IWRP Implementation Plan – December 2013

The Integrated Water Resources Plan (IWRP) was adopted by the Bozeman City Commission during a public hearing on September 30, 2013. The IWRP contains a multitude of recommendations determined to best serve the City's growing water supply needs. Once successfully implemented, these recommendations will ensure Bozeman maintains an adequate water supply to serve the City's projected water demands over the next 50 years.

The City's 50-year water balance gap, which is the difference between 50-year high-growth projected demands and reliable supply yields, is 17,750 acre-feet. This is the projected annual volume of water that must be secured in order to serve the City's 50-year high-growth water needs and a population of roughly 140,000.

The IWRP provided specific recommendations for new water supply, operations and planning. This implementation plan provides additional detail on how the recommendations adopted with the IWRP will be implemented. The tables on the following pages list specific tasks that will be accomplished to implement IWRP recommendations over the next three years. During that time, new programs to improve water conservation practices and operational efficiency will be implemented and evaluated. The detailed engineering and legal analysis necessary to determine the size, location, and cost of the new water supply capital projects will also be completed. At the end of the first 3 years of IWRP implementation, sufficient data will have been collected for the Commission to evaluate the need for and timing of new water supply projects. For reference, the overall 50 year water supply or conservation goal is also included in the table. Year to year progress toward each overall goal will be communicated to the Commission in annual reports or in the form of formal Commission actions. Reports and milestones for the Commission are also included in the table.

Implementation milestones will be posted to the IWRP webpage to provide a separate venue for interested citizens to track implementation progress. In addition to regular updates to the web page, progress on implementation of the IWRP will be communicated to the community via presentations to local civic groups, press releases upon the completion of major milestones, and an annual public outreach and education event similar to the Better Bozeman Project WaterFest conducted this fall.

Completion of interrelated tasks is necessary to implement most of the major recommendations in the IWRP. For example, one of the water supply alternatives recommended is construction of small impoundments in the Sourdough drainage to provide additional raw water storage. The ultimate decision to construct this water supply alternative will depend not only on the engineering requirements and costs for construction, but also on the legal availability of water from the Sourdough drainage and the projected need for additional water supply based on the community growth and the effectiveness of water conservation programs. Tables 1 through 3 below respectively summarize implementation of the adopted new supply, operations, and planning recommendations.

The first priority for implementing the IWRP is developing a successful water conservation program. Conservation fills the largest proportionate share of the City's projected 17,750 acre-foot supply gap by providing 10,100 acre-feet of water savings. A water conservation specialist will begin developing the water conservation program in January 2014. The first year of the program will focus on developing effective outreach and education programs targeting voluntary indoor and outdoor water reduction. The conservation specialist will also be tasked with creating a robust water use tracking tool to quantify water savings. In the following years, conservation will be expanded to include multiple incentive-based rebate programs. Code and rate-based conservation tools will only be considered after a thorough evaluation of voluntary and incentive programs.

The capital intensive water supply alternatives are recommended in the IWRP (e.g. expansion and optimization of the Lyman Creek supply, installation of groundwater wells, and construction of Sourdough impoundment(s)) all require additional detailed engineering analysis to define specific construction details and costs associated with these alternatives before a decision to fully implement is made. The engineering required to evaluate the Lyman Creek and groundwater alternatives will be initiated with the 2014 Water Facility Plan Update. Coupling the evaluation of these alternatives with the Facility Plan Update is important because these alternatives must be analyzed in terms of how they interact and connect with the City's existing water distribution infrastructure. The facility plan update is anticipated to take up to two years to complete and will include these detailed engineering investigations as well as update the current water distribution system model, proposed distribution system models, and analyze options for additional treated water storage. A separate detailed engineering investigation is proposed for the Sourdough impoundment(s) alternative to be completed in conjunction with efforts to legally secure supplies for storage behind the impoundment(s). Legal supply options to be explored include preparing a draft Department of Natural Resources Conservation (DNRC) Change Application for the existing Mystic Lake water rights, utilization of existing Water Reservation 41H-70118, and/or additional surface water sources. The change application will only be submitted to DNRC after sufficient details concerning the size, type, and location of the proposed sourdough impoundment(s) are obtained from the detailed engineering investigation. The engineering investigation phase of the implementation plan is anticipated to take 3 years to complete.

An administrative update to the IWRP is proposed to capture information acquired with the detailed engineering investigations, as well as update population projections and the water supply and water demand analysis. Staff suggests reconvening the TAC to screen the updated alternatives against the qualitative screening criteria initially developed for the IWRP as well as generally guide the update process. The IWRP update will culminate with a recommendation concerning selection and implementation of capital projects for construction.

The implementation plan presented is intended to be dynamic and should be revisited annually to capture project milestones and project specific information acquired over the course of the year.

Table – 1: Implementation of Adopted New Supply Alternatives

New Supply Alternative	50-year Volume Target (AF) [1]	2014 Implementation Highlights	2015-2016 Implementation Highlights	Commission Actions and Reports
Water Conservation	10,100	1. Hire FTE water conservation specialist. 2. Develop water conservation program with an initial focus on education, outreach, and demand tracking. 3. Prepare year-end conservation program progress report to City Commission.	1. Expand incentive programs for indoor fixture replacements and smart-irrigation controllers. 2. Evaluate suitability of code- and rate-based conservation measures. 3. Conduct cost of service and water rate study to revise rate structure.	1. City Commission (CC) and community notice of FTE hire. 2. Year-end conservation program progress reports providing overall and per capita water use reductions and evaluation of program effectiveness. 3. Commission approval for cost of service and rate study.
Hyalite Res. Share Purchase	650	1. Notify Hyalite reservoir shareholders of City's intent to purchase limited number of shares over a period of 2 years through a competitive sale process. 2. Negotiate for purchase of shares with sellers who approach the City on a case-by-case basis.	1. Repeat limited share purchase every 2 years. 2. Continue to negotiated purchase of shares with sellers who approach the City on a case-by-case basis.	1. Consent Agenda items for share purchase agreement(s)

Optimize Lyman Creek Source	3,165	1. Initiate a detailed engineering investigation in the 2014 Water Facility Plan Update. Engineering report will include data on location, size, and construction costs for new diversion, treatment and storage facilities.	1. Complete detailed engineering investigation for Lyman upgrades. 2. Determine if construction of facility is warranted based on quantified water demands and community growth projections.	1. Commission authorization of professional services agreement (PSA) for 2014 Water Facility Plan Update. 2. Accept completed water facility plan. 3. Determine need for and timing of Lyman Creek construction.
Non-Potable Irrigation	1,200	1. Implement cash-in-lieu credit program (as defined in the Administrative Policy Manual) for installation of non-potable irrigation systems. 2. Develop design standards for non-potable irrigation systems in cooperation with developers. 3. Work with developments in progress to construct at least one non-potable irrigation system in 2014 per the developed standard.	1. Continue to implement voluntary non-potable irrigation projects as development opportunities become available.	1. Public hearing for approval of subdivisions proposed with non-potable irrigation systems.
Sourdough Impoundment(s)	915	1. Initiate a detailed engineering investigation for the Sourdough impoundment(s). Study will include evaluation of sites previously evaluated as well as new impoundment sites entirely on City of Bozeman property. 2. Initiate preparation of change application for Mystic Lake rights and additional water sources.	1. Complete impoundment engineering investigation 2. Submit DNRC change application for review/approval of Mystic Lake water rights, and pursue additional surface water sources for legal storage.	1. Commission authorization of PSA for engineering analysis. 2. Commission resolution authorizing City Manager to submit Change Application. 3. Commission acceptance of engineering report.
Groundwater	5,810	1. Initiate detailed engineering investigation of potential well field locations in the 2014 Water Facility Plan Update.	1 .Complete detailed engineering investigation of well field locations.	1. Commission authorization of PSA for 2014 Water Facility Plan Update. 2. Commission acceptance of completed water facility plan. 3. Determine need and timing of construction of groundwater supply.
Hyalite Dam Raise	Unknown	1. Consult with DNRC to determine feasibility and suitability of raising the existing principal spillway height by 1 – 2 feet.	1. Initiate detailed engineering investigation if determined suitable and feasible.	1. Commission update on consultation with DNRC. 2. Commission approval of PSA for engineering investigation if warranted.
Salar	Unknown	1. Evaluate Salar development's offer to City of Bozeman to purchase project once received.	2. Determine feasibility of Salar property for potential groundwater development site	1. Commission review of staff recommendation on Salar project as proposed.

[1]*Volumes achieved through successful implementation of a given new supply alternative may vary significantly from the values listed.*

Table – 2: Implementation of Adopted Operations Improvements

Operations Improvement	Operational Goal	2014 Implementation Highlights	2015-2016 Implementation Highlights	Progress Milestones
Reduce Distribution System Leakage	<10% system leakage	1. Complete 2014 Water Renovations project 2. Upgrade leak detection equipment to identify distribution leaks. 3. Track annual distribution system leakage using industry standard procedures and tools.	1. Complete 2015 and 2016 Water Renovations projects. 2. Continue leak detection program. 3. Continue to track annual distribution system leakage using industry standard procedures and tools.	1. Commission approval of contracts for 2014, 2015, and 2016 Water Renovations projects. 2. Document distribution leakage in year-end water conservation program progress reports.
MSU Water Conservation	Maximize campus water use efficiency	1. Introduce water conservation specialist to MSU Facilities personnel. 2. Conduct MSU/COB staff roundtable discussion to identify areas of cooperation and identify potential campus water conservation projects.	1. Implement campus conservation projects. 2. Provide on-going assistance and cooperation with campus water efficiency efforts.	1. Document cooperative efforts in year-end water conservation program progress report.
Optimize Hyalite Res. Operations	Gain efficiencies in operations	1. City of Bozeman 'water team' to brainstorm optimization specifics followed by consultation with DNRC to determine feasibility and suitability of reducing system shrink factor, modifying 24-hour advanced call requirement, and changing the start of the water year.	1. If feasible and suitable, complete a detailed engineering investigation to define delivery shrink factor for city shares in Hyalite Reservoir. 2. Identify advances in instrumentation and controls to eliminate 24 hour advance call requirement. 3. If feasible, initiate process to modify water year.	1. Commission update on consultation with DNRC. 2. Commission approval of PSA for engineering study.
Gauge Lyman and Sourdough Creeks	Acquire source flow monitoring data	1. Install new Sourdough Creek stream gauge. 2. Develop monitoring protocol for existing Lyman gauge.	1. Monitor gauges per developed monitoring protocols.	1. Commission approval of gauge purchase. 2. Commission update following successful gauge installation and development of monitoring protocols.

Table – 3: Implementation of Adopted Planning Recommendations

Planning Recommendation	Purpose	2014 Implementation Highlights	2015-2016 Implementation Highlights	Progress Milestones
CIP Budgeting	Budget for capital IWRP	1. Provide capital funding for Hyalite Share Purchases, 2014 Water Facility Plan Update, Sourdough Impoundment Study, and Lyman/Sourdough Creek gauges within proposed 2014 CIP.	1. Provide capital funding for Hyalite dam raise study and Hyalite operations study if suitable and feasible.	1. Commission approval of 2014-2019 CIP, 2015-2020 CIP, and 2016-2021 CIP.
IWRP Update	Update plan assumptions and revisit recommendation	1. Update IWRP webpage with implementation milestones. 2. Summarize annual progress on water conservation. 3. Summarize annual increase in water connections and demand.	1. Update IWRP webpage with implementation milestones. 2. Summarize annual progress on water conservation and demand. 3. Evaluate water supply alternatives using engineering analysis and updated water demand and population data.	1. Annual progress reports to Commission on implementation of IWRP. 2. Formal presentation of Commission at end of 2016 to determine need for and timing of water supply improvements and/or mandatory water conservation policies.