Basin Implementation Plan
DRAFT Guidance

Background and Purpose: During the needs assessment work summarized in the State Water Supply Initiative (SWSI) 2010, it was determined that every basin has a gap. Therefore, the fundamental purpose of the Basin Implementation Plans is to develop projects and methods to meet municipal, industrial, agricultural, environmental, and recreational needs. This involves review of the Identified Projects and Processes (IPPs) and the development of new projects and methods that meet the roundtables' water supply gaps identified in SWSI 2010 and additional shortages outlined in section three. As part of this work, roundtables will develop goals and measurable outcomes, and needs, constraints and opportunities in the basin. In addition, the plan will identify specific implementation strategies that will be needed to fully realize the projects and methods described in section four and indicate how well the plan meets the basin roundtables' goals and measurable outcomes.

The Basin Implementation Plans will focus on projects and methods recommended by the roundtables to address their consumptive and nonconsumptive needs. As such, they are intended to help basins proactively meet water needs, with currently planned projects, re-prioritized projects, and new projects, operational agreements, flow protections, or other methods. The Basin Implementation Plans will also likely include more detailed modeling analyses done via the CRWAS Continuation or WSRA-funded studies in basins outside of the CRWAS area.

Relation to Other Pieces: The Basin Implementation Plans will be a fundamental component in SWSI as they will focus on strategies to meet roundtables' consumptive and nonconsumptive water supply needs. The Colorado Water for 21st Century Act established the Basin Roundtables and tasked them to develop a water supply needs assessment, conduct a water supply analysis and propose projects and methods to meet those needs. This work will provide a more detailed analysis and be geared towards implementing projects to meet those needs to address the gap in a meaningful way. This effort will be a foundational component of the update to SWSI and provide critical inputs into the State Water Plan.

Outline: Following is the table of contents for the Basin Implementation Plans. Each section presented below will include guidance on what the section should contain, information that the Colorado Water Conservation Board (CWCB) will provide to the Basin Roundtables (BRTs), and sections that are optional.

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Executive Summary

The executive summaries will be included in the Statewide Water Supply Initiative Update (SWSI). The executive summary for each BRT will be between 3 to 5 pages.

Section 1: Basin Goals and Measurable Outcomes

This section provides an opportunity for roundtables to envision what they and the project proponents in their basin can and should accomplish. This section will highlight the water management challenges for the basin based on the 2011 Basin Reports, define the goals and measurable objectives, and describe how the goals and measurable outcomes are consistent with the SWSI and the State Water Plan. Some examples could include:

NC Goal: Ensure Cutthroat Trout have sufficient protection to keep them from being listed as threatened / endangered

NC Measurable Objective: Protect 90% of Cutthroat Trout habitat with minimum instream flows.

M&I Goal: Develop projects and methods within the basin that meet as much of the future M&I gap as possible.

M&I Measurable Objective: Develop in-basin projects and methods that meet 150,000 acre feet of additional demand.

Agricultural Goal: Minimize the permanent loss of agricultural acreage to those acres being urbanized and those already planned for in the IPPs.

Agricultural Measurable Objective: Develop agriculture/M&I sharing projects for any agricultural transfers above the 20% agricultural dry-up threshold.

CWCB Responsibilities

Based on information developed by the BRTs as part of their 2011 Basin Reports, SWSI 2010, SWSI 1, the IBCC efforts, and the Basin Roundtable Summits, CWCB will develop an initial draft of basin goals and measurable objectives for the Basin Roundtable to review, revise, add, and subtract from. CWCB will support the basin roundtables in finalizing the section.

BRTs Responsibilities

The BRTs will provide feedback to CWCB on the initial draft of basin goals and objectives and work jointly with staff through a subcommittee and the roundtable as a whole to finalize the basin's goals and objectives.

Section 2: Evaluate Consumptive and Nonconsumptive Needs

This section will summarize existing reports and information that may be relevant to the Basin Implementation Plans. The existing reports, such as SWSI 2010 demands, IPPs, vulnerabilities from the drought plan, etc. and information summarized should contain water planning related information. The information summarized for this portion of the Basin Roundtable Implementation Plan will help roundtables determine how well they are currently meeting their goals and measurable objectives and where there are additional opportunities to meet those needs.

CWCB Responsibilities

CWCB will summarize the information noted as important by the BRTs. CWCB will compare the list of information sources developed by the BRTs with the Water Supply Reserve Account (WSRA) grants, drought planning efforts and other relevant documents for each basin to see if there are relevant WSRA studies or projects that should be incorporated into the summary of existing water planning information.

BRTs Responsibilities

The BRTS will provide the CWCB will a list of existing water planning documents that may be relevant to the Basin Implementation Plan for their basin. Examples of the types of information the BRTs may include are information related basin operations, planning documents identifying water management solutions, and environmental and recreation water related studies.

The BRTs will review the data summary after CWCB drafts the information into the report section.

2.1 Nonconsumptive Needs

This section will review nonconsumptive needs, based on the work of the Basin Roundtables and SWSI 2010. It will reassess this data in the context of the basin roundtables' goals and measurable outcomes. Using the nonconsumptive project and methods database, the BRTs can work to understand how much of their nonconsumptive needs are being met through existing projects and methods. For instance, data could indicate that 80% of cutthroat trout currently have protection, leaving a remaining target of 10% to meet the measurable outcome. This effort is further described in the Nonconsumptive Toolbox.

CWCB Responsibilities

CWCB will provide the following information to the BRTs:

- Nonconsumptive project and method database information for each basin (provided as part of Basin Needs reports)
- Information on the protection that the projects and methods may provide across the basin (provided as part of Basin Needs reports)
- Focus area mapping (provided as part of Basin Needs reports)
- Mapping that overlays the projects and methods and focus area mapping (provided in Nonconsumptive Toolbox)

BRTs Responsibilities

Based on the information provided by CWCB, the BRTs should address the following questions:

- For each focus segment, are there projects or methods in place for the attributes?
- If they are in place, are they sufficient to maintain/sustain the attributes?
- How well do existing and planned projects and methods meet the need defined in the goals and measurable outcomes section?

It is likely that BRT committees may need to be formed to address the above questions. CWCB will compile this information into this report section for review by the BRTs.

2.2 Consumptive Needs

This section will provide an update to the Consumptive Needs Assessments that were developed as part of SWSI 2010 and will include vulnerabilities from the State Drought Plan. Consumptive needs will be further refined in the next update to SWSI, but due to timing constraints, the Basin Implementation plans will rely on existing information.

CWCB Responsibilities

CWCB will summarize the existing information, breaking it into localized needs for the roundtables to review.

BRTs Responsibilities

The BRTs will review the information and provide feedback on the draft information prior to it being updated for their Basin Implementation Plan Report.

Section 3: Evaluate Consumptive and Nonconsumptive Constraints and Opportunities

The purpose of this section is to help roundtables better understand what the constraints and opportunities are within their basin to meet their needs. The potential places where solutions to meet the goals and measurable outcomes will be determined. As part of this effort, current basin operations, infrastructure opportunities, hydrological modeling, and nonconsumptive reaches may be used. These will then be examined in the projects and methods section to further develop the solutions to meeting the roundtables' needs. The components of this section may include:

- Consumptive and Nonconsumptive Constraints and Opportunities
    - Current Basin Water Operations and Hydrology
    - Water Rights Administration Policies and Procedures (Optional)
    - Hydrologic Modeling (Optional)

3.1 Current Basin Water Operations and Hydrology

The purpose of this task is to understand current water operations in the basin by major water users under dry, wet, and average hydrologic conditions based on existing information. Existing data can be used to narrow in on which stream reaches could meet the nonconsumptive needs for protecting targets and attributes and strategically plan to meet the nonconsumptive measurable objectives. This task will help to identify opportunities and constraints in the basin for future projects and methods geared towards meeting the basin's consumptive and nonconsumptive needs. Within this task, constraints within the basin will be identified and described. Examples of these constraints include:

- Competing or conflicting objectives among local plans
- Conflicting means of achieving the objective among local plans, all portions of the region are not equally represented in local plans
- Jurisdictional conflicts
- Regulatory constraints
- Recreational opportunities, issues and impacts
- Environmental opportunities, issues and impacts

CWCB Responsibilities

The CWCB will work with the BRTs to provide the following information:

- For the major water users in the basin diversions, storage, exchanges and use will be summarized on a monthly basis utilizing existing information (i.e. DSS, Basin Needs Assessments, etc).
- Based on existing information from the Department of Water Resources (DWR), U.S. Geological Survey (USGS), CWCB Decision Support System, and the Colorado River Water Availability Study (CRWAS) Phase 1 CWCB will summarize hydrologic information at key locations in the basin related to the water uses above for wet, dry and average hydrologic conditions
- Instream flows and flow information from programmatic biological opinions
- Mapping summarizing water uses (municipal and agricultural) and hydrology
- Mapping summarizing where the opportunities are to meet nonconsumptive goals and measurable outcomes
- Summary of the constraints and opportunities within the basin

BRTs Responsibilities

The BRTs will work with CWCB staff and consultants to ensure the information is accurate and useful.

3.2 Water Management and Water Administration (Optional)

This task is optional and CWCB will not provide direct support to the roundtables on this task. This effort could be completed using WSRA for the South Platte, Arkansas, North Platte or Rio Grande Basins and for the four west slope basins as part of the CRWAS Phase 2.

The purpose of this activity is to provide a common understanding on water administration and river compacts within each BRT. This common understanding will potentially help in the refinement and development of the basin implementation plan reports as it relates to water administration constraints.

CWCB Responsibilities

CWCB will make available any published documents or reports on water resource management and water administration.

BRT's Responsibilities

Review of existing CWCB, including SWSI (2004), DWR documents addressing water resource management and water administration. In addition, the CWCB has cataloged water management information in the Basin Memorandums that were completed as part of the Colorado Decision Support System (CDSS).

The outcome and deliverable for this task will be a summary paper listing the major controlling structures within each Water Districts, the period when general water administration begins and ends, acreages irrigated, major reservoirs, major import, major exports, compacts that are within the basin or may affect each basin.

3.3 Hydrologic Modeling (Optional)

This task is optional and CWCB will not provide direct support to the roundtables on this task. This effort could be completed using WSRA for the South Platte, Arkansas, North Platte or Rio Grande Basins and for the four west slope basins as part of the CRWAS Phase 2.

The purpose of this task is to develop a spatial representation of the BRT's consumptive and non-consumptive need within the CWCB's CDSS modeling framework. The intent is use the modeling framework to give further insight in analyzing water supply availability and uses for current conditions and a future planning horizon in order to gain a better understanding of the basin needs assessment. The modeling frame work will be used to potentially compare various projects and methods in meeting future basin needs. Where no existing CDSS modeling is available, models can be constructed using the existing CDSS model framework and the data centered modeling approach. Any deviant from this approach must be approved by the CWCB.

CWCB Responsibilities

CWCB will provide technical support in the use of the CDSS modeling framework, provide existing data set created under CRWAS, North Platte Planning Model development, SPDSS, RGDSS and ArkDSS. For the Colorado River basin BRTs, CWCB will have direct interaction through CRWAS Phase 2

BRT Responsibilities

The BRTs will investigate local-level water supply and demand imbalances by developing and modeling a set of future supply, demand, and water rights scenarios use the existing CDSS model framework were available. Scenarios will be developed by reconciling viable combinations of future supply and demand scenarios quantified through recent and ongoing CRWAS Phase I and BRT Scenario Planning activities and initiatives.

This effort will identify where and when supply and demand imbalances occur. This will provide the basis to investigate strategies to meet those imbalances and methods. Where CDSS modeling has not been implemented, the CDSS modeling framework will be used in implementation. If another modeling approach is requested, it must be approved by the CWCB. The outcome of this task will be to:

- Identify where future supply and demand imbalances are likely to exist at the local level.
- Incorporate BRT and strategies to meet imbalances.
- Investigate options to manage local imbalances.
- Provide online applications to allow the public to view corresponding task data.

Section 3.4: Current and Future Shortages Analysis

Previous versions of SWSI have focused on a "projects and methods" gap using a firm yield analysis. However, many stakeholders have expressed interest in also analyzing a water supply gap, or shortage. Based on information developed as part this section, a shortage analysis will be conducted. For those BRTs that are including the optional tasks, they should also include a shortage analysis in those optional efforts. The shortage analysis will summarize where municipal and industrial, agricultural and nonconsumptive needs may have shortages under varying hydrology such as wet, dry and average conditions. For those basins that do not conduct the optional tasks, the CWCB will assist those BRTs in summarizing known shortages that exist based on existing information.

CWCB will use the shortage analysis to develop a basinwide and statewide shortage and gap analysis to include in SWSI. In addition to the M&I gap, the gap analysis will identify agricultural and nonconsumptive shortages and gaps.

Section 4: Projects and Methods

This section is the heart of the basin implementation plans, identifying the projects and methods needed to meet the roundtables' consumptive and nonconsumptive needs. As part of this task, the BRTs should update and refine their list of consumptive and nonconsumptive identified projects and processes. Because every roundtable has a gap above and beyond their IPPs, the BRTs should also identify potential new structural and non-structural solutions to their gaps and shortages. For those BRTs including the optional tasks in Section 3, they should also include an in-basin solution analysis in those optional efforts. Examples of structural solutions include habitat restoration, new storage, enlarged storage, conveyance, direct reuse, and treatment. Examples of nonstructural solutions could include reservoir reoperation, voluntary flow management agreements, instream flow donations, conservation, and reuse by exchange. For those basins that do not conduct the optional tasks in Section 4, the CWCB will assist those BRTs in summarizing potential in-basin solutions based on the qualitative shortage analysis from section 3.4. The CWCB will assist the Roundtables in identifying projects for the major water sectors as well as multi-purpose projects.

The section will include the following subsections

4.1 Education, Participation, and Outreach
4.2 New Multi-Purpose, Cooperative, and Regional Projects and Methods
4.3 M&I Projects and Methods (i.e. projects, conservation, reuse, drought planning, etc.)
4.4 Agricultural Projects & Methods
4.5 Nonconsumptive Projects and Methods
4.6 Interbasin Projects and Methods (optional)

Section 4.1: Education, Participation & Outreach

In 2013 and 2014 the Public Education, Participation, and Outreach Workgroup of the IBCC and the Basin Roundtable Education Liaison's will be working with their basins to develop Education Action Plans that reach out to decision makers. It will let the decision makers in the basin understand how they are represented, the status of the basin's consumptive and nonconsumptive needs, planned projects, current river operation and opportunities and constraints associated with different hydrologic cycles. Where appropriate, this effort can also help roundtables' outreach to potential project proponents for the new projects and methods needed to meet future water needs to determine if they are interested in being partners or the lead entity.

Sections 4.2 through 4.5: Multi-Purpose, M&I, Agricultural, Nonconsumptive, and Interbasin Projects and Methods

BRTs should identify projects and methods that meet the needs. The focus of the basin implementation plans are on in-basin projects. One of the goals identified by SWSI and the IBCC is to develop additional multi-purpose, regional, or cooperative projects that meet the needs. These projects explored in section 3.2 should meet the needs identified by the basin roundtables. For sections 3.2, 3.3, and 3.4 projects whose primary purpose is M&I, agriculture, or nonconsumptive needs, respectively, should be identified, including any updates to the IPPs. In addition, roundtables may consider out of basin projects that require cross basin cooperation. This sub-section is optional, as much of this work is being developed by the IBCC in coordination with the basin roundtables.

If available, the BRTs should provide for each sub-section cost information, potential partners, lead entity, volume of water, and timing for any new projects and methods that are added to the list. The costs could include capital costs, debt service, and annual operating and maintenance expenses for the planning horizon.

CWCB Responsibilities

CWCB will provide the existing IPP lists and information. In addition, CWCB will help host a few stakeholder workshops for each basin to further explore which projects and methods could be developed the meet the basin's needs. As part of the Basin Needs Decision Support System (BNDSS), CWCB will include any updates and new projects and methods into the database.

BRT Responsibilities

The BRTs will assist CWCB in updating the IPP list by reaching out to project proponents in their basin. For additional projects that may be needed, BRTs will be supported in examining the opportunities and constraints within their basin and going through a decision process to determine which projects and methods should be implemented. They will request to the CWCB the need for any stakeholder meetings to further develop projects and methods.

Section 4: Implementation Strategies

The Basin Roundtable Implementation Plan will identify water management challenges and opportunities within the Basin and provide a framework for meeting the challenges. Ensuring reliable water supplies is one of the key fundamental actions established by this analysis. The CWCB will work with the BRTs to address their recommendations for the path forward including cross-basin recommendations and collaboration opportunities. The section of the Basin Implementation Plan report may include:

- Description of any cross-basin recommendations or needs for additional cooperation
- Description of what is needed to fully implement the projects and methods. This may include:
    - Identifying strategies to ensure public education and acceptance

    - Identifying funding mechanisms and strategies for implementing water supply projects and methods
    - Additional feasibility analysis and identifying partnerships/sponsors
- Timelines for identified projects and key tasks/milestones

Section 6 How the Plan Meets the Roundtables' Goals and Measurable Outcomes

This section describes how the projects and methods identified in the plan meets the gaps and water supply shortages, in relation to the goals and measurable outcomes. This work will be further refined in SWSI as demands are updated, but it provides an initial benchmark to measurably determine how well the plan would meet the basins' needs. This will inform SWSI and the State Water Plan on how we are meeting our municipal, industrial, agricultural, environmental and recreational gaps in a meaningful way.

CWCB Responsibilities

CWCB will provide an initial draft to the BRTs and work with them to further refine this section.

BRT Responsibilities

The BRTs will work with CWCB to complete this section.