VOLUME 2 OF 2

Draft Solid Waste Management Plan

& Generic Environmental Impact Statement

Capital Region Solid Waste Management Partnership Planning Unit

Prepared For:

Capital Region Solid Waste Management Partnership
Albany, NY

Prepared by:

CHA
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Albany, NY 12205

October 2010

Draft Solid Waste Management Plan

& Generic Environmental Impact Statement

for the

Capital Region Solid Waste Management Partnership Planning Unit

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Appendix A

Steering Committee Comments on the Preliminary Draft SWMP

Steering Committee Member Comments of Preliminary Draft SWMP

Summary and Response

The Preliminary Draft Solid Waste Management Plan (SWMP) was distributed to members of the Steering Committee on December 15, 2009 for their review and comment before the Draft SWMP is finalized for public review and comment. Committee members were requested to provide their comments in writing by no later than January 29, 2010.

These comments have been summarized by subject area. When multiple comments were made on a single topic, the substance of the comment has been summarized. In these cases, the individual member comment (with name in parentheses) is presented in the bullets following the comment summary. The summarized and individual comments are presented in *italic type*.

A response to each comment is presented after each comment. The response includes a note regarding whether a change was made to the Draft SWMP as a result of the comment. Discussion of the comments and responses took place at the Steering Committee meeting held on February 9, 2010. Some of those discussions have resulted in amendments to the response to comments section and in the manner in which revisions to the Preliminary Draft SWMP will be made.

Distribution and Review

Comment D1: *Several commentators thought that the Appendices to the Preliminary Draft SWMP should be provided to the entire the Steering Committee. Other commentators thought this was unnecessary, but that copies could be supplied to those who request them or direct specific questions to CHA.*

- *The Appendices are an integral part of the Preliminary Report and contain information that should be accessible to the Steering Committee. Each member of the Steering Committee should immediately be provided with the Appendices in order to make a proper study of the preliminary report (Kernan).*
- *I feel that it is important that all members of the SWMP Steering Committee receive copies of the appendices, in order to make informed comments. These were omitted from the preliminary draft for Steering Committee review and were not sent to the members unless they requested them (Cummings).*
- *Please send an electronic copy of the appendices to Cashawana Parker at the Albany Common Council so they are available to all council members and to the City Clerk. Also please send her three paper copies (O'Brien).*
- *Any Committee member that wanted the appendices got a copy. The detailed information in these is summarized in the preliminary draft SWMP the Committee members received. The appendices contain valuable back up and technical information, but the Committee should really focus on the draft SWMP, the*

diversion rates, alternative scenarios, policy and program recommendations (Bruce).

- *I'm sure if a few individuals have specific questions that could be answered by material in the appendices, it would be a time and paper savings to have these individuals address those specific question directly to you (Reynolds).*

Response D1: There are presently four appendices to the Preliminary Draft SWMP which contain voluminous detailed supporting information on topics that are fully presented and discussed in the full body of the preliminary draft SWMP. As such, they were not distributed to the Steering Committee as part of the Preliminary Draft. Our intent was to request feedback from the Steering Committee on the substantive issues presented in the Preliminary Draft, particularly if there were any omissions or misrepresentations with respect to issues that were discussed by the Steering Committee.

Members of the Steering Committee who requested an electronic or paper copy of the appendices were provided with them.

It is not anticipated that a change will be made to the Draft SWMP as a result of this comment.

Comment D2: *The timeframe for review of the Preliminary Draft should be extended.*

- *Since the Appendices are very large and the Preliminary Draft was very large, I feel that CHA should extend the comment deadline until March 15th (Cummings).*

- *Since the requested review is to get "preliminary" feed back prior to full release and not what would be considered a full technical review, your timetable seems appropriate. Not looking for a perfect document at this point, better to get it out to a wider audience for review as soon as possible. From what I've read so far, the information in the body of the SWMP seems adequate to perform the level of review requested (Reynolds).*

- *I feel that it is premature to extend the comment deadline until March 15th. Let's have the meeting in early February and see what the consensus is. I know that although the appendices were missing from the electronic copies, they were available from CHA when asked for (O'Brien).*

- *I am not in favor of an extension of time for submission of Committee member comments. We discussed the process and timetable at the last Committee meeting, and there was agreement on proceeding along these lines (Bruce)*

- *I must also agree with Bill & Ken, the time frame was clearly defined in the last few meetings. We need to keep to the schedule and submit this to the Common Council as stated. It is important for Sally to remember that this is a preliminary draft. After committee members submit their comments a final draft will be* *submitted to the Council where it will then be subject to public comment and SECOR review. This is not the final draft that some people seem to think it is (Zeoli).*

Response D2: Only one committee member requested an extension in the timeframe for the review of the Preliminary Draft SWMP. Four other committee members who expressed an opinion on this issue thought that it was unnecessary to extend the timeframe. Because there appears to be no compelling reason to extend the timeframe and because extending the timeframe would delay the formal issuance of a Draft SWMP for review and comment by the general public, the comment period for the Preliminary Draft SWMP has not been extended.

It is not anticipated that a change will be made to the Draft SWMP as a result of this comment.

Comment D3: *A Steering Committee meeting should be scheduled in February to discuss committee member comments.*

- *It is also important to schedule a meeting in February at which Steering Committee members may discuss the draft plan and also get questions answered. How can the committee have a consensus opinion when members do not know the opinions of other members?(Cummings)*
- *I think the request for a meeting to discuss comments is a good idea (Dimino).*
- *I agree with Sally that we should have a meeting in February (preferably early in February) to discuss the draft ... It would also be helpful if you would share members' comments with other members although I am choosing to send this comment directly to all the members. (O'Brien)*
- *We were planning to have a summary of the comments for the final meeting for discussion in late February, so Committee members would know about any changes made to the draft based on comments received. If there are any major issues were there is a significant split of opinion on a draft plan policy or program element, that will be noted in a transmittal letter to the Common Council. We are trying to stick to a reasonable time schedule and get the Draft Plan to the Common Council at which time the formal, and more important, public review, comment and evaluation process will begin (Bruce).*
- *I would be happy to schedule a second February meeting early in February, if Committee members want to hear about the comments that have been submitted, and discuss them. (Bruce)*

Response D3: A Steering Committee Meeting has been scheduled for February 9, 2010 to present and discuss comments from the committee members that have been submitted.

As a result of the discussions that took lace at this meeting, changes were made to the Draft SWMP, as noted under individual comment responses listed in this summary.

Comment D4: *The Preliminary Draft SWMP should be distributed to the citizens who have attended the Steering Committee meetings.*

- *While the 12/15/09 email from CHA advises that "this Preliminary Draft is for review by the Steering Committee only," CHA sent it to select others. At each meeting of the Steering Committee, there were citizens sitting in the gallery who attended many of the meetings, some who were quite knowledgeable on the topic, some who asked very pertinent questions or who provided information to the group. Prior to issuance of a SWMP for formal review, these members of the public should be provided the Preliminary Report in full. (Kernan)*

Response D4: The citizens who have attended SWMP committee meetings will be able to review the Draft SWMP when it is issued for public comment.

During discussions at the Steering Committee meeting on February 9th it was determined that the Preliminary Draft SWMP should be posted on the Committee's internet site, so that interested parties could view it there.

It is not anticipated that a change will be made to the Draft SWMP as a result of this comment.

Comment D5: *One Committee member (Cummings) requested that all comments from steering committee members on the preliminary draft be included in an appendix to the final draft that is to be forwarded to the Albany Common Council.*

Response D5: Comment noted. Prior to the submission of this comment, the Chairman of the Steering Committee had determined that the committee member comments and the responses presented in this summary will be included as an Appendix in the Draft SWMP to be submitted to the Common Council.

Comment D6: *One Committee member (Larson) informed that our comments on the Preliminary Draft of the Capital District Solid Waste Management Plan are being reviewed by our executive staff. Therefore, they will not be received by you as requested by your date of January 29, 2010, but we will send them as soon as possible.*

Response D6: Comment noted. Any comments that are received can be addressed along with any public comment received during the formal public comment period.

Comments from this member were subsequently received on February 3, 2010 and indicated concurrence with the following components of the Preliminary Draft SWMP.

1) Expand the planning unit by implementation of a regional solid waste management authority, and the use of flow control

2) Waste Minimization – emphasis on consumer education on waste reduction, promote PAYT (Pay as you throw) implementation, and back yard composting for yard and food waste.
3) Promote Product Stewardship – working to reduce the amount and toxicity of packaging and materials that are left for disposal at the end of their useful lives.
4) Continue to promote and expand recycling infrastructure. Looking to mandate such items as electronics and HHW.
5) Developing a Source Separated Organic Waste (SSOW) facility .

The commentator express concern with the use of waste to energy as part of the regional solid waste treatment facility, and that comment is now noted and addressed as part of Comment A1.

Editorial/Additions

Comment E1: *The SWMP Needs an Index of Acronyms (O'Brien)*

Response E1: Comment noted. An Index of Acronyms will be prepared for Draft SWMP that will be issued for Public Review.

Comment E2: *Sally Cummings does not officially represent Save the Pine Bush.*

- *When I was first asked to be on the SWMP Steering Committee I signed in as a citizen and thereafter signed in differently each time, i.e. once as an environmentalist (any gardener is an environmentalist) and also as a resident of Westmere. I believe I did once sign in as STPB but when I asked Lynne Jackson about this she told me not to sign in this way. I asked her if I should write and tell you, she said "not to bother". I did not know that you would put my title as this on the SWMP Preliminary document. Please change my name to "citizen" or Westmere resident, or some such.(Cummings)*

Response E2: Comment noted. Sally Cumming's affiliation will be changed to "citizen " in the Draft SWMP that will be submitted to the Common Council and issued for Public Review. It was also noted at the Steering Committee meeting of February 9, 2010 that Michael Franchini from Albany County was not included in the Committee member listing in Table 1-4. His name will be added to this Table for the final Draft.

Regional Solid Waste Management Authority

Comment R1: *Two Committee members disagreed with the recommendation to form a Regional Solid Waste Management Authority.*

- *I disagree with the assumption (p20) that a "Regional Solid Waste Management Authority (RSWMA)...is critical to successful implementation of the SWMP."*

There is no need for a "public authority" to gather the resources of the fourteen municipalities in the Planning Unit. This area has had a consortium for several years and the 14 municipalities have recently entered into a more formalized "Inter-municipal Agreement" (IMA) to hire and fund a Planning Unit Recycling Coordinator (p27). This is a formal consortium supported by a written document binding, according to its terms, on the various municipalities. It should not be difficult, with the proper initiative, to expand the IMA to include other aspects of finding a solution to the solid waste problem. And there would be bureaucratic savings. The court cases presented to us do not require a public authority and do not bar the use of a consortium to achieve the goals (Kernan).

- *There are many disadvantages to another public authority. It will take years and expense to get legislative approval; it will be opposed by the citizens/taxpayers. Generally, public authorities have their directors appointed by the municipalities, no matter the lack of experience in matters of solid waste. In appointments, the public is generally ignored or allotted a minimum number; these also are appointed by the politicians. Rates are determined by a group which has no responsibility to its citizens. [We have seen that with the water authority here in Albany, whose minimum charge does not encourage water conservation; in fact the declining rates encourage excessive water use.] To create a new organization means an additional bureaucratic structure with departments in personnel, human resources, finance, budgeting, etc. NYS and this region have too many authorities and the NYS Comptroller periodically issues reports critical of the abuses inherent (Kernan).*
- *While CHA and, apparently. DEC seem to favor an Authority approach I strongly oppose creation of an Authority. Authorities tend to be huge, and governed by people who do not know anything about the technology being undertaken. They are great at administration and making more work for more administrators. Authorities remove the power from local government to control what the taxpayers are paying for and allow one or more municipalities to shift their own debt to that of the authority, thus making every taxpayer in the authority's region liable for debt they did not create. In addition, authorities can prohibit local municipalities from enacting and implementing solid waste negotiations which are more stringent than those of the authority. Also, Authorities often have, or can be granted, power of eminent domain over local municipalities and private landowners. I feel that the solid waste management plan should be kept small, taking care of Albany and the townships, so there is more control for Albany and less expense for its tax payers. I also feel that the general public are more likely to comply if their waste is being handled by a local consortium than with a gigantic Authority (Cummings).*
- *During Steering Committee meetings Willard Bruce… said that we examined the best institutional structures nationwide that achieve the highest diversion rates. They were all authorities. Where is the data to support this? (Cummings)*

Response R1: While one commentator notes *that "There is no need for a "public authority" to gather the resources of the fourteen municipalities in the Planning Unit",* the service area of the recommended Regional Solid Waste Management Authority (RSWMA) would be considerably larger than the 14 municipalities of the existing Planning Unit. As shown on the detailed analysis of Alternative Implementation Scenario # 3, there are significant economy of scale and other benefits that can be achieved for a larger regional planning unit, when compared to the existing planning unit comprised of 14 municipalities.

Besides the economic benefits, as noted in Section 5.5.2, one of the more significant advantages of the authority structure is the ability to provide reliable solid waste management facilities and programs, including robust waste reduction and recycling efforts, and to ensure adequate staffing and funding for these efforts. A solid waste authority could also be empowered with waste flow control, which could assure the necessary volume of waste to generate revenue for funding of the reduction, reuse and recycling programs that are necessary in a fully integrate solid waste management program. Flow control might not be possible with a consortium of municipalities as suggested by the commentator. It should be noted that under the current Planning Unit structure, less than 30% of the waste stream is controlled by municipal government. In addition, a regional solid waste authority would be a single purpose entity with all revenue generated being dedicated to the implementation of solid waste management programs.

Many of the commentator's observations about the potential disadvantages of the forming a solid waste management authority (SWMA) are pointed out in Section 5.5.2 of the SWMP.

Regarding the commentator's contention that the terms of the existing IMA could be extended to include other mechanisms for finding solution to the solid waste problem, it should be noted that this alternative implementation mechanism was analyzed in the SWMP as a part of Alternative Implementation Scenario #1. (See page 5-28) The terms of the existing IMA allow participating municipalities to terminate their participation upon the 30 days written notice to the other parties to the IMA. Even assuming that this provision could be amended to provide for more definitive long term commitment, the use of the IMA structure would still require that one of the participating municipalities take the lead role in developing the new facilities and programs envisioned by the SWMP. After the City of Albany Landfill reaches capacity, we know of no individual municipality that is willing to assume this obligation for either the existing Planning Unit or a larger regional Planning Unit.

Finally, it is worth noting that, excluding New York City and Long Island (which are dominated by municipally managed solid waste management programs), the most successful publicly owned integrated solid waste management systems in New York State are operated by County-wide or regional solid waste management authorities. These include the Onondaga Resources Recovery Authority (OCRRA), and the Oneida-Herkimer Solid Waste management Authority. Similarly successful authorities (or authority-like organizations) have been identified in other states. For example, during a Steering Committee Meeting in May 2009, Albany Common Council President Shawn

Morris, made a presentation about the Chittenden County Solid Waste District (CSWD) in Vermont, based on a recent visit she made there with Councilmember Cathy Fahey and several environmental advocates from the Capital Region, including Tom Ellis and Tim Truscott. Ms Morris reported very favorably on the waste reduction and recycling programs undertaken by this agency, which is structured similar to a public authority in New York, and is able to subsidize much of its waste reduction and recycling with a tipping fee surcharge on all solid waste for disposal which originates in the District.

Albany County was recently awarded a grant from the New York State Department of State to conduct a detailed study on the feasibility of a regional solid waste management authority, as noted in Section 6.2 of the Preliminary Draft SWMP. It is expected that this study will include an examination of the factors that have resulted in success and/or failure for the regional solid waste authorities. The results of the study will help identify the future actions necessary to advance the formation of a regional SWMA to successfully implement the programs, policies and facilities envisioned by the SWMP.

A change has been made to the discussion of institutional alternatives in Section 5.4 of the Draft SWMP as a result of this comment.

Based upon discussions at the Steering Committee meeting on February 9, 2010, it was reiterated that a stronger case needs to be made about why the authority structure is expected to benefit efforts of reduction and recycling. During that discussion a Committee member also suggested that the Draft SWMP should address the concerns about accountability and management of public authorities in New York that have been raised by some citizen groups and elected officials. These discussions are now included in the revised Section 5.4.2. In response to further discussions at the Steering Committee meeting on February 9, 2010, Section 5.6.5.1, which addresses the effectiveness of a local solid waste management authority, has been now been revised to include a discussion of how Alternative Scenario #2 could be implemented with a continuation of the Planning Unit consortium instead of with an Authority.

Comment R2: *One Committee member asked if solid wastes will be prohibited from coming into the capital region solid waste district from outside the district? This needs to be clarified before the organization is formed. (Cummings)*

Response R2: The recommended formation of a regional solid waste management authority is intended to provide sufficient economy of scale to service an expanded planning unit. However, because the boundaries of that expanded unit have not yet been established it would be premature at this time establish a prohibition on the importation of waste from outside the planning unit.

It is not anticipated that a change will be made to the Draft SWMP as a result of this comment.

Alternative Solid Waste Management Technologies

Comment A1: *One Committee member noted his opinion that it is the duty of the Steering Committee to weigh the merits of each technology, and consider whether each technology would be appropriate in our situation. Several other committee members expressed concern about a specifically endorsing a particular solid waste treatment technology*

- *CHA is due credit for bringing before the Steering Committee presentations by companies from North America and Europe who are involved with alternative technologies such as pyrolysis, gasification, biological/mechanical, anaerobic digestion and WTE. The Steering Committee had the opportunity to question the presenters. But the Steering Committee has not held discussion on the merits of each technology. CHA has shown its decisions in the Preliminary Report and CHA's analyses are contained in that elusive Appendix E. It is not sufficient to deny a technology on the basis that there are no American factories, while a technology has been proven in Europe for more than a decade. It is the duty of the Steering Committee to weigh the merits of each technology, with technical assistance from CHA and other experts, and consider whether each technology would be appropriate in our situation (Kernan).*
- *The concept of "waste to energy" has been, and continues to be, a controversial topic that raises issues of environmental justice as well as health and environmental concerns. OGS is supportive of a plan that includes the investigation of all strategies and technologies to reduce waste. Therefore, instead of stating to "Develop a regional facility utilizing a mixed solid waste treatment technology. Such a facility would recovery additional materials, energy, bio-fuels and other byproducts from the post-recyclable solid waste stream using either the conventional waste-to-energy technologies or one of the emerging technologies, which develops a successful commercial facility somewhere in the United States in the near future", we believe the plan should focus on continuing to investigate and evaluate emerging technologies, including "waste to energy" initiatives. It is our understanding that there have been a number of advances in "waste to energy" technology to reduce toxins in the air and in the residue. However, none of the groups that made presentations to the Committee on "waste to energy" proposals adequately addressed the issues of environmental and health concerns or provided statistics to back their claims. Therefore, there is not enough information at this point in time for OGS to endorse the recommendation to develop a regional solid waste treatment facility to further minimize landfill disposal requirements. (Larson)*

Response A1: Presentations and discussions about the merits of various alternative solid waste management technologies were held at almost every steering committee meetings fro February through October of 2009. Over the course of the year committee members were also invited to participate in visits to solid waste management facility sites around New York State which including one or more of the alternative technologies. Summaries of the visits were prepared and were discussed at the meetings of the Steering Committee, for the benefit of those who were unable t participate in the visits. These discussions included the merits of the technologies observed at the respective sites.

As part of the evaluation of alternative technologies conducted as part of the SWMP, a request for information (RFI) was prepared and distributed to solicit preliminary statement of interest and background information from parties wishing to participate in the process. The Steering Committee participated in the formulation of the RFI. Fifteen companies provided submittals in response to the RFI. The Steering Committee participated in the review of documents, prepared by CHA, which summarized these submittals in response to the RFI. At the request of the Steering Committee, CHA invited company representatives from respondents from the following technologies to make presentations to the Steering Committee:

- Norterra Organics – SSOW Composting technology – June 23, 2009
- EcoDeco – Mechanical and Biological Treatment – July 21, 2009
- Covanta – Waste-to-Energy – July 21,2009
- Nature's Fuel – Pyrolytic Gasification – August 18,2009

In addition, a presentation was made by EnerKem (not an RFI respondent , but a company with a technology to turn waste biomass into ethanol) at the September, 22, 2009 meeting. Information from these presentations, along with all meeting minutes, agenda and presentations has been posted on the SWMP website.

Among other measures, the preliminary Draft SWMP includes the development of a SSOW Composting facility. It also calls for the development of regional solid waste treatment facility to further minimize landfill disposal requirements for post-recyclable solid waste. As noted in Section 6.1.2 of the Preliminary Draft WMP, such a facility would use either conventional waste-to-energy technology or one of the emerging technologies which develops a successful commercial facility somewhere in the United States. It may be in this context that the commentator notes. "*It is not sufficient to deny a technology on the basis that there are no American factories, while a technology has been proven in Europe for more than a decade.*" In response to this comment, it should be noted that the recommended requirement for a successful commercial facility in the U.S. is based upon an anticipated desire of the implementing communities to minimize financial and performance risk associated with the development of a waste treatment facility. It is further noted that regional SWMA (or other implementing agency) which ultimately pursues the development of this regional solid waste treatment facility will be free to develop appropriate financial and performance criteria at that time.

At the Steering Committee meeting on February 9th 2010, several members asked about the definition of waste to energy (WTE) and whether it should be clarified to include other technologies beside conventional mass burn incineration. This is now clarified in Section 5.3.1.8 where the conventional WTE facility is more clearly defined.

Several committee members also thought the Preliminary Draft SWMP needed to better articulate that the recommendation to pursue the development of a regional solid waste treatment facility was not an endorsement of conventional mass burn WTE technology.

As a result of these comments, the language of Section 6.1.2 of the Draft SWMP has been changed to clarify that the SWMP does not endorse conventional WTE over any of the other emerging technologies.

During discussions at the Steering Committee meeting on February 9, 2010, it was requested that a distinction be drawn between emerging technologies that have been well established in other countries (Mechanical/Biological Processing in Europe was cited as an example) and those emerging technologies that are not well established . As a result of this discussion, the Section 5.3.2 on emerging technologies and (some of the text of Appendix E) has been now supplemented to make this distinction.

At the February 9th meeting, another Steering Committee member asked if a table could be prepared to compare the various "solid waste treatment" technologies with landfilling based on a number of environemtnal and health criteria. This table is now presented as a new Table 5-4, as part of the expanded discussion and comparison of emerging solid waste management technologies that is now presented in Section 5.3.

Comment A2: *One Committee member (Cummings) strongly opposes construction of a trash incinerator. She notes that existing waste-to-energy facilities are a magnet for items best reduced, reused or, recycled, ruining incentives to maximize reduction, reuse, and recycling. The incentive for the 3 R's would be drastically cut because amounts for such a facility must be guaranteed or paid for anyway.*

Response A2: The Preliminary Draft SWMP calls for the development of a regional solid waste treatment facility to further minimize landfill disposal requirements for post recyclable solid waste beyond what would be achievable with the implementation of the waste reduction and recycling programs elements. Such a facility could use either the conventional waste–to-energy technology (of which there are currently ten operating in the State of New York) or one of the emerging technologies to recover energy, biofuels, or other recyclable materials.

The development of such a facility would not be a disincentive to reduction, reuse and recycling efforts because the facility would be sized to process only the materials that will remain after maximizing the 3Rs. In fact, it is the planning units that operate as public authorities that generally have the highest waste reduction and recycling achievement as well as their solid waste treatment facilities. This is already noted in Section 6.1.2, so no revisions to the Preliminary Draft SWMP will be made as a result of this comment.

Alternative Scenario

Comment Alt1:   *One committee member (Kernan) proposed a Scenario #4 for the Steering Committee's consideration, which may include the following:*

- *regional formal consortium;*
- *strict enforcement of existing recycling laws, with penalties;*
- *innovative approaches to recycling as shown in other regions;*
- *PAYT if a small first bag weekly is provided free by the municipality;*
- *product stewardship;*
- *consider a SSOW facility since food waste is 19% of MSW (didn't the City of Albany collect food waste from residents as part of regular trash pickup in the 1960-70s);*
- *further evaluation of emerging technologies, as opposed to a WTE plant.*

Response Alt1: All of the elements of this alternative are also included as elements of the Preliminary Draft SWMP, with two important variations.

A Regional Solid Waste Management Authority (RSWMA) is included as the preferred implementation mechanism in the Preliminary Draft SWMP because it is a more effective administrative structure than a regional consortium established by inter-municipal agreement (IMA). For reasons noted previously in response to comment R1, the regional consortium would not be as effective, these reasons include that a municipality would be required to take the lead role in developing new facilities and programs in the proposed SWMP, and after the City of Albany Landfill reaches capacity, we know of no individual municipality that is willing to assume this obligation for either the existing Planning Unit or a larger regional planning unit. Without the benefit of a guaranteed waste stream from the entire Planning Unit, which would be easier to obtain via flow control under an Authority, it is doubtful that an individual municipality would be able to finance all the required components of a complete solid waste management system.

The Preliminary Draft SWMP also includes provisions for the implementation of a SSOW facility, not just consideration of a facility, as noted in the commentator's alternative. The Preliminary Draft SWMP also calls for the development of a regional solid waste treatment facility to further minimize the landfill disposal requirements for waste that cannot be reduced, reused or recycled, and will include the future evaluation of emerging technologies as well as conventional waste-to-energy (WTE) technology. The Preliminary Draft SWMP does not endorse WTE or any of the emerging technologies which could potentially meet the objective of minimizing future landfill disposal requirements.

Incorporating this fourth Alternative Implementation Scenario into the detailed analysis of alternatives presented in Section 5 appears to overlap existing scenarios and would significantly delay the issuance of the Draft SWMP to the Common Council and for public comment.

A change has been made to section 6 the Draft SWMP to make it more clear that the SWMP does not endorse WTE or any of the emerging technologies which could potentially meet the objective of minimizing future landfill disposal requirements, and that a formal selection of a waste treatment technology would be made at a later date by the regional SWMA (or other implementing agency).

Single Stream Recycling

Comment SS1: *One committee member (Cummings) noted that single stream should be abandoned by the steering committee because it is a less effective method than dual stream and it creates more waste than does the dual stream method. A recent study by the Container Recycling Institute was forwarded in support of this position.*
The committee should recommend the practice of source separated dual stream collection methods be adopted regionally.

Response SS1: Consideration of Single Stream Recycling (along with other methods of material re-use waste reduction and recycling) is one element of the Goals and Objectives of the SWMP.

The advantages and disadvantages of dual stream and single stream recycling were presented at a Steering Committee meeting and a discussion of these is included in Section 5.3.1.3 and Section 5.3.1.4 of the Preliminary Draft SWMP, respectively. The discussion includes the disadvantages mentioned in the study cited by the commentator including:

- processing costs may increase compared to multiple stream systems
- possible reduced commodity prices due to contamination of paper;
- increased "downcycling" of paper, i.e., use of high quality fibers for low-end uses like boxboard due to presence of contaminants;
- possible increase in residual rates after processing (due chiefly to increased breakage of glass

Among the advantages of Single Stream recycling noted in Section 5.3.1.4 are the following:

- more resident participation;
- increased efficiency and reduced cost of recyclable collection;
- worker injuries may decrease because the switch to single stream is often accompanied by a switch from bins to cart-based collection.

While the development of a single stream recycling facility is not an explicit element of the SWMP, as set forth in Section 6, it is an implicit component. All of the Alternative Implementation Scenarios presented in Section 5 include the maximization of currently designated recyclables. In Section 5.6.1, describing Alternative Scenario #1, it is noted that "maximizing the recovery of currently designated recyclables will also include the implementation of single stream recyclables collection along with a local MRF which can accommodate and process the single stream recyclables. This alternative scenario assumes that the single stream MRF would be developed by the private sector as a commercial venture." While a single stream MRF would be available under the SWMP, communities would be free to continue their use dual stream recycling if they believe that method is maximizing material recovery and recycling.

It is also worth noting that since the distribution of the Preliminary Draft SWMP, County Waste has announced its intention to develop a single stream MRF at its existing dual stream MRF on South Pearl Street in Albany (Sierra Fibers) and also intends to provide single stream recyclables collection to all of its residential customers in the Capital District.

A change has been made to the Draft SWMP as a result of this comment. Language will be added to Section 5.3.1.4 to include the recently announced Single stream facility and programs being implemented by County Waste. Section 5.7.1 has also been amended to clarify that communities would be free to continue their use dual stream recycling if they believe that method is maximizing material recovery and recycling.

Zero Waste

Comment Z1: *One Committee member (Cummings) noted that the Capital District Solid Waste Management Plan should begin with a statement that the goal of the new plan is zero waste. Zero waste is defined as "If it can't be reduced, reused, repaired, rebuilt, refurbished, refinished, resold, recycled, or composted, then it should be restricted, redesigned, or removed from production. The goal is to combine aggressive resource recovery and industrial redesign to eliminate the very concept of waste. Eventually, the community's resource-use system will emulate natural cyclical processes, where no waste exists. [This definition is from the Berkeley City Council's resolution]"*

Response Z1: The concept of a zero waste, as defined by the commentator, is not an appropriate goal for this SWMP because many of the restrictions and limitations on commercial products could not be realistically achieved on a local or regional level; they will require state or national policies to implement them. However, key components of zero waste include reduction, reuse, recycling and composting, and the preliminary Draft SWMP already include these components to meet the goal of minimizing the amount of waste requiring land disposal in the future by :

- Maintaining and expanding waste reduction, reuse and recycling efforts, as set forth in the SWMP Modification;
- Increasing the effectiveness of public education and enforcement of existing recycling requirements;
- Considering more emphasis on material re-use and alternatives such as PAYT, single stream recycling, and foodwaste composting as mechanisms to achieve future reductions in waste requiring disposal;
- Considering alternatives which recover energy from waste, including proven technologies as well as new and emerging technologies.

These goals and objectives are not significantly different from the zero waste goals noted in the comment, and are consistent with current New York State DEC solid waste management policy as well as the policies that are expected to be espoused in the NYSDEC's forthcoming Beyond Waste Plan.

Based on discussion of this comment at the Steering Committee meeting on February 9, 2010, Section 6.0 and Section 6.1.1. have been revised to incorporate a discussion of the concept of zero waste as an aspirational goal, and the continuous improvement in waste reduction and recycling (beyond the 65% achievement already noted for the year 2020).

Sean Ward and Dick Forgea both noted concern that these waste reduction and recycling goals should not be construed as enforceable permit conditions. Because there is already language in the approved SWMP Mod which addresses this concern, it is clear that NYSDEC does not intend to use these goals an enforceable permit conditions, it is not necessary to include that limiting language in the new SWMP at this time.

Contingency Plan

Comment C1: *One Committee member (Griffin) had a comment that relates to the reliance on the formation of an authority for the plan to come to fruition. Time passes rapidly and the need for a long-term solution for the region's future solid waste issues will reach a critical point soon. Should the formation of a regional authority be delayed or the authority not be conceived then the Capital Region could be without sufficient local disposal capacity for a longer period of time than anticipated. I believe that the Plan, when finalized, should contain parallel time lines for development of permanent as well as temporary means for handling the area's waste post-Rapp Rd. The Plan should also contain a contingency for a solid waste management structure along the lines of the scenarios described in prior meetings, i.e. maintaining the current consortium, a smaller consortium or the City of Albany alone. The way the current Draft Plan is structured the failure of one point, the formation of the Authority, means the Plan itself will fail.*

Response C1:

Section 6.1.4 of the Preliminary Draft Plan discusses interim measures that will be undertaken to implement certain provisions of the SWMP until the Regional Solid Waste Management Authority (RSWMA) that is recommended is developed. Section 6.1.4 also recognizes that local landfill capacity may be depleted before a regional solid waste treatment facility can be developed by the RSWMA, and that it may be necessary to be temporarily more reliant on commercial landfill capacity located a long distance from the planning unit. As such, the Preliminary Draft SWMP acknowledges that the City of Albany would develop a transfer station in the future, if one is needed, at the Rapp Road Landfill site.

The Implementation Schedule shown in Section 6.3 of the Preliminary Draft SWMP, notes that if enabling legislation for the RSWMA is not enacted by the end of calendar year 2011 due to lack of regional consensus, then a modification to the SWMP will need to be developed to account for that change in circumstances. The details of those modifications, if they are required, as well as alternative contingency measures, will be evaluated at that time in the future.

Reduction Reuse and Recycling

Comment RRR1: *One Committee member (Cummings) commented that during the steering committee meetings, Bill Bruce and CHA representatives often said that the new plan will have strict enforcement and a good education component to stimulate high compliance rates. Few details are provided in the preliminary draft about how these transformations will be implemented.*

Although a schedule for reducing the amount requiring disposal at a facility (which has yet to be determined), there was no indication as to how this reduction is to be accomplished. Without knowing how it is going to be done, how can you make a schedule? No ideas were put forth.

Response RRR1: Section 6.1.1 of the Preliminary Draft SWMP discussed the program elements related to reduction and recovery of materials. Increased enforcement and education is specifically discussed in Section 6.1.1.3, which includes a re-statement of many of the provisions set forth in the May 2009 SWMP Modification, which will be carried forward as part of the new SWMP.

Steering Committee

Two Committee members made comments about the make-up of the Steering Committee and how the meetings were conducted. These comments are not substantive regarding the content of the Preliminary Draft SWMP, and as a result, responses are not provided.

In the interest of full disclosure, however, the comments are enumerated here.

- *At the first meeting of the Steering Committee on November 24, 2008, 18 members were announced. In the Preliminary Report there are 23 members listed (p32). I do not recall any meeting in which new members were announced. I attended most of the meetings (Kernan).*
- *Attendance by actual Steering Committee members diminished as the year progressed.(Kernan)*
- *There was very little participation from most of the other municipalities in the consortium(Cummings)*
- *At the first few monthly meetings, CHA prepared only enough copies of documents for members of Steering Committee and others who sat at the table in the front of the room. At the April 23, 2009 Meeting there was a motion to provide enough copies so that the public, who sat in seats to the rear of the room and who were there although not being paid by their employers, would have sufficient*

copies in order to follow complex discussions. [Only three Steering Committee members are not employed by municipalities, the industry or consultants.] This was the only formal motion in the year of the Steering Committee and it passed unanimously, 14-0. It included a provision that the Steering Committee (not CHA) would decide what material would be distributed. This formal motion was not included in the Minutes following the meeting. At the May meeting, again there was discussion and the Minutes were corrected. However there were many meetings in which a sufficient number of copies was not provided to the public.(Kernan)

- *This problem of incomplete Minutes occurred again when a discussion on the creation of a "consortium" instead of a public authority was not transcribed. Until the October Meeting, a "consortium" was not discussed in detail. CHA promised to have the attorneys research the issue. Now, in the Preliminary Report, there are several references to an "informal consortium" or a "loose consortium" already existing. It may be appropriate to make it a "formal written consortium", using the IMA as a basis.*
- *Mike Kernan's vigorous comments of October 20th, 2009 in opposition to an authority, and in favor of a consortium, were not included in the minutes of that meeting distributed at the next meeting, on December 8.. There was considerable discussion at that October meeting about the need for and desirability of an authority. This was an important discussion and why was this not included in the minutes?(Cummnings)*

- *The 12/15/09 email also states that the Preliminary Report "has been compiled based on the many months of input and guidance that you have provided as part of the committee." Let's be frank: CHA prepared the Preliminary Report, as much as CHA led and controlled the discussion throughout the year. The Steering Committee should discuss the Preliminary Report among its members, having access to the viewpoints of other members of the Steering Committee. (Kernan)*
- *The stipulation in the December 15th 2009 letter from Ken Gallagher that accompanied the preliminary draft plan, and asserted that the report represented the "consensus view of the committee regarding the future of solid waste management", is not correct. Mike Kernan and I dispute that there is a consensus. There was never a steering committee vote as to who favored an authority. To me, this is a very important concern. (Cummings)*

- *Willard Bruce said that the Steering Committee is creating the plan but it appeared that CHA is creating the plan. The preliminary draft closely resembles the modification of an earlier plan that DEC approved in September, 2008, before the Steering Committee was created. (Cummings)*

- *Clough Harbor never brought in experts on how to maximize reduction, reuse, or recycling. Why? There are so many examples today of municipalities that are striving towards zero waste or high recycling rates. (Cummings)*

- *During meetings, committee members witnessed presentations from industry representatives about their various technologies, but no opposing expert opinions were sought out on any of these controversial technologies. Though Albany is home to several state wide and national environmental organizations, no expert opinion from any of these organizations was sought (Cummings)*

- *One committee member asked for clarification on why we were shown different "emerging technologies" when we have not been charged with choosing the kind of technology. What was the point? In fact, what was the point of the whole Steering Committee when it appears that the steering committee was "steered" from the start. Will we really have any input into what choices will be made? (Cummings)*

Draft SWMP
Appendix A
Part 2
Steering Committee Comments of the Preliminary Draft SWMP

Presented below are the verbatim transcriptions of the e-mail correspondence from Steering Committee members conveying comments on the Preliminary Draft SWMP. The transcriptions were copied directly from the e-mails sent, but e-mail addresses were deleted if they appeared and were replaced with the person's name only.

The e-mail transmitting the Preliminary Draft SWMP is presented first, followed by the responses received on or before January 29, 2010 and then the responses received after January 29, 2010.

Transmittal of the Preliminary Draft SWMP

From: Christopher, Suzanne
Sent: Tuesday, December 15, 2009 2:05 PM
To: Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; Gregg Sagendorph; Jack Cunningham; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sally Cummings; Sean Ward; Tom Reynolds; Willard (Bill) Bruce; William Hill
Cc: LaVardera, Frank; Gallagher, Ken
Subject: FW: Preliminary Draft SWMP

Dear Committee Members

On behalf of Committee Chairman Bill Bruce, I am please to transmit for your review and comment a copy of the Preliminary Draft of the SWMP. It has been compiled based on the many months of input and guidance that you have provided as part of the committee. While we believe that the elements of the SWMP presented herein represent the consensus view of the Committee regarding the future of solid waste management in the Planning Unit, we want to get your comments before the Draft SWMP is finalized for public review and comment. This Preliminary Draft is for review by the Steering Committee only. Based on your comments, a final Draft SWMP will be prepared for discussion at a late February meeting, and then forwarded to the Common Council as a final draft to start the public review and SEQR process

The SWMP presents a significant amount of information and analysis, but we have sought to make sure that the presentation is concise and readable. Nevertheless, it is still over 180 pages long. Most of the information in the Preliminary Draft SWMP has already been presented to and discussed by the Steering Committee at one or more of its meetings. The Preliminary Draft also contains additional discussion and more nuanced presentation that has not been presented previously. While you should feel free to comment on any typos or grammatical errors, we are not expecting that you catch any of those mistakes as those will be corrected during final editing. More important to us are your comments on substantive issues, particularly if you believe there are any omissions or misrepresentations with respect to issues that were discussed by the Steering Committee.

We are requesting that you review the enclosed document and provide any comments you have in writing by no later than January 29, 2010. Any method of written commentary is acceptable, including a mark-up of printed pages, a separate document enumerating your comments, or a simple e-mail. Comments should be directed to my attention, preferable via e-mail, with attachments if necessary.

We sincerely appreciate your ongoing participation in this process and look forward to receiving your comments. In the meantime do not hesitate to contact me if any questions or concerns.

Extending my best wishes for the Holiday Season!

Ken

Kenneth G. Gallagher, P.P., AICP

Principal Planner

<<Draft Letter of Transmittal for Preliminary Draft SWMP.doc>>

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Comments provided on or before January 29, 2010

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From: MICHAEL KERNAN
> Sent: Saturday, January 09, 2010 12:09 PM
> To: Gallagher, Ken
> Subject: draft
>
>
Ken,
    Thank you for sending me Appendices C-F of the Preliminary Report
to the SWMP.  It is unfortunate that CHA did not respond or acknowledge
my three emails (six days) until I sent an email to Bill Bruce.  I find
that the Appendices are an integral part of the Preliminary Report and
contain information that should be accessible to the Steering
Committee.
    I note that today CHA emailed a reminder copy of the Preliminary
Report to members of the Steering Committee and select others, but the
Appendices are not included.  In my opinion, each member of the
Steering Committee should be immediately provided with the Appendices
in order to make a proper study of the Preliminary Report.
Mike
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From: Michael O'Brien
Sent: Saturday, January 16, 2010 7:17 PM
To: Christopher, Suzanne
Subject: Re: Preliminary Draft SWMP

My principle comment is that the report needs an index of all acronyms. Otherwise I think the report is good.

Mike O'Brien

- -

From: Sally Cummings
Sent: Thursday, January 21, 2010 8:26 PM
To: Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Tom Reynolds; Willard (Bill) Bruce; William Hill; LaVardera, Frank; Gallagher, Ken
Subject: SWMP Preliminary comments

To the SWMP Steering Committee members:

I feel that it is important that all members of the SWMP Steering Committee receive copies of the appendices, in order to make informed comments. These were omitted from the preliminary draft for Steering Committee review and were not sent to the members unless they requested them.

Since they are very large and the preliminary draft was very large, I feel that CHA should extend the comment deadline until March 15th.

It is also important to schedule a meeting in February at which Steering Committee members may discuss the draft plan and also get questions answered. How can the committee have a consensus opinion when members do not know the opinions of other members?

Thank you.

Sally Cummings
Steering Committee Member.
Citizen of Westmere

****

From: Ken Gallagher
To: 'Sally Cummings'; Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sam Messina; Sean Ward; Tom Reynolds; Willard (Bill) Bruce; William Hill; LaVardera, Frank

Sent: 1/22/2010 11:10:46 AM
Subject: RE: SWMP Preliminary comments

All,

There are presently four appendices to the Preliminary Draft SWMP which contain voluminous detailed supporting information on topics that are fully presented and discussed in the full body of the preliminary draft SWMP.   As such, they were not distributed to the steering committee as part of the Preliminary Draft. Our intent was to request feedback from the Steering Committee on the substantive issues presented in the Preliminary Draft, particularly if you believe there were any omissions or misrepresentations with respect to issues that were discussed by the Steering Committee. That said, if any other member of the Steering Committee would like an electronic or paper copy of the appendices please let me know ; two members have already requested and been supplied with a copy.

Regarding Sally's comment that CHA should extend the comment period on the Preliminary Draft, I would note that her requested extension would result in additional delay in the submission of a draft document to the Common Council and would further delay the public's opportunity to begin review and comment on the Draft SWMP. Such a delay would also have a negative impact on our anticipated completion schedule for the SWMP, which is memorialized with the NYSDEC as a permit condition for the approved landfill expansion. I also recall that the duration of this Steering Committee's review of the Preliminary Draft was discussed at several of the Steering Committee's most recent meetings.

Thank you for your ongoing participation and feedback on this important project. And once again, if any member of the Steering Committee would like an electronic or paper copy of the appendices (or any individual appendix) please let me know.

Sincerely,

Kenneth G. Gallagher, P.P., AICP
Principal Planner
CHA ~ Imagine What We Can Do For You!
973.267.9029 Ext. 252
kgallagher@chacompanies.com<mailto:kgallagher@chacompanies.com>
www.chacompanies.com<http://www.chacompanies.com>

From: Resa Dimino
Sent: Friday, January 22, 2010 11:46 AM
To: Gallagher, Ken; Bill Bruce
Subject: Re: SWMP Preliminary comments

Hi Ken-
You didn't respond to her request for a meeting to discuss comments.
For what it's worth, I think that's a good idea.
Resa

From: Thomas Reynolds
Sent: Friday, January 22, 2010 12:18 PM
To: Gallagher, Ken; Richard Forgea
Subject: RE: SWMP Preliminary comments

Since the requested review is to get "preliminary" feed back prior to full release and not what would be considered a full technical review, your timetable seems appropriate. Not looking for a perfect document at this point, better to get it out to a wider audience for review as soon as possible. From what I've read so far, the information in the body of the SWMP seems adequate to perform the level of review requested. I'm sure if a few individuals have specific questions that could be answered by material in the appendices, it would be a time and paper savings to have these individuals address those specific question directly to you.

****

From: Sally Cummings
Sent: Friday, January 22, 2010 1:33 PM
To: Gallagher, Ken
Cc: Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sam Messina; Sean Ward; Tom Reynolds; Willard (Bill) Bruce; William Hill; LaVardera, Frank
Subject: Re: SWMP Preliminary comments

Hi Ken,

You did not comment on the request for a meeting of the SWMP Steering Committee members to discuss the Preliminary Draft with each other and to ask questions.

From: Michael O'Brien
Sent: Friday, January 22, 2010 11:08 PM
To: Gallagher, Ken; 'Sally Cummings'; Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sam Messina; Sean Ward; Tom Reynolds; Willard (Bill) Bruce; William Hill; LaVardera, Frank
Cc: Cashawana Parker
Subject: Re: SWMP Preliminary comments

Ken,
Please send an electronic copy of the appendices to Cashawana Parker (parkerc@ci.albany.ny.us) at the Albany Common Council so they

are available to all council members and to the City Clerk. Also please send her three paper copies.

I agree with Sally that we should have a meeting in February (preferably early in February) to discuss the draft. It would also be helpful if you would create a glossary of acronyms. It would also be helpful if you would share members' comments with other members although I am choosing to send this comment directly to all the members.

I feel that it is premature to extend the comment deadline until March 15th. Let's have the meeting in early February and see what the consensus is. I know that although the appendices were missing from the electronic copies, they were available from CHA when asked for.

Mike O'Brien

From: Willard Bruce
Sent: Sunday, January 24, 2010 12:39 PM
To: Sally Cummings
Cc: Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sam Messina; Sean Ward; Tom Reynolds; William Hill; LaVardera, Frank; Gallagher, Ken
Subject: Re: SWMP Preliminary comments

Sally,
As per the comments from Ken and Mike, any Committee member that wanted the appendices got a copy. The detailed information in these is summarized in the preliminary draft SWMP the Committee members received. The appendices contain valuable back up and technical information, but the Committee should really focus on the draft SWMP, the diversion rates, alternative scenarios, policy and program recommendations. We were planning to have a summary of the comments for the final meeting for discussion in late February, so Committee members would know about any changes made to the draft based on comments received. If there are any major issues were there is a significant split of opinion on a draft plan policy or program element, that will be noted in a transmittal letter to the Common Council. We are trying to stick to a reasonable time schedule and get the Draft Plan to the Common Council at which time the formal, and more important, public review, comment and evaluation process will begin.

I would be happy to schedule a second February meeting early in February, if Committee members want to hear about the comments that have been submitted, and discuss them. I am, however, not in favor of an extension of time for submission of Committee member comments. We discussed the process and timetable at the last Committee meeting, (you were absent), and there was agreement on proceeding along these lines...........Bill

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From: **MICHAEL KERNAN**
Date: Sun, Jan 24, 2010 at 1:23 PM
Subject: SWMP Response
To: Bill Bruce, MICHAEL KERNAN <mkrn2@verizon.net>

January 24, 2010
Bill Bruce, Chair
SWMP Steering Committee

Re: My response to SWMP Preliminary Report

While I was nominated for appointment to the SWMP Steering Committee by CANA, the views I express herein are mine and do not necessarily represent those of CANA. CANA has not yet formally discussed the document. I have dutifully read the Preliminary Report and the Appendices C-F. The Preliminary Report is full of data and I do not have the resources to check all the data. I do not agree with all of the conclusions reached by CHA.

PRELIMINARY REPORT CONCLUSIONS
1_. Public authority vs formal consortium_
I disagree with the assumption (p20) that a "Regional Solid Waste Management Authority (RSWMA)...is critical to successful implementation of the SWMP." There is no need for a "public authority" to gather the resources of the fourteen municipalities in the Planning Unit. This area has had a consortium for several years and the 14 municipalities have recently entered into a more formalized "Inter-municipal Agreement" (IMA) to hire and fund a Planning Unit Recycling Coordinator (p27). This is a formal consortium supported by a written document binding, according to its terms, on the various municipalities. It should not be difficult, with the proper initiative, to expand the IMA to include other aspects of finding a solution to the solid waste problem. And there would be bureaucratic savings. The court cases presented to us do not require a public authority and do not bar the use of a consortium to achieve the goals.

There are many disadvantages to another public authority. It will take years and expense to get legislative approval; it will be opposed by the citizens/taxpayers. Generally, public authorities have their directors appointed by the municipalities, no matter the lack of experience in matters of solid waste. In appointments, the public is generally ignored or allotted a minimum number; these also are appointed by the politicians. Rates are determined by a group which has no responsibility to its citizens. [We have seen that with the water authority here in Albany, whose minimum charge does not encourage water conservation; in fact the declining rates encourage excessive water use.] To create a new organization means an additional bureaucratic structure with departments in personnel, human resources, finance, budgeting, etc. NYS and this region have too many authorities and the NYS Comptroller periodically issues reports critical of the abuses inherent.

2. Alternative Emerging Technologies
CHA is due credit for bringing before the Steering Committee presentations by companies from North America and Europe who are involved with alternative technologies such as pyrolysis, gasification, biological/mechanical, anaerobic digestion and WTE. The Steering Committee had the opportunity to question the presenters. But the Steering Committee has not held discussion on the merits of each technology. CHA has shown its decisions in the Preliminary Report and CHA's analyses are contained in that elusive Appendix E. It is not sufficient to deny a technology on the basis that there are no American factories, while a technology has been proven in Europe for more than a decade. It is the duty of the Steering Committee to weigh the merits of each technology, with technical assistance from CHA and other experts, and consider whether each technology would be appropriate in our situation.

THE PROCESS OF THE STEERING COMMITTEE
1. Composition of the Steering Committee
At the first meeting of the Steering Committee on November 24, 2008, 18 members were announced. In the Preliminary Report there are 23 members listed (p32). I do not recall any meeting in which new members were announced. I attended most of the meetings. Attendance by actual Steering Committee members diminished as the year progressed.

2. Resource Materials
At the first few monthly meetings, CHA prepared only enough copies of documents for members of Steering Committee and others who sat at the table in the front of the room. At the April 23, 2009 Meeting there was a motion to provide enough copies so that the public, who sat in seats to the rear of the room and who were there although not being paid by their employers, would have sufficient copies in order to follow complex discussions. [Only three Steering Committee members are not employed by municipalities, the industry or consultants.] This was the only formal motion in the year of the Steering Committee and it passed unanimously, 14-0. It included a provision that the Steering Committee (not CHA) would decide what material would be distributed. This formal motion was not included in the Minutes following the meeting. At the May meeting, again there was discussion and the Minutes were corrected. However there were many meetings in which a sufficient number of copies was not provided to the public.

3. Incomplete Minutes
This problem of incomplete Minutes occurred again when a discussion on the creation of a "consortium" instead of a public authority was not transcribed. Until the October Meeting, a "consortium" was not discussed in detail. CHA promised to have the attorneys research the issue. Now, in the Preliminary Report, there are several references to an "informal consortium" or a "loose consortium" already existing. It may be appropriate to make it a "formal written consortium", using the IMA as a basis.

4. Appendices C-F
Appendices C-F are mentioned in the Table of Contents but not included. Over 6 days I sent 3 emails to CHA; I received no response. Finally I emailed Bill Bruce and then CHA sent me the Appendices the next day. To my knowledge no other Steering Committee

members have received the Appendices. As the Appendices are part of the Preliminary Report, they should be distributed to all Steering Committee members before Steering Committee members are asked their opinion. [This paragraph was written before the recent emails by others seeking the Appendices].

5. Distribution of Preliminary Report
While the 12/15/09 email from CHA advises that “this Preliminary Draft is for review by the Steering Committee only,” CHA sent it to select others. At each meeting of the Steering Committee, there were citizens sitting in the gallery who attended many of the meetings, some who were quite knowledgeable on the topic, some who asked very pertinent questions or who provided information to the group. Prior to issuance of a SWMP for formal review, these members of the public should be provided the Preliminary Report in full.

6. Discussion of the Preliminary Report
The 12/15/09 email also states that the Preliminary Report “has been compiled based on the many months of input and guidance that you have provided as part of the committee.” Let’s be frank: CHA prepared the Preliminary Report, as much as CHA led and controlled the discussion throughout the year. The Steering Committee should discuss the Preliminary Report among its members, having access to the viewpoints of other members of the Steering Committee.

RECOMMENDATION
I propose a Scenario #4 for the Steering Committee’s consideration, which may include the following:
regional formal consortium;
strict enforcement of existing recycling laws, with penalties;
innovative approaches to recycling as shown in other regions;
PAYT if a small first bag weekly is provided free by the municipality;
product stewardship;
consider a SSOW facility since food waste is 19% of MSW (didn’t the City of Albany collect food waste from residents as part of regular trash pickup in the 1960-70s);
further evaluation of emerging technologies, as opposed to a WTE plant.

I make these initial comments, understanding that discussion is needed, and request that they be forwarded directly to Steering Committee members.

Michael J Kernan

- -

From: Frank Zeoli
Sent: Monday, January 25, 2010 9:36 AM
To: 'Willard Bruce'; 'Sally Cummings'
Cc: Bob Griffin; 'David Phaff'; 'Dick Forgea'; 'Doug Melnick'; 'Gregg Sagendorph'; 'James Gaughan'; 'Jim Sano'; 'Joe Giebelhaus'; 'Kevin G. Crosier'; 'Kurt Larson'; 'Mark Gleason'; 'Mary Ellen Mallia'; 'Meghan Ruby'; 'Michael Franchini'; 'Michael Kernan'; 'Mike O'Brien'; 'Resa Dimino';

'Robert Conway'; 'Ruth Leistensnider'; 'Sam Messina'; 'Sean Ward'; 'Tom Reynolds'; 'William Hill'; LaVardera, Frank; Gallagher, Ken
Subject: RE: SWMP Preliminary comments

I must also agree with Bill & Ken, the time frame was clearly defined in the last few meetings. We need to keep to the schedule and submit this to the Common Council as stated. It is important for Sally to remember that this is a preliminary draft. After committee members submit their comments a final draft will be submitted to the Council where it will then be subject to public comment and SECOR review. **This is not the final draft that some people seem to think it is.**

Thanks
Frank

From: Sally Cummings
Sent: Monday, January 25, 2010 10:47 AM
To: Frank Zeoli; Willard Bruce; Sally Cummings; David Phaff; Dick Forgea; Doug Melnick; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Kevin G. Crosier; Kurt Larson; Mark Gleason; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike O'Brien; Resa Dimino; Robert Conway; Ruth Leistensnider; Sam Messina; Sean Ward; Tom Reynolds; William Hill; LaVardera, Frank; Gallagher, Ken
Subject: Fwd: Why Single Stream Recycling Systems are Inefficient and More Wasteful than Dual Stream Systems

---------- Forwarded message ----------
From: **James Travers** >
Date: Mon, Jan 25, 2010 at 5:34 AM
Subject: Why Single Stream Recycling Systems are Inefficient and More Wasteful than Dual Stream Systems

I've pasted below an article from the waste trade magazine Solid Waste & Recycling and attached a report on single stream recycling systems published in December by the Container Recycling Institute that is referred to in the article. The report lays out all of the pros and cons of Single Stream and finds Dual Stream Systems are less costly to operate, are more profitable because they suffer from less contamination of secondary market goods due to co-mingling. It is entitled "Understanding economic and environmental impacts of single-stream collection systems"

Because Dual Stream separation and collection conserves more of our resources and creates less thoroughly unusable waste, costs less to set up and operate and is profitable, at least by enough to recover its operational overhead and sustain its ongoing operation, it should be our goal to see this wise policy instituted regionally.

The State's mandate to localities is to reduce waste.

Choosing costly single stream over another system proven to create less waste than it does is in fact completely contrary to DEC's directive to find the least wasteful alternative method of managing their waste.

Single Stream should be abandoned by the steering committee because it is a less effective method than Dual Stream and it creates more waste than does the DS method; the committee should recommend the practice of source separated Dual Stream collection methods be adopted regionally.

I recommend that Sally send these documents to Mike Kienan and that she ask him to circulate them to every member of the SWMP steering committee.

(Article follows my signature)

Sally Cummings
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http://www.solidwastemag.com/issues/isarticle.asp?aid=1000351131&link_source=aypr_SW&link_targ=DailyNews

Solid Waste & Recycling, 12/21/2009

Two-stream recycling best, study says

The Container Recycling Institute has undertaken a study of the impacts of single-stream collection of residential recyclables, with a particular focus on the economic and environmental impacts of this collection method on the final material sent to end-markets for remanufacturing.

To date, the impacts on various collection methods—source-separated curbside, commingled curbside, deposit/return—on the quality of materials destined for recycling have not been formally researched and documented. In fact, rarely is "material quality" or the "end-destination" of the material considered by government decision-makers when choosing an appropriate recycling system.

CRI selected Clarissa Morawski, principal of CM Consulting, to research the issue. Ms. Morawski is a leading expert on Extended Producer Responsibility (EPR), and has authored numerous reports on beverage container recovery systems. For this study, Ms. Morawski reviewed 60 previously-published studies, reports and articles in trade magazines. Ms. Morawski was interested to find that, as a result of the struggling economy and plunging market prices for recyclables, she is seeing increased market sensitivity to quality issues. "End markets are
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really starting to quantify their economic losses from poor quality of material, and from a qualitative perspective, they feel this problem is very serious indeed and could have an impact on any future investments of capital to increase capacity of secondary feedstock."

The report finds that there are many negative downstream impacts of contaminated feedstock due to the mixing of materials through single-stream curbside collection. "Basically, the report confirms that you can't unscramble an egg," explains CRI Executive Director Susan Collins. "Once the materials are mixed together in a single-stream recycling system, there will be cross-contamination of materials and significant glass breakage. Those cross-contamination and breakage issues then result in increased costs for the secondary processors." This report attempts to quantify those costs, but the study acknowledges that there is a need for more comprehensive data.

"Nor are costs calculated on an apples-to-apples basis, because the tons that are handled through various recycling systems are not necessarily the same as the tons recycled" Collins observed. "If you take the contaminants out of the equation, the cost per ton recycled increases. With such high contaminant levels, some of these recycling systems are merely shifting costs to the paper mills, aluminum manufacturers, glass beneficiation facilities and glass manufacturers, and plastics recyclers."

The report is available for download on the CRI web site:

www.container-recycling.org

Contacts:

Clarissa Morawski, Report Author: (416) 682-8984

Susan V. Collins, CRI Executive Director: (310) 559-7451

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From: Sally Cummings
Sent: Monday, January 25, 2010 1:20 PM
To: Gallagher, Ken; Willard Bruce
Subject: Please change the way my name is listed on the SWMP document

When I was first asked to be on the SWMP Steering Committee I signed in as a citizen and thereafter signed in differently each time, i.e. once as an environmentalist (any gardener is an environmentalist) and also as a resident of Westmere. I believe I did once sign in as STPB but when I asked Lynne Jackson about this she told me not to sign in this way. I asked her if I should write and tell you, she said "not to bother". I did not know that you would put my title as this on the SWMP Preliminary document. Please change my name to "citizen" or Westmere resident, or some such.

Many thanks!
Sally

From: Sally Cummings
Sent: Thursday, January 28, 2010 10:29 AM
To: Gallagher, Ken; Willard Bruce
Subject: My comments on the Capital Region Solid Waste Management Plan

The Capital District Solid Waste Management Plan should begin with a statement that the goal of the new plan is zero waste. Zero waste is defined as "If it can't be reduced, reused, repaired, rebuilt, refurbished, refinished, resold, recycled, or composted, then it should be restricted, redesigned, or removed from production. The goal is to combine aggressive resource recovery and industrial redesign to eliminate the very concept of waste. Eventually, the community's resource-use system will emulate natural cyclical processes, where no waste exists. [This definition is from the Berkeley City Council's resolution]"

Comments with the way the SWMP Steering Committee was established and operated:

1. There was very little participation from most of the other municipalities in the consortium.

2. Willard Bruce said that the Steering Committee is creating the plan but it appeared that CHA is creating the plan. The preliminary draft closely resembles the modification of an earlier plan that DEC approved in September, 2008, before the Steering Committee was created.

3. During Steering Committee meetings Willard Bruce and Ken Gallagher often used the pronoun "we" without saying who "we" is. For example, Mr. Bruce said that "we" examined the best institutional structures nationwide that achieve the highest diversion rates. They were all authorities. Where is the data to support this?

4. Mike Kernan's vigorous comments of October 20th, 2009 in opposition to an authority, and in favor of a consortium, were not included in the minutes of that meeting distributed at the next meeting, on December 8.. There was considerable discussion at that October meeting about the need for and desirability of an authority. This was an important discussion and why was this not included in the minutes?

6. The stipulation in the December 15th 2009 letter from Ken Gallagher that accompanied the preliminary draft plan, and asserted that the report represented the "consensus view of the committee regarding the future of solid waste management", is not correct. Mike Kernan and I dispute that there is a consensus. There was never a steering committee vote as to who favored an authority. To me, this is a very important concern.

7. Clough Harbor never brought in experts on how to maximize reduction, reuse, or recycling. Why? There are so many examples today of municipalities that are striving towards zero waste or high recycling rates.

8. I request that all comments from steering committee members on the preliminary draft be included in an appendix to the final draft that is to be forwarded to the Albany Common Council.

9. During our meetings, committee members witnessed presentations from industry representatives about their various technologies, but no opposing expert opinions were sought out on any of these controversial technologies. Though Albany is home to several state wide and national environmental organizations, no expert opinion from any of these organizations was sought.

10. I strongly oppose construction of a trash incinerator. Existing waste-to-energy facilities are a magnet for items best reduced, reused or, recycled, ruining incentives to maximize reduction, reuse, and recycling. The incentive for the 3 R's would be drastically cut because amounts for such a facility must be guaranteed or paid for anyway.

11 . Will solid wastes be prohibited from coming into the capital region solid waste district from outside the district? This needs to be clarified before the organization is formed.

12. During the steering committee meetings, Bill Bruce and CHA representatives often said that the new plan will have strict enforcement and a good education component to stimulate high compliance rates. Few details are provided in the preliminary draft about how these transformations will be implemented.

13. Although a schedule for reducing the amount requiring disposal at a facility (which has yet to be determined), there was no indication as to how this reduction is to be accomplished. Without knowing how it is going to be done, how can you make a schedule? No ideas were put forth.

14. I need clarification on why we were shown different "emerging technologies" when we have not been charged with choosing the kind of technology. What was the point? In fact, what was the point of the whole Steering Committee when it appears that the steering committee was "steered" from the start. Will we really have any input into what choices will be made?

15. While CHA and, apparently. DEC seem to favor an Authority approach I strongly oppose creation of an Authority. Authorities tend to be huge, and governed by people who do not know anything about the technology being undertaken. They are great at administration and making more work for more administrators. Authorities remove the power from local government to control what the taxpayers are paying for and allow one or more municipalities to shift their own debt to that of the authority, thus making every

taxpayer in the authority's region liable for debt they did not create. In addition, authorities can prohibit local municipalities from enacting and implementing solid waste negotiations which are more stringent than those of the authority. Also, Authorities often have, or can be granted, power of eminent domain over local municipalities and private landowners. I feel that the solid waste management plan should be kept small, taking care of Albany and the townships, so there is more control for Albany and less expense for its tax payers. I also feel that the general public are more likely to comply if their waste is being handled by a local consortium than with a gigantic Authority.

Sally Cummings

Resident of Westmere

From: Larson, Kurt
Sent: Thursday, January 28, 2010 1:21 PM
To: Christopher, Suzanne; Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; George Gebe Jr; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike Hammond; Mike Manning; Mike O'Brien; Resa Dimino; Richard Rapp; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Thomas Dolin; Tom Reynolds; Willard (Bill) Bruce; Hill, William
Cc: LaVardera, Frank; Gallagher, Ken; Daley, Richard; Gilroy, Martin
Subject: RE: Notice for next SWMP Steering Committee Meeting

Ken,

I have been asked to inform you that our comments on the Preliminary Draft of the Capital District Solid Waste Management Plan are being reviewed by our executive staff. Therefore, they will not be received by you as requested by your date of January 29, 2010, but we will send them as soon as possible.

Thank you, Kurt

From: Griffin, Bob
Sent: Friday, January 29, 2010 8:42 AM
To: Christopher, Suzanne
Subject: RE: Notice for next SWMP Steering Committee Meeting

Suzanne, my only comment relates to the reliance on the formation of an authority for the plan to come to fruition. Time passes rapidly and the need for a long-term solution for the region's future solid waste issues will reach a critical point soon. Should the formation of a regional authority be delayed or the authority not be conceived then the Capital Region could be without sufficient local disposal capacity for a longer period of time than anticipated. I believe that the Plan, when finalized, should contain parallel time lines for development of permanent as well as temporary means for handling the area's waste post-Rapp Rd. The Plan should also contain a contingency for a solid waste management structure along the lines of the scenarios described in prior meetings, i.e. maintaining the current consortium, a smaller consortium or the City of Albany alone. The way the current Draft Plan is structured the failure of one point, the formation of the Authority, means the Plan itself will fail.

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Comments provided after January 29, 2010

From: Larson, Kurt
Sent: Wednesday, February 03, 2010 4:08 PM
To: Willard (Bill) Bruce; LaVardera, Frank; Gallagher, Ken; Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; George Gebe Jr; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Larson, Kurt; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike Hammond; Mike Manning; Mike O'Brien; Resa Dimino; Richard Rapp; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Thomas Dolin; Tom Reynolds; Hill, William
Cc: Gilroy, Martin; Daley, Richard
Subject: Comments on Preliminary draft SWMP

Please see our comments on the Preliminary Draft Capital Region Solid Waste Management Plan (SWMP).

Thank you, Kurt

Comments from the New York State Office of General Service (OGS) on the Preliminary Draft Capital Region Solid Waste Management Plan (SWMP)

Some of the elements of a SWMP identified in the Executive Summary are:

1) Expand the planning unit by implementation of a regional solid waste management authority, and the use of flow control – This would require enabling legislation.
2) Waste Minimization – emphasis on consumer education on waste reduction, promote PAYT (Pay as you throw) implementation, and back yard composting for yard and food waste.
3) Promote Product Stewardship – working to reduce the amount and toxicity of packaging and materials that are left for disposal at the end of their useful lives.
4) Continue to promote and expand recycling infrastructure. Looking to mandate such items as electronics and HHW.
5) Developing a Source Separated Organic Waste (SSOW) facility - discusses a *"unique opportunity to forge a partnership with NYSDEC, and other agencies like NYSOGS and SUNY Albany who are working to comply with the Governor's Executive Order 4 to increase their recycling and reduce their carbon footprint. These agencies are already participating with the City of Albany, the Planning*

Unit, and others in an Organics Waste Task Force. In addition, the NYSOGS is already implementing a food waste composting program for its facilities at the Empire State Plaza. Materials collected for composting by OGS are currently delivered to the Agri-Cycle Compost Facility in Washington County".

6) Develop a regional solid waste treatment facility to further minimize landfill disposal requirements. *"Such a facility would recovery additional materials, energy, bio-fuels and other byproducts from the post-recyclable solid waste stream using either the conventional waste-to-energy technologies or one of the emerging technologies, which develops a successful commercial facility somewhere in the United States in the near future*".

Our department is supportive of items 1-5 above. However, we have the following concern with item 6.

- The concept of "waste to energy" has been, and continues to be, a controversial topic that raises issues of environmental justice as well as health and environmental concerns. OGS is supportive of a plan that includes the investigation of all strategies and technologies to reduce waste. Therefore, instead of stating to "Develop a regional facility utilizing a mixed solid waste treatment technology". *Such a facility would recovery additional materials, energy, bio-fuels and other byproducts from the post-recyclable solid waste stream using either the conventional waste-to-energy technologies or one of the emerging technologies, which develops a successful commercial facility somewhere in the United States in the near future*", we believe the plan should focus on continuing to investigate and evaluate emerging technologies, including "waste to energy" initiatives. It is our understanding that there have been a number of advances in "waste to energy" technology to reduce toxins in the air and in the residue. However, none of the groups that made presentations to the Committee on "waste to energy" proposals adequately addressed the issues of environmental and health concerns or provided statistics to back their claims. Therefore, there is not enough information at this point in time for OGS to endorse item 6 above.

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From: Jim Sano
Sent: Wednesday, February 03, 2010 4:59 PM
To: Kurt Larson; Bill Bruce; LaVardera, Frank; Gallagher, Ken; Bob Griffin; David Phaff; Richard Forgea; Doug Melnick; Frank Zeoli; Kevin Crozier; Gregg Sagendorph; James Gaughan; Joe Giebelhaus; Mary Ellen Mallia; Megan Ruby; Mike Franchini; Mike Kernan; Mike Hammond; Mike Manning; Mike O'Brien; Resa Dimino; Richard Rapp; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Thomas Dolin; Tom Reynolds; Hill, William;
Cc: Martin Gilroy; Richard Daley
Subject: Re: Comments on Preliminary draft SWMP

I am unable to make next weeks meeting but after reading the volumes of appendices in addition to the SWMP I would agree with this summary statement from OGS and believe the report is complete.

We did not advocate any one technology over another, in reality we advocated none, we left it as a task for the hopefully soon to be created Solid Waste Management Authority. I see no reason to delay moving forward.

Jim Sano
Albany Common Council
9th Ward

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From: Willard Bruce
Sent: Thursday, February 04, 2010 3:28 PM
To: Larson, Kurt; Gallagher, Ken
Cc: LaVardera, Frank; Bob Griffin; David Phaff; Dick Forgea; Doug Melnick; Frank Zeoli; George Gebe Jr; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Mary Ellen Mallia; Meghan Ruby; Michael Franchini; Michael Kernan; Mike Hammond; Mike Manning; Mike O'Brien; Resa Dimino; Richard Rapp; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Thomas Dolin; Tom Reynolds; Hill, William; Gilroy, Martin; Daley, Richard
Subject: Re: Comments on Preliminary draft SWMP

Ken,
I keep reading/ hearing (perhaps you also), that folks are reading into the text and document, here or there, that something in the document is preferential to WTE, when you get past the waste reduction reuse/recycling and begin to talk about "treatment" to further reduce landfill reliance. Mike O'Brien is (I believe) getting the same feedback. First, Waste To Energy (WTE) is an acronym that most people associate with mass burn incineration, from the days when it was the only game in town. Most of the numerous treatment technologies out there include some form of waste to energy, resource recovery. Secondly, if there are any phrases in the document that say something like "WTE and other emerging technologies", perhaps this is being interpreted as preferential to WTE (mass burn incineration). For the meeting next Tuesday, if you could flag any text/language along these lines, and we can make sure the text/language is completely neutral on treatment technologies; that some future entity will have to evaluate them all based on economic and technical feasability. We can discuss at the meeting next Tuesday. Thanks.............Bill

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From: Michael O'Brien

Sent: Thursday, February 04, 2010 7:41 PM

To: Bill Bruce; Kurt Larson; Gallagher, Ken

Cc: LaVardera, Frank; Bob Griffin; David Phaff; Richard Forgea; Doug Melnick; Frank Zeoli; Kevin Crozier; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Mary Ellen Mallia;

Megan Ruby; Mike Franchini; Mike Kernan; Mike Hammond; Mike Manning; Mike O'Brien; Resa Dimino; Richard Rapp; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Thomas Dolin; Tom Reynolds; Hill, William; Martin Gilroy; Richard Daley

Subject: Re: Comments on Preliminary draft SWMP

Ken,

I agree with Bill Bruce. Let's be neutral on treatment technologies. That decision will be made by what ever entity is created to regionally deal with solid waste.

However, for the near future, I do agree with the draft report that as the consortium and its members currently exist we can push for increased recycling and expanded composting.

Mike O'Brien

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From: Jim Sano
Sent: Friday, February 05, 2010 4:26 AM
To: Mike O'Brien; Bill Bruce; Kurt Larson; Gallagher, Ken
Cc: : LaVardera, Frank; Bob Griffin; David Phaff; Richard Forgea; Doug Melnick; Frank Zeoli; Kevin Crozier; Gregg Sagendorph; James Gaughan; Jim Sano; Joe Giebelhaus; Mary Ellen Mallia; Megan Ruby; Mike Franchini; Mike Kernan; Mike Hammond; Mike Manning; Mike O'Brien; Resa Dimino; Richard Rapp; Robert Conway; Ruth Leistensnider; Sally Cummings; Sam Messina; Sean Ward; Thomas Dolin; Tom Reynolds; Hill, William; Martin Gilroy; Richard Daley

Subject: Re: Comments on Preliminary draft SWMP

I agree as well, Mike.

Jim Sano

Appendix B

SEQRA Documentation

617.20
Appendix A
State Environmental Quality Review

FULL ENVIRONMENTAL ASSESSMENT FORM

PURPOSE: The full EAF is designed to help applicants and agencies determine, in an orderly manner, whether a project or action may be significant. The question of whether an action may be significant is not always easy to answer. Frequently, there are aspects of a project that are subjective or unmeasurable. It is also understood that those who determine significance may have little or no formal knowledge of the environment or may not be technically expert in environmental analysis. In addition, many who have knowledge in one particular area may not be aware of the broader concerns affecting the question of significance. The full EAF is intended to provide a method whereby applicants and agencies can be assured that the determination process has been orderly, comprehensive in nature, yet flexible enough to allow introduction of information to fit a project or action.

FULL EAF COMPONENTS: The full EAF is comprised of three parts:

Part 1: Provides objective data and information about a given project and its site. By identifying basic project data, it assists a reviewer in the analysis that takes place in Part 2 and 3.

Part 2: Focuses on identifying the range of possible impacts that may occur from a project or action. It provides guidance as to whether an impact is likely to be considered small to moderate or whether it is a potentially-large impact. The form also identified whether an impact can be mitigated or reduced.

Part 3: If any impact in Part 2 is identified as potentially-large, than Part 3 is used to evaluate whether or not the impact is actually important.

DETERMINATION OF SIGNIFICANCE – Type 1 and Unlisted Actions

Identify the Portions of EAF completed for this project: ☑ ***Part 1*** ☑ ***Part 2*** ☑ ***Part 3***

Upon review of the information recorded on this EAF (Parts 1, 2 and 3 if appropriate), and any other supporting information, and considering both the magnitude and importance of each impact, it is reasonably determined by the lead agency that:

☐ A. The project will not result in any large and important impact(s) and, therefore, is one which **will not** have a significant impact on the environment, therefore, **a negative declaration will be prepared**.

☐ B. Although the project could have a significant effect on the environment, there will not be a significant effect for this Unlisted Action because the mitigation measures described in PART 3 have been required, therefore, **a CONDITIONED negative declaration will be prepared.***.

☑ C. The project may result in one or more large and important impacts that may have a significant impact on the environment, therefore, **a positive declaration will be prepared**.

*A Conditioned Negative Declaration is only valid for Unlisted actions.

Solid Waste Management Plan
NAME OF ACTION

City of Albany Common Council
NAME OF LEAD AGENCY

PRINT OR TYPE NAME OF RESPONSIBLE OFFICER IN LEAD AGENCY

TITLE OF RESPONSIBLE OFFICER

SIGNATURE OF RESPONSIBLE OFFICER IN LEAD AGENCY

SIGNATURE OF PREPARED (IF DIFFERENT FROM RESPONSIBLE OFFICER)

Date

PART 1 – PROJECT INFORMATION
PREPARED BY PROJECT SPONSOR

Notice: This document is designed to assist in determining whether the action proposed may have a significant effect on the environment. Please complete the entire form, Parts A through E. Answers to these questions will be considered as part of the application for approval and may be subject to further verification and public review. Provide any additional information you believe will be needed to complete Parts 2 and 3.
It is expected that completion of the full EAF will be dependent on information currently available and will not involve new studies, research or investigation. If information requiring such additional work is unavailable, so indicate and specify each instance.

NAME OF ACTION: Solid Waste Management Plan			
LOCATION OF ACTION: Multiple municipalities in Albany and Rensselaer counties (include street address, municipality and County)			
NAME OF APPLICANT/SPONSOR: City of Albany, Department of General Services on behalf of the Capital Region Solid Waste Management Partnership Planning Unit		(518) 427-7480 **BUSINESS TELEPHONE**	
One Connors Blvd.	Albany	NY	12204
STREET ADDRESS	**CITY/PO**	**STATE**	**ZIP**
NAME OF OWNER (IF DIFFERENT):		**BUSINESS TELEPHONE**	
STREET ADDRESS	**CITY/PO**	**STATE**	**ZIP**
DESCRIPTION OF ACTION: A new Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership Planning Unitdefines the key elements of the future solid waste management program for the region, through the year 2030. See Attachment 1.			

Please complete each question –Indicate N.A. if not applicable.

A. SITE DESCRIPTION - NOT APPLICABLE (SEE ATTACHMENT 2)

Physical setting of overall project, both developed and undeveloped areas.

1. Present land use: ☐ Urban ☐ Industrial ☐ Commercial ☐ Residential(suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☒ Other N.A. Not Applicable (see attachment 2)

2. Total acreage of project area: N.A. acres.

APPROXIMATE ACREAGE	PRESENTLY	AFTER COMPLETION
Meadow or Brushland (Non-agricultural)	_____ acres	_____ acres
Forested	_____ acres	_____ acres
Agricultural (includes orchards, cropland, pasture, etc.)	_____ acres	_____ acres
Wetland (Freshwater or tidal as per Articles 24,25 of ECL)	_____ acres	_____ acres
Water Surface Area	_____ acres	_____ acres
Unvegetated (Rock, earth or fill)	_____ acres	_____ acres
Roads, buildings and other paved surfaces	_____ acres	_____ acres
Other (Indicate type)	_____ acres	_____ acres

3. What is predominant soil type(s) on project site? N.A.

a. Soil drainage:
☐ well drained _____% of site
☐ Moderately well drained _____% of site
☐ Poorly drained _____% of site

b. If any agricultural land is involved, how many acres of soil are classified within soil group 1 through 4 of the NYS Land Classification System? _____ Acres (See 1 NYCRR 370).:

4. Are there bedrock outcroppings on project site? ☐ Yes ☐ No.

a. What is depth to bedrock? _____ (in feet):

5. Approximate percentage of proposed project site with slopes?
☐ 0-10% _____ % ☐ 10-15% _____ % ☐ 15% or greater _____ %.

6. Is project substantially contiguous to, or contain a building, site, or district, listed on the State or the National Registers of Historic Places? ☐ Yes ☐ No

7. Is project substantially contiguous to, to a site listed on the Register of National Natural Landmarks?
☐ Yes ☐ No

8. What is the depth of the water table: _____ (in feet)

9. Is the site located over a primary, principal, or sole source aquifer? ☐ Yes ☐ No.

10. Do hunting, fishing or shall fishing opportunities presently exist in the project area? ☐ Yes ☐ No.

11. Does project site contain any species of plant or animal life that is identified as threatened or endangered?
☐ Yes ☐ No. According to: _____.
Identify each species:

12. Are there any unique or unusual land forms on the project site? (i.e., cliffs, dunes, other geological formations)? ☐ Yes ☐ No.
Describe:

13. Is the project site presently used by the community or neighborhood as an open space or recreation area?
☐ Yes ☐ No.
If yes, explain:

14. Does the present site include scenic views known to be important to the community? ☐ Yes ☐ No.

15. Streams within or contiguous to project area? _____.

16. Lakes, ponds, wetland areas within or contiguous to project area?

Name:	Size (in acres) _____
Name:	Size (in acres) _____
Name:	Size (in acres) _____

17. Is the site served by existing public utilities? ☐ Yes ☐ No.
a. If yes, does sufficient capacity exist to allow connection: ☐ Yes ☐ No.
b. If yes, will improvements be necessary to allow connection: ☐ Yes ☐ No.

18. Is the site located in an agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☐ No.

19. Is the site located in or substantially contiguous to a Critical Environmental Area designated pursuant to Article 8 of the ECL, and 6 NYCRR 617? ☐ Yes ☐ No.

20. Has the site ever been used for the disposal of solid or hazardous wastes? ☐ Yes ☐ No.

B. Project Description

1. Physical dimensions and scale of project (fill in dimensions as appropriate). ☒ Not Applicable

a. Total contiguous acreage owned or controlled by project sponsor _____ acres.
b. Project acreage to be developed: _ acres initially; _____ acres ultimately.
c. Project acreage to remain undeveloped _____ acres.
d. Length of project, in miles: _____ (if appropriate).
e. If the project is an expansion, indicate percent of expansion proposed _____ %
f. Number of off-street parking spaces existing _____; proposed _____.
g. Maximum vehicular trips generated per hour _____ (upon completion of project).
h. If residential, number and type of housing units:

	One family	**Two family**	**Multiple family**	**Condominium**
Initially				
Ultimately				

i. Dimensions (in feet) of largest proposed structure _____ height; _____ width; _____ length.
j. Linear feet of frontage along a public thoroughfare project will occupy is? _____ Ft.

2. How much natural material (i.e., rock, earth, etc.) will be removed from the site? N.A. Tons/cubic yards.

3. Will disturbed areas be reclaimed: ☐ Yes ☐ No ☒ N/A
   a. If yes, for what intended purpose is the site being reclaimed? _____
   b. Will topsoil be stockpiled for reclamation? ☐ Yes ☐ No
   c. Will upper subsoil be stockpiled for reclamation? ☐ Yes ☐ No

4. How many acres of vegetation (trees, shrubs, ground covers) will be removed from site? N.A. acres.

5. Will any mature forest (over 100 years old) or other locally-important vegetation be removed by this project?
   ☐ Yes ☐ No ☒ Not Applicable

6. If single phase project: Anticipated period of construction N.A. months, (including demolition).

7. If multi-phased:
   a. Total number of phases anticipated N.A (number).
   b. Anticipated date of commencement phase 1 _____ month _____ year, (including demolition).
   c. Approximate completion date of final phase _____ month _____ year.
   d. Is phase 1 functionally dependent on subsequent phases? ☐ Yes ☐ No

8. Will blasting occur during construction? ☐ Yes ☐ No ☒ Not Applicable

9. Number of jobs generated: during construction? N.A; after project is complete? N.A.

10. Number of job eliminated by this project? N.A.

11. Will project require relocation of any projects or facilities: ☐ Yes ☐ No ☒ Not Applicable
    If yes, explain _____

12. Is surface liquid waste disposal involved? ☐ Yes ☐ No ☒ Not Applicable
    a. If yes, indicate type of waste (sewage, industrial, etc.) and amount _____
    b. Name of water body into which effluent will be discharged _____

13. Is subsurface liquid waste disposal involved? ☐ Yes ☐ No Type: _______ ☒ Not Applicable

14. Will surface area of an existing water body increase or decrease by proposal? ☐ Yes ☐ No ☒ Not Applicable
    Explain: _____

15. Is project, or any portion of project, located in a 100 year flood plain? ☐ Yes ☐ No ☒ Not Applicable

16. Will the project generate solid waste? ☐ Yes ☐ No ☒ Not Applicable
    a. If yes, what is the amount per month? _____ Tons.
    b. If yes, will an existing solid waste facility be used: ☐ Yes ☐ No
    c. If yes, give name _____; location _____
    d. Will any wastes not go into a sewage disposal system or into a sanitary landfill? ☐ Yes ☐ No
    e. If yes, explain: _____

17. Will the project involve the disposal of solid waste: ☒ Yes ☐ No.
    a. If yes, what is the anticipated rate of disposal: N.A. See Attachment 3.
    b. If yes, what is the anticipated site life: N.A. years.

18. Will project use herbicides or pesticides? ☐ Yes ☐ No. ☒ Not Applicable

19. Will project routinely produce odors (more than one hour per day)? ☐ Yes ☐ No ☒ Not Applicable

20. Will project produce operating noise exceeding the local ambient noise levels? ☐ Yes ☐ No ☒ Not Applicable

21. Will project result in an increase in energy use? ☐ Yes ☐ No ☒ Not Applicable
    If yes, indicate type(s) _____

22. If water supply is from wells, indicate pumping capacity _____ gallons/minute ☒ Not Applicable

23. Total anticipated water usage per day _____ gallons/day. ☒ Not Applicable

24. Does project involve Local, State or Federal funding? ☒ Yes ☐ No
    If yes, explain Implementation of the SWMP will require both state and local funding.

25. Approvals Required:

			Type	Submittal Date
City, Town, Village Board	☒ Yes	☐ No	Resolution of Approval	Pending
City, Town, Village Plng. Board	☐ Yes	☐ No		
City, Town, Zoning Board	☐ Yes	☐ No		
City, County Health Department	☐ Yes	☐ No		
Other Local Agencies	☐ Yes	☐ No		
Other Regional Agencies	☐ Yes	☐ No		
State Agencies	☒ Yes	☐ No	NYSDEC Approval	Pending
Federal Agencies	☐ Yes	☐ No		

C. ZONING and PLANNING INFORMATION

1. Does proposed action involve a planning or zoning decision? ☒ Yes ☐ No
If yes, indicate decision required:

☐ zoning amendment	☐ zoning variance	☐ special use permit	☐ subdivision	☐ site plan
☐ new/revision of master plan	☐ resource management plan	☒ Other: Solid Waste Management Plan		

2. What is the zoning classification(s) of the site? N.A.

3. What is the maximum potential development of the site if developed as permitted by the present zoning? N.A.

4. What is the proposed zoning of the site? N.A.

5. What is the maximum potential development of the site if developed as permitted by the proposed zoning? N.A.

6. Is the proposed action consistent with the recommended uses in adopted local land use plans?
☐ Yes ☐ No ☒ Not Applicable

7. What are the predominant land use(s) and zoning classifications within a ¼ mile radius of proposed action? N.A.

8. Is the proposed action compatible with adjoining/surrounding land uses within a ¼ mile?
☐ Yes ☐ No ☒ Not Applicable

9. If the proposed action is the subdivision of land, how many lots are proposed? N.A
   a. What is the minimum lot size proposed? _____

10. Will proposed action require any authorization(s) for the formation of sewer or water districts? ☐ Yes ☒ No

11. Will the proposed action create a demand for any community provided serviced (recreation, education, police, fire protection)? ☐ Yes ☒ No
    a. If yes, is existing capacity sufficient to handle projected demand? ☐ Yes ☐ No

12. Will the proposed action result in the generation of traffic significantly above present levels? ☐ Yes ☒ No
    a. If yes, is the existing road network adequate to handle the additional traffic? ☐ Yes ☐ No

D. INFORMATIONAL DETAILS

Attach any additional information as may be needed to clarify your project. If there are, or may be, any adverse impacts associated with your proposal, please discuss such impacts and measures which you propose to mitigate or avoid them.

E. VERIFICATION

I certify that the information provided above is true to the best of my knowledge.

Applicant/Sponsor Name: City of Albany Department of General Services Date: ____________
Signature: ______________________________ Title: Commissioner

If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment.

PART 2 – PROJECT IMPACTS AND THEIR MAGNITUDE
RESPONSIBILITY OF LEAD AGENCY

GENERAL INFORMATION (Read Carefully)

- In completing the form, the reviewer should be guided by the question: ***Have my responses and determinations been reasonable?*** The reviewer is not expected to be an expert environmental analyst.
- The examples provided are to assist the reviewer by showing types of impacts and, wherever possible, the threshold of magnitude that would trigger a response in column 2. The examples are generally applicable throughout the State and for most situations. But, for any specific project or site other examples and/or lower thresholds may be appropriate for a Potential large Impact response, thus requiring evaluation in Part 3.
- The impacts of each project, on each site, in each locality, will vary. Therefore, the examples are illustrative and have been offered as guidance. They do not constitute an exhaustive list of impacts and thresholds to answer each question.
- The number of examples per question does not indicate the importance of each question.
- In identifying impacts, consider long term, short term and cumulative effects .

INSTRUCTIONS (Read Carefully)

a. Answer each of the 20 questions in PART 2. Answer ***Yes*** if there will be ***any*** impact.
b. **Maybe** answers should be considered as **Yes** answers.
c. If answering ***Yes*** to a question, check the appropriate box (column 1 or 2) to indicate the potential size of the impact. If impact threshold equals or exceeds any example provided, check column 2. If impact will occur, but threshold is lower than example, check column 1.
d. Identifying that an impact will be potentially large (column 2) does not mean that it is also necessarily significant. Any large impact must be evaluated in PART 3 to determine significance. Identifying an impact in column 2 simply asks that it be looked at further.
e. If reviewer has doubt about size of the impact, then consider the impact as potentially large and proceed to PART 3.
f. If a potentially large impact checked in column 2 can be mitigated by change(s) in the project to a small to moderate impact, also check the ***Yes*** box in column 3. A ***No*** response indicates that such a reduction is not possible. This must be explained in Part 3.

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON LAND			
1. Will the proposed action result in a physical change to the project site? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Any construction on slopes of 15% or greater, (15 foot rise per 100 foot of length), or where the general slopes in the project area exceed 10%.	☐	☐	☐ Yes ☐ No
■ Construction of paved parking area for 1,000 or more vehicles.	☐	☐	☐ Yes ☐ No
■ Construction of land where the depth to the water table is less than 3 feet.	☐	☐	☐ Yes ☐ No
■ Construction on land where bedrock is exposed or generally within 3 feet of existing ground surface.	☐	☐	☐ Yes ☐ No
■ Construction that will continue for more than 1 year or involve more than one phase or stage.	☐	☐	☐ Yes ☐ No
■ Excavation for mining purposes that would remove more than 1,000 tons of natural material (i.e., rock or soil) per year.	☐	☐	☐ Yes ☐ No
■ Construction or expansion of a sanitary landfill.	☐	☐	☐ Yes ☐ No
■ Construction in a designated floodway.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
2. Will there be an effect to any unique or unusual land forms found on the site? (i.e., cliffs, dunes, geological formations, etc.) ☐ Yes ☑ No			
■ Specific land forms:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
3. Will proposed action affect any water body designated as protected? (Under articles 15, 24, 25 of the Environmental Conservation Law, ECL) ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Developable area of site contains a protected water body.	☐	☐	☐ Yes ☐ No
■ Dredging more than 100 cubic yards of material from channel of a protected stream.	☐	☐	☐ Yes ☐ No
■ Extension of utility distribution facilities through a protected water body.	☐	☐	☐ Yes ☐ No
■ Construction in a designated freshwater or tidal wetland.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
4. Will proposed action affect any non-protected existing or new body of water? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ A 10% increase or decrease in the surface area of any body of water or more than a 10 acre increase or decrease.	☐	☐	☐ Yes ☐ No
■ Construction of a body of water that exceeds 10 acres of surface area.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
5. Will Proposed Action affect surface surface or groundwater quality or quantity? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Proposed action will require a discharge permit.	☐	☐	☐ Yes ☐ No
■ Proposed action requires use of a source of water that does not have approval to serve proposed (project) action.	☐	☐	☐ Yes ☐ No
■ Proposed action requires water supply from wells with greater than 45 gallons per minute pumping capacity.	☐	☐	☐ Yes ☐ No
■ Construction or operation causing contamination of a water supply system.	☐	☐	☐ Yes ☐ No
■ Proposed action will adversely affect groundwater.	☐	☐	☐ Yes ☐ No
■ Liquid affluent will be conveyed off the site to facilities which presently do not exist or have inadequate capacity.	☐	☐	☐ Yes ☐ No
■ Proposed action would use water in excess of 20,000 gallons per day.	☐	☐	☐ Yes ☐ No
■ Proposed action would likely cause siltration or other discharge into an existing body of water to the extent that there will be an obvious visual contrast to natural conditions.	☐	☐	☐ Yes ☐ No
■ Proposed action will require the storage of petroleum or chemical products greater than 1,100 gallons.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow residential uses in areas without water and/or sewer services.	☐	☐	☐ Yes ☐ No
■ Proposed action locates commercial and/or industrial uses which may require new or expansion of existing waste treatment and/or storage facilities.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
6. Will proposed action alter drainage flow or patterns, or surface water runoff: ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Proposed action would change flood water flows.	☐	☐	☐ Yes ☐ No
■ Proposed action may cause substantial erosion.	☐	☐	☐ Yes ☐ No
■ Proposed action is incompatible with existing drainage patterns.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow development in a designated floodway.	☐	☐	☐ Yes ☐ No
■ Other impacts:			
IMPACT ON AIR			
7. Will proposed action affect air quality? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Proposed action will induce 1,000 or more vehicle trips in any given hour.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in the incineration of more than 1 ton of refuse per hour.	☐	☐	☐ Yes ☐ No
■ Emission rate of total contaminants will exceed 5 lbs. per hour or a heat source producing more than 10 million BTU's per hour.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow an increase in the amount of land committed to industrial use.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow an increase in the density of industrial development within existing industrial areas.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON PLANTS AND ANIMALS			
8. Proposed action affect any threatened or endangered species? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Reduction of one or more species listed on the New York or Federal list, using the site, over or near site, or found on the site.	☐	☐	☐ Yes ☐ No
■ Removal of any portion of a critical or significant wildlife habitat.	☐	☐	☐ Yes ☐ No
■ Application of pesticide or herbicide more than twice a year, other than for agricultural purposes.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
9. Will Proposed action substantially affect non-threatened or non-endangered species? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Proposed action would substantially interfere with any resident or migratory fish, shellfish or wildlife species.	☐	☐	☐ Yes ☐ No
■ Proposed action requires the removal of more than 10 acres of mature forest (over 100 years of age) or other locally important vegetation.	☐	☐	☐ Yes ☐ No
IMPACT ON AGRICULTURAL LAND RESOURCES			
10. Will the Proposed action affect agricultural land resources? ☐ Yes ☑ No **Examples** that would apply to column 2:	☐	☐	☐ Yes ☐ No
■ Proposed action would sever, cross or limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc.)	☐	☐	☐ Yes ☐ No
■ Construction activity would excavate or compact the soil profile of agricultural land.	☐	☐	☐ Yes ☐ No
■ Proposed action would irreversibly convert more than 10 acres of agricultural land or if located in an Agricultural District, more than 2.5 acres of agricultural land.	☐	☐	☐ Yes ☐ No
■ Proposed action would disrupt or prevent installation of agricultural land management systems (e.g., subsurface drain lines, outlet ditches, strip cropping); or create a need for such measures (e.g., cause a farm field to drain poorly due to increased runoff.	☐	☐	☐ Yes ☐ No
■ Other impacts:			
IMPACT ON AESTHETIC RESOURCES			
11. Will proposed action affect aesthetic resources? ☐ Yes ☑ No (if necessary, use the Visual EAF Addendum in Section 617.20, Appendix B.) **Examples** that would apply to column 2:			
■ Proposed land uses, or project components obviously different from, or in sharp contrast to current surrounding land use patterns, whether man-made or natural.	☐	☐	☐ Yes ☐ No
■ Proposed land uses or project components visible to users of aesthetic resources which will eliminate, or significantly reduce, their enjoyment of the aesthetic qualities of that resource.	☐	☐	☐ Yes ☐ No
■ Proposed components that will result in the elimination, or significant screening, of scenic views known to be important to the area.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES			
12. Will proposed action impact any site or structure of historic, pre-historic or paleontological importance? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ Proposed action occurring wholly or partially within or substantially contiguous to any facility or site listed on the State or national Register of historic places.	☐	☐	☐ Yes ☐ No
■ Any impact to an archaeological site or fossil bed located within the project site.	☐	☐	☐ Yes ☐ No
■ Proposed action will occur in an area designated as sensitive for archaeological sites on the NYS Site Inventory.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON OPEN SPACE AND RECREATION			
13. Will proposed action affect the quantity of quality of existing or future open spaces or recreational opportunities? ☐ Yes ☑ No **Examples** that would apply to column 2:			
■ The permanent foreclosure of a future recreational opportunity.	☐	☐	☐ Yes ☐ No
■ A major reduction of an open space important to the community.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON CRITICAL ENVIRONMENTAL AREAS			
14. Will proposed action impact the exceptional or unique characteristics of a critical environmental area (CEA) established pursuant to subdivision 6 NYCRR 617.14(g)? ☐ Yes ☑ No. List the environmental characteristics that caused the designation of the CEA.:			
Examples that would apply to column 2:			
■ Proposed action to locate within the CEA.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in a reduction in the quantity of the resource.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in a reduction in the quality of the resource.	☐	☐	☐ Yes ☐ No
■ Proposed action will impact the use, function or enjoyment of the resource.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON TRANSPORTATION			
15. Will there be an affect to existing transportation systems? ☐ Yes ☑ No. **Examples** that would apply to column 2:			
■ Alteration of present patterns of movement of people and/or goods.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in major traffic problems.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON ENERGY			
16. Will proposed action affect the community's sources of fuel or energy supply? ☐ Yes ☑ No. **Examples** that would apply to column 2:			
■ Proposed action will cause a greater than 5% increase in the use of any form of energy in the municipality.	☐	☐	☐ Yes ☐ No
■ Proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two family residences or to serve a major commercial or industrial use.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
NOISE AND ODOR IMPACTS			
17. Will there be objectionable odors, noise, or vibrations as a result of the Proposed Action? ☐ Yes ☑ No. **Examples** that would apply to column 2:			
■ Blasting within 1,500 feet of a hospital, school or other sensitive facility.	☐	☐	☐ Yes ☐ No
■ Odors will occur routinely (more than one hour per day).	☐	☐	☐ Yes ☐ No
■ Proposed action will produce operating noise exceeding the local ambient noise levels for noise outside of structures..	☐	☐	☐ Yes ☐ No
■ Proposed action will remove natural barriers that would act as a noise screen	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON PUBLIC HEALTH			
18. Will Proposed action affect public health and safety? ☐ Yes ☑ No. **Examples** that would apply to column 2:			
■ Proposed action may cause a risk of explosion or release of hazardous substances (i.e., oil, pesticides, chemicals, radiation, etc.) in the event of accident or upset conditions, or there may be a chronic low level discharge or emission.	☐	☐	☐ Yes ☐ No
■ Proposed action may result in the burial of "hazardous wastes" in any form (i.e. toxic, poisonous, highly reactive, radioactive, irritating, infectious, etc.)	☐	☐	☐ Yes ☐ No
■ Storage facilities for one million or more gallons of liquified natural gas or other flammable liquids.	☐	☐	☐ Yes ☐ No
■ Proposed action may result in the excavation or other disturbance within 2,000 feet of a site used for the disposal of solid or hazardous waste.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON GROWTH AND CHARACTER OF COMMUNITY OR NEIGHBORHOOD			
19. Will Proposed action affect the character of the existing community? ☑Yes ☐ No. **Examples** that would apply to column 2:	☐	☐	☐ Yes ☐ No
■ The permanent population of the city, town or village in which the project is located is likely to grow by more than 5%.	☐	☐	☐ Yes ☐ No
■ The municipal budget for capital expenditures or operating services will increase by more than 5% per year as a result of this project.	☐	☐	☐ Yes ☐ No
■ The Proposed action will conflict with officially adopted plans or goals.	☐	☐	☐ Yes ☐ No
■ The Proposed action will cause a change in the density of land use.	☐	☐	☐ Yes ☐ No
■ The Proposed action will replace or eliminate existing facilities, structures or areas of historic importance to the community.	☐	☐	☐ Yes ☐ No
■ Development will create a demand for additional community services (e.g., schools, police, fire, etc.).	☐	☐	☐ Yes ☐ No
■ Proposed action will set an important precedent for future projects.	☐	☑	☑ Yes ☐ No
■ Proposed action will create or eliminate employment.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
20. Is there, or is there likely to be, public controversy related to potential adverse environmental impacts? ☐ Yes ☑ No			
If any action in Part 2 is identified as a potential large impact, or if you cannot determine the magnitude of impact, proceed to Part 3.			

PART 3 – EVALUATION OF THE IMPORTANCE OF IMPACTS
RESPONSIBILITY OF LEAD AGENCY

Part 3 must be prepared if one or more impact(s) is considered to be potentially large, even if the impact(s) may be mitigated.

Instructions:

Discuss the following for each impact identified in column 2 of Part 2:

1. Briefly describe the impact.
2. Describe (if applicable) how the impact could be mitigated or reduced to a small to moderate impact by project change(s).
3. Based on the information available, decide if it is reasonable to conclude that this impact is important.

   To answer the question of importance, consider:
   - The probability of he impact occurring
   - The duration of the impact
   - Its irreversibility, including permanently lost resources of value
   - Whether the impact can or will be controlled
   - The regional consequence of the impact
   - Its potential divergence from local needs and goals
   - Whether known objections to the project relate to this impact

19. Community Character

The new SWMP for the Planning Unit defines the key elements for the future solid waste management program for the region. These elements are likely to result in future changes in local solid waste management programs and may dictate the development of future solid waste management support facilities. The major elements of the SWMP include:

-the continued utilization of existing solid waste management facilities and programs in the Planning Unit;
-the expansion of existing waste reduction and recycling programs throughout the Planning Unit;
-the development of new capacity for both recycling and for the treatment of post-recyclable solid waste on a regional basis to provide the necessary economies of scale to support a more fully integrated solid waste management program.

Attachments to Long EAF

Solid Waste Management Plan

Capital Region Solid Waste Management Partnership

Attachment 1 – Project Description

A new Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership Planning Unit defines the key elements of the future solid waste management program for the region, through the year 2030.

The major elements of the new SWMP are:

- the continued utilization of existing solid waste management facilities and programs in the Planning Unit;
- the expansion of existing waste reduction and recycling programs throughout the Planning Unit;
- the development of new capacity for both recycling and for the treatment of post-recyclable solid waste on a regional basis to provide the necessary economies of scale to support a more fully integrated solid waste management program.

This SWMP also recommends the implementation of a regional solid waste management authority (RSWMA) which would operate an expanded planning unit. The RSWMA would expand and strengthen the membership of the planning unit and build on existing public sector and private sector solid waste management resources. It would be able to provide for new infrastructure and programs such as expanded mandatory recycling and an SSOW composting facility. The RSWMA would also provide a more effective administrative structure than currently exists to facilitate the implementation of new facilities and programs.

All of these measures are intended to meet the future solid waste management needs of the Planning Unit, the goals and objectives articulated in the SWMP, and will help achieve the goals of New York State's solid waste management hierarchy.

Attachment 2 – Site Description and Project Description

This new SWMP provides the analysis and policy framework to support its key elements, but it does not propose any specific sites for the new solid waste management facilities that are recommended. Therefore the entire Site Description section and most of the items in the Project Description section of this EAF are not applicable.

Attachment 3 – Solid Waste Disposal

This SWMP calls for maximization of waste reduction and recycling prior to the use of disposal facilities. For waste that cannot be reduced or recycled, the SWMP calls for the continued utilization of existing solid waste disposal facilities and the development of new capacity for the treatment of post-recyclable waste.

ALBANY COMMON COUNCIL
MINUTES OF A REGULAR MEETING

Monday, April 19, 2010

The Common Council was convened at 7:00 p.m. and was called to order by Council President McLaughlin.

The roll being called, the following answered to their names: Council Members Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Golby, Herring, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano, and Smith.

Also present was the following staff: John Marsolais, Barbara Samel, Patrick Jordan, and Cashawna Parker.

Council Member Rosenzweig led the Pledge of Allegiance.

PUBLIC COMMENT PERIOD

1. Jose Lopez, Jr., 40B View Ave., Albany, NY 12209 (Resolution 56.42.10)
2. Beth Geragosian, Colonie, NY (Ordinance 59.42.10)
3. Bill Washburn, 177 S, Manning Blvd., Albany, NY 12208 (Albany Police Chief)
4. Yvette Alfonso, 409 Hamilton St., Albany, NY 12210 (Police Chief)
5. Andy Bechard, 27 Forest Ave., Albany, NY 12208 (Police Chief)
6. Slava Rar, 1400 Washington Ave., Albany, NY 12222 (Police Chief)
7. Joel Tirato, 1400 Washington Ave., Albany, NY 12222 (Police Chief)
8. Danielle Sellers, 1400 Washington Ave., Albany, NY 12222 (Police Chief)
9. Ariel Fitterman, 1400 Washington Ave., Albany, NY 12222 (Police Chief)

Council Member Conti made a motion to extend Public Comment Period until 9:00pm, which was approved by unanimous voice vote.

10. Sam Frumkin, 1400 Washington Ave., Albany, NY 12222 (Police Chief)
11. Roger Markovics, 38 Myrtle Ave., Albany, NY 12202 (Community Policing)
12. Judith Mazza, 3 Sand St., Albany, NY 12209 (Police Chief)
13. Kori Robinson, 203 Second St., Albany, NY 12206 (Community Policing)
14. Chrys Ballerano, 143 Berkshire Blvd., Albany, NY 12203 (Support Resolution 39.41.10R)
15. Shirley Bradley, 48 Jennings Dr., Albany, NY 12204 (Police Chief)
16. Mardi Crawford, 28 Elm St., Albany, NY 12202 (Community Policing)
17. Karen Johnson Williams, 33 Elberon Pl., Albany, NY 12203 (Community Policing)
18. Lonnie Ford, 545 Morris St., Albany, NY 12208 (Police Relations in the Community)
19. Vincent Riguso, 13 Beach Ave., Albany, NY 12203 (Various Issues)
20. John Donnelly, 423 Hudson Ave., Albany, NY 12203 (Police Chief)
21. William Payne, 45 Central Ave., Albany, NY 12210 (Police Chief)

There being no further speakers, the President declared the Public Comment Period closed.

APPROVAL OF MINUTES FROM PREVIOUS MEETING

Deferred

CONSIDERATION OF LOCAL LAWS

Council Member Konev introduced the following, which was referred to the Finance, Taxation and Assessment Committee:

**Note: Council Members Calsolaro and Igoe spoke on this resolution prior to passage.*

Resolution Number 44.42.10R was Co-Sponsored by Council Members Commisso, Conti, Freeman, Golby, Herring, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano and Smith.

Passed by the following vote of all the Council Members elected voting in favor thereof:

Affirmative – Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Golby, Herring, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano, and Smith

Affirmative 15 Negative 0 Abstain 0

Council Member O'Brien offered the following, asked for passage and a roll call vote thereon:

Resolution Number 45.42.10R

RESOLUTION OF THE COMMON COUNCIL GIVING NOTICE OF INTENT TO ACT AS LEAD AGENCY FOR PURPOSES OF DETERMINING ENVIRONMENTAL SIGNIFICANCE PURSUANT TO ARTICLE 8 OF THE ENVIRONMENTAL CONSERVATION LAW OF THE STATE OF NEW YORK (ECL) AND THE REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC) PROMULGATED THEREUNDER (SEQRA) FOR THE PURPOSE OF REVIEWING THE DRAFT SOLID WASTE MANAGEMENT PLAN FOR THE CAPITAL REGION SOLID WASTE MANAGEMENT PARTNERSHIP PLANNING UNIT

WHEREAS, on June 25, 2009, the New York State Department of Environmental Conservation (DEC) issued to the City of Albany, permit # 4-0101-00171/00011 for the purpose of operating and expanding the landfill beyond its current capacity; and

WHEREAS, Special Condition 26(b) of the Permit calls for the Capital Region Solid Waste Management Partnership Planning Unit to have a new long term Solid Waste Management Plan (SWMP) in effect by January 1, 2011; and

WHEREAS, the Common Council has received a long form Environmental Assessment Form (EAF), as well as a Draft Solid Waste Management Plan for the Capital Region Solid Waste Management Partnership Planning Unit; and

WHEREAS, the Council has reviewed the EAF and Draft Solid Waste Management Plan and determined to conduct a coordinated review among all involved agencies; and

WHEREAS, the Common Council is the most involved agency and, as such, is the most appropriate Lead Agency to conduct a review of the plan in accord with SEQRA regulations.

NOW, THEREFORE, BE IT RESOLVED, that the Common Council of the City of Albany shall coordinate review of the plan by issuing a Notice of Intent to act as lead agency to all involved agencies pursuant to and under SEQRA;

BE IT FURTHER RESOLVED, that the Common Council hereby authorizes the City Clerk to distribute copies of the Draft Solid Waste Management Plan to all members of the Solid Waste Management Partnership Planning Unit; and

RESOLVED, that this resolution shall take effect immediately.

**Note: Council Members O'Brien, Calsolaro and Konev spoke on this resolution prior to passage.*

Resolution Number 45.42.10R was Co-Sponsored by council Member Sano.

Passed by the following vote of all the Council Members elected voting in favor thereof:

Affirmative – Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Golby, Herring, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano, and Smith

Affirmative 15 Negative 0 Abstain 0

Council Member Conti withdrew Resolution Number 46.42.10R.

Council Member Smith offered the following, which was referred to the Public Safety Committee:

Resolution Number 47.42.10R

RESOLUTION OF THE COMMON COUNCIL APPROVING NEW INVESTIGATORS FOR THE CITIZENS' POLICE REVIEW BOARD

RESOLVED, that in accordance with Section 42-343 of the Code of the City of Albany the following candidates are approved as investigators for the Citizen's Police Review Board: Jennifer C. Merritt, Salvatore F. Munafo, Thomas R. Neilen, Frank White and William Van Valkenburg.

Council Members Fahey and Calsolaro offered the following, asked passage and a roll call thereon:

Resolution Number 48.42.10R

AUTHORIZING THE IMPLEMENTATION, AND FUNDING IN THE FIRST INSTANCE 100% OF THE FEDERAL-AID AND STATE "MARCHISELLI" PROGRAM-AID ELIGIBLE COSTS, OF A TRANSPORTATION FEDERAL-AID PROJECT, AND APPROPRIATING FUNDS THEREFOR (DELAWARE AVENUE ROAD RECONSTRUCTION PROJECT [P.I.N. 1756.61])

WHEREAS, a Project for the Delaware Avenue Road Reconstruction, P.I.N. 1756.61 (the Project") is eligible for funding under Title 23 U.S. Code, as amended, that calls for the apportionment of the costs of such program to be borne at the ratio of 80% Federal funds and 20% non-federal funds; and

WHEREAS, the City of Albany desires to advance the Project by making a commitment of 100% of the non-federal share of the cost of Construction.

NOW, THEREFORE, the Common Council, duly convened does hereby

RESOLVE, that the Common Council hereby approves the above-subject project; and it is hereby further

RESOLVED, that the Common Council hereby authorizes the City of Albany to pay in the first instance 100% of the federal and non-federal share of the cost of Construction work for the Project or portions thereof; and it is further

RESOLVED, that the sum of $841,425.00 (Eight hundred forty one thousand four hundred twenty five dollars and no cents ($819,725.00 for Preliminary Engineering and $21,700.00 for Right of Way) has already

ALBANY COMMON COUNCIL
MINUTES OF A REGULAR MEETING

Monday, July 19, 2010

The Common Council was convened at 7:00 p.m. and was called to order by Council President McLaughlin.

The roll being called, the following answered to their names: Council Members Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Golby, Herring, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano and Smith.

Also present was the following staff: John Marsolais, Barbara Samel, and Patrick Jordan.

Council Member Igoe led the Pledge of Allegiance.

PUBLIC COMMENT PERIOD

1. Alice Green, 509 W. Lawrence St., Albany, NY 12208 (Police Chief Confirmation)
2. Marlon Anderson, 491 Livingston Ave., Albany, NY 12206 (Police Chief)
3. Timothy Carney, 266 Delaware Ave., Albany, NY 12209 (Police Chief)
4. Leonard Morgenbessser, 219 Tampa Ave., Albany, NY 12208 (Police Chief/Poverty)
5. Andrew Harvey, 271 Myrtle Ave., Albany, NY 12208 (Albany Medical Center expansion)
6. Charles Touhey, 509 W. Lawrence St., Albany, NY 12208 (Police Chief)

There being no further speakers, the President declared the Public Comment Period closed.

APPROVAL OF MINUTES FROM PREVIOUS MEETING

DEFERRED

CONSIDERATION OF LOCAL LAWS

The Local Laws on the pending agenda were held at the request of Council Member Conti.

REPORTS OF STANDING COMMITTEES

Public Safety – Council Member Smith stated the Committee met on July 12, 2010 to interview Mr. Steven Krokoff as Police Chief. The questioning lasted for three and one-half hours and Resolution 69.62.10R appointing Mr. Steven Krokoff was unanimously favorably recommended out of committee.

Planning, Economic Development and Land Use – Council Member Herring stated the Committee would be meeting on July 28, 2010 immediately following Caucus to discuss Resolution 80.71.10R(MC) confirming the appointment Sandra Fox as a member of the Planning Board.

REPORTS OF AD HOC COMMITTEES

Cable Access – Council Member Rosenzweig stated that the Committee met on Thursday, July 15, 2010 at 5:30pm to discuss the RFP regarding the part-time Public Access Aide and the structure of the PEG Access Television oversight board. The Committee would be sending a response to the Albany Public Library's requested five points before agreeing to house the public component of PEG Access at the library.

Pesticide Ordinance – Council Member Golby stated that the Committee met on July 14, 2010 immediately following Caucus to discuss the pesticide ordinance, and identified a number of areas where committee members had

The remaining Ordinances on the pending agenda were held at the request of Council Member Conti.

CONSIDERATION OF RESOLUTIONS

Council Member O'Brien offered the following, asked for passage and a roll call vote thereon:

Resolution Number 81.72.10R

RESOLUTION OF THE COMMON COUNCIL DECLARING ITSELF LEAD AGENCY FOR PURPOSES OF DETERMINING ENVIRONMENTAL SIGNIFICANCE AND ISSUING A POSITIVE DECLARATION IN ACCORDANCE WITH ARTICLE 8 OF THE ENVIRONMENTAL CONVERSATION LAW (SEQRA) AND THE REGULATIONS PROMULGATED THEREUNDER AND REQUIRING THE PREPARATION AND SUBMISSION OF AN ENVIRONMENTAL IMPACT STATEMENT IN CONNECTION WITH REVIEWING THE DRAFT SOLID WASTE MANAGEMENT PLAN FOR THE CAPITAL REGION SOLID WASTE MANAGEMENT PARTNERSHIP PLANNING UNIT

WHEREAS, on June 25, 2009, the New York State Department of Environmental Conservation (DEC) issued to the City of Albany, permit # 4-0101-00171/00011 for the purpose of operating and expanding the landfill beyond its current capacity; and

WHEREAS, Special Condition 26(b) of the Permit calls for the Capital Region Solid Waste Management Partnership Planning Unit to have a new long term Solid Waste Management Plan (SWMP) in effect by January 1, 2011; and

WHEREAS, the Common Council has received a long form Environmental Assessment Form (EAF), as well as a Draft Solid Waste Management Plan for the Capital Region Solid Waste Management Partnership Planning Unit; and

WHEREAS, the Council has reviewed the EAF and Draft Solid Waste Management Plan and determined to conduct a coordinated review among all involved agencies; and

WHEREAS, the Common Council is the most involved agency and, as such, is the most appropriate Lead Agency to conduct a review of the plan in accord with SEQRA regulations; and

WHEREAS, more than 30 days have elapsed since the Common Council of the City of Albany issued a Notice of Intent to all members of the Solid Waste Management Partnership Planning Unit and all other involved agencies; and

WHEREAS, no member of the Solid Waste Management Partnership Planning Unit or other involved agency has notified the Common Council of any objection to it taking lead agency status; and

WHEREAS, the record demonstrates that the project may have a significant adverse environmental impact, and that a Positive Declaration of Environmental Significance should be issued in accordance with 6 NYCRR 617.7 (a).

NOW, THEREFORE, BE IT RESOLVED, that the Common Council be and hereby is designated Lead Agency in accordance with SEQRA regulation 6 NYCRR 617.6 (4).

BE IT FURTHER RESOLVED, the Common Council, serving as Lead Agency, hereby issues the attached Positive Declaration requiring the preparation of a Draft Generic Environmental Impact Statement in accordance with 6 NYCRR 617.7 (a).

Resolution Number 81.72.10R was Co-Sponsored by Council Member Freeman

Passed by the following vote of all the Council Members elected voting in favor thereof:

Affirmative – Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Herring, Golby, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano, and Smith

Affirmative 15 Negative 0 Abstain 0

Council Member Conti asked and received majority consent to add Resolution 82.72.10R to the pending agenda, which was approved by unanimous voice vote.

Council Member Conti offered the following, asked for passage and a roll call vote thereon:

RESOLUTION NUMBER 82.72.10R (MC)

ESOLUTION OF THE COMMON COUNCIL ESTABLISHING STANDARD WORK DAYS FOR ADDITIONAL COMMON COUNCIL MEMBERS AS REQUIRED BY REGULATION 315.4 OF THE NEW YORK STATE COMPTROLLER EFFECTIVE AUGUST 12, 2009 AMENDING THE MAXIMUM DAYS PER MONTH THAT WILL BE REPORTED FOR SUCH OFFICIALS

BE IT RESOLVED, that the Common Council of the City of Albany hereby establishes the following as standard work days for elected and appointed officials and will report the following days worked to the New York State and Local Employees' Retirement System based on the record of activities maintained and submitted by these officials to the clerk of this body:

Title	Name	Standard Work Day (Hrs/day)	Term Begins/Ends	Participates in Employer's Time Keeping System (Y/N)	Days/Month (Based on Record of Activities)
Council Member	Ronald Bailey	6	1/1/10-12/31/13	N	18.50
Council Member	Anton Konev	6	1/1/10-12/31/13	N	23.28

BE IT FURTHER RESOLVED, that the Personnel Director submit an adjustment report amending the number of days previously reported to the Retirement System.

Passed by the following vote of all the Council Members elected voting in favor thereof:

Affirmative – Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Herring, Golby, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig, Sano, and Smith

Affirmative 15 Negative 0 Abstain 0

Council Member Smith along with Co-Sponsors Council Members Bailey, Calsolaro, Commisso, Conti, Fahey, Freeman, Golby, Herring, Igoe, Jenkins-Cox, Konev, O'Brien, Rosenzweig and Sano asked for passage of Resolution 69.62.10 (RESOLUTION OF THE COMMON COUNCIL CONFIRMING

CITY OF ALBANY
COMMON COUNCIL
ROOM 202, CITY HALL
ALBANY, NEW YORK 12207
TELEPHONE (518) 434-5087
FAX: (518) 434-5081 WWW.Albanyny.org

May 19, 2010

TO: Involved and Interested Agencies on Attached List

Re: ***Capital Region Solid Waste Management Partnership***
Draft Solid Waste Management Plan
City of Albany

Dear Sir or Madam:

The Capital Region Solid Waste Management Partnership Planning Unit has prepared a Draft Solid Waste Management Plan ("SWMP") for the Planning Unit. The City of Albany has prepared a Full Environmental Assessment Form ("EAF"), with Part 1 completed, to assist in evaluating the environmental impacts from the draft SWMP.

The City of Albany Common Council has tentatively determined that the proposed project is an Unlisted action under the State Environmental Quality Review Act ("SEQR"), that it would like to act as Lead Agency for purposes of review of the project, and desires to coordinate review of the project. Your agency has been identified as a potential involved or interested agency for the project. Accordingly, I am enclosing a copy of the EAF for your review.

As noted above, the City of Albany Common Council would like to act as lead agency under SEQR for this project, and coordinate the review with all Involved Agencies and Interested Agencies. Pursuant to the provisions of 6 NYCRR § 617.6(b), involved agencies have 30 days in which to agree to a lead agency. The Common Council would ask that your agency consent to it acting as lead agency for the project as soon as possible. This may be accomplished by signing a copy of this letter where indicated, and returning it to the undersigned. In addition, please provide us with any comments you may have on the EAF at your earliest convenience.

Thank you in advance for your cooperation in this matter.

Very truly yours,

John Marsolais
City Clerk

The undersigned hereby consents to the City of Albany
Common Council acting as Lead Agency, and
waives the 30 day period
for consent under 6 NYCRR § 617.6(b).

____
[signature of authorized person]

12974969.1

Capital Region Solid Waste Management Partnership

Draft Solid Waste Management Plan

Involved Agencies

Hon. Gerald D. Jennings, Mayor
City of Albany
City Hall, Eagle Street
Albany, New York 12207

Hon. Samuel Messina, Supervisor
Town of Bethlehem
445 Delaware Avenue
Delmar, New York 12054

Hon. Ellen McNulty Ryan, Mayor
Village of Green Island
20 Clinton Street
Green Island, New York 12183

Hon. James M. Gaughan, Mayor
Village of Altamont
Post Office Box 643
115 Main Street
Altamont, New York 12009

Hon. Mark Gleason, General Manager
City of Watervliet
City Hall, Room 3
2-15th Street
Watervliet, New York 12189

Hon. Daniel Dwyer, Mayor
City of Rensselaer
505 Broadway
Rensselaer, New York 12144

Hon. Ken Runion, Supervisor
Town of Guilderland
Guilderland Town Hall, 2d Floor
5209 Western Turnpike
Guilderland, New York 12084

Hon. Thomas Dolin, Supervisor
Town of New Scotland
2029 New Scotland Road
Slingerlands, New York 12159

Hon. Michael Hammond, Supervisor
Town of Knox
Knox Town Hall
Post Office Box 56
Knox, New York 12107

Hon. Richard Rapp, Supervisor
Town of Westerlo
Town Hall
Post Office Box 148
Westerlo, New York 12193

Hon. George J. Gebe, Jr., Supervisor
Town of Berne
Town Hall
Post Office Box 57
Berne, New York 12023

Hon. Jost Nickelsberg, Supervisor
Town of Rensselaerville
78 Barger Road
Medusa, New York 12120

Hon. Robert Conway, Mayor
Village of Voorheesville
Post Office Box 367
Voorheesville, New York 12186

Hon. Richard McCabe, Supervisor
Town of East Greenbush
225 Columbia Turnpike
Rensselaer, New York 12144

New York State Department of Environmental Conservation
Region 4
1130 North Westcott Road
Schenectady, New York 12306

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway
Albany, New York 12233-1750

Environmental Notice Bulletin
625 Broadway
Albany, NY 12233-1750

FAX 518-402-9167
enb@gw.dec.state.ny.us

Capital Region Solid Waste Management Partnership

Draft Solid Waste Management Plan

Interested Agencies

Hon. Paula A. Mahan, Supervisor
Town of Colonie
Colonie Town Hall
534 New Loudon Road
Loudonville, New York 12128

Hon. John T. McDonald III, Mayor
City of Cohoes
97 Mohawk Street
Cohoes, New York 12047

Hon. Frank Leak, Mayor
Village of Colonie
2 Thunder Road
Albany, New York 12205

Hon. Thomas Coates, Mayor
Village of Menands
250 Broadway
Menands, New York 12204

Hon. Henry C. Traver, Supervisor
Town of Coeymans
18 Russell Avenue
Ravena, New York 12143

Hon. John T. Bruno, Mayor
Village of Ravena
15 Mountain Road
Ravena, New York 12143

Hon. Michael G. Breslin, County Executive
County of Albany
112 State Street, Room 200
Albany, New York 12207

Hon. Kathy Jimino, County Executive
Rensselaer County Office Building
1600 7th Avenue, 5th Floor
Troy, New York 12180

Hon. Susan Savage, Chair
Schenectady County Legislature
Schenectady County Office Building
620 State Street
Attention: Manager's Office
Schenectady, New York 12305

Hon. Willard Peck, Chair
Saratoga County Board of Supervisors
40 McMaster Street
Ballston Spa, New York 12020

Mr. Dennis Heaton, Executive Director
Montgomery-Otsego-Schoharie Solid Waste Management Authority
Post Office Box 160
2783 Route 7
Howes Cave, New York 12092

Ms. Joanna Redden, Executive Director
Eastern Rensselaer County Solid Waste Management Authority
21428 NY 22
Hoosick Falls, New York 12090

Mr. William Chaberlain
Solid Waste Management Coordinator
Bureau of Sanitation
Department of Public Works
City of Troy
City Hall
1 Monument Square
Troy, New York 12180

Mr. Bruce Goodall
Town of Schodack
Director of Transfer Station
256 Schuurman Road
Post Office Box 436
East Schodack, New York 12163

CITY OF ALBANY
COMMON COUNCIL
ROOM 202, CITY HALL
ALBANY, NEW YORK 12207
TELEPHONE (518) 434-5087
FAX: (518) 434-5081 WWW.Albanyny.org

TO: **Involved & Interested Agencies on Attached List**

FROM: **John C. Marsolais,** ***Albany City Clerk & Clerk of the Common Council***

RE: ***Capital Region Solid Waste Management Partnership, City of Albany***
State Environmental Quality Review (SEQR)
POSITIVE DECLARATION
Notice of Intent to Prepare a Draft EIS - Determination of Significance

DATE: **September 23, 2010**

PLEASE SEE THE ATTACHED SEQR POSITIVE DECLARATION

14-12-8 (3/99)-9c

SEQR

State Environmental Quality Review

POSITIVE DECLARATION

Notice of Intent to Prepare a Draft EIS

Determination of Significance

Project Number **Date** 09/23/2010

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

The City of Albany Common Council as lead agency, has determined that the proposed action described below may have a significant impact on the environment and that a Draft Environmental Impact Statement will be prepared.

Name of Action:

Draft Solid Waste Management Plan for the Capital Region Solid Waste Management Partnership

SEQR Status: Type 1 ☐

Unlisted ☑

Scoping: No ☑ Yes ☐ If yes, indicate how scoping will be conducted:

Description of Action:

A new Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership Planning Unit defines the key elements of the future solid waste management program for the region, through the year 2030.

Location: (Include street address and the name of the municipality/county. A location map of appropriate scale is also recommended.)

Multiple municipalities in Albany and Rensselaer Counties.

Reasons Supporting This Determination:

The proposed action will set important precedent for future solid waste management projects in the region. The new SWMP for the Planning Unit defines key elements for the future solid waste management program for the region. These elements are likely to result in future changes in local solid waste management programs and may dictate the development of future solid waste management support facilities.

Since the SWMP is a broad policy and planning document, rather than a site specific project, a Draft Generic Environemntal Impact Statement will be prepared.

For Further Information:

Contact Person: John C. Marsolais, City Clerk

Address: City Hall Room 202, 24 Eagle Street, Albany, NY 12207

Telephone Number: 518. 434.5090

A copy of this notice must be sent to:

Department of Environmental Conservation, 625 Broadway, Albany, New York 12233-1750

Chief Executive Officer, Town/City/Village of Planning Unit Member Communities

Any person requesting a copy

All Involved agencies

Applicant (If any)

Environmental Notice Bulletin, 625 Broadway, Albany, NY 12233-1750

Capital Region Solid Waste Management Partnership

Draft Solid Waste Management Plan

Involved Agencies

Hon. Gerald D. Jennings, Mayor
City of Albany
City Hall, Eagle Street
Albany, New York 12207

Hon. Samuel Messina, Supervisor
Town of Bethlehem
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Delmar, New York 12054

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FAX 518-402-9167
enb@gw.dec.state.ny.us

Capital Region Solid Waste Management Partnership

Draft Solid Waste Management Plan

Interested Agencies

Hon. Paula A. Mahan, Supervisor
Town of Colonie
Colonie Town Hall
534 New Loudon Road
Loudonville, New York 12128

Hon. John T. McDonald III, Mayor
City of Cohoes
97 Mohawk Street
Cohoes, New York 12047

Hon. Frank Leak, Mayor
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2 Thunder Road
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Troy, New York 12180

Mr. Bruce Goodall
Town of Schodack
Director of Transfer Station
256 Schuurman Road
Post Office Box 436
East Schodack, New York 12163

State Environmental Quality Review
Notice of Completion of Draft Generic Environmental Impact Statement
And
Notice of SEQR Hearing

Lead Agency: City of Albany Common Council

Address: Albany City Hall, 24 Eagle Street, Albany, New York 12207

Date: October 5, 2010

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

A Draft Generic Environmental Impact Statement (DGEIS) has been completed and accepted for the proposed action described below. Written comments are requested and will be accepted by the contact person until November 19, 2010. A public hearing on the DGEIS will be held on October 25, 2010 at 7:00PM in the Common Council Chambers, City Hall, 2nd Floor for the purpose of accepting public comment on the DGEIS.

Name of Action: Draft Solid Waste Management Plan for the Capital Region Solid Waste Management Partnership

Description of Action: A new Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership Planning Unit defines the key elements of the future solid waste management program for the region, through the year 2030.

Location: Multiple municipalities in Albany and Rensselaer counties.

Potential Environmental Impacts: The elements of the SWMP, along with the preferred administrative structure and implementation schedule are intended to progressively reduce the amount of materials that require disposal through the year 2030. Overall, no significant adverse environmental impacts are anticipated to result from adopting and implementing this SWMP. Beneficial impacts to the community, the environment and the solid waste management system currently in place for the Planning Unit are anticipated.

A copy of the Draft / Final EIS may be obtained from:

Contact Person: John Marsolais, City Clerk

Address: City Hall Room 202,
24 Eagle Street
Albany, New York 12207

Telephone Number: 518.434.5090

The document may be found at the Capital Region Solid Waste Management Partnership web site at www.capitalregionlandfill.com and the Albany City website at www.albanyny.gov

A copy of this notice must be sent to:

A newspaper of general circulation in the area of potential impacts (Albany Times-Union)

Department of Environmental Conservation, 625 Broadway Albany, New York 12233-1750

The Mayor or Supervisor of each Town/ City/Village that is a member of the Capital Region Solid Waste Management Partnership Planning Unit

Any person who has requested a copy of the DGEIS

Any other involved agencies

Environmental Notice Bulletin 625Broadway Albany, NY 12233-1750

Copies of the DGEIS must be distributed according to 6NYCRR 617.12(b).

SWMP APPENDIX C

INDUSTRIAL WASTE SURVEY RESULTS

TABLE OF CONTENTS

1.0 INTRODUCTION AND SUMMARY

CHA has been retained by the City of Albany for preparation of a new Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership (the Planning Unit). As part of the SWMP, CHA has studied several types of waste in the total solid waste stream of Planning Unit in order to determine waste generation rates and other data. One of the waste streams studied to obtain such data is non-hazardous industrial solid waste.

According to Census data, there were 260 manufacturing facilities in Albany County in 2002, employing a total of more than 9,000 people. Not all of these facilities or employees are located in the planning unit communities, but a substantial number are believed to be, as well as manufacturing establishments in the City of Rensselaer and the Town of East Greenbush in Rensselaer County.

In order to better understand the waste management practices among these industrial establishments a survey was prepared and distributed to major manufacturing employers in the planning unit. CHA compiled information about these facilities obtained from the 2008 New York Manufacturers Register (Manufacturers' News, Inc. 2008) and survey forms and cover letters were sent to approximately 135 establishments which had more than 10 employees. Of these, 45 had more than 50 employees and 25 had more than 100 employees. The letters were sent on February 10, 2009.

A copy of the Industrial Waste Survey Form and Cover Letter are presented in Section 2. The survey included questions regarding current solid waste management and recycling practices, as well as any special problems or issues faced with either solid waste management or recycling.

The survey responses were compiled into a summary table, presented in Section 3.

2.0 SURVEY FORM AND COVER LETTER

This Section presents a copy of the Industrial Waste Survey Form and Cover Letter.

February 10, 2009

RE: Industrial Solid Waste Survey
Capital Region SWMP

Dear Plant Manager:

Our firm is working with the City of Albany to assist with the development of a new Solid Waste Management Plan (SWMP) for the Capital Region for the next 10 to 20 years. Part of the SWMP is focused on solid waste/recycling collection practices of the industrial sector within the Planning Unit. You are being contacted because your business is believed to be among the largest industrial establishments located in the Planning Unit.

The purpose of the attached survey is to identify current solid waste management practices, including recycling, reuse, and other waste reduction programs for the non-hazardous solid wastes generated at your facility. This data will be used to determine waste generation rates as well as to evaluate changes that could be implemented to increase the overall effectiveness of solid waste management programs. Your completion of this information will allow us to more accurately characterize the waste stream and to plan for future needs.

If we have not directed this correspondence to the appropriate person, please forward it to their attention. The survey response should be completed and returned by February 27, 2009 as indicated on the attached survey. Should you have any questions regarding the enclosed survey, or the project in general, please feel free to contact the undersigned at (518) 453-8287.

Very truly yours,

Valerie Spies
Assistant Project Engineer

Kenneth G. Gallagher, P.P., AICP
Principal Planner

INDUSTRIAL MANUFACTURERS SOLID WASTE/RECYCLING COLLECTION PRACTICES SURVEY

Part I. General Information

Firm name ______________________ **Facility name** ____________________

Street address ______________________ **Mailing address**____________________

___________________________________ _________________________________

Contact Person/Survey Respondent ____
Title ____
Contact telephone # ____

Principal Product Your Facility Produces_______________________________________

Number of Employees: Full time _______ Part time ______
Hours of Operation: ____

SIC Code(s): ____________________

____

Part II. Solid Waste/Recyclable Information

1. How is non-hazardous solid waste collected for recycling or disposal (note all that apply)?

- Self haul to disposal or recycling facilities? (name/contact information of facility)

  ____

  ____

- Private hauler contracted by your business? (name/contact information of hauler)

  ____

  ____

2. Which solid waste management facility(s) are used by your business?

____

____

3. Approximately how much non-hazardous solid waste did you dispose of in 2008?
_________________ tons.

4. What percentage of non-hazardous solid waste was disposed of onsite in 2008?
___________________%

5. Please describe any unique or problematic elements of your waste:

____

____

6. How much do you expect your waste volume to increase or decrease over the next five (5) years? __________% per year

Reason for increase/decrease: ____

7. Do you anticipate any significant changes in your waste management practices in the next five (5) years? If so, please describe:

____

____

____

Part III. Reuse and Recycling Program Questions

1. Please describe any material reuse or recycling at your facility:

____

____

____

2. What percentage of non-hazardous solid waste is recycled or reused on-site in 2008?

____________________**%**

3. Do you keep records or prepare reports regarding your waste reduction and recycling program? Please describe:

____

____

4. Are there barriers that reduce your recycling program's effectiveness or result in no recycling at your business? Please describe:

____

____

____

5. Suggestions to improve the recycling program?

____

____

____

Part IV. Waste Characterization

1. Waste stream/recyclable composition information

Please estimate the composition of your non-hazardous solid waste stream and the amount you reused, or recycled, and disposed for the following categories, in **tons/year** if possible. If other units of measurement are used please specify.

		A =	B +	C
		Material Generated	**Material Recycled or Reused**	**Material Disposed**
❖	Aluminum	_____	_____	_____
❖	Ferrous Metals	_____	_____	_____
❖	Other metals (specify)___________	_____	_____	_____
❖	Newspaper	_____	_____	_____
❖	Office paper	_____	_____	_____
❖	Corrugated Cardboard	_____	_____	_____
❖	Plate Glass	_____	_____	_____
❖	Tempered Glass	_____	_____	_____
❖	Ceramics	_____	_____	_____
❖	Glass bottles & jars	_____	_____	_____
❖	Other Glass (specify)______________	_____	_____	_____
❖	Plastic (HDPE and PET)	_____	_____	_____
❖	Plastic (PVC)	_____	_____	_____
❖	Other Plastic (specify)____________	_____	_____	_____
❖	Rubber/Tires	_____	_____	_____
❖	Dry cell or other batteries	_____	_____	_____
❖	Lead acid batteries	_____	_____	_____
❖	Oil/oil filters	_____	_____	_____
❖	Textiles	_____	_____	_____
❖	Construction & Demolition Debris	_____	_____	_____
❖	Yard Waste	_____	_____	_____
❖	Food Waste	_____	_____	_____
❖	Wooden Pallets	_____	_____	_____
❖	Medical Waste	_____	_____	_____
❖	Electronics (Specify)	_____	_____	_____
❖	Mixed Refuse (such as cafeteria			
❖	and office waste)	_____	_____	_____
❖	Other (specify)______________	_____	_____	_____
❖	Other (specify)______________	_____	_____	_____
	TOTAL	____ **A** =	____ **B** +	____ **C**

Note: The total disposed should equal the value entered in Part II, Question 3.

THANK YOU FOR YOUR TIME.

Please FAX or email completed survey form by February 27, 2009 to:
CHA, LLP
Attn: Valerie Spies, Assistant Project Engineer
Fax Number: 973.299.1123
vspies@chacompanies.com
Telephone: (518) 453-8287

3.0 SURVEY RESPONSE SUMMARY

CHA set a survey response deadline of February 27, 2009, approximately three weeks from the time the surveys were sent out. During that time, CHA staff was available to answer any questions regarding the survey. Five surveys were returned to CHA as undeliverable from the Post Office, and 14 survey responses were received before the deadline. In the following weeks, CHA continued to receive several additional survey responses from the industrial firms.

CHA then telephoned the 25 largest firms, those with 100 employees or more, to determine the status of the industrial waste surveys and to inquire whether the firm had any additional questions or comments that would assist them with completion of the survey. Additional surveys were sent via email or fax based upon these telephone discussions and this effort yielded 3 additional survey responses. In total, CHA received 19 industrial waste survey responses.

The survey responses were compiled into a summary table, presented in this Section 3 so the information from each firm could be compared side by side with the other firms. Most firms were able to provide information about their current solid waste management practices on a descriptive level, however, many were not able to provide quantities of solid waste generated, recycled and discarded, and instead provided estimates of percentages of each material component or other means of reporting their solid waste management. Some indicated that the categorization of materials was handled by the solid waste hauler, or that the tonnage generated, recycled and disposed was unknown.

The table summarizing the industrial solid waste survey results is attached below:

Industrial Waste Survey Data

Company	Company #1	Company #2	Company #3	Company #4	Company #5
General Information					
Product	not indicated	metal parts	asphalt concrete	dental manufacturing	installation of sun rooms
Employees	25	75	4 FT/ 20 PT	40	13
SIC Code	3678 - NAICS 334417	3449 - NAICS 332114	2951 - NAICS 324121	3843 - NAICS 339114	3448 - NAICS 332311
Solid Waste/Recyclable Information					
Non-hazardous solid waste collection	private hauler - thru lessor	private hauler	private hauler	private hauler	private hauler
Solid Waste Management facilities	Waste Management - contracted by Arsenal	Waste Management	Allied Waste Services, Safety Kleen, TCI Tire Center	Allied Waste	County Waste
Disposed in 2008 (tons)	156 (approx)	unknown	160	not indicated	112
Percentage disposed onsite in 2008	not indicated	100%	0	not indicated	0
Unique or problematic elements?	not indicated	none	not indicated	not indicated	none
Volume increase or decrease in next 5 yrs?	0	0 - should stay same	0	5% - business volume	0
Significant changes in next 5 years?	none	none	no significant changes expected	No	No
Reuse and Recycling Program Questions					
Material reuse or recycling at facility	cardboard and paper	metal scrap	no recycling of solid waste	cardboard and paper	aluminum cut off extrusions
Percentage reused or recycled onsite in 2008	0	100	0	not indicated	10% recycled
Records or reports for recycling/reduction?	No	No	No	No	Records regarding aluminim cutoffs that are brought to recycling yard
Barriers to reduce effectiveness?	not indicated	N/A	No	No	would like to recycle expanded polystrene foam
Suggestions for improvement	not indicated	not indicated	not indicated	not indicated	not indicated

Waste Characterization (tons)	Company #1	Company #2 (respondent provided in %)			Company #3			Company #4			Company #5		
	Information not provided	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed
Aluminum		0	100	0							1.4	1.4	0
Ferrous Metals		0	100	0	min	min	min				0	0	0
Other Metals (specify)											0.35	0	0.35
Newspaper											0	0	0
Office paper		0	0	100				21		21	5	0	0
Corrugated Cardboard		0	0	100							0	0	0
Plate Glass											0	0	0
Tempered Glass											0.125	0	0.125
Ceramics											0	0	0
Glass Bottles & Jars					min		min				0	0	0
Other Glass (specify)											0	0	0
Plastic (HDPE and PET)											0	0	0
Plastic (PVC)					2	2					0	0	0
Other Plastic (specify)											0	0	0
Rubber/Tires					5	5					0	0	0
Dry cell or other batteries											0	0	0
Lead acid batteries											0	0	0
Oil/oil filters		0	100	0	1	1					0	0	0
Textiles											0	0	0
Construction & Demolition Debris											110	0	110
Yard Waste											0	0	0
Food Waste					min						0	0	0
Wooden Pallets		0	0	100	2	2					0.125	0	0.125
Medical Waste											0	0	0
Electronics (specify)											0	0	0
Mixed Refuse (such as cafeteria and office)					150		150	75			0	0	0
Other (specify)													
Other (specify)													
Total					160	10	150				112	1.4	110.6

Industrial Waste Survey Data

Company	Company #6	Company #7	Company #8	Company #9	Company #10
General Information					
Product	pre-built sheds	paint, roof coatings, driveway sealers	wallboard, joint compound	stone	animal feed
Employees	15	35	9	19	25
SIC Code	not indicated - NAICS 321992	2851 - NAICS 325510	3275 - NAICS 327420	NAICS 327900	2048 - NAICS 311119
Solid Waste/Recyclable Information					
Non-hazardous solid waste collection	private hauler	private hauler	private hauler	private hauler	private hauler
Solid Waste Management facilities	BFI - Allied Waste	Waste Management, Allied Waste	Waste Management of Eastern New York	Waste Management of Upstate New York	Allied Waste
Disposed in 2008 (tons)	not indicated	unknown	611.5	156 cy (estimate)	146
Percentage disposed onsite in 2008	0	0	0	0	0
Unique or problematic elements?	scrap lumber, vinyl and shingles siding	none	none	not indicated	N/A
Volume increase or decrease in next 5 yrs?	10% decrease - business down	0	unknown - slowdown due to economy	not indicated	not indicated - trying to decrease waste
Significant changes in next 5 years?	No	none	no	no	no
Reuse and Recycling Program Questions					
Material reuse or recycling at facility	cardboard recycling	some latex paint reprocessed; metal cans & corrugated boxes sent to recycler via vendor	wallboard ground and reused; joint compound pumped to reclaim tank and reused	not indicated	all paper/plastic sent to recycler
Percentage reused or recycled onsite in 2008	5% recycled	unknown	greater than 99%	not indicated	100
Records or reports for recycling/reduction?	not indicated	no	track production waste; misc plant waste tracked through WM records	not indicated	Included in monthly report sent out by Cargill; all waste is tracked
Barriers to reduce effectiveness?	used to recycle vinyl siding, but no longer	no	not indicated	not indicated	no
Suggestions for improvement	not indicated	not indicated	not indicated	not indicated	reduce flushing at mill; use less packaging

Waste Characterization (tons)	Company #6 (respondent provided in %)			Company #7			Company #8			Company #9			Company #10		
	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed
Aluminum	1%	1%	0%												
Ferrous Metals				X			5		5						
Other Metals (specify)															
Newspaper														0	
Office paper														1	
Corrugated Cardboard	5%	5%	0%	X			108		108					1	
Plate Glass															
Tempered Glass															
Ceramics															
Glass Bottles & Jars															
Other Glass (specify)															
Plastic (HDPE and PET)				X											
Plastic (PVC)															
Other Plastic (specify)	15%	0%	15%												
Rubber/Tires	45%	0%	45%											0	
Dry cell or other batteries														0.01	
Lead acid batteries														0	
Oil/oil filters														0.5	
Textiles														0.5	
Construction & Demolition Debris														0	
Yard Waste														0	1
Food Waste															1
Wooden Pallets	2%	0%	2%				30		30					24	
Medical Waste														0	
Electronics (specify)							0.5		0.5					0.05	
Mixed Refuse (such as cafeteria and office)	2%	0%	2%				468		468	X		X			
Other (specify)							5550	5550							146
Other (specify)	20%	0%	20%				10	10						100	
Total							6171.5	5560	611.5				275.06	127.06	148

Industrial Waste Survey Data

Company	Company #11	Company #12	Company #13	Company #14	Company #15
General Information					
Product	sodium hypochlorite (bleach)	recycled paper	portland cement concrete	mfg. industrial ceramics, engineering design	printed material
Employees	56	45-55	56	75	27
SIC Code	2819; 2842; 5169; NAICS 325998	NAICS 322110	not indicated - NAICS 327320	3255 - NAICS 327124	2759 - NAICS 323117
Solid Waste/Recyclable Information					
Non-hazardous solid waste collection	private hauler	self-haul	private hauler	private hauler	private hauler
Solid Waste Management facilities	Waste Management, Inc. (Rapp Road Landfill)	Company is high-grade paper recycling co.	County Waste - office waste; CF Van Hall Scrap Metal - disposal of scrap metal	County Waste	Northstar Recycling Group/DeBoer Recovery
Disposed in 2008 (tons)	20	not indicated	10	832 cy (estimate)	20
Percentage disposed onsite in 2008	1	not indicated	0	100	0
Unique or problematic elements?	not indicated	not indicated	N/A	none	none indicated
Volume increase or decrease in next 5 yrs?	should stay approx. same	-10% due to economy	0	10% - tough to determine, economy	5% - Increased business
Significant changes in next 5 years?	would like to recycle cardboard, plastic if no cost	not indicated	no	no	No
Reuse and Recycling Program Questions					
Material reuse or recycling at facility	plastic containers/drums are reused after cleaning; obsolete computers recycled; office paper/periodicals	not indicated	waste concrete placed in forms and sold to contractors, also used for stackable wall units; waste oil combusted for heat	separate 8 cy dumpster used for paper & cardboard; any steel is sent to scrap yards	paper & cardboard collected in carts for on-site compactor; aluminum plates collected
Percentage reused or recycled onsite in 2008	1	not indicated	100	0	0
Records or reports for recycling/reduction?	N/A	not indicated	Not directly	5S program at the plant	monthly tonnage tracked through reports when compactor storage container is changed
Barriers to reduce effectiveness?	cost prohibitive to recycle	not indicated	No	discipline of employees; plastic soda disposal incentives	No
Suggestions for improvement	would separate waste if no cost to company	not indicated	None		none indicated

Waste Characterization (tons)	#11 generated	#11 recycled	#11 disposed	#12 generated	#12 recycled	#12 disposed	#13 generated	#13 recycled	#13 disposed	#14 generated	#14 recycled	#14 disposed	#15 generated	#15 recycled	#15 disposed
Aluminum					60										
Ferrous Metals							100	100	0						
Other Metals (specify)															
Newspaper					400										
Office paper					14000		2	0	2				250	250	
Corrugated Cardboard					6000		1	1	0			416 cy/yr	10	10	
Plate Glass															
Tempered Glass															
Ceramics												832 cy/yr			
Glass Bottles & Jars															
Other Glass (specify)															
Plastic (HDPE and PET)					100										
Plastic (PVC)					50										
Other Plastic (specify)															
Rubber/Tires							5	5	0						
Dry cell or other batteries															
Lead acid batteries							2	2	0						
Oil/oil filters							8	7.5	0.5						
Textiles															
Construction & Demolition Debris															
Yard Waste															
Food Waste															
Wooden Pallets					75										
Medical Waste															
Electronics (specify)															
Mixed Refuse (such as cafeteria and office)							0.5	0	0.5						
Other (specify)															
Other (specify)															
Total					20685		118.5	115.5	3				260	260	

Industrial Waste Survey Data

Company	Company #16	Company #17	Company #18	Company #19
General Information				
Product	fabricates reinforcing steel	ready mix concrete	cannons	do not produce a product
Employees	40	40	600	600
SIC Code	NAICS 332900	NAICS 327320	0630-1430 (NAICS 332994)	4225 - NAICS 493110
Solid Waste/Recyclable Information				
Non-hazardous solid waste collection	private hauler	private hauler	private hauler	private hauler
Solid Waste Management facilities	Heritage Crystal Clean Environmental Services, LLC	Allied Waste Systems	Waste Management - Colonie Landfill	Allied Waste - Rapp Road Landfill
Disposed in 2008 (tons)	403	20	613	286
Percentage disposed onsite in 2008	0	0	0	0
Unique or problematic elements?	none	none	none	not indicated
Volume increase or decrease in next 5 yrs?	0 - expect zero change	10% - growth	0	0
Significant changes in next 5 years?	no	no	no	no
Reuse and Recycling Program Questions				
Material reuse or recycling at facility	none	crush and reuse concrete for fill material & waste blocks	source separate recyclables	recycle cardboard, cans, bottles
Percentage reused or recycled onsite in 2008	96.8	99	0	50
Records or reports for recycling/reduction?	no	sales receipts; crushing reports	Solid Waste Annual Report (SWARs) U.S. Army; no separate records of recyclables	monitor the recycle amounts sent to vendor for reimbursement
Barriers to reduce effectiveness?	no	None	No	No
Suggestions for improvement	better paper recycling within Co.	None	None	not indicated

	Company #16			Company #17			Company #18			Company #19 (respondent provided in %)		
Waste Characterization (tons)	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed	generated	recycled	disposed
Aluminum				0.5	0.5	0						
Ferrous Metals	387	387	0	2	2	0						
Other Metals (specify)												
Newspaper												
Office paper										5%	5%	0%
Corrugated Cardboard	3	3	0	2	2	0				90%	90%	0%
Plate Glass												
Tempered Glass												
Ceramics												
Glass Bottles & Jars												
Other Glass (specify)												
Plastic (HDPE and PET)												
Plastic (PVC)				0.5	0.5	0						
Other Plastic (specify)												
Rubber/Tires				2	2	0						
Dry cell or other batteries				0.2	0.2	0						
Lead acid batteries				1	1	0						
Oil/oil filters				2	2	0						
Textiles												
Construction & Demolition Debris				1	0	1						
Yard Waste												
Food Waste												
Wooden Pallets				2	0	2						
Medical Waste												
Electronics (specify)												
Mixed Refuse (such as cafeteria and office)	13	0	13	17	0	17						
Other (specify)										5%	0	5%
Other (specify)				7650	7650	0						
Total	403	390	13	7680.2	7660.2	20						

SWMP APPENDIX D
WASTE CHARACTERIZATION FIELD STUDY

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1.0 EXECUTIVE SUMMARY

CHA has been retained by the City of Albany for preparation of a new Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership (the Planning Unit). As part of the SWMP, a field study was conducted to characterize the solid waste stream and recyclable stream of the Planning Unit. This study will assist with development of improvements to the current solid waste management and recycling practices. Characterization of the solid waste and recyclables stream will also assist the development of future practices and the consideration of new technologies for use by the Planning Unit. To this end, CHA designed and conducted a field study to determine the percent composition of a variety of material components within the solid waste and recyclables stream within the Planning Unit.

Randomly selected samples were collected from solid waste collection vehicles arriving at the Rapp Road Landfill in Albany over a five-day period at the end of February 2009. Vehicles were selected based upon collection routes within the Planning Unit. Each of the representative solid waste samples was then sorted into 39 material categories, and the weight of each material category was recorded. Samples were collected from City of Albany Department of General Services (DGS) vehicles, commercial waste haulers, and collection vehicles from several other municipalities and organizations.

Representative samples of recyclable materials were obtained from collection vehicles re-routed from the Sierra Fibers recycling facility to the Rapp Road Landfill, where sampling and sorting occurred. All of the recyclable samples collected were from Albany DGS vehicles. These vehicles are compartmentalized into two recyclable streams: one for mixed paper, and another for metals, glass and plastic (MGP). Two samples were collected from each vehicle containing recyclables: one from each category as above, and the paper stream and MGP stream were sorted and analyzed separately. Each sample was sorted using the same material categories used for the solid waste sampling, and the data was also recorded and calculated in a similar manner.

The sampling and sorting program was generally conducted and analyzed according to *Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste,* ASTM D5231-92 (Reapproved 2003). The mean mass fraction and average composition percentages were calculated for each material component for each sample, and then a mean mass fraction for each material category was calculated across multiple samples. The standard deviation for each material category was also calculated. Results for the solid waste sampling are presented with the combined total of all samples, as well as separate results for the DGS vehicles only and the commercial vehicles only.

The largest single material component in the solid waste stream as sampled is food waste, at an average of 19% of the total mass sampled. All paper categories combined represent 31% of the waste deliveries, but this includes eight separate categories of paper. The largest single paper category is classified as other paper, at 11% of the total mass sampled. The combined plastics category was the third largest major component of the solid waste stream with approximately 13% of the total mass of the sample. The largest single plastics category was film plastic and plastic bags totaling 4% of the solid waste stream. The proportional share of all of the material components measures are presented in Table 2 – Solid Waste Composition Summary.

The solid waste composition data was also analyzed to compare waste delivered by DGS to waste delivered by commercial haulers. The data for all vehicles, as indicated above, was divided by vehicle operator into subsets to obtain the solid waste composition of the DGS waste stream and commercial hauler stream separately, and determine differences between these two waste streams. For these subsets, the combination of all paper categories is the largest material component category from the commercial waste vehicles at 41% composition by weight, and from the DGS vehicles at 25% by weight. For both the DGS and Commercial waste streams, the largest paper category was other paper, with approximately 7% and 17% of the total mass of the sample, respectively. Food wastes were the largest single material category from both waste streams, with compositions of approximately 23% and 21%, each for DGS and commercial vehicles. As above, film plastic and plastic bags were the largest single plastics category. This material category constituted 6% of the DGS waste stream, and 4.5% of the commercial waste stream. Other significant waste component categories varied between the DGS samples and the commercial samples; these included textiles and leather, disposable diapers, and wood, with the DGS samples, and dirt/fines, and glass, for the commercial samples. Table 4 presents the comparison of the composition of the DGS collected waste with the commercial collection vehicles.

The solid waste stream contained a significant number of designated recyclable materials, as indicated in Table 5 – Designated Recyclable Materials within the Solid Waste Stream. This is particularly true of paper products in the commercial vehicles sampled, where the mixed office paper and corrugated categories each consisted of more than 5% of the total waste stream; the

DGS solid waste stream contained significant amounts of recyclable paper as well, particularly paperboard.

For the recyclable materials, a majority of the paper stream consisted of newspaper, at over 52% of the total sample, followed by books (including telephone directories) and magazines, at 13% and 11%, respectively. Other significant categories included paperboard, mixed office paper, and corrugated (see Table 6 – Recyclable Materials Composition Summary). Only 1.4% of the paper stream consisted of non-paper products. Nearly 60% of the MGP stream consisted of glass. The largest fraction of the glass material category was comprised of clear glass bottles, which accounted for 29% of the total MGP sample. Green glass bottles were also a significant fraction at 17% of the entire MGP sample. Ferrous metals consisted of approximately 12%, and all plastic categories combined included 19% of the MGP stream. Various paper products constituted 7.9% of the MGP stream, which could be viewed as a contaminant in this recyclable material stream.

The data from the waste characterization field study for the Planning Unit were compared to data from a similar 2005 study for the Onondaga County Resource Recovery Agency (OCRRA), as well as from national data collected by the United States Environmental Protection Agency (USEPA) for the year 2007. Table 7 – Solid Waste Composition in Other Studies presents the Capital Region data alongside the OCRRA and USEPA data. The data are consistent across several material categories such as food wastes, and textiles and leather; however, the waste stream composition of other material categories reflects differences between the solid waste stream of the Capital Region, and the OCRRA and USEPA data. These differences include a higher percentage of paper products, and other material categories such as electronics, and dirt/fines, and lower percentages of categories such as yard waste and rubber. Comparison of the Capital Region results with other studies will also assist in the planning and preparation of the future management of solid waste and recyclable materials.

Yard waste only represented 1.2% of the solid waste discarded during this study. While there are numerous yard waste composting programs in place within the planning unit, the waste characterization study was conducted during the low season for yard waste generation. Therefore, an upward adjustment might be needed to reflect an annual average percentage of yard waste that is discarded. This should be examined further in the context of the overall waste stream analysis being conducted for the new SWMP.

2.0 PURPOSE AND SCOPE

The purpose and objective of this field study is to characterize the constituents of the solid waste and recycled materials stream for the Capital Region Solid Waste Planning Unit. Characterizing the local waste stream will provide valuable information for planning future improvements to local recycling efforts as well as for evaluating the feasibility of alternative solid waste management systems. Another purpose of the study is to examine differences in solid waste composition collected by a municipal agency (such as the City of Albany DGS) and commercial haulers servicing commercial, industrial or institutional customers as well as multi-family dwellings.

In order to categorize the solid waste and recyclable materials stream within the Planning Unit, CHA developed a field study involving the sampling of solid waste and recyclables collection vehicles, and sorting the materials contained in each sample to determine the mass percentage composition. The field study was conducted between February 23-27, 2009, for solid waste and from March 2-4, 2009, for recyclable materials. Both solid waste deliveries to the Rapp Road Landfill as well curbside recyclables collected by the City of Albany DGS were sampled and characterized during this time period. Detailed methodology and results for this field study are presented in the following sections.

3.0 METHODOLOGY

3.1 SAMPLING PREPARATION

The solid waste and recyclables sampling and sorting program generally followed procedures established by the American Society of Testing Materials *Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste,* ASTM D5231-92 (Reapproved 2003). The solid waste sampling and sorting program took place at the Rapp Road Landfill between February 23 and February 27, 2009. The sampling and sorting of recyclables took place also at the Rapp Road Landfill between March 2, and March 4, 2009.

Prior to beginning the waste sorting program, a protocol was developed for the procedure with a total of 39 material sort categories used, based upon knowledge of the potential waste stream at the landfill. Appendix A presents a definition of each material category. Forms and data sheets to assist with the solid waste sampling data collection were also prepared for use in the field. These data sheets included driver interview forms for each of the collection trucks that were sampled, as well as tables containing listings of each material category to facilitate the input of solid waste information during field sampling. The driver interview forms were prepared for both the solid waste sampling and recyclables sampling, while the data tables utilized the same material categories for both solid waste and recyclables. The completed driver interview forms and sampling data sheets are presented in Appendix B and Appendix C, respectively.

Additional preparations prior to the solid waste and recyclables sampling in the field included obtaining appropriate bins for each of the material categories to be sorted. Based upon the proposed sample size, and potential volume of waste for each category from other similar studies, plastic garbage containers were obtained in a sufficient size to be used for the sorting.

A sorting table was also constructed using a wire screen over a box constructed of plywood. The sorting table helped to contain the dirt and fines so that a measurable quantity of this waste category could be determined.

3.2 SOLID WASTE SAMPLING AND SORTING AT THE RAPP ROAD LANDFILL

Solid waste sampling and sorting at the Rapp Road Landfill was conducted by a crew of 7 people, including a Site Manager and a Crew Chief. The Site Manager was responsible for the selection of appropriate collection vehicles from which to sample, and for interviewing the drivers of the vehicles regarding the geographic origin and type of waste contained in the collection vehicle. The Site Manager and Crew Chief communicated via two-way radio, so that once the sorting of one collection vehicle was nearly completed, another vehicle could be selected for sampling. The Crew Chief was responsible for leading the crew during the manual sorting effort pertaining to general sorting operations and any issues regarding material sort categories. Generally, the procedure for sampling and sorting occurred as follows:

Solid waste collection vehicles arriving at the landfill facility were randomly selected by the Site Manager. Selection was based on the communications between the Site Manager and the Crew Chief, who advised if the sort crew was ready to accept another load. Upon selection of the next available vehicle, eligibility for the waste sampling and sorting study was determined through driver interviews, which were conducted by the Site Manager from the scale house. Vehicles were determined to be eligible for sampling based upon collections or a collection route within the Planning Unit. Vehicles that did not have a collection route within the Planning Unit were ineligible for sampling, and were sent to empty their loads in accordance with regular operating procedure. Collection vehicles that were delivering industrial solid wastes or construction and demolition debris were also ineligible for the sampling program. Eligible trucks from within the Planning Unit were then diverted to the processing building where the waste sampling and sorting occurred. The selected eligible collection vehicle load was emptied onto the floor of the processing building. A front-end loader operated by DGS personnel was used to scrape a load of waste from one edge of the discharged waste. This waste was mixed and divided into quarters. The waste sample to be sorted was collected from a randomly selected quarter using the front-end loader. The sample size was approximately 1 cubic yard of waste by volume, with a target sample size of approximately 200-300 pounds by weight. The sample was emptied onto the sorting table, and then the waste was sorted into the bins for each of the 39 material categories. The bins were weighed before and after the sort to determine the net weight composition of the solid waste sample; the weight of material for each waste category was entered into the prepared data sheets for each vehicle. One data sheet was used for each collection vehicle/sample. The data sheets with results for each vehicle are presented in Appendix C.

The landfill facility closed early due to high winds on both Monday and Friday, thereby decreasing the number of samples obtained during the week due to time considerations. During the course of the week, a total of 36 waste samples were collected, as follows:

2/23/09 Monday – 5 samples
2/24/09 Tuesday – 8 samples
2/25/09 Wednesday – 8 samples
2/26/09 Thursday – 8 samples
2/27/09 Friday – 7 samples

The average sample weight for these 36 waste samples was approximately 215 lbs.

3.3 RECYCLABLE MATERIALS SAMPLING AND SORTING AT THE RAPP ROAD LANDFILL

The original intention of the sampling and sorting program was to characterize both the solid waste and recyclables in the waste stream at separate facilities. The solid waste was sampled at the Rapp Road Landfill, and the recyclables were to be sampled and sorted at the Sierra Fibers facility. However, the Sierra Fibers facility was not able to be used for the sampling and sorting; therefore, sampling and sorting of the recyclable waste stream was also completed at the Rapp Road Landfill. The procedure for the selection of collection vehicles for sampling was different from the procedure used for the solid waste sorting. Instead of the procedure outlined above, DGS recyclable collection vehicles were diverted en route from the Sierra Fibers facility to the Rapp Road Landfill by the City of Albany dispatcher. Collection vehicles were diverted at various points along the collection route to ensure a continuous stream of vehicles arrived at the landfill for sampling and sorting. There were no driver interviews conducted as part of the recyclables sampling program, as all vehicles sampled were DGS vehicles from within the Planning Unit.

The collection vehicles used for the recyclables were internally divided into two compartments: paper, and metals, glass and plastic (MGP). Therefore, two samples were taken from each vehicle: a paper sample, and an MGP sample based upon the contents of each compartment. The samples were then collected with the same procedure as outlined above for the solid waste sampling and sorting, and sorted into the same material categories. Also as above, the material bins were weighed before and after the sorting to obtain the weight of each material component in the sample of recyclables.

A total of 46 recycling samples were collected during the sampling period, as follows:

3/2/09 Monday –	7 Paper samples	7 MGP samples
3/3/09 Tuesday –	8 Paper samples	8 MGP samples
3/4/09 Wednesday –	8 Paper samples	8 MGP samples

The sampling and sorting protocol developed prior to the field study is presented in Appendix D. The average sample weight for these 46 waste samples was 136 lbs.

4.0 DATA ANALYSIS AND RESULTS

4.1 DATA PROCESSING

In order to determine the percentage of each waste or recyclable component in the sample, and in the waste stream or recyclable stream, the mass fraction of each component was calculated for each sample. That is, the net weight of each material component was divided by the total weight of the sample. The mass fraction of each component for the entire waste stream was obtained by taking the mean of each of the mass fractions of each sample for a given material component. The standard deviation for each mass fraction was calculated both on an individual sample level, and on an aggregate waste/recyclable stream level. These calculation methods are outlined in the *Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste,* ASTM D5231-92.

Solid waste collection vehicles were randomly sampled during the 5-day field operations. Sampled vehicles included City of Albany Department of General Services (DGS), as well as from a variety of commercial and institutional haulers and other municipalities. A total of 36 samples were collected over the course of the week to represent the solid waste stream. Table 1: Sampling Distribution presents the number of samples from each waste hauler, shown below.

Table 1: Sampling Distribution

Vehicle	*Number of samples*
Albany Department of General Services (DGS)	9
County Waste	4
Allied Waste	6
Waste Management	5
Accurate Disposal	1
City of Rennselaer	2
Village of Green Island	1
Town of Knox	2
Town of Guilderland	1
Town of Rennselaerville	1
Albany County	1
Salvation Army	2
SUNY- University of Albany	1
Total	**36**

In addition to the summary of results for the total aggregate waste stream, results were also tabulated separately for both the DGS collection vehicles and the commercial waste haulers. The commercial solid waste haulers included the vehicles from County Waste, Allied Waste, Waste Management, and Accurate Disposal. The vehicles from the municipalities and other organizations were not included in the commercial waste results.

As indicated in the methodology, all of the collection vehicles sampled to characterize the recyclable stream were DGS vehicles. Therefore, the analysis of the recyclable stream presented below represents primarily the residential component of the recyclable stream within the City of Albany. An analysis of the commercial recyclable stream was not studied.

We offer the following about the limitations of the study:

- A total of 36 samples were sorted from collection vehicles within the planning unit for the solid waste portion of the study
- A total of 46 samples of recyclables were sorted, including 23 samples each of the paper stream and metals, glass and plastic (MGP) stream
- Vehicles delivering municipal solid waste to the Rapp Road Landfill were randomly selected and were interviewed to determine that the waste originated on a collection route within the planning unit. Industrial solid waste, and construction and demolition debris (C&D), was not included as part of this study.
- Differences in types of commercial solid waste were not studied (ie. waste streams specific to restaurants, the retail sector, offices, etc.)
- As indicated above, solid waste characterization results are from a single week of sampling and sorting, and recyclable characterization results are from a three-day period of sampling and sorting. Therefore, the results presented herein may not be indicative of seasonal, monthly, or other time-dependent variations in the solid waste or recyclable stream.

Notes on the Results

In the analysis of the results for the solid waste stream, some categories may show differing percentages between the DGS component, commercial component, and aggregate total. For example, the fraction of food waste averages 18.7% for all samples, but 23% for DGS, and 21% for the commercial samples. Note that the results for the vehicles from municipalities or other organizations were not included in either the DGS or commercial category. Therefore, the addition of samples from these vehicles adjusts the total average composition for each material component.

As can be seen from the tables of results, the standard deviation of some of the material categories is greater than the mean percent composition. This indicates a high degree of variability and large range in percent composition within the samples for these material categories. This may also be due to the limited number of samples and timeframe of the study: greater numbers of samples may have led to greater precision and a lower standard deviation for some of these material categories. It may also be due to the variety of commercial waste generators, as explained above.

It is important to note that this study analyzed the components of both the solid waste stream and the recyclables stream by weight and not by volume; therefore, items of relatively low weight may not appear significant to the results, but may have been present in large quantity in the waste stream by volume. A typical example of this is seen in the recyclables stream with glass and plastics. Anecdotally, plastic bags and film plastics appeared to be abundant during the waste sorting. However, the total weight of these items was insignificant in comparison to items of greater density, such as glass jars. Incidentally, the glass constituted the greatest fraction of the MGP recyclables stream; however, glass is also significantly denser and heavier than the plastics in the waste stream. This may also occur with the solid waste stream, with differences in densities between food waste, paper products, metals, or other categories.

4.2 SOLID WASTE CHARACTERIZATION RESULTS

Table 2 – Solid Waste Composition Summary provides each material component and the mean composition percentage (mean mass fraction), and the standard deviation for each material category. In order of greatest to least mean composition percentage, the largest individual categories of the solid waste stream are as follows: food waste, other paper, dirt/fines, textiles and leather, corrugated, film plastic and plastic bags, paperboard, mixed office paper, miscellaneous, and wood. Table 3 below presents each of these material categories and the corresponding component fraction in the solid waste stream.

Capital Region Solid Waste Management Plan - Waste Characterization Field Study
Table 2 - Solid Waste Composition Summary

Material Components	Average Composition (%)	Mass Fraction Standard Deviation (%)
PAPER		
Newspaper	2.0%	2.6%
Magazines	2.1%	4.2%
Corrugated	4.5%	3.6%
Gable Top Cartons & Drink Boxes	0.4%	0.7%
Paper Board	4.2%	2.7%
Books (including phone directories)	2.8%	4.2%
Mixed Office Paper	4.1%	7.2%
Other Paper	11.1%	13.5%
SUBTOTALS	**31.3%**	**16.7%**
PLASTICS		
Plastic Containers (PET) #1 Non-Bottle Bill	1.7%	3.0%
Plastic #1 (Bottle Bill Containers)	0.3%	0.4%
Plastic Containers (HDPE) #2	0.8%	0.7%
Other Plastic Containers	2.5%	2.1%
Film Plastic & Plastic Bags	4.4%	2.4%
Other Plastics	2.8%	2.9%
SUBTOTALS	**12.5%**	**5.1%**
FOOD WASTE	**18.7%**	**19.9%**
TEXTILES & LEATHER	**5.7%**	**7.2%**
RUBBER	**0.5%**	**1.3%**
DISPOSABLE DIAPERS	**2.3%**	**3.3%**
FERROUS METALS		
Ferrous Metal/Bimetal Cans	0.7%	1.0%
Aerosol Cans	0.1%	0.1%
Other Ferrous Metal	1.9%	3.2%
SUBTOTALS	**2.8%**	**3.2%**
NON-FERROUS METALS		
Aluminum Cans (Non-Bottle Bill)	0.2%	0.2%
Aluminum Cans (Bottle Bill)	0.2%	0.4%
Other Non-Ferrous Metal	1.0%	1.4%
SUBTOTALS	**1.3%**	**1.4%**
ELECTRONICS	**2.7%**	**3.8%**
GLASS		
Glass Bottles (Bottle Bill)	0.5%	1.0%
Glass Bottle - Clear	1.8%	5.1%
Glass Bottle - Amber	0.9%	3.8%
Glass Bottle - Green	0.1%	0.3%
Flat Glass & Other Glass	1.4%	3.4%
SUBTOTALS	**4.7%**	**9.2%**
WOOD	**3.6%**	**6.5%**
RUBBLE	**0.6%**	**2.7%**
YARD WASTE	**1.2%**	**4.3%**
DIRT/FINES	**7.9%**	**16.9%**
HAZARDOUS WASTE		
Household Hazardous Waste (HHW)	0.0%	0.0%
Lead Acid Batteries	0.0%	0.0%
Other Batteries	0.0%	0.1%
SUBTOTALS	0.1%	0.1%
MEDICAL OR PHARMACEUTICAL WASTE	**0.2%**	**0.8%**
MISCELLANEOUS	**3.8%**	**4.3%**
TOTAL	**100%**	**0.0%**

Table 3: Largest Single Material Categories in the Solid Waste Stream

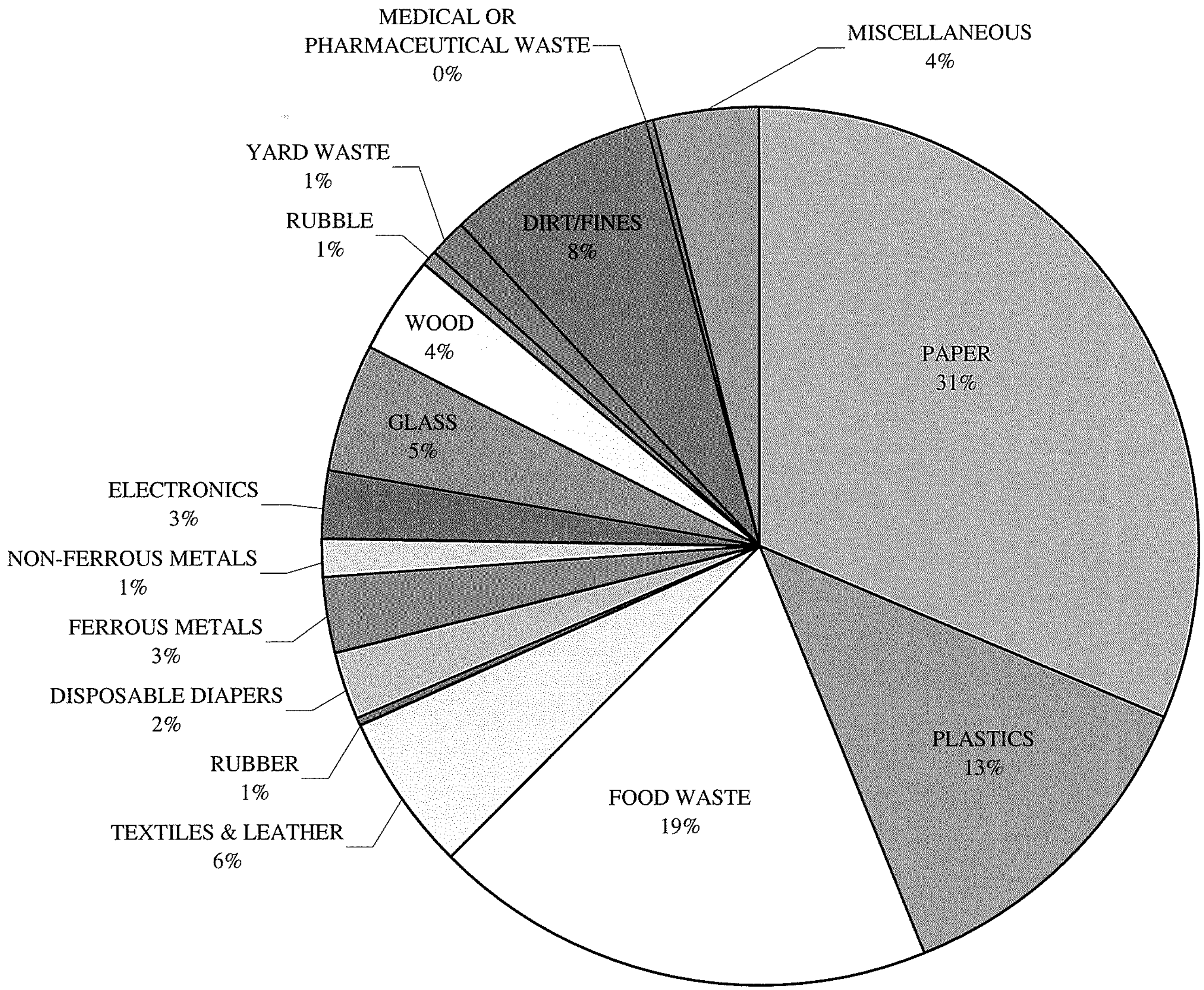
Material	*Component Fraction*
Food Waste	18.7%
Other Paper	11.1%
Dirt/Fines	7.9%
Textiles & Leather	5.7%
Corrugated	4.5%
Film Plastic & Plastic Bags	4.4%
Paper Board	4.2%
Mixed Office Paper	4.1%
Miscellaneous	3.8%
Wood	3.6%

Food wastes constitute the largest single component percentage for a single material component category, with a fraction of 18.7%. Paper products constitute a significant portion of the solid waste stream sampled in the study, with a component fraction greater than 30%. This fraction is for all paper categories combined, including: newspaper, magazines, corrugated, gable top cartons and drink boxes, paperboard, books (including telephone directories), mixed office paper, and other paper. The largest paper category consisted of other paper, at 11.1% of the total waste stream. This is a non-recyclable paper component containing tissue paper and paper towels. Approximately 20% of the discarded solid waste stream consisted of recyclable paper categories, the largest of which were corrugated, paperboard, and mixed office paper, which constituted 4.6%, 4.2% and 4.1% respectively. Figure 1 – Total Waste Stream Composition presents the total waste stream by major material category or individual material category, as applicable.

Plastics also constitute a significant portion of the waste stream at 12.5% mean composition for all plastic categories, the largest of which is film plastic and plastic bags at 4.4% of the total waste stream.

Recyclable glass, metal, and plastic containers in the solid waste stream include Plastic Containers #1 and # 2, ferrous metal cans, aluminum cans, and the various colors of glass bottles. Combined, these categories account for an average of about 7.2 % of the discarded solid waste stream.

Figure 1 - Total Waste Stream Composition



Comparison of DGS and Commercial Samples

The compositions of the DGS and Commercial collection vehicles were evaluated separately to examine any differences from the overall waste stream composition. Table 4 – DGS and Commercial Collection Vehicles Summary presents the composition of each of the 39 material categories in each of these two sample subsets. The DGS is responsible for municipal curbside pick-up of solid waste in residential areas in the City of Albany: single family homes, and dwellings up to four units per building. Therefore, these vehicles largely represent the residential waste stream component. The percentages of paper and food waste in the DGS vehicles are similar, at 25% and 23%, respectively, followed by the plastics category at 15%. Within the paper fraction, the largest category of paper waste was other paper, with a fraction of 7.4% of the total DGS waste stream. The largest single plastics category was film plastic and plastic bags, at 6.4% of the total DGS waste stream. Textiles and leather, disposable diapers, and wood also constitute significant fractions at 6%, 5%, and 5%, respectively. The six categories of paper, food waste, plastics, textiles and leather, disposable diapers, and wood, comprise nearly 80% of the DGS waste stream, with smaller categories filling in the remaining 20% including glass, dirt/fines, miscellaneous, ferrous metals, and electronics as indicated in Figure 2 – DGS Solid Waste Summary.

By contrast, the solid waste sampled from the commercial vehicles contains a greater percentage of paper products, at 41% of the total waste stream composition across all paper categories. Like the DGS vehicles, and the aggregate total of all samples, the largest single paper category is other paper, at 16.6% of the commercial waste stream. This is the largest single paper category by a significant margin, as the next largest category of mixed office paper represents 6.3% of the total commercial waste stream. The composition of food waste and plastics remains relatively consistent with the DGS vehicles at 21% and 12%, respectively. Within the plastics fraction, the largest single category was film plastic and plastic bags, at 4.5% of the total waste stream. This result is also consistent with the composition of plastics in the DGS waste stream and overall for all vehicles sampled. The paper, food waste, and plastics categories comprise nearly 75% of the commercial solid waste stream, with additional categories including dirt/fines (6%), glass (5%), and textiles and leather (3%) as indicated in Figure 3 – Commercial Waste Summary.

There was less designated recyclable paper in the discarded solid waste delivered by the DGS than was present in the commercial solid waste discards. Designated recyclable paper consisted of 17.6% of the DGS waste compared to 24.2% in the commercial waste stream. Both the DGS and commercial waste streams contained similar amounts of recyclable plastic, metal, and glass containers, although these was slightly less metal in the commercial waste samples . Table 5 –

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Table 4 - DGS and Commercial Collection Vehicles Summary

Material Components	DGS Mean Mass Fraction	Mean Mass Fraction Std. Dev.		Commercial Mean Mass Fraction	Mean Mass Fraction Std. Dev.
PAPER					
Newspaper	2.7%	2.4%		2.1%	3.4%
Magazines	1.4%	1.1%		3.5%	6.0%
Corrugated	3.4%	2.9%		5.6%	4.2%
Gable Top Cartons & Drink Boxes	0.3%	0.2%		0.5%	1.1%
Paper Board	5.3%	2.2%		3.9%	3.1%
Books (including phone directories)	2.5%	3.8%		2.4%	4.2%
Mixed Office Paper	2.1%	1.5%		6.3%	10.3%
Other Paper	7.4%	2.8%		16.6%	19.1%
SUBTOTALS	**25.0%**	**6.4%**		**40.8%**	**21.1%**
PLASTICS					
Plastic Containers (PET) #1 Non-Bottle Bill	2.0%	1.6%		2.2%	4.4%
Plastic #1 (Bottle Bill Containers)	0.3%	0.3%		0.3%	0.4%
Plastic Containers (HDPE) #2	1.0%	1.0%		0.6%	0.5%
Other Plastic Containers	2.7%	1.2%		2.6%	2.8%
Film Plastic & Plastic Bags	6.4%	1.9%		4.5%	2.4%
Other Plastics	2.7%	2.6%		2.0%	2.4%
SUBTOTALS	**15.2%**	**4.8%**		**12.2%**	**5.8%**
FOOD WASTE	**23.2%**	**15.0%**		**20.5%**	**24.4%**
TEXTILES & LEATHER	**6.2%**	**4.9%**		**3.4%**	**4.2%**
RUBBER	**0.2%**	**0.4%**		**0.5%**	**0.9%**
DISPOSABLE DIAPERS	**4.9%**	**4.2%**		**1.0%**	**1.6%**
FERROUS METALS					
Ferrous Metal/Bimetal Cans	0.9%	0.5%		0.5%	0.5%
Aerosol Cans	0.1%	0.2%		0.1%	0.2%
Other Ferrous Metal	2.4%	5.1%		1.9%	2.8%
SUBTOTALS	**3.5%**	**4.9%**		**2.5%**	**3.0%**
NON-FERROUS METALS					
Aluminum Cans (Non-Bottle Bill)	0.3%	0.4%		0.1%	0.1%
Aluminum Cans (Bottle Bill)	0.2%	0.2%		0.3%	0.5%
Other Non-Ferrous Metal	1.2%	1.3%		0.2%	0.3%
SUBTOTALS	**1.8%**	**1.3%**		**0.6%**	**0.7%**
ELECTRONICS	**2.6%**	**3.2%**		**2.1%**	**3.6%**
GLASS					
Glass Bottles (Bottle Bill)	1.5%	1.7%		0.2%	0.3%
Glass Bottle - Clear	1.8%	2.1%		2.6%	7.6%
Glass Bottle - Amber	0.4%	0.5%		1.6%	5.7%
Glass Bottle - Green	0.1%	0.3%		0.1%	0.3%
Flat Glass & Other Glass	0.5%	0.4%		0.5%	0.8%
SUBTOTALS	**4.3%**	**3.8%**		**4.9%**	**13.2%**
WOOD	**5.2%**	**5.4%**		**0.2%**	**0.4%**
RUBBLE	**0.0%**	**0.0%**		**0.2%**	**0.9%**
YARD WASTE	**0.7%**	**1.1%**		**1.0%**	**4.0%**
DIRT/FINES	**4.1%**	**4.5%**		**6.0%**	**17.9%**
HAZARDOUS WASTE					
Household Hazardous Waste (HHW)	0.0%	0.1%		0.0%	0.0%
Lead Acid Batteries	0.0%	0.0%		0.0%	0.0%
Other Batteries	0.1%	0.2%		0.0%	0.0%
SUBTOTALS	**0.1%**	**0.2%**		**0.0%**	**0.0%**
MEDICAL OR PHARMACEUTICAL WASTE	**0.0%**	**0.1%**		**0.5%**	**1.3%**
MISCELLANEOUS	**3.4%**	**3.1%**		**3.5%**	**4.3%**
TOTAL	100.0%	0.0%		100.0%	0.0%

Figure 2 - DGS Solid Waste Summary

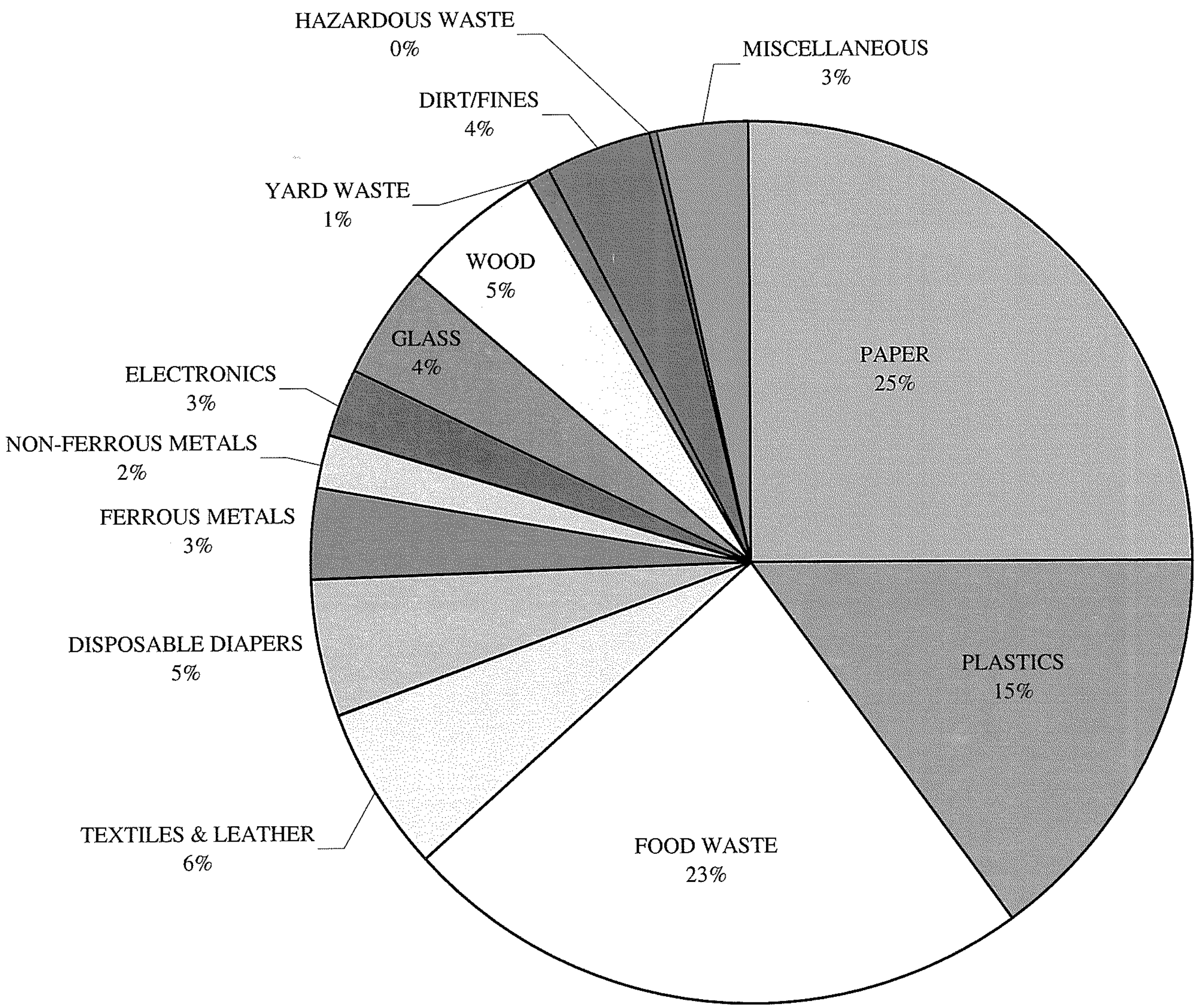
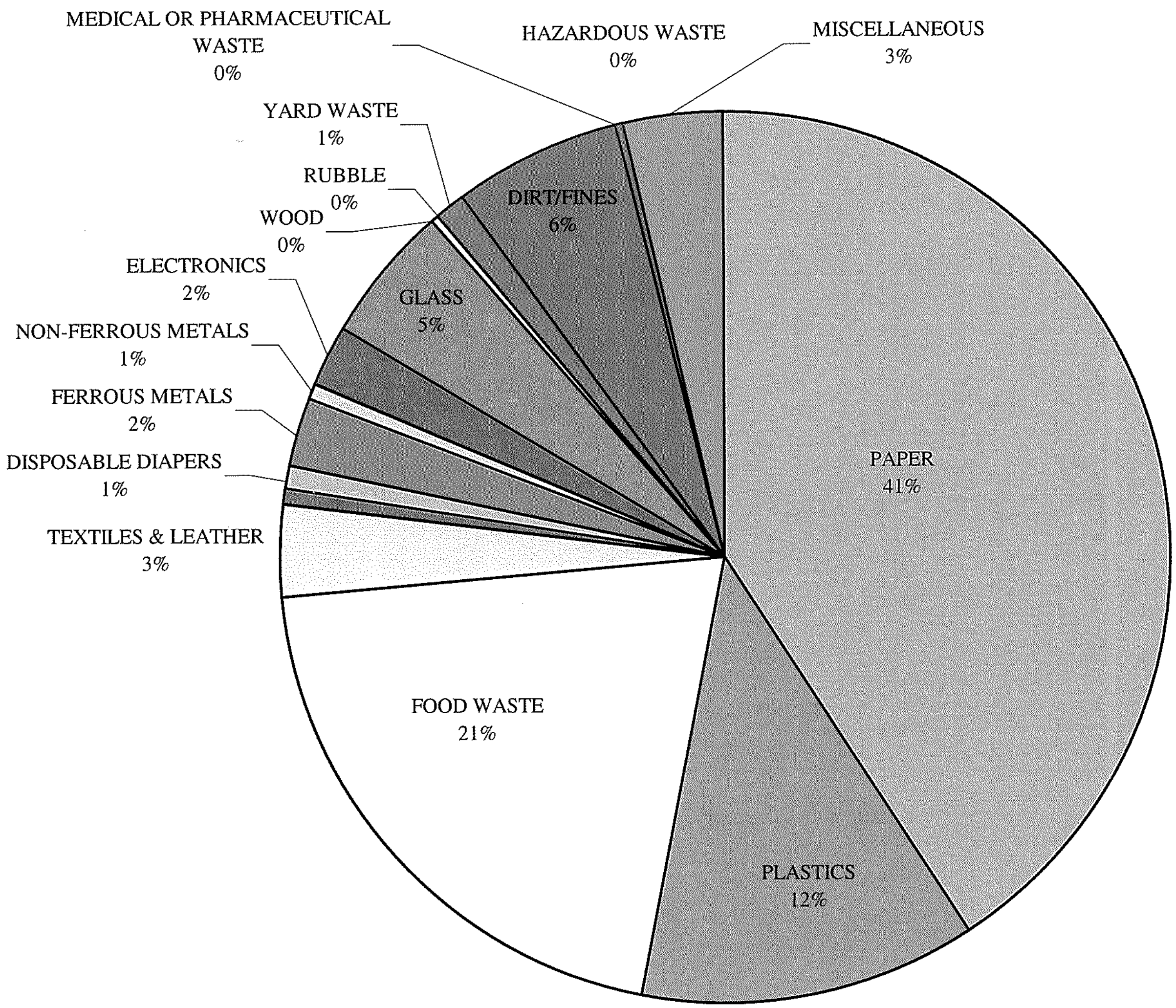


Figure 3 - Commercial Waste Summary



Designated Recyclable Materials within the Solid Waste Stream presents the percentage of each recyclable material category found in the solid waste stream for the following classifications: all solid waste samples, DGS samples, commercial samples, and the SUNY Albany sample.

For comparison, the solid waste composition of one of the independent vehicles was also examined separately. The waste composition of the commercial collection vehicles contrasts with the waste composition of the vehicle from SUNY Albany. From the SUNY vehicle, the paper composition and plastics composition was similar to the DGS results, at 21% paper composition (12% other paper), and 12% for plastics composition (4% film plastic and plastic bags), as presented in Figure 4 – SUNY Solid Waste Summary. The main difference, however, between the SUNY sample and the DGS and commercial waste streams, is in the quantity of food waste, which represents the single largest material category at 49% of the SUNY waste stream. In addition, multiple material categories had no waste from the SUNY vehicle, including: disposable diapers, non-ferrous metals, electronics, rubble, yard waste, dirt/fines, hazardous waste, medical/pharmaceutical waste, and miscellaneous. The waste stream of the SUNY vehicle contained primarily food waste, paper, and plastics, as indicated, wood at 9% of the waste stream, and ferrous metals at 6% of the waste stream. Ferrous metal/bimetal cans comprised the entire ferrous metals category. Glass, rubber, and textiles and leather were each represented at 1%. It is important to note, however, that only a single SUNY Albany vehicle was sampled. Therefore, this analysis does not provide a waste composition analysis for SUNY Albany; however, it represents contrast in waste composition between different commercial waste generators, and hence accounts for some of the large standard deviations present with some of the material categories.

4.3 RECYCLABLE MATERIALS CHARACTERIZATION RESULTS

The collection vehicles for recyclable materials were divided into two compartments: paper, and metals, glass and plastic (MGP). The composition of each recyclable stream was analyzed in the same manner as described above, including calculating the mass fraction of each component, the mean mass fraction for a particular component in the recyclable stream from an aggregate total of all of the samples, and the standard deviation of each component percentage. In the paper stream, total paper products comprised an average of 98.56% of the paper stream; however, most samples contained trace amounts of plastics (with an average composition of 0.5%), ferrous metals (0.2%) and glass (0.6%), as indicated in Table 6 – Recyclable Materials Composition Summary. Within the paper stream, the largest component of recyclable paper was newspaper at

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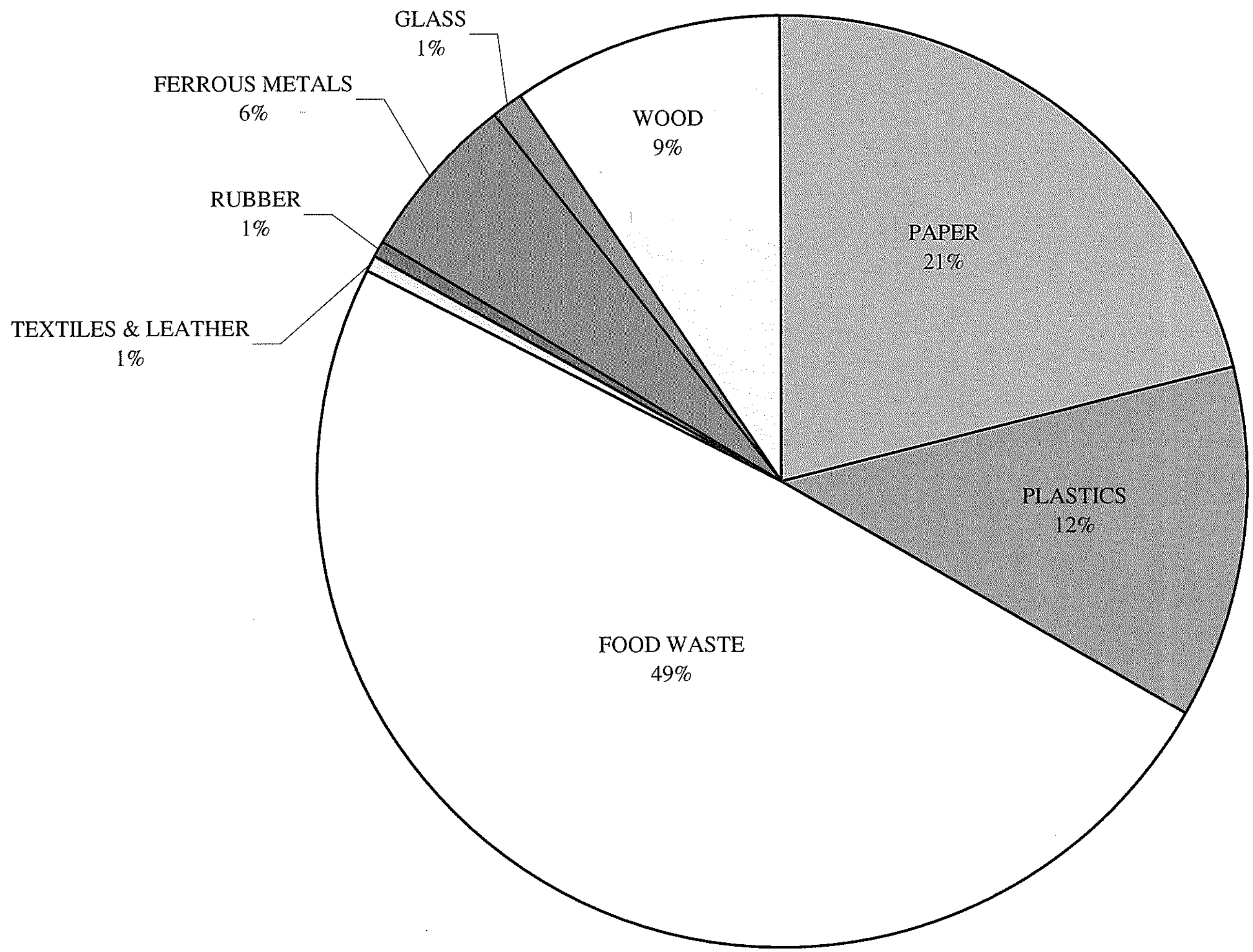
Table 5 - Designated Recyclable Materials within the Solid Waste Stream

Material Components	Total Mean Mass Fraction for All Samples	DGS Mean Mass Fraction	Commercial Mean Mass Fraction	SUNY Albany Mass Fraction
PAPER				
Newspaper	2.0%	2.7%	2.1%	1.0%
Magazines	2.1%	1.4%	3.5%	0.0%
Corrugated	4.5%	3.4%	5.6%	1.1%
Gable Top Cartons & Drink Boxes	0.4%	0.3%	0.5%	0.1%
Paper Board	4.2%	5.3%	3.9%	6.2%
Books (including phone directories)	2.8%	2.5%	2.4%	0.0%
Mixed Office Paper	4.1%	2.1%	6.3%	0.7%
SUBTOTAL	**20.2%**	**17.6%**	**24.2%**	**9.0%**
PLASTICS				
Plastic Containers (PET) #1 Non-Bottle Bill	1.7%	2.0%	2.2%	2.6%
Plastic #1 (Bottle Bill Containers)	0.3%	0.3%	0.3%	0.6%
Plastic Containers (HDPE) #2	0.8%	1.0%	0.6%	0.7%
SUBTOTAL	**2.8%**	**3.3%**	**3.1%**	**3.9%**
FERROUS METALS				
Ferrous Metal/Bimetal Cans	0.7%	0.9%	0.5%	5.8%
Other Ferrous Metal	1.9%	2.4%	1.9%	0.0%
SUBTOTAL	**2.7%**	**3.3%**	**2.4%**	**5.8%**
NON-FERROUS METALS				
Aluminum Cans (Non-Bottle Bill)	0.2%	0.3%	0.1%	0.0%
Aluminum Cans (Bottle Bill)	0.2%	0.2%	0.3%	0.1%
Other Non-Ferrous Metal	1.0%	1.2%	0.2%	0.3%
SUBTOTAL	**1.3%**	**1.8%**	**0.6%**	**0.4%**
GLASS				
Glass Bottles (Bottle Bill)	0.5%	1.5%	0.2%	0.3%
Glass Bottle - Clear	1.8%	1.8%	2.6%	0.5%
Glass Bottle - Amber	0.9%	0.4%	1.6%	0.0%
Glass Bottle - Green	0.1%	0.1%	0.1%	0.0%
SUBTOTAL	**3.2%**	**3.7%**	**4.4%**	**0.8%**
YARD WASTE	**1.2%**	**0.7%**	**1.0%**	**0.0%**
Grand Total	**31.4%**	**30.4%**	**35.7%**	**19.9%**

Figure 4 - SUNY Solid Waste Summary



53%, followed by books (including phone directories) at 13%, and magazines at 11% (Figure 5 – Recyclables: Paper Stream). Other significant components included paperboard at 8%, mixed office paper at 7%, and corrugated at 6%. The component percentage of gable top cartons and drink boxes was minimal at an average of 0.24%.

The majority of the MGP stream included plastic, ferrous metals, non-ferrous metals, and glass; however, the mean mass fraction of all samples included approximately 8% paper (all paper categories combined). This paper fraction included newspaper, gable top cartons and drink boxes, paperboard, and books. The paper fraction has been included within the analysis of the MGP stream, below.

Greater than half of the MGP stream, at 58.8%, consisted of glass (Figure 6 – Recyclables: Metals, Glass and Plastic). Within this material category, the largest components of glass were clear glass bottles and green glass bottles. These two categories comprised 29% and 17%, respectively, of the total MGP stream. The second largest major material category within the MGP stream was plastics at 18.9%; the largest material categories within the plastics family were PET #1 plastic containers at 8% of the total MGP stream, HDPE #2 plastic containers at 6% of the total MGP stream, and other plastic containers at 3% of the total MGP stream. The remaining plastic categories were present in smaller quantities. The third largest MGP component fraction consisted of ferrous metals (12%), of which nearly all were ferrous metal/bimetal cans (11.52%). The MGP stream also has approximately 2% non-ferrous metals, more than half of which was the material category of other non-ferrous metal.

4.4 COMPARISON WITH OTHER STUDIES

Table 7 – Solid Waste Composition in Other Studies compares the solid waste composition obtained in this study of the Capital Region with data from two other sources: the Onondaga County Resource Recovery Agency (OCRRA), and the United States Environmental Protection Agency (USEPA). OCRRA conducted a similar study in 2005 for the characterization of the solid waste and recyclable stream within the county (OCRRA, 2005). USEPA collects and publishes data on the generation, recovery, and disposal of municipal solid waste (MSW) on an annual basis. This data is collected for the entire United States; therefore, the percentages provided represent a national average across all regions and areas. The USEPA data for the year 2007 were collected from Tables 14, 17, and 23 in Municipal Solid Waste in the United States: 2007 Facts and Figures (USEPA, 2008). It is important to note that some material categories

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Table 6 - Recyclable Materials Composition Summary

Material Components	Mean mass fraction - Paper	Standard deviation - Paper		Mean mass fraction - Metals, Glass & Plastics	Standard Deviation - Metals, Glass & Plastics
PAPER					
Newspaper	52.7%	13.8%		2.0%	2.9%
Magazines	10.8%	4.7%		0.5%	0.6%
Corrugated	6.2%	3.5%		0.2%	0.4%
Gable Top Cartons & Drink Boxes	0.2%	0.3%		1.3%	0.8%
Paper Board	7.5%	3.6%		1.6%	1.0%
Books (including phone directories)	12.8%	7.3%		1.7%	2.9%
Mixed Office Paper	6.6%	4.8%		0.2%	0.3%
Other Paper	1.7%	0.8%		0.4%	0.4%
SUBTOTALS	**98.6%**	**1.4%**		**7.9%**	**5.2%**
PLASTICS					
Plastic Containers (PET) #1 Non-Bottle Bill	0.1%	0.2%		7.9%	4.4%
Plastic #1 (Bottle Bill Containers)	0.0%	0.1%		0.8%	0.7%
Plastic Containers (HDPE) #2	0.1%	0.1%		6.1%	4.2%
Other Plastic Containers	0.1%	0.2%		2.7%	0.9%
Film Plastic & Plastic Bags	0.1%	0.1%		0.4%	0.2%
Other Plastics	0.1%	0.1%		1.0%	0.9%
SUBTOTALS	**0.5%**	**0.4%**		**18.9%**	**9.1%**
FOOD WASTE	**0.1%**	**0.2%**		**0.0%**	**0.2%**
TEXTILES & LEATHER	**0.1%**	**0.2%**		**0.1%**	**0.2%**
RUBBER	**0.0%**	**0.0%**		**0.0%**	**0.0%**
DISPOSABLE DIAPERS	**0.0%**	**0.1%**		**0.0%**	**0.0%**
FERROUS METALS					
Ferrous Metal/Bimetal Cans	0.2%	0.2%		11.5%	4.1%
Aerosol Cans	0.0%	0.0%		0.3%	0.8%
Other Ferrous Metal	0.0%	0.0%		0.1%	0.4%
SUBTOTALS	**0.2%**	**0.2%**		**12.0%**	**4.4%**
NON-FERROUS METALS					
Aluminum Cans (Non-Bottle Bill)	0.0%	0.1%		0.3%	0.2%
Aluminum Cans (Bottle Bill)	0.0%	0.0%		0.6%	0.3%
Other Non-Ferrous Metal	0.0%	0.1%		1.2%	0.9%
SUBTOTALS	**0.0%**	**0.1%**		**2.1%**	**0.9%**
ELECTRONICS	**0.0%**	**0.0%**		**0.0%**	**0.1%**
GLASS					
Glass Bottles (Bottle Bill)	0.1%	0.1%		5.3%	3.4%
Glass Bottle - Clear	0.4%	0.8%		29.2%	7.5%
Glass Bottle - Amber	0.0%	0.0%		5.9%	3.7%
Glass Bottle - Green	0.1%	0.2%		16.9%	9.7%
Flat Glass & Other Glass	0.0%	0.0%		1.5%	2.1%
SUBTOTALS	**0.6%**	**0.9%**		**58.8%**	**13.5%**
WOOD	**0.0%**	**0.1%**		**0.0%**	**0.0%**
RUBBLE	**0.0%**	**0.0%**		**0.0%**	**0.0%**
YARD WASTE	**0.0%**	**0.0%**		**0.0%**	**0.0%**
DIRT/FINES	**0.0%**	**0.0%**		**0.0%**	**0.0%**
HAZARDOUS WASTE					
Household Hazardous Waste (HHW)	0.0%	0.0%		0.0%	0.0%
Lead Acid Batteries	0.0%	0.0%		0.0%	0.0%
Other Batteries	0.0%	0.0%		0.0%	0.1%
SUBTOTALS	**0.0%**	**0.0%**		**0.0%**	**0.1%**
MEDICAL OR PHARMACEUTICAL WASTE	**0.0%**	**0.0%**		**0.2%**	**0.8%**
MISCELLANEOUS	**0.0%**	**0.0%**		**0.0%**	**0.0%**
TOTAL	**100.0%**	**0.0%**		**100.0%**	**0.0%**

Figure 5 - Recyclables: Paper Stream

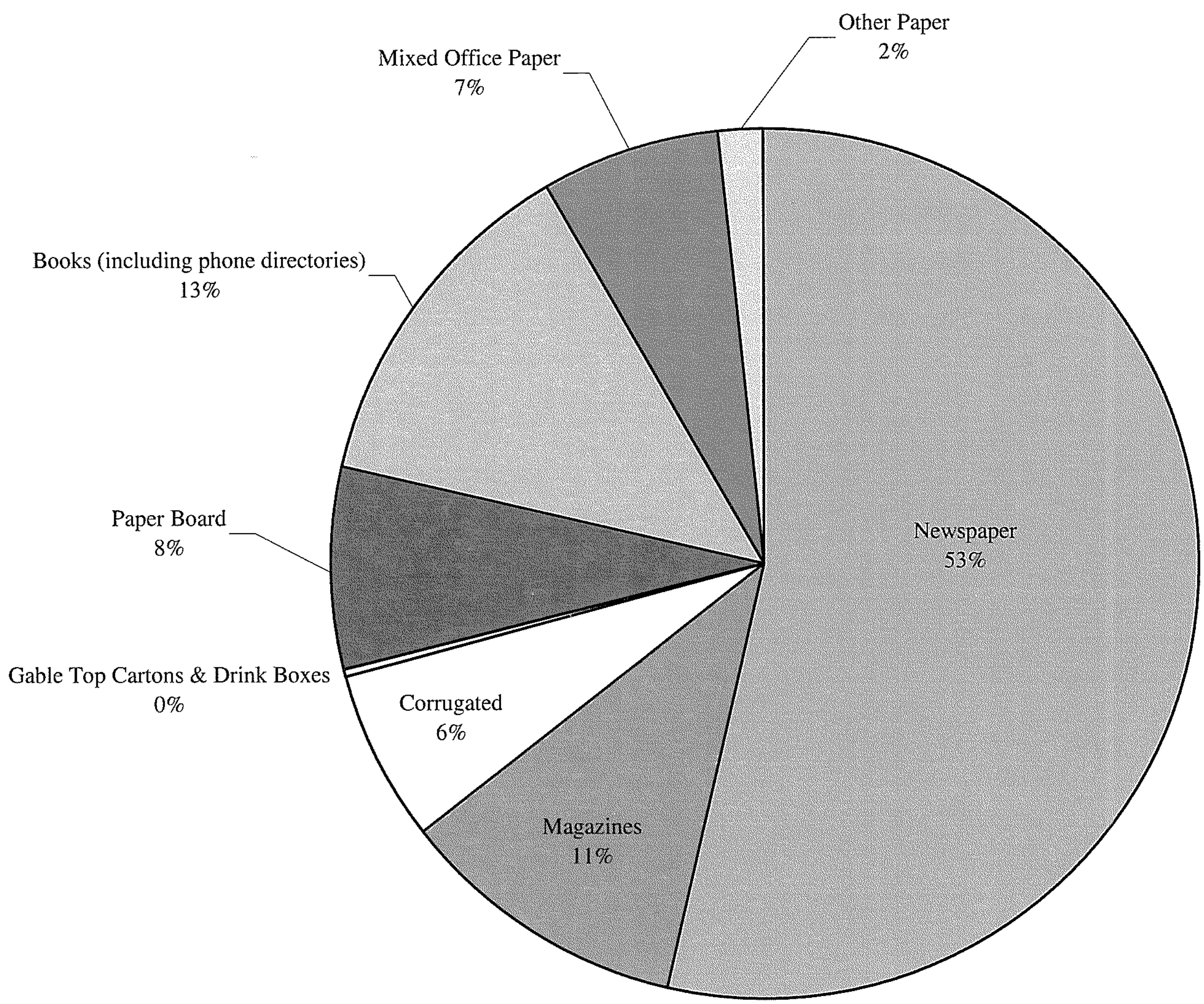
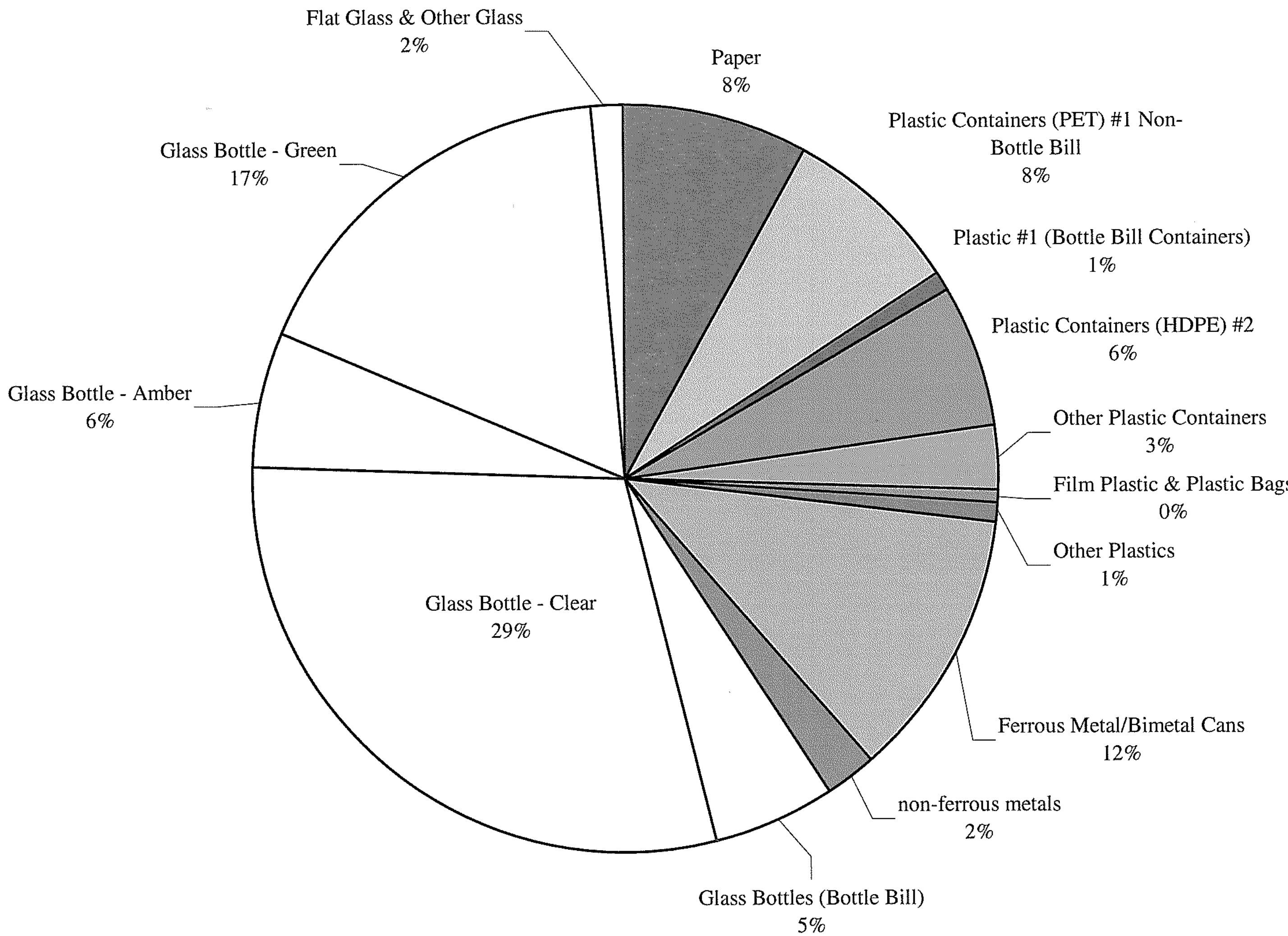


Figure 6 - Recyclables: Metals, Glass and Plastic



have been combined with other categories, or were not used for the particular study. Therefore, some of the "other" categories have been used to categorize multiple materials not otherwise listed.

Several of the material categories were consistent across the three studies, including food wastes, textiles and leather, disposable diapers, non-ferrous metals, electronics, wood, and rubble. In several more of the material categories, two of the three studies indicate similar fractions of a particular material category, with the third study as the exception with a greater or lesser component fraction. This is true of the ferrous metals category, glass, and yard waste, as indicated in Table 7. The Capital Region and OCRRA studies contained larger fractions of ferrous metals, at 2.8% and 2.5% of the waste stream, than in the USEPA data, at 0.6% of the waste stream. Yard wastes, while not a significant fraction of the Capital Region or OCRRA studies, at 1.2% and 1.1%, respectively, constituted 6.9% of the discarded waste stream based upon USEPA data. The glass fraction was also significantly higher in the Capital Region and USEPA studies than in the OCRRA study, with component percentages of 4.7%, 4.9%, and 1.8%, respectively.

As the table indicates, the total combined paper fraction is higher in the Capital Region than in the OCRRA study and the USEPA data, but only by several percentage points. This increase is due to larger fractions of paperboard, books, and other paper present in the Capital Region waste stream. The OCRRA solid waste stream contained larger fractions of plastic than both the Capital Region and USEPA data. The largest single plastics category in the OCRRA data was other plastic containers, which comprised 11% of the total waste stream.

The comparison with these studies indicates that the data obtained in the Capital Region waste characterization field study is relatively consistent with other studies on a regional and national level, while still retaining some differences specific to the Capital Region. As noted above, knowledge of the area's waste stream composition and recyclable materials composition will assist the Planning Unit in the further development of solid waste and recyclables management, as well a present and future practices.

Capital Region Solid Waste Management Plan - Waste Characterization Field Study
Table 7 - Solid Waste Composition in Other Studies

Material Components	Capital Region Average Composition 2009 (%)	Onondaga County Waste Characterization Study 2005 - Exhibit 3-1 (%)	USEPA Products Discarded in the Municipal Waste Stream 2007: Tables 14, 17, & 23 (%)
PAPER			
Newspaper	2.0%	3.4%	1.4%
Magazines	2.1%	1.6%	0.9%
Corrugated	4.5%	4.6%	4.9%
Gable Top Cartons & Drink Boxes	0.4%	0.2%	0.3%
Paper Board	4.2%	1.7%	4.0%
Books (including phone directories)	2.8%	0.6%	0.9%
Mixed Office Paper	4.1%	3.3%	4.7%
Other Paper	11.1%	12.8%	6.7%
SUBTOTALS	**31.3%**	**28.2%**	**23.8%**
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	1.7%	1.1%	n/a
Plastic #1 (Bottle Bill Containers)	0.3%	0.3%	n/a
Plastic Containers (HDPE) #2	0.8%	2.1%	0.0%
Other Plastic Containers	2.5%	11.0%	2.6%
Film Plastic & Plastic Bags	4.4%	n/a	3.2%
Other Plastics	2.8%	4.6%	3.1%
SUBTOTALS	**12.5%**	**19.1%**	**8.9%**
FOOD WASTE	**18.7%**	**14.6%**	**18.2%**
TEXTILES & LEATHER	**5.7%**	**5.8%**	**4.7%**
RUBBER	**0.5%**	**1.0%**	**1.9%**
DISPOSABLE DIAPERS	**2.3%**	**2.4%**	**2.2%**
FERROUS METALS			
Ferrous Metal/Bimetal Cans	0.7%	1.0%	0.5%
Aerosol Cans	0.1%	n/a	0.0%
Other Ferrous Metal	1.9%	2.4%	0.0%
SUBTOTALS	**2.8%**	**3.5%**	**0.6%**
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	0.2%	0.1%	0.4%
Aluminum Cans (Bottle Bill)	0.2%	0.2%	0.0%
Other Non-Ferrous Metal	1.0%	0.8%	0.2%
SUBTOTALS	**1.3%**	**1.1%**	**0.7%**
ELECTRONICS	**2.7%**	**1.2%**	**1.5%**
GLASS			
Glass Bottles (Bottle Bill)	0.5%	0.3%	3.0%
Glass Bottle - Clear	1.8%	0.7%	n/a
Glass Bottle - Amber	0.9%	0.1%	n/a
Glass Bottle - Green	0.1%	0.2%	n/a
Flat Glass & Other Glass	1.4%	0.5%	1.9%
SUBTOTALS	**4.7%**	**1.8%**	**4.9%**
WOOD	**3.6%**	**3.2%**	**4.3%**
RUBBLE	**0.6%**	**0.6%**	**n/a**
YARD WASTE	**1.2%**	**1.1%**	**6.9%**
DIRT/FINES	**7.9%**	**4.3%**	**n/a**
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)	0.0%	0.4%	n/a
Lead Acid Batteries	0.0%	0.0%	0.0%
Other Batteries	0.0%	0.1%	n/a
SUBTOTALS	0.1%	0.5%	0.0%
MEDICAL OR PHARMACEUTICAL WASTE	**0.2%**	**n/a**	**n/a**
MISCELLANEOUS	**3.8%**	**11.7%**	**21.4%**
TOTAL	**100%**	**100%**	**100%**

5.0 CONCLUSIONS

Significant quantities of designated recyclables are present in the discarded solid waste stream, as indicated in Table 5 – Designated Recyclable Materials within the Solid Waste Stream. While this is evident in all the waste streams delivered, it is most evident in the commercial waste stream.

Yard waste only represented 1.2% of the solid waste discarded during this study. While there are numerous yard waste composting programs in place within the planning unit, the waste characterization study was conducted during the low season for yard waste generation. Therefore, an upward adjustment might be needed to reflect an annual average percentage of yard waste that is discarded. This should be examined further in the context of the overall waste stream analysis being conducted for the new SWMP.

Food waste is the largest single component of the discarded solid waste stream, totaling almost 19%. When combined with the yard waste and other compostable elements of the some other waste material categories, the compostable organic waste fraction may equal or exceed 30% of the MSW discarded.

REFERENCES

United States Environmental Protection Agency. *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2007.* Tables 14, 17, and 23. EPA-530-F-07-030. November 2007. Reviewed on October 30, 2008, from http://www.epa.gov/osw/nonhaz/municipal/msw99.htm

Onondaga County Resource Recovery Agency. 2005 Onondaga County Waste Quantification and Characterization Study. Dvirka and Bartilucci Consulting Engineers. Syracuse, NY. 2005

Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste, ASTM D5231-92 (Reapproved 2003)

APPENDICES

APPENDIX A
MATERIAL CATEGORY DEFINITIONS

PAPER

1. **Newspaper (ONP):** Consists of all paper products printed on daily or weekly newspapers, advertising, catalogs, and other similar items. Includes any glossy, shiny, or other coated newspaper inserts. Publications can be one color (e.g., black and white) or multicolor.

2. **Magazines (OMG):** Publications, which are printed on glossy paper. This does not include magazines, catalogs, etc., which do not consist of glossy paper throughout (e.g., comic books).

3. **Corrugated (OCC):** Paperboard containers consisting of Kraft (brown) linerboard with corrugated (fluted medium) fillings. This category includes waxed corrugated boxes; does not include non-corrugated paperboard such as cereal, shoe, or gift boxes.

4. **Gable Top Cartons & Drink Boxes:** Consists of plastic or waxed paper containers, such as milk and juice containers. This category also includes single serve juice boxes and multi-serve packaging, such as soup, soymilk, and chai tea drinks.

5. **Paperboard:** Non-corrugated boxes and containers typically used for holding food products, detergents, shoes, and other similar packaged goods. Outside of box or container can be printed. Inside surface is typically a dull gray, brown, or white color.

6. **Books:** Paper products consisting of printed pages, which are glued or stitched between soft or hard outside covers, including telephone directories, reference manuals, and textbooks.

7. **Mixed Office Paper:** High-grade and colored paper products originating as household "junk mail" or from an office environment, such as white printing, writing or copier paper (colored and white); computer printout (with or without green bars); computer tab cards, colored printing, writing or copier paper; file folders, envelopes, carbonless paper forms, and tissue (tracing) paper.

8. **Other Paper:** Typically, non-recyclable paper items, including all products not covered by the above categories, including soiled and unsoiled tissues, paper towels, and napkins, paper plates, and paper cups. Also includes items which are composites of paper (where paper is the major component), metal, or plastics. Does not include non-corrugated paperboard products.

PLASTIC

9. **Plastic Containers (PET #1) – Non-bottle Bill Containers:** Rigid clear or colored cylindrical bottles or containers with or without base cups for holding vegetable oil, mouthwash, liquor, juice, water, cooking oil, and other food ingredients, etc. that-are not

designated by wording on the container for inclusion in the used beverage container deposit system. It should be noted that some PET containers, which normally would be assumed to be the type subject to the bottle bill, such as soda bottles, may not have such wording, and those bottles are included in this category.

10. **Plastic (PET #1) Bottle Bill Containers:** PET containers that are designated by wording on the container for inclusion in the Used Beverage Container Deposit System.

11. **Plastic Containers (HDPE #2) (High Density Polyethylene):** Bottles are moderately flexible to stiff, commonly used for windshield washer fluids, cleaning solutions and syrup, milk, juice, spring water products, shampoos, detergents, motor oils, antifreeze, transmission, and fluids. The bottom of the container usually has a seam and often has handles.

12. **Other Plastic Containers:** Includes the following plastics:
    - PVC #3 (Polyvinyl Chloride) - stiff, transparent glossy containers may have a slightly blue or gray tint, such as baby oil bottles;
    - LDPE #4 (Low Density Polyethylene) - soft and very pliable plastic, primarily used in film, trays, and plastic bags (food and non-food) and lids (for food containers);
    - Polypropylene #5 – includes materials such as yogurt and margarine containers, and flexible materials such as shrink-wrap packaging;
    - Polystyrene #6 – hard, brittle products with a gloss like finish, such as VCR and CD cases, packaging for compact disks, clear plastic caps, or "foamed" products, such as egg cartons, fast food packaging, and "Styrofoam" cups;
    - Plastics #7 – multi-composite materials that may contain more than one (1) type of plastic and/or metal, such as ketchup bottles

13. **Film Plastic & Plastic Bags:** Includes both LHDPE #2 (Linear High Density Polyethylene) and LLDPE #4 (Linear Low Density Polyethylene) film and bags as follows:
    - LHDPE #2 (Linear High Density Polyethylene) Film and Bags: Linear, translucent to opaque films/bags. Does not stretch appreciably, but creases (crinkles) when folded, such as grocery bags.
    - LLDPE #4 (Linear Low Density Polyethylene) Film and Bags: Linear transparent to opaque films/bags. Stretches when pulled and does not crease (crinkle) when folded, such as grocery, dry cleaning, trash and garbage bags, toys, buckets, and pipe. Also used as wrapping for large bales or pallets holding goods when they are delivered to commercial establishments.

14. **Other Plastics:** All other plastics not otherwise described. This includes bulky plastics, such as spackle and paint buckets, crates and carriers for packaged items, and items such as toys, furniture and kitchen utensils, wire sheathing, and plastics whose polymer type (#1, 2, 3, etc.) could not be determined.

15. FOOD WASTE

Putrescible organic materials, which are the by-products of activities connected with the growing, preparation, cooking, processing, or consumption of food by human beings or domesticated animals.

16. TEXTILES AND LEATHER

Fabric materials, including natural and synthetic fibers, such as cotton, wool, silk, nylon, rayon, or polyester. Products included within this category would be woven clothing, curtains, carpets, stuffed toys, pillows, rags, rugs, upholstery, shoes, leather goods, and other fabric products.

17. RUBBER

Products consisting of natural or synthetic rubber, such as vehicle and bicycle tires, clothing, or house wares.

18. DIAPERS

Disposable diapers and incontinence aids, including fecal materials.

19. FERROUS METAL/BIMETAL CANS

Fabricated, magnetizable metal containers, such as steel cans designed to hold food or beverage products, such as soups, vegetables, pet food, or fruit juices. Also includes two (2) piece containers with aluminum tops.

20. AEROSOL CANS

Consists of metallic aerosol spray cans designed to be pressurized for products, such as hair sprays, insecticides, disinfectants, cleaners, etc. Empty aerosol cans were combined with food/bimetal cans during the sorting and weighing. Aerosol cans that are not empty and contain paint. Insecticide, herbicide, or other household hazardous waste are placed into that sort category. .

21. OTHER FERROUS METAL

Ferrous and alloyed ferrous scrap materials originating from residential, commercial, or institutional sources, which are attracted to a magnet. This category includes wire coat hangers and white or enameled ferrous products derived from household furnishings. This category also includes magnetizable products derived from cars, trucks, motorcycles, boat motors, lawn mowers, airplanes and other motorized products.

22. ALUMINUM CANS (NON-BOTTLE BILL)

Non-magnetic containers used for holding non-carbonated soft drinks, such as iced tea and juice, and cat food cans, that are not designated by wording on the container for inclusion in the Used Beverage Container Deposit System.

23. ALUMINUM CANS (BOTTLE BILL)

Aluminum cans that are designated by wording on the container for inclusion in the Used Beverage Container Deposit System commonly containing carbonated beverage containers, such as soft drinks and beer.

24. OTHER NON-FERROUS METALS

This category includes all other aluminum and non-ferrous products, such as lawn chairs, tables, carts, house siding, rain gutters, window frames, cookware, flatware, pots, pans, and other kitchen utensils small enough to fit in a blue recycling bin, other miscellaneous utensils, and die cast aluminum or machine parts. This category also includes gold, brass, bronze, copper, lead, platinum, silver, and zinc.

25. ELECTRONICS

Computer monitors, CPUs, keyboards, and peripherals; audio equipment, televisions, CD and DVD players.

GLASS

26. GLASS BOTTLES -BOTTLE BILL

This category includes broken or unbroken glass containers that are designated by wording on the container for inclusion in the Used Beverage Container Deposit System. Containers are to be segregated with metal lids removed and emptied of their contents. Broken shards, without labeling designating them for inclusion in the deposit system, are assumed to be non-bottle bill and placed with the appropriate color of non-bottle bill glass.

OTHER GLASS BOTTLES (NON-BOTTLE BILL)

This category includes broken or unbroken glass container products designed to hold beverages, other liquids and food products. Containers are to be segregated by category as follows with metal lids removed and generally emptied of their contents, and will be sorted into one of the three colors noted below.

27. **Clear Glass Containers:** Uncolored, transparent glass containers that are not designated for inclusion in the Used Beverage Container Deposit System. Some containers for certain spring water or wine products may appear clear, but are actually very light green and are placed together with the green glass.
28. **Amber Glass Containers:** Amber (brown) translucent glass containers that are not designated for inclusion in the Used Beverage Container Deposit System.
29. **Green Glass Containers:** Green, translucent glass containers that are not designated for inclusion in the Used Beverage Container Deposit System.

30. FLAT GLASS & OTHER GLASS

Primarily window type glass from buildings, furniture, or automobiles. Includes window glass, which contains materials to prevent or reduce shattering. Also includes a variety of miscellaneous glass products, such as mirrors, leaded crystal, eyeglasses, and brown glass, such as light bulbs, TV tubes or heat resistant cookware (Pyrex), pottery, and drinking glasses.

31. WOOD

Pallets, dimensional lumber, plywood and particleboard. Furniture, cabinets and other objects made from wood are also included in this category.

32. RUBBLE

Asphalt, concrete, brick, and rock.

33. YARD WASTE

Leaves, grass clippings, and brush.

34. DIRT AND FINES

Soil, sand, and material that fit through a one-half (1/2) inch screen.

35. HOUSEHOLD HAZARDOUS WASTE (HHW)

Paints, oils, solvents, cleansers, herbicides and pesticides. Fluorescent bulbs, if intact, would be placed into this category.

36. LEAD ACID BATTERIES

Batteries from automobiles, trucks, buses, boats, motorcycles, etc.

37. OTHER BATTERIES

Disposable products which are designed to create small electric currents. This includes household dry-cell batteries from flashlights, transistor radios, hearing aids, calculators, and other products requiring small electric currents for their operation.

38. MEDICAL OR PHARMACEUTICAL WASTE

Includes syringes and other pharmaceutical products.

39. MISCELLANEOUS

Items that do not fit into any of the other waste categories.

APPENDIX B
COLLECTION VEHICLE DRIVER INTERVIEWS

#1

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/23/09

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5349

Truck Type: Rear load packer

Arrival Number: 7

Sampled: Y   Not Sampled: ____

Waste Origin (municipality(s)): Albany DGS

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	✓	100
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	24

Payload Weight

Gross	64380
Tare	41200
Net	23180

#2

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/23/09

CHA Staff Name: Sarah Johnston

Hauler: County Waste

Truck ID Number: 5223

Truck Type: Roll off R442

Arrival Number: 25

Sampled: Y　　Not Sampled:

Waste Origin (municipality(s)): Fuller Rd Alb (Petro) (Special waste) Paper Shred

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry	X	
Hospital		
Other	~~X~~ X	1

Weather

Clear	✓
Precipitation	
Temperature	24

Payload Weight

Gross	60460
Tare	40340
Net	20120

CITY OF ALBANY

A3

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/23/09

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5349

Truck Type: Rear load packer

Arrival Number: 36

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	X	90
Residential Multi-Family	X	10
Office Buildings		
Stores		
Industry		
Hospital		
Other	x firehouse	

Weather

Clear	✓
Precipitation	
Temperature	24

Payload Weight

Gross	43820
Tare	41200
Net	2620

#4

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/29/09

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5391

Truck Type: Rear-load packer

Arrival Number: 47

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Albany (2nd Ave)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	✓	20
Residential Multi-Family	✓	80 (2 family)
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	25

Payload Weight

Gross	65840
Tare	41660
Net	24180

#5

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/23/09

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5404

Truck Type: Roll off R0679

Arrival Number: 80

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Price chopper watervliet (# 21)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	X	100
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	~30

Payload Weight

Gross	64180
Tare	42180
Net	22000

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/23/09

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste Services

Truck ID Number: 554

Truck Type: ______

Arrival Number: ______

Sampled: ______ Not Sampled: N ✓

Waste Origin (municipality(s)): East Greenbush Bloomingdale Gard

Waste Type (ask driver) (Check for Yes) **Approximate % of Load**

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	

Payload Weight

Gross	
Tare	
Net	

#1

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09

CHA Staff Name: Sarah Johnston

Hauler: County Waste

Truck ID Number: 5414

Truck Type: Packer

Arrival Number: 4

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): downtown Albany inc. central ave

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	X	
Residential Multi-Family	X (apartments)	
Office Buildings		
Stores	X	
Industry		
Hospital		
Other	X (Restaurants)	

Weather

Clear	✓
Precipitation	–
Temperature	≤20

Payload Weight

Gross	59580
Tare	37920
Net	21660

#2

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 ~ 8:30 am

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5333

Truck Type: Roll off

Arrival Number: 24

Sampled: Y   Not Sampled: ____

Waste Origin (municipality(s)): Albany (Cargill / Port of Albany)

Driver said was carrying grain, etc

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry	X	100
Hospital		
Other		

Weather

Clear	✓
Precipitation	–
Temperature	~~##~~ 16

Payload Weight

Gross	52960
Tare	39560
Net	13400

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

#3

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 9:04 am

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5337

Truck Type: Roll off

Arrival Number: 37

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): Guilderland Price Chopper

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	x	100
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	~
Temperature	18

Payload Weight

Gross	52840
Tare	42520
Net	10320

#4

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 9:58 am

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5328

Truck Type: Packer → rear load

Arrival Number: 46

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): City of Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	X	30
Residential Multi-Family	X	70
Office Buildings		
Stores		
Industry		
Hospital		
Other	X	

1 dumpster Water Dept.

Weather

Clear	✓
Precipitation	–
Temperature	18

Payload Weight

Gross	61020
Tare	41300
Net	19720

#5

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 10:48 am

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5374

Truck Type: Rear load packer

Arrival Number: 74

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): City of Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family	x	99
Office Buildings		
Stores		
Industry		
Hospital		
Other	x	

1 dumpster, City Mission

Weather

Clear	✓
Precipitation	–
Temperature	18

Payload Weight

Gross	66600
Tare	41700
Net	24900

#6

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 1:02 pm

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste /BFI

Truck ID Number: 5194

Truck Type: Front load packer

Arrival Number: 106

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): Albany (Everett Rd/Central Ave)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings	X	50
Stores	X	50
Industry		
Hospital		
Other		

Weather

Clear	X
Precipitation	–
Temperature	22

Payload Weight

Gross	58060
Tare	39120
Net	18940

#7

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 1:35 pm

CHA Staff Name: Sarah Johnston

Hauler: Albany County

Truck ID Number: 5299

Truck Type: pick up

Arrival Number: 119

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Albany ~~County~~
Highway building, other (roadside)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings	X	95
Stores		
Industry		
Hospital		
Other	X along road	10

Weather

Clear	X
Precipitation	–
Temperature	24

Payload Weight

Gross	9580
Tare	8180
Net	1400

#8

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 2:20 pm

CHA Staff Name: Sarah Johnston

Hauler: Allied

Truck ID Number: 5205

Truck Type: Front loader packer

Arrival Number: 130

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Guilderland / Altamont / 20 mall)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	X	100
Industry		
Hospital		
Other		

e.g. Stewarts

Weather

Clear	✓
Precipitation	–
Temperature	24

Payload Weight

Gross	52580
Tare	39500
Net	13080

NOT SAMPLED

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09 9:00 am

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5351

Truck Type: Roll off

Arrival Number: 36

Sampled: ______ Not Sampled: X

Waste Origin (municipality(s)): Clifton Park

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	–
Temperature	18

Payload Weight

Gross	
Tare	
Net	

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

Not Sampled

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5154

Truck Type: Roll off

Arrival Number:

Sampled: ______ Not Sampled: X

Waste Origin (municipality(s)): Wyantskill

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	–
Temperature	20

Payload Weight

Gross	
Tare	
Net	

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/24/09

CHA Staff Name: Sarah Johnston

Hauler: County Waste

Truck ID Number: 5242

Truck Type: ____

Arrival Number: 91

Sampled: ____ Not Sampled: N

Waste Origin (municipality(s)): Rotterdam

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	–
Temperature	20

Payload Weight

Gross	
Tare	
Net	

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

#1

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 7:02 am

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5349

Truck Type: Rear load packer

Arrival Number: 1

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	X	80
Residential Multi-Family	X	20
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	21

Payload Weight

Gross	62160
Tare	41200
Net	20960

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

#2

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09

CHA Staff Name: Sarah Johnston

Hauler: City of Rensselaer 7:50 am

Truck ID Number: 5358/5361

Truck Type: rear load

Arrival Number: 9

Sampled: Y

Not Sampled: ______

Waste Origin (municipality(s)): City of Rensselaer

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	+	60
Residential Multi-Family	+	40 (39)
Office Buildings		
Stores		
Industry		
Hospital		
Other	+ City Hall	1

Weather

Clear	✓
Precipitation	
Temperature	21

Payload Weight

Gross	56580
Tare	37780
Net	18800

#3

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 8:34 am

CHA Staff Name: Sarah Johnston

Hauler: Waste Management

Truck ID Number: 4914

Truck Type: Roll off

Arrival Number: 17

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): St. Peters Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital	x	100
Other		

Weather

Clear	✓
Precipitation	
Temperature	21

Payload Weight

Gross	58200
Tare	40700
Net	17500

#4

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 9:55 am

CHA Staff Name: Sarah Johnston

Hauler: Waste Management

Truck ID Number: ~~3~~ 5195

Truck Type: Roll off

Arrival Number: 34

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Crossgates Commons (Alb)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	X	100
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	22

Payload Weight

Gross	47040
Tare	40860
Net	6180

#5

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/08 10:52 am

CHA Staff Name: Sarah Johnston

Hauler: Accurate

Truck ID Number: 5442

Truck Type: Packer (side arm)

Arrival Number: 50

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Guilderland

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	X	95
Residential Multi-Family	X	5
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	–
Temperature	22

Payload Weight

Gross	56600
Tare	36340
Net	20260

#6

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 11:54 am

CHA Staff Name: Sarah Johnston

Hauler: Green Island Public Works

Truck ID Number: 5365

Truck Type: Rear load packer

Arrival Number: 68

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Green Island

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	+	30
Residential Multi-Family	+	70
Office Buildings	x	
Stores		
Industry		
Hospital		
Other	+	

firehouse, police, village office

Weather

Clear	x
Precipitation	
Temperature	28

Payload Weight

Gross	52420
Tare	39980
Net	12440

#7

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09

CHA Staff Name: Sarah Johnston

Hauler: Town of Knox Highway Dept.

Truck ID Number: 5339

Truck Type: ~~trailer~~ open box

Arrival Number: 82

Sampled: Y   Not Sampled: ______

Waste Origin (municipality(s)): Town of Knox Transfer

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other	X	100

transfer station

Weather

Clear	X
Precipitation	
Temperature	30

Payload Weight

Gross	33880
Tare	31460
Net	2420

#8

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 2:25 pm

CHA Staff Name: Sarah Johnston

Hauler: Waste Managment

Truck ID Number: 5157

Truck Type: Roll off

Arrival Number: 93

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): Empire State Plaza / Port of Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings	X	100
Stores		
Industry		
Hospital		
Other		

Weather

Clear	X
Precipitation	—
Temperature	32

Payload Weight

Gross	61340
Tare	41300
Net	20040

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 Time: 10:50

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5373

Truck Type: Roll off

Arrival Number: 49

Sampled: ______ Not Sampled: X

Waste Origin (municipality(s)): Colonie

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	
Temperature	22

Payload Weight

Gross	
Tare	
Net	

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09

CHA Staff Name: Sarah Johnston

Hauler: County Waste

Truck ID Number: 54/6

Truck Type: Packer

Arrival Number: 62

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): Renns. County outside of unit

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear ✓

Precipitation ______

Temperature ______

Payload Weight

Gross ______

Tare ______

Net ______

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 time: 11:50

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5351

Truck Type: Front load packer

Arrival Number: 66

Sampled: ______ Not Sampled: X

Waste Origin (municipality(s)): Colonie

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear ______
Precipitation ______
Temperature ______

Payload Weight

Gross ______
Tare ______
Net ______

Not sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/25/09 Time:

CHA Staff Name: Sarah Johnston

Hauler: County Waste

Truck ID Number:

Truck Type: Front loading packer

Arrival Number:

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): ~~Albany~~ Colonie

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	X	
Industry	X	
Hospital		
Other		

Weather

Clear	X
Precipitation	
Temperature	39

Payload Weight

Gross	
Tare	
Net	

#1

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09

CHA Staff Name: Sarah Johnston

Hauler: Waste Managment

Truck ID Number: 5402

Truck Type: front loading packer

Arrival Number: 3

Sampled: Y   Not Sampled: ____

Waste Origin (municipality(s)): Albany (Everett Rd wash Ave Ext.)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings	+	~~30~~ 40
Stores	+	30
Industry	+	25
Hospital	X	5
Other		

Weather

Clear

Precipitation: freezing rain

Temperature: 32

Payload Weight

Gross: 63920

Tare: 43680

Net: 20240

#2

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 8:22 am

CHA Staff Name: Sarah Johnston

Hauler: Town of Guilderland

Truck ID Number: 4769

Truck Type: open box (dumpster)

Arrival Number: 13

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Town of Guilderland Transfer station

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other	X transfer	100

Weather

Clear	
Precipitation	light rain
Temperature	33

Payload Weight

Gross	50160
Tare	36660
Net	13500

#3

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 8/26/09 Time: 8:57

CHA Staff Name: Sarah Johnston

Hauler: Salvation Army

Truck ID Number: 5191

Truck Type: open dumpster

Arrival Number: 22

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): Salvation Army Clinton Ave, Alb

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	x	100
Industry		
Hospital		
Other		

Weather

Clear	overcast
Precipitation	—
Temperature	34

Payload Weight

Gross	25660
Tare	18760
Net	6900

#4

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 9:45

CHA Staff Name: Sarah Johnston

Hauler: Town of Rensselaerville

Truck ID Number: 4072

Truck Type: Roll off

Arrival Number: 39

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Town of Rensselaerville transfer station

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other	X transfer	

Weather

Clear	overcast
Precipitation	none
Temperature	35

Payload Weight

Gross	42600
Tare	35660
Net	6940

#5

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 10:53 am

CHA Staff Name: Sarah Johnston

Hauler: ~~4~~ U. Albany

Truck ID Number: 4754

Truck Type: rear load packer

Arrival Number: 61

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Albany (SUNY)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings (academic buildings)	X	50
Stores		
Industry		
Hospital		
Other	X	50

Residential → dorms

Weather

Clear	overcast
Precipitation	none
Temperature	37

Payload Weight

Gross	39960
Tare	31380
Net	8580

#6

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 11:20

CHA Staff Name: Sarah

Hauler: DGS

Truck ID Number: 5240

Truck Type: Rear load packer

Arrival Number: 71

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): Albany (Western Ave)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	+	80
Residential Multi-Family	+	20
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	none
Temperature	38

Payload Weight

Gross	56340
Tare	37500
Net	18840

#7

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 1:55

CHA Staff Name: S. Johnston

Hauler: County Waste

Truck ID Number: 5406

Truck Type: Front loading packer

Arrival Number: 107

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Bethlehem, also Glenmont/Delmar area

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family	x	40
Office Buildings	x	30
Stores	x	30
Industry		
Hospital		
Other		

Driver said he picked up in a lot of different places, everything but hospital, single family.

Weather

Clear	✓
Precipitation	None
Temperature	42

Payload Weight

Gross	52720
Tare	37860
Net	14860

#8

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/29/09 2:25 pm

CHA Staff Name: S. Johnston

Hauler: Waste Management

Truck ID Number: 4914

Truck Type: Roll off

Arrival Number: 111

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Albany. (Albany Molecular)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings	~~X~~	~~100~~
Stores		
Industry	X	100
Hospital		
Other		

Weather

Clear	✓
Precipitation	none
Temperature	43

Payload Weight

Gross	45520
Tare	40 000
Net	5520

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09

CHA Staff Name: Sarah Johnston

Hauler: Allied Waste

Truck ID Number: 5331

Truck Type: Packer

Arrival Number: 2

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): latham

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	
Precipitation	freezing rain
Temperature	32

Payload Weight

Gross	
Tare	
Net	

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09

CHA Staff Name: Sarah Johnston

Hauler: Allied

Truck ID Number: 5194

Truck Type: ______

Arrival Number: ______

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): City of Albany Fuller Rd /Railroad

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	
Precipitation	
Temperature	

Payload Weight

Gross	
Tare	
Net	

Not Sampled

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09

CHA Staff Name: Sarah Johnston

Hauler: Allied

Truck ID Number: 5154

Truck Type: Roll off

Arrival Number: ____

Sampled: ____ Not Sampled: X

Waste Origin (municipality(s)): North Greenbush

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	none
Temperature	40

Payload Weight

Gross	
Tare	
Net	

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

Not Sampled

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 1:18 pm

CHA Staff Name: Sarah Johnston

Hauler: ~~Allied~~ County Waste

Truck ID Number: 5245

Truck Type: Roll off

Arrival Number: ____________

Sampled: ____________ Not Sampled: ____________

Waste Origin (municipality(s)): Schenectady

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	✓
Precipitation	none
Temperature	40

Payload Weight

Gross	
Tare	
Net	

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

Not Sampled

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 1:23 pm

CHA Staff Name: Sarah Johnston

Hauler: Allied wast

Truck ID Number: 5331

Truck Type: Front loading packer

Arrival Number: 103

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): Colonie (central Ave)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	x
Precipitation	none
Temperature	40

Payload Weight

Gross	
Tare	
Net	

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

Not sampled

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time:

CHA Staff Name: Sarah Johnston

Hauler: Allied

Truck ID Number: 5373

Truck Type:

Arrival Number: 104

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): Colonie (Newkerner/central)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	
Precipitation	
Temperature	40

Payload Weight

Gross	
Tare	
Net	

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

Not Sampled

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/26/09 Time: 1:32

CHA Staff Name: S. Johnston

Hauler: Allied Waste

Truck ID Number: 5194

Truck Type: Front-loading Packer

Arrival Number: ______

Sampled: ______ Not Sampled: ______

Waste Origin (municipality(s)): Colonie (Railroad)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	
Precipitation	none
Temperature	42

Payload Weight

Gross	
Tare	
Net	

#1

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09 7:01

CHA Staff Name: Sarah Johnston

Hauler: DGS

Truck ID Number: 5328

Truck Type: rear loading packer

Arrival Number: 1

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Albany (washington & western)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	x	20
Residential Multi-Family	x	80
Office Buildings		
Stores		
Industry		
Hospital		
Other		

Weather

Clear	p. cloudy
Precipitation	–
Temperature	40

Payload Weight

Gross	62620
Tare	41300
Net	21320

#2

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09 7:57 am

CHA Staff Name: Sarah Johnston

Hauler: City of Rensselaer

Truck ID Number: 5361

Truck Type: Rear loading packer

Arrival Number: 19

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): City of Rensselaer

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	X	50
Residential Multi-Family	X	50
Office Buildings		
Stores		
Industry		
Hospital		
Other	x	

Fridays → Bulk pickup; City Hall; Police Station

Weather

Clear	x
Precipitation	—
Temperature	40

Payload Weight

Gross	54520
Tare	37780
Net	16740

#3

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09

CHA Staff Name: Sarah Johnston

Hauler: Town of Knox Highway Dept

Truck ID Number: 5339

Truck Type: Roll off

Arrival Number: 36

Sampled: Y   Not Sampled: ______

Waste Origin (municipality(s)): Town of Knox

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores		
Industry		
Hospital		
Other	x	100

transfer station

Weather

Clear	overcast
Precipitation	–
Temperature	41

Payload Weight

Gross	46240
Tare	33860
Net	12380

#4

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09 9:18 am

CHA Staff Name: Sarah Johnston

Hauler: Salvation Army

Truck ID Number: 4671

Truck Type: Roll off

Arrival Number: 49

Sampled: Y Not Sampled: ____

Waste Origin (municipality(s)): Salvation Army Clinton Ave Albany

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings		
Stores	X	
Industry		
Hospital		
Other	X	100

Salvation Army

Weather

Clear	overcast
Precipitation	–
Temperature	42

Payload Weight

Gross	21660
Tare	16660
Net	5000

#5

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09 Time: 10:04 am

CHA Staff Name: S. Johnston

Hauler: DGS

Truck ID Number: 5374

Truck Type: rear loading packer

Arrival Number: 61

Sampled: Y Not Sampled: ______

Waste Origin (municipality(s)): City of Albany (Washington + Western Ave)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	+	90
Residential Multi-Family	+	10
Office Buildings		
Stores		
Industry		
Hospital		
Other	+	

City Mission - 1 dumpster

Weather

Clear	overcast
Precipitation	–
Temperature	44

Payload Weight

Gross	69920
Tare	41700
Net	28220

#6

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09 Time: 10:58

CHA Staff Name: S. Johnston

Hauler: County Waste

Truck ID Number: ~~5385~~ 5406

Truck Type: Front load packer

Arrival Number: 76

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Albany, Delmar, Guilderland

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family	+	30
Residential Multi-Family	+	30
Office Buildings	X	30
Stores		
Industry		
Hospital		10
Other	+ restaurant	

Weather

Clear	overcast
Precipitation	—
Temperature	45

Payload Weight

Gross	59680
Tare	37860
Net	21820

#7

CITY OF ALBANY

WASTE CHARACTERIZATION ANALYSIS

WASTE ORIGIN SURVEY FORM
RAPP ROAD LANDFILL
FEBRUARY 9-13, 2009

Date: 2/27/09 Time 11:16

CHA Staff Name: S. Johnston

Hauler: Allied / BFI (container)

Truck ID Number: 5194

Truck Type: Front load packer

Arrival Number: 85

Sampled: Y Not Sampled:

Waste Origin (municipality(s)): Broadway to Northern to Everett (Downtown Albany)

Waste Type (ask driver)	(Check for Yes)	Approximate % of Load
Residential Single Family		
Residential Multi-Family		
Office Buildings	x	25
Stores	x	25
Industry	x	25
Hospital		
Other	x	25

Dunkin Doughnuts
Hotels, Dialysis Center (formerly)

Weather

Clear	overcast
Precipitation	—
Temperature	45

Payload Weight

Gross	57800
Tare	39120
Net	18680

APPENDIX C
COLLECTION VEHICLE DATA SHEETS

(#1)

~~Some Plastic~~ Bottles
+
Shredded ~~Labels~~
~~off~~ of Bottles
(~~mostly~~ ~~shred~~ Shredded Labels)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 2/23/09
CHA Staff Name: J. Herrick
Truck ID Number: 5349 **Arrival Number:** 7
Hauler: Cty Alb DGS **Truck Type:** packer
Location:
Arrival Time: 7:50 **A.M.** **P.M.**
Origin (Municipality): Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.8	4.7	1.1
Magazines		4.7	
Corrugated	15.1	4.7	10.4
Gable Top Cartons & Drink Boxes	5.7	4.9	0.8
Paper Board	13.9	4.9	9
Books (including phone directories)		4.7	
Mixed Office Paper	8.2	4.7	3.5
Other Paper	8.5	4.4	4.1
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	10.9	4.7	6.2
Plastic #1 (Bottle Bill Containers)		4.7	
Plastic Containers (HDPE) #2		4.7	
Other Plastic Containers	5.5	4.6	0.9
Film Plastic & Plastic Bags	14.4	4.7	9.7
Other Plastics	10.2 / 8.7	4.7/4.3	9.9 — 2 CONTAINERS
FOOD WASTE	23.3	4.4	18.9
TEXTILES & LEATHER	12.5	4.6	7.9
RUBBER		4.7	
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.8	4.7	1.1
Aerosol Cans		4.7	
Other Ferrous Metal	5.0	4.6	0.4
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.6	4.7	0.9
Aluminum Cans (Bottle Bill)	5.0	4.5	0.5
Other Non-Ferrous Metal	5.3	4.9	0.4
ELECTRONICS	6.1	4.7	1.4
GLASS			
Glass Bottles (Bottle Bill)	9.5	4.7	4.8
Glass Bottle - Clear	12.0	4.4	7.6
Glass Bottle - Amber	5.7	4.4	1.3
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	5.1	4.7	0.4
WOOD	5.5	4.5	1.0
RUBBLE		4.4	
YARD WASTE	8.6	4.7	3.9
DIRT/FINES		4.5	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.4	
Lead Acid Batteries		4.8	
Other Batteries	4.7	4.4	0.3
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.7	0.3
MISCELLANEOUS	6.8	4.6	2.2

108.9

(#2)

Some plastic Bottles
*but mostly shredded labels (paper) off of Bottles

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 2/23/09
CHA Staff Name:
Truck ID Number: 5223 **Arrival Number:** 25
Hauler: County Waste **Truck Type:** Packer
Location:
Arrival Time: 9:00 Am A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.6	
Magazines		4.7	
Corrugated		4.2	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board		4.9	
Books (including phone directories)	8.2	4.7	3.5
Mixed Office Paper		4.7	
Other Paper	75.0	4.2	70.8
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	21.7	4.7	17.0
Plastic #1 (Bottle Bill Containers)		4.7	
Plastic Containers (HDPE) #2		4.7	
Other Plastic Containers	5.4	4.6	0.8
Film Plastic & Plastic Bags	5.3	4.5	0.8
Other Plastics		5.0/4.7	0.3
FOOD WASTE		4.7	
TEXTILES & LEATHER		4.9	
RUBBER		4.7	
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.7	
Other Ferrous Metal		4.8	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		4.9	
ELECTRONICS	5.2	4.9	0.3
GLASS			
Glass Bottles (Bottle Bill)		~~4.9~~ 4.7	
Glass Bottle - Clear		4.2	
Glass Bottle - Amber		4.2	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.6	
RUBBLE			
YARD WASTE		4.6	
DIRT/FINES			
HAZARDOUS WASTE		4.4	
Household Hazardous Waste (HHW)		4.8	
Lead Acid Batteries		4.4	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS			

93.2

15.1
69.9
750
21.7

#3

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/23/09
CHA Staff Name:
Truck ID Number: 5349 **Arrival Number:** 36
Hauler: CTyD/6 DGS **Truck Type:** rear load packer
Location:
Arrival Time: 9:35 **A.M.** ______ **P.M.**
Origin (Municipality): Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	19.3	4.6	14.7
Magazines	7.2	4.7	2.5
Corrugated	11.1	4.7	6.4
Gable Top Cartons & Drink Boxes	5.4	4.9	0.5
Paper Board	14.1	4.9	9.2
Books (including phone directories)		4.7	
Mixed Office Paper	5.7	4.7	1
Other Paper	11.8	4.2	7.6
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	9.0	4.7	4.3
Plastic #1 (Bottle Bill Containers)	5.4	4.7	0.7
Plastic Containers (HDPE) #2	5.5	4.7	0.8
Other Plastic Containers	9.3	4.6	4.7
Film Plastic & Plastic Bags	14.7	4.5	10.2
Other Plastics	8.9	4.7	4.2
FOOD WASTE	62.5	4.7	57.8
TEXTILES & LEATHER	6.6	4.9	1.7
RUBBER		4.7	
DISPOSABLE DIAPERS	16.3	4.7	11.6
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.0	5.0	1.0
Aerosol Cans	5.4	4.7	0.7
Other Ferrous Metal	9.1	4.8	4.3
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	6.0	4.9	1.1
Aluminum Cans (Bottle Bill)	4.9	4.7	0.2
Other Non-Ferrous Metal	5.1	4.9	0.2
ELECTRONICS	5.0	4.9	0.1
GLASS			
Glass Bottles (Bottle Bill)	12.2	4.7	7.5
Glass Bottle - Clear	6.2	4.2	2.0
Glass Bottle - Amber	5.1	4.2	0.9
Glass Bottle - Green		4.7	
Flat Glass & Other Glass 6.0	~~6.0~~	4.7	1.3
WOOD 14.3	~~14.3~~	4.6	9.7
RUBBLE		4.4	
YARD WASTE	5.0	4.7	0.3
DIRT/FINES	10.3	4.7	5.6
HAZARDOUS WASTE		4.4	
Household Hazardous Waste (HHW)		4.8	
Lead Acid Batteries		4.4	
Other Batteries	4.7	4.7	0.0
MEDICAL OR PHARMACEUTICAL WASTE	4.9	4.9	0.0
MISCELLANEOUS	5.2	4.7	0.5

173.3

(#4

10:30

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/23/09 mon

CHA Staff Name:

Truck ID Number: ~~5397~~ 5391 **Arrival Number:** 47

Hauler: City A/6 DGS **Truck Type:** rear load packer

Location:

Arrival Time: 10:30 **A.M.** **P.M.**

Origin (Municipality): Albany (2nd Ave)

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	11.1	4.6	6.5
Magazines	14.7	4.7	10.0
Corrugated	7.8	4.7	3.1
Gable Top Cartons & Drink Boxes	5.1	4.9	0.2
Paper Board	18.3	4.9	13.4
Books (including phone directories)	5.7	4.7	1.0
Mixed Office Paper	14.0	4.7	9.3
Other Paper	23.1	4.2	18.9
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	11.8	5.0	6.8
Plastic #1 (Bottle Bill Containers)	6.6	4.9	1.7
Plastic Containers (HDPE) #2	7.7	4.9	2.8
Other Plastic Containers	9.4	4.9	4.5
Film Plastic & Plastic Bags	22.7	5.0	17.7
Other Plastics	7.1	4.7	2.4
FOOD WASTE	61.5	4.7	56.8
TEXTILES & LEATHER	8.8	5.0	3.8
RUBBER		4.7	
DISPOSABLE DIAPERS	22.6	~~5.0~~ 4.6	18.0
FERROUS METALS		~~4.7~~	
Ferrous Metal/Bimetal Cans	10.0	~~4.8~~ 4.9	5.1
Aerosol Cans	5.1	4.9	0.2
Other Ferrous Metal	5.0	4.8	0.2
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	4.9	0.3
Aluminum Cans (Bottle Bill)	5.8	4.8	1.0
Other Non-Ferrous Metal	6.0	4.9	1.1
ELECTRONICS	10.6	4.9	5.7
GLASS			
Glass Bottles (Bottle Bill)	6.1	4.6	1.5
Glass Bottle - Clear	7.9	4.7	3.2
Glass Bottle - Amber		4.6	
Glass Bottle - Green	4.8	4.7	0.1
Flat Glass & Other Glass	5.2	4.7	0.5
WOOD	50.2	4.7	45.5
RUBBLE		4.4	
YARD WASTE	7.6	4.7	2.9
DIRT/FINES	23.5	4.7	18.8
HAZARDOUS WASTE		4.4	
Household Hazardous Waste (HHW)	5.4	4.8	0.6
Lead Acid Batteries		4.4	
Other Batteries	4.8	4.7	0.1
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.9	0.1
MISCELLANEOUS	5.5	4.7	0.8

264.6

#5

(Price Chopper grocery Store)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/23/09
CHA Staff Name:
Truck ID Number: 5404 **Arrival Number:** 80
Hauler: Allied Waste **Truck Type:** Roll off
Location:
Arrival Time: 12:55 A.M. ______ P.M.
Origin (Municipality): Watervliet (Price Chopper #21)

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	39.6	4.7	34.9
Magazines	4.9	4.7	0.2
Corrugated	19.3	4.7	14.6
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	6.0	4.9	1.1
Books (including phone directories)		4.7	
Mixed Office Paper	9.2	4.6	4.6
Other Paper	6.4	4.7	1.7
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	33.9 ~~7.8~~	5.0	28.9
Plastic #1 (Bottle Bill Containers)	~~6.0~~	5.0	
Plastic Containers (HDPE) #2	9.2 ~~7.7~~	5.0	4.2
Other Plastic Containers	6.4 ~~9.4~~	~~4.4~~ 4.9	1.5
Film Plastic & Plastic Bags	23.0	4.9	18.1
Other Plastics	9.9	4.7	5.2
FOOD WASTE 134.3 + 104 + 144.8	~~104~~ (523.8)	4.7	505.0
TEXTILES & LEATHER	8.5	5.0	3.5
RUBBER			
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.3	4.9	0.4
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	6.2	4.9	1.3
Aluminum Cans (Bottle Bill)	13.9	4.7	9.2
Other Non-Ferrous Metal		4.9	
ELECTRONICS		4.9	
GLASS			
Glass Bottles (Bottle Bill)	8.2	4.7	3.5
Glass Bottle - Clear	7.6	4.7	2.9
Glass Bottle - Amber		4.6	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD	8.0	4.7	3.3
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES	~~23.5~~	4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

104.0
+140.7
144.8
134.3
523.8
−4.7×4
18.8
505

~~empty~~

#1

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 2/24/09
CHA Staff Name:
Truck ID Number: 5414 **Arrival Number:** 4
Hauler: County waste **Truck Type:** Packer
Location:
Arrival Time: 7:10 A.M. ______ **P.M.**
Origin (Municipality): Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	6.8	4.7	2.1
Magazines	34.3	4.7	29.6
Corrugated	17.0	4.7	12.3
Gable Top Cartons & Drink Boxes	5.4	4.9	0.5
Paper Board	10.3	4.9	5.4
Books (including phone directories)	7.2	4.7	2.5
Mixed Office Paper	~~4.7~~ 11.6	4.7	6.9
Other Paper	~~6.4~~ 15.9	4.7	11.2
PLASTICS		4.7	
Plastic Containers (PET) #1 Non-Bottle Bill	~~5.0~~ 5.9	5.0	0.9
Plastic #1 (Bottle Bill Containers)	~~8.3~~ 5.1	5.0	0.1
Plastic Containers (HDPE) #2	~~5.0~~ 7.0	5.0	2.0
Other Plastic Containers	~~7.7~~ 7.8	4.9	2.9
Film Plastic & Plastic Bags	11.7	5.0	6.7
Other Plastics		4.7	
FOOD WASTE	22.9	5.7	17.2
TEXTILES & LEATHER	21.6	5.0	16.6
RUBBER			
DISPOSABLE DIAPERS	5.1	4.7	0.4
FERROUS METALS			
Ferrous Metal/Bimetal Cans	~~5.3~~ 7.4	4.9	2.5
Aerosol Cans	~~5.2~~ 5.0	4.9	0.1
Other Ferrous Metal	5.0	4.9	0.1
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	5.0	0.3
Aluminum Cans (Bottle Bill)	~~13.9~~ 4.9	4.9	0.0
Other Non-Ferrous Metal	6.1	4.9	1.2
ELECTRONICS	5.0	4.9	0.1
GLASS			
Glass Bottles (Bottle Bill)	5.8	4.8	1.0
Glass Bottle - Clear	5.5	4.8	0.7
Glass Bottle - Amber	5.5	4.6	0.9
Glass Bottle - Green	4.9	4.7	0.2
Flat Glass & Other Glass	5.7	4.7	1.0
WOOD	5.7	4.8	0.9
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES		4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	5.1	5.0	0.1
MISCELLANEOUS	9.6	4.7	4.9

131.3

#2

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tuesday
CHA Staff Name:
Truck ID Number: 5333 Arrival Number: 24
Hauler: Truck Type: Roll-off
Location: Allied Waste
Arrival Time: 8:30 A.M. P.M.
Origin (Municipality): Albany (Cargill)

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	4.7	4.7	0.0
Magazines	5.1	4.7	0.4
Corrugated	15.5	4.7	10.8
Gable Top Cartons & Drink Boxes	5.3	5.0	0.3
Paper Board	6.5	4.9	1.6
Books (including phone directories)	8.5	4.7	3.8
Mixed Office Paper	7.1	4.7	2.4
Other Paper	12.4	4.7	7.7
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.3	5.0	0.3
Plastic #1 (Bottle Bill Containers)	5.1	5.0	0.1
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	7.2	~~5.0~~ 4.7	2.5
Film Plastic & Plastic Bags	7.1	5.0	2.1
Other Plastics	5.9	4.7	1.2
FOOD WASTE	8.0	5.3	2.7
TEXTILES & LEATHER	9.6	4.9	4.7
RUBBER	8.1	4.7	3.4
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.8	4.9	0.9
Aerosol Cans		4.9	
Other Ferrous Metal	5.1	4.9	0.2
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	5.0	4.9	0.1
ELECTRONICS		4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.7	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE	12.3	4.7	7.6
YARD WASTE		4.7	
DIRT/FINES	106.1 / 56.4	4.7	153.1
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	8.3	4.9	3.4
MISCELLANEOUS	7.8	~~5.3~~ 4.7	3.1

212.4

Cargil

shucked CORN!

101.4
+ 51.7
153.1

#3

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tuesday
CHA Staff Name:
Truck ID Number: 5337 **Arrival Number:** 37
Hauler: Allied Waste **Truck Type:**
Location:
Arrival Time: 9:10 A.M. ______ P.M.
Origin (Municipality): Price Chopper – Guilderland

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.5	4.7	0.8
Magazines		4.7	
Corrugated	13.8	4.7	9.1
Gable Top Cartons & Drink Boxes	5.9	4.9	1.0
Paper Board	7.6	4.9	2.7
Books (including phone directories)		4.7	
Mixed Office Paper		4.9	
Other Paper	21.4	4.7	16.7
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.3	5.0	1.3
Plastic #1 (Bottle Bill Containers)	5.2	5.0	0.2
Plastic Containers (HDPE) #2	5.8	5.2	0.6
Other Plastic Containers	9.9	5.0	4.9
Film Plastic & Plastic Bags	33.6	5.0	28.6
Other Plastics	7.4	4.7	2.7
FOOD WASTE	295.8	5.4	290.4
TEXTILES & LEATHER	5.2	5.0	0.2
RUBBER		4.7	
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.8	4.9	1.9
Aerosol Cans		4.9	
Other Ferrous Metal	5.3	4.9	0.4
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	4.8	5.0	
Aluminum Cans (Bottle Bill)	5.3	4.8	0.5
Other Non-Ferrous Metal	5.2	4.9	0.3
ELECTRONICS		4.9	
GLASS			
Glass Bottles (Bottle Bill)	5.3	4.7	0.6
Glass Bottle - Clear	5.6	4.7	0.9
Glass Bottle - Amber		4.7	
Glass Bottle - Green	5.9	4.7	1.2
Flat Glass & Other Glass	5.5	4.7	0.8
WOOD		4.8	
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES		4.6	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	5.3	4.7	0.6

① Food waste = 84.4 89.8/5.4 ② 79.9/5.2 = 74.7 ③ 80.6/5.5 = 75.1 ④ 67.2/5.6 = 61.6 total 366.4 295.8

(#4)

#4

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tuesday
CHA Staff Name:
Truck ID Number: 5328 **Arrival Number:** 46
Hauler: City 216. DGS **Truck Type:** packer
Location:
Arrival Time: 9:40 A.M. P.M.
Origin (Municipality): City of Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.9	4.7	1.2
Magazines	8.0	4.7	3.3
Corrugated	12.0	4.7	7.3
Gable Top Cartons & Drink Boxes	5.4	4.9	0.5
Paper Board	11.3	5.0	6.3
Books (including phone directories)	7.9	4.7	3.2
Mixed Office Paper	8.5	4.7	3.8
Other Paper	32.0	4.7	27.3
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.7	5.0	1.7
Plastic #1 (Bottle Bill Containers)	5.2	5.2	0.0
Plastic Containers (HDPE) #2	6.6	5.3	1.3
Other Plastic Containers	9.8	5.0	4.8
Film Plastic & Plastic Bags	16.7	4.8	11.9
Other Plastics	5.8	4.7	1.1
FOOD WASTE	77.1	5.6 ~~5.6~~	71.5
TEXTILES & LEATHER	25.5	4.9	20.6
RUBBER	7.3	4.7	2.6
DISPOSABLE DIAPERS	33.4	4.7	28.7
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.6	4.9	0.7
Aerosol Cans	5.4	4.9	0.5
Other Ferrous Metal	6.9	4.8	2.1
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.8	
Aluminum Cans (Bottle Bill)	5.0	4.8	0.2
Other Non-Ferrous Metal	10.6	4.9 ✓	5.7
ELECTRONICS	6.2	4.9	1.3
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	6.1	4.7	1.4
Glass Bottle - Amber		4.7	
Glass Bottle - Green	6.6	4.7	1.9
Flat Glass & Other Glass	5.1	4.7	0.4
WOOD	~~[illegible]~~ 17.6	4.8	12.8
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES	10.2	4.6	5.6
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.9	4.7	0.2
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.9	0.1
MISCELLANEOUS	7.1	4.7	2.4

232.4

FOOD WASTE 77.1/5.6

(#) 5

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tues
CHA Staff Name:
Truck ID Number: 5374 **Arrival Number:** 74
Hauler: CTY A16 DGS **Truck Type:** Packer
Location:
Arrival Time: 10:50 A.M. ________ P.M.
Origin (Municipality): Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	10.3	4.7	5.6
Magazines	6.3	4.7	1.6
Corrugated	18.6	4.7	13.9
Gable Top Cartons & Drink Boxes	5.7	4.9	0.8
Paper Board	19.1	4.9	14.2
Books (including phone directories)	30.3	4.7	25.6
Mixed Office Paper	5.2	4.7	0.5
Other Paper	21.1	4.7	16.4
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.2	5.0	1.2
Plastic #1 (Bottle Bill Containers)	6.1	4.9	1.2
Plastic Containers (HDPE) #2	6.2	5.3	0.9
Other Plastic Containers	16.0	5.0	11.0
Film Plastic & Plastic Bags	13.9	4.9	9.0
Other Plastics	10.9	4.7	6.2
FOOD WASTE			
TEXTILES & LEATHER	37.0	4.9	32.1
RUBBER		4.7	
DISPOSABLE DIAPERS	7.1	4.7	2.4
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.1	4.9	1.2
Aerosol Cans	5.1	5.0	0.1
Other Ferrous Metal	38.7	4.9	33.8
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.8	
Aluminum Cans (Bottle Bill)	5.6	4.7	0.9
Other Non-Ferrous Metal	10.9	4.7	6.2
ELECTRONICS	9.1	4.9	4.2
GLASS			
Glass Bottles (Bottle Bill)	7.3	4.8	2.5
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	5.9	4.7	1.2
WOOD	5.2	4.8	0.4
RUBBLE		4.7	
YARD WASTE	5.1	4.7	0.4
DIRT/FINES	9.9	4.7	5.2
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	19.5	4.7	14.8

213.3

FOOD WASTE 60.9 / 5.2

#6

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tuesday
CHA Staff Name:
Truck ID Number: 5194 **Arrival Number:** 106
Hauler: BFI **Truck Type:** Packer
Location:
Arrival Time: A.M. 1:00 P.M.
Origin (Municipality): Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	9.2	4.7	4.5
Magazines	9.4	4.7	4.7
Corrugated	6.7	4.7	2.0
Gable Top Cartons & Drink Boxes	5.3	4.9	0.4
Paper Board	9.8	4.9	4.9
Books (including phone directories)	33.8	4.8	29.0
Mixed Office Paper	29.9	4.7	25.2
Other Paper	15.3	4.7	10.6
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	7.1	5.0	2.1
Plastic #1 (Bottle Bill Containers)	6.3	5.0	1.3
Plastic Containers (HDPE) #2	7.3	5.2	2.1
Other Plastic Containers	6.9	~~4.7~~ 5.1	1.8
Film Plastic & Plastic Bags	8.0	~~5.0~~ 4.7	3.3
Other Plastics	6.5	4.7	1.8
FOOD WASTE	19.1	5.4	13.7
TEXTILES & LEATHER	11.7	4.9	6.8
RUBBER		4.7	
DISPOSABLE DIAPERS	6.5	4.7	1.8
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	4.9	0.5
Aerosol Cans	5.6	5.0	0.6
Other Ferrous Metal	12.5	4.7	7.8
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.8	
Aluminum Cans (Bottle Bill)	4.9	4.8	0.1
Other Non-Ferrous Metal	5.1	4.9	0.2
ELECTRONICS	15.3	4.9	10.4
GLASS			
Glass Bottles (Bottle Bill)	6.0	4.8	1.2
Glass Bottle - Clear	7.2	4.7	2.5
Glass Bottle - Amber	8.5	4.7	3.8
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	5.2	4.7	0.5
WOOD		4.8	
RUBBLE			
YARD WASTE	32.5	4.7	27.8
DIRT/FINES		4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS		4.7	

FOOD WASTE 19.1/5.4

171.4

#7

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tuesday
CHA Staff Name:
Truck ID Number: 5299 **Arrival Number:** 119
Hauler: City Alb **Truck Type:**
Location:
Arrival Time: ~~15~~ A.M. 1:45 P.M.
Origin (Municipality): Albany

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.7	4.7	1.0
Magazines	5.2	4.7	0.5
Corrugated	6.2	4.7	1.5
Gable Top Cartons & Drink Boxes	5.6	4.9	0.7
Paper Board	10.0	5.1	4.9
Books (including phone directories)		4.7	
Mixed Office Paper	8.1	4.7	3.4
Other Paper	20.0	4.7	15.3
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.2	5.0	0.2
Plastic #1 (Bottle Bill Containers)	5.2	5.0	0.2
Plastic Containers (HDPE) #2	7.9	5.3	2.6
Other Plastic Containers	9.0	5.0	4.0
Film Plastic & Plastic Bags	8.8	4.7	4.1
Other Plastics	6.3	4.7	1.6
FOOD WASTE	14.2	5.5	
TEXTILES & LEATHER	6.7	4.9	1.8
RUBBER	4.8	4.7	0.1
DISPOSABLE DIAPERS	4.8	4.7	0.1
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.2	4.9	0.3
Aerosol Cans		4.9	
Other Ferrous Metal	9.3	4.9	4.4
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.8	
Aluminum Cans (Bottle Bill)	4.9	4.8	0.1
Other Non-Ferrous Metal	5.1	4.9	0.2
ELECTRONICS	5.3	4.9	0.4
GLASS			
Glass Bottles (Bottle Bill)		4.9	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.7	
Glass Bottle - Green	5.1	4.7	0.4
Flat Glass & Other Glass	4.8	4.7	0.1
WOOD		4.8	
RUBBLE			
YARD WASTE		4.7	
DIRT/FINES	180.7	4.6	176.1
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.7	4.7	0.0
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.9	0.1
MISCELLANEOUS	9.2	4.7	4.5

FOODWASTE 14.2/5.5

II-8

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/24/09 Tuesday
CHA Staff Name:
Truck ID Number: 5205 Arrival Number: 130
Hauler: Allied Truck Type: Packer
Location:
Arrival Time: A.M. 225 P.M.
Origin (Municipality): Guilderland/Altamont

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	6.1	4.7	1.4
Magazines		4.7	
Corrugated	12.1	4.7	7.4
Gable Top Cartons & Drink Boxes		5.0	
Paper Board	10.3	5.1	5.2
Books (including phone directories)		4.7	
Mixed Office Paper	33.2	4.7	28.5
Other Paper	14.3	4.8	9.5
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.9	5.1	0.8
Plastic #1 (Bottle Bill Containers)	6.3	5.0	1.3
Plastic Containers (HDPE) #2	5.5	5.3	0.2
Other Plastic Containers	7.1	5.0	2.1
Film Plastic & Plastic Bags	9.5	4.7	4.8
Other Plastics	5.3	4.7	0.6
FOOD WASTE	15.8	5.5	10.3
TEXTILES & LEATHER	5.5	5.0	0.5
RUBBER		4.7	
DISPOSABLE DIAPERS	9.5	4.7	4.8
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.5	4.9	0.6
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.0	4.8	0.2
Aluminum Cans (Bottle Bill)	5.0	4.8	0.2
Other Non-Ferrous Metal	5.5	4.9	0.6
ELECTRONICS	9.4	4.9	4.5
GLASS			
Glass Bottles (Bottle Bill)		4.9	
Glass Bottle - Clear	5.9	4.7	1.2
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE			
YARD WASTE		4.7	
DIRT/FINES		4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.9	0.1
MISCELLANEOUS	6.2	4.7	1.5

86.3

FOOD WASTE 15.8 | 5.5.

II(

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/25/09 Wed
CHA Staff Name:
Truck ID Number: 5349 **Arrival Number:** 1
Hauler: cty 216 PGS **Truck Type:** Packer
Location:
Arrival Time: 7:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	13.3	4.7	8.6
Magazines	7.0	4.7	2.3
Corrugated	7.9	4.7	3.2
Gable Top Cartons & Drink Boxes	5.5	5.0	0.5
Paper Board	15.7	5.2	10.5
Books (including phone directories)	5.1	4.7	0.4
Mixed Office Paper	7.8	4.7	3.1
Other Paper	16.4	4.7	11.7
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	8.8	5.0	3.8
Plastic #1 (Bottle Bill Containers)	5.1	4.9	0.2
Plastic Containers (HDPE) #2	7.6	5.2	2.4
Other Plastic Containers	10.4	5.0	5.4
Film Plastic & Plastic Bags	14.9	4.7	10.2
Other Plastics	6.8	4.7	2.1
FOOD WASTE	47.0	5.5	41.5
TEXTILES & LEATHER	7.9	5.0	2.9
RUBBER	4.7	4.7	0.0
DISPOSABLE DIAPERS	22.8	4.7	18.1
FERROUS METALS			
Ferrous Metal/Bimetal Cans	7.0	5.0	2.0
Aerosol Cans		4.9	
Other Ferrous Metal	5.6	4.9	0.7
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	6.6	4.9	1.7
Aluminum Cans (Bottle Bill)	5.0	4.9	0.1
Other Non-Ferrous Metal	5.5	4.9	0.6
ELECTRONICS	5.1	4.9	0.2
GLASS			
Glass Bottles (Bottle Bill)	7.9	4.9	3.0
Glass Bottle - Clear	9.4	~~5.0~~ 4.7	4.7
Glass Bottle - Amber	5.3	4.7	0.6
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	7.5	4.7	2.8
WOOD	23.0	4.8	18.2
RUBBLE			
YARD WASTE	4.8	4.7	0.1
DIRT/FINES	33.8	4.6	29.2
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.8	4.7	0.1
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	12.6	4.7	7.9

FOOD WASTE 47.0 / 5.5

#2

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 2/25/09
CHA Staff Name:
Truck ID Number: 5358 **Arrival Number:** 9
Hauler: City of Rensselaer **Truck Type:** packer
Location:
Arrival Time: 755 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	9.7	4.7	5.0
Magazines	4.8	4.6	0.2
Corrugated	20.1	4.7	15.4
Gable Top Cartons & Drink Boxes	5.3	4.9	0.4
Paper Board	16.0	5.1	10.9
Books (including phone directories)		4.7	
Mixed Office Paper	7.0	4.7	2.3
Other Paper	19.7	4.7	15.0
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.9	5.0	1.9
Plastic #1 (Bottle Bill Containers)	5.9	4.9	1.0
Plastic Containers (HDPE) #2	7.3	5.2	2.1
Other Plastic Containers	10.4	5.0	5.4
Film Plastic & Plastic Bags	10.7	4.7	6.0
Other Plastics	8.7	4.7	4.0
FOOD WASTE	31.0	5.4	25.6
TEXTILES & LEATHER	7.1	5.0	2.1
RUBBER		4.7	
DISPOSABLE DIAPERS	17.9	4.7	13.2
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.8	4.9	1.9
Aerosol Cans	5.2	4.9	0.3
Other Ferrous Metal	5.2	4.9	0.3
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.9	4.9	1.0
Aluminum Cans (Bottle Bill)	5.0	4.8	0.2
Other Non-Ferrous Metal	5.9	4.9	1.0
ELECTRONICS		4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	5.3	4.7	0.6
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	5.5	4.7	0.8
WOOD	7.3	4.8	2.5
RUBBLE			
YARD WASTE		4.7	
DIRT/FINES	6.3	4.7	1.6
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	29.6	4.7	24.9

FOOD WASTE 31.0 | 5.4

#3

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

St. Peter's Hospital

Day/Date: 2/25/09 Wednesday
CHA Staff Name:
Truck ID Number: 4914 **Arrival Number:**
Hauler: Waste Mgmt. **Truck Type:** Roll-off
Location:
Arrival Time: 8:45 A.M. ________ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.1	4.7	0.4
Magazines	5.3	4.7	0.6
Corrugated	8.4	4.8	3.6
Gable Top Cartons & Drink Boxes	5.2	4.9	0.3
Paper Board	7.7	5.1	2.6
Books (including phone directories)		4.7	
Mixed Office Paper	7.3	4.7	2.6
Other Paper	25.1	4.7	20.4
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.2	5.0	1.2
Plastic #1 (Bottle Bill Containers)	5.1	4.9	0.2
Plastic Containers (HDPE) #2	~~9.4~~ 5.9	5.2	0.7
Other Plastic Containers	9.4	5.0	4.4
Film Plastic & Plastic Bags	14.3	4.7	9.6
Other Plastics	13.6	4.7	8.9
FOOD WASTE	42.8	5.4	37.4
TEXTILES & LEATHER	22.7	5.0	17.7
RUBBER	8.8	4.7	4.1
DISPOSABLE DIAPERS	5.8	4.7	1.1
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	4.9	0.5
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	5.0	0.1
Aluminum Cans (Bottle Bill)	4.9	4.8	0.1
Other Non-Ferrous Metal	5.1	4.9	0.2
ELECTRONICS	4.9	4.9	0.0
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE			
YARD WASTE		4.7	
DIRT/FINES		4.7	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	11.7	4.9	6.8
MISCELLANEOUS	18.8	4.7	14.1

Notes on Back

FOOD WASTE 42.8 | 5.4

#4

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/25/09 Wednesday
CHA Staff Name:
Truck ID Number: 5195 **Arrival Number:** 34
Hauler: waste Mgmt. **Truck Type:** RO
Location:
Arrival Time: 10:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines		4.7	
Corrugated	7.3	4.7	2.6
Gable Top Cartons & Drink Boxes	5.3	4.9	0.4
Paper Board	16.4	5.1	11.3
Books (including phone directories)		4.7	
Mixed Office Paper	4.9	4.7	0.2
Other Paper 56.0+48.2=	104.2	4.7(x2)	94.8
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.7	5.0	1.7
Plastic #1 (Bottle Bill Containers)	5.2	4.9	0.3
Plastic Containers (HDPE) #2	6.8	5.2	1.6
Other Plastic Containers	8.0	5.0	3.0
Film Plastic & Plastic Bags	15.9	4.7	11.2
Other Plastics	13.2	4.7	8.5
FOOD WASTE	72.4	5.5	66.9
TEXTILES & LEATHER	5.5	4.9	0.6
RUBBER		4.7	
DISPOSABLE DIAPERS	12.9	4.7	8.2
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.9	4.9	1.0
Aerosol Cans	5.3	5.0	0.3
Other Ferrous Metal	16.5	4.9	11.6
NON-FERROUS METALS		4.9	
Aluminum Cans (Non-Bottle Bill)	5.2	5.0	0.2
Aluminum Cans (Bottle Bill)	4.8	4.8	0.0
Other Non-Ferrous Metal		4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	6.5	4.7	1.8
WOOD		4.8	
RUBBLE			
YARD WASTE		4.7	
DIRT/FINES		4.7	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	5.5	4.7	0.8

FOOD WASTE 72.4 | 5.5

#5

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 2/25/09
CHA Staff Name:
Truck ID Number: 5442 **Arrival Number:** 50
Hauler: Accurate **Truck Type:** packer
Location:
Arrival Time: 11:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	8.9	4.7	4.2
Magazines	15.7	4.7	11.0
Corrugated	10.0	4.7	5.3
Gable Top Cartons & Drink Boxes	6.0	4.9	1.1
Paper Board	20.6	5.1	15.5
Books (including phone directories)	9.9	4.7	5.2
Mixed Office Paper	6.0	4.7	1.3
Other Paper 5604	25.7	4.8	20.9
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.8	5.0	1.8
Plastic #1 (Bottle Bill Containers)	5.3	4.9	0.4
Plastic Containers (HDPE) #2	6.1	5.2	0.9
Other Plastic Containers	9.1	5.0	4.1
Film Plastic & Plastic Bags	10.6	4.7	5.9
Other Plastics	15.5	4.7	10.8
FOOD WASTE	39.7	5.5	34.2
TEXTILES & LEATHER	14.1	4.9	9.2
RUBBER		4.7	
DISPOSABLE DIAPERS	7.8	4.7	3.1
FERROUS METALS			
Ferrous Metal/Bimetal Cans	~~5.9~~ 7.4	4.9	2.5
Aerosol Cans	5.3	4.9	0.4
Other Ferrous Metal	18.3	4.9	13.4
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)	4.9	4.7	0.2
Other Non-Ferrous Metal	5.3	4.9	0.4
ELECTRONICS	7.7	4.9	2.8
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	9.5	4.7	4.8
Glass Bottle - Amber		4.8	
Glass Bottle - Green	6.5	4.7	1.8
Flat Glass & Other Glass	8.8	4.7	4.1
WOOD	6.7	4.8	1.9
RUBBLE			
YARD WASTE	5.3	4.7	0.6
DIRT/FINES	9.9	4.7	5.2
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.8	4.7	0.1
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.9	0.1
MISCELLANEOUS	6.7 ~~9.0~~	4.7	2.0

FOOD WASTE | 5.5

#6

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 2/25/09
CHA Staff Name:
Truck ID Number: 5365 **Arrival Number:** 68
Hauler: City of Green Island **Truck Type:** packer
Location:
Arrival Time: 12:00 A.M. P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	8.7	4.7	4.0
Magazines	5.7	4.7	1.0
Corrugated	9.2	4.7	4.5
Gable Top Cartons & Drink Boxes	5.2	4.9	0.3
Paper Board	17.3	5.1	12.2
Books (including phone directories)	8.1	4.7	3.4
Mixed Office Paper	5.9	4.7	1.2
Other Paper	19.2	4.7	14.5
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	8.8	4.9	3.9
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	9.1	5.2	3.9
Other Plastic Containers	7.8	5.0	2.8
Film Plastic & Plastic Bags	10.3	4.7	5.6
Other Plastics	10.0	4.6	5.4
FOOD WASTE	8	5.5	
TEXTILES & LEATHER	9.1	4.9	4.2
RUBBER		4.7	
DISPOSABLE DIAPERS	18.0	4.7	13.3
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.6	4.9	0.7
Aerosol Cans	5.5	4.9	0.6
Other Ferrous Metal	5.4	4.9	0.5
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.4	4.9	0.5
Aluminum Cans (Bottle Bill)	5.0	4.7	0.3
Other Non-Ferrous Metal	5.0	4.9	0.1
ELECTRONICS	5.3	4.9	0.4
GLASS			
Glass Bottles (Bottle Bill)	6.5	4.8	1.7
Glass Bottle - Clear	6.2	4.7	1.5
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	6.2	4.7	1.5
WOOD	10.3	4.7	5.6
RUBBLE			
YARD WASTE	37.1	4.7	32.4
DIRT/FINES	26.8	4.7	22.1
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	5.0	4.7	0.3
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	9.7	4.6	5.1

#7

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 7/25/09 Wed
CHA Staff Name:
Truck ID Number: 5339 **Arrival Number:** 82
Hauler: Twn of Knox **Truck Type:** Roll-off
Location:
Arrival Time: ✓ A.M. 1:25 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.5	4.7	0.8
Magazines		4.7	
Corrugated	14.7	4.7	10.0
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	10.7	~~4.7~~ 5.1	5.6
Books (including phone directories)	14.5	4.7	9.8
Mixed Office Paper	12.9	4.8	8.1
Other Paper	~~12.9~~ 5.0	4.7	0.3
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.3	5.0	0.3
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	11.8	5.0	6.8
Film Plastic & Plastic Bags	5.5	4.7	0.8
Other Plastics	9.7	4.7	5.0
FOOD WASTE		5.6	
TEXTILES & LEATHER	21.5	5.0	16.5
RUBBER	16.6	4.7	11.9
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		4.9	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	5.3	4.8	0.5
ELECTRONICS	18.3	4.9	13.4
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD	47.8	4.7	43.1
RUBBLE	30.0	4.7	25.3
YARD WASTE		4.7	
DIRT/FINES		4.7	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	6.5	4.7	1.8

Full 20gal can of styro foam pellets

#8

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 2/25/09
CHA Staff Name:
Truck ID Number: 5157 **Arrival Number:** 93
Hauler: waste Mgmt. **Truck Type:**
Location:
Arrival Time: A.M. 2:35 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	6.0	4.7	1.3
Magazines	6.2	4.7	1.5
Corrugated	17.6	4.7	12.9
Gable Top Cartons & Drink Boxes	11.0	4.9	6.1
Paper Board	22.0	5.1	16.9
Books (including phone directories)		4.7	
Mixed Office Paper		4.7	
Other Paper 7.8+46.8	=54.6	4.7×2	45.2
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.7	5.0	1.7
Plastic #1 (Bottle Bill Containers)	5.6	4.9	0.7
Plastic Containers (HDPE) #2	6.2	5.2	1.0
Other Plastic Containers	16.1	4.9	11.2
Film Plastic & Plastic Bags	18.1	4.6	13.5
Other Plastics	8.5	4.7	3.8
FOOD WASTE	33.8	5.6	28.2
TEXTILES & LEATHER	6.2	4.9	1.3
RUBBER	5.7	4.6	1.1
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.2	4.9	0.3
Aerosol Cans	5.7	4.9	0.8
Other Ferrous Metal	5.4	4.9	0.5
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.0	4.9	0.1
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		4.8	
ELECTRONICS		4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	5.2	4.7	0.5
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.7	
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES		4.7	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	4.9	4.8	0.1
MISCELLANEOUS	5.8	4.7	1.1

(II 1)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name:
Truck ID Number: 5402 **Arrival Number:** 8
Hauler: waste mgmt. **Truck Type:** packer
Location:
Arrival Time: 7:35 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	7.2	4.6	
Magazines	16.8	4.7	
Corrugated	14.0	4.7	
Gable Top Cartons & Drink Boxes	5.3	4.9	
Paper Board	11.0	5.1	
Books (including phone directories)	6.2	4.7	
Mixed Office Paper	42.3	4.7	
Other Paper	17.8	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.5	5.0	
Plastic #1 (Bottle Bill Containers)	5.5	4.9	
Plastic Containers (HDPE) #2	6.8	5.2	
Other Plastic Containers	7.4	5.0	
Film Plastic & Plastic Bags	11.8	4.7	
Other Plastics	13.9	4.7	
FOOD WASTE	12.8	5.7	
TEXTILES & LEATHER	5.3	5.0	
RUBBER	4.9	4.7	
DISPOSABLE DIAPERS	5.2		
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.0	4.9	
Aerosol Cans		4.9	
Other Ferrous Metal	9.6	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)	7.3	4.8	
Other Non-Ferrous Metal	5.7	4.9	
ELECTRONICS	6.0	4.9	
GLASS			
Glass Bottles (Bottle Bill)	5.3	4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber	5.4	4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	7.7	4.7	
WOOD		4.7	
RUBBLE		4.7	
YARD WASTE	4.7	4.7	
DIRT/FINES	7.2	4.7	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.9	4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.8	
MISCELLANEOUS	10.2	4.7	

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

#2

Load Included
- wood
- mattress
- Box spring
- wooden Board

Day/Date: Thursday 2/26/09
CHA Staff Name: Tiff, Brad, Lea, Blaine, mike, SARAH, James
Truck ID Number: 4769 **Arrival Number:** 13
Hauler: Twn of Guilderland **Truck Type:** Roll-off
Location:
Arrival Time: 8:25 A.M. ________ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.7	4.7	
Magazines	8.1	4.8	
Corrugated	12.8	4.7	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	10.3	5.1	
Books (including phone directories)	20.4	4.7	
Mixed Office Paper	30.1	4.8	
Other Paper	8.3	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.1	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	6.8	5.2	
Other Plastic Containers	~~5.0~~ 5.7	5.0	
Film Plastic & Plastic Bags	7.6	4.7	
Other Plastics	6.6	4.7	
FOOD WASTE		5.6	
TEXTILES & LEATHER	12.6	4.9	
RUBBER		4.7	
DISPOSABLE DIAPERS	5.2	4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		4.9	
Aerosol Cans		4.9	
Other Ferrous Metal	6.5	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	15.4	4.9	
ELECTRONICS	36.6	4.8	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	10.5	4.7	
WOOD	35.0	4.7	
RUBBLE	10.8	4.7	
YARD WASTE		4.7	
DIRT/FINES	49.1	4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.8	
MISCELLANEOUS	37.6	4.9	

mostly sheetrock

(#3)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name:
Truck ID Number: 5191 **Arrival Number:** 22
Hauler: Salvation Army **Truck Type:** Box/Dump
Location:
Arrival Time: 9:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	4.9	4.7	
Corrugated	6.7	4.8	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	9.2	5.1	
Books (including phone directories)	35.5	4.7	
Mixed Office Paper	4.9	4.8	
Other Paper	7.4	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	5.4	5.2	
Other Plastic Containers	6.8	5.0	
Film Plastic & Plastic Bags	5.5	4.7	
Other Plastics	24.5	4.7	
FOOD WASTE	5.8	5.6	
TEXTILES & LEATHER 29.2+	93.4	5.0	
RUBBER	6.0	4.7	
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		4.9	
Aerosol Cans		4.9	
Other Ferrous Metal	18.3	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	9.7	4.9	
ELECTRONICS	30.2	4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	42.8	4.7	
WOOD	7.5	4.7	
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES		4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.8	
MISCELLANEOUS	10.1	4.8	

29.2+/5.0
24.1/5.0
23.6/5.0
16.5/5.0
93.4

#4

Waited For operator For 20 min

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name: Sam
Truck ID Number: ~~4072~~ 9072 **Arrival Number:** 39
Hauler: Tunnel Rensselaer Ville **Truck Type:** Roll-off
Location:
Arrival Time: 9:50 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	16.3	4.7	
Magazines	13.2	4.7	
Corrugated	10.8	4.7	
Gable Top Cartons & Drink Boxes	5.9	4.9	
Paper Board	17.2	5.1	
Books (including phone directories)		4.8	
Mixed Office Paper	7.3	4.8	
Other Paper	26.6	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.8	5.0	
Plastic #1 (Bottle Bill Containers)	5.1	4.9	
Plastic Containers (HDPE) #2	8.3	5.3	
Other Plastic Containers	13.5	5.0	
Film Plastic & Plastic Bags	16.0	4.7	
Other Plastics	8.1	4.7	
FOOD WASTE	91.7	5.6	
TEXTILES & LEATHER	11.2	5.0	
RUBBER	5.7	4.8	
DISPOSABLE DIAPERS	5.3	4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.2	4.9	
Aerosol Cans	5.4	4.9	
Other Ferrous Metal	7.9	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	6.0	5.0	
Aluminum Cans (Bottle Bill)	4.9	4.8	
Other Non-Ferrous Metal	6.3	4.9	
ELECTRONICS	9.1	4.9	
GLASS			
Glass Bottles (Bottle Bill)	5.6	4.8	
Glass Bottle - Clear	5.2	4.7	
Glass Bottle - Amber		4.8	
Glass Bottle - Green	6.6	4.7	
Flat Glass & Other Glass	5.9	4.5	
WOOD	6.2	4.8	
RUBBLE		4.7	
YARD WASTE	4.8	4.7	
DIRT/FINES	27.9	4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.8	4.7	
MEDICAL OR PHARMACEUTICAL WASTE	5.4	4.8	
MISCELLANEOUS	10.4	4.5	

Load also contained - 2 mattress - 2 Box springs, 1 recliner

Lo

#5

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name:
Truck ID Number: 4754 Arrival Number: 61
Hauler: Univ. Albany Truck Type:
Location:
Arrival Time: 11:00 A.M. ____ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	6.6	4.7	
Magazines		4.7	
Corrugated	6.8	4.7	
Gable Top Cartons & Drink Boxes	5.1	5.0	
Paper Board	16.9	5.0	
Books (including phone directories)		4.8	
Mixed Office Paper	6.1	4.8	
Other Paper	27.7	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	9.9	5.0	
Plastic #1 (Bottle Bill Containers)	6.1	4.9	
Plastic Containers (HDPE) #2	6.6	5.3	
Other Plastic Containers	9.9	5.0	
Film Plastic & Plastic Bags	11.8	4.7	
Other Plastics	8.7	4.7	
FOOD WASTE	99.3	5.4	
TEXTILES & LEATHER	6.1	4.9	
RUBBER	5.9	4.8	
DISPOSABLE DIAPERS		4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	16.0	4.9	
Aerosol Cans	5.2	5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)	4.9	4.8	
Other Non-Ferrous Metal	5.5	4.9	
ELECTRONICS		4.8	
GLASS			
Glass Bottles (Bottle Bill)	5.3	4.8	
Glass Bottle - Clear	5.8	4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD	23	4.9	
RUBBLE		4.7	
YARD WASTE		4.7	
DIRT/FINES		4.6	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS		4.8	

#6

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name:
Truck ID Number: 5240 **Arrival Number:** #71
Hauler: CTy of Albany DGS **Truck Type:** PackeR
Location:
Arrival Time: 11:30 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	11.8	4.7	
Magazines	6.8	4.7	
Corrugated	9.5	4.7	
Gable Top Cartons & Drink Boxes	5.3	4.9	
Paper Board	18.1	5.1	
Books (including phone directories)	9.0	4.8	
Mixed Office Paper	16.1	4.8	
Other Paper	34.1	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	9.2	5.0	
Plastic #1 (Bottle Bill Containers)	5.6	4.9	
Plastic Containers (HDPE) #2	7.9	5.2	
Other Plastic Containers	12.2	5.0	
Film Plastic & Plastic Bags	18.3	4.7	
Other Plastics	12.2	4.7	
FOOD WASTE	90.0	5.5	
TEXTILES & LEATHER	15.0	4.9	
RUBBER	4.8	4.7	
DISPOSABLE DIAPERS	15.8	4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	8.6	4.9	
Aerosol Cans	5.3	4.9	
Other Ferrous Metal	8.8	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.0	4.8	
Aluminum Cans (Bottle Bill)	5.0	4.8	
Other Non-Ferrous Metal	6.4	4.9	
ELECTRONICS	21.9	4.8	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	11.3	4.7	
Glass Bottle - Amber	8.0	4.8	
Glass Bottle - Green	5.6	4.7	
Flat Glass & Other Glass	5.7	4.7	
WOOD	20.6	4.8	
RUBBLE		4.7	
YARD WASTE	6.1	4.7	
DIRT/FINES	16.7	4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	5.1	4.9	
MISCELLANEOUS	8.7	4.8	

#7

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name:
Truck ID Number: 5406 **Arrival Number:** 107
Hauler: County waste **Truck Type:** Packer
Location:
Arrival Time: A.M. 2:00 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	7.9	4.7	
Magazines		4.7	
Corrugated	24.6	4.7	
Gable Top Cartons & Drink Boxes	5.0	4.9.	
Paper Board	10.7	5.1	
Books (including phone directories)	8.7	4.8	
Mixed Office Paper	9.8	4.8	
Other Paper	21.5	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.1	5.0	
Plastic #1 (Bottle Bill Containers)	6.1	4.9	
Plastic Containers (HDPE) #2	6.5	5.2	
Other Plastic Containers	8.5 ~~12.1~~	5.0	
Film Plastic & Plastic Bags	10.7	4.7	
Other Plastics		4.6	
FOOD WASTE	24.4	5.5	
TEXTILES & LEATHER	9.0	4.9	
RUBBER		4.7	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.5	4.9	
Aerosol Cans	5.3	4.9	
Other Ferrous Metal	16.2	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)	5.3	4.8	
Other Non-Ferrous Metal	5.0	4.9	
ELECTRONICS	14.5	4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	7.0	4.7	
Glass Bottle - Amber		4.4	
Glass Bottle - Green	4.8	4.7	
Flat Glass & Other Glass	5.7	4.8	
WOOD	6.4	4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES	12.8	4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	27.7	4.7	

II8

NOT TARE
↳ 14.5+
-TARE 18.5
33.0

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Thursday 2/26/09
CHA Staff Name:
Truck ID Number: 4914 **Arrival Number:** 111
Hauler: Waste Mgmt **Truck Type:** Roll-off
Location:
Arrival Time: A.M. 2:30 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.6	
Magazines		4.7	
Corrugated	33.0	4.8	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	11.7	5.0	
Books (including phone directories)		4.4	
Mixed Office Paper	7.4	4.8	
Other Paper	19.0	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.4	5.1	
Plastic #1 (Bottle Bill Containers)	5.3	5.0	
Plastic Containers (HDPE) #2	5.9	5.3	
Other Plastic Containers	8.4	4.7	
Film Plastic & Plastic Bags	9.9	4.7	
Other Plastics	8.1	4.3	
FOOD WASTE	10.8	5.5	
TEXTILES & LEATHER	5.1	5.0	
RUBBER	5.4	4.7	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal	5.1	4.8	
NON-FERROUS METALS		5.0	
Aluminum Cans (Non-Bottle Bill)		4.8	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	6.2	4.9	
ELECTRONICS	36.4	4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	83.5	4.8	
Glass Bottle - Amber	62.4	4.4	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD	4.9	4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	16.9	4.7	

#1

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Friday 2/27/09
CHA Staff Name:
Truck ID Number: 5328 **Arrival Number:** 1
Hauler: CTY A/B DGS **Truck Type:** Packer
Location:
Arrival Time: 7:00 **A.M.** ______ **P.M.**
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.9	4.6	
Magazines	7.9	4.7	
Corrugated	7.0	4.8	
Gable Top Cartons & Drink Boxes	5.7	4.9	
Paper Board	15.4	5.1	
Books (including phone directories)	9.3	4.4	
Mixed Office Paper	9.8	4.8	
Other Paper	18.2	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	7.7	5.0	
Plastic #1 (Bottle Bill Containers)	5.9	5.0	
Plastic Containers (HDPE) #2	9.9	5.3	
Other Plastic Containers	9.4	5.1	
Film Plastic & Plastic Bags	17.1	4.7	
Other Plastics	7.4	4.7	
FOOD WASTE	13.1	5.5	
TEXTILES & LEATHER	19.9	5.0	
RUBBER	4.8	4.8	
DISPOSABLE DIAPERS	9.8	4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.7	5.0	
Aerosol Cans	5.4	4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	4.8	
Aluminum Cans (Bottle Bill)	5.4	4.8	
Other Non-Ferrous Metal	9.4	4.9	
ELECTRONICS	16.7	4.9	
GLASS			
Glass Bottles (Bottle Bill)	6.4	4.8	
Glass Bottle - Clear	6.6	4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	5.5	4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	15.7	4.7	

#2

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Friday 2/27/09
CHA Staff Name: Mike, Lee, Brad, Blane, Sarah B., Sarah J., Jason
Truck ID Number: 5361 **Arrival Number:** 19
Hauler: City of Rensselaer **Truck Type:** Packer
Location:
Arrival Time: 8:00 A.M. ______ P.M.
Origin (Municipality):

Bulk load
2- couches
2- mattresses
- much wood
- 1 Recliner

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.7	4.6	
Magazines		4.7	
Corrugated	18.4	4.8	
Gable Top Cartons & Drink Boxes	6.1	4.9	
Paper Board	8.4	5.1	
Books (including phone directories)	5.9	4.8	
Mixed Office Paper	5.0	4.8	
Other Paper	14.9	4.7	
PLASTICS		4.7	
Plastic Containers (PET) #1 Non-Bottle Bill		5.1	
Plastic #1 (Bottle Bill Containers)	6.6	4.9	
Plastic Containers (HDPE) #2	6.6	5.3	
Other Plastic Containers	7.3	4.9	
Film Plastic & Plastic Bags	8.6	4.7	
Other Plastics	25.6	4.7	
FOOD WASTE	17.0	5.4	
TEXTILES & LEATHER 21.2	~~21.8~~	4.8	
RUBBER	4.8	4.7	
DISPOSABLE DIAPERS	7.6	4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	6.0	5.1	
Aerosol Cans		5.0	
Other Ferrous Metal	9.1	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	10.9	4.9	
ELECTRONICS	11.1	4.9	
GLASS			
Glass Bottles (Bottle Bill)	5.6	4.8	
Glass Bottle - Clear	8.7	4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	9.6	4.7	
WOOD	45.6	4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES	17.5	4.6	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	4.8	4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	9.4	4.8	

#3

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 2/27/09 Friday
CHA Staff Name:
Truck ID Number: 5339 **Arrival Number:** 36
Hauler: Town of Knox **Truck Type:** Roll-off
Location:
Arrival Time: 8:30 A.M. ________ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	7.6	4.8	
Magazines	5.7	4.7	
Corrugated	6.5	4.7	
Gable Top Cartons & Drink Boxes	6.4	5.0	
Paper Board	13.0	5.1	
Books (including phone directories)	5.1	4.7	
Mixed Office Paper	9.5	4.8	
Other Paper	18.2	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.8	5.1	
Plastic #1 (Bottle Bill Containers)	6.6	5.0	
Plastic Containers (HDPE) #2	8.4	5.3	
Other Plastic Containers 9.5+8.0	17.5	5.0x2	
Film Plastic & Plastic Bags	13.0	4.7	
Other Plastics	6.0	4.7	
FOOD WASTE	48.5	5.5	
TEXTILES & LEATHER	14.4	5.0	
RUBBER	5.1	4.7	
DISPOSABLE DIAPERS	13.1	4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	8.3	5.0	
Aerosol Cans		5.0	
Other Ferrous Metal	6.7	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.6	5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	9.9	4.9	
ELECTRONICS	5.1	4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	10.3	4.8	
Glass Bottle - Amber	8.6	4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	7.5	4.7	
WOOD	5.1	4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES	58.6	4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE	5.0	4.9	
MISCELLANEOUS	14.3	4.8	

#4

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Friday 2/27/09
CHA Staff Name:
Truck ID Number: 4671 **Arrival Number:** 49
Hauler: Salvation Army(?) **Truck Type:** Box/Dump
Location:
Arrival Time: 9:30 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.8	
Magazines	6.2	4.8	
Corrugated	17.1	4.8	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	6.8	5.0	
Books (including phone directories)	22.9	4.8	
Mixed Office Paper	11.8	4.7	
Other Paper	14.1	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.9	5.1	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	5.8	5.0	
Film Plastic & Plastic Bags	9.3	4.7	
Other Plastics	18.5	4.7	
FOOD WASTE	6.5	5.4	
TEXTILES & LEATHER 23.3+32.9=	56.2	5.0x2	
RUBBER		4.7	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		5.0	
Other Ferrous Metal	12.3	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	14.8	4.9	
ELECTRONICS	12.8	4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	27.1	4.7	
WOOD	7.0	4.9	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES	5.0	4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	5.0	4.7	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	6.4	4.8	

#5

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Friday 2/27/09
CHA Staff Name:
Truck ID Number: 5374 **Arrival Number:** 61
Hauler: city n/6 DGS **Truck Type:** packer
Location:
Arrival Time: 10:10 A.M. ____ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	9.5	4.8	
Magazines	6.7	4.7	
Corrugated	9.0	4.6	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	10.1	5.1	
Books (including phone directories)	13.4	4.8	
Mixed Office Paper	6.7	4.7	
Other Paper	20.3	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.6	5.1	
Plastic #1 (Bottle Bill Containers)	6.0	5.0	
Plastic Containers (HDPE) #2	7.8	5.3	
Other Plastic Containers	13.7	5.0	
Film Plastic & Plastic Bags	31.6 ~~6.8~~	4.7x2	
Other Plastics	13.8	4.7	
FOOD WASTE	~~[illegible]~~ 157.0	5.5	
TEXTILES & LEATHER	21.4	5.0	
RUBBER	5.1	4.7	
DISPOSABLE DIAPERS	5.2	4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.7	5.0	
Aerosol Cans		5.0	
Other Ferrous Metal	5.8	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	6.3	5.0	
ELECTRONICS		4.9	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	5.4	4.8	
Glass Bottle - Amber	5.9	4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	5.9	4.7	
WOOD	12.3	4.8	
RUBBLE		4.8	
YARD WASTE	6.7	4.7	
DIRT/FINES	11.9	4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE		4.9	
MISCELLANEOUS	23.2	4.8	

Film plastic
① 24.8/4.7
② 6.8/4.7
31.6

Food - ~~[illegible]~~ ① 117.2/5.5 ② 39.8/5.4 117.2 39.8

#6

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Medical Load (partial)

Day/Date: Friday 2/27/09
CHA Staff Name:
Truck ID Number: ~~5374~~ 5406 **Arrival Number:** ~~[illegible]~~ 76
Hauler: County Waste **Truck Type:** packer
Location:
Arrival Time: 11:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.4	4.7	
Magazines	14.7	4.7	
Corrugated	11.3	4.7	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	18.2	5.1	
Books (including phone directories)	13.3	4.7	
Mixed Office Paper	24.3	4.7	
Other Paper	58.1	4.7x2	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	8.0	5.0	
Plastic #1 (Bottle Bill Containers)	5.4	5.0	
Plastic Containers (HDPE) #2	6.4	5.3	
Other Plastic Containers	28.8	5.1	
Film Plastic & Plastic Bags	19.4	4.7	
Other Plastics	7.1	4.7	
FOOD WASTE	17.7	5.4	
TEXTILES & LEATHER	15.4	4.9	
Latex gloves → **RUBBER**	9.1	4.8	
DISPOSABLE DIAPERS	6.6	4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.2	5.0	
Aerosol Cans	5.4	5.0	
Other Ferrous Metal	7.5	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	5.0	
Aluminum Cans (Bottle Bill)	4.9	4.8	
Other Non-Ferrous Metal	5.1	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	6.0	4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD	5.0	4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES	9.6	4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE	6.8	4.9	
MISCELLANEOUS	19.7	4.8	

#7

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Friday, 2/27/09
CHA Staff Name:
Truck ID Number: 5194 Arrival Number: 85
Hauler: Truck Type: packer
Location: BFI
Arrival Time: 11:30 A.M. P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	47.7	4.7	
Magazines	32.6	4.7	
Corrugated	37.7	4.7	
Gable Top Cartons & Drink Boxes	6.8		
Paper Board	16.2	5.1	
Books (including phone directories)	13.2	4.8	
Mixed Office Paper	9.7	4.7	
Other Paper	26.7	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.5	5.1	
Plastic #1 (Bottle Bill Containers)	8.6	5.0	
Plastic Containers (HDPE) #2	9.0	5.3	
Other Plastic Containers	9.9	5.1	
Film Plastic & Plastic Bags	16.9	4.7	
Other Plastics	6.1	4.7	
FOOD WASTE	55.4	5.5	
TEXTILES & LEATHER	25.6	4.9	
RUBBER	5.3	4.8	
DISPOSABLE DIAPERS	9.4	4.7	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	7.1	5.0	
Aerosol Cans		5.0	
Other Ferrous Metal	5.6	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	5.0	
Aluminum Cans (Bottle Bill)	5.2	4.8	
Other Non-Ferrous Metal	6.4	5.0	
ELECTRONICS	8.4		
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	8.5	4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass	4.9	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE	5.1	4.7	
DIRT/FINES	40.0	4.7	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE		4.8	
MISCELLANEOUS	20.6	4.9	

#1 Rec Paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name: J. Harrich, S. Johnston, T. Cocello, B. Winbie, L. Lucy, B. Carpenter
Truck ID Number: 5315 **Arrival Number:** 1
Hauler: City of Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:00 A.M. ____ P.M.
Origin (Municipality): City of Albany

①89.9/4.8 ② 84.3/4.7 ③ 13.9/4.7

①13.9/5.0 ② 12.3/5.0

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.8	
Magazines	14.5	4.7	
Corrugated	16.2	4.8	
Gable Top Cartons & Drink Boxes	5.7	5.0	
Paper Board	'	5.0	
Books (including phone directories)	31.8	4.8	
Mixed Office Paper	12.6	4.8	
Other Paper	11.3	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.4	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	5.2	4.9	
Film Plastic & Plastic Bags	5.5	4.8	
Other Plastics		4.8	
FOOD WASTE		5.7	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		4.9	
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.0	4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.9	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE		4.8	
MISCELLANEOUS		4.7	

#2 Rec #1

plastic/Glass

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: 5315 **Arrival Number:** 1
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:00 A.M. ______ P.M.
Origin (Municipality): city Alb

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	7.1	4.7	
Magazines	6.6	5.0	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	5.5	5.0	
Paper Board	6.2	5.0	
Books (including phone directories)	5.5	4.8	
Mixed Office Paper	5.1	5.0	
Other Paper	5.9	5.0	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	8.3	5.0	
Plastic #1 (Bottle Bill Containers)	6.8	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	7.1	5.0	
Film Plastic & Plastic Bags	5.6	4.8	
Other Plastics	5.4	4.8	
FOOD WASTE		5.7	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	15.8	4.9	
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	4.9	
Aluminum Cans (Bottle Bill)	5.5	4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	9.3	4.8	
Glass Bottle - Clear	12.7	4.9	
Glass Bottle - Amber	6.0	4.8	
Glass Bottle - Green	5.3	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE	7.1	4.8	
MISCELLANEOUS		4.7	

(1) 9.9/5.0 (2) —/5.0

(2) 8.8/5.3 10.8/5.2
(3) 5.9/5.2

woman's pads

(#2) Rec

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

PAPER

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: #436 Arrival Number: 2
Hauler: City Alb DGS Truck Type: Recycling
Location:
Arrival Time: 8:00 A.M. ______ P.M.
Origin (Municipality): City Alb.

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	66.6	4.7	
Magazines	8.8	4.7	
(1) 15.5/4.7 (2) 5.7 —/4.7 → Corrugated		4.7	
Gable Top Cartons & Drink Boxes	5.1	5.0	
Paper Board	13.1	5.0	
Books (including phone directories)	15.6	4.7	
Mixed Office Paper	9.2	4.7	
Other Paper	8.4	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.2	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	5.4	5.2	
Other Plastic Containers	5.1	5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics	~~5.1~~ 4.9	4.6	
FOOD WASTE		5.7	
TEXTILES & LEATHER	5.2	5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	4.9	
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS		~~4.8~~	
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	6.6	4.9	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

(#2) Rec

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

RC (glass/plastic)

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: #436 **Arrival Number:** 2
Hauler: city Alb DGS **Truck Type:** Recycle
Location:
Arrival Time: 8:00 A.M. ______ P.M.
Origin (Municipality):

1) 10.5/5.0 (2) 7.7/5.0

1) 11.4/5.1 (2) 9.7/15.2

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.3	4.7	
Magazines		4.8	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	6.6	4.9	
Paper Board	6.7	5.0	
Books (including phone directories)		4.8	
Mixed Office Paper		4.7	
Other Paper	5.3	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	7.7	5.0	
Plastic #1 (Bottle Bill Containers)	5.7	4.9	
Plastic Containers (HDPE) #2	[illegible]	5.1	
Other Plastic Containers	7.0	5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	6.5	4.6	
FOOD WASTE		5.7	
TEXTILES & LEATHER	5.2	4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	14.5	4.8	
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	4.9	
Aluminum Cans (Bottle Bill)	5.0	4.8	
Other Non-Ferrous Metal	5.0	5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	8.0	4.8	
Glass Bottle - Clear	19.2	4.8	
Glass Bottle - Amber	10.5	4.7	
Glass Bottle - Green	8.0	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#3 Rec

Paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: #436 **Arrival Number:** 3
Hauler: city Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 1020 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	31.3	4.8	
Corrugated	10.8	4.7	
Gable Top Cartons & Drink Boxes		5.0	
Paper Board	12.4	5.0	
Books (including phone directories)	9.8	4.8	
Mixed Office Paper	13.8	4.7	
Other Paper	6.3	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.1	5.0	
Plastic #1 (Bottle Bill Containers)	5.6	4.9	
Plastic Containers (HDPE) #2	5.6	5.3	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags	5.2	4.7	
Other Plastics	4.9	4.7	
FOOD WASTE		5.7	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.2	5.0	
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)	4.8	4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	6.1	4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green	5.7	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.8	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

785/4.7 + 6.2/4.7

#3 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: # 486 **Arrival Number:** 3
Hauler: City of Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 10:20 **A.M.** **P.M.**
Origin (Municipality):

① 10.4/5.0 ② 5.8/5.0

① 9.1/5.3 ② 8.3/5.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	9.9	4.7	
Magazines		4.7	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	5.8	5.0	
Paper Board	5.8	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper		4.7	
Other Paper	5.5	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.3	4.9	
Plastic Containers (HDPE) #2	~~[illegible]~~	5.3	
Other Plastic Containers	7.0	5.0	
Film Plastic & Plastic Bags	5.2	4.7	
Other Plastics	5.5	4.7	
FOOD WASTE	5.5	5.4	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	14.8	5.0	
Aerosol Cans	5.1	5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	5.0	
Aluminum Cans (Bottle Bill)	5.1	4.8	
Other Non-Ferrous Metal	5.0	5.0	
ELECTRONICS		5.0	
GLASS	~~[illegible]~~		
Glass Bottles (Bottle Bill)	6.8	4.8	
Glass Bottle - Clear	36.3	4.8	
Glass Bottle - Amber	7.7	4.7	
Glass Bottle - Green	9.3	4.7	
Flat Glass & Other Glass	7.1	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries	5.0	4.8	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#4 Rec

paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09

CHA Staff Name:

Truck ID Number: 433 / 5315 **Arrival Number:** 4

Hauler: DGS **Truck Type:**

Location:

Arrival Time: 11:19 **A.M.** ______ **P.M.**

Origin (Municipality):

① 94.6/4.7
② 24.6/4.7

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	26.3	4.7	
Corrugated	17.7	4.8	
Gable Top Cartons & Drink Boxes	5.0	5.0	
Paper Board	13.9	5.0	
Books (including phone directories)	28.5	4.7	
Mixed Office Paper	12.9	4.7	
Other Paper	6.6	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.0	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers		5.1	
Film Plastic & Plastic Bags	4.8	4.8	
Other Plastics	4.7	4.7	
FOOD WASTE		5.4	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#4 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 8/2/09
CHA Staff Name:
Truck ID Number: 433/5315 **Arrival Number:** 4
Hauler: DGS **Truck Type:**
Location:
Arrival Time: 11:19 **A.M.** ______ **P.M.**
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	4.8	4.7	
Magazines		4.7	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	5.6	4.9	
Paper Board	6.2	5.0	
Books (including phone directories)	5.5	4.8	
Mixed Office Paper		4.7	
Other Paper	5.4	4.8	
PLASTICS			
11.1/5.0 + 13.6/5.0 Plastic Containers (PET) #1 Non-Bottle Bill	7	5.0	
Plastic #1 (Bottle Bill Containers)	6.1	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	9.7	5.1	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	5.6	4.7	
FOOD WASTE		5.4	
TEXTILES & LEATHER	5.7	5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
6.4/5.0 + 10.1/5.0 Ferrous Metal/Bimetal Cans	lost	5.0	
Aerosol Cans	6.7	5.0	
Other Ferrous Metal	5	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	5.0	
Aluminum Cans (Bottle Bill)	5.6	4.8	
Other Non-Ferrous Metal	5.8	5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	7.5	4.8	
Glass Bottle - Clear	26.1	4.8	
Glass Bottle - Amber	12.0	4.7	
Glass Bottle - Green	14.5	4.7	
Flat Glass & Other Glass	4.9	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

8.7/5.3 + 6.0/5.2

#5 Rec

(Paper)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 3/2/09 Monday
CHA Staff Name:
Truck ID Number: 431 / 5311 **Arrival Number:** #5
Hauler: DGS **Truck Type:**
Location:
Arrival Time: 12:15 **A.M.** **P.M.**
Origin (Municipality):

① 76.3/4.7, ② 12.0/4.7

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	17.2	4.7	
Corrugated	7.3	4.8	
Gable Top Cartons & Drink Boxes		4.9	
Paper Board	14.3	5.0	
Books (including phone directories)	18.1	4.8	
Mixed Office Paper	7.3	4.7	
Other Paper	8.1	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	6.0	5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.4	5.3	
Other Plastic Containers	5.1	5.0	
Film Plastic & Plastic Bags	4.9	4.7	
Other Plastics		4.7	
FOOD WASTE			
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.3	4.9	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		4.9	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.7	
Glass Bottle - Clear	7.2	4.9	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#5 Rec

glass plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: 3/2/09 Monday
CHA Staff Name:
Truck ID Number: 431 / 5311 **Arrival Number:** #5
Hauler: DGS **Truck Type:**
Location:
Arrival Time: 12:15 A.M. ________ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	10.7	4.7	
Magazines		4.7	
Corrugated	5.1	4.7	
Gable Top Cartons & Drink Boxes	5.0	4.9	
Paper Board	7.8	5.0	
Books (including phone directories)	12.5	4.8	
Mixed Office Paper	5.3	4.7	
Other Paper		4.7	
PLASTICS			
10.6/5.0 + 8.8/50 Plastic Containers (PET) #1 Non-Bottle Bill	~~8.8~~	5.0	
Plastic #1 (Bottle Bill Containers)	5.8	5.0	
Plastic Containers (HDPE) #2	10.3	5.2	
Other Plastic Containers	6.7	5.1	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics	5.8	4.7	
FOOD WASTE			
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	18.8 + 5.5	4.9	
Aerosol Cans	7.7	4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	5.0	
Aluminum Cans (Bottle Bill)	5.0	4.8	
Other Non-Ferrous Metal	6.6	4.9	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	6.3	4.7	
Glass Bottle - Clear	24.1	4.8	
Glass Bottle - Amber	8.5	4.7	
Glass Bottle - Green	8.5	4.7	
Flat Glass & Other Glass	6.5	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#~~X~~6 Rec

~~Glass/plastic~~ paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: 434 unknown **Arrival Number:** #6
Hauler: city 216 DGS **Truck Type:** Recycle
Location:
Arrival Time: A.M. 1:00 P.M.
Origin (Municipality):

Newspaper
82.0/4.7 + 33.9/4.7
+ 39.9/4.7

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	29.3	4.8	
Corrugated	17.5	4.8	
Gable Top Cartons & Drink Boxes	5.6	5.0	
Paper Board	18.1	5.0	
Books (including phone directories)	37.1	4.7	
Mixed Office Paper	11.9	4.7	
Other Paper	7.0	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	5.2	5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics		4.6	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

6 RQC

glass plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: unknown Arrival Number:
Hauler: DGS Truck Type:
Location:
Arrival Time: 1:00 pm ~~A.M.~~ P.M.
Origin (Municipality):

①9.8/5.0
②11/5.0

①9.9/5.3 ②7.1/5.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.8	
Magazines	5.4	4.8	
Corrugated	5.3	4.8	
Gable Top Cartons & Drink Boxes	7.3	5.0	
Paper Board	6.7	5.0	
Books (including phone directories)	14.3	4.7	
Mixed Office Paper		4.7	
Other Paper	5.0	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	~~11.0~~	5.0	
Plastic #1 (Bottle Bill Containers)	5.1	4.9	
Plastic Containers (HDPE) #2	~~7.4~~	5.3	
Other Plastic Containers	8.7	~~4.9~~ 5.0	
Film Plastic & Plastic Bags	4.9	4.7	
Other Plastics	6.0	4.6	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	18.8	5.0	
Aerosol Cans	5.1	5.0	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	4.9	
Aluminum Cans (Bottle Bill)	5.1	4.8	
Other Non-Ferrous Metal	7.0	4.9	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	5.7	4.7	
Glass Bottle - Clear	37.9	4.8	
Glass Bottle - Amber	10.3	4.7	
Glass Bottle - Green	~~13~~ 14.0	4.7	
Flat Glass & Other Glass	8.8	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		~~4.9~~	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#7

(Page 1)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09
CHA Staff Name:
Truck ID Number: 434 **Arrival Number:** 7
Hauler: City A16 DGS **Truck Type:** Recycling
Location:
Arrival Time: A.M. 1:30 P.M.
Origin (Municipality):

1) 69.9/4.8
2) 50.1/4.8

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.8	
Magazines	17.3	4.8	
Corrugated	12.7	4.8	
Gable Top Cartons & Drink Boxes	5.1	5.0	
Paper Board	11.6	5.0	
Books (including phone directories)	15.8	4.7	
Mixed Office Paper	16.2	4.7	
Other Paper	7.0	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.3	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	5.5	5.2	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags	4.9	4.7	
Other Plastics		4.6	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.2	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

~~#~~ ~~Pa~~

#7 Rec

~~Paper~~

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Monday 3/2/09

CHA Staff Name:

Truck ID Number: ~~unknown~~ 434 **Arrival Number:** 6

Hauler: DGS **Truck Type:**

Location:

Arrival Time: ~~1:00 2pm~~ A.M. 1:30 P.M.

Origin (Municipality):

①
10.9 | 5.0
~~28.0~~ | 5.6

8.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	19.1	4.7	
Magazines	5.7	4.7	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	5.9	5.0	
Paper Board	7.1	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper		4.7	
Other Paper	6.4	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	~~5.8~~ 5.8	4.9	
Plastic Containers (HDPE) #2	9.3	5.2	
Other Plastic Containers	8.4	5.0	
Film Plastic & Plastic Bags	5.9	4.7	
Other Plastics	5.7	4.6	
FOOD WASTE	6.6	5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	20.3	~~5.0~~ / 4.9	
Aerosol Cans	5.6	4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	5.0	
Aluminum Cans (Bottle Bill)	5.8	4.8	
Other Non-Ferrous Metal	6.3	4.9	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	62.2	4.9	
Glass Bottle - Amber	37.3	4.7	
Glass Bottle - Green	21.6	4.7	
Flat Glass & Other Glass	14.6	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#1 (Paper)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: J. Smith, S. Johnston, T. Cassella, B. Winnie, L. Lury, B. Carpenter
Truck ID Number: 5311 / 431 **Arrival Number:** 1
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:00 A.M. ________ P.M.
Origin (Municipality):

1) 19.8/5.0
2) 7.8/5.0

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	64.0	4.7	
Magazines	17.9	4.8	
Corrugated	8.0	4.7	
Gable Top Carton's & Drink Boxes		5.0	
Paper Board		5.0	
Books (including phone directories)	20.9	4.7	
Mixed Office Paper	11.6	4.7	
Other Paper	6.5	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.1	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics	4.8	4.6	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	6.2	4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD	5.5	4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#1 plastic/glass

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 5311 /431 **Arrival Number:** 1.
Hauler: CTY Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:10 A.M. ________ P.M.
Origin (Municipality):

HDPE 10.2/5.3 + 8.1/5.2

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.5	4.7	
Magazines		4.7	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	7.9	5.0	
Paper Board	6.0	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper		4.7	
Other Paper		4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	11.1	5.0	
Plastic #1 (Bottle Bill Containers)	6.5	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	6.9	5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	5.0	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	13.8	5.0	
Aerosol Cans		4.7	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	5.0	
Aluminum Cans (Bottle Bill)	5.7	4.7	
Other Non-Ferrous Metal	5.2	5.0	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	12.0	4.8	
Glass Bottle - Clear	21.8	4.8	
Glass Bottle - Amber	12.8	4.7	
Glass Bottle - Green	17.2	4.7	
Flat Glass & Other Glass	11.7	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#2

(Papa)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday, 3/3/09
CHA Staff Name: Same
Truck ID Number: 5314 1432 **Arrival Number:** 2
Hauler: City Alb DGS **Truck Type:** E-cycle
Location:
Arrival Time: 7:50 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	16.2	4.7	
Magazines	16.3	4.7	
Corrugated	16.1	4.7	
Gable Top Cartons & Drink Boxes	5.5	4.9	
Paper Board	14.0	5.0	
Books (including phone directories)	34.1	4.7	
Mixed Office Paper	17.9	4.7	
Other Paper	7.0	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	5.3	5.0	
Film Plastic & Plastic Bags	4.3	4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.3	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.1	5.0	
Aerosol Cans		4.7	
Other Ferrous Metal		4.4	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		4.9	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)		4.3	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.3	
YARD WASTE		4.7	
DIRT/FINES		4.3	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#2

plastic / glass

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 5314 / 1432 **Arrival Number:** 2
Hauler: City N/C DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:50 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.5	4.7	
Magazines	5.0	4.7	
Corrugated	6.3	4.8	
Gable Top Cartons & Drink Boxes	5.8	5.0	
Paper Board	6.8	5.0	
Books (including phone directories)	3.1	4.7	
Mixed Office Paper	4.8	4.7	
Other Paper	5.4	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	10.5	5.0	
Plastic #1 (Bottle Bill Containers)	5.6	5.0	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	8.1	5.0	
Film Plastic & Plastic Bags	6.0	4.7	
Other Plastics	5.1	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	15.1	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.6	5.0	
Aluminum Cans (Bottle Bill)	5.7	4.7	
Other Non-Ferrous Metal	6.9	4.7	
ELECTRONICS		5.0	
GLASS			
Glass Bottles (Bottle Bill)	15.3	4.8	
Glass Bottle - Clear	41.9	4.8	
Glass Bottle - Amber	20.1	4.7	
Glass Bottle - Green	52.9	4.7	
Flat Glass & Other Glass	6.7	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

1) 8.7/5.2
2) 6.0/5.2

#3 Rec

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Paper

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 435/5320 **Arrival Number:** #3
Hauler: DCS **Truck Type:** Recycling
Location:
Arrival Time: 8:48 A.M. P.M.
Origin (Municipality):

1) 34.3/47
2) 19.4/47

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	13.4	4.7	
Corrugated	23.3	4.7	
Gable Top Cartons & Drink Boxes	5.3	5.0	
Paper Board	14.1	5.0	
Books (including phone directories)	21.0	4.8	
Mixed Office Paper	3.3	4.8	
Other Paper	6.2	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.5	5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.5	5.3	
Other Plastic Containers	5.2	5.0	
Film Plastic & Plastic Bags	4.9	4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER	6.4	4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	4.9	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.8	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#3 Gr

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 435/5320 **Arrival Number:** #3
Hauler: DGS **Truck Type:** Recycling
Location:
Arrival Time: 8:48 A.M. ______ P.M.
Origin (Municipality):

10.9/5.0 + 7.4/5.0

7.6/5.3 + 6.5/5.2

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.0	4.7	
Magazines		4.7	
Corrugated	5.2	4.7	
Gable Top Cartons & Drink Boxes	6.0	5.0	
Paper Board	6.0	5.0	
Books (including phone directories)		4.8	
Mixed Office Paper		4.8	
Other Paper		4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.7	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	8.5	5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics	5.2	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	19.5	5.0	
Aerosol Cans	5.8	4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	5.0	
Aluminum Cans (Bottle Bill)	6.2	4.8	
Other Non-Ferrous Metal	7.9	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	15.5	4.8	
Glass Bottle - Clear	26.4	4.9	
Glass Bottle - Amber	11.6	4.7	
Glass Bottle - Green	30.2	4.7	
Flat Glass & Other Glass		4.8	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#4 Red

Paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 5311 1431 **Arrival Number:** 4
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 10:00 A.M. ______ P.M.
Origin (Municipality):

Newspaper 34.1/4.7 + 31.9/4.7

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	28.1	4.7	
Corrugated	11.8	4.7	
Gable Top Cartons & Drink Boxes	5.5	5.0	
Paper Board	11.6	5.1	
Books (including phone directories)	42.3	4.8	
Mixed Office Paper	9.5	4.7	
Other Paper	10.3	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.4	5.3	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags		4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal	5.0	4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.9	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.6	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.9	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

(#4 Rec)

Glass / Plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 53//1431 **Arrival Number:** # 4
Hauler: City/All PCS **Truck Type:**
Location:
Arrival Time: 10:00 A.M. ______ P.M.
Origin (Municipality):

3.9 bottle bill
3.7/5.0 + 4.5/5.0
9.0/5.3 + 8.3/5.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines		4.7	
Corrugated	5.0	4.7	
Gable Top Cartons & Drink Boxes	6.4	5.0	
Paper Board	5.4	5.1	
Books (including phone directories)		4.8	
Mixed Office Paper	5.2	4.8	
Other Paper	5.4	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.5	5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	7.9	5.1	
Film Plastic & Plastic Bags	5.2	4.7	
Other Plastics	5.1	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.3	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	17.6	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.6	5.0	
Aluminum Cans (Bottle Bill)	5.3	4.7	
Other Non-Ferrous Metal	7.0	4.7	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	8.6	4.8	
Glass Bottle - Clear 34.4	~~6.6~~	4.8	
Glass Bottle - Amber	6.6	4.8	
Glass Bottle - Green	21.9	4.7	
Flat Glass & Other Glass	5.6	4.8	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

(#5 Rec)

paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Same
Truck ID Number: 5314 / 432 **Arrival Number:** 5
Hauler: City Alb / DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:10 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	57.9	4.7	
Magazines	18.6	4.7	
Corrugated	12.6	4.7	
Gable Top Cartons & Drink Boxes	5.8	5.0	
Paper Board	16.1	5.1	
Books (including phone directories)	24.3	4.8	
Mixed Office Paper	12.0	4.7	
Other Paper	6.0	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.0	5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.5	5.2	
Other Plastic Containers	5.5	5.0	
Film Plastic & Plastic Bags	4.7	4.7	
Other Plastics	4.7	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)	4.8	4.8	
Other Non-Ferrous Metal		4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	5.2	4.8	
Glass Bottle - Clear	7.6	4.9	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.6	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#5 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name:
Truck ID Number: 5314 / 432 **Arrival Number:** 5
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:10 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	4.7	4.7	
Magazines	5.2	4.7	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	7.3	5.0	
Paper Board	6.2	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper		4.7	
Other Paper	5.0	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.6	5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	3.5	5.3	
Film Plastic & Plastic Bags	5.6	4.7	
Other Plastics	5.2	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	13.3	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal	5.4	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	5.0	
Aluminum Cans (Bottle Bill)	5.3	4.8	
Other Non-Ferrous Metal	6.6	4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	12.1	4.8	
Glass Bottle - Clear	45.0	4.8	
Glass Bottle - Amber	10.6	4.8	
Glass Bottle - Green	59.3	4.7	
Flat Glass & Other Glass	5.1	~~4.6~~ 4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

11.6/5.0 + 7.9/5.0

8.6/5.3

(2) 5.7/5.3

#6 Rec

PAPER

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name:
Truck ID Number: 5320 **Arrival Number:** 6
Hauler: CTY ALB DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:45 A.M. ______ P.M.
Origin (Municipality):

News
71.1/4.7 + 12.7/4.7

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	13.6	4.7	
Corrugated	7.6	4.7	
Gable Top Cartons & Drink Boxes	5.4	4.9	
Paper Board	13.4	5.0	
Books (including phone directories)	18.2	4.7	
Mixed Office Paper	10.7	4.7	
Other Paper	6.2	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.0	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	5.5	5.3	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags		4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.7	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.0	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal	5.0	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.4	4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#6 pe

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name:
Truck ID Number: S320/435 **Arrival Number:** 6
Hauler: City Alb Dgs **Truck Type:** Recycling
Location:
Arrival Time: 11:45 A.M. P.M.
Origin (Municipality):

① 10.0/5.0
② 9.1/5.0

① 8.5/5.2
② 8.8/5.2

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.1	4.7	
Magazines	5.5	4.7	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	6.6	5.0	
Paper Board		5.0	
Books (including phone directories)	8.2	4.7	
Mixed Office Paper		4.7	
Other Paper	5.1	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	6.7	5.0	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	8.0	5.1	
Film Plastic & Plastic Bags	5.2	4.7	
Other Plastics	5.3	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	17.4	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal	5.2	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	~~5.0~~ 4.9	
Aluminum Cans (Bottle Bill)	5.6	~~5~~ 4.8	
Other Non-Ferrous Metal	5.4	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	11.1	4.8	
Glass Bottle - Clear	35.8	4.8	
Glass Bottle - Amber	14.4	4.7	
Glass Bottle - Green	33.8	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#7 Rec

Paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name:
Truck ID Number: 434 **Arrival Number:** 7
Hauler: City of Albany DGS **Truck Type:** Recycling
Location:
Arrival Time: A.M. 12:15 P.M.
Origin (Municipality):

Newspaper
55.4/4.7 + 45.5/4.7

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	19.3	4.7	
Corrugated	7.6	4.7	
Gable Top Cartons & Drink Boxes	5.3	5.0	
Paper Board	14.0	5.0	
Books (including phone directories)	21.7	4.7	
Mixed Office Paper	15.4	4.8	
Other Paper	6.2	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.1	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	6.1	5.3	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags		4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#7 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name: Shane
Truck ID Number: 434 **Arrival Number:** 7
Hauler: City Alb DGS **Truck Type:**
Location:
Arrival Time: A.M. 12:15 P.M.
Origin (Municipality):

glass bottle
9.7/5.0 + 11.2/5.0

HDPE
9.5/5.3 + 6.5/5.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	17.4	4.8	
Magazines	6.7	4.8	
Corrugated	4.9	4.7	
Gable Top Cartons & Drink Boxes	6.0	4.4	
Paper Board	8.1	5.0	
Books (including phone directories)	10.2	4.7	
Mixed Office Paper	5.3	4.8	
Other Paper		4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.7	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	7.1	~~4.7~~ 5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	5.1	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	15.3	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	4.9	
Aluminum Cans (Bottle Bill)	5.3	4.8	
Other Non-Ferrous Metal	6.7	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	10.9	4.3	
Glass Bottle - Clear	48.5	4.8	
Glass Bottle - Amber	8.2	4.7	
Glass Bottle - Green	27.6	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#8) Rec

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Paper

News
DCS 3.5/4.8
D 19.2/4.7

Corr
17.4/4.8
D 5.9/4.7

Paperboard
15.7/5.0
D 11.0/4.9

Day/Date: Tuesday 3/3/09
CHA Staff Name:
Truck ID Number: 436 **Arrival Number:** 8
Hauler: DCS **Truck Type:** Recycling
Location:
Arrival Time: A.M. 1.45 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.8	
Magazines	25.4	4.6	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	5.4	4.9	
Paper Board		5.0	
Books (including phone directories)	37.9	4.7	
Mixed Office Paper	30.6	4.7	
Other Paper	7.4	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers		4.9	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics	4.8	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.8	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

(#5) Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Tuesday 3/3/09
CHA Staff Name:
Truck ID Number: 436 **Arrival Number:**
Hauler: DCJ **Truck Type:** Recycling
Location:
Arrival Time: A.M. 1.45 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	4.8	4.7	
Magazines	5.2	4.8	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	6.8	5.0	
Paper Board	5.6	4.9	
Books (including phone directories)		4.7	
Mixed Office Paper		4.7	
Other Paper		4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.4	4.9	
Plastic Containers (HDPE) #2	4.4	5.3	
Other Plastic Containers	8.9	5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	5.3	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans	5.7	4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.5	5.0	
Aluminum Cans (Bottle Bill)	5.2	4.8	
Other Non-Ferrous Metal	5.8	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	13.2	4.8	
Glass Bottle - Clear	63.8	4.9	
Glass Bottle - Amber	6.4	4.7	
Glass Bottle - Green	25.6	4.8	
Flat Glass & Other Glass	5.3	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

1) 11.2/5.0
2) 7.9/5.0

Ferr. Metal/Bi metal
17.6/5.0 + 11.0/5.0

#1 Rec

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Paper

Day/Date: Wednesday 3/4/09
CHA Staff Name: J. Hurrich, S. Johnston, T. Costello, B. Winnie, L. Lury, B. Carpenter
Truck ID Number: 432 / 5314 **Arrival Number:** 1
Hauler: DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:05 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	39.1	4.7	
Magazines	21.4	4.7	
Corrugated	12.7	4.7	
Gable Top Cartons & Drink Boxes	5.9	4.9	
Paper Board	22.3	5.0	
Books (including phone directories)	15.3	4.8	
Mixed Office Paper	20.3	4.8	
Other Paper	6.4	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.1	5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.6	5.3	
Other Plastic Containers	5.3	4.9	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics	5.3	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.7	
RUBBER		4.3	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.4	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.7	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.3	
Other Non-Ferrous Metal	5.0	4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.7	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.3	
Flat Glass & Other Glass		4.7	
WOOD		4.3	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.3	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#1 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name: Sarah
Truck ID Number: 432 / 5314 **Arrival Number:** 1
Hauler: DGS **Truck Type:**
Location:
Arrival Time: 7:05 A.M. ______ P.M.
Origin (Municipality):

PET#1 - Non-Bottle
① 10.0 / 5.0
② 5.4 / 5.0

HDPE
① 9.0 / 5.3
② 7.3 / 5.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.6	4.7	
Magazines	5.3	4.7	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	5.0	5.0	
Paper Board	5.6	5.0	
Books (including phone directories)		4.8	
Mixed Office Paper	5.2	4.7	
Other Paper	5.0	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	5.9	5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	7.8	5.0	
Film Plastic & Plastic Bags	4.9	4.7	
Other Plastics	4.9	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	13.8	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal	6.5	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	~~5.4~~ ~~5.2~~ 5.5	4.9	
Aluminum Cans (Bottle Bill)	5.4	4.8	
Other Non-Ferrous Metal	6.4	4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	17.8	4.8	
Glass Bottle - Clear	45.8	4.7	
Glass Bottle - Amber	8.5	4.7	
Glass Bottle - Green	27.8	4.8	
Flat Glass & Other Glass	6.3	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.7	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#2 Rec

paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name: Sarah
Truck ID Number: 436 **Arrival Number:** 2
Hauler: city, Alb / DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:50 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	44.6	4.7	
Magazines	11.0	4.8	
Corrugated	15.7	4.7	
Gable Top Cartons & Drink Boxes	5.2	~~4.7~~ 5.0	
Paper Board	15.1	5.0	
Books (including phone directories)	13.0	4.8	
Mixed Office Paper	6.5	4.7	
Other Paper	6.4	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.3	5.0	
Plastic #1 (Bottle Bill Containers)	5.0	4.9	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	5.4	5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics		4.7	
FOOD WASTE	6.3	5.3	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.3	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	5.0	
Aluminum Cans (Bottle Bill)	4.7	4.7	
Other Non-Ferrous Metal		4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear	6.9	4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		4.	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#2 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name: Sarah
Truck ID Number: 436 **Arrival Number:** 2
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 7:50 A.M. ______ P.M.
Origin (Municipality):

PET #1 -Non Bottle
(1) 10.1/5.0
(2) 10.9/5.0

HDPE#2
1) 8.8/5.2
2) 7.6/5.2

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	4.7	4.7	
Magazines	4.9	4.7	
Corrugated	4.9	4.7	
Gable Top Cartons & Drink Boxes	6.9	5.0	
Paper Board	8.2	5.0	
Books (including phone directories)	8.6	4.7	
Mixed Office Paper		4.7	
Other Paper	4.8	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)	6.5	5.0	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	8.4	5.0	
Film Plastic & Plastic Bags	5.1	4.7	
Other Plastics	6.4	4.7	
FOOD WASTE		5.2	
TEXTILES & LEATHER		4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	15.5	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal	6.0	4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.2	5.0	
Aluminum Cans (Bottle Bill)	5.4	4.7	
Other Non-Ferrous Metal	6.3	4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	7.9	4.8	
Glass Bottle - Clear	36.7	4.8	
Glass Bottle - Amber	11.3	4.7	
Glass Bottle - Green	18.9	4.7	
Flat Glass & Other Glass	5.6	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#3 Rec

(paper)

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

News
1) 88.2 / 4.7
2) 27.6 / 4.7

Day/Date: Wed 3/4/09
CHA Staff Name: Sam
Truck ID Number: 434 **Arrival Number:** 3
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 9:15 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	24.3	4.7	
Corrugated	16.8	4.4	
Gable Top Cartons & Drink Boxes	5.1	5.0	
Paper Board	14.6	5.0	
Books (including phone directories)	44.1	4.7	
Mixed Office Paper	23.2	4.7	
Other Paper	7.3	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.4	5.3	
Other Plastic Containers	5.3	5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics		4.7	
FOOD WASTE		5.7	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		4.8	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	5.3	4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#3 Rec

Plastic/Glass

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name: Same
Truck ID Number: 434 **Arrival Number:** 3
Hauler: City DGS **Truck Type:** Recycling
Location:
Arrival Time: 9:15 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	6.9	4.8	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	6.6	5.0	
Paper Board	7.8	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper	5.1	4.7	
Other Paper	5.9	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	10.9	5.0	
Plastic #1 (Bottle Bill Containers)	5.5	4.9	
Plastic Containers (HDPE) #2	7.9	5.3	
Other Plastic Containers	9.1	5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	8.6	~~4.8~~ 4.7	
FOOD WASTE		5.2	
TEXTILES & LEATHER	5.5	4.9	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	25.1	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	~~10.9~~	5.0	
Aluminum Cans (Bottle Bill)	5.5	4.8	
Other Non-Ferrous Metal	6.1	4.9	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	21.1	4.8	
Glass Bottle - Clear	33.5	4.8	
Glass Bottle - Amber	8.1	4.7	
Glass Bottle - Green	17.1	4.7	
Flat Glass & Other Glass	5.3	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#4 Roe

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Paper

News
1) 91.4/4.7
2) 14.2/4.7

Day/Date: Wednesday 3/4/09
CHA Staff Name: Sam
Truck ID Number: 5314 1432 **Arrival Number:** 4
Hauler: City Alb / DGS **Truck Type:** Recycling
Location:
Arrival Time: 10:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	10.2	4.8	
Corrugated	15.7	4.8	
Gable Top Cartons & Drink Boxes	5.2	5.0	
Paper Board	14.3	5.0	
Books (including phone directories)	5.4	4.7	
Mixed Office Paper	6.7	4.7	
Other Paper	6.8	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers		5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS		~~5.0~~	
Aluminum Cans (Non-Bottle Bill)		~~4.7~~ 5.0	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		4.8	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#4 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 3/4/09
CHA Staff Name: Same
Truck ID Number: 5314/432 **Arrival Number:** 4
Hauler: City Alb DGS **Truck Type:** Recycling
Location:
Arrival Time: 10:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	7.4	4.7	
Magazines		4.7	
Corrugated	4.9	4.7	
Gable Top Cartons & Drink Boxes	6.6	4.9	
Paper Board	6.4	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper	5.8	4.7	
Other Paper	5.1	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	~~6.7~~	5.0	
Plastic #1 (Bottle Bill Containers)	5.6	5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	7.7	5.0	
Film Plastic & Plastic Bags	5.3	4.7	
Other Plastics	5.6	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	17.7	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS		~~5.0~~	
Aluminum Cans (Non-Bottle Bill)	5.3	5.0	
Aluminum Cans (Bottle Bill)	5.5	4.7	
Other Non-Ferrous Metal	6.0	4.8	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	11.1	4.8	
Glass Bottle - Clear	44.7	4.8	
Glass Bottle - Amber	11.0	4.7	
Glass Bottle - Green	22.9	4.7	
Flat Glass & Other Glass	8.3	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

HDPE
1) 9.7/5.3
2) 7.0/5.3

Plas-Non Bott.
1) 11.4/5.0
2) 6.7/5.0

#5 Roe

paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed. 3/4/09
CHA Staff Name: Sam
Truck ID Number: 436 **Arrival Number:** 5
Hauler: City D/6 DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:00 A.M. ______ P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	79.4	4.7	
Magazines	26.2	4.7	
Corrugated	13.2	4.7	
Gable Top Cartons & Drink Boxes	5.4	4.9	
Paper Board	13.5	5.0	
Books (including phone directories)	39.1	4.7	
Mixed Office Paper	19.8	4.7	
Other Paper	6.3	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.4	5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2	5.4	5.2	
Other Plastic Containers	5.4	5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.5	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.8	
Other Non-Ferrous Metal		5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	5.2	4.8	
Glass Bottle - Clear		4.9	
Glass Bottle - Amber		4.8	
Glass Bottle - Green	5.9	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#5 Rec

glass/plastics

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 3/4/09
CHA Staff Name: Sam
Truck ID Number: 436 **Arrival Number:** 5
Hauler: City D/G DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:00 A.M. ________ P.M.
Origin (Municipality):

HDPE
① 9.7/5.3
② 8.2/5.3

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	9.2	4.7	
Magazines		4.7	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	7.2	4.9	
Paper Board	9.7	5.0	
Books (including phone directories)	9.0	4.7	
Mixed Office Paper	5.2	4.7	
Other Paper		4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	10.8	5.0	
Plastic #1 (Bottle Bill Containers)	5.3	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	8.2	5.0	
Film Plastic & Plastic Bags	5.1	4.7	
Other Plastics	6.2	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	15.9	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)	5.1	4.7	
Other Non-Ferrous Metal	7.1	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	6.1	4.8	
Glass Bottle - Clear	43.7	4.8	
Glass Bottle - Amber	15.8	4.8	
Glass Bottle - Green	34.6	4.7	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#6 Rec

paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wednesday 3/4/09
CHA Staff Name: Jame
Truck ID Number: 434 **Arrival Number:** 6
Hauler: City DIG DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:30 A.M. ______ P.M.
Origin (Municipality):

Newspaper
76.8/4.7
20.5/4.7

Paperboard
15.3/5.0
5.5/5.0

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	24.9	4.7	
Corrugated	14.5	4.7	
Gable Top Cartons & Drink Boxes	5.3	5.0	
Paper Board		5.0	
Books (including phone directories)	31.0	4.7	
Mixed Office Paper	15.8	4.7	
Other Paper	8.8	4.7	
PLASTICS		~~4.7~~	
Plastic Containers (PET) #1 Non-Bottle Bill		5.0	
Plastic #1 (Bottle Bill Containers)		4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	5.3	5.0	
Film Plastic & Plastic Bags	4.9	4.7	
Other Plastics		4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER	5.0	5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.5	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		5.0	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal	5.4	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	5.8	4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.7	
Glass Bottle - Green		4.8	
Flat Glass & Other Glass		4.8	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#6 Rec

plastic/glass

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Plastic Non bottle
1) 10.3 / 5.1
2) 12.3 / 5.1

HDPE
1 9.1 / 5.2
2 8.2 / 5.3

Day/Date: Wed 3/4/09
CHA Staff Name: Jane
Truck ID Number: 434 **Arrival Number:** 6
Hauler: DGS **Truck Type:** Recycling
Location:
Arrival Time: 11:31 **A.M.** ________ **P.M.**
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.3	4.7	
Magazines	5.6	4.7	
Corrugated		4.7	
Gable Top Cartons & Drink Boxes	6.6	4.9	
Paper Board	7.9	5.0	
Books (including phone directories)	5.3	4.7	
Mixed Office Paper	4.7	4.7	
Other Paper		4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	12	5.1	
Plastic #1 (Bottle Bill Containers)	6.8	4.9	
Plastic Containers (HDPE) #2		5.2	
Other Plastic Containers	8.2	5.0	
Film Plastic & Plastic Bags	5.0	4.7	
Other Plastics	6.2	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	16.3	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.3	4.9	
Aluminum Cans (Bottle Bill)	5.2	4.8	
Other Non-Ferrous Metal	7.3	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	9.6	4.8	
Glass Bottle - Clear	40.0	4.9	
Glass Bottle - Amber	10.1	4.8	
Glass Bottle - Green	37.3	4.7	
Flat Glass & Other Glass	7.0	4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

Rec

Paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name: Same 430/5312
Truck ID Number: ~~435/5323~~ **Arrival Number:** ~~8~~ 7
Hauler: DGS **Truck Type:** Recycling
Location:
Arrival Time: A.M. ~~4:30~~ 1:05 P.M.
Origin (Municipality):

paperboard
~~15.0~~ 16.0/5.0
11.8 /5.0

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	59.2	4.7	
Magazines	28.5	4.7	
Corrugated	11.5	4.8	
Gable Top Cartons & Drink Boxes	5.4	4.9	
Paper Board		5.0	
Books (including phone directories)	9.7	4.7	
Mixed Office Paper	33.4	4.7	
Other Paper	7.9	4.8	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill		5.1	
Plastic #1 (Bottle Bill Containers)		5.0	
Plastic Containers (HDPE) #2	5.3	5.3	
Other Plastic Containers	5.1	5.0	
Film Plastic & Plastic Bags	4.7	4.7	
Other Plastics		4.7	
FOOD WASTE		5.1	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	5.2	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.8	
Flat Glass & Other Glass		~~4.8~~ 4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#7 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

PET - Non Bottle
(1) 10.8/5.0
(2) 7.5/5.0

HDPE
(1) 8.4/5.3
(2) 10.5/5.3

Day/Date: Wed 3/4/09
CHA Staff Name: Same
Truck ID Number: 430 / 5312 Arrival Number: 7
Hauler: Truck Type:
Location:
Arrival Time: ~~A.M.~~ A.M. 1:05 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	5.2	4.7	
Magazines	6.7	4.7	
Corrugated	6.4	4.7	
Gable Top Cartons & Drink Boxes	6.3	4.9	
Paper Board	6.0	5.0	
Books (including phone directories)		4.7	
Mixed Office Paper		4.8	
Other Paper	5.1	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	~~7.5~~	5.0	
Plastic #1 (Bottle Bill Containers)	5.7	4.9	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	8.2	5.0	
Film Plastic & Plastic Bags	5.2	4.7	
Other Plastics	6.8	4.7	
FOOD WASTE		5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	15.1	5.1	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.4	5.0	
Aluminum Cans (Bottle Bill)	5.3	4.7	
Other Non-Ferrous Metal	8.1	5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	8.0	4.7	
Glass Bottle - Clear	38.0	4.8	
Glass Bottle - Amber	9.1	4.7	
Glass Bottle - Green	18.7	4.8	
Flat Glass & Other Glass		4.8	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

#8 Rec

Paper

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name:
Truck ID Number: 435/5323 **Arrival Number:** 8
Hauler: DGS **Truck Type:** Recycling
Location:
Arrival Time: A.M. 1:30 P.M.
Origin (Municipality):

News ① 76.9/4.7
② 11.0/4.7

6/3
2 still

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper		4.7	
Magazines	43.0	4.7	
Corrugated	11.8	4.7	
Gable Top Cartons & Drink Boxes	4.9	5.0	
Paper Board	9.5	5.0	
Books (including phone directories)	27.7	4.7	
Mixed Office Paper	28.5	4.7	
Other Paper	6.8	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	5.1	5.1	
Plastic #1 (Bottle Bill Containers)	5.1	5.0	
Plastic Containers (HDPE) #2		5.3	
Other Plastic Containers	5.1	5.0	
Film Plastic & Plastic Bags	4.8	4.7	
Other Plastics		4.9	
FOOD WASTE		5.1	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS	5.3	4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans		5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)		4.9	
Aluminum Cans (Bottle Bill)		4.7	
Other Non-Ferrous Metal		5.0	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)		4.8	
Glass Bottle - Clear		4.8	
Glass Bottle - Amber		4.8	
Glass Bottle - Green		4.8	
Flat Glass & Other Glass		4.7	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE		~~4.7~~	
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

8 Rec

glass/plastic

CITY OF ALBANY
WASTE CHARACTERIZATION ANALYSIS
SORT DATA SHEET

Day/Date: Wed 3/4/09
CHA Staff Name: 435 5323
Truck ID Number: ~~430~~/5372 **Arrival Number:** ~~4~~ 8
Hauler: DGS **Truck Type:**
Location:
Arrival Time: A.M. ~~1:05~~ 1:30 P.M.
Origin (Municipality):

Material Components	Gross Weight (Lbs.)	Tare Weight Of Sort Container	Net Weight (Lbs.)
PAPER			
Newspaper	8.2	4.7	
Magazines	5.6	4.7	
Corrugated		4.8	
Gable Top Cartons & Drink Boxes	5.9	5.0	
Paper Board	8.0	5.0	
Books (including phone directories)	8.5	4.7	
Mixed Office Paper	6.5	4.8	
Other Paper	5.1	4.7	
PLASTICS			
Plastic Containers (PET) #1 Non-Bottle Bill	10.6	5.0	
Plastic #1 (Bottle Bill Containers)	5.3	5.0	
Plastic Containers (HDPE) #2	7.6	5.3	
Other Plastic Containers	7.1	5.0	
Film Plastic & Plastic Bags	5.4	4.8	
Other Plastics	8.9	4.7	
FOOD WASTE	5.6	5.3	
TEXTILES & LEATHER		5.0	
RUBBER		4.8	
DISPOSABLE DIAPERS		4.8	
FERROUS METALS			
Ferrous Metal/Bimetal Cans	17.5	5.0	
Aerosol Cans		4.9	
Other Ferrous Metal		4.9	
NON-FERROUS METALS			
Aluminum Cans (Non-Bottle Bill)	5.1	5.0	
Aluminum Cans (Bottle Bill)	5.1	4.8	
Other Non-Ferrous Metal	8.6	5.1	
ELECTRONICS			
GLASS			
Glass Bottles (Bottle Bill)	18.7	4.8	
Glass Bottle - Clear	103.1	4.9	
Glass Bottle - Amber	17.4	4.7	
Glass Bottle - Green	96.9	4.8	
Flat Glass & Other Glass	5.1	4.8	
WOOD		4.8	
RUBBLE		4.8	
YARD WASTE		4.7	
DIRT/FINES		4.8	
HAZARDOUS WASTE			
Household Hazardous Waste (HHW)		4.7	
Lead Acid Batteries		4.7	
Other Batteries		4.7	
MEDICAL OR PHARMACEUTICAL WASTE		5.0	
MISCELLANEOUS		4.7	

APPENDIX D
SOLID WASTE SORTING PROTOCOL

Detailed Protocol for the Waste Characterization Field Study
Capital Region Solid Waste Management Plan

1.0 Introduction and Summary

The purpose and objective of this field study is to characterize the constituents of the solid waste and recycled materials stream for the Capital Region Solid Waste Planning Unit. Characterizing the local waste stream will provide valuable information for planning future improvements to local recycling efforts as well as for evaluating the feasibility of alternative solid waste management systems. Another purpose of the study is to examine differences in solid waste composition collected by a municipal agency (such as the City of Albany DGS) and commercial haulers servicing commercial, industrial or institutional customers as well as multi-family dwellings.

The field study will be done over a 5 day work week Monday through Friday during the week of February 23rd. The week will be used to sample and characterize solid waste deliveries to the Rapp Road Landfill as well as sample and characterize curbside recyclables collected by the City of Albany DGS. .

The program will generally follow the American Society of Testing Materials Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste, ASTM D5231-92 (Reapproved 2003). This test method describes procedures for measuring the composition of unprocessed municipal solid waste (MSW) by employing manual sorting. This test method applies to determination of the mean composition of MSW based on the collection and manual sorting of a number of samples of waste over a selected time period covering a minimum of one week. This test method includes procedures for the collection of a representative sorting sample of unprocessed waste, manual sorting of the waste into individual waste components, data reduction, and reporting of the results.

Waste and recyclable delivery vehicles will be selected randomly from eligible collection routes and representative samples will be secured from each of load. Samples will be sorted into separate containers for each of the designated categories, after which the constituents will be weighed and the results tallied. The following 39 waste and recyclable categories will be sorted as part of this study:

Newspaper
Magazines
Corrugated
Gable top cartons and drink boxes
Paperboard
Books, including phone directories
Mixed Office paper
Other Paper
Plastic containers (PET) #1 Non-bottle bill

Plastic #1 - bottle bill containers
Plastic containers (HDPE) #2
Other Plastic containers
Film Plastic and plastic bags
Other Plastics
Food Waste
Textiles and leather
Rubber
Disposable Diapers
Ferrous metal/bi-metal cans
Aerosol cans
Other ferrous metal
Aluminum cans – non bottle bill
Aluminum cans – bottle bill
Other non-ferrous metal
Electronics
Glass bottles - bottle bill
Glass bottles - non bottle bill sorted by color:

- Clear
- Amber
- Green

Flat Glass and other Glass
Wood
Rubble
Yard Waste
Fines
HHW
Lead Acid Batteries
Other batteries
Medical or Pharmaceutical waste
Miscellaneous

It is anticipated that the sorting and sampling crew will consist of 7 people, including one Site Supervisor responsible for vehicle sampling and oversight, one Crew Chief responsible for oversight of the manual sorting effort, and 5 sorting staff. Detailed work protocols have been developed for the crew with respect to sample selection, sorting, weighing, and clean-up, and these are presented in Sections 2 and 3, below. Appropriate health and safety protocols have been developed for the sorting and sampling crew to minimize exposures to environmental and physical hazards. The health and safety plan is presented in Section 3.

2.0 MSW Characterization

The existing building at the Rapp Road Landfill site formerly used for waste tipping and processing will be used for sample collection, sorting and weighing of the MSW (hereafter called the processing building). Waste sample collection and sorting will commence on Monday February 23rd and continue through Friday February 27th, 2009.

2.1 Sampling and Sorting Protocol

In the week prior to commencing the field study, the City of Albany DGS will inform haulers using of its landfill that the study will be in progress during the following week.

Preparation for the sampling and sorting program will be conducted as follows:

During the week preceding the first sample collection and sorting, the site supervisor and/or crew chief will:

- complete arrangements for the purchase and rental of the necessary equipment and protective gear;
- visit the landfill site and processing building and finalize any site logistical issues, including location of the exact areas where the waste discharge, sampling, and sorting operations will be conducted, and clean-up an waste disposal arrangement (including contingency for disposal of any hazardous materials discovered during the process);
- Using a random number generator, determine the vehicle numbers that will be sampled on each day, in accordance with the procedure described below.

On Friday February 20th, 2009 a crew training and orientation session will be conducted at a CHA training room to cover the following topics:

- Description of vehicle unloading and collection of samples
- Discussion of components to be sorted
- Discussion of equipment and data collection methods.
- Review of Health and Safety Plan
- Next weeks work schedule and equipment set-up.

This meeting will run from 2 pm to 4 pm. Representatives of the City of Albany DGS who will be participating in some of the study activities will be invited to attend this session.

On Monday, February 23rd, 2009, the entire work crew will arrive at the landfill site at 6:30 AM to commence equipment set up as follows:

- Deliver equipment and supplies to the processing building
- Position the scale on a clean, flat surface and calibrate the scale
- Secure a label to each barrel or receptacle indicating the sorted component to be placed in the receptacle;
- Weigh all empty barrels and receptacles and record tare weights;
- Set up the sorting table on a 10'X10' tarp, and place the receptacles at convenient locations around the table.

During each day starting on Monday February 23rd, randomly selected vehicles carrying MSW will be diverted to the processing building by the Site Supervisor, who will be situated at the scale house. The Site Supervisor will then interview the driver to determine the eligibility of the vehicle for sampling. Eligible vehicles will then be diverted to the processing building for the sampling and sorting procedure, indicated below. Ineligible vehicles will include vehicles delivering cover soil, contaminated soils, full loads of construction and demolition debris, or full loads of MSW originating outside of the municipalities which are members of the Planning Unit.

The sampling protocol conducted by the site supervisor will then proceed as follows:

1) Inform the DGS scale house attendant of the vehicle diverted to the processing building.
2) As the selected vehicle moves off the scale the driver will be directed to pull off onto the right shoulder, adjacent to the leachate storage tank. The driver will be interviewed using the Waste Origin Survey Form (Attachment 1).
3) As a result of the information received during the interview a determination is then made if the vehicle is suitable for sorting.
    a. If the vehicle is not acceptable for sorting, the driver will be directed to proceed to the left up the access road to the working face of the landfill. In this case the Site Supervisor will return to the scale house and select the next available vehicle.
    b. If the vehicle is eligible, the driver will be directed to drive to the processing building.
4) After entering the processing building, the driver will be directed to discharge its load in one contiguous pile in a designated area on the tipping floor.
5) After discharging, the driver will be directed to leave the processing building and return to the scale house to weigh out.
6) Under the direction of the Crew Chief, DGS personnel operating a front end loader or skid steer loader (1 CY minimum bucket size) will remove material longitudinally along one side of the entire pile. The mass of this removed material should be sufficient to form a mass of material which on a visual basis is at least 1,000 lbs, or approximately 4 CY. This removed material shall be mixed, coned and quartered. The Crew chief will randomly select one of the quarters and the front end loader will collect the selected material.
7) If the diverted truck is a compartmentalized recyclables truck (i.e. if a truck is delivering separate loads of mixed paper and containers), the sample should be obtained from each of the loads from that truck, approximately 2 CY from each. This removed material shall be mixed, coned and quartered. The Crew chief will randomly select one of the quarters and the front end loader will collect the selected material.
8) The selected sample will be transported by front end loader and deposited at a designated location in the sorting area.
9) The sorters will transfer the sample to the sort table, and will generally open all containers and remove the contents prior to sorting. An exception will be in the case of a container containing a household hazardous waste (HHW). In this case both the container and its contents will be sorted as the HHW.
10) Composite items will be observed to judge the major component in the composite by weight, and will then be sorted according to its component constituent.
11) Continue sorting all items until the maximum remaining particle size is approximately ½ inch. These particles will fall through a ½ inch screen will be collected on a tarp beneath the screen.

12) After sorting is complete, record the gross weight of each storage container and of any waste items sorted but not stored in containers. Gross weight and tare weight should be recorded for each material component and container on the Sort Data Sheet.
13) Reweigh empty containers if they appear wet and record new tare weights if necessary.
14) Clean up the sorting area and the designated vehicle discharge area of any waste material. HHW, Electronic Waste, and Lead Acid Batteries will be segregated from other remaining waste stream components so that they can be properly handled.
15) These procedures will be documented by a sufficient photographic record taken by a member of the sorting crew.

After sorting of the sample from a collection vehicle is nearly complete, the Crew Chief will inform the Site Manager (via two-way radio) that a new vehicle may be selected for sampling.

2.2 Personnel Responsibilities

Assigned DGS Employee – Operate front end loader to select waste samples at the direction of CHA Crew Chief, and to move waste and sampled material to designated area after samples are complete, so that the waste material can be transferred for disposal in the landfill.

CHA Site Supervisor – Overall supervision of the waste characterization field study. Also responsible for interviewing drivers and completing the Waste Origin Survey Forms.

CHA Crew Chief – Responsible for supervision of the waste sorting effort and staff, and compilation of the sort data sheets.

CHA Staff – responsible for set-up, sample loading, sorting, weighing, and clean-up.

3.0 Health and Safety Plan

CLOUGH HARBOUR & ASSOCIATES LLP

SITE HEALTH AND SAFETY PLAN

PROJECT INFORMATION

Project Name: Albany Landfill Solidwaste Characterization Study	**CHA Project No.** 19283
Project Start Date: 2/23/09 **Completion Date:** 2/27/09	**Weather:**
Project Location: 2/23/09 - landfill	**Project Task:** 2/23/09 - Classification of Solid Waste per ASTM procedure

Description of Work: The field crew will be sorting solid waste into 39 different classifications from randomly selected loads. Loads will be approximately 250 lbs and will be transferred from the concrete floor onto work tables using rakes and shovels. Solid waste will be sorted into classifications and placed in corresponding bins.

Key Personnel:	Ken Gallagher	Sarah Johnston	Jamie Herrick
Responsibilities:	*Project Manager*	*Field Team Leader*	*Site Safety Officer*

Description of Hazards: heavy equipment, wet/slippery floors, use of rakes and shovels, climatic conditions, household hazardous waste, biomedical waste, human and animal waste, glass and other sharp objects.

TASK HAZARDS				TASK SAFETY MEASURES & PPE	
Eye	Chemical Exposure	Yes ☐	No ☐	☒ Safety Glasses	
	High Heat/Cold	Yes ☐	No ☐	☐ Safety Goggles	
	Dust/Flying Debris	Yes ☒	No ☐	☐ Face Shield	
	Impact	Yes ☐	No ☐	☐ Shaded Lenses	
	Light/Radiation	Yes ☐	No ☐		
Head	Impact	Yes ☐	No ☐	☒ Hard Hat: ☒ Orange or ☐ White or ☐ Blue	
	Electrical Shock	Yes ☐	No ☐	☐ Reflector Tape (Required for night operations)	
	Lack of Visibility	Yes ☒	No ☐		
Foot	Chemical Exposure	Yes ☐	No ☐	☒ Work Boots	☒ Steel Toed Boots
	High Heat/Cold	Yes ☒	No ☐	☐ Ankle Protection	☐ I/75 C/75 (Impact/Compression)
	Impact/Compression	Yes ☐	No ☐	☐ Rubber Boots	☐ Cd Type 1 or 2 (Conductive)
	Slips/Trips	Yes ☒	No ☐	☒ Insulated Boots	☐ PR (Puncture Resistant)
	Puncture	Yes ☒	No ☐	☒ Non-slip Soles	☐ Mt/70 or 50 or 30 (Metatarsal)
	Slippery/Wet Surface	Yes ☒	No ☐	☐ Chemical resistant	☐ EH (Electrical Hazard)
	Explosive/Flammable Atmospheres	Yes ☐	No ☐		☐ SD Type I or II (Static Dissipative)
	Electrical	Yes ☐	No ☐		
Hand	Chemical Exposure	Yes ☐	No ☐	☐ Work Gloves	☐ Rubber Gloves
	High Heat or Cold	Yes ☒	No ☐	☐ Leather Gloves	☐ Nitrile Gloves
	Cuts/Abrasion	Yes ☒	No ☐	☒ Latex Gloves	☐ Insulated Gloves
	Puncture	Yes ☒	No ☐	☐ Vinyl Gloves	☒ Kevlar Gloves
	Electrical Shock	Yes ☐	No ☐	☒ Neoprene Gloves	
	Bloodborne Pathogen	Yes ☒	No ☐	☐ Butyl Gloves	
Body/Torso	Chemical Exposure	Yes ☐	No ☐	☒ Tyvek Suits: ☐ White or ☒ Yellow	
	Extreme Heat/Cold	Yes ☐	No ☐	☐ UV Protection	☒ First Aid Kit
	Abrasion	Yes ☐	No ☐	☐ Coveralls	☐ Traffic Cones
	Impact	Yes ☐	No ☐	☒ Reflective Vest	☐ Signage
	Electrical Arc	Yes ☐	No ☐	☐ Insect Repellent	☒ 2- Way Radios

	Biological Hazards	Yes ☒	No ☐	☐ Tick Removal Kit ☐ Flashlight
Fall	Fall Hazard	Yes ☐	No ☒	☐ Harness ☐ Fall Protection Lanyard
Noise	Noise Hazard	Yes ☐	No ☒	☐ Ear Plugs ☐ Ear Muffs
Respiratory	Chemical Exposure	Yes ☐	No ☐	☐ Respirator: ☐ ½ Face or ☐ Full Face
	Confined Spaces	Yes ☐	No ☐	☐ Cartridge: ☐ P or ☐ OV or ☐ C
	Particulate Exposure	Yes ☐	No ☐	
	Welding Hazard	Yes ☐	No ☐	

SITE CONTROL

Site Control/Site Security[1]: *Describe Measures*	NA	M & PT: ☐ Y ☒ N *If yes, sketch information on separate sheet*
Confined Space Entry: *If Yes, Attach Permit*	☐ Y ☒ N	
Decontamination: *If Yes, Describe Procedures*	☒ Y ☐ N cleaning solution will be available to clean the rubber gloves, glasses, tools, etc.	
Site Monitoring[2]: *If Yes, Describe Procedures*	☒ Y ☐ N a four gas meter will be used to monitor the air throughout the duration of the project.	

CONTINGENCY PLAN

Emergency Contacts: *Provide Telephone Numbers*	Police: 911 Ambulance: 911 Fire: 911 Hospital: St. Peters/ER–525-1324 AMC ER – 262-3131	Client Contact: Joe Giebelhaus, Solid Waste Manager, Client Phone #: cell 229-7806 ; office 869-3651 CHA PM Phone #: Frank LaVardera 424-3420 cell Ken Gallagher 201-232-3407 cell Poison Control: 800 336-6997
Route to Hospital:	see attachment for directions	
Communication:	☒ Cell Phone ☐ Nearest Pay Phone ☐ Pager	

Comments: Dust masks and scented products will be provided for odor control if necessary (optional). Anti-bacterial lotion will be on-site. Drinking water will be located in a convenient location.

PLAN SIGN-OFF

Name:	Name:	Name:	Name:
X:	X:	X:	X:
Date:	Date:	Date:	Date:
Name:	Name:	Name:	Name:
X:	X:	X:	X:
Date:	Date:	Date:	Date:

1 Who is providing site control/site security, if any, for this task? Examples of Site Control/Site Security include police, client representative(s), owner(s), CHA or client supervisors
2 What are you monitoring on site, if any, for this task? Examples of Site Monitoring include air monitoring, like carbon monoxide or oxygen levels or wet bulb temperatures

APPENDIX E

ASSESSMENT OF EMERGING SOLID WASTE MANAGEMENT TECHNOLOGIES

1.0 INTRODUCTION AND DEFINITIONS

As part of the New SWMP process, the City of Albany is identifying and evaluating solid waste management technologies that could potentially reduce the amount of solid waste requiring landfill disposal. The SWMP will consider both established and emerging technologies for possible inclusion in the region's long-term solid waste program.

This assessment of emerging solid waste management technologies was prepared as part of the SWMP. This comparative evaluation is not intended to result in the selection of any particular technology or any particular company. Rather, it is intended to facilitate a conclusion about whether continued consideration of one or more of these technologies is appropriate as an on-going element of the New SWMP.

For the purposes of this evaluation, "emerging" solid waste management technologies are defined as technologies with the potential to provide commercial-scale, effective means of municipal solid waste processing and disposal, but which currently have little or no commercial application in the United States. Technologies that have only recently been introduced to the U.S. in a demonstration or commercial capacity qualify as emerging. Emerging technologies with existing commercial applications in other countries, but which have not been implemented in the U.S, are also included in this analysis.

Proven technologies with widespread commercial use in the U.S. are not included in the definition of emerging technologies. Waste-to-energy facilities (including both mass-burn and mechanically processed refuse derived fuel), stand-alone material recovery facilities (MRF), composting facilities for organic waste and conventional landfills do not qualify as new or emerging technologies, and are not included in this assessment.

This analysis includes information provided by respondents to a Request for Information, as further described in Section 2.0, as well as information about other new and emerging technologies derived from recent studies conducted in other jurisdictions and from other sources. A summary description of the details of many of the emerging technologies is presented in Section 3.0, where they are characterized by type of process and other factors. Information provided in the RFI responses is summarized in this section.

Section 4.0 describes some recent assessments of emerging technologies conducted by other jurisdictions who are evaluating these alternatives. Section 5.0 presents the findings and conclusions of this analysis in the context of the Capital Region Solid Waste Management Plan.

2.0 REQUEST FOR INFORMATION

As part of this process, a Request for Information (RFI) was prepared and distributed to solicit preliminary statements of interest and background information from parties wishing to participate in the evaluation process. The availability of the RFI was advertised in national publications (Waste Age and Waste and Recycling News) and began being distributed on February 16, 2009. Responses were requested on or before March 27, 2009.

Interested parties were invited to provide basic information regarding their sponsored technologies, including measures of actual or anticipated performance in each of the following categories of criteria:

- Experience of Project Sponsors
- Facility Sizing
- Costs of Ownership and Operation
- Environmental Impacts
- Readiness and Reliability
- Beneficial Reuse of MSW Byproducts
- Residues Requiring Landfill Disposal

A copy of the RFI is presented in Appendix A.

Fifteen (15) companies provided submittals in response to the RFI. Table 1 provides a summary of the RFI respondents.

Table 1 –Summary of Respondents to RFI

Name	Primary Treatment Type	Primary Product	Reference Facilities	Comment
Biogold	Thermal	Electricity or Biofuel/gasification	No MSW reference facility	Produces electricity and/or ethanol biofuel, depending on market for these commodities.
Carbon Diversion, Inc.	Thermal	Electricity from pyrolytic syngas	50 tpd facility in Dunlop TN	
Casella Waste Systems, Inc.	Mechanical/Thermal	Electricity from pyrolytic syngas	3 reference facilities for single stream. WTE demonstration unit under acceptance testing.	Final element of a 4 stage approach. Single stream recycling and processed waste feedstock in previous stages
Covanta Energy Corp.	Thermal	Electricity from Mass Burn	5 operating facilities in NY, 15 others in Northeast US.	Export to existing WTE facilities through B-3 transfer station in Columbia County.
Dongara Pellet Factory	Mechanical	Solid Fuel Pellets	110,000 tpy facility in Woodbridge, ON.	Fuel pellets are to be used for energy production.
Ecodeco	Biological/ Mechanical	Aerobic Biodrying with Solid Fuel Product	Several facilities in, Italy, Spain and U.K.	Solid Fuel product could potentially be used to generate electricity.
Energy Answers International	Mechanical/ Thermal	Electricity from Processed Refuse Fuel	3,000 tpd SEMASS facility in Rochester, MA	Company was affiliated w/ reference facility from 1988 - 1996
Green Conversion	Thermal	Electricity from Mass Burn	1,100 tpd facility in Hamburg, GE	

Name	Primary Treatment Type	Primary Product	Reference Facilities	Comment
Nature's Fuel	Thermal	Electricity from pyrolytic syngas	86,000 tpy facility in Atwood, IN.	
NORTERRA Organics	Biological	Compost	20,000 tpy facility in Joyceville, ON.	SSOW only
Organic Waste Remediation	Thermal	Electricity from pyrolytic syngas	250 tpd facility seeking approval in CT.	
Plasco Energy Group	Thermal	Electricity from Plasma syngas	110 tpd demonstration facility in Ottawa, Canada	
Powers Energy	Thermal	Biofuel from gasification	2,000 tpd facility being developed in Lake County, IN.	
StarTech Environmental	Thermal	Plasma-converted Syngas	2 facilities under contract in Europe	
Taylor Biomass Energy	Thermal	Electricity/ gasification	Facility under development	

Five of the submittals provided information about technologies that are considered commercially proven, including mass burn waste to energy, mechanically processed refuse derived fuel (RDF), and the composting of source separated organic waste. The 10 remaining respondents presented information about new and emerging technologies for waste treatment with recovery of materials, energy or both. Information from these submittals was summarized and is presented in the discussion of emerging technologies in Section 3.0.

A more detailed summary of each submittal is presented in Appendix B.

3.0 EMERGING SOLID WASTE MANAGEMENT TECHNOLOGIES

3.1 Thermal Processing

Thermal processing technologies encompass a variety of processes that use or produce heat, under controlled conditions, to convert MSW to usable products such as recyclable materials and/or electrical output. The organic content of MSW is converted to energy, and the inorganic content is recovered as products such as metals.

Thermal technologies can potentially convert all organic components of MSW into energy (i.e., all carbon and hydrogen-based materials, including plastic, rubber, textiles, and other organic materials that are not converted in biological processes). Thermal processing occurs in a high-temperature reaction vessel; reactor temperatures vary among technologies, but can range from approximately 800°F to as high as 8,000°F.

Generally speaking, thermal processing of MSW consists of two primary steps (DSNY 2006):

Pre-processing requirements are typically minimal for thermal processing technologies. Many thermal technologies require no MSW size reduction or separation by component, although some do require waste to be shredded prior to processing. While recyclables such as metals can be recovered in a pre-processing step, many thermal technologies recover recyclable metals after the thermal conversion process.

In ***thermal conversion***, the organic fraction of the MSW is converted to a gas form by processing at a high temperature within the reaction vessel. Gas products are typically composed of hydrogen, carbon monoxide and carbon dioxide gases, and may be called "syngas" or "fuel gas", depending on the technology. The gas may be converted to electricity by using it as a fuel in traditional boilers, reciprocating engines and combustion turbines. Net electricity is reportedly on the order of 400-500 kWh/ton for most thermal processing technologies.

Processing temperatures, the means of maintaining elevated temperatures, and the degree of decomposition of the organic fraction of MSW, vary among thermal processing technologies. Several types of thermal processing technologies have been or are being developed to a level of commercial feasibility, and are described in detail below.

3.1.1 Pyrolysis

Pyrolysis systems use a drum, kiln-shaped structure, or pyrolysis tube, which is heated using recycled syngas or another fuel or heat source. Existing pyrolysis systems can typically process up to 300 tpd of MSW; systems are modular and can be installed in parallel to increase throughput. MSW must be pre-processed to separate non-degradable materials, and the organic MSW content is essentially "cooked" in an externally heated oven at temperatures of 750°F to 1,650°F, *in the absence or near absence of free oxygen.* At high temperatures, the organic compounds volatilize and bonds thermally crack, breaking larger molecules into gases and liquids composed of smaller molecules, including hydrocarbon gases and hydrogen gas.

The temperature, pressure, reaction rates, and internal heat transfer rates are used to control pyrolytic reactions in order to produce specific products. Syngas products are composed primarily of hydrogen (H_2), carbon monoxide (CO), carbon dioxide (CO_2), and methane (CH_4). The syngas can be utilized in boilers, gas turbines, or internal combustion engines to generate electricity, or alternatively can be used in the production of chemicals. Some of the volatile components of MSW form tar and oil, and can be removed for reuse as a fuel. The balance of the organic materials that are not volatile, or liquid that is left as a char material, can be further processed or used for its adsorption properties (activated carbon). Inorganic materials form a bottom ash that requires disposal, although some pyrolysis ash can be used for manufacturing brick materials.

Most pyrolysis systems are closed systems, and there are no waste gases or air emission sources. However, subsequent power generation using syngas does have air emissions that can be filtered through a stack and air emission control system. The volume of MSW feedstock entering a pyrolysis reactor can be reduced by as much as 90% (City of LA 2005).

Four of the RFI respondents have developed or are developing thermal processing facilities utilizing pyrolysis. These respondents are Carbon Diversion, Inc., Casella Waste Systems, Inc., Nature's Fuel, and Organic Waste Remediation, LLC. A brief summary of these technologies or facilities, based on information provided in each of the RFI responses, is presented below.

Carbon Diversion, Inc.

Carbon Diversion Inc. is a Hawaiian corporation that was formed in 2004. CDI creates small-scale systems that can process MSW to generate electricity and bio-char products. The company identifies a pilot plant and two commercial facilities, located in Hawaii and Tennessee. CDI will break ground on the first of three planned manufacturing facilities in April 2009, which will allow the company to produce and deliver its systems.

CDI has built a pilot plant at Campbell Industrial Park in Hawaii. The plant consists of three 1-ton processors, and the main product is a petroleum product in the kerosene range. A second system is located in Dunlop, Tennessee as part of a sustainable community development, and consists of two 3.5 ton/hr. units. The Dunlop facility is designed to operate 10 hours/day and generate 2 MW of electricity. Bio-char byproducts are bagged and sold under the Eterna Green trade name as a soil amendment. Work has begun on a third site in Hawaii; four additional sites have been identified at transfer stations in Hawaii, pending final bond passage with a start date in July 2009.

Incoming waste, including tires, animal waste and green waste, is pre-processed (briquetted) and fed into the processors. A pressurized partial pyrolysis gasification process is used to produce a liquid fuel and syngas, which are used to generate electricity. Bio-char can be used for water filtration or as a soil amendment. Units can be remote-started by local power providers, and can be used for emergency power generation if provided access to natural gas utilities.

More information about this RFI response is presented in Appendix B.

Casella Waste Systems, Inc.

Casella Waste Systems, Inc. is a vertically integrated resource management company that operates primarily in the northeastern U.S, and was founded in 1975. The company operates a number of collection divisions, transfer stations, disposal facilities, recycling facilities, and landfill gas to energy facilities. FCR, Inc. is a wholly owned subsidiary of Casella that designs, builds and operates recycling facilities throughout the U.S.

Casella proposes a four-phased waste management approach for the Planning Unit. The first three phases include a single stream MRF, a multimaterial processing platform to recover additional recyclables and manufacture engineered feedstock for co-firing in solid fuel boilers. These first three phases are considered conventional technologies. It is the fourth phase which is considered an emerging technology because it includes the establishment of a waste-to-energy facility accepting the non-recoverable portion of the waste stream and thermally reducing it by means of pyrolysis and gasification. Syngas products would be used to produce electricity, liquid fuels or chemicals. Casella has a commercial demonstration unit currently in acceptance testing, which would serve as a reference facility upon completion; other reference facilities are operated by Eco Technology, a project partner.

More information about this RFI response is presented in Appendix B.

Nature's Fuel

Nature's Fuel (NF) was founded in 2005 and is an Indiana Corporation; the company is owned by private equity investors. NF owns and operates one commercial facility in Atwood, Indiana, and is developing a second commercial facility in Huntington, Indiana.

The NF system uses a pyrolysis process to generate electricity, bio-oil, bio-char, and bio-gas. Bio-char residue can be used as a soil amendment or high-grade source of activated carbon. Bio-oil can be sold to blenders and used to reduce the sulfur content and viscosity of #6 heating oil.

NF operates an 86,000 tpy facility in Atwood, Indiana – this plant began as a solid fuel R&D facility and was converted into a full-production pyrolyzation operation in 2007. The Atwood facility does not accept MSW, but does accepts wood waste, C&D waste, and other waste streams (plastics, waste oils, etc.) to produce sulfur-free bio-oil, high quality bio-char, and will begin to generate electricity later in 2009.

NF is in the process of developing a new facility in Huntington, Indiana that will accept MSW as feed stock. This facility will have an anticipated waste throughput of 200,000 tpy in Year 1, and will increase to 400,000 tpy by Year 3. Air permit approval is anticipated in July 2009.

Representatives of Nature's Fuel attended the SWMP Steering Committee meeting on August 18, 2009 give a presentation about their technology and facilities. As of that time, the facility planned for the Huntington Landfill was not yet operating. When it is operating the anticipated fee at Huntington will be $20/ton. Nature's Fuel indicated they anticipate that biogas generated at the Huntington facility would be used to fire internal combustion engines, and they expected a facility processing 500,000 TPY to generate about 50 MW. At the presentation NF clarified that the operating facility in Atwood primarily accepts wood waste from recreational vehicle manufactures including particle board, paints and sealants, laminates, and all kinds of wood and adhesives. That facility operates at 55,000 tons per year.

More information about this RFI response is presented in Appendix B.

Organic Waste Remediation, LLC

Organic Waste Remediation, LLC (OWR) is based in Orlando, FL and offers the OWR Process for disposal of MSW. The OWR Process combines single-stream recycling and pyrolysis technologies, and includes three modules. The *Recycling Module* separates non-organic material into ferrous, aluminum, other non-ferrous metals and clear, green and amber glass, washed and delabeled with ceramics removed. Unrecycled organic material is shredded, dried and fed to the Remediation Module. The *Remediation Module* uses a pyrolysis process to break organic materials down into a relatively consistent synfuel. Synfuel products are conveyed to the Power Module. The *Power Module* uses generic fluid bed burner/steam generation equipment to drive a steam turbine electric generator.

As of the RFI submittal date, OWR has not constructed or operated a MSW processing facility. OWR has commenced the approval process to construct and operate a commercial facility in Bozrah, CT. This facility will have a proposed maximum capacity of 250 TPD (~90,000 tpy), and contractual arrangements have been made to secure a 1,500 tons per week supply of MSW feedstock.

More information about this RFI response is presented in Appendix B.

3.1.2 Gasification

Gasification involves the thermal conversion of organic carbon-based materials in the presence of internally produced heat, typically at temperatures of 1,400°F to 2,500°F, and *in a limited supply of air/oxygen* to produce a syngas composed primarily of H_2 and CO. Inorganic materials are converted either to bottom ash or to a solid, vitreous slag, depending on the conditions materials are processed under. Most gasification systems are closed systems and do not generate waste gases or air emission sources during the gasification phase. After cooling and cleaning in emission control systems, the syngas can be utilized in boilers, gas turbines, or internal combustion engines to generate electricity, or to make chemicals. Subsequent power generation using syngas does have air emissions that can be filtered through a stack and air emission control system.

Gasification has reportedly been used to process MSW since the 1980s, primarily in Europe and Japan (City of LA 2005). Existing gasification systems operate at throughputs up to 1,000 tpd;

gasifiers and the pre-processing, emission control, and power generation systems can be installed in parallel to increase throughput and power generation. Gasification and pyrolysis technologies are sometimes coupled, with char products resulting from pyrolysis used as feedstock for the follow-up gasification process.

Three of the RFI respondents, have developed or are developing thermal processing facilities utilizing this type of gasification technology. These respondents are BioGold Fuels Corporation, Powers Energy of America, Inc., and Taylor Biomass Energy, LLC. A brief summary of these technologies or facilities, based on information provided in each of the RFI responses, is presented below.

BioGold Fuels Corporation

BioGold Fuels Corporation is a Nevada corporation based in New York City, was formed as a result of a merger with Full Circle Industries, Inc. in April 2007, and became a publicly traded company in October 2007. With the BioGold process, MSW is unloaded from trucks and conveyed to a sterilizer where it is sterilized, reduced in size, and mechanically sorted to remove recyclable metals and other inorganic material from the organic fraction of the waste. The sterilized organic and energy-containing materials are then fed into a thermo-chemical gasifier, where they are transformed at high temperature into compounds that produce a syngas composed mostly of hydrogen and carbon monoxide. Remaining solid residue can be vitrified into a glass-like solid that can be used for various construction applications.

Syngas can be used to generate electricity using commercial electricity-generating equipment, or converted to a biofuel using a standard gas-to-liquid catalytic process. BioGold would build infrastructure to generate both electricity and transportation biofuels, and would shift production according to the relative market value of these commodities.

According to its RFI response, BioGold has successfully implemented the front-end processing aspect of its technology using MSW to create a marketable recycled long-fiber product sold for liner-board manufacture. As of March 2009, the company has not constructed or operated a MSW processing facility.

More information about this RFI response is presented in Appendix B.

Powers Energy of America, Inc.

Powers Energy is a national firm headquartered in Evansville, Indiana, and presents a process to produce biofuels and electricity from MSW feedstock. MSW would be delivered, handled and contained within the indoor facility. Carbon-based MSW/feedstock materials are mixed, crushed or shredded and fed into a gasification plant for bioethanol production. Feedstock materials are converted to a syngas product in the gasifiers by heating the materials in different stages to temperatures in excess of 2,000 degrees Fahrenheit. Heat recovered from the gasifier is used to generate steam and electricity. Syngas leaving the gasifier is refined, cooled and passed through the biological fermenter, where 70-90% of the gas will be converted to bioethanol through microbial activity. Off-gas from the fermenter is routed for use in steam generation. Bioethanol products go through a refining process and are marketed for use as a fuel. Ash from the gasifier is sent to a landfill for disposal.

The Lake County Indiana Solid Waste Management District approved a contract on November 20, 2008 to develop a biofuels facility with a minimum capacity of 2,000 tpd. The facility is anticipated to generate 36 million gallons of bioethanol fuel, 42,600 tons of recyclable metals and 20 MW of power on annual basis. As of March 2009, facility design plans were being prepared, but construction of this facility has not yet begun. Powers Energy is also pursuing agreements for development of a facility in northwestern Kentucky, and has begun design and permitting for this facility.

More information about this RFI response is presented in Appendix B.

Taylor Biomass Energy, LLC

Taylor Biomass Energy (TBE) is headquartered in Montgomery, NY where a related company has owned and operates a C&D recycling and processing facility since 1989. TBE has a project underway to couple a gasification process with the existing sorting and recycling process at the Montgomery facility. Permitting is currently underway for this action and permitting documents have been submitted to DEC for review.

As part of that project, sorted feedstock will be fed into the gasification reactor, where it will undergo a rapid thermal breakdown to produce a syngas product. The Taylor gasification process produces a medium Btu gas with a heating value of approximately half that of natural gas. This gas will have the ability to be directly substituted for natural gas or used as a fuel for engines and gas turbines, or to be used as a synthesis gas for production of biofuels or chemicals. For the Montgomery project, the syngas will be conditioned and used to generate electricity. A combustion reactor will be used to further process char products, and final ash products will be disposed of at a landfill.

More information about this RFI response is presented in Appendix B.

3.1.3 Plasma Arc Gasification

Plasma technology uses an electrical discharge to heat gas, typically air, oxygen, nitrogen, hydrogen, or argon, or combinations of these gases, to temperatures above 7,000°F. The heated gas, or plasma, can then be used for welding, cutting, melting, or treating waste materials. Most past uses of plasma arc technology have been for melting incinerator ash or for thermally decomposing hazardous or medical wastes, and only recently has plasma technology integrated with gasification technologies to process MSW. This technology has potential to convert MSW to electricity more efficiently than conventional pyrolysis and gasification systems, due to its high heat flux, high temperature, almost complete conversion of carbon-based materials to syngas, and conversion of inorganic materials to a glassy, non-hazardous slag. Existing systems operate at throughputs of up to 83 tpd on MSW/auto shredder residue combination; plasma torches can be added to the reactors, and multiple reactors can be included to increase total capacity (City of LA 2005).

Plasma arc gasification typically occurs in a closed, pressurized reactor. Following pre-processing, the feedstock enters the reactor and comes into contact with the hot plasma gas. This system converts MSW and other organic carbon-based materials, including tar, oil, and char, to a syngas composed primarily of H_2 and CO. Inorganic materials are converted to a solid, vitreous slag. Like pyrolysis and conventional gasification, plasma arc gasification is a closed system; therefore there are no waste gases and no emission sources in the plasma gasification conversion process. After cooling and cleaning in emission control systems, the syngas produced by plasma arc gasification can either be burned immediately in a close-coupled combustion chamber or boiler, or can be cleaned of contaminants and used in a reciprocating engine or gas turbine to generate electricity.

Two of the RFI respondents have developed, or are developing, thermal processing facilities utilizing plasma arc gasification technology. These respondents are Plasco Energy Group and

Startech Environmental Corporation. A brief summary of these technologies or facilities, based on information provided in each of the RFI responses, is presented below.

Plasco Energy Group

Plasco Energy Group is an Ottawa, Canada company that offers a system based on plasma arc technology. Plasco has built a 110 tpd commercial-scale demonstration facility in Ottawa that uses MSW from the city as feedstock. This facility has been in operation since January 2008. Discussions for commercial facilities are in progress in Canada, the U.S, Europe and Asia.

Plasco's waste conversion process begins with any materials with high reclamation value being removed from the waste stream and recovered for recycling. The remaining MSW is shredded and conveyed to a conversion chamber where it is converted into a crude syngas using recycled heat; this crude syngas flows to a refinement chamber and is refined using plasma torches to create a fuel called PlascoSyngas. The PlascoSyngas is cleaned and used to generate electricity. Waste heat is recovered and used to produce steam, which can be used to generate additional electricity or for industrial purposes.

Solid residue from the conversion chamber is sent to a separate high-temperature Carbon Recovery Vessel, where plasma heat is used to stabilize the solids and convert any remaining volatile compounds and fixed carbon into syngas. Remaining solids are cooled into small slag pellets. The process also yields other products including commercial salt, agricultural sulfur and water. In its response to the RFI, Plasco suggested a 440 TPD facility for the Capital region, using four of the 110 TPD units of the type currently operating at the demonstration facility in Ottawa.

More information about this RFI response is presented in Appendix B.

According to the company website (http://www.plascoenergygroup.com/), in June 2008 the Ottawa City Council issued a letter of intent for Plasco to build, own, and operate a 440 TPD facility and the Central Waste Management Commission of Red Deer, Alberta has signed a contract for a 220 TPD Plasco facility.

Startech Environmental Corporation

Startech is a Wilton, Connecticut based public company that offers a plasma processing technology for MSW disposal. The company was founded in 1993 and was established in 1995 as a public company. In 1996-1997, Startech built and delivered a 7 TPD system to the U.S. Army's Aberdeen Proving Ground in Maryland. In 2001, the company opened a facility in Bristol, Connecticut which houses a 5 TPD system used for customer training, marketing and demonstration purposes. In 2001 Startech delivered a 5 TPD system to Japan for the processing of PCBs and hazardous incinerator ash. The company has a 30,000 sf manufacturing facility in Bristol where its systems are built, and is in the process of developing several facilities in overseas markets.

The Plasma Converter System utilizes plasma – an electrically charged, ionized gas – to process waste materials at extremely high temperatures. Organic components of the incoming waste are used to create a plasma-converted syngas, which in turn can be used to produce electricity, recover hydrogen, and to make industrial materials. Outputs include a Plasma Converted Gas (PCG) fuel consisting of primarily hydrogen and carbon monoxide, and a glassy black obsidianite material. PCG can be reused or recycled as a fuel or as a synthesis gas to produce electricity, recover hydrogen, or to make industrial products. The Startech technology can be used to process a variety of hazardous and non-hazardous waste materials.

To date, Startech has no full-scale commercial MSW facilities in operation. The company has signed contracts for two 300 TPD MSW facilities in Europe with additional orders pending for MSW facilities in Panama (200 and 350 TPD) and Europe (100 TPD). Startech is currently manufacturing multiple systems for Puerto Rico and Poland.

More information about this RFI response is presented in Appendix B.

3.2 Biological and Chemical Processing

Biological and chemical technologies operate at lower temperatures and lower reaction rates than thermal technologies. Biological technologies can convert only the biodegradable organic content of MSW, and chemical processes can potentially convert any organic content. Neither type of technology can be used to effectively process inorganic waste materials. Some technologies involve the multiple stages of biochemical processing; byproducts vary among technologies but can include electricity, compost and chemicals.

Several of these technologies also include one or more mechanical processing components to remove inorganic materials from the feed stock or the residue stream. These are often referred to a **Mechanical -Biological Treatment** facilities, or **MBT** facilities. The biological treatment can be either aerobic or anerobic, as will be described further below. MSW composting facilities, such as the facility that operates in Delaware County NY, can be considered an MBT facility. But because the are 13 MSW composting facilities operating in the United States, its is not considered among the emerging technologies that are being evaluated here.

Motivated by European Union mandates that limit the amount of organic waste that may be landfilled, MBT facilities have been developed in Europe which utilize an aerobic process to dry the organic fraction of the waste. MBT reduces the mass and volume of wastes, due to the removal of materials for recycling and both carbon and moisture losses. The amount of reduction is very dependent on the design and characteristics of each plant. For every ton of input to a bio-stabilization MBT facility, around 0.6 tons will be left as residue (Friends of the Earth, 2008).

There are two main outputs for MBT residues, with the output type determining how the plant is operated:

- As a low quality soil, or to landfill, also known as 'biostabilization', or
- As a refuse derived fuel (RDF), for burning (sometimes called 'biodrying')

One respondent to the RFI, ECODECO, has developed an MBT technology that uses both biological (biodrying) and mechanical processes to recover recyclable materials and produce a refuse derived fuel. A brief summary of this technology/facility, based on information provided in the RFI response, is presented below.

Two other specific technology groups, anaerobic digestion and ethanol production were not included in any of the RFI responses. These technologies are discussed in section 3.2.1 and 3.2.2 below.

ECODECO

ECODECO is an international company with headquarters in Italy, and has recently established a cooperative arrangement with International Center for Commercial Affairs (ICCA) to assist in the pursuit of opportunities in the U.S. market. The company has developed the Biocubi Process, an aerobic biological treatment method, to remove moisture and improve the heating efficiency of products to be used as fuel inputs for subsequent processes. Processing takes place in the company's ITS (Intelligent Transfer Station). The putrescible fraction of MSW undergoes an aerobic treatment, and the released heat is used to dry and thermally hygienize the feedstock. Separation occurs following the bio-drying phase, and recyclable materials are removed from the feedstock. The bio-dried material is then mechanically refined to produce a solid fuel which can be used to generate electricity or as a fuel source by cement kilns.

ECODECO's technology has been successfully implemented in Europe for more than a decade. They have identified several facilities in Italy, Spain and England, and report that there are 17 ITS facilities in total throughout the world. To date, none of these facilities have been constructed in the U.S.

The response to the RFI noted a capital cost of $56.7 million for a facility capable of serving the Capital Region Planning Unit and processing 230,000 TPY. Operational costs for a facility in the U.S. were not estimated by ECODECO, but tipping fees of €95 to €125 (euros) per ton were noted for some European facilities.

Representatives of ECODECO attended the SWMP Steering Committee meeting on July 21, 2009 and gave a presentation about their technology and facilities. At that meeting an estimated capital cost of $64 million and an estimated operating cost of $38 per ton were noted. ECODECO representatives were accompanied by representatives from Buzzi Unichem, a large Cement manufacturer with facilities in the U.S., who expressed a keen interest in utilizing the solid fuel from the ECODECO process to displace the use of coal in cement kilns.

More information about this RFI response is presented in Appendix B.

3.2.1 Anaerobic Digestion

Anaerobic digestion is a biological process by which microorganisms digest organic material in the absence of oxygen, producing a solid byproduct (digestate) and a gas (biogas). In the past, anaerobic digestion has been used extensively to stabilize sewage sludge, but has been adapted more recently to process the organic fraction of MSW. In anaerobic digestion, biodegradable material is converted by a series of bacterial groups into methane and CO_2. In a primary step called hydrolysis, a first bacterial group breaks down large organic molecules into small units like sugars. In the acidification process, another group of bacteria converts the resulting smaller molecules into volatile fatty acids, mainly acetate, but also hydrogen (H_2) and CO_2. A third group of bacteria, the methane producers or methanogens, produce a medium-Btu biogas consisting of 50-70% methane, as well as CO_2.

This biogas can be used to fuel boilers or reciprocating engines to generate electricity, and requires minimal pretreatment. It can also be upgraded to pipeline quality and used as compressed natural gas (CNG), a vehicular fuel. In addition to biogas, anaerobic bioconversion generates a residue consisting of inorganics, non-degradable organics, non-degraded biodegradables, and bacterial biomass. If the feedstock entering the process is sufficiently free of materials like colored plastics, this residue can have market value as a compost material. Anaerobic digestion facilities are able to process up to 800 tpd of MSW.

None of the respondents to the RFI proposed the use of anaerobic digestion technology. This technology has been employed with MSW feedstock in Europe by companies that have responded to recent solicitations by other jurisdictions, such as New York City and Los Angeles. NorthEast Biogas, a New York based company, is seeking to develop projects using anaerobic digestion, but this company did not respond to the RFI. Discussions with representatives of this company indicated their interest in projects with organic waste feedstock, but not MSW feedstock.

3.2.2 Ethanol Production

Various ethanol production processes have been developed at pilot scales, and some at demonstration scales, to generate ethanol from paper and vegetative matter in the MSW stream. In these processes, a purified lignocellulosic material – which is able to break cellulose-based plant material down to its component sugar molecules – is chopped up and introduced into a hydrolysis reactor. The effluent of this reactor is mostly a sugar solution, which is prepared for fermentation. This solution is detoxified and introduced to a fermenter, in which microorganisms convert the sugar to ethanol and CO_2. Next, the solution is introduced into an energy-intensive, combined distillation and dehydration process to bring the ethanol concentration up to fuel grade (99%) ethanol. A solid residue of unfermented solids and microbial biomass is recovered through the anaerobic digestion process, and its marketability as a compost material depends on the purity of feedstock as well as its visual quality. Solid residues can be burned or gasified if alternative methods of reuse are not feasible.

A commercial scale facility had been permitted for development in Middletown NY. The $285-million waste-to-ethanol processing plant is said to be capable of processing and converting up to 960 tpd of MSW to ethanol for commercial sale and use. The facility has been in the development stages since 1996, and received its required permits from the NYSDEC. However the facility has never been developed (news archive from the Middletown Times Herald-Record at http://archive.recordonline.com/news/masada/masada_list.htm), and given the delays and reported legal issues, is believed to be unlikely to move forward.

At its September 2009 meeting, the SWMP Steering Committee heard a presentation from a representative of Enerkem, a Canadian company which has a contract with the City of Edmonton, Alberta to develop a waste-to-biofuels facility. The City of Edmonton will supply 100,000 metric tons of post recyclable waste to the facility, which will produce approximately 9.5 million gallons of ethanol and has an expected construction cost of CDN$70 million. The company has operated a pilot plant in Sherbrooke Quebec since 2003 and has also built a commercial scale facility in Westbury, Quebec.

4.0 RECENT ASSESSMENTS CONDUCTED BY OTHER JURISDICTIONS

Several municipalities, counties and solid waste authorities have conducted recent assessments of alternative technologies. Three of the more comprehensive efforts are reviewed and summarized here.

4.1 New York City

In 2004, the New York City Department of Sanitation (DSNY) presented the first phase of its New Solid Waste Management Plan (New SWMP). The planning process was initiated following the 2001 closure of the Fresh Kills Landfill in Staten Island, which had accepted much of the City's solid waste for years. Since the closure of this facility, New York City's solid waste management system has relied predominantly on truck-based transportation and utilizes a combination of local, land-based transfer stations and long-haul shipping to remote, out-of-state landfills.

New York City's system is considered unsustainable over the long term, due to the heavy costs associated with the transport and disposal of solid waste at remote landfills, as well as the environmental impacts of a system so reliant on long-haul trucking. Thus, the City's New SWMP cites "dramatically reducing the number of truck trips and miles associated with disposal of New York City's waste" as a primary goal.

Waste containerization, and intermodal barge and rail transport of the containerized solid waste, are key components of the New SWMP's strategy to decrease reliance on truck transport and improve the overall efficiency of the City's waste management system. Additionally, the plan provides mechanisms to expand and improve the City's recycling program in an effort to promote the beneficial reuse of recyclable materials and decrease the quantity of materials requiring landfill disposal.

The New SWMP investigated several emerging technologies in order to evaluate their potential contributions to New York City's program.

As part of its solid waste management planning and ongoing effort to reduce the quantity of waste exported from the City, in 2004 the DSNY completed the ***Phase 1 Evaluation of New and***

Emerging Solid Waste Management Technologies (NYC Economic Development Corporation and NYC Department of Sanitation, 2004). The Phase 1 Study involved three steps of analysis.

In Step 1 technologies were identified that met the City's definition of "new and emerging", and which had a sponsor who provided sufficient information to allow an evaluation of the technology. Of the 43 technologies reviewed, 33 met the Step 1 screening criteria and were subsequently evaluated in Step 2 of the process. These 33 technologies included 21 thermal (gasification) technologies, 7 anaerobic digestion technologies, 1 aerobic digestion technology, 3 hydrolysis technologies, 1 chemical and 1 mechanical processing technology.

In Step 2 a number of second-level screening criteria were developed to perform a preliminary review of the 33 technologies. These second-level screening criteria included the following:

- Readiness to be operational within a ten-year timeframe
- The facility must be able to accept and process at least 50,000 tons per year (137 tons per day), which is the minimal capacity required to provide meaningful benefit to New York City's waste management system
- Reliability, as evidenced by successful commercial or pilot facilities
- Environmental performance of the technology must meet or exceed New York State permit and regulatory requirements
- Beneficial use of waste must be demonstrated through a technology's production of a useful and marketable product
- Residual waste requiring landfill disposal must not exceed 35% by weight of incoming waste.

Of the 33 technologies subjected to the second-level screening criteria, 19 did not meet these criteria and were removed from further consideration in the evaluation process. One technology did not meet the residual waste criterion, and 18 did not meet the reliability criterion.

Following Step 2, the 14 remaining technologies are shown below in Table 2.

Table 2
Technologies Remaining after Step 2 Screening

Anaerobic Digestion	*Thermal Processing*	*Hydrolysis*
Arrow Ecology & Engineering Canada Composting Orgaworld Organic Waste Systems Waste Recovery Systems	Dynecology EBARA GEM America Global Energy Solutions Interstate Waste Technologies Pan American Resources Rigel Resource Recovery Taylor Recycling Facility	Masada Oxynol

In Step 3, a final set of specific criteria were applied to the 14 technologies that had met first- and second-level screening criteria. Whereas Steps 1 and 2 sought to exclude technologies unsuited to meet the City's needs, Step 3 offered a more detailed evaluation of each of the 14 technologies and provided general findings relative to the emerging technologies by category, without eliminating any individual technologies from consideration. The Step 3 criteria included:

- Readiness and reliability
- Facility size and design flexibility
- Utilization of the existing city solid waste collection system
- Utility needs
- Extent of beneficial use of waste
- Marketability of products
- Quantity and quality of residuals requiring landfill disposal
- Environmental impacts
- Facility siting
- Public acceptability
- Estimated cost
- Opportunities for economic growth
- Experience and resources of project sponsor
- Willingness to develop publicly or privately owned facility
- Risk profile

Following the application of these Step 3 criteria, the Phase 1 Study concluded that anaerobic digestion and thermal processing (gasification) technologies are suitable to be considered for use in the U.S., including New York City. These technologies have been successfully implemented outside of the U.S. Hydrolysis technology is also offered as a potential alternative, and the report noted that a recently permitted hydrolysis facility in Middletown, NY could be monitored to verify its efficacy. If New York City seriously considers investing in a thermal processing, anaerobic digestion, or hydrolysis technology, the Phase 1 Study suggests that the City may wish to implement a pilot project in order to mitigate the risk of its investment.

The Phase 1 Study noted that, relative to manufacturers of conventional waste-to-energy (WTE) technologies, the overall experience of manufacturers of the emerging technologies is not as extensive. However, the thermal technologies (gasification) and anaerobic digestion offer certain advantages over conventional WTE technologies. Emissions of pollutants would potentially be lower for these emerging technologies, particularly the emissions of dioxins and heavy metals. Additionally, the volume of residuals would potentially be lower with the emerging technologies than with conventional WTE technologies. Based on the information available for review, the cost to operate innovative technologies is potentially comparable to conventional technologies. The Phase 1 Study recommended a focused, detailed review to supplement and verify information provided for the Phase 1 Study, to help determine if a demonstration facility would warrant consideration for New York City's solid waste system.

As a follow-up to the recommendations of the Phase 1 Study, DSNY prepared the ***Phase 2 Focused Verification and Validation of Advanced Solid Waste Management Conversion Technologies*** (2006). This Phase 2 study represents a more detailed evaluation of the 14 technologies identified through the Phase 1 Evaluation, which are believed to be among the most advanced in their respective categories.

Questionnaires were distributed to the sponsors of these 14 technologies, and preliminary interviews were conducted with sponsors to determine whether sufficient information could be made available for the City to consider a technology in the Phase 2 Study. Based on the information available for the study, 2 anaerobic digestion technologies and 4 thermal processing technologies were selected for detailed review in the full Phase 2 analysis, as shown in Table 3.

Table 3

Phase 2 Solid Waste Conversion Technologies

Anaerobic Digestion	***Thermal Processing***
Arrow Ecology & Engineering	EBARA
Waste Recovery Systems	GEM America
	Interstate Waste Technologies
	Rigel Resource Recovery

The detailed Phase 2 process consisted of the following:

- The *Technical Review and Evaluation* process sought to validate process schematics and major system components, confirm mass and energy balances, review site layout and arrangement, and review operating data and related information for reference facilities.
- *Environmental Review and Evaluation* consisted of independent calculations and review of environmental performance, including air pollutant emissions, water usage, wastewater discharge, residue requiring landfill disposal, and quality of products.
- An *Economic Evaluation* was performed to project the order-of-magnitude costs that could be expected from the technologies for commercial-scale projects.

Findings and Conclusions

The Phase 2 Study built upon information gained during the Phase 1 process, and evaluated a number of specific technologies at an advanced level of detail. Important findings of the analytical process include the following:

- *Technical Findings* confirm that anaerobic digestion and thermal processing technologies could potentially be applied successfully in New York City. Independent reviews were performed relative to mass and energy balances, energy-generating efficiency of the technologies, recovery rates of recyclable materials, quantities of residue requiring landfill disposal, and siting requirements of each technology. The evaluation verified information obtained during the Phase 1 study and provided by manufacturers.
- *Environmental Findings* show that anaerobic digestion and thermal processing technologies could potentially offer better environmental performance than conventional waste-to-energy technologies. Environmental benefits include the decreased emission of air pollutants, increased beneficial use of waste, and reduced reliance on landfill disposal.
- *Economic Findings* for the Phase 2 Study indicate that on a commercial scale, anaerobic digestion and thermal processing technologies are less costly or comparable in cost to New York City's current exporting practices.

The study found that – among the emerging technologies evaluated – Anaerobic Digestion and Thermal Processing technologies were best suited for commercial implementation in the New York City waste management system.

New York City's Phase 2 Study suggests that issues related to the transfer of design and operational experience from existing overseas facilities to the U.S. may present difficulties as new technologies transition to commercial operations in the U.S. Preparation of an Implementation Plan is recommended as a next step in the implementation of a demonstration facility. The Implementation Plan would lay the groundwork necessary to provide design, construction, performance, and cost information that would be used to develop a commercial-scale facility.

Since completion of the Phase 2 Study, New York City's implementation efforts for the New SWMP have focused on establishing an improved network of marine transfer stations to export solid waste from the city. The City has not yet prepared an Implementation Plan for the introduction of emerging solid waste technologies and/or facilities, and has not initiated a development process for any such facility. DSNY representatives identify difficulty in siting such a facility locally as an obstacle in the implementation of emerging solid waste technologies (as well as conventional solid waste processing facilities).

4.2 City of Los Angeles

According to the 2005 ***RENEW LA*** report, the Los Angeles basin, which is comprised of Los Angeles, Orange and western San Bernardino and Riverside counties, disposes of approximately 70,000 TPD of MSW. Several landfills have recently closed, and the Puente Hills Landfill – which has the highest daily capacity of any landfill in the U.S. – is planned for closure by the year 2013. The Puente Hills closure could displace as much as 13,200 tons per day of MSW disposal capacity, and other disposal options will be required to serve the region's needs (Smith, 2005).

The California Integrated Waste Management Act of 1989 (AB 939) mandated a 50% diversion from landfill disposal by the year 2000 as well as the creation of various plans, programs, and facilities that cities and counties throughout California should adopt in order to achieve these goals (Smith, 2005). In 1994, the City Council of Los Angeles declared the goal of 70% diversion of MSW from landfills by the year 2010. The RENEW LA plan provides a vision to move beyond that 70% goal to a zero waste system. To do so, the City prepared a study entitled ***Evaluation of Alternative Solid Waste Processing Technologies*** to review alternative MSW processing technologies that process post-source separated MSW.

The highest-level objective of the evaluation is to:

> Identify alternative MSW processing technologies that will increase landfill diversion in an environmentally sound manner, while emphasizing options that are energy efficient, socially acceptable, and economical. (URS, 2005)

This objective is subdivided into three lower-level objectives:

- Maximize Environmental (Siting) Feasibility (i.e., minimize impacts to the environment and citizens);
- Maximize Technical Feasibility (i.e., search for technologies that are commercially available within the development timeframe of 2005-2010 and will significantly increase diversion from landfills); and
- Maximize Economic Feasibility (i.e., provide an overall cost that is competitive with other solid waste processing methods).

Various screening criteria were applied in order to identify potential technologies that could meet the project objectives. The first set of screening criteria helped determine the initial list of technologies to be reviewed and included:

- Meet 200 tons/day capacity (throughput) requirement;
- Consider technologies at the commercial or late-emerging stage;
- Include technologies that produce marketable byproducts; and
- Include technologies that are compatible with post-source separated MSW.

Based on these criteria, sixteen technologies were identified and are broken down into three categories as outlined in Table 4 below.

Table 4-Technologies Evaluated for Renew LA by Category

Thermal Technologies	***Biological/Chemical Technologies***	***Physical Technologies***
Advanced Thermal Recycling	Anaerobic Digestion	Refuse-Derived Fuel (RDF)
Pyrolysis	Aerobic Digestion/Composting	Densification/Pelletization
Pyrolysis/Gasification	Ethanol Fermentation	
Pyrolysis/Steam Reforming	Syngas-to-Ethanol	
Conventional Gasification-Fluid	Biodiesel	
Conventional Gasification-Fixed	Thermal Depolymerization	
Plasma Arc Gasification	Catalytic Cracking	

Next, the technologies were reviewed to determine if they meet the following criteria:

- *Waste Treatability* - ability of the alternative MSW processing technology to efficiently treat the organic portion of the waste stream;
- *Conversion Performance* - ability of the conversion technology to convert the organic portion of the post-source separated MSW stream into useful products;
- *Throughput Requirement* - ability of the alternative processing technology to treat at least 200 tons/day of post-source separated MSW in 2008-2010;
- *Commercial Status* - conversion technology that can be developed on a commercial scale within the project development period (2008-2010); and
- *Technology Capability* - Can support the development of conversion technology at commercial scale and can demonstrate the conversion technology with MSW at a scale of at least 25 tons/day.

The ten technologies listed in Table 5 met these criteria.

Table 5 - Technologies Advancing for Further Consideration in Renew LA

Thermal Technologies	***Biological/Chemical Technologies***
Advanced Thermal Recycling Pyrolysis Pyrolysis/Gasification Pyrolysis/Steam Reforming Conventional Gasification-Fluid Conventional Gasification-Fixed Plasma Arc Gasification	Anaerobic Digestion Aerobic Digestion/Composting Thermal Depolymerization

Next, a life cycle study was conducted using supplier data to develop a comparative analysis of the remaining ten technologies. The life cycle study focused on the issues that demonstrate the greatest differentiation between advanced thermal recycling or conversion technologies and existing traditional solid waste management processes, including: energy consumption, criteria pollutants, and carbon emissions. When compared to landfilling of post-source separated MSW, the results of the life cycle analysis showed that three of the waste processing technologies (advanced thermal recycling, gasification, and anaerobic digestion) will provide substantial savings/reductions with respect to energy consumption, air emissions of criteria pollution, and carbon emissions/climate change issues.

Suppliers were then surveyed to create a "short list" from the ten technologies. About 225 suppliers were screened, and only twenty-six met the criteria to submit their detailed qualifications to the City. Of the twenty-six suppliers requested to submit qualifications, seventeen provided responses. The seventeen suppliers and their technologies were thoroughly evaluated in order to create a short list. Table 6 below identifies the seventeen suppliers.

Table 6 - List of Seventeen Suppliers that Submitted Qualifications for Renew LA

Technology Group	*Company Name*	*Technology*
Thermal	Ebara	Fluid Bed Gasification
Thermal	Interstate Waste Technologies	Pyrolysis/Gasification
Thermal	Omnifuel	Fluid Bed Gasification
Thermal	Primenergy	Fixed Bed Gasification
Thermal	Taylor Recycling	Circulating Fluid Bed Pyrolysis
Thermal	WasteGen	Pyrolysis
Thermal	Whitten	Fixed Bed Gasification
Thermal	Pan American Resources	Pyrolysis
Thermal	Covanta	Thermal Recycling
Thermal	Waste Recovery Seattle Inc.	Thermal Recycling
Thermal	Seghers Keppel	Thermal Recycling
Biological	Arrow Ecology	Anaerobic digestion
Biological	Canada Composting	Anaerobic digestion
Biological	Global Renewables	Anaerobic digestion
Biological	Organic Waste Systems	Anaerobic digestion
Biological	Wright Environmental	Aerobic Composting (Biodryer)
Biological	Waste Recovery Systems Inc.	Anaerobic Digestion

The supplier data were used to conduct a comparative analysis of technologies and rank suppliers for further assessment. The comparative analysis addressed a number of technical, environmental, and cost issues, including:

- Throughput (respondents provided data for different throughput rates);
- Electricity production;
- Net efficiency in kWh/ton feedstock;
- Diversion rate/solid wastes;
- Air emissions;
- Regulatory issues;
- Capital cost;
- Revenues; and
- Estimated tipping fees.

Once the comparisons were complete, each technology was ranked using the criteria below.

- *Ability to Market Byproducts* - Experience selling byproducts with strong markets is desired;
- *Visual Impact of Facility* - Facilities with higher stacks or structures will exhibit greater visual impacts;
- *Operational Experience* - The number of operating plants is an indication of overall experience;
- *Economics* - Worst Case Breakeven Tipping Fee;
- *Supplier Credibility* - Suppliers must have organizations (including partners) with sufficient technical and financial resources;
- *Landfill Diversion* - Percent by weight of inlet MSW sent to landfill (includes rejects and unmarketable materials – worst case);
- *Engineering the Complete System* - Demonstrated ability to design the complete facility; and
- *Permitability* - This is a function of expected environmental impacts, and the potential for a difficult regulatory process or pathway.

The ranking process concluded that thermal technologies (thermal conversion - and advanced thermal recycling) would best satisfy the project's highest level objective, i.e. to maximize landfill diversion. The following conclusions were made regarding the two technologies:

- An alternative MSW processing facility can be successfully developed in the City of Los Angeles.
- The technologies best suited for processing post-source separated MSW on a commercial level are the thermal technologies. These include advanced thermal recycling and thermal conversion (pyrolysis and gasification).
- The biological/chemical conversion technologies and physical technologies present significant technical challenges for treatment of the post-source separated MSW. While biological conversion technologies show the most promise in this group, they also bring significant challenges.

In summary, the advantages of the thermal technologies over biological conversion are:

- Higher landfill diversion rates, which is a primary objective of the project;
- Lower production of solid byproducts and correspondingly greater production of electricity, a higher value product with a more well-developed market;
- Less risk with regard to byproduct marketability;
- Significantly higher thermal efficiencies and, therefore, higher revenue/ton because thermal processes convert essentially all organics to energy; and
- More operational experience at higher throughputs.

The Evaluation recommended that the City should proceed with the following activities to continue development of an alternative MSW processing facility for post-source separated MSW utilizing a thermal technology:

- Initiate public outreach;
- Develop short list of suppliers;
- Conduct an initial siting study;
- Prepare RFP and Select preferred suppliers;
- Conduct Facility Permitting and Conceptual Design; and
- Perform Detailed Design and Construction.

As a result of the recommendations, the City issued an RFP in February 2007 for both commercial and emerging technology facilities to process post-source separated municipal solid waste (City of Los Angeles, 2008). Twelve proposals were received on August 22, 2007 from the companies listed in Table 7.

Table 7 - Companies that Responded to City of LA RFP

#	*Company Name*
1	Zia Metallurgical Processes, Inc.
2	Interstate Waste Technologies (IWT)
3	Covanta Energy Corp.
4	Wheelabrator Technologies Inc.
5	WRSI / DESC
6	Plasco Energy Group
7	Community Recycling
8	Carbon Sequestation
9	CA Renewable Technologies LLC
10	Urbaser & Keppel Seghers
11	CA Renewable Technologies LLC (emerging)
12	Rainbow Disposal

As of November 2009, the City of Los Angeles had identified a preferred emerging technology provider, CA Renewable Technologies LLC (CART), and the parties have commenced contract negotiations. California Renewable Technologies has proposed a 150 tpd sorting and biological processing system that utilizes dry mechanical pre-sorting and a water bath sorting system; following these sorting processes, the remaining organic materials are ground up and processed through two-stage anaerobic digestion. CART has proposed to site the facility outside of the City of Los Angeles boundaries. Contract negotiations with CART will provide an opportunity to define the costs and terms of an agreement before the potential development of a facility moves forward.

In addition to the CART emerging technology facility, the City of Los Angeles will also enter into contract negotiations to develop a commercial-scale, conventional solid waste processing facility. This facility will process approximately 1,000 tpd of MSW. As of November 2009, the City was in the final stages of selecting a preferred candidate from among a short list including two conventional waste-to-energy proposals and two "hybrid" proposals combining mechanical/biological/thermal processes. Contract negotiations for this commercial-scale project are expected to begin early in 2010.

4.3 Delaware Solid Waste Authority

The Solid Waste Management Technical Working Group was established by the Secretary of Delaware's Department of Natural Resources and Environmental Control (DNREC), and was commissioned to:

> …perform a feasibility review of available municipal solid waste management alternatives and recommend a municipal solid waste management program or programs capable of being implemented that would best serve Delaware's long-term and short-term municipal solid waste management needs (Working Group 2005).

The State of Delaware has experienced population growth at a rate higher than the national average, concurrent with a per-capita waste generation rate that is likely increasing faster than the national average. Delaware's recycling rate stands well below the national average.

These trends in waste generation, combined with a limited capacity for solid waste disposal, present imminent capacity issues for solid waste management throughout Delaware, and particularly for Northern Delaware. The disposal of sludge from the Wilmington Waste Water

Treatment Plant and the disposal of waste tires present additional solid waste management issues. The Working Group's 2005 ***Solid Waste Management Alternatives for Delaware*** was prepared to help address these issues.

In the Working Group's judgment, the primary challenge related to Delaware's solid waste management is to preserve the valuable, low-cost landfill capacity it currently has. The Plan offers a two-pronged approach to meet this primary objective. First, it emphasizes the need for Delaware to adopt an aggressive and effective recycling or materials recovery to divert materials from its landfills. Second, the Plan evaluates a number of new processing technologies with potential to reduce the volume of waste requiring landfill disposal and convert waste materials into useable products, and recommends a course of action to pursue their implementation in Delaware.

The Working Group considered a full range of solid waste technologies, most of which were considered new or emerging. The study included 7 thermal, biological, or mechanical processing technologies, as shown in Table 8 below.

Table 8 - Technologies evaluated by the Delaware Working Group.

Thermal Processing	***Biological Processing***	***Mechanical Processing***
Waste-to-Energy (WTE) Gasification Plasma Arc Conversion	Aerobic Composting Anaerobic Digestion Bioreactor Landfills	Autoclave with Mechanical Processing

A set of 7 technical criteria was selected to evaluate the solid waste management technologies being considered for potential implementation in the State of Delaware. These criteria are as follows:

- **Readiness and Reliability** – Addresses the question of how confident the state can be that if a full-size facility were built, it would operate effectively. The number and length of tenure of successfully operating commercial facilities were used to rate the readiness of technologies, and an assessment of reliability was based upon a technology's susceptibility to process interruptions in commercial operations.
- **Inputs and Pre-Processing** - Focused on what inputs the system would process, and how those inputs had to be pre-processed in order for them to be converted (or disposed of) effectively by the technological process. Each technology was rated according to the types of

wastes it had demonstrated the ability to process, and according to the method and degree of pre-processing required.

- **Potential Public Health and Nuisance, Environmental, and Worker Safety Risks** – Emissions of criteria and other air pollutants, the composition and safety of residual materials left over from processing, resource consumption required for operations, and worker safety were among the items considered for this criterion.
- **Energy Balance** – The percentage of total energy inputs (including the energy value of the waste stream) represented by total usable energy outputs was used as a measure of energy balance.
- **Materials Balance** - The percentage of the waste stream that is converted into useful products and, therefore, does not have to be disposed of in a landfill, was used as a measure of materials balance.
- **Economics** – Costs and revenues were projected for each technology to evaluate its economic feasibility.
- **Legal and Policy Issues** - For any technology ultimately constructed in Delaware, local, state and federal laws and regulations would impose significant restrictions. Local zoning ordinances would impact site selection and approval; state and federal laws impose a variety of permitting obligations and restrictions. Additionally, community acceptance is key to the implementation of waste management technologies. The characteristics and requirements of each technology were considered in the context of legal compliance and community acceptance.

For each of the 7 technologies, the Working Group assigned a summary rating value to each of the 7 evaluation criteria. These ratings subjectively integrate all factors considered in the evaluation.

Table 9 summarizes the average ratings assigned to each technology for each of the 7 criteria, as well as for conventional landfills. Ratings have been rounded to the nearest whole number. Please note these ratings are not on a mathematical scale. For instance, a rating of 8, although significantly better, is not necessarily twice as good as a rating of 4. Nor can the ratings be added together to provide a summary score. However, the ratings *do* allow comparisons to be made among technologies for each criterion.

Table 9 – Delaware Working Group Criteria Rankings

	Readiness and Reliability	Inputs and Pre-Processing	Public Health, Environment, Worker Safety	Energy Balance	Materials Balance	Economics	Legal and Policy Issues
Waste to Energy	8	8	7	10	8	7	2
Gasification	5	8	8	8	10	5	6
Plasma Arc Conversion	5	8	7	8	10	4	6
Aerobic Composting	7	4	6	2	6	8	8
Anaerobic Digestion	8	5	8	5	8	8	8
Bioreactor	8	9	8	5	4	9	6
Autoclave with Mechanical Processing	6	4	5	NA	8	1	8
Landfill	9	9	7	3	2	10	6

Of the 7 technologies evaluated, one, the bioreactor landfill, is an approach that is already in use at 2 Delaware facilities. This process accelerates the decomposition of waste in the landfills thereby increasing their effective capacity, while generating increased amounts of methane, which is a valuable energy source. The Working Group recommends that the Delaware Solid Waste Authority continue to pursue and enhance this approach, and supports its efforts to convert the landfill gas to electricity.

Two technologies – Autoclave with Mechanical Processing and Aerobic Composting – were not rated highly because the market for their products in Delaware is very uncertain. Products from both processes could be used to enhance soil quality, but, without substantial pre-processing, they would most likely contain too much contamination to allow other than very restricted use. The products from either could be also used as a feedstock for a combustion or conversion process that results in the generation of electricity, but the Working Group was unconvinced that this would be more economical or generate fewer risks than using the waste materials themselves for these purposes.

Two of the thermal processes – Gasification and Plasma Arc Conversion – were also rated relatively low. Both of these technologies would substantially reduce the amount of waste requiring landfill disposal (by over 90%) and would both be used to produce a synfuel product that can be used to generate electricity. However, no commercial sized facilities employing either technology have been built in the United States (and no commercial sized facilities using the plasma arc process with an MSW feedstock anywhere in the world), which led the Working Group to conclude that their readiness and reliability has not been adequately demonstrated.

Anaerobic Digestion and Waste-to-Energy were rated highest of the 7 technologies. Both significantly reduce the amount of waste requiring landfill disposal, and both produce a useful product.

Compared to a Waste-to-Energy facility, the Anaerobic Digestion process has the following advantages:

- It does not generate hazardous air emissions which subsequently have to be captured by pollution control equipment,
- Because it does not generate hazardous pollutants, it is likely to be less controversial, and the construction of a facility would not require that current Delaware statutes be amended or repealed,
- Its product has alternative uses, and
- It can also handle sewage sludge in the feed stream.

The waste-to-energy process, on the other hand, has the following advantages over the anaerobic digestion process:

- Its effectiveness in processing solid wastes and reliably generating electricity has been clearly demonstrated in the United States in facilities processing 1,000 tons per day or more,
- It has among the most positive energy balances,
- It requires comparatively little acreage to process 1,000 tons per day, and
- It can process whole tires in limited quantities.

The Working Group expressed its reservations regarding the Waste-to-Energy technology's potential to generate dioxin and furan byproducts, and suggests that its support of this technology is contingent upon the results of a National Academy of Sciences assessment of the toxicology of these compounds. With this caveat, the Working Group recommends that Delaware focus its decision making process on the Anaerobic Digestion and Waste-to-Energy technologies.

5.0 CONCLUSIONS

Of the emerging technologies, only the MBT facilities have been successfully developed for the management of MSW at multiple locations in industrialized countries in Europe or in Canada. These include both MBT facilities utilizing and aerobic treatment process, such as that used by RFI respondent ECODECO, as well as MBT facilities that utilize a process of anaerobic digestion.

Several of the RFI respondents and other these companies with gasification technologies have reportedly developed demonstration facilities in the U.S. or Canada. However, only one of these demonstration facilities routinely operates with MSW feedstock at a daily volume on the same order of magnitude as is needed to service the needs of the Planning Unit. Several of the companies are in the process of developing commercial scale facilities in the U.S. or are in the advanced stages of a procurement process to develop a commercial facility on behalf of a municipality or other local or regional solid waste agency in the United States.

All of the emerging technologies have potentially negative attributes, when compared to conventional technologies for solid waste management. These include:

- Lack of well-established performance history creates risk in several categories as noted below. These negative attributes are not necessarily applicable to MBT technologies that have established performance histories in Europe.
  - True cost of construction and operation are not yet known. As a result these costs may be initially underestimated, and if so, the resulting financial distress of higher than expected costs may cause the project to fail.
  - Environmental performance and impacts of full scale operations may not be fully examined. This may result in extended review time to secure facility permits, delaying project implementation and increasing the cost of the project. Further, compared to conventional technologies, the risk of unexpected environmental contamination is greater.
- Marketability of recovered materials, bio-fuels, and byproducts presents a financial risk to the projects. This risk occurs as a result of uncertainty with the technical efficacy of the process (at full commercial scale) as well as because of potential fluctuations in market prices for the commodities being recovered and produced. This is especially true with respect to the anticipated use of byproducts, such as the vitreous slag produced by the plasma gasification technology, or the residues from other gasification technologies. Since widespread markets for these materials may not currently exist, stable long-term

markets may need to be developed. If these efforts are not successful, and the material is not marketable, it will need to be disposed of, and this unanticipated cost will result in a negative financial impact on the project and its sponsors.

These potentially negative attributes can be overcome by a company with sufficient financial resources to assure successful completion and operation of facilities utilizing one of these emerging technologies.

In addition, most of the emerging technologies have potentially positive attributes which make them attractive for further consideration. These potentially positive attributes include:

- Significantly less residue for disposal than conventional waste-to-energy technology;
- Lower emissions and higher level of material recovery than conventional waste-to-energy technology;
- Lower capital and operating costs than conventional waste-to-energy technology;

Because several of these technologies are still emerging, these potentially positive attributes remain to be proven through commercial operations at a scale similar to what would be required to service the Planning Unit. While MBT technologies for MSW have been developed in many European countries, they are relatively expensive, and their use in Europe is prompted by national policies which limit the amount of organic material that can be landfilled. The lack of such policy in the United States could put these technologies at an economic disadvantage.

Nevertheless, all of these emerging technologies will warrant continued attention during the course of the review process for the SWMP, as it is possible that more of these technologies will establish widespread full-scale commercial operations, either in the United States or elsewhere, by the time the new SWMP is formally adopted and approved and it is time to commence procurement of new facilities.

6.0 REFERENCES

Brickner, Robert. "*Current and Near-term Technologies for Converting Wood Waste to Bioenergy*" . Presented at Conference on Bioenergy in New Jersey New Brunswick, NJ. October 2007.

Binder, James J. and Steven Torres. "*Evaluating Innovative Technology for Municipal Waste Management*". Presented to Northeast Waste Management Officials' Association. November 27, 2007

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Friends of the Earth. *Briefing on Mechanical and Biological Treatment*. London, UK. September 2008.

New York City Economic Development Corporation and New York City Department of Sanitation. *Evaluation of New and Emerging Solid Waste Management Technologies.* September 16, 2004.

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APPENDICES

Appendix A – Request for Information

Appendix B – RFI Response Summaries

APPENDIX A

REQUEST FOR INFORMATION

The City of Albany, NY
Capital Region Solid Waste Management Plan
Evaluation of Municipal Solid Waste Technologies

REQUEST FOR INFORMATION

I. INTRODUCTION

The City of Albany, New York is preparing a New Long-Term Solid Waste Management Plan (SWMP) for the Capital Region Solid Waste Management Partnership Planning Unit (the Planning Unit). This new SWMP will define the key elements of the future solid waste management program for the Planning Unit, for the period through the year 2030.

The Capital Region Partnership Planning Unit operates as an informal consortium of 13 municipalities with a jurisdiction of approximately 450 square miles in the Albany, New York region. Planning Unit participants currently include 3 cities, 7 towns, and 3 villages located in Albany and Rensselaer Counties. The City of Albany acts as the lead participant. The total population of Planning Unit communities is approximately 220,000 persons.

The City of Albany presently operates the Rapp Road landfill facility, which accepts waste from the Planning Unit communities and other local sources. During the year 2007, the Rapp Road landfill accepted approximately 253,300 tons of waste for disposal. The vast majority of this waste (97%) is characterized as Municipal Solid Waste (MSW). The Rapp Road landfill accepts some waste from communities located outside of the Planning Unit, and some waste from the Planning Unit is disposed of at other facilities. Net waste disposal from the Planning Unit in 2007 is estimated at approximately 238,100 tons. Another 118,500 tons of waste material were reported recycled in the Planning Unit in 2007, yielding an overall diversion rate of 33%.

The City of Albany and the member municipalities operate mandatory source separation and recycling programs for a variety of mixed paper streams, for commingled bottles, cans and plastic containers (Nos. 1&2), and yard waste, among other materials. The implementation of the most recent SWMP Modification will result in the expansion of local recycling programs across all sectors (residential, commercial, institutional and industrial) beyond these current levels. If the 47% reduction and recycling goal contained in the most recent SWMP Modification is achieved, estimated net disposal requirements in the year 2011 will be reduced to 227,000 tons per year.

For purposes of this RFI, this should be considered the baseline waste quantity. No detailed data are currently available on the quality of the post-recyclable waste that is delivered for disposal, so for purposes of this RFI, responders should assume that MSW quality is as per recent estimates available from the United States Environmental Protection Agency.

Assuming the approval of a pending expansion application, the Rapp Road Landfill will near its full capacity during the year 2016. As part of the New SWMP process, the City of Albany is identifying and evaluating solid waste management technologies that could potentially reduce the amount of solid waste requiring landfill disposal. The evaluation will consider both established and emerging technologies for possible inclusion in the region's long-term solid waste program.

This Request for Information (RFI) is being distributed to solicit preliminary statements of interest and background information from parties wishing to participate in the evaluation process. Interested parties are invited to provide basic information regarding their sponsored technologies, including measures of actual or anticipated performance in each of the following categories of criteria:

- Experience of Project Sponsors
- Facility Sizing
- Costs of Ownership and Operation
- Environmental Impacts
- Readiness and Reliability
- Beneficial Reuse of MSW Byproducts
- Residues Requiring Landfill Disposal

Section II of the RFI specifies the information requested for this evaluation.

Responses to the RFI will be compiled, and the suitability of technologies for further consideration will be evaluated within the context of the Planning Unit's future needs and priorities. The current solicitation marks a preliminary measure in the ongoing process of SWMP preparation. Should the Planning Unit decide to pursue a more detailed evaluation of solid waste technologies, parties identified as potentially suited to contribute to the Planning Unit's future solid waste management program may be invited to participate in further discourse. Advanced levels of evaluation may include the solicitation of detailed technical documentation and verifiable statements of qualification from technology sponsors, to be evaluated at a more resolute level of detail for possible implementation.

Actual implementation of a facility and/or technology, if any, by or on behalf of the City or the Planning Unit, would be conducted under a formal procurement process, pursuant to the requirements of applicable law.

II. RESPONSE REQUIREMENTS

Potential project sponsors shall provide a statement of interest describing their desire and qualification to participate in the evaluation of solid waste management technologies for the Capital Region Solid Waste Management Partnership Planning Unit's New SWMP. Responses to this RFI must address each component of the following criteria.

Experience of Project Sponsors

Provide background information on the project sponsor, including:

- Name, address and contact information for the Company;
- Type of company and brief history;
- Management team including brief biographies of key personnel;
- Qualifications and experience with similar projects;
- Brief description of the proprietary technology owned by or licensed to the company that is proposed for consideration.

If the sponsor has experience with reference facilities similar to one that may be appropriate for the Planning Unit, please provide background information for those existing facilities which have been constructed and/or operated under the sponsorship of your party. For each reference facility, provide the following information:

- Location;
- Date of facility's commencement of operations;
- Type(s) of feedstock and average daily throughput (tpd);
- Initial capital cost in U.S. dollars, including the costs of planning, design, construction, materials and machinery;
- Current cost of operations in U.S. dollars per ton of material processed including the costs of labor, equipment and facility maintenance, residue disposal, and other costs associated with routine facility operations on an annual basis;
- Current tipping fee (in U.S. dollars per ton) for contractually committed waste deliveries from sponsoring or host municipality, if applicable;
- Quantity (tpd) and composition of residuals requiring landfill disposal.

Potential project sponsors who do not own or operate reference facilities should provide comparable information about their proposed technology, along with the specific basis of the information (i.e. operating histories, pending proposal, etc.)

Facility Sizing

Potential project sponsors should provide information related to facility sizing. Potential sponsors may propose a facility sized to accommodate all or a portion of the baseline waste quantity (227,000 tpy) . Because the New SWMP process will also involve assessing the potential expansion of the Planning Unit to include other communities in the region, potential sponsors are asked to provide information regarding the size of a larger facility or an optimally-sized facility.

The following information should be provided regarding the anticipated characteristics of a proposed facility designed to serve the Planning Unit.

- Types of feedstock (MSW, C&D, etc);
- Unacceptable wastes;
- Annual processing capacity (tpy) and average daily throughput (tpd);
- Site acreage required to support a proposed facility;
- Alternate size for larger or optimally-sized facility (tpy and tpd);
- Minimum feasible facility size (tpy and tpd).

Costs of Ownership and Operation

Recognizing that these are planning level estimates, potential project sponsors should provide anticipated cost information regarding a facility designed and constructed to serve the Planning Unit.

- Initial capital cost in U.S. dollars, including the costs of planning, design, construction, materials and machinery;
- If applicable, alternative capital cost estimates for optimally-sized and minimum sized facilities;
- Estimated cost of operations in U.S. dollars per ton of material processed;including the costs of labor, equipment and facility maintenance, residue disposal, and other costs associated with routine facility operations on an annual basis;
- If applicable, the net value of any energy or material recovery resulting from the process, in U.S. dollars per ton of material processed.

Environmental Impacts

Please characterize, and quantify to the degree possible, the anticipated environmental impacts of a facility designed to serve the Planning Unit.

- *Air Emissions- provide a summary description of process air emissions and controls, including:*
    - Anticipated greenhouse gas emissions (tpy of CO2 equivalent) resulting from MSW processing and/or associated energy generation
    - Anticipated emissions of Criteria Pollutants (tpy)
    - Air pollution control equipment and odor control

- *Water – provide a summary description of process water use and wastewater discharges, including:*
    - Process water consumption (gpd)
    - Wastewater discharge (gpd)
    - Wastewater pre-treatment requirements

- *Utility Requirements – provide a summary description of the utility consumption necessary to sustain facility operations, including:*
  - Anticipated gross and net electrical consumption (kWh per ton of MSW)
  - Natural gas requirements
  - Other types of fuel and anticipated consumption (in units per ton of MSW)

Readiness and Reliability

- Please describe the status of your sponsored technology in terms of its maturity and readiness for commercial implementation, as well as its suitability for permitting in the State of New York;
- Describe how construction and operational performance guarantees would be provided;
- Describe the timeframes necessary for each of the following:
  - Facility Design
  - Facility "permitting"
  - Facility construction
  - Start-up and Acceptance Testing
  - Total time from Facility Design through Acceptance Testing

Beneficial Reuse of MSW Byproducts

- If applicable, quantify the gross and net generation of energy (in kWh or other appropriate measure per ton of waste processed) anticipated from the processing of waste at a facility designed to serve the Planning Unit.
- Describe the composition and quantify the production of marketable solid or gaseous byproducts generated as outputs of a facility designed to serve the Planning Unit. Responses should be expressed in units per ton of waste processed.

Residue Requiring Landfill Disposal

Briefly describe any solid residue from the process which might require landfill disposal, including:

- The anticipated percentage (by weight of incoming waste processed) of solid residue requiring land disposal;
- Anticipated hazardous waste characterization as per TCLP or other applicable procedure:
- Potential beneficial uses of solid residue.

III. SUBMITTAL OF RESPONSES

Due Date

One copy of each submittal should be received by CHA, III Winners Circle, Albany NY ***no later than 4:30 p.m. Eastern Time on Friday, March 27, 2009***. Responses may be submitted via standard or overnight mail, or by hand in accordance with the time and date noted. Responses should be addressed to:

Ms. Suzanne Christopher
CHA
III Winners Circle
Albany, NY 12205-0269

Questions or comments should be submitted in written format to Ms. Suzanne Christopher at schristopher@chacompanies.com .

APPENDIX B

RFI RESPONSE SUMMARIES

Company Name: Bigold Fuels Corporation
Technology Category: Front-End Sterilization, Gasification

BioGold Fuels Corporation is a Nevada corporation based in New York City, and was formed as a result of a merger with Full Circle Industries, Inc. in April 2007, and became a publicly traded company in October 2007.

The BioGold process takes place entirely within its building. MSW is unloaded from trucks and conveyed to a sterilizer where it is sterilized, reduced in size, and mechanically sorted to remove recyclable metals and other inorganic material from the organic fraction of the waste. The sterilized organic and energy-containing materials are then fed into a thermo-chemical gasifier, where they are transformed at high temperature into compounds that produce a syngas composed mostly of hydrogen and carbon monoxide. Remaining solid residue can be vitrified into a glass-like solid that can be used for various construction applications.

Syngas can be used to generate electricity using commercial electricity-generating equipment, or converted to a biofuel using a standard gas-to-liquid catalytic process. BioGold would build infrastructure to generate both electricity and transportation biofuels, and would shift production according to the relative market value of these commodities.

Biogold responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects:
BioGold has "successfully implemented the front-end processing aspect of its technology using MSW to create a marketable recycled long-fiber product sold for liner-board manufacture". To date, the company has not constructed or operated a MSW processing facility.

Facility Sizing
Types of feedstock: MSW; can also accommodate certain specialty waste streams such as dewatered sewage sludge and other organic waste streams.
Unacceptable wastes: Information not provided.
Proposed processing capacity to serve Planning Unit: BioGold would propose a facility to accommodate 290,000 tpy with an expected average throughput of 880 tpd. The facility would operate 24 hours/day, 7 days/week and waste acceptance would be tailored to local needs.
Site requirements: Approximately 20 acres.
Alternate size for larger or optimally-sized facility: A larger facility could be designed if market analysis indicates a need. Additional sterilizing units could be deployed at satellite locations, with the sterilized processed waste being delivered to the main facility.
Minimum feasible facility size: 300 tpd (100,000 tpy).

Costs of Ownership and Operation
Initial capital cost: Approximately $230 million or $261,364/tpd of installed capacity.
Operating cost: $83.55/ton; includes costs of labor, equipment and facility maintenance, residue disposal, and other routine annual costs. Excludes debt service.
Tipping fee: Information not provided.
Electric revenues: Based on the information provided by BioGold, CHA calculates estimated electrical revenues of $24.50/ton at a price of $0.07/kWh.

Environmental Impacts
Greenhouse gas emissions: Information not provided.
Criteria pollutant emissions: Information not provided.

Air pollution control equipment and odor control: The sterilization process eliminates odors, and all processing is contained within a negative-pressure building. Gasification process emissions are entirely captured in the syngas, which is processed to neutralize any remaining pollutants. Air emissions from the catalytic production of biofuels are captured and processed through the gasifier, where they are broken down and rendered inert. Air emissions from electric generation are less than those from other similarly sized generation facilities; standard controls and exhaust treatment are applied.
Process water consumption: Volume of water consumption not provided. The sterilization process yields water as 10-15% of the feedstock by weight is purged as excess water. This purged water is treated and reintroduced as a reagent. Net result is "small" water usage.
Wastewater discharge: Volume of wastewater discharge is not provided. Purged water is treated and recycled in the process.
Electrical consumption: 612 MWh/day generated; 334 MWh/day consumed; net generation of 278 MWh/day or 350 kWh/ton. Alternatively, 47,790 gpd of ethanol produced.
Natural gas requirements: 500,000,000 scf/annum or 1,724 scf/ton.

Readiness and Reliability
Maturity and suitability for permitting: The facility would combine commercially proven technologies that are ready for implementation on the scale required for the Planning Unit. Anticipated to meet all NYS permitting and approval requirements.
Construction and performance guarantees: To be provided under a standard engineering/procurement/construction (EPC) arrangement. Process efficacy insurance will likely be required by financial backers. BioGold will incorporate storage technology and space for prepared materials, for use in the event of short-term outages of the gasification units. The company would enter into arrangements for alternate use, sale or disposal of the prepared sterilized material in the event of an extended outage of the gasification units, and for alternate disposal of MSW in the event of an extended outage of the sterilizer units.
Timeframes:

- *Facility design:* 6 months
- *Facility "permitting":* 1 year
- *Facility construction:* 7 months
- *Start-up and acceptance testing:* 2 months
- *Total timeframe:* 2 ½ years.

Beneficial Reuse of MSW Byproducts
Energy generation: Syngas can be used to produce a net 278 MW/day of electricity or up to 86 gallons of second generation ethanol per dry ton of sterilized processed waste. Based on the information provided by BioGold, CHA calculates a net electrical output of 350 kWh/ton of waste processed.
Solid or gaseous byproducts: Recyclable materials recovered by the separation process would be sold to market. Remaining solid residue material is stabilized through a vitrification process and can be used as an aggregate material.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: Maximum 7% to 15% of the MSW waste stream.
Anticipated hazardous waste characterization: Residual material is inert. No characterization or testing information provided.

Company Name: Carbon Diversion, Inc.
Technology Category: Pyrolysis/Gasification

Carbon Diversion Inc. is a Hawaiian corporation that was formed in 2004. CDI creates small-scale systems that can process MSW to generate electricity and bio-char products. The company identifies a pilot plant and two commercial facilities, located in Hawaii and Tennessee. CDI will break ground on the first of three planned manufacturing facilities in April 2009, which will allow the company to produce and deliver its systems.

Incoming waste, including tires, animal waste and green waste, is pre-processed (briquetted) and fed into the processors. A pressurized partial pyrolysis gasification process is used to produce a liquid fuel and syngas, which are used to generate electricity. Bio-char can be used for water filtration or as a soil amendment. Units can be remote-started by local power providers, and can be used for emergency power generation if provided access to natural gas utilities.

CDI responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: CDI has built a pilot plant at Campbell Industrial Park in Hawaii. The plant consists of three 1-ton processors, and the main product is a petroleum product in the kerosene range.

A second system is located in Dunlop, Tennessee as part of a sustainable community development, and consists of two 3.5 ton/hr. units. The Dunlop facility is designed to operate 10 hours/day and generate 2 MW of electricity. Bio-char byproducts are bagged and sold under the Eterna Green trade name as a soil amendment.

Work has begun on a third site in Hawaii; four additional sites have been identified at transfer stations in Hawaii, pending final bond passage with a start date in July 2009.

Facility Sizing
Types of feedstock: Various waste streams.
Unacceptable wastes: Information not provided.
Proposed processing capacity to serve Planning Unit: Dual 3.5 ton/hour processing system capable of processing 50 tons of waste per 8-hour day.
Site acreage required: As little as 0.5 acre, designed to be co-located at an existing transfer station.
Alternate size for larger or optimally-sized facility: Information not provided, but submittal notes that plants are scalable by adding modular units.
Minimum feasible facility size: Information not provided.

Costs of Ownership and Operation
Initial capital cost: $6.25 million or $125,000/tpd installed capacity calculated using information provided by CDI.
Operating cost: $240/ton.
Tipping fee: $65/ton.
Electric revenues: Approximately $160/day (2 MWh x $0.08/kWh). Bio-char revenue is estimated at $350/ton of incoming waste.

Environmental Impacts
Greenhouse gas emissions: CDI describes its system as a "carbon negative system".
Criteria pollutant emissions: "…complies with all relevant EPA and local emission standards". Emissions data not provided.

Air pollution control equipment and odor control: Emissions from electrical generation are passed through catalysis; a carbon filter is used in both the exhaust gas and secondary exhaust systems.
Process water consumption: The process recycles 80% of all water used. Typical consumption is less than 500-1,000 gallons/day with onsite water conditioning.recycling system.
Wastewater discharge: Information not provided.
Electrical consumption: Little energy required to run the process; 2 MW electricity generated.
Natural gas requirements: Natural gas can be used to operate facility for emergency power generation.

Readiness and Reliability
Maturity and suitability for permitting: CDI's new manufacturing facilities will allow it to produce a two-processor system every six weeks. The company will offer maintenance, training and support for the system.
Construction and performance guarantees: Information not provided.
Timeframes: Information not provided.

Beneficial Reuse of MSW Byproducts
Energy generation: 2 MWh/day or 40 kWh/ton as calculated by CHA..
Solid or gaseous byproducts: Bio-char can be marketed as a soil amendment to enhance crop yields, a steel additive or for water filtration.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: No landfill disposal.
Anticipated hazardous waste characterization: NA.

Company Name: Casella Waste Systems, Inc.
Technology Category: Single-Stream Recycling, WTE

Casella Waste Systems, Inc. is a vertically integrated resource management company that operates primarily in the northeastern U.S, and was founded in 1975. The company operates a number of collection divisions, transfer stations, disposal facilities, recycling facilities, and landfill gas to energy facilities. FCR, Inc. is a wholly owned subsidiary of Casella that designs, builds and operates recycling facilities throughout the U.S.

Casella proposes a four-phased waste management approach for the Planning Unit.

Phase 1 includes:

- Introduction of a single-stream recycling system, coupled with commodity marketing.
- Piping landfill gas that is currently flared at the Rapp Road Landfill to the SUNY-Albany campus as a direct-use application.[1]

Phase II includes:

- Establishment of a multi-material processing system platform, located at Rapp Road Landfill, to recover additional recyclables and develop engineered feedstocks for subsequent conversion processes.[2]

Phase III includes:

- Manufacturing engineered feedstocks from non-recoverable waste streams for co-firing and direct hydrocarbon fuel substitution for boilers, kilns, and similar energy uses.

Phase IV includes:

- Establishment of a waste-to-energy facility operating by means of pyrolysis and gasification to process MSW. Syngas products would be used to produce electricity, liquid fuels or chemicals.

Casella responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: Casella is a well-established waste management company with experience in constructing and operating solid waste disposal and other facilities throughout the northeastern U.S. The company operates 32 collection divisions, 31 transfer stations, 11 disposal facilities, 37 recycling facilities, and 5 landfill gas to energy facilities. Casella operates recycling facilities located in 10 states.

Casella's Camden, NJ, Philadelphia, PA and Ontario, NY MRFs have each been constructed since 2005, and serve as reference facilities for recycling. The Ontario County, NY direct-use landfill gas pipeline project powers the only office complex in the U.S. fueled directly by landfill gas. The company's Charlestown, MA facility serves as a multi-material processing platform reference project. Casella has a WTE commercial demonstration unit currently in acceptance testing, which would serve as a reference facility upon completion; other reference facilities are operated by Eco Technology, a project partner.

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[1] *Note: This element may not be feasible because the City of Albany has committed its landfill gas to another user.*
[2] *Note: This location may not be feasible because the City of Albany has committed the Rapp Road site for Pine Bush habitat preservation.*

Facility Sizing
Types of feedstock:
Phase I: Acceptable recyclables include various papers, cardboard, and metal, glass and plastic (MGP) containers. The Direct-use landfill gas pipeline would utilize landfill gases from the Rapp Road Landfill that are currently flared.
Phase II: All dry recoverable materials from the waste stream.
Phase III: Non-recyclable MSW.
Phase IV: Engineered Phase III output.
Site Requirements:
Unacceptable wastes:
Phase III: Wet recoverable organics and non-convertible material.
Phase IV: Wet organics and non-convertible material.
Proposed processing capacity to serve Planning Unit: Casella would propose facilities to accommodate the Planning Unit's 227,000 tpy baseline waste quantity:
- Phase I MRF capacity up to 120,000 tpy (460 tpd assuming 260-day operating year).
- Phase II Multi-material processing platform capacity 150,000-200,000 tpy (575-750 tpd assuming 260-day operating year).
- Phase III Feedstock engineering capacity 35,000-50,000 tpy (135 tpd assuming 260-day operating year)or more.
- Phase IV WTE capacity 100,000 tpy (385 tpd assuming 260-day operating year).

Alternate size for larger or optimally-sized facility: Information not provided.
Minimum feasible facility size: Phase III Feedstock engineering minimum capacity 35,000-50,000 tpy.

Costs of Ownership and Operation
Initial capital cost:
- Phase I MRF equipment capital costs $8 million; operating costs $45-75/ton.
- Phase I landfill gas pipeline estimated capital costs $2 million; operating costs $400,000/year ($1/MMBtu).
- Phase II multi-material processing platform equipment capital costs $12 million assuming use of existing building located at Rapp Road Landfill; operating costs $45/ton.
- Phase III feedstock engineering equipment capital costs $2 million; operating costs $25/ton.
- Phase IV WTE equipment capital costs $24 million; operating costs $75/ton.
- CHA calculates the total capital cost at

Operating cost:
- Phase I MRF operating costs $45-75/ton.
- Phase I landfill gas pipeline operating costs $400,000/year ($1/MMBtu).
- Phase II multi-material processing platform operating costs $45/ton.
- Phase III feedstock engineering operating costs $25/ton.
- Phase IV WTE operating costs $75/ton

Tipping fee: Information not provided. Anticipated net profit sharing revenues of $15/ton to the Planning Unit.
Electric revenues: Anticipated $2 million/year in additional revenue share to the Planning Unit.

Environmental Impacts
Greenhouse gas emissions:
- Phase I MRF greenhouse gas emissions reduced by 170,840 tons/year CO_2 equivalent.
- Phase I landfill gas pipeline greenhouse gas emissions reduced by 215,220 tons/year CO_2 equivalent.
- Phase II greenhouse gas emissions reduced by 83,317 tons/year CO_2 equivalent.

- Phase III feedstock engineering avoided greenhouse gas emissions 129,540 tons/year CO_2 equivalent.
- Phase IV WTE avoided greenhouse gas emissions 198,171 tons/year CO_2 equivalent.

Criteria pollutant emissions:
- Phase III feedstock engineering, "below coal or traditional fuel".
- Phase IV WTE, no SO_x and trace NO_x.

Air pollution control equipment and odor control:
- Phase II multi-material processing platform, none.
- Phase III feedstock engineering, information not provided.
- Phase IV WTE, syngas scrubbing towers.

Process water consumption: Required for scrubbing towers; volume of consumption not provided.
Wastewater discharge: Yes for scrubbing towers; wastewater volume not provided.
Electrical consumption: Information not provided.
Natural gas requirements: Information not provided. Phase I direct-use landfill gas pipeline would displace 375,000 MMBtu of natural gas consumption at SUNY-Albany annually.

Readiness and Reliability
Maturity and suitability for permitting:
Facilities and technologies are proven with commercial reference facilities in the U.S. Casella has permitting experience in the northeastern U.S., including New York State.
Construction and performance guarantees: Casella would finance and operate the proposed facilities.
Timeframes:
If the process were initiated in 2009, Phases I-IV would be completed by 2016.

Beneficial Reuse of MSW Byproducts.
Energy generation:
Phase I landfill gas pipeline to provide 375,000 MMBtu energy to SUNY-Albany; Casella indicates that Phase IV WTE would generate 98,000,000 MWh/year, but this value likely overstates the electrical generation.
Solid or gaseous byproducts: Recyclables recovered by Phase I and Phase II facilities will be sold to market, and fuel pellets will be produced by the Phase III feedstock engineering facility.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: An estimated 20% of incoming MSW would require landfill disposal upon completion of Phases I-IV.
Anticipated hazardous waste characterization: Information not provided.

Company Name: Covanta Energy Corporation
Technology Category: WTE

Covanta is the largest independent owner and operator of WTE facilities in North America, and operates a network of waste management facilities in the vicinity of the Capital District.

Covanta proposes to accept solid waste from the Planning Unit at its nearby WTE facilities in order to relieve the pressure to address the closure of the Rapp Road Landfill by 2016. Available transfer capacity at Covanta's B3 Transfer Station in Columbia County would allow the transfer and delivery of waste to WTE facilities that may include the nearby Covanta facilities in Pittsfield, MA and Springfield, MA. As an option, the Planning Unit could deliver waste to Covanta for processing at its WTE facilities and take the inert process ash back to the Rapp Road Landfill at a volume reduced by 90%.

Covanta responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Covanta is recognized as a leader in the WTE industry. The company provides integrated WTE design, engineering, construction and operation and maintenance services. Covanta operates more than 20 WTE facilities in the Northeast, including 5 in New York State and several others in Massachusetts and Connecticut.

Experience with similar projects: Noting that Covanta does not propose to build a WTE facility in the Capital Region, the company has provided a list of more than 35 WTE facilities that it owns and operates in the U.S. Covanta operates a number of transfer stations, and is experienced in managing the logistics of solid waste transport.

Facility Sizing
Types of feedstock: MSW
Unacceptable wastes: Waste materials posing a threat to public health, are too large or bulky for disposal, or are present in concentrations or quantities that could negatively impact the facility's operational or environmental performance.
Proposed processing capacity to serve Planning Unit: Existing Covanta facilities could accept all or a portion of the Planning Unit's solid waste.
Alternate size for larger or optimally-sized facility: NA
Minimum feasible facility size: NA

Costs of Ownership and Operation
The Planning Unit would not incur the costs associated with introducing a new waste disposal facility in the Capital Region. The Planning Unit would pay a per-ton tipping fee to drop off waste at the B3 Transfer Station. Covanta does not provide a proposed tipping fee.

Initial capital cost: NA.
Operating cost: NA
Tipping fee: Information not provided.
Electric revenues: NA

Environmental Impacts
Greenhouse gas emissions: Information not provided.
Criteria pollutant emissions: Covanta provides emission data for pollutants including VOC, NO_x, CO, particulates, SO_2, Pb and NH_3 at four reference facilities.
Air pollution control equipment and odor control: Information not provided.

Process water consumption: Information not provided.
Wastewater discharge: 327.9 gallons/day (0.92 gallons/ton MSW) at Agawam, MA facility in 2008.
Electrical consumption: Net electrical generation of 380 kWh/ton based on reference facilities.
Natural gas requirements: 292 cuft/ton based on reference facilities.

Readiness and Reliability
Maturity and suitability for permitting: No permitting would be necessary, and the plan utilizes existing Covanta facilities.
Construction and performance guarantees: NA
Timeframes: Covanta could begin accepting solid waste from the Planning Unit immediately.

Beneficial Reuse of MSW Byproducts
Energy generation: NA
Solid or gaseous byproducts: NA

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: Inert ash representing approximately 10% of incoming MSW by volume or 25-30% by weight.
Anticipated hazardous waste characterization: No anticipated hazardous waste characterization.

Company Name: Dongara Pellet Factory, Inc.
Technology Category: Mechanical Processing -Engineered Fuel Pellets

Dongara is a Canadian company based in Woodbridge, Ontario, and uses the Dongara Process to convert MSW into an engineered pellet product with energy content similar to that of bituminous coal.

In the Dongara Process, MSW is delivered to the plant and passes through a series of processes to remove recyclable and unacceptable materials from the feedstock. Materials to be used for pellet production are shredded, fiberized and stored, and later mixed with high-BTU materials such as carpet waste and some plastic derivatives. The materials are transferred through pellet mills to produce the fuel pellets.

The fuel pellets may be used in various solid fuel systems, including solid fuel boilers or gasification processes, which in turn generate electricity and/or steam. It is possible to co-locate a fuel pellet facility with electrical generation equipment in order to produce electricity onsite.

Dongara responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: Dongara has operated a commercial fuel pellet facility in Woodbridge, Ontario, Canada since July 2008. The company has a 20-year contract to receive 110,000 tpy of MSW from York Region, with the option to increase its capacity to 220,000 tpy. The fuel pellets are presently used in the heating systems of large commercial greenhouses in Ontario, and are also used to fuel kilns in cement plants.

Facility Sizing
Types of feedstock: MSW
Unacceptable wastes: Hazardous, large and inorganic materials.
Proposed processing capacity to serve Planning Unit: 240,000 tpy. CHA estimates daily design capacity at 750 tpd.
Site acreage required: 8-11 acres
Alternate size for larger or optimally-sized facility: A 400,000 tpy facility would allow cost-saving efficiencies and reduce tipping fees.
Minimum feasible facility size: 200,000 tpy

Costs of Ownership and Operation
Dongara would propose a build-own-operate arrangement.

Initial capital cost: Approximately $80 million U.S., pre-tax for 240,000 tpy facility. Based on the assumed 750 tpd design capacity, CHA estimates an initial capital cost of $106,700/tpd of design capacity.
Operating cost: $55-$75/ton
Tipping fee: Woodbridge, Ontario reference facility tipping fee is currently $78/ton U.S.
Electric revenues: NA; pellets would be sold as a fuel source and/or potentially used to generate electricity, but no revenue information is provided.

Environmental Impacts
Greenhouse gas emissions: None from fuel pellet production.
Criteria pollutant emissions: None from fuel pellet production.

Air pollution control equipment and odor control: Tipping floor is located inside the facility. A negative pressure system is used to contain odor, dust and debris within the facility. Air filtration and scrubbing equipment would be used to treat exhaust from the plant.
Process water consumption: Water is generated in the process; approximately 3,000 gpd of wash-down water is required. CHA calculates water consumption at 4 gallons per ton of input MSW.
Wastewater discharge: A biological treatment system is used to ensure that effluent meets regional requirements before being discharged. 25% of the process wastewater is recycled to the wash-down system. Approximately 20-24% by weight of incoming MSW is moisture content. 50-60% of this moisture content is lost to evaporation; the remainder is combined with wash-down water to arrive at approximately 3,000 gpd wastewater discharge. CHA calculates wastewater discharge at 4 gallons per ton of input MSW.

Electrical consumption: Net electricity demand is expected to be 81-83 kWh/ton per day. If fuel pellet products are used in an energy production facility, the ratio of energy produced by such a facility vs. the energy used to produce the pellets would be approximately 15:1.
Natural gas requirements: Natural gas would be used primarily to heat the facility, with minimal natural gas used in the MSW drying process. Waste heat generated by equipment is used to offset natural gas usage.

Readiness and Reliability
Maturity and suitability for permitting: The technology to be employed has been developed based on a review of similar European commercial facilities. The Toronto facility has been operational since July 2008; operations of this facility and U.S. waste streams have been evaluated to guide the development of future facilities. Dongara provides a patented process that depends on an arrangement of well-proven equipment that has been used in the solid waste industry for years.
Construction and performance guarantees: Dongara is "comfortable in saying that they believe the fuel pellets will be within a 95-96% consistency, for both energy and chemistry". Contingency plans would be put in place for an outage that could interrupt MSW flow to the facility; Dongara would assume any such costs.
Timeframes:

Facility design: 4-5 months following site selection
Facility "permitting": depends on local requirements
Facility construction: 13-15 months
Start-up and acceptance testing: 4 months following construction
Total timeframe: 22-24 months for proposed (240,000 tpy) facility; 26-28 months for alternate (400,000 tpy) facility

Beneficial Reuse of MSW Byproducts
Energy generation: Fuel pellets are used as a source of energy.
Solid or gaseous byproducts: Stone, gravel and glass removed from MSW are issued to companies in the brick and concrete industries. Recyclable metals and plastics are recovered and sold to market.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: Small fractions of glass, sand and gravel representing approximately 5-8% of incoming MSW. 17,000-19,000 tpy residue requiring landfill disposal for a 240,000 tpy facility.
Anticipated hazardous waste characterization: No anticipated hazardous waste characterization.

Company Name: Ecodeco
Technology Category: Biodrying Process

Ecodeco is an international company with headquarters in Italy, and has recently established a cooperative arrangement with International Center for Commercial Affairs (ICCA) to assist in the pursuit of opportunities in the U.S. market.

The company presents the Biocubi Process, an aerobic biological treatment, to remove moisture and improve the heating efficiency of products to be used as fuel inputs for subsequent processes. Processing takes place in the company's ITS (Intelligent Transfer Station). The putrescible fraction of MSW undergoes an aerobic treatment, and the released heat is used to dry and thermally hygienise the feedstock. Separation occurs following the biodrying phase, and recyclable materials are removed from the feedstock. The biodried material is mechanically refined to produce a solid recovered fuel (SRF), which can be used to generate electricity or as a fuel source by cement kilns.

Ecodeco responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: Ecodeco's technology has been successfully implemented in Europe for more than a decade. The ITS (Intelligent Transfer Station) technology has been assigned a "Fully Proven" rating in a survey conducted by the Juniper consulting agency, indicating that it "has been used in active plants for at least two years and that the requirements set by the customer have been met by reaching the performance levels demanded by international standards". Ecodeco identifies several facilities in Italy, Spain and England, and states that there are 17 ITS facilities in total. To date, no facilities have been constructed in the U.S.

Facility Sizing
Types of feedstock: MSW
Unacceptable wastes: Information not provided.
Proposed processing capacity to serve Planning Unit: 230,000 tpy (2 lines x 115,000 tpy each). CHA estimates daily design capacity at 750 tpd.
Site acreage required: approximately 7 acres
Alternate size for larger or optimally-sized facility: No alternate plant size provided.
Minimum feasible facility size: 230,000 tpy

Costs of Ownership and Operation
In Italy, Ecodeco generally installs and manages its own plants, and in other European countries it designs, erects and tests plants for third parties. The company feels its best approach in the U.S. is to act as technology provider for authorities or local operators depending on local requirements.

Initial capital cost: Approximately $56,700,000 U.S. Based on the assumed 750 tpd design capacity, CHA estimates an initial capital cost of $106,700/tpd of design capacity.
Operating cost: Ecodeco is working to calculate operational costs for the U.S. market. Information not provided.
Tipping fee: 95 to 125 euros at existing European facilities ($126-$165 U.S.)
Electric revenues: NA; solid recovered fuel (SRF) product would be sold as a fuel source and/or potentially used to generate electricity, but no revenue information is provided.

Environmental Impacts
Greenhouse gas emissions: 85,500-171,000 tpy biogenic CO_2 process emissions; additionally, 50% of total CO_2 generated in SRF combustion (no value provided).
Criteria pollutant emissions: Information not provided.

Air pollution control equipment and odor control: Tipping floor is located inside the facility. A negative pressure system is used to contain odor, dust and debris within the facility. Process emissions pass through biofiltration and dedusting systems.
Process water consumption: 6,340-9,510 gallons/day depending on weather and local climate conditions.
Wastewater discharge: Approximately 3,170 gpd depending on weather and local climate conditions.
Electrical consumption: 30 kWh/ton for biodrying process, 55 kWh/ton for material refinement.
Natural gas requirements: Information not provided.

Readiness and Reliability
Maturity and suitability for permitting: Ecodeco had constructed and operated a number of facilities in Europe, but has no experience with permitting or operations in the U.S. Substantial work would be required in adapting operations to U.S. and local standards, and Ecodeco would work with local consultants to meet all requirements.
Construction and performance guarantees: Ecodeco would work with a local consultant to ensure all requirements are met. The facility would be equipped with a remote control system that allows monitoring of the process and equipment, to ensure prompt response to technical issues.
Timeframes:

- *Facility design:* 15 months
- *Facility "permitting":* 12 months (in EU)
- *Facility construction:* 16 months
- *Start-up and acceptance testing:* 4 months
- *Total timeframe:* 35 months

Beneficial Reuse of MSW Byproducts
Energy generation: SRF product is used as a source of energy.
Solid or gaseous byproducts: Recyclable metals and plastics are recovered and sold to market.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: 33.8% of incoming waste.
Anticipated hazardous waste characterization: No anticipated hazardous waste characterization.

Company Name: Energy Answers
Technology Category: WTE

Energy Answers was founded in Albany in 1981 and has operated in the Albany region for 28 years under the same ownership. Energy Answers is actively developing projects in the U.S., Caribbean and the European Union, and is in the early development stages of projects in other regions.

Energy Answers presents the Processed Refuse Fuel (PRF) technology. The Mechanical Treatment Facility is designed to accept and process incoming MSW to create a shredded, readily combustible PRF material. PRF is fed into the combustor and produces minimal ash residue. Steam generated by combustion is used to generate electricity. Bottom ash is processed in a materials recovery facility in order to recover metals and solid aggregate material.

Energy Answers responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: Energy Answers was the conceptual designer, developer, technology provider, co-operator and General Manager of the SEMASS WTE facility in Rochester, MA from its commencement of operations in 1988 until 1996. This WTE facility utilizes the PRF system. The base plant has a 2,000 tpd capacity and a subsequent 1,000 tpd expansion was created in 1993. The SEMASS facility received several awards for environmental performance under Energy Answers management.

Energy Answers also identifies WTE reference facilities in Pittsfield, MA and Springfield, MA. The company lists experience in managing and operating transfer stations.

Facility Sizing
Types of feedstock: MSW; could also process wood waste, tires, sludge, FOG (fats, oil, grease), and auto shredder residue.
Unacceptable wastes: Specific materials not identified; less than 1% of incoming waste.
Proposed processing capacity to serve Planning Unit: Facility would have two, 500 tpd boilers for a design capacity of 365,000 tpy (1,000 tpd).
Site acreage required: 10 acres in an industrial zone or 15 acres for a stand-alone facility.
Alternate size for larger or optimally-sized facility: Depending on opportunities to import MSW, a larger facility could be accommodated.
Minimum feasible facility size: 500 tpd.

Costs of Ownership and Operation
Energy Answers proposes a private ownership model, whereby the Planning Unit would pay a fixed tip fee for MSW delivered to the facility, and Energy Answers would assume full operational and financial risk for the ultimate disposal of the waste.

Initial capital cost: Information not provided.
Operating cost: Approximately $50/ton.
Tipping fee: Information not provided.
Electric revenues: Assuming a purchase agreement of $0.10/KWh, electric revenue would be $59.20/ton of incoming MSW.

Environmental Impacts
Greenhouse gas emissions: 67% of CO_2 emissions are biogenic, and 33% are anthropogenic. Anthropogenic CO_2 emissions are offset by the avoided emissions that would be produced by fossil fuel powered electric generation, avoided methane emissions that would otherwise be generated by

landfill disposal, and by the recovery of metal materials. Using these assumptions, Energy Answers states that the WTE facility would produce electricity at a negative net CO_2 emission rate of -3,636 lbs. CO_2/MWh. For every ton of MSW processed, approximately 1 ton of CO_2 equivalents would be eliminated.
Criteria pollutant emissions: Energy Answers has provided a table with recorded average emissions recorded at its SEMASS facility in April 2004, November 2005 and July 2006, for the following pollutants: particulates, SO_2, HCL, NO_x, CO, Cd, Pb, Hg and PCDD/F. The reference facility meets its permit limits and USEPA Maximum Achievable Control Technology (MACT) standards for emissions of these pollutants.
Air pollution control equipment and odor control: The gases generated by the combustion of MSW are passed through air quality control equipment consisting of: urea injection to remove nitrogen oxides, activated carbon injection to remove mercury, dioxins and furans, spray dryer absorbers using lime to neutralize any acids forming during the combustion process, and a fabric filter system (bag house) to capture particles in the gas.
Process water consumption: The WTE facility could utilize either an air-cooled condenser or a cooling tower. With an air-cooled condenser, industrial and water usage would be about 21,000 gallons/day based on a facility capacity of 1,000 tpd. Water usage for a cooling tower would be ten times greater. Hower, if adequate water supply is available, cooling towers are less expensive than air-cooled condensers and can operate on secondary treated effluent from a wastewater treatment facility.
Wastewater discharge: Aside from sanitary wastewater, there would be no discharge of water into the sewers.
Electrical consumption: Gross electric generation 696 kwh/ton; 104 kwh/ton internal usage; net electric generation 592 kwh/ton.
Natural gas requirements: No natural gas requirements.

Readiness and Reliability
Maturity and suitability for permitting: The Energy Answers PRF technology has been used in large-scale commercial operations at the SEMASS and other WTE facilities since 1989. The technology has been upgraded over the years.
Construction and performance guarantees: Energy Answers can:

- design, construct, test for acceptance, own, operate and maintain the proposed facility
- comply with all contract, federal, state and local laws, regulations and policies
- comply with Good Industry Practice and Good and Accepted Construction Practice
- be responsible for obtaining local construction permits.

Timeframes:
Total timeframe: 24 months

Beneficial Reuse of MSW Byproducts
Energy generation: Net 592 kWh/ton of MSW.
Solid or gaseous byproducts: Bottom ash (aggregate material) 10% by weight of waste fed; ferrous metal 4% of waste fed; nonferrous metal 0.4% of waste fed.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: 10% of incoming waste.
Anticipated hazardous waste characterization: No anticipated hazardous waste characterization.

Company Name: Green Conversion Systems (GCS)
Technology Category: WTE

GCS is a European company with existing operations in Germany; GCS has created a Delaware Limited Liability Company created for the purpose of purpose of pursuing WTE opportunities in the U.S. Morgan Stanley Biomass LLC, a subsidiary of the Morgan Stanley investment banking firm, owns the majority of the equity in GCS. The company has an exclusive license with Fisia Babcock Environment GmbH (FBE) to promote its WTE technology.

The GCS process has been proven to exceed environmental standards in the EU. Existing GCS facilities do not need to pre-process MSW prior to combustion, thereby eliminating the costs and risks associated with additional pre-processing measures. In addition to generating steam/electricity, the process byproducts include processed and size-classified aggregate, ferrous and non-ferrous metals, technical grade hydrochloric acid, gypsum, and salts suitable for industrial use.

GCS responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: GCS has provided information for two reference facilities located in Germany. The more recent facility, the 1,100 tpd (350,000 tpy) Muellverwertung Rugenberger Damm (MVR) waste treatment facility in Hamburg, Germany, has processed MSW in commercial operations since 1999. Emissions from the MVR facility surpass all EU environmental standards.

Facility Sizing
Types of feedstock: MSW
Unacceptable wastes: Oversized materials, C&D wastes, hazardous materials.
Proposed processing capacity to serve Planning Unit: 230,000 tpy (700 tpd) of MSW.
Site acreage required: Approximately 8 acres
Alternate size for larger or optimally-sized facility: For an annual capacity of more than 250 tpy, GCS would propose 2 lines with total 300,000 tpy capacity; this alternate facility would require an 11 acre site.
Minimum feasible facility size: Information not provided.

Costs of Ownership and Operation
Initial capital cost: Approximately $300 million U.S. Based on the 700 tpd design capacity, CHA estimates an initial capital cost of $429,000/tpd of design capacity.
Operating cost: Initial cost to operate and maintain the facility is approximately $75/ton including labor, maintenance materials, consumables, auxiliary fuel, selling of marketable byproducts, residual disposal, utilities, repair and replacement of equipment, bonds and insurance. Cost is anticipated to decrease to approximately $60/ton after the market for specially treated bottom ash for use as an aggregate has been established.
Tipping fee: Tipping fee at the existing MVR facility is approximately $159 U.S./ton.
Electric revenues: The proposed 700 tpd facility would generate 16-17 MW of net electrical power with a value of $50-60/ton of MSW.

Environmental Impacts
Greenhouse gas emissions: CO_2 emissions would be approximately 1 to 1.2 ton CO_2 per ton MSW. About 60% of the carbon contained in MSW is biogenic, and the CO_2 emitted to the atmosphere from this portion of the waste is CO_2 neutral.
Criteria pollutant emissions: GSC has provided a table with recorded average emissions recorded at its MVR facility from 1999-2007, for the following pollutants: NO_x, CO, particulates, C_{total}, HCL,

SO_2, HF, Cd, Th, Hg, Pb and PCDD/F. Emission values exceed USEPA 40CFR60 Subpart Eb regulations for these pollutants.

Air pollution control equipment and odor control: Tipping floor is located inside the facility, and a negative pressure system is used to contain odor, dust and debris within the facility. NO_x emissions are reduced by spraying aqueous ammonia into the combustion chamber at several levels in the furnace. An adsorbent material is added to the flue gas leaving the boiler, thereby separating any heavy metals and organic pollutants. The flue gas is routed through a 2-stage HCl-scrubber where process water is added to separate any readily soluble halogen compounds. Sulfur oxides are separated by a neutral single-stage scrubber. A second baghouse filter is applied to ensure minimal emissions of heavy metals and organic pollutants.

Process water consumption: Process water (50 kgal/day) does not have to be potable water; grey water from a water pollution control plant or water taken from a river or groundwater would be sufficient. Water required for the process would be filtered and stored before process use. Most process water would be evaporated in the wet scrubbers of the flue gas treatment system and released into the atmosphere as water vapor.

Wastewater discharge: Aside from sanitary waste (2,000 gpd), there would be no discharge of water into the sewers. Measures would be taken to minimize stormwater runoff, possibly including green roofs on some buildings.

Electrical consumption: Gross electric generation 680 kWh/ton; 95 kWh/ton internal usage; net electric generation 585 kWh/ton.
Natural gas requirements: 64,000 decatherms/year.

Readiness and Reliability
Maturity and suitability for permitting: The mass burn technology offered by GCS is manufactured by FBE, and there are over 500 facilities worldwide that use FBE proprietary technology. Existing GCS facilities using these technologies exceed the emissions standards set by New York State, and are expected to be suitable for permitting.
Construction and performance guarantees: The contractual obligations under the service agreement would be first guaranteed by the construction contractor, and upon startup of the facility and acceptance, this guarantee would be replaced by a guarantee from the operator.
Timeframes:
- *Facility design:* 12 to 15 months
- *Facility "permitting":* 8 to 10 months
- *Facility construction:* 24 to 26 months
- *Start-up and acceptance testing:* 6 to 9 months
- *Total timeframe:* 50 to 60 months

Beneficial Reuse of MSW Byproducts
Energy generation: Net 585 kWh/ton of MSW.
Solid or gaseous byproducts: Bottom ash (aggregate material) 22% by weight of waste fed; ferrous metal 2.3% of waste fed; nonferrous metal 0.2% of waste fed; HCl 1.5% of waste fed; gypsum 0.3% of waste fed.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: 2% of incoming waste.
Anticipated hazardous waste characterization: No anticipated hazardous waste characterization.

Company Name: Nature's Fuel
Technology Category: Pyrolysis; Biofuel Production

Nature's Fuel (NF) was founded in 2005 and is an Indiana Corporation; the company is owned by private equity investors. Shaw Environmental is identified as a consulting party that would be involved in the development of a NF facility for the Planning Unit. NF owns and operates one commercial facility in Atwood, Indiana, and is developing a second commercial facility in Huntington, Indiana.

The NF process uses a pyrolysis process to generate electricity, bio-oil, bio-char, and bio-gas. Bio-char residue can be used as a soil amendment or high-grade source of activated carbon. Bio-oil can be sold to blenders and used to reduce the sulfur content and viscosity of #6 heating oil.

Nature's Fuel responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: NF operates an 86,000 tpy facility in Atwood, Indiana – this plant began as a solid fuel R&D facility and was converted into a full-production pyrolyzation operation in 2007. The Atwood facility accepts wood waste, C&D waste, and other waste streams (plastics, waste oils, etc.) to produce sulfur-free bio-oil, high quality bio-char, and will begin to generate electricity later in 2009.

NF is in the process of developing a new facility in Huntington, Indiana. The facility will have an anticipated waste throughput of 200,000 tpy in Year 1, and will increase to 400,000 tpy by Year 3. Air permit approval is anticipated in July 2009.

Facility Sizing
Types of feedstock: MSW, C&D wastes, tires, ASR, oil sludge and tank ottoms, non-hazardous industrial wastes and sludges, yard and tree waste, computer waste except for CRTs, carpeting, and white goods that do not contain freon.
Unacceptable wastes: Medical and hazardous wastes.
Proposed processing capacity to serve Planning Unit: The Albany market meets NF's throughput requirements. CHA assumes that a facility designed to serve the Planning Unit would have a capacity of 300,000 tpy (970 tpd).
Site acreage required: 15 acres; sites offering 25-30 acres allow space for potential expansion. Ideal sites are located near electric infrastructure such as a power substation.
Alternate size for larger or optimally-sized facility: A modular system allows NF to expand capacity in increments of 100,000 tpy.
Minimum feasible facility size: Information not provided; NF's preferred market is approximately 300,000 tpy.

Costs of Ownership and Operation
NF investors would assume all costs of ownership and operation. If desired, NF would give the municipality the option to purchase the plant and license it the intellectual property after 15 years.

Initial capital cost: Information not provided. The 400,000 tpy Huntington, Indiana facility will cost an anticipated $38 million with no electric generation. CHA estimates an initial capital cost of $52,713/tpd of design capacity. Power generation equipment may be added at a cost of approximately $30 million.
Operating cost: Information not provided.
Tipping fee: Information not provided.
Electric revenues: Information not provided.

Environmental Impacts
Greenhouse gas emissions: Information not provided.
Criteria pollutant emissions: Air permit applications for the Atwood and Huntington facilities demonstrate that the NF facilities' "PTE (potential to emit) is extremely low as measured before our environmental controls."
Process water consumption: The process utilizes water in a clean, closed-loop cooling mode. A retention pond may be considered as a source of cooling water, as would rain water. Other water usage would include restroom water and for cleaning of the tipping room floor.
Wastewater discharge: Drainage systems would capture wastewater in the building and tip room floors. Water would be treated by a triple trap and either discharged into municipal sanitary sewers or taken to a permitted facility for disposal. Wastewater discharge volume would be similar to that of a similarly sized transfer station.
Electrical consumption: Facility could generate its own electricity, but would prefer to purchase 1 to 3 MW from the local power utility.
Natural gas requirements: Natural gas would be used to start the process, and CHA estimates natural gas consumption at 100 btu-hr/ton of MSW.

Readiness and Reliability
Maturity and suitability for permitting: Pyrolysis technology has been used for decades in Europe, but its implementation is not as widespread in the U.S. NF has met permitting requirements for its Atwood facility, and expects approval for its Huntington facility later in 2009.
Construction and performance guarantees: NF and its investors would assume financial risk for the proposed facility.
Timeframes: Information not provided.

Beneficial Reuse of MSW Byproducts
Energy generation: The proposed facility could be used to generate electricity. The Huntington facility could potentially generate up to 40 MW of electricity from 400,000 tpy throughput.
Solid or gaseous byproducts: Bio-oil and bio-char are generated by the process. Quantity information is not provided.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: As little as 0% landfill disposal is possible, depending on the market for products. Less than 10% is likely.
Anticipated hazardous waste characterization: Information not provided.

Company Name: Norterra Organics
Technology Category: Composting

Norterra New York is a joint venture between Norterra (a fully owned subsidiary of Scott Environmental of Kingston, Ontario, Canada) and Nextek GBL, Inc. of Macedon, NY. Norterra currently operates a compost facility near Kingston, Ontario.

Norterra proposes a composting system that features the Gore Cover System as an operating platform. The system uses a membrane laminate technology similar to that of the well-known Gore-Tex fabrics. The system shields process materials from vectors and can achieve 99% microbe reduction. Operating costs are reduced because the system allows operators to use prositive pressure air. The system is considered an in-vessel technology by many regulatory authorities because the cover encapsulates all process materials.

Organic material spends six weeks under the Gore covers, followed by an additional two weeks of curing on an aerated pad. After the eight weeks of composting, the material is ready to be screened and stockpiled for further aging, and is then ready for sale.

Norterra responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: Norterra of Canada has a commercial compost facility located in Joyceville, Ontario, Canada, just east of Kingston. This facility is owned and was developed by the Scott Environmental Group. Construction of the facility began in Summer 2008 and operations began in Fall 2008. The Joyceville facility's initial capacity is 20,000 tpy, and Norterra plans to double this initial capacity before the end of 2009. The company has not developed any facilities in the U.S.

Facility Sizing
Types of feedstock: Organic materials, including: yard waste, institutional and restaurant food waste, food processing wastes, manures, low-grade papers, greases and oils, waxed corrugated cardboard, woody or other lignocellulosic wastes.
Unacceptable wastes: Information not provided.
Proposed processing capacity to serve Planning Unit: Assuming that approximately 30% of the baseline waste quantity could be compostable, and this entire fraction can be captured, a facility for the Planning Unit would require a 75,000 tpy capacity. Norterra would develop a modular system with initial 20,000 tpy capacity which can be expanded in 10,000 tpy increments to meet demand. At the initial 20,000 tpy design capacity, CHA estimates a daily design capacity of 75 tpd.
Site acreage required: Minimum 6 acres for 20,000 tpy module. 20 acres required for 75,000 tpy capacity.
Alternate size for larger or optimally-sized facility: Modular system allows for expansion.
Minimum feasible facility size: 20,000 tpy initial module.

Costs of Ownership and Operation
Initial capital cost: $3 million U.S. initial startup cost for Joyceville facility (20,000 tpy). CHA estimates an initial capital cost of $40,000/tpd of design capacity.
Operating cost: Information not provided.
Tipping fee: $65/ton U.S. for Joycetown facility.
Electric revenues: NA

Environmental Impacts
Greenhouse gas emissions: Information not provided.

Criteria pollutant emissions: Information not provided.
Air pollution control equipment and odor control: Potential odors are minimized by the Gore Cover System. The facility will include a leachate containment and recirculation system, and will be designed to withstand a 100-year flood event.
Process water consumption: Information not provided.
Wastewater discharge: Leachate collected during the composting process is recirculated.
Electrical consumption: Information not provided.
Natural gas requirements: Information not provided.

Readiness and Reliability
Maturity and suitability for permitting: Norterra operates one commercial facility in Canada, none in the U.S. The Gore Cover System has been installed in more than 170 plants in 26 countries worldwide.
Construction and performance guarantees: Information not provided.
Timeframes: Reference facility construction began in Summer 2008 and facility operations began in Fall 2008.

Beneficial Reuse of MSW Byproducts
Energy generation: NA
Solid or gaseous byproducts: Organic compost product.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: "Negligible" landfill disposal.
Anticipated hazardous waste characterization: Information not provided.

Company Name: Organic Waste Remediation, LLC
Technology Category: Recycling/Pyrolysis

Organic Waste Remediation, LLC (OWR) is based in Orlando, FL and offers the OWR Process for disposal of MSW. The OWR Process combines single-stream recycling and pyrolysis technologies, and includes three modules.

The *Recycling Module* separates non-organic material into ferrous, aluminum, other non-ferrous metals and clear, green and amber glass, washed and delabeled with ceramics removed. Unrecycled organic material is shredded, dried and fed to the Remediation Module.

The *Remediation Module* uses a pyrolysis process to break organic materials down into a relatively consistent synfuel. Synfuel products are conveyed to the Power Module.

The *Power Module* uses generic fluid bed burner/steam generation equipment to drive a steam turbine electric generator.

OWR responses to the evaluation criteria include the following:

Experience of Project Sponsor:
OWR is a startup company that has been established for over two years, and has patents pending for its pyrolitic breakdown process, recycling process and the use of its recycling process in combination with other disposal methods such as incineration and plasma. To date, OWR has not fully constructed or operated a MSW processing facility.

Experience with similar projects: OWR has commenced the approval process to construct and operate a commercial facility in Bozrah, CT. This facility will have a proposed 250 tpd (~90,000 tpy) maximum capacity, and contractual arrangements have been made to secure a 1,500 tpw supply of MSW feedstock. An electric sales agreement has been made with the local electric authority. The facility will cost an anticipated $30 million and will be located on a 25-acre property in a Heavy Industrial district. OWR has commenced the formal approval process in the State of Connecticut, and once initiated, construction of the facility is expected to take 10-16 months with tentative commencement of operations in mid-2010.

Facility Sizing
Types of feedstock: Curbside recyclables, MSW, yard waste
Unacceptable wastes: C&D
Proposed processing capacity to serve Planning Unit: OWR would propose a facility to accommodate the Planning Unit's 227,000 tpy baseline waste quantity plus curbside recycling. CHA estimates a daily design capacity of 900 tpd.
Site acreage required: Less than 12 acres.
Alternate size for larger or optimally-sized facility: As proposed, the facility can accommodate additional capacity up to 1,100 tpd without design adjustments.
Minimum feasible facility size: 250 tpd or 63,750 tpy.

Costs of Ownership and Operation
OWR proposes to finance and own the operation, operate the facility, pay all bills and collect the revenues from tipping fees, electric sales and sales of recycled materials.
Initial capital cost: Approximately $60 million. Based on the assumed 900 tpd design capacity, CHA estimates an initial capital cost of $66,700/tpd of design capacity.
Operating cost: approximately $19.20/ton.
Tipping fee: approximately $55/ton.
Electric revenues: estimated $64/input ton of MSW.

Environmental Impacts
Greenhouse gas emissions: "similar to that of an incinerator".
Criteria pollutant emissions: Anticipated reduction of mercury, heavy metals and dioxins/furan emissions.
Air pollution control equipment and odor control: Typical scrubbing equipment is being included in the CT facility. Ventilation system draws outside air in when doors are opened to control odors.
Process water consumption: 36,000 gpd for 140 tpd facility. Assuming a linear relationship between daily capacity and water consumption, CHA estimates that a 900 tpd facility would consume 230,000 gpd.
Wastewater discharge: Process waste water is collected and recycled; approximately 90% is reused for process water feed.
Electrical consumption: 197 tpd of dry organics generates 7.8 MWh electricity; 1.9 MWh consumed; net generation of 5.9 MWh. Based on this information, CHA estimates electric consumption of approximately 100 kWh/ton.
Natural gas requirements: None.

Readiness and Reliability
Maturity and suitability for permitting: Anticipated to exceed all NYS requirements; approval process is currently underway for CT facility.
Construction and performance guarantees: OWR to finance and operate facility, so municipal bodies have no financial investment.
Timeframes:
- *Facility design:* Less than 2 months
- *Facility "permitting":* 2 months to 2 ½ years
- *Facility construction:* 18 months
- *Start-up and acceptance testing:* Information not provided.
- *Total timeframe:* Anticipated 2 years.

Beneficial Reuse of MSW Byproducts
Energy generation: For 1,500 tpw, electric generation would range between 350-950 MWh/week, depending on the percentage of MSW diverted for recycling. Using the value of 350 MWh/week, CHA estimates gross electric generation of 233 kWh/ton and net electric generation of 223 kWh/ton.
Solid or gaseous byproducts: Recycling system will always recycle glass and metals; flexible process can adjust diversion of paper and plastic. 2% of input is inorganic solid material that can be used as aggregate material.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: Response claims no landfill disposal, assuming marketability of all solid byproducts. 2% residue if inorganic slag material is landfilled.
Anticipated hazardous waste characterization: No anticipated hazardous waste characterization.

Company Name: Plasco Energy Group Inc.
Technology Category: Plasma

Plasco is an Ottawa, Canada based company that offers a system based on plasma arc technology. The company currently operates a commercial-scale demonstration facility in Ottawa.

Plasco's waste conversion process begins with any materials with high reclamation value being removed from the waste stream and collected for recycling. MSW is shredded and enters a conversion chamber where it is converted into a crude syngas using recycled heat; this crude syngas flows to a refinement chamber and is refined using plasma torches to create a fuel called PlascoSyngas. The PlascoSyngas is cleaned and used to generate electricity. Waste heat is recovered and used to produce steam, which can be used to generate additional electricity or for industrial purposes.

Solid residue from the conversion chamber is sent to a separate high-temperature Carbon Recovery Vessel, where plasma heat is used to stabilize the solids and convert any remaining volatile compounds and fixed carbon into syngas. Remaining solids are cooled into small slag pellets. The process also yields other products including commercial salt, agricultural sulfur and water.

Plasco responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: Plasco has built a 110 tpd commercial-scale demonstration facility in Ottawa, Canada. This demonstration facility uses MSW from the city as feedstock, and has been in operation since January 2008. Discussions for commercial facilities are in progress in Canada, the U.S, Europe and Asia.

Facility Sizing
Types of feedstock: MSW
Unacceptable wastes: Information not provided.
Proposed processing capacity to serve Planning Unit: 440 tpd (160,000 tpy) facility consisting of four 110 tpd lines.
Site acreage required: 8 acres.
Alternate size for larger or optimally-sized facility: Additional 110 tpd modules could be added to the facility.
Minimum feasible facility size: Information not provided.

Costs of Ownership and Operation
Plasco uses a build, own and operate model. The company would assume all financial responsibility and risk with regard to the construction, commissioning, and ongoing operation of the facility.
Initial capital cost: Information not provided.
Operating cost: Information not provided.
Tipping fee: Information not provided.
Electric revenues: Information not provided.

Environmental Impacts
Greenhouse gas emissions: Emissions of 0.6 tons CO_2 equivalent per ton of MSW.
Criteria pollutant emissions: Plasco provides an emissions profile for the production of electricity, including the following pollutants: particulate matter, organic matter (CH_4), HCl, SO_2, NO_x, Hg, Cd, Pb, dioxins and furans. The company provides guaranteed "Plasco Regulated Limit" and more stringent "Plasco Target" emission values for these pollutants, and the company is committed to achieving these limits.

Air pollution control equipment and odor control: Information not provided.
Process water consumption: Information not provided.
Wastewater discharge: Information not provided.
Electrical consumption: Gross electric generation 27 MW; internal usage 6 MW; net electric generation 21 MW. CHA calculates this internal usage as 300 kWh/ton of MSW.
Natural gas requirements: Information not provided.

Readiness and Reliability
Maturity and suitability for permitting: To date, Plasco does not operate any commercial facilities. Its commercial-scale demonstration facility in Ottawa has been operating since January 2008.
Construction and performance guarantees: Plasco would assume all financial risk for the development and operation of the facility. As a performance guarantee, Plasco offers the following: If a facility does not meet its "Plasco Regulated Limit" for emissions, the company will remove the plant at no cost and return the land to its original state, and end the supply agreement without penalty.
Timeframes: Plasco would develop an operational facility within 18 months of acquiring permits.

Beneficial Reuse of MSW Byproducts
Energy generation: Net 1.1 MWh/ton.
Solid or gaseous byproducts: Materials recovered from 1 ton of waste include the following: 330 lbs. slag; 10-20 lbs. salt, 10 lbs. sulfur, 80 gallons potable quality water, 15-35 lbs. recyclable metals.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: The response claims that less than 1% of incoming waste (3 lbs./ton) would require landfill disposal. This residual waste consists of the segregated heavy metals caught by filter media. If slag is landfilled, then 17% residue.
Anticipated hazardous waste characterization: Information not provided.

Company Name: Powers Energy of America
Technology Category: Gasification, Biofuel Production

Powers Energy is a national firm headquartered in Evansville, Indiana, and presents a process to produce biofuels and electricity from MSW. Two Powers Energy operating companies are established: Powers Energy One of Indiana has been established to develop an MSW facility in Lake County, Indiana, and Powers Energy Two of Kentucky, LLK has been established to develop a facility in northwestern Kentucky. INEOS Bio and Kellog Brown and Root (KBR) provide technical, design and construction support for Powers Energy facilities.

MSW feedstock would be delivered, handled and contained within the indoor facility. Carbon-based MSW/feedstock materials are mixed, crushed or shredded and fed into a gasification plant for bioethanol production. Feedstock materials are converted to a syngas product in the gasifiers by heating the materials in to different stages to temperatures in excess of 2,000 degrees Fahrenheit. Heat recovered from the gasifier is used to generate steam and electricity. Syngas leaving the gasifier is refined, cooled and passed through the biological fermenter, where 70-90% of the gas will be converted to bioethanol through microbial activity. Off-gas from the fermenter is routed for use in steam generation. Bioethanol products are go through a refining process and market for use as a fuel. Ash from the gasifier is sent to a landfill for disposal.

Powers Energy responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects:
Powers Energy is involved in a project in Lake County, Indiana that involves, to date, the financing, site evaluation and engineering of a gasification/biofuel production facility with a minimum capacity of 2,000 tpd. The facility is anticipated to generate 36 million gallons of bioethanol fuel, 42,600 tons of recyclable metals and 20 MW of power on annual basis, and may continue to expand in response to future market demand. Powers Energy is also pursuing agreements for development of a facility in northwestern Kentucky, and has begun design and permitting for this facility.

Facility Sizing
Types of feedstock: MSW, food waste, paper, textiles, wood, yard waste, plastics, leather, rubber, oil-derived materials, agricultural residues, tires, coal, organic sludge.
Unacceptable wastes: Hazardous materials, C&D debris.
Proposed processing capacity to serve Planning Unit: Modular gasification units are designed to process 150 tpd of feedstock. Accounting for the recovery of recyclable materials and moisture content, this equates to approximately 450 tpd per two gasifiers. Powers energy would install four gasifiers (~900 tpd capacity) to process waste for the Planning Unit.
Site requirements: 60 acres to accommodate facility and space for potential future expansion. 100-150 acres for a site with rail service.
Alternate size for larger or optimally-sized facility: A larger facility could be designed if needed; the company realizes little gain beyond 2,000 tpd.
Minimum feasible facility size: 4 gasifiers/200,000 tpy, such as needed for the Planning Unit.

Costs of Ownership and Operation
Initial capital cost: Approximately $100 million.
Operating cost: $72.23/ton; includes costs of facility maintenance, labor, landfill and recyclables hauling, and landfill disposal. Additional expenses including insurance, depreciation, interest, technology licensing, municipal and county host fees, management fee, administration, contractual and contingency costs represent a total $71.02.
Tipping fee: Information not provided.

Electric and other revenues: Ethanol sales would be approximately 13 million gallons at 211,000 tpy. Total projected revenue from all sources (recovered materials, ethanol biofuels, electric sales) is estimated at $189/gross ton of feedstock.

Environmental Impacts

Greenhouse gas emissions: Greenhouse gas emissions of 0.54 tons CO_2 equivalent per ton of MSW.
Criteria pollutant emissions: Air and water emissions data are provided for a Powers Energy pilot facility. Information is provided for airborne emissions of particulate matter, CO, NOx, SO_2, VOC, Pb, Hg, Cd, HCl, PCB and CDD/CDF. Emissions would meet all EPA and state requirements.
Air pollution control equipment and odor control: Odors and emissions from MSW off-loading will be contained within the waste handling facility. The handling floor will be designed to capture any leakage from incoming feedstock. A dry gas cleaning system injects lime and activated carbon into syngas products to capture HCl and any volatile metals. Bag filtering is used to capture solid particulates. The biological fermenter provides additional scrubbing, and off-gas passes through further cleaning measures to remove any remaining contaminants.

Process water consumption: Fresh water consumption is approximately 1.5 gallons per gallon of ethanol produced. Approximately 13 million gpy of water would be required to process 211,000 tons MSW. This equates to about 62 gallons per ton of MSW processed. Process water is reused.
Wastewater discharge: Wastewater is treated onsite and reused. Volume of discharge not provided.
Electrical consumption: Approximately 1/3 of electricity generated will be sold; presumably, this means that 2/3 of this electricity would be used by the facility. Gross and net generation information not provided; a 2,000 tpd facility has 20 MW output. Based on this information, CHA estimates gross output of 240 kWh/ton, internal consumption of 160 kWh/ton and net generation of 80 kWh/ton.
Natural gas requirements: A small amount of natural gas is required for startup.

Readiness and Reliability

Maturity and suitability for permitting: INEOS Bio is identified as a partner and has operated a pilot plant for over 5 years. The proposed facility would use equipment, materials and technology that is currently available to the chemical and petroleum industries. All technologies are proven, and Powers Energy anticipates no risks associated with a scaled-up facility relative to the pilot facility. All equipment will be field tested prior to commercial production of the facility. Overall system reliability is expected to be 95% or higher.
Timeframes:

Information not provided.

Beneficial Reuse of MSW Byproducts

Energy generation: 2,000 tpd facility has 20 MW electrical output. A 211,000 tpy facility would generate 13 million gpy of bioethanol.
Solid or gaseous byproducts: Recovered materials, including ferrous and non-ferrous metals, would be sold on the commodities market.

Residue Requiring Landfill Disposal

Percent residue requiring landfill disposal: Maximum 10% of the raw MSW feedstock.
Anticipated hazardous waste characterization: TCLP analysis from the pilot facility shows metal concentrations below EPA standards.

Company Name: Startech Environmental Corp.
Technology Category: Plasma Technology

Startech is a Wilton, Connecticut based public company that offers a plasma processing technology for MSW disposal. The company was founded in 1993 and was established in 1995 as a public company. Startech has built and delivered two small (5-7 tpd) units to customers in the U.S. and Japan, and operates a 5 tpd system at its Bristol location. The company has a 30,000 sf manufacturing facility where its systems are built, and is in the process of developing several facilities in overseas markets.

The Plasma Converter System utilizes plasma – an electrically charged, ionized gas – to process waste materials at extremely high temperatures. Organic components of the incoming waste are used to create a plasma-converted syngas, which in turn can be used to produce electricity, recover hydrogen, and to make industrial materials. Outputs include a Plasma Converted Gas (PCG) fuel consisting of primarily hydrogen and carbon monoxide, and a glassy black obsidianite material. PCG can be reused or recycled as a fuel or as a synthesis gas to produce electricity, recover hydrogen, or to make industrial products. The Startech technology can be used to process a variety of hazardous and non-hazardous waste materials.

Startech responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: In 1996-1997 Startech built and delivered a 7 tpd system to the U.S. Army's Aberdeen Proving Ground in Maryland. In 2001, the company opened a facility in Bristol, Connecticut which houses a 5 tpd system used for customer training, marketing and demonstration purposes. In 2001 Startech delivered a 5 tpd system to Japan for the processing of PCBs and hazardous incinerator ash.

To date, Startech has no full-scale commercial MSW facilities in operation. The company has signed contracts for two 300 tpd MSW facilities in Europe with additional orders pending for MSW facilities in Panama (200 and 350 tpd) and Europe (100 tpd). Startech is currently manufacturing multiple systems for Puerto Rico and Poland.

Facility Sizing
Types of feedstock: The Plasma Converter can process virtually any waste materials. Following is a partial list of materials: MSW, PCBs, asbestos, municipal sludge, biomedical waste, spent pot linings from aluminum smelters, solvents and paints, contaminated soils, waste oil, filters, insect/pesticides, explosives, munitions, spent activated charcoal, hazardous incinerator ash, electronic waste, petroleum sludge, confiscated drugs, tires, C&D materials.
Unacceptable wastes: None listed.
Proposed processing capacity to serve Planning Unit: The facility would accommodate the baseline 227,000 tpd waste quantity.
Site acreage required: Minimum 5 acres.
Alternate size for larger or optimally-sized facility: Modular design allows for future expansion.
Minimum feasible facility size: Information not provided.

Costs of Ownership and Operation
Initial capital cost: Information not provided.
Operating cost: Information not provided.
Tipping fee: Information not provided.
Electric revenues: Information not provided.

Environmental Impacts
Greenhouse gas emissions: Information not provided.
Criteria pollutant emissions: "The Startech system's environmental performance is safer than the United States EPA standards and regulations."
Air pollution control equipment and odor control: Information not provided.
Process water consumption: Information not provided.
Wastewater discharge: Information not provided.
Electrical consumption: Depending on the wastes or feedstocks being processed, the converter will produce more energy than it uses.
Natural gas requirements: Information not provided.

Readiness and Reliability
Maturity and suitability for permitting: Startech does not identify any full-scale commercial MSW processing facilities operating in the U.S. or abroad.

The company indicates that "There are many Startech Plasma Converter projects both in the United States and abroad that have had their environmental impact assessments and permit applications approved by the regulating authorities for operations".

Construction and performance guarantees: Because the system is electrically driven, its operation is easily controlled and therefore safe. Typically, individual chambers will be shut down for routine maintenance for one half hour of every 300 hours of operation.
Timeframes:
Information not provided.

Beneficial Reuse of MSW Byproducts
Energy generation: Information not provided.
Solid or gaseous byproducts: Component materials of feedstock can be recovered in from one to three distinct phases: Synthesis gas, inorganic glasslike silicates, and liquid metallic elements which collect and are discharged at the base of the vessel.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: Information not provided.
Anticipated hazardous waste characterization: The solid obsidianite product is inert and non-leachable when subjected to Toxicity Characteristic Leachate Procedures (TCLP) protocols.

Company Name: Taylor Biomass Energy
Technology Category: Gasification

Taylor Biomass Energy (TBE) is headquartered in Montgomery, NY and currently operates a C&D sorting and recycling process in the Town of Montgomery. TBE plans to expand this existing system and couple it with biomass gasification.

Sorted feedstock is fed into the gasification reactor, where it undergoes a rapid thermal breakdown to produce a syngas product. The syngas is conditioned and used to generate electricity. A combustion reactor is used to further process char products, and final ash products are disposed of at a landfill.

Taylor Biomass Energy responses to the evaluation criteria include the following:

Experience of Project Sponsor:
Experience with similar projects: TBE owns and operates a C&D sorting and recycling facility in Montgomery, NY, which opened in 1989. This facility produces approximately 300 tpd (dry basis) of a biomass mix that would be appropriate for gasification feedstock. The process also removes various non-biomass materials for recycling or disposal. 97% of the incoming material is converted into useful products.

TBE has a project underway to couple a gasification process with the existing sorting and recycling process at the Montgomery facility. Permitting is currently underway for this action; all permitting documents have been submitted to DEC for review, and action on the final Part 360 permit document was expected within 3 to 6 months of TBE's March 2009 response date.

Facility Sizing
Types of feedstock: MSW, C&D waste, wood.
Unacceptable wastes: Painted and pressure-treated lumber, PVC plastics, hazardous or radioactive materials including lead-based paints and solvents, tires, batteries, electronics, electrical motors/transformers/ballasts, asbestos-containing materials.
Proposed processing capacity to serve Planning Unit: The facility would accommodate the Planning Unit's 227,000 tpy baseline waste quantity, and CHA estimates a design capacity of 750 tpd. .
Site acreage required: 8-12 acres; a compact 5-6 acre layout could potentially be implemented. TBE anticipates that the proposed facility could be located at the Rapp Road Landfill.
Alternate size for larger or optimally-sized facility: Information not provided.
Minimum feasible facility size: Information not provided.

Costs of Ownership and Operation
Initial capital cost: Approximately $100 million including engineering, equipment purchase and installation for the sorting and separating, gasification, power, electric interconnection and initial site preparation. Based on the assumed 750 tpd design capacity, CHA estimates an initial capital cost of $133,000/tpd of design capacity.
Operating cost: Approximately $15 million annually ($137/dry ton): $5.5 million for sorting and separation, $4.8 million for gasification, $4.7 million for power production. These costs include labor, maintenance and ash disposal. Based on this information, CHA calculates a total operating cost of $66/ton.
Tipping fee: Information not provided.
Electric revenues: TBE expects to be cost-competitive with current avoided costs in the Albany region. The company would expect to execute a long-term power purchase agreement using a front-end-loaded, levelized avoided cost basis.

Environmental Impacts
Greenhouse gas emissions: The process is CO_2 neutral, meaning that all CO_2 discharged by the system is consumed in the production of new fuel for the system. The gasification based system has an overall efficiency of 40%, which compares favorably to the efficiency of a combustion-based power system. VOC emissions are eliminated from the stack. CO_2 emissions would be reduced by approximately 47% relative to direct combustion, on a lb/MW basis. Approximately 2.5 tons/MW of CO_2 equivalent emissions are avoided by eliminating the need for biomass landfilling.
Criteria pollutant emissions: NO_x emissions approximately 0.5 lb/MW; CO emissions approximately 0.2 lb/MW; particulate emissions less than 0.1 lb/MW; SO_2, hydrocarbon emissions near zero.
Air pollution control equipment and odor control: Nitrogen oxides are controlled by the use of SCRs in the turbine exhaust as well as in the process combustor. CO levels are kept low by the use of oxidation catalysts in the exhaust streams.
Process water consumption: Use of a water-cooled condenser would require 187,000 gpd. If water supplies are restricted, this requirement could be virtually eliminated by using an air-cooled condenser.
Wastewater discharge: Approximately 10 gallons/minute or 14,400 gpd. Discharged water will be treated by filtration and active charcoal to remove contaminants.
Electrical consumption: Gross electric generation 0.85 MW/ton; internal usage 0.15 MW/ton; net electric generation 0.7 MW/ton.
Natural gas requirements: Natural gas is used for startup of the gasification process and gas turbine. Startup period is approximately 12 hours in duration and will occur once or twice annually during normal operations.

Readiness and Reliability
Maturity and suitability for permitting: A number of technologies utilizing this gasifier technology are under development; these include the FICFB gasifier in Gussig, Austria, the SilvaGas facility in Burlington, Vermont, the ENSYN pyrolysis process, the Thremochem process and other processes being developed in Europe and China. TBE is awaiting permit approval for the application of a similar process in Montgomery, NY.
Construction and performance guarantees: Performance guarantees and any potential risks will be addressed in the same manner as in Montgomery, NY. An efficacy insurance policy will be acquired to provide sufficient resources to cover these issues.
Timeframes:
Facility design: 6 months
Facility "permitting": 9 to 12 months (parallel activity)
Facility construction: 12 to 18 months
Start-up and acceptance testing: 6 months
Total timeframe: 30 months

Beneficial Reuse of MSW Byproducts
Energy generation: Net 0.7 MW/ton of raw MSW.
Solid or gaseous byproducts: Potential reuse of ash as an ingredient in concrete manufacturing or as a component of alternative daily cover at landfills.

Residue Requiring Landfill Disposal
Percent residue requiring landfill disposal: 15-20% of incoming waste as ash requiring landfill disposal.
Anticipated hazardous waste characterization: Based on experimental data, process ash will be non-leachable and readily disposed of at a standard landfill.

DRAFT SWMP

APPENDIX F

COST ESTIMATES FOR ALTERNATIVES

Sensitivity Analysis Comparison

	20 year NPV 2009$ $/ton		Savings from Base Case	
Base Case	$	51.85	$	-
Case 2 25% Residue	$	47.89	$	3.96
Case 3 25% Residue and Local Disposal	$	42.89	$	8.96
Case 4 - Full Plant Capacity Utilization	$	44.08	$	7.77
Case 5 - Full Utilization w/ 25% residue and local disposal	$	40.25	$	11.60
Case 6 - 10% Increase in Electricity Rate	$	47.54	$	4.31
Case 7 - 10% Reduction in Waste Delivery	$	59.49	$	(7.64)

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Base Case Conditions

Assumptions		2009 $	2015$
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.07	$ 0.070	$ 0.084
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage residue by weight [1]	32%		
Unacceptable Waste as % by weight of GAT	3%		
Operating and Maintenance Cost [2]	$ 29.77	$ 29.77	$ 35.54
Non-processible transport and disposal fee ($/ton) [3]	$ 68.33	$68.33	$ 81.59
Residue transport and disposal fee ($/ton) [3]	$ 58.33	$58.33	$ 69.65
Ferrous recovery by% [4]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [5]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Non-processible and residue disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kwH)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric revenue to Authority ($) [6]	$ 27,361,237.50	$ 28,182,074.63	$ 29,027,536.87	$ 31,719,173.28	$ 36,771,215.24	$ 42,627,916.50	$ 49,417,438.45	$ 57,288,355.21	$ 64,478,548.50
Residue Generation (tpy)	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority [6]	$ 708,837	$ 730,102	$ 752,005	$ 821,737	$ 952,618	$ 1,104,345	$ 1,280,239	$ 1,484,148	$ 1,670,421
Non-ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority [6]	$ 354,419	$ 365,051	$ 376,003	$ 410,868	$ 476,309	$ 552,173	$ 640,119	$ 742,074	$ 835,211
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Total non-processible and residue for disposal (tons)	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604
Landfill Disposal Cost [6]	$ 12,274,047	$ 12,642,269	$ 13,021,537	$ 14,228,985	$ 16,495,293	$ 19,122,566	$ 22,168,295	$ 25,699,129	$ 28,924,596
Facility Operating and Maintenance Costs [6]	$ 18,127,386	$ 18,671,207	$ 19,231,343	$ 21,014,608	$ 24,361,690	$ 28,241,876	$ 32,740,075	$ 37,954,720	$ 42,718,371
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 70,638,598	$ 71,550,641	$ 72,490,045	$ 75,480,758	$ 81,094,148	$ 87,601,607	$ 95,145,534	$ 103,891,014	$ 111,880,133
Total SW Treatment Facility Revenues	$ 30,033,980	$ 30,886,715	$ 31,765,032	$ 34,561,265	$ 39,809,629	$ 45,893,921	$ 52,947,283	$ 61,124,063	$ 68,593,667
Net SW Treatment Facility Expenses	**$ 40,604,618**	**$ 40,663,926**	**$ 40,725,013**	**$ 40,919,493**	**$ 41,284,520**	**$ 41,707,685**	**$ 42,198,251**	**$ 42,766,950**	**$ 43,286,466**
Net Expenses per ton of Waste Input	$ 79.62	$ 79.73	$ 79.85	$ 80.23	$ 80.95	$ 81.78	$ 82.74	$ 83.86	$ 84.88
Present Value in 2009$	$ 66.68	$ 64.83	$ 63.04	$ 57.96	$ 50.45	$ 43.96	$ 38.37	$ 33.54	$ 30.16
20 Year average NPV in 2009$	**$ 51.85**								
30 year average NPV in 2009$	$ 45.93								

Notes
1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. See separate calculation sheet for O&M Cost
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
4. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
5. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements
6. Escalated annually at rate of inflation

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 2 Conditions - 25% Ash residue

Assumptions	2009 $	2015$	
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.07	$ 0.070	$ 0.084
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage Ash residue by weight [2]	25%		
Unacceptable Waste as % by weight of GAT	3%		
Operating and Maintenance Cost [3]	$ 29.77	$ 29.77	$ 35.54
Non-processible transport and disposal fee ($/ton) [4]	$ 68.33	$68.33	$ 81.59
Residue transport and disposal fee ($/ton) [4]	$ 58.33	$58.33	$ 69.65
Ferrous recovery by% [5]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [6]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Residue and Ash Disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kwH)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric revenue to Authority ($) [7]	$ 27,361,237.50	$ 28,182,074.63	$ 29,027,536.87	$ 31,719,173.28	$ 36,771,215.24	$ 42,627,916.50	$ 49,417,438.45	$ 57,288,355.21	$ 64,478,548.50
Residue Generation (tpy)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority [7]	$ 708,837	$ 730,102	$ 752,005	$ 821,737	$ 952,618	$ 1,104,345	$ 1,280,239	$ 1,484,148	$ 1,670,421
Non-ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority [7]	$ 354,419	$ 365,051	$ 376,003	$ 410,868	$ 476,309	$ 552,173	$ 640,119	$ 742,074	$ 835,211
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Total non-processible and residue for disposal (tons)	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975
Landfill Disposal Cost [7]	$ 9,862,170	$ 10,158,035	$ 10,462,776	$ 11,432,957	$ 13,253,931	$ 15,364,939	$ 17,812,175	$ 20,649,193	$ 23,240,849
Facility Operating and Maintenance Costs [7]	$ 18,127,386	$ 18,671,207	$ 19,231,343	$ 21,014,608	$ 24,361,690	$ 28,241,876	$ 32,740,075	$ 37,954,720	$ 42,718,371
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 68,226,720	$ 69,066,407	$ 69,931,284	$ 72,684,730	$ 77,852,786	$ 83,843,980	$ 90,789,415	$ 98,841,078	$ 106,196,385
Total SW Treatment Facility Revenues	$ 30,033,980	$ 30,886,715	$ 31,765,032	$ 34,561,265	$ 39,809,629	$ 45,893,921	$ 52,947,283	$ 61,124,063	$ 68,593,667
Net SW Treatment Facility Expenses	**$ 38,192,740**	**$ 38,179,692**	**$ 38,166,252**	**$ 38,123,466**	**$ 38,043,158**	**$ 37,950,059**	**$ 37,842,131**	**$ 37,717,014**	**$ 37,602,718**
Net Expenses per ton of Waste Input	$ 74.89	$ 74.86	$ 74.84	$ 74.75	$ 74.59	$ 74.41	$ 74.20	$ 73.95	$ 73.73
Present Value in 2009$	$ 62.72	$ 60.87	$ 59.08	$ 54.00	$ 46.48	$ 40.00	$ 34.41	$ 29.58	$ 26.20
20 Year average NPV in 2009$	**$ 47.89**								
30 year average NPV in 2009$	$ 41.97								

Notes
1. Based on Annual thrioughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. Based on OCRRA facility Ash residue rate of 25%
3. See separate calculation sheet for O&M Cost
4. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
5. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
6. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements
7. Escalated annually at rate of inflation

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 3 Conditions - 25% Ash residue with Local Disposal Site

Assumptions		2009 $	2015$
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.07	$ 0.070	$ 0.084
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage Ash residue by weight [2]	25%		
Unacceptable Waste as % by weight of GAT	3%		
Operating and Maintenance Cost [3]	$ 29.77	$ 29.77	$ 35.54
Non-processible transport and disposal fee ($/ton) [4]	$ 50.00	$50.00	$ 59.70
Residue transport and disposal fee ($/ton) [4]	$ 40.00	$40.00	$ 47.76
Ferrous recovery by% [5]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [6]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Residue and Ash Disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kwH)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric revenue to Authority ($) [7]	$ 27,361,237.50	$ 28,182,074.63	$ 29,027,536.87	$ 31,719,173.28	$ 36,771,215.24	$ 42,627,916.50	$ 49,417,438.45	$ 57,288,355.21	$ 64,478,548.50
Residue Generation (tpy)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority [7]	$ 708,837	$ 730,102	$ 752,005	$ 821,737	$ 952,618	$ 1,104,345	$ 1,280,239	$ 1,484,148	$ 1,670,421
Non-ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority [7]	$ 354,419	$ 365,051	$ 376,003	$ 410,868	$ 476,309	$ 552,173	$ 640,119	$ 742,074	$ 835,211
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675	123,675
Total non-processible and residue for disposal (tons)	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975	138,975
Landfill Disposal Cost [7]	$ 6,820,427	$ 7,025,040	$ 7,235,791	$ 7,906,744	$ 9,166,083	$ 10,626,003	$ 12,318,449	$ 14,280,459	$ 16,072,782
Facility Operating and Maintenance Costs [7]	$ 18,127,386	$ 18,671,207	$ 19,231,343	$ 21,014,608	$ 24,361,690	$ 28,241,876	$ 32,740,075	$ 37,954,720	$ 42,718,371
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 65,184,977	$ 65,933,411	$ 66,704,299	$ 69,158,517	$ 73,764,938	$ 79,105,043	$ 85,295,689	$ 92,472,344	$ 99,028,319
Total SW Treatment Facility Revenues	$ 30,033,980	$ 30,886,715	$ 31,765,032	$ 34,561,265	$ 39,809,629	$ 45,893,921	$ 52,947,283	$ 61,124,063	$ 68,593,667
Net SW Treatment Facility Expenses	**$ 35,150,997**	**$ 35,046,697**	**$ 34,939,267**	**$ 34,597,252**	**$ 33,955,310**	**$ 33,211,122**	**$ 32,348,406**	**$ 31,348,280**	**$ 30,434,652**
Net Expenses per ton of Waste Input	$ 68.92	$ 68.72	$ 68.51	$ 67.84	$ 66.58	$ 65.12	$ 63.43	$ 61.47	$ 59.68
Present Value in 2009$	$ 57.72	$ 55.87	$ 54.08	$ 49.01	$ 41.49	$ 35.01	$ 29.41	$ 24.59	$ 21.21
20 Year average NPV in 2009$	**$ 42.89**								
30 year average NPV in 2009$	$ 36.98								

Notes
1. Based on Annual thrioughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. Based on OCRRA facility Ash residue rate of 25%
3. See separate calculation sheet for O&M Cost
4. Based on CHA estimate of local disposal fee for non-processibles. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
5. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
6. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 4 - Full Plant Capacity Utilization

Assumptions		2009 $	2015$
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.07	$ 0.070	$ 0.084
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage residue by weight [1]	32%		
Unacceptable Waste as % by weight of GAT	0%		
Operating and Maintenance Cost [2]	$ 29.77	$ 29.77	$ 35.54
Non-processible transport and disposal fee ($/ton) [3]	$ 68.33	$68.33	$ 81.59
Residue transport and disposal fee ($/ton) [3]	$ 58.33	$58.33	$ 69.65
Ferrous recovery by% [4]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [5]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Non-processible and residue disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Non processible or by-pass waste (tpy)	-	-	-	-	-	-	-	-	-
Net electricity Generated (kwH)	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000
Electric revenue to Authority ($) [6]	$ 28,207,461.34	$ 29,053,685.18	$ 29,925,295.74	$ 32,700,178.64	$ 37,908,469.32	$ 43,946,305.68	$ 50,945,812.83	$ 59,060,160.01	$ 66,472,730.41
Residue Generation (tpy)	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200
Ferrous Metal Recovery (tpy)	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200
Ferrous Revenue to Authority [6]	$ 730,760	$ 752,683	$ 775,263	$ 847,151	$ 982,080	$ 1,138,500	$ 1,319,834	$ 1,530,049	$ 1,722,084
Non-ferrous recovery (tpy)	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550
Non-Ferrous Revenue to Authority [6]	$ 365,380	$ 376,341	$ 387,632	$ 423,576	$ 491,040	$ 569,250	$ 659,917	$ 765,025	$ 861,042
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200
Total non-processible and residue for disposal (tons)	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200	163,200
Landfill Disposal Cost [6]	$ 11,366,728	$ 11,707,730	$ 12,058,962	$ 13,177,153	$ 15,275,932	$ 17,708,992	$ 20,529,576	$ 23,799,405	$ 26,786,440
Facility Operating and Maintenance Costs [6]	$ 15,181,400	$ 15,636,842	$ 16,105,947	$ 17,599,403	$ 20,402,532	$ 23,652,127	$ 27,419,297	$ 31,786,480	$ 35,775,964
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 66,785,293	$ 67,581,737	$ 68,402,074	$ 71,013,722	$ 75,915,629	$ 81,598,284	$ 88,186,038	$ 95,823,050	$ 102,799,568
Total SW Treatment Facility Revenues	$ 30,913,088	$ 31,792,196	$ 32,697,677	$ 35,580,392	$ 40,991,076	$ 47,263,543	$ 54,535,050	$ 62,964,720	$ 70,665,343
Net SW Treatment Facility Expenses	**$ 35,872,205**	**$ 35,789,541**	**$ 35,704,397**	**$ 35,433,330**	**$ 34,924,553**	**$ 34,334,741**	**$ 33,650,987**	**$ 32,858,330**	**$ 32,134,225**
Net Expenses per ton of Waste Input	$ 70.34	$ 70.18	$ 70.01	$ 69.48	$ 68.48	$ 67.32	$ 65.98	$ 64.43	$ 63.01
Present Value in 2009$	$ 58.91	$ 57.06	$ 55.27	$ 50.19	$ 42.67	$ 36.19	$ 30.60	$ 25.77	$ 22.39
20 Year average NPV in 2009$	**$ 44.08**								
30 year average NPV in 2009$	$ 38.16								

Notes
1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. See separate calculation sheet for O&M Cost
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
4. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
5. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements
6. Escalated annually at rate of inflation

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 5 - Full Plant Capacity Utilization w/ 25% residue and local disposal

Assumptions		2009 $	2015$
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.07	$ 0.070	$ 0.084
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage Ash residue by weight [2]	25%		
Unacceptable Waste as % by weight of GAT	0%		
Operating and Maintenance Cost [3]	$ 29.77	$ 29.77	$ 35.54
Non-processible transport and disposal fee ($/ton) [4]	$ 50.00	$50.00	$ 59.70
Residue transport and disposal fee ($/ton) [4]	$ 40.00	$40.00	$ 47.76
Ferrous recovery by% [5]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [6]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Residue and Ash Disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Non processible or by-pass waste (tpy)	-	-	-	-	-	-	-	-	-
Net electricity Generated (kwH)	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000	323,850,000
Electric revenue to Authority ($) [7]	$ 28,207,461.34	$ 29,053,685.18	$ 29,925,295.74	$ 32,700,178.64	$ 37,908,469.32	$ 43,946,305.68	$ 50,945,812.83	$ 59,060,160.01	$ 66,472,730.41
Residue Generation (tpy)	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500
Ferrous Metal Recovery (tpy)	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200	10,200
Ferrous Revenue to Authority [7]	$ 730,760	$ 752,683	$ 775,263	$ 847,151	$ 982,080	$ 1,138,500	$ 1,319,834	$ 1,530,049	$ 1,722,084
Non-ferrous recovery (tpy)	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550
Non-Ferrous Revenue to Authority [7]	$ 365,380	$ 376,341	$ 387,632	$ 423,576	$ 491,040	$ 569,250	$ 659,917	$ 765,025	$ 861,042
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500
Total non-processible and residue for disposal (tons)	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500	127,500
Landfill Disposal Cost [7]	$ 6,089,667	$ 6,272,357	$ 6,460,527	$ 7,059,593	$ 8,184,003	$ 9,487,502	$ 10,998,615	$ 12,750,410	$ 14,350,699
Facility Operating and Maintenance Costs [7]	$ 18,127,386	$ 18,671,207	$ 19,231,343	$ 21,014,608	$ 24,361,690	$ 28,241,876	$ 32,740,075	$ 37,954,720	$ 42,718,371
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 64,454,217	$ 65,180,729	$ 65,929,036	$ 68,311,366	$ 72,782,858	$ 77,966,543	$ 83,975,855	$ 90,942,294	$ 97,306,235
Total SW Treatment Facility Revenues	$ 30,913,088	$ 31,792,196	$ 32,697,677	$ 35,580,392	$ 40,991,076	$ 47,263,543	$ 54,535,050	$ 62,964,720	$ 70,665,343
Net SW Treatment Facility Expenses	**$ 33,541,129**	**$ 33,388,533**	**$ 33,231,358**	**$ 32,730,974**	**$ 31,791,782**	**$ 30,703,000**	**$ 29,440,805**	**$ 27,977,574**	**$ 26,640,892**
Net Expenses per ton of Waste Input	$ 65.77	$ 65.47	$ 65.16	$ 64.18	$ 62.34	$ 60.20	$ 57.73	$ 54.86	$ 52.24
Present Value in 2009$	$ 55.08	$ 53.23	$ 51.44	$ 46.36	$ 38.85	$ 32.36	$ 26.77	$ 21.94	$ 18.56
20 Year average NPV in 2009$	**$ 40.25**								
30 year average NPV in 2009$	$ 34.33								

Notes
1. Based on Annual thrioughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. Based on OCRRA facility Ash residue rate of 25%
3. See separate calculation sheet for O&M Cost
4. Based on CHA estimate of local disposal fee for non-processibles. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
5. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
6. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 6 - 10% increase in initial price of electric energy

Assumptions	2009 $		2015$
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.077	$ 0.077	$ 0.092
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage residue by weight [1]	32%		
Unacceptable Waste as % by weight of GAT	3%		
Operating and Maintenance Cost [2]	$ 29.77	$ 29.77	$ 35.54
Non-processible transport and disposal fee ($/ton) [3]	$ 68.33	$68.33	$ 81.59
Residue transport and disposal fee ($/ton) [3]	$ 58.33	$58.33	$ 69.65
Ferrous recovery by% [4]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [5]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Non-processible and residue disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Waste Processed (tpy)	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700	494,700
Non processible or by-pass waste (tpy)	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
Net electricity Generated (kwH)	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500	314,134,500
Electric revenue to Authority ($) [6]	$ 29,986,888.65	$ 30,886,495.31	$ 31,813,090.17	$ 34,763,022.58	$ 40,299,870.82	$ 46,718,595.44	$ 54,159,656.48	$ 62,785,885.63	$ 70,666,067.42
Residue Generation (tpy)	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Ferrous Metal Recovery (tpy)	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894	9,894
Ferrous Revenue to Authority [6]	$ 708,837	$ 730,102	$ 752,005	$ 821,737	$ 952,618	$ 1,104,345	$ 1,280,239	$ 1,484,148	$ 1,670,421
Non-ferrous recovery (tpy)	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474	2,474
Non-Ferrous Revenue to Authority [6]	$ 354,419	$ 365,051	$ 376,003	$ 410,868	$ 476,309	$ 552,173	$ 640,119	$ 742,074	$ 835,211
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304	158,304
Total non-processible and residue for disposal (tons)	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604	173,604
Landfill Disposal Cost [6]	$ 12,274,047	$ 12,642,269	$ 13,021,537	$ 14,228,985	$ 16,495,293	$ 19,122,566	$ 22,168,295	$ 25,699,129	$ 28,924,596
Facility Operating and Maintenance Costs [6]	$ 18,127,386	$ 18,671,207	$ 19,231,343	$ 21,014,608	$ 24,361,690	$ 28,241,876	$ 32,740,075	$ 37,954,720	$ 42,718,371
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 70,638,598	$ 71,550,641	$ 72,490,045	$ 75,480,758	$ 81,094,148	$ 87,601,607	$ 95,145,534	$ 103,891,014	$ 111,880,133
Total SW Treatment Facility Revenues	$ 32,659,631	$ 33,591,135	$ 34,550,585	$ 37,605,114	$ 43,338,284	$ 49,984,600	$ 57,689,501	$ 66,621,594	$ 74,781,186
Net SW Treatment Facility Expenses	**$ 37,978,967**	**$ 37,959,505**	**$ 37,939,460**	**$ 37,875,644**	**$ 37,755,864**	**$ 37,617,007**	**$ 37,456,033**	**$ 37,269,420**	**$ 37,098,947**
Net Expenses per ton of Waste Input	$ 74.47	$ 74.43	$ 74.39	$ 74.27	$ 74.03	$ 73.76	$ 73.44	$ 73.08	$ 72.74
Present Value in 2009$	$ 62.37	$ 60.52	$ 58.73	$ 53.65	$ 46.13	$ 39.65	$ 34.06	$ 29.23	$ 25.85
20 Year average NPV in 2009$	**$ 47.54**								
30 year average NPV in 2009$	$ 41.62								

Notes
1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. See separate calculation sheet for O&M Cost
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
4. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
5. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements
6. Escalated annually at rate of inflation

Captial Region SWMP
Life Cycle Cost and Revenue
Solid Waste Treatment Facility
Case 7 - 10% Reduction in Annual Waste Input

Assumptions		2009 $	2015$
Facility Design Capacity (TPD)	1500		
Anticipated Throughput Guarantee	92%		
Guaranteed Annual Throughput (tons) [1]	510,000		
Net Electricity generated per processed ton (kwH) [1]	635		
Electric Energy price ($/kwH)	$ 0.07	$ 0.070	$ 0.084
Electric Capacity payment ($/Kw/yr)	$ 25.80	$ 25.800	$ 30.807
Authority Share of Energy Revenue %	100%		
Percentage residue by weight [1]	32%		
Unacceptable Waste as % by weight of GAT	3%		
Operating and Maintenance Cost [2]	$ 31.92	$ 31.92	$ 38.11
Non-processible transport and disposal fee ($/ton) [3]	$ 68.33	$68.33	$ 81.59
Residue transport and disposal fee ($/ton) [3]	$ 58.33	$58.33	$ 69.65
Ferrous recovery by% [4]	2%		
Ferrous sale price ($/ton)	$60	$60.00	$ 71.64
Authority Share of Ferrous Revenue %	100%		
Non ferrous metal recovery by % [5]	0.50%		
Non-Ferrous sale price ($/ton)	$ 120.00	$ 120.00	$ 143.29
Authority Share of Ferrous Revenue %	100%		
Annual Inflation Rates			
Electricity Revenue inflation rate	3.0%		
Ferrous and Non-Ferrous Revenue inflation rate	3.0%		
Non-processible and residue disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount Rate	3.0%		

	2015	2016	2017	2020	2025	2030	2035	2040	2044
	1	2	3	6	11	16	21	26	30
Authority Waste input (tpy)	459,000	459,000	459,000	459,000	459,000	459,000	459,000	459,000	459,000
Waste Processed (tpy)	445,230	445,230	445,230	445,230	445,230	445,230	445,230	445,230	445,230
Non processible or by-pass waste (tpy)	13,770	13,770	13,770	13,770	13,770	13,770	13,770	13,770	13,770
Net electricity Generated (kwH)	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050	282,721,050
Electric revenue to Authority ($) [6]	$ 24,625,113.75	$ 25,363,867.16	$ 26,124,783.18	$ 28,547,255.95	$ 33,094,093.71	$ 38,365,124.85	$ 44,475,694.60	$ 51,559,519.69	$ 58,030,693.65
Residue Generation (tpy)	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474
Ferrous Metal Recovery (tpy)	8,905	8,905	8,905	8,905	8,905	8,905	8,905	8,905	8,905
Ferrous Revenue to Authority [6]	$ 637,953	$ 657,092	$ 676,805	$ 739,563	$ 857,356	$ 993,911	$ 1,152,215	$ 1,335,733	$ 1,503,379
Non-ferrous recovery (tpy)	2,226	2,226	2,226	2,226	2,226	2,226	2,226	2,226	2,226
Non-Ferrous Revenue to Authority [6]	$ 318,977	$ 275,152	$ 283,407	$ 309,686	$ 359,011	$ 416,192	$ 482,481	$ 559,328	$ 629,528
Interest on Debt Service Reserve Account	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487	$ 1,609,487
Residue for disposal (tons)	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474	142,474
Total non-processible and residue for disposal (tons)	156,244	156,244	156,244	156,244	156,244	156,244	156,244	156,244	156,244
Landfill Disposal Cost [6]	$ 11,046,643	$ 11,378,042	$ 11,719,383	$ 12,806,086	$ 14,845,764	$ 17,210,309	$ 19,951,465	$ 23,129,216	$ 26,032,137
Facility Operating and Maintenance Costs [6]	$ 17,494,060	$ 18,018,882	$ 18,559,448	$ 20,280,410	$ 23,510,554	$ 27,255,176	$ 31,596,219	$ 36,628,677	$ 41,225,899
Debt Service	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165	$ 40,237,165
Total SW Treatment Facility Expenses	$ 68,777,868	$ 69,634,089	$ 70,515,996	$ 73,323,662	$ 78,593,483	$ 84,702,650	$ 91,784,849	$ 99,995,058	$ 107,495,200
Total SW Treatment Facility Revenues	$ 27,191,531	$ 27,905,598	$ 28,694,481	$ 31,205,992	$ 35,919,948	$ 41,384,714	$ 47,719,877	$ 55,064,067	$ 61,773,088
Net SW Treatment Facility Expenses	**$ 41,586,337**	**$ 41,728,491**	**$ 41,821,515**	**$ 42,117,670**	**$ 42,673,535**	**$ 43,317,935**	**$ 44,064,972**	**$ 44,930,991**	**$ 45,722,113**
Net Expenses per ton of Waste Input	$ 90.60	$ 90.91	$ 91.11	$ 91.76	$ 92.97	$ 94.37	$ 96.00	$ 97.89	$ 99.61
Present Value in 2009$	$ 75.88	$ 73.92	$ 71.93	$ 66.29	$ 57.94	$ 50.73	$ 44.52	$ 39.15	$ 35.40
20 Year average NPV in 2009$	**$ 59.49**								
30 year average NPV in 2009$	$ 52.92								

Notes
1. Based on Annual throughput Guarantee @ HHV = 5,000 BTU/lb from Frederick Co. Agreement
2. See separate calculation sheet for O&M Cost
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets. Assumes a $10/ton discount for residue disposal relative to non-processible waste.
4. Field study of waste composition showed 2.8% ferrous : anticipated to decline to 2% with recycling program improvements
5. Field study of waste composition showed 1.3% non-ferrous : anticipated to decline to 0.5% with recycling program improvements
6. Escalated annually at rate of inflation

Construction Fund Drawdown

Months after notice to proceed	Beginning Balance in Construction Fund	Monthly Drawdown (%) [1]		Drawdown	Ending Balance in Construction Fund	Interest Earned (4%)
1	$ 420,885,364.00	2.7%	2.7%	$ 11,363,904.83	$ 409,521,459.17	$ 1,365,071.53
2	$ 409,521,459.17	3.3%	6.0%	$ 13,889,217.01	$ 395,632,242.16	$ 1,318,774.14
3	$ 395,632,242.16	3.7%	9.7%	$ 15,572,758.47	$ 380,059,483.69	$ 1,266,864.95
4	$ 380,059,483.69	4.9%	14.6%	$ 20,623,382.84	$ 359,436,100.86	$ 1,198,120.34
5	$ 359,436,100.86	2.4%	17.0%	$ 10,101,248.74	$ 349,334,852.12	$ 1,164,449.51
6	$ 349,334,852.12	1.3%	18.3%	$ 5,471,509.73	$ 343,863,342.39	$ 1,146,211.14
7	$ 343,863,342.39	4.3%	22.6%	$ 18,098,070.65	$ 325,765,271.74	$ 1,085,884.24
8	$ 325,765,271.74	4.2%	26.8%	$ 17,677,185.29	$ 308,088,086.45	$ 1,026,960.29
9	$ 308,088,086.45	5.5%	32.3%	$ 23,148,695.02	$ 284,939,391.43	$ 949,797.97
10	$ 284,939,391.43	4.2%	36.5%	$ 17,677,185.29	$ 267,262,206.14	$ 890,874.02
11	$ 267,262,206.14	5.2%	41.7%	$ 21,886,038.93	$ 245,376,167.21	$ 817,920.56
12	$ 245,376,167.21	4.6%	46.3%	$ 19,360,726.74	$ 226,015,440.47	$ 753,384.80
13	$ 226,015,440.47	5.2%	51.5%	$ 21,886,038.93	$ 204,129,401.54	$ 680,431.34
14	$ 204,129,401.54	5.5%	57.0%	$ 23,148,695.02	$ 180,980,706.52	$ 603,269.02
15	$ 180,980,706.52	4.7%	61.7%	$ 19,781,612.11	$ 161,199,094.41	$ 537,330.31
16	$ 161,199,094.41	4.8%	66.5%	$ 20,202,497.47	$ 140,996,596.94	$ 469,988.66
17	$ 140,996,596.94	3.4%	69.9%	$ 14,310,102.38	$ 126,686,494.56	$ 422,288.32
18	$ 126,686,494.56	4.2%	74.1%	$ 17,677,185.29	$ 109,009,309.28	$ 363,364.36
19	$ 109,009,309.28	5.0%	79.1%	$ 21,044,268.20	$ 87,965,041.08	$ 293,216.80
20	$ 87,965,041.08	4.3%	83.4%	$ 18,098,070.65	$ 69,866,970.42	$ 232,889.90
21	$ 69,866,970.42	4.0%	87.4%	$ 16,835,414.56	$ 53,031,555.86	$ 176,771.85
22	$ 53,031,555.86	3.9%	91.3%	$ 16,414,529.20	$ 36,617,026.67	$ 122,056.76
23	$ 36,617,026.67	3.6%	94.9%	$ 15,151,873.10	$ 21,465,153.56	$ 71,550.51
24	$ 21,465,153.56	4.0%	98.9%	$ 16,835,414.56	$ 4,629,739.00	$ 15,432.46
25	$ 4,629,739.00	1.1%	100.0%	$ 4,629,739.00	$ (0.00)	$ (0.00)
		100.0%				$ 16,972,903.78

Notes:
1. Drawdown percentage as per table 10-1 Construction Payment Schedule from Appendix 10 of Draft Agreement for Frederick County Facility 7/13/09

Captial Region SWMP
Sources and Uses of Funds
SW Treatment Facility

Assumptions

Facility Design Capacity (TPD)		1500	
Facility Construction Price $2009 [1]	$	332,000,000	
Facility Construction Price in $2012 [2]	$	362,785,364	
Project development Expenses @ 7.5% [3]	$	24,900,000	
Contingency @ 10%		33,200,000	
Total Construction Costs	**$**	**420,885,364**	
Sources of Funds			
Bond Proceeds	$	553,857,780	553857780
Uses of Funds			
Construction Fund	$	420,885,364	
Underwriters discount @ 0.75 % of Bond Proceeds	$	4,153,933	
Cost of Bond Issuance @ 1.0 % of Bond proceeds	$	5,538,578	
Capitalized Interest	$	108,002,267	
Debt service reserve Fund	$	40,237,165	
Resident Engineer CQA/QC @ 0.75% of Construction Fund	$	3,156,640	
Bond Insurance @ 0.2% of bond proceeds	$	1,107,716	
Less Interest earned during construction:			
Debt service reserve Fund	$	(5,230,831)	
Capitalized Interest	$	(7,020,147)	
Construction Fund	$	(16,972,904)	
Total Uses of Funds	$	553,857,780	

Construction period	39 months
Bond Term	30 yrs
Interest rates	
Tax exempt Bonds	6.00%
Debt Service reserve Fund	4.00%
Capitalized interest Fund	4.00%
Construction Fund	4.00%

Notes:
1. Based on proposed Facility in Frederick County MD
2. Assumes 3% annual inflation of the 2009 Facility Construction Price
3. Includes siting studies, acquisition, preliminary environmental review, RFP preparation, review, negotiations of project agreements

Estimated Operating and Maintenance Cost
1500 TPD SW Treatment Facility

	Unit		Unit Cost	Item Total in 2009$
Labor and Salary 1		60	$ 60,000.00	$ 3,600,000.00
Fringe Benefits			35%	$ 1,260,000.00
Maintenance 2	$ per ton		$ 5.00	$ 2,550,000.00
Utillty Charges 3	$ per ton		$ 1.00	$ 510,000.00
Chemicals 4	$ per ton		$ 2.00	$ 1,020,000.00
Contract Services 5	$ per year			$ 520,000.00
Insurance 6	$ per year			$ 308,000.00
Fuel 7	$ per year			$ 50,000.00
Equipment Rental 8	$ per year			$ 200,000.00
Equipment Replacement Fund	% of construction Cost		0.5%	$ 1,660,000.00
Subtotal				$ 11,678,000.00
Management Fee			20%	$ 2,335,600.00
Contingency			10%	$ 1,167,800.00
Total				$ 15,181,400.00
Cost per ton 9				$ 29.77

1. 60 Full time operating employees based on Covanta Presentation to SWMP Committee
2. Includes recurring maintenance on all fixed and mobile equipment
3. Includes water, sewer, internet and telephone
4. Includes allowance for chemicals to operate air pollution control equipment
5. Professional, laboratory and other contract services
6. Based on% of wages plus $200,000 for workers comp, vehicle insurance and CGL insurance
7. Fuel for operating equipment and auxiliary fuel for furnace start-up.
8. Allowance for equipment rental used for facility maintenance

9. Based on facility receipt of 510,000 tons per year

Excludes ash and nonprocessible waste disposal cost

Sources:
Covanta Presentation
MOSA Summary Report by GBB march 2009

Estimated Operating and Maintenance Cost
1500 TPD SW Treatment Facility

	Unit		Unit Cost	Item Total in 2009$
Labor and Salary 1		60	$ 60,000.00	$ 3,600,000.00
Fringe Benefits			35%	$ 1,260,000.00
Maintenance 2	$ per ton		$ 5.00	$ 2,295,000.00
Utillty Charges 3	$ per ton		$ 1.00	$ 459,000.00
Chemicals 4	$ per ton		$ 2.00	$ 918,000.00
Contract Services 5	$ per year			$ 520,000.00
Insurance 6	$ per year			$ 308,000.00
Fuel 7	$ per year			$ 50,000.00
Equipment Rental 8	$ per year			$ 200,000.00
Equipment Replacement Fund	% of construction Cost		0.5%	$ 1,660,000.00
Subtotal				$ 11,270,000.00
Management Fee			20%	$ 2,254,000.00
Contingency			10%	$ 1,127,000.00
Total				$ 14,651,000.00
Cost per ton 9				31.91938998

1. 60 Full time operating employees based on Covanta Presentation to SWMP Committee
2. Includes recurring maintenance on all fixed and mobile equipment
3. Includes water, sewer, internet and telephone
4. Includes allowance for chemicals to operate air pollution control equipment
5. Professional, laboratory and other contract services
6. Based on% of wages plus $200,000 for workers comp, vehicle insurance and CGL insurance
7. Fuel for operating equipment and auxiliary fuel for furnace start-up.
8. Allowance for equipment rental used for facility maintenance

9. Based on facility receipt of 459,000 tons per year

Excludes ash and nonprocessible waste disposal cost

Sources:
Covanta Presentation
MOSA Summary Report by GBB march 2009

Captial Region SWMP
Life Cycle Cost and Revenue
SSOW Facility

Assumptions		
Facility Throughput Capacity (TPY)		40000
Anticipated Annual Throughput (tons)		40,000
Estimated Mass Reduction (% of throughput)		50%
Compost produced per processed ton		50%
Compost Price assumption ($/ton)	$	30.00
Authority Share of Compost Revenue %		100%
Percentage residue by weight [1]		5%
Annual SSOW O&M Cost (2009$) [2]	$	1,010,000.00
Non-processible disposal fee ($/ton, 2009) [3]	$	68.33
Annual Inflation Rates		
Compost Revenue rate		3.0%
Ferrous and Non-Ferrous Revenue rate		3.0%
Non-processible and residue disposal fee inflation rate		3.0%
Facility operating cost inflation rate		3.0%
Present Value Discount Rate		3.0%

Calendar Year	2013	2015	2020	2025	2030	2032
Inflation Year	4	6	11	16	21	23
Facility Operating Year	1	3	8	13	18	20
SSOW input (tpy)	40,000	40,000	40,000	40,000	40,000	40,000
SSOW Processed (tpy)	40,000	40,000	40,000	40,000	40,000	40,000
Net compost Generated (tpy)	19,000	19,000	19,000	19,000	19,000	19,000
Compost revenue to Authority ($) [4]	$ 641,540.02	$ 680,609.81	$ 789,013.31	$ 914,682.67	$ 1,060,367.91	$ 1,124,944.31
Interest on Debt Service Reserve Account	$ 40,156	$ 40,156	$ 40,156	$ 40,156	$ 40,156	$ 40,156
Residue for disposal (tons)	2,000	2,000	2,000	2,000	2,000	2,000
Landfill Disposal Cost [4]	$ 153,812	$ 163,179	$ 189,169	$ 219,299	$ 254,228	$ 269,710
Annual Operating Cost [4]	$ 1,136,764	$ 1,205,993	$ 1,398,076	$ 1,620,754	$ 1,878,898	$ 1,993,322
Debt Service	$ 1,003,907	$ 1,003,907	$ 1,003,907	$ 1,003,907	$ 1,003,907	$ 1,003,907
Total SSOW Facility Expenses	$ 2,294,483	$ 2,373,079	$ 2,591,153	$ 2,843,960	$ 3,137,032	$ 3,266,940
Total SSOW Facility Revenue	$ 681,696	$ 720,766	$ 829,170	$ 954,839	$ 1,100,524	$ 1,165,101
Net SSOW Facility Expenses	**$ 1,612,787**	**$ 1,652,313**	**$ 1,761,983**	**$ 1,889,121**	**$ 2,036,508**	**$ 2,101,839**
Net Expenses per ton of Waste Input	$ 40.32	$ 41.31	$ 44.05	$ 47.23	$ 50.91	$ 52.55
Present Value in 2009$	$ 35.82	$ 34.59	$ 31.82	$ 29.43	$ 27.37	$ 26.62

20 year average NPV in 2009$ $ 30.82

Notes
1. Conservative increase of Norterra's note of 2% residue at Joyceville
2. As per SSOW Facility O&M Cost sheet
3. Based on CHA calculations provided in Transfer Station Alternative 1 spreadsheets.
4. Escalated annually at rate of inflation

SSOW Facility
Operating Cost Estimate
150 TPD

	Units		Unit Cost	Extended Cost		Avg per employee
1) LABOR						
(a) Foreman		1	$ 60,000.00	$ 60,000.00		
(b) Scale Attendant		1	$ 31,000.00	$ 31,000.00		
(c) equipment operators		2	$ 57,000.00	$ 114,000.00		
(d) Mechanics		1	$ 50,000.00	$ 50,000.00		
(e) Laborers		2	$ 27,000.00	$ 54,000.00		
Labor Subtotal				**$ 309,000.00**		
(f) Overtime		10%		$ 30,900.00		
(g) Replacement labor		10%		$ 30,900.00		
(h) Fringe Benefits		31%		$ 95,790.00		
(i) Management		5%		$ 15,450.00		
Labor and Fringe Total					**$ 482,040.00**	$ 68,862.86
2) EQUIPMENT OPERATIONS						
(a) Fuel for Mobile Equipment		12,500.00	$ 3.00	$ 37,500.00		
(b) equipment maintenance	LS			$ 10,000.00		
(c) equipment replacement fund	LS		$ -	$ 50,000.00		
					$ 97,500.00	
3) MISC. O&M EXPENSES						
(a) Utilities	LS			$ 40,000.00		
(b)Other insurance	LS			$ 30,000.00		
(c) Building and grounds		1.5%		$ 98,345.43		
					$ 168,345.43	
				O&M Subtotal	**$ 747,885.43**	
Contingency @ 15%		15%		$ 112,182.81		
Administrative Overhead @ 20%		20%		$ 149,577.09		
O&M Cost Total					**$ 1,010,000.00**	Rounded to the nearest thousand.

Captial Region SWMP
Sources and Uses of Funds
SSOW Facility

Assumptions			
Annual Inflation Rate for Construction Price		3%	
Facility Throughput Capacity (TPY)		40,000	
Facility Construction Price $2009 [1]	$	6,000,000	
Facility Construction Price $2012 [2]	$	6,556,362	
Project development Expenses @ 15% [3]	$	983,454	
Property Acquisition - 15 acres @ $75K/acre	$	1,125,000	
Contingency @ 10%		866,482	
Total Construction Costs	**$**	**9,531,298**	
Sources of Funds			
Bond Proceeds	$	11,514,735	11514735
Uses of Funds			
Construction Fund	$	9,531,298	
Underwriters discount @ 0.75 % of Bond Proceeds	$	86,361	
Cost of Bond Issuance @ 1.0 % of Bond proceeds	$	115,147	
Capitalized Interest	$	690,884	
Debt service reserve Fund	$	1,003,907	
Resident Engineer CQA/QC @ 2.5% of Construction Fund	$	238,282	
Bond Insurance @ 0.2% of bond proceeds	$	23,029	
Less Interest earned during construction:			
Debt service reserve Fund	$	(40,156)	
Capitalized Interest	$	(13,818)	
Construction Fund	$	(120,200)	
Total Uses of Funds	$	11,514,735	

Construction period	12 months
Bond Term	20 yrs
Interest rates	
Tax exempt Bonds	6.00%
Debt Service reserve Fund	4.00%
Capitalized interest Fund	4.00%
Construction Fund	4.00%

Notes:
1. Based on RFI response from Nortera noting Merchant Facility Cost in Joyceville ON of $3Million US$ for a 20,000 TPY facility.
2, Assumes 3% annual infaltion rate from 2009 to 2012.
3. Includes siting studies, preliminary environmental review, Bid preparation, review, negotiations of project agreements

Construction Fund Drawdown
Equivalent Monthly Drawdown

Months after notice to proceed	Beginning Balance in Construction Fund	Drawdown	Ending Balance in Construction Fund	Interest Earned
				4%
1	$ 6,556,362.00	$ 546,363.50	$ 6,009,998.50	$ 20,033.33
2	$ 6,009,998.50	$ 546,363.50	$ 5,463,635.00	$ 18,212.12
3	$ 5,463,635.00	$ 546,363.50	$ 4,917,271.50	$ 16,390.91
4	$ 4,917,271.50	$ 546,363.50	$ 4,370,908.00	$ 14,569.69
5	$ 4,370,908.00	$ 546,363.50	$ 3,824,544.50	$ 12,748.48
6	$ 3,824,544.50	$ 546,363.50	$ 3,278,181.00	$ 10,927.27
7	$ 3,278,181.00	$ 546,363.50	$ 2,731,817.50	$ 9,106.06
8	$ 2,731,817.50	$ 546,363.50	$ 2,185,454.00	$ 7,284.85
9	$ 2,185,454.00	$ 546,363.50	$ 1,639,090.50	$ 5,463.64
10	$ 1,639,090.50	$ 546,363.50	$ 1,092,727.00	$ 3,642.42
11	$ 1,092,727.00	$ 546,363.50	$ 546,363.50	$ 1,821.21
12	$ 546,363.50	$ 546,363.50	$ -	$ -
		$ 6,556,362.00		$ 120,199.97

Captial Region SWMP
Life Cycle Cost and Revenue
Transfer Station - Alternative Scenario #1

Assumptions		2009$	2015$
Nominal Facility Throughput Capacity (TPD)	1000		
Anticipated Annual Throughput (tons)	213,000		
Landfill Disposal Fee ($/ton)	$25	25	$ 29.85
Annual Inflation Rates			
Disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present value discount rate	3.0%		

	2009	2010	2015	2020	2025	2030	2034
Calendar Year	2009	2010	2015	2020	2025	2030	2034
Inflation Year	0	1	6	11	16	21	25
Facility Operating Year	-5	-4	1	6	11	16	20
			213,000	213,000	213,000	213,000	213,000
			213,000	213,000	213,000	213,000	213,000
Landfill Disposal Cost	$ -	$ -	$ 6,358,328	$ 7,371,045	$ 8,545,062	$ 9,906,069	$ 11,149,367
Facility Operating Cost [4]	$ 1,519,379	$ 1,564,960	$ 1,814,218	$ 2,103,176	$ 2,438,157	$ 2,826,493	$ 3,181,242
Transportation O&M Cost	$ 7,083,411	$ 7,295,913	$ 8,457,963	$ 9,805,097	$ 11,366,795	$ 13,177,231	$ 14,831,090
Facility Debt Service			$ 1,441,655	$ 1,441,655	$ 1,441,655	$ 1,441,655	$ 1,441,655
Transportation Debt Service			$ 2,562,696	$ 2,562,696	$ 2,562,696	$ 2,562,696	$ 2,562,696
Total Facility Operating and Debt Service			$ 3,255,873	$ 3,544,831	$ 3,879,813	$ 4,268,148	$ 4,622,898
Facility Operating and Debt Service per ton			**$ 15.29**	**$ 16.64**	**$ 18.22**	**$ 20.04**	**$ 21.70**
Total Transportation O&M, Debt Service & Disposal			$ 17,378,988	$ 19,738,839	$ 22,474,553	$ 25,645,996	$ 28,543,153
Total T&D per ton			**$ 81.59**	**$ 92.67**	**$ 105.51**	**$ 120.40**	**$ 134.01**
Total Facility Operating,Transport &Disposal Cost ($/ton)			$ 96.88	$ 109.31	$ 123.73	$ 140.44	$ 155.71
Present Value in 2009$			$ 81.13	$ 78.97	$ 77.10	$ 75.49	$ 74.37
20 year average NPV in 2009$ **$ 77.22**							

Notes
1
2
3. Assumption includes transport and Disposal
4. Escalated annually at rate of inflation

Estimated Capital Cost
1000 TPD Transfer Station
2009 Cost

	Unit		Unit Cost		Extended Cost
Building and Site Development					
Land Purchase [1]	5 acres	$	75,000	$	375,000
Site Preparation and Development [2]	5 acres	$	175,000	$	875,000
Transfer Building [3]	40000 sq. ft.	$	175	$	7,000,000
Scale House and Scales [4]	2 scales	$	250,000	$	500,000
		Subtotal		**$**	**8,750,000**
Mobile Transfer Equipment					
Wheel Loader	2	$	250,000	$	500,000
Excavator w/ Grapple	2	$	350,000	$	700,000
Tools and Spare Parts @ 8%				$	96,000
Contingency	15%			$	194,400
		Subtotal		**$**	**1,490,400**
Total Transfer Station Facility Capital Cost				**$**	**10,240,400**

Notes
1 - assumes land acquisition cost of 75,000 per acres
2 - Includes estimates for earthwork, paved roadways, site utilities and landscaping
3 - Pre-engineered buiding, concrete floors, push walls, foundation, load out scales, ventilation and electromechanical equipment
4 - Pre-engineered building, 2 truck scales and office furnishings

Captial Region SWMP
Sources and Uses of Funds
Transfer Station Facility
Nominal Capacity 1000TPD

Assumptions			
GO Bond financing			
Annual Inflation Rate for Construction Price		3%	
Facility Construction Price $2009 [1]	$	10,240,400	
Facility Construction Price $2015 [2]	$	12,227,573	
Project development Expenses @ 15% [3]	$	1,536,060	
Property Acquisition - 5 acres @ $75K included in Facility construc	$	-	
Contingency @ 10%		1,376,363	
Total Construction Costs	**$**	**15,139,996**	
Sources of Funds			
Bond Proceeds	$	16,535,673	16535673
Uses of Funds			
Construction Fund	$	15,139,996	
Underwriters discount @ 0.75 % of Bond Proceeds	$	124,018	
Cost of Bond Issuance @ 1.0 % of Bond proceeds	$	165,357	
Capitalized Interest	$	992,140	
Debt service reserve Fund [4]	$	-	
Resident Engineer CQA/QC @ 2.5% of Construction Fund	$	378,500	
Bond Insurance @ 0.2% of bond proceeds	$	33,071	
Less Interest earned during construction:			
Debt service reserve Fund	$	-	
Capitalized Interest	$	(19,843)	
Construction Fund	$	(277,567)	
Total Uses of Funds	$	16,535,673	
Annual Debt service payment		$1,441,655.32	

Construction period	12 months
Bond Term	20 yrs
Interest rates	
Tax exempt Bonds	6.00%
Debt Service reserve Fund	4.00%
Capitalized interest Fund	4.00%
Construction Fund	4.00%

Notes:
1. Based on RFI response from Nortera noting Merchant Facility Cost in Joyceville ON of $3Million US$ for a 20,000 TPY facility.
2, Assumes 3% annual infaltion rate from 2009 to 2012.
3. Includes siting studies, preliminary environmental review, Bid preparation, review, negotiations of project agreements
4. Debt service reserve not required for GO Bond financing

Transfer Station Cost Estimate
Capital Cost Estimate
1,000 TPD

	Units	Unit Cost	Extended Cost 2009$	Estimated Cost 2015$
Open Top Trailer - 105CY [1]	40	$ 75,000	$ 3,000,000	**3,582,156.89**
Tractors [1]	40	$ 125,000	$ 5,000,000	**5,970,261.48**
Tools and Spare Parts @ 1%	1%		$ 80,000	**95,524.18**
Contingency @15%	15%		$ 1,212,000	$ 1,447,191
Rolling Stock Capital Cost Total			**$ 9,292,000**	**11,095,133.94**
Total Annualized Capital Cost Amortization	5.0%	5	years	**$2,562,696**
Assumed Annual Tonnage	213,000			
Amortized Facility Cost per ton	$ 12.03			

Notes:
1 - assumes capacity for transporting 1000 TPD, w/ 25 ton payload, and 1 round trip per day.

Transfer Station Cost Estimate
~~Operating Cost Estimate~~
1,000 TPD

Assumptions:

Annual tonnage		213,000
Round trip travel time	7 hrs	
turnaround time at LF	.5 hrs	
turnaround time at TS	.5 hrs	
Round trip mileage to High Acres		415
trailer payload		25
Annual Round trips		8,520
Annual VMT		3,535,800
Thruway tolls (round trip)	$	60.00
Road Fuel Cost $/gallon	$	3.00
Road Fuel economy MPG		7
Fuel Cost $/VMT	$	0.43

	Units	Unit Cost	Extended Cost		
1) LABOR					
(d) Truck Drivers	40	$ 40,000.00	$ 1,600,000.00		
Labor Subtotal			$ 1,600,000.00		
(g) Overtime	10%		$ 160,000.00		
(h) Replacement labor	10%		$ 160,000.00		
(i) Fringe Benefits	31%		$ 496,000.00		
(j) Management	5%		$ 80,000.00		
Labor and Fringe Total				$ 2,496,000.00	
2) EQUIPMENT OPERATIONS					
(b) Fuel for tractors	3,535,800	$ 0.43	$ 1,515,342.86		
© Tires @ $/VMT	3,535,800	$ 0.28	$ 972,345.00		
(d) equipment maintenance	5%		$ 464,600.00		
(e) equipment replacement	0%		$ -		
(f) tolls	8,520	$ 60.00	$ 511,200.00		
				$ 3,463,487.86	
3) MISCELLANEOUS EXPENSES					
(b) Vehicle license and insurance [1]	40	$ 5,000.00	$ 200,000.00		
				$ 200,000.00	
4) CONTINGENCIES	15%			$ 923,923.18	
O&M Cost Total				$ 7,083,411.04	$ 33.26 $/ton
Total Amortized capital cost for Rolling Stock				$2,562,696.32	$ 12.03 $/ton
Total Annual Transfer and Transport Cost				$9,646,107.36	
Transport Cost per ton (NOT INCLUDING DISPOSAL COST)				**$ 45.29**	

Notes:
1- Based on 2.5% of vehicle cost

Captial Region SWMP
Life Cycle Cost and Revenue
Transfer Station - Alternative Scenario #2

Assumptions		2009$	2015%
Nominal Facility Throughput Capacity (TPD)	750		
Anticipated Annual Throughput (tons)	148,000		
Landfill Disposal Fee ($/ton)	$25	25	$ 29.85
Annual Inflation Rates			
Disposal fee inflation rate	3.0%		
Facility operating Cost inflation rate	3.0%		
Present Value Discount rate	3.0%		

	2009	2010	2015	2020	2025	2030	2034
Calendar Year	2009	2010	2015	2020	2025	2030	2034
Inflation Year	0	1	6	11	16	21	25
Facility Operating Year	-5	-4	1	6	11	16	20
Annual Waste Delivery			148,000	148,000	148,000	148,000	148,000
Annual Waste for Disposal			148,000	148,000	148,000	148,000	148,000
Landfill Disposal Cost	$ -	$ -	$ 4,417,993	$ 5,121,665	$ 5,937,414	$ 6,883,090	$ 7,746,978
Facility Operating Cost	$ 1,519,379	$ 1,564,960	$ 1,814,218	$ 2,103,176	$ 2,438,157	$ 2,826,493	$ 3,181,242
Transportation O&M Cost	$ 4,763,512	$ 4,763,512	$ 5,687,882	$ 6,593,815	$ 7,644,038	$ 8,861,535	$ 9,973,736
Facility Debt Service			$ 1,585,643	$ 1,585,643	$ 1,585,643	$ 1,585,643	$ 1,585,643
Transportation Debt Service			$ 1,922,022	$ 1,922,022	$ 1,922,022	$ 1,922,022	$ 1,922,022
Total Facility Operating and Debt Service			$ 3,399,862	$ 3,688,820	$ 4,023,801	$ 4,412,136	$ 4,766,886
Facility Operating and Debt Service per ton			**$ 22.97**	**$ 24.92**	**$ 27.19**	**$ 29.81**	**$ 32.21**
Total Transportation O&M, Debt Service & Disposal			$ 12,027,898	$ 13,637,502	$ 15,503,474	$ 17,666,648	$ 19,642,737
Total T&D per ton			**$ 81.27**	**$ 92.15**	**$ 104.75**	**$ 119.37**	**$ 132.72**
Total Facility Operating,Transport &Disposal Cost ($/ton)			$ 104.24	$ 117.07	$ 131.94	$ 149.18	$ 164.93
Present Value in 2009$			$ 87.30	$ 84.57	$ 82.22	$ 80.19	$ 78.77

20 year average NPV in 2009$** **$ 82.38

Notes
1
2

Estimated Capital Cost
750-1000 TPD Transfer Station
2009 Cost

	Unit		Unit Cost		Extended Cost
Building and Site Development					
Land Purchase [1]	5 acres	$	75,000	$	375,000
Site Preparation and Development [2]	5 acres	$	175,000	$	875,000
Transfer Building [3]	40000 sq. ft.	$	175	$	7,000,000
Scale House and Scales [4]	2 scales	$	250,000	$	500,000
		Subtotal		**$**	**8,750,000**
Mobile Transfer Equipment					
Wheel Loader	2	$	250,000	$	500,000
Excavator w/ Grapple	2	$	350,000	$	700,000
Tools and Spare Parts @ 8%				$	96,000
Contingency	15%			$	194,400
		Subtotal		**$**	**1,490,400**
Total Transfer Station Facility Capital Cost				**$**	**10,240,400**

Notes
1 - assumes land acquisition cost of 75,000 per acres
2 - Includes estimates for earthwork, paved roadways, site utilities and landscaping
3 - Pre-engineered buiding, concrete floors, push walls, foundation, load out scales, ventilation and electromechanical equipment
4 - Pre-engineered building, 2 truck scales and office furnishings

Construction Fund Drawdown
Equivalent Monthly Drawdown

Months after notice to proceed	Beginning Balance in Construction Fund	Drawdown	Ending Balance in Construction Fund	Interest Earned 4%
1	$ 15,139,996.45	$ 1,261,666.37	$ 13,878,330.08	$ 46,261.10
2	$ 13,878,330.08	$ 1,261,666.37	$ 12,616,663.71	$ 42,055.55
3	$ 12,616,663.71	$ 1,261,666.37	$ 11,354,997.34	$ 37,849.99
4	$ 11,354,997.34	$ 1,261,666.37	$ 10,093,330.97	$ 33,644.44
5	$ 10,093,330.97	$ 1,261,666.37	$ 8,831,664.60	$ 29,438.88
6	$ 8,831,664.60	$ 1,261,666.37	$ 7,569,998.23	$ 25,233.33
7	$ 7,569,998.23	$ 1,261,666.37	$ 6,308,331.85	$ 21,027.77
8	$ 6,308,331.85	$ 1,261,666.37	$ 5,046,665.48	$ 16,822.22
9	$ 5,046,665.48	$ 1,261,666.37	$ 3,784,999.11	$ 12,616.66
10	$ 3,784,999.11	$ 1,261,666.37	$ 2,523,332.74	$ 8,411.11
11	$ 2,523,332.74	$ 1,261,666.37	$ 1,261,666.37	$ 4,205.55
12	$ 1,261,666.37	$ 1,261,666.37	$ -	$ -
		$ 15,139,996.45		$ 277,566.60

Captial Region SWMP
Sources and Uses of Funds
Transfer Station Facility
Nominal Capacity 750TPD

Assumptions					
GO Bond financing					
Annual Inflation Rate for Construction Price		3%		Construction period	12 months
Facility Construction Price $2009 [1]	$	10,240,400			
Facility Construction Price $2015 [2]	$	12,227,573		Bond Term	20 yrs
Project development Expenses @ 15% [3]	$	1,536,060		**Interest rates**	
Property Acquisition - 5 acres @ $75K included in Facility construc	$	-			
Contingency @ 10%		1,376,363		Tax exempt Bonds	6.00%
Total Construction Costs	**$**	**15,139,996**		Debt Service reserve Fund	4.00%
				Capitalized interest Fund	4.00%
Sources of Funds				Construction Fund	4.00%
Bond Proceeds	$	18,187,206	18187206		
Uses of Funds					
Construction Fund	$	15,139,996			
Underwriters discount @ 0.75 % of Bond Proceeds	$	136,404			
Cost of Bond Issuance @ 1.0 % of Bond proceeds	$	181,872			
Capitalized Interest	$	1,091,232			
Debt service reserve Fund [4]	$	1,585,643			
Resident Engineer CQA/QC @ 2.5% of Construction Fund	$	378,500			
Bond Insurance @ 0.2% of bond proceeds	$	36,374			
Less Interest earned during construction:					
Debt service reserve Fund	$	(63,426)			
Capitalized Interest	$	(21,825)			
Construction Fund	$	(277,567)			
Total Uses of Funds	$	18,187,206			

Notes:
1. Based on RFI response from Nortera noting Merchant Facility Cost in Joyceville ON of $3Million US$ for a 20,000 TPY facility.
2, Assumes 3% annual infaltion rate from 2009 to 2012.
3. Includes siting studies, preliminary environmental review, Bid preparation, review, negotiations of project agreements
4. Debt service reserve equal to 1 years debt service payment.

Transfer Station Cost Estimate
Capital Cost Estimate
750 TPD

	Units	Unit Cost	Extended Cost 2009$	Estimated Cost 2015$
Open Top Trailer - 105CY [1]	30	$ 75,000	$ 2,250,000	**2,686,617.67**
Tractors [1]	30	$ 125,000	$ 3,750,000	**4,477,696.11**
Tools and Spare Parts @ 1%	1%		$ 60,000	**71,643.14**
Contingency @15%	15%		$ 909,000	$ 1,085,394
Rolling Stock Capital Cost Total			**$ 6,969,000**	**8,321,350.45**
Total Annualized Capital Cost Amortization	5.0%	5 years		**$1,922,022**
Assumed Annual Tonnage	167,000			
Amortized Facility Cost per ton	$ 11.51			

Notes:
1 - assumes capacity for transporting 750 TPD, w/ 25 ton payload, and 1 round trip per day.

Transfer Station Cost Estimate
Operating Cost Estimate
750TPD Nominal Capacity

Assumptions:

Annual tonnage	148,000
Diesel Fuel Cost($/gal)	$ 3.00

	Units	Unit Cost	Extended Cost		
1) LABOR					
(a) Foreman	1	$ 60,000.00	$ 60,000.00		
(b) Scale Attendant	1	$ 31,000.00	$ 31,000.00		
© equipment operators	2	$ 57,000.00	$ 114,000.00		
(e) Mechanics	1	$ 50,000.00	$ 50,000.00		
(f) Laborers	4	$ 27,000.00	$ 108,000.00		
Labor Subtotal			**$ 363,000.00**		
(g) Overtime	10%		$ 36,300.00		
(h) Replacement labor	10%		$ 36,300.00		
(i) Fringe Benefits	31%		$ 112,530.00		
(j) Management	5%		$ 18,150.00		
Labor and Fringe Total				**$ 566,280.00**	
2) EQUIPMENT OPERATIONS					
(a) Fuel for TS Equipment	12,500.00	$ 3.00	$ 37,500.00		
(d) equipment maintenance	5%		$ 74,520.00		
(e) mobile equipment replacement fund	15%	$ -	$ 223,560.00		
				$ 335,580.00	
3) MISC. O&M EXPENSES					
(a) Utilities	LS		$ 40,000.00		
© Other insurance	LS		$ 30,000.00		
(d) Building and grounds	1.5%		$ 153,606.00		
				$ 223,606.00	
			O&M Subtotal	**$ 1,125,466.00**	
Contingency @ 15%	15%		$ 168,819.90		
Administrative Overhead @ 20%	20%		$ 225,093.20		
O&M Cost Total				**$ 1,519,379.10**	**$ 10.27** $/ton

Transfer Station Cost Estimate
Operating Cost Estimate
750 TPD

Assumptions:

Annual tonnage		148,000
Round trip travel time	7 hrs	
turnaround time at LF	.5 hrs	
turnaround time at TS	.5 hrs	
Round trip mileage to High Acres		415
trailer payload		25
Annual Round trips		5,920
Annual VMT		2,456,800
Thruway tolls (round trip)	$	60.00
Road Fuel Cost $/gallon	$	3.00
Road Fuel economy MPG		7
Fuel Cost $/VMT	$	0.43

	Units	Unit Cost	Extended Cost		
1) LABOR [1]					
(d) Truck Drivers	25	$ 40,000.00	$ 1,000,000.00		
Labor Subtotal			$ 1,000,000.00		
(g) Overtime	10%		$ 100,000.00		
(h) Replacement labor	10%		$ 100,000.00		
(i) Fringe Benefits	31%		$ 310,000.00		
(j) Management	5%		$ 50,000.00		
Labor and Fringe Total				$ 1,560,000.00	
2) EQUIPMENT OPERATIONS					
(b) Fuel for tractors	2,456,800	$ 0.43	$ 1,052,914.29		
© Tires @ $/VMT	2,456,800	$ 0.28	$ 675,620.00		
(d) equipment maintenance	5%		$ 348,450.00		
(e) equipment replacement	0%		$ -		
(f) tolls	5,920	$ 60.00	$ 355,200.00		
				$ 2,432,184.29	
3) MISCELLANEOUS EXPENSES					
(b) Vehicle license and insurance [2]	30	$ 5,000.00	$ 150,000.00		
				$ 150,000.00	
4) CONTINGENCIES	15%			$ 621,327.64	
O&M Cost Total				$ 4,763,511.93	$ 32.19 $/ton

Notes:
1- Labor based on annual tonnage averaged over 250 operating days per year
2- Based on 2.5% of vehicle cost