

**Date:** March 15, 2006

**To:** Mel Odens, Director of Public Works

**Copy:** Brian Bollig, Assistant City Engineer  
Colleen Thompson, WWTF Superintendent  
Sam Lahanis, Program Manager  
File

**From:** Ken Sedmak, Senior Program Manager

**Prepared by:** Sandy Kimmler, Civil Engineer  
Ken Sedmak, Senior Program Manager  
Mike Gerbitz, Wastewater Engineer

**Attendees:** Mel Odens, Director of Public Works  
Brian Bollig, Assistant Engineer  
Colleen Thompson, WWTF Superintendent  
Jim Gauer, WWTF Foreman  
Terry Thole, Operator  
Rich Ronning, Attorney  
Lisa McCormick, MPCA  
Ben Koplín, MPCA  
Sam Lahanis, Donohue  
Ken Sedmak, Donohue  
Mike Gerbitz, Donohue  
Sandy Kimmler, Donohue

**Re:** Workshop No. 5 - Alternatives Analysis Workshop  
Wastewater Program  
City of Willmar, Minnesota  
Donohue Project No. 10831.105

Donohue & Associates conducted a workshop on January 4 – 5, 2006 to discuss collection system and wastewater treatment facility alternatives. The purpose of the Workshop was to either recommend a set of alternatives that comprise a “Plan” or “short-list” alternatives for further refinement. At the completion of the Workshop, a series of alternatives were selected. These alternatives may, however, require further refinement prior to completion of the Facility Plan.

Note No.	Action By	Note
<b>Hawk Creek</b>		
1	Information	The City’s attorney, Rich Ronning, discussed the process to obtain a permit to discharge to the proposed outfall location south of the proposed new WWTF. According to the attorney, this location is Ditch 46 and would require approval by the Kandiyohi County Board as well as the Ditch 7 Board. A map distributed by Sam Lahanis showed this location as Ditch 10. According to the attorney, the Boards with jurisdiction of the Ditches do not have to grant permission to discharge stating: “the ditches belong to the farmers.” The Team decided to proceed as follows: develop a resolution for the new proposed discharge and present it to the City Council, then the Kandiyohi

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		County Board, then the Ditch 7 Board. According to the attorney, this process could take six months.
2	Donohue	Research the “technical” aspects of the increased discharge. This should include showing the normal level in the ditch and adding the ditch level increase due to the wastewater plant discharge at present average flow and future flow.
3	Information	At this time, the only feasible alternative to accommodate growth in the City of Willmar is to discharge the additional growth-related flow to the Hawk Creek watershed. The Crow River watershed is currently off limits due to the downstream Lake Pepin issue and a lack of an executed TMDL.

### Collection System

1	Information	The MPCA prefers the City own the forcemain and pump stations that convey JOTS’ wastewater.
2	Information	In order to reduce the potential for odor problems, the team agreed that JOTS’ wastewater will be conveyed to the new WWTF separately from the City’s wastewater, as recommended by Tom Card.
3	Information	<p><b>PRIMARY INTERCEPTOR ALTERNATIVES</b></p> <p>Donohue reviewed the discussions and workshops leading to the current list of primary interceptor options. Selection of the interceptor route was based on three main objectives:</p> <ul style="list-style-type: none"> <li>• Convey wastewater from the existing WWTF to the new WWTF</li> <li>• Accommodate future growth areas</li> <li>• Alleviate capacity problems in the existing sewers and lift stations</li> </ul> <p>After reviewing many alternatives with the City of Willmar over the course of the past few months, the following were selected as the most feasible:</p> <p><b>Alternative “A”</b> includes 48-and 54-inch diameter gravity sewer along a route south from the existing WWTF to 28<sup>th</sup> Avenue, then west along 28<sup>th</sup> Avenue (or 28<sup>th</sup> Avenue extended) to the new WWTF. A utility easement would need to be acquired west of the existing city limits. With this alternative, the Ortenblad lift station could be eliminated, and replaced with a gravity sewer connecting to the new interceptor.</p> <p><b>Alternative “B”</b> includes dual 20-inch diameter force mains along a route south from the existing WWTF to 19<sup>th</sup> Avenue, then west along 19<sup>th</sup> Avenue to a point west of the existing city limits to a connection point with a future western collection sewer. From that point, the flow would be conveyed via a 54-inch diameter pipe under gravity flow conditions to the new WWTF.</p> <p><b>Alternative “H”</b> includes dual 20-inch diameter force mains along Willmar Avenue and S.T.H. 40 west to CTH 116, then south along CTH 116 to the new WWTF. This alternative requires an additional large lift station located near the western city limits.</p>
4	Information	The cost estimates for the primary interceptor were reviewed. The Team recommended Alternative “A” for implementation.

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5	Donohue	Prepare an exhibit showing only Alternate A. Send Mel an electronic copy of the exhibit along with the cost estimate for Alternate A.
6	Information	<p><b>SECONDARY COLLECTION SYSTEM ALTERNATIVES</b></p> <p>The existing Lakeland Drive interceptor is at capacity during significant storm events and is undersize for handling future peak flows. This issue will be considered independently from the primary interceptor alternatives.</p> <p>Two alternatives were developed to address capacity of the Lakeland Drive interceptor. The first, <b>Alternative C,D&amp;E</b> diverts flow from Eagle Lake Sanitary District and portions of the City of Willmar to a series of new collection system components. The flow would be routed west to the new WWTF via a forcemain or gravity sewer between Willmar Lake and Swan Lake (Alternative E), to a new northern interceptor (Alternative C), and then to a new western interceptor (Alternative D), thereby reducing flow to the Lakeland Drive interceptor</p> <p><b>Alternative L</b> is to reconstruct the Lakeland Drive interceptor to accommodate future flow from Eagle Lake and Basins 1(Country Club Drive) and 2 (State Hospital). No flow would be conveyed directly to the new WWTP from these basins. Therefore, alternatives C and D would not need to be constructed in order to solve the Lakeland Drive interceptor capacity problems.</p> <p><b>Alternative D</b> will be considered for implementation regardless of the outcome of the Lakeland Drive interceptor evaluation because it can be constructed in phases and will be able to accommodate flows from development west and north of the current city limits and the new industrial park. These flows will be conveyed directly to the proposed primary interceptor to the new WWTF. Flow to the Airport lift station could be conveyed to the Alternative D interceptor entirely by gravity sewer, allowing the Airport lift station to be take out of service.</p>
<b>Existing WWTF – Interim Period</b>		
1	Donohue	As the process of developing a plan moves forward, continue to consider the potential of constructing a new RWW pump station ahead of the Year 2010 start-date so it could be used as an excess flow pump station prior to startup, the possibility of modifying the existing site to accommodate a gas-driven and a portable excess flow pump that the City could use as an excess flow pump as well as a general purpose pump anywhere in the system. Keep the alternatives as they currently are until the City provides direction on “the next step”. These alternatives could, however, be part of a subsequent refinement.
2	Information	<p>The Team recommended the following alternatives for implementation:</p> <ul style="list-style-type: none"> <li>• EIFM-C – Enhance Flow Monitoring</li> <li>• EIEP2-C – Upgrade Existing Excess Flow Pump Station (consider potential to modify EIEP1-C)</li> <li>• EIEC1-C – Investigate and Implement Chemically-Enhanced Primary Treatment</li> </ul>

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		<ul style="list-style-type: none"> <li>EIEC2-C – Investigate and Implement Variable Trickling Filter SK Factor</li> </ul> <p>Several alternatives were deemed worthy of further consideration:</p> <ul style="list-style-type: none"> <li>EIEP1-C – Portable Gas-Driven Flow Pump. For it to be feasible, this alternative would require site modifications to reduce the suction lift of this pump. The cost of this alternative would increase.</li> <li>EIEC5-C – Increase Liquid Solids Storage – If the total Plan includes liquid biosolids storage, then this alternative would be feasible. It would be implemented by accelerating the schedule of the new liquid solids storage facilities.</li> </ul>

**Existing WWTF – Future Period**

1	Donohue	As the process of developing a plan moves forward, continue to consider the potential for using the existing screen/pump station structure to house a coarse screen and wastewater pumps. It might be possible to develop a sequencing plan that would allow this structure to be dual purpose during construction and then modified to only pump to the new collection system components that convey wastewater to the proposed new WWTF. Keep the alternatives as they currently are until the City provides direction on “the next step”. This alternative could, however, be part of a subsequent refinement.
2	Donohue	The plan is to remove all structures except the Admin/Lab/Maintenance Building and the Anaerobic Digester Complex. The remainder of the existing site would be returned to “lawn.” At present, one new structure would be constructed at the existing WWTF site: the new RWW pump station. As stated in the previous note, alternative means of constructing an RWW pump station will be investigated during preliminary design.

**Future (New) WWTF**

1	Donohue	Provide installation list for screw pumps. The City (and MPCA) is interested in knowing where this style of pump has been installed and operating.
2	Donohue	The City stated that they will not require fine screening of the JOTS wastewater at the proposed new WWTF. They do, however, want the design to include contingencies to accommodate a fine screening process in the future if experience finds it to be necessary. The City’s decision to forego fine screening of JOTS wastewater is based on their experience at their existing WWTF.
3	Donohue/City	Pursue pre-treatment of combined Willmar Avenue and Benson Avenue waste streams. The City is particularly concerned about the grease coming from the Benson Avenue plant.
4	Information	Donohue presented a series of DRAFT Technical Memorandums documenting an initial evaluation of unit process alternatives.
5	Information	Donohue discussed advantages and disadvantages of the various

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		alternatives, particularly those that Donohue recommended for implementation.
6	Information	Donohue presented costs for the various unit process alternatives.
7	Information	Donohue distributed and projected onto the wall for viewing by the Team in attendance a spreadsheet that summarized the cost opinions and qualitative scoring of the various alternatives. This spreadsheet was used to, as a Team, evaluate cost opinions for multiple-alternative scenarios as well as total system-wide "Plans." Donohue also presented this at the January 6 meeting with the City Administrator and several Department Heads.

The recommended plan includes the following items:

- Separate City / JOTS liquid treatment trains.
- Separate City / JOTS solids trains
- No flow equalization
- RWW pumping using screw pumps
- No grit removal
- Oxidation ditches
- Circular clarifiers
- UV disinfection
- Effluent aeration
- Solids thickening
- Liquid solids storage in glass-lined steel tanks
- Pumped solids storage mixing

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Please contact Ken Sedmak with any comments concerning these notes.

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