Disposal Capacity, Imports and Public Benefit

As the amount of solid waste increases with population over the next twenty years, there will be a corresponding need for more disposal capacity. Proper planning efforts now will result in the sufficient number and type of facilities for the state in the ensuing years. The goal of solid waste capacity planning is to predict the *instate* waste generation over the next twenty years, while realistically projecting the other factors which impact capacity, such as imports, the extent of source reduction and recycling, and the controversial issues of siting new facilities.

There are multiple steps in evaluating capacity.

1. Disposal trends and current waste generation
2. Future waste generation
3. Facility inventory
4. Projected shortfall
5. Assessment of external factors impacting capacity

Statutory Requirements for Determining Solid Waste Capacity

The department's responsibilities for capacity planning can be found in RSA 149-M:11 (V), which requires the state to "Project, as necessary, the amount of solid waste which will be generated within the borders of New Hampshire for a 20-year planning period. In making these projections the department shall assume that all unlined landfill capacity within the state is no longer available to receive solid waste." Additionally, the department must identify the types of solid waste generated, the permitted facilities available to handle these wastes, and the extent to which the facilities can address disposal needs of the state.

Terminology
The following terms are used frequently when discussing solid waste disposal.

Disposal capacity: Disposal Capacity refers to the amount of solid waste that a permitted landfill or incinerator can accept over a specified period of time. Capacity is typically assessed by the Department on both a short-term basis, which is yearly, and on a long-term basis, which by statute in New Hampshire, is a twenty year period.

Projected Shortfall: A projected shortfall occurs when there is more waste generated than there is the capacity to dispose of that waste.

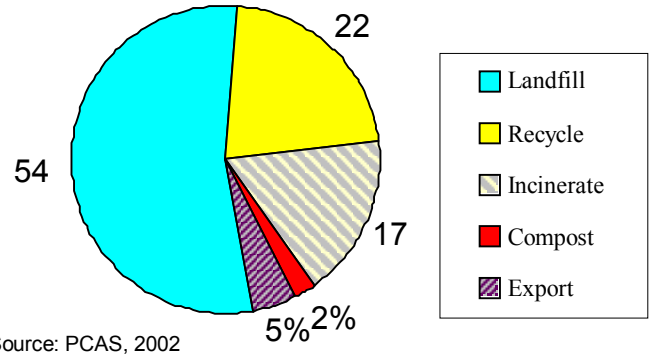
Permitted vs. Unpermitted: From the perspective of agency planning efforts, it is the permitted capacity that is the most significant. A *permit* is an authorization from the department to construct and operate a facility. For the purposes of evaluating capacity, the DES only includes facilities that are operating and have a permit for the capacity generating activity.

Weight vs. Volume: There are two ways to measure disposal at landfills: by weight (tonnage) or by volume. The tonnage of the accepted waste is less important than the volume, or "airspace", that the waste will fit in any given cell. This essentially means that the more that waste can be compacted, the more waste can be fit in a landfill cell. Typically, in permit conditions for

landfills, there is reference to an approved volume that can be accepted over the lifespan of the facility. The volume is measured in cubic yards and then converted to tonnage for simplification of calculation and for comprehension by the general public. The amount of tonnage is only an estimate though, since it depends entirely on the degree of compaction, the settling of the waste stream, and the resultant "in-place" density.

Public vs. Private Facilities New Hampshire has a mix of public and private facilities. The majority of collection/transfer stations are public facilities in that the host municipality holds the permit. For disposal facilities, there are three public landfills and five municipal waste incinerators in the state for which the host community holds the permit. There are also three private landfills and two private incinerators in NH. The long-term capacity of public facilities is easier to project since such facilities service a predefined area for an established period of time. Private entities, on the other hand, often extend over a wider service area with fill rates dictated more by economic forces and contracts rather than adherence to a strict service area.

Figure 1
In-State Management of Wastes
2001 Annual Reporting



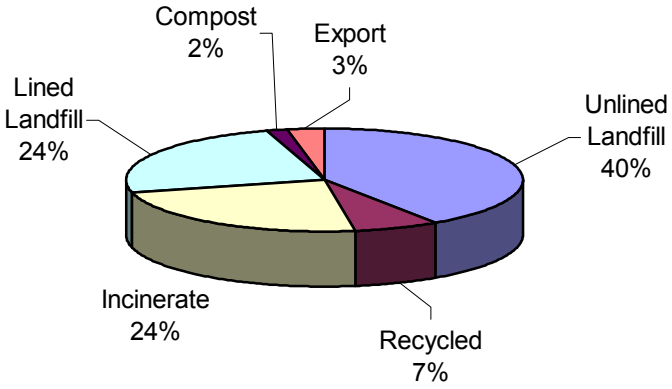
Source: PCAS, 2002

Disposal Trends

As seen in Figure 1, 54% of wastes in 2001 were disposed of in state landfills. Of that amount, 42% went to lined facilities and 13% went to unlined facilities. Another 17% of the wastes were processed at waste-to-energy incinerators, 5% were exported to other states for disposal, and 24% were recycled or composted (including source reduction and reuse).

Figure 2 shows the disposition of waste in 1991. In comparing the two figures, there are significant changes that are primarily, due to the fact that unlined landfills accepting a majority of the waste stream in 1991 were subsequently closed as the result of stricter federal regulation and communities taking advantage of the State's 20% landfill grant closure program. Not only are these facilities designed with state of the art technology, but weight scales allow for greater accuracy in predicting fill rates and estimating site life.

Figure 2
In State Management of Wastes -1991

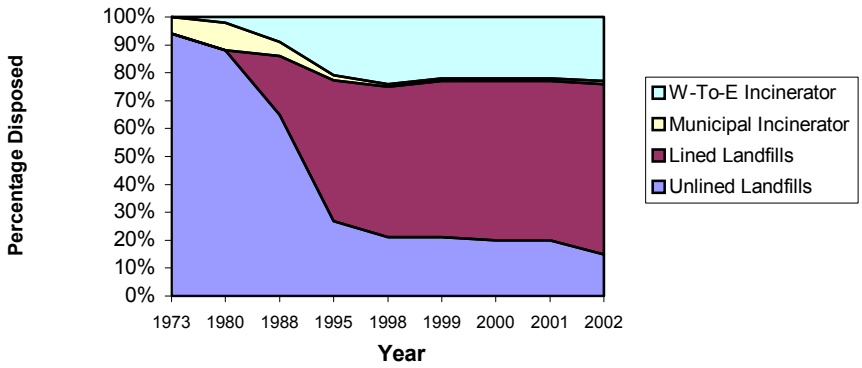


Source-1991 Annual Reporting-PCAS

The trend towards lined landfills is clearly demonstrated in Figure 3 as well, which also shows the choice of facility type over the last several years as a percentage. DES continues to negotiate with the municipalities operating the

remaining unlined landfills to reach a mutually agreeable closure date as an alternative to a unilateral enforcement action. In addition, DES is working with other municipalities that have *inactive* landfills to ensure they are properly closed and capped. DES projects that most of the remaining unlined MSW landfills will be closed by the year 2004 with a slight increase in the number of municipal transfer stations/ recycling centers.

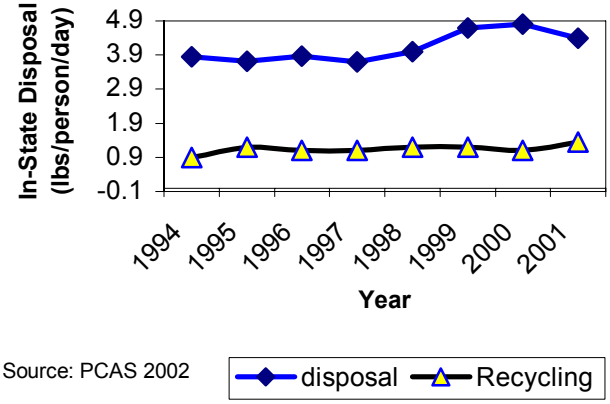
Figure 3
Disposal Trends in New Hampshire Solid Waste Facilities



Additionally, in the last twenty years, waste-to-energy incineration increased significantly and then leveled off in the mid nineties, while municipal incinerator activity continues to decrease, mostly as the smaller municipal units find it difficult to comply with air emission standards and the parts for repair become increasingly difficult to obtain.

For MSW, another trend has been a general increase in the rate of waste generation, exceeding that which is expected from population growth alone. Many hold the belief that disposal rates have decreased because recycling tonnages have increased, however, as indicated in figure 4, the rates as reported by disposal facilities remained relatively level in the early parts of the last decade, but have increased between 1997 and 2001. The NH data is consistent with data published by the Grassroots Recycling Network in their publication "Wasting and Recycling in the United States 2000" which defined this trend for the nation as a whole. The 2001 reports were the first in four years to demonstrate a decrease in disposal.

Figure 4
NH Disposal Amounts vs. Recycling Per Capita (1990-2001)



Source: PCAS 2002

Why have generation rates increased? It is generally thought that increases are a reflection of the economic times of the previous decade and supports the theory that rates of disposal increase as people purchase more products. We buy more and throw away what we have replaced. The items replaced (and disposed of) are often not items we traditionally recycle, such as bulky furniture and electronics. Also, as a population, we also tend to buy products with flashy, bulky packaging as demonstrated by the amount of packaging associated with computer software, toys, and grocery products. As such,

there are few programs available to recycle these materials. But the reverse is also true in times of economic slowdown or in times of turbulent socio-political factors. Following this logic, the volume of waste may continue to decrease for the foreseeable future.

Another common belief is that waste reduction/diversion will extend the life of our landfills and incinerators by preserving valuable capacity. Capacity savings have often been used as a motivator for recycling activity, but unless the State or another public entity controls the disposal facility in some fashion, such as with publicly owned landfills, then any capacity savings brought about by source reduction, reuse or recycling will, in all likelihood, be replaced with disposal from other sources, such as wastes from other states. Apart from the total permitted capacity allotted over the lifespan of the facility, there are no true "preserved volumes" in privately owned facilities.

Projection of Waste Generation (Refer to Appendix 1, table 1)

The waste generation prediction during the next twenty years is based on extending current per capita amounts of waste generation to the growing population. It also involves adjustments to account for both conservative (30%) and aggressive (40%) levels of diversion (recycling). Finally, there is the addition of "other" waste streams that will need to be disposed of in a solid waste facility. There are many assumptions and estimates involved in projecting waste generation amounts, and the data provided should be used as a planning guide and not taken to be a definitive statement of precise volumes in the years to come. As previously mentioned, waste generation rates can be affected by economic conditions, and other societal, political factors.

Because population affects solid waste generation and management, it is important to examine and analyze population growth in the state. As the population increases, one can expect an increase in the total amount of waste being discarded. The national census was completed in the year 2000, and the Office of State Planning has produced updated projections for New Hampshire. For table 1 in the Appendix, a linear growth trend was calculated in the same manner for the years proceeding 2015 till 2024.

Employment also has an affect on solid waste generation and management. The higher the employment rate, the more commercial/industrial solid waste is generated. From 1996 to 2006, there is an expected total gain of 89,000 jobs in New Hampshire, most of which will be in the service industry that includes hotels, amusement businesses, auto repairs, and hospitals. The Department estimates growth in certain sectors by using the modeling developed by the California Solid Waste Integrated Waste Management Board, which depicts the waste generation activities of industry sectors.

Waste generation rates are determined by applying a per capita rate to rising population numbers, and then adjusting the numbers for achievements in diversion/recycling. Per-capita numbers are an acceptable way to overcome issues of population growth and estimate the activity that occurs per each individual, while transcending issues of population increases. For example, a dramatic increase in gross tons of waste disposal can be attributed to population growth, excessive waste, or both. A per capita figure factors out the population expansion and considers the individual activity. However, per capita numbers are simply estimates. The

numbers have limited ability to predict sustainable source reduction activities and can fluctuate year to year. For example, in the year 2001, New Hampshire saw a decrease in its per-capita number (and total waste generation rate), in part because annual reporting was modified to extract imported wastes once included as state generated wastes.

In the past, DES has assumed that the state will reach a 40% goal of diversion and that there will be a corresponding decrease in our waste generation, however, that has not proven to be the case. It may be that the goal is difficult to achieve under our current, "passive" system of recycling, which does not mandate or provide disincentives, such as disposal bans, to encourage the activity. Undoubtedly, recycling tonnages for traditional materials have also decreased for some programs due to the lightweighting of products, such as the conversion of heavier glass products to lighter plastics and the continuing weight reduction of aluminum (a 50% decrease in weight since 1972). If facility siting is based on inflated estimates of recycling, then it is possible a shortfall could occur sooner then predicted. For the purposes of planning capacity for the next twenty years, DES uses a per capita rate of 6.0 lbs/person/day for commercial and residential combined, as determined from the most recent solid waste data. The estimates for diversion consider the conservative estimate of 30% by the year 2007, as well as the preferable benchmark of 40% by the year 2007. Table 1 illustrates the changes in waste generation from a short term (2005) to a long term (2020 years).

Table 1	Projection of Waste Generation-2003 –2020 (approximate)				
	2003	2005	2010	2015	2020
Population (provided by OSP)	1,280,950	1,311,059	1,385,619	1,455,752	1,520,535
With 30% diversion by 2007 (25% in 2003)	1,052,000	1,042,200	1,062,000	1,115,800	1,165,500
With 40% diversion by 2007 (25% in 2003) *(Source-DES Annual Reporting)*	1,052,000	969,000	910,400	956,400	999,000

Finally, it is difficult to estimate solid waste generation over a period of twenty years, but even more so to estimate the amount of waste *not* generated because of source reduction and reuse efforts. As a practical matter, NH has used figures provided by EPA that allow an estimate for recycling and reuse of 10% of the recycling tonnage (5% for each activity). These numbers are included in the waste diversion rates that the department uses to estimate future waste generation.

Analysis of Available Capacity (Refer to Appendix II, Table 2)

The methodology for determining need for additional capacity has been continuously refined to reflect the improved quality of the data and to promote the principles of integrated solid waste management. The actual amounts are based upon existing data from annual facility reports, permit conditions, and data from other states, which is extrapolated over the next twenty years. Projections are based on the anticipated annual capacity available after January 1 of every year for facilities permitted to accept waste as of that date. The projections also reflect the closing and expansion of permitted facilities (provided the various phases have been included in the approved permit).

Facility Inventory

To calculate available disposal capacity over a period of time, there first needs to be an inventory of permitted disposal facilities on a yearly basis. Once a yearly assessment is created, then the data can be summarized to obtain total capacity. Facilities in the inventory include municipal combustors, waste to energy incinerators, and lined landfills. By statute, the department is not to include unlined landfills in the calculations, despite the fact that some will still be operating during the period of assessment. Appendix II contains the actual facility inventory for the next twenty years. Brief descriptions of the major facilities described on the inventory are detailed below.

The Turnkey Landfill

Waste Management's Inc.'s Turnkey facility in Rochester, New Hampshire has been vital to New Hampshire's overall solid waste disposal capacity since 1984. The landfill accepted over 1,000,000 tons of MSW per year in 1998, or nearly 60% of the state's total MSW disposed of in New Hampshire. Due to the Northeast region's limited solid waste disposal capacity, Turnkey is an important waste disposal asset and receives a significant amount of waste from neighboring states. However, in 1998, concerns over the potential for the landfill to fill more quickly than expected because of imports resulted in discussions to address a potential for a capacity shortfall prior to 2010. In 1999, DES worked with Waste Management, Inc. to modify the facility's' permit to further define the amount of waste entering Turnkey on an annual basis. One of the results was the inclusion of an annual utilization schedule of Turnkey's airspace within the permit, which was recently modified to extend to 2012. Due to settlement of the waste and achievements in compaction, actual tonnages are greater than the estimated tonnage included in the permit. WMI has indicated that it will apply for further expansion of the Turnkey facility at some point in 2003.

The Mt. Carberry Landfill

The Mt. Carberry Landfill in Success, New Hampshire services the far northern portion of the state. Constructed for the disposal of industrial paper sludge, the facility can accept 32,500 tons a year of MSW for stabilization of the sludge. The facility also accepts certain processed construction and demolition debris. Recently, the Androscoggin Valley Regional Refuse Disposal District (AVRRDD) purchased the landfill from Fraser Paper. The District has received approval from the Department regarding a permit modification for future expansion, which will enable the facility to accept up to 140,000 tons of MSW per year (excluding mill wastes).

North Country Environmental Services Landfill

Formerly the Consumat/Sanco Landfill, this commercial facility is owned by Casella Waste Systems of Vermont. The landfill began in 1976 under the ownership of Harold Brown, was transferred to Consumat/Sanco in 1992, and became North County Environmental Services in 1994, it has been operated by Casella Waste Systems since that time. The landfill is currently in

stage III of development and is expected to accept 120,000 tons per year until mid-2005. Casella Waste Systems, Inc. has received permit approval from the Department for an expansion of the landfill.

Municipally Owned Landfills
New Hampshire currently has three municipally owned landfills.

1) Lebanon Landfill: Located in Lebanon, this facility serves the western portion of the state and accepts waste from Cheshire and Grafton Counties in addition to solid waste imported from Vermont. The landfill can accept waste from other service areas provided there is a written agreement. The landfill recently expanded its service area and accepts approximately 48,000 tons per year, which is expected to keep the facility open at least until 2020.

2) Conway Landfill: Servicing the three communities of Conway, Eaton and Albany, the landfill has been in existence since 1996 and accepts 10,000 tons of MSW per year. It is expected to provide secure capacity for the member towns until at least 2024.

3) Nashua Landfill: A new municipal lined landfill is currently in the last phases of construction and will replace an unlined landfill in 2003. Once fully operational, it is expected that the facility will accept 80,000 tons of MSW per year from the City of Nashua for an expected site life of at least 20 years (2024).

The Wheelabrator Waste to Energy Facility, Penacook

Located in Concord, NH, the Wheelabrator Waste-to-Energy Plant is owned by Waste Management, Inc. and has been in operation since 1989. The facility accepts waste primarily from the Concord Waste Cooperative that includes 27 contracted towns, however, many other communities utilize the facility on a contractual or spot market basis. The plant accepts approximately 575 tons per day of MSW for a total of approximately 210,000 tons per year. The facility generates ash (approximately 65,000 tons/year), which is disposed of in the Franklin Ash Landfill in Franklin. Since the Franklin landfill is expected to cease activities in 2009, ash volumes are deducted from the total permitted capacity of the Wheelabrator facility after that point (net capacity). The facility does not have a predetermined life and is expected to be operational for the next twenty years.

The Wheelabrator Waste-to-Energy Facility, Claremont

Located in Claremont, NH, the Wheelabrator Waste-to-Energy plant is owned by Waste Management, Inc. and has been in operation since 1987. It receives approximately 250 tons per day for a total of 100,000 tons per year and it is expected to continue accepting wastes until at least 2007. The facility primarily services the federally created district of the NH/VT Solid Waste Project. Relatively equal amounts of waste are delivered from both NH and VT. The ash generated from the facility was disposed of in the Newport Ash Landfill until 2001, when the district closed the landfill. The ash is now exported for disposal in a Massachusetts landfill. The net capacity of the facility (minus the ash) is approximately 80,000 tons per year. Pending

electric deregulation and contract issues in 2007 may impact the long term operations of facility, which at this point, does not have a projected end date.

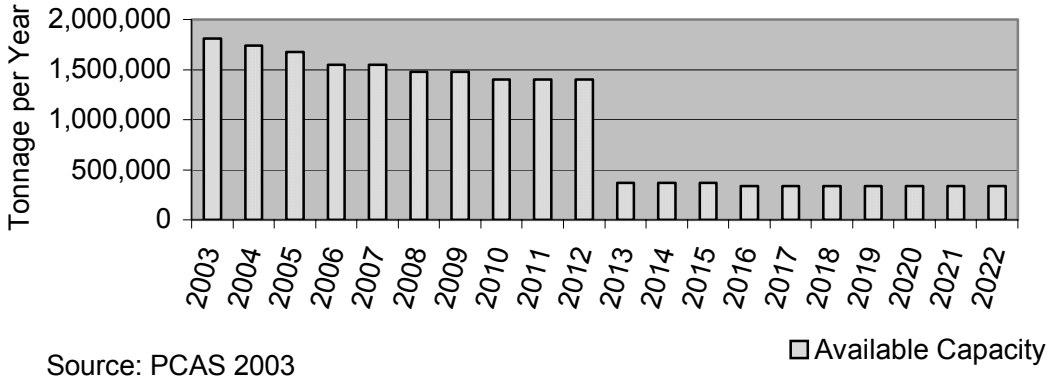
Municipal Combustors

Several small incinerators have ceased operating since the last solid waste plan, and it is anticipated that the majority of remaining municipal incinerators will be closed within the next few years, mostly due to the difficulty of complying with air emission requirements or the obstacles faced in repairing aging units. Currently, there are five remaining municipal combustors operating in the State. All, except for one, are undergoing permit modifications to reflect regulatory changes. Once modifications are complete, the collective yearly permitted amount will be approximately 26,000 tons, and it is conceivable that the units will operate for a considerable period of time. For the purposes of capacity planning, it is assumed that ash will be managed in current landfill facilities within the state.

Projected Lifespan of the Facilities

In Figure 5, the projected lifespan and yearly-accepted volumes of NH facilities is detailed. The capacity provided by unlined landfills is not factored into the equation (according to the statutory requirement), although the minimal amounts afforded by municipal incineration are included. The commercial landfills provided by three companies within the state will dispose of the majority of wastes and will continue to do so until approximately 2012, unless additional permitted capacity is approved.

Figure 5
Solid Waste Capacity Projections for New Hampshire (2003-2022)



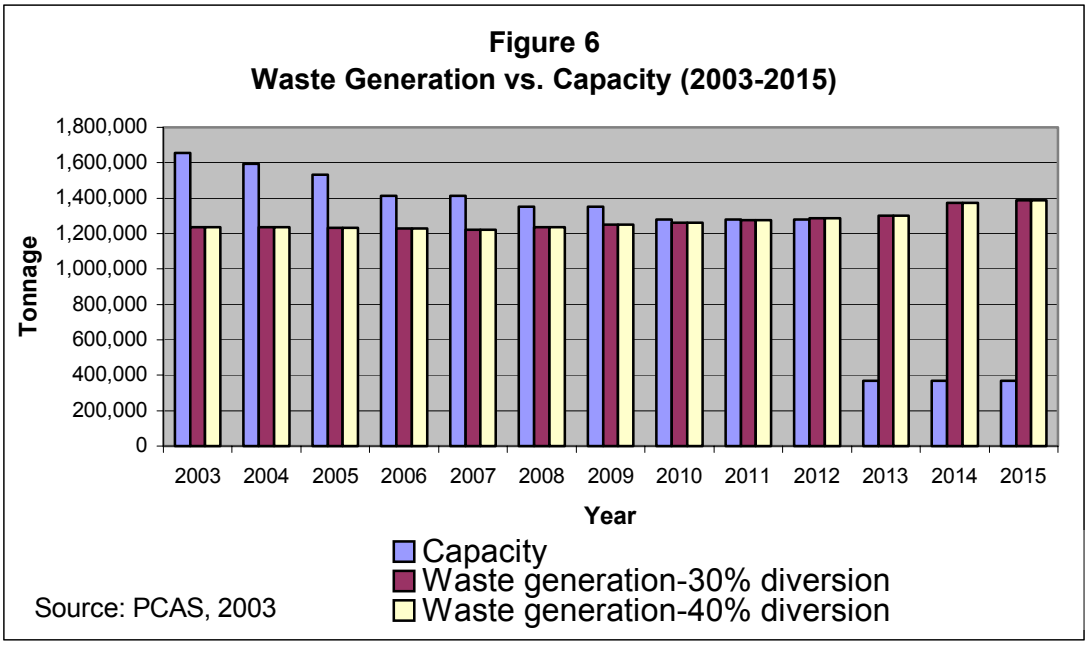
Source: PCAS 2003

The Bottom Line - Waste Generation vs. Capacity

Once the estimates for waste generation have been produced and a facility inventory has been created, the next task is to compare the two sets of data to determine when the next shortfall will occur. The point at which the projected waste generation exceeds the amount of available capacity is the time at which a shortfall is deemed to exist.

The data assessment for the next twenty years (2003-2022) detailed in Appendix III demonstrates that, if one assumes a 30% diversion rate and the Turnkey compaction rates remain

consistent with previous results, sufficient disposal capacity exists until at least 2012. Achieving a 40% diversion rate extends the life of existing available capacity to 2013. In all cases, it is assumed that additional waste streams (e.g. sludge, asbestos) are included, no waste is exported, and there are no operating unlined landfills. A significant change in any of these factors could have a profound impact on the availability of short term (yearly) capacity, encourage exporting, or result in cost increases as existing disposal facilities cover losses resulting from lost imports. These factors are discussed in more detail on the following pages. Figure 6 demonstrates the projections through 2015.



Other Factors that Impact Capacity Projections

High Volume Waste Streams that Impact Waste Generation Rates

Ash disposal is a concern given the closure in 2000 of the Newport Ash landfill, a monofill that provided the Wheelabrator Claremont Incinerator with 14,000 tons of capacity per year. Currently, the majority of ash generated by the Claremont facility is exported to a landfill in Shrewsbury, Massachusetts. Small amounts of ash from municipal incinerators go to the Turnkey Landfill in Rochester or the North Country Environmental Services Landfill in Bethlehem. The majority of the state's capacity is now at the Franklin Ash landfill which provides 70,000 tons per year of dedicated capacity for ash disposal to the Wheelabrator Waste-to-Energy Incinerator in Penacook, and which is expected to operate until 2009. Additionally, the Concord Solid Waste Cooperative, whose member towns deliver waste to the Penacook incinerator, has purchased land in Canterbury, NH for future ash disposal needs. If constructed, the facility will address the potential shortfall that will occur in 2010 (Table 3) for existing ash monofills.

Table 3 Ash Capacity in Existing Monofills

	2000	2005	2010	2015	2020
Ash Generatio	80,000	80,000	65,000	65,000	Unknown

Capacity	84,000	70,000	0	0	Unknown
Net Available	4,000	(10,000)	(65,000)	(65,000)	Unknown

Construction and demolition debris (C&D) can have a significant impact on capacity. Regardless of the fact that it is often addressed outside of the realm of regular municipal solid wastes, it is disposed of in the same locations. The volume of C&D debris increased in 2001, and is predicted to steadily increase as more Americans focus upon home building and renovations. The presence of C&D processing facilities is critical to removing this bulky, highly reusable waste stream from permitted facilities. In the past two years, the problem of construction and demolition debris has been greatly diminished by the presence of two facilities devoted to the processing of the waste, which accommodate over 100,000 tons/year of state generated C&D alone. There are still large volumes to be addressed, particularly in light of the limited access to these facilities and the possible flow of imported waste due to an upcoming landfill ban in Massachusetts on unprocessed C&D. Additionally, pressure treated wood, which will be banned from the consumer marketplace in 2003 as a result of health and environmental concerns, will likely cause an increase in material at disposal and processing facilities.

Select wastes often fall in the "other" category of solid wastes. It includes various types of ash that must be landfilled, as well as asbestos, soils, special wastes (infectious), and waste-water treatment plant sludges. The estimate for select wastes, based upon a sampling of the largest landfills in the state, is .31 pounds/person/day, however, that does not include daily cover for landfills. Estimates for select waste vary from year to year.

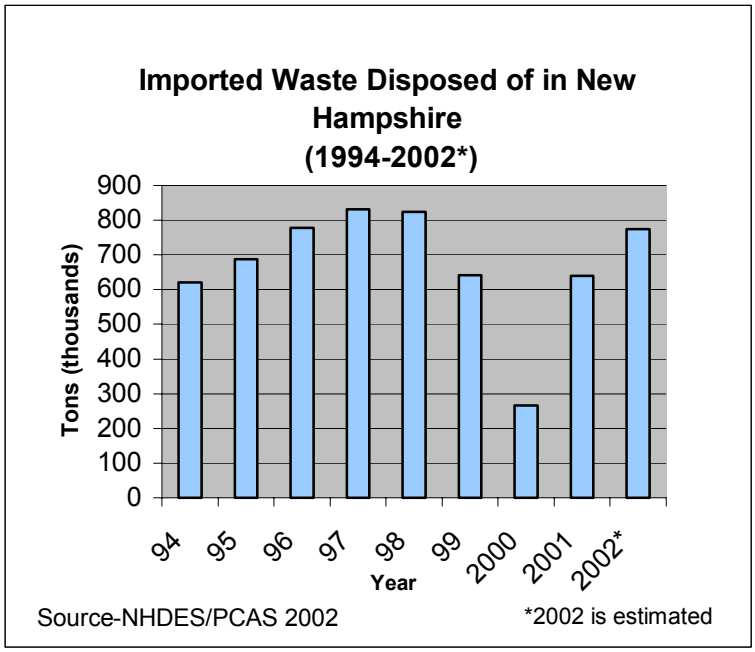
Alternative Daily Cover (ADC) is the cover material that is placed over the solid waste in landfills after each day's disposal activity. ADC needs to be considered in capacity planning because the cover will occupy airspace within the permitted footprint of the facility. ADC is typically made of soil or fines from the processing of construction and demolition debris, however, the amount of cover is highly variable as performance based methods (such as tarps) are coming more common. Such methods reduce the amount of cover needed for a facility. The facility inventory listing of acceptable tonnage is in addition to any daily cover estimates.

The Department believes it is acceptable to consider the capacity impact of ADC on existing capacity once the major uses of the material (e.g., the Turnkey Landfill) ceases to need the cover. The belief is that a good portion of the material will simply be volume reduced and subsequently disposed in a landfill due to the high costs of transportation to distant endpoints.

Finally, there are numerous other waste streams that may impact future capacity. One such item is electronics. *Electronics* are expected to be an additional drain on landfill space over the next twenty years. Computer monitors and televisions alone are anticipated to add over 9 million tons of waste and 23 million cubic yards in capacity volume, just from homeowners. This problem will be exacerbated by the rapid switchover to liquid plasma and flat panel display monitors, as well as a mandate in 2007 that requires manufacturers to switch television sets to the digital format. Many, including the Department, believe that the solution is for manufacturers to consider end-of-life issues in their designs and to create a national fee system that allows consumers to prepay for recycling activities. This issue is being discussed nationally through the National Electronic Product Stewardship Initiative (NEPSI), which is a coalition of public agencies and electronics manufacturers.

New Hampshire's Relationship to Neighboring States

Planning for our own future is in part dependent upon our view of imports and the implementation of policies that may actually provide incentives for the import/export activity to decrease or increase. For many years, New Hampshire has been a "net importer" in that we have imported more than we export. As New Hampshire built new or expanded major privately owned facilities in the 1980s and 1990s, New Hampshire's imports grew. This has resulted in the acceptance of over 3 million tons of solid waste since 1990, most of which has been deposited in the Turnkey Landfill in Rochester.



In 1998, there was a move on the part of legislators, environmental advocates, and the public to investigate methods of impacting the flow of imports without violating the sweeping effects of the interstate commerce clause (see insert on page 14). Many in the state came to the conclusion that capacity could easily be eliminated by out-of-state wastes, and that the state as a whole could be placed in a disadvantageous position as it struggles to permit new facilities and must consider the facilities, or lack thereof, in other states. Waste imports have been significantly reduced since 1998, although out-of-state waste continues to be disposed of in New Hampshire.

chester. Until 1999, imports exceeded New Hampshire waste disposed of at the landfill. While Turnkey was operating within its permit, DES became concerned in 1997 (based upon the 1996 Annual Facility Report) that out-of-state waste receipts were growing at too high a rate. DES met with Waste Management, Inc. and crafted a mutually agreed upon permit modification which placed yearly restrictions on the total amount of waste that the facility could accept. Under the terms of the modification, excess receipts in one year must be offset by a reduction of a similar amount in the following year. In 1999 the modification had a noticeable effect on the ratio of in-state to out-of-state waste, and there was a comparable amount of in-state and out-of-state waste landfilled at the facility for the first time since 1990. However, since that point, the acceptance of imports has ratcheted back to the pre-1999 levels (Figure 7). Additionally, WMI received a permit modification that allows for increased slope at the Turnkey facility, extending capacity at the site until 2012.

Other states within the region are also addressing importation concerns. In 2000, the Northeast Waste Management Officials Organization (NEWMOA) assembled data on import/exports from the seven northeastern states. The premise of the project was to provide a common basis of

comparison of waste flows. More specifically, it identified the net importers (those whose import levels exceed their exports) as opposed to those who are net exporters (exports exceed imports). In Table 4, seven states are compared for their per capita disposal rates. In column 5, the per capita rate is what would be expected should the state manage its own waste in-state. The sixth column shows the actual amount of per capita disposal. If the fifth column is greater than the sixth, then the state is a net exporter. If the third column is less, then the state is a net importer. Other years (columns 2 and 3) are included for comparison.

Table 4
(Source of data: "Interstate flow of Municipal Solid Waste Among the NEWMOA States", updated by NEWMOA, 12, 2002).

1	2	3	4	5	6
State	**2001 Estimated Population (Source: U.S. Census Bureau)**	**1999 Per Capita MSW Disposed (tons/year)**	**2000 Per Capita MSW Disposed (tons/year)**	**2001 Per Capita MSW Disposed (tons/year)**	**2001 Per Capita MSW Disposed of at Facilities the State (tons/year)**
CT	3,425,074	0.73	0.75	0.76	0.69
ME	1,286,670	0.69	0.64	0.65	0.77
MA	6,379,304	0.81	0.82	0.84	0.67
NH	1,259,181	0.87	0.92	0.85	1.05
NJ	8,484,431	0.66	0.68	0.61	0.52
NY	19,011,378	0.98	0.91	0.84	0.54
RI	1,058,920	1.01	1.01	1.03	1.02
VT	613,090	0.62	0.64	0.68	0.48

As indicated in the table above, few states do not have to consider the "cross border" solid waste activity when planning for their own waste generation activities. Given that many disposal facilities operate on a regional basis, policy shifts in one state, such as Massachusetts' "No net import, no net export" directive can have a profound impact on the shift of waste neighboring states. In part, this concept has often been exacerbated by the fact that states have not generally enjoyed the levels of communication on par with the commercial entities that view solid waste facilities as regional service centers. This is improving, however, as we see communication between the states increasing through joint projects, and information technology. The result is that states, like Massachusetts, are rethinking moratoriums on landfills in part due to the regional impact, as indicated in their most recent Solid Waste Plan.

The table demonstrates that, although some states vary considerably year to year, as a region, the change is very little (-2.5% change from 2000-2001). In a small region with an average of ten

years of capacity, such as New England, the movement of wastes is more of a matter of "moving pieces" between state borders.

New Hampshire's status as an importer is also impacted by a number of forces affecting waste disposal in nearby states. Many factors contribute to New Hampshire's (or any state's) rate of imports.

- The costs of solid waste disposal can serve to either attract or discourage the movement of wastes across state lines. Typically, the gate rate prices (non-contractual prices) for New Hampshire have been higher than those charged in other states of the region. Table 5 shows a snapshot of 2002 gate rate prices for disposal of solid waste in landfills and waste-to-energy incinerators.

Table 5
Comparative Gate Rate Fees by State (8/2002)*

State	***Per ton disposal cost for Incinerators***	***Per ton disposal costs for landfills***
Massachusetts	$68.03	$68.68
New Hampshire	$81.51	$68.52
New York	$56.83	$51.70
Connecticut	$61.35	$51.40
Rhode Island	N/a	$57.75
Maine	$71.95	$54.30
Vermont	$42.83 + $6 surcharge = 48.83	$54.61 + $6 surcharge = $60.61

Source-Solid Waste Digest, 8/2002

- New Hampshire does not have a surcharge on tipping fees at disposal facilities, such as Vermont (and twenty-five other states). Should NH ever employ such a fee, it is unlikely that imports would drop considerably unless the fee was at a prohibitive level. Vermont' assesses a "franchise fee" of $6.00/ton on solid wastes transported across state lines, and also imposes other solid waste management requirements on communities seeking to use Vermont facilities. These factors, combined with often-expensive district surcharge, can be a disincentive for New Hampshire communities seeking to export solid waste to Vermont.

- Industry tends to address capacity from a more regional standpoint, i.e., the concept of state borders is not as important to a commercial facility as is the need to address a region. Given the Turnkey Landfill's accessibility to three states, it naturally tends to accept more imports, often on a long-term contractual basis. Certainly, the industry trend toward consolidation contributes to the regional approach, particularly when companies have joint ownership of hauling and disposal facilities.

- Courts have ruled that states cannot restrict imports of solid waste because of the interstate Commerce Clause (see insert). The bottom line is that states cannot enforce a provision on another state that is not equitably shared by the host state. The issue of flow control, which establishes "pre-destination" for wastes, has been rejected by the courts and is currently not an option.

- New Hampshire does not own or operate state disposal facilities, such as Rhode Island, and cannot directly prohibit imports from entering commercial disposal facilities. The state is prohibited from directly discouraging interstate waste flow unless it owns (or leases) the facility directly. However, there are three communities with publicly owned lined landfills that can control their capacity usage.

- In 1997, Massachusetts proclaimed a moratorium on the approval of new in-state disposal facilities. Given that Massachusetts has a projected capacity of just a few years, their shortfall will need to be addressed, and considering that New Hampshire has accepted up to 2/3 of their exports in the past, there has been concern that Massachusetts has not provided for their capacity needs. Massachusetts' most recent solid waste plan (2000) includes a partial lifting of the ban to alleviate the capacity shortfalls predicted for that state. However, applications can take several years to process such that the result of new permits will not have immediate impact. From a long-term view, this will assist NH in meeting its 10-year projection by freeing up the Turnkey facility.

The Interstate Commerce Clause

In 1994, the Supreme Court stated that solid waste was essentially a "commodity" and thus protected under the provisions of free trade that exists for other types of products. In real terms, this means that a state cannot create regulations that discriminate against imported wastes. Whatever limitations a state imposes on imports must also be applied to in-state wastes as well, unless the state owns the facility.

- Waste specific disposal bans, such as the Massachusetts ban on cathode ray tubes (April, 2000) or the impending ban on non-processed construction and demolition debris, can effectively limit disposal, but can also encourage exporting if that ban is not echoed in neighboring states. Such bans are placed directly on the disposal facility and apply across the board to all generators, regardless of origin. Unless there are sustainable, cost effective programs in place to address the need for diversion, more often than not, the material will travel to other state facilities.

DES will continue to monitor all imports that are delivered to NH facilities, as the more *unanticipated* wastes that come into the state, the less capacity there is for NH residents and the more likely it is that there will be overfilling prior to the planned life for the facility. Given that the Interstate Commerce provisions protect the import activities, it is just as critical to identify and predict import levels over a long term as it is to predict our own waste generation.

There will be pressure for communities to lock in favorable rates in new contracts, but the economic incentives offered by disposal costs in other states, such as Pennsylvania, are just as attractive. New Hampshire does have a spot market population that services generators who "shop around" for the best rate without the benefit of contractual agreements. Spot marketers must be anticipated in the overall capacity picture, although they are just as likely to ship wastes out of state.

The Public Benefit Process

All new solid waste facilities are required by statute to provide a public benefit to the state. In so doing, they must demonstrate that they are not negatively impacting the state's ability to promote the solid waste hierarchy. In 1989, amendments to the Solid Waste Management statute (NH RSA Chapter 149-M) included a requirement that applicants for solid waste facility permits demonstrate that the size, location and type of the proposed facility provide capacity to accommodate solid waste generated within the borders of New Hampshire. A demonstration of this requirement must show that the proposed facility would provide a substantial public benefit based on certain criteria. An amendment in 1991 further identified the purpose of the public benefit section and modified the criteria and consideration to be utilized to determine if public benefit would be provided. The criteria for a public benefit determination includes:

1) The short and long-term need for a facility of the proposed type, size and location to provide capacity for the estimated amount of solid waste generated in New Hampshire that will be received by the facility and that will not be accommodated by existing permitted facilities over a 20 year period (RSA 149-M:11 (V));

2) The ability of the proposed facility to participate in the hierarchy of integrated solid waste management and to assist in achieving the goals for 40% weight diversion in solid waste by the year 2000; and

3) The ability of the proposed facility to assist in achieving the goals of the State Solid Waste Management Plan and local or regional (district) solid waste management plans.

These criteria for determining substantial public benefit must be interpreted specific to the type of solid waste facility. For instance, a facility which serves as a final destination for waste disposal or reuse (e.g., a landfill, paper mill or other re-manufacturing plant) can show a "capacity need" based on the projected amounts of solid waste generated. However, facilities, which only serve to transfer wastes from one location to another, cannot satisfy any real capacity need based solely on the statutory criteria. Instead, the public benefit requirements must be indirectly applied to these types of facilities by demonstrating that they would have "no negative impact" on the capacity of the final destination facilities. The broad language in statute also allows varied approaches for demonstrating public benefit, such as regional interpretations.

The Department has developed documents and spreadsheets to assist permit applicants in demonstrating a need for capacity in the state. Using this information will allow the department to evaluate capacity demonstrations in a consistent, approved format. The information may be found at www.des.state.nh.us/pcas or can be obtained by contacting the Planning and Community Assistance Section at 271-6847.