

# SYSTEM IMPROVEMENT PLAN (SIP)

## With Environmental Impacts

### LOUISIANA DEPARTMENT OF HEALTH • OFFICE OF PUBLIC HEALTH

When applying for financial assistance from LDH's Drinking Water Revolving Loan Fund (DWRLF), all applicants will need to prepare and submit 1 hard copy and 1 electronic copy of the System Improvement Plan (SIP) with Environmental Impacts. The SIP is a systematic study of the need for new, expanded, or upgraded facilities for the water system. Its primary objective is to identify the water system needs in order to meet/achieve compliance with current and future drinking water regulations and then propose a cost-effective means of meeting those needs. This guidance describes how to prepare a SIP and provides important steps to take early in project formulation. Please note **the SIP must have the stamp and seal of a LA Professional Engineer** (LAC 51:XII, Sect. 113 'Engineer's Report').

The Environmental Impacts Section, included as the last section of the SIP (**Section 6**), provides all of the required environmental information needed to support one of three possible environmental determinations. ***In the interest of time, this section should be considered initially since it has the potential to require more time to complete than other sections of the SIP.*** Depending on which environmental determination is warranted, a different level of supporting documentation for the Environmental Impacts Section will be required. A **preliminary meeting** early in project formulation should be held between the applicant and DWRLF to decide on a preliminary environmental determination and to discuss what specifically will be required of the applicant in Section 6 for the proposed project.

Please note that a SIP may be submitted prior to the completion of the Environmental Impacts Section (*sometimes done in order to get the review process started earlier*); however, the SIP will not receive final approval until the Environmental Impacts Section has been completed and approved.

Please make sure that the applicant's Bond Attorney gets involved *as soon as possible* regarding this future loan. Whether the applicant is a private or public system, the DWRLF requires that an attorney represent the applicant for loan proceedings. If the applicant is a public water system then approval of the loan will also need to be obtained from the LA State Bond Commission.

#### **INSTRUCTIONS:**

The following 6 Sections describe the required contents of the SIP. In order to expedite the review process and ensure no delays in the subsequent loan offer, the basic Section, Topic, and Subtopic outline provided below must be followed. For all Sections, each Topic and Subtopic must be addressed; if it does not apply to a given project, state that and explain why. Please keep in mind that the SIP is intended for public viewing and should be written in a manner where the general public can easily understand its contents. Provide sources used for all data, maps, tables, charts, etc. Please utilize and reference Appendices for inserting any required supporting documentation (*i.e. maps, well drawings, analytical data, past surveys or reports, etc.*)

#### **PROJECT ELIGIBILITY:**

Provisions of the Safe Drinking Water Act (SDWA) require that water supply systems receiving DWRLF assistance must be in compliance or achieve compliance with all applicable provisions of the SDWA. **Therefore, the SIP must evaluate all components of the water system and propose corrective action for any components that are not adequate to meet the compliance needs of the system for the planning period.** Under Federal law, DWRLF may provide assistance for projects necessary for meeting the following needs:

- *Compliance with national primary drinking water regulations, or*
- *Correction of health standards that have been exceeded, or*
- *Maintaining compliance with existing regulations.*

DWRLF funds may not be used for routine lab fees, nor operation and maintenance expenses. They also may not be used for expropriation of land, but can be used to buy land from a willing seller. Also, a project exclusively to stimulate growth is not eligible; however, a reasonable amount of reserve capacity for future growth may be incorporated into the project - provided that the project is primarily to correct compliance and health-related issues. In general, project eligibility is interpretive and will be looked at on a case-by-case basis.

#### **PUBLIC NOTICES/HEARINGS (IF REQUIRED):**

In accordance with DWRLF's State Environmental Review Process (SERP), **ONLY applicants with projects that DON'T qualify for a Categorical Exclusion (CATEX)** must place a Public Notice advertising the availability of the SIP for public review and comment in a newspaper of general circulation in the project area. A period of 30-days must be allowed for public comments. For more information, see the **SIP Guidance Document's Attachments B and C.**

## SECTION I: PROJECT & SYSTEM INFORMATION, PURPOSE, AND SCOPE

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Section I presents general information about the existing water system, as well as the scope, purpose and need, goals, planning period, design life, and planning area for the project. At a minimum, it must contain the following:

1. **Project Name** - Please provide a name for the project. For example, “(YEAR) Proposed Improvement Project for (NAME) Water System”.
2. **Water System Name, Address, and PWS ID Number** - Please provide the name of the water system, mailing address, physical address, and Public Water System Identification Number (PWS ID No.). If the water system has equipment at multiple sites, please identify the “main” site where the water plant or the majority of the equipment is located. The DWRLF program uses the PWS ID No. for the project/loan number.
3. **Contact Person Information** - Please provide the contact person, company name, title, telephone number, and mailing address for the person responsible for preparing the SIP, as well as contact person information for the water system. Also, please provide email addresses, if available.
4. **System Classification** - Identify if system is a Community or a Non-Transient Non-Community water system.
5. **Supply Type** - Identify the source of water: Surface, Ground, Combined (surface and ground) or Purchased.
6. **Type of Ownership** - Identify whether the water system is Publicly-owned, Privately-owned, Non-profit or Other. Please explain in detail the type of ownership if more complex.
7. **Current Number of Service Connections** - Provide the total number of services connections with a breakdown of the number of residential, commercial and industrial connections. Please indicate how this number was determined.
8. **Current Population Served** - Please provide the current population served and describe how this number was determined (i.e. US Census Bureau, Drinking Water Watch, historical data, existing customer data, combination of methods, etc.). Please also provide available US Census Bureau ([www.census.gov](http://www.census.gov)) data supporting this number. *Describe and provide population equivalents (based on existing water consumption or another described method) for users that are not included in the census information (i.e. commercial/industrial users, schools - nonresident students only which are students attending the school that don't live in the community). Population equivalents are usually based on a comparison of the water use by the individual commercial/industrial/school user and the average typical water use per residential customer in order to assign a 'population equivalent' for that user.*
9. **Planning Period** - The “Planning Period” for the SIP must clearly be stated/identified. It can be either 20, 25, or 30 years, but absolutely **must match the term of the proposed DWRLF loan**. The entire Planning Period must be considered when discussing future conditions in Section III of the SIP, and when discussing the proposed project and alternatives in Sections IV and V of the SIP. Make sure to discuss future replacement needs for any components that don't have a useful life covering the entire Planning Period.
10. **The Design Life** - The “Design Life” for the SIP's proposed improvements of 20, 25, or 30 years must clearly be stated and **must match the term of the proposed DWRLF loan** (this should be the same as the Planning Period). Individual components of the proposed improvements will have various useful lives. The ‘useful life’ of all major components over the SIPs Planning Period must be provided and evaluated in detail in Section V of the SIP, including which components will need to be replaced, when, and how much it will cost.
11. **Planning Area Map** - This map must include the following information:
  - (a) The Existing Service Area of the system.
  - (b) The Location of Other Water Systems related to, nearby, or adjoining this water system. The map **MUST indicate the location of nearby water systems** that could be possible candidates for consolidation, water purchasing, or that have or could have a relationship (i.e. *emergency connection*) with this water system.
  - (c) All Other Areas that may be served by the project over the planning period.
 

*NOTE 1: There is a tendency for communities to limit the planning area to the corporate limits (or Water District boundaries or the system's existing service area). However, this frequently leaves out areas that might economically be served by the project. While local governments or system owners are not required to provide service to areas outside their boundaries, they may if they choose to do so.*

*NOTE 2: When determining the Planning Area, the possibility that the system will extend its boundaries over the 20/25/30-year SIP Planning Period to provide service to areas not presently served must be considered.*
12. **Relationship to Other Water Systems**
  - (a) Emergency Connections. If an emergency connection exists between the water system and any other system(s), then identify the other system(s) and provide the terms of agreement (i.e. *cost, conditions, etc.*), the average annual frequency of use, and the average annual quantity used.

(b) Inter-System Agreements. If the water system purchases water from, sells water to, or shares any portion of its infrastructure with any other system(s), this relationship with the other system(s) must be described.

13. **Clearly State the (a) Scope, (b) Purpose and Need, and (c) Goals** of the project.
14. **For CONSOLIDATION INITIATIVE PROGRAM loan projects only**, please provide the following information and statement:  
“The [redacted] Water System will be entirely absorbed by the [redacted] Water System (PWS ID NO. [redacted]). The customers picked up as part of this consolidation project will not be kept separate and will not be treated as their own water system in order to meet the requirements of LDH’s Consolidation Initiative Program.”
15. **P.E. Stamp and Seal** - This is a reminder that the SIP serves as an Engineering Report and in accordance with LAC 51:XII, Section 113, must be stamped and sealed by a Professional Engineer (P.E.) licensed in this State. An exception can be made for SIPs that are not prepared by an Engineer on a case-by-case basis.

## SECTION II: EXISTING CONDITIONS / DEFICIENCIES

Section II presents a description and analysis of all major components of the existing water system in order to provide a **baseline CONDITION of the existing system and to indicate current system needs**. Information regarding water sources, treatment components, distribution system lines, meters, pumps and pump stations, water storage facilities, personnel, compliance status and issues, water usage, land usage, and the user charge system are all required. At a minimum, it must contain the following (where applicable):

### 1. Groundwater Sources

- (a) Well Names, Locations, and Map. Provide the name and physical location of each water well (i.e. street address or specific landmarks/nearby intersections). A Map must also be provided in the Appendix identifying the names and locations of all active wells.
- (b) Name of Aquifer(s). Identify the aquifer(s) from which each well draws.
- (c) Well Depths/Drawings. Provide the depth of each well. When possible, provide the LDNR (formerly LDOTD) well record information and any plan view drawings in the Appendix.
- (d) Well Conditions and Aquifer Quality. Provide the age, capacity/flow rate, date of construction and an evaluation of the condition (new/old/good/poor) of each well. State whether there is a Flow Meter for the well. Discuss each well's ability to meet capacity and demand. State whether there are any specific issues with the well or aquifer's quality (i.e. high organics, iron/manganese issues, saltwater intrusion, etc.).
- (e) Pump Types/Ages/Conditions and Capacity. Provide each well's PUMP type, PUMP age, and PUMP condition (new/old/good/poor). Discuss and compare the actual (current) versus design CAPACITIES of the PUMPS.
- (f) Quality of Groundwater/Analytical Data. Provide a discussion as to the quality of the RAW groundwater with primary and secondary drinking water standard comparisons. If the raw water quality differs between wells, then this must be described. The most recent analytical data for each source must be provided (in the Appendix). Note that analytical results of the TREATED water are discussed under Item 4 below.

### 2. Surface Water Sources

- (a) Surface Water Source Names, Locations, and Map. Provide all surface water body source names with the raw water intake locations identified (i.e. street, intersection, address, specific landmarks, and/or Lat/Long) and the intake distance(s) given with respect to the plant. Provide a Map identifying the name and locations of all surface water sources, the locations of all raw water intakes with respect to these sources, and the plant location indicated.
- (b) Intake Facility and Pump Types/Ages/Conditions and Capacity. Provide the age, date of construction, and an evaluation of the condition of the intake facility and pumps. State whether or not the intake pumps have Flow Meters. Discuss and compare the actual (current) versus design CAPACITIES of the PUMPS.
- (c) Source Water Capacity. Discuss the source water body's ability to meet demand, including whether there are any specific issues with water quality (i.e. saltwater intrusion, new industrial activity around source, etc.).
- (d) Quality of Raw Water/Analytical Data. Provide a discussion of the RAW surface water quality (i.e. turbidity, pH, Alkalinity, TOC, TDS, etc.) with comparisons to the primary and secondary drinking water standards included (when available). Indicate if the quality is affected by seasonal trends. Note that analytical results of the TREATED water are discussed under Item 4 below.

### 3. Purchased Water Sources

- (a) Selling System Identification. Identify the system(s) from which water is purchased (the seller) by their Public Water System Identification Number (PWS ID No.), system name, mailing address, contact person, and phone number.
- (b) Selling System Source Type. Identify whether the selling systems' source of water is Surface, Ground, or Combined (surface and ground).
- (c) Meter for Purchased Water. Please identify if a meter exists and, if so, show the location of the meter on a map (i.e. Planning Area Map) of the water system.
- (d) Purchase Contract/Amount. Provide the contract(s) (*in the appendix*) and quantity/percent of total water purchased. If the water being purchased is for emergency situations only and does not regularly contribute to the water supply, contracts and exact amounts are not needed, but rather just a brief description of the agreement and when last used (if known). If water is purchased from more than one system, please provide the contracts and amounts for each system. **If the system intends to stop purchasing water as a result of the proposed project, the water system must ensure and demonstrate that they can exit the purchased water contract(s) upon the completion of the proposed project's construction.**
- (e) Quality of Purchased Water/Analytical Data. Provide a detailed assessment and discussion as to the quality of the purchased water with primary and secondary drinking water standard comparisons. If the purchased water quality differs between available sources, then this must be described. Analytical data must be provided for each available source. It should be the most recent analytical test results.

4. **Existing Treatment** - All water systems that treat their water, including just simple disinfection, must provide the following information in detail:
- Treatment Method Descriptions and Overall Evaluation** Describe all treatment methods used by the water system with details of the processes, chemicals used (and quantities), and purpose behind the treatment method and chemicals added. Provide an evaluation of the performance capability of the existing treatment system, including its ability to meet current and future regulations (<https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-water#drinking>)
  - Treatment Component Descriptions and Evaluations**. Identify, describe, and evaluate each component of the treatment system. Include in the descriptions the dates of installation/construction, dates and descriptions of all additions, modifications, upgrades and/or expansions, the current condition of all equipment, and a performance evaluation by component.
  - Location**. Provide the physical locations (i.e. the street, road, etc. with address or specific landmarks/nearby intersections) of all water treatment system components or show them on a Map in the Appendix.
  - Treatment Capacity**. Discuss the actual (current) versus design capacity of the treatment system and explain how each capacity was determined. For treatment systems with individual treatment units, provide separate capacities for each unit along with a total capacity for the complete treatment system.
  - Treatment Rule Issues/Quality of Finished Water/Analytical Data**. Please discuss the water system's ability to meet the Disinfection By-Products (DBP) Rules, Total Coliform Rule (TCR), Surface Water Treatment Rules (SWTR), Groundwater Rule, etc. Provide a discussion as to the quality of the treated/finished water with primary and secondary drinking water standard comparisons (where applicable). If the treated/finished water quality differs between separate treatment systems, then this must be described. The most recent analytical data must be provided for all treated/finished water (*except for those systems that aren't required to sample treated/finished water*).
5. **Existing Distribution System**
- Pipe Information**. Include all material types, lengths, and size/diameters of existing pipes in the distribution system. If a distribution system map is available, please provide.
  - Additional Distribution System Information**. Give the age/date of construction and an evaluation of the condition of the distribution system. Also, discuss and describe in detail any problems the system has with leaks. If a hydraulic analysis has been conducted, please discuss and provide.
  - Meters**. Does the system have water meters? What condition are the meters in? Note that if the existing water distribution system *DOES NOT* have water meters, then the selected plan MUST include the installation of meters as part of the project.
6. **Existing Treatment and Distribution System Pumps and Pump Stations**
- Pump and Pump Station Type and Purpose**. Identify all pumps and pump stations used within the treatment and water distribution systems (i.e. high-service, booster, chemical, transfer, etc.) and describe the purpose of each pump and pump station.
  - Physical Location**. Provide the physical location of each pump and pump station (i.e. water treatment plant building/facility, physical street address, or specific landmarks/nearby intersections). If a map is available that shows the pumps and/or pump station locations, please provide.
  - Pump Type, Number, Capacity, Age, and Condition**. Identify the types (centrifugal, vertical turbine, submersible, etc.) and numbers of pumps at each location. Provide the current capacity *and* the design capacity of each pump, and explain how the capacities were determined. Also give the ages/dates of installation and an evaluation of the condition of each pump.
7. **Existing Water Storage Facilities**
- Storage Type and Capacity**. Identify the type of each storage facility used by the water system (i.e. ground storage tanks, elevated tanks, pressure tanks, etc.). Include the number of those types of storage facilities, the capacity of each, and how the storage facility is identified by the system (ID Number, name, or any other method). Identify whether they are floating on the system, pressurized, etc. and provide the elevations, normal operating pressures, and air compressor capacity, if applicable.
  - Physical Locations**. Provide the physical location of each water storage facility (i.e. water treatment plant building/facility, physical street address, or specific landmarks/nearby intersections).
  - Additional Water Storage Facility Information**. Provide the age/date of construction and an evaluation of the current condition of each water storage facility. Include descriptions and dates of all additions, rehabilitations, modifications, and upgrades. Evaluate the system's ability to meet regulatory storage sizing requirements (i.e. Title 51 Public Health – Sanitary Code Part XII. Water Supplies) and system demand.
8. **Personnel**
- Management**. List all persons considered management for the water system and describe their duties and responsibilities and/or provide their job titles.
  - Certified Operators**. Identify the Category of Certification and Class of Certified Operator required for this

water system: Water Production (WP), Water Treatment (WT), Water Distribution (WD); Classes 1, 2, 3, or 4 (in accordance with LAC 48:V.Chapter 73). List all persons employed as operators of the water system, identify whether each is certified and if so, their respective certification categories and classes.

- (c) Other Personnel. List all other persons involved in the technical, managerial or financial operation of the water system and describe their duties and responsibilities and/or provide their job titles.
- (d) Organizational Structure. Provide an organizational chart of the water system administration and personnel or describe the organizational structure of the governing body of the water system. Explain if more than one organization has authority over the water system or if more than one governing body is involved in the proposed project.

**9. Compliance Status** – In accordance with 40 CFR Part 35, Subpart L, **any applicant under an Administrative Order (AO), or any significant violation that the project should be addressing related to meeting the National Primary Drinking Water Regulations (NPDWR), must FIRST AND FOREMOST use the DWRLF funds to address those issues and bring the water system into compliance.** Please discuss the water systems violations, AOs, etc. as indicated below. Where applicable, please explain and provide details as to how the desired project will fully address the water systems compliance issues. *For example, if the desired project must bring the Disinfection By Product (DBP) levels of Total Trihalomethanes (TTHMs) and Haloacetic Acid Five (HAA5) below the Maximum Contaminant Level (MCL), then the current levels of TTHMs and HAA5s need to be stated, along with a demonstration of the proposed treatment processes ability to bring the system into compliance (i.e. mass balance equations, schematic treatment efficiency diagrams, etc.).*

- (a) Violations. List all recent (within the last 3 years) violations the water system has had, including MCL, monitoring/reporting, treatment technique, boil notices/advisories, etc. Describe the actions taken in response to the violations. Provide any associated supporting documentation, response letters, etc.
- (b) Administrative Orders. Identify and provide a detailed explanation of any Administrative Orders (AOs) the water system is currently under (or was under within the last 3 years). Describe all actions taken to address the AO and how the proposed project will address the AO. Provide copies of the AO, response letters, and any other supporting documentation regarding the AO.
- (c) Past LDH Sanitary Survey Results. Provide the date of and a summary of the most recent LDH Sanitary Survey including violations, deficiencies, and recommendations resulting from the survey. Provide a description of the actions taken in response to all violations, deficiencies, and recommendations resulting from the survey. Include a copy of the latest Sanitary Survey results and any additional correspondence regarding the survey.
- (d) Variances, Waivers or Bilateral Compliance Agreements. Identify and provide a detailed explanation of any variances, waivers or bilateral compliance agreements and provide any associated documentation.

**10. Existing Water Usage**

- (a) Average Daily Water Production. Existing water production must be documented through flow measurements, metered water production, and any other available records. Calculations must be fully described and copies of any available records supplied. If this information cannot be accurately determined, please state why and provide estimates.
- (b) Average Daily (Per-Capita) Consumption. Existing water use (per-capita) consumption must be documented through flow measurements, metered water consumption, and any other available records. Calculations must be described and include a breakdown between (i) residential, (ii) commercial, and (iii) industrial customer usage, as well as (iv) purchasing systems and (v) schools (non-resident students only). Copies of available records should be supplied. If any of this information cannot be determined, please state why and provide estimates.
- (c) Production vs. Consumption Comparison. A comparison must be made between the amount of water produced and the amount delivered to customers. After allowances for fire protection and other un-metered uses (i.e. municipal uses, flushing, unauthorized connections), if the comparison indicates significant losses due to leaks in the distribution system, a project to address the leaks may be needed.

**11. Miscellaneous**

- (a) Existing User Charge System. Provide the existing user charge system (*i.e. water rates*) and a detailed description of other means of financing the water system. Be sure to include all associated fees (*i.e. connection fees, frontage assessment fees, etc.*).
- (b) Land Use and Development Description/Maps. Describe the current land use and any potential or planned development in the water system service area. Denote any environmentally sensitive areas and provide FEMA Flood Insurance Rate Maps (FIRMs), Topographic Maps, and/or any other maps that could help identify developed areas and any potential environmentally sensitive areas. Provide **the Source Water Assessment Plan (SWAP)** for the water system from LDEQ's website:  
<http://deq.louisiana.gov/page/source-water-assessment-program> or contact LDEQ @ 225-219-3510.

- (c) *Existing Standby Power In-Place*. Provide a detailed discussion of the location, age, condition, type and size of all Generators (including those that will be 'contracted out' when needed). Make sure to discuss the system's ability to continue to operate following an emergency disaster in the area, especially when compared to LA Sanitary Code (LAC 51:XII) Section 135 and 223.F requirements. In some cases, standby power must be considered to bring the system into compliance, especially when and where improvements are proposed.

## SECTION III: FUTURE CONDITIONS

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Section III provides a forecast of the future conditions for the existing water system. Forecasts of future conditions shall be based on the *20/25/30-year SIP Planning Period*. At a minimum, this section must contain the following:

1. **Population Projections** – Please provide population projections for the Planning Period along with a written description of how the population projections were determined. Please denote any and all assumptions made. A projection of future population is a key element in determining future water consumption. Clear calculations that include the following considerations, at a minimum, must be provided:
  - (a) Louisiana Demographics and Census Geography from the Louisiana State Census Data Center. Population projections through 2030 are available online through the LA State Census Data Center and must be considered where applicable. The following is a link to the Louisiana State Census Data Center: <https://www.louisiana.gov/demographics-and-geography>
  - (b) U.S. Census Bureau Population Estimates. The latest decennial census populations and other demographics must be used and are available for towns and parishes at <https://data.census.gov>. Population estimates based on the US Census Bureau's American Community Survey for each year since the latest decennial census for geographic areas with populations of 65,000 or more including all parishes is also provided.
  - (c) Historical Population Growth. Descriptions of historical population growth for the water system and surrounding area must be provided and used in making population projections, whenever possible.
  - (d) Additional Factors. The following additional factors may affect normal population growth and must be considered in the projections:
    - (1) Annexations: Use of past census information may result in erroneous projections if some of the increase in population is due to annexation of populated areas rather than normal growth. Past annexations and the potential for future annexations shall be considered when making projections.
    - (2) Existing Barriers to Growth: Barriers may restrict growth in one or more directions. Some barriers may include large rivers, wetlands, corporate limits of another municipality, or even state boundaries.
    - (3) Historical and/or Known Future Events: Any historical and/or known future events that may influence population growth must be considered. Examples include the planned construction of a new highway through the area that could increase the growth rate; a planned bridge across a river that could cause a formerly inaccessible area to become a "bedroom community" to a larger municipality; the location of a planned industry in the area that would cause a significant population increase; and the pending closure of an existing industry that would decrease the population.
2. **Water Consumption Projection** - An accurate forecast of future water consumption must be determined before certain system improvements can be considered or selected. Existing per-capita consumption (*see Section II, Item 10.b*) should serve as the basis for projecting future consumption, along with population projections as described above. When determining consumption projections, besides population growth, the following must also be considered:
  - (a) Existing and Anticipated Increased/Decreased Usage for Commercial/Industrial Users. Describe any anticipated increased/decreased usage from Commercial/Industrial Users over the planning period. Use 'population equivalents' when doing calculations for commercial and industrial water users since those type users won't show up in population projections. Determine whether there will be any anticipated increases from them over the planning period. Provide supporting documentation, if any.
  - (b) Facilities with Transient Population Equivalents. A population equivalent should be calculated and included for any facilities, such as schools (non-resident students only), that serve a transient population not normally included in census demographics for the planning area. Any changes in water consumption by transient populations should be considered and included in the projections.
  - (c) Leaks. Distribution system leak data must be considered and included in forecasting future demands for water. If any existing leaks are to be fixed as part of the SIP, then the projections can be modified accordingly.
3. **Best Available Technology (BAT)** – A description of the system's ability or inability to achieve compliance for all regulated contaminants and its use of the BAT to address current and/or future compliance issues in the design considerations for this project must be provided. Federal regulations (*40 CFR 141*) provide the BAT for all regulated contaminants, along with this definition - "The best available technology, treatment techniques, or other means which the Administrator finds, after examination for efficacy (usefulness) under field conditions and not solely under laboratory conditions, are available (taking cost into consideration)." The intention of this section is to ensure that existing or potential compliance issues over the entire planning period have been considered and that the BAT exists in the system or has been incorporated into the SIPs proposed design to address any such compliance issues. This is very important when the SIP is addressing Administrative Orders (AOs), as the completed project must bring the system into compliance with the AO in order to be eligible for funding.



## SECTION IV: EVALUATION OF ALTERNATIVES

Section IV presents a description and evaluation of several possible alternatives to meeting the water supply needs of the community, including the preferred project. Each alternative must be described in sufficient detail and then evaluated with respect to compliance with regulatory requirements, capital and operating costs, potential environmental effects, and any other pertinent considerations as explained below. At a minimum, this section must contain the following:

1. **Description and Number of Alternatives.** A reasonable number of feasible alternatives, including the preferred project, must be described in sufficient detail and evaluated with comparisons made between them. There is no pre-defined number of alternatives that must be considered; only that the broad spectrum of possible alternatives is covered including the mandatory alternatives discussed below. However, if the project qualifies for a Categorical Exclusion (see Section VI – Environmental Impacts), then only the ‘No Action’ alternative and the preferred project need to be discussed as described in this section.

**Mandatory Alternatives** - There are 2 mandatory alternatives including ‘No Action’ and ‘Consolidation’. Each must be considered and discussed in detail as described below. If consolidation is not feasible, clearly explain why.

- (a) **No Action**. The ‘No Action’ alternative is one of the most important alternatives discussed because it summarizes the future environment without a project and describes the effects if no action were to be taken. It should serve as a baseline for identifying the needs of the system, with the other alternatives serving as comparisons of the best methods to meet those needs. Even though the ‘No Action’ alternative is not typically feasible, the effects must be fully evaluated and described in detail.
- (b) **Consolidation**. Consolidation of two or more systems, especially small systems with larger systems, usually results in cost savings and more efficient operations.
  - (1) **Considerations for Consolidation** - A few reasons that small water systems may wish to consider consolidation are that, historically, small systems have greater operation and maintenance problems; they are financially less viable; they are less able to develop, operate, and maintain water source and treatment projects; and small systems have a higher incidence of drinking water standards violations. All of these result in poorer service and water quality to the consumer.
  - (2) **Consolidation Options** - Consolidation does not always mean the physical takeover of one system by another. Consolidation may include sharing of some system components while retaining individual ownership of others, purchasing water from another system, and sharing operational and management personnel.

**Other Alternatives** - In addition to the preferred project and the mandatory alternatives listed above, enough other feasible alternatives of possible solutions to meeting the needs of the water supply system should be considered and discussed in detail. These can include alternative processes and/or locations with consideration given to any potential environmental impacts (like construction at new sites or in environmentally sensitive areas) and possible changes to the project in order to eliminate or minimize any adverse impacts.

2. **Compliance Evaluation.** Each feasible alternative (and the “No Action” alternative) must include an evaluation of how it specifically addresses (or doesn’t address) any existing problems with current regulations (*i.e. Contaminant Monitoring, Total Coliform Rule (TCR), Surface Water Treatment Rule (SWTR), Arsenic Rule, Lead and Copper Rule (LCR), Stage 1 Disinfection By-Product Rule (ST1DBPR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), Stage 2 Disinfection By-Product Rule (ST2DBPR), Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), Ground Water Rule (GWR), Revised Total Coliform Rule (RTCR), etc.*) and any potential issues with future regulations coming from established regulatory Acts. Full details and additional information on each of the current regulations can be found at <https://www.epa.gov/dwreginfo/drinking-water-rule-quick-reference-guides>. **Please note that if a system is under any significant violations or Administrative Orders (AOs), the project must address them and bring the system into full compliance to be eligible for the loan. Therefore, a description is required of how the alternative addresses (or doesn’t address) any mandatory enforcement actions the system is currently under.** Under federal law, the DWRLF program may provide assistance only for projects necessary for (a) Compliance with national primary drinking water regulations, for (b) Correction of health standards that have been exceeded, or for (c) Maintaining compliance with existing regulations. Provisions of the SDWA require that water supply systems receiving DWRLF program assistance must achieve compliance with all applicable provisions of the Act. Therefore, the compliance evaluation can be a vital part of the alternative selection/rejection process.
3. **Basic Economic Evaluation.** All feasible alternatives, as well as the “No Action” alternative, need to be individually evaluated economically as follows. In each case, all future costs over the SIPs Planning Period must

be evaluated using a reasonable Discount Rate (see OMB Circular A-94, Appendix C (updated annually) for the current recommended Federal Discount Rate by visiting: <https://www.whitehouse.gov/omb/information-for-agencies/circulars/>) to determine the Net Present Value (NPV) for that alternative. Discount rates are used to determine the NPV of a future amount. The NPV for each alternative must be stated and then used in the Alternative Rejection/Selection section (see *Item 5 below*) to perform a cost comparison between alternatives. All calculations must be provided, including any assumptions made and the reasons for them.

- (a) One-time Costs. Includes capital costs, which are all costs incurred to construct the project, as well as all land purchases required.
- (b) Recurring Costs. Recurring costs are those costs that are incurred repeatedly over a period of time. These include Operation and Maintenance (O&M) costs over the SIPs Planning Period, which may increase or decrease depending on the type of project proposed. (*i.e. replacing the media of new filters, purchase of additional chemicals, increased or decreased energy costs, routine component proper care costs, etc.*)
- (c) Useful Life/Replacement Components. The purpose for this discussion is to ensure that consideration is given to the costs of project needs throughout the SIPs Planning Period (20, 25, or 30-Years). **This includes the costs to inspect, replace, and rehabilitate any project components not expected to last through the SIPs Planning Period. These future costs must be identified and described in the evaluation of the cost of the project. The useful life of all major project components must be clearly stated and discussed** with considerations made regarding the future cost of their replacement if anticipated during the SIPs Planning Period.

**4. Environmental Effects Evaluation.** All feasible alternatives (and the “No Action” alternative) must be evaluated regarding direct, indirect, and cumulative environmental effects as defined below. The environmental effects for each alternative must be considered in the development and selection of the preferred project. Considering the definitions provided below, please provide a brief evaluation of the environmental effects for each alternative:

- *Effects* include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health.
- *Cumulative Effects* – the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.
- *Direct Effects* – are caused by the action and occur at the same time and place.
- *Indirect Effects* – are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

**5. Alternative Rejection/Selection.** For each alternative, **clearly state whether it’s being selected or rejected. The reasons for its selection or rejection must be discussed.** While economics tend to be the primary criterion for rejection or selection, cost shall not be the only consideration. The use of Best Available Technology (BAT) and the water system’s ability to achieve compliance should always be considered during the alternative selection process. Examples of other relevant criteria include but are not limited to: (a) Compliance, (b) Reliability, (c) Energy use, (d) Process complexity, (e) Operation and maintenance, (f) Environmental impacts, (g) Public acceptance, (h) Useful life, and (i) Professional judgment of the consulting engineer.

## SECTION V: SELECTED PLAN DESCRIPTION AND COST ANALYSIS

Section V presents a detailed description and cost analysis of the selected plan, along with a proposed schedule of implementation. At a minimum, it must contain the following:

1. **Selected Plan Identification and Design.** While a complete design is not expected during the planning phase, there shall be a detailed identification and presentation of the selected plan that includes the following items. The selected plan description must be in agreement with the project description provided on the DWRLF Loan Application Form 100A and in the previous "Evaluation of Alternatives" section.
  - (a) Identify All Major Unit Processes and/or System Components of the selected plan in detail including design flows, capacities, and sizing, where applicable.
  - (b) Provide a Schematic Flow Diagram (or similar type map) of the Treatment System from source water to distribution entry identifying all new or rehabbed components, *unless unchanged by the selected plan*.
  - (c) Note any New Distribution Lines and/or Rehabbed Lines on a map showing length, size, and location.
  - (d) Describe the System Needs that are being addressed by the Selected Plan. This should be in alignment with Section 1's "Purpose and Need" for the project.
  - (e) Identify whether the project will require any land acquisition. DWRLF monies may not be used for expropriation of land (meaning it must come from a willing seller). Therefore, details as to how and when the land will be acquired needs to be provided in order to determine eligibility.
  
2. **Detailed Cost Analysis.** A more detailed cost breakdown and description of the selected plan over the SIPs Planning Period (20/25/30-Years) shall be presented, with assumptions and calculations explained and justified. This is similar to the Basic Economic Evaluation presented in the previous "Evaluation of Alternatives" section, but with more details as to what specifically make up the costs. All costs should be evaluated on a common basis as "net present value" (see Section IV, Item 3) and all costs need to agree with the figures provided for this alternative in the "Evaluation of Alternatives" section.
  - (a) One-time Costs. One-time costs include Capital Costs. This includes but is not limited to a breakdown of all labor and material costs incurred to construct the selected plan, SIP preparation, environmental impact and mitigation costs, O&M Manual preparation, land purchases, and other costs such as hookup fees and front footage assessments, etc.
  - (b) Recurring Costs. Recurring costs include a breakdown of those costs that are incurred repeatedly over the entire Planning Period of the SIP (*i.e. costs for system operation and maintenance including electrical power, chemical and other supplies, labor and overhead, etc.*).
  - (c) Ineligible Costs/Alternate Funding Sources. The costs of any ineligible portions of the project under the DWRLF Program (*i.e. expropriation of land*) must be identified and the source of funding for those portions provided (see the cover page of this Guidance Document for a description of DWRLF Project Eligibility requirements). Also, any portions of the project that will not be funded through DWRLF need to be identified, as well as the alternate source of funding.
  - (d) Financing Costs. For the entire project, the amount(s) being borrowed and from where, the interest rate(s) at which the money is being borrowed, the length of time of the loan (20, 25, or 30-Years), and the total cost of borrowing the funds for the selected plan must be clearly stated. Additionally, the amount being borrowed specifically from DWRLF and the total project cost need to be provided and in agreement with the information that was previously submitted on the DWRLF Loan Application Form 100A. If they are not, please send a separate letter informing DWRLF of the modified loan amount being requested.
  - (e) Useful Life/Replacement Components. The purpose for this discussion is to ensure that consideration is given to the costs of project needs throughout the SIPs Planning Period (20, 25, or 30-Years). **This includes the costs to inspect, replace, and rehabilitate any project components not expected to last through the SIPs Planning Period. These future costs must be identified and described in the cost of the project. The useful life of all major project components must be clearly stated, discussed, and evaluated** with considerations made regarding the future cost of their replacement if anticipated during the SIPs Planning Period. How the useful life was determined must also be discussed. Essentially, DWRLF can't make a loan for 25 years if the project components will only last 20 years; therefore, the loan term, useful life of project components, and the systems ability to handle future replacement costs must all be considered.
  - (f) Cost to Users/Economic Impact. A discussion of the economic impact of the project on the users must be provided. The total cost of the project to users, including any anticipated increase in user charges (if applicable), must be calculated and presented. If there will be no cost to the users, please state this.
  
3. **Scheduling.** A schedule for the design and construction of the selected project shall be presented indicating dates and design/construction milestones. This shall be based on the assumption that the DWRLF loan and any other financing required is obtained within a reasonable time frame. **The construction schedule shall be in agreement with any enforcement actions by EPA or LDH and any other regulatory deadlines.**

## SECTION VI: ENVIRONMENTAL IMPACTS

Section VI provides all of the supporting information required to make and document an **Environmental Determination** for the project in accordance with the National Environmental Policy Act (NEPA) and 40 CFR Part 6. The main purpose of this section is to ensure consideration of environmental factors and encourage public participation in the planning process. This document may be entered as evidence in hearings and court actions. Any information provided in this section that is not in agreement with other sections of the SIP, or that does not sufficiently provide the requested information, or that fails to identify adverse environmental effects which might result from the project's construction or operation, will delay the project and loan from receiving approval.

Some projects may have already had an environmental document prepared for another agency which could provide all or most of the needed information required by DWRLF. If so, please provide it to DWRLF.

There are three possible environmental determinations, as listed below, that depend on the potential environmental impact of the proposed project; of which, one will be preliminarily selected:

- 1) **Categorical Exclusion (CATEX)**
- 2) **Finding of No Significant Impact (FNSI)**
- 3) **Environmental Impact Statement (EIS)**

Depending on which environmental determination is warranted, differing levels of supporting documentation will be required for this Environmental Impacts Section. Therefore, a **preliminary meeting** early in project formulation should be held between the applicant and DWRLF to select a preliminary environmental determination appropriate for the type of project proposed. Once a preliminary environmental determination for the proposed project has been identified, the associated supporting information, as described below for that particular determination, shall be provided in this section:

### 1) **CATEGORICAL EXCLUSION (CATEX):**

Categorical exclusions are categories of actions which do not individually or cumulatively have a significant effect on the quality of the human environment. CATEX eligible projects would be excluded from a more *detailed* environmental analysis, meaning that the project would not require the preparation of an Environmental Information Document (EID), Environmental Assessment (EA), Finding of No Significant Impact (FNSI), or Environmental Impact Statement (EIS). A project may be categorically excluded if it fits within a category of action that is eligible for exclusion and the project does not involve any extraordinary circumstances. Lists of categories of actions and extraordinary circumstances are provided below.

#### Summary of applicable **Categories of Actions** ELIGIBLE for categorical exclusion as identified in 40 CFR Part 6:

Actions relating to existing infrastructure systems (such as drinking water supply systems) that involve minor upgrading, or minor expansion of system capacity or rehabilitation (including functional replacement) of the existing system and system components (such as the system to collect, treat, store, and distribute drinking water) or construction of new minor ancillary facilities adjacent to or on the same property as existing facilities. This category does not include actions that will provide a capacity to serve a population 30% greater than the existing population or that directly or indirectly involve or relate to upgrading or extending infrastructure systems primarily for the purposes of future development.

#### Summary of **Extraordinary Circumstances** INELIGIBLE for categorical exclusion as identified in 40 CFR Part 6:

If an action is consistent with the eligible categories of actions listed above, but meets any of the criteria listed below, it will be considered ineligible. If in doubt, refer to **Attachment A** of this guidance document for a list of governmental commenting agencies that may be contacted regarding certain of these circumstances:

- (1) The proposed action is known or expected to have potentially significant environmental impacts on the quality of the human environment either individually or cumulatively over time.
- (2) The proposed action is known or expected to have disproportionately high and adverse human health or environmental effects on any community, including minority communities, low-income communities, or federally-recognized Indian tribal communities.
- (3) The proposed action is known or expected to significantly affect federally listed threatened or endangered species or their critical habitat.
- (4) The proposed action is known or expected to significantly affect national natural landmarks or any property with nationally significant historic architectural, prehistoric, archeological, or cultural value, including but not limited to, property listed on or eligible for the National Register of Historic Places.
- (5) The proposed action is known or expected to significantly affect environmentally important natural resource areas such as wetlands, floodplains, significant agricultural lands, aquifer recharge zones, coastal zones, barrier islands, wild and scenic rivers, and significant fish or wildlife habitat.

- (6) The proposed action is known or expected to cause significant adverse air quality effects.
- (7) The proposed action is known or expected to have a significant effect on the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population including altering the character of existing residential areas, or may not be consistent with state or local government, or federally-recognized Indian tribe approved land use plans or federal land management plans.
- (8) The proposed action is known or expected to cause significant public controversy about a potential environmental impact of the proposed action.
- (9) The proposed action is known or expected to conflict with federal, state, or local government, or federally-recognized Indian tribe environmental, resource-protection, or land-use laws or regulations.

**Any applicant that intends to qualify for a CATEX shall, in this section of the SIP, make a request for a determination of CATEX eligibility that includes justification to support the project's being categorically excluded.** This includes but is not limited to:

- (1) A brief, complete description of the proposed project and its cost;
- (2) A statement indicating that the project is cost-effective and that the applicant is financially capable of constructing, operating, and maintaining the facilities; and
- (3) A description identifying which specific "Categories of Actions Eligible for Categorical Exclusion" (*refer to the "Summary of applicable Categories of Actions ELIGIBLE for categorical exclusion" above*) apply to this project;
- (4) For each Extraordinary Circumstance (*listed above*), provide a statement as to whether or not it applies to this project; ***NOTE: For example "The proposed project is NOT known or expected to have potentially significant environmental impacts on the quality of the human environment either individually or cumulatively over time."***
- (5) A plan map or maps of the proposed project showing (for any that are already included in the SIP, simply reference their location):
  - (a) The location of all construction areas
  - (b) The planning area boundaries; and
  - (c) Any known environmentally sensitive areas.
- (6) **The Latitude and Longitude of the centermost point of the project must be provided** so that an Environmental Justice Report with Map can be created by the DWRLF Project Engineer utilizing EPA's web-enabled tools.

After a thorough review, if approved, a written CATEX determination will be prepared and issued by DWRLF with the System Improvement Plan's Acceptance Letter. DWRLF will also provide the CATEX determination to all known interested parties.

## **2) FINDING OF NO SIGNIFICANT IMPACT (FNSI):**

If a project is determined to be ineligible for a Categorical Exclusion (CATEX), then the applicant will be required to prepare an Environmental Information Document (EID). For these projects, the Environmental Impacts Section will consist of the environmental information necessary for the SIP to serve as the EID. The required contents are described below under the heading "**EID CONTENT REQUIREMENTS FOR THE ENVIRONMENTAL IMPACTS SECTION.**" When all EID content requirements have been satisfied and reviewed by DWRLF, an Environmental Assessment (EA) document will be prepared. If the EA indicates that no significant impacts are anticipated or that they will be mitigated without extraordinary measures, then a Finding of No Significant Impact (FNSI) will be issued by the LDH Assistant Secretary or his duly authorized representative. Otherwise, a public notice will be issued that the preparation of an Environmental Impact Statement (EIS) will be required. When all environmental requirements have been completed, the SIP can then be approved by DWRLF.

## **3) ENVIRONMENTAL IMPACT STATEMENT (EIS):**

If a project is determined to be ineligible for a CATEX and ineligible for a FONSI, then the applicant will be required to prepare an Environmental Information Document (EID). For these projects, the Environmental Impacts Section will consist of the environmental information required for the SIP to serve as the EID. The required contents are described below under the heading "**EID CONTENT REQUIREMENTS FOR THE ENVIRONMENTAL IMPACTS SECTION.**" When all EID content requirements have been satisfied and reviewed by DWRLF, an Environmental Assessment (EA) document will be prepared. If the EA determines that a significant environmental impact may occur and cannot be eliminated by making changes in the project, then DWRLF will issue a notice of intent for the applicant to prepare an Environmental Impact Statement (EIS). Otherwise, a Finding of No Significant Impact (FNSI) will be issued. An EIS is a significantly more detailed evaluation than the EID of the proposed action and alternatives. The public, other federal agencies and outside parties may provide input into the preparation of an EIS and then comment on the draft EIS when it is completed. To date, no DWRLF project has been required to prepare an EIS.

**EID CONTENT REQUIREMENTS FOR THE ENVIRONMENTAL IMPACTS SECTION:**

Projects that do NOT qualify for a Categorical Exclusion must assess the environmental impact of the project. This is accomplished within the Environmental Impacts Section of the SIP by providing all of the environmental information required for the SIP to serve as the Environmental Information Document (EID). The EID is required through EPA's Implementing Procedures for the National Environmental Policy Act (NEPA), 40 CFR Part 6. The EID evaluates all direct and indirect environmental impacts of the proposed project on the local environment. This includes possible short-term environmental impacts during project construction, as well as potential long-term cumulative environmental impacts from operation of the system over its design life once construction is complete. An environmental assessment of the information provided will be performed by DWRLF and one of two environmental determinations will be issued, either a Finding of No Significant Impact (FNSI) or a notice of intent to prepare an Environmental Impact Statement (EIS).

An integral portion of the EID should already have been completed in Sections I and V of the SIP which includes the identification of the Purpose and Need for the project, and an Environmental Effects Evaluation of the alternatives considered in the development and selection of the preferred project. **The following additional information for completing the EID involves only the selected plan and consists of the following five items:**

1. **PUBLIC NOTICE.** All applicants that do NOT qualify for a Categorical Exclusion (CATEX) must place a Public Notice advertising the availability of the SIP for public review and comment in a newspaper of general circulation in the project area. A period of 30-days must be allowed for public comments. *For detailed guidelines concerning Public Notice requirements, please refer to **Attachment B "Guidance for Issuing a SIP Public Notice"** of this guidance document.* Please note that a Public Hearing is NOT required for projects with a CATEX or FONSI environmental determination, unless they are highly controversial, which is rare. *For detailed guidelines concerning Public Hearing requirements, please refer to **Attachment C "Public Hearing Requirements"** of this guidance document.*
2. **GOVERNMENT AGENCY COMMENTS.** Various government agencies must be provided an opportunity to provide input on the project. The list of these agencies and their contact information is provided in **Attachment A – List of Governmental Commenting Agencies** of this guidance document. To meet this requirement, a request for comments letter must be sent to each required agency that contains the following information:
  - (a) *Description of Proposed Project.* A brief description of the proposed project, especially the location(s) of any new water facilities, especially water treatment facilities must be included in the body of the letter.
  - (b) *Map of the Planning Area.* The applicant must include a copy of the map of the planning area (*from SIP Section 1, Item 11 - Planning Area Map*), showing the location of all work to be done as part of the project.
  - (c) *A Request for Comment.* The letter must reference the applicable subject for that particular commenting agency in the request for comment. For example, if a letter was being sent to the U. S. Army Corps of Engineers requesting comments regarding Wetlands impact, then the letter should contain a specific statement such as, "Please comment as to whether this project will impact any wetlands in the project area." Example requests are provided in Attachment A for each agency.
  - (d) *Public Hearing Notification (only when Public Hearing is required).* At least 30 days prior to any required public hearings, federal, state, and local agencies must be sent a written notice of the hearing. This notice could be done separately or be included herein.
3. **RESPONSIVENESS SUMMARY.** A Responsiveness Summary must be included in this section of the SIP. It includes a summary of the government agency comments requested above and all associated responses by the applicant. Additionally, a summary of all other public participation activities conducted by the applicant must be included. At a minimum, it shall include the following:
  - (a) *Comments and Response Summary.* The Responsiveness Summary must include a summary of **all comments** (whether significant or "none"), views, and suggestions expressed by any agency of the Federal, State, or local government. The summary must also include **specific responses** by the applicant to government agency comments in terms of modifications of the proposed action, requests for contacting additional agencies, special conditions that must be met, permits that may be required, and any other stipulations. Describe any mitigative measures in detail and what action, if any, will be taken to accommodate agency comments. The summary should be listed out by agency and summarize all correspondence in full, including dates of letters issued and received, addressees, commenters, follow-up phone calls or emails, and

all comments and associated responses.

- (b) **Public Participation Activities**. The Responsiveness Summary must include a summary description of the Public Participation Activities conducted by the applicant including but not limited to any mandatory Public Notices made and comment periods allowed. If a Public Hearing is required to be held, a hearing record would be required in this section, as further described in **Attachment C** of this guidance document. The purpose of this section is to summarize the response of the public (including any interested civic organizations, groups, or any private citizens) to the project. This summary must include a description of the public participation activities conducted by the applicant, a description of the matters on which the public was consulted, and a summary of any comments offered by the public, as well as specific responses by the applicant to all issues raised by the general public including, but not limited to, modifications of the proposed action or an explanation for rejection of proposals made by the public. A copy of any comment letters from the public and respective response letters must be included in an Appendix of the SIP. **The applicant shall notify DWRLF immediately of any oral or written negative comments received before, during or after the public hearing.**

**4. EXISTING ENVIRONMENT.** For the planning area, the below identified existing environmental conditions and settings without the project must be provided in this section of the SIP. Use existing data sources and provide bibliographic references. Utilize and reference any applicable comments obtained from government agencies:

- (a) **Geological Elements**. Describe the general topography and geology of the planning area with special attention to any geologic structures or formations that have a direct influence on ground or surface water. Discuss and describe the major soil types that are found in the planning area.
- (b) **Hydrological Elements**. Discuss the relevant surface water bodies, drainage basins, and groundwater aquifers of the planning area. Discuss the present and future water supply and uses in the planning area for both surface and groundwater resources.
- (c) **Climatic Elements**. Describe temperature, precipitation, and prevailing wind characteristics of the planning area. Discuss existing air quality in relation to the State Implementation Plan for the National Ambient Air Quality Standard.
- (d) **Biological Elements**. Discuss the major plant and animal species which occur in the planning area. Special attention should be given to any endangered or threatened species or habitat.
- (e) **Ecological Elements**. Describe the major ecosystems of the planning area and the biological significance of the ecosystems to the surrounding community. Describe any wetlands, floodplains, critical habitats, national parks and forests, fish and wildlife refuges, important farmlands, coastal zones, barrier islands, or other environmentally sensitive areas that may be in the planning area. Provide or refer to included maps delineating these elements (these maps were already requested in Section 2, Item 11(b) of this guidance document).
- (f) **Land Use Patterns/Cultural Resources**. Describe the present and future land use patterns and development within the planning area. Describe any historical, cultural, or archeological resources and national landmarks in the planning area.

**5. PROJECT ASSURANCES.** It is a requirement that the following impact assurances be made in this section. If any of these assurances cannot be made, then a statement regarding what the impact will be and how it will be addressed/mitigated must be made. The assurances are as follows:

- Adequate measures are planned to control traffic disruptions and insects during construction and/or operation of the facility.
- Area watercourses will not be adversely affected by siltation and sedimentation.
- The project will not cause any long-term damage to area vegetation.
- The project does not involve any clearing of land by use of herbicides, defoliant, cutting, blasting, or burning.
- The project will not result in major irreversible changes in land use patterns.
- There will be no significant changes in the rate, density, or type of development in the project planning area.
- Project construction will comply with OSHA standards and with State requirements for safety during construction.
- The proposed project will not encourage development in hazardous areas.

**6. ENVIRONMENTAL IMPACT SUMMARY.** This section provides a summary of all the potential environmental factors that the project may impact. The below Environmental Impact Summary Table, along with paragraph descriptions for each item, must be completed and included in this section of the SIP.

For each of the 25 factors shown on the *Environmental Impact Summary Table* below, mark the appropriate

box for effect on the project area, permit required, and mitigation required. Socio-economic effects and cumulative effects of the project, both direct and indirect, must be considered as described below.

- *Effects* include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health.
- *Socio-economic Effects* – an action may or may not cause a physical change in the environment (air, water, soil, etc.), but that action may cause economic and/or social changes to the community.
- *Cumulative Effects* – the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.
- *Direct Effects* – are caused by the action and occur at the same time and place.
- *Indirect Effects* – are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

**NOTE THAT IT IS NOT ENOUGH TO SUBMIT ONLY THE SUMMARY TABLE.** A description for each of the 25 factors shown in the Environmental Impacts Summary Table is provided below. For each of the 25 factors, a complete description of the impact the project will or will not have on that factor must be provided and any measures needed to mitigate the impact must be specified. For each of the factors, details must be provided identifying the level of impact the project will have, whether a permit will be required, and what mitigation activities will be performed (if applicable). Include and reference copies of all required permits and/or documentation that permit applications have been submitted to the appropriate agencies. For each question raised in the factor descriptions given below, an answer in the form of a complete sentence must be made. For example, the PROTECTED SPECIES factor description below asks “Will the project harm or reduce the population of any protected species?”. If the project will have no effect on protected species, then state “This project will not harm or reduce the population of any protected species.” Any descriptions, statements, or additional information requested for any of the individual factors below must also be provided where applicable.



Environmental Impact Summary Table							
Impact Category	Effect on Project Area			Permit Required		Mitigation Required	
	None	Minor	Major	None	Type	None	Type
1. Protected Species							
2. Historical/Archeological Sites							
3. Wetlands							
4. Floodplains							
5. Drainage Patterns							
6. Groundwater Recharge Areas							
7. Sole Source Aquifers							
8. Surface Water							
9. Water Supply							
10. Storm Water							
11. Water Conservation							
12. Estuaries							
13. Scenic Streams							
14. Coastal Zone							
15. Air Quality							
16. Solid Wastes							
17. Hazardous Materials							
18. Soil Stability/Erodability							
19. Parks/Open Spaces Recreation Areas							
20. Prime Agricultural Land							
21. Wilderness Areas							
22. Community Development							
23. Energy Supplies/Use							
24. Noise							
25. Environmental Justice							

1. **PROTECTED SPECIES** - Will the project harm or reduce the population of any protected species? Protected species include any species listed as endangered, threatened or protected by the U.S. Endangered Species Act of 1973 as amended. Loan applicants shall also consider whether the project will destroy any habitats on which protected species are dependent for their survival. A list of endangered species of Louisiana can be obtained from the LA Department of Wildlife and Fisheries, Natural Heritage Program.
2. **HISTORICAL/ARCHEOLOGICAL SITES** - Will the project involve disturbance of any historical and /or archeological property? The regulations of the President's Advisory Council on Historic Preservation (36 CFR 800) which implement Section 106 of the National Historic Preservation Act contain definitions and criteria of adverse effects for the protection of historical and archeological properties. For additional information contact the State Historic Preservation Officer through the Louisiana Department of Culture, Recreation and Tourism, Office of Cultural Development.
3. **WETLANDS** - Will the project be built in and/or impact a wetlands area? The definition of wetlands is included in the Federal Regulations, 33 CFR 32.93. Under current federal law alterations or degradation of wetlands should be avoided unless it can be demonstrated that there will be no long-term impacts or net loss of wetlands. A Federal Permit from the U.S. Army Corps of Engineers is required for most wetland activities. If applicable, loan applicants must include a copy of the permit or provide documentation that a permit application has been submitted to the Corps of Engineers.
4. **FLOODPLAINS** - Will the project be built in and /or impact a floodplain? Floodplain areas are shown on Federal Floodplain Maps which can be obtained from the FEMA National Flood Insurance Program at 1-800-358-9616. A copy of the appropriate map showing the project planning area shall be submitted for all projects. The local floodplain administrator shall be contacted during the planning stage to insure that if any part of the project will be built in a floodplain, it complies with all federal and state regulations and local ordinances.
5. **DRAINAGE PATTERNS** - Will the project cause alterations to landforms, vegetation, streams, etc. that would significantly alter natural drainage patterns and contribute to increased flooding in the project area? Both the direct impact of the project construction and the indirect impact on population growth shall be considered. Please explain how alterations to landforms, vegetation, streams, etc., will impact drainage patterns or increased flooding in the planning area and what mitigation efforts will be taken.
6. **GROUNDWATER RECHARGE AREA** - Will the project result in the disturbance or alteration of a groundwater recharge area? Groundwater recharge areas are those portions of the earth's surface where water infiltrates into the ground to replenish an aquifer. If the community currently participates in the LDEQ Source Water Protection Program, they should be contacted to insure the project complies with all the requirements of that program. For additional information on groundwater recharge areas please contact USEPA Region 6's Office of Groundwater/UIC Section and LDEQ's Source Water Protection Program.
7. **SOLE SOURCE AQUIFER** - Will the project have an impact on a sole source aquifer? A sole source aquifer is an aquifer that is the sole or principal source of drinking water for an area. The U.S. Environmental Protection Agency has designated the Chicot Aquifer and the Southern Hills Regional Aquifer as sole source aquifers in Louisiana. For further information contact: USEPA Region 6's Office of Groundwater/UIC Section.
8. **SURFACE WATER** - Does the project have the potential for decreasing the quality or quantity of surface water? Surface water includes all streams, rivers, estuaries, wetlands, and lakes that could be impacted by runoff from the project area. Surface water quality standards are described in the Louisiana Environmental Regulatory Code Part IX. Does the project involve any changes to surface water bodies such as channelization, diversion impoundment, etc.? If so, the project must comply with the provisions of the Fish & Wildlife Coordination Act., Public Law 85-624 as amended and must be consistent with the EPA approved Water Quality Management Plan. For more information, contact the U. S. Fish and Wildlife Service in Lafayette and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program.
9. **WATER SUPPLY**- Does the project have the potential for decreasing either the quality or quantity of water available for human consumption? The Louisiana Administrative Code, Title 51 Part XII states the requirements for drinking water supplies from the Louisiana Department of Health.
10. **STORM WATER** - Will the project cause an increase in storm water runoff in the project area? Storm water runoff is considered a non-point source of water pollution and is regulated by Section 319 of the Water Quality Act of 1987 and Louisiana Revised Statute 30:201 1. More information about the Non-point Source Program

can be obtained from LDEQ, Office of Environmental Assessment, Water Quality Assessment Division, (225) 219-3557. If a storm water permit is required, include a copy of the permit or documentation that an application for the permit has been submitted to LDEQ.

11. **WATER CONSERVATION** - Is the proposed action compatible with an approved water conservation plan for the planning area?
12. **ESTUARIES** - Will the project cause any significant impacts to LA estuaries? A Coastal Non-point Source Program (CNSP) is required under authority of Section 6217(g) of the Coastal Zone Act Reauthorization amendment of 1990. The CNSP is to be jointly administered by the State Non-point Source Program as authorized by Section 319 of the Water Quality Act of 1987, and the State Coastal Zone Management Program as authorized by the Coastal Zone Management Act. These programs are overseen by EPA and NCAA at the federal level and by the Louisiana Department of Environmental Quality (LDEQ) and the Louisiana Department of Natural Resources (LDNR) at the state level. For further information contact LDNR's Office of Coastal Restoration and Management, Coastal Management Division and LDEQ's Office of Environmental Assessment, Water Quality Assessment Division (225) 219-3557.
13. **SCENIC STREAMS** - Will the project impact any scenic streams? A description of all streams covered by the Natural and Scenic Rivers System is contained in the 1995 publication "LA Natural & Scenic River System" by J. L. Herring, M. B. Watson, and D. Mire. More information can be obtained from the Department of Wildlife and Fisheries, Natural Heritage Program
14. **COASTAL ZONE** - Is the project located in a Coastal Zone Management Area? If yes, will it comply with the Coastal Zone Management Act, U.S.C. Section 1451 et seq. and the Coastal Barrier Resources Act, 16 U.S.C. 3501 et seq? Include either a copy of the Coastal Use Permit (if required), documentation that a permit application has been submitted to LA Department of Natural Resources, Office of Coastal Restoration and Management, Coastal Management Division, or state that the project is outside of the Louisiana Coastal Zone.
15. **AIR QUALITY** - Will the project cause a release or discharge of contaminants into the ambient air? Are adequate measures planned to control odors and dust during construction and/or operation of the facility? Loan applicants must include a description of measures that will be used to control odors and dust during construction. All discharges or releases may be subject to regulation under the U.S. Clean Air Act and/or the Louisiana Air Control Law described in the LAC Title III. For further information, contact the LA Dept. of Environmental Quality, Office of Management and Finance, Contract and Grants.
16. **SOLID WASTES** - Will the project result in the generation of solid wastes for disposal, or will the proposed actions occur near or in an active or closed landfill? Solid waste includes wastes which exist in a solid form (i.e. household garbage, demolition material, land clearing debris, commercial non-hazardous waste material, etc.). Whereas the amount of solid waste generated that requires disposal is of concern, another primary issue relates to a land disturbance in the vicinity of an active or closed landfill. Solid wastes are regulated by RCRA and the Louisiana Solid Waste Management and Resource Recovery Law as described in LAC Title 33. For Further information contact: LDEQ, Office of Environmental Services, Waste and Water Permits, Solid and Hazardous Permits, (225) 219-3050.
17. **HAZARDOUS MATERIALS** - Will the project result in the generation of any hazardous materials for disposal? Will the proposed actions occur near or in a hazardous waste site? The Environmental Regulatory Code Part V defines a hazardous material as any material capable of posing an unreasonable risk to health, safety, or property when transported. All regulations in LAC, Part V shall be followed when handling any hazardous material resulting from the project. For more information contact: LDEQ, Office of Environmental Services, Waste and Water Permits, Solid and Hazardous Permits, (225) 219-3050.
18. **SOIL STABILITY/ERODABILITY** - Will the project involve any trenching, tunneling, land clearing etc. that would lead to increased soil erosion in the project area? Are adequate measures planned to minimize erosion during construction and/or operation of the facility? If yes, describe the control measures to be taken.
19. **PARKS/OPEN SPACES** - Will the project involve disturbance of or otherwise have a significant impact on any parks, open spaces, wilderness areas, or other recreation areas? Both the direct impact of the project construction on parks, open spaces, wilderness areas, or other recreation areas and the indirect impact of population growth on the need for more recreational areas must be considered. The possibility of incorporating recreational areas and/or open spaces into the proposed project must also be considered. This should be discussed on a separate sheet if such incorporation appears feasible.

20. PRIME AGRICULTURAL LAND - Will the project impact any land classified as prime agricultural land? If yes, the prime agricultural land is regulated by the Farmland Protection Policy Act. For information contact the State Conservationist Engineer with the Louisiana Department of Natural Resources Conservation Service.
21. WILDERNESS AREAS - Will the project involve changes in forested areas? For additional information contact the U. S. Department of Agriculture, Forest Service.
22. COMMUNITY DEVELOPMENT - Will the project cause any change in the rate of population growth in the planning area? The need for improvements and/or additions to the area's roads, schools, sewage treatment system, etc. must be considered. Will the project impact any other ongoing or anticipated public works projects in the area? If yes, show documentation of coordination with those projects. If land is being purchased for this project, does the land acquisition process comply with the Uniform Relocation and Real Property Acquisition Policies Act, Public Law 91-646?
23. ENERGY SUPPLIES/USE - Is the proposed action, the most energy efficient option? Energy efficient equipment, as well as low energy systems, must be considered.
24. NOISE - Will the project have a significant impact on the existing noise levels in the area, and if so are adequate measures planned to control noise? Both the short-term affect of noise during construction and the potential long-term affects of the noise associated with the machinery involved in daily operation of the project such as pumps, aerators, blowers, etc. must be considered.
25. ENVIRONMENTAL JUSTICE – Describe the population characteristics of the service area and certify that service shall not be denied to any person on the basis of race, color, income, national origin, or other reason. Describe the socio-economic effects of the project (i.e. economic and/or social changes to the community caused by the project). Describe any known minority populations, low-income populations, or Native American communities in the planning area which would be negatively impacted by this project. Are there any populations who bear a disproportionate share of the negative impacts of this project? If so, a discussion must be provided, including efforts to minimize negative impacts. *The Latitude and Longitude of the centermost point of the project must be provided in this section so that Environmental Justice Maps may be created for the project.*