at build out.

12

The scenic corridor scenario appears to preserve a slightly greater area than clustering, but either is much better than a straightforward 1/35 in preserving the values of the Master Plan. Since this is a valuable riparian area and scenic corridor, the County may wish to at least encourage clustering for any development in this strip, or, better yet, facilitate putting as much as possible into conservation easements. Riparian areas are also often protected by zoning overlays or setbacks. This illustrates how different options may be selected for different locations, depending on the values involved and the current condition of the area.

It would be instructive to use the maps provided in the Theobald study to do a similar comparison for other areas of the County identified as of special interest, such as Log Hill Mesa or scenic corridors.

Recommendations:

In order to preserve the values in the Ouray County Master Plan, future growth should:

- Be directed toward already platted developments (there are currently 896 un-built platted lots) and adjacent to already established infrastructure, such as towns and existing subdivisions;
- Create incentives for effective clustering in any new developments, such as density bonuses;
- Encourage siting of structures to minimize impact on the total open space and scenic corridors;
- Encourage the continued use of conservation easements as an additional preservation tool;
- Evaluate TDR's (transfer of development rights) and PDR's (purchase of development rights) as means of preserving areas of high importance;
- Initiate a study of how to preserve water rights in the County.

Appendix 7: City of Ouray Feedback

WWE
Wright Water Engineers, Inc.
1666 N. Main Avenue, Suite C
Durango, Colorado 81301
(970) 259-7411 TEL
(970) 259-8758 FAX
www.wrightwater.com
e-mail: pfoster@wrightwater.com

July 8, 2014

Via email: greg.johnson@wilsonwatergroup.com

Greg Johnson
Wilson Water Group
165 S. Union Blvd.
Suite 5220
Lakewood, CO 80228

Re: City of Ouray Future Water Demand Estimates

Dear Greg:

Wright Water Engineers, Inc. (WWE) is providing you with this letter on behalf of the City of Ouray (City). Please use this information to incorporate the City's future water demand estimates into the Basin Implementation Plan documents.

WWE calculates that the City of Ouray's year 2050 water demand is between 8,500 and 10,000 acre-feet per year. This includes water for municipal, irrigation, and hot spring uses within the City and adjoining service areas.

WWE also recommends including Water Efficiency and Conservation Measures as an Identified Project and Processes (IPP) for the City. The City is in the process of preparing a Water Efficiency Plan and will work to implement measures such as system meters, replacement of lines, and a leak detection study.

Please let us know if you have any questions.

Very truly yours,

WRIGHT WATER ENGINEERS, INC.

By

Peter R. Foster, P.E.
Vice-President

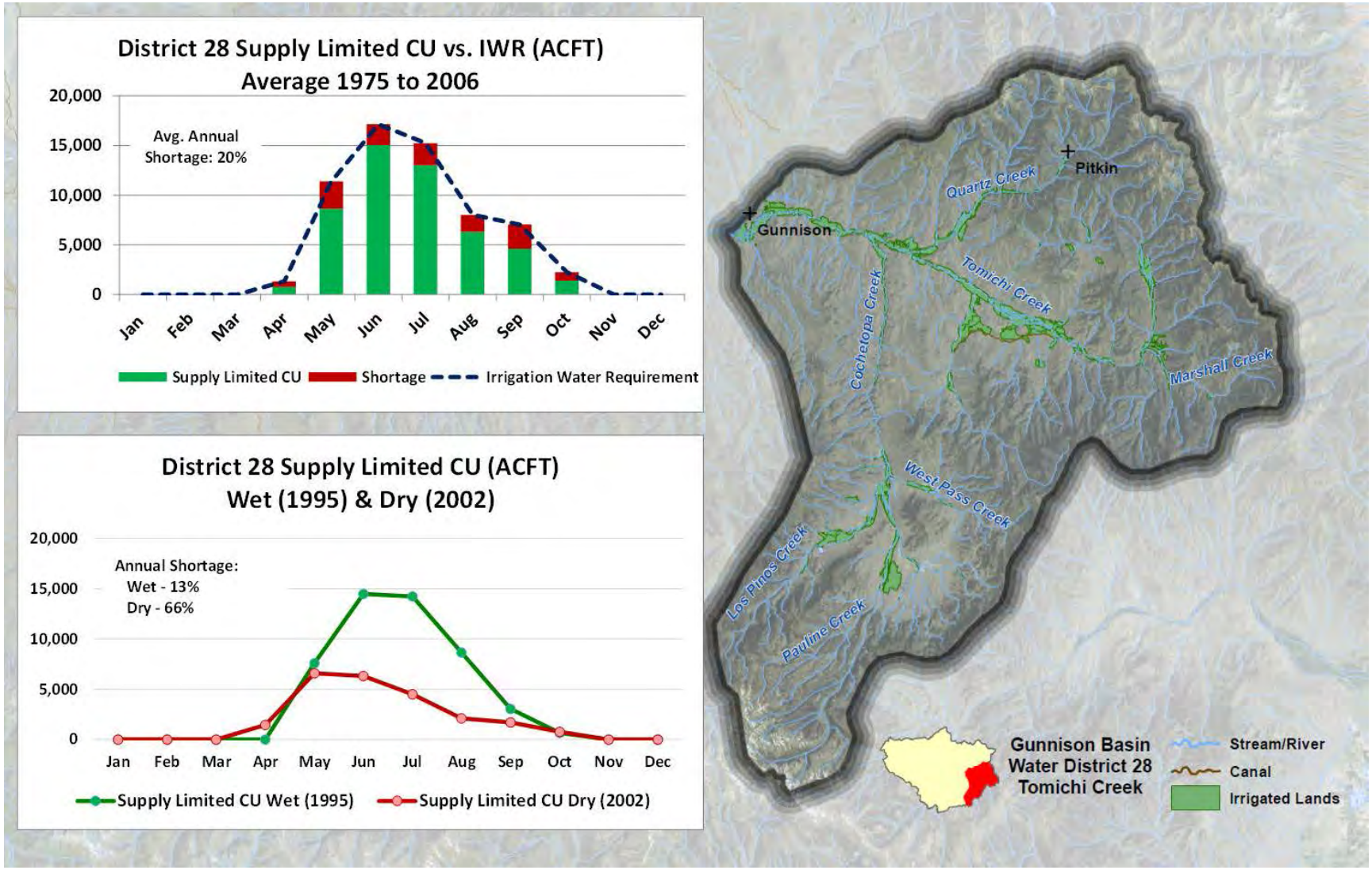
cc: Patrick Rondinelli, City of Ouray Administrator

P:\051-036\000 Water Right Inventory\Basin Implementation Plan - 2014\City of Ouray Future Water Demand for BIP.docx

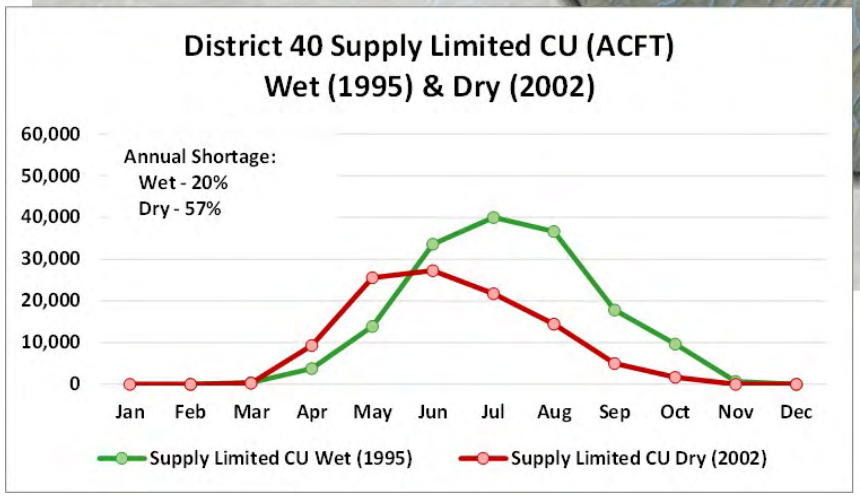
DENVER
(303) 480-1700 TEL (303) 480-1020 FAX

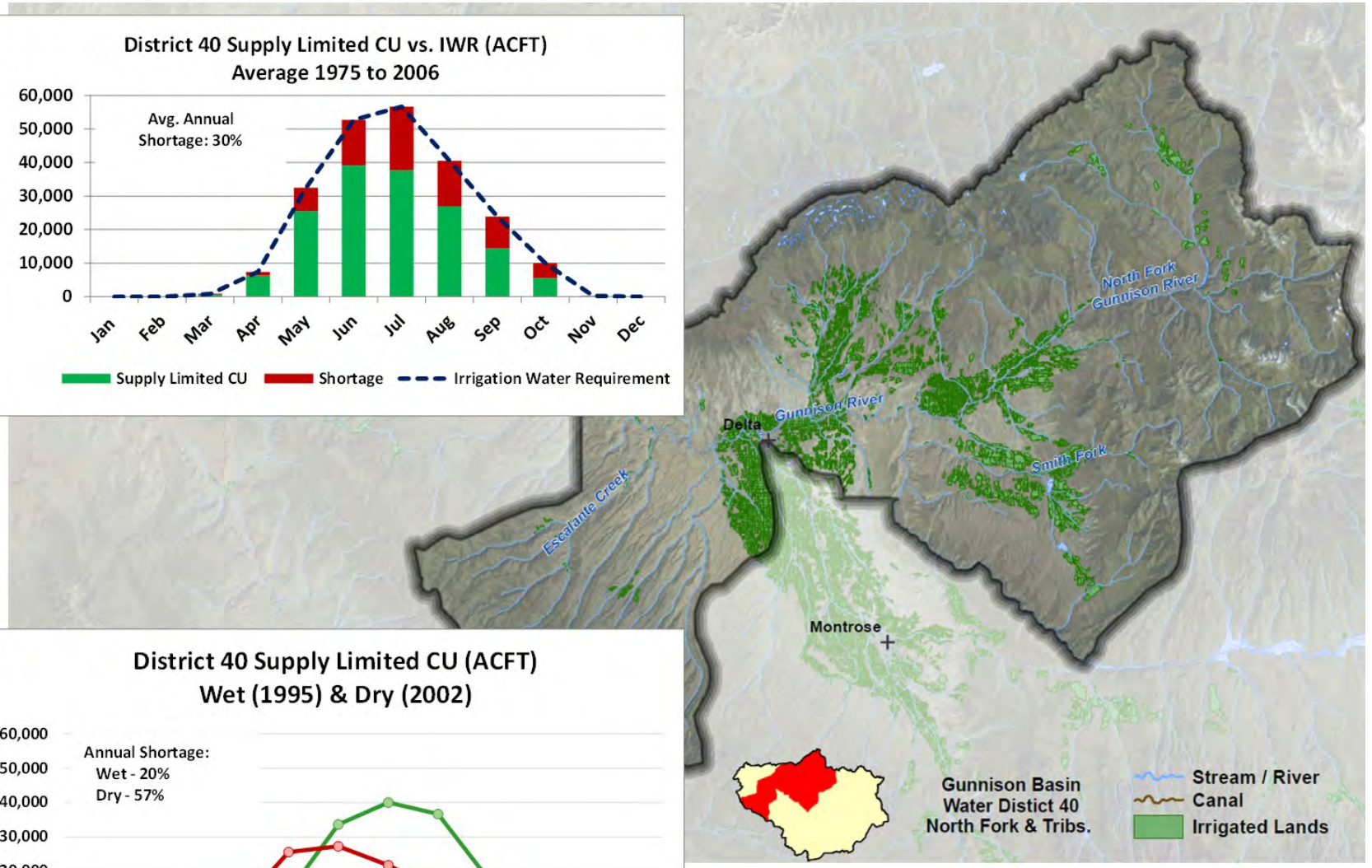
GLENWOOD SPRINGS
(970) 945-7755 TEL (970) 945-9210 FAX

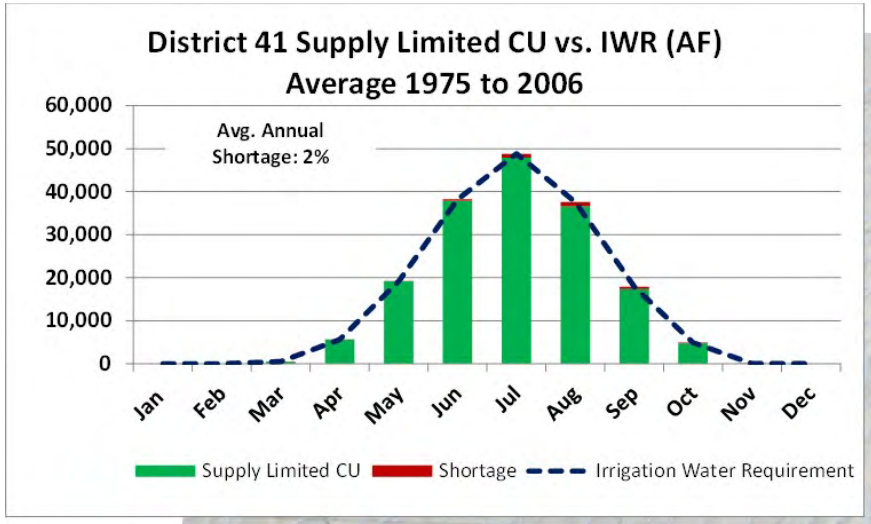
Appendix 8: Agricultural Water Use and Needs by Tributary

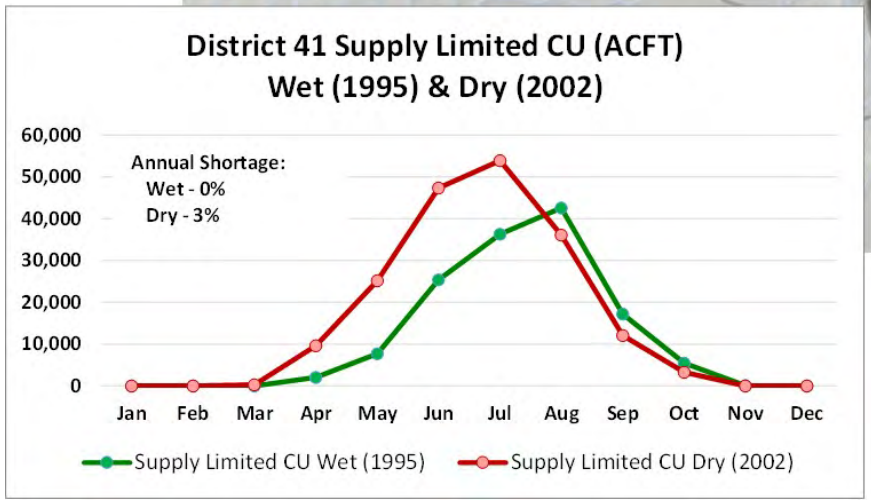


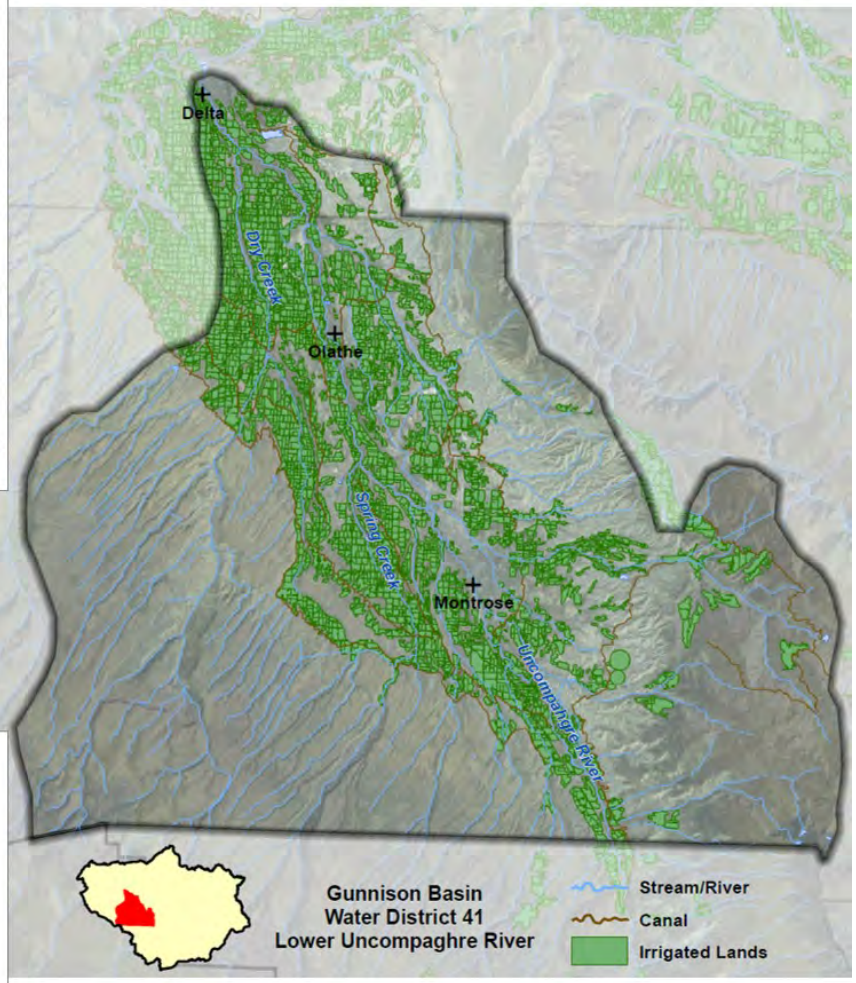
District 40 Supply Limited CU vs. IWR (ACFT)
Average 1975 to 2006
Avg. Annual
Shortage: 30%
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU
Shortage
Irrigation Water Requirement

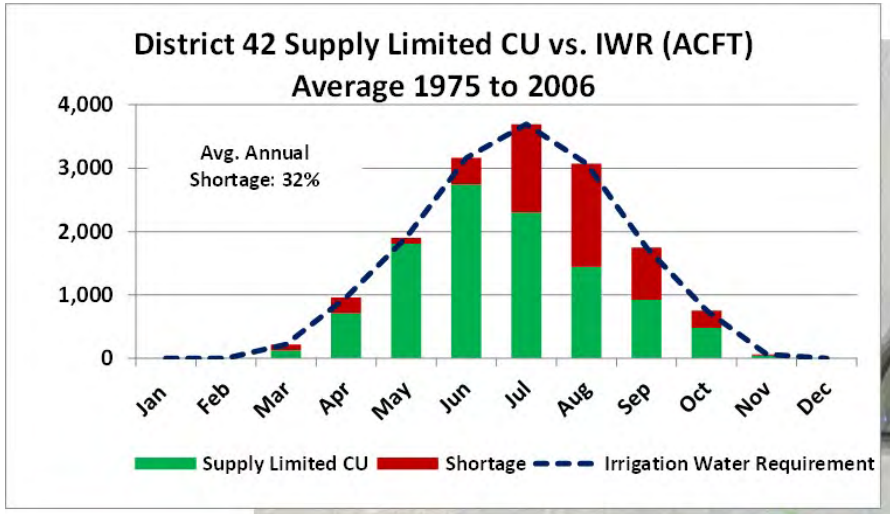

District 40 Supply Limited CU (ACFT)
Wet (1995) & Dry (2002)
Annual Shortage:
Wet - 20%
Dry - 57%
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU Wet (1995)
Supply Limited CU Dry (2002)

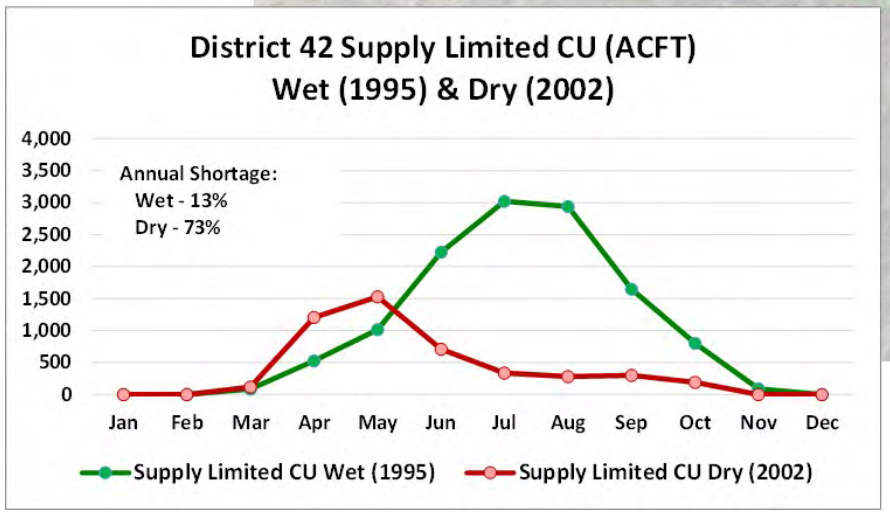

North Fork
Gunnison River
Gunnison River
Delta
Smith Fork
Escalante Creek
Montrose
Gunnison Basin
Water Distict 40
North Fork & Tribs.
Stream / River
Canal
Irrigated Lands

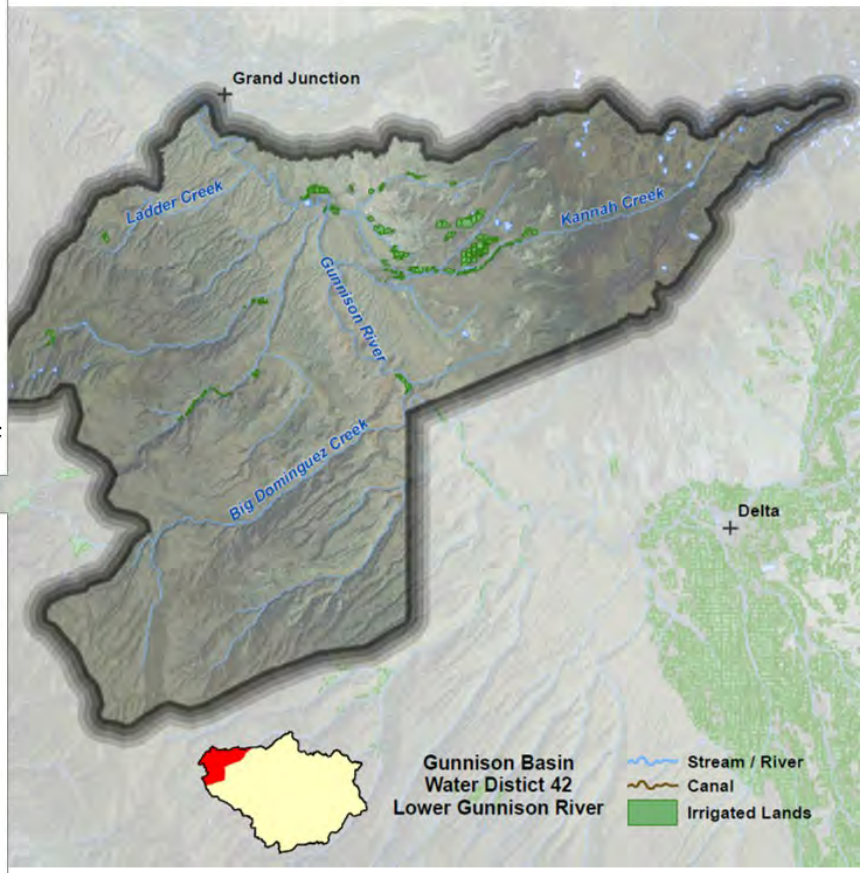

District 41 Supply Limited CU vs. IWR (AF)
Average 1975 to 2006
Avg. Annual
Shortage: 2%
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU
Shortage
Irrigation Water Requirement

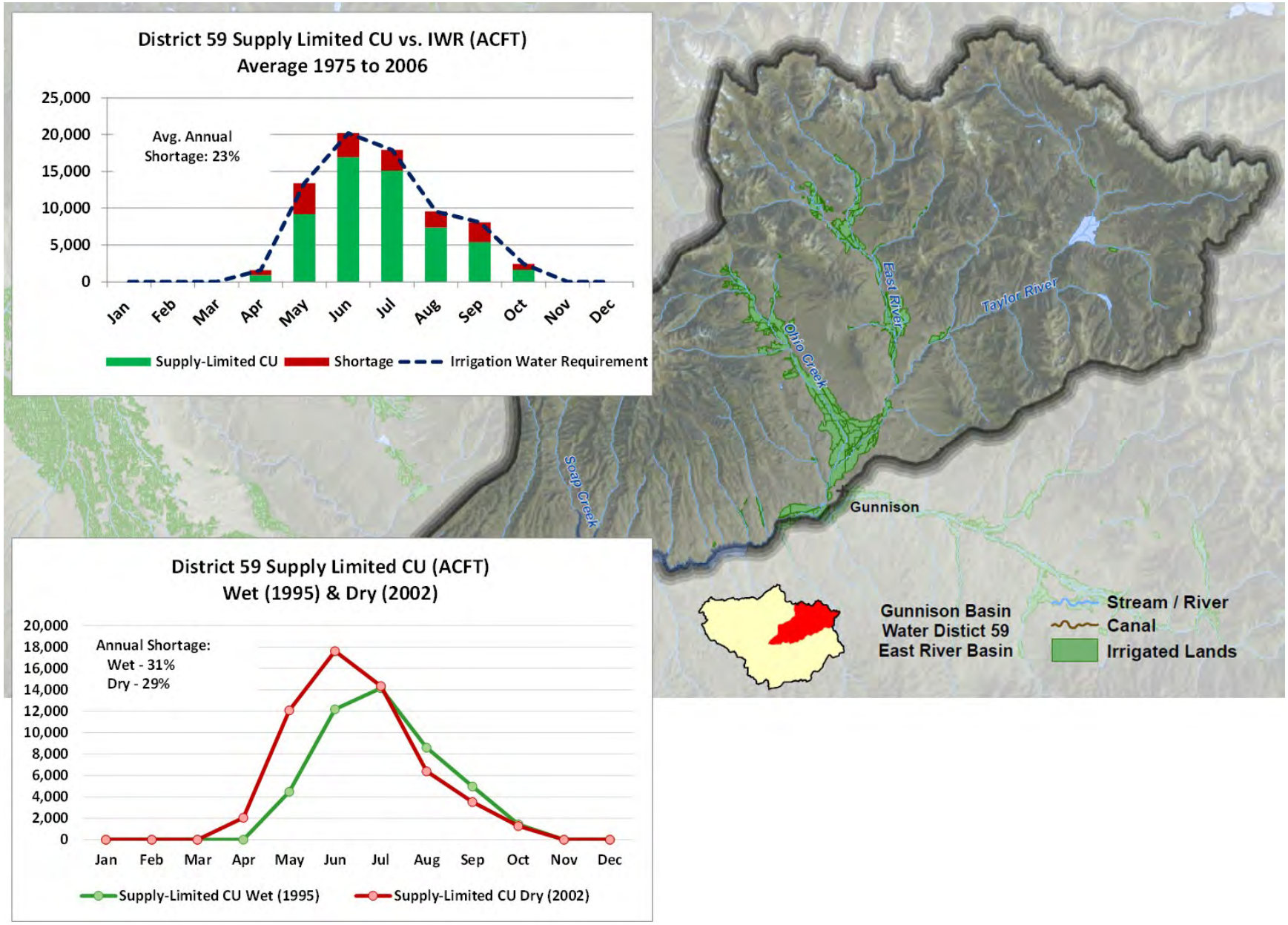

District 41 Supply Limited CU (ACFT)
Wet (1995) & Dry (2002)
Annual Shortage:
Wet - 0%
Dry - 3%
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU Wet (1995)
Supply Limited CU Dry (2002)

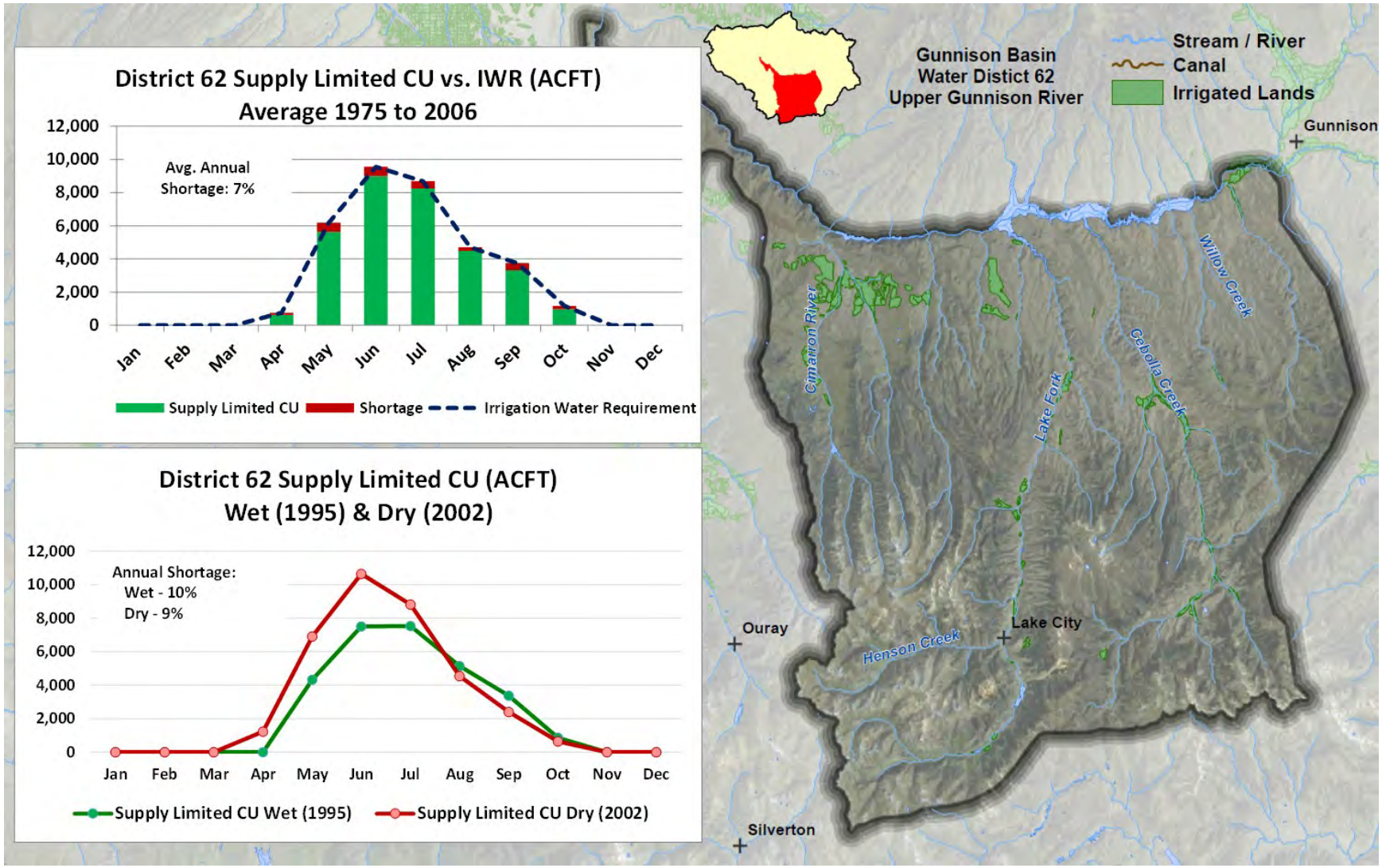

Delta
Dry Creek
Olathe
Spring Creek
Montrose
Uncompahgre River
Gunnison Basin
Water District 41
Lower Uncompaghre River
Stream/River
Canal
Irrigated Lands

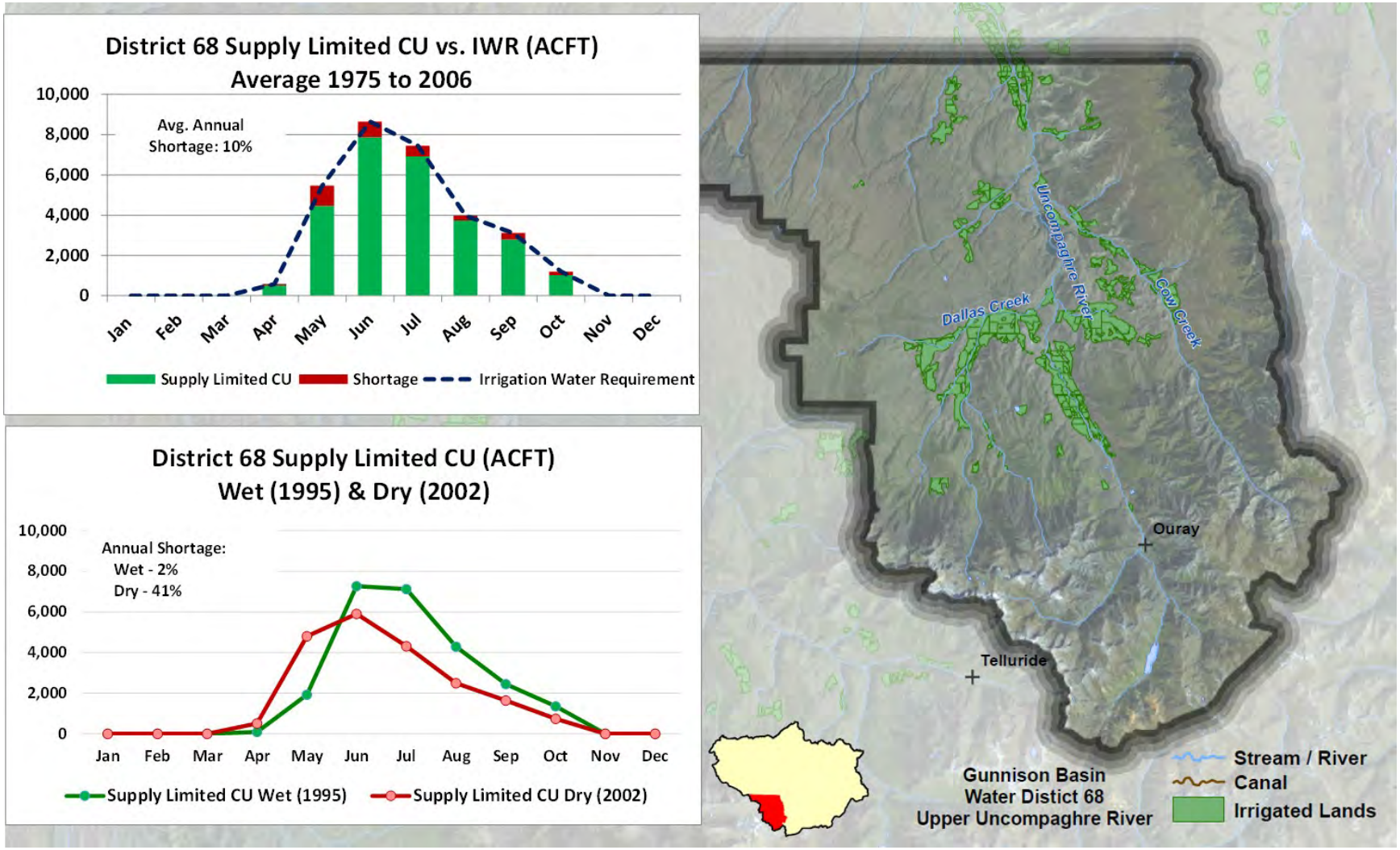

District 42 Supply Limited CU vs. IWR (ACFT)
Average 1975 to 2006
Avg. Annual
Shortage: 32%
4,000
3,000
2,000
1,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU
Shortage
Irrigation Water Requirement


District 42 Supply Limited CU (ACFT)
Wet (1995) & Dry (2002)
Annual Shortage:
Wet - 13%
Dry - 73%
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU Wet (1995)
Supply Limited CU Dry (2002)

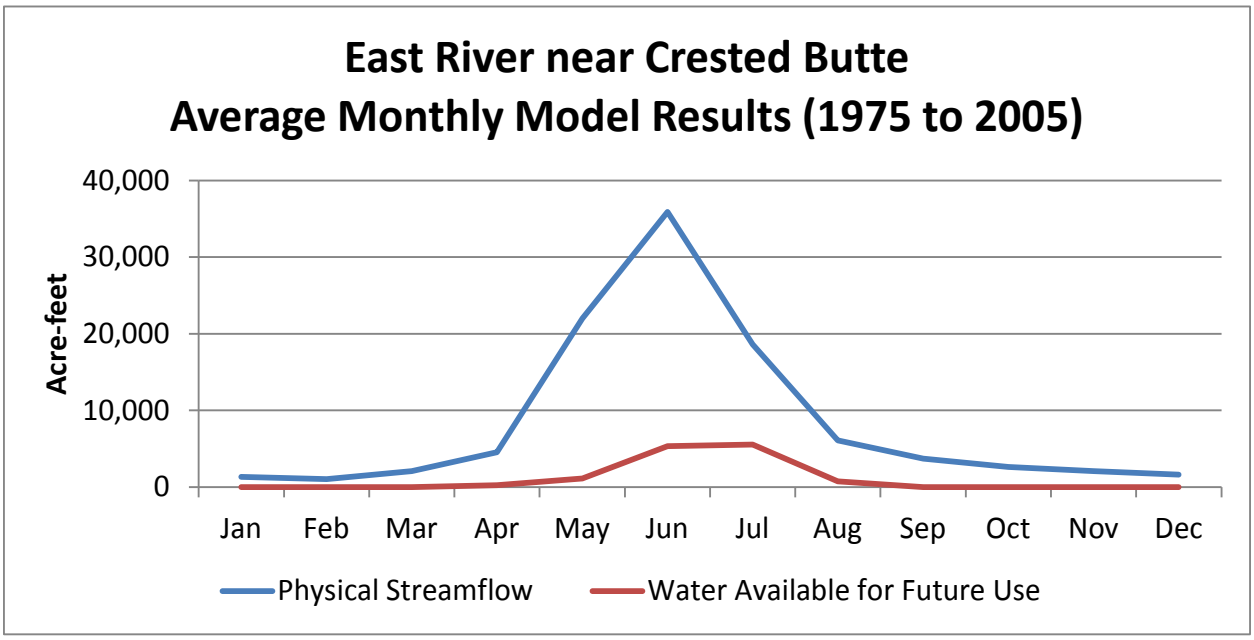

Grand Junction
Ladder Creek
Kannah Creek
Gunnison River
Big Dominguez Creek
Delta
Gunnison Basin
Water Distict 42
Lower Gunnison River
Stream / River
Canal
Irrigated Lands

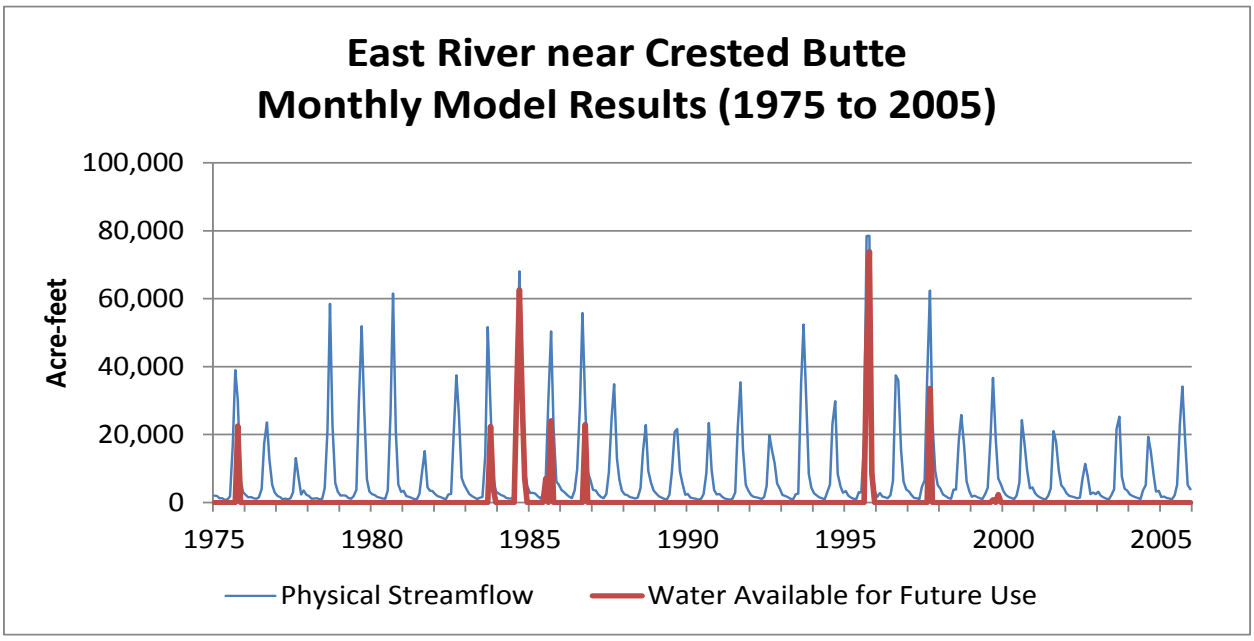

District 59 Supply Limited CU vs. IWR (ACFT)
Average 1975 to 2006
25,000
20,000
15,000
10,000
5,000
0
Avg. Annual
Shortage: 23%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply-Limited CU
Shortage
Irrigation Water Requirement
East River
Taylor River
Ohio Creek
Soap Creek
Gunnison
Gunnison Basin
Water Distict 59
East River Basin
Stream / River
Canal
Irrigated Lands
District 59 Supply Limited CU (ACFT)
Wet (1995) & Dry (2002)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Annual Shortage:
Wet - 31%
Dry - 29%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply-Limited CU Wet (1995)
Supply-Limited CU Dry (2002)


District 62 Supply Limited CU vs. IWR (ACFT)
Average 1975 to 2006
Avg. Annual Shortage: 7%
12,000
10,000
8,000
6,000
4,000
2,000
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Supply Limited CU
Shortage
Irrigation Water Requirement
District 62 Supply Limited CU (ACFT)
Wet (1995) & Dry (2002)
Annual Shortage:
Wet - 10%
Dry - 9%
Supply Limited CU Wet (1995)
Supply Limited CU Dry (2002)
Gunnison Basin
Water Distict 62
Upper Gunnison River
Stream / River
Canal
Irrigated Lands
Gunnison
Cimarron River
Willow Creek
Cebolla Creek
Lake Fork
Henson Creek
Ouray
Lake City
Silverton


District 68 Supply Limited CU vs. IWR (ACFT)
Average 1975 to 2006
Avg. Annual
Shortage: 10%
10,000
8,000
6,000
4,000
2,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Supply Limited CU
Shortage
Irrigation Water Requirement
District 68 Supply Limited CU (ACFT)
Wet (1995) & Dry (2002)
Annual Shortage:
Wet - 2%
Dry - 41%
Supply Limited CU Wet (1995)
Supply Limited CU Dry (2002)
Uncompahgre River
Cow Creek
Dallas Creek
Ouray
Telluride
Gunnison Basin
Water Distict 68
Upper Uncompaghre River
Stream / River
Canal
Irrigated Lands

Appendix 9: Physical Streamflow and Water Available for Future Use (Historical Hydrology)

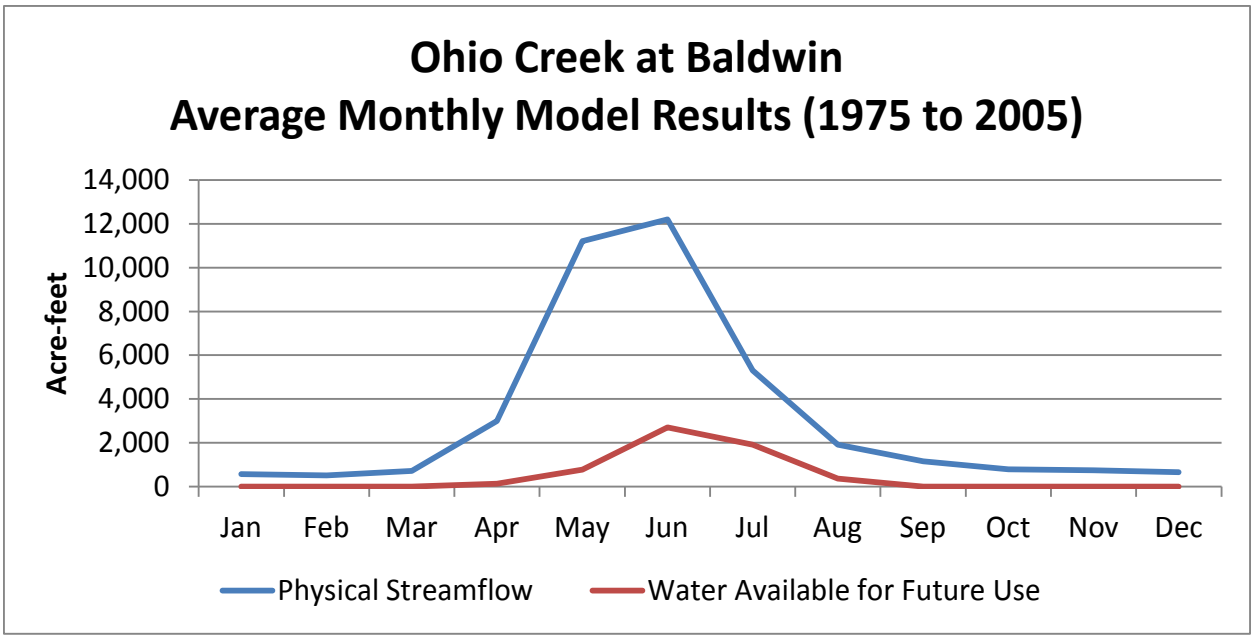


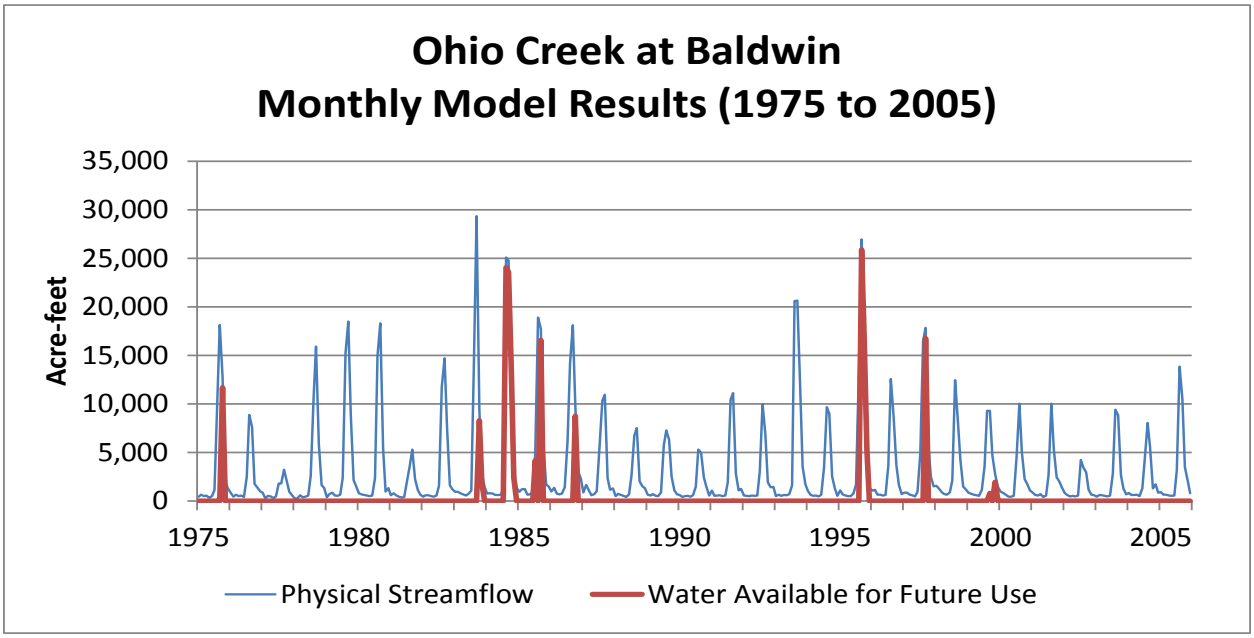


East River near Crested Butte Observations

- Most of the physical flow on the East River is dedicated to downstream senior water rights including the Gunnison Tunnel rights, Aspinall Unit storage and hydropower rights, and Black Canyon of the Gunnison minimum flow rights
- Some of the physical flow could be developed for in-basin use under the Upper Gunnison Basin subordination agreement

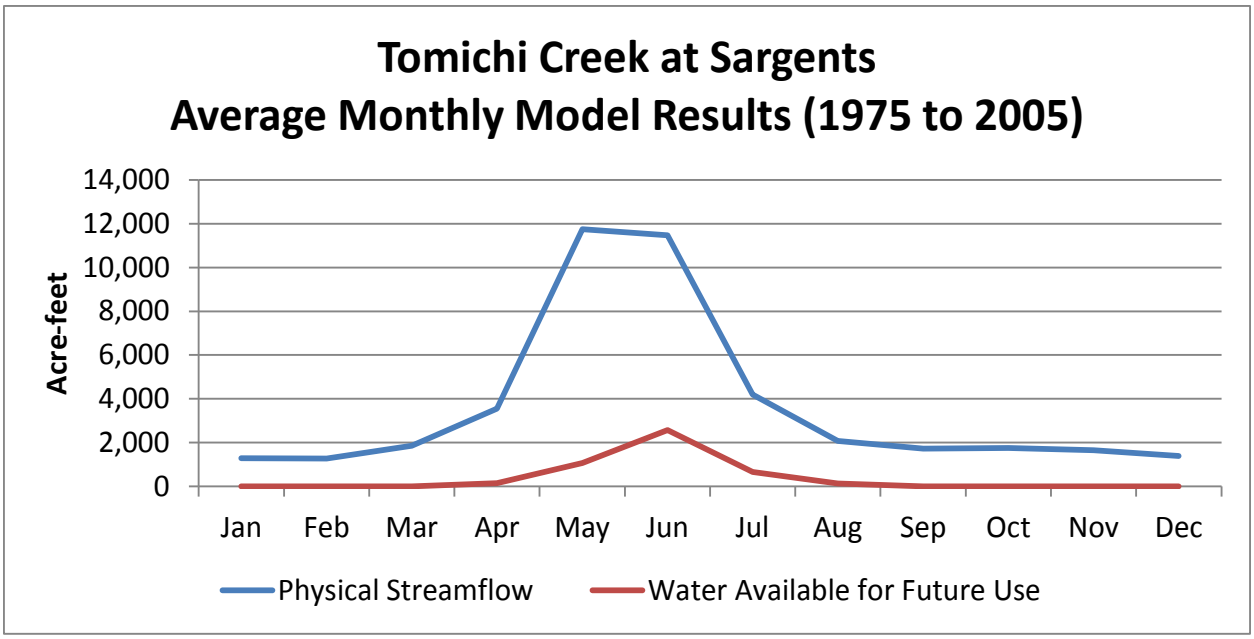
- Flow for a new junior right without Aspinall project subordination, for example a new transbasin diversion, is only available in extremely wet years

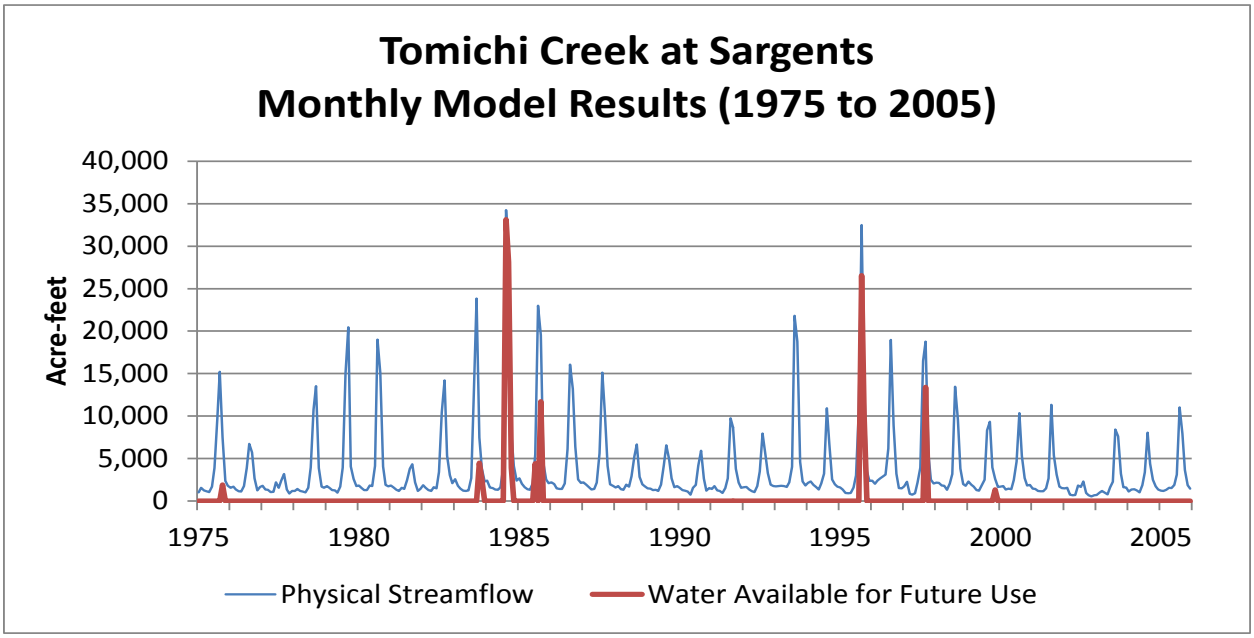




Ohio Creek at Baldwin Observations

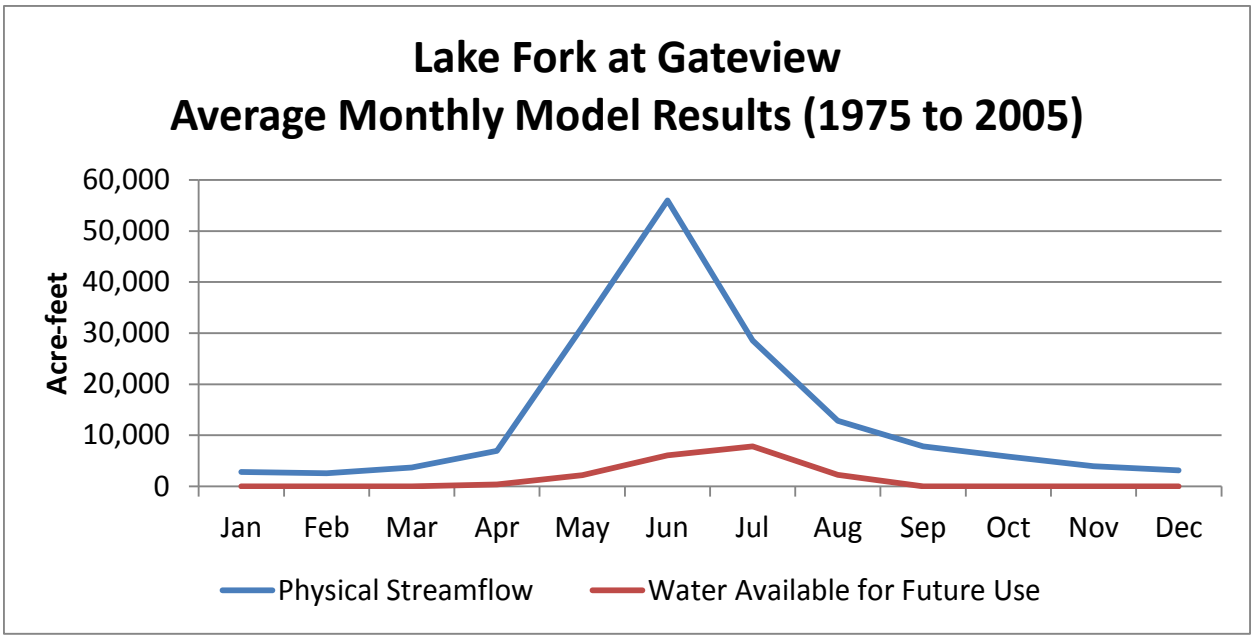
- Similar to the East River (and all tributaries above Blue Mesa Reservoir) , most of the physical flow on Ohio Creek is dedicated to downstream senior water rights including the Gunnison Tunnel rights, Aspinall Unit storage and hydropower rights, and Black Canyon of the Gunnison minimum flow rights
- Some of the physical flow could be developed for in-basin use under the Upper Gunnison Basin subordination agreement
- Flow for a new junior right without Aspinall project subordination, for example a new transbasin diversion, is only available in extremely wet years

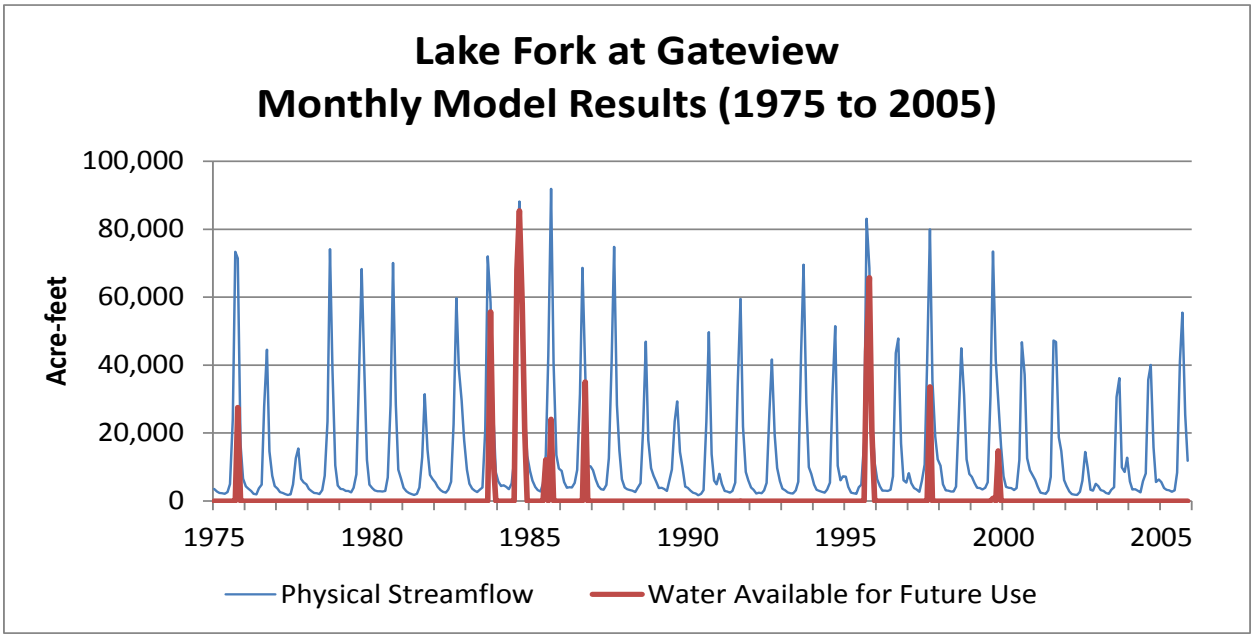




Tomichi Creek at Sargents Observations

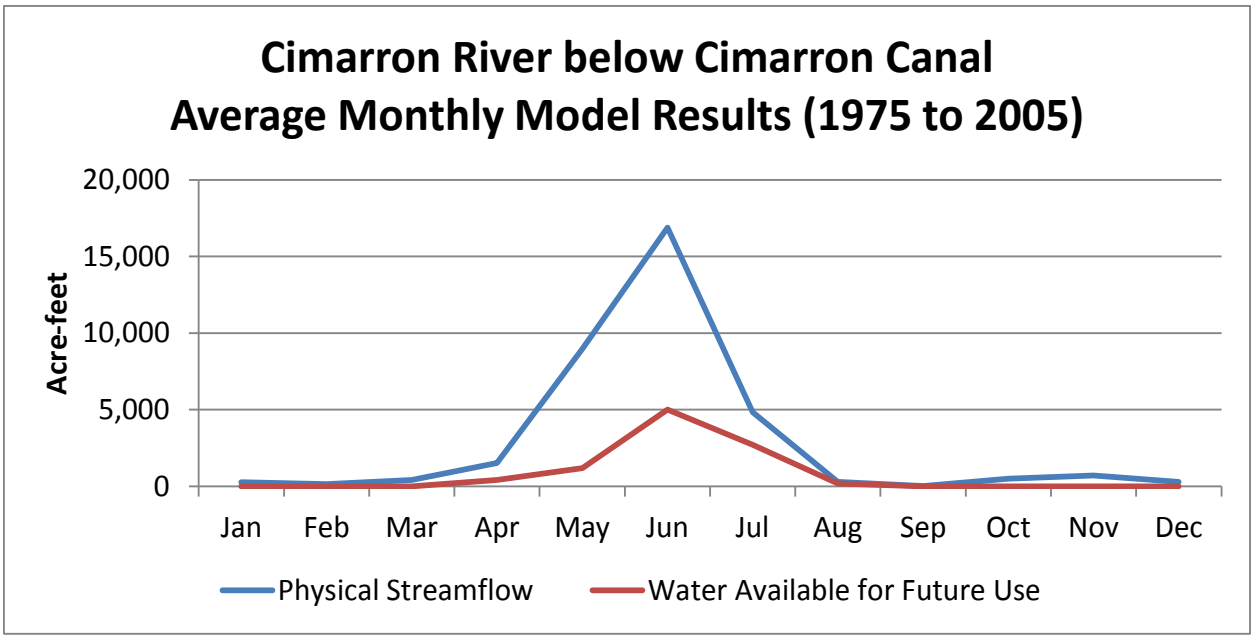
- As with other tributaries above Blue Mesa Reservoir, most of the physical flow on Tomichi Creek is dedicated to downstream senior water rights including the Gunnison Tunnel rights, Aspinall Unit storage and hydropower rights, and Black Canyon of the Gunnison minimum flow rights
- Some of the physical flow could be developed for in-basin use under the Upper Gunnison Basin subordination agreement
- Flow for a new junior right without Aspinall project subordination, for example a new transbasin diversion, is only available in extremely wet years

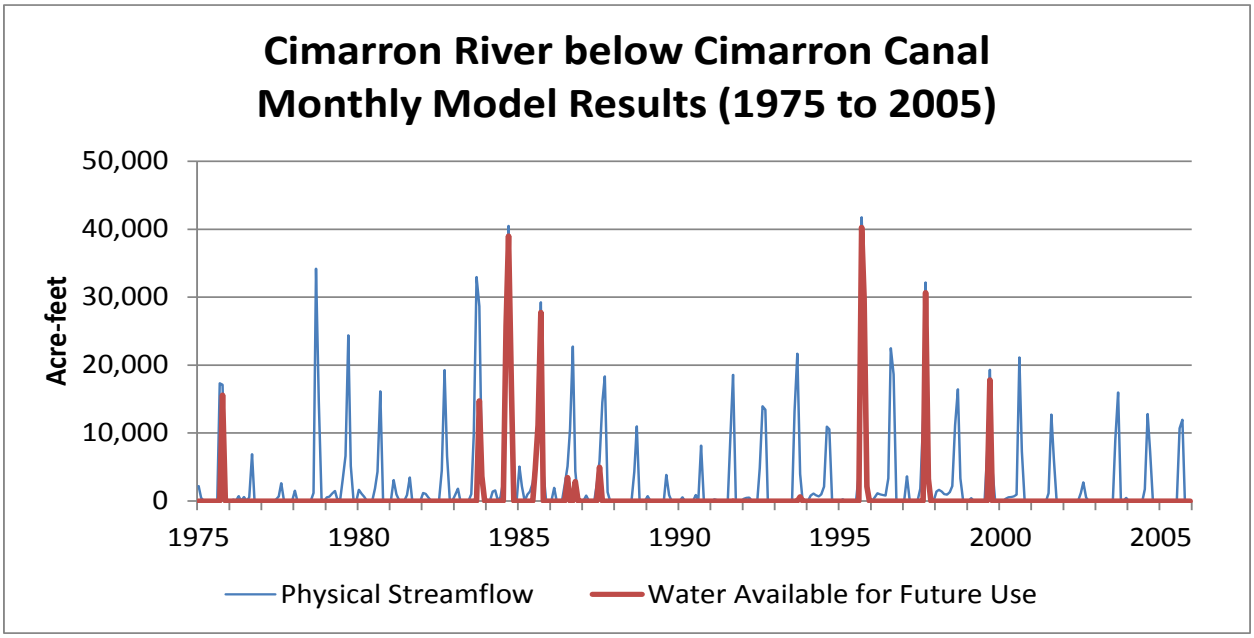




Lake Fork at Gateview Observations

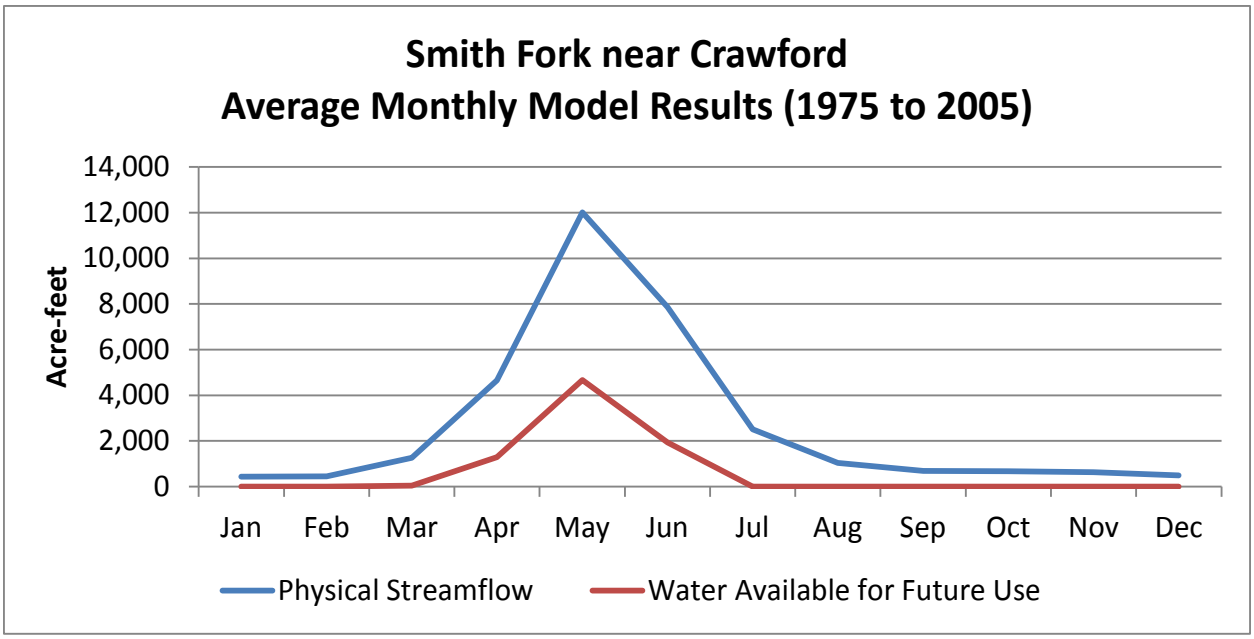
- As with other tributaries above Blue Mesa Reservoir, most of the physical flow on Lake Fork is dedicated to downstream senior water rights including the Gunnison Tunnel rights, Aspinall Unit storage and hydropower rights, and Black Canyon of the Gunnison minimum flow rights
- Some of the physical flow could be developed for in-basin use under the Upper Gunnison Basin subordination agreement
- Flow for a new junior right without Aspinall project subordination, for example a new transbasin diversion, is only available in extremely wet years

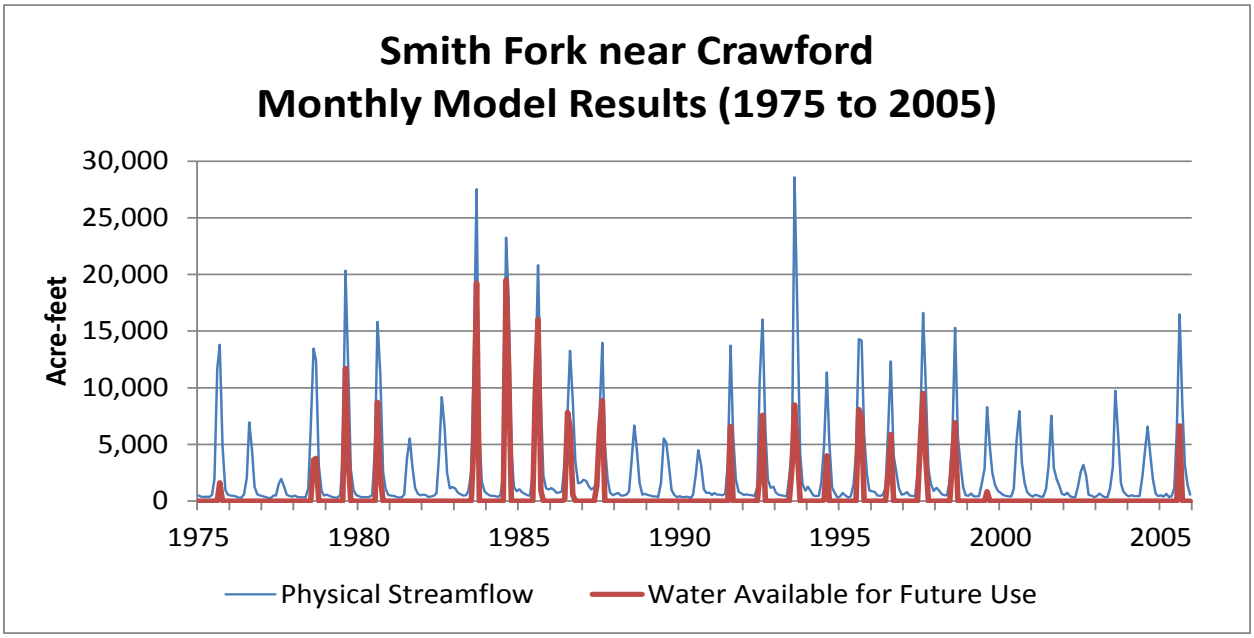




Cimarron River below Cimarron Canal Observations

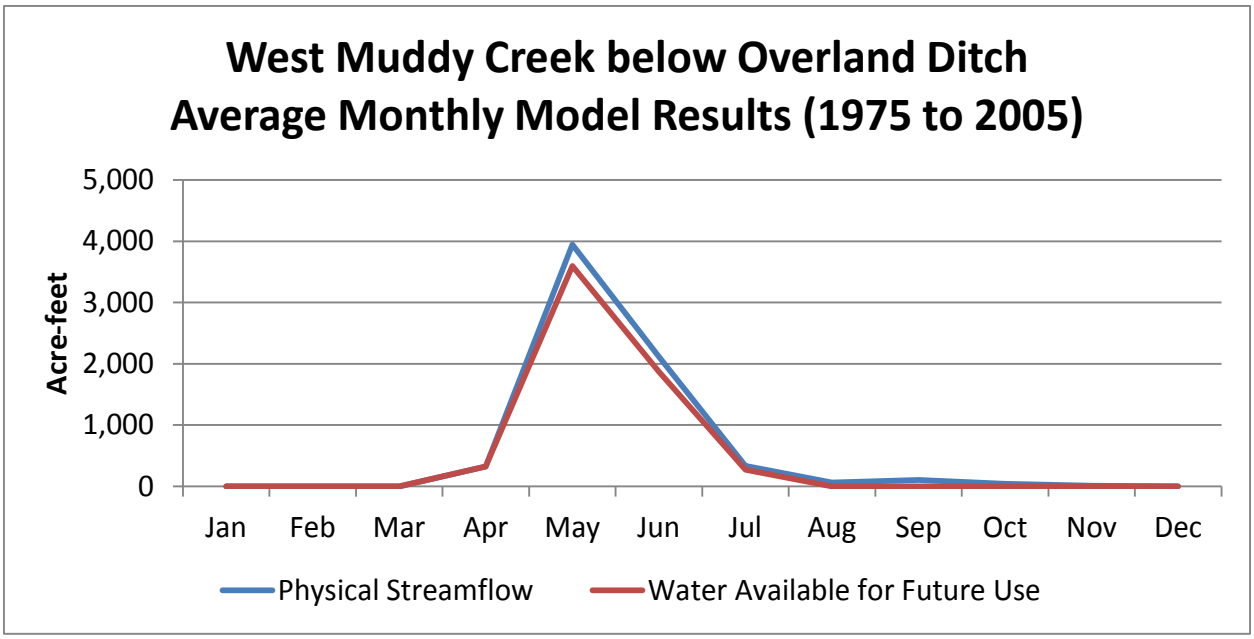
- Most of the physical flow on the Cimarron River not diverted through the Cimarron Canal is dedicated to downstream senior water rights including the Gunnison Tunnel rights, Crystal and Morrow Points storage and hydropower rights, Black Canyon of the Gunnison minimum flow rights, and Redlands Canal power rights
- Some of the physical flow could be developed for in-basin use under the Upper Gunnison Basin subordination agreement
- Flow for a new junior right without Aspinall project subordination is only available in extremely wet years

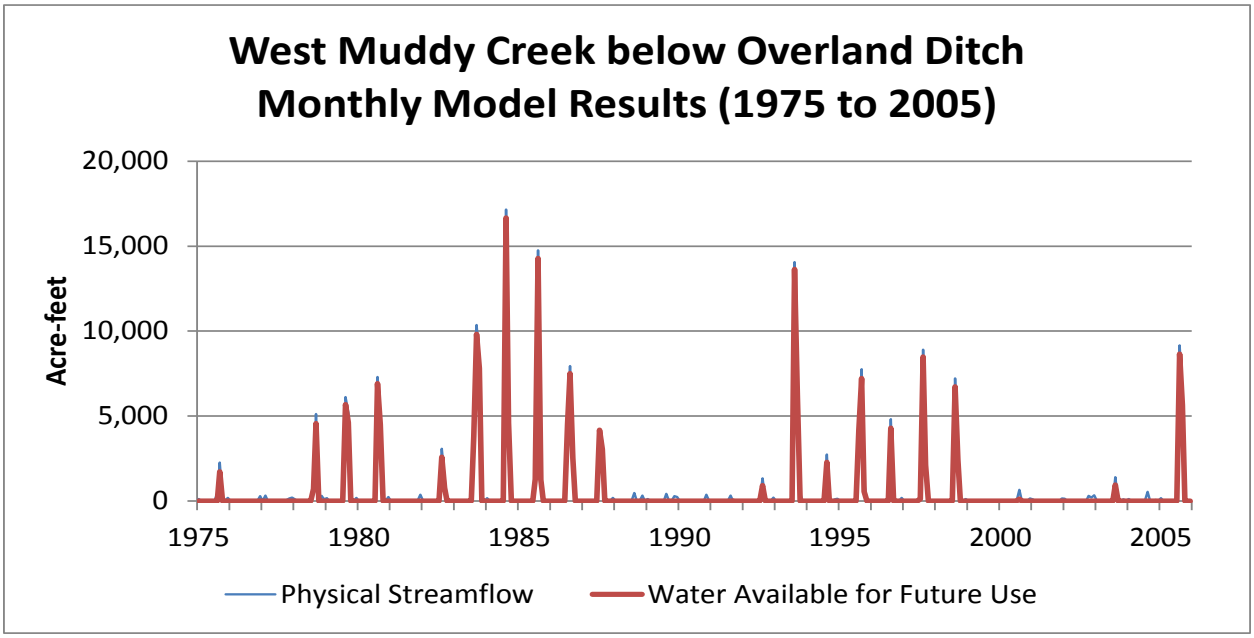




Smith Fork near Crawford Observations

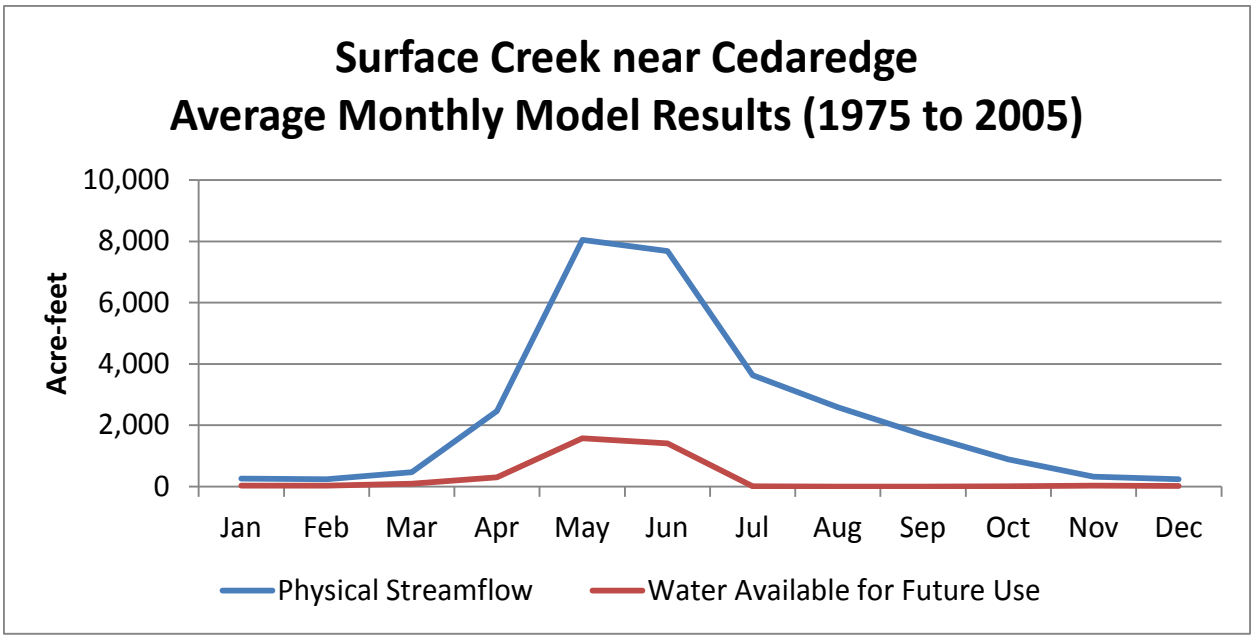
- Most of the physical flow on the Smith Fork is dedicated to downstream senior water rights on Smith Fork including irrigation rights, reservoir rights (Smith Fork Feeder Canal to Crawford Reservoir) and exchange rights associated with the Smith Fork Project
- Unlike the tributaries above the Gunnison Tunnel and Aspinall reservoirs, some water is available during runoff about 50 percent of the years in the study period, and could potentially be developed to meet in-basin consumptive and/or non-consumptive needs

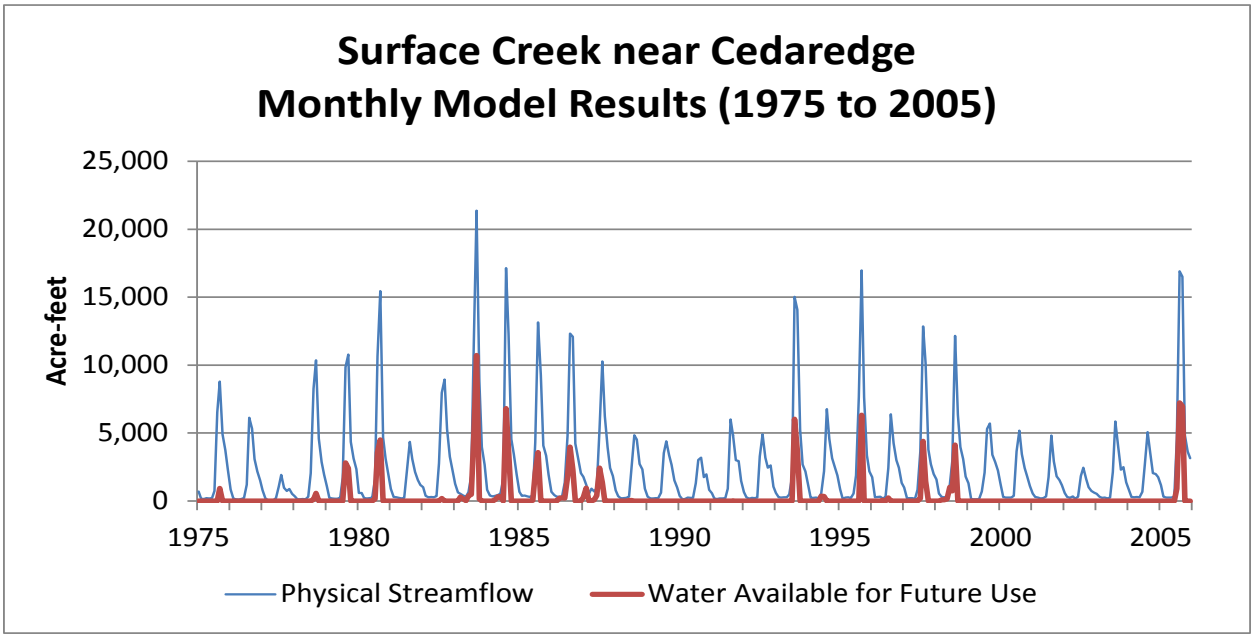




West Muddy Creek below Overland Ditch Observations

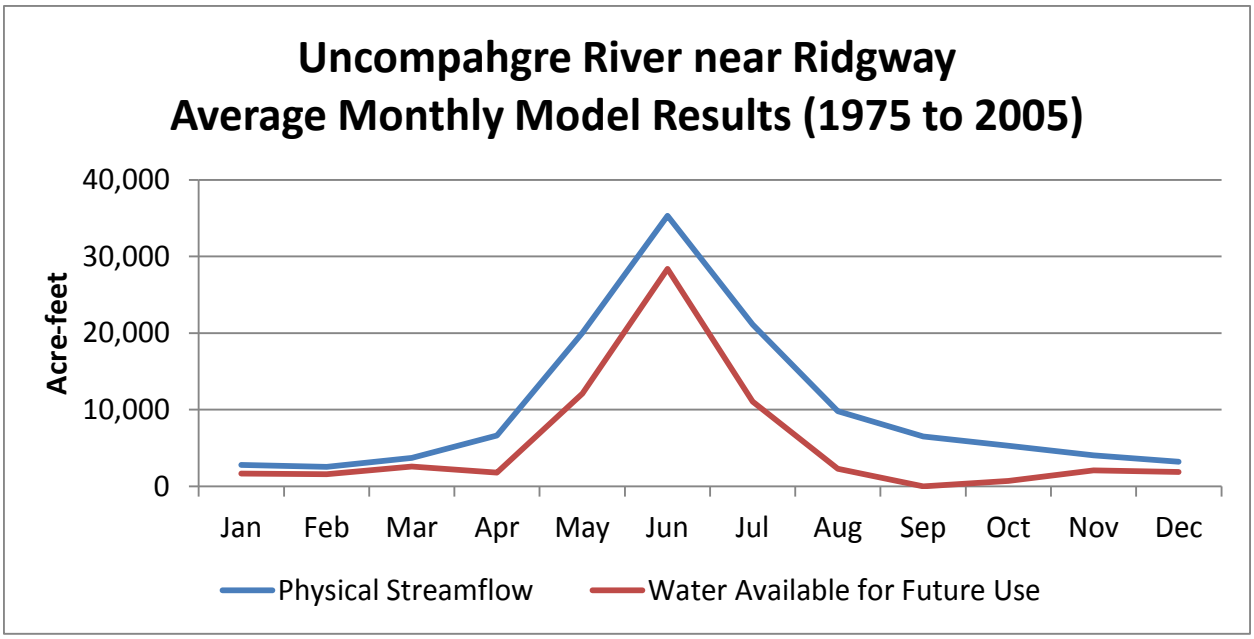
- Unlike most tributaries in the Basin, Muddy Creek tributaries above Paonia Reservoir have limited physical flow; in most years all physical flow is diverted for irrigation on Muddy Creek tributaries
- Physical streamflow and water available for future use are essentially the same; there is physical water available during the runoff in less than 50 percent of the years in the study period
- The minimal physical streamflow means there are less opportunities to develop water beyond the existing direct uses and exchanges associated with the Paonia Project and Overland Ditch uses

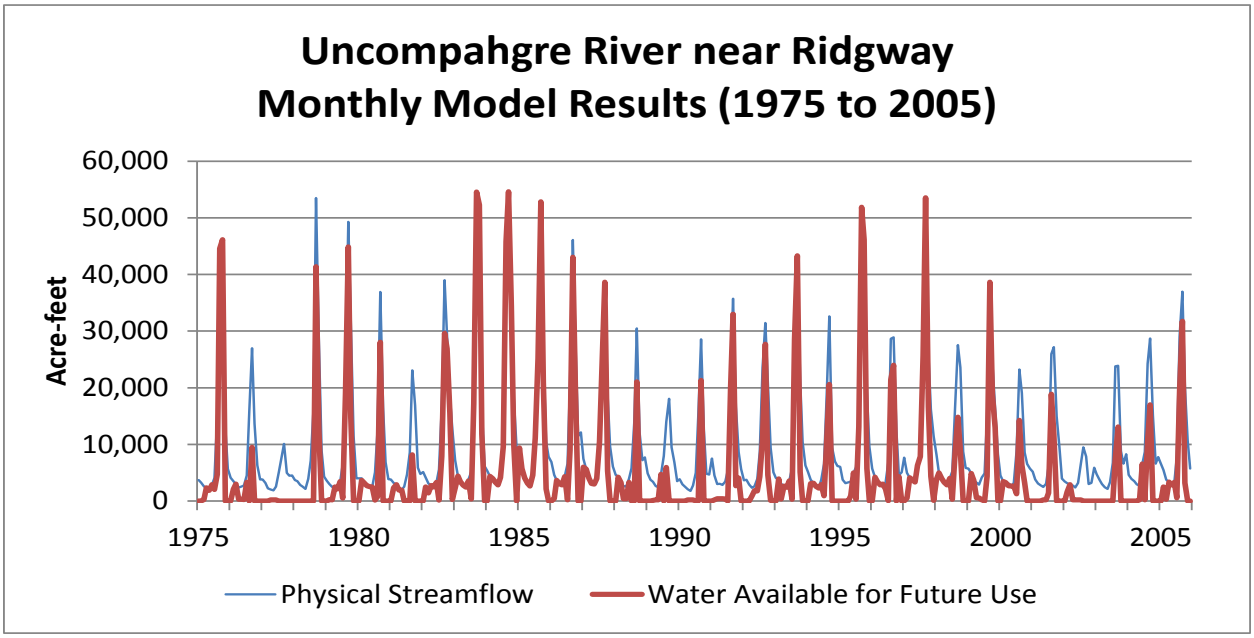




Surface Creek near Cedaredge Observations

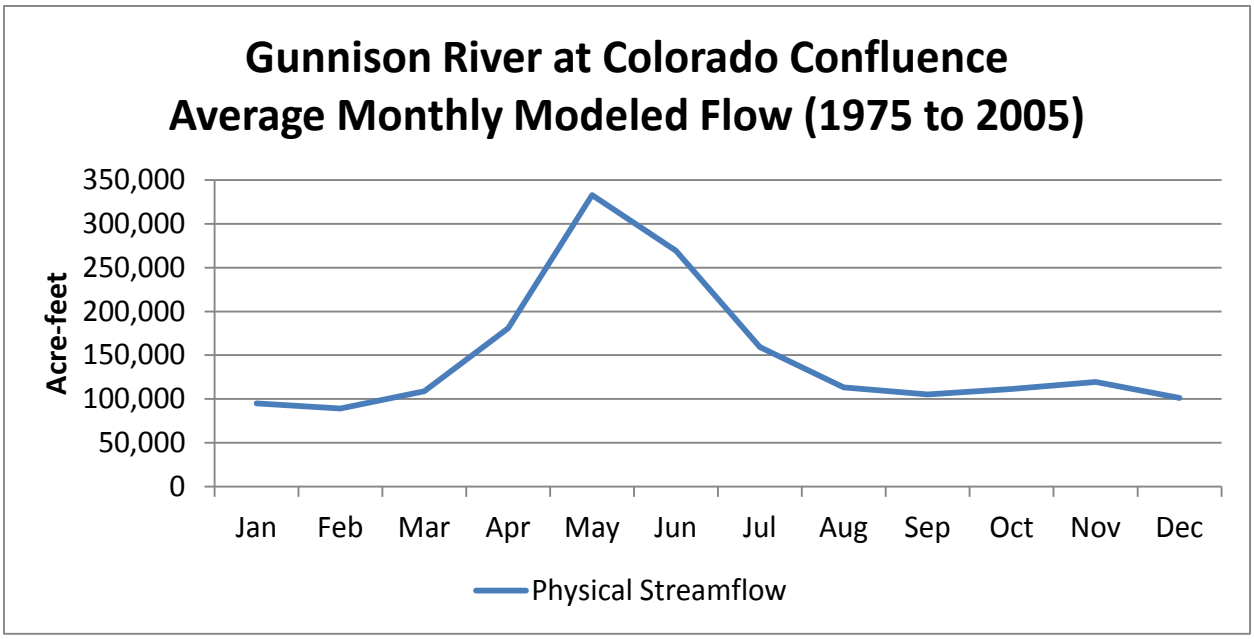
- Most of the physical flow on Surface Creek is dedicated to downstream senior water rights on Surface Creek and Tongue Creek, including irrigation and storage uses on Alfalfa Run
- Minimal water is available during runoff about 40 percent of the years in the study period; potential new projects would only have flow available in very wet years

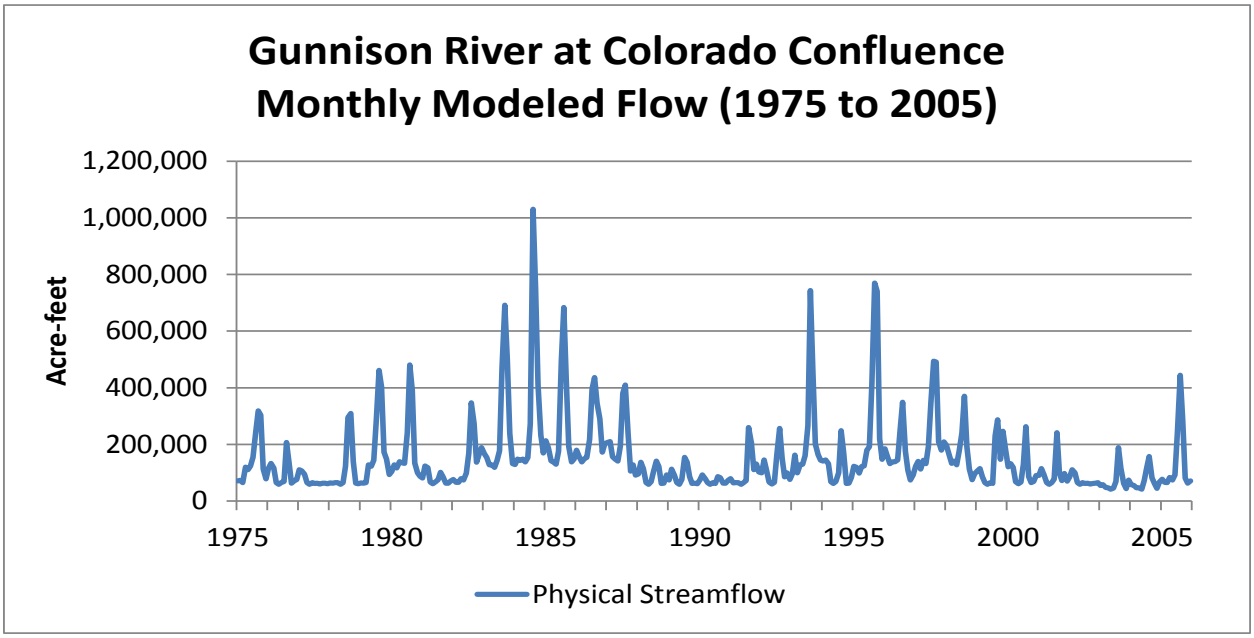




Uncompahgre River near Ridgway Observations

- On average much of the physical flow is also available for future use, however in dry years there is no water available
- Potential new projects in the Upper Uncompahgre basin would not yield water during dry years and would require carry-over storage to produce a firm supply

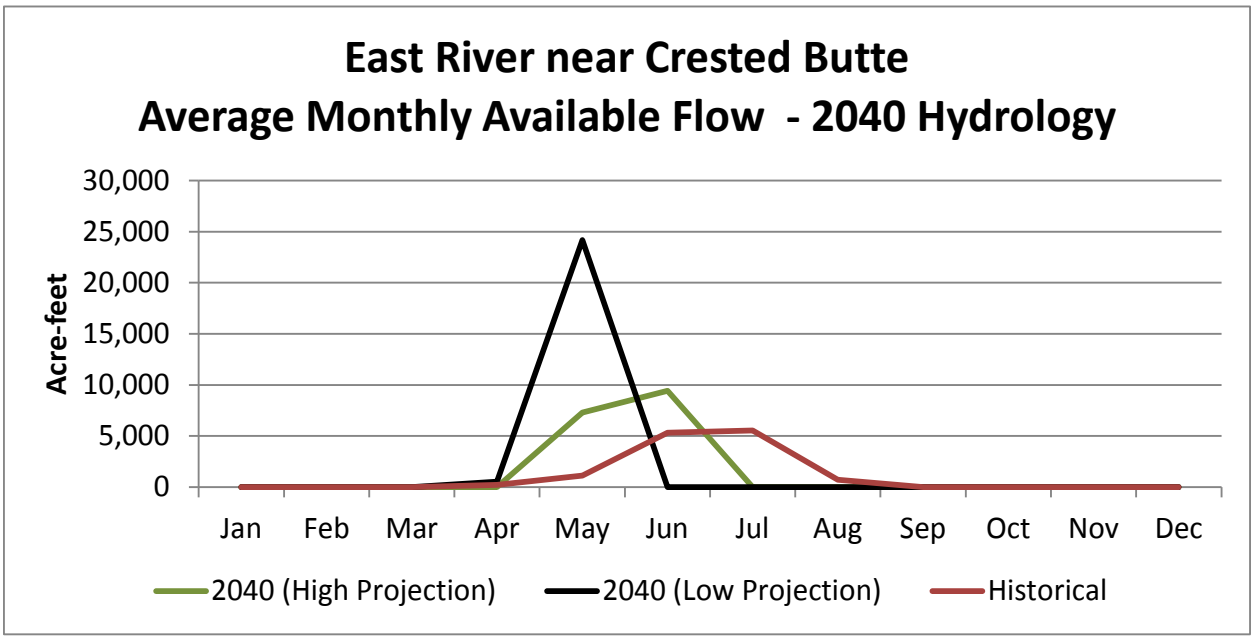


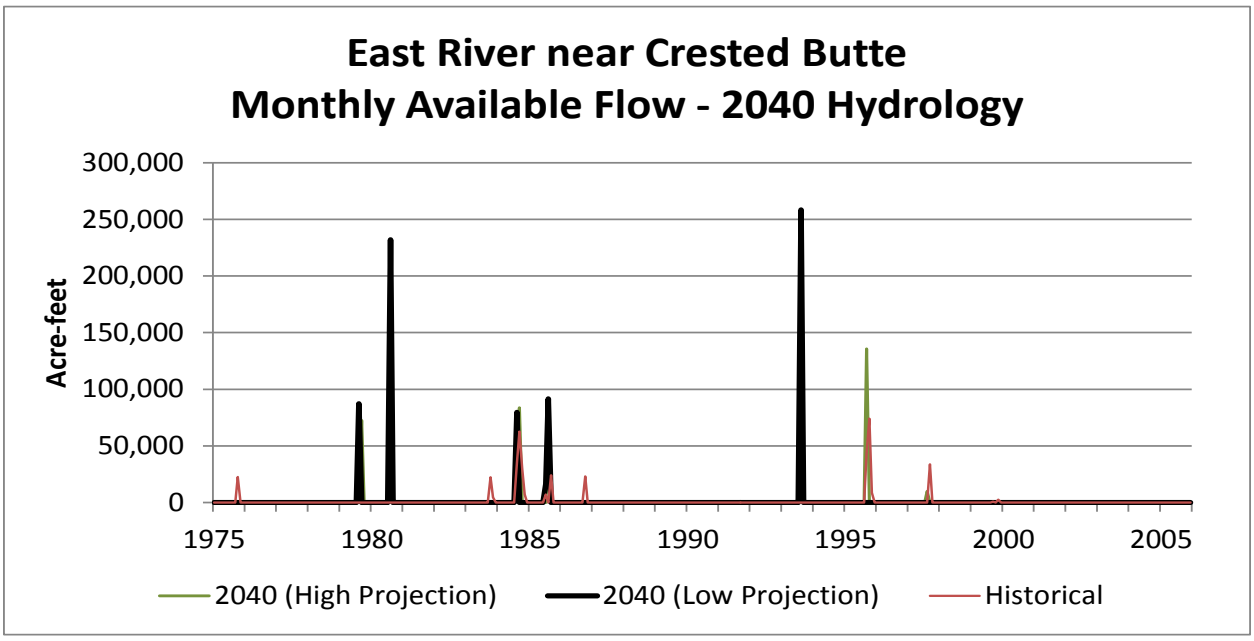


Gunnison River at Colorado Confluence Observations

- The physical streamflow is the same as water available for future use, since no downstream water rights or demands are represented in the model
- The Gunnison River contributes to approximately 40% of the flow of the Colorado River at the state line gage based on the 1975 through 2005 period.

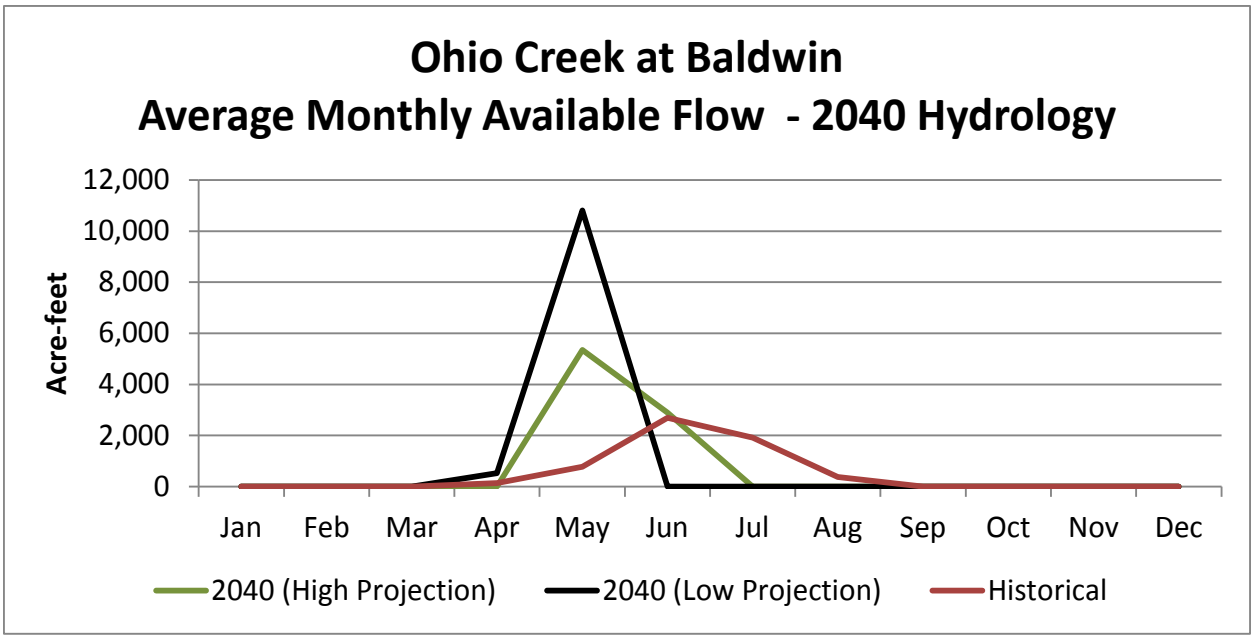
Appendix 10: Water Available for Future Use (Climate Projected Hydrology)

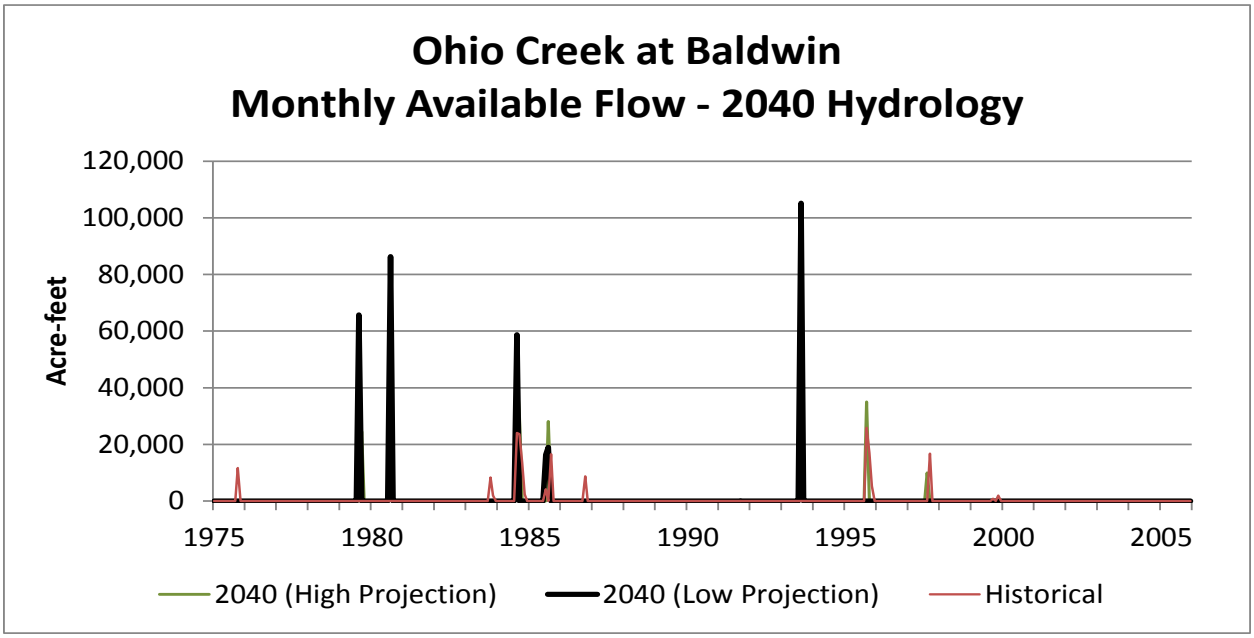




East River near Crested Butte Observations

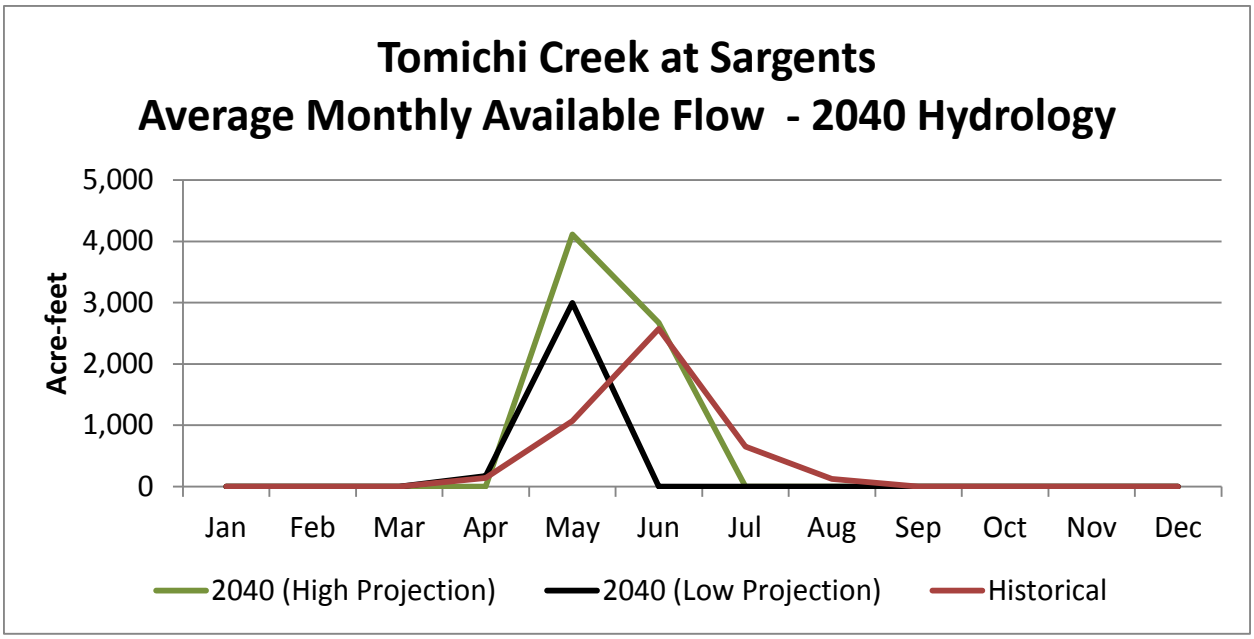
- The Low Projection indicates that on average the runoff on East River would occur earlier and more flow would only be available for future use in May than historically
- The High Projection results in more average annual available flow than historically, and also shows more water available earlier than historically
- The projections generally follow the same annual patterns as historically; however there are less years when water would be available for future use after meeting the downstream senior uses

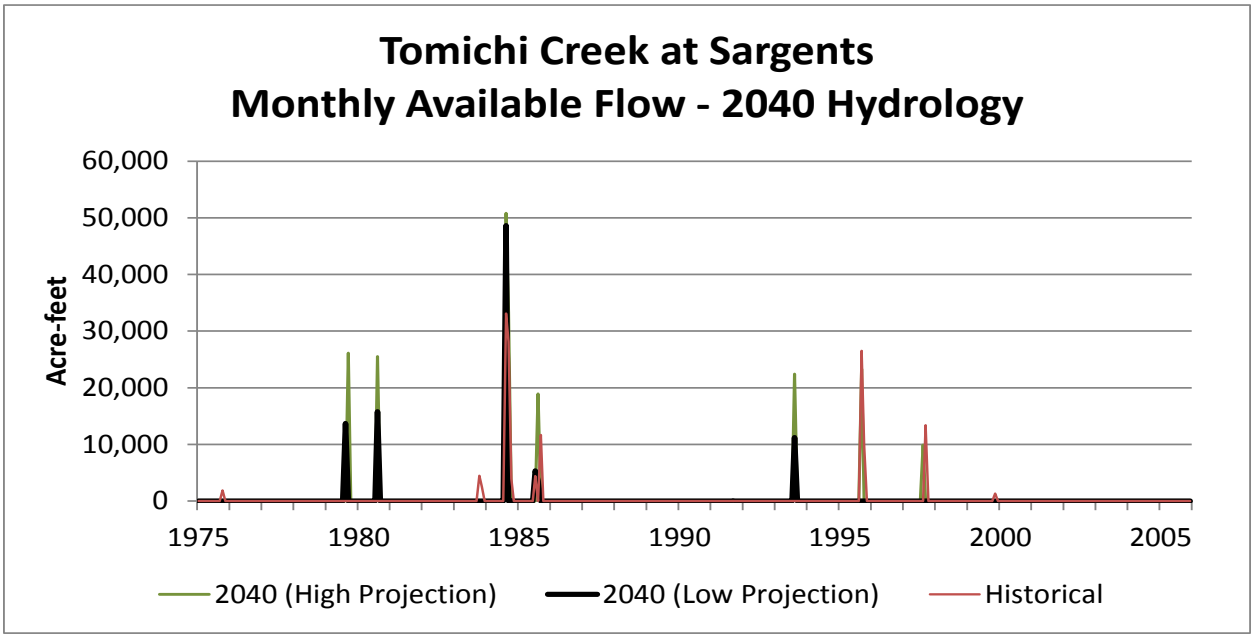




Ohio Creek at Baldwin Observations

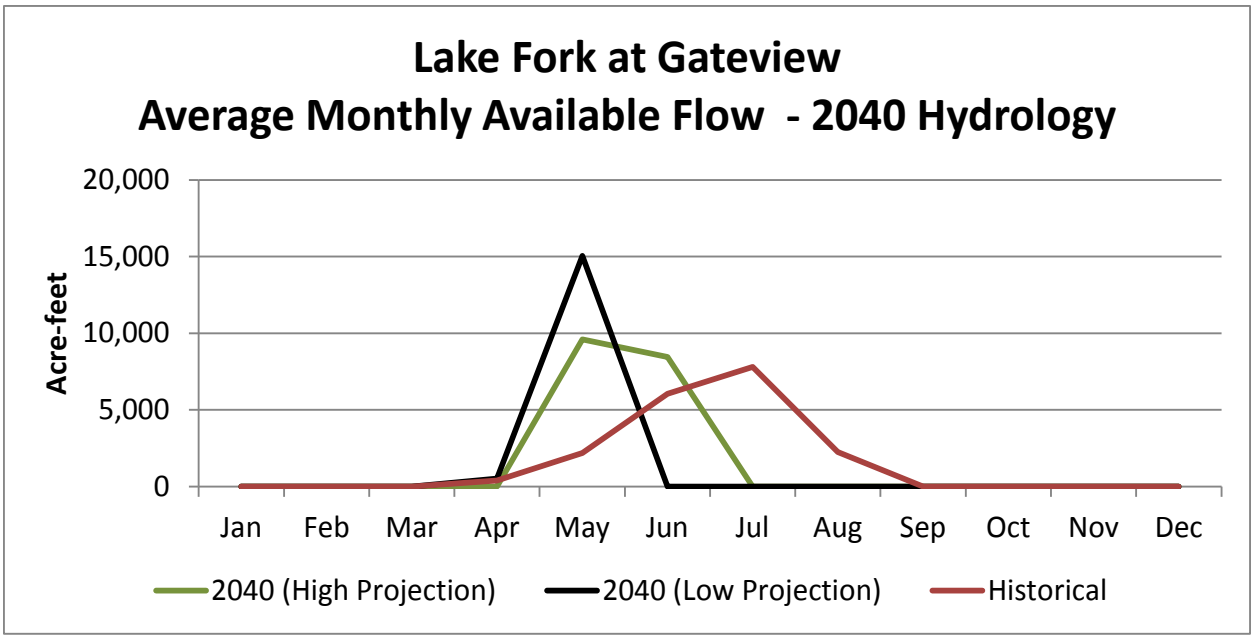
- Both the Low Projection and High Projections indicate that on average the runoff on Ohio Creek would occur one month earlier and more flow would be available for future use in May than historically
- The High Projection results in more average annual available flow than historically
- The climate projections generally follow the same annual patterns as historically; however there are less years when water would be available for future use after meeting the downstream senior uses

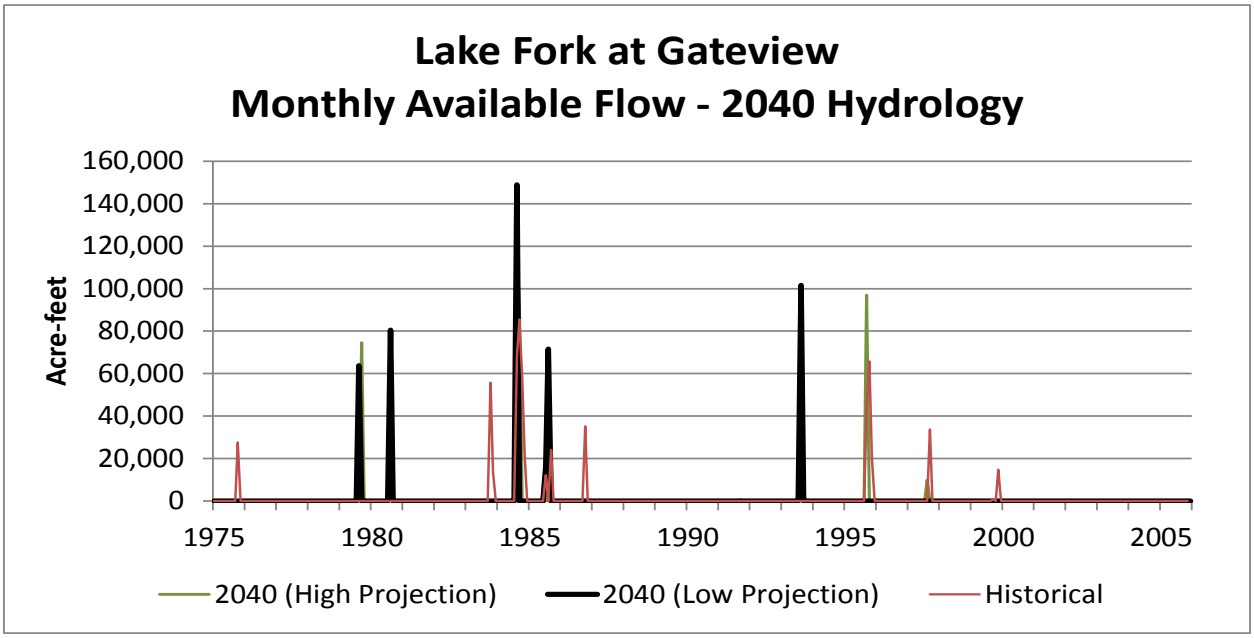




Tomichi Creek at Sargents Observations

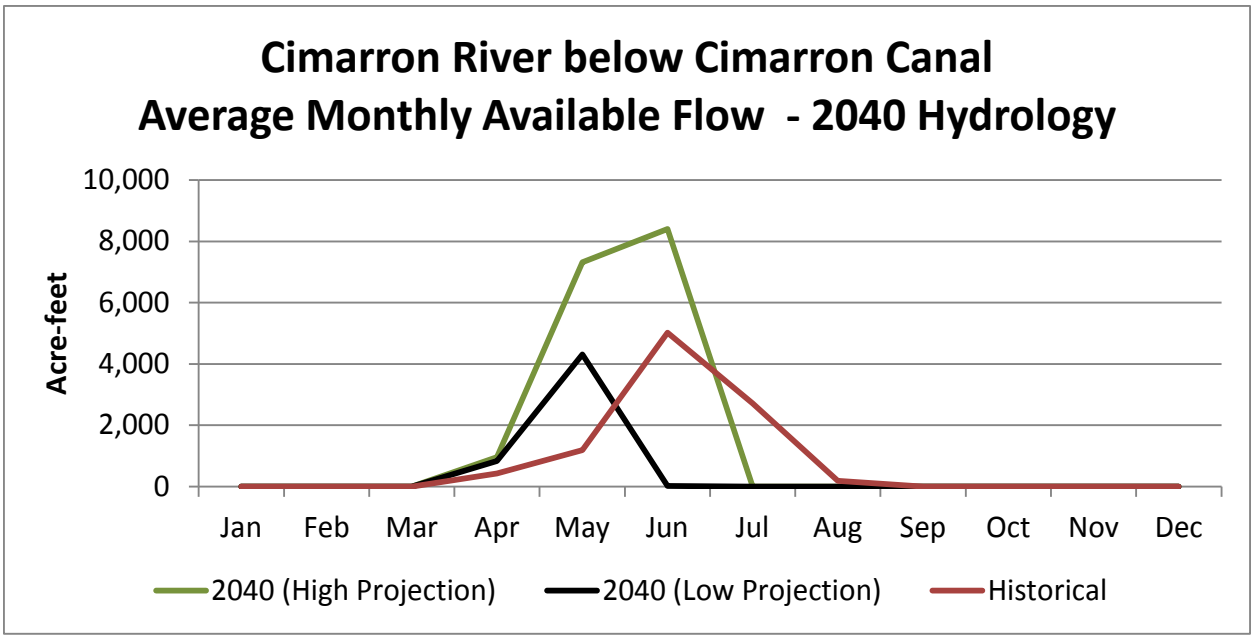
- Both the Low Projection and High Projections indicate that on average the runoff on Tomichi Creek would occur one month earlier and more flow would be available for future use in May than historically
- The High Projection results in more annual available flow than historically
- The climate projections generally follow the same annual patterns as historically; however there are less years when water would be available for future use after meeting the downstream senior uses

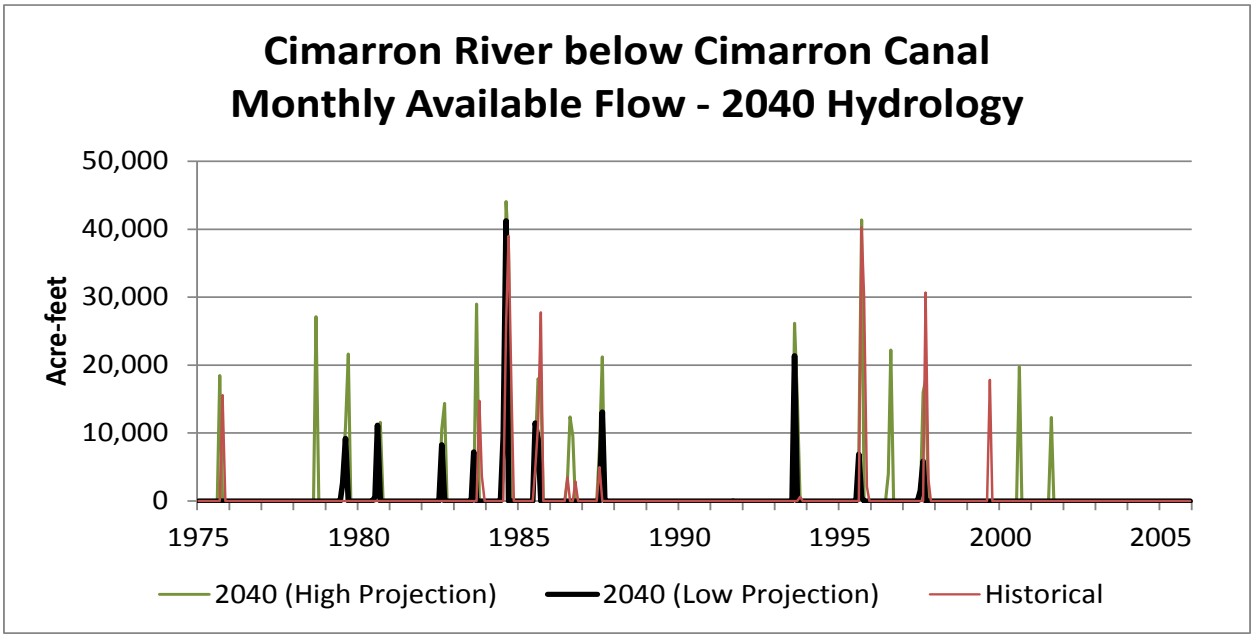




Lake Fork at Gateview Observations

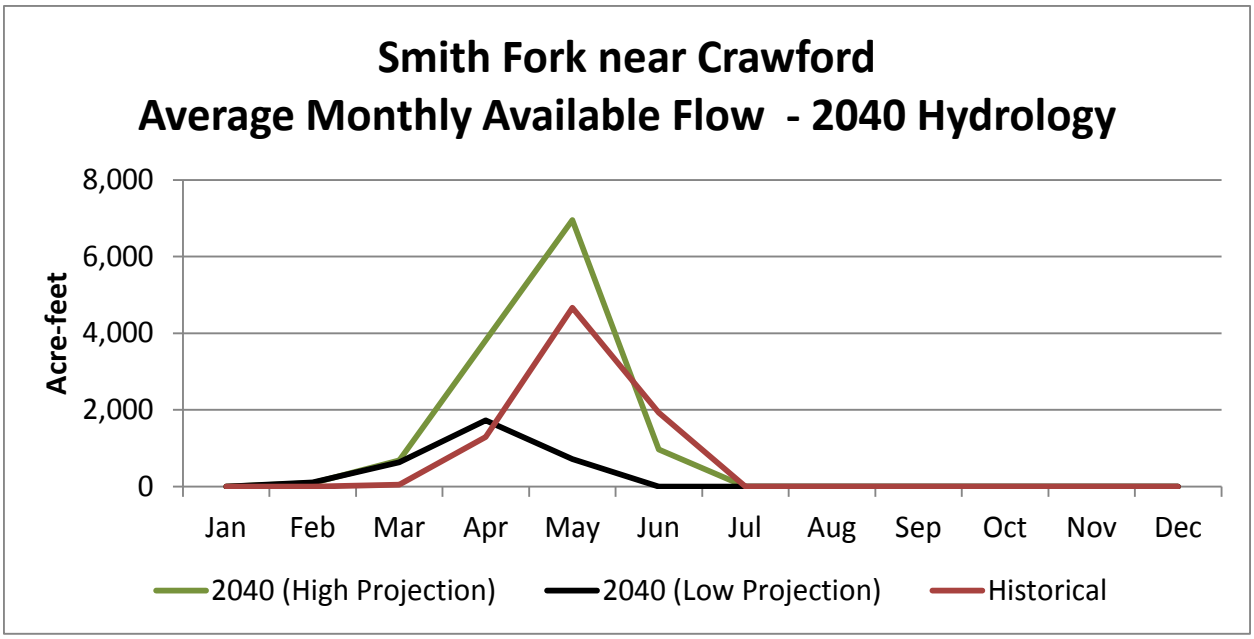
- Both the Low Projection and High Projections indicate that on average the runoff on Lake Fork would occur earlier and more flow would be available for future use in May than historically
- The High Projection results in more average annual available flow than historically
- The climate projections generally follow the same annual patterns as historically; however there are less years when water would be available for future use after meeting the downstream senior uses

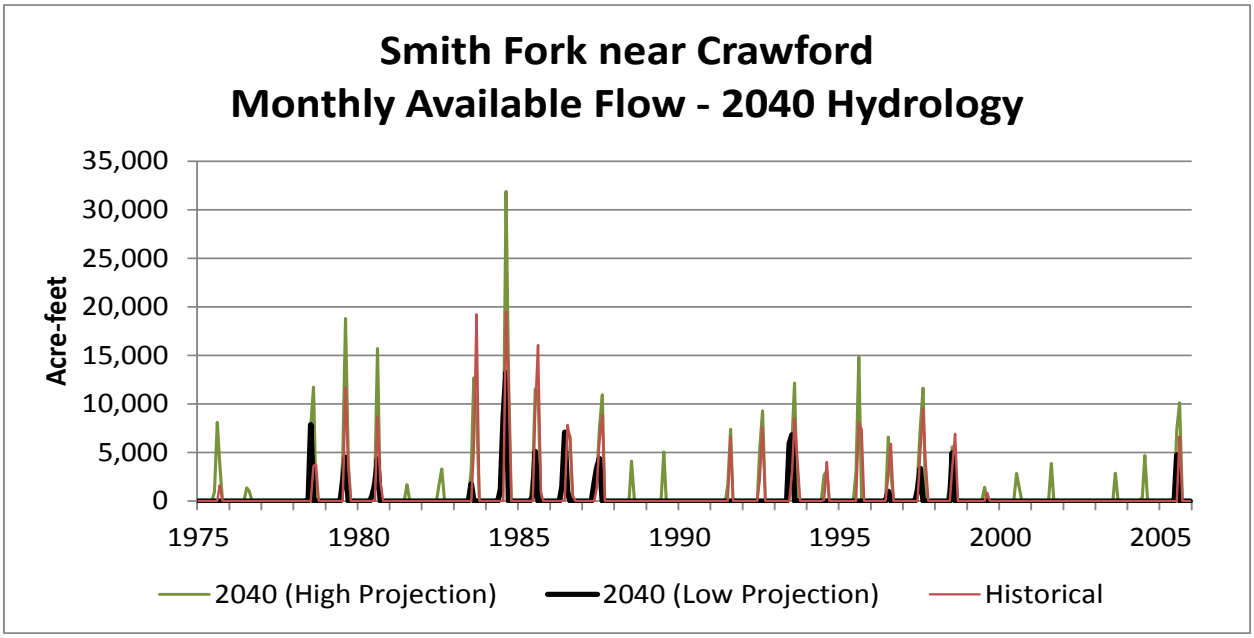




Cimarron River below Cimarron Canal Observations

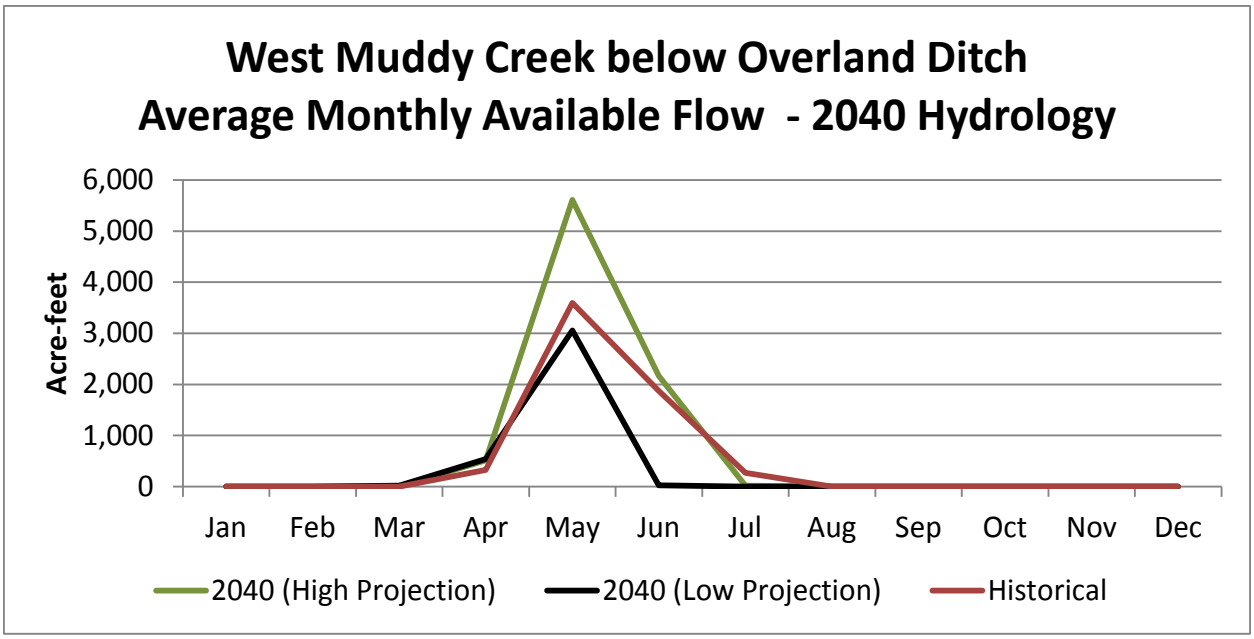
- The Low Projection indicate that on average the runoff on the Cimarron River would occur earlier and more flow would be available for future use in May than historically
- The High Projection results in more average annual available flow than historically and more years with available flow than historically

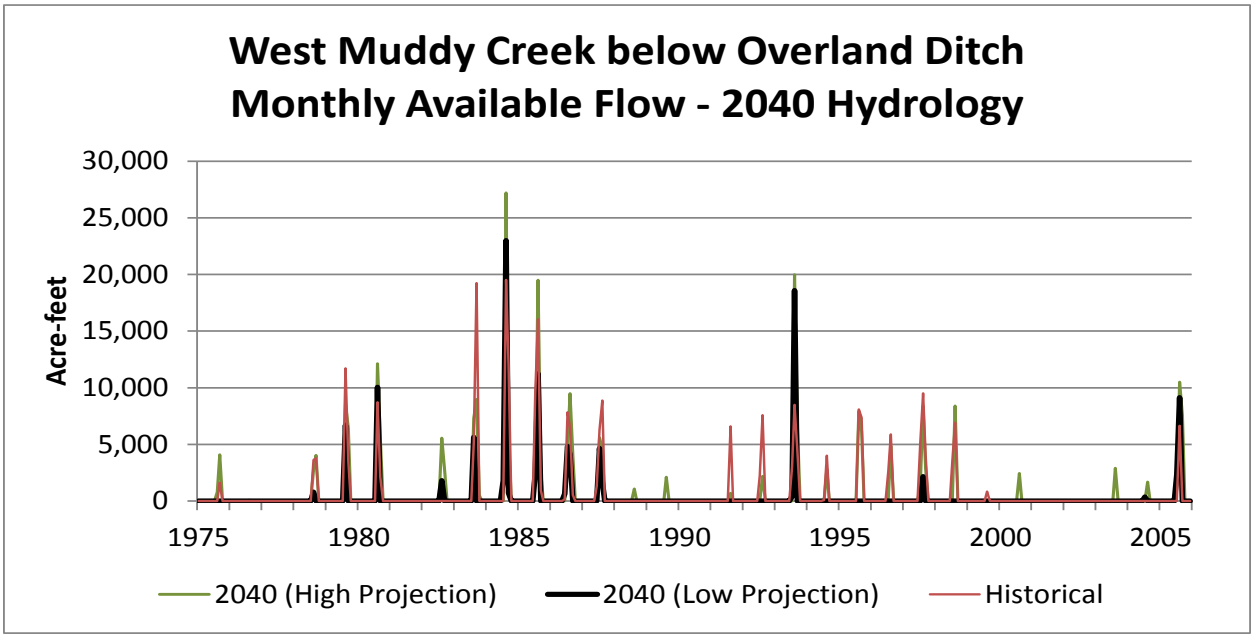




Smith Fork near Crawford Observations

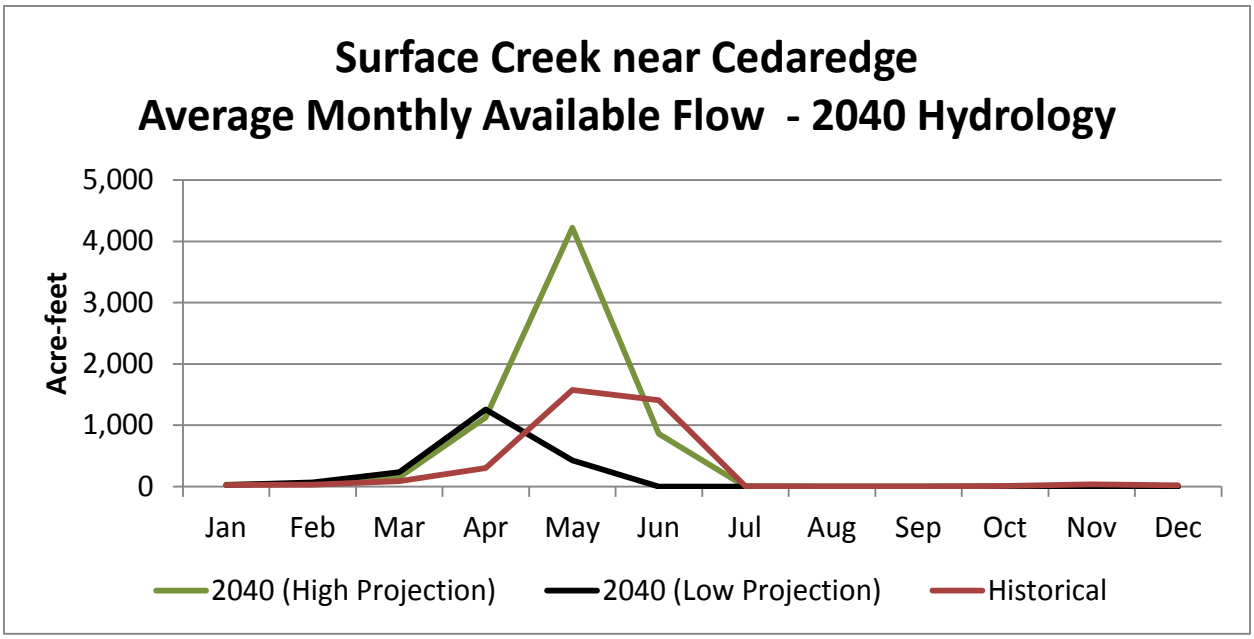
- The Low Projection indicate that on average the runoff on Smith Fork would occur earlier and more flow would be available for future use in April than historically
- The High Projection results in more average annual available flow than historically and more years with available flow than historically

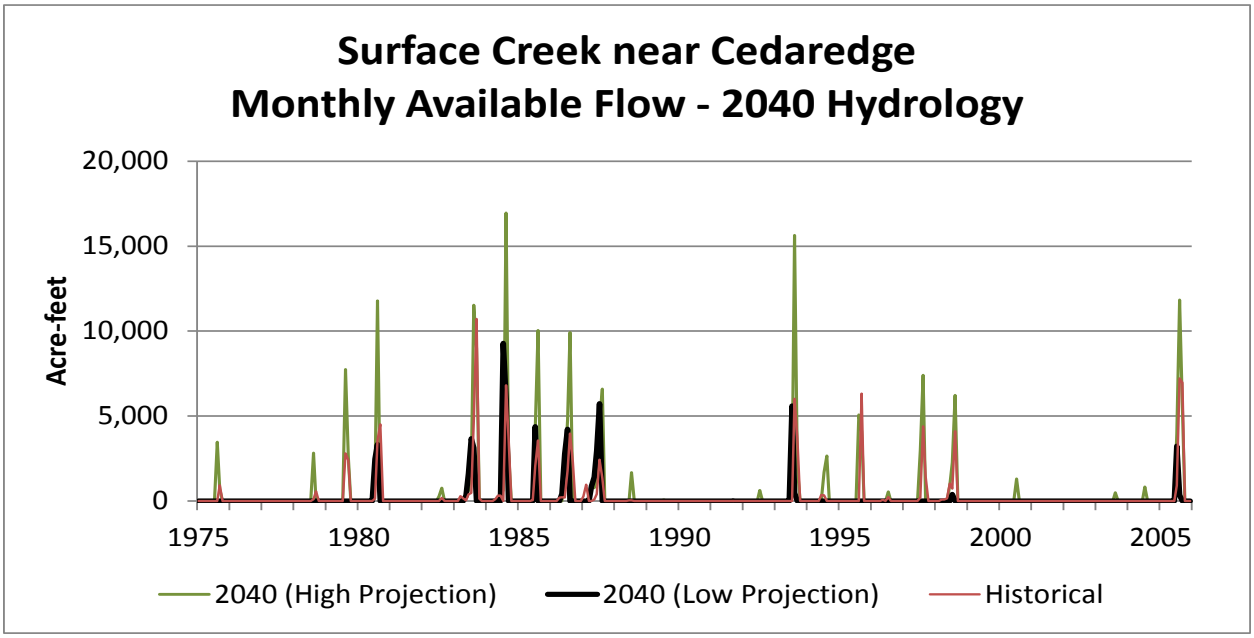




West Muddy Creek below Overland Ditch Observations

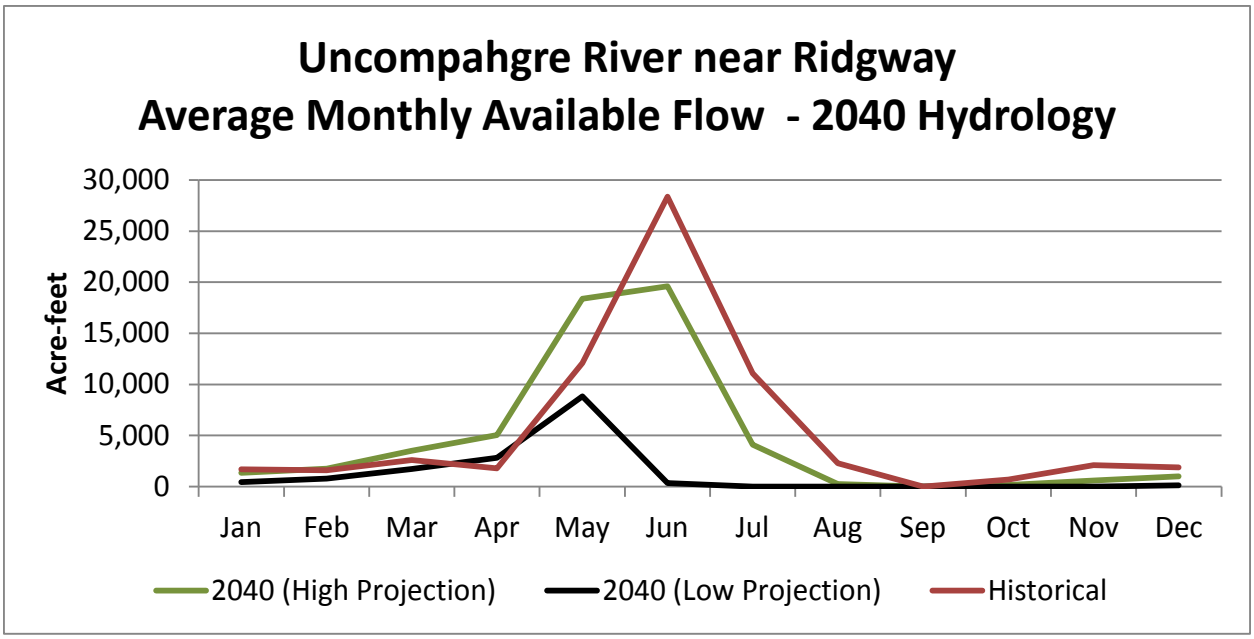
- Unlike other tributaries, neither climate change projections indicate an earlier shift in runoff and available flow for future use
- The High Projection results in more average annual available flow than historically and a few more years with available flow than historically

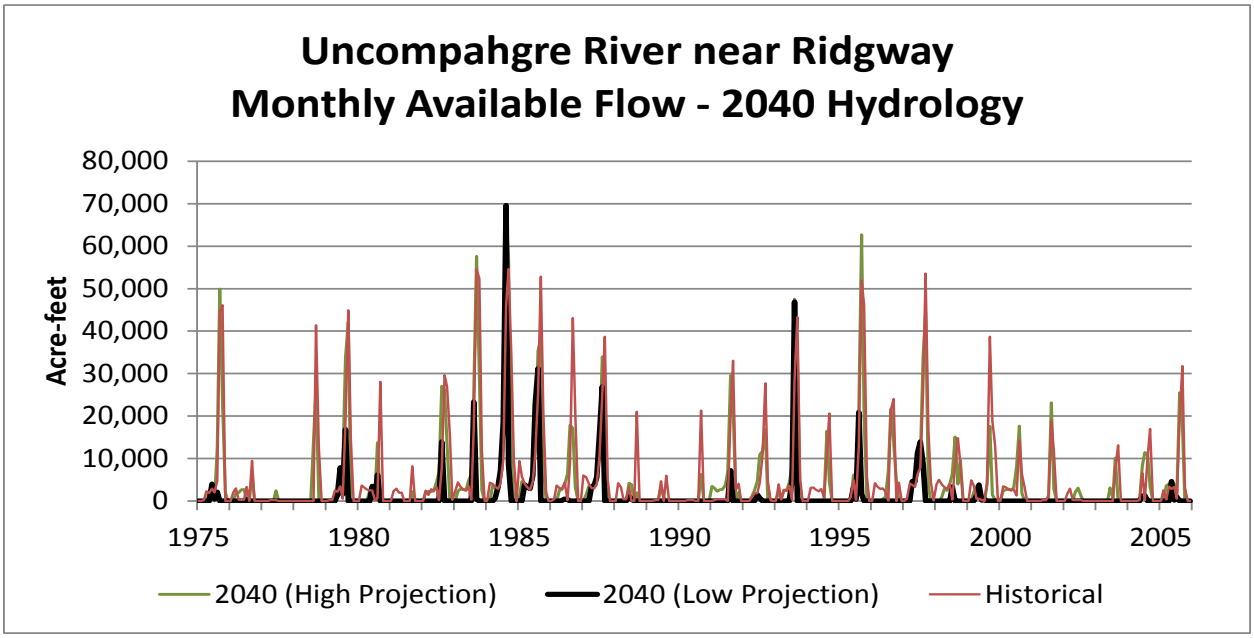




Surface Creek near Cedaredge Observations

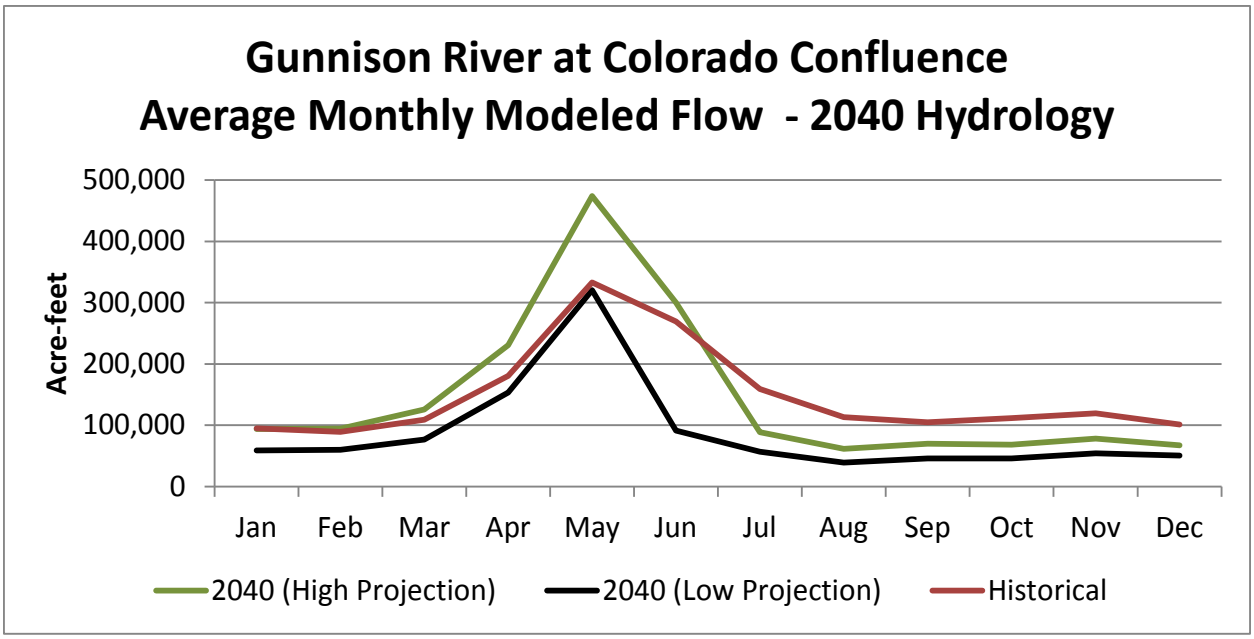
- The Low Projection indicate that on average the runoff on Surface Creek would occur earlier and more flow would be available for future use in April than historically
- The High Projection results in more average annual available flow than historically and a few more years with available flow than historically

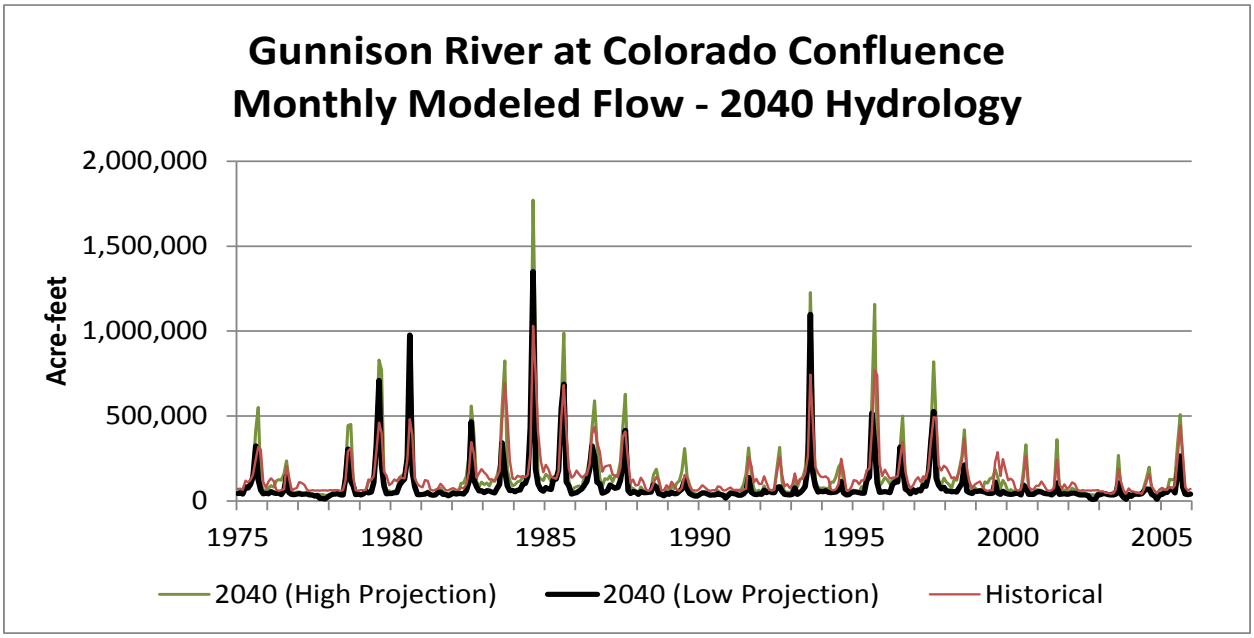




Uncompahgre River near Ridgway Observations

- Both climate projections indicate that on average the runoff on the Uncompahgre River would occur earlier
- Both climate projections result in less average annual available flow for future use than historically
- The High Projection has available flow the same years as historical, but generally it is less; the Low Projections has fewer years with available flow

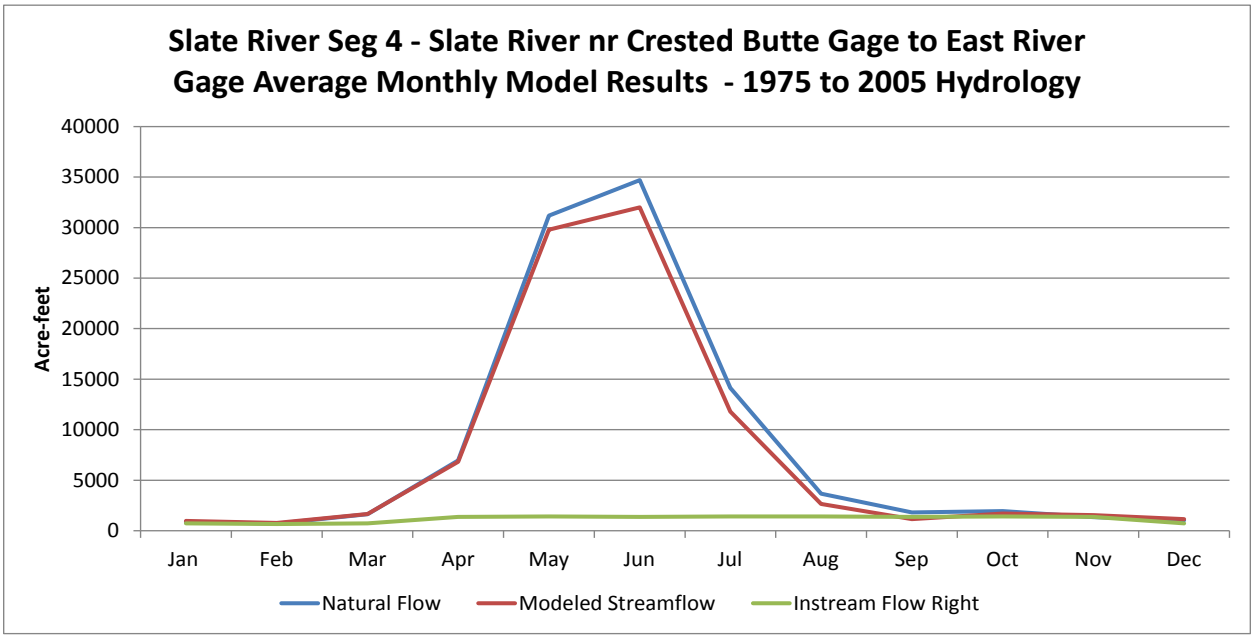


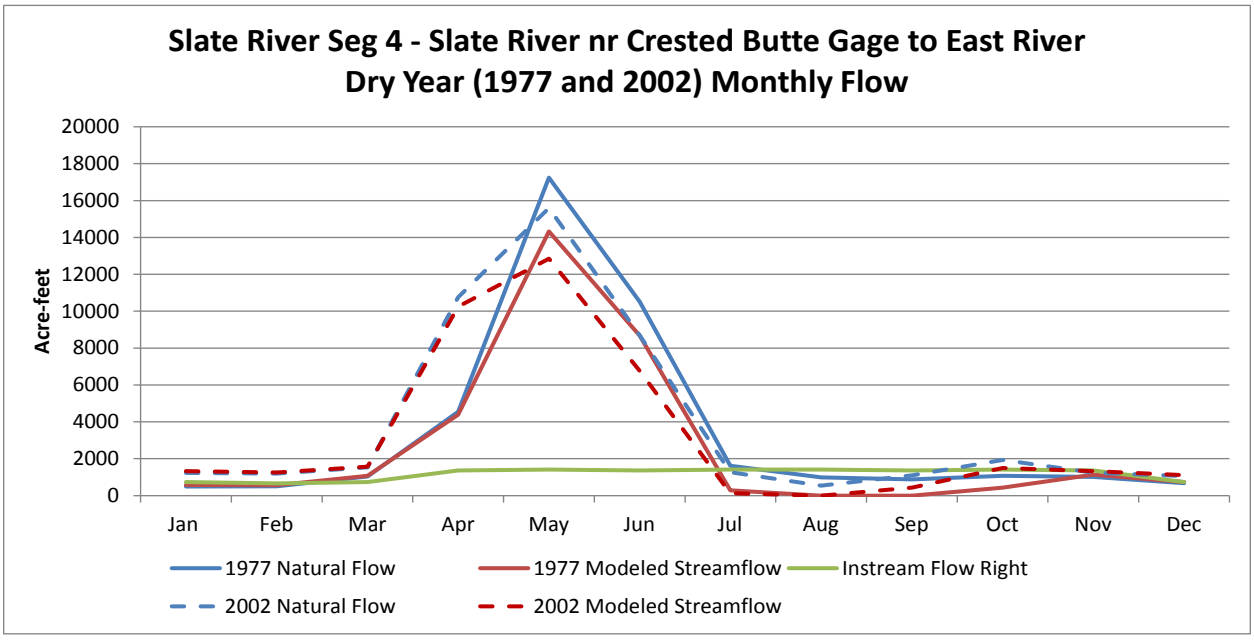


Gunnison River at Colorado Confluence Observations

- The High Projection yields the same average annual flow as historical; however the runoff pattern is different
- On average, the High Projection results in more flow in April and May, and less flow during the summer and fall months
- The Low Projection has similar May runoff as historically, however results in less flow in every other month

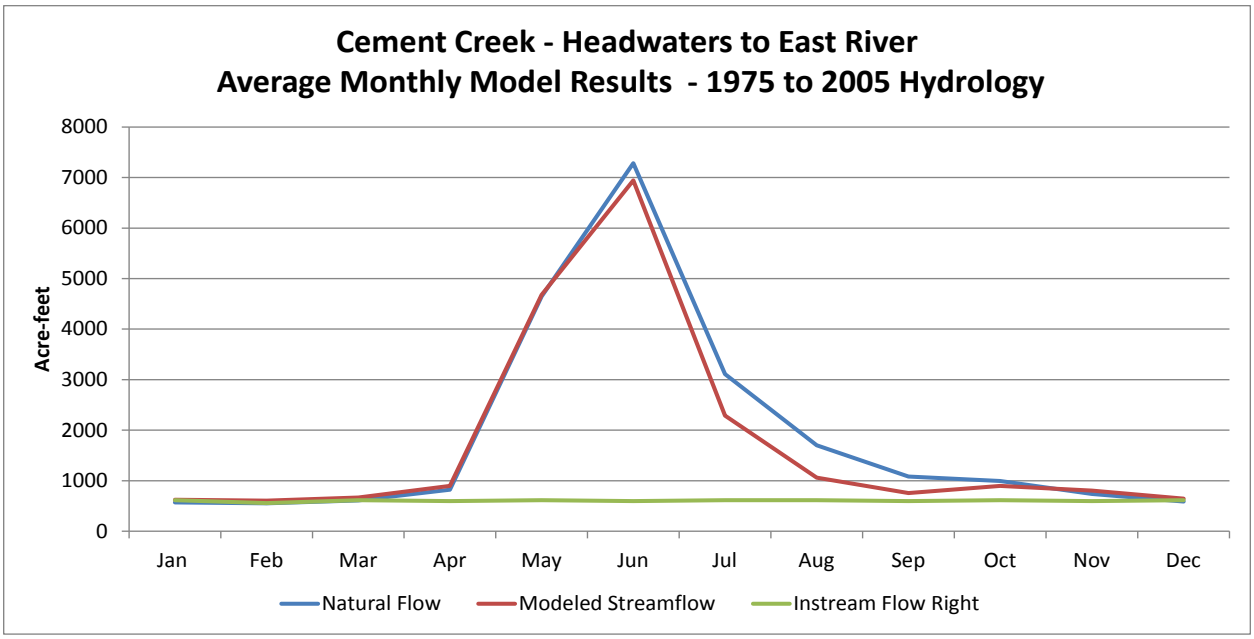
Appendix 11: Instream Flow Analyses

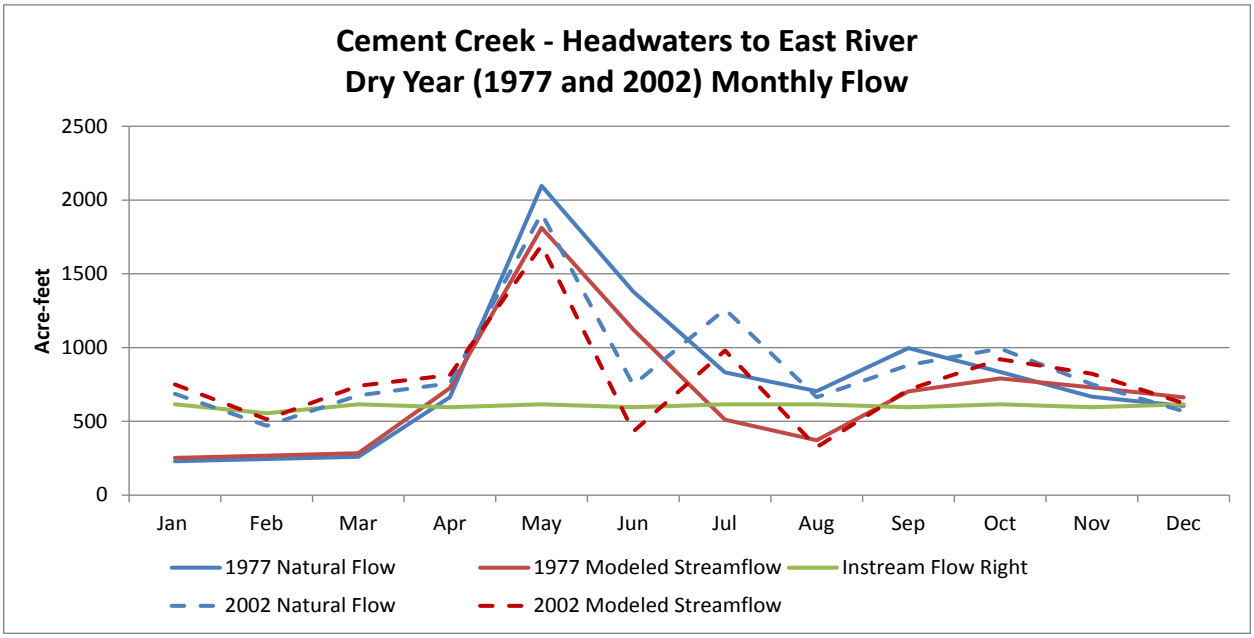




Slate River Segment 4 Instream Flow Observations

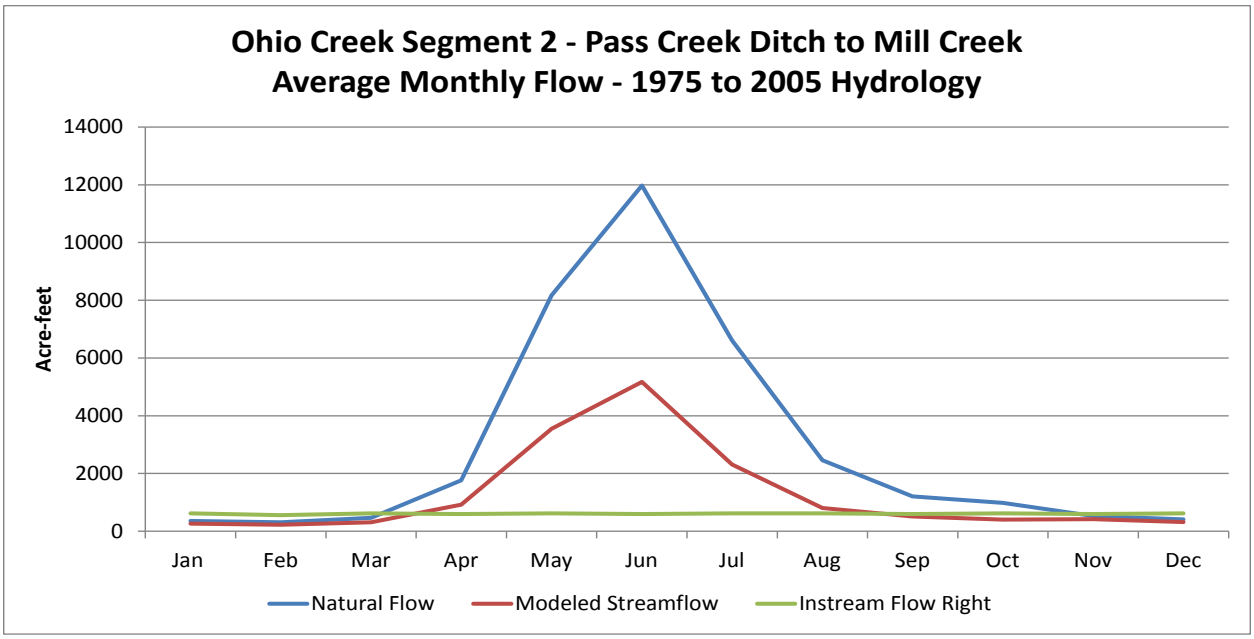
- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is enough physical flow in the river to meet the instream flow right every month except September
- Natural flow was less than the instream flow right in the late irrigation season (August through September) in the dry years of 1977 and 2002
- Senior irrigation diversions reduced river flows below the instream flow right from July through October during the dry years

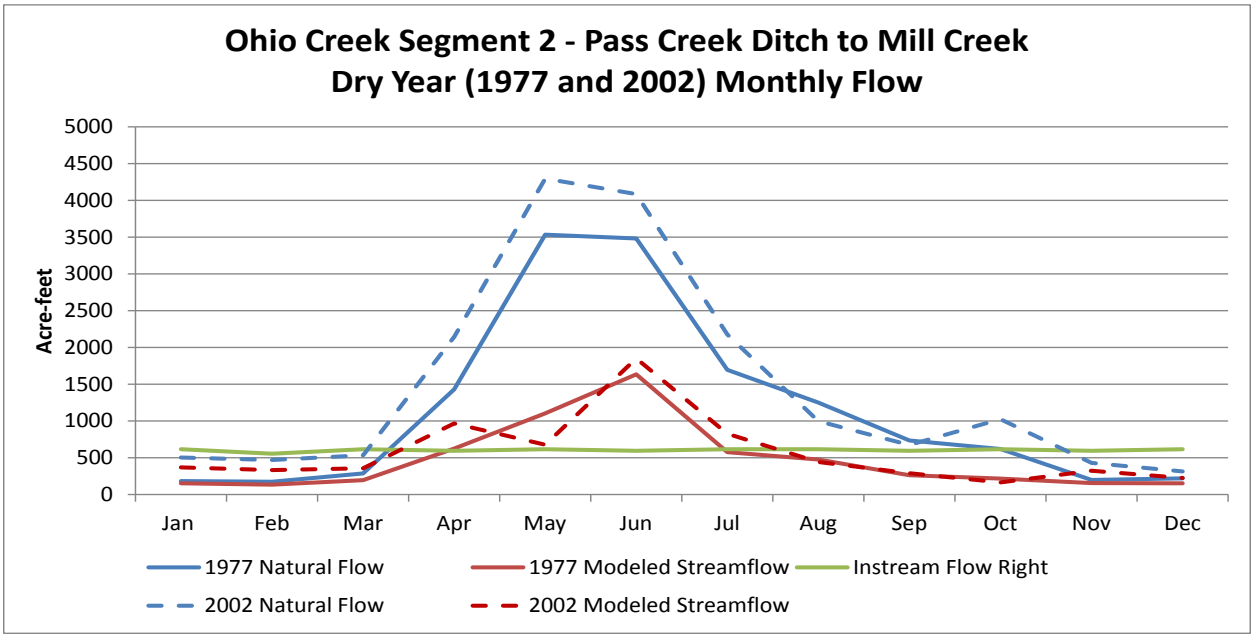




Cement Creek Instream Flow Observations

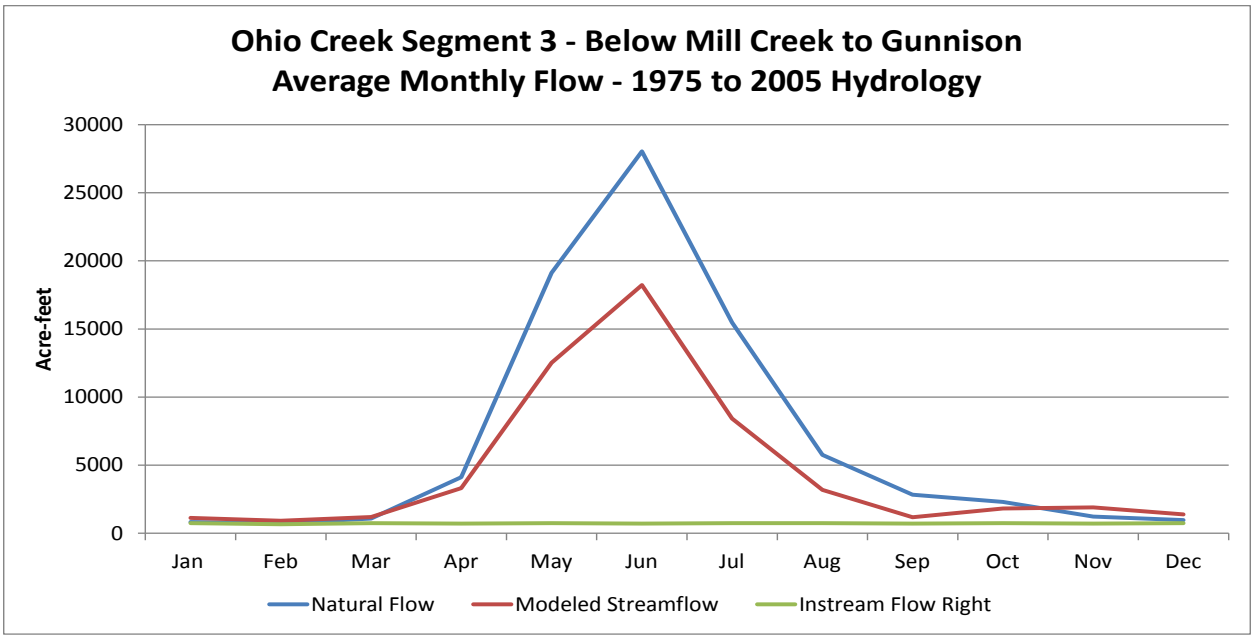
- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is enough monthly physical flow in the river to meet the instream flow right
- Natural flow was less than the instream flow right in the winter months (January through March) during 1977; in 2002 the natural flow was generally greater than the instream flow right
- Senior irrigation diversions reduced river flows below the instream flow right in July through August of 1997; there appears to have been some significant precipitation over the Cement Creek watershed that provided flow to meet the instream flow right in July of 2002

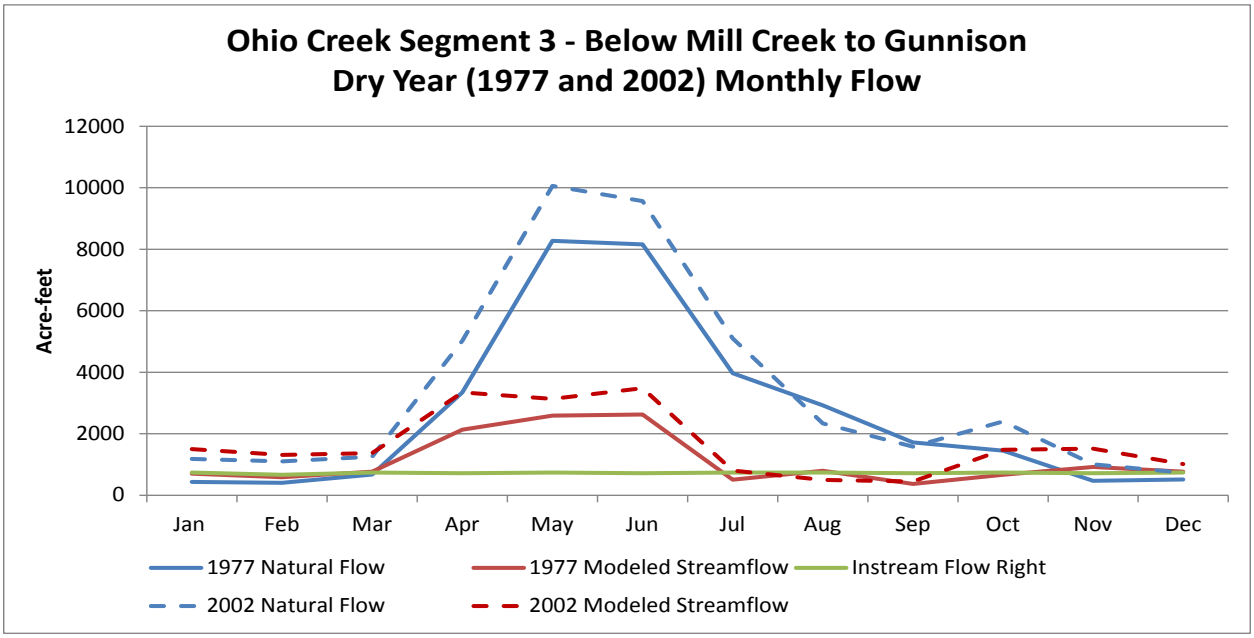




Ohio Creek Segment 2 Instream Flow Observations

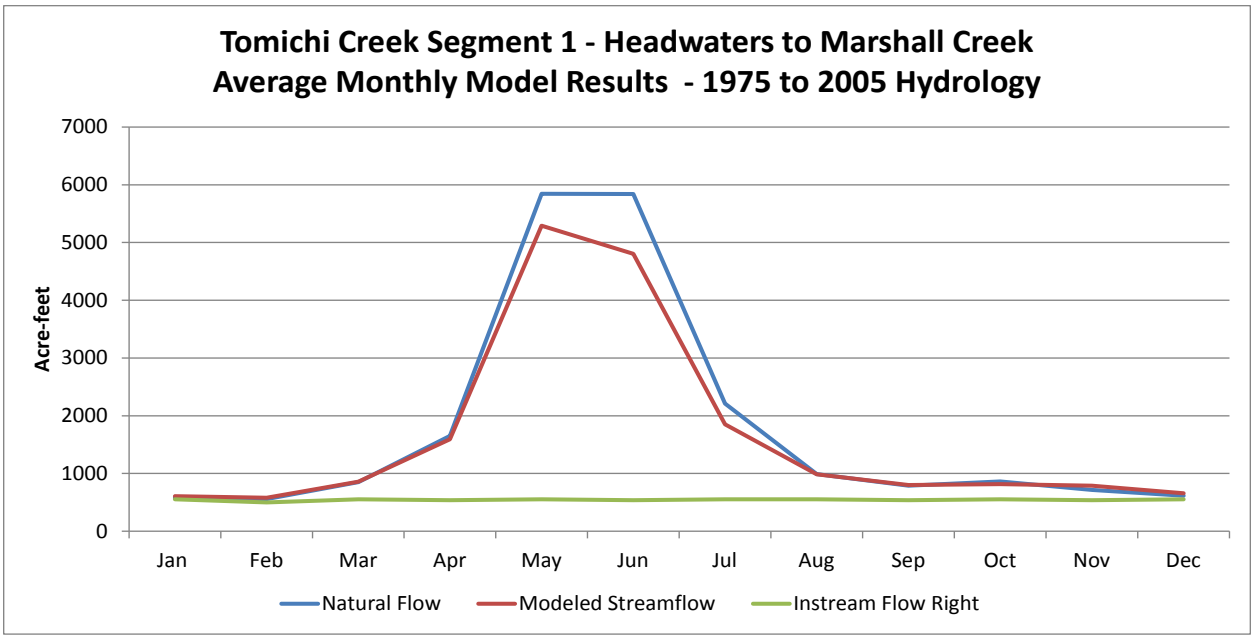
- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is enough physical flow in the river to meet the instream flow right every month except September
- Natural flow was less than the instream flow right in the late irrigation season (August through September) in the dry years of 1977 and 2002
- Senior irrigation diversions reduced river flows below the instream flow right from July through October during the dry years

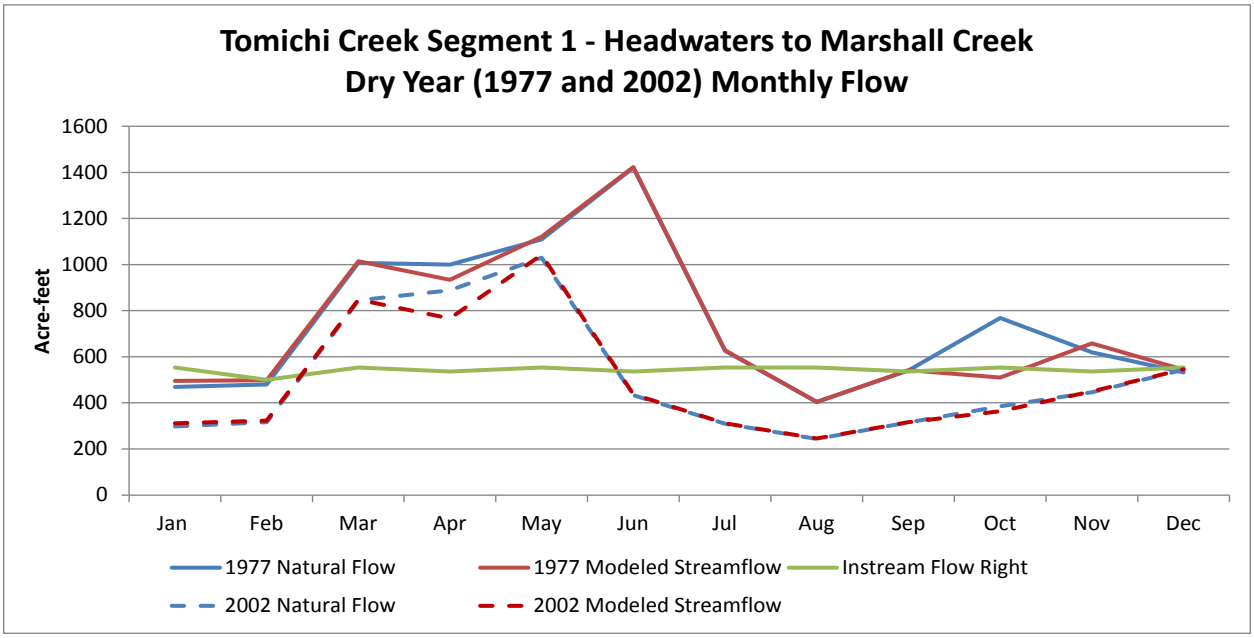




Ohio Creek Segment 3 Instream Flow Observations

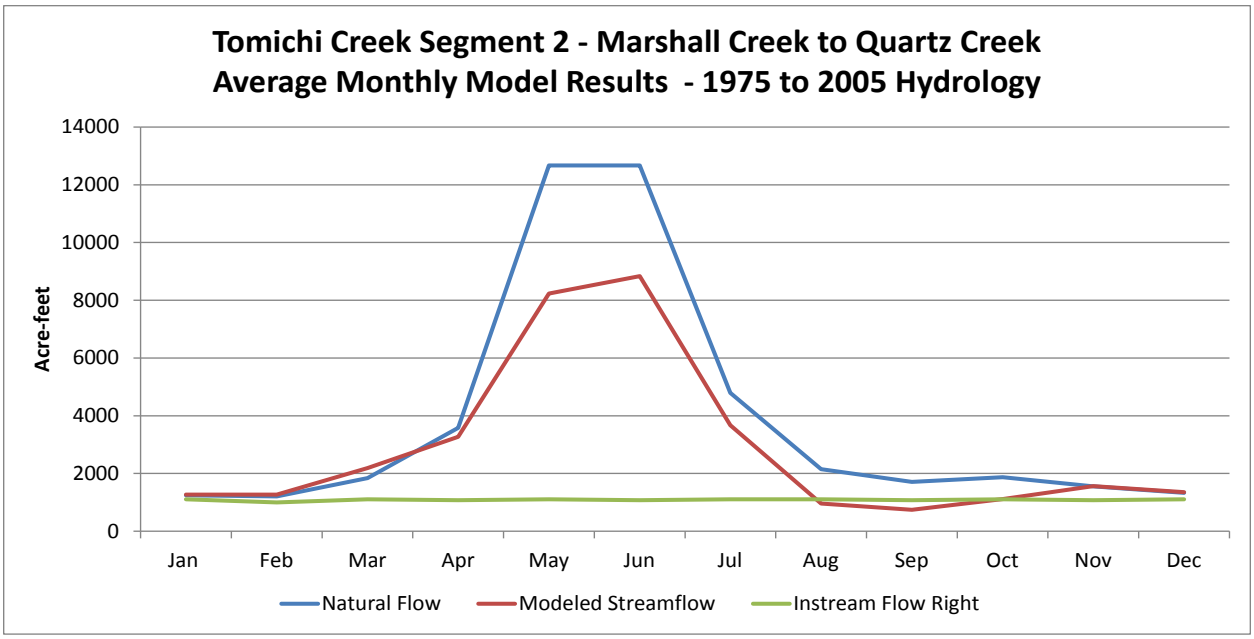
- The average natural flow is greater than the instream flow right in every month
- On average, there is enough monthly physical flow in the river to meet the instream flow right
- Natural flow in 1977 was less than the instream flow right in the winter months (November through February)
- Senior irrigation demands reduced river flows below the instream flow right in late irrigation season (July through September) during the very dry years
- Lagged return flows from irrigation provide increased flow in November and December compared to natural flow absent irrigation

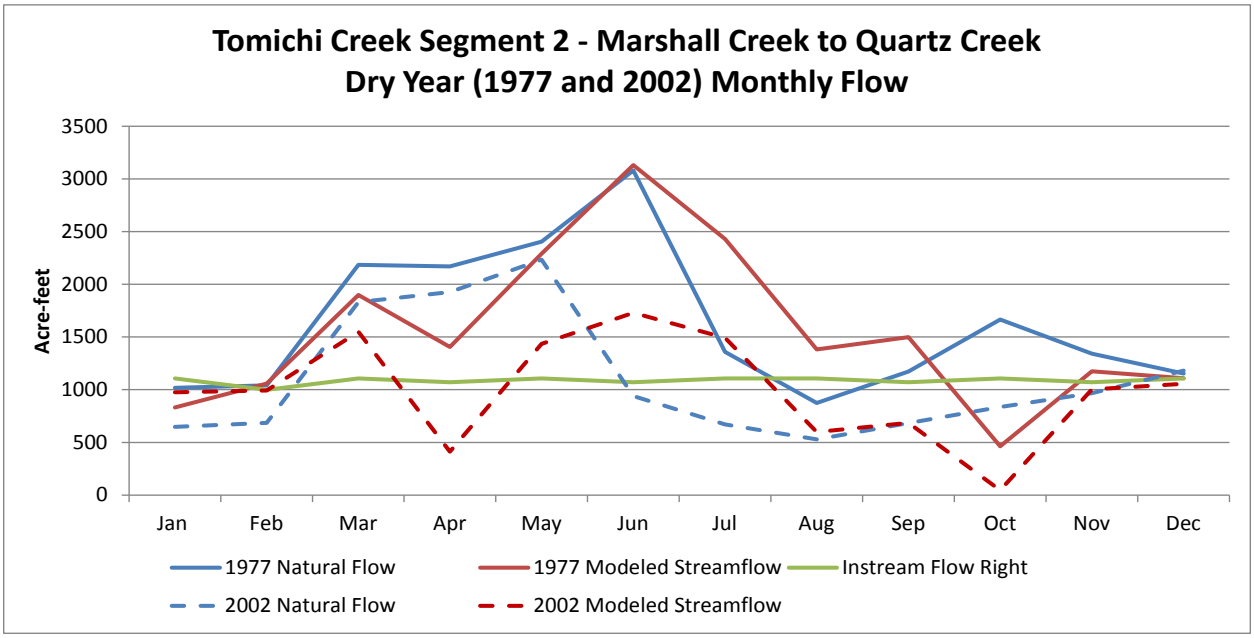




Tomichi Creek Segment 1 Instream Flow Observations

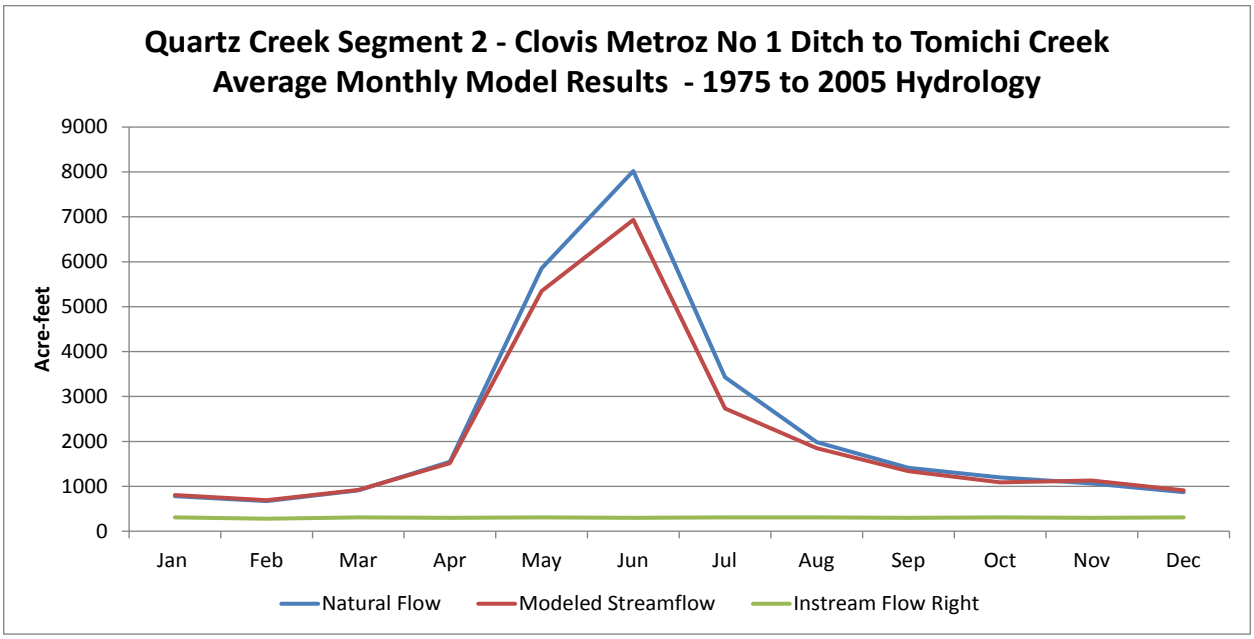
- The average natural flow is greater than the instream flow right in every month
- On average, there is enough monthly physical flow in the river to meet the instream flow right
- Natural flow in 2002 was less than the instream flow right from June through February; because natural flow was so low, there was essentially no flow available for senior irrigation uses; therefore physical flow was the same as natural flow most months
- Natural flow was less than the instream flow right in January and July in 1977.

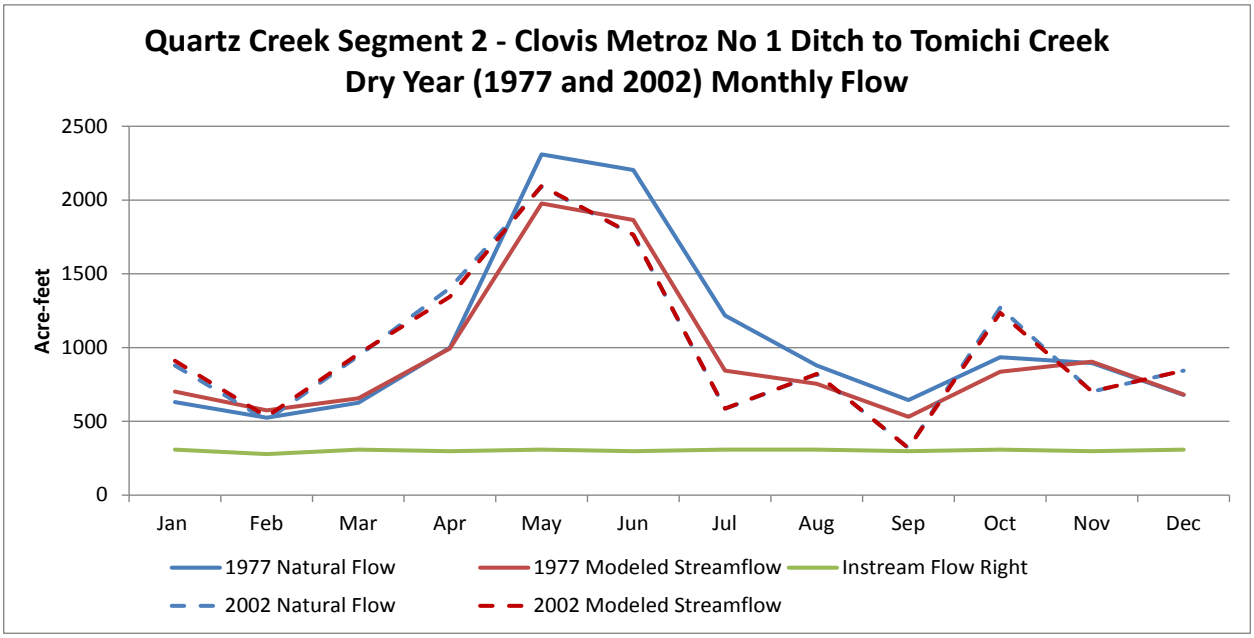




Tomichi Creek Segment 2 Instream Flow Observations

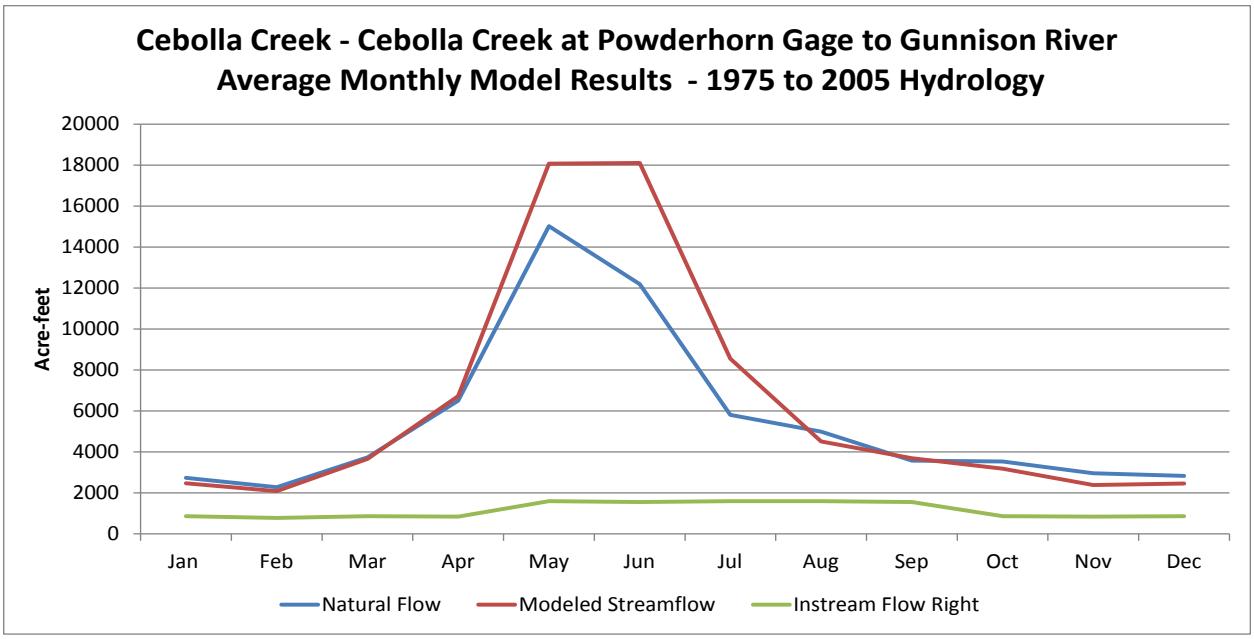
- The average natural flow is greater than the instream flow right in every month
- On average, there is enough monthly physical flow in the river to meet the instream flow right except in the late irrigation season months (August and September)
- Natural flow in 2002 was less than the instream flow right from June through February; because natural flow was so low, there was essentially no flow available for senior irrigation diversions except in April and May
- The lagged return flows associated with the 2002 April and May irrigation diversions increased the physical flow to above the instream flow right in June and July; if those diversions had not occurred, the instream flow right would not have been satisfied during those months.

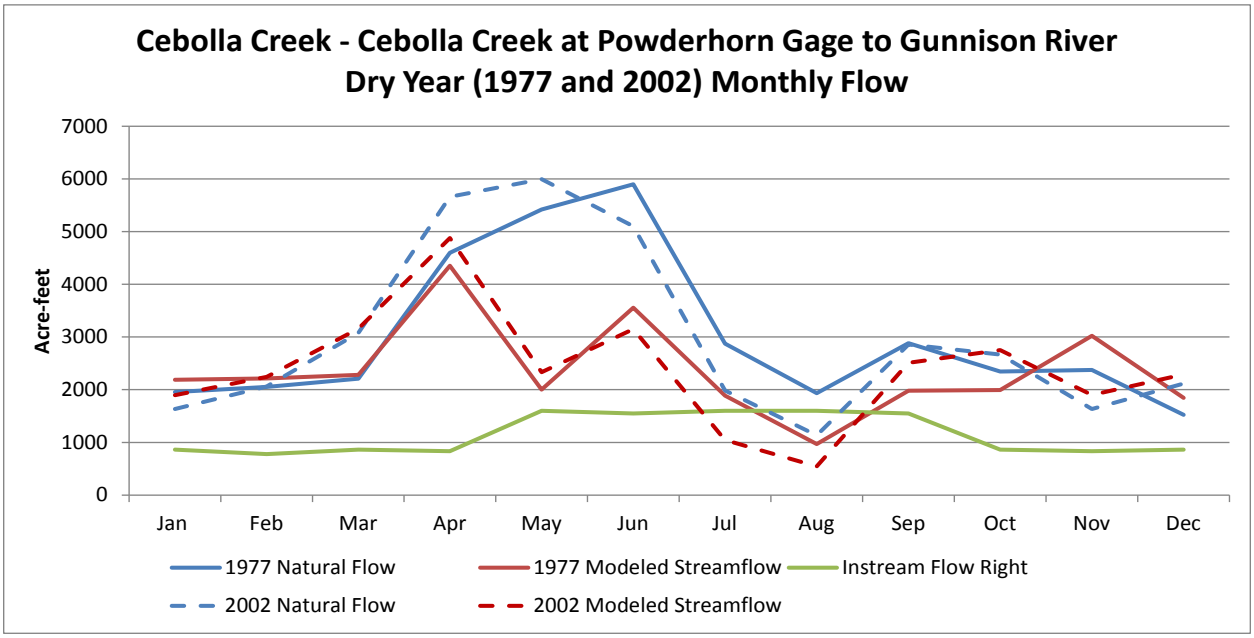




Quartz Creek Segment 2 Instream Flow Observations

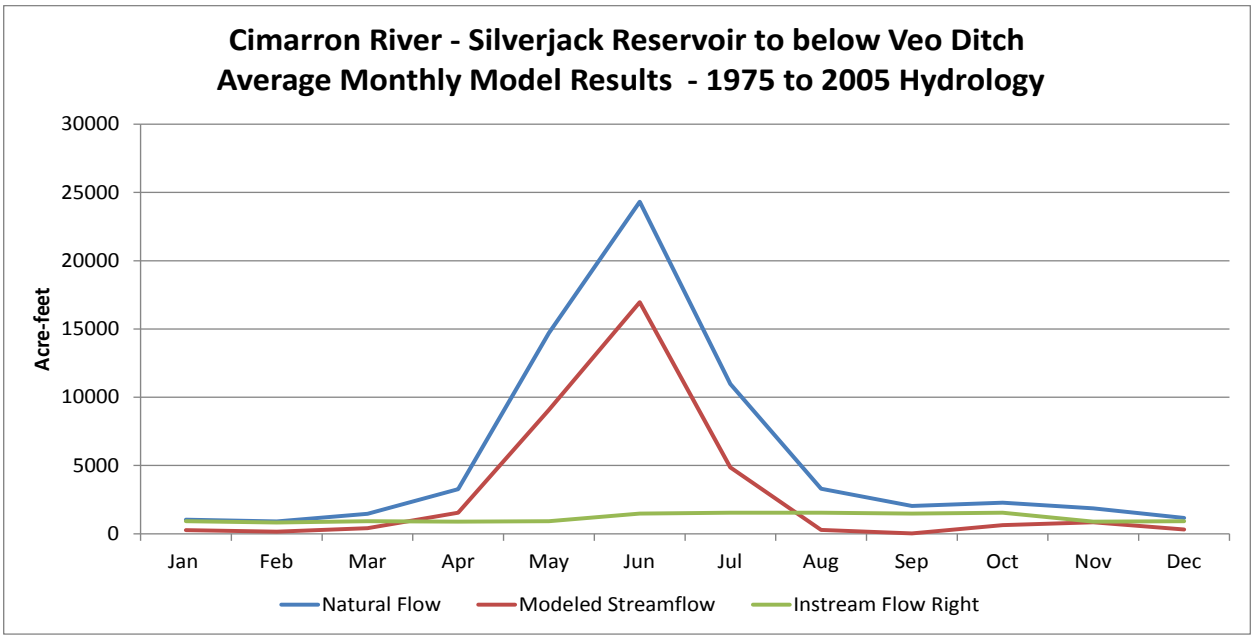
- The average and in dry years, natural flow is greater than the instream flow right in every month
- On average and in dry years, there is enough monthly physical flow in the river to meet the instream flow right

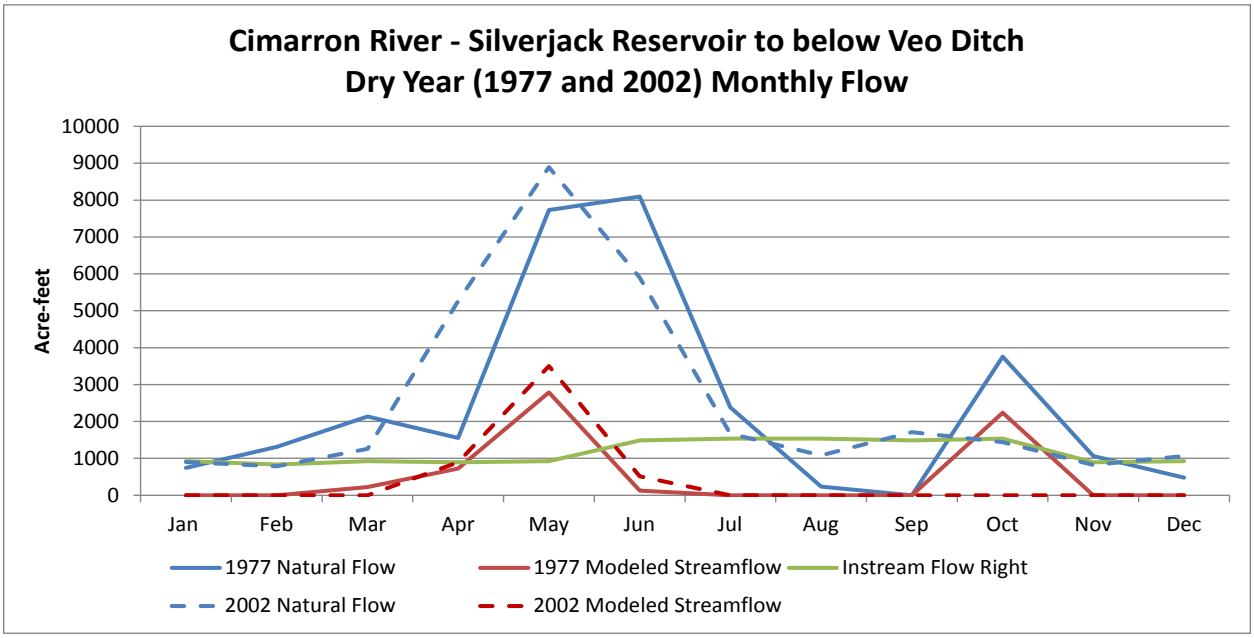




Cebolla Creek Instream Flow Observations

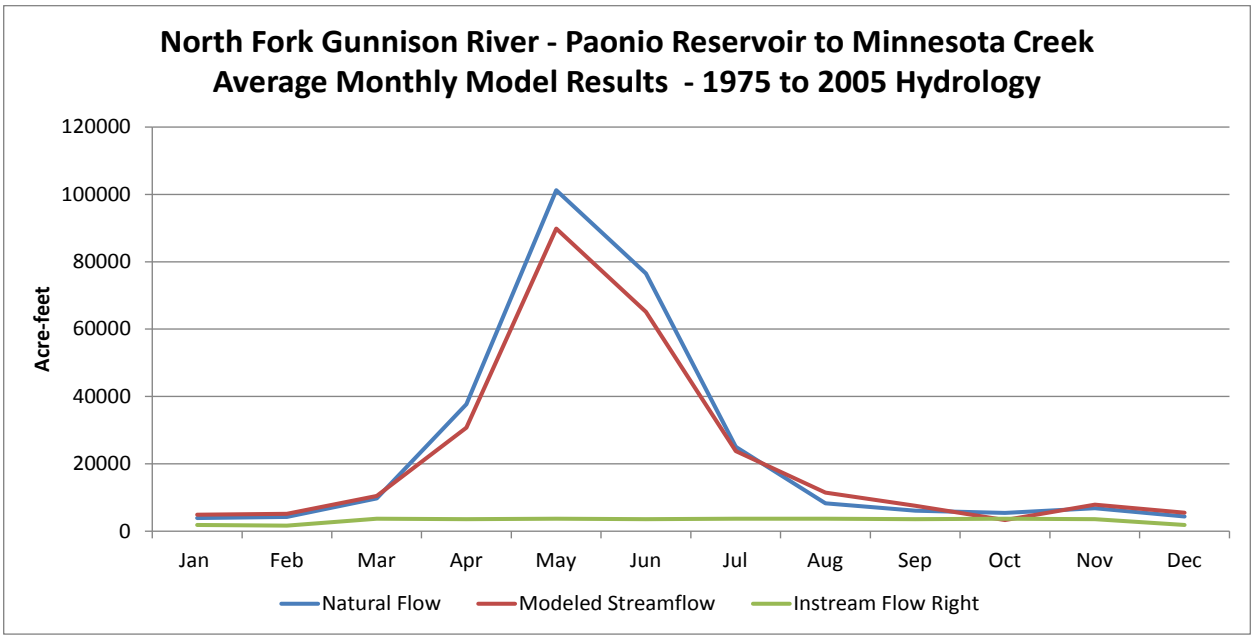
- The average natural flow is greater than the instream flow right in every month
- On average, there is enough monthly physical flow in the river to meet the instream flow right
- Natural flow was less than the instream flow right in July and August in 2002, and in August of 1977
- Senior irrigation diversions caused the physical flow to be less than the instream flow right in July and August in 2002

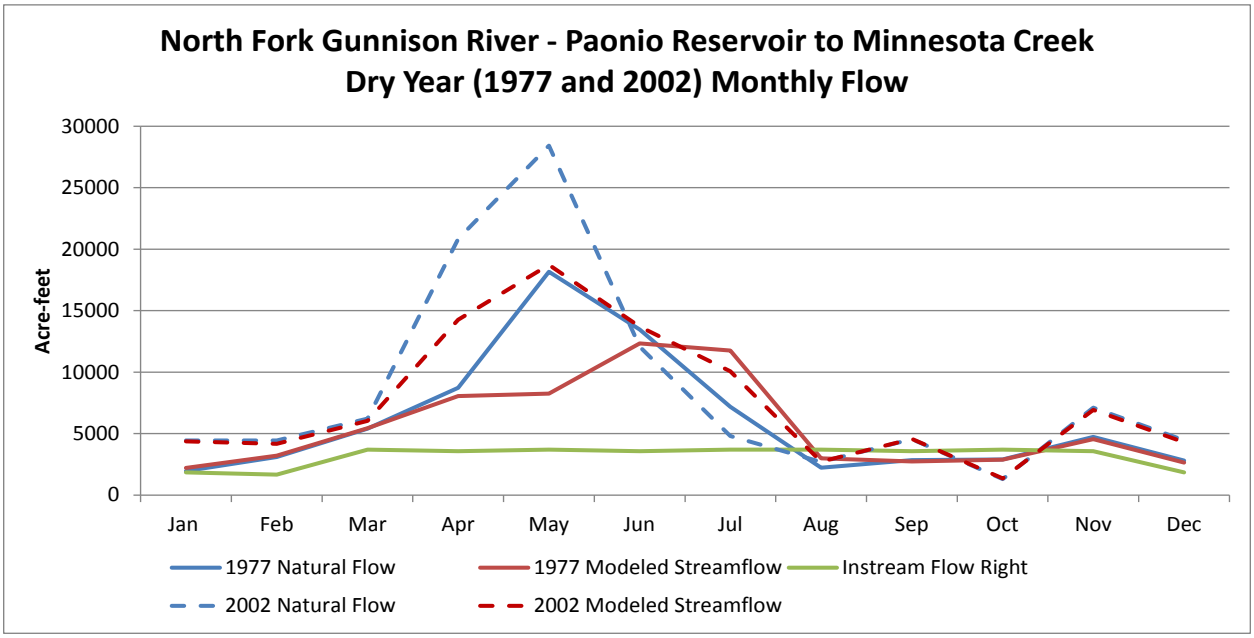




Cimarron River Instream Flow Observations

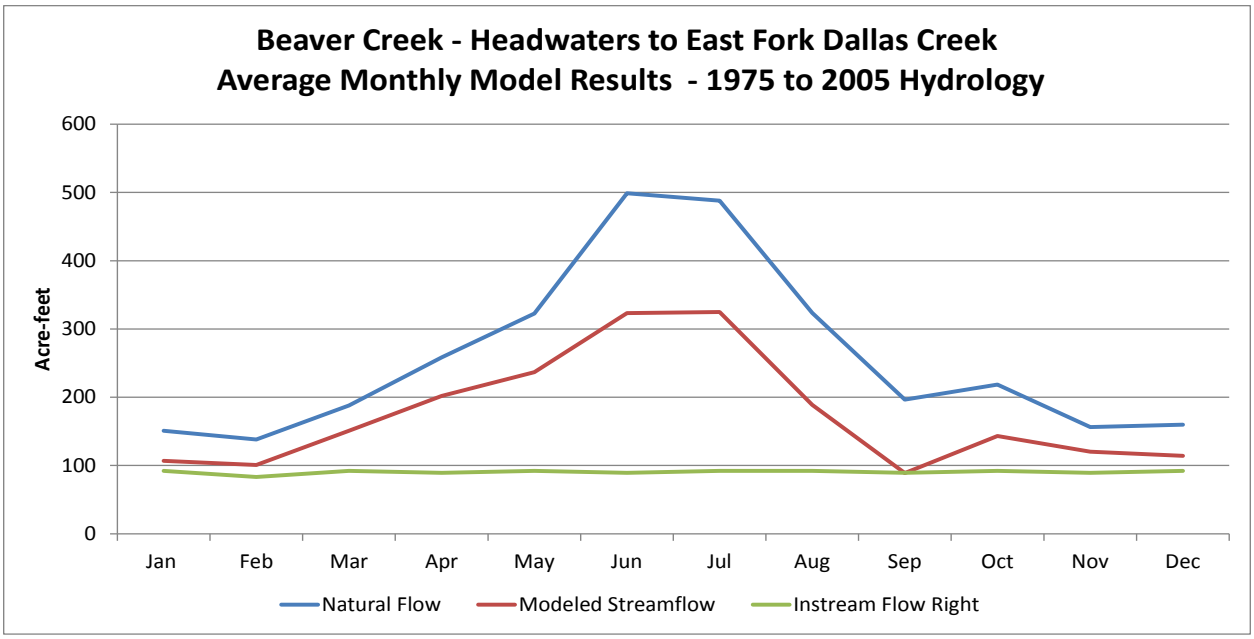
- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is not enough physical flow in the river to meet the instream flow right in August through March
- In 1977, the natural flow was less than the instream flow request in August, September, and December; in 2002 the natural flow was less than the instream flow request in August
- There was physical flow to meet the instream flow right in 2002 only in the month of May; there was physical flow to meet the instream flow right in 1077 only in the months of May and October

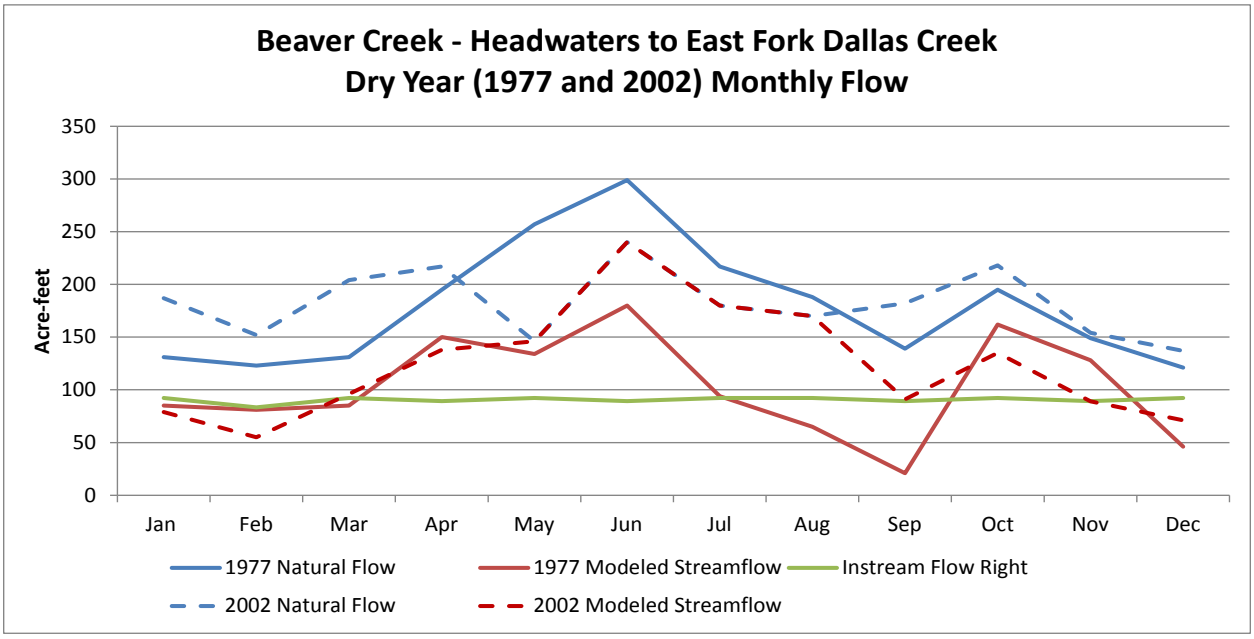




North Fork Gunnison River Instream Flow Observations

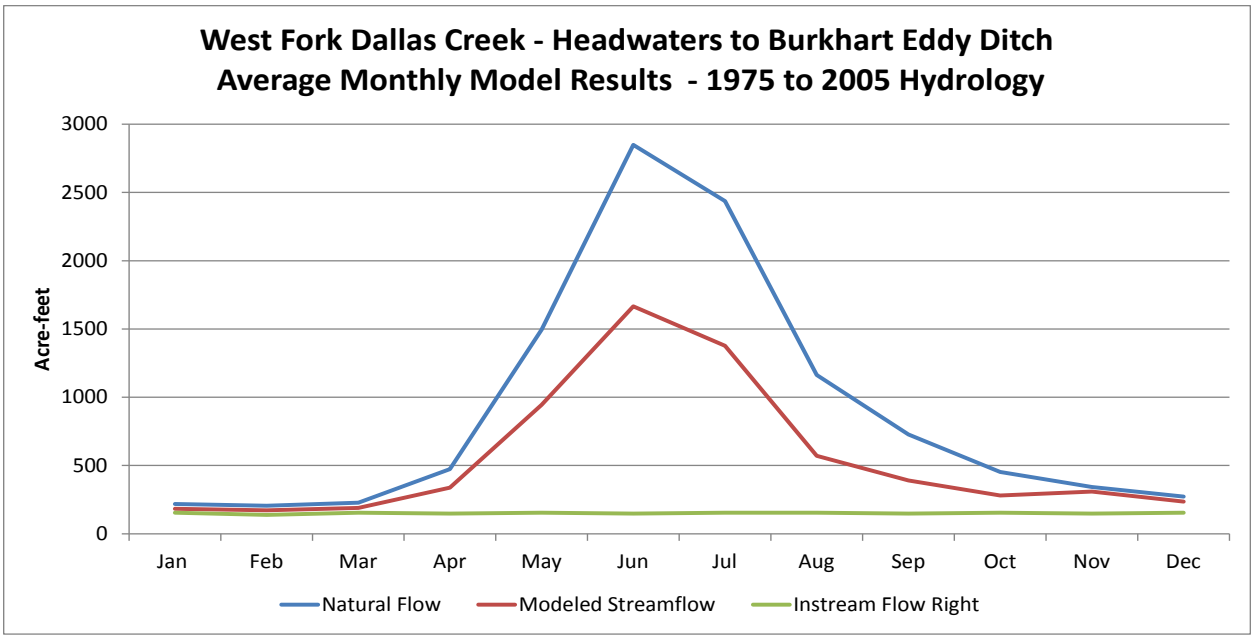
- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is enough physical flow to meet the instream flow right except in October
- Natural flow was less than the instream flow right in the late irrigation season (August through October) in the dry years
- Lagged return flows from irrigation and Paonia Reservoir operations provide increased flow in June, July, and August compared to natural flow absent operations in the dry years

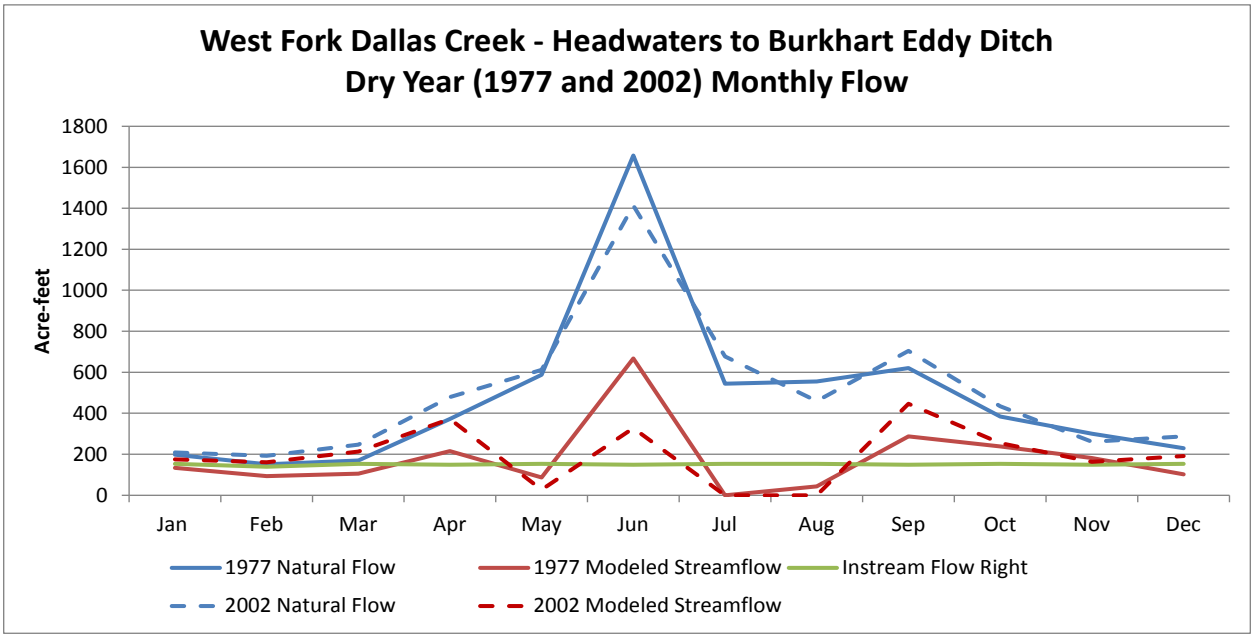




Beaver Creek Instream Flow Observations

- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is enough physical flow in the river to meet the instream flow right every month
- Natural flow were higher than the instream flow right every month during the dry years of 1977 and 2002
- Senior irrigation diversions, primarily Ridgway Ditch, reduced river flows below the instream flow right in the late irrigation season (August and September) in 1977





West Fork Dallas Creek Instream Flow Observations

- The average natural flow is greater or equal to the instream flow right in every month
- On average, there is enough physical flow in the river to meet the instream flow right every month
- Natural flow was greater than or equal to the instream flow right in every month during the dry years of 1977 and 2002
- Senior irrigation diversions reduced river flows below the instream flow right in May, July and August during the irrigation season in the dry years of 1977 and 2002; physical flow was less than the instream flow right during the winter months in 1977

Appendix 12: Project Analyses – Paonia Case Study

Paonia Case Study Goals

1. Investigate opportunities for Projects that benefit Consumptive and Non-consumptive needs
2. Investigate benefits of increased agricultural efficiency specifically as it relates to reservoir use

Model Parameters:

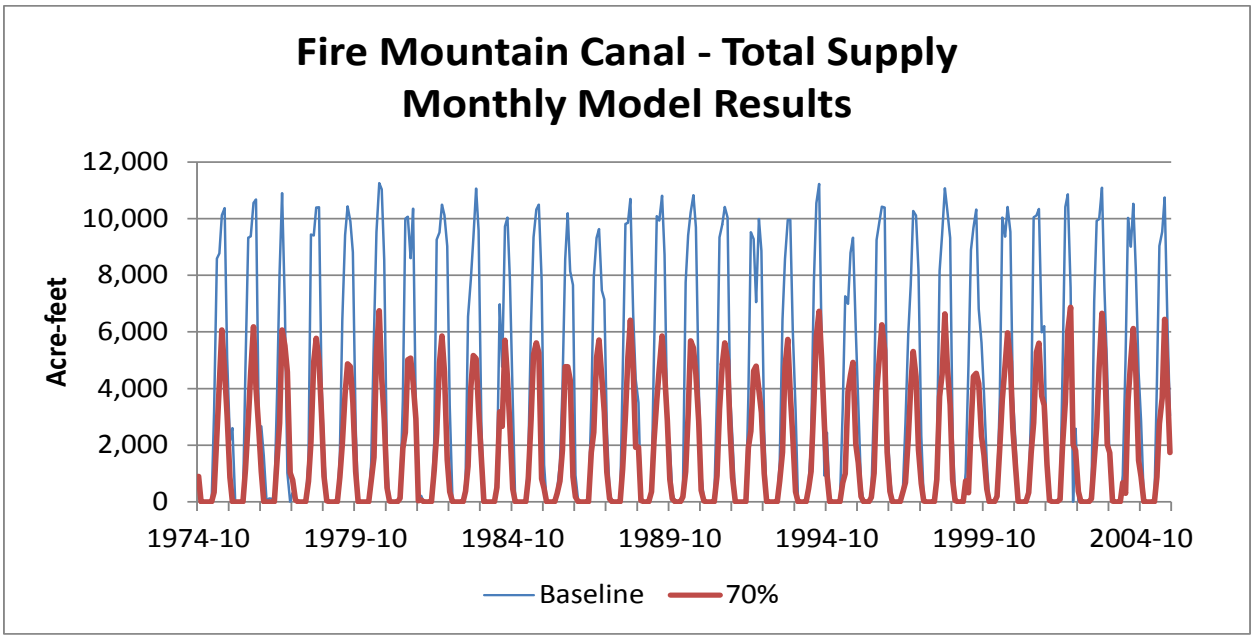
1. Paonia Reservoir
    a. Account for Fire Mountain Canal = 12,650 AF
    b. Account for Ragged Mountain Exchange user = 2,000 AF
    c. Reservoir drawn down for Flood Control based on USBR Rule Curves
2. Fire Mountain Canal
    a. Baseline: Average Monthly Efficiency = 51%
    b. 70% Simulation: Average Monthly Efficiency = 70%
    c. Headgate "demands" calculated based on CIR/Average Efficiency
3. Ragged Mountain Exchange Users
    a. Baseline: Average Monthly Efficiency = 50%
    b. 70% Simulation: Average Monthly Efficiency = 70%
    c. Headgate "demands" calculated based on CIR/Average Efficiency

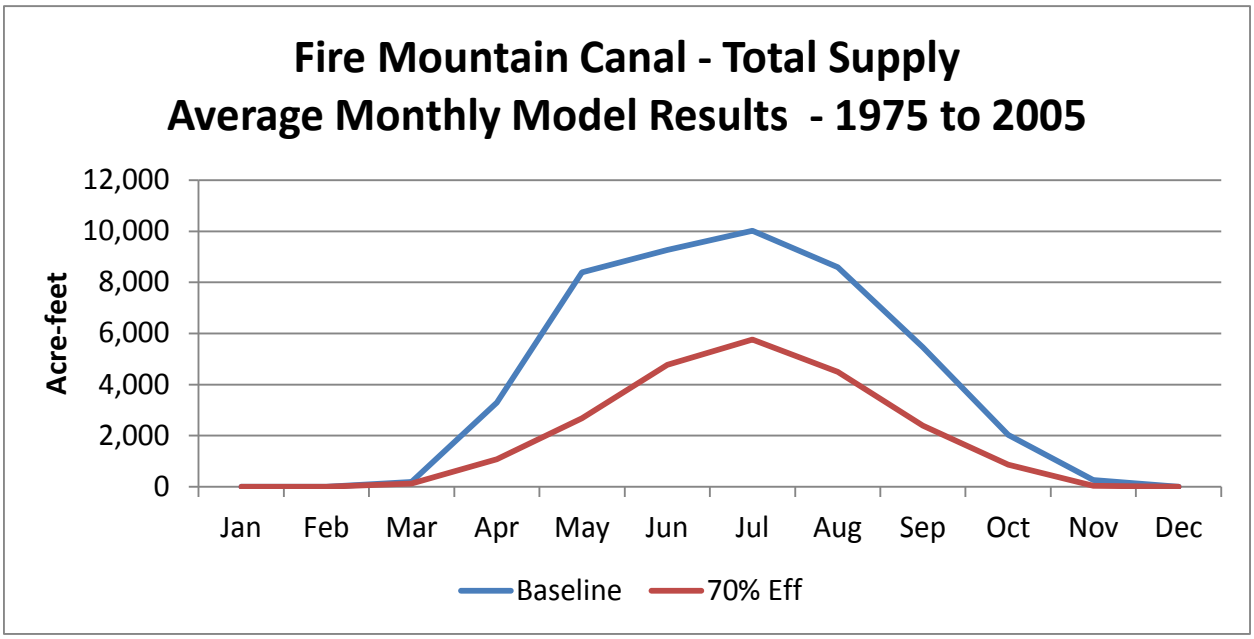
Ragged Mountain Exchange Users

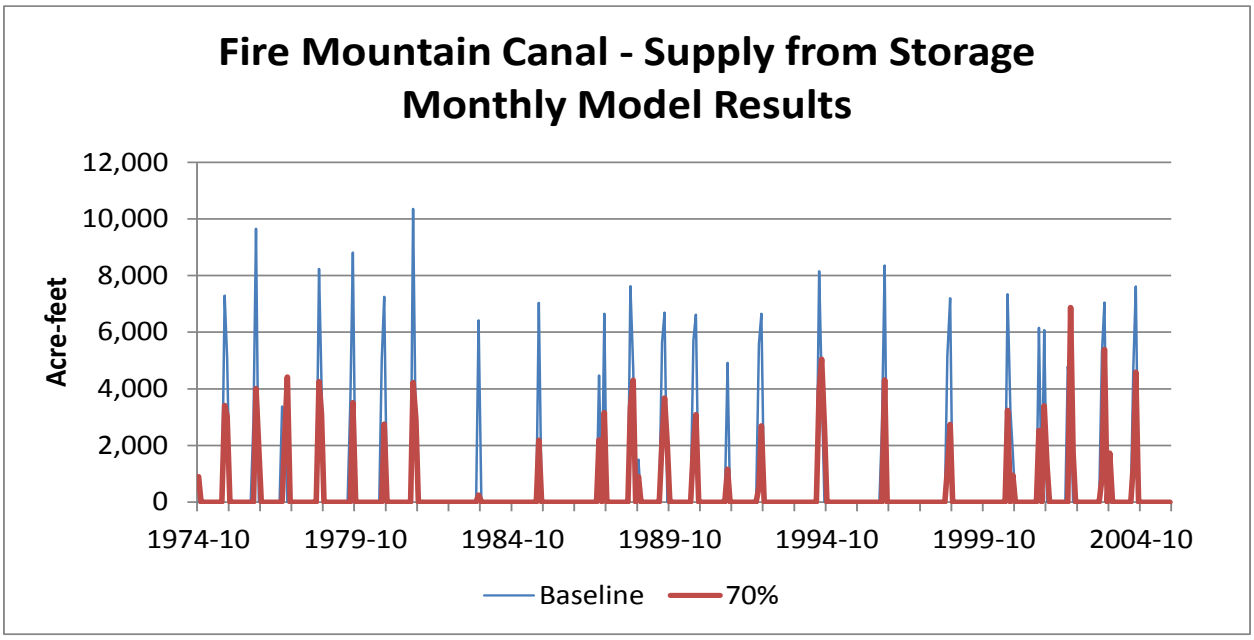
- Ragged Mountain Exchange Users do not increase CU with increased efficiency
- Limited by Reservoir Storage (2,000 AF account)
- Reduced headgate diversions = reduced return flows above Paonia Reservoir
- Inflow to Paonia Reservoir changes little with increased efficiency
    - Reduced Diversions = Reduced Return Flows (they offset each other)

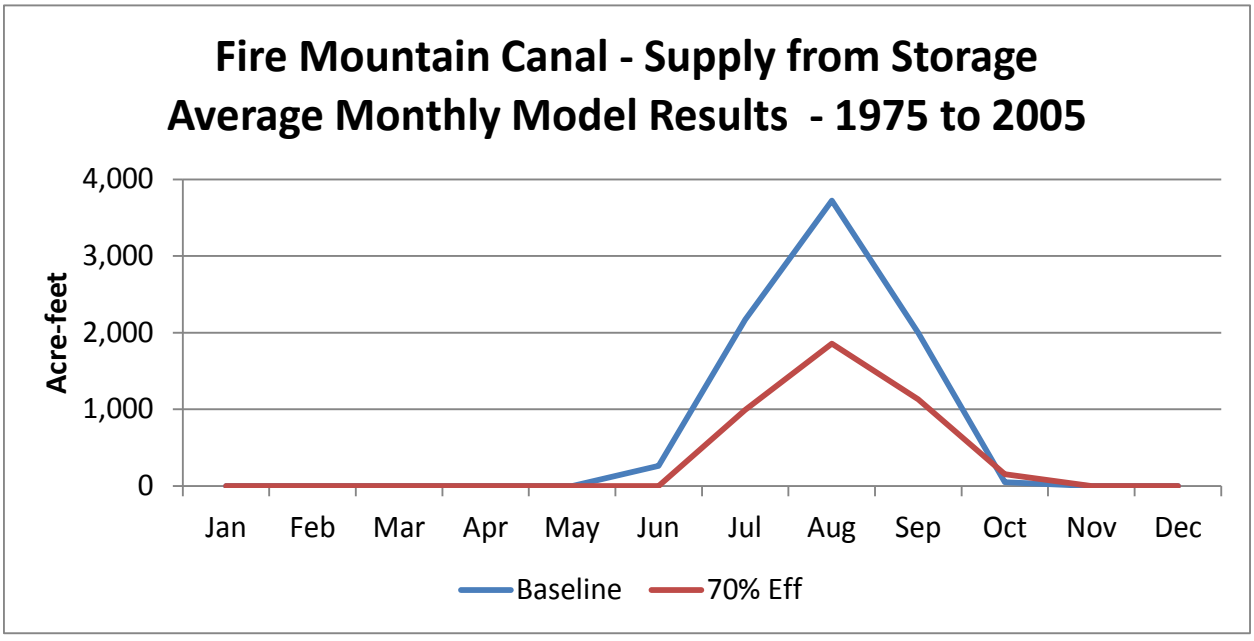
Fire Mountain Canal

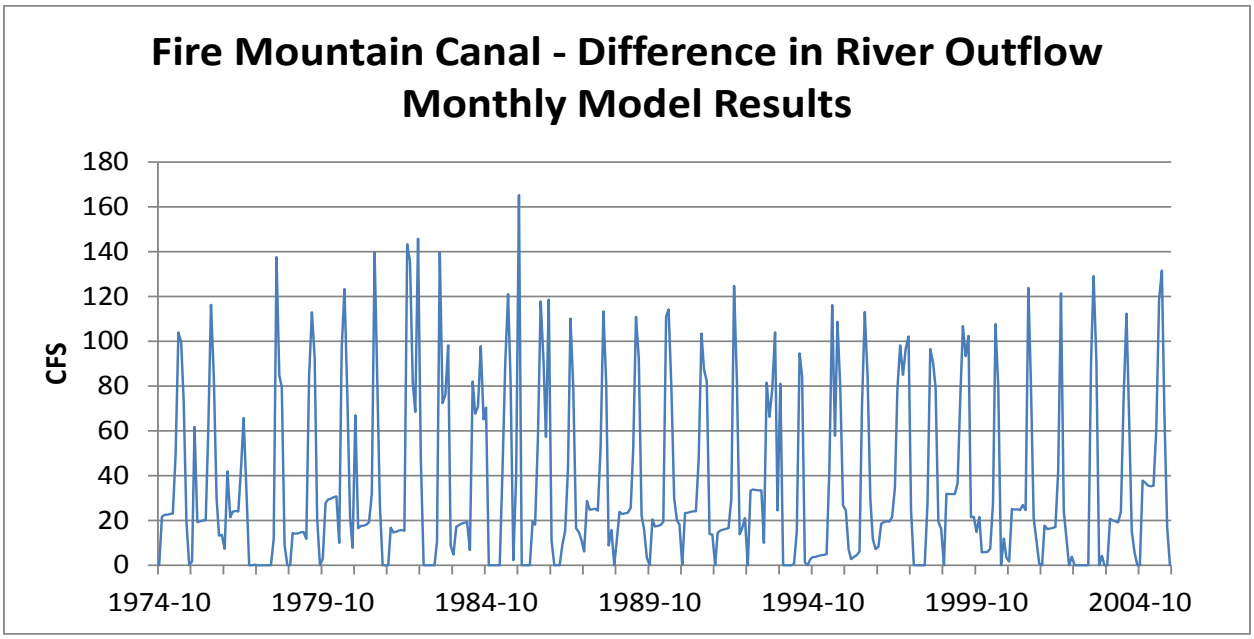
1. Reduced Headgate Demand due to more efficient delivery system = Reduced Direct Diversions
2. Reduced Headgate Demand due to more efficient delivery system = Reduced Reservoir Use
3. Minimal increase in Consumptive Use since generally receives full supply; however operational efficiencies would likely results time and cost savings
4. Reduced Direct Diversions = Increased Flow past Headgate
5. Reduced Reservoir Use = Increased EOM Content in Paonia Account (that is until releases are made for flood control)

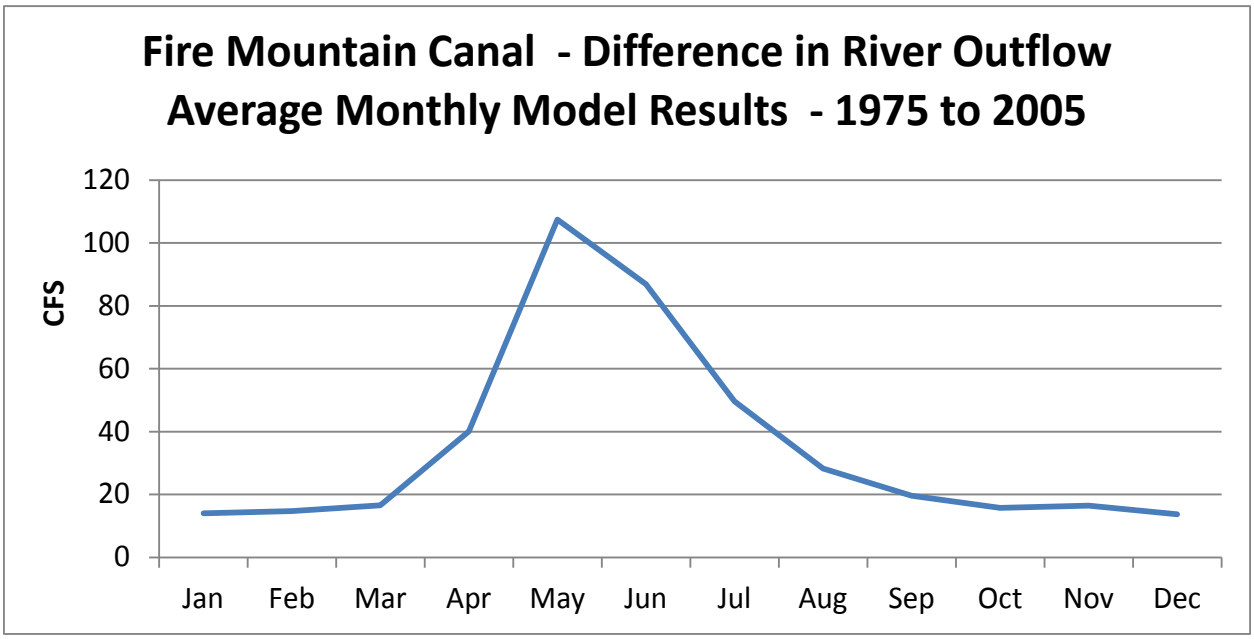

Fire Mountain Canal - Total Supply
Monthly Model Results
Acre-feet
12,000
10,000
8,000
6,000
4,000
2,000
0
1974-10
1979-10
1984-10
1989-10
1994-10
1999-10
2004-10
Baseline
70%

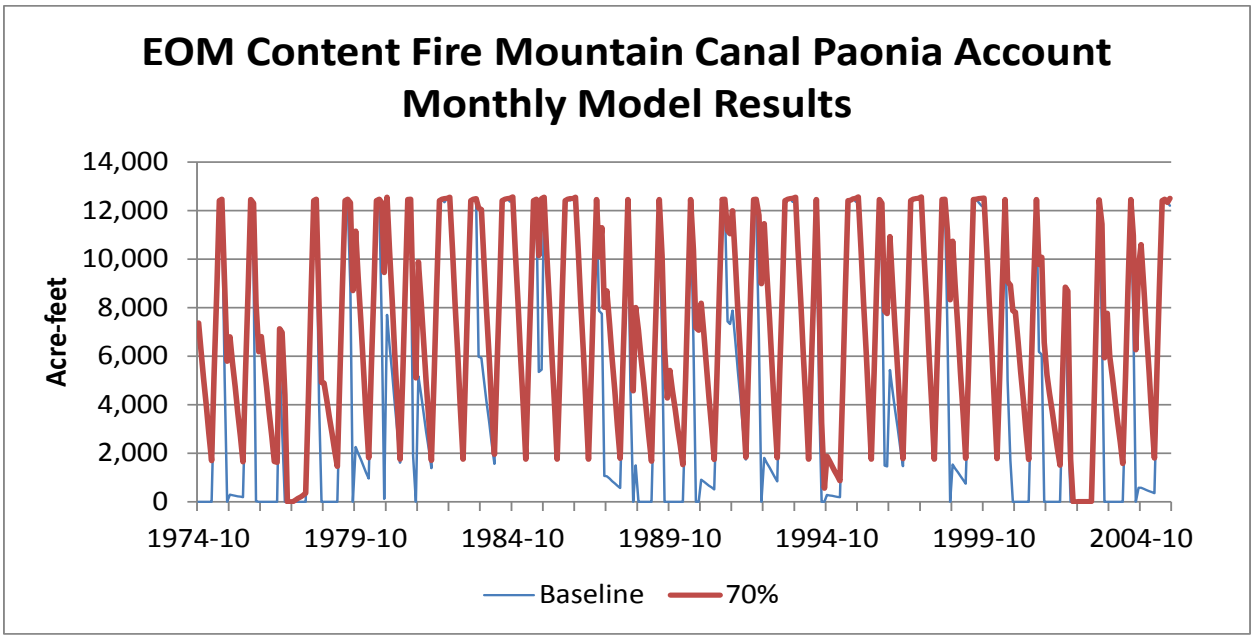

Fire Mountain Canal - Total Supply
Average Monthly Model Results - 1975 to 2005
Acre-feet
12,000
10,000
8,000
6,000
4,000
2,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Baseline
70% Eff

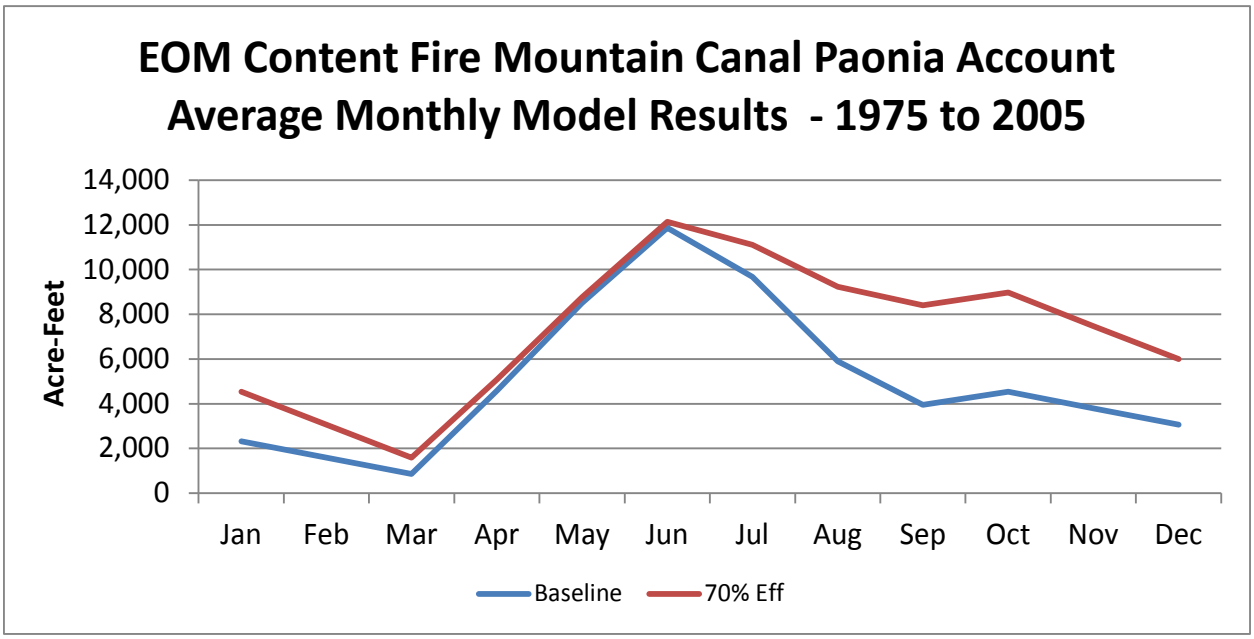

Fire Mountain Canal - Supply from Storage
Monthly Model Results
12,000
10,000
8,000
6,000
4,000
2,000
0
Acre-feet
1974-10
1979-10
1984-10
1989-10
1994-10
1999-10
2004-10
Baseline
70%


Fire Mountain Canal - Supply from Storage
Average Monthly Model Results - 1975 to 2005
4,000
3,000
2,000
1,000
0
Acre-feet
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Baseline
70% Eff


Fire Mountain Canal - Difference in River Outflow
Monthly Model Results
CFS
180
160
140
120
100
80
60
40
20
0
1974-10
1979-10
1984-10
1989-10
1994-10
1999-10
2004-10


Fire Mountain Canal - Difference in River Outflow
Average Monthly Model Results - 1975 to 2005
CFS
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


EOM Content Fire Mountain Canal Paonia Account
Monthly Model Results
Acre-feet
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1974-10
1979-10
1984-10
1989-10
1994-10
1999-10
2004-10
Baseline
70%


EOM Content Fire Mountain Canal Paonia Account
Average Monthly Model Results - 1975 to 2005
Acre-Feet
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Baseline
70% Eff

Appendix 13: Project Analyses – Meridian Lake Enlargement

Approach

The following approach was taken to investigate the benefits of enlarging Meridian Lake from its current capacity of less than 500 AF to 1,381 AF. The project includes Meridian Lake off Washington Gulch, filled from a carrier ditch with a maximum 15 cfs capacity. The reservoir would provide late season supply to irrigation diversions on Slate River and East River downstream of the confluence; domestic and augmentation requirements; and provide storage for fish and wildlife. The analysis was performed using the existing Gunnison River basin StateMod model with the following revisions:

1) Included an enlarged Lake Meridian with total of 1,391 AF capacity on Washington Gulch (Node ID = 593663). The reservoir was given two accounts: 1,101 AF for irrigation, domestic and augmentation uses and 280 AF for fish and wildlife uses. The volumes are based on the four reservoir storage rights and their associated uses.
2) Included a new diversion on Washington Gulch upstream of the reservoir (Node ID = 593663_C). The new canal serves as a carrier ditch to convey water from Washington Gulch Creek to the reservoir. The canal capacity was set to 15 cfs.
3) Provided operating rules that direct StateMod to carry water from Washington Gulch to the reservoir using the reservoir's individual rights and associated priorities, limited to the 15 cfs capacity of the carrier structure. Note that no losses were assigned.
4) Provided operating rules that direct StateMod to deliver water from the Meridian Reservoir irrigation account to meet "shorted" irrigation demands on Slate Creek and downstream demand on East River.

Results

Review of the model results focused on reductions in shortages to irrigation structures on the Slate River and East River downstream of the confluence with Slate River. Figure 1 shows the time-series of Slate River and East River shortages with and without the Meridian Lake enlargement project based on 1975 through 2005 historical hydrology. Demands are defined as the amount of water irrigators need to divert from the river, based on current irrigation practices, to meet a full crop supply throughout the irrigation season. **As noted, the model estimates that irrigation demands are shorted on average by 6,300 AF percent without the project. Shortages are reduced to 5,350 AF with the project. The largest reduction in shortages occurs during moderately dry years.**

Figure 2 shows average monthly shortages with and without the project. As shown, Meridian Lake enlargement provides benefit in terms of shortage reductions throughout the irrigation season. **Average annual diversions increase on Slate River and East River by 950 acre-feet.**

Figure 1
Slate River and East River Shortage Comparison - Meridian Lake Enlargement

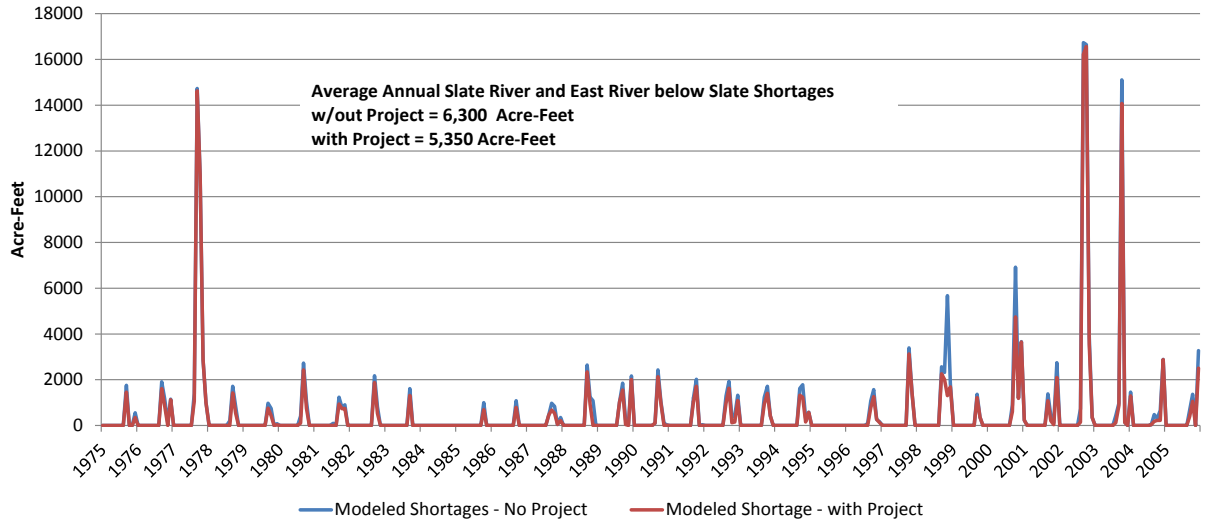


Figure 2
Average Monthly Slate River and East River Shortage Comparison - Meridian Lake Enlargement

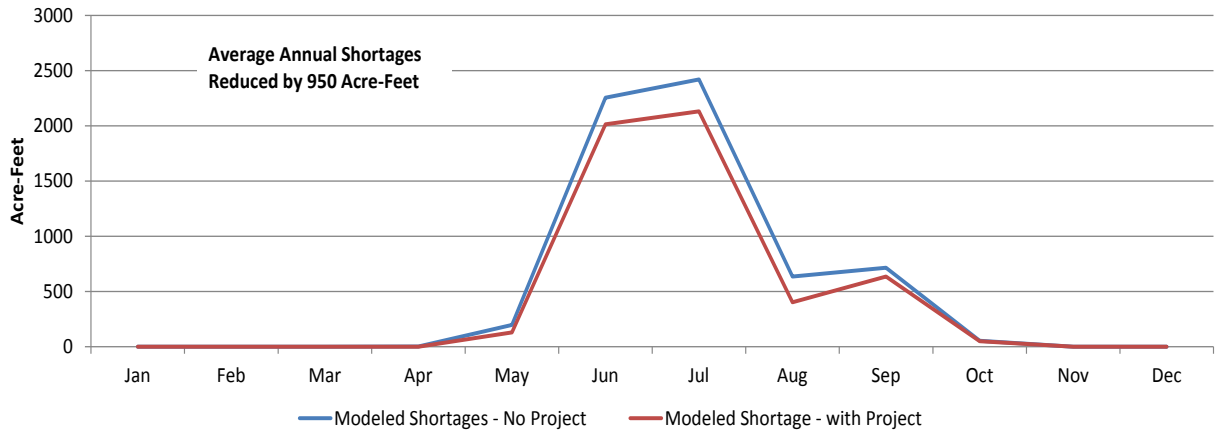


Figure 3 shows the simulated monthly reservoir contents. As shown, **the irrigation account is fully used during dry and average years**. **In wet years, for example the mid-1980s, there would be water available in the reservoir for other uses**. Figure 4 shows the average monthly pattern of reservoir content. As shown, the reservoir begins filling in the fall after the irrigation season, then is able to complete the fill in most years during April and May.

Figure 3
Meridian Lake Enlargement Simulated EOM Storage

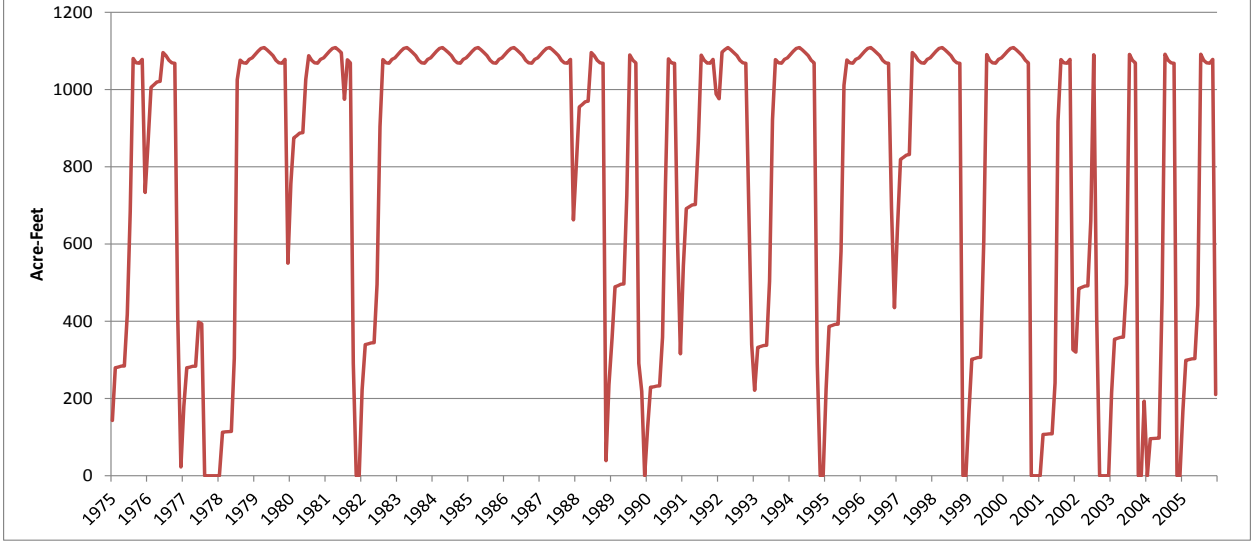
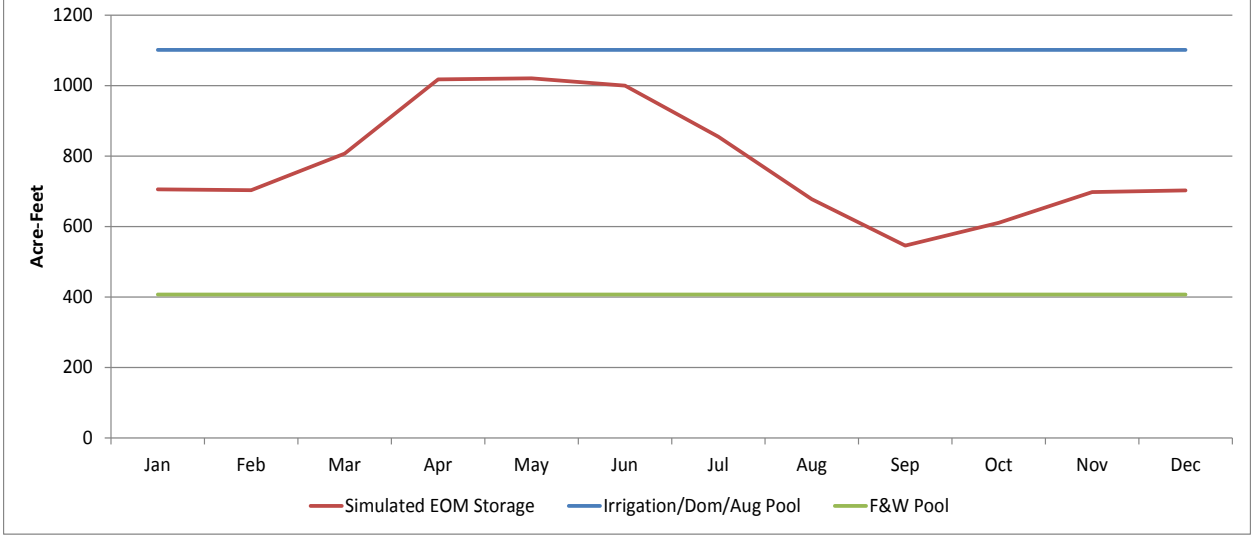


Figure 4
Meridian Lake Enlargement Average Monthly EOM Storage



Because the reservoir was able to fill most years, further analysis was performed to determine if a larger reservoir could meet additional shortages. Based on the estimated natural flow in Washington Gulch, it does not appear that additional flow is available most years to store in an increased enlargement.

An operating rule directing StateMod to release water from the fish and wildlife account was not included; however the instream flow on Slate River benefited from releases for downstream irrigation. Shortages to the Slate River instream flow right decreased in July, August and September; however they increased during the storage months.

Appendix 14: Project Analyses – Cunningham Lake Rehabilitation

Approach

The following approach was taken to investigate the benefits of rehabilitating the existing Cunningham Lake Reservoir structure. The 80 acre-feet reservoir is not currently used irrigation due to structural limitations. The project includes an off-channel reservoir (Cunningham Lake Reservoir) filled from Little Mill Creek Ditch. The reservoir would provide late season supply to irrigation diversions below the reservoir outlet on Mill Creek that provide habitat for Sage Grouse. The analysis was performed using the existing Gunnison River Basin StateMod model with the following revisions:

5) Included the 80 AF "off-channel" reservoir (Node ID = 593660) off Mill Creek. The reservoir was given one irrigation account.
6) Included Little Mill Creek Ditch (Node ID = 590982). The new canal serves as a carrier ditch to convey water from Mill Creek to the reservoir using the existing 5.75 cfs water right with the 1924 adjudication date. The canal capacity was set to 5.75 cfs.
7) Provided operating rules that direct StateMod to carry water from Mill Creek to store in Cunningham Lake Reservoir. Note that no losses were assigned; i.e. it was assumed the canal would be lined.
8) Provided operating rules that direct StateMod to deliver water from Cunningham Lake Reservoir to meet late season "shorted" irrigation demands under two ditches on Mill Creek (McGlashan South Side and McGlashan North Side ditches) and two ditches on Ohio Creek (Hinkle Irrigation and Hinkle Hamilton ditches) that provide habitat for Sage Grouse.

Results

Review of the model results focused on reductions in shortages to irrigation structures served by the Cunningham Lake Reservoir. Figure 1 shows the time-series of shortages for the two McGlashan ditches with and without the Cunningham Lake Reservoir Rehabilitation project based on 1975 through 2005 historical hydrology. Demands are defined as the amount of water irrigators need to divert from the river, based on current irrigation practices, to meet a full crop supply throughout the irrigation season. **As noted, the model estimates that irrigation demands are shorted on average by 785 AF without the project. Shortages are reduced to 725 AF with the project. The largest reduction in shortages occurs during average and dry years.**

Figure 2 shows average monthly shortages with and without the project. As shown, Cunningham Lake Reservoir provides benefit in terms of shortage reductions during the late

irrigation season months (July, August and September). **Average annual diversions under the four ditches increase by 60 acre-feet.**

Figure 1
Shortage Comparison - Cunningham Lake Reservoir Rehabilitation Project

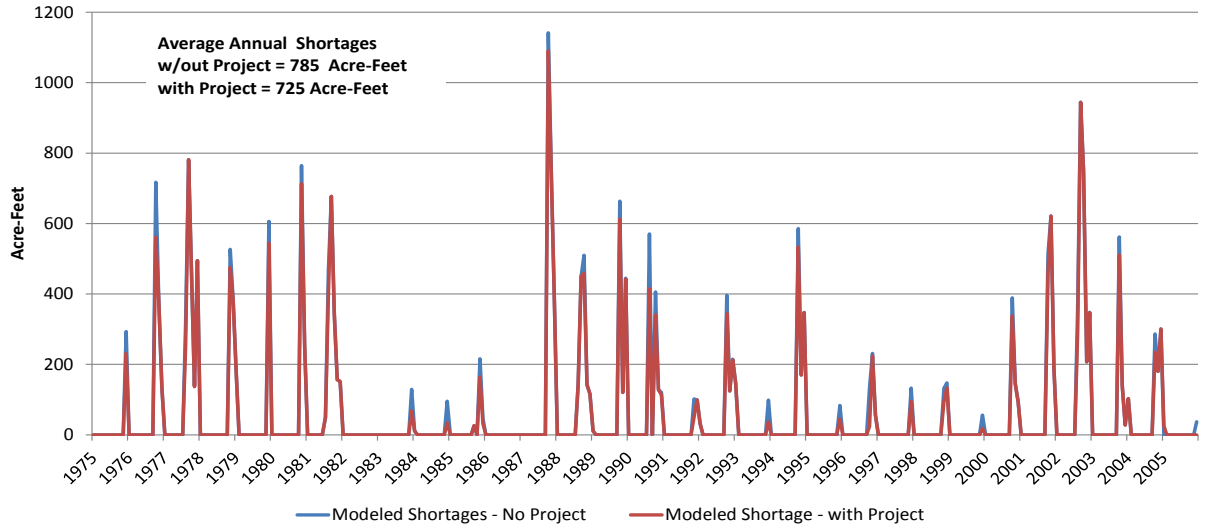


Figure 2
Average Monthly Shortage Comparison - Cunningham Lake Reservoir Rehabilitation Project

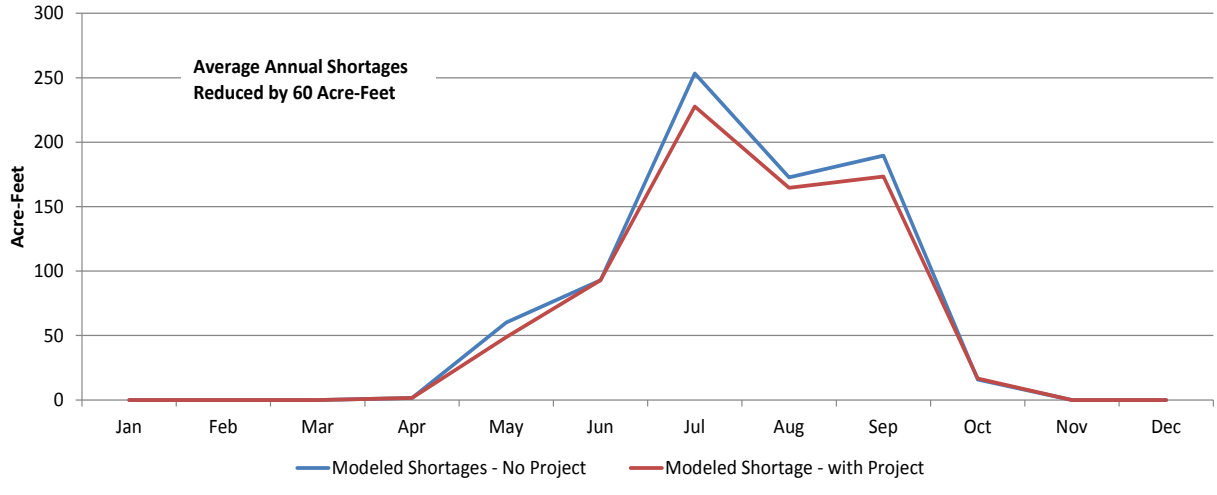


Figure 3 shows the simulated monthly reservoir contents. As shown, **the irrigation account is fully used during most years**. **Only in extremely wet years, for example in 1986, there would be water available in the reservoir for other uses**. Figure 4 shows the average monthly pattern of reservoir content. As shown, the reservoir begins filling in the fall after the irrigation season, then is able to complete the fill in most years during March and April.

Figure 3
Cunningham Lake Reservoir Simulated EOM Storage

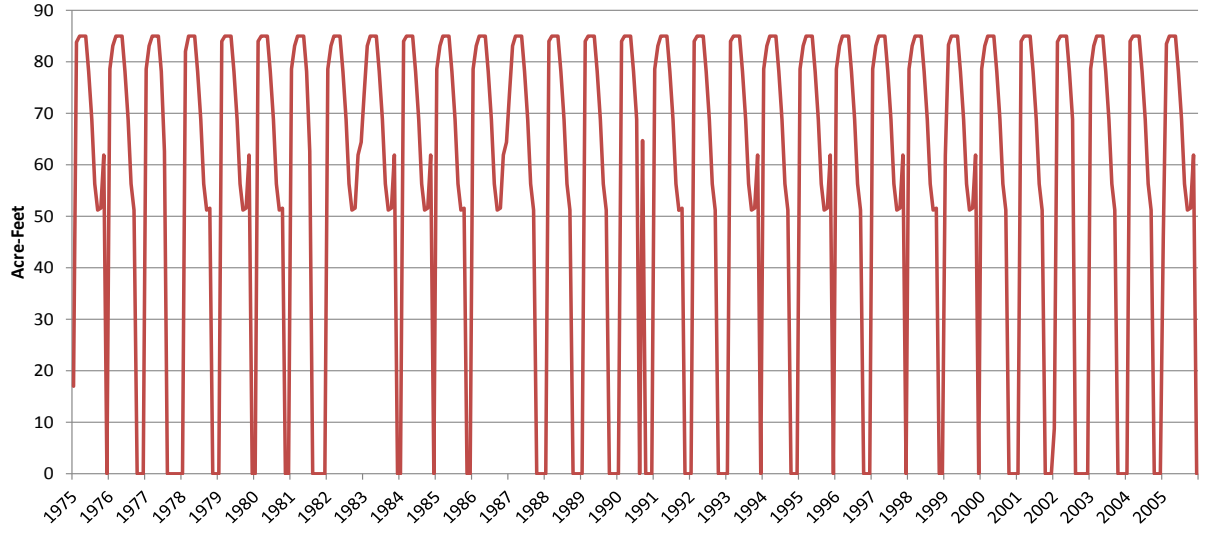
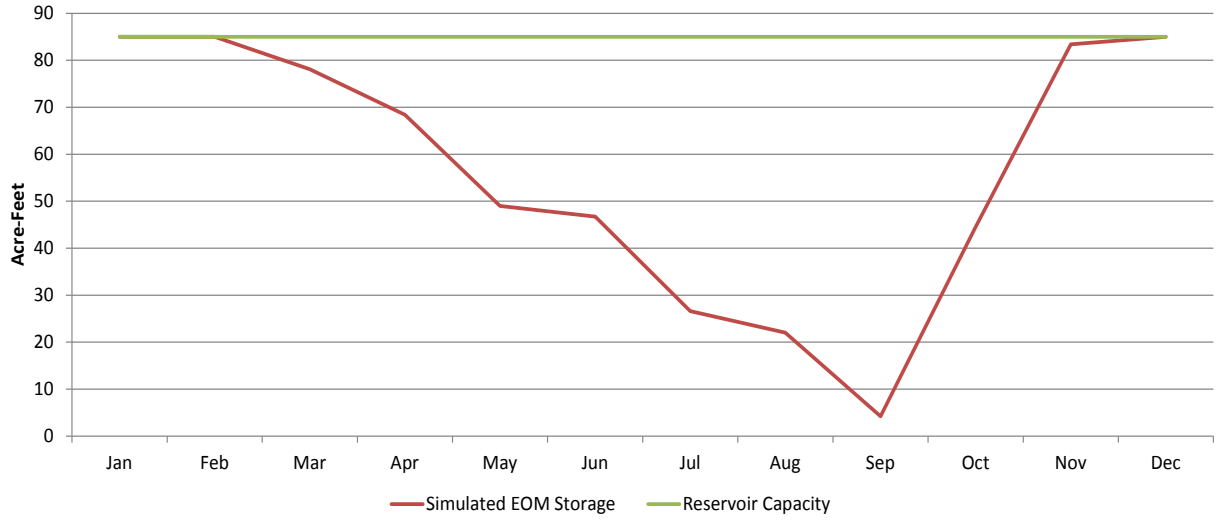


Figure 4
Cunningham Lake Reservoir Average Monthly EOM Storage



Because this project would rehabilitate and existing reservoir, further analysis was not performed to determine if a larger reservoir could meet additional shortages.

Appendix 15: Project Analyses – Upper Long Branch Reservoir

Approach

The following approach was taken to investigate the benefits of the Long Branch Reservoir project. The project includes Upper Long Branch Reservoir on the Long Branch tributary to Tomichi Creek. The reservoir would be filled from available snowmelt on the tributary and would provide supplemental water to irrigation diversions on Long Branch and Tomichi Creek primarily downstream of the confluence. The analysis was performed using the existing Gunnison River basin StateMod model with the following revisions:

9) Included Upper Long Branch Reservoir with total of 1,500 AF capacity on Long Branch (Node ID = LB_Res). The reservoir was modeled with a single irrigation account.
10) Provided a 1,500 AF storage right with a priority just senior to the Aspinall Unit storage and power right; the storage right is the most junior right on Tomichi Creek.
11) Provided operating rules that direct StateMod to deliver water from the Upper Long Branch Reservoir to meet "shorted" irrigation demands on Long Branch, and both upstream and downstream of the Long Branch tributary on Tomichi Creek.

Results

Review of the model results focused on reductions in shortages to irrigation structures on the Long Branch and Tomichi Creek.

Figure 1 shows the time-series of Long Branch and Tomichi Creek shortages with and without the Upper Long Branch Reservoir project based on 1975 through 2005 historical hydrology. Demands are defined as the amount of water irrigators need to divert from the river, based on current irrigation practices, to meet a full crop supply throughout the irrigation season. **As noted, the model estimates that irrigation demands are shorted on average by 16,900 AF without the project. Shortages are reduced to 15,000 AF with the project. The largest reduction in shortages occurs during moderately dry years.**

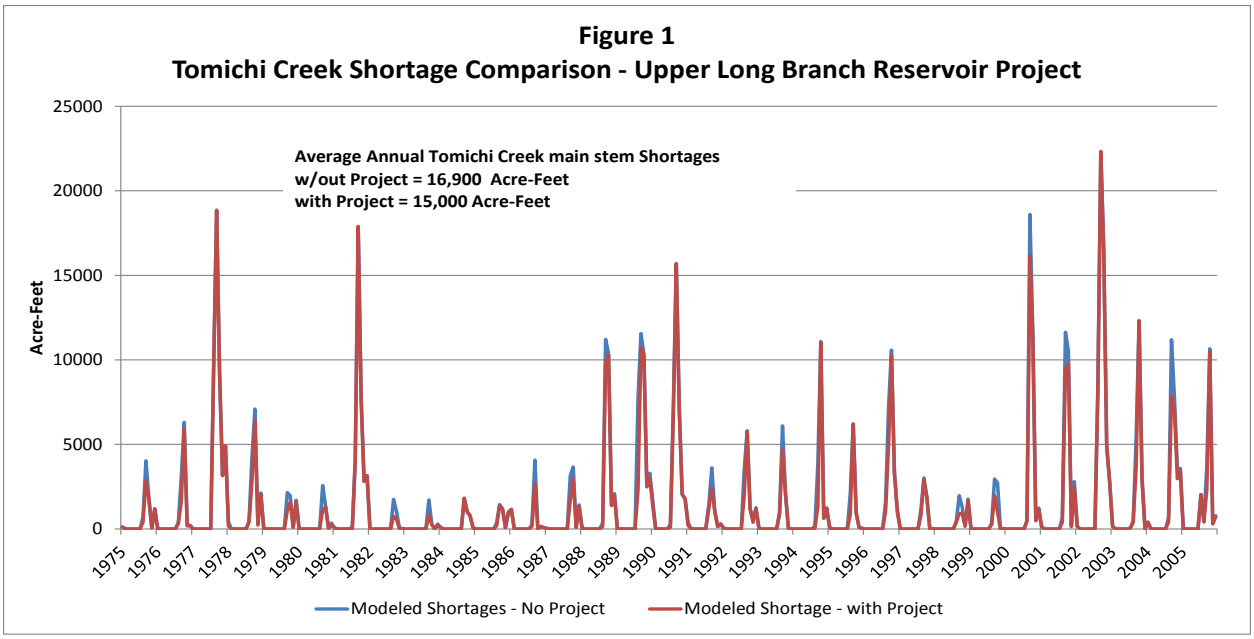


Figure 2 shows average monthly shortages with and without the project. As shown, Upper Long Branch Reservoir provides benefit in terms of shortage reductions only during the early irrigation season (May and June). In every year, the reservoir is empty by the end of July. **Average annual diversions increase on Long Branch and Tomichi Creek by 1,900 acre-feet.**

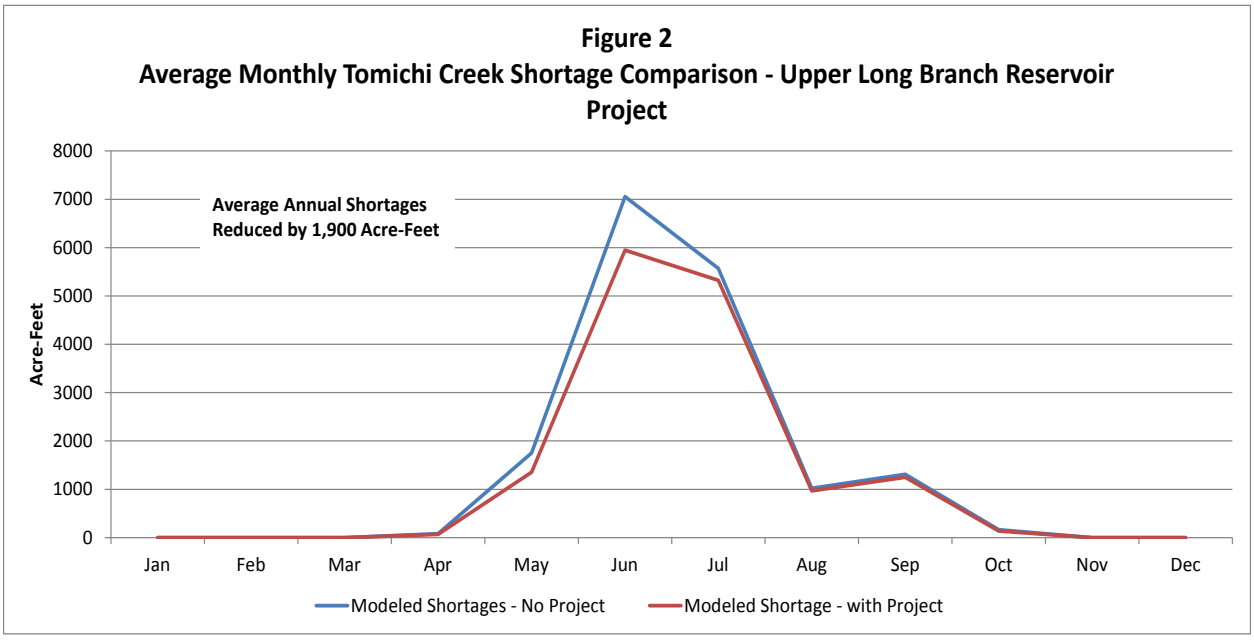


Figure 3 shows the simulated monthly reservoir contents. As shown, **the reservoir is fully used every year during the simulation**.

Figure 3
Upper Long Branch Reservoir Simulated EOM Storage

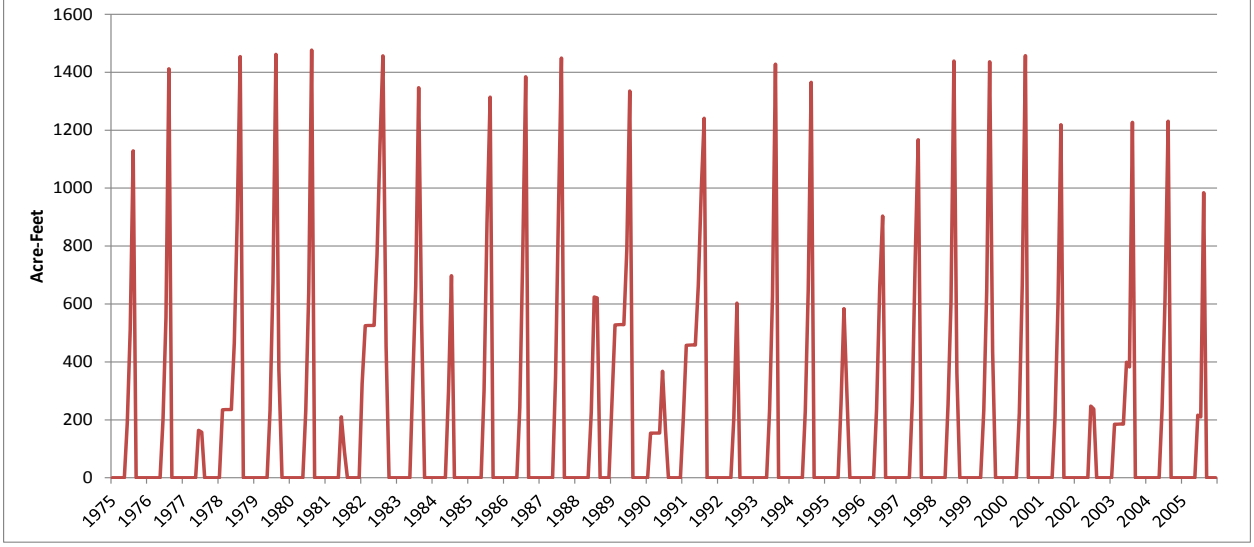
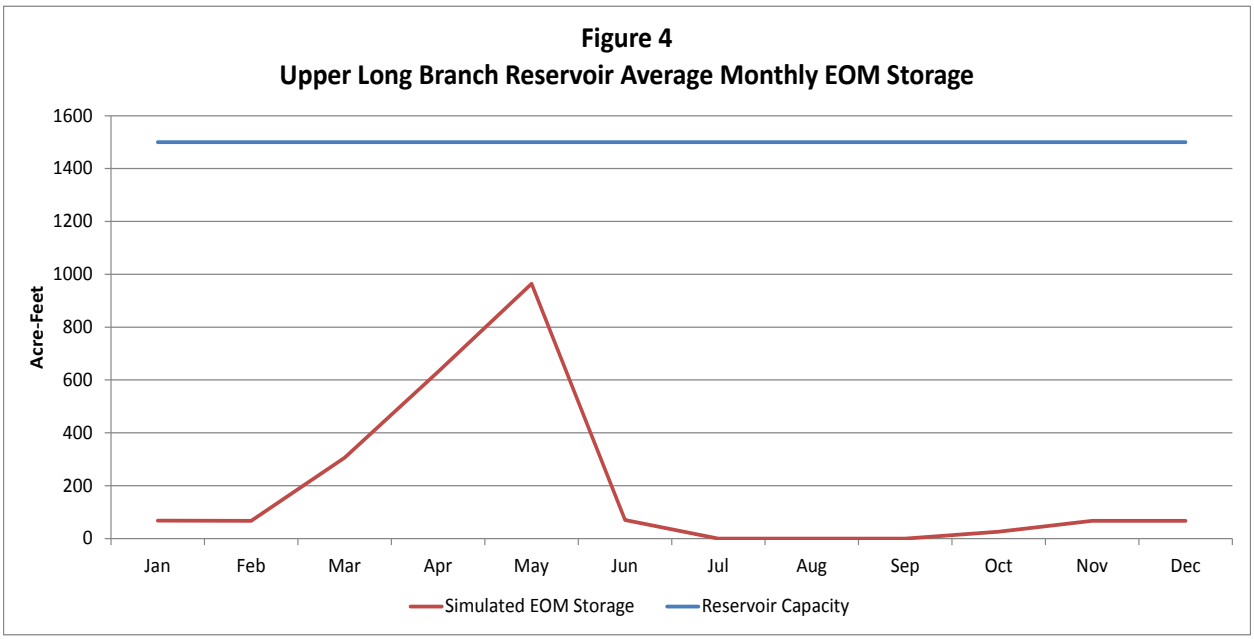


Figure 4 shows the average monthly pattern of reservoir content. As shown, there is water available to store some water in the fall, but the reservoir primarily fills from March through May. **The reservoir is only able to fill to its 1,500 AF capacity about 10 years out of the 30 year simulation period.** There is physical and legally available water to store up to 1,200 AF 20 years out of the 30 year simulation period. The average content shown in Figure 4 is influenced by the **8 years when the reservoir cannot even fill to 50 percent capacity.**

Figure 4
Upper Long Branch Reservoir Average Monthly EOM Storage



Because the reservoir was unable to fill most years, further analysis was performed to determine if a smaller reservoir could provide the same yield to reduce shortages. A 1,200 AF

reservoir provided less supply to reduce shortages; 1,600 AF per year compared to 1,900 AF per year.

Note that although the model was directed to provide supply to any ditch experiencing shortages upstream or downstream on Tomichi Creek, most water was delivered by exchange to upstream ditches. These ditches are called out earlier by downstream senior ditches; therefore there is both demand and exchange potential during May and June. By July when the downstream senior ditches also begin experience shortages, the reservoir is empty and cannot provide benefits.

Appendix 16: Project Analyses – Farris Creek Project

Approach

The following approach was taken to investigate the benefits of developing the Farris Creek Reservoir Project. The project includes two on-channel reservoirs (Farris Creek Reservoirs 1 and 2) on Farris Creek. These reservoirs would provide late season supply to irrigation diversions both upstream and downstream on East River and Farris Creek. The analysis was performed using the existing Gunnison River basin StateMod model with the following revisions:

12) Added a "combined" reservoir with a single 3,000 AF account located on Farris Creek (Node ID = 593602). This is a reasonable approach because there does not appear to be significant inflow between the two reservoir sites.
13) Provided a 3,000 AF storage right with a priority just senior to the Aspinall Unit storage and power right; the storage right is the most junior right on Slate River and its tributaries.
14) Provided operating rules that direct StateMod to deliver water from Farris Creek Reservoir(s) to meet "shorted" irrigation demands on Slate River both upstream and downstream of the reservoir location.

Results

Review of the model results focused on reductions in shortages to irrigation structures on the main stem of East River both above and below the Farris Creek tributary.

Figure 1 shows the time-series of main stem Slate Creek shortages to demands with and without the Farris Creek Reservoir project based on 1975 through 2005 historical hydrology. Demands are defined as the amount of water irrigators need to divert from the river, based on current irrigation practices, to meet a full crop supply throughout the irrigation season. **As noted, the model estimates that irrigation demands are shorted on average by 8,500 AF without the project. Shortages are reduced to 6,800 AF with the project. The largest reduction in shortages occurs during average and dry years.**

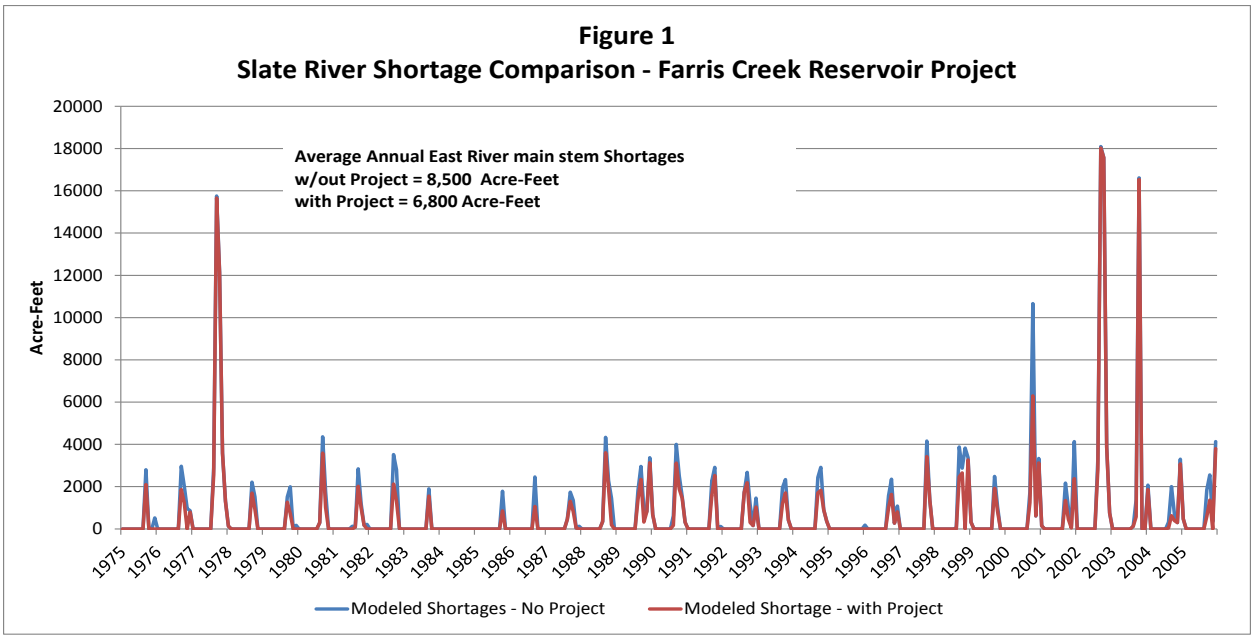


Figure 2 shows average monthly shortages with and without the project. As shown, Farris Creek Reservoir(s) provides benefit in terms of shortage reductions primarily during June and July, with some benefits during the later irrigation season months (August and September). **Average annual diversions increase on the main stem of East River by 1,700 acre-feet.**

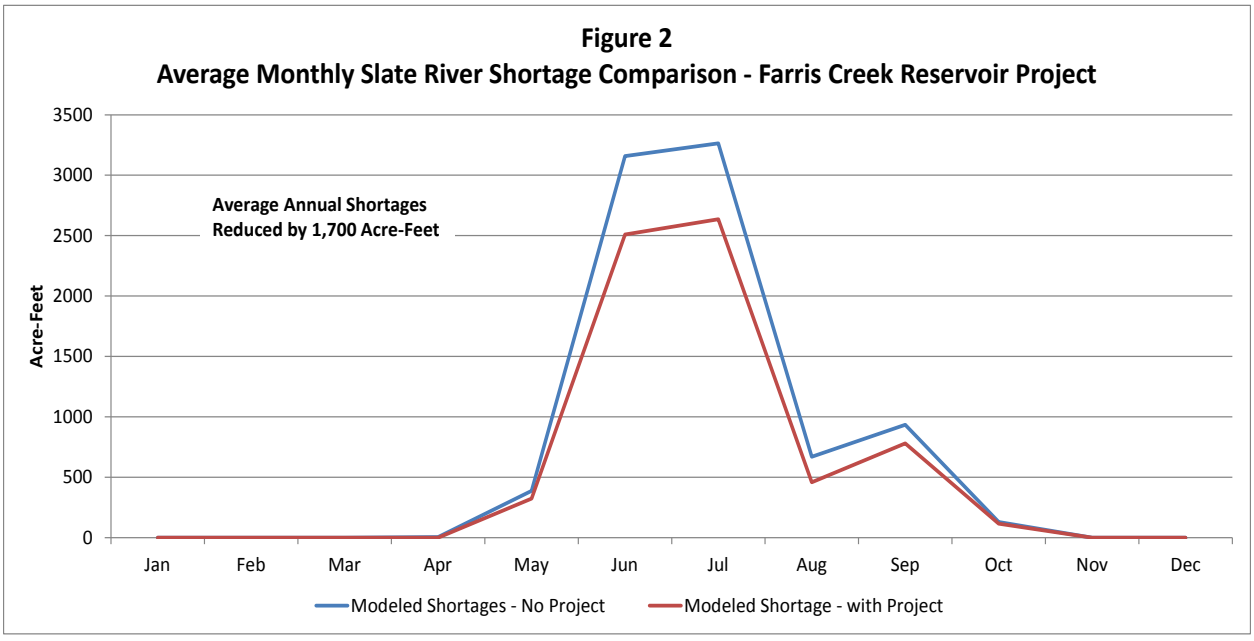


Figure 3 shows the simulated monthly reservoir contents. As shown, **the reservoir is fully used during dry and average years**. **In wet years, for example the mid-1980s, there would be water available in the reservoir for other uses**.

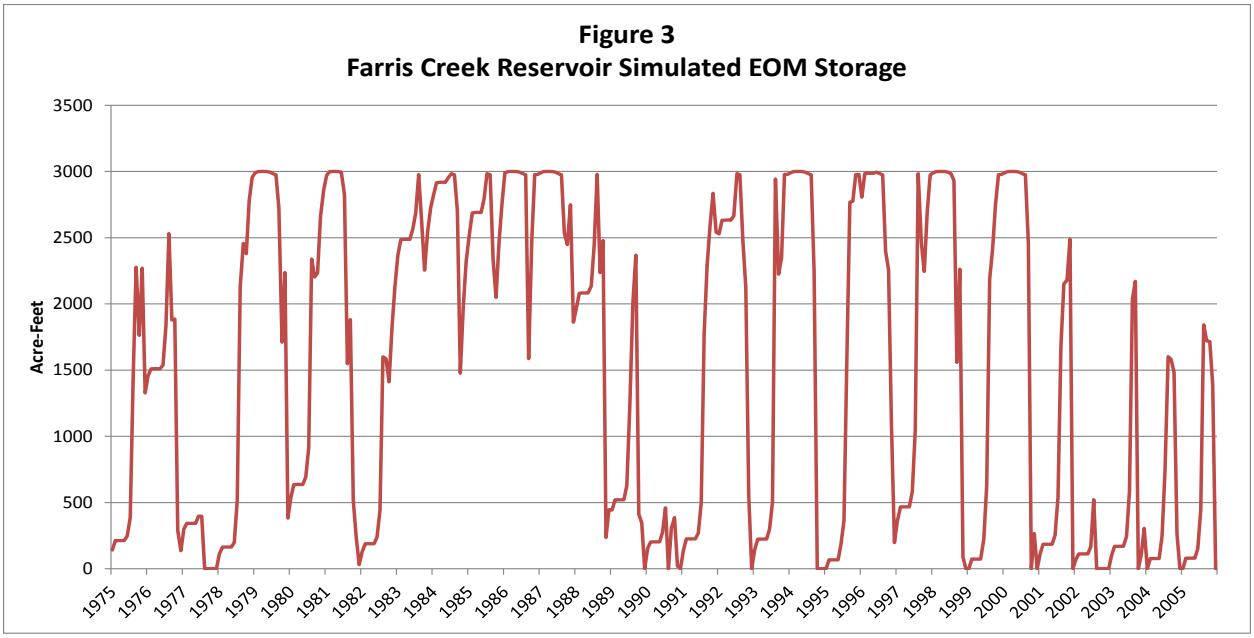
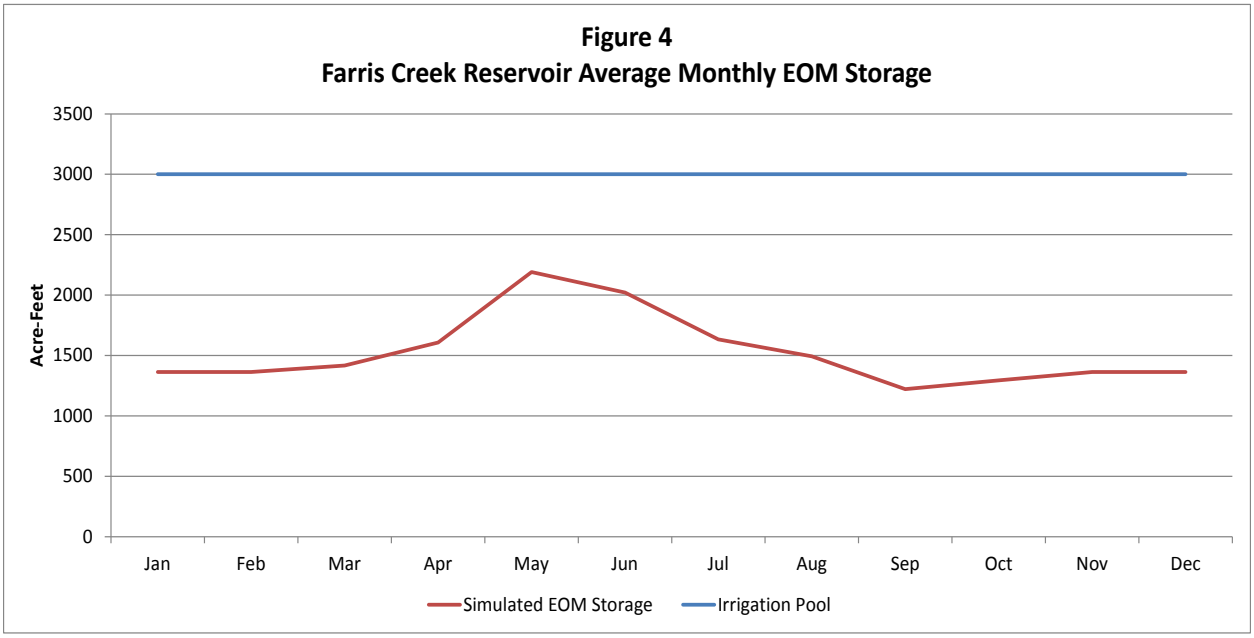


Figure 4 shows the average monthly pattern of reservoir content. As shown, the reservoir generally fills in April and May.



The reservoir was unable to fill in about half of the analyses years. There may be opportunity to further fill using a feeder ditch from Brush Creek; however the decree does not list either of these tributaries as an additional source.

Appendix 17: Project Analyses – Gunnison River Flow below Redlands Canal

Approach:

1) Use daily measured streamflow for the Gunnison River below Redlands Canal gage. Note that the measurements have been verified for the period 2004 through 2012 and are available from the DWR website under gage ID GUNREDCO. For the period 1995 through 2003, the measurements are still considered provisional (i.e. have not been verified). These data are available on the DWR website as Administration Flow.
2) The daily flow was compared to the FSEIS baseflow requirements (Figure 1) and the number of days per year (1995 through 2005) in which the flow was less than required was tabulated (Figure 2). In addition, the percent of days on average for each month over the 1995 through 2012 period when the flow was less than baseflow requirements were calculated (Figure 3).
    a. Base flow requirements below Redlands Diversion Dam are generally 300 cfs each month
    b. In Moderately Dry years (2000, 2001, 2003, 2004, 2007 and 2010), bypass flows can be reduced in months except June, July, and August.
    c. In Dry years, (2002, 2012) bypass flows can be reduced in months except June and July.
3) When baseflow requirements were not met based on historical streamflow measurements, the releases from storage to meet the flows were estimated (Figure 4).

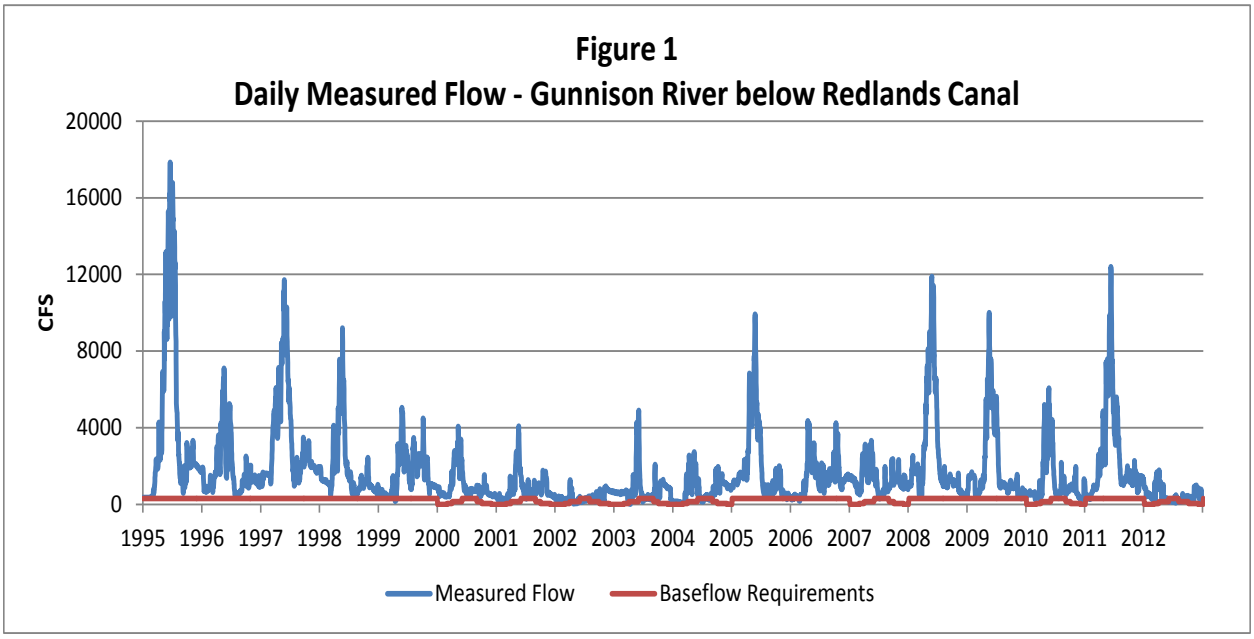


Figure 2
Number of Days per Year that Measured Streamflow at Gunnison River below Redlands Canal was less than Baseflow Requirements

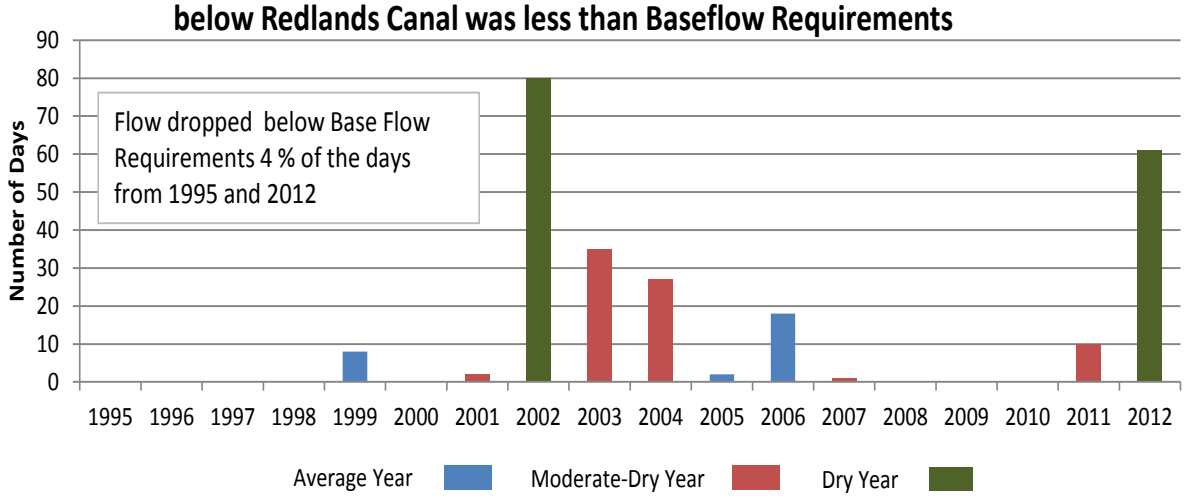
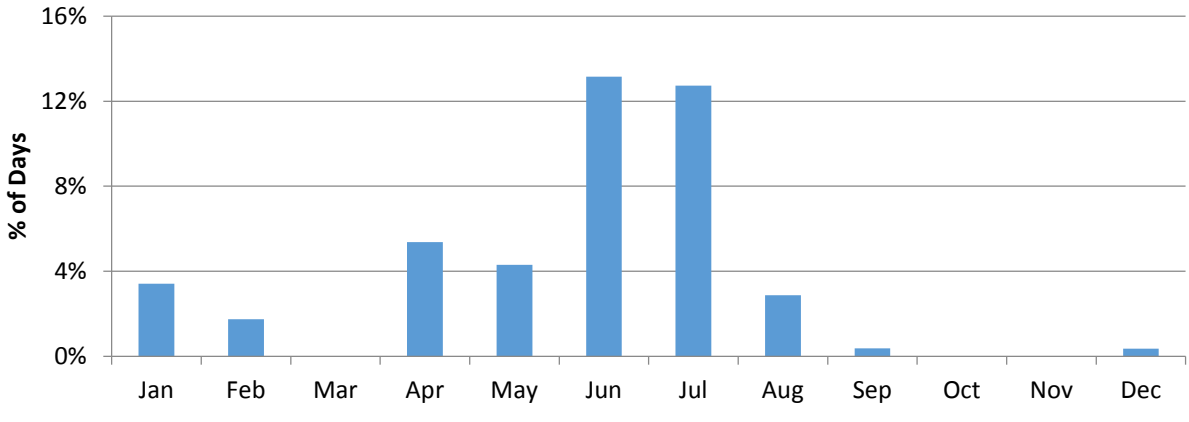


Figure 3
Average Percent of Days per Month that Measured Streamflow at Gunnison River below Redlands Canal was less than Baseflow Requirements (1995 to 2012)



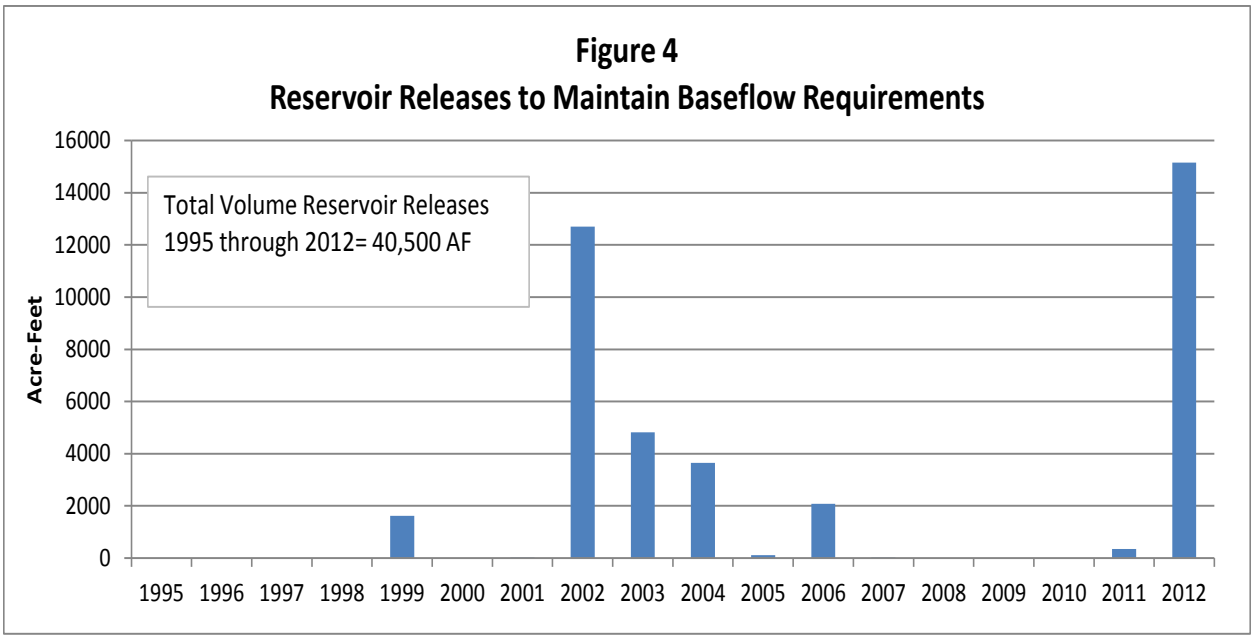


Figure 4
Reservoir Releases to Maintain Baseflow Requirements
Total Volume Reservoir Releases
1995 through 2012= 40,500 AF
Acre-Feet
16000
14000
12000
10000
8000
6000
4000
2000
0
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012