

**APPENDIX A
PROJECT MEMO:
REGARDING COST AND REVENUE CONSIDERATIONS**

This memo is an effort to summarize the financial implications of the various systems and technologies that have been reviewed during this project for purposes of facilitating a decisive discussion regarding the recommended approach for continuing this project.

RRS has previously prepared information which provided compelling evidence that a baseline community wide collection, (with landfilling) and particularly one utilizing existing recycling technologies would provide lower cost and greater environmental performance than the current system. To incorporate the effect that the conversion technologies considered would have on a system, RRS provided the following analysis.

RRS estimated the percentage of the total waste stream that would be available for use by a conversion technology company. RRS estimated that 56% of the total waste stream could be considered biomass, 21.5% is yard waste, and 22.5% would be comprised of metals, plastic and glass.¹ The figures in the following table were used to estimate the overall system operating costs for the collection and processing of waste and recoverable materials for conversion technologies in comparison to recycling programs.

TOTAL WASTE GENERATION

Townships	Population	Single Family Households	GENERATION			
			TOTAL TONS	Waste Generation	Recyclables	Yard Waste
BASELINE	233,911	69,663	94,918	94,918	-	-
DUAL STREAM RECYCLING	233,911	69,663	94,918	65,149	9,336	20,433
SINGLE STREAM (SS)	233,911	69,663	94,918	58,811	15,674	20,433
SS WITH RECYCLEBANK	233,911	69,663	94,918	46,620	27,865	20,433
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	233,911	69,663	94,918	36,171	27,865	30,882
CONVERSION TECHNOLOGY	233,911	69,663	94,918	53,108	21,377	20,433

The overall operating cost for the conversion technologies was estimated by using recently contract bids for the separate collection of all solid waste and yard waste using curbside collection methods. These costs were a combined \$10.75 per household per month. The collection cost was added to the two different tip fees as provided by the two heat treatment technologies of \$30 and \$35 per ton. This provides an estimate of total system cost when the proposed tip increase. An increase in the tip fee by \$5 per ton results in a \$552,575 increase in system cost.

¹ MATERIALS GENERATED* IN THE MUNICIPAL WASTE STREAM, US EPA, Franklin Associates, A Division of ERG, 2006

SYSTEM COST SUMMARY

Townships	COST PER MONTH		COST PER QUARTER		COST PER YEAR	
	Cost per Household	Total Cost	Cost per Household	Total Cost	Cost per Household	Total Cost
BASILINE	\$ 16.67	\$ 1,161,050	\$ 50.00	\$ 3,483,150	\$ 200.00	\$ 13,932,602
DUAL STREAM RECYCLING	\$ 12.87	\$ 912,732	\$ 38.62	\$ 2,738,197	\$ 154.48	\$ 10,952,788
SINGLE STREAM (SS)	\$ 12.67	\$ 897,830	\$ 38.01	\$ 2,693,490	\$ 152.05	\$ 10,773,962
SS WITH RECYCLEBANK	\$ 13.24	\$ 937,197	\$ 39.72	\$ 2,811,590	\$ 158.88	\$ 11,246,360
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	\$ 13.40	\$ 948,120	\$ 40.20	\$ 2,844,359	\$ 160.79	\$ 11,377,435
CONVERSION TECHNOLOGY	\$ 15.27	\$ 1,080,305	\$ 45.81	\$ 3,240,915	\$ 183.23	\$ 12,963,659

Conversion Technology Tip Fee=\$30.00 per Ton

Conversion Technology Collection Cost = \$10.75 per Month

SYSTEM COST SUMMARY

Townships	COST PER MONTH		COST PER QUARTER		COST PER YEAR	
	Cost per Household	Total Cost	Cost per Household	Total Cost	Cost per Household	Total Cost
BASILINE	\$ 16.67	\$ 1,161,050	\$ 50.00	\$ 3,483,150	\$ 200.00	\$ 13,932,602
DUAL STREAM RECYCLING	\$ 12.87	\$ 912,732	\$ 38.62	\$ 2,738,197	\$ 154.48	\$ 10,952,788
SINGLE STREAM (SS)	\$ 12.67	\$ 897,830	\$ 38.01	\$ 2,693,490	\$ 152.05	\$ 10,773,962
SS WITH RECYCLEBANK	\$ 13.24	\$ 937,197	\$ 39.72	\$ 2,811,590	\$ 158.88	\$ 11,246,360
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	\$ 13.40	\$ 948,120	\$ 40.20	\$ 2,844,359	\$ 160.79	\$ 11,377,435
CONVERSION TECHNOLOGY	\$ 15.90	\$ 1,126,353	\$ 47.71	\$ 3,379,058	\$ 190.83	\$ 13,516,234

Conversion Technology Tip Fee=\$35.00 per Ton

Conversion Technology Collection Cost = \$10.75 per Month

SYSTEM REVENUE ESTIMATES

Based on the assumed percentages of the different materials in the overall waste stream an estimate was made of the potential revenue related to the sale of recycled materials and the sale of biomass as an energy feedstock. Given that all of the technologies that were evaluated will receive the same waste stream for the CCIRF communities it is assumed that each would be producing the same quantity of recycled material and biomass feedstock. RRS estimated the value of these products under low, medium, and high value market conditions.

RRS estimated the value of biomass as a renewable energy product at a \$20/ton, a \$25/ton and a \$30/ton price point. The values of the recyclable commodities are often cyclical in nature and are highly correlated to the national and global markets for raw materials and overall economic activity. The two heat treatment technologies that provided market estimates of the value of their recycled material had very different assumptions about the market value of the material, assuming the same quantity of marketable material.

The final chart provides a simplified net comparison of the various scenarios.

The value of the total revenue stream is much more sensitive to the value of the recycled commodities than does the change in the value of the biomass as an energy product. Although the long-term energy contracts are a critical component of financing a project, in our opinion, the consideration of the ability to market recycled commodities is a more critical factor in revenue sharing than long-term energy contracts. RRS did not estimate the

value of the biomass feedstock if it were converted to electric power at a conversion facility and sold under a long-term contract to a power utility.

This analysis illustrates that market volatility in recycled commodity markets can have a major impact on revenue sharing. The ability of a conversion technology company or the CCIRF contracted communities to reduce the market risk inherent in commodity markets is a key factor in the development of a viable program.

SYSTEM REVENUE SUMMARY – LOW VALUE

Program	GENERATION					REVENUE - LOW			
	Waste Generation	Biomass Generation	Recyclables	Yard Waste Biomass	Percent Recovered	Recyclables	Compost	Renewable Energy Product	TOTAL
BASELINE	94,918		-	-	0.0%	\$ -	\$ -		\$ -
DUAL STREAM RECYCLING	65,149		9,336	20,433	31.4%	\$ 280,374	\$ 306,495		\$ 586,869
SINGLE STREAM (SS)	58,811		15,674	20,433	38.0%	\$ 470,704	\$ 306,495		\$ 777,199
SS WITH RECYCLEBANK	46,620		27,865	20,433	50.9%	\$ 836,806	\$ 306,495		\$ 1,143,302
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	36,171		27,865	30,882	61.9%	\$ 836,806	\$ 463,237		\$ 1,300,044
CONVERSION TECHNOLOGY	13,035	43,814	17,636	20,433	86.3%	\$ 731,959	\$ -	\$ 1,284,944	\$ 2,016,903

Recyclables Weighted Average (LTL Price) = \$48/Ton

Compost = \$15/Ton

Biomass Product = \$20/Ton

SYSTEM REVENUE SUMMARY – MEDIUM VALUE

Program	GENERATION					REVENUE - MEDIUM			
	Waste Generation	Biomass Generation	Recyclables	Yard Waste Biomass	Percent Recovered	Recyclables	Compost	Renewable Energy Product	TOTAL
BASELINE	94,918		-	-	0.0%	\$ -	\$ -		\$ -
DUAL STREAM RECYCLING	65,149		9,336	20,433	31.4%	\$ 576,923	\$ 459,743		\$ 1,036,666
SINGLE STREAM (SS)	58,811		15,674	20,433	38.0%	\$ 968,564	\$ 459,743		\$ 1,428,307
SS WITH RECYCLEBANK	46,620		27,865	20,433	50.9%	\$ 1,721,892	\$ 459,743		\$ 2,181,635
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	36,171		27,865	30,882	61.9%	\$ 1,721,892	\$ 694,856		\$ 2,416,748
CONVERSION TECHNOLOGY	13,035	43,814	17,636	20,433	86.3%	\$ 1,535,284	\$ -	\$ 1,606,180	\$ 3,141,465

Recyclables Weighted Average (LTL Price) = \$97/Ton

Compost = \$22.50/Ton

Biomass Product = \$25/Ton

SYSTEM REVENUE SUMMARY – HIGH VALUE

Program	GENERATION					REVENUE - HIGH			
	Waste Generation	Biomass Generation	Recyclables	Yard Waste Biomass	Percent Recovered	Recyclables	Compost	Renewable Energy Product	TOTAL
BASELINE	94,918		-	-	0.0%	\$ -	\$ -		\$ -
DUAL STREAM RECYCLING	65,149		9,336	20,433	31.4%	\$ 1,117,475	\$ 612,991		\$ 1,730,465
SINGLE STREAM (SS)	58,811		15,674	20,433	38.0%	\$ 1,876,065	\$ 612,991		\$ 2,489,056
SS WITH RECYCLEBANK	46,620		27,865	20,433	50.9%	\$ 3,335,227	\$ 612,991		\$ 3,948,218
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	36,171		27,865	30,882	61.9%	\$ 3,335,227	\$ 926,474		\$ 4,261,701
CONVERSION TECHNOLOGY	13,035	43,814	17,636	20,433	86.3%	\$ 3,415,110	\$ -	\$ 1,927,416	\$ 5,342,527

Recyclables Weighted Average (LTL Price) = \$215/Ton

Compost = \$30/Ton

Biomass Product = \$30/Ton

SYSTEM REVENUE SUMMARY-NET VALUE

SYSTEM COSTS @ \$30 PER TON TIP FEE (CONVERSION TECHNOLOGY) WITH REVENUE ESTIMATES

Program	REVENUE - LOW			REVENUE - MEDIUM			REVENUE - HIGH		
	REVENUE TOTAL	REVENUE PER HSHLD	NET COST PER HSHLD	REVENUE TOTAL	REVENUE PER HSHLD	NET COST PER HSHLD	REVENUE TOTAL	REVENUE PER HSHLD	NET COST PER HSHLD
BASELINE	\$ -	\$ -	\$ 200.00	\$ -	\$ -	\$ 200.00	\$ -	\$ -	\$ 200.00
DUAL STREAM RECYCLING	\$ 586,869	\$ 8.42	\$ 146.05	\$ 1,036,666	\$ 14.88	\$ 139.59	\$ 1,730,465	\$ 24.84	\$ 129.63
SINGLE STREAM (SS)	\$ 777,199	\$ 11.16	\$ 140.89	\$ 1,428,307	\$ 20.50	\$ 131.54	\$ 2,489,056	\$ 35.73	\$ 116.32
SS WITH RECYCLEBANK	\$ 1,143,302	\$ 16.41	\$ 142.47	\$ 2,181,635	\$ 31.32	\$ 127.56	\$ 3,948,218	\$ 56.68	\$ 102.20
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	\$ 1,300,044	\$ 18.66	\$ 142.13	\$ 2,416,748	\$ 34.69	\$ 126.10	\$ 4,261,701	\$ 61.18	\$ 99.62
CONVERSION TECHNOLOGY ¹	\$ 2,016,903	\$ 28.95	\$ 154.28	\$ 3,141,465	\$ 45.10	\$ 138.13	\$ 5,342,527	\$ 76.69	\$ 106.54

Conversion Technology Tip Fee=\$30.00 per Ton

Conversion Technology Collection Cost = \$10.75 per Month

SYSTEM COSTS @ \$35 PER TON TIP FEE (CONVERSION TECHNOLOGY) WITH REVENUE ESTIMATES

Townships	REVENUE - LOW			REVENUE - MEDIUM			REVENUE - HIGH		
	REVENUE TOTAL	REVENUE PER HSHLD	NET COST PER HSHLD	REVENUE TOTAL	REVENUE PER HSHLD	NET COST PER HSHLD	REVENUE TOTAL	REVENUE PER HSHLD	NET COST PER HSHLD
BASELINE	\$ -	\$ -	\$ 200.00	\$ -	\$ -	\$ 200.00	\$ -	\$ -	\$ 200.00
DUAL STREAM RECYCLING	\$ 586,869	\$ 8.42	\$ 146.05	\$ 1,036,666	\$ 14.88	\$ 139.59	\$ 1,730,465	\$ 24.84	\$ 129.63
SINGLE STREAM (SS)	\$ 777,199	\$ 11.16	\$ 140.89	\$ 1,428,307	\$ 20.50	\$ 131.54	\$ 2,489,056	\$ 35.73	\$ 116.32
SS WITH RECYCLEBANK	\$ 1,143,302	\$ 16.41	\$ 142.47	\$ 2,181,635	\$ 31.32	\$ 127.56	\$ 3,948,218	\$ 56.68	\$ 102.20
SS WITH RECYCLEBANK AND ORGANICS COLLECTION	\$ 1,300,044	\$ 18.66	\$ 142.13	\$ 2,416,748	\$ 34.69	\$ 126.10	\$ 4,261,701	\$ 61.18	\$ 99.62
CONVERSION TECHNOLOGY	\$ 2,016,903	\$ 28.95	\$ 161.88	\$ 3,141,465	\$ 45.10	\$ 145.74	\$ 5,342,527	\$ 76.69	\$ 114.14

Conversion Technology Tip Fee=\$35.00 per Ton

Conversion Technology Collection Cost = \$10.75 per Month

APPENDIX B COOPERATIVE STRUCTURES

Michigan law provides a number of mechanisms for local units of government to work jointly to handle solid waste management responsibilities.

- *Public/Private Agreements:* Act 345, Public Acts of Michigan, 1978, expressly authorizes counties, municipalities and local authorities to enter into a wide variety of contracts including the authority to enter into various types of joint ventures or other cooperative working relationships with private sector entities.
- *Inter-local Agreements:* Act 35, Public Acts of Michigan, 1951, authorizes any municipal corporation to "join with any other municipal corporation, or with any number or combination thereof by contract, or otherwise as may be permitted by law, for the ownership, operation or performance, jointly, or by any 1 or more on behalf of all, of any property, facility or service which each would have the power to own, operate or perform separately". Act 7, public Acts of Michigan, 1967 (Ex Sess), as amended, also supports the use of inter-local agreements allowing local units to exercise their powers jointly.
- *Solid Waste Authorities:* Act 179, Public Acts of Michigan, 1947, as amended and Act 233, Public Acts of Michigan, 1955, as amended authorize the creation of authorities to manage waste. Only Act 233 allows a County to be a joining member of an authority.
- *Board of Public Works:* Act 185, Public Acts of Michigan, 1957 authorizes a county to establish a board of public works which is empowered to acquire a refuse system to service the county. The county enters into contracts with participating municipalities to allow for the acquisition, construction, operation, expansion of a refuse system. The contract can require full faith and credit from municipalities. Allows funding from various sources including tax levies, service charges, and special assessments. The County can finance with bonds of any type.

By choosing to participate in any or all of the above intergovernmental structures, a local unit of government may elect to assign or delegate some of these powers of regulation to another municipal entity, acting jointly to exercise powers to regulate that it holds individually. The specific structure of any of these organizational approaches must be carefully worked out with legal counsel in order to secure full powers of the enabling legislation that is cited. Failure to do so may unnecessarily limit the capabilities of the system from a legal and financial perspective.

Following are further details of how these organizational tools work.

Public/Private Agreements

Description: Act 345, Public Acts of Michigan, 1978, expressly authorizes counties, municipalities and local authorities to enter into a wide variety of contracts. Inherent in this broad contractual empowerment is the authority to enter into various types of joint ventures or other cooperative working relationships with private sector entities. Thus, Act 345 provides the best vehicle for the County to enter into contractual arrangements with local private entities to cooperatively finance and/or operate a recycling facility. There are no significant barriers to proceeding with such an arrangement provided specific actions are taken by the public sector that includes:

- Establishing a public sector organizational structure that is able to access the appropriate enabling legislation allowing sole-source negotiating with a private party for selected services.
- Putting in place a system at the local unit level that provides for the collection of recyclables, compostables and/or solid waste and the delivery of targeted materials to a designated processing facility or facilities to be identified by the public sector. Approaches include municipally operated services, contracted services, franchised services or licensing of service providers.
- Strong enough public sector involvement in the project to prevent an unregulated monopoly from developing. This at a minimum must include retaining control over: 1) the guarantees of material to be delivered to facilities; 2) the guarantees of availability of the facility to all haulers authorized to operate in the area, and 3) other conditions under which a facility must operate (e.g.: rates charged to users and quality of management of facility). Involvement in ownership and financing of a facility could also be important to showing strong public sector involvement in the project.

Fundamentally, these public sector actions are required to avoid anti-trust challenges to the proposed arrangement.

There are no significant constraints on how the selected businesses would organize themselves - assuming that the agreement between the public and private sector takes the form of a service contract. The businesses could set up a for-profit, non profit or cooperative business structure. As well, the legal structure can be a closely held stock or non-stock business organization, and does not require that membership be held open for other businesses interested in participating in operating the facility. Finally, the public sector can, and in fact should, participate aggressively in development of both the public and private sides of the proposed arrangement - the most effective means of insuring that all necessary organizational tasks are completed to standards of quality and timeliness acceptable to the public agencies.

Local businesses seeking to cooperate together to negotiate with the public agencies for operation and financing of the facility need to investigate and decide upon a structure, whether profit or nonprofit. A primary issue to these local businesses will be to overcome any concerns of antitrust collusion. From the public sector perspective, the participating units of government will want to ensure that, assuming antitrust concerns can be resolved; it has control of the pricing and supervision of the services to be rendered by this association.

If the private group seeks to make a capital contribution towards the project, the public agency could establish either a joint venture with the private group or a condominium arrangement of the facility, whereby each party has title to specified portions of the facility.

In the joint venture arrangement both the public and private entities are joint owners in the project. The joint venture would not be a formal creation of a new corporation or partnership and instead would be a contractual arrangement between the public and private parties. In this arrangement all parties own a piece of the entire project and the joint venture contract clearly spells out separation of risks and liabilities.

The condominium approach takes select portions of the project (the building, the baler, etc.) and assigns ownership and capitalization responsibilities to either the public or private party for each portion. Interests that are not easily divided are assigned to the common interest of both parties and an escrow account is established, much like a condominium arrangement for housing.

If the private party will not make a capital contribution, the public agencies would negotiate a management contract with the private group for operation of the facility. In either case, the terms of the contract will provide for systematic pricing and regulatory controls.

A non-profit or industry cooperative approach could also be used in which selected businesses in the region, would set up a business organization that would contract with the public agencies for the exclusive right to provide the services and facilities that are needed. A non-profit - non stock corporation (membership with directorship) would allow public agencies to participate. In a cooperative legal structure, shares are issued so counties couldn't participate. But private entities could certainly form.

Strengths: This approach, when successfully carried out, combines the strength of a public sector system for control in defining a consistent level of recycling and/or solid waste services across the area and a system for funding those services, with the private sector capabilities to provide those services, leveraging the use of existing resources and additional private sector capital if needed.

Weaknesses: For the public agencies, major consideration must be given to securing the lowest cost for the specified services. Competitive procurement procedures are the typical approach to securing the lowest cost for services. While this approach can help in protecting the current business activity, the public agencies will need to maintain an aggressive posture during negotiations to bind the private party to reasonable costs as part of any proposed contractual relationship.

Maintaining this aggressive public agency posture, and even setting up the necessary public sector agency relationship, as described above, can be a formidable task that will challenge public officials (elected and staff) to efficiently deal with complex decisions in a timely manner.

Financing Implications: This approach can typically use nearly all of the types of funding systems (private and public) available for solid waste and recycling system management as described in the next section.

Inter-local Agreements

Description: Both Act 35, Public Acts of Michigan, 1951, as well as the Urban Cooperation Act 7, Public Acts of Michigan, 1967 (Ex Sess), as amended, support the use of inter-local agreements allowing local units to collaborate to exercise their powers jointly and to use joint service agreements to do so.

This makes possible a wide range of potential arrangements to own, operate, administer and fund a solid waste and recycling system. Essentially any of the powers held by an individual local unit can be performed jointly instead of separately, through the use of inter-local agreements, ordinances and rules/regulations.

In an approach that parallels the public/private agreement, a public agency could perform the same roles as the private agency, under an inter-local agreement with one or more other local units.

In a similar way, two or more public agencies may jointly organize through inter-local agreements in order to set up contracts, franchises or licensing arrangements that provide for recycling services.

In another variation, local units could use intergovernmental contracts to designate the county, a board of public works or an authority as their agent to act on their behalf in promulgating a county-wide solid waste and recycling ordinance, licensing solid waste haulers, developing recycling facilities, collecting fees, sending out notices on billings, and so on. Local units would make a contractual covenant to adopt rates and charges if needed and to not adopt any of their own ordinances that would conflict with their intergovernmental agreement.

If some type of hauler licensing is part of the inter-local agreement the terms of the licensing system become key issues in setting up a smooth running collection system that crosses over multiple jurisdictions. The specific structure of the licensing must be worked out with legal counsel in order to assure a workable system. Decisions must be made on what specific legal instrument is most appropriate, should the ordinances be adopted at the local level or at the county level, how will local units assign hauler licensing to

county, what agency will be assigned licensing responsibility, how will specifications be outlined in licensing, and what will be the format and frequency of data reporting required of haulers, just to name a few.

Inter-local agreements for jointly operated systems require a consistent approach to enforcement to protect the solid waste related businesses that comply with the provisions of the licensing system. Decisions need to be made on who will do the enforcement, what penalties will be used, and how will illegal dumping be policed.

If facilities are to be developed as part of the inter-local agreement it will be critical that local units provide for a long term commitment. To gain that agreement it typically will mean that all parties have a clear understanding of what is expected. Facility and/or vendor procurement may need to begin before the organizational structure is in place so that key decisions are made prior to local units signing on. Participants will need to know what the specific bid process will be, whether there is a rationale for working only with existing players, as well as some selected details relating to the bid document e.g., material sales split, flexibility etc.

Strengths: This approach builds on the strength of a public sector system for control in defining a consistent level of recycling and/or solid waste services across the area and a system for funding those services. It allows the system to then assign other roles (operation, administrative, enforcement, etc.) to whatever public agency is most capable of handling those responsibilities. An inter-local agreement structure can be blended with any of the other three organizational tools to access these desirable features. In fact, the inter-local agreement structure often is an essential component of the system, even if based on an authority, board of public works or public/private agreement.

Weaknesses: There is no provision for a joint powers decision making body as there is with an authority or board of public works structure. Without this delegation of day-to-day operational and managerial decisions to a board, the local units are required, by necessity, to be much more actively engaged in the project. As a result, the contractual and inter-local agreement structure must clearly detail all these responsibilities and liabilities and assign roles to the various participants. If there are more than a few participants in the system then the "web" of contracts, assignments and responsibilities can become very complex. Any change in the system that requires contract amendments will face a significant administrative challenge. Local units of government that signed on to an agreement a few years ago will quite possibly have new decision makers on board when revisions come up, with the loss in institutional memory having the potential to disrupt the stability of the system. All of these contribute to the potential for a bulky, inefficient and time consuming organizational structure.

Financing Implications: Many of the types of public sector revenue generating systems available to local units can be used in this approach, as long as local unit authorization is received. This approach lacks easy access to some types of public sector bond financing as a joint entity and instead would rely on one of its participating municipalities for capitalization

Authorities

Description: Two statutes authorize the creation of authorities to manage waste. They are Act 179 of 1947, as amended and Act 233 of 1955, as amended. Only Act 233 allows the County to be a joining member of an authority. The specific structure of the authority must be carefully worked out with legal counsel in order to secure full powers of the enabling legislation.

At least two units of government are required to create an authority as provided for by statute. For the purposes of creating the required articles of incorporation, every participating unit of government will need to approve and sign the final documents. A key issue to discuss is which units will participate and how many and which ones are needed at a minimum for a "go" decision to forming the authority.

The makeup of the Board of Directors is a critical element in forming an authority. It is important that all members feel they have a representative voice in authority actions. Key issues include how many Board members should be provided for, who should appoint board members, how long should board members serve, what types of individuals should be appointed, and how should board representation be determined.

Non-voting or advisory input is also an important element in an authority's structure. Often the members appointed to an authority Board or other decision making body do not have all the expertise they would like or not all areas of information are represented. A decision must be made as to whether any system of advisory input should be provided for in the governing body of the Authority?

Transition issues can be a major challenge in setting up an authority. Existing programs that are currently in place may need to be addressed in some capacity as part of the authority's responsibilities if any new programs are likely to negatively impact those programs. Decisions must be made on whether responsibility for any preliminary expenses, existing assets/liabilities, on-going contracts or related items should be assumed by the authority at the time of creation.

Strengths: An authority structure allocates power and responsibility to the various participants in a formal decision making structure. Bylaws clearly detail administrative procedures to be followed, providing a basis for long term stability. An authority structure can be blended with any of the other three organizational tools to access these desirable power sharing features.

The authority can insulate system decision making from the often more political and sometimes less predictable legislative process of each individual participating local unit. The authority structure creates its own institutional memory, overall mission and organizational momentum, all of which are good for long-term system stability.

The mechanism for authority legal structure is very flexible and streamlined, providing for very clean contractual arrangements for agreements with local units of government - primarily through membership in authority and adoption of the authority's articles of incorporation and bylaws.

A 233 authority structure can include one or more counties and is thus well positioned to handle multi-county service areas.

Weaknesses: There are a number of developments that can make the authority structure less effective. Authorities have sometimes become more independent from local units than they would like -- with the chain of accountability broken between the members and the authority. Sometimes this political distancing can make decision making more difficult for the authority when an issue in fact is highly political.

Representation on the authority board can also be a significant issue in overall control and accountability. Larger units of government that are participating often end up giving away more decision making authority than they would like when the voting system is created. In order to keep the board size manageable, smaller units of government sometimes end up having their representation on the authority bundled together into one or more voting positions, making them feel as though they are not directly able to participate.

To address these weaknesses many authorities are structured so that the members who sit on the board are staff or elected representatives from the participating local units. This then creates another weakness in which the decision makers lack experience and expertise in the matters in which they are being asked to govern. The creation of an expert or advisory board is then needed in order to address this last weakness.

Financing Implications: Authorities provide access to bond financing capabilities independent of those capabilities held by its member local units. These member local units can also use their own public sector

funding mechanisms to fulfill their financial obligations to the authority. An authority also has the ability to access private sector finance and funding methods through public/private agreements.

Solid Waste and Recycling System Models

There are a number of ways to structure a solid waste and recycling program that will support the next generation of solid waste management and recycling services. Following are some typical system models and their strengths and weaknesses.

- Private Sector Model
- Ordinance/Licensing Model
- Contracted Services Model
- Non-Profit Service Partnership Model
- Franchise Model
- Flow Control Model
- Public Service Model

Private Sector (or Subscription) Model

Description: In some communities, there is little involvement by the public sector in solid waste management services. Citizens and businesses make their own independent arrangements for trash collection and pay their own bills. Haulers make their own decisions about what services to provide and whether to stay in business or sell-out.

Strengths: In an era of limited government capability and lack of trust in government, such approaches have become increasingly popular.

- No tax dollars are used.
- Scarce municipal financial and management resources are directed to other critical areas.
- The market driven efficiency of individual companies provides for good profit and service oriented business decisions providing for effective management of the system.
- Buyers go through the service purchasing process just like they would for a plumber, heating contractor or lawn care company.

Weaknesses:

- Overall, there is a lack of community service standards for trash and recycling.
- Access to service can be an issue for more rural areas that do not justify at the curb trash collection on economics alone.
- Many people opt for no service to avoid fees and end up dealing with trash on-site (burning/burying) and/or illegally (direct dumping or dumpster use at businesses, multi-family complexes, recreational areas and rest stops).
- Typically recycling services are not provided. When recycling services are provided they are only provided to customers willing to pay a relatively high fee.

- Competition often drives the marketplace in one of two directions. Either there are a lot of competitors with many trucks driving down each street, making stops only at their own customer's homes or businesses, typically at a high cost of service. Or there are few competitors (a much more common and emerging trend) and fees for service are high due to lack of rate competition and the level and comprehensiveness of recycling services is limited.

Risk/Financial Implications: Low financial risk for community, although usually highest cost for residents. Private firms use banks and other sources of funds for all required capital. This may limit total available capital at times but also is typically a much more efficient way to access capital quickly than many public sector approaches. Operating costs including debt retirement are covered through user fees paid by generators.

Ordinance/Licensing Model

Description: A local ordinance specifies some basic levels of service expected from haulers - often through a hauler licensing approach. Hauler licensing can include but is not limited to such requirements as requiring recycling services, collection in specific areas on certain days of the week, regular publication of fees for services, or the inspection of collection vehicles. The ordinance may also place requirements on generators. For example, households may be required to contract for service or multi-family complexes may have to screen their dumpsters and provide for recycling services.

Strengths: Allows some definition of basic services that would be available to citizens and businesses in the community while still relying on private sector resources for funding equipment and providing services. Citizen and businesses still make their own arrangements.

Weaknesses:

- Still have the problem of high cost of service either due to too much competition or too little.
- Arrangements for processing or recyclables can also be difficult to set up.
- Lack of control over quality of recycling service may prevent its more widespread adoption.
- Lack of data on program performance can limit ability to measure success.

Risk/Financial Implications: Still accesses all the private sector capital and operating fund capabilities but provides a means for the public sector agency to raise funds for program costs through licensing fees, or to distribute funds that are collected through other means (tax base, P.A. 138, surcharge, bonds, agency funds, assessments or generator fees) to licensed haulers that provide enhanced services. The perception of control by community could back fire without proper enforcement efforts. Residents may see little to no price benefit but services may improve.

Contracted Services Model

Description: Municipalities, counties or even larger developments/subdivisions bundle groups of customers together, develop specifications for service, identify a funding mechanism and then take proposals/quotes from private sector service providers to deliver the specified services. Some contracting approaches still leave the billing of customers up to the service providers while others do their own billing and pay the hauler independently. Contracting may be used for all solid waste management services in an area, only for residential, or only for a specific service type (such as curbside recycling or bulky item pickup).

Strengths:

- Allows high degree of control over what services are provided.

- Bundling of customers together allows service provider to provide lower cost, more efficient operations, documented in many cases to result in 30% plus reductions in cost to households for residential service.
- Recycling programs can be easily specified, changed, delivered efficiently and funded at necessary levels.
- The buyer of services can specify where solid waste, recyclables or compostables should go, or, at a minimum, secure guarantees that such material is being managed according to local or state laws and regulations -- limiting liability.
- Competition can be encouraged through the bidding process, providing a necessary critical mass of customers to justify an entrant into the area.

Weaknesses:

- Competition can be reduced as well when long term contracts are signed and one company wins all the work, or purchases all the contracted service providers. In the long run this can reduce options for different service providers.
- Generators (households and businesses) may no longer have a choice in who provides service.
- The buyer of service typically has to find a way to secure funds to pay the cost of the contract -- although some leave this process to the contractor.
- The purchasing process is complicated and demands financial and management resources from the buyer in order to carry out.
- Long term contracts often experience rate creep upwards which can be avoided by opening the contracting to new bidders.

Risk/Financial Implications: Can still access all the private sector capital and operating fund capabilities but also provides a means to augment this with joint public/private funding mechanisms (surcharges at landfill or transfer station) and public sector funding mechanisms (tax base, P.A. 138, surcharge, bonds, agency funds, assessments or generator fees) and to direct those funds in ways that enhance service provision.

Non-Profit Service Partnership Model

Description: This variation of the contracted services model builds a partnership around a local non-profit service provider that is focused on coordinating community good will and resources around a specific goal -- like providing recycling services to a community or county. Contracts for the service will be developed, but often not awarded through a competitive process, allowing the non-profit a chance to get into the business. Donations of equipment, services and or funds from business, foundations and community groups help get the program underway. An advisory committee or board helps determine what direction programs should take. Labor may be donated or provided through community health agencies or inmate community work programs.

Strengths:

- Significant savings can result from donated equipment, services, and labor.
- Non-profit status allows tax deductions for donations.
- Good will creates great interest in the program and generates use of the service.

- Many groups participate in designing the program, bringing a high degree of ownership in the seeing results.

Weaknesses:

- Donated services/equipment may be non-standard and limit program growth in various ways.
- Management of non-profit programs has been both good -- and bad, sometimes leading to the demise of these programs.
- Lack of capital may constrain the program, especially in times of growth.

Risk/Financial Implications: More limited private sector capital and operating fund capabilities but does leverage value of donated equipment, services, labor and funds while still providing a means for involving joint public/private funding mechanisms (surcharges at landfill or transfer station) and public sector funding mechanisms (tax base, P.A. 138, surcharge, bonds, agency funds, assessments or generator fees) and to direct those funds to the non-profit to enhance service capability.

Franchise Model

Description: In this approach, an exclusive right to provide services is granted, typically for one or more types of services (solid waste, recycling, yard waste collection), and for one or more sectors (residential, commercial, etc.). The public agency (either municipality or county) specifies service requirements and takes quotes for the service so that rates are established through a competitive process. The contract is typically long term, often 5, 10 or even 20 years in length. The franchise requirements can dictate where material will be taken or require that certain facilities be constructed.

Strengths:

- The public sector has significant control over service specifications often resulting in high quality and convenient recycling services.
- Bundling of customers together, providing an exclusive business opportunity and using the competitive process often results in a lot of service at affordable rates.
- The long term contract length provides enough time for the vendor to invest in good equipment and facilities, and look at the long term needs of the municipality and its citizen's.

Weaknesses:

- Eliminates competition, except when franchises are first bid out.
- Difficult to get out of if franchisee is not providing good service.
- No choice for generators.
- Can result in rate creep upwards over long term unless oversight board is disciplined about cost control.

Risk/Financial Implications: Fully accesses potential of private sector in raising capital and operating funds, especially with long term franchise arrangement. Enhances ability to leverage public/private funding mechanisms (surcharges at landfill or transfer station) and to optimize use of public sector funding mechanisms (tax base, P.A. 138, surcharge, bonds, agency funds, assessments or generator fees) and to direct those funds to enhance service capability.

Flow Control Model

Description: This approach can be a hybrid of many of the others, but includes features to direct waste to specific facilities, often providing the public sector with a tool to allow funding and development of landfills, waste to energy facilities or transfer stations. There are two types of flow control, legislated and economic. Legislated flow control in Michigan is typically a combination of ordinances and contracts as required to designate a facility. Such approaches must carefully address the fact that restrictions on the interstate transport of waste have been judged as unconstitutional by the courts given the provisions of the Federal Interstate Commerce Clause. In cases where interstate transport of waste is an issue, economic flow control has been substituted as a means of continuing to guarantee that material goes to a facility by providing artificially low tipping fees, subsidized by revenue streams from other sources.

In Michigan, the solid waste planning process has allowed for designation of flow of waste between counties. Essentially, each county must designate to which county/counties its own waste will go, and if it hosts one or more disposal facilities, must also designate which counties may bring wastes into their county. The ability of a county to compel private sector waste haulers to bring waste to one or more specified facilities is dependent on that county having designated its facility(ies) as the primary disposal site, where no other waste disposal options exist within that county.

Strengths:

- Flow control models have allowed public sector waste management facilities to be built, often when the marketplace doesn't provide the kind of economics that a typical private company would want in order to get the business.
- This has, in some cases, enhanced services and lowered costs to citizens allowing recycling capabilities to increase, for example.
- Competition amongst haulers can actually improve under these flow control approaches since no hauler can use ownership of a landfill or transfer station to cut out other haulers.

Weaknesses:

- Legislated flow control is in a difficult legal position when interstate commerce is impacted with recent court decisions favoring systems that have public ownership of facilities and not favoring systems that use privately owned and operating facilities.
- A backup system of commercial contracts is sometimes used where haulers continue to use a flow control facility under a negotiated standard long term commercial contract.
- Economic flow control offers an alternative approach but is initially challenging to set up and can often alter the market signals that reinforce good recycling programs by artificially lowering tip fees.
- Operation of facilities that benefit from flow control can also suffer, since market forces do not drive cost control or customer oriented service.

Risk/Financial Implications: These approaches are designed to fully access the ability of the public sector to raise tax free capital funds for system development. Private sector capability in raising capital and operating funds is still a factor especially for development of collection system. This approach also has augmented the ability to use public/private funding mechanisms (surcharges at the facility) although the challenges to legislated flow control have often attacked this feature of these facilities. Economic flow control tools rely on public sector funding mechanisms (tax base, P.A. 138, surcharge, bonds, agency funds, assessments or generator fees) in order to succeed in bringing flow to the facility.

Public Service Model

Description: This approach uses a municipal department of solid waste or public works that purchases all the necessary equipment, employs needed labor, and provides the service as part of the municipal government. Fees for the service often come out of the tax base or through user fees bundled with a water or utility bill.

Strengths:

- The public sector program managers have a high degree of control over service specification, allowing any desired service to be arranged including recycling, special bulky material pickup, etc.
- Service can be provided to every household, regardless of their willingness to contract with a private hauler for such services.
- A cleaner community is often the result.
- Workers can often provide assistance in other public works operations like pothole repair, snow removal or fall leaf collection.

Weaknesses:

- Customers have no choice. As a result, services may become inefficient or be poorly designed.
- Budgets may become inflated over time, not reflecting modern private sector (or well managed public sector program) efficiencies.

Risk/Financial Implications: Little use of private funding and financing capabilities is possible in this approach while extensive use is made of public sector capital and operating fund mechanisms. This approach relies exclusively on public sector funding mechanisms (tax base, P.A. 138, surcharge, bonds, agency funds, assessments or generator fees) in order to cover operating costs and debt retirement. Surcharges at disposal sites are often not attractive with this approach since it increases the size of the municipal budget requirement.

Local Unit Initiated Funding Approaches

The following funding mechanisms can be initiated and managed by the each community with some of the following requiring only council or board action and some requiring voter approval:

Legislatively Authorized Millages:

Description: By far the most common method of funding solid waste and recycling programs in Michigan, a property tax may be levied by a City or Village for garbage services of up to three mills. MCL 123.261; MSA 5.2681. as described below in the actual act provided below. Charter Townships have their own similar enabling legislation for a 2 mills tax for solid waste and recycling programs. The elected body approves the "annual garbage tax" as part of their annual budgeting process, with the funds being collected as part of the next tax cycle. Charter Townships are authorized to collect up to 2 mills.

GARBAGE DISPOSAL PLANTS (EXCERPT) Act 298 of 1917 123.261 Garbage disposal plants or systems in cities or villages; establishment and maintenance; annual garbage tax; construction bonds; "garbage" defined. Sec. 1. (1) The city council of a city, whether organized under the general law or special charter, or the president and board of trustees of a village may establish and maintain garbage systems or plants for the collection and disposal of garbage in the city or village, and may levy a tax not to exceed 3 mills on the taxable value of all taxable property in the city or village according to the valuation of the property, as made for

the purpose of state and county taxation by the last assessment in the city or village for these purposes. The annual garbage tax shall be in addition to the amount authorized to be levied for general purposes by the general law or special charter under which the city or village is incorporated. All cities or villages may, for the construction of a garbage disposal plant or system, issue bonds in a sum not to exceed 3 mills on the dollar on all taxable property in the city or village according to the valuation of the property, as made for the purpose of state and county taxation by the last assessment in the city or village. Bonds issued under this section are subject to the revised municipal finance act, 2001 PA 34, MCL 141.2101 to 141.2821. (2) As used in this act, "garbage" means any putrescible and nonputrescible solid wastes, except body wastes, and includes ashes, incinerator ash, incinerator residue, street cleanings, solid market wastes, solid industrial wastes, and also rubbish including such items as paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery, and litter of any kind. History: 1917, Act 298, Eff. Aug. 10, 1917;—Am. 1919, Act 253, Eff. Aug. 14, 1919;—CL 1929 2480;—CL 1948, 123.261;—Am. 1969, Act 213, Imd. Eff. Aug. 6, 1969;—Am. 1975, Act 38, Imd. Eff. May 12, 1975;—Am. 1976, Act 127, Imd. Eff. May 25, 1976;—Am. 2002, Act 239, Imd. Eff. Apr. 29, 2002.

Examples of Use in Michigan: This is the most common method of funding refuse and recycling programs in Michigan's cities and charter townships and is in use throughout the state. Good examples are the City of Royal Oak and the Charter Township of Ypsilanti

Best and Least Preferred uses:

Works Well for:

- Recycling/Waste Program Expenses (MRFs, drop-offs, cleanups, curbside)
- Special Material Programs (HHW, e-Scrap, Batteries, etc.)
- Admin Expenses (e.g. staff, planning)
- Outreach/Education/Promotion

Municipal Utility/Service Fees and Special Assessments

Description: A local unit can establish an exclusive service provision (e.g. waste collection) and charge for that service through a utility billing system, other user fee system or a special assessment. This is a common method when a local unit already has other utility billing systems in place (water, sewer, electricity). The fee system can include pay per volume features (aka "pay-as-you-throw" or PAYT) - an incentive for waste reduction and recycling. The special assessment districts can include both operating costs and bond financing of authorized improvements (MCL 42.31 for Townships).

Examples of Use in Michigan: This is the second most common method of funding refuse and recycling programs in Michigan's cities, villages and townships and is in use throughout the state. Grand Rapids and Lansing are two larger cities that use a fee based approach. Coldwater is an example of a smaller community using this approach.

Best and Least Preferred uses:

Works Well for:

- Recycling/Waste Program Expenses (curbside, MRFs, drop-offs, cleanups)
- Special Material Programs (HHW, e-Scrap, Batteries, etc.)
- Admin Expenses (e.g. staff, planning)
- Outreach/Education/Promotion

Hauler Franchise and Hauler Collected Fees

Description: A local unit can award an exclusive hauler contract/franchise for the collection of waste from residential and/or commercial sources and bundle recycling services in with contract. The hauler is responsible for providing all services and collecting the fees from system users following a pricing schedule contained in their franchise/contract with the local unit.

Examples of Use in Michigan: Shelby Township in Macomb County is the best example to cite, with court decisions confirming the local unit's right to use this method. Superior Township in Washtenaw County is another good example.

Best and Least Preferred uses:

Best Used for:

- Bundled Refuse/Recycling/Yard Waste Collection Program
- Limited Education and Outreach

Least Suited for:

- Admin Expenses (e.g. staff, planning)
- Special Material Programs (HHW, e-Scrap, Batteries, etc.)

Voter Approved Program Millage

Description: The majority of voters in the City can approve a millage to fund resource recovery programs, either for capital or operating costs. Majority approval of voters would implement this funding mechanism. These almost always have a sunset clause (e.g. 5 years) to require re-evaluation and re-voting by citizens. Some are temporary millages limited in scope to specific capital projects.

Examples of Use in Michigan: The City of Royal Oak uses a voter approved millage to supplement its legislatively authorized millage for solid waste and recycling programs - first used to secure voter approval of the City's original curbside recycling program. City of Ann Arbor voters approved a temporary millage to close its landfill, build a MRF and expand multi-family recycling

Best and Least Preferred uses:

Best Used for:

- New Program Initiatives
- One Time Program Expansions
- Special Material Programs (HHW, e-Scrap, Batteries, etc.)

Least Suited for:

- Routine Program costs
- Admin Expenses (e.g. staff, planning)

General Fund

Description: Some local units have managed to cover resource recovery program costs out of their general fund, most often when the program offerings are limited in scope (e.g. spring/fall cleanups) or are provided jointly through a larger inter-governmental project (e.g. regional household hazardous waste services).

Examples of Use in Michigan: A number of townships participating in the Northern Oakland County NO-HAZ consortium household hazardous waste collection program cover their costs through general fund contributions

Best and Least Preferred uses:

Best Used for:

- Limited Program Initiatives
- Special Material Programs
(HHW, e-Scrap, Batteries, etc.)

Least Suited for:

- Routine Program costs
- Admin Expenses (e.g. staff, planning)

Supplemental Fees for Service:

Description: Additional charges and supplemental fees are used by many municipalities to cover costs for value added services that some but not all citizens use and that citizens often expect to be provided by their municipality. Examples include curbside bulky waste pickup, curbside brush collection, tire drop-offs and drop-off /convenience center refuse and recycling services.

Examples of Use in Michigan: The Washtenaw County Regional Drop-off Station, operated in conjunction with the City of Ann Arbor, other local units of government and the non-profit Recycle Ann Arbor covers more than 80% of the costs of its refuse and recycling drop-off system with user fees for waste, construction debris and harder to recycle materials like tires and electronic waste.

Best and Least Preferred uses:

Best Used for:

- Services where Convenience Justifies a Premium (e.g. curbside bulky waste)
- Special Materials Programs
(e.g. tires, appliances, etc.)

Least Suited for:

- Recycling Programs
- Routine Program costs
- Admin Expenses (e.g. staff, planning)