

Report

**Community
Manure
Management
Feasibility Study**

Dane County, WI

February 2008

Report for
Dane County, Wisconsin

Community Manure Management
Feasibility Study

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February 2008



SECTION 8
CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was not to select a single best manure management strategy, but rather to evaluate multiple strategies to determine which of these could feasibly meet Dane County's main goals of strengthening the livestock industry while protecting water quality from manure management impacts. The previous chapters developed alternative manure management strategies for individual farms and clusters of farms, compared the strategies based on cost and nonmonetary factors, and identified potential financing sources and business structures for manure management facilities. This chapter presents the main conclusions of the report and recommended next steps to move from this feasibility analysis to detailed planning.

8.01 CONCLUSIONS

The following conclusions are provided to summarize the conclusions drawn in this report and to provide the bases for our recommendations:

- There is a great deal of interest from the Dane County farming community to develop manure management strategies. Manure management at many Dane County farms requires long hauling distances and land rental for land application of the manure at agronomic rates.
- Water quality impacts from land application of manure have been shown to be significant, and manure is a major source of phosphorus loading (and other nutrient loading) to surface waters within the Upper Lake Mendota Watershed.
- Cluster manure management strategies appear to offer significant economies of scale with respect to capital costs compared to the individual farm systems. In general, while comparing similar manure management strategies, the capital cost projections of the cluster systems are approximately 50 to 75 percent of the capital cost of the individual farm systems when compared on a "per A.U." basis.
- Some of the cluster management strategies have significantly lower annual O&M cost projections (per A.U. basis) than the existing annual O&M costs at the farms as well as the individual farm manure management strategies. In particular, Waunakee Cluster Alternatives C-2W, C-3W, and C-5W, as well as the Middleton Cluster Alternatives C-3M and C-5M, could significantly reduce annual O&M costs and may generate net revenues for the farms.
- The Waunakee Cluster strategies have higher capital costs compared to the Middleton Cluster, which is mainly the result of the added infrastructure required to pump manure to the cluster management facilities rather than trucking the manure. However, because manure trucking is essentially eliminated for the Waunakee Cluster, the projected annual O&M costs are much lower for the Waunakee Cluster compared to the Middleton Cluster.
- Given the proximity of the Waunakee Cluster farms to each other and the potential to pump manure rather than haul manure to the site, the Waunakee Cluster alternatives appear to offer more advantages and better long-term cost-effectiveness than the

Middleton Cluster alternatives or individual farm alternatives. There may be other small clusters similar to the Waunakee Cluster that could also be identified in Dane County.

8.02 RECOMMENDATIONS

Our recommendations recognize that this feasibility study was an important step in the process of implementing improved manure management in Dane County. However, it is only one step and additional effort is required to continue moving forward. The following recommendations are provided to indicate what additional steps should be taken to further define how best to implement such a project.

1. Continue discussions and information exchange with area Dane County farmers to assess on-going interest and promote community solutions.
2. At the County level, determine what level of financial commitment is reasonable to invest in the additional planning, design, and ultimate construction of a community (or individual) manure management strategy.
3. At the County level, discuss and determine whether such a facility could or should be owned and operated by the County. This may be affected by the level of interest in ownership among farmers.
4. Conduct a Facility Planning Study to further refine and develop the scope of select alternatives and strategies included in this report with a focus on the alternatives that appear most viable (Waunakee Alternatives C-2W, C-3W, and C-5W; Middleton Alternatives C-3M and C-5M). This includes identifying potential site locations, verifying manure quantities and other potential feedstocks, working with system vendors to develop preliminary layout(s) of alternatives and more accurate cost opinions (capital and O&M), and conducting a detailed analysis of overall manure management practices on the affected farms. The output of this study would include an overall recommended manure management strategy and associated costs, which could then be used to better define potential ownership of the facility, operation of the facility, and funding programs that could help finance a project to construct the facility. The Facility Planning Report would provide a more refined and detailed definition of the project scope and potential costs to provide to interested third-party technology developers, farmers, and County officials.
5. Define agronomic and related crop management impacts that would result from a manure management facility, and include such impacts in the facility planning analyses.
6. Continue to investigate funding and financing opportunities for manure management facilities.
7. Investigate potential GHG emission reduction credits in more detail and determine what additional steps are needed to obtain maximum credit for such a project.

8. Evaluate the capital and O&M costs from actual full-scale operations in the United States, and estimate how those costs may translate to a similar operation in Dane County.

Assuming the foregoing recommendations are completed, the steps required to implement the final project(s) will be dependent on determining facility ownership and the method of project delivery. For example, if the County decides to own and operate the facility, the next steps would likely be for the County to develop operational plans, establish contracts with farmers, apply for grants, research appropriate GHG exchanges and programs, and develop final design drawings and specifications for construction of the project. Alternatively, if a third-party delivery option were selected for the project, the County (on behalf of the farming community) or the farming community itself may engage several potential third-party developers and request preliminary proposals based on the Facility Planning Report. For any combination of ownership and project delivery, however, we recommend that the County maintain involvement throughout the planning, design, construction, and operation of the facility.