

Updated Regional Water Planning Handbook: Guidelines to Preparing Updates to New Mexico Regional Water Plans

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New Mexico Regional Water Planning

December 2013

I. Introduction

The original impetus for regional water planning came in 1987, when a federal court ruled that New Mexico's prohibition against out-of-state transfer of New Mexico groundwater was unconstitutional. As a result of this ruling, it became evident that New Mexico must actively plan for its water future by demonstrating the need for its water supplies. The Regional Water Planning Statute, §72-14-44 NMSA 1978, was passed in 1987 and establishes general criteria for developing regional water plans and addressing future water supply needs. In addition, the statute gives the New Mexico Interstate Stream Commission (NMISC) certain powers and duties for implementing regional water planning.

In accordance with the statute, planning regions were identified based on a combination of hydrologic and political boundaries, and 16 regional water plans were completed and accepted by NMISC between 1987 and 2008 (these plans are hereafter referred to as the *previously accepted* regional plans).

In addition to the Regional Water Planning Statute, the legislation authorizing the state water plan was passed in 2003. This legislation requires that the state plan shall “integrate regional water plans into the state water plan as appropriate and consistent with state water plan policies and strategies” (§ 72-14-3.1(C) (10)). However, in developing the previously accepted regional water plans, the regions used different assumptions and methodologies for compiling and reporting data (for example, some regions reported water use as depletions and others as diversions), and the lack of a consistent methodology and the wide array of differences between the previously accepted plans did not allow for easy compilation or integration of the regional plans into the state water plan.

This updated Regional Water Planning Handbook was developed by the NMISC and the Office of the State Engineer (NMOSE) to guide regions in developing their plan updates, the first of which is to be completed by December 2015. The methodology and additional technical guidance in this updated Handbook follow the outline of the original Regional Water Planning Handbook (NMISC, 1994).

In an effort to streamline the update process, this updated Handbook outlines an approach that will allow the regional plans to be updated cost-effectively by using a consistent methodology that will also facilitate integration of the regional plans into future updates of the state water plan. Specifically, this updated Handbook includes the approach for developing the technical data and updating the previously accepted plans, as outlined in Chapter II. Any questions about the updated Handbook or regional water plan updates should be addressed to ISC planning staff.

II.

Regional Water Planning Guidelines

This chapter outlines an approach to developing the regional water plan updates that will comply with the legislative mandate while facilitating the integration of regional water plans into the state water plan. Unless sufficient funding has been made available and the state has identified the need for additional study, the updates will not include field data collection, modeling, or completion of significant new studies. With few exceptions, the updates will synthesize relevant information from existing sources, with particular emphasis on recent studies that provide additional or updated information on supply, demand, and legal issues.

To ensure reliable and accurate assessments and consistency among regions as needed for completion of the state water plan update, the State of New Mexico will develop the technical foundation for the 16 regional water plan updates using a common methodology (a *common technical platform*) to characterize statewide and regional supply and demand issues. For each of the 16 regions, the state will use this common technical platform, described in the sidebar and outlined in more detail in Sections D through H, to develop a technical report that updates background information and summarizes current supply, projected demand, gaps between supply and demand, and legal issues and constraints. The state will consult with the regions before completing the reports. The completed reports will provide the regions with the technical and legal portions of the plan updates, as well as the basis for the regional planning update process.

Common Technical Platform

To prepare both the regional water plans and the state water plan using a consistent methodology, the state has developed a common technical platform that addresses water supply, considering legal and physical constraints on the supply, under a range of conditions from severe drought to normal supply. The state recognizes the complexities of water planning; there are many ways to account for supply and demand, and surface water supplies are extremely variable. Detailed models that consider temporal variability of supply and demand and storage in varying climatic conditions are useful for planning, especially for timing reservoir releases. While these tools are available for some parts of New Mexico, they are not available statewide, and resources for developing them for all regions are not available. Therefore, the state has developed a simple methodology that can be used consistently across all regions to assess supply and demand for planning purposes. The objective of applying this methodology is to be able to efficiently develop a statewide overview of the balance between supply and demand in both normal and drought conditions, so that the state can move forward with planning and funding water projects and programs that will address the state's pressing water issues.

The methodology that the state will use to estimate supply, hereafter referred to as *administrative water supply*, is based on recent diversions for beneficial use, thereby taking into account legal obligations that have limited those diversions. This methodology is based on the assumption that recent diversions provide a measure of supply that considers both physical supply and legal restrictions (i.e., the diversion would only be allowed if it was physically available, permitted, and in compliance with interstate stream compacts). In some areas where interstate stream compacts or court decrees specify the legal entitlement, additional discussion will be included. The recent diversion data will be corrected to reflect drought supplies, based on long-term drought indices.

The state will issue these regional reports based on published data for planning purposes only. The compilation of these data does not affect or determine water rights validly held under New Mexico law.

All the sections specified in the original Handbook are still relevant and are included in this chapter. In the interest of efficiency, however, the sections in the plan updates will consist primarily of relevant new and changed information or information needed to achieve consistency between the plans. Information presented in the previously accepted plans will be only briefly summarized, referring to the previously accepted regional water plan for detailed information that does not require revision, including maps and tables. For example, references to new groundwater models or published studies may provide information on changed conditions, but it is not necessary to provide detailed discussion of information on hydrogeologic units and background studies that was presented in the previously accepted plan.

Furthermore, not all types of information noted for each section in the original and updated Regional Water Planning Handbook apply in every region. For example, if a region does not include tribal or pueblo land, no information related to such land needs to be included in the plan; instead, the update should simply note that the issue is not applicable to the region. In addition, the amount of detail included in the plan concerning any issue should be reasonably related to the importance of that factor to water planning in that region. For example, the Regional Water Planning Handbook calls for information concerning the locations of present water uses. That request does not require the development of a full-fledged hydrographic survey; the compilation of existing data and documentation on that subject will suffice.

The focus of the original and updated Regional Water Planning Handbook is to address the following questions:

- What is the region's available water supply (referred to as administrative water supply for the updates)?
- What is the region's future water demand?
- How will the region undertake to meet demand with supply?

This updated Handbook specifies the following tasks to further refine the approach to addressing the original regional water planning questions:

- Identify significant new research or data that provide a more current understanding of water supplies and demands in the region.
- Develop projections of future water use using a common methodology.

- Identify strategies and alternatives, including infrastructure projects, conservation programs, watershed management policies, or other types of initiatives that will help to balance supplies and demands and address each region's future water management needs and goals.

The answers to these questions for each region will also inform the state water plan update.

In summary, this updated Regional Water Planning Handbook provides a consistent approach for demonstrating the statewide and regional need for water and for protecting New Mexico's water supplies as required by New Mexico statutes and as outlined in the 1994 Handbook:

New Mexico statutes provide that, for a state to prefer its own citizens over an out-of-state appropriator, there must be a showing of need within the state and the feasibility of supplying that need from particular sources. Water planning by region may well be used as evidence on such issues. Planners should be aware that assertions of need and feasibility of supply may be tested in a court setting, and should therefore be reliable, specific, technically sound, and based on generally acceptable hydrologic and engineering principles. Vague claims of growing water use, or unsupported allegations of rights to, or hopes for, new supply for the region are not useful for sound water planning.

Additional detail regarding the state and regional roles and responsibilities is provided in Sections A through J of this chapter.

A. Executive Summary (Prepared by the Region and the State)

The executive summary should be a brief, clearly presented version of the findings and recommendations of the updated plan that can be read and understood separately from the fully documented version. It should contain a statement on public participation efforts and results, a summary of the water supply and water demand updates prepared by the state, and a summary of the updated plan's recommendations to address the supply/demand gap and to address unique regional water management issues. The following specific information should be included in the executive summary (but need not be addressed as individual subsections to the summary):

1. Description of the planning process and identification of stakeholders involved.
2. Map of the planning region.
3. A reference to the previously accepted plan and a statement that the update does not repeat all of the information that was in that plan, but instead focuses on changed conditions and new information.
4. Summary of administrative water supply.
5. Summary of projected water demand.
6. Assessment of the water supply/demand gap.

7. List of recommended strategies (projects, programs, and policies) for meeting future demand, including drought contingency planning.
8. Implementation plan.

B. Introduction (Prepared by the Region and the State)

The introduction should include the following information (which need not be addressed as individual subsections):

1. Entities involved in the regional water plan update.
2. A brief discussion and map of the planning region boundaries, with any relevant updated information discussed in more detail.
3. A reference to the previously accepted regional plan and when it was accepted by NMISC.
4. A clear discussion of the goals and scope for this update.
5. An explanation of the structure and organization of the water plan update.

The introduction should also state the objectives for completing the regional water plan updates, which are to provide the following information:

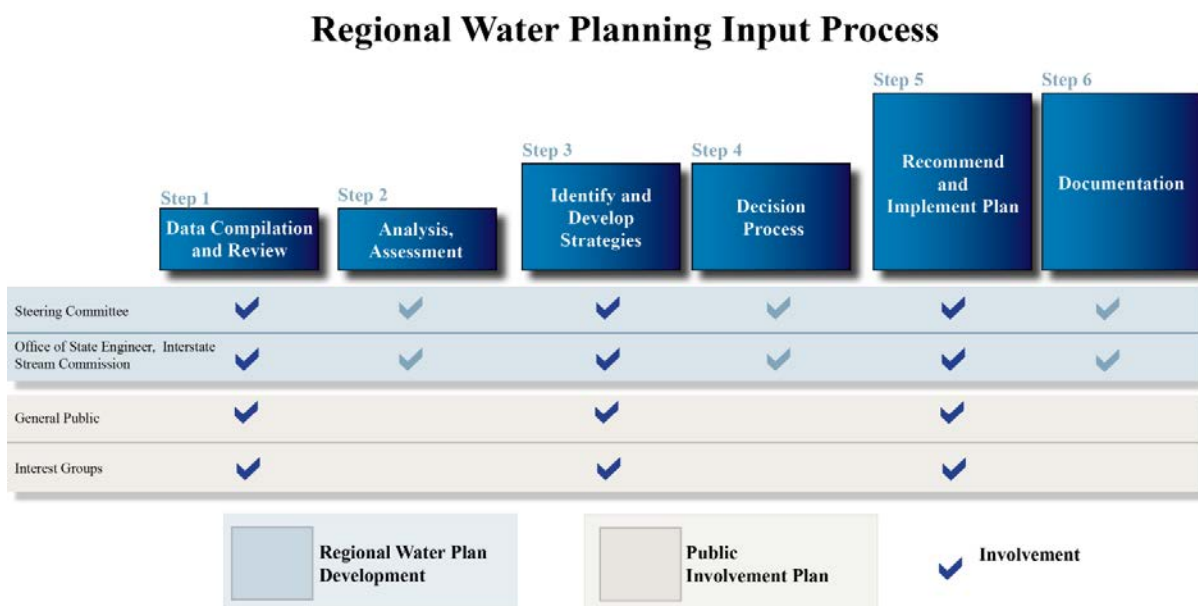
- Identify significant new research or data that provide a better understanding of current water supplies and demands in the region.
- Develop current projections of future water use using a common methodology.
- Identify strategies, including infrastructure projects, conservation programs, watershed management policies, or other types of strategies that will help to balance supplies and projected demands and address each region's future water management needs and goals.
- Discuss other goals or priorities as identified by the stakeholder group.

C. Public Involvement in the Planning Process (Prepared by the Region)

All information included in regional water plan update shall be guided by participation of a representative group of stakeholders, referred to in this document as a steering committee, but regions may choose another name for their committee. While the extent and nature of public involvement in the regional water planning process is the prerogative of each region, the NMISC makes the following recommendations regarding the public involvement process and the criteria for steering committee membership.

Once the state provides the region-specific supply, demand, and legal constraints report, the steering committee will engage with the NMISC/NMOSE to review the report and determine the need for any modifications. The steering committee should disseminate this report to the general public and any interest groups in a public input meeting.

The steering committee can then begin development of the regional water plan update with further analysis and assessment of the available information before beginning to identify and develop strategies (projects, programs, and policies) to address any gap between supply and projected demand. Another public input meeting should be held to engage the public and interest groups in this development of strategies. The steering committee should develop a decision-making process as well as discrete recommendations and an implementation plan that again allows for public input. The results of this planning process should then be documented in the updated regional plan that is submitted for acceptance by the NMISC. This portion of the planning process is depicted in the schematic below.



Members of the steering committee should fulfill one or more of the following criteria:

- Be or represent a water right owner.
- Be directly affected by the outcome of water management decisions.
- Have or represent the authority to make decisions and implement outcomes.
- Represent one or more of the following water use groups:
 - Agricultural – surface water user

- Agricultural – groundwater user
- Municipal government
- Rural water provider
- Extractive industry
- Environmental interest
- County government
- Local (retail) business
- Tribal entity
- Watershed interest
- Federal agency
- Other groups as identified by the steering committee

Indian tribes and pueblos are a key stakeholder group in New Mexico. The NMISC has a tribal liaison and conducts periodic tribal summits on water resource issues. The state and the regions will encourage tribal participation in the regional and state water plan updates. However, the state respects tribal sovereignty and will abide by tribal decisions regarding the extent of their participation in the process.

The regional water plan public involvement chapter should contain the following information regarding the public involvement that took place during the update process.

1. Identification of all entities in the region with an interest in the planning process and documentation that they have been invited to participate.
 - a. List of participating stakeholders by area of interest.
 - b. Identification of stakeholders on the steering committee.
2. Description of the public involvement process including number of meetings, meeting participants, and notes. The steering committee should hold a minimum of two general public meetings during each year of the planning process.
3. To the extent that the region chooses to use a different public involvement process or steering committee from the one recommended by the NMISC, a detailed description of how that process was designed to assure that a representative cross section of stakeholders participated in the planning process.
4. Summary of comments or copies of comment sheets submitted by stakeholders and the public.

D. Description of the Planning Region (Prepared by the State)

The purpose of this section of the update will be to provide the reader with a brief overview of the planning region that is consistent to the extent possible among regions. The regions can provide more detailed information, if warranted, in other sections of their plan updates. The section will include a very brief discussion, with any relevant updated information discussed in more detail, of the following:

1. Location, boundaries
2. Geography, landscape
3. Climate
4. Natural resources
5. Major surface and groundwater sources
6. NMOSE-declared underground water basins
7. Water resources shared by multiple regions
8. Demographics
9. Economic picture
10. Land ownership and land use

This is generally a short section (1 to 3 pages), which the state will extract from the previously accepted regional water plan unless specific changed or additional information warrants production of new maps or summaries. New maps provided in this or subsequent sections will be in GIS format, using ESRI's ArcGIS software, with map layers having a defined coordinate system.

E. Legal Issues (Prepared by the State)

The purpose of the update to the legal issues section is to provide an overview of the current legal framework in the region, including the status of Active Water Resource Management (AWRM) and other relevant regulations, and to identify any significant legal issues that affect water planning. The following questions will be considered by the state, in coordination with each region, but need not be addressed as individual subsections to the update.

- How do legal issues influence planning in the region?
- Are there specific regional projects or initiatives that could be impacted by one or more legal issues?
- How is the water supply affected by the legal issue(s)? Can that effect be quantified?

- What is the relative importance of these legal issues in relation to other technical, economic, or political factors?

The updated legal section will identify whether the previously accepted regional water plan addressed all items in the original regional water planning handbook (NMISC, 1994) and will identify any deficiencies. Following this information, the update will include changes that have taken place since the previously accepted regional water plan was issued and identify the types of potential legal issues that may affect regional projects.

For each section listed below, the information listed under each item will be addressed.

1. Water laws relevant to region, including changes in state, federal, or tribal law (only major changes in legislation or regulations or regulatory approach):
2. Federal legal issues:
 - a. Federal reservations (only if the status has changed or if new reservations or enclaves have been created).
 - b. Federal environmental law
 - c. Treaties
 - d. Federal water projects (changes in ownership or operations, operating agreements, or plans).
3. Water quality standards (new or revised state, federal, or tribal standards).
4. Relevant lawsuits:
 - a. State and federal court decrees (only significant cases with holdings that alter or refine key concepts in water law).
 - b. Pending adjudications (updated status of adjudications in the region; the NMOSE annual report [http://www.ose.state.nm.us/publications_annual_reports.html] generally provides this information, including the percentage of the adjudication that is complete).
 - c. Ongoing or threatened litigation that may affect water management.
5. State water laws and administrative policies affecting the region:
 - a. Duty and consumptive use values by administrative basin.
 - b. Groundwater basin guidelines.
 - c. Interstate stream compacts.

- d. AWRM implementation (status of implementation and whether priority administration or district-specific regulations have been implemented).
 - e. Legal issues unique to the region. An example of such an issue is the Rio Grande Compact, which requires depletion accounting and a current assessment of credit/debit calculations. Also, the water rights permits that still require purchase and retirement of pre-1907 water rights will be discussed here.
6. Special districts (identify newly created districts, changes in rules and regulations within an existing district, and active water banks).
 7. Local conflicts needing resolution, as identified by the regions (major issues that are not in litigation, but impact the region, e.g., significant opposition in the region to draft regulations, imminent regulatory action by a state or federal agency, conflicts between parties or interests in the region, or conflicts with other regions).

F. Water Supply (Prepared by the State)

The state will prepare the administrative water supply summary for each region based on the NMOSE *Water Use by Categories* report. The state will confer with regional planning stakeholders to obtain input from the regions and ensure that additional relevant data and studies from the region are identified and made available to the state.

The information listed in the following sections will be addressed.

F.1 Climate

This section will include a general summary of the climate conditions in the region, including average and ranges of precipitation, evaporation, general climate patterns, and any new studies or information that are indicative of changed climate conditions. Climate data will be reported in a consistent format as follows:

- Station name, number, location, elevation, period of record, average annual temperature, average annual precipitation, average summer and winter temperatures and precipitation, and minimum and maximum temperatures and precipitation.
- Precipitation and evaporation data will be based on National Oceanic and Atmospheric Administration (NOAA) monitoring station records and can be supplemented by other valid research if available.
- Important data gaps (temporal or spatial) will be noted.

Recent studies that discuss trends in temperature, precipitation, or evapotranspiration within the region will be referenced.

F.2 Surface Water Resources

Basic information about surface water resources may not be substantially changed from the information in the previously accepted regional water plan. Consequently, this section will include a brief summary from the previously accepted plan of the surface water resources and a discussion of recent studies and changed conditions, as summarized below:

- Map showing surface water drainage basins and watersheds. The level of detail may vary among regions, as some regions have no dependence on surface water while for others it is a major water source.
- U.S. Geological Survey (USGS) streamflow gage data showing minimum, maximum, and median annual streamflow and location and period of record for each gaging station in the region. This information will include station location, annual streamflow for the period of record, and monthly streamflow statistics for evaluation of temporal trends. Daily or monthly streamflow data for key gages will also be included to illustrate shorter-term fluctuations.
- Information regarding and changes to monitoring stations (for example if stations are no longer active due to funding reductions). Any additional monitoring (other than USGS) or recent surface water modeling or assessments will also be summarized, and implications for regional surface water supplies will be discussed.
- Listing of lakes and storage reservoirs greater than 5,000 acre-feet as included in the *New Mexico Water Use by Categories* report. Information to be included is the lake or reservoir name, whether it is a natural lake or a reservoir, the capacity of the reservoir, the purpose of the reservoir (i.e., flood control v. water supply or multiple use storage), the reservoir owner/manager, any recent issues or construction, and the reservoir condition and needed repairs. Much of this reservoir information is included in previously accepted regional water plans. The update will include annual reservoir water levels in the years since the completion of the previously accepted plan, completed significant repairs and maintenance (especially if capacity has been affected), and any other significant changes.

F.3 Groundwater Resources

Basic information about groundwater basins, principal hydrogeologic units, aquifer properties, and other information may not be substantially changed from the previously accepted water plan. Consequently, this section will include a brief summary from the previously accepted plan on the overall hydrogeologic setting and a discussion of recent studies and changed conditions as summarized below:

- Discussion of new or updated hydrogeologic assessments or regional groundwater models and any conclusions regarding the available groundwater supply in the region.
- Any new assessments or calculations regarding aquifer properties, recharge, or other hydrogeologic information.
- Current hydrographs from USGS or other monitoring wells and a discussion of water level trends. Records of water levels from USGS monitor wells in the region are available at <http://nm.water.usgs.gov/infodata/groundwater.html>. Hydrographs from the USGS monitor wells will be used to evaluate trends in groundwater levels for sub-areas within the regions where sufficient monitoring exists. In addition to USGS, other monitoring efforts by the state, counties, soil and water conservation districts, irrigation districts, or others will be briefly summarized, and conclusions regarding changed conditions will be noted.
- Information from municipalities and other water public water supply providers (mutual domestics, coops, counties, etc.), including information on production wells or well fields that helps inform the understanding of hydrogeologic conditions in the region.
- Identification of all declared groundwater basins within the region and whether they are stream-connected basins. For those basins that are stream-connected, the applicable compacts and/or administrative guidelines limiting water use will be identified. For non-stream connected basins, any relevant models or administrative criteria affecting new appropriations or transfers will be identified.

The level of detail for hydrogeologic assessments will vary between regions and aquifers or sub-areas within regions, depending on the importance of the groundwater resources to the area.

F.4 Water Quality

The water quality section of the update will focus on key issues that limit or compromise water supplies in the region, rather than repeating detailed information that is already available in NMED reports.

Relevant information for the update includes:

- Locations where water quality standards have been exceeded.
- Stream reaches for which contaminant total maximum daily loads (TMDLs) have been or are being developed.
- Locations of known contaminant sources (underground storage tanks, mines, landfills, Superfund sites, wastewater treatment plants, industrial or agricultural operations, or

other discharge permits or sources that affect usable supplies and are relevant to the region).

- Other water quality issues identified by the steering committee.
- Relevant information regarding source water protection, based on consultation with the NMED Source Water Protection group.

F.5 Description of Administrative Water Supply for the Regional Water Plan Update

In determining available water supply, planners must consider both hydrologic and legal limitations, including the level of accuracy and detail required for planning. For example, if water must be delivered downstream under an interstate compact or international treaty, that water cannot be considered as supply available for consumption by the region. Also, not all resources within a region are available to all areas in that region, so administrative or legal constraints that vary by geographic location of declared groundwater basin will be differentiated. The methodology that the state plans to use to estimate supply based on recent diversions takes into account legal obligations that have limited those diversions.

The administrative surface water supply will be calculated as follows:

- Average annual historical amount of surface water diverted for beneficial use (average surface water supply) based on the NMOSE *Water Use by Categories* reports. The diversion data are available statewide and will be the basis for a common technical approach for all regions. However, in areas where interstate stream compacts or court decrees specify the legal entitlement, these data will also be presented.
- Annual drought surface water supply based on the NMOSE *Water Use by Categories* reports adjusted for drought indices that reflect the relationship between the most recent data from the OSE report and long-term records.

The state will prepare the following groundwater supply information for the regions, relying on the NMOSE *Water Use by Categories* reports:

- For the stream-connected basins in the regions:
 - Recent annual groundwater diversions.
 - Total administrative water supply.
- For non-stream connected basins in the regions:
 - Recent annual groundwater diversions (total water supply).
 - Average water well column for non-domestic wells.

- Available saturated thickness (70% of average water column).
- Area of primary aquifer.

G. Water Demand (Prepared by the State)

The state will confer with regional planning stakeholders to obtain input from the regions and ensure that relevant regional data and studies are identified and made available to the state.

The information listed in each section below will be addressed.

G.1 Present Uses

Given that the administrative water supply will be based on current water usage, there will be some inherent redundancy between Sections F.5 and this section. However, while Section F.5 will examine the water supply based on overall current uses, this section will address specific categories of uses in greater detail to provide the basis for projecting anticipated future demands.

- Water diversions by category of use as follows:
 - Commercial (self-supplied)
 - Domestic (self-supplied)
 - Industrial (self-supplied)
 - Irrigated agriculture
 - Livestock (self-supplied)
 - Mining (self-supplied)
 - Power (self-supplied)
 - Public water supply
 - Reservoir evaporation

Information for all the above categories will be obtained from the most recent NMOSE *Water Use by Categories* reports. Riparian and open water evaporation (i.e., for rivers that are not included in the reservoir evaporation category) are not included in these reports. The NMOSE *Water Use by Categories* reports provide diversions, and statewide depletion data are currently not available. Where depletion data are available and important for Compact accounting or other purposes, those data will be discussed, but the quantification based on diversions will provide a consistent, statewide methodology for use in the state water plan update.

- Water use information presented in the most recent NMOSE *Water Use by Categories* report will be used to define regional water use. The region may provide the state with

other studies or data, if available, that the region believes would improve the quantification of water use. The region should provide an explanation as to why the new data improves or clarifies the NMOSE data. Where the water use information provided in the NMOSE *Water Use by Categories* report does not match the geographical boundaries of a planning region, the state will sort the source data into the appropriate geographical units.

G.2 *Future Water Uses for the Planning Horizon*

- Projected future demographics:
 - Population: The state will develop population projections for all 16 regions using published data. Economic outlook reports for each region will be included. For regions whose boundaries do not match the boundaries of the county boundaries used in the population reports, the state will develop a baseline population for the region using published data. For example, it is possible to estimate the current population for these regions using GIS and extracting U.S. Census block data. The population forecasts will include both a low and a high population projection.
 - Future land use: Unless future land uses have significantly changed from the previously accepted regional water plan, this element does not need to be addressed in the update, in which case land use status maps from the previously accepted plan will be included.
 - Economic growth and jobs: The update will include economic trends and job outlook data from the Bureau of Business and Economic Research and other recent economic studies. Studies completed by other entities will also be referenced. For example, the Council of Governments, county and municipal planning organizations, and the chamber of commerce all provide this type of information.
- Projected water uses by category:
 - All projections will be in 10-year increments (e.g., 2020, 2030, 2040, 2050, 2060) starting from the most recent NMOSE *Water Use by Categories* report.
 - The projection will begin with the water use as reported in the most recent NMOSE *Water Use by Categories* report, adjusted for regional geographic boundaries.
 - For each category of use, the projections will be bracketed with a high and low projection.
 - Projections will be for diversions.
 - The public and self-supplied domestic projections will be based on population projections and reasonable per capita uses, considering conservation. Regions may provide the state with data to supplement the projections should such information be

available. For example, the counties or municipalities may track migrant, seasonal, or other population components.

- This section will include a list of the 40-year water plans made available by water suppliers in the region and their date of publication, with the population growth rates, gallons per capita per day usage, and future water use outlined in those plans provided in tabular format.
- For the self-supplied power, commercial, industrial, livestock, and mining uses, this section will rely on the economic outlook study for the regions as well as other information provided by the regions regarding data that could inform high and low projections.
- Agricultural projections will bracket potential changes in the agricultural sector—including changes in cropping patterns, amount of agricultural land in production, and irrigation techniques—based on current studies and data at the regional level.
- Projections for reservoir evaporation will consider high and low evaporation rates, considering temperature changes as well as reservoir levels.

G.3 Water Conservation

To assist the region in understanding its water use and developing goals for future reduction in demand to be achieved through conservation, this section will identify current per capita demand, based on the most recent NMOSE *Water Use by Categories* report, for public water suppliers in the region. Additional discussion of water conservation is provided in Section I.1.

H. Identified Gaps between Supply and Demand (Prepared by State)

As part of the state water planning process, the state has developed a methodology that does not require detailed modeling or analysis to estimate gaps for each region. The methodology relies on calculation of administrative water supply and projected demand as described in Sections F and G, with the gap calculated as the difference between the administrative water supply and projected demand. Interconnected surface water and groundwater supplies will be considered a single supply where appropriate. The state will update these calculations using the data from the most recent NMOSE *Water Use by Categories* report.

Quantification of the gaps between supply and demand (under average and drought conditions, and considering institutional constraints) is challenging due to several factors: (1) supplies in one area not necessarily being economically or legally available to other sub-areas within the region, (2) temporal changes, especially to surface water supplies, and (3) uncertainties regarding future demand projections. The exact quantification of the supply/demand gap is not required in order to identify solutions to future water management challenges, especially since the supply and demand estimates may change over time. To the extent that sufficient data are available to

quantify supply/demand gaps for sub-areas, that information will be included in the update. However, the supply/demand gap will generally be presented at a regional level.

The published data in the NMOSE *Water Use by Categories* report do not include riparian evapotranspiration or evaporation from rivers. Although those uses remain unquantified, since they are not included in either the supply or demand determination, they will not substantially affect the quantification of the gap.

The state will compare the estimated water supplies and projected demands for each region to provide an overview of the water needs for the regions and the state. This overview may not reflect local shortages or region-specific issues. The regions will have an opportunity to consider whether additional studies or scenario planning may be needed and, if so, they may include them when they develop their lists of funding priorities.

I. Implementation of Strategies to Meet Future Water Demand (Prepared by the Regions)

In almost all areas of the state of New Mexico, projected demand is expected to exceed available supply, and therefore, the update should continue to focus on identifying strategies (projects, programs, and policies) that will address the gap between supply and demand. Each previously accepted regional plan identified alternatives, strategies, and recommendations for reconciling gaps between supply and demand that contained the following elements:

- Water management
- Water conservation
- Water development
- Infrastructure development

The purpose of the regional water plan updates is to calculate the gap between supply and projected demand and to identify strategies (projects, programs, and policies) that address that gap and other water management issues identified by the regions. As a first step in doing so, strategies that have been implemented since the previously accepted plan was published should be identified and their impacts (degree of effectiveness in addressing the gap and barriers to successful implementation that were encountered) assessed. Next, the regions should identify strategies that were not implemented or new strategies that are consistent with the objectives of the previously accepted regional water plan.

For each section below, the regions should address the information listed.

I.1 Water Conservation

Water conservation is essential for addressing the future water needs of the state and the regions. Regions should develop water conservation goals and objectives and identify projects, programs,

and policies to implement water conservation at the regional level. Both municipal and agricultural water conservation should be addressed. Importantly, both the Water Trust Board and New Mexico Finance Authority are prohibited from accepting applications or providing financial assistance to water providers that provide more than 500 acre-feet of water annually unless those providers prepare a water conservation plan that accompanies their funding application (NMSA 72-14-3.2). NMOSE guidance on water conservation is available at http://www.ose.state.nm.us/conservation_index.html.

I.2 Implementation of Strategies Identified in Previously Accepted Regional Water Plan

The region should review the alternatives listed in the previously accepted regional water plan and identify major initiatives that have significantly contributed to implementing those alternatives and the goals of the region. Only projects, programs, and policies that are completed or in the process of being implemented should be included. Water system operations and maintenance, extensions and looping of lines, and other routine system management projects should not be included. However, the region should include all projects, programs, and policies that the stakeholders identify as significantly contributing to the region and should quantify how implementation of those strategies has benefitted the region and addressed the gap between supply and demand. This section should include a summary table of these strategies, including the amount of funding secured (and expended), the responsible party, the amount of new water supply made available to the region, and the reduction in losses (in acre-feet).

I.3 Proposed Strategies (Water Programs, Projects, or Policies)

The region should identify additional projects, programs, and policies, both those from the previously accepted regional water plan that were not implemented and new ones that will significantly benefit the region and address its future water needs. The update should identify two types of specific new strategies: (1) those that will be submitted for funding to state and federal funding programs within the next 5 years and (2) those that are important to the region but are not ready to implement in the short-term.

The strategies (projects, programs, and policies) to be submitted for funding in the next 5 years should be consistent with the Water Project Finance Act implementing regulations located in Section 19.25.10.1 of the New Mexico Administrative Code and should be grouped by the funding categories identified in the Water Trust Board application (<http://my.nmfa.net/applications/>). Only strategies in either the conceptual, planning, or design phases should be included. For each of these strategies, the region should provide the following information:

- Applicant(s) or entity applying on behalf of applicants.
- Applicable regional water planning alternative for this strategy (some projects, programs, or policies may fall under more than one alternative).

- Opportunities for regionalization.
- Water Trust Board funding category (water conservation or reuse, flood prevention, endangered species act collaborative efforts, water storage, conveyance and delivery, infrastructure improvements, or watershed restoration and management initiatives [<http://www.nmfa.net/governance/water-trust-board>]).
- Funding sources the applicant intends to pursue for the project, program, or policy, including potential capital outlay requests to the legislature.
- Whether the project, program, or policy is listed in the New Mexico Department of Finance & Administration Infrastructure and Capital Improvement Plan (ICIP) or other water planning process, program, or report. Current ICIP-listed projects may be found at <http://www.nmdfa.state.nm.us/ICIP.aspx>.
- Implementation plan. For strategies that are in the conceptual phase or that may not be implemented in the short term, the regions should describe the general approach, how the strategy will benefit the region and who will pursue implementation.

I.4 Evaluations

The regions should evaluate each proposed strategy (project, program, or policy) identified in the regional water plan update to address the criteria listed below.

- Need for the project, program, or policy:
 - How the project, program, or policy addresses a gap in supply and demand or meets an identified water need
 - Immediate threats to public health and safety
 - Urgency
- Technical feasibility:
 - Water rights, scientific, hydrologic and biological feasibility studies, and preliminary engineering reports
 - Comprehensive solution/measurable outcome
- Political feasibility:
 - Consistency with public welfare statement
 - Known opposition to the project, program, or policy
- Social and cultural impacts:

- Regional dispersion
- Local effort
- Financial feasibility:
 - Cost-effectiveness of the project, program, or policy
 - Ability to pay
 - Ability to leverage federal funds
 - Cost per acre-foot of additional water (either new supply or conserved)
- Implementation schedule:
 - Readiness to proceed
 - Life of water project, program, or policy
- Physical, hydrologic, and environmental impacts

In evaluating projects, programs, and policies, and to obtain further guidance on the evaluation criteria, regions should consult the most recent Water Trust Board Project Management guidelines (<http://my.nmfa.net/NMFAInternet/GetDoc.aspx?docid=1337>).