6.0 RECOMMENDED FUTURE ACTION

A. PROPOSED SCOPE FOR PHASE III CWMP

Phase III of the CWMP involves evaluation of the most feasible options for managing the future wastewater needs of the Town of Oxford. The scope for this work is as follows:

1. Evaluation Criteria

a. Hydrogeologic Evaluation

Field testing is required in order to evaluate the feasibility of siting groundwater recharge sites for wastewater effluent in Oxford. The sites identified in Chapter 4 of this report will undergo hydrogeologic evaluation. Field testing at these sites will include soil borings with subsequent installation of groundwater monitoring wells, test pits to groundwater to confirm soil classifications, percolation testing and double ring infiltrometer testing. In addition, mounding analyses will be conducted using groundwater flow modeling software. Large scale load testing will be conducted at each potential site to calibrate and confirm the model. This information will be used to predict groundwater mounding under the full projected loading conditions. Baseline water quality and Zone II impacts will also be assessed as part of this sub-task.

b. Evaluation of Costs

We will perform a cost-effective analysis on the short list of alternatives identified following completion of Task 1.a. This analysis will include a calculation of the direct monetary costs of each alternative using present worth or equivalent uniform annual cost as a basis. The analysis will include consideration of all project costs over the planning period.

We will develop a cost-effective analysis for each alternative and will include all costs associated with construction and operation of the wastewater facilities included in each plan alternative. Costs to be included in this analysis are: (1) the capital costs including the cost of construction of the wastewater facilities and any costs associated with the lease, easement or acquisition of land and rights-of-way; (2) the cost of engineering, legal, fiscal and administrative elements of the project; (3) contingencies; (4) operation and maintenance costs including labor, utilities, materials, contractual services, expenses, and replacement of equipment and parts to ensure effective and dependable operation during the 20-year planning period; and (5) the salvage value based on a straight line depreciation from the initial cost at the time of analysis to the end of the 20-year planning period. The construction cost index from the Engineering News Record will be utilized and referenced in the capital cost estimate. We will also discuss the impact that grants and loans have on the cost-effective analysis.

c. Environmental Evaluation

We will screen the most feasible options for their environmental impacts. The number of alternatives will be reduced by the rejection of alternatives due to adverse impacts. The evaluation

will assess both beneficial and adverse direct and indirect environmental impacts of each alternative. The potential for mitigation of direct and indirect adverse impacts will also be evaluated for each alternative. Such mitigation measures may include: changes in design, size or location of facilities; rerouting of sewers to avoid sensitive areas; phased construction of facilities; or additional controls for noise, odor and aesthetic impacts.

d. Institutional Arrangements

Included in the evaluation of alternatives will be a comparison of the existing institutional arrangements and those required to implement each alternative. We will identify the organization that will be responsible for the management of the wastewater facilities for each alternative, and will estimate the costs to each jurisdiction for construction, operation and maintenance of the facilities.

e. Conventional vs. Alternative Sewer Systems

We will compare alternative arrangements of interceptors and trunk lines to determine the most cost-effective configuration. The sizes of interceptors will be based on design flows and a cost-effective analysis of alternative pipe sizes. The cost-effective analysis for collector sewers will compare conventional gravity sewers with alternative sewer systems such as low pressure sewers. We will present the preliminary routing on a map that delineates the areas of need over the 20-year planning period.

f. Location of Facilities

We will evaluate sites for wastewater treatment, groundwater recharge of wastewater effluent, interceptors, transmission lines, and pump stations based on the following considerations: (1) to locate facilities away from residential areas that would be affected by odors; (2) to minimize aesthetic problems through proper design and landscaping at the facility sites; and (3) to locate facilities outside of environmentally sensitive areas.

g. Phased Construction

We will include a cost analysis of phased development in this plan. Factors that will be considered are: relative cost of providing excess capacity initially compared with the present worth of deferred costs for providing capacity when needed; uncertainties of projected long-term wastewater flows; and possible technological advances or flow/waste reduction measures that may limit the need for excess capacity.

2. Plan Selection

The selected plan will be cost effective and will be the most economical means of meeting the applicable public health requirements over the design life of the facilities while recognizing environmental, technical and institutional considerations.

a. Comparison and Ranking of Alternatives

Using the evaluation of the short-listed alternatives performed in Task 1 as a basis for costs, environmental impacts and benefits, we will compare and rank the alternatives. We will consider impacts in quantitative terms, wherever possible, or by a narrative description. We will account for environmental impacts, monetary costs, implementation capability, and regulatory, design and reliability requirements.

3. Public Participation

Throughout Phase III, the public participation program will continue. Regular meetings with the Oxford CAC will continue to review the alternatives and evaluate the most feasible options. FST will also attend and make a presentation at a public meeting.

4. Preparation of Written Report

The deliverable for Phase III will be a report that summarizes the most feasible option available for Oxford for wastewater management over the 20-year design period.