



# **APPENDIX F**

## **WASTEWATER CAPACITY**

### **SLIDE PRESENTATION**

# Wastewater Treatment Capacity Comprehensive Plan Workshop



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Presented by:



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# 2006 Wastewater Facility Plan

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- # Background
- # Planning Criteria
  - Population
  - Flow and Loadings
- # Effluent Design Criteria
- # Evaluation of Existing Facilities
- # Treatment Alternatives
- # Cost Estimate
- # Project Funding
- # Project Schedule

# Background

Existing Treatment Facility

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## # 1992 Wastewater Treatment Expansion

- 2010 Design Population 4,026

## # Existing Treatment

- Influent Lift Station
  - Flow Equalization
  - Screening
  - Aeration
  - Clarification
  - Sand Filtration
  - Chlorination
  - Post Aeration
  - Anaerobic Digestion
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# Existing Watertown WWTF



# Background

## Existing Treatment Facility

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- # Existing Facility is Designed to Treat:
  - Carbonaceous Biochemical Oxygen Demand (CBOD<sub>5</sub>)
  - Total Suspended Solids (TSS)
  - Total Kjeldahl Nitrogen (TKN)
  - E. coli and other infectious organisms
  
- # Existing Facility is Not Designed to Treat:
  - Total Phosphorus (P)
  - Mercury (Mg)

# Planning Criteria

Population (*updated*)

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# Existing Population 4,100

# Comprehensive Planning Population 7,700 - 9,000

# Evaluation of Existing Facilities

## Maximum Treatment Capacity

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### # Maximum Liquid Stream Treatment Capacity (aeration)

- Equivalent Population 4,800
- Estimated Connections / ERUs 2,110

### # Maximum Biosolids Treatment Capacity

- Current WWTF biosolids generation exceeds the biosolids treatment and storage capacity.
- Temporary “bags” can be used for additional storage for approximately 3-5 years. This is not a long term solution.

ERU = Equivalent Residential Unit

New connections estimated at 2.7 persons per ERU

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# Evaluation of Existing Facilities

## Estimation of Remaining Treatment Capacity

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### # Maximum Treatment Capacity

- Equivalent Population 4,800
- Connections / ERUs 2,110

### # Current WWTF Service

- Equivalent Population 4,100
- Connections / ERUs 1,850

### # Maximum Available Treatment Capacity

- Equivalent Population Increase 700
- **Connections / ERUs 260**

# Evaluation of Existing Facilities

## Recommended Improvements

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### # To Meet Design Conditions

- Preliminary Treatment Replacement
- Extended Aeration Expansion
- Clarification Expansion
- Filtration
- Biosolids Treatment and Storage

### # To Meet Anticipated Permit Limits

- Selector Basin & Chemical Feed (to meet phosphorus limit)
- Expanded Lab/Office Space (increased staff & monitoring)

# Project Schedule

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## # Completed to Date

- Adopt Facility Plan ✓
- Submit Facility Plan to MPCA ✓
- Public Hearing ✓
- MPCA Approves Facility Plan ✓

## # Completion of a Plant Expansion

- Submit Facility Plan Amendment for Approval
- Prepare Design Report for City Review
- Prepare Plans & Specifications
- MPCA Reviews Plans & Specs.
- Advertise, Bid & Award Construction
- Construction

3+ Years

# Project Schedule

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## # Timeline for Various Residential Growth Rates:

<b>ERUs/year</b>	<b>Time for 260 ERUs</b>	<b>Start Design</b>	<b>Complete Construction</b>
20	13*	2017	2020
40	6.5*	2010	2013
60	4.3	2008	2011

\* Biosolids improvements required prior to capacity expansion requirement.

# Project Schedule

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## # Slow Growth Rate

- Consider Project Phasing
- Phase I - Biosolids Improvements (within 3-5 years)
- Phase II – Liquid Treatment Improvements

## # Rapid Growth Rate

- Allow Adequate Time to Complete Construction Prior to Reaching the Maximum Treatment Capacity.

# Questions?

