CLARK COUNTY
Solid Waste District
Reducing Waste, Litter & Pollution

Transfer Facility Feasibility Study

Final Report

Prepared by:

GT environmental, inc.

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APPENDICES

I. INTRODUCTION AND EXECUTIVE SUMMARY

The Clark County Solid Waste District (District) desires to evaluate the feasibility of developing a solid waste transfer station within the District. The District's Policy Committee and Technical Advisory Committee have identified the following issues relating to an in-district transfer station:

- All solid waste in-county must be direct hauled between 26-34 miles to receiving facilities which adds cost.
- Sixty-two percent of District waste flows though transfer stations prior to landfill disposal.
- Ninety percent of transferred solid waste goes to Montgomery County transfer facilities.
- Montgomery North Transfer Station is closed.
- Montgomery County transfer tipping fees, including out-of-district waste, are low due to the Montgomery County annual property charge assessment on residential, commercial and industrial properties.
- Southwest Ohio is reliant on two primary landfills (Rumpke and Waste Management).

Based on the above issues, the District will conduct a Study on the feasibility of developing a transfer station. The Study will have the following key elements:

- Evaluate current economics of solid waste flow in-county (cost per ton managed) as compared to other counties with landfills and/or transfer stations.
- Evaluate costs of operating a transfer station and the overall costs per ton managed.
- Determine the feasibility of a private owned and operated, county owned and operated, and county owned and privately operated transfer station based on economic analysis above.

To achieve the above listed key elements, the following tasks were completed:

Task 1 District Waste Flow Analysis
Task 2 Transfer Station Market Study
Task 3 Identify and Evaluate Ohio Solid Waste Districts that Utilize Transfer Stations
Task 4 Identified Transfer Station Options
Task 5 Evaluation of Costs for Identified Transfer Station Options
Task 6 Contracts and Designation Options

The following is a summary of the Study:

Summary of Study

In **Section II**, the amount of solid waste disposal was evaluated for District solid waste. The amount of solid waste generated in Clark County and sent for disposal has remained relatively consistent during the past six years. The total disposal of Clark County solid waste has ranged from just over 94,000 tons to slightly more than 103,000 tons for the period 2010-2015. The average tons disposed during this time period was 98,144 tons per year.

Only four facilities received significant portions of Clark County from 2010 through 2015:

- Cherokee Run Landfill in Logan County, Ohio
- Montgomery County North Transfer Facility in Montgomery County, Ohio
- Montgomery County South Transfer Facility in Montgomery County, Ohio
- Stony Hollow Landfill in Montgomery County, Ohio

The waste received at these four facilities represent more than 99 percent of the total Clark County disposal in each year of the six-year time period.

In **Section III**, results from conducted surveys of solid waste generators located in Clark County, haulers operating within the solid waste management district (SWMD), and transfer stations operating around Ohio processing amounts of waste similar to the tons of waste disposed from Clark County.

The hauler survey resulted in five responses, or 31 percent of those surveyed. The tons collected and hauled by these five respondents represents approximately 30 percent of the total amount of District waste sent for disposal during 2015. Two of the respondents provided only the gate rate charges (or tipping fees) at the Montgomery County South Transfer Facility, so these surveys could not be used to estimate the total hauling costs from Clark County. Based on the remaining three surveys, the total hauling costs from the District is approximately $135 per ton, which includes collection, transportation to the Montgomery County South Transfer Facility, and disposal expenses at this facility. ($135 per ton represents a weighted average based upon the tonnage transported by each hauler.)

The generator survey effort resulted in a total of 19 returned surveys. In addition to the name of the company or institution, most respondents provided the name of the hauler, the number and size of dumpsters, the frequency of pickup, the cost per month, and an estimate of the amount trash collected. A few surveys included the estimate of trash in both tons and cubic yards, however, in most cases, the amount of trash was provided only in cubic yards. Information was provided for a total of 64 dumpsters, most of which are 6 or 8 cubic yards in size. However, eight large dumpsters 40 to 50 cubic yards in size equipped with a compactor are also included in this total. The estimated costs for most dumpsters is under $60 per ton, with the overall average equal to $36 per ton. The median cost for all dumpsters is approximately $42 per ton. If the assumptions

above are changed to 225 pounds/cubic yards for un-compacted waste, the overall average and median cost estimates become $59 and $42/ton, respectively.

The results of the hauler and generator surveys are surprising, at best. The hauler survey shows an estimated cost per ton of $135, while the overall average for the generator survey is $36 to $59 per ton, depending on the assumptions used in the calculations. The expectation is that the costs paid by the generator would approximate the total costs incurred by the hauler plus any profit for the hauler. However, these results show the generator costs at two to four times less than estimated hauler costs. It is worth noting that only one of the 64 dumpsters included in the generator surveys is serviced by a hauler which returned a survey.

Eight existing transfer stations in Ohio were contacted by telephone to obtain the advertised gate rate for disposing waste at the facility. These facilities were selected because the amount of waste processed by each transfer station is similar to the estimated tons of waste generated from Clark County and sent for disposal. The gate rates ranged from $47 – $66 per ton. It is important to note that the advertised gate rates provided by transfer stations do not necessarily reflect the costs for all haulers which use the facilities. It is not uncommon for haulers to negotiate contracts with facilities for rates which are lower than those advertised by the facility. However, this type of information was not available for the Study.

Section IV summarizes the facilities surveyed and evaluated as a part of this Study. The facilities selected for evaluation included Hardin County Solid Waste & Recycling Facility, Huron County Transfer Station, Kimble Transfer & Recycling Facility – Cambridge, Medina County Central Processing Facility, Miami County Solid Waste & Recycling Facility, Morse Road Transfer Facility, and Richland County Transfer Station. Each of the facilities listed above were mailed a survey to collect the following information:

- Basic information (i.e., address, contact information, etc.);
- Background information about the facility such as size, capacity, hours open to the public, and the year which the facility opened;
- Flow control information;
- Labor requirements;
- Initial start-up costs; and
- Annual operating costs.

While seven facilities were sent surveys, only two responded to the survey and provided 2015 data: Hardin County and the Solid Waste Authority of Central Ohio (SWACO) for the Morse Road facility. However, after examining the data provided for these facilities, it was determined that the cost information from an earlier survey (2013) conducted by GT Environmental, Inc. (GT) for another client was more accurate. As a result, the annual operating cost data was based upon 2013 data which has been inflated to 2015 dollars using the consumer price index. (The annual operating costs for Medina are the only exception to this statement, and these costs are based upon published information

which captures the change in operation of the Medina facility to private operation in 2015.) No data is available for the privately-owned and operated Richland County Transfer Station or the Kimble Transfer and Recycling Facility except the tons received.

The data and information from this section were used to calculate costs and operating constraints for Section VII.

Section V was added to the Study and was outside the original scope of the project. The reason this evaluation was added was the survey results from Section III were not adequate enough to draw firm conclusions as to the costs using solid waste facilities outside of the District. This section summarizes an evaluation to determine the feasibility of building a transfer station in Clark County, the hauler transportation costs for District waste have been estimated to the Montgomery County South Transfer Station and compared to transportation costs to a location in the City of Springfield which could be used as a transfer station site.

The cost savings were calculated based on miles driven from each of the major communities in the District to either the Montgomery County Transfer Station, Stony Hollow Landfill, and Cherokee Run Landfill or the proposed transfer station located in the City of Springfield. The savings to transport to the closer facility located in Springfield for the purposes of this evaluation ranged from $835,000 – $1,230,000 annually.

It is important to note that the cost savings calculated in this section do not necessarily mean that the generator of the solid waste would realize the projected savings, only that an overall cost savings could result from shorter distances traveled for local haulers.

In **Section VI**, several ownership and operational combinations for transfer stations are possible and are reflected in existing facilities within Ohio. These options include:

1. Publicly-owned and operated
2. Publicly-owned and privately-operated
3. Privately-owned and operated
4. Regional public facility
5. Hybrid models

While each of these options may have certain advantages, only the first (publicly-owned and operated), second (publicly-owned and privately-operated), and fifth (hybrid model) options are evaluated further in this analysis based upon the availability of data, and the circumstances associated with the existing facilities in counties adjacent to Clark. Data is not available for a privately-owned and operated facility (option 3), and a regional facility with the ability to attract waste from adjacent counties (option 4) does not seem feasible given the locations of existing facilities.

In **Section VII**, an analysis was completed of the various capital and operational costs of the transfer stations included in Section VI to obtain average baseline data to be used in this economic analysis. The economic analysis includes three scenarios to assist the District in determining the full spectrum of the risks and rewards of developing the proposed transfer station. Baseline costs from the three scenarios ranged from $52 – $56 per ton.

Also, sensitivity analysis was applied to certain cost factors to determine a range of possible costs. This analysis included key cost factors which were varied in order to develop a range of likely costs for a Clark County transfer station. The variable key factors included capital debt retirement, landfill disposal costs and transportation costs. Results of this analysis ranged from $55 – $94 per ton to operate the proposed transfer station depending on the variable key factor applied.

All of the estimated costs were compared to the adjusted cost to transport and dispose of solid waste at the Montgomery County Transfer Station. This facility charges a fee of $50.25/ton for Clark County solid waste. In addition, in Section V, transportation cost savings were calculated that conservatively equaled $8.52 per ton. The combination of these two amounts yielded a breakeven total of $58.77 per ton that a proposed Clark County transfer station gate fee would need to meet to be competitive.

Section VIII presents the options available regarding the use of contracts and designations as it relates to District facilities for operations and flow control. In order for any District operations to be successful, there must be an adequate flow of materials for processing. All solid waste management facilities that process, dispose or transfer solid waste/recyclable materials require a certain level of volume (or throughput) to sustain the operation economically.

Ohio law authorizes solid waste districts to direct the flow of solid waste to public sector facilities. This power ensures that publicly-invested dollars have the requisite revenues to pay the debt for the facility.

Section IX presents a road map for decision making regarding the options for developing a transfer station in Clark County or remaining status quo.

II. DISTRICT WASTE FLOW ANALYSIS

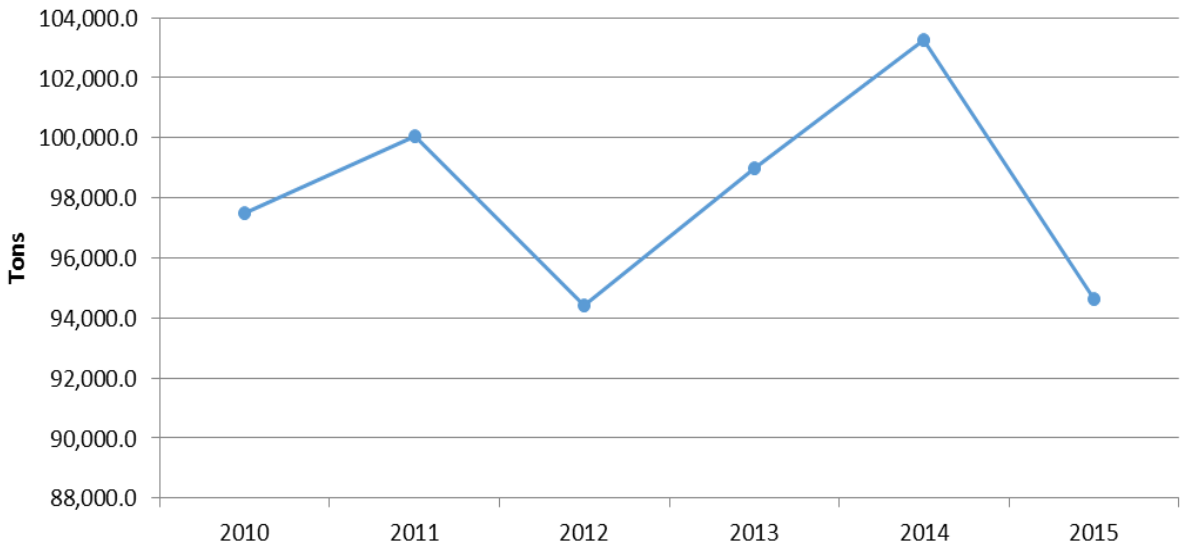
Clark County's solid waste flows have been evaluated for years 2010 through 2015. The evaluation has documented solid waste flows by destination facility type, generating sector and destination solid waste district. Distances to each facility have been included in this task.

A. Tons of Solid Waste Sent for Disposal

The amount of solid waste generated in Clark County and sent for disposal has remained relatively consistent during the past six years. Figure 1 shows that total

disposal of Clark County waste has ranged from just over 94,000 tons to slightly more than 103,000 tons. The average tons disposed during this time period was 98,144 tons per year.

Figure 1. Clark County Solid Waste Disposal: 2010 through 2015



B. Solid Waste Facilities Used by the District

Only four facilities received significant portions of Clark County from 2010 through 2015:

- Cherokee Run Landfill in Logan County, Ohio
- Montgomery County North Transfer Facility in Montgomery County, Ohio
- Montgomery County South Transfer Facility in Montgomery County, Ohio
- Stony Hollow Landfill in Montgomery County, Ohio

The waste received at these four facilities represent more than 99 percent of the total Clark County disposal in each year of the six-year time period.

The Montgomery County Transfer Facilities have processed the majority of Clark County waste which has been disposed. Table 1 shows that the transfer stations have handled roughly 59,000 to 61,000 tons per year, while the amount of Clark County waste disposed from direct-hauling to Stony Hollow Landfill has been somewhat more variable from year to year.[1]

[1] The tonnages listed for each facility represent the amount of waste directly hauled to the facility without first being processed at a transfer facility.

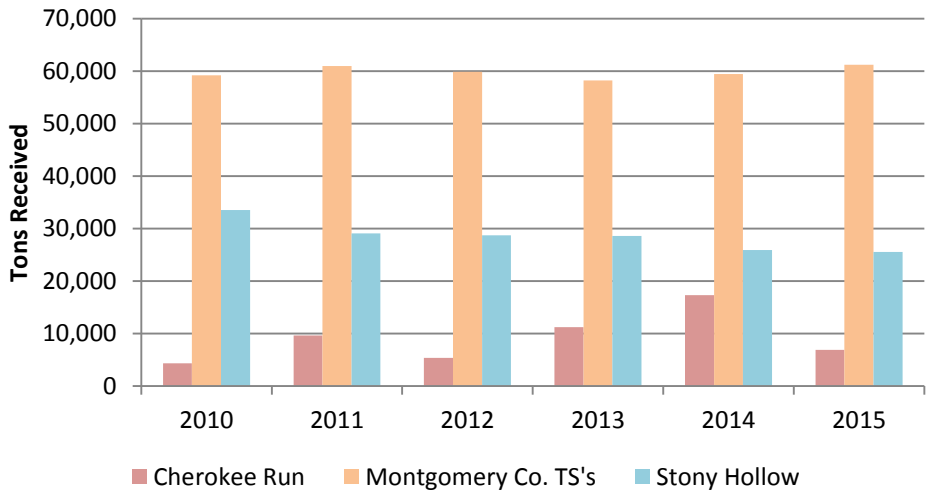
Table 1. Facilities Receiving Clark County Solid Waste: 2010 through 2015

Year	Cherokee Run LF	Montgomery County Transfer Stations *	Stony Hollow Landfill, Inc.
2010	4,362	59,203	33,534
2011	9,654	60,995	29,116
2012	5,371	59,895	28,717
2013	11,249	58,225	28,592
2014	17,296	59,462	25,933
2015	6,873	61,233	25,569

* Clark County solid waste tonnages received at the Montgomery County North and South Transfer Facilities have been combined in this table.

Figure 2 shows the data from Table 1 in a chart. Based upon the six-year period, the amount of waste direct-hauled to Stony Hollow Landfill has been steadily declining.

Figure 2. Facilities Receiving Clark County Solid Waste: 2010 through 2015



Both the Montgomery County South Transfer Facility and Stony Hollow Landfill are two of the closest facilities available to solid waste haulers operating in Clark County.

III. TRANSFER STATION MARKET STUDY

GT conducted surveys of solid waste generators located in Clark County, haulers operating within the solid waste management district (SWMD), and transfer stations operating around Ohio processing amounts of waste similar to the tons of waste disposed from Clark County.

Appendices A, B and C contain the survey instruments used to collect the information and data requested. The following is a brief description of the survey instruments:

Hauler Survey

Local and regional haulers were asked to provide the destination landfill or transfer station that they used for Clark County customers. In addition, the haulers were asked to provide the total tons delivered to each facility and the total costs including collection cost, transportation and disposal costs.

Generator Survey

Selected and targeted Clark County generators of solid waste that were asked to provide the following information and data:

- Name of hauler used
- Number of dumpsters or containers used for solid waste disposal and their size
- Number of compactors used for solid waste disposal and their size
- Pick-up frequency of the dumpsters and compactors
- Cost of servicing the dumpsters and/or compactors
- Estimated volume or amount of trash disposed annually

Transfer Station Survey

Selected and targeted regional transfer stations that were asked to provide the following information and data:

- General information
- Facility information such as year opened property acreage, facility size, capacity and 2015 tons received
- Whether facility is operated in an open or closed market
- Staffing details
- Annual revenues
- Annual operating expenses
- Capital and developmental expenses

Table 2 shows the number of surveys mailed to each type of entity, and the number of responses received.

Table 2. Surveyed Haulers, Businesses, and Institutions

Surveyed Group	Number of Surveys		
	Mailed or Telephoned	Returned	Percent Returned
Haulers	16	5	31.3%
Commercial/Institutional	105	10	9.5%
Industries	28	9	32.1%
Transfer Stations	8	8	100.0%

The hauler and generator surveys were conducted through the mail, while the transfer stations were called to obtain the gate rate, or tipping fee charged at their respective facility. (A mail survey was also used to collect operational and cost information for transfer stations, and this survey is discussed in Section IV.) Follow-up phone calls and email messages were used as necessary to clarify information provided on survey forms. A number of telephone calls were also made to generators who did not respond to the mail survey in an effort to obtain additional responses.

Hauler Survey Results

The hauler survey resulted in five responses, or 31 percent of those surveyed. The tons collected and hauled by these five respondents represents approximately 30 percent of the total amount of District waste sent for disposal during 2015. Two of the respondents provided only the gate rate charges (or tipping fees) at the Montgomery County South Transfer Facility, so these surveys could not be used to estimate the total hauling costs from Clark County. Based on the remaining three surveys, the total hauling costs from the District is approximately $135 per ton, which includes collection, transportation to the Montgomery County South Transfer Facility, and disposal expenses at this facility. ($135 per ton represents a weighted average based upon the tonnage transported by each hauler.)

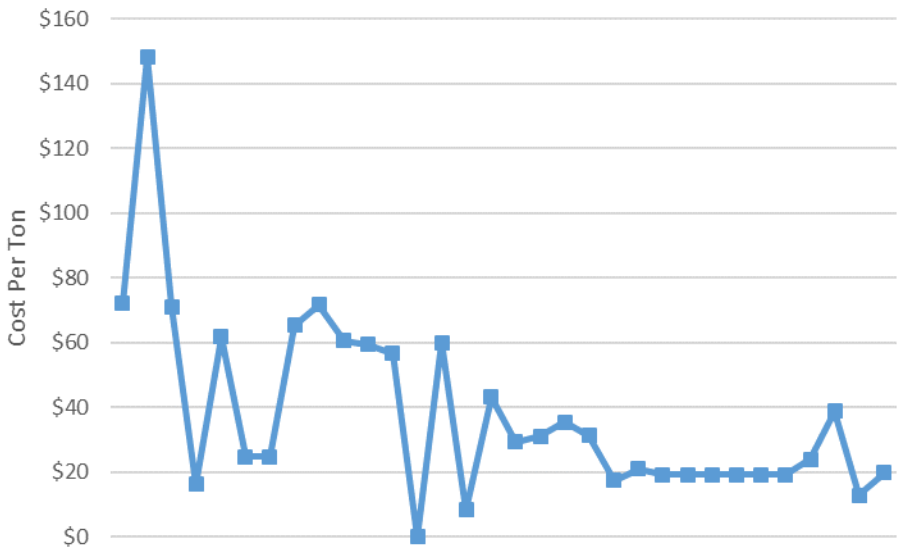
Generator Survey Results

The generator survey effort resulted in a total of 19 returned surveys. In addition to the name of the company or institution, most respondents provided the name of the hauler, the number and size of dumpsters, the frequency of pickup, the cost per month, and an estimate of the amount trash collected. A few surveys included the estimate of trash in both tons and cubic yards, however, in most cases, the amount of trash was provided only in cubic yards. In order to develop a composite cost estimate which could be used in additional analysis, estimates of trash volume in cubic yards was converted to tons utilizing the following assumptions:

- Weight of waste in dumpsters without a compactor – 450 lbs./cu. yd.
- Weight of waste in dumpsters with a compactor – 606 lbs./cu. yd.
- Fullness of dumpsters when emptied – 75% unless specific information indicated otherwise

Information was provided for a total of 64 dumpsters, most of which are 6 or 8 cubic yards in size. However, eight, large dumpsters, 40 to 50 cubic yards in size equipped with a compactor are also included in this total. Figure 3 shows the results of the cost analysis for all of the 64 dumpsters after converting the amount of waste to tons, where necessary. The estimated costs for most dumpsters is under $60 per ton, with the overall average equal to $36 per ton. The median cost for all dumpsters is approximately $42 per ton. If the assumptions above are changed to 225 pounds/cubic yards for un-compacted waste, the overall average and median cost estimates become $59 and $42/ton, respectively.

Figure 3. Costs Per Ton Reported by Generators



A significant difference in the cost per ton can be seen by comparing the averages for dumpsters with and without compactors: $57 versus $31 per ton. However, the cost differential is very dependent upon the assumptions used for compacted vs. uncompacted waste (pounds/cubic yards) as seen above.

The results of the hauler and generator surveys are surprising, at best. The hauler survey shows an estimated cost per ton of $135, while the overall average for the generator survey is $36 to $59 per ton, depending on the assumptions used in the calculations. The expectation is that the costs paid by the generator would approximate the total costs incurred by the hauler plus any profit for the hauler. However, these results show the generator costs at two to four times less than estimated hauler costs. It is worth noting that only one of the 64 dumpsters included in the generator surveys is serviced by a hauler which returned a survey.

Transfer Station Survey Results

Eight existing transfer stations in Ohio were contacted by telephone to obtain the advertised gate rate for disposing waste at the facility. These facilities were selected

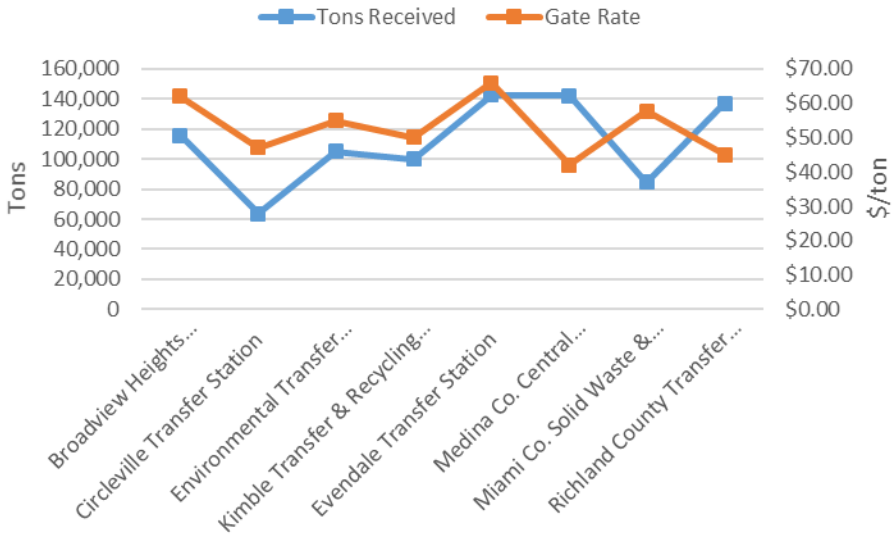
because the amount of waste processed by each transfer station is similar to the estimated tons of waste generated from Clark County and sent for disposal. The costs per ton shown in Table 3 below reflect the total costs for delivering waste at each facility, including the tipping fee and the State of Ohio disposal fee.[2]

Table 3. Selected Transfer Facilities: Gates Rates and Tons Received for 2015

Facility	Cost/ton	Tons
Broadview Heights Recycling Center	$62.00	115,878
Circleville Transfer Station	$47.00	63,482
Environmental Transfer Systems Inc.	$55.00	104,999
Kimble Transfer & Recycling Facility - Cambridge	$50.00	100,097
Evendale Transfer Station	$65.87	142,644
Medina Co. Central Processing Facility	$42.00	142,229
Miami Co. Solid Waste & Recycling Facility	$57.80	84,535
Richland County Transfer Station	$45.00	137,033

Figure 4 shows the information from Table 3 in a chart. The average cost per ton for the gate rate at these facilities is $53.08.

Figure 4. Tons Received and Gates Rates for Selected Transfer Facilities



It is important to note that the advertised gate rates provided by transfer stations do not necessarily reflect the costs for all haulers which use the facilities. It is not uncommon for haulers to negotiate contracts with facilities for rates which are lower than those advertised by the facility. However, this type of information was not available for the Study.

[2] Waste being delivered to these transfer facilities from a solid waste district with a generation fee would pay an additional amount equal to the generation fee.

Additional information for the facilities included in Figure 4 is shown in Table 4 below. The source of the waste processed at the facilities (in-district vs. out-of-district), the solid waste management district (SWMD) where the facility is located, and the total amount of waste disposed from each of these SWMDs is provided in this table. Some of these facilities handle the majority of waste from the SWMD, while others process only a small portion of the total.

Table 4. Tons Received at Selected Transfer Stations: 2015

Facility	Solid Waste Management District (SWMD)	Tons Received at Transfer Station			Total Tons Disposed from SWMD [1]
		In-district	Out-of-district	Total	
Broadview Heights Recycling Center	Cuyahoga	74,337	41,541	115,878	1,372,584
Circleville Transfer Station	Fayette-Highland-Pickaway-Ross	28,212	35,270	63,482	227,720
Environmental Transfer Systems Inc.	Geauga-Trumbull	95,908	9,091	104,999	369,370
Evendale Transfer Station	Hamilton	61,876	80,768	142,644	1,048,222
Hardin County Solid Waste & Recycling Facility	North Central Ohio	10,582	190	10,772	383,360
Huron County Transfer Station	Huron	36,722	510	37,232	48,322
Kimble Transfer & Recycling Facility - Cambridge	Guernsey-Monroe-Morgan-Muskingum-Noble-Washington	80,583	19,514	100,097	723,952
Medina Co. Central Processing Facility	Medina	142,197	32	142,229	191,449
Miami Co. Solid Waste & Recycling Facility	Miami	84,296	239	84,535	83,181
Morse Road Transfer Facility	Solid Waste Authority of Central Ohio	244,617	631	245,248	1,057,664

Facility	Solid Waste Management District (SWMD)	Tons Received at Transfer Station			Total Tons Disposed from SWMD [1]
		In-district	Out-of-district	Total	
Richland County Transfer Station	Richland	79,794	57,239	137,033	319,193

[1] Total tons from the SWMD is based upon 2014 data.

IV. IDENTIFY AND EVALUATE OHIO SOLID WASTE DISTRICTS THAT UTILIZE TRANSFER STATIONS

This section of the report summarizes the facilities surveyed and evaluated as a part of this Study. The facilities selected for evaluation are shown in Table 5, and are also included in the gate rate study in the previous section. The transfer stations in this section were selected for evaluation based upon the size of facility, the ownership of the facility, the entity responsible for operations, and the arrangements for hauling the waste to a landfill. Two facilities – Hardin County and Morse Road facilities – are owned publicly, operated by a public entity, and the waste is hauled from the facilities by a public entity.[3] In contrast, the ownership, operation, and hauling for both the Kimble facility in Cambridge and the Richland County Transfer Station are controlled by private businesses. The Medina and Miami facilities represent a combination, or hybrid of public ownership, but private operation and/or hauling.

Table 5. Ownership and Operation of Selected Transfer Stations

Facility	Ownership	Operation	Hauling
Hardin County Solid Waste & Recycling Facility	Public	Public	Public
Huron County Transfer Station	Public	Public	Private
Kimble Transfer & Recycling Facility - Cambridge	Private	Private	Private
Medina Co. Central Processing Facility	Public	Private	Private
Miami Co. Solid Waste & Recycling Facility	Public	Public	Private
Morse Road Transfer Facility	Public	Public	Public
Richland County Transfer Station	Private	Private	Private

[3] "Public entity" refers to any local government, and in the case of the Hardin County facility, the public entity is Hardin County. For the Morse Road facility, the public entity is the Solid Waste Authority of Central Ohio.

Each of the facilities listed in Table 5 was mailed a survey to collect the following information:

- Basic information (i.e., address, contact information, etc.);
- Background information about the facility such as size, capacity, hours open to the public, and the year which the facility opened;
- Flow control information;
- Labor requirements;
- Initial start-up costs; and
- Annual operating costs.

(See Appendix C for a copy of the survey form sent to transfer stations to collect data for this section.)

While seven facilities were sent surveys, only two responded to the survey and provided 2015 data – Hardin County and the Solid Waste Authority of Central Ohio (SWACO) for the Morse Road facility. However, after examining the data provided for these facilities, it was determined that the cost information from an earlier survey (2013) was more accurate. As a result, the annual operating cost data in Table 6 below is based upon 2013 data which has been inflated to 2015 dollars using the consumer price index. (The annual operating costs for Medina are the only exception to this statement, and these costs are based upon published information which captures the change in operation of the Medina facility to private operation in 2015.) No data is available for the privately-owned and operated Richland County Transfer Station or the Kimble Transfer and Recycling Facility except the tons received.

In terms of the amount of waste processed, the Miami County and Medina County facilities are closest to the disposal totals for Clark County. Table 6 also shows that the Hardin County Transfer Station is the only one of the five facilities which does not utilize flow control to direct waste to the facility.

Staffing information was not available for Huron or Miami County facilities. Since the Medina County facility is now privately operated, staffing information was not available for this facility as well.

Table 6. Selected Transfer Stations in Ohio: Operational and Cost Data

Description	Facility Name				
	Hardin County Solid Waste & Recycling Facility	Huron County Transfer Station	Medina Co. Central Processing Facility	Miami Co. Solid Waste & Recycling Facility	Morse Road Transfer Facility
Basic Facility Information					
Year opened	prior to 1988		1993	1988	2013
Size (in square feet)	6,500		73,000		27,000
Property acreage	8		52		7
Staffing	public sector		private sector	public sector	public sector
Hours open to public	8:30 am - 4:15 pm		52/week		5 a.m. to 3 p.m.
Daily capacity (in tons)	average = 41 tons				1,000
Annual Capacity (in tons)	10,772		130,000		260,000
Tons Received in 2015	10,772	37,232	142,229	86,958	245,248
Is flow control used to direct waste to the facility?					
	no	yes	yes	yes	yes
Staffing Details					
Managers	1 @ 16.46/hr.		Private operation; info not available		1 @ $50.01/hr.
Supervisors					1 @ $36.36/hr.
Equipment operators					2 @ $23.75/hr.
Transfer drivers	2 @ 18.84/hr.				10.5 @ $17.18/hr.
Laborers	1 @ $13.31/hr.				3 @ 15.74/hr.
Revenues					
Tipping fee [a]	$542,001	$2,010,528	$5,973,618	$4,737,478	$13,672,576
Other	$3,964			$250,417	$287
Initial Start-up Costs					
Total [b]	DNR	DNR	DNR	DNR	$10,395,167
Annual Operating Costs [c]					
Labor (including benefits)	$161,510	$343,347		$885,823	$728,692
Contracts			$3,875,740		
Overhead, maintenance	$15,142	$0		$138,771	$279,951

Description	Facility Name				
	Hardin County Solid Waste & Recycling Facility	Huron County Transfer Station	Medina Co. Central Processing Facility	Miami Co. Solid Waste & Recycling Facility	Morse Road Transfer Facility
Supplies	$1,262	$986			$23,141
Equipment	$72,856	$32,010			$187,835
Landfill disposal and transportation	$265,619	$1,268,088		$2,182,517	$7,384,594
Misc. expenses	$28,279	$332,163		$364,660	$12,145
Debt retirement		$29,100	$1,068,945	$128,226	$688,582
Totals	$544,668	$2,005,694	$4,944,685	$4,176,185	$9,304,941
Total Cost/Ton	$50.56	$53.87	$34.77	$48.03	$37.94

[a] Tipping fee revenue for the Huron, Medina, Morse Road, and Miami County facilities is estimated based upon tons received multiplied by the gate rate.
[b] The start-up costs for the Morse Road facility were split between the City of Columbus and SWACO. Only SWACO's costs are reported. The asset is held as a leasehold improvement and detail is not available.
[c] Annual operating costs for all facilities except Medina are based upon 2013 data which has been updated with the consumer price index.

SWACO was the only entity which provided initial start-up costs (Morse Road facility) such as land expense, site work, engineering costs, construction costs, etc. However, SWACO provided only aggregated start-up costs, and as indicated in the second footnote in Table 6, the start-up costs shown for the Morse Road facility do not capture the total costs for this category.

As stated above, the annual operating costs in Table 6 are based on 2013 data which has been inflated with the consumer price index. The most expensive category for each of these facilities is the landfill disposal and transportation costs. For the Medina facility, the landfill and transportation costs are included in the “Contracts” category since the facility is now privately operated.

Four of these facilities reported costs for debt retirement which could be used as an estimate of the annual amortized value for initial start-up (or capital) costs. However, it is not clear if the debt retirement amounts shown include the initial capital costs, or as in the case of the Morse Road facility, appear to address only more recent upgrades or improvements.

The total costs per ton for the five facilities range from approximately $35/ton at Medina to $56/ton at the Miami County facility. As expected, the facilities processing more waste generally have lower costs per ton.

The Medina County Board built the Medina County Central Processing Facility (CPF) in 1993 in order to be in compliance with the Solid Waste Act of Ohio. All solid waste generated and collected within Medina County is delivered to this facility. Prior to January of 2015, the mixed municipal solid waste, which totals between 120,000 and 140,000 tons per year, was then sorted in order to remove recyclable material and organic compost. In addition, yard waste is brought into the facility separately and is processed into compost material which is made available to the public for a nominal fee. This facility is currently recovering approximately 17% of the solid waste collected thus diverting it from valuable landfill space. After January 2015, the mixed waste processing ceased operations and only continued as a solid waste transfer station.

The CPF is located at 8700 Lake Road, Seville, Ohio 44273. The CPF is located on 52 acres, has one main building that is 73,000 square feet in size. In early 2015, the CPF began operations as a transfer station only facility, under public ownership with private operations.

The Huron County Transfer Station began receiving mixed solid waste in September 1998. Prior to that date, the facility operated as a material recovery facility for recyclables. The transfer station has continued to process waste and a small amount of recyclables, with more than 98 percent of the mixed solid waste (or trash) originating from Huron County. General solid waste comprises approximately 75 to 80 percent of the trash received, while industrial waste contributes 16 to 19 percent.

Morse Road Transfer Station is jointly operated by the Columbus's Department of Public Service Refuse Collection Division and the Solid Waste Authority of Central Ohio. Although the facility was built in the early 1970s and has been in operation for many years, an upgrade which began in 2012 transformed the transfer station into an "Eco-Station", costing approximately $18 million. This project brought about numerous environmental improvements, and involved constructing a new transfer building, a new maintenance and administration building, and an indoor parking garage for collection vehicles. The transfer station is the northeast base for Columbus refuse operations.

The Hardin County Solid Waste and Recycling Facility processes waste which is sent for disposal and also serves as a drop-off for recyclables. The facility has been in operation for more than 25 years. The County currently operates the transfer station and hauls the waste to a landfill, although contracting with a private company for these services has been explored recently.

The Miami County Transfer Station was built by the county and began operations in 1998. The transfer station was constructed to process waste which was previously handled by a county incinerator. The transfer station site also includes a drop-off for recyclables with processing capability.

In an effort to establish a range of capital and operating costs from another data source, the costs shown in Table 7 are from a 2014 study conducted for Beaufort County, South Carolina. While these costs may not be completely accurate for Clark County, Ohio, they provide a basis of comparison which can be helpful in evaluating the potential feasibility of a transfer station for the District. Facilities of two sizes were evaluated: 51,508 tons processed per year and 136,512 tons processed per year. Assuming capital costs were amortized over 20 years at a 3 percent interest rate, the total annual owning and operating costs are estimated at $748,000 and $1,151,000 for the alternate sized facilities. (These costs do not include landfill disposal and transportation costs to the landfill.)

Table 7. Transfer Station Options for Beaufort County, South Carolina

Tons processed per year (2015)	51,508	136,512
Capital Costs		
Site acquisition	$160,000	$290,000
Site work	$828,000	$1,231,000
Transfer building & maneuvering area	$1,237,000	$1,595,000
Scale house and scales	$317,000	$317,000
Subtotal - Construction	**$2,542,000**	**$3,433,000**
Design & engineering	$508,000	$686,000
Permitting	$51,000	$69,000
Construction inspection	$102,000	$137,000
Construction contingency	$508,000	$686,000
Surveying and soils report	$30,000	$30,000
Total Construction Costs	**$3,741,000**	**$5,041,000**
Mobile equipment	$375,000	$455,000
Total Capital Costs	**$4,116,000**	**$5,496,000**
Operating Costs		
Labor	$247,000	$432,000
Building & Site Maintenance	$25,000	$34,000
Equipment operating & maintenance	$15,000	$36,000
Utilities	$13,000	$13,000
Rolling stock fuel costs	$37,000	$69,000
Insurance	$75,000	$99,000
Subtotal	**$412,000**	**$683,000**
Contingency (10%)	$41,000	$68,000
Accounting, supplies, misc. (5%)	$21,000	$34,000
Total Operating Costs	**$474,000**	**$785,000**
Total Annual Costs		
Amortized capital, @ 3% for 20 yrs.	$273,927	$365,768
Operating	$474,000	$785,000
Total	**$747,927**	**$1,150,768**

V. ESTIMATE OF TRANSPORTATION COST SAVINGS

As part of the evaluation to determine the feasibility of building a transfer station in Clark County, the hauler transportation costs for SWMD waste have been estimated to the Montgomery County South Transfer Station and compared to transportation costs to a location in the City of Springfield which could be used as a transfer station site. In the context of this Study, several categories comprise the total costs of managing solid wastes, including:

- Collection route costs. Defined as the owning and operating cost of driving a collection vehicle from house to house, or business to business, until the end of the route is reached or the vehicle reaches capacity.

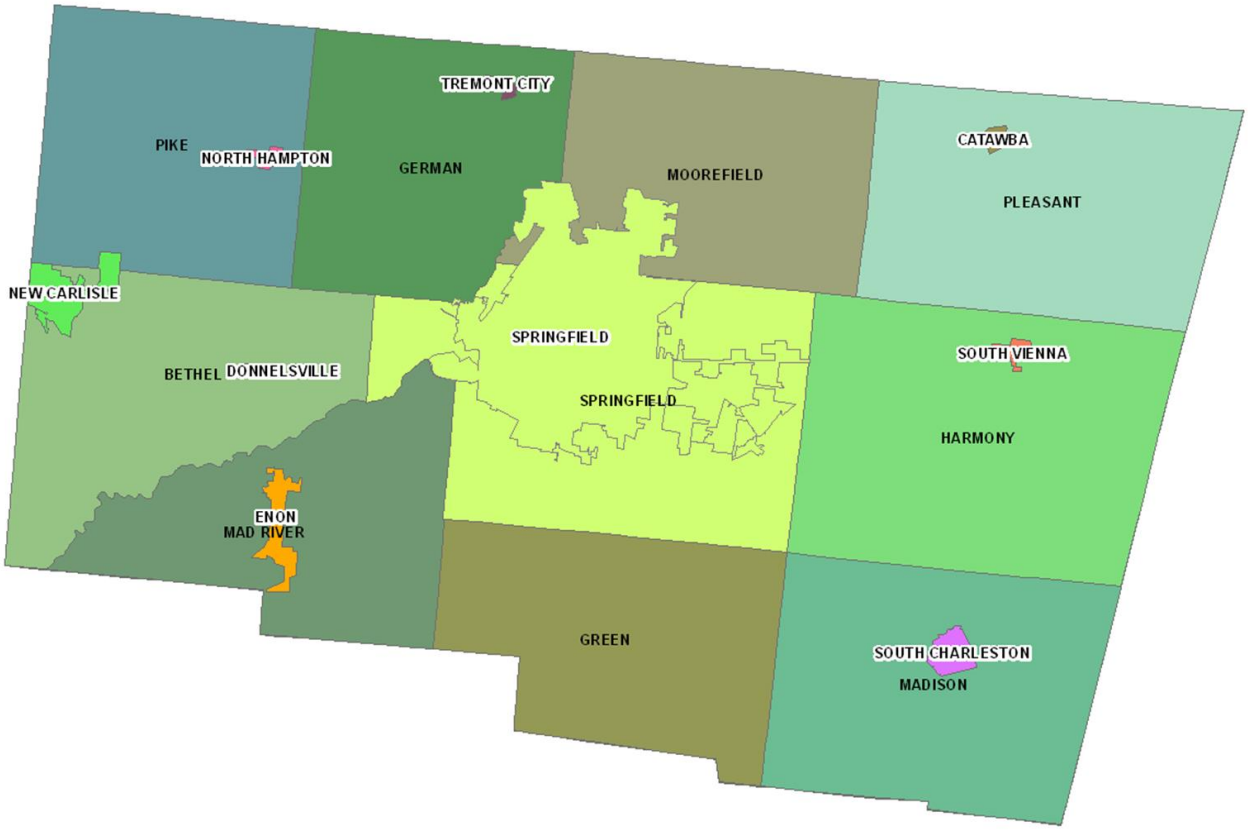
- Transportation costs. The owning and operating costs of driving a fully-loaded collection vehicle from the end of a collection route to a transfer station or landfill, and then returning to the next collection route.

- Tipping fee. The cost charged at the transfer station or landfill for depositing solid waste at the facility. The tipping fee would be expected to be set at an amount which would equal or exceed the owning and operating costs of the facility, some amount of profit, plus in the case of transfer stations, the cost of delivering the waste from the transfer station to the landfill and the tipping fee at the landfill.

While it is expected that collection route costs will remain relatively constant regardless of the location where the waste is disposed or deposited, the transportation costs as defined above could vary substantially. Furthermore, the transportation cost differential between delivering waste to an existing facility such as the Montgomery County Transfer Station versus a new Clark County transfer station represents the category in which a cost savings can occur. The cost differential must be large enough to offset the expense of a new transfer station plus the cost to deliver the waste to a landfill in order to justify the economic feasibility of building a new transfer station.

One of the first tasks towards conducting this evaluation involved determining the distances associated with the transportation costs and the tons hauled from various parts of the County. The round-trip distances to the Montgomery County Transfer Station were estimated for each community shown in Figure 5. The tons hauled to the transfer station from each community in 2015 were approximated based upon the percentage of total county population. For instance, the City of Springfield comprises almost 84 percent of the total community population analyzed in this evaluation, so it has been assumed that 84 percent of the District waste received at the Montgomery County Transfer Station originated from Springfield.

Figure 5. Clark County Communities



Since the types and sizes of collection vehicles actually used in Clark County was not available, a range of sizes for rear-loading packer trucks has been incorporated into this analysis. The capital costs used for larger vehicles is higher, however, the operating costs were assumed to be the same for all vehicle sizes. Operating costs included in the analysis are insurance, permits and licenses, repair and maintenance, tires, fuel, and labor.

A number of other assumptions have been used in the analysis, including the following:

- Fuel cost – $2.50 per gallon
- Fuel efficiency – 4 miles per gallon
- Labor cost for driver – $15 per hour
- Benefits for driver – 150 percent of hourly rate
- Interest rate for collection vehicle purchase – 5 percent
- Expected life for collection vehicle – 7 years
- Average unloading time at Montgomery County Transfer Station – 20 minutes
- Average unloading time at Clark County Transfer Station – 15 minutes

Four scenarios have been developed using the data and assumptions discussed above in an attempt to capture the range of possible transportation cost savings associated with a transfer station located within the City of Springfield. The scenarios are:

1. Waste is collected and transported from the City of Springfield using a 12-ton packer truck. Ten-ton vehicles are used in all other communities. One laborer is assumed for all collection vehicles in addition to the driver both paid $15/hour plus benefits. Fuel is assumed to be $2.50/gallon.
2. All assumptions are the same as Scenario 1 except labor costs include only the driver.
3. Waste in all the communities is collected by a range of vehicle sizes, from 8-ton to 12-ton packer trucks. One laborer is assumed for all collection vehicles in addition to the driver.
4. All assumptions are the same as Scenario 3 except labor costs include only the driver.

Table 8 shows that the range of transportation cost savings is quite large – $530,000 to $782,000 per year. As expected the majority of the cost savings is associated with waste hauled from the City of Springfield for each scenario. This analysis also shows that savings associated with the City of Springfield increase significantly if it is assumed that waste is hauled by a range of vehicle sizes. (Scenarios 3 and 4) Although the inclusion of a laborer in each collection vehicle (Scenarios 1 and 3) is an important factor which adds to the overall savings, it is not as significant as the vehicle size.

Table 8. Annual Transportation Cost Savings

Scenarios	Annual Cost Savings			Assumptions
	Springfield	All other communities	Total	
1	$571,497	$95,042	$666,539	Driver/Laborer, 12 ton trucks in Springfield, 10 ton trucks others
2	$454,090	$75,987	$530,077	Driver, 12 ton trucks in Springfield, 10 ton trucks others
3	$684,686	$97,454	$782,139	Driver/Laborer, 8-12 ton trucks
4	$539,884	$77,869	$617,753	Driver, 8-12 ton trucks

Additional sensitivity analysis showed that changes in other factors could result in variation of the cost savings as well. If the fuel cost increases to $3 per gallon, the cost savings under Scenarios 2 and 4 increases to $567,000 and $662,000, respectively. If diesel fuel prices increase even higher to $3.50 gallon, the savings under Scenarios 2 and 4 become $603,000 and $706,000, respectively. Increasing the hourly rate for the drivers to $17 per hour increases the cost savings only slightly to $548,000 for Scenario 2 and $640,000 for Scenario 4. If it is assumed that the unloading time at both the Montgomery County Transfer Station and a Clark County Transfer Station is 20 minutes, the cost savings decreases by approximately $9,000 for Scenario 2 and $11,000 for Scenario 4.

The transportation analysis described above was repeated for Clark County waste which was hauled to the Cherokee Run Landfill in Logan County and the Stony Hollow Landfill in Montgomery County during 2015. Table 9 shows the total transportation cost savings for a Clark County transfer station using each facility currently receiving District waste (i.e., Montgomery County Transfer Station, Stony Hollow Landfill, and Cherokee Run Landfill). In general, the distances to the Cherokee Run Landfill from communities in Clark County are greater than those for the other facilities, but the amount of waste sent to Cherokee Run is much less so the savings is also less. The distances from Clark County communities to Stony Hollow Landfill are slightly greater than those to the Montgomery County Transfer Station. However, the amount of waste hauled directly to Stony Hollow was less than half the tonnage hauled to the transfer station, therefore, the Stony Hollow cost saving is much less.

Table 9. Total Transportation Cost Savings by Facility

Scenarios	Annual Cost Savings			
	Montgomery Transfer St.	Stony Hollow LF	Cherokee Run LF	Total
1	$666,539	$298,484	$85,188	$1,050,211
2	$530,077	$237,457	$67,786	$835,320
3	$782,139	$349,901	$99,693	$1,231,733
4	$617,753	$276,473	$78,797	$973,023

Table 10 presents the results of the analysis categorized by Clark County communities.

Table 10. Total Transportation Cost Savings by Clark County Community

Scenarios	Annual Cost Savings		
	Springfield	All other communities	Total
1	$896,966	$153,245	$1,050,211
2	$712,833	$122,487	$835,320
3	$1,074,600	$157,133	$1,231,733
4	$847,503	$125,521	$973,023

It is important to note that the cost savings calculated in this section do not necessarily mean that the generator of the solid waste would realize the projected savings, only that an overall cost savings could result from shorter distances traveled for local haulers.

VI. IDENTIFIED TRANSFER STATION OPTIONS

As discussed above, several ownership and operational combinations for transfer stations are possible and are reflected in existing facilities within Ohio. These options include:

1. Publicly-owned and operated
2. Publicly-owned and privately-operated
3. Privately-owned and operated
4. Regional public facility
5. Hybrid models

While each of these options may have certain advantages, only the first (publicly-owned and operated), second (publicly-owned and privately-operated), and fifth (hybrid model) options are evaluated further in this analysis based upon the availability of data, and the circumstances associated with the existing facilities in counties adjacent to Clark. Data is not available for a privately-owned and operated facility (option 3), and a regional facility with the ability to attract waste from adjacent counties (option 4) does not seem feasible given the locations of existing facilities.

With the absence of private sector data, it is recommended that private sector investment and/or involvement should be explored. This is further discussed in the Conclusion Section of this report.

VII. EVALUATION OF COSTS FOR IDENTIFIED TRANSFER STATIONS

The various capital and operational costs of the transfer stations included in Section VI were analyzed to obtain average baseline data to be used in this economic analysis. The economic analysis includes 4 scenarios to assist the District in determining the full spectrum of the risks and rewards of developing the proposed transfer station. Also, sensitivity analysis was applied to certain cost factors to determine a range of possible costs. The scenarios are the following:

Table 11. Scenarios for Transfer Station Ownership and Operation

Scenario	Description
1	Publicly Owned and Operated Transfer Station
2	Publicly Owned and Privately Operated
3	Publicly Owned and Operated with Private Hauling
4	Publicly Owned and Operated – Miami Model

A. Operational Assumptions Used in this Analysis

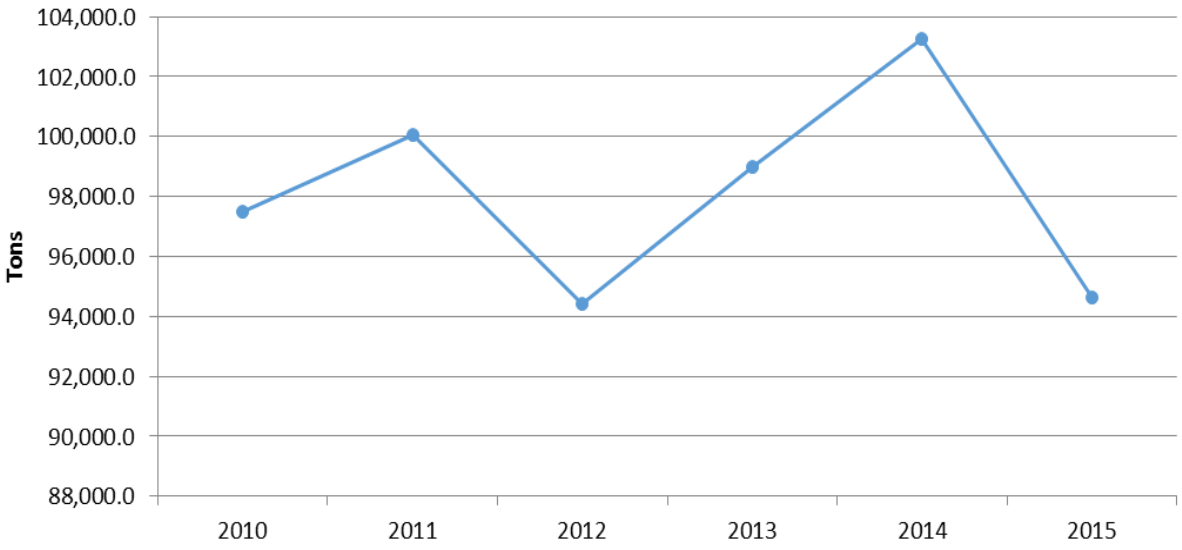
One key parameter for this analysis is ensuring the transfer station is sized, equipped and staffed to process the appropriate amount of solid waste from the District. The analysis completed for this study included a transfer station that processed solid waste from the residential/commercial and industrial sectors that is currently landfilled. Currently, this volume of solid waste is not controlled by the District.

The following Section summarizes the basic assumptions utilized to conduct the economic analysis for each presented scenarios.

1. Solid Waste and Recycling Tonnage

A waste generation analysis of the District's residential/commercial/industrial sectors solid waste stream was conducted in Section II of this report. The following chart depicts the amount of solid waste being landfilled by the District from 2010-2015:

Figure 6. Clark County Solid Waste Disposed: 2010 – 2015



Determining the amount of trash that would need to be managed by a District owned transfer station with flow control was determined by taking a 6-year average of the data depicted above. The raw average is 98,144 tons. By removing the high and low of the six-year data gives an average of 97,798 tons. For the purposes of this Study, 98,000 tons annually will be used for calculation purposes.

2. Capital Costs

The capital costs associated with designing, constructing and equipping the various scenarios covered in this Study and the amortization of those capital costs on an annualized basis were evaluated. The capital expenses include the cost of land, facility design, transfer station permit application, equipment and other start-up costs. The costs also include a portion of the facility dedicated as a licensed transfer station. This license requires a separate process and about a year and a half to permit through Ohio EPA.

Factors that could impact the actual capital costs include:

- Use of current county-owned property could reduce the capital costs estimated in this Study.
- Acquisition of an existing developed site with buildings adequate for the transfer station could reduce the cost. (Note: There are significant potential environmental liabilities associated with sites that have been contaminated from prior activity. Discounted properties should be reviewed carefully to confirm the costs associated with clean-up actions.)
- Acquisition of a site nearby the intersections of major arterial roadways and/or interstate highway interchanges may increase the cost.

3. Annual Debt Retirement

The largest portion of the projected annual operating expenses for the scenarios studied will be the debt retirement for the buildings/land and equipment. These costs are projected to range from $5,000,000 – $10,000,000. To retire this debt, GT assumed that a 20-year payback schedule would be utilized. GT also assumed that a commercial loan, bond or Ohio Department of Development Research and Development (ODOD) Loan could be used to finance the proposed transfer station. The District should review the latest opinion from the State Auditor regarding loans for solid waste districts. The assumed interest rate was 3.0 percent. Based on these figures, the annual payment for the scenarios studied ranges from $332,758 - $665,517.

4. Annual Operating Costs for Staff

Besides debt service, the next largest annual operating expense relates to salaries and salary overhead (e.g., insurance, retirement benefits, etc.). It is assumed that salary overhead, or fringe benefits, represent 60 percent of baseline salary.

The following are assumptions and general comments regarding staffing:

- The Study incorporates labor rates and the required number of staff from current operations from the comparable facilities.

- The District may be able to structure labor rates and the number of workers to reduce the impact of labor costs on the scenarios presented in this study.

5. Other Annual Operating Costs

The other annual operating costs reported by similar facilities include the following:

- Utilities
- Maintenance
- Supplies
- Professional Services
- Miscellaneous Costs
- Residuals Disposal

6. Other Costs: Transportation to the Landfill and Disposal Costs, District Generation Fee and EPA Fee

While these costs do not pertain to the processing of wastes at the transfer station, they are necessary costs associated with the overall operation of any transfer station. Average costs from the comparable transfer stations were used to estimate the cost for the proposed facility in Clark County.

Finally, each scenario studied included the cost of the District generation fee ($8.50/ton) and the Ohio EPA disposal fee ($4.75/ton) which are collected at the first licensed solid waste facility in Ohio that solid waste is delivered.

7. Revenues

The revenue associated with this analysis is the tipping fee which would be charged at the transfer station for waste received from haulers. The estimated tip fees shown in each scenario reflect the necessary fee to cash flow each scenario and range from $52-$57 per ton.

B. Economic Models

Scenario 1: Publicly-Owned and Operated

Table 12 shows the baseline estimated costs and revenue for a publicly-owned and operated transfer station, assuming that all District-generated waste is processed at the transfer station. The analysis shows that a tipping fee of $56.90 per ton will result in a slight annual “profit” of approximately $8,523. The costs used in the analysis are based upon data from existing transfer stations and studies that have been conducted for other political jurisdictions.

Table 12. Scenario 1: Publicly-Owned and Operated

Item			Annual Totals
Tons Managed Annually	**98,000**		
Annual Revenues			
Category	**Revenue**		
Tipping Fee	$56.90		$5,576,200.00
		Total Revenue	**$5,576,200.00**
Capital Costs			
Building/Land/Equipment Costs	$5,000,000	3% for 20 Years	$332,758.56
Annual Costs			
Laborer	Number of Laborers		2
	Labor rate per hour		$16.00
	Salary Per Year		$66,560
	Fringe Benefits		$45,427
Supervision/Equipment Operators	Number of Supervisors/Operators		4
	Labor rate per hour		$22.00
	Salary Per Year		$192,192
	Fringe Benefits		$124,925
Utilities			$60,000
Equipment Maintenance			$100,000
Equipment Replenishment			$50,000
Supplies			$25,000
Professional Services			$50,000
Misc. Costs			$225,000
Landfill Disposal	$18.00		$1,764,000.00
Solid Waste Transportation	$12.58		$1,233,313.67
District Generation Fee and Ohio EPA Fee	$13.25		$1,298,500.00
Total Annual Operating Cost			**$5,567,676**
Cost Per Ton			**$56.81**
Profit/Loss			**$8,523.77**

Scenario 2: Publicly-Owned and Privately-Operated

Table 13 presents the estimated costs and revenue for a publicly-owned and privately-operated transfer station. This scenario has been developed using the same costs as Scenario 1, except for the following cost factors:

- Fringe benefits. It is assumed that fringe benefits paid by the private sector are less than the public sector.

- Transportation costs. The baseline analysis for this scenario uses a lower cost per ton based upon information obtained from private hauling companies.
- Profit. This scenario also includes a profit margin for the private sector of 10 percent.

As shown in the table, an estimated "break-even" tipping fee of $52.20 is somewhat lower than Scenario 1 costs per ton when a 10 percent profit margin is incorporated into the analysis. (It is important to acknowledge that actual detailed costs from the private sector were not available this evaluation, and as a result, the most of the costs used for Scenario 1 were also used for Scenario 2. However, summary data was obtained for one facility – the Medina County Central Processing Facility – which showed that a private company is charging approximately $30 per ton to operate the transfer station, haul the waste to the landfill, and pay for disposal. If debt service is included at $3 to $4 per ton, the total annual costs become $33 to $34 per ton.)

Table 13. Scenario 2: Publicly-Owned and Privately-Operated

Item			Annual Totals
Tons Managed Annually		**98,000**	
Annual Revenues			
Category	**Revenue**		
Break-even tipping fee w/ profit margin	$52.20		$5,115,600.00
		Total Revenue	**$5,115,600.00**
Capital Costs			
Building/Land/Equipment Costs	$5,000,000	3% for 20 Years	$332,758.56
Annual Costs			
Laborer	Number of Laborers		2
	Labor rate per hour		$16.00
	Salary Per Year		$66,560
	Fringe Benefits		$17,472
Supervision/Equipment Operators	Number of Supervisors/Operators		4
	Labor rate per hour		$22.00
	Salary Per Year		$192,192
	Fringe Benefits		$48,048
Utilities			$60,000
Equipment Maintenance			$100,000
Equipment Replenishment			$50,000
Supplies			$25,000
Professional Services			$50,000
Misc. Costs			$225,000

Item		Annual Totals
Tons Managed Annually	**98,000**	
Landfill Disposal	$18.00	$1,764,000.00
Solid Waste Transportation	$8.99	$880,938.33
District Generation Fee and Ohio EPA Fee	$13.25	$1,298,500.00
Total Annual Operating Cost		**$5,110,469**
Cost Per Ton		**$52.15**
Profit/Loss		**$5,131.11**

Scenario 3: Publicly-Owned and Operated with Private Hauling

Table 14 shows the estimated costs and revenue for a publicly-owned and operated transfer station, except that hauling the waste to a landfill and negotiating a disposal contract would be the responsibility of a private sector company. The only costs in this scenario which are different than Scenario 1 are lower transportation costs of $8.99 per ton which are based upon information obtained from a private hauling company.

Table 14. Scenario 3: Publicly-Owned and Operated w/ Private Hauling

Item			Annual Totals
Tons Managed Annually	**98,000**		
Annual Revenues			
Category	**Revenue**		
Tipping Fee	$53.30		$5,223,400.00
		Total Revenue	**$5,223,400.00**
Capital Costs			
Building/Land/Equipment Costs	$5,000,000	3% for 20 Years	$332,758.56
Annual Costs			
Laborer	Number of Laborers		2
	Labor rate per hour		$16.00
	Salary Per Year		$66,560
	Fringe Benefits		$45,427
Supervision/Equipment Operators	Number of Supervisors/Operators		4
	Labor rate per hour		$22.00
	Salary Per Year		$192,192
	Fringe Benefits		$124,925

Item		Annual Totals
Tons Managed Annually	**98,000**	
Utilities		$60,000
Equipment Maintenance		$100,000
Equipment Replenishment		$50,000
Supplies		$25,000
Professional Services		$50,000
Misc Costs		$225,000
Landfill Disposal	$18.00	$1,764,000.00
Solid Waste Transportation	$8.99	$880,938.33
District Generation Fee and Ohio EPA Fee	$13.25	$1,298,500.00
Total Annual Operating Cost		**$5,215,301**
Cost Per Ton		**$53.22**
Profit/Loss		**$8,099.11**

Scenario 4: Publicly-Owned and Operated – Miami Model

Table 15 shows the baseline estimated costs and revenue for a publicly-owned and operated transfer station based on operational expenses incurred at the Miami County Transfer Station for 2015. This scenario also is assuming that all District-generated waste is processed at the transfer station. The analysis shows that a tipping fee of $53.10 per ton will result in a slight annual "profit" of approximately $6,581. The costs used in the analysis are based upon data from the Miami County Transfer Station for 2015.

Table 15. Scenario 4: Publicly-Owned and Operated – Miami Model

Item			Annual Totals
Tons Managed Annually		**98,000**	
Annual Revenues			
Category	**Revenue**		
Tipping Fee	$53.10		$5,203,800.00
		Total Revenue	**$5,203,800.00**
Capital Costs			
Building/Land/Equipment Costs	$5,000,000	3% for 20 Years	$332,758.56
Annual Costs			

Item		Annual Totals
Tons Managed Annually	**98,000**	
Laborer	Number of Laborers	4
	Labor rate per hour	$16.00
	Salary Per Year	$133,120
	Fringe Benefits	$45,427
Supervision/Equipment Operators	Number of Supervisors/Operators	6
	Labor rate per hour	$22.00
	Salary Per Year	$288,288
	Fringe Benefits	$124,925
Operations and Maintenance		$514,400
Landfill Disposal	$25.10	$2,459,800.00
Solid Waste Transportation		
District Generation Fee and Ohio EPA Fee	$13.25	$1,298,500.00
Total Annual Operating Cost		**$5,197,219**
Cost Per Ton		**$53.03**
Profit/Loss		**$6,581.44**

Sensitivity Analysis of Scenarios 1-4

The following discussion below summarizes the analyses discussed above and shows the key cost factors which were varied in order to develop a range of likely costs for a Clark County transfer station. The lowest baseline cost in the analysis, is $52.15 per ton (Scenario 2, baseline), while the highest cost is $56.81 per ton for Scenarios 1. The variables analyzed for the sensitivity analysis for each scenario are as follows:

- Capital expenses to build the transfer station increased from $5,000,000 to $10,000,000.
- Cost for outbound disposal increased from $18.00/ton to $30.00/ton for Scenarios 1-3 and $12.00/ton to $20.00/ton for Scenario 4.
- Cost of outbound hauling of solid waste from the transfer station to the landfill was increased by $10.00 per ton.

The following explains each sensitivity analysis by scenario.

Sensitivity Analysis of Scenario 1

Based on data obtained from one source, the capital costs for the facility could be as much as $10,000,000. As discussed above, the capital costs depend upon a number of factors, including the price of land for the site. The total annual cost per ton for

assuming a capital cost of $10 million would increase the base cost of this scenario from $56.81 to $60.21 per ton.

The landfill disposal rate has a greater effect on the annual cost per ton than the capital cost of the transfer station. A disposal rate of $18.00 per ton assumes that the District could secure a contract with a landfill owner. However, if the District is unable to negotiate terms of a contract for $18.00 per ton and is forced to pay $30 per ton for disposal, the total annual costs would increase the base cost of this scenario from $56.81 to $68.81 per ton.

The transportation costs from the transfer station to a landfill also comprise a significant portion of the total costs.[4] In the baseline analysis shown above, the transportation costs of $12.58 per ton have been estimated based on the annual amortized cost of transfer tractor-trailers plus operating costs per mile including fuel. If these costs were to increase to $10 per ton, the total annual cost for the transfer station would be $79.39 per ton. Higher capital costs of $10 million, higher disposal costs of $30 per ton, and higher transportation costs of $10 per ton result in total annual costs of $94.79 per ton.

Without flow control (or designation) which is discussed in the next section, the District would need to have a tipping fee at their transfer station which is competitive with other facilities currently being used by haulers operating in Clark County in order to attract waste. Using the Montgomery County South Transfer Station as the competing facility, a Clark County facility would need to have a tipping fee no more than $50.25 per ton (Montgomery County's current fee for Clark County waste) plus the cost savings which would be realized from the shorter hauling distances to a Clark County facility. The most conservative transportation cost savings estimate as discussed above in Section V is $835,000, or $8.52 per ton. Assuming that haulers would save an average of $8.52 per ton by bringing waste to a Clark County transfer station, the Clark County facility tipping fee could theoretically be slightly higher than $58 per ton and remain competitive with the Montgomery County South Transfer Station.[5]

Using a capital cost estimate of $5 million, the landfill disposal rate paid by Clark County could be as high as $19 per ton to maintain an overall cost per ton approximating $58 per ton. If the capital costs increased to $10 million, the landfill disposal rate would need to be $15 per ton in order for a Clark County transfer station to remain competitive.

Sensitivity Analysis of Scenario 2

[4] Each scenario in the analyses assumes that waste would be delivered from a Clark County transfer station located in Springfield to the Cherokee Run Landfill in Logan County or the Stony Hollow Landfill in Montgomery County. Approximate distances to these landfills is very similar – 34 and 33 miles, respectively.

[5] It is important to note that a tipping fee of approximately $58 per ton represents an average price which would be competitive with the Montgomery County South facility. For example, haulers transporting from locations in Clark County which are closer to Montgomery County (such as New Carlisle) would likely save less than $8.52 per ton by bringing waste to a Clark County facility. Therefore, a competitive tipping fee for these haulers would need to be less than $58 per ton.

Based on data obtained from one source, the capital costs for the facility could be as much as $10,000,000. As discussed above, the capital costs depend upon a number of factors, including the price of land for the site. The total annual cost per ton for assuming a capital cost of $10 million would increase the base cost of this scenario from $52.15 to $55.54 per ton.

The landfill disposal rate has a greater effect on the annual cost per ton than the capital cost of the transfer station. A disposal rate of $18.00 per ton assumes that the District could secure a contract with a landfill owner. However, if the District is unable to negotiate terms of a contract for $18.00 per ton and is forced to pay $30 per ton for disposal, the total annual costs would increase the base cost of this scenario from $52.15 to $64.15 per ton.

The transportation costs from the transfer station to a landfill also comprise a significant portion of the total costs.[6] In the baseline analysis shown above, the transportation costs of $8.99 per ton have been estimated based on the average costs for private hauling from the comparable transfer stations plus operating costs per mile including fuel. If these costs were to increase to $10 per ton, the total annual cost for the transfer station would be $71.14 per ton. Higher capital costs of $10 million, higher disposal costs of $30 per ton, and higher transportation costs of $10 per ton result in total annual costs of $86.53 per ton.

Using a capital cost estimate of $5 million, the landfill disposal rate paid by Clark County could be as high as $23 per ton to maintain an overall cost per ton approximating $58 per ton. If the capital costs increased to $10 million, the landfill disposal rate would need to be $20 per ton in order for a Clark County transfer station to remain competitive.

Sensitivity Analysis of Scenario 3

Based on data obtained from one source, the capital costs for the facility could be as much as $10,000,000. As discussed above, the capital costs depend upon a number of factors, including the price of land for the site. The total annual cost per ton for assuming a capital cost of $10 million would increase the base cost of this scenario from $53.22 to $56.61 per ton.

The landfill disposal rate has a greater effect on the annual cost per ton than the capital cost of the transfer station. A disposal rate of $18.00 per ton assumes that the District could secure a contract with a landfill owner. However, if the District is unable to negotiate terms of a contract for $18.00 per ton and is forced to pay $30 per ton for disposal, the total annual costs would increase the base cost of this scenario from $53.22 to $65.22 per ton.

[6] Each scenario in the analyses assumes that waste would be delivered from a Clark County transfer station located in Springfield to the Cherokee Run Landfill in Logan County or the Stony Hollow Landfill in Montgomery County. Approximate distances to these landfills is very similar – 34 and 33 miles, respectively.

The transportation costs from the transfer station to a landfill also comprise a significant portion of the total costs.[7] In the baseline analysis shown above, the transportation costs of $8.99 per ton have been estimated based on the average costs for private hauling from the comparable transfer stations plus operating costs per mile including fuel. If these costs were to increase to $10 per ton, the total annual cost for the transfer station would be $72.21 per ton. Higher capital costs of $10 million, higher disposal costs of $30 per ton, and higher transportation costs of $10 per ton result in total annual costs of $87.60 per ton.

Using a capital cost estimate of $5 million, the landfill disposal rate paid by Clark County could be as high as $22 per ton to maintain an overall cost per ton approximating $58 per ton. If the capital costs increased to $10 million, the landfill disposal rate would need to be $19 per ton in order for a Clark County transfer station to remain competitive.

Sensitivity Analysis of Scenario 4

Based on data obtained from one source, the capital costs for the facility could be as much as $10,000,000. As discussed above, the capital costs depend upon a number of factors, including the price of land for the site. The total annual cost per ton for assuming a capital cost of $10 million would increase the base cost of this scenario from $53.03 to $56.43 per ton.

The landfill disposal rate has a greater effect on the annual cost per ton than the capital cost of the transfer station. A disposal rate of $12.00 per ton assumes that the District could secure a contract with a landfill owner based on the same rate as Miami County. However, if the District is unable to negotiate terms of a contract for $12.00 per ton and is forced to pay $20 per ton for disposal, the total annual costs would increase the base cost of this scenario from $53.03 to $61.03 per ton.

The transportation costs from the transfer station to a landfill also comprise a significant portion of the total costs.[8] In the baseline analysis shown above, the transportation costs incurred by Miami County have been included. If these costs were to increase to $10 per ton, the total annual cost for the transfer station would be $63.03 per ton. Higher capital costs of $10 million, higher disposal costs of $20 per ton, and higher transportation costs of $10 per ton result in total annual costs of $74.43 per ton.

[7] Each scenario in the analyses assumes that waste would be delivered from a Clark County transfer station located in Springfield to the Cherokee Run Landfill in Logan County or the Stony Hollow Landfill in Montgomery County. Approximate distances to these landfills is very similar – 34 and 33 miles, respectively.

[8] Each scenario in the analyses assumes that waste would be delivered from a Clark County transfer station located in Springfield to the Cherokee Run Landfill in Logan County or the Stony Hollow Landfill in Montgomery County. Approximate distances to these landfills is very similar – 34 and 33 miles, respectively.

Sensitivity Analysis of Scenarios 1-4 Summary

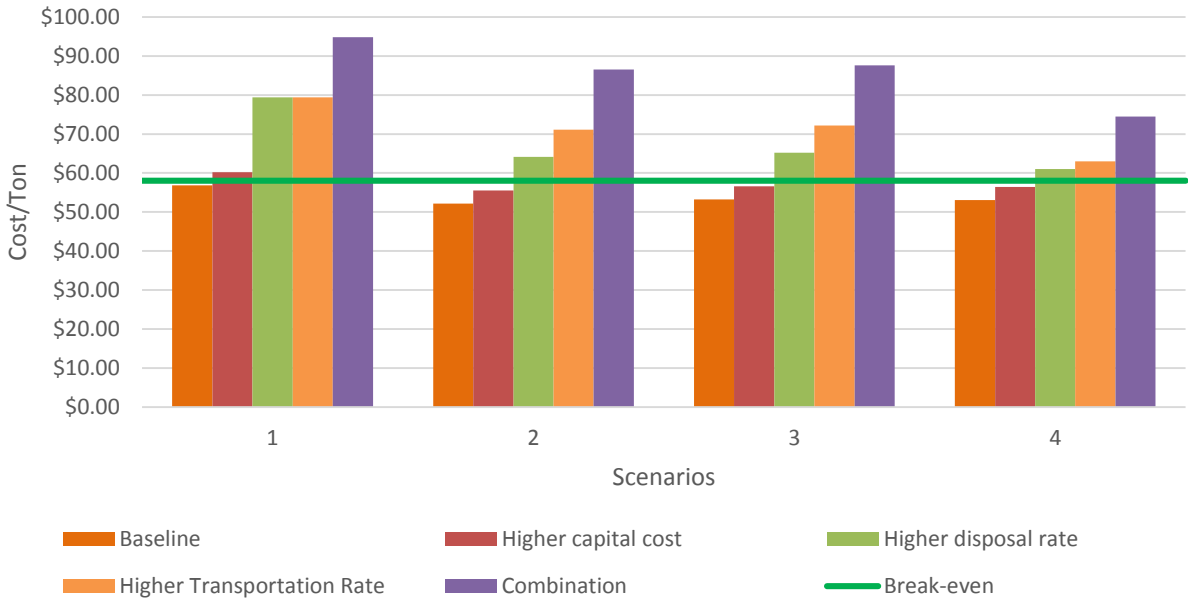
The following table summarizes the sensitivity analysis for each scenario evaluated. Varying each of the selected cost factors resulted in significant changes to total annual costs per ton. However, the total annual cost per ton is most sensitive to changes in the landfill disposal rate and the transportation costs from the transfer station to the landfill.

Table 16. Sensitivity Analysis for Transfer Station Scenarios

Scenario	Category Name	$ Amount	Tip Fee
1	Baseline		$56.81
	Transfer station capital cost	$10,000,000	$60.21
	Landfill disposal rate/ton	$30.00	$68.81
	Transportation cost/ton	$22.58	$79.39
	Combination of all three factors		$94.79
2	Baseline		$52.15
	Transfer station capital cost	$10,000,000	$55.54
	Landfill disposal rate/ton	$30.00	$64.15
	Transportation cost/ton	$18.99	$71.14
	Combination of all three factors		$86.53
3	Baseline		$53.22
	Transfer station capital cost	$10,000,000	$56.61
	Landfill disposal rate/ton	$30.00	$65.22
	Transportation cost/ton	$12.00	$72.21
	Combination of all three factors		$87.60
4	Baseline		$53.03
	Transfer station capital cost	$10,000,000	$56.43
	Landfill disposal rate/ton	$20.00	$61.03
	Transportation cost/ton	$23.10	$63.03
	Combination of all three factors		$74.43

Figure 7 shows the results from the above table in a chart, and also includes a "break-even" horizontal, green, target line at $58 per ton which represents the fee charged at the Montgomery County South Transfer Station plus the average transportation cost savings for haulers delivering waste to a Clark County facility.

Figure 7. Cost/Ton w/ Generation Fee for Transfer Station Scenarios



VIII. CONTRACTS AND DESIGNATION OPTIONS

The current solid waste management system in the District is considered an open market, and thus mostly managed by the private sector in a competitive system. The District's potential engagement with a publicly-owned transfer station presents several issues that must be addressed. GT will summarize the available tools that can be utilized by the District to implement each of the suggested options. These tools can include, but are not limited to the following:

- Facility Designations and Flow Control of Solid Waste

- Solid Waste District Rules
- Solid Waste Facility Siting Criteria

The District currently has the following tools in its solid waste management plan:

- The Board is authorized to establish facility designations in accordance with Sections 343.013 and 343.014 of the Ohio Revised Code. In addition, facility designation will be established and governed by applicable District rules.
- District Rule #1-796 regarding solid waste facility siting criteria.

This section evaluates the options available regarding the use of contracts and designations as it relates to District facilities for operations and flow control. In order for any District operations to be successful, there must be an adequate flow of materials for processing. All solid waste management facilities that process, dispose or transfer solid

waste/recyclable materials require a certain level of volume (or throughput) to sustain the operation economically.

Ohio law authorizes solid waste districts to direct the flow of solid waste to public sector facilities. This power ensures that publicly-invested dollars have the requisite revenues to pay the debt for the facility. Section A, Designation and Flow Control, explains how flow control is authorized and implemented.

A. Designation and Flow Control with Public Debt

Section 3734.53 (E)(1) of the Ohio Revised Code (ORC) requires a solid waste district to prepare the solid waste management plan with a clear statement as to whether the Board (Board) is authorized to, or precluded from, establishing facility designation under Section 343.013 or 343.014 of the ORC. The current solid waste plan states the following:

> *The Board is authorized to establish facility designations in accordance with Sections 343.013 and 343.014 of the Ohio Revised Code. In addition, facility designation will be established and governed by applicable District rules*.

In addition, the solid waste plan includes a statement on identifying facilities:

> *The District continues to support an open market for the collection, transport and disposal of solid waste. As required in Section 3734.53(A)(13)(a) of the Ohio Revised Code, the District is identifying all Ohio licensed and permitted solid waste landfill, transfer and resource recovery facilities and all licensed and permitted out-of-state landfill, transfer and resource recovery facilities. The District is also identifying recycling and composting programs and facilities that are identified in Section III Inventories.*

The outcome of this Study and the recommendations proposed to the Board will help determine whether it is in the best interest of the District to develop a Transfer Station. The development of a District-operated Transfer Station presents many issues (economic and legal) that will require further refinement. The collection and delivery of solid waste for transfer could require a review of flow control provisions and available contracting options. The procedures to designate the Transfer Facility and enact flow control would need to be followed.

When contemplating designation of facilities, the District will also need to consider the impact of recent changes to the law with regard to recyclables. In June 2015, the Ohio General Assembly passed House Bill 64 which included language to eliminate flow control for source-separated recyclables. As used in this section: (1) “Source separated recyclable materials” means materials that are separated from other solid wastes at the location where the materials are generated for the purpose of recycling the materials at a legitimate recycling facility. (2) “Legitimate recycling facility” has the same meaning as in rule 3745-27-01 of the Administrative Code.

The new law excludes source separated recyclables from district flow control District.

If the District decides to build a transfer station through public financing and debt, then Section 3734.13 of the Revised Code becomes applicable. This approach is governed by the following requirements in the ORC:

> ***Designations with public debt.***
>
> *(A) The designations under the initial solid waste management plan of a county or joint solid waste management district approved under section 3734.55 of the Revised Code of solid waste disposal, transfer, and resource recovery facilities and recycling activities that are owned by a municipal corporation, county, county or joint solid waste management district, township, or township waste disposal district created under section 505.28 of the Revised Code and are financed in whole or part by debt issued under Chapter 133., 343., or 6123. of the Revised Code shall continue until they are terminated by the board of county commissioners or directors of the district or they end pursuant to division (C) of this section.*
>
> *(B) The board of county commissioners or directors of a district, at any time and by resolution, may designate additional solid waste disposal, transfer, or resource recovery facilities or recycling activities that are owned by a municipal corporation, county, county or joint solid waste management district, township, or township waste disposal district created under section 505.28 of the Revised Code, and that are financed in whole or in part by debt issued under Chapter 133., 343., or 6123. of the Revised Code, where solid wastes generated within or transported into the district shall be taken for disposal, transfer, resource recovery, or recycling.* ***(Note: Reminder recyclables can now be taken directly to a legitimate recycling facility.)***
>
> *(C) The designation of a facility or activity under division (A) or (B) of this section shall not continue beyond the time that all such debt issued to finance the facility or activity has been retired. The board, at any time and by resolution, may terminate the designation of any such facility or activity.*

B. Required Procedures for Facilities with ***No*** Outstanding Public Debt

There would be a need to evaluate establishing and designating the Transfer Station with no outstanding debt. The District would be required to follow the (cumbersome) procedures under Section 343.014 of the Ohio Revised Code. The procedures for designating facilities where no public debt is outstanding include:

- Adopting a resolution expressing the intent of the Board to designate a solid waste facility to receive wastes generated within and transported into the District.

After adoption, the Board would need to complete the following:

- Hold a public hearing on the proposed designation.
- Publish notice of the adoption of the resolution and date, time and location of the hearing in at least one newspaper of general circulation.
- Mail notice of the adoption of the resolution to the fifty industrial, commercial and institutional generators of solid wastes within the District that generate the largest quantities of solid waste as determined by the Board and their local trade associations.
- Mail notice of the adoption of the resolution to the legislative District of each municipal corporation, county and township located in the District.
- Mail notice of the adoption of the resolution to the Director of Ohio EPA.

After the hearing, the Board would decide whether to proceed with the proposed designation. If the Board decides to proceed, it adopts a resolution of preliminary designation. The resolution may include criteria or procedures for selecting the solid waste disposal, transfer or resource recovery facilities or recycling activities that are to receive wastes generated within and transported into the District.

If, after compiling the list of solid waste facilities, the Board wishes to designate, and the Board wants to proceed with designation, it shall adopt a resolution declaring its intent to establish designation. The resolution shall contain the list of facilities and activities the Board proposes to designate.

After adopting the resolution of intent to establish designations, the Board must do all of the following:

- Establish a reasonable period for receiving comments from the public concerning designation.

- Publish in at least one newspaper of general circulation in the District notice of the adoption of resolution and where it is available for review and dates for the comment period.
- Mail notices about the comment period and the list of facilities in the resolution to the fifty industrial, commercial and institutional generators of solid wastes within the District that generate the largest quantities of solid waste.
- Mail notices about the comment period and the resolution to each municipal corporation, county and township located in the District.
- Mail notices about the comment period and the resolution to the Director of Ohio EPA.

After considering comments submitted by the public during the comment period, the Board may revise the list of solid waste disposal, transfer or recycling activities to be designated. The designations shall become effective sixty days after the adoption of the resolution of final designation.

Flow Control Summary

Establishing designated facilities is an important decision for any District and in the past Clark County has chosen to operate in an open market. A change to flow control is an important decision. The District should seek appropriate legal advice prior to the flow control of solid waste. There are numerous court cases of legal precedent regarding designation and flow control. A decision by the United States Supreme Court on April 30, 2007 has given broader discretion to public sector facilities and operations. The decision upheld a flow control ordinance where the facility was publicly-owned and operated. Experts in the field believe the case gives public sector facilities the ability to flow control materials to publicly-owned and operated facilities without including provisions to either bring the material to the Transfer Station or ship it out-of-state.

A county-owned and operated Transfer Facility would not likely be successful without control of the solid waste. Prior to the April 30, 2007 Supreme Court decision, designating the proposed Transfer Facility may have been controversial with the private sector and have led to a legal challenge under the *Commerce Clause* of the U.S. Constitution. This issue may not be a factor any longer. However, prior to establishing any strategy for a Transfer Station, the District should fully explore with legal experts all flow control issues that could impact any District facility.

C. Solid Waste Facility Siting Criteria

For certain facilities, there are setback requirements to protect the environment. For example, a transfer station cannot be located within 500 feet of the following:

- State nature preserve,
- State wildlife area,
- State scenic river,
- Surface waters of the state designated as a state resource water, cold water habitat or exceptional warm water habitat.

Waste handling areas cannot be located within 250 feet of a domicile.

In addition to environmental setbacks a solid waste district could have rules in place regarding siting near schools, places of worship, hospitals and other similar facilities. Clark County has authorized through the solid waste management the District to adopt rules but as of the writing of this report has not adopted rules.

D. Contracting

Contracting with local municipalities is another option available to the District to control the flow of residentially generated solid waste and recyclables. This process can involve several scenarios consisting of the following:

- Contract between the District and all, or select, political subdivisions to require delivery of solid waste to a District facility. This is the model used in Montgomery County.
- Contract between the District and political subdivisions and a third party solid waste hauler that requires delivery of collected materials to the proposed District facility.
- Create a cooperative contract between the District and multiple political subdivisions within the District.

E. Solid Waste Management Plan Rules

Another option available to the District is to use the solid waste management District rule-making District. Ohio Revised Code Section 3734.53(C) states, "the solid waste management plan of a county or joint District may provide for the adoption of rules under division (G) of section 343.01 of the Revised Code after approval of the plan under section 3734.521 or 3734.55 of the Revised Code." This allows solid waste management districts to create rules in any of the following four areas described in Ohio Revised Code Section 3734.53(C) and summarized below:

> "**ORC 3734.53 (C)(1)** Prohibiting or limiting the receipt at facilities located within the solid waste management district of solid wastes generated outside the district or outside a prescribed service area consistent with the projections under divisions (A)(6) and (7) of this section. However, rules adopted by a board under division (C)(1) of this section may be adopted and enforced with respect to solid waste disposal facilities in the solid waste management district that are not owned by a county or the solid waste management district only if the board submits an application to the director of environmental protection that demonstrates that there is insufficient capacity to dispose of all solid wastes that are generated within the district at the solid waste disposal facilities located within the district and the director approves the application. The demonstration in the application shall be based on projections contained in the plan or amended plan of the district. The director shall establish the form of the application. The approval or disapproval of such an application by the director is an action that is appealable under section 3745.04 of the Revised Code.
>
> In addition, the director of environmental protection may issue an order modifying a rule authorized to be adopted under division (C)(1) if this section to allow the disposal in the district of wastes from another county or joint solid waste management district if all of the following apply: ***This section of the law was passed in July 2009 by the Ohio General Assembly requires District's to obtain approval from Ohio EPA in order to enact this rule. An application and authorization is required prior to enforcing and enacting a rule limiting solid waste at in-district facilities.***
>
> - "Governing the maintenance, protection, and use of solid waste collection, storage, disposal, transfer, recycling, processing and resource recovery

facilities within the District and requiring the submission of general plans and specifications for the construction, enlargement, or modification of any such facility to the Board or board of directors of the District for review and approval as complying with the plan or amended plan of the District;"

- "Governing development and implementation of a program for the inspection of solid wastes that are being disposed of at solid waste facilities included in the District's plan;"

- "Exempting the owner or operator of any existing or proposed solid waste facility provided for in the plan from compliance with any amendment to a township zoning resolution adopted under section 519.12 of the Revised Code or to a county rural zoning resolution adopted under section 303.12 of the Revised Code that rezoned or reauthorized the parcel or parcels upon which the facility is to be constructed or modified and that became effective within two years prior to the filing of an application for a permit required under division (A)(2)(a) of section 3734.05 of the Revised Code to open a new or modify an existing solid waste facility."

Montgomery County Solid Waste District owns and operates two transfer facilities. The District recently adopted rules that require all source-separated recyclable materials to be delivered for recycling to a legitimate recycling facility. This would be in-line with new state law. The rules also require all solid waste to be delivered to designated facilities. The District operated transfer facilities are the only designated facilities in the Plan Update.

In general, rules in a solid waste management plan work in tandem with the designation District of solid waste management districts. New rules can be established after a Plan is developed that includes the rule-making District. In the latest Plan Update, the Plan reserves the right to adopt rules. As stated earlier, the District has not adopted any rules.

F. Collection of Recyclables

This Study is focused on a transfer facility for solid waste. Source separated recyclables cannot be flow controlled to the Transfer Station unless it also would operate as a legitimate recycling facility. It is unlikely the Transfer Station would qualify under the legitimate recycling facility exemption. So recyclables can be processed if delivered to the Transfer Station; they just cannot be mandated through flow control.

IX. CONCLUSIONS AND ROAD MAP FOR DECISION MAKING

A. Discussion

The decision to proceed with an investment in a solid waste transfer station for the District could be made on the basis of the answer to the following questions:

> *Will the annual revenues from tipping fees collected more than pay for the cost of the facility?*
>
> *Or*
>
> *Is the required tipping fee competitive with current facilities located outside the District?*

As with any public sector decision, the decision of whether or not to proceed with the project to develop a facility is complex. The benefits associated with a solid waste transfer station include meeting public policy objectives that do not always fit into a simplified analysis of revenues versus annualized costs.

The benefits of a solid waste transfer station that should be considered in the decision include:

- Decreasing cost for solid waste management for generators and haulers in the District.
- Providing local disposal option for small haulers that do not own landfills.
- Providing local disposal option for residents and businesses.
- Providing bulky item disposal options for residents.
- Creating economic development opportunities including new jobs.
- Creating an environment that fosters the development of more local haulers.
- Creates the opportunity to work with other solid waste management districts in Ohio to share facilities and or to jointly contract for disposal capacity (Montgomery and Miami County example).

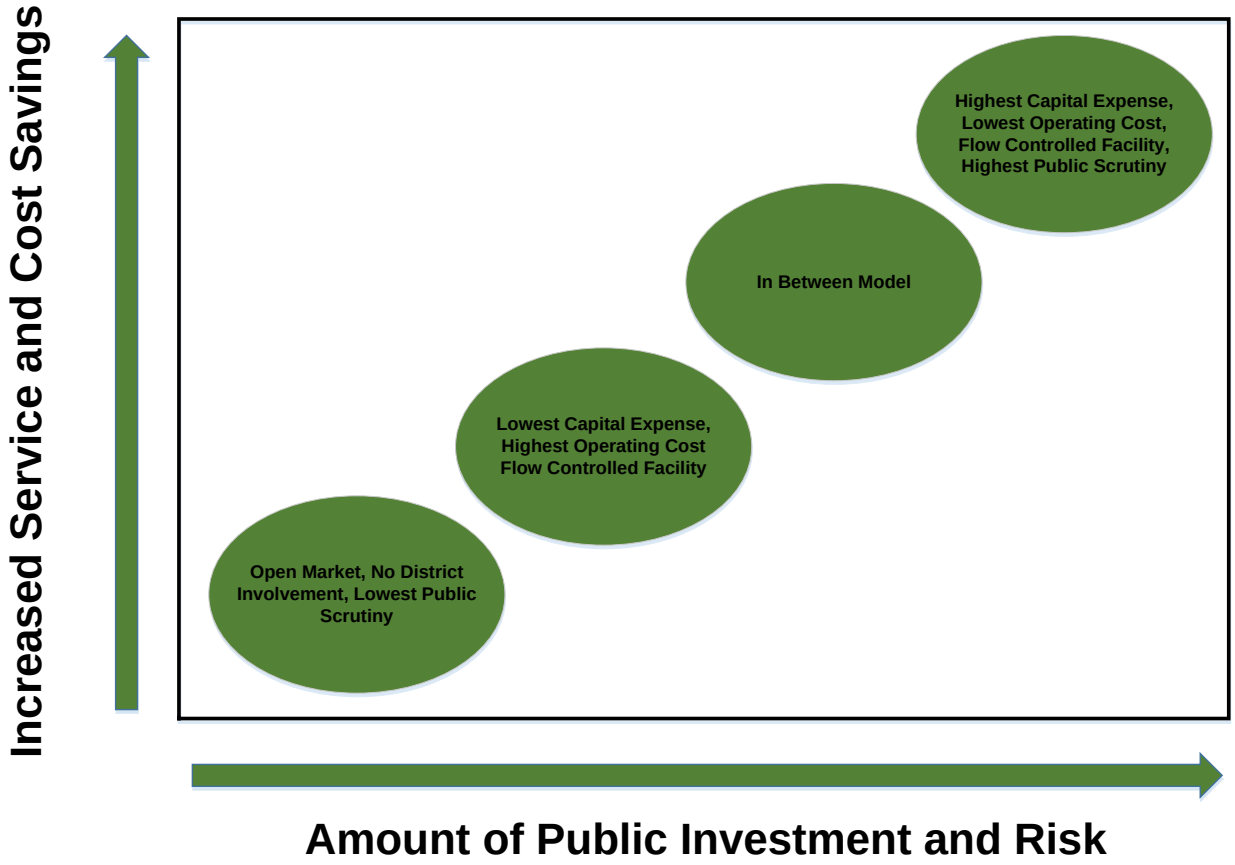
There are also possible negative consequences that should be considered. These include:

- Moving from an open market to flow control.
- Political considerations regarding flow control.
- Impacts on existing private sector transfer stations and landfills outside the District.
- Market downturns significantly impacting facility revenues.
- More competition could bring more haulers with additional trucks on the road causing damage and creating safety concerns.
- Cost savings not being passed onto the generators from the haulers.

- Large haulers that own landfills could pull out of the District because of loss of disposal tonnage.

There are risks associated with any significant economic decision. Generally, the risks are greater with larger investments than with smaller investments. Likewise, the potential benefits are greater with larger investments. The following figure illustrates the relationship between risk/investment and the reward that is likely to occur.

Figure 8. Risk versus Reward



As depicted in the figure above, a decision to develop a solid waste transfer station locally involves several levels of risk and reward versus doing nothing in an open market.

B. Suggested Road Map for Decision Making

This Study evaluated the economics, public operations and other factors to arrive at the conclusions and options stated in this section. The financial analysis section demonstrates that there are several scenarios where a publically owned facility with variants of private sector involvement or no involvement are feasible. Since no viable private sector data was submitted for a privately owned and operated transfer station was obtained during the development of this Study, GT has included a private sector

process to ensure no viable private sector operator would be willing to develop a solid waste transfer facility before proceeding with a public option. This process would occur before any other public option was explored.

The recommendations are designed as a road map to lead the District in the direction to consider the alternatives developed in this Study.

Road Map for Decision Making

Each step listed is dependent on an affirmative position or action by the Board of County Commissioners and the District Policy Committee on the previous step.

Step #1

The District must decide if it is in the best interest of the District and its stakeholders (residents, communities and businesses) to transition from an open market solid waste management system to a closed system where the District controls the flow of solid waste for disposal. If the Board agrees, then proceed to Step #2.

Step #2

The District must determine from discussions with the leadership and legislative bodies of political subdivisions that flow control of residential/commercial/industrial solid waste is attainable. The District should have concurrence from the County Commissioners, the City of Springfield and a majority of the cities, villages and townships representing the District also to concur. The designation process does not require ratification by the communities as the power to designate is already in the District's solid waste plan. Concurrence is suggested to ensure the communities are on board before going down the path of designation since this would be a major change in the District's powers within the County.

If the Board can determine and assure political agreement is attainable, then proceed to Step #3.

Step #3

The District would request a Letter of Interest from developers and operators of solid waste transfer station's. The purpose of the letter of interest is to determine if any private sector operator would be interested in developing a solid waste transfer station in lieu of the District developing a facility.

The request developed by the District would include a narrative explanation of the project. The narrative should include a summary of this Study. The summary could include information and data prepared for this Study. The complete Study can also be included as a PDF attachment to the requested Letter of Interest.

The requested Letter of Interest would require a respondent to provide specific data and information about their company and initial information about their financial position. Specifically, the Letter of Interest must identify the necessary amount of tons of solid waste necessary to operate the proposed facility.

The District would review the Letters of Interest and determine from the information submitted whether there is adequate interest to develop formal Requests for Proposals or to begin a process to support a private sector facility. If the District determines that it make sense to move forward after reviewing the Letters of Interest, a Request for Proposals will be developed. The Request for Proposals will include detailed forms for developers to provide in a format that would be easy for the District to review. It would be the intent to make apples to apples comparisons of all of the proposals. It would help the review of proposals if the District can narrow down the goals and objectives of the facility that the District would be willing to support.

A private sector solid waste transfer station should meet the following criteria:

- Sustainable and cost effective.
- Competitive with current solid waste disposal facilities in the region.
- Centrally located.

The District would utilize the Policy Committee and any consulting and engineering expertise necessary to provide a review of the proposals. Proposals would be ranked and look at several factors including environmental permitting, operations, facility construction, processing capacity, equipment, pro forma financials, and many other factors.

The Policy Committee would present the proposal rankings and evaluations to the Board of County Commissioners. The Board would then make final decisions and consider recommendations of the Policy Committee. If the Board of County Commissioners determined that it was in the best interests of the District to pursue one of the proposal options, then they would formally need to address the flow control issues and design a roadmap to achieve political approval for a change in the District's engagement with solid waste management in the District. This step may also be addressed prior to engaging the private sector.

Once a developer and operator is determined to be the best option for the District and offers the best operation at a reasonable cost, the District would begin contract negotiations using both inside and outside counsel as appropriate. The contract would have specific milestones, performance and financial requirements to ensure the District will be satisfied with the services to be provided and the timely development of the solid waste transfer facility.

If a contract can be negotiated, the District would need to include this option in its next solid waste plan update and incorporate all milestones for implementation of the facility.

Step #4

If Step #3 does not produce a viable operation from the private sector that meets the needs of the District and is economically and politically acceptable, then the District would consider a District owned and operated solid waste transfer facility or to remain at the current status quo system.

If the Board determines that a District owned and operated solid waste transfer facility is not in the best interest of the District and its stakeholders (residents, communities and businesses), then proceed to Step #5.

If the District determines that a District owned and operated or hybrid operation is feasible, the District would need to include this option in its next solid waste plan update and incorporate all milestones for implementation of the facility including but not limited to the following:

- Designing of the facility
- Siting of the facility
- Permitting of the facility,
- Procurement process for land acquisition, equipment, construction
- Any new rules governing the facility
- Funding mechanisms
- Facility start-up process and staff hiring/training
- Other policy and or procedural requirements

Step #5

There are several reasons why continuing the current open market solid waste management system may be the best course of action for the District. This includes the following:

- Volatility in the economic conditions that affect solid waste generation.
- Cost to design a new facility.
- New equipment costs.
- Labor and management requirements.
- Requirement to shift District from open market policy.
- Need for flow control to ensure debt and operational costs can be covered.
- There is no guarantee that transportation costs savings incurred by the local haulers will be passed on to the generators of solid waste in the District.
- Siting issues and negative public feedback from a change is solid waste management in the District.
- Impacts on existing private sector transfer stations and landfills outside the District.
- Large haulers that own landfills could pull out of the District because of loss of disposal tonnage.

- Legal and Contractual issues.

These issues suggest concerns that a District solid waste transfer facility may face numerous regulatory and financial hurdles that prove to be cost and risk prohibitive.

Other Issues to Consider

If the District determines it is in their best interest to completely evaluate Steps 1-5, then a full legal review of the following issues should be completed prior to any final decision. The issues include:

- The ability of the District to create specific contracts between political subdivisions and the County for the purposes of requiring the use of the solid waste transfer facility and or to control the flow of residential, commercial and industrial generated solid waste to be delivered to the solid waste transfer facility.

- The legal ramifications for enacting flow control. Since flow control has been upheld by the Ohio Supreme Court as well as at the federal level at the US Supreme Court, it seems unlikely that a challenge would be filed by local haulers and landfill facilities as long as all requirements of the Ohio Revise Code are followed. The demonstration of "Maximum Feasible Use of Existing Facilities" will need to be carefully evaluated and then demonstrated before finalizing flow control in the District.

D. Final Discussion

A decision to move forward with the development of a District solid waste transfer station should be based on the following criteria:

1. The ability of the private sector to provide the solid waste transfer station.

2. Economic feasibility of designing, constructing and operating the solid waste transfer station.

3. The political will of the communities in the District to commit (as a District) to borrow through bonds or other means a significant amount of funding, take on financial and legal liabilities and enact and enforce flow control.

4. Other legal issues addressed in this report.

Ultimately, the final decision to move forward with a solid waste transfer station lies with the District's Board of County Commissioners. Input from major stakeholders in the District will assist and influence the decision making process. The stakeholders include the following:

- The District
- Political Sub-Divisions of the District
- Residents of the District
- Commercial and Industrial businesses in the District
- Existing private sector solid waste facilities (landfills, transfer stations, recycling facilities) in the region
- Waste haulers and processors serving the District

A strategic planning session to present the recommendations and data collected for a solid waste transfer station should be considered with the stakeholders listed above if the District is interested in continuing with the steps listed in this Study.

Appendix A
Hauler Survey Instrument

CLARK COUNTY
Solid Waste District
Reducing Waste, Litter & Pollution

Dear Solid Waste Hauler,

Thank you for completing this survey. The information you provide for your company is crucial to developing an accurate analysis of solid waste flows and costs of transportation for solid waste (or trash) from Clark County. Any information provided from your company will be combined with information submitted by other haulers and used to calculate tonnages and costs for the Clark County Solid Waste Management District (SWMD) as a whole. Your company's survey response **will not** be reported individually.

For assistance completing this form or any questions related to the survey, please contact Molly Kathleen at GT Environmental, Inc. (GT), the Solid Waste District's consultant, with any questions regarding this survey. Molly can be reached by phone at 740-212-3430, or by email at mkathleen@gtenvironmental.com.

Please complete and submit this survey no later than April 11, 2016.

Options for Returning the Completed Survey

- Return the survey using **U.S. mail** in the enclosed pre-paid envelope
- **Email** directly to mmccullough@gtenvironmental.com, Subject line: Transfer Station Study
- **Fax** to 614-899-9255

Please provide all information requested below.

Company Information		
Name:		
Address:	City:	Zip:
Contact Person:	Title:	
Email:	Telephone Number (include area code): ( ) —	

Solid Waste Disposal (Trash) Collection Information for Calendar Year 2015		
Destination (Landfill or Transfer Station where trash is delivered)	**Tons Delivered**	**Total Costs (Collection costs, transportation costs, and costs charged at destination facility)**

Thank you again for taking the time to complete this survey. Please contact **Molly Kathleen** at GT Environmental, Inc. (GT), the Solid Waste District's consultant, with any questions regarding this survey. Molly can be reached by phone at **740-212-3430**, or by email at mkathleen@gtenvironmental.com.

Appendix B
Large Generator Survey Instrument

CLARK COUNTY
Solid Waste District
Reducing Waste, Litter & Pollution

Dear Company/Institution Facility Manager,

Thank you for completing this survey. The information you provide for your company is crucial to developing an accurate analysis of solid waste flows and costs of transportation for solid waste from Clark County. Any information provided from your company will be combined with information submitted by other businesses and used to calculate tonnages and costs for the Clark County Solid Waste Management District (SWMD) as a whole. Your survey response **will not** be reported individually. For assistance completing this form or any questions related to the survey, please contact Molly Kathleen at GT Environmental, the solid waste district's consultant with any questions regarding this survey. Molly can be reached by phone at 740-212-3430, or by email at mkathleen@gtenvironmental.com. Please complete and submit this survey no later than March 31, 2016.

Options for Returning the Completed Survey

- Return the survey using **U.S mail** in the enclosed pre-paid envelope
- **Email** directly to mmccullough@gtenvironmental.com. Subject line: Transfer Station Study
- **Fax** to 614-899-9255

Please provide all information requested below.

Company or Institution Information			
Name:			
Address:		City:	Zip:
Contact Person:		Title:	
Email:		Telephone Number (include area code): ( ) —	
Primary NAICS:	Secondary NAICS:	Number of full-time employees:	

Solid Waste Disposal (Trash) Collection Information for Calendar Year 2015

Name of Hauler	Dumpsters (if applicable)			Pickup Service		Annual Estimated Amt. of Trash *
	# of Dumpsters or containers	Is a compactor used?	Size (in Cubic Yds.)	Collection Frequency/Month	Cost/ Month	

* Please estimate the amount of trash using the following formula: (# of dumpsters x size of dumpsters x Collection Frequency/Month)

Thank you again for taking the time to complete this survey. Please contact **Molly Kathleen** at GT Environmental, the solid waste district's consultant with any questions regarding this survey. Molly can be reached by phone at **740-212-3430**, or by email at mkathleen@gtenvironmental.com.

Appendix C
Transfer Station Survey Instrument

General Information

Information	Description
Name of Facility	
Address	
City, State	
Zip	
County	
Contact	
Title	
Phone	
Fax	
Email	

Facility Information

Facility Information	Description
Year Opened	
Facility Square Footage	
Property Acreage	
Staffing Type (County, Inmate, Community Service, Private Sector)	
Hours Open to the Public	
Days Open to Public	
Daily Capacity in Tons	
Annual Capacity in Tons	
2015 Residential/Commercial Tons Received	
2015 Industrial Tons Received	
Charge Per Ton for Solid Waste Received	

Material Flow Information

Flow Information	Answer
Do Materials Flow to Facility Via an Open Market	
Do Materials Flow to Facility Via Flow Control	

Staffing Details

Staffing	Quantity	Hourly Pay
Managers		
Supervisors		
Sorters		

Staffing	Quantity	Hourly Pay
Equipment Operators		
Other:		
Other:		
Other:		

2015 Revenues Details

Type of Revenue	Revenue Totals
Tipping Fee Revenue	
Other Misc. Revenue	
Total	

Initial Start-Up Costs

Start-up Costs	Cost to Purchase
Land Expense	
Site Work	
Architectural/Engineering Costs	
Building Construction Costs	
Transfer Station Permit Costs	
Driveways and Parking Lots	
Office Furniture/Equipment	
Conveyors	
Front End Loader	
Skid Steer Loader	
Truck Scales	
Other:	
Other:	
Other:	
Total Start-Up Costs	

2015 Annual Operating Costs

Annual Operation Details	Expenses Totals
Labor/Benefits	
Contracts	
Overhead, Maintenance	
Supplies	
Equipment	
Landfill Disposal and Transportation	
Misc. Expenses	
Debt Retirement	
Total	