

# Drinking Water Revolving Fund Project Plan Preparation Guidance

## Michigan Department Environmental Quality

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## Introduction

This guidance is to assist water suppliers in fulfilling the project planning requirements of the Drinking Water Revolving Fund (DWRF) program and is intended to more fully explain the requirements included in the following statutes, laws, and rules:

- The federal Safe Drinking Water Act (SDWA), Amendments of 1996, 42. United States Code (U.S.C.) §300f et seq.
- Part 54, Safe Drinking Water Assistance, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL §§324.5401-324.5418
- The Michigan Safe Drinking Water Act, 1976 PA 399, (Act 399), MCL §§325.1001-325.1023
- The Act 399 Administrative Rules, Michigan Administrative Code R325.10101-R325.12820

**This guidance addresses a wide variety of potential projects.** Not every issue detailed is relevant to every project. However, when issues are applicable, they must be addressed at a level of detail consistent with their complexity and the scope of the total proposed project. In some instances, short responses are appropriate. More complex issues will require more detail.

**Interested water suppliers are advised to contact the Revolving Loan Section (RLS) early in the planning process.** A project manager will then be assigned to assist the supplier in identifying applicable planning issues and to answer questions regarding project plan development. This may save water suppliers both time and money in completing the plan requirements. A pre-planning meeting with the RLS project manager and area water engineer from the applicable Department of Environmental Quality (DEQ) district office is encouraged.

Incorporation of "green" project components in eligible DWRF projects is encouraged. Refer to the CWSRF and DWSRF Green Project Reserve Guidance ([www.michigan.gov/drinkingwater/revolvingfund](http://www.michigan.gov/drinkingwater/revolvingfund)) for project examples and eligibility requirements.

Applicants that wish to use a Construction Management at Risk (CMAR), Progressive Design-Build (PDB), or Fixed-Price Design-Build (FPDB) should refer to the Project Delivery Methods Guidance and schedule a meeting with a RLS project manager to discuss project delivery requirements and eligibility. Additionally, the project plan must discuss the benefits and disadvantages of selecting one of those delivery methods over the traditional Design-Bid-Build delivery method and why the chosen method is the best fit for the project.

Applicants should submit a draft project plan for review at least 90 days prior to its completion. This period of time will allow staff to identify problems and potential obstacles. The community will then have the opportunity to incorporate necessary changes before the required public hearing on the final project plan. Every plan must examine and prioritize all drinking water needs for the next 20 years, whether or not funding is being sought for every capital improvement.

A complete final project plan will be the basis for project ranking for DWRF loan assistance. Two copies of the final project plan must be submitted to the address on the front cover of this guidance by **May 1** of any given year for ranking on the state's Project Priority List (PPL) for the following fiscal year (October 1 to September 30).

A completed *DWRF Project Plan Submittal Form* must accompany the final project plan.

Before beginning a project plan, please read the *Applicant Actions Related to Project Planning* for guidance on which federal and state agencies to contact during the planning process.

## **Project Background**

This section of the plan will describe the study area, identify population characteristics, summarize the condition and type of facilities, and focus on the project need based on current drinking water problems being experienced by the community.

### **Delineation of Study Area**

A study area must be delineated to establish what problems exist and to identify future needs within and outside the service area. Either one complete project or multiple separate projects may be envisioned depending on need, priority, and funding capability. Include in the study area any potential water withdrawal sites and wellhead protection requirements.

In the plan, provide a map of the study area and appropriate natural features (lakes, rivers, etc.), existing facilities, and identify other key characteristics.

### **Land Use**

Describe the existing land use in the study area, including residential, commercial, industrial, agricultural, and recreational areas. A discussion of master plan, zoning, and other land use regulations or policies should be included. Predicted land use in the study area over the 20-year planning period should also be described. Any development trends that may adversely impact air and water quality or environmentally sensitive areas should be discussed.

### **Population Projections**

Provide a table showing existing population data for the study and service areas. If significant, include seasonal population fluctuations. Calculate estimated population projections at a minimum of 5-year, 10-year, and 20-year intervals. These projections must be based on a credible source (e.g., U.S. Census data) and supported by the regional planning agency.

### **Water Demand**

Identify existing and projected water demand from residential, industrial, commercial, and institutional users to assist in determining drinking water needs of the community. Document any projected demand increases from non-residential users with source estimates from businesses and/or a letter of intent. Public and private water withdrawal locations should be identified.

### **Existing Facilities**

The project plan must include an overview of the existing waterworks system including:

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1. The condition of source facilities (e.g., wells, intakes, cribs, etc.).
2. The method of water treatment, as well as the location and physical condition of facilities, including years in service of major components.
3. An evaluation of condition and capacity of storage tanks and pump stations, including reliability requirements for maintaining system integrity.
4. The condition of service lines.
5. The size, material, and condition of any existing transmission/distribution mains, including valves and hydrants. Include information on water main breaks or pressure issues, if applicable.
6. The method of residuals handling and disposal, if applicable.
7. The condition of water meters.
8. A discussion of operation and maintenance requirements including any problems being experienced such as excessive flushing, leakages, breaks, etc.
9. The design capacity of the waterworks system and the existing uses of available capacity.
10. An evaluation of the system's climate resiliency. The system's ability to withstand and respond to changes resulting from climatic factors, such as increased flooding risks, increased intensity or frequency of storm events should be evaluated. The availability of backup power to continue facility operations should be discussed. Information and resources can be found at [EPA's Web site for climate ready water utilities](http://www.epa.gov/crwu) (www.epa.gov/crwu).

### Summary of Project Need

The project plan must describe the existing waterworks problems and needs, including the severity and extent of water supply/public health problems. The description of need should be sufficiently detailed to form the basis for project ranking on the PPL. The ranking criteria are identified in Section 5406 of Part 54, of the NREPA. The summary of need should include the following:

- A. Compliance with the drinking water standards defined in the Administrative Rules for Act 399.
  - Any acute violations of a Maximum Contaminant Level or surface water treatment technique.
  - Any non-acute violations of a Maximum Contaminant Level or surface water treatment technique.
  - An evaluation of the existing treatment facility as conducted and/or reviewed by the DEQ or other appropriate regulatory agency. The evaluation should compare the existing treatment facility to the requirements of Act 399.
  - A description of any waterborne disease outbreaks, their magnitude, and their apparent causes.

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- A reliability study/master plan that substantiates water supply needs and outlines deficiencies that warrant correction.

### B. Orders or Enforcement Actions

Provide a copy of any court or enforcement order against the water supplier, including written enforcement actions such as a Notice of Violation, Agreement, or Department Order to correct deficiencies and achieve compliance with Act 399.

### C. Drinking Water Quality Problems

Drinking water quality problems being experienced by the water supplier should be identified. The aesthetic quality of the drinking water supply should also be discussed.

If the community is proposing to provide new service to areas currently served by individual wells, the project plan must document the nature, number, and location of wells that are malfunctioning based on the DEQ, and/or local health department records, and/or sanitary surveys. The site characteristics (e.g., groundwater levels, soil permeability, geology) contributing to the problems must be documented. The system failures and limiting site characteristics must be plotted on a map along with existing habitation.

If surface water or groundwater contamination is of concern, point and nonpoint sources of pollution should be examined. For groundwater contamination, aquifer condition and type should be identified. If surface water contamination is of concern, describe and evaluate the impact of these problems on the quality of drinking water.

### D. Projected Needs for the Next 20 Years

The project plan should examine and prioritize all water supply needs in the study area for the next 20 years, whether or not funding is being sought for every capital improvement. Improvements or modifications to improve a system's ability to adapt and respond to changes resulting from climatic factors should also be examined. For needs that will be addressed using DWRF loan assistance, a cost-effectiveness analysis based on the 20-year planning period must be performed, and each component to be funded must be a part of the facility that will cost-effectively address water supply and/or public health problems.

## **Exploratory Well Investigations/Well Site Selection/Test Well Drilling Procedures**

Applicants new water supply wells will need to begin evaluating potential well fields early in the planning phase. The location of each site considered worthy of further investigation must be mapped and described in the plan. The description of the well site must include the site's natural setting, distance from the water distribution system and surrounding homes, proximity to known contamination sites, estimated land purchase costs, and a discussion of the willingness of the land owner to cooperate.

You must contact your DEQ district engineer for an on-site inspection and approval of proposed well sites prior to the commencement of exploratory drilling.

### A. Preliminary On-Site Review and Clearances



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The appropriate district office engineer will perform a walk-about review of potential well sites to determine if adequate isolation distances exist and if there is any source of contamination present.

Environmental Health Section staff will perform an Adverse Resource Impact (ARI) assessment of each well site. ARI assessments are mandatory for all water withdrawal proposals. Sites where ARI is predicted will not be permitted or funded except in the rare case where the proposed withdrawal is “traded” equally for the elimination of an existing withdrawal **in the same aquifer**. Assessments may take up to 90 days, so it is critical to start them early in the planning process. Refer to [Michigan’s Water Use Web site](http://www.mi.gov/wateruse) (www.mi.gov/wateruse) for the water withdrawal assessment tool.

### B. Test Wells

If no ARI is predicted, the district engineer will issue a test well approval letter to allow drilling to commence.

**Note** – The following environmental clearances must be obtained PRIOR to test drilling at any well site:

- State Historic Preservation Office
- State/Federal Endangered/Threatened Species (U.S. Fish and Wildlife Service and Michigan Natural Features Inventory)
- State Wetlands/Floodplains/Coastal Zones/Inland Lakes and Streams Review (DEQ Water Resources Division)
- Federally-recognized tribes must be notified and provided an opportunity to comment

Test well drilling is considered a planning cost and does not have to be competitively bid. If over \$50,000, a signed contract is required.

There are two alternatives that may be selected for further evaluating a potential well site. If the water supplier is confident about the outcome, it may elect to install a large-diameter test well that will serve as the final production well, as long as the yet to be performed pump test and aquifer analysis demonstrate that this well will produce the quantity and quality of water necessary to satisfy the supplier’s needs. This well is still referred to as a test well (or test production well) until the data has been reviewed and approved and a construction permit issued. The driller will also be installing at least two monitoring/observation wells, usually 5 inches in diameter. This approach is used when a supplier is willing to accept a higher degree of risk, while spending less time and money on the exploration and evaluation phase.

The second alternative is to install a small-diameter test well to obtain geological data and water quality at the site to determine if a suitable water bearing formation may be present. The contractor may install such test wells at several sites simultaneously to determine the best available site, or they may do it one site at a time until they find one that is acceptable. Again, this preliminary test well drilling and evaluation step may be accomplished only if the district engineer has conducted the necessary well site inspection(s) and granted approval for test well drilling. Once a suitable site has been identified for a final production well, a larger-diameter test well will be installed for the pump test and aquifer analysis. The initial

test well that was installed at this site is often used as one of the two required observation wells.

**Eligibility Note** – If the applicant does not already own the well site property, land purchase or easement cannot be finalized until AFTER the applicant’s resolution to adopt the final project plan takes place in order for the land acquisition costs to remain eligible.

## **Analysis of Alternatives**

You must conduct an evaluation of alternatives to serve comprehensive 20-year system needs. The alternatives evaluation examines the objectives of the project, including needs, technical constraints, and applicable drinking water standards. The widest variety of potential alternatives for both the entire system and the various functional subsystems must be identified, evaluated, and screened. All of the alternatives evaluated must serve the same service area population to address demonstrated drinking water needs. The rationale for rejecting any of these alternatives must be provided. In-depth analyses need only be performed for the principal alternatives based on cost-effectiveness, potential environmental impacts, implementability, and technical issues.

Proposed water main alternatives should be compared based on routing options, construction methods, and pipe materials.

For well site alternatives, compare and contrast the suitability for safe, adequate yield of drinking water at each site evaluated during preliminary investigations, including impacts and estimated cost to construct. These costs include well house structure, drilling of test-production well, aquifer/site studies, appraisal/land purchase, engineering, laboratory testing, pumps/motors, controls, water main connections, and miscellaneous appurtenances.

The following types of alternatives must be evaluated in addition to conventional waterworks technologies or processes.

### **No-Action**

You must consider the feasibility of a “no-action” alternative, i.e., whether no project at all is a viable option for the community. This alternative is primarily of significance for waterworks facilities that are in compliance or in places where no public waterworks facilities currently exist.

### **Optimum Performance of Existing Facilities**

You must consider “optimum performance of existing facilities” as an alternative. Investigation may reveal that the existing waterworks facilities can function more efficiently with the addition of new equipment, operational changes, or the addition and training of operating personnel. On the other hand, it may establish that the facilities are operating at their optimum efficiency. Whatever the results of the investigation, optimum operation of existing facilities will determine what additions, expansions, or replacements must be made, including improved design and operation of existing individual wells. The investigation will also determine the extent to which existing waterworks facilities can be used in a new upgraded system. Key criteria under this alternative include determining the optimum performance level possible with the existing process design; evaluating the age and reliability of existing equipment; exploring options for additional operating controls and laboratory facilities for monitoring the system and improving performance; and making possible processing modifications.

## Regional Alternatives

The feasibility of connecting to a regional water supply to serve the existing needs of the study area should be examined with care in the project plan. Capacity and adequacy of any existing regional waterworks facilities must be examined. Where capacity and adequacy are deficient, the costs to upgrade and expand the system to supply safe and sufficient quantities of water must be added to the analysis. These costs are in addition to the connection (water main/pump station) costs for the system under review.

Various routes to connect to a regional system must be compared and contrasted. In doing so, the socio-economic and environmental impacts of the alternative routes must be examined, in addition to the cost for each. Also, the population projections for a proposed regional system alternative must be realistic and correspond to acceptable assumptions and projection methodologies.

Part 54 of the NREPA does not allow the DWRF to fund projects constructed primarily for growth or to stimulate development in currently undeveloped areas.

The evaluation of regional alternatives must consider the need to negotiate and execute intermunicipal service agreements or contracts between the participating communities.

## Principal Alternatives

Principal alternatives must be evaluated using a present worth analysis for a determination of cost-effectiveness. In addition, environmental impacts, implementability, and technical considerations must be examined for each principal alternative.

## Monetary Evaluation

The monetary evaluation must include a present worth analysis. The analysis does not identify the source of funds, but compares costs uniformly for each alternative over the 20-year planning period. Sunk costs (investments or financial commitments made before or during the planning period) are not included in the analysis. Refer to the *Fundamentals of the Monetary Evaluation* for further information.

### A. Present Worth

Present worth is the sum which, if invested now at a given interest (discount) rate, would provide exactly the funds required to pay all present and future costs. Total present worth, used to compare alternatives, is the sum of initial capital cost, plus the present worth of operation, maintenance, and replacement (OM&R) costs, minus the present worth of the salvage value at the end of the 20-year planning period.

### B. Discount Rate

The real discount rate to be used in computing present worth cost is established by the U.S. Office of Management and Budget and is published for each fiscal year. The rate may also be obtained by contacting your DEQ project manager or from the program Web site.

### C. Salvage Value

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The planning period for the monetary evaluation is 20 years. At the end of this period, portions of the project's structures or equipment may have a salvage value, which is determined by using straight line depreciation. The present worth of the salvage value is then computed using the discount rate. The useful life reflected in the cost-effectiveness analysis should fall within the following ranges:

- Land: Permanent.
- Water supply conveyance structures (e.g., distribution and transmission mains, intakes, and wells): 50 years.
- Other structures (e.g., waterworks buildings, water storage tanks, pump station structures): 30 to 50 years.
- Process equipment (e.g., chemical feed systems): 15 to 20 years.
- Pumps and motors: 15 to 20 years
- Auxiliary equipment (e.g., alternate power supplies): 15 to 20 years.

If you assign a useful life of less than the 20-year planning period to any component, the cost-effectiveness analysis must show the present worth of the replacement cost at the end of the useful life, as well as the present worth of the salvage value of the replacement at the end of the 20-year planning period.

**Special Note:** Communities that qualify for disadvantaged status that are choosing a 30-year loan term instead of a typical 20-year loan must examine and prioritize all drinking water needs in the study area for the next 30 years, instead of 20 years as required with the standard loans, whether or not funding is being sought for every capital improvement. For needs that will be addressed using DWRF loan assistance, a cost-effectiveness analysis based on a 30-year planning horizon must be performed and each component to be funded must be part of the 30-year facility that will cost-effectively address drinking water quality and/or public health problems.

### D. Escalation

Only energy costs and land value may be escalated in the cost-effectiveness analysis. The costs of labor, equipment, and materials are not escalated, since it is assumed that any increase will apply equally to all alternatives. Different alternatives, for example, may use different fuel supplies. Escalation of energy costs is based on data periodically published by the EPA, or on historical data for the area, if justified. Land prices should be escalated at a uniform rate of 3 percent per year.

### E. Interest During Construction

If interest charged during construction is significant and could influence the comparison of alternatives, it may be included in the cost-effectiveness analysis using one of two methods. If expenditures are uniform and the construction period is less than four years, interest is one half of the product of the construction period (in years), the total capital expenditures (in dollars), and the discount rate. Otherwise, interest should be calculated on a yearly basis.

### F. CMAR, PDB, or FPDB Delivery Method

If a CMAR, PDB, or FPDB delivery method is to be utilized, the monetary evaluation (which includes an estimate of costs for the CMAR/design-build firm) must consider the costs of the

selected method versus the traditional Design-Bid-Build delivery method. The benefits and disadvantages of these methods must be discussed in detail as part of the alternative evaluation, with an explanation of why the chosen delivery method is the best fit for the project.

## **Environmental Evaluation**

Environmental impacts expected to result from each alternative must be compared. Similar impacts should be compared in scope and intensity. Any significant environmental benefits precluded by rejection of an alternative should be identified. It may be possible to summarize the comparison of impacts in a matrix or other tabular format.

Briefly evaluate the following aspects of the environmental setting and provide a narrative and maps of all applicable items:

### **A. Cultural Resources**

Historical and archaeological sites known to exist must be listed in the project plan and based upon documentation provided through the National or State Historical Register, the State Historical Preservation Officer (SHPO), Tribal Historic Preservation Offices (THPO) local historical societies, or local and regional planning agencies.

### **B. The Natural Environment**

- Climate, including precipitation, temperature, and any adverse weather conditions that may affect construction of the project (e.g., depth of frost, length of construction season).
- Air quality.
- Wetlands.
- Coastal zones.
- Floodplains (Note: Construction in a U.S. Department of Housing and Urban Development [HUD] designated flood area requires participation in the HUD Flood Insurance Program).
- Natural or Wild and Scenic Rivers.
- Major surface waters – the major lakes, rivers, and streams in the study area and their designated uses (e.g., warm water fish).
- Agricultural resources – identification of prime, unique, and otherwise highly productive farmlands.
- Existing plant/animal communities and environmentally sensitive habitats, particularly those on the threatened or endangered state special concern species list.

## **Mitigation**

Mitigation of anticipated environmental impacts must be discussed in the analysis of alternatives. Any mitigation costs must be included in the cost-effectiveness comparison.

## **Implementability and Public Participation**

Throughout the evaluation of alternatives, the public must be provided with opportunities to comment. With public input, it may become apparent that certain alternatives or sites are not acceptable to the public or to neighboring communities affected by the project. These issues must be resolved in the choice of alternatives.

Implementability issues to be resolved and discussed in the project plan include the financial burden on the applicant municipality, the availability or competing uses of the proposed site, the ability of the municipality to manage the construction and OM&R of the facility, the need for intermunicipal agreements, and the formation of an operation authority.

## **Technical Considerations**

All alternatives must comply with Act 399 and be designed to meet the standard recommended guidelines established in the “Recommended Standards for Waterworks” as published by the Great Lakes and Upper Mississippi Board of State Sanitary Engineers.

Each alternative should be evaluated based on its reliability to meet and consistently maintain compliance with applicable water quality standards. System reliability must demonstrate:

- Sufficient pumping capacity to meet design flows for all pumping stations.
- Stand-by power or an acceptable alternative.
- A minimum of two wells for new waterworks systems.
- A minimum of two units for each treatment process.
- Adequate storage volume

## **Residuals**

For treatment alternatives that will generate residuals, describe and evaluate the handling and disposal practices required and compare/contrast each alternative thereof based on quality/quantity of residuals and safety considerations.

### **A. Industrial/Commercial/Institutional**

Identify high volume users (e.g., industrial/commercial/institutional) that may affect design flows/pressures being evaluated for alternatives.

### **B. Growth Capacity**

Inclusion of growth capacity based on supportable 20-year planning projections is permissible, but it must not be the primary purpose of the plan. While specific details of development cannot be predicted accurately, an attempt should be made to identify future service areas and the type of expected development.

## Contamination

Any contamination, be it soil, chemicals, ground/surface water, or existing building materials, must be evaluated in the cost-effectiveness and environmental analysis of alternatives. Each project should be evaluated for potential contamination utilizing the following actions:

- An identification of past activities, which might have caused site contamination, such as leaking underground storage tanks.
- A visual survey of project sites to identify any abandoned containers and their contents.
- An examination of the state's list of contaminated sites, found at the [DEQ Web site for contaminated sites](https://secure1.state.mi.us/FacilitiesInventoryQueries/) (<https://secure1.state.mi.us/FacilitiesInventoryQueries/>).
- When the reconstruction or rehabilitation of existing facilities is proposed, a record search or visual survey to identify the presence of contaminated building materials in the areas of proposed construction.
- Where contamination is suspected, soil and groundwater sampling of project sites to evaluate potential contamination problems.

## New/Increased Water Withdrawals

Any new or increased surface or groundwater withdrawal being proposed requires an ARI assessment and registration. Withdrawals in excess of 2 million gallons/day also require a water withdrawal permit; see the [DEQ Web site for water use](http://www.michigan.gov/deqwater) ([www.michigan.gov/deqwater](http://www.michigan.gov/deqwater)). Water withdrawal permits can be applied for in one of two different ways: 1) under Part 327 Great Lakes Preservation Act, as amended, of Michigan's NREPA at a cost of \$2,000 (eligible for DWRF reimbursement); or 2) under Act 399 (Safe Drinking Water Act) via the submittal of final project plans and specifications.

Both an ARI and a water withdrawal permit, when applicable, must be obtained before the DEQ can issue a "Finding of No Significant Impact" for a DWRF project.

**Note that a minimum of 90 days is required for a water withdrawal permit to be issued.**

This is because each proposed permit must be public noticed for 45 days, and another 45 days minimum is needed for staff to review.

As such, for the DWRF application to proceed smoothly, it is recommended to apply for the water withdrawal permit under Part 327, instead of Act 399, soon after the final DWRF Project Plan is submitted.

## Selected Alternative

In this section, you will provide a description of the selected alternative (including **why** it was selected) that is detailed, comprehensive, and consistent with information provided in the previous section. A map or drawing should be provided. For water main projects, be sure to identify street names.

## Design Parameters

Summarize the preliminary basis of design, e.g., unit processes and sizes, wells and intakes, pipe lengths/diameters, routes, pump sizes/type (including provisions for standby power, telemetry, etc.), storage volume, design flow/capacity, well screening details, treatment criteria, residuals management, and related technical issues. Provide a schematic flow diagram for the proposed alternative. Indicate what drinking water standards are to be met or brought into compliance. Identify the service area and the population to be served (including special users of commercial/industry).

In regards to the transmission lines and water mains, briefly discuss the factors that dictate sizing of the pipes, such as minimum state guidelines, service area flows and pressures (existing and proposed), and other determinants.

## Hydrogeological Analysis

The hydrogeological analysis is conducted using the large-diameter test well and at least two monitoring/observation wells. This is commonly referred to as an aquifer test or performance test as described in Rule 325.10830 of Act 399. In general, a hydrogeological analysis is performed to properly gauge the aquifer's ability to produce a sufficient amount of clean water. This analysis defines the safe yield of the aquifer; determines the pumping capacity, draw down, and static level of the well; and rates the quality of pumped water under operating conditions. Chemistry and bacteriological monitoring must also be collected from the test well to document compliance with state drinking water standards. Your data is reviewed by the DEQ's Environmental Health Section, and this process typically requires eight weeks.

## Finalization of Well Design

The finalization of a well design and issuance of an Act 399 permit is contingent upon a hydrogeological analysis and a final well log. The hydrogeological analysis provides the information used to determine safe yield and water quality. The well log provides other vital information such as depth, diameter, grout material, and screen sizing. It is important to remember that a construction permit is typically not issued until **after** the production well has been installed. The permit, in essence, equips the production well with final pump/motor sizings and allows the well to go into service.

## Maps

Provide legible maps with distance scales and other appropriate graphics that are associated with the selected alternative, including:

- Location of water sources and waterworks treatment systems.
- Routes, lengths, and sizes of transmission and distribution water mains.
- Location and size of water storage tanks.
- Street names.

Precise dimensions and locations may not yet be known, but basic project characteristics should be available.



## **Schedule for Design and Construction**

List the major activities and milestones to be scheduled for completion of the proposed project. Estimated dates for design, aquifer analysis (if applicable), bidding, permit issuance, financing, and construction start and completion should be identified. The schedule should be consistent with quarterly DWRF funding deadlines. If the project is part of a regional system, the time required for review and approval from the regional system and modification of intermunicipal agreements should be factored into the schedule.

## **Cost Estimate**

A summary of all costs associated with planning, design, and construction of the selected alternative must be presented, including costs associated with administration, legal, and financial services, land acquisition (if applicable), mitigation, and other project-related activities. Costs of green project reserve components should be specifically identified.

## **User Costs**

Estimate the cost impact the proposed project will have on users of the water system to allow sufficient revenue for debt retirement, operation, maintenance, and replacement costs. Describe the current rates for comparison with the new estimated rates.

The total estimated project costs should be translated into an estimated total annual, quarterly, or monthly residential user charge over the useful life of the project. The amount of flow generated by the typical residential customer must be presented to allow the public to calculate their actual costs.

The discussion of user costs must identify the number of users or user equivalents. When user equivalents are used, an explanation of how a user equivalent is defined must be included. The number of users must be related to the total annual debt to be retired so that it is clear how the cost of the project is distributed across the users. Hook-up charges, tap-in fees, special assessments, and other non-flow related charges should be discussed, if applicable. Estimated costs must be generated without factoring in new users projected to connect after project completion.

## **Disadvantaged Community**

Part 54, of the NREPA, provides for several benefits to municipalities who meet the state's criteria for disadvantaged community status. These benefits include additional priority points, extended loan terms, and the possibility of loan forgiveness for qualified planning costs. A *Disadvantaged Community Status Determination Worksheet* should be completed and included with the final project plan submittal.

## **Ability to Implement the Selected Alternative**

Briefly discuss the applicant's legal authority, managerial capability, and financial means to build, operate, and maintain the water system. The institutional arrangements for financing the project, including capital cost contributions from other entities, must be described. If applicable, describe the need for any intermunicipal service agreements or water use ordinances to provide project implementation. If revisions to existing agreements are needed to implement the project, the project plan must identify the necessary amendments.

When contractual arrangements with other local units of government are required to implement the project, resolutions must be obtained from all of the participating entities adopting the project plan and agreeing to implement the selected alternative. These resolutions are the initial demonstration of project implementation.

## **Environmental Evaluation**

In this section, you will discuss potential environmental impacts the selected alternative may cause, both direct and indirect, beneficial, and detrimental. The evaluation should be more detailed than the comparison of impacts for the various alternatives. While a narrative is encouraged, a tabular format could also be used to summarize this information. Responses received from reviewing agencies should be discussed. Documentation can be compiled in an appendix.

### **Historical/Archaeological/Tribal Resources**

Impacts upon archeological, historical, or cultural resources (e.g., historic neighborhoods, buildings, or streetscapes) must be identified. Review by the SHPO is required for all projects. Tribal Historical Preservation Officers must also be contacted for an opportunity to comment on the proposed project.

### **Water Quality**

Describe how the project alternative will affect surface water and groundwater quality or quantity and meet drinking water standard objectives.

### **Land/Water Interface**

Describe what impacts the project will have on wetlands, floodplains, rivers/streams, and coastal zones.

### **Endangered Species**

Describe what federal and/or state threatened or endangered species or state special concern species of flora or fauna, if any, would be impacted by the proposal. The United States Fish and Wildlife Service and the Michigan Natural Features Inventory need to be contacted for these reviews. A biological survey may be required to determine if they exist in the areas of construction, or would be affected by proximity to the proposed project.

### **Agricultural Land**

If the project will directly or indirectly affect agricultural resources, describe what the impact will be and identify the location on a map.

### **Social/Economic Impact**

Describe how the project will affect the social economics of the study area.

## **Construction/Operational Impact**

Describe all areas that will be affected by construction. All natural and man-made features existing in these areas must be identified. Areas of potential tree removal must be identified, and any removal of large trees or extensive areas of vegetation removal must be noted.

Describe whether the project will result in hazardous or contaminated material exposure. Discuss the project's impact on traffic patterns, especially areas where construction will impact access or areas that will be affected by increased construction traffic. Indicate whether daily operations will have any impact, such as chemical exposure, air emissions, or noise. Discuss impacts to residential areas due to the construction and operation of new facilities if applicable.

## **Indirect Impacts**

Indirect impacts are those caused or facilitated by the proposed project, but will be removed in time and/or distance. Indirect impacts often take the form of new residential or commercial development made possible by the project. Facilitation of new areas of development, even if "consistent" with zoning, may be considered significant adverse impacts. In addition, the conversion of agricultural lands and open areas to other uses and destruction of sensitive environments, such as wetlands, shorelines, areas of unbroken forest canopy, and other habitat areas, may also be considered significant adverse impacts.

The following indirect impacts that should be evaluated include:

- Changes in the rate, density, or type of development (residential/commercial/ industrial).
- Changes in land use (e.g., open space, floodplains, prime agricultural land, and coastal zones).
- Changes in air or water quality stemming from development including impacts from increased traffic.
- Changes to the natural areas and sensitive species or ecosystems due to secondary growth.
- Changes to aesthetic aspects of the community.
- Resource consumption over the useful life of the project.

## **Mitigation Measures**

Where adverse impacts cannot be avoided, mitigation must be considered and described in the project plan, whether or not it is required by a particular permit or clearance. In this section of the project plan, you will describe how the environmental impacts discussed in the previous section will be mitigated. Both structural and non-structural measures that will be taken to avoid, eliminate, or mitigate adverse impacts should be included. Where applicable, required permits, such as soil erosion control, should be discussed. For each type of impact, be specific as to how the impact will be controlled so as to be made negligible.

Indirect impacts must be shown to be consistent with local ordinances and the community master plan so as to maintain protection of natural resources over time.

## **Public Participation**

In this section, you will document opportunities to provide for public participation in the planning process. Public participation is generally informal in the early planning phase and becomes more formal prior to completing the project plan. Methods of involving the public include newspaper articles, flyers in utility bills, mass mailing to citizens, and the establishment of citizen's advisory groups for input on more complex and controversial projects. The purpose is to address controversial aspects of the project plan and/or to generate a better understanding of the project.

### **Public Meeting (Recommended)**

A public meeting to discuss the various alternatives is recommended before a final alternative is selected. Such a meeting may help promote public support for the project. If held, the meeting should be at a time and place to best maximize public input. While a brief summary of the proceedings of the meeting should be included in the project plan, a formal presentation and record of proceedings is not required. A public meeting is preferred, but a council meeting held in accordance with all of the above guidelines is also an option.

### **Formal Public Hearing and/or Recording (Required)**

The municipality applying for a DWRF loan must hold a formal public hearing prior to the adoption and submittal of a final project plan. The date, place, and time of the hearing must be conducive to maximize public input. For complex or controversial projects, or projects that will serve more than one municipality, hearings at several locations could be held.

### **Public Hearing Advertisement (Required)**

A notice of the public hearing must be advertised **at least 30 days** prior to the hearing in a newspaper of general circulation in the communities affected by the proposed project. Notices on the municipality's Web site can supplement, but not substitute for, the published public hearing notice. The draft project plan must be available for public review during the 30-day public comment period. A copy of the advertisement and an affidavit confirming its publication must be included in the final project plan. Instructions on where to find copies of the project plan and how to submit written comments about the project must be included in the advertisement.

### **Public Hearing Transcript or Recording (Required)**

The final project plan must be accompanied by one of the following:

1. A verbatim transcript of the public hearing recorded by a court reporter or transcribed by a stenographer from a recording of the proceedings.
2. An audio tape recording of the public hearing (tape must be audible).
3. A video recording of the public hearing (video must be clear and audible).

## **Public Hearing Contents**

The following items must be discussed during the public hearing:

1. A description of the drinking water quality needs and problems to be addressed by the proposed project and the principal alternatives that were considered.
2. A description of the recommended alternative, including its capital costs and a cost breakdown by project components (e.g., supply, treatment, distribution, storage).
3. A discussion of project financing and costs to users, including the proposed method of project financing and estimated monthly debt retirement; the proposed annual, quarterly, or monthly charge to the typical residential customer; and any special fees that will be assessed.
4. A description of the anticipated social and environmental impacts associated with the recommended alternative and the measures that will be taken to mitigate adverse impacts.

In the event no one from the public attends the hearing (a reporter would be considered a member of the public, as would members of the applicant's governing body), the public hearing may be opened and closed without a formal presentation of the project plan documenting this action.

## **Comments Received and Answered**

The final project plan must include the following items:

1. A typed list with the names and addresses of the people who attended the public hearing.
2. A copy of any written comments that were received during the public comment period for the proposed project.
3. The applicant's responses to the comments received.
4. A description of any changes that were made to the project as a result of the public participation process.

## **Adoption of the Project Plan (Required)**

The official period for receiving public comments on the proposed project may either end at the close of the formal public hearing or extend for several days after the hearing. After the close of the public comment period, an alternative must be selected for implementation by the municipalities participating in the project. The final project plan submitted by the May 1 deadline must include resolutions from all of the participating local units of government to formally adopt the project plan and implement the selected alternative.

## **More Information, Forms, and Guidance**

Please visit the [DEQ DWRF Web site](http://www.michigan.gov/drinkingwaterrevolvingfund) (www.michigan.gov/drinkingwaterrevolvingfund) for more information and to obtain the following additional planning-related forms and documents:

*Drinking Water Revolving Fund Project Plan Submittal Form  
(including sample Joint Resolution and Disadvantaged Community Worksheet)*

*Applicant Actions Related to Project Planning*

*Fundamentals of the Monetary Evaluation*

*Notice of Project Plan Public Hearing (Model)*

*National Natural Landmarks in Michigan*

*Regional Planning Agency Addresses*

*THPO Guidance*