



A Cost-Benefit Analysis of Municipal Solid Waste Residential Disposal Options

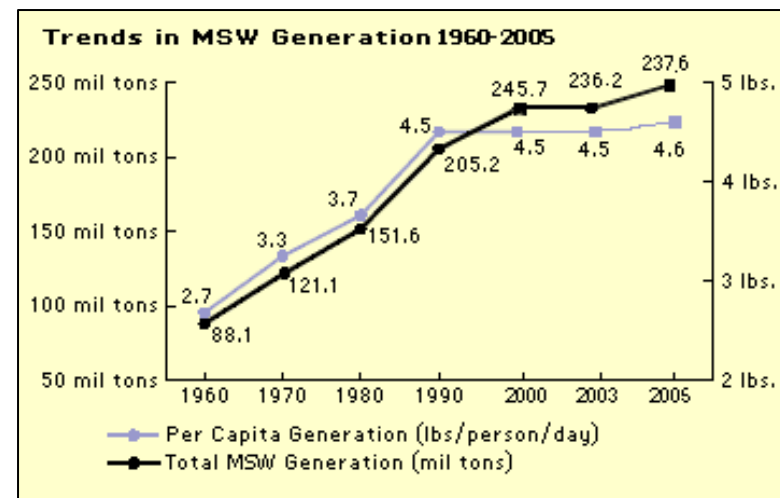
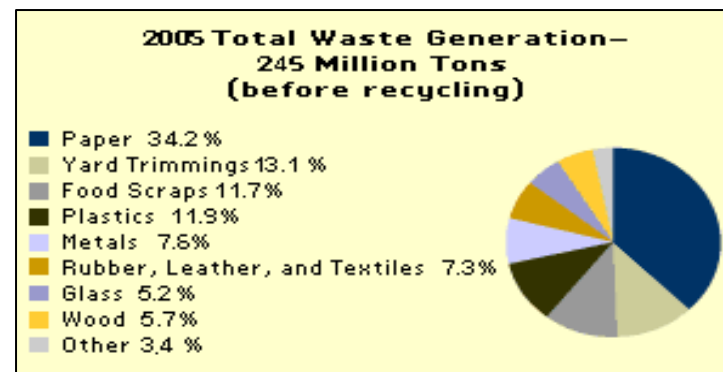
**April 29, 2008
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What is MSW?

- ***Municipal solid waste*** (MSW) includes:
 - garbage or refuse that is generated by households, commercial establishments, industrial offices or lunchrooms
 - [1], urban refuse collected for landfilling (including paper, organic matter, metals, plastic, etc.)
 - [2], and as household waste that is set aside for collection, including bulky household waste (e.g., appliances, furniture) and household hazardous waste

Waste Generation Trends in the United States

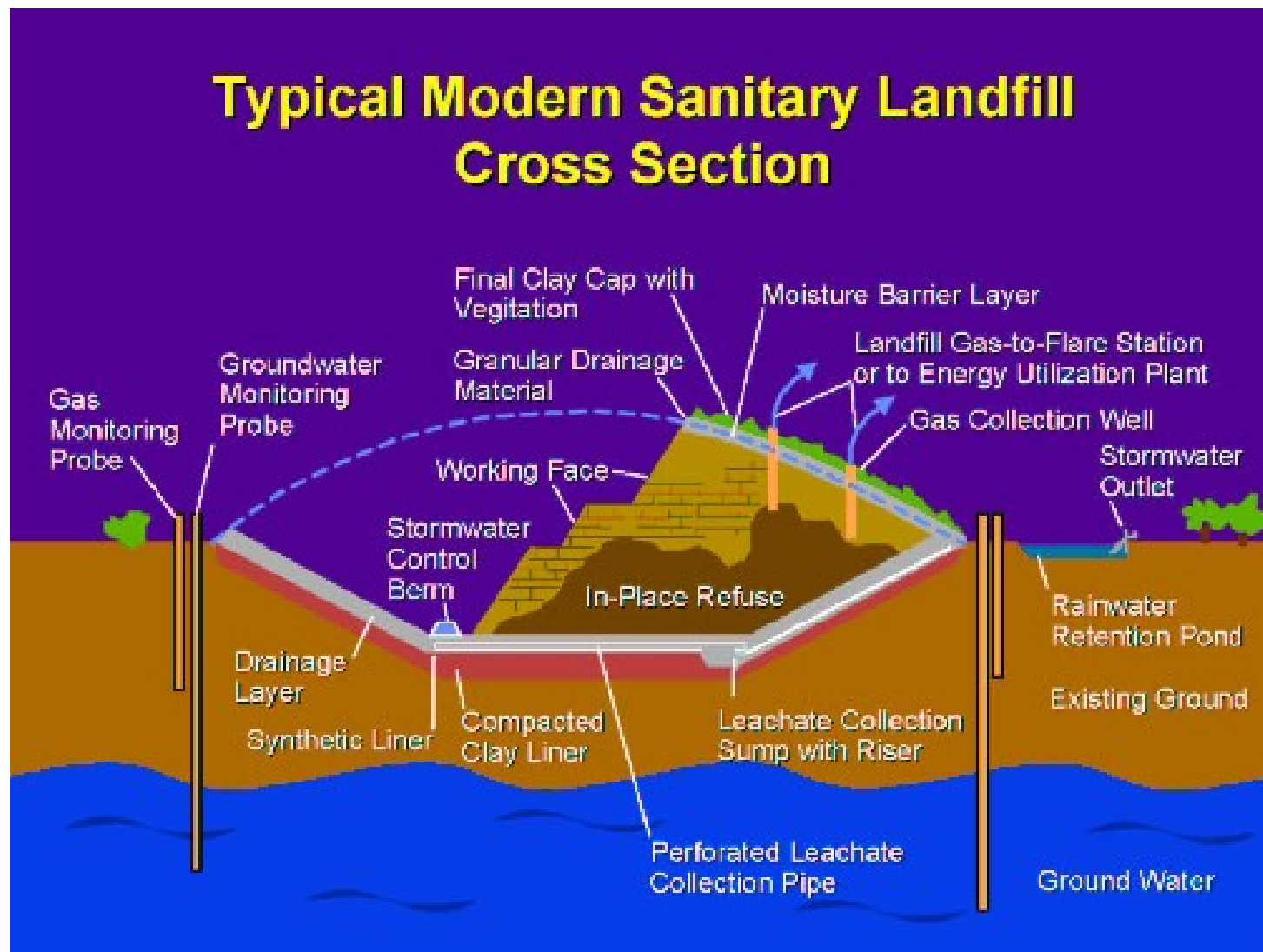
- MSW generation has doubled since 1960
- *Per capita* waste generation has remained stable since 1990 at ~4.5 lbs per person



MSW Management Options

- Recycling or Composting
 - Paper, metals, electronic components
 - Biomass
 - 32% of waste generated
- Combustion for energy recovery
 - MSW or biomass
 - 14% of waste generated
- Landfill disposal
 - 54% of waste generated

Typical Landfill Construction



Question to be Addressed

- **What is the option for the management of residential MSW with the highest net benefit (allocative efficiency) to both private consumers and the City?**

Management of Residential MSW

- Scenario #1: Private Citizens Contract with Hauling/Disposal Firm for MSW Services
- Scenario #2: Local Government Unit Enters into a Contract with Hauling/Disposal Firm for MSW Services
- Scenario #3: Local Government Unit Provides MSW Hauling Services

Scenario #1: Consumers Engage in Private Contracts

- Represents *status quo*
- No change in costs to private citizens or City
- Baseline against which other costs and benefits will be analyzed

Scenario #2: Public-Private Partnership

- Public-Private partnerships for the provision of goods and services are not new:
 - City of Indianapolis wastewater treatment
 - Indianapolis Water (Department of Waterworks)
 - Indiana Toll Road
- Nearly 50% of all US cities contract for some portion of their MSW collection
 - 28% to 42% savings realized

Scenario #3: Public Service

- Examples:
 - City of Jasper, Indiana
 - City of Columbia, Missouri
 - City of San Diego, California
- Typically, Public Services prevail when privatization has failed

Perceived Costs to Stakeholders

Scenario #1: Private Citizens Contract with Hauling/Disposal Firm for MSW Services

<u>To Consumer</u>	<u>To Town</u>	<u>To Private Hauler</u>
Price of contract	Wear and tear on road surfaces	Status Quo - No Added Costs
Variability of price from hauler to hauler	Added vehicle traffic through neighborhoods	
Unpleasantness of trash day multiple times per week	Added exhaust pollution from vehicle traffic	
	Potential for debris to be scattered if homeowners place trash on curb before leaving for a long weekend away	

Scenario #2: Local Government Unit Enters into a Contract with Hauling/Disposal Firm for MSW Services

<u>To Consumer</u>	<u>To Town</u>	<u>To Private Hauler</u>
Loss of flexibility in trash day	Administrative costs of initial contract development	Loss of market share if not successful bidder
Potential for increase in trash hauling fee, depending on existing contract	Ongoing cost of contract administration	Risk of damage to corporate reputation if not successful bidder
Possible loss of support for community events	Ordinance process (to establish administrative means for fee collection)	

Scenario #3: Local Government Unit Provides MSW Hauling Services

<u>To Consumer</u>	<u>To Town</u>	<u>To Private Hauler</u>
Loss of flexibility in trash day	Ongoing cost of program administration	Loss of market share
Potential for increase in trash hauling fee, depending on administrative costs passed through by the City	Administrative costs of initial contract development for purchase of trucks, including bond or tax increase	Possible damage to reputation with other local consumers
	Ordinance process (to establish admin means for fee collection)	
	Costs of purchasing trucks and ongoing O&M of trucks	

Perceived Benefits to Stakeholders

Scenario #1: Private Citizens Contract with Hauling/Disposal Firm for MSW Services

<u>To Consumer</u>	<u>To Town</u>	<u>To Private Hauler</u>
Freedom of choice to select hauler based on whatever criteria are important	No added administrative costs to town with status quo	Status Quo - No Added Costs
Some freedom of choice in day of week for trash pickup	Added exhaust pollution from vehicle traffic	

Scenario #2: Local Government Unit Enters into a Contract with Hauling/Disposal Firm for MSW Services

<u>To Consumer</u>	<u>To Town</u>	<u>To Private Hauler</u>
Fixed price contract that is uniform throughout the community	Fewer "trash days" during the calendar week	Gain of market share if successful bidder
Improved public safety as a result of fewer heavy vehicles in neighborhoods	Orchestrated routes have positive impact on vehicle traffic	Improved public perception as a result of contract
	Opportunity to reduce exhaust pollution from vehicle traffic	

Scenario #3: Local Government Unit Provides MSW Hauling Services

<u>To Consumer</u>	<u>To Town</u>	<u>To Private Hauler</u>
Fixed price contract that is uniform throughout the community	Fewer "trash days"	--None--
Local control means some influence in the cost of service may be available	Orchestrated routes have positive impact on vehicle traffic	
	Opportunity to reduce exhaust pollution from vehicle traffic	

Monetized Costs and Benefits to City

Scenario #1: Private Citizens Contract with Hauling/Disposal Firm for MSW Services

Status Quo - No cost change to City

Scenario #2: Local Government Unit Enters into a Contract with Hauling/Disposal Firm for MSW Services

		Year 0	Year 1	Year 2	Year 3	Totals
Costs	Administrative & General Expenses	\$ 130,700	\$ 130,700	\$ 134,621	\$ 134,621	\$ 530,642
	Contract Costs to Private Hauling Firm	\$ 972,000	\$1,036,800	\$1,101,600	\$1,166,400	\$ 4,276,800

Benefits	Account set-up Fee	\$ 225,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 270,000
	Reduced Street Maintenance (pothole repair)	\$ 600	\$ 600	\$ 600	\$ 600	\$ 2,400
	Operating Revenues	\$1,312,000	\$1,398,400	\$1,484,800	\$1,571,200	\$ 5,766,400

Scenario #3: Local Government Unit Provides MSW Hauling Services

Costs	Capital for Purchase of Trucks and Equipment	\$1,500,000				\$ 1,500,000
	Fleet Maintenance		\$ 9,600	\$ 9,600	\$ 9,600	\$ 28,800
	Administrative & General Expenses	\$1,026,504	\$1,026,504	\$1,057,299	\$1,057,299	\$ 4,167,606
	Bond Debt Service		\$ 254,577	\$ 254,577	\$ 254,577	\$ 763,731

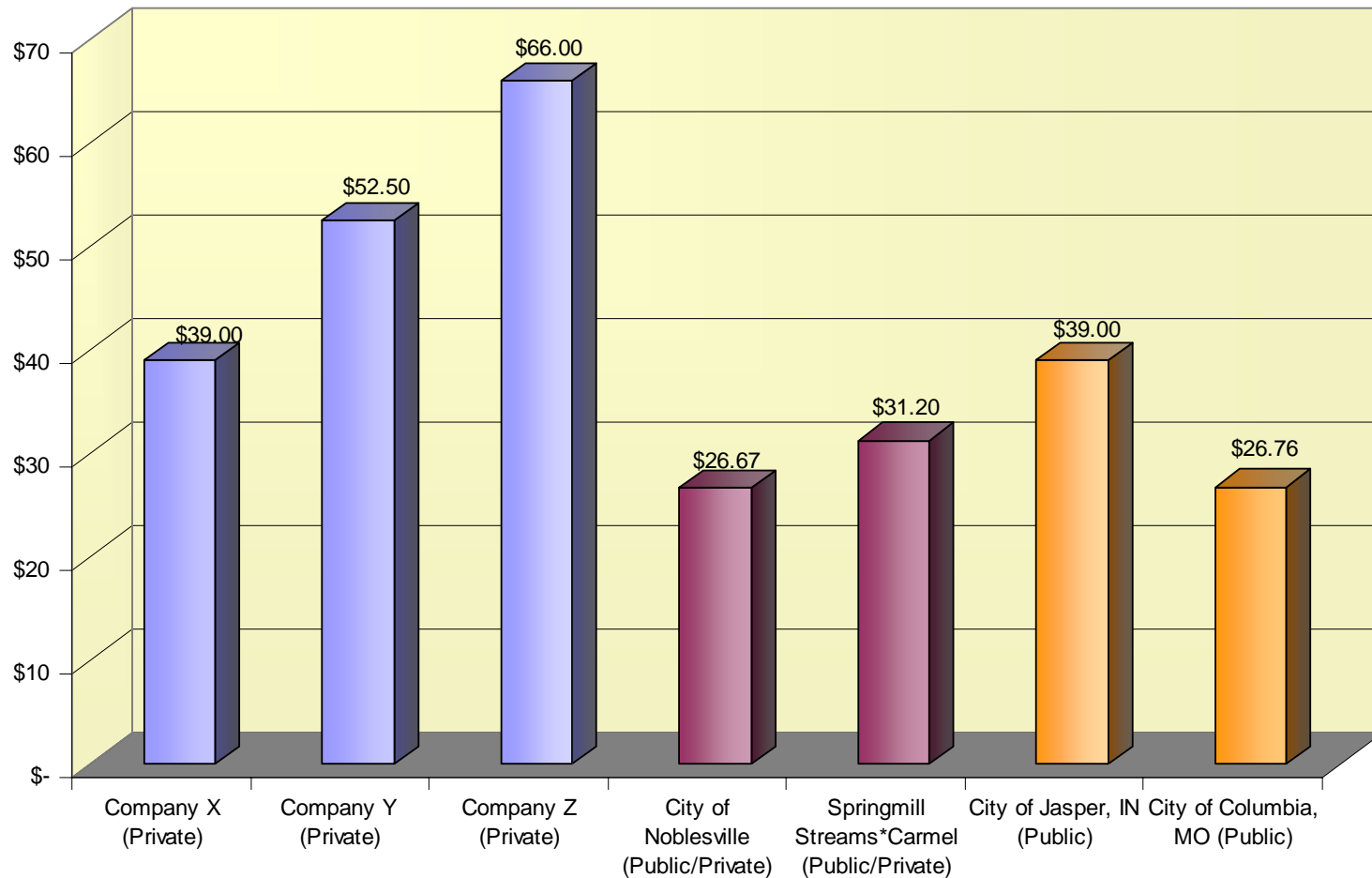
Benefits	Account set-up fee	\$ 225,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 270,000
	Reduced Street Maintenance	\$ 600	\$ 600	\$ 600	\$ 600	\$ 2,400
	Availability Fee		\$ 600,000	\$ 600,000	\$ 600,000	\$ 1,800,000
	Operating Revenues	\$1,312,000	\$1,398,400	\$1,484,800	\$1,571,200	\$ 5,766,400

Variability of Rates Paid by Consumers

Scenario #1: Private Citizens Contract with Hauling/Disposal Firm for MSW Services

Company Name	Residential Annual Rates	Comments
Company X (Private)	\$156	
Company Y (Private)	\$210	Fuel Surcharge Applies
Company Z (Private)	\$264	Discount available for senior citizens; surcharge applies to large receptacles (96 gal. containers)

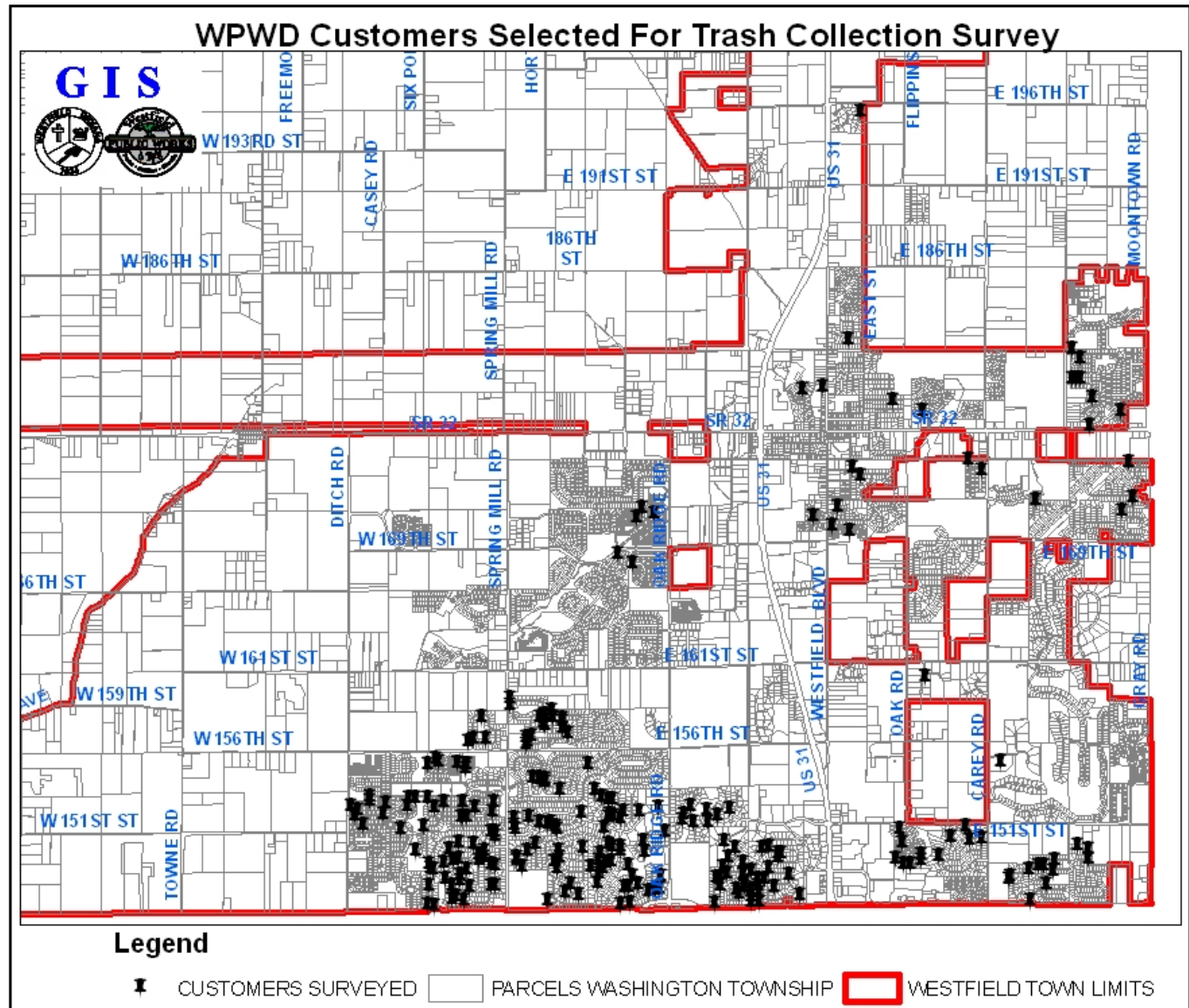
Comparison of Residential Quarterly Rates



Evaluating the *Status quo*

- Survey mailed to 250 residents of the Town of Westfield to gauge their feelings relative to the management of MSW
- Received 91 responses (36% response rate)
 - Only one response suggested Government has no role in providing the service

250 Current WPWD Customers Selected To Receive Survey



The Survey Questions

	<i>Most Important</i>				<i>Least Important</i>	
Cost of service	5	4	3	2	1	
Trash pick-up day	5	4	3	2	1	
Knowledge of waste service provider	5	4	3	2	1	
Choice of waste service provider	5	4	3	2	1	
Limiting the number trash providers in your neighborhood	5	4	3	2	1	
Heavy or bulky trash collection on a monthly basis	5	4	3	2	1	
Removal of yard wastes on a monthly basis	5	4	3	2	1	

The Survey Responses

- Cost of Service was rated *MOST IMPORTANT* by nearly 75% of the respondents
- Limiting the number of bags or containers allowable was a concern for roughly 33% of respondents
- Over 50% of the surveys revealed that yard wastes should be included in the removal service



Questions?

References

- [1] Environmental Glossary. <http://www.earth911.org/usa/master.asp?s=lib&a=glossary/glossary.asp>. Retrieved from internet website November 11, 2006.
- [2] Texas Renewable Energy Resources. Glossary. www.infinitepower.org/resglossary.htm. Retrieved from internet web site November 11, 2006.