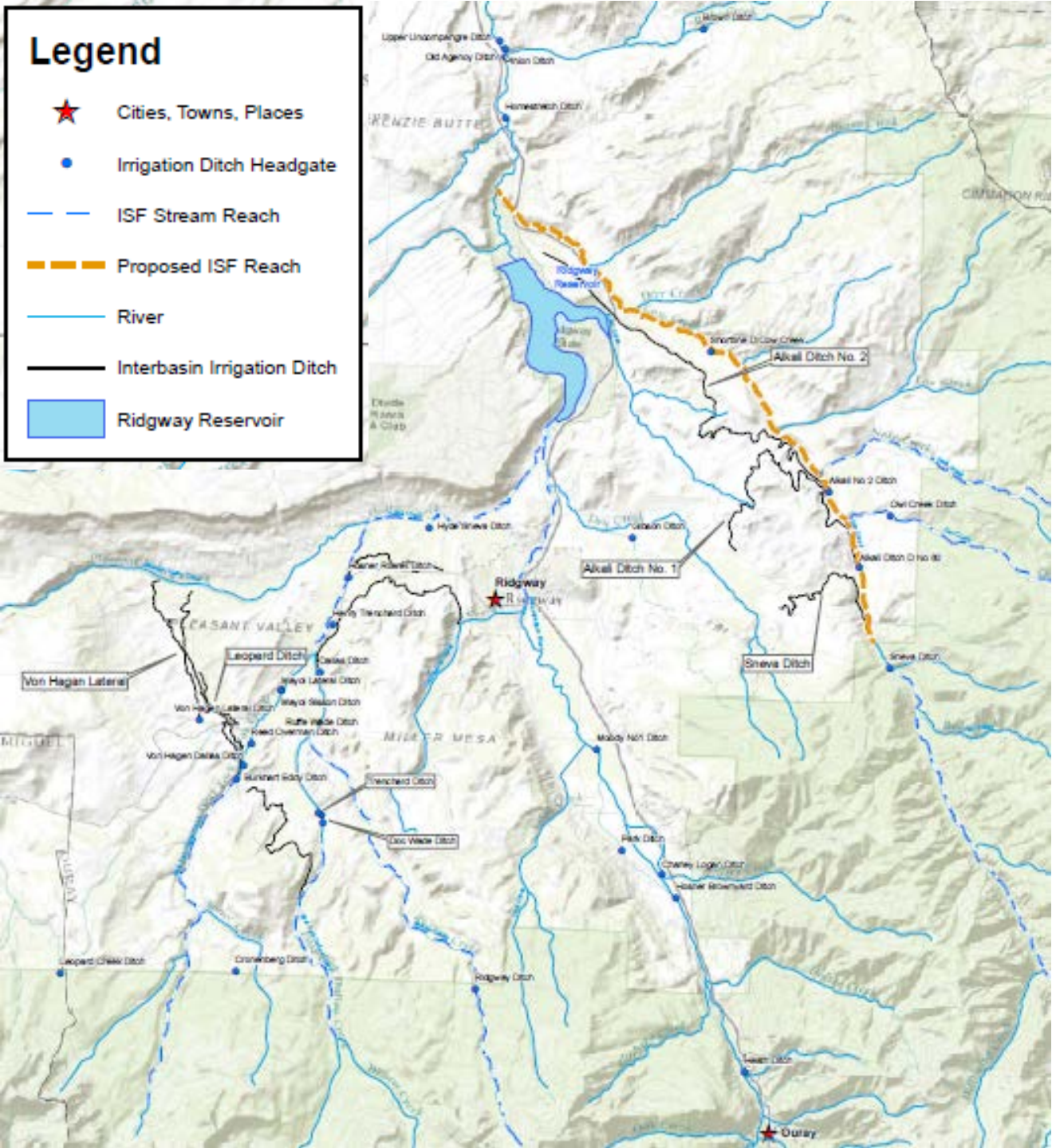
List of Accomplishments Since 04/24/2019 Meeting

- Upper Uncompahgre Basin water quality investigation in progress.
- Preliminary Discussions with Colorado Parks and Wildlife regarding fishery flows.
- Cow Creek diurnal flow analysis and flow dampening reservoir analysis has been completed.
- A few irrigation efficiency projects have been identified for consideration.
- Cooperative Stream Management Report development is in progress.



Existing and Proposed ISF's

Existing ISF's of Note

- Uncompahgre River above Ridgway Reservoir
  - 65 cfs (May 1 – Oct 14)
  - 20 cfs (Oct 15 – April 30)
- Dallas Creek
  - 20 cfs (May 1 – Oct 14)
  - 9 cfs (Oct 15 – April 30)
- Upper Cow Creek (Above Sneva Headgate)
  - 18 cfs (April to July)
  - 5 cfs (Aug to Mar)

Proposed ISF

- Lower Cow Creek (Confluence to National Forest Boundary)

Fishery Evaluation

Summary of Information Gathered Thus Far, Still Under Review.

- Uncompahgre River from USGS Ouray Gage to Ridgway Reservoir
  - Very poor water quality near Ouray due to natural and manmade metal and hardness (UWP, 2012).
  - Stream substrate is covered in fine black sediments, eliminating the physical habitat needed by aquatic invertebrates and the areas where trout eggs could incubate (UWP, 2012).
  - Resuspension of Aluminum causing toxicity issues downstream to Ridgway Reservoir (UWP, 2012)
- Cow Creek
  - Not very well understood. May have good fish counts near confluence with Uncompahgre River.
  - The ramp flume for the Cow Creek stream gage station may be acting as a fish barrier.
  - Other diversion structures on Cow Creek may be acting as a fish barrier.
  - Most senior and largest diversions located upstream.
- Dallas Creek
  - Likely good habitat in headwaters, not well understood below confluence of east and west forks.
  - Heavily dewatered during irrigation season.
- The Uncompahgre River downstream of Ridgway Reservoir
  - A “gem” of a stream supporting a naturally reproducing brown trout population to a point downstream of Montrose (UWP, 2012).
  - Given habitat, should have more fish. Proposed reasons for low fish count:
    - Nitrogen Toxicity – gas bubble trauma (may have been alleviated with hydropower)
    - Low winter flows (preliminary verbal discussions with CPW - 50 cfs minimum downstream of Ridgway Dam)

Fishery Evaluation

Existing Minimum Flow Releases from Ridgway

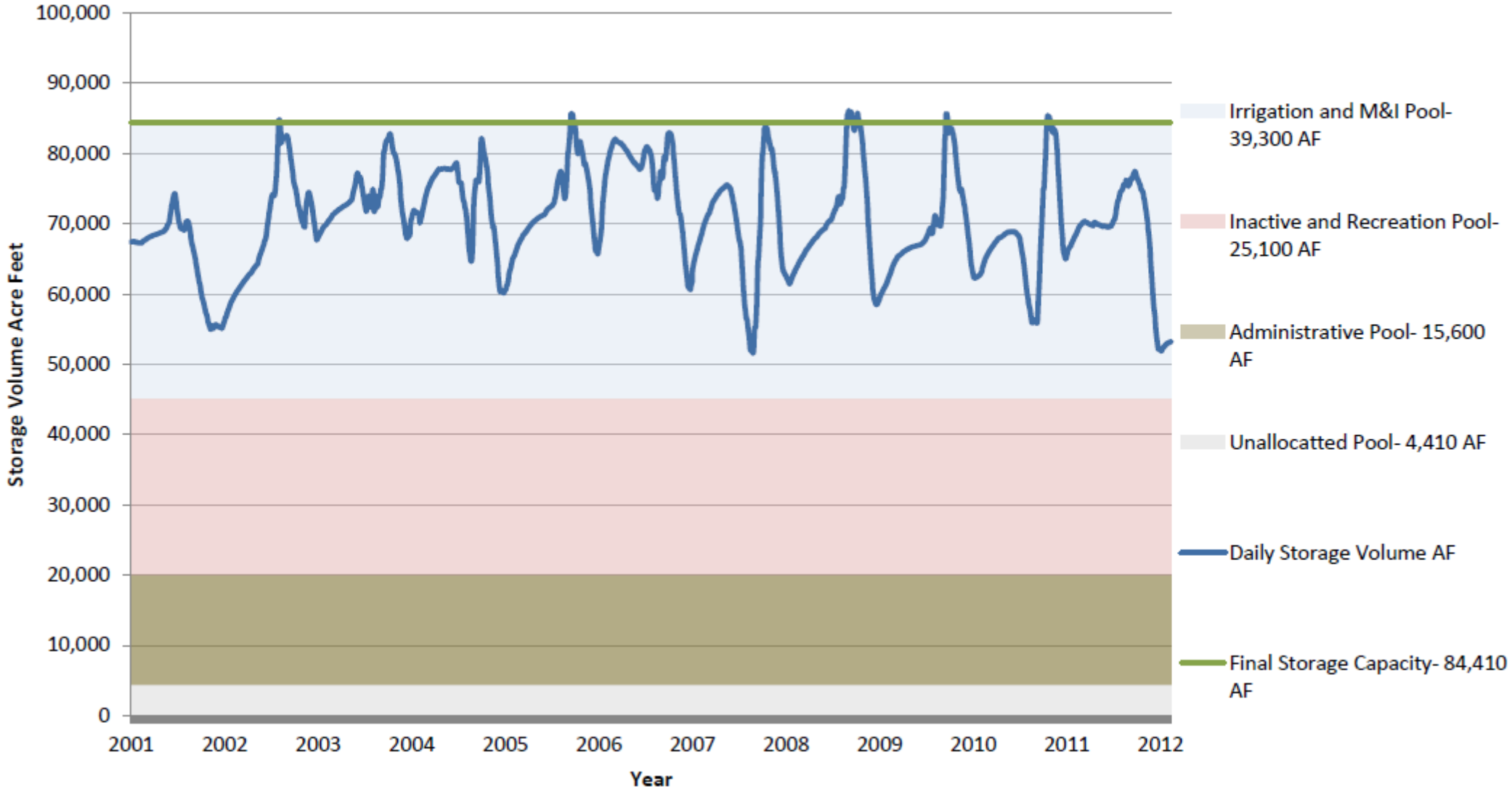
- Below the confluence of Cow Creek and Uncompahgre River:
  - Minimum flow of 75 cfs from May 16 to October 31 and
  - Minimum flow of 45 cfs from November 1 to May 15
- Minimum flow of 30 cfs between Ridgway Dam and Cow Creek (USBR, 2011).

Colorado Parks and Wildlife Preliminary Verbal Discussions

- A constant winter flow release of 50 cfs between Ridgway Dam and Cow Creek would provide fishery benefit.
- During winter 2018-2019 approximately 400 ac-ft of additional water would be needed to meet 50 cfs downstream of Ridgway Dam.

Daily Storage in Ridgway Reservoir (2001-2012)

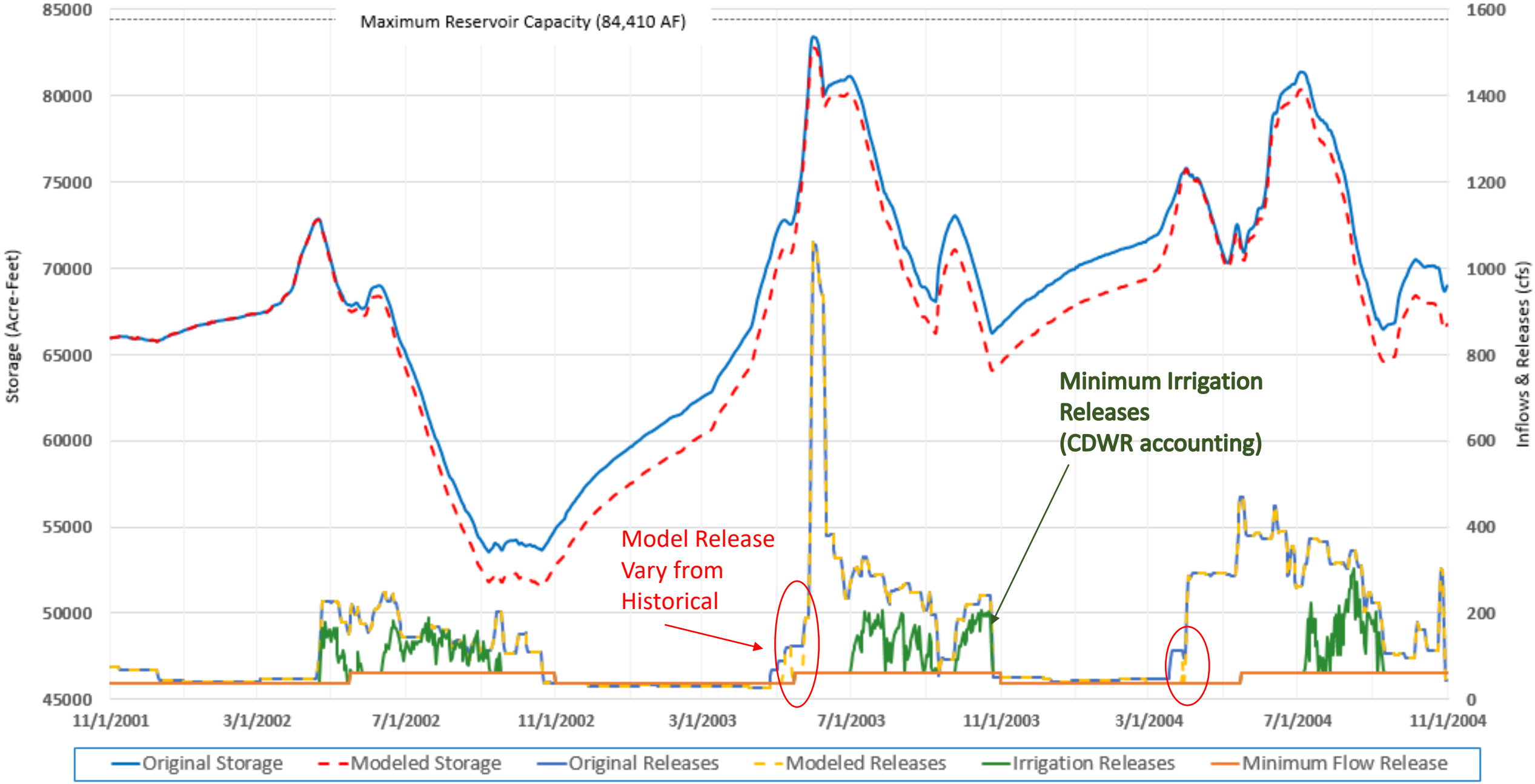
Ridgway Reservoir Pools



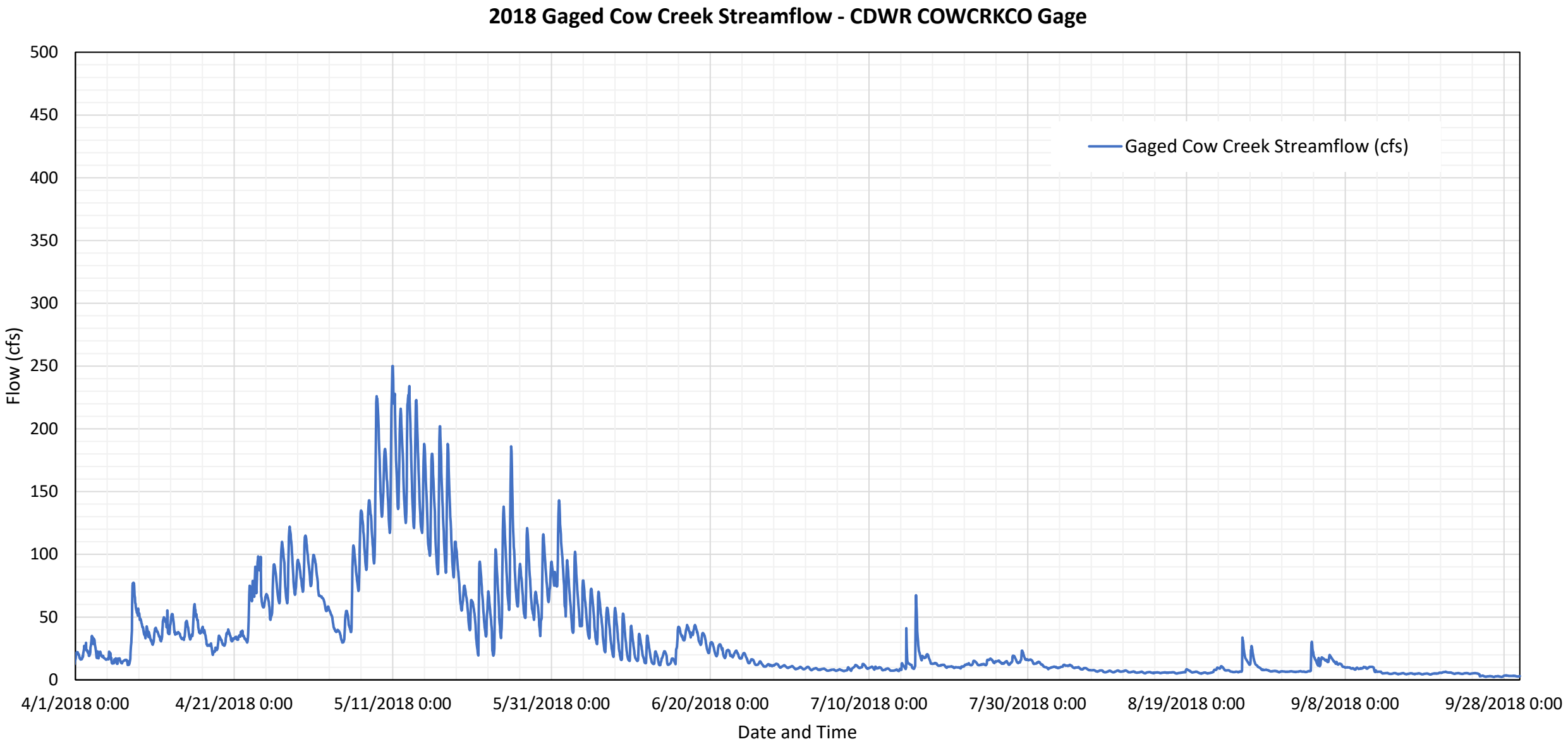
Source: Tri-County Water Conservancy District 2003 Water Conservation Plan.
Daily Storage Volume proposed by Colorado Division of Water Resources accounting spreadsheets.

Model Example: 2,100 AF of Additional Depletion Above Ridgway Reservoir (Water Years 2002 – 2004)

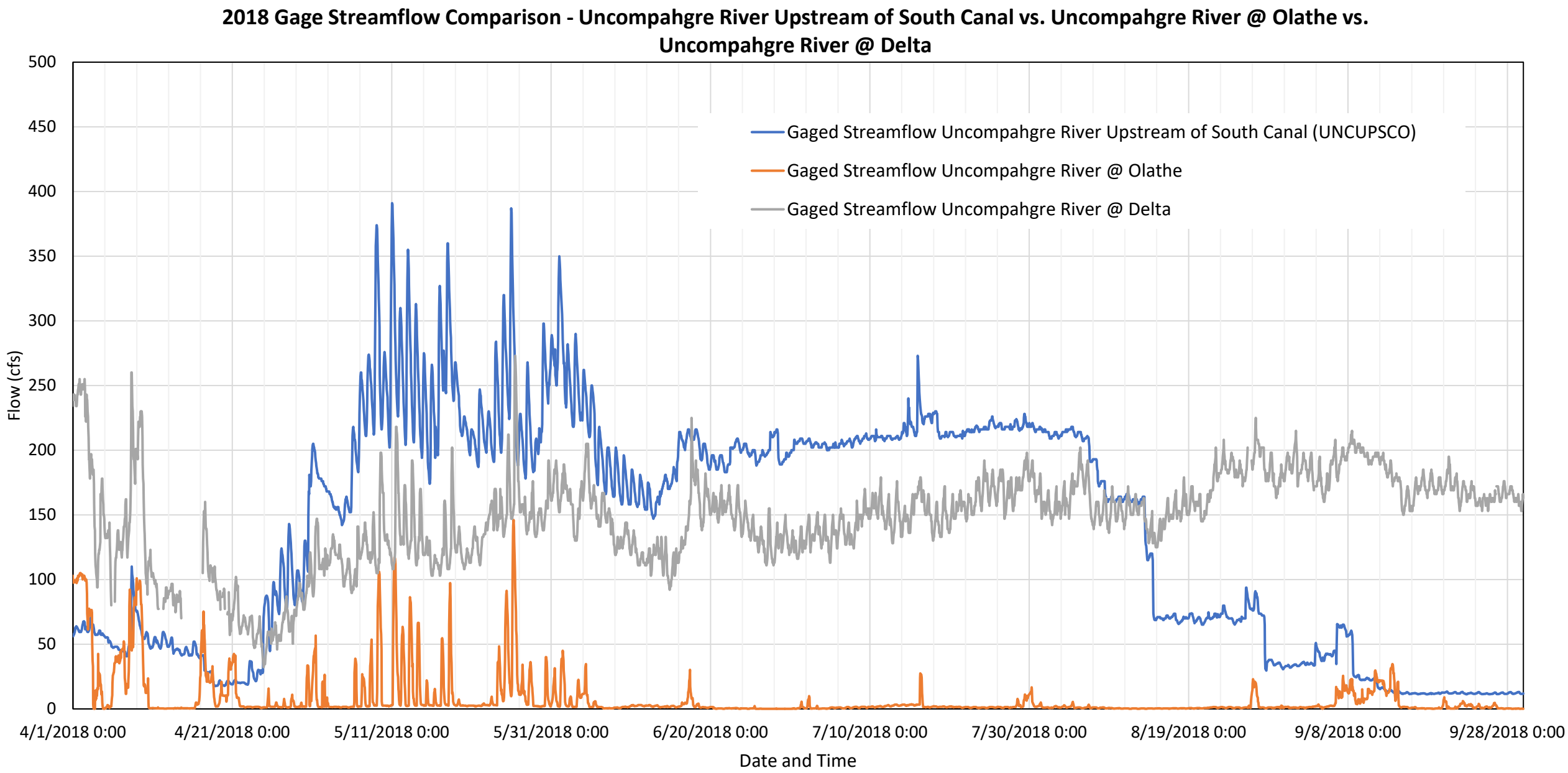
(Shows water can be replaced via reservoir operations without impacting irrigation releases)



Cow Creek Diurnal Flow and Flow Dampening Reservoir Analysis

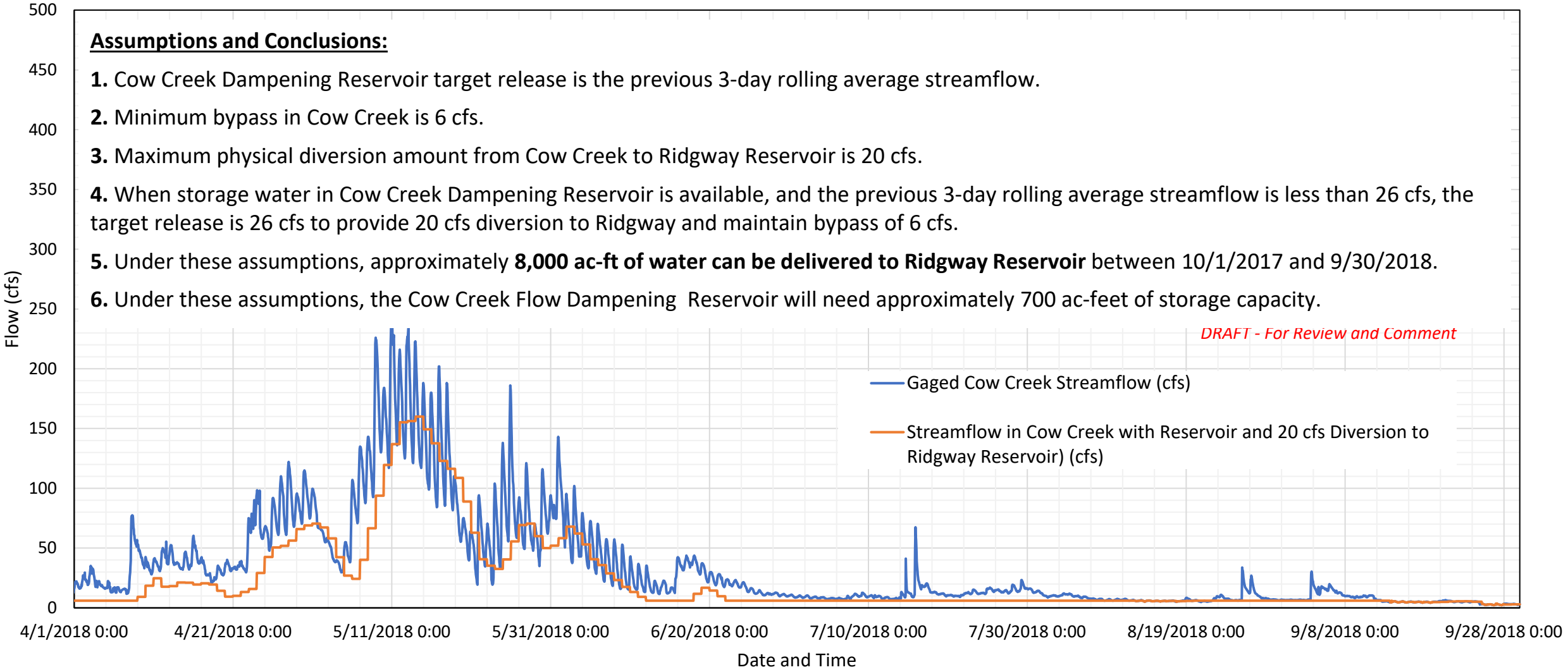


Cow Creek Diurnal Flow and Flow Dampening Reservoir Analysis



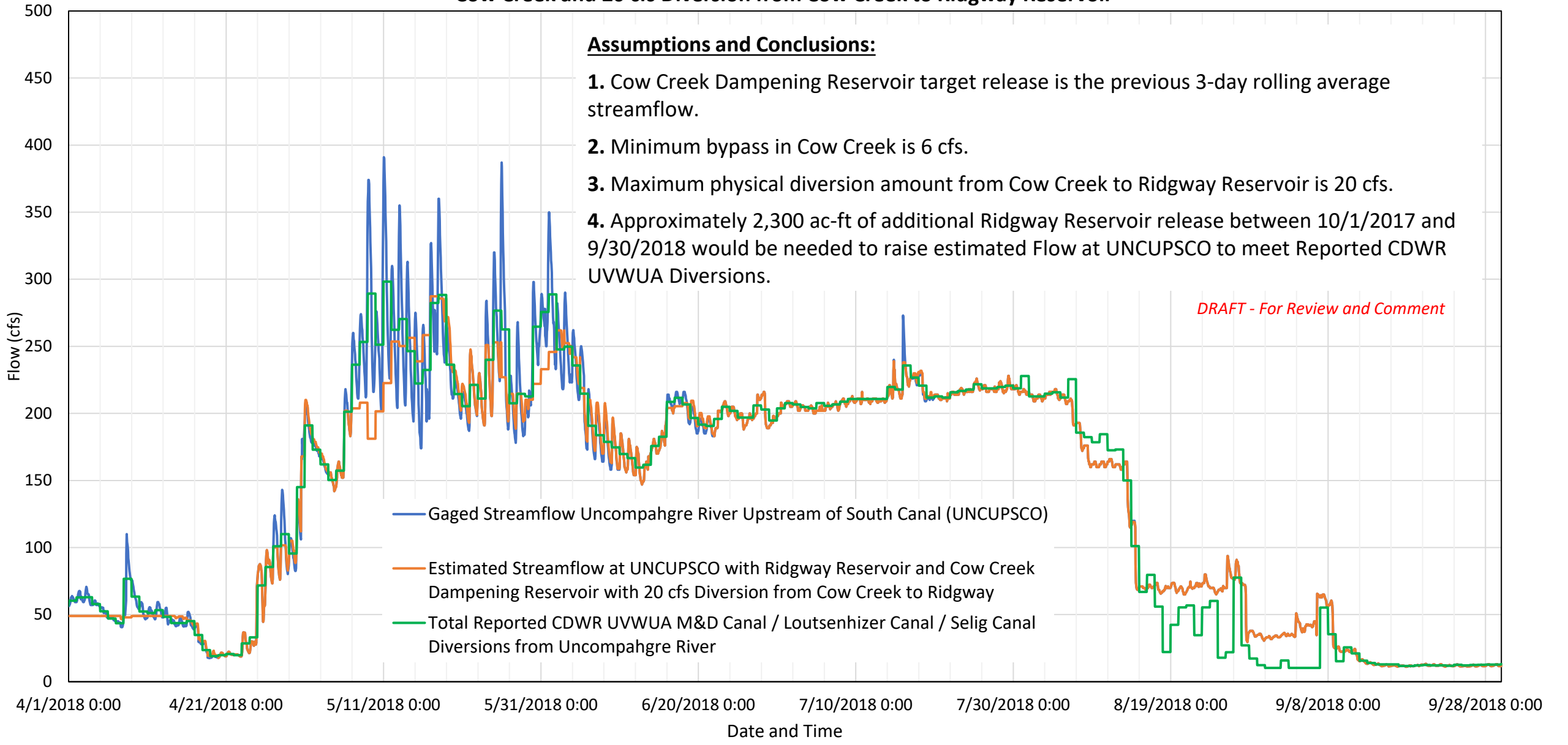
Cow Creek Diurnal Flow and Flow Dampening Reservoir Analysis

2018 Comparison of Natural Cow Creek Streamflow Versus Streamflow in Cow Creek with Dampening Reservoir and 20 cfs Diversion to Ridgway Reservoir



Cow Creek Diurnal Flow and Flow Dampening Reservoir Analysis

2018 Streamflow at UNCUPSCO Gage Versus Calculated Streamflow at UNCUPSCO Gage with Streamflow Dampening Reservoir on Cow Creek and 20 cfs Diversion from Cow Creek to Ridgway Reservoir



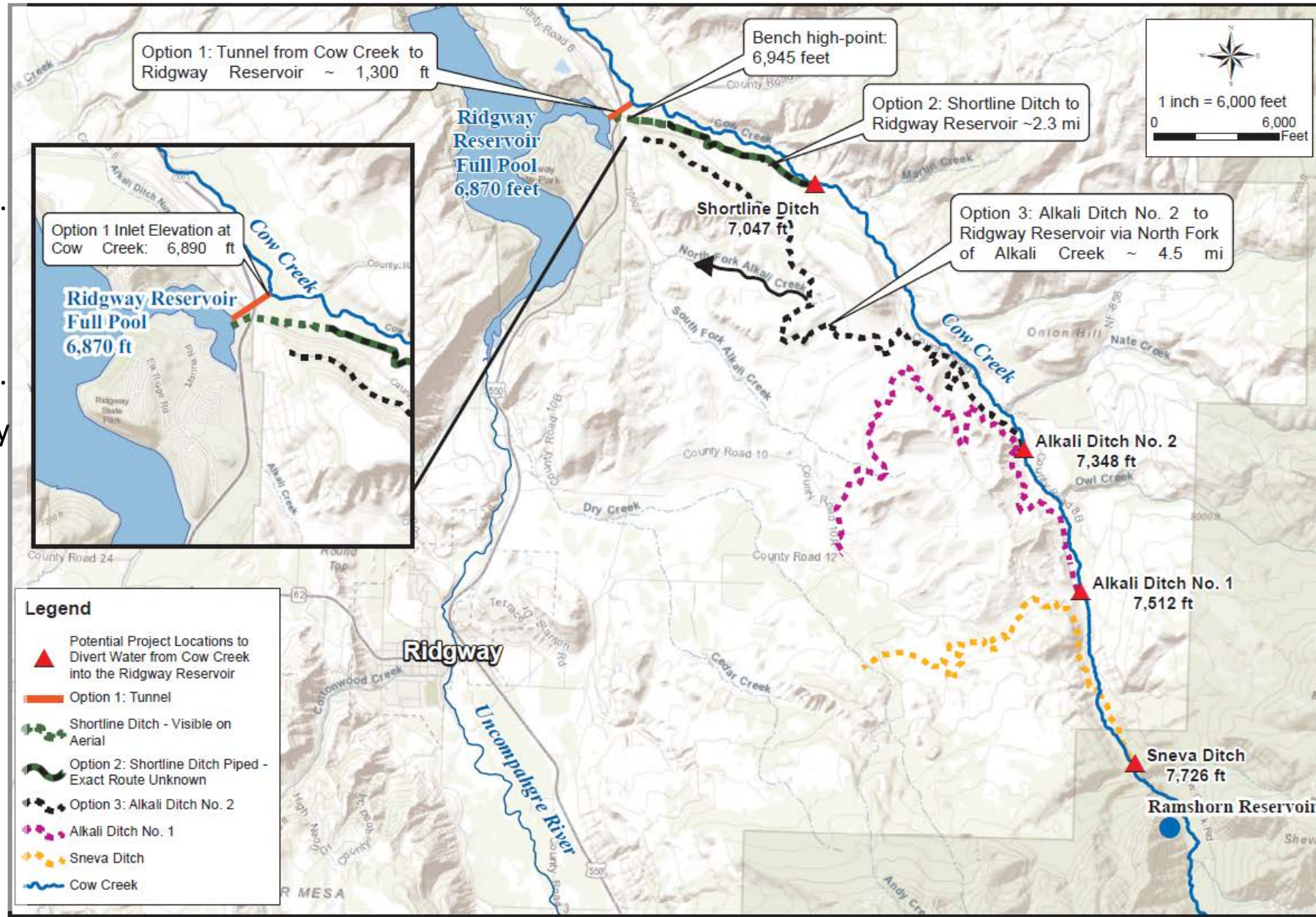
Cow Creek Diversion and Flow Dampening Reservoir Project Potential Locations:

Cow Creek Diversion

- Option 1: Tunnel from Cow Creek to Ridgway Reservoir.
  - ≈ 1,300 feet long tunnel.
  - Impacts ≈3.3 miles of Cow Creek.
- Option 2: Shortline Ditch to Ridgway Reservoir.
  - ≈2.3 mile long ditch / pipe.
  - Impacts ≈5.4 miles of Cow Creek.
- Option 3: Alkali Ditch No. 2 to Ridgway Reservoir via North Fork Alkali Creek.
  - ≈4.5 miles of ditch improvements.
  - Impacts ≈24 miles of Cow Creek.

Dampening Reservoir

- Ramshorn Reservoir Site above Sneva Ditch.
- Other locations being evaluated



Cow Creek Diurnal Flow and Flow Dampening Reservoir Analysis

Water Year 2018 Scenario Summary – Assuming 20 cfs Diversion Limit and 6 cfs Minimum Bypass

- Approximately 8,000 ac-ft of water to Ridgway Reservoir between 10/1/2017 and 9/30/2018.
- Approximately 2,300 ac-ft of the total stored could be released from Ridgway Reservoir could be used to meet Reported CDWR UVWUA Diversions.
- Approximately 400 ac-ft of the total stored could be released from Ridgway Reservoir for increased Fishery Flows during the winter.
- Flow Dampening Reservoir in 2018 requires approximately 700 ac-ft of storage.
- Approximately 5,700 ac-ft of additional water in Ridgway Reservoir.
- Approximately $29,000 of additional hydropower revenue could have been generated during 2018.

Summary of Project Benefits

- Flow in Cow Creek is more stable for Cow Creek Diversions.
- Increased hydropower production and revenue. Approximate average annual revenue increase of $25,000.
- Flow at UVWUA M&D Canal is more stable and allows UVWUA to better manage diversions.
- Potential for pool of water for water users upstream of Ridgway Reservoir.
- Potential for fishery flow enhancement downstream of Ridgway Reservoir.
- Potential for recreational flow enhancement downstream of Ridgway Reservoir.

Summary of Project Cons

- Winter flows in Cow Creek will be reduced from the diversion location to its confluence with the Uncompahgre.

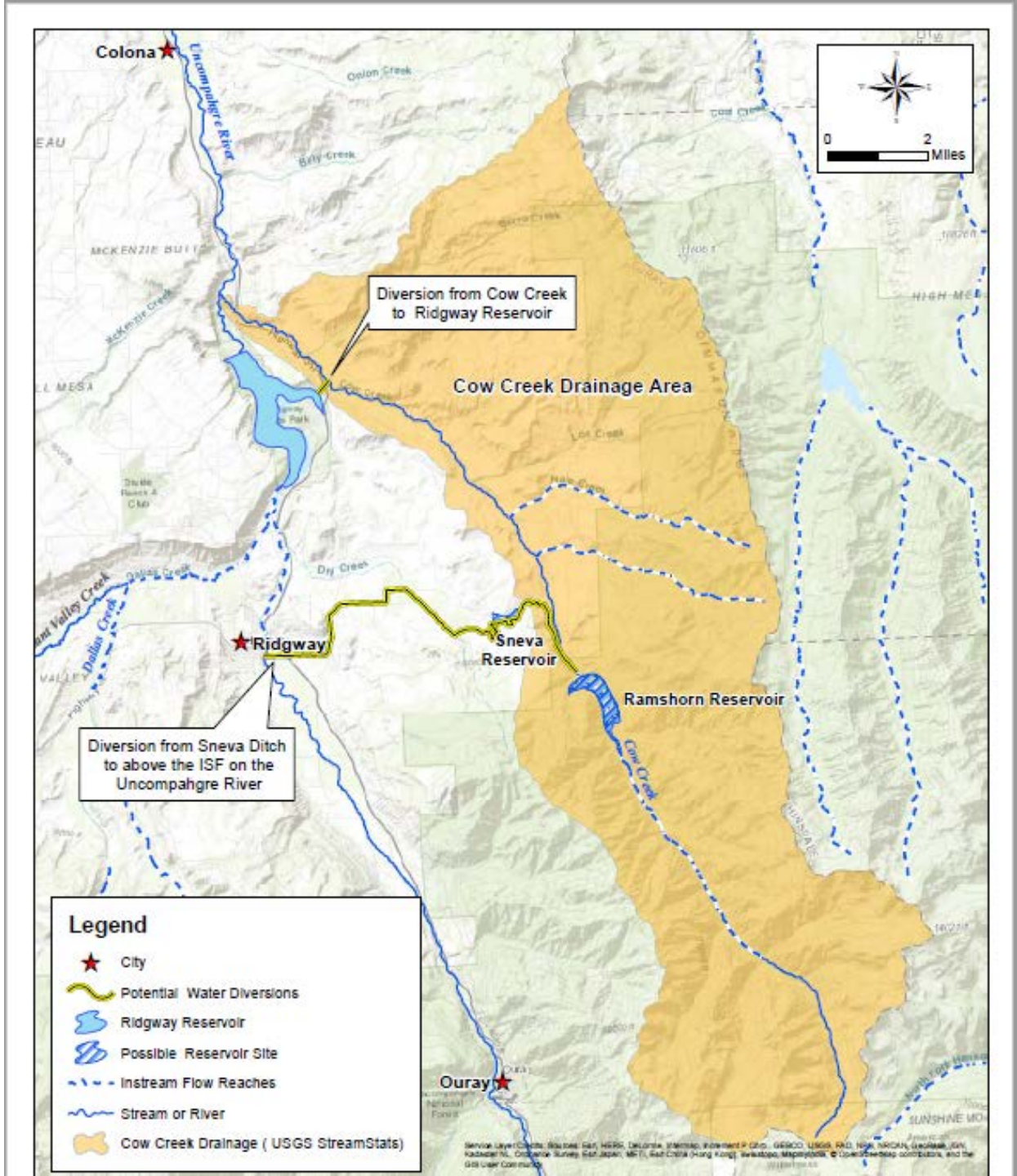
Other Potential Sources of Additional Water

Ramshorn Reservoir on Cow Creek

- Geotechnical investigation is in the process of being finalized.
- Storage Capacity: 25,350 ac-ft

Sneva Reservoir

- Diversion from Sneva Ditch to above the ISF on Uncompahgre River
- Storage Capacity: 823 ac-ft



Steering Committee Discussion Topics

- Cow Creek Diversion and Flow Dampening Reservoir
  - Diversion location and conveyance to Ridgway.
  - Preferred Flow Dampening Reservoir Location.
- Irrigation Efficiency Projects – Currently Two Identified for Consideration / Further Evaluation:
  - Hayes – Teague and Chaffe
  - Double RL (Spoke to Consultants)
  - Spoke with USBR and Colorado Dept. of Ag.
  - Other preferred water efficiency project(s)?