

This Agreement for Services (Agreement) is between the City of Portland, Oregon ("City") and CH2MHill, Inc. ("Contractor").

**RECITALS:**

1. The City desires to obtain professional consulting and engineering sources for the Infrastructure Master Plan (IMP) and Water Infrastructure Resource Model.
2. The City desires to employ an engineering firm having the necessary experience and resources to be responsible for all aspects of the project.
3. The Contractor proposes to provide such technical service, more fully described in Exhibit A, attached hereto and incorporated herein.

**AGREEMENT:**

1. SCOPE OF CONTRACTOR SERVICES

(a) The Contractor shall provide services specifically to the Bureau of Water Works. The Contractor shall provide the City those services set out in Exhibit A, Scope of Services, attached hereto:

(b) The Contractor shall provide the services set out in subsection (a) above in accordance with the schedule included in Exhibit B.

2. SCOPE OF CITY SERVICES

(a) To assist the Contractor in carrying out its obligations hereunder, the City shall perform the services as set out below.

The City shall:

1. Provide all available existing Bureau of Water Works records, and other data related to the Project, including but not limited to, maps, surveys, and drawings, all of which the Contractor may use and rely upon in performing services under this Agreement.
2. Be available to meet with the Contractor during the Project.

3. Arrange for access to and make all provisions for the Contractor to enter upon public and private property as required for the Contractor to perform services under this Agreement.
4. Examine all studies, reports, sketches, drawings, specifications, and other documents presented by the Contractor, seek advice from others as the City deems appropriate for such examination, and render in writing decisions pertaining thereto within a reasonable time.
5. Give prompt written notice to Contractor whenever City observes or becomes aware of any development that affects the scope or timing of Contractor's Services, or of any defect in the work of Contractor or construction contractors.
6. Choose to make or approve changes within the general Scope of Services in this AGREEMENT. If such changes affect Contractor's cost of or time required for performance of the services, an equitable adjustment will be made through an amendment to this AGREEMENT.

3. COMPENSATION

(a) The City shall pay the Contractor for work performed under this Agreement after the effective date as set out below. The payment shall be full compensation for work performed, for services rendered, and for all labor, materials, supplies, equipment, and incidentals necessary to perform the work and services.

(b) The City shall pay the Contractor on a time and material basis in accordance with the Contractors rate schedule and Subcontractors rate schedule included in Exhibit C, attached hereto.

(c) Total payments to the Contractor for all work shall not exceed \$796,000 unless specifically authorized through amendment to the Agreement.

4. BILLING AND PAYMENT PROCEDURE

The Contractor's billing and City's payment procedures shall be as set out below:

(a) On or before the 15th day of each month, the Contractor shall submit to the City a bill for work performed by the Contractor during the preceding month. The bill shall set out the amount of labor cost by person, hours worked, and rate per hour, expenses directly attributable to the project, and mark-ups.

(b) Within thirty (30) days after receipt of the bill, provided the Project Manager has certified the payment as due, the City shall pay the amount certified to the Contractor. The Project Manager's certification of a payment as due shall not prevent the Project Manager from later determining that the certification was in error. Interest at the rate of 1.5 percent per month shall be paid by the City on all past due amounts commencing 30 days after date of receipt by the City of the invoice.

(c) In the event that the City questions some element of an invoice, that fact shall be made known to the Contractor as soon as reasonably possible. Contractor will help effect the resolution and transmit a revised invoice as necessary. Amounts not questioned by the City shall be paid to Contractor in accordance with the above payment procedure.

(d) Billings from the Contractor shall be identified by Task as shown in Exhibit D, Budget, and shall include a monthly summary by task showing the original contract amount, previous amount paid, current invoice, total to date, and percent complete.

5. EFFECTIVE AND TERMINATION DATES

This Agreement shall be effective as of as of the date signed by the Commissioners of Public Works and shall terminate as of December 31, 2000.

6. EARLY TERMINATION OF AGREEMENT

(a) The City and the Contractor, by mutual written agreement, may terminate this Agreement at any time.

(b) The City, on thirty (30) days written notice to the Contractor, may terminate this Agreement for any reason deemed appropriate in its sole discretion.

(c) Either the City or the Contractor may terminate this Agreement in the event of a breach of the Agreement by the other. Prior to such termination, however, the party seeking the termination shall give to the other party written notice of the breach and of the party's intent to terminate. If the party has not entirely cured the breach within fifteen (15) days of the notice, then the party giving the notice may terminate the Agreement at any time thereafter by giving a written notice of termination.

7. PAYMENT ON EARLY TERMINATION

(a) In the event of termination under subsection 6(a) or 6(b), EARLY TERMINATION OF AGREEMENT, hereof, the City shall pay the Contractor for work performed in accordance with the Agreement prior to the termination date.

(b) In the event of termination under subsection 6(c), EARLY TERMINATION OF AGREEMENT, hereof, by the Contractor due to a breach by the City, then the City shall pay the Contractor as provided in subsection (a) of this section.

(c) In the event of termination under subsection 6(c), EARLY TERMINATION OF AGREEMENT, hereof, by the City due to a breach by the Contractor, then the City shall pay the Contractor as provided in subsection (a) of this section, subject to set off of excess costs, as provided for in section 8(a), REMEDIES.

(d) In the event of early termination all of the Contractor's work product will become and remain property of the City.

## 8. REMEDIES

(a) In the event of termination under subsection 6(c), EARLY TERMINATION OF AGREEMENT, hereof, by the City due to a breach by the Contractor, then the City may complete the work either itself, by agreement with another contractor or by a combination thereof. In the event the cost of completing the work exceeds the remaining unpaid balance of the compensation provided under section 3, COMPENSATION, hereof, then the Contractor shall pay to the City the amount of the excess.

(b) The remedies provided to the City under section 6, EARLY TERMINATION OF AGREEMENT and section 8, REMEDIES, hereof, for a breach by the Contractor shall not be exclusive. The City also shall be entitled to any other equitable and legal remedies that are available.

(c) In the event of breach of this Agreement by the City, then the Contractor's remedy shall be limited to termination of the Agreement and receipt of payment as provided in section 6(c), EARLY TERMINATION OF AGREEMENT, and section 7(b), PAYMENT ON EARLY TERMINATION, hereof.

## 9. CITY PROJECT MANAGER

(a) The City Project Manager shall be Dennis Kessler or such other person as shall be designated in writing by the Administrator of the Bureau of Water Works.

(b) The Project Manager is authorized to approve work and billings hereunder, to give notices referred to herein, to terminate this Agreement as provided herein and to carry out any other City actions referred to herein.

## 10. COMPLIANCE WITH LAWS

(a) In connection with its activities under this Agreement, the Contractor shall comply with all applicable federal, state and local laws and regulations.

(b) In the event the Contractor provides goods or services to the City in the aggregate in excess of \$2,500.00 per fiscal year, the Contractor agrees it has certified with the City's Equal Employment Opportunity certification process.

11. OREGON LAW AND FORUM

(a) This Agreement shall be construed according to the laws of the State of Oregon.

(b) Any litigation between the City and the Contractor arising under this Agreement or out of work performed under this Agreement shall occur, if in the state courts, in the Multnomah County Court having jurisdiction thereof, and if in the federal courts, in the United States District Court for the District of Oregon.

12. INDEMNIFICATION

(a) The Contractor shall hold harmless, defend and indemnify for public liability and property damage the City, and the City's officers, agents and employees against all claims, demands, actions and suits (including all attorney's fees and costs) brought against any of them arising from the Contractor's work or any subcontractor's work under this Agreement.

(b) The Contractor shall hold harmless, defend and indemnify for professional liability the City, and the City's officers, agents and employees against all claims, demands, actions and suits (including all attorney's fees and costs) brought against any of them arising from the Contractor's negligent acts or omissions, or any subcontractor's negligent act or omissions under this Agreement.

13. WORKERS' COMPENSATION INSURANCE

(a) The Contractor, its subcontractors, if any, and all employers working under this Agreement are subject employers under the Oregon workers' compensation law and shall comply with ORS 656.017 which requires them to provide workers' compensation coverage for all their subject workers. A certificate of insurance, or copy thereof, shall be attached to this Agreement as Exhibit "E", if applicable, and shall be incorporated herein and made a term and part of this Agreement. The Contractor further agrees to maintain workers' compensation insurance coverage for the duration of this Agreement.

(b) In the event the Contractor's workers' compensation insurance coverage is due to expire during the term of this Agreement, the Contractor agrees to timely renew its insurance, either as a carrier-insured employer or a self-insured employer, as provided by Chapter 656 of the Oregon Revised Statutes, before its expiration and the Contractor



agrees to provide the City of Portland such further certification of workers' compensation insurance as renewals of said insurance occur.

(c) The Contractor agrees to accurately complete the City of Portland's Questionnaire for Workers' Compensation Insurance and for Qualification as an Independent Contractor prior to commencing work under this Agreement. The Questionnaire is attached to this Agreement as Exhibit "F" and shall remain attached to this Agreement and become a part thereof as if fully copied herein. Any misrepresentation of information on the Questionnaire by the Contractor shall constitute a breach of this Agreement. In the event of breach pursuant to this subsection, the City may terminate the Agreement immediately and the notice requirement contained in subsection 6(c), EARLY TERMINATION OF AGREEMENT, hereof, shall not apply.

#### 14. SUBCONTRACTING

(a) The Contractor shall not subcontract its work under this Agreement, in whole or in part, without the written approval of the City. The Contractor shall require any approved subcontractor to agree, as to the portion subcontracted, to fulfill all obligations of the Contractor as specified in this Agreement. Notwithstanding City approval of a subcontractor, the Contractor shall remain obligated for full performance hereunder, and the City shall incur no obligation other than its obligations to the Contractor hereunder. The Contractor agrees that if subcontractors are employed in the performance of this Agreement, the Contractor and its subcontractors are subject to the requirements and sanctions of ORS Chapter 656, Workers' Compensation.

(b) If the Contractor desires to change subcontractors, the Contractor shall make such request in writing. The Contractor shall not change subcontractors without the written consent of the City's Project Manager.

(c) The Contractor shall provide to the City's Project Manager copies of all subcontractor agreements made in conjunction with this Agreement.

(d) The Contractor agrees that if subcontractors are employed in the performance of this Agreement, the Contractor and its subcontractors are subject to the requirements and sanctions of ORS Chapter 656, Workers' Compensation.

#### 15. ASSIGNMENT

The Contractor shall not assign this Agreement, in whole or in part, or any right or obligation hereunder, without the prior written approval of the City.

16. INDEPENDENT CONTRACTOR STATUS

(a) The Contractor is engaged as an independent contractor and will be responsible for any federal, state and local taxes and fees applicable to payments hereunder.

(b) The Contractor, its subcontractors and their employees are not employees of the City and are not eligible for any benefits through the City including, without limitation, federal social security, health benefits, workers' compensation, unemployment compensation and retirement benefits.

17. NOTICE

Any notice provided for under this Agreement shall be sufficient if in writing and delivered personally to the following addressee or deposited in the United States Mail, postage prepaid, certified mail, return receipt requested, addressed as follows, or to such other address as the receiving party hereafter shall specify in writing:

If to the City:

City of Portland  
Bureau of Water Works  
1120 SW 5th Avenue, 6th Floor  
Portland, Oregon 97204  
Attn: Dennis Kessler, P.E.

If to the Contractor:

CH2MHill, Inc.  
825 NE Multnomah, Suite 1300  
Portland, Oregon 97232  
Attn: William Blosser

18. SEVERABILITY

If any provision of this Agreement is found to be illegal or unenforceable, this Agreement nevertheless shall remain in full force and effect and the provision shall be stricken.

19. INTEGRATION

This Agreement contains the entire agreement between the City and the Contractor and supersedes all prior written or oral discussions or agreements.



20. FUNDS

The City certifies that sufficient funds are available and authorized for expenditure to finance the cost of this Agreement.

21. BUSINESS LICENSE

The Contractor shall obtain a City of Portland business license as required by PCC 7.02.030 prior to beginning work under this Agreement. The Contractor shall provide a business license number in the space provided at the end of this Agreement.

22. COMMENCEMENT OF WORK

The Contractor agrees that work being done pursuant to this Agreement will not be commenced until after:

- (a) workers' compensation insurance is obtained, as outlined in section 13, WORKERS' COMPENSATION INSURANCE; and,
- (b) this Agreement is fully executed by the parties and approved by the City Attorney's Office; and,
- (c) the effective date of this Agreement as specified in section 5, EFFECTIVE AND TERMINATION DATES.

23. MAINTENANCE OF RECORDS

The Contractor shall maintain records on a current basis to support its billings to the City and to document the performance of services in accordance with this agreement. The City or its authorized representative shall have the authority to inspect, audit and copy, on reasonable notice and from time to time, any records of the Contractor regarding its billings and performance of services pertinent to the work performed under this Agreement. The Contractor shall retain these records for inspection, audit and copying for three (3) years from the date of completion or termination of this AGREEMENT.

24. AUDITS

(a) The City, either directly or through a designated representative, may conduct financial and performance audits of the billings and services specified in this agreement at any time in the course of the agreement and during the three (3) year period established by section 23, MAINTENANCE OF RECORDS. Audits will be conducted in accordance with generally accepted auditing standards as promulgated in Government Auditing Standards by the Comptroller General of the United States General Accounting Office.

(b) If an audit discloses that payments to the Contractor under section 3, COMPENSATION, and section 4, BILLING AND PAYMENT PROCEDURE, were in excess of the amount to which the Contractor was entitled, then the Contractor shall repay the amount of the excess to the City and, reciprocally, if it is determined that payments were less than the amount to which the Contractor is entitled, then the City shall pay an amount to compensate for the underpayment.

(c) If any audit shows performance of services under section 1, SCOPE OF CONTRACTOR SERVICES, is not efficient in accordance with Government Auditing Standards, or that the program is not effective in accordance with Government Auditing Standards, the City may pursue remedies provided under section 6, EARLY TERMINATION OF AGREEMENT, and section 8, REMEDIES.

## 25. LIABILITY INSURANCE

(a) The Contractor shall maintain public liability and property damage insurance that protects the Contractor and the City and its officers, agents and employees from any and all claims, demands, actions and suits for damage to property or personal injury, including death, arising from the Contractor's work under this Agreement. The insurance shall provide coverage for not less than \$200,000 for personal injury to each person, \$500,000 for each occurrence, and \$500,000 for each occurrence involving property damage; or a single limit policy of not less than \$500,000 covering all claims per occurrence. The limits of the insurance shall be subject to statutory changes as to maximum limits of liability imposed on municipalities of the State of Oregon during the term of the Agreement. The insurance shall be without prejudice to coverage otherwise existing and shall name as additional insureds the City and its officers, agents and employees. Notwithstanding the naming of additional insureds, the insurance shall protect each insured in the same manner as though a separate policy had been issued to each, but nothing herein shall operate to increase the insurer's liability as set forth elsewhere in the policy beyond the amount or amounts for which the insurer would have been liable if only one person or interest had been named as insured. The coverage must apply as to claims between insureds on the policy. The insurance shall provide that the insurance shall not terminate or be canceled without thirty (30) days written notice first being given to the City Auditor. If the insurance is cancelled or terminated prior to completion of the Agreement, the Contractor shall provide a new policy with the same terms. The Contractor agrees to maintain continuous, uninterrupted coverage for the duration of the Agreement. The insurance shall include coverage for any damages or injuries arising out of the use of automobiles or other motor vehicles by the Contractor.

(b) The Contractor shall maintain on file with the City Auditor a certificate of insurance certifying the coverage required under subsection (a). The adequacy of the insurance shall be subject to the approval of the City Attorney. Failure to maintain liability insurance shall be cause for immediate termination of this Agreement by the City.

26. BREACH OF AGREEMENT

(a) The City or the Contractor shall breach this Agreement if it fails to perform any substantial obligation under the Agreement, except as provided in subsection (b) of this section.

(b) Neither the City nor the Contractor shall have breached this Agreement by reason of any failure to perform a substantial obligation under the Agreement if the failure arises out of causes beyond its control and without its fault or negligence. Such causes may include, without limitation, acts of God or the public enemy, acts of the federal, state or local governments, fires, floods, epidemics, volcanic eruptions, quarantine restrictions, strikes, freight embargoes and unusually severe weather. Should either the City or the Contractor fail to perform because of a cause described in this subsection, the City and the Contractor shall make a mutually acceptable revision in section 1, SCOPE OF CONTRACTOR SERVICES, section 2, SCOPE OF CITY SERVICES, or section 3, COMPENSATION.

27. OWNERSHIP OF DOCUMENTS

(a) All work the Contractor performs under this Agreement shall be considered work made for hire and shall be the property of the City. The City shall own any and all data, documents, plans, copyrights, specifications, working papers and any other materials the Contractor produces in connection with this Agreement. On completion or termination of the Agreement the Contractor shall deliver these materials to the Project Manager.

(b) The Contractor may retain for its own use and at its own cost copies of the materials referred to in subsection (a) of this section.

(c) Any use the City makes of the materials referred to in subsection (a) of this section, except for purposes of the work contemplated by this Agreement, shall be at the City's risk.

28. ARBITRATION

(a) Any dispute arising out of or in connection with this Agreement, which is not settled by mutual agreement of the Contractor and the City within sixty (60) days of notification in writing by either party, shall be submitted to an arbitrator mutually agreed

upon by the parties. In the event the parties cannot agree on the arbitrator, then the arbitrator shall be appointed by the Presiding Judge (Civil) of the Circuit Court of the State of Oregon for the County of Multnomah. The arbitrator shall be selected within thirty (30) days from the expiration of the sixty (60) day period following notification of the dispute. The arbitration, and any litigation arising out of or in connection with this Agreement, shall be conducted in Portland, Oregon, shall be governed by the laws of the State of Oregon, and shall be as speedy as reasonably possible. The applicable arbitration rules for the Multnomah County courts shall apply unless the parties agree in writing to other rules. The arbitrator shall render a decision within forty-five (45) days of the first meeting with the Contractor and the City. Insofar as the Contractor and the City legally may do so, they agree to be bound by the decision of the arbitrator.

(b) Notwithstanding any dispute under this Agreement, whether before or during arbitration, the Contractor shall continue to perform its work pending resolution of the dispute, and the City shall make payments as required by the Agreement for undisputed portions of the work.

29. CONTRACTOR'S PERSONNEL

The Contractor shall assign the following personnel to do the work in the capacities designated:

<u>Name</u>	<u>Capacity</u>
Russ Stepp	Project Manager
Joe Glicker	IMP Team Leader
Dave Parkinson	WIRM Team Leader
Jeanne Lawson	Stakeholder Involvement
Dan Ballentyne	Vulnerability
Rick Palmer	Modeling

The Contractor shall not change these personnel assignments without the written consent of the Project Manager, which consent shall not be unreasonably withheld.

30. AMENDMENTS

(a) The City and the Contractor may amend this Agreement at any time only by written amendment executed by the City and the Contractor. The Chief Engineer of the Bureau of Water Works shall be authorized to approve amendments which in the aggregate do not exceed 25% of the original contract amount. Any amendments beyond the 25% limit must be approved by City Council.

The Project Manager may agree to and execute any other amendment on behalf of the City, including time extensions.

(b) Any change in the Scope of Contractor Services shall be deemed an amendment subject to subsection (a).

32. PROGRESS REPORTS

The Contractor shall provide monthly progress reports to the Project Manager. Each progress report shall contain the following information:

(a) A summary of the work accomplished in the previous month, anticipated progress for the next month, and issues requiring resolution.

(b) Overall project schedule and a project budget summary documenting percent of the project which is complete and the anticipated level of effort required to complete project tasks relative to the remaining budget.

32. NON-WAIVER

The City and the Contractor shall not be deemed to have waived any breach of this Agreement by the other party except by an express waiver in writing. An express written waiver as to one breach shall not be deemed a waiver of any other breach not expressly identified, even though the other breach be of the same nature as that waived.

33. PROHIBITED INTEREST

(a) No City officer or employee during his or her tenure or for one year thereafter shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.

(b) No City officer or employee who participated in the award of this Agreement shall be employed by the Contractor during the period of the Agreement.

34. PAYMENTS TO VENDORS AND SUBCONTRACTORS

The Contractor shall timely pay all suppliers, lessors and contractors providing it services, materials or equipment for carrying out its obligations under this Agreement. The Contractor shall not take or fail to take any action in a manner that causes the City or any materials that the Contractor provides hereunder to be subject to any claim or lien of any person without the City's prior written consent.

35. PROFESSIONAL LIABILITY INSURANCE

(a) The Contractor shall maintain professional liability insurance which shall provide coverage in the amount of \$1,000,000 to protect the Contractor from any and all

claims, demands, actions and suits for malpractice arising from the Contractor's work under this Agreement. The insurance shall provide that the insurance shall not terminate or be cancelled without sixty (60) days written notice first being given to the City Auditor.

(b) The Contractor shall maintain on file with the City Auditor a certificate of insurance certifying the coverage required under subsection (a). The adequacy of the insurance shall be subject to the approval of the City Attorney. Failure to maintain professional liability insurance shall be cause for immediate termination of this Agreement by the City.

36. STANDARD OF CARE

The standard of care applicable to Contractor's Services will be the degree of skill and diligence normally employed by professional engineers or consultants performing the same or similar Services at the time said services are performed. Contractor will reperform any services not meeting this standard without additional compensation.

37. OPINIONS OF COST, FINANCIAL CONSIDERATIONS, SCHEDULES

In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the PROJECT, Contractor has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate PROJECT cost or schedule. Therefore, Contractor makes no warranty that City's actual PROJECT costs, financial aspects, economic feasibility, or schedules will not vary from Contractor's opinions, analyses, projections, or estimates. If City wishes greater assurance as to any element of PROJECT cost, feasibility, or schedule, City will employ an independent cost estimator, contractor, or other appropriate advisor.

38. SUSPENSION, DELAY, OR INTERRUPTION OF WORK

City may suspend, delay, or interrupt the Services of Contractor for the convenience of City. In the event of force majeure or said suspension, delay, or interruption, an equitable adjustment in the PROJECT's schedule, commitment, and cost of Contractor's personnel and subcontractors, and Contractor's compensation will be made.

39. NO THIRD-PARTY BENEFICIARIES

This AGREEMENT gives no rights or benefits to anyone other than City and Contractor and has no third-party beneficiaries.

CONTRACTOR: CH<sub>2</sub>Hill, Inc.

By: 

William Blosser

Title: Vice-President

Date: 12/8/97

Business License No: 308278 - 06

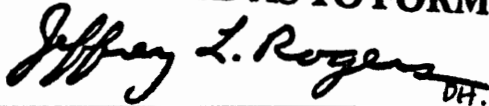
Tax I.D. No: 59 - 0918189

Social Security No: \_\_\_\_\_

APPROVED AS TO FORM:

CITY OF PORTLAND

**APPROVED AS TO FORM**

 <sup>CH.</sup>

City Attorney **CITY ATTORNEY**

By: \_\_\_\_\_

Name: Eric Sten

Title: Commissioner of Public Works

Date: \_\_\_\_\_

By: \_\_\_\_\_

Name: Barbara Clark

Title: Auditor, City of Portland

Date: \_\_\_\_\_

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# Exhibit A - Scope of Work

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A Scope of Work (Scope) has been prepared for the *Infrastructure Master Plan* (IMP) and *Water Infrastructure Resources Model* (WIRM). The WIRM is included as an element of the IMP as listed below. The IMP will be developed through an iterative process:

- ◆ IMP Evaluation Framework
- ◆ Interim IMP (incorporating the WIRM Prototype)
- ◆ Final IMP Report

**Consultant Team Objective:** The consultant team's objective is to produce an IMP process that is expeditious and that achieves consensus and joint ownership among those groups and individuals who may need to participate in, or who may be affected by, implementation of the IMP.

The Scope is divided into 11 elements:

- Element 1.0 - Planning Process
- Element 2.0 - Demands
- Element 3.0 - Supply & Treatment:
  - \* Task 3.1 - Bull Run Yield and Fish Impacts
  - \* Task 3.2 - Bull Run Treatment Impacts; Water Quality Operational Constraints, and Future Treatment Regulations
  - \* Task 3.3 - Groundwater Yield and Treatment
  - \* Task 3.4 - Supply Augmentation; Emergency Connections; and Future Policies for Outside Service
- Element 4.0 - Transmission System Evaluation and Storage
- Element 5.0 - Other Facilities and Projects; System Operational Constraints
- Element 6.0 - Vulnerability: Integration of the *System Vulnerability Analysis* (SVA) project
- Element 7.0 - Rate Impact Analysis
- Element 8.0 - Water Infrastructure Resource Model
- Element 9.0 - Final Report and Implementation Plan
- Element 10.0 - PEER Review
- Element 11.0 - Project Management

Each of these elements will be developed during the iterative process with varying levels of detail according to project needs and the results.



## Element 1.0 Planning Process

The Planning Process encompasses the overall IMP iterative approach and provides the project execution structure. This includes the stakeholder (including public) involvement processes leading to project decisions.

The stakeholder involvement will be a coordinated effort with the System Vulnerability Analysis (SVA) project. The areas of coordination will be:

- Identifying and characterizing stakeholder/customer needs and values
- Incorporating the Needs and Values in the Decision-Making Framework
- Design and Facilitate Consensus Process with Internal Bureau Stakeholders
- Identify a communication strategy and deliverables structure/format that directly addresses stakeholder needs and concerns

There are six key groups that will provide the forums for the planning effort:

- IMP Steering Group -- Key Bureau Management staff. This is the primary decision-making group for the project.
- Project Team – Staff assigned to the project and internal stakeholders. This will provide the overall forum for project communication, idea-generation, problem-solving and consensus building. The team will operate as two distinct groups.
  - Bureau Project Team
  - Consultant Project Team

Monthly meetings of this group will not only include all affected Bureau Project Team members and key members of the Consultant Project Team, but will include several representative external stakeholders to ensure that the planning addresses issues of stakeholders and the public. The participants may change over time to include staff that have a stake in a specific step in the process, but will include a core group that will ensure consistency and carry the project memory

- Task Teams - Bureau and consultant staff combined and assigned to specific tasks
- Planning Process Team - Combined representatives from the Bureau, Consultant, Wholesalers, and other interested parties.
- Peer Review Team – external experts in the field, gathered to provide advice on project development.
- Stakeholder forums – Stakeholders are those with an interest (or stake) in the planning process or outcome. Direct stakeholders include other agencies, water managers, and, of course, Bureau staff. Other stakeholders include advocacy and civic groups, business and residential customers, and potentially affected communities. At several key points in the project, workshops or other meetings will be convened to solicit the ideas and opinions of stakeholders. In addition, the team will meet with existing groups (such as PURB, the Regional

Consortium, and WQAC) as needed to convey project direction and solicit their input.

### **Task 1.1 Strategic Direction and Vision**

A meeting will be held with the Bureau's IMP Steering Group to validate the current strategic direction and vision. The proposed meeting agenda will review the Bureau's strategic direction and vision as developed in preliminary Bureau IMP work sessions and integrate these with the IMP approach. The meeting will be a one-day work session with the expected agenda and outcome to include:

- Bureau/IMP Strategic Direction and Vision
- Bureau Leadership Commitment and Decision Process
- Project Goals and Approach
- Identification of key issues and project drivers
- Preliminary Identification of Stakeholders, their issues and concerns, and confirmation of how they will be included in the process Project Decision Map
- Roles and Responsibilities for Steering Group and Bureau's Project Team

In preparation for the meeting, the Consultant Team will review stakeholder opinions and values identified through related past efforts in order to articulate themes.

1. Based on the results of the meeting, the Consultant Team will conduct an effort to initiate communication with key stakeholder groups and identify their issues and needs as they relate to this study. This will include:

- Developing a simple fact sheet describing the IMP effort, its purpose and processes and how it relates to the Vulnerability Study and other related efforts. It will include a response card. Bureau will print and distribute to key stakeholders, identified through existing mailing lists. The team will develop camera-ready original and assist in identifying mailing lists.
- Interviewing a sample of up to twenty representative stakeholders to help identify key issues, expectations, and concerns for developing the evaluation criteria.
- Conducting two focus groups – or a focus group and a short opinion survey – to assist in characterizing issues and sensitivities, using information identified in the previous task as a starting point.
- Supporting Bureau staff in attending and presenting the IMP and SVA projects to several stakeholders groups (such as the PURB, WQAC, and the Consortium), as needed, to inform and solicit comments.

### **Meetings and Deliverables**

1. Agenda
2. Project Meeting with Bureau Steering Group

3. An IMP Project Goals and Approach summary, relating to the Bureau's Strategic Direction and Vision.
4. Preliminary Stakeholder Evaluation – identification and classification of stakeholders and identification of values and issues themes\*
5. Project Decision Map
6. Project Roles and Responsibilities summary
7. IMP Fact Sheet\*
8. Two focus groups or a focus group and an opinion survey\*
9. External meeting assistance for up to three stakeholder groups\*
10. Summary of stakeholder issues and needs\*

\* JLA budget for these items is included in the System Vulnerability Analysis

### **Task 1.2 Initial Data Screening**

Conduct an initial data screening using the information identified at the Bureau's IMP Scoping Interviews, September 24 and 25, 1997. The data development and screening will be done by each of the project element task leads. The available information will be identified and listed in a document control sheet developed jointly with the Bureau and Consultant. The data will then be evaluated as to the format, completeness, availability, how and where the data will be used, data accuracy and credibility, and the cost of producing the data for use during the IMP.

A data summary table will be prepared according to the IMP project elements and be reviewed with the Bureau's Project Team. A Project Team meeting will be held to review the available data summary, prioritize additional information needed, and develop an approach for obtaining additional information. Data areas will be identified and a contingency plan will be developed for situations where information will not be available, or not developed to the Project Team's desired level of detail.

The document control sheet will be used to manage and track the IMP data throughout the project and to coordinate the information with the WIRM development as possible.

#### **Meetings and Deliverables**

1. Document control sheet for documenting and tracking IMP project data
2. Documentation of available project information in document control sheet
3. Data summary table of the initial data screening
4. Project Team Meeting for Initial Data Screening Review
5. Approach for additional data development
6. Contingency approach for areas where data will not be available in a timely manner.

## Task 1.3 Evaluation Framework

The Evaluation Framework for the project will consist of:

- Project Purpose and Problem Statement
- Project Goals
- Objectives
- Performance Criteria
- Evaluation Model

It will be developed through an iterative process that builds directly on the information gathered and directions set in Tasks 1.1 and 1.2.

**1.3.1. Strategy Meeting:** The process will begin with a meeting of the Planning Process Team to build consensus on the approach for evaluation and the outline of the Evaluation Framework.

**1.3.2. Workshop:** Based on the adopted approach, the Consultant Team will design and conduct a two-day workshop to set the IMP Evaluation Framework. The first portion of the Workshop will be open to interested parties, while the participation of the Planning Process Team and key stakeholders will remain the focus and be actively solicited. This portion of the meeting will be dedicated to reviewing and refining Goals and Objectives and establishing performance evaluation criteria. Tradeoffs will also be developed with the stakeholders and factored into the performance evaluation criteria.

The second portion of the Workshop will resolve how the criteria will be used. This workshop will address both SVA and IMP criteria. The following steps illustrate the assumed progression for developing the IMP Evaluation Framework:

- **IMP Decision Hierarchy:** Identify the project constraints, goals, and key issues concerning the IMP outcome. A list then will be developed of the key project assumptions, facts, and decisions that need to be made. The key issues will be differentiated from implementation details and project constraints.
- **Problem Structure & Framing:** Using the results of 1.3.1, develop an influence diagram (graph of key decisions and their consequences) to identify the decisions and uncertainties associated with the various IMP elements. The influence diagram will be developed with the Planning Process Team and used for documenting needed decisions, uncertainties, and the anticipated outcome or values.
- **Project Objectives & Performance Criteria:** Determine the IMP objectives for evaluating the plan scenarios. These objectives will be organized into an objectives hierarchy that will identify fundamental and contributing objectives defined with performance measures. The performance measures will be developed using either natural scales (dollars, net present value, etc. developed

through quantifiable data) or constructed scales (technical feasibility, public acceptance, etc. that help to quantify expert opinion).

- **Develop an Evaluation Model:** A value model will be selected in conjunction with the Steering Group and Planning Process Team. The purpose of the evaluation model is to identify objectives that correspond to issues and stakeholders (Task 1.1) that are used to select or prioritize alternatives. The value model will combine the information developed in subtasks 1.3.1 through 1.3.2. During this subtask, a simple pilot model will be developed for evaluating IMP decisions. The value model may ultimately be incorporated into the WIRM as appropriate and desired by the Bureau.
  - **Develop and Define Potential Strategies:** Develop a strategy table to outline the full set of possible strategic options. This will facilitate the development of a comprehensive set of options and alternatives and help participants to select the most promising strategies for further evaluation.
- 1.3.3. Summary of the Evaluation Framework:** The evaluation framework will be documented in a summary and will provide an approach to be used for the IMP planning process.
- 1.3.4. Review Meeting:** The Consultant Team will work with the Planning Process Team to refine the evaluation framework summary.
- 1.3.5. Stakeholder Review:** The Consultant Team will then assist the Bureau present the framework to the Peer Review Team, and to key Stakeholder groups for their input and comments.

### **Meetings and Deliverable**

1. Planning Process Team Meeting on strategy.\*
2. Adopted Evaluation Approach.
3. Draft public notice of workshop for Bureau placement.\*
4. Evaluation Framework Workshop.\*
5. Evaluation Framework Summary.
6. Planning Process Team Meeting to refine Evaluation Framework Summary.\*
7. Presentation of Evaluation Framework to the stakeholder groups for review and comment.\*
8. Peer Review Team Meeting.\*

\* JLA budget for these items is included in the System Vulnerability Analysis

### **Task 1.4 Scenario Development and Analysis**

This task describes the initial scenario development and analysis to be used in the first IMP iteration. This process will be used for subsequent IMP iterations and will create the final

scenarios to be evaluated and recommended. The first step will be to identify the base scenario or condition from the strategy table developed in subtask 1.3.2 (Develop and Define Potential Strategies). Results of Element 2, Demands; Element 3, Supply and Treatment; Element 4, Transmission; Element 5, Other Facilities...; Element 6, Vulnerability; and Element 7, Rate Impact Analysis; will provide the information for developing the base scenario. The base condition, the strategy table, and the results of Elements 2 through 7 will be used as the basis for all subsequent scenario development. The base scenario will also be used to develop criteria and alternatives.

- 1.4.1. **Base Scenario:** Working with the Planning Process Team, a base scenario will be developed that represents the current Bureau system status (status quo) with regard to service area, supply, transmission, storage, etc.
- 1.4.2. **Criteria and Weighting:** Meet with the Planning Process Team and discuss the criteria identified in subtask 1.3.2. If appropriate, based on the adopted evaluation approach, the team will use the results of the workshop and Planning Process Team direction on objectives hierarchy and prioritization to develop the specific weighting or ranking assignments for each criteria. These will provide a prioritized ranking of the importance of each performance measure to overall project success and will be assigned based on specific performance ranges. The overall ratings will be compared for consistency with the Bureau's mission and goals.
- 1.4.3. **Scenario Development:** Scenarios will be developed using the strategy table from subtask 1.3.2. The scenarios will be based on the service area alternatives and driven by the various system alternatives that support any of the service area options. The scenario development and design will also identify key tradeoffs relative to a range of policies and objectives. The most likely scenarios will be developed. The result of this subtask will provide the scenarios to be evaluated during the initial IMP iteration.
- 1.4.4. **Scenario Review:** Review the scenarios with the stakeholders to receive comments and development consensus on the proposed evaluation, tradeoffs, objectives, and analysis. To accomplish this, the team will circulate summaries of draft scenarios to primary stakeholders for review to ensure scenarios are complete and appropriate, and gather initial comments on ramifications of each scenario.  
  
Modify the scenarios as needed to incorporate the stakeholder input.
- 1.4.5. **Scenario Evaluation:** Evaluate the scenarios developed using the decision tool/evaluation model from subtasks 1.3.2, 1.4.2, and the existing data from Task 1.2.
- 1.4.6. **WIRM Integration:** Using the WIRM developed in Element 8, integrate the scenario evaluation with the decision tool/value model used in subtask 1.4.5. The WIRM will provide input to the scenario evaluations as to system impacts on various scenarios and service area policies.
- 1.4.7. **Alternative System Improvement Evaluation:** The scenarios will include proposed system improvements to meet the system design criteria developed in Task 1.3. The system improvements that consistently appear in multiple scenarios and will be needed regardless of the scenario outcome will be identified as "early-out" projects. These projects can be developed with costs and schedule, and some may already be

part of the existing CIP. Other system improvements will be developed as the most likely scenarios are developed and refined for the various system elements. These system improvements will be integrated as part of the overall CIP at the conclusion of the scenario evaluation.

**1.4.8. Data Sensitivity:** Review the outcome from subtask 1.4.4, alternative evaluation, and perform a sensitivity analysis to determine how uncertainty will affect the scenario outcome. Identify the areas of uncertainty and determine the cost to develop improved information. The Planning Process Team will meet and evaluate the data sensitivity results to determine if additional data development is warranted (or cost-effective?) for the scenario analysis. Additional data development will be evaluated to determine, cost, schedule, and overall impact on the IMP completion and credibility. Improved data will be developed as agreed and input as available into subsequent IMP iterations.

**1.4.9. Evaluation Matrix:** In subtask 1.4.2 the scenario solutions will be evaluated against the adopted criteria. In this subtask, the Consultant Team will develop a comparative matrix of that evaluation in order to facilitate consensus building. The Planning Process Team will meet to review and refine the scenarios using the evaluation matrix. This matrix will be based on the criteria, and will include but not be limited to:

- Scenarios
- Cost
- Range of Policy Choices and Implications
- Technical Implications
- Key Tradeoffs relating to Bureau Objectives
- Benefit
- Ease of Implementation
- Risk vs. Cost Tradeoffs
- Potential Barriers to or Problems with Implementation

**1.4.10. Stakeholder Review of Scenario Evaluation:** Once the initial application of the Evaluation Framework is completed, it will be introduced to stakeholders for their review and comments before it is finalized. Efforts will include:

- **Public information:** Materials will present the range of scenarios to additional interested parties and inform them of upcoming opportunities for participation (Scenario Evaluation Workshop and presentations to other groups). They will include: a simple fact sheet and response card (to be printed and distributed to stakeholders by the Bureau); small display ad regarding upcoming Scenarios Workshop and Walk-Through Survey; and a draft press release on the process and Scenarios Workshop
- **Scenario Evaluation Workshop:** Organize, facilitate and document a workshop to obtain feedback from stakeholders, Peer Review Team and other interested parties on the evaluation of the draft scenarios, and to refine the application of the criteria. This would be an intensive, creative workshop with a structure and survey mechanism designed to provide “quantifiable”

feedback that stimulates, rather than replaces discussion. The key in applying any weighting or ranking will be to ensure that the method used conveys the subjective nature of the exercise and that participants understand that their input needs to be reflected that way. The meeting would be open to the public and announced through the public information described in the previous paragraph, but would actively solicit the participation of key stakeholders through invitations. Invited participants will receive detailed information in advance and will be personally contacted to encourage their participation. Additional interested participants will also receive the advance information once they call to indicate their interest in participating.

- **Display/Walk-Through Survey:** For review of the application of criteria, a display will be prepared with a "Walk-Through Survey." The display and survey would be located in a high-traffic area, and would guide people through the scenarios, asking for response to specific questions. This will be especially useful if the direction of the scenarios hinges on a major public value.
- Presentations to key stakeholder groups.
- Peer Review Team meeting, as needed and desired by the Bureau.

**1.4.11. Evaluation Refinement Meeting:** A Planning Process Team meeting will be held to refine the evaluation based on stakeholder input.

**1.4.12. Scenario Summary Report and CIP Integration:** A summary report will be drafted after each iteration to document the scenarios and outcomes, as well as stakeholder input. The scenarios will also be benchmarked against the baseline scenario and compare overall alignment with the Bureau's strategic direction and vision. The system improvements needed to meet the final scenarios will be identified and integrated into the Bureau's CIP. A process will be developed with the Bureau for the improvement identification and CIP integration.

### **Meetings and Deliverables**

1. Base Scenario, developed with Planning Process Team
2. Planning Process Team meeting to discuss criteria (performance measures) and prioritization of criteria (as part of regular team meeting)
3. Criteria prioritization
4. Draft List of Scenarios to be evaluated
5. Draft scenarios packets distributed (assume 40 stakeholders)
6. Meetings with Stakeholders to review scenarios (assume 40)
7. Preliminary Scenario Evaluation



8. List of system improvement projects
9. Additional data development and sensitivity results
10. Planning Process Team Meeting on data sensitivity (as part of regular team meeting)
11. Evaluation Matrix
12. Planning Process Team Meeting on Matrix
13. Public information (fact sheet, display ad master, draft press release)
14. Notification and preparation packets to workshop invitees and participants (assume 70)
15. Workshop handouts and displays (6)
16. Scenario Evaluation Workshop
17. Display/Walk-Through Survey
18. Meetings with key stakeholder groups (assume 3)
19. Peer Review Team meeting.
20. Summary of Stakeholder Comments
21. Planning Process Team Meeting to refine evaluation
22. Scenario Summary Report

The planning process is carried forward into Element 9.0 Final Report and Implementation Plan.

### **Task 1.5 City Government Involvement**

This task provides interim and periodic briefing for the Commissioners, Council, PURB, URT, OFA, and other interested organizations that are involved in IMP. The briefings and workshops will be scheduled as needed but for scoping purposes a total of four are planned throughout the project.

#### **Meetings & Deliverables**

1. Briefing meetings with Council/Commissioners

### **Task 1.6 Internal Consensus Process**

Throughout the course of the planning effort, the regular Team/Bureau meetings will provide a forum for consensus building on the key steps of the study. One piece of this will be consensus on the decision-making process to be used in the future. Early in the study, a special workshop of key and representative Bureau staff will examine the strengths and weaknesses of how decisions are made today, explore benefits and drawbacks of different

decision-making structures, and develop goals for future decision-making. The special workshop will be held prior to developing the IMP Evaluation Framework and may be combined with an early workshop or as part of the Evaluation Framework workshop. Through iterations of Bureau discussion and review over the course of the study, the team will facilitate Bureau-wide consensus on a decision-making process and checklist to be used in the future.

### **Meetings and Deliverables**

1. Memo outlining potential decision-making structures
2. Bureau staff workshop
3. Draft Decision-Making Goals
4. Facilitation of 14 of the regular Team/Bureau meetings
5. Three iterations of memo on decision process and checklist

### **Task 1.7 Final Report and Implementation Plan Support**

This task is integrated with and reflected in Element 9, Final Report and Implementation Plan.

## **Element 2.0 Demands**

The primary goal of this element is the preparation of demand forecasts to be utilized in the WIRM scenario alternative development and the preparation of the IMP. The Existing Bureau demand model will be used together with projections provided by wholesale users and/or other regional suppliers.

The Consultant team scope of work for this element includes the following tasks:

### **Task 2.1 Review Demand Model Forecasts**

Review Bureau demand model forecasts and recommend any refinements or modifications. Identify limitations and implications for use of the model in the IMP.

### **Task 2.2 Decision Variables**

Identify decision variables and their importance with respect to the various modeling efforts and impact to demands. Establish sensitivity and accuracy bounds. Identify the demand "triggers" for facility timing and development.

### **Task 2.3 Peak Demand Approach**

Develop rationale and approach for handling design weather event (peak or unusual demand events) in the WIRM and STONER modeling. Work with the Bureau to establish the critical demand drivers that are needed for the IMP, such as peak day, peak week, etc.

## **Task 2.4 Demand Projections**

Obtain demand projections from the Bureau based on the information in Tasks 2.1 - 2.3 for everyone to use in the IMP work.

## **Task 2.5 Demand Forecasts/Outside Users**

The Bureau will coordinate demand forecasts of outside water users and regional suppliers for their service areas and make appropriate adjustments for the IMP. Obtain stakeholder input for the outside user demands and commitment for the demand projections. Compare the outside user demands with the Regional Water Supply Plan. The Bureau will reconcile the inside/outside user demands as needed.

## **Task 2.6 Conservation and Demand**

The Bureau will provide water conservation information and the relationship and impact on the demand projections will be evaluated. The Bureau will set the conservation impacts on the demand projections.

## **Task 2.7 Document Demand Forecast Development**

Document the development of the demand forecasts used and their role in the project including the sensitivities, limitations, reliability and implications in using them for WIRM and IMP development.

### **Meetings and Deliverables**

1. Planning Process Team meeting to review existing demand forecasting methods and numbers and determine direction
2. White paper on demand model refinements and forecasting requirements as applied to the IMP
3. Draft Tech Memo documenting demand forecasting methodology and establishing demand scenarios for the Bureau and outside users

### **Bureau Deliverables**

Demand projections needed for system capacity evaluation, both short-term and long-term as related to total storage and outside users.

## **Element 3.0 Supply & Treatment**

### **Task 3.1 Bull Run Yield**

The purpose of this task is to develop agreement on Bull Run supply capacity under current operating assumptions and to develop alternative supply capacity estimates under different fish flow requirements or operating regimes. This task will develop information for inclusion in the WIRM and scenario analysis.

- 3.1.1 Bull Run Yield:** The consultant team scope of work for this element includes the following tasks:

3.1.1.1 Review the four existing yield models and recommend which or portions of which should be used in this analysis and in the WIRM

3.1.1.2 Define/confirm yield reliability standard for planning purposes

3.1.1.3 Define yield and reliability under existing and future operating assumptions

3.1.1.4 Integrate into the yield information alternative fish flow scenarios and costs to be provided by the Bureau

3.1.1.5 Review existing operating constraints including water quality, environmental, and drinking water regulatory issues. Integrate the yield information with the treatment impacts related to supply capacity.

3.1.1.6 Summarize the yield, when available, average flow capacity, peak flow capacity, transmission connection point, transmission facility needs, and costs, both capital and O&M.

3.1.1.7 Discuss with the Bureau Project Team the current operations and potential changes caused by adopting new fish flow levels.

3.1.1.8 Propose next steps for either maintaining or developing increased forecasting ability within the Bureau.

3.1.1.9 Review other related capacity alternatives, such as Dam 2 raise, treatment, and fish mitigation reliability.

**3.1.2 Bull Run Physical Plant Investigations:** The consultant team scope of work for this element includes the following tasks:

3.1.2.1 Perform paper evaluation of the physical integrity of the facilities at the dams, headworks facility and screenhouse including the Dam 2 outlet towers, based on the recent FERC and related reports.

3.1.2.2 Summarize hydraulic capacity of facilities.

3.1.2.3 Estimate remaining useful life and cost as applied to the needs of the IMP using data previously collected and existing reports.

### **Meetings and Deliverables**

1. Project Team meeting to collect available reports and outline investigation strategies.
2. Meeting with Project Team to review interim results and conclusions of the evaluation.
3. Draft Tech Memo summarizing yield models, yield, and reliability.
4. Draft Technical Memorandum provided by the Bureau on alternative fish flow scenarios.
5. Draft Technical Memorandum on operating protocols.
6. Draft Technical Memorandum on Bull Run physical plant investigations.
7. FINAL Technical Memorandums (5) with recommendations and costs after Bureau team review.

### **Bureau Deliverables**

1. Fish flows



## 2. Yield models

### **Task 3.2 Bull Run Treatment Impacts; WQ Operational Constraints; Future Treatment Regulations**

1. The primary objective of this element is the identification of treatment options and costs which may be required in the future for the Bull Run supply based on unfiltered source constraints, more stringent water quality regulations and/or summer reservoir drawdown and in-stream flow release scenarios. Emphasis will be placed on the role of the Bull Run reservoirs in controlling turbidity and meeting the yield requirements while maintaining water quality criteria established for unfiltered supplies.

2. The Consultant team scope of work for this element includes the following tasks:

- 3.2.1 Summary of Regulations.** This task includes summarizing current and anticipated future regulations which may be applied to the Bull Run source and how they could impact yield or usage. Particular attention will be given to turbidity control and its likely role as a surrogate for remaining unfiltered.
- 3.2.2 Modeling Values.** Obtain Bureau modeling values and relationship of turbidity to reservoir operation.
- 3.2.3 Recommended Treatment Options.** Provide list of recommended treatment options and application to the Bull Run system given the above regulatory impacts.
- 3.2.4 Options and Costs.** Summarize treatment options and costs associated with the Regulatory Support project.
- 3.2.5 Potential Modifications.** Determine facilities and costs for potential modifications to the existing Bull Run supply and transmission system based on implementation of possible treatment options. This work includes a look at hydraulics; delivery method; storage needs; utility and infrastructure upgrades, etc.
- 3.2.6 Treatment Options.** Develop and apply treatment options as appropriate for WIRM scenario development and fold into final IMP recommendations.

### **Meetings and Deliverables**

- 1. Meeting to develop protocol and constraints for the treatment analyses. Obtain Bureau turbidity data and reservoir use strategies.
- 2. Meeting to discuss preliminary findings and treatment options and their applicability.
- 3. Draft Tech Memo outline water quality assumptions, regulatory constraints, treatment needs and costs.
- 4. Final Tech Memo summarizing the results of the work and creating a table of options and costs for use in WIRM scenario development, financial impact and IMP formulation.

## Bureau Deliverables

1. Provide modeling values for turbidity/reservoir operation relationship

### Task 3.3 Groundwater Yield and Treatment

The emphasis of this task will be the compilation and evaluation of data on the existing Columbia South Shore wellfield in order to determine a reliable yield that can be applied to the WIRM scenarios and utilized in the IMP planning process. Issues to be reviewed include:

- Well pumping capacity
- Available drawdown
- Water rights obtainment
- Surface water supply interference's
- Water quality and treatment needs
- Infrastructure condition and expected life
- Wellfield operation strategies and protocol
- Operational constraints based on contamination impacts

The basis of the work will be the review of historical wellfield project data and reports for the wellfield starting with the 1977 Groundwater Exploration Program and development program; USGS reports and model; Blue Lake Aquifer (BLA) model; Mudstone Aquifer explorations; wellfield pumping and aquifer response data since 1980; original construction reports and well logs; groundwater treatment study; and seismic evaluation of the Groundwater pump stations. Current projects which should have results available during the course of the IMP will also be considered. These include a wellfield monitoring system expansion and a wellfield modeling report on the Sand/Gravel Aquifer (SGA).

The consultant team scope of work for this element includes the following tasks:

- 3.3.1 Bureau Groundwater Information:** Meet with the Bureau, identify, and document the current knowledge and understanding of the groundwater resource.
- 3.3.2 Groundwater Yield:** Identify the "triggers" that affect the groundwater yield. Provide estimates and integrate the yield as it relates to the overall supply capacity.
- 3.3.3 Identify Constraints:** Identify and define operational constraints, water quality considerations and contamination movement, transmission system limitations, or other constraints to development of firm yield.
- 3.3.4 Develop Integrated Groundwater Options:** Assess options, such as necessary improvements to the wellfield and related facilities. The Bureau will provide treatment and water quality alternatives, currently being developed by Black & Veatch, including "blending" and "replacement wells." Included in the options development will be trade-offs concerning quality, quantity, and complexity.
- 3.3.5 Groundwater Treatment:** Evaluate groundwater treatment needs using the existing Bureau information, including pH adjustment, VOCs, and overall groundwater quality. Combine treatment needs with Task 3.3.4, Develop Integrated Groundwater Options.

- 3.3.6 **Evaluate Wellfield and Facilities:** Make cursory level evaluation of the existing wellfield and facilities as related to IMP needs.
- 3.3.7 **Future Needs:** Identify needs and cost of future groundwater protection program improvements.
- 3.3.8 **Groundwater Operations Strategies:** Provide input to the Bureau on groundwater operation strategies, as needed and desired. This element will be final scoped and budgeted based on the results of Tasks 3.3.1 - 3.3.7.

#### **Meetings and Deliverables**

- 1. Project Team meeting to collect available reports and outline investigation strategies
- 2. Review meeting with Project Team to review interim results and conclusions of the evaluation
- 3. Draft Technical Memorandum summarizing Columbia South Shore wellfield yield estimates for WIRM input
- 4. Draft Technical Memorandum on condition of wellfield facilities and transmission system elements
- 5. Draft Technical Memorandum on wellfield water quality and treatment
- 6. FINAL Technical Memorandums (3) with recommendations and costs after Project Team review

#### **Bureau Deliverables**

- 1. Provide *Groundwater Treatment Strategies Report*.
- 2. Provide short-term Groundwater Operations Plan.

### **Task 3.4 Supply Augmentation; Emergency Connections; Future Policies For Outside Service**

- 1. The primary goals of this task are to develop policies for interactions with outside suppliers, to improve reliability of service, and to meet winter time and emergency demands. Included in the work will be identification of options for emergency/backup supply and a feasibility-level assessment of those options as related to the current supply strategies and IMP recommendations.

The Consultant team scope of work for this element includes the following tasks:

- 3.4.1 **Outside Supplier Capacity:** Identification of the "real" capacity of outside suppliers based on the RWSP and individual user plans for supply development.
- 3.4.2 **Regional Supply:** Identify current or near term regional supply picture changes since the RWSP.
- 3.4.3 **Service Area Development:** Review Bureau's existing service area and the potential service alternatives to wholesale customers.



- 3.4.4 **ASR Potential:** Review the potential for ASR at the Headworks, Powell Valley regional site and Columbia South Shore wellfield (including Government Island).
- 3.4.5 **Columbia Wellfield Expansion:** Review possibilities for Columbia wellfield expansion based on work of Element 3.3 and its impact on the supply as it relates an additional 20 to 30 mgd to meet base demand and/or emergency supply.
- 3.4.6 **Emergency Supply Connections:** Identify and outline the facilities which would be required to make emergency supply connections to outside suppliers. Assess supply augmentation interties, storage, and operational implications, including how these sources would be brought on-line during an emergency, for the existing Bureau supply system.
- 3.4.7 **Benefits and Costs:** Determine the benefits from connections and recommend apportionment of development costs, both from a Bureau and a purveyor perspective.
- 3.4.8 **Non-potable Potential:** Determine the potential for non-potable alternative sources or non-potable water as a supply supplement in emergency situations.
- 3.4.9 **Bull Run System Improvements:** Identify improvements to the Bull Run supply system which would be required to reduce vulnerabilities identified in Element 6 and increase the reliability of the Bull Run.
- 3.4.10 **RWSP Objectives Comparison:** Compare recommendations from above work to the RWSP objectives and list deviations or disconnects.

### **Meetings and Deliverables**

1. Meeting with Project Team and RWSP leaders to define parameters for this work and collect available reports and information
2. List of issues for review and consideration
3. Interim progress meeting to brief outside users on the findings and solicit further input as to their needs and plans.
4. Draft Tech Memo discussing the results of our evaluations and making preliminary conclusions
5. Final Tech Memo summarizing the work and providing alternatives for scenario analysis. Recommendations will also be included.

### **Bureau Deliverables**

1. RWSP back-up data/information concerning outside user connections
2. ASB background information

## **Element 4.0 Transmission System Evaluation and Storage**

The emphasis in this Element will be to develop an inventory and make a condition assessment of the existing Bureau transmission and storage system and those facilities of wholesale customers and outside users. This information will be put together with that developed by the SVA and deficiencies in system transmission and storage as related to the goals of the IMP will be determined. Recommendations will be made for use in WIRM scenario development.

The Consulting team scope of work for this element includes the following tasks:

### **Task 4.1 Confirm Elements to be Evaluated.**

Confirm storage and transmission system elements to be evaluated. Facilities identified are fed from the Powell Butte reservoir and first level pumping system and include at least the following:

- Storage tanks: Vernon; St. Johns; Mayfair; Burlingame; Westwood; Portland Heights; Arlington Heights; and Vermont
- Pump stations: Washington Park; Fulton; Carolina; Barbour Gibbs; and Sam Jackson
- Transmission system: All piping 24 inch diameter and larger (approx. 20 major Transmission segments)

### **Task 4.2 Assess System Elements:**

Assess the above by age, material, history of failure or repair, and O&M record inspection for condition, coordinating with the System Vulnerability Analysis project. In addition, the appropriate Bureau staff will participate in Task 1.3, Evaluation framework Stakeholder Workshop. The purpose will be to develop a range of system design criteria/scenarios. These will be used in the Scenario Evaluation to determine system performance. The range of system design criteria will be reviewed during each IMP iteration to determine that all critical aspects have been included and do not cause constraints.

### **Task 4.3 Data Requests and Review**

Provide specific data requests to Bureau team and develop format for review and evaluation.

### **Task 4.4 Master Plan**

Review of wholesale customer Master plans and current CIP. These include:

- City of Gresham
- Powell Valley Road Water District
- City of Tualatin
- TVWD
- West Slope Water District

- Rockwood Water PUD
- Tigard

### **Task 4.5 Facility Profiles**

Develop facility condition profiles and a comprehensive location map.

### **Task 4.6 Hydraulic Analysis**

Conduct hydraulic analysis as needed using the Bureau's staff and STONER model to test transmission and storage capabilities for WIRM scenario development.

### **Task 4.7 Outside User Needs**

Review and assess Outside User water needs and supply scenarios given their transmission and storage capabilities.

### **Meetings and Deliverables**

1. Information gathering meeting with Project Team and Outside Users.
2. Workshop with appropriate team members to agree on facilities to be evaluated and level of detail.
3. Input scenarios for STONER model runs (to be performed by Bureau staff).
4. Individual facility profile sheets.
5. Map of major system facilities and connectivity to the distribution system or neighboring water suppliers.
6. Project Team Meeting to present interim results.
7. Draft Technical Memorandum with capacity/condition evaluations and alternatives for WIRM scenario development.
8. Final Technical Memorandum with recommendations and planning level costs for improvements.

### **Bureau Deliverables**

1. Data needed to evaluate storage and transmission

## **Element 5.0 Other Facilities and Operational Constraints**

The primary emphasis of this element is the capture of other facilities and initiatives of the Bureau which may impact the WIRM scenarios or evaluation of alternatives under the IMP. It will also be a place to do "early out screening" of the Bureau CIP and programs relative to the future supply picture and IMP needs.

The Consultant team scope of work for this element includes the following tasks:

### **Task 5.1 Screen Data**

Screen data on existing supply, transmission and storage facilities not covered by Element 4, Transmission System Evaluation and Storage Analysis.

### **Task 5.2 Bureau Personnel Interview**

Interview Bureau engineering, operations and maintenance personnel about the above and evaluate the information gathered for its value to the IMP.

### **Task 5.3 CIP Review**

Review the current CIP for projects which may change the IMP direction or be changed by it.

### **Task 5.4 Review Other Agencies/Projects**

Review and summarize impact of other agency CIPs or strategic projects with respect to the IMP and Bureau CIP. These include the following but not limited to:

- Port of Portland
- Bureau of Environmental Services (BES)
- Oregon Department of Transportation (ODOT)
- Multnomah County
- Clackamas County
- Metro
- Portland Department of Transportation (PDOT)
- Portland Development Commission (PDC)

### **Task 5.5 Paper Evaluation**

Do a "paper evaluation" of the Bureau's and other agency projects for their impact on the IMP development and results of interim scenario evaluations. Decide on the need for more data gathering or in-depth investigations.

### **Task 5.6 Compare Outside Projects with RWSP Goals**

Compare the above list of projects and programs with outside master plans and the RWSP goals and determine if and where conflicts exist. Review these with the Project Team.

### **Task 5.7 Evaluation Matrix**

Develop a final listing of all projects and programs and create a evaluation matrix for determining what policies are needed and potential changes. CIP issues will be integrated into the IMP.

### **Meetings and Deliverables**

1. Meeting with Project Team to develop list of facilities and programs not covered by Elements 3 and 4

2. Discussions with Bureau staff regarding operation and planning issues; CIP and RWSP development
3. Draft Tech Memo with summary of findings and impacts to the IMP
4. Final Tech Memo containing the Evaluation Matrix of projects and programs to be reviewed or changed

#### **Bureau Deliverables**

1. Facility reports/programs to be evaluated in Element 5.0

## **Element 6.0 Vulnerability**

The System Vulnerability Analysis (SVA) is a parallel project with the IMP. The IMP and SVA need to coordinate their activities with the stakeholders as well as system evaluations and the SVA results need to be integrated into the IMP.

### **Task 6.1 IMP/SVA Integration**

Integration with the SVA will occur at the following SVA scope elements:

- Task 3.4 - Ranking System/Deficiency Identification
- Task 3.5 - Quick Fix Opportunities
- Task 3.6 - Mitigation Alternatives
- Task 3.7 - Cost Benefit Analysis

SVA projects that address vulnerability issues exclusively should proceed with the cost benefit analysis; other projects are to be evaluated in Task 1.4, Scenario Development and Analysis.

Provide a summary of the SVA to incorporate in the IMP Report.

### **Task 6.2 IMP/SVA Coordination**

Coordinate the criteria development and evaluation, facility surveys, and monthly coordination meetings between the IMP and SVA.

### **Task 6.3 IMP/SVA Workshop**

Conduct an IMP workshop with the Project Team, PEER Review Team, and interested stakeholders to summarize the vulnerability results and incorporate in the final plan.

#### **Meetings and Deliverables**

1. Monthly coordination meetings
2. SVA Summary
3. IMP/SVA Workshop

## **Bureau Deliverables**

1. Provide SVA project deliverables

## **Element 7.0 Rate Impact Analysis**

The primary objective of this work is the validation of the Bureau financial models and their use in determining financing options and rate impacts of the proposed IMP alternatives.

The Consultant Team's scope of work for this element includes the following tasks, as desired by the Bureau:

### **Task 7.1 Model Review**

Review the financial and rate models already developed and in use at the Bureau for applicability to the IMP.

### **Task 7.2 Alternatives Development Assistance**

Provide input, as desired by the Bureau and as needed, for alterations to the model and do beta testing as required for applicability to the IMP and WIRM. Assistance will consist of providing a "sounding board", participating in development and planning, and providing independent testing of the model. As an option the Bureau may want to include an initial affordability scan for the scenarios as part of the financial evaluation.

### **Task 7.3 Benefit Assessment**

Assess IMP scenario and resulting project benefits and allocation of these benefits among customers and wholesale users. Establish benefits to the Bureau and its rate payers and coordinate with regional contracts.

### **Task 7.4 Rate Impact Model**

Validate and have the Bureau use the rate model to develop financing and rate impacts for recommended IMP projects and scenarios. Review Bureau financial policies and provide suggestions for additional financing options for the Bureau.

### **Task 7.5 Financing Options**

Finalize recommendations for CIP options and alternatives based on above results.

### **Meetings and Deliverables**

1. Meeting with Project Team to review existing financial and rate models and establish criteria for use
2. Meeting to coordinate financial analysis and results with wholesale contract development work
3. Tech Memo summarizing IMP financial analysis and rate impacts

## **Element 8 Water Infrastructure Resource Model (WIRM)**

The Bureau has requested the construction of a WIRM to assist with making supply/source and infrastructure investment decisions. The WIRM's primary purposes are to support development and evaluation of alternative operational and infrastructure scenarios and to integrate data and information in a comprehensive and manageable process. This model will be an integral part the IMP and will address capacity, demand, growth, vulnerability, and reliability issues. The WIRM will be a model that incorporates and integrates the following existing models or new models into an integrated single model structure:

- Demand Model,
- Simplified Rate Model,
- Hydraulic Model that includes approximately 75 demand nodes
- Yield Model that is comprised of components from the existing yield models and/or IR Planner, and
- Decision Support Programs.

It is also understood that model development is dependent upon level of desired detail and sophistication. As a result, we will need to carefully match expectations with the allowable budget and monitor both elements closely throughout the WIRM development. In order to accomplish the monitoring we have included several "process checks" concerning budget and expectations in the following scope tasks.

### **Task 8.1 WIRM Project Management**

WIRM development will require careful coordination between the Bureau's and consultant's project teams (both for the WIRM and the IMP) and other identified stakeholders. Clear definition of project roles is key to coordinating and managing the WIRM. The WIRM project management will use the same approach outlined for the overall project and for the IMP.

### **Task 8.2 Yield Model Assessment**

Review the existing yield models of the Bureau and IR Planner and determine what components can be used in the WIRM.

### **Task 8.3 Needs Assessment**

To ensure that the WIRM meets the needs of all participants, we will hold workshops (described below) at important junctures in the study to obtain informed input from the participants. These workshops will allow critique of the model at critical stages. Workshop results will continue to define who will use the model, how it will be used, and how its outputs will be properly incorporated into the Bureau's decision making.

**8.3.1 Conduct Needs Assessment Workshop:** The WIRM consultant team will conduct a workshop with appropriate Bureau team members and stakeholders to begin

developing detailed needs for the WIRM (Workshop 1). In this workshop, participants will help "system engineer" the model by defining specific functions (what the model will do), requirements (how well it will be done), and architecture. Special effort will be applied to understanding how the model results will integrate with the IMP decision making process.

- 8.3.2 Evaluate Software Options:** The outputs of Task 8.3.1 will provide insight into the range of possible software options and approaches available to construct the WIRM. This tool must be user-friendly and capable of being revised. A wide range of modeling approaches can be used to develop the WIRM. Each approach has its advantages and disadvantages. To select the appropriate software tool or tools, we will use the information developed in Workshop 1 to evaluate the potential of each of the approaches. Potential criteria to consider include ease of model development, ease of model use, ease of model modification, training requirements, hardware requirements, graphical features, speed of execution, general flexibility, ability to interface with other software, and costs. The cost discussion will include not only the software cost but also the cost of installation on the Bureau system, its ability to use via a server or reside independently on personal computers, maintenance, and the potential for obsolescence.
- 8.3.3 Conduct Software Options Workshop:** During this task, we will conduct Workshop 2 to inform study participants about the range of modeling approaches available to meet the needs of the Bureau and stakeholder groups. After defining criteria with the Bureau and stakeholders and after receiving their input upon viewing potential software approaches, we will work with the Bureau to select the WIRM software. In addition, we will also estimate the overall WIRM costs using the selected software, including the cost items discussed in subtask 8.3.2, concerning cost of installation, maintenance, etc.
- 8.3.4 Model Milestone:** Review with the Bureau the proposed model to be developed and associated costs. Meet with the Steering Group to obtain concurrence on proceeding to Task 8.4

## **Task 8.4: Model Development**

The final WIRM will be created in a three-phase process. Each phase will include review and assessment by the Bureau's project team and other specified stakeholders. This approach will ensure that the final project meets the needs of the Bureau and that deficiencies in model development will be quickly corrected without a loss of time or resources. The first subtask, Mock Model development will provide the specific budget amounts for the overall WIRM development. At the completion of the mock model task, there will be workshop and training session where the model will be "test driven". During the model test drive final development and installation costs will be presented and reviewed with the Bureau for their approval and notice to proceed with subsequent development.

- 8.4.1 Develop Mock Model:** We will construct a mock WIRM. This model will illustrate the basic structure of the future WIRM and the range of available alternatives. The mock model will contain all of the basic elements that we anticipate will be used in the final WIRM, but will not include the same level of sophistication or quality of



data. The mock model will provide the Bureau and stakeholders with something concrete to review and critique early in the modeling process and will illustrate the challenges to be faced in the final development of the WIRM. This model will also help the Bureau and stakeholders envision how the tool will be integrated into the overall IMP planning process.

From this evaluation, we will prepare a preliminary data presentation display (DPD) to use data output from the Bureau's other models (demand, hydraulic capacity, IR Planner, etc.). The presentation tool, will be a Windows-based interface designed to function in a client/server environment. We will evaluate data outputs and establish display criteria to determine how historic and modeled data will be captured and stored. The DPD will display the evaluated data in a graphic form (table, chart, map, schematic, etc.) appropriate to the data output. It is also intended for the DPD to display Bureau data and water system model outputs. We will link the DPD to model outputs through a data warehouse.

Conduct workshop and training session: When the mock model is completed, we will conduct a 2-day workshop (Workshop 3) with the Bureau and stakeholders to review and critique the model formally, to define future direction for model development, to provide the opportunity for early course correction, and to present the cost of final model development and installation. We will also provide hands-on experience and training to use the mock model.

We will provide the preliminary DPD and selected components of the linked models to Bureau staff for a testing period. This "proof of concept" approach will allow the Bureau to see and "drive" the system in an early prototype stage before committing significant budget to any one aspect of the WIRM. We will coordinate our efforts with the IMP work to create a relevant early scenario available for the Bureau for this alpha-testing. Through the test period and a subsequent stakeholders workshop, we will adapt, revise, or expand components of the WIRM to meet user needs. After this review period and subsequent modifications the final WIRM budget will be approved by the Bureau and the Consultant Team will be given "notice-to-proceed" with the remaining development.

**8.4.2 Model Milestone:** Review with the Bureau the proposed model to be developed and associated costs. Meet with the Steering Group to obtain concurrence on proceeding to Task 8.4.3.

**8.4.3 Develop Prototype Model:** After completing the mock model, we will use it to develop the prototype model. This model will incorporate feedback from the Bureau project team and Workshop 3. During this phase, we will enhance the model and incorporate all essential features necessary to meet the defined functions and requirements of the model. We will also finalize data inputs and implement final computational approaches.

Conduct workshop and training session: We will present the prototype model to the Bureau and stakeholders during Workshop 4. Emphasis will be placed on ensuring that the model performs at the appropriate level of detail the functions defined by the Bureau and stakeholders. We will also conduct a second day of workshop for

hands-on experience, using the scenario example from the mock model to train people in the use of the prototype model.

**8.4.4 Model Milestone:** Review with the Bureau the proposed model to be developed and associated costs. Meet with the Steering Group to obtain concurrence on proceeding to Task 8.4.5.

**8.4.5 Develop Final WIRM:** We will finalize the WIRM based on the Bureau's critique of the prototype model, ensuring that the outputs of the model are presented in the most effective fashion. During this phase, we will address any remaining details and prepare the model calibration and verification.

Conduct workshop and training session: When the initial work on WIRM is completed, we will conduct Workshop 5 to reach agreement on the final form and content of model output and to focus on how best to incorporate the model with the Bureau's IMP planning process. We will provide a second day to the workshop (Workshop #6) for hands-on experience and training in the use of the WIRM.

### **Meetings and Deliverables**

- 1 . Draft Technical Memorandum on assessment of existing models.
- 2 . Workshops: #1) needs assessment and #2) software options
- 3 . Steering Group Meeting to review proposed model and costs
- 4 . Draft Technical Memorandum on the needs defined for the WIRM
- 5 . Draft Technical Memorandum on the recommendation of software to use for the WIRM
- 6 . Workshop #3: Mock Model
- 7 . Mock Model
- 8 . Steering Group Meeting to review Mock Model and costs
- 9 . Preliminary data presentation display
- 10 . Workshop #4: Prototype Model
- 11 . Prototype Model
- 12 . Steering Group Meeting to review Prototype Model and costs
- 13 . Workshops #5: Final Model
- 14 . Draft Technical Memorandum on the detailed description of the calibration and verification process for the model
- 15 . Final WIRM
- 16 . Workshop #6: Training

17 . Draft Technical Memorandum on the WIRM documentation.

18 . FINAL Technical Memorandums (5) with recommendations after Bureau Project Team review.

## **Element 9 Final Report and Implementation Plan**

The Infrastructure Master Plan Report will be developed from the previous iterations including the Task 1.3, Evaluation Framework and Task 1.4, Scenario Development and Analysis. The report will be developed as an iterative process, consequently upon completion of the Evaluation Framework, the IMP outline or framework will be developed. After the initial scenario analysis and development an interim IMP report will be drafted, which at the completion of the analysis will provide the basis for the final draft plan. Upon completion of the draft IMP review and implementation plan the final IMP will be created for adoption by the Bureau.

### **Task 9.1 Prepare Draft Infrastructure Master Plan**

The draft plan will be developed based on the Task 1.3 Evaluation Framework, that consisted of the first IMP iteration. The draft outline will be reviewed by the Steering Group and Planning Process Team. Report production will begin upon final outline approval by the Bureau. The draft IMP will compile the work effort and work products from IMP scope elements, stakeholder input, the results of Elements 2 through 7, and the final result of related and ongoing Bureau projects such as, Open Reservoir Study, Powell Butte, and other infrastructure planning efforts that have been or near completion.

The draft plan will be structured around the documented planning process used to develop and evaluate scenarios. This will allow future flexibility for updating the IMP and considering other scenarios that may evolve, and were not considered in this effort. The plan will include a recommended plan for capital facilities development and CIP prioritization that is consistent with the Bureau's vision and strategic direction.

### **Task 9.2 Implementation Strategy and Review of Draft Infrastructure Master Plan**

The main purpose of the IMP process is to integrate the Bureau's planning and to create an approach that builds ownership of the IMP by all staff who have a stake in its implementation. Combining the IMP draft review with implementation strategy development will set the basis for developing an action plan to implement the IMP. The objective of the strategy development will be to create an IMP implementation program that identifies and rates each project implementation dependency and obstacle. These ratings will consider the Bureau's strategic direction and vision regarding supply, reliability, level of service, and water rates. The following items elements will be included in developing the implementation plan:

- Create a systems approach that relates recommendations and actions
- Link each recommendation or action to a major goal or plan objective
- Provide the necessary tasks to implement the plan or goal

- Identify the projects and proposed system improvements integrated into the existing CIP
- Identify barriers to implementation
- Document project needs and consequences of no implementation
- Provide a project implementation schedule
- Assess the current management structure for plan implementation
- Develop a contingency plan for project implementation where barriers may exist
- Identify the implementation costs and the financial allocation(s)

A draft implementation plan will be prepared as part of the overall IMP document. This draft plan will be circulated to primary stakeholders for review. A workshop of the Planning Process Team, Peer Review Team and representative stakeholders will follow to evaluate the plan and discuss alternative strategies as needed and desired.

Public outreach will be conducted to present the draft plan and solicit comments. This will include a Fact Sheet and draft news release.

A Planning Process Team will then be held to finalize the draft plan (in conjunction with regular Team/Bureau meeting.)

#### **Meetings and Deliverables**

1. Evaluation Framework/Plan Outline
2. Meeting to review Draft IMP Outline
3. Interim IMP
4. Draft Plan packets distributed to up to 40 stakeholders
5. Draft Implementation Plan
6. Workshop with stakeholders and Peer Review Team to review implementation plan
7. Fact sheet
8. Draft press release
9. Planning Process Team Meeting to refine plan

### **Task 9.3 Prepare Final Infrastructure Master Plan**

The final IMP will be prepared based on stakeholder comments and input. The draft plan recommendations will be presented to the City Council for their concurrence and adoption before proceeding with finalizing the IMP and implementation plan.

#### **Meetings and Deliverables**

1. Draft Plan meeting with City Council
2. Final IMP

## **Element 10 Peer Review**

The object of this element is to provide independent technical oversight to the IMP with a Bureau selected team. The Consultant Team will provide two members for the Peer Review Team and will work with Bureau to select and develop the IMP Peer Review Team. The

Bureau will contract independently with the Peer Review Team members, except for the two members from the Consultant Team.

The Consultant Team will be responsible for the Peer Review meeting preparation, facilitation, and reviewing comments and issues with the Bureau prior to and following the meetings. Summaries of each meeting will be prepared for review by the Bureau. The results of these meetings will be incorporated into the planning process and documents as directed by the Bureau.

The Peer Review Meetings are scheduled within the following elements/tasks:

1. Task 1.3 - Evaluation Framework
2. Task 1.4 - Scenario Development and Analysis
3. Task 6.3 - SVA/IMP Coordination
4. Task 9.2 - IMP Draft Report and Implementation Plan

### **Meetings and Deliverables**

1. Four Peer Review Meetings
2. Peer Review Meeting Agenda(s)
3. Peer Review Meeting Summaries
4. Updates to the IMP Planning Process and Documents based on meeting results

## **Element 11 Project Management**

The Project Management element is structured to manage the overall IMP process, budget and schedule, and also coordinate with other pertinent on-going Bureau projects.

### **Task 11.1 Chartering Workshop**

A Project Team chartering workshop will be conducted with the Bureau project team members and the Consultant team. The purpose of the workshop is to create the team's self-definition: purpose, measures of success, behaviors, roles and responsibilities, operating guidelines, communications and decision making during subsequent planning and project activities, and establishing project parameters.

### **Task 11.2 Project Management Plan**

Based on the results of Task 11.1 and discussions with the Water Bureau, develop a Project Management Plan which will include:

- Project Definition:
  - Scope
  - Objective
  - Work Breakdown Structure

- Resources: project organization chart, task leaders and responsibilities, key project staff identified with contact location(s).
- Schedule: a critical path schedule, resource loaded, with checkpoints, reviews, tasks relationships, including milestones, deliverables, and meetings
- Budget: budgets will be prepared and tracked by project element
- Project Instructions:
  - Project Team roles and responsibilities
  - Procedures
  - Controls
  - Progress Measures
  - Records Management
  - Budget Management
  - Billing
- Quality Management Plan: coordinating with the Peer Review Team
- Change Management Plan: developed in conjunction with the Bureau
- Communications Plan
- Data Management Plan
- Document Production Plan
- Project Closure

### **Task 11.3 Progress Reporting**

Weekly discussions will be held between the Bureau's Project Manager and Consulting Project Manager, providing an oral update on the week's activities and upcoming project elements. Progress meetings will be held on the fourth Thursday of every month for the project duration. It is estimated the 24 meetings will be scheduled. Meeting summaries will be drafted, reviewed by the Bureau, and distributed to the meeting's participants.

The monthly meeting agenda will include a project progress status report, that describes the previous month's work and expenditures. An estimated time and cost to complete each project element will also be included. The progress status report will also include any deviations from the project instructions, schedule, or budget. The meeting discussion will focus on current issues and tasks, plans and approaches for future activities, expenditures, and schedule updates, as needed.

### **Task 11.4 Project Completion and Transition Plan**

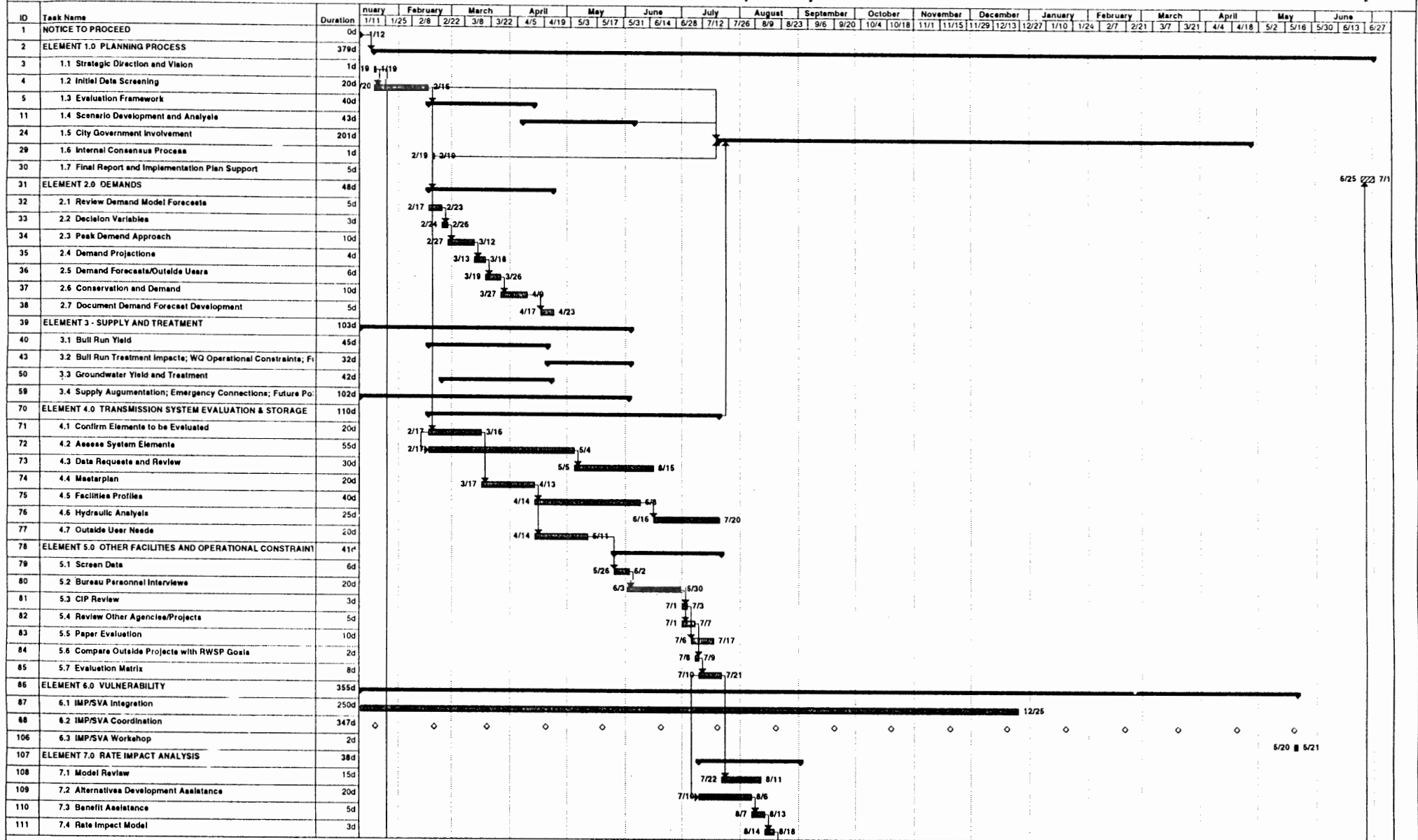
The final project task will be a completion and transition plan where the Bureau transitions into the planning process developed in the IMP. The plan will be developed jointly with the Steering Group and the Consultant Team.

#### **Meetings and Deliverables**

1. Chartering workshop

2. Project management Plan
3. Weekly project management meetings
4. Monthly project coordination meetings and progress status reports
5. Transition plan

# EXHIBIT B Project Schedule Infrastructure Masterplan Project



Project:  
Date: 12/10/97

Task  
Critical Task

Progress  
Milestone

Summary  
Rolled Up Task

Rolled Up Critical Task  
Rolled Up Milestone

Rolled Up Progress