**Appendix B**

**Water Transmission and Distribution Projects: Water Line Extensions /Replacement/Rehabilitation/Re-Routing**

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| **Table 2.1.1 : Water Transmission and Distribution System Description**  Project Name  Owner Name | |
| Supporting Information Appendix Reference: |  |
| Number of current connections in water system: |  |
| Approved number of connections in water system: |  |
| Average day demand for the latest calendar year: |  |
| Maximum day demand for the latest calendar year: |  |
| Current maximum daily treated water supply (produced/purchased) of existing system: |  |
| *Provide information regarding water transmission system issues (for example, lack of capacity, lack of pressure and/or leaks in the system.* | |
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| **Table 2.1.2: Listing of Water Mains with Issues**  Project Name  Owner Name | | | | | | | | |
| Supporting map reference: | | | | |  | | | |
| Supporting information appendix reference: | | | | |  | | | |
| **Pipe Location** | **Pipe Diameter**  **(in.)** | **Pipe Material** | **Pipe Age**  **(Years)** | **Pipe Length (ft)** | | **Specific Problem description** | | **Number of households**  **affected** |
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| Does the system have any Special Orders (SOC) or NOV’s? | | | | | | | Yes No | |
| If “Yes” include copies of these orders in the Appendix | | | | | | | | |

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| **Table 2.1.3: Listing of Water Mains Needing Extension**  **Project Name**  **Owner Name** | | | | | |
| If the projects mentioned in this table are part of Capital Improvement Plan (CIP) please mention that and include relevant pages from the CIP | | | | | |
| Supporting information Appendix Reference: | | | |  | |
| **Pipe Location** | **Proposed Pipe Diameter**  **(in.)** | **Proposed Pipe Material** | **Pipe Length (ft)** | **Specific Problem description** | **Number of households to be**  **served** |
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| **Table 2.1.4: Priority Evaluation for Water Mains Needing Replacement/Re-routing/Extension**  **Project Name**  **Owner Name** | | | | | | |
| Indicate the priority for replacement or relocation as high, medium or low. Explain the basis for this determinations based on a pipe score or other relevant criteria. | | | | | | |
| Supporting information Appendix Reference: | | |  | | | |
| **Pipe Location** | **Priority for Replacement**  **or Re-routing\*** | **Recommended Solution** | | **Cost** | **Part of the proposed Project?** | |
|  |  |  | |  | Yes | No |
|  |  |  | |  | Yes | No |
|  |  |  | |  | Yes | No |
| Total cost of water mains needing replacement/re-routing: | | | |  |  | |
| Total cost of water mains to be replaced/re-routed as part of this project: | | | |  |  | |

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| **Table 2.2.1 Current Water Flow and Pressure**  **Project Name**  **Owner Name** | | | | |
| Supporting information Appendix Reference: | |  | | |
| **Pipe Location** | **Available Pressure (psi)** | | **Flow Rate (gpm)** | **Nom. Diameter** |
|  |  | |  |  |
|  |  | |  |  |
| *List all the pipes in the project area, proposed to be replaced/rerouted/extended.* | | | | |
| Additional Information as per the Guidance Section 4.3.3. | | | | |
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| **Table 2.3.1 Population and Flow Projections** | | | |
| --- | --- | --- | --- |
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| *Project Service Area Population and residential demands for the next 20years in accordance with* [*Section 4.3.4*](file:///\\wp3nrfp01.eads.ncads.net\wiShare\IFS\FEU\Guidance\CWSRF%20Guidance\Summer%202013%20Revisions\Digital_Guidance\Section_3_Wastewater_Treatment_Expanson_rev_2013.docx#Section_3_3_2_2) *of the guidance.* | | | |
| Supporting document Appendix Reference: | | |  |
| *Year* | *Service area Population (Projected)* | *Peak Water Demand* | |
| *Current Year* |  |  | |
| *Year 5* |  |  | |
| *Year 10* |  |  | |
| *Year 15* |  |  | |
| *Year 20* |  |  | |
|  |  |  | |
| *State Assumptions and discuss methodology used for population projections. Provide percentage growth per year and justify that using U.S. Census data or data from state Data center (SDC). If alternate population growth rate is used, you must compare it with SDC projections and justify the alternate growth rate.* | | | |
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| **Table 2.3.2 Design Flow through the pipe**  **Project Name**  **Owner Name** | | | | | | | |
| Does project accommodate future growth | | | Yes  No | | | | |
| If “Yes” Answer the following questions: | | | | | | | |
| Does the proposed project include any in-ground irrigation? | | | | | | Yes  No | |
| Max Day Demand (no-fire flow) of the proposed Project (gpm): | | | | | |  | |
| Peak demand (including fire flow) and residual pressure of the proposed project (gpd): | | | | | |  | |
| Supporting information Appendix reference: | | | |  | | | |
|  | | | | | | | |
| Will the proposed project provide fire flow? | | | | Yes  No | | | |
| Does current pipe size and pressure enough to handle future Demand? | | | | Yes  No | | | |
| *If “No” describe how the project accommodates future growth. Please include projected 20 year residential, commercial, fire as well as industrial water demand. If the project anticipates annexation of new service areas use this as well. Please refer to and include the zoning map if necessary. Provide supporting documentation in the Appendix.* | | | | | | | |
| *Supporting documentation must be attached for all calculated values. Maps displaying the locations of the field pressure and flow tests in relation to the proposed project must be attahced in the above referenced Appendix.* | | | | | | | |
| Pipe location | Current diameter (in.) | Proposed diameter (in.) | | | Current pressure (psi) | | Proposed pressure (psi) |
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| **Table 3.1 Need for the Project**  **Project Name**  **Owner Name** | | | |
| Project is driven by (check all that Apply): | | | |
| Public Health | Aging Infrastructure | | System Management Issues |
| Does the project accommodate Future Growth? | | Yes  No | |
| **If “Yes”, the Total Project cost associated with growth (capacity increase) should not be more than 30% of total project cost.** | | | |
| *Provide a detailed statement of purpose and need of the project based on the above listed, or any other important factors.* | | | |
| Supporting Appendix Reference: | |  | |
|  | | | |

| **Table 4.1.1. Alternatives Description** | | | |
| --- | --- | --- | --- |
| Project Name | | | |
| No-Action Alternative | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
|  | | | |

| **Table 4.1.2. Alternatives Description** | | | |
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| Project Name | | | |
| Alternative 1 | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
|  | | | |

| **Table 4.1.3. Alternatives Description** | | | |
| --- | --- | --- | --- |
| Project Name  Alternative 2 | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
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| **Table 4.1.4. Alternatives Description** | | | |
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| Project Name  Alternative 3 | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
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| **Table 4.1.5. Alternatives Description** | | | |
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| Project Name  Alternative 4 | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
|  | | | |

| **Table 4.1.6. Alternatives Description** | | | |
| --- | --- | --- | --- |
| Project Name  Alternative 5 | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
|  | | | |

| **Table 4.1.7. Alternatives Description** | | | |
| --- | --- | --- | --- |
| Project Name  Alternative 6 | | | |
| *Provide a description of the above alternative in accordance with Sections 3.6.1.1 through 3.6.1.8 of the guidance.* | | | |
| Supporting Information Appendix Reference: | | |  |
| **Description** | | | |
|  | | | |
| Is Figure Included?  Yes  No | | If Yes, Figure #: | |
| **Alternative Feasibility:**  Feasible  Infeasible | | | |
| **Capital Cost:** |  | **Present Worth:** |  |
| **Environmental Impact Description** | | | |
| *Provide a qualitative description of the environmental impacts and compare the impacts to that of the Preferred Alternative.* | | | |
|  | | | |
| **Environmental Impact Analysis** | | | |
| Greater than Preferred Alternative  Less than Preferred Alternative  Same as Preferred Alternative | | | |
| **Acceptance/Rejection** | | | |
| **Alternative:** Accepted  Rejected | | | |
| **Rationale for Acceptance/Rejection** | | | |
| *Discuss the rationale for acceptance/rejection of the above-referenced alternative.* | | | |
|  | | | |

| **Table** **4.2.1. Replacement Cost Life Cycle Assumptions**  **Project Name** | | | |
| --- | --- | --- | --- |
| **Component** | **Expected Life Cycle** | **Replacement Expected?†** | **Rational for Expected Life Cycle** |
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|  |  |  |  |
| †Period for replacement would be Years 1 through 20 only. | | | |

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| **Table 4.4.1 Project Description**  **Project Name** | | | |
| **Project Vicinity Map:** |  | **Project Location Map:** |  |
| *Provide a summary of diameter, length and material of all proposed piping work:* | | | |
|  | | | |
| Is this a water main replacement project with no additional demand (water main replacement consists of like size, no additional service connections and no additional hydrants and no added fire demand)? | | | Yes  No |
| **Supporting information appendix reference:** | |  | |
|  | | | |
| Discuss permit requirement for the proposed project: | | | |
|  | | | |
| Discuss any sustainability considerations: | | | |
|  | | | |
| Discuss all funding sources for the project: | | | |
|  | | | |