

EXECUTIVE SUMMARY

This document provides an overview of the City of Milford's Combined Sewer Overflow Long Term Control Plan. The Long Term Control Plan is the culmination of two years analysis of the City's Combined Sewer System. The analysis provided a detailed examination of the system's history, operation and relation to the general area, including sensitive areas. The overview presented below includes a summary of the history, objectives, alternative technologies considered, recommendations and costs.

System History

The City of Milford has been engaged in combined sewer management activities for over 50 years. During this period a number of system physical improvements as well as planning and designing studies have been conducted on the wastewater collection system.

In October 1995, the City completed the *Wastewater Treatment System Feasibility Report*. This study was prepared to assess the impact of continued development on the wastewater treatment plant. The Feasibility Report addressed elimination of combined sewers, developed short term strategies for improving the performance of the existing and projected effluent limitations, and analyzed four alternatives for providing additional wastewater treatment.

In February 1996, the City completed a Wastewater Flow Projections Report for the next 20 years. This study recommended increasing the 1.2 MGD average design flow estimate in the October 1995 Wastewater Treatment System Feasibility Report to 1.5 MGD. At that time, the revised estimate of 1.5 MGD design average flow nearly doubled the existing average flow capacity of the wastewater treatment plant (WWTP).

The United States Environmental Protection Agency (U.S.EPA) issued draft guidance for CSO management in December 1992. The guidance called for the rapid implementation of nine short term control measures as well as the development of a comprehensive long term program aimed ultimately at meeting Water Quality Standards (WQS). The U.S. EPA CSO policy was formally adopted in April 1994. In response to the nationwide guidance, Ohio EPA (Ohio EPA) finalized specific state guidance on CSO policies in March 1995. Emphasis is placed upon meeting the WQS including aquatic life habitat use designations and recreational use designations (bacteria). The Ohio EPA strategy is particularly focused on meeting the biological regulations in the WQS which they feel best reflect the impact of intermittent discharges.

With this background in mind, the City undertook the preparation of both a short-term and long-term control plan. The short-term plan was completed and submitted to the Ohio EPA in July 1997. This long-term plan expands upon the short-term plan and provides a specific, effective program for CSO management. The final plan will be founded on meeting the local community standards, as well as U.S. EPA and Ohio EPA requirements.

Program Objectives

The objectives of the combined sewer overflow program were developed to create a responsible, implementable plan to meet regulatory compliance and community standards.

Regulatory Compliance

The U.S. EPA and Ohio EPA have adopted CSO policies that include short term "nine minimum" controls and development of a Long Term Control Plan (LTCP) to comply with state WQS.

Short Term Requirements: The short term, "nine minimum" controls were to be completed as soon as practicable but no later than January 1, 1997. These "nine Minimum" controls are intended to achieve some level of control of CSO discharge as the City develops and implements the LTCP. The "nine minimum" controls are:

1. Proper operation and regular maintenance programs for the sewer system and the CSOs;
2. maximum use of collection system for storage;
3. review and modification of pretreatment requirements to assure CSO impacts are minimum;
4. maximization of flow to the POTW for treatment;
5. prohibition of CSOs during dry weather;
6. control of solid and floatable materials in CSOs;
7. pollution prevention;
8. public notification to insure that the public receives adequate notification of CSO occurrences and CSO impacts; and
9. monitoring to effectively characterize CSO impacts and the efficiency of CSO controls.

Long Term Control Plan: The U.S. EPA Policy and Ohio EPA strategy requires evaluation of control alternatives based upon the "presumption" or "demonstration" approach. The "presumption" approach presumes WQS are met by achieving one of the following:

1. Four or fewer overflow events per year (an overflow event is defined as an overflow of the collection system resulting from precipitation)
2. elimination or treatment of 85 percent of combined sewer flow volume collected during rainfall events on a system-wide annual average
3. reduction of mass loadings causing water quality impairment

The minimum level of treatment for the "presumption" approach is primary clarification, solids and floatables removal, and disinfection. Nevertheless, follow up and monitoring

may reveal that WQS are not being attained and additional measures will be needed using the "presumptive" approach.

The "demonstration" approach is based on the following criteria:

1. Controls are adequate to meet WQS and protect designated uses;
2. Overflow discharge remaining after implementation of the program will not cause or contribute to violation of WQS or designated uses;
3. Controls will provide the maximum pollution reduction reasonably attainable; and
4. The program allows for cost effective expansion or retrofitting.

This long term control plan was designed to achieve the criteria shown in the presumptive approach (four or fewer overflow events per year).

Community Standards

Various public perspectives were valuable in developing the community standards related to CSO abatement. The community standards include the following:

Aesthetics: Control of overflow related, visually displeasing, and objectionable solids and floatables entrapped in the stream bed and flood plain system.

Public Health: Control of harmful bacteria and viruses associated with untreated sewage

Sensitive Areas: The receiving waters is a national and state scenic river

Current Projects

The City of Milford is presently undertaking a number of current projects that will have an impact on CSO and wet weather control. The following projects have already been incorporated in the CSO plan.

- Nine minimum controls (listed previously)
- I/I reduction which will reduce wet weather flows to the sanitary portion of the collection system hence combined sewer overflows discharged to the receiving streams.
- Internal inspection of sewers
- Maximizing flow to the treatment works through plant improvements
- Participation in regional water quality studies
- Examining regionalization of treatment system operation

Alternative Technologies Considered

Through the City's prior planning, a large number of CSO control alternatives have been examined and screened. The previous evaluation efforts have been reviewed and form the basis for selecting the most effective CSO control alternatives. Infeasible or poorly performing measures were abandoned from further consideration. In the course of the

present project, a detailed evaluation of the combined sewer system throughout the City's service area was also undertaken. Physical inspection, review of maps, plans and reports as well as flow monitoring were employed to establish the behavior of the present system and to identify opportunities for system improvement leading to higher levels of CSO control. Technologies that were considered and evaluated include:

- Complete Sewer Separation
- Storage Tanks
- Screening
- Disinfecting

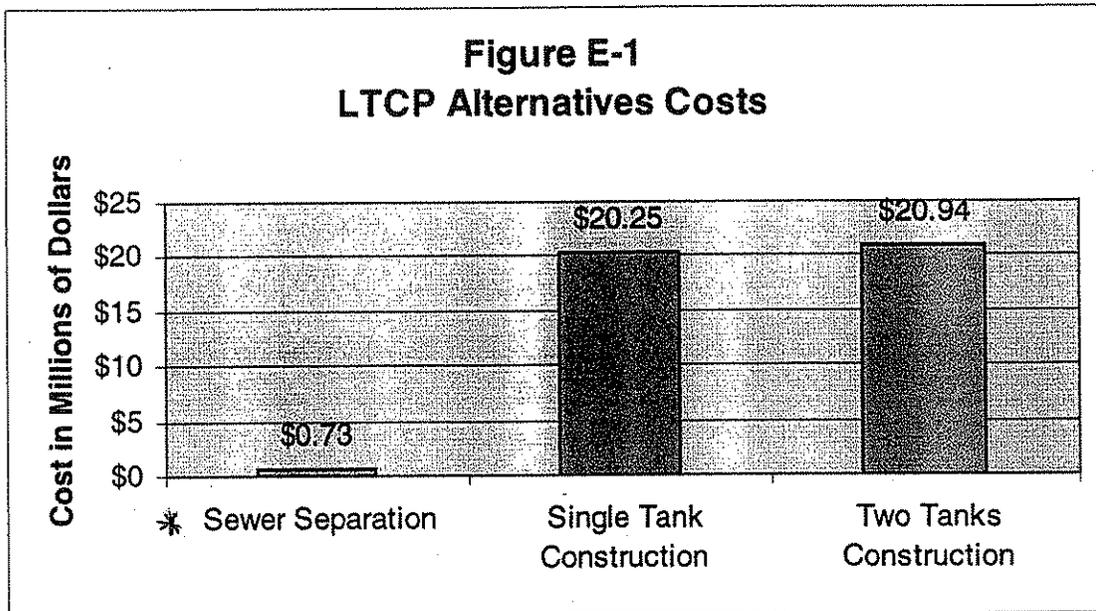
The alternative technologies evaluated considered pollutants, volumetric control and overflow frequency. The evaluation process included cost effectiveness based upon volumes of flow, frequency of flow, and other significant criteria. The major alternatives evaluated can be grouped into three primary categories:

- *Complete Sewer Separation (Recommended Plan)*: Under this alternative all combined sewer areas would require new sewer construction to allow completely separate storm and sanitary sewer systems. This would also require considerable work on private property to isolate storm and sanitary flows for each residence.
- *Construction of Two CSO Storage Tanks*: This alternative incorporates two storage facilities at specific CSO locations (the City of Milford has two CSOs). Facilities consist of below ground structures which would perform as follows:
 - Complete capture of small rainfall events
 - Capture of the first-flush of large rainfall events
- *Construction of One CSO Storage Tank*: This alternative incorporates one CSO storage tank and the elimination of one CSO by consolidating to one spill point. The single tank will make operation easier and reduce operational costs compared to the two tanks construction. Facilities consist of below ground structures which would perform as follows:
 - Complete capture of small rainfall events
 - Capture of the first-flush of large rainfall events

Program Costs

A summary of unit costs for the three alternatives examined in this study is presented in Figure E-1. This graph depicts the relative costs for each alternative.

**Figure E-1
LTCP Alternatives Costs**



* Costs do not include legal, administration, engineering, or contingencies.

Summary of the Recommended Plan

The long-term recommended plan is sewer separation. This alternative provides the greatest benefit for the least cost.

*est. \$900,000 w/ Engineering
Could Phase approach*

This plan provides a strategy based upon cost benefit, feasibility, and operation and maintenance issues. However, the ultimate strategy adopted by the City may vary depending upon additional factors beyond this study. The City of Milford operates a small combined sewer system and the City has a population well under 75,000. As such, the City may not need to complete each of the formal steps of a LTCP as outlined in the Policy. However, as a minimum, the City should follow a LTCP that provides for the attainment of WQS and includes the following elements:

- **Implementation of the NMC (II.B)** *9 min.*
- **Public participation (II.C.2)**
- **Consideration of sensitive areas (II.C.3)** *→ Section 4*
- **Compliance monitoring program (II.C.9).**

Water Quality Standards must be met