

# EXISTING WASTE STREAM AND VEHICULAR TRAFFIC REVIEW

## A. WASTE STREAM REVIEW: 2005 - 2008

Waste tonnage data was received from the County for calendar years 2005 through October of 2008. The general waste categories could be summed up as follows: Yard Trash/Wood Waste, Municipal Waste, Demolition Waste, and various other miscellaneous loads. In addition to the aforementioned waste categories, which are weighed across the scales and paid for based on actual tonnage disposed, there are categories for Flat Fee Loads. The Flat Fee Loads for 2006 through 2008 are separated into those loads containing Yard Trash/Wood Waste and those loads containing Municipal type waste. The disposal fee charged for the load is generally dependent on the size/type of vehicle delivering the waste (i.e., car, pickup truck, vehicle with trailer, etc.). A copy of the disposal fee rate chart is included in Appendix B.

The category comprising the Yard Trash/Wood Waste classification consists of silva culture type waste resulting from tree removal to land clearing. The classification also includes leafy type debris resulting from general yard cleanup and raking. The Yard Trash/Wood Waste is presently processed on site.

The Municipal waste classification generally covers residential, commercial and industrial type waste and other material that must be disposed of in a landfill type operation or disposal facility. This waste is presently processed through the transfer station operation and is hauled off-site for disposal.

Demolition waste covers construction and/or demolition type waste resulting from home or building construction and/or demolition. Demolition waste was handled on site through June 2008 in the County's Construction and Demolition Debris (C&D) Landfill. With the closing the C&D Landfill, the County now processes this waste through the transfer station operation for disposal off-site.

The County also receives various other loads, some of which are processed on-site, some are recycled and some are processed through the transfer station operation. Depending on the waste type classification and/or origin, some loads within this classification are accepted free of charge. These various miscellaneous loads makeup a very small percentage of the total waste received and weighed across the scales. The Flat Fee Load classification covers a category comprised of relatively small loads (1 to several bags) of either Yard Trash/Wood Waste or Municipal type waste that are generally brought in by an individual home owner in their personal vehicle. The scale clerk is responsible for determining the fee category (based on vehicle type) under which the load is paid for.

### **Yard Trash / Wood Waste:**

In 2005, the County weighed in approximately 1,743 tons of Yard Trash/ Wood Waste (Yard Trash – 1,373 tons, Wood Waste – 234 tons, Storm – 136 tons) for an average of 145 tons per month. During 2005 Yard Trash/Wood Waste accounted for approximately 2.1% of all waste weighed across the scales for processing and/or disposal.

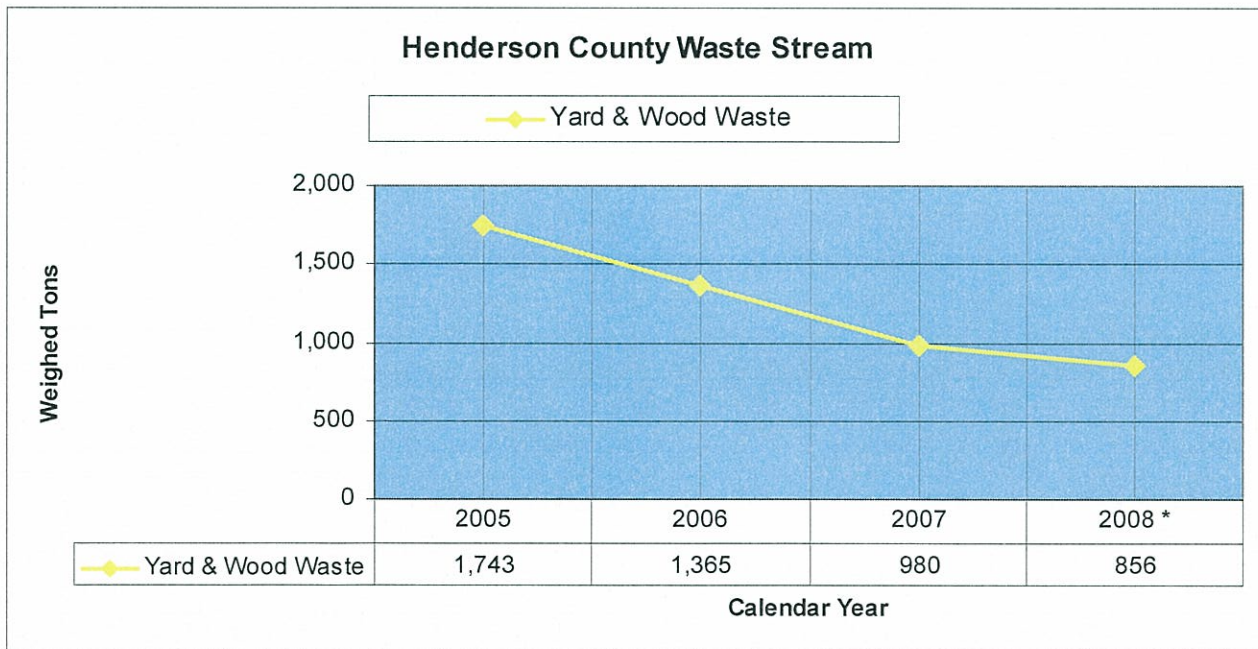


In 2006, the County weighed in approximately 1,365 tons of Yard Trash/Wood Waste (Yard Trash – 854 tons, Wood Waste – 159 tons, Storm – 353 tons) for approximately 1.7% of all materials weighed across the scale for processing and/or disposal. The facility received an average of 114 tons per month during 2006. In addition, a Flat Fee category was initiated in 2006 to account for the relatively small loads of waste generally brought in by the individual home owner. The Flat Fee category continues to be used at the facility for those loads that are generally brought in by the individual homeowner.

The County weighed in approximately 980 tons of Yard Trash/Wood Waste (Yard Trash – 835 tons, Wood Waste – 145 tons) in 2007 for an average of 82 tons per month. Yard Trash/Wood Waste accounted for approximately 1.0% of the weighed waste stream.

Through the first ten (10) months of 2008 approximately 713 tons of Yard Trash/Wood Waste (Yard Trash – 685 tons, Wood Waste – 28 tons) was weighed in at the scale house. The average monthly tonnage for the first ten months of 2008 was approximately 71 tons per month. Yard Trash/Wood Waste again accounted for approximately 1.0% of all materials weighed across the scales for processing and/or disposal. Based on the tonnage of Yard Trash/Wood Waste received through the first ten months of 2008, the overall yearly tonnage for this waste category is projected to be 856 tons.

The following graph and associated yearly tonnage depicts the pattern of Yard Trash/Wood Waste received for processing at the Stoney Mountain Road Landfill Facility:



\* Projected tonnage for calendar year 2008

The apparent drop in weighed Yard Trash/Wood Waste could be attributed to the implementation of the Flat Fee rate for relatively small loads. These loads are not weighed across the scales but are charged based on the size or amount of the load. The relative trend for



2006 through 2008 has shown a generally steady decrease in the amount of Yard Trash/Wood Waste that is weighed across the scales for on-site processing. However, it should again be noted that the Flat Fee loads were accepted but not weighed. Therefore the County is actually receiving more Yard Trash/Wood Waste for processing than is actually shown in the tonnages compiled for 2006 through 2008. The number of Flat Fee loads or Yard Trash/Wood Waste will be discussed in a following section.

### **Municipal Waste**

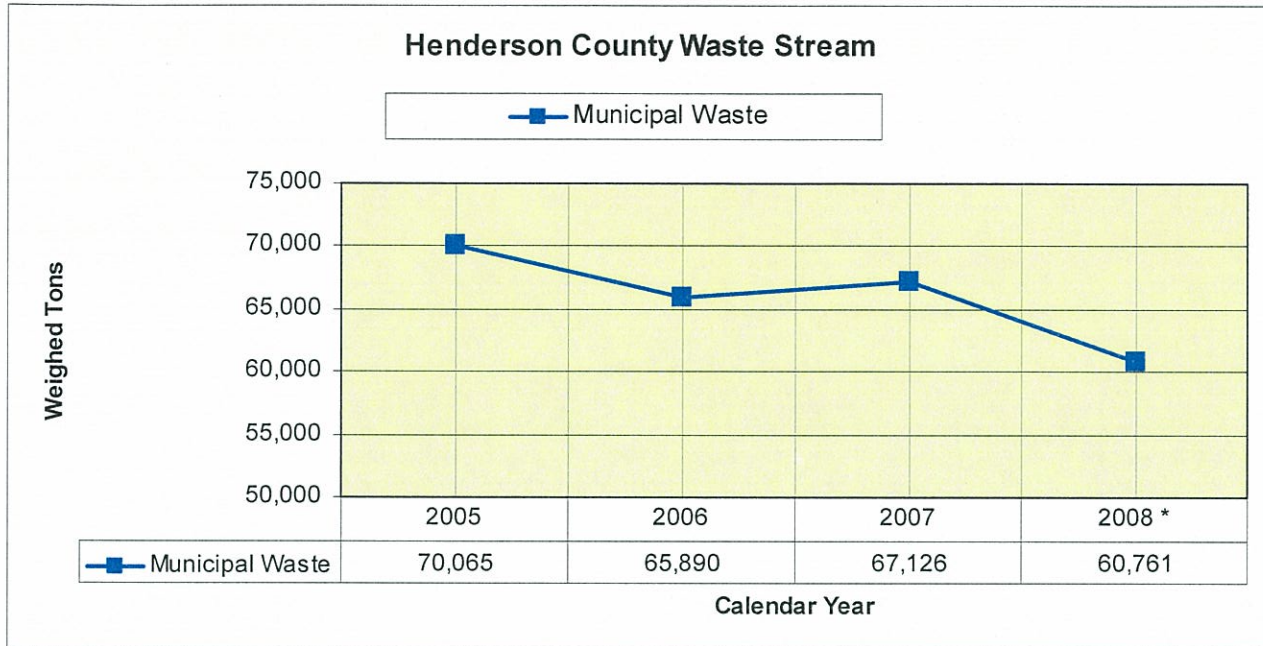
Henderson County's Stoney Mountain Road Landfill received approximately 70,065 tons of waste under the category of Municipal waste during Calendar year 2005. This translates to a monthly average of approximately 5,839 tons. Municipal waste accounted for approximately 59.5% of the total material weighed across the scales for processing and/or disposal during 2005.

During calendar year 2006, the County received approximately 65,890 tons of Municipal waste for a monthly average of 5,491 tons or 79.8% of all weighed material. For calendar year 2007, the County took in approximately 67,126 tons under the Municipal waste category for an average monthly waste receipt of 5,594 tons. Municipal waste accounted for approximately 71.8% of all materials weighed across the scales for processing and/or disposal.

During the first ten (10) months of calendar year 2008, the County received approximately 50,634 tons of Municipal waste for a monthly average of 5,063 tons. For the first ten (10) months of 2008, Municipal waste accounted for approximately 71.4% of all material weighed across the scales for processing and/or disposal. At this rate of acceptance, the County could anticipate receiving an additional 10,126(+/-) tons for the months of November and December for a projected 2008 yearly intake of Municipal waste of approximately 60,761 tons under the Municipal classification.

Additional tonnage was received, but apparently not weighed in, by the County under the classification of car/truck and truck during calendar year 2005. During calendar year 2006, the Flat Fee classification was also introduced for municipal waste being brought to the site by individual homeowners for processing through the transfer station. Like the flat fee rates for the Yard Trash/Wood Waste, this waste was not weighed in. However, the numbers of vehicles were counted and will be discussed in a following section.

The following graph and associated tonnage provides a pattern of the Municipal waste weighed across the scales for calendar years 2005 through 2008:



\* Projected tonnage for calendar year 2008

An analysis of weighed waste loads was prepared by the County for the period 2006 through the first ten (10) months of 2008 to determine the tonnage of waste received for various weight categories. The analysis broke the weight characteristics into the following categories: loads weighing less than or equal to 1,500 pounds, loads weighing greater than 1,500 pounds but less than or equal to 6,000 pounds, loads weighing greater than 6,000 pounds but less than or equal to 20,000 pounds, and those loads weighing greater than 20,000 pounds.

For those loads weighing less than or equal to 1,500 pounds the average load over the period 2006 through the first ten (10) months of 2008 was approximately 0.34 tons or 683 pounds. For the same period, the average weight of the loads in the greater than 1,500 pounds but less than or equal to 6,000 pounds was 1.59 tons or 3,186 pounds. The average weight of the loads in the category of greater than 6,000 pounds but less than or equal to 20,000 pounds was approximately 5.35 tons or 10,698 pounds for the analysis period. The average weight of a load in the category greater than 20,000 pounds was 12.19 tons or 24,388 pounds for the period 2006 through the first ten (10) months of 2008.

By applying the applicable percentages to the Municipal waste category, those loads weighing generally less than or equal to 1,500 pounds ( $\leq 0.75$  tons) accounted for approximately 5,640 tons or 8.6% of the waste tonnage received during calendar year 2006. During 2007 this same tonnage category accounted for 5,276 tons or 7.9% of the received waste stream. For the first ten (10) months of 2008 the waste loads weighing less than or equal to 1,500 pounds accounted for 4,279 tons or 8.5% of the total weighed waste received for processing or disposal.



For the waste tonnage category weighing greater than 1,500 pounds but less than or equal to 6,000 pounds (>0.75 tons to <=3.0 tons) the waste received for 2006 accounted for 27.6% of the weighed waste stream or 18,192 tons. During 2007, this same category accounted for 27.5% of the weighed waste stream for a total of approximately 18,427 tons. For the first ten (10) months of 2008 the waste category covering loads weighing greater than 1,500 pounds but less than or equal to 6,000 pounds accounted for approximately 28.6% of the weighed waste stream or 14,477 tons.

The next weight category reviewed covered those loads weighing greater than 6,000 pounds but less than or equal to 20,000 pounds (>3.0 tons to <= 10.0 tons). For 2006, this weight category accounted for approximately 46.4% percent of the weighed waste stream or 30,558 tons. In 2007, this same category accounted for 50.3% of the weighed waste stream or 33,778 tons. For the first ten (10) months of 2008 the weight category covering those loads weighing greater than 6,000 pounds but less than 20,000 pounds accounted for 50.0% of the waste stream or 25,302 tons.

The last category covered those loads weighing greater than 20,000 pounds (>10.0 tons). For 2006, this weight category accounted for 17.5% of the weighed waste stream or 11,501 tons. During 2007 this same weight category accounted for 14.4% of the weighed waste stream or 9,645 tons. For the first ten (10) months of calendar year 2008 the weight category covering loads greater than 20,000 pounds accounted for 13.0% of the weighed waste stream or 6,572 tons.

A summary of this data is shown in Table 1.

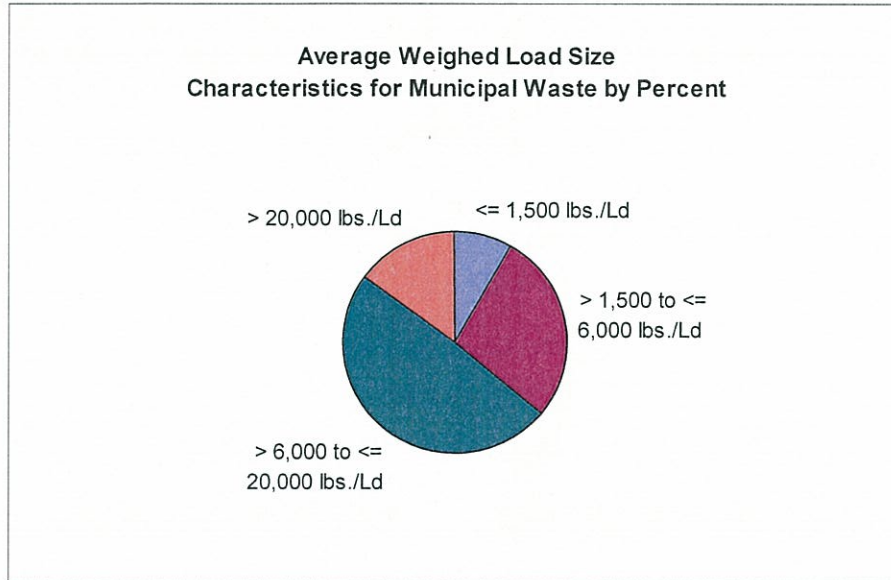
Table 1: Weighed Load Size Characteristics for Municipal Waste

Year	<= 1,500 lbs./Ld		>1,500 to <=6,000 lbs./Ld		>6,000 to <=20,000 lbs./Ld		>20,000 lbs./Ld	
	% Weighed Waste Stream	(tons)	% Weighed Waste Stream	(tons)	% Weighed Waste Stream	(tons)	% Weighed Waste Stream	(tons)
2006	8.6%	5,640	27.6%	18,192	46.3%	30,558	17.5%	11,501
2007	7.9%	5,276	27.4%	18,427	50.3%	33,778	14.4%	9,645
2008*	8.5%	4,279	28.5%	14,477	50.0%	25,302	13.0%	6,576
Avg.	8.3%	5,065	27.8%	17,032	48.9%	29,879	15.0%	9,241

\* For the first ten (10) months of calendar year 2008

As can be seen from the afore-referenced Table, approximately half (48.9%) the weighed Municipal waste stream is delivered by vehicles with a net waste load between 6,000 pounds and 20,000 pounds. Approximately 27.8% of the weighed waste stream is delivered by vehicles with a net weight load between 1,500 pounds and 6,000 pounds. Those vehicles with a net load weight greater than 20,000 pounds generally account for approximately 15% of the weighed Municipal waste stream. Vehicles with a net weight load weighing less than or equal to 1,500

pounds account for approximately 8.3% of the weighed Municipal waste stream. The following chart provides a graphical depiction of the average percent of the weighed load characteristics for municipal waste for the period covering calendar year 2006 through the first ten (10) months of calendar year 2008:

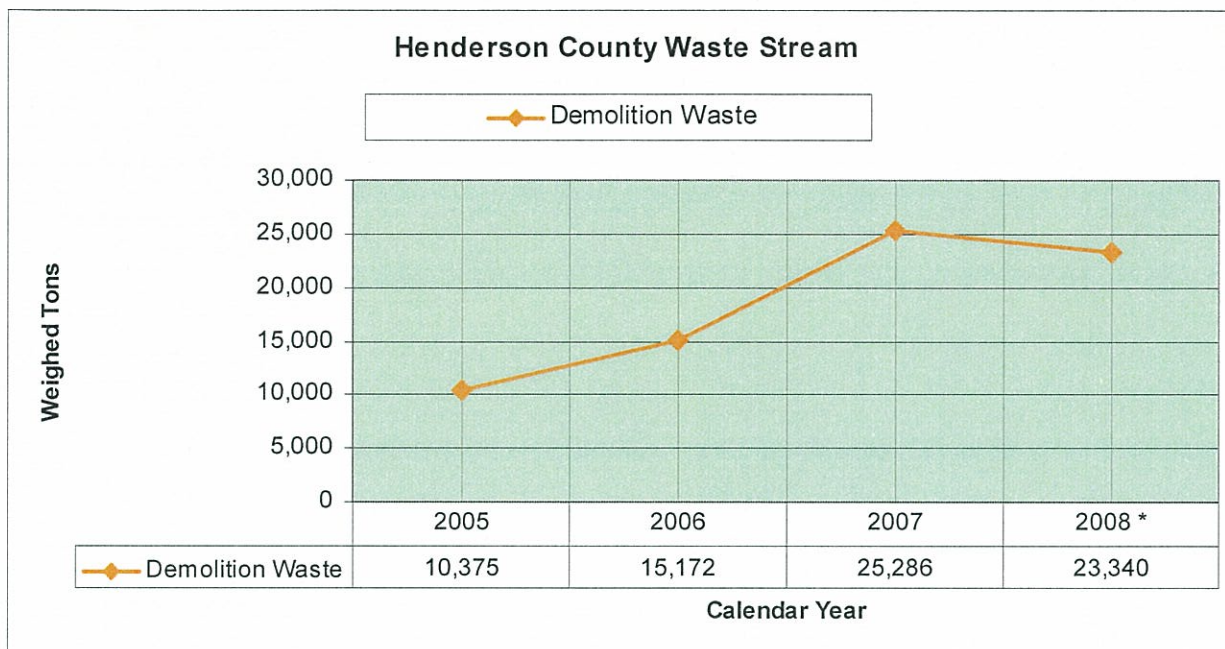


**Demolition Waste:**

Under the classification of Demolition waste, the County received for disposal in the C&D landfill approximately 10,375 tons during calendar year 2005. This equates to a monthly average of 865 tons per month of Demolition waste. In calendar year 2006, approximately 15,172 tons of Demolition waste was weighed across the scales for a monthly average of 1,264 tons per month. During calendar year 2007, the County received approximately 25,286 tons of Demolition waste. The monthly average for 2007 was 2,107 tons per month. For the first ten (10) months of calendar year 2008 the County received for disposal approximately 19,450 tons of Demolition waste for a monthly average of 1,945 tons. At this average rate of acceptance, the County could anticipate receiving an additional 3,890 tons of Demolition waste for the months of November and December for a projected total of approximately 23,340 tons on Demolition waste for calendar year 2008.

The following graph and associated tonnage depicts the pattern of Demolition waste received for disposal by the County for calendar years 2005 through 2008:



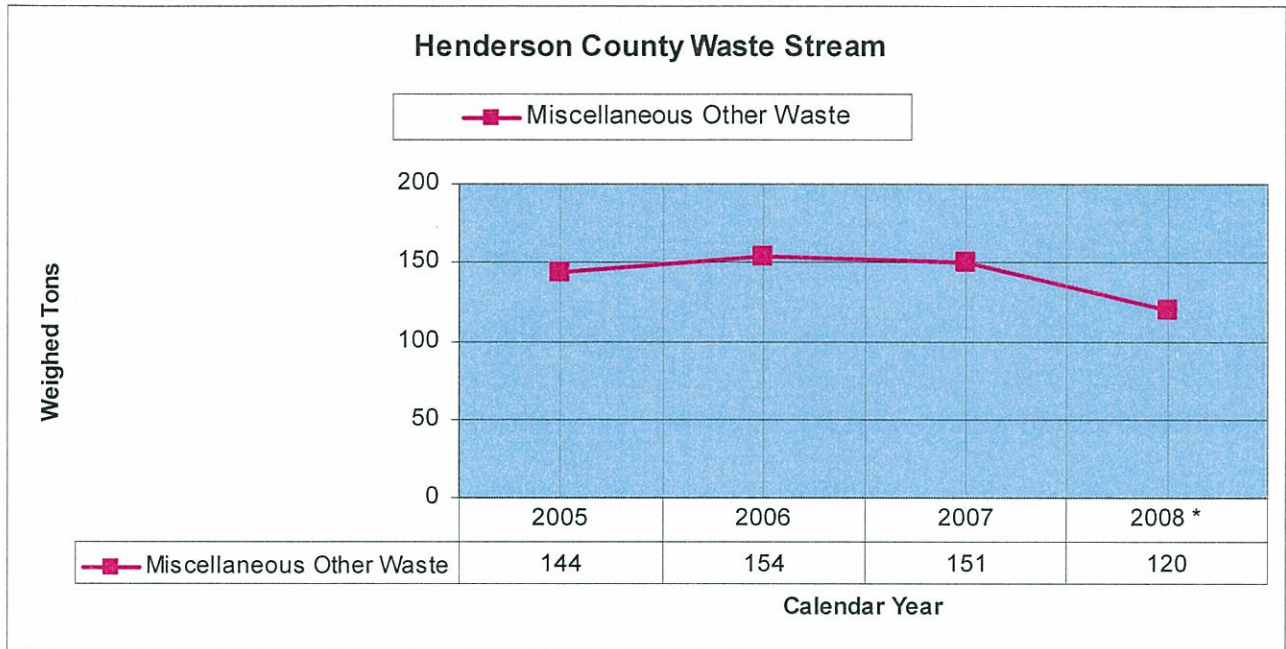


\* Projected tonnage for calendar year 2008

For calendar years 2005 through 2007 the County realized a steady increase in the amount of Demolition waste that was brought to the Stoney Mountain Road Landfill Facility for disposal. Calendar year 2008 is projected to have a slight decrease as new construction begins to decline as the overall economy begins to decline. The amount of Demolition waste received at the landfill may continue to decline over the next several years until such time as the economy begins to rebound and new home construction picks back up.

**Miscellaneous Waste:**

Additional waste was received at the landfill for processing and/or disposal under various other classifications (i.e., D.O.T., Roadside, Adopt-a-Highway, River, etc.). During 2005, this additional waste accounted for approximately 144 tons or 0.2% of all material weighed across the scales for processing and/or disposal. In 2006, the additional waste weighed across the scales accounted for 154 tons or 0.2% of the total waste/material stream. The additional waste accounted for approximately 151 tons during calendar year 2007 or 0.02% of the total materials weighed across the scale for processing and/or disposal. During the first ten (10) months of 2008, the additional waste accounted for 0.1% of all waste weighed across the scales or approximately 100 tons. Based on an average of 10 tons per month, the County could anticipate receiving approximately 120 tons of additional waste for calendar year 2008. The following graph and associated tonnage depicts the general pattern of additional waste received at the landfill facility which has remained relatively constant for the period 2005 through 2007 with a slight decrease anticipated for 2008.



\* Projected tonnage for calendar year 2008

**Daily Waste Receipts:**

Daily waste receipt patterns were collected for four (4) one-week periods during the months of January, April, July and October for waste received at the facility. The tonnage counted each day were those loads that crossed the scales and were weighed. Flat fee loads and traffic by-passing the scale were not included in the tonnage totals. On average, the facility received approximately 337.5 tons per day for Monday through Friday during an eight and one-half hour (8 ½ hr.) operating period for an average hourly waste receipt of 39.7 tons per hour. For Saturday, the facility average receiving 70.6 tons per day for an average hourly waste receipt of 8.3 tons per hour. The following Table provides a summary of the data collected by the County for the four (4) one-week periods and provides the number of tons received each day and the average number of tons received per hour for each day of the week plus a weekly total and weekly average tons per hour:



Table 2: Daily Waste Receipts – four (4) One-Week Periods

Day Of Week	January (14-19)		April (14-19)		July (14-19)		October (13-18)	
	Tons Rec.	Avg. Per Hour	Tons Rec.	Avg. Per Hour	Tons Rec.	Avg. Per Hour	Tons Rec.	Avg. Per Hour
Mon	440.2	51.8	299.1	35.2	322.6	37.9	296.3	34.9
Tues	396.9	46.7	327.7	38.6	329.9	38.8	360.2	42.4
Wed	304.0	35.8	344.8	40.6	330.3	38.9	406.9	47.9
Thurs	141.8	16.7	342.2	40.3	367.5	43.2	280.2	33.0
Fri	267.7	31.5	510.4	60.1	311.5	36.6	369.5	43.5
Sat	72.5	8.5	98.3	11.6	59.8	7.0	51.9	6.1
Tot./Avg.	1,623.0	31.8	1,922.6	37.7	1,721.6	33.8	1,765.0	34.6

The tons of waste received for Thursday, January 17, 2008 was unusually low and may have been attributed to inclement weather conditions. Friday, January 18<sup>th</sup> was also low in comparison to the other three months for which data was collected and may also be attributed to inclement weather and/or road conditions. On average, the waste tonnage received for Monday through Friday ranged from a low on Thursday of 282.9 tons per day or 33.3 tons per hour to a high on Friday of 364.8 tons per day or 42.9 tons per hour. On Saturday, the tons of waste received averaged the lowest of any day of the week with an average of 70.6 tons or 8.3 tons per hour. For the four (4) one-week periods during 2008, the County received an average of 1,758.0 tons per week.

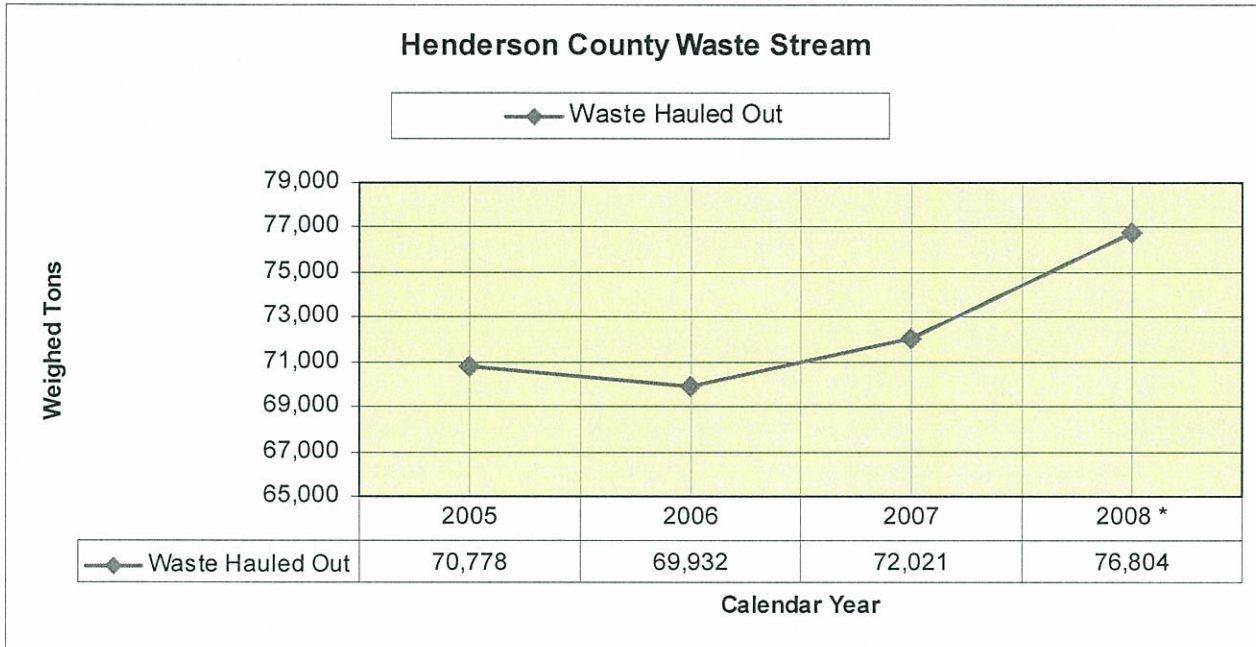
### **Waste Shipments:**

With the existing municipal solid waste landfill disposal facility closed and no longer accepting waste for disposal, all waste material that is received at the transfer facility for processing must be shipped out of the County for disposal. For calendar year 2005, the County shipped out approximately 70,778 tons of waste for disposal. This translates to an average of 5,898 tons per month being shipped out of the County from the transfer station. During 2006, the County shipped approximately 69,932 tons out of the County through the transfer station for an average of 5,828 tons per month during the calendar year. In 2007, the transfer station processed approximately 72,021 tons of waste material for shipment and ultimate disposal outside the County. During 2007, an average of 6,002 tons per month was shipped out of the County for disposal. For the first ten (10) months of 2008, approximately 62,307 tons of material was processed through the transfer station for disposal outside the County. This translates to an average monthly tonnage of 6,231 tons shipped for disposal.

For the first six (6) months of 2008 the County shipped 33,312 tons of waste off-site for a monthly average of 5,552 tons per month. It should be noted the County closed the C&D landfill on June 30, 2008. The demolition waste must now be processed through the transfer station and shipped off-site for disposal. For the period July 2008 through October 2008, the County shipped 28,995 tons of waste off-site for disposal for a July – October monthly average of 7,249 tons or an approximate 30.6% increase over the first six (6) months average. The tonnage to be



hauled off-site during November 2008 and December 2008 is projected to be approximately 14,497 tons. Therefore the County is projected to ship approximately 76,804 tons of waste off-site for disposal for calendar year 2008 (Jan.-June: 33,312 tons + July-Oct.: 28,995 tons + Proj. Nov.-Dec.: 14,497 tons = 76,804 tons). The following graph and associated tonnage depicts the general pattern of waste shipped out of the County for disposal for calendar years 2005 through 2008:



\* Projected tonnage for calendar year 2008

The following table summarizes the data discussed in the aforementioned paragraphs relative to the waste stream for the various general categories of waste accepted and processed through the Stoney Mountain Road Landfill Facility.

Table 3: Existing Waste Stream for Calendar Year 2005 through 2008

Calendar Year	Yard Trash/ Wood Waste (tons)	Municipal Waste (tons)	Demolition Waste (tons)	Miscellaneous Waste (tons)	Waste Shipped Out (tons)
2005	1,743	70,065	10,375	144	70,778
2006	1,365	65,890	15,172	154	69,932
2007	980	67,126	25,286	151	72,021
2008*	856	60,761	23,340	120	76,804

\* Projected tonnage for calendar year 2008



It should be noted the closing of the C&D Landfill for the disposal of demolition waste accounted for an approximate 30% to 35% increase in the amount of waste that must now be shipped off-site for disposal. The County should anticipate continuing to ship an average of approximately 7,249 tons per month (364 transfer loads) off-site for disposal. The following graph depicts the pattern of waste material being hauled off-site for disposal for the period January through October of 2008. Note the additional waste that must now be processed through the transfer station as a result of the closing of the C&D Landfill for the acceptance of Demolition type debris.



Data was collected by the County for four (4) one-week periods during the months of January, April, July and October of 2008 for the number of loads and tonnage of waste shipped from the facility for disposal off-site. On average the facility shipped 1,462.3 tons of waste per week at an average of 75 loads per week. However, it should be noted that for the months of January and April, the County shipped an average of 64 loads and an average tonnage of 1,238.6 tons. With the closing of the C&D landfill at the end of June for the acceptance of waste, the average tonnage shipped out per week for July and October increased to 1,636.1 tons and the average number of loads increased to an average of 86 loads per week. The following Table provides a summary of the weekly tonnage and shipments of waste from the facility during the four (4) one-week periods:

Table 4: Waste Tonnage Shipped and Number of Trips – Four (4) One-Week Periods

Day Of Week	January (14-19)		April (14-19)		July (14-19)		October (13-18)	
	Tons Shipped	No. of Loads	Tons Shipped	No. of Loads	Tons Shipped	No. of Loads	Tons Shipped	No. of Loads
Mon	177.2	10	176.3	10	266.5	13	285.7	15
Tues	328.5	16	212.7	11	345.5	17	216.3	13
Wed	281.7	14	228.6	11	278.5	15	342.2	16
Thurs	79.9	4	209.1	10	347.7	18	420.9	21
Fri	302.2	15	212.8	12	328.4	17	285.0	13
Sat	138.49	7	129.8	7	69.6	4	185.7	9
Avg. Daily Counts: Mon - Fri	233.9	12	207.9	11	313.3	16	310.0	16

**Summary:**

In summary, Henderson County has seen a steady decrease in the amount of Yard Trash/Wood Waste that has been weighed in for processing on-site. However, it should be noted that relatively small loads (1 to several bags) generally brought in by individual home owners are not weighed and will increase the actual tonnage that must be processed. As for the Municipal waste stream, this has varied over the 2005 through 2008 time frame from a high of 70,065 tons in 2005 to a projected low of approximately 60,761 tons in 2008. For demolition waste, the County experienced a relatively steady growth from 2005 through 2007 with a slight decline projected for 2008. The various miscellaneous other wastes received for disposal and/or processing remained relatively steady for the period 2005 through 2007 with 2008 projected to show a slight decline. The tonnage of waste processed through the transfer station for ultimate disposal off-site showed a slight decline from 2005 to 2006 with a relatively steady increase from 2006 through the projected waste tonnage for 2008. The addition of the Demolition waste in the waste stream for the latter half of 2008 is directly attributable to the increase over the tonnage hauled off-site during 2007. Without the addition of the Demolition waste the County should have recognized a decrease of approximately 8,300 tons in the tonnage of waste disposed off-site. Most facilities have seen a decrease in the tonnage/volume of waste processed during 2008. This decrease may be directly attributable to the overall downturn in the economy.

The County provided data for the various categories of waste received for the period covering calendar year 2005 through 2008 is included in Appendix B.