

# Working Draft

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## **The Talbot County Solid Waste and Recycling Study**

(Acronym: TCSWAR Study)

### Study Design and Methods Plan

Prepared For:

Talbot County Council

and

Talbot County Department of Public Works

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## Glossary of Terms

**Homeowner Dropoff Services** - A category of solid waste service to citizens who wish to drive their own household waste directly to the landfill facility rather than pay a third party to pick it up at the curb. This does not include recycling materials.

**Recyclables** - This term refers to a range of materials that are targeted for an end destination other than the landfill, these materials include substances that will be either: 1) *processed* in a manner so as to convert them back into raw materials for industry, 2) *stripped* so as to *recover* the natural resource contents of the substance for reuse, or 3) *disposed* of in a proper manner because it is not currently being reused and is therefore a disposable in the recyclable stream.

**Processing Category of Recyclables** - Substances that will be processed in a manner so as to convert them back into raw materials for industrial uses.

**Recovery Category of Recyclables** - Substances with a natural resource content that can be extracted for reuse.

**Disposal Category of Recyclables** - Substances that are not reusable at this time but which may require special care for permanent disposal, such as flashlight type batteries and florescent light tubes.

**Recycling Practices** - Generally accepted categories of methods for managing recyclable materials.

**Reduction at the Source** - Behavior at the point of production and/or individual use which results in lesser amounts of materials which need to be processed as recyclables and/or disposables.

**Source separation** - Behavior at the point of use which results in the division of recyclables into containers based on the type of recyclable and its destination.

**Recovery** - Behavior at the point of use which results in natural resources being available for recycling.

DRAFT

## **STUDY OVERVIEW**

### **The Talbot County Solid Waste and Recycling Study Plan**

**Overview and Goals of Study:** This study's purpose is to collect information and analyze data needed by Talbot County Government to plan and thereby ensure that the long term needs of Talbot County are met with regard to its solid waste management planning and its responsibility to the environment. In addition, this study is tasked with the analysis of specific data sets necessary for reporting to the Maryland Department of the Environment. Overall, this study and its team will conduct policy research and analysis related to the following:

- 1) The forecasting of future solid waste loads and Talbot County's options and readiness for handling increased solid waste loads;
- 2) The development of a computer model for analysis of the best locations to establish future transfer stations, which if selected are locations needed for planning in the year 2009. Talbot's Mid-Shore I facility is expected to close and Talbot County will begin to transfer waste out of county to the new Caroline County regional facility scheduled to open in the year 2011;
- 3) Assessment of the current and future need for homeowner dropoff services for Talbot County citizens who wish to take their own waste to a dropoff facility;
- 4) Talbot County's options for managing its waste with an environmentally sound and recycling based approach.
- 5) The possibility of collaboration with town governments and input from Talbot County citizens.

**Study Organization:** This study is schedule to take about nine months beginning in September of 2007 with design and ending, depending on data collection success, in approximately May 2008. This study is divided into four sub-studies that organize the work according to local government concerns and focus areas established by the Maryland Department of the Environment. Briefly, these four sub-studies are identified below. A detailed listing of the research questions associated with each sub-study is in the next section of this study design document.

## **The Four Sub-Studies**

**1) The Facilities Location Sub-Study** - This study component will focus on methods for assessing the ability of the Caroline County regional facility to meet the needs of Talbot County, and the best plan for locating any future waste transfer stations for moving solid waste out of Talbot County to Caroline County beginning in the year 2011. This research will produce a computer model that allows for the consideration and manipulation of multiple variables, to include the forecasting of population growth and future waste loads by different source streams.

**2) The Homeowner Dropoff Sub-Study** - This study component will focus on methods for assessing the current and future rate of use in homeowner dropoff services, which are defined as acceptance of waste from citizens who transport their own solid waste to a receiving facility without using a paid pick up service. This planning question arises from the fact that beginning in 2011 the Talbot County dropoff facility is expected to close when the new regional facility opens in Caroline County.

**3) The Environment and Recycling Sub-Study** - This study component will focus on an analysis of the Talbot County solid waste system using in large part an environmental and biological perspective. Specifically, the study will consider the efforts to date against known practices and consider the feasibility of any such practices not currently in place.

**4) The Town Collaboration and Citizen Input Sub-Study** - This study component will focus on methods for collecting and summarizing information on the needs and opinions of town governments and also the county citizens as a whole. Interest in plans such as municipal collaborations and citizen involvement in recycling will be surveyed by various methods to include, for example, methods such as focus groups and possibly a true random survey.

### **Detailed Study Questions By Sub-Study**

(Source: TCDPW Bid Document, April 13, 2006 MDE letter, and August 16 Study Team Mtg.)

#### **1) The Facilities Location Sub-Study**

a. Based on forecasted growth and development, what are Talbot County's long term expected population rates and solid waste loads by streams? (Includes the recalculation of base levels and forecasted levels.) (Bid Q5 and MDE 27, 30)

b. In anticipation of the regional agreement and the expected opening of the Caroline County 2011 facility, does the 2011 Caroline County facility meet the COMAR 26.04.03.03 Standards and can it meet the forecasted growth in waste loads from Talbot County? (Bid Q2 and MDE Q35, 27, 51)

- c. Where and how should Talbot County locate and design its transfer system for 2011 so that it is ready to transfer waste to Caroline County and capable of meeting the long term changes in growth and development expected in Talbot County? (Bid Q6 and MDE 27, 30)
- d. How much of the current total solid waste managed by Talbot County is imported versus exported? (Bid Q3 and MDE Q32)
- e. What effect will recycling efforts have on the planning for regular solid waste transfer? Could the tipping fee structure with MES be affected? (Bid Q5 and MDE Q27, 30)
- f. What are the transfer costs associated with the forecasted rates of participation for recycling? (Bid Q1 and MDE Q37; Bid Q11 and MDE Q27-34, 44 )
- e. What is the cost feasibility of a commercial truck and crew system based districts determined by expected population and load? What would be the individual household cost? (Bid Q7)

**2) The Homeowner Dropoff Sub-Study** (Bid Q8)

- a. What is the current rate of use of Talbot's homeowner drop-off service?
- b. What is the forecasted rate of use for the year 2011?
- c. How will this citizen demand be accommodated after 2011?

**3) The Environment and Recycling Sub-Study**

- a. Is Talbot County's current waste management operation and future plan environmentally sound? (Bid Q1 and MDE Q37; Bid Q11 and MDE Q27-34, 44)
- b. What is the current state of recycling efforts in Talbot County?  
(This includes a diagram of the existing collection system and an evaluation of effort by the categories known as Processing, Recovery, and Disposal.) (Bid Q10 and MDE Q31, 38a-b)
- c. What is the current rate of participation in recycling for homeowners, business, and government? What are the forecasted rates of participation in Talbot County for the year 2011? (Bid Q9 and MDE Q38a-b)
- d. To what extent is Talbot County reducing its waste streams by means of source separation, source reduction, and recovery programs? (Bid Q10 and MDE Q31, 38a-b)

e. In what ways can Talbot County improve its recycling efforts and any related waste management plans so as to be environmentally sound? Are the implementation costs feasible from a cost/benefit perspective? (Bid Q1 and MDE Q37; Bid Q11 and MDE 27-34, 44)

f. Who are the existing hauling providers and receiving facilities for processing recyclables? (Bid Q9 and MDE Q27-34, 44)

g. What are the expected hauling costs to accept and manage the transfer of recyclables? Is there revenue potential for the government? Can the hauling component be privatized with seed grants from Talbot County? (Bid Q11 and MDE Q27-34, 44)

h. What is the feasibility of curbside pick up? (Bid Q11 and MDE Q27-34, 44)

I. What are the considerations for improved cross-county collaboration in recycling? (Bid Q11 and MDE Q27-34, 44)

#### **4) The Town Collaboration and Citizen Input Sub-Study**

a. What are the specific solid waste needs and perspectives of key individual towns within Talbot County? What are these towns currently doing and desire to do in the future? (Bid Q4)

b. Are any towns interested in a collaboration with the County with regard to solid waste transfer or recycling efforts? (Bid Q4)

c. What are the concerns of the citizens of Talbot County as a whole, and compared to town residents, with regard to the selected solid waste and recycling issues? (Bid Q4; Bid Q10 and MDE Q31, 38a-b)

d. What are citizens paying for solid waste pick up currently compared to projected citizen costs after the 2011 Caroline facility opens? (Bid Q7)

e. What is the extent of commitment among citizens to utilize recycling services? (Bid Q4; Bid Q9 and MDE 27-34, 44)

f. What is the extent of cost sharing that citizens will be willing to incur before cost becomes a deterrent to recycling? (Bid Q4)

g. What is the current rate of participation in recycling for towns and homeowners? What are the forecasted rates of participation in Talbot County for the year 2011? (Restatement of part of Recycling Sub-study Question 3c, intended as topic for town and citizens surveys.) (Bid Q9 and MDE Q38a-b)

## **Overview of Study Methods**

This study will employ multiple methods for collecting and analyzing the information needed. The general approaches are identified below by the sub-studies. The in-depth description of methods for each sub-study are located in the sections of this document dedicated to each sub-study.

### **General Methodological Approaches**

**Facilities Locations Sub-Study** - A subjective expert based engineering analysis will be used to review the adherence of the Caroline County 2011 planned facility to the MDE required COMAR Standards, assess the designed transfer system, and also consider the feasibility of district based truck and crew transfer system. Objective research based data collection methods and statistical forecasting methods will be used to assess Talbot County's imported versus exported waste loads, calculate base and forecasted population levels, calculate base and forecasted waste loads by streams, and develop the computer model for identifying the most feasible locations for transfer stations in 2011.

**Homeowner Dropoff Sub-Study** - Current recommendation is for objective research based data collection methods to assess the current and future use of the services known as homeowner dropoff of solid waste. Most likely will involve a series of observations and survey methods using random selection approaches.

**Environment and Recycling Sub-Study** - A subjective expert approach will be used to analyze the environmental soundness of current practices. For assessing the current state of recycling, more objective research based methods will be employed using a combination of observation and random survey techniques. Source separation, source reduction, and recovery efforts as well as any recommended improvements to current practices will be assessed with a combination of subjective expert assessment and objective methods of data collection.

**Town Collaboration and Citizen Input Sub-Study** - Objective research based survey methods will be used to collect information related to these groups of people. Expected approaches are focus groups and random surveys of citizens.

A systems perspective of the study plan is presented in Figure 1. It presents an overview of how the sub-studies link together within the solid waste system.

Insert flow chart: Systems Perspective of The Study Plan

### **Preliminary Data Analysis Planned for Design Phase of Study**

During the design phase of this study four preliminary data analyses and reports are planned. They are needed for planning the computer modeling and for reporting requirements to MDE. They are:

1. Statistical forecasting of population growth in Talbot County. (Related to Bid Q5 and MDE Q27, Q30)
2. Descriptive analysis of the streams of solid waste in Talbot County. (Related to Bid Q5 and MDE Q27, Q30)
  - a. identification of base levels of solid waste by streams
  - b. forecast of future levels of solid waste by streams

Notes/Issues: consider a mathematical estimator for change in reduction at the source

3. Assessment of imported versus exported streams. (Related to Bid Q3 and MDE Q32)
4. Calculation of the current percentage rate of reduction at the source, rate of source separation, and rate of recovery for each waste stream. (Related to Bid Q10 and MDE Q31, Q38a-b)

## **Study Team Members and Qualifications**

The study team consists of a multi-disciplinary group by design. Solid waste perspectives and expertise will be represented by John R. Allen III, Chief of Environmental Operations Division for Talbot County, who has over 20 years of experience in the solid waste industry. Mr. Allen will act as the Study Team Chairperson. Additionally Raymond Clarke, P.E., who serves as Talbot County's Director of Public Works and Head County Engineer, will review and advise the study's plan and progress. Also, Layton O'Neill will act as a study advisor, bringing to bear his 45 years of experience in solid waste management with the U.S. Department of Energy and his degree in Sanitation Sciences. Biological expertise will be represented by Timothy R. Goertemiller, who holds a master and two undergraduate degrees in biological concentrations and 30 years of experience in environmental issues and preservation. Civil engineering expertise combined with notable environmental expertise will be provided by Albert McCullough, P.E. who has over 25 years experience applying his engineering skills to environmental issues and concerns. Policy analysis and quantitative methods expertise will be provided by Marvin Mandell, Ph.D. and Jenny O'Neill, M.P.A.. Dr. Mandell has extensive experience, over 30 years, in the area of applied research and analysis for public policy purposes. Jenny O'Neill, who has a master degree in Public Administration and is nearing completion on her doctoral degree. From 1991 - 1997 and again in 1998-1999 she was Dr. Mandell's research assistant for various studies conducted on behalf of local government entities. Resumes for the study team members are available for review at Goertemiller and Associates, and will be in the Appendices of the final published report.

In performing the study, the team expects to collaborate with additional solid waste experts, concerned citizens and interest groups. Contact information for the team members is listed below:

## **Talbot County Solid Waste and Recycling Study Team Contact Information**

Administrative Point of Contact for Study: Goertemiller & Associates  
P.O. Box 2752, Easton, MD 21601  
410-476-4580, fax 410-476-5742  
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### **Study Team Members as of October 1, 2007**

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Chief, Environmental Operations Division, Talbot Co. Department of Public Works (TCDPW)  
28712 Glebe Road, Suite 3, Easton, MD 21601  
Expertise: solid waste management  
Role: Lead Point of Contact for study within TCDPW; Study Team Chairperson.

**Brummell, Derick** - 410-770-8168; [derickb@talbgov.org](mailto:derickb@talbgov.org)  
Recycling Coordinator for Talbot County Department of Public Works  
28712 Glebe Road, Suite 3, Easton, MD 21601  
Expertise: recycling policy and programming  
Role: Talbot County representative focusing on recycling analysis.

**Clarke, Ray** - 410-770-8170; [rclarke@talbgov.org](mailto:rclarke@talbgov.org)  
Chief County Engineer and Director of Talbot County Department of Public Works  
Expertise: P.E., public works and solid waste management  
Role: Head administrator responsible for contracting the study, represented by John Allen.

**Goertemiller, Tim** - 410-476-4580, cell 410-310-1842; [ecosystems@goeaston.net](mailto:ecosystems@goeaston.net)  
President and Biologist, Goertemiller & Associates  
P.O. Box 2752, Easton, MD 21601  
Expertise: M.S., environmental and biological sciences  
Role: Contracted Analyst, responsible for overall study, administrative lead for the environmental assessment components and the homeowner drop-off component of the study.

**Mandell, Marvin** - 410-788-2632; [mandell@umbc.edu](mailto:mandell@umbc.edu)  
Professor of Public Policy, UMBC  
Off Campus Office: 2029 Edmondson Avenue, Catonsville, MD 21228  
Expertise: Ph.D., policy analysis, quantitative methods, and computer modeling  
Role: Contracted Analyst, responsible for overall review and advice on methodological plans and development of forecasting tools and analyses.

**McCullough, Al** - 410-924-4316; [albert@sustainable-science.com](mailto:albert@sustainable-science.com)  
President and Engineer, Sustainable Science, LLC, Denton, Maryland 21629

Expertise: P.E., civil and environmental engineering

Role: Contracted Analyst and co-bidder on project with Goertemiller & Associates, responsible for overall study and administrative lead for the facilities location planning.

**O'Neill, Jenny** - 410-476-4580, cell 410-463-1848; joneill@goeaston.net

Policy Analyst and Contracts Administrator, Goertemiller & Associates

P.O. Box 2752, Easton, MD 21601

Expertise: M.P.A., policy analysis, research methodology, and citizen participation

Role: Contracted Analyst and Study Coordinator, responsible for overall study and administrative lead for the town and citizen input components.

**O'Neill, Layton** - 410-476-4580; ljomjo@juno.com

Consultant, Goertemiller & Associates

Retired Director, Nevada Operations Waste Management Branch, U.S. Department of Energy

Expertise: sanitation science, waste management and governmental response planning

Role: Contracted Study Advisor