FINAL REPORT

August 2011

North Central Texas Council of Governments

Regional Recycling Rate Update

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SAIC®

Regional Recycling Rate Update

North Central Texas Council of Governments

Table of Contents

List of Tables

List of Figures

List of Appendices

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EXECUTIVE SUMMARY

Overview

In 2010, the North Central Texas Council of Governments (NCTCOG) retained SAIC Energy, Environment, and Infrastructure (SAIC, formerly R. W. Beck) to conduct the NCTCOG Regional Recycling Rate Update Study (2010 Update). SAIC conducted the original NCTCOG Recycling Rate Benchmarking Study (2005 Benchmarking Study) that was finalized in 2007. The purpose of the original study was to develop a baseline recycling rate for NCTCOG's 16-county planning region. This 2010 Update documents progress in the recycling rate on a regional and city-by-city basis.

Report Organization

This report is organized into four sections, plus this Executive Summary. The sections of this report, as well as appendices, are listed below.

- Executive Summary
- Section 1 – Methodology
- Section 2 – Data Analysis
- Section 3 – Municipal Recycling Analysis
- Section 4 – Lessons Learned, Key Findings and Recommendations
- Appendix A – Municipal Recycling Summaries
- Appendix B – Municipal Survey
- Appendix C – Processor Survey
- Appendix D – Glossary of Terms
- Appendix E – Regional Recycling Rate Map

Methodology

Survey Design

The survey instruments used for the 2005 Benchmarking Study were based on the EPA handbook *"Measuring Recycling: A Guide for State and Local Governments."* SAIC used the survey instruments from the 2005 Benchmarking Study as the basis for the development of the survey instruments for the 2010 Update.

In completing the survey, respondents provided recycling information for the 12 month period from September 2009 to August 2010 (survey time period). If information for this time period was not available, SAIC asked respondents to provide data from the most recent 12 month period for which data was available.

Municipal Response Rate

In developing the survey, SAIC set an initial survey deadline of November 30, 2010. By this initial deadline, 26 percent of the municipalities surveyed had submitted a survey response. After the extended deadline of February 28, 2011, SAIC had received a total of 60 municipal survey responses for a response rate of 74 percent. SAIC followed up with the remaining unresponsive cities after the February 2011 deadline and obtained 11 additional surveys. Table ES-1 summarizes the final municipal survey response rate.

Table ES-1
Municipal Survey Response Rate

Response Rate	Number of Cities	Population
Responses Received	71	5,493,911
Total Cities Surveyed	81	5,646,872
Response Rate	87.7%	97.3%

Processor Response Rate

As of the final survey deadline for the processor survey, SAIC had received 27 completed surveys for a survey response rate of 54 percent. SAIC would like to express appreciation for the companies that participated in the processor survey. These companies are not identified in this report to protect the confidentiality of data provided.

A total of four companies refused to complete the survey. These companies communicated verbally to SAIC that they would not participate in the survey. These four companies expressed that they were either 1) too busy to complete the survey or that 2) they would not complete the survey unless required by law.

There were 19 processors that did not respond to the survey. These companies verbally communicated to SAIC that they would not respond, but were unresponsive to repeated requests for participation. In speaking with unresponsive companies, SAIC documented several reasons for non-responsiveness, including:

- Non-responsiveness to repeated phone calls;
- Verbally expressed intent to complete the survey but did not complete by the extended deadline;
- Too busy; and
- Data quality concerns (lack of scales, lack of ability to estimate tonnage).

Table ES-2 provides a summary of responses to the processor survey.

Table ES-2
Private Processor Survey Responses

Response Rate	Number of Processors	Percent of Processors
Refused to Participate	4	8.0%
Unresponsive Processors	19	38.0%
Responsive Processors	27	54.0%
Total Processors	50	100%

Calculating the Regional Recycling Rate

To determine the regional and city-by-city recycling rates, SAIC followed the methodology used in the 2005 Benchmarking Study. The methodology for the recycling rate calculation is based on the EPA handbook *"Measuring Recycling: A Guide for State and Local Governments."* The formula used to calculate the regional and city-by-city recycling rates is as follows:

$$\text{MSW Recycling Rate (\%)} = \frac{\text{MSW Recycled}}{\text{MSW Recycled} + \text{MSW Disposal}} * 100$$

Data Analysis

Disposal Data

In order to calculate a regional recycling rate, SAIC had to determine the quantity of material disposed by generators in the region. Table ES-3 shows total residential and ICI disposal generated from the North Central Texas region as determined by SAIC.

Table ES-3
North Central Texas MSW Disposal

	Residential Disposal	ICI Disposal
Waste Disposed within North Central Texas [1]	2,529,233	4,556,155
Less: Waste Imports		
Disposal in North Central Texas that Originated Outside of the Region	(21,398)	(35,856)
Plus: Waste Exports		
Disposal in Landfills outside of North Central Texas that Originated Within the Region	4,872	2,750
North Central Texas MSW Disposal	2,512,707	4,523,049

1. See Table 2-1 (2,529,233+4,556,155=7,085,388)

Residential Recycling

Table ES-4 provides a summary by material of total residential recycling in the North Central Texas region from the 2010 Update and the 2005 Benchmarking Study.

Table ES-4
Residential Recycling Summary

September 2004 to August 2005			September 2009 to August 2010		
Material	Tons	% of Total	Material	Tons	% of Total
Primary MSW			Primary MSW		
Metals	10,604	3.1%	Metals	30,812	5.2%
Paper	136,368	39.5%	Paper	129,260	22.0%
Plastic	9,001	2.6%	Plastic	12,809	2.2%
Glass	11,507	3.3%	Glass	22,289	3.8%
Organics	148,761	43.1%	Organics	276,653	47.1%
Wood	545	0.2%	Wood	11,349	1.9%
Other	25,647	7.4%	Other	89,065	15.1%
Other MSW			Other MSW		
HHW	968	0.3%	HHW	1,071	0.2%
Consumer Electronics	199	0.1%	Consumer Electronics	859	0.1%
Tires	1110	0.3%	Tires	903	0.2%
Other	0	0.0%	Other	35	0.0%
C&D	129	0.0%	C&D	12,862	2.2%
Total Residential Recycling	344,839	100%	Total Residential Recycling	587,967	100.0%

Industrial, Commercial, and Institutional (ICI) Recycling

Table ES-5 provides a summary by material of total ICI recycling in the North Central Texas region from the 2010 Update and the 2005 Benchmarking Study.

Table ES-5
ICI Recycling Materials Summary

September 2004 to August 2005			September 2009 to August 2010		
Material	Tons	% of Total	Material	Tons	% of Total
Primary MSW			Primary MSW		
Metals	675,548	52.3%	Metals	530,756	37.9%
Paper	511,374	39.6%	Paper	17,343	1.2%
Plastic	10,503	0.8%	Plastic	693,500	49.6%
Glass	10,781	0.8%	Glass	1	0.0%
Organics	34,701	2.7%	Organics	39,256	2.8%
Wood	1,040	0.1%	Wood	4,355	0.3%
Other	17,270	1.3%	Other	42,829	3.1%
Other MSW			Other MSW		0.0%
HHW	1	0.0%	HHW	1	0.0%
Consumer Electronics	50	0.0%	Consumer Electronics	-	0.0%
Tires	-	0.0%	Tires	-	0.0%
Other	-	0.0%	Other	242	0.0%
C&D	29,194	2.3%	C&D	70,390	5.0%
Total ICI Recycling	1,290,462	100%	Total ICI Recycling	1,398,674	100.0%

Regional Recycling Rate

Based on the data collected from the municipal and processor surveys, SAIC calculated an overall regional recycling rate of 22.0 percent. SAIC would note that with a municipal survey response rate of 87.7 percent and a processor survey completion rate of 54.0 percent, it is likely that this recycling rate does not account for all of the recycling activity that is currently taking place in the region. Table ES-6 summarizes SAIC's calculation of the North Central Texas regional residential, ICI, and overall recycling rates.

Table ES-6
North Central Texas Regional Recycling Rates
September 2009-August 2010

	September 2004 to August 2005			September 2009 to August 2010		
Generation	Residential	ICI	Overall	Residential	ICI	Overall
Recycling	344,839	1,290,462	1,635,301	587,967	1,398,674	1,986,641
Disposal	2,477,839	6,245,278	8,722,936	2,512,707	4,523,048	7,035,755
Total Generation	2,822,498	7,535,740	10,358,237	3,100,673	5,921,722	9,022,396
Recycling Rate	12.2%	17.1%	15.8%	19.0%	23.6%	22.0%

Municipal Recycling Analysis

Residential Recycling Rate Summary

Table ES-7 is a summary of the residential recycling rates calculated by SAIC. The communities are listed alphabetically within ranges.

Table ES-7
Reported Residential Recycling Rates by Municipality

0.0% to 4.9% Reported Recycling Rate		5.0% to 9.9% Reported Recycling Rate	
Corsicana	Greenville	Cedar Hill	North Richland Hills
Crowley	Kaufman	Duncanville	Richardson
DeSoto	Lancaster	Euless	Richland Hills
Farmers Branch	Midlothian	Haltom City	Rockwall
Forney	Red Oak	Lewisville	Royse City
Glenn Heights	Weatherford	Mineral Wells	
10.0% to 14.9% Reported Recycling Rate		**15.0% to 19.9% Reported Recycling Rate**	
Azle	Flower Mound	Addison	Stephenville
Benbrook	Grapevine	Arlington	
Carrollton	Little Elm	Cleburne	
Colleyville	Mesquite	Highland Park	
Corinth	Southlake	McKinney	
Fairview		Murphy	
20.0% to 24.9% Reported Recycling Rate		**25.0% to 29.9% Reported Recycling Rate**	
Anna	Heath	Frisco	
Coppell	Irving	The Colony	
Fort Worth	River Oaks		
Garland			
30.0% to 34.9% Reported Recycling Rate		**35.0% or Greater Reported Recycling Rate**	
Allen	Highland Village	Dallas	University Park
Burleson	Terrell	Denton	Waxahachie
Grand Prairie		Plano	
Unknown (Recycling Data Not Available) [1]		**Unknown (Unresponsive to Survey)** [2]	
Bedford	Sachse	Balch Springs	Lake Dallas
Keller	Saginaw	Commerce	Sanger
Mansfield	Trophy Club	Ennis	Seagoville
Prosper	Watauga	Forest Hill	White Settlement
Roanoke	Wylie	Granbury	
Rowlett		Hurst	

1. City responded to survey and confirmed that the city does have a recycling program, but data is not available.
2. City did not respond to the survey.

Residential Curbside Findings Summary

Based on the data collected regarding curbside program characteristics in the region, factors that correlate to an increased amount of curbside collection have been identified. The following summary may be useful to cities in the North Central Texas region that are interested in identifying programmatic changes that could assist in efforts to increase recycling rates. SAIC discusses each program characteristic identified in detail in Section 3.4.2 of this report.

- Single stream recycling rolling carts yield more material.
- Larger containers result in larger collection volumes.
- Every other week collection can be effective.
- Variable rates can be an effective method to increase recyclable volumes.
- There is a slightly positive correlation between the quantity of material recycled and the city's public education budget.
- A successful curbside organics program has a large impact on a city's recycling rate.
- Curbside recycling is predominantly single stream programs.

Lessons Learned, Key Findings, and Recommendations

Municipal Participation

The response rate from the municipalities was very strong. In fact, only 10 cities, which account for approximately 2.7 percent of the surveyed population, did not participate in the survey. The remaining 71 cities, which comprise 97.3 percent of the surveyed population, responded to the municipal survey. Following are SAIC's key findings and recommendations regarding the municipal response to the survey.

1. The response rate that SAIC achieved for the 2010 Update was similar to the municipal response rate for the 2005 Benchmarking Study. However, the 2010 Update required much less follow-up on the part of SAIC than the 2005 Benchmarking Study. In fact, SAIC found that the surveyed cities were very responsive and cooperative during the survey process. This improved responsiveness may be attributable to recognition of the importance of the regional recycling rate study.
2. Many cities were familiar with the 2005 Benchmarking Study. Also, SAIC was able to refer cities to the 2005 Benchmarking Study report when explaining the 2010 Update study to new participants. SAIC would expect that the continued, regular administration of the recycling rate survey by NCTCOG will result in strong participation by municipalities for future updates.
3. Electronic administration of the survey had a positive impact on participation. SAIC sent e-mail messages to the cities reminding them to participate in the survey. A small number of cities had technical difficulties completing the

survey electronically; however, the vast majority of cities were able to complete and return the survey without problems.

4. After the initial survey deadline passed, NCTCOG staff communicated directly with cities regarding the importance of participating in the survey. Specifically, they communicated that a city's participation or non-participation in the survey could be considered in the future as part of the Solid Waste Grants Program application process. SAIC believes that NCTCOG should continue to incentivize participation in future surveys by considering it as part of the evaluation criteria for award of grants through the Solid Waste Grants Program.
5. In conducting the 2005 Benchmarking Survey, SAIC found that many cities did not have access to their community's recycling data from a private hauler. In fact, SAIC assisted over 30 cities in attempting to obtain recycling data from their private haulers or processors. In the 2010 Update, SAIC found that only 15 cities were unable to obtain data from their private haulers or processors. The improved availability of recycling data was a key recommendation from the 2005 Benchmarking Study that has been implemented in the region.
6. While participation in the survey was strong, SAIC found that the majority of cities do not have information on ICI recycling. Only 11 of the 71 responsive cities provided information on ICI recycling for their communities.

Processor Participation

The processor response rate to the 2010 Update survey was 54 percent. SAIC encountered considerable resistance from private processors in administering the survey. In fact, the response rate achieved by SAIC during the 2010 Update was lower than the response rate achieved in the 2005 Benchmarking Study.[1] Following are SAIC's key findings and recommendations regarding the processor response to the survey.

7. Many processors expressed to SAIC that they lacked sufficient incentive to participate in the survey. Since the survey is not required by law and since private companies cannot participate in the Solid Waste Grant Program through NCTCOG, many processors expressed to SAIC that they considered the 2010 Update survey to be a very low priority. Many processors did not respond to the survey after multiple months of weekly follow up by SAIC.
8. SAIC observed that most processors do not track recycling information in a manner that is consistent with the methodology of the 2010 Update and 2005 Benchmarking Study. For instance, both surveys requested that processors identify whether material was residential or commercial. However, many processors do not record the type of generator for recyclable material. In addition, most processors do not record source of recyclable material (i.e., in what city was material generated).

[1] The response rate for the processor survey in the 2005 Benchmarking Study was 65.5%.

9. Confidentiality was critical for participation of those companies that provided survey responses. As such, SAIC would recommend that NCTCOG continue to utilize a third-party surveyor for the conduct of future surveys.
10. Based on discussions with NCTCOG staff and members of the TTR subcommittee, SAIC identified processors that did not participate in Section 2.3 of this report as a way to encourage their future participation. SAIC would recommend that this practice continue in the future.

Regional Recycling Rate

The NCTCOG residential, ICI, and overall recycling rate increased between FY 2005 and FY 2010. SAIC would expect that this increase is attributable to an increase in recycling activities by the public and private sector. In addition, the increase is also partially attributable to improved access to data regarding recycling.

It is important to understand the following factors that contribute to the regional recycling rate:

- This survey did not extrapolate any recycling amounts based on private companies or municipalities that did not provide data. While the methodology for this is sound, it does result in an under-reporting of the quantity of material being recycled in the region since the results are based on actual reported data.
- While this survey did include some C&D recycling, it did not include a comprehensive survey of the quantity of this C&D material that is being recycled in the region.
- Tipping fees in the North Central Texas region are among the lowest in the country, which can minimize incentives to recycle.
- There are no mandated recycling goals in Texas or the North Central Texas region, as compared to other areas of the country that require cities to meet very high recycling rates. [2]

Municipal Recycling Rate Results

As expected, there is a tremendous range in the recycling rates of the cities included in this survey. While the overall residential recycling rate is 19.0 percent, a number of cities have higher recycling rates. In fact, ten of the cities reported recycling rates greater than 30 percent.[3] Following are SAIC's key findings and recommendations regarding the municipal recycling rate results.

11. One approach to measuring the success of a municipal recycling program is based on the quantity of material recycled annually in curbside recycling programs on an per household basis. Based on extensive industry experience,

[2] While there are no mandated recycling goals in the state of Texas, TCEQ's proposed recycling goal is 40 percent, as identified in 30 TAC Chapter 328 Subchapter B.
[3] These cities are Allen, Burleson, Dallas, Denton, Grand Prairie, Highland Village, Plano, Terrell, University Park, and Waxahachie.

SAIC has an understanding of the quantity of material being recycled through other successful recycling programs in the United States. Mature curbside recycling programs can yield between 500 and 700 pounds of material annually per household. Of the surveyed cities in the North Central Texas region, nine are recycling at least 500 pounds annually per household through their curbside recycling programs.[4] Another 10 cities are recycling at least 400 pounds annually per household through their curbside recycling programs.[5]

12. The vast majority of residential recyclables collected in the region are collected through either traditional curbside programs or other curbside programs (i.e. yard trimmings collection). SAIC would note that the majority of the tonnage in the "Other Curbside" category is residential organics (i.e. brush, yard trimmings). In fact, the 10 cities with the highest recycling rates in the region derive a significant quantity of recyclable tonnage from yard trimmings recycling programs.
13. Based on data received in response to the survey, cities with rolling carts (as opposed to bins or bags for recycling collection) have the highest average pounds per household for their curbside programs at 407 pounds per household annually.
14. Based on data received in response to the survey, cities with 90-100 gallon rolling carts (as opposed to smaller containers) have the highest average pounds per household for their curbside programs at 439 pounds per household annually.
15. The three cities with variable refuse rates (i.e. pay as you throw) have an average curbside recycling of 407 pounds per household. This is higher than the average curbside recycling of 343 pounds per household for the remaining 48 cities included in this analysis.

ICI Recycling Rate Results

The ICI waste stream comprises a very significant component of the MSW stream in North Central Texas. In fact, based on this survey, ICI waste accounts for approximately 64 percent of waste disposal in the North Central Texas region. Close to 1.4 million tons (equal to a 23.6 percent recycling rate) of ICI material are being recycled on an annual basis. Following are SAIC's key findings and recommendations regarding the ICI recycling rate results.

16. Metal (530,756 tons) and paper (693,500 tons) account for 87.5 percent of the ICI material being recycled.
17. Given that ICI waste comprises such a significant percentage of the waste stream, it is important to develop programs focused on minimizing ICI waste. Along these lines, NCTCOG has developed goals that are focused on the ICI

[4] These cities include Allen, Benbrook, Fairview, Flower Mound, Frisco, Heath, Highland Park, Highland Village, and University Park.
[5] These cities include Anna, Carrollton, Colleyville, Coppell, Denton, Grapevine, Murphy, Plano, Southlake, and The Colony.

component of the waste stream. In addition, several North Central Texas cities and private companies have developed very successful ICI recycling programs.

Recommendations for Future Survey Updates

Following are SAIC's key findings and recommendations regarding the ICI recycling rate results.

18. The best opportunity to increase the response rate to the survey will be to continue administering the survey on a consistent basis. By administering the survey regularly, processors and municipalities will begin to expect the need to complete the survey. SAIC recommends that NCTCOG conduct at least the municipal portion of the survey annually, with a complete update of the processor portion every two years.
19. SAIC recommends that NCTCOG consider including haulers as part of the formal survey process for future updates. Processors have challenges providing data in the format required by the survey (e.g. designation as residential and commercial, knowledge of city where material is generated). SAIC would expect that standard recordkeeping activities of haulers may align more closely with the methodology of future surveys.
20. In order to make relevant "apples-to-apples" comparisons of future surveys to this survey, SAIC would recommend continuation of the same methodologies used in conducting this survey in future surveying efforts.

Section 1
Methodology

1.1 Overview

This section provides an overview of the methodology employed to develop the NCTCOG Regional Recycling Rate Update (2010 Update). SAIC, formerly R. W. Beck, conducted the original NCTCOG Recycling Rate Benchmarking Study (2005 Benchmarking Study) that was finalized in 2007. The purpose of the original study was to develop a baseline recycling rate for NCTCOG's 16-county planning region. This 2010 Update documents progress in the recycling rate on a regional and city-by-city basis.

SAIC, NCTCOG staff and the Time to Recycle (TTR) Subcommittee coordinated during all phases of the project to ensure that the methodology for this 2010 Update would be consistent with the methodology implemented in the 2005 Benchmarking Study. The methodology developed for the 2005 Benchmarking Study was based on the Environmental Protection Agency (EPA) handbook *"Measuring Recycling: A Guide for State and Local Governments."* Any instances where the methodology in the 2010 Update differs from the 2005 Benchmarking Study have been identified and are discussed in this Section.

To maintain consistent methodology, SAIC used the survey instruments from the 2005 Benchmarking Study as the starting point for the development of the survey instruments for the 2010 Update. This section describes SAIC's survey design and modifications for the 2010 Update. SAIC coordinated with NCTCOG staff and the TTR Subcommittee to develop the final survey instruments used for the 2010 Update. A copy of the municipal survey is presented in Appendix B of this report. A copy of the processor survey and confidentiality agreement is presented in Appendix C of this report.

1.2 Survey Design

As previously mentioned, the survey instruments used for the 2005 Benchmarking Study were based on the EPA handbook *"Measuring Recycling: A Guide for State and Local Governments."* SAIC used the survey instruments from the 2005 Benchmarking Study as the basis for the development of the survey instruments for the 2010 Update.

In completing the survey, respondents provided recycling information for the 12 month period from September 2009 to August 2010 (survey time period). If information for this time period was not available, SAIC asked respondents to provide data from the most recent 12 month period for which data was available.

1.2.1 Municipal Survey Design

The municipal survey used for the 2005 Benchmarking Study was designed by NCTCOG to provide detailed insight into municipal recycling. To maintain consistency with the 2005 Benchmarking Study, the municipal survey instrument for the 2010 Update is consistent with the prior survey in the following ways:

- **Material Types** – The 2010 Update survey includes the same materials that were included in the survey for the 2005 Benchmarking Study.
- **Units of Measure** – Both surveys allowed for respondents to provide recycling data by volume or weight. SAIC converted all material reported in volume to weight using the conversion factors shown in Appendix E.
- **Processor Information** – In an effort to avoid double counting of recyclable material, the municipal surveys requested that cities identify the facility to which each material was transported for processing.
- **Disposal Data** – The final page of the municipal residential and municipal ICI survey requested residential and ICI disposal data. SAIC utilized this data to calculate the municipal recycling rate, as discussed in Section 2.

In an effort to enhance the survey instrument for the 2010 Update, SAIC made the following modifications from the original survey instrument:

- **Electronic Format** – The primary format in which SAIC distributed the survey instrument was a PDF (the survey for the 2005 Benchmarking Study was distributed via mail). NCTCOG staff posted the survey on its website and SAIC also e-mailed the survey instrument to respondents when needed. Respondents could complete the writable PDF electronically or print and complete it by hand to return via fax or e-mail.
- **Historical Program Information** – The first page of the residential survey included questions regarding any changes that had been made to the residential recycling program since the 2005 Benchmarking Study survey time period of September 2004 to August 2005.
- **Curbside Program Information** – SAIC asked that respondents report data from curbside recycling programs separately from other recycling programs. In addition, SAIC requested that respondents provide information on basic program characteristics, such as container size and collection frequency.
- **Separate Survey for ICI Data** – Based on lessons learned from the 2005 Benchmarking Study, SAIC anticipated that the number of cities that would report ICI data would be relatively small. As such, SAIC separated the ICI survey into a separate form to reduce the size of the document that would need to be completed by the majority of cities. A total of 11 cities out of the 81 surveyed provided ICI data in response to the survey.
- **Collection Method** – For materials that are not collected through basic curbside recycling programs (e.g. yard trimmings, household hazardous waste), SAIC

requested that respondents provide information on how materials are collected. Collection method options included: curbside, event, drop-off, and other.

1.2.2 Processor Survey Design

Consistent with the 2005 Benchmarking Study, SAIC surveyed area processors to understand the quantity of recyclable materials processed in the North Central Texas region. The survey instrument used for the 2010 Update was consistent with the survey from the 2005 Benchmarking Study in the following ways:

- **Material Types** – The 2010 Update survey includes the same materials that were included in the survey for the 2005 Benchmarking Study.
- **Units of Measure** – Both surveys allowed for respondents to provide recycling data by volume or weight. SAIC converted all material reported in volume to weight using the conversion factors shown in Appendix E.
- **Residential and ICI Data** – SAIC asked that processors identify whether materials reported in the survey were generated from residential or commercial sources.
- **Point of Generation –** The survey requested that the processors provide detail on the geographic location where the reported recyclable material was generated. However, SAIC found that very few processors were able to provide recycling data on a zip code or county-by-county basis because this information is not typically tracked by collection location. For this reason, all recycling data from the processor survey is presented within this report on an aggregated, regional basis.
- **Confidentiality** – SAIC assured participating processors that responses provided by survey respondents would remain confidential and that no individual processor's survey response would be provided to NCTCOG. The goal of this assurance of confidentiality was to increase participation in the processor survey. The confidentiality extended by SAIC throughout the surveying process was critical to achieving the participation of the participating processors. Upon request, SAIC provided processors with a Confidentiality and Non-Disclosure Agreement, an example of which can be found in Appendix C.

In an effort to enhance the survey instrument for the 2010 Update, SAIC made the following modifications from the original survey instrument:

- **Electronic Format** – The primary format in which SAIC distributed the survey instrument was a PDF. NCTCOG staff posted the survey on its website and SAIC also e-mailed the survey instrument to respondents when needed. Respondents could complete the writable PDF electronically or print and complete it by hand to return via fax or e-mail.

1.3 Municipal Survey Execution

1.3.1 Survey Distribution

SAIC worked with NCTCOG staff to develop the list of municipalities to include in the survey. Consistent with the 2005 Benchmarking Study, municipalities with a population greater than 7,000 were included in the survey for the 2010 Update. Due to population increases, the number of municipalities increased from 70 cities in the 2005 Benchmarking Study to 81 cities for the 2010 Update.

Table 1-1
Cities Included in Municipal Survey

1. Addison	22. Duncanville	43. Irving	64. Rockwall
2. Allen	23. Ennis	44. Kaufman*	65. Rowlett
3. Anna*	24. Euless	45. Keller	66. Royse City*
4. Arlington	25. Fairview*	46. Lake Dallas*	67. Sachse
5. Azle	26. Farmers Branch	47. Lancaster	68. Saginaw
6. Balch Springs	27. Flower Mound	48. Lewisville	69. Sanger*
7. Bedford	28. Forest Hill	49. Little Elm	70. Seagoville
8. Benbrook	29. Forney	50. Mansfield	71. Southlake
9. Burleson	30. Fort Worth	51. McKinney	72. Stephenville
10. Carrollton	31. Frisco	52. Mesquite	73. Terrell
11. Cedar Hill	32. Garland	53. Midlothian	74. The Colony
12. Cleburne	33. Glenn Heights	54. Mineral Wells	75. Trophy Club
13. Colleyville	34. Granbury*	55. Murphy	76. University Park
14. Commerce	35. Grand Prairie	56. N. Richland Hills	77. Watauga
15. Coppell	36. Grapevine	57. Plano	78. Waxahachie
16. Corinth	37. Greenville	58. Prosper*	79. Weatherford
17. Corsicana	38. Haltom City	59. Red Oak*	80. White Settlement
18. Crowley	39. Heath*	60. Richardson	81. Wylie
19. Dallas	40. Highland Park	61. Richland Hills	
20. Denton	41. Highland Village	62. River Oaks	
21. DeSoto	42. Hurst	63. Roanoke*	

* These cities were not included in the 2005 Benchmarking Study.

Using the contact information from the 2005 Benchmarking Study as a starting point, SAIC updated the contacts for each city and distributed a survey notice by e-mail on November 2, 2010. NCTCOG staff posted the surveys and accompanying instructions on the NCTCOG website. The e-mail distributed by SAIC included a link to the location of the surveys online. SAIC instructed recipients to complete the survey electronically and e-mail back to a designated SAIC contact person. However, SAIC indicated in the e-mail and in the instructions that completed surveys could also be returned by U.S. mail or fax. The initial survey deadline was November 30, 2010.

1.3.2 Follow Up

After the initial deadline of November 30, 2010, SAIC and NCTCOG set a second deadline of February 28, 2011 to allow cities more time to complete the survey. After the passing of the extended deadline, there were 21 cities that remained unresponsive. SAIC contacted these remaining cities by e-mail and phone to ensure the survey was received and the city was aware of the deadline. In addition, NCTCOG provided a written request for participation to the unresponsive cities. These follow-up efforts resulted in the receipt of 11 additional surveys.

1.3.3 Data Clarification

SAIC staff employed extensive efforts to contact cities with responses that were incomplete or needed clarification. In fact, 55 of the 71 municipal responses required clarification through phone calls, e-mails and other available information (e.g. municipal website). The following types of information are clarifications that were made through these efforts:

- Curbside program information, such as container size and collection frequency;
- Clarify whether tonnage was provided in gross or net weight;
- Clarify processor of materials;
- Clarify collection method for materials; and
- Unit of measure (Tons, Pounds, Cubic Yards) not indicated.

1.3.4 Municipal Response Rate

SAIC classified the following as survey responses:

- Cities that submitted a completed survey to SAIC;
- Cities that confirmed they have a recycling program, but data is not available; and
- Cities that confirmed they do not have a recycling program in place.

Overall Response Rate

By the initial deadline of November 30, 2010, 26 percent of the municipalities surveyed had submitted a survey response. After the second deadline of February 2011, SAIC received a total of 60 municipal survey responses for a response rate of 74 percent. SAIC followed up with the remaining unresponsive cities after the February 2011 deadline and obtained 11 additional surveys. A total of 71 cities responded to the survey, representing 87.7 percent of the cities surveyed. The 71 responses received represents 97.3 percent of the population included in the survey. Table 1-2 summarizes the survey response rate.

Table 1-2
Municipal Surveying Response Rate

Response Rate	Number of Cities	Population
Responses Received	71	5,493,911
Total Cities Surveyed	81	5,646,872
Response Rate	87.7%	97.3%

Source of Responses

As previously discussed, a total of 71 cities responded to the municipal survey. SAIC has categorized the unresponsive cities by the city's responsiveness to the 2005 Benchmarking Study. Table 1-3 provides a detailed summary of the sources of these survey responses.

Table 1-3
Municipal Survey Response Detail Summary

Source of Response	Number of Cities	Percent of Total Cities	Population Represented	Percent of Population
Total Cities Surveyed	81	100%	5,646,872	100%
Responsive Cities				
Data Provided by City	69	84.0%	5,468,481	96.8%
Data Provided by Hauler	1	1.2%	10,769	0.2%
Data Provided by Other Source [1]	1	1.2%	14,661	0.3%
Unresponsive Cities				
Unresponsive in 2005 Benchmarking Study	2	2.5%	42,241	0.7%
Responded in 2005 Benchmarking Study	5	7.4%	88,721	1.6%
Not Included in 2005 Benchmarking Study	3	3.7%	21,999	0.4%

1. Other Source was the Kaufman County Environmental Co-op.

Data Received

The municipal survey requested residential and ICI recycling data as well as residential and ICI disposal data. Of the 71 cities that submitted survey responses, Table 1-4 shows the number of cities for which SAIC received different types of data requested by the survey.

Table 1-4
Data Received from Municipal Survey Responses

	Residential Data	ICI Data
Recycling Data	65	11
Disposal Data	39	5

1.4 Processor Survey Execution

1.4.1 Survey Distribution

SAIC worked with NCTCOG staff to compile a list of recycling processors within the 16-county North Central Texas region for the 2005 Benchmarking Study. This list included processors of primary MSW, other MSW, and C&D recyclable materials. In the 2010 Update, NCTCOG provided direction to SAIC to focus survey efforts on processors of primary MSW recyclables, as in the 2005 Benchmarking Study. For the purposes of this study, primary MSW processors were defined as private companies that process one or more of the following materials:

- Food Waste
- Glass
- Metals
- Paper
- Plastics
- Textiles
- Wood
- Yard Trimmings

SAIC distributed the processor survey after the majority of the municipal survey responses had been completed so that the processors indicated in the municipal responses could be added to the list of processors to be contacted. Of the processors contacted in the 2005 Benchmarking Study, SAIC identified 58 primary MSW processors as contacts for the 2010 Update. SAIC eliminated processors from the survey list due to discontinued operations, mergers and the type of material processed. Municipalities identified four additional processors in municipal survey responses which SAIC included in the survey list. Table 1-5 describes changes to the list of processors to be surveyed.

Table 1-5
List of Processors Surveyed

	Number of Processors
Initial List of Processors	58
Less: Eliminated Processors	
Discontinued Operations	(5)
Sold to Other Processors Surveyed	(5)
Do Not Recycle Primary MSW	(2)
Plus: Newly Identified Processors	4
Final List of Processors	50

SAIC e-mailed the survey link to each of the 50 processors on the final list in January 2011. SAIC asked that survey respondents return the completed survey via U.S. mail, electronic mail or electronic facsimile no later than February 28, 2011. Each survey included contact information for SAIC in the event that a respondent had any questions.

1.4.2 Follow Up

In order to obtain a high response rate from processors, SAIC placed multiple follow up calls. SAIC confirmed the receipt of the survey by the processors and assured processors of the confidentiality of their data, as described in Section 1.2.2. In certain cases, SAIC accepted data in the processor's internal reporting format instead of the survey format to encourage participation.

As of the initial deadline of February 28, 2011, eight percent of the processors surveyed had submitted a survey response. In order to increase the survey response rate, SAIC placed several hundred follow-up phone calls with previously unresponsive processors. These efforts led to a significant increase in the response rate between the initial survey deadline and the final survey deadline of April 8, 2011.

1.4.3 Processor Response Rate

As of the final survey deadline, SAIC had received 27 completed surveys for a survey response rate of 54 percent. SAIC would like to express appreciation for the companies that participated in the processor survey. These companies are not identified in this report to protect the confidentiality of data provided.

A total of four companies refused to complete the survey. These companies communicated verbally to SAIC that they would not participate in the survey. These four companies expressed that they were either 1) too busy to complete the survey or that 2) they would not complete the survey unless required by law. The four companies that refused to participate in the survey, as listed below, also refused to participate in the 2005 Benchmarking Study.

- Dallas Recycling
- Garland Steel
- Jack's Recycling
- Recycle to Conserve TX, Inc.

There were 19 processors that did not respond to the survey, as listed below. These companies verbally communicated to SAIC that they were planning to respond, but were ultimately unresponsive to repeated requests for participation.

- Bluebonnet Waste Control
- Champion Waste
- Cyclone Aluminum and Steel
- Dlubak Glass
- Fulton Recycling
- Gold Metal Recyclers
- Granbury Welding Metals
- Greenstar
- International Paper
- Living Earth Technologies
- New Phoenix Metal
- North Main Recycling
- Pioneer Paper Stock
- Recall
- Jericho Demo
- Republic Services
- Shred-It Dallas
- Silver Creek
- Strategic Materials

In speaking with unresponsive companies, SAIC documented several reasons for non-responsiveness, including:

- Non-responsiveness to repeated phone calls;
- Verbally expressed intent to complete the survey but did not complete by the extended deadline;
- Too busy; and
- Data quality concerns (lack of scales).

Table 1-6 provides a summary of responses to the processor survey.

Table 1-6
Private Processor Survey Responses

Response Rate	Number of Processors	Percent of Processors
Refused to Participate	4	8.0%
Unresponsive Processors	19	38.0%
Responsive Processors	27	54.0%
Total Processors	50	100%

1.5 Analysis

SAIC compared recyclable tonnage totals to total regional MSW generation to determine residential, ICI, and overall recycling rates within the North Central Texas region. In calculating total MSW disposal within the North Central Texas region, SAIC excluded MSW that was imported into the region and included MSW that was generated in the region and then exported for disposal.

SAIC requested data in four separate forms of measurement; tons, pounds, cubic yards and gallons. SAIC accepted quantities of recyclables in terms of volume and weight to encourage the collection of the most data available. SAIC used available conversion factors to convert all data provided to tons. Conversion factors used for the 2010 Update are shown in Appendix E.

Surveying cities and processors can result in 'double counting' of materials. SAIC took the necessary steps to eliminate potential double counting of recyclable materials reported. Identifying where all reported materials were processed enabled SAIC to account for any material reported by both municipalities and processors.

Table 1-7 illustrates the methodology of how SAIC eliminated double counting in calculating the North Central Texas recycling rate. A narration of the first column in Table 1-7 is also provided below.

- City W reported that 20 tons of glass was sent to Processor A during the survey time period.
- City Y reported 10 tons of glass was sent to Processor A during the survey time period.

- Processor A reported that during the survey time period they processed 500 tons of glass from the North Central Texas region.

The 20 tons City W and 10 tons City Y sent to be processed at Processor A is included in the 500 tons reported by Processor A. City W's 20 tons and City Y's 10 tons will not be reported for the regional recycling rate, with the understanding that both city's reported tons are included in Processor A's 500 tons. To eliminate counting City W's 20 tons and City Y's 10 tons twice, Processor A's 500 tons will be the amount reported as part of the regional recycling rate.

Table 1-7
Methodology to Eliminate Double Counting

	Processor A	Processor B	Processor C	Processor Unknown
Total Reported by Processor	500	0	300	N/A
City W	20	130	0	500
City X	0	0	200	20
City Y	10	0	150	0
City Z	0	200	0	10
Total Reported by City	30	330	350	530
	500>30	0<300	300<350	N/A<530
Total Included in Regional Recycling Rate	500	330	350	530

This method allowed SAIC to eliminate the 'double counting' of 46,949 tons of residential recyclables and 9,682 tons of ICI recyclables.

In some cases, the reporting city did not know the processor of material. Cities were unable to identify a processor for 201,411 tons of residential recyclables and 24,164 ICI recyclables. For this tonnage, SAIC was unable to eliminate the potential for double counting. With the exception of the 225,575 tons all potential double counting has been eliminated.

1.6 Calculating the Regional Recycling Rate

To determine the regional and city-by-city recycling rates, SAIC followed the methodology used in the 2005 Benchmarking Study. The methodology for the recycling rate calculation is based on the EPA handbook *"Measuring Recycling: A Guide for State and Local Governments."* The formula used to calculate the regional and city-by-city recycling rates is as follows:

$$\text{MSW Recycling Rate (\%)} = \frac{\text{MSW Recycled}}{\text{MSW Recycled} + \text{MSW Disposal}} * 100$$

Section 2
Data Analysis

2.1 Overview

This section describes how SAIC utilized data collected in the municipal survey and the processor survey to calculate residential, ICI and overall recycling rates for the North Central Texas region. SAIC also describes the methodology for calculating residential and ICI disposal. In addition, SAIC summarizes total residential and ICI recycling on a material-by-material basis. SAIC would mention that the methodology described in this section is primarily based on the methodology that SAIC originally developed to complete the 2005 Benchmarking Study.

2.2 Disposal Data

The following subsections describe how SAIC utilized data collected from the municipal survey as well as landfills located in the North Central Texas region to determine total residential and ICI disposal for the survey time period.

2.2.1 Methodology Overview

SAIC collected data from the 22 landfills in the North Central Texas region in order to calculate total MSW disposal by the region for the survey time period. In addition to landfills inside the region, SAIC gathered data from the four landfills that border the North Central Texas region to account for waste that may have been generated from within the region and exported for disposal outside of the region. However, in order to calculate residential and ICI recycling rates, SAIC needed to determine how much of this total regional disposal was generated from residential sources and how much was generated from ICI sources.

SAIC used data provided by the Texas Commission on Environmental Quality (TCEQ) to determine how much waste was disposed at each landfill during the survey time period in the following categories; residential, ICI and C&D. Through verbal surveying of the landfills identified SAIC determined how much of the waste from each landfill was generated in the region.

Of the cities that responded to the municipal survey, 39 provided residential disposal information. SAIC extrapolated the disposal data for the cities that did not submit MSW data in response to the municipal survey, based on the number of households in each city. In addition, SAIC extrapolated ICI data for cities that submitted ICI recycling data but did not provide ICI disposal data.

2.2.2 Landfill Data

SAIC utilized disposal data from the 22 landfills in the North Central Texas region in order to determine total regional disposal for the survey time period. SAIC obtained landfill disposal information from the annual reports that each facility is required to submit to the TCEQ. Table 2-1 presents total disposal from each of the landfills within North Central Texas during the survey time period.

Table 2-1
Total MSW Disposal from North Central Texas Landfills

Landfill	Tons Disposed	Landfill	Tons Disposed
121 Regional Disposal Facility	625,487	IESI Ft. Worth C&D Landfill	381,043
Camelot Landfill	264,347	IESI Weatherford Landfill	168,654
City of Garland Landfill	269,521	Hunter Ferrell Landfill	184,002
Arlington Landfill	857,469	Lewisville Landfill	162,189
City of Cleburne Landfill	-	McCommas Bluff Landfill	1,325,176
City of Denton Landfill	134,876	McKinney Landfill	-
Coriscana Regional Landfill	66,133	CSC Disposal Landfill	42,348
DFW Landfill	1,027,194	Republic Maloy Landfill	104,835
ECD Landfill	42,662	Skyline Landfill	727,180
Southeast Landfill	263,108	Stephenville Municipal Landfill	1,821
City of Grand Prairie Landfill	162,493	IESI Turkey Creek Landfill	274,851
		Total Regional Disposal	7,085,388

Table 2-1 shows total disposal in the North Central Texas region. However, in order to calculate the regional recycling rate, SAIC needed to determine how much of this disposal was generated in the North Central Texas region. SAIC contacted each landfill within the North Central Texas region to determine the amount of waste that was imported into that landfill from outside of the North Central Texas region. In addition, SAIC contacted each landfill in counties adjacent to the 16-county North Central Texas region to determine if any North Central Texas waste was exported for disposal outside of the region. Using the additional information gathered from the landfills, SAIC calculated total disposal for the North Central Texas region.

Table 2-2
North Central Texas MSW Disposal

	Residential Disposal	ICI Disposal
Waste Disposed within North Central Texas [1]	2,529,233	4,556,155
Less: Waste Imports		
Disposal in North Central Texas that Originated Outside of the Region	(21,398)	(35,856)
Plus: Waste Exports		
Disposal in Landfills outside of North Central Texas that Originated Within the Region	4,872	2,750
North Central Texas MSW Disposal	2,512,707	4,523,049

1. See Table 2-1 (2,529,233+4,556,155=7,085,388)

Landfill operators consider waste import and export information to be proprietary. In order to keep the import and export data of each landfill confidential, this report shows this information on an aggregated basis. Table 2-2 shows SAIC's calculation of North Central Texas MSW Disposal net of waste imports and exports.

2.2.3 Residential Disposal Data Availability

Of the 81 cities that were included in the municipal survey, 45 provided residential disposal data in response to the survey. Of the 45 cities that provided SAIC with disposal data six were excluded as outliers due to substantially higher or lower than average reported disposal, resulting in disposal data for 39 cities. These 39 cities represent 78.5 percent of the population of the cities that were included in the survey. Table 2-3 shows the populations and reported disposal of the cities that provided residential disposal information.

Table 2-3
Reported Municipal Disposal
September 2009-August 2010

City	2010 Population	% of Total [1]	Reported Disposal	City	2010 Population	% of Total [1]	Reported Disposal
Addison	13,056	0.2%	1,465	Grand Prairie	175,396	3.1%	57,054
Allen	84,246	1.5%	21,946	Grapevine	46,334	0.8%	22,018
Anna	8,249	0.1%	2,080	Greenville	25,557	0.5%	11,344
Arlington	365,438	6.5%	124,098	Haltom City	42,409	0.8%	13,180
Azle	10,947	0.2%	4,740	Heath	6,921	0.1%	3,041
Burleson	36,690	0.6%	10,893	Highland Village	15,056	0.3%	5,895
Cedar Hill	45,028	0.8%	13,376	Irving	216,290	3.8%	46,012
Colleyville	22,807	0.4%	12,074	Lewisville	95,290	1.7%	27,179
Coppell	38,659	0.7%	13,967	Mesquite	139,824	2.5%	46,274
Corinth	19,935	0.4%	8,297	Murphy	17,780	0.3%	6,080
Corsicana	23,770	0.4%	9,787	Plano	259,841	4.6%	64,540
Dallas	1,197,816	21.2%	257,174	River Oaks	7,427	0.1%	4,258
Denton	113,383	2.0%	22,392	Royse City	9,349	0.2%	2,808
Duncanville	38,524	0.7%	13,044	Southlake	26,575	0.5%	15,834
Euless	51,277	0.9%	14,330	Terrell	15,816	0.3%	5,773
Farmers Branch	28,616	0.5%	17,736	The Colony	36,328	0.6%	10,312
Flower Mound	34,669	0.6%	23,875	University Park	23,068	0.4%	8,580
Fort Worth	741,206	13.1%	235,172	Waxahachie	29,621	0.5%	8,126
Frisco	116,989	2.1%	31,723	Weatherford	25,250	0.4%	8,951
Garland	226,876	4.0%	67,529				
				Total	4,432,313	78.5%	1,272,956

1. Shows each city's population as a percentage of the total population in the 81 cities surveyed.

2.2.4 Residential Disposal Data Extrapolation

SAIC extrapolated residential disposal data for those cities that did not report disposal data in response to the municipal survey. SAIC used the following calculation to extrapolate disposal for these cities.

Table 2-4
Calculation to Find Disposal to be Extrapolated

Remaining tons to be Extrapolated	=	Residential MSW Disposal [1]	-	Disposal Reported by Cities [2]
1,239,751	=	2,512,707[1]	-	1,272,956 [2]

1. Shown in Table 2-2
2. Shown in Table 2-3

The result of this calculation (1,239,751 tons) is the tonnage generated by cities that did not report disposal. SAIC distributed the tonnage among the cities with unknown disposal based on the number of single family residents in each city, based on data acquired from the U.S. Census Bureau. In addition, SAIC extrapolated disposal for the population of the regional that does not reside within the 81 cities surveyed, shown in the category 'Unrepresented Area'. Table 2-5 shows extrapolated disposal for all cities.

Table 2-5
Residential Disposal Data Extrapolated

City	Single-Family Residents	Extrapolated Disposal (tons)		Single-Family Residents	Extrapolated Disposal (tons)
Balch Springs	18,940	12,516	McKinney	104,715	69,198
Bedford	30,736	20,311	Midlothian	14,242	9,412
Benbrook	13,892	9,180	Mineral Wells	13,916	9,196
Carrollton	88,756	58,652	N. Richland Hills	49,657	32,814
Cleburne	26,609	17,584	Prosper	8,564	5,659
Commerce	5,352	3,537	Red Oak	9,016	5,958
Crowley	12,310	8,135	Richardson	74,711	49,370
DeSoto	39,290	25,964	Richland Hills	6,700	4,428
Ennis	16,681	11,023	Roanoke	3,427	2,264
Fairview	6,919	4,572	Rockwall	31,795	21,011
Forest Hill	12,002	7,931	Rowlett	54,907	36,284
Forney	12,501	8,261	Sachse	19,823	13,099
Glenn Heights	7,874	5,203	Saginaw	18,466	12,203
Granbury	5,914	3,908	Sanger	5,481	3,622
Highland Park	7,251	4,792	Seagoville	10,925	7,219
Hurst	28,685	18,956	Stephenville	12,864	8,501
Kaufman	5,972	3,946	Trophy Club	7,439	4,916
Keller	29,060	19,203	Watauga	23,273	15,379
Lake Dallas	5,376	3,552	White Settlement	13,430	8,874
Lancaster	28,922	19,112	Wylie	29,564	19,536
Little Elm	16,134	10,662	Unrepresented Areas	893,078	590,162
Mansfield	50,913	33,644			
			Total Extrapolated Disposal		1,239,751

SAIC used the extrapolated city disposal to calculate the city residential recycling rates for cities that did not report disposal.

2.2.5 ICI Disposal

For the purposes of this analysis, SAIC utilized the ICI tonnage of waste generated from the North Central Texas region to calculate the regional ICI recycling rates. The total ICI disposal generated in the region for the survey time period is 4,523,049, shown in Table 2-2.

SAIC calculated ICI recycling rates only for cities that provided ICI recycling data. As seen in Table 2-6, five out of the 11 cities that responded to the ICI survey provided ICI disposal data. The cities that provided ICI disposal data are:

- Cleburne
- Denton
- Garland
- Grapevine
- Plano

To estimate ICI disposal for cities that did not report disposal, SAIC calculated the disposal amount using the following method. SAIC used the number of employees reported for each city from the 2000 Census to determine the percentage of employees in the region represented by each city. SAIC applied the percentage each city represented of the total employment in all 16 counties to the total ICI disposal generated in the region. Reported and extrapolated disposal information for cities that responded to the ICI survey is shown in Table 2-6.

Table 2-6
ICI Disposal Data

City	Disposal (tons)	City	Disposal (tons)
Cleburne*	26,409	Grapevine	46,165
Denton	62,796	Mansfield *	18,165
Duncanville*	22,673	McKinney *	33,225
Forney *	3,561	Plano	136,447
Garland	36,940	Richardson *	62,497
Grand Prairie*	76,592		

*Disposal is extrapolated

2.3 Residential Recycling

2.3.1 Recycling By Material

The municipal recycling survey requested recycling data for three categories of materials: primary MSW recyclables, other MSW recyclables, and C&D recyclables. This subsection describes residential recycling of these materials as reported by participating cities and processors in the survey.

Primary Municipal Solid Waste

Table 2-7 summarizes residential recycling of primary MSW recyclable materials.

Table 2-7
Reported Residential Recycling of Primary MSW
September 2009- August 2010

Material	Tons	Material	Tons	Material	Tons
Metals		**Plastics**		**Organics**	
Aluminum Cans	2,511	PETE (#1)	5,639	Brush and Branches	161,806
Tin/ Steel Cans	3,128	HDPE Natural (#2)	1,987	Grass	4,124
Major Appliances	395	HDPE Colored (#2)	1,985	Leaves	3,885
Other Ferrous	16,581	PVC (#3)	-	Tree Stumps	-
Other Nonferrous	2,640	LDPE (#4)	-	Mixed Yard Trimmings	106,838
Mixed Metals	5,557	PP (#5)	-	Food Waste	-
Subtotal	30,812	PS (#6)	-	**Subtotal**	276,653
Paper		Other (#7)	167	**Wood Packaging**	
Old Magazines	64	Mixed Plastic	3,026	Wood Packaging	-
Old Newspaper	67,574	Other Plastic	5	Other Wood	11,349
OCC	31,249	**Subtotal**	12,809	**Subtotal**	11,349
Office Paper	366	**Glass**		**Other**	
Telephone Directories	348	Clear Glass	3	Commingled	89,030
Mixed Paper	29,659	Amber Glass	15	Textiles	34
Subtotal	129,260	Green Glass	2	**Subtotal**	89,065
		Mixed Glass	22,269		
		Subtotal	22,289		

Other Municipal Solid Waste

Table 2-8 summarizes residential recycling of other MSW recyclables.

Table 2-8
Residential Recycling of Other MSW
September 2009- August 2010

Material	Tons	Material	Tons
HHW		Other	
Cleaning Supplies	12	Consumer Electronics	859
Painting Supplies	360	Tires	903
Used Oil	127	Other	35
Antifreeze	9	Subtotal	1,797
Lead Acid Batteries	23		
Household Batteries	21		
Other HHW	520		
Subtotal	1,071		

Construction and Demolition Waste

Table 2-9 summarizes residential recycling of C&D recyclables.

Table 2-9
Residential Recycling of C&D
September 2009- August 2010

Material	Tons
Asphalt	3,158
Concrete	2,394
Metals	-
Natural Disaster Debris	390
Wood	7
Other C&D	6,913
Subtotal	12,862

Materials Summary

Table 2-10 provides a summary by material of total residential recycling in the North Central Texas region from the 2010 Update and the 2005 Benchmarking Study.

Table 2-10
Residential Recycling Summary

September 2004 to August 2005			September 2009 to August 2010		
Material	Tons	% of Total	Material	Tons	% of Total
Primary MSW			Primary MSW		
Metals	10,604	3.1%	Metals	30,812	5.2%
Paper	136,368	39.5%	Paper	129,260	22.0%
Plastic	9,001	2.6%	Plastic	12,809	2.2%
Glass	11,507	3.3%	Glass	22,289	3.8%
Organics	148,761	43.1%	Organics	276,653	47.1%
Wood	545	0.2%	Wood	11,349	1.9%
Other	25,647	7.4%	Other	89,065	15.1%
Other MSW			Other MSW		
HHW	968	0.3%	HHW	1,071	0.2%
Consumer Electronics	199	0.1%	Consumer Electronics	859	0.1%
Tires	1,110	0.3%	Tires	903	0.2%
Other	0	0.0%	Other	35	0.0%
C&D	129	0.0%	C&D	12,862	2.2%
Total Residential Recycling	344,839	100%	Total Residential Recycling	587,967	100.0%

2.3.2 North Central Texas Residential Recycling Rate

Based on the disposal data analysis and the total residential recycling tonnage shown in Table 2-10, SAIC calculated that the North Central Texas residential recycling rate is 19.0 percent. The calculation is shown in Table 2-11.

Table 2-11
North Central Texas Regional Residential Recycling Rate
September 2009-August 2010

Residential Generation	Tons
Recycling	587,967
Disposal	2,512,707
Total Generation	3,100,673
Residential Recycling Rate	19.0%

2.4 ICI Recycling

2.4.1 Recycling by Material

The ICI and processor recycling surveys requested recycling data for three categories of materials: primary MSW recyclables, other MSW recyclables, and C&D recyclables. This subsection describes residential recycling of these materials as reported by participating cities and processors in the survey.

To eliminate any possibility of material being reported by both municipalities and processors, SAIC eliminated potential 'double counting' by requesting that municipalities report where materials are processed. The methodology of how 'double counting' was removed is described in detail in Section 1.4.

Primary Municipal Solid Waste

Table 2-12 summarizes ICI recycling of primary MSW recyclables.

Table 2-12
ICI Recycling of Primary MSW
September 2009- August 2010

Material	Tons	Material	Tons	Material	Tons
Metals		Plastics		Organics	
Aluminum Cans	2,913	PETE (#1)	2,419	Brush and Branches	16,773
Tin/ Steel Cans	41,180	HDPE Natural (#2)	128	Grass	-
Major Appliances	-	HDPE Colored (#2)	151	Leaves	-
Other Ferrous	235,401	PVC (#3)	653	Tree Stumps	-
Other Nonferrous	250,016	LDPE (#4)	1,062	Mixed Yard Trimmings	18,875
Mixed Metals	1,246	PP (#5)	1,282	Food Waste	3,607
Subtotal	530,756	PS (#6)	576	Subtotal	39,256
Paper		Other (#7)	2,904	Wood Packaging	
Old Magazines	50	Mixed Plastic	8,169	Wood Packaging	3,015
Old Newspaper	11,453	Other Plastic	-	Other Wood	1,340
OCC	409,156	Subtotal	17,343	Subtotal	4,355
Office Paper	38,083	Glass		Other	
Telephone Directories	2,816	Clear Glass	-	Commingled	42,829
Mixed Paper	99,470	Amber Glass	-	Textiles	-
Other Paper	132,471	Green Glass	-	Subtotal	42,829
Subtotal	693,500	Mixed Glass	1		
		Subtotal	1		

Other Municipal Solid Waste

Table 2-13 summarizes ICI recycling of other MSW recyclables.

Table 2-13
ICI Recycling of Other MSW
September 2009- August 2010

Material	Tons	Material	Tons
HHW		Other	
Cleaning Supplies	-	Consumer Electronics	-
Painting Supplies	-	Tires	-
Used Oil	1	Other	242
Antifreeze	-	Subtotal	242
Lead Acid Batteries	-		
Household Batteries	-		
Other HHW	-		
Subtotal	1		

Construction and Demolition Waste

Table 2-14 summarizes ICI recycling of C&D recyclable materials. SAIC focused its processor survey efforts on processors of primary MSW material and did not focus on collecting data from C&D processors. As such, it is likely that the data represented in Table 2-14 is likely lower than actual recycling of C&D materials in the region.

Table 2-14
ICI Recycling of Construction and Demolition Waste
September 2009- August 2010

Material	Tons
Asphalt	3,117
Concrete	29,564
Metals	168
Natural Disaster Debris	24,688
Wood	496
Other C&D	12,358
Subtotal	70,390

Materials Summary

Table 2-15 provides a summary by material of total ICI recycling in the North Central Texas region from the 2010 Update and the 2005 Benchmarking Study.

Table 2-15
ICI Recycling Materials Summary

September 2004 to August 2005			September 2009 to August 2010		
Material	Tons	% of Total	Material	Tons	% of Total
Primary MSW			Primary MSW		
Metals	675,548	52.3%	Metals	530,756	37.9%
Paper	511,374	39.6%	Paper	693,500	49.6%
Plastic	10,503	0.8%	Plastic	17,343	1.2%
Glass	10,781	0.8%	Glass	1	0.0%
Organics	34,701	2.7%	Organics	39,256	2.8%
Wood	1,040	0.1%	Wood	4,355	0.3%
Other	17,270	1.3%	Other	42,829	3.1%
Other MSW			Other MSW		0.0%
HHW	1	0.0%	HHW	1	0.0%
Consumer Electronics	50	0.0%	Consumer Electronics	-	0.0%
Tires	-	0.0%	Tires	-	0.0%
Other	-	0.0%	Other	242	0.0%
C&D	29,194	2.3%	C&D	70,390	5.0%
Total ICI Recycling	1,290,462	100%	Total ICI Recycling	1,398,674	100.0%

2.4.2 North Central Texas ICI Recycling Rate

Based on the disposal data extrapolation analysis discussed in this section and the total ICI recycling tonnage shown in Table 2-15, SAIC calculated that the regional ICI recycling rate is 23.6 percent. The calculation is described in Table 2-16.

Table 2-16
North Central Texas Regional ICI Recycling Rate
September 2009-August 2010

ICI Generation	Tonnage
Recycling	1,398,674
Disposal	4,523,048
Total Generation	5,921,722
ICI Recycling Rate	23.6%

2.5 Regional Recycling Rate

Based on the data collected from the municipal and processor surveys, SAIC calculated an overall regional recycling rate of 22.0 percent. SAIC would note that with a municipal survey response rate of 87.7 percent and a processor survey completion rate of 54.0 percent, it is likely that this recycling rate does not account for all of the recycling activity that is currently taking place in the region. Table 2-16 summarizes SAIC's calculation of the North Central Texas regional residential, ICI, and overall recycling rates.

Table 2-17
North Central Texas Regional Recycling Rates
September 2009-August 2010

	September 2004 to August 2005			September 2009 to August 2010		
Generation	Residential	ICI	Overall	Residential	ICI	Overall
Recycling	344,839	1,290,462	1,635,301	587,967	1,398,674	1,986,641
Disposal	2,477,839	6,245,278	8,722,936	2,512,707	4,523,048	7,035,755
Total Generation	2,822,498	7,535,740	10,358,237	3,100,673	5,921,722	9,022,396
Recycling Rate	12.2%	17.1%	15.8%	19.0%	23.6%	22.0%

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Section 3
Municipal Recycling Analysis

3.1 Overview

This section provides a summary of the municipal residential and municipal ICI recycling rates for the cities that responded to the municipal survey. In addition, SAIC has included further analysis of the data provided by municipalities.

3.2 Residential Recycling Rate Summary

Table 3-1 is a summary of the residential recycling rates calculated by SAIC. The communities are listed alphabetically within ranges.

As shown in the table, SAIC calculated reported recycling rates for 60 cities based on residential recycling information provided in response to the survey. The recycling rate for the remaining 21 cities is unknown because of one of the following reasons:

- They did not respond to the survey; or
- They did respond to the survey and confirmed that a recycling program is in place, but data related to program tonnages is not available.

Table 3-1
Reported Residential Recycling Rates by Municipality
September 2009 – August 2010

0.0% to 4.9% Reported Recycling Rate		5.0% to 9.9% Reported Recycling Rate	
Corsicana	Greenville	Cedar Hill	North Richland Hills
Crowley	Kaufman	Duncanville	Richardson
DeSoto	Lancaster	Euless	Richland Hills
Farmers Branch	Midlothian	Haltom City	Rockwall
Forney	Red Oak	Lewisville	Royse City
Glenn Heights	Weatherford	Mineral Wells	
10.0% to 14.9% Reported Recycling Rate		**15.0% to 19.9% Reported Recycling Rate**	
Azle	Flower Mound	Addison	Stephenville
Benbrook	Grapevine	Arlington	
Carrollton	Little Elm	Cleburne	
Colleyville	Mesquite	Highland Park	
Corinth	Southlake	McKinney	
Fairview		Murphy	
20.0% to 24.9% Reported Recycling Rate		**25.0% to 29.9% Reported Recycling Rate**	
Anna	Heath	Frisco	
Coppell	Irving	The Colony	
Fort Worth	River Oaks		
Garland			
30.0% to 34.9% Reported Recycling Rate		**35.0% or Greater Reported Recycling Rate**	
Allen	Highland Village	Dallas	University Park
Burleson	Terrell	Denton	Waxahachie
Grand Prairie		Plano	
Unknown (Recycling Data Not Available) [1]		**Unknown (Unresponsive to Survey)** [2]	
Bedford	Sachse	Balch Springs	Lake Dallas
Keller	Saginaw	Commerce	Sanger
Mansfield	Trophy Club	Ennis	Seagoville
Prosper	Watauga	Forest Hill	White Settlement
Roanoke	Wylie	Granbury	
Rowlett		Hurst	

1. City responded to survey and confirmed that the city does have a recycling program, but data is not available.
2. City did not respond to the survey.

3.3 Residential Recycling Data Analysis

The following summarizes additional analysis conducted by SAIC with regard to the residential recycling data.

Residential Recycling and Disposal per Household

Table 3-2 provides a summary of residential recycling and disposal per household.

Table 3-2
Residential Recycling and Disposal Per Household (in Lbs/HH)

City	Curbside Program	Organics	Other Recycling	Disposal
Addison	372	-	-	1,922
Allen	599	202	33	1,611
Anna	435	-	-	1,733
Arlington	333	141	150	2,761
Azle	267	-	55	2,707
Balch Springs	-	-	-	3,621
Bedford	-	-	-	3,621
Benbrook	616	-	-	3,621
Burleson	200	732	-	1,806
Carrollton	438	-	-	3,621
Cedar Hill	172	-	2	1,780
Cleburne	-	605	51	3,621
Colleyville	450	-	-	2,927
Commerce	-	-	-	3,621
Coppell	453	255	4	2,415
Corinth	277	-	7	2,336
Corsicana	87	-	-	2,673
Crowley	132	-	-	3,621
Dallas	285	807	69	2,103
Denton	420	535	88	1,809
DeSoto	102	-	-	3,621
Duncanville	173	51	5	2,131
Ennis	-	-	-	3,621
Euless	164	-	3	2,605
Fairview	630	-	-	3,621
Farmers Branch	-	-	55	4,234
Flower Mound	568	-	4	3,989
Forest Hill	-	-	-	3,621
Forney	-	-	34	3,621
Fort Worth	335	312	3	2,360
Frisco	609	143	9	1,835
Garland	100	472	16	2,047
Glenn Heights	-	-	33	3,621
Granbury	-	-	-	3,621
Grand Prairie	141	415	555	2,484
Grapevine	492	-	7	3,605
Greenville	154	-	-	3,195
Haltom City	209	1	9	2,412

City	Curbside Program	Organics	Other Recycling	Disposal
Heath	632	-	-	2,440
Highland Park	699	-	-	3,621
Highland Village	501	528	-	2,155
Hurst	-	-	-	3,621
Irving	127	438	43	2,418
Kaufman	-	-	-	3,621
Keller	-	-	-	3,621
Lake Dallas	-	-	-	3,621
Lancaster	136	1	31	3,621
Lewisville	232	-	17	2,794
Little Elm	580	-	24	3,621
Mansfield	-	-	-	3,621
McKinney	359	58	228	3,621
Mesquite	86	-	236	2,338
Midlothian	130	-	-	3,621
Mineral Wells	-	-	274	3,621
Murphy	412	-	-	1,886
N. Richland Hills	270	-	46	3,621
Plano	467	647	6	1,822
Prosper	-	-	-	3,621
Red Oak	80	-	-	3,621
Richardson	279	-	-	3,621
Richland Hills	73	-	263	3,621
River Oaks	-	937	7	3,281
Roanoke	-	-	-	3,621
Rockwall	265	-	27	3,621
Rowlett	-	-	-	3,621
Royse City	110	-	-	1,952
Sachse	-	-	-	3,621
Saginaw	-	-	-	3,621
Sanger	-	-	-	3,621
Seagoville	-	-	-	3,621
Southlake	431	-	-	3,416
Stephenville	-	-	825	3,621
Terrell	-	1,014	132	2,342
The Colony	475	178	27	1,616
Trophy Club	-	-	-	3,621
University Park	628	1,213	-	2,355
Watauga	-	-	-	3,621
Waxahachie	87	1,421	1	1,869
Weatherford	60	-	-	2,197
White Settlement	-	-	-	3,621
Wylie	-	-	-	3,621

Collection Method for Residential Recyclables

As part of the municipal residential survey, SAIC requested that cities indicate the collection method for reported recyclables. Collection methods included the following:

- **Curbside Program** – Refers to traditional curbside recycling programs that use an open bin or rolling cart to collect materials such as paper, plastic, metal, and glass.
- **Other Curbside Recyclables** – Refers to other materials that are not part of the traditional curbside program but may be collected at the curb, such as yard trimmings and large appliances.
- **Drop-Off** – Refers to materials that are dropped off by residents at a permanent facility for recycling.
- **Event** – Refers to materials that are collected at one-time events. This is a common collection method for household hazardous waste and electronic waste.
- **Other** – Refers to materials for which the collection method does not meet any of the above criteria.

The figure below illustrates the portion of residential recyclables that are collected through the above collection methods according to the survey results. As shown in the pie chart, the vast majority of residential recyclables collected in the region are collected through either traditional curbside programs or other curbside programs. SAIC would note that the majority of the tonnage in the "Other Curbside" category is residential organics (i.e. brush, yard trimmings).

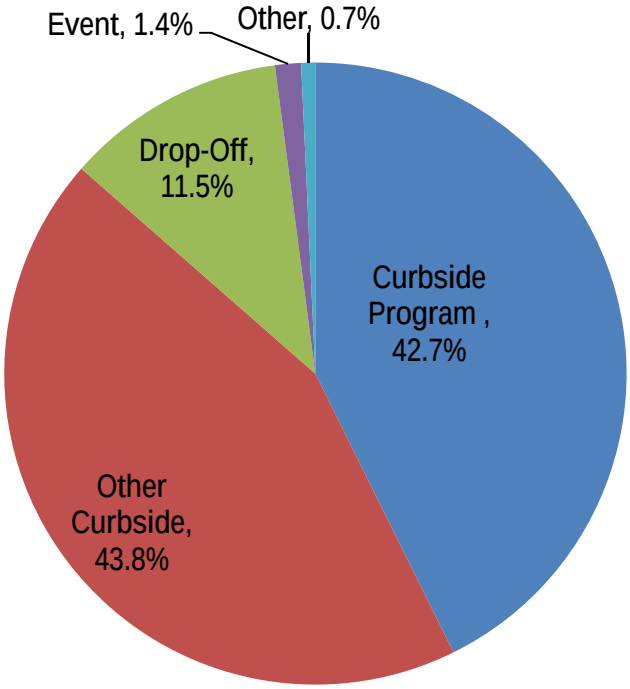

Figure 3-1: Collection Method for Residential Recyclables in North Central Texas

3.4 Curbside Recycling Data Analysis

For the 2010 Update, SAIC requested that survey respondents provide data on curbside recycling separate from other city recycling programs. In addition, respondents provided data regarding program characteristics such as:

- Container type;
- Container size;
- Collection frequency;
- Variable rates; and
- Public education budget.

In this section, SAIC attempts to identify if any of these program characteristics are associated with higher quantities of material recycled through curbside programs.

Program Characteristics Summary

Of the 70 cities that responded to the survey, SAIC has information on program characteristics and curbside pounds per household for 51 cities. SAIC used data from these cities to conduct the following analysis related to curbside recycling.

Table 3-3
Summary of Program Characteristics

City	Container	Size	Frequency	Variable Rates	Curbside Lbs/HH
Addison	Bin	10-22 gal	Weekly	No	372
Allen	Rolling Cart	90-100 gal	Every Other Week	No	599
Anna	Rolling Cart	60-70 gal	Weekly	No	435
Arlington	Bin	10-22 gal	Weekly	No	333
Azle	Bin	10-22 gal	Weekly	No	267
Benbrook	Bin	10-22 gal	Weekly	No	616
Burleson	Bin	10-22 gal	Weekly	No	200
Carrollton	Rolling Cart	90-100 gal	Every Other Week	No	438
Cedar Hill	Bin	10-22 gal	Weekly	No	172
Colleyville	Bin	10-22 gal	Weekly	No	450
Coppell	Rolling Cart	60-70 gal	Weekly	No	453
Corinth	Bin	10-22 gal	Weekly	No	277
Corsicana	Rolling Cart	90-100 gal	Weekly	No	87
Crowley	Bin	10-22 gal	Weekly	No	132
Dallas	Rolling Cart	90-100 gal	Weekly	No	285
Denton	Rolling Cart	60-70 gal	Weekly	Yes	420
DeSoto	Bin	10-22 gal	Weekly	No	102
Duncanville	Bin	10-22 gal	Weekly	No	173
Euless	Bags	30-40 gal	Weekly	No	164

City	Container	Size	Frequency	Variable Rates	Curbside Lbs/HH
Fairview	Rolling Cart	60-70 gal	Weekly	No	630
Flower Mound	Bin	10-22 gal	Weekly	No	568
Fort Worth	Rolling Cart	60-70 gal	Weekly	Yes	335
Frisco	Rolling Cart	90-100 gal	Weekly	No	609
Garland	Bin	10-22 gal	Every Other Week	No	100
Grand Prairie	Bin	10-22 gal	Weekly	No	141
Grapevine	Bin	10-22 gal	Weekly	No	492
Greenville	Bin	10-22 gal	Weekly	No	154
Haltom City	Bin	10-22 gal	Weekly	No	209
Heath	Rolling Cart	60-70 gal	Weekly	No	632
Highland Park	Bin	10-22 gal	Weekly	No	699
Highland Village	Rolling Cart	60-70 gal	Weekly	No	501
Irving	Bags	30-40 gal	Weekly	No	127
Lancaster	Rolling Cart	60-70 gal	Every Other Week	No	136
Lewisville	Rolling Cart	60-70 gal	Every Other Week	No	232
Little Elm	Rolling Cart	90-100 gal	Weekly	No	580
McKinney	Rolling Cart	60-70 gal	Weekly	No	359
Mesquite	Bin	10-22 gal	Weekly	No	86
Midlothian	Bin	10-22 gal	Weekly	No	130
Murphy	Rolling Cart	90-100 gal	Weekly	No	412
North Richland Hills	Bin	10-22 gal	Weekly	No	270
Plano	Rolling Cart	90-100 gal	Every Other Week	Yes	467
Red Oak	Bin	10-22 gal	Weekly	No	80
Richardson	Bags	30-40 gal	Weekly	No	279
Richland Hills	Bin	10-22 gal	Weekly	No	73
Rockwall	Bin	10-22 gal	Weekly	No	265
Royse City	Bin	10-22 gal	Weekly	No	110
Southlake	Bin	10-22 gal	Weekly	No	431
The Colony	Rolling Cart	90-100 gal	Weekly	No	475
University Park	Bin	10-22 gal	Weekly	No	628
Waxahachie	Bin	10-22 gal	Weekly	No	87
Weatherford	Rolling Cart	60-70 gal	Weekly	No	60

Container Type

Table 3-4 shows the average curbside pounds per household for cities with different types of containers. As shown in the table, cities with rolling carts have the highest average pounds per household for their curbside recycling programs. SAIC would expect this is because rolling carts can have three to ten times the capacity of a recycling bin.

Table 3-4
Average Curbside Pounds per Household by Container Type

Container Type	Number of Cities	Average Pounds per Household
Bags	3	190
Bins	28	272
Rolling Carts	20	407

Container Size

Table 3-5 shows the average curbside pounds per household for cities with different container sizes. As shown in the table, the largest container size has the highest average pounds per household. The lowest average pounds per household is the 30-40 gallon size, which are all bag-based programs.

Table 3-5
Average Curbside Pounds per Household by Container Size

Container Size (Type)	Number of Cities	Average Pounds per Household
10-22 gal (Bins)	28	272
30-40 gal (Bags)	3	190
60-70 gal (Rolling Carts)	11	381
90-100 gal (Rolling Carts)	9	439

Collection Frequency

Table 3-6 shows the average curbside pounds per household for cities with varying collection frequencies for rolling carts. Based on industry experience, SAIC understands that many communities consider an every other week collection frequency when a rolling cart is used for curbside recycling. Therefore, the table shows the average pounds per household for different cities with different combinations of container sizes and frequencies.

Table 3-6
Average Curbside Pounds per Household by Container Size

Container Size (Type)	Collection Frequency	Number of Cities	Average Pounds per Household
60-70 gal (Rolling Carts)	Weekly	9	425
60-70 gal (Rolling Carts)	Every Other Week	2	184
90-100 gal (Rolling Carts)	Weekly	6	408
90-100 gal (Rolling Carts)	Every Other Week	3	501

Variable Rates

SAIC calculated the average curbside pounds per household for communities that have variable refuse rates (i.e. pay as you throw). For the purposes of this study, variable

refuse rates are a system in which a customer can pay a lower monthly refuse fee if they elect to have a smaller refuse cart.

Only three communities included in the survey – Denton, Plano, and Fort Worth – had variable refuse rates during the survey time period. These cities have an average curbside recycling of 407 pounds per household. This is higher than the average curbside recycling of 343 pounds per household for the remaining 48 cities included in this analysis.

Public Education

SAIC received information regarding the public education budget for 28 cities. These 28 cities spend an average of $0.79 per household annually on public education related to recycling. SAIC determined that there is a slightly positive correlation between the quantity of material recycled and the city's public education budget. However, because of the limited sample size, this correlation cannot be considered to be statistically significant.

3.4.2 Residential Curbside Findings Summary

Based on the data collected regarding curbside program characteristics in the region, factors that correlate to an increased amount of curbside collection have been identified. The following summary may be useful to cities in the North Central Texas region that are interested in identifying programmatic changes that could assist in efforts to increase recycling rates.

- **Single stream recycling rolling carts yield more material.** Based on the data shown in Table 3-4, rolling carts on average yield 135 more pounds per household annually than bins and 217 more pounds per household annually than bags. This finding is consistent with a national trend among single-stream programs to provide larger containers. Providing larger containers also helps to communicate the importance of a recycling program, as the container size is relatively similar to the size of refuse containers.
- **Larger containers result in larger collection volumes.** Shown in Table 3-5, larger containers on average result in more pounds per household collected. SAIC has generally found that the use of rolling carts (either 60 – 70 gallon or 90 – 100 gallon sizes) allows for sufficient capacity for households to set-out recycling material.
- **Every other week collection can be effective.** Programs implementing every other week collection have reflected more pounds per household are collected when a 90-100 gallon cart is used as compared to a 60-70 gallon cart. The larger 90-100 gallon rolling cart produces on average 317 more pounds per household than the smaller 60-70 gallon cart when collected twice weekly. When a city is considering every other week collection, SAIC would recommend purchase of 90 – 100 gallon carts, as opposed to 60 – 70 gallons carts to minimize the potential for recycling carts reaching capacity. A key reason for every other week collection can be due to collection cost savings.

Cities should also consider a robust public education program to ensure that residents clearly understand the collection schedule.

- **Variable rates can be an effective method to increase recyclable volumes.** Only three cities in the North Central Texas Council of Governments currently have variable rates in place - Denton, Plano, and Fort Worth. These cities have an average curbside recycling of 407 pounds per household. This is higher than the average curbside recycling of 343 pounds per household for the remaining 48 cities included in the analysis. The finding that there is a positive correlation between variable rates and recycling rates is consistent with other research conducted by SAIC. In fact, the greater the gap between container sizes typically results in increased recycling. However, many cities have implemented successful recycling programs without the use of variable rates.
- **There is a slightly positive correlation between the quantity of material recycled and the city's public education budget.** Based on 28 cities that provided public education budget data, SAIC calculated an average of $0.79 per household is annually spent on recycling. A positive relationship was identified between a city's public education budget and curbside recycling volumes; however, because of the limited sample size, this correlation cannot be considered to be statistically significant. Furthermore, since this was only asked as survey question, cities may not have been able to provide a full accounting of all of the costs allocated toward public education.
- **A successful curbside organics program has a large impact on a city's recycling rate.** The 10 cities with the highest recycling rates in the region all have substantial organics collections, with organics making up on average 61 percent of their annual recyclable material. Six of these 10 cities collect organic material through curbside collection. Collecting and recycling organic material has a large impact on a city's recycling rate and the most common collection method is currently curbside collection.
- **Curbside recycling is predominantly single stream programs.** Of the 51 cities that provided curbside program information 92 percent operate single stream recycling programs. Due to the substantial single-stream processing infrastructure that is in place in North Central Texas, SAIC would expect that single-stream will continue to be the primary type of recycling program going forward.

3.5 ICI and Overall Recycling Rate Summary

SAIC calculated the ICI recycling rate and overall recycling rate for 11 cities that provided ICI data. Table 3-8 provides a summary of the ICI and overall recycling rates for these cities.

Table 3-8
ICI and Overall Recycling Rate Summary
September 2009 – August 2010

City	ICI Recycling Rate	Overall Recycling Rate
Cleburne	46.3%	37.1%
Denton	23.2%	27.3%
Duncanville	53.4%	43.4%
Forney	5.2%	2.3%
Garland	1.3%	16.0%
Grand Prairie	17.6%	23.9%
Grapevine	1.9%	5.5%
Mansfield	0.3%	Unknown
McKinney	5.6%	12.2%
Plano	26.5%	30.7%
Richardson	2.5%	4.6%

Section 4
Lessons Learned, Key Findings, and Recommendations

4.1 Overview

This section summarizes SAIC's key findings and recommendations from the 2010 Update. This section also summarizes lessons learned and provides NCTCOG with recommendations on the administration of future survey updates.

4.2 Municipal Participation

The response rate from the municipalities was very strong. In fact, only 10 cities, which account for approximately 2.7 percent of the surveyed population, did not participate in the survey. The remaining 71 cities, which comprise 97.3 percent of the surveyed population, responded to the municipal survey. Following are SAIC's key findings and recommendations regarding the municipal response to the survey.

1. The response rate that SAIC achieved for the 2010 Update was similar to the municipal response rate for the 2005 Benchmarking Study. However, the 2010 Update required much less follow-up on the part of SAIC than the 2005 Benchmarking Study. In fact, SAIC found that the surveyed cities were very responsive and cooperative during the survey process. This improved responsiveness may be attributable to recognition of the importance of the regional recycling rate study.
2. Many cities were familiar with the 2005 Benchmarking Study. Also, SAIC was able to refer cities to the 2005 Benchmarking Study report when explaining the 2010 Update study to new participants. SAIC would expect that the continued, regular administration of the recycling rate survey by NCTCOG will result in strong participation by municipalities for future updates.
3. Electronic administration of the survey had a positive impact on participation. SAIC sent e-mail messages to the cities reminding them to participate in the survey. A small number of cities had technical difficulties completing the survey electronically; however, the vast majority of cities were able to complete and return the survey without problems.
4. After the initial survey deadline passed, NCTCOG staff communicated directly with cities regarding the importance of participating in the survey. Specifically, they communicated that a city's participation or non-participation in the survey could be considered in the future as part of the Solid Waste Grants Program application process. SAIC believes that NCTCOG should continue to incentivize participation in future surveys by considering it as part of the evaluation criteria for award of grants through the Solid Waste Grants Program.

5. In conducting the 2005 Benchmarking Survey, SAIC found that many cities did not have access to their community's recycling data from a private hauler. In fact, SAIC assisted over 30 cities in attempting to obtain recycling data from their private haulers or processors. In the 2010 Update, SAIC found that only 15 cities were unable to obtain data from their private haulers or processors. The improved availability of recycling data was a key recommendation from the 2005 Benchmarking Study that has been implemented in the region.
6. While participation in the survey was strong, SAIC found that the majority of cities do not have information on ICI recycling. Only 11 of the 71 responsive cities provided information on ICI recycling for their communities.

4.3 Processor Participation

The processor response rate to the 2010 Update survey was 54 percent. SAIC encountered considerable resistance from private processors in administering the survey. In fact, the response rate achieved by SAIC during the 2010 Update was lower than the response rate achieved in the 2005 Benchmarking Study.[1] Following are SAIC's key findings and recommendations regarding the processor response to the survey.

7. Many processors expressed to SAIC that they lacked sufficient incentive to participate in the survey. Since the survey is not required by law and since private companies cannot participate in the Solid Waste Grant Program through NCTCOG, many processors expressed to SAIC that they considered the 2010 Update survey to be a very low priority. Many processors did not respond to the survey after multiple months of weekly follow up by SAIC.
8. SAIC observed that most processors do not track recycling information in a manner that is consistent with the methodology of the 2010 Update and 2005 Benchmarking Study. For instance, both surveys requested that processors identify whether material was residential or commercial. However, many processors do not record the type of generator for recyclable material. In addition, most processors do not record source of recyclable material (i.e., in what city was material generated).
9. Confidentiality was critical for participation of those companies that provided survey responses. As such, SAIC would recommend that NCTCOG continue to utilize a third-party surveyor for the conduct of future surveys.
10. Based on discussions with NCTCOG staff and members of the TTR subcommittee, SAIC identified processors that did not participate in Section 2.3 of this report as a way to encourage their future participation. SAIC would recommend that this practice continue in the future.

[1] The response rate for the processor survey in the 2005 Benchmarking Study was 65.5%.

4.4 Regional Recycling Rate

The change in recycling rate between the 2005 Benchmarking Study and the 2010 Update is shown in the following table.

Table 4-1
North Central Texas Regional Recycling Rates

	September 2004 to August 2005			September 2009 to August 2010		
Generation	Residential	ICI	Overall	Residential	ICI	Overall
Recycling	344,839	1,290,462	1,635,301	587,967	1,398,674	1,986,641
Disposal	2,477,839	6,245,278	8,722,936	2,512,707	4,523,048	7,035,755
Total Generation	2,822,498	7,535,740	10,358,237	3,100,673	5,921,722	9,022,396
Recycling Rate	12.2%	17.1%	15.8%	19.0%	23.6%	22.0%

As shown in the table, the NCTCOG residential, ICI, and overall recycling rate increased between FY 2005 and FY 2010. SAIC would expect that this increase is attributable to an increase in recycling activities by the public and private sector. In addition, the increase is also partially attributable to improved access to data regarding recycling.

It is important to understand the following factors that contribute to the regional recycling rate:

- This survey did not extrapolate any recycling amounts based on private companies or municipalities that did not provide data. While the methodology for this is sound, it does result in an under-reporting of the quantity of material being recycled in the region since the results are based on actual reported data.
- While this survey did include some C&D recycling, it did not include a comprehensive survey of the quantity of this C&D material that is being recycled in the region.
- Tipping fees in the North Central Texas region are among the lowest in the country, which can minimize incentives to recycle.
- There are no mandated recycling goals in Texas or the North Central Texas region, as compared to other areas of the country that require cities to meet very high recycling rates. [2]

4.5 Municipal Recycling Rate Results

As expected, there is a tremendous range in the recycling rates of the cities included in this survey. While the overall residential recycling rate is 19.0 percent, a number of cities have higher recycling rates. In fact, ten of the cities reported recycling rates

[2] While there are no mandated recycling goals in the state of Texas, TCEQ's proposed recycling goal is 40 percent, as identified in 30 TAC Chapter 328 Subchapter B.

greater than 30 percent.[3] Following are SAIC's key findings and recommendations regarding the municipal recycling rate results.

11. One approach to measuring the success of a municipal recycling program is based on the quantity of material recycled annually in curbside recycling programs on an per household basis. Based on extensive industry experience, SAIC has an understanding of the quantity of material being recycled through other successful recycling programs in the United States. Mature curbside recycling programs can yield between 500 and 700 pounds of material per household. Of the surveyed cities in the North Central Texas region, nine are recycling at least 500 pounds annually per household through their curbside recycling programs.[4] Another 10 cities are recycling at least 400 pounds annually per household through their curbside recycling programs.[5]
12. The vast majority of residential recyclables collected in the region are collected through either traditional curbside programs or other curbside programs (i.e. yard trimmings collection). SAIC would note that the majority of the tonnage in the "Other Curbside" category is residential organics (i.e. brush, yard trimmings). In fact, the 10 cities with the highest recycling rates in the region derive a significant quantity of recyclable tonnage from yard trimmings recycling programs.
13. Based on data received in response to the survey, cities with rolling carts (as opposed to bins or bags for recycling collection) have the highest average pounds per household for their curbside programs at 407 pounds per household annually.
14. Based on data received in response to the survey, cities with 90-100 gallon rolling carts (as opposed to smaller containers) have the highest average pounds per household for their curbside programs at 439 pounds per household annually.
15. The three cities with variable refuse rates (i.e. pay as you throw) have an average curbside recycling of 407 pounds per household. This is higher than the average curbside recycling of 343 pounds per household for the remaining 48 cities included in this analysis.

4.5.1 ICI Recycling Rate Results

The ICI waste stream comprises a very significant component of the MSW stream in North Central Texas. In fact, based on this survey, ICI waste accounts for approximately 64 percent of waste disposal in the North Central Texas region. Close to 1.4 million tons (equal to a 23.6 percent recycling rate) of ICI material are being

[3] These cities are Allen, Burleson, Dallas, Denton, Grand Prairie, Highland Village, Plano, Terrell, University Park, and Waxahachie.
[4] These cities include Allen, Benbrook, Fairview, Flower Mound, Frisco, Heath, Highland Park, Highland Village, and University Park.
[5] These cities include Anna, Carrollton, Colleyville, Coppell, Denton, Grapevine, Murphy, Plano, Southlake, and The Colony.

recycled on an annual basis. Following are SAIC's key findings and recommendations regarding the ICI recycling rate results.

16. Metal (530,756 tons) and paper (693,500 tons) account for 87.5 percent of the ICI material being recycled.
17. Given that ICI waste comprises such a significant percentage of the waste stream, it is important to develop programs focused on minimizing ICI waste. Along these lines, NCTCOG has developed goals that are focused on the ICI component of the waste stream. In addition, several North Central Texas cities and private companies have developed very successful ICI recycling programs.

4.6 Recommendations for Future Survey Updates

Following are SAIC's key findings and recommendations regarding the ICI recycling rate results.

18. The best opportunity to increase the response rate to the survey will be to continue administering the survey on a consistent basis. By administering the survey regularly, processors and municipalities will begin to expect the need to complete the survey. SAIC recommends that NCTCOG conduct at least the municipal portion of the survey annually, with a complete update of the processor portion every two years.
19. SAIC recommends that NCTCOG consider including haulers as part of the formal survey process for future updates. Processors have challenges providing data in the format required by the survey (e.g. designation as residential and commercial, knowledge of city where material is generated). SAIC would expect that standard recordkeeping activities of haulers may align more closely with the methodology of future surveys.
20. In order to make relevant "apples-to-apples" comparisons of future surveys to this survey, SAIC would recommend that the NCTCOG maintain the same methodologies used in conducting this survey in future surveying efforts.

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Appendix A

Municipal Recycling Summaries

Appendix A
Municipal Recycling Summaries

Overview

The tables shown in Appendix A summarize the recycling data obtained from the 81 cities surveyed as part of the municipal survey effort. For each city that has responded to the survey, SAIC has summarized the recycling and disposal data provided in the survey response. This appendix also provides the recycling, ICI, and overall rates for each municipality.

Identifying Information by City

Each city's municipal recycling summary is included in Appendix A in alphabetical order. In addition, SAIC assigned each city a number to allow the reader to easily locate the municipal recycling summary for a particular city. Each city's number is shown in the footnote of the municipal recycling summary.

Municipal Recycling Summary – City Numbers

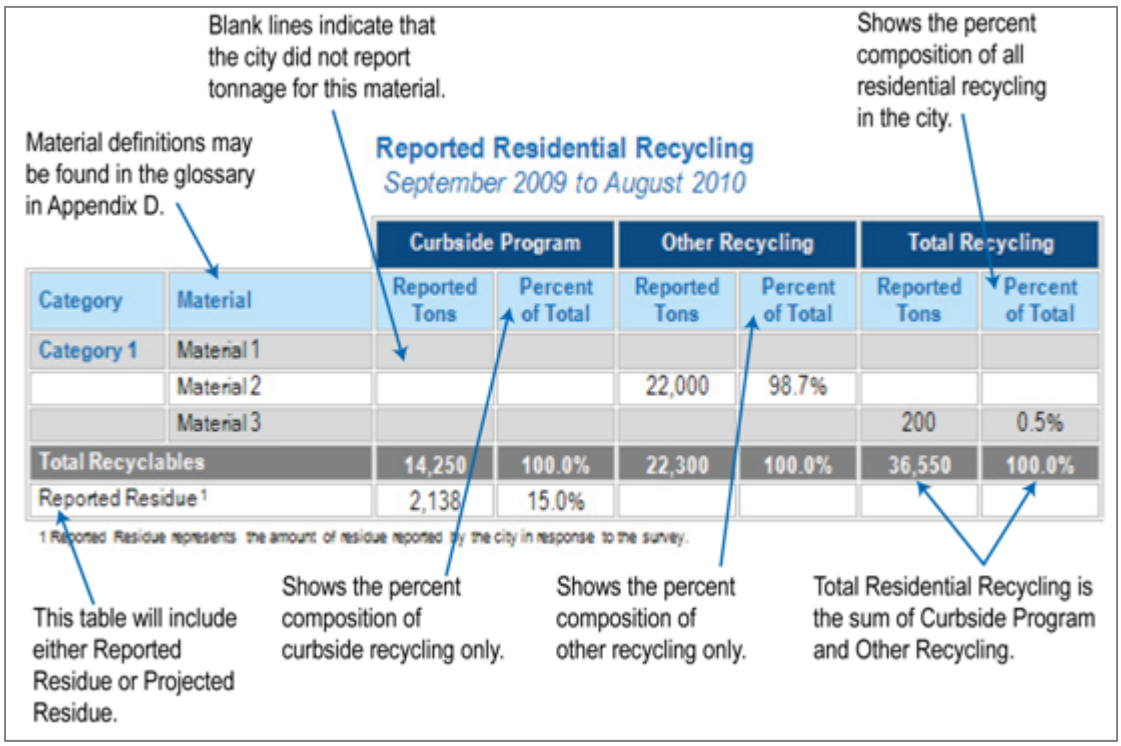
1. Addison	22. Duncanville	43. Irving	64. Rockwall
2. Allen	23. Ennis	44. Kaufman	65. Rowlett
3. Anna	24. Euless	45. Keller	66. Royse City
4. Arlington	25. Fairview	46. Lake Dallas	67. Sachse
5. Azle	26. Farmers Branch	47. Lancaster	68. Saginaw
6. Balch Springs	27. Flower Mound	48. Lewisville	69. Sanger*
7. Bedford	28. Forest Hill	49. Little Elm	70. Seagoville
8. Benbrook	29. Forney	50. Mansfield	71. Southlake
9. Burleson	30. Fort Worth	51. McKinney	72. Stephenville
10. Carrollton	31. Frisco	52. Mesquite	73. Terrell
11. Cedar Hill	32. Garland	53. Midlothian	74. The Colony
12. Cleburne	33. Glenn Heights	54. Mineral Wells	75. Trophy Club
13. Colleyville	34. Granbury	55. Murphy	76. University Park
14. Commerce	35. Grand Prairie	56. N. Richland Hills	77. Watauga
15. Coppell	36. Grapevine	57. Plano	78. Waxahachie
16. Corinth	37. Greenville	58. Prosper	79. Weatherford
17. Corsicana	38. Haltom City	59. Red Oak	80. White Settlement
18. Crowley	39. Heath	60. Richardson	81. Wylie
19. Dallas	40. Highland Park	61. Richland Hills	
20. Denton	41. Highland Village	62. River Oaks	
21. DeSoto	42. Hurst	63. Roanoke	

Information in Municipal Recycling Summaries

Reported Residential Recycling

The Reported Residential Recycling table is provided for all cities that reported residential recycling data. If a city did not report residential recycling data, the municipal recycling summary provides information regarding why that city was not able to report residential recycling data.

Below is a visual depiction of the Reported Residential Recycling table.



As shown above, the Reported Residential Recycling table summarizes the following information for each city:

- **Materials reported to be recycled during the survey time period**, including those from the community's curbside recycling program (i.e. traditional recycling program using a bin or cart) and other recycling programs (i.e. curbside yard trimmings collection, drop-off centers, special events). The far right column of this table shows the total material recycled through all of the city's programs.
- **Reported Residue or Projected Residue for the curbside recycling program.** Based on industry experience, SAIC understands that materials from traditional curbside recycling programs are processed at material recovery facilities (MRFs). Because of inherent inefficiencies in the sorting process, as well as contamination by program participants, a portion of material set out as curbside recyclables is not able to be recycled. SAIC refers to this material as "Residue." Many cities reported the actual quantity of residue that results from their curbside recycling program. For these cities, this is referred to as "Reported Residue." However,

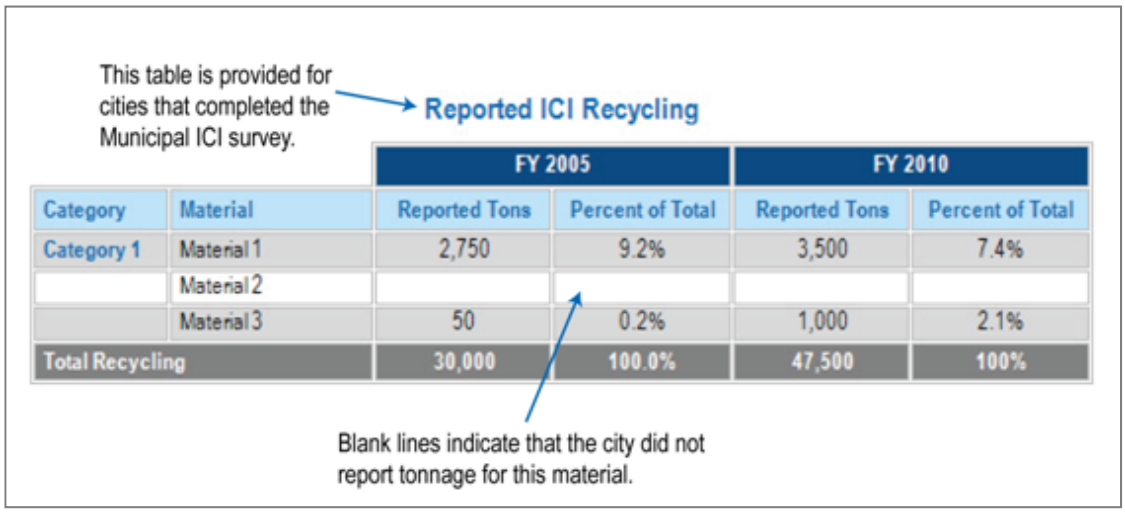
many cities, due to a lack of available information, were not able to report the actual quantity of residue seen in their curbside program. For these cities, SAIC projected their residue based on the average residue for recycling programs that reported residue rates. The average residue rate for cities that reported residue in response to the survey was 13 percent.

- **The percent composition, on a material-by-material basis**, for the city's curbside program, other recycling programs, and all of the recycling programs.

Reported ICI Recycling

The Reported ICI Recycling table is provided for all cities that reported ICI recycling data. As discussed in other sections of this report, only 10 of the 70 cities that responded to the survey were able to provide ICI recycling data.

Below is a visual depiction of the Reported ICI Recycling table.



		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Category 1	Material 1	2,750	9.2%	3,500	7.4%
	Material 2				
	Material 3	50	0.2%	1,000	2.1%
Total Recycling		30,000	100.0%	47,500	100%

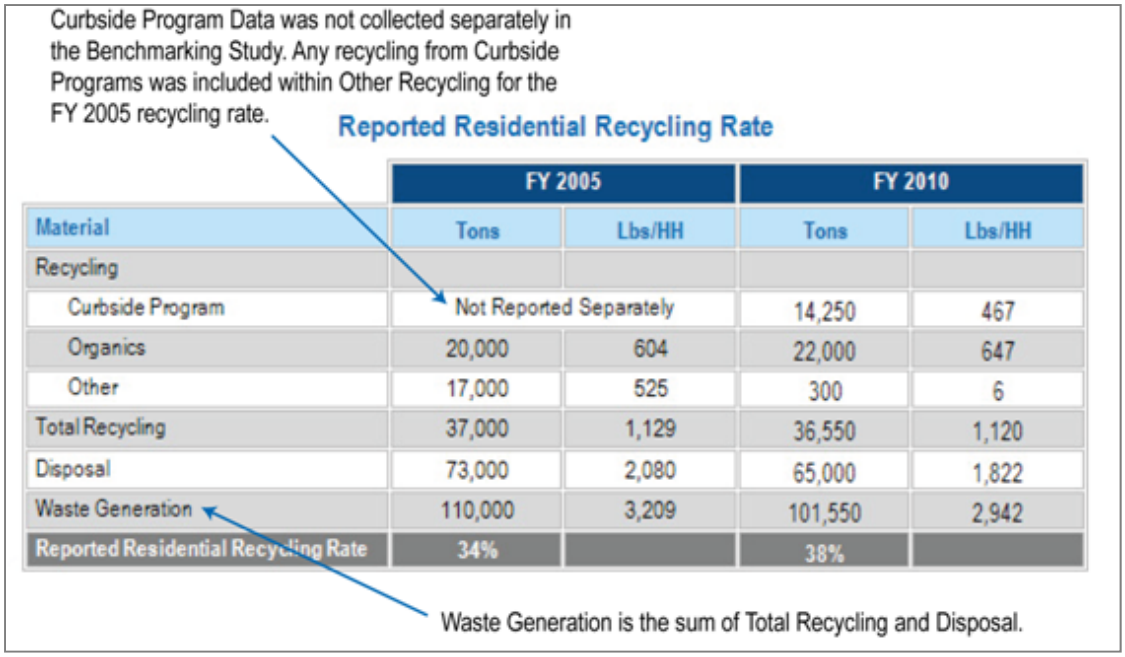
As shown above, the Reported ICI Recycling table summarizes the following information for each city:

- **Materials reported to be recycled during the survey time period**, including the 2005 Benchmarking Study and 2010 Update.
- **The percent composition**, on a material-by-material basis, of ICI recyclables reported for the 2005 Benchmarking Study and 2010 Update.

Reported Residential Recycling Rate

The Reported Residential Recycling Rate table is provided for all cities that reported residential recycling data. The table shows the reported residential recycling rates for FY 2005 and FY 2010. However, recycling rates are only shown for those years for which a city provided residential recycling data.

Following is a visual depiction of the Reported Residential Recycling Rate table.



Curbside Program Data was not collected separately in the Benchmarking Study. Any recycling from Curbside Programs was included within Other Recycling for the FY 2005 recycling rate.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		14,250	467
Organics	20,000	604	22,000	647
Other	17,000	525	300	6
Total Recycling	37,000	1,129	36,550	1,120
Disposal	73,000	2,080	65,000	1,822
Waste Generation	110,000	3,209	101,550	2,942
Reported Residential Recycling Rate	34%		38%	

Waste Generation is the sum of Total Recycling and Disposal.

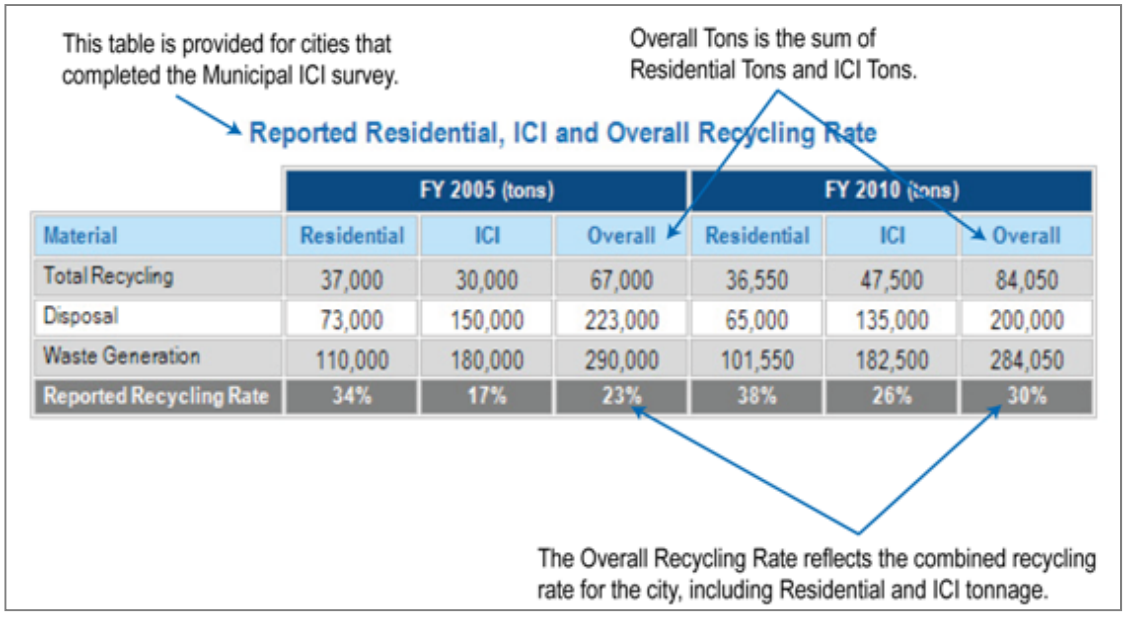
As shown above, the Reported Recycling Rate table summarizes the following information for 2005 Benchmarking Study and 2010 Update:

- **The quantity of material recycled, in tons and pounds per household, for that community's curbside recycling program, organics, and all other recycling.** SAIC would note that curbside recycling program data was not collected separated for the Benchmarking Study. In addition, SAIC would note that curbside recycling shown in this table is net of either Reported Residue or Projected Residue.
- **Residential disposal information**, in tons and pounds per household. As described in Section 2.2.3. of this report, some cities reported actual residential disposal. For all other cities, SAIC developed a methodology to extrapolate residential disposal based on regional disposal quantities.
- **Waste generation** in tons and pounds per household. Waste generation represents the sum of total recycling and disposal.
- **Reported residential recycling rate**, which is calculated by dividing total recycling by waste generation.

Reported Residential, ICI, and Overall Recycling Rate

The Reported Residential, ICI, and Overall Recycling table is provided for all cities that reported ICI recycling data. As discussed in other sections of this report, only 11 of the 70 cities that responded to the survey were able to provide ICI recycling data.

Following is a visual depiction of the Reported Residential, ICI, and Overall Recycling Rate table.



	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	37,000	30,000	67,000	36,550	47,500	84,050
Disposal	73,000	150,000	223,000	65,000	135,000	200,000
Waste Generation	110,000	180,000	290,000	101,550	182,500	284,050
Reported Recycling Rate	34%	17%	23%	38%	26%	30%

As shown above, the Reported Residential, ICI, and Overall Recycling Rate table summarizes the following information for 2005 Benchmarking Study and 2010 Update:

- **Total residential recycling**, shown in tons.
- **Total ICI recycling**, shown in tons.
- **Overall recycling**, shown in tons, which is the sum of total residential recycling and total ICI recycling.
- **Residential, ICI, and overall recycling rates.** The overall recycling rate reflects the combined recycling rate for the city, including residential and ICI recycling and disposal tons.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	11	3.7%			11	3.7%
	Tin/ Steel Cans	9	3.1%			9	3.1%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	27	9.5%			27	9.5%
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper	187	66.0%			187	66.0%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	50	17.7%			50	17.7%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		284	100.0%			284	100.0%
Projected Residue [1]		42	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		284	372
Organics	-	-	-	-
Other	370	353	-	-
Total Recycling	370	353	284	372
Disposal	1,626	1,552	1,465	1,922
Waste Generation	1,996	1,905	1,749	2,294
Reported Residential Recycling Rate	18.5%		16.2%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			2,756	85.9%	2,756	24.3%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			28	10.9%	28	0.2%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			<1	0.0%	<1	0.0%
Paper	Old Magazines						
	Old Newspaper						
	OCC			53	1.6%	53	0.5%
	Office Paper			17	0.5 %	17	0.2%
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			22	0.7%	22	0.2%
	Used Oil			4	0.1%	4	0.0%
	Antifreeze			1	0.0%	1	0.0%
	Lead Acid Batteries			2	0.0%	2	0.0%
	Household Batteries						
	Other HHW			7	0.2%	7	0.1%
Other	Consumer Electronics			23	0.7%	23	0.2%
	Textiles						
	Tires						
	Commingled	8,155	100.0%			8,155	71.8%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris			296	9.2%	296	2.6%
	Wood						
Total Recyclables		8,155	100.0%	3,207	100%	11,363	100.0%
Projected Residue [1]		1,219	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		8,155	599
Organics	7,189	717	2,756	202
Other	2,544	254	451	33
Total Recycling	9,733	971	11,363	834
Disposal	22,920	2,287	21,946	1,611
Waste Generation	32,653	3,258	33,309	2,445
Reported Residential Recycling Rate	29.8%		34.1%	

Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	522	100.0%			522	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		522	100.0%				
Projected Residue [1]		78	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not included in 2005 Benchmarking Study.			
Curbside Program			522	435
Organics			-	-
Other			-	-
Total Recycling			522	435
Disposal			2,080	1,733
Waste Generation			2,602	2,168
Reported Residential Recycling Rate			20.1%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			2,090	15.6%	2,090	7.4%
	Grass						
	Leaves			918	6.8%	918	3.2%
	Tree Stumps						
	Mixed Yard Trimmings			3,332	24.8%	3,332	11.7%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			510	3.8%	510	1.8%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			336	2.5%	336	1.2%
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			336	2.5%	336	1.2%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass			336	2.5%	336	1.2%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			6	0.0%	6	0.0%
	Painting Supplies			121	0.9%	121	0.4%
	Used Oil			21	0.2%	21	0.1%
	Antifreeze			3	0.0%	3	0.0%
	Lead Acid Batteries			3	0.0%	3	0.0%
	Household Batteries			2	0.0%	2	0.0%
	Other HHW			38	0.3%	38	0.1%
Other	Consumer Electronics			36	0.3%	36	0.1%
	Textiles						
	Tires			204	1.5%	204	0.7%
	Commingled	14,967	100.0%	350	2.6%	15,317	54.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Wood						
	Other C&D			4,780	35.6%	4,780	16.8%
Total Recyclables		14,967	100.0%	13,422	100%	28,390	100.0%
Projected Residue [1]		2,237	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		14,967	333
Organics	8,618	186	6,340	141
Other	15,706	339	7,082	158
Total Recycling	24,324	525	28,390	632
Disposal	124,808	2,695	124,098	2,761
Waste Generation	149,132	3,220	152,488	3,393
Reported Residential Recycling Rate	16.3%		18.6%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans			1	1.0%	1	0.2%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil			9	9.3%	9	1.6%
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			85	88.9%	85	15.1%
Other	Consumer Electronics			1	0.8%	1	0.1%
	Textiles						
	Tires						
	Commingled	468	100.0%			468	83.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		468	100.0%	96	100%	563	100.0%
Projected Residue [1]		70	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		468	267
Organics	-	-	-	-
Other	409	225	96	55
Total Recycling	409	225	563	322
Disposal	4,916	2,697	4,740	2,707
Waste Generation	5,325	2,922	5,303	3,029
Reported Residential Recycling Rate	7.7%		10.6%	

The City of Balch Springs did not respond to the 2010 Update or the 2005 Benchmark Study. SAIC does not have recycling data to report.

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City of Bedford

The City of Bedford responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Bedford's private hauler to assist in collecting recycling data. The private hauler agreed to complete the survey on behalf of the city, but the private hauler never provided a completed survey response.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	1,563	100.0%			1,563	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,563	100.0%			1,563	100.0%
Projected Residue [1]		233	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,563	616
Organics	-	-	-	-
Other	1,767	469	-	-
Total Recycling	1,767	469	1,563	616
Disposal	9,379	2,491	9,180	3,621
Waste Generation	11,146	2,960	10,743	4,238
Reported Residential Recycling Rate	15.9%		14.5%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			4,413	100.0%	4,413	78.5%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	1,206	100.0%			1,206	21.5%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,206	100.0%	4,413	100%	5,618	100.0%
Projected Residue [1]		180	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,206	200
Organics	5,423	1,126	4,413	732
Other	88	18	-	-
Total Recycling	5,511	1,144	5,618	932
Disposal	16,042	3,331	10,893	1,806
Waste Generation	21,553	4,475	16,511	2,738
Reported Residential Recycling Rate	25.6%		34.0%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	7,089	100.0%			7,089	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		7,089	100.0%			7,089	100.0%
Projected Residue [1]		1,059	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		7,089	438
Organics	-	-	-	-
Other	4,837	303	-	-
Total Recycling	4,837	303	7,089	438
Disposal	44,753	2,803	58,652	3,621
Waste Generation	49,589	3,106	65,741	4,059
Reported Residential Recycling Rate	9.8%		10.8%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			<1	2.0%	<1	0.0%
	Painting Supplies			8	63.4%	8	0.6%
	Used Oil			1	7.5%	1	0.1%
	Antifreeze			<1	1.5%	<1	0.0%
	Lead Acid Batteries			<1	2.2%	<1	0.0%
	Household Batteries			<1	1.0%	<1	0.0%
	Other HHW			3	22.4%	3	0.2%
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	1,296	100.0%			1,296	99.1%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,296	100.0%	12	100%	1,308	100.0%
Projected Residue [1]		194	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,296	172
Organics	-	-	-	-
Other	1,956	304	12	2
Total Recycling	1,956	304	1,308	174
Disposal	20,627	3,206	13,376	1,780
Waste Generation	22,583	3,510	14,684	1,954
Reported Residential Recycling Rate	8.7%		8.9%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			2,936	92.2%	2,936	92.2%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			<1	0.0%	<1	0.0%
	Painting Supplies			10	0.3%	10	0.3%
	Used Oil			1	0.0%	1	0.0%
	Antifreeze			<1	0.0%	<1	0.0%
	Lead Acid Batteries			1	0.0%	1	0.0%
	Household Batteries			<1	0.0%	<1	0.0%
	Other HHW			3	0.1%	3	0.1%
Other	Consumer Electronics			9	0.3%	9	0.3%
	Textiles						
	Tires			226	7.1%	226	7.1%
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables				3,186	100%	3,186	100.0%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	Not reported in 2005 Benchmarking Study.			
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC				
	Office Paper				
	Telephone Directories				
	Mixed Paper				
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled			22,759	100.0%
	Other				
C&D	Asphalt				
	Concrete				
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling				22,759	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		-	-
Organics	2,380	489	2,936	605
Other	-	-	249	51
Total Recycling	2,380	489	3,186	656
Disposal	9,920	2,039	17,584	3,621
Waste Generation	12,300	2,528	20,769	4,277
Reported Residential Recycling Rate	19.3%		15.3%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	2,380	Unknown	Unknown	3,186	22,759	25,945
Disposal	9,920	30,872	40,793	17,584	26,409	43,993
Waste Generation	12,300	Unknown	Unknown	20,769	49,168	69,937
Reported Recycling Rate	19.3%	Unknown	Unknown	15.3%	46.3%	37.1%

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Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals	62	3.4%			62	3.4%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	191	10.3%			191	10.3%
Paper	Old Magazines						
	Old Newspaper	875	47.2%			875	47.2%
	OCC	108	5.8%			108	5.8%
	Office Paper						
	Telephone Directories						
	Mixed Paper	461	24.9%			461	24.9%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	156	8.4%			156	8.4%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,855	100.0%			1,855	100.0%
Reported Residue [1]		99	5.1%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,855	450
Organics	-	-	-	-
Other	1,772	489	-	-
Total Recycling	1,772	489	1,855	450
Disposal	12,006	3,314	12,074	2,927
Waste Generation	13,779	3,804	13,929	3,377
Reported Residential Recycling Rate	12.9%		13.3%	

The City of Commerce did not have a recycling program during the 2005 Benchmark Study and did not respond to the 2010 Update.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			1,473	98.4%	1,473	35.8%
	Food Waste						
Metals	Aluminum Cans	96	3.7%			96	2.3%
	Tin/ Steel Cans	79	3.0%			79	1.9%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	245	9.4%			245	6.0%
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper	1,744	66.6%	3	0.2%	1,747	42.5%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	455	17.4%			455	11.1%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics			21	1.4%	21	0.5%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		2,620	100.0%	1,496	100%	4,117	100.0%
Projected Residue [1]		392	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		2,620	453
Organics	660	123	1,473	255
Other	2,076	386	24	4
Total Recycling	2,736	509	4,117	712
Disposal	17,187	3,195	13,967	2,415
Waste Generation	19,923	3,704	18,083	3,127
Reported Residential Recycling Rate	13.7%		22.8%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			5	18.3%	5	0.4%
	Used Oil			1	2.6%	1	0.1%
	Antifreeze			<1	0.6%	<1	0.0%
	Lead Acid Batteries			<1	0.7%	<1	0.0%
	Household Batteries			<1	0.6%	<1	0.0%
	Other HHW			2	6.5%	2	0.2%
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	984	100.0%	<1	0.1%	984	97.6%
	Other			17	70.6%	17	1.7%
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		984	100.0%	25	100%	1,009	100.0%
Projected Residue [1]		147	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		984	277
Organics	-	-	-	-
Other	636	210	25	7
Total Recycling	636	210	1,009	284
Disposal	9,503	3,141	8,297	2,336
Waste Generation	10,139	3,351	9,306	2,620
Reported Residential Recycling Rate	6.3%		10.8%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	318	100.0%			318	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		318	100.0%			318	100.0%
Projected Residue [1]		48	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		318	87
Organics	-	-	-	-
Other	30	7	-	-
Total Recycling	30	7	318	87
Disposal	11,893	2,870	9,787	2,673
Waste Generation	11,923	2,877	10,105	2,760
Reported Residential Recycling Rate	0.3%		3.2%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	295	100.0%			295	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		295	100.0%			295	100.0%
Projected Residue [1]		44	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		295	132
Organics	-	-	-	-
Other	761	542	-	-
Total Recycling	761	542	295	132
Disposal	5,527	3,935	8,135	3,621
Waste Generation	6,288	4,476	8,430	3,753
Reported Residential Recycling Rate	12.1%		3.5%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			98,657	92.1%	98,657	69.5%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	262	0.8%	22	0.0%	284	0.2%
	Tin/ Steel Cans	629	1.8%	53	0.0%	682	0.5%
	Mixed Metals			335	0.3%	335	0.2%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	984	2.8%	83	0.1%	1,067	0.8%
	HDPE Natural (#2)	298	0.9%	25	0.0%	324	0.2%
	HDPE Colored (#2)	427	1.2%	97	0.1%	525	0.4%
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	214	0.6%	18	0.0%	232	0.2%
Paper	Old Magazines						
	Old Newspaper	14,913	42.8%	1,262	1.2%	16,175	11.4%
	OCC	4,213	12.1%	357	0.3%	4,570	3.2%
	Office Paper						
	Telephone Directories						
	Mixed Paper	7,100	20.4%	635	0.6%	7,735	5.4%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	5,809	16.7%	492	0.5%	6,301	4.4%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil			1	0.0%	1	0.0%
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries			3	0.0%	3	0.0%
	Other HHW						
Other	Consumer Electronics			304	0.3%	304	0.2%
	Textiles						
	Tires			88	0.1%	88	0.1%
	Commingled						
	Other			18	0.0%	18	0.0%
C&D	Asphalt			3,158	2.9%	3,158	2.2%
	Concrete			1,544	1.4%	1,544	1.1%
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		34,848	100.0%	107,153	100%	142,001	100.0%
Reported Residue [1]		5,467	13.6%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		34,848	285
Organics	8,967	68	98,657	807
Other	35,292	268	8,496	69
Total Recycling	44,259	336	142,001	1,161
Disposal	566,369	4,299	257,174	2,103
Waste Generation	610,628	4,635	399,175	3,265
Reported Residential Recycling Rate	7.2%		35.6%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			6,616	85.9%	6,616	51.3%
	Food Waste						
Metals	Aluminum Cans			14	0.2%	14	0.1%
	Tin/ Steel Cans			30	0.4%	30	0.2%
	Mixed Metals						
	Major Appliances			64	0.8%	64	0.5%
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			11	0.1%	11	0.1%
Paper	Old Magazines						
	Old Newspaper			6	0.1%	6	0.0%
	OCC			340	4.4%	340	2.6%
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass			6	0.1%	6	0.0%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			15	0.2%	15	0.1%
	Used Oil			7	0.1%	7	0.1%
	Antifreeze			1	0.0%	1	0.0%
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			3	0.0%	3	0.0%
Other	Consumer Electronics			46	0.6%	46	0.4%
	Textiles						
	Tires						
	Commingled	5,198	100.0%	546	7.1%	5,743	44.5%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		5,198	100.0%	7,704	100%	12,902	100.0%
Projected Residue [1]		777	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	1,180	34.1%		
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings			12,017	63.2%
	Food Waste				
Metals	Aluminum Cans	4	0.1%		
	Tin/ Steel Cans	12	0.3%		
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic	11	0.3%		
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper	7	0.2%		
	OCC	246	7.1%	823	4.3%
	Office Paper	70	2.0%		
	Telephone Directories				
	Mixed Paper			21	0.1%
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass	79	2.3%		
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled	122	3.5%	931	4.9%
	Other				
C&D	Asphalt	184	5.3%	43	0.2%
	Concrete	1,548	44.7%	3,850	20.2%
	Metals			142	0.7%
	Natural Disaster Debris				
	Wood				
	Other C&D			1,194	6.3%
Total Recycling		3,463	100.0%	19,021	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		5,198	420
Organics	9,308	701	6,616	535
Other	3,753	283	1,088	88
Total Recycling	13,061	984	12,902	1,042
Disposal	28,335	2,135	22,392	1,809
Waste Generation	41,397	3,119	35,293	2,851
Reported Residential Recycling Rate	31.6%		36.6%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	13,061	3,463	16,521	12,902	19,021	31,923
Disposal	28,335	111,165	139,500	22,392	62,796	85,188
Waste Generation	41,397	114,628	156,021	35,293	81,817	117,110
Reported Recycling Rate	31.6%	3.0%	10.6%	36.6%	23.2%	27.3%

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Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	731	100.0%			731	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		731	100.0%			731	100.0%
Projected Residue [1]		109	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		731	102
Organics	-	-	-	-
Other	1,988	300	-	-
Total Recycling	1,988	300	731	102
Disposal	18,109	2,734	25,964	3,621
Waste Generation	20,097	3,034	26,695	3,723
Reported Residential Recycling Rate	9.9%		2.7%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			313	91.6%	313	22.4%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			23	6.6%	23	1.6%
	Used Oil			3	0.7%	3	0.2%
	Antifreeze			0	0.1%	0	0.0%
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics			3	0.9%	3	0.2%
	Textiles						
	Tires						
	Commingled	1,056	100.0%			1,056	75.6%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,056	100.0%	341	100%	1,398	100.0%
Projected Residue [1]		158	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	Not reported in 2005 Benchmarking Study.			
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC				
	Office Paper				
	Telephone Directories				
	Mixed Paper				
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt				
	Concrete			1,320	5.1%
	Metals				
	Natural Disaster Debris			24,688	94.9%
	Wood				
Total Recycling				26,008	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,056	173
Organics	-	-	313	51
Other	2,448	446	29	5
Total Recycling	2,448	446	1,398	228
Disposal	16,580	3,022	13,044	2,131
Waste Generation	19,028	3,468	14,442	2,359
Reported Residential Recycling Rate	12.9%		9.7%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	2,448	Unknown	Unknown	1,398	26,008	27,405
Disposal	16,580	26,113	42,693	13,044	22,673	35,717
Waste Generation	19,028	Unknown	Unknown	14,442	48,680	63,122
Reported Recycling Rate	12.9%	Unknown	Unknown	9.7%	53.4%	43.4%

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The City of Ennis did not respond to the 2005 Benchmarking Study or the 2010 Update. SAIC does not have recycling data to report.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			8	54.2%	8	0.9%
	Used Oil			2	10.6%	2	0.2%
	Antifreeze						
	Lead Acid Batteries			<1	1.8%	<1	0.0%
	Household Batteries			<1	0.7%	<1	0.0%
	Other HHW			5	32.7%	5	0.5%
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	902	100.0%			902	98.4%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		902	100.0%	15	100%	917	100.0%
Proposed Residue [1]		135	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		902	164
Organics	-	-	-	-
Other	901	143	15	3
Total Recycling	901	143	917	167
Disposal	15,016	2,379	14,330	2,605
Waste Generation	15,917	2,522	15,247	2,772
Reported Residential Recycling Rate	5.7%		6.0%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	796	100.0%			796	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		796	100.0%			796	100.0%
Projected Residue [1]		119	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Study.			
Curbside Program			796	630
Organics			-	-
Other			-	-
Total Recycling			796	630
Disposal			4,572	3,621
Waste Generation			5,368	4,252
Reported Residential Recycling Rate			14.8%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled			229	100.0%	229	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables				229	100%	229	100.0%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		-	-
Organics	-	-	-	-
Other	192	52	229	55
Total Recycling	192	52	229	55
Disposal	15,805	4,271	17,736	4,234
Waste Generation	15,997	4,323	17,965	4,289
Reported Residential Recycling Rate	1.2%		1.3%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			26	100.0%	26	0.8%
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	3,402	100.0%			3,402	99.2%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		3,402	100.0%	26	100.0%	3,428	100.0%
Projected Residue [1]		508	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		3,402	568
Organics	-	-	-	-
Other	3,401	354	26	4
Total Recycling	3,401	354	3,428	573
Disposal	32,545	3,390	23,875	3,989
Waste Generation	35,946	3,744	27,303	4,562
Reported Residential Recycling Rate	9.5%		12.6%	

The City of Forest Hill did not have a recycling program during the 2005 Benchmark Survey and did not respond to the 2010 Update.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans			2	2.3%	2	2.3%
	Tin/ Steel Cans			1	1.3%	1	1.3%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous			<1	0.1%	<1	0.1%
Plastics	PETE (#1)			7	8.8%	7	8.8%
	HDPE Natural (#2)			5	6.7%	5	6.7%
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			11	13.5%	11	13.5%
Paper	Old Magazines			2	3.1%	2	3.1%
	Old Newspaper			16	21.1%	16	21.1%
	OCC			1	1.3%	1	1.3%
	Office Paper						
	Telephone Directories						
	Mixed Paper			6	7.7%	6	7.7%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries			3	4.2%	3	4.2%
	Household Batteries			<1	0.3%	<1	0.3%
	Other HHW			6	7.1%	6	7.1%
Other	Consumer Electronics			15	18.6%	15	18.6%
	Textiles						
	Tires			3	3.8%	3	3.8%
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables				78	100%	78	100.0%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	Not reported in 2005 Benchmark Study.			
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC			163	83.3%
	Office Paper			9	4.8%
	Telephone Directories				
	Mixed Paper				
	Other Paper			23	11.9%
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt				
	Concrete				
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling				195	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		-	-
Organics	-	-	-	-
Other	477	304	78	34
Total Recycling	477	304	78	34
Disposal	3,321	2,120	8,261	3,621
Waste Generation	3,798	2,424	8,339	3,655
Reported Residential Recycling Rate	12.6%		0.9%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	477	Unknown	Unknown	78	195	273
Disposal	3,321	2,740	6,061	8,261	3,561	11,821
Waste Generation	3,798	Unknown	Unknown	8,339	3,756	12,095
Reported Recycling Rate	12.6%	Unknown	Unknown	0.9%	5.2%	2.3%

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			31,049	99.1%	31,049	48.0%
	Food Waste						
Metals	Aluminum Cans	569	1.7%			569	0.9%
	Tin/ Steel Cans	833	2.5%			833	1.3%
	Mixed Metals			95	0.3%	95	0.1%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	1,701	5.1%			1,701	2.6%
	HDPE Natural (#2)	589	1.8%			589	0.9%
	HDPE Colored (#2)	496	1.5%			496	0.8%
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	679	2.0%			679	1.0%
Paper	Old Magazines						
	Old Newspaper	8,560	25.7%			8,560	13.2%
	OCC	7,703	23.1%			7,703	11.9%
	Office Paper						
	Telephone Directories						
	Mixed Paper	6,269	18.8%			6,269	9.7%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	5,972	17.9%			5,972	9.2%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			140	0.4%	140	0.2%
Other	Consumer Electronics			57	0.2%	57	0.1%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		33,371	100.0%	31,341	100%	64,712	100.0%
Reported Residue [1]		10,894	24.6%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		33,371	335
Organics	16,766	195	31,049	312
Other	36,248	421	292	3
Total Recycling	53,014	616	64,712	649
Disposal	208,270	2,418	235,172	2,360
Waste Generation	261,284	3,034	299,884	3,010
Reported Residential Recycling Rate	20.3%		21.6%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			2,475	93.8%	2,475	18.8%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC			36	1.4%	36	0.3%
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			3	0.1%	3	0.0%
	Painting Supplies			44	1.7%	44	0.3%
	Used Oil			12	0.5%	12	0.1%
	Antifreeze			1	0.1%	1	0.0%
	Lead Acid Batteries			1	0.0%	1	0.0%
	Household Batteries			5	0.2%	5	0.0%
	Other HHW			61	2.3%	61	0.5%
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	10,523	100.0%			10,523	79.9%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		10,523	100.0%	2,639	100%	13,162	100.0%
Projected Residue [1]		1,572	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		10,523	609
Organics	1,506	145	2,475	143
Other	7,225	698	164	9
Total Recycling	8,731	843	13,162	761
Disposal	24,335	2,351	31,723	1,835
Waste Generation	33,066	3,195	44,885	2,597
Reported Residential Recycling Rate	26.4%		29.3%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			15,583	96.6%	15,583	80.2%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	631	19.1%	2	0.0%	633	3.3%
	Tin/ Steel Cans	336	10.2%	4	0.0%	340	1.7%
	Mixed Metals			371	2.3%	371	1.9%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	294	8.9%	4	0.0%	298	1.5%
	HDPE Natural (#2)	168	5.1%	5	0.0%	173	0.9%
	HDPE Colored (#2)	126	3.8%	5	0.0%	131	0.7%
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	126	3.8%	3	0.0%	129	0.6%
Paper	Old Magazines	56	1.7%	4	0.0%	60	0.3%
	Old Newspaper	684	20.7%	4	0.0%	688	3.5%
	OCC			109	0.7%	109	0.6%
	Office Paper			1	0.0%	1	0.0%
	Telephone Directories			4	0.0%	4	0.0%
	Mixed Paper	545	16.5%			545	2.8%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	336	10.2%			336	1.7%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil			29	0.2%	29	0.1%
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		3,302	100.0%	16,125	100%	19,427	100.0%
Reported Residue [1]		505	13.3%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches				
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC				
	Office Paper				
	Telephone Directories				
	Mixed Paper				
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled	70	100%	262	52.0%
	Other			242	48.0%
C&D	Asphalt				
	Concrete				
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling		70	100%	504	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		3,302	100
Organics	38,304	1,306	15,583	472
Other	3,630	124	542	16
Total Recycling	41,934	1,430	19,427	589
Disposal	93,379	3,184	67,529	2,047
Waste Generation	135,313	4,614	86,956	2,635
Reported Residential Recycling Rate	31.0%		22.3%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	41,934	70	42,005	19,427	504	19,931
Disposal	93,379	176,982	270,360	67,529	36,940	104,469
Waste Generation	135,313	177,052	312,365	86,956	37,444	124,400
Reported Recycling Rate	31.0%	0.0%	13.4%	22.3%	1.3%	16.0%

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Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			38	80.6%	38	80.6%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			<1	0.0%	<1	0.0%
	Painting Supplies			1	1.1%	1	1.1%
	Used Oil			<1	0.3%	<1	0.3%
	Antifreeze			<1	0.1%	<1	0.1%
	Lead Acid Batteries			1	1.4%	1	1.4%
	Household Batteries			<1	0.0%	<1	0.0%
	Other HHW			<1	0.5%	<1	0.5%
Other	Consumer Electronics			<1	0.1%	<1	0.1%
	Textiles						
	Tires			8	15.9%	8	15.9%
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables				47	100%	47	100.0%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			-	-
Organics			-	-
Other			47	33
Total Recycling			47	33
Disposal			5,203	3,621
Waste Generation			5,250	3,654
Reported Residential Recycling Rate			0.9%	

City of Granbury

The City of Granbury was added to the list of cities surveyed for the 2010 Update. SAIC did not receive a survey response from the City of Granbury.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			9,538	42.8%	9,538	37.4%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			201	0.9%	201	0.8%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			1,008	4.5%	1,008	3.9%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood			11,349	50.9%	11,349	44.5%
HHW	Cleaning Supplies			1	0.0%	1	0.0%
	Painting Supplies			30	0.1%	30	0.1%
	Used Oil			4	0.0%	4	0.0%
	Antifreeze			<1	0.0%	<1	0.0%
	Lead Acid Batteries			7	0.0%	7	0.0%
	Household Batteries			2	0.0%	2	0.0%
	Other HHW			11	0.0%	11	0.0%
Other	Consumer Electronics			79	0.4%	79	0.3%
	Textiles						
	Tires			66	0.3%	66	0.3%
	Commingled	3,229	100.0%			3,229	12.7%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		3,229	100.0%	22,294	100%	25,523	100.0%
Projected Residue [1]		483	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	5,592	26.1%		
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals	13,946	65.0%		
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC				
	Office Paper				
	Telephone Directories				
	Mixed Paper	1,733	8.1%		
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt			2,972	18.1%
	Concrete	194	0.9%	13,425	81.9%
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling		21,465	100.0%	16,396	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		3,229	141
Organics	3,728	209	9,538	415
Other	3,425	192	12,756	555
Total Recycling	7,153	400	25,523	1,111
Disposal	55,209	3,090	57,054	2,484
Waste Generation	62,362	3,490	82,577	3,596
Reported Residential Recycling Rate	11.5%		30.9%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	7,153	21,465	28,618	25,523	16,396	41,919
Disposal	55,209	122,720	177,929	57,054	76,607	133,661
Waste Generation	62,362	144,185	206,547	82,577	93,003	175,580
Reported Recycling Rate	11.5%	14.9%	13.9%	30.9%	17.6%	23.9%

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	60	2.0%			60	2.0%
	Tin/ Steel Cans	150	5.0%			150	4.9%
	Mixed Metals			<1	0.2%	<1	0.0%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	271	9.0%			271	8.9%
Paper	Old Magazines						
	Old Newspaper						
	OCC			1	1.2%	1	0.0%
	Office Paper						
	Telephone Directories						
	Mixed Paper	2,225	74.0%	10	24.9%	2,235	73.3%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	301	10.0%			301	9.9%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			<1	0.2%	<1	0.0%
	Painting Supplies			13	29.1%	13	0.4%
	Used Oil			1	1.2%	1	0.0%
	Antifreeze						
	Lead Acid Batteries			1	1.3%	1	0.0%
	Household Batteries			1	2.4%	1	0.0%
	Other HHW			3	7.7%	3	0.1%
Other	Consumer Electronics			14	31.8%	14	0.4%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		3,007	100.0%	43	100%	3,050	100.0%
Projected Residue [1]		449	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	Not reported in 2005 Benchmarking Survey.			
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC				
	Office Paper				
	Telephone Directories				
	Mixed Paper				
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled			912	100.0%
	Other				
C&D	Asphalt				
	Concrete				
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling				912	100.0%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		3,007	492
Organics	-	-	-	-
Other	2,759	428	43	7
Total Recycling	2,759	428	3,050	499
Disposal	18,557	2,881	22,018	3,605
Waste Generation	21,316	3,309	25,068	4,104
Reported Residential Recycling Rate	12.9%		12.2%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	2,759	Unknown	Unknown	3,050	912	3,962
Disposal	18,557	94,056	112,612	22,018	46,165	68,183
Waste Generation	21,316	Unknown	Unknown	25,068	47,077	72,145
Reported Recycling Rate	12.9%	Unknown	Unknown	12.2%	1.9%	5.5%

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	548	100.0%			548	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		548	100.0%			548	100.0%
Projected Residue [1]		82	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Study.			
Curbside Program			548	154
Organics			-	-
Other			-	-
Total Recycling			548	154
Disposal			11,344	3,195
Waste Generation			11,892	3,350
Reported Residential Recycling Rate			4.6%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			6	11.0%	6	0.5%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			2	2.8%	2	0.1%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			20	35.8%	20	1.6%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics			6	10.1%	6	0.5%
	Textiles						
	Tires			22	40.4%	22	1.8%
	Commingled	1,141	100.0%			1,141	95.4%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,141	100.0%	55	100%	1,195	100.0%
Projected Residue [1]		170	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			1,141	209
Organics			6	1
Other			49	9
Total Recycling			1,195	219
Disposal			13,180	2,412
Waste Generation			14,375	2,631
Reported Residential Recycling Rate			8.3%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	787	100.0%			787	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		787	100.0%			787	100.0%
Projected Residue [1]		118	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Study.			
Curbside Program			787	632
Organics			-	-
Other			-	-
Total Recycling			787	632
Disposal			3,041	2,440
Waste Generation			3,828	3,072
Reported Residential Recycling Rate			20.6%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	925	100.0%			925	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		925	100.0%			925	100.0%
Projected Residue [1]		138	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		925	699
Organics	2,440	1,612	-	-
Other	559	369	-	-
Total Recycling	2,999	1,981	925	699
Disposal	8,522	5,630	4,792	3,621
Waste Generation	11,522	7,611	5,717	4,320
Reported Residential Recycling Rate	26.0%		16.2%	

Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			1,444	100.0%	1,444	51.3%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	1,370	100.0%			1,370	48.7%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,370	100.0%	1,444	100.0%	2,814	100.0%
Projected Residue [1]		205	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,370	501
Organics	1,090	1,093	1,444	528
Other	1,528	655	-	-
Total Recycling	2,619	638	2,814	1,029
Disposal	7,305	3,049	5,895	2,155
Waste Generation	9,924	4,142	8,709	3,183
Reported Residential Recycling Rate	26.4%		32.3%	

The City of Hurst did not respond to the 2010 Update. The residential recycling rate for The City of Hurst in the 2005 Benchmarking Study was 10.7%.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			8,329	91.1%	8,329	72.0%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans			2	0.0%	2	0.0%
	Tin/ Steel Cans			8	0.1%	8	0.1%
	Mixed Metals						
	Major Appliances			282	3.1%	282	2.4%
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			17	0.2%	17	0.1%
Paper	Old Magazines						
	Old Newspaper						
	OCC			2	0.0%	2	0.0%
	Office Paper						
	Telephone Directories						
	Mixed Paper			272	3.0%	272	2.3%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass			78	0.9%	78	0.7%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil			18	0.2%	18	0.2%
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries			6	0.1%	6	0.1%
	Other HHW						
Other	Consumer Electronics			30	0.3%	30	0.3%
	Textiles			32	0.4%	32	0.3%
	Tires			70	0.8%	70	0.6%
	Commingled	2,416	100.0%			2,416	20.9%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		2,416	100.0%	9,147	100%	11,563	100.0%
Projected Residue [1]		361	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		2,416	127
Organics	5,538	297	8,329	438
Other	3,094	166	818	43
Total Recycling	8,632	462	11,563	608
Disposal	60,464	3,239	46,012	2,418
Waste Generation	69,096	3,701	57,575	3,026
Reported Residential Recycling Rate	12.5%		20.1%	

The City of Kaufman responded to the 2010 Update. SAIC confirmed that there are no recycling programs in Kaufman.

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The City of Keller responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Keller's private hauler to assist in collecting recycling data. The private hauler agreed to complete the survey on behalf of the city, but the private hauler never provided a completed survey response.

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City of Lake Dallas

The City of Lake Dallas was added to the list of cities surveyed for the 2010 Update. SAIC did not receive a survey response from the City of Lake Dallas.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			8	4.3%	8	0.8%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			6	3.6%	6	0.7%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			92	52.9%	92	10.3%
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			5	2.8%	5	0.5%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries			<1	0.1%	<1	0.0%
	Household Batteries			<1	0.1%	<1	0.0%
	Other HHW						
Other	Consumer Electronics			2	0.9%	2	0.2%
	Textiles						
	Tires			61	35.3%	61	6.9%
	Commingled	716	100.0%			716	80.5%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		716	100.0%	173	100%	889	100.0%
Projected Residue [1]		107	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Study.			
Curbside Program			716	136
Organics			8	1
Other			166	31
Total Recycling			889	168
Disposal			19,112	3,621
Waste Generation			20,002	3,790
Reported Residential Recycling Rate			4.4%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans			<1	0.2%	<1	0.0%
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			80	47.1%	80	3.3%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass			18	10.3%	18	0.7%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			28	16.6%	28	1.2%
	Used Oil			4	2.3%	4	0.2%
	Antifreeze			1	0.5%	1	0.0%
	Lead Acid Batteries			2	1.1%	2	0.1%
	Household Batteries			<1	0.1%	<1	0.0%
	Other HHW			7	4.4%	7	0.3%
Other	Consumer Electronics			18	10.5%	18	0.7%
	Textiles						
	Tires						
	Commingled	2,258	100.0%	12	7.1%	2,270	93.5%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		2,258	100.0%	170	100%	2,428	100.0%
Projected Residue [1]		337	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		2,258	232
Organics	-	-	-	-
Other	2,791	284	170	17
Total Recycling	2,791	284	2,428	250
Disposal	27,825	2,827	27,179	2,794
Waste Generation	30,616	3,110	29,607	3,044
Reported Residential Recycling Rate	9.1%		8.2%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			4	6.1%	4	0.2%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			2	2.5%	2	0.1%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			7	9.5%	7	0.4%
	Used Oil			4	4.9%	4	0.2%
	Antifreeze			<1	0.2%	<1	0.0%
	Lead Acid Batteries			<1	0.2%	<1	0.0%
	Household Batteries						
	Other HHW			15	20.6%	15	0.8%
Other	Consumer Electronics						
	Textiles						
	Tires			40	56.1%	40	2.3%
	Commingled	1,706	100.0%			1,706	96.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,706	100.0%	71	100%	1,778	100.0%
Projected Residue [1]		255	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,706	580
Organics	-	-	-	-
Other	1,289	703	71	24
Total Recycling	1,289	703	1,778	604
Disposal	6,077	3,314	10,662	3,621
Waste Generation	7,366	4,018	12,439	4,225
Reported Residential Recycling Rate	17.5%		14.3%	

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches				
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste			53	100.0%
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC				
	Office Paper				
	Telephone Directories				
	Mixed Paper				
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt				
	Concrete				
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling				53	100.0%

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	1,937	Unknown	Unknown	Unknown	53	Unknown
Disposal	18,592	15,735	34,327	33,644	18,165	51,809
Waste Generation	20,529	Unknown	Unknown	Unknown	18,217	Unknown
Reported Recycling Rate	9.4%	Unknown	Unknown	Unknown	0.3%	Unknown

The City of Mansfield responded to the 2010 Update but was unable to obtain municipal data from their hauler. SAIC contacted the City of Mansfield's private hauler to assist in collecting recycling data. The private hauler agreed to complete the survey on behalf of the city, but the private hauler never provided a completed survey response. The tables above reflects the ICI recycling data provided by the City of Mansfield.

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			1,115	20.4%	1,115	9.1%
	Food Waste						
Metals	Aluminum Cans	88	1.3%			88	0.7%
	Tin/ Steel Cans	140	2.0%			140	1.1%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	520	7.6%			520	4.2%
Paper	Old Magazines						
	Old Newspaper	3,966	57.9%			3,966	32.2%
	OCC	1,830	26.7%			1,830	14.9%
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	307	4.5%			307	2.5%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled			4,349	79.6%	4,349	35.3%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		6,851	100.0%	5,463	100%	12,314	100.0%
Projected Residue [1]		1,024	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	Not reported in 2005 Benchmarking Study.			
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings			108	5.5%
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC			1,101	56.3%
	Office Paper				
	Telephone Directories				
	Mixed Paper				
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt			102	5.2%
	Concrete			147	7.5%
	Metals				
	Natural Disaster Debris				
	Wood			496	25.4%
Total Recycling				1,955	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		6,851	359
Organics	-	-	1,115	58
Other	3,677	275	4,349	228
Total Recycling	3,677	275	12,314	644
Disposal	41,791	3,130	69,198	3,621
Waste Generation	45,468	3,406	81,512	4,266
Reported Residential Recycling Rate	8.1%		15.1%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	3,677	Unknown	Unknown	12,314	1,955	14,269
Disposal	41,791	49,894	91,685	69,198	33,232	102,430
Waste Generation	45,468	Unknown	Unknown	81,512	35,187	116,699
Reported Recycling Rate	8.1%	Unknown	Unknown	15.1%	5.6%	12.2%

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	36	2.1%			36	0.6%
	Tin/ Steel Cans						
	Mixed Metals			3,892	83.4%	3,892	61.1%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	117	6.9%			117	1.8%
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper	826	48.6%			826	13.0%
	OCC	200	11.8%			200	3.1%
	Office Paper						
	Telephone Directories						
	Mixed Paper	260	15.3%	24	0.5%	284	4.5%
Glass	Clear Glass	3	0.2%			3	0.1%
	Amber Glass	15	0.9%			15	0.2%
	Green Glass	2	0.1%			2	0.0%
	Mixed Glass	242	14.2%			242	3.8%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires			2	0.0%	2	0.0%
	Commingled						
	Other						
C&D	Asphalt						
	Concrete			750	16.1%	750	11.8%
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,701	100.0%	4,668	100%	6,369	100.0%
Projected Residue [1]		254	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,701	86
Organics	21,949	1,224	-	-
Other	5,486	306	4,668	236
Total Recycling	27,435	1,530	6,369	322
Disposal	46,529	2,594	46,274	2,338
Waste Generation	73,964	4,124	52,643	2,660
Reported Residential Recycling Rate	37.1%		12.1%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	3	0.8%			3	0.8%
	Tin/ Steel Cans	7	2.1%			7	2.1%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)	3	0.8%			3	0.8%
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	5	1.6%			5	1.6%
Paper	Old Magazines						
	Old Newspaper	284	84.2%			284	84.2%
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper	35	10.5%			35	10.5%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		337	100.0%			337	100.0%
Reported Residue [1]		17	4.9%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		337	130
Organics	-	-	-	-
Other	242	133	-	-
Total Recycling	242	133	337	130
Disposal	3,805	2,092	9,412	3,621
Waste Generation	4,047	2,225	9,749	3,751
Reported Residential Recycling Rate	6.0%		3.5%	

Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans			200	28.7%	200	28.7%
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			160	23.0%	160	23.0%
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			196	28.2%	196	28.2%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics			40	5.7%	40	5.7%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete			100	14.4%	100	14.4%
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables				696	100%	696	100%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Study.			
Curbside Program			-	-
Organics			-	-
Other			696	274
Total Recycling			696	274
Disposal			9,196	3,621
Waste Generation			9,892	3,895
Reported Residential Recycling Rate			7.0%	

Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	1,330	100.0%			1,330	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,330	100.0%			1,330	100.0%
Projected Residue [1]		199	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,330	412
Organics	-	-	-	-
Other	631	349	-	-
Total Recycling	631	349	1,330	412
Disposal	5,585	3,088	6,080	1,886
Waste Generation	6,217	3,437	7,410	2,298
Reported Residential Recycling Rate	10.2%		17.9%	

Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			414	100.0%	414	14.5%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	2,445	100.0%			2,445	85.5%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		2,445	100.0%	414	100%	2,859	100.0%
Projected Residue [1]		365	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		2,445	270
Organics	-	-	-	-
Other	2,723	302	414	46
Total Recycling	2,723	302	2,859	316
Disposal	25,948	2,881	32,814	3,621
Waste Generation	28,671	3,183	35,673	3,937
Reported Residential Recycling Rate	9.5%		8.0%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			22,919	99.0%	22,919	57.8%
	Food Waste						
Metals	Aluminum Cans	129	0.8%			129	0.3%
	Tin/ Steel Cans	231	1.4%			231	0.6%
	Mixed Metals						
	Major Appliances			18	0.1%	18	0.0%
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	453	2.7%			453	1.1%
	HDPE Natural (#2)	146	0.9%			146	0.4%
	HDPE Colored (#2)	139	0.8%			139	0.4%
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)	155	0.9%			155	0.4%
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper	10,726	64.9%			10,726	27.0%
	OCC	1,334	8.1%			1,334	3.4%
	Office Paper	26	0.2%			26	0.1%
	Telephone Directories	317	1.9%			317	0.8%
	Mixed Paper	75	0.5%			75	0.2%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	2,809	17.0%			2,809	7.1%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			96	0.4%	96	0.2%
Other	Consumer Electronics			109	0.5%	109	0.3%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		16,540	100.0%	23,142	100%	39,682	100.0%
Reported Residue [1]		2,895	14.9%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches				
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste	2,758	4.4%	3,555	7.2%
Metals	Aluminum Cans	40	0.1%	1,220	2.5%
	Tin/ Steel Cans			<1	0.0%
	Mixed Metals	1,917	3.1%		
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)	50	0.1%	1,220	2.5%
	HDPE Natural (#2)	50	0.1%		
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic			<1	0.0%
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper			2,441	4.9%
	OCC	61	0.1%	9,759	19.8%
	Office Paper			6,099	12.4%
	Telephone Directories				
	Mixed Paper	24,233	38.7%	3,661	7.4%
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass			1	0.0%
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt	2,458	3.9%		
	Concrete	20,883	33.4%	10,196	20.7%
	Metals	763	1.2%		
	Natural Disaster Debris				
	Wood	9,364	15.0%		
	Other C&D			11,164	22.6%
Total Recycling		62,577	100.0%	49,318	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		16,540	467
Organics	20,649	604	22,919	647
Other	17,948	525	223	6
Total Recycling	38,597	1,130	39,682	1,120
Disposal	71,059	2,080	64,540	1,822
Waste Generation	109,655	3,209	104,222	2,943
Reported Residential Recycling Rate	35.2%		38.1%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	38,597	62,577	101,174	39,682	49,318	88,999
Disposal	71,059	150,996	222,055	64,540	136,447	200,987
Waste Generation	109,655	213,573	323,228	104,222	185,765	289,986
Reported Recycling Rate	35.2%	29.3%	31.3%	38.1%	26.5%	30.7%

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City of Prosper

The City of Prosper responded the 2010 Update but was unable to collect recycling data from their private hauler. SAIC contacted the City of Prosper's private hauler to assist the city in collecting recycling data. Recycling data for the City of Prosper is not available.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	132	100.0%			132	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		132	100.0%			132	100.0%
Projected Residue [1]		20	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			132	80
Organics			-	-
Other			-	-
Total Recycling			132	80
Disposal			5,958	3,621
Waste Generation			6,090	3,702
Reported Residential Recycling Rate			2.2%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	57	1.5%			57	1.5%
	Tin/ Steel Cans	131	3.4%			131	3.4%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	111	2.9%			111	2.9%
	HDPE Natural (#2)	70	1.8%			70	1.8%
	HDPE Colored (#2)	41	1.1%			41	1.1%
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper	3,152	82.7%			3,152	82.7%
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper	224	5.9%			224	5.9%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	23	0.6%			23	0.6%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		3,810	100.0%			3,810	100.0%
Projected Residue [1]		569	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported ICI Recycling

		FY 2005		FY 2010	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches	Not reported in 2005 Benchmarking Study.			
	Grass				
	Leaves				
	Tree Stumps				
	Mixed Yard Trimmings				
	Food Waste				
Metals	Aluminum Cans				
	Tin/ Steel Cans				
	Mixed Metals				
	Major Appliances				
	Other Ferrous				
	Other Nonferrous				
Plastics	PETE (#1)				
	HDPE Natural (#2)				
	HDPE Colored (#2)				
	PVC (#3)				
	LDPE (#4)				
	PP (#5)				
	PS (#6)				
	Other (#7)				
	Mixed Plastic				
	Other Plastic				
Paper	Old Magazines				
	Old Newspaper				
	OCC			1,516	96.4%
	Office Paper				
	Telephone Directories				
	Mixed Paper			56	3.6%
	Other Paper				
Glass	Clear Glass				
	Amber Glass				
	Green Glass				
	Mixed Glass				
Wood	Wood Packaging				
	Other Wood				
HHW	Cleaning Supplies				
	Painting Supplies				
	Used Oil				
	Antifreeze				
	Lead Acid Batteries				
	Household Batteries				
	Other HHW				
Other	Consumer Electronics				
	Textiles				
	Tires				
	Commingled				
	Other				
C&D	Asphalt				
	Concrete				
	Metals				
	Natural Disaster Debris				
	Wood				
Total Recycling				1,573	100%

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		3,810	279
Organics	-	-	-	-
Other	3,426	238	-	-
Total Recycling	3,426	238	3,810	279
Disposal	45,921	3,185	49,370	3,621
Waste Generation	49,347	3,422	53,180	3,901
Reported Residential Recycling Rate	6.9%		7.2%	

Reported Residential, ICI and Overall Recycling Rate

	FY 2005 (tons)			FY 2010 (tons)		
Material	Residential	ICI	Overall	Residential	ICI	Overall
Total Recycling	3,426	Unknown	Unknown	3,810	1,573	5,383
Disposal	45,921	179,879	225,801	49,370	62,510	111,880
Waste Generation	49,347	Unknown	Unknown	53,180	64,082	117,263
Reported Recycling Rate	6.9%	Unknown	Unknown	7.2%	2.5%	4.6%

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Reported Residential Recycling

September 2009 to August 2010

Category	Material	Curbside Program		Other Recycling		Total Recycling	
		Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	7	8.1%			7	1.8%
	Tin/ Steel Cans	18	20.3%			18	4.4%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines			<1	0.1%	<1	0.1%
	Old Newspaper			1	0.3%	1	0.2%
	OCC						
	Office Paper			<1	0.1%	<1	0.1%
	Telephone Directories	27	31.0%			27	6.7%
	Mixed Paper			2	0.7%	2	0.6%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	36	40.6%			36	8.8%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			3	1.0%	3	0.8%
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			1	0.2%	1	0.2%
Other	Consumer Electronics			2	0.5%	2	0.4%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Wood						
	Other C&D			312	97.0%	312	76.1%
Total Recyclables		89	100.0%	322	100%	410	100.0%
Proposed Residue [1]		13	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		89	73
Organics	-	-	-	-
Other	347	246	322	263
Total Recycling	347	246	410	335
Disposal	3,739	2,654	4,428	3,621
Waste Generation	4,086	2,900	4,838	3,957
Reported Residential Recycling Rate	8.5%		8.5%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			1,216	99.2%	1,216	99.2%
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			1	0.1%	1	0.1%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil			2	0.1%	2	0.1%
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood			7	0.5%	7	0.5%
Total Recyclables				1,225	100%	1,225	100%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			-	-
Organics			1,216	937
Other			9	7
Total Recycling			1,225	944
Disposal			4,258	3,281
Waste Generation			5,483	4,225
Reported Residential Recycling Rate			22.3%	

The City of Roanoke responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Roanoke's private hauler to assist in collecting recycling data. The private hauler agreed to complete the survey on behalf of the city, but the private hauler never provided a completed survey response.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans	12	0.8%			12	0.7%
	Tin/ Steel Cans	32	2.1%			32	1.9%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)	12	0.8%			12	0.7%
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic	24	1.6%			24	1.4%
Paper	Old Magazines						
	Old Newspaper	1,285	83.5%			1,285	75.7%
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper	173	11.3%			173	10.2%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies			24	15.0%	24	1.4%
	Used Oil			4	2.4%	4	0.2%
	Antifreeze			<1	0.2%	<1	0.0%
	Lead Acid Batteries						
	Household Batteries						
	Other HHW			9	5.9%	9	0.6%
Other	Consumer Electronics			15	9.1%	15	0.9%
	Textiles						
	Tires			107	67.4%	107	6.3%
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,539	100.0%	159	100%	1,698	100.0%
Reported Residue [1]		80	5.0%				

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		1,539	265
Organics	-	-	-	-
Other	1,320	286	159	27
Total Recycling	1,320	286	1,698	293
Disposal	13,480	2,924	21,011	3,621
Waste Generation	14,800	3,211	22,708	3,914
Reported Residential Recycling Rate	8.9%		7.5%	

The City of Rowlett responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Rowlett's private hauler to assist in collecting recycling data. Recycling data for the City of Rowlett is not available.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	158	100.0%			158	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		158	100.0%			158	100.0%
Projected Residue [1]		24	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			158	110
Organics			-	-
Other			-	-
Total Recycling			158	110
Disposal			2,808	1,952
Waste Generation			2,966	2,062
Reported Residential Recycling Rate			5.3%	

City of Sachse

The City of Sachse responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Sachse's private hauler to assist in collecting recycling data. The private hauler agreed to complete the survey on behalf of the city, but the private hauler never provide a complete survey.

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City of Saginaw

The City of Saginaw responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Saginaw's private hauler to assist in collecting recycling data. Recycling data for the City of Saginaw is not available.

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City of Sanger

The City of Sanger was added to the list of cities surveyed for the 2010 Update. SAIC did not receive a survey response from the City of Sanger.

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The City of Seagoville did not respond to the 2010 Update. The residential recycling rate reported in the 2005 Benchmark Study was 2.5%.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	1,999	100.0%			1,999	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		1,999	100.0%			1,999	100.0%
Projected Residue [1]		299	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Survey.			
Curbside Program			1,999	431
Organics			-	-
Other			-	-
Total Recycling			1,999	431
Disposal			15,834	3,416
Waste Generation			17,833	3,848
Reported Residential Recycling Rate			11.2%	

Reported Residential Recycling

September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals			12	0.6%	12	0.6%
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			36	1.9%	36	1.9%
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper			69	3.6%	69	3.6%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Wood						
	Other C&D			1,821	94.0%	1,821	94.0%
Total Recyclables				1,938	100%	1,938	100%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Study.			
Curbside Program			-	-
Organics			-	-
Other			1,938	825
Total Recycling			1,938	825
Disposal			8,501	3,621
Waste Generation			10,438	4,447
Reported Residential Recycling Rate			18.6%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			2,500	88.5%	2,500	88.5%
	Food Waste						
Metals	Aluminum Cans			1	0.0%	1	0.0%
	Tin/ Steel Cans			2	0.1%	2	0.1%
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic			46	1.6%	46	1.6%
Paper	Old Magazines			1	0.0%	1	0.0%
	Old Newspaper			38	1.3%	38	1.3%
	OCC			86	3.1%	86	3.1%
	Office Paper			55	1.9%	55	1.9%
	Telephone Directories						
	Mixed Paper			87	3.1%	87	3.1%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics			9	0.3%	9	0.3%
	Textiles						
	Tires						
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables				2,825	100%	2,825	100.0%
Reported Residue [1]							

1 Reported Residue represents the amount of residue reported by the city in response to the survey.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			-	-
Organics			2,500	1,014
Other			325	132
Total Recycling			2,825	1,146
Disposal			5,773	2,342
Waste Generation			8,598	3,487
Reported Residential Recycling Rate			32.9%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			1,136	86.7%	1,136	26.2%
	Food Waste						
Metals	Aluminum Cans	60	2.0%			60	1.4%
	Tin/ Steel Cans	85	2.8%			85	2.0%
	Mixed Metals						
	Major Appliances			30	2.3%	30	0.7%
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)	55	1.8%			55	1.3%
	HDPE Natural (#2)	75	2.5%			75	1.7%
	HDPE Colored (#2)	53	1.8%			53	1.2%
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper	1,532	50.5%			1,532	35.3%
	OCC	397	13.1%	13	1.0%	409	9.4%
	Office Paper						
	Telephone Directories						
	Mixed Paper	188	6.2%			188	4.3%
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass	586	19.3%			586	13.5%
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			1	0.1%	1	0.0%
	Painting Supplies			<1	0.0%	<1	0.0%
	Used Oil			3	0.3%	3	0.1%
	Antifreeze			<1	0.0%	<1	0.0%
	Lead Acid Batteries			2	0.1%	2	0.0%
	Household Batteries			<1	0.0%	<1	0.0%
	Other HHW						
Other	Consumer Electronics			25	1.9%	25	0.6%
	Textiles						
	Tires			7	0.5%	7	0.2%
	Commingled						
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris			94	7.2%	94	2.2%
	Wood						
Total Recyclables		3,032	100.0%	1,310	100%	4,342	100.0%
Projected Residue [1]		453	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		3,032	475
Organics	60	10	1,136	178
Other	2,168	373	174	27
Total Recycling	2,228	383	4,342	681
Disposal	17,400	2,991	10,312	1,616
Waste Generation	19,628	3,374	14,654	2,297
Reported Residential Recycling Rate	11.4%		29.6%	

The City of Trophy Club responded to the 2010 Update. The city attempted to collect data from their private hauler but the city's recycling data was not available due to the small size of the garbage and recycling routes; tonnages for the city are not tracked separately.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings			4,420	100.0%	4,420	65.9%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	2,289	100.0%			2,289	34.1%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		2,289	100.0%	4,420	100.0%	6,709	100.0%
Projected Residue [1]		342	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling				
Curbside Program	Not Reported Separately		2,289	628
Organics	2,820	709	4,420	1,213
Other	1,164	292	-	-
Total Recycling	3,984	1,001	6,709	1,842
Disposal	16,111	4,048	8,580	2,355
Waste Generation	20,095	5,049	15,289	4,197
Reported Residential Recycling Rate	19.8%		43.9%	

The City of Watauga responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Watauga's private hauler to assist in collecting recycling data. The private hauler was unresponsive to SAIC's multiple phone calls and e-mails.

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Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches			4,000	64.7%	4,000	61.0%
	Grass			1,040	16.8%	1,040	15.9%
	Leaves			911	14.7%	911	13.9%
	Tree Stumps						
	Mixed Yard Trimmings			225	3.6%	225	3.4%
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies			<1	0.0%	<1	0.0%
	Painting Supplies			2	0.0%	2	0.0%
	Used Oil			<1	0.0%	<1	0.0%
	Antifreeze						
	Lead Acid Batteries			<1	0.0%	<1	0.0%
	Household Batteries			1	0.0%	1	0.0%
	Other HHW			<1	0.0%	<1	0.0%
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	377	100.0%			377	5.8%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		377	100.0%	6,179	100%	6,556	100.0%
Projected Residue [1]		56	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmark Study.			
Curbside Program			377	87
Organics			6,176	1,421
Other			2	1
Total Recycling			6,556	1,508
Disposal			8,126	1,869
Waste Generation			14,682	3,377
Reported Residential Recycling Rate			44.7%	

Reported Residential Recycling
September 2009 to August 2010

		Curbside Program		Other Recycling		Total Recycling	
Category	Material	Reported Tons	Percent of Total	Reported Tons	Percent of Total	Reported Tons	Percent of Total
Organics	Brush and Branches						
	Grass						
	Leaves						
	Tree Stumps						
	Mixed Yard Trimmings						
	Food Waste						
Metals	Aluminum Cans						
	Tin/ Steel Cans						
	Mixed Metals						
	Major Appliances						
	Other Ferrous						
	Other Nonferrous						
Plastics	PETE (#1)						
	HDPE Natural (#2)						
	HDPE Colored (#2)						
	LDPE (#4)						
	PP (#5)						
	PS (#6)						
	Other (#7)						
	Mixed Plastic						
Paper	Old Magazines						
	Old Newspaper						
	OCC						
	Office Paper						
	Telephone Directories						
	Mixed Paper						
Glass	Clear Glass						
	Amber Glass						
	Green Glass						
	Mixed Glass						
Wood	Wood Packaging						
	Other Wood						
HHW	Cleaning Supplies						
	Painting Supplies						
	Used Oil						
	Antifreeze						
	Lead Acid Batteries						
	Household Batteries						
	Other HHW						
Other	Consumer Electronics						
	Textiles						
	Tires						
	Commingled	246	100.0%			246	100.0%
	Other						
C&D	Asphalt						
	Concrete						
	Metals						
	Natural Disaster Debris						
	Wood						
Total Recyclables		246	100.0%			246	100.0%
Projected Residue [1]		37	13.0%				

1 Residue tons is based on average residue as reported by participating cities.

Reported Residential Recycling Rate

	FY 2005		FY 2010	
Material	Tons	Lbs/HH	Tons	Lbs/HH
Recycling	Not reported in 2005 Benchmarking Survey.			
Curbside Program			246	60
Organics			-	-
Other			-	-
Total Recycling			246	60
Disposal			8,951	2,197
Waste Generation			9,197	2,257
Reported Residential Recycling Rate			2.7%	

The City of White Settlement did not have any recycling programs during the 2005 Benchmark Survey and did not respond to the 2010 Update.

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The City of Wylie responded to the 2010 Update but was unable to obtain data from their hauler. SAIC contacted the City of Wylie's private hauler to assist in collecting recycling data. The private hauler was unresponsive to SAIC's multiple phone calls and e-mails.

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Appendix B

Municipal Survey: Residential Recycling

Municipal Survey: Residential Recycling

Background

The North Central Texas Council of Governments has retained R. W. Beck to conduct a Recycling Rate Survey for the 16-county North Central Texas Region. Over 80 communities have been selected to participate in this effort to calculate a region-wide recycling rate. This survey will update the original survey, the Regional Recycling Rate Benchmarking Study, completed in 2007. You may access the original study at http://www.nctcog.org/envir/SEELT/reduction/studies.asp

*The following survey is intended for communities to provide information on materials recycled from **residential** sources. If your community would like to provide information on materials recycled from industrial, commercial, or institutional (ICI) sources, please complete the ICI Recycling Survey that can be found at the link above.*

Survey Deadline

Please provide all responses by February 28, 2011. All responses may be returned to R. W. Beck by e-mail, fax or mail (e-mail is preferred). Please send all responses to the attention of Katie Wussow.

Email kwussow@rwbeck.com

Fax (512) 450-0515

Mail Katie Wussow
R. W. Beck
5806 Mesa Dr, Suite 310
Austin, TX 78731

Timeframe for Recycling Data

Please provide data for the 12 month period beginning September 1, 2009 and ending August 31, 2010. If data is not available for this time period, please provide information for the most recent 12 month period for which data is available. If an alternate time period is used, please note on the survey.

Recycling Information Requested

Participants will utilize this survey to provide information on recyclable materials generated from residential sources.[1] Examples of residential sources include the following:

[1] For the purposes of this survey, residential sources refers to single-family residential only, and does not include multi-family recycling, school recycling, or any other source beyond single-family residential.

- Curbside recycling programs
- Curbside yard waste programs
- Residential drop-off centers
- One-time events for the collection of recyclables from residents
- Any other program in which recyclables generated from residential sources are collected

R. W. Beck welcomes survey participants to submit any available documentation that supports the completed survey. Examples would include: reports from haulers or processors of material, copies of weight tickets from material recovery facilities or composting facilities, or any other documentation that supports the completed survey. Such documentation is encouraged but not required.

Completing the Survey

Section 1 – Participant Information

In Section 1, please identify your municipality and the primary contact person for completing the survey. In the event that data needs to be clarified, this person will be the main point of contact for R. W. Beck and NCTCOG.

Section 2 – Basic Program Information

In Section 2, please provide responses to these basic questions about refuse and recycling programs in your community.

Section 3 – Residential Curbside Recycling Program Information

In Section 3, please provide information about your residential curbside recycling program. If your community does not have a curbside recycling program, skip to Section 5. Please provide as much information as possible, including the hauler and processor (material recovery facility) of materials.

Sections 4a and 4b – Residential Curbside Recycling Information Program Tonnage

In Section 4, please provide information regarding the quantity of material collected in your curbside recycling program. Each community should complete either Section 4a or 4b, but not both.

- **Section 4a** – Complete if your community has a curbside recycling program, but you do not have information on the quantity of recyclables on a material-by-material basis.
- **Section 4b** – Complete if your community has a curbside recycling program and you do have information on a material-by-material basis.

Please indicate the units of information provided (tons, pounds, or cubic yards). Also, indicate whether the quantity of recyclables is gross weight or net weight, per the definitions below.

- **Gross weight** – The quantity of materials delivered to the recycling facility, as shown on a vehicle weight ticket.
- **Net weight** – The quantity of materials recycled, excluding any residuals or contamination.

Section 5 – Other Residential Recycling

In Section 5, please provide information regarding materials recycled from other recycling programs in your community, not including curbside recycling. These programs may include curbside yard waste collection, drop-off centers, special events for household hazardous waste or electronics collection, and any other residential recycling program. Please indicate the source of all material reported, either drop-off, curbside, event, or other.

Section 6 – Construction and Demolition Debris Recycling

In Section 6, please provide information regarding construction and demolition debris recycled from residential sources only.

Section 7 – Disposal

In Section 7, indicate the quantity of residential municipal solid waste disposed during the survey time period. This refers to material hauled to a landfill, transfer station, or other disposal facility.

Questions?

Should you have any questions, please contact Katie Wussow at (512) 651-6404.

NCTCOG Recycling Rate Survey 2010

MUNICIPAL SURVEY: Residential Recycling

Section 1 - Survey Participant Information

City Name	Contact Person	Title
Street Address	City	Zip Code
Telephone	Fax	Email

Section 2 – Basic Program Information

1. Describe any changes to your community's residential recycling program since August 2005. (Check all that apply and describe in the space provided.)

   ☐ Addition of recycling program (please describe)

   ☐ Removal of recycling program (please describe)

   ☐ Change in collection frequency for curbside recycling (please describe)

   ☐ Change container for curbside recycling(please describe)

   ☐ Change in service provider (please describe)

2. Does your community have a variable (aka Pay As You Throw) rate structure for residential refuse rates in which residents are charged a fee according to the size of refuse container used?

3. Estimate your community's annual budget for public education related to residential recycling, excluding staff salaries and benefits during the time period for which data has been provided.

NCTCOG Recycling Rate Survey 2010
MUNICIPAL SURVEY: Residential Recycling

Section 3 – Residential Curbside Recycling Program Information

INSTRUCTIONS: Sections 3 and 4 of this survey request information about your community's **CURBSIDE RECYCLING** program. If your community does not have a curbside recycling program, skip to Section 5.

Section 3 – Complete if your community has a curbside recycling program.

Section 4a – Complete if your community has a curbside recycling program, but you do not have information on the quantity of recyclables on a material-by-material basis.

Section 4b – Complete if your community has a curbside recycling program and you do have information on a material-by-material basis.

Hauler:		Processor:	
Contact Person:		Contact Person:	
Phone:		Phone:	
E-mail:		E-mail:	

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate):

Program Information

Program Type (check one)	☐ Source Separated	☐ Dual-Stream	☐ Single-Stream	☐ Other	
Container Type (check one)	☐ Rolling Cart	☐ Bin	☐ Bags	☐ Other	
Container Size (check one)	☐ 10-22 gal	☐ 30-40 gal	☐ 60-70 gal	☐ 90-100 gal	☐ Other
Collection Frequency (check one)	☐ Weekly	☐ Every Other Week	☐ Monthly	☐ Other	

Section 4a– Residential Curbside Recycling Program Tonnage

INSTRUCTIONS: Use this form to document tons of material that are generated from your community's **CURBSIDE RECYCLING** program. If your community does not have a curbside recycling program, skip to Section 6.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate):

Commingled Materials

Commingled Materials	_____	☐ Tons	☐ Pounds	☐ Cubic Yards	☐ Gross Weight	☐ Net Weight

NCTCOG Recycling Rate Survey 2010
MUNICIPAL SURVEY: Residential Recycling

Section 4b– Residential Curbside Recycling Program Tonnage

INSTRUCTIONS: Use this form to document tons of material that are generated from your community's **CURBSIDE RECYCLING** program. If your community does not have a curbside recycling program, skip to Section 6.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Metals			Plastic			Paper		
Units	☐ Tons ☐ Pounds ☐ Cubic Yards		Units	☐ Tons ☐ Pounds ☐ Cubic Yards		Units	☐ Tons ☐ Pounds ☐ Cubic Yards	
Weight	☐ Gross Weight	☐ Net Weight	Weight	☐ Gross Weight	☐ Net Weight	Weight	☐ Gross Weight	☐ Net Weight
Aluminum cans			PETE (#1)			Old magazines		
Tin/steel cans			HDPE Natural (#2)			Old newspaper		
Mixed metals			HDPE Colored (#2)			Old corrugated containers		
			PVC (#3)			Office paper		
			LDPE (#4)			Telephone directories		
			PP (#5)			Mixed paper		
			PS (#6)					
			Other (#7)					
			Mixed Plastic					

Glass			Other (Please Itemize)		
Units	☐ Tons ☐ Pounds ☐ Cubic Yards		Units	☐ Tons ☐ Pounds ☐ Cubic Yards	
Weight	☐ Gross Weight	☐ Net Weight	Weight	☐ Gross Weight	☐ Net Weight
Clear			List Below:		
Amber			Residue/Contamination		
Green					
Mixed Glass					

Notes/Comments:

NCTCOG Recycling Rate Survey 2010
MUNICIPAL SURVEY: Residential Recycling

Section 5 – Other Residential Recycling

INSTRUCTIONS: Use this form to document tons of material that are generated from other recycling programs in your community, *excluding* curbside recycling. If your community does not have any additional recycling programs, skip to Section 6.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate):

Material	Weight	Unit	Collection Method	Processor
Organics				
Brush and Branches		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Grass		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Leaves		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Tree Stumps		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Mixed Yard Trimmings		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Food Waste		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Metals				
Aluminum Cans		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Tin/Steel Cans		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Major Appliances		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other Ferrous		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other Nonferrous		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Mixed Metals		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Paper				
Old Magazines		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Old Newspaper		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Old Corrugated Containers		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Office Paper		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Telephone Directories		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Mixed Paper		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other Paper		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	

NCTCOG Recycling Rate Survey 2010

MUNICIPAL SURVEY: Residential Recycling

Plastic				
PETE (#1)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
HDPE Natural (#2)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
HDPE Colored (#2)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
PVC (#3)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
LDPE (#4)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
PP (#5)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
PS (#6)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other (#7)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Mixed Plastic		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other Plastic		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Glass				
Clear		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Amber		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Green		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Mixed Glass		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Wood				
Wood Packaging		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other Wood		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
HHW/Electronics				
Cleaning supplies		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Painting supplies		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Used oil		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Antifreeze		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Lead acid batteries		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Household Batteries		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other HHW		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Consumer Electronics		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	

NCTCOG Recycling Rate Survey 2010

MUNICIPAL SURVEY: Residential Recycling

Other				
Textiles		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Tires		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Commingled		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	
Other (please specify)		☐ Tons ☐ Lbs ☐ CY ☐ Gal	☐ Drop-off ☐ Curbside ☐ Event ☐ Other	

Notes/Comments:

NCTCOG Recycling Rate Survey 2010
MUNICIPAL SURVEY: Residential Recycling

Section 6 – Construction & Demolition Debris Recycling

INSTRUCTIONS: Use this form to document tons of construction and demolition material that are generated from residential customers in your community.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Construction and Demolition Waste				
Asphalt	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Concrete	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Metals	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Natural disaster debris	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Wood	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Other C&D	_____	☐ Tons	☐ Pounds	☐ Cubic Yards

Section 7 – Municipal Solid Waste Disposal

INSTRUCTIONS: Please indicate the amount of municipal solid waste collected from residential sources in your community and hauled to a landfill, transfer station, or other disposal facility.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Municipal Solid Waste (MSW)				
Residential MSW	_____	☐ Tons	☐ Pounds	☐ Cubic Yards

Notes/Comments:

Municipal Survey: Industrial, Commercial, and Institutional Recycling

Background

The North Central Texas Council of Governments has retained R. W. Beck to conduct a Recycling Rate Survey for the 16-county North Central Texas Region. Over 80 communities have been selected to participate in this effort to calculate a region-wide recycling rate. This survey will update the original survey, the Regional Recycling Rate Benchmarking Study, completed in 2007. You may access the original study at http://www.nctcog.org/envir/SEELT/reduction/studies.asp

*The following survey is intended for communities to provide information on materials recycled from **industrial, commercial, or institutional (ICI)** sources. If your community would like to provide information on materials recycled from residential sources, please complete the Residential Recycling Survey that can be found at the link above.*

Survey Deadline

Please provide all responses by February 28, 2011. All responses may be returned to R. W. Beck by e-mail, fax or mail (e-mail is preferred). Please send all responses to the attention of Katie Wussow.

Email kwussow@rwbeck.com

Fax (512) 450-0515

Mail Katie Wussow
R. W. Beck
5806 Mesa Dr, Suite 310
Austin, TX 78731

Timeframe for Recycling Data

Please provide data for the 12 month period beginning September 1, 2009 and ending August 31, 2010. If data is not available for this time period, please provide information for the most recent 12 month period for which data is available. Please note if an alternate time period is used.

Recycling Information Requested

Participants will utilize this survey to provide information on recyclable materials generated from ICI sources. Examples of ICI sources include the following:

- Apartment buildings and other multi-family housing
- Schools and government buildings

- Hospitals, prisons, and other institutions
- University campuses
- Office buildings, restaurants, retail, and other commercial buildings

R. W. Beck welcomes survey participants to submit any available documentation that supports the completed survey. Examples would include: reports from haulers or processors of material, copies of weight tickets from material recovery facilities or composting facilities, or any other documentation that supports the completed survey. Such documentation is encouraged but not required.

Completing the Survey

Section 1 – Participant Information

In Section 1, please identify your municipality and the primary contact person for completing the survey. In the event that data needs to be clarified, this person will be the main point of contact for R. W. Beck and NCTCOG.

Section 2 – Basic Program Information

In Section 2, please provide responses to these basic questions about refuse and recycling for ICI entities in your community.

Section 3 – Commercial Recycling (Commingled)

In Section 3, please provide information regarding the quantity of recyclable material collected from ICI sources in your community. If you have ICI recycling information on a material by material basis, skip to Section 4.

Sections 4 – Commercial Recycling (Material by Material)

In Section 4, please provide information regarding the quantity of recyclable material collected from ICI sources on a material by material basis. Please indicate the units of information provided (tons, pounds, or cubic yards). Also, indicate whether the quantity of recyclables is gross weight or net weight, per the definitions below.

- **Gross weight** – The quantity of materials delivered to the recycling facility, as shown on a vehicle weight ticket.
- **Net weight** – The quantity of materials recycled, excluding any residuals or contamination.

Section 5 – Construction and Demolition Debris Recycling

In Section 5, please provide information regarding construction and demolition debris recycled from ICI sources only.

Section 6 – Disposal

In Section 6, indicate the quantity of ICI municipal solid waste disposed during the survey time period. This refers to material hauled to a landfill, transfer station, or other disposal facility.

Questions?

Should you have any questions, please contact Katie Wussow at (512) 651-6404.

NCTCOG Recycling Rate Survey 2010

MUNICIPAL SURVEY: Industrial, Commercial, and Institutional (ICI) Recycling

Section 1 - Survey Participant Information		
City Name	Contact Person	Title
Street Address	City	Zip Code
Telephone	Fax	Email

Section 2 – Basic Program Information

1. Describe your community's involvement in industrial, commercial, and institutional (ICI) recycling.

2. Does your community have an exclusive provider of ICI *refuse* services? If so, please indicate the entity responsible for ICI refuse service.

3. Estimate your community's annual budget for public education related to ICI recycling, excluding staff salaries and benefits.

4. Does your community have information regarding the quantity of material recycled on a material by material basis? If no, proceed to Section 3. If yes, skip to Section 4.

Recycling Rate Benchmarking Survey 2010

MUNICIPAL SURVEY: Industrial, Commercial, and Institutional (ICI) Recycling

Section 3 – ICI Recycling (Commingled)

INSTRUCTIONS: Use this form to document tons of material that are generated from your community's ICI recycling program.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Commingled Materials

Commingled Materials		☐ Tons ☐ Pounds ☐ Cubic Yards	☐ Gross Weight ☐ Net Weight

Section 4 – ICI Recycling (Material by Material)

INSTRUCTIONS: Use this form to document tons of material that are generated from your community's ICI recycling program.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Material	Weight	Unit	Hauler	Processor
Organics				
Brush and Branches		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Grass		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Leaves		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Tree Stumps		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Mixed Yard Trimmings		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Food Waste		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Metals				
Aluminum Cans		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Tin/Steel Cans		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Major Appliances		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other Ferrous		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other Nonferrous		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Mixed Metals		☐ Tons ☐ Lbs ☐ CY ☐ Gal		

Recycling Rate Benchmarking Survey 2010

MUNICIPAL SURVEY: Industrial, Commercial, and Institutional (ICI) Recycling

Material	Weight	Unit	Hauler	Processor
Paper				
Old Magazines		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Old Newspaper		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Old Corrugated Containers		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Office Paper		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Telephone Directories		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Mixed Paper		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other Paper		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Plastic				
PETE (#1)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
HDPE Natural (#2)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
HDPE Colored (#2)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
PVC (#3)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
LDPE (#4)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
PP (#5)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
PS (#6)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other (#7)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Mixed Plastic		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other Plastic		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Glass				
Clear		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Amber		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Green		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Mixed Glass		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Wood				
Wood Packaging		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other Wood		☐ Tons ☐ Lbs ☐ CY ☐ Gal		

Recycling Rate Benchmarking Survey 2010

MUNICIPAL SURVEY: Industrial, Commercial, and Institutional (ICI) Recycling

HHW/Electronics				
Cleaning supplies		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Painting supplies		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Used oil		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Antifreeze		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Lead acid batteries		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Household Batteries		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other HHW		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Consumer Electronics		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other				
Textiles		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Tires		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Commingled		☐ Tons ☐ Lbs ☐ CY ☐ Gal		
Other (please specify)		☐ Tons ☐ Lbs ☐ CY ☐ Gal		

Notes/Comments:

Recycling Rate Benchmarking Survey 2010

MUNICIPAL SURVEY: Industrial, Commercial, and Institutional (ICI) Recycling

Section 5 – Construction & Demolition Debris Recycling

INSTRUCTIONS: Use this form to document tons of construction and demolition material that are generated from ICI customers in your community.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Construction and Demolition Waste

Asphalt	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Concrete	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Metals	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Natural disaster debris	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Wood	_____	☐ Tons	☐ Pounds	☐ Cubic Yards
Other C&D	_____	☐ Tons	☐ Pounds	☐ Cubic Yards

Section 6 – Municipal Solid Waste Disposal

INSTRUCTIONS: Please indicate the amount of municipal solid waste collected from ICI sources in your community and hauled to a landfill, transfer station, or other disposal facility.

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Municipal Solid Waste (MSW)

Commercial MSW	_____	☐ Tons	☐ Pounds	☐ Cubic Yards

Notes/Comments:

Appendix C

Processor Survey

Processor Survey

Background

The North Central Texas Council of Governments has retained R. W. Beck to conduct a Recycling Rate Survey for the 16-county North Central Texas Region. Over 80 communities have been selected to participate in this effort to calculate a region-wide recycling rate. This survey will update the original survey, the Regional Recycling Rate Benchmarking Study, completed in 2007. You may access the original study at http://www.nctcog.org/envir/SEELT/reduction/studies.asp

Survey Deadline

Please provide all responses by February 28, 2011. All responses may be returned to R. W. Beck by e-mail, fax or mail (e-mail is preferred). Please send all responses to the attention of Katie Wussow.

Email kwussow@rwbeck.com

Fax (512) 450-0515

Mail Katie Wussow
R. W. Beck
5806 Mesa Dr, Suite 310
Austin, TX 78731

Timeframe for Recycling Data

Please provide data for the 12 month period beginning September 1, 2009 and ending August 31, 2010. If data is not available for this time period, please provide information for the most recent 12 month period for which data is available. If an alternate time period is used, please note on the survey.

Recycling Information Requested

The data being collected for this survey has been divided into three groups:

- Primary recyclable materials
- Other recyclable materials
- Construction and demolition (C&D) recyclable materials

Where indicated, please report data for either residential or industrial, commercial, and institutional (ICI), or both.

Recycling Rate by Location

One of the goals of this survey is understand recycling activity on the most detailed geographic level possible. In order to achieve that goal, we are requesting data on the most specific geographic level available. Our order of preference is by:

1. City or community
2. Zip code
3. County

We would like to reiterate that all individual responses will remain confidential. All data presented in the report will be aggregated. No individual responses will be shared through written communication with the NCTCOG and therefore will not be subject to public records laws. We recognize that each surveyed company will need to decide for which geographic level it is willing to provide data.

Completing the Survey

Section 1 – Participant Information

In Section 1, please identify your company and contact information.

Section 2 – Primary Business Activity

In Section 2, please indicate your primary business activity.

Section 3 – Primary Recyclable Materials

Section 3 represents the key component of this survey. **For each geographic level serviced by your company, as discussed in the "Recycling Rate by Location" section above, please complete Section 3.** For example, if you are a material recovery facility that accepts waste from customers located in five cities, please complete Section 3 five times, one for each city. You may make as many copies of the Section 3 survey response as necessary. Please identify the entity and reporting period for each Section 3 survey response.

Sections 4 and 5 – Other Recyclable Materials and C&D

If your company recycles those materials listed in Section 4 and Section 5 (C&D), please respond using the same methodology as Section 3.

Other Options to Complete the Survey

Sections 3, 4 and 5 serve as a guide to what data R. W. Beck would like to receive in the response. We are aware that many companies keep their information electronically. Rather than completing these three survey response Sections, you may also provide us either an electronic spreadsheet or a hard copy print out from your software that provides the information requested in Sections 3, 4 and 5.

Questions?

Should you have any questions, please contact Katie Wussow at (512) 651-6404.

NCTCOG Recycling Rate Survey 2010

PROCESSOR SURVEY

Confidential

Section 1 - Survey Participant Information

Company Name	Name of Contact	Title
Street Address	City	Zip Code
Telephone	Fax	Email

Section 2 - Primary Business Activity (check all that apply)

- ☐ Material Recovery Facility
- ☐ Scrap Metal Processor
- ☐ Tire Processor
- ☐ Glass Beneficiation Plant
- ☐ Paper Processor
- ☐ Plastic Processor
- ☐ Composting Operation
- ☐ Buy-back Center
- ☐ Drop-off Center
- ☐ Other: _____

Section 3 – Primary Recyclable Materials

Entity Location: _____ (Please submit one copy of Section 3 for each available geographic location)

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Metals

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Aluminum cans		
Tin/steel cans		
Major appliances		
Other Ferrous		
Other nonferrous		
Mixed metals		

Plastic

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
PETE		
HDPE Natural		
HDPE Colored		
PVC		
LDPE		
PP		
PS		
Other Plastic		
Mixed Plastic		

Paper

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Old magazines		
Old newspaper		
Old corrugated containers		
Office paper		
Telephone directories		
Mixed paper		
Other paper		

Yard Trimmings

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Brush and branches		
Grass		
Leaves		
Tree stumps		
Mixed yard trimmings		

Glass

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Clear		
Amber		
Green		
Mixed Glass		

Commingled/Other

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Commingled		
Other		

Wood

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Wood Packaging		
Other Wood		

Food Waste

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Food Waste		

Textiles

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Textiles		

Section 4 – Other Recyclable Materials

Entity Location: _____ (Please submit one copy of Section 4 for each geographic location)

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Other Materials

☐ Tons ☐ Pounds ☐ Cubic Yards

	Residential	Commercial
Tires		
Consumer electronics		

Household Hazardous Waste

	Residential	Commercial				
Cleaning supplies			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal
Painting supplies			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal
Used oil			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal
Antifreeze			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal
Lead acid batteries			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal
Household Batteries			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal
Other			☐ Tons	☐ Lbs	☐ Cubic Yards	☐ Gal

Section 5 - Construction and Demolition Recyclable Materials

Entity Location: _____ (Please submit one copy of Section 5 for each geographic location)

Reporting Period: ☐ September 1, 2009 to August 31, 2010 ☐ Other (please indicate): _____

Construction and Demolition Waste

Asphalt		☐ Tons	☐ Pounds	☐ Cubic Yards
Concrete		☐ Tons	☐ Pounds	☐ Cubic Yards
Metals		☐ Tons	☐ Pounds	☐ Cubic Yards
Natural disaster debris		☐ Tons	☐ Pounds	☐ Cubic Yards
Wood		☐ Tons	☐ Pounds	☐ Cubic Yards
Other C&D		☐ Tons	☐ Pounds	☐ Cubic Yards

Notes/Comments:

CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT

THIS CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT (Agreement) is made and entered into as of _____ 2011 by and between SAIC, Energy, Environment & Infrastructure (the Consultant), and _____ (the Company).

In consideration of the Company allowing the Consultant access to certain information so that the Consultant can provide certain services to the North Central Texas Council of Governments and the mutual covenants contained herein, it is agreed as follows:

1. **Definitions.**

1.1 Confidential Information. Confidential Information means all information, processes, process parameters, methods, practices, technical plans, and related documentation, customer lists, price lists, supplier lists, marketing plans, financial information, training materials and all other compilations of information which relate to the business of the Company.

2. **Confidential Information and Trade Secrets.**

2.1 Acknowledgment by Consultant. The Consultant acknowledges that: (i) the Consultant will have access to and become acquainted with the Confidential Information of the Company; (ii) the Confidential Information is proprietary to the Company and are commercially and competitively valuable to the Company; (iii) that the unauthorized use or disclosure of the Confidential Information would cause harm to the Company; and (iv) that the Company is the exclusive owner of and retains all right, title and interest in and to all copyright and other proprietary rights with respect to the Confidential Information.

2.2 No Use or Disclosure. The Consultant agrees not to use outside of the scope of services provided by the Consultant to North Central Texas Council of Governments or disclose (directly or indirectly) any Confidential Information at any time or in any manner to any third party for any reason without the prior written consent of the Company. The Consultant may only disclose the Confidential Information to its employees on a need-to-know basis, and to the extent necessary for such employee to provide such services to North Central Texas Council of Governments. At or prior to the time of such disclosure to the Consultant's employee, the Consultant shall provide such person with a copy of this Agreement and advise such person that any information of the Company is confidential and proprietary to the Company. Such employee shall acknowledge that the disclosure of Confidential Information is restricted by the terms of this Agreement and agree to comply with the terms of this Agreement. The Consultant agrees to take such precautions and to follow such procedures as may be reasonably requested by the Company to protect and preserve the Company's proprietary rights in the Confidential Information, including, but not limited to, providing the Company a list of the names and titles of each of its employees and officers who have received any of the Confidential Information.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

SAIC, Energy, Environment & Infrastructure

By:_____
Name:_____
Title:_____

_____
(company name)

By:_____
Name:_____
Title:_____

Appendix D

Glossary of Terms

Appendix D
Glossary of Terms

Aggregated: process of combining data from multiple sources into one group in order to ensure that individual data sources cannot be segregated.

Aluminum Cans: refers to containers and packaging such as beverage cans or food and other nonfood cans. Examples of recycling include processing cans into new aluminum products (containers or foil).

Brush and Branches: refers to the natural woody material collected from yard trimmings. Whole trees, such as Christmas trees, are included. Excludes leaves and grass. Examples of recycling include processing brush and branches into compost additive or mulch.

Commercial Waste: refers to waste generated by businesses, such as office buildings; retail and wholesale establishments; and restaurants.

Commingled: refers to a mixture of several recyclable materials reported together

Construction and Demolition (C&D) Material: refers to waste that is generated during the construction, remodeling, repair, or demolition of buildings, bridges, pavements, and other structures. C&D debris includes concrete, asphalt, lumber, steel girders, steel rods, wiring, dry wall, carpets, window glass, metal and plastic piping, tree stumps, soil, and other miscellaneous items related to the activities listed above.

Consumer electronics: any electrical or electronic appliance that are used for personal or home business use

Disposal: refuse that is not salvaged or recycled.

Drop-Off Center: refers to a method of collection whereby recyclable or compostable materials are taken by individuals to a collection site and placed in designated containers.

Exports: refers to municipal solid waste and recyclables that are transported outside the state or locality where they originated.

Food Waste: refers to uneaten food and food preparation wastes from residences and commercial establishments (grocery stores, restaurants, and produce stands), institutional sources (school cafeterias), and industrial sources (employee lunchrooms). Excludes food processing waste from agricultural and industrial operations. Examples of recycling include composting and using food scraps to feed pigs, but excludes source reduction activities such as backyard (onsite) composting and use of food items for human consumption (food banks).

Glass: refers to containers and packaging such as beer and soft drink bottles, wine and liquor bottles, and bottles and jars for food, cosmetics, and other products. For the purpose of recycling, container glass is generally separated in to color categories (clear, green, and amber or brown). Examples of recycling include processing glass into new containers, construction materials (aggregate), or fiberglass (insulation).

Grass: refers to lawn clippings. Excludes leaves, brush, and branches.

Hauler: refers to a waste collection company that provides complete refuse removal services. Many will also collect recyclables.

High Density Polyethylene (HDPE): refers to a plastic product in which the ethylene molecules are linked in long chains with few side branches. Examples of products made from HDPE include milk jugs, detergent bottles, margarine tubs, and garbage containers.

Household Hazardous Waste (HHW): refers to hazardous products that are used and disposed of by residential – rather than industrial – consumers. These products include some paints, stains, varnishes, solvents, and pesticides, and other materials or products containing volatile chemicals that catch fire, react, explode under certain circumstances, or that are corrosive or toxic. HHW is derived from municipal solid waste (MSW) with the exception of used oil which is excluded from the category of MSW. Examples of recycling include processing HHW components into new products after they have been diverted from the waste stream.

Imports: refers to municipal solid waste and recyclables that have been transported to a state or locality for processing or final disposition, but that did not originate in that state or locality.

Industrial, Commercial, and Institutional (ICI): refers to waste that is generated from either industrial, commercial or insititutional sources.

Industrial Waste: refers to non-hazardous wastes discarded at industrial sites from packaging and administrative sources. Examples include corrugated boxes, plastic film, wood palates, lunchroom wastes, and office paper. Excludes industrial process wastes from manufacturing operations.

Institutional Waste: refers to waste generated at institutions, such as schools, libraries, hospitals, and prisons. Examples include cafeteria and restroom trashcan wastes, office papers, classroom wastes, and yard trimmings.

Lead-Acid Batteries: refers to batteries used in automobiles, trucks, and motorcycles. They contain plastic, lead (a toxic metal), and sulfuric acid. Excludes lead-acid batteries from large equipment, heavy-duty trucks and tractors, aircraft, military vehicles, and boats.

Leaves: refers to the foliage of a plant. Excludes brush, branches, and grass.

Low Density Polyethylene (LDPE): refers to a plastic material in which the ethylene molecules are linked in a random fashion with the main chains of the polymer having long and short side branches. LDPE is used for both rigid containers and plastic film applications.

Major Appliances: refers to many different types, sizes and styles of ovens, microwave ovens, air-conditioners, refrigerators, freezers, washers, dryers, dishwashers, water heaters, dehumidifiers, or trash compactors manufactured for household, commercial, or recreational use. Steel is the predominant material used in the manufacture of large appliances. Other materials found in appliances (in varying amounts) include, copper, brass aluminum, glass, rubber and paperboard.

Mixed Glass: refers to recovered glass that is not sorted into specific categories (clear, green, amber and brown glass).

Mixed Metals: refers to aluminum, ferrous, non-ferrous and tin/steel cans from residential, institutional, and commercial sources.

Mixed Paper: refers to recovered paper that is not sorted into specific categories (old magazines, old newspapers, and old corrugated containers).

Mixed Plastic: refers to recovered plastic that is not sorted into specific categories (HDPE, LDPE, and PETE).

Mixed Yard Trimmings: refers to grass, leaves, tree branches and brush, and tree stumps from residential, institutional, and commercial sources. Examples of recycling include processing yard trimmings into compost, mulch, or other similar uses, and landspreading leaves (when the depth of the application allows for degradation of the organic plant material.

Municipal Solid Waste (MSW): refers to wastes such as durable goods, nondurable goods, containers and packaging, food scraps, yard trimmings, and miscellaneous inorganic wastes form residential, commercial, institutional, and industrial sources, such as appliances, automobile tires, old newspapers, clothing, disposable tableware, office and classroom paper, wood pallets, and cafeteria wastes. Excludes solid wastes from other sources, such as construction and demolition debris, autobodies, municipal sludges, combustion ash, and industrial process wastes that might also be disposed of in municipal waste landfills or incinerators.

Municipal Solid Waste (MSW) Generation: total amount of refuse that is disposed and recycled.

North Central Texas Council of Governments (NCTCOG): area designated by the State as the regional planning agency for municipal solid waste in the 16-county region surrounding Dallas/Fort Worth.

North Central Texas Region: consists of the following sixteen counties: Collin, Dallas, Denton, Ellis, Erath, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, Tarrant, and Wise.

Office Paper: refers to high-grade papers such as copier paper, computer printout, and stationery. These papers are almost entirely made of uncoated chemical pulp, although some amounts of ground wood are used. It should be noted that this category of also is generated at locations other than offices, such as homes and institutions (schools).

Old Corrugated containers (OCC): refers to corrugated containers made from unbleached, unwaxed paper with ruffled (corrugated) inner liner.

Old Magazines: refers to dry, coated magazines, catalogues, and similar printed materials.

Old Newspaper: refers to periodicals printed on newsprint. Includes groundwater inserts (advertisements). Examples of recycling include processing old newspapers into new paper products (newspaper, paperboard, boxboard, or animal bedding).

Organic waste: consists of yard trimmings, wood and food waste.

Other Ferrous Metals: refers to ferrous metals from strapping, furniture, and metal found in tires and consumer electronics. Excludes the large quantities of metals found in construction materials or transportation products, such as automobiles, locomotives, and ships.

Other MSW: consists of tires, HHW and consumer electronics.

Other Nonferrous Metals: refers to nonferrous metals (lead, copper, and zinc) from appliances, consumer electronics, and non-packaging aluminum products (foil, closures, and aluminum lids from bimetal cans). Excludes nonferrous metals form industrial applications and construction and demolition debris.

Other Paper: refers to paper from books, third class mail, other commercial printing, paper towels, paper plates and cups, other non-packaging paper (posters, photographic papers, cards, and games), milk cartons, folding boxes (cereal boxes), bags, wrapping papers, and other paper and paperboard products.

Other Plastic: refers to plastic from appliances, furniture, trash bags, cups, eating utensils, sporting and recreational equipment, and other non-packaging plastic products.

Other Recyclables: other miscellaneous recyclable items found in municipal solid waste that cannot be otherwise categorized.

Other Wood: refers to wood from furniture, cabinets from consumer electronics, and other non-packaging wood products. Excludes wood recovered from construction and demolition activities (lumber and tree stumps) and industrial process waste (shavings and sawdust). Examples of recycling include processing wood into mulch, compost additive, or animal bedding.

Polyethylene Terephthalate (PETE): refers to a thermoplastic material used to manufacture plastic soft drink containers and rigid containers. PETE has a high melting point, is clear in its natural state, and has a relatively high density.

Polypropylene (PP): refers to a plastic polymer formed by linking propylene molecules. PP has good resistance to heat and is used in flexible and rigid packaging, film, and textiles.

Polystyrene (PS): refers to a plastic polymer formed by linking styrene molecules. PS is used to make a variety of products including plastic cutlery and food containers. It is often used in its foamed state.

Polyvinyl Chloride (PVC): refers to the family of plastic copolymers, also known as vinyl. PVC is used to make products such as pipes, bottles, upholstery, and automotive parts.

Primary MSW: consists of metals, plastic, paper, yard trimmings, glass, commingled, wood, food waste and textiles.

Processors: refers to intermediate operators that handle recyclable materials from collectors and generators for the purpose of preparing materials for recycling (material recovery facilities, scrap metal yards, paper dealers, and glass beneficiation plants).

Processors act as intermediaries between collectors and end users of recovered materials.

Residential Waste: refers to waste generated by single- and multi-family homes including old newspapers, clothing, disposable tableware, food packaging, cans and bottles, food scraps and yard trimmings. Excludes food scraps and yard trimmings that are diverted to backyard (onsite) composting.

Survey time period: September 1, 2009 to August 31, 2010.

Telephone Directories: refers to telephone directories printed on paper with high ground wood content. Other directories, such as zip code and area code directories, are included in this category when they are printed on the same type of paper.

Textiles: refers to fibers from discarded apparel, furniture, linens (sheets and towels), and carpets. Examples of recycling include converting apparel and linens into wiper rags and processing textiles into new products (linen paper or carpet padding).

Tin/Steel Cans: refers to tin-coated steel containers such as cans used for food packaging.

Tires: refers to passenger car and light- and heavy-duty truck tires. Excludes high-speed industrial tires (from airplanes), bus tires, motorcycle tires, and special service tires, such as military, agricultural, off-road, and slow speed industrial tires (from construction vehicles). Examples of recycling include processing car and truck tires into new rubber products (trash cans, storage containers, and rubberized asphalt), and the use of whole tires for playground and reef construction.

Used Oil: refers to spent motor oil from passenger cars and trucks that is collected at specified locations for recycling. Used oil is excluded form the category of municipal solid waste.

Waste Generation: refers to the amount (weight or volume) of materials and products that enter the waste stream before recycling, composting, landfilling, or combustion takes place.

Waste Stream: refers to the total flow of solid waste from homes, businesses, institutions, and manufacturing plants that must be recycled, incinerated, or disposed of in landfills; or any segment thereof, such as the “residential waste stream” or the “recyclable waste stream.”

Wood Packaging: refers to wood products such as pallets, crates, and barrels. Excludes wood from furniture and other non-packaging wood products. Examples of recycling include processing wood into new products (mulch and compost).

Appendix E

Conversion Factors

Conversion Factors

Material	Conversion to Tons	Source
Pounds	0.0005	E
CY - MSW	0.3750	A
CY- Yard Waste- Uncompacted	0.1250	C
CY- Yard Waste- Compacted	0.3200	C
CY-Grass-Uncompacted	0.2000	A
CY-Leaves-Uncompacted	0.1125	A
CY-Concrete	1.5000	B
CY- Styrofoam	0.0031	B
CY- Aluminum cans	0.0310	C
CY- Glass, Semi-Crushed	0.7000	C
CY- Other C&D	0.2000	D
CY- Wood, Cord, C&D	0.0055	C
CY-Consumer Electronics	0.0046	E
Gallon- Paint	0.0055	B
Gallon- Antifreeze	0.0042	C
Gallon- Motor Oil	0.0037	C
Oil Filters- Uncrushed	0.0870	C
Tire- Car	0.1000	C
Lead Acid Battery	0.0180	C
(24x12x10) Box of Mixed Paper	0.0110	E
Fluorescent Bulb	0.0003	B

Sources:

[A] EPA- Appendix B, 'Standard Volume-to-Weight Conversion Factors'

[B] EPA Publication, 'Standard Volume-to-Weight Conversion Factors'

[C] National Recycling Coalition, 'Measurement Standards and Reporting Guideline'

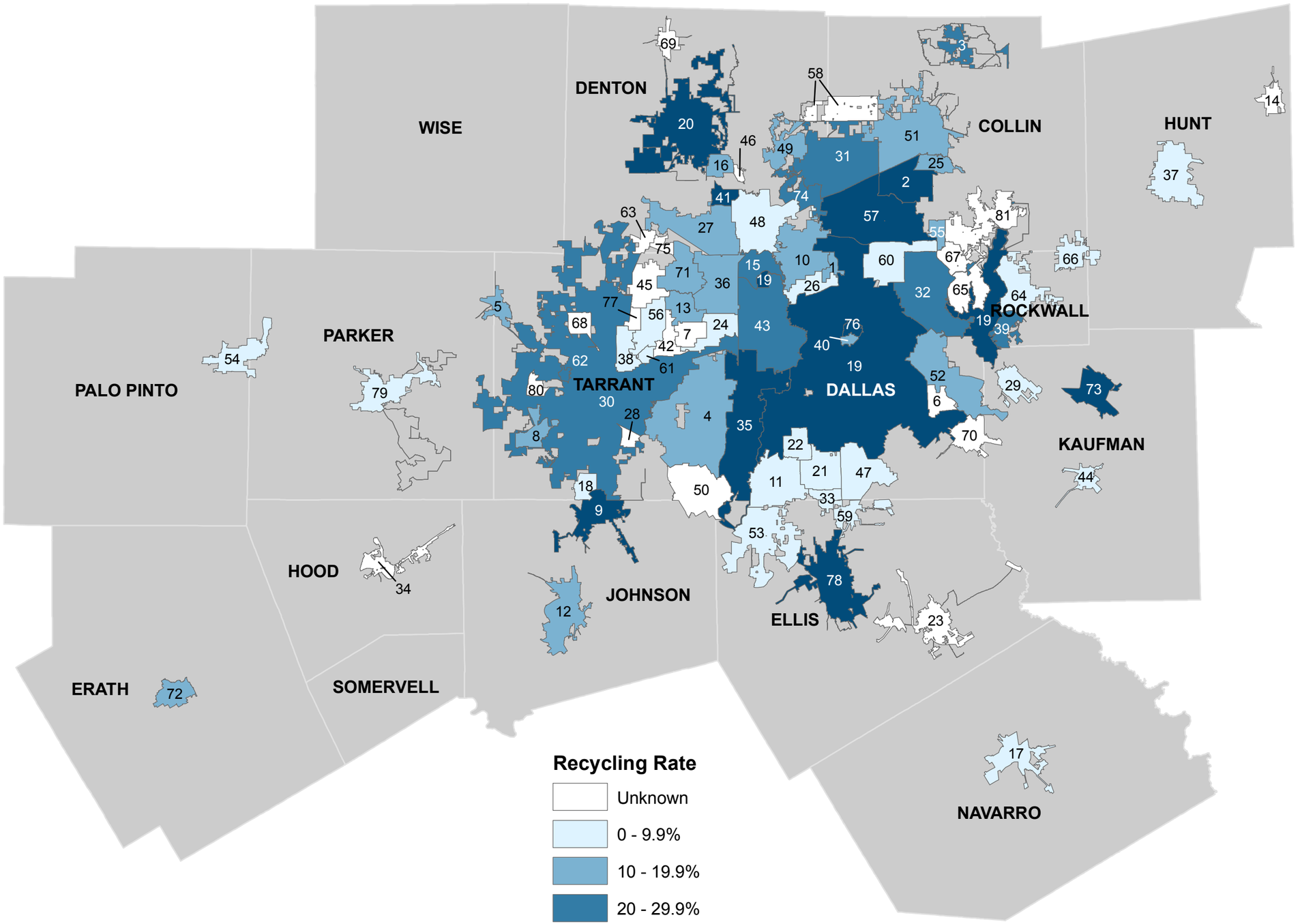
[D] North Central Texas Council of Governments C&D Study, Visual Waste Characterization (400 loads)

[E] Calculations done by SAIC Staff

Appendix F

Recycling Rates Map

NCTCOG Residential Recycling Rates by City



LEGEND

1	Addison	42	Hurst
2	Allen	43	Irving
3	Anna	44	Kaufman
4	Arlington	45	Keller
5	Azle	46	Lake Dallas
6	Balch Springs	47	Lancaster
7	Bedford	48	Lewisville
8	Benbrook	49	Little Elm
9	Burleson	50	Mansfield
10	Carrollton	51	McKinney
11	Cedar Hill	52	Mesquite
12	Cleburne	53	Midlothian
13	Colleyville	54	Mineral Wells
14	Commerce	55	Murphy
15	Coppell	56	North Richland Hills
16	Corinth	57	Plano
17	Corsicana	58	Prosper
18	Crowley	59	Red Oak
19	Dallas	60	Richardson
20	Denton	61	Richland Hills
21	DeSoto	62	River Oaks
22	Duncanville	63	Roanoke
23	Ennis	64	Rockwall
24	Euless	65	Rowlett
25	Fairview	66	Royse City
26	Farmers Branch	67	Sachse
27	Flower Mound	68	Saginaw
28	Forest Hill	69	Sanger
29	Forney	70	Seagoville
30	Fort Worth	71	Southlake
31	Frisco	72	Stephenville
32	Garland	73	Terrell
33	Glenn Heights	74	The Colony
34	Granbury	75	Trophy Club
35	Grand Prairie	76	University Park
36	Grapevine	77	Watauga
37	Greenville	78	Waxahachie
38	Haltom City	79	Weatherford
39	Heath	80	White Settlement
40	Highland Park	81	Wylie
41	Highland Village		