Place-Based Integrated Water Resources Planning

DRAFT Guidance for Planning Step 3

Characterize Current and Future Water Needs/Demands and Challenges

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OREGON
WATER RESOURCES DEPARTMENT

Water is a finite resource with growing demands; water scarcity is a reality in Oregon. Water-related decisions should rest on a thorough analysis of supply, the demand/need for water, the potential for increasing efficiencies and conservation, and alternative ways to meet these demands.

Oregon's Integrated Water Resources Strategy Policy Advisory Group (2016)

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Introduction

Planning Step 3 will help planning groups understand and reach consensus on the water needs, demands, and challenges of different water interests in your planning area. The purpose of this step is to help your group identify the needs that will be the key drivers for generating solutions during Step 4. This document outlines the process that planning groups can use to move through Step 3. We expect that any suggestions made in this documeent will be tailored according to the needs, interests, and abilities of your group and documented in your work plan. There is a lot of information you can collect during Step 3, but we encourage you to ask strategic questions and remain focused – don't get overwhelmed or sidetracked by information that doesn't ultimately matter to your planning effort. This document can help you determine the right scope and focus for your Step 3 efforts.

This document contains two major elements:

1. **Process Guidance and Resources.** The process guidance includes a compilation of best practices to consider. This guidance is intended to be read in its entirety and offers suggestions on how the groups might structure their process to accomplish Step 3. It is followed by a checklist of common components, an example template, engagement considerations, and a blank scoping worksheet, which are included as attachments (Appendix A-D).
2. **Water Needs Assessment Toolbox**. The toolbox begins with Appendix E on page 18 and is organized into three sections – a section for instream, agricultural, and municipal/industrial water needs and demands (Appendix E, F, and G). The toolbox contains questions that can be used to help address the common components, approaches to answer the questions, as well as suggestions about available data, tools and assistance. The questions in the toolbox are a reference for potential questions to pursue answering. The toolbox can also help your planning group think through approaches for answering your questions. The toolbox is not meant to be read cover-to-cover – it is structured like a list of FAQs and should be consulted as such. We recommend using the links in the document to jump to the relevant common components and questions for your planning group.

Disclaimer

This DRAFT guidance and toolbox is intended to assist you in completing the place-based planning process as outlined in the 2015 DRAFT Guidelines. This information was compiled with the help of internal technical staff, agency partners, as well as external advisory groups with expertise in different subject matter areas for your practical use. It is up to the conveners and their support teams whether and how they use this information in their respective planning processes. The contents of this document are suggestions only and are not officially endorsed

by an individual or entity. This is a DRAFT resource that will be refined and improved over time as planning groups use it and provide feedback. It can serve as a conversation starter as groups begin to think about these complex concepts, but it was not meant to be all inclusive or exhaustive. Each planning group and their planning partners will identify the questions, approaches, data, and tools that are relevant and useful to their planning effort. In terms of how work is accomplished, each partner is responsible for determining how they will contribute to the planning process and what they may be able to contribute in terms of assistance.

Requesting Assistance for Planning Step 3

If you intend to request assistance from an organization identified in the tool box, please note that each organization is responsible for determining 1) whether they can provide assistance, and 2) the process by which groups can request assistance. Partners may have limited capacity to provide assistance. At this time OWRD is only able to offer planning and technical assistance to a limited number of places. Planning groups requesting technical assistance from OWRD must follow the process outlined in the Requesting Coordinated Technical Assistance Memo developed by OWRD.

Feedback and Continuous Improvements

This guidance and toolbox represent a collection of knowledge from many individuals who care about water planning in Oregon and have expertise and/or experience with water demands. It is not comprehensive or complete. These resources will be continuously revised and updated as information changes. We welcome your feedback at any time on anything contained in the process guidance or toolbox. Over the next year we will consult with members of the planning processes as well as other external content experts to refine and improve upon these materials. If you would like to contribute a planning question, please do so by filling out this form. If you would like to provide input on an existing question, please email your thoughts or feedback to placebasedplanning@wrd.state.or.us.

Planning Step 3 Process Guidance

How to Approach Step 3

Planning Step 3 will help planning groups understand and reach consensus on the water needs and demands of different water interests in your planning area. The purpose of this step is to help your group identify the needs that will be the key drivers for generating solutions during Step 4. This document outlines the process that planning groups can use to move through Step 3. We expect that any suggestions made in this documeent will be tailored according to the needs, interests, and abilities of your group and documented in your work plan. There is a lot of information you can collect during Step 3, but we encourage you to ask strategic questions and remain focused – don't get overwhelmed or sidetracked by information that doesn't ultimately matter to your planning effort.

Work Flow

Consistent with the process outlined below, your group should begin by **laying the groundwork** to make sure all planning partners share a common set of expectations for how work will proceed. **Scoping** is used to identify the key issues at an early stage in the planning process and can help the group focus on the most important information for this step. The **information gathering** and **analysis** phases will be iterative as the group works to answer key questions identified during scoping. Finally, the group will need to determine how to **document findings** in summary materials. **Engagement** should happen throughout the planning step to integrate partner and public input into the process.

Figure 1. Proposed work flow

Assumptions

Successful use of this guidance and toolbox (see Appendices E-G) is based on the following assumptions:

- Planning groups will undertake scoping for Planning Step 3 as a whole and develop or revise their work plan before looking at any of the specific need areas;
- Planning groups will use this guidance to think about how to address the common components, but will ultimately tailor their approach to fit the context and needs of their place;

- Planning groups will rely on best available information and will do their due diligence to find and use existing studies and plans;
- Planning groups will actively engage partners to ensure that their interests and needs are met in the planning process;
- Planning groups will seek balance in understanding instream and out-of-stream water needs;
- Planning groups acknowledge upfront that they may not have the information they need to conduct all desired analyses to the desired level of detail or accuracy;
- Planning groups acknowledge that they will not be able to collect new data through this planning process, but will identify information gaps and strategies to fill priority gaps.

Laying the Groundwork for Planning Step 3

Before any work is done, it's important to lay the groundwork so that everyone shares a common set of expectations about what is going to happen, who is going to do it, how much it will cost, and the timeline for accomplishing it. The group should begin by reviewing the DRAFT Place-Based Planning Guidelines as well as the common components that have been identified for Step 3 (see Appendix A: Step 3 Common Components).

Each group will organize itself differently depending on partner capacity, expertise, and resources available to the planning group. Be sure to communicate how you plan to balance the scope of the effort with schedule and cost considerations. Laying the groundwork upfront will make project management a shared responsibility amongst your partners and it will also help you stay focused. Some groups may depend on consultants or a partner with particular expertise to accomplish a significant amount of work, while other groups may assemble working groups to work more collaboratively, or some combination thereof. Either way, there should be some buy-in about what will happen in this step before it begins.

Project Management Questions

Here are some questions you can ask yourselves when you're laying the groundwork:

1. **Goals** – What are our goals during this step? What do we hope to accomplish?
2. **Scope** – What is the scope of our work? How can we be strategic in our scope?
3. **Work Products** – What work products will be developed?
4. **Schedule** – What is the timeline or schedule for accomplishing this work? What are some important milestones?
5. **Cost** – What is the budget for this work? What financial resources are available to complete this work? Are there any financial constraints?

6. **Resources** – What expertise do we have in our group? What is the capacity of our partners to assist? Do we have the right people to work on this task or do we need outside assistance?
7. **Organization/Roles** – Who will work on this task? How will they be organized? What is their assignment? How often will they meet and what are the expectations of their time?
8. **Communication** – When and how will we report back to the larger group about our progress?
9. **Quality assurance** – How will we ensure the validity of information used? What are our quality assurance standards as a group?
10. **Review** – What is the review process for work produced? What are the decision-points?
11. **Engagement** – Do we have at least one representative for each water interest/user group in our process to help inform our process? What is the larger engagement strategy to involve other stakeholders?
12. **Decision-making** – What process will we use to make decisions? What are the key decision-points?
13. **Conflicts and risk management** – What risks do we anticipate and how will we manage them? What process will we use to resolve conflicts?

Scoping Your Approach for Analyzing Current and Future Supply and Demands

A scoping phase can help you focus and refine your approach before initiating information gathering or analyses. Proper scoping will help you hone in on key questions you intend to answer and prioritize your work. Reviewing key questions with partners and keeping them in a central location can provide clarity and transparency to the process and can help manage the scope of your effort.

The group's overall objectives and the scale of the planning study will dictate what questions are asked and what type of data is needed. At a minimum, this step should result in a regional analysis of supply and demand for instream and out-of-stream needs. It is important to recognize the difference between regional and user level forecasting. Regional forecasting seeks to provide a high level (i.e., less detailed) estimate of future water needs for a wide variety of users based upon common data and consistent methodologies. In contrast, user level water demand forecasting may consider user specific information as a way to identify variables that the planning effort can build solutions around (e.g., irrigation efficiency for farms). The planning effort will likely include a mix of regional and user-level information.

Consider using the blank Scoping Worksheet (see Appendix D) as well as the "DRAFT Water Needs Assessment Toolbox" (see Appendix E-G) to identify the questions you plan to answer during Step 3.

Scoping Questions

Consider using the following questions to identify the priorities for Step 3:

1. **Objectives** – What are our objectives during this step? How will we use the information generated?
2. **Questions** – What questions are we interested in answering? How will answering these questions help us achieve our objectives?
3. **Key drivers** – What are the key drivers affecting water use in our planning area? How will this affect our analysis? Where should we focus more of our time and energy?
4. **Geographic scale** – What geographic scale will we use to examine and describe water needs? Will we look at the basin as a whole, sub-areas/key reaches, or both?
5. **Timescale** – What time periods are we interested in understanding (e.g., period of assessment)? Will we consider water needs seasonally, weekly, monthly, annually, or a mix of different time scales? How will we account for inter-annual and decadal variability?
6. **Units of measurement** – What unit(s) of measurement will we use to describe the amount of water (million gallons per day, acre feet per year, cubic feet per second, etc)?
7. **Data availability** – What type of data is available? Where is it located and what format is it in? Does the available data overlap with our desired geographic scale and timescale?
8. **Existing plans and studies** – What other planning processes have occurred already and what documents already exist? How will we use existing plans and studies?
9. **Planning horizon** – How far out do we want to plan for (e.g., 20 years, 50 years)?
10. **Planning scenarios** – What will be included in our planning scenarios (e.g., growth projections, land use changes, regulation, conservation, climate change, etc)? Will we consider a best case and a worst case scenario?
11. **Assumptions** – What are our assumptions about the factors that may impact water needs/demands over time (e.g., land use changes, changes in technology, changes in regulation, conservation opportunities, climate change, etc)? How will we document our assumptions?
12. **Uncertainty** – How will we account for uncertainty in our planning scenarios?

Gathering Available Information to Conduct Analyses

The information you gather during this phase will help you conduct your analyses and should be informed by your scoping efforts. The planning process should rely on available information and likely won't be able to collect new information. The "Water Needs Assessment Toolbox" (see Appendix E-G) includes references to available information as well as external assistance that might be available to your group. Your partners are a great source of local information and their information should be incorporated into your work.

Available Information

There is a significant amount of available information, but it is distributed among partners and across websites. The group should work to assemble available sources of information to make them easily accessible to partners as they work through Step 3. Table 1 summarizes some of the information that is available to groups across the state.

Table 1. Overview of available information for Step 3

	Instream Water Needs	Municipal, Domestic, Industrial, Commercial Water Needs	Agricultural Water Needs
Plans, studies, reports	Watershed Assessments, Basin Studies, Basin Investigations, PHABSIM Studies, Limiting Factors Analyses, Biological Opinions, Recovery Plans	Basin Studies, Water System Master Plans, Water Management Conservation Plans, City and County planning documents,	Basin Studies, System Improvement Plans, Agricultural Water Management and Conservation Plans
Context	ODFW's species distribution maps – COMPASS	Public Water System Look Up, Urban growth boundaries (past and projected future boundary changes), PSU Population Research Center Population Data	US Department of Agriculture Census of Agriculture; US Department of Agriculture (USDA) CropScape – Cropland Data Layer
Water rights, use, and demand	OWRD Water Rights Information System and Mapping Tool, US Geological Survey Oregon Water Use Compilation, OWRD Water Availability Reporting System, OWRD Statewide Demand Forecasts	OWRD Water Rights Information System and Mapping Tool, US Geological Survey Oregon Water Use Compilation, OWRD Water Availability Reporting System, OWRD Water Use Reporting Database, OWRD Statewide Demand Forecasts	OWRD Water Rights Information System and Mapping Tool, US Geological Survey Oregon Water Use Compilation, OWRD Water Availability Reporting System, OWRD Water Use Reporting Database, OWRD Statewide Demand Forecasts

Caveats and Assumptions

Before using any source of information, the group should seek to understand both the strengths and limitations of that information. They should seek out any caveats that may affect how they interpret that information and should be clear about assumptions they make when doing any analysis with incomplete or imperfect information.

Data Gaps

In many cases, there will not be sufficient information to answer the questions your group is interested in. It is important for the group to determine the minimum amount of information needed to clearly define needs or generate solutions. Identifying gaps in knowledge and how the group will fill those gaps may be an important outcome of this process.

Approaches for Analyzing Water Needs and Demands

How the group analyzes information will largely rely on what questions you decide to ask (see Scoping above) and what information you have available (see Gathering Available Information). Some analyses will be quantitative (using numbers and calculations to tell a story) and some analyses will be qualitative (using narrative and description to tell a story). Groups should use existing methodology where it exists and are encouraged to look at other supply and demand analyses that have been completed in Oregon and beyond.

Water Needs Assessment Toolbox

Appendix E, F, and G contain information that groups can use to understand needs and demands for the three main demand areas (instream, municipal/industrial, and agricultural). These appendices constitute a "Water Needs Assessment Toolbox" and include 1) questions that can help address the common components, 2) approaches you could use to answer the question(s), 3) available sources of data and tools, as well as 4) potential assistance.

Table 2. Key to Water Needs Assessment Toolbox contents

Component	TOPIC TO BE CONSIDERED
Question	EXAMPLE QUESTION
Rationale	WHY YOU MIGHT CONSIDER THIS TOPIC OR QUESTION
Potential Approach	POTENTIAL APPROACH(ES) FOR ADDRESSING THE TOPIC OR ANSWERING THE QUESTION
Data	AVAILABLE DATA SETS OR SOURCES OF INFORMATION
Tools	TOOLS TO ASSIST IN ANALYSIS
Assistance	REFERENCES AND CONTACTS THAT MAY ASSIST YOU IN YOUR EFFORTS
Notes	ADDITIONAL CONSIDERATIONS
Contributions	CONTACT INFORMATION TO PROVIDE FEEDBACK

Data Gaps

As you go through the analysis phase, you may find that you need to change your questions as you learn more over time. You may also come to find that the information you have to work with may not be appropriate for the questions you want to ask. If that's the case, think about what information you would need to answer those questions and identify recommended actions for gathering that information over time.

Potential Assistance

Please note that potential assistance described in the toolbox can point you to an organization that has data or specific knowledge and expertise on that topic. Depending on the capacity and available resources of the individual entity or organization, they may or may not be able to provide assistance. OWRD does not guarantee that entities listed, including OWRD, will be able to help. This underscores the importance of early scoping so that the group can identify the help they need and clearly articulate what assistance they are requesting. Early scoping will increase the likelihood that an entity can provide assistance within the needed timeframe. For any assistance requested of OWRD, please follow the procedures outlined in the Technical Assistance Memorandum.

Documenting Your Findings

By addressing the common components described in Appendix A, your group will be building the foundation for Step 3 summary materials that describe water needs and demands for your planning area. This material will make up one chapter in your Place-Based Integrated Water Resources Strategy, but they can also help with communication and outreach. The summary materials will also help the group focus on the highest needs during Step 4, when you begin generating solutions.

Step 3 Summary Materials

Before embarking on Planning Step 3, it is a good idea to determine what summary materials the group will create. Determine who the key audience is and make adjustments based on how that audience will read, interpret, and use the document. It is the responsibility of the planning group to determine what type of summary materials they will create. These may take the form of a more traditional summary report, or may take a more creative form that can be used for outreach purposes. The groups are encouraged to experiment with new ways of communicating information that can reach broader audiences. If the group intends to develop a traditional report, it would be good to decide what information will be captured in a document and how the information will be organized. Consider seeking feedback and buy-in on an outline or a table of contents.

The Step 3 summary materials should describe the water needs in the planning area relative to historic and future water supplies. These summary materials will describe the instream needs (fish and wildlife, ecological, water quality, recreation, cultural/spiritual) as well as the out-of-stream needs and demands (agricultural, municipal, domestic, industrial, commercial). They should summarize areas where there are current shortages or unmet needs and priority areas for meeting needs. The summary materials should describe how water supply and needs are likely to change over a 20-50 year planning horizon, taking into account climate change and other vulnerabilities. They should identify stressors and areas where there is potential for

future conflict. The group should quantify the needs where an accepted methodology exists using available information. Other needs may best be described through a narrative description and/or images. The group should clearly document assumptions that were made, and efforts that can be taken to improve estimates over time.

Example Template

An example template is provided in Appendix B: Example Template. The group can modify this template how they see fit or they may decide to compile summary materials using a different format.

When thinking about how to present information, the group should also familiarize themselves with how information is organized in the Statewide Integrated Water Resources Strategy. In general, action oriented information should be at the front of the document with technical analyses at the back of the document. Information should be conveyed in an easy to read format, with images, tables, and graphics presenting as much information as possible. The report should identify information gaps and recommend actions to help groups improve their understanding of water supply and demand over time.

Review Process

There should be a clear process for ensuring buy-in of the final written summary. Partners should be given ample time to review the written materials and they should be approved using the decision-making process outlined in the governance agreement. Consider developing a consensus summary of Step 3 that could summarize points of agreement and accompany the summary materials.

Engaging your Partners and the Public (Ongoing)

A collaborative process, by its nature, relies on active engagement of partners with the belief that a higher level of involvement results in a better outcome and greater buy-in. It is critical to build trust with and among the stakeholders as well as with the agencies and other entities involved.

Although a high level of involvement is desirable, the group must balance engagement with scope, schedule, and cost considerations. Identifying decision points and opportunities for creativity and innovation can facilitate active participation.

Key Audiences for Step 3

Table 3. Potential audiences for Step 3 work

Instream Audiences	MDIC Audiences	Agricultural Audiences
▪ Conservation Organizations ▪ Watershed Councils ▪ Tribes ▪ Oregon Department of Fish and Wildlife ▪ Oregon Department of Environmental Quality ▪ US Fish and Wildlife Service ▪ National Oceanic and Atmospheric Administration – Fisheries ▪ Federal land managers (US Forest Service, National Park Service) ▪ Oregon Parks and Recreation Department	▪ Public Water Systems ▪ City Residents/Rural Homeowners ▪ Special Districts ▪ Tribes ▪ City/County Government ▪ Real Estate Agents ▪ Local businesses and industries ▪ Chambers of Commerce ▪ Council of Governments ▪ Watershed Councils ▪ Regional Water Provider Groups ▪ Industry organizations ▪ Oregon Department of Environmental Quality ▪ Oregon Health Authority	▪ Private Irrigators ▪ Irrigation districts / water districts ▪ Oregon Department of Agriculture ▪ USDA Natural Resources Conservation Service ▪ Federal land managers (US Forest Service, Bureau of Land Management) ▪ Industry organizations ▪ Cooperatives ▪ Well drillers and pump installers ▪ OSU Extension ▪ Soil and Water Conservation Districts

Potential Engagement Activities

It is important to engage your partners and the broader community as you are assessing water needs. Here are some suggestions for engagement:

- ✓ Make sure you have representatives of the major interests and users in your planning area (both instream and out-of-stream);
- ✓ Convene a working group for each of the major demand areas;
- ✓ Ask the planning group members that represent different water uses to talk to their colleagues or neighbors and report back to the larger group;
- ✓ Invite representatives from different water user groups to deliver a presentation to the planning group;
- ✓ Schedule one-on-one conversations or focus groups to better understand water needs of different water interests;
- ✓ Deliver a presentation to local governments, non-profit organizations, businesses, or industry groups in your area and be prepared to ask a few questions about the water needs of the community/constituency represented by that group;
- ✓ Coordinate field tours of different water uses in your planning area to build understanding and awareness.

For additional ideas about engagement, see Appendix C: Engagement Considerations

Success for Step 3

Consider developing a survey or other tools to assess your Step 3 process and outcomes. At the end of Step 3, planning groups should be able to answer the following questions:

- What does the Step 3 report mean? Do the summary materials tell the story of the water needs for the major uses in our place?
- Is there a shared understanding of the water needs for the major water user groups in our planning area (agriculture, municipal/industrial, and instream)? Are they represented equally?
- Is there a shared understanding of the vulnerabilities that may affect the ability for these users to meet their needs?
- Have we identified where and when water supplies are sufficient or insufficient for meeting demands now and in the future?
- Do we have clear understanding of water supply and how it might change over time given climate change considerations?
- Do we know what gaps exist for understanding future water supply and estimating future needs and have we generated ideas for how those gaps may be addressed?
- Is there buy-in and support for our summary materials? Did the group reach consensus on the water needs and challenges that we will be generating solutions for in Step 4?
- What went well over the course of Step 3 in terms of roles, engagement, and production of the report/results? What lessons were learned and should be applied to future steps?

Resources for Step 3

Common Components Checklist

The Common Components Checklist identifies common components that place-based Integrated Water Resources Plans can include to ensure consistency across the state as well as credibility in the final plan.

- *Appendix A: Step 3 Common Components Checklist*

Example Template

An example template has been drafted to show a potential outline of a Step 3 report. The planning group is ultimately responsible for what summary materials they produce.

- *Appendix B: Example Template for Water Supply and Needs Report*

Engagement Considerations

Engagement is an important part of place-based planning and OWRD offers some suggestions for ways to engage partners and the general public.

- *Appendix C: Engagement Considerations*

Scoping Worksheet

Scoping worksheets might be helpful for the groups to scope out what they intend to accomplish during Step 3. These scoping worksheets can also be helpful for making technical assistance requests of agency partners.

- *Appendix D: Blank Scoping Worksheet*

DRAFT Water Needs Assessment Toolbox

OWRD and partners are compiling a "Water Needs Assessment Toolbox" to help the groups think about ways to approach the common components. This toolbox includes information for the following topic areas:

- *Appendix E: Instream Water Needs Assessment Toolbox*
- *Appendix F: Municipal Industrial Water Needs Assessment Toolbox*
- *Appendix G: Agricultural Water Needs Assessment Toolbox*
- Forthcoming: Water supply guidance anticipated in Spring/Summer 2018
- Forthcoming: Water budget guidance anticipated in Spring/Summer 2018

Each toolbox includes questions that the group can ask, along with approaches, data, tools, and available assistance.

Assistance

Each organization is responsible for determining 1) whether they can provide assistance and 2) the process by which assistance should be requested. At this time OWRD is only able to offer planning and technical assistance to those places that received a place-based planning grant. Planning groups requesting technical assistance must follow the process outlined in the Requesting Coordinated Technical Assistance Memo developed by OWRD.

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Appendix A: Step 3 Common Components Checklist

Water Budget

☐ WB 1. Water budget for the planning area, sub-areas, or key points of interest

Current and Future Water Supply (Surface Water and Groundwater)

☐ WS 1. Current and historical climate conditions and forecasting tools
☐ WS 2. Variability in surface water and groundwater supplies (seasonal, annual, decadal)
☐ WS 3. Surface and groundwater interactions and impacts to water supply
☐ WS 4. Hydrographs under different climate conditions (average flow, high flow, low flow)
☐ WS 5. Current and potential storage capacity (natural and built)
☐ WS 6. Current and future vulnerabilities to water supply
☐ WS 7. Potential climate change impacts to future water supplies
☐ WS 8. Potential sources of water for future supply

Current and Future Instream Needs/Demands

☐ IS 1. Context - Instream uses, key waterways, and water features of interest
☐ IS 2. Water rights - Voluntary agreements, legal obligations, water rights, and other protections
☐ IS 3. Water use/demands - Historic uses and future instream flow needs for fish and wildlife, ecological functions, culture, recreation, hydropower, and navigation
☐ IS 4. Water quality - Water quality considerations affecting water supply and availability
☐ IS 5. Infrastructure - Built and natural infrastructure affecting flows and passage
☐ IS 6. Equity - Vulnerable communities and water stressors
☐ IS 7. Vulnerabilities - Vulnerabilities/resilience in the face of extreme events and coming pressures
☐ IS 8. Unmet needs - Current and future unmet instream needs
☐ IS 9. Prioritization - Priority areas for study, restoration, and protection

Current and Future Municipal, Domestic, Industrial, Commercial (MDIC) Needs/Demands

☐ MI 1.Context - MDIC water users and areas served
☐ MI 2. Water rights - MDIC water rights
☐ MI 3. Water uses/demands - Historic uses and future MDIC water demands
☐ MI 4. Water quality - Water quality considerations affecting supply and availability
☐ MI 5. Infrastructure - Built and natural infrastructure affecting supply and availability
☐ MI 6. Equity - Vulnerable communities and water stressors
☐ MI 7. Vulnerabilities – Vulnerabilities/resilience in the face of extreme events and coming pressures
☐ MI 8. Unmet needs - Current and future unmet MDIC water needs
☐ MI 9. Prioritization – Priority areas for meeting MDIC water needs

Current and Future Agricultural Needs/Demands

☐ AG 1. Context - Agricultural products, acres in production, irrigated acres, and irrigation districts
☐ AG 2. Water rights - Agricultural water rights
☐ AG 3. Water use/demands - Historic agricultural water use and future water demands
☐ AG 4. Water quality - Water quality considerations for agricultural water supply and availability
☐ AG 5. Infrastructure- Built and natural infrastructure affecting water supply and availability
☐ AG 6. Equity - Vulnerable communities and water stressors
☐ AG 7. Vulnerabilities - Vulnerabilities/resilience in the face of extreme events and coming pressures
☐ AG 8. Unmet needs - Current and future unmet agricultural water needs
☐ AG 9. Prioritization - Priority areas for meeting agricultural water needs

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Appendix B: Example Template for Water Needs and Vulnerabilities Report

- **CONSENSUS SUMMARY OF CURRENT AND FUTURE WATER SUPPLY AND INSTREAM/OUT-OF-STREAM NEEDS/DEMANDS AND CHALLENGES**
- **CONSENSUS SUMMARY OF RECOMMENDED ACTIONS TO FILL INFORMATION GAPS AND IMPROVE UNDERSTANDING OF WATER SUPPLY AND INSTREAM/OUT-OF-STREAM NEEDS**

- **INTRODUCTION AND BACKGROUND (OR REFER TO STEP 2 REPORT)**
  - Map of planning area with key water features, population centers, and economic drivers
  - Summary of water resources – both surface and groundwater
  - Summary of drivers for planning
  - Overview of planning process and stakeholder engagement
- **WATER BUDGET(S) – 2 PAGES**
  - Overview of water budget (precipitation, consumptive use, streamflow, change in storage)
  - Water accounting in key-sub areas or reaches showing water supply with water needs for different users (instream, municipal/industrial, agriculture)
- **CURRENT WATER SUPPLY (BUILDS ON STEP 2 REPORT) – 2 PAGES**
  - Weather and climate in the planning area
  - Trends in water supply over time
  - Current vulnerabilities to water supply
  - Current storage capacity
- **FUTURE WATER SUPPLY – 2 PAGES**
  - Potential climate change impacts to future water supplies
  - Tools and resources used to understand future supply
  - Recommendations to improve water supply tracking and forecasting
  - Potential sources of water for future supply (high-level overview)
- **INSTREAM WATER – NOW AND IN THE FUTURE – 6 PAGES**
  - Overview of instream values – social/cultural, environmental, economic (IS 1)
  - Priority areas for restoration/protection (IS 9)
  - Goals and metrics for meeting instream water needs
  - Current and future instream water needs/demands (IS 3)
    - Ecological features and functions
    - Fish and wildlife
    - Recreation
    - Hydropower
    - Other: Navigation, Aquaculture, etc.
  - Instream water rights (IS 2)

- Water quality, infrastructure, land use and development, and other considerations affecting water supply, availability, and use (IS 4, IS 5)
- Vulnerability assessment and indicators of resilience (IS 6, IS 7, IS 8)
- Recommended actions to fill information gaps and improve understanding of instream water uses/needs

- **WATER FOR PEOPLE AND INDUSTRY (MUNICIPAL/INDUSTRIAL WATER NEEDS) – NOW AND IN THE FUTURE – 6 PAGES**
  - Overview of municipal, domestic, industrial, and commercial values – social/cultural, environmental, economic (MI 1)
  - Priority areas for municipal, domestic, industrial, and commercial water needs (MI 9)
  - Goals and metrics for meeting municipal, domestic, industrial, and commercial water needs
  - Current and future water use/demands (MI 3)
    - Municipalities – public water systems
    - Self-supplied domestic/rural water users
    - Industrial/commercial water use (municipal and self-supplied)
  - Municipal, domestic, industrial, and commercial water rights (MI 2)
  - Water quality, infrastructure, land use and development, and other considerations affecting water supply, availability, and use (MI 4, MI 5)
  - Vulnerability assessment and indicators of resilience (MI 6, MI 7, MI 8)
  - Recommended actions to fill information gaps and improve understanding of water uses/needs for people and industry
- **WATER FOR AGRICULTURE – NOW AND IN THE FUTURE – 6 PAGES**
  - Overview of agricultural values – social/cultural, environmental, economic (AG 1)
  - Priority areas for agricultural water needs (AG 9)
  - Goals and metrics for meeting agricultural water needs
  - Current and future water needs/demands for agriculture (AG 3)
    - Dryland/irrigated agriculture
    - Stockwater/rangeland
    - Forests
    - Other
  - Agricultural water rights (AG 2)
  - Water quality, infrastructure, land use and development, and other considerations affecting water supply, availability, and use (AG 4, AG 5)
  - Vulnerability assessment and indicators of resilience (AG 6, AG 7, AG 8)
  - Recommended actions to fill information gaps and improve understanding of water uses/needs for agriculture

Appendices – Methods and Analyses (including assumptions)

Appendix C. Engagement Considerations

Engagement is a very important part of collaborative water planning. The planning group should continually evaluate how well it is engaging partners as well as stakeholders and citizens that aren't sitting at the planning table. As defined by the Center for Advances in Public Engagement:

> *Public engagement is a process that brings people together to address issues of common importance, to solve shared problems, and to bring about positive social change.*

Benefits of Engagement

- ✓ Helps people weigh a variety of perspectives and listen to each other's views.
- ✓ Builds common understanding, manages differences, and establishes direction for moving ahead on tough issues.
- ✓ Builds trust and improves communication between members of the planning group and the broader public.
- ✓ Creates new opportunities for citizens to

The Planning Group should build on their existing Communication and Outreach plan and develop engagement strategies specific to each planning step. Begin by listing out key audiences for each step.

Some things to keep in mind as you're developing engagement strategies:

Know your audience. When trying to understand and describe water needs, it is important think of your key audiences and what is important to them. Ask your partners about the different ways water is used in your place. Do some strategic outreach to water users to inform your approach. What do they care about? What messages will resonate with them? What are the barriers to their participation?

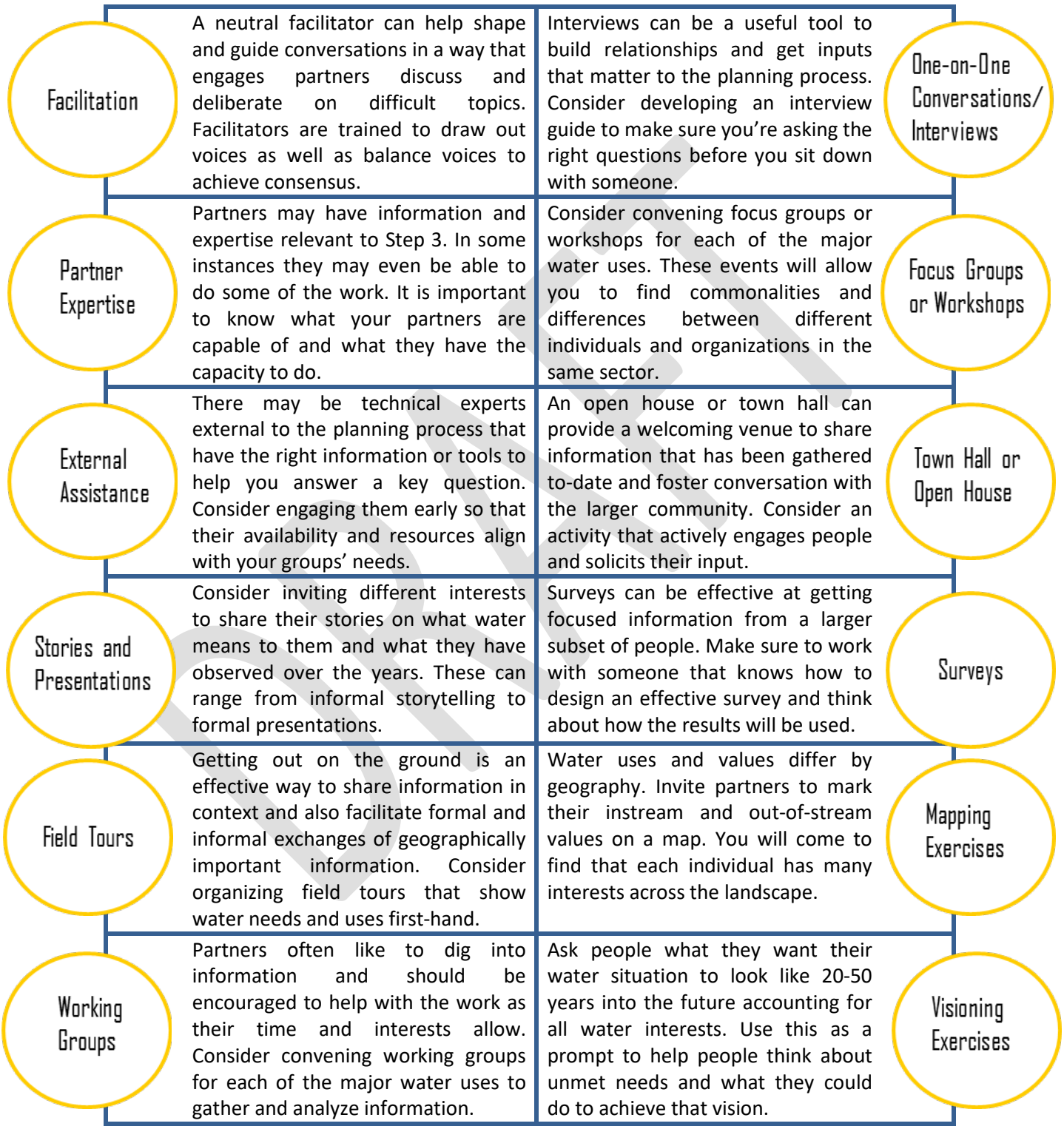
Make it easy. Before you engage these audiences think about how you meaningfully engage them while requiring minimal resources from them – make it easy for them to engage. Be sure to tailor your requests based on what you know about the different audiences and their ability to participate. Engagement may take significant coordination – we suggest having a coordinator for this who has limited other responsibilities within the planning effort.

Be strategic. Don't forget that any engagement effort provides an opportunity to inform people about the planning effort and build new partnerships. Make sure everyone you engage learns the basics about the planning effort and knows how to stay engaged if they are interested.

Ask what they need. Long-term engagement and partnerships are built on reciprocity. Make sure you ask what they need even if it has nothing to do with what you need – it may lead to interesting places.

Circle back. People generally want to know how their feedback and input is used. Make sure to build in continuous feedback loops so that people can understand how they have influenced the process or outcomes.

The graphic below describes some of the strategies that can be employed to engage different audiences during Planning Step 3.



Appendix D. Blank Scoping Worksheet

Component	TOPIC TO BE CONSIDERED
Question	EXAMPLE QUESTION
Rationale	WHY YOU MIGHT CONSIDER THIS TOPIC OR QUESTION
Potential Approach	POTENTIAL APPROACH(ES) FOR ADDRESSING THE TOPIC OR ANSWERING THE QUESTION
Data	AVAILABLE DATA SETS OR SOURCES OF INFORMATION
Tools	TOOLS TO ASSIST IN ANALYSIS
Assistance	REFERENCES AND CONTACTS THAT MAY ASSIST YOU IN YOUR EFFORTS
Notes	ADDITIONAL CONSIDERATIONS
Path Forward	HOW THIS SCOPE WILL THIS BE EXECUTED