Municipal Solid Waste Management Study

Prepared for

Town of Waynesville

Prepared by

Land-of-Sky Regional Council

December 2011

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I. Purpose of Study

The Town of Waynesville contracted Land-of-Sky Regional Council to evaluate various options for maximizing the cost-effectiveness of solid waste disposal operations and the Town's Solid Waste Program overall following the closure of the Haywood County Transfer Station. The Town requested that this study include:

- a baseline of the Town's Solid Waste Program services, costs and tonnages,
- an economic evaluation of commercial and residential solid waste disposal options including
    - directly hauling Municipal Solid Waste (MSW) to the White Oak Landfill (WOLF)
    - directly hauling Municipal Solid Waste to an alternative waste disposal site
    - constructing a new transfer station in Waynesville
    - privatizing the Town's Solid Waste Program services
- an evaluation of the cost efficiency of overall SW Program and opportunities for cost reductions
- recommendations for
    - selecting a cost-effective and viable Municipal Solid Waste disposal option
    - reducing overall Solid Waste Program costs

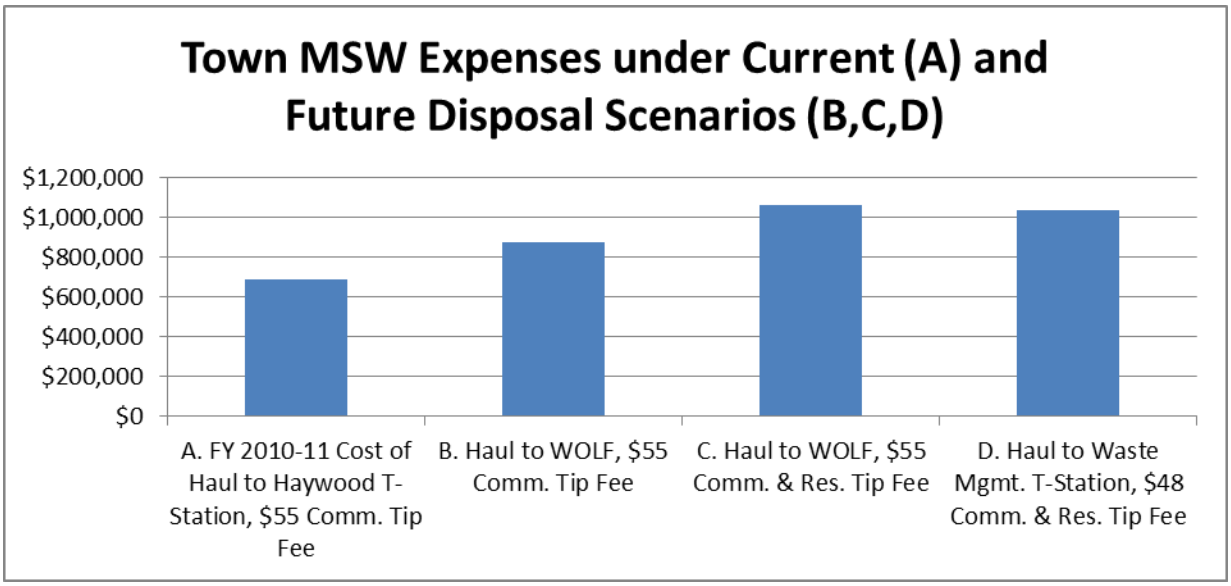
II. Executive Summary

In FY 2010-11 the Town of Waynesville spent $1.45 million on Solid Waste Program services, including the collection of residential waste, commercial waste, recyclables, yard waste, bulky items, and street sweepings. Expenditures for the collection of Municipal Solid Waste (MSW), including residential and commercial solid waste totaled $687,367. During this period the Town hauled 2,896 tons of commercial solid waste and 2,902 tons of residential solid waste to the Haywood County Transfer Station, and a tipping fee of $55/ton was charged on all commercial tons.

A. MSW Disposal Scenarios

The closure of the Haywood County Transfer Station may require the Town to haul all commercial and residential waste directly to the White Oak Landfill (WOLF), which is estimated to increase the Town's FY 2012-13 Municipal Solid Waste (MSW) collection costs by at least 25%, and as much as 43% if the Town is required to pay a tipping fee on residential waste (Figure 2.1). This study projected the costs for these scenarios and others over the next twenty years to determine the best MSW disposal option in terms of long term cumulative costs (Figure 2.2)

Figure 2.1



Scenario B, hauling MSW to WOLF and paying a $55/ton tipping fee on commercial waste only , is considered the best disposal option for the Town in terms of long term cumulative costs, and is the most likely scenario in the near term, based on recent assurances from the County that tipping fees on residential waste will be waived at WOLF.

Scenario E, constructing a new transfer station on Town property for a private firm to operate, is the second best option in terms of cumulative costs, assuming that a private firm receives enough tonnage to profitably operate the new transfer station. Although Scenario E is projected to have the lowest cost per ton in Year 20, the cumulative cost of solid waste disposal remains lowest for Scenario B in which no large capital expenditures or residential tipping fees are paid (Figure 2.2). Scenario E is clearly the best option in terms of cumulative costs if a $55/ton tipping fee is charged at WOLF on all solid waste from the Town, but incoming tonnage to the new transfer station must be great enough for a private firm to operate it profitably. This study estimates that the operation of a new transfer station constructed by the Town will become profitable in all scenarios, but the payback period may only be attractive to private contractors under the highest annual tonnage scenarios.

Scenario D, paying a tipping fee of $48/ton at Waste Management Transfer Station (WMTS) on all commercial and solid waste, becomes the best MSW disposal option if WOLF charges $55/ton fee for all solid waste from the Town, and if a new transfer station is determined to be unprofitable by private solid waste contractors. When compared with **Scenario C**, the savings from the $48/ton tipping fee outweigh the additional driving distance and fuel costs.

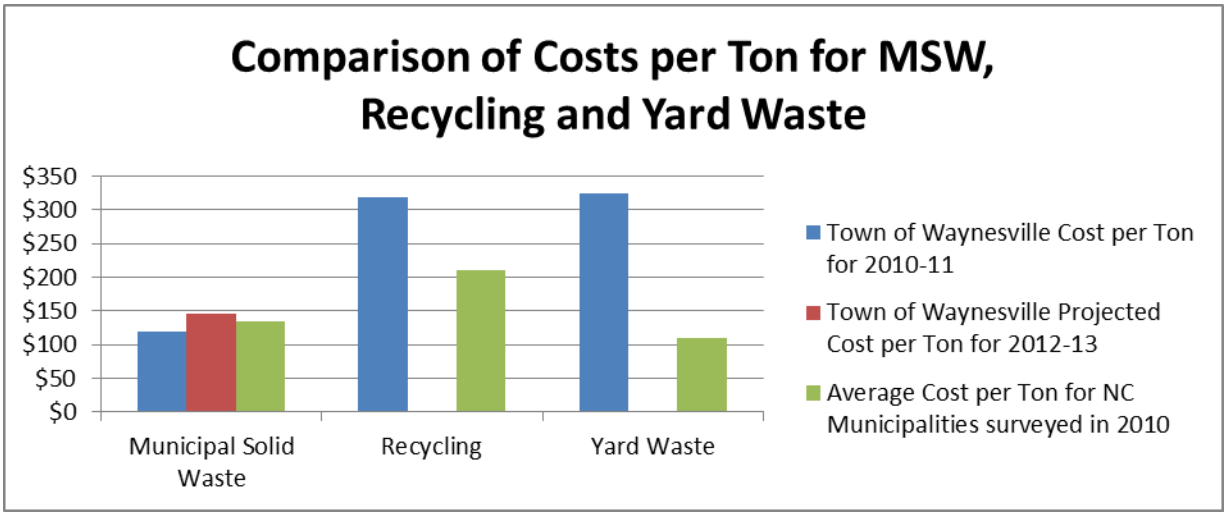
Figure 2.2

Summary of Municipal Solid Waste Disposal Scenarios						
Scenario	**Scenario Description**	**Assumptions**			**Projections**	
		Round trip Miles	**Comm. Tipping Fee**	**Res. Tipping Fee**	**Cost per Ton in Year 20**	**Cumulative Cost in Year 20**
A	Haul MSW to Haywood County Transfer Station and paying a $55 per ton tipping fee on commercial waste. NO LONGER AVAILABLE AFTER JUNE 2012	11.6	$55/ton	$0/ton	$152	$19,891,186
B	Haul MSW to White Oak Landfill and pay a $55 per ton tipping fee on commercial waste	41	$55/ton	$0/ton	$219	$26,816,344
C	Haul MSW to White Oak Landfill and pay a $55 per ton fee on commercial and residential waste	41	$55/ton	$55/ton	$275	$33,652,210
D	Haul MSW to Waste Management Transfer Station and pay a $48 per ton fee on commercial and residential waste	54.8	$48/ton	$48/ton	$275	$32,981,408
E	Construct a new transfer station on Town property to be operated by a private contractor	3.6	$55/ton	$55/ton	$201	$27,732,605

B. Cost-effectiveness of Solid Waste Program Services

In an effort to identify opportunities to reduce overall Program costs, the Town's solid waste, recycling, yard waste and bulky items collection services were benchmarked and compared with other municipalities and private haulers (Figure 2.3). The operations for each service were then evaluated to determine if they need to be streamlined or scaled back.

Figure 2.3



The Town spent $119 for every ton of MSW managed in FY 2010-11, which was just below the $135/ton average for municipalities in North Carolina surveyed in 2010. The closure of the Haywood County Transfer Station, however, is expected to increase the Town's 2012-13 MSW collection costs to at least $146 per ton.

Some these cost increases associated with the longer haul to WOLF or WMTS can be offset by maximizing the tonnage on residential collection vehicles. A review of scale data from the Haywood County Transfer Station revealed that the Town's rear loaders were averaging only 3.3 tons per trip to the transfer station, which was well below the average of 8 tons per trip reported by private haulers operating similarly sized rear loaders. The Town should strive to reduce hauling costs by making fewer trips to their waste disposal site with larger loads.

The Town's recycling collection cost is $319 per ton, which is well above the $210/ton average for North Carolina municipalities in 2010, and reflects the Town's relatively low recycling tonnages. This study recommends that the Town actually consider scaling up recycling services to divert more waste from the landfill and thereby reducing the associated transportation costs and tipping fees. First steps for increasing residential recycling rates could include consulting with Waste Reduction Partners on education and outreach strategies and/or applying for a grant from NC Division of Waste Management to implement a roll-out cart pilot program. The Town should also consider offering convenient recycling services to businesses already using the Town's commercial waste collection services.

The Town spends an estimated $324/ton on yard waste collection and disposal, which is nearly 200% higher than the $109/ton average for surveyed municipalities in the state. The Town should consider scaling back yard waste services by limiting the volume that is collected and charging for additional loads beyond that volume.

III. Background

In May 2010 Haywood County Commissioners announced a proposal to reduce solid waste expenses by privatizing the White Oak Landfill (WOLF) and closing the Haywood County Transfer Station. The decision to close the Transfer Station was influenced by the fact that it would require a large capital investment on the County's behalf in order to continue cost-effective operations. In August 2011 the County announced that the closure date for the Haywood County Transfer Station would be June 30, 2012. In October 2011 the County signed a contract with Santek Environmental, LLC to manage the White Oak Landfill starting in December 2011.

The Town of Waynesville, along with private haulers and other municipalities, currently transports solid waste to the Haywood County Transfer Station to be packed into larger transfer trailers by the County for disposal at WOLF. After the closure of the Transfer Station these municipalities and private haulers expect their solid waste disposal costs to increase dramatically as a result of transporting their waste directly to WOLF in smaller collection vehicles.[1] The Town of Waynesville projects that the increased travel distance and poor road conditions associated with hauling waste directly to WOLF will require increased expenditures for new collection vehicles, additional staff, diesel fuel, replacement tires, and vehicle maintenance.

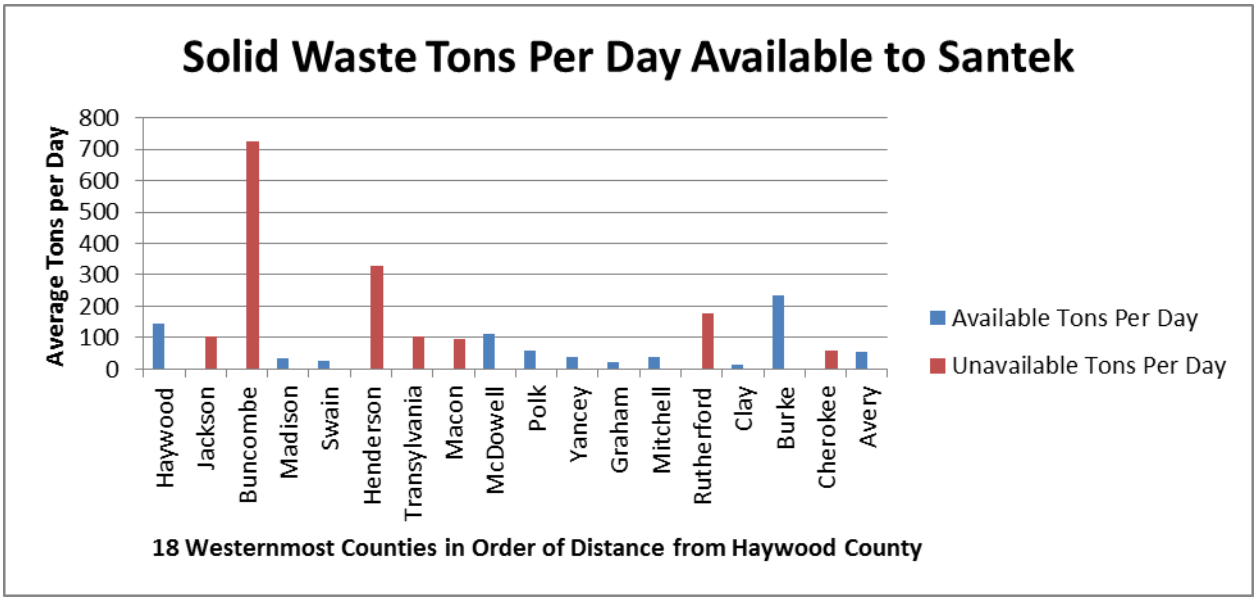
The Town may also be charged a tipping fee at WOLF for residential waste. Residential waste disposal costs are currently covered by the $92 annual sanitation fee charged to County households, allowing the Town to tip residential waste at no cost at the Haywood County Transfer Station. In the agreement with Santek Environmental, LLC (Santek), the County has negotiated to pay a fee of $127,000 per month to have Santek manage the White Oak Landfill and to reserve the County's right to establish tipping fees associated with waste disposal until the Expanded Management Commencement Date[2]. In this agreement the types of waste subject to a tipping fee are vaguely defined. In recent discussions with the County the Town has been assured that they will not be charged a tipping fee for residential solid waste, but this arrangement has not been furnished to the Town in writing. In addition, it is still unclear whether Santek will charge tipping fees for residential waste after the Expanded Management Commencement Date, which is triggered when inbound waste to WOLF reaches 396 tons per day. At this point, the County ends monthly landfill operation payments and Santek is free to set its own tipping fees for all waste that crosses the scales at WOLF. However, the State of North Carolina has mandated that Santek will only be allowed to collect solid waste from the 18 westernmost counties in the state. Figure 3.1 shows the total solid waste tonnage generated in the 18 westernmost counties in the state and indicates whether that tonnage is available or unavailable. Counties with unavailable tonnage have their own municipally owned landfill or have recently entered contracts for transportation and disposal of their solid waste. The largest population centers within close driving distance to Haywood County

[1] http://www.smokymountainnews.com/news/item/804-haywood-commissioners-take-heat-for-planned-overhaul-of-trash-and-recycling

[2] The Expanded Management Commencement Date is triggered when the average inbound tons to WOLF reaches 396 tons per day. After this date the County ends monthly management fee payments to Santek and allows Santek to set their own tipping fees on inbound waste to WOLF.

already have arrangements in place to control the disposal of their solid waste, thus making it difficult for Santek to reach the 396 tons per day average that would trigger the Expanded Management Contract.

Figure 3.1



IV. Baseline for Town Solid Waste Expenses and Operations

A. Solid Waste Program Services, Costs, and Tonnages for FY 2010-11

In FY 2010-11 the Town of Waynesville spent $1.45 million on Solid Waste Program services, which included the collection of residential waste, commercial waste, recyclables, yard waste, bulky items, and street sweepings. Expenditures for the collection of residential and commercial solid waste, which is currently transported to the Haywood County Transfer Station, were $291,342 and $396,024, respectively (Figure 4.1).

The Town collects residential waste weekly with one rear-loader running Monday to Friday, and an additional rear-loader running on Thursdays only. These vehicles are staffed with a driver and up to two additional personnel for collection. The Town collects commercial waste weekly with one front-loader running Monday to Friday, and a second back-up front-loader running as needed. In addition, one rear-loader picks up commercial waste on Tuesdays only. Each front-loader is staffed by one driver, while the rear-loader running on Tuesdays is staffed with a driver and up to two workers. All residential and commercial waste is taken to the Haywood County Transfer Station in Clyde, loaded into larger trucks and hauled another 15 miles to WOLF at 3898 Fines Creek Road.

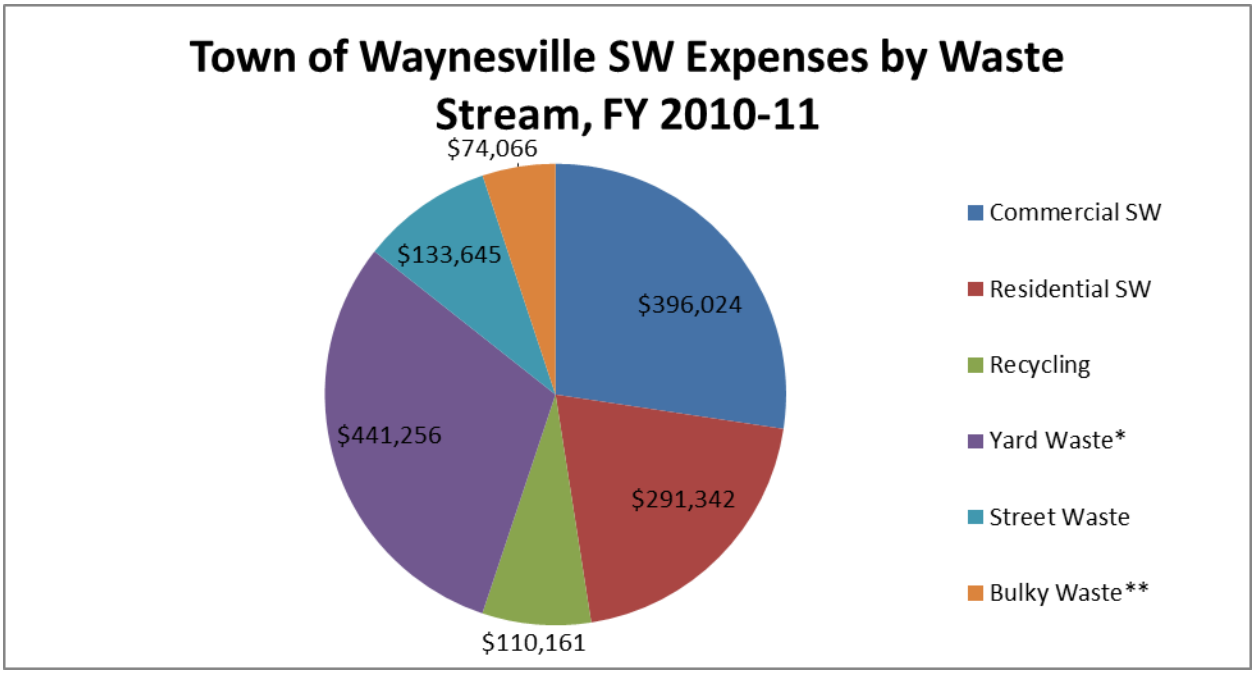
Figure 4.1

Town of Waynesville Solid Waste Operations				
Solid Waste Operations	**SW Expenses, FY 2010-11**	**Annual Tons Managed**	**Cost per Ton**	**Destination**
Commercial SW	$396,024	2,896	$137	Haywood County Transfer Station
Residential SW	$291,342	2,902	$100	Haywood County Transfer Station
Recycling	$110,161	345	$319	Haywood County Materials Recovery Facility
Yard Waste*	$441,256	1,360	$324	Bible Baptist Rd Site
Street Waste	$133,645	190	$703	White Oak Landfill
Bulky Waste**	$74,066	4		Haywood County Materials Recovery Facility
TOTAL	$1,446,494	7,697		

* Yard waste tonnage is from FY 2008-9 figure in 2009 Haywood County Solid Waste Management Plan (HCSWMP)[3]

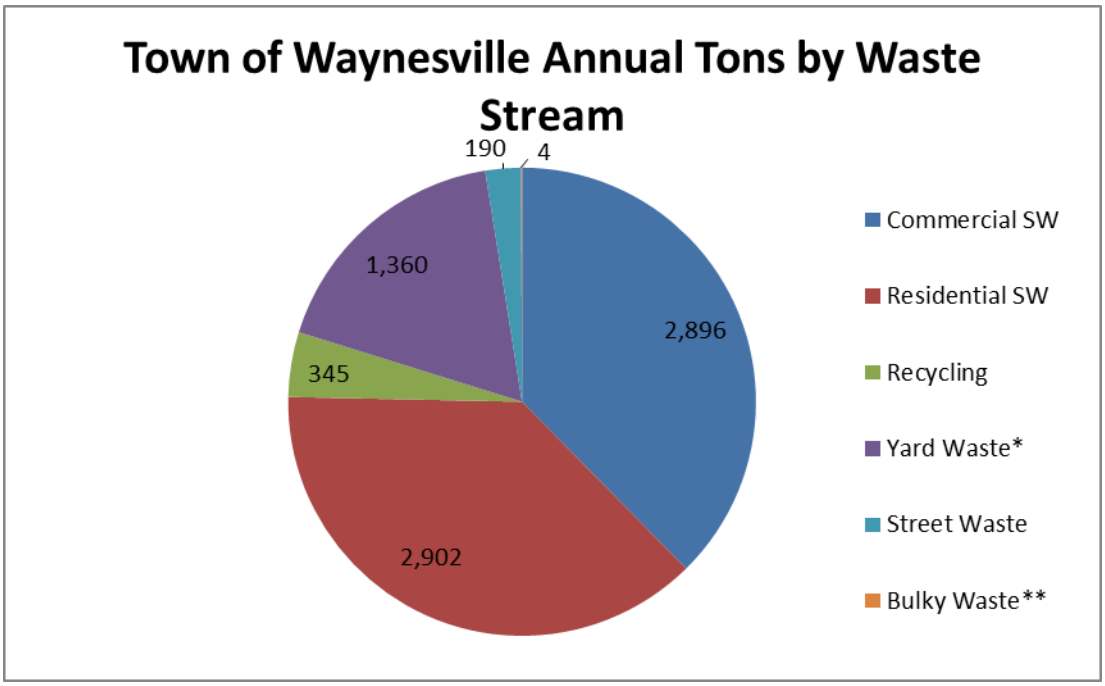
** Bulky waste tonnage only includes FY 2008-09white goods tonnages from 2009 HCSWMP

Figure 4.2



[3] http://www.haywoodnc.net/downloads/solid%20waste/Ten%20Year%20Plan%20Solid%20Waste%206-09.pdf

Figure 4.3

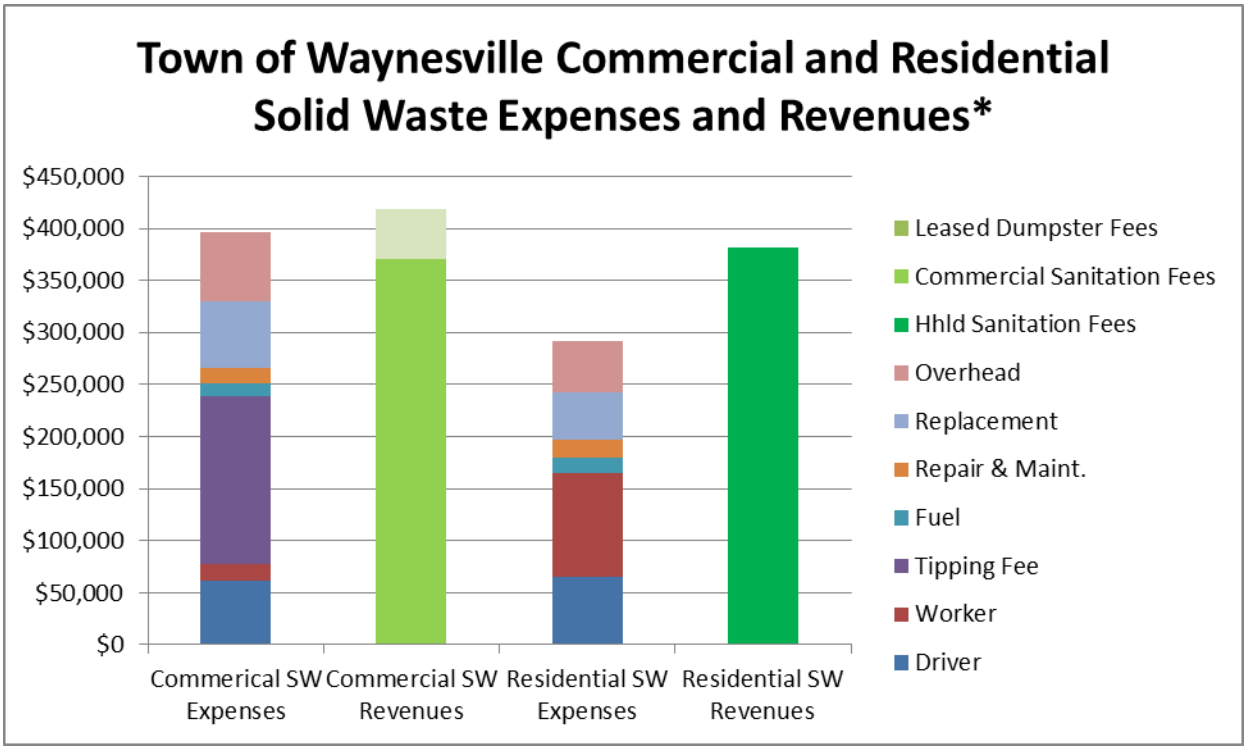


During this past fiscal year the Town transported 5,798 tons of Municipal Solid Waste (MSW) to the Haywood County Transfer Station, including 2,902 tons of residential waste and 2,896 tons of commercial waste (Figure 4.3). Annual commercial and residential waste makes up roughly 75% of the total waste stream handled by the Town and over one fourth of all solid waste handled by the Haywood County Transfer Station, which received 21,400 tons of solid waste in FY 2010-11.[4]

When normalized by annual tonnage the Town spent $119 per ton on solid waste transported to the Haywood County Transfer Station. When broken down into commercial and residential waste, the Town spent $137 per ton and $100 per ton, respectively (Figure 4.1). The higher cost per ton of commercial waste is due to the $55 per ton tipping fee charged for commercial waste at the Transfer Station. The Town does not pay a tipping fee for residential waste taken to the Transfer Station because the disposal costs for residential waste are covered by an annual $92 sanitation fee charged by Haywood County to Town residents. Actual collection costs are higher for residential waste, which is more labor intensive (Figure 4.4).

[4] Annual Haywood County Transfer Station tonnage for FY 2010-11 comes from "Haywood County SW Full Cost Accounting Analysis.xls" received from Haywood County Solid Waste Director Stephen King. 8/3/11.

Figure 4.4



*This graph shows only those expenses and revenues for commercial and residential solid waste collection and disposal. Expenses for waste streams that are not transported to the Haywood County Transfer Station (yard waste, blue bags, bulky items, street waste) are not displayed in this graph.

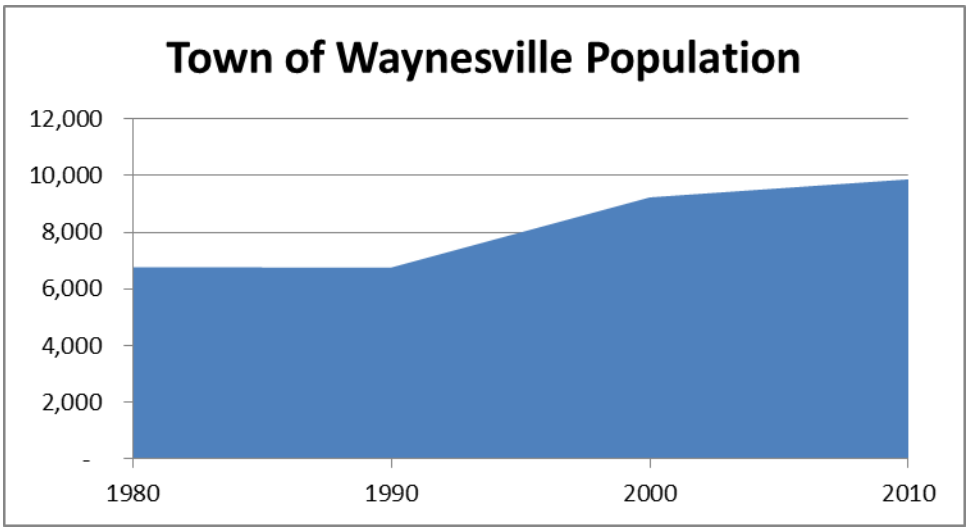
The Town's residential solid waste collection costs are covered with revenues from a monthly fee of $6.50 charged to the 6,450 households that are provided with this service. This equates to an annual charge of $78 per household, which is still relatively low compared with other municipalities in the state. Based on a recent survey of 128 NC municipalities, the average annual charge for residential solid waste services in FY 2009-10 was $127 per household.[5] Commercial solid waste collection and disposal costs are covered by revenues from a $16.59 monthly sanitation fee and dumpster lease fees charged to businesses. In FY 2010-11 revenues from these sanitation fees to businesses covered all commercial waste management costs (Figure 4.4). The revenues from sanitation fees covered all residential solid waste expenses in FY 2010-11, but this sanitation fee is also used to help cover residential yard waste, recycling, and bulky item collection. The shortfall in revenues for these residential collection services is made up with revenues from the General Fund.

[5] http://www.nclm.org/SiteCollectionDocuments/Legislative/FY08-09%20Solid%20Waste%20Survey/NCLM%20Solid%20Waste%20Finances%20and%20Practices%20Survey%20--%20Table%201.xlsx

B. Historical and Projected Municipal Solid Waste (MSW) Tonnage

In order to estimate future costs associated with various MSW disposal scenarios, this study made MSW tonnage projections for the Town over the next twenty years. The future growth in total MSW managed by the Town is largely a function of population, tons of MSW per capita, and the health of the economy. In 2010 the US Census estimated the population of Waynesville at 9,869 (Figure 4.5).[6] The population growth experienced by the Town in the 1990s has slowed down over the past decade to an average annual rate of 0.7%. For the purposes of this study we estimate that the Town population will increase at an average annual rate of 0.8%, the rate that the North Carolina Office of State Budget and Management (NC OSBM) projected for Haywood County as a whole through 2030.[7]

Figure 4.5



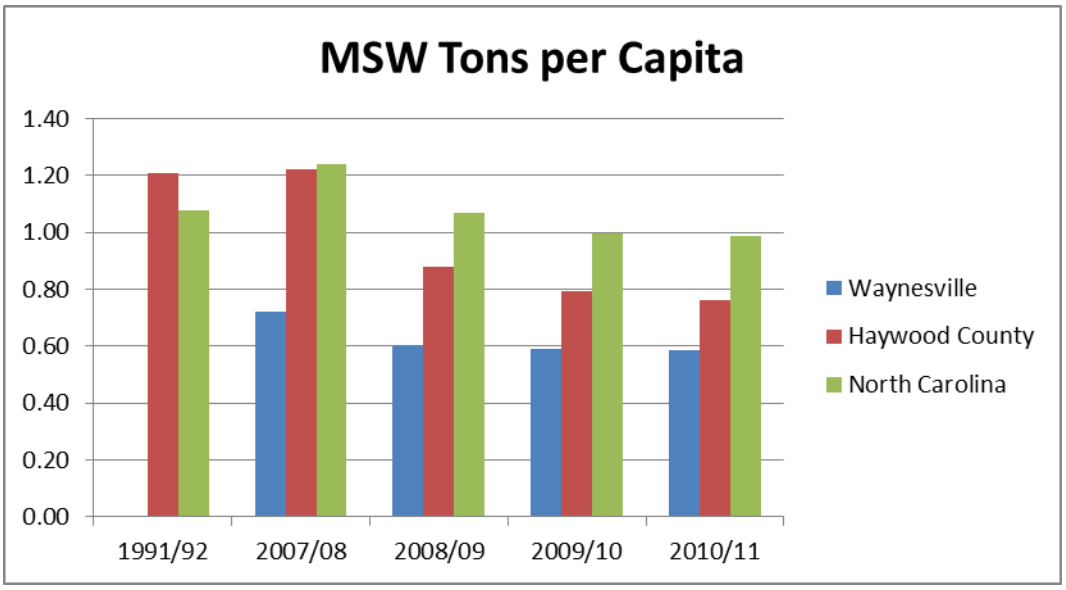
In FY 2010-11 Waynesville residents and businesses generated 0.58 annual tons of Municipal Solid Waste per capita. This represents an 18% decrease from the 0.72 MSW tons per capita in 2007-08, which can be largely attributed to a drop-off in consumption during the Great Recession (Figure 4.6). Tons of MSW per capita generated in Waynesville is expected to increase slightly over the next several years, reflecting consumption increases associated with a slow economic recovery, and then level out to a 1% annual increase. This annual increase figure of 1% is based on the MSW per capita trend in Haywood County from 1991-92 to 2007-8, the last year before the economic crisis in 2008 (Figure 4.6).[8]

[6] http://quickfacts.census.gov/qfd/states/37/3771500.html

[7] http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countytotals_2010_2019.html

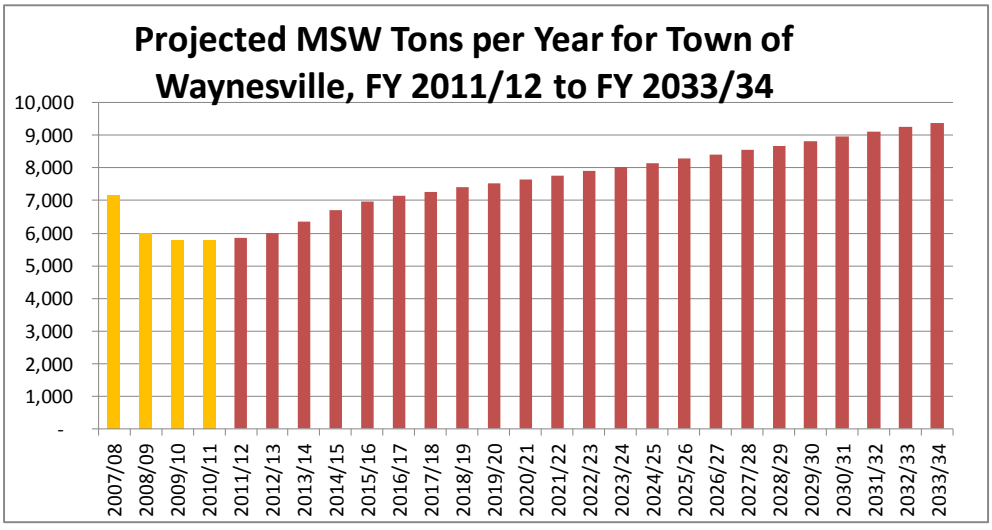
[8] http://ncdenr.gov/c/document_library/get_file?p_l_id=4649434&folderId=4667253&name=DLFE-38489.pdf

Figure 4.6



These population and MSW tonnage per capita assumptions were used to project annual MSW tonnage generated by the Town of Waynesville from FY 2011-12 to FY 2033-34, which is displayed in red in Figure 4.7. These tonnage projections are used to evaluate the long term cost and feasibility of the Town's MSW disposal options. A detailed explanation of the methodology for MSW tonnage projections can be found in Appendix section A1.

Figure 4.7



V. Economic Evaluation of MSW Disposal Options

The closure of the Haywood County Transfer Station in June 2012 will require the Town of Waynesville to haul their commercial and residential waste collection vehicles an additional 30 round-trip miles to the White Oak Landfill (WOLF) or find an alternative site for waste disposal. Viable alternatives to WOLF include hauling waste to the Waste Management Transfer Station (WMTS) in Buncombe County or building a new transfer station in Waynesville at the 144 Calhoun Rd site (Figure 5.1). [9] The attractiveness of each option is determined by numerous factors, including but not limited to tipping fees, available tonnage for a transfer station, and the cost of fuel. The economic impact of direct hauling options on the Town's residential and commercial solid waste costs has been modeled in Figure 5.2.[10]

Figure 5.1

Map of Possible MSW Transfer Stations and Disposal Sites in Proximity of Waynesville

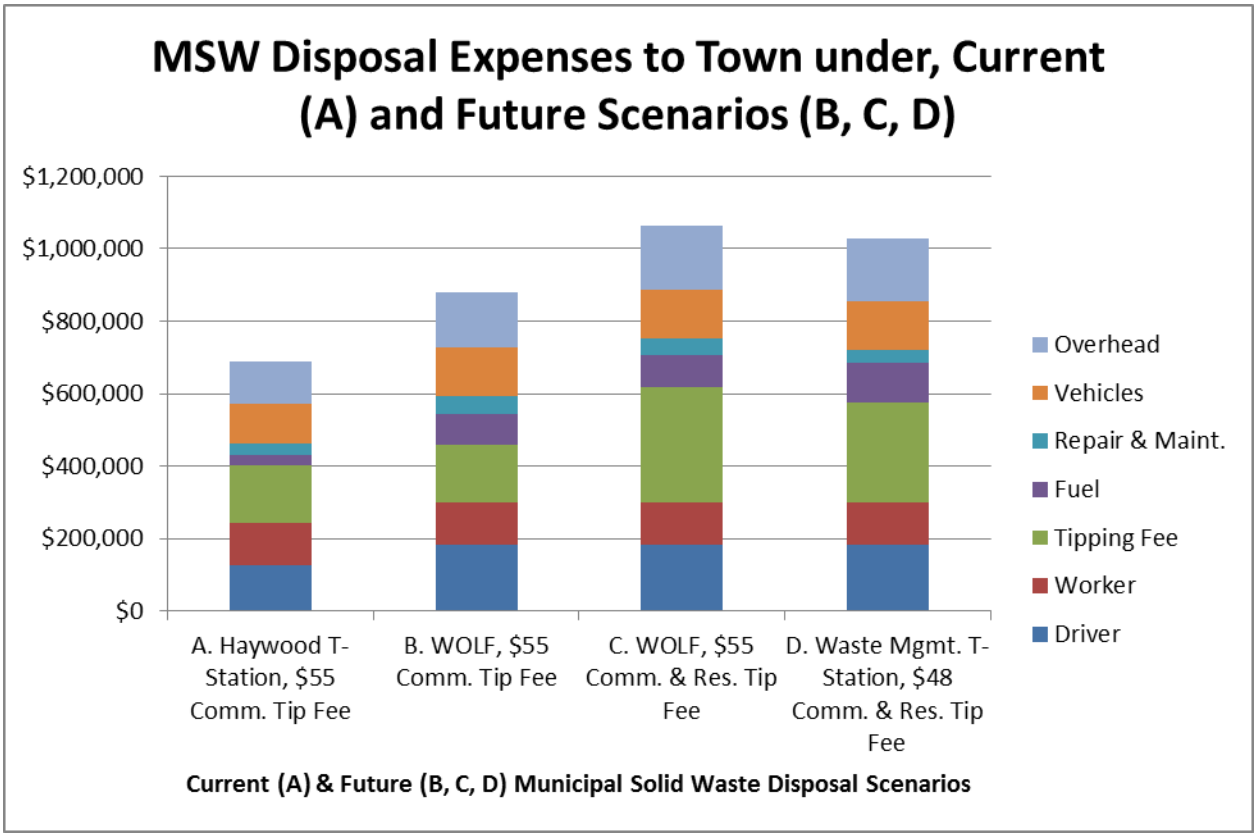
[9] Two options not mentioned here are hauling waste to the Buncombe County Transfer Station and finding a private firm to operate the existing transfer station. Hauling waste to the Buncombe County Transfer Station would be possible, but require a permit from the state to dispose of waste from out-of-county. Leasing and operating the existing Haywood County Transfer Station would be cost prohibitive due to the high cost of needed retrofits.

[10] The construction of a privately operated transfer station (Scenario E) is evaluated over a 20 year period against these direct haul scenarios (B, C, D)

A. Scenario A: FY 2010-11 Expenses for Haul to Haywood County Transfer Station and $55 per Ton Tipping Fee on Commercial Waste

The current cost of hauling commercial and residential waste to the Haywood County Transfer Station, as described in the Baseline section, is displayed as Scenario A in Figure 5.2. The estimated year 1 costs for MSW disposal alternatives are displayed as Scenarios B, C and D.

Figure 5.2



B. Scenario B: Haul to WOLF and Pay $55 per Ton Tipping Fee on Commercial Waste

Hauling waste directly to the White Oak Landfill is expected to increase the Town's capital, labor and fuel costs. According to Waynesville Town Manager Lee Galloway, the Town would need to acquire two new rear-loading trucks for roughly $140,000 each and hire a new driver to shuttle trucks between curbside collection crews and the larger trucks bound for WOLF. Driving to WOLF instead of the Transfer Station in Clyde would also add an extra 27,000 miles per year to each truck in Waynesville, increasing annual diesel fuel consumption by over 15,600 gallons.[11] The additional repair and maintenance expenses associated with hauling waste to WOLF include one additional set of tires

[11] "Solid Waste Cost Increase Estimates" received from Lee Gallloway, Town Manager at Town of Waynesville. 12/2/11.

annually for each of seven vehicles and $4,000 worth of additional vehicle maintenance each year.[12] The total cost increase annually for the Town is estimated at $199,000.[13] All of these costs, which are outlined in detail in Appendix section B2, are factored into the costs in Scenario B in figure 5.2.

In November 2011 the Town received a memo from the Haywood County Manager requesting a financial impact analysis of the increased cost to the Town incurred by hauling solid waste directly to WOLF, with the stated intention of reimbursing the Town for some portion of these additional transportation costs. These developments could significantly reduce the cost of hauling to WOLF, but were not factored into the economic analysis, because the size and likelihood of the financial reimbursement from the County was still unknown at the time that this report was written.[14]

C. Scenario C: Haul to WOLF and pay a $55 per Ton Tipping Fee on Commercial and Residential Waste

Disposal costs associated with hauling MSW to WOLF could also increase dramatically if tipping fees are charged for residential waste. Scenario C in Figure 5.2 assumes that a tipping fee of $55 per ton will be charged for all waste that crosses the scales at WOLF. At the time that this report was written it was yet to be determined whether the Town would be charged for residential waste at WOLF.[15] Annual tonnages for residential and commercial solid waste are both around 3,000 tons, meaning that FY 2010-11 disposal costs of roughly $160,000 would double if a $55/ton tipping fee were charged for residential solid waste.

D. Scenario D: Haul to Waste Management Transfer Station and Pay a $48 per Ton Tipping Fee on Commercial and Residential Waste

In the case that the Town must pay a tipping fee for all commercial and residential waste, it may be more cost-effective to haul MSW directly to the Waste Management Transfer Station (WMTS) in Buncombe County. Although the roundtrip distance to the WMTS is 13 miles further than the 41 mile round trip haul to WOLF, the additional fuel costs are outweighed by the lower $48 per ton tipping fee. Fuel costs in year 1 would be $20,000 higher compared with Scenario C, but annual tipping fees would be $40,000 lower (Figure 5.2). This study also estimates that hauling waste to WMTS will result in lower repair and maintenance expenses by avoiding the wear and tear of having vehicles towed through the mud at WOLF. It is assumed that labor and vehicle replacement expenses associated with hauling to WMTS and WOLF are identical.

[12] In the past poor roads at the White Oak Landfill have required garbage collection vehicles to be towed through the mud, a process which has damaged vehicles

[13] The difference in costs between Scenario B and Scenario A is less than $199,000 because one of the new rear loaders was already purchased in FY 2010-11.

[14] "MEMO Re: Solid Waste Transfer Station" received from Marty Stamey, Haywood County Manager. 11/18/11.

[15] In recent discussions with the County, the Town has been assured that the County will not charge a tipping fee for residential solid waste disposal at WOLF, although this agreement has not been furnished to the Town in writing. It is still unclear what will happen in reference to the collection of these fees when Santek reaches the average of 396 tons per day and triggers the Expanded Management Commencement Date.

One implication of hauling waste out of county to the WMTS will be to call into question the legitimacy of the Haywood County Sanitation Fee charged to County households in the Town of Waynesville. If the waste of Town residents were hauled by the Town to the Waste Management Transfer Station, the County would no longer be bearing any of the waste disposal costs that are to be covered by the $92 sanitation fee charged to those households. Whether or not the Town decides to haul waste to the Waste Management Transfer Station, the existence of this alternative may provide leverage for the Town to negotiate lower tipping fees at WOLF.

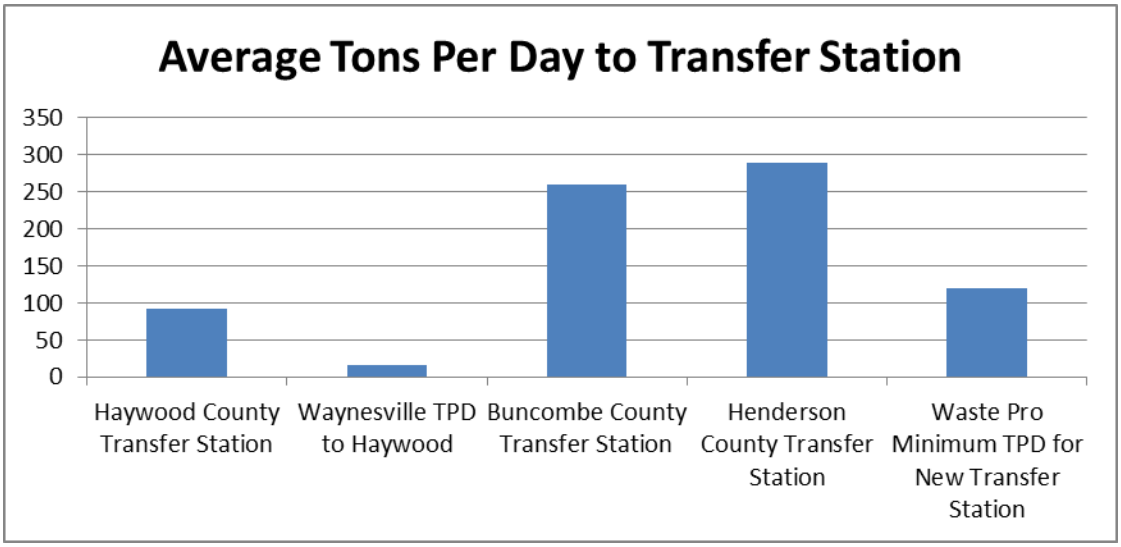
Apart from building a new transfer station or privatizing solid waste services, the most cost-effective option appears to be to Scenario B, directly hauling waste to WOLF and reaching an agreement with the County to pay the $55 per ton tipping fee on commercial waste only. If a $55 per ton tipping fee for the Town's residential waste is charged by the County, or by Santek after the Expanded Management Commencement Date, it may become more cost-effective for the Town to haul their waste directly to the WMTS in Buncombe County. All of these scenarios, however, are expected to significantly increase the Town's existing MSW expenses and exceed incoming revenues, assuming that household and business sanitation fees are not raised. In order to cover the expenses for Scenario B, it is estimated that Town residential and commercial sanitation fees would need to be increased by 20% to 25%.

E. Scenario E: Constructing a new transfer station on Town property to be operated by a private contractor

The Town's primary alternative to hauling MSW directly to WOLF or WMTS is the construction and operation of a new transfer station in the Town of Waynesville. During the course of interviews for this study, none of the municipalities in Haywood County expressed an interest in operating a transfer station. While some private contractors did express an interest in operating a transfer station, none of them were willing to finance the construction. According to one private contractor, the current daily tonnage at the Haywood County Transfer Station, 92 tons per day, is too low to justify the investment in a new Transfer Station (Figure 5.3). To put this figure in perspective, the Buncombe County Transfer Station and the Henderson County Transfer Station both average over 250 tons per day.[16] Waste Pro stated that they would probably not be interested in constructing and operating a new transfer station that averaged less than 120 tons per day.[17] As a result of these findings, it was decided to evaluate the feasibility of a privately operated transfer station constructed by the Town at 144 Calhoun Rd, which is the current site of Town composting operations.

[16] Interview with Stephen Hunter, Buncombe County Solid Waste Department; 11/11/11. Interview with Natalie Berry, Henderson County Solid Waste Director; 11/10/11.
[17] Interview with Bob TenHaaf, Regional Vice President of Waste Pro; 11/10/11.

Figure 5.3



The Town may decide to construct a new transfer station in an effort to lower labor, vehicle and fuel costs below the levels associated with a direct haul to WOLF or WMTS. The section below evaluates whether these cost savings are large enough to justify the initial costs to construct a new transfer station.

The cost of constructing a new single bay transfer station was assumed to be roughly $1.2 million based on an estimate from McGill Engineering and on interviews with private contractors and transfer station operators. An additional $145,000 in construction expenses was assumed for engineering services, legal services and permit fees. The period for the construction of the transfer station is assumed to be two years and these construction costs in years 1 and 2 are amortized over 7 years at 5% interest. The size of these payments in relation to existing solid waste expenses for the Town can be seen in Figure 5.4.

Figure 5.4

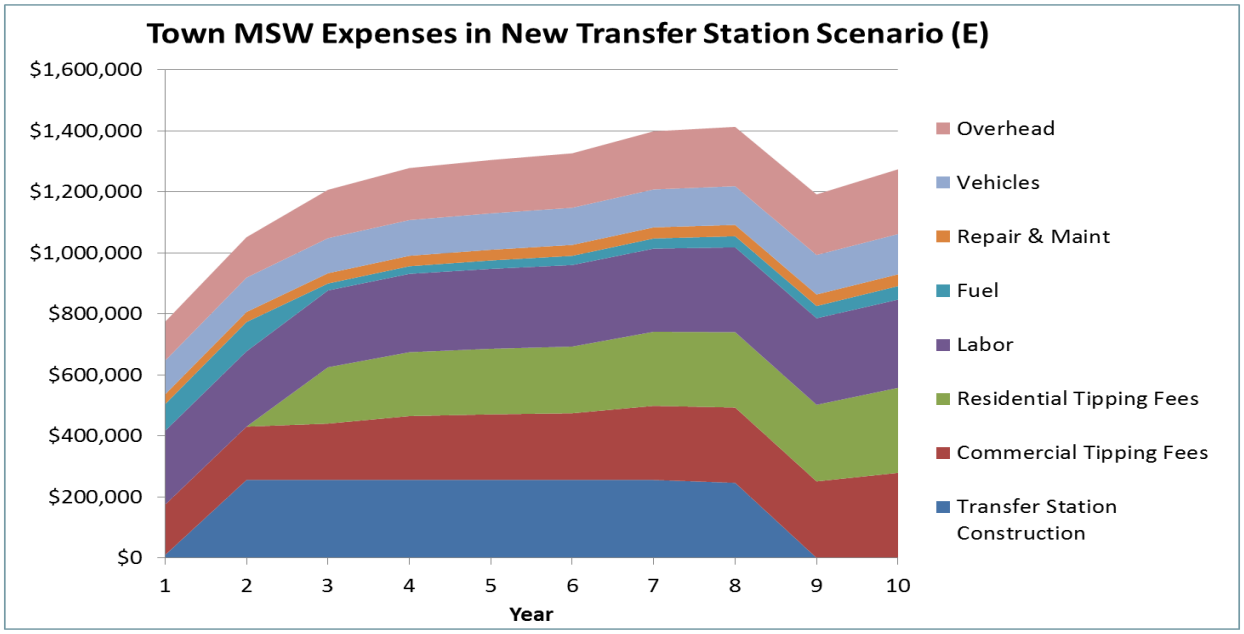
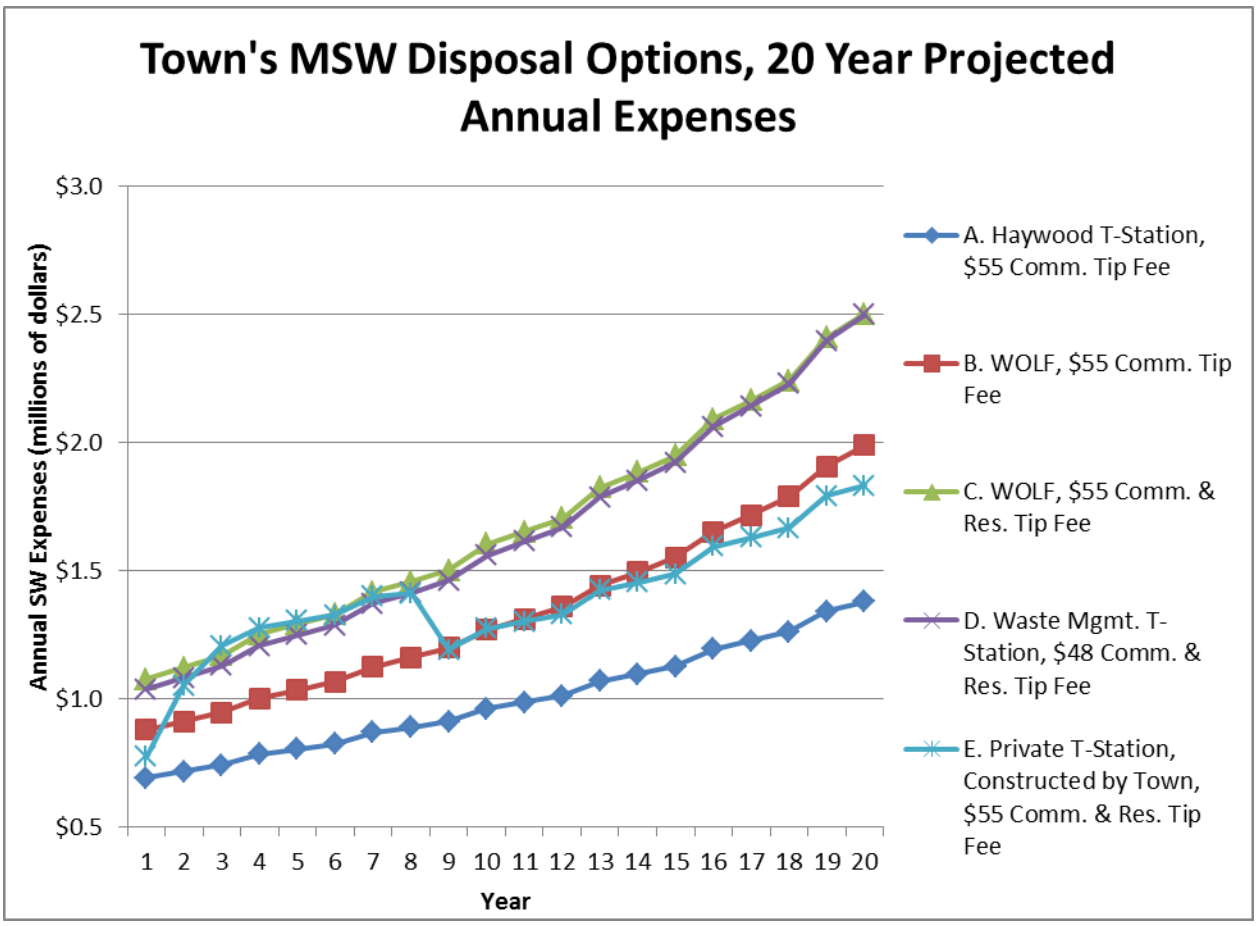


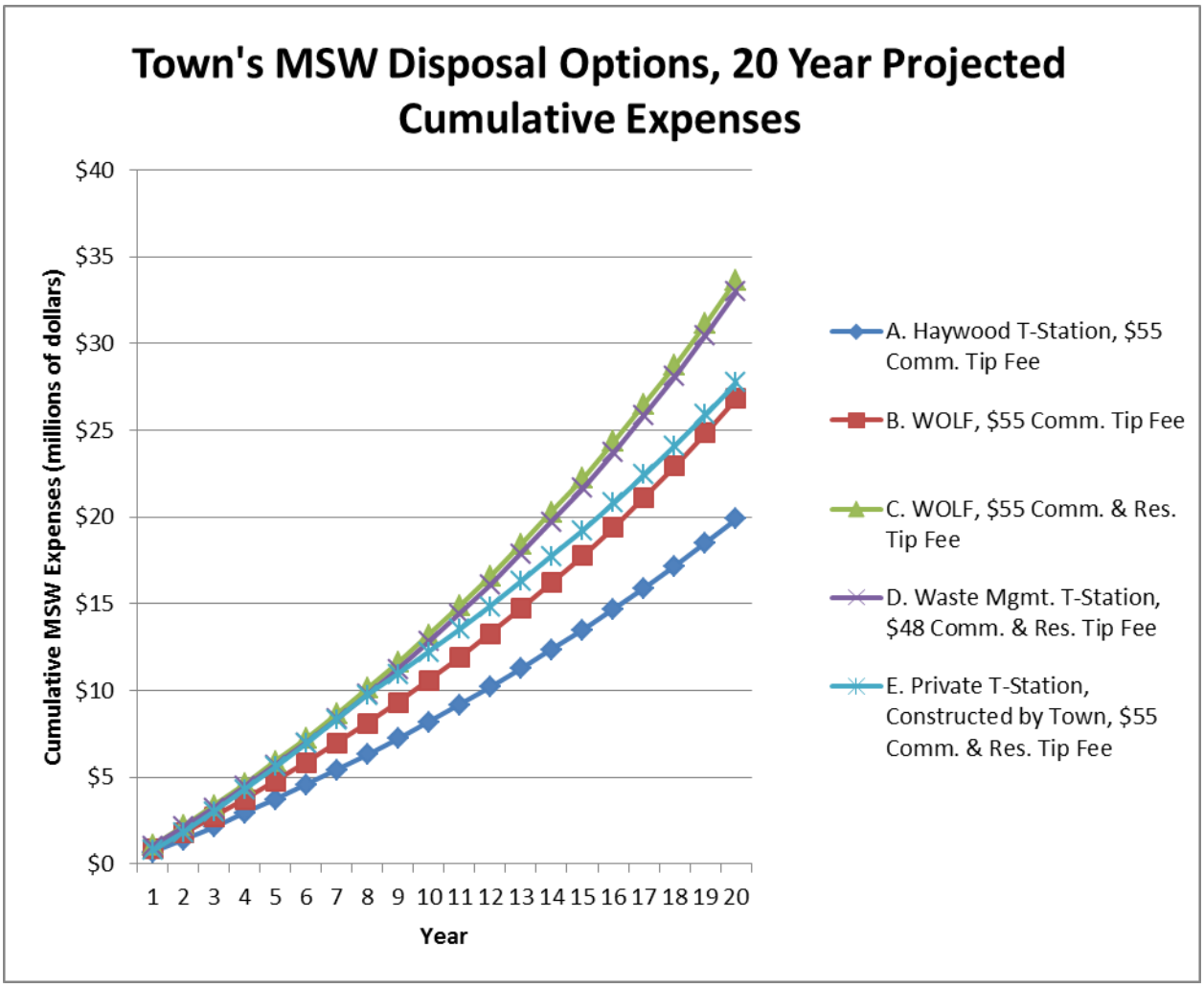
Figure 5.5



In order to compare the long term cost-effectiveness of constructing a new transfer station (Scenario E) with the direct hauling Scenarios to WOLF (Scenario B and C) and WMTS (Scenario D), the expenses for each scenario were projected out over twenty years. In order to project future annual expenses for each scenario, assumptions were made about the growth rates in certain expenses and in annual MSW tons generated by the Town: Labor, Repair & Maintenance, and Vehicle Replacement expenses are projected increase by 2% each year; Fuel expenses are project to increase by 10% each year[19]; Tipping fees are expected to increase every three years at an average annual rate of 3%; Annual commercial and residential tonnages generated by the Town of Waynesville are based on the projections referenced in the Baseline section of this report (Figure 4.8).

[19] Based on diesel fuel prices in the lower Atlantic US States from May 2000 to May 2010; Source: http://www.eia.gov/oog/info/wohdp/diesel.asp

Figure 5.6



In scenarios where a tipping fee is paid on residential waste (C, D, E), the projections indicate that constructing a new transfer station is clearly the most cost-effective option in the long run (Figure 5.5). If, however, tipping fees at WOLF are only charged on commercial waste, hauling waste directly to WOLF (Scenario B) is still less expensive than building a new transfer station in terms of cumulative costs (Figure 5.6). After the transfer station construction payments end in year 8, the lower capital, labor and vehicle expenses associated with hauling to a new transfer stations make it less costly than Scenario B, but the cumulative costs of Scenario E remain greater beyond year 20. Under the assumptions in this model, the tipping fee charged to the Town at the new transfer station would need to be reduced to $45 per ton in order for cumulative expenses to drop below those in Scenario B within the next 20 years.[20]

[20] If there were no tipping fee charged for residential waste at WOLF and some way for the private contractor to certify residential waste from the Town, the private contractor could wave tipping fees for residential waste, reducing the Town's overall MSW expenses in year 9 to levels roughly equal to projected annual expenses in a scenario where the Haywood Country Transfer Station remained open. Certifying residential waste, however,

As indicated below in the profit analysis for the firm, the low tonnage expected at a new transfer station would limit the ability of a private contractor to reduce tipping fees for the Town and still remain profitable.

Hauling waste to a privately run transfer station also opens the door to waste being transported out of county. If a private contractor is required to pay a tipping fee for all waste that crosses the scales at WOLF, they may prefer to haul their waste to the WMTS, just as the Town would in Scenario D. The cost advantages of hauling solid waste outside the county would only increase with the construction of a transfer station and the maximizing of tons per trip

F. Profitability of Operating a New Transfer Station in Waynesville

The viability of a new privately operated transfer station also depends on the profitability of such an operation. If private contractors do not expect to turn a profit within a certain number of years, the Town will be unable to find a firm to operate the transfer station. As noted above, the profitability of transfer station operations depends largely on the incoming tonnage on which a tipping fee can be charged. To account for the importance of tonnage as a variable, a sensitivity analysis was included in the profit/loss analysis. The profitability of transfer station operations are considered for four different year 1l tonnage estimates. The minimum tonnage scenario assumes that the new transfer station would receive waste from the Town of Waynesville, the Towns of Canton and Clyde, and a minimum tonnage from private haulers. Interviews with the municipalities and private haulers, along with projected tonnage increases for the County, suggest that a new transfer station could expect a minimum of 18,000 tons by FY 2014-15 (Figure 5.7). The Haywood County Transfer Station received over 26,000 tons of waste in FY 2009-10, and around 21,400 tons in FY 2010-11. This study estimates that a new transfer station in Waynesville could be expected to receive up to 27,000 tons by 2014-15. The low, high and maximum tonnage scenarios assume year 1 tonnages of 21,000 tons, 24,000 tons and 27,000 tons, respectively (Figure 5.7). The tonnages are expected to grow at the same rate that Haywood County MSW tonnages are projected to increase, as described in Appendix section A1. Acquiring the maximum tonnage in year 1 will require negotiating agreements with the County and their private contractors to ensure that all County waste within a reasonable driving distance is brought to the new transfer station.

These tonnage projections are used to estimate annual income for the transfer station operator. It is assumed that an initial tipping fee of $55 per ton will be charged on all inbound tonnages in year 1 and increase every three years at an average annual rate of 3%.

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could prove difficult as residential waste would likely be mixed with other types of waste when loaded into the transfer trailers bound for WOLF.

Figure 5.7

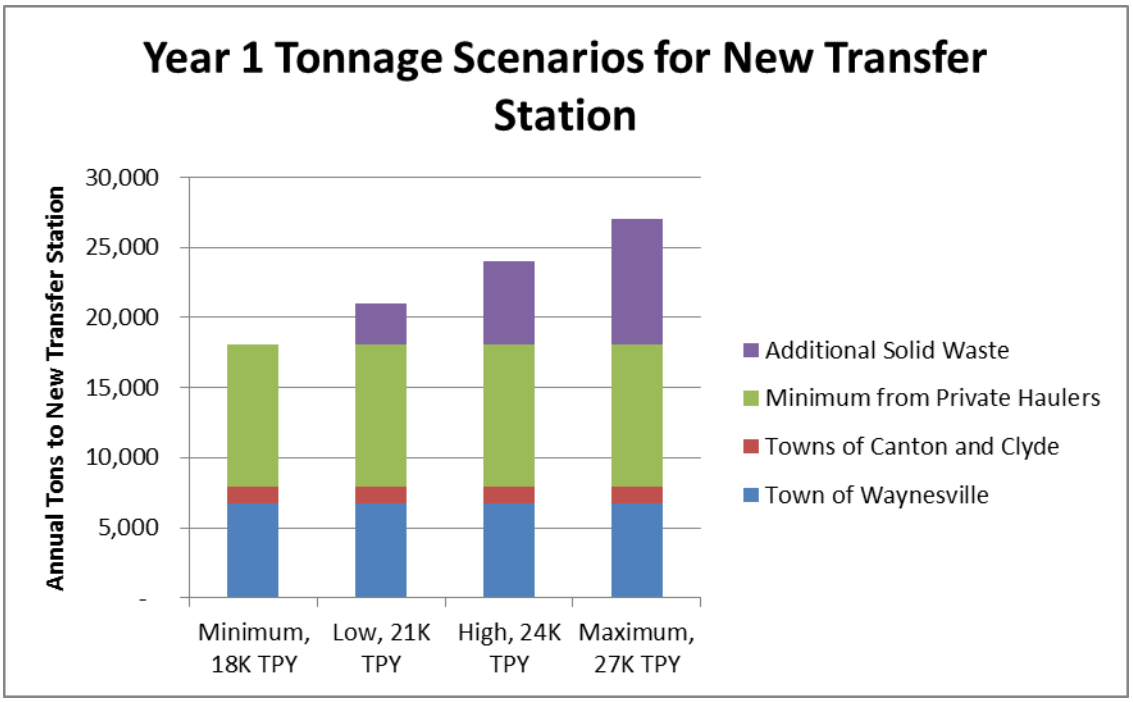


Figure 5.8

Transfer Station Operating Expenses in Year 1

Year 1 Tonnage Scenario	Minimum, 18K TPY	Low, 21K TPY	High, 24K TPY	Maximum, 27K TPY
Year 1 Expenses	$1,079,324	$1,241,324	$1,403,324	$1,565,324
Year 1 Cost per Ton	$59.86	$59.03	$58.40	$57.91

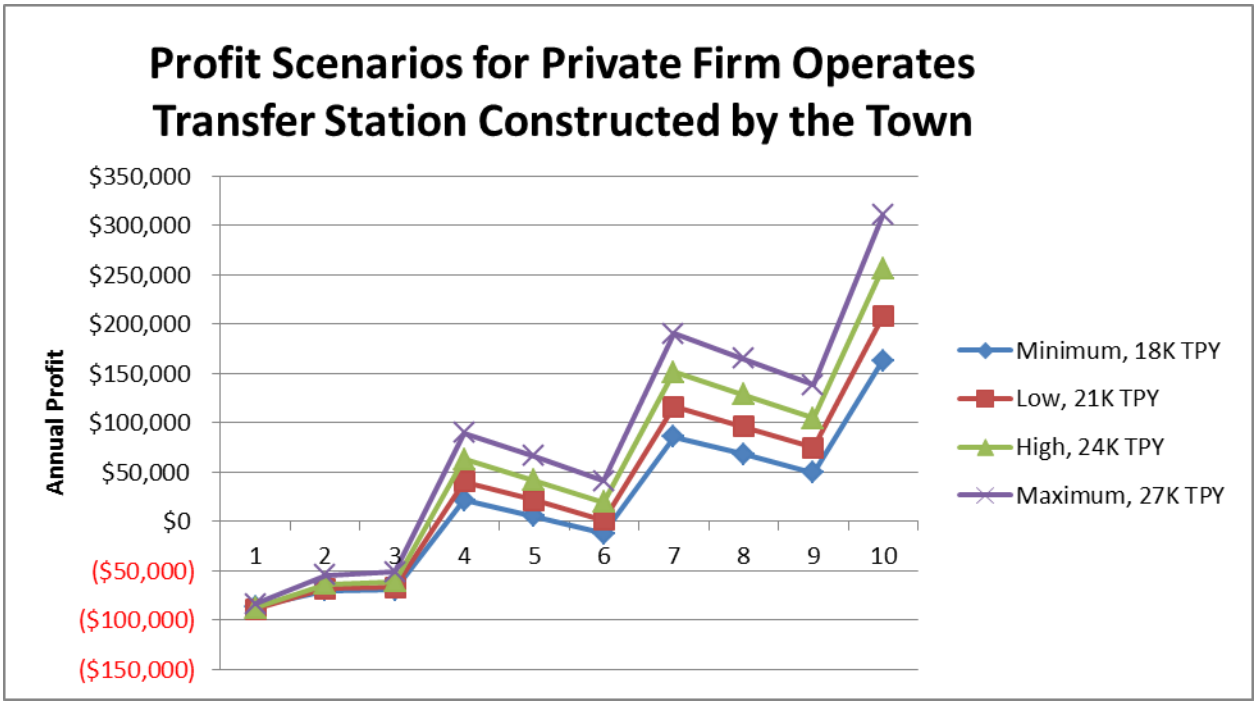
Based on interviews with transfer station operators and private haulers, the cost of operating a new transfer station is estimated at anywhere between $1 million and $2 million, depending on the incoming tonnage.[21] The year 1 operating expenses for the new transfer station under each of the four annual tonnage scenarios are displayed in Figure 5.8. The cost per ton is assumed to decrease with increasing tonnage to account for economies of scale. An explanation of the assumptions and methodology for calculating these operating costs can be found in Appendix section C6. These year 1 operating expenses in each scenario are expected to increase by 3% annually.

These assumptions feed the data in Figure 5.9, which presents the profit/(loss) projections for the transfer station under the four tonnage scenarios. In all tonnage scenarios, transfer station operations become profitable to varying degrees by year 4. The profitability of operations in year 4 corresponds with the increase in the tipping fee from $55 per ton to $60.10 per ton.

[21] A breakdown of construction costs amortized over 7 years can be found in Appendix section C5.1

The payback period for each tonnage scenario is displayed in Figure 5.10, which presents cumulative net present worth for each tonnage scenario. Depending on incoming annual tonnage, a private contractor is projected to have of payback period of six to ten years.[22]

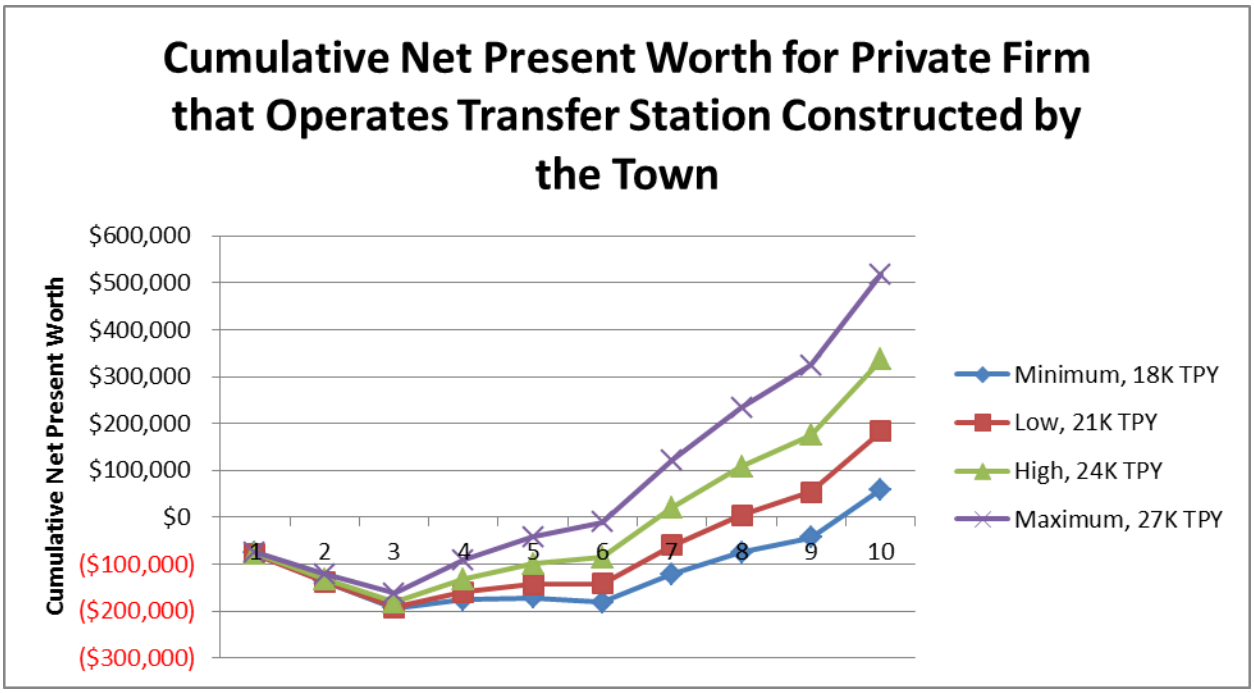
Figure 5.9



While the new transfer station is projected to eventually become profitable in all scenarios, a payback period of more than 5 years may be too long to attract some private contractors. Private contractors that do agree to manage a new transfer station may find that the relatively low daily tonnage expected at a new transfer station would limit the viability of reducing tipping fees for the Town of Waynesville.

[22] These payback estimates may be considered conservative if a private contractor has negotiated lower fees for waste disposal than the $48 per ton fee assumed in this study.

Figure 5.10



VI. Evaluation of the Cost-effectiveness of Solid Waste Program Services

In order to identify opportunities for cost savings in the Town's Solid Waste Program, benchmarks were developed for solid waste services and compared with benchmarks for other municipalities and private contractors.

Figure 6.1

Town of Waynesville Solid Waste Operations				
Solid Waste Operations	**SW Expenses, FY 2010-11**	**Annual Tons Managed**	**Cost per Ton**	**Destination**
Commercial SW	$396,024	2,896	$137	Haywood County Transfer Station
Residential SW	$291,342	2,902	$100	Haywood County Transfer Station
Recycling	$110,161	345	$319	Haywood County Materials Recovery Facility
Yard Waste*	$441,256	1,360	$324	Bible Baptist Rd Site
Street Waste	$133,645	190	$703	White Oak Landfill
Bulky Waste**	$74,066	4		Haywood County Materials Recovery Facility
TOTAL	$1,446,494	7,697		

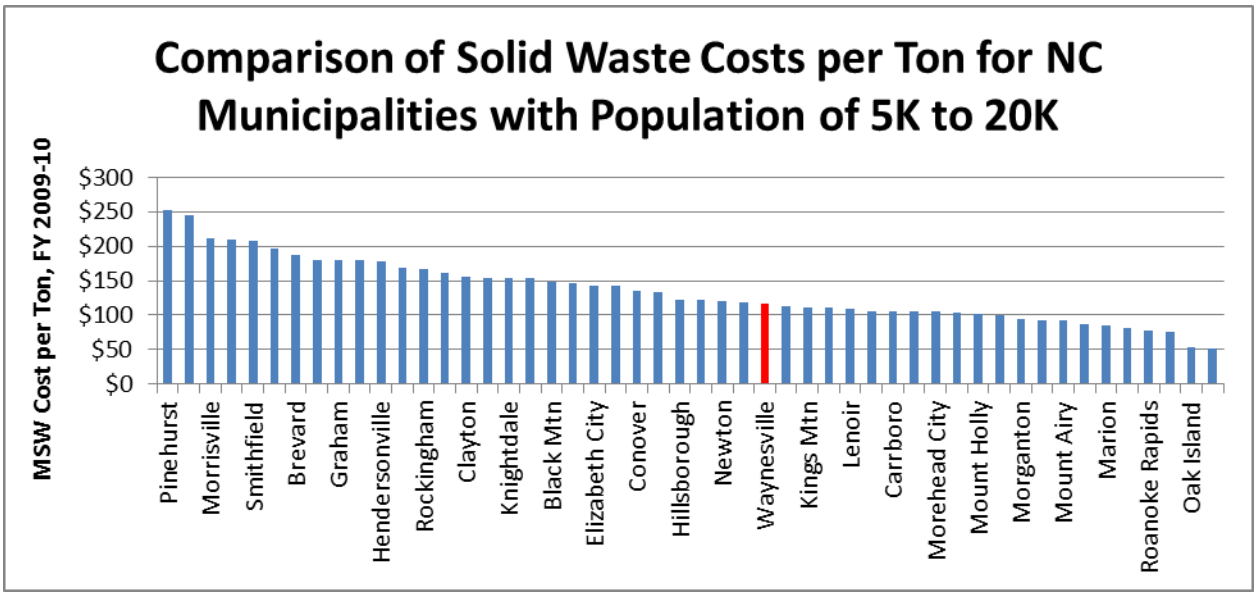
* Yard waste tonnage is from FY 2008-9 figure in 2009 HCSWMP

** Bulky waste tonnage only includes FY 2008-09white goods tonnages from 2009 HCSWMP

A. Solid Waste

The Town of Waynesville spent $687,400 to manage 5,798 tons of commercial and residential solid waste in FY 2010-11 (Figure 6.1). When normalized by annual tonnage, the Town of Waynesville spent $119 per ton of solid waste transported to the Haywood County Transfer Station in FY 2010-11. When compared with fifty similarly sized municipalities in North Carolina, the Town of Waynesville ranked 29th in annual solid waste collection & disposal costs per ton for FY 2009-10, and below the average of $135 per ton (Figure 6.2).[23] After the closure of the Haywood County Transfer Station, however, the Town's annual MSW costs are expected to increase to at least $188 per ton.[24]

Figure 6.2

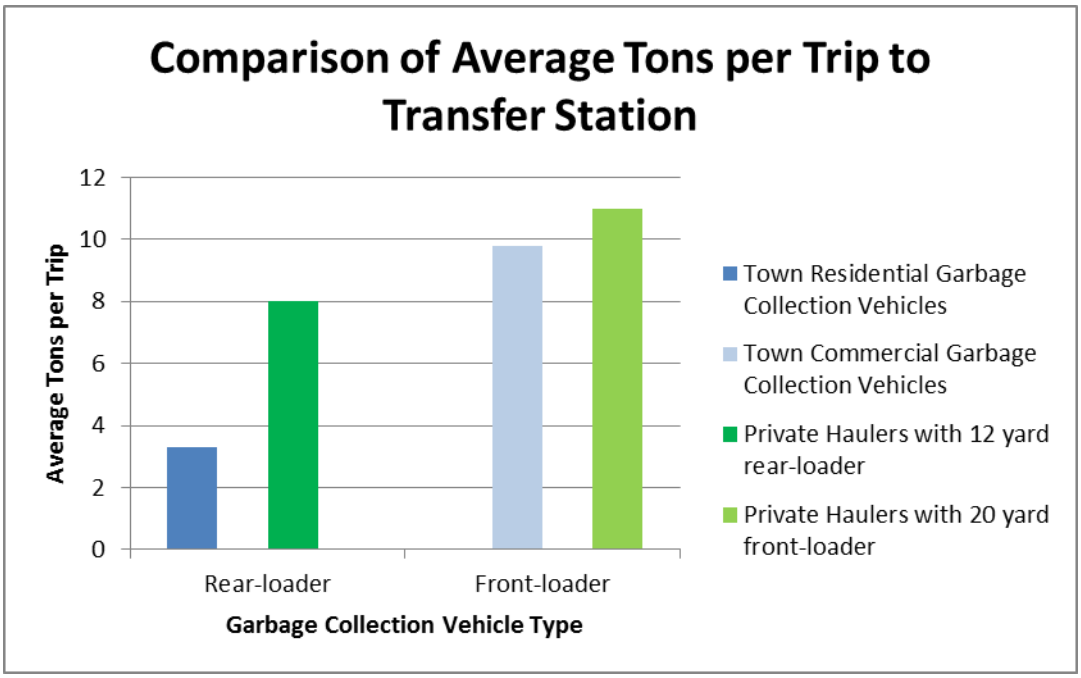


One cost saving opportunity identified during the evaluation of the Town's solid waste operations was increasing the tons per trip on waste collection vehicles. In the past collection vehicles have arrived at the Haywood County Transfer Station with below average tonnage.

[23] http://www.nclm.org/SiteCollectionDocuments/Legislative/FY09-10%20DENR%20Survey%20Tables/FY09-10%20Table%206%20--%20General%20Accounting.xlsx

[24] The $188/ton figure is the cost per ton estimate for MSW disposal under Scenario B: Haul to WOLF and pay $55/ton tipping fee.

Figure 6.3



Private haulers reported to average 8 tons per trip with a 12-yard rear-loader, which is much higher than the 3.3 tons per trip averaged by the similarly sized rear-loaders used by the Town for residential waste collection (Figure 6.3).[25] Data from the scales at the Haywood County Transfer Station also indicates that the Town's front-loaders bring in an average of 9.8 tons of commercial waste per trip to the Transfer Station, which is just below the average of 11 tons per trip reported by local private haulers using a 20-yard front-loader. According to the Town, waste collection vehicles are sometimes unloaded at the Haywood County Transfer Station with below average tonnages to avoid storing waste overnight in the vehicles.[26]

Faced with the possibility of hauling collection vehicles to the distant White Oak Landfill (WOLF), it will become increasingly important for the Town to ensure that all rear-loaders and front-loaders are carrying the maximum tons per trip. Maximizing tonnages may require the Town to find a secure place and method to park half-full rear-loaders overnight and ensure proper leachate containment.

The Town may also be able to improve the efficiency of solid waste collection operations by reducing the staffing levels on rear-loader collection vehicles. The Town collects residential waste weekly with rear-loaders running Monday to Friday, staffed with a driver and up to two additional personnel for collection. The Town only staffs the front-loader for commercial waste collection with one driver, but the rear-loader that collects commercial waste on Tuesday is also staffed with one driver and two

[25] "TOW 2 year data.xls" received from Zondra Robinson, Office Manager, Haywood County Solid Waste Dept.; 12/14/11.
[26] Interview with Lee Galloway, Town Manager for the Town of Waynesville; 12/2/11.

workers. Most private haulers and many municipalities use only one driver for solid waste collection and occasionally staff rear loaders with one additional laborer, but rarely two.

The Town may also be able to improve the cost-efficiency of solid waste collection by periodically reviewing routing efficiency with GPS software. Routing efficiency should be reviewed after the Town has decided on a waste disposal alternative to the Haywood County Transfer Station.

B. Recycling

The town collects residential recycling in blue bags on a weekly basis. Collection is done daily Monday to Friday with a flatbed truck and one driver. An additional flatbed truck also collects on Thursdays. Blue bags are delivered to the Haywood County Materials Recovery Facility (MRF), where the County loads them with other blue bags and takes them to Curbside Management in Woodfin to be segregated and sent to their respective markets. The Town also provides weekly blue bag collection to commercial non-dumpster customers located primarily in downtown Waynesville.

In FY 2010-11 the Town spent $110,161, or 7.6% of the Solid Waste Program expenses, on the collection of 345 tons of residential recycling. The recycling cost per household was $24 which is below the average rate of $27 for NC municipalities surveyed in 2010.[27] The cost per ton for the Town's FY 2010-11 recycling operations was $319, which is relatively high compared with other municipalities in the state. In the same 2010 survey, fifty similarly sized municipalities spent an average $210 per ton on recycling, which was well below the $455 per ton reported by Waynesville for FY 2009-10 (Figure 6.4) . The high cost per ton of Town recycling operations is due in part to a relatively low recycling rate. Data from the NC Division of Waste Management indicates that in FY 2008-09 the average recycling rate for municipalities in the state with population above 5,000 was 10.8%.[28] During that year the recycling rate for the Town of Waynesville was 7 percent.[29]

Rather than scaling back recycling operations, the Town could work to increase recycling rates as a way to divert more waste from the landfill and reduce the associated transportation costs and tipping fees. In addition to increased recycling education and outreach, converting to a roll-out cart system has proven to be a particularly effective method for increasing recycling rates in other communities and reducing the cost of collection. No separation is required and carts are emptied every other week, offering households greater convenience and reducing collection costs for the municipality. Many cities in the state, including the City of Asheville, are currently conducting pilot programs for roll-out recycling with the help of grants from the NC Department of Environment and Natural Resources (NC DENR).

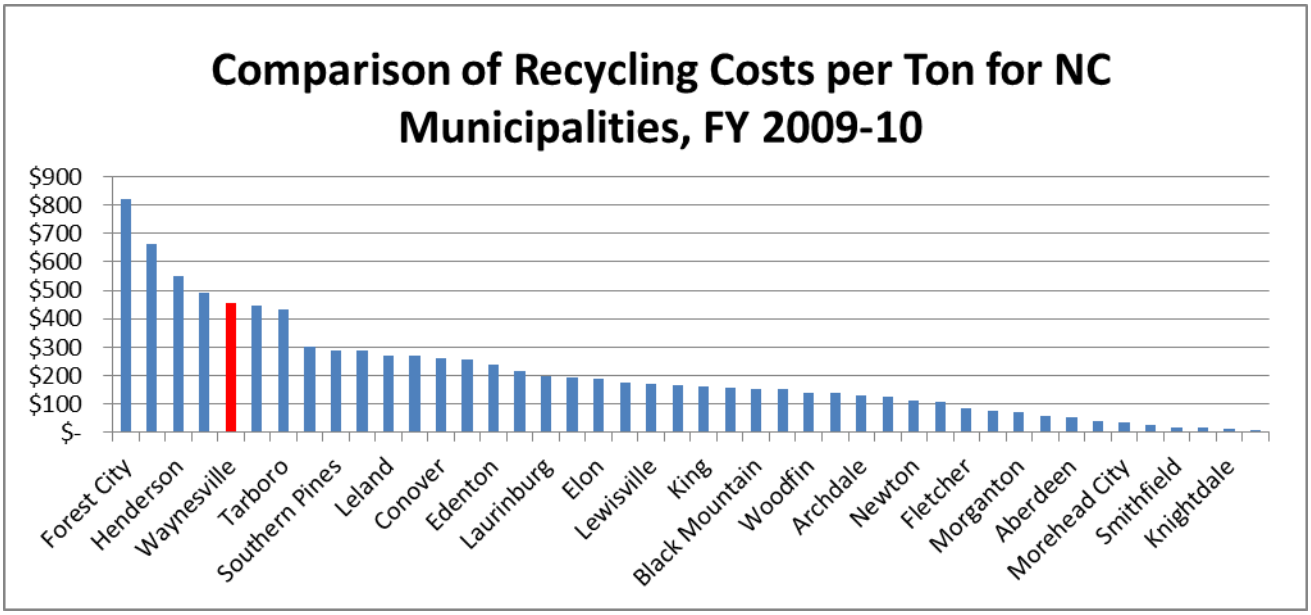
[27] http://www.nclm.org/SiteCollectionDocuments/Legislative/FY09-10%20DENR%20Survey%20Tables/FY09-10%20Table%206%20--%20General%20Accounting.xlsx

[28] http://www.nclm.org/SiteCollectionDocuments/Legislative/FY08-09%20Solid%20Waste%20Survey/NCLM%20Solid%20Waste%20Finances%20and%20Practices%20Survey%20--%20Table%2016.xlsx

[29] The recycling rate for this year was based on 213 tons of recyclables and over 3,000 tons of residential garbage. After the economic crisis in late 2008 annual recycling levels increased while solid waste generation dropped sharply, resulting in a recycling rate closer to 10%.

Most private haulers interviewed for this study would also prefer a cart system if the Town chose to privatize recycling collection.

Figure 6.4



Solid waste disposal costs could also be reduced by offering recycling services to more businesses using the Town's commercial solid waste collection services. While it is yet to be determined whether tipping fees will be charged for the Town's residential solid waste, the Town is certain to save at least $48 to $55 for every ton of commercial solid waste that is diverted from the landfill.

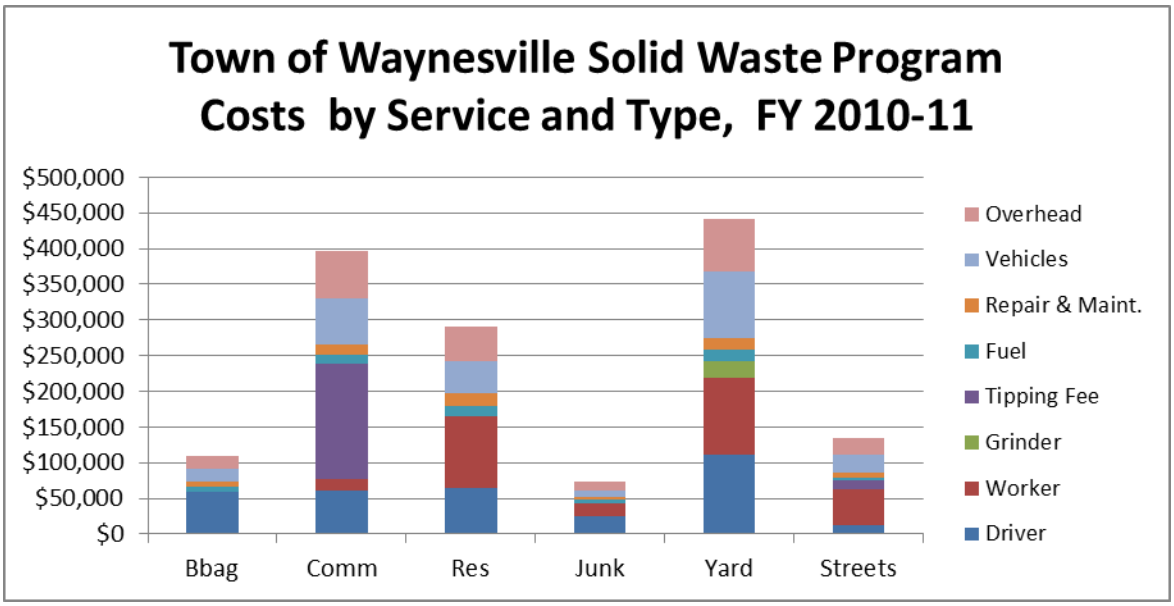
The efficiency of existing recycling operations could be improved by using a larger collection vehicle, such as a rear-loader, instead of the flatbed truck that is currently used for collection. This flatbed truck currently hauls an average of 0.5 tons of recyclables per trip to the MRF and makes an average of 3 trips per day to the MRF. Using a rear loader for collection could increase tons per trip and reduce the number of trips to the MRF. The Town should also encourage the County to maintain staging areas at the Haywood County Transfer Station for recyclables to keep the Town's associated collection and recycling costs as low as possible.

C. Yard Waste and Bulky Item Collection

Yard waste is collected every other week and represents the largest expense in the Town's Solid Waste Program, but it accounts for less than 1,500 tons of total solid waste managed by the Town. Yard waste operations cost the Town over $440,000 in FY 2010-11 due to the labor intensive collection and the expensive equipment that is associated with offering residents this service (Figure 6.5). This collection operation may include a loader to collect large heavy items, a chipper to grind limbs and brush, a truck to haul the chip, and personnel to haul and operate the equipment. The Town has a yard waste

composting facility which helps offset a significant portion of the costs that would be associated with disposal and recycling.

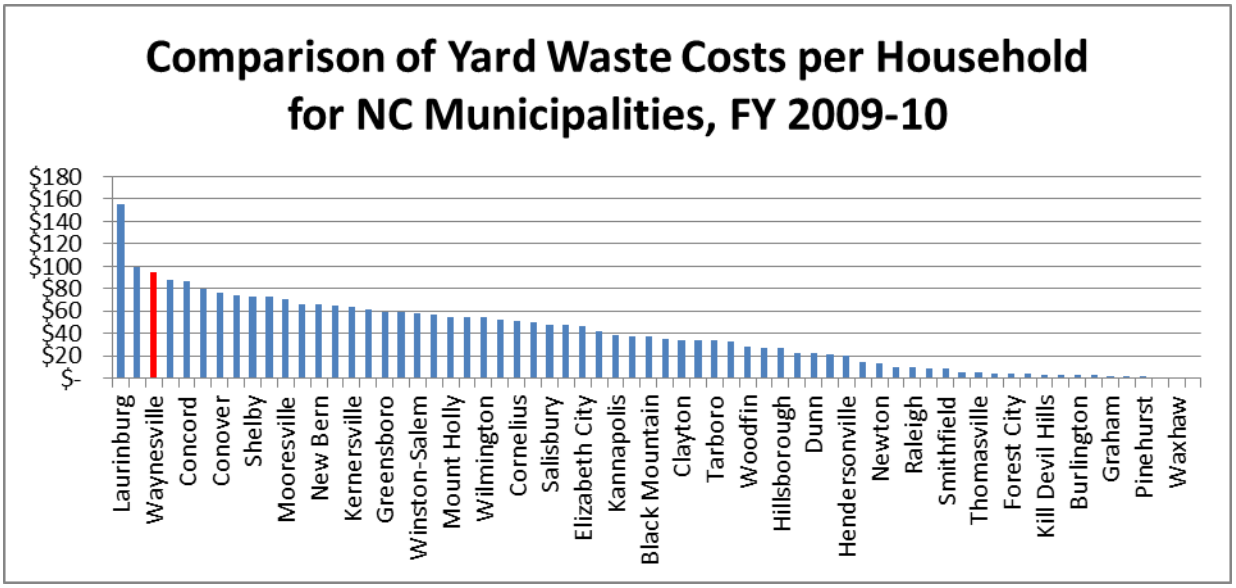
Figure 6.5



A N.C. League of Municipalities survey of 66 municipalities with populations above 5,000 indicates that the Town of Waynesville had the third highest yard waste costs per household in FY 2009-10, spending $95 per household (Figure 6.6)[30]. The average yard waste cost for municipalities in this survey was $39 per household. The average cost per ton among the same municipalities was $109. Waynesville did not submit tonnage data for this survey, but based on previous tonnage data from FY 2008-9, the Town would have the fourth highest cost per ton, paying roughly $320 for every ton of yard waste managed.

[30] http://www.nclm.org/SiteCollectionDocuments/Legislative/FY09-10%20DENR%20Survey%20Tables/FY09-10%20Table%206%20--%20General%20Accounting.xls

Figure 6.6



Based on the Town's high cost per ton and cost per household benchmarks, the Town should be able to find ways to better streamline yard waste services. The Town may also want to consider scaling back yard waste services by limiting pick-up to a certain volume (or bin) and charging for the collection of all additional yard waste. In the Town of Farmville yard waste carts are purchased from the Town and all waste placed in the cart is collected at no charge. The Town of Farmville then charges $15 for the first load of additional waste that is collected and $50 for a second load from the same pile.[31]

The Town should also consider promoting a "Backyard Composting" program by encouraging the use of individual compost units. This may be accomplished by purchasing compost units and making them available to Town residents. This strategy could assist the Town in yard waste reduction efforts and encourage recycling.

In the last fiscal year the Town spent $74,000 on Bulky Item collection services, which are provided every two weeks to residents. Bulky items collected include white goods, furniture and bulky household items. Materials are picked up with a driver and one worker in a Ford LCF box truck, and taken to the Haywood County MRF where they are separated according to type. The County has agreed to keep an area located at the Transfer Station available for the staging of these items even after the Transfer Station is to be closed. This staging area improves the economics associated with managing this waste stream since it will not be necessary to transport these items to the White Oak Landfill, thus lowering transportation costs.

[31] www.farmville-nc.com/departments_publicworks.htm

The town could consider reducing costs by scaling back the frequency of bulky waste collection and charging a fee for additional pick-up requests. Municipalities that currently charge for bulky waste have fees between $10 and $35 per occurrence.[32]

VII. Privatization of Town Solid Waste Program Services

In the case that the MSW disposal options available to the Town are deemed too costly, the Town may decide to privatize solid waste operations. Over 260 municipalities in North Carolina reported contracting with a private hauler for solid waste collection services in a 2010 survey conducted by the NC League of Municipalities. In the same survey the average solid waste collection cost for municipalities that relied on private contractors was $83 per ton, which was 41% lower than the $117 per ton figure reported by the Town of Waynesville, and 27% lower than the $106 per ton average for all municipalities that collected their own solid waste (Figure 7.1). [33]

Figure 7.1
Average Cost per Ton of Private & In-house Solid Waste Collection and Disposal for NC Municipalities, FY 2009-10

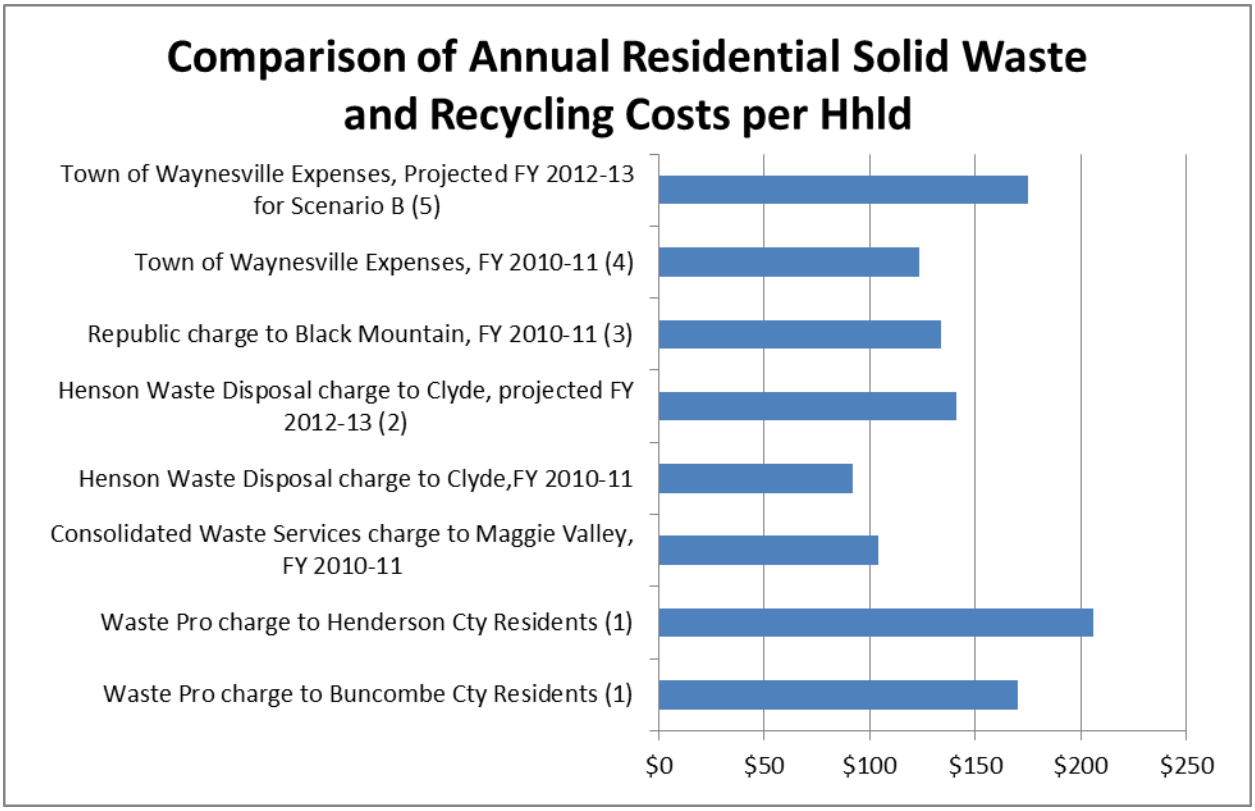
Who Collects Solid Waste?	Count of Municipalities	Average Annual Cost per Ton		
		Solid Waste Collection	Solid Waste Disposal	Solid Waste Collection and Disposal
Private Contractor	144	$69	$14	$83
Local Government	104	$80	$26	$106
Town of Waynesville		$90	$27	$117

In many cases the privatization of solid waste collection is coupled with recycling. During the course of research for this study the individual amounts paid to contractors for each service were not always available. Figure 7.2 compares the residential solid waste and recycling costs per household for the Town of Waynesville with those of local governments in the region that contract with private haulers.

Private solid waste contractors that contract with local governments in Western North Carolina include Consolidates Waste Services (CWS), Waste Pro LLC, Henson Waste Disposal, and Republic. All private haulers interviewed for this study expressed an interest in providing solid waste collection services to the Town and other municipalities within Haywood County. Waste Pro and CWS would conduct weekly collections over two days using a rear loader or side loader with only a driver in most cases. Both firms also expressed an interest in having the option of taking some of the waste collected to the Waste Management Transfer Station.

[32] http://www.nclm.org/SiteCollectionDocuments/Legislative/FY09-10%20DENR%20Survey%20Tables/FY09-10%20Table%2012%20--%20Fees.xlsx
[33] http://www.nclm.org/programs-services/research/Pages/SolidWasteProgramPracticesandFinances.aspx

Figure 7.2



(1) Waste Pro collection rates would be lower for the Town of Waynesville where there is a greater density of households per square mile
(2) Henson Waste Disposal projected a 66% increase in costs associated with hauling waste to WOLF
(3) GDS handles commercial and residential solid waste for the Town of Black Mountain, which inflates the costs per household figure above
(4) Commercial solid waste expenditures are excluded from Town of Waynesville expenses
(5) See Figure 5.2

Privatization of solid waste services could provide the Town with significant cost savings in the areas of capital investment, equipment maintenance and repairs, fuel, and labor. These assumed cost savings can be misleading because the capital investments have already been made by the Town in terms of equipment. This capital investment loss could be offset to some degree by selling the Town's equipment. This could be accomplished through contract negotiations with bidders or auctions.

Privatization of solid waste services may also be complicated by the Town's cross training of personnel. The Town uses the same labor for solid waste collection as it does for other operations such as cemetery and streets maintenance. This practice of cross training personnel maximizes the efficiency of Town operations, but would make it difficult for a private contractor to hire the Town's part-time solid waste employees as full-time solid waste staff.

As noted above, many municipalities contract with private haulers to collect both residential solid waste and residential recycling. The private haulers interviews for this study all expressed an interest in collecting recyclables. Waste Pro and CWS would prefer to convert recycling operations from blue bags to carts and use a side loading truck to increase tonnages and reduce labor costs. The Town has expressed doubts about the feasibility of this method due to the mountainous terrain and narrow street conditions. Waste Pro, however, has assessed the difficult collection areas and assured the Town that the terrain will not inhibit the use of carts for recycling.

Waste Pro would transport recyclables collected in the Town of Waynesville to Curbside Management in Woodfin for processing unless otherwise specified by the Town. CWS and Henson Waste Disposal would likely take recyclables to the Haywood County Materials Recovery Facility (MRF), which is the site to which the Town currently takes recyclables.

This study also explored options for privatizing the Town's yard waste services. Yard waste collection and disposal is the largest expense in the Town's Solid Waste Program and would probably be the most advantageous service to privatize. Privatizing this operation could save the Town as much as half of current annual yard waste expenses. Please see Appendix section E2 for a sample privatization cost proposal.[34]

[34]This proposal does not include the use of a small loader for 288 hours per year.

VIII. Recommendations

The closure of the Haywood County Transfer Station is expected to increase the Town of Waynesville's Municipal Solid Waste expenses under all possible scenarios. Based on the findings of this study, the following recommendations can help the Town limit the increase in MSW disposal expenses and reduce overall Solid Waste Program costs, while maintaining a high level of service.

A. MSW Disposal Options

Municipal Solid Waste disposal scenarios evaluated in this study are summarized in Figure 8.1.

Figure 8.1

Summary of Municipal Solid Waste Disposal Scenarios

Scenario	Scenario Description	Assumptions			Projections	
		Round trip Miles	Comm. Tipping Fee	Res. Tipping Fee	Cost per Ton in Year 20	Cumulative Cost in Year 20
A	Haul MSW to Haywood County Transfer Station and pay a $55 per ton tipping fee on commercial waste only. NO LONGER AVAILABLE AFTER JUNE 2012	11.6	$55/ton	$0/ton	$152	$19,891,186
B	Haul MSW to White Oak Landfill and pay a $55 per ton tipping fee on commercial waste only.	41	$55/ton	$0/ton	$219	$26,816,344
C	Haul MSW to White Oak Landfill and pay a $55 per ton tipping fee on commercial and residential waste	41	$55/ton	$55/ton	$275	$33,652,210
D	Haul MSW to Waste Management Transfer Station and pay a $48 per ton tipping fee on commercial and residential waste	54.8	$48/ton	$48/ton	$275	$32,981,408
E	Construct a new transfer station on Town property to be operated by a private contractor	3.6	$55/ton	$55/ton	$201	$27,732,605

Recommended MSW disposal options and additional considerations are provided below depending on the existence of residential tipping fees and the viability of a new transfer station in Waynesville:

- **If no tipping fee is charged for residential waste at WOLF, hauling MSW directly to WOLF (Scenario B) is the best option for reducing long term cumulative costs**
    - The Town should request that Haywood County define the fee system at WOLF in a contractual agreement that states that they will not charge residential tipping fees and that the County define the price per ton for commercial waste and yard waste.
    - The Town should submit a verifiable financial impact statement as requested by Haywood County to calculate financial reimbursement for transportation costs to WOLF.
    - The Town should also request that the County provide details on how services and fees will change after the trigger of the Expanded Management Commencement Date. All of this information and any other guarantees should be furnished to the municipalities in writing.
- **If a tipping fee for residential waste is charged at WOLF, the construction of a new transfer station (Scenario E) becomes the best option for reducing long term cumulative costs**
    - The limited solid waste tonnage generated in Haywood County means that a viable new transfer station will require the Town to reach agreements with the County, municipalities, and private haulers to bring their waste to the new transfer station
- **If a private contractor cannot be found to operate a new transfer station, the Town should consider hauling commercial and residential waste directly to the Waste Management Transfer Station (Scenario D) or negotiating a lower tipping fee at the White Oak Landfill.**

In any scenario chosen, the Town should strive to improve coordination agreements with the County and other municipalities within the County in an effort to maximize the cost-effectiveness of solid waste services offered to all residents.

B. Reducing the Cost of Existing Solid Waste Program Services

1. Solid Waste

- Limit the number of trips to the landfill or transfer station
    - Increase the tonnage per trip on the collection vehicles, especially on rear-loaders used for residential collection
    - Find secure place and method to park half-full rear packers out overnight and ensure proper leachate containment
- Reduce staffing levels on rear loaders
    - Staff rear-loaders with only a driver when possible and no more than one helper
- Improve efficiency of collection and disposal routes
    - Review routing efficiency after selection of MSW disposal site and strive to decrease the number of days for solid waste collection.

2. Recycling

- Divert more waste from the landfill to reduce associated transportation costs and tipping fees
    - Consult with Waste Reduction Partners on education and outreach strategies to increase residential recycling rates
    - Apply for a grant from NC DENR to implement a roll out cart pilot program
    - Consider offering convenient recycling services to businesses already using Town solid waste collection services
- Switch from a flatbed truck to a larger rear-loader for blue bag collection to limit the number of trips to the MRF and reduce transportation costs
- Coordinate with the County to ensure that resources at the Transfer Station, such as staging areas for various recyclables, remain available to keep recycling related transportation costs at a minimum.

3. Yard Waste and Bully Item Collection

- Evaluate yard waste operations in other communities with lower costs per ton to identify strategies to streamline operations
- Evaluate options for scaling back yard waste collection volume
    - Consider limiting yard waste pick-up to 1 bin and charging for all additional loads
- Consider promoting a "Backyard Composting" program to reduce yard waste tonnages
    - Encourage the use of individual compost units
    - Purchase compost units and make them available to Town residents
- Consider scaling back the frequency of bulky waste collection and charging for additional services upon request

C. Privatization

In the case that the MSW disposal options described above are deemed too costly and the Town decides to privatize solid waste operations, the following recommendations are offered:

- Coordinate with Towns of Clyde and Canton if possible to develop a joint RFP for solid waste collection in an effort to maximize the economies of scale and share the cost of contracting with a private hauler
- Offset capital investment losses by selling the Town's equipment through contract negotiations with bidders or through auctions
- Perform a Due Diligence Audit of bidders to consider their financial viability and compliance history in order to limit the Town's liability
- Consider contract stipulations important to the Town such as hiring Town personnel, and identifying the final destination of the Town's wastes and recyclables
- Incorporate the use of carts for collecting both solid waste and recycling to boost recycling rates
- Explore privatization options for reducing the high cost of yard waste collection, recycling and disposal