SPO Maine State Planning Office
Executive Department

PAUL R. LEPAGE
Governor

DARRYL BROWN
Director

September 15, 2011

Ms. Cynthia W. Darling
Maine Department of Environmental Protection
Division of Solid Waste Management
Bureau of Remediation and Waste Management
106 Hogan Road
Bangor, Maine 04401

Subject: Application for Public Benefit Determination for the Proposed Expansion of the Juniper Ridge Landfill in Old Town

Dear Ms. Darling:

Please accept this letter as authorization for the Maine Department of Environmental Protection to accept NEWSME Landfill Operations LLC as the agent for the Maine State Planning Office in regards to the Application for Public Benefit Determination being submitted. The contact at NEWSME is Don Meagher, whose phone number is 207-862-4200 ext. 230 and mailing address is Pine Tree & Juniper Ridge Landfills, Casella Waste Systems, 358 Emerson Mill Road, Hampden, Maine 04444.

Also, please accept this letter as authorization for the engineering firm of Sevee & Maher Engineers, Inc. to serve as a consultant to NEWSME Landfill Operations LLC in the review of this application. The contact there is Mike Booth, whose phone number is 207-829-5016 and mailing address is P.O. Box 85A, Cumberland Center, Maine 04021.

Should you have questions on this letter, please do not hesitate to contact me.

Sincerely,

George M. MacDonald, Manager
Waste Management & Recycling Program

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Solid Waste Program
17 State House Station
Augusta, Maine 04333-0017
Telephone: (207) 287-2651

FOR DEP USE ONLY			
ATS ID:	Seq:	DEP ID:	Received by DEP:
Bureau: S	Type of Application: W5	Activity: N	Fees Paid:
Project Analyst:			Check No.:

APPLICATION FOR A DETERMINATION OF PUBLIC BENEFIT FOR A NEW OR EXPANDED SOLID WASTE DISPOSAL FACILITY

This form shall be used to submit an application in conformance with the requirements of 38 M.R.S.A., Sections 1310-N-sub-3-A and 1310-AA, and Chapter 400, section 5 of the "Solid Waste Management Regulations". Please see Chapter 400, subsections 5.A and 5.B to determine if your facility is exempt from this determination or may employ a rebuttable presumption of public benefit.

PLEASE TYPE OR PRINT

Company Name: State of Maine, acting through the State Planning Office, Juniper Ridge Landfill **Telephone:** 207-624-6245
Contact Person: George MacDonald **Telephone**: 207-624-6245

Address Information

Applicant Name: State of Maine, Maine State Planning Office
Telephone: 207-624-6245
Mailing Address: 38 State House Station Augusta, Maine 04333
Street Address: 19 Union Street

Agent/Consultant Name: NEWSME Landfill Operations LLC/ Sevee & Maher Engineers, Inc.
Telephone: 207-394-4372 / 207-829-5016
Mailing Address: (NEWSME) 2828 Bennoch Road Old Town, Maine 04468
Mailing Address: (Sevee & Maher) PO Box 85A 4 Blanchard Road Cumberland, Maine 04021

Address: Billing
Name: NEWSME Landfill Operations, LLC
Mailing Address: 110 Main St., Suite 1308 Saco, Maine 04072
Street Address: **same as above**

Site/Activity Information

Project Description: Landfill Expansion - New
Location: 2828 Bennoch Rd. Old Town, Maine 04468 **Directions:** I-95 north to Exit 199. Take left onto Route 16 and first left onto the Juniper Ridge Landfill Access Road.

PLEASE SEE PAGE 2 - SIGNATURE REQUIRED

SIGNATURE OF APPLICANT

By signing this application, the applicant certifies that he or she has within 5 days prior to filing: (1) published the public notice form once in a newspaper circulated in the area where the project is proposed to be located, (2) sent a copy of the public notice form by certified mail to the owners of property abutting the land upon which the project is located, (3) sent a copy of the public notice form by certified mail to the chief municipal officer and chair of the municipal planning board of the municipality in which the project is located, (4) filed a complete copy of this application, including all supporting documents and amendments, with the appropriate town clerk, city clerk or, county commissioner of the municipality in which the project is located, and (5) reviewed the appropriate state laws that relate to the proposed project.

I certify that based upon my knowledge, experience, and the best available information, I believe the facility is not inconsistent with local, regional, or state waste collection, storage, transportation, processing, or disposal. I also certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I, the property owner or lessee, authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibilityof fine and imprisonment.

DATE: 9/15/2011

NAME: _____
(Applicant)

TITLE: Waste Management and Recycling Program Manager
(If other than applicant, attach letter of agent authorization.)

Include the following information to support this application for a public benefit determination.

1. Describe the proposed facility. Include at a minimum: the location and acreage of the site; acreage within the solid waste boundary if the proposed facility is a landfill; the disposal capacity in cubic yards and the projected facility life; a list of the waste types, major sources, and estimated annual volumes to be handled at the facility; the geographic area to be served by the proposed facility; and a map showing the facility location.

   See Attachment 1, Sections 1.2, 1.5, and 1.7, and Attachment 5.

2. Identify the immediate, short-term, or long-term capacity need(s) which this facility will address, and whether the capacity of the proposed facility will exceed that required to meet the identified need(s).

   See Attachment 2, Section 2.2.

3. Describe how the proposed facility is consistent with the state waste management and recycling plan. (This is not required for proposals to expand commercial facilities that accept only special waste for landfilling.)

   See Attachment 3, Sections 3.0 to 3.4.

4. Describe whether the facility is intended to: compete with presently available solid waste facilities, replace these facilities, or provide disposal services not presently available.

   See Attachment 4, Section 4.0.

5. Provide documentation of your title, right or interest in the property proposed for facility development.

   See Attachment 6, Section 6.0.

6. Provide a map showing all abutters and a list of names and mailing addresses for all abutters.

   See Attachment 7.0.

Please note that the Department may not accept an application for a new or expanded solid waste disposal facility for processing until the commissioner determines that the proposed facility or expansion provides a substantial public benefit.

THIS FORM IS FOR USE IN NOTIFYING ABUTTING PROPERTY OWNERS, THE MUNICIPALITY, AND PUBLISHING THE NOTICE IN THE NEWSPAPER.

PUBLIC NOTICE OF INTENT TO FILE

Please take notice that The State of Maine, acting through the State Planning Office, 38 State House Station,

Augusta, Maine 04333 (207) 624-6245
(name, address and telephone number of applicant)

is intending to file an application with the Maine Department of Environmental Protection (DEP) on or about October 16, 2009 pursuant to the provisions of 38 M.R.S.A., Sections 1310-N-sub-3-A and 1310-AA.
(estimated submittal date)

The application is for a Public Benefit Determination for an approximate 108 acre expansion of the solid

waste boundary of the Juniper Ridge Landfill located in Old Town, Maine
(summary of project)

at 2828 Bennoch Road, Old Town, Maine 04468
(project location)

According to Maine statute , 38 M.R.S.§ 1310-AA(2), and Department regulations, DEP Chapter 400.5, the public must be notified of the intent to file the application and the Commissioner shall accept written public comment on the application for 20 days after the date of this public notice. The Commissioner may hold a public meeting in the vicinity of the proposed facility to take public comments, and will consider those comments in making the determination. .

The application and supporting documentation are available for review at the Department's Augusta office, during normal working hours. A copy of the application and supporting documentation may also be seen at the municipal offices in Old Town and Alton, Maine.
(town)

Send all correspondence to: Maine Department of Environmental Protection, Solid Waste Program, 17 State House Station, Augusta, Maine 04333-0017 (207-287-2651 or 1-800-452-1942).

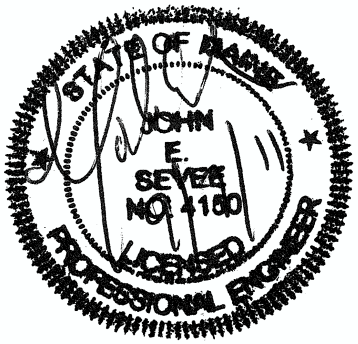
MAINE STATE PLANNING OFFICE

JUNIPER RIDGE LANDFILL EXPANSION

APPLICATION FOR A DETERMINATION OF PUBLIC BENEFIT

Submitted by:
NEWSME LANDFILL OPERATIONS, LLC,
as Operator
and
MAINE STATE PLANNING OFFICE,
as Owner

September 2011



SME
Sevee & Maher Engineers, Inc.

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

4 Blanchard Road, PO Box 85A, Cumberland Center, ME 04021 • Phone 207.829.5016 • Fax 207.829.5692 • www.smemaine.com

JUNIPER RIDGE EXPANSION
APPLICATION FOR A
DETERMINATION OF PUBLIC BENEFIT

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EXECUTIVE SUMMARY

NEWSME Landfill Operations, LLC (NEWSME), as operator of the Juniper Ridge Landfill in Old Town, Maine, under an Operating Services Agreement (OSA) dated February 5, 2004 with the State Planning Office (SPO), has prepared this Application for a Determination of Public Benefit (pursuant to 38 M.R.S.A. Sections 1310-N (3-A) and 1310-AA, and Chapter 400, Section 5 of the "Solid Waste Management Rules") on behalf of the SPO, the Landfill's owner. This application is submitted as a precursor to a Maine Department of Environmental Protection (MEDEP) solid waste license application to expand the existing Juniper Ridge Landfill (JRL, or Landfill) onto an adjacent approximately 143-acre area immediately north of the currently permitted Landfill on State-owned land. The Landfill Expansion Project will involve approximately 108 acres of additional landfill footprint and 35 acres of infrastructure (i.e., roads, sedimentation ponds, and the like). The Landfill Expansion Project will be developed in three separate phases and will also overlap approximately 28 acres of the existing landfill footprint.

The Expansion Project has already been identified by the State as critical to the success of Maine's solid waste management efforts. For example, when JRL's licenses were transferred by Georgia-Pacific to SPO in 2003, MEDEP issued a comprehensive License Transfer Order discussing, in relevant part, SPO's anticipated application for development of a horizontal expansion of the Landfill. The horizontal expansion would allow SPO and NEWSME to continue to provide for the disposal of certain pulp and paper mill and ash waste streams for a period of at least 30 years, in addition to providing disposal capacity for other Maine-generated non-hazardous waste streams, including construction and demolition debris (CDD) and CDD processing residues, residues (ash, front-end process, and oversized bulky wastes) generated by Maine's municipal solid waste (MSW) incinerators, MSW bypass from these incinerators in limited volumes, water/wastewater treatment plant sludge, and small amounts of miscellaneous, non-hazardous waste. In addition, the Expansion provides Maine municipalities a long-term, cost-effective, environmentally secure disposal option to consider in evaluating their long term disposal needs.

MEDEP expressly found in the 2003 Transfer Order that "the landfill will be operated to help address immediate, short-term and long-term capacity needs of the region and the State." In addition, the Expansion Project is expressly contemplated in the OSA pursuant to which SPO contracted with NEWSME to operate and develop the JRL. The OSA obligates NEWSME to "use its best and most diligent efforts" to apply for an Expansion Permit authorizing a horizontal capacity increase, and required NEWSME to prepare an application for the Expansion Project by February 2009. An expansion application was prepared by NEWSME, and reviewed by the SPO on January 30, 2009. That application was not submitted, however, when the statutory requirement for State-owned landfills to obtain a public benefit determination was enacted in the 124th Legislature.

More recently, the Solid Waste Generation and Disposal Capacity Report (Capacity Report) (Appendix A) prepared by SPO for the Joint Standing Committee on Natural Resources of the 125th Legislature (January 2011), which included State-wide data from calendar year 2009, found that Maine currently has 17.5 million cubic yards of permitted, available disposal capacity versus an estimated 24.4 million cubic yards of landfill capacity that will be required over the next 20 years to meet the disposal needs of the State of Maine. The report also found that, although Maine has sufficient disposal capacity through 2020, it currently cannot meet projected statewide needs for a 20-year outlook. This report goes on to state that "Maine needs to plan for developing new disposal capacity beyond 2020 in order to meet the waste management needs of the State's municipalities and businesses" and

> The largest single source of Maine's disposal capacity is the State-owned Juniper Ridge Landfill, which has capacity through 2017-2018. To avoid a shortfall in landfill capacity, the State needs to begin the application process for additional, State-owned, landfill capacity at that landfill in 2011. This timeframe takes into account the current economic slowdown, and the anticipated duration of the complete development process, from the initial preparation of the application for public determination, the permitting process, through construction of new capacity licensed and prepared to receive waste.[1]

[1] See Capacity Report, Projected Landfill Disposal Needs and Capacity, page 31.

SPO has concluded, based on its analyses of solid waste generation and disposal capacity in the 2011 Capacity Report and in the 2009 State's Waste Management and Recycling Plan (Plan) (Appendix B), that a JRL expansion is needed to meet the projected immediate, short- or long-term solid waste disposal needs of the State.[2] In addition, JRL is currently an integral part of Maine's solid waste management system on a local, regional, and state level and the proposed Expansion will continue to provide a needed resource to address the future waste disposal demands on all three levels.

Because the Expansion Project will meet the immediate, short-term, or long-term capacity needs of the State, it is consistent with the most recent (January 2009) Maine Waste Management and Recycling Plan, and is not inconsistent with local, regional or state waste collection, storage, transportation, processing or disposal, the Commissioner should conclude that the Expansion Project will provide a substantial public benefit in accordance with the 38 M.R.S.A. § 1310-AA(3).

[2] In accordance with statute, the Plan must identify "the need in the State for current and future solid waste disposal capacity by type of solid waste, including identification of need over the next 5-year, 10-year and 20-year periods." 38 M.R.S. §2123-A(4).

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 1
PROJECT DESCRIPTION

1.0 SITE HISTORY AND BACKGROUND

1.1 History of Site Permits and Filings

The SPO is proposing to expand the Juniper Ridge Landfill (Landfill) located in Old Town through its selected operator, NEWSME Landfill Operations, LLC (NEWSME), whose sole member, New England Waste Services of ME, Inc., is a wholly owned subsidiary of Casella Waste Systems, Inc. (CWS). The Landfill, which was previously known and licensed as the "West Old Town Landfill," was originally owned and operated by Fort James (previously known as James River Paper Company), a subsidiary of Georgia-Pacific Corporation as a secure, non-hazardous, generator-owned, solid waste disposal facility.

SPO, the agency tasked with forecasting and assessing Maine's solid waste management needs, has viewed the expansion of the Landfill (Expansion Project), as a central component of the State's solid waste programs since 2003. In June 2003, the Maine Legislature passed Resolve 2003, c. 93, authorizing SPO to purchase the Landfill from Fort James, and to enter into agreements necessary to operate the Landfill. Following a competitive bid process, SPO selected CWS to be the long-term operator, subject to negotiation of mutually acceptable contract terms. On October 21, 2003, MEDEP issued License Transfer Order Nos. S-020700-WR-M-T and L-019015-TH-C-T, approving the comprehensive transfer to SPO of all licenses held by Fort James for the Landfill, conditioned on final conveyance of the Landfill and execution of an operating services agreement, among other matters. The Transfer Order states, in relevant part:

> Public Benefit: The landfill was licensed as a generator-owned landfill for the disposal of pulp and paper mill wastes from the Old Town Mill. It has also accepted boiler ash from the Lincoln Pulp and Paper Mill in Lincoln, Maine . . . and burn pile ash from the city of Old Town transfer station. These wastes are proposed to continue to be disposed after

> the State assumes ownership of the landfill for a period of at least 30 years. In addition, SPO will apply to the Department for approval to accept construction and demolition debris; municipal solid waste; municipal solid waste incinerator ash, oversized bulky waste, front-end process residue, and other solid wastes currently approved for disposal at Casella's Pine Tree Landfill in Hampden, Maine; it will also apply to increase the capacity of the landfill . . . [T]he capacity of the landfill is proposed to be increased in 2 parts: a vertical increase in the height of the currently licensed landfill footprint and a horizontal expansion of the landfill expected to be submitted to the Department within the next 5 years. *The Department finds that the landfill will be operated to help address immediate, short-term* ***and*** *long-term capacity needs of the region and the State*. (License Transfer Order, at 5-6 (emphasis supplied)).

On February 5, 2004, SPO and CWS executed the Operating Services Agreement (OSA) that establishes CWS's obligations and rights to operate the Landfill. Consistent with SPO's plans as described in the Transfer Order, the OSA provides, in Paragraph 4.2(b), "[CWS] shall use its best and most diligent efforts to, at its own cost and expense, apply for, seek and maintain in full force and effect . . . (ii) the Expansion Permit[3]. . ." (OSA, at 28.) In July 2006, SPO and CWS executed a First Amendment to the OSA that provides, "[CWS] shall prepare on or before the fifth anniversary of the Effective Data [sic] an application for the Expansion Permit . . ." (First Amendment to OSA, ¶ 1.)

In April 2004, the SPO obtained Amendment Order #S-020700-SD-N-A from MEDEP authorizing a vertical increase in the Landfill's disposal capacity to approximately 10 million cubic yards. The April 2004 permit also allowed for the disposal of non-hazardous waste streams generated in Maine, including construction and demolition debris and processing residues, residues (ash, front-end process, and oversized bulky wastes) generated by municipal solid waste (MSW) incinerators located in Maine; a limited amount of MSW bypass from the

[3] "Expansion Permit" is defined in the OSA as "any and all federal, state, local and other governmental permits, permit modifications, operation plan modifications, other modifications, statutory amendments and legislation, licenses, approvals, authorization or amendments necessary for the expansion of the Landfill beyond the licensed footprint as of the date hereof." OSA ¶ 1.16.

incinerators, water/wastewater treatment plant sludge; and smaller amounts of miscellaneous, non-hazardous waste.

In 2006, SPO filed a Preliminary Information Report (PIR) for the Expansion of the Landfill. The purpose of the PIR was to present sufficient information on the Expansion to enable the MEDEP to make a determination of the environmental feasibility of the Expansion, and to outline the scope of study for development of a full solid waste licensing application. After review of the PIR, on April 13, 2007, MEDEP found the site to be environmentally feasible for landfill development and issued a Determination of Environmental Feasibility for an approximate 22.4 million cubic yard Expansion based upon preliminary design of the facility. The final design capacity of the proposed Expansion, subsequent to the PIR submittal, is 21.9 million cubic yards (the expansion footprint was adjusted to reduce wetland impacts).

On January 30, 2009, SPO confirmed that NEWSME had complied with CWS's obligation under the OSA by preparing an application for the Expansion Permit. On November 16, 2009, the SPO submitted an Application for Public Benefit Determination (PBD) for the proposed expansion of the JRL to the MEDEP. The Application was withdrawn in January 2010 by SPO without prejudice to resubmit at a later date, an action joined by NEWSME as the operator of JRL.[4]

Subsequent to SPO's withdrawal of the November 2009 PBD application, there have been several meetings between the SPO, the MEDEP, and CWS where the contents of PBD application have been discussed. Due to the various factors which influence waste generation rates in the State, the MEDEP has indicated to SPO that any PBD would likely be conditioned to allow for periodic review of the Project's Public Benefit. The discussion focused on aligning these reviews with the three phases of the Expansion.

[4] SPO withdrew the application because the MEDEP had issued a draft denial, which presented a number of concerns as to the project's ability to meet the criteria for the approval. In a letter dated April 2, 2010, NEWSME provided the MEDEP with comments and responses on the draft denial addressing these concerns.

This application for a Determination of Public Benefit is the next step in the approval process for the Expansion Project.[5] The standards for this public benefit determination are set forth in 38 M.R.S.A. § 1310-AA and in Section 400.5 of the Solid Waste Management Rules. These provisions state that in order to find that this proposed facility provides a substantial pubic benefit, the Commissioner must find that:

A. The facility meets the immediate, short-term, or long-term capacity needs of the State;

B. The facility is consistent with the state waste management and recycling plan; and

C. The facility is not inconsistent with local, regional, or state waste collection, storage, transportation, processing, or disposal.[6]

These standards are addressed in the remaining sections and exhibits of this application.

1.2 Description of Current Waste Types and Disposal Rates at JRL

This section provides an overview of the types of material accepted at JRL and the yearly quantity of materials accepted at the landfill since 2004.

1.2.1 Description of Current Waste Types. Under the provisions of the OSA and the DEP landfill permit, JRL only accepts waste generated in Maine. These wastes include a variety of non-hazardous waste streams in addition to the waste materials generated in Maine that have historically been landfilled at the site (pulp and paper mill sludge and ash from Fort James and Lincoln Pulp and Paper mills). SPO proposes to continue disposal of these same waste streams, which are currently permitted to be disposed at the JRL and have been previously

[5] P.L. 2009, c. 348, which took effect on September 12, 2009, amended 38 M.R.S.A. § 1310-AA to provide that a Determination of Public Benefit is now required prior to an application to expand a solid waste disposal facility owned by the State. Before enactment of this law, State-owned facilities were exempt from this requirement.

[6] 38 M.R.S.A. § 1310-AA(3)(D) establishes a fourth criterion, applicable only to publicly owned landfills that accept waste generated outside Maine. This standard does not apply to the JRL, which accepts only Maine generated solid waste.

determined by the MEDEP to be non-hazardous. Current landfill operations at JRL have demonstrated that the wastes received for disposal are compatible with the proposed Expansion system designs, and with each other, as demonstrated by the existing JRL containment system design and the commingling of these waste streams at the existing JRL. In 2010, 620,856 tons of wastes were disposed in JRL. These materials consist of the following broad categories:

- WWTP and miscellaneous bio-solids / sludge materials (8.1 percent);
- Contaminated soils (1 percent);
- Front-End Process Residuals (FEPR) (17.7 percent);
- Municipal solid waste incinerator ash (14.8 percent);
- Biomass and fossil fuel combustion ash (3.7 percent);
- Municipal solid waste incinerator bypass and MSW bypass used in soft layer (5.6 percent);
- Construction demolition debris (CDD) (20.5 percent);
- Oversized Bulky Waste (OBW) (13.7 percent); and
- Miscellaneous waste[7] (2.6 percent).

In addition, 87,449 tons (12.3%) of CDD fines were used as alternate daily cover.[8] Under state statute (38 MRSA §1310-N B(2)), use of CDD fines as alternative daily cover is recycling.

Table 1-1 lists the specific wastes types which the facility has blanket permits to accept at the JRL.

[7] Such wastes include spoiled food, oil debris, sand, waste grit, non-friable asbestos, etc.

[8] The JRL Annual Report reported 708,198 tons were accepted at the landfill in 2010 which included both wastes disposed and alternative daily cover or beneficial use materials. Alternative daily cover materials constitute an approved reuse of waste for purposes of daily cover; otherwise virgin soil (such as sand or gravel) must be used. DEP Regs. Ch. 401.4.C.8. The percentages shown represent percentage of the total tonnage placed in or on the landfill in 2010.

TABLE 1-1

SUMMARY OF WASTES ACCEPTED UNDER BLANKET PERMITS AT JUNIPER RIDGE LANDFILL

Ash Related Wastes	**Other Wastes**
Wood & Biomass Boiler Ashes	Sandblast Grit
Fossil Fuel Boiler Ashes	Asbestos (non-friable)
Clean Wood Open Burn Ashes	Leather Scrap Waste
Municipal Solid Waste Incinerator Ash	Dried Paint Residue & Related Debris
Biomedical/Veterinary Incinerator Ash	Construction & Demolition Debris
Burned RR ties & associated ash	Catch Basin Grit
Contaminated Soil and Debris	Air & Water Filtration Media
Gasoline Contaminated Soil & Debris (UST)	Approved Land Utilization Wastes
Gasoline Contaminated Soil & Debris Surface Spill	Front-End Process Residue (FEPR)
Waste Oil Contaminated (Oily Debris)	Oversized Bulky Wastes
Urban Fill-Type Soils & Debris	Pigeon Waste
Dredged Spoils From Waterways	Non-Hazardous Chemical Products
Virgin Petroleum Product Contaminated Debris	Municipal Solid Waste (by-bass & Soft Layer)
Sludges and Related Wastes	
Filter Press Cake & Collagen Scrapings	
Pulp & Paper Mill Sludge	
Public Waste Treatment Plant Sludge	
Commercial & Industrial Laundry Sludge	
Water Treatment Plant Sludge	

In addition to the above blanket waste streams, JRL accepts wastes individually permitted by the MEDEP. A separate listing that identifies the generator, type of waste, and JRL permit number may be found in Appendix C of this Application.

1.2.2 Yearly Quantity of Materials Accepted at the Landfill. The annual amount of material accepted at the JRL facility since its use as a State-owned landfill has ranged from approximately 54,000 tons/year (2004) to 708,000 tons/year (2010). The specific quantity of material accepted at the landfill between 2004 and 2010 is presented in Table 1-2.

TABLE 1-2

QUANTITY OF MATERIALS ACCEPTED AT JRL

Calendar Year	Tons of Material
2004	53,905[9]
2005	252,314[10]
2006	525,758
2007	472,600
2008	617,782
2009	528,622
2010	708,198

At the time of the State's acquisition of the Landfill in 2004, an estimated 10 million cubic yard expansion (i.e., a total 20 million cubic yards waste disposal site) was thought to be the airspace necessary, at projected annual fill rates in 2004, to provide sufficient capacity for the OSA term and meet the waste disposal obligation to the mills in Old Town and Lincoln for 30 years. The projected annual fill rate identified in 2004, which was used to define the estimated capacity of the Expansion at that time, however, did not account for: the closure of the Pine Tree Landfill in Hampden; changes in MEDEP Regulations such as the new construction demolition debris fuel quality standards in Chapter 418 and their effect on increasing CDD processing residue generation; the fluctuation in waste generation due to economic conditions; or the impacts of non-recurring waste streams (e.g., contaminated soil remediation from Maine's Cutler Navel Base and Brunswick Naval Air Station in 2009) accepted at JRL.

The amount and type of material accepted at JRL in 2010 reflects the first full year of closure of the Pine Tree Landfill, as Maine generated waste streams that were previously disposed at PTL through 2009 are now sent to other disposal sites - primarily JRL.[11]

[9] The OSA was signed in February 2004; first year of operation by NEWSME was a continuation of the same waste streams that had been accepted by G-P.

[10] 2005 operations were limited to a "sludge-mixing" trial.

[11] In the Capacity Report, prepared by SPO, it's estimated conservatively that JRL would receive 700,000 tons of waste in 2010, including approximately 150,000 tons per year of Maine wastes that were previously disposed at PTL. The data from 2010 is consistent with the projection made by SPO, although about 87,500 tons of this material accepted at the JRL facility in 2010 was recycled (not disposed) material used as alternate daily cover, or beneficially used as gas transmission layer, pipe bedding, and internal road base material instead of virgin materials such as sand and gravel.

Pursuant to the OSA between the State of Maine and NEWSME, the proposed 21.9 million cubic yard Expansion is intended to meet the long-term solid waste disposal needs of the State of Maine for approximately 20 years after construction of the first cell of the Expansion is completed. The Plan and Capacity Report include projections of the needed solid waste disposal capacity in the State based on a number of assumptions about future waste generation rates. This information is presented in Section 2 of this Application.

1.3 Factors that have Influenced Current JRL Waste Disposal Rates

A review of the types and quantities of waste currently disposed of, or utilized for daily cover at, JRL highlights several factors which influence the current landfill space utilization rates at JRL. These include regulations such as the construction & demolition debris fuel quality standards in Chapter 418 and its effect on increasing CDD processing residue generation; the lack of CDD processing facilities in the greater Bangor Area leading to more unprocessed CDD requiring disposal; the impact of stringent Chapter 419 standards for agronomic utilization of biosolids; fluctuation in waste generation due to economic conditions; the impact of non-recurring waste streams (e.g., contaminated soil remediation from Maine's Cutler Navel Base and Brunswick Naval Air Station); and the closure of the Pine Tree Landfill in Hampden and the redirection of certain Maine-generated wastes from that facility to JRL. Examples of how these factors have influenced JRL waste acceptance rate include the following:

- Chapter 418 (Beneficial Use) of Maine's Solid Waste Management Rules limits the fuel substitution of secondary materials (i.e., CDD) to less than 50 percent of the total fuel (by weight) combusted on an average annual basis. In 2006, revisions to Chapter 418 imposed strict fuel quality standards for CDD wood that is used for fuel. As a result, there has been an increase in the CDD residue generated by screening to obtain acceptable CDD wood fuel that meets the criteria of Chapter 418. CWS's recent experience is that between 5 and 20 percent of the CDD processed at its KTI facility in Lewiston Maine can be converted to fuel grade wood chips. The remaining residuals are either recycled,

principally as alternate daily landfill cover (CDD fines),[12] or need to be disposed of in a landfill. At JRL, this latter material is classified as oversized bulky waste.

- The closure of the Pine Tree Landfill resulted in the redirection to JRL of in-state waste that historically went to PTL. This redirection amounts to an additional 150,000 tons per year that was not anticipated in the 2004 projected annual fill rate.[13] These materials consist primarily of unprocessed CDD and municipal solid waste incinerator residuals. The majority, approximately 62 percent, of the generators who use JRL for direct disposal of unprocessed CDD are located within a 50 mile radius of the JRL site (see Figure 4-1 in Attachment 4). All generators are located in Maine.

- In 2009, JRL managed an unanticipated delivery of 46,700 tons of contaminated fill from the Cutler Air Base as part of mandatory clean-up effort at that facility. This compares with only 7,300 tons of contaminated fill received in 2010. The six fold change in the amount of this material disposed of between 2009 and 2010 demonstrates how variable the quantity of this material, which requires disposal in a secure landfill, can be.

- In recent years there has been an increase in the amount of wastewater treatment plant sludge received at JRL due to the strict standards of Chapter 419 for agronomic utilization of these materials and due to the capacity constraints at the Hawk Ridge and Soil Preparation facilities, the State's two principal residual composting facilities, that limit the ability of these facilities to compost sludge above their contracted agreements with current customers. CWS has observed that since 1999, when the Chapter 419 agronomic utilization regulations were

[12] Certain capacity at JRL (and at other Maine landfills) is consumed by daily cover, a requirement of the MEDEP Rules, and always will be, absent a rule change. From the perspective of natural resource conservation, consistency with the State's waste management hierarchy and economics, it is far better that solid waste material be recycled for daily cover, pursuant to Chapter 409 of the Rules, than use of a virgin natural resource for daily cover. NEWSME strives to use a solid waste material for daily cover.
[13] Capacity Report, page 22.

enacted, the amount of wastewater sludges generated in the State that are directly land applied as Class B sludge has decreased from about 39 percent in 1999 to about 12 percent in 2005. This results in a greater quantity of sludge requiring disposal options versus utilization.

1.4 Factors that May Influence Future JRL Waste Disposal Rates

In addition to the above, factors that may influence future waste disposal rates at JRL include:

- Waste-to-Energy/MSW Incinerators. Approximately 33 percent of the MSW generated in the State is incinerated.[14] Maine currently has four waste-to-energy (WTE) facilities (ecomaine, MERC, MMWAC, and PERC). These WTE facilities produce several streams of materials and residuals including bypass waste, front-end process residue (FEPR), and ash that require disposal in a secure landfill. These materials and residuals represent approximately forty percent of the waste processed by these facilities. Another issue to consider about these WTE facilities is that three of the four facilities are in their 20th year of operation. Moreover, Biddeford City officials recently negotiated a clause in their Waste Handling Agreement which requires an investigation into options to close or move operations at MERC, which serves 23 municipalities. Disposal and power purchase agreements at PERC, which serves nearly 200 municipalities, will expire in 2018. Any changes in the current waste flows to the incinerators could impact the disposal rate at JRL.[15]

- Other Maine Landfills. There is a statutory ban on new and expanded commercial landfills in Maine. As the existing commercial and municipal landfills reach capacity, or if any of the currently operating generator-owned landfills close

[14] Capacity Report page 5.

[15] MERC and PERC received about 115,000 and 225,000 tons, respectively, of in-state waste in 2009. Approximately 60 percent of the tonnage accepted at the facilities is combusted. If this tonnage were redirected to JRL, it would result in an increase in the disposal requirements at JRL equal to 60 percent of the Maine-generated tonnage currently being received by MERC and PERC (i.e., the percent of the waste which is currently combusted by the facilities).

prematurely, the need for additional State-wide disposal capacity would accelerate and likely influence the need for disposal capacity at JRL.[16]

- Non-recurring Waste Streams/Other Unpredictable Factors. Future non-recurring waste streams like the contaminated soil remediation from Maine's Cutler Naval Base in 2009.

- Natural or manmade disasters (i.e., hurricanes, tornados, floods, ice storms, or oil spills) These events would generate large amounts of CDD or special wastes that could significantly increase the disposal rate at JRL as a result of clean-up, and reconstruction activities in Maine.

- Future Economic Conditions. There is a well-documented correlation between economic activity and the generation of waste requiring disposal. Future economic conditions will influence the waste disposal rate at JRL.[17]

- Changes in Technology. Ongoing improvements to the efficiency of landfill operations such as compaction techniques, use of different types and systems of daily and intermediate cover, will affect the rate between the amount of waste received and the consumption of landfill airspace at JRL.

- Changes in Policy, Law, or Regulation. Under Maine's Solid Waste Management hierarchy, landfilling is the least desirable solid waste management option. All other solid waste management options should be considered and exercised to the greatest extent practicable prior to landfilling. Any changes to the hierarchy

[16] The 125th Legislature addressed two proposals to expand or develop other landfill sites. One bill, which is now law, authorizes the State to acquire the Dolby Landfill to facilitate a potential sale of the Katahdin paper mills. Dolby has limited remaining licensed capacity, limited potential unlicensed vertical capacity, and contamination issues that would need to be addressed before any additional capacity could be licensed. Dolby is not licensed to accept wastes other than from the Katahdin mills. Another bill, which has been carried over to the next legislative session, proposes to lift the statutory commercial landfill ban to allow for a potential horizontal expansion at only one landfill, the Crossroads landfill in Norridgewock.

[17] See Appendix D of the Capacity Report.

or to any of the laws and regulations governing disposal facility development, or the waste streams they govern, have the potential to impact future disposal at JRL.

- Compaction and Settling Rates in the Landfill. The overall in-place waste density and long-term settlement rates in the landfill will impact the remaining landfill capacity at any point in time.

1.5 Description of Maine Municipalities that Use the JRL

Table 1-3 lists the Maine municipalities and the counties that currently utilize JRL directly (e.g., transfer station or waste water treatment plant) or indirectly (e.g., uses a Maine municipal solid waste incinerator or a construction and demolition debris wood processor that disposes its residue at JRL). Municipalities in all Maine counties utilize JRL: therefore, JRL serves and will continue to serve the entire State of Maine by providing a low cost, environmentally, and economically competitive option for Maine solid waste disposal needs well into the future. As discussed in Section 4.0, many of the generators who directly disposed wastes at JRL are located within 50 miles of the Facility (based on 2010 waste receipt data).

TABLE 1-3

SOURCES OF WASTE STREAMS BEING ACCEPTED AT JRL

Androscoggin	Aroostook	Cumberland	Franklin	Hancock	Kennebec
Auburn	Amity	Brunswick	Eustis	Amherst	Albion
Durham	Bancroft	Chebeague Island	Farmington	Aurora	Augusta
Greene	Benedicta Twp	Cundys Habor		Bar Harbor	Belgrade
Lewiston	Crystal	Freeport		Blue Hill	Benton
Lisbon	Dyer Brook	Frye Island		Brooklin	Chelsea
Lisbon Falls	Easton	Gorham		Brooksville	China
Sabattus	Fort Fairfield	Harpswell		Bucksport	Clinton
	Frenchville	Long Island		Castine	Gardiner
	Hammond	Portland		Cranberry Isles	Hallowell
	Haynesville	Scarborough		Dedham	Kents Hill
	Hersey	Sebago		Deer Isle	Litchfield
	Houlton	South Portland		Eastbrook	Monmouth
	Island Falls	Westbrook		Ellsworth	Mount Vernon
	Macwahoc Plt			Franklin	Oakland
	Mars Hill			Frenchboro	Pittston
	Merrill			Great Pond	Randolph
	Moro Plt			Gouldsboro	Readfield
	New Limerick			Hancock	Sidney
	Oakfield			Lamoine	Vassalboro
	Reed Plt			Mariaville	Waterville
	Sherman			Mount Desert	West Gardiner
	Smyrna			Orland	Windsor
	Weston			Osborn	Winslow
				Otis	Winthrop
				Penobscot	
				Prospect Harbor	
				Sedgwick	
				Sorrento	
				Southwest Harbor	
				Stonington	
				Swans Island	
				Sullivan	
				Surry	
				Tremont	
				Trenton	
				Verona	
				Waltham	
				Winter Harbor	

TABLE 1-3 (cont'd)

Knox	Lincoln	Oxford	Penobscot	Penobscot (cont'd)	Piscataquis
Appleton	Alna	Bethel	Alton	Millinocket	Abbot
Camden	Boothbay Harbor	Denmark	Argyle Twp	Mount Chase	Atkinson
Cushing	Bremen	Greenwood	Bangor	Newburgh	Barnard Twp
Friendship	Bristol	Newry	Bradford	Newport	Bowerbank
Hope	Damriscotta	Upton	Bradley	Old Town	Brownville
Owls Head	Dresden	West Paris	Brewer	Orono	Dover-Foxcroft
Rockland	East Boothbay	Woodstock	Burlington	Orrington	Guilford
Rockport	Edgecomb		Carmel	Passadumkeag	Medford
South Thomaston	Jefferson		Charleston	Patten	Milo
Thomaston	Monhegan Island Plt		Chester	Penobscot County (unorganized)	Monson
Union	Newcastle		Clifton	Penobscot	Parkman
Warren	Nobleboro		Corinna	Plymouth	Piscataquis County (unorganized)
Washington	Somerville		Corinth	Springfield	Pleasant River
	Southport		Dexter	Stacyville	Sangerville
	Waldoboro		Drew Plt	Stetson	Sebec
	Westport Island		Dixmont	Veazie	Willimantic
	Whitefield		East Millinocket	Winn	
	Wiscasset		Eddington	Woodville	
			Edinburg		
			Enfield		
			Etna		
			Exeter		
			Garland		
			Glenburn		
			Greenbush		
			Greenfield Twp		
			Hampden		
			Hermon		
			Holden		
			Howland		
			Hudson		
			Indian Island		
			Kenduskeag		
			Lagrange		
			Lee		
			Levant		
			Lincoln		
			Lowell		
			Mattawamkeag		
			Maxfield		
			Medway		
			Milford		

TABLE 1-3 (cont'd)

Somerset	Sagadahoc	Waldo	Washington	York
Bingham	Arrowsic	Belfast	Addison	Acton
Cannan	Bath	Belmont	Alexander	Alfred
Detroit	Bowdoin	Brooks	Baileyville	Arundel
Fairfield	Bowdoinham	Burnham	Beals	Biddeford
Harmony	Georgetown	Frankfort	Beddington	Buxton
Jackman	Phippsburgh	Freedom	Calais	Cornish
Madison	Richmond	Jackson	Centerville Twp	Dayton
Norridgewock	Topsham	Knox	Cherryfield	Eliot
Palmyra	West Bath	Liberty	Codyville Plt	Kennebunk
Pittsfield	Woolwich	Lincolnville	Columbia	Kennebunkport
Ripley		Monroe	Columbia Falls	Limerick
Skowhegan		Montville	Crawford	Newfield
Saint Albans		Morrill	Deblois	North Berwick
		Northport	Eastport	Old Orchard Beach
		Palermo	Grand Lake Stream Plt	Sanford
		Prospect	Harrington	Shapleigh
		Searsmont	Jonesboro	South Berwick
		Searsport	Jonesport	Wells
		Stockton Springs	Machias	
		Swanville	Marshfield	
		Thorndike	Milbridge	
		Unity	Roque Bluffs	
		Waldo	Steuben	
		Winterport	Talmadge	
			Topsfield	
			Waite	
			Whitneyville	

As demonstrated by the above tables, the JRL Expansion will serve the entire State of Maine by providing a low cost option for the solid waste disposal needs of the State well into the future.

1.6 Current Juniper Ridge Landfill Capacity

The permitted capacity available at the JRL as of December 31, 2010 was approximately 6,565,700 cubic yards. Approximately 885,000 cubic yards of this capacity is associated with the development of a mechanically-stabilized earthen berm (MSEB) along the western and southwestern portions of the Landfill's footprint, and an enlarged earthen berm along the northern and eastern sides of the landfill. The MSEB and earthen berm were required to provide the desired Landfill capacity for the facility's 2004 vertical increase amendment. Because the development of the Expansion will overlay the northern and eastern waste

sideslopes of the current facility, the enlarged earthen berm and MSEB berm have not been constructed to date as part of the current landfill development. The need for future construction of these berms will be re-evaluated after the PBD approval is obtained. If the decision is not to develop these berms, the date by which additional capacity will need to be developed at the site moves up approximately one year.

In SPO's Capacity Report, the lifespan of existing state-wide disposal capacity was analyzed using three different scenarios (zero growth, 1 percent growth, and 2.8 percent growth) over a 10-year period between 2010 and 2020. The SPO concluded that use of the most conservative projected increases in waste generation (0-1% growth) would only extend the life of Maine's existing State-owned and commercial landfills by one to two years. At the projected fill rates used by the SPO for JRL,[18] the current licensed capacity at JRL will be consumed by 2017 or 2018 as outlined in the Capacity Report.[19] This projection is consistent with the projections that were contained in the Plan of 10 to 12 years from the end of 2007.[20] As noted above, not building the MSEB would reduce the landfill life by about one year.[21]

1.7 General Project Description

The Landfill is sited on a 780-acre parcel of land located southwest of Route 16 and north of Route 43 in Old Town (see Figure 1-1, Site Location Plan). The existing facility consists of a permitted 68-acre secure landfill, with an administration building, maintenance buildings, leachate storage pond, leachate storage tank, leachate pump station, sedimentation/detention

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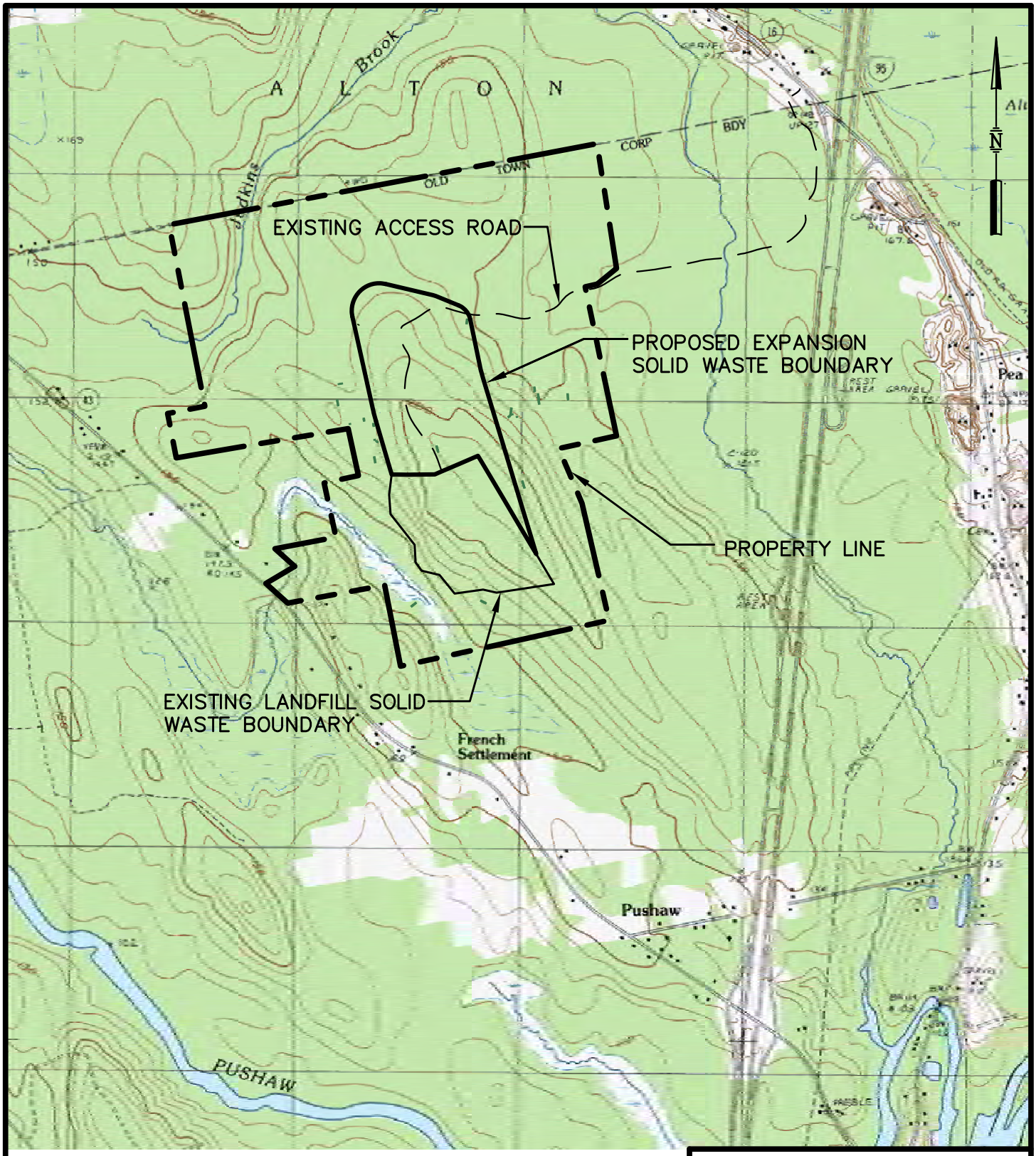
[18] The State Planning Office projected that wastes delivered to JRL would average 550,000 tons per year, but would increase to 700,000 tons per year starting in 2010, with in-state wastes diverted from the closed Pine Tree Landfill. The Operating Services Agreement between SPO and Casella/NEWSME requires Casella to provide disposal capacity for 50,000 tons of mill waste per year from Old Town Fuel and Fiber (OTFF) and for 6,000 tons of Biomass Ash per year from the Lincoln Paper & Tissue (LPT) operation in Lincoln. Thus, of the remaining capacity at JRL, 56,000 tons of capacity per year is to be kept in reserve for those waste streams. CWS also has contractual agreements with PERC to dispose of residuals from the PERC facility through 2018.

[19] Capacity Report, page 31.

[20] Plan – pages 19-20.

[21] Construction of the first expansion cell will take approximately 1 construction season. Therefore, to avoid disruption to existing customers utilizing JRL, all permitting should be completed in 2015 and construction should begin in 2016.



NOTE:

BASE MAP ADAPTED FROM 7.5 MIN
USGS TOPOGRAPHIC QUADRANGLE
OLD TOWN, MAINE–1988

1000 0 2000 4000 FEET

DWG: SITELOC LMN: SITELOC CTB: SITELOC REV: 7/18/11

FIGURE 1–1
SITE LOCATION
PUBLIC BENEFIT DETERMINATION
JUNIPER RIDGE LANDFILL EXPANSION
OLD TOWN, MAINE

SME
Sevee & Maher Engineers, Inc.
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

\\Nserver\cfs\Casella\OldTownLandfill\Expansion\Acad\Figures\SITELOC.dwg, 7/18/2011 10:28:20 AM, paf

ponds, landfill gas flare, and access roads. The site also includes a permitted till borrow pit and clean woodwaste storage facility. The Landfill was previously licensed by MEDEP under the Maine Hazardous Waste, Septage and Solid Waste Management Act and Natural Resources Protection Act (MEDEP Permit #S-20700-7A-A-N). Following transfer of the Landfill license to SPO in 2003, that license was amended in 2004 (MEDEP Permit #S-20700-WD-N-A). The U.S. Army Corps of Engineers (Corps) has issued a permit for impacts to wetlands on the property under Section 404 of the Clean Water Act (Corps Permit #1991-01909). In addition, the JRL has received an Air Emission License from the MEDEP Bureau of Air Quality (#A-921-70-A-I) and numerous site permits from the City of Old Town Planning Board, including a till borrow pit, an above-ground leachate storage tank, an administration building, maintenance buildings and a scale house.

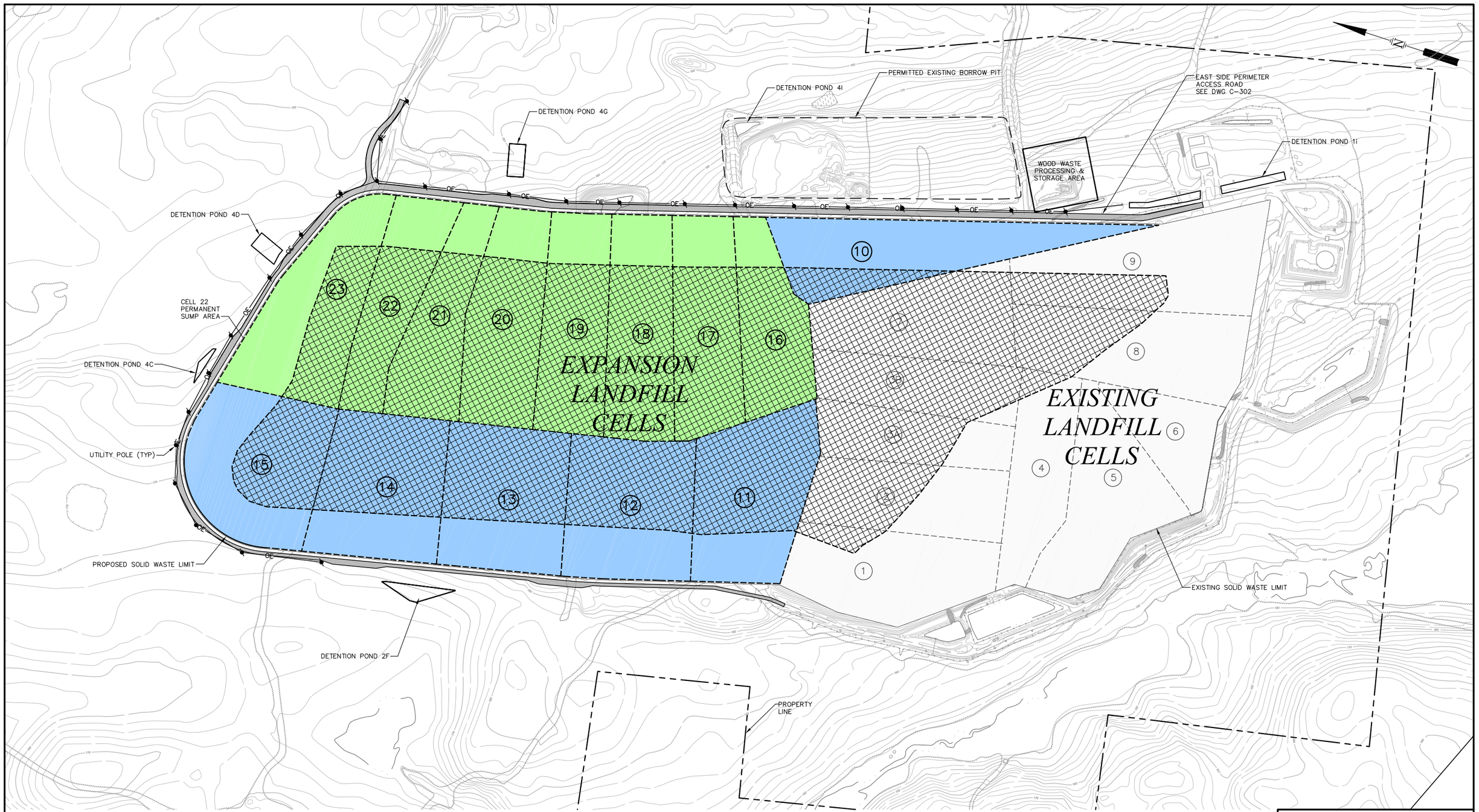
The Expansion Project will increase the solid waste footprint of the Landfill by approximately 108 acres (from 68 acres to 176 acres) (see Figure 1-2, Site Development Plan). The Expansion will not exceed the facility's current permitted peak elevation of 390 feet-Mean Sea Level (ft-MSL) or exterior sideslope grades of 3 horizontal to 1 vertical. The waste disposal capacity of the facility will increase from approximately 10,000,000 cubic yards to approximately 32,000,000 cubic yards. The proposed Expansion will be developed in three distinct phases with disposal capacities[22] and projected operating life of the following:

- Phase I – 5.45 million cubic yards = 4,687,000 tons (approximately 5 to 7 years)
- Phase II – 9.35 million cubic yards = 8,041,000 tons (approximately 8 to 11 years)
- Phase III – 7.08 million cubic yards = 6,089,000 tons (approximately 7 to 9 years)

1.8 Description of the Expansion Phases and Capacities

The Expansion has been designed for phased operations with individual cell size based upon an estimate of the facility's future waste disposal rates. The Expansion's phased operations will sequence waste and cover placement and control run-on and runoff in accordance with the

[22] The conversion of cubic yards to tons assumes an inplace waste density of 0.86 tons per cubic yard.



NOTES

1. BASE MAP PREPARED BY AERIAL SURVEY & PHOTO, NORRIDGEWOCK, MAINE. PHOTO DATE OCTOBER 31, 2008. VERTICAL DATUM BRASS PLUG AT PUMP STATION. HORIZONTAL DATUM MAINE STATE COORDINATE SYSTEM EAST ZONE, NAD 83. GROUND CONTROL BY PLISGA & DAY, BANGOR, MAINE. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2. PROPERTY LINE LOCATIONS ARE A RESULT OF FIELD SURVEY PERFORMED BY HERRICK AND SALSBURY, INC. LAND SURVEYORS, ELLSWORTH, MAINE FOR TRYTON TREE FARM PROJECT, PATTEN CORPORATION–DOWNEAST, OLD TOWN, MAINE, FEBRUARY 23, 1988, REVISED APRIL 7, 1988.

100 0 200 400 FEET

LEGEND

(10) CELL DESIGNATION FOR EXPANSION CELLS

PHASE I (CELLS 10–15)

PHASE II (CELLS 16–23)

PHASE III (CELLS 24–30)

PHASE III CELL BOUNDARIES ARE NOT SHOWN FOR CLARITY.

FIGURE 1–2
PROPOSED SITE DEVELOPMENT
PUBLIC BENEFIT DETERMINATION
JUNIPER RIDGE LANDFILL EXPANSION
OLD TOWN, MAINE

SME
Sevee & Maher Engineers, Inc.
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland Center, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • www.smemaine.com

DWG: C–102BaseGrading LMN: FIG 1–2–2 CTB:C–102BaseGrading REV: 8/9/11

facility's Stormwater Management Plan, manage leachate generation, minimize noise impacts along Route 43, protect the liner system, and maintain stability.

The Expansion will be developed in a phased fashion over its life span. New landfill cells will be built as needed. Each of the three phases will consist of a number of individual cells. It is anticipated that a new cell will be constructed every year.

The first phase to be developed (Phase I) is located on the northeast end of the existing landfill and along the western side of the Expansion's footprint (see Figure 1-2). This area will be developed as six base cells (i.e., Cells 10 through 15), will occupy approximately 52.4 acres and provide approximately 5.45 million cubic yards of capacity. Cell 10 will incorporate a temporary pump station that will discharge to the leachate storage tank. Cells 11 through 15 will be developed in a south to north direction along the western side of the Expansion's footprint and will include both temporary and permanent leachate collection sump and pump stations. Development of the western portions of the Expansion prior to the eastern portions of the Expansion has been recommended by the project's noise consultant to reduce noise impacts along Route 43.

Phase II will be developed along the eastern side of the Expansion's footprint. Phase II will consist of eight base cells (i.e., Cells 16 through 23), will occupy approximately 55.2 acres and provide approximately 9.35 million cubic yards of capacity (see Figure 1-2). Phase II will utilize both temporary and permanent sump and pump leachate collection/leachate transport systems.

Phase III of the Expansion will be developed on top of the Phase I and II base cells described above. Phase III will consist of eight cells (Cells 24 – 31), will occupy approximately 98 acres (including the area overlying the existing landfill) and provide approximately 7.08 million cubic yards of capacity. Leachate generated by Phase III landfilling will be collected and transported by either the Phase I or the Phase II leachate collection/transport systems described above. Landfilling in Phase III will continue until the final grades of the Expansion are reached. The Expansion will be developed to a maximum final grade of 390 ft-MSL with 3 horizontal to 1 vertical sideslopes. This final elevation is equal to the maximum licensed elevation of the existing landfill facility.

Portions of the Expansion will abut and overlie the north and east slopes of the existing landfill. Prior to waste placement in this area, the existing intermediate cover will be removed. The Expansion will provide disposal capacity for approximately 21.9 million cubic yards of waste. Wastes to be disposed primarily consist of construction and demolition debris, front-end process residue, municipal solid waste ash, wood biomass ash, wastewater treatment plant sludge, contaminated soil, oversized bulky waste, and municipal solid waste bypass.

1.9 Project Permitting Approach

This Public Benefit Determination Application will be for the entire Expansion project.[23] SPO and CWS understand that MEDEP approval might have a condition requiring that additional information be submitted approximately two years prior to development of the second and third phases of the project to confirm that the information used to support the findings underlying a Public Benefit Determination approval remain valid and applicable to the Public Benefits standards at that time.

An application to the Department will be submitted and reviewed for the entire Expansion Project (i.e., Phases I, II, and III) for compliance with the Solid Waste Management Rules.

[23] The Solid Waste Act in Section 1310-AA(6) doesn't allow MEDEP to consider an application for the full expansion unless it (the full expansion) first receives a Public Benefit Determination.

ATTACHMENT 2

PROJECT PURPOSE AND CAPACITY NEED

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 2
PROJECT PURPOSE AND CAPACITY NEED

2.0 PROJECT PURPOSE AND NEEDS

2.1 Project Purpose

The purposes of the Expansion Project are to: (i) meet the immediate, short-term, or long-term solid waste disposal needs of the State of Maine, consistent with the State's Waste Management and Recycling Plan; and (ii) comply with the provisions of the OSA. The immediate, short-term, and long-term disposal needs of the State and the State's current and projected landfill capacity to meet those needs are discussed below in Subsection 2.2.

2.2 Maine Solid Waste Disposal Capacity and Needs

In 1989, the State of Maine imposed a ban on new commercial landfills and began closing existing unlined municipal landfills throughout the State, thereby limiting the State's ability to create future, long-term landfill capacity. There are 12 landfills currently operating in the State that accept Maine's solid waste,[24] and four waste-to-energy incineration facilities that accept municipal solid waste but generate ash and other residues requiring landfill disposal:

- Eight landfills are municipally-owned and are used primarily for disposal of solid waste (i.e., unprocessed MSW and CDD) generated within a specific community or region: Bath, Brunswick, Augusta (Hatch Hill), Greenville, Presque Isle, and Fort Fairfield (TriCommunity), Midcoast SWC, and Rockland. The estimated remaining capacity of these facilities as of 2009 is 4,920,282 cubic yards;[25]

[24] Capacity Report, pages 21-24. Note this list excludes generator-owned landfills, which by definition support the disposal of waste generated by the owner of the landfill (i.e., pulp and paper landfills). However, if any of those landfills were to close prematurely and the owner were to continue to generate solid waste, the need for additional State-wide disposal capacity would accelerate.
[25] Capacity Report, page 24.

- Two landfills are either municipally-owned or owned and operated by regional entities and are used primarily for the disposal of residue from two waste-to-energy plants. The Lewiston Landfill accepts primarily residue from the Mid-Maine Waste Action Corporation (MMWAC) waste-to-energy incinerator, while the residue from the ecomaine waste-to-energy facility in Portland is sent to its own landfill in Scarborough. The remaining capacity of these two facilities as of 2009 is 1,279,397 cubic yards;[26]

- One commercial landfill is privately-owned by a solid waste management company: Waste Management, Inc. owns and operates the Crossroads Landfill, located in Norridgewock, which has a remaining capacity as of 2009 of 4,254,517 cubic yards;[27] and

- One landfill, Juniper Ridge, is owned by the State of Maine, which has a remaining capacity as of 2009 of 7,114,614 cubic yards.[28] The State owns another landfill site outside of Lincoln (a.k.a. the Carpenter Ridge Landfill), but that site remains undeveloped and is licensed for approximately two million cubic yards of capacity.

These landfills accept various waste streams and are licensed by the MEDEP. In addition to these landfills, there are approximately 20 other publicly-owned disposal facilities in Maine that accept brush, wood, inert debris, and construction/demolition (CDD) wastes. These municipal and quasi-municipal landfills serve limited geographic areas and are not licensed or equipped to serve State-wide needs. The remaining capacity at individual CDD facilities varies (another 10 to 12 years as of 2009).[29] A number of these facilities will be full prior to 2020 creating "pockets" where CDD disposal options will need to be reconsidered. Finding alternatives to land disposal for CDD continues to pose problems in Maine's rural areas. These materials cannot be recycled or reused without investment in equipment, labor, and sufficient land area to aggregate

[26] Capacity Report, page 24.
[27] Capacity Report, page 23.
[28] Capacity Report, page 21.
[29] Capacity Report, page 25.

and process them. Markets for processed CDD do exist, but given the often small scale that most Maine towns operate on, with low volume and widely dispersed facilities, rural operations do not often produce the economics needed for sustainable processing and recycling efforts. Disposal of CDD at JRL may be the only option for many municipalities in Maine once these other CDD facilities reach capacity, considering the availability and costs of technologies and services, transportation and handling logistics, and overall costs that may be associated with recycling and reuse.

The only operating commercial landfill in the State, Crossroads (owned by Waste Management Inc.), is reported by the SPO to have approximately 12 to 14 years of remaining capacity, as of the end of 2009, based upon 2009 fill rates. As noted, the establishment of new or expanded commercial solid waste disposal facilities is prohibited by Maine statute (38 M.R.S.A. § 1310-X).[30]

2.2.1 Immediate/Short-Term Need. Based upon the recent Capacity Report, JRL provided for 54 percent (2008) and 45 percent (2009) of the total MSW State of Maine landfill disposal needs. These figures clearly demonstrate the important role the JRL facility plays in meeting the State's immediate and short-term landfill disposal needs.

2.2.2 Long-Term Need. The Capacity Report's estimate of existing permitted landfill disposal capacity in Maine is approximately 17.6 million cubic yards as of the beginning of 2010.[31] The Capacity Report also predicts that an estimated 24.4 million cubic yards of landfill capacity will be required over the next 20 years. These estimates were based upon the following assumptions:

- the State maintains a constant recycling rate of 38 percent,

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[30] LD 879 proposes to lift the commercial landfill ban for an expansion of the Crossroads facility onto contiguous property of a landfill of unknown size. LD 879 has been carried over for consideration in the 2012 legislative session. But even if it were enacted, there are several conditions that would need to be satisfied before any such capacity could be developed: e.g., land acquisition, a Preliminary Information Report, Determination of Environmental Feasibility, a positive Public Benefit Determination, and full licensing.

[31] Capacity Report, page 30.

- exported wastes continue to decline,
- continued operation of and reliance on the four waste-to-energy facilities at the existing mix of tonnages (out-of-state waste, processing residues, etc.),
- no significant change in municipally-operated landfills, and
- zero waste growth for calendar years 2010 and 2011 and 2.8 percent annual growth thereafter.

Table 2-1 summarizes SPO's projected landfill disposal needs and capacity for the State between 2009 and 2029 as presented in the Capacity Report.

TABLE 2-1

PROJECTED DISPOSAL CAPACITY AVAILABLE VS. CAPACITY NEEDED AT 2.8% GROWTH 2009-2029 (SOURCE SPO, 2011 CAPACITY REPORT, pg. 30)

Landfill Capacity Available (2009) (cubic yards)		**Capacity Needed (2009-2029) (tons)**	
Municipal Landfills	4,920,282	Total Waste Generated	44,419,614
Municipal Ash – "Landfills"	1,279,397		
Municipal CDD Landfills	Incomplete data	Imported Waste	4,000,000
Commercial	4,254,517	Recycled	(17,190,391)
Juniper Ridge	7,114,614[1]	Exported	(1,066,071)
		Combusted at WTE	(9,194,860)
Total Landfill Capacity Currently Permitted:	**17,568,820**	**Total Landfill Capacity[2] Needed: tons to cubic yards**	**24,381,735**

Notes:
1. The JRL Operating Services Agreement requires a reserve annual capacity for 56,000 tons of wastes from Old Town Fuel and Fiber and Lincoln Pulp and Paper, or 1,120,000 tons, or about 1,302,000 cubic yards[2] over 20 years.
2. Converting tons to cubic yards using 0.86 tons per cubic yard.

As outlined in the Capacity Report,[32] the Plan estimates Maine's 20 year land disposal capacity needs at 34 million cubic yards predicated on a 4 percent annual growth rate in MSW based on historical trends prior to 2008. The difference between the capacity need as presented in the Capacity Report and the need presented in the Plan demonstrates the potential variation in waste disposal capacity needs of the State as conditions shift within the State economy. Both

[32] Capacity Report, page 14.

the Capacity Report and the Plan highlight the relationship between the economy and waste generation in the State.

The following excerpt is from the Capacity Report:[33]

> Based on the projection in Table A (i.e., Table 2-1), we can see that Maine has sufficient disposal capacity for 10 years through 2020, but it currently cannot meet projected statewide needs for a 20-year outlook. Maine needs to plan for developing new disposal capacity beyond 2020 in order to meet the waste management needs of the State's municipalities and businesses.
>
> The largest single source of Maine's disposal capacity is the state-owned Juniper Ridge Landfill, which has capacity through 2017-2018. To avoid a shortfall in landfill capacity, the State needs to begin the application process for additional, state-owned, landfill capacity at that landfill in 2011. This timeframe takes into account the current economic slowdown, and the anticipated duration of the complete development process, from the initial preparation of the application for public benefit determination, the permitting process, through construction of new capacity licensed and preparation to receive waste.
>
> Title 38, chapter 24, section 2156-A outlines the Office's responsibility to notify the Legislature of the need to develop more solid waste disposal capacity when there is six (6) years or less of licensed and available disposal capacity for MSW or special waste in the State.
>
> Based on the analysis of remaining landfill disposal capacity at the state-owned Juniper Ridge Landfill and the commercial Crossroads Landfill, the Office believes it will make that finding in 2011.

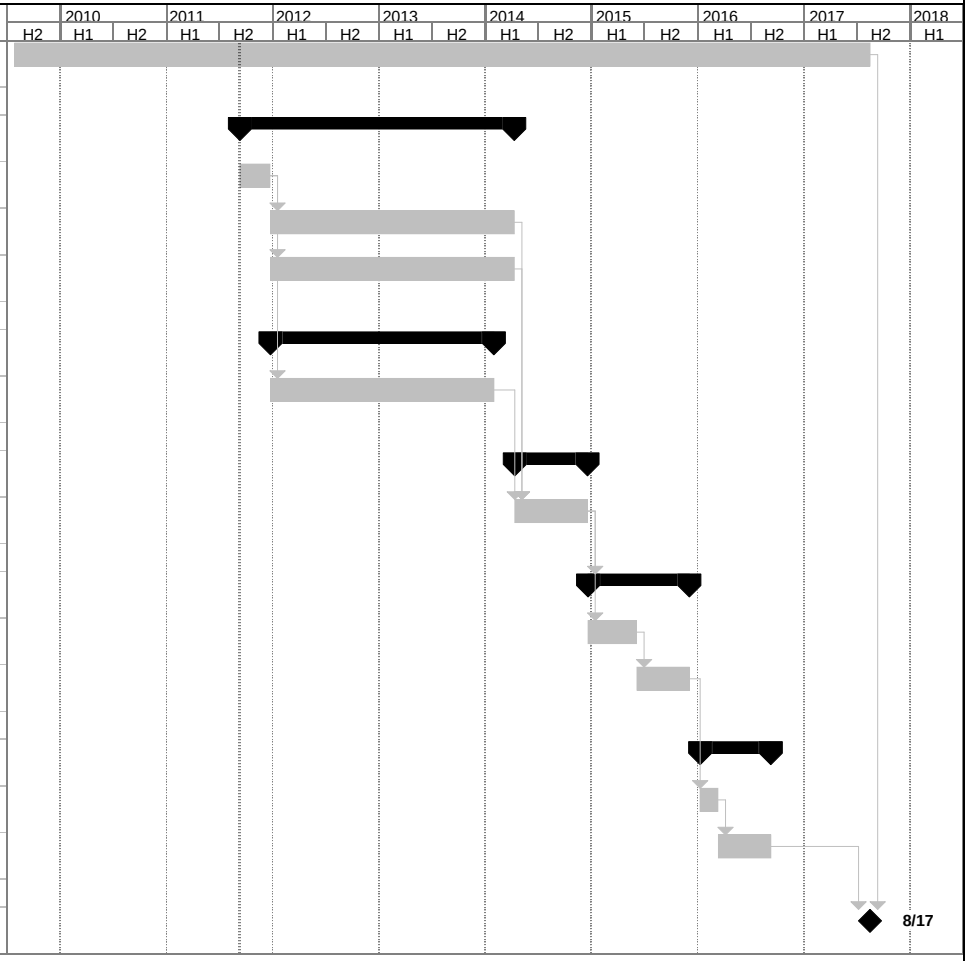
[33] Capacity Report, page 31.

For the reasons stated above, JRL serves both the immediate and short-term waste disposal needs of the State of Maine, and the capacity proposed in the Expansion Project, and the timely processing of the application beginning with this Public Benefit Application, are necessary to meet the long-term solid waste disposal needs of the State consistent with the State's Waste Management and Recycling Plan.[34] A projected permit and development schedule for the JRL Expansion project is presented on Figure 2-1.

[34] As noted earlier, the Plan must identify "the need in the State for current and future solid waste disposal capacity by type of solid waste, including identification of need over the next 5-year, 10-year and 20-year periods." 38 M.R.S. §2123-A(4).

Figure 2-1
PROJECTED JUNIPER RIDGE LANDFILL EXPANSION
PERMITTING AND DEVELOPMENT SCHEDULE

ID	Task Name
1	**Existing Permittted JRL Life Expectancy**
2	
3	**State of Maine Permitting**
4	Public Benefit Determination
5	Solid Waste Permit
6	NRPA Permit
7	
8	**Federal Permitting**
9	Army Corps Permit
10	
11	**Local Permitting**
12	City of Old Town Permit
13	
14	**Individual Cell Design & Permit Process**
15	Prepare Design Report , Construction Drawings
16	MDEP Condition Compliance & Approval
17	
18	**Cell Construction Process**
19	Bidding / Contractor Selection
20	Cell Construction
21	
22	**Begin Expansion Operation**



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ATTACHMENT 3

CONSISTENCY WITH STATE WASTE MANAGEMENT AND RECYCLING PLAN

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 3
CONSISTENCY WITH THE STATE WASTE MANAGEMENT AND RECYCLING PLAN

3.0 CONSISTENCY WITH STATE WASTE MANAGEMENT AND RECYCLING PLAN

SPO published the State Waste Management and Recycling Plan, entitled "Waste or Resource? *Rethinking Solid Waste Policy,*" in January 2009 (the "Plan"). The Preface to the Plan reaffirms that the policy of the State, as outlined in 38 M.R.S.A. § 2101, is to pursue and implement an integrated approach to hazardous and solid waste management which adheres to a waste management hierarchy establishing priorities of waste handling in this order: (1) waste reduction; (2) reuse; (3) recycling; (4) composting; (5) volume reduction including incineration for energy recovery and waste processing; and (6) land disposal.

The Expansion Project is consistent with this integrated approach to solid waste management in at least three major respects. First, the Expansion Project is expressly contemplated in and incorporated into the Plan as a central component in meeting the State's immediate and long term needs for solid waste disposal capacity. Second, operation of the JRL is consistent with and supports the State's waste management hierarchy, and third the owner and operator of the facility are both directly involved in operating, financing, and supporting facilities and programs to promote waste reduction and reuse, and providing recycling, processing and disposal capacity in the State important to achieve the State's recycling objectives. The Plan provides information about the State's MSW waste characteristics including a summary of MSW generation tonnage, recycling goals, and the State's solid waste management infrastructure capacity. The Plan addresses these items based on calendar year 2007 data. The Capacity Report updated the information on MSW generation tonnages and infrastructure capacity in the Plan using data from calendar years 2008 and 2009.[35]

[35] The Capacity Report should be viewed as an update of the projected capacity and projected demand aspects of the Plan and is updated on an annual basis. See Plan, page 7.

This section demonstrates how the Expansion is consistent with the Plan. The Expansion will be integrated into the State's solid waste management infrastructure by providing needed disposal capacity outlined in the Plan, and by supporting many of the State's recycling and volume reduction programs by providing a location to dispose of un-processible residuals from volume reduction and recycling programs. In addition, the owner and operator of the JRL Expansion both support a number of recycling and source reduction programs and facilities that will minimize the amount of materials requiring disposal at the Expansion. Section 3.1 presents waste management data from the Plan and Capacity Report to highlight how the Expansion will be an important component of the State's solid waste infrastructure, and hence explicitly consistent with the Plan. Sections 3.2 and 3.3 provide specific information on facilities and a program run by CWS that support the Plan's recycling and source reduction objectives and minimizes the amount of material requiring disposal at the JRL facility and other disposal facilities in the State. Section 3.4 outlines SPO programs and efforts to support the recycling efforts within the State.

3.1 Waste Characterization and Solid Waste Infrastructure Use

Data contained in the Plan and Capacity Report quantify how Maine managed its MSW tonnage in 2007, 2008, and 2009. MSW, as defined by Maine law, comprises household, baggable waste, and CDD, including such items as furniture, tires, and metal. The following tables demonstrate that JRL provides a significant amount of the required disposal capacity for both MSW and the residuals associated with the State's MSW energy recovery facilities. The Expansion will also serve this role along with providing disposal capacity for other special wastes generated in the State.

As shown on Table 3-1, JRL handles the equivalent of 15 to 23 percent of the total unprocessed MSW generated in the State. This is significant considering that JRL does not accept direct disposal of MSW, other than CDD and MSW bypass from Maine's waste-to-energy facilities.[36]

[36] The Capacity Report identifies that approximately 25 percent of the MSW is directly landfilled in the State. See Page 5.

TABLE 3-1

MANAGEMENT OF MAINE'S MUNICIPAL SOLID WASTE AND PERCENTAGE OF THE OVERALL LANDFILLED MSW AND RESIDUALS DISPOSED OF AT JRL

Maine in-state generated solid waste[1]	2007	2008	2009
Total Municipal Solid Waste Generation	2,066,448	1,833,634	1,777,498
Recycled/Reused	718,613	709,624	687,781
Combusted	433,924	370,082[2]	352,633[2]
Landfilled	903,933[3]	691 ,490[3]	693,931[3]
Exported	60,491	62,438	43,153
MSW & MSW Residuals Disposed of at JRL	309,950	426,761	365,287
JRL Disposal as percentage of Total MSW	15%	23%	21%

Notes:
1. Values reported in tons unless noted and include CDD.
2. Includes in-state wastes only.
3. This figure includes the 25.4 percent of MSW that is directly landfilled and the processing residues (e.g., FEPR) and ash from the combustion of Maine MSW which are ultimately landfilled and thus included under 'landfilled´ rather than combusted in order to avoid double counting.

JRL is an important disposal site for the residuals from Maine's MSW energy recovery facilities. The Plan identifies that approximately a third of Maine's MSW is reduced in volume by these facilities.[37] Table 3-2 summarizes the waste tonnages associated with these facilities between 2007 and 2009 and the residuals and ash that are disposed at landfill facilities such as JRL. Also included on Table 3-2 are the tonnages of these materials handled by JRL.

[37] Plan, page 24.

TABLE 3-2

WASTE MATERIAL MANAGEMENT AT MAINE'S FOUR WASTE-TO-ENERGY FACILITIES, COMPARED TO RESIDUAL DISPOSAL AT JRL (TONS)

	2007	2008	2009
Total MSW Tons received at the four Waste to Energy Plants	826,292	850,860	874,862
Combusted	503,226	515,872	522,653
Residuals[1]			
By-pass	27,014	20,520	36,160
FEPR	110,016	117,069	118,864
Metal	22,032	22,138	22,285
Ash	164,033	175,261	174,900
Total residuals landfilled[2]	301,063	312,850	329,924
Residual disposed of at JRL	158,877	233,646	210,361
JRL percentage of total residual disposal	**53%**	**75%**	**64%**

Notes:
1.Residuals tonnages, and total residuals landfilled are for the entire State of Maine
2. Residuals landfilled include bypass, FEPR, and ash.

As shown on Table 3-2, the JRL facility handles a large percentage of the residuals from the State's solid waste incinerators, allowing these facilities to continue to be a major component of the State's waste management hierarchy, thereby reducing the quantity of MSW that requires disposal. The Expansion will serve this same need.

Maine includes CDD in its definition of MSW and it represents between 15 and 20 percent of the overall tonnage of MSW produced in the State. As stated in the Plan (pg 23), "Although statewide numbers indicate landfill space exists for an overall capacity sufficient for another 10 to 12 years, a number of these facilities will be full before then, creating 'pockets' where CDD disposal options will need to be reconsidered..... CDD disposal capacity and management continues to be problematic. These materials are unacceptable at waste-to-energy facilities and cannot be recycled or reused without investment in equipment, labor, and sufficient land area to aggregate and process them. Markets for processed CDD and bulky wastes do exist but the small scale at which most Towns operate limits access to these markets."

The JRL and the Expansion provide a secure, suitable alternative to handle CDD in the interim as these markets develop and become economically viable. Table 3-3 summarizes the tonnage of CDD produced in the State as identified in the Plan and Capacity Report, the portion recycled and landfilled and percentage of the landfilled CDD which is accepted at JRL.[38] The amount of CDD requiring landfilling and the tonnage and percentage which the JRL facility serves is also contained on Table 3-3.

As this table shows, JRL provides a valuable resource to handle the State's CDD. The Expansion will continue to serve this need.

TABLE 3-3

CONSTRUCTION AND DEMOLITION DEBRIS (TONS)

	2007	2008	2009
Construction and Demolition Debris Generated	317,490	298,145	385,255
CDD Recycled	25,626	66,432	67,021
CDD Landfilled	291,865	231,713	318,234
CDD disposed of at JRL	143,453	125,790	104,309
JRL percentage of total CDD landfilled	49%	54%	33%

Notes:
1. Construction and Demolition Debris Generated, Recycled and LandfillTonnages from Plan and Capacity Report. CDD Disposed of at JRL from JRL Annual Reports.

As these tables demonstrate, the Expansion, and its associated capacity, will continue to provide this important component of the State's integrated solid waste management programs as laid out in the Plan and is therefore consistent with the Plan. Section 2.0 of this Application addresses the specifics of the landfill disposal capacity needs as discussed in the Plan and Capacity Report, which consider both MSW, and the other non-MSW wastes, disposed of at JRL. The proposed capacity of the Expansion, about 22 million yards, to be developed in three phases, provides both the disposal capacity needed as outlined in Plan, and supports the other solid waste management methods used in the State. Therefore, it is consistent with the Plan. By the proposed phasing of approval of the capacity for the facility, the Expansion provides both the baseline disposal capacity projected in the Plan, and an important capacity resource for any

[38] CWS facilities handle the majority of the CDD materials recycled in the State. These facilities are discussed in Sections 3.3 of this Application.

unforeseen capacity needs, such as major environmental remediation projects, major storms, such as hurricanes, floods and ice storms, or a change in the current methods for solid waste management in the State.

3.2 JRL Consistency with the Waste Reduction, Reuse, Recycling, and Composting Priorities Contained in the Pan

A large portion of the Plan is devoted to discussion of Maine's waste management hierarchy, and its priorities including the State's 50 percent MSW recycling goal and methods to achieve and surpass the 50 percent level (*See, e.g.* Plan at 13-17, 67-79.) The Plan establishes as the State's top two goals, "waste prevention" and "recycling," as Maine's preferred solid waste management methods."[39] Table 3-4 provides a summary of the information contained in the Plan and Capacity Report relating to the recycling efforts of the three year period addressed in these documents:

TABLE 3-4

RECYCLING IN MAINE

Maine in-state recyclables	2007	2008	2009
Municipal/Public Efforts (tons)	237,142	266,977	255,097
Commercial/Business Efforts (tons)	481,470	442,647	432,684
Total Tons Recycled	718,613	709,624	687,781
% of MSW Recycled	34.8%	38.7%	38.7%

Consistent with the Plan, JRL's owner, SPO, and operator, NEWSME, are actively involved in source reduction, reuse, composting, toxics reduction, and recycling programs at JRL and throughout the State. These source reduction and recycling activities and programs result in reducing the risks related to waste handling and disposal at the landfill to the maximum practical extent. The wastes disposed at JRL and to be disposed at the Expansion are primarily materials that cannot be reduced or recycled: due to the nature of the waste (e.g., their chemical constituents make them unsuitable for recycling); because they constitute residuals from recycling and source reduction activities; or because the State and its municipalities lack the recycling resources to handle the material in an economic fashion.

[39] Plan, pages 72-73.

Specific relevant factors further demonstrating the Expansion's consistency with the Plan are as follows:

Source Reduction and Reuse. The majority of the solid waste categories accepted for disposal at JRL, and to be accepted at the Expansion, are the residues of processing facilities that have already removed or utilized the reusable portion of the initial solid waste. In this regard, JRL is accomplishing the Plan's reduction, reuse, and recycling priorities to a much greater extent than other active landfills in Maine that accepts mostly or all unsorted, unprocessed waste materials such as raw MSW. These materials include: municipal solid waste incinerator residues (front end process residue (FEPR) and incinerator ash); biomass and fossil fuel combustion ash, and oversized bulky wastes which remain after utilizable portions of the waste stream are removed at the recycling, source separation. A summary of the type and quantity of the residuals disposed at the JRL facility in 2010 follows:

TABLE 3-5

SUMMARY OF WASTES FROM SOURCE REDUCTION FACILITIES DISPOSED OF, OR BENEFICALLY REUSED IN JRL OPERATIONS

Waste Category	Accepted at JRL in 2010	
	Tons	Percent
Construction and demolition debris[1]	145,488	20.5
Municipal incinerator ash	104,865	14.8
Front-end process residue	125,288	17.7
Oversized bulky waste	96,520	13.6
MSW bypass and soft layer material	39,524	5.6
C&D process fines (used as daily cover)	87,449	12.3
TOTAL		**84.5**

Note:
1. Much of the construction demolition debris which is taken to the landfill has been either source picked to remove clean wood and metal which are recycled, or have had loads of clean wood diverted to processing facilities such as is done at the PTL transfer station in Hampden Maine.

In the operations of JRL, the substitution of waste derived products, including CDD fines and tire chips, for virgin materials (i.e., sand and clay soils) as daily cover, internal gas pipe bedding material, internal road base, and internal drainage control structures, provides an outlet for

reuse of recycled materials which decreases the use of valuable non-renewable natural resources. This activity will continue at the Expansion.

Recycling Beneficial Reuse and Composting. CWS, NEWSME's parent company, has developed and implemented state of the art recycling, source separation, and beneficial re-use programs in the State to address both the recycling and source reduction goals of the State. In 2010, CWS facilities and programs recycled, beneficially reused, or composted a total of 250,227 tons of waste materials over a broad spectrum of waste types and at numerous geographic locations. These programs, described in Section 3.3, limit the amount of materials requiring disposal at both JRL, and the other disposal facilities in the State. CWS has invested over $3.5 million in these facilities and programs over the last three years. CWS's operating expenditures for these facilities over that three-year period was approximately $11.6 million. These programs and facilities will continue with the Expansion.

CWS's subsidiary, New England Organics (NEO), is extensively involved in organics recycling and beneficial reuse of organic waste products throughout Maine, as well as the rest of New England and New York, and works directly with municipal or private sector entities that generate organic wastes. All of the programs operated by NEO reduce or eliminate, through composting or beneficial reuse, organic wastes that otherwise would require disposal by landfilling. Details of the facilities and programs in the State of Maine are found in Section 3.3. These programs will continue with the Expansion.

Toxics Reduction. The Plan also identifies removal of toxics from the MSW waste stream as one of the State's most important goals.[40] Operation of the Expansion Project will be fully consistent with this goal. JRL is licensed to accept only non-hazardous wastes. NEWSME has prepared and will continue to implement a detailed Hazardous and Special Waste Handling and Exclusion Plan for JRL to ensure that unacceptable materials are identified and are not placed into the landfill.

[40] Plan, page 73.

CWS is a certified electronic waste consolidator for the State of Maine and operates seven universal and electronic consolidation facilities in Maine. In 2010 these facilities handled 26,181 units. These programs support the State's toxics reduction initiatives and help to ensure that Maine citizens are provided with management options that prevent these materials from being landfilled, consistent with the State Plan.

Greenhouse Gas Reduction, Energy Self Reliance and Conservation. Landfill gas being generated by the JRL is currently being combusted at a flare at the facility. This will continue during the development of the Expansion. Methane destruction supports the Plan's goal of reducing greenhouse gas emissions (Plan, at 73).[41]

The Expansion also addresses the energy self-reliance and conservation goals of the Plan by providing an outlet for the disposal of the residuals from the State's waste-to-energy facilities. Together these facilities produce about 62 megawatts a day of electricity offsetting the need for the use of fossil fuels to generate this power. These facilities need the disposal capacity, as provided by the Expansion, to dispose of their residuals.

Finally, the Expansion allows the State to continue to provide safe handling and disposal of the wastes generated in the State by providing secure disposal capacity for the residuals which remain after the waste volume is reduced to the maximum extent practicable.

3.3 Detailed Descriptions of Casella's Current Recycling Program within the State of Maine

As stated in Section 1302 of the Solid Waste Management Act, "new technologies and industrial developments are making recycling and reuse of waste an increasingly viable and economically attractive option which carries minimal risk to the State and the environment and an option which allows the conservation of the State's limited disposal capacity." The State's recycling, source reduction, and volume reduction efforts also serve to reduce, to the extent feasible, the volume of wastes, and the risks related to waste handling and disposal, prior to landfilling.

[41] Beneficial use of the landfill gas for energy production is currently under consideration.

A large portion of the Plan is devoted to discussion of Maine's waste management hierarchy, including the 50 percent MSW recycling goal and methods to achieve and surpass the 50 percent level. The Plan establishes, as the State's top two goals, "waste prevention," and "recycling as Maine's preferred solid waste management method."[42]

As previously stated CWS, NEWSME's parent company, has developed and implemented state of the art recycling, source separation, and beneficial re-use programs in the State to address both the recycling and source reduction goals of the State. As stated above in 2010, CWS facilities and programs recycled, beneficially reused, or composted a total of 250,227 tons of waste materials over a broad spectrum of waste types and at numerous geographic locations. Efforts such as the following ensure that waste accepted at JRL has been subject to recycling and reuse efforts to the maximum practical extent. These efforts will continue throughout the licensing, construction and operation of the Expansion. CWS's recycling and source reduction assets and activities in the State include:

> **Zero Sort® (single stream) Recycling**. CWS has constructed and operates single stream recycling and consolidation operations (no separation required by the generator) at its West Bath, Hampden, and Waterville transfer stations, and at its FCR Goodman facility in Scarborough, and owns and operates fully automated collection vehicles in South Portland, Scarborough, and Westbrook to handle single stream recycling in the communities served by ecomaine. In 2010, CWS handled 11,261 tons of single stream recyclables through the four facilities, and collected 9,950 tons of single stream recyclables for ecomaine's operations. The materials collected at the CWS facilities are shipped out of state to a CWS-owned and operated processing facility in Charlestown, Massachusetts. Consistent with the Plan, CWS has found the benefits of single stream recycling include: increased ease and convenience to residents due to lack of sorting; reductions in disposal costs; increases in the range of materials that can be recycled; and faster collection of materials resulting in collection and transportation savings. All of these advantages may encourage more people to participate in recycling, and ultimately give the State the opportunity to recycle larger amounts and more items. CWS is

[42] Plan, pages 72-73.

currently working to expand its single stream program and is in direct negotiations with several Maine communities in this regard.

In addition to the single stream recycling programs, CWS also collects and handles recyclables for a number of communities and businesses in the State. The communities and businesses for which CWS is currently providing recycling services are included in Table 3-6:

TABLE 3-6

COMMUNITIES AND COMPANIES WHERE CASELLA PROVIDES RECYCLING SERVICES

Communities	Companies
Biddeford Recycling	Affiliated Material
Blue Hill Transfer	All Mighty Waste (Earthlink)
Bowdoinham	Archies
Buckfield	LL Bean
Bucksport	Burnt Cove Market
Fryeburg	Earthlink
Gray	Hardwood Products
Kittery	Harmon Assoc.
Lewiston	Ken-A-Set
Lincoln	KSD Atlantic
Lisbon	Norm Ladner
Machias	Magazines Inc.
Skowhegan	Maine Recycling
Winthrop	Marden's
Wiscasset	McCains
MRPA	Merlin Dinsmore
Brunswick	Nexcycle/ Returnable Services
Brewer	NOSO Rubbish Removal
	Penobscot McCrum
	PTW - Hampden
	PTW - Houlton
	Pleasant River Solid Waste
	postmaster/ portland
	RJ Linch
	Regional Rubbish
	Ricks Can & Bottle
	R &R Recycling
	S & M Recycling

CWS handled a total of about 28,000 tons of recyclables from these communities and business in 2010.

Construction and Demolition Debris (CDD), & Woodwaste Processing. CWS operates three CDD and woodwaste processing facilities in Maine including: the KTI Bio Fuels plant in Lewiston, Maine; the JRL transfer station for woodwaste (land clearing debris) and clean construction debris at the JRL site in Old Town; and RID in West Bath[43]. These facilities provide generators of CDD and woodwaste the opportunity to direct this material to a facility that achieves no less than a 50 percent recycling rate in compliance with the Maine Solid Waste Management Act, 38 M.R.S.A. § 1310-N(5-A)(B)(2). In 2010 these facilities produced approximately 106,000 tons of biomass fuels, recovered metal, aggregate, and alternate daily cover from the approximately 200,000 tons of woodwaste and CDD delivered to these facilities for a total recycling rate in excess of 50 percent.

Fines generated during the processing of CDD wastes are used at JRL as part of the landfill's daily cover, as a gas transmission layer below the intermediate cover, as internal gas piping bedding, and as internal road base material. These uses are forms of recycling that reduce the need for virgin natural resources, such as clay, till, or sand, thereby preserving these resources. JRL also provides a valuable disposal option for CDD processing facility residue, which will allow the State to improve upon the current void in processing CDD and reach its 50 percent recycling goal.

As identified in the Plan, the management and disposal of CDD are continuing areas of difficulty in Maine. In 2010, JRL received 145,488 tons of unprocessed CDD generated in the State. This material comes from private haulers, and 62 percent of the locations which generate CDD that is disposed at JRL are located within 50 miles of the facility. Historically, much of this material had been disposed at the Pine Tree Landfill.

[43] In addition to these facilities, Pine Tree Waste, Inc. (A CWS subsidiary) received a license (MEDEP #S-022074-WH-D-A; 23 MAY 07) for the amendment of a previously approved solid waste facility in Westbrook, Maine to construct and operate a CDD processing facility handling up to 1000 tons per day. The full project also contemplated a MSW transfer station and residential drop-off. Due to current regulatory and market conditions, there are currently no plans to construct the CDD processing facility portion of the project.

Processing of these materials is limited by several constraints as pointed out in Plan, including that these materials are unacceptable at waste-to-energy facilities and cannot be recycled or reused without investment in equipment, labor, and sufficient land area to aggregate and process them.

Composting and Beneficial Reuse. CWS's subsidiary, New England Organics (NEO), is extensively involved in organics recycling and beneficial reuse of organic waste products throughout Maine, as well as the rest of New England and New York, and works directly with municipal or private sector entities that generate organic waste. All of the programs operated by NEO reduce or eliminate, through composting or beneficial reuse, an organic waste that otherwise would require disposal by landfilling.

NEO owns and operates a composting facility in Unity Plantation, Maine that converts organic waste products into useful products. In 2010 Hawk Ridge facility processed 74,125 cubic yards of organic waste materials, including: wastewater sludges, fish and food wastes, pulp and paper sludge, mouse bedding materials, sawdust, wood ash, and short paper fiber. Ninety percent of these materials are from generators located in the State of Maine but this percentage may vary depending on market conditions. From these waste streams, Hawk Ridge produced about 18,000 tons of animal bedding and 40,000 tons of compost, mulches, and similar products.

NEO also oversees a number of beneficial reuse programs which promote the reuse of waste products within the state including wastewater sludges, flume grit, lime mud, and biomass ash. Together these programs handle about 59,511 tons of materials annually.

Universal and E-Waste Consolidation Facilities. CWS is a certified electronic waste consolidator for the State of Maine and operates seven universal and electronic consolidation facilities in Maine. In 2010, these facilities handled 26,181 units. These programs support the State's toxics reduction initiatives and help to ensure that Maine citizens are provided with management options that prevent these materials from being landfilled.

3.4 SPO's Efforts to Promote Recycling Consistent with the Plan

SPO has a threefold mission related to managing the State's solid waste:

- Collect, synthesize, and report on solid waste programs and data;
- Assist municipalities in their efforts to improve recycling and composting performance;
- Ensure sufficient, environmentally secure, disposal capacity for Maine's municipal solid waste.

To ensure that Maine has sufficient environmentally beneficial and economically viable recycling and composting opportunities, and solid waste disposal capacity, SPO:

- Performs necessary data collection to gauge level of recycling within the State;
- Monitors solid waste generation and disposal data to establish capacity needs;
- Manages the review of solid waste and recycling policies;
- Recommends revisions to the State's 50 percent recycling goal, if appropriate; and
- Promotes the concept and implementation of waste reduction and related efforts.

SPO furnishes municipal decision-makers with information, direction and technical and financial assistance to aid them in managing their solid waste in an environmentally beneficial and cost effective manner. This assistance includes:

- Designing and awarding municipal recycling capital investment grants. In the Spring of 2011, SPO offered a competitive capital investment grants program to municipalities, with a total award of just over $300,000 being granted through 16 selected projects designed to increase recycling and or expand composting efforts;
- Testing municipal or regional recycling program feasibility through the use of demonstration grants;
- Maintaining and promoting an information clearinghouse on recycling markets;
- Responding to requests for technical assistance;

- Sponsoring and coordinating the 'Maine Recycles Week' annual campaign to inform and educate Maine residents, schools and businesses on the value of recycling and buying recycled;
- Providing public education for regional and community recycling programs in the form of presentations and public informational activities relating to waste reduction, recycling and other waste management practices to Maine citizens, schools, and communities. The purpose of the campaign is to increase recycling efforts in Maine. In the spring of 2011, SPO awarded grants of up to $500 each to 27 municipal recycling programs for the expanded local promotion of their programs;
- Encouraging the development of municipal composting programs by increasing awareness through the Maine Composting School;
- Expanding technical assistance services by working with trade associations and planning councils;
- Maintaining an active Web Site (www.recyclemaine.com) to assist communities in exploring program options and as a teaching tool for schools;
- Remaining current with regional, national and international solid waste trends, developments and laws, for their effects and relevance to Maine's MSW management;
- Delivering workshops, coordinated with the DEP and MRRA, as appropriate;
- Developing and providing a quarterly newsletter to inform municipalities, businesses and other interested parties of new solid waste developments and programs; and
- Providing technical and financial assistance for Household Hazardous Waste management programs. These include providing financial assistance for the development and establishment of the state's only two permanent Household Hazardous Waste Collection Centers, in Portland, and Lewiston, and funding nine regional 'one-day' HHW collection events.

Finally, SPO plans for the development of facilities sufficient to meet disposal needs for municipal solid waste generated within Maine, as identified in the State Plan, and plans for development of facilities for special wastes identified in the State Plan. It also provides

appropriate assistance, when requested, in the development of regional and State-owned solid waste disposal facilities. This is accomplished by:

- Monitoring Juniper Ridge Landfill's activities;
- Collecting and managing of both statewide and regional solid waste generation and disposal data to assist in preparing for future development of additional disposal capacity;
- Maintaining the license for the undeveloped Carpenter Ridge landfill site/facility; and
- Recommending construction and operation of this facility at the appropriate time, as conditions and situations demand.

3.5 Consistency with the State Plan: Summary and Conclusion

As demonstrated by the information presented in this section of the Application, the Expansion is consistent with the State Plan and the policy of the State, as outlined in 38 M.R.S.A. § 2101, to pursue and implement an integrated approach to hazardous and solid waste management which adheres to a waste management hierarchy establishing priorities of waste handling in this order: (1) waste reduction; (2) reuse; (3) recycling; (4) composting; (5) volume reduction including incineration for energy recovery and waste processing; and (6) land disposal.

The Expansion Project is consistent with this integrated approach to solid waste management in at least three major respects. First, the Expansion Project is expressly contemplated in and incorporated into the Plan as a central component in meeting the State's immediate and long term needs for solid waste disposal capacity. Second, the Expansion is consistent with and supports the State's waste management hierarchy by providing a location for the disposal of residuals generated from recycling, energy recovery, and waste processing activities. Third, the owner and operator of the facility are both directly involved in operating and financing facilities and programs to provide recycling, processing and disposal capacity in the State important to achieving the Plan's principal goals of source reduction and recycling. The Expansion is also consistent with the goals of the Plan to remove toxics from MSW waste stream, reduce greenhouse gas emissions, and promote energy self-reliance and energy conservation.

Additionally, the Expansion allows the State to continue to provide safe handling and disposal of Maine-generated solid wastes by providing secure, long-term disposal capacity for the residuals that remain after the waste volumes are reduced to the maximum extent practicable.

ATTACHMENT 4

CONSISTENCY WITH LOCAL REGIONAL OR STATE WASTE COLLECTION, STORAGE, TRANSPORTATION, PROCESSING OR DISPOSAL

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 4
CONSISTENCY WITH LOCAL, REGIONAL OR STATE WASTE COLLECTION, STORAGE, TRANSPORTATION, PROCESSING OR DISPOSAL

4.0 CONSISTENCY WITH LOCAL, REGIONAL OR STATE WASTE COLLECTION, STORAGE, TRANSPORTATION, PROCESSING OR DISPOSAL

Figure 4-1 is a map of the State of Maine showing the points of origin of the 10 major waste categories which are disposed at the JRL facility based on the 2010 waste disposal data. As shown on this figure, 49, 63, and 84 percent of the points of origin for the wastes that are disposed at JRL are within 25, 50, and 100 miles, respectively of the site. Also as outlined in Plan, JRL currently represents approximately 49 percent of the disposal capacity in the State, and accepts residuals from the State's active CDD processing facilities.

Public/Private Partnership Efforts

The JRL and the proposed JRL Expansion are not only consistent with local, regional, and statewide collection, storage, transportation, processing, or disposal practices, they are an integral part of the State's waste management hierarchy on all levels. Since assuming operator status at JRL, NEWSME has worked with both individual municipalities and with the Municipal Review Committee (MRC),[44] to improve solid waste recycling and reuse opportunities. The MRC, PERC, and NEWSME have met numerous times since 2003 to discuss solid waste management issues. The topics that were discussed included: maintaining delivery of municipal solid waste generated and collected in MRC member communities to PERC for incineration; implementation of single-stream recycling in the PERC service area; and the availability of Universal and Electronic waste collection services available to MRC member communities at Casella facilities.

[44] The Municipal Review Committee, Inc (MRC) is the organization that represents the interests of over 175 member towns and cities in the operation of the Penobscot Energy Recovery Company (PERC) waste-to-energy incinerator; it is also a minority shareholder in PERC.

As outlined in the Capacity Report,[45] "disposal contracts for PERC expire in 2018. Two hundred municipalities rely on the facility. PERC is actively planning for the extension of PERC facility operations in 2018. In the case of both MERC and PERC, their future plans need to be factored into state disposal capacity planning." CWS is committed to providing ongoing disposal opportunities for the MRC municipalities with the Expansion.

As operator of the JRL, NEWSME has also entered into a host community agreement with the City of Old Town and a community benefit agreement with the Town of Alton that provide significant financial benefits to each municipality. NEWSME also provides a number of direct economic benefits to neighbors living in the immediate proximity of JRL including property tax reimbursement, a property value guarantee, and providing bottled water. In addition, NEWSME and JRL are a major employer in the Old Town area (through operational related activities and construction related development at the site) and continue to provide critical waste disposal capacity for the commercial operations at PERC, Old Town Fuel & Fiber (formerly Red Shield) and Lincoln Pulp and Paper. All of this will continue with the Expansion.

In conclusion, the Expansion Project meets the anticipated capacity disposal needs of the State, is consistent with the State Waste Management and Recycling Plan, supports Maine's waste management hierarchy, and is not inconsistent with local, regional, and state waste management efforts.

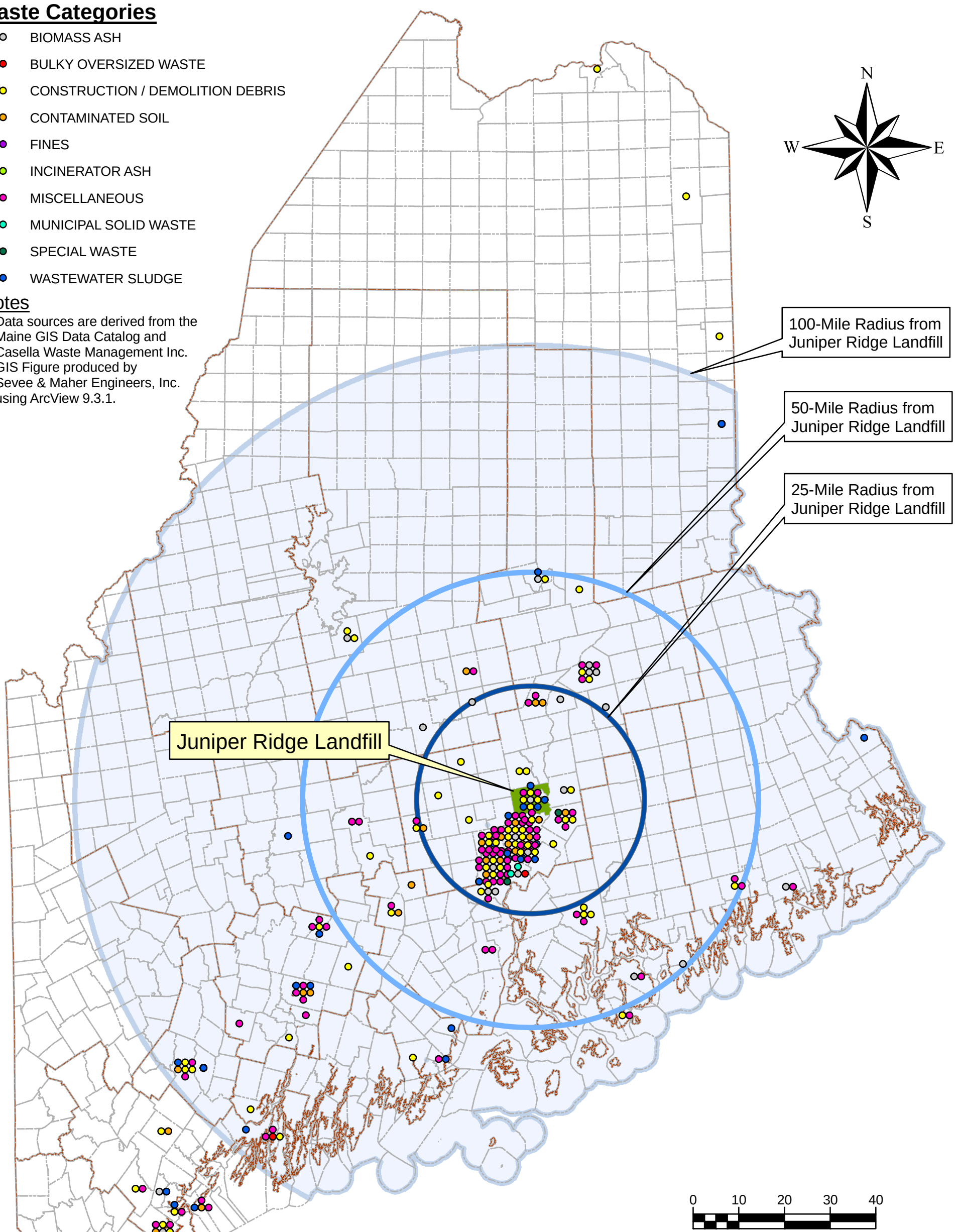
[45] Capacity Report, page 28.

Waste Categories

- BIOMASS ASH
- BULKY OVERSIZED WASTE
- CONSTRUCTION / DEMOLITION DEBRIS
- CONTAMINATED SOIL
- FINES
- INCINERATOR ASH
- MISCELLANEOUS
- MUNICIPAL SOLID WASTE
- SPECIAL WASTE
- WASTEWATER SLUDGE

Notes

1. Data sources are derived from the Maine GIS Data Catalog and Casella Waste Management Inc.
2. GIS Figure produced by Sevee & Maher Engineers, Inc. using ArcView 9.3.1.



All Locations within 25-miles of Juniper Ridge Landfill: 125 (49%)

All Locations within 50-miles of Juniper Ridge Landfill: 161 (63%)

All Locations within 100-miles of Juniper Ridge Landfill: 215 (84%)

All Other: 40 (16%)
Total: 255

C&DD Locations within 25-miles of Juniper Ridge Landfill: 32 (46%)

C&DD Locations within 50-miles of Juniper Ridge Landfill: 43 (62%)

C&DD Locations within 100-miles of Juniper Ridge Landfill: 57 (83%)

Other C&DD: 12 (17%)
Total: 69

FIGURE 4-1
POINTS OF ORIGIN FOR THE TEN MAJOR WASTE CATEGORIES ACCEPTED AT JRL
PUBLIC BENEFIT DETERMINATION
OLD TOWN, MAINE

SME
Sevee & Maher Engineers, Inc.
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

P:\Casella\OldTownLandfill\GIS\JRL_wastetypes_ALL.mxd 04/06/11 asb
P:\Casella\OldTownLandfill\Public Benefit Determination\Docs\R\2011 Revisions\JRL_wastetypes_ALL.pdf 04/06/11 asb

ATTACHMENT 5

FACILITY'S INTENDED USE

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 5
FACILITY'S INTENDED USE

5.0 FACILITY'S INTENDED USE

As described extensively in Attachment 1 of this application, SPO and NEWSME intend the JRL to continue to provide disposal capacity for the same waste streams that are presently accepted at the Landfill and any future non-hazardous waste streams that should necessitate disposal. The proposed JRL Expansion Project will both replace the regional solid waste disposal service that ended with the December 2009 closure of the Pine Tree Landfill in Hampden, Maine, and provide long-term State-wide disposal capacity for the next 20 to 25 years that is not presently available elsewhere in the State.

ATTACHMENT 6

TITLE, RIGHT OR INTEREST

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 6
TITLE, RIGHT OR INTEREST

6.0 TITLE, RIGHT OR INTEREST

The Expansion will be located on a parcel of land owned by the State of Maine (approximately 780 acres), located east of Route 43 and west of Route 16 in Old Town, Maine. The Expansion (i.e., expanded solid waste boundary and new infrastructure access roads, stormwater management ponds, etc.) will occupy approximately 143 acres of this parcel and, in addition, will overlap approximately 28 acres of the existing landfill footprint. The SPO deed is recorded in Book 9188, Page 152 at the Penobscot County Registry of Deeds. A copy of the deed is included in Appendix D.

ATTACHMENT 7

TAX MAP AND ABUTTERS LIST

KATHRYN PELLETIER
198 OLD STAGECOACH ROAD
ALTON, ME 04468
MAP 8 LOT 119

MR. KENNETH GRAY
PO BOX 357
OLD TOWN, ME 04468
MAP 8 LOT 118

TOWN OF ALTON
3352 BENNOCH ROAD
ALTON, ME 04468
MAP 8 LOT 117.1

CHALLIS RANDALL
220 OLD STAGECOACH ROAD
ALTON, ME 04468
MAP 8 LOT 117

MS. KAREN TURNMINE
PO BOX 150
MILDFORD, ME 04461
MAP 8 LOT 116

NEWSME LANDFILL OPERATIONS LL
C/O HARDING & CABONE
3903 BELLAIRE BLVD
HOUSTON, TX 77025
MAP 8 LOT 102

HARRY FEERO
118 SOUTHGATE ROAD
ARGYLE, MAINE 04468
MAP 8 LOT 107

JESSE PEKKALA
PO BOX 471
TELLURIDE, CO 81435
MAP 8 LOT 113

MR. AND MRS. WIN AND NANCY CHAIYABHAT
P.O. BOX 34
SEARSPORT, ME 04974
MAP 8 LOT 108, 109, 111, AND 112

MR. KARL HELD
2351 COCHRAN ROAD
DALLAS, GA 30132
MAP 8 LOT 106

TASANEE LOLONGA
157 MASSAPOAG AVENUE
EASTON, MA 02356
MAP 8 LOT 104

GEORGE AND JOYCE FEERO
2835 BENNOCH ROAD
ALTON, ME 04468
MAP 8 LOT 99

MR. AND MRS. ANTHONY AND CYNTHIA BROWN
11 CHAMBERLAIN ROAD
SEYMOUR, CT 06483
MAP 8 LOT 121

RUTH DALTON
206 OLD STAGECOACH ROAD
ALTON, ME 04468
MAP 8 LOT 119.1

MR. CHARLES TRINGALE III
250 OLD STAGECOACH ROAD
ALTON, ME 04468
MAP 8 LOT 114

MR. AND MRS. LAURENT J. AND BARBARA L. BEAUREGARD
273 WASHINGTON STREET
BREWER, ME 04412
MAP 2 LOT 40 AND 41

UNIVERSITY OF MAINE SYSTEM

PRIMARY ACCESS ROAD

EXIT 53

ROUTE 43
WEST OLD TOWN ROAD

PROPOSED EXPANSION
SOLID WASTE BOUNDARY
(108 ACRES)

PERMITTED TILL BORROW PIT

LEACHATE POND

EXISTING LANDFILL

PERMITTED WOOD WASTE

MR. ROBERT W. & WENDY HALL
631 WEST OLD TOWN ROAD
OLD TOWN, ME 04468
MAP 2 LOT 44

LAWRENCE H. STEEVES– HEIRS
986 SOUTH STREET
ROSLINDALE, MA 02131
MAP 2 LOT 47

THOMAS DUNN & KAREN BERTOLINO
579 WEST OLD TOWN ROAD
OLD TOWN, ME 04468
MAP 2 LOT 46

RAYMOND A. PERKINS
55 OLD BROOKLYN TURNPIKE
WINDHAM, CT 06280
MAP 2 LOT 52

GREGG P & AND EVLYNN L WALLACE
526 WEST OLD TOWN ROAD
OLD TOWN, ME 04468
MAP 2 LOT 54

UNITED CEREBRAL PALSY
700 MOUNT HOPE AVENUE
BANGOR, ME 04401
MAP 2 LOT 53

ROBYN EMMONS
488 WEST OLD TOWN ROAD
OLD TOWN, ME 04468
MAP 2 LOT 55

SCOTT E. BERGQUIST
497 WEST OLD TOWN ROAD
OLD TOWN, ME 04468
MAP 3 LOT 6B

ANGELA D. CYR
449 WEST OLD TOWN ROAD
OLD TOWN, ME 04468
MAP 3 LOT 7A

CARL MARQUIS
P.O. BOX 237
STILLWATER, ME 04489
MAP 3 LOT 15

HERBERT A. ROBERTSON JR
163 CLEWLEYVILLE ROAD
EDDINGTON, ME 04428
MAP 3 LOT 41–C

REST AREA

INTERSTATE 95

SSR, LLC
PO BOX 435
STILLWATER, ME 04489
MAP 3 LOTS 45B, 50A, 54B AND 58B

N

NOTE:

1. THIS IS AN INFORMATIONAL FIGURE ONLY AND IS NOT INTENDED TO SERVE AS A BOUNDARY SURVEY MAP. DIMENSIONS, NORTHING AND EASTING INFORMATION PRESENTED ON THIS FIGURE ARE APPROXIMATE AND ARE BASED UPON AVAILABLE SITE INFORMATION FOR THE JUNIPER RIDGE LANDFILL. NO FIELD SURVEY HAS BEEN PERFORMED BY SEVEE AND MAHER ENGINEERS REGARDING THE INFORMATION PRESENTED ON THIS DRAWING.

LEGEND

PROPERTY LINE LOCATIONS ARE ARE APPROXIMATE AND ARE BASED UPON A RESULT OF FIELD SURVEY PERFORMED BY HERRICK AND SALSBURY, INC. LAND SURVEYORS, ELLSWORTH, MAINE FOR TRYTON TREE FARM PROJECT, PATTEN CORPORATION–DOWNEAST, OLD TOWN, MAINE, FEBRUARY 23, 1988, REVISED APRIL 7, 1988

50A LOT LOCATIONS ARE APPROXIMATE AND ARE BASED UPON AVAILABLE TAX MAP INFORMATION FOR THE TOWN OF ALTON AND OLD TOWN, MAINE, (2008).

250 0 500 1000 FEET

TAX MAP OF PROPERTY ABUTTERS JUNIPER RIDGE LANDFILL OLD TOWN, MAINE

SME
Sevee & Maher Engineers, Inc.
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland Center, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • www.smemaine.com

DWG: AREAMAP LMN: TAX MAP CTB: UMO LAND REV: 8/22/11

JUNIPER RIDGE LANDFILL EXPANSION
PUBLIC BENEFIT DETERMINATION
ATTACHMENT 7
TAX MAP AND ABUTTERS LIST

TOWN OF ALTON

Tasanee Lolonga 157 Massapoag Ave Easton, MA 02356 Map 8 – Lot 104	Mr. Charles Tringale III 250 Old Stage Coach Rd. Alton ME 04468 Map 8 – Lot 114	Kathryn Pelletier 198 Old Stage Coach Rd. Alton, ME 04468 Map 8 – Lot 119
Mr. Karl Held 2351 Cochran Road Dallas, GA 30132 Map 8 – Lot 106	Ms. Karen Turnmire PO Box 150 Milford, ME 04461 Map 8 – Lot 116	Anthony & Cynthia Brown 11 Chamberlain Road Seymour, CT 06483 Map 8 – Lot 121
Win & Nancy Chaiyabhat P.O. Box 34 Searsport, ME 04974 Map 8 – Lots 108, 109, 111, & 112	Town of Alton 3352 Bennoch Road Alton, ME 04468 Map 8 – Lot 117.1	NEWSME Landfill Operations LL C/O Harding & Carbone 3903 Bellaire Blvd Houston, TX 77025 Map 8 – Lot 102
Harry Feero 1118 Southgate Rd. Argyle, Me 04468 Map 8 – Lot 107	Challis Randall 220 Old Stagecoach Road Aton, ME 04468 Map 8 – Lot 117	Ruth Dalton 206 Old Stagecoach Road Alton, ME 04468 Map 8 – Lot 119.1
Jesse Pekkala PO Box 471 Telluride, CO 81435 Map 8 – Lot 113	Mr. Kenneth Gray PO Box 357 Old Town, ME 04468 Map 8 – Lot 118	

CITY OF OLD TOWN

University of Maine System 16 Central Street 3rd Floor Bangor, Maine 04401 Map 3 – Lot 1A	Scott E Bergquist 497 West Old Town Road Old Town, ME 04468 Map 3 – Lot 6B	Thomas Dunn & Karen Bertolino 579 West Old Town Road Old Town, ME 04468 Map 2 – Lot 46
SSR, LLC PO Box 435 Stillwater, ME 04489 Map 3 – Lots 45B, 50A, 54B, 58B	Raymond A Perkins 55 Old Brooklyn Turnpike Windham, CT 06280 Map 2 – Lot 52	Gregg P & Evlynn L Wallace 526 West Old Town Road Old Town, ME 04468 Map 2 – Lot 54
Herbert A Robertson JR 163 Clewleyville Road Eddington Me 04428 Map 3 – Lot 41C	Robyn Emmons 488 West Old Town Road Old Town, ME 04468 Map 2 – Lot 55	
Carl E Marquis PO Box 237 Stillwater, ME 04489 Map 3 – Lot 15	Lawrence H Steeves – Heirs 986 South Street Roslindale, MA 02131 Map 2 – Lot 47	
Robert W & Wendy Hall 631 West Old Town Road Old Town, ME 04468 Map 2 – Lot 44	United Cerebral Palsy 700 Mount Hope Avenue Bangor, ME 04401 Map 2 – Lot 53	
Angela D Cyr 449 West Old Town Road Old Town, ME 04468 Map 3 – Lot 7A	Laurent J & Barbara L Beauregard 273 Washington Street Brewer, ME 04412 Map 2 – Lots 40 and 41	

APPENDIX A

SOLID WASTE GENERATION AND DISPOSAL CAPACITY REPORT JANUARY 2011

Solid Waste Generation & Disposal Capacity Report

For Calendar Year 2009

Prepared by the Maine State Planning Office

for the

Joint Standing Committee on Environment and Natural Resources of the 125th Legislature

January 2011

Acknowledgements

This report is prepared by the State Planning Office in accordance with 38 MRSA §2124-A.

Calculations are based on data provided by municipalities, commercial recycling brokers, and public and private disposal facilities. We would like to thank the hundreds of municipal officials and private sector waste management and recycling companies who helped with supplying data. Without them, the State Planning Office could not produce this report.

Data from calendar year 2009 are the most current and complete data available for this report.

Executive Office
State Planning Office
Waste Management & Recycling Program
38 State House Station
19 Union St.
Augusta, Maine 04333-0038
(207) 624-6243
www.maine.gov/spo/recycle

January 2011

Printed under Appropriation #014 07B 1655 008208

Contents

Executive Summary

This report is submitted to the Joint Standing Committee on Environment and Natural Resources pursuant to 38 MRSA §2124-A. It provides an overview of Maine's municipal solid waste generation, recycling, combustion, and landfill activities for 2009, in order to:

1) determine the impact of these activities on available solid waste disposal capacity,
2) identify planned and consumed capacity at disposal facilities, and
3) project the lifespan of capacity.

The report also calculates the State's recycling rate.

The State Planning Office (the Office) prepares this capacity report annually, which allows policymakers to scrutinize progress and effectiveness of Maine's solid waste policies against the most current numbers and projections.

Key Findings

Municipal solid waste (MSW) tonnage generated in Maine continued to decrease but at less than half the rate of decline of the previous year.

Maine residents and businesses generated less waste for a second consecutive year. Waste generation decreased by 3.1% in 2009, less than the 8.7% decrease in 2008, but still a combined decline of over 11% from 2007 levels.

MSW generation is largely tied to our consumption of goods. As the State's economy slowed, so too did Mainer's purchases and, thus, the amount we threw away. Prior to 2007, waste in Maine increased by an average 4% per year. Based on historical trends and a strong correlation with retail sales, the Office expects waste generation to pick up as the economy improves.

Maine recycling tonnage declined but the rate held steady.

The amount of waste collected for recycling declined in 2009, but, because of a corresponding decline in total MSW generated, the state recycling rate held steady at 38.7%, the same as 2008.

Maine's statewide recycling rate is calculated by dividing the total amount of MSW recycled and reused (including composting) by the total amount of MSW generated. Thus, the rate is driven equally by the amount of waste we recycle and the amount we produce.

Maine continued its decades long trend of landfilling less than it combusts or recycles.

While recycling managed 38.7% of Maine's MSW in 2009, 33.3% was delivered to the four waste-to-energy facilities in 2009. Both activities significantly reduced Maine's reliance on the land disposal of waste. Wastes accepted by waste-to-energy plants and processed into residues before landfilling are reduced in weight by as much as 66%.

Maine landfilled one-quarter (25.4%) of its waste in 2009.[1] Wastes that are directly landfilled, which could be recycled or diverted for other uses, are the major consumer of landfill space. Maine's aggressive recycling goal is designed to reduce the volume of waste requiring landfilling.

Maine solid waste imports rose 8.5% to fuel its waste-to-energy plants.

During 2009, Maine imported more than a half million tons of MSW. Approximately half of that tonnage was delivered to waste-to-energy facilities to produce energy. Reflecting Maine's slow economy, the continued drop in Maine-generated waste, and their need to meet tonnage requirements for energy contracts, waste-to-energy facilities increased their importation of MSW by 41,000 tons over 2008.

The Office expects that the imports of MSW will continue at waste-to-energy facilities for the foreseeable future, to be gradually replaced by Maine MSW only as the economy recovers and generation of domestic waste increases.

The remaining out-of-state-generated MSW, including construction and demolitions debris, was received at the State's two commercial landfills — Pine Tree Landfill in Hampden and the Crossroads Landfill in Norridgewock. While economics have increased the amount of MSW imported by waste-to-energy facilities, the amount of out-of-state waste landfilled will decline sharply due to the closure of the Pine Tree Landfill at the end of 2009, which will be reflected in the Office's capacity report for 2010.

Maine has sufficient statewide disposal capacity until 2020.

Maine will need 24.4 million cubic yards of landfill capacity over the next 20 years to meet the projected disposal needs of the State. The State currently has 17.5 million cubic yards of licensed capacity.

As the table in Appendix A shows, Maine has capacity in our state-owned and commercial landfills together to manage the total wastes generated through 2019-20. The sole remaining commercial landfill, Crossroads Landfill, has projected capacity through 2021-22. Currently, Juniper Ridge, the state-owned landfill, has licensed capacity that will be exhausted at the end of 2017, using a projected 2.8% growth rate.

[1] The percentage landfilled does not include waste produced from the combustion of municipal solid waste (MSW) or other MSW processing residues in order to avoid double counting.

For comparison, if we use a projected zero growth rate in wastes delivered to the facility, the permitted capacity of Juniper Ridge will be consumed in 2018.

Maine has sufficient disposal capacity in the near-term, but will need to plan for additional capacity to come on line before 2020 to avoid service disruptions.

Maine could decrease its landfill capacity needs by 25% and substantially decrease its solid waste management costs over the next 20 years by recycling 50% of its municipal solid waste each year.

Although results at individual landfills will vary due to the kinds and amounts of solid waste they receive, and how that waste is managed at the landfill, recycling 50% of our MSW would decrease Maine's overall capacity needs from 24.4 million cubic yards to 19.3 million cubic yards, depending upon the rate of growth of MSW over the 2010-2029 timeframe. Thus, achieving 50% recycling (or greater) would have a significant effect on Maine's need to develop new capacity.

Costs vary, but the Office estimates that it costs on average $25 per cubic yard to permit and develop new landfill disposal capacity depending on types of waste and size of footprints. Developing new landfill capacity to meet 20 years of Maine's disposal needs after the existing 17.5 million cubic yards of landfill space is consumed is likely to cost $175 million dollars. Reducing the amount of landfill space needed through recycling could lower the landfill development costs by as much as $125 million.

Currently, in Maine much of these development costs are borne upfront by commercial owners or operators and paid back over time by municipalities and other users through tipping fees on the disposal of solid waste. In those municipalities with their own landfills, property taxpayers bear the cost of new landfill development.

We can also estimate the cost to build Maine's recycling infrastructure to accommodate increases in materials and tonnages that would be collected at a 50% recycling rate. This would be roughly $5-6 million and likely would be borne by property taxpayers and private investors, perhaps with some state funds as incentives.

Maine's disposal capacity supply and demand had no measurable effect on disposal pricing in 2009.

State law directs the Office to look at the impact of available disposal capacity on tipping fees, with an eye to monitoring how a decrease in capacity may impact tipping fees charged, collusion, or other forms of monopolistic, oppressive practices.

In 2009, the Office found no significant impact to disposal prices due to a decrease in available disposal capacity. The Office consulted with the Department of the Attorney General in developing this analysis.

The operator of the Juniper Ridge Landfill is bound by a cap on tipping fees, imposed by the State in its operating services agreement. The cap acts as a check on pricing for the disposal of similar materials at other solid waste facilities.

Maine's solid waste industry is diverse and competitive.

The law also asks the Office to analyze the ownership of the collection, recycling, hauling, and disposal sectors of Maine's solid waste industry for undue consolidation and the potential for unfavorable impacts on competition. The Office examines these industry sections to look for conditions that might create either a lack of service or a monopolistic situation.

Maine's solid waste industry is a mix of public and private investments and services that handles 5,000 tons of materials each day (including recyclables). The Office finds that Maine's inter-connected system of private and public sector collection, recycling, hauling, and disposal currently serves Maine's solid waste management needs fairly and effectively. The Office consulted with the Department of the Attorney General in developing this analysis.

Key Questions for Policymakers

The Governor and the Legislature may want to consider the following three policy questions:

1. Should Maine invest public dollars to increase recycling and decrease the need for development of additional disposal capacity?
2. When will Maine need to develop new state-owned landfill capacity?
3. Is owning a landfill, as part of an overall state waste management strategy, an appropriate state function?

State Investment in Recycling

In 2010, the Legislature's Natural Resources Committee examined ways to increase Maine's recycling rate including public investments to recover old corrugated cardboard, yard and leaf waste, and food wastes. The Office concluded that a $5-6 million investment in municipal recycling facilities to divert these waste streams from landfilling would increase the State's recycling rate to over 50%. At the request of the committee, the Office is preparing a report on these issues for their consideration in the 125th session.

New State-owned Landfill Capacity

In anticipation of state-owned landfill space being exhausted in 2017 or 2018, and if the Legislature wants capacity in addition to the commercially-owned Crossroads Landfill, the State needs to begin planning for new, state-owned, landfill capacity in 2011. This timeframe takes into account the current economic slowdown, and the anticipated duration of the complete development process, from the initial preparation of the application for public benefit determination, through construction of new capacity licensed and prepared to receive waste.

Maine law requires the Office to notify the Legislature when there is six years or less of remaining licensed and available statewide disposal capacity (38 MRSA §2156-A) and to recommend to the Legislature's Environment and Natural Resources Committee construction of new disposal capacity for MSW or special waste. Based on the analysis in this report, and assuming no major change in Maine's solid waste generation and management landscape, the Office expects it will reach that trigger point in 2011.

In the 2010 capacity report, we anticipate asking the Committee to consider recommendations for ensuring that Maine does not run out of statewide disposal capacity in order to avoid attempting to construct landfill capacity in a crisis situation.

State Ownership of Landfills

Given the need to start planning the development of landfill capacity in the near future, it is appropriate to examine the State's role in the solid waste disposal system.

In 1989, the Maine Legislature passed landmark waste management legislation that, among other things, banned the development of new commercial solid waste disposal facilities and set Maine state government on a course to own landfills. This was in response to concerns about out-of-state waste consuming Maine landfill capacity.

Under the commerce clause of the U.S. Constitution, states cannot restrict the flow of solid waste (considered a commodity) across state lines through use of its regulatory authority. If Maine wants to limit the importation of solid waste from other states to be disposed of here, it can only do so as the owner of the landfill. Under the 1989 law, existing commercial facilities are being phased out and the State[2] sites and owns future landfills.

Over the past 20 years, legislatures have revisited the policy of banning commercial landfills and upheld it. Most recently, the Natural Resources Committee considered a bill in spring 2010 that would have allowed an expansion of the sole remaining commercial landfill in the State. The committee voted the bill down, but continued to study this question in the summer of 2010 with the intention of re-examining it in the 125th Legislature.

In 2003, as part of an economic development strategy to preserve paper mill jobs in Old Town, the Baldacci Administration negotiated an agreement whereby the State acquired the Georgia Pacific/Fort James paper mill sludge landfill for use by Maine's municipalities and businesses to dispose MSW and residues. The Legislature gave the responsibility for overseeing the landfill to the State Planning Office. The Office contracts with a private waste management company to operate the state-owned landfill, known as Juniper Ridge.

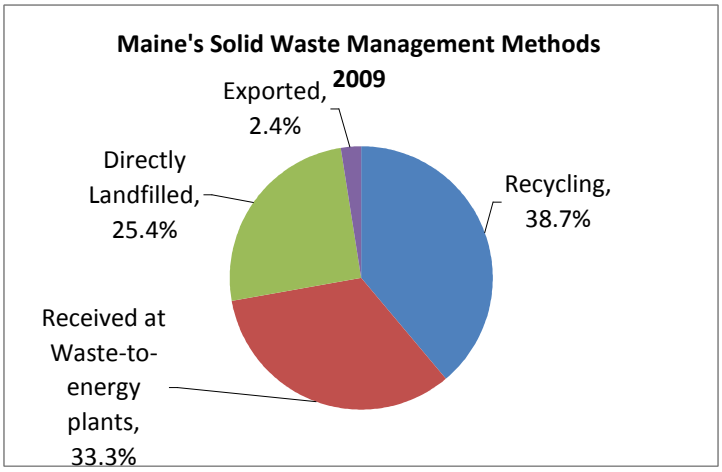
If the Legislature were to amend state law to allow new or expanded commercial landfills, the State could sell the Juniper Ridge Landfill to a commercial entity. There are

[2] In the 1989 law, the Waste Management Agency would have been the agency for state-owned landfills. When the Legislature abolished the agency in 1995, it moved that responsibility to the State Planning Office.

benefits and consequences to privatizing the landfill. On the plus side, the State would be relieved of the duties of overseeing the landfill operations, except for compliance with environmental regulations by the Department of Environmental Protection (DEP), and could realize revenues from the sale of the landfill, a valuable asset. There would be several contractual and legal issues to resolve with the current operator that, while not insurmountable, would take time and reparation to resolve. On the down side, the State would lose its ability to control the importation of solid waste and to prevent out-of-state waste from consuming landfill space that serves Maine residents and businesses.

Maine Municipal Solid Waste Management Summary

The following graph shows how Maine managed its MSW in 2009.



The following tables provide an overview of Maine's MSW (in tons) in 2009 compared to 2008. Where appropriate, clarifications between out-of-state and in-state wastes are noted.

Management of Maine's Municipal Solid Waste

Maine in-state generated solid waste	**2008**	**2009**
Total Municipal Solid Waste Generation	1,833,634	1,777,498
Recycled/Reused	709,624	687,781
Combusted	370,082[3]	352,633[3]
Landfilled	691,490[4]	693,931[4]
Exported	62,438	43,153

[3] includes in-states wastes only.

[4] This figure includes the 25.4 percent of MSW that is directly landfilled and the processing residues and ash from the combustion of Maine MSW which are ultimately landfilled thus included under "landfilled" rather than "combusted" in order to avoid double counting.

Recycling in Maine

Maine in-state recyclables	**2008**	**2009**
Municipal/Public Efforts	266,977	255,097
Commercial/Business Efforts	442,647	432,684
Total Tons Recycled	**709,624**	**687,781**
% of MSW Recycled	**38.7%**	**38.7%**

Processing for Combustion at Waste-to-Energy Facilities

Combined in-state and out-of-state	**2008**	**2009**
Combusted	515,872	522,653
By-pass	20,520	36,160
FEPR	117,069	118,864
Metal	22,138	22,285
Ash	175,261	174,900
Total MSW Delivered to WTE	**850,860**	**874,862**[5]

Disposal Facility Receipts of Out-of-state Generated MSW

facility and the type of waste received	**2008**	**2009**
Maine Energy – MSW	160,118	175,962
PERC – MSW	80,343	92,010
ecomaine – MSW	2,826	16,514
Mid Maine Waste Action Corp. – MSW	110	110
commercial landfills – MSW Landfilled	0	0
Pine Tree – CDD Landfilled	285,728	279,118
Crossroads – CDD Landfilled	0	10,631
Total MSW & CDD Imported	**529,125**	**574,345**

Landfill Disposal

Combined in-state MSW and CDD including all processing residues from the WTE facilities	**2008**	**2009**
Juniper Ridge	426,761	365,287
Municipal Landfills	149,911	149,149
Municipal CDD Landfills	Insufficient data	Insufficient data
2 Commercial Landfills	212,539	302,019
Total Landfilled	**789,211**	**816,455**

[5] 67.5% of the MSW processed at Maine's 4 WTE facilities was generated in Maine, the balance was generated outside Maine. Of the 522,563 tons combusted, 352,633 tons were generated in Maine.

Disposal Capacity in Maine[6]

		3 Years	5 Years	10 Years	20 Years
WTE Facility Capacity	2009 Capacity – currently available (tons/year)	2012 Capacity – projected remaining (tons/year)	2014 Capacity – projected remaining (tons/year)	2019 Capacity – projected remaining (tons/year)	2029 Capacity – projected remaining (tons/year)
MMWAC - Auburn	70,000	70,000	70,000	70,000	70,000
ecomaine - Portland	170,000	170,000	170,000	170,000	170,000
Maine Energy - Biddeford	310,000	310,000	310,000	310,000	310,000
PERC - Orrington	304,000	304,000	304,000	304,000[6]	304,000
Total	**854,000**	**854,000**	**854,000**	**854,000**	**854,000**
Landfill Disposal Capacity at a 1 % projected growth rate	2009 Licensed Capacity – end of year (cubic yards)	2012 Licensed Capacity – end of year (cubic yards)	2014 Licensed Capacity – end of year (cubic yards)	2019 Licensed Capacity – end of year (cubic yards)	2029 Licensed Capacity – end of year (cubic yards)
State Landfills (2):					
Carpenter Ridge – T 2 R 8	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped
Juniper Ridge – Old Town	7,114,614	4,664,615	2,995,684	0	0
Juniper Ridge – Old Town (expansion being sought)	Unlicensed	Unlicensed	Unlicensed	Unlicensed	Unlicensed
Municipal Disposal Sites (10)					
8 - Municipal landfills	4,920,282	4,282,877	3,847,246	2,719,474	288,413
2 - Municipal – 'ash'	1,279,397	1,025,849	865,820	451,532	0
Commercial landfills (2)					
Crossroads - Norridgewock	4,254,517	3,351,517	2,736,397	1,143,960	0
Pine Tree - Hampden	0	0	0	0	0
Total	17,568,810	13,655,301	10,993,892	4,386,143	288,413

[6] This table projects the continued operation of the four WTE facilities. Expansions are planned at the Presque Isle and Juniper Ridge Landfills but until those expansions are permitted, no additional capacity is included in these projections.

I. Introduction

Maine law requires the State Planning Office (the Office) to report annually to the Legislature on the State's recycling rate and disposal capacity needs. The full statutory language appears in Appendix B.

The report includes a projection of the solid waste disposal needs of Maine for the next 3, 5,10, and 20 years. The report also analyzes how the fill rate at each solid waste landfill could affect the expected lifespan of that landfill. In addition, the report assesses supracompetitive pricing and its possible implications as well as a review of consolidation within the solid waste industry sectors.

This capacity report provides policymakers with the information to plan for and make decisions about future capacity investment. Maine law requires that the Legislature be notified with recommendations for developing new disposal capacity when there are six years of capacity remaining. This report provides the basis for those recommendations. The report also assists policymakers with understanding progress toward our waste reduction and recycling goals and its impact on disposal capacity.

Our Methodology

Data from calendar year 2009 are the most current, complete data available for this report. The data used from this report come from a variety of sources:

- recycling and waste disposal data submitted in annual reports by local and regional municipal recycling and waste management programs to the Office and Department of Environmental Protection (DEP);

- solid waste data from the public and private disposal and processing facilities' annual license reports to DEP; and

- commercial recycling data from surveys conducted by the Office.

The Office combines the tonnages of waste processed and disposed, as well as that recycled, composted, and reused, to create a reliable estimate of the total municipal solid waste (MSW) generation in Maine.

To estimate recycling, the Office combines municipal and commercial recycling tonnages and adjusts the figures to eliminate duplicate counting of recyclables. To estimate landfill capacity, the Office uses landfill capacity estimates from the public and private facilities, calculates the amount of waste being disposed at each facility, projects the amount of waste expected to be disposed over time (subtracting out expected recycling tonnages), and determines the life span of each facility and a statewide total.

Traditionally, the Office based projections of solid waste generation on historical data. From 1993–2007, solid waste generation increased 4% per year. The years 2008 and 2009 changed all that. Based on two years of economic downturn, which has reduced

waste generation in Maine, we have modified our projections. In this report we project zero percent growth in 2010 and 2011, and then, based on averaging into the historical data the downturn years, a more modest increase of 2.8% per year starting in 2012.

In addition, for comparison purposes, the Office also projected a zero growth scenario to measure the impact of a possible slower economic recovery. Using estimates of zero increases in 2010-2020, the Office projects a possible extension of disposal capacity of up to one year.

Lastly, we have examined state economic indicators as an alternative to historical data to project future waste amounts. State economists found a strong correlation between Maine retail sales and waste generation. We have included an analysis of that comparison in Appendix D. As such, waste generation increases appear to closely mirror reliable projections for retail sales in Maine. A preliminary analysis by state economists shows projected growth in retail sales beginning in 2010 and 2011. Based on this, the Office will monitor facility tonnages closely in 2010 and 2011 to determine whether waste generation projections need to increase and to assess any impact that would have on available disposal capacity. If the economy (as measured by retail sales) does begin to turn around in 2010 and 2011 and waste generation increases rather than holds steady at no growth, the State may have less disposal capacity than anticipated.

The Office made several assumptions in making its 10- and 20-year disposal capacity projections. It assumed:

- A constant recycling rate of 38%;
- Exported wastes continue to decline;
- Continued operation of and reliance on the four waste-to-energy facilities, at the existing mix of tonnages (out-of-state waste, processed residues, etc); and
- No significant change in municipally-operated landfills.

Projections and assumptions would change should we see significant closures or start-ups of waste processing or disposal facilities, major swings in market conditions for recyclables, or policy changes to increase public and private recycling.

This report focuses on municipal solid waste (MSW) as defined by Maine law. MSW comprises household, baggable waste, and construction demolition debris, including such items as furniture, tires, and metal.

The report does include some sludge and ash tonnages considered ‘special wastes.’ Special wastes are generated by other than housholds or typical businesses and, due to their quantity or chemical or physical properties, require particular handling. They include primarily ashes, sludges, and some processing wastes. This report provides details on those special wastes, which are residues of managing MSW, primarily

incinerator ash.

Industrial wastes are not included in this report. Industrial wastes are not part of the waste managed by municipalities. These wastes are typically managed by the generator and disposed at generator-owned facilities or out-of-state.

The Report and the State Plan

In addition to this disposal capacity report, the Office prepares the state waste management and recycling plan every five years. The state plan contains data on capacity needs. The capacity report updates the numbers annually. We believe the key to achieving Maine's statutory waste management goals is our ability to make the short-term course corrections (consistent with the state plan) when and where they are indicated by the findings in the capacity report.

In this capacity report, the Office identifies the following modifications to the assumptions of the state plan that deserve note.

Recycling

- Markets for recycled materials have continued their rebound from the late 2008 downturn and now exceed the market highs of the first quarter of 2008. Prices on some commodities are at the record prices of 1995.
- The 124th Legislature passed, and the Governor signed into law, milestone product stewardship framework legislation. The Maine DEP has produced the legislation's first report which identifies medical sharps, paint, and pharmaceuticals for review and possible inclusion under the law.

Capacity

- The plan estimated Maine's 20-year land disposal capacity needs at 34 million cubic yards predicated on a 4% annual growth in MSW based on historical trends. This report maintains the downward revision of the 2008 Generation and Capacity Report. This report projects Maine's landfill capacity needs will be 24.4 million cubic yards based on a growth rate of 2.8%. The predicted continued drop in 2009 MSW generation has occurred.

Waste to Energy (WTE)

- The continued drop in Maine's generation of MSW caused the WTE facilties to import more tonnage from out-of-state than in previous years. The plan assumed a gradual but constant decline in the amount of out-of-state waste required by the WTEs as Maine generation grew.
- As of the end of 2009, there has been no change in the status of the Maine Energy Recovery (MERC) facility in downtown Biddeford, although in 2009 Casella Waste Systems, MERC's owner, announced in trade journals it was

actively seeking a buyer for the 24-year-old plant, while at the same time officials in Biddeford and Saco are attempting to find a way to close it down. If Maine Energy did close, there are several possible scenarios for the management of the Maine generated wastes currently received at the facility, but, there would not be an increase demand on in-state landfill disposal capacity. In recent years, the annual tons of Maine generated MSW accepted at Maine Energy have either approximately equalled or been less than the annual tons of residues sent to Maine landfills from the facility.

- Penobscot Energy Recovery Company (PERC) officials announced their active strategic planning for continuing processing wastes after their 2018 disposal-contracts expire, and their planning for the appropriate sized and type of system that will efficiently process less waste. A downsized WTE facility or possible new technology at PERC would translate into decreased demand for landfill capacity.

II. Municipal Solid Waste Generation

A. Definition

Municipal Solid Waste (MSW)

MSW is waste typically generated by households and businesses and managed by municipalities. It includes household garbage and other waste including recoverable materials such as cardboard, newsprint, office and mixed papers, food waste, plastics, glass, metals, textiles, appliances, furniture, tires, wood waste, yard waste as well as construction and demolition debris.

Construction and demolition debris (CDD) are the wastes generated by building, remodeling and destruction activities and may include such wastes as wood and wood products, concrete and brick, gypsum board, shingles, and other common components of buildings. Maine includes CDD in its definition of MSW.

B. Statewide Municipal Solid Waste Generation

Maine residents and visitors generated 1,777,498 tons of MSW in 2009. Waste generation is a function of population growth, lifestyles, economic activity, and manufacturing and production practices. The drop in solid waste generation rate reflects the economic downturn that began in 2008.

As shown in Figure 1, over the recent past, waste generation growth had leveled. From 1993 through 2001 MSW grew 42%, at an annual growth rate of 4%. But from 2003 through 2007, overall growth was less than 1%. In 2008 the total waste generated fell by 173,960 tons, an 8.7% decrease while 2009 numbers reflect a continued but less dramatic 3.1% decline.

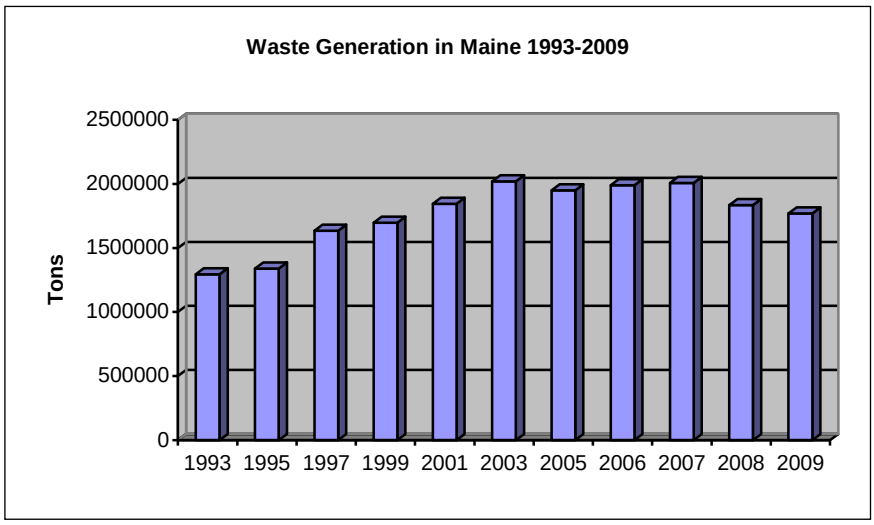


Figure 1: Maine Waste Generation, 1993-2009
Source: State Planning Office

III. Recycling

A. Statewide Recycling Rate

Maine recycled 38.7% of its MSW in 2009, the same as 2008. The statewide recycling rate is calculated by dividing the total amount of MSW recycled (including composting and reuse) by the total amount of MSW generated.

Recycling Trends

Figure 2 shows the tons of waste disposed compared to the tons recycled over time. Until 2008 the growth in waste generation had prevented the recycling rate from increasing despite greater tonnages being recycled. In 2008 and 2009 the recycling rates increased and held steady because overall waste generation declined.

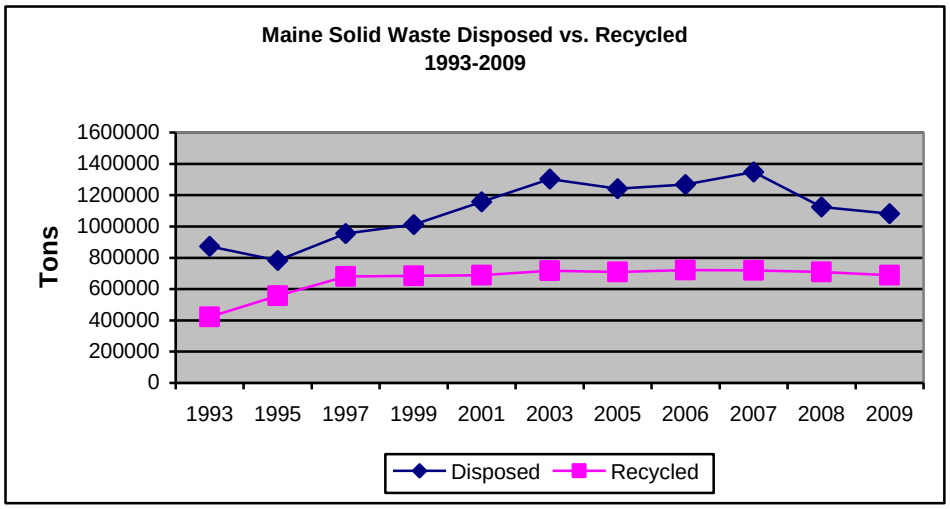


Figure 2: Maine Solid Waste Disposed vs. Recycling, 1993-2009
Source: State Planning Office

Table A shows a breakdown of MSW and CDD waste generated and recycled

Table A: Maine CDD Generation and Recycling - 2009				
MSW (including CDD) generated	1,777,498		MSW w/o CDD generated	1,392,243
MSW with CDD recycled	687,781		MSW w/o CDD recycled	620,760

B. Type and Amount of Materials Recycled

Maine recycles a wide variety of materials with the highest tonnages in fiber products and metal. See Appendix C for a table depicting recyclable categories and tonnages from 1997 to 2009.

C. Progress Toward Achieving State Goals

Maine's Recycling and Waste Reduction Goals

Recycling

In 1989, the Maine Legislature established a goal to recycle 50% of the state's MSW annually. In 2009, Maine held to a 38.7% recycling rate.

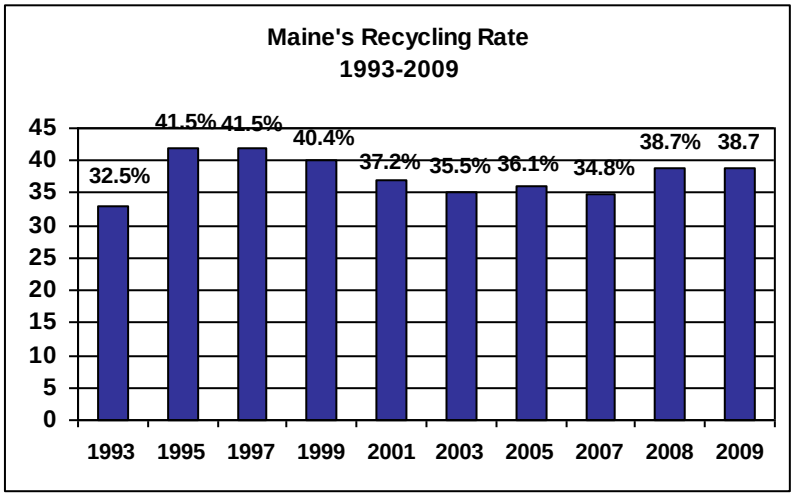


Figure 3: Maine's Recycling Rate, 1993-2009
Source: State Planning Office

While the legislated date to achieve the goal (January 1, 2009) has passed, the State remains committed to reaching the 50% goal in light of the value of reducing overall solid waste management costs, the positive impact on the environment, and a lessening of the need for additional solid waste disposal capacity.

Individual municipal and regional recycling programs are not required to achieve a 50% recycling rate; but they are required to demonstrate progress towards the goal. Recycling progress varies by community, but overall, public programs recovered 15% (255,097 tons) from the State's total MSW stream that would otherwise need disposal.[7]

Achieving our Waste Reduction and Recycling Goals

To reach our statutory recycling goal of 50%, Maine would need to recycle approximately 900,000 tons per year at today's generation levels. That rate is certainly achievable, with new resources and policy changes. For example, the Office estimates that a comprehensive recovery program for the food scraps which Maine residents, institutions, and businesses throw out each year, that included new composting facilities and energized marketing of the finished product would yield two-thirds of the amount of recovered materials needed to break through the 50% threshold.[8]

[7] The remaining tonnages that make up the state's recycling rate are recycled by Maine businesses.
[8] For additional strategies to increase recycling, see the *2009 State Waste Management and Recycling Plan*, available on-line at http://www.maine.gov/spo/recycle/publications.htm.

Increasing recycling and waste reduction can extend the life of our State's landfills. State policy is to encourage municipalities to reduce and recycle solid waste through promotion, grants,[9] and technical assistance. To achieve a significant increase in the statewide recycling rate will require an infusion of resources for municipalities, private investment, stable markets for recyclables, changes in state policy to achieve greater recycling and waste reduction—or all four. The *2009 Waste Management and Recycling Plan* contains a blueprint for policymakers to achieve and move beyond Maine's current goals.

Recycling Capacity

Maine has recycled over 700,000 tons per year during recent years. Approximately 62% is the result of business recycling, handled by private sector resource management companies. The balance of recyclables (38%) are handled by municipal recycling programs. There are approximately 300 local recycling programs relying upon about 145 processing operations (a dozen of those are major municipal recycling processing centers) and over 90 composting facilities.

Assessment of Facilities

There have been significant recent (within the last six years) improvements in processing capacity in the following regional programs: Portland, Bangor, Pittsfield, Skowhegan, Rockland, Camden, Coastal Recycling, and Lincoln County. In 2007, *ecomaine,* Maine's largest recycling region serving its 21 owner/municipalities in Cumberland County*,* completed a $3.8 million upgrade to its materials recovery facility in Portland and is offering processing of 'single sort' recycling collection services to programs outside their region in order to expand its recycling efforts.

Despite these improvements, municipally-managed public programs do not currently have the capacity to handle the volumes that would be generated at a 50% recycling rate, neither the physical (buildings and equipment) nor human (staffing) capacity.

To achieve a 50% recycling goal would require municipal and private sector recycling programs to handle over 200,000 tons more material based on what Maine generates today. This number will grow to match projected increases in waste generation. To achieve this goal soon both public and private sectors will need to invest to build the infrastructure to manage an increase in recycling.

Over the next 20 years, to maintain the State's current recycling rate (38.7%), will require public and private programs to almost double their recycling handling abilities. As waste generation increases, the annual volume of recyclable materials will increase from 700,000 tons in 2008 to over 1.2 million tons in 2028.[10]

[9] As funds permit.

[10] Based on an assumed 2.8% annual growth in municipal solid waste generation.

In 2009, municipal recycling programs recovered 101,223 tons of 'traditional'[11] recycled materials. The Office estimates the programs as they exist today have additional capacity for another 25,000 to 35,000 tons annually. When combined with the available processing capacity at the *ecomaine* facility that number grows to between 40,000 to 50,000 tons.

The private sector can likely handle additional tonnages from their municipal and private customers or respond with capital investment to grow their tonnages if the economics warrant it. For example, FCR Goodman (Casella) has opened a recycling collection and transfer facility in Hampden to handle Zero Sort® materials recovered through their recycling contracts in the greater Bangor region. In addition, the company has recently upgraded their Charlestown, Massachusetts recycling plant to more efficiently manage Zero Sort® materials. Other private initiatives include developing drop points for consolidating co-mingled recycled materials based on recycling regions and direct marketing of waste and recycling services to residents in selected areas of the State.

Waste Reduction Efforts

Maine has a waste reduction goal in state law to reduce the biennial generation of MSW tonnage by 5% by January 1, 2009, and by an additional 5% every subsequent two years. The Office has ongoing public education programs and media campaigns that advance Maine's waste reduction policy. In addition, the Office assists Maine's efforts to reduce the use and the subsequent disposal of plastic shopping bags through the retail merchants "Got Your Bags, Maine?" campaign.

The State's waste reduction efforts also are promoted through the many product stewardship programs administered by the Maine DEP. Product stewardship is a policy which supports the reduction, re-use, and the recycling of materials in Maine's solid waste stream. Maine law defines "product stewardship" to mean "a producer's taking responsibility for managing and reducing the life-cycle impacts of the producer's product, from product design to end-of-life management." It provides producers with new opportunities to move toward sustainable production in which they design products so that materials can be recaptured and reused to make new products ("cradle-to-cradle" production).[12]

[11] Meaning paper, glass, tin cans, or other household items, not CDD.

[12] For a thorough review of Maine's Product Stewardship Programs please see *Implementing Product Stewardship in Maine* available on-line at www.maine.gov/dep.

IV. Existing and Planned Disposal Capacity

In 2009, Maine's solid waste disposal facilities included: one state-owned landfill, two commercial landfills, ten municipally-operated landfills, about twenty municipal construction and demolition debris (CDD) landfills, and four waste-to-energy (WTE) facilities. Several processing facilities/operations were available for managing construction and demolition debris.

A. Landfills

Landfills receive a variety of wastes. That variety differs among the facilities, depending upon what their licensing approval allows. Included in that variety of wastes are: raw garbage; construction and demolition debris; residues and ash from WTE facilities; contaminated soils; sludges; ash from bio-mass operations; and other special wastes. This report focuses on MSW, including CDD, as well as the residues from the processing of those wastes. However, in reviewing landfill capacity, the tonnages of the various cover materials that are utilized and the other special wastes that are accepted by the landfills do consume capacity. For that reason, those wastes and their impact on landfill capacity are included in this report.

State-owned Landfill[13]

The Legislature directs the Office to plan and provide for the long-term waste disposal needs for Maine. As part of this process, in 2003, the Legislature authorized the state acquisition of the generator-owned West Old Town Landfill, later renamed the Juniper Ridge Landfill. The Legislature directed the Office to acquire, own, and contract for the operation of this landfill (Resolve 2003, chapter 93).

In 2009, the Juniper Ridge landfill, received a total of 528,622 tons of in-state generated waste, including cover materials. Of this 365,287 tons were MSW: 21,559 tons of MSW by-pass, 187,981 tons of residuals from WTE facilities, and 155,747 tons of CDD and bulky wastes. The balance of the waste buried at the landfill, 163,335 tons, included various types of sludges, residues, contaminated soils, and other approved special wastes from other in-state commercial and industrial generators.

Assessment and Status of the State-owned Facility

Available disposal capacity remaining at Juniper Ridge at the end of 2009 was approximately 7,114,614 cubic yards, which translates into space for approximately

[13] In addition to the Juniper Ridge Landfill, the State Planning Office owns 1,500 acres of land in T2 R8 (near Lincoln), upon which a special waste landfill was permitted in the mid 1990s. Known as Carpenter Ridge, it has a landfill design for about two million cubic yards of waste. It was acquired by the former Maine Waste Management Agency and has been held by the State for development of disposal capacity when it is needed.

6.05 million tons of solid waste. At projected fill rates[14], the present licensed capacity should provide nine years of disposal capacity for the State, consuming that capacity in 2018.

In late 2006, the Juniper Ridge Landfill operator and the Office began its initial investigation into expanding Juniper Ridge to provide an additional 21.9 million cubic yards of disposal capacity. In late 2009, the Office submitted its public benefit determination application as part of the expansion process. The DEP issued a draft denial decision on that application, stopping the planned expansion process. Discussions are currently underway with the DEP to evaluate next steps.

If approved as proposed, an expansion could provide an additional 18-20 years of landfill disposal capacity.

Commercial Landfills

Through 2009, Maine had two commercial landfills grandfathered under the 1989 Solid Waste Management Act that banned the development of new commercial disposal facilities. The two commercial landfills are:

- Crossroads Landfill, located in Norridgewock, owned by Waste Management, Inc.
- Pine Tree Landfill, located in Hampden, owned by Casella Waste Services, Inc. (the facility closed and ceased accepting solid waste at the end of 2009)

The Crossroads Landfill is permitted to take special waste, municipal solid waste, and construction and demolition debris. It provides recycling and disposal services on a contract basis for municipalities and businesses. It currently serves over 40 Maine communities in Western Maine. In 2009, the landfill accepted 287,634 tons of solid waste, including cover materials. Of that tonnage, 184,024 tons were Maine generated municipal solid wastes, CDD and their residues. 103,610 tons were wastes generated outside of Maine.

The Pine Tree Landfill, prior to its December 2009 closure, was permitted to take special waste, by-pass municipal solid waste, and construction and demolition debris. In 2009, the Pine Tree Landfill accepted 413,207 tons of solid waste, including cover materials. Of that, 117,995 tons were Maine generated MSW, CDD and their processing residues. The balance of wastes, 338,829 tons, included out-of-state generated CDD, processing residues and special wastes.

Together the two commercial landfills took in 302,019 tons of Maine-generated MSW, CDD, and residues from Maine processing facilities and WTE plants.

[14] The State Planning Office projected that wastes delivered to Juniper Ridge would average 550,000 tons per year, but would increase to 700,000 tons per year starting in 2010, with in-state wastes diverted from the closed Pine Tree Landfill. The Operating Services Agreement between SPO and Casella/NEWSME LLC, requires Casella to provide disposal capacity for 50,000 tons of mill waste per year from Old Town Fuel and Fiber (OTFF) and for 6,000 tons of Biomass Ash from the Lincoln Pulp and Paper Company (LLP) operation in Lincoln. Thus, of the remaining capacity at JRL, 56,000 cubic yards of space per year is to be kept in reserve for those waste streams.

Table B: Capacity at Maine's Commercial Landfills – end of 2009				
	2009 Fill Rate (tons)	**Remaining Capacity (Cubic Yards)**	**Remaining Capacity (tons)**	**Estimate in years of life remaining based on 2009 fill rates**
Crossroads Landfill	287,634	4,254,517	4,250,000	12-14 years
Pine Tree Landfill (at the end of 2009 this landfill closed)	413,207	0	0	0
Total	700,841	4,254,517	4,250,000	

Assessment of Facilities

The total disposal capacity currently licensed at Crossroads Landfill, the only remaining commercial landfill, is approximately 4.2 million cubic yards. Table B shows estimated remaining disposal capacity at the commercial landfills. The 'fill rate' includes all wastes disposed of at the facility, including MSW, CDD, cover materials, special wastes and other residues, whether generated within the State or delivered from outside the borders.

Municipally-operated Landfills

In 2009, 225,659 tons of solid wastes, including cover materials, were disposed of at ten municipally owned landfills. Of that tonnage, 149,149 tons were MSW including bulky wastes and CDD and 76,510 tons were residues from two WTE facilities. Table C provides information on each individual landfill, including fill rates and estimated available remaining capacity.

Assessment of Facilities

Among the eight municipally-operated MSW landfills[15], there are approximately 4.9 million cubic yards of remaining available capacity that can accept approximately 3 million tons of MSW. Maine municipal operations do not typically achieve the 1 ton to 1 cubic yard compaction ratio of the commercial landfill. This capacity is sufficient to carry the MSW for most of the communities served by these landfills for an average of 20 years or more, based on current waste tonnages and types accepted.

The actual remaining life varies for each landfill, resulting in unevenness of municipal capacity across the State. This variation in when a particular community or region may exhaust their current disposal capacity is independent and possibly irrespective of any possible statewide disposal capacity concern, but would be of significant concern to those regions.

[15] This does not include the 2 municipally owned "ash-fills".

Table C: Municipal Landfill Tonnages – 2009

Municipal Landfills that accept unprocessed MSW and CDD

	2009 Fill Rate (all wastes & cover) (tons)	Remaining Capacity Cubic Yards (est.)	Remaining Capacity (tons) (est.)	Years of life remaining based on 2008 fill rates (estimated)
MSW Landfills:				
Bath	9,220	355,000	153,000	26 years
Brunswick	4,370	230,000	115,000	17 years
Greenville	4,113	10,000	5,000	To close in 2011
Hatch Hill (Augusta)	38,324	1,807,714	1,350,000	36 years
Presque Isle	20,010	305,146	155,000	15 years
Tri-Community (Fort Fairfield)	29,164	1,790,150	1,250,000	40 years
MidCoast SWC	4,385	75,700	38,000	9 years
Rockland	39,563	346,572	200,000	5 years
CFWF (West Forks)	Closed in 2008			
Total Tons:	**149,149**			
Total Remaining Capacity (est.)		**4,920,282**	**3,266,000**	

Publicly Owned Landfills that accept residues from processing of MSW

	2009 Fill Rate (all wastes & cover) (tons)	Remaining Capacity Cubic Yards (est.)	Remaining Capacity (tons) (est.)	Years of life remaining based on 2008 fill rates (estimated)
Ash Landfills:				
ecomaine	58,361	1,013,111	1,000,000	30 years
Lewiston	18,149	266,286	260,000	15 years
Total Tons:	**76,510**			
Total Remaining Capacity (est.)		**1,279,397**	**1,260,000**	
Total	**225,659**	**6,199,679**	**4,526,000**	20+ years

Municipal CDD Disposal Facilities

There are approximately 20 municipal land disposal facilities that accept locally-generated CDD, inert fill, brush, and trees. Local facilities furnish a 'short-transport' option for the management of these wastes. Data was not available to determine the level of service and tonnages of waste accepted at these facilities for 2009.

Assessment of Facilities

The remaining capacity at individual CDD facilities varies, but based on prior year's data, it appears that this type of landfill capacity will be available for another 10-12 years. A number of these facilities will be full before then, creating 'pockets' where CDD disposal options will need to be reconsidered.

Finding alternatives to land disposal for CDD continues to pose problems in Maine's rural areas. These materials cannot be recycled or reused without investment in equipment, labor, and sufficient land area to aggregate and process them. Markets for processed CDD do exist, but given the often small scale that most Maine towns operate on, with low volume and dispersed facilities, rural operations do not often produce the economics needed for sustainable recycling efforts.

Maine has two large-scale commercial CDD processors: KTI Biofuels in Lewiston and the CPRC Group in Scarborough.

KTI Biofuels is a stationary operation. It accepts only clean wood products (from in-state and out-of-state) for processing for use as biomass fuel. In 2009, it received 115,948 tons of clean wood and CDD, of which 27,329 tons were from in-state generators.

CPRC operates from its Scarborough facility, hauling in multiple types of materials and shipping out a variety of finished products, as well as offering mobile or 'on-site' services. In 2009, it accepted 40,041 tons of various CDD and other products, of which approximately 34,000 tons were from in-state sources.

There are also several commercial wood chippers that move from site to site and are used to manage brush and clean CDD wood at municipal facilities.

CDD can be disposed at Juniper Ridge Landfill and other licensed disposal facilities if there are no other options, but landfilling remains the least desirable management method.

B. Waste-To-Energy (WTE) Facilities

In 2009, 33.3% of Maine's MSW was sent to a WTE facility. Maine's WTE facilities received a total of 874,862 tons of MSW from both in-state and out-of-state sources, an increase of 24,002 tons from 2008. Of these 874,862 tons of MSW, 590,266 tons were generated in-state and 284,596 tons were imported (an increase from the 2008 deliveries).

Of the Maine generated 590,266 tons of MSW, 352,633 tons were combusted, 14,301 tons of metal were recovered, and landfilled residues and by-pass totaled 223,332 tons. Table D shows the processing capacity of the four WTE facilities:

Table D: Maine WTE Capacity		
Waste-To-energy Facility	**Annual processing capacity (tons/year)**	**Tons Received in 2009**
ecomaine	170,000	184,582
Maine Energy Recovery Company	310,000	291,339
Mid Maine Waste Action Corporation	70,000	81,716
Penobscot Energy Recovery Company	304,000	317,225
Total of WTE Facilities	**854,000**	**874,862**

The facilities provide both a product from combustion that needs to be disposed and a reduction of the MSW requiring disposal, thus reducing the need for landfill capacity. They produce a combined capacity of approximately 62 megawatts a day of electricity and reduce the weight of waste requiring landfilling by about two-thirds.

To produce the electrical generation contracted for, WTE facilities need to operate at maximum capacities. The seasonal nature of waste generation causes tonnage overage problems during the summer months and the need to "attract" additional tonnage during the winter months. Facilities bypass waste when they reach their daily operating capacity and import waste to make up for shortfalls.

WTE Residues

The WTE facilities produce several streams of materials and residues: by-pass waste, front-end process residue (FEPR), and ash. These residues, which require disposal in landfills, comprise approximately one-third of the waste processed by these facilities. The metals are recovered for recycling (See Figure 4).

- *Bypass Waste:* Bypass waste is that portion of the MSW stream intended for delivery to and incineration at a WTE facility, but diverted because the facility could not accept it. Solid waste is bypassed if there are operational interruptions or facility shutdowns or if the facility reaches its operational capacity and cannot accept waste that it is contractually obligated to receive. The bypass waste is typically delivered to a landfill for disposal. This category also includes waste that cannot be processed by the facility due to size or composition.

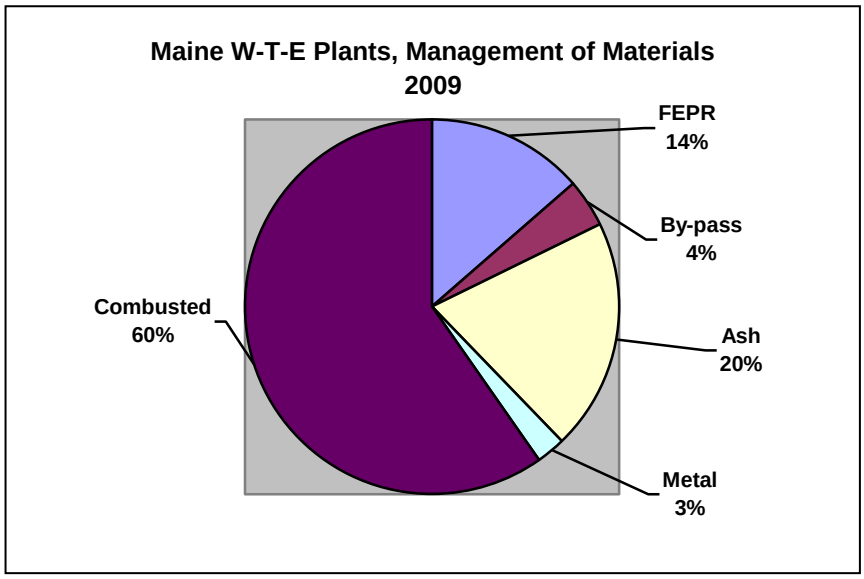


Figure 4: Maine WTE Plants, Management of Materials
Source: Facility Annual Reports, State Planning Office

- *Front-end Process Residue (FEPR):* Maine Energy Recovery Company (MERC) and Penobscot Energy Recovery Company (PERC) use a refuse derived fuel technology and generate FEPR as a by-product of their operations.[16] FEPR is removed prior to incineration because it lowers the burning efficiency. FEPR includes ferrous metals, glass, grit, and fine organic matter. While metals are recycled, most FEPR is landfilled. In the past, FEPR was used in conjunction with landfill closure programs, but this is no longer a viable outlet. While some composting of FEPR has been done, the resulting product typically contains contaminants that restrict its use to limited landfill cover applications only.

- *WTE Facility Ash:* Ash, a by-product of incineration, is classified as a special waste, and is landfilled. The ash from MERC and PERC is disposed of at the commercial landfills and Juniper Ridge. The ash from MMWAC is disposed of at the City of Lewiston's landfill and e*comaine's* ash is buried at the *ecomaine* landfill. The ash and FEPR waste streams have a continuous impact on landfill capacity, since alternatives to landfilling them do not readily exist.

Assessment of Facilities

Three of these facilities are at their 20th year of operation. The plants' maintenance programs, along with upgrades, have kept them functioning well and should continue to do so for the foreseeable future. Facility upgrades occur in response to environmental regulations, primarily aimed at air emissions reductions. All of the Maine WTE facilities perform at or better than their license requirements.

[16] Mid-Maine Waste Action Corporation (MMWAC) and *ecomaine* use a 'mass burn' technology and do not produce FEPR.

Biddeford City officials continue to work to close or move operations of the Maine Energy Recovery Company, which serves 23 municipalities. In addition, disposal contracts for the PERC expire in 2018. Two hundred municipalities rely on the facility. PERC is actively planning for the extension of PERC facility operations in 2018. In the case of both MERC and PERC, their future plans need to be factored into state disposal capacity planning.

C. Imported/Exported MSW

Movement of solid waste across state lines is protected under federal interstate commerce laws from state and local restriction, except in the case of publicly-owned facilities. MSW is considered a commodity and is subject to fluctuations accruing to supply and demand at the regional and national level.

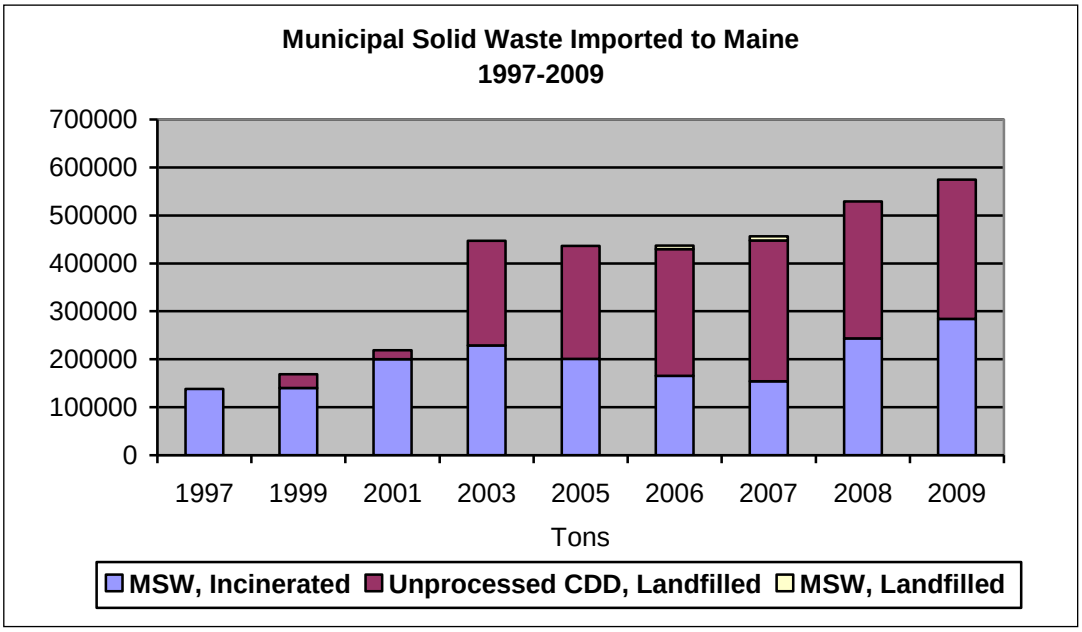


Figure 5: Municipal Solid Waste Imported to Maine, 1997-2009
Source: State Planning Office

In 2009, 574,345 tons of MSW were imported to Maine, up from the 529,125 tons of MSW imported to Maine in 2008. The amount of CDD imported remained relatively constant with a slight increase of 4,000 tons. Zero tons of MSW were imported directly to commercial landfills in 2009. The continued decrease in Maine-generated MSW caused the WTE facilities to increase their deliveries of imported MSW by 41,000 tons. Exports of MSW in 2009 were 43,153 tons, down over 30% from the 2008 tonnage of 62,438 tons (See Figures 5 and 6).

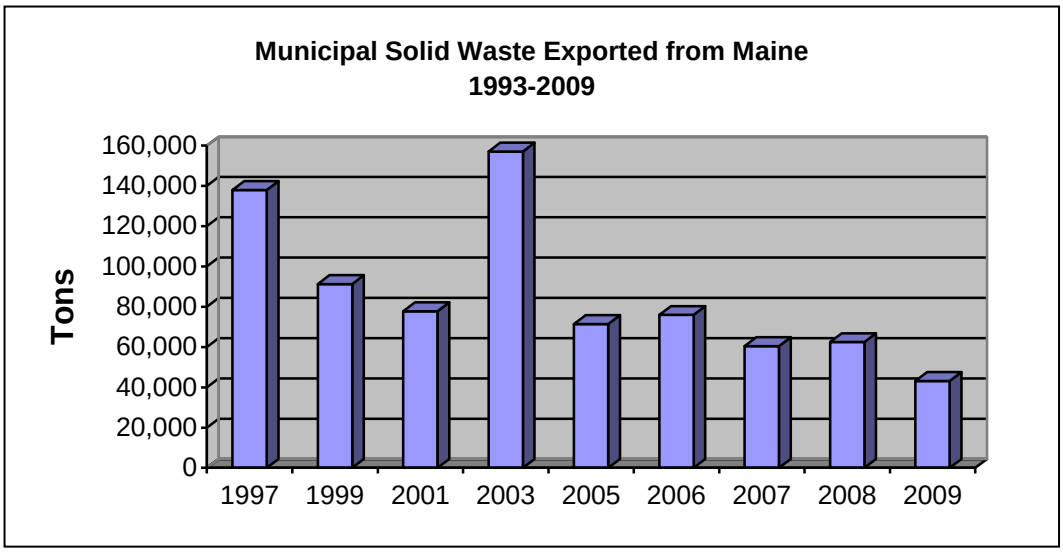


Figure 6: Municipal Solid Waste Exported from Maine
Source: State Planning Office

V. Projected Landfill Disposal Needs and Capacity

Landfill Capacity Calculation

To determine Maine's disposal capacity needs, the Office first calculated the available capacity in 2009. It then projected tons of waste generated in Maine that will need to be managed over 20 years. This projection is based on a 2.8% growth in solid waste per year starting in 2012. Adding in a projected tonnage of imported waste, and subtracting wastes that do not get landfilled in Maine (wastes that are recycled, exported, or combusted), the Office calculated the tons of waste needing land disposal over the 20-year timeframe of this analysis. That tonnage was then converted to cubic yards to compare to the available capacity.

The Office made several assumptions in making its 10- and 20-year disposal capacity projections. It assumed:

- A constant recycling rate of 38%;
- Exported wastes continue to decline;
- Continued operation of and reliance on the four waste-to-energy facilities, at the existing mix of tonnages (out-of-state waste, processing residues, etc); and
- No significant change in municipally-operated landfills.

Maine currently has 17.5 million cubic yards of permitted, available disposal capacity. An estimated 24.4 million cubic yards of landfill capacity will be required over the next 20 years.

Table E: Projected Disposal Capacity Available vs. Needed at 2.8% growth 2009-2029

Landfill Capacity Available (cubic yards)			**Capacity Needed (tons)**	
Municipal Landfills	4,920,282		Total waste generated	44,419,614
Municipal Ash –"Landfills"	1,279,397			
Municipal CDD Landfills	Incomplete data		Imported Waste	4,000,000
Commercial	4,254,517		Recycled	(17,190,391)
Juniper Ridge	7,114,614[17]		Exported	(1,066,071)
			Combusted at WTE	(9,194,860)
Total Landfill Capacity Currently Permitted:	**17,568,810**		**Total Landfill Capacity[18] Needed: Tons to Cyds**	**24,381,735**

Source: State Planning Office

[17] The Juniper Ridge Landfill Operating Services Agreement requires a reserve annual capacity for 56,000 tons of wastes from Old Town Fuel and Fiber and Lincoln Pulp and Paper or 1,120,000 over 20 years.

[18] Converting tons to cubic yards using .86 tons per yard.

Based on the projection in Table A, we can see that Maine has sufficient disposal capacity for 10 years through 2020, but it currently cannot meet projected statewide needs for a 20-year outlook. Maine needs to plan for developing new disposal capacity beyond 2020 in order to meet the waste management needs of the State's municipalities and businesses.

The largest single source of Maine's disposal capacity is the state-owned Juniper Ridge Landfill, which has capacity through 2017-1018. To avoid a shortfall in landfill capacity, the State needs to begin the application process for additional, state-owned, landfill capacity at that landfill in 2011. This timeframe takes into account the current economic slowdown, and the anticipated duration of the complete development process, from the initial preparation of the application for public benefit determination, the permitting process, through construction of new capacity licensed and prepared to receive waste.

Title 38, chapter 24, section 2156-A outlines the Office's responsibility to notify the Legislature of the need to develop more solid waste disposal capacity when there is six (6) years or less of licensed and available disposal capacity for MSW or special waste in the State."[19]

Based on the analysis of remaining landfill disposal capacity at the state-owned Juniper Ridge Landfill and the commercial Crossroads Landfill, the Office believes it will make that finding in 2011.

Factors that can affect Capacity Projections

There are a number of factors that will influence the Office's projections.

Natural or Man Made Disasters

Natural or man made disasters such as floods, ice storms, or oil spills would produce special wastes that would consume landfill capacity. This report does not attempt to estimate potential demand that these types of special waste and CDD disposal may place on Maine landfill capacity in such an event.

Changes in Policy, Law or Regulation

Under Maine's solid waste management hierarchy, landfilling is the least desirable solid waste management option. As policy, all other solid waste

[19] The report must recommend which state agency or department will own the facility and how it will be operated. The report must also include a review of disposal options outside of the State; a review of existing efforts to reduce, reuse, recycle, compost and incinerate the affected municipal solid waste and special waste streams and the impact of these efforts on capacity requirements; a thorough economic analysis of the facility's expected costs; and commitments from entities to utilize the facility and projected revenues. It is the intent of the Legislature that the facility be operated by a private contractor. A state-owned solid waste disposal facility may not be constructed or operated unless authorized by legislation pursuant to subsection 3. [2007, c. 192, §6 (AMD) .] 3. Authorization for development. The joint standing committee of the Legislature having jurisdiction over natural resource matters may report out legislation authorizing construction and operation of a state-owned solid waste disposal facility in response to a report submitted pursuant to subsection 2.

management options should be considered and exercised to the greatest extent possible prior to landfilling of wastes, and thus the hierarchy can affect fill rates generally. Any changes to the hierarchy or to any of the laws and regulations governing the facilitities or the waste streams they manage, such as disposal bans and or mandatory recycling or enforcement of the hierarchy, have the potential to effect capacity projections.

Economy and Demographics

Traditionally, the Office has based its projections on historical waste generation rate trends. We now look at other ways to project generation. State economists found a strong positive correlation between waste generation and retail sales. We have included an analysis of that comparison in Appendix D. The Office will continue to monitor this correlation to supplement its analysis of historical trends.

In addition the Office will use the results of the 2010 Census to better forecast long-term trends in MSW generation and analyze effects of Maine's demographics on our future management needs.

The Office recognizes its assumptions will vary from actual generation. It is possible that actual increases will be lowered or eliminated by improved recycling and waste reduction efforts, or an uncertain economy. However, given the long time frame for the development of disposal capacity, the Office strives to maintain a conservative approach in order to anticipate that time lag, and reduce the possibility of a capacity shortage crisis.

The Office analyzed the lifespan of existing statewide disposal capacity using three different scenarios, zero growth, 1% growth, and 2.8% growth over 10 years. These more conservative projected increases in waste generation would extend the life of Maine's existing state-owned and commercial landfills by one-to-two years, only.

Authority and Control

Although in its annual capacity assessment, the Office counts the available capacity at all landfills, commercial, state-owned and public, *this is an assumption*, as the *actual rate at which Maine landfills accept waste is under the control of their individual owners.* Landfills receive different amounts of waste from year to year based on the varying levels of residential and business activity occuring within their wasteshed. Economic conditions, the level of competition from other facilities, and management decisions and methods can reduce or accelerate the rate of consumption.

The State does exercise control over the fill rate of its own facility at Juniper Ridge, in accordance with the terms of the Operating Services Agreement.

Contracts and Licensing

The current license agreement for the Crossroads Landfill between Waste Management, Inc. and the Maine DEP allows up to 40% of its annual intake to be out-of-state wastes, thus (in theory) only 60% of its capacity is actually available for Maine generated wastes.

The Operating Services Agreement between the State and its operator of the Juniper Ridge Landfill, requires reserving disposal capacity for 50,000 tons of mill waste per year from Old Town Fuel and Fiber and for 6,000 tons of biomass ash from the Lincoln Pulp and Paper Company operation in Lincoln. Thus, of the remaining capacity at the Juniper Ridge Landfill, 56,000 cubic yards of space per year may not be available for statewide capacity.

Compaction Rates

Landfills attempt to achieve a one-to-one ratio of compaction where one ton of waste received consumes one cubic yard of space. Not all waste streams allow for this compaction to occur, however.

Settling Rates

All landfills settle over time due to decomposition of organic materials depending on compaction rates and the types of materials received. So over time they may gain back some space due to settling.

Improvements in Landfill Technology

There are ongoing improvements to the efficiency in operations of all landfills across the State in such areas as leachate and gas management, compaction, slope ratios and the engineering of slopes, and the application of different types and systems of daily and intermediate cover. All of these affect the ratio between the amount of wastes received and the consumption of cubic yards of landfill space.

Current Policy Issues Which Could Affect Capacity Needs

The amount of available landfill disposal capacity can be affected by policy decisions as follows:

Recycling

Recycling will continue to divert significant tonnages from disposal. The Office estimates that over 20 years, recycling will divert an estimated 17 million tons (cumulatively) from disposal, at 2009's recycling rate of 38.7%. If the recycling efforts can be increased, and the expected overall waste generation rates remain as predicted, the required disposal capacity to handle the State's solid wastes

will be reduced. Indeed, an active recycling program that achieves the State's 50% recycling goal could reduce Maine's landfill capacity needs by 25% over the next 20 years.

Mainers are actively recycling and public education campaigns to promote recycling hold promise.[20] To achieve a significant increase in the statewide recycling rate will require an infusion of resources for municipalities, growth in markets for recyclables, or changes in state policy to achieve greater recycling and waste reduction—or all three. The *2009 State Waste Management and Recycling Plan* contains a blueprint for policymakers to achieve and move beyond Maine's recycling goal of 50%.[21]

Expansions and Closures

The question of the public benefit of expansion of the Juniper Ridge Landfill was presented to the DEP by the landfill operator and the Office in 2009. The public benefit determination application was withdrawn after issuance of a draft denial by DEP. The Office plans to resubmit at some point in the future.

The Presque Isle landfill received final approval from the DEP to expand their disposal capacity to extend their useful life for up to another 50 years. The Tri-Community Landfill has received approval for an expansion of their landfill.

The 2009 closure of Pine Tree Landfill will have an impact on Maine's current solid waste management system, in that approximately 150,000 tons of in-state generated special wastes and construction and demolition debris waste that were annually disposed of at that landfill is diverted to the Juniper Ridge Landfill.

Out-of-state Waste

The WTE facilities that currently take out-of-state wastes will continue to rely upon that source to fulfill their boiler needs and power contracts. However, for planning purposes, policymakers should anticipate that, as the economy recovers, Maine-generated solid waste tonnages needing disposal will gradually increase, and the WTE facilities' reliance on imported MSW will decrease.[22]

The Office cannot at this time estimate the rate at which this decrease will occur as a review of waste imports to the WTE facilities over the last 11 years reveals wide fluctuations. Imports have varied from 138,000 tons in 1997 to 228,638 tons in 2003, dropping back to 155,068 tons in 2007, then rising to 243,397 tons in 2008 and then to a twelve-year high of 284,596 tons in 2009, as Maine generation of MSW continued to drop along with Maine consumer activity. The relative strength or weakness of the regional economy and changes in waste

[20] As evidenced by survey data which tell us these promotional initiatives are working. When asked, those who reported that they "always" recycle newspapers, for example, was 60% in 2009 compared to 54% in 2006 (before and after implementation of the Maine Recycles public awareness campaign.

[21] This document is available on-line at www.maine.gov/spo/recycle/publications.htm.

[22] The state's remaining commercial landfill may continue to accept unprocessed CDD from out-of-state.

management at the regional level can also affect the price and availability of solid waste imports.

VI. Disposal Prices

A. Disposal Fees

Disposal expenses comprise collecting, transporting, and tipping waste. Disposal fees or tipping fees are a key driver of municipal disposal costs. Current disposal fees range from $40 to $135[23] per ton at Maine's landfills and WTE facilities and are stable, allowing predictability for municipal budgeting and long-term planning.

Tipping fees at the four WTE facilities are fairly consistent and reflect the commitment of the municipalities who either own the facility or have long-term contracts for disposal services.

Energy Revenues

Tipping fees at WTE facilities are influenced by revenues received from the sale of the electricity they generate. The revenues reduce the facility's operating expenses, yielding a reduction in the tip fee charged for solid waste. Should electricity sales revenue drop, tipping fees may increase. Conversely, should the electricity sales value increase, the possibility exists that lower tipping fees, or maintaining current fees, would occur.

B. Supracompetitive Prices

Supracompetitive, as applied to '*prices,'* means prices that are higher than they would be in a normally functioning, competitive market, usually as a result of overconcentration, collusion, or some form of monopolistic, oppressive practice. State law requires the Office to determine whether changes in available landfill capacity have generated, or have the potential to generate, supracompetitive prices and make recommendations for legislative or regulatory changes as necessary.

Disposal capacity at Maine landfills today is sufficient to meet current needs. At the time of this report, the disposal capacity situation does not appear to have generated supracompetitive disposal fees, because disposal prices have not experienced any significant changes for the last three years.

The operator of the Juniper Ridge Landfill is bound by a cap on tipping fees, imposed by the State in its Operating Services Agreement. Because of this cap, Juniper Ridge is perceived by the private and public waste sectors as having a limiting effect on disposal pricing. The cap acts as a check on pricing for the disposal of similar materials at other solid waste facilities.

The Office consulted with the Department of the Attorney General to assist with its analysis of disposal pricing.

[23] This does not reflect spot market prices.

VII. Analysis of Consolidation within the Solid Waste Industry

The law also asks the Office to analyze the ownership of the collection, recycling, hauling, and disposal sectors of Maine's solid waste industry for undue consolidation and the potential for unfavorable impacts on competition. The Office examines these industry sections to look for conditions that might create either a lack of service or a monopolistic situation.

Maine's solid waste industry is a mix of public and private investments and services that handles 5,000 tons of materials each day (including recyclables). We believe that Maine's interrelated system of collection, recycling, hauling, and disposal currently serves Maine's solid waste management needs fairly and effectively.

The Office consulted with the Department of the Attorney General in reaching the following findings.

Disposal Facilities

During 2009, there was no change in ownership or operation of the disposal facilities, whether WTE facilities or landfills, except that the Pine Tree Landfill in Hampden, owned and operated by Casella Waste Systems Inc., was closed at the end of 2009.

Collection Services

During 2009, the Office found no substantial change in the ownership or operation of the many collection companies servicing residents, businesses, and municipalities. In several areas of the State there was commercial competition for accounts accompanied by increased levels of services offered. For example, several firms/organizations offered single stream recycling or expanded the types of materials they accept for recycling, and competed for municipal recyclables.

As with most industries, there was minor movement of new companies into the arena of solid waste collection services, often with a matching exodus of companies that provided similar services.

Recycling Services

During 2009, continued growth of the 'single sort', 'single stream', Zero Sort® recycling collection service occurred. This service permits residents to place all of their recyclables into a single container. From this single container the recyclables are collected, delivered to a processing facility, and sorted there and then marketed. *ecomaine*, located in Portland, established a single sort recycling program in 2007 and actively works to expand municipal participation in that program. FCR Goodman and Pine Tree Waste, subdivisions of Casella Waste Systems, offer a single stream recycling collection service through their program known as Zero Sort®. The collected recyclables are consolidated and shipped to either of the company's two processing

facilities in Auburn, Massachusetts and Charleston, Massachusetts. Based upon municipal reports submitted to the Office, approximately 65 communities participated in a ‘single stream’ recycling program.

Hauling Services

In 2009, there was no substantial change in either the number of companies providing waste hauling services nor in the number of facilities requiring these trucking services. The majority of municipally operated transfer stations use private haulers while a few continue to utilize their own hauling equipment and staff.

APPENDICES

A: Waste Disposal Capacity Available, 2009-2020

Scenario 1 – 'No Growth' in Waste Generation

	Waste Disposal Capacity Available (in cubic yards)											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	actual	"0" growth →										
Facility												
Juniper Ridge	7,114,614	6,300,661	5,486,708	4,672,755	3,858,802	3,044,849	2,230,896	1,416,943	602,990	0	0	0
Crossroads	4,254,517	3,954,517	3,654,517	3,354,517	3,054,517	2,754,517	2,454,517	2,154,517	1,854,517	1,554,517	1,254,517	954,517
Total Statewide Capacity (w/o Municipal Landfills)	11,369,131	10,255,178	9,141,225	8,027,272	6,913,319	5,799,366	4,685,413	3,571,460	2,457,507	1,554,517	1,254,517	954,517

Scenario 2 – 'Low Growth' in Waste Generation

	Waste Disposal Capacity Available (in cubic yards)											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	actual	0 growth	0 growth	1% growth	1% growth	1% growth	1% growth	1% growth	1% growth	1% growth	1% growth	1% growth
Facility												
Juniper Ridge	7,114,614	6,300,661	5,486,708	4,664,615	3,834,301	2,995,684	2,148,681	1,293,208	429,180	0	0	0
Crossroads	4,254,517	3,954,517	3,654,517	3,351,517	3,045,487	2,736,397	2,424,216	2,108,913	1,790,457	1,468,817	1,143,960	815,855
Total Statewide Capacity (w/o Municipal Landfills)	11,369,131	10,255,178	9,141,225	8,016,132	6,879,788	5,732,081	4,572,897	3,402,121	2,219,637	1,468,817	1,143,960	815,855

Scenario 3 - Growth Rates projected based on actual economic indicators

	Waste Disposal Capacity Available (in cubic yards)											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	actual	0 growth	0 growth	2.8% growth	2.8% growth	2.8% growth	2.8% growth	2.8% growth	2.8% growth	2.8% growth	2.8% growth	2.8% growth
Facility												
Juniper Ridge	7,114,614	6,300,661	5,486,708	4,649,964	3,789,791	2,905,533	1,996,516	1,062,047	101,412	0	0	0
Crossroads	4,254,517	3,954,517	3,654,517	3,346,117	3,029,082	2,703,170	2,368,133	2,023,715	1,669,652	1,305,676	931,508	546,864
Total Statewide Capacity (w/o Municipal Landfills)	11,369,131	10,255,178	9,141,225	7,996,081	6,818,873	5,608,703	4,364,649	3,085,762	1,771,064	1,305,676	931,508	546,864

DATA NOTES:

- End of the year 2009 capacity and annual tonnages are based on data from reports submitted to DEP by disposal facilities
- Tons have been converted to cubic yards for consistency, based on reported compaction rates at each facility
- Assumes JRL receives 550,000 tons per year plus 150,000 tons per year previously going to Pine Tree, or 700,000 tons per year = 813,953 cubic yards per year (1 cy = 0.86 tons)
- Assumes Crossroads receives 300,000 tons per year or 300,000 cubic yards (1 cy = 1 ton)
- 2009 is the most recent complete data set available

B. Legislative Reference

Title 38: WATERS AND NAVIGATION
Chapter 24: SOLID WASTE MANAGEMENT AND RECYCLING
Subchapter 2: SOLID WASTE PLANNING

§2124-A. Solid waste generation and disposal capacity report

By January 1, 2008 and annually thereafter, the office shall submit a report to the joint standing committee of the Legislature having jurisdiction over natural resources matters, the Governor and the department setting forth information on statewide generation of solid waste, statewide recycling rates and available disposal capacity for solid waste.

The report submitted under this section must include an analysis of how changes in available disposal capacity have affected or are likely to affect disposal prices. When the office determines that a decline in available landfill capacity has generated or has the potential to generate supracompetitive prices, the office shall include this finding in its report and shall include recommendations for legislative or regulatory changes as necessary.

Beginning on January 1, 2009 and every odd-numbered year thereafter, the report submitted under this section must include an analysis of how the rate of fill at each solid waste landfill has affected the expected lifespan of that solid waste landfill. The January 2009 report must also include an analysis of the solid waste disposal needs of the State as of January 1, 2009 for the next 3, 5 and 10 years.

Beginning on January 1, 2010 and every even-numbered year thereafter, the report submitted under this section must include an analysis of consolidation of ownership in the disposal, collection, recycling and hauling of solid waste.

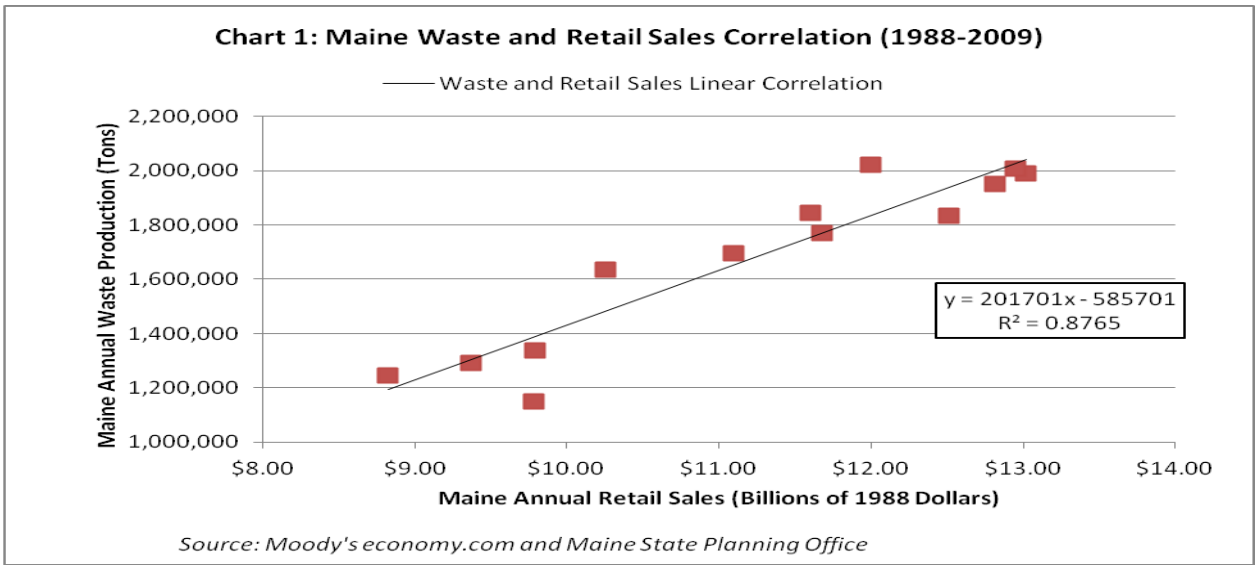
The joint standing committee of the Legislature having jurisdiction over solid waste matters may report out legislation related to the report submitted pursuant to this section.

C. Maine Recycled Materials, 1997-2009

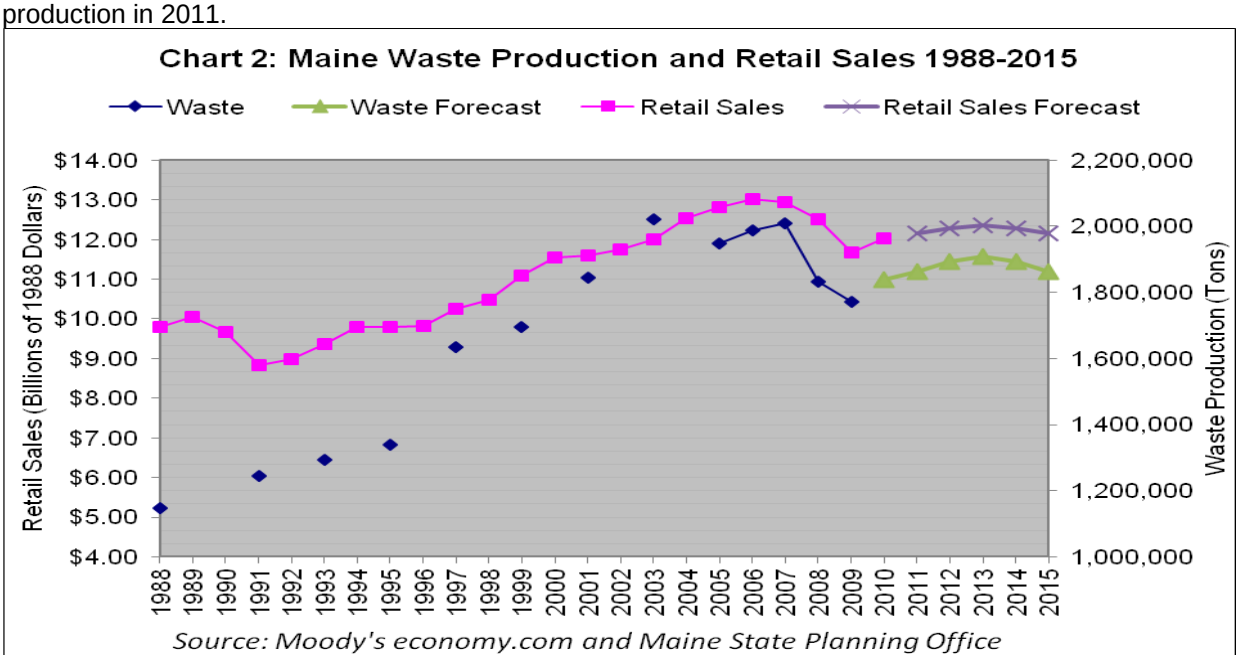
Materials:	2009	2008	2005	2003	1999	1997
high grade paper	23,762	54,226	72,965	3,951	11,570	31,470
corrugated cardboard	79,455	103,692	117,144	88,166	198,442	214,536
newspaper	9,402	16,817	32,300	33,442	42,612	44,710
magazines	1,064	4,238	8,723	1,881	6,104	3,702
mixed paper	7,548	8,250	5,226	13,919	12,860	12,207
other paper	11,328	26,528	8,900	3,166	12,671	6,465
commingled fibers	3,495	31,543	36,805	132,475		
Total paper	**136,054**	**245,294**	282,063	277,000	284,259	313,090
Single Stream	30,200					
Co-mingled Containers	14,367					
Totals	**44,567**					
clear glass	7,693	8,743	11,058	6,334	8,324	10,590
brown glass	13,335	16,422	24,377	11,270	12,545	7,060
green glass	4,813	7,022	12,622	3,142	26,167	11,767
commingled containers		11,215	3,598	21,672	440	1,734
Total glass	**25,841**	**43,402**	51,655	42,418	47,476	31,151
white goods	92,886	87,399	78,401	68,125	142,640	122,895
aluminum	4,359	2,232	2,163	2,109	1,862	1,332
tin cans	1,452	1,955	1,089	3,154	18,833	10,693
non ferrous	25,921	22,467	23,213	18,847	18,652	21,572
other (various metals)	72,287	72,119	68,432	68,984		
Total Metal	**196,905**	**186,172**	173,298	161,219	181,987	156,492
HDPE	8,130	8,632	9,377	3,420	4,410	4,160
PET	5,463	5,166	4,766	8,725	6,521	6,021
LDPE film	1,058	784	526	711		
polystyrene			8	0	6	6
Other	1,986	1,381	631	531	1,211	1,042
Total Plastic	**16,637**	**15,963**	15,308	13,387	12,148	11,229
wood waste	119,813	82,318	93,582	92,154	41,103	38,402
leaves	22,671	26,224	29,938	33,376	27,421	24,528
food waste	1,113	2,745	142	2,623	24,582	23,240
Total Organic	**143,597**	**111,287**	123,662	128,153	93,106	86,170
tires	28,490	28,473	30,374	35,467	32,530	30,559
CDD, other wastes	67,021	66,332	23,425	49,714	39,469	44,209
Mercury-added/UW	3,248	4,872	487	327		
Total Hard to Manage	**98,759**	**99,677**	54,286	85,508	71,999	74,768
Textiles/Reuse	**16,026**	**3,543**	1,724	2,260	6,023	1,726
Other nonbulky MSW	**9,395**	**4,286**	6,935	7,638	2,740	5,252
TOTAL TONS RECYCLED:	**687,781**	**709,624**	**708,931**	**717,583**	**699,738**	**679,878**

D. Maine MSW Generation and Retail Sales Comparison, 1988-2015

The amount of waste that Maine produces every year is dependent on some unknown mix of factors and also random variation. Of the standard economic and demographic variables for which forecasts are available, we expect retail sales to be one of the most highly correlated with waste production. Indeed, a visual examination of the historical data on Chart 1 below suggests a strong correlation, and the correlation coefficient R-square value is .8765, indicating strong correlation.



Assuming this correlation between retail sales and waste production persists into the future, and assuming the Moody's economy.com forecast for retail sales is accurate, we can roughly estimate future waste production using the economy.com retail sales forecast and a linear regression model. Chart 2, below, shows the results of our forecast using the model. Waste production is plotted on the vertical axis on the right and retail sales are plotted on the ertical axis on the left. We predict 1,864,173 million tons of waste production in 2011.



APPENDIX B

STATE OF MAINE WASTE MANAGEMENT AND RECYCLING PLAN JANUARY 2009

Waste or Resource?

Rethinking Solid Waste Policy

State of Maine

Waste Management and Recycling Plan

January 2009

The Maine State Planning Office is directed by the Legislature to develop state policies that promote a balance between economic growth and natural resource conservation. To fulfill that charge within the scope of its mission, the Waste Management and Recycling Program continues to ensure sufficient land disposal capacity within our borders to meet the needs of today's waste management system and the economy that depends upon it. At the same time, we encourage the development of waste-to-resource systems that reduce waste destined for disposal, with the dual aims of alleviating our impacts on Maine's health and environment and enhancing Maine's economy and quality of place.

Maine State Planning Office
Waste Management and Recycling Program
38 State House Station
184 State Street
Augusta, Maine 04333-0038
www.maine.gov/spo
www.mainerecycles.com

January 2009

The State Planning Office would like to thank the Department of Environmental Protection and members of the Maine Waste Solid Management Advisory Council for their input and assistance in developing this plan.

Cover photo features one of a series of posters from the *Maine Recycles* public awareness campaign launched in 2008 and designed to encourage Mainers to recycle more.

Printed under appropriation # 014 07B 1655 008208

CONTENTS

DEFINITIONS AND ACRONYMS

The following definitions are provided to assist the reader in reviewing this document:

Broker's Survey – *a biennial survey conducted of private sector recycling brokers and end-users to determine level and effort related to management of commercial recyclables.*

Construction/Demolition Debris (CDD) – *these are the wastes generated by building, remodeling and/or destruction activities and may include such wastes as wood and wood products, concrete and brick, gypsum board, shingles and other common components of buildings. It may include such items as wood, large metal appliances and construction materials. These are solid wastes that do not typically fit into a 30 gallon trash container.*

Front-end Process Residue (FEPR) – *residual of municipal solid waste resulting from the processing of solid waste processing prior to incineration or landfilling, and includes, but is not limited to, ferrous metals, glass, grit and fine organic matter.*

Household Hazardous Wastes (HHW) – *items generated by households that are corrosive, toxic, ignitable, or reactive, and as such are hazardous to humans and/or the environment if disposed of improperly.*

Incinerator Ash – *this is the residue from the combustion of municipal solid waste at waste-to-energy facilities. It may also contain fly ash from the facility's operation and is designated as a 'special waste'.*

Municipal Solid Waste Annual Reports – *these are the reports submitted to the State Planning Office by municipalities, as required through 38 MRSA § 2133. These reports convey their efforts related to municipal solid waste management and provide detail on the tonnage of solid wastes they have overseen and a description of the various solid waste management practices utilized.*

Municipal Solid Waste (MSW) – *solid waste emanating from household and normal commercial activities.*

Special waste – *wastes that generated by other than domestic and typical commercial establishments that exist in such an unusual quantity or in such a chemical or physical state that require special handling, transportation and disposal procedures.*

Universal Wastes – *a category of wastes that including: PCB containing lighting ballasts; Cathode Ray Tube (CRT) containing devices; fluorescent lamps; other lamps containing hazardous wastes; and, mercury-added devices from commercial sources.*

Waste-to-energy facilities (W-T-E) – *incinerators which receive municipal solid waste, and through combustion, recover energy and convert it into electricity, while reducing the volume of waste requiring disposal.*

Preface

Declaration of Policy

The Legislature finds and declares it to be the policy of the State, consistent with its duty to protect the health, safety and welfare of its citizens, enhance and maintain the quality of the environment, conserve natural resources and prevent air, water and land pollution, ***to establish a coordinated statewide waste reduction, recycling and management program.***

The Legislature finds and declares that it is the policy of the State ***to pursue and implement an integrated approach to hazardous and solid waste management, which shall be based on the following priorities: reduction of waste generated at the source, including both the amount and toxicity of waste; waste reuse; waste recycling; waste composting; waste processing which reduces the volume of waste needing disposal, including waste-to-energy technology; and land disposal.***

The Legislature finds that it is in the best interests of the State to prefer waste management options with lower health and environmental risk and to ensure that such options are neither foreclosed nor limited by the State's commitment to disposal methods. The Legislature declares that ***it is in the public interest to aggressively promote waste reduction, reuse and recycling as the preferred methods of waste management.***

The Legislature finds that environmentally suitable sites for waste disposal are in limited supply and represent a critical natural resource. At the same time, new technologies and industrial developments are making ***recycling and reuse of waste an increasingly viable and economically attractive option which carries minimal risk to the State and the environment and an option which allows the conservation of the State's limited disposal capacity.***

The Legislature further finds that needed municipal waste recycling and disposal facilities have not been developed in a timely and environmentally sound manner because of diffused responsibility for municipal waste planning, processing and disposal among numerous and overlapping units of local government. The Legislature also finds that direct ***state action is needed to assist municipalities in separating, collecting, recycling and disposing of solid waste,*** *and that sound environmental policy and economics of scale dictate a preference for public solid waste management planning and implementation on a regional and state level* (bold added here for emphasis).[1]

Such was the clarity of our beginnings and, for 20 years, Maine has worked to implement this policy. During this time, the state has made significant progress in reducing, reusing, and recycling its municipal solid waste.

- The state's recycling rate has more than doubled; recycling more than five and a half million tons of solid waste over this period.
- Public recycling services have expanded to serve over 98% of our population.

[1] 38 Maine Revised Statute Annotated, Chapter 13

- Businesses have adopted and implemented recycling programs that support the state's objectives.
- We've reduced toxics in the solid waste stream by banning from disposal in Maine solid waste disposal facilities: mercury-added products, cell phones, and cathode ray tubes (CRTs) found in computer monitors and televisions, and requiring the recycling of hazardous consumer products known as 'universal wastes'.
- The number of municipalities offering collection programs to divert and safely manage household hazardous waste (HHW) has grown to 140 municipalities in 2007. Additionally, two permanent HHW collection facilities have been established to better serve the on-going household hazardous waste management needs of Maine's residents.
- Nearly 100% of the state's unlicensed, unlined, substandard landfills have been capped and closed, significantly reducing their impacts on Maine's environment.

In the decade since the last waste management plan, recycling progress has slowed. The statewide recycling rate leveled off as our growing economy and changing lifestyles resulted in waste generation levels that outpaced our efforts and support of recycling. The amount of solid waste being disposed increased 60 percent.

The legislated date to achieve the state's 50% goal is January 1, 2009. The 2007 state recycling rate is 34.8%, fifteen percentage points short of the goal. The state remains committed to reaching the 50% goal in light of its value on reducing overall solid waste management costs, the positive impact on the environment, and a lessening of the need for additional solid waste disposal facilities.

The state waste reduction goal challenges Mainers to reduce waste generation by 5% every two years. As waste generation continues to climb in Maine, we have not achieved this goal. However, we are seeing a modest trend in waste reduction from decreases in the weight of consumer goods, for example when products get smaller, are made of more lightweight materials, or use lighter weight packaging.

In 2005, a state policy review task force called for Maine to move beyond a 50% recycling goal. Recycling is increasingly critical as a foundation for sustainable production. As the current stewards of this system, we have the obligation to counter the notion of useless waste as an unavoidable conclusion of normal everyday living. Our work for the coming years is to return these "resources" to either their natural or industrial systems.

The Purpose of this Plan

The intent of the ***Declaration of policy*** placed into law in 1989 is unambiguous; as is the direction it provides the plan.

While this plan does offer specific resource management objectives and suggestions to achieve them, and has analytical and informational functions, it is deliberately a forward looking policy document for policymakers and program managers at the state, regional, and municipal level. The plan is intended to encourage them to make full use of the waste hierarchy when crafting decisions about program implementation, to provide them with the policy standards to apply to those decisions and to persuade them to pursue and achieve the state's 50% recycling goal; one of the fundamental legislative reinforcements of the hierarchy.

The plan takes a look at the development of Maine's waste management system in order to assess the effectiveness of current state efforts. The plan also:

- looks at how solid waste is currently being managed in Maine;
- provides an update on issues cited in the last plan ten years ago; and
- identifies issues that warrant monitoring and new trends.

Finally, it describes strategies for how Maine might move forward managing municipal solid waste into the next decade.

In addition, the plan is the basis for:

- communicating Maine's waste management priorities and policies;
- assessing statewide disposal capacity, recycling progress, and waste management strategies; and
- guiding public benefit determination for environmental licensing.

Appendix A provides the statutory references for the plan.

The Plan's Format

This plan update contains edited excerpts from the most current *Solid Waste Generation and Disposal Capacity Report*. The capacity report has been expanded in scope and is now revised on an annual basis. Certain requirements of the plan and the report overlap including determination of existing and potential disposal capacity, and projected demand for capacity.

The goal of this "link up" is to develop mechanisms through which the State Planning Office can readily scrutinize the progress and effectiveness of Maine's solid waste policies and programs against the most current numbers and projections supplied by the capacity report.

This change in format is in keeping with the move to a standing Solid Waste Management Advisory Council from the once-every-five-year task force and the change to the annual report; to develop a more timely, policy-guided review of any changes and trends of Maine's solid waste management practices and translate the information gained into appropriate action.

I. Waste Characterization

Municipal Solid Waste Generation[2]

The amount of municipal solid waste (MSW) generated by Mainers is the starting point for the calculations and projections in this plan. It provides the basis for determining the statewide recycling rate as well as all the projections that follow.

Municipal Solid Waste
This plan considers municipal solid waste and its residues (primarily ash and front-end process residue generated by waste-to-energy facilities). MSW is waste typically generated by households and businesses and managed by municipalities. It includes household garbage and other waste (corrugated cardboard, newsprint, office and mixed papers, food waste, plastics, glass, metals, and textiles) as well as construction and demolition debris, appliances, furniture, tires, wood waste, and yard waste.

Waste Generation Calculation
The State Planning Office uses three pieces of data to determine the statewide generation of municipal solid waste:

1. data provided by municipalities in their annual solid waste reports to the State Planning Office;
2. data provided by public and private disposal facilities in their annual license reports to the Maine Department of Environmental Protection; and
3. data provided by commercial recyclers and end-users in a voluntary survey.

The Office combines the amount of waste processed and disposed and the tonnage recycled, composted, and reused to create a reliable estimate of waste generation in Maine.

A. Statewide Municipal Solid Waste Generation

Maine residents, businesses and visitors generated 2,066,448 tons of municipal solid waste in 2007, up from 1,989,266 tons in 2006. Waste generation is a function of population growth, lifestyles, economic activity, and production practices.

Between 1993 and 2003, municipal solid waste generation in Maine increased over 55%. While we can attribute some of this growth to increased economic activity, we also recognize that improved data collection plays a part. During this period, for each successive reporting year, the Office was able to capture more precise waste generation numbers. However, as can be seen in Figure 1, over the last four years, waste generation increases have slowed. Again, improved accuracy in data plays a part.

[2] Excerpted from the *2007 Solid Waste Generation and Disposal Capacity Report*, Maine State Planning Office, January 2009 (edited)

Nevertheless, a fundamental change in the waste stream is occurring; a change that impacts waste tonnages. Products and product packaging today are increasingly made from lighter weight materials. This saves on both manufacturing and transportation costs. Shifting from glass to plastic packaging, downsizing packaging, and switching from metal to plastic product components are occurring across industries. For example,

- newspapers are smaller and lighter weight;
- aluminum and plastic containers are being manufactured with less material;
- glass is disappearing from supermarket shelves; and
- computer components are often now made of plastic rather than metal.

These changes impact waste stream composition. Plastic, which used to be 7% of the waste stream by weight, now comprises 12-13%, displacing glass and metal. Where 24 aluminum cans used to weigh a pound, now there are 34 cans to a pound. Newspaper is now a smaller percent of the waste stream by weight.

Changes in society also contribute to decreasing the weight of what we dispose. Smaller families, reading their morning newspaper on-line, and eating more restaurant meals, generate less waste. A trend of growing-your-own or buying local produce may also reduce food waste in places.

At the same time, we continue to see increases in disposable, single-use, convenience packaging. Today's on-the-move lifestyle takes advantage of ready-made meals, and also the demands of higher food hygiene standards. Everything from plastic utensils and beverage cups to throwaway floor mops to disposable underwear and socks for travelling represents a growing share of household waste, particularly if you consider its volume. Disposable products and packaging, while increasing in amount also appear to weigh less; a contributing factor to Maine's slowing waste generation tonnages.

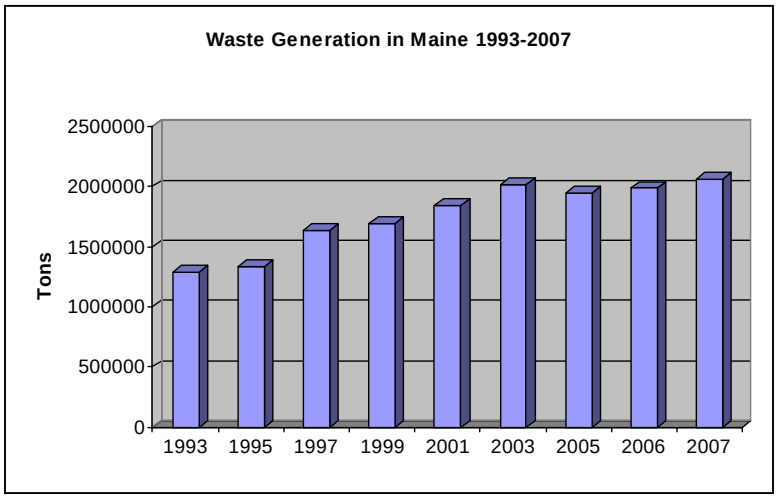


Figure 1: Maine Waste Generation, 1993-2007
Source: State Planning Office

B. Per Person Waste Generation

Municipal solid waste generation, when calculated on a 'per person' basis, shows that each Maine resident generates approximately 3,200 pounds of MSW a year, or about 8.8 pounds of waste per person per day.[3] Maine's per person generation is higher than the 2007 national average of 4.6 reported by the U.S. Environmental Protection Agency.

One reason why Maine's per person number is higher than the national average is that Maine includes both bulky waste and construction and demolition debris (CDD) in its definition of MSW, which the U.S. EPA does not. If we exclude these wastes from our numbers, the Maine per-person rate drops to approximately 7.5 pounds per day. For comparison, New Hampshire's 6.9 pounds per person per day in 2007 includes CDD,[4] also higher than the national average.

Another explanation for the higher weight per person is the high success in tracking and capturing commercially-generated solid waste tonnages, as well as the considerable additional impact of visitors on solid waste generation. Maine sees tens of millions of overnight stays and hundreds of thousands of extended stays by nonresidents per year. For example the Mount Desert area with a year round population in the thousands, sees over three million visitors per year that have an enormous impact on MSW generation numbers.

C. Types of Waste

1. Composition of Household Wastes

The plan depends upon the *EPA Waste Characterization Study* of the same data year in order to assess the types and amounts of Maine-generated MSW (See Figure 2 below).

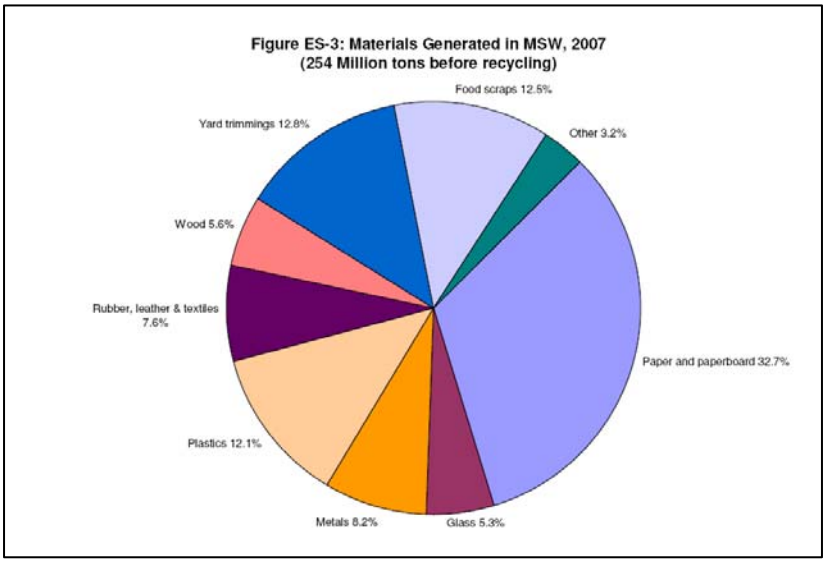


Figure 2: Municipal Solid Waste Characterization
EPA Waste Characterization Study 2007

[3] Based on an estimated 2007 Maine population of 1,315,398, US Census
[4] New Hampshire Department of Environmental Services

We can apply these percentages to the amount of Maine's MSW, but we must subtract CDD as the EPA chart does not include that waste stream.

Subtracting out the 2007 CDD tonnage leaves 1,748,958 tons of MSW generated. By applying the percentages of the chart to Maine's tonnage, we can estimate the types and amounts of MWS as shown in Table 1.

Table 1: Maine Recyclables Generated (in tons) - 2007	
paper and paperboard	571,910
yard waste	223,867
food scraps	218,620
plastic	211,624
household metal	143,415
textile, rubber and leather	132,920
wood waste (other than CDD)	97,942
glass	92,695
other	55,967

It is worth comparing these numbers with the recovered numbers reported in Table 6. While the categories do not match up precisely, they are close enough in definition to warrant their use here. Table 2 shows the percent recovered for selected recyclable materials.

Table 2: Recovery Rates of Selected Recyclable Materials 2007			
Waste type	**Amount generated**	**Amount recovered**	**% recovered**
Paper/ paperboard	571,910	286,164	50%
Yard waste	223,867	29,948	13.3%
Food scraps	218,620	214	minimal
Plastic	211,624	15,181	7%
Household Metal	143,415	86,936*	61%
Textile/rubber/leather	132,920	9,498	7.1%
Wood waste	97,942	**	
Glass	92,695	49,520	53.4%

* includes white goods ** no corresponding definition

This comparison confirms current trends in recycling data. The mature recycling commodities – glass, metals, and fiber – have the highest recovery percentages, while plastics is gaining share in generation but lags behind in recovery due to the complexity of chemistries that relates directly to weakness in recycling efforts. It also highlights where Maine can make the most gains by concentrating on fiber, plastics, construction demolition debris, and the organic fraction.

Another way to look at Maine's waste stream is to look at the source of the waste. Maine has a larger commercial share than the US average because of our MSW definition inclusive of CDD (see Table 3).

Table 3: Breakdown of Sources of Waste - 2007			
Type of Waste		**Percent of MSW Generated**	
Residential	Includes waste from single-family and multi-family dwellings	Maine 46%	US 55-65%
Commercial	Includes waste from businesses, schools, institutions, and the MSW portion waste generated by industrial sites (e.g. office waste)	Maine 54%	US 35-45%

2. Composition of Construction/Demolition/Debris

In 2007, Maine generated an estimated 317,490 tons of CDD. Based on waste composition models, as shown in Figure 3, we can assess the types and amounts of the CDD waste stream.

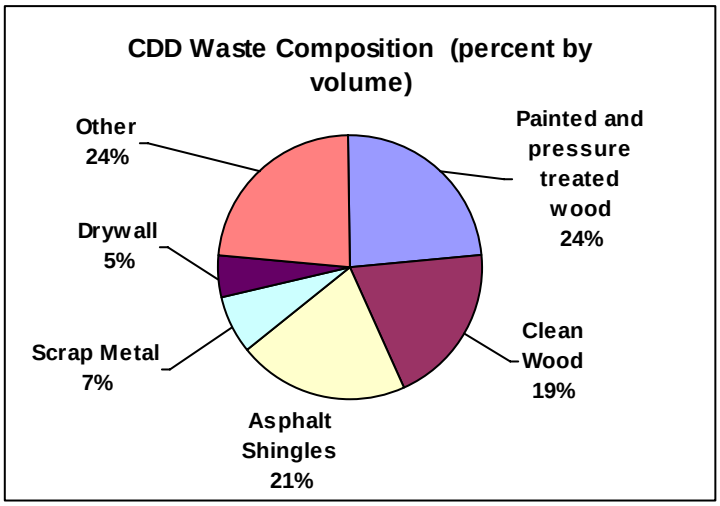


Figure 3: Vermont CDD Composition Study 2003

Using the percentages of Figure 3, it is estimated that Maine generated the following amounts and types of CDD, shown in Table 4:

Table 4: Types of CDD generated – 2007 (in tons)	
Painted and other wood	76,198
Clean wood	60,323
Asphalt shingles	66,673
Metals	22,224
Drywall	15,875
Other[5]	76,198

[5] "other" includes carpet, plastic floorings, insulation, plastic conduit, joint compound, containers, and paper products, and mixed materials products that could not be categorized.

Again referring to Table 6, Maine recovered 25,626 tons of CDD and other wastes for a recycling rate of just over 8% of our CDD stream.

State Recycling Goal

A. Recycling Trends

The goal of the state of Maine is to recycle 50% of the state's waste each year. Maine recycled 34.8% of its municipal solid waste in 2007. This reflects a decrease from the 2006 recycling rate of 36.2 % and falls below the recycling rate of 35.5% experienced in 2003. The Office estimates that the overall result is accurate to within two (2) percentage points.

Approximately 33% of Maine's recyclables are handled by municipal/public recycling programs. The balance of recycling efforts statewide is the result of private business-generated and managed recyclables, handled by private sector waste management companies.

Maine's recycling rate grew rapidly in the first ten years following the enactment of the Maine Solid Waste Management Act – from an estimated 17% in 1987 to 42% in 1997. It has since leveled off, declining slightly each year since the high of 42%. Figure 4 shows the state's recycling rate over time.

The rapid rise in recycling rates from 1987 to 1997 was due to a concentrated effort by private sector, local public programs, and the state acting in partnership, with recycling having not only a priority statutory identity, but state level presence and support. During this time, the state invested $12.5 million in local grants for recycling collection and processing equipment, provided for statewide public education, and conducted hundreds of training workshops for local officials. Since 1998, state funding has been available at a fraction of previous levels ($475,000 in 1998, $600,000 in 2003) and local programs compete with other municipal services for their share of property tax dollars.

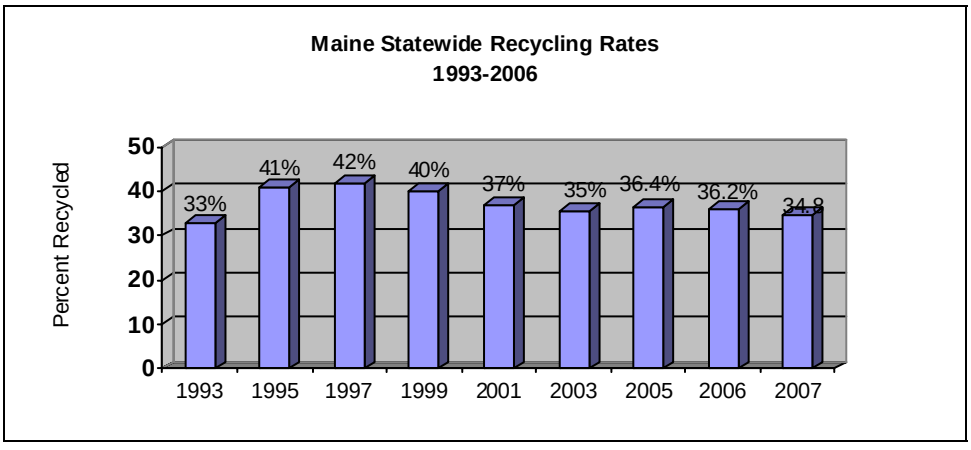


Figure 4: Maine Recycling Rates, 1993-2007
Source: State Planning Office

At the same time, there has been an upward trend in municipal solid waste being generated. Figure 5 shows the tons of waste disposed compared to the tons recycled. The growth in waste generation prevents the recycling rate from increasing despite greater tonnages being recycled.

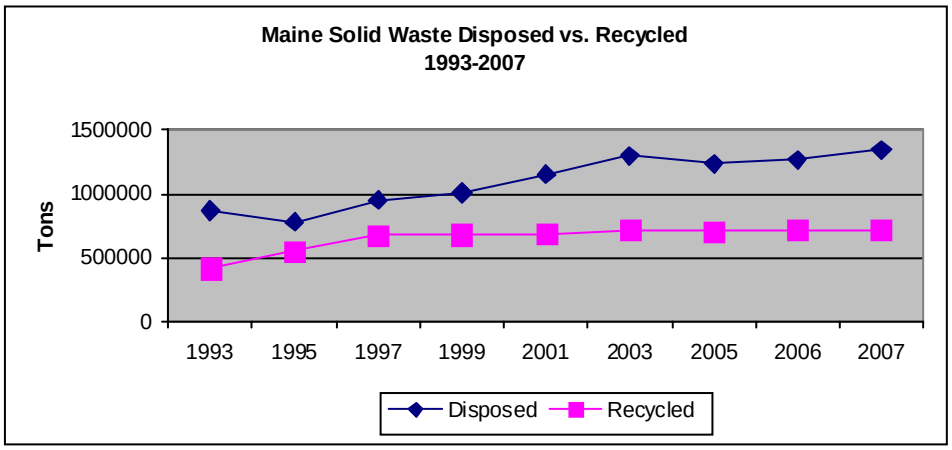


Figure 5: Maine Solid Waste Disposed vs. Recycling, 1993-2007
Source: State Planning Office

There are four broad reasons why recycling rates are falling behind generation rates.

First, recycling has not advanced aggressively into other components of the waste stream that are growing, such as the organic fraction and construction and demolition debris.

Secondly, even though markets for traditional recycling commodities have grown throughout the first half of this decade with strong revenues and encouraging price signals, municipal programs have not sought to follow their lead and increase recycling efforts. This is primarily due to yearly budget constraints that prevent investment to take advantage of market opportunities.

Thirdly, municipal programs typically view recycling as an "add-on" to their MSW program and may lack confidence in recycling as an integral part of their management system, creating a divide between what they are required to do by law and what they may desire to do.

And lastly, municipal recycling programs are often not extended to cover small businesses (i.e. less than 15 employees, the threshold for required recycling under state law) so a large amount of material is missed, falling in the gap between large scale commercial recovery and municipal/residential resource recovery efforts.

B. EPA Definition

We can also compute the state recycling rate using the U. S. EPA's definition for MSW, which excludes CDD. When the 2007 statewide recycling rate for Maine is calculated using the EPA guidelines, our statewide recycling rate becomes 38.8%. Table 5 shows the two methodologies for calculating the state's recycling rate and Figure 6 shows a comparative trend line.

Table 5: Maine Statewide Recycling with and without CDD 2007				
Maine Definition (*CDD included*)			EPA Definition (*CDD not included*)	
MSW with CDD generated	2,066,448		MSW w/o CDD generated	1,748,958
MSW with CDD recycled	718,613		MSW w/o CDD recycled	692,987
Recycling Rate	34.8%*		Recycling Rate	39.6%*

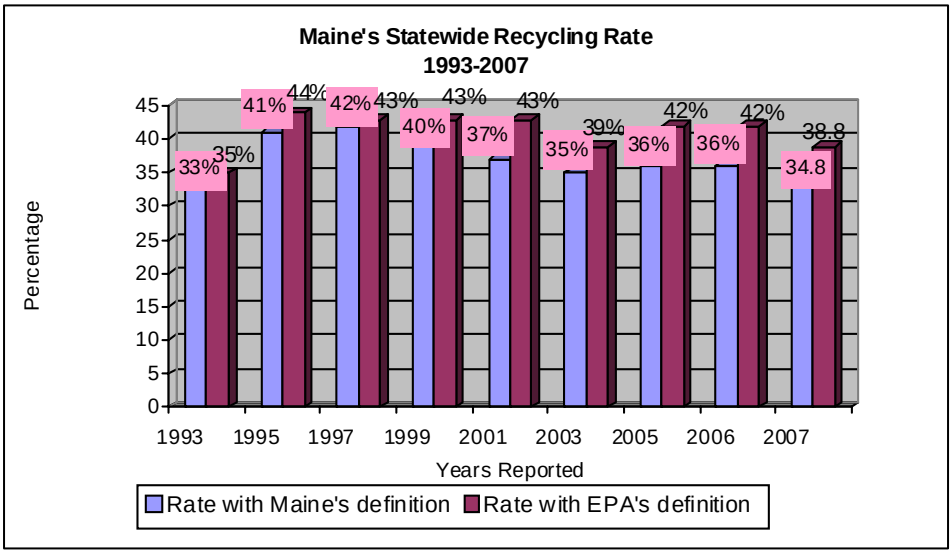


Figure 6: State Recycling Rate with and without CDD included
Source: State Planning Office

Conclusion: Waste Characterization

Waste generation increases appear to have slowed. Societal changes and reduced packaging contribute to this. Mainers are recycling more each year. Nevertheless, we continue to throw away more. Our recycling rate cannot keep pace with waste generation.

Table 6: Type and Amount of Materials Recycled 1997-2007

Materials:	2007	2005	2003	2001	1999	1997
high grade paper	72,846	72,965	3,951	43,125	11,570	31,470
corrugated cardboard	117,324	117,144	88,166	202,129	198,442	214,536
newspaper	26,453	32,300	33,442	32,069	42,612	44,710
magazines	8,532	8,723	1,881	13,259	6,104	3,702
mixed paper	11,131	5,226	13,919	14,766	12,860	12,207
other paper	7,668	8,900	3,166	27,376	12,671	6,465
other grades	42,210	36,805	132,475			
Total paper	286,164	282,063	277,000	332,724	284,259	313,090
clear glass	10,656	11,058	6,334	11,706	8,324	10,590
brown glass	23,544	24,377	11,270	12,200	12,545	7,060
green glass	11,878	12,622	3,142	6,700	26,167	11,767
all other glass	3,442	3,598	21,672	620	440	1,734
Total glass	49,520	51,655	42,418	31,226	47,476	31,151
white goods	82,493	78,401	68,125	115,219	142,640	122,895
aluminum	2,454	2,163	2,109	6,100	1,862	1,332
tin cans	1,989	1,089	3,154	9,754	18,833	10,693
non ferrous	25,655	23,213	18,847	22,491	18,652	21,572
other (various materials)	72434	68,432	68,984			
Total Metal	185,025	173,298	161,219	153,564	181,987	156,492
HDPE	8,530	9,377	3,420	2,274	4,410	4,160
PET	5,277	4,766	8,725	9,042	6,521	6,021
LDPE film	576	526	711	4		
polystyrene		8	0	554	6	6
Other	798	631	531	1,917	1,211	1,042
Total Plastic	15,181	15,308	13,387	13,791	12,148	11,229
wood waste	86,544	93,582	92,154	40,443	41,103	38,402
leaves	29,448	29,938	33,376	26,340	27,421	24,528
food waste	214	142	2,623	23,744	24,582	23,240
Total Organic	116,206	123,662	128,153	90,527	93,106	86,170
tires	30,545	30,374	35,467	19,621	32,530	30,559
CDD, other wastes	25,626	23,425	49,714	38,848	39,469	44,209
Mercury-added/UW	848	487	327	242		
Total Hard to Manage	57,019	54,286	85,508	58,711	71,999	74,768
Textiles	2,196	1,724	2,260	3,827	6,023	1,726
Other nonbulky MSW	7,302	6,935	7,638	3,445	2,740	5,252
TOTAL TONS RECYCLED:	718,613	708,931	717,583	687,815	699,738	679,878

II. Solid Waste Management Infrastructure Capacity

Recycling Capacity

Maine cities and towns by law are responsible for providing for municipal solid waste disposal. Title 38, Chapter 13, section 1305 states, "Each municipality shall provide solid waste disposal services for domestic and commercial solid waste generated within the municipality…"

Individual municipalities and regions are not required to achieve a 50% recycling rate; but they are required to demonstrate progress towards the goal. Recycling progress varies from community to community, but overall programs removed 90,000 tons of paper and plastic and metal and glass containers from the state's waste stream that would otherwise need disposal, and recycled an additional 137,000 tons from other waste streams in 2007.

Based on what we generate today, municipal and private sector recycling programs would need to handle 300,000 tons more of material to achieve a 50% recycling goal. This number will grow each year to match projected increases in waste generation.[6]

Over the next 20 years, simply to maintain a 35% recycling rate will require public and private programs to double their recycling handling abilities. As waste generation increases, the volume of recyclable materials at a 35% rate will increase from 700,000 tons in 2007 to 1.6 million tons in 2027.

To achieve and maintain a 50% recycling goal by 2009 would mean processing 30 million tons from the waste stream over the 20-year period as shown in Figure 7 (increasing from 700,000 tons in 2007, to 1 million tons in 2009 and 2.4 million tons by 2027).

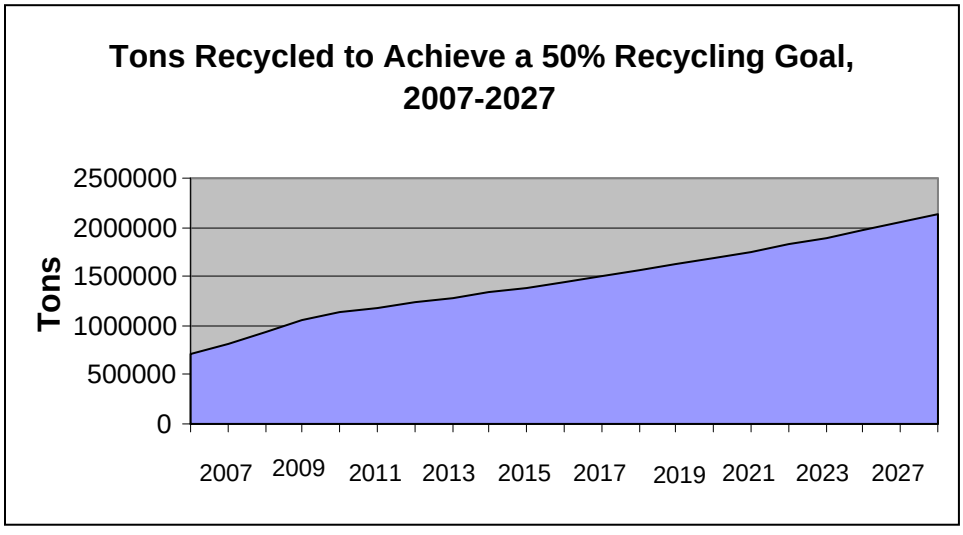


Figure 7: Tons Recycled to Achieve a 50% Recycling Goal
Source: State Planning Office

[6] Based on an assumed 4% annual growth in municipal solid waste generation.

Currently municipalities do not have the capacity to handle these kinds of new volumes; neither the physical (buildings and equipment) nor human (staffing) capacity. Municipal recycling programs currently handle, on average, 90,000 tons of fiber, packaging, products and container recycled materials per year. The Office estimates that they have additional capacity for another roughly 25 to 30,000 tons annually.[7]

The private sector can likely handle additional tonnages or be in a position to respond with capital investment needs to grow their tonnages if the economics warrant it.

There are concerns over where this volume would come from. Higher yields and participation rates can be stimulated with public awareness programs, incentives such as pay as you throw, and technological advances including single sort. Many communities are taking these kinds of actions, but greater effort is needed to generate the tonnage to achieve a 50% recycling goal.

Today there is sufficient down time at most the regional recycling centers[8] that most of the changes needed to meet future capacity needs at those facilities can be met by additional labor time and increases in personnel. There will always be the requirement to have sufficient funds to repair/maintain and replace equipment, but not necessarily the demand to expand processing capacity (i.e. adding more and bigger balers). An alternative would be to add new stationary or mobile infrastructure in order to change over single sort recycling systems, which partially eliminates the need for additional personnel.

We can look at *ecomaine* for a real world example. They are actively seeking more recycling tonnage to go from their 2007 level of approximately 25,000 tons to 40,000 tons. At the higher figure they can run their new MRF at capacity for a single shift. To double that tonnage over 17 years will take some refinement of their current operation to improve throughput, eventually adding a second shift to as their projected throughput builds from 40,000 to 80,000 tons. That one additional shift at that one facility represents 25% of the future recycling capacity needs of Maine's municipalities.

The gradual increase in material levels over the next several years will mean that municipalities will also see pressure to move towards more efficient collection/aggregation systems whether that be improvements in curbside systems or the move from drop off to curbside, or larger more efficient drop offs that eliminate bottle necks and over handling.

It is anticipated that future municipal recycling infrastructure costs will be for collection, containment, and storage, for the traditional recycling stream, and expanding into organics diversion through composting and to accommodate increased CDD recycling.

It will take significant infrastructure capital investment, by both the public and private waste management sectors to achieve our 50% recycling goal. Maine should begin to prepare now to build the infrastructure needed to manage an increase in recycling.

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[7] This does not include the ecomaine recycling collection and processing expansion that is predicted to add 15,000 tons a year of recyclable material or expansion of other single stream materials recovery efforts.

[8] A regional recycling center is defined here as 2 or more communities, several balers or at least one horizontal baler, a tipping floor to handle large amounts of incoming materials, sufficient bale storage for a truckload of more than one type of material, with a transport and marketing system in place and sufficient personnel and auxiliary equipment.

Processing and Disposal Capacity

In 2007, Maine's solid waste disposal facilities included: one state-owned landfill, two commercial landfills, eight municipally-operated landfills, (including Greenville in closure negotiations) 23 municipal construction and demolition debris (CDD) landfills, and four waste-to-energy facilities. Several processing facilities/operations were available for managing construction and demolition debris.

Assumption: Capacity figures provided for the state-owned and commercial landfills assume that operations of those facilities achieve a one-to-one ratio of tons-to-cubic yards using best management practices for landfill compaction.

A. Landfills

Landfills receive a variety of wastes, and that variety differs among the facilities, depending upon what their approval allows for acceptable wastes. Included in that variety of wastes is: raw garbage, construction and demolition debris, residues and ash from waste to energy facilities, contaminated soils, sludge, ash from bio-mass operations, and other special wastes. This report focuses on municipal solid waste, including construction and demolition debris as well as the residues from the processing of those wastes, but in reviewing landfill capacity, the tonnages of the other special wastes that are accepted by the landfills do consume capacity, and for that reason, those wastes and their impact on landfill capacity is included in this report.

1. State-owned Landfill[9]

In 2007, the state-owned landfill in Old Town, known as Juniper Ridge, received a total of 472,600 tons of in-state generated waste, of which 151,073 tons were municipal solid waste and CDD and another 158,877 tons were residues from processing or incineration of MSW. The balance of the waste buried at the landfill included various types of sludge, contaminated soils and approved wastes from other in-state commercial and industrial generators (non-MSW wastes).

Assessment of Facility

Available disposal capacity remaining at Juniper Ridge at the end of 2007 was approximately 8,462,000 cubic yards, which translates into space for approximately 7.15 million tons of solid waste. At projected fill rates[10], the present licensed capacity should provide 10-12 years of disposal capacity for the state.

Starting in 2009/2010, however, with the closure of the Pine Tree Landfill and the initiation of processing at the planned construction/demolition processing facility in

[9] The State Planning Office owns 1500 acres of land in T2 R8 (near Lincoln), upon which a special waste landfill was permitted in the mid 1990s. Known as Carpenter Ridge, it has a landfill design for about two million cubic yards of waste. It was acquired by the former Maine Waste Management Agency and has been held by the state for disposal capacity when it is needed.

[10] The State Planning Office projects that wastes delivered to Juniper Ridge will average 550,000 tons per year, but will increase to 850,000 tons per year starting in 2010, with wastes diverted from the planned closure of the Pine Tree Landfill in 2009, and from additional residues and wastes generated from CDD processing operations within the state.

Westbrook (as permitted by Casella Waste Systems, Inc.) an expected additional 300,000 tons of wastes will be delivered to the Juniper Ridge Landfill for disposal. With the addition of these wastes, the consumption of the space at the landfill is expected to change, from approximately one ton of waste per cubic yard of space to 0.8 tons of waste per cubic yard. This change impacts the planned life of the landfill, leaving approximately 10 years of remaining capacity, at the end of 2007.

2. Commercial Landfills

Maine has two commercial landfills grandfathered under the 1989 Solid Waste Management Act that banned the development of new commercial disposal facilities. Having the commercial landfills has provided competition and disposal options for municipal solid waste, construction and demolition debris, and special wastes. The two commercial landfills are:

- Crossroads Landfill, located in Norridgewock, owned by Waste Management, Inc.
- Pine Tree Landfill, located in Hampden, owned by Casella Waste Services, Inc.

The Crossroads Landfill is permitted to take special waste, municipal solid waste, and construction and demolition debris. It provides recycling and disposal services on a contract basis for municipalities and businesses. It currently serves 30+ Maine communities in Western Maine. In 2007, the landfill accepted 336,854 tons of solid waste. Of that tonnage, 182,525 tons were Maine generated municipal solid waste and CDD and 19,922 tons of residues from the processing of MSW. The balance of wastes included Maine generated special wastes (59,974 tons), and CDD and special wastes generated outside of Maine (74,433 tons).

The Pine Tree Landfill is permitted to take special waste, by-pass municipal solid waste, and construction and demolition debris. In 2007, the Pine Tree Landfill accepted 557,793 tons of solid waste. Of that tonnage, 39,058 tons were Maine generated municipal solid waste, CDD and 158,133 tons of residues from its processing. The balance of wastes included Maine generated special wastes (35,971 tons) and MSW by-pass, CDD and special wastes generated outside of Maine (324,631 tons). Through an agreement reached among the Town of Hampden, Maine Department of Environmental Protection and the landfill's owner, the landfill will cease accepting solid waste by the end of December 2009.

Assessment of Facilities

The total disposal capacity currently licensed at these two commercial landfills is approximately 5.0 million cubic yards. The majority of this capacity is at the Crossroads Landfill, with an estimated 3.9 million cubic yards of capacity remaining at the end of 2007. Table 7 shows estimated remaining disposal capacity at the commercial landfills.

Table 7: Capacity at Maine's Commercial Landfills – end of 2007				
	2007 Fill Rate (tons)	**Remaining Capacity (Cubic Yards)**	**Remaining Capacity (tons)**	**Estimate in years of life remaining based on 2007 fill rates**
Crossroads Landfill	336,854	3,900,000	3,900,000	10-12 years
Pine Tree Landfill	557,793	1,000,000	970,000	< 2 years
Total	894,647	4,900,000	4,870,000	

3. Municipal MSW Landfills

In 2007, 107,248 tons of solid wastes and 59,100 tons of ash were disposed at nine municipally-operated landfills. Table 8 provides information on each individual landfill, including fill rates and estimated available remaining capacity.

Assessment of Facilities

Among the seven municipally-operated MSW landfills (excluding Greenville and West Forks), there is just over 2.4 million cubic yards of remaining available capacity that can accept 1.56 million tons of municipal solid waste. This capacity is sufficient to carry those communities for 15 years (on average), supposing a relatively flat growth in the volume of municipal solid waste requiring disposal.

The actual remaining life varies for each landfill, resulting in 'unevenness' of municipal capacity across the state. This variation, as to when a particular community or region may exhaust their current disposal capacity, is independent and possibly irrespective of any possible statewide disposal capacity concern, but will be of significant concern to those regions.

Bath and Brunswick are two of the state's oldest secure landfills. Brunswick serves only its own residents and businesses. Both communities are adopting programs to extend the life of their landfills, such as 'pay-as-you-throw' (PAYT) and single stream recycling collection. The Hatch Hill Landfill in Augusta serves eight communities and was recently expanded. None of these facilities is expected to expand beyond their current footprint.

Together, the Presque Isle and Tri-Community (Fort Fairfield) landfills serve nearly 50 communities in Aroostook County. Both are currently seeking expansions that will serve those communities for an additional fifty years.

As part of an arrangement with the Mid Maine Waste Action Corporation, the City of Lewiston brings its waste to the MMWAC incinerator in Auburn. MMWAC, in exchange, disposes its incinerator ash at the Lewiston landfill. In addition, the Lewiston Landfill accepts CDD and other wastes.

Table 8: Municipal Landfill Tonnages – 2007				
	2007 Fill Rate (tons)	**Remaining Capacity Cubic Yards (est.)**	**Remaining Capacity (tons)**	**Years of life remaining based on 2007 fill rates at .65 tons/yard[11]**
MSW Landfills: [12]				
Bath	23,552	422,000	274,300	11 years
Brunswick	4,850	140,000	91,400	19 years
Greenville see footnote	600	56,000	36,500	60 years
Hatch Hill (Augusta)	25,961	937,000	609,000	20 years
Presque Isle	20,140	149,900	85,800	4 years
Tri-Community (Fort Fairfield)	31,145	703,800	457,500	18 years
CFWF (West Forks)see footnote	1000 (est.)	8,000	5,000	<1 year
Total Tons:	**107,248***			
Total Remaining Capacity (est.)		**2,416,700**	**1,559,500**	
	2007 Fill Rate (tons)	**Remaining Capacity Cubic Yards (est.)**	**Remaining Capacity (tons)**	**Years of life remaining based on 2007 fill rates at 1 ton/yard**
Ash Landfills:				
ecomaine	40,320	915,700	915,700	20-30 years
Lewiston	18,780	268,750	268,750	12 years
Total Tons:	**59,100**			
Total Remaining Capacity (est.)		**1,184,450**	**1,184,450**	

4. Municipal CDD Disposal Facilities

In 2007, 17 municipal disposal facilities reported accepting locally-generated construction and demolition debris (CDD)**,** inert fill, brush, and trees. Local facilities furnish a 'short-transport' option for the management of these wastes. A total estimated 28,000 tons of materials were buried at these sites during 2007; this is a decrease from the 34,839 tons landfilled in 2005, as shown in Figure 8.

[11] Different ton-cubic yard conversion rates are used for different facilities. Household, baggable waste at municipal landfills typically converts at 0.65 tons per cubic yard. Ash is heavier than municipal solid waste, so SPO uses a 1:1 conversion rate with one ton equaling one cubic yard. Commercial landfills, with heavier equipment for compaction and more varied waste streams, also typically achieve a 1:1 conversion rate.

* 83,043 tons were municipal solid waste or construction demolition debris. The balance was other wastes, including special wastes.

[12] The CFWF landfill ceased operations in 2008. The Greenville landfill is in closure negotiations.

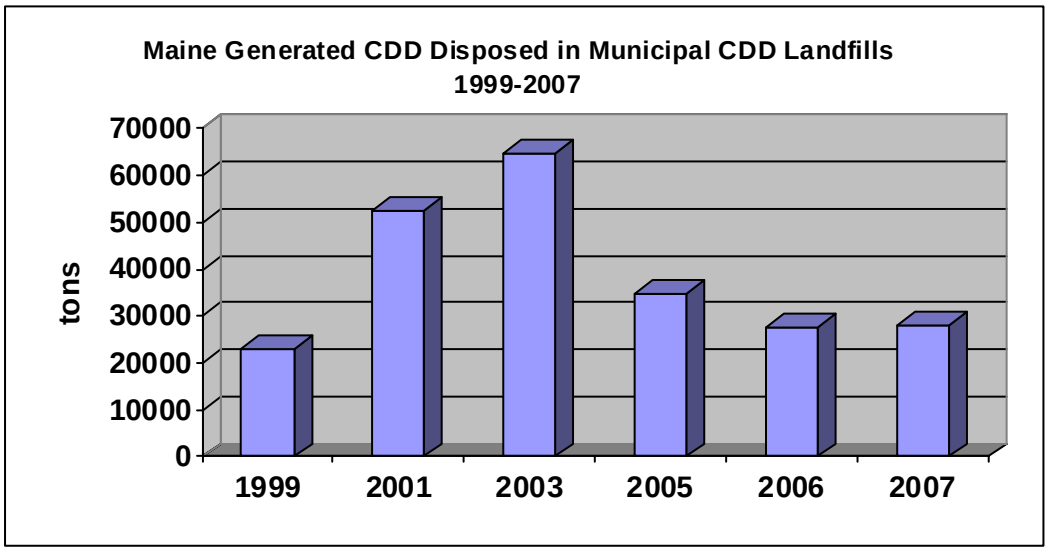

Figure 8: Maine CDD Disposed in Municipal CDD Landfills, 1999-2007
Source: State Planning Office

Assessment of Facilities

The remaining capacity at individual CDD facilities varies. Although statewide numbers indicate landfill space exists for an overall capacity sufficient for another 10-12 years, a number of these facilities will be full before then, creating 'pockets' where CDD disposal options will need to be reconsidered. Four of the facilities have an estimated six years or less of capacity at current fill rates and licensed footprints. One site, located in Marion Township in Washington County, is expected to be full in 2-3 years and the owners of that facility were pursuing development of a replacement disposal site, but those plans have been shelved for 2009.

CDD disposal capacity and management continue to be problematic. These materials are unacceptable at waste-to-energy facilities and cannot be recycled or reused without investment in equipment, labor, and sufficient land area to aggregate and process them. Markets for processed CDD and bulky wastes do exist but the small scale at which most Maine towns operate limits access to those markets. Communities' low volume and dispersed facilities do not often produce the economics of scale needed for sustainable recycling markets.

Maine has several commercial CDD processors: KTI Biofuels in Lewiston; Commercial Paving and Recycling (CPRC) in Scarborough; and Plan-it Recycling in Gorham. KTI is a fixed operation. It accepts only clean wood products (from in-state and out-of-state) for processing for use as biomass fuel. CPRC used to provide mobile services but now operates strictly from its Scarborough facility, hauling in material and shipping out the finished product. Plan-It Recycling also operates from a fixed location. Casella Waste Systems has permitted a CDD processing operation that would accept up to one thousand tons of CDD per day in Westbrook and anticipates building that facility in 2009, providing an additional outlet for Maine-generated CDD. There are also several commercial wood chippers that move from site to site to manage smaller amounts of wood waste.

B. Waste-To-Energy Facilities

In 2007, 32% of Maine's municipal solid waste was sent to a waste-to-energy (W-T-E) facility. Maine's W-T-E facilities received, 826,291 tons of MSW, down from 867,606 tons of MSW in 2006 as shown in Figure 9. Of this, 671,823 tons were generated in-state and 154,468 tons were imported, both a decrease from 2006.

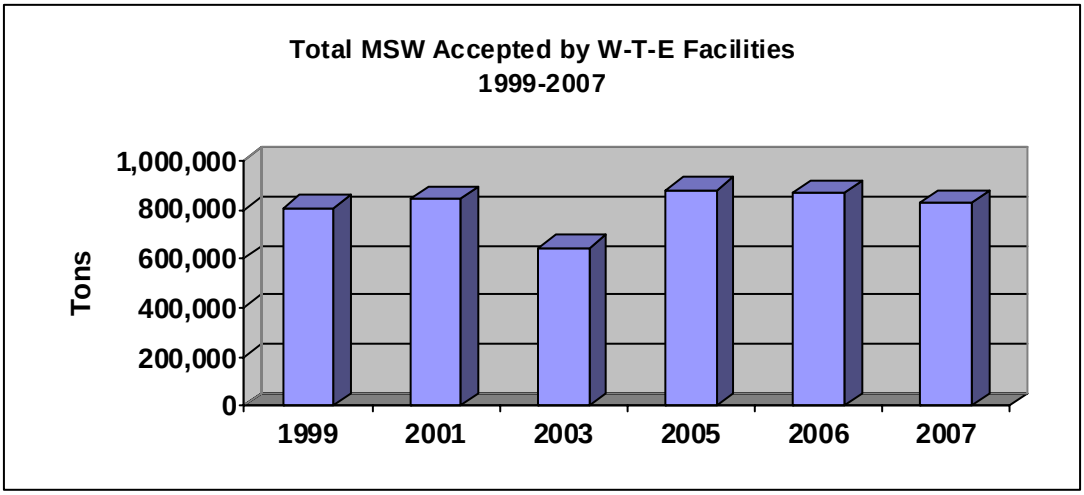

Figure 9: MSW Accepted by W-T-E Facilities, 1999-2006
Source: Facility License Reports, Maine DEP

Table 9 shows the processing capacity of the four waste-to-energy facilities:

Table 9: Maine W-T-E Capacity

Waste-to-energy Facility	Annual Processing Capacity (tons/year)	Tonnage Received in 2007
ecomaine	170,000	157,637
Maine Energy (ME)	310,000	280,210
Mid Maine Waste Action Corporation (MMWAC)	70,000	92,696
Penobscot Energy Recovery Corporation (PERC)	304,000	295,749
Total of W-T-E Facilities	**854,000**	**826,292**

The facilities provide both a product (electrical power) from combustion as well as a reduction of the MSW tonnage requiring disposal, thus reducing the need for landfill capacity. They produce a combined capacity of approximately 62 megawatts a day of electricity and reduce the volume of waste requiring landfilling by about two-thirds.

The four waste-to-energy facilities, while combusting MSW and producing electrical power, also produce several streams of materials and residues: by-pass waste, front-end process residue, and ash. These residues, which require disposal in landfills, comprise approximately one-third of the waste processed by waste-to-energy facilities (see Figure 10 and Table 10).

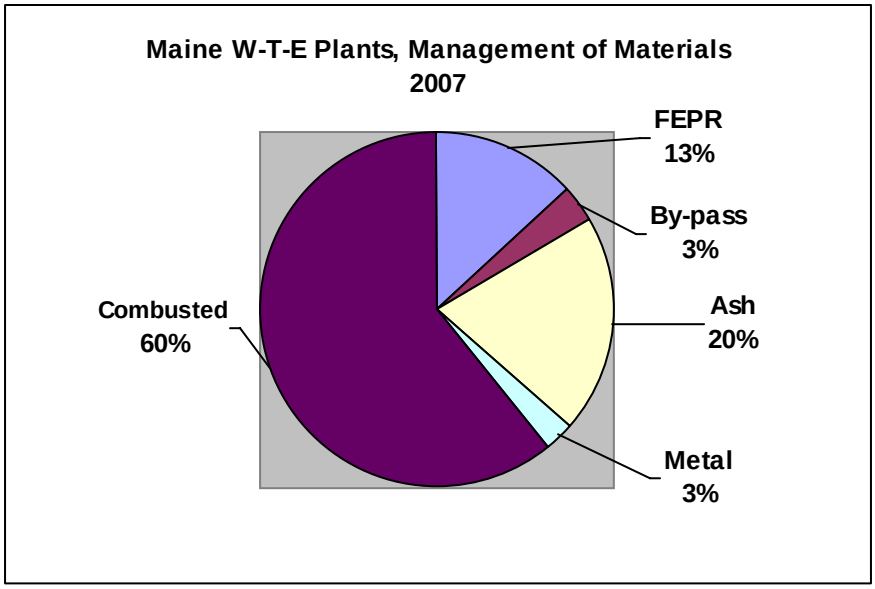

Figure 10: Maine W-T-E Plants, Management of Materials
Source: Facility License Reports, Maine DEP

Table 10 - W-T-E – All Waste Streams - Combined Tonnages		
	2006	**2007**
Delivered MSW tonnage	867,606	826,292
By-pass	36,183	27,014
FEPR	122,512	110,016
Metal	22,044	22,032
Combusted	504,078	503,226
Ash	169,000	164,003

1. By-pass Waste

By-pass waste is that portion of the municipal solid waste stream intended for delivery to and incineration at a waste-to-energy facility but is diverted because the facility could not accept it. Solid waste is 'by-passed' if there are operational interruptions or facility shut-downs or if the facility reaches its operational capacity and cannot accept waste that it is contractually-obligated to receive. The by-pass waste is typically delivered to a landfill for disposal.

2. Front-end Process Residue

Front-end process residue (FEPR) is removed prior to incineration, and may include ferrous metals, glass, grit, and fine organic matter. While metals are recycled, most FEPR is landfilled. In the past, FEPR was used in conjunction with landfill closure programs, but this is no longer a viable outlet. The FEPR waste stream consumes landfill capacity, since alternatives to landfilling

it do not readily exist. While some composting of FEPR has been done, the resulting product typically contains contaminants that restrict its use to limited landfill cover applications only.

Maine Energy (MERC) and Penobscot Energy Recovery Company (PERC) use a 'refuse derived fuel' technology and generate front-end process residue as a by-product of their operations. These facilities dispose of the front-end process residue at the Pine Tree Landfill, though a portion was delivered to other disposal facilities. Mid-Maine Waste Action Corporation (MMWAC) and *ecomaine* use a 'mass burn' technology and do not produce FEPR.

3. Waste-To-energy Facility Ash

Ash is a by-product of incineration, is classified as a special waste, and is landfilled. The ash from MERC and PERC was buried at the commercial landfills and Juniper Ridge. The ash from MMWAC was buried at the City of Lewiston's landfill and e*comaine's* ash was buried at their landfill.

Assessment of Facilities

Three of these facilities are at or close to their 20th year of operation. The plants' maintenance programs, along with upgrades, have kept these facilities functioning well, and should continue to do so for the foreseeable future. The facilities are essentially in "as new" operating condition.

Facility upgrades occur in response to environmental regulations, primarily aimed at air emissions reductions. All of the Maine W-T-E facilities perform at or better than their license requirements.

Looking at future supply stream, 2018 is an important date in the planning process. On that date the majority of the municipal disposal contracts held with PERC and MERC will expire.

To produce the electrical generation contracted for, waste-to-energy facilities need to operate at maximum capacities. The seasonal nature of waste generation causes tonnage overage problems during the summer months and the need to 'attract' additional tonnage during the winter months. Facilities bypass waste when they reach their daily operating capacity and import waste to make up for shortfalls (see Section IV.C on Imported/Exported Municipal Solid Waste).

C. Imported/Exported Municipal Solid Waste

Movement of solid waste across state lines is protected under interstate commerce laws. Municipal solid waste is considered a commodity and is subject to fluctuations accruing to supply and demand at the regional and national level.

During 2007, 456,580 tons of municipal solid wastes were imported to Maine, while exports

totaled 60,491 tons. The amount of MSW imported to Maine is stabilizing while the amount exported[13] fluctuates as shown in Figures 11 and 12.

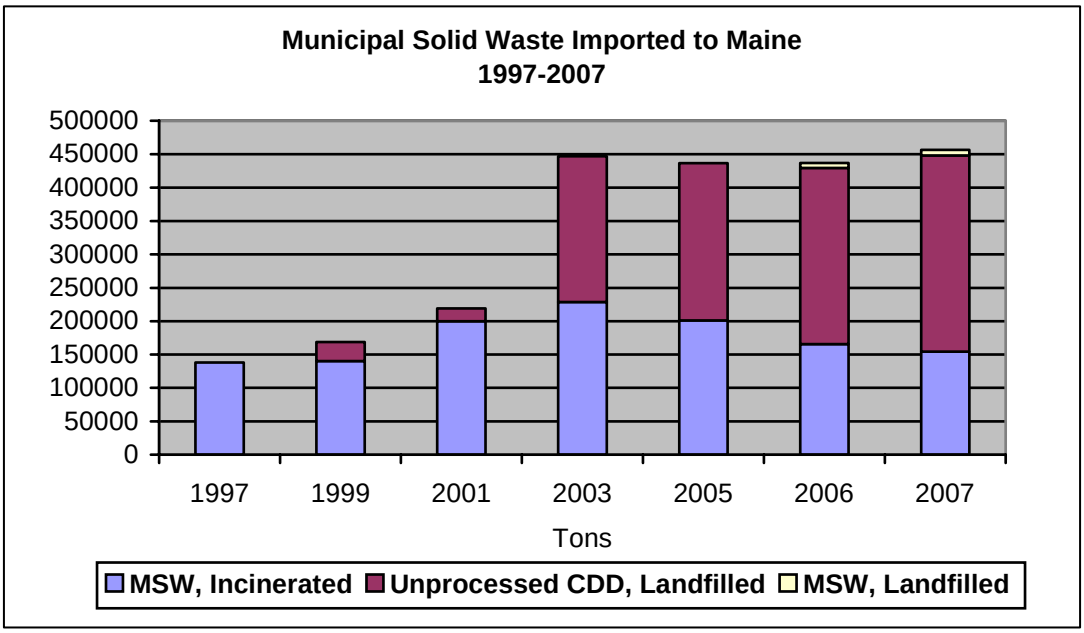

Figure 11: Municipal Solid Waste Imported to Maine, 1997-2007
Source: State Planning Office

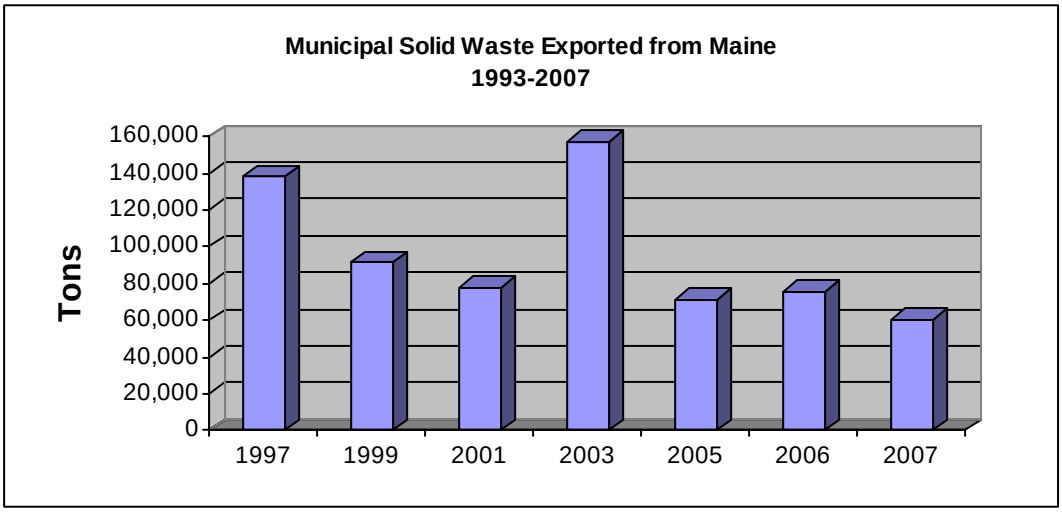

Figure 12: Municipal Solid Waste Exported from Maine
Source: State Planning Office

Imported waste in 2007 consisted of approximately 33% municipal solid waste that was incinerated and 66% construction and demolition debris that was landfilled (see Table 11).

[13] Exported waste was delivered to landfills in New Hampshire and New Brunswick for disposal.

Table 11: Imported Waste by Facility		
	2006	**2007**
MSW – Maine Energy (MERC)	136,472	117,320
MSW – PERC	29,323	37,148
MSW Landfilled – commercial landfills	7,547	8,576
CDD Landfilled – Pine Tree	259,310	290,493
CDD Landfilled – Crossroads	4,385	3,043
Total Imported	**437,037**	**456,580**

Projected Waste Processing and Disposal Demands and Capacity

Based on our projections, Maine will require approximately 34 million cubic yards of landfill capacity over the next 20 years to properly manage the municipal solid waste that is directly landfilled, along with the residues generated by the four waste-to-energy facilities and other processing facilities that also require landfilling. Over this same time, we project there will be 39 million cubic yards of capacity. With approval of the proposed additional disposal capacity, Maine has sufficient capacity to meet its needs for the next 20 years.

A. Statewide Disposal Capacity

1. Capacity Needed

Disposal capacity is a factor of need versus availability. Maine generated just over two million tons of waste in 2007. Assuming a 4% annual increase, we will generate over 4.6 million tons in 2027. With a 34.8% recycling rate, 1.6 million tons per year will be recycled, 0.86 million tons will be sent to a W-T-E facility, leaving 2.4 million tons that will require landfilling.[14] That landfilled waste includes unprocessed solid waste, residues from waste to energy facilities and processing operations, and special wastes such as ash. Figure 13 shows Maine's projected capacity needs over the next 20 years.

To handle this projected tonnage over the next 20 years, Maine will need 34 million cubic yards of landfill capacity based on four assumptions.

1. Continued growth in MSW generation at 4% per year (with no waste reduction assumptions built in and recycling at 34.8%). This four percent increase is conservative and it is possible that actual increases may be softened or eliminated by improved recycling and waste reduction efforts, or an uncertain economy. However, given that development of disposal capacity is not a quick or easy process, having adequate capacity anticipates that time lag and reduces the possibility of a shortage of capacity.
2. Recycling tonnages increase as waste generation increases to maintain a 34.8% recycling rate.[15]

[14] Including out-of-state waste.

[15] Note that even to maintain a 34% recycling rate will require that Maine increase the tons recycled from 700,000 to 1.4 million tons over the next 20 years.

3. Imports decrease as Maine MSW replaces capacity at W-T-E facilities as generation increases and landfills close.
4. Exports remain at 2007 levels.

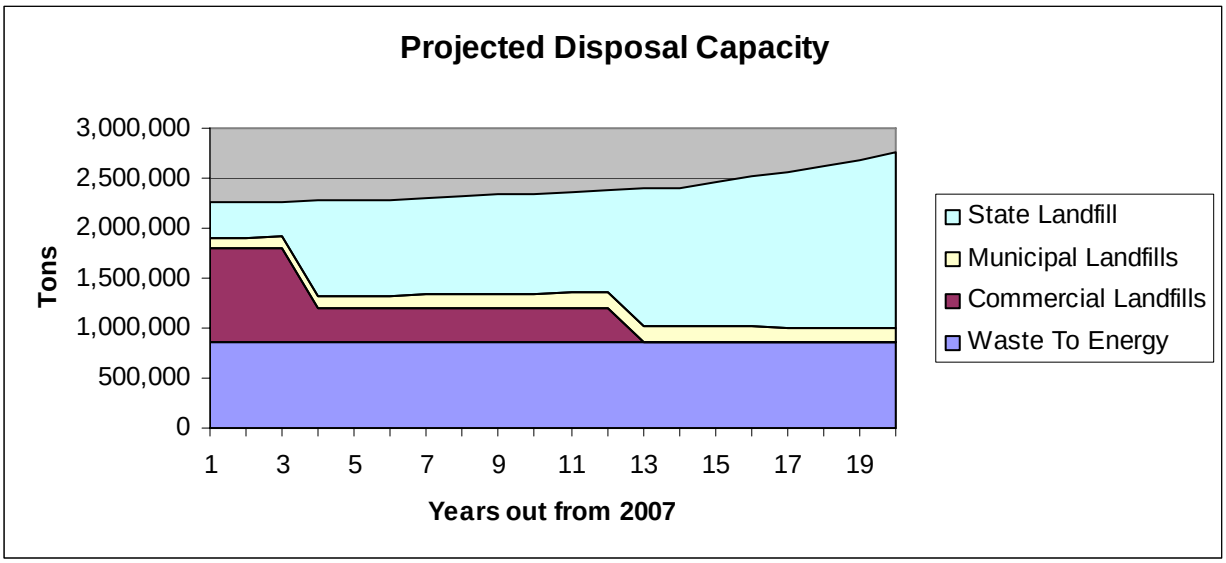

Figure 13: Maine Projected Capacity Needs in Tons, 2007 – 2027
Source: State Planning Office

2. Projected Capacity Available

The projection of solid waste disposal capacity is based on these parameters:

- continued operation of and reliance upon the four W-T-E facilities;
- no significant change in municipally-operated landfills;
- additional capacity is approved for the Presque Isle and Tri-Community landfills;
- closing Pine Tree Landfill;
- Crossroads Landfill ceasing operations around 2017; and
- a license amendment and expansion permit for Juniper Ridge is approved.

Currently, we estimate that Maine has 17 million cubic yards of disposal capacity for municipal solid waste and the residues from waste to energy facilities, as follows:

- 2.4 million cubic yards in municipal landfills (1.9 million tons)
- 1.2 million cubic yards in municipal landfills (1.2 million tons of ash)
- 0.85 million cubic yards in municipal CDD landfills (170,000 tons)
- 4.9 million cubic yards in commercial disposal facilities (4.7 million tons)
- 8.5 million cubic yards in Juniper Ridge Landfill (7.4 million tons)

The amount of available disposal capacity will be affected by both increases and decreases in capacity as follows.

Projected Consumed Capacity

The planned closure of Pine Tree Landfill in 2009 will have an impact on Maine's current solid waste management system, in that approximately 150,000 tons of *in-state* generated special wastes and construction and demolition debris waste that was annually disposed of at that landfill will be diverted to the Juniper Ridge Landfill. In addition, the residues from the processing of construction/demolition debris at Casella Waste System's planned processing facility in Westbrook will also be directed to Juniper Ridge, an additional 150,000 to 200,000 tons expected. The planned closure responds to state policy adopted in 1989 that sought to restrict additional private sector development of disposal capacity.

Projected Planned Capacity

The State Planning Office is seeking an additional 22.5 million cubic yards (18 million tons) of disposal capacity at the state-owned Juniper Ridge Landfill. The effort to permit the proposed capacity expansion at Juniper Ridge is currently underway and is planned to be submitted to the Department of Environmental Protection in early 2009. That review is expected to take several years and if approved and permitted, will provide disposal capacity to the state for an additional 15 to 20 years over its current life.

Impact of Recycling on Disposal

Recycling will continue to divert significant tonnages from disposal. The State Planning Office estimates that over 20 years, recycling will divert 20 million tons (cumulatively) from disposal at today's 34.8% rate.

Out-of-state Waste

The types and amount of out-of-state waste will likely shift in response to changes in Maine's waste generation and management systems.

The waste-to-energy facilities that currently take out-of-state waste will continue to rely upon it to fulfill their boiler needs and power contracts. However, the State Planning Office anticipates that as Maine-generated solid waste tonnages needing disposal increase, waste-to-energy facilities' need for imported municipal solid waste will decrease. The state's commercial landfills will continue to accept unprocessed CDD from out-of-state for economic reasons. But as those facilities fill up and close, imported waste will drop.

For purposes of this report, we estimate a 4% annual reduction in MSW imported and decreases in unprocessed CDD to a nominal amount by 2015, or an estimated 4 million cubic yards (cumulatively) over 20 years.

3. Projected Disposal Capacity, Available vs. Needed

Based on the above analysis, Maine will have an estimated 39 million cubic yards of landfill capacity over the next 20 years, more than meeting our need for nearly 32 million cubic yards as shown in Table 12.

Table 12: Projected Disposal Capacity Available vs. Needed 2007-2027

Landfill Capacity Available (cubic yards)			Capacity Needed (tons)	
Municipal Landfills	2,416,700		Total waste generated	65,000,000
Municipal CDD Landfills	850,000		Imported Waste	4,000,000
Commercial	4,900,000		Recycled	(22,000,000)
Juniper Ridge	8,462,000		Exported	(1,200,000)
Juniper Ridge expansion	22,500,000		Diverted to, combusted at W-T-E	(12,000,000)
Total Landfill Capacity Available:	**39,128,700**		**Total Landfill Capacity Needed:**	**33,800,000**

Source: State Planning Office

While Maine has sufficient landfill capacity to meet its needs, we must not become complacent. Siting new disposal capacity is a costly and highly volatile undertaking. Maine should do all that it can to make the existing capacity last beyond the next two decades. This will require state and local investment in waste reduction and recycling.

In addition, while the state makes use of the remaining capacity at commercial and municipal landfills in these projections, the state does not have any direct control over the rate at which the capacity is consumed at those facilities. In 2007, the state prohibited the disposal of out-of-state wastes in municipal landfills but does not control access to that capacity from waste streams generated within the state.

B. Regional Capacity Issues

Regionally, Maine is divided into "waste sheds" with waste feeding into regional disposal facilities. Some waste sheds are geographically large like PERC (170+ communities) and the Crossroads landfill (30+ communities), some receive municipal solid waste from a single community or a small region, such as the two landfills on the mid-coast in Brunswick and Bath. While this report typically looks at statewide disposal capacity, the State Planning Office has identified some regional or local areas where disposal capacity is uneven or in flux.

1. Regions in Flux

Aroostook County

The Presque Isle Landfill is currently seeking approval of an expansion that is part of an engineered solution to ongoing environmental issues that will, if the entire proposal is pursued and approved, provide in excess of 50 years capacity. Closure of the existing site by the end of 2010 is also being discussed in the context of negotiations on a schedule of compliance.

The Tri-Community Landfill in Fort Fairfield is also seeking a landfill expansion at this time, which will serve those communities for another 15-20 years. These efforts will require significant local resources but should not disrupt the solid waste capacity in the region.

Washington County

The Marion Regional CDD Landfill in Marion Township is reaching capacity and is expected to close in 2008-9. A new construction and demolition debris landfill for that region was in the planning stages in 2008, but the plans have been scrapped for 2009. The potential sources and volumes of the waste, potential costs, intermittent participation in the process by the local communities and their lack of buy-in to the project were given as the reasons. The fate of the project is uncertain.

York County

In 2006, local officials undertook an effort to purchase and close the Maine Energy W-T-E facility. This facility, which serves about 36 communities in York County, is located in downtown Biddeford. Proposals were put to the voters in Biddeford and Saco to raise the money to buy the facility but were turned down.

The loss of disposal capacity in Southern Maine would disrupt Maine's waste management system, but it would not precipitate a crisis. The loss could be absorbed through a combination of aggressive waste reduction and recycling efforts by communities in the service area, transporting waste to other instate and out-of-state disposal facilities[16], and, with a possible license amendment to Juniper Ridge to accept "bagged" or household MWS, transporting waste there.[17] The state, municipalities, and the private sector would need to work in partnership to find the best solution for the long term.[18] These solutions must take into account the environmental impacts of the long distance transport of the waste.

Conclusion: Infrastructure Capacity

Maine has a mature infrastructure for both recycling and disposal. Recycling infrastructure, nearing two decades of use, will need upgrading and expansion to accommodate the increase in materials to meet the 50% recycling goal. Maine's combination of W-T-E facilities and state-owned, commercial, and municipal landfills provide sufficient disposal capacity for 20 years.

[16] The cost-benefit of transporting wastes long distances would have to be considered.

[17] Any change in the type of waste accepted at Juniper Ridge would require approval from the Maine Department of Environmental Protection.

[18] Another consideration for this region is the contract renewal for electrical generation payments. A lower price could increase tip fees and impact volumes at the ME facility.

III. Assessing the Effectiveness of Current State Policies

Recent Policy Discussions

The three previous state solid waste plans were products of the times in which they were written. The 1990 plan signaled the start of Maine's "modern" era of waste management. The 1993 plan was essentially a progress report written just after a large infusion of public bond funds into the state's municipal recycling infrastructure. The 1998 plan noted the success of the ten-year-old policies, the high point in the state's recycling rate, and what had occurred in the three years since the demise of the Maine Waste Management Agency. This plan is no exception and reflects the last five years, during which:

- In 2003, the Legislature authorized the state acquisition of the Juniper Ridge Landfill. In directing the state to purchase the landfill, the Legislature hoped to achieve two public policy goals: providing statewide land disposal capacity, and aiding a financially troubled paper company and the jobs it represented for the Penobscot region. Maine became the one of only two states to own a landfill and the only state to directly own a landfill without creating an intermediary authority.

- In the fall of 2005, 35 people representing the interests of state, regional, and local government, public entities, citizens groups, environmental organizations, the private sector and the general public came together as the Solid Waste Policy Review Task Force.[19] They reviewed current policies and concluded that the state should maintain the ban on commercial disposal facilities, continue to apply the waste management hierarchy, and expand efforts to achieve the 50% recycling goal.

- The Legislature's Natural Resources Committee was prompted to form a Blue Ribbon Commission to examine questions on how Maine manages its municipal solid waste. The Commission met in several locations throughout the summer and fall of 2006 and reported out legislation for consideration by the Second Regular Session of the 123rd Legislature (LD 1908).[20]

- At the direction of the Legislature, a new, permanent state Solid Waste Management Advisory Committee was formed to replace the Solid Waste Policy Review Task Force. This committee met for the first time in June 2008.

The 123rd Legislature passed several pieces of significant solid waste legislation that in sum acted to strengthen the solid waste hierarchy.

[19] The report of the Solid Waste Policy Review Task Force, April 2006, can be found on-line at: http://mainegov-images.informe.org/spo/recycle/docs/wastepolicytaskforce_finalreport04-24-06.pdf.
[20] The report of the Blue Ribbon Task Force, date, can be found on-line at: http://www.maine.gov/dep/rwm/solidwaste/blueribbon/.

Years of Decisions, Decades of Consequences

Coming into 1987, the state faced a solid waste disposal crisis. That crisis was the backdrop for our current policy. There was a potential landfill capacity shortage. Recycling, as a waste management strategy, was accounting for well under ten percent of the waste stream. There was no integrated waste management approach.

In less than three years, we as a state, by actions of the Legislature, decided how we wanted to manage our municipal solid waste. To a great degree, the structure of our current system is a reflection of those few basic decisions made 20 years ago.

The priority objectives were to:

1. bring the state's landfill disposal into compliance and end the use of unlined landfill disposal;
2. prevent the state from becoming a disposal site for MSW produced by the "BosWash" megalopolis to our south; and
3. place into law a policy to pursue a coordinated statewide waste reduction, recycling, and management program implemented through an integrated approach generally referred to as the waste management hierarchy.

To assist in achieving these objectives, the Legislature placed the following into law:

- a ban on new commercial disposal facilities;
- state authority to acquire and to oversee land disposal capacity;
- reinforced municipal responsibility for disposal services; and
- a statewide 50% recycling goal.

These laws were applied through a comprehensive set of solid waste rules over all processing and disposal activities and facilities coupled with financial and technical assistance programs.

A. Ending the Use of Unlined Landfills

To address the looming environmental, financial, and legal problems posed by grandfathered landfills, the Maine Legislature established closure dates for unlicensed landfills and created the Solid Waste Landfill Remediation and Closure Program to close landfills that pose hazards to public health and the environment. Under the landfill closure program, in full swing by the late 1980s, the hundreds of small, open, unlined landfills that had been the standard means of local disposal for all manner of wastes for a century rapidly disappeared from the landscape.

Outcome: Bringing Municipally-owned Land Disposal Operations into Environmental Compliance

In the last two decades, the number of open, operating, unlined, publicly-owned MSW landfills has shrunk from over 300, ranging in size from covering hundreds of acres to only two acres, in Greenville and West Forks, which are in near term closure negotiations.

Just eight licensed municipal landfills are currently in operation, with individual remaining capacity ranging from 6 to 30 years at current fill rates. Only a few

municipalities built their own replacement landfills, many joining with neighboring towns to develop regional facilities.

These landfills are supplemented by some two dozen municipally-owned landfills restricted in size to less than six acres and to the disposal of construction and demolition debris only (CDD.)

Today, landfills overall provide 25% of the disposal needs for Maine's unprocessed municipal solid waste and provide disposal services for the ash and process residue of the waste-to-energy facilities.

B. Controlling Out-of-state Waste

The Legislature placed restrictions on expansions of existing commercial landfills and banned the construction and operation of all new commercial disposal facilities.[21] The ban on new commercial disposal facilities was put in place to shield the state from the importation of 'out-of-state' waste.

Outcome: Banning New Commercial Disposal Facilities
In 2008, the number of commercially-owned and operated solid waste landfills remains at two, the same number as 20 years ago, due to the continuous enforcement of the commercial landfill ban.

C. Ensuring Sufficient Disposal Capacity

In the 1980s, the federal government provided funding to states to invest in alternative solid waste management and disposal systems for energy production. The city of Auburn constructed a waste-to-energy facility using mass burn technology to serve its needs and the needs of several surrounding communities, forming the Mid Maine Waste Action Corporation (MMWAC).

Portland area communities had previously joined together to form the Regional Waste Systems (RWS). Regional Waste Systems (now *ecomaine*) also built a mass burn waste-to-energy facility. Private companies[22] built two refuse-derived fuel facilities large enough to serve regions in York County (in Biddeford) and in Bangor-Brewer (in Orrington) and signed long-term contracts with those towns to provide the waste needed by those facilities. 180 communities have 23% ownership in the PERC facility in Orrington with their interests represented by a Municipal Review Committee, the MRC.

Over 32% of Maine's MSW, almost 700,000, tons is now delivered to and processed for its fuel value in one of the four waste-to-energy (W-T-E) facilities, prior to landfilling. In 2007 the four W-T-Es required landfill space for 301,000 tons of ash, residue and by pass wastes.

From the outset, one of the state's priorities was to make sure that the operations of the four in-state W-T-Es would not be affected by a sudden loss of in-state land disposal capacity for their by-products of ash and front-end process residue.

[21] Publicly-owned disposal facilities were exempted from this ban.
[22] Both W-T-E facilities were built prior to the ban on commercial disposal facilities.

In order to ensure that there would be sufficient disposal capacity available, the 1989 Solid Waste Management and Recycling Act gave the state the authority to own, design, develop, and operate new solid waste disposal facilities.

That authority, coupled with municipal reluctance to take on the debt and the social and environmental liabilities associated with land disposal, has meant the state has taken on the role of provider of last resort for disposal capacity in Maine.

The state-owned special waste landfill would be a safety net to be brought on line when disposal capacity was needed.

The state purchased land then owned by Lincoln Pulp and Paper on Carpenter Ridge in T2 R8. It was then successfully permitted as a state-owned special waste landfill that remains to this day ready to be developed when it is needed.

The state's strategy to provide capacity for land disposal within Maine has increased by a factor of five with this recent acquisition of Juniper Ridge with 10 million cubic yards adding to the 1.9 million cubic yards of capacity currently permitted at the Carpenter Ridge site.

> *Outcome: Sufficient Disposal Capacity*
> Maine has in-state disposal capacity for municipal solid waste and special waste for the next 12-30 years. This is the direct result of the continued investment in W-T-E upgrades and acquisition and development of Juniper Ridge.[23]

D. Fostering the Solid Waste Management Hierarchy

The 1989 law established a hierarchy of Maine waste management systems. The Legislature also established ambitious waste recycling goals. It instituted both incentives, in the form of credits, grants, and loans, (not currently available) and disincentives, in the form of deposits and fees (removed or expired), to encourage appropriate waste management practices. It also provided in statute for financial and technical assistance to municipalities and businesses to further these practices.

The hierarchy guides state and local decisions regarding solid waste funding and grants, investments in, and the permitting of, solid waste management facilities, the operation of such facilities, and the management of residential and commercial waste.

> *Outcome: Toxics Reduction Success*
> In order to reduce the toxicity of the waste stream, the state has aggressively pursued eliminating the use for and of the overwhelming majority of mercury-added products. Today, mercury-added products from all sources are banned from disposal within Maine and must be recycled. Maine also enacted a first-in-the-nation program for the collection and recycling of electronic waste. Devices, such as computer monitors and TVs containing cathode ray tubes, cellular phones, and other electronic wastes from all

[23] The range in the time frame is based on current projected fill rates and reflects status under current license restrictions versus the potential expanded build out of the facility.

sources are banned from disposal within Maine and must be recycled, the responsibility for proper management shared among the manufacturer, government, and consumer.

In addition to these state-initiated, targeted, pollution prevention programs, many municipalities now offer once-a-year collection for the category of MSW known as household hazardous wastes (HHW). In 2007, 140 municipalities offered such opportunities to their residents. Maine now has two permanent facilities for HHW collection located in Lewiston and Portland open to all Maine citizens. These efforts target a small but toxic part of the municipal waste stream for action.

The Toxics Use Reduction Act (TURA) program created by the Maine State Legislature to reduce the amount of toxic substances introduced annually into Maine's environment from industrial generators, has also had several notable accomplishments including:

1. significant reductions at existing facilities in toxic use, release, and hazardous waste categories;
2. continued success with outreach and education particularly to smaller facilities without full-time environmental staff and in need of greater technical assistance (outreach examples include assisting smaller companies in switching from toxic cleaners and solvents to less hazardous or non-hazardous chemicals);
3. implementation of cost accounting (comparing the costs of utilizing toxic chemicals and generating hazardous waste with the economical benefits of reducing such use and generation) along with introducing worker safety concepts that reduce worker exposure to toxics; and
4. an emerging opportunity in the TURA program to track new toxics coming into the marketplace and to utilize the technical assistance tools adapted by DEP staff to address them.

Outcome: Recycling Success

Through steady local, state, private and public support for recycling and composting and long-term growth of these management systems, in-state markets have developed for the recycling and compost resources diverted from the waste stream, and are further supported by similar gains in regional, national, and global markets.

Over twenty million dollars of state and local match bond funding have resulted in recycling programs and facilities that now consistently manage the municipal share of the approximately 33% of our MSW currently recycled, accomplished through a series of local collection and regional processing programs.

Over 98% of Maine residents and the commercial sector have access to public or private recycling programs that have grown from just 24 programs in place twenty years ago to 320 working programs today. Over 60% of Maine communities have reached a 35% recycling rate or better. Over 22% have reached a fifty percent or better.

One third of Maine's MSW, over 700,000 tons, is physically removed from the waste stream, separated and collected and sent to manufacturers both in-state and around the world for use as replacement of virgin raw materials in their manufacturing processes (recycling). Approximately two-thirds of these recyclables are collected by the private

sector from the private sector. The remaining percentage is diverted through municipal programs from residents and local commercial sources.

Though the state made good gains, reaching a high point of 42% in 1997, Maine has yet to reach the 50% recycling goal in statute for 2009, and in 2007 had the same rate as in the mid-1990s.

Outcome: The Hierarchy Applied

As of 2005, waste reduction is now recognized in statute with its own goal. Reuse has gained status through widespread public support for the local institution of municipal reuse centers at transfer stations. On a much larger scale, the Department of Environmental Protection's solid waste rules (Chapter 418) governing the beneficial use of solid waste encourage such opportunities through clear guidelines and standards.

It has been left to municipalities to put the hierarchy into practice as there is no state law mandating the recycling of the majority of the components of Maine's municipal solid waste, other than those discussed above under toxics reduction, or the recovery of its organic fraction. The only state wide disposal bans are on white goods, whole tires in landfills and car batteries, again except for those that apply to toxics reduction.

This local exercise of choice in the degree and method of recycling has determined the wide variation in our largely voluntary recycling system and in our level of support for the hierarchy.

While the goal was to develop a statewide integrated waste management system based on the hierarchy, it was left to local governments to build the links of one approach in the hierarchy to another and how to assure that all resources worth recovering would be removed prior to land disposal.

Waste management programs have tended to flatten the hierarchy in order to focus on the maintenance of a stable range of prices of disposal and stable costs for operations and transportation. The marketplace has responded and disposal prices and costs for now are stable, but this perspective has left us short of our goal and recovery potential. The hierarchy was put in place with an intentional bias; all approaches are not equal.

E. Municipal Responsibility for Solid Waste Disposal

Maine is a home rule state and it is a municipal responsibility to provide disposal services for the residential and commercial activities in their jurisdiction.

The old local dumps have been replaced by a complex set of private and public partnerships, underpinning a system of hundreds of small consolidation transfer stations, largely paid for by municipal bonds, connected by long-term contracts and truck transport to a relatively few disposal facilities. There is now a collection and transportation infrastructure of 240 public transfer stations and several large private facilities serviced by private and public truck transport. There are 320 public recycling programs and over 70 municipalities have set up leaf and yard waste composting sites.

The inter-connected system that has evolved to meet the municipal responsibility has been built by initiative and need, often in concert with private entities. These private/public partnerships have been put together in a wide variety of combinations that manage a large percentage of the collection, consolidation, processing transportation, and disposal of Maine's MSW.

Outcome: Regionalization

One result of the rapid conversion of the state's solid waste management structure was that municipal solid waste programs were among the first public programs to adopt the concept of regionalization to improve cost to benefit performance, and those programs to a noteworthy extent have held together and expanded. Approximately half of Maine's municipalities share solid waste management responsibilities with at least one other municipality, with several regional efforts supported by membership of 20 communities or more. Regionalization helps avoid situations where problems and proposals rise and fall as local issues to which there are no real local solutions.

Local governments remain the key to Maine's MSW management. They have control over the MSW generated within their jurisdictions whether they choose to exercise that control or not. When a proposal for a new municipal facility or an activity is put forward or a change in solid waste management suggested at the local level, the guidelines of the hierarchy, the attainment of the 50% recycling goal and 5% waste reduction goal should attach to the proposal and to the waste stream they intend to manage. The state must remain aware and assert its role as the principle proponent of its own policy.

The state's municipal partners should be encouraged to plan for their future waste management needs to accommodate anticipated growth and development through support for the hierarchy and to achieve the state's recycling and waste reduction goals.

Conclusion: Positive Outcomes of Current Policy

Maine's solid waste policies have largely achieved the Legislature's desired ends.

1. The objective of ending unregulated disposal of solid waste as standard practice was reached well over a decade ago. The Department of Environmental Protection has worked in conjunction with Maine's solid waste professional community to achieve a high level of environmental compliance.

2. The great majority of Maine citizens have the opportunity to recycle as an alternative to disposal.

3. Across the state, on a daily basis, over 5,500 tons of municipal solid waste are collected, consolidated, transported, processed for recycling or combustion, and disposed of in compliance with current regulation. With the commitment of existing public and private efforts, this loosely organized arrangement has the ability to continue to perform its tasks for years to come. Though problems with solid waste arise from time to time, generally they are site or waste stream specific and there is a process in place to manage them.

4. There is sufficient landfill disposal capacity to meet the state's current and projected future needs.

5. For the most part, Maine manages its own municipal solid waste. About three percent of Maine's overall waste stream is currently exported for disposal. This out-of-state disposal is often a local decision made by municipalities near our borders and results in the utilization of land disposal facilities located within New Hampshire or New Brunswick. This is based upon the favorable combination of disposal fees and transport costs, when compared to 'in-state' disposal options.

6. The policy of pursuing an integrated waste management system based on the hierarchy and the four strategies of 1989: the ban on new commercial disposal facilities; municipal responsibility; a recycling goal with measured progress; and state oversight of land disposal capacity are all still in use. The image of Maine as dumping ground for the northeast has not materialized but questions persist for state and local officials about what to do with the out-of-state waste that comes into Maine in response to market forces and legitimate opportunities.

IV. What has Happened Since the 1998 Plan?

Several solid waste issues were identified in the 1998 plan. Among them were:

- The high cost of solid waste management for municipalities;
- The need for secure and stable markets for recycled/composted materials;
- The lack of management options for construction and demolition debris; and
- The desire to promote beneficial use.

The following section is a brief overview of where these issues stand in today.

Costs of Municipal Solid Waste Management

Certainly costs have remained an issue for municipalities. As the 1998 plan predicted, the need to lower municipal costs must coexist with innovations to improve recycling rates. It has had an effect by contributing to and in some ways exacerbating the stagnant character of the state's pursuit of the 50% recycling rate and local enthusiasm for using the waste hierarchy in solid waste decisions.

In 2007, citizens, businesses, municipalities, and others spent an estimated *$200 to $250 million* to reuse, recycle, compost or dispose of the two million tons of municipal solid waste generated within Maine.

Municipalities arranged for the disposal of about 50% of Maine's total municipal solid waste generation, or just over one million tons, and reported spending approximately $90 million per year[24] on the solid waste and recycling services that they provided. Recycling efforts conserved landfill space and provided an avoided disposal cost of approximately $6 million while contributing a net gain of $5 million to those communities from the sale of the recyclables.

On average, according to information from the Maine Municipal Association, Maine communities spend about 10% of their municipal budget to secure and provide necessary solid waste and recycling services. Most municipal expenditures are available on the municipalities' web sites.

Solid waste disposal varies among communities and ranges from municipalities that simply contract with a disposal facility and leave all other responsibilities and costs to their residents and businesses, to communities that pay for the full collection and disposal services as part of the municipal budget.[25]

While the state does not have precise information on municipal costs for MSW management from the early 1990s for comparison, it appears based on municipal information reported to the

[24] In 2005, businesses and citizens spent another estimated $120 to $160 million to secure these necessary solid waste disposal and recycling services.

[25] Most municipal solid waste expenses are paid by the municipality from tax revenue, although some assess user fees to reduce costs (75% of municipalities versus 25% that offer fee-based waste services).

State Planning Office that costs have recently stabilized in terms of both actual dollars spent and as a percentage of municipal budgets, to a range of $95 to $110 per ton. This figure is supplied with the following caution: that many communities to not apply full-cost accounting measures to their solid waste budgets and many do not bear all the costs of all the municipal solid waste streams generated within their jurisdictions.

A. Disposal Fees

Disposal expenses comprise collecting, transporting, and 'tipping' waste. Disposal fees or 'tipping' fees are a key driver of municipal solid waste costs. Current disposal fees range from $40.00 to $158.00[26] per ton at Maine's landfills and incinerators and have stabilized allowing predictability for municipal budgeting and long-term planning.

Tip fees at the four waste-to-energy facilities are stable and reflect the commitment of the municipalities who either own the facility or have long-term contracts for disposal services. A number of regional landfill facilities (Bath, Augusta, *ecomaine*) recently implemented price increases that should hold for the foreseeable future.

The state, in its operating agreement with Casella Waste Systems, established a 'ceiling' for tip fees that sets an upper limit on how much can be charged for wastes delivered to the Juniper Ridge Landfill. It is anticipated that this will act as a check on pricing for the disposal of similar materials at other solid waste facilities. In fact tip fees at the state's W-T-Es have been stable for years. For example, the PERC base tip fee for charter communities has remained at $45.00 per ton for close to fifteen years.

B. Energy Revenues

Revenues from the sale of the electricity largely determine tipping fees at waste-to-energy facilities. The revenues reduce the facility's operating expenses, yielding a reduction in the tip fee charged for solid waste. Should electrical sales revenue drop, tip fees may increase. Conversely, should the electrical sales increase, the possibility exists to lower or maintain tip fees currently being charged.

C. Municipal Expenses

Expenses vary from municipality to municipality due to a variety of factors such as cost of disposal, operation of a transfer station, number of hours the transfer station is open, level of recycling services, and bulky waste acceptance and processing. The more services that a community offers, generally the more expense is incurred.

Communities have also formed regional programs to gain an "economy of scale" advantage, allowing the smaller towns to offer a larger range of services.

The selected towns listed in Table 13 below have variable collection and disposal costs for municipal solid waste that reflects disposal fees and different levels of municipally-provided services. Table 13 shows the variability in costs, not for an "apples to apples" comparison.

[26] This does not reflect spot market prices.

Table 13: Disposal Costs for Selected Municipalities

Municipality/ Region	Disposal Facility	Collection System	Transfer Station	$ Per Person
Brunswick	Town Landfill	Municipal curbside	No	$55.28
Tri-Community	Regional Landfill	Curbside & Drop off	No	$49.37
Hartford	Crossroads Landfill	Contracted curbside	No	$60.28
Temple	Crossroads Landfill	Contracted curbside	No	$68.30
Livermore Falls	Crossroads Landfill	Subscription	Yes	$55.19
Farmington	Crossroads Landfill	Subscription	Yes	$7.46
Minot	MMWAC	Subscription	No	$28.76
Lewiston	MMWAC	Contracted curbside	Yes	$54.02
Norway-Paris	MMWAC	Drop-off	Yes	$63.16
Sabattus	MMWAC	Drop-off	Yes	$36.97
Bangor	PERC	Contracted curbside	No	$40.07
Unity	PERC	Contracted curbside	No	$68.83
Winthrop	PERC	Drop-off	Yes	$68.74
Yarmouth	ecomaine	Drop-off	Yes	$95.45
Casco-Naples	ecomaine	Drop-off	Yes	$122.42
Portland	ecomaine	Municipal curbside	No	$83.30
Cumberland	ecomaine	Contracted curbside	No	$114.24
Saco	Maine Energy	Municipal curbside	No	$42.08
North Berwick	Maine Energy	Drop-off	Yes	$59.35
Sanford	Maine Energy	Cont Curb	Yes	$69.51

Profiles of two differing local recycling programs are provided in Appendix B that show the variations in local costs.

Markets for Recycled Materials

A. Market Stability and Growth Over the Long-term

There is a direct and obvious correlation between markets and recycling success and support for the hierarchy.

Unlike a decade ago, recycled and composted materials have reached a high level of price stability. This is due in part to new North American mills and to the steady rise in offshore markets for fiber and steel, and an increase in prices for virgin raw materials. Figures 14, 15, and 16 show three examples of pricing trends in the fiber market that illustrate the stability and general upward trend in pricing.

The new market stability is reflected best by the price strength relative to recent history for the category of recycled fiber generally known in Maine as mixed paper (see Figure 16).

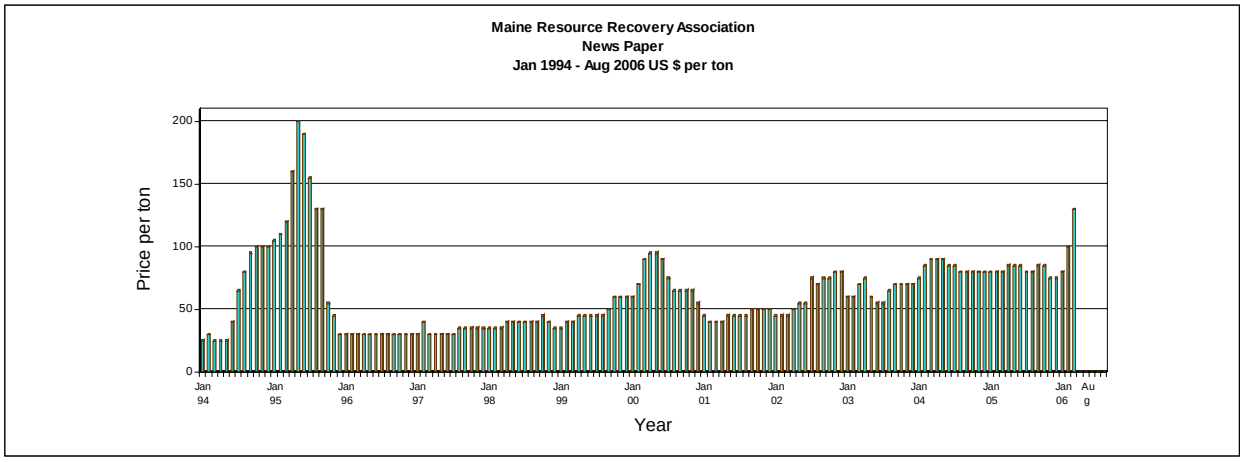

Figure 14: Price Per Ton, Newspaper, 1994 – 2006
Source: Maine Resource Recovery Association

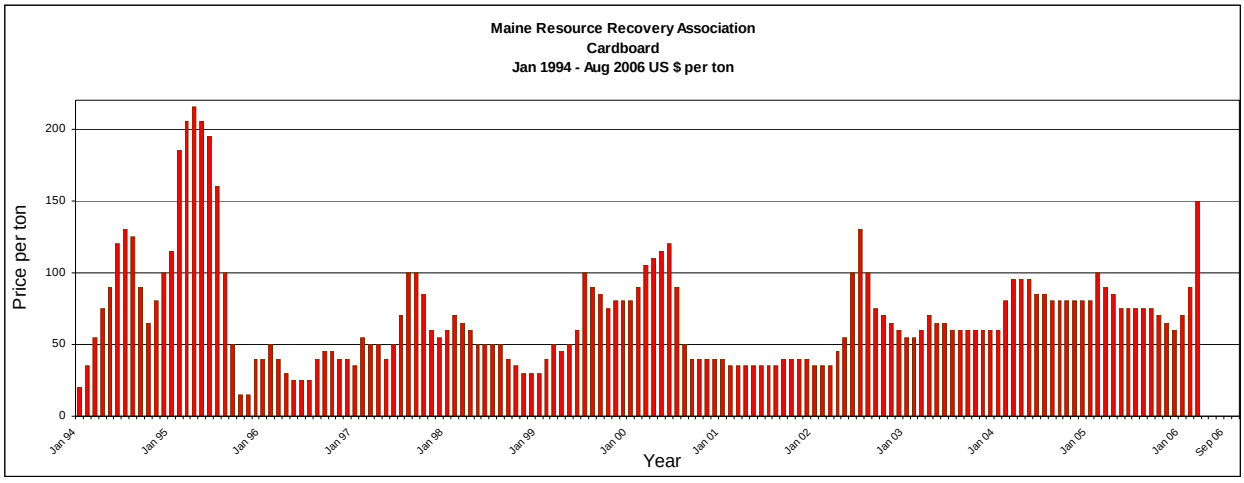

Figure 15: Price Per Ton, Cardboard, 1994 – 2006
Source: Maine Resource Recovery Association

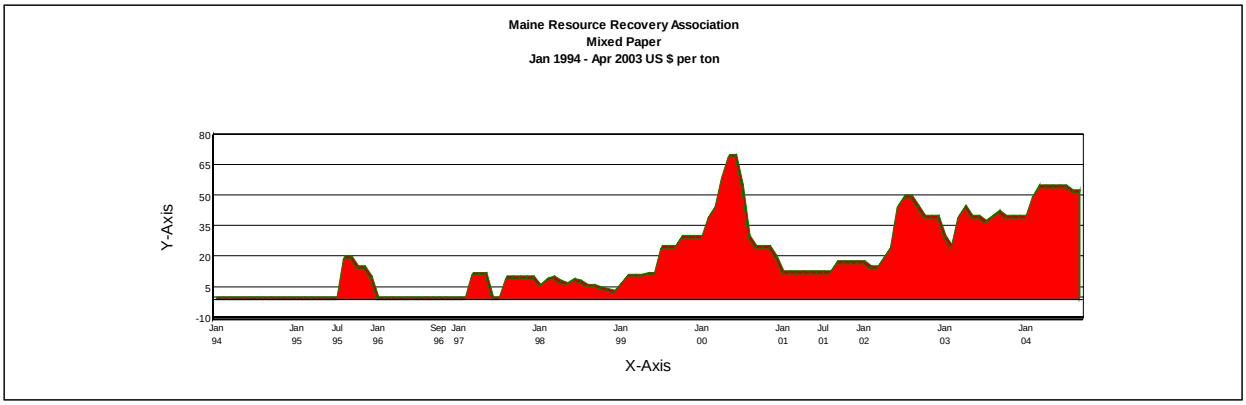

Figure 16: Price Per Ton, Mixed Paper, 1994 – 2004
Source: Maine Resource Recovery Association

Excluding the spike of 1994-95, there is an obvious upward trend in the year-to-year market prices. This is true across the fiber, metals, and plastics markets, but not of glass that is losing market share to lighter weight materials.[27]

Domestic and overseas markets have responded to the industrial growth in Asia. Overseas economies will not produce enough recycled product to meet their own needs for feedstock for at least a decade, meaning they will need to continue to import recycled materials from the U.S. for some time to come.

The challenge for marketers is to commit to move their recovery systems forward to increase supply, at the same time be able to respond to and take advantage of possible changes and opportunities in materials, in products and packaging, manufacturing processes, commodity and product delivery systems, consumer demand, global conditions, and new laws and policies.

In 2008 recycled products remain the number one container ship export from U.S. west coast ports. Recycled product revenues for all products on average exceed $50 per ton. The trend shows the annual cyclical market slowly moving up every year.

As in 1998, nationwide there is still a lack of markets for plastics labeled #3-7. Plastics recycling remains the province of numbers one and two necked containers. There has been some progress in combining the #3-7 resin types of plastics chemistries with other materials to use in structural applications, and they have some value in the low-priced, overseas market.

For the next two decades, the challenge for Maine suppliers will be to make changes to increase supply to take advantage of stable prices. This is particularly true of public, municipally-controlled programs where recovery efforts for fiber and containers have stayed below 100,000 tons annually.

Whatever changes are made, quality controls must be kept at current levels. Maine commodities have always moved in the market even at times of low prices and over supply because of their

[27] The ’94 spike in fiber was caused by a temporary high demand from overseas that was misread and led to a huge oversupply to the market that took several months to correct.

reputation for quality. Quality control is essential to mitigating the effects of low price cycles in the commodities' market.

B. Recent Downturn in Pricing

The global financial crisis of the last quarter of 2008 is reflected in the steep decline in price for recycled materials across the board that has carried into the first quarter of 2009. In this current economic climate there are a few facts worth remembering.

- Recycling markets go through periodic fluctuations; witness the corrugated cardboard boom and bust of the mid '90s, but consistently trend upward over the long term, despite two recessions in the last 20 years.

- This is not a structural problem in the recycling industry. It is an economic problem of supply and demand. Once economies around the world and in the U.S. pick up, recycling markets will return.

- In down markets, quality materials have a much better chance with buyers that are looking to keep their own costs as low as possible and produce defect free product. Maine materials have always enjoyed a reputation for quality in the recycled commodity market.

- Recycling reduces disposal fees that are placed on every ton of material that leaves a facility as waste for disposal.

In a down market, recycling program managers should look for ways to increase volume. This may seem to be a contradiction when demand is dropping off, but the more quality recycled product in the market, the more manufacturers will turn away from virgin raw materials when they decide to buy. Buyers prefer to purchase materials from large suppliers with whom they have a good working relationship. The goal is to keep the buyer.

C. Municipal Compost Supply

Although composting of leaf and yard waste now takes place at many municipal facilities and appears to be steady, there has been little growth over the last several years in the number of public programs despite high local consumer demand for the final product. The growth in organics composting beyond leaf and yard to include food waste and other organics in the waste stream has been very slow to develop.

The State Planning Office sponsored a food composting initiative in 2004, which resulted in one successful on- going permanent project. The Office provided financial and technical assistance to a partnership consisting of the town of Farmington, the University of Maine at Farmington, Franklin Memorial Hospital, and the Sandy River Recycling Association, along with assistance and regulatory oversight by the Maine DEP. The regional program composts food wastes from the university and hospital. It gives the finished product to the town for municipal uses.

Management of Construction and Demolition Debris

A 2008 study done by the State Planning Office found that the common factor in successful Maine recycling programs, the ones that exceed 50%, is that they accepted a large number of items for recycling, and they include construction and demolition materials in their recycling programs, such a waste wood, asphalt shingles, sheetrock, metals, unwanted furniture, and other large items. They also have active reuse programs for home construction products and large household items.

The rate of construction and demolition debris (CDD) disposal and recycling is directly related to the state of Maine's economy and to the cycle of residential and commercial construction.

A. CDD Composition

Wood waste makes up between 33-54% of the total volume of the CDD loads, with clean wood totaling between 17-32% by volume. Second to wood waste is asphalt shingles totaling between approximately 15-26% by volume.

Asphalt, brick, and concrete waste overall is found in very small quantities. An all other CDD waste category would include various wastes such as plastic compound buckets, plastic crates, nail boxes, non recyclable packaging, electronics, rugs, bedding, broken tools, bottles and cans, and other municipal solid waste.

B. Municipal Collection and Management

Maine towns manage CDD primarily through their local solid waste facilities. In 2007, municipalities recycled an estimated 13,000 tons, or approximately 50% of the total CDD recycled in-state for the year. This is an estimated 4% of the total 317,490 tons of CDD waste managed within the state.

Most CDD in Maine is landfilled without processing. An estimated 100,000 tons of municipally-managed CDD was landfilled at either the six municipal MSW landfills, the 23 municipal CDD landfills, the state-owned landfill at Juniper Ridge in Old Town, or the Waste Management Inc, landfill in Norridgewock. Additionally a small amount of mixed MSW/CDD tonnage is exported into New Hampshire and Canada by some of Maine's border communities.

The state's four waste-to-energy facilities also receive a small CDD fraction with their other MSW deliveries. Maine Energy is not designed to process these materials into fuel and must remove and landfill them; MMWAC and *ecomaine*, as mass burn facilities, can burn CDD but are limited by their small fuel feed openings. PERC has recently purchased a small grinder for materials too large or problematic for their fuel processing system.

Additionally, at some transfer stations, the wood portion of CDD waste suitable for fuel is not recycled; it is open-burned, without air pollution controls or energy recovery. This practice is allowed under state statute with some limitations and conditions.

The estimated combined generation of asphalt shingles and sheetrock, two components of CDD that are being recycled at some locations, is over 88,000 tons annually in Maine, while the recovery rate for all CDD is just over 25,626 tons. There is a tremendous opportunity for growth in recovery efforts.

C. Quality Control

"Source separation" is the basic strategy for controlling the quality of the CDD waste for reuse, recycling, or processing. It entails the sorting of usable elements of CDD at the point of generation (i.e. a demolition site) or collection (i.e. a municipal transfer station).

Local facilities have significant control of how the waste is delivered and sorted. They have the ability to manage delivery of relatively clean components of the construction and demolition debris waste stream for reuse, recycling, or processing. CDD storage areas and areas set aside to check load contents are inexpensive to construct and operate, but are heavily dependent on supervision of the customers to ensure adequate separation of potential contaminants.[28]

D. Management Options

There has been considerable discussion around the best management options for Maine's CDD stream. Boiler fuel is the largest potential market for locally-generated, source-separated, wood CDD. Local transfer stations, which manage CDD waste wood for the fuel market by requiring source separation, can typically receive a waste stream that is at least 95% wood.

However, potential recycling opportunities are tempered by the relative lack of sufficient concentrated volume outside Southern and Midcoast Maine to guarantee the financial success for any additional expansion of CDD processing capacity, the lack of sufficient local markets, and negative effects of transport costs. Thus, planning for future in-state CDD processing capacity suffers from a lack of long-term volume predictability. There has also been hesitancy on the part of municipal or public programs to commit to recycling of these materials.

If all municipal CDD were managed to separate wood waste at the point of collection, and assuming that 25% of the CDD waste stream could be processed into wood fuel that met market and regulatory specification, Maine municipalities potentially could generate 75,500 tons of CDD wood fuel annually for which there would be a ready in state market.

In the area of municipal construction demolition debris management, the major change will be the gradual closure of the state's two dozen small (under six acres) CDD landfills. If recycling opportunities do not come forward, the present alternative outside of southern Maine will be to continue to land dispose of CDD, which would be using up local landfill capacity.[29]

Whether or not municipal programs will seek to permit and license new, small-scale, CDD disposal facilities or seek to expand an existing one is an open question, given the costs and potential extensive permitting process for either option. Small-scale CDD landfills may no

[28] Maine Department of Environmental Protection. Report on the Substitution of Wood from Construction and Demolition Debris for Conventional Fuel in Biomass Boilers, April 2007

[29] Managing municipal CDD for maximum CDD wood fuel generation could reduce the amount of Maine landfill capacity currently used for disposal of CDD by 133,200 yds annually.

longer pay for themselves and in fact may have to expand in order to be financially viable. The attempt to site one such new facility in Washington County may suggest the complexity of any such undertaking.

If the two dozen small regional CDD disposal facilities do close, that will mean those programs currently using them will face either transport and disposal to the remaining large centralized landfills; or the development of CDD separation and aggregation storage areas to facilitate shipping to processing facilities where the materials are recovered as previously discussed.

Beneficial Use

The solid waste management hierarchy provides guidance on determining, selecting and implementing possible 'end of life' management options for unwanted products and materials, in descending order from reduction to landfilling. The second option within that hierarchy is 'reuse', which includes beneficial use.

A. What is Beneficial Use?

Beneficial use is the term applied when the substitution of a waste product occurs for a raw material in a manufacturing process, as a construction material, or as a fuel. The 1998 state *Waste Management and Recycling Plan* asserted that beneficial use could have a major impact on diverting certain hard-to-manage waste streams, such as tires, wood waste, and ash, from disposal to a different use or application.

Beneficial use is a practice that takes appropriate secondary materials out of the waste stream and uses them in place of more traditional virgin material. Beneficial use has potential in a number of industries, including construction, transportation, electrical generation, and waste treatment, to provide cost effective replacements for aggregate, fill, cementitious material, drying agents, and many other materials currently in demand. Beneficial use not only provides secondary materials for Maine companies to use, but it also decreases cost and demand for disposal facilities and maintenance.[30] Determination of a certain waste product for beneficial use requires Maine Department of Environmental Protection review and approval.

B. Examples of Beneficial Reuse

The use of waste as substitution for raw materials or other items has been practiced for many years. Some examples of secondary materials and their currently approved beneficial use in Maine include[31]:

1. Multi-fuel Boiler Ash – may be used as: alternative liming material; soil stabilizer; odor absorbent for compost and waste treatment; possible concrete additive/cement replacement.

[30] University of Maine. Beneficial Use of Solid Waste in Maine, 2006.
[31] University of Maine. Beneficial Use of Solid Waste in Maine, 2006.

2. Fly Ash – may be used as: raw material in a cement kiln; additive to cement clinker prior to grinding; addition to concrete mix as a partial replacement for cement; lightweight aggregate; controlled low-strength material (flowable fill); autoclaved cellular concrete; structural fill; landfill cover; water treatment; soil stabilization and modification.

3. Cement Kiln Dust – may be used as: soil stabilization; waste stabilization/solidification, Portland cement replacement; asphalt pavement; controlled low strength material (flowable fill); lightweight aggregate; construction fill.

4. Dredged Material – may be used in: wetland management, restoration, creation, and enhancement; shoreline and sedimentation stabilization; erosion control; wildlife habitat development; water quality improvement; recreation and cultural resources; contaminant stabilization; dike construction; rip rap; and other applications.

5. Lime Mud – may be used as: an agricultural liming material; in waste stabilization and sanitation; as a construction material.

6. Tire Shreds – may be used as: lightweight fill for embankment construction on weak foundations; retaining wall and bridge abutment backfill; to limit frost penetration; drainage layers for roads and landfills. Tire shreds have had three principal uses in Maine once they are processed into suitable sized chips: (1) as base grading materials (as demonstrated in the construction of the Sabattus interchange on Interstate 95); (2) as part of the landfill liner systems, and (3) as fuel in solid fueled boilers licensed to burn them.

7. Oil Contaminated Soil – may be used as: aggregate for hot and cold mix asphalt processes; concrete aggregate; raw material replacement.

8. Street Sweepings – may be reused as road sand; as fill material; as landfill cover; as a raw material replacement.

9. Waste Wood/Brush and Construction or Demolition Waste – these are two of the more commonly 'beneficially used' categories of municipal solid waste. To highlight this, the following is devoted to these wastes:
    - *Clean Wood Waste* – discussed below
    - *Construction or Demolition Debris, including concrete and asphalt shingles* – discussed below
    - *Sheetrock/Gypsum* – discussed below

Since 1998, much of the Department's work in this area has been to develop rules (see Maine Department of Environmental Protection, Rule Chapter 418) to allow for the beneficial use of construction and demolition/debris (CDD), and in particular, to create fuel standards for the use of construction derived wood (CDW) as boiler fuel. Wood from construction or demolition debris (CDD wood) refers to the wood component of the solid waste resulting from construction, remodeling, repair or demolition of structures.

The adopted rule also provides guidelines and standards for the use of tire chips, brick, concrete, porcelain, and glass as fill materials, as well as exempting recycling activities that produce secondary products in substitution for virgin materials in manufacturing.

The demand for the recovered wood waste fraction of CDD, principally the CDW, of the waste stream has increased in recent years and has the potential for growth. Several biomass boilers in Maine are permitted to combust this fuel substitute. As a result of increased demand, there has been a corresponding increase in the number and locations of grinding and screening machinery that accepts the CDD and processes it to capture the usable wood fraction.

Clean Wood Waste
Clean wood waste is recovered from demolition sites, and excess wood from the construction process, may also be used in many other ways. CDD can be used as a fill material or aggregate and may be a reasonable alternative to valuable natural resources in certain applications.

Construction or Demolition Debris
CDD contains many products and items, and if a home is demolished, may include the kitchen sink! Consequently, metal is a common component of CDD and is the most-recycled of CDD materials, due largely to the historic market and demand for recovered metals. The metal recovered from CDD is recycled and used to create new products from the old metal.

Concrete
Concrete can be readily crushed and reused. The most common use of crushed concrete is as road-base gravel, but it is often also used as an aggregate in asphalt or concrete manufacturing. One estimate is that 50 million tons of asphalt and concrete from pavement that is torn up is reused.[32] Of that total, up to fifty percent is reused as Reclaimed Asphalt Pavement, or often referred to as 'reclaim', which when properly placed, provides for a solid surface.

Asphalt Shingles
Asphalt shingles separated from CDD streams can be reused in making hot or cold mix asphalt, or even new roofing materials. Excess or cut shingles from construction sites are more widely used for recycling than used asphalt shingles collected from a demolition site, but both have value. What follows is a description of how one Maine business beneficially uses discarded asphalt shingles:

Commercial Recycling Systems (CRS) of Scarborough, Maine has been successfully recycling asphalt shingles for over seven years. The CRS processing facility currently accepts shingles delivered in both roll-off and dump trailers, containing 12-20 tons per load. Roofing products come from numerous towns, cities, and private roofing contractors in New England.

Collection of the shingles occurs at both municipal and commercial transfer stations, and through direct delivery to the CRS facility. An inspection is performed to make

[32] University of Maine. Beneficial Use of Solid Waste in Maine, 2006.

sure that incoming loads are comprised of shingles only and do not include any wood, flashing, or other debris. After inspection, the shingles are processed into the desired particle size at the facility, with measures taken to both remove roofing nails and minimize asphalt dust. The processed shingles are then incorporated into various road construction products, such as HMA and 'cold patch' at rates based on the product performance requirements. The use of the shingles in the construction materials replaces some or all of the virgin asphalt in the various grades of road building materials, which are produced to meet Maine Department of Transportation product specifications.

Sheetrock/Gypsum

The gypsum material in sheetrock can be removed from the paper backing for use in manufacturing new sheetrock. In addition, the gypsum has many other practical uses as well. Often thought of as having liming abilities, gypsum does not alter the pH of soil or water when added to either.

In looking ahead at methods and practices that reduce the volumes of solid waste destined for disposal, beneficial use continues to be a working option for those materials already permitted and remains an opportunity for further application, given current efforts to consider wastes as resources and divert their 'end of life' management from landfills to 'a second chance'.

Conclusion: Changes over 10 Years

The issues raised in the 1998 state *Waste Management and Recycling Plan* are mostly still of concern today. Municipalities face cost worries, however, waste tip fees have become more predictable and recycling revenues help offset expenditures. Markets for recyclables over the long-term have grown, with spikes and declines that track a global economy. The lack of management options for CDD remains a concern. And, while there are viable options for beneficial reuse, there remain opportunities to do more.

V. Long-term Issues to Watch

Growth in Waste Generation

Maine currently disposes more solid waste than it reduces or recycles. While that fact alone is cause for concern, that we as a state find ourselves in this situation after 20 years of effort to reach 50% recycling goal, the data trend over the last six years shows that the increase in disposal is outpacing any increase in recycling. Though recycling tonnages continue to increase, recycling's share of the MSW stream has declined relative to disposal over the last several years.

This continuing and growing disproportion raises concerns that our current policies and programs are insufficient to guarantee an improved future for Maine citizens when it comes to solid waste management programs that properly reflect the quality of the place we consider Maine to be.

Out-of-state Wastes

A. Why do we Import MSW?

Why not ban out-of-state waste?
Many people wonder why the state doesn't just ban the importation of waste. Movement of solid waste across state lines is protected under the federal commerce clause of the U.S. Constitution. This federal law overrides individual state action to restrict that market at their borders. The law enacted in Maine in 1989 to ban the development of new commercial disposal facilities was in direct response to the limitations imposed by the commerce clause. Those publicly-owned and private disposal facilities that remain in Maine today may accept wastes from beyond Maine's borders as long as that acceptance does not run counter to the regulatory, legal, or contractual provisions under which they operate.

1. Out-of-state Waste Makes Energy and Supports our In-state MSW System

The Fuel Gap

The majority of the state's businesses and residents rely on the four W-T-E facilities to manage their MSW. Since their inception, the four W-T-Es located in Maine have required, either occasionally, or on a seasonal, or permanent year round basis, more fuel (MSW) than is currently available to them from Maine market sources. This *over capacity* creates a demand that their managers have to meet by looking out of state for additional fuel. Given our current level of W-T-E capacity, out-of-state waste is necessary to continue to manage our own MSW. It maintains operational efficiency at the W-T-Es and allows them to meet their contractual responsibilities.

The facilities are not only dependent upon a predictable flow of over 800,000 tons of fuel per year (with a portion of that fuel coming in from out of state); but also upon access to landfills for their own waste streams of by-pass, ash and, for the two refuse-derived fuel plants, front-end process residue (FEPR). Current technology has not achieved any significant resource recovery from either of the two waste streams under present regulatory conditions.

In the long term, we need to decide whether and how the state should sustain this exchange of waste for energy if Maine recommits to and reinforces the hierarchy and with the reality that at least for the next several years the fuel needs of the W-T-Es will need be met by out-of-state sources.

In the meantime out-of-state wastes support the conversion of our own wastes into energy and thus support the hierarchy in preference over landfilling.

Out-of-state Wastes and Biomass Fuel

Maine has by far the largest concentration of biomass steam plants in the northeast region. What Maine lacks is processing capacity for CDD or the waste stream volume to supply wood for those boilers.

Current Market

Only two of the seven boilers approved for construction derived wood (CDW) fuel combustion are presently burning it: Sappi Westbrook and Boralex-Livermore. Roughly two-thirds of the CDW fuel for these plants was fuel processed outside of Maine. If all seven boilers combusted wood waste up to their full capacity allowed by license requirements and by state law,[33] they could generate an annual demand for 1.37 million tons. The Office does not believe that we are likely to attain this full level of demand.

In-state Sources

Maine does not produce enough CDD wastes from which a sufficient amount of CDW can be derived to meet today's fuel demands of in-state biomass boilers, or the fuel demands of new, yet-to-be-proposed technologies, such as gasification, that are under consideration, or the financial requirements for throughput of any future CDD landfills or processing facilities.

At the current rate of capture and processing of wood waste from CDD, Maine municipalities supply less than 1% of the maximum annual projected demand for CDD wood fuel. Processing of in-state commercial waste currently provides an additional 3%. If all municipal CDD were managed to separate wood waste at the point of collection, and assuming that 25% of the CDD waste stream could be processed into wood fuel, Maine municipalities potentially could generate 75,000 tons of CDD wood fuel annually. This is an estimated 6% of the maximum CDD wood fuel permitted for use in Maine biomass boilers today.

Out-of-state Sources

Because of Maine's low volumes of CDD wood waste, there is concern over a potential influx of very large amounts of CDD from out of state to fuel the present seven licensed biomass boilers.

To combust the maximum amount of CDW fuel approved for use, biomass boilers would need to rely upon CDW fuel that originates outside of Maine, or on fuel that is produced in Maine from out-of-state CDD.

[33] DEP licenses for these facilities restrict the annual tonnage of CDW to no more than 50% of its licensed fuel supply.

Recent legislation has written into law that waste, produced by the processing or recycling, or incineration in Maine of out-of-state waste, is considered to be waste generated within the state. Thus those wastes may be received by any facility licensed to receive those types of wastes.

For example, in 2007, 293,536 tons of out-of state, unprocessed CDD was sent to Maine's commercial landfills. If this amount were separated and processed for CDD wood fuel production rather than landfilled, it would create an estimated additional 75,000 tons of CDD wood fuel (roughly 6% of the projected maximum demand) and reduce the landfill capacity used by at least an equivalent amount.

CDD Products and Recyclables (other than Wood)

Most large construction and demolition debris processing facilities produce a variety of recycled products in addition to CDD wood fuel. These facilities remove as much salvageable and reusable material from CDD as is practical in order to recover value from the waste constituents and to minimize the transportation and disposal costs associated with landfilling construction and demolition debris. Materials recovered by these facilities include aggregate from bricks, concrete, asphalt, rocks, and dirt; ferrous and non-ferrous metal; asphalt shingles, un-used gypsum board for reuse, and wood for reuse or for fuel in wood-fired biomass boilers.

Additionally, other CDD components not suitable for recycling may be mixed with the recovered aggregate materials and marketed to operating landfills as a soil substitute to cover waste or for shaping and grading material for landfill closure projects. Generally, 20-35% of a mixed CDD waste stream can be processed into CDD wood fuel.

Typically, the processing facilities offer generators financial incentives to send wood rich loads of CDD separately from wood poor loads or require source separated loads from demolition and building contractors. This allows the processor to use the wood poor CDD loads to create landfill closure material or to by-pass the CDD directly to landfills for disposal.

Maine Processing Facilities

Current in-state processing of CDD wood is performed by mobile shredders that process stockpiles of pre-separated CDD wood into fuel at municipal collection sites, and by five commercial processing plants – Aggregate Recycling Corp (ARC) in Eliot, CPRC Group in Scarborough, KTI Biofuels in Lewiston, Simpson, Inc. in Sanford and Plan-It Recycling in Gorham. Another facility, owned by Casella Waste Systems, is newly licensed to operate in Westbrook, but is not yet operational.

Currently, the wholesale replacement of out-of-state processing capacity by in-state facilities is unlikely since it is significantly less expensive to process locally (nearer the sites of CDD generation) and to pay to transport only the portion of CDD that is processed into wood fuel than to transport mixed CDD into Maine for processing. The degree to which out-of-state CDD processors can increase their operational capacity to meet increased fuel demand is also limited. Out-of-state processors are currently operating at close to capacity.

B. The Impact of Imported CDD on Landfill Capacity

When the state's two commercial landfills reach capacity and are closed, those disposal options for imported CDD will dry up, which will reduce the importation of out-of-state waste for landfilling. [34]

However, given the recent change in law that defines processing waste as waste generated within the state, the residue from the processing of CDD imported from out of state for the purposes of creating fuel for Maine biomass boilers could consume valuable landfill space either at Juniper Ridge or at some future publicly-owned and -controlled disposal facility.

There are five, soon to be six, Maine facilities that may receive out-of-state CDD for processing CDD into fuel. The processing of CDD into wood fuel by these facilities potentially could increase in the future. A possible projection has the processing of CDD into wood fuel generating residues that could use up to 15-20% of Maine's current remaining landfill capacity annually (without an expansion).

Several conditions would have to be present for this scenario to emerge. First, the six processors would need to expand their existing operating capacities to process all the CDW fuel needed. This would require equipment purchases and regulatory consent. There would need to be sufficient building and construction activity to generate the supply of material to be processed. In-state disposal costs would need to be low enough to offset the increased costs of transportation. Finally, there would need to be sufficient demand for the product (i.e. the seven Maine boilers consume CDW fuel up to their licensing and/operational limits). This scenario also assumes that all of these conditions align at the same time and remain constant for a sufficient period of time so that all the necessary investments can be made and permit approvals obtained.

Nevertheless, this situation requires prudent and timely monitoring because of the potential for growth in market supply and demand (based on operational limits of current processing facilities and biomass boilers) that could then escalate the demand on Maine's landfill capacity, a core concern of the state.

Also, it is likely that some of the ash from the biomass boilers will continue to be disposed of in generator-owned landfills to add stability to paper mill sludge, reducing the reliance on public landfill capacity.

Out-of-state Wastes and Bypass

Recent legislation has defined bypass and included bypass waste from Maine waste to energy facilities, recycling and processing facilities under the definition of waste generated within the state. One of the potential consequences of this legislation is that out-of-state waste destined for one of the W-T-Es may be directed on to a licensed public or private disposal facility in Maine.

[34] Through an agreement with the Maine DEP, Pinetree Landfill in Hampden will close in January of 2009. Crossroads in Norridgewock will reach capacity between 2019 and 2023 (this is only an estimate based upon today's fill rates).

In conclusion, the types and amount of out-of-state waste disposed of in Maine will likely shift in response to changes over time in Maine's waste generation and management systems. Without changes to current law both commercial land disposal facilities will eventually fill and close, shutting off those disposal outlets for out-of-state waste. While new CDD processing facilities may bring out-of-state wastes into Maine, they will also serve to improve the recovery of Maine-generated CDD.

The Role of Local Government

Since their local dumps were ordered closed or radically changed to meet new state law and standards in the 1980s, and the affirmation of home rule, municipalities have wrestled with their role in solid waste management and the questions of who has control, who has ownership, and who has responsibility and what those words mean.

The positive result is that over the last two decades each Maine city and town has chosen, built, and managed their individual MSW systems to their liking, as long as they stayed in compliance with state laws and rules. The people in the 495 civil divisions with their own governance have the right to choose the level of services they want to pay for.

The principle negative result of this system of local control is this same variability of service so that communities next door to one another have widely different levels of service and approaches.

Also, the full life cycle costs and benefits of all the components of the waste stream and the various possible means of their management are often not evaluated or even recognized in the typical annual "services versus taxes" municipal budgeting process. Municipalities are only obligated to provide a means of disposal for MSW generated within their borders. Following that minimal scenario, it is rational and acceptable to send solid waste "downstream" shifting the burden geographically or to future generations, in order to minimize immediate local risks and costs. The long-term environmental and social impacts of "downstreaming" solid waste and the cost of siting future disposal facilities generally are not usually factored into annual budget choices by those who manage the MSW at the local level. [An exception should be noted for those eight communities that still operate their own landfills and must have long term plans for preserving landfill space, possible mitigation, monitoring, closure, and post closure disposal.]

The recent U.S. Supreme Court ruling on flow control does give municipalities potential, wide-ranging control over MSW generated within their jurisdictions. It gives local governments standing as both market regulators and market participants with the power to direct MSW into their own facilities as long as they pass a balancing test where the public benefit is greater than the burden, particularly in those circumstances where those bearing the potential burden are the same as those enacting the law. This new situation may have long-term, positive effects on building greater regional cooperation to direct MSW into municipally-owned recycling and composting facilities.

Other Issues

Besides the growing waste generation versus recycling imbalance, out-of-state wastes, and the role of local government, there are three adjoining issues that concern current policy.

A. Limits to Private/Public Partnerships

Certain private/public partnerships have been very successful in terms of sharing power, providing service, and stabilizing prices —witness the PERC-MRC relationships.

Until recently, financial and environmental risks have limited the number and use of municipal landfills to meet the disposal needs of their municipal owners for solid waste generated within their borders or under contract or agreement with adjacent communities. This status quo has been challenged by proposals for municipal partnerships with private companies that are testing the definition of commercial disposal facilities.

The potential short term advantages for municipalities are: relief from the costs of operations; a reduced or no tip fee for its own solid waste; and, a revenue stream from several possible sources depending upon the terms of the contract. Again depending upon the contract, they may get relief from mitigation, closure, and potential pollution costs connected with a facility.

The private company would receive valuable landfill space in a state with limited permitted sites, with predictable costs and revenues to serve their collection and hauling contracts.

This issue raises many questions, principally; where is the source(s) of the private company's MSW, what types, and volumes of the solid waste would be disposed of; does the use violate state law and would it pass the public benefit determination test. Recent legislation has addressed some of these concerns by prohibiting the disposal of out-of-state wastes into municipal landfills.

B. Changes in Public Attitudes

For generations until the 1970s and into the 1980s, most Mainers lived with unlined open burning dumps within their individual communities, often within a short driving distance to or bordering on residential areas.

Today, environmental, health, and property value considerations, the changing social dynamics around solid waste activities, and concerns over what is in the waste stream and where it is generated are at the forefront of the public's perception about solid waste. Newer facilities built and maintained to stringent environmental standards that were once accepted as part of the local landscape, or even seen as an economic boon to a community, are now often under severe and constant public scrutiny.

It should be noted that all large scale development projects face opposition, even those proposals that seem to benefit the environment. But a 2006 survey published in *Waste News* reflected current public sentiment as waste disposal facilities ranked at the bottom of community development preference, below rock quarries, casinos, and airports.

Communities across Maine have worked for more than a decade to become fully involved in defining what it means to be a host community. Up to now there has been little common ground in discussions of options and alternatives to the present facilities.

This has potentially serious implications for our system that is heavily dependent upon maintaining a small number of relatively large regional waste processing (four W-T-Es) or landfill disposal facilities (eight by 2010).

C. The State of Maine as a Market Participant

Finally, we must consider the effects and future implications of the state as a market regulator and as a market participant. The state has become a market participant with its purchase and operation of the Juniper Ridge Landfill, but not in the manner envisioned by the crafters of the 1989 legislation. It was anticipated that given the eventual demise of the state's two commercial landfills and the reluctance of public entities to seek to replace them with new, large-scale, publicly-owned landfills, that the state would be the provider of last resort of the capacity for the waste streams from the four W-T-Es, special wastes, and CDD, in the manner prescribed in statute. Today, however, unlike the states in the southern tier of New England, Maine continues to have overcapacity in W-T-Es and potentially very significant landfill capacity.

The passage of the legislative resolve of 2003 and the purchase of the landfill bypassed the statutory "trigger" and that anticipated process, but provided the state with the opportunity to gain significant capacity with potentially one of the largest landfills in the Northeast.

We must consider how the capacity at Juniper Ridge can be used to support the hierarchy and to the best advantage for the people of Maine.

Juniper Ridge is already perceived by the private and public waste sectors as having an effect on disposal pricing. It was a significant factor in the decision of Casella Waste Systems, who holds the operating services agreement to operate Juniper Ridge, to close the Pine Tree landfill in Hampden and to permit the CDD processing facility in Westbrook, to aid in fulfilling their obligation under the Operating Services Agreement for the Juniper Ridge Landfill.

Also, Juniper Ridge may be directly impacted over time by the recent legislation defining by-pass and in-state processing wastes as wastes generated within the state. Its capacity may be open for use by those waste streams.

Conclusion: Issues to Watch

Such is Maine's MSW management landscape. But all of these issues and concerns can be turned to our advantage if we apply the hierarchy with all the resources, knowledge and tools developed over the last 20 years, and adhere to the 50% goal as we pursue their solutions.

If the hierarchy is to mean what it says, Maine must move from 'waste management' to 'resource management'. To do so by the 2020s, we must consider what is now called solid waste instead to be feed-stocks and resources from which all potential value is extracted; and we put an end once and for all the practice of down-streaming waste to future generations or someone else, somewhere else.

VI. New Trends

The basic common thread for effective waste management is in the waste itself because there is no difference in the MSW from Berwick to St. Agatha. This commonality of generation, characteristics, and results provides the state with an opportunity to take a lead role in the process of identifying, researching, and if found appropriate for Maine, pushing new trends in MSW management that can be generally applied.

Energy and Greenhouse Gas Initiatives

In 2007 the following language was added to the state waste hierarchy:

> Waste reduction and diversion. It is the policy of the state to actively promote and encourage waste reduction measures from all sources and maximize waste diversion efforts by encouraging new and expanded uses of solid waste generated in this state as a resource (`underlining added here for emphasis`).

This new language encourages the state to look at new technologies and methods for managing MSW that are currently not part of the waste hierarchy.

Since the first Earth Day, recycling has played a role in discussions on global resource conservation. Now all aspects of solid waste management have been drawn into discussions on several larger environmental issues, such as global warming related to greenhouse gas emissions reduction, changing energy markets, energy self reliance and conservation, toxics reduction, and the carbon cycle. These issues are on the table as we conduct our own debates about what is the best way for us to manage our solid waste, and have the potential to be the controlling issues of the near future.

Landfills are one of the largest human-formed sources of green house gases. Methane, the principle gas released from landfills, is 21 times more potent a greenhouse gas than CO_2. The state of California has estimated that the recycling and composting of all discards would be the equivalent of removing all emissions from all vehicles on their roads.

Recognizing the relationship between solid waste management and greenhouse gases, the US EPA created two web-based tools to aid in this effort: WARM and ReCon.[35]

The Waste Reduction Model (WARM) helps solid waste planners and organizations track greenhouse gas emissions reductions from several different waste management practices. WARM calculates and totals emissions of waste management practices source reduction, recycling, combustion, composting, and landfilling. The model calculates emissions in metric tons of carbon equivalent, metric tons of carbon dioxide equivalent, and energy units across a wide range of material types commonly found in municipal solid waste.

[35] EPA. Office of Climate Change. Waste Web Page.

The Recycled Content (ReCon) Tool helps companies and individuals estimate life-cycle greenhouse gas emissions and energy impacts from purchasing and/or manufacturing materials with varying degrees of post-consumer recycled content.

Maine recognizes the impact of greenhouse gas as well. Maine citizens, the Legislature, and the Executive branch, through the Maine Department of Environmental Protection, are implementing a plan to actively reduce emissions of greenhouse gases in Maine. According to the Department of Environmental Protection, Maine continues to make significant progress toward its goal of reducing greenhouse gas emissions by 10% below 1990 levels by 2020. Maine continued to lead regional efforts toward establishment of the Regional Greenhouse Gas Initiative (RGGI), becoming the first state to adopt rules to implement the program. In addition to directly reducing greenhouse gas emissions in the electrical power sector, the program will generate significant new funds for electrical efficiency investments.

New Technologies

A. Waste Conversion Technologies

There are three broad categories of waste conversion technologies: 1) thermochemical, such as gasification, pyrolysis, and plasma arc technology; 2) physiochemical, such as distillation of ethanol and the production of biodiesel; and 3) biochemical, such as anerobic digestion and ethanol fermentation and hydrolysis.

While research into these technologies is ongoing, key questions remain: do they reduce the carbon footprint, do they reduce the toxics footprint, and do they continue Maine's strong commitment to protect public health and the environment. In general, their touted benefits are lower carbon emissions, lower air emissions, renewable energy, offset fossil fuels, sustainability, and beneficial use of their residual wastes.

Three technologies are briefly discussed here because they are new and have relevance for Maine and large-scale applications for waste management.

1. Gasification

At present, there are gasification proposals being floated in Maine. Gasification is a term that describes a chemical process by which carbonaceous (hydrocarbon) materials (coal, petroleum coke, biomass, etc.) are converted to a synthesis gas (syngas) by means of partial oxidation with air, oxygen, and/or steam.

A hydrocarbon feedstock is fed into a high-pressure, high-temperature chemical reactor (gasifier) containing steam and a limited amount of oxygen. Under these "reducing" conditions, the chemical bonds in the feedstock are severed by the extreme heat and pressure and a syngas is formed. This syngas is primarily a mixture of hydrogen and carbon monoxide. The syngas is then cleansed using systems that remove particulates, sulfur, and trace metals. The resulting gas mixture is itself a fuel.

Gasification is potentially a very efficient method for extracting energy from many different types of organic materials. The potential advantage of gasification is that burning the gas mixture would be more efficient than direct combustion of the original fuel; such as the current W-T-E technology employed in Maine. More of the energy contained in the fuel is extracted. In addition, the high-temperature process refines out corrosive ash elements allowing cleaner gas production from otherwise problematic fuels, and produces lower emissions of greenhouse gases than current W-T-E systems.

2. Plasma Arc Technology

Plasma arc gasification as a waste treatment technology uses high electrical energy and high temperature created by an electrical arc gasifier to break down the waste primarily into elemental gas and a solid waste slag. The process is intended to be a net generator of electricity, depending upon the composition of wastes, and also to reduce the volumes of waste being sent to landfill sites.

A different type of plasma arc waste conversion that uses plasma to refine gases produced during waste conversion, rather than to destroy waste, has recently shown itself to be successful on a full commercial test scale in Ontario. Its emissions are also lower than other thermal waste processing systems, and by converting waste to CO2 and water, rather than to methane, the greenhouse gas emissions of the process are much less than competing technologies.

There has been a number of large scale plasma projects proposed to come on line over the next several years including proposals in Ottawa, Ontario, St. Lucie County, Florida and the city of Tallahassee also in Florida.

3. Landfill Gas-to-energy Projects

This technology actively manages MSW landfills for their gas recovery potential. The gas is then used to fuel generators to produce electricity. Pipes are placed in the landfill; slight pressure is maintained sufficient to draw the gas into a recovery plant but not enough to draw oxygen in through the landfill cap. The gas is then cleaned and piped to the generator plant, which is either connected to the power grid or into a local application. There is also the potential to recover the waste heat created in certain circumstances.

Maine has recently seen its first power to the grid from landfill gas at the Casella facility in Hampden. The amount of solid waste deemed as the minimum amount to make such a project feasible is decreasing, making the technology available for consideration by smaller landfills such as we have in Maine.

Two of those smaller landfills, Bath and Tri-Community in Fort Fairfield are moving forward into the carbon credit market where small facilities are encouraged to reduce their carbon footprint by capturing and flaring landfill gases in exchange for revenue from the credits.

Single Sort Recycling

While not new, but new to Maine in 2007, this collection and processing technology, called "single sort", offers the ability for recycling programs to collect unsorted, commingled recyclable materials. Its principle benefits are that it is a very efficient collection strategy that also offers convenience that may encourage more people to participate in recycling programs and in turn give the state the opportunity to recycle greater amounts and more items.

Single stream, single sort, fully co-mingled, are all terms used to describe a means for residents and small businesses to mix all recyclables, paper products and containers together in one bin or tote or cart. Those recyclables can then be dropped off into one large undivided container at a recycling drop off facility, or if curbside service is available, collected by one truck with one compartment in which all the recyclables are compacted.

Whether from the drop off facility or by the truck collecting curbside, the mixed recyclables are then transported to a facility, commonly referred to as a "materials recovery facility" or MRF, then and there to be "unmixed". Separation through a combination of machinery and hand labor prepares them for sale as commodities in the market, and finally materials are shipped to mills around the country and the world.

Thus single stream is a collection and processing operation that emphasizes efficiency in collection in exchange for more expensive infrastructure and more complicated and problematic processing operations. *ecomaine* and FCR Goodman are fully committed to this type of system.

The potential and proven benefits include:

- increased ease and convenience to residents;
- increased participation;
- increased recycling reduces disposal costs;
- wider range of materials: most plastics, most paper grades;
- far less labor intensive: no handling past the collection container;
- compaction, if used, results in fewer trips, lowering transport costs; and
- for curbside, faster collection of materials, collection and transportation savings.

The drawbacks to single sort/single stream are:

- reduced revenue from the sale of recyclables, or the imposition of per ton processing fees, as is currently the case in times of down market cycles;
- communities still need to be involved in quality control process – they cannot leave it all up to the Materials Recovery Facility (MRF); they must keep MRFs "honest" about levels of contamination, residuals etc., not passing on contaminants that increase operating costs and disposal at receiving mills; and
- a loss of 20 years of source separation/quality education of residents, which would be difficult to 're-teach' if is not successful.

Additional questions that communities may want to consider are:

- Is there an additional community benefit (public good will) in continuing with the source separated system?
- Is there a compelling reason to change the current program? Such as going to curbside collection, mandatory recycling or PAYT? Or an external community reason such as a budget crisis?
- Once the program is committed to providing material into a centralized single sort facility, how will single stream facilities react to changes in the marketplace? Will the program end up sharing the costs of processing?
- Will materials from MRFs carry the same reputation in the marketplace as Maine products currently enjoy?
- People still have to overcome their resistance to the basic separation of trash from recyclables. If the program already enjoys a high recycling rate what will be the increase in participation?
- Will the percentage really up-tick, with more people recycling more stuff?
- Does the potential increase in recyclables volume cover the costs of upgrading to a more expensive system?

It remains to be seen what kind of increase in recycling tonnage a program achieves. In other areas, single sort alone has brought an increase of 3-7% in the volume of recyclables.

There are ancillary issues to consider such as local control over the recycling program, the sustainability of existing regional programs that employ source separation in the face of competition with single stream providers, and limited competition in the market (i.e. only two vendors are actively engaged in single sort).

If single sort can deliver the expected growth in recycling tonnages as anticipated by those 50 plus communities that have signed onto it, then it is worthy of serious consideration throughout the state. Initial reports from communities that have adopted single sort are encouraging.

The Product Stewardship Model

The product stewardship model, begun in Maine with the mercury-added products recycling law and then expanded under Maine's first in the nation cathode-ray tube (CRT) management legislation, has recently been expanded again to include thermostats and cellular telephones.

The model puts forth that the responsibility for reducing product impacts on public health and the environment is shared among industry, government, and consumers. Each item of the waste stream is examined for its impacts on the environment, its recyclability, or ease with which it can be returned to the technological resource stream, its marketability, and the condition of those markets. Manufacturers are given guidelines and goals to increase the recyclability of the products and to lower toxicity. Generators are pushed to be responsible and follow the program, and the collective government entities expand access and convenience and enforce the program at all points of the system.

For example, cathode ray tubes (CRTs) found in all televisions and computers prior to flat screen technology contain significant amounts (3-8 lbs.) of lead and other toxic heavy metals.

In Maine, before 2003, these items were landfilled and crushed. The lead was exposed and posed a potential threat to land and water and the health of Maine citizens. To alleviate this risk, the Maine DEP developed legislation that requires the manufacturers to pay for the transportation and recycling of these items generated from Maine households.

The Department also created the regulatory and program structure to achieve this goal efficiently. Municipalities are required to provide the means for home owners to recycle the CRT-containing units. The State Planning Office provided over 1.3 million dollars in grant funding to assist municipalities in developing the CRTs collection infrastructure.

Homeowners are required to separate these items out from their other MSW and deliver them to the appropriate facility or program. Once all program elements were in place, CRTs were banned from disposal and required to be recycled by state law. In Maine to date, several thousand tons of TVs and computer monitors have been recycled through this program.

Product stewardship initiatives are currently being developed in the northeast by the Product Stewardship Institute, of which the Maine DEP is a participating member, and at similar organizations on the west coast, on several products including among others, paint, pesticides, telephone books, carpeting, and pharmaceuticals. By engaging them at the onset of the process, product stewardship efforts encourage manufacturers to take increasing responsibility to reduce the entire life-cycle impacts of a product and its packaging beginning with product design through to its end-of-life management.

Product stewardship is an approach that has the potential to be widely applied to many current products and those new products or new combinations of materials currently making their way into Maine's MSW stream.

Personal Responsibility

Finally, debates over infrastructure and operations involving hundreds of millions of dollars overshadow and at the same time sidestep the issue of personal responsibility. Products are brought to market and purchased without regard to their disposition after their original use. Generally, there is a disconnection between the consumption of goods and services and the full, life cycle costs; social, environmental, as well as financial of those goods and services.

Municipal solid waste management comes down to mitigating the effects wrought by the choices we make as consumers and the consequences of the actions we take as individuals to manage our own waste. As we move into the next decade, the decisions we make as voting citizens, must shift from personal denial to personal responsibility.

Conclusion: New Trends

Waste management is more than putting garbage at the curb and forgetting it. Economic and environmental considerations dictate that we find new ways to manage our waste and responsibility for this is shared across society. In the future, in Maine and elsewhere, MSW can no longer be considered separately from global environmental issues.

VII. Where Do We Go from Here?

Past plans (’90, ’93, ’98) focused on the prospects and positive performance of the emergent recycling efforts during those building years. Our perspective is different when we are looking at a mature system and at figures showing us moving away from achieving our stated priorities.

As the current stewards of Maine’s MSW program, we know how to protect public health and minimize and mitigate damage to the environment and these will remain our core obligations. But once again as in 1987 we have had extensive public discussion on how we manage our solid waste, and again we have the opportunity to decide what is fitting for Maine. What is our vision of the future, what are our goals for the decades to come? Will it be reactive to external challenges, or will it be forward thinking? We can chart our own course.

This section of the plan describes how Maine might achieve and then move beyond the 50% recycling goal.

Assumptions
The starting point for these strategies is the baseline assumptions of Maine’s MSW management out to 2027 at the current 35% recycling rate and a 4% annual increase in waste generation.

Discussion of the growth rate
The 4% annual increase may or may not be viable for all planning scenarios. It is used here because it is based on the growth rate of the previous two decades and because using such a scenario is protective of the state’s landfill capacity and of the process required to seek and secure additional new capacity if it be required.

However, the current situation from the latter part 2008 and into 2009 saw flat or declining tonnages at some of Maine’s disposal facilities. The economy, particularly the consumer economy, may not come back to present levels for some time and waste is linked to economic activity. Waste reduction strategies in product design, packaging, and consumer choice, may take hold, particularly in this time of economic change, and those strategies may result in permanent reductions in certain components of the MSW stream leading to overall reductions in tonnages.

Thus, the projected 4% growth rate may be too aggressive. It should be qualified by connecting it with overall state economic growth and with progress in waste reduction and other green efforts to slow or reverse the growth of waste. The 4% rate should be seen as the high case Maine’s economic growth rate to provide the plan with the background in which to base the forward looking reduction and recycling strategies.

The plan is built from the annual waste generation data contained in the state *Waste Generation and Disposal Capacity Report*. The annual report is aptly more fluid than the plan and reflects actual solid waste conditions in Maine. The plan takes a longer view of waste data in order to assess the effectiveness of statewide policies. It relies on the trends provided over time by the annual data.

Tied to the 4% growth rate question is the issue of the importation of waste. There are questions as to whether or not out-of-state waste will really decline and be supplanted by the growth of in-state waste for the W-T-Es. If delivery numbers from Maine communities continue to decline, due to their economic conditions or recycling and waste reduction efforts, the fuel gap will grow, maintaining the flow of out-of-state wastes.

The Run Up to 50%

A strategy for achieving Maine's 50% recycling goal.

Meeting a 50% recycling goal would extend the life of the state's existing state and municipal land disposal facilities. It would require an increase in recycling by 300,000 more tons a year at today's generation totals and up to 2.3 million tons a year by 2027. It could be accomplished through the expansion of public and private sector recycling efforts. Most local programs could on average achieve a 60% participation rate.

All strategies and goals assume some level of state assistance within available resources, to encourage these efforts through grants, education, outreach, and technical assistance.

Objective: Improve collection and participation in public recycling programs.

- Single sort recycling and other efficiency based collection and processing systems would be implemented by all those programs in which the technology demonstrates a clear advantage over their previous method(s). This would include the majority if not all of the most heavily populated areas of the state. It would be combined in many situations with the adoption of curbside collection and PAYT (pay as you throw) programs and an expanded list of items to be recovered.

- Maine materials would still move to market in times of over supply due to improved quality controls installed at the processors and by public education and inspection at the municipal level.

- The relationship of volume to price will stay within acceptable limits (excluding current market conditions) because any potential reduction in revenue will be more than offset by the increase in recycling volume and the decrease in disposal costs.

- The state would provide targeted infrastructure, planning, and equipment grants to regions to improve collection and participation rates..

Objective: Mandate recycling of old corrugated cardboard (OCC).[36]

- OCC is easily identified, easily separated, of good value, and comprises 14% of the MSW stream (excluding CDD). If the majority of recycling programs in Maine had banned corrugated cardboard from disposal, the amount of OCC recycled in 2007 (117,000 tons) would have doubled and thus could have provided 20% of the tonnage needed to reach the 50% recycling goal. It is already mandatory for businesses with 15 or more employees to recycle OCC. This strategy would extend that program to all businesses and residences.

Objective: Encourage communities to ban the disposal of leaf and yard waste.

- Municipalities would be encouraged to establish their own leaf and yard waste compost programs to divert up to 13% of their waste stream from disposal and provide quality compost for municipal projects and community use. The goal is to build up the

[36] There has been an ongoing debate on mandatory recycling since the inception of the state recycling goal. There are real questions as to how such programs would gain public acceptance and be monitored and enforced.

composting infrastructure in numbers of locations and the capacity of those locations around the state.

Objective: Encourage recycling the components of the CDD waste stream that can be recycled.

- CDD recycling can have dramatic effects on recycling rates. While they require oversight, space, access, regulatory requirements for operating surface and separation between materials, CDD recycling operations are not complicated and there are many municipal programs in the state with high diversion rates that can serve as model programs and be replicated in other locations. As with the compost facilities, communities would be encouraged to set up and run new programs or expand existing facilities.

Objective: Expand recycling opportunities for commercial sources.

- Businesses would embrace recycling similar to other green energy, efficiency, and green building initiatives. The state would engage business in a public/private grassroots effort to realize the financial and social benefits of recycling, through a grants and technical assistance program through the regional councils as part of their current outreach to business programs. The state will encourage expansion of municipal programs to include recycling from commercial sources.

Objective: Maine state government, the state's largest employer in terms of employees and building square footage, leads by example.

- The state would routinely achieve a 65% recycling rate for its own operations and facilities, including the university and community college systems.

Objective: Continue efforts to remove toxic wastes from Maine's MSW stream.

- Expand the number of permanent HHW facilities from 2 to 16 (every county). Include mobile collection infrastructure with these HHW service centers in order to improve the level of access and convenience for all Maine residents.

Moving Beyond 50%

Once we achieve the 50% goal, what could we do to move beyond it? What if we change our perspective on who's responsible for the products that we make and buy and then no longer want? What if we were to keep the defining line between what we call a waste and what we call a resource always fluid, always moving towards resource?

Beyond 50% will call for building on the steps outlined to get to there and then proceeding on two pathways. One would fully exploit our traditional means of resource recovery. The other would pursue shared responsibility or stewardship for certain individual products or classes of products.

The traditional approach will call for on-going commitments from both the state and municipalities. Not only investments in collection and processing, management and equipment, but recognizing recycling as the centerpiece for managing business' and residents' discards. Waste as unwanted "garbage" must be seen as secondary and only constitutes what has not, as

yet, been recycled. Waste systems will be converted to recycling systems and recycling becomes a resource recovery management system.

The second track will entail the development and implementation of a new set of policies based on stewardship of individual products using extended producer responsibility. The goal, to paraphrase the California Product Stewardship Council's mission statement, is to shift Maine's system of managing certain discarded products from one focused on government waste diversion efforts to one that relies on producer responsibility in order to reduce public and environmental costs and drive improvements in product design that promote environmental sustainability.

The following are some of the steps to build all or part of this dual scenario.

A. The State

By direct participation in the management of municipal solid waste, the state will:

Objective: Encourage personal responsibility by building public trust in recycling.

- In order for Mainers to agree to a recycling system, they must trust that: the system is effective; their participation makes a difference; and, is a shared community value that most of the people respect most of the time. This message would be delivered through a continual state public education and awareness campaign in unison with local program elements.

Objective: Enact a statewide ban on the disposal of all commodities for which there is a proven accessible market.

- Cardboard, newspaper, mixed paper, #1, and 2 plastics, steel containers, metals, glass, etc. would be banned from disposal, subject to an emergency provision. The state would provide targeted infrastructure, planning, and equipment recycling and composting grants to regions.

Objective: Encourage the separation and collection of organics, leaf and yard waste and food wastes.

- The full utilization of existing facilities and the development of a system of public and private composting facilities within all major service center areas would support full-scale organics composting.
- Leaf and yard materials would be banned from disposal by 2020.
- Communities that contract for collection service would include organics collection provisions to homes and commercial establishments in their contracts.

Objective: The state would encourage management efficiencies and provide clear state-level direction by:

- Encouraging collection and transportation efficiencies to reduce to the extent practical the energy required to collect and transport Maine's MSW.
- Establishing recycling standards for all materials delivered to disposal facilities and CDD processing facilities based on the waste hierarchy and the state recycling and reduction goals as applied to their annual tonnage.

B. Local Government

Objective: Municipalities join into regional programs in order to take more effective control over their waste streams including the following municipal initiatives:

- Public recycling services would be encouraged through targeted grants to extend to all commercial entities within their jurisdictions;
- Ongoing reuse and recycling clean-up programs would be provided;
- Recycling and trash collection contracting practices in public/private partnerships would be changed so that all parties have the maximum incentive to increase recycling collections tonnage and to process materials to achieve best available market prices as private sector's revenue share (percentage) would increase as recycling tonnage increases. Under the proper structure, the public and private would become genuine partners, both having incentive to maximize recycling and minimize disposal and contamination;
- Recognizing that recycling and composting have to compete with trash for market share, programs would encourage curbside collection, container sizing (larger bins for recycling, smaller bins for garbage), and single sort mechanisms;
- A CDD recycling component would be attached to all building permits, through local ordinance;
- Participation in recycling programs would be incentivized;
- Collection and transportation efficiencies would be increased in order to reduce to the greatest extent practical, the energy required to collect and transport Maine's MSW; and
- 'Flow control' initiatives based on the key points of the Supreme Court ruling would be used.

The state would assist municipalities with enhanced technical and educational recycling assistance for outreach to:

- the commercial sector,
- to multi family units, and
- in public areas and at public events.

C. Product Stewardship

Maine can pursue a product stewardship system by considering each item or class of items and developing legislation, regulations, and programs to address that specific class. This approach has been a success with computer and TV monitors and thermostats —a common process with clear goals but flexible approaches.

As a place to start, the state could use the key elements of our existing electronics waste (E-waste) law as templates for future deliberation. In brief, the basic premise is that the management of products that are disposable and exhibit hazardous characteristic(s) by design and manufacture

is not a core function of local government, but should be shared by the producers and consumers and government, with the preponderance of responsibility borne by the producers.

In broad terms, products would be chosen using criteria that looks at their volume, complexity, and characteristics. Complexity refers to the relative ease or difficulty by which the product may be managed through the traditional recycling/resource recovery system.

There would be clear policy goals, guiding principles, definitions, clear roles and responsibilities, governance, products and product categories covered, program effectiveness and measurement. These are the key elements that reflect Maine's E-waste law.

Whichever system we design for the future, the goal is to respond quickly to new products or changes to current products that affect their impact on the environment; identifying them on their way into the market, before they enter the waste stream.

The steps to go beyond 50% could result in the following:

1. Although waste prevention will remain a challenge, as so little of what Mainers consume is produced here, the state will join with other jurisdictions in the region and across the nation to put in place extended producer responsibility programs, using sales bans and mandatory producer recycling efforts and encouraging sustainable purchasing by the retail markets. The reduction and elimination of toxic and complex products will remain the number one priority.

2. There will be on-going public relations and education campaigns across media and in all markets utilizing as many channels as practical with several specific annual elements (for example, Maine Recycles Week, and the yearly best of all media high school and college contests), coordinated through a campus media project and paid for though private sponsorship. The sustained high level of public awareness campaigns may lead to Maine produced ads and advertising agencies finding their way into the national marketplace.

3. There would be a significant increase in recycling volume and participation after the statewide ban on the disposal of all materials for which there was an established, proven market demand; eventually including all fiber products, 1-7 plastics, metals, and glass. Despite some predictable market fluctuations, additional gains would be realized when it becomes the accepted practice for municipalities to extend public recycling services to all commercial entities. With quality assurance practices in place, collection and processing systems such as single stream would be widespread.

4. Market demand and prices for recycled commodities in the long term will remain stable. The overseas markets will mature, as they produce more of their own recycled commodities, but rising standards of living across the globe and the high cost of energy and the relatively low cost and energy efficient nature of recycled resources over virgin extraction will keep them attractive to the market.

5. Local governments' role in MSW management will remain essential as they are encouraged to join into regional entities, a process may lead to the development of several regional waste-to-resources master plans.

6. Although the state will not find it necessary to impose a full ban on the disposal of all organics, local programs will be given incentives and encouraged through grants and aid to pursue the separation and collection of organics, including the full utilization of existing facilities and the development of a system of public and private composting facilities within all major service center areas. Thus, communities that contract for collection service will be rewarded if they included organics collection provisions to homes and commercial establishments in their contracts.

7. There would certainly be effects on and to the state's recycling and disposal capacity. As local recycling programs grow in volume, they will need to choose between expansion of local collection and processing capacity through their own capital investment, and combining with or into larger regional efforts. Among the outcomes would be to extend the life of the state's existing land disposal capacity.

D. Waste and Greenhouse Gases

Addressing waste generation and its impact on disposal capacity and toxicity of waste is only part of an effort to move beyond 50%. To truly move from a waste to resource, we must also look at larger environmental issues such as climate change related to greenhouse gas emissions.

To move beyond 50%, the state of Maine could establish an emissions goal for all waste management facilities:

- through an expanded hierarchy;
- directed by a state solid waste greenhouse gas initiative;
- to take into account energy and emissions using the improved life cycle analysis WARM (model) or the best available technology;

Performance standards for all recycling and waste facilities would be developed so that those facilities may be issued a greenhouse gas initiative rating. The performance measure will encourage collection and transportation efficiencies to reduce to the greatest extent practical the energy required to collect and transport Maine's MSW and the emissions from our facilities.

Common Threads

Maine's solid waste program managers will make their own plans for the future. They may choose to use all or parts of the scenarios outlined in the plan or something else entirely. But there are some common threads that ought to be included as essential parts in any effort from the smallest local program to statewide initiatives.

1. **Waste prevention remains the top priority**. It is the goal of the state to take advantage of every available means to change practices at the source of production through state, local, and regional projects, using all levels of technical and financial assistance, voluntary agreements, and legislative action to reduce the amount of solid waste we produce.

2. **It is the goal of the state to maintain and promote recycling as Maine's preferred solid waste management method.** Recycling is cost-effective and we should actively seek ways to increase recycling tonnage. It will extend the life of existing land disposal facilities and lower health and environmental risks.

3. **It is the goal of the state to continue to make every effort to remove toxics from our MSW stream**. As its has with mercury products, CRTs, and now cell phones, we must continue to find and extract those toxic products from the waste stream and assign appropriate responsibility for their sound and sustainable management. We must find and continue support for household hazardous waste collection and look to find ways to include remedies for very small quantity commercial generators of similar waste types and amounts.

4. **It is the goal of the state to include greenhouse gas emissions reduction, energy self-reliance, and energy conservation** in our present operations and future waste management plans. We should develop measurement and reporting tools so that all parts of our system are aware of the effects and consequences of their operations. This could mean using the EPA WARM system, available life cycle analysis, or any improvement upon those systems.

5. **It is the goal of the state to promote personal responsibility**. If we produce waste, our responsibility does not end at the curb. We are responsible for it as long as it remains waste. In effect, it stays in our custody.

Conclusion: We Have a Choice

Maine is at a crossroads. After 20 years, we have achieved laudable results. We have dramatically reduced the environmental risks posed by our disposal facilities. We have a waste management system that effectively handles the waste we generate. Guided by ambitious goals, with minimal incentives, municipalities and businesses voluntarily recycle a third of Maine's waste stream. We can continue with minimal investment to maintain an effective and respectable system. Or we can go beyond that. We can change the way we view waste. We can enact more aggressive waste management policies. We can make new investments. We can adopt more rigorous standards and regulations. It's a matter for policy makers to choose.

Appendix A: Statutory References for the Plan

These chapters are edited for relevancy to the purposes of this section.

Title 38: Chapter 13: Subchapter 1-A: Article 3: §1310-N. Solid waste facility licenses

1. Licenses. The department shall issue a license for a waste facility whenever it finds that:

C. In the case of a disposal facility or a solid waste processing facility that generates residue requiring disposal, the volume of the waste and the risks related to its handling and disposal have been reduced to the maximum practical extent by recycling and source reduction prior to disposal.

3. Public benefit determination.

5. Recycling and source reduction determination.

5-A. Recycling and source reduction determination. The requirements of this subsection apply to solid waste disposal facilities and to solid waste processing facilities that generate residue requiring disposal.

A. An applicant for a new or expanded solid waste disposal facility shall demonstrate that:

(1) The proposed solid waste disposal facility will accept solid waste that is subject to recycling and source reduction programs, voluntary or otherwise, at least as effective as those imposed by this chapter and other provisions of state law. The department shall attach this requirement as a standard condition to the license of a solid waste disposal facility governing the future acceptance of solid waste at the proposed facility; and

(2) The applicant has shown consistency with the recycling provisions of the state plan.

B. The provisions of this paragraph apply to solid waste processing facilities that generate residue requiring disposal.

(2) A solid waste processing facility that generates residue requiring disposal shall recycle or process into fuel for combustion all waste accepted at the facility to the maximum extent practicable, but in no case at a rate less than 50%. For purposes of this subsection, "recycle" includes, but is not limited to, reuse of waste as shaping, grading or alternative daily cover materials at landfills; aggregate material in construction; and boiler fuel substitutes.

(3) A solid waste processing facility subject to this paragraph shall demonstrate consistency with the recycling provisions of the state plan.

Title 38: Chapter 13: Subchapter 1-A: Article 3: §1310-AA. Public benefit determination

1-A. Public benefit determination for acceptance by publicly owned solid waste landfills of waste generated out of state. Prior to accepting waste that is not generated within the State, a solid waste facility that is subject to this subsection shall apply to the commissioner for a determination of whether the acceptance of the waste provides a substantial public benefit.

2. Process. … In making the determination of whether the facility under subsection 1 or the acceptance of waste that is not generated within the State under subsection 1-A provides a substantial public benefit, the commissioner shall consider the state plan,……..

3. Standards for determination. The commissioner shall find that the proposed facility under subsection 1 or the acceptance of waste that is not generated within the State under subsection 1-A provides a substantial public benefit if the applicant demonstrates to the commissioner that the proposed facility or the acceptance of waste that is not generated within the State:

A. Meets immediate, short-term or long-term capacity needs of the State;

B. Except for expansion of a commercial solid waste disposal facility that accepts only special waste for landfilling, is consistent with the state waste management and recycling plan;
C. Is not inconsistent with local, regional or state waste collection, storage, transportation, processing or disposal;

The following statutes also have bearing on the purposes of this section:

Title 38: Chapter 24: Subchapter 1: §2101. Solid waste management hierarchy
1. Priorities. It is the policy of the State to plan for and implement an integrated approach to solid waste management for solid waste generated in this State and solid waste imported into this State, which must be based on the following order of priority:
A. Reduction of waste generated at the source, including both amount and toxicity of the waste;
B. Reuse of waste;
C. Recycling of waste;
D. Composting of biodegradable waste;
E. Waste processing that reduces the volume of waste needing land disposal, including incineration; and
F. Land disposal of waste.
It is the policy of the State to use the order of priority in this subsection as a guiding principle in making decisions related to solid waste management.

2. Waste reduction and diversion. It is the policy of the State to actively promote and encourage waste reduction measures from all sources and maximize waste diversion efforts by encouraging new and expanded uses of solid waste generated in this State as a resource.

Title 38: Chapter 24: Subchapter 3: §2132. State goals
1. State recycling goal. It is the goal of the State to recycle or compost, by January 1, 2009, 50% of the municipal solid waste tonnage generated each year within the State.

1-A. State waste reduction goal. It is the goal of the State to reduce the biennial generation of municipal solid waste tonnage by 5% by January 1, 2009 and by an additional 5% every subsequent 2 years. This reduction in solid waste tonnage, after January 1, 2009, is a biennial goal. The baseline for calculating this reduction is the 2003 solid waste generation data gathered by the office.

Title 38 MRSA §2122. State waste management and recycling plan
The office shall prepare an analysis of, and a plan for, the management, reduction and recycling of solid waste for the State. The plan must be based on the priorities and recycling goals established in sections 2101 and 2132. The plan must provide guidance and direction to municipalities in planning and implementing waste management and recycling programs at the state, regional and local levels.

1. Consultation. In developing the state plan, the office shall consult with the department. The office shall solicit public input and may hold hearings in different regions of the State.

2. Revisions. The office shall revise the analysis by January 1, 1998 and every 5 years after that time to incorporate changes in waste generation trends, changes in waste recycling and disposal technologies, development of new waste generating activities and other factors affecting solid waste management as the office finds appropriate.

§2123-A. State plan contents

The state plan includes the following elements.

1. Waste characterization. The state plan must be based on a comprehensive analysis of solid waste generated, recycled and disposed of in the State. Data collected must include, but not be limited to, the source, type and amount of waste currently generated; and the costs and types of waste management employed including recycling, composting, landspreading, incineration or landfilling.

2. Waste reduction and recycling assessment. The state plan must include an assessment of the extent to which waste generation could be reduced at the source and the extent to which recycling can be increased.

3. Determination of existing and potential disposal capacity. The state plan must identify existing solid waste disposal and management capacity within the State and the potential for expansion of that capacity.

4. Projected demand for capacity. The state plan must identify the need in the State for current and future solid waste disposal capacity by type of solid waste, including identification of need over the next 5-year, 10-year and 20-year periods.

§2124. Reports

The office shall submit the plan and subsequent revisions to the Governor, the department and the joint standing committee of the Legislature having jurisdiction over natural resource matters.

Appendix B: Municipal Cost of Solid Waste Management: Contrasting Profiles

The communities of Hartford, ME (pop. 963) and Portland (pop. 64,249) offer two very different perspectives on the costs of managing solid waste.[37]

Town of Hartford

- Contracts for curbside MSW and recyclable collection
- Operates small bulky waste transfer station
- MSW Disposal at Crossroads Landfill at $70.50/ton
- Expenses paid from tax revenue

The Town of Hartford, with a population of 963 and 364 year-round housing units, contracts with Archie's, a local trash collection firm, for curbside municipal solid waste collection that is disposed of at Waste Management's Crossroads Landfill. Recyclables are also collected curbside by Archies. Hartford pays a disposal tip fee of $70.50/ton. Hartford has 206 seasonal housing units, and a large summer population. Hartford operates a small transfer station for construction/demolition debris, large bulky items, and metal appliances. In 2005, Hartford disposed of 380.63 tons of municipal solid waste, which is equivalent to 790.6 pounds per person, and recycled 115.71 tons of municipal solid waste, which was equivalent to 240.4 pounds per person.

As shown in the chart below, Hartford spent a total of $58,050, or $60.28 per person:

Personnel	$1,200
Curbside MSW Collection	$25,920
MSW Disposal Fee	$26,155
Recycling	$1,000
Bulky	$3,775
Total:	$58,050

City of Portland

- Provides full service recycling, MSW and bulky waste disposal
- Municipal employees collect residential MSW and recyclables curbside
- Residents "pay-by-the-bag" (PAYT) for solid waste removal
- City operates Riverside bulky waste processing facility
- MSW Disposal at Ecomaine $88/ton + additional financial assessments
- Expenses paid by tax revenue and from the PAYT fees and bulky waste fees

[37] Information presented in these profiles is based upon the annual solid waste management reports submitted to the State Planning Office

The City of Portland, with a population of 64,249 and 29,714 year round housing units, has its public works employees provide curbside pick-up of MSW and recyclables. Portland has a 'pay by the bag' trash collection program, where residents are charged $.95 for a 30-gallon bag of trash and $.47 for a 15-gallon bag of trash. Portland has a crew of 20 in solid waste and recycling collection and operates six recycling trucks, four solid waste trucks, and one roll-off truck. Portland services single-dwelling homes and apartment buildings with up to nine units. Portland is a member of *ecomaine*, formerly Regional Waste Systems, where its MSW is incinerated and recyclables processed.

Portland residents have the option of curbside recycling pick-up, or drop-off at 14 recycling roll-off containers placed around the city.

Portland contracts with Commercial Paving and Recycling Company to operate the Riverside Bulky Processing Facility. This facility is open to Portland residents and businesses, as well as surrounding municipalities. Residents and businesses in Portland account for about one-half of the material received at Riverside. The Riverside facility is staffed by four Portland employees and 8-10 Commercial Paving and Recycling Company employees. Portland residents receive an annual punch-pass for their use of the facility. Businesses and commercial waste operators are charged a fee for using Riverside

In 2005, the single-family dwellings and qualified apartment building residents generated 12,249 tons of municipal solid waste, or about 381.2 pounds per person. The city collected 5,018 tons of recyclables, and *ecomaine* recycled 151 tons of metal for a total of 5,169 tons, or 161 pounds per person. About two-fifths of Portland's solid waste and recycling program is paid through fees collected, and three-fifths from tax revenue.

As shown in the chart below, Portland spent $5,351,834, or $83.30 per person, though not all residents qualified to receive the solid waste services provided by the city:

Personnel	$779,954
Equipment Purchase	$160,000
Equipment maintenance	$101,320
Spring Clean-Up	$100,000
MSW Disposal	$1,110,560
ecomaine Assessment	$1,100,000
Riverside Facility	$2,000,000
Total:	$5,351,834

These two examples highlight the complexity in cost and other points of comparisons between the over three hundred municipal programs and operating systems.

APPENDIX C

BLANKET WASTE PERMITS/
INDIVIDUAL WASTE PERMIT LIST BY GENERATOR

APPENDIX C

JUNIPER RIDGE LANDFILL
ACTIVE LIST OF GENERATOR PERMITS

Generator Name	Waste Description	MEDEP License #
Bangor Hydro Electric Co.	Dielectric oil contam. Soil	S-10396-WU-GO-N
Bangor Hydro Electric Co.	Contam. soil (treated wood)	S-10396-WU-GN-N
Bangor, City of	WWTP dewatered sludge	S-10396-WU-FJ-N
Cianbro Corporation	Sandblast grit	S-010396-7D-BO-N
Clean Harbors	Mixed oily sludge	S-010396-WU-DM-N
General Electric Company	EDM Sludge	S-10396-WU-IV-N
General Electric Company	Sandblast grit	S-010396-7D-BS-N
General Electric Company	Grinding/polishing/sandblasting grit	S-010396-WU-ID-N
Greenville Steam Company	Wood boiler ash	L-010396-07-AP-M
Jackson Laboratory	Biological incinerator ash	S-010396-WU-DA-N
Lincoln Paper & Tissue	Assorted paper mill wastes	S-10396-WU-GV-N
Lincoln Paper & Tissue	Lime mud and slaker grit	S-010396-WU-DW-N
Lincoln Paper & Tissue	Oil cleanup debris	S-010396-07-BA-M
Lincoln Paper & Tissue	Biomass boiler flyash	S-010396-WU-DG-N
Lincoln Paper & Tissue	Bottom/flyash from TDF	S-10396-WU-DT-M
Lincoln Paper & Tissue	Sandblast grit w/paint	L-010396-07-AI-M
Lincoln Paper & Tissue	C&D contam. w/sodium sulfite	S-10396WU-GQ-M
Maine Turnpike Authority	Spent blast grit	S-10396-WU-EK-N
Montreal, Maine Railway	Sandblast grit	S-10396-WU-GL-M
Montreal, Maine Railway	Sandblast grit	S-010396-7D-CD-N
Montreal, Maine Railway	Grease and sludge	S-10396-WU-GM-M
Montreal, Maine Railway	Grease and sludge	S-010396-7D-CG-N
Prime (Irving) Tanning Company	Chrome-tanned leather wastes	S-001987-WD-BM-M
Ultrapower, Enfield	Wood boiler ash	L-010396-07-AM-M
Ultrapower, Jonesboro	Wood boiler ash	L-010396-07-AO-M
Ultrapower, Jonesboro	Sludge	L-010396-07-AR-M
Unifirst Corporation – Bangor	Laundry sludge	S-010396-WU-DV-N
Unifirst Corporation – Portland	Laundry sludge	S-10396WU-EQ-M
University of Maine - Orono	Boiler/stack soot	S-010396-WU-CY-N

APPENDIX D

PROPERTY DEED

Exhibit A

Parcel Description

Four parcels located at **Old Town, Penobscot County, Maine,** and described as follows (individually referred to as "Parcel" and collectively referred to as "Parcels"):

PARCEL ONE: A certain parcel of land with any buildings thereon, situated on the northeast side of Route 43, 3.4 + miles west of the intersection of Route 43 and Route 95, in the city of Old Town, County of Penobscot, State of Maine and being more particularly described as follows:

1) BEGINNING at a 3/4 inch rebar located on the northeast side of Route 43, at the northwest corner of land now or formerly of Scott E. Bergquist as described in deed recorded at the Penobscot County Registry of Deeds in Book 3608, Page 247. Said rebar is also located at the southwest corner of the "Cadorette Parcel" as shown on plan entitled "Perkins & Cadorette Parcels, Standard Boundary Survey (with exceptions)" by Squaw Bay Corp. of Cumberland, Maine, June, 1995, Ronald M. Carpentier, PLS #2042, recorded at the Penobscot County Registry of Deeds, Plan Book D46-95, to which reference is hereby made;

2) THENCE South 82° 12' 30" East, 1445.38 feet along the land of said Bergquist to a cedar post and the land now or formerly of James River Paper Company, Inc. as described in the deed recorded at the Penobscot County Registry of Deeds in Book 4870, Page 200;

3) THENCE North 4° 27' 20" East, 809.31 feet along the land of said James River Paper Company, Inc. to a point;

4) THENCE North 5° 59' 05" East, 15.69 feet along the land of said James River Paper Company, Inc. to a 5/8 inch rebar with plastic survey cap marked "RMC NO. 2042" and the land now or formerly of Alfred Perkins and Florine Perkins as described in the deed recorded at the Penobscot County Registry of Deeds in Book 1448, Page 22;

5) THENCE North 82° 46' 26" West, 2014.87 feet along the land of said Perkins to a 5/8 inch rebar with plastic survey cap marked "RMC NO. 2042" and the sideline of Route 43;

6) THENCE South 29° 43' 31" East, 1013.29 feet along Route 43 to a 3/4 inch rebar and point of beginning.

The above-described parcel contains 32.4 acres.

Being the same premises described in a Warranty Deed given by Francis R. Cadorette and Rhonda B. Cadorette to James River Paper Company, Inc., dated June 13, 1995, and recorded in said Registry in Book 5878, Page 272.

PARCEL TWO: A certain parcel of land with any buildings thereon situated on the northeast side of Route 43, 3.4+ miles west of the intersection of Route 43 and Route 95, in the City of Old Town, County of Penobscot, State of Maine, and being more particularly described as follows:

COMMENCING at a 5/8 inch rebar with survey cap marked "RMC NO. 2042" located at the intersection of the northeast sideline of Route 43, and the southerly boundary line of land now or formerly of Alfred Perkins and Florine Perkins as described in deed recorded at the Penobscot County Registry of Deeds in Book 1448, Page 22. Said rebar is also located at the northwest corner of the "Cadorette Parcel" as shown on plan entitled "Perkins & Cadorette Parcels, Standard Boundary Survey (with exceptions)" by Squaw Bay Corp. of Cumberland, Maine, June, 1995, Ronald M. Carpentier, PLS #2042. to be recorded at the Penobscot County Registry of Deeds to which reference is hereby made. Thence South 82° 46' 26" East, 1485.52 feet along the Cadorette parcel to the point of Beginning.

1) THENCE from the Point of Beginning South 82°46'26" East, 529.45 feet along the Cadorette Parcel to a 5/8 inch rebar with plastic survey cap marked "RMC NO. 2042" and the land now or formerly of James River Paper Company, Inc., as described in the deed recorded at the Penobscot County Registry of Deeds in Book 4870, Page 200;

2) THENCE North 5° 59' 05" East, 828.72 feet along the land of said James River Paper Company, Inc. to a cedar post and the land of Alfred J. Meister as described in the deed recorded at the Penobscot County Registry of Deeds in Book 3738, Page 197;

3) THENCE North 84° 06' 52" West, 529.33 feet along the land of said Meister to a 5/8 inch rebar with plastic survey cap marked "RMC NO. 2042" and the land now or formerly of said Perkins;

4) THENCE South 5° 59' 05" West, 816.33 feet along the land of said Perkins to a 5/8 inch rebar with plastic survey cap marked "RMC NO. 2042" and the Point of Beginning.

The above-described parcel contains 10 acres.

Being the same premises described in a Warranty Deed given by Alfred K. Perkins and Florine J. Perkins to James River Paper Company, Inc. dated June 13, 1995, and recorded in said Registry of Deeds in Book 5878, Page 278.

PARCEL THREE: Lots 1 through 9 and 14 through 22, inclusive, as shown on the survey "Tyron Tree Farm" dated February 23, 1988, recorded in the Penobscot County Registry of Deeds in Plan file C26-88, together with a strip of land fifty (50) feet wide leading from Bennoch Road to the northerly line of Lot 11 on said plan, which strip was conveyed to Patten Corporation – Downeast by deed of Lyman B. Feero and Rosalita Feero, dated June 4, 1988, and recorded in said Registry in Book 4244, Page 5, and together with a right of way for all purposes over the roads fifty (50) feet wide, the centerlines of which are shown on said plan, leading from the northerly line of Lot 11 to the lots hereby conveyed. This right of way includes, but is not limited to, the right to install, use, maintain, repair and replace utility lines, poles and cables.

Together with all right, title and interest in and to that portion of the discontinued roadway lying northerly of the above described Parcel Three and southerly of the Town of Alton southerly line.

Being the same premises described in a Warranty Deed given by James River Corporation to James River Paper Company, Inc. dated July 10, 1991, and recorded in said Registry in Book 4870, Page 200.

Exceptions

The Parcels are conveyed subject to the following exceptions:

ALL PARCELS:

1. State of Maine, Department of Environmental Protection, Site Location Findings of Fact and Order, dated August 24, 1995, and recorded in the Penobscot County Registry of Deeds in Book 5939, Page 147.

2. Declarations of Covenants and Restrictions by James River Paper Company, Inc., dated December 20, 1993, recorded in said Registry in Book 5518, Page 67; Corrected Declaration of Covenants and Restrictions, dated January 20, 1994, recorded in said Registry in Book 5549, Page 162; and Amendment to Declaration of Covenants and Restrictions, dated November 30, 1995, recorded in said Registry in Book 6044, Page 118.

PARCELS ONE AND TWO ONLY:

1. Such state of facts as shown on the plan entitled "Cadorette House Lots, Route 43, Old Town, Maine," prepared by Squaw Bay Corp., dated June 1995, and recorded in said Registry in Plan 1996-59.

2. Such statement of facts as shown on the plan entitled "Perkins & Cadorette Parcels, Route 43, Old Town, Maine," prepared by Squaw Bay Corp., dated June 1995, recorded in said Registry in Plan D46-95.

PARCEL THREE ONLY:

1. Rights of way acquired by the University of Maine System by deeds dated July 27, 1989, and recorded in said Registry in Book 4490, Page 322 and Book 4490, Page 325.

2. Restrictions and conditions set forth in the deed from Pattern Corporation to James River Corporation recorded in said Registry in Book 4654, Page 310.

3. Rights of way reserved in the deed form Camillis G. Kidder to Napoleon Parady, dated January 10, 1910, and recorded in said Registry in Book 750, Page 407.

4. Order of the Grantee of Maine, Department of Environmental Protection, dated October 3, 1988, recorded in said Registry in Book 4345, Page 19.

5. Such statement of facts, including easements and rights of way, as shown on the plan entitled "Tryon Tree Farm, Patten Corporation-Downeast," prepared by Raymond S. Silsby, dated February 23, 1988, and recorded in said Registry in C26-88.

NOTICE OF SOLID WASTE DISPOSAL FACILITY

Pursuant to Maine Department of Environmental Protection Solid Waste Management Regulation, Chapter 400 Appendix C.11, Grantor provides the following notice:

The Premises contains an active secure solid waste disposal facility (the "Facility"). The Facility was licensed by the Maine Board of Environmental Protection on July 28, 1993. The Facility began operations on December 2, 1996. The Facility is 68 acres and is located southern quadrant of Parcel Three of the Premises. The following non-hazardous wastes have been placed in the Facility to a maximum depth of approximately 30 feet:

- pulp and papermill wastewater treatment plant sludge,
- lime wastes and grit,
- woodwastes and inert debris,
- small quantities of soil and sawdust contaminated with process chemicals that are non-hazardous,
- virgin oily contaminated debris,
- soil rags, oil filters, absorbent materials, crushed grease drums and waste grease,
- sand from sand filters,

- non-hazardous sand from sand blasting,
- multifuel fly ash and bottom ash from the Lincoln Pulp and Papermills, and
- wood ash from the City of Old Town

ORIGINAL IN VAULT
1-14-08
CRPALMER

Bk 11256 Pg330 #578
01-08-2008 @ 03:39p

QUITCLAIM DEED
With Right of First Refusal

THE STATE OF MAINE, acting by and through its State Planning Office, with a mailing address of 38 State House Station, Augusta, Maine, 04333, for consideration, the receipt and sufficiency of which is hereby acknowledged, **RELEASES** to **UNITED CEREBRAL PALSY of NORTHEASTERN MAINE**, a nonprofit corporation having a place of business at Evergreen Woods, 700 Mount Hope Ave. Suite 320, Bangor, Maine 04401, pursuant to Resolves 2007, ch.117, sec. 1.

THAT CERTAIN LOT OR PARCEL OF LAND, TOGETHER WITH ALL IMPROVEMENTS THEREON, situated in the town of Old Town, County of Penobscot, State of Maine, bounded and described in Schedule A, attached hereto and incorporated herein (the Premises).

As a part of the consideration paid for the deed from Grantor to Grantee, the Grantee, its successors and assigns, do hereby grant a Right of First Refusal to purchase the Premises as described on Schedule A, attached hereto and incorporated herein, upon the following terms and conditions, to wit:

1. The Grantee agrees that no transfer or sale of the Premises or any interest therein to any third party will occur without first offering to sell the Premises to the Grantor for a price (hereinafter the "Offering Price") to be determined under the provisions of this Agreement.

2. At such time as Grantee receives a binding bona fide offer to purchase or acquire in any manner or means the Premises or any portion thereof or interest therein, which such offer Grantee has accepted, Grantee shall offer to sell the same to the Grantor upon the same terms and conditions.

3. Any offer made by the Grantee to the Grantor pursuant to this Agreement shall be carried out in accordance with the following procedures:

A. The Grantee shall provide to the Grantor: 1) written notice stating its intent to sell the Premises (hereinafter "Notice"); and 2) a true, correct and complete copy of the binding bona fide third party offer to purchase the Premises.
B. Upon receipt of Notice, the Grantor shall have (60) days to notify the Grantee in writing of Grantor's election to either purchase the Premises in accordance with the provisions of Paragraph 3.A, or to decline to purchase the Premises.

4. Nothing in this agreement shall be construed to prevent the Grantee from notifying the Grantor directly of Grantee's interest in transferring of the Premises to the Grantor, without the existence of any third party offer to purchase the Premises. If offered to the Grantor pursuant to this Paragraph 4, the purchase price shall be determined by an appraisal of the Premises to be conducted by an appraiser jointly selected by the Grantor and Grantee and to be paid for by the parties. The appraisal shall be completed within sixty (60) days of the date of determination of the appraiser by both parties and a copy thereof shall be provided by the appraiser to both parties within seven (7) days of completion. Upon receipt of the appraisal, Grantor and Grantee shall have thirty (30) days to accept the appraised value of the Premises as the purchase price or to otherwise mutually agree upon a purchase price. If either Grantor or Grantee do not accept the

5

appraised value of the Premises as the purchase price, Grantor shall not be obligated to purchase the Premises pursuant to this Paragraph.

5. In the event that the Grantor elects to purchase the Premises, the deed shall be delivered and the consideration paid at the offices of the Grantor in Augusta, Maine at 9 o'clock a.m. on or before the 45th day after the date of mailing of notice of election to purchase by the Grantor to the Grantee or, if a Saturday, Sunday or holiday, on the next business day thereafter, and the deed shall convey a good and clear record and merchantable title to the Premises free of all encumbrances, and the Premises shall be in the same condition as it was at the time of the acceptance of such offer and as otherwise, reasonable wear and tear and use thereof excepted. The date, time and place of the closing may be amended by written mutual agreement of the parties.

6. The Grantee may sell the Premises to the third party purchaser who has made the binding bona fide offer referred to in Paragraph 3 above (hereinafter "the Purchaser"), only in the event that the Grantor declines to match the third party purchaser's binding offer. Any transfer to the third party purchaser shall be in accordance with the terms of the binding bona fide offer.

7. Any notices required by this Agreement shall be in writing and shall be deemed delivered upon receipt if delivered in hand or mailed, postage prepaid by certified mail, or by any commercially available carrier or entity that requires a signed and dated receipt upon delivery, addressed as follows:

Grantor: State of Maine
State Planning Office
38 State House Station
Augusta, Maine, 04333
Attn: Director

Grantee: United Cerebral Palsy of Northeastern Maine
Evergreen Woods
700 Mount Hope Ave. Suite 320
Bangor, Maine 04401
Attn: Executive Director

or at such other address as to which either party has provided notice to the other in accordance with this Agreement.

IN WITNESS WHEREOF, the STATE OF MAINE has caused the forgoing instrument to be executed this 11th day of December, 2007.

STATE OF MAINE
State Planning Office

WITNESS

By: Martha E. Freeman
Martha E. Freeman
Its Director

STATE OF MAINE
Kennebec County, ss.

Date: December 11, 2007

Then personally appeared the above-named MARTHA E. FREEMAN and acknowledged the foregoing to be her free act and deed in her said capacity and the free act and deed of the State of Maine.

Before me,

Linda C. LaPlante

Print Name: Linda C. LaPlante
Notary Public/Attorney at Law
My Commission Expires: _____
Seal

LINDA C. LAPLANTE
Notary Public, Maine
My Commission Expires September 13, 2009

CONTINUED NEXT PAGE

SEAL

BY ACCEPTANCE OF THIS DEED, the Grantee accepts the above covenants, restrictions, and terms of said Quitclaim Deed with Right of First Refusal, and said covenants, restrictions and Right of First Refusal shall be binding upon the Grantee, its successors and assigns.

UNITED CEREBRAL PALSY
OF NORTHEASTERN MAINE

WITNESS

By: Bobbi Jo Yeager
Print Name: Bobbi Jo Yeager
Its: Executive Director

STATE OF MAINE
Penobscot, ss.

Date: 12/12/07

Then personally appeared the above-named Bobbi Jo Yeager and acknowledged the foregoing to be his/her free act and deed in his/her said capacity and the free act and deed of United Cerebral Palsy of Northeastern Maine.

Before me,

Debra S. Caswell
Print Name: Debra S Caswell
Notary Public/Attorney at Law
My Commission Expires: 5-18-2013
Seal

SEAL

SCHEDULE A

A certain lot or parcel of land with buildings and other improvements thereon, situate in the City of Old Town, County of Penobscot, State of Maine, being generally located on the northeasterly side of Route 43, so called, approximately 1.85 miles from the point where said Route 43 is intersected by the centerline of Interstate Route 95, so called, more particularly bounded and described as follows:

beginning at an iron rebar marked #2042 found in 2007 on the said northeasterly sideline of Route 43 at the northwesterly corner of PARCEL ONE described in a deed from Fort James Operating Company to The State of Maine, acting by and through its Executive Department, State Planning Office recorded at the Penobscot County Registry of Deeds in Volume 9188, Page 152, being also the southwesterly corner of land described in a deed to Alfred & Florine Perkins recorded at said registry in Vol. 1448, Page 22;

thence by and along said sideline of Route 43, S 48° 02' 10" E, a distance of 592.3 feet to a ¾" iron rebar with plastic cap marked PLS 1211 set in 2007;

thence, N 59° 15' 20" E, a distance of 490.3 feet to another ¾" iron rebar with plastic cap similarly marked set in 2007;

thence, N 48° 05' 00" W, a distance of 386.5 feet to another ¾" iron rebar similarly marked set in 2007 on the northerly line of said parcel described as PARCEL ONE in Vol. 9188, Page 152;

thence by and along the northerly line of said PARCEL ONE, being also along the southerly line of said Perkins, S 78° 53' 10"W, 585.2 feet to the point of beginning.

The above-described parcel encompasses 5.26 acres and is a portion of the premises described in said deed from Fort James Operating Company to the State of Maine recorded in Vol. 9188, Page 188.

Bearings referenced herein are oriented to grid north determined by GPS means during a survey in 2007 conducted by Plisga & Day, Land Surveyors, Bangor, Maine.

Also including in this conveyance any land held by the grantor existing between the southwesterly line of the above-described parcel and the centerline of said Route 43 where the sidelines are extended on the same bearings.

Maine Real Estate
Transfer Tax Paid

PENOBSCOT COUNTY, MAINE
Susan F. Bulay
Register of Deeds