

Reclamation Manual

Directives and Standards

Subject:	Water and Related Resources Feasibility Studies
Purpose:	To provide the basic requirements and framework for conducting water and related resource feasibility studies in order to formulate, evaluate, and select project plans for implementation. The benefits will include improved consistency in the content and quality of feasibility studies and reports prepared by or for the Bureau of Reclamation.
Authority:	In addition to specific feasibility study authorizations, Reclamation Act of June 17, 1902 (ch. 1093, 32 Stat. 388; 43 U.S.C. § 372, et seq.), and acts amendatory thereof and supplementary thereto, including Reclamation Project Act of August 4, 1939 (ch. 418, 53 Stat. 1187); Section 8 of the Flood Control Act of December 22, 1944 (ch. 665, 58 Stat. 887); Federal Water Project Recreation Act of July 9, 1965 (Pub. L. 89-72; 79 Stat. 213; 16 U.S.C. §§ 4601-12, et seq.), as amended; Reclamation Rural Water Supply Act of December 22, 2006 (Pub. L. 109-451, Title I; 120 Stat. 3346; 43 U.S.C. § 2401, et seq.); SECURE Water Act of March 30, 2009 (Pub. L. 111-11, Title IX, Subtitle F; 123 Stat. 1332; 42 U.S.C. § 10361, et seq.).
Approving Official:	Director, Policy and Administration (POLICY Director)
Contact:	Reclamation Law Administration Division, 84-55000

1. **Introduction.** This Directive and Standard (D&S) establishes responsibilities, requirements, and procedures for conducting a planning study for the purpose of recommending congressional authorization or funding of a water and related resources implementation plan. This D&S also includes the requirements for preparing, coordinating, and reviewing feasibility-level planning reports. This D&S presents requirements that will be used to implement the [Principles, Requirements and Guidelines for Water and Land Related Resources Implementation Studies](#) (PR&G), and Executive Order 12322, *Water Resources Projects*.
2. **Applicability.** This D&S applies to all Reclamation employees involved in the performance or approval of feasibility level studies and reports.
 - A. This D&S establishes requirements for studies authorized by Congress as feasibility studies, including feasibility studies conducted under Reclamation's Rural Water Supply Program and feasibility studies conducted under the authority of the SECURE Water Act of 2009.
 - B. This D&S applies to all studies conducted for the purpose of supporting a report, proposal, or plan submitted to Congress for approval, appropriations, or legislative action, except as noted in Paragraph 2.D.

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- C. This D&S applies to the formulation process used to develop and evaluate risk reduction alternatives under the Reclamation Dam Safety Program. In cases of conflict, the policies, D&Ss, requirements, and procedures of the Dam Safety Program take precedence over the requirements of this D&S. See Reclamation Manual (RM) Policy, *Decisions Related to Dam Safety Issues* (FAC P02) and RM D&Ss, *Review/Examination Program for High- and Significant-Hazard Dams* (FAC 01-07) and *Reclamation Dam Safety Program* (FAC 06-01).
- D. This D&S does not apply to studies conducted under Reclamation's Title XVI Program. See RM D&S, *Title XVI Water Reclamation and Reuse Program Feasibility Study Review Process* (WTR 11-01), for the requirements of the Title XVI program.
3. **Definitions.**
- A. **Appraisal Level.** The level of analysis and data collection needed to initially determine the nature of water and related resource problems and needs in a particular area, formulate and assess preliminary alternatives, determine Reclamation interest, and recommend subsequent actions.
- B. **Appraisal Report.** A report that documents the results and findings of an appraisal study and recommends that Reclamation either conduct a feasibility study or conclude the investigation.
- C. **Appraisal Study.** An initial planning investigation performed to determine the nature of water and related resource problems and needs in a particular area, formulate and assess preliminary alternatives, determine Reclamation interest, and recommend subsequent actions. Appraisal studies are based primarily on available existing data.
- D. **Climate Change.** Reclamation uses the Intergovernmental Panel on Climate Change definition: "...a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer."¹
- E. **Concluding Report.** A report on the findings of an appraisal or feasibility study supporting the decision to terminate or defer an investigation.
- F. **Construction Cost Estimate (CCE).** A detailed estimate of the costs to construct the physical features of a project, including the acquisition of land and rights, relocation of existing real properties, clearing and restoring lands, service facilities, technical and scientific investigations, engineering (preparation of designs and specifications,

¹IPCC, 2007: *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp. Accessed at http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml.

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construction management, and contract administration), environmental compliance and mitigation, operation and maintenance costs while a feature is in construction status, and other general expenses. See RM D&S, *Construction Cost Estimates and Project Cost Estimates* (FAC 09-02).

- G. **Cost Allocation.** The distribution of all financial costs of a multi-purpose project among its authorized purposes. An allocation of project costs is necessary to determine whether project beneficiaries are capable of repaying the reimbursable costs assigned to them. Cost allocation allows estimated costs of each reimbursable and non-reimbursable purpose to be compared to anticipated revenues in order to determine the appropriateness of the Federal investment in individual components and the project overall. The allocation provides the basis for establishing the repayment obligations specified in water-related contracts.
- H. **Cost-Share Partner.** Entity that shares in the cost and responsibilities of a study or project. Cost-share partners are generally non-Federal entities; however, in some cases, there may be one or more Federal cost-share partners.
- I. **Federal Objective.** The purpose of the Federal government's involvement in water and related resources planning, which Reclamation identifies and describes using the definition of Federal Objective established in the PR&Gs.
- J. **Feasibility.** A measure of the viability of a proposed plan or project based on an evaluation of:
- (1) how well the planning objectives are met;
 - (2) the economic justification;
 - (3) the validity of the scientific, technical, and design assumptions;
 - (4) the ability to construct a project, implement a non-structural plan, or both, according to Reclamation standards and practices, within the estimated cost and schedule;
 - (5) the reliability of the estimated costs and benefits;
 - (6) the reliability of the proposed construction schedule; and
 - (7) the capability and willingness of the project partner(s) to financially support the project.
- K. **Feasibility Design Report.** An appendix to the feasibility report that identifies technically feasible construction alternatives and estimates of the associated capital costs.

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- L. **Feasibility Level.** The level of analysis and data collection needed to prepare a recommendation to Congress regarding the implementation of a project or plan and, unless no action is recommended, the estimated total cost of implementation. Feasibility level is more fully defined in Paragraph 5 of this D&S.
- M. **Feasibility Report.** A report describing the results of a completed feasibility study and identifying the recommended plan.
- N. **Feasibility Study.** An evaluation of the technical, economic, and financial feasibility of a proposed project based on detailed investigations requiring the acquisition of primary data, and including an assessment of environmental impacts as required by the National Environmental Policy Act of 1969 (NEPA). A feasibility study provides the basis for making recommendations to Congress about whether a proposed project should be authorized for construction.
- O. **Locally Preferred Plan.** The project sponsor's preferred alternative, which may differ from the recommended plan.
- P. **Non-reimbursable Costs.** The portions of project and study costs paid by the Federal government that are not required to be repaid to the Federal government.
- Q. **Preferred Plan.** The alternative identified as Reclamation's preferred action in the NEPA analysis. The preferred plan may or may not be the same as the environmentally preferred alternative.
- R. **Project Cost Estimate (PCE).** A summary report of the costs provided in the CCE. The PCE is not a separately developed estimate. See also the definition of PCE in FAC 09-02.
- S. **Project Purpose.** A purpose that a Federal water resource project is legislatively authorized to serve.
- T. **Quality Assurance/Quality Control (QA/QC).** Management and quality improvement activities that ensure technical quality standards are met in accordance with laws, regulations, policies, and agreed-upon requirements of the customer and partners.
- U. **Recommended Plan.** The alternative identified through the planning process as best meeting the planning objectives and providing net public benefits, in accordance with the PR&Gs.
- V. **Reimbursable Costs.** The portion of project and study costs that are required to be repaid to the Federal government.

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W. **Selected Plan.** The alternative recommended by the Commissioner to the Secretary of the Department of the Interior (Secretary).

4. Responsibilities.

- A. **Commissioner.** The Commissioner reviews the regional director's draft report and the findings of the policy compliance report to determine if the feasibility report should be recommended to the Secretary, or the Secretary's designee possessing delegated authority, for approval. The Commissioner also reviews and approves regional directors' requests for waivers from applicable Reclamation requirements.
- B. **POLICY Director.** The POLICY Director reviews feasibility reports and recommendations to ensure that feasibility reports and supporting documentation comply with all RM releases. The POLICY Director ensures that any deviations from applicable Reclamation requirements are approved by the Commissioner or other appropriate approving official as provided for by RM Policy, *Bureau of Reclamation's Directives System - Reclamation Manual* (RCD P03) and RM D&S, *Request for Deviation from a Reclamation Manual Requirement and Approval or Disapproval of the Request* (RCD 03-03). The POLICY Director approves the findings of the policy compliance review documented in a report to the Commissioner.
- C. **Director, Program and Budget.** The Director, Program and Budget, coordinates the submittal of feasibility reports to the Office of Management and Budget (OMB), prior to submittal to Congress, and coordinates Reclamation's subsequent analysis and response. The Director, Program and Budget, provides feedback from OMB to the regional director relating to the acceptability of the feasibility report and the consistency of its recommendations with the policies and programs of the President.
- D. **Regional Director.** Regional directors oversee feasibility studies and recommend feasibility reports to the Commissioner for consideration. They ensure that feasibility reports and supporting documentation are technically adequate, conform to Federal law, comply with all applicable RM and DM releases, and meet the minimum requirements necessary for the study to be considered "feasibility level." Regional directors budget for feasibility studies and manage cost-sharing agreements. The regional director concurs with the approved policy compliance review findings and transmits the review report with the feasibility report to the Commissioner.
- E. **Senior Advisor, Design, Estimating, and Construction Oversight and Dam Safety Officer (Senior Advisor, DEC).** The Senior Advisor, DEC, provides DEC oversight through management of independent reviews of feasibility level designs and cost estimates. See also RM Policy, *Independent Oversight of Design, Cost Estimating, and Construction* (FAC P10).

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5. Level of Effort Required for Feasibility Studies.

- A. **General.** Feasibility studies support the formulation and evaluation of a range of alternative plans to meet established planning objectives and lead to the selection of a recommended plan or a recommendation to take no action. Feasibility studies are used to assess how the recommended plan and alternatives will perform under present and projected future conditions, to substantiate estimated monetary and non-monetary costs of and benefits derived from the project, and to establish a credible estimate of the total cost to implement the proposed project or action. Feasibility studies will be performed to the minimum level necessary to:
- (1) support an overall project concept that will not change substantially when the project is advanced to final design;
 - (2) support a CCE/PCE based on assumptions that are sufficiently constrained such that reasonable variations in the ranges of these assumptions will not have a major impact on the final total cost of the project;
 - (3) support a CCE/PCE that will provide Congress the necessary basis to set a suitable appropriations ceiling for the project, establish an appropriate Federal cost share, and determine appropriate repayment obligations, as appropriate; and
 - (4) develop a project implementation schedule comparable to that needed to implement the final design.
- B. **Data Collection.** Data gathered through investigations and field surveys will be the minimum necessary to reasonably assess if a plan can be implemented and to determine the social effects, environmental impacts and benefits, and economic and financial viability. Data collected for feasibility studies are generally not of sufficient detail to support final specifications and designs.
- C. **Scientific and Technical Analysis.** Major functional categories of scientific and technical analysis include, but are not limited to, hydrology and hydraulics; environmental analysis; social impact assessment; civil, mechanical, geotechnical, and electrical engineering; operations; economics and finance; surveying; and cost estimating. The interdisciplinary study team will determine what level of scientific and technical analyses are necessary and appropriate for the feasibility study.
- D. **Design Documentation.** The feasibility design report will present the essential features of the project alternatives that were analyzed in detail. Feasibility design drawings are for the purpose of depicting facility layout at a level of detail sufficient to define major cost drivers and obtain quantity takeoffs for cost estimating purposes. Design drawings for each of the analyzed alternatives will be prepared to equivalent levels of detail to allow for a fair comparison of technical adequacy and cost.

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- (1) The level of detail is sufficient to conduct a NEPA analysis of the analyzed alternatives and begin identifying the range of appropriate compliance and mitigation actions.
- (2) The level of detail presented for the recommended plan has sufficient detail to support the development of a feasibility level CCE/PCE, including the layout of proposed facilities (e.g., plan and profile, elevations, typical sections, etc., as applicable); major structural, mechanical, and electrical details; and begin identifying regulatory compliance and mitigation measures.

6. General Requirements.

- A. Feasibility studies are initiated by congressional direction through specific authorization or under general authorities provided in legislation, such as the Rural Water Supply Act of 2006 and the SECURE Water Act of 2009.
- B. A feasibility study requires systematic planning, engineering, environmental, economic, and social analyses of alternative plans for Federal water and energy projects consistent with the PR&Gs, an assessment of the impact of the alternative plans on the environment in compliance with NEPA and other applicable environmental laws, and a determination of the financial capability of the non-Federal project beneficiaries to pay the non-Federal share of costs associated with designing, constructing, operating, and maintaining a proposed project. The completed feasibility study will culminate in a feasibility report to form the basis for Reclamation's recommendation to the Secretary regarding whether the proposed project should be authorized for implementation. A feasibility study requires detailed investigations, including collection and development of study-specific data, and communication and collaboration with the stakeholders to systematically formulate and evaluate a reasonable range of alternative solutions in order to recommend a plan to Congress for authorization and implementation.
- C. The development and use of scientific and scholarly information by and on behalf of Reclamation for feasibility studies will comply with DM release, *Integrity of Scientific and Scholarly Activities*, Series 5, 305 DM 3, and RM Policy, *Scientific Integrity* (CMP P13).
- D. Initial information pertinent to the feasibility study steps described in Paragraph 7 will be carried forward from an appraisal study conducted prior to the feasibility study. If an appraisal study has not been conducted, appraisal-level analyses will be conducted at the outset of the feasibility study during the feasibility scoping phase (see Paragraph 7.G. for a description of study phases) to determine if there is at least one viable alternative that warrants continued study at the feasibility level. Alternatives found to be viable in an appraisal study or during the feasibility scoping phase may not prove to be viable after detailed analyses are performed.

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- E. Identification of project-specific features or activities that present higher levels of risk or uncertainty for planning, design, and construction will be made as early in the feasibility study process as possible. Tradeoffs between additional data collection and assessments of risk and uncertainty will be considered, addressed, and documented in the feasibility report.
- F. When necessary and appropriate for reasons of economy or prudent water management, water supply for project purposes will assume periodic shortage conditions.
- G. A feasibility study will be concluded if at any time Reclamation and the cost-share partner(s) determine that there is no feasible Reclamation project or there is no longer clear Reclamation interest in a project. A concluding report will be prepared to briefly summarize the relevant information up to the conclusion of the study and to document the reasons for terminating or deferring the study.

7. Process and Content Requirements.

- A. **Study Authorization and Appropriation.** Feasibility studies must be authorized by Congress as required in Section 8 of the Federal Water Project Recreation Act of 1965. A feasibility study must also be funded through congressional appropriations prior to initiating work.
- B. **Cost-Sharing.** Unless directed otherwise by Congress, all investigation, report preparation, and review costs must be shared with a non-Federal cost-sharing partner. Costs will be accounted for and in-kind services valued in accordance with *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (2 CFR 200).
 - (1) Prior to any significant expenditure of Federal funds, a signed cost-sharing agreement with the non-Federal partner(s) is required. The agreement will specify the method and schedule for payment or in-kind services. The cost-share agreement must include reporting requirements for Reclamation and the non-Federal partner(s).
 - (2) Cost-sharing must be in the form of in-kind services, cash payments, or a combination of the two. Unless authorizing legislation specifies a cost-share formula, the minimum non-Federal cost-share will be 50 percent of the total study costs. The Federal cost-share must not exceed the non-Federal cost-share at any time. Exceptions to the cost-share requirement are described in Paragraphs 7.B(3) and 7.B(4).
 - (3) Cost-sharing for feasibility studies involving Indian Tribes will be negotiated on a case-by-case basis.

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- (4) If requested by the cost-share partners, the regional director will determine if a waiver of non-Federal cost-share requirements is justified by an overwhelming Federal interest in the study. If justified, the regional director will submit a waiver request to the Commissioner for consideration of approval as provided for by RCD 03-03.
 - (5) Refer to RM D&S, *Implementing Cost Sharing Authorities for Recreation and Fish and Wildlife Enhancement Facilities* (LND 01-01) for the cost-share requirements for planning, development, modification, and expansion of recreation facilities or fish and wildlife enhancement facilities.
 - (6) The study manager will maintain records of the non-Federal partner's contributions considered for cost-sharing purposes and will review the contributions of the non-Federal partner to verify applicability and value of in-kind services. At the conclusion of the feasibility study, the study manager will prepare documentation of Federal and non-Federal contributions, with supporting information. For studies that are multi-year, annual cost-sharing documentation will be prepared.
- C. **Study Management.** Regional directors will assign the responsibility of managing feasibility studies to qualified study managers who meet Reclamation's requirements for project managers. Feasibility studies will be managed as projects in accordance with RM Policy, *Project Management* (CMP P07) and RM D&S, *Project Management* (CMP 07-01).
- D. **Plan of Study (POS).** The study team will work with the non-Federal project sponsor(s) to develop a POS describing specific study tasks and how each task will be carried out, including who is responsible, the approach, and schedule.
- (1) An internal study team will be comprised of the appropriate Reclamation staff to ensure NEPA, Endangered Species Act of 1973 (ESA), National Historic Preservation Act of 1966 (NHPA), intergovernmental, and any other Federal or state regulatory compliance measures are properly addressed.
 - (2) The POS will be written and agreed to by Reclamation and the non-Federal sponsor(s) at the outset of the feasibility study. The initial draft will be the POS developed previously during the appraisal study and modified to comply with the authorizing legislation. If a feasibility study does not follow an appraisal study, a preliminary POS will be drafted based on the authorizing legislation.
 - (3) The POS will be regularly reviewed by the study manager and study team and modified when data and technical analyses result in an improved understanding of relevant constraints and opportunities, when new solution alternatives are developed, or as needed to incorporate partner and public comments.

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- E. **Study Team and Advisory Committees.** The study manager will form an interagency and interdisciplinary study team at the beginning of the study that will include members from Reclamation, cooperating agencies, the non-Federal partner(s), and state regulatory agencies, as appropriate. All relevant disciplines will be represented on the study team. If advisory committees are established, they will be managed according to the requirements of the Federal Advisory Committee Act of 1972 and RM D&S, *Committee Management – Federal Advisory Committee Act (FACA)* (ADM 01-01).
- F. **Coordination, Consultation, and Communication.** The study manager will identify and coordinate with representatives of other Federal agencies, state, local, and tribal governments, non-governmental organizations, civic groups, and other interested stakeholders, as appropriate.
- (1) Consultations and coordination for NEPA, ESA, NHPA, intergovernmental compliance and agreements will be directed by the appropriate Reclamation staff in accordance with all applicable laws and policies.
 - (2) The internal study team will develop a public involvement plan, if necessary, in accordance with RM D&S, *Public Involvement in Reclamation Activities* (CMP 04-01).
 - (3) Communications and records that are subject to public disclosure shall be maintained in accordance with the Freedom of Information Act of 1966 and RM D&S, *Freedom of Information Act (FOIA)* (RCD 01-01).
- G. **Feasibility Study Phases and Milestones.** Feasibility studies generally consist of a feasibility scoping phase (also called the initial alternatives phase) and an alternative formulation and evaluation phase. Appendix A provides a process diagram with interim review milestones for feasibility studies.
- (1) **Feasibility Scoping (Initial Alternatives) Phase.** The study team will review the previous appraisal analysis, if available, and determine what additions or revisions are necessary based on the authorizing legislation, project needs, alternatives to be considered, availability of new data, and current understanding of project constraints and opportunities. If an appraisal study was not conducted before the feasibility study, the study team will perform and document the necessary appraisal analyses in order to verify that a viable solution or set of alternatives exists before moving forward with the detailed feasibility analysis.
 - (2) **Alternative Formulation and Evaluation Phase.** Preliminary concepts and alternative plans not eliminated during the feasibility scoping phase will be studied and further refined using more detailed analysis. Additional alternatives that emerge through the iterative formulation and evaluation process will also be developed, then carried forward or eliminated. The final set of alternatives

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considered in detail during the feasibility phase will be only those plans that both meet the planning objectives and reasonably protect environmental resources.

- H. **Planning Process.** Feasibility studies will be performed in accordance with the iterative planning process described in the PR&Gs. Because the planning and NEPA compliance processes run concurrently and major actions often require an Environmental Impact Statement (EIS), the steps below are linked to relevant activities in the EIS process. The NEPA compliance process will be different and less rigorous for an Environmental Assessment (EA) with a Finding of No Significant Impact (FONSI), but it will follow the same procedure. See Figure 1 in Appendix A for a graphic representation of the relationship between the planning steps of a feasibility study and the corresponding NEPA analysis actions.
- (1) **Identify Problems, Needs, and Opportunities.** Specific problems and opportunities within the study area will be identified, planning goals and objectives established, and significant constraints identified. This first step corresponds to the NEPA requirement to define the purpose and need. In addition to the requirements of the PR&Gs:
 - (a) the planning goals and objectives will reflect the direction provided in the authorizing legislation, as well as the views of the study team, the study cost-share partner, cooperating agencies, various stakeholders, and the public;
 - (b) this step will identify the purpose of the feasibility study and Reclamation's involvement in the study;
 - (c) this step will define the study area and describe how the affected stakeholders will be involved;
 - (d) problems and opportunities will be incorporated into a brief statement specifying the underlying need for water, power, or both, to which Reclamation is responding; and
 - (e) a brief summary of the process used to define the problems, opportunities, planning objectives, and constraints will be prepared to aid in the preparation of the feasibility report. This summary will include a discussion of stakeholder, partner, and public inputs.
 - (2) **Inventory Existing Resources and Forecast Future Conditions.** "Inventory Existing Resources" and "Forecast Future Conditions" correspond to the NEPA requirements to identify and assess the affected environment and environmental consequences.

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- (a) This step will quantify relevant water and related resource conditions as they currently exist within the study area and forecast future conditions over the period of analysis. This step confirms the problems, needs, and opportunities to be addressed in the subsequent steps. The inventory and forecast will provide information for understanding existing conditions and establishing a baseline for forecasting with- and without-plan conditions.
 - (b) Reclamation will work with the feasibility study cost-share partner to determine an appropriate period of analysis that meets PR&G requirements.
 - (c) Within the context of Reclamation planning studies, “Forecast Future Conditions” (also termed “without-plan conditions”) is defined as characterizing future conditions without this Reclamation action, but includes actions that may be expected by others.
 - (d) The inventory used to describe existing conditions and to provide a baseline for forecasting future with- and without-plan conditions will also be used to verify that the initially identified problems and opportunities are relevant to the water and related resources of the study area.
 - (e) The existing conditions baseline will be established using peer-reviewed and accepted projections of income, employment, output, and population that are national, state, or regional in scope.
 - (f) The potential impacts of climate change will be considered when developing projections of environmental conditions, water supply and demand, and operational conditions at existing facilities as part of the without-plan future condition. Climate change impacts will be further analyzed, as appropriate, as part of the feasibility study when the following conditions are true:
 - (i) there is a reasonable likelihood of significant variation in hydroclimatic conditions over the planning horizon, between alternatives, or both; and
 - (ii) available regional models have been down-scaled to a resolution adequate for the study area, or can be produced within reasonable time and cost constraints.
 - (g) To aid in the preparation of the feasibility report, a brief summary of the process used to define the relevant existing conditions and reasonably foreseeable future conditions will be prepared. This will include discussion of stakeholder, partner, and public inputs.
- (3) **Formulate Alternative Plans.** Alternative plan formulations will focus on solutions that are practicable, feasible, and meet the planning objectives. A reasonable range of potential plans are initially investigated, and as those plans

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are refined, some will be eliminated. The plans that are retained for additional analysis are termed the “analyzed alternatives.” The analyzed alternatives developed at this stage will determine the range of reasonable alternatives, as required for the NEPA analysis.

- (a) Alternative plans will clearly identify and evaluate the trade-offs among stakeholders and resources. The viability of an alternative will be determined through an evaluation of its acceptability, efficiency, effectiveness, and completeness as required in the PR&Gs. Alternative plans will be formulated based on most likely future conditions expected with and without implementation of a plan.
 - (b) Each alternative plan formulated for the feasibility study will be included in the EIS or EA/FONSI, or the differences will be explained and justified. The period of analysis will be the same for each alternative plan and will be agreed to by Reclamation and the study cost-share partner. Documentation of the rationale for eliminating any alternative plan will be provided.
 - (c) Investigations, data collection, and analysis will be ongoing and integrated early in the planning process. Investigations will be relevant to the study’s planning objectives and constraints. The interdisciplinary study team will consider the following areas for investigation: engineering and design; surface water and groundwater hydrology; hydraulics; geology; operations; water quality; land resources and irrigability; power generation and conservation; economics; financing; environmental, social, and cultural impacts and mitigation; opportunities for recreation; and cost estimation for construction, operation, maintenance, replacement, and energy consumption. Additional investigations will be performed if necessary.
- (4) **Evaluate Effects of Alternative Plans.** The beneficial and adverse effects of each alternative plan will be evaluated through comparison to the without-plan scenario in accordance with the PR&Gs. The evaluation of alternatives is part of the NEPA alternatives analysis, in which the No Action Alternative and Action Alternatives are described, evaluated, and compared. The effects of alternative plans are displayed in terms of public costs and benefits.
- (5) **Compare Alternative Plans.** Plans will be compared in accordance with the PR&Gs and will include a comparison of responses and adaptability of the project to the uncertainties of climate changes previously identified in the without-plan scenario. The comparison of alternatives is part of the NEPA alternatives analysis. The plan that reasonably maximizes net public benefits will be identified.

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- (6) **Select the Recommended Plan.** The study team will recommend a decision to take no Federal action or to select the recommended plan. The recommended plan must provide net public benefits, in accordance with the PR&Gs.
- (a) A recommended plan that does not provide net public benefits requires a Secretarial Exception.
 - (b) The major structural and non-structural features of the recommended plan, any special considerations for construction, and the estimated cost of implementation will be provided in the feasibility report.
 - (c) The identification of an environmentally preferred alternative is required in the Record of Decision (ROD), in accordance with NEPA. It is not necessary that the environmentally preferred alternative identified be the same as the recommended plan identified in the feasibility report.
 - (d) If the cost-share partners prefer an alternative plan different from that of Reclamation, the plan will be identified as the locally preferred plan. The locally preferred plan will be required to have a comparable level of detail and follow the same format as Reclamation's recommended plan, to allow close comparison by decision makers.
- I. **Risk and Uncertainty.** Long-range planning efforts rely on assumptions about supply and demand, and the selection of an alternative depends on expected future conditions. Feasibility studies will account for the uncertainty of future conditions by incorporating risk and uncertainty analysis into the formulation, evaluation, and comparison of alternatives.
- J. **Cost Estimates.** Cost estimates for the final analyzed alternatives will be prepared at feasibility level. Refer to RM Policy, *Cost Estimating* (FAC P09) and RM D&Ss, *Cost Estimating* (FAC 09-01), FAC 09-02, and *Representation and Referencing of Cost Estimates in Bureau of Reclamation Documents Used for Planning, Design and Construction* (FAC 09-03).
- K. **Cost Allocation.** Costs will be allocated among project purposes in accordance with the PR&Gs and RM D&S, *Project Cost Allocations* (PEC 01-02). Common allocable project purposes are listed below, followed by references to principal legislation in parentheses. Special project purposes not provided for in law but included in the recommendations for project authorizing legislation will also be considered, as appropriate.
- (1) Domestic, municipal, and industrial water supply (Reclamation Project Act of 1939, Water Supply Act of 1958, Rural Water Supply Act of 2006).

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- (2) Irrigation (Reclamation Project Act of 1939, RM Policy, *Water-Related Contracts-General Principles and Requirements* (PEC P05)).
- (3) Flood control (Reclamation Project Act of 1939, Flood Control Act of 1944). Includes agricultural floodwater, erosion, and sedimentation reduction, as well as urban flood damage reduction.
- (4) Hydroelectric power (Reclamation Project Act of 1939).
- (5) Navigation (Reclamation Project Act of 1939).
- (6) Recreation (Federal Water Project Recreation Act of 1965, as amended by the Water Resources Development Act of 1974 and Title 28 of the Reclamation Projects Authorization and Adjustment Act of 1992). Reclamation does not have general authority for the construction and operation of recreation facilities or for the acquisition of lands for recreation purposes. Specific project authorization is required. See also RM Policy, *Recreation Management* (LND P04) and RM D&Ss, *Recreation Program Management* (LND 01-03), *Land Acquisition* (LND 06-01), and LND 01-01.
- (7) Fish and wildlife enhancement (Fish and Wildlife Coordination Act of 1934, as amended, and the Federal Water Project Recreation Act of 1965, as amended by the Water Resources Development Act of 1974 and Title 28 of the Reclamation Projects Authorization and Adjustment Act of 1992). The Fish and Wildlife Coordination Act provides authority for Reclamation to construct fish and wildlife enhancement facilities in conjunction with an authorized project. See also LND 01-01.
- (8) Water quality enhancement (Federal Water Project Recreation Act of 1965, as amended by Title 28 of the Reclamation Projects Authorization and Adjustment Act of 1992). Reclamation's authority to allocate costs to water quality enhancement activities is generally limited to the authority provided in the two acts referenced.
- (9) Road improvement, maintenance, reconstruction, and relocation (Reclamation Project Act of 1939, Section 208 of the Flood Control Act of 1962). Existing public roads may be improved, maintained, reconstructed, or relocated in kind by Reclamation when deemed necessary for the construction of any authorized project for the development of water resources.
- (10) Historical and archeological resources identification, analysis, data recovery, and preservation (NHPA, Archeological and Historic Preservation Act of 1974). Refer to RM Policy, *Cultural Resources Management* (LND P01) and RM D&S, *Cultural Resources Management (CRM)* (LND 02-01) for compliance

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requirements and Reclamation requirements regarding reimbursable and non-reimbursable costs and requests to waive the 1-percent funding limit.

- L. **Financial Analysis.** To determine the financial feasibility of an alternative, the study team will consider each project beneficiary's capability to pay for its share of the costs to construct, operate, and maintain the proposed project in accordance with the applicable cost-share or repayment obligations. During the feasibility scoping phase of the study, an initial approximate determination of financial feasibility will be made. If the initial determination does not support the financial feasibility of a project, the study will not continue without the approval of the regional director. After costs are allocated among the project purposes for the recommended plan, a second, detailed analysis will be performed. This detailed analysis will account for the estimated capital costs and annual operation, maintenance, and replacement costs, as well as any existing financial obligations of the project beneficiaries. See RM D&S, *Water Rates and Pricing* (PEC 05-01) for additional requirements specific to contracts for the delivery and storage of project and non-project water, for the use of Federal facilities, and for the recovery of reimbursable project costs.
8. **Feasibility Report and NEPA.** The completed results and findings of a feasibility study will be provided in a report submitted to the regional director for consideration and recommendation to the Commissioner. An EIS or EA/FONSI must accompany the feasibility report when the feasibility report is submitted to the regional director for review. A feasibility report that integrates the associated EIS or EA/FONSI also satisfies this requirement.
- A. The feasibility report will either support recommending congressional authorization to implement the recommended plan or will support taking no Federal action.
- B. The feasibility report will identify known data gaps that require further investigation during the final design of the recommended plan, including, but not limited to, information related to site selection and improvement (e.g., topography, geology, seismic activity, flood hazards, water quality, and environmental conditions, etc.); right-of-way, easement, and land acquisitions; environmental compliance; public safety and security; construction costs; and operations and maintenance.
- C. NEPA regulations (40 CFR 1500-1508 and 43 CFR 46 and RM Policy, *National Environmental Policy Act* (ENV P03)) define the requirements for NEPA compliance documentation. For ESA compliance, see RM Policy, *Bureau of Reclamation Consultation Under the Endangered Species Act of 1973, as Amended* (ENV P04).
- D. Interim documents will be developed at the discretion of the regional director to highlight important decision points, facilitate team review, inform the public of study progress, and solicit input. The need for interim documents will be determined during scoping and documented in the POS.

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9. **Performance and Results Reporting.** The manager conducting the feasibility study will be responsible for complying with the reporting requirements of the Government Performance and Results Act of 1993, as amended.
10. **QA/QC.** The regional director will require QA/QC practices to ensure that data collection, technical analyses, cost estimates, and designs for each fully analyzed alternative are performed at the feasibility level.
 - A. **Peer Reviews.** The study manager will establish an independent team of technical experts to conduct any necessary reviews of the investigation or study. Peer reviews will be conducted in accordance with the Information Quality Act of 2001, OMB requirements, and Department and Reclamation policies.
 - B. **POLICY Review.** Prior to the second interim milestone described in Paragraph 10.E.(2), the POLICY Director and regional director will jointly designate a policy compliance review team to review the feasibility report to ensure that all applicable policy requirements and directives have been addressed.
 - (1) The policy compliance review team will consist of a minimum of three members who have not directly participated in the study being reviewed, including the POLICY Director's representative, the regional director's representative, and a third agreed to by the directors.
 - (2) The POLICY Director's representative will coordinate the review and serve as team lead. The anticipated level of effort (in staff days), schedule, and funding required to perform the policy compliance review will be documented jointly by the study manager and the policy compliance review team lead.
 - (3) The policy compliance review team will document findings in a review report submitted to the POLICY Director for approval. The approved review report will be submitted to the regional director for concurrence, and then sent to the Commissioner by the regional director at the same time the feasibility report is transmitted to the Commissioner. The feasibility report and the policy compliance review report must be transmitted together.
 - C. **DEC Review.** The regional director will identify feasibility studies to be submitted for independent oversight and review under the direction of the Senior Advisor, DEC. Refer to FAC P10 and RM D&S, *Identifying Design, Cost Estimating, and Construction Projects for Which Independent Oversight Review is Required, and Performing those Reviews* (FAC 10-01) for applicable DEC review requirements and procedures.
 - D. **Value Analysis.** The regional director will identify feasibility studies for inclusion in Reclamation's annual Value Program Plan of Action in accordance with RM Policy,

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Reclamation Value Program (CMP P05) and RM D&S, *Reclamation Value Program*, (CMP 06-01) for applicable Value Program requirements and procedures.

- E. **Study Milestones.** The following milestones represent points along the study timeline at which the regional director or a representative reviews the progress of the study, including the alternatives examined, decisions made, and public, cooperating agency, and stakeholder input received. The regional director's review also includes interim policy and legal compliance checks. Appendix A includes a study process diagram with the required milestones indicated.
- (1) **Regional Director's First Interim Review.** At the completion of the feasibility scoping phase, the study manager will meet with the regional director or regional director's representative(s) to present the plans to be considered in greater detail at the feasibility level and to summarize the preliminary alternatives considered, public input received from scoping meetings, coordination and consultation with other agencies, and stakeholder input.
 - (2) **Regional Director's Second Interim Review.** After the study team and cost-share partners have completed a review of alternatives and determined that evaluations are sufficient to develop a plan that provides net public benefits, the study manager will meet with the regional director or regional director's representative(s), and the policy compliance review team. The study manager will present the proposed recommended plan and the locally preferred plan, if different from the proposed recommended plan. The study manager will also review the public involvement process leading up to this milestone. If a planning-level value analysis is required, the regional director will submit the study for inclusion in Reclamation's annual Value Program Plan of Action in accordance with CMP P05 and CMP 06-01.
 - (3) **Regional Director's Final Review and Approval.** Once the draft feasibility report and the associated EIS or EA/FONSI are completed by the study team, the study manager submits the report to the regional director and the policy compliance review team. The regional director coordinates with Senior Advisor, DEC, for a review, and the policy compliance review team conducts its review. An internal meeting among the Commissioner's Office, the POLICY Director's office, the regional director, and others, will be held after the DEC and policy compliance reviews are complete to discuss the study results and proposed recommendations. This is followed by the regional director's transmittal of the draft feasibility report, EIS (or EA/FONSI), and the approved policy compliance review report to the Commissioner for consideration of the regional director's and the POLICY Director's recommendations.

RECLAMATION MANUAL TRANSMITTAL SHEET

Effective Date: _____

Release No. _____

Ensure all employees needing this information are provided a copy of this release.

Reclamation Manual Release Number and Subject

Summary of Changes

NOTE: This Reclamation Manual release applies to all Reclamation employees. When an exclusive bargaining unit exists, changes to this release may be subject to the provisions of collective bargaining agreements.

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Remove Sheets

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All Reclamation Manual releases are available at <http://www.usbr.gov/recman/>

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